



Trusted
ePlatform
Services

Product Catalog 2007 - 2008

eAutomation Solutions

Open eAutomation, Boundless Integration

- Automation Controllers & Software
- Distributed I/O Modules
- Open HMI Platforms
- Industrial I/O
- Industrial Communication
- Industrial Computers

ADVANTECH

eAutomation

www.advantech.com/eA

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About Advantech

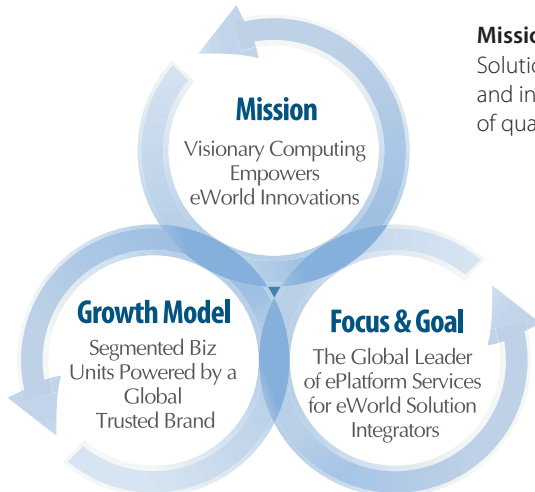


Trusted ePlatform Services

Advantech, the leading ePlatform service provider, has been an innovator in the development of a wide variety of ePlatform services and products since 1983. We not only provide effective product solutions, but also offer a trustworthy partnership that you can count on for years to come.

Good to Great 3-Circle Principle

Based on the book written by Jim Collins, "Good to Great", Advantech closely follows the three principal ideas dictated in the book: mission, growth model and focus & goal.



Mission : Visionary Computing Empowers eWorld Innovations

Solution integrators all over the world are constantly developing new applications and innovative products. Advantech ePlatform services create a broad spectrum of quality products and services that are suitable for a wide range of applications.

Focus & Goal: The Global Leader of ePlatform Services for eWorld Solution Integrators

By positioning itself as an "ePlatform Service Provider", Advantech has and will continue to make a name for itself as the world's leading brand in Embedded Computing, applied Computing, Industrial & Network Computing and eAutomation. Allied with our partners, we offer a variety of products for different vertical markets, such as environment and facility monitoring, network communications, Internet security, POS/POI, e-factory/automation, medical and home automation.

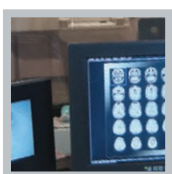
Growth Model: Segmented Business Units Powered by a Global Trusted Brand

Backed by four business units, Embedded Computing, Applied Computing, Industrial & Network Computing, and eAutomation, Advantech satisfies each and every customer's unique needs with a comprehensive coverage of the IPC market.

Products & Services

ePlatform

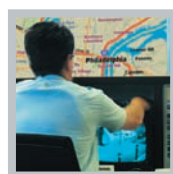
Advantech has been at the forefront of the PC-based platform market for more than twenty years, driving dynamic applications, fostering innovation and meeting ePlatform development needs. Our industrial grade reliability, long product life cycles and localized customization services are all adapted to closely meet customers' needs. Advantech ePlatform services offer business advantages with faster time-to-market response, high quality products, global logistics, service and manufacturing support. Advantech provides cost effective solutions and a stream of embedded CPU and system platforms to eWorld system integrators.



Embedded & Applied Computing



Industrial & Network Computing



eVideo Solutions



eAutomation

eAutomation

The eAutomation Group is a pioneer in eAutomation technology; combining connectivity, flexibility and ruggedness with today's most reliable PC-based automation, including: Programmable Automation Controllers (PAC), M2M (Machine to Machine), and Fieldbus Communications. Beyond our technical expertise, we also provide our customers with the integration and support services they need, making us one of the most trusted and reliable Industrial Component Providers in the world.



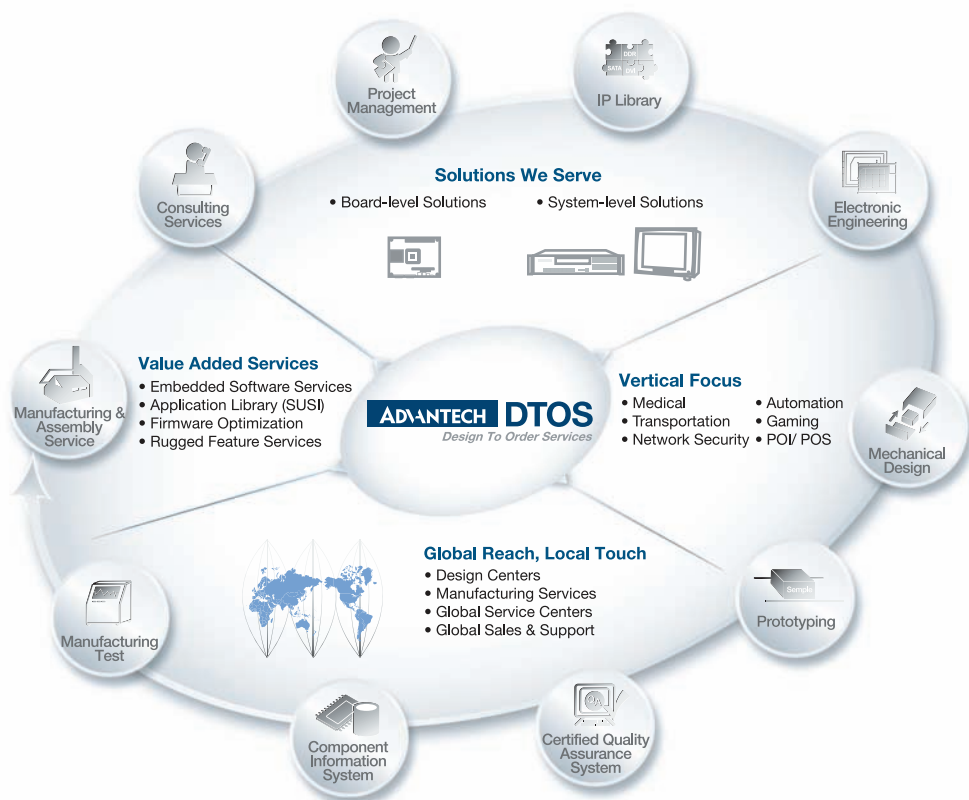
Environmental Compliance

As a resident of the global village, Advantech understands the importance of preserving. Our environmental program focuses on reusing and recycling materials used at manufacturing operations. Advantech's environmental compliance the following :

- ISO14001 Certification
- OHSAS18001 Certification
- RoHS Directive Compliance
- WEEE Directive Compliance
- Authorized SONY Green Partner

The Era of Customization

With increasing customer demand for flexible designs and tailor-made manufacturing services, Advantech's Design-To-Order-Services (DTOS) and Configure-To-Order-Services (CTOS) are putting Advantech ahead of the competition. With localized support provided by regional service centers in Europe, the US, Asia and China, combined with online support, Advantech delivers seamless and cost saving services that meet stringent customization requirements.

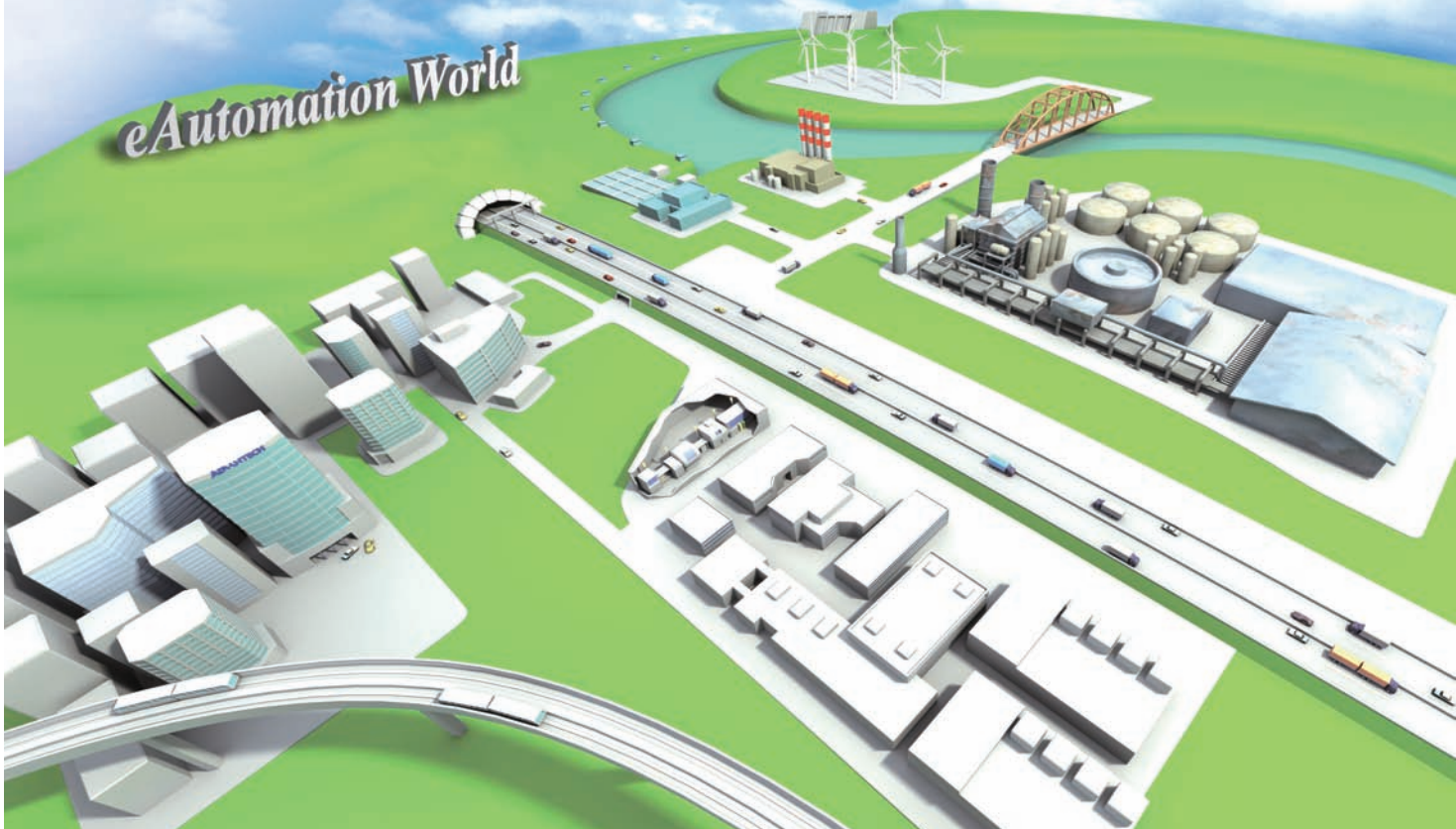


About eAutomation Group

The eAutomation Group was the first business unit established within Advantech, and was founded in 1983. With more than 20 years of industrial automation experience, we have grown into a respected global business organization; with more than 30 branch offices in 17 countries, and a worldwide partner network comprised of leading eAutomation corporations. We are a pioneer in eAutomation technology; combining connectivity, flexibility and ruggedness with today's most reliable PC-based automation technologies.

We believe PC-based, open architecture is the trend in automation. This is the direction that eAutomation Group is moving towards; delivering system components to serve various vertical markets, providing greater value to our customers, partners, and system integrators; all with simple, easy, flexible integration and fast time to market. eAutomation Groups product lines include; Open HMI, ICOM & M2M, Industrial Controllers, and Plug-in & Remote I/Os, all integrated by HMI & Control Software.

We have continuous investment in R&D and closed-loop QA; in design, manufacturing & customer service. With our unwavering commitment to quality, eAutomation Group has won several awards, including; Innovation Awards, Symbol of Excellence, & Control Engineering Editor's Choice Awards. eAutomation Group complements its design strengths with 3 world-class manufacturing centers in China and Taiwan, empowering us to be fully capable of meeting all your manufacturing needs. Our manufacturing centers utilize a customer-driven Enterprise Resource Planning (ERP) system to achieve high flexibility and just-in-time response. With more than 20 years experience in providing a full range of products to different vertical markets, the eAutomation group is proving to be a globally leading Automation Product & Services provider.



Product Offerings

Broad Product Range to Fulfill eAutomation Market Needs

Automation Controllers & Software

Highlighted by the ADAM-6500 Ethernet-enabled communication controller and our Programmable Automation Controllers, such as the ADAM-5550 and ADAM-5510KW Series, this product line is also home to Advantech's excellent line of Automation Tools & Software, such as Advantech Studio, ADAMView, and the KW Multiprog SoftLogic Control Software, which help users easily develop customized programs.

Embedded Automation Computers

Featuring robust system designs & high performance CPU's for embedded applications, embedded automation computers are fanless and diskless, making them suitable for any harsh industrial application. The UNO series leverages embedded OS technology, and supports rich networking interfaces. The UNO-1000 series are fanless, DIN-rail PC's, the UNO-2000 series are compact, embedded PC's with PC/104 expansions, and the UNO-3000 series are front access, fanless IPC's with PCI expansions.

Distributed I/O Modules

With many high-end industrial-grade features, the rugged ADAM-4000/4100, and ADAM-6000 Remote I/O Modules are designed specifically for reliable operation in harsh environments. The built-in microprocessors, encased with industrial-grade plastic, independently provide intelligent signal conditioning, Analog I/O, Data display and Serial/Ethernet/Fieldbus communications. Additionally, ADAM-5000 Distributed DA&C allows remote configuration via Ethernet for efficient management.

Plug-in I/O

With over 22 years of plug-in I/O card design and manufacturing experience, Advantech has become a global leader, providing a full range of industrial data acquisition and control products. There are six major categories - CompactPCI, PCI-bus, ISA-bus, USB-bus, PC/104 modules and motion control products. With rich wiring terminal modules and software support, Advantech provides high-speed, high-quality, yet cost-saving products for industrial requirements. Moreover, bundled with versatile industrial PC Chassis, backplanes, CPU modules, flat panel monitors and embedded controllers, Advantech offers a one-stop shopping solution to serve all your needs.

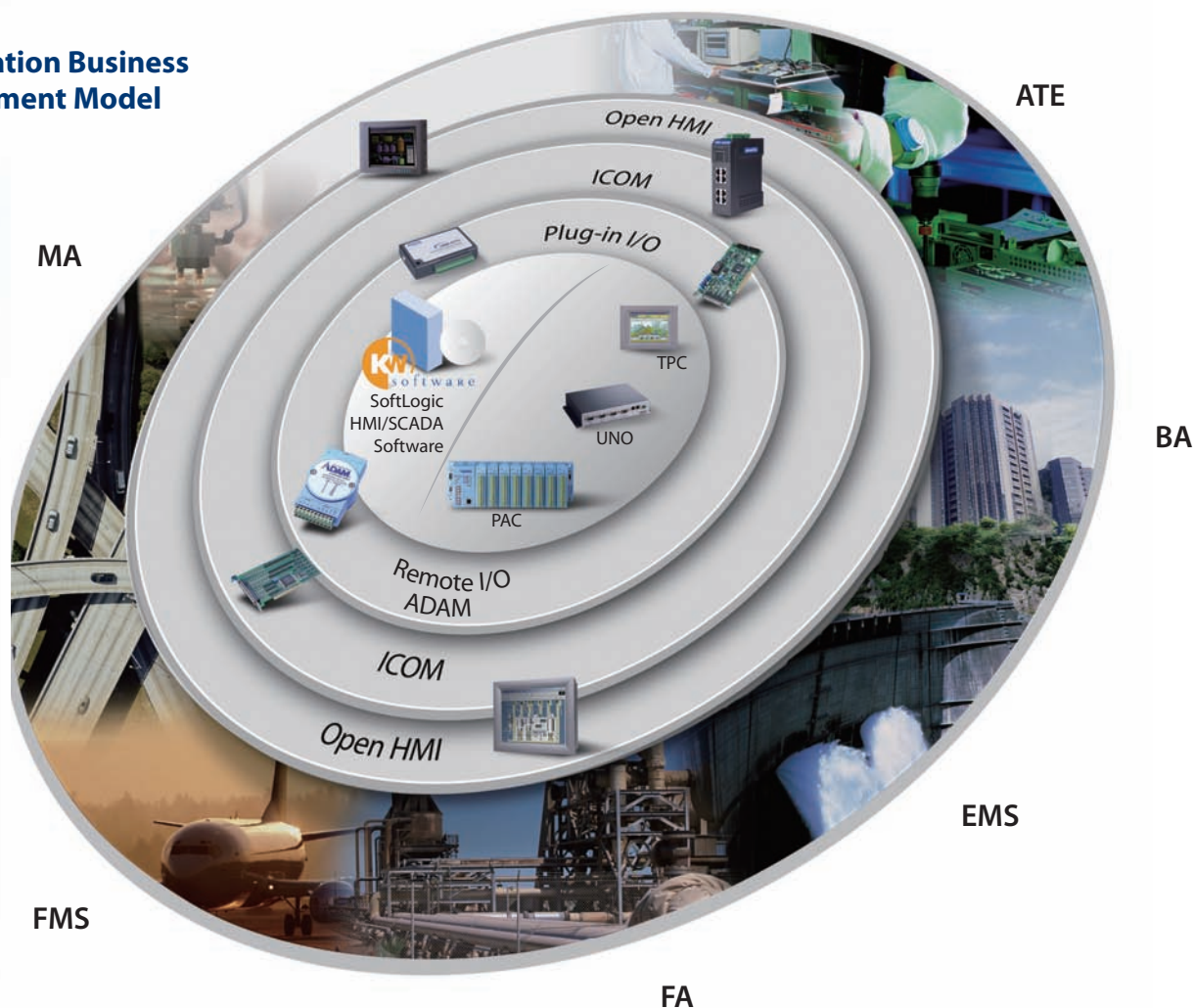
Open HMI Platforms

Open HMI operates with a scalable, open operating system. These are rugged diskless and fanless products that offer advanced functionality over traditional HMI products with improved data handling, standard I/O interfaces and advanced communications. Advantech's Open HMI platforms include industrial panel PC's, industrial workstations, flat panel monitors and touch panel computers.

Industrial Communication

Advantech's Industrial Communication series includes industrial communication cards and Fieldbus communication cards that offer cost-effective ways to add communication ports to your PC workstation, and industrial converters that connect control field devices to plant level systems. Industrial communication cards and Fieldbus communication cards support PCI-bus, ISA-bus, PC/104 and PC/104+ to fit into versatile industrial automation platforms.

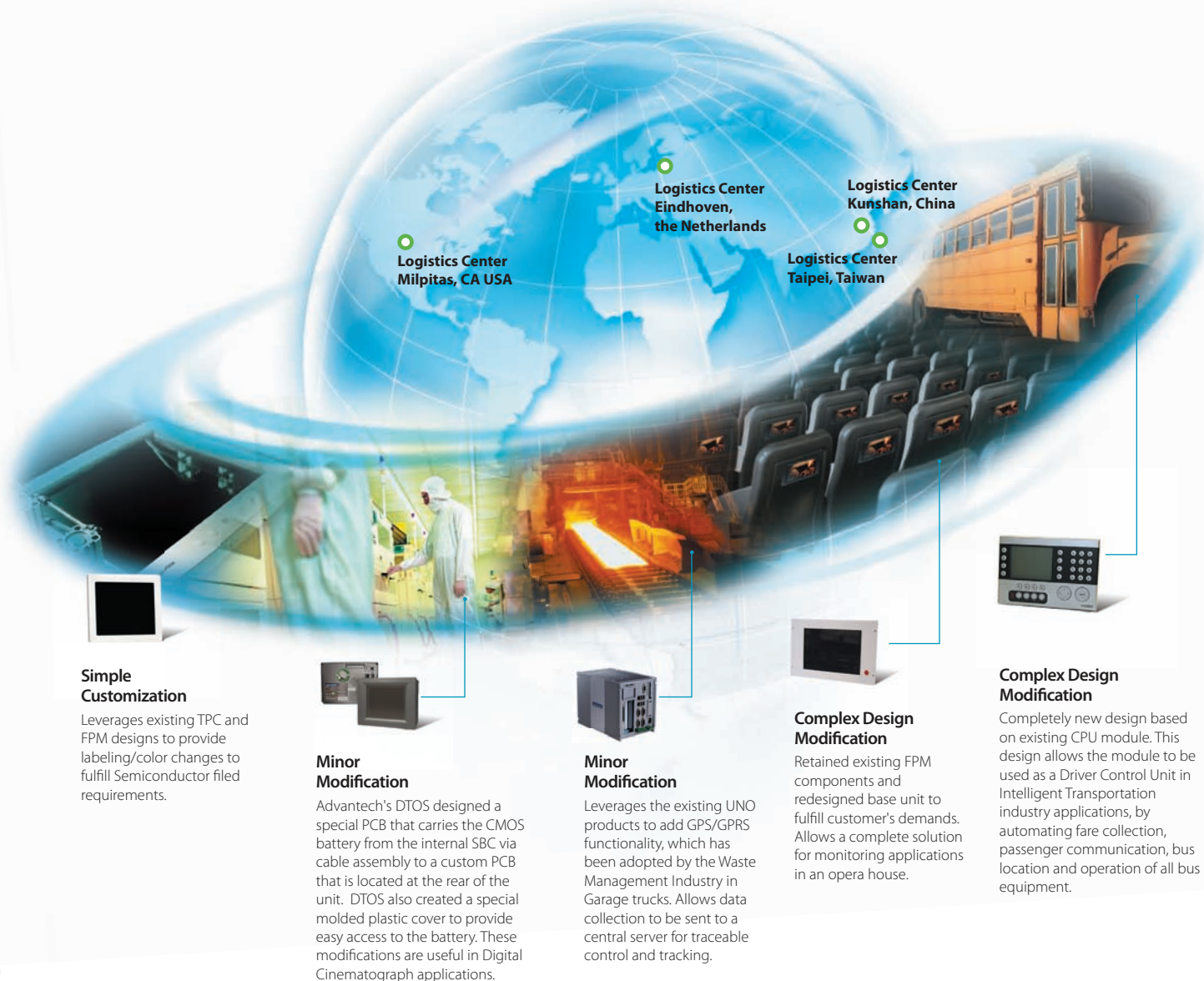
eAutomation Business Development Model



Design To Order Service (DTOS)

With increasing customer demand for flexible designs and tailor-made manufacturing services, eAutomation Group also offers the Design To Order Services (DTOS), to serve selected markets for HMI and UNO products. Utilizing our extensive experience in industrial designs, we provide customized products that reduce customer engineering efforts, speed up product development, and shorten time-to-market response. Combining Advantech's innovative Open HMI Platforms & Fanless Box PC's with rich communication abilities allows us to create some of the most versatile and robust HMI & Controller products in the market today. Furthermore, with our global manufacturing and logistics services, eAutomation Group is fully capable of meeting all your manufacturing needs.

- Industrial-grade products with system level integration
- Major focus on Open HMI / Fanless Box PC customization
- Innovative technology & competitive market costs
- Streamlined project management process & closed-loop quality assurance
- Global design resources with local support



eAutomation Global Partner Network

eAutomation PartnerZone

» Connect to Advantech
PartnerZone.
Connect to business!



We take pride in our partnerships. With our acclaimed and certified platforms, the partnerships we have formed with eAutomation and Solution Partners provides our customers with complete, reliable, fast time-to-market solutions for a wide variety of industries.

Developed specifically for worldwide eAutomation partner support, eAutomation PartnerZone allows global partners to access all real-time information just as Advantech eAutomation salespersons do. Not only a resource pool, eAutomation PartnerZone's non-stop service facilitates your business engagement with end customers.

Benefits for using eAutomation PartnerZone:

Partner Program & Management

eAutomation Partner Program can help partners create a sustainable business model in a fast-changing environment, where customers require value-added services, focused technical expertise and higher levels of satisfaction.

Partner Sales & Marketing Resources

Use the business resource tools provided by Advantech eAutomation Group to help increase your business. Some business resources are only available to partner program members.

Partner Training

Get dates, locations, and registration details for training, seminars, events, and certifications. Learn more about Advantech eAutomation Technical Certification Programs.

B2B Online Procurement

Create, place, and manage orders for Advantech eAutomation products and services at your finger tip. Access ordering information and other support materials.

Technical Support & Product Information

Provide single access to our global technical support and first-hand product phase-in & phase-out information.



eAutomation Channel Partners

Advantech's Channel Partners provide local value-added services for our customers. Some of the value-added services include; application assistance, knowledgeable service staff, resource teaming, hardware services, telephone consultation, training and project coordination.



eAutomation Specialty Partners

This new service from Advantech is comprised of eAutomation Specialty Partners who are Technical Specialists with strong domain know-how and industry experience in specific product lines or vertical markets, to provide specialized service and support to customers.



eAutomation Solution Partners

eAutomation Solution Partners are 3rd parties who manufacture value-added products that complement Advantech eAutomation Group products. Advantech's eAutomation Solution Partners offers our customers a full range of field-proven solutions. Our partner solutions are validated with selected Advantech products for compatibility, quality, and service. Advantech is dedicated in delivering state-of-the-art solutions that meet our customers' varied automation requirements.

eAutomation Web Services



Comprehensive Web Platforms to Fulfill Customer Demands

To provide fast and convenient service to our customers and users, Advantech eAutomation provides a single web platform with comprehensive online services. Through www.advantech.com/eA, we offer additional value-added features, including Online Product Advisors to help customers find specific products, an e-store for quick online shopping, real-time technical support through online chat, and an online training webpage.

eAutomation's Online Store

eAutomationPro.com is our professional online store, offering one-stop automation shopping to the industrial market. Our sites offer comprehensive product information, free expert help, easy access to support and services, an extensive library of FAQs, and a download section offering all the latest support related information.

The eAutomationPro business model has been deployed to franchised RBUs, joint venture partners, and channel partners. Currently, we have 10 RBUs up and running in the USA, Taiwan, Korea, Germany, Italy, China, Benelux (covering: Netherlands, Belgium, Finland, Norway, Sweden, and Denmark), Australia, Japan, India; 2 Joint Ventures – Thailand and Brazil; and 2 channel partners – C3 and Elmark. We will continue expanding our product and enhancing the eStore functions. The goal of eAutomationPro is to make it easier for Advantech customers to purchase our wide array of Automation products with few clicks.



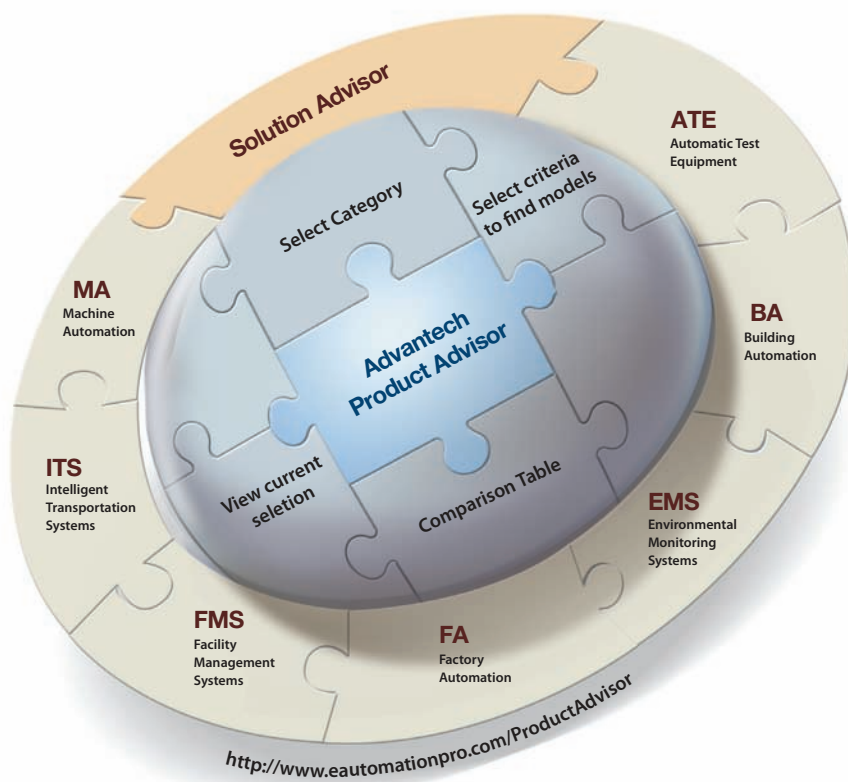
Online Technical Support

Providing superior technical support is an essential part of being a top-tier company, and we take pride in the outstanding level of service that we offer. To best support our customers, we've created a suite of useful interactive online tools, including:

- Online Chat: Real-time technical support
- Online Training: Self-training document and video to give trainees integrated information.

eAutomation Online Advisor Services

eAutomation Group provides Online Product & Solution Advisors to assist customers with a variety of industrial automation needs. When customers need to find a module with certain specifications or features, they can turn to our Online Product Advisors, which helps them find specific products through a customizable interactive menu. Similarly, our Solution Advisor guides customers on how to configure their products to work with different applications, which are valuable information for engineers, our partners, and general customers alike.



Global Services

Global Manufacturing and Logistics Services

Advantech Global Services is a comprehensive service model that integrates the three main elements of Advantech's customer initiation process, from the Product Design phase, to Manufacturing and after-sales Support. In order to create the maximum value for our customers, we will focus on vertical market applications, to broaden our domain know-how to create outstanding solutions to satisfy customer demands. With an existing network of local operations, Advantech has gathered all of our strength to offer an integrated Global Services model for our premium customers.



Manufacturing - Transform Your Ideas into Reality

Manufacturing Capability

Advantech complements its design strengths with three world-class manufacturing centers located throughout China and Taiwan. All of our manufacturing centers use customer-driven Enterprise Resource Planning method to achieve highly flexible, just-in-time responsibility. With more than 21 years of experience in providing a full range of products to different vertical markets, Advantech has built up strong capabilities for engineering design, board fabrication, system integration and flexible production.

Quality Management

At Advantech, we do not leave quality to chance. Throughout our extensive history of design and manufacturing, we have always built products that put quality first. That is why our engineering team always puts new product designs through rigorous quality, reliability, and performance tests.

Quality Assurance System

With extensive manufacturing experience & certified quality assurance systems, our global manufacturing service guarantees quality & on-time delivery of your solutions.

Environmental Policy

ISO 14001 provides Advantech a framework for managing environmental responsibilities so they become more efficient and more integrated into overall business operations.

○ Regional Logistics/Service Center

● Branch Office



Global Support - Service Across the Entire Life Cycle

Global eRMA

Our Post-Sales Repair Service is equal in importance to our Design and Manufacturing division. The service represents our commitment to provide comprehensive technical support after delivery of new products.

Web-based eRMA System

This personalized portal system offers real-time RMA status-tracking at all times, anywhere via the Internet. Through our worldwide Customer Support Centers, you get regional technical support and repair services along with a stringent, dependable quality standard.

Best-in-Class Technical Service

The Applications Engineering team is always ready to assist you. This dedicated group helps to coordinate and track your repair requests. Through our Global Service Centers, we provide you and your customers with a comprehensive range of proven preventive, diagnostic, remedial, and repair services.

Global Logistics

Worldwide Orders, Local Deliveries

Getting your products designed and manufactured is only half the task. To bring your products to customers in a much faster way, you can count on Advantech's global logistics and regional services network! Our four Regional Service Centers offer global leverage for your support infrastructure, and always help to give quick responses to your customers' changing business needs. We take manufacturing orders globally and ship products regionally. Since there is no need to route goods through your own business site, products are promptly shipped to your customers from our service center!

Advantech's Logistics Service gives you the flexibility to bring your products to market on time, simplify your logistical networks, and enjoy a timely return on your investment.



APSC
European Service Center
Warsaw, Poland



AESC
European Logistics Center
Eindhoven, Holland



AASC
American Service Center
California, America



AKMC
China Service Center
Kunshan, China



ATSC
Taiwan Service Center
Taipei, Taiwan

Milpitas
Irvine
San Diego

Cincinnati

Sao Paulo

Environmental and Facility Management Systems

Develop Your SCADA System with ADAM Solutions

Advantech has gained a great reputation in Supervisory Control and Data Acquisition (SCADA) by continuously improving its advanced ADAM series. Advantech's ADAM series distinguishes itself by featuring a wide variety of I/O and communication modules to meet high-volume SCADA requirements in environmental monitoring applications such as air/water quality measurement & control services, warning systems for landscapes, dams, bridges, traffic monitoring and unmanned station monitoring. In energy management, we also have field-proven solutions for pipeline management, power distribution and supply.

Project Implementation



ADAM-5510/TCP Ethernet-enabled PC-based Controller

- 10/100Base-T Ethernet Interface
- Four serial communication ports
- Supports HTTP server, FTP server, and e-mail alarm functions
- Supports Modbus/TCP server/client functions



ADAM-6000W Wireless I/O Modules

- Supports IEEE802.11b wireless LAN
- Embedded web server with built-in web page
- Supports Modbus/TCP & UDP protocols
- Supports event trigger function



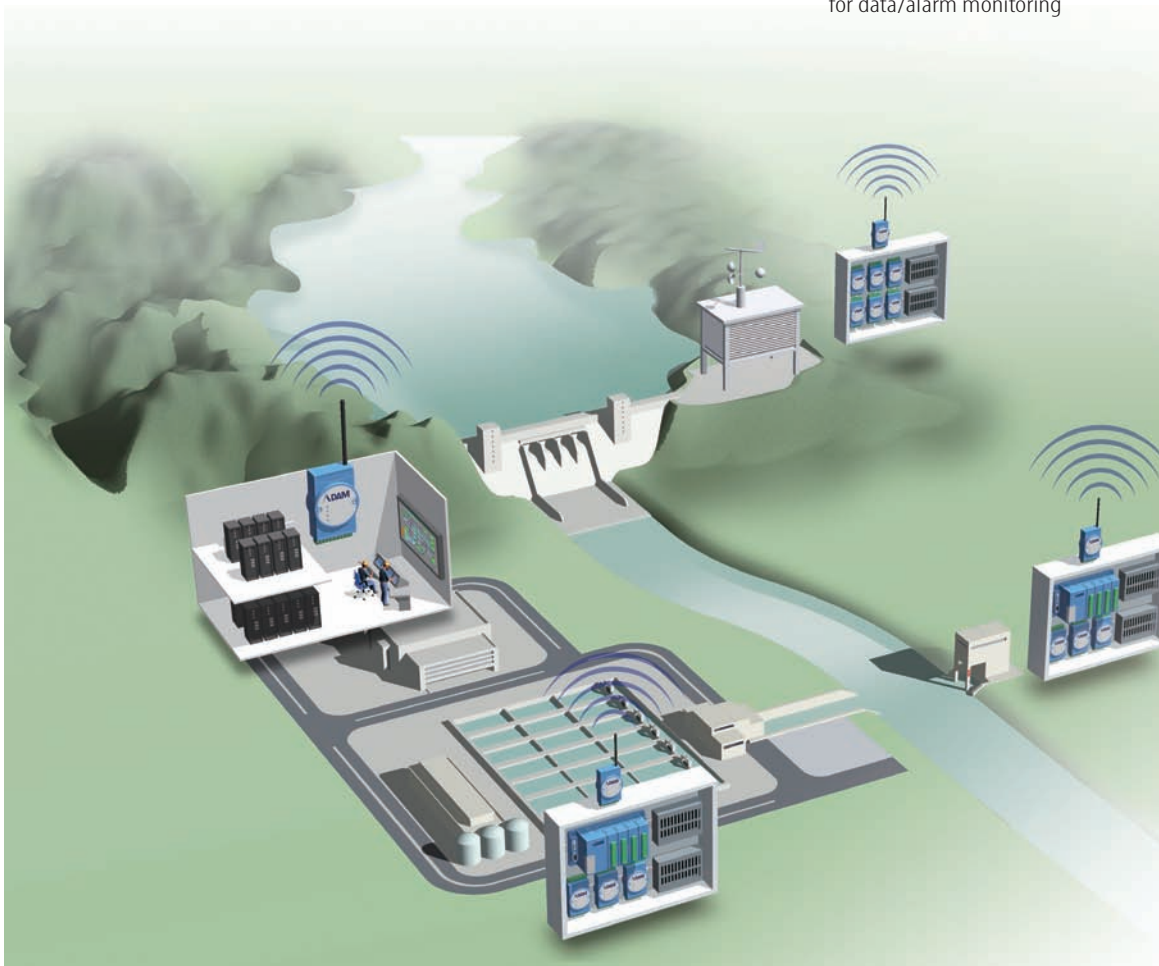
ADAM-4100 Robust I/O Modules

- Robust design for harsh environment
- Easy plug-in system integration
- ADAM and Modbus/RTU dual protocol support



ADAM-6000 Ethernet I/O Modules

- Ethernet-based smart I/O
- Mixed I/O in single module
- Pre-built HTTP server and web page in each module for data/alarm monitoring



Intelligent Transportation Systems

Smooth Traffic Flow with PC-based Vehicle Detection System

Advantech offers advanced product solutions for the ITS market segment, especially for Vehicle Detection (VD) systems and Changeable Message Sign (CMS) systems for Advanced Traffic Management System (ATMS). Along with the benefits of an open architecture, Advantech's PC-based product solutions emphasizes a robust design for outdoor installations.

Project Implementation



UNO-3000 Embedded Automation Computer

- Built-in real-time operating system
- Efficient application development
- Standard communication interfaces integrate with remote I/O solutions
- Flexible networking options



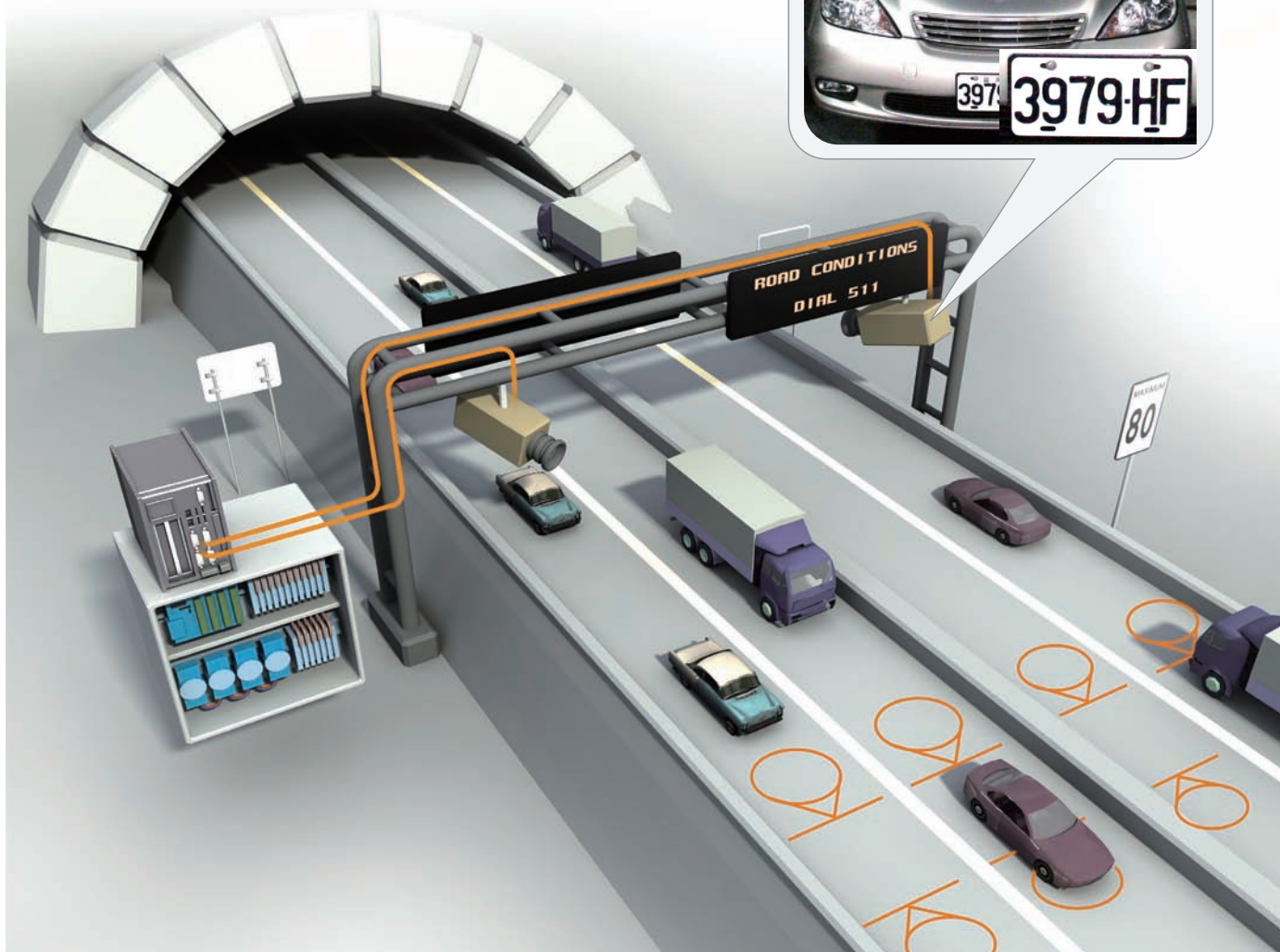
ADAM-6541 Fiber Optic Converter

- Supports 1-port Mbps multi- and single-mode fiber optics
- Supports 10~30 V_{DC} power input
- Supports MDI/MDI-X auto crossover



ADAM-5510KW PC-based SoftLogic Controller

- 4 expansion I/O slots
- Supports IEC-61131-3 standard package
- Graphical programming interface



Building Automation

Enhanced Building Automation Management with Web-enabled Technology

Advantech has successfully implemented the eAutomation concept in diverse building automation (BA) applications to help users achieve advanced building management systems with simple Ethernet-enabled solutions. Through Ethernet-enabled technology, Security Systems, Facility Management Systems (HVAC, water treatment, power, etc.), DDC Systems and CCTV Systems all integrate into one system. Moreover, Web-enabled HMI software (WebAccess) provides remote monitoring capability anytime, anywhere.

Project Implementation



UNO-2000 Embedded Automation Computers

- Bowser-only client saves costs and facilitates maintenance
- Remotely view and control I/O anytime, anywhere
- Alarm/event instantly handled through email



ADAM-6000 Smart Web I/O Modules

- Ethernet-based smart I/O
- Boundless monitoring and management with embedded web page
- Cost-effective, combined I/O design in one module



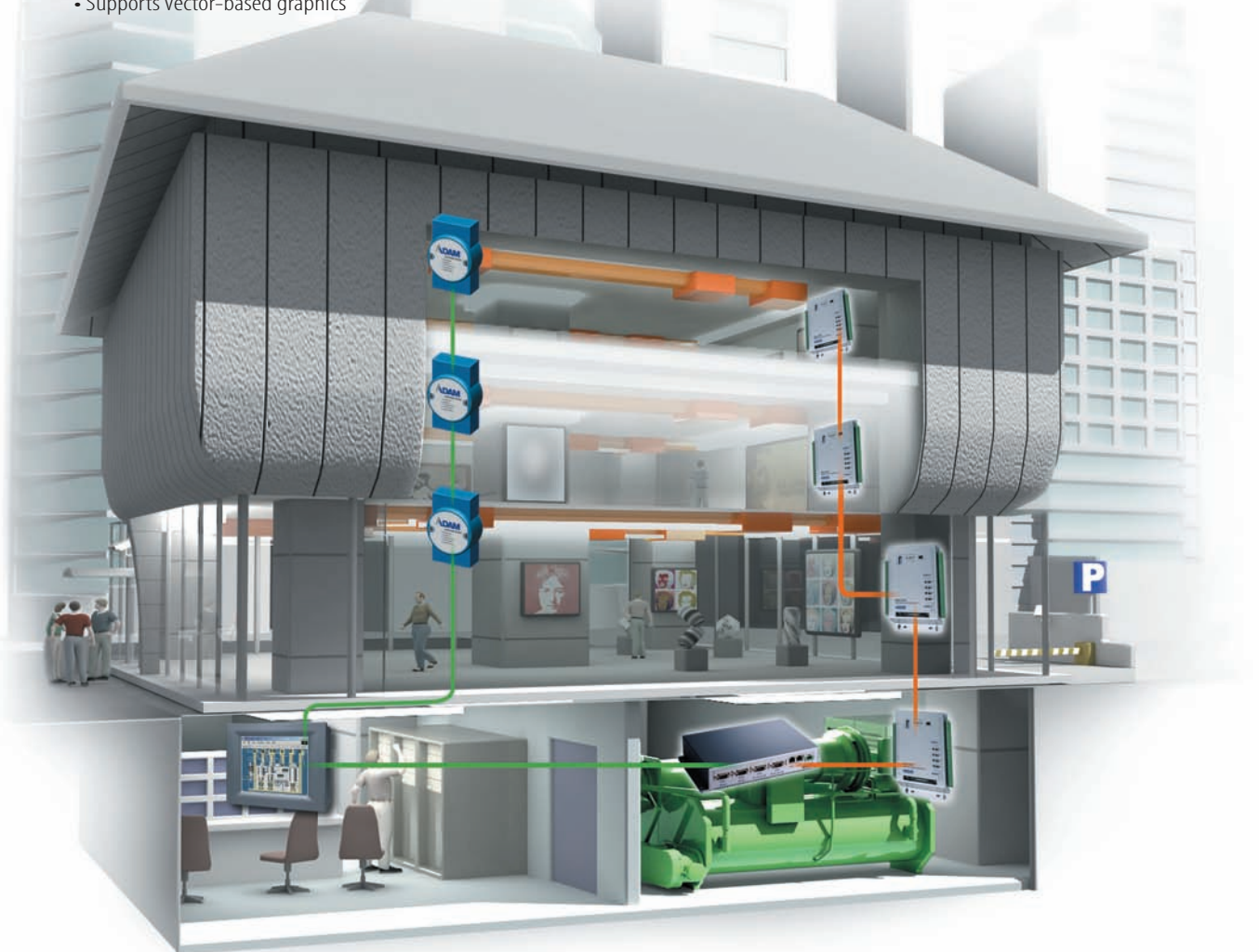
WebView Web-enabled Operator Interface Terminal

- Super slim and compact design with plastic housing
- NEMA4/IP65 compliant front panel
- Built-in Windows CE with Advantech WinCE WebAccess
- Supports Vector-based graphics



BAS-2000 Building Automation Controller

- Functional blocks for BA facility control
- A combination of universal I/O
- Supports IEC61131-3 control languages
- Supports Modbus/RTU and BACnet protocols



Factory Automation

Bringing PAC Solutions to Factory Floors

Advantech's ADAM-5550KW PAC Series is designed for high level industrial applications in factory floors which require complex control capabilities, high speed analog measurements, local storage and database, multiple programs support with different cycle times, open communication functions and enterprise-level network integration. For food and beverage machinery, high speed analog measurement is required for weight measuring. Advantech's ADAM-5550KW Series also supports distributed motion control functions, making it the best solution for food and beverage machineries by replacing IPC plus PLC combinations.

Project Implementation



ADAM-5550KW Programmable Automation Controller

- Designed for control tasks that meet robust and computing performance requirements for PLC and Industrial PC's
- Supports IEC 61131-3 Standard PLC Programming languages and PLCopen-compliant motion control function blocks
- Open Architecture & Versatile Connectivity



AMAX-2000 and AMONet RS-485 Motion Slave Modules

- AMAX-2212 1-axis AMONet RS-485 Motion Slave Module
- AMAX-2752 32-ch Isolated Digital Input Module
- AMAX-2754 32-ch Isolated Digital Output Module
- AMAX-2756 6/16-ch Isolated Digital Input/Output Module



Machine Automation

Complete Application Ready Platforms for the GMC Market

During the LCD manufacturing process, having a zero fault tolerance is almost impossible. Moreover, LCD panels are very delicate products, and can frequently have minor defects. Therefore, defect inspection is essential at each assembly station. Our customer wanted to increase the efficiency of their defect inspection stations and speed up their overall LCD production. They were using the traditional method of inspection, which consisted of having just one camera to complete the process, which is slow and cumbersome. With a new PC-based automation solution from Advantech, more cameras can be set up for inspections, allowing a smoother and faster production flow.

Project Implementation



PCI-1202U 2-port AMONet RS-485 Master Card

- Max. 20 Mbps transfer rate 2 independent AMONet - RS-485 Master Rings
- Max. 128 AMONet RS-485 slave modules supported
- Programmable digital input to notify events
- Easy installation with RJ45 phone jack and LED diagnostic



AMAX-2212/J2S 1-axis AMONet RS-485 Motion Slave Module for Mitsubishi MR-J2S

- Max. 20 Mbps transfer rate
- Max. 6.5 Mhz, 1-Axis pulse output 28 bits counter for incremental encoder
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support



AMAX-2752 32-ch Isolated Digital Input Module

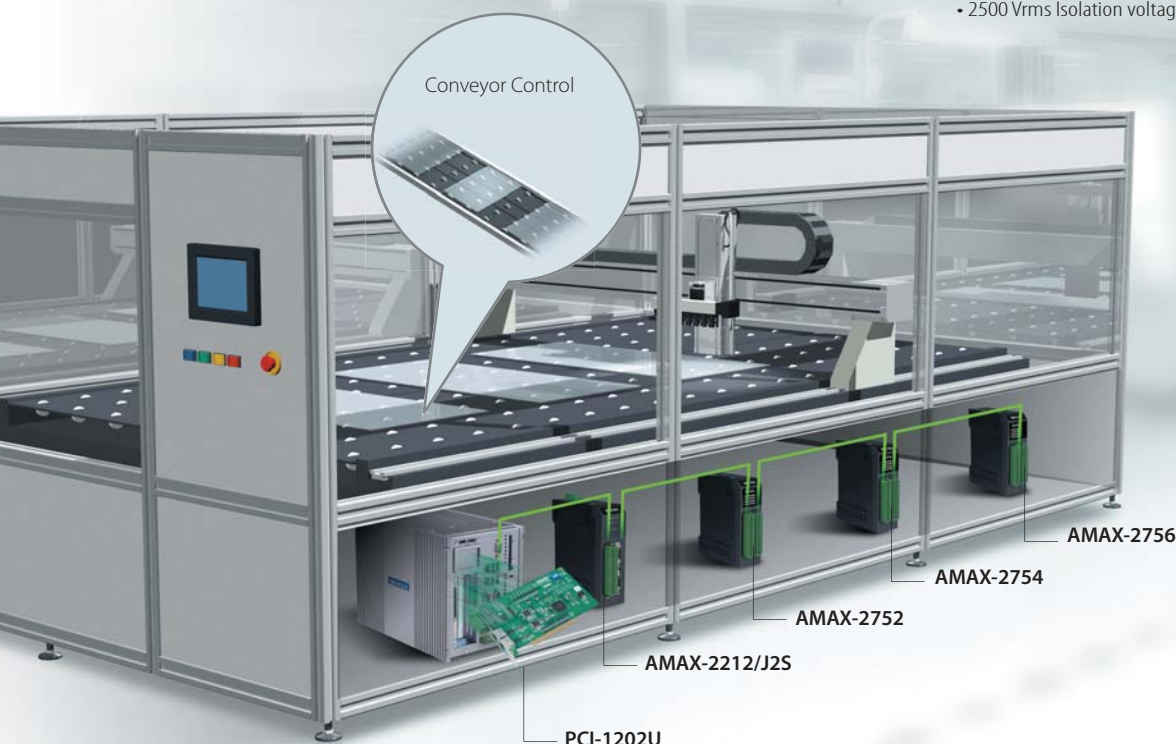


AMAX-2754 32-ch Isolated Digital Output Module



AMAX-2756 16/16-ch Isolated Digital Input/Output Module

- DIN-rail mounting (L x W x H): 125 x 47.6 x 156 mm
- Max. 20 Mbps transfer rate
- Onboard terminal for direct wiring
- Easy installation with RJ45 phone jack and LED diagnostic
- LED indicator for each IO channel (Switch by SW4)
- Selection of I/O-channel configuration (32 DI, 32 DO or 16/16 DI/O)
- 2500 Vrms Isolation voltage



Automatic Test Equipment

Complete Solutions for your ATE Requirements

The high cost of state-of-the-art quality control systems for mobile phones has created a demand for more cost-effective alternatives. A leading ODM mobile phone manufacturer in Taiwan found such an alternative with Advantech. Standard products from Advantech were used to verify GSM and GPRS signals of mobile phones. The basic quality control procedure for frequencies used to require the phone to be tested, an operator, a test instrument, and a test station. This test would take approximately 1 minute per phone.

After implementing the new test equipment, the testing time was reduced to one operator using 4 test stations to simultaneously check 4 phones in 20 seconds; an output improvement of 1,200%. Reduced human error was another bonus, and the entire process is now accomplished at the fraction of the cost of a high-end, quality control system.

Project Implementation



PCI-1762 Relay Actuator and Isolated D/I Card

- 16 relay output channels and 16 isolated digital input channels
- LED indicators to show activated relays
- Jumper selectable Form A/Form B-type relay output channel
- Output status read-back



PCI-1723 Non-isolated Analog Output Card

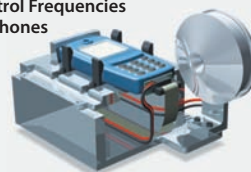
- Auto calibration function
- A 16-bit DAC is equipped for each analog output channel
- Synchronized output function
- Output values retained after system hot reset



PCI-1671UP GPIB Interface

- IEEE 488.2 Standard interface
- Complete Talker/Listener/Controller
- Industry standard 32-bit PCI bus
- Data transfer rates over 1.5 Megabytes/sec
- 1024-word FIFO buffer
- High-Speed State Machine Bus Manager
- 7 Interrupt lines, shared interrupt capability
- Transparent interrupt enabling/disabling
- Includes GPIB-Library software
- Low profile MD1 size

Quality Control Frequencies for Mobile Phones



- PCI-1671UP — GPIB
PCI-1762 — Relay Output
PCI-1723 — Analog Output

Programmable Automation Controllers



The New Generation of Automation Controllers

ADAM-5550KW is the first in our line of new Programmable Automation Controllers (PAC's). PAC's are powerful and versatile controllers combining a PLC's ruggedness with a PC's functionality under a flexible, open architecture. The robust ADAM-5550KW complies with PLC certifications and allows users to build complex systems with advanced control, communication, data logging, and signal processing capabilities. ADAM-5550KW is designed for satisfying users who need a high performance and cost-effective solution for complex control applications.

Controllers



ADAM-5550KW

8-slot Programmable Automation Controller

- Designed for control tasks that meet robust and computing performance requirements for PLC and Industrial PC's
- Supports IEC-61131-3 Standard PLC Programming Languages
- Built-in VGA Port
- Remote monitoring through Web Server and Email Alarm
- Remote maintenance via FTP Server
- Supports Modbus/TCP and Modbus/RTU Master Function



ADAM-5550KWAS

8-slot PAC w/Advantech Studio

- Designed for control tasks that meet robust and computing performance requirements for PLC and Industrial PC's
- Supports IEC-61131-3 Standard PLC Programming Languages
- Built-in VGA Port
- Built-in Advantech Studio HMI Software
- Built-in CE OPC Server
- Remote monitoring through Web Server and Email Alarm
- Remote maintenance via FTP Server
- Supports Modbus/RTU Master and Modbus/TCP

I/O Modules



ADAM-5202

2-ring AMONet Master Module

- Supports 2 independent AMONet RS-485 rings
- Supports up to 128 AMONet RS-485 slave modules
- Maximum 20 Mbps transfer rate
- Easy installation with RJ-45 phone jack
- Maximum 100 m (20 Mbps / 32 slave modules) communication distance



ADAM-5030

2-slot SD Storage Module

- Supports 2 SD slots for storage function on ADAM-5550KW
- Supports 2 USB 2.0 ports for ADAM-5550KW



ADAM-5017UH

8-ch Ultra High Speed Analog Input Module

- 1K Samples/sec per channel on ADAM-5550KW
- 8 Channels differential inputs
- 16-bit effective resolution
- 3000 V_{DC} isolation voltage
- Supports $\pm 10V$ and 4~20mA input ranges

Distributed I/O



Streamlined Automation Systems with M2M Technology

In order to meet the integration requirements of Environmental Monitoring Systems and Facility Management Systems, ADAM Remote I/O Series offers a diversified product range, powerful networking and communication capabilities, rich analog measurements with noise immunity and wide operating temperature. The following are the new products in the ADAM Remote I/O Modules.

Robust I/O Modules



ADAM-4520I

Robust RS-232 to RS-422/485 Converter

- Wide operating temperature: -40 ~ 85° C
- Automatic RS-485 data flow control
- 3000 Vdc isolation protection
- Surge protection RS-485 data line



ADAM-4510I

Robust RS-422/485 Repeater

- Wide operating temperature: -40 ~ 85° C
- Automatic RS-485 data flow control
- 3000 Vdc isolation protection
- Surge protection RS-485 data line



ADAM-4117/4118

Robust 8-ch Analog Input/Thermocouple Input Modules with Modbus

- 8 differential and independent configuration channels
- Wide operating temperature: -40 ~ 85° C
- Higher noise immunity: 1 KV surge protection on power inputs, 3 KV EFT, and 8 KV ESD protection



ADAM-4150/4168

Robust Digital I/O / Relay Output Modules with Modbus

- 7 input channels and 8 output channels for ADAM-4150
- 8 Form A output channels for ADAM-4168
- Wide operating temperature: -40 ~ 85° C
- Higher Noise Immunity: 1 KV surge protection on power inputs, 3 KV EFT, and 8 KV ESD protection

Wireless I/O Modules



ADAM-6050W

18-ch Wireless LAN-enabled DI/O Module

- Supports IEEE802.11b wireless LAN
- Built-in 12 DI / 6 DO
- Embedded web server with built-in web page
- Supports Modbus/TCP & UDP protocols
- Supports event trigger function



ADAM-6051W

16-ch Wireless LAN-enabled Isolated I/O

- Supports IEEE802.11b wireless LAN
- Built-in 12 DI / 2 DO / 2 counters
- Embedded web server with built-in web page
- Supports Modbus/TCP & UDP protocols
- Supports event trigger function



ADAM-6060W

6-ch Wireless LAN-enabled Relay Output Module

- Supports IEEE802.11b wireless LAN
- Built-in 6 DI / 6 relay
- Embedded web server with built-in web page
- Supports Modbus/TCP & UDP protocols
- Supports event trigger function

Programmable Communication Controllers



ADAM-4501/4501D

Ethernet-enabled Communication Controllers with 4 x DI/O (Optional LED Display)

- 10/100Base-T Ethernet Interface
- Email alarm function
- Built-in Web Server
- Built-in FTP Server and Client
- Supports functionally versatile I/O modules
- Full Functions of Standard TCP and UDP Sockets
- Optional 4 digit 7-segment LED display
- Supports Modbus/RTU and Modbus/TCP function libraries
- 1.5 MB Flash ROM/640 KB SRAM with 384 KB backup SRAM

Embedded Automation Computers



Open and Robust Computing Power for Automation Applications

Advantech's Embedded Automation Computers are designed to fulfill the needs of mission-critical automation applications. Their embedded design, rugged features and powerful computing technology delivers reliability and flexibility. These computers are targeted to satisfy customers who are looking for a robust and compact computing platform with industrial design and built-in I/O for diverse automation applications.

UNO-2000 Series

Compact High Performance Embedded Automation Computers



UNO-2171

Intel Pentium M UNO w/2 x LAN, 4 x COM, PC/104+

- Onboard Pentium M 1.4 GHz or Celeron M 1.0 GHz, 512 MB/1 GB DDR SDRAM
- Provides 512 KB battery-backup SRAM
- Two RS-232 and two RS-232/422/485 ports with automatic flow control
- Two 10/100Base-T RJ-45 ports
- Audio with Mic in, Line in, Line out
- Two USB and one type I/II PC Card
- PC/104+ expansion slots



UNO-2052E

AMD GX2 UNO w/2 x CAN, LAN, 8 DI/O

- Onboard GX2-400 MHz, 256MB DDR SDRAM
- Provides two CAN interfaces
- Provides one 10/100Base-T RJ-45 port and one USB port
- Isolated 8-ch DI/O and 2-channel AI
- Windows CE 5.0, Windows XP Embedded SP2, and Linux ready solution



UNO-2176

Intel Pentium M UNO w/2 x LAN, 6 x COM, 16 DI/O

- Onboard Pentium M 1.4 GHz/ Celeron M 1.0 GHz, 512 MB DDR SDRAM
- Provides 512 KB battery-backup SRAM
- Two RS-232 and four isolated RS-232/422/485 ports with automatic flow control
- 8-ch Digital Input and 8-ch Digital Output
- Two 10/100Base-T RJ-45 ports
- Two USB and one type I/II PC Card
- PC/104 expansion slots



UNO-2053E

AMD GX2 UNO w/2 x LAN, 2 x COM, Audio

- Onboard GX2-400 MHz, 256MB DDR SDRAM
- Two standard RS-232 and one DB-15 VGA connector
- Two 10/100Base-T RJ-45 ports
- Two USB and one type I/II PC Card slots
- Audio with Mic in, Line in, Line out
- Windows CE 5.0, Windows XP Embedded SP2, and Linux ready solution



UNO-2050E

AMD GX2 UNO w/2 x LAN, 4 x COM, 16 DI/O

- Onboard GX2-400 MHz, 256 MB DDR SDRAM
- Two RS-232 and two-isolated RS-232/422/485 with automatic flow control
- Two 10/100 Base-T RJ-45 port
- Isolated 8-ch DI and 8-ch DO with counter and timer
- Windows CE 5.0, Windows XP Embedded SP2, and Linux ready solution



UNO-2059E

AMD GX2 UNO w/4 x COM, LAN, PC Card

- Onboard GX2-400 MHz, 256MB DDR SDRAM
- 2 x RS-232/485, 2 x RS-232/422/485 with automatic flow control
- 1 x 10/100Base-T RJ-45 port
- 2 x USB ports and 1 x type I/II PC Card
- One programmable diagnostic LED and buzzer
- Windows CE 5.0, Windows XP Embedded SP2, and Linux ready solution

UNO-3000 Series

Embedded Automation Computers
with PCI Expansion



UNO-3072

Intel Pentium M UNO w/2 x PCI slot, 1 x PC Card

- Onboard Pentium M 1.4 GHz/ Celeron M 1.0 GHz, 512 MB DDR SDRAM
- Provides 512 KB battery-backup
- Two RS-232 & two RS-232/422/485 ports with RS-485 automatic flow control
- Two 10/100Base-T RJ-45 ports and four USB ports
- Two PCI-bus expansion slots for versatile applications
- Windows 2000/XP driver ready and Linux driver support
- Windows XP(SP2) Embedded Ready Platforms with write protection(EWF)



UNO-3072L

Intel Celeron M UNO w/2 x PCI slot, 1 x PC Card

- Onboard Pentium M 1.6 GHz/Celeron M 1.0 GHz, 512 MB DDR SDRAM
- Two RS-232 & two RS-232/422/485 ports with RS-485 automatic flow control
- Two 10/100Base-T RJ-45 ports and four USB ports
- Two PCI-bus expansion slots for versatile application
- Windows 2000/XP driver ready and Linux driver support
- Windows XP(SP2) Embedded Ready Platforms with write protection(EWF)



UNO-3074

Intel Pentium M UNO w/4 x PCI slot, 1 x PC Card

- Onboard Pentium M 1.4 GHz// Celeron M 1.0 GHz, 512 MB DDR SDRAM
- Provides 512 KB battery-backup SRAM
- Two RS-232 & two RS-232/422/485 ports with RS-485 automatic flow control
- Two 10/100Base-T RJ-45 ports and four USB ports
- Four PCI-bus expansion slots for versatile applications
- Industrial proven design: anti-shock up to 50G, anti-vibration up to 2 G

UNO-1000 Series

DIN-rail Mounted Embedded Automation
Computers



UNO-1019

Intel XScale UNO w/2 x LAN, 4 x COM, CF Card

- Intel XScale PXA-255 200 MHZ Processor
- 2 x RS-232, 2 x RS-232/422/485 Serial Ports
- Dual 10/100 Mbps Ethernet
- 1 x CompactFlash
- Windows CE.NET Ready Platform
- Included Remote Display for Easy Configuration
- DIN-rail and Wallmounting Options

Open HMI Platforms



Seamless Integration Between Humans and Machines

Advantech offers a wide range of HMI products for automation needs. We offer not only hardware platforms such as the Industrial Panel PC (IPPC), the Industrial Workstation (AWS), Flat Panel Monitors (FPM), and Touch Panel Computers (TPC), but also very powerful NT/CE and Linux-based HMI solutions to easily migrate applications up or down as the scope changes.

Touch Panel Computers



TPC-660G

AMD LX800 Touch Panel Computer with 6.4" VGA TFT LCD Display

- AMD LX800 processor on board
- Super slim and compact design with plastic housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- One CompactFlash slot
- Supports Windows XP/CE and WinXPe



TPC-66S/TPC-66T

Intel XScale Touch Panel Computer with 5.6" QVGA STN/5.7 QVGA TFT LCD Display

- Intel XScale PXA processor on board
- Super slim and compact design with plastic housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Built-in flash memory and Windows CE OS
- One CompactFlash slot



TPC-1070H

Intel Pentium M/Celeron M Touch Panel Computer with 10.4" SVGA TFT LCD

- Intel Pentium M processor up to 1.4 GHz on board
- Compact design with Die-Casting
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Supports Microsoft Windows XP/2000/CE and WinXPe
- Dual fast Ethernet supported



TPC-68T

Intel XScale Touch Panel Computer with 5.6" QVGA TFT LCD Display and CAN-bus Support

- Intel XScale PXA processor on board
- Super slim and compact design with plastic housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Built-in flash memory and Windows CE OS
- One CompactFlash slot
- CAN-bus 2.0B protocol compatibility



TPC-1270H

Intel Pentium M/Celeron M Touch Panel Computer with 12.1" SVGA TFT LCD

- Intel Pentium M processor up to 1.4 GHz on board
- 12.1" SVGA TFT LCD
- Compact design with Al-Mg housing and Al alloy die-casting
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Giga Ethernet and fast Ethernet supported
- Supports Microsoft Windows XP/2000 and WinXPe



TPC-120H

Intel XScale Touch Panel Computers with 12.1" SVGA TFT LCD Display

- Intel PXA 270 processor on board
- Super slim and compact design with Al-Mg housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Supports Microsoft Windows CE

Flat Panel Monitors



FPM-3060G

Industrial 6" VGA Flat Panel Monitor with Direct-VGA Port

- 6" VGA TFT LCD with resolution up to 640 x 480
- Robust design with stainless steel chassis and aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel



FPM-3170G

Industrial 17" SXGA Flat Panel Monitor with Direct-VGA Port, DVI, Video, S-Video

- 17" SXGA TFT LCD with resolution up to 1280 x 1024
- Robust design with stainless steel chassis and aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel



FPM-3190G

Industrial 19" SXGA Flat Panel Monitor with Direct-VGA Port, DVI, Video, S-Video

- 19" SXGA TFT LCD with resolution up to 1280 x 1024
- Robust design with stainless steel chassis and aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel

Industrial Panel PCs



IPPC-9151G

Rugged Intel Pentium 4 Industrial Panel PC with 15" LCD

- Intel Pentium 4 processors up to 2.8 GHz
- 15" XGA TFT LCD provides vivid, sharp and large images
- Offers two expansion slots for PCI add-on cards
- Front access USB connector
- Heavy-duty stainless steel chassis with aluminum front panel
- Strengthened glass protects the front panel from shock damage and is NEMA4/IP65 compliant
- Built-in FDD and support for one CD-ROM and 3.5" HDD Drive



IPPC-9171G

Rugged Intel Pentium 4 Industrial Panel PC with 17" LCD

- Intel Pentium 4 processor up to 2.8 GHz
- 17" SXGA TFT LCD provides vivid, sharp and large images
- Offers two expansion slots for PCI add-on cards
- Heavy-duty stainless steel chassis with aluminum front panel
- Strengthened glass protects the front panel from shock damage and is NEMA4/IP65 compliant
- Front access USB connector
- Hard anodic coating to prevent panel abrasion and acid corrosion

Industrial Workstations



AWS-8129H

Workstation w/12.1" LCD, 9 Expansion Slots & Touchpad w/Mouse Key

- 3 ISA, 4 PCI, 2 PICMG slot combined backplanes
- Case dimensions (W x H x D): 482 x 266 x 317 mm (18.98" x 10.5" x 12.5")
- Front accessible FDD, Power switch and CD-ROM
- Front accessible USB port
- OSD & Membrane Key & Touchpad with two mouse buttons
- NEMA4/IP65 compliant front panel
- Optional analog resistive touchscreen (USB Interface)

Industrial I/O



Excellence in PC-based Measurement and Automation

With over 22 years of plug-in I/O card design and manufacturing experience, Advantech has become a global leader, providing a full range of industrial data acquisition and control products. There are six major categories - CompactPCI, PCI-bus, ISA-bus, USB-bus, PC/104 modules and motion control products. With rich wiring terminal modules and software support, Advantech provides high-speed, high-quality, yet cost-saving products for industrial requirements. Moreover, bundled with versatile industrial PC chassis, backplanes, CPU modules, flat panel monitors and embedded controllers, Advantech offers a one-stop shopping solution to serve all your needs.

PCI-bus Data Acquisition & Control Cards



PCI-1742U

1 MS/s, 16-bit, 16-ch High-resolution Multifunction Card

- 16 single-ended, 8 differential or a combination of analog inputs
- 16-bit A/D converter, with up to 1 MHz sampling rate
- Onboard FIFO memory (1024 samples)
- Auto calibration
- Two 16-bit analog output channels
- 16 digital inputs and 16 digital outputs
- Onboard programmable counter
- Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)
- BoardID switch



PCI-1735U

64-ch Digital I/O and Counter PCI Card

- 32 TTL-level digital input channels
- 32 TTL-level digital output channels
- High-output driving capacity
- Low-input loading 3 programmable counter/timer channels
- User configurable clock source Breadboard area for custom circuits



PCI-1715U

500 kS/s, 12-bit, 32-ch Isolated Analog Input Card

- 2500 VDC isolation protection
- 32 single-ended or 16 differential analog inputs, or a combination
- 12-bit resolution for A/D conversion
- Up to 500 kS/s sampling rate for A/D conversion
- Programmable gain for each input channel
- Onboard 1024 samples FIFO buffer
- Onboard FIFO memory (1024 samples)
- Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)
- BoardID switch



PCI-1737U

24-ch Digital I/O Card

- 24 TTL digital I/O channels
- Emulates mode 0 of 8255 PPI
- Interrupt handling
- Opto-22 compatible 50-pin connectors
- Output status readback
- Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)



PCI-1718HGU

100 kS/s, 12-bit, PCI Multifunction Card

- 16 single-ended or 8 differential analog inputs
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Programmable gain
- Automatic channel/gain scanning
- Onboard FIFO memory (1024 samples)
- One 12-bit analog output channel
- 16 digital inputs and 16 digital outputs
- Universal PCI bus (support 3.3 V or 5 V PCI bus signal)
- BoardID switch



PCI-1739U

48-ch Digital I/O PCI Card

- 48 TTL digital I/O channels
- Emulates mode 0 of 8255 PPI
- Interrupt handling
- Opto-22 compatible 50-pin connectors
- Output status readback
- Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)



PCI-1727U

14-bit, 12-ch Analog Output PCI Card with Digital I/O

- 12 independent analog output channels
- Fuse on each channel
- Universal PCI for 5 V and 3.3 V support
- BoardID switch
- Synchronized output function
- Supports PCL-727 compatible mode



GPIB Card

PCI-1671UP

High-Performance IEEE-488.2 Interface for PCI

- IEEE 488.2 Standard interface
- Complete Talker/Listener/Controller
- Industry standard 32-bit PCI bus
- Data transfer rates over 1.5 Megabytes/sec
- 1024-word FIFO buffer
- High-Speed State Machine Bus Manager
- 7 Interrupt lines, shared interrupt capability
- Transparent interrupt enabling/disabling
- Includes GPIB-Library software
- Low profile MD1 size

USB-based Data Acquisition & Control Modules



USB-4622

5-port USB 2.0 Hub

- 5 downstream USB 2.0 port (Type A)
- Compatible with USB 2.0/1.1/1.0
- 480Mbit/s high-speed data transfer
- LED indicators
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection



USB-4750

32-ch Isolated DI/O USB Module

- Compatible with USB 1.1/2.0
- Bus-powered
- 16 isolated DI and 16 isolated DO channels
- High voltage isolation on all channels (2500 V_{DC})
- High sink current on isolated output channels (100 mA/Channels)
- Supports 5 ~ 40 V_{DC} isolated input
- Interrupt handling
- Timer/Counter capability
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection



USB-4711/4711A

100/150 kS/s, 12-bit USB Multifunction Module

- Supports USB 2.0
- Bus-powered
- 16 analog input channels
- 12-bit resolution AI
- Sampling rate up to 150 kS/s
- 8 DI/8 DO, 2 AO and one 32-bit event counter
- Wiring terminal on modules
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection



USB-4751/4751L

48/24-ch TTL DI/O USB Module

- Compatible with USB 1.1/2.0
- Bus-powered
- 48 TTL digital I/O lines
- Emulates mode 0 of 8255 PPI
- Buffered circuits for higher driving capacity than 8255
- Interrupt handling
- Timer/Counter interrupt capability
- Supports both dry and wet contact
- 50-pin Opto-22 compatible box header
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection



USB-4716

200 kS/s, 16-bit USB Multifunction Module

- Supports USB 2.0
- Bus-powered
- 16 analog input channels
- 16-bit resolution AI
- Sampling rate up to 200 kS/s
- 8 DI/8 DO, 2 AO and 1 32-bit counter (USB-4716L w/o AO)
- Wiring terminal on Modules
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection



USB-4761

8-ch Relay, 8-ch Isolated DI USB Module

- Compatible with 1.1/2.0
- Bus-powered
- 8 relay output channels and 8 isolated digital input channels
- LED indicators to show activated relays
- 8 Form C type relay output channels
- High-voltage isolation on input channels (2,500 V_{DC})
- High ESD protection (2,000 V_{DC})
- Wide input range (5 ~ 30 V_{DC})
- Interrupt handling capability
- Wiring terminal on Modules
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection



USB-4718

8-ch Thermocouple Input Module

- Supports USB 2.0
- Support voltage, current, and thermocouple inputs
- Bus-powered
- 8 thermocouple input channels
- 2,500 VDC isolation
- Support 4 ~ 20 mA current output
- Wiring terminal on modules
- 8-ch isolated DI and 8-ch isolated DO
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection



USB-4671

GPIB USB Module

- Supports USB 2.0
- Convenient portable design
- Bus-powered
- Complete IEEE 488.2 compatibility
- Full driver, library, and example support, including: Visual C++, C++ Builder, Visual Basic, and Delphi drivers.
- Provides powerful and easy-to-use configuration utility
- No GPIB cable required for instrument connection
- Plug & Play installation and configuration

Industrial I/O

Motion Control Cards/Modules



PCI-1202U

2-port AMONet RS-485 Master Card

- Max. 20 Mbps transfer rate
- 2 independent AMONet RS-485 Master Rings
- Max. 128 AMONet RS-485 slave modules supported
- Programmable digital input to notify events
- Easy installation with RJ45 phone jack and LED diagnostic



PCM-3202P

2-port PC/104+ AMONet RS-485 Master Card

- Max. 20 Mbps transfer rate
- Supports 2 independent AMONet RS-485 rings
- Supports up to 128 AMONet RS-485 slave modules
- Easy installation with RJ45 phone jack and LED diagnostics
- Max. 100 m (20 Mbps/32 slave modules) communication distance



PCI-1240U

4-axis Universal PCI Stepping/Pulse-type Servo Motor Control Card

- Independent 4-axis motion control Hand wheel and jog function
- 2/3-axis linear interpolation function
- 2-axis circular interpolation function
- Continuous interpolation function
- Programmable T/S-curve acceleration/deceleration rate
- Up to 4 MPPS output for each axis
- Two pulse output types: CW/CCW or Pulse/Direction
- Up to 1 MHz encoder input for each axis
- Two encoder pulse input types: A/B phase or Up/Down
- Constant speed control Position management and software limit switch function
- BoardID switch



PCM-3240

4-axis PC/104 Stepping/Pulse-type Servo Motor Control Card

- PC/104 interface
- Independent 4-axis motion control Hand wheel and jog function
- 2/3-axis linear interpolation function
- 2-axis circular interpolation function
- Continuous interpolation function
- Programmable T/S-curve acceleration/deceleration rate
- Up to 4 MPPS pulse output for each axis
- Two pulse output types: CW/CCW or Pulse/Direction
- Up to 1 MHz encoder input for each axis
- Two encoder pulse input types: A/B phase or Up/Down
- Constant speed control Position management and software limit switch function
- BoardID switch

AMONet Machine Control Box



AMAX-2050KW

GX2-400 Machine Control Box with AMONet Interface

- Onboard AMD Geode GX2 processor, up to 256 MB onboard DDR
- 128 Kbyte battery backup RAM
- Supports AMONet series for remote motion control and data acquisition
- Two RS-232 and One RS-422/485 ports with automatic flow control
- One 10/100Base-T RJ-45 port and two USB ports
- Four programmable diagnostic LEDs, and one buzzer
- Design-in IP protection mechanism
- KW ready solution

AMONet Slave Modules

AMAX-2210 Series

1-axis AMONet RS-485 Motion Slave Modules

- DIN-rail mounting (L x W x H): 125 x 47.6 x 156 mm
- Max. 20 Mbps transfer rate
- Max. 6.5 Mhz, 1-Axis pulse output 28 bits counter for incremental encoder
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support
- Change speed on-the-fly
- Easy installation with RJ45 phone jack and LED diagnostic
- Easy installation for servo or stepping motor driver



AMAX-2242/J2S

4-axis AMONet RS-485 Motion Slave Module

- Max. 20 Mbps transfer rate
- Max. 6.5 Mhz, 4-Axes pulse output
- 28 bits counter for incremental encoder
- 2~4 axes Linear interpolation
- 2 axes circular interpolation
- T-curve and S-curve velocity profiles support
- Change speed on-the-fly
- Easy installation with RJ45 phone jack and LED diagnostic
- Easy installation for servo or stepping motor driver



AMAX-2710

12-bit, 100kS/s, 16-ch Analog Input, 4-ch Analog Output Slave Module

- DIN-rail mounting (L x W x H): 125 x 47.6 x 156 mm
- Max. 20 Mbps transfer rate
- 16-ch single-ended or 8-ch differential analog input
- Resolution: 12-bit
- Maximum sampling rate: 100 kS/s
- Easy installation with RJ45 phone jack



Rugged, Portable and Rackmounted Chassis — High Performance Controllers



MIC-3001/8

4U CompactPCI Chassis with 8-slot Backplane, Fan Tray Module, I/O and AC ATX Power Supply

- 8-slot hot swap compliant backplane
- Easy installation: rackmount or panelmount
- Hot swap fan tray module



MIC-3001AR/8

4U CompactPCI Chassis with 8-slot Backplane, Fan Tray Module, Rear I/O and AC ATX Power Supply

- 8-slot hot swap compliant backplane
- Rear I/O support
- 400W ATX power supply
- Hot swap fan tray module



MIC-3001CR/14

4U CompactPCI Chassis with 14-slot Backplane, Fan Tray Module, Rear I/O and cPCI Standard Redundant Power Supply

- 14-slot hot swap compliant backplane
- Easy installation: rackmount or panelmount
- Hot swap compliant backplane
- Hot swap fan tray module
- Optional fault detection and alarm notification
- Logic Ground and Chassis Ground can be isolated or common



MIC-3002AR/6

4U CompactPCI Chassis with 6-slot Backplane and Rear I/O Support

- 6-slot 3U CompactPCI backplane
- Easy installation: rackmount or panelmount
- Hot swap compliant backplane
- Stand feet on the bottom side for desktop applications
- Logic Ground and Chassis Ground can be isolated or common



MIC-3002AD

4U CompactPCI Chassis with 6-slot backplane and 6" LCD

- 6-slot 3U CompactPCI backplane
- Compact size, 4U high enclosure for 3U cPCI modules
- Side handle design and optional 6" LCD display for portable applications
- Stand feet on the bottom side for desktop applications
- Hot swap compliant backplane
- Logic ground and chassis ground can be isolated or common



MIC-3321

3U CompactPCI Pentium M 760 2.0G High-performance Controller

- Built-in Intel Pentium M 760 2.0G processor with 2MB L2 Cache
- Mobile Intel 915GM express chipset
- Supports up to 1GB DDR2 533/400 SDRAM soldered on board
- Extended operating temp: -25 ~ 70° C (Optional; MIC-3321C/ CS only)
- Dual Giga LAN on PCI-Express
- High-performance Intel Graphics Media Accelerator 900 VGA display
- Onboard CompactFlash disk socket
- Onboard 2.5" HDD support
- Rear I/O signal support for easy wiring

Diversified Data Acquisition and Communication Cards



MIC-3723/3723R

16-bit, 8-ch Non-isolated Analog Output Cards

- 16-bit high resolution
- 8 Analog output channels
- Support hot swap function
- Auto-calibration
- BoardID switch
- Support Rear IO



MIC-3680/3680R

2-port Isolated CAN Communication Cards

- CompactPCI specification PICMG 2.0 R3.0 compatible
- Hot swap support
- Two individual CAN ports
- Supports CAN2.0 A/B high speed transmission up to 1 Mbps
- 16 MHz CAN controller frequency
- Optical isolation up to 2,500 VDC
- Microsoft Windows DLL library and examples included
- Supports Windows 98/ME/2000/XP drivers and utility
- Support Rear IO

Industrial Communication



Complete Industrial Communication Solutions

Advantech's Industrial Communication series includes industrial communication cards and Fieldbus communication cards that offer cost-effective ways to add communication ports to your PC workstation, and industrial converters that connect control field devices to plant level systems. Industrial communication cards and Fieldbus communication cards support PCI-bus, ISA-bus, PC/104 and PC/104+ to fit into versatile industrial automation platforms.

Industrial Ethernet Switches

Gigabit Ethernet Solutions



EKI-6728

8-port 10/100/1000 Mbps Industrial Gigabit Unmanaged Ethernet Switch

- 8 x 10/100/1000 Mbps Ethernet ports
- Embedded switch controller for auto-negotiation
- Embedded memory buffer for store-and-forward transmissions
- 3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported



EKI-6628F

6-port 10/100 Mbps Industrial Unmanaged Ethernet Switch with 2-port 1000 Mbps (SFP) Fiber port

- 6 x 10/100 Mbps Ethernet ports
- 2 x 1000 Mbps SFP-type fiber ports for optional 1000BaseSX/LX device
- Embedded memory buffer for store-and-forward transmissions
- 3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported



EKI-7629C

8-port Robust 10/100 Mbps Unmanaged Ethernet Switch with 2-port Combo 10/100/1000 Mbps Ethernet Port / (SFP) Fiber Port

- 8 x 10/100 Mbps Ethernet ports
- 2 x combo 10/100/1000 Mbps Ethernet port / 1000Base-SX/LX (SFP) fiber ports (Optional)
- Embedded switch controller for auto-negotiation
- -3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported

Fast Ethernet Solutions



EKI-6527M/SC

EKI-6527S/SC

6-port Industrial 10/100 Mbps Unmanaged Ethernet Switch with Multi-mode/Single-mode Fiber Port

- 6 x 10/100 Mbps Ethernet ports and 1 x 100 Mbps multi/single-mode fiber port (SC type)
- Embedded switch controller for auto-negotiation
- Embedded memory buffer for store-and-forward transmissions
- 3,000 VDC surge protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported



EKI-7525

5-port Robust 10/100 Mbps Industrial Unmanaged Ethernet Switch

- 5 x 10/100 Mbps Ethernet ports
- Embedded switch controller for auto-negotiation
- Embedded memory buffer for store-and-forward transmissions
- 3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported



EKI-7528

8-port Robust 10/100 Mbps Industrial Unmanaged Ethernet Switch

- 8 x 10/100 Mbps Ethernet ports
- Embedded switch controller for auto-negotiation
- Embedded memory buffer for store-and-forward transmissions
- 3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- Dual +10~48 VDC power inputs supported

Industrial Ethernet Switches

Managed Ethernet Switches



EKI-6558

8-port 10/100 Mbps Industrial Managed Redundant Ethernet Switch

- 8 x 10/100 Mbps Ethernet ports
- Smart Redundant Ethernet Ring (recovery time < 100ms) and RSTP (Rapid Spanning Tree Protocol) supported
- GMP Snooping to filter multicast traffic from Ethernet
- SNMP V1 network management protocol supported
- IEEE 802.1Q tagged Virtual LAN (VLAN) supported
- IEEE 802.1p/1Q QoS for traffic classification and prioritization

Industrial Media Converters



ADAM-6841SX

ADAM-6841LX

Gigabit Ethernet to Fiber Optic Converters

- 1-port 1000 Mbps Ethernet port
- 1-port 1000 Mbps fiber port with SC type connector for 1000Base-SX/LX device
- Internal jumper for full/half duplex setting
- 3,000 VDC surge EFT protection for power line
- 4,000 VDC Ethernet ESD protection
- +10~30 VDC voltage power input



ADAM-6541P

ADAM-6541S

Enhanced Ethernet to Multi-mode/Single-mode Fiber Optic Converter

- 1-port 100 Mbps multi-mode fiber optics
- Internal jumper for Link Fault Pass-Through (LFS) setting
- Remote/local loop back test for self-diagnostic
- +10~30 VDC voltage power input
- 3,000 VDC surge EFT protection for power line
- Wide operating temperature from 0 to 60° C

Ethernet Data Gateways



ADAM-4579W

ADAM-4577W

1/2-port RS-232/422/485 to 802.11b/g WLAN Universal Device Gateway

- IEEE 802.11b/g standard supported
- Supports standard network API: Winsock, socket
- Wireless LAN Ad-Hoc and infrastructure modes
- High transmission speeds up to 230 Kbps
- Advanced security mechanism to avoid unauthorized access
- Support any operating system with TCP/IP protocol: Windows, Linux, etc.



USB-4602B

2-port RS-232 to USB Converter w/Surge Protection

USB-4602BM

2-port RS-232/422/485 to USB Converter w/Surge Protection

- 2 x RS-232/422/485 serial ports (USB-4602BM)
- Full compliance with USB V1.1 and V2.0 specifications
- Transmission speed up to 921.6 Kbps
- Automatic RS-485 data flow control
- Support bus power (5 VDC) and external power input (10~48 VDC)
- Plug & Play and Hot-swap



USB-4604B

4-port RS-232 to USB Converter w/Surge Protection

USB-4604BM

4-port RS-232/422/485 to USB Converter w/Surge Protection

- 4 x RS-232/422/485 serial ports (USB-4604BM)
- Full compliance with USB V1.1 and V2.0 specifications
- Transmission speed up to 921.6 Kbps
- Automatic RS-485 data flow control
- Support bus power (5 VDC) and external power input (10~48 VDC)
- Plug & Play and hot swap

Building Automation Systems



Web-enabled Building Automation Systems

Advantech offers a total solution for Building Automation systems including facility management (HVAC, water treatment, power, etc.) and security (access control, door/window alarm, etc.). Equipped with Advantech's WebView, WebLink, BAS-2000 and ADAM modules, system integrators can easily create powerful and flexible BAS applications. The following are the new products of BAS solutions.

Controllers



WebView-660

Web-enabled HMI with 6.4" VGA TFT LCD Display

- 6.4" TFT LCD
- Super slim and compact design with plastic housing
- NEMA4/IP65 compliant front panel
- Built-in Windows CE with Advantech WinCE WebAccess
- Support Vector-based graphics
- Support various of protocol driver to communicate with different devices
- Multi-thread communication, response time is fast
- Remote control and monitor by Web Browser
- All project programming, database and display configuration, alarm setting and schedule configuration can be done remotely
- Easy to diagnosis and maintenance, help to reduce maintenance cost
- Import BMP, JPEG, GIF



WebView-1261

Web-enabled HMI with 12.1" SVGA TFT LCD Display

- 12.1" SVGA TFT LCD
- Super slim and compact design with Al-Mg housing NEMA4/IP65 compliant front panel
- Automatic data flow control RS-485
- Built-in Windows CE with Advantech WinCE WebAccess
- Support Vector-based graphics
- Support various of protocol driver to communicate with different devices
- Multi-thread communication, response time is fast
- Remote control and monitor by Web Browser
- All project programming, database and display configuration, alarm setting and schedule configuration can be done remotely
- Easy to diagnosis and maintenance, help to reduce maintenance cost
- Import BMP, JPEG, GIF

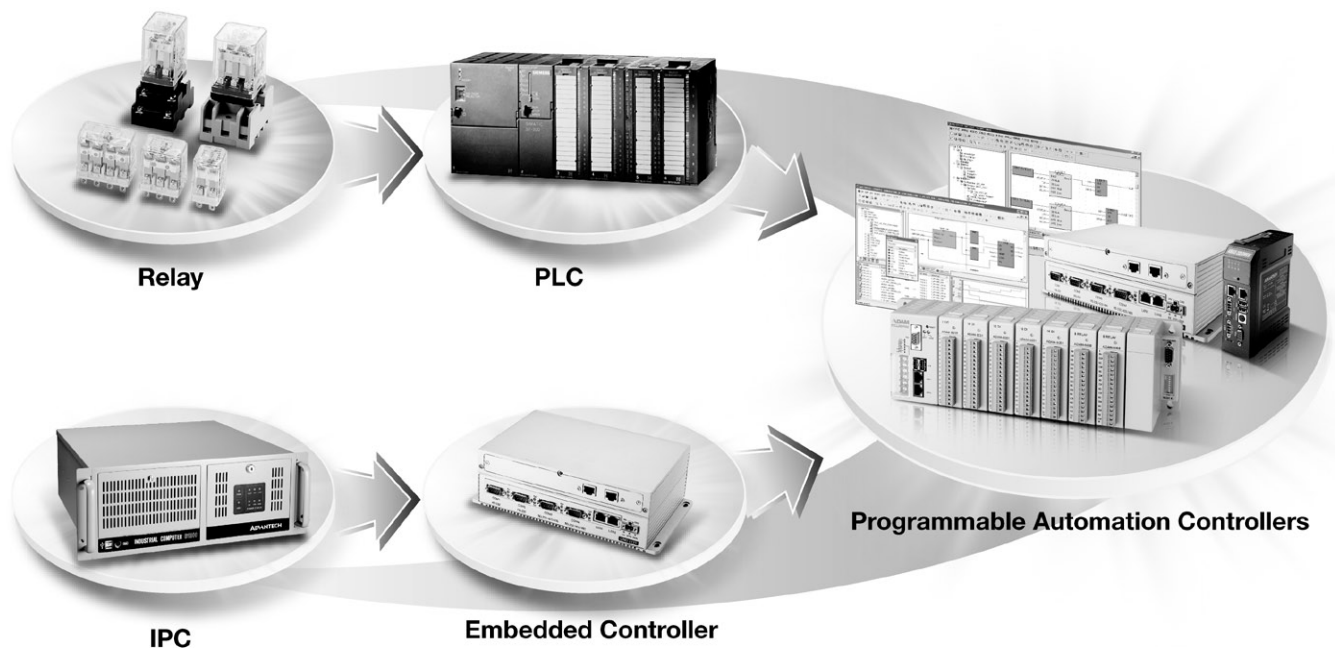


WebLink-2170

Web-enabled Communication Gateway

- Two RS-232 and two RS-232/422/485 ports with automatic flow control.
- Two 10/100Base-T RJ-45 ports
- Two USB and one type I/O PC Card
- PC/104 expansion slots
- Built-in Windows CE with Advantech WinCE WebAccess Gateway
- Support various of protocol driver to communicate with different devices
- Multi-thread communication, response time is fast
- All project programming, database and display configuration, alarm setting and schedule configuration can be done remotely
- Easy to diagnosis and maintain, help to reduce maintenance costs

Simplify Complex Control Tasks with Programmable Automation Controllers



The Next Generation of Automation Controller

High level industrial applications require complex control capabilities, high speed analog measurements, multiple program support with different cycle times, open communication functions and enterprise-level network integration. In order to satisfy the market demands for complex control, Programmable Automation Controllers (PAC) are emerging in the market. PAC's define the new generation of industrial controllers which feature the PC's openness, high performance CPU, rich memory and powerful software functionality as well as the PLC's reliability and robustness.

The above figure shows the evolution of the automation controller. The PAC acronym is being used both by traditional PLC vendors to describe their high end systems and by PC-based Control companies to describe their industrial control platforms. PAC development is the same goal of PLC and PC-based Controller manufacturers. Programmable Automation Controllers incorporate multi-domain functionality, common development platforms, open standard interfaces and distributed modular architectures. PLC simply understates the capability of current automation systems. As the new generation comes to market, the more apt notion of PAC will displace its predecessor. PAC's augment the function and role of traditional PLC's by defining new capabilities.

Another approach of PAC is evolving from Industrial PC with mature embedded computing technology. With the nature of open architecture, PAC provides not only Industrial Computer's high computing performance but also the PLC's robustness.

One Control Engine & Development Environment with Multiple Application Domains & Hardware Platforms

The Breakthrough of Embedded Computing Technology

Progressive embedded computing technology overcomes traditional engineering obstacles, allowing easier changeover from PC-Based Controllers to Programmable Automation Controllers.

Stable Operating System:

Industrial applications require highly stable operating systems to satisfy certain conditions such as real-time functions, system crashes and unpredictable system resets. The embedded operating systems such as Windows CE and Embedded XP are typical in the market. Windows CE can meet the real-time application requirements. Embedded XP is a modularized Windows XP. After proper programming, the control program can work correctly even the system is under blue screen status. Through Embedded XP's SP2 EWF function, engineers have no fear of OS crash by an unexpected system reset.

Reliable Parts:

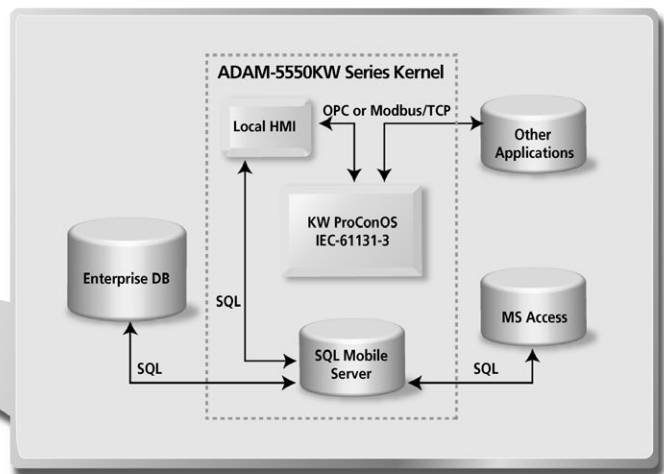
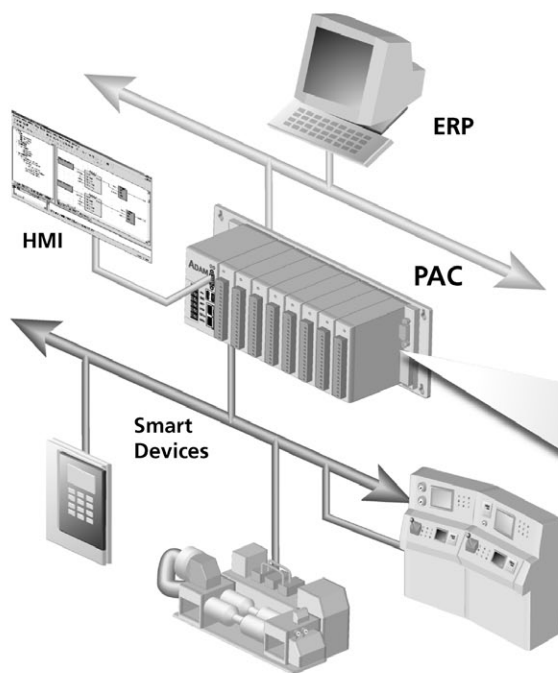
PAC's have removed unreliable moving parts, such as fans and hard disks. Low power consumption CPU's and fanless technologies are mature now. The wide operating temperature (-40 ~ 85° C) of CF cards as well as Ethernet Chips is available in the market. High capacity CF cards with sizes up to 2GB are also common and standard in the market today.

Standard Programming Language:

Operators in the plant need to fix malfunctions and recover systems in the shortest amount time. By using ladder diagrams, they can recover the system manually by forcing the coils to return to the default status and fix the affected codes. Now, the IEC-61131-3 standard can allow up to 5 PLC programmable languages, which allows manufacturers to save on developing time by using three kinds of graphical mixed languages.

Openness of Automation Architecture:

The use of Ethernet TCP/IP, Internet and IT standards maximizes data integration throughout an enterprise. In a collaborative manufacturing environment, the multi-functional capabilities of a PAC enable easy access and exchange of production process information, and connect factory-floor operations to enterprise-level systems. Where traditional PLC products require proprietary programming languages, a PAC can be commanded using IT standards, such as SQL queries, and open data transfer technology, such as OLE for process control (OPC) and extensible markup language (XML). This provides faster updates of actual, not copied, data, and consumes minimal bandwidth because the enterprise system does not have to poll the controllers. Rather, the PAC's send data based on events.



Open & modular

The Use of Ethernet TCP/IP, Internet and IT Standards Maximizes Data Integration Throughout an Enterprise

Programmable Automation Controllers (ADAM-5000) & Software

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Programmable Automation Controllers

What Are Programmable Automation Controllers (PAC's)?

The programmable logic controller (PLC), was introduced in the 1960's, and has been proven as a reliable and rugged automation controller for harsh industrial environments. Surveys by the ARC and VDC show that more than 70% of PLC applications require less than 128 points of digital I/O. About 80% of applications can be finished by 20 ladder-logic instructions. These average requirements have resulted in the recent growth of low-cost, tiny PLC's with digital I/O that uses ladder logic.

Although 80% of applications can be satisfied by low-cost simple controllers, the other 20% are more complex, and traditional PLC's cannot fully satisfy them. These higher level applications usually require complex control capabilities, high speed analog measurements, multiple programs support with different cycle times, open communication functions and enterprise-level network integration.

Different domain applications, such as discrete control, process control and motion control, have traditionally adopted proprietary controllers, which require developers to spend a lot of effort on software development and maintenance. These requirements would be best suited with a controller that supports single development tools and has multiple domain functionality. The new controller architecture integrates multiple domain functionality on single controller which saves on system design costs, project implementation, maintenance, training efforts and spare part stock.

In order to satisfy the market demands for complex control, the concept of the Programmable Automation Controller (PAC) is emerging in the market. PAC's define the new generation of industrial controllers which feature the PC's openness, high performance CPU, rich memory and powerful software functionality as well as the PLC's reliability and robustness. The terminology Programmable Automation Controller (PAC) is defined by ARC Advisory Group.

The Definition of a PAC is as Follows:

- Multi-domain functionality, including logic, motion, drives and process on a single platform
- Single multi-discipline development platform incorporating common tagging and a single database
- Software tools that allow design by process flow across several machines or process units
- Open, modular architectures that mirror industry applications from machine layouts in factories to unit operations in process plants
- Employs de-facto standards for network interfaces and languages, etc., allowing data exchange as part of networked multi-vendor systems



How Will PAC's Penetrate the PLC Market?

PAC's focus on complex control applications, rather than displace the traditional configurations of simple control applications, where PLC's currently work very well.

Complex control applications need a PAC's flexibility, so users can customize and optimize it to meet their particular requirements for controlling and automating both machines and plants. All parts of the PAC system are designed to maximize software and hardware integration. There should be one programming and engineering tool for a complete system. This capability includes transparent access for all parameters and functions within the entire system, combining PLC, remote I/O, motion control, drives, PID control, and data handling, along with a maximum integration level to the enterprise through the use of Ethernet TCP/IP, Internet, and IT standards.

Use of PAC's will continue to shift the emphasis toward open communication standards and software integration, with less focus on the hardware. Users will become more focused on the total system performance rather than the hardware selection. So PAC's will win more satisfactions from customers who are not satisfied by traditional PLC's especially when they need more than simple discrete I/O control function.

Advantech PAC Solutions

Open PAC System – ADAM-5550KW Series

ADAM-5550KW is a Programmable Automation Controller designed for control tasks which require Industrial PC computing performance with the PLC's robustness. ADAM-5550KW offers an AMD Geode GX533 CPU along with control specific features such as watchdog timer, battery backup RAM and deterministic I/O. ADAM-5550KW features 5 standard IEC61131-3 programming languages in CE 5.0, so PLC users can develop control strategies with their own familiar programming languages. The powerful Multiprog KW Software and stable ProConOS have allowed ADAM-5550KW to become the best choice for a Programmable Automation Controller on the market today. With the optional HMI Software and built-in VGA port, no longer will users be required to build up additional SCADA PC's in their applications. This open PAC system is ideal for a variety of applications ranging from machine automation to SCADA applications.

Compact PAC System – UNO-2171KW

UNO-2171KW is a compact size Programmable Automation Controller designed for control tasks which require Industrial PC computing performance with the PLC's robustness. UNO-2171KW offers a high-performance Celeron M 1GHz CPU and supports PC/104 expansion. The selected PC-104 cards such as AMONet Motion Control, Analog I/O modules, Digital I/O modules and Serial communication module are available for the KW SoftLogic support. This compact PAC system is ideal for a variety of applications such as motion, vision and transportation applications.

PAC Characteristics

Multi-domain Functionality on a Single Platform

- PAC's will play a major role in different application domains by adhering to open industry standards and providing multidiscipline programming and functionality.

Single Developing Tool for Various Form Factors

- A single programming tool provides transparent access for all parameters and functions within the entire system. A single platform can combine PLC, SoftLogic, remote input/output (I/O), motion control, PID control and data handling.
- Requires only a one-time design, and then can easily leverage the control know-how into different control platforms to meet versatile automation projects needs

Supports IEC-61131-3 Programming Languages

- The standard includes Ladder Diagram, Function Block, Sequential Function Chart, Structure Text and Instruction List which covers almost all PLC programming languages.
- Cross languages for three graphical languages is supported to simplify control programs

Multiple Speeds with Deterministic I/O

- Some control systems require various speed applications, and PAC's provide multiple speeds with deterministic I/O.

VGA Port

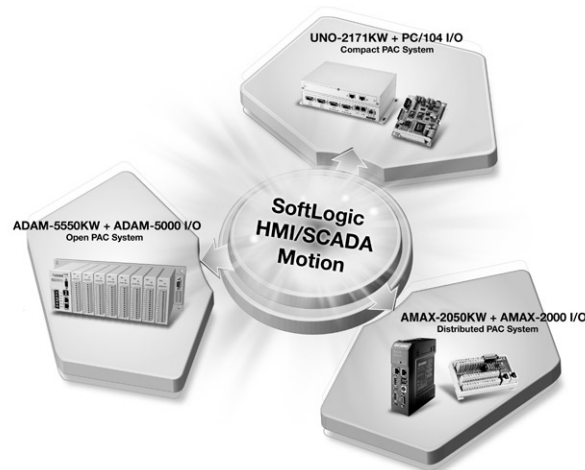
- Most of PAC system provides VGA port, no need additional Human Machine Interface, the system can connect directly to display and that save lot of cost.

Seamless Integration between SoftLogic and HMI Software

- SoftLogic creates single tagging database and HMI Software shares the same tagging database

Distributed PAC System – AMAX-2050KW

AMAX-2050KW is a Pentium III grade platform with an onboard AMONet controller, which is designed for embedded machine automation applications. It provides special mechanism to protect machine builder's IP, also the self diagnostic function. From the peripheral point of view, with one AMONet, master port AMAX-2050KW can control up to 2048 I/O points and 64 axes. Also, AMAX-2050KW offers one LAN and dual USB interfaces to fulfill user's various communication needs. In addition, it also offers two RS-232 and one RS-422/485 communication port with automatic flow control functionality. Because of its openness, great expansion capabilities and reliable design (fanless and diskless), the AMAX-2050KW is an ideal distributed PAC system to implement custom applications for diversified applications.



Transfer Data and Information via Ethernet and IT Standard Technology

- Utilization of Ethernet, Internet and IT standards such as FTP, Web Server, Email Alarm, SQL, and OPC

Standard Communication

- Multi-vendor data exchange by utilizing de-facto standard such as Modbus

Open and Modular Architecture

- Flexible for upgrade and maintenance
- Easy to expand local and remote I/O modules

Storage Function

- PAC Storage function can be set for your assigned time and conditions.

Complex Control Functions

- Complex control algorithms need powerful floating point calculations and large memory capacity.
- The software development tool provides PID Function Block and allows users to develop custom function blocks with proprietary complex controls, such as Fuzzy Logic Control and Neural Network Control.

Remote Maintenance

- Operators can access the supplier's Web site, allowing technicians to diagnose and troubleshoot problems directly from the plant floor by PAC's Web-based monitoring and maintenance function.

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

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CompactPCI

12
Signal Conditioning

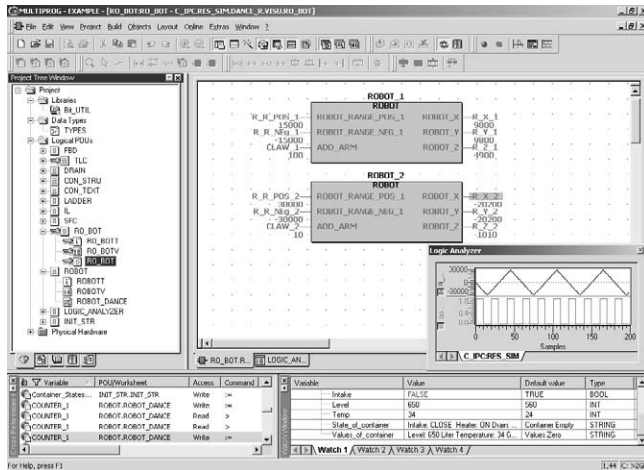
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Motion Control I/O

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Ethernet Switch

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EDG

17
ICOM



Features

- IEC 61131-3 Programming languages
- Intuitive programming with a clear project structure
- Cross-compiling: FBD, LD and IL can be cross-compiled to each other
- Multi user functionality shortens programming time
- Management of distributed controls
- Network variables: Easy and powerful configuration of distributed communication
- Powerful debugging tools: Online changes, PLC simulation, Overwriting & forcing, breakpoints, watch windows & recipes, Logic analyzer, and cross reference.

Introduction

MULTIPROG® supports all IEC 61131-3 programming languages. Depending on the task to be handled, your experience and company standards, you may choose one of the five standardized programming languages. The use of MULTIPROG offers you many advantages. Our long-term experience in the automation industry guarantees you a sophisticated software product.

The open architecture of MULTIPROG provides a new direction in the creation of automation software. MULTIPROG Automation Interface guarantees consistent data. Via the automation interface, MULTIPROG opens its data for other tools. MULTIPROG allows external creation and modification of its project data. Furthermore, specific attributes can be added. As all essential data can be displayed in MULTIPROG, frequent switching between different tools during PLC programming and commissioning is no longer necessary. Observers guarantee data consistency with other tools, thus the engineering effort for the programming of PLCs is reduced.

Reliability by Experience

KW MULTIPROG is based on an embedded softlogic controller that has been applied in the automation industry since 1991. With over 250,000 runtime installations worldwide, a sophisticated and reliable product is available which is continuously adapted to new technologies.

Specifications

Hardware Requirements

Device	Minimum	Recommended
IBM compatible PC with Pentium Processor	200 MHz	350 MHz
System RAM	64 MB	128 MB
Hard Disk	60 MB free memory space	
CD-ROM drive		
VGA Monitor Color Settings	256 colors	True color
Resolution	800 x 600	1024 x 768
RS-232 interface	Optional	
Mouse	Recommended	

Advantech Hardware Supported

- ADAM-5550KW Series
- ADAM-5510KW Series
- UNO-2171KW
- AMAX-2050KW

Software Requirements

- Microsoft® Windows NT 4.0 SP5 or Windows 2000/XP
- Microsoft Internet Explorer 5.02 or above

IEC 61131-3 Programming Languages (all supported)

- Instruction List (IL)
- Structured Text (ST)
- Function Block Diagram (FBD)
- Ladder Diagram (LD)
- Sequential Function Chart (SFC)
- All programming languages can be mixed within one project

Ordering Information

- MPROG-BAS33** KW Multiprog Softlogic Development Kit Basic Edition v3.3 for Windows NT/2000/XP (128k-byte I/O)
- MPROG-ADV33** KW Multiprog Softlogic Development Kit Advanced Edition v3.3 for Windows NT/2000/XP (64k-byte I/O)
- PROCON-NTOPC20** KW ProConOS OPC Server Runtime License V 1.12 for Windows NT/2000/XP (ADAM-5510KW Series is not supported)
- PROCON-CEOPC20** KW ProConOS OPC Server Runtime License v2.0 for Windows CE.NET (ADAM-5510KW Series is not supported)

KW for Programmable Automation Controllers

Advantech Programmable Automation Controller (PAC) solution leverages KW-Software's Multiprog and ProConOS as the single developing tool and SoftLogic control kernel. It requires only a one-time design, and then can easily leverage the control know-how into different control platforms to meet versatile automation projects needs. KW SoftLogic also creates single tagging database and HMI Software, such as Advantech Studio, shares the same tagging database by OPC server under Windows CE operating system. All the features can help users to save the visible and invisible cost.

Industry Standard IEC 61131-3 Programming

For faster time-to-market and reduced support costs, take advantage of programming support for the five globally recognized PLC languages: Ladder Diagram, Function Block, Sequential Function Chart, Structured Text, and Instruction List. Develop your application in any one of the five languages, or use any combination that fits your development needs.

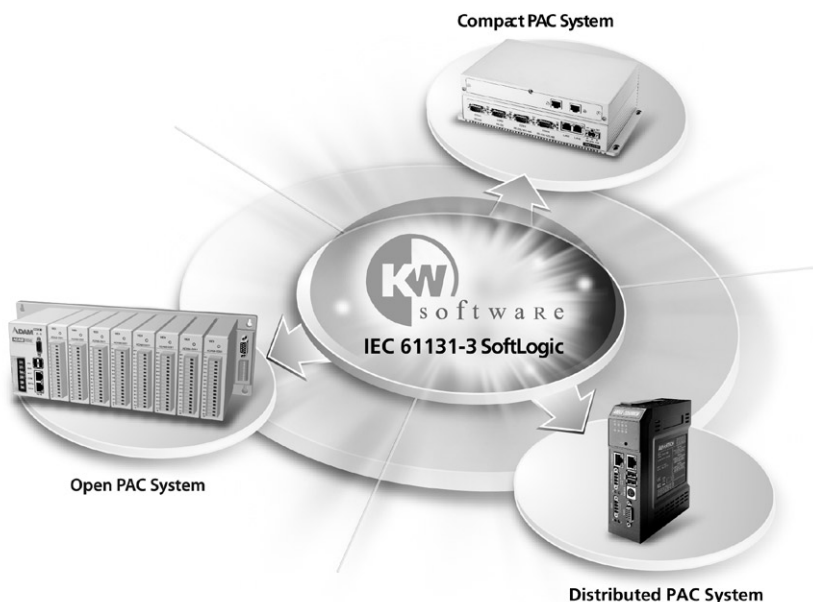
Real-time Logic Execution

Programmable Automation Controllers offers real-time, deterministic execution of your application code down to 1 milli-second resolution. Take advantage of Programmable Automation Controllers optimized logic runtime engine that automatically compiles your IEC-61131 application code for maximum performance. Programmable Automation Controllers brings the benefits of real-time control to a cost effective, so you can take advantage of local real-time control with a wide range of remote monitoring and management features. All this integrated into one package!

Integrated Development Environment

Programmable Automation Controllers brings integrated programming of logic and HMI to simplify programming and maintenance tasks. Integrated and synchronized database management eliminates the need to create and track multiple database items for HMI and logic programs, with the benefits of reduced programming time and fewer startup errors for your project. And, take advantage of Programmable Automation Controllers powerful on-line debugging tools to quickly track down and correct programming errors.

Programmable Automation Controllers



Broad Range of I/O Support

The Programmable Automation Controllers product series offers flexible I/O support to meet a wide range of application requirements. Take advantage of Programmable Automation Controllers powerful integrated HMI and logic functions in combination with an array of distributed serial and Ethernet I/O products, or choose a platform with fully integrated I/O for maximum performance and cost effectiveness.

Automatic Remote Handling of Events & Alarms via Email

Programmable Automation Controllers support alarm and event handling. Track local conditions and generate reports based on time, event, or exception conditions, then automatically issue reports or alarms via e-mail worldwide! By monitoring conditions and trends in real time, Programmable Automation Controllers offers the possibility to predict failures before they cause service interruptions or lost production. Protect and optimize the investment in your machine, process, or facility with Programmable Automation Controllers.

Browser-only Client for Remote Monitoring

With Programmable Automation Controllers use Internet Explorer or Netscape browser software to remotely (via Intranet or Internet) monitor or control your machine, process, or facility. This offers true "zero cost" remote access with full security capability, so you can efficiently monitor and troubleshoot from anywhere in the world. Take advantage of this feature to lower your service costs and reduce or eliminate downtime.

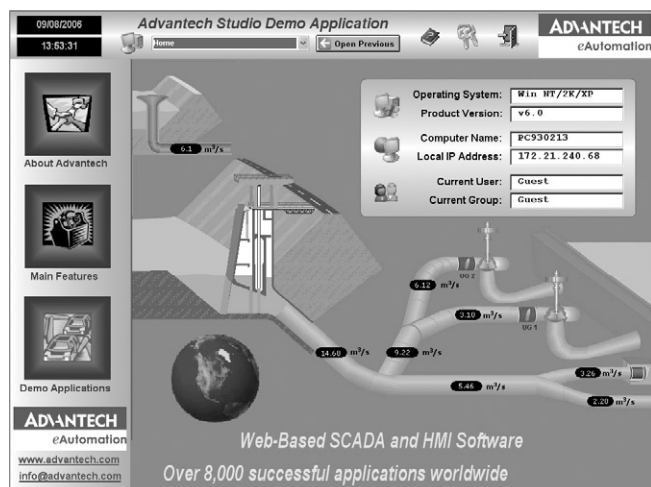
Open Interfaces for Maximum Flexibility

Take advantage of the open architecture of the Programmable Automation Controllers with support for standard connectivity interfaces like OPC, XML, and SQL. Easily integrate standard information technologies into your existing factory or building network structure and take advantage of the benefits of local control with global connectivity!

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPCC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

Advantech Studio

Web-enabled HMI/
SCADA Software



Features

- Publish real-time dynamic and animated graphic screens, trends, alarms, reports, and recipes to standard browsers
- Import and export recipes, reports and real-time data using the XML format
- Use the same development environment as applications running on Microsoft® Windows® NT/2000/XP and CE.NET or on the Web
- Integrates seamlessly with your Windows desktop applications (such as Microsoft Word and Excel)
- View multiple clients from one Web browser
- Multi-level security for applications, including use over Intranets and Internet
- Conforms to industry standards such as Microsoft DNA, OPC, DDE, ODBC, XML, and ActiveX
- Software protection type: Softkey

Introduction

Advantech Studio is a powerful, integrated collection of automation tools that includes all the building blocks required to develop modern Human Machine Interfaces (HMIs), and Supervisory Control and Data Acquisition System (SCADA) applications that run on Windows NT/2000/XP and CE.NET, or in an Internet/Intranet environment. A simple drag and drop, point and click development environment simplifies the most complex behavior of your live processes, but a flexible and easy-to-use scripting language is also available for special requirements. Advantech Studio is currently being used in nearly 2,000 installations worldwide.

Advantech Studio for Windows CE.NET is based on Advantech Studio's full scale supervisory control and monitoring system, and has almost all of the same features, including an object-oriented database, math functions, report generation, archiving, alarms, batch recipes, and interfaces for PLCs, remote I/O and TCP/IP networking. In other words, Advantech Studio for Windows CE.NET is a full-function supervisory control and monitoring system that fits in the palm of your hand or can be embedded in the chipset of a low-cost operator interface. Advantech Studio for Windows CE.NET is software for complete supervisory control and process monitoring with an operator interface that is available for the Microsoft Windows CE.NET operating system platform.

System Requirements

	Product Series or Part Number	AS256-WR60	AS256-WD60	AS512-WR60	AS512-WD60	AS1500-WS60	AS1500-WR60
Type	S/W Scope	Win32 Lite	Win32 Lite	Win32 Lite Plus	Win32 Lite Plus	Local Interface	Local Interface
	Authorized Version	R	D	R	D	S	R
Overview	Development Tool OS	-	WinNT/2K/XP	-	WinNT/2K/XP	WinNT/2K/XP	-
	Runtime OS	WinNT/2K/XP	-	WinNT/2K/XP	-	WinNT/2K/XP	WinNT/2K/XP
Database	Application Tags	up to 256	up to 256	up to 512	up to 512	up to 1,500	up to 1,500
Communication	Drivers	only 2	only 2	only 2	only 2	3 by default	3 by default

	Product Series or Part Number	AS1500-WD60	AS4000-WS60	AS4000-WR60	AS1500-CD60	AS4000-CD60	WebLink	WebOIT
Type	S/W Scope	Development	Operator Workstation	Operator Workstation	Development for CE Runtime	Development for CE Runtime	CE Runtime	CE Runtime
	Authorized Version	D	S	R	D	D	R	R
Overview	Development Tool OS	WinNT/2K/XP	WinNT/2K/XP	-	WinNT/2K/XP	WinNT/2K/XP	-	-
	Runtime OS	-	WinNT/2K/XP	WinNT/2K/XP	-	-	WinCE	WinCE
Database	Application Tags	up to 1,500	up to 4,000	up to 4,000	up to 1,500	up to 4,000	up to 4,000	up to 4,000
Communication	Drivers	3 by default	5 by default	5 by default	only 3	up to 3	up to 3	up to 3

Legend	
Supported	✓
D	Determined by Development version only
R	Determined by Runtime version only
S	Suit version includes Development and Runtime versions

Specifications

- **Pre-built Servers** Web Server, FTP Server, Telnet Server, Remote Access Server (RAS)
- **HMI Functions** 100+ built-in PLC drivers (up to 3 running simultaneously)
 - 8 simultaneous web clients
 - OPC Client and Server
 - Email (SMTP) Integration
 - Fully featured dynamic graphics with object library
 - Alarming, Trending, Reporting features
 - Scripting Language with 100+ standard functions
 - Recipes (ASCII and XML formats)
 - Remote project management including online editing
 - Multi-level security for use over Intranet and Internet

System Requirements: Development Environment

- Microsoft Windows XP, 2000, NT 4.0 service pack 4 or higher
- Min. 256 MB of RAM. (512 MB Recommended)
- 100 MB of free hard-disk space for installation
- CD-ROM drive (for installation only)

System Requirements: Runtime Environment

- Windows CE.Net
- Min. 64 MB of memory
- or
- Microsoft Windows 2000/XP/NT 4.0 with Service Pack 4 or higher
- Min. 32 MB of RAM. (64 MB Recommended)
- Web Browser that supports ActiveX objects

Hardware Platforms Supported

- **ADAM-5550KWAS** 8-slot Programmable Automation Controller with KW & AS1500-CR60

Applications

- Remote Utility Management
- Building Automation
- Water and Wastewater Management
- Factory Automation
- Machine Builder

Ordering Information

Suit Version

- **AS1500-WS60** AStudio Development Kit Professional Edition for Windows XP/2000/NT (including DEV and RT Editions)
- **AS4000-WS60** AStudio Workstation Professional Edition for Windows XP/2000/NT (including DEV and RT Editions)

Development Version

- **AS256-WD60** AStudio Development Kit for Windows XP/2000/NT (Asia Only)
- **AS512-WD60** AStudio Development Kit for Windows XP/2000/NT (Asia Only)
- **AS1500-WD60** AStudio Development Kit for Windows XP/2000/NT
- **AS1500-CD60** AStudio Development Kit for Windows CE .NET
- **AS4000-CD60** AStudio Workstation Development Kit for Windows CE .NET

Runtime Version

- **AS256-WR60** AStudio Runtime Edition for Windows XP/2000/NT (Asia Only)
- **AS512-WR60** AStudio Runtime Edition for Windows XP/2000/NT (Asia Only)
- **AS1500-WR60** AStudio Runtime Edition for Windows XP/2000/NT
- **AS4000-WR60** AStudio Runtime Edition for Windows XP/2000/NT

Upgrade Kit

- **AS1500-CD60/U** Upgraded kit from AS1500-CD51 to AS1500-CD60
- **AS1500-WD60/U** Upgraded kit from AS1500-WD51 to AS1500-WD60
- **AS4000-CD60/U** Upgraded kit from AS4000-CD51 to AS4000-CD60
- **AS4000-WS60/U** Upgraded kit from AS4000-WS51 to AS4000-WS60

Communication Drivers

Advantech	ADAM-4000, ADAM-5000/485, ADAM-6000
AEG Schneider (Modicon Square D Telemecanique)	AEG Compact PLC*, ModCon 984E*, Quantum Family
	ModCon 984E* Ethernet Quantum Ethernet Family
	MODBUS Plus compatible equipment
Allen-Bradley	Symax
	Family PLC2
	Family PLC5
	Family SLC500
Cutler-Hammer	Family 5000
GE-Fanuc	D50*, D300
Mitsubishi	Series 90, 90/30 CPU 341*
Omron	FX-232AW
	C-series Rack PCs
	Sysmac way
	Host link units
	Sysmac C200H*
Phoenix	E5CK/E5AF
	Interbus Compatible
	S5 (PG port)
	S5/S7 3964R, S7 (MPI)
	Profibus DP Slave Compatible
	Profibus DP Master Compatible
	Profibus FMS Compatible
Siemens	S5-945 PG Port
	MXT521
	UT35
	HR2500E
	DA100
	UT37/UT38
	UT750, UP750, UT550, UT520, UP550, UT350, UT320, UM350, UM330, UP350
	YS100
Modbus Ethernet	Modbus/TCP
Modbus	RTU/ASCII
OPC	Server/Client

Note: Advantech Studio V6.0 supports more than 150 communication drivers for 3rd party devices from different manufacturers such as Omron, Allen-Bradley, Siemens, and many more.

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
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- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-5500 Series Controllers Selection Guide

System	ADAM-5510M/5510E	ADAM-5510/TCP ADAM-5510E/TCP	ADAM-5510KW/ 5510EKW	ADAM-5510EKW/TP	ADAM-5550KW
CPU	80188				AMD Geode GX533 (GX2)
RAM	640 KB				128 MB DDR SDRAM
Flash ROM	256 KB				-
Flash Memory	256 KB	256 KB	768 KB	768 KB	-
Flash Disk	1 MB	1 MB	512 KB	512 KB	-
OS	ROM-DOS				WinCE 5.0
Real-time Clock	Yes				
Watchdog Timer	Yes				
COM1	RS-232 (ADAM-5510M) RS-232/485 (ADAM-5510E)	RS-232 (ADAM-5510/TCP) RS-232/RS-485 (ADAM-5510E/TCP)	RS-232 (ADAM-5550KW) RS-232/485 (ADAM-5510EKW)	RS-232/485	RS-232/485
COM2	RS-485				
COM3 (Programming)	RS-232 (TX, RX, GND)	RS-232 (TX, RX, GND)	RS-232 (TX, RX, GND)	RS-232 (TX, RX, GND)	RS-232
COM4	RS-232/485				
I/O Slots	4/8			8	
Power Consumption	4 W				12 W
Isolation					
Communication	2500V _{DC} (COM2 RS-485)				2500V _{DC} (COM2 RS-485) 1000V _{DC} (COM4 RS-485)
Communication Power	3000 V _{DC}				
I/O Module	3000 V _{DC}				
Diagnosis					
Status Display	Power, CPU, Communication, Battery				Power, User define
Self Test	Yes, while ON				
Software Diagnosis	Yes				
Communication					
Network	RS-232/485	Ethernet (RJ-45)	RS-232/485	Ethernet (RJ-45)	Ethernet (2 x RJ-45)
Speeds	1200 bps ~ 115.2 kbps	10/100 Mbps	9600, 38400, 57600 bps and 115.2 kbps	10/100 Mbps	10/100 Mbps
Max. Distance	4000 feet (1.2 km)	150 m	4000 feet (1.2 km)	150 m	150 m
Data Format	N, 8, 1, 1	-	N, 8, 1, 1	-	-
Max. Nodes	32	256 for Ethernet, 32 for RS-485	32	32	-
Protocol	User Defined Modbus/RTU	User Defined Modbus/RTU Modbus/TCP	Modbus/RTU	Modbus/RTU, Modbus/TCP	Modbus/RTU, Modbus/TCP
Remote I/O	Modbus Device				
Power Requirements	+10 ~ +30 V _{DC}				
Environment					
Operating Temperature	-10 ~ 70° C (14 ~ 158° F)				0 ~ 50° C (32 ~ 122° F)
Storage Temperature	-25 ~ 85° C (-13 ~ 185° F)				
Humidity	5 ~ 95%				
Page	1-20	1-22	1-24	1-26	1-14

Distributed Controllers Selection Guide

System	ADAM-5000/485	ADAM-5000E	ADAM-5000L/TCP	ADAM-5000/TCP
CPU	80188	80188	RISC CPU	
RAM	-	-	4 MB	
Flash ROM (user's AP)	-	-	512 KB	
Flash Memory (data storage)	-	-	-	
Flash Disk	-	-	-	
OS	-	-	real-time OS	
Timer BIOS	-	-	-	
Real-time Clock	-	-	-	
Watchdog Timer	Yes			
COM1/COM2	RS-485	RS-485	RS-485 (Modbus)	
COM3 (Programming)	TX, RX, GND			
I/O Slots	4	8	4	8
Power Consumption	3 W		4.0 W	5.0 W
Isolation				
Communication	2500 V _{DC}	3000 V _{DC}	RS-485: 1500 V _{DC} Ethernet: 3000 V _{DC}	
Communication Power	3000 V _{DC}			
I/O Module	3000 V _{DC}			
Diagnosis				
Status Display	Power, CPU, Communication		Power, CPU, Error Diagnostic, Communication	
Self Test	Yes, while ON			
Software Diagnosis	Yes			
Communication				
Interface	RS-232/485 (2-wire)	RS-232/485 (2-wire)	Ethernet	
Speeds (bps)	1200, 2400, 4800, 9600, 192 K, 38.4 K, 57.6 K, 115.2 K	1200, 2400, 4800, 9600, 19.2 K, 38.4 K, 57.6 K, 115.2 K	10 M, 100 M	
Max. Distance	4000 feet (1.2 km)	4000 feet (1.2 km)	100 m without repeater	
Data Format	Advantech protocol: N,8,1 Modbus protocol: N,8,1 N,8,2 E,8,1 O,8,1	Advantech protocol: N,8,1 Modbus protocol: N,8,1 N,8,2 E,8,1	TCP/IP	
Max. Nodes	128	128	Depend on IP address	
Protocols	ADAM ASCII/Modbus Protocol	ADAM ASCII/Modbus Protocol	Modbus/TCP	
Remote I/O	-	-	20 nodes Modbus devices	
Power Requirements	+10 ~ +30 V _{DC}			
Environment				
Operating Temperature	-10 ~ 70° C (14 ~ 158° F)			
Storage Temperature	-25 ~ 85° C (-13 ~ 185° F)			
Humidity	5 ~ 95%			
Page	1-18		1-20	

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-5000 Modules

Selection Guide

Module		ADAM-5013	ADAM-5017	ADAM-5017P	ADAM-5017UH	ADAM-5018	ADAM-5018P	ADAM-5024	ADAM-5050	ADAM-5051	ADAM-5051D	ADAM-5051S
Analog Input	Resolution	16 bit	16 bit	16 bit	12 bit	16 bit	16 bit	-	-	-	-	-
	Input Channel	3	8	8	8	7	7	-	-	-	-	-
	Sampling Rate	10	10	10	200K	10	10	-	-	-	-	-
	Voltage Input	-	±150 mV ±500 mV ±1 V ±5 V ±10 V	±150 mV ±500 mV ±15V ±10V ±5 V ±1 V 0 ~ 150mV 0 ~ 500mV 0 ~ 1V 0 ~ 5V 0 ~ 10V 0 ~ 15V	±10 V 0 ~ 10 V 0 ~ 20 mV	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	-	-	-	-	-
	Current Input	-	±20 mA	±20 mA, 4 ~ 20mA	4 ~ 20 mA	±20 mA	4 ~ 20 mA	-	-	-	-	-
	Direct Sensor Input	Pt or Ni RTD	-	-	-	J, K, T, E, R, S, B	J, K, T, E, R, S, B	-	-	-	-	-
Analog Output	Resolution	-	-	-	-	-	-	12 bit	-	-	-	-
	Voltage Output	-	-	-	-	-	-	0~10 V	-	-	-	-
	Current Output	-	-	-	-	-	-	0~20 mA 4~20 mA	-	-	-	-
Digital Input and Digital Output	Digital Input Channels	-	-	-	-	-	-	-	16 DIO (bit-wise selectable)	16	16 W/LED	16 W/LED
	Digital Output Channels	-	-	-	-	-	-	-		-	-	-
Counter (32-bit)	Channels	-	-	-	-	-	-	-	-	-	-	-
	Input Frequency	-	-	-	-	-	-	-	-	-	-	-
	Mode	-	-	-	-	-	-	-	-	-	-	-
COMM	Channels	-	-	-	-	-	-	-	-	-	-	-
	Type	-	-	-	-	-	-	-	-	-	-	-
Isolation		3000 V _{DC}	3000 V _{DC}	300V _{DC}	3000 V _{DC}	3000 V _{DC}	3000 V _{DC}	3000 V _{DC}	-	-	-	2500 V _{DC}
Page		1-28			1-29			1-30			1-31	

Rank	Product Name
1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AW5
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
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Rank	Product Name
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12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

ADAM-5000 Modules Selection Guide

Model		ADAM-5202	ADAM-5240
Axes	Number of Axes	-	4
	Linear Interpolation	-	v
	2-Axis Circle Interpolation	-	v
Advanced Functions	Encoder Channels	-	4
	Limit switch Input Channel	-	8
	Home Input Channel	-	4
	Emergency stop Input Channel	-	1
	Slow Down Limit Switch	-	8
	General Purpose DI Channel	-	-
	Servo On Output Channel	-	4
	General Purpose DO Channel	-	4
	Position Compare Event	-	V
	Remote Motion	V	-
	Remote I/O	V	-
	Board ID	-	-
Connectors		2 x RJ-45	100-PinSCSI-II
Wiring Board		AMAX-3752F AMAX-3754F AMAX-3756F	ADAM-3952, ADAM-3952J2S
Remote Motion Wiring Board		AMAX-3210 AMAX-3211/PMA AMAX-3212/J2S AMAX-3213/YS2	
Supported Controller		ADAM-5550KW	
Page		1-35	

I/O Modules Selection Guide

Model		ADAM-5030
Storage	Type	SD (Secure Digital Card)
	Channel	2
	Size	2 GB (Max)
USB	Type	V2.0 (compliant)
	Channel	2
Supported Controller		ADAM-5550KW
Page		1-35

1

PAC & Software

2

BAS

3

UNO

4

RS-485 I/O

5

Ethernet I/O

6

TPC

7

IPPC

8

FPM

9

AWS

10

Plug-in I/O

11

CompactPCI

12

Signal Conditioning

13

USB I/O

14

Motion Control I/O

15

Ethernet Switch

16

EDG

17

ICOM

ADAM-5550KW

8-slot Programmable Automation Controller

NEW



Features

- Designed for control tasks that meet robust and computing performance requirements for PLC and Industrial PC's
- SoftLogic support in Win CE 5.0
- Can be operated with or without display/keyboard/mouse
- Remote monitoring through Web Server and Email Alarm
- Remote maintenance via FTP Server
- Supports Modbus/RTU Master and Modbus/TCP (Server/Client) Protocol
- Supports OPC Server
- Supports SQL database
- Supports SD Storage I/O Module
- Supports AMONet Master Module
- Supports Motion Control Modules
- Deterministic I/O at 1 ms
- Remote I/O expansibility
- Rich support to ADAM-5000 I/O Modules

Introduction

ADAM-5550KW is a Programmable Automation Controller designed for control tasks which require Industrial PC computing performance with the PLC's robustness. ADAM-5550KW offers an AMD Geode GX533 CPU along with control specific features such as watchdog timer, battery backup RAM and deterministic I/O. ADAM-5550KW features 5 standard IEC61131-3 programming languages in CE 5.0, so PLC users can develop control strategies with their own familiar programming languages. The powerful Multiprog KW Software and stable ProConOS have allowed ADAM-5550KW to become the best choice for a Programmable Automation Controller on the market today. With the optional HMI Software and built-in VGA port, no longer will users be required to build up additional SCADA PC's in their applications. This compact and powerful PAC is ideal for a variety of applications ranging from machine automation to SCADA applications.

Specifications

Control System

- **CPU** AMD Geode GX533 (GX2)
- **I/O Capacity** 8 slots
- **LED Indicators** Power, User define
- **Memory** 128 MB DDR SDRAM with 1 MB Battery Backup
1 x CompactFlash® Card (Internal)
- **Operating System** Windows® CE 5.0
- **Real-time Clock** Yes
- **Watchdog Timer** Yes

Communications

- **Comm. Protocol** Modbus/RTU and Modbus/TCP
- **Medium** 2 x 10/100 Base-T Ethernet Interface with RJ-45 connectors

Protection

- **Communication** 2500 V_{DC} (COM2 RS-485)/1000 V_{DC} (COM4 RS-485)
- **Power Reversal Protection** Yes

Power

- **Power Consumption** 12 W @ 24 V_{DC} (not including I/O modules)
- **Power Input** Unregulated +10 to +30 V_{DC}

General

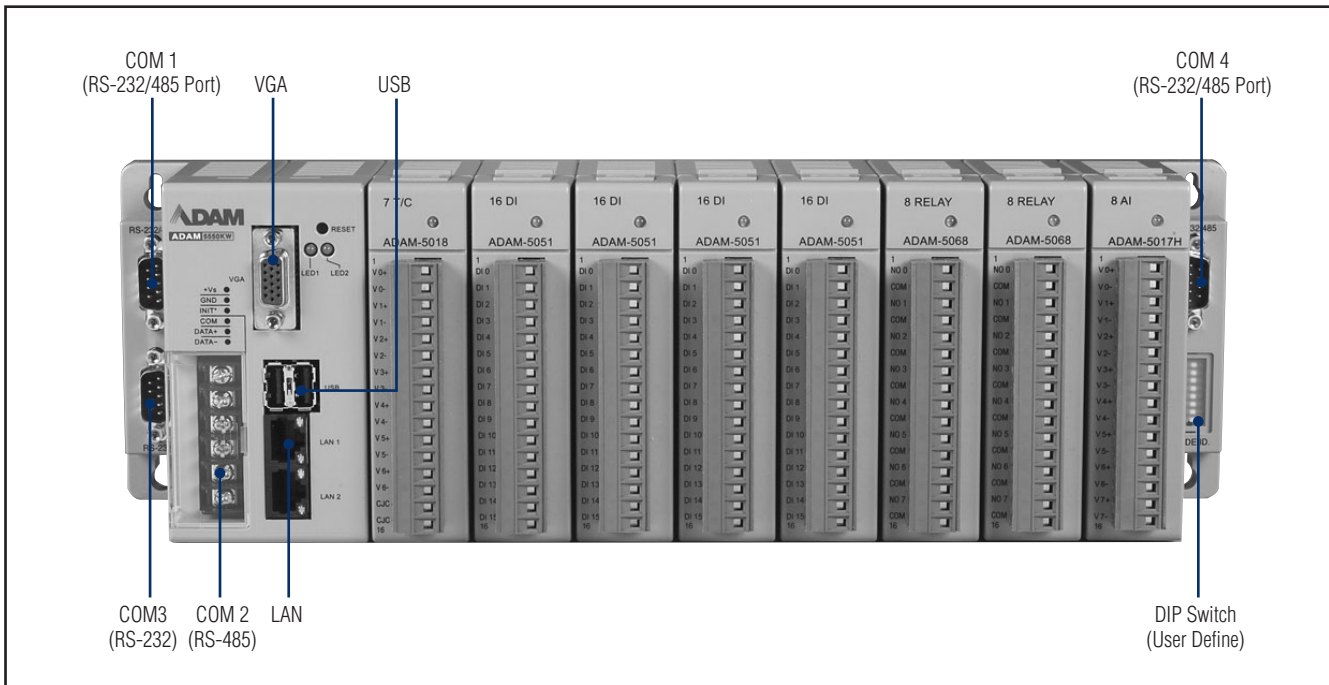
- **Certificate** CE
- **Connectors** 1 x RS-232/485 (COM1)
1 x RS-485 (COM2)
1 x RS-232 (COM3)
1 x RS-232/485 (COM4)
2 X USB 1.1 ports (KB/Mouse via USB Ports)
1 x VGA (1024 X 768 Resolution)
- **Dimensions** 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Plug-in Screw Terminal** Accepts 0.5 mm² to 2.5 mm², 1 - #12 or 2 - #14 to #22 AWG

Environment

- **Humidity** 5% to 95%, non-condensing
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** - 25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-5550KW** 8-slot Programmable Automation Controller with KW
- **ADAM-5550KWAS** 8-slot Programmable Automation Controller with KW & AS1500-CR60
- **MPROG-BAS33** KW Multiprog Softlogic Development Kit Basic Edition v3.3 for Windows NT/2000/XP (128-byte I/O)
- **MPROG-ADV33** KW Multiprog Softlogic Development Kit Advanced Edition v3.3 for Windows NT/2000/XP (64k-byte I/O)



PAC Features

ADAM-5550KW is designed for control tasks which need Industrial PC's computing performance and PLC's robustness. Its multiple functionalities include discrete, analog and motion functions. The well-integrated programming tool and optional HMI software provide a flexible and easy-to-use software solution for versatile applications. ADAM-5550KW supports Modbus protocol which allows data exchange with various Modbus devices.

SoftLogic Support in CE 5.0

ADAM-5550KW supports IEC-61131-3 programming in WinCE 5.0. The five programming languages of Ladder Diagram, Function Block, Sequential Function Chart, Structured Text and Instruction List cover most of the PLC programming languages in the market. The reliable ProConOS runtime engine and powerful MULTIPROG software from KW-Software empower ADAM-5550KW as the best solution of Programmable Automation Controller.

Visualization

ADAM-5550KW has a built-in VGA port which can directly connect to a display. So HMI function can be integrated into this controller. ADAM-5550KW can be operated with or without display/keyboard/mouse which can meet different requirements of applications.

Widely Used IT Technology

ADAM-5550KW supports widely used IT technology of industrial PC. For remote monitoring function, the built-in web server can provide local I/O status for internet access and email alarm function can send alarm message to dedicated email addresses when there is any alarm occurs. For remote maintenance function, the built-in FTP server provides service for uploading application program or downloading data logging files.

Dual Ethernet Ports

ADAM-5550KW provides two ethernet ports for different application requirements such as redundant ethernet connection for reliability concern or separated network connections for security concern. Both of the functions are possible to be implemented by customer's application program.

Deterministic I/O

ADAM-5550KW can guarantee deterministic I/O at 1 ms. This feature guarantees control and response speed at I/O level so HMI software or operations of other application programs cannot affect the I/O control performance.

Remote I/O Expansibility

ADAM-5550KW supports not only Modbus/RTU Master function via serial ports, but also the Modbus/TCP Client to retrieve data from remote I/O, and Modbus/TCP Server to exchange data with other Modbus devices via Ethernet port. This Modbus feature is very useful when the control system needs expand the remote I/O modules or connect to other controllers.

Rich Support to ADAM-5000 I/O Modules

Most of the ADAM-5000 I/O modules are supported by ADAM-5550KW including analog I/O modules, digital I/O modules, and motion control module. All the operations of supported modules are the same with the operations of ADAM-5510KW series.

AMONet Motion Control Modules

AMONet Module supports two RS-485 master ports, and transfers data between host and slaves directly without any operations in between. Each port of the master can control up to 2048 I/O points, 64 axes, or a combination of I/O points and axes for motion control. The master ports support up to 20 Mbps transfer rate and a maximum communication distance of up to 100 meters. The communication between master and slave is based on a customized RS-485 solution that saves wires, covers a long distance, supports high-speed communication and has time-deterministic features. Various functions can be chosen on the slave modules, and standard industrial DIN rail mounting design makes it easy to distribute them in the field.

Motion Control Modules

ADAM-5550KW supports two types of motion control modules. One is a stepping/pulse-type servo motor control module, designed for general-purpose applications, and the other is the cost-effective intelligent stepping motor control module. The servo motor control module's intelligent NOVAR MCX314-motion ASIC comes built-in with a variety of motion control functions, such as 2/3-axis linear interpolation, 2-axis circular interpolation, T/S-curve acceleration/deceleration rate and more. It performs these motion control functions without processor loading during driving. The intelligent stepping motor control module's PCD-4541 motion controller can execute a variety of motion-control commands. Each axis can be controlled directly through the card's I/O registers.

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-5510KW ADAM-5510EKW

4-slot PC-based SoftLogic Controller

8-slot PC-based SoftLogic Controller



Features

- IEC-61131-3 standard package
- Supports LD/FB/SFC/IL/ST language
- Graphical programming interface
- Cross programming language compiling capability
- Supports floating point calculation
- Supports AI/AO/DI/DO/Counter Function Blocks
- Powerful debug tool
- Built-in Modbus/RTU Master and Slave
- Supports up to 128 Local I/O Points
- Handles typical 32 Modbus/RTU remote I/O modules
- Supports more than 9000 coils in LD language
- Supports 3 serial ports including 1 RS-485 and 2 RS-232/485 ports

Introduction

ADAM-5510EKW and ADAM-5510KW are PC-based Soft-Logic Controllers. They feature 5 standard IEC61131-3 programming languages so PLC users can develop control strategies in their familiar programming languages. The strong MULTIPROG software and stable ProConOS make ADAM-5510EKW and ADAM-5510KW the best choice for PC-based Soft-logic controllers in the market.

ProConOS, (Programmable Controller Operating System), has over 250,000+ installations, and is a pre-emptive, multi-tasking run-time software providing deterministic operation down to one millisecond and runs applications developed with MULTIPROG, a fully-featured IEC 61131-3 development environment. With this KW Software distribution agreement, Advantech has bundled the ProConOS run-time software on ADAM-5510EKW and ADAM-5510KW Controllers creating a SoftLogic Solution. It will greatly benefit PLC users to enjoy the PC- based advantage of ADAM-5510EKW and ADAM-5510KW

Different from the original ADAM-5510 hardware, the ADAM-5510EKW and ADAM-5510KW includes more memory to raise system efficiency and users' programming flexibility. The main unit of ADAM-5510EKW and ADAM-5510KW include a 1.5 MB flash memory and 640 KB SRAM which includes battery backup RAM up to 32 KB. In addition, 4 COM ports enrich the communication capacity of ADAM-5510EKW and ADAM-5510KW to integrate with remote I/O or other 3rd party devices based on the Modbus/RTU protocol.

For advanced system integration, the ADAM-5510EKW and ADAM-5510KW are built with a Modbus/RTU Server. Therefore, it also supports Modbus/RTU protocol to communicate with any Modbus® devices as well as HMI Software/User's APs built with Modbus driver or Modbus/RTU OPC Server, both of which are included in the SCADA systems.

Specifications

Control System

- **CPU** 16-bit microprocessor
- **I/O Capacity** 4 slots (ADAM-5510KW)
8 slots (ADAM-5510EKW)
- **LED Indicators** Power, CPU, communication and battery
- **Memory** Flash disk: 512 KB
Flash memory: 768 KB
Flash ROM: 256 KB
RAM: 640 KB SRAM, 32 KB with battery backup
- **Operating System** ROM-DOS
- **Real-time Clock** Yes
- **Watchdog Timer** Yes

Communications

- **Comm. Protocol** Modbus/RTU
- **Max. Nodes** 32 (in RS-485 daisy-chain network)
- **Medium** RS-485 (2-wire)
- **Transmission Distance** 1.2 km (4000 feet)
- **Transmission Speed** 9600, 19200 and 38400 bps

Protection

- **Power Input** 3000 V_{DC}
- **Communication** 2500 V_{DC} (COM2 only)
- **Power Reversal Protection** Yes

Power

- **Power Consumption** 4 W @ 24 Vdc (not including I/O modules)
- **Power Input** Unregulated 10 ~ 30 V_{DC}

General

- **Certifications** CE
- **Connectors** ADAM-5510KW: 1 x DB9-M for RS-232 (COM1)
ADAM-5510EKW: 1 x DB9-M for RS-232/485 (COM1)
1 x Screw terminal for RS-485 (COM2)
1 x DB9-F for RS-232/Programming (COM3)
1 x DB9-M for RS-232/485 (COM4)
1 x Screw-terminal for power input
- **Dimensions** 4-slot: 231 x 110 x 75 mm
8-slot: 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN 35 rail, stack, wall

Environment

- **Humidity** 5 ~ 95%, non-condensing
- **Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-5510KW** PC-based SoftLogic Controller
- **ADAM-5510EKW** 8-slot PC-based SoftLogic Controller
- **MPROG-BAS 33** KW Multiprog Softlogic Development Kit Basic Edition v3.3 for Windows® NT/2000/XP (128-byte I/O)

ADAM-5510EKW/TP

8-slot Ethernet-enabled SoftLogic Controller



Features

- 10/100Base-T Ethernet interface
- Built-in Modbus/TCP server
- Supports Modbus/TCP client
- Supports Modbus/RTU Master
- Supports Modbus/RTU Slave
- Supports Multiprog via Ethernet
- IEC-61131-3 standard package
- Supports LD/FB/SFC/LI/ST Languages
- Cross-Language compiling program
- 8 I/O slots base and handles up to 128 Local I/O Points
- Supports AI/AO/DI/DO/Counter Function Blocks

Introduction

The ADAM-5510EKW/TP is an Ethernet-enabled SoftLogic Controller. In addition to the features of ADAM-5510KW and ADAM-5510EKW, the ADAM-5510EKW/TP has Ethernet features including Modbus/TCP Server, Modbus/TCP Client and Multiprog via Ethernet functions. Therefore, users can easily and quickly complete their programming based on Ethernet architecture.

Standard Modbus Interface

For advanced system integration, the ADAM-5510EKW/TP supports not only Modbus/RTU Master and Slave functions via serial ports, but also the Modbus/TCP Client to retrieve data from remote I/O, and Modbus/TCP Server to send data back to the HMI/SCADA Software via Ethernet port. Furthermore, the ADAM-5510EKW/TP allows users to remotely maintain multiple ADAM-5510EKW/TP controllers by running Multiprog programming software via Ethernet.

Specifications

Control System

- CPU** 16-bit microprocessor
- I/O Capacity** 8 slots
- LED Indicators** Power, CPU, communication, and battery
- Memory** Flash disk: 512 KB
Flash memory: 768 KB
Flash ROM: 256 KB
RAM: 640 KB SRAM, 17 KB with battery backup
- Operating System** ROM-DOS
- Real-time Clock** Yes
- Watchdog Timer** Yes

Communications (Ethernet)

- Medium** Cat.5 cable with RJ-45 connectors
- Transmission Speed** 100 Mbps (10/100Base-T)

Communications (Serial)

- Max. Nodes** 32 (in RS-485 daisy-chain network)
- Medium** RS-485 (2-wire)
- Protocols** Modbus/RTU, Modbus/TCP
- Transmission Speed** 9600, 19200 and 38400 bps

Protection

- Power Input** 3000 V_{DC}
- Communication Line Isolation** 2500 V_{DC} (COM2 only)
- Power Reversal Protection** Yes

Power

- Power Consumption** 4 W @ 24 Vdc (not including I/O modules)
Unregulated 10 ~ 30 V
- Power Input** Unregulated 10 ~ 30 V_{DC}

General

- Certifications** CE, FCC class A
- Connectors** 1 x DB9-M for RS-232/485 (COM1)
1 x Screw terminal for RS-485 (COM2)
1 x DB9-F for RS-232/Programming (COM3)
1 x DB9-M for RS-232/485 (COM4)
1 x Screw-terminal for power input
1 x RJ-45 for LAN
- Dimensions** 355 x 110 x 75 mm
- Enclosure** ABS+PC
- Mounting** DIN 35 rail, stack, wall

Environment

- Humidity** 5 ~ 95%, non-condensing
- Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- ADAM-5510EKW/TP** 8-slot Ethernet-enabled SoftLogic Controller
- MPROG-BAS33** KW Multiprog SoftLogic Development Kit Basic Edition v3.3 for Windows® NT/2000/XP (128-byte I/O)

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

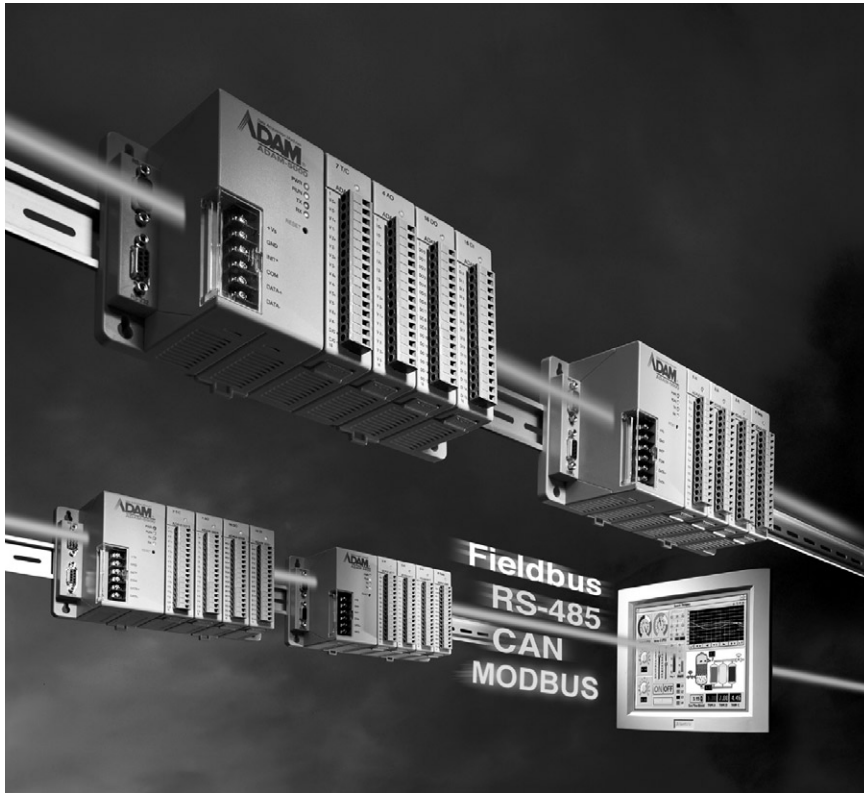
14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

ADAM-5000 Series



ADAM-5000 Series - Distributed I/O System

Ethernet-based Data Acquisition and Control System

With the ADAM-5000/TCP as your Ethernet I/O data processing center, you can monitor and control field signals at a speed of 10/100 Mbps. The best field-proven communication performance that can be reached in industrial network environments. Additionally, the popular Modbus/TCP protocol is supported as well.

RS-485 based Data Acquisition and Control System

The ADAM-5000/485 system is a data acquisition and control system that can acquire, monitor and control data through multi-channel I/O modules. It communicates with a network master over a twisted-pair, multi-drop RS-485 network. Both ADAM ASCII and Modbus/RTU protocols are supported.

ADAM-5510 Series - PC-based Programmable Controller

Ethernet-Enabled Programmable Controller

The ADAM-5510 series of PC-based programmable controllers includes ADAM-5510M, ADAM-5510E, ADAM-5510/TCP and ADAM-5510E/TCP. They feature Intel x86-based CPUs running Datalight ROM-DOS.

Users can use Borland C 3.0 to develop the application program and then download it by Windows-based ADAM-5510 series utility. The Ethernet-enabled feature of ADAM-5510/TCP and ADAM-5510E/TCP enables features like: FTP server, web server, TCP/UDP connections and email alarm. The ADAM-5510 controllers also have high expansion capability by supporting Modbus/RTU master/slave and Modbus/TCP client/server functions.

Open Network and Fieldbus Solutions for Device Networking

Introduction

The Fieldbus concept will change the control environment and device characteristics of future control systems in both processing and manufacturing. Compared with traditional systems, the Fieldbus system reduces cost of cabling, commissioning, and installation. In addition, the Fieldbus system has greater reliability.

The ADAM-5000 series, a compact distributed data acquisition and control system, supports the shift toward Fieldbus-based systems. Based on popular Fieldbus data communication structures such as RS-485 and Modbus, the ADAM-5000 series now offers two different DA&C systems that allow field I/O devices to easily connect to PC network applications: the ADAM-5000 DA&C systems and the ADAM-5510 series of PC-based programmable stand-alone controllers.



Class I, Div. 2 Groups ABCD
(NI / I / 2 / ABCD / T*)



Distributed Data Acquisition and Control Systems

Maximum System Design Flexibility

The ADAM-5000's modular design allows users to tailor solutions based on their own requirements. Built-in programmable I/O ranges and alarm outputs enhance flexibility in system design. A variety of communication media such as twisted-pair wiring, radio modems and fiber optics are supported.

System Maintenance and Troubleshooting

The ADAM-5000 series uses hardware self-test and software diagnosis to monitor system problems. Also included is a watchdog timer that monitors the microprocessor. If the system crashes, the watchdog automatically resets the system. Node ID setting is easily accomplished by setting a DIP switch on the front of the system.

Easy Installation and Networking

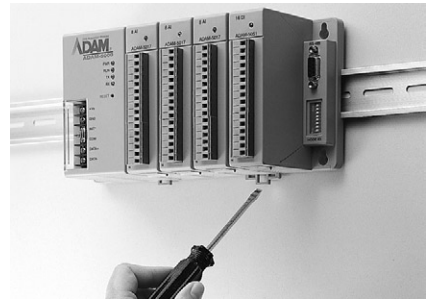
The ADAM-5000 series can be easily mounted on a DIN-rail or on a panel. Signal connections, network modifications and maintenance are simple and quick. Building a multi-drop network only requires a single twisted pair of wires.

Proven for Industrial Environments

The ADAM-5000 series can operate in industrial environments at temperatures between -10 and 70° C, and can use unregulated power sources between 10 and 30 V_{DC}. These units are protected against accidental power supply reversals. A 3-way isolation design (I/O, power & communication) prevents ground loops and reduces the effect of electrical noise in the system.

Extensive Software Support

The ADAM-5000 series is supported by most standard process controls and HMI software. .NET Class LIB is provided for use with Windows applications. OPC drivers provide links to a wide range of HMI/SCADA software packages such as InTouch, FIX and ICONICS. Advantech data acquisition software and Advantech Studio SCADA/HMI software are both tightly integrated with the ADAM-5000 systems.



DIN-rail Mounting

Installed with industrial standard DIN-rails



Panel/Wall Mounting

Flat surface system mounting



Node ID Setting

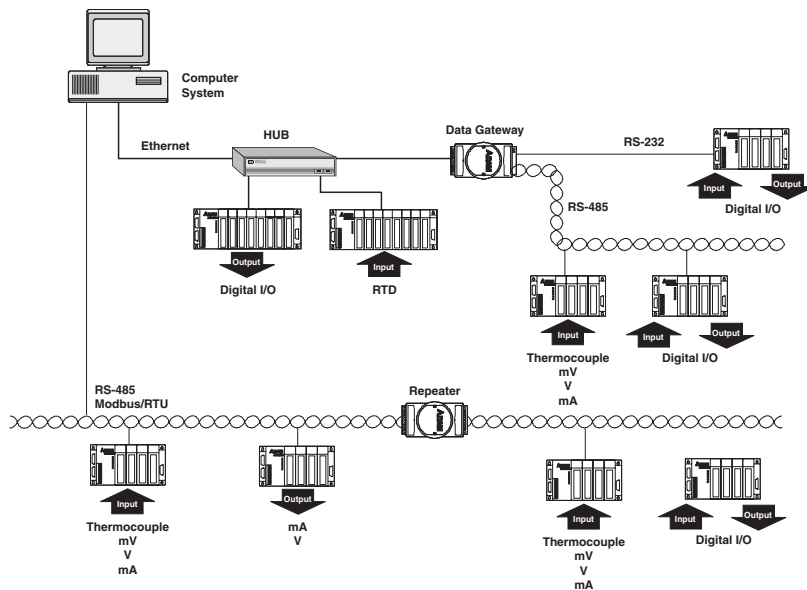
8-pin dip switch configuration



Connection

Pre-wired plug-in terminals with I/O modules

Simple & Low Cost Network Diagram



- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPCC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-5510/TCP ADAM-5510E/TCP

**4-slot Ethernet-enabled
Programmable Controller**

**8-slot Ethernet-enabled
Programmable Controller**



Features

- 10/100Base-T Ethernet interface
- Supports Web Server function
- Supports Email Alarm function
- Supports FTP Server and Client functions
- Supports Modbus/TCP Server and Client function libraries
- Supports Modbus/RTU Master and Slave function libraries
- 1.5 MB Flash ROM (960 KB for user applications)
- 640 KB SRAM (384 KB for battery backup)
- ROM-DOS operating system
- Watchdog timer and real-time clock
- 4 serial communication ports
- 4 or 8 I/O slot expansion

Introduction

In the ADAM-5510 series of PC-based programmable controllers, Advantech has introduced Ethernet-enabled features. The new 4-slot ADAM-5510/TCP and 8-slot ADAM-5510E/TCP support HTTP server, FTP server, and e-mail alarm functions. These functions can be used to monitor a system via the Internet, acquire data through an FTP connection and send alarms to designated e-mail addresses if a critical situation emerges. Both products also support Modbus/TCP server/client functions. The ADAM-5510/TCP and ADAM-5510E/TCP can work as a Modbus/TCP client to retrieve data from remote I/Os, and Modbus/TCP server to connect with the HMI/SCADA software.

Specifications

Control System

- **CPU** 16-bit processor
- **I/O Slots** ADAM-5510/TCP: 4
ADAM-5510E/TCP: 8
- **LED Indicators** Power, CPU, communications, and battery
- **Memory** Flash disk: 1 MB (960 KB for user applications)
Flash memory: 256 KB
Flash ROM: 256 KB
RAM: 640 KB SRAM (384 KB for battery backup RAM)
- **Operating System** ROM-DOS
- **Real-time Clock** Yes
- **Watchdog Timer** Yes
- **Communications (Ethernet)**
- **LAN** 10/100Base-T
- **Transmission Distance** 100 m
- **Communications (Serial)**
- **Max. Nodes** 256 (in RS-485 daisy-chain network)
- **Transmission Distance** 1.2 km (4000 feet)
- **Transmission Speed** 1200 bps ~ 115.2 kbps

Protection

- **Communication Line Isolation** 2500 V_{DC} (COM2 only)
- **Communication Power Isolation** 3000 V_{DC}
- **I/O Module Isolation** 3000 V_{DC}

Software

- **C Library** Borland C++ 3.0 for DOS

Power

- **Power Consumption** 4 W @ 24 Vdc (not including I/O modules)
Unregulated 10 ~ 30 V
- **Power Input** Unregulated 10 ~ 30 V_{DC}

General

- **Certifications** CE, FCC class A
- **Connectors** ADAM-5510/TCP: 1 x DB9-M for RS-232 (COM1)
ADAM-5510E/TCP: 1 x DB9-M for RS-232/485 (COM1)
1 x Screw terminal for RS-485 (COM2)
1 x DB9-F for RS-232/Programming (COM3)
1 x DB9-M for RS-232/485 (COM4)
1 x Screw-terminal for power input
1 x RJ-45 for LAN
- **Dimensions** 4-slot: 231 x 110 x 75 mm
8-slot: 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN 35 rail, stack, wall

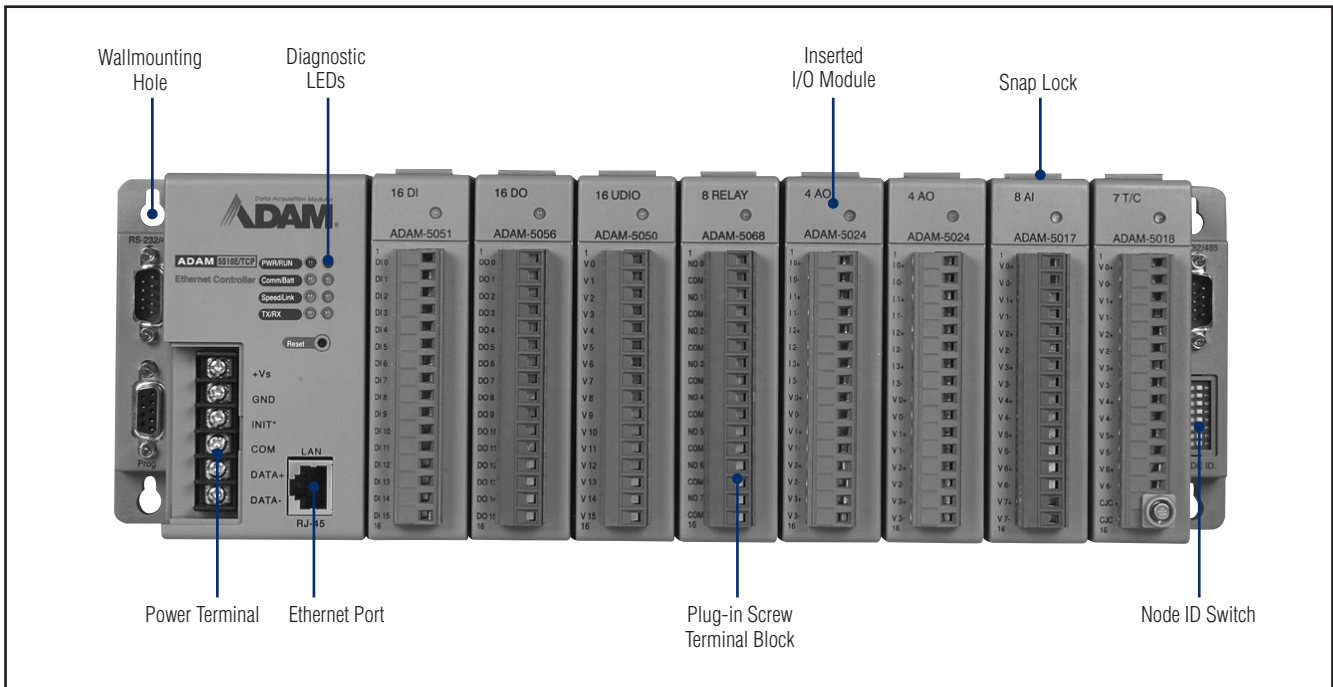
Environment

- **Humidity** 5 ~ 95%, noncondensing
- **Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Storing Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-5510/TCP** 4-slot Ethernet-enabled Programmable Controller
- **ADAM-5510E/TCP** 8-slot Ethernet-enabled Programmable Controller

ADAM-5510/TCP ADAM-5510E/TCP



Feature Details

Supports Powerful Ethernet Features

ADAM-5510/TCP and ADAM-5510E/TCP are Ethernet-enabled Programmable Controllers. The new 4-slot ADAM-5510/TCP and 8-slot ADAM-5510E/TCP support HTTP server, FTP server, and e-mail alarm functions. These functions can be used to monitor a system via the Internet, acquire data through an FTP connection and send alarms to designated e-mail addresses if a critical situation emerges.

Enable Ethernet Connectivity with Other Devices

ADAM-5510/TCP and ADAM-5510E/TCP support both Modbus/TCP Server function library and Modbus/TCP Client function library. The ADAM-5510/TCP and ADAM-5510E/TCP can work as a Modbus/TCP client to retrieve data from remote I/O modules, and Modbus/TCP server to connect with the HMI/SCADA software.

More Data Memory & I/O Slots to Support Versatile Applications

The ADAM-5510/TCP and ADAM-5510E/TCP offer more than enough spare memory for developing complex logic or data storage applications, such as data recording, which is difficult for traditional controllers. The ADAM-5510/TCP and ADAM-5510E/TCP feature 1.5 MB flash memory and 640 KB SRAM (up to 384 KB battery backup memory). ADAM-5510/TCP and ADAM-5510E/TCP also support up to 4 or 8 I/O slots for I/O modules, which can provide more flexibility and I/O points for user's applications.

Complete I/O Module and C Library Support

The ADAM-5510/TCP and ADAM-5510E/TCP support industrial I/O modules including digital I/O, analog I/O, counter and special purpose I/O modules such as Thermocouple and RTD. It also offers well-stocked Borland C libraries, including system resources function, I/O functions, communication functions, socket functions, Modbus/TCP functions, Modbus/RTU functions and the functions of Ethernet features. All the functions have sample programs which can save development time and efforts.

Supports Four Communication Ports

The ADAM-5510/TCP and ADAM-5510E/TCP has four independent communication ports. That means they can simultaneously communicate with one RS-232/485 device (COM1), one RS-485 device (COM2), one RS-232 3-wire device (COM3), and one RS-232/485 device (COM4). They also support Modbus/RTU master function library for connecting Modbus remote I/O modules and Modbus/RTU slave function library for connecting to HMI/SCADA software.

Multiple RS-232 Port Support

The ADAM-5090 is a 4-port RS-232 module that is equipped with 4 RS-232 ports, which make it especially suitable for bi-direction communication. It can simultaneously read/write data from other third-party devices such as barcode readers or PLCs, as long as they have an RS-232 interface. Furthermore, commands can be issued through the ADAM-5090 to control other devices. It is fully integrated with the ADAM-5510/TCP and ADAM-5510E/TCP, and transmits data through RS-232 ports. The whole integrated system supports Modbus/RTU master function, which can connect and issue commands to control Modbus remote I/O devices by Modbus/RTU protocol.

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-5510M ADAM-5510E

4-slot PC-based Programmable Controller

8-slot PC-based Programmable Controller



Features

- Supports Modbus/RTU Master and Slave function libraries
- Windows-based Utility
- Control Flexibility with C Programming
- Complete Set of I/O Modules
- Built-in 1.5 MB Flash and 640 KB SRAM
- Built-in Real-Time Clock and Watchdog Timer
- ROM-DOS operating system
- 4 serial communication ports
- 4 or 8 I/O slot expansion

Introduction

The ADAM-5510M AND ADAM-5510E are ideal for PC-based data acquisition and control applications. They are compact, controllers with an Intel x86- based CPU running Datalight ROM-DOS. Built-in battery backup SRAM is the best choice for complex logic or data storage applications. For professional C/C++ programmers, the ADAM-5510M AND ADAM-5510E application programs may be written and compiled in Borland C++ 3.0, and downloaded to the ADAM-5510M AND ADAM-5510E. With the power of the ADAM-5510M AND ADAM-5510E, users can easily accomplish specialized functions, which are difficult with traditional controllers. Each ADAM-5510M AND ADAM-5510E system can handle up to 4 or 8 I/O slots (up to 64 or 128 I/O points).

Specifications

Control System

- **CPU** 16-bit microprocessor
- **I/O Slots** ADAM-5510E: 8
ADAM-5510M: 4
- **LED Indicators** Power, CPU, communications and battery
- **Memory** Flash disk: 1 MB (960 KB for user applications)
Flash memory: 256 KB
Flash ROM: 256 KB
RAM: 640 KB (up to 384 KB with battery backup)
- **Operating System** ROM-DOS (MS-DOS 6.22 Compatible)
- **Real-time Clock** Yes
- **Watchdog Timer** Yes

Communications

- **Max. Nodes** 256 (in RS-485 daisy-chain network)
- **Transmission Distance** 1.2 km (4000 feet)
- **Transmission Speed** 1200 bps ~ 115.2 kbps

Power

- **Power Consumption** 4 W @ 24 Vdc (not including I/O modules)
Unregulated 10 ~ 30 V
- **Power Input** Unregulated 10 ~ 30 V_{DC}

Software Support

- **C Library** Borland C++ 3.0 for DOS

Protection

- **Communication Power Isolation** 3000 V_{DC}
- **Communication Line Isolation** 2500 V_{DC} (COM2 only)
- **Power Reversal Protection** Yes

General

- **Certifications** CE
- **Connectors** ADAM-5510E: 1 x DB9-M for RS-232/485 (COM1)
ADAM-5510M: 1 x DB9-M for RS-232 (COM1)
1 x Screw terminal for RS-485 (COM2)
1 x DB9-F for RS-232/Programming (COM3)
1 x DB9-M for RS-232/485 (COM4)
1 x Screw-terminal for power input
- **Dimensions** 4-slot: 231 x 110 x 75 mm
8-slot: 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN 35 rail, stack, wall

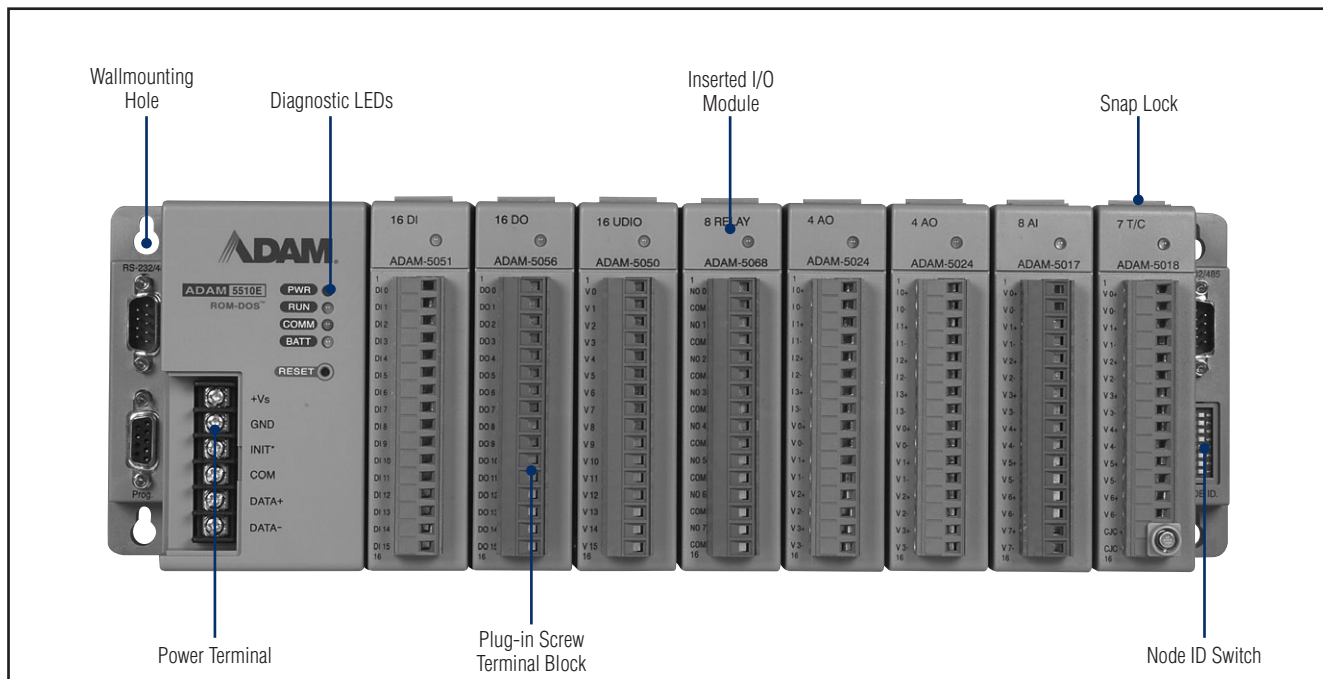
Environment

- **Humidity** 5 ~ 95%, non-condensing
- **Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Storing Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-5510M** 4-slot PC-based Programmable Controller
- **ADAM-5510E** 8-slot PC-based Programmable Controller

ADAM-5510M ADAM-5510E



Why PC-based Control?

Today, more and more major manufacturers are gaining a competitive edge by replacing their factory floor PLC "black boxes" and utilizing the latest advances in automation control technology. One of the major drawbacks of the PLC is its proprietary nature. Not only is the PLC proprietary, but so is everything associated with it – the hardware, the operating system, the programming methods, the networks, the processors, the I/O, and more. Once you have selected a PLC supplier, you are essentially locked into their product line. This exclusivity limits how far you can expand your operations – and expand your business – since you can only grow as far as your supplier's technology will let you. On the other hand, PC-based controllers are designed as an open structure with advanced capabilities for computing, communication and controlling. There will be no more limitation to user's further integration and expansion.

ADAM-5510M AND ADAM-5510E PC-based "C" Programmable Controller

The design of the ADAM-5510M and ADAM-5510E are based on the experience of various needs in industrial control. The ADAM-5510M and ADAM-5510E adopt a popular RS-485 bus, which can work either as a standalone unit or within a distributed control system. The user only needs to write a program in C to run on the ADAM-5510M and ADAM-5510E for a general-purpose application.

Windows-based Utility for Configuring I/O Modules and Downloading Control Program

The ADAM-5510M and ADAM-5510E utility is fully-Windows based so users can configure the I/O modules and download control program under Windows environment easily. In order to provide a convenience operation environment for former users, the Windows Utility keeps the DOS mode operation interface too.

More Data Memory and I/O Slots to Support Versatile Applications

The ADAM-5510M and ADAM-5510E offer plenty of spare memory for developing complex logic or data storage applications, such as data recording, which is difficult for traditional controllers. The ADAM-5510M and ADAM-5510E features 1.5 MB flash memory and 640 KB SRAM (up to 384 KB battery backup memory). ADAM-5510M and ADAM-5510E also support up to 4 or 8 I/O slots for I/O modules, which can provide more flexibility and I/O points for user's applications.

Supports 4 Serial Ports with Modbus/RTU Master and Slave Function Libraries

The ADAM-5510M and ADAM-5510E has four independent communication ports. That means they can simultaneously communicate with one RS-232/485 device (COM1), one RS-485 device (COM2), one RS-232 3-wire device (COM3), and one RS-232/485 device (COM4). They also support Modbus/RTU master function library for connecting Modbus remote I/O modules and Modbus/RTU slave function library for connecting to HMI/SCADA software.

Complete I/O Module and C Library Support

The ADAM-5510M and ADAM-5510E support industrial I/O modules including digital I/O, analog I/O, counter and special purpose I/O modules such as Thermocouple and RTD. It also offers well-stocked Borland C libraries, including system resources function, I/O functions, communication functions and Modbus/RTU functions. All the functions have sample programs which can save the developing time and efforts.

Multiple RS-232 Port Support

The ADAM-5509 is a 4-port RS-232 module that is equipped with 4 RS-232 ports, which make it especially suitable for bi-direction communication. It can simultaneously read/write data from other third-party devices such as barcode readers or PLCs, as long as they have an RS-232 interface. Furthermore, commands can be issued through the ADAM-5509 to control other devices. It is fully integrated with the ADAM-5510M and ADAM-5510E, and transmits data through RS-232 ports. The whole integrated system supports Modbus/RTU master function, which can connect and issue commands to control Modbus remote I/O devices by Modbus/RTU protocol.

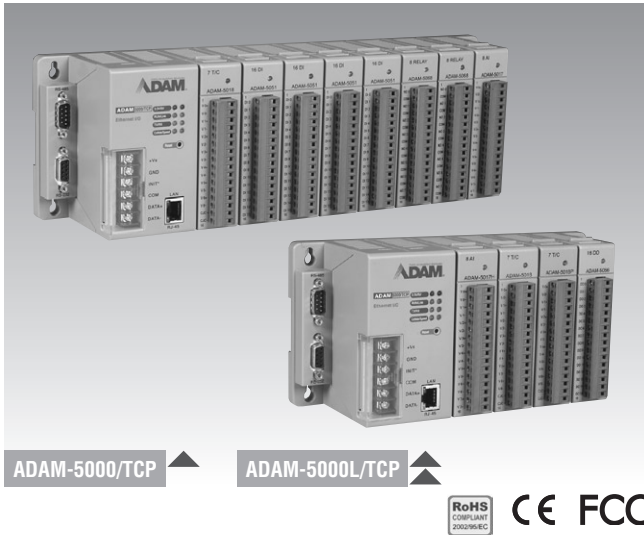
- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-5000L/TCP

ADAM-5000/TCP

4-slot Ethernet-based Distributed DA&C System

8-slot Ethernet-based Distributed DA&C System



Features

- ARM 32-bit RISC CPU
- 10/100Base-T auto-negotiation high-speed communication port
- Supports Modbus/TCP for easy integration
- Supports UDP event handling function
- Up to 100 m communication distance w/o repeater
- Allows remote configuration via Ethernet
- Allows concurrent access for 8 host PCs
- 4 I/O slots for up to 64 points and 8 I/O slots for up to 128 points data monitoring and control
- 1500 V_{DC} isolation for Ethernet communication
- Built-in watchdog timer for system auto-reset
- Windows utility
 - I/O modules configuration and calibration
 - Network auto searching
 - Data stream setting
 - Current status monitoring and alarm trigger
- Provides .NET Class LIB to develop applications

Introduction

ADAM-5000L/TCP and ADAM-5000/TPC are both Ethernet-based I/O systems. Without a repeater, ADAM-5000L/TCP and ADAM-5000/TCP can cover a communication distance up to 100 m. This allows remote configuration via Ethernet and eight PCs can simultaneously access the data. The ADAM-5000L/TCP and ADAM-5000/TCP are the solutions for easy configuration and efficient management. An ideal and cost-effective solution for eAutomation architecture.

Specifications

Control System

- CPU** 32-bit ARM RISC
- I/O Slots** ADAM-5000L/TCP: 4
ADAM-5000/TCP: 8
- Memory** Flash ROM: 512 KB
RAM: 4 MB
- Operating System** Real-time OS
- LED Indicators** Power (3.3 V, 5 V)
CPU
Communication (Link, Active, 10/100 Mbps, Tx, Rx)
Battery

Communications (Ethernet)

- Comm. Distance** 100 meters w/o repeater
- Comm. Protocol** Modbus/TCP, TCP, UDP, IP, ARP
- Data Transfer Rate** Up to 100 Mbps
- Event Response Time** < 5 ms
- Interface** 1 x 10/100Base-T (RJ-45)
- Wiring** UTP, category 5 or greater

Communications (Serial)

- Comm. Distance** RS-485: 1.2 km (4000 feet)
RS-232: 15 m
- Comm. Protocol** Modbus/RTU
- Data Transfer Rate** Up to 115.2 kbps
- Interface** 1 x DB9-M for RS-485
1 x DB9-F for RS-485
1 x DB9-F for RS-232
- Max. Nodes** 12 (in RS-485 daisy-chain network for Remote I/O connection)

Power

- Power Consumption** 4.0 W @ 24 Vdc (ADAM-5000L/TCP)
(not including I/O modules)
5.0 W @ 24 Vdc (ADAM-5000/TCP)
(not including I/O modules)

- Power Input** Unregulated 10 ~ 30 V_{DC}

Software

- .NET Class LIB**
- Windows Utility** Network setting, I/O configuration & calibration, data stream, alarm setting
- Modbus/TCP OPC Server**

Protection

- Communication Line Isolation** 3000 V_{DC}
- I/O Module Isolation** 3000 V_{DC}
- LAN Communication** 1500 V_{DC}
- Overvoltage Protection** Yes
- Power Reversal Protection** Yes

General

- Certifications** CE, FCC class A
- Connectors** 1 x DB9-M/DB9-F/screw terminal for RS-485 (communication)
1 x DB9-F for RS-232 (internal use)
1 x Screw-terminal for power input
1 x RJ-45 for LAN
- Dimensions (W x H x D)** ADAM-5000L/TPC: 231 x 110 x 75 mm
ADAM-5000/TCP: 355 x 110 x 75 mm
- Enclosure** ABS+PC
- Mounting** DIN 35 rail, wall

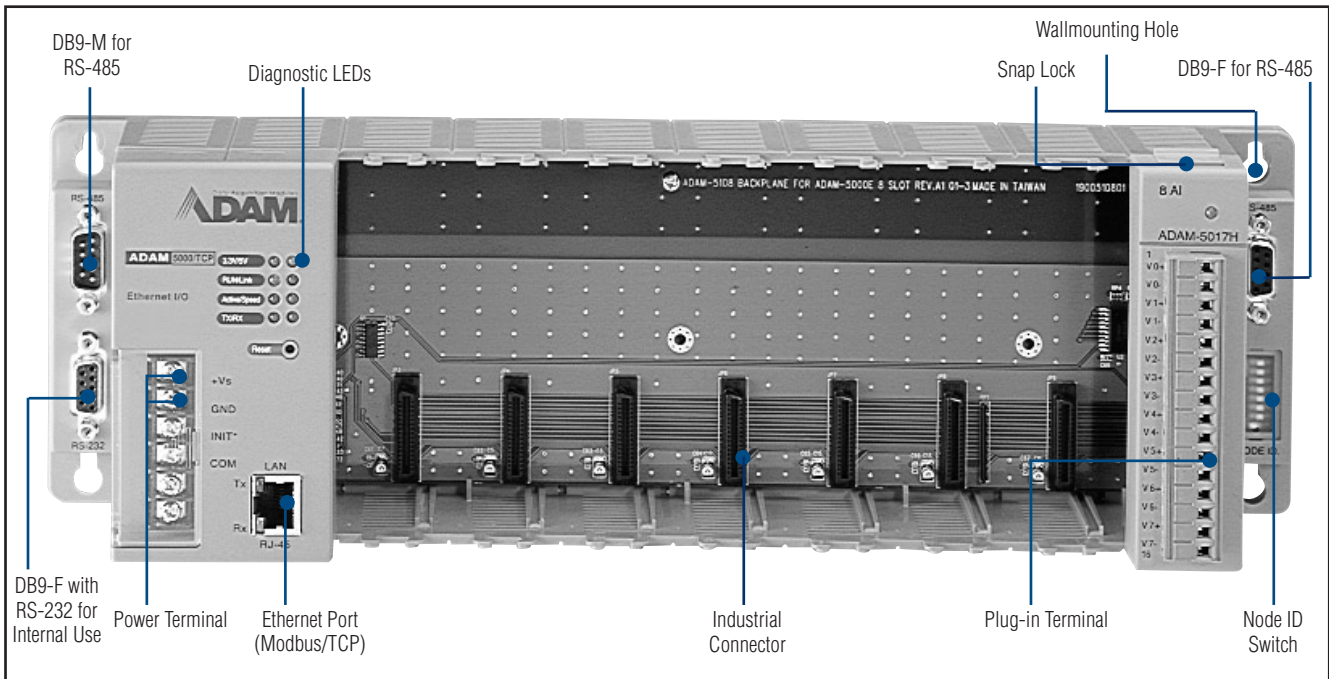
Environment

- Humidity** 5 ~ 95%, non-condensing
- Operating Temperature** -10 ~ 70° C (-14 ~ 158° F)
- Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- ADAM-5000L/TCP** 4-slot Ethernet-based Distributed DA&C System
- ADAM-5000/TCP** 8-slot Ethernet-based Distributed DA&C System

ADAM-5000L/TCP ADAM-5000/TCP



Feature Details

Communication Network

With a 32-bit RISC CPU, ADAM-5000/TCP and ADAM-5000L/TCP greatly enhances data processing performance and ability, especially in network communication. There is a standard RJ-45 modular jack Ethernet port on the ADAM-5000/TCP and ADAM-5000L/TCP's CPU board, and the field I/O modules are able to link to an Ethernet network directly without any other converter or data gateway. The communication speed can be auto-switched between 10 Mbps and 100 Mbps data transfer rates, depending on the network environment. In addition, ADAM-5000/TCP and ADAM-5000L/TCP can be used as an Ethernet data gateway. It provides an RS-485 interface to integrate serial devices supporting the Modbus/RTU protocol.

Modbus/TCP Protocol

Modbus/TCP is one of the most popular standards used for industrial Ethernet networks. Using this communication protocol, ADAM-5000/TCP and ADAM-5000L/TCP is easy to integrate with any HMI software packages or user-developed applications which support Modbus. Users do not have to prepare a specific driver for the ADAM-5000/TCP and ADAM-5000L/TCP when they install the DA&C system with their own operating application. It reduces required engineering efforts. Moreover, ADAM-5000/TCP and ADAM-5000L/TCP works as a Modbus data server as well. It allows eight PCs or tasks to access its current data simultaneously, no matter if they connect from LAN, an intranet, or the Internet.

Hardware Capacity & Diagnostics

ADAM-5000/TCP and ADAM-5000L/TCP is designed with high I/O capacity and supports all types of ADAM-5000 I/O modules. Providing 8/4 slots for any mixed modules, this DA&C system handles up to 8/4 modules, providing 128/64 I/O points (only four ADAM-5024s allowed). Different from other main units, the ADAM-5000/TCP and ADAM-5000L/TCP has not only higher I/O capacity, but also smarter diagnostics ability. There are eight indicators on the front case of the CPU module. Users can read the system status clearly, which includes power, CPU, Ethernet link, communication active, communication rate, etc. In addition, there are also Tx and Rx LEDs on the Ethernet port, indicating data sending and receiving.

Event Handling & Data Streaming

Though TCP/IP is the standard communication protocol for Ethernet, data transmission management is still a bottleneck when many clients are on the network at the same time. Therefore, the ADAM-5000/TCP and ADAM-5000L/TCP also supports the UDP protocol to deal with regular data stream broadcasting and event/alarm triggering. These functions will upgrade your system with intelligence and performance.

Isolated Communication

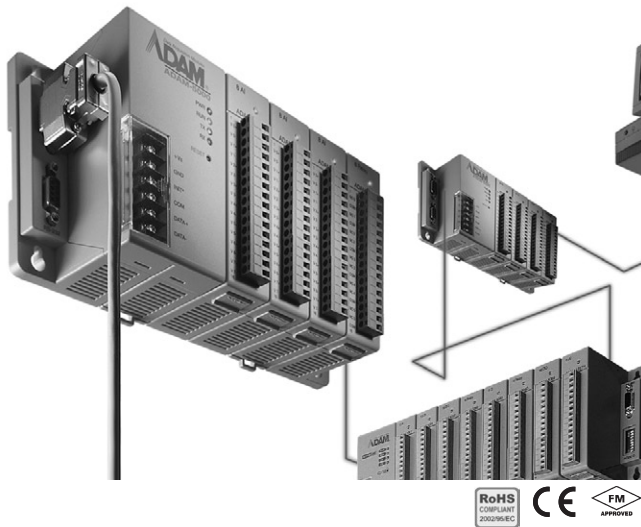
High speed transient suppressors isolate the ADAM-5000/TCP and ADAM-5000L/TCP Ethernet port from dangerous voltage up to 1500 V_{DC} power spikes and avoid surge damage to the whole system.

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TCP
- 7 IPFC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-5000/485 ADAM-5000E

**4-slot Distributed DA&C System
for RS-485 Networks**

**8-slot Distributed DA&C System
for RS-485 Networks**



Features

- RS-485 Communication for easy installation and networking
- 4 or 8 slots for up to 128 points data monitoring card control in one module
- Extensive Software support, includes windows DLL drivers, OCX drivers, OPC server and popular HMI/SCADA software drivers
- Seamlessly integrated with easy-to-use ADAMView data acquisition software
- Supports ADAM ASCII protocol or Modbus®/RTU protocol
- Supports Modbus/RTU protocol with user-defined Modbus address

Introduction

The ADAM-5000/485 and ADAM-5000E systems conform to the EIA RS-485 communication standard. This is the industry's most widely used, balanced, bidirectional transmission line standard. RS-485 was specifically developed for industrial applications to transmit and receive data at high rates over long distances.

Specifications

Control System

- **CPU** 16-bit 80188 microprocessor
- **I/O Slots** ADAM-5000/485: 4
ADAM-5000E: 8
- **LED Indicators** Power, CPU, communications
- **Watchdog Timer** 1.6 sec. (System)

Communications

- **Command Format** ASCII command/response protocol, Modbus/RTU
- **Communication** RS-485: 1.2 km (4000 feet)
- **Distance**
- **Data Format** Asynchronous. 1 start bit, 8 data bits, 1 stop bit, no parity
- **Network Protocols** Programming link: RS-232 (3-wire: TX, RX, GND)
Communication: RS-485 (2-wire)
- **Reliability Check** Communication error checking with checksum
- **Max. Nodes** 128 (in RS-485 daisy-chain network)
- **Speeds (kbps)** 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, and 115.2

Power

- **Power Consumption** 3 W @ 24 Vdc (ADAM-5000/485)
(not including I/O modules)
4.0 W @ 24 Vdc (ADAM-5000E)
(not including I/O modules)
- **Power Input** Unregulated 10 ~ 30 V_{DC}

Software

- Driver Support Windows DLL, OPC Server, Wonderware InTouch, Intellution, iFIX, Citect, Advantech Studio, ADAMView

Protection

- **Communication Line Isolation** 2500 V_{DC} (ADAM-5000/485)
3000 V_{DC} (ADAM-5000E)
- **Communication Power Isolation** 3000 V_{DC}
- **I/O Module Isolation** 3000 V_{DC}
- **Transient Protection** RS-485 communication lines, power input
- **Power Reversal Protection** Yes

General

- **Certifications** CE, FM
- **Connectors** 1 x DB9-M/DB9-F/screw terminal for RS-485 (communication)
1 x DB9-F for RS-232 (configuration)
1 x Screw-terminal for power input
- **Dimensions (WxHxD)** 4-slot: 231 x 110 x 75 mm
8-slot: 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN 35 rail, wall, rack (with mounting kit)

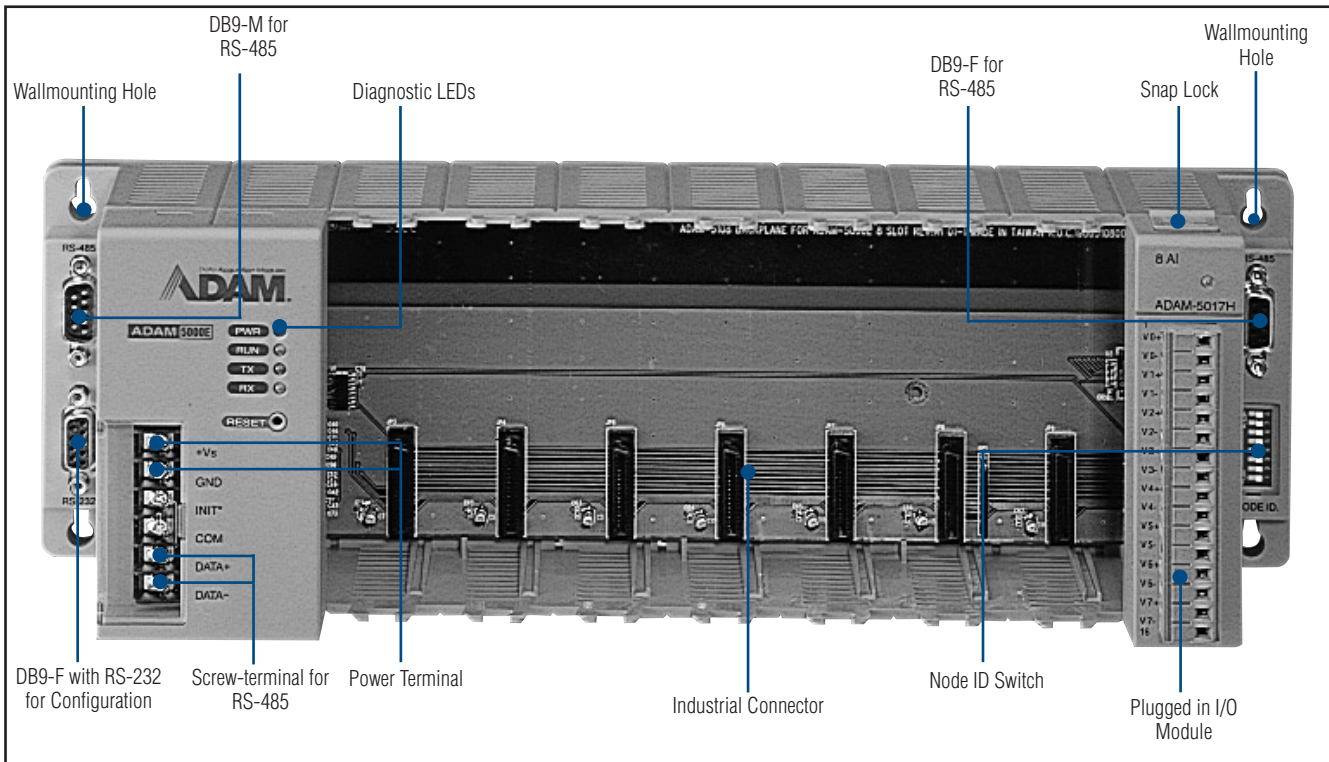
Environment

- **Humidity** 5 ~ 95%, non-condensing
- **Operating Temperature** -10 ~ 70° C (-14 ~ 158° F)
- **Storing Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-5000/485** 4-slot Distributed DA&C System for RS-485 Networks
- **ADAM-5000E** 8-slot Distributed DA&C System for RS-485 Networks

ADAM-5000/485 ADAM-5000E



Feature Details

Two-wire Communication

ADAM-5000/485 and ADAM-5000E systems use a single twisted pair of wires to transmit and receive data. Special circuitry ensures reliable communications and suppresses line noise on communication lines. This reduces overall network cost by simplifying installation and minimizing the number of cables, connectors, communication repeaters and filters required.

Transient Protection

High-speed transient suppressors protect the system from dangerous voltage surges or power spikes from both the power supply input and the communication ports.

Network Expansion

By using the ADAM-4510 repeater to amplify or boost existing signals, your networks can be stretched beyond 1.2 km.

Each ADAM-4510 repeater enables you to add up to 32 ADAM-5000 units to your network, extending the network by another 4000 feet (1.2 km). Up to 256 ADAM-5000/485, ADAM-5000E units can be connected to a single RS-485 network.

RS-232 to RS-485 Conversion

RS-232 serial ports are standard with most industrial computer systems. Though widely accepted, RS-232 has limited transmission speed, range and networking capabilities. The RS-485 standard overcomes these limitations by using differential voltage lines for data and control signals.

ADAM-4520 is an isolated converter that lets you take advantage of RS-485 on an RS-232 system by converting RS-232 signals to RS-485 signals. Software written for half-duplex RS-232 may also be used without modification. ADAM-4520 helps you build an industrial grade, long distance communication system with standard PC hardware.

Intelligent RS-485 Data Flow Control

The RS-485 communication protocol will support half-duplex communication. Only two wires are needed for transmitting and receiving data. Handshaking signals such as RTS (Request to Send) normally control the direction of the data flow. A special I/O circuit in the ADAM-4510 and ADAM-4520 modules sense the data flow direction and automatically switches the transmission direction, making handshaking signals unnecessary. This makes the RS-485 bus control completely transparent to the user.

Built-in RS-232 Communication

The RS-232 port is used to connect to a host PC for programming, control and monitoring of applications. This aids troubleshooting, and allows a PC to be linked with all the I/O points of the I/O modules.

ADAM ASCII Protocol and Modbus/RTU Protocol

ADAM-5000 commands are in ASCII format. ADAM applications can be written in any high-level language that supports ASCII string functions, such as C, Pascal or VB. ASCII support means you can use virtually any computer to manage your ADAM network.

Furthermore, the Modbus/RTU protocol is supported for connecting to 3rd party controllers.

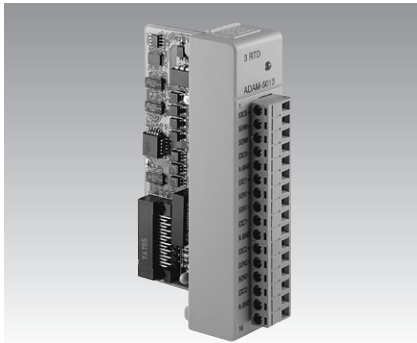
- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPCC
- 8 FPM
- 9 AWS
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- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-5013 ADAM-5017 ADAM-5017P

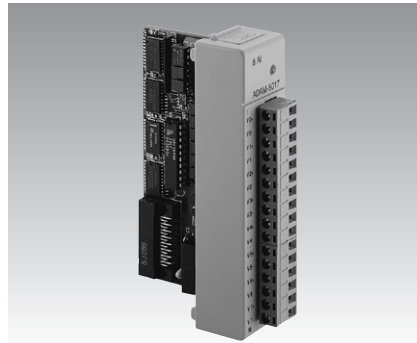
3-ch RTD Input Module

8-ch Analog Input Module

8-ch Analog Input Module with Independent Input Range



ADAM-5013



ADAM-5017



ADAM-5017P



Specifications

General

- **Certifications** CE
- **Connectors** 1 x Plug-in screw terminal (# 14~22 AWG)
- **Power Consumption** 1.1 W (max.)

RTD Input

- **Accuracy** $\pm 0.1\%$ or better
- **Bandwidth** 13.1 Hz @ 50 Hz
15.72 Hz @ 60 Hz
- **Channels** 3
- **CMR @ 50/60 Hz** 150 dB
- **Input Connections** 2, 3 or 4 wire
- **Input Impedance** 2 M Ω
- **Input Type** PT100 or Ni RTD
- **NMR @ 50/60 Hz** 100 dB
- **Resolution** 16-bit

RTD Types and Temperature Ranges

IEC RTD 100 ohms

Pt	-100° C	to	+100° C	a=0.00385
Pt	0° C	to	+100° C	a=0.00385
Pt	0° C	to	+200° C	a=0.00385
Pt	0° C	to	+600° C	a=0.00385

JIS RTD 100 ohms

Pt	-100° C	to	+100° C	a=0.00392
Pt	0° C	to	+100° C	a=0.00392
Pt	0° C	to	+200° C	a=0.00392
Pt	0° C	to	+600° C	a=0.00392

Ni RTD

Ni	-80° C	to	+100° C	
Ni	0° C	to	+100° C	

- **Sampling Rate** 10 samples/sec. (total)
- **Span Drift** $\pm 0.01^\circ \text{C}/^\circ \text{C}$
- **Zero Drift** $\pm 0.015^\circ \text{C}/^\circ \text{C}$

Protection

- **Isolation Voltage** 3000 V_{DC}

Ordering Information

- **ADAM-5013** 3-ch RTD Input Module

Specifications

General

- **Certifications** CE, FM
- **Connectors** 1 x Plug-in screw terminal (# 14~22 AWG)
- **Power Consumption** 1.25 W (max.)

Analog Input

- **Accuracy** $\pm 0.1\%$ or better
- **Bandwidth** 13.1 Hz @ 50 Hz
15.72 Hz @ 60 Hz
- **Channels** 8 differential
- **CMR @ 50/60 Hz** 92 dB min.
- **Input Impedance** Voltage: 2 M Ω
Current: 120 Ω (Build-in 120 Ω register for Current input)
- **Input Type** mV, V, mA
- **Input Range** $\pm 150 \text{ mV}$, $\pm 500 \text{ mV}$, $\pm 1 \text{ V}$, $\pm 5 \text{ V}$, $\pm 10 \text{ V}$; $\pm 20 \text{ mA}$
- **Resolution** 16-bit
- **Sampling Rate** 10 samples/sec. (total)
- **Span Drift** $\pm 25 \text{ PPM}/^\circ \text{C}$
- **Zero Drift** $\pm 6 \mu\text{V}/^\circ \text{C}$

Protection

- **Isolation Voltage** 3000 V_{DC}
- **Fault and Overvoltage Protection** Withstands overvoltage up to $\pm 35 \text{ V}$

Note: The voltage difference between any two pins must not exceed $\pm 15 \text{ V}$

Ordering Information

- **ADAM-5017** 8-ch Analog Input Module

Specifications

General

- **Certifications** CE
- **Connectors** 1 x Plug-in terminal block (#14 ~ 22 AWG)
- **Power Consumption** 1.25 W (max.)

Analog Input

- **Accuracy** Voltage mode : $\pm 0.1\%$ or better
Current mode : $\pm 0.2\%$ or better
- **Channels** 8 differential and independent configuration channels
- **CMR @ 50/60 Hz** 92 dB min.
- **Input Impedance** Voltage: 20 M Ω
Current: 120 Ω (Build-in 120 Ω . register for Current Input) for Current Input)
- **Input Type** mV, V (supports uni-polar and bipolar), mA
- **Input Range** 0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V, 0 ~ 15 V, $\pm 150 \text{ mV}$, $\pm 500 \text{ mV}$, $\pm 1 \text{ V}$, $\pm 5 \text{ V}$, $\pm 10 \text{ V}$, $\pm 15 \text{ V}$, $\pm 20 \text{ mA}$, 4 ~ 20 mA
- **Resolution** 16 bits
- **Sampling Rate** 10 samples/sec
- **Span Drift** $\pm 25 \text{ ppm}/^\circ \text{C}$
- **Zero Drift** $\pm 6 \mu\text{V}/^\circ \text{C}$
- **High Common Mode** 200 V_{DC}

Protection

- **Over Voltage Protection** $\pm 60 \text{ V}_{DC}$
- **Built-inTVS/ESD Protection**

Ordering Information

- **ADAM-5017P** 8-ch Analog Input Module with Independent Input Range

ADAM-5017UH

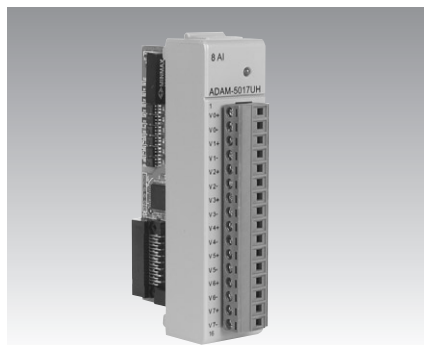
ADAM-5018

ADAM-5018P

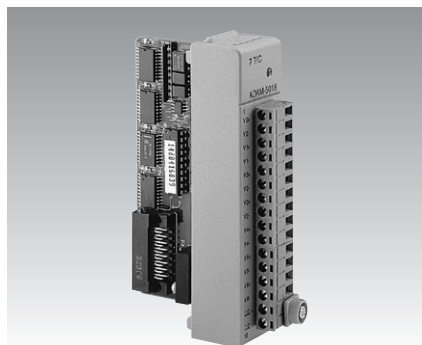
8-ch Ultra High Speed Analog Input Module

7-ch Thermocouple Input Module

7-ch Thermocouple Input Module with Independent Input Range



ADAM-5017UH



ADAM-5018



ADAM-5018P



Specifications

General

- Certifications** CE
- Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- Power Consumption** 2.2 W (max.)

Analog Input

- Accuracy** $\pm 0.1\%$ or better
- Bandwidth** 200 kHz
- Channels** 8 differential
- CMR @ 50/60 Hz** 92 dB min
- Differential Non-linear** ± 1 LSB
- Input Impedance** Voltage: 2 M Ω
Current: 120 Ω (Build-in 12 Ω register for Current Input)
- Integral Non-linear** ± 1 LSB
- Input Type** mV, V, mA
- Input Range** ± 10 V, $+0 \sim 10$ V, $0 \sim 20$ mV, $+4 \sim 20$ mA
Configured by User
- Low pass filter** 12-bit
- Resolution**
- Sampling Rate** Depends on base unit
ADAM-5000/485 & 5000E: 100 Samples/sec max (Total): one ADAM-5017UH installed
ADAM-5000/TCP: 100 Samples/sec max (Total): one ADAM-5017UH installed
ADAM-5510: 200K Samples/sec max (Single Channel): one ADAM-5017UH installed
ADAM-5550: 1K Samples/sec per channel: one ADAM-5017UH installed

*Depending on the performance of client server or controller

- Signal Input Bandwidth** 200 kHz for both voltage and current inputs

Protection

- Isolation Voltage** 3000 V_{DC}

Note:

- The voltage difference between any two pins must not exceed 15 V
- Distinct range settings allowed on each channel

Ordering Information

- ADAM-5017UH** 8-ch Ultra High Speed Analog Input Module

Specifications

General

- Certifications** CE, FM
- Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- Power Consumption** 0.63 W (max.)

Thermocouple Input

- Accuracy** $\pm 0.1\%$ or better
- Bandwidth** 13.1 Hz @ 50 Hz
15.72 Hz @ 60 Hz
- Channels** 7 differential
- CMR @ 50/60 Hz** 92 dB min
- Input Impedance** 2 M Ω
- Input Range** ± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 1 V, ± 2.5 V, ± 20 mA
mV, V, mA, thermocouple
- Input Type**
- Resolution** 16-bit
- Sampling Rate** 10 samples/sec. (total)
- Span Drift** ± 25 PPM/ $^{\circ}$ C
- Zero Drift** ± 6 μ V/ $^{\circ}$ C
- T/C Type and Temperature Range**

J	0 $^{\circ}$	\sim	760 $^{\circ}$ C
K	0 $^{\circ}$	\sim	1370 $^{\circ}$ C
T	-100 $^{\circ}$	\sim	400 $^{\circ}$ C
E	0 $^{\circ}$	\sim	1000 $^{\circ}$ C
R	500 $^{\circ}$	\sim	1750 $^{\circ}$ C
S	500 $^{\circ}$	\sim	1750 $^{\circ}$ C
B	500 $^{\circ}$	\sim	1800 $^{\circ}$ C

Protection

- Fault and Overvoltage Protection** Withstands overvoltage up to ± 35 V
- Isolation Voltage** 3,000 V_{DC}

Ordering Information

- ADAM-5018** 7-ch Thermocouple Input Module

Specifications

General

- Certifications** CE
- Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- Power Consumption** 0.63 W (max.)

Thermocouple Input

- Accuracy Bandwidth** $\pm 0.1\%$ or better
13.1 Hz @ 50 Hz
15.72 Hz @ 60 Hz
- Channels** 7 differential with Independent Input Range
- CMR @ 50/60 Hz** 92 dB min
- Input Impedance** 20 M Ω . (Build-in 120 Ω Register for Current Input)
- Input Range and Types**

Thermocouple			
J	0	\sim	760 $^{\circ}$ C
K	0	\sim	1370 $^{\circ}$ C
T	-100	\sim	400 $^{\circ}$ C
E	0	\sim	1000 $^{\circ}$ C
R	500	\sim	1750 $^{\circ}$ C
S	500	\sim	1750 $^{\circ}$ C
B	500	\sim	1800 $^{\circ}$ C
- Current mode** ± 20 mA, 4-20 mA
- Voltage** ± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 1 V, ± 2.5 V
- Resolution** 16-bit
- Sampling Rate** 10 samples/sec. (total)
- Span Drift** ± 25 PPM/ $^{\circ}$ C
- Zero Drift** ± 6 μ V/ $^{\circ}$ C
- High Common Mode** 2000 V_{DC}

Protection

- Fault and Overvoltage Protection** Withstands over voltage up to ± 35 V
- Isolation Voltage** 3,000 V_{DC}
- Filter function** Yes
- Built-in TVS/ESD Protection**

Ordering Information

- ADAM-5018P** 7-ch Thermocouple Input Module with Independent Input Range

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TCP

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

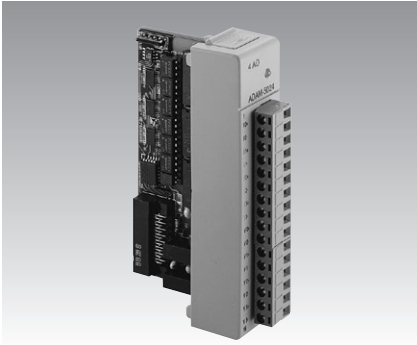
17
ICOM

ADAM-5024 ADAM-5050 ADAM-5051/5051D

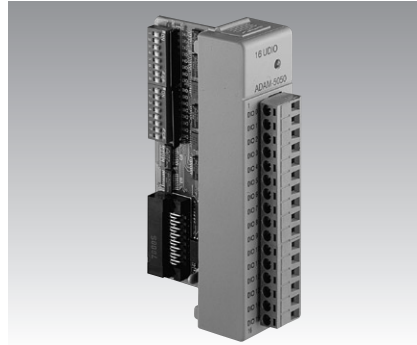
4-ch Analog Output Module

16-ch Universal Digital I/O Module

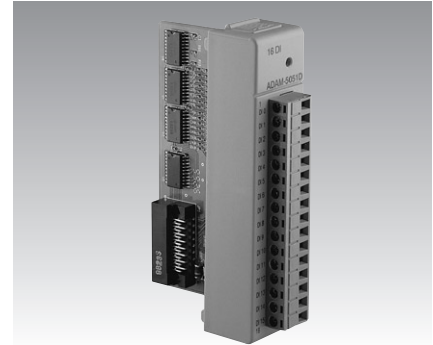
16-ch Digital Input Modules



ADAM-5024



ADAM-5050



ADAM-5051
ADAM-5051D



Specifications

General

- **Certifications** CE, FM
- **Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- **Power Consumption** 2.9 W (max.)

Analog Output

- **Accuracy** $\pm 0.1\%$ of FSR for current output
 $\pm 0.2\%$ of FSR for voltage output
- **Channels** 4
- **Current Load Resistor** 0 ~ 500 Ω (source)
- **Output Type** mA, V
- **Output Range** 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- **Programmable Output Slope** 0.125 ~ 128.0 mA/sec.
0.0625 ~ 64.0 V/sec.
- **Resolution** 12-bit
- **Resolution** $\pm 0.015\%$ of FSR
- **Span Temperature Coefficient** ± 25 PPM/ $^{\circ}$ C
- **Zero Drift** Voltage: ± 30 μ V/ $^{\circ}$ C
Current: ± 0.2 μ V/ $^{\circ}$ C

Protection

- **Isolation Voltage** 3,000 V_{DC}

Ordering Information

- **ADAM-5024** 4-ch Analog Output Module

Specifications

General

- **Certifications** CE, FM
- **Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- **Power Consumption** 1.2 W (max.)

Digital I/O

- **Channels** 16
- **Channel I/O Type** Bit-wise selectable by DIP switch
- **Digital Input** Dry Contact:
Logic level 0: close to GND
Logic level 1: open
Wet Contact:
Logic level 0: 2 V max.
Logic level 1: 4 ~ 30 V
- **Digital Output** Open collector to 30 V,
100 mA and 450 mW max. load
- **Power Dissipation** 300 mW for each channel

Ordering Information

- **ADAM-5050** 16-ch Universal Digital Input/Output Module

Specifications

General

- **Certifications** CE, FM (ADAM-5051 only)
- **Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- **LED Indicators: (ADAM-5051D)** On: Input logic level 1
Input floating
Off: Input logic level 0

Power Consumption

ADAM-5051: 0.53 W (max.)
ADAM-5051D: 0.84 W (max.)

Digital Input

- **Circuit Type** Pull-up current: 0.5 mA (Source Type)
- **Channels** 16
- **Input Voltage** 30 V_{max}
- **Logic Level** Logic level 0: 1 V max.
Logic level 1: 3.5 ~ 30 V

Ordering Information

- **ADAM-5051** 16-ch Digital Input Module
- **ADAM-5051D** 16-ch Digital Input Module with LED

ADAM-5051S

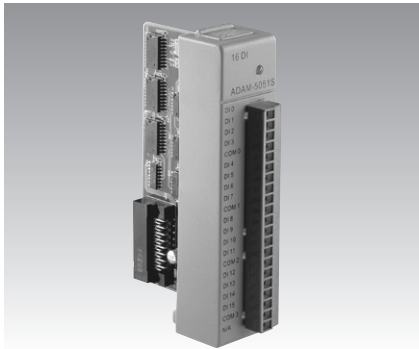
ADAM-5052

ADAM-5055S

16-ch Isolated Digital Input Module w/LED

8-ch Isolated Digital Input Module w/LED

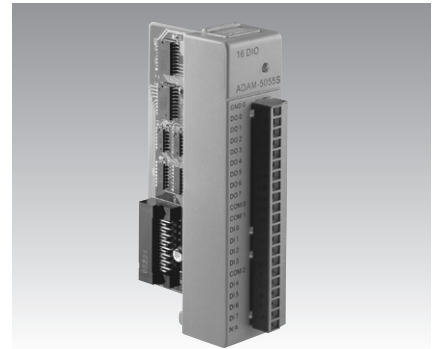
16-ch Isolated Digital I/O Module w/LED



ADAM-5051S



ADAM-5052



ADAM-5055S



Specifications

General

- **Certifications** CE
- **Connectors** 1 x Plug-in screw terminal (# 14-28 AWG)
- **LED Indicators** On: Active
Off: Inactive
- **Power Consumption** 0.8 W (max.)

Digital Input

- **Channels** 16
- **Input Voltage** 50 V_{max}
- **Logic Level** Logic level 0: 3 V max.
Logic level 1: 10 ~ 50 V

Protection

- **Optical Isolation** 2500 V_{DC}
- **Overvoltage Protection** 70 V_{DC}

Ordering Information

- **ADAM-5051S** 16-ch Isolated Digital Input Module w/LED

Specifications

General

- **Certifications** CE, FM
- **Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- **Power Consumption** 0.27 W (max.)

Digital Input

- **Channels** 8
- **Input Resistance** 3 k Ω /0.5 W
- **Logic Level** Logic level 0: 1 V_{max}
Logic level 1: 3.5 ~ 30 V

Protection

- **Isolation Voltage** 5000 V_{RMS}

Ordering Information

- **ADAM-5052** 8-ch Isolated Digital Input Module w/LED

Specifications

General

- **Certifications** CE
- **Connectors** 1 x Plug-in screw terminal (# 14-28 AWG)
- **LED Indicators** On: Active
Off: Inactive
- **Power Consumption** 0.68 W (max.)

Digital I/O

- **Channels** 16
- **Channel I/O Type** 8 DO, 8 DI
- **Logic Level (DI)** Dry contact:
Logic level 0: open
Logic level 1: close to GND
Wet contact:
Logic level 0: 3 V max.
Logic level 1: 10 ~ 50 V
- **Digital Output** Open collector to 40 V
200 mA max. load
- **Power Dissipation** Channel : 1 W max.
Total : 2.2 W
(8 channels)

Protection

- **Isolation Voltage** 2500 V_{DC}
- **Overvoltage Protection** 70 V_{DC} (DI only)

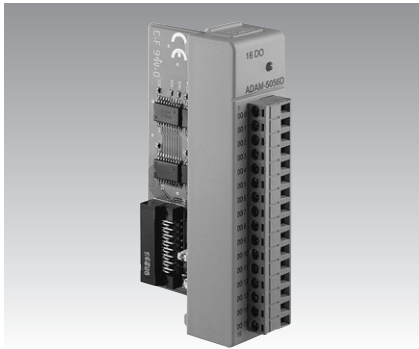
Ordering Information

- **ADAM-5055S** 16-ch Isolated Digital I/O Module w/LED

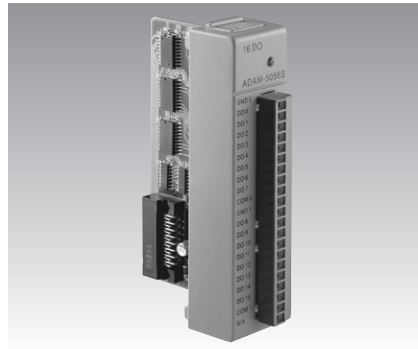
- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-5056/5056D ADAM-5056S ADAM-5056SO

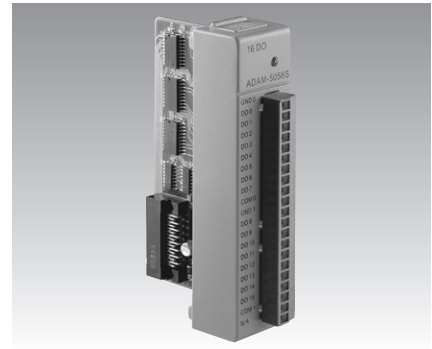
16-ch Digital Output Modules
16-ch Sink/Source Type Isolated
Digital Output Module w/LED
16-ch Source type Isolated Digital
Output Module w/LED



ADAM-5056
ADAM-5056D



ADAM-5056S



ADAM-5056SO



Specifications

General

- **Certifications** CE
FM (ADAM-5056 only)
- **Connectors** 1 x Plug-in screw terminal (# 14~22 AWG)
- **LED Indicators: (ADAM-5056D)**
On: output logic level "1"
Off: output logic level "0"
- **Power Consumption** ADAM-5056: 0.53 W (max.)
ADAM-5056D: 0.84 W (max.)

Digital Output

- **Channels** 16
- **Digital Output** Open collector to 30 V, 100 mA max. load
- **Operating Voltage** 30 V_{max}
- **Power Dissipation** 300 mW for each channel

Ordering Information

- **ADAM-5056** 16-ch Digital Output Module
- **ADAM-5056D** 16-ch Digital Output Module w/LED

Specifications

General

- **Certifications** CE
- **Connectors** 1 x Plug-in screw terminal (# 14~28 AWG)
- **LED Indicator** On: active
Off: inactive
- **Power Consumption** 0.6 W (max.)

Digital Output

- **Channels** 16
- **Digital Output** Open collector to 40 V, 200 mA max. load (sink)
- **Power Dissipation** 300 mW for each channel

Protection

- **Optical Isolation** 2500 V_{DC}
- **Overvoltage Protection** 70 V_{DC}
- **Power Dissipation** 300 mW

Ordering Information

- **ADAM-5056S** 16-ch Sink Type Isolated Digital Output Module w/LED

Specifications

General

- **Certifications** CE
- **Connectors** 1 x Plug-in screw terminal (# 14~28 AWG)
- **LED Indicator** On: active
Off: inactive
- **Power Consumption** 0.6 W (Max.)

Digital Output

- **Channels** 16
- **Digital Output** Open collector to 40 V, 200 mA max. load (source)
- **Power Dissipation** Channel : 1 W max.
Total : 2.2 W (8 channels)

Protection

- **Optical Isolation** 2500 V_{DC}
- **Overvoltage Protection** 70 V_{DC}

Ordering Information

- **ADAM-5056SO** 16-ch Source Type Isolated Digital Output Module w/LED

ADAM-5060 ADAM-5068 ADAM-5069

6-ch Relay Output Module

8-ch Relay Output Module

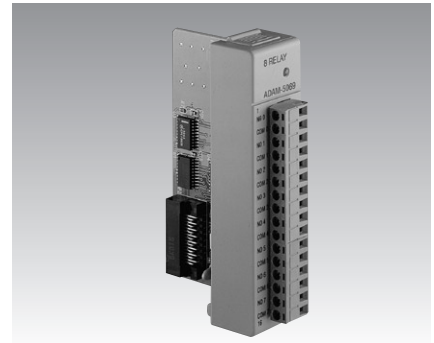
8-ch Power Relay Output Module w/LED



ADAM-5060



ADAM-5068



ADAM-5069



Specifications

General

- **Certifications** CE
FM (ADAM-5060 only)
- **Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- **Power Consumption** 1.8 W (max.)

Relay Output

- **Breakdown Voltage** 500 V_{AC} (50/60 Hz)
- **Channels** 2 x form A, 4 x form C
- **Contact Rating** AC: 125 V @ 0.6 A
250 V @ 0.3 A
DC: 30 V @ 2 A
110 V @ 0.6 A
- **Insulation Resistance** 1 GΩ min. @ 500 V_{DC}
- **Relay Off Time (typical)** 2 ms
- **Relay On Time (typical)** 3 ms
- **Total Switching Time** 10 ms

Ordering Information

- **ADAM-5060** 6-ch Relay Output Module

Specifications

General

- **Certifications** CE
FM (ADAM-5060 only)
- **Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- **Power Consumption** 1.8 W (max.)

Relay Output

- **Breakdown Voltage** 500 V_{AC} (50/60 Hz)
- **Channels** 8 x form A
- **Contact Rating** AC: 120 V @ 0.5 A
DC: 30 V @ 1 A
- **Insulation Resistance** 1 GΩ min. @ 500 V_{DC}
- **Relay Off Time (typical)** 3 ms
- **Relay On Time (typical)** 7 ms
- **Total Switching Time** 10 ms

Ordering Information

- **ADAM-5068** 8-ch Relay Output Module

Specifications

General

- **Certifications** CE, FCC class A
- **Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- **LED Indicator** On: Active
Off: Non-active
- **Power Consumption** 2.2 W (max.)

Relay Output

- **Breakdown Voltage** 750 V_{AC} (50/60 Hz)
- **Channels** 8 x form A
- **Contact Rating** AC: 250 V @ 5 A
DC: 30 V @ 5 A
- **Insulation Resistance** 1 GΩ @ 500 V_{DC}
- **Relay On Time** 5 ms
- **Relay Off Time** 5.6 ms

Ordering Information

- **ADAM-5069** 8-ch Power Relay Output Module w/LED

1

PAC & Software

2

BAS

3

UNO

4

RS-485 I/O

5

Ethernet I/O

6

TPC

7

IPPC

8

FPM

9

AWS

10

Plug-in I/O

11

CompactPCI

12

Signal Conditioning

13

USB I/O

14

Motion Control I/O

15

Ethernet Switch

16

EDG

17

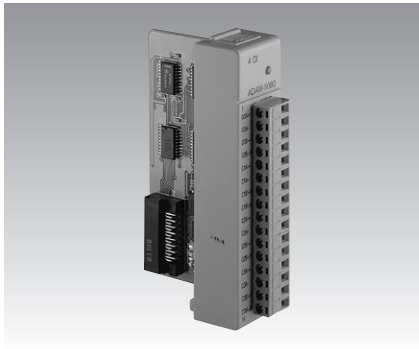
ICOM

ADAM-5080 ADAM-5081 ADAM-5090

4-ch Counter/Frequency Module

4-ch High Speed Counter/Frequency Module

4-port RS-232 Module



ADAM-5080



ADAM-5081



ADAM-5090



Specifications

General

- **Certifications** CE, FM
- **Connectors** 1 x Plug-in screw terminal (# 14-22 AWG)
- **Power Consumption** 1.5 W (max.)

Counter/Frequency

- **Counter Aux. Function** Initial preset, hi-low alarm setting, alarm digital output mapping, overflow
- **Channels** 4
- **Input Frequency** 0.3 ~ 1000 Hz max. (frequency mode)
5000 Hz max. (counter mode) TTL only
- **Input Level** Isolated or TTL level
- **Isolation Input Level** Logic level 0: 1 V_{max}
Logic level 1: 3.5 ~ 30 V
- **Isolation Voltage** 1000 V_{RMS}
- **Maximum Count** 4, 294, 967, 295 (32 bits)
- **Minimum Input Current** 2 mA (isolated)
- **Minimum Pulse Width** 500 ms (frequency mode)
100 ms (counter mode)
- **Modes** Counter (up/down, bi-direction) frequency
- **Programmable Digital Filter** 1 ~ 65000 μ sec (Noise Filter function)
- **TTL Input Level** Logic level 0: 0 ~ 0.8 V
Logic level 1: 2.3 ~ 5 V

Ordering Information

- **ADAM-5080** 4-ch Counter/Frequency Module

Specifications

General

- **Certifications** CE
- **Power Consumption** 1.1 W (Max.)
- **LED** Power/Communication Indicator
- **Channels** 4
- **Maximum Count** 4,294,967,295 (32 bit)
- **Input Frequency** 5 Hz ~ 1 MHz max. (frequency mode)
1 MHz max. (counter mode)

- **Input Level** Isolated or TTL level
- **Minimum Pulse Width** 1 μ sec. (frequency mode)
1 μ sec. (counter mode)
- **Minimum Input Current** 2 mA (isolated)
- **Isolation Input Level** Logic level 0: +3 Vdc (max),
Logic level 1: +10 Vdc to 30 Vdc

- **TTL Input Level** Logic level 0: 0 Vdc to 0.8Vdc,
Logic level 1: 2.3 Vdc to 5 Vdc

- **Isolation voltage** 2500 V_{RMS}
- **Modes** Counter (up/down, bi-direction, up, A/B Phase), Frequency

- **Counter Aux. Function** Initial preset, hi-low alarm setting, alarm digital output mapping, overflow

- **Programmable Digital Filter** 1 ~ 65000 μ sec (Noise Filter Function)

Ordering Information

- **ADAM-5081** 4-ch High Speed Counter/Frequency Module

Specifications

General

- **Certifications** CE
- **Connectors** 4 x RJ-45
- **LED Indicators** TX, RX (each port)
- **Power Consumption** 0.6 W (max.)

Communications

- **Data Bits** 5, 6, 7, 8
- **Data Signals** Tx/D, Rx/D, RTS, TS, DTR, DSR, DCD, RI, GND
- **Parity** none, even, odd
- **Ports** 4
- **UARTs** 1 x 16C954 (128-byte FIFO)
- **Speed** 50 ~ 115.2 kbps
- **Stop Bits** 1, 1.5, 2

Note: For ADAM-5510 Series, ADAM-5510KW Series, and ADAM-5511 only

Ordering Information

- **ADAM-5090** 4-port RS-232 Module

ADAM-5202 ADAM-5240 ADAM-5030

2-ring AMONet Master Module 4-axis Stepping/Pulse-type Servo Motor Control Module

2-slot SD Storage Module



Specifications

General

- **Certifications** CE
- **Power Consumption** 0.5 W (Max.)
- **Connectors** RJ-45
- **LED Indicators** Active, Error (Each Port)
- **Number of Rings** 2
- **Transmission Speed** 2.5, 5, 10 or 20 Mbps with automatic data flow control
- **Serial Interface** Half duplex RS-485 with transformer isolation
- **Cable Type** CAT5 UTP/STP Ethernet cable
- **Surge Protection** 10 kW
- **Communication** Max. 100 m (20 Mbps/32 slave modules) or 50 m (20 Mbps/64 slave modules) Distance
- **Communication Slave** 2 Rings with Max. 128 (1 Ring with 64 slaves) Module Number
- **Operating Temperature** 0 ~ 50° C (32 ~ 140° F)

Ordering Information

- **ADAM-5202** 2-ring AMONet Master Module



Specifications

General

- **Certifications** CE
- **Power Consumption** 1.1 W (Max.)
- **Connectors** 100-pin SCSI-II
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Relative Humidity** 5 ~ 95 % RH non-condensing (refer to IEC 68-2-3)

Motion

- **Number of Axis** 4 Axis
- **External Power input** DC +12 ~ 24Vdc
- **Range** 2/3-axis Linear Interpolation/2-axis Circular Interpolation
- **Speed** ±2, 147, 483, 646 for each axis
- **Continuous Interpolation** 1PPS ~ 2MPPS
- **Speed** 1PPS ~ 2MPPS

Drive Output Pulses

- **Range** 1PPS ~ 4MPPS
- **Pulse Output Type** Pulse /Direction (1-pulse, 1- direction type) Up/Down (2-pulse type) T/S-curve Acceleration/Deceleration
- **Speed Curve**

Input Pulse for Encoder Interface

- **Encoder Pulse Input Type** Quadrature (A/B phase or Up/Down)
- **Counts per Encoder Cycle** X1, X2, X4 (A/B phase only)
- **Protection** 1000 Vdc isolation
- **Input Range** 5 V ~ 30 V

External Signals Driving

- **Input Signal** nEXOP + and nEXOP
- **Max Input Frequency** 100Hz
- **Protection** 1000 Vdc Photo coupler isolation

External Deceleration/Instantaneous Stop Signal

- **Input Signal** nIN1 ~3
- **Max Input Frequency** 4 kHz
- **Protection** 1000 Vdc Photo coupler isolation

Input Pulse for Servo Motor Drives

- **Input Signal** nALArm (servo alarm) nINPOS (position command completed)

General Purpose Output Signal

- **Output Signal** nOUT4 ~ 7

Emergency Stop

- **Input Signal** EMG ~ one emergency stop input for ADAM-5240
- **Protection** 1000 Vdc Photo coupler isolation and RC filtering

Ordering Information

- **ADAM-5240** 4-axis Stepping/Pulse Servo Motor Control Module



Specifications

General

- **Certification** CE
- **Power Consumption** 0.5 W (Max.)
- **Storage Type** SD (Secure Digital Card)
- **Storage Number** 2
- **USB Type** USB Rev 2.0 (Compliant)
- **USB Number** 2
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)

Ordering Information

- **ADAM-5030** 2-slot SD Storage Module

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

DiagAnywhere

Remote Maintenance Software

Features

- Remote Monitor Function
- Remote Control Function
- Remote Screen Snapshot
- Remote Screen Recording
- File Transfer Function
- Windows-based Authentication
- Favorite Devices Grouping Function

Introduction

The "DiagAnywhere", an abbreviation of "Diagnose Anywhere", is remote maintenance software for remotely monitoring and controlling Advantech TPC, UNO and ADAM devices with Windows-based operating systems. Currently, the DiagAnywhere includes the utility on client side and the server on the target devices. The supported platforms include Windows XP, Windows XP Embedded, Windows CE.NET 4.2, and Windows CE 5.0. This useful software can help users to achieve major remote maintenance tasks including remote monitoring and control, remote screen snapshot and recording, file upload and download. Windows-based authentication is also supported for security concern.

Remote Monitoring and Control

DiagAnywhere can monitor up to 16 target devices simultaneously. The total refresh rate of the screens can be optimized manually. The other supported functions including remote control function can be operated under only one target device is selected.

Remote Screen Snapshot and Recording

The remote screen snapshot function and remote screen recording function can be utilized for recording the important screen snapshots so the major symptoms of the target device can be analyzed efficiently. These functions are very helpful to the communication between field operators and technical support engineers when they need to investigate the problem remotely.

File Upload and Download

Remote maintenance always needs the functions of uploading files to and downloading files from target devices. DiagAnywhere adopts popular user interfaces of FTP client so users can operate the upload and download function easily.

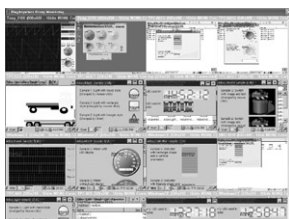
Windows Based Authentication

DiagAnywhere adopts Windows-based authentication which comes with Windows operating system. Only the account of administrator can login to the target devices. For security consideration, the server can accept only one connection from the client utility at a time and other connection will be rejected if there is a connection alive.

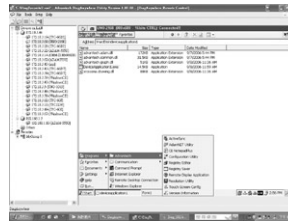
Favorite Devices Grouping Function

The selected target devices can be grouped under favorite groups. This function can help users to organize the device groups and save the maintenance time.

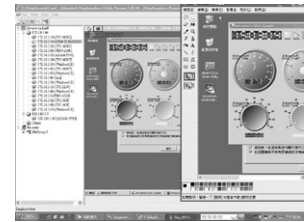
Monitoring 16 Target Devices



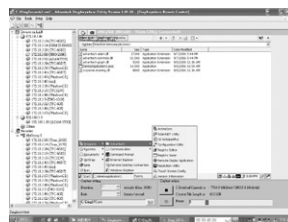
Controlling target device



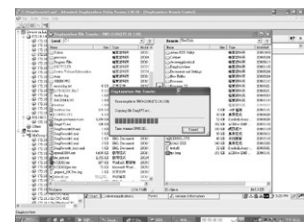
Remote Screen Snapshot



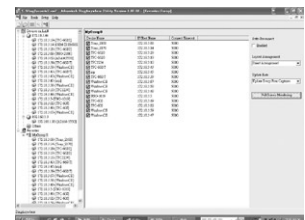
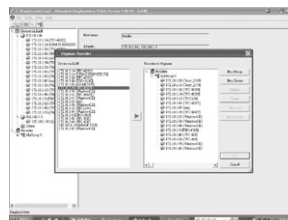
Remote Screen Recording



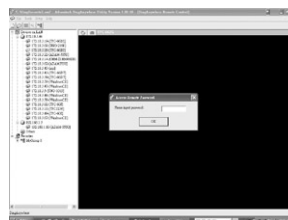
File Transfer



Devices Grouping



Windows-based Authentication



System Requirements

- CPU Intel Pentium processor 200 MHz or higher
- RAM 64 MB memory (Minimum)
- Disk Space 5 MB (Minimum)
- Display VGA resolution or higher
- OS Microsoft Windows 98, SE, Windows 4.0 (SP6 above), Windows 2000/XP
- Win32 platform Microsoft .NET Framework installed
- WinCE platform Microsoft .NET Compact Framework installed

Ordering Information

- PCLS-DIAGAW32 DiagAnywhere Remote Maintenance Software

ADAMView

Data Acquisition Software



Features

- Complete software package
- Graphic panel configuration
- Modularized and prioritized task design
- BasicScript scripting language to customize your applications
- Easy connection with ADAM I/O series

Introduction

We have noticed that many users apply the ADAM Data Acquisition modules in small base projects. Because the cost ran higher than system hardware, Human Machine Interface software were never suitable for these projects. ADAMView, the ADAM Data Acquisition software, is especially designed for low-volume ADAM projects. It provides a 150 physical points database, ADAM Drivers, for all monitoring and control functions. In brief, ADAMView is a cost-effective and simple SCADA software for the ADAM I/O series.

Specifications

System Requirements

- | | |
|-------------------------------------|--|
| ▪ CPU | Intel® Pentium® 200 MHz or higher |
| ▪ RAM | 64 MB Minimum |
| ▪ Disk Space | 20 MB Minimum |
| ▪ Display | VGA Resolution or Higher |
| ▪ Microsoft Compatible Mouse | |
| ▪ OS | Microsoft® Windows® 98, Windows NT 4.0 SP4 or above, Windows 2000, Window XP |

Supported Hardware

- ADAM-4000/5000 Series Modules: Link through DLL Driver (Device Manager)

Feature Details

Complete Software Package

ADAMView takes advantage of Microsoft's Windows graphical interface, offering fast and intuitive configuration for human-machine interface and data acquisition applications. This application software combines easy-to-use graphical development and the flexibility of BasicScript, a powerful programming tool. With ADAMView, you can easily design both simple and complex applications, such as factory processes and utility monitoring, Lab testing, or environmental monitoring.

Graphical Panel Configuration

ADAMView provides a wide variety of graphical wizards, allowing users to quickly create an intuitive operator interface. Built-in display objects include bar graph, button, indicator, real time/historical trending, knob, gauge, slider, imported bitmap, numeric display and control.

Modularized and Prioritized Task Design

ADAMView development environment allows you to decompose your system into several smaller modules or tasks. The modular design is very useful to develop, and facilitate large and complicated system maintenance. Each module or task has its own properties, such as scan rate, start/stop method, and priority etc. With 32-bit Windows' multi-tasking capability, all tasks run simultaneously. Moreover, ADAMView software allows you to prioritize your tasks to increase overall performance.

BasicScript Scripting Language to Customize Your Applications

ADAMView is easy to use. It fully integrates BasicScript language in its kernel to meet your specific needs. Over 600 commands are available to perform almost any function you can imagine, including calculations, reading and writing files, DDE, and ODBC. It allows you to access and share data with other applications, such as Microsoft Access and Microsoft Excel. With BasicScript scripting language, you can reuse existing code and build your applications faster and easier.

Easy Connection with ADAM I/O Series

Once you install ADAMView software, you can immediately connect with ADAM-4000/5000 I/O as a complete Data Acquisition System. Current ADAM users can apply direct driver to access all ADAM-4000 modules and ADAM-5000/485 I/O system.

Ordering Information

- **PCLS-ADAMVIEW32** ADAMView Data Acquisition Software

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPCC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

PWR-242

PWR-243

PWR-244

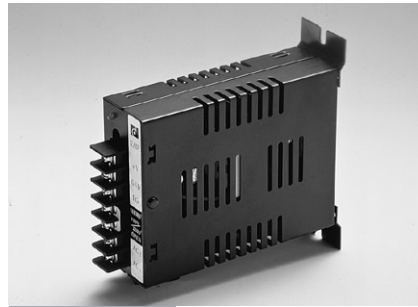
DIN-rail Power Supply

Panel Mount Power Supply

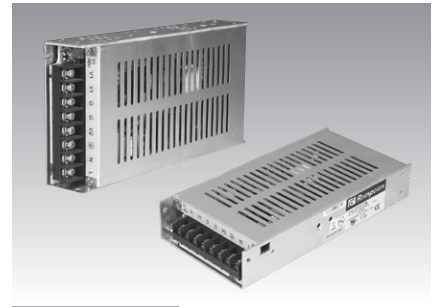
Panel Mount Power Supply



PWR-242



PWR-243



PWR-244



Specifications

Input

- Input Current 1.2 A max.
- Inrush Current (cold) 20 A/110 V_{AC}
40 A/220 V_{AC}
- Input Frequency 47 ~ 63 Hz
- Input Voltage 90 ~ 264 V_{AC} wide input range
- Short Protection

Output

- Output Current 2.1 A max.
- Output Voltage +24 V_{DC} ±10%
- Overload Protection

General

- Certifications CE, UL
- Connectors Screw-terminal
- Dimensions (L x W x H) 181 x 113 x 60 mm
(7.01" x 4.43" x 2.35")
- Enclosure Sheet metal
- MTBF 85,000 hrs
- Operating Temperature 0 ~ 50° C
(32 ~ 122° F)

Ordering Information

- PWR-242 DIN-rail Power Supply

Specifications

Input

- Input Current 1.4 A max.
- Inrush Current (cold) 20 A/110 V_{AC}
40 A/220 V_{AC}
- Input Frequency 47 ~ 63 Hz
- Input Voltage 85 ~ 132 V_{AC} or
170 ~ 264 V_{AC} (switchable)
- Short Protection

Output

- Output Current 3 A max.
- Output Voltage +24 V_{DC} ±10%
- Overload Protection

General

- Certifications CE, UL
- Connectors Screw-terminal
- Dimensions (L x W x H) 128 x 97 x 40 mm
(5" x 3.8" x 1.6")
- Enclosure Sheet metal
- MTBF 78,000 hrs
- Operating Temperature: 0 ~ 50° C
(32 ~ 122° F)

Ordering Information

- PWR-243 Panel Mount Power Supply

Specifications

Input

- Input Current 1.4 A max.
- Inrush Current (cold) 25 A/110 V_{AC}
50 A/220 V_{AC}
- Input Frequency 47 ~ 63 Hz
- Input Voltage 100~240 V_{AC}
- Short Protection

Output

- Output Current 4.2 A max.
- Output Voltage +24 V_{DC} ±10%
- Overload Protection

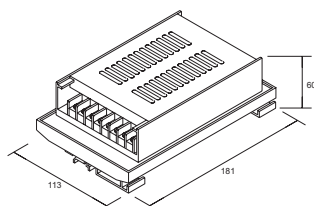
General

- Certifications CE, UL
- Connectors Screw-terminal
- Dimensions (L x W x H) 198 x 99 x 35 mm
(7.80" x 3.90" x 1.38")
- Enclosure Sheet metal
- MTBF 70,000 hrs
- Operating Temperature 0 ~ 50° C
(32 ~ 122° F)

Ordering Information

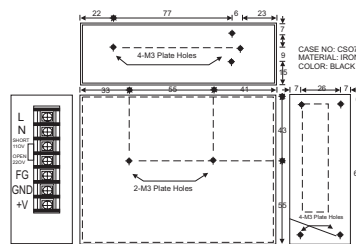
- PWR-244 Panel Mount Power Supply

Dimensions



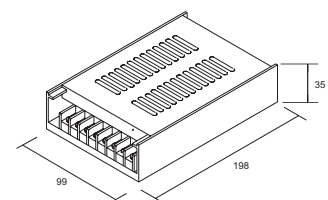
Unit: mm

Dimensions



Unit: mm

Dimensions



Unit: mm

Building Automation Systems

2

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The diagram illustrates a Building Automation System (BAS) architecture. On the left, a tall building is shown with various mechanical and electrical components highlighted by callouts: Cooling Tower, Air Handling Units, Heat Pump, and Chiller. These components are connected to a central control system. The control system consists of a Web Server with Database and a Client with Web Browser, both connected to an Internet or Intranet. The Internet or Intranet is connected to a WebLink Communication Gateway and a WebView SCADA & HMI. The WebLink Communication Gateway is connected to a Serial Network, which is represented by a cloud icon. The Serial Network is connected to a Switch, which is then connected to a series of I/O modules: BAS-2000 Controllers (DDC), ADAM-4022T PID Controllers, ADAM-4000 I/O Modules, and ADAM-5000/TCP, ADAM-6000 I/O Modules. The diagram shows the flow of data and control signals between the building equipment and the central control system.

- Chiller Plant Control
- Water Pump Control
- Cooling Tower Control
- Waste Water Treatment
- Heat Pump Control
- HVAC Equipments Control
- Environment Monitoring (Temp., Humidity, Smoke...)
- Other Facility Control/Monitoring Functions
- BACnet/Modbus Protocol

The figure above shows the typical Building Automation architecture. Various devices and sensors are controlled and monitored by BAS-2000 Controller, ADAM-4022T PID Controller, ADAM-4000/5000/6000 series modules. Through serial and Ethernet networks, data is transferred to WebLink communication gateway, as well as WebView SCADA and HMI hardware. Operators can monitor and control the system locally on WebView. People in the control center can connect to the WebLink and WebView through Internet, and this makes the system convenient & flexible. Advantech provides complete Building Automation solution:

1. Software: Advantech WinCE WebAccess
2. Communication gateway: WebLink
3. SCADA and HMI hardware: WebView
4. DDC controller: BAS-2000 series
5. PID controller: BAS-4022T
6. I/O modules: ADAM-4000, ADAM-5000, ADAM-6000 series modules

A Building Automation system is a different purposed application from typical industrial automation applications. It is designed for commercial building requirements, not for industrial environment requirements. So the controller should be designed for this purpose.

The DDC (Direct Digital Controller) is a controller dedicated to Building Automation applications. The DDC controller must be a standalone operating unit, and in order to satisfy the requirements of building I/O and control applications, the I/O design of DDC is universal. Because of wiring costs and wiring installation environments, RS-485 is the major physical layer of the network. Most importantly, the DDC must be a standalone operation. Advantech provides BAS-2000 series as the DDC controller.

System Network

Because of the lower wiring costs and simpler installation, RS-485 is the standard network protocol in the control and device layer of building automation system networks.

Power Supply Requirements

The power supply requirements of typical BAS devices are quite different from industrial equipment. Most industrial controllers and devices are designed with 110/220 V AC or 24 V DC power supply, while most BAS controllers use 24 V AC.

Powerful WebLink Communication Gateway and WebView SCADA

Installed Advantech WinCE WebAccess, WebLink and WebView become ideal gateway and SCADA hardware for Building Automation application. They are web-based solutions which implement the latest web and internet technology. Programmers can easily configure and build the application through internet, intranet or LAN. Operators can simply control and monitor WebView and WebLink using ordinary Web Browser such as Microsoft Internet Explorer(IE), without purchasing any other software. Moreover, Advantech WinCE WebAccess features rich functionality such as graphics, calculation, data logging, real-time and historical trends, alarms, scheduler, and recipe. This helps the system integrator to save more time and money to complete their own project. The WebView and WebLink provide device driver, which gives them ability to connect to different devices like PLC, PAC, and I/O modules.

Communication Protocol

BA system networks have their own standards. There are two major standards for BAS networks: BACnet and LonWorks. BACnet (Building Automation Control network) was defined by ASHRAE (American Society of Heating, Refrigerating and Air-conditioning Engineers), the major institute of HVAC vendors in the world. Because it was defined by ASHRAE, it is widely used and accepted for HVAC equipment. LonWorks was defined by Echelon, which is a private company. The basic system architectures of these two standards are different. The BACnet system architecture is quite similar to a typical industrial control system network, so it is more suitable for BA systems in commercial buildings. It has therefore gained the position of almost becoming the de-facto standard for BA systems in commercial buildings. The Advantech BAS-2000 system is designed with this protocol as its standard communication protocol, and for compatibility with 3rd party devices, MODBUS/RTU is also supported.

Why BACnet ?

BACnet (Building Automation Control network) protocol is developed by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers). It has become the most popular Building Automation network standard worldwide, and most BAS devices and HVAC equipment have been built with this protocol now. Because the main physical layer of the network in the BAS controller layer is RS-485, the format of the BACnet protocol being used in RS-485 is BACnet MS/TP. This is a good reason why the BAS-2000 series use the BACnet MS/TP as its default protocol.

Why Modbus ?

Modbus is the most popular protocol in automation systems so far. Almost all traditional control systems or equipment support or is compatible with this protocol. It is widely used in general-purpose devices and equipment.

In a typical building there are power systems, water supply systems, HVAC systems, water treatment systems and so on. These systems require quite a lot of machinery, and most of this machinery is not designed for building automation systems. They are designed for both building and industrial applications, and therefore do not support the BACnet protocol. But the Modbus protocol can usually be found in these machines.

For a complete building automation system, all equipment should be controlled by one system. The easiest method to implement this is by using a BAS DDC controller. But most traditional DDC controllers don't support this feature. The BAS-2000 series controllers supports Modbus, which means you can create Modbus compatible building automation control systems and control all equipment in a building with one system.



1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

Advantech BAS Solutions

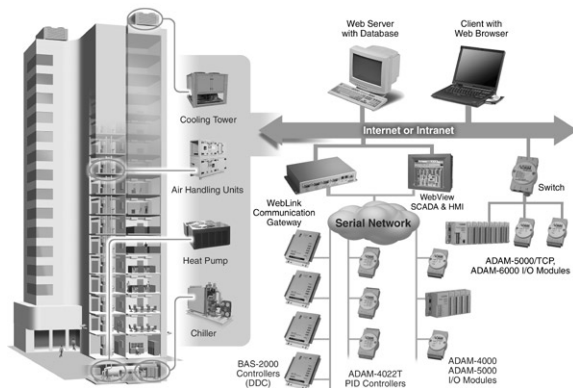
Introduction

Advantech offers a total solution for Building Automation systems including facility management (HVAC, water treatment, power, etc.), security (access control, door/window alarm, etc.) and CCTV systems. Equipped with Advantech's BAS-2000, WebLink, WebView, and ADAM modules, system integrators can easily create powerful and flexible BAS applications.

Facility Management System

The facility management system includes the control of :

- Chiller Plants
- Water Pumps
- Waste Water Treatment
- Cooling Towers
- Heat Pumps
- Other HVAC Equipment
- Environment Monitoring System (Temperature, Humidity, etc.)
- Other Facility Control/Monitoring Applications

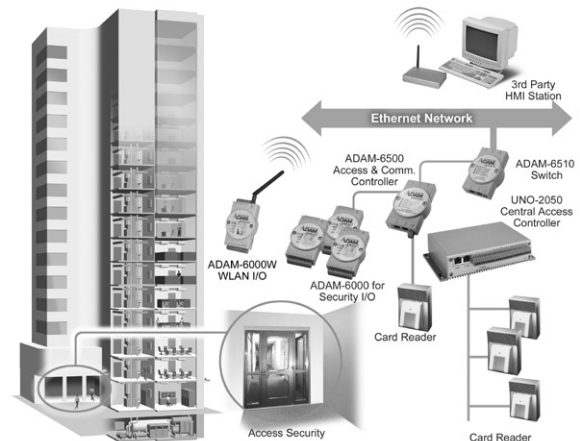


For facility control applications like chiller plant automation, water pump control and cooling tower control, the BAS-2000 system with KW's BA function block library can help build a powerful control system. For distributed zone temperature control, the BAS-4022T dual-loop PID controller would be a perfect selection, and the ADAM-4000 and ADAM-5000 I/O data acquisition modules can be used for facility and environment monitoring systems.

Security System

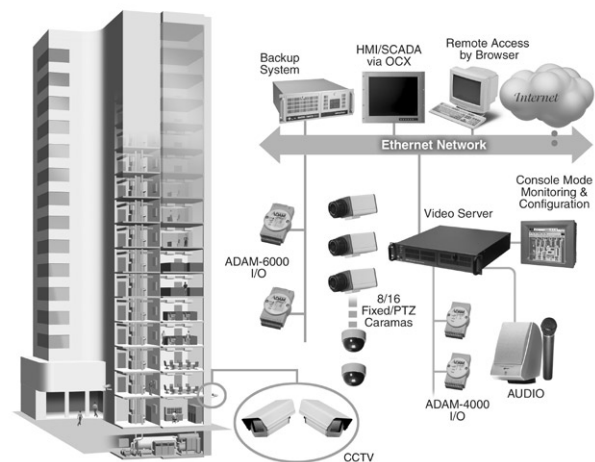
The scope of a typical security system can include :

- Access Control
 - Card reader for system access
 - Access history record
- Illegal access monitoring/alarm system



For access control systems, the UNO-2000 series and ADAM-6500 PC-based platform would be an ideal choice. The ADAM-6000 DI/O module with an event trigger function via the UDP protocol can be a real-time response to start security alarms.

Video System



By combining a video server with ADAM I/O modules as a security interlock I/O, you have a system that can satisfy any requirement for CCTV and security applications.

Building Automation System Software

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

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EDG

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ICOM

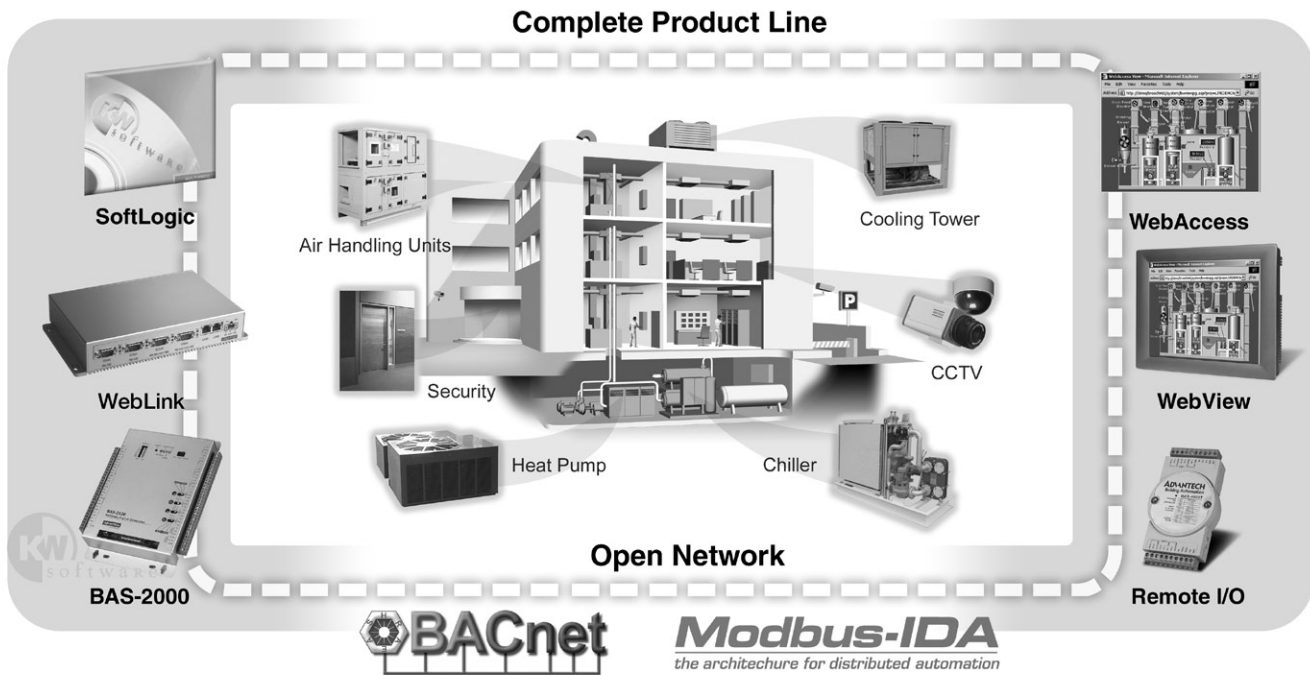
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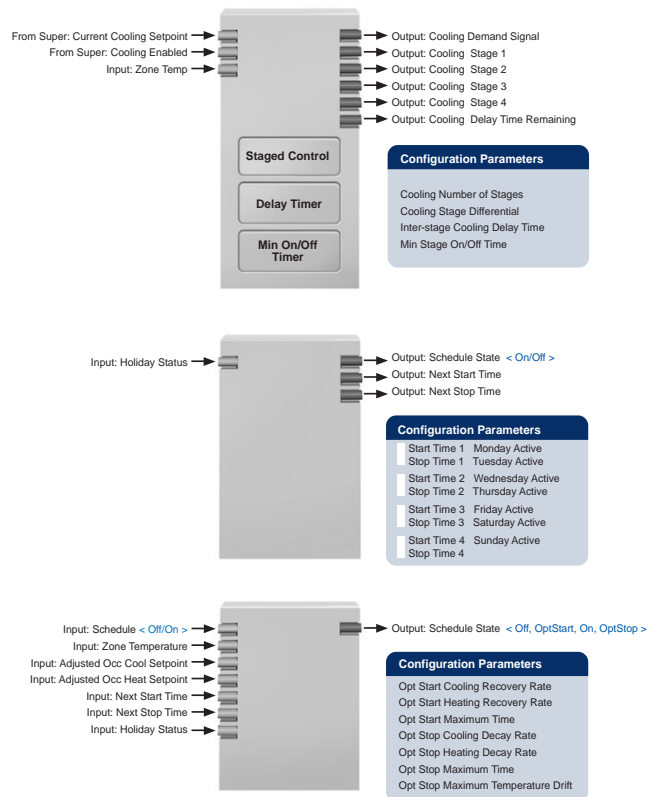
Special Control Functions for BAS

BA systems must be designed for the behavior of the people inside the building, and since the operators and users are unlikely to be engineers or familiar with BA systems, the BAS controls must be designed to be as simple as possible.

For example, a commercial building can be used for offices, hotels and apartments simultaneously. To save energy and operating costs, some parts of the building may be scheduled to reduce/increase the temperature to a level closer to the outside temperature. A schedule function is therefore very important for building automation systems.

HVAC is usually the major control system used in buildings and air-conditioning is a major part of HVAC. Air-conditioning is an industry with much technology know-how, but it has traditionally been the domain of mechanical engineers. Most programmers have difficulties making a solid control program for such applications. So building automation control software must have many built-in HVAC control functions.

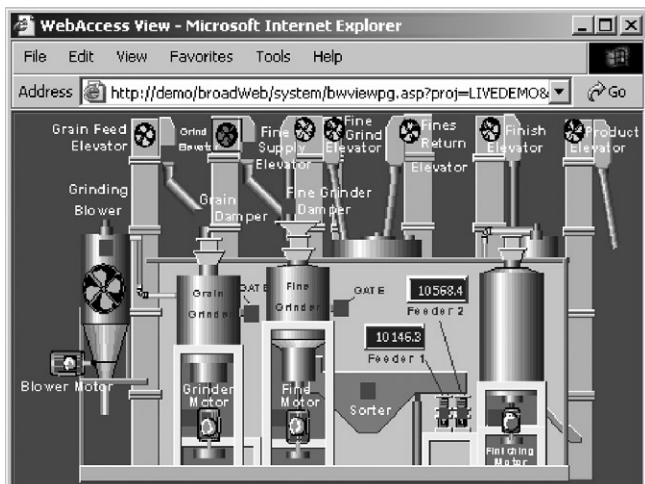
Advantech BAS-2000 products have built-in these control functions into a function block library for easy access and development.



Note: This version of Opt Start/Stop does not include self adaptive algorithm

Advantech WinCE WebAccess

Browser-based HMI/SCADA Software



Features

- View, control, configure system remotely over an intranet or the Internet using ordinary Web browser
- Real-time and historical trending
- Communicate with Programmable Controller (PLC), I/O system via Serial, Ethernet and proprietary communications
- Support Vector-based Graphics
- Use the open standard programming TCL script
- Control equipment based on pre-defined schedule (time, date and holiday)
- Complete alarm function
- Import AutoCAD DXF
- Import BMP, JPEG, GIF

Introduction

Advantech WinCE WebAccess is fully web browser-based software package for human-machine interfaces (HMI), and supervisory control and data acquisition (SCADA). All the features found in conventional HMI and SCADA software packages are available in an ordinary Web browser including Animated Graphics Displays, Real-time Data, Controllers, Trends, Alarms and Logs. WebAccess is totally based on standard internet architecture, its basic component includes:

1. SCADA Node: it communicates in real-time with automation equipment and control the equipment via Serial, Ethernet or proprietary communications. The SCADA Node can provide supervisory control and data acquisition functions, includes supplying communication driver (Modbus, PLC, and I/O systems), real-time and historical trending. It also can monitor and log alarm and event. The SCADA Node has its own run-time database and all graphics.
2. Project Node: it is the developing platform for WebAccess, and all system configuration and project development is implemented on the Project Node. It is a web server for all Client and SCADA node to connect with.
3. Client: through an ActiveX control inside Internet Explorer Web browser, it has the ability to monitor and control the SCADA Node simultaneously. The Client connects to the Project Node only to get the address of the SCADA Node. The Client then communicates directly with the SCADA Node using proprietary communications over a TCP/IP network connection. Data is displayed in real-time with dynamically updated graphics, and user can monitor real-time and historical trending with alarm record. Besides, user can acknowledge alarms and change setpoints, status and other data.

Specifications

Web Browser Client to View and Control

Using a standard Web browser, users can view and control automation equipment used in industrial, manufacturing, process and building automation systems. Data is displayed to users in real-time with dynamically updated graphics using full-motion animation.

Powerful Remote Diagnose and Maintenance Functionality

The unique feature, which distinguishes WebAccess from the competition, is that all engineering project, configuration, graphics building (DRAW) and software management (download, start and restart remote nodes) is performed using a standard Web browser. If there is any troubleshooting needed, no matter wherever the operator is located, he can use the standard internet to operate the system. This can significantly increase the efficiency of maintenance operation and reduce the maintenance cost.

Vector-based Graphics

WebAccess features Vector-based graphics. Vector-based graphics provide smaller file sizes and faster download. Because Vector-based graphics use mathematic algorithm to save image, its file size is much smaller than Bitmap graphics. Therefore it is much faster to transfer Vector-based graphics on internet. Besides, WebAccess features user interface self-adaptive adjustment technology, no matter how user adjust the screen ratio of monitor, WebAccess can ensure all the user interface will be displayed on the screen. When the resolution of screen increases, the display performance will also become better respectively.

Import BMP, JPEG and GIF

Except Vector-based graphics, WebAccess also support the most popular BMP, JPEG and GIF Bitmap format file, and user can zoom in or zoom out these image as well as animation configuration. WebAccess also provide build-in animation image libraries.

Import AutoCAD DXF

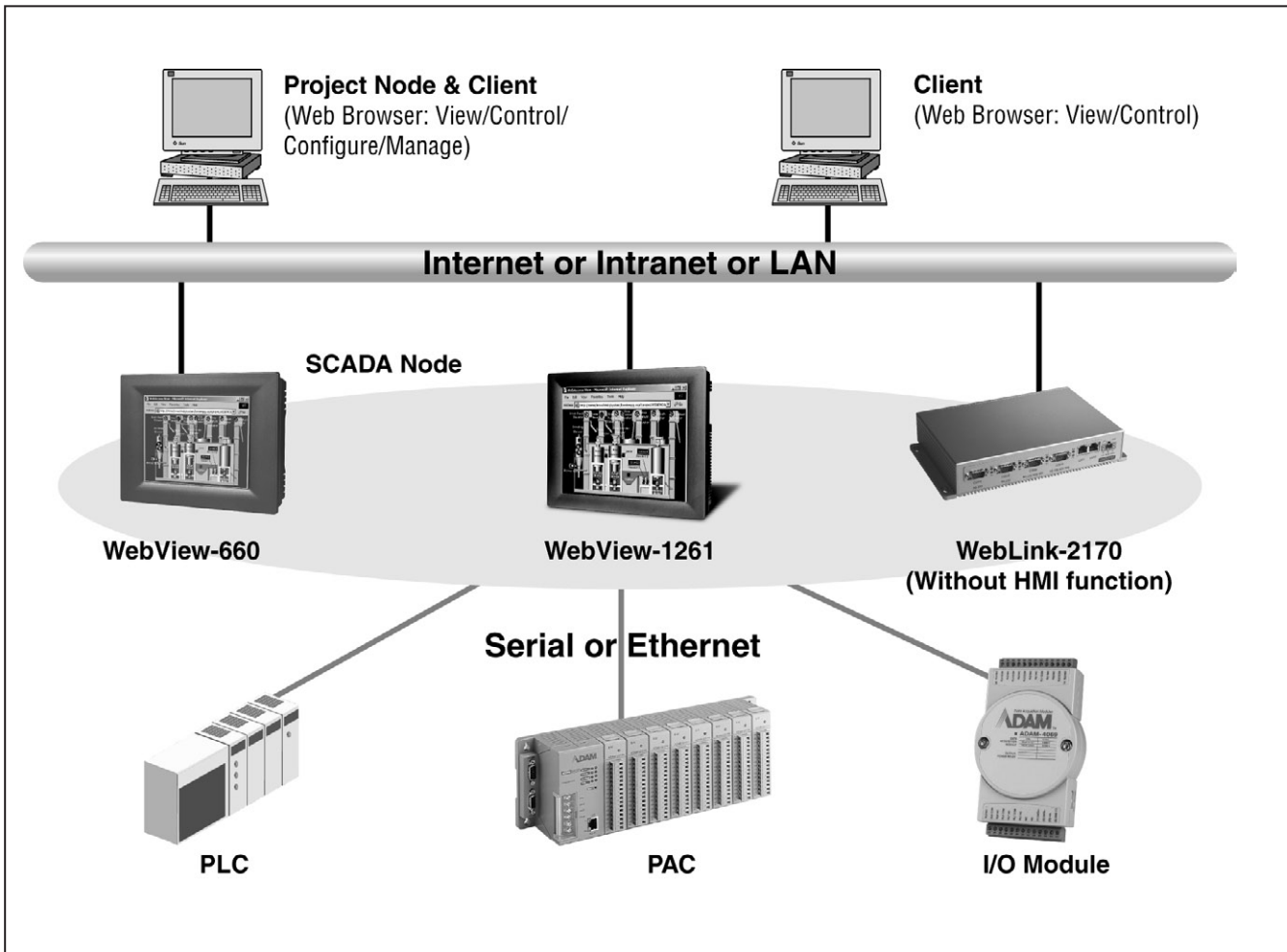
WebAccess environment is similar to AutoCAD, and this can make engineer who is familiar with AutoCAD can get used to WebAccess in short time. User can even import the DXF format file into WebAccess. User can edit the imported data and decide the animation configuration.

Scripts Using TCL

Scripts in WebAccess use the open standard programming languages TCL scripting and allow users to develop customized actions, calculations and reports.

Scheduler

The Scheduler provides control and changes setpoint status based on time and date. Lights, Fans, and HVAC equipment are turned on and off based on the time, day of week and date. The Scheduler is also used in process control and manufacturing applications. All these schedule configurations can be modified remotely through internet.



Data Logging and Real-time/Historical Trending

Advantech WinCE WebAccess can log 50 tags. Please note the CF size to prevent from running out of storage space.

Each tag is logged to a separate file on the SCADA node, and user can view the real-time and historical data from the historical trend. Besides, new tags can be added to a historical trend display without losing history of other tags. User can decide the background, color and type of real-time and historical trend display.

Alarm

Each tag comes with multiple alarm type. User doesn't need to use extra program for the alarm, instead, user only need to configure the alarm type (HH, H, L, LL, DEV and ROC) for each tag. The alarm for analog tag also support Deadband. WebAccess features alarm filter, alarm grade, alarm sorting, alarm historical record, and alarm value on-line adjustment.

Recipe Function

Recipes provide an easy method for operators and users to change the value of hundreds of settings.

Supported I/O Drivers

- Modicon Modbus Serial/Ethernet
- Siemens S7-300/400 Ethernet
- Echelon iLON 100/500/600 (SOAP/XML)
- Allen-Bradley SLC 500 Serial
- Omron C Series Serial
- ADAM-4000 Series
- ADAM-5000 Series
- ADAM-6000 Series
- Others (Contact with Advantech for detail)

Customized Functional Toolbox

User can use standard ICON file or BBN file to customize functional toolbox. The BBN file can be created by graphics tool.

Advantech Solution

Advantech provide WebView-660, WebView-1261 and WebLink-2170 as SCADA Node. When users purchase these three products, they will get one CD containing the programming tool. So users can program their application on their PC (Project Node), and download their application into the the SCADA Node through Internet, intranet or LAN. When the application is running on the SCADA Node, users can monitor and control the application on another computer (Client) through the same network. The three SCADA Node hardware provided by Advantech can connect with Advantech BAS-2520, BAS-2514, BAS-2014, BAS-2020, BAS-4022T, ADAM-4000 series, ADAM-5000 series, ADAM-6000 series and PLC. The complete structure can be seen from picture above.

1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

WebView-660

6.4" Web-enabled HMI

NEW



Features

- 6.4" TFT LCD
- Super slim and compact design with plastic housing
- NEMA4/IP65 compliant front panel
- Built-in Windows® CE with Advantech WinCE WebAccess
- Support Vector-based graphics
- Support various protocol driver to communicate with different devices
- Multi-thread communication, response time is fast
- Remote control and monitor by Web browser
- All project programming, database and display configuration, alarm setting and schedule configuration can be done remotely
- Easy to diagnosis and maintenance, help to reduce maintenance cost
- Import BMP, JPEG, GIF

Introduction

Advantech WebView-660 is fanless SCADA and HMI hardware, featuring 6.4" TFT LCD display, AMD LX800 500 MHz CPU and rich interfaces (such as serial, USB and LAN). Installed Advantech WinCE WebAccess, WebView-660 is a complete browser-based HMI, whose powerful Microsoft IIS Web Server function increases the flexibility and convenience, and makes the user easy to configure and maintain the system via Internet. With built-in driver, WebView-660 can connect with variety of Building Automation equipment and devices, and get data from them.

Specifications

General

- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 195 x 148 x 44.4 mm (7.68" x 5.83" x 1.75")
- **Enclosure** ABS and ABS + PC
- **Mounting** Panel
- **Power Consumption** 43.52 W
- **Power Input** 18 ~ 32 V_{DC}
- **Weight (Net)** 0.8 kg (1.76 lb)

System Hardware

- **Audio Ports** 1 x Line-out, 1 x Microphone
- **CPU** AMD LX800 500 MHZ
- **Expansion Slots** 1 CompactFlash slot
- **Graphics Controller** Controlled by CPU
- **LAN** 1 x 10/100Base-T
- **Memory** 256 MB DDR SDRAM (up to 1 GB DDR SDRAM)
- **Serial Ports** 1 x RS-232
1 x RS-232/RS422/RS485
- **USB Ports** 2 x USB 2.0

LCD Display

- **Backlight Life** 20,000 hrs
- **Contrast Ratio** 180
- **Display Size** 6.4"
- **Display Type** TFT LCD
- **Luminance (cd/m²)** 150
- **Max. Colors** 262 K
- **Max. Resolution** 640 x 480
- **Viewing Angle (H/V)** 90/50

Touchscreen

- **Lifespan** 10 millions times with a silicone rubber of 8 mm diameter finger
- **Light Transmission** Above 75%
- **Resolution** 1024 x 1024
- **Type** 4-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Vibration Protection** 1 Grms (Random, Operating)

Software Specifications

- **Operating System** Windows CE
- **Installed Advantech WinCE WebAccess with specification listed below:**

I/O Tag Number	150/600
Internal Tag Number	150/600
Web Client	2
Alarm Logging	1000
Action Logging	1000
Message Characters	50
- **Graphics**

Graphic Pages Capacity	100
Macro Key	Yes
Local Script	Yes
Variable per Graphic Page	255
- **Data Trend Log**

Data Logging Tag number	50 Tags
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- **Recipe**

Recipes per Project	100
Unit per Recipe	100
Item per Unit	999
- **Scheduler**

Holiday Configuration group	10
Time Group	99
Loop Group	99
Device Group	99

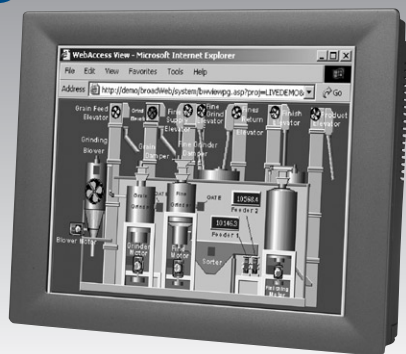
Ordering Information

- **WVIEW-660-150-W50** 6.4" Web-enabled HMI with WinCE WebAccess 150 tags
- **WVIEW-660-600-W50** 6.4" Web-enabled HMI with WinCE WebAccess 600 tags

WebView-1261

12.1" Web-enabled HMI

NEW



Introduction

Advantech WebView-1261 is fanless SCADA and HMI hardware, featuring 12.1" SVGA TFT LCD display, AMD LX800 500 MHz CPU and rich interfaces (such as serial, USB and LAN). Installed Advantech WinCE WebAccess, WebView-1261 is a complete browser-based HMI, whose powerful Microsoft IIS Web Server function increases the flexibility and convenience, and makes the user easy to configure and maintain the system via Internet. With built-in driver, WebView-1261 can connect with variety of Building Automation equipment and devices, and get data from them.

Specifications

General

• BIOS	Award® 4 MB
• Cooling System	Fanless design
• Dimensions (W x H x D)	311 x 237 x 50 mm (12.24" x 9.33" x 1.97")
• Enclosure	Al-Mg and ABS
• Mounting	Desktop, swing arm or wall (with mounting kit)
• Power Consumption	60 W
• Power Input	18 ~ 32 V _{DC}
• Weight (Net)	2.2 kg (4.85 lb)

System Hardware

• CPU	AMD LX800 500 MHz
• Expansion Slots	1 x CompactFlash® slot
• Graphics Controller	LX800
• Keyboard/Mouse Ports	1 x PS/2
• LAN	1 x 10/100Base-T
• Memory	256 MB DDR SDRAM (up to 1 GB DDR SDRAM)
• Parallel Ports	1 x Parallel Port
• Serial Ports	3 x RS-232 and 1 x RS-232/485/422
• USB Ports	2 x USB 2.0

LCD Display

• Backlight Life	50,000 hrs
• Contrast Ratio	1:300
• Display Size	12.1"
• Display Type	SVGA TFT LCD
• Luminance cd/m ²	340
• Max. Colors	262 K
• Max. Resolution	800 x 600
• Viewing Angle (H/V)	100/60

Touchscreen

• Lifespan	1 million touches at single point
• Light Transmission	Above 75%
• Pixel Pitch (H x V)	0.3075 x 0.3075 mm
• Resolution	1024 x 1024
• Type	8-wire, analog resistive

Features

- 12.1" SVGA TFT LCD
- Super slim and compact design with Al-Mg housing
- NEMA4/IP65 compliant front panel
- Built-in Windows® CE with Advantech WinCE WebAccess
- Support Vector-based graphics
- Support various protocol driver to communicate with different devices
- Multi-thread communication, response time is fast
- Remote control and monitor by Web browser
- All project programming, database and display configuration, alarm setting and schedule configuration can be done remotely
- Easy to diagnosis and maintenance, help to reduce maintenance cost
- Import BMP, JPEG, GIF

Environment

• Humidity	10 ~ 95% RH @ 40° C, non-condensing
• Ingress Protection	Front panel: NEMA4, IP65
• Operating Temperature	0 ~ 50° C (32 ~ 122° F)
• Storage Temperature	-20 ~ 70° C (-4 ~ 158° F)
• Vibration Protection	2 grms (5 ~ 500 Hz) (Operating, random vibration)

Software Specifications

• Operating System	Windows CE
• Installed Advantech WinCE WebAccess with specification listed below:	
I/O Tag Number	150/600
Internal Tag Number	150/600
Web Client	2
Alarm Logging	1000
Action Logging	1000
Message Characters	50
• Graphics	
Graphic Pages Capacity	100
Macro Key	Yes
Local Script	Yes
Variable per Graphic Page	255
• Data Trend Log	
Data Logging Tag number	50 Tags
• Recipe	
Recipes per Project	100
Unit per Recipe	100
Item per Unit	999
• Scheduler	
Holiday Configuration group	10
Time Group	99
Loop Group	99
Device Group	99

Ordering Information

- **WVIEW-1261-150-W50** 12.1" Web-enabled HMI with WinCE WebAccess 150 tags
- **WVIEW-1261-600-W50** 12.1" Web-enabled HMI with WinCE WebAccess 600 tags

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WebLink-2170

Web-enabled Communication Gateway

NEW



Features

- Two RS-232 and two RS-232/422/485 ports with automatic flow control
- Two 10/100Base-T RJ-45 ports
- Two USB ports
- Built-in Windows® CE with Advantech WinCE WebAccess Communication Gateway
- Support various protocol driver to communicate with different devices
- Multi-thread communication, response time is fast
- All project programming, database and display configuration, alarm setting and schedule configuration can be done remotely
- Easy to diagnosis and maintenance, help to reduce maintenance cost

Introduction

Advantech WebLink-2170 is fanless communication gateway, featuring Celeron® M 1 GHz and rich interfaces (such as serial, USB and LAN). Installed Advantech WinCE WebAccess, WebLink-2170 is a complete browser-based communication gateway, whose powerful Microsoft IIS Web Server function increases the flexibility and convenience, and makes the user easy to configure and maintain the system via Internet. With built-in driver, WebLink-2170 can connect with variety of Building Automation equipment and devices, and get data from them.

Specifications

General

- **Dimensions (W x D x H)** 255 x 152 x 50 mm (10" x 6.0" x 2.0")
- **Enclosure** Aluminum
- **Mounting** Wall
- **Power Consumption** 24 W (Typical)
- **Power Input** Min. 48 W (9 ~ 36 V_{DC}) (e.g. +24 V @ 2 A)
- **Weight** 1.6 kg

System Hardware

- **CPU** Celeron M 1 GHz
- **Keyboard/Mouse** 1 x PS/2
- **Memory** 512 MB DDR DRAM
- **VGA** DB15 VGA connector

Communications

- **Serial Ports** 2 x RS-232, 2 x RS-232/422/485 with DB9 connectors
Automatic RS-485 data flow control
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps
RS-422/485: 50 ~ 921.6 kbps (Max.)
- **LAN** 2 x 10/100 Base-T RJ-45 ports
- **USB Ports** 2 x USB, UHCI, Rev. 2.0 compliant
- **Parallel Ports** 1 x Parallel Port

Environment

- **Humidity** 95% @ 40° C (non-condensing)
- **Operating Temperature** -10 ~ 50° C (14 ~ 122° F) @ 5 ~ 85% RH.
- **Shock Protection** IEC 68 2-27
50 G @ wall mount, half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
2 Grms @ 5 ~ 500 Hz

Software Specifications

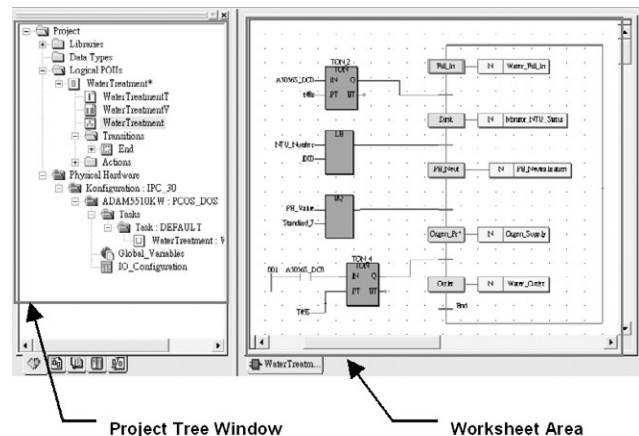
- **Operating System** Windows CE
- **Installed Advantech WinCE WebAccess Communication Gateway with specification listed below:**

I/O Tag Number	600
Internal Tag Number	600
Web Client	2
Action Logging	1000

Ordering Information

- **WLINK-2170-600-W50** Web-enabled Communication Gateway with WinCE WebAccess 600 tags

KW SoftLogic & BA Function Library



Introduction

To make it easier for system integrators to approach the building automation market, the BAS-2000 series is not only embedded with KW SoftLogic software, Advantech has also developed several function blocks that are especially made for building automation applications. These function blocks were developed by experienced BAS consultants in USA. The 30+ building automation function blocks are bundled with the BAS-2000 series, so the control programming work on the BAS-2000 series is the same as a typical DDC. There is no need to create control programs by complicated basic functions such as block and ladder assembly. Just pull the required BA function block into the KW programming worksheet for the specific building control application. It will save programming time, and by using the qualified BA function block, it can reduce potential programming errors for the controller application.

Flexible Expansion

The BAS-2000 series use KW SoftLogic as its control engine. KW SoftLogic opens the function block editing interface for Advantech, that is, new function blocks can be added into the BAS-2000 series controllers at any time. You can use C programming to make a control application program, then compile it to become a function block for KW SoftLogic. Advantech will continuously develop and collect more value-adding building automation function blocks for the BAS-2000 system. Compared with traditional DDCs, the BAS-2000 series of controllers will be much more powerful in the future.

Function Block Libraries

Unitary Zone Temperature-Based Function Blocks

Stage Cooling Control

Provides control of up to four mechanical cooling stages based on the HVAC unit's zone temperature. The Device Supervisor block enables or disables the mechanical cooling section.

Modulating Cooling Control

Provides control of any modulating cooling device such as a valve or damper based on the HVAC unit's zone temperature. The Device Supervisor block enables or disables the mechanical cooling section.

Staged Heating Control

Provides control of up to four heating stages based on the HVAC unit's zone temperature. The Device Supervisor block enables or disables the heating section.

Modulating Heating Control

Provides control of any modulating heating device such as a valve or damper based on the HVAC unit's zone temperature. The Device Supervisor block enables or disables the heating section.

Heat Pump Reversing Valve Control

Provides control of Heat Pump points based on outputs from Staged Cooling and Heating Control Blocks and the values of the listed configuration parameters.

Economizer Control

Enthalpy Calculation

Calculates the Total Heat Content for one zone or air stream. Typically two zones or air streams are compared and the air stream with the least total heat content is identified as the lowest cost cooling source.

Single Speed Fan Control

Provides On/Off control of a single speed fan. The Device Supervisor block sets the Occupancy Mode and HVAC Mode.

VFD Fan Control

Provides control of a Fan Start/Stop point and Fan Speed based on the HVAC unit's Supply Air Static Pressure. The Device Supervisor block sets the Occupancy Mode and HVAC Mode.

Return Fan Tracking

Provides control of Return Fan Start/Stop and Return Fan Speed based on either a percentage of Supply Fan speed, or a fixed CFM offset in the Return Air-stream versus that of the Supply Air-stream.

Sliding Window Smoothing

Smooths out fluctuating values by performing a sliding window average of a number of separate readings of the same value using the parameters listed.

CFM Calculation

Converts measured Velocity Pressure into CFM airflow, using the parameters listed.

Device Supervisor Control "Super"

The Device Supervisor reads in all building-wide information pertaining to the status of Schedules, Holidays, Free Cooling, Electrical Demand, Emergency and other conditions. It also contains all zone-specific setpoints and settings for how to respond to changes in the building-wide values.

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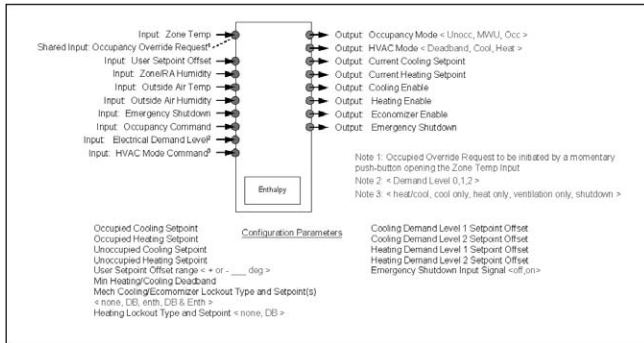
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IEC 61131 SoftLogic Digital Control Programming Software & Function Library



Schedule

Provides scheduling capabilities within the unitary controller. The user may enter up to 4 start and stop time pairs, and identify which days of the week those times apply to. Multiple schedules may be used to handle different start and stop times on different days of the week.

Optimum Start/Optimum Stop

Calculates the amount of Early Start Time required to achieve Adjusted Occupied Cooling or Heating zone setpoint at the Next Start Time (from schedule), and the amount of Early Stop Time permissible (which will result in no more temperature drift from setpoint than that specified in Opt Stop Maximum Temperature Drift) by the Next Stop Time. The Schedule State Output will take the Schedule and Optimum Start/Stop times into account and set the integrated Schedule State accordingly.

Alarm

Provides High and Low Zone temperature Alarming capabilities during Occupied periods, based on user entries. Enable Delay sets the amount of time to hold off alarms upon first transitioning to Occupied for the day (this will allow for warm-up, etc.). Alarm Delay sets the amount of time the Zone Temperature may be outside of the safe range before an Alarm is generated. This type of delay is helpful to reduce nuisance alarms, etc.

Minimum Timer

Minimum On Satisfied will be set on once the Monitored Value has been on at least the amount of time specified in Min On Time. Similarly, the Minimum Off Satisfied will be set on once the Monitored Value has been off at least the amount of time specified in Min Off Time.

Delay Timer

On Delay Wait Satisfied will be set on once the Monitored Value has been on at least the amount of time specified in On Delay Wait Time. Off Delay Hold Active will be set on when the Monitored Value goes on. It will stay on until the Monitored Value has transitioned to off, and has been off at least the amount of time specified in Off Delay Hold Time.

“Generic” Function Blocks Add Air Handler and Other Additional Functionality

Modulating Control/Modulating Control with Reset

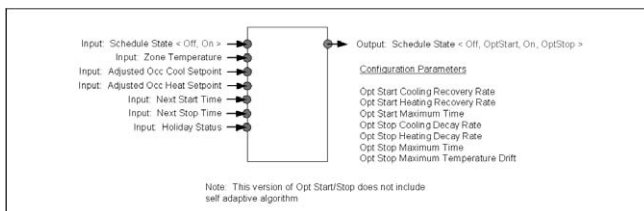
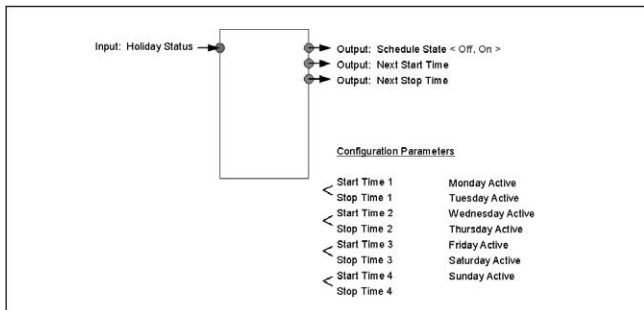
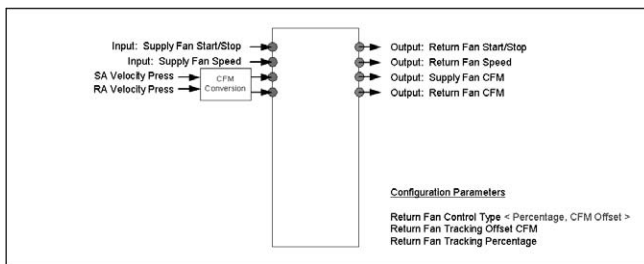
Provides control of any modulating device such as a cooling or heating valve or damper, or a pressure controlled VFD, based on the Control Input. The Enable Input enables or disables the block. When disabled, the Demand Signal Output will be set to 0.0%.

Staged Control/Staged Control with Reset

Provides control of up to eight stages of heating, cooling, pressure, etc., based on the Control Input. The Enable Input enables or disables the block. When disabled, the Demand Signal output will be set to 0.0% and all stages will be set off.

General Alarm

Signal Inversion



BAS-2520

20-ch SoftLogic Digital Controller



Features

- Standalone programmable controller
- Pre-built BA Control Function Blocks
- Supports IEC61131-3 control languages
- Supports Modbus/RTU and BACnet MS/TP protocols
- Up to 115.2 kbps communication speed
- Max. I/O expansion up to 80 points for unique controller
- Built-in Watchdog Timer
- Wall mounting panel case

Introduction

BAS-2520 is a 20-channel standalone controller for building automation control applications. Designed as a typical DDC (Direct Digital Controller), but customized for use in buildings, it is designed with universal I/O, a thin wall mountable case, and comes with embedded control algorithms for HVAC, lighting, security and other algorithms that are used in building automation applications.

SoftLogic Programming

This powerful, standalone controller is intuitive and easy to use. All controllers in the BAS-2000 series use KW SoftLogic for their programming, which is fully compatible with the IEC61131-3 standard. You can use multiple languages such as: Function Block Diagram (FBD), Sequential Flow Chart (SFC), Ladder Diagram (LD), Structure Text (ST) and Instruction List (IL) for control function configuration. This reduces engineering efforts, as there is no need to learn proprietary programming languages, and development time can be drastically reduced.

Open Modbus/RTU Protocol

The controllers of the BAS-2000 series use the Modbus/RTU protocol, which is the most popular and cost effective solution for field data communication, with transmission speeds up to 115.2 kbps. By using the Modbus/RTU protocol, it is much easier to integrate control data between a BAS-2000 series controller and field machinery such as compressors, chillers, inverters and power panels. BAS-2000 series also support BACnet MS/TP protocol.

Specifications

General

- **Certifications** CE, FCC class A
- **Channels** Analog Inputs: 4
Analog Outputs: 4
Digital Inputs: 8
Digital Outputs: 4
(Local bus for expansion up to 80 channels)
- **Dimensions (W x L x H)** 171 x 242 x 35 mm
- **LED Indicators** Battery, power, communication (for RS-485), DO
- **Mounting** Wall
- **Power Consumption** 15 W
- **Power Input** 24 V_{AC} or 18 ~ 36 V_{DC}
- **Watchdog Timer** Yes (Programmable)

Communications

- **Analog Input Signals** 4 ~ 20 mA, 0 ~ 20 mA, 0 ~ 10 V_{DC},
RTD (PT100/PT1000), Thermistor (3 K, 10 K)
(Software configurable)
- **Analog Output Signals** 4 ~ 20 mA, 0 ~ 20 mA, 0 ~ 10 V_{DC}

- **Digital Input Signals** Dry Contact Logic level 1 : close
Wet Contact Logic level 0 : open
Logic level 1 : 10 ~ 30 V_{DC}
Logic level 0 : 3 V_{DC} max.
- **Digital Output Signals** Relay Output (Rating : 240 V_{AC}, 3 A), LED indicator,
manual switch for ON/AUTO/OFF selection
- **Interface** Port 1 : RS-232 for programming,
Port 2 : RS-485 for network
Plug-in screw terminal (#14-22 AWG)
1 x expansion bus connector
Up to 64
- **Network Nodes** 1.2 km (4000 feet)
- **Transmission Distance** 1.2 km (4000 feet)
- **Transmission Protocol** Modbus/RTU, Bacnet MS/TP
- **Transmission Speed** 1200, 2400, 9600, 19200, 38.4 k, 57.6 k, 115.2 kbps

Environment

- **Humidity** 5 ~ 95% non-condensing
- **Operating Temperature** -10 ~ 60 °C (14 ~ 140 °F)
- **Storage Temperature** -25 ~ 85 °C (-13 ~ 185 °F)

Ordering Information

- **BAS-2520** 20-ch SoftLogic Digital Controller

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BAS-2514

14-ch SoftLogic Digital Controller



Features

- Standalone programmable controller
- Pre-built BA Control Function Block
- Supports IEC61131-3 control languages
- Supports Modbus/RTU and BACnet MS/TP protocols
- Up to 115.2 kbps communication speed
- Max. I/O expansion up to 74 points for unique controller
- Built-in Watchdog Timer
- Wall mounting panel case

Introduction

BAS-2514 is a 14-channel standalone controller for building automation control applications. Designed as a typical DDC (Direct Digital Controller), but customized for use in buildings. It is designed with universal I/O, a thin wall mountable case, and comes with embedded control algorithms for HVAC, lighting, security and other algorithms that are used in building automation applications.

SoftLogic Programming

This powerful, standalone controller is intuitive and easy to use. All controllers in the BAS-2000 series use KW SoftLogic for their programming, which is fully compatible with the IEC61131-3 standard. You can use multiple languages such as: Function Block Diagram (FBD), Sequential Flow Chart (SFC), Ladder Diagram (LD), Structure Text (ST) and Instruction List (IL) for control function configuration. This reduces engineering efforts, as there is no need to learn proprietary programming languages, and development time can be drastically reduced.

Open Modbus/RTU Protocol

The controllers of the BAS-2000 series use the Modbus/RTU protocol, which is the most popular and cost effective solution for field data communication, with transmission speeds up to 115.2 kbps. By using the Modbus/RTU protocol, it is much easier to integrate control data between a BAS-2000 series controller and field machinery such as compressors, chillers, inverters and power panels. BAS-2000 series also support BACnet MS/TP protocol.

Specifications

General

- **Certifications** CE
- **Channels** Analog Inputs: 4
Analog Outputs: 3
Digital Inputs: 4
Digital Outputs: 3
(Local bus for expansion up to 74 channels)
- **Dimensions (W x L x H)** 171 x 242 x 35 mm
- **LED Indicators** Battery, power, communication (for RS-485), DO
- **Mounting** Wall
- **Power Consumption** 15 W
- **Power Input** 24 V_{AC} or 18 ~ 36 V_{DC}
- **Watchdog Timer** Yes (Programmable)

Communications

- **Analog Input Signals** 4 ~ 20 mA, 0 ~ 20 mA, 0 ~ 10 V_{DC},
RTD (PT100/PT1000), Thermistor (3 K, 10 K)
(Software configurable)
- **Analog Output Signals** 4 ~ 20 mA, 0 ~ 20 mA, 0 ~ 10 V_{DC}
(Software configurable)

- **Digital Input Signals** Dry Contact Logic level 1 : close
Logic level 0 : open
Wet Contact Logic level 1 : 10 ~ 30 V_{DC}
Logic level 0 : 3 V_{DC} max.
- **Digital Output Signals** Relay Output (Rating : 240 V_{AC}, 3 A), LED indicator,
manual switch for ON/AUTO/OFF selection
- **Interface** Port 1 : RS-232 for programming,
Port 2 : RS-485 for network
Plug-in screw terminal (#14 ~ 22 AWG)
1 x expansion bus connector
Up to 64
- **Network Nodes** Up to 64
- **Transmission Distance** 1.2 km (4000 feet)
- **Transmission Protocol** Modbus/RTU, Bacnet MS/TP
- **Transmission Speed** 1200, 2400, 9600, 19200, 38.4 k, 57.6 k, 115.2 kbps

Environment

- **Humidity** 5 ~ 95% non-condensing
- **Operating Temperature** -10 ~ 60 °C (14 ~ 140 °F)
- **Storage Temperature** -25 ~ 85 °C (-13 ~ 185 °F)

Ordering Information

- **BAS-2514** 14-ch SoftLogic Digital Controller

BAS-2014 BAS-2020

14-ch I/O Expansion Module

20-ch I/O Expansion Module



Features

- BAS-2014: 14-ch I/O Expansion Module for BAS-2514 and BAS-2520
BAS-2020: 20-ch I/O Expansion Module for BAS-2514 and BAS-2520
- Local Bus Connection with BAS-2514 and BAS-2520
- Expand up to 2 meters
- Power Supplied by BAS-2514 and BAS-2520 through Local Bus Cable, no External Power Supply Required
- Wall Mounting panel case

Introduction

BAS-2014/2020 is a 14/20 channel expansion module for a BAS-2000 system. The I/O capacity of a BAS-2000 system can easily be expanded by cost-effective I/O expansion modules. Up to three expansion modules can be added to the controller, so you can get the number of I/O points you need. Combine a controller with different expansion modules for: 28, 34, 40, 42, 48, 54, 56, 60, 62, 68, 74 or 80 I/O points.

No External Power Required

To reduce wiring costs and make the modules easier to configure, the BAS expansion modules were designed to be powered by the connected BAS-2000 controller. The required power for the I/O expansion module is transferred through the local bus from the BAS-2000 controller. No additional power supply module or power wiring is required.

Specifications

General

- **Certifications** CE
- **Channels** BAS-2014:
Analog Inputs: 4
Analog Outputs: 3
Digital Inputs: 4
Digital Outputs: 3
BAS-2020:
Analog Inputs: 4
Analog Outputs: 4
Digital Inputs: 8
Digital Outputs: 4
- **Dimensions (W x L x H)** 171 x 242 x 35 mm
- **LED Indicators** Power, DO
- **Mounting** Wall
- **Power Consumption** 15 W
- **Power Input** N/A (Powered by controller through local bus)
- **Watchdog Timer** Programmable

Communications

- **Analog Input Signals** 4 ~ 20 mA, 0 ~ 20 mA, 0 ~ 10 V_{DC}, RTD (PT100/PT1000), Thermistor (3 K, 10 K) (software configurable)
- **Analog Output Signals** 4 ~ 20 mA, 0 ~ 20 mA, 0 ~ 10 V_{DC} (software configurable)
- **Digital Input Signals** Dry Contact Logic level 1 : close
Wet Contact Logic level 0 : open
Logic level 1 : 10 ~ 30 V_{DC}
Logic level 0 : 3 V_{DC} max.
- **Digital Output Signals** Relay Output (Rating : 240 V_{AC}, 3 A), LED indicator, manual switch for ON/AUTO/OFF selection
- **Interface** Plug-in screw terminal (#14 ~ 22 AWG)
2 x expansion bus connectors

Environment

- **Humidity** 5 ~ 95% non-condensing
- **Operating Temperature** -10 ~ 60 °C (14 ~ 140 °F)
- **Storage Temperature** -25 ~ 85 °C (-13 ~ 185 °F)

Ordering Information

- **BAS-2014** 14-ch I/O Expansion Module
- **BAS-2020** 20-ch I/O Expansion Module

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BAS-4022T

Dual Loop PID Controller



Features

- 2 loop PID control algorithms built in one package
- 2 Analog Input/1 Analog Output/1 Digital Input/1 Digital Alarm Output for 1 PID loop
- Analog Input Signal : 4 ~ 20 mA, 0 ~ 10 V_{DC}, 3 k & 10 k Thermistor
- Analog Output Signal : 0 ~ 10 V_{DC}, 0 ~ 20 mA, 4 ~ 20 mA
- Heating/Cooling (Direct/Reverse) Action Mode
- Loop Open/Close (PID Disable/Enable) and Analog Output Manual Control Modes
- 512 KB Prog. Memory
- First Order Filter
- System Emergency Shutdown
- Modbus/RTU Protocol Support

Introduction

Temperature PID controllers have been widely used in HVAC systems in building automation. Advantech offers the compact dual loop controller BAS-4022T. In addition to dual-loop design for economic reasons, BAS-4022T can be applied to various signals in the field such as: 4-20 mA, 0-10 V_{DC}, 3 k and 10 k thermistor. BAS-4022T also supports the Modbus/RTU protocol. HMI software can be used to easily access the module to monitor I/O data and change the control parameters through a Modbus interface, Modbus driver or Modbus OPC server.

Built-in PID Loop Control Algorithms

BAS-4022T has been built with 2 PID control loops. There are two analog inputs, one analog output, one digital input and one digital output for I/O control parameters for each loop. For the two analog input signals, AI#1 is for Pv1, and AI#2 is for Pv2. The analog output signal is for the Mv output value. Digital input can be used for the emergency shutdown input signal. It could remotely stop the PID loop action if there is an emergency situation. One digital output is then designed to be an alarm output if the analog input/output signal value is over its limit and action is required.

Built-in Watchdog Timer

The programmable watchdog timer is designed to automatically reset the CPU if the system fails.

Specifications

General

- **Certifications** CE, FCC Class A
- **Channels** Loop PID controller: 2
Analog input : 4
Analog output : 2
Digital input : 2
Digital output : 2
- **Dimensions (W x H x D)** 70 x 112 x 25 mm
- **Power Consumption** 2 W/Typical, 3 W/Max
- **Power Input** Unregulated +10 ~ +30 V_{DC}
- **Mounting** DIN 35 rail, stack, wall
- **Watchdog Timer** Yes (Programmable)

Input/Output Channels

- **Analog Input Signals** Differential Input, effective resolution : 16-bit
Input types : 4 ~ 20 mA, 0 ~ 10 V_{DC}, 3 k & 10 k thermistor
- **Analog Output Signals** Effective resolution : 12-bit
Output types : 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA
- **Digital Input Signals** Logic Level 0: close to GND
Logic Level 1: Open
- **Digital Output Signals** Open collector to 30 V, 30 mA max. load
Power dissipation: 3000 mW

Environment

- **Humidity** 5 ~ 95% non-condensing
- **Operating Temperature** -10 ~ 50 °C
- **Storage Temperature** -25 ~ 85 °C

Special Features

- **Individual Wire Burn-Out Detection**

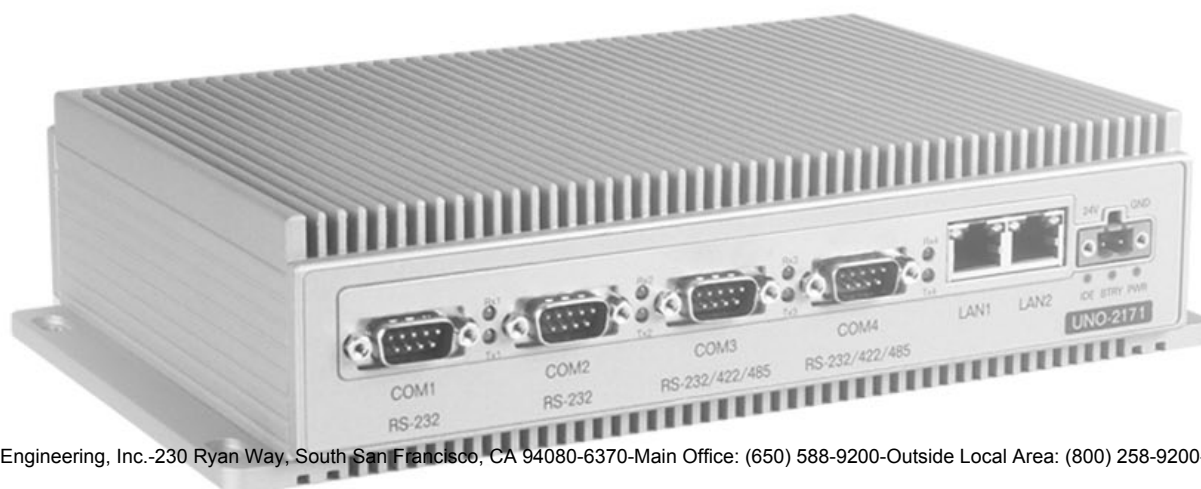
Ordering Information

- **BAS-4022T** Dual Loop PID Controller for Building Automation

Embedded Automation Computers: UNO-1000, 2000, & 3000 Series



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UNO-1000, 2000 & 3000 Series Embedded Automation Computers

Introduction

If you are looking for a suitable embedded application ready platform (ARP) that can shorten development time and offers rich networking interfaces, Advantech's UNO series is a great solution.

Leveraging field-approved and worldwide accepted real-time OS technology, Advantech's UNO series provides Windows CE, and Windows XP Embedded ready solutions and supports several standard networking interfaces, such as Ethernet, Wireless Ethernet, RS-232/422/485, onboard I/O interfaces, PC cards, and more. Because of its open architecture, great expansion capability and reliable fanless and diskless design, Advantech's UNO series is an ideal platform to implement diverse custom industrial applications. Applications such as SoftLogic controllers, communication gateways, data logging, facility monitoring, device management and Fieldbus network control.

The letters of UNO stands for the three key features of Advantech UNO products.

Universal

- Open hardware architecture: supports most popular operating systems, including Windows and Linux.
- Standard communication interface: Supports RS-232/422/485 serial ports, Ethernet ports, USB, and PC cards.
- Expansion capability: Provides PCI, PC/104, and/or PC/104+ slots.
- Computing capability: Pentium M to Celeron M computing power.

Network

- Ethernet, Wireless LAN, modems, and other networking options.

Control

- Supports the complete ADAM I/O and controller series from the ADAM-4000, ADAM-5000, ADAM-6000 and Modbus devices over RS-485 and Ethernet.

Features

Industrial Proven Design for Harsh Environments

The UNO series is highly rugged and robust, and suitable for use in critical and harsh environments. The UNO series special fanless design eliminates the weakness of traditional PCs. UNO has a strong mechanical design, and also has excellent anti-shock and anti-vibration properties. It can endure high-operating temperatures and almost anything an industrial environment can demand.

Open System Architecture Designed for Automation

Advantech's UNO series has an open-system architecture, which provides the most popular interfaces such as RS-232/422/485 serial communication ports, Ethernet ports, USB ports, CompactFlash, PC Card expansion slots, and VGA for display panels. With rich interface support, the UNO series can connect to a diverse range of devices and equipment for automation control.

Ready Embedded OS for Rapid Application Development

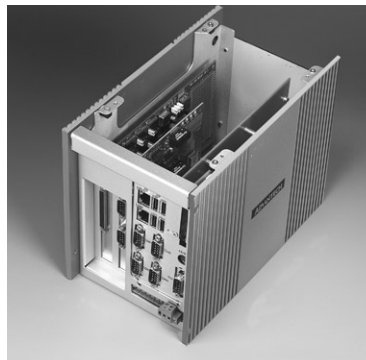
The UNO series provides an embedded operating system offering a preconfigured image with optimized onboard device drivers. The UNO series supports the three most popular embedded operating systems; Microsoft Windows CE, Microsoft Windows XP Embedded and Embedded Linux. The embedded operating systems fulfill the toughest requirements of complete functionality and high reliability. The UNO series quickly proves itself to be an application ready platform that will save time and energy in launching your projects.

Flexible Networking Options

Advantech's UNO series supports diverse ways to connect to a network, including Ethernet, Wireless LAN and Modems. UNO's built-in Ethernet port provides high-speed networking capability up to 100 Mbps. The PCMCIA expansion with PCMCIA wireless LAN module offers you a mobile and scalable network without incurring additional cabling costs. And through UNO serial ports, industrial modems offer the most popular and easiest networking way thru PSTN.

PCI & PC/104 for Flexible Expansion

To fulfill your diverse needs, UNO provides PCI, PC/104, or PC/104+ interfaces for flexible expansion, such as PCI, PC/104, or PC/104+ form-factor cards. Advantech is widely recognized for its PC-based solutions, and can provide you with complete data acquisition and I/O control, motion control, GPIB, industrial communication and Fieldbus cards.



UNO-3000 series with PCI Card



UNO-2100 series with PC/104 Module

Win CE/XP Embedded Introduction

UNO Embedded OS Introduction

Advantech's UNO series provides an embedded operating system solution offering a pre-configured image with optimized onboard device drivers. UNO supports the three most popular operating systems: Windows CE, Windows XP Embedded and Embedded Linux. These operating system fulfill the toughest requirements of complete functionality, high reliability, minimized cost and low power consumption. UNO quickly proves itself to be an application-ready platform that saves you time and energy in launching your projects.

Hard Real-Time Windows CE Meets Time-critical Demands

Windows CE, published by Microsoft, is a robust, compact and highly efficient "hard" real-time operating system that quickly satisfies any customized high-performance embedded applications. It also provides enterprise-scale protection with demanding network security mechanisms, including Kerberos Security Protocol, Extensible Authentication Protocol, Secure Sockets Layer (SSL) and so on. Furthermore, Windows CE supports the latest stack network standard, IPv6 that provides more IP addresses than the previous standard, IPv4. Windows CE possesses robust core OS services and complete networking services to offer users an ideal embedded development platform.

WinXPe Provides Applications Compatible to Windows XP

Windows XP Embedded is a componentized version of Windows XP Professional, which is based on Windows XP Professional binaries and features the latest multimedia (Windows Media Player 8.0, DirectX 8.0), browsing (Internet Explorer 6.0) technologies, security, and rich networking functionalities. You can seamlessly integrate specific applications into Windows XP Embedded with minimum effort.

Open Source Embedded Linux Offers a Cost-effective Alternative

Embedded Linux is a famous, UNIX compatible, open source embedded operating system which ports the Linux kernel to a specific CPU and board installed into the embedded device. Embedded Linux is a fully functional OS that features the flexibility of adding or removing modules in kernel at runtime. The other major advantage of Linux is its open source that allows users to save any license or royalty fees. Hence, Embedded Linux is a cost-effective alternative.

UNO not only provides an embedded OS platform but also has full driver support, including Windows CE, 2000/XP and Linux. Therefore, UNO is an application-ready platform that significantly shortens your research development cycle, expediting time to market.

UNO Windows CE Software Support

Applications and Services Development	<p>The combined Web and application services of Windows CE provide unsurpassed opportunities to build smart, mobile, and connected devices that have access to Windows operating systems, applications, databases, and the Internet.</p> <ul style="list-style-type: none"> Active Template Library (ATL) C Libraries and Runtimes Component Services: Component Object Model (COM) and Distributed Component Object Model (DCOM) Device Management Lightweight Directory Access Protocol (LDAP) Client Microsoft Message Queuing (MSMQ) Microsoft Foundation Classes (MFC) Object Exchange Protocol (OBEX) Simple Object Access Protocol (SOAP) Toolkit Standard SDK for Windows CE .NET Microsoft .NET Compact Framework XML
Applications: End User	<p>Ready-to-use applications perform common tasks based on underlying services, providing rapid application deployment within specific classes of devices, such as mobile handheld devices, data collection devices, and thin clients.</p> <ul style="list-style-type: none"> Microsoft ActiveSync® CAB File Installer/Uninstaller Help Remote Desktop Connection
Core Operating System Services	<p>Core operating system services contain data on the Windows CE kernel and other features common to all Windows CE platforms. The core operating system services enable low-level tasks from process threads to memory management, and provide some file system functionality.</p> <ul style="list-style-type: none"> USB Host Support Kernel Features Real-Time Support Fonts
Communication Services and Networking	<p>Windows CE provides networking and communications capabilities that enable devices to connect and communicate securely with other devices and people over both wireless and wired networks.</p> <ul style="list-style-type: none"> Networking Features: Protected Extensible Authentication Protocol (PEAP), firewall, Network Driver Interface Specification (NDIS) 5.1, utilities, Universal Plug & Play (UPnP), TCP/IP, TCP/IPV6

	<ul style="list-style-type: none"> Local Area Network (LAN): 802.1x, 802.3, 802.5, Wireless Protected Access Wide Area Network (WAN): dial-up networking, point-to-point, telephony API Servers: File Transfer Protocol (FTP), telnet, Web server, Remote Access Service (RAS)
File Systems and Data Stores	<p>File systems and data stores enable devices to compress, store, or read data from RAM or ROM and have varying responsibilities from filtering to partitioning.</p> <ul style="list-style-type: none"> File System Registry Storage
Multimedia and Browsing Services	<p>The Internet connectivity modules enable you to build sophisticated Internet access devices. Off-the-shelf protocols are available at various levels to provide multiple Internet access options. Windows CE includes the high performance Microsoft DirectX® API and Microsoft Windows Media® technologies found on desktop computers, enabling high-performance audio, video, and streaming media services on Windows CE-based devices.</p> <ul style="list-style-type: none"> Internet Explorer 5.5 for Windows CE Scripting (Microsoft Jscript® 5.5, VBScript 5.5)
Security	<p>Security services supported in Windows CE 5.0 help users to connect securely over networks and between specified devices, enabling better protection of personal content and data.</p> <p>Authentication Services</p> <ul style="list-style-type: none"> Kerberos Secure Socket Layer (SSL) <p>Cryptography Services</p> <ul style="list-style-type: none"> CryptoAPI 1.0 with High Encryption Provider
Shell and User Interface	<p>Ready-to-use, built-in user interfaces (UI) and UI services can save you considerable time when you want to create the sophisticated, easy-to-use, graphical devices that users demand.</p> <ul style="list-style-type: none"> Graphics, Windowing, and Events Shell User Interface (customizable UI, software input panel)

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

UNO Series Selection Guide

Model Name	UNO-1019	UNO-2050E	UNO-2052E	UNO-2053E	UNO-2059E	UNO-2160	UNO-2170
CPU	XScale PXA 255 200 MHz	GX2-400 MHz				Celeron 400 MHz	Celeron M 1 GHz
Onboard RAM	64 MB SDRAM	256 MB DDR SDRAM				256 MB SDRAM	512 MB DDR SDRAM
Battery-Backup RAM	-	-				512 KB	
VGA/Mouse/Keyboard	-	Yes					
Audio	-	-	-	Yes	-	-	-
Serial Ports	2 x RS-232 2 x RS-232/422/485	2 x RS-232 2 x Isolated RS-232/422/485	2 x CAN 1 x RS-232	2 x RS-232	2 x RS-232 2 x RS-232/422/485	2 x RS-232 2 x RS-232/422/485	
Ethernet Ports	2 x 10/100Base-T	2 x 10/100Base-T	1 x 10/100Base-T	2 x 10/100Base-T	1 x 10/100Base-T	2 x 10/100Base-T	
USB Ports	-	-	One	Two	Two	Two	Two
PC Card Slots	-	-	-	One	One	One	One
Printer Ports	-	-	-	-	-	One	One
PC/104 Expansion	-	-	-	-	-	PC/104	PC/104
PCI Expansion	-	-	-	-	-	-	-
Onboard I/O	2-ch DI 2-ch DO	8-ch isolated DI 8-ch isolated DO	4-ch isolated DI 4-ch isolated DO 2-ch isolated AI	-	-	-	-
Watchdog Timer	Yes						
CompactFlash Slots	One External	One internal					
2.5" HDD Expansion	-	Option				Yes	
Operating Systems	Windows CE .NET 4.2	Windows XP Embedded, Windows CE 5.0, Windows 2000/XP, Linux					
Programming Runtime Library	Yes						
Software Development Kit	Yes						
Activesync	Yes						
Web server/ Email service	Yes						
Modem Dial-in (RAS)/ Dial-up Function	Yes						
Mounting	DIN-rail/Wall					Wall	
Anti-Vibration	-	2G w/CF, 1G w/HDD @ IEC 68 section 2-6, sine, 12~300 Hz, 1 Oct./min, 1hr/axis.				2G w/CF, 0.5G w/HDD @ IEC 68 section 2-64, sine,5 ~ 500 Hz, 1 Oct./min, 1hr/axis.	
Anti-Shock	-	20 G w/CF @ DIN IEC 68 section 2-27, half sine, 11ms 50 G w/CF @ Wall/Panel 68 section 2-27, half sine, 11 ms				20 G w/HDD @ IEC 68 section 2-27, half sine, 11 ms 50 G w/CF @ IEC 68 section 2-27, half sine, 11 ms	
Power Input Range	10 ~ 30 V _{DC}	9 ~ 36 V _{DC}			10 ~ 48 V _{DC}	9 ~ 36 V _{DC}	
Operating Temperature	0 ~ 70° C @ 5 ~ 85% RH	-10 ~ 55° C @ 5 ~ 85% RH				-20 ~ 50° C @ 5 ~ 85% RH	
Relative Humidity	95% @ 40° C (non-condensing)						
Power Consumption Typical	8.5 W	15 W				22 W	24 W
Power Requirement	Min. 13 W	Min. 24 W, +24 V @ 1 A power input				Min. 48 W, +24 V @ 2 A power input	
Dimensions (W x D x H)	46 x 162 x 126 mm (1.8" x 6.4" x 5")	188.8 x 106.5 x 35.5 mm (7.5" x 4.2" x 1.4")				255 x 152 x 50 mm (10" x 6.0" x 2.0")	
Weight	0.4 kg	0.8 kg				1.6 kg	

Model Name	UNO-2171	UNO-2172	UNO-2176	UNO-2182	UNO-3072L	UNO-3072	UNO-3074
CPU	Celeron M 1.0 GHz, Pentium M 1.4	Celeron M 1.5 GHz, Pentium M 1.6 GHz	Celeron M 1.0 GHz, Pentium M 1.4 GHz	Core Duo 1.66 GHz	Celeron M 1.0 GHz, Pentium M 1.6 GHz	Celeron M 1.0 GHz, Pentium M 1.4 GHz	
Onboard RAM	512 MB/1 GB DDR SDRAM	512 MB DDR2 SDRAM	512 MB DDR DRAM	512 MB/1 GB DDR2 SDRAM	512 MB DDR SDRAM		
Battery-Backup RAM	512 KB	512 KB	512 KB	512 KB	-	512 KB	
VGA/Mouse/Keyboard	Yes	DVI-I	Yes	DVI-I	Yes		
Audio	Yes	Yes	-	Yes	-	-	-
Serial Ports	2 × RS-232, 2 x RS-232/422/485 with DB9 connectors	2 × RS-232, 2 x RS-232/422/485 with DB9 connectors	2 × RS-232, 2 x Isolated RS-232/422/485 with DB9 connectors, 2 x Isolated RS-232/422/485 with 5-pin screw terminal	2 × RS-232, 2 x RS-232/422/485 with DB9 connectors	2 x RS-232, 2 x RS-232/422/485		
Ethernet Ports	2 x 10/100Base-T	2 x 10/100/1000Base-T	2 x 10/100Base-T	2 x 10/100/1000Base-T	2 x 10/100Base-T		
USB Ports	Two	Two	Two	Two	Four		
PC Card Slots	One	One	-	One	-	One	
Printer Ports	-						
PC/104 Expansion	PC/104+	PCI-104	PC/104	PCI-104	-		
PCI Expansion	-				Two		Four
Onboard I/O	-	-	8-ch Isolated DI 8-ch Isolated DO	-	4-ch isolated DI, 4-ch isolated DO		
Watchdog Timer	Yes						
CompactFlash Slots	Two internal	One external	Two internal	One external	One internal	One internal, One external	
2.5" HDD Expansion	Yes						
Operating Systems	Windows XP Embedded, Windows CE 5.0, Windows 2000/XP, Linux	Windows XP Embedded, Windows 2000/XP	Windows XP Embedded, Windows CE 5.0, Windows 2000/XP, Linux	Windows XP Embedded, Windows 2000/XP	Windows XP Embedded, Windows CE 5.0, Windows 2000/XP, Linux		
Programming Runtime Library	Yes						
Software Development Kit	Yes						
Activesync	Yes						
Web server/Email service	Yes						
Modem Dial-53 (RAS)/Dial-up Function	Yes						
Mounting	Wall			Wall	Wall/Panel/Stand		
Anti-Vibration	2G w/CF, 1G w/HDD (for X and Y Axis), 1G w/HDD @ IEC 68 section 2-64, sine, 5 ~ 500 Hz, 1 Oct./min, 1hr/axis				2G w/CF, 1G w/HDD @ IEC 68 section 2-64, sine, 5 ~ 500 Hz, 1 Oct./min, 1hr/axis.		
Anti-Shock	20 G w/HDD @ IEC 68 section 2-27, half sine, 11 ms, 50 G w/CF @ IEC 68 section 2-27, half sine, 11 ms						
Power Input Range	10 ~ 53 V _{DC}	9 ~ 36 V _{DC}			16 ~ 36 V _{DC}		20 ~ 36 V _{DC}
Operating Temperature	-20 ~ 65° C @ 5 ~ 85% RH	-20 ~ 50° C @ 5 ~ 85% RH	-20 ~ 65° C @ 5 ~ 85% RH	-20~ 60° C @ 5 ~ 85% RH	-20 ~ 60° C @ 5 ~ 85% RH	-20 ~ 55° C @ 5 ~ 85% RH	
Relative Humidity	95% @ 40° C (non-condensing)				95% @ 40° C	95% @ 40° C (non-condensing)	
Power Consumption Typical	24 W	45 W	24 W	35 W	24 W		
Power Requirement	Min. 48 W, +24 V @ 2 A power input						Min. 96 W, +24 V @ 4 A power input
Dimensions (W x D x H)	255 x 152 x 59 mm (10" x 6.0" x 2.3")	255 x 152 x 69 mm (10" x 6.0" x 2.7")	255 x 152 x 59 mm (10" x 6.0" x 2.3")	255 x 152 x 69 mm (10" x 6.0" x 2.7")	140 x 237 x 177 mm (5.5" x 9.3" x 7.0")		180 x 237 x 177 mm (7.1" x 9.3" x 7.0")
Weight	2.4 kg				4.2 kg	4.4 kg	5.0 kg

1
PAC & Software2
BAS3
UNO4
RS-485 I/O5
Ethernet I/O6
TPC7
IPPC8
FPM9
AWS10
Plug-in I/O11
CompactPCI12
Signal Conditioning13
USB I/O14
Motion Control I/O15
Ethernet Switch16
EDG17
ICOM

UNO-3072

Intel® Pentium® M UNO w/2 x PCI slot,
1 x PC Card



UNO-3072L

UNO-3072



Features

- Onboard Pentium® M or Celeron® M processor
- Provides 512 KB battery-backup SRAM (UNO-3072 only)
- Two RS-232 & two RS-232/422/485 ports with RS-485 automatic flow control
- Two 10/100Base-T RJ-45 ports and four USB ports
- Two PCI-bus expansion slots for versatile applications
- Industrial proven design; anti-shock up to 50 G, anti-vibration up to 2 G
- 4-ch isolated DI, 4-ch isolated DO with timer, counter and interrupt handling
- Supports dual power inputs
- Windows® 2000/XP driver ready and Linux driver support
- Windows XP (SP2) Embedded Ready Platforms with write protection (EWF)
- Embedded Linux ready solution

Introduction

Advantech's UNO-3072 series is high-performance Pentium M/Celeron M grade, embedded automation computer with two PCI expansion slots. UNO-3072 features a rugged and field-proven design offering dual power inputs and battery backup SRAM. Different from general industrial PCs, UNO-3072 is more compact and reliable. They are open platforms which can fulfill any demanding requirement from the industrial field, and it is an ideal solution for industrial automation and control.

UNO-3072 provide embedded operating system with a pre-configured image that has optimized onboard device drivers, and support Windows XP Embedded to fulfill the toughest requirements for complete functionality and high reliability.

Specifications

General

- Certifications** CE, FCC class A
- Dimensions (W x D x H)** 140 x 237 x 177 mm (5.5" x 9.3" x 7.0")
- Enclosure** Aluminum
- Mounting (Option)** Wall/Panel/Stand
- Power Consumption** 24 W (typical, no PCI cards)
- Power Input** 16 ~ 36 V_{DC} (e.g. +24 V @ 2 A) (Min. 48 W), AT
- Weight (Net)** UNO-3072L: 4.2 kg, UNO-3072: 4.4 kg
- OS Support** Windows XP embedded, Windows 2000/XP, WinCE 5.0, Linux

System Hardware

- CPU** Celeron M 1.0 GHz or Pentium M 1.4/1.6 GHz
- Memory** 512 MB DDR SDRAM
- Battery Backup RAM** 512 KB (UNO-3072 only)
- Expansion Slots** 2 x PCI V 2.2
(Note: The heat dissipation in the PCI cards may affect thermal performance)
- Indicators** LEDs for power, power input 1, power input 2, power fault, IDE, diagnosis, 4 COM ports Tx/Rx (UNO-3072 only), and alarm for battery backup (UNO-3072 only). Programmable buzzer.
- Keyboard/Mouse** 1 x PS/2
- PC Card (UNO-3072 only)** 1 x PC card slot, supports CardBus (Card-32), and 16-bit (PCMCIA 2.1/JEIDA4.2) card supports +5 V, +3.3 V and +12 V @ 120 mA working power
- PCI Slot Power** 12 V @ 2.5 A, -12 V @ 0.8 A, +5 V @ 4 A, +3.3 V @ 3 A
- Storage**
 - SSD** 1 x internal type I/II CompactFlash® slot
1 x external type I/II CompactFlash slot (UNO-3072 only)
 - HDD** Built-in HDD bracket for installation of one standard 2.5" HDD
- VGA** DB15 VGA connector, support to CRT mode:

1600 x 1200 @ 85 Hz
Programmable

Watchdog Timer

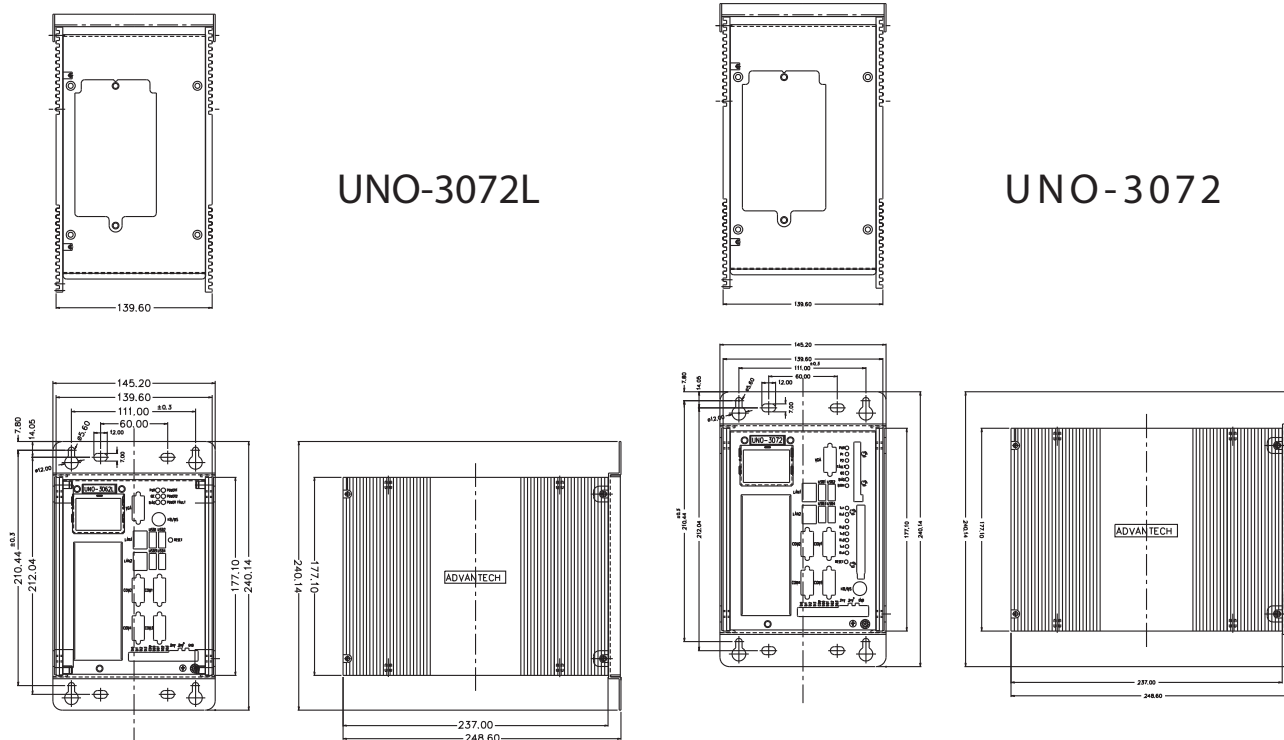
Communications

- Clock** Battery-backup RTC for time and date
- LAN** 2 x 10/100Base-T RJ-45 ports
- Serial Ports** 2 x RS-232, 2 x RS-232/422/485 with DB9 connectors
Automatic RS-485 data flow control
- Serial Ports Speed** RS-232: 50 bps ~ 115.2 kbps
RS-422/485: 50 bps ~ 921.6 kbps (Max.)
- USB Ports** 4 x USB, USB UHCI, Rev. 2.0 compliant
- Digital Inputs (4-ch. wet contact DI0~DI3)**
 - 2,000 V_{DC} isolation
 - 50 ~ 70 V_{DC} over-voltage protection
 - ±50 V_{DC} input range and 10 kHz speed
 - Interrupt handling speed: 10 kHz
- Digital Outputs (4 ch. DO0~DO3)**
 - 2,000 V_{DC} isolation and 200 mA max/channel sink current
 - Keep output status after system hot reset
 - 0 ~ 40 V_{DC} output range and 10 kHz speed
- Counters/Timers (2 x 16-bit)**
 - Counter source: DI1 & DI3, Pulse output: DO2 & DO3
 - Can be cascaded as one 32-bit counter/timer
 - Down counting, preset counting value
 - Timer time base: 100 kHz, 10 kHz, 1 kHz, 100 Hz

Environment

- Humidity** 95% @ 40° C (non-condensing)
- Operating Temperature** -20 ~ 55° C (-4 ~ 131° F) @ 5 ~ 85% RH(UNO-3072)
-20 ~ 60° C (-4 ~ 140° F) @ 5 ~ 85% RH(UNO-3072L)
- Shock Protection** IEC 68 2-27
CompactFlash: 50 G @ wall mount, half sine, 11 ms
HDD: 20 G @ wall mount, half sine, 11 ms
- Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash: 2 Grms @ 5 ~ 500 Hz
HDD: 1 Grms @ 5 ~ 500 Hz

UNO-3072



- **UNO-3072L-C11E** C-M 1.0 G, 512 MB RAM UNO-3072L
- **UNO-3072L-P21E** P-M 1.6 G, 512 MB RAM UNO-3072L
- **UNO-3072-C11E** C-M 1.0 G, 512 MB RAM UNO-3072
- **UNO-3072-P11E** P-M 1.4 G, 512 MB RAM UNO-3072

- **UNO-WM72-AE** Wallmounting kit for UNO-3072 series
- **UNO-PM70-AE** Panel mounting kit for UNO-3000 series
- **UNO-SM70-AE** Stand mounting kit for UNO-3000 series



UNO-WM72-AE

**UNO-PM70-AE****UNO-SM70-AE**

UNO-3074

Intel® Pentium® M UNO w/4 x PCI,
1 x PC Card Slot

NEW



Features

- Onboard Pentium® M or Celeron® M processor
- Provides 512 KB battery-backup SRAM
- Two RS-232 & two RS-232/422/485 ports with RS-485 automatic flow control
- Two 10/100Base-T RJ-45 ports and four USB ports
- Four PCI-bus expansion slots for versatile applications
- Industrial proven design; anti-shock up to 50 G, anti-vibration up to 2 G
- 4-ch isolated DI, 4-ch isolated DO with timer, counter and interrupt handling
- Supports dual power inputs
- Windows® 2000/XP driver ready and Linux driver support
- Windows XP (SP2) Embedded Ready Platforms with write protection (EWF)
- Embedded Linux ready solution

Introduction

Advantech's UNO-3074 series is high-performance Pentium M/Celeron M grade, embedded automation computers with four PCI expansions. UNO-3074 features a rugged and field-proven design offering dual power inputs and battery backup SRAM. Different from general industrial PCs, UNO-3074 is more compact and reliable. This is an open platform which can fulfill any demanding requirement from the industrial field, and it is an ideal solution for industrial automation and control.

UNO-3074 provides embedded operating system with a pre-configured image that has optimized onboard device drivers, and support Windows XP Embedded to fulfill the toughest requirements for complete functionality and high reliability.

Specifications

General

- **Certifications** CE, FCC class A
- **Dimensions (W x D x H)** 180 x 237 x 177 mm (7.1" x 9.3" x 7.0")
- **Enclosure** Aluminum
- **Mounting (Option)** Wall/Panel/Stand
- **Power Consumption** 24 W (typical, no PCI cards)
- **Power Input** 20 ~ 36 V_{DC} (e.g. +24 V @ 4 A) (Min. 96 W), AT
- **Weight (Net)** 5.0 kg
- **OS Support** Windows XP embedded, Windows 2000/XP, WinCE 5.0, Linux

System Hardware

- **CPU** Celeron M 1.0 GHz or Pentium M 1.4 GHz
- **Memory** 512 MB DDR SDRAM
- **Battery Backup RAM** 512 KB
- **Expansion Slots** 4 x PCI V 2.2
(Note: The heat dissipation in the PCI cards may affect thermal performance)
- **Indicators** LEDs for power, power input 1, power input 2, power fault, IDE, diagnosis, 4 COM ports Tx/Rx, and alarm for battery backup. Programmable buzzer.
- **Keyboard/Mouse** 1 x PS/2
- **PC Card** 1 x PC card slot, supports CardBus (Card-32), and 16-bit (PCMCIA 2.1/JEIDA4.2) card supports +5 V, +3.3 V and +12 V @ 120 mA working power
- **PCI Slot Power** 12 V @ 5 A, -12V @ 0.8 A, +5 V @ 8 A, +3.3 V @ 6 A
- **Storage**
 - SSD: 1 x internal type I/II CompactFlash® slot
 - HDD: 1 x external type I/II CompactFlash slot
- **VGA** Built-in HDD bracket for installation of one standard 2.5" HDD
- **Watchdog Timer** DB15 VGA connector, support to CRT mode: 1600 x 1200 @ 85 Hz
- **Programmable**

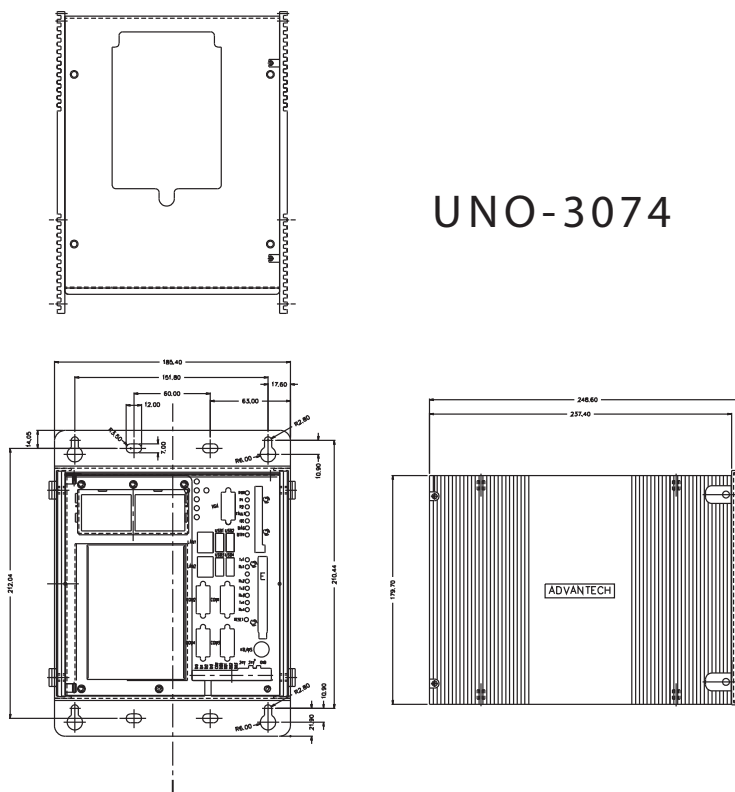
Communications

- **Clock** Battery-backup RTC for time and date
- **LAN** 2 x 10/100Base-T RJ-45 ports
- **Serial Ports** 2 x RS-232, 2 x RS-232/422/485 with DB9 connectors
Automatic RS-485 data flow control
- **Serial Ports Speed** RS-232: 50 bps ~ 115.2 kbps
RS-422/485: 50 bps ~ 921.6 kbps (Max.)
- **USB Ports** 4 x USB, USB UHCI, Rev. 2.0 compliant
- **Digital Inputs (4-ch. wet contact DI0~DI3)**
 - 2,000 V_{DC} isolation
 - 50 ~ 70 V_{DC} over-voltage protection
 - ±50 V_{DC} input range and 10 kHz speed
 - Interrupt handling speed: 10 kHz
- **Digital Outputs (4 ch. DO0~DO3)**
 - 2,000 V_{DC} isolation and 200 mA max/channel sink current
 - Keep output status after system hot reset
 - 0 ~ 40 V_{DC} output range and 10 kHz speed
- **Counters/Timers (2 x 16-bit)**
 - Counter source: DI1 & DI3, Pulse output: DO2 & DO3
 - Can be cascaded as one 32-bit counter/timer
 - Down counting, preset counting value
 - Timer time base: 100 kHz, 10 kHz, 1 kHz, 100 Hz

Environment

- **Humidity** 95% @ 40° C (non-condensing)
- **Operating Temperature** -20 ~ 55° C (-4 ~ 131° F) @ 5 ~ 85% RH
- **Shock Protection** IEC 68 2-27
CompactFlash: 50 G @ wall mount, half sine, 11 ms
HDD: 20 G @ wall mount, half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash: 2 Grms @ 5 ~ 500 Hz
HDD: 1 Grms @ 5 ~ 500 Hz

Dimensions



Ordering Information

- **UNO-3074-C11E** C-M 1.0G, 512MB RAM UNO-3074
- **UNO-3074-P11E** P-M 1.4G, 512MB RAM UNO-3074

Accessories

- **UNO-WM74-AE** Wallmounting kit for UNO-3074
- **UNO-PM70-AE** Panel mounting kit for UNO-3000 series
- **UNO-SM70-AE** Stand mounting kit for UNO-3000 series

**UNO-PM70-AE****UNO-WM74-AE****UNO-SM70-AE**

UNO-2160

Intel® Celeron® UNO w/2 x LAN,
4 x COM, PC/104



Features

- Onboard Celeron® 400 MHz
- Provides 512 KB battery-backup SRAM
- Two RS-232 and two RS-232/422/485 ports with automatic flow control.
- Two 10/100Base-T RJ-45 ports
- Two USB and one type I/II PC Card
- Two optional PC/104 expansion slots
- Windows® CE 5.0, Windows XP Embedded, and Linux ready solution

Introduction

UNO-2160 is an embedded automation computer that supports PC/104 expansion, serial communication ports and several other networking interfaces. UNO-2160 supports Windows XP Embedded OS and Windows 5.0, which offers a pre-configured image with optimized onboard device drivers. Windows XP Embedded delivers the power of the Windows operating system in componentized form. You can seamlessly integrate your applications into Windows XP Embedded and speed up your system development with an application ready platform that can provide a rich networking interface to fulfill diverse requirements.

Specifications

General

- **Certifications** CE, FCC class A, UL
- **Dimensions (W x D x H)** 255 x 152 x 50 mm (10" x 6.0" x 2.0")
- **Enclosure** Aluminum
- **Mounting** Wall
- **Power Consumption** 22 W (Typical)
- **Power Input** 9 ~ 36 V_{DC} (e.g. +24 V @ 2 A) (Min. 48 W), AT
- **Weight** 1.6 kg
- **OS Support** Windows® XP Embedded, Windows® 2000/XP, Windows® CE 5.0, Linux

System Hardware

- **CPU** Celeron® 400 MHz Ultra low-voltage version
- **Memory** 256 MB SDRAM
- **Battery Backup RAM** 512 KB
- **Indicators** LEDs for power, IDE, alarm for RAM backup battery,
- **Keyboard/Mouse** 1 x PS/2
- **PC Card** 1 x PC Card slot, supports CardBus (Card-32) Card and 16-bit (PCMCIA 2.1/JEIDA4.2) card Supports +5, +3.3 and +12 V @120 mA working power
- **PC/104** 2 x PC/104 slots (optional). Supports +5V power
- **Printer Port** 1 x printer port
- **Storage** SSD: 1 x internal type I/II CompactFlash® slot
HDD: one standard 2.5" HDD
- **VGA** DB15 VGA connector, 1280 x 1024 @ 60 Hz

Communications

- **Serial Ports** 2 x RS-232, 2 x RS-232/422/485 with DB9 connectors Automatic RS-485 data flow control
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps
RS-422/485: 50 ~ 921.6 kbps (Max.)
- **LAN** 2 x 10/100 Base-T RJ-45 ports
- **USB Ports** 2 x USB, UHCI, Rev. 1.1 compliant

Environment

- **Humidity** 95% @ 40° C (non-condensing)
- **Operating Temperature** -20 ~ 50° C (-4 ~ 122° F) @ 5 ~ 85% RH
- **Shock Protection** IEC 68 2-27
CompactFlash®: 50 G @ wall mount, half sine, 11 ms
HDD: 20 G @ wall mount, half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash®: 2 Grms @ 5 ~ 500 Hz,
HDD: 0.5 Grms @ 5 ~ 500 Hz

Ordering Information

- **UNO-2160-JDA0E** Intel Celeron UNO w/2 x LAN, 4 x COM, PC/104

Accessories

- **UNO-PCM21-AE** UNO-2100 series 2 x PC/104 expansion kit
- **UNO-FPM21-AE** UNO & FPM integration kit

UNO-2170

Intel® Celeron® M UNO w/2 x LAN,
4 x COM, PC/104



Features

- Onboard Celeron® M 1.0 GHz
- Provides 512 KB battery-backup SRAM
- Two RS-232 and two RS-232/422/485 ports with automatic flow control.
- Two 10/100Base-T RJ-45 ports
- Two USB and one type I/II PC Card
- PC/104 expansion slots
- Windows® CE 5.0, Windows XP Embedded, and Linux ready solution

Introduction

UNO-2170 is an embedded automation computer that supports PC/104 expansion, serial communication ports and several other networking interfaces. UNO-2170 supports Windows XP Embedded OS and Windows CE 5.0, which offers a pre-configured image with optimized onboard device drivers. Windows XP Embedded delivers the power of the Windows operating system in componentized form. You can seamlessly integrate your applications into Windows XP Embedded and speed up your system development with an application ready platform that can provide a rich networking interface to fulfill diverse requirements.

Specifications

General

- **Certifications** CE, FCC class A, UL
- **Dimensions (W x D x H)** 255 x 152 x 50 mm (10" x 6.0" x 2.0")
- **Enclosure** Aluminum
- **Mounting** Wall
- **Power Consumption** 24 W (Typical)
- **Power Input** 9 ~ 36 V_{DC} (e.g. +24 V @ 2 A) (Min. 48 W), AT
- **Weight** 1.6 kg
- **OS Support** Windows XP Embedded, Windows 2000/XP, Windows CE 5.0, Linux

System Hardware

- **CPU** Celeron M 1.0 GHz
- **Memory** 512 MB DDR SDRAM
- **Battery Backup RAM** 512 KB
- **Indicators** LEDs for power, IDE, alarm for RAM backup battery,
- **Keyboard/Mouse** 1 x PS/2
- **PC Card** 1 x PC Card slot, supports CardBus (Card-32) Card and 16-bit (PCMCIA 2.1/JEIDA4.2) card Supports +5, +3.3 and +12 V @ 120 mA working power
- **PC/104** 2 x PC/104 slots (optional). Supports +5V power
- **Printer Port** 1 x printer port
- **Storage** SSD: 1 x internal type I/II CompactFlash® slot
HDD: one standard 2.5" HDD
- **VGA** DB15 VGA connector, 1600 x 1200 @ 85 Hz
- **Watchdog Timer** Programmable

Communications

- **Serial Ports** 2 x RS-232, 2 x RS-232/422/485 with DB9 connectors Automatic RS-485 data flow control
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps
RS-422/485: 50 ~ 921.6 kbps (Max.)
- **LAN** 2 x 10/100 Base-T RJ-45 ports
- **USB Ports** 2 x USB, UHCI, Rev. 2.0 compliant

Environment

- **Humidity** 95% @ 40° C (non-condensing)
- **Operating Temperature** -20 ~ 50° C (-4 ~ 122° F) @ 5 ~ 85% RH.
- **Shock Protection** IEC 68 2-27
CompactFlash: 50 G @ wall mount, half sine, 11 ms
HDD: 20 G @ wall mount, half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash: 2 Grms @ 5 ~ 500 Hz,
HDD: 0.5 Grms @ 5 ~ 500 Hz

Ordering Information

- **UNO-2170-C11E** C-M 1.0 G, 512 MB RAM UNO-2170

Accessories

- **UNO-PCM21-AE** UNO-2100 series 2 x PC/104 expansion kit
- **UNO-FPM21-AE** UNO & FPM integration kit

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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

UNO-2171

Intel® Pentium® M UNO w/2 x LAN,
4 x COM, PC/104+

NEW



Features

- Onboard Pentium® M 1.4 GHz Celeron® M 1.0 GHz
- Provides 512 KB battery-backup SRAM
- Two RS-232 and two RS-232/422/485 ports with automatic flow control.
- Two 10/100Base-T RJ-45 ports
- Audio with Mic in, Line in, Line out
- Two USB and one type I/O PC Card
- PC/104+ expansion slots
- Windows® CE 5.0, Windows XP Embedded SP2, and Linux ready solution

Introduction

UNO-2171 is an embedded automation computer that supports PC/104+ expansion, serial communication ports and several other networking interfaces. UNO-2171 supports Windows XP Embedded OS and Windows CE 5.0, which offers a pre-configured image with optimized onboard device drivers. Windows XP Embedded delivers the power of the Windows operating system in componentized form. You can seamlessly integrate your applications into Windows XP Embedded and speed up your system development with an application ready platform that can provide a rich networking interface to fulfill diverse requirements.

Specifications

General

- **Certifications** CE, FCC class A, UL
- **Dimensions (W x D x H)** 255 x 152 x 59 mm (10" x 6.0" x 2.3")
- **Enclosure** Aluminum
- **Mounting** Wall
- **Power Consumption** 24 W (Typical)
- **Power Input** 10 ~ 53 V_{DC} (e.g. +24 V @ 2 A) (Min. 48 W), ATX
- **Weight** 2.4 kg (Typical)
- **OS Support** Windows XP Embedded, Windows 2000/XP, Windows CE 5.0, Linux

System Hardware

- **CPU** Pentium M 1.4 GHz, Celeron M 1.0 GHz
- **Memory** 512 MB/1 GB DDR SDRAM
- **Battery Backup RAM** 512 KB
- **Indicators** LEDs for power, IDE, alarm for RAM backup battery,
- **Keyboard/Mouse** 1 x PS/2
- **PC Card** 1 x PC Card slot, supports CardBus (Card-32) Card and 16-bit (PCMCIA 2.1/JEIDA4.2) card Supports +5V, +3.3V
- **PC/104+** PC/104+ slot, Supports +5V Power
- **Storage** SSD: 2 x internal type I/O CompactFlash® slot HDD: one standard 2.5" HDD
- **VGA** DB15 VGA connector, 1600 x 1200 @ 85 Hz
- **Audio** Mic in, Line in, Line out
- **Watchdog Timer** Programmable

Communications

- **Serial Ports** 2 x RS-232, 2 x RS-232/422/485 with DB9 connectors Automatic RS-485 data flow control
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps

- **LAN** RS-422/485: 50 ~ 921.6 kbps (Max.)
- **USB Ports** 2 x 10/100Base-T RJ-45 ports 2 x USB, UHCI, Rev. 2.0 compliant

Environment

- **Humidity** 95% @ 40° C (non-condensing)
- **Operating Temperature** -20 ~ 65° C (-4 ~ 149° F) @ 5 ~ 85% RH
- **Shock Protection** IEC 68 2-27 CompactFlash: 50 G @ wall mount, half sine, 11 ms HDD: 20 G @ wall mount, half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.) CompactFlash: 2 Grms @ 5 ~ 500 Hz, HDD: 1 Grms @ 5 ~ 500 Hz

Ordering Information

- **UNO-2171-C11E** C-M 1.0 G, 512 MB RAM UNO-2171
- **UNO-2171-P11E** P-M 1.4 G, 512 MB RAM UNO-2171
- **UNO-2171-P12E** P-M 1.4 G, 1 GB RAM UNO-2171

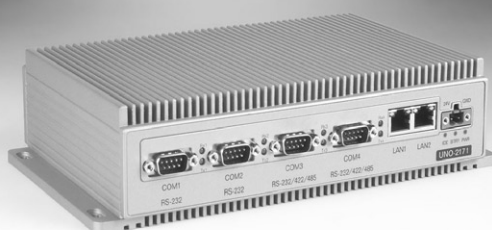
Accessories

- **UNO-PCM22-AE** 2 x PC/104 expansion kit
- **UNO-FPM21-AE** UNO & FPM integration kit

UNO-2172

Intel® Pentium® M UNO
w/2 x LAN, 4 x COM, DVI

Preliminary



Introduction

UNO-2172 is a high-performance Pentium grade controller that supports PCI-104 expansion, serial communication ports and several other networking interfaces. UNO-2172 supports Windows XP Embedded OS, which offers a pre-configured image with optimized onboard device drivers. Windows XP Embedded delivers the power of the Windows operating system in componentized form. You can seamlessly integrate your applications into Windows XP Embedded and speed up your system development with an application ready platform that can provide a rich networking interface to fulfill diverse requirements.

Specifications

General

- **Certifications** CE, FCC class A, UL
- **Dimensions (W x D x H)** 255 x 152 x 69 mm (10" x 6.0" x 2.7")
- **Enclosure** Aluminum
- **Mounting** Wallmount
- **Power Consumption** 45 W (Typical)
- **Power Input** Min. 48 W (9 ~ 36 V_{DC}) (e.g +24 V @ 2 A), ATX
- **Weight** 2.4 kg
- **OS Support** Windows XP Embedded, Windows 2000/XP

System Hardware

- **CPU** Pentium M 1.6 GHz
Celeron M 1.5 GHz
- **Memory** 512 MB DDR2 SDRAM
- **Indicators** LEDs for power, IDE, alarm for RAM backup battery
- **Battery Backup RAM** 512 KB
- **Keyboard/Mouse** 1 x PS/2
- **PC Card** 1 x PC Card slot, supports CardBus (Card-32) Card and 16-bit (PCMCIA 2.1/JEIDA4.2) card
Supports +5V, +3.3V
- **PCI-104** PCI-104 slot
- **Storage** SSD: 1 x external type I/II CompactFlash® slot
HDD: 1 x standard 2.5" SATA-1 HDD
- **Display** DVI-I supports DVI and VGA for dual display
- **Audio** Mic in, Line in, Line out
- **SATA** 1 x internal, 1 x external eSATA
- **Watchdog Timer** Programmable

Communications

Features

- Onboard Pentium M 1.6 GHz or Celeron M 1.5 GHz
- Provides 512KB battery-backup SRAM
- 2 x RS-232 and two RS-232/422/485 ports with automatic flow control
- 2 x 10/100/1000Base-T Ethernet
- DVI-I supports dual display
- Audio with Mic in, Line in, Line out
- Two USB and one type I/II PC Card
- PCI-104 expansion
- Windows XP Embedded SP2 ready solution
- Supports SATA-1 HDD and external eSATA devices

- **Serial Ports** 2 x RS-232, 2 x RS-232/422/485 with DB9 connectors
Automatic RS-485 data flow control
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps
RS-422/485: 50 ~ 921.6 kbps (Max.)
- **LAN** 2 x 10/100/1000Base-T Ethernet
RJ45 ports
- **USB Ports** 2 x USB, UHCI, Rev. 2.0 compliant

Environment

- **Humidity** 95% @ 40° C (non-condensing)
- **Operating Temperature** -20 ~ 50° C (-4 ~ 122° F) @ 5 ~ 85% RH.
- **Shock Protection** IEC 68 2-27
CompactFlash: 50 G @ wall mount, half sine, 11 ms
HDD: 20 G @ wall mount, half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash: 2 Grms @ 5 ~ 500 Hz,
HDD: 1 Grms @ 5 ~ 500 Hz

Ordering Information

- **UNO-2172-C21E** C-M 1.5 G, 512 MB RAM UNO-2172
- **UNO-2172-P21E** P-M 1.6 G, 512 MB RAM UNO-2172

Accessories

- **UNO-PCM22-AE** 2 x PC/104 expansion kit
- **UNO-FPM21-AE** UNO & FPM integration kit

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RS-485 I/O

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Ethernet I/O

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AWS

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Plug-in I/O

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CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

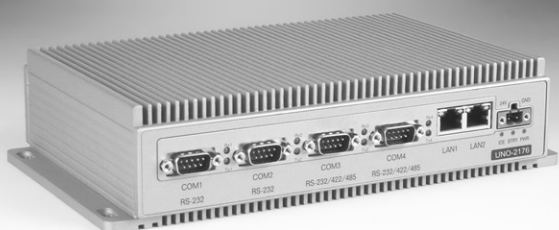
16
EDG

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ICOM

UNO-2176

Intel® Pentium® M UNO w/2 x LAN,
6 x COM, 16 DI/O

NEW



Features

- Onboard Pentium® M 1.4 GHz/Celeron® M 1.0 GHz
- Provides 512 KB battery-backup SRAM
- Two RS-232 and four isolated RS-232/422/485 ports with automatic flow control
- 8-ch Digital Input and 8-ch Digital Output
- Two 10/100Base-T RJ-45 ports
- Two USB ports
- PC/104 expansion slots
- Windows® CE 5.0, Windows XP Embedded SP2, and Linux ready solution

Introduction

UNO-2176 is an embedded automation computer that supports PC/104 expansion, serial communication ports and several other networking interfaces. UNO-2176 supports Windows XP Embedded OS and Windows CE 5.0, which offers a pre-configured image with optimized onboard device drivers. Windows XP Embedded delivers the power of the Windows operating system in componentized form. You can seamlessly integrate your applications into Windows XP Embedded and speed up your system development with an application ready platform that can provide a rich networking interface to fulfill diverse requirements.

Specifications

General

- **Certification** CE, FCC Class A, UL
- **Dimension (W x D x H)** 255 x 152 x 59 mm (10" x 6.0" x 2.36")
- **Enclosure** Aluminum
- **Mounting** Wall
- **Power Consumption** 24 W (Typical)
- **Power Input** 9 ~ 36 V_{DC} (e.g. +24 V @ 2 A) (Min. 48 W), AT
- **Weight** 2.4 kg
- **OS Support** Windows XP Embedded, Windows 2000/XP, Windows CE 5.0

System Hardware

- **CPU** Pentium M 1.4 GHz, Celeron M 1.0 GHz
- **Memory** 512 MB DDR SDRAM
- **Battery Backup RAM** 512 KB
- **Indicators** Power, IDE, alarm for RAM backup battery, programmable LED and Serial (Tx,Rx) (COM1-COM4)
- **Keyboard/Mouse** 1 x PS/2
- **PC/104** PC/104 slot, Supports +5V Power
- **Storage** SSD: 1 x internal type I/II CompactFlash® slot
HDD: one standard 2.5" HDD
- **VGA** DB15 VGA connector, 1600 x 1200 @ 85 Hz
- **Watchdog Timer** Programmable

Communication

- **Serial ports** 2 x RS-232
2 x isolated RS-232/422/485 with DB9 connectors
2 x isolated RS-232/422/485 with 5-pin screw terminal
Automatic RS-485 data flow control
Isolation protection: 2,000 V_{DC}
Surge protection: 2,000 VDC (EFT)
- **Serial Port Speed** (COM1,COM2) RS-232: 50 ~ 115.2 kbps,
(COM3-COM6) RS-232: 300 ~ 115.2 kbps
RS-422/485: 300 ~ 921.6 kbps (Max.)
- **LAN** 2 x 10/100Base-T RJ-45 ports
- **USB** 2 x USB, UHCI, Rev. 2.0 compliant

Digital Input/Digital Output

- **Digital Inputs** 8-ch wet contact
- 2,000 V_{DC} isolation
- 2,000 V_{DC} ESD protection
- 70 V_{DC} over-voltage protection
- ±50 V_{DC} input range and 10 kHz speed
- Interrupt handling speed: 10 kHz
- **Digital Outputs** 8-ch DO
- 2,000 V_{DC} isolation and 200 mA max/channel sink current
- Keep output status after system hot reset
- 5 ~ 40 V_{DC} output range and 10 kHz speed

Timer/Counter

- **Timer/Counter** Timer/Counter
- Counter source: DI1 & DI3, Pulse output: DO2 & DO3
- Can be cascaded as one 32-bit counter/timer
- Down counting, preset counting value
- Timer time base: 100 kHz, 10 kHz, 1 kHz, 100 Hz

Environment

- **Humidity** 95% @ 40° C (non-condensing)
- **Operating Temperature** UNO-2176-C11E: -20 ~ 65° C (-4 ~ 149° F) @ 5 ~ 85% RH
UNO-2176-P11E: -20 ~ 60° C (-4 ~ 140° F) @ 5 ~ 85% RH
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Shock Protection** IEC 68 2-27
CompactFlash®: 50 G @ wall mount, half sine, 11 ms
HDD: 20 G @ wall mount, half sine, 11 ms
IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash®: 2 Grms @ 5 ~ 500 Hz,
HDD: 1 Grms @ 5 ~ 500 Hz
- **Vibration Protection**

Ordering Information

- **UNO-2176-C11E** C-M 1.0G, 512 MB RAM UNO-2176
- **UNO-2176-P11E** P-M 1.4G, 512 MB RAM UNO-2176

Accessories

- **UNO-PCM22-AE** 2 x PC/104 expansion kit
- **UNO-FPM21-AE** UNO & FPM integration kit

UNO-2182

Intel® Core Duo™ UNO
w/2 x LAN, 4 x COM, DVI

Preliminary



Introduction

UNO-2182 is a high-performance Core Duo grade controller that supports PCI-104 expansion, serial communication ports and several other networking interfaces. UNO-2182 supports Windows XP Embedded OS, which offers a pre-configured image with optimized onboard device drivers. Windows XP Embedded delivers the power of the Windows operating system in componentized form. You can seamlessly integrate your applications into Windows XP Embedded and speed up your system development with an application ready platform that can provide a rich networking interface to fulfill diverse requirements.

Specifications

General

- **Certifications** CE, FCC class A, UL
- **Dimensions (W x D x H)** 255 x 152 x 69 mm (10" x 6.0" x 2.7")
- **Enclosure** Aluminum
- **Mounting** Wall
- **Power Consumption** 35 W (Typical)
- **Power Input** Min. 48 W (9 ~ 36 V_{DC}) (e.g. +24 V @ 2 A), ATX
- **Weight** 2.4 kg
- **OS Support** Windows XP Embedded, Windows 2000/XP

System Hardware

- **CPU** Core Duo 1.66 GHz
- **Memory** 512 MB/1 GB DDR2 SDRAM
- **Indicators** LEDs for power, IDE, alarm for RAM backup battery
- **Battery Backup RAM** 512KB
- **Keyboard/Mouse** 1 x PS/2
- **PC Card** 1 x PC Card slot, supports CardBus (Card-32) Card and 16-bit (PCMCIA 2.1/JEIDA4.2) card Supports +5V, +3.3V
- **PCI-104** PCI-104 slot
- **Storage** SSD: 1 x external type I/II CompactFlash® slot
HDD: 1 x standard 2.5" HDD (PATA or SATA)
- **Display** DVI-I supports DVI and VGA for dual display
- **Audio** Mic in, Line in, Line out
- **SATA** 1 x internal, 1 x external eSATA
- **Watchdog Timer** Programmable

Features

- Onboard Core Duo 1.66 GHz
- Provides 512KB battery-backup SRAM
- 2 x RS-232 and two RS-232/422/485 ports with automatic flow control
- 2 x 10/100/1000Base-T Ethernet
- DVI-I supports dual display
- Audio with Mic in, Line in, Line out
- Two USB and one type I/II PC Card
- PCI-104 expansion
- Windows XP Embedded SP2 ready solution
- Supports SATA -1 HDD and external eSATA devices

Communications

- **Serial Ports** 2 x RS-232, 2 x RS-232/422/485 with DB9 connectors
Automatic RS-485 data flow control
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps
RS-422/485: 50 ~ 921.6 kbps (Max.)
- **LAN** 2 x 10/100/1000Base-T RJ45 ports
- **USB Ports** 2 x USB, UHCI, Rev. 2.0 compliant

Environment

- **Humidity** 95% @ 40° C (non-condensing)
- **Operating Temperature** -20 ~ 60° C (-4 ~ 140° F) @ 5 ~ 85% RH.
- **Shock Protection** IEC 68 2-27
CompactFlash: 50 G @ wall mount, half sine, 11 ms
HDD: 20 G @ wall mount, half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash: 2 Grms @ 5 ~ 500 Hz,
HDD: 1 Grms @ 5 ~ 500 Hz

Ordering Information

- **UNO-2182-D11E** C-D 1.66 G, 512 MB RAM UNO-2182
- **UNO-2182-D12E** C-D 1.66 G, 1 GB RAM UNO-2182

Accessories

- **UNO-PCM22-AE** 2 x PC/104 expansion kit
- **UNO-FPM21-AE** UNO & FPM integration kit

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Ethernet I/O

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IPPC

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Plug-in I/O

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CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

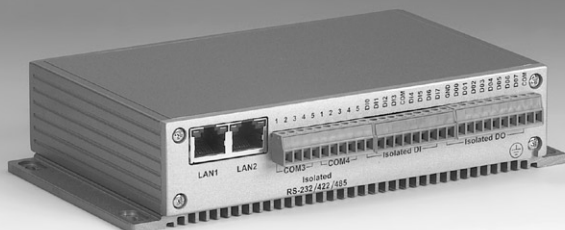
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EDG

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ICOM

UNO-2050E

AMD GX2 UNO w/2 x LAN, 4 x COM, 16 DI/O

NEW



Features

- Onboard GX2 400 MHz
- Two RS-232 and two-isolated RS-232/422/485 with automatic flow control
- Two 10/100 Base-T RJ-45 port
- Isolated 8-ch DI and 8-ch DO with counter and timer
- Windows® CE 5.0, Windows XP Embedded SP2, and Linux ready solution

Introduction

UNO-2050E is an X86-grade platform with dual LAN and 16-channel isolated digital I/O and timer/counter. In addition, it also provides two RS-232 and two isolated RS-232/422/485 communication ports with RS-485 automatic flow control functionality. Therefore, the UNO-2050E is an ideal solution for embedded controllers.

UNO-2050E comes with a built-in Windows CE solution offering a pre-configured image with optimized onboard device drivers. Microsoft Windows CE is a compact, highly efficient, real-time operating system designed for embedded systems without mechanical HDD limitations. To expand storage capability, the UNO-2050E allows the addition of an external 2.5" HDD using Advantech's UNO HDD expansion kit. It can be used for large data backup requirements and popular OS installations such as Microsoft Windows and Linux OS. Significant anti-vibration (1G w/HDD) is maintained even with the mechanical HDD inside. UNO-2050E is the perfect embedded application ready platform that can shorten development time and offer a rich networking interface to fulfill diverse application requirements.

Specifications

General

- **Dimensions (W x D x H)** 188.8 x 106.5 x 35.5 mm (7.5" x 4.2" x 1.4")
- **Enclosure** Aluminum
- **Mounting** Wall, DIN 35 rail
- **Power Consumption** 15 W (Typical)
- **Power Input** 9 ~ 36 V_{DC} (e.g. +24 V @ 1 A) (Min. 24 W), AT
- **Weight** 0.8 kg
- **OS Support** Windows XP Embedded, Windows 2000 & XP, Windows CE 5.0, Linux

System Hardware

- **CPU** AMD GX2 400 MHz
- **Memory** 256 MB DDRAM on board
- **Indicators** LEDs for power, IDE, programmable diagnostic LED, and one programmable buzzer.
- **Keyboard/Mouse** 1 x PS/2
- **Storage** SSD: 1 x internal type I/II CompactFlash® slot
HDD: expansion kit for one standard 2.5" HDD (Optional)
- **VGA** DB15 VGA connector
- **Watchdog Timer** Programmable

Communications

- **Counter/Timer** 2 x 16-bit: counter source: DI6 & DI7, Pulse output: DO6 & DO7. Can be cascaded as one 32-bit counter/timer, Down counting, preset counting value, interrupt handling, Timer time base: 100/10/1 kHz, 100 Hz
- **Digital Inputs** 8 ch. wet contact after 8 ch. 2,000 V_{DC} isolation, 2,000 V_{DC} ESD protection, 70 V_{DC} over-voltage protection 0 ~ 50 V_{DC} input range and 10 kHz speed; Interrupt handling.

- **Digital Outputs** 8 ch. 2,000 V_{DC} isolation and 200 mA max/channel sink current. Keeps output status after system hot reset. 5 ~ 40 V_{DC} output range and 10 kHz speed
- **LAN** 2 x 10/100Base-T with RJ-45 port
- **Serial Ports** 2 x standard RS-232 (COM1/COM2)
2 x isolated RS-232/422/485 (COM3/COM4)
Automatic RS-485 data flow control
RS-232/422/485 (COM3/COM4) with 2000 V_{DC} (EFT) surge protection & 2000 V_{DC} isolation
RS-232: 50 ~ 115.2 kbps (COM1/COM2)
50 ~ 230.4 kbps (COM3/COM4)
RS-422/485: 50 ~ 921.6 kbps (Max.)
- **Serial Port Speed**

Environment

- **Humidity** 95% @ 40° C (non-condensing)
- **Operating Temperature** -10 ~ 55° (14 ~ 131° F)
- **Shock Protection** IEC 68 2-27
CompactFlash: 20 G @ DIN, half sine, 11 ms, 50 G @ Wall/Panel, half sine, 11 ms
- **Vibration Protection** IEC 68 2-6
CompactFlash: 2 Grms @ sine, 5 ~ 500 Hz, 1 Oct./min, 1hr/axis.
HDD: 1 Grms @ sine, 12 ~ 300 Hz, 1 Oct./min, 1hr/axis.

Ordering Information

- **UNO-2050E-IDA0E** GX2 400 M, 256 MB RAM UNO-2050E

Accessories

- **UNO-HD20-AE** UNO-2000 HDD expansion kit
- **UNO-FPM21-AE** UNO & FPM integration kit
- **UNO-ADAM42-AE** UNO-2000 & ADAM integration kit

UNO-2052E

AMD GX2 UNO w/2 x CAN, LAN, 8 DI/O

NEW



Features

- Onboard GX2 400 MHz
- Provides two CAN interfaces
- Provides one 10/100Base-T RJ-45 port and one USB port
- Isolated 8-ch DI/O and 2-channel AI
- Windows® CE 5.0, Windows XP Embedded SP2, and Linux ready solution

Introduction

The Advantech UNO-2052E is a X86-grade platform that offers dual CAN 2.0B interfaces, digital I/O and thermocouple input functions. Combined with CAN 2.0B interfaces, the UNO-2052E is an ideal solution for automobile and logistics applications. UNO-2052E comes with a built-in Microsoft Windows CE solution offering a pre-configured image with optimized on-board device drivers. Microsoft Windows CE is a compact, highly efficient, real-time operating system designed for embedded systems without mechanical HDD limitations.

To expand storage capability, the UNO-2052E allows the addition of an external 2.5" HDD using Advantech's UNO HDD expansion kit. It can be used for large data backup requirements and popular OS installations such as Microsoft Windows and Linux OS. Significant anti-vibration is maintained even with the mechanical HDD inside. (1 G)

UNO-2052E is the perfect embedded application-ready-platform to shorten development time and offer a rich networking interface to fulfill diverse application requirements.

Specifications

General

- Dimensions (W x D x H)** 188.8 x 106.5 x 35.5 mm (7.5" x 4.2" x 1.4")
- Enclosure** Aluminum
- Mounting** Wall, DIN 35 rail
- Power Consumption** 15 W (Typical)
- Power Input** 9 ~ 36 V_{DC} (e.g. +24 V @ 1 A) (Min. 24 W), AT
- Weight** 0.8 kg
- OS Support** Windows XP Embedded, Windows 2000 & XP, Windows CE 5.0, Linux

System Hardware

- CPU** AMD GX2 400 MHz
- Memory** 256 MB DDRAM
- Indicators** Power LED, IDE LED, one programmable diagnostic LED and buzzer
- Keyboard/Mouse** 1 x PS/2
- Storage** SSD: 1 x internal type I/II CompactFlash® slot
HDD: expansion kit for one standard 2.5" HDD (Option)
- VGA** DB15 connector
- Watchdog Timer** Programmable

Communications

- CAN** 2 x isolated CAN 2.0B interfaces
CAN controller: SJA-1000
CAN transceiver: 82C250
- Digital Inputs** 4 ch. 2,000 V_{DC} isolation, 2,000 V_{DC} ESD protection and 70 V_{DC} overvoltage protection
- 0 ~ 50 V_{DC} input range and 5 kHz speed
Digital input levels with dry contact:
Logic level 0: Close to GND, Logic level 1: Open
Digital input levels with wet contact:
Logic level 0: +2 V max, Logic level 1: +4 V ~ +50 V

- Digital Outputs** 4 ch. 2,000 V_{DC} isolation and 200 mA max / channel sink current. Keeps output status after system hot reset
5 ~ 30 V_{DC} output range and 5 kHz speed
Open collector to 30 V, 30 mA max. load
Power dissipation: 300 mW
- LAN** 1 x 10/100Base-T with RJ-45 port
- Serial Ports** 1 x standard RS-232
- Serial Port Speed** RS-232: 50 ~ 115.2 kbps
- Thermocouple Inputs** 2 ch. input type: Thermocouple: J/KTE type
Input range: ±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V, ±20 mV.
T/C types and temperature ranges:
J 0 ~ 760° C, K 0 ~ 1370° C
T -100 ~ 400° C, E 0 ~ 1000° C
- USB Ports** 1 x USB port, OpenHCI, Rev. 1.1 compliant

Environment

- Humidity** 95 % @ 40° C (non-condensing)
- Ingress Protection** IP40
- Operating Temperature** -10 ~ 55° (14 ~ 131° F)
- Shock Protection** IEC 68 2-27
CompactFlash® : 20 G @ DIN, half sine, 11 ms, 50 G @ Wall/Panel, half sine, 11 ms
- Vibration Protection** IEC 68 2-6
CompactFlash® : 2 Grms @ sine, 5 ~ 500 Hz, 1 Oct./min, 1hr/axis.
HDD: 1 Grms @ sine, 12~300 Hz, 1 Oct./min, 1hr/axis.

Ordering Information

- UNO-2052E-IDA0E** GX2 400 M, 256 MB RAM UNO-2052E

Accessories

- UNO-HD20-AE** UNO-2000 HDD expansion kit
- UNO-FPM21-AE** UNO & FPM integration kit
- UNO-ADAM42-AE** UNO-2000 & ADAM integration kit

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USB I/O

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Motion Control I/O

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Ethernet Switch

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EDG

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ICOM

UNO-2053E

AMD GX2 UNO w/2 x LAN, 2 x COM, Audio

NEW



Features

- Onboard GX2 400 MHz CPU
- Two standard RS-232 and one DB-15 VGA connector
- Two 10/100Base-T RJ-45 ports
- Two USB and one type I/II PC Card slots
- Audio with Mic in, Line in, Line out
- Windows® CE 5.0, Windows XP Embedded SP2, and Linux ready solution

Introduction

The Advantech UNO-2053E is a X86-grade platform that offers dual LAN, dual USB and PC card interfaces to fulfill user's diverse communication needs. In addition, it also offers two RS-232 communication ports on board. Therefore, the UNO-2053E is an ideal solution for data gateway applications. UNO-2053E comes with a Windows CE OS offering a pre-configured image with optimized onboard device drivers. Microsoft Windows CE is a compact, highly efficient, real-time operating system designed for embedded systems without mechanical HDD limitations.

To expand storage capability, the UNO-2053E allows the addition of an external 2.5" HDD using Advantech's UNO HDD expansion kit. It can be used for large data backup requirements and popular OS installations such as Microsoft Windows and Linux OS. Significant anti-vibration is maintained even with the mechanical HDD inside. (1 G)

UNO-2053E is a perfect embedded application-ready platform that can shorten your development time and offer a rich networking interface to fulfill diverse requirements.

Specifications

General

- **Dimensions (W x D x H)** 188.8 x 106.5 x 35.5 mm (7.5" x 4.2" x 1.4")
- **Enclosure** Aluminum
- **Mounting** Wall, DIN 35 rail
- **Power Consumption** 15 W (Typical)
- **Power Input** 9 ~ 36 V_{DC} (e.g. +24 V @ 1 A) (Min. 24 W), AT
- **Weight** 0.8 kg
- **OS Support** Windows XP Embedded, Windows 2000 & XP, Windows CE 5.0, Linux

System Hardware

- **CPU** AMD GX2 400 MHz
- **Memory** 256 MB DDRAM on board
- **Indicators** Power LED, IDE LED
- **Keyboard/Mouse** 1 x PS/2
- **Storage** SSD: 1 x internal type I/II CompactFlash® slot
HDD: expansion kit for one standard 2.5" HDD (Option)
- **VGA** DB15 connector
- **Audio** Mic in, Line in, Line out
- **Watchdog Timer** Programmable

Communications

- **LAN** 2 x 10/100Base-T RJ-45 ports
- **PC Card** 1 x PC Card slot
Supports CardBus (Card-32) Card and 16-bit (PCMCIA 2.1/JEIDA4.2) Card
Supports +5 V, +3.3 V and +12 V @ 120 mA working power

- **Serial Ports** 2 x standard RS-232
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps
- **USB Ports** 2 x USB ports, USB OpenHCI, Rev. 1.1 compliant

Environment

- **Humidity** 95 % @ 40°C (non-condensing)
- **Ingress Protection** IP40
- **Operating Temperature** -10 ~55° C (14 ~ 131° F)
- **Shock Protection** IEC 68 2-27
CompactFlash®: 20 G@DIN, half sine, 11 ms,
50 G @ Wall/Panel, half sine, 11 ms
- **Vibration Protection** IEC 68 2-6
CompactFlash: 2 Grms @ sine, 5 ~ 500 Hz,
10 ct./min, 1hr/axis
HDD: 1 Grms @ sine, 12 ~ 300 Hz, 10 ct./min,
1hr/axis

Ordering Information

- **UNO-2053E-IDA0E** GX2 400 M, 256 MB RAM UNO-2053E

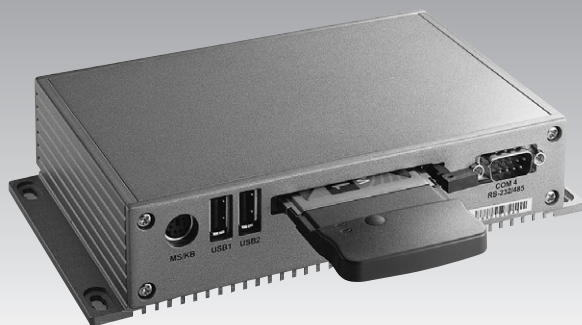
Accessories

- **UNO-HD20-AE** UNO-2000 HDD expansion kit
- **UNO-FPM21-AE** UNO & FPM integration kit
- **UNO-ADAM42-AE** UNO-2000 & ADAM integration kit

UNO-2059E

AMD GX2 UNO w/4 x COM, LAN, PC Card

NEW



Features

- Onboard GX2 400 MHz
- 2 x RS-232/485, 2 x RS-232/422/485 with automatic flow control
- 1 x 10/100Base-T RJ-45 port
- 2 x USB ports and 1 x type I/II PC Card
- One programmable diagnostic LED and buzzer
- Windows® CE 5.0, Windows XP Embedded SP2, and Linux ready solution

Introduction

Advantech's UNO-2059E is an X86-grade platform that offers USB and PC card interfaces to fulfill I/O device expansion needs. In addition, it also offers two RS-232/485 and two RS-232/422/485 communication ports with automatic flow control functionality. The UNO-2059E is an ideal compact solution for large computing and communication requirements.

UNO-2059E comes with a Windows CE OS offering a pre-configured image with optimized onboard device drivers. Microsoft Windows CE is a compact, highly efficient, real-time operating system designed for embedded systems without mechanical HDD limitations. To expand storage capability, the UNO-2059E allows the addition of an external 2.5" HDD using Advantech's UNO HDD expansion kit. It can be used for large data backup requirements and popular OS installations such as Microsoft Windows and Linux OS. Significant anti-vibration (1G w/HDD) is maintained even with the mechanical HDD inside.

Specifications

General

- Dimensions (W x D x H)** 188.8 x 106.5 x 35.5 mm (7.5" x 4.2" x 1.4")
- Enclosure** Aluminum
- Mounting** Wall, DIN 35 rail
- Power Consumption** 15 W (typical)
- Power Input** 10 ~ 48 V_{DC} (e.g. +24 V @ 1 A) (Min. 24 W), AT
- Weight** 0.8 kg
- OS Support** Windows XP Embedded, Windows 2000 & XP, Windows CE 5.0, Linux

System Hardware

- CPU** AMD GX2 400 MHz
- Memory** 256 MB DDRAM on board
- Indicators** Power LED, IDE LED, one programmable diagnostic LED and buzzer
- Keyboard/Mouse** 1 x PS/2
- Storage** SSD: 1 x internal type I/II CompactFlash® slot
HDD: expansion kit for one standard 2.5" HDD (Option)
- VGA** DB15 connector
- Watchdog Timer** Programmable

Communications

- Serial Ports** 2xRS-232/485, 2xRS-232/422/485
- Automatic RS-485 data flow control
- RS-422/485 surge protection up to 2,000 V_{DC}
- Serial Port Speed** RS-232: 50 ~ 230.4 kbps;
RS-422/485: 50 ~ 921.6 kbps (Max.)
- USB Ports** 2 x USB ports, OpenHCI, Rev. 1.1 compliant
- LAN** 1 x 10/100Base-T RJ-45 port

PC Card

- 1 x PC card slot
- Supports CardBus (Card-32) Card and 16-bit (PCMCIA 2.1/JEIDA4.2) Card
- Supports +5 V, +3.3 V and 12 V @ 120 mA Power

Environment

- Humidity** 95 % @ 40° C (non-condensing)
- Ingress Protection** IP40
- Operating Temperature** -10 ~ 55° C (14 ~ 131° F)
- Shock Protection** IEC 68 2-27
CompactFlash®: 20 G @ DIN, half sine, 11 ms, 50 G @ Wall/Panel, half sine, 11 ms
- Vibration Protection** IEC 68 2-6
CompactFlash®: 2 Grms @ sine, 5 ~ 500 Hz, 1 Oct./min, 1hr/axis.
HDD: 1 Grms @ sine, 12 ~ 300 Hz, 1 Oct./min, 1 hr/axis.

Ordering Information

- UNO-2059E-IDA0E** GX2 400 M, 256 MB RAM UNO-2059E

Accessories

- UNO-HD20-AE** UNO-200 HDD expansion kit
- UNO-FPM21-AE** UNO & FPM integration kit
- UNO-ADAM42-AE** UNO-2000 & ADAM integration kit

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ICOM

UNO-1019

Intel® XScale® UNO w/2 x LAN,
4 x COM, CF Card

NEW



CE FCC

Features

- Intel® XScale® PXA-255 200 MHz Processor
- 64 MB SDRAM on board, 16 MB Flash
- 2 x RS-232, 2 x RS-232/422/485 Serial Ports
- Dual 10/100 Mbps Ethernet
- 1 x CompactFlash®
- Windows® CE.NET Ready Platform
- Included Remote Display for Easy Configuration
- DIN-rail and Wallmounting Options

Introduction

Advantech's UNO-1019 is a RISC-grade embedded platform that offers 2 LANs, 4 serial ports and 4 Digital Inputs/Outputs and a CompactFlash card. UNO-1019 also comes with Windows CE.NET OS, offering a pre-built image onboard. Additionally, UNO-1019 operates under 0 ~ 70°C, and its small size and lightweight design allows it to be installed in tight industrial environments. UNO-1019 is an excellent communication gateway for converting communication protocols, I/O control, and data storage in the industrial field.

Specifications

General

- **Certifications** CE, FCC Class A
- **Dimensions (W x H x D)** 46 x 162 x 126 mm (1.8" x 6.4" x 5")
- **Enclosure** ABS+PC with solid mounting hardware
- **Mounting** DIN-rail, wallmount
- **Power Consumption** 8.5 W
- **Power Input** 10 ~ 30 V_{DC} (13 W), AT
- **Weight** 400 g

System Hardware

- **CPU** 32-bit Intel XScale PXA255 200 MHz
- **Memory** 64 MB SDRAM
- **Indicators** Power, Serial (Tx, Rx), 3 x User Defined LEDs
- **Storage** Onboard 16 MB Flash Memory
- **Other** Realtime clock, Watchdog timer

System Software

- **Operating System** Windows CE.NET 4.2 (Pre-installed on flash)
- **Remote Display** Scope Remote Display

Communications

- **Serial Ports** 2 x RS-232, 2 x RS-232/422/485 with DB9 connectors, Automatic RS-485 data flow control
- **Serial Port Speed** RS-232: 300 ~ 115.2 kbps
RS-422/485: 300 ~ 115.2 kbps
- **LAN** 2 x 10/100 Base-T RJ-45 ports

Digital Input/Digital Output

- **Digital Inputs** 2 x Digital Inputs
Dry contact
Logic level 0 : Open
Logic level 1 : Close
Wet contact
Logic level 0 : +3 V max
Logic level 1 : +10 V_{DC} to 30 V_{DC}
- **Digital Outputs** 2 x Digital Outputs
Open Collect to 30 V
200 mA max Load, power dissipation 450 mW

Environment

- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)
- **Storage Temperature** -20 ~ 80° C (-4 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)

Ordering Information

- **UNO-1019ACE-A1E** Intel XScale UNO w/2 x LAN, 4 x COM, CF Card, Windows CE .NET 4.2

Accessories



UNO-FPM21

UNO & FPM integration kit

UNO-FPM21 could provide excellent integration of UNO and FPM models which could help installation easier and save more space in filed.

Features

- Powerful and flexible computing
- Remote Display
- Dimensions: 271 x 163 x 12 mm (W x H x D)

Supported Model List

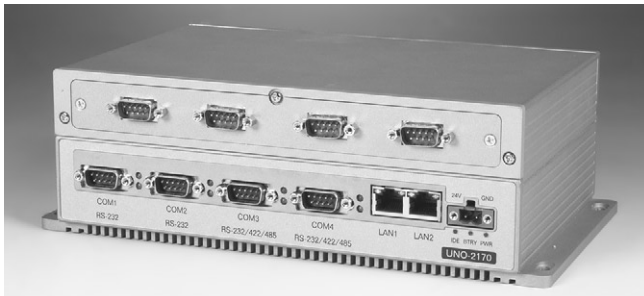
- **UNO model** All UNO-205XE series and UNO-21XX series
- **FPM model** All FPM 12", 15", 17", 19" model

Ordering Information

- **UNO-FPM21-AE** UNO&FPM integration kit

UNO-PCM

UNO-2100 series PC/104 expansion kit



- Dimensions: 228 x 32 x 152 mm (W x H x D)

Supported Model List

- **UNO-2160, UNO-2170**
This kit include a solid panel, 2*DB9 panel and 4*DB9 panel

Ordering Information

- **UNO-PCM21-AE** UNO-2160 and UNO-2170 series 2 x PC/104 expansion kit



- Dimensions: 228 x 32 x 152 mm (W x H x D)

Supported Model List

- **UNO-2171, UNO-2172, UNO-2176, UNO-2182**
This kit include a solid panel, 2*DB9 panel and 4*DB9 panel

Ordering Information

- **UNO-PCM22-AE** 2 x PC/104 expansion kit

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Accessories & Dimensions



UNO-ADAM42

UNO-2000 & ADAM integration kit

UNO-ADAM42 could provide good integration for UNO-2000 series and 2 pieces ADAM-4000 series, which could save installation space and add UNO's IO interface flexibility.

Features

- Versatile and Rich I/O interface
- Flexible solution
- Dimensions: 164 x 35 x 106 (W x H x D)

Supported Models

- **UNO** UNO-2050E, UNO-2052E, UNO-2053E, UNO-2059E
- **ADAM** ADAM-4017(+), ADAM-4018(+), ADAM-4050, ADAM-4052, ADAM-4053, ADAM-4060, ADAM-4080, ADAM-4117, ADAM-4118

To request information about integration with other ADAM models, please contact your local Advantech sales rep.

Packing List

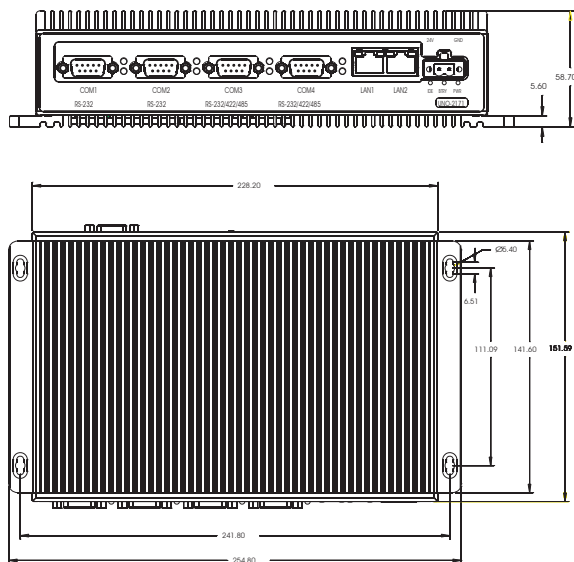
- Extend Chassis, 2PCS female DB9 to 2pins 35cm cable

Ordering Information

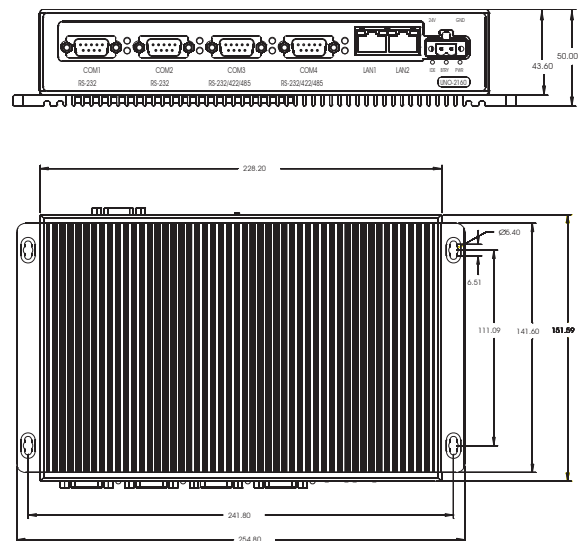
- **UNO-ADAM42-AE** UNO-2000 & ADAM integration kit

Dimensions

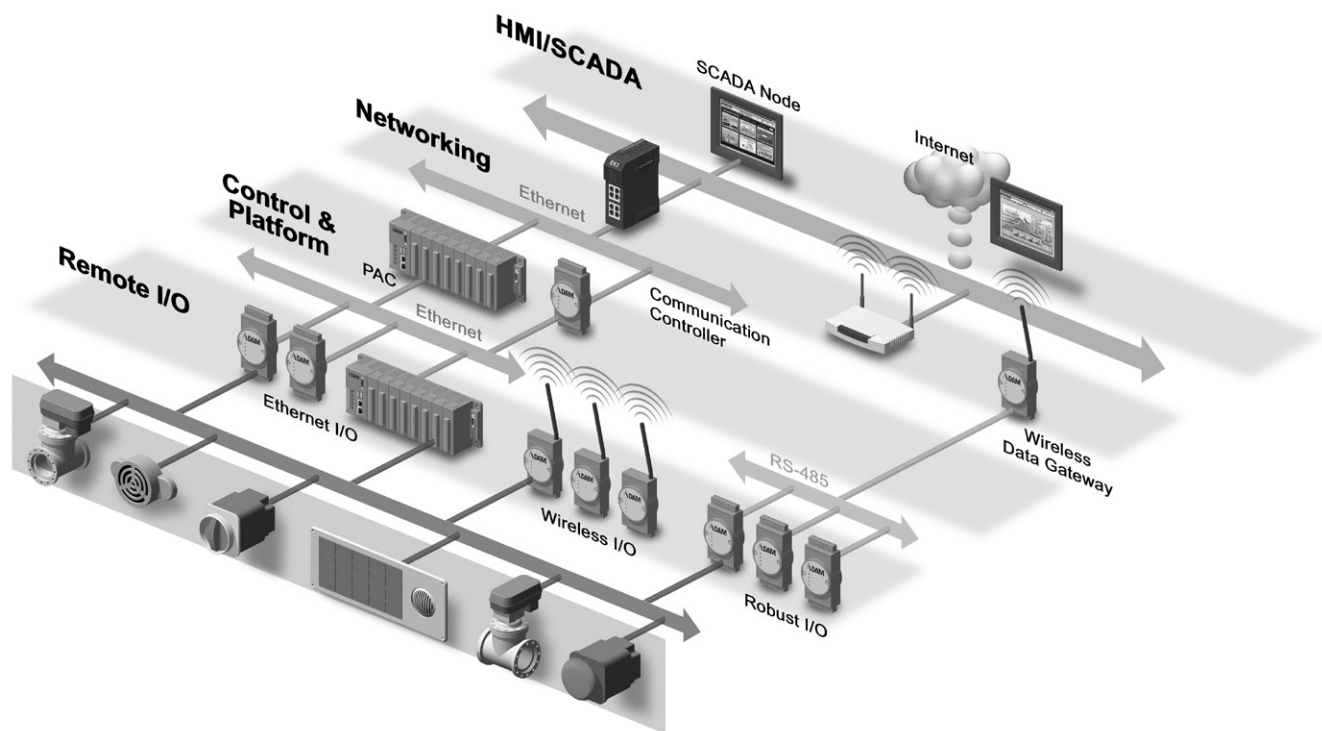
UNO-2171, UNO-2176



UNO-2160, UNO-2170



Streamline Your Automation System with M2M Technology



Boundless Integration with the ADAM Remote I/O Series

In order to meet the integration requirements of Environmental Monitoring Systems and Facility Management Systems, the ADAM Remote I/O Series offers a diversified product range, powerful networking and communication capabilities, rich analog measurements with noise immunity and wide operating temperature. The EFMS Solution Architecture is shown above, and the following is a product outline of the ADAM Remote I/O Series.

Programmable Communication Controllers

ADAM-4500 Series are designed with a 10/100 Mbps Ethernet port. The Ethernet-enabled features include a built-in HTTP Server, FTP Server, FTP Client function, Email Alarm function and TCP/UDP connection functions. The HTTP Server will let authorized users to monitor ADAM-4500 Series I/O status by Internet Explorer via Internet. The FTP Server and Client can be used for remote maintenance. The Email Alarm function of ADAM-4500 Series can send email to pre-defined users for alarm message. All features are very easy to use and ready-to-use sample programs are available.

ADAM-6500 Series are fully functional Ethernet-enabled controllers for industrial automation and control. It provides an ideal environment to develop applications converting RS-232/485 devices/equipment data to the Ethernet/Internet world with minimum effort. Their built-in Windows CE.NET operating system lets users run new programs produced in Microsoft embedded VC++. The Windows environment also includes a web server to allow the designer to develop web-enabled applications.

Wireless LAN I/O

ADAM-6000W Series brings wireless LAN communication to your network. The hardware design of the modules is based on ADAM-6000 Series but the wireless LAN interface has replaced the RJ-45 Ethernet port. With support for the common IEEE802.11b, these modules can be accessed on your wireless LAN without any hardwiring. It is the best choice for environments with wiring limitations, or expensive wiring requirements.

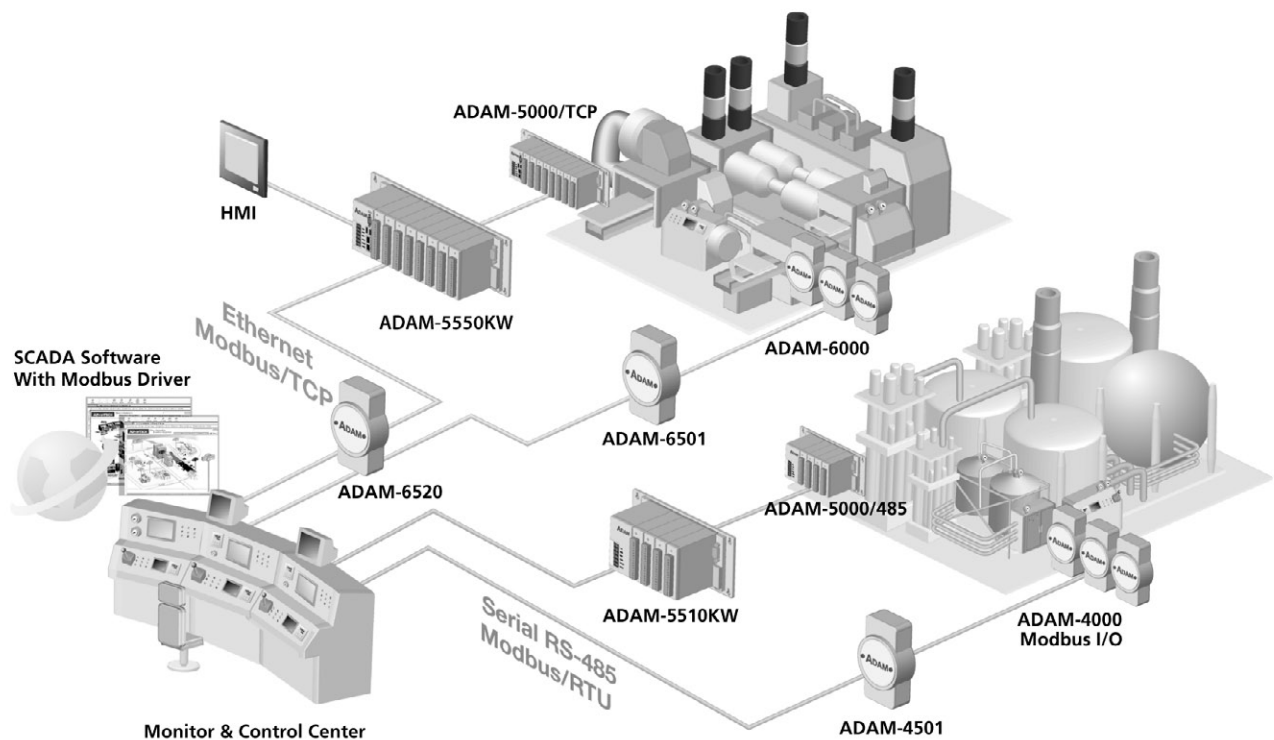
RS-485 I/O

The ADAM-4000 series modules are compact, versatile sensor-to-computer interface units designed specifically for reliable operation in harsh environments. Their built-in microprocessors, encased in rugged industrial grade plastic, independently provide intelligent signal conditioning, analog I/O, digital I/O, LED data display and RS-485 communication.

ADAM-4100 series is designed to endure more critical environments than the earlier ADAM-4000 series. This makes them suitable for more widespread applications. ADAM-4100 series supports a broad operating temperature range of -40 to +85° C. Higher Noise Immunity In order to prevent noise from affecting your system, the ADAM-4100 series has been designed with more protection to counteract these effects.

Ethernet I/O

The ADAM-6000 series Ethernet-enabled data acquisition and control module works as an Ethernet I/O data processing center. This product line is not only a standard I/O, but also an intelligent system designed with local control functions and a Modbus/TCP standard for users to easily develop various applications over Ethernet. Their powerful onboard intelligence makes it well suited to SCADA and stand-alone control applications.



Software Support for the ADAM Remote I/O Series

Modbus Protocol

Since Modbus is one of the most popular communication standards at the world, Advantech has applied it as the major communication protocol for ADAM Remote I/O Series. The Remote I/O Series supports the Modbus/RTU for RS-485 I/O and Modbus/TCP for Ethernet I/O. Featuring the Modbus support capacity, the ADAM Remote I/O Series becomes universal remote I/O modules, which work with any Modbus system. The HMI server or controller can read/write data via standard Modbus commands instead of ADAM ASCII codes.

ADAM.NET Class Library

ADAM.NET Class Library is designed for Remote I/O series modules. The supported operating systems include Windows 98/XP/2000, Windows CE, and Windows Mobile. Therefore, it can be used on various platforms including IPC and PDA. The example programs are ready for C# and VB.NET. If graphic controls are needed in the application, there is also an advanced version of ADAM.NET Class Library which is bundled with 8 graphic controls.

RS-485 I/O Modules: ADAM-4000

ADAM-4000 Series Overview

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Robust Communication & I/O Modules

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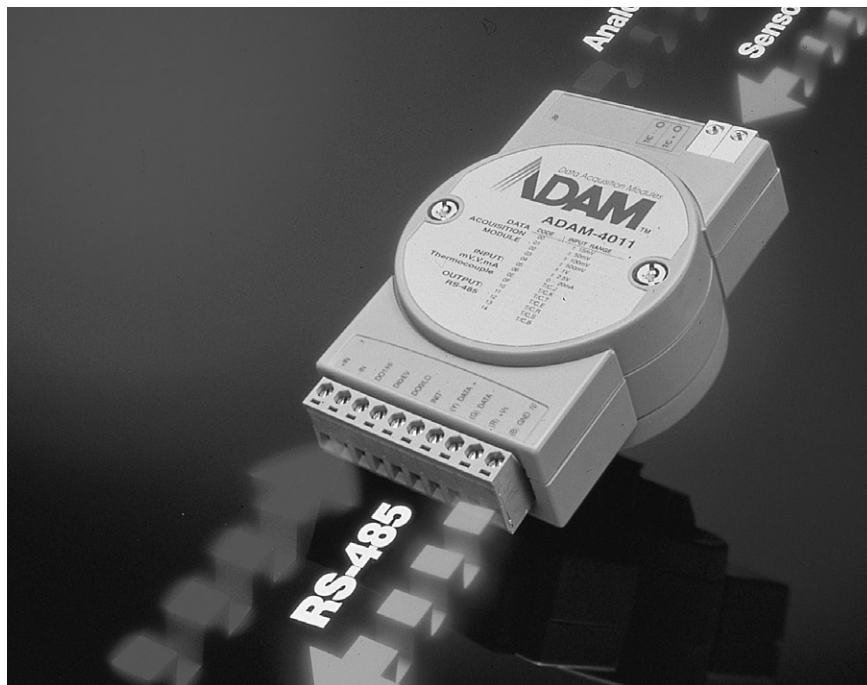
Counter/Frequency Modules

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Accessories

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ADAM-4000 Series



Applications

- Remote data acquisition
- Process monitoring
- Industrial process control
- Energy management
- Supervisory control
- Security systems
- Laboratory automation
- Building automation
- Product testing
- Direct digital control
- Relay control

Introduction

The ADAM-4000 series modules are compact, versatile sensor-to-computer interface units designed specifically for reliable operation in harsh environments. Their built-in microprocessors, encased in rugged industrial grade plastic, independently provide intelligent signal conditioning, analog I/O, digital I/O, data display and RS-485 communication. The ADAM-4000 series can be categorized into three groups: controllers, communication modules, and I/O modules.



General Features

RS-485

The ADAM-4000 series of modules use the EIA RS-485 communication protocol, the industry's most widely used bi-directional, balanced transmission line standard. The EIA RS-485 was specifically developed for industrial applications. It lets ADAM-4000 modules transmit and receive data at high rates over long distances. All modules use optical isolators to prevent ground loop problems and reduce damages caused by power surges.

Modbus Communication Protocol

Since Modbus is one of the most popular communication standards in the world, Advantech has applied it as the major communication protocol for eAutomation product development. The new-generation ADAM-4000 modules now also support the Modbus/RTU protocol as the remote data transmission mechanism. Featuring the Modbus-support capacity, the new ADAM-4000 series becomes universal remote I/O modules, which work with any Modbus systems. The HMI server or controller can read/write data via standard Modbus command instead of complex ASCII code.

Watchdog Timer

A watchdog timer supervisory function will automatically reset the ADAM-4000 series modules if required, which reduces the need for maintenance. It also provides great reliability to the system.

Flexible Networking

ADAM-4000 series modules need just two wires to communicate with their controlling host computer over a multidrop RS-485 network. Their ASCII-based command/response protocol ensures compatibility with virtually any computer system.

Modular Industrial Design

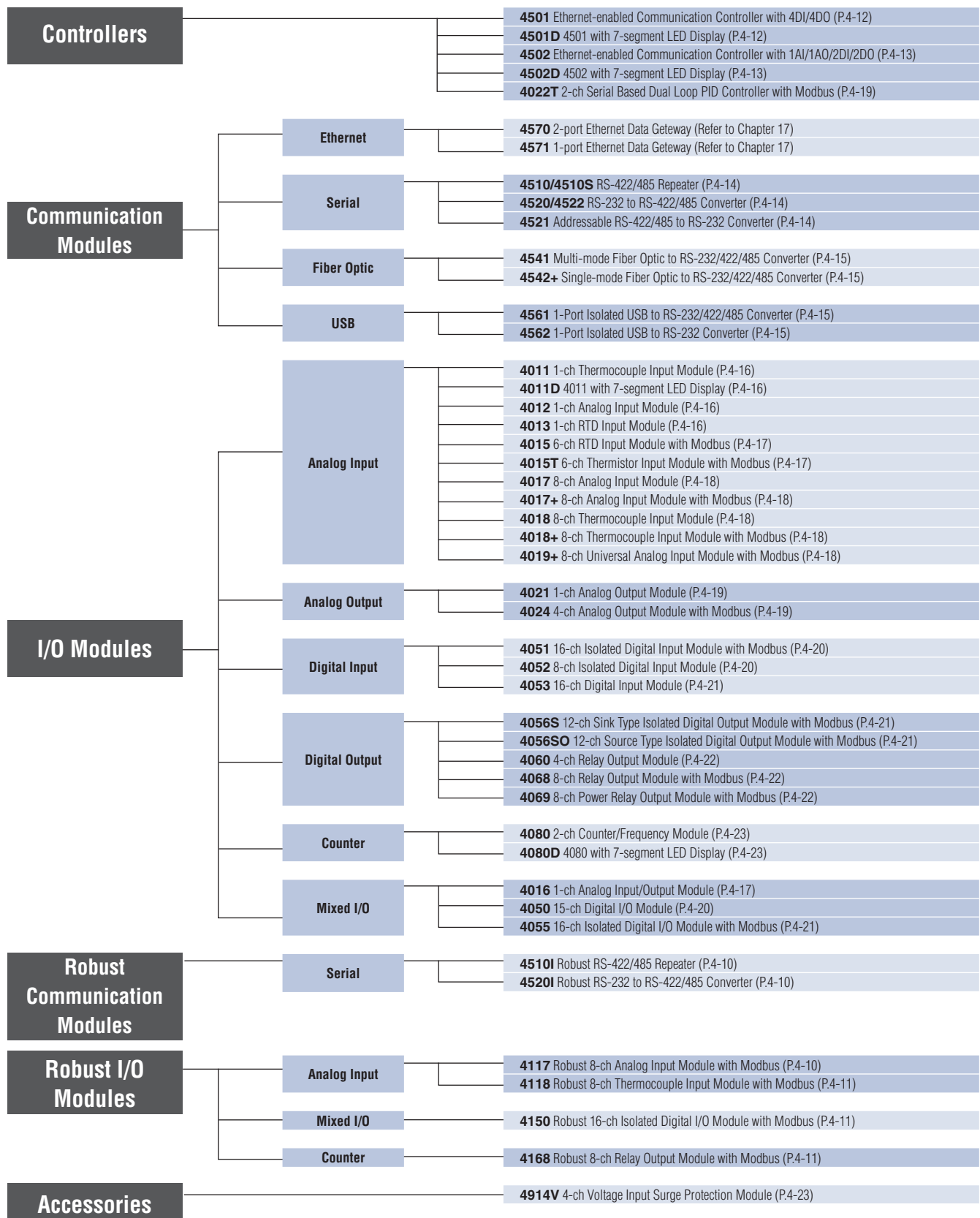
You can easily mount modules on a DIN-rail, a panel or modules can piggyback on top of each other. You make signal connections through plug-in screw-terminal blocks, ensuring simple installation, modification and maintenance.

Controller Features

Alternative Standalone Control Solution

A standalone control solution is made possible when the ADAM-4000 series modules are controlled by the ADAM-4501 or ADAM-4502 PC-based communication controller (refer to Page 4-12 and 4-13). The ADAM-4501 and ADAM-4502 allow users to download an application (written in a high-level programming language) into its Flash ROM. This allows customization for your applications.

Modules Selection Chart



Communication and Controller Modules Selection Guide

	Controllers			Repeaters		Converters & Data Gateways			
Module	ADAM-4501 ADAM-4501D	ADAM-4502 ADAM-4502D	ADAM-4022T	ADAM-4510 ADAM-4510S	ADAM-4520 ADAM-4522	ADAM-4521	ADAM-4541 ADAM-4542+	ADAM-4561 ADAM-4562	ADAM-4570 ADAM-4571
Network	Ethernet, RS-232, RS-485		RS-485	RS-422 RS-485	RS-232 to RS-422/485		Fiber Optic to RS-232/422/485	USB to RS-232/485/422	Ethernet to RS-232/422/485
Comm. Protocol	Modbus/RTU, Modbus/TCP TCP/IP, UDP, ICMP, ARP, DHCP		ASCII Command/ Modbus	-					
Comm. Speed (bps)	Ethernet: 10/100M Serial: From 1200 to 115.2 kbps		Serial: From 1200 to 115.2 k						Ethernet: 10/100 M Serial: up to 230.4 k
Comm. Distance	Ethernet: 100 m Serial: 1.2 Km		Serial: 1.2 km	Serial: 1.2 km	Serial: 1.2 km	Serial: 1.2 km	ADAM-4541: 2.5 km ADAM-4542: 15 km	Serial: 1.2 km	LAN: 100 m Serial: 1.2 km
Interface Connectors	Ethernet: RJ-45 RS-485: plug-in screw terminal RS-232: RJ-48		RS-485: plug-in screw terminal	RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232/422/485: plug-in screw terminal Fiber: ADAM-4541: ST connector ADAM-4542: SC connector	USB: type A client connector Serial: ADAM-4561: plug-in screw terminal (RS-232/422/485) ADAM-4562: DB9 (RS-232)	Ethernet: RJ-45 RS-232/422/485: RJ-48
LED Indicators	Communication & Power		Power	Communication and Power					Network: Tx/Rx Link, Speed, Power
Data Flow Control	Yes		Yes	-	-	Yes	-	Yes	Yes
Watchdog Timer	Yes		Yes	-	-	Yes	-	Yes	Yes
Isolation Voltage	-	1000 V _{DC}	3000 V _{DC}	3000 V _{DC} (ADAM-4510S)	3000 V _{DC} (ADAM-4520)	1000 V _{DC}	-	ADAM-4561: 3000 V _{DC} ADAM-4562: 2500 V _{DC}	-
Special Features	Email function Built-in HTTP and FTP Server		PID Control	-	-	-	-	-	-
Built-in I/O	4DI/4DO	1AI/1AO/2DI/2DO	-	-	-	-	-	-	-
Power Requirement	+10 ~ +30 V _{DC}								
Operating Temperature	-10 ~ 70° C		-10 ~ 50° C	-10 ~ 70° C					0 ~ 60° C
Humidity	5 ~ 95% RH								20 ~ 95% RH
Power Consumption	4 W @ 24 V _{DC}			1.4 W @ 24 V _{DC}	1.2 W @ 24 V _{DC}	1 W @ 24 V _{DC}	1.5 W @ 24 V _{DC}	ADAM-4561: 1.5 W @ 5 V _{DC} ADAM-4562: 1.1 W @ 5 V _{DC}	4 W @ 24 V _{DC}
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I/O Modules Selection Guide

Analog Input

Module		ADAM-4011/ ADAM-4011D	ADAM-4012	ADAM-4013	ADAM-4015 ADAM-4015T	ADAM-4016	ADAM-4017	ADAM-4017+	ADAM-4018	ADAM-4018+	ADAM-4019+
Resolution		16 bit									
Analog Input	Input Channels	1 differential			6 differential	1 differential	6 differential, 2 single-ended	8 differential	6 differential, 2 single-ended	8 differential	8 differential
	Sampling Rate	10 Hz			10 Hz (total)						
	Voltage Input	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	±150 mV ±500 mV ±1 V ±5 V ±10 V	-	-	±15 mV ±50 mV ±100 mV ±500 mV	±150 mV ±500 mV ±1 V ±5 V ±10 V	±150 mV ±500 mV ±1 V ±5 V ±10 V	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	-	±100 mV ±500 mV ±1 V ±2.5 V ±5 V ±10 V
	Current Input	±20 mA	±20 mA	-	-	±20 mA	±20 mA	4~20 mA, ±20 mA	±20 mA	4~20 mA, ±20 mA	4 ~ 20 mA ± 20 mA
	Direct Sensor Input	J, K, T, E, R, S, B Thermocouple	-	RTD	ADAM-4015: RTD ADAM-4015T: Thermistor	-	-	-	J, K, T, E, R, S, B Thermocouple	J, K, T, E, R, S, B Thermocouple	J, K, T, E, R, S, B Thermocouple
	Burn-out Detection	Yes	-	-	Yes	-	-	-	-	Yes	Yes (4~20 mA & All T/C)
	Channel Independent Configuration	-	-	-	Yes	-	-	Yes	-	Yes	Yes
		-	-	-	-	-	-	-	-	-	-
Analog Output	Output Channels	-	-	-	-	1	-	-	-	-	-
	Voltage Output	-	-	-	-	0 - 10 V	-	-	-	-	-
	Current Output	-	-	-	-	30 mA	-	-	-	-	-
Digital Input and Output	Digital Input Channels	1	1	-	-	-	-	-	-	-	-
	Digital Output Channels	2	2	-	-	4	-	-	-	-	-
	Alarm Settings	Yes	Yes	-	-	-	-	-	-	-	-
Counter (32-bit)	Channels	-	-	-	-	-	-	-	-	-	-
	Input Frequency	-	-	-	-	-	-	-	-	-	-
Isolation		3000 V _{DC}									
Digital LED Indicator		Yes (4011D)	-								
Watchdog Timer		Yes (System)	Yes (System)	Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)
Safety Setting		-									
Modbus Support *		-	-	-	Yes	-	-	Yes	-	Yes	Yes
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*: All ADAM-4000 I/O Modules support ASCII Commands

Analog Output		Digital Input/Output						Relay Output			Counter
ADAM-4021	ADAM-4024	ADAM-4050	ADAM-4051	ADAM-4052	ADAM-4053	ADAM-4055	ADAM-4056S/ ADAM-4056SO	ADAM-4060	ADAM-4068	ADAM-4069	ADAM-4080/ ADAM-4080D
12 bit	12 bit	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
1	4	-	-	-	-	-	-	-	-	-	-
0 ~ 10 V	±10 V	-	-	-	-	-	-	-	-	-	-
0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA	-	-	-	-	-	-	-	-	-	-
-	4	7	16	8	16	8	-	-	-	-	-
-	-	8	-	-	-	8	ADAM-4056S: 12 (Sink) ADAM-4056SO: 12 (Source)	4-ch relay	8-ch relay	8-ch power relay	2
-	Yes	-	-	-	-	-	-	-	-	-	Yes
-	-	-	-	-	-	-	-	-	-	-	2
-	-	-	-	-	-	-	-	-	-	-	50 kHz
3,000 V _{DC}	3,000 V _{DC}	-	2,500 V _{DC}	5,000 V _{RMS}	-	2,500 V _{DC}	5000 V _{DC}	-	-	-	2,500 V _{RMS}
-	-	-	Yes	-	-	Yes	Yes	-	-	-	Yes (4080D)
Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)	Yes (System)
-	Yes	-	-	-	-	Yes	Yes	Yes	Yes	Yes	-
-	Yes	-	Yes	-	-	Yes	Yes	-	Yes	Yes	-
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ADAM-4000 Robust Family

Robust RS-485 Modules Overview



Introduction

The ADAM-4000 robust family includes the ADAM-4100 series modules, ADAM-4510I and ADAM-4520I modules. The ADAM-4100 series modules are compact, versatile sensor-to-computer interface units designed for reliable operation in harsh environments. Their built-in microprocessors, encased in rugged industrial-grade ABS+PC plastic, independently provide intelligent signal conditioning, analog I/O, digital I/O, LED data display, and an address mode with an user-friendly design for convenient address reading. The ADAM-4510I and ADAM-4520I modules are robust industrial-grade communication modules.

The ADAM-4000 robust family is designed to endure more severe and adverse environments. The operating temperature is $-40 \sim 85^{\circ}\text{C}$ which makes them suitable for more widespread applications.

Designed for Severe Industrial Environments

Broader Operating Temperature Range

The ADAM-4000 robust family supports a broad operating temperature range of -40 to $+85^{\circ}\text{C}$.

Higher Noise Immunity

In order to prevent noise from affecting your system, the ADAM-4000 robust family has been designed with more protection to counteract these effects. New standard features include: 1 kV surge protection on power inputs, 3 kV EFT, and 8 kV ESD protection.

Broader Power Input Range

The ADAM-4000 robust family accepts any unregulated power source between $+10$ and $+48\text{ V}_{\text{DC}}$. In addition, they are also protected against accidental power reversals, and can be safely connected or disconnected without disturbing a running network.

New Features for I/O Modules

- **ADAM-4117/4118**
 1. Supports 200 V_{DC} High Common Mode voltage
 2. Software Filter
 3. Support Auto Optimized Working Frequency
 4. Auto noise rejection at 50/60 Hz
 5. Higher over voltage protection $\pm 60\text{ V}_{\text{DC}}$
 6. Optional Sampling Rate 10 or 100 samples/sec
 7. Supports unipolar and bipolar input (ADAM-4117 only)
 8. Support $\pm 15\text{V}$ input range (ADAM-4117 only)

- **ADAM-4150**

1. Over current and temperature protection circuit
2. DI channels support counter (32-bit, overflow flag) and frequency type signal input
3. DO channels support pulse (1 kHz) and delay (high-to-low and low-to-high) type signal output.
4. Support invert DI status

- **ADAM-4168**

1. Support 1 kHz pulse output.

ADAM-4100 Module with LED Display

The ADAM-4100 series modules have a LED display that lets you monitor the channel status. Using ADAM-4117/4118, the LED will be lit when related channel is active. Using ADAM-4150/4168, the LED will be lit when related channel value is high. The ADAM-4100 series modules have two operating modes (initial and normal), unlike the old module using extra wiring, ADAM-4100 modules can use the switch on the case to set "initial" mode or "normal" mode. It is very convenient for the user to configure. When you set to "initial" mode, the LED display can represent the node address of that module. Besides, when you use multiple ADAM-4100 series modules, you can locate the module through ADAM utility and LED display. All of these functions are very helpful to diagnose the ADAM-4100 series system.

Online Firmware Update

The ADAM-4100 series modules have a friendly and convenient design where firmware can be updated through a local network or the Internet. You can easily update latest firmware using utility on host PC. This saves time and ensures that the module always runs with the latest functional enhancements.

Legacy Communication Protocol Support

To satisfy both the current ADAM users, and Modbus users, The ADAM-4100 series modules support both the ADAM (ASCII) protocol and the Modbus/RTU protocol. You can select the communication mode you want through the Windows Utility Software. The Modbus protocol not only supports the original data format (N, 8, 1) for (parity check, data bit, stop check) but also accepts (N, 8, 1) (N, 8, 2) (E, 8, 1) (O, 8, 1).

Robust RS-485 I/O Modules

Selection Guide

Module		ADAM-4117	ADAM-4118	ADAM-4150	ADAM-4168
Resolution		16 bit		-	-
Analog Input	Input Channels	8 differential		-	-
	Sampling Rate	10/100 Hz (total)		-	-
	Voltage Input	0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V, 0 ~ 15 V, ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±15V	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5V	-	-
	Current Input	0 ~ 20 mA, ±20 mA, 4 ~ 20 mA	±20 mA, 4 ~ 20 mA	-	-
	Direct Sensor Input	-	J, K, T, E, R, S, B Thermocouple	-	-
	Burn-out Detection	Yes (mA)	Yes (mA and All T/C)	-	-
	Channel Independent Configuration	Yes		-	-
Digital Input and Output	Digital Input Channels	-	-	7	-
	Digital Output Channels	-	-	8	8-ch relay
Counter	Channels	-	-	7	-
	Input Frequency	-	-	3 kHz	-
Isolation Voltage		3000 V _{DC}			
Digital LED Indicator		Communication and Power			
Watchdog Timer		Yes (System & Communication)			
Safety Setting		-		Yes	
Communication Protocol		ASCII Command/Modbus			
Power Requirement		10 ~ 48 V _{DC}			
Operating Temperature		-40 ~ 85° C			
Storage Temperature		-40 ~ 85° C			
Humidity		5 ~ 95% RH			
Power Consumption		1.2 W @ 24 V _{DC}	0.5 W @ 24 V _{DC}	0.7 W @ 24 V _{DC}	1.8 W @ 24 V _{DC}
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Module		ADAM-4510I	ADAM-4520I
Network		RS-422/485	RS-232 to RS-422/485
Communication Speed (bps)		From 1200 to 115.2k	
Communication Distance		Serial: 1.2 km	
Interface Connectors		RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal
Digital LED Indicators		Communication and Power	
Auto Data Flow Control		Yes	
Isolation Voltage		3000 V _{DC}	
Power Requirement		10 ~ 48 V _{DC}	
Operating Temperature		-40 ~ 85° C	
Storage Temperature		-40 ~ 85° C	
Humidity		5 ~ 95%	
Power Consumption		1.4 W @ 24 V _{DC}	1.2 W @ 24 V _{DC}
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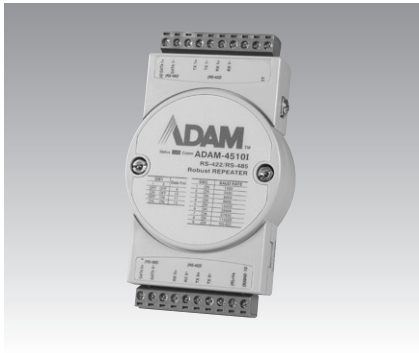
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ADAM-4510I ADAM-4520I ADAM-4117

Robust RS-422/485 Repeater

Robust RS-232 to RS-422/485 Converter

Robust 8-ch Analog Input Module with Modbus®



ADAM-4510I



ADAM-4520I



ADAM-4117



Specifications

General

- **Connectors** 2 x Plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 1.4 W @ 24 V_{DC}

Communications

- **Input** RS-485 (2-wire) or RS-422 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire).
- **Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422. (switchable)
- **Support Auto Baud-Rate**
- **Provide RS-485 to RS-422 Convert Ability**

Specifications

General

- **Connectors** 1 x Plug-in terminal block (#14 ~ 22 AWG) (RS-422/485)
1 x DB9-F (RS-232)
- **Power Consumption** 1.2 W @ 24 V_{DC}

Communications

- **Input** RS-232 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire).
- **Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422. (switchable)
- **Support Auto Baud-Rate**

Specifications

General

- **Connectors** 2 x Plug-in terminal block (#14 ~ 22 AWG)
- **Watchdog Timer** System (1.6 second) & Communication
- **Support Protocol** ASCII Command and Modbus/RTU
- **Power Consumption** 1.2 W @ 24 V_{DC}

Analog Input

- **Channels** 8 differential and independent configuration channels
- **Input Impedance** Voltage: 20 MΩ
Current: 120 Ω
- **Input Type** mV, V (supports uni-polar and bipolar), mA
- **Input Range** 0 ~ 150mV, 0 ~ 500mV, 0 ~ 1V, 0 ~ 5V, 0 ~ 10V, 0 ~ 15V, ±150 mV, ±500 mV, ±1V, ±5 V, ±10 V, ±15V, ±20 mA, 0 ~ 20 mA, 4 ~ 20mA
- **Accuracy** Voltage mode : ±0.1% or better
Current mode : ±0.2% or better
- **Resolution** 16 bits
- **Sampling Rate** 10/100 samples/sec (selected by Utility)
- **CMR @ 50/60 Hz** 92 dB
- **NMR @ 50/60 Hz** 60 dB
- **Over Voltage Protection** ±60 V_{DC}
- **High Common Mode** 200 V_{DC}
- **Span Drift** ±25 ppm/° C
- **Zero Drift** ±6μV/° C
- **Built-in TVS/ESD Protection**

Common Specifications

General

- **Power Input** Unregulated 10 ~ 48 V_{DC} w/power reversal protection
- **Isolation Voltage** 3000 V_{DC}

Environment

- **Humidity** 5 ~ 95% RH
- **Operating Temperature** -40 ~ 85° C (-40 ~ 185° F)
- **Storage Temperature** -40 ~ 85° C (-40 ~ 185° F)

Ordering Information

- **ADAM-4510I** Robust RS-422/485 Repeater
- **ADAM-4520I** Robust RS-232 to RS-422/485 Converter
- **ADAM-4117** Robust 8-ch Analog Input Module with Modbus®

ADAM-4118 ADAM-4150 ADAM-4168

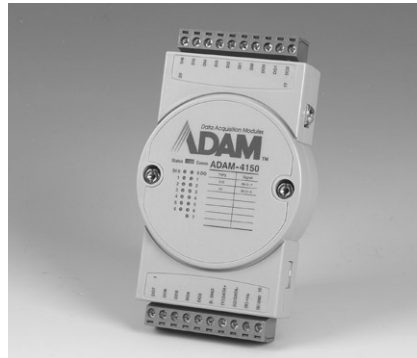
Robust 8-ch Thermocouple Input Module with Modbus®

Robust Digital I/O Module with Modbus

Robust Relay Output Module with Modbus



ADAM-4118



ADAM-4150



ADAM-4168



Specifications

General

- Power Consumption 0.5W @ 24 V_{DC}

Analog Input

- Channels 8 differential and independent configuration channels
- Input Impedance Voltage: 20 M Ω
Current: 120 Ω
T/C, mV, V, mA
- Input Type
- Input Range Thermocouple
 - J 0 ~ 760 °C
 - K 0 ~ 1370 °C
 - T -100 ~ 400 °C
 - E 0 ~ 1000 °C
 - R 500 ~ 1750 °C
 - S 500 ~ 1750 °C
 - B 500 ~ 1800 °C
- Voltage mode
 - ± 15 mV, ± 50 mV,
 - ± 100 mV, ± 500 mV,
 - ± 1 V, ± 2.5 V
- Current mode
 - ± 20 mA, 4 ~ 20 mA
- Accuracy Voltage mode: $\pm 0.1\%$ or better
Current mode: $\pm 0.2\%$ or better
- Resolution 16-bit
- Sampling Rate 10/100 samples/sec (selected by Utility)
- CMR @ 50/60 Hz 92 dB
- NMR @ 50/60 Hz 60 dB
- Overvoltage Protection ± 60 V_{DC}
- High Common Mode 200 V_{DC}
- Span Drift ± 25 ppm/°C
- Zero Drift $\pm 6\mu$ V/°C
- Built-in TVS/ESD Protection

Ordering Information

- ADAM-4118 Robust 8-ch Thermocouple Input Module with Modbus®
- ADAM-4150 Robust Digital I/O Module with Modbus
- ADAM-4168 Robust Relay Output Module with Modbus

Specifications

General

- Power Consumption 0.7 W @ 24 V_{DC}

Digital Input

- Channels 7
- Input Level Dry contact: Logic level 0: Close to GND
Logic level 1: Open
Wet contact: Logic level 0: +3 V max
Logic level 1: +10 V to +30 V
(Note: The Digital Input Level 0 and 1 status can be inverted)
- Support 3 kHz Counter Input (32-bit + 1-bit overflow)
- Support 3 kHz Frequency Input
- Support Invert DI Status

Digital Output

- Channels 8, open collector to 40 V (1 A max. load)
- Power Dissipation 1W load max
- Ron Maximum 150 m Ω
- Support 1 kHz Pulse Output
- Support High-to-Low Delay Output
- Support Low-to-High Delay Output

Common Specifications

- Power Input Unregulated 10 ~ 48 V_{DC}
- Watchdog Timer System (1.6 second) & Communication
- Connector 2 x Plug-in terminal blocks (#14 ~ 22 AWG)
- Isolation Voltage 3000 V_{DC}
- Support Protocol ASCII Command and Modbus/RTU

Specifications

General

- Power Consumption 1.8 W @ 24 V_{DC}

Relay Output

- Output Channels 8 Form A
- Contact Rating (Resistive) AC: 0.5 A @ 120 V
0.25 A @ 240 V
DC: 1 A @ 30 V
0.3 A @ 110 V
- Breakdown Voltage 750 V_{AC} (50/60 Hz)
- Initial Insulation Resistance 1 G Ω min. @ 500 V_{DC}
- Relay Response Time (Typical) On: 3ms
Off: 1ms
- Total Switching Time 10 ms
- Supports 100 Hz pulse output

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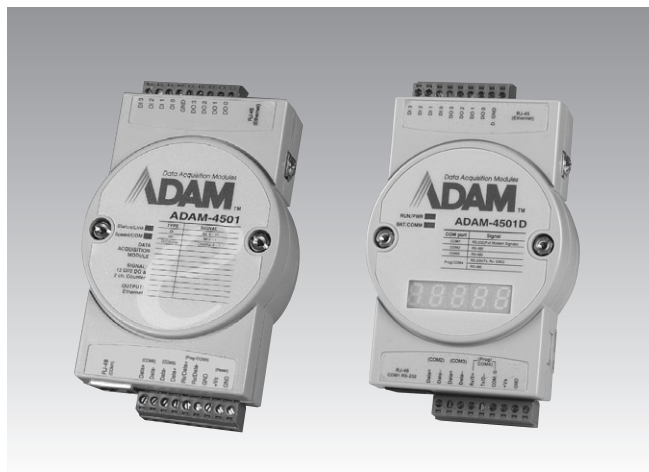
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ADAM-4501 ADAM-4501D

Ethernet-enabled Communication
Controller with 4 x DI/O

ADAM-4501 with 7-segment LED Display



ADAM-4501

ADAM-4501D



Features

- 10/100Base-T Ethernet Interface
- Email alarm function
- Built-in Web Server
- Built-in FTP Server and Client
- Supports functionally versatile I/O modules
- Full Functions of Standard TCP and UDP Sockets
- Optional 4 digit 7-segment LED display
- Supports Modbus/RTU and Modbus/TCP function libraries
- 1.5 MB Flash ROM/640 KB SRAM
- 4 Serial Ports Available
- Integrated All Operations in Windows Utility

Introduction

The ADAM-4501/4501D consists of compact-sized Ethernet-enabled communication controllers with a x86 CPU architecture. They support not only an Ethernet interface but also 4 serial ports, which makes them very suitable for industrial communication and control applications. The Ethernet-enabled features include built-in HTTP Server, FTP Server and email alarm functions. The modularized I/O design provides high flexibility for versatile application requirements. The ADAM-4501/4501D also supports rich Modbus function libraries including Modbus/RTU (Master/Slave) and Modbus/TCP (Server/Client) function libraries.

Specifications

General

- **Connectors** 1 x RJ45 (Ethernet)
1 x RJ48 (COM1)
2 x Plug-in terminal blocks (#14~28 AWG)
- **Indicators** LEDs for Power, run, communication and battery
- **Power Input** Unregulated 10 ~ 30 V_{DC} w/power reversal protection

System

- **CPU** 40 MHz, 16-bit
- **CPU Power Consumption** 4 W @ 24 V_{DC}
- **Memory** 1.5 MB flash memory:
 - 256 KB system flash disk (Drive C: Read Only)
 - 256 KB flash memory (accessed by function LIB)
 - 1024 KB file system, 960 KB for user applications (Drive D: Read/Write)640 KB SRAM, up to 384 KB with battery backup (accessed by function LIB)
- **Real-time Clock (RTC)** Yes
- **Watchdog Timer** Yes

Input/Output

- **Digital Input**
Channels: 4
Dry Contact: Logic level 0 : Close to GND
Logic level 1 : Open
Wet Contact: Logic level 0 : +2 V max.
Logic level 1 : 4 V ~ 30 V
- **Digital Output**
Channels: 4
Open Collector to +30 V, 30 mA max. load
Power Dissipation 200 mW

Communication

- **LAN** 1 x 10/100Base-T
- **RS-485 Speed** 1.2 to 115.2 kbps
- **Serial Ports** COM1: RS-232 (Full Modem Signals)
COM2, COM3: RS-485
COM4: RS-232 (Programming Port)/RS-485 (Selected by Jumper)

Software

- **C Library** Borland C++ 3.0 for DOS
- **Operating System** ROM-DOS

Environment

- **Humidity** 5 ~ 95% RH
- **Operating Temperature** - 10 ~ 70° C (14 ~ 158° F)
- **Storage Temperature** - 25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-4501** Ethernet-enabled Communication Controller with 4 x DI/O
- **ADAM-4501D** ADAM-4501 with 7-segment LED Display

ADAM-4502 ADAM-4502D

Ethernet-enabled Communication Controller
with 1 x AI/O, 2 x DI/O

ADAM-4502 with 7-segment LED Display

NEW



ADAM-4502

ADAM-4502D



Features

- 10/100Base-T Ethernet Interface
- Email alarm function
- Built-in Web Server
- Built-in FTP Server and Client
- Supports functionally versatile I/O modules
- Full Functions of Standard TCP and UDP Sockets
- Optional 4 digit 7-segment LED display
- Supports Modbus/RTU and Modbus/TCP function libraries
- 1.5 MB Flash ROM/640 KB SRAM
- 4 Serial Ports Available
- Integrated All Operations in Windows Utility

Introduction

With Modular Design, the ADAM-4502/4502D module has all the same functionality as ADAM-4501/4501D module, but provides different I/O option. The ADAM-4502/4502D provides one Ethernet interface and 4 serial ports just like the ADAM-4501/4501D module. Besides, the ADAM-4502/4502D module provides 1 analog input, 1 analog out, 2 digital input and 2 digital output. Therefore, user can implement the rich interfaces to complete various different applications.

Specifications

General

- Connectors**
 - 1 x RJ45 (Ethernet)
 - 1 x RJ48 (COM1)
 - 2 x Plug-in terminal blocks (#14 ~ 28 AWG)
- Indicators**
 - LEDs for Power, run, communication and battery
- Power Input**
 - Unregulated 10 ~ 30 V_{DC} w/power reversal protection

System

- CPU**
 - 40 MHz, 16-bit
- CPU Power Consumption**
 - 4 W @ 24 V_{DC}
- Memory**
 - 1.5 MB flash memory:
 - 256 KB system flash disk (Drive C: Read Only)
 - 256 KB flash memory (accessed by function LIB)
 - 1024 KB file system, 960 KB for user applications (Drive D: Read/Write)
 - 640 KB SRAM, up to 384 KB with battery backup (accessed by function LIB)

- Real-time Clock (RTC)**
 - Yes
- Watchdog Timer**
 - Yes

Input/Output

- Analog Input**
 - Channels: 1
 - Input Type: mV, V, mA
 - Input Range: ± 150 mV, ± 500 mV, ± 1 V, ± 5 V, ± 10 V, 4~20 mA
 - Resolution: 16-bit
 - Sampling rate: 100 Sample/second
 - Isolation Voltage: 1000 V_{DC}
- Analog Output**
 - Channels: 1
 - Output Type: V, mA
 - Output Range: 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA
 - Slew Rate: 1 V/ μ s
 - Isolation Voltage: 1000 V_{DC}

Digital Input

- Channels: 2
- Dry Contact:
 - Logic level 0 : Close to GND
 - Logic level 1 : Open
- Wet Contact:
 - Logic level 0 : +2 V max.
 - Logic level 1 : 4 V ~ 30 V

Digital Output

- Channels: 2
- Open Collector to +40 V, 1 A max. load
- Power Dissipation: 1 W load maximum

Communication

- LAN**
 - 1 x 10/100Base-T
- RS-485 Speed**
 - 1.2 to 115.2 kbps
- Serial Ports**
 - COM1: RS-232 (Full Modem Signals)
 - COM2, COM3: RS-485
 - COM4: RS-232 (Programming Port)/RS-485 (Selected by Jumper)

Software

- C Library**
 - Borland C++ 3.0 for DOS
- Operating System**
 - ROM-DOS

Environment

- Humidity**
 - 5 ~ 95% RH
- Operating Temperature**
 - 10 ~ 70° C (14 ~ 158° F)
- Storage Temperature**
 - 25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- ADAM-4502**
 - Ethernet-enabled Communication Controller with 1 x AI/O, 2 x DI/O
- ADAM-4502D**
 - ADAM-4502 with 7-segment LED Display

1
PAC & Software

2
BAS

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UNO

4
RS-485 I/O

5
Ethernet I/O

6
TCP

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

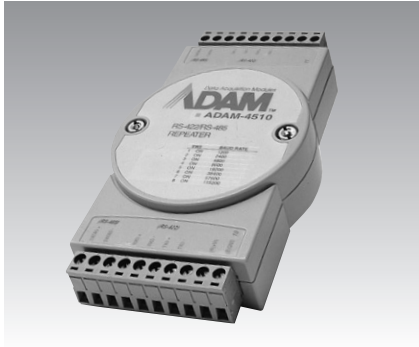
16
EDG

17
ICOM

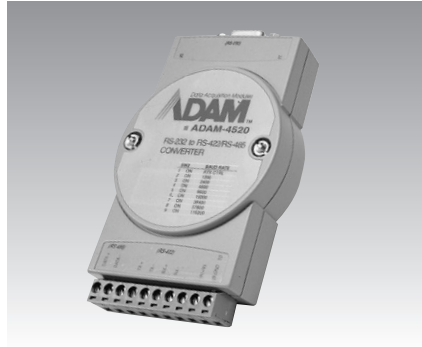
ADAM-4510/4510S ADAM-4520/4522 ADAM-4521

RS-422/485 Repeaters

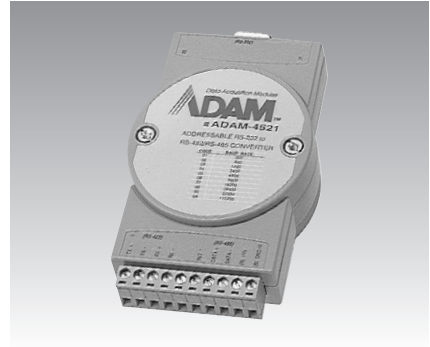
RS-232 to RS-422/485 Converters Addressable RS-422/485 to RS-232 Converter



ADAM-4510/4510S



ADAM-4520/4522



ADAM-4521



Specifications

General

- **Connectors** 2 x Plug-in terminal blocks (#14 ~ 22 AWG) (RS-422/485)
- **Isolation Voltage** 3000 V_{DC} (4510S only)
- **Power Consumption** 1.4 W @ 24 V_{DC}

Serial Communications

- **Input** RS-485 (2-wire) or RS-422 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)

Specifications

General

- **Connectors** 1 x Plug-in terminal block (#14 ~ 22 AWG) (RS-422/485)
1 x DB9-F (RS-232)
- **Isolation Voltage** 3000 V_{DC} (4520 only)
- **Power Consumption** 1.2 W @ 24 V_{DC}

Serial Communications

- **Input** RS-232 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)

Specifications

General

- **Connectors** 1 x Plug-in terminal block (#14 ~ 22 AWG) (RS-422/485)
1 x DB9-F (RS-232)
- **Isolation Voltage** 1000 V_{DC}
- **Power Consumption** 1.0 W @ 24 V_{DC}
- **Built-in microprocessor and watchdog timer**

Serial Communications

- **Input** RS-485 (2-wire) or RS-422 (4-wire)
- **Output** RS-232 (4-wire)
- **Speed Modes (bps)** 300, 600, 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k (software configurable)
- **RS-232 and 485 can be set to different baudrates**
- **RS-485 surge protection and automatic RS-485 data flow control**
- **Software configurable to either addressable or non-addressable mode**

Common Specifications

General

- **Power Input** Unregulated 10 ~ 30 V_{DC} w/power reversal protection

Environment

- **Operating Temperature** - 10 ~ 70° C (14 ~ 158° F)
- **Storage Temperature** - 25 ~ 85° C (-13 ~ 185° F)
- **Humidity** 5 ~ 95% RH

Ordering Information

- **ADAM-4510** RS-422/485 Repeater
- **ADAM-4510S** Isolated RS-422/485 Repeater
- **ADAM-4520** Isolated RS-232 to RS-422/485 Converter
- **ADAM-4522** RS-232 to RS-422/485 Converter
- **ADAM-4521** Addressable RS-422/485 to RS-232 Converter

ADAM-4541 ADAM-4542+ ADAM-4561/4562

Multi-mode Fiber Optic to RS-232/422/485 Converter
Single-mode Fiber Optic to RS-232/422/485 Converter
1-port Isolated USB to RS-232/422/485 Converters



ADAM-4541



ADAM-4542+



ADAM-4561/4562



Specifications

General

- Power Input** Unregulated 10 ~ 30 V_{DC}
- Connectors** 1 x Plug-in terminal block (#14 ~ 22 AWG) (RS-232/422/485)
2 x ST fiber connector
- Power Consumption** 1.5 W @ 24 V_{DC}

Serial Communications

- Communication Mode** Asynchronous
- Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k and RS-232/422 mode (switchable)
- Transmission Mode** Full/half duplex, bidirectional

Fiber Optic Communications

- Optical Power Budget (attenuation)** 12.5 dB (measured with 62.5/125 mm)
- Transmission Distance** 2.5 km
- Transmission Mode** Multi mode (Send and Receive)
- Wavelength** 820 nm

Specifications

General

- Power Input** Unregulated 10 ~ 30 V_{DC}
- Connectors** 1 x Plug-in terminal block (#14 ~ 22 AWG) (RS-232/422/485)
1 x SC fiber connector
- Power Consumption** 1.5 W @ 24 V_{DC}

Serial Communications

- Communication Mode** Asynchronous
- Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k and RS-232/422 mode (switchable)
- Transmission Modes** Full/half duplex, bidirectional

Fiber Optic Communications

- Optical Power Budget (attenuation)** 15 dB
- Transmission Distance** 15 km
- Transmission Mode** Single mode (Send and Receive)
- Wavelength** 1310 nm

Specifications

General

- Connectors** Network: USB-type A connector (type A to type B cable provided)
Serial:
ADAM-4561 1 x Plug-in terminal block (#14~22 AWG) (3-wire RS-232/422/485)
1 x DB-9 serial connectors (9-wire RS-232)
ADAM-4562
- Isolation Voltage** ADAM-4561: 3000 V_{DC}
ADAM-4562: 2500 V_{DC}
- Power Consumption** ADAM-4561: 1.5 W @ 5 V
ADAM-4562: 1.1 W @ 5 V
- Driver Support** Windows 98/2000/XP
- Full Compliance with USB v1.1 specifications**

Serial Communications

- Speed Modes (bps)** 75 bps to 115.2 kbps
- Transmission Modes** Full/half duplex, bidirectional

Common Specifications

Environment

- Humidity** 5 ~ 95% RH
- Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- ADAM-4541** Multi-mode Fiber Optic to RS-232/422/485 Converter
- ADAM-4542+** Single-mode Fiber Optic to RS-232/422/485 Converter
- ADAM-4561** 1-port Isolated USB to RS-232/422/485 Converter
- ADAM-4562** 1-port Isolated USB to RS-232 Converter

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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

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Plug-in I/O

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CompactPCI

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Signal Conditioning

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USB I/O

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Motion Control I/O

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Ethernet Switch

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EDG

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ICOM

ADAM-4011/4011D

ADAM-4012

ADAM-4013

1-ch Thermocouple Input Modules
(with 7-segment LED Display)

1-ch Analog Input Module

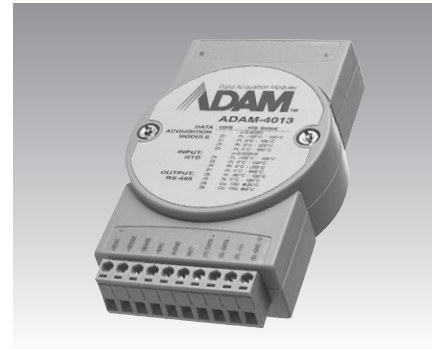
1-ch RTD Input Module



ADAM-4011/4011D



ADAM-4012



ADAM-4013



Specifications

General

- Power Consumption 1.4 W @ 24 V_{DC}
- Support Protocol ASCII command
- LED Indicators 5-digit (ADAM-4011D)

Analog Input

- Channels 1
- Input Impedance Voltage: 2 M Ω
Current: 125 Ω
(Added by users)
- Input Type T/C, mV, V or mA
- Input Range ± 15 mV, ± 50 mV, ± 100 mV,
 ± 500 mV, ± 1 V,
 ± 2.5 V, ± 20 mA
- Accuracy Voltage mode: $\pm 0.1\%$ or
better
Current mode: $\pm 0.2\%$ or
better
- T/C Type and Temperature Range

J	0 ~ 760° C	R	500 ~ 1750° C
K	0 ~ 1370° C	S	500 ~ 1750° C
T	-100 ~ 400° C	B	500 ~ 1800° C
E	0 ~ 1000° C		

- Span Drift ± 25 ppm/ $^{\circ}$ C
- Zero Drift ± 6 μ V/ $^{\circ}$ C
- Wire Burnout Detector ADAM-4011D only

Digital Input

- Channels 1
Logic level 0: 1 V max.
Logic level 1: 3.5 ~ 30 V
Pull up current: 0.5 mA,
10 k Ω resistor to +5 V
Max. input freq: 50 Hz
- Event Counter

Digital Output

- Channels 2, open collector to
30 V, 30 mA max. load
- Power Dissipation 300 mW

Common Specifications

General

- Power Input Unregulated 10~30 V_{DC}
- Connectors 1 x Plug-in terminal
block (#14 ~ 22 AWG)
- Watchdog Timer System (1.6 second)

Analog Input

- Resolution 16-bit

Specifications

General

- Power Consumption 1.2 W @ 24 V_{DC}
- Support Protocol ASCII command

Analog Input

- Channels 1
- Input Impedance Voltage: 20 M Ω
Current: 125 Ω
(Added by users)
- Input Type mV, V or mA
- Input Range ± 150 mV, ± 500 mV, ± 1
V, ± 5 V, ± 10 V and ± 20
mA
- Accuracy Voltage mode: $\pm 0.1\%$ or
better
Current mode: $\pm 0.2\%$
or better
 ± 25 ppm/ $^{\circ}$ C
 ± 6 μ V/ $^{\circ}$ C
- Span Drift
- Zero Drift

Digital Input

- Channels 1
Logic level 0: +1 V max.
Logic level 1: 3.5 ~ 30 V
pull up current: 0.5 mA,
10 k Ω resistor to +5 V
Max. input freq.: 50 Hz
Min. input pulse width:
1 msec.
- Event Counter

Digital Output

- Channels 2, open collector to
30 V, 30 mA max. load
- Power Dissipation 300 mW

- Sampling Rate 10 sample/second
- CMR @ 50/60 Hz 150 dB
- NMR @ 50/60 Hz 100 dB
- Isolation Voltage 3000 V_{DC}

Environment

- Humidity 5 ~ 95% RH
- Operating Temperature -10~70° C (-14~158° F)
- Storage Temperature -25~85° C (-13~185° F)

Specifications

General

- Power Consumption 0.7 W @ 24 V_{DC}
- Support Protocol ASCII command

Analog Input

- Channels 1
- Input Connections 2, 3, or 4-wire
- Input Impedance 2 M Ω
- Input Type Pt or Ni RTD
- RTD Types and Temperature Ranges
- IEC RTD 100 ohms
- Pt -100° C to +100° C a = 0.00385
- Pt 0° C to +100° C a = 0.00385
- Pt 0° C to +200° C a = 0.00385
- Pt 0° C to +600° C a = 0.00385
- JIS RTD 100 ohms
- Pt -100° C to +100° C a = 0.003916
- Pt 0° C to +100° C a = 0.003916
- Pt 0° C to +200° C a = 0.003916
- Pt 0° C to +600° C a = 0.003916
- Ni RTD
- Ni -80° C to +100° C
- Ni 0° C to +100° C
- Accuracy $\pm 0.1\%$ or better
- Span Drift ± 25 ppm/ $^{\circ}$ C
- Zero Drift ± 3 μ V/ $^{\circ}$ C

Ordering Information

- ADAM-4011 1-ch Thermocouple Input
Module
- ADAM-4011D ADAM-4011 with
7-segment LED Display
- ADAM-4012 1-ch Analog Input Module
- ADAM-4013 1-ch RTD Input Module

ADAM-4015 ADAM-4015T ADAM-4016

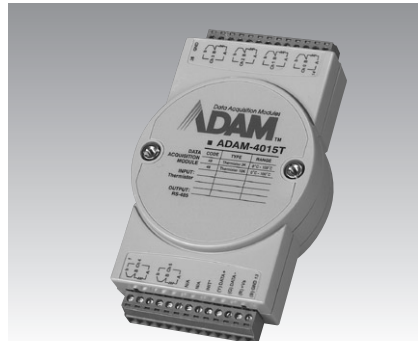
6-ch RTD Module with Modbus®

6-ch Thermistor Module with Modbus

1-ch Analog Input/Output Module



ADAM-4015



ADAM-4015T



ADAM-4016



Specifications

General

- Connectors** 2 x Plug-in terminal block (#14 ~ 28 AWG)
- Power Consumption** 1.2 W @ 24 V_{DC}
- Watchdog Timer** System (1.6 second) & Communication
- Support Protocol** ASCII command and Modbus/RTU
- Wire Burnout Detector** Yes

Analog Input

- Channels** 6 differential
- Input Connections** 2, 3, or 4-wire
- Input Impedance** 10 M Ω
- Input Type** Pt, Balco and Ni RTD
- RTD Types and Temperature Ranges**
 - Pt 100 RTD:**
 - Pt -50° C to 150° C
 - Pt 0° C to 100° C
 - Pt 0° C to 200° C
 - Pt 0° C to 400° C
 - Pt -200° C to 200° C
 - IEC RTD 100 ohms ($\alpha = 0.00385$)
 - JIS RTD 100 ohms ($\alpha = 0.00392$)
 - Pt 1000 RTD**
 - Pt -40° C to 160° C
 - Balco 500 RTD**
 - 30° C to 120° C
 - Ni 50 RTD**
 - Ni -80° C to 100° C
 - Ni 508 RTD**
 - Ni 0° C to 100° C
 - BA1**
 - 200° C to 600° C
- Accuracy** $\pm 0.1\%$ or better
- CMR @ 50/60 Hz** 120 dB
- Span Drift** ± 25 ppm/° C
- Zero Drift** ± 3 μ V/° C

Specifications

General

- Connectors** 2 x Plug-in terminal block (#14 ~ 28 AWG)
- Power Consumption** 1.2 W @ 24 V_{DC}
- Watchdog Time** System (1.6 second) & Communication
- Support Protocol** ASCII command and Modbus/RTU
- Wire Burnout Detector** Yes

Analog Input

- Channels** 6 differential
- Input Connections** 2, 3-wire
- Input Impedance** 10 M Ω
- Input Type** Thermistor
- Thermistor Types and Temperature Ranges**
 - Thermistor 3 k 0 ~ 100° C
 - Thermistor 10 k 0 ~ 100° C
- Accuracy** $\pm 0.1\%$ or better
- CMR @ 50/60 Hz** 120 dB
- Span Drift** ± 25 ppm/° C
- Zero Drift** ± 3 μ V/° C

Specifications

General

- Connectors** 2 x Plug-in terminal block (#14 ~ 22 AWG)
- Power Consumption** 2.2 W @ 24 V_{DC}
- Watchdog Timer** System (1.6 second)
- Support Protocol** ASCII command

Analog Input

- Channels** 1 differential
- Input Impedance** Voltage: 2 M Ω
Current: 125 Ω
(Added by users)
mV and mA
- Input Type** ± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 20 mA
- Input Range** Voltage mode: $\pm 0.1\%$ or better
Current mode: $\pm 0.2\%$ or better
- Accuracy** 150 dB
- CMR @ 50/60 Hz** ± 25 ppm/° C
- Span Drift** ± 6 μ V/° C
- Zero Drift** ± 6 μ V/° C

Analog Output

- Channels** 1
- Accuracy** 0.05% of FSR
- Output Type** V
- Output Range** 0 ~ 10 V
- Drift** ± 50 ppm/° C
- Drive Current** 30 mA
- Isolation Voltage** 3000 V_{DC}

Digital Output

- Channels** 4, open collector to 30 V, 30 mA max. load
- Power Dissipation** 300 mW

Common Specifications

General

- Power Input** Unregulated 10 ~ 30 V_{DC}

Analog Input

- Resolution** 16 bits
- NMR @ 50/60 Hz** 100 dB
- Sampling Rate** 10 sample/second (total)
- Isolation Voltage** 3000 V_{DC}

Environment

- Humidity** 5 ~ 95% RH
- Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- ADAM-4015** 6-ch RTD Input Module with Modbus
- ADAM-4015T** 6-ch Thermistor Input Module with Modbus
- ADAM-4016** 1-ch Analog Input/Output Module

1
PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

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Plug-in I/O

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CompactPCI

12
Signal Conditioning

13
USB I/O

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Ethernet Switch

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EDG

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ICOM

ADAM-4017/4017+ ADAM-4018/4018+ ADAM-4019+

8-ch Analog Input Modules with
Modbus®

8-ch Thermocouple Input Modules
with Modbus

8-ch Universal Analog Input Module
with Modbus



ADAM-4017/4017+ RoHS CE FCC ENEC FM APPROVED

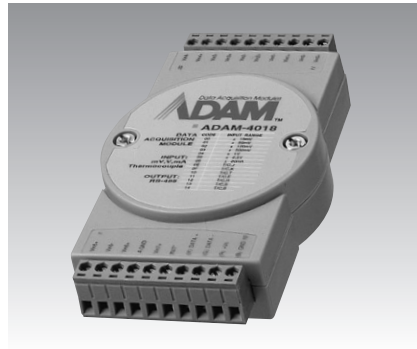
Specifications

General

- Power Consumption 1.2 W @ 24 V_{DC}
- Watchdog Timer ADAM-4017:
System (1.6 second)
ADAM-4017+:
System (1.6 second) &
Communication
- Support Protocol ASCII command
(ADAM-4017)
ASCII command and
Modbus/RTU
(ADAM-4017+)

Analog Input

- Channels ADAM-4017:
6 differential, and 2
single-ended
ADAM-4017+:
8 differential
- Channel Independent
Configuration ADAM-4017+ only
- Input Impedance Voltage: 20 M Ω
Current: 120 Ω
(4017+ only)
- Input Type mV, V, mA
- Input Range ADAM-4017
 ± 150 mV, ± 500 mV, ± 1 V,
 ± 5 V, ± 10 V, ± 20 mA
ADAM-4017+
 ± 150 mV, ± 500 mV, ± 1 V,
 ± 5 V, ± 10 V, ± 20 mA,
4 ~ 20 mA



ADAM-4018/4018+ RoHS CE FCC ENEC FM APPROVED

Specifications

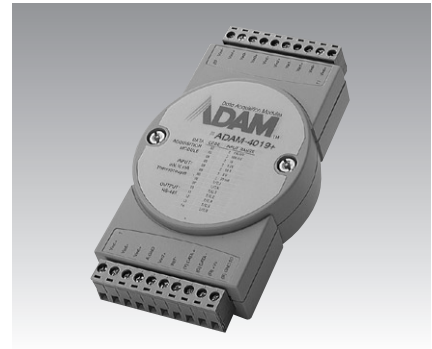
General

- Power Consumption 0.8 W @ 24 V_{DC}
- Watchdog Timer ADAM-4018:
System (1.6 second)
ADAM-4018+:
System (1.6 second) &
Communication
- Support Protocol ASCII command
(ADAM-4018)
ASCII command and
Modbus/RTU
(ADAM-4018+)

Analog Input

- Channels ADAM-4018: 6 differential,
and 2 single-ended
ADAM-4018+: 8 differential
ADAM-4018+ only
- Channel Independent
Configuration
- Input Impedance Voltage: 20 M Ω
Current: 120 Ω
(4018+ only)
- Input Type ADAM-4018
Thermocouple, mV, V, mA
ADAM-4018+
Thermocouple, mA
- Voltage/Current
Input Range ADAM-4018 ± 15 mV,
 ± 50 mV, ± 100 mV, ± 500 mV,
 ± 1 V, ± 2.5 V, ± 20 mA
ADAM-4018+
 ± 20 mA, 4 ~ 20 mA
- T/C Types and Temperature Ranges

J	0 ~ 760° C	R	500 ~ 1750° C
K	0 ~ 1370° C	S	500 ~ 1750° C
T	-100 ~ 400° C	B	500 ~ 1800° C
E	0 ~ 1000° C		
- Burn-out Detection All T/C (ADAM-4018+ only)



ADAM-4019+ RoHS CE FCC ENEC FM APPROVED

Specifications

General

- Power Consumption 1.0 W @ 24 V_{DC}
- Watchdog Timer System (1.6 second) &
Communication
- Support Protocol ASCII command and
Modbus/RTU

Analog Input

- Channels 8 differential channels
for individual input type
Yes
- Channel Independent
Configuration
- Input Impedance Voltage: 20 M Ω
Current: 120 Ω
- Input Type T/C, mV, V, mA
- Voltage/Current
Input Range ± 1 V, ± 2.5 V, ± 5 V,
 ± 10 V, ± 100 mV,
 ± 500 mV, ± 20 mA,
4 ~ 20 mA
- T/C Types and Temperature Ranges

J	0 ~ 760° C	R	500 ~ 1750° C
K	0 ~ 1370° C	S	500 ~ 1750° C
T	-100 ~ 400° C	B	500 ~ 1800° C
E	0 ~ 1000° C		
- Burn-out Detection 4 ~ 20 mA & all T/C

Common Specifications

General

- Power Input Unregulated 10 ~ 30 V_{DC}
- Connectors 2 x Plug-in terminal block
(#14 ~ 22 AWG)

Analog Input

- Accuracy Voltage mode: $\pm 0.1\%$ or
better
Current mode: $\pm 0.2\%$
or better
- Resolution 16-bit
- Sampling Rate 10 sample/second (total)

- Isolation Voltage 3000 V_{DC}
- Overvoltage Protection ± 35 V_{DC}
- CMR @ 50/60 Hz 120 dB
- NMR @ 50/60 Hz 100 dB
- Span Drift ± 25 ppm/° C
- Zero Drift ± 6 μ V/° C
- Built-in TVS/ESD Protection

Environment

- Humidity 5 ~ 95% RH
- Operating Temperature -10 ~ 70° C
(14 ~ 158° F)
- Storage Temperature -25 ~ 85° C
(-13 ~ 185° F)

Ordering Information

- ADAM-4017 8-ch Analog Input
Module
- ADAM-4017+ 8-ch Analog Input Module
with Modbus
- ADAM-4018 8-ch Thermocouple Input
Module
- ADAM-4018+ 8-ch Thermocouple Input
Module with Modbus
- ADAM-4019+ 8-ch Universal Analog
Input Module with Modbus

ADAM-4021 ADAM-4022T ADAM-4024

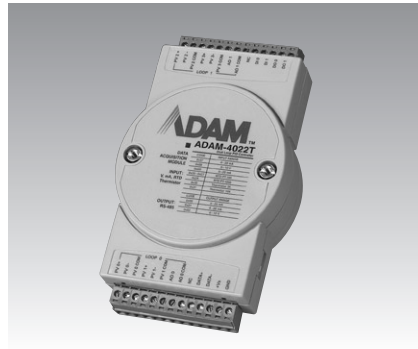
1-ch Analog Output Module

2-ch Serial Based Dual Loop PID Controller with Modbus®

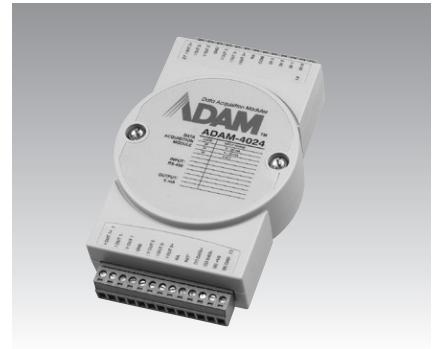
4-ch Analog Output Module with Modbus



ADAM-4021



ADAM-4022T



ADAM-4024



Specifications

General

- Connectors 2 x Plug-in terminal block (#14 ~ 22 AWG)
- Power Consumption 1.4 W @ 24 V_{DC}
- Watchdog Timer System (1.6 second)
- Support Protocol ASCII command

Analog Output

- Channels 1
- Output Impedance 0.5 Ω
- Output Range 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- Output Type mA, V
- Accuracy ±0.1% of FSR for current output
±0.2% of FSR for voltage output
- Current Load Resistor 0 to 500 Ω (source)
- Resolution 12-bit
- Isolation Voltage 3000 V_{DC}
- Programmable Output Slope 0.125 ~ 128 mA/sec.
0.0625 ~ 64.0 V/sec.
- Readback Accuracy ±1% of FSR
- Span Temperature Coefficient ±25 ppm/°C
- Zero Drift Voltage output: ±30 μV/°C
current output: ±0.2 μA/°C

Specifications

General

- Connectors 2 x Plug-in terminal block (#14 ~ 28 AWG)
- Power Consumption 4 W @ 24 V_{DC}
- Watchdog Timer System (1.6 second)
- Support Protocol ASCII command and Modbus/RTU

Analog Input

- Channels 4
- Input Type mA, V, Thermistor, RTD
- Input Range 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- Thermistor Type and Temperature Ranges
 - Thermistor 3K: 0 ~ 100° C
 - Thermistor 10K: 0 ~ 100° C
- RTD Type and Temperature Ranges
 - Pt 100 RTD
 - Pt 0 ~ 100° C
 - Pt 0 ~ 600° C
 - IEC RTD 100 ohms (α = 0.00385)
 - JIS RTD 100 ohms (α = 0.00392)
 - Pt 1000 RTD
 - Pt -100 ~ 100° C
 - Pt 0 ~ 200° C
- Resolution 16-bit
- Sampling Rate 10 sample/second
- Isolation Voltage 3000 V_{DC}

Analog Output

- Channels 2
- Output Range 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- Output Type mA, V
- Resolution 12-bit
- Isolation Voltage 3000 V_{DC}

Digital Input

- Channels 2
- Dry Contact Logic level 0-close to GND
Logic level 1-open

Digital Output

- Channels 2
- Power Dissipation Open Collector to 30 V,
30 mA max. load
300 mW

Specifications

General

- Connectors 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- Power Consumption 3 W @ 24 V_{DC}
- Watchdog Timer System (1.6 second) & Communication
- Support Protocol ASCII command and Modbus/RTU

Analog Output

- Channels 4
- Output Impedance 0.5 Ω
- Output Range 0 ~ 20 mA, 4 ~ 20 mA, ±10 V
- Output Type mA, V
- Accuracy ±0.1 % of FSR for current output
±0.1 % of FSR for voltage output
- Current Load Resistor 0 to 500 Ω (source)
- Resolution 12-bit
- Isolation Voltage 3000 V_{DC}
- Programmable Output Slope 0.125 ~ 128 mA/sec.
0.0625 ~ 64.0 V/sec.
- Span Temperature Coefficient ±25 ppm/°C
- Zero Drift Voltage output: ±30 μV/°C
Current output: ±0.2 μA/°C

Digital Input

- Channels 4
- Input Level Logic level 0: +1V max
Logic level 1: 10 ~ 30 V_{DC}
- Isolation Voltage 3000 V_{DC}

Common Specifications

General

- Power Input Unregulated 10 ~ 30 V_{DC}

Environment

- Humidity 5 ~ 95% RH
- Operating Temperature -10 ~ 70° C
(14 ~ 158° F)
- Storage Temperature -25 ~ 85° C
(-13 ~ 185° F)

Ordering Information

- ADAM-4021 1-ch Analog Output Module
- ADAM-4022T 2-ch Serial Based Dual Loop PID Controller with Modbus
- ADAM-4024 4-ch Analog Output Module with Modbus

1
PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

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Plug-in I/O

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CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

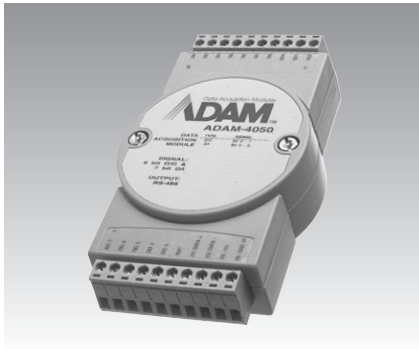
16
EDG

17
ICOM

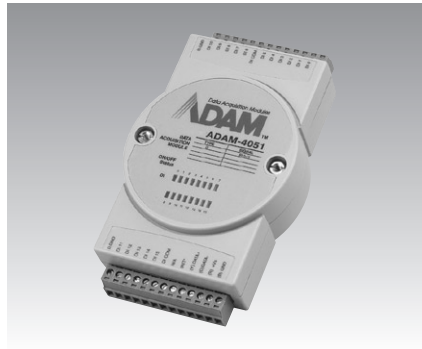
ADAM-4050 ADAM-4051 ADAM-4052

15-ch Digital I/O Module
16-ch Isolated Digital Input Module
with Modbus®

8-ch Isolated Digital Input Module



ADAM-4050



ADAM-4051



ADAM-4052



Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 0.4 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Support Protocol** ASCII command

Digital Input

- **Channels** 7
- **Input Level** Logic level 0: +1 V max.
Logic level 1: 3.5 ~ 30 V
Pull up current: 0.5 mA,
10 kΩ resistor to +5 V

Digital Output

- **Channels** 8
open collector to 30 V,
30 mA max. load
- **Power Dissipation** 300 mW

Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 1 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second) & Communication
- **Support Protocol** ASCII command and Modbus/RTU
- **LED Indicators** Yes

Digital Input

- **Channels** 16
- **Input Voltage** 50 V max
- **Input Level**
Dry contact: Logic level 0: open
Logic level 1: close to GND
Wet contact: Logic level 0: +3 V max
Logic level 1: +10 ~ 50 V
(Note: The Digital Input Level 0 and 1 status can be inverted)
- **Isolation Voltage** 2500 V_{DC}
- **Input Resistance** 5.2 kΩ
- **Overvoltage Protection** 70 V_{DC}

Specifications

General

- **Connectors** 2 x Plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 0.4 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Support Protocol** ASCII command

Digital Input

- **Channels** 8
(6 fully independent isolated channels, 2 isolated channels with common ground)
- **Input Level** Logic level 0: +1 V max.
Logic level 1: +3 ~ 30 V
- **Isolation Voltage** 5000 V_{RMS}
- **Input Resistance** 3 kΩ

Common Specifications

General

- **Power Input** Unregulated 10 ~ 30 V_{DC}

Environment

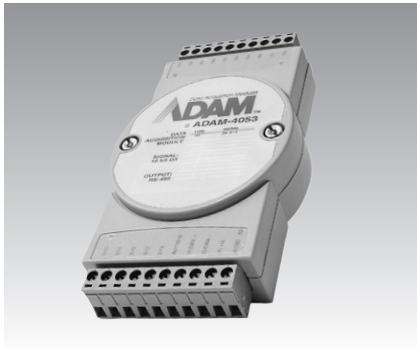
- **Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C
(14 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C
(-13 ~ 185°F)

Ordering Information

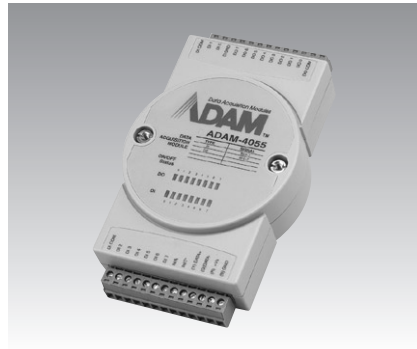
- **ADAM-4050** 15-ch Digital I/O Module
- **ADAM-4051** 16-ch Isolated Digital Input Module with Modbus
- **ADAM-4052** 8-ch Isolated Digital Input Module

ADAM-4053 ADAM-4055 ADAM-4056S/4056SO

16-ch Digital Input Module
16-ch Isolated Digital I/O Module with Modbus®
12-ch Sink/Source Type Isolated Digital Output Modules with Modbus



ADAM-4053



ADAM-4055



ADAM-4056S/4056SO



Specifications

General

- **Connectors** 2 x Plug-in terminal blocks (#14 ~ 22 AWG)
- **Watchdog Timer** System (1.6 second)
- **Support Protocol** ASCII command

Digital Input

- **Channels** 16
- **Input Level**
Dry contact: Logic level 0: close to GND
Logic level 1: open
Wet contact: Logic level 0: +2 V max.
Logic level 1: +4 ~ 30 V
- **Effective Distance (dry contact only)** 500 m max.

Specifications

General

- **Connectors** 2 x Plug-in terminal blocks (#14 ~ 28 AWG)
- **Watchdog Timer** System (1.6 second) & Communication
- **Support Protocol** ASCII command and Modbus/RTU
- **Isolation Voltage** 2500 V_{DC}
- **LED Indicators** Yes

Digital Input

- **Channels** 8
- **Input Level**
Dry Contact: Logic level 0: open
Logic level 1: close to GND
Wet Contact: Logic level 0: +3 Vmax
Logic level 1: +10 ~ 50 V
(Note: The Digital Input Level 0 and 1 status can be inverted)
- **Overvoltage Protection** 70 V_{DC}

Digital Output

- **Channels** 8, open collector to 40 V (200 mA max. load)
- **Power Dissipation** Channel: 1W max
Total: 2.2W (8 Channels)

Specifications

General

- **Connectors** 2 x Plug-in terminal blocks (#14~22 AWG)
- **Watchdog Timer** System (1.6 second) & Communication
- **Support Protocol** ASCII command and Modbus/RTU
- **Isolation Voltage** 5000 V_{DC}
- **Digital Output Channels** 12
- **LED Indicators** Yes

ADAM-4056S

- **Digital Output** Open collector to 40V (200mA max. load)
- **Power Dissipation** Channel: 1 W max
Total: 2.2 W (8 Channels)
- **Digital Output Type** Sink

ADAM-4056SO

- **Digital Output** VCC: 10 ~ 35 V_{DC}
Current: 1A (per channel)
- **Digital Output Type** Source
- **Over Current Detection and Protection**

Common Specifications

- **Power Input** Unregulated 10 ~ 30 V_{DC}
- **Power Consumption** 1W @ 24 V_{DC}

Environment

- **Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C (14 ~ 158° F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185° F)

Ordering Information

- **ADAM-4053** 16-ch Digital Input Module
- **ADAM-4055** 16-ch Isolated Digital I/O Module with Modbus
- **ADAM-4056S** 12-ch Sink Type Isolated Digital Output Module with Modbus
- **ADAM-4056SO** 12-ch Source Type Isolated Digital Output Module with Modbus

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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

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ICOM

ADAM-4060 ADAM-4068 ADAM-4069

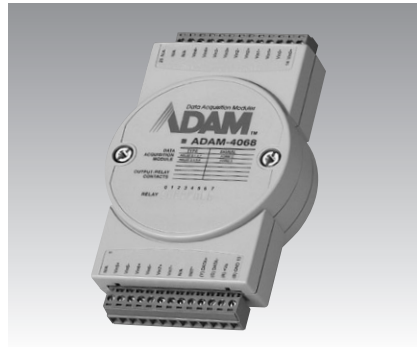
4-ch Relay Output Module

8-ch Relay Output Module with Modbus®

8-ch Power Relay Output Module with Modbus



ADAM-4060



ADAM-4068



ADAM-4069



Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 0.8 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Support Protocol** ASCII command

Relay Output

- **Breakdown Voltage** 500 V_{AC} (50/60 Hz)
- **Channels** 2 x form A
2 x form C
- **Contact Rating (Resistive)** AC: 0.6 A @ 125 V
0.3 A @ 250 V
DC: 2 A @ 30 V
0.6 A @ 110 V
- **Initial Insulation Resistance** 1 G Ω min. at 500 V_{DC}
- **Relay off Time (typical)** 2 ms
- **Relay on Time (typical)** 3 ms

Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 0.6 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second) & Communication
- **Support Protocol** ASCII command and Modbus/RTU

Relay Output

- **Breakdown Voltage** 500 V_{AC} (50/60 Hz)
- **Channels** 4 x form A
4 x form C
- **Contact Rating (Resistive)** AC: 0.5 A @ 120 V
0.25 A @ 240 V
DC: 1 A @ 30 V
0.3 A @ 110 V
- **Initial Insulation Resistance** 1 G Ω min. at 500 V_{DC}
- **Relay off Time (typical)** 4 ms
- **Relay on Time (typical)** 3 ms

Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 2.2 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second) & Communication
- **Support Protocol** ASCII command and Modbus/RTU

Relay Output

- **Breakdown Voltage** 1000 V_{AC} (50/60 Hz)
- **Channels** 4 x form A
4 x form C
- **Contact Rating (Resistive)** AC: 5 A @ 250 V
DC: 5 A @ 30 V
- **Initial Insulation Resistance** 1 G Ω min. at 500 V_{DC}
- **Relay off Time (typical)** 5.6 ms
- **Relay on Time (typical)** 5 ms

Common Specifications

- **Power Input** Unregulated 10 ~ 30 V_{DC}
- **Environment**
 - **Humidity** 5 ~ 95% RH
 - **Operating Temperature** -10 ~ 70° C
(14 ~ 158° F)
 - **Storage Temperature** -25 ~ 85° C
(-13 ~ 185° F)

Ordering Information

- **ADAM-4060** 4-ch Relay Output Module
- **ADAM-4068** 8-ch Relay Output Module with Modbus
- **ADAM-4069** 8-ch Power Relay Output Module with Modbus

ADAM-4080/4080D ADAM-4914V

**2-ch Counter/Frequency
Modules (with
7-segment LED Display)
4-ch Voltage Input Surge
Protection Module**



ADAM-4080/4080D



Specifications

General

- Connectors** 2 x Plug-in terminal block (#14 ~ 22 AWG)
- Power Consumption** 2.0 W @ 24 V_{DC}
- Power Input** Unregulated 10 ~ 30 V_{DC}
- Humidity** 5 ~ 95% RH
- Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)
- Watchdog Timer** System (1.6 second)
- Support Protocol** ASCII command
- LED Indicators** 5-digit readout, CH 0 or CH 1 (programmable) (ADAM-4080D only)

Counter Input

- Channels** 2 independent 32-bit counters
- Input Frequency** 50 kHz max. (non-isolation)
- Input Pulse Width** >10 μ s.
- Input Mode** Isolated or non-isolated
- Isolated Input Level** Logic level 0: +1 V max.
Logic level 1: 3.5~30 V
- Isolation Voltage** 2500 V_{RMS}
- Non-isolated Input Level** Programmable threshold:
Logic level 0: +0.8 V max.
Logic level 1: 2.4 ~ 5.0 V
- Maximum Count** 4,294,967,295 (32 bits)
- Preset Type** Absolute or relative (ADAM-4080 only)
- Programmable Digital Noise Filter** 2 μ s ~ 65 ms
- Alarm** ADAM-4080: Alarm comparators on each counter
ADAM-4080D: High and Low comparators on counter 0

Frequency Measurement

- Range** 5 Hz ~ 50 kHz
- Programmable Built-in Gate Time** 1 or 0.1 second

Digital Output

- Channels** 2
- Open Collector** 30 V, 30 mA max. load
- Power Dissipation** 300 mW for each channel



ADAM-4914V



Specifications

General

- Connectors** 2 x Plug-in terminal block (#14 ~ 22 AWG)
- Humidity** 5 ~ 95% RH
- Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)
- Input Channels** 4 differential voltage and thermocouple input

Performance

- Discharge Current** 5000 A (8/20 μ sec.)
- Discharge Voltage** Between Lines: 18 V min.
Line to GND: 350 V max.
- Internal Series Resistance** Approx. 20 Ω including return
- Max. Surge Voltage** Between Lines: 23 V min.
Line to GND: +4,000 V max.
- Leakage Current** Between Lines: $\leq 10 \mu$ A @ 7.5 V_{DC}
Line to GND: $\leq 5 \mu$ A @ +140 V_{DC}
- Maximum Line Voltage** 10 V
- Response Time** $\leq 0.1 \mu$ sec.

Ordering Information

- ADAM-4080/4080D** 2-ch Counter/Frequency Modules (with 7-segment LED Display)
- ADAM-4914V** 4-ch Voltage Input Surge Protection Module

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PAC & Software

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

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Plug-in I/O

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CompactPCI

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Signal Conditioning

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USB I/O

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Motion Control I/O

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Ethernet Switch

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EDG

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ICOM

ADAM-4000 Series Common Specifications

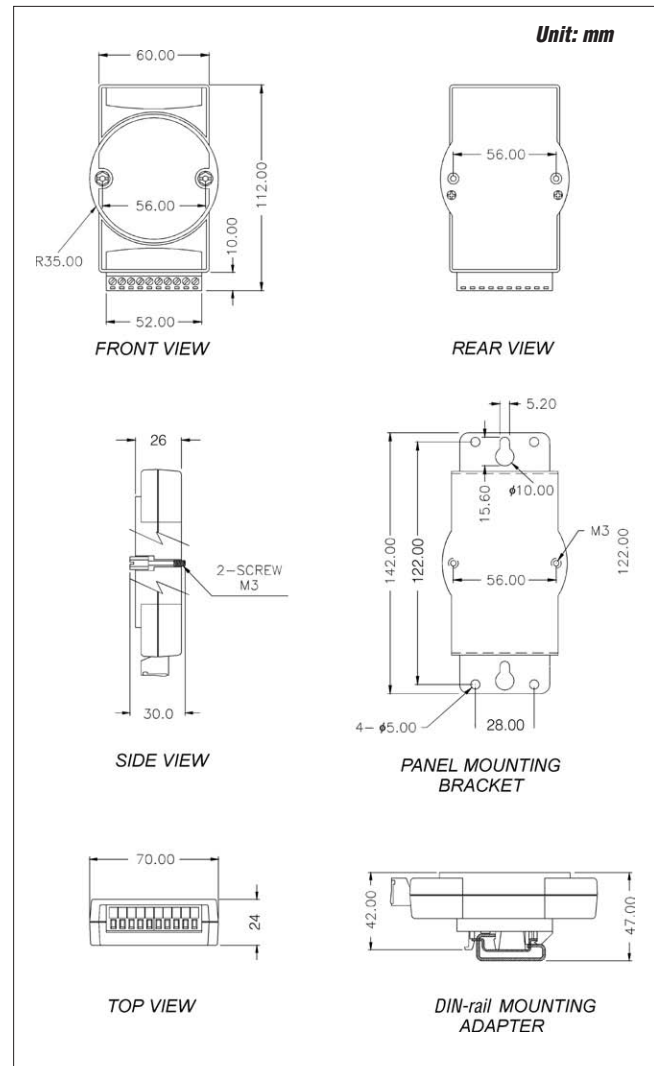
Communication

- RS-485 (2-wire) to host
- Speeds: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps (ADAM-4080, ADAM-4080D only support up to 38400 bps)
- Maximum communication distance: 4000 feet (1.2 km)
- Power and communication LED indicator
- ASCII command/response protocol (Selected modules with Modbus protocol)
- Communication error checking with checksum
- Asynchronous data format:
 Advantech (ASCII command) protocol: 1 start bit
 (parity check, data bit, stop bit) = (None, 8, 1)
 Modbus protocol for ADAM-4000 modules: 1 start bit
 (parity check, data bit, stop bit) = (None, 8, 1)
 Modbus protocol for ADAM-4100 series modules: 1 start bit
 (parity check, data bit, stop bit) = (None, 8, 1) (None, 8, 2) (Even, 8, 1) (Odd, 8, 1)
- Up to 256 multidrop modules per serial port
- Online module insertion and removal
- Transient suppression on RS-485 communication lines

Mechanism

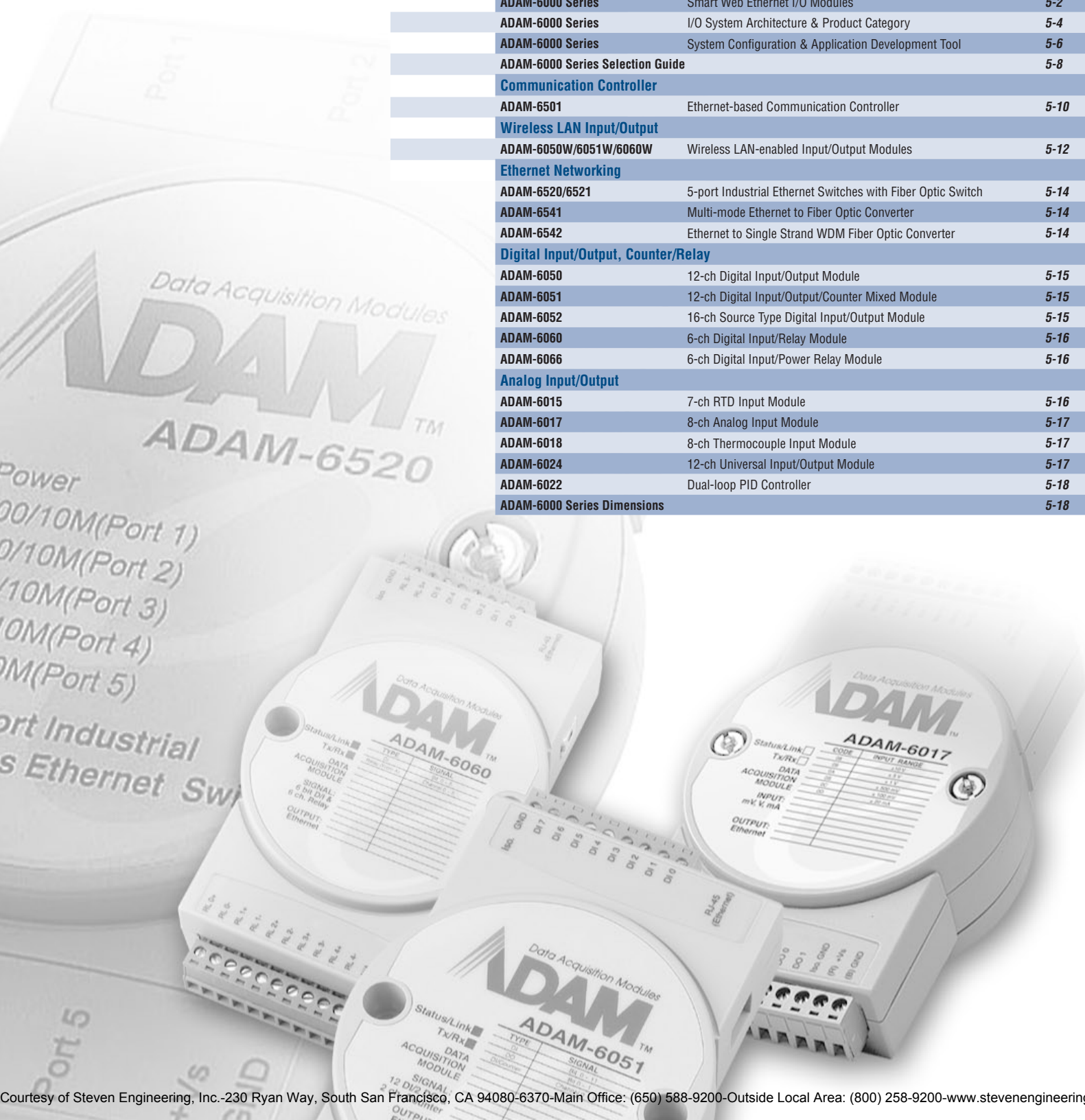
- **Dimensions** 70 x 122 x 30 mm (W x H x D)
- **Enclosure** ABS + PC
- **Mounting** DIN 35 rail, stack, wall

Dimensions

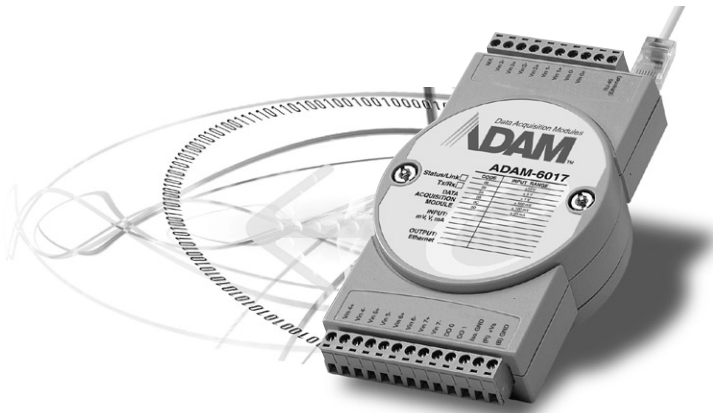


Ethernet I/O Modules: ADAM-6000

ADAM-6000 Series	Smart Web Ethernet I/O Modules	5-2
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ADAM-6018	8-ch Thermocouple Input Module	5-17
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ADAM-6022	Dual-loop PID Controller	5-18
ADAM-6000 Series Dimensions		5-18



ADAM-6000 Series



Features

- Ethernet-based smart I/O
- Mixed I/O in single module
- Pre-built HTTP server and web page in each module for data/alarm monitoring
- User-defined web pages
- Active alarm/event trigger handling
- Industrial Modbus/TCP protocol
- Remote F/W upgrade through the internet
- Pre-built mathematic functions in analog input modules
- ADAM.Net Class Library software support

The Path to Seamless Integration

The integration of automation and enterprise systems require a change in the architecture of open control systems. From Advantech's point of view, the level of integration between automation and enterprise systems can only be accomplished through Internet technology. The seamless level of integration between plant floor and office floor has not been achieved in all automation systems. However, many enterprises are approaching this goal.

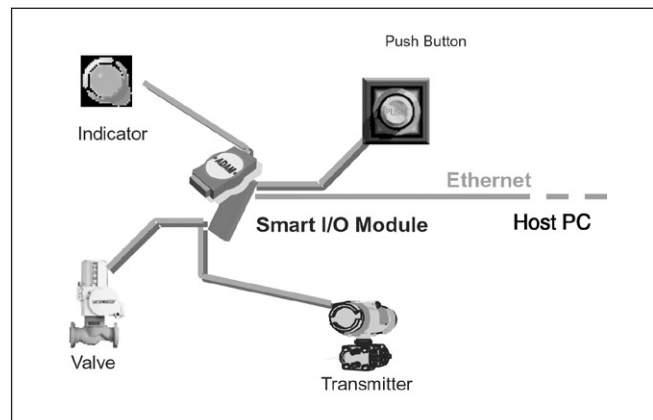
The key element of the seamless integration is a common network architecture, which breaks the traditional layers (enterprise layer, plant information layer, control layer and device level layer, sensor layer) that require a data gateway as an interface to communicate between different layers. Industrial Ethernet is regarded as the most appropriate network to accomplish the task in industrial automation.

It is believed that IP/Ethernet protocols will progress beyond the control layer, into the field layers. Placing remote I/O with IP/Ethernet connections on the shop floor is economical. Advantech believes that over the next five years, Internet protocols over Ethernet will dominate major field connections. The Advantech ADAM-6000 series comprises industrial-grade Ethernet hubs/switches/fiber optics for infrastructure Ethernet solutions in industrial automation environments.

Control Strategy Moves to Field Devices

It is a trend to move I/O to remote locations to reduce wiring costs. Remote I/O is becoming smarter and equipped with control functions as they move from today's 16 to 64 I/O multi-plexers to the smallest remote I/O units, with perhaps as few as four I/O in the near future.

The ADAM-6000 series is designed to realize the concept of the smart I/O blocks. With control algorithms and mathematical functions built in, the ADAM-6000 series is a revolutionary smart I/O module close to the sensor layer in automation.



The Future Concept of Smart I/O Blocks

Web-enabled Technology Becomes Popular on Factory Floors

As Internet technologies and standards have rapidly developed over the past decade, Web-based control methodologies now obviously represent a powerful opportunity for extending efficient network-based management techniques to encompass non-IT real-world assets.

The ADAM-6000 series is equipped with a built-in web server so that its data can be viewed, anytime-anywhere via the Internet. Moreover, ADAM-6000 allows users to configure user-defined web pages to meet the diverse needs in various applications. With this powerful function, the ADAM-6000 series breaks the boundary of traditional multi-layer automation architecture and allows users to access field data directly in real time, which enables seamless integration between the plant floor and the front office.

HMI has provided a friendly operator interface for discrete control and sharply reduced the cost and complexity of automation systems. A web server has been added to most HMI software and a browser allows access to HMI displays from remote locations via the network. The end user is able to see and use an identical HMI from any Internet connected computer anytime, anywhere. ADAM-6000 can be fully integrated with standard HMI software which supports Modbus TCP/IP, including Advantech Studio.

Rank	Product Name
1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWIS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM



The integration of automation and enterprise systems and the adoption of an e-manufacturing strategy requires a shift in the manufacturing system architecture. E-manufacturing demands open access to real-time production data from the field. To achieve a seamless level of integration between plant floors and the enterprise level, some fundamental changes have to occur in I/O systems. E-manufacturing means the power of the Internet and I/O systems are used to take things one step further by leveraging Internet technology. These revolutionary I/O systems are web-enabled, smart and are "just-fit" mixed I/O modules. Improvement of the PLC has been gradually moving from logic and I/O in a single chassis, to I/Os in remote locations. The ADAM-6000 series is based on the concept described above.

To meet the requirements of future automation, smart I/O blocks have become popular in I/O system design. To implement the smart I/O blocks concept, I/O systems should be placed as close to the field sensors as possible. Therefore, intelligent control algorithms or basic mathematical functions are essential in I/O systems. ADAM-6000 provides intelligent functions that accelerate future automation development.

The Internet is the major technology that allows all levels of an organization to be able to communicate and make the sensor-to-boardroom model a reality. Access can be realized from any device that utilizes a standard web browser, so connections between remote manufacturing plants, production planners, plant managers, and the CEO can be made without having to create a dedicated proprietary network. Since a web page can be installed in the I/O system as a Web I/O, then not only a sensor-to-boardroom model can be practiced, but sensor-to-home, and a sensor-to-mobile display can also be realized. ADAM-6000 Smart Web Ethernet I/O modules provide built-in standard and customizable web pages, which truly demonstrate the power of Web I/O.

The impact of a tailor-made business model is spreading in automation, and I/O design is no exception. Over the past few years, the average size of PLCs have been reduced by the use of many small and micro PLCs to replace larger PLCs. A compact-sized and application-oriented mixed I/O is the trend. A just-fit mixed I/O module reduces the engineering effort, as well as installation and maintenance cost. It simplifies system architecture and increases system reliability. Obviously the ADAM-6000 series is the perfect choice to meet the specific requirements of many vertical markets.

1.Industrial Ethernet Networking

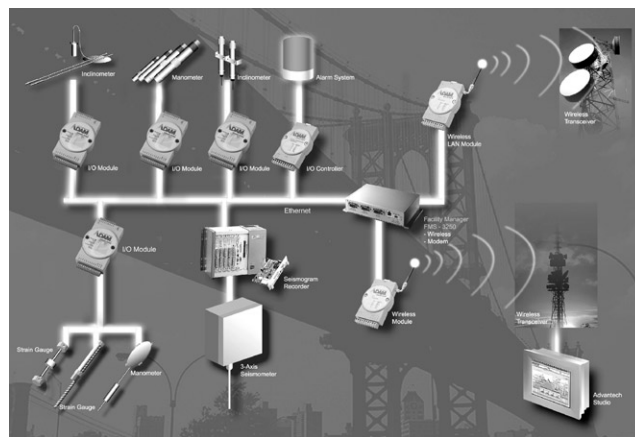
The ADAM-6000 series provides various communication modules such as Ethernet hubs, Ethernet switches and Ethernet switches with fiber ports. ADAM-6000 supports both Modbus/TCP and UDP. Embedded with a 10/100 Mbps Ethernet chip, ADAM-6000 supports industrial Modbus/TCP over TCP/IP networks which are commonly used in most business environments. ADAM-6000 also supports UDP, which allows users to develop their applications and handle events.

2. Smart and Mixed I/O Modules

ADAM-6000 provides built-in mathematical functions, including MAX, MIN, AVG, and others in analog input/output modules. ADAM-6000's mixed I/O modular design optimizes the performance and usage of I/O and minimizes the engineering efforts and maintenance cost.

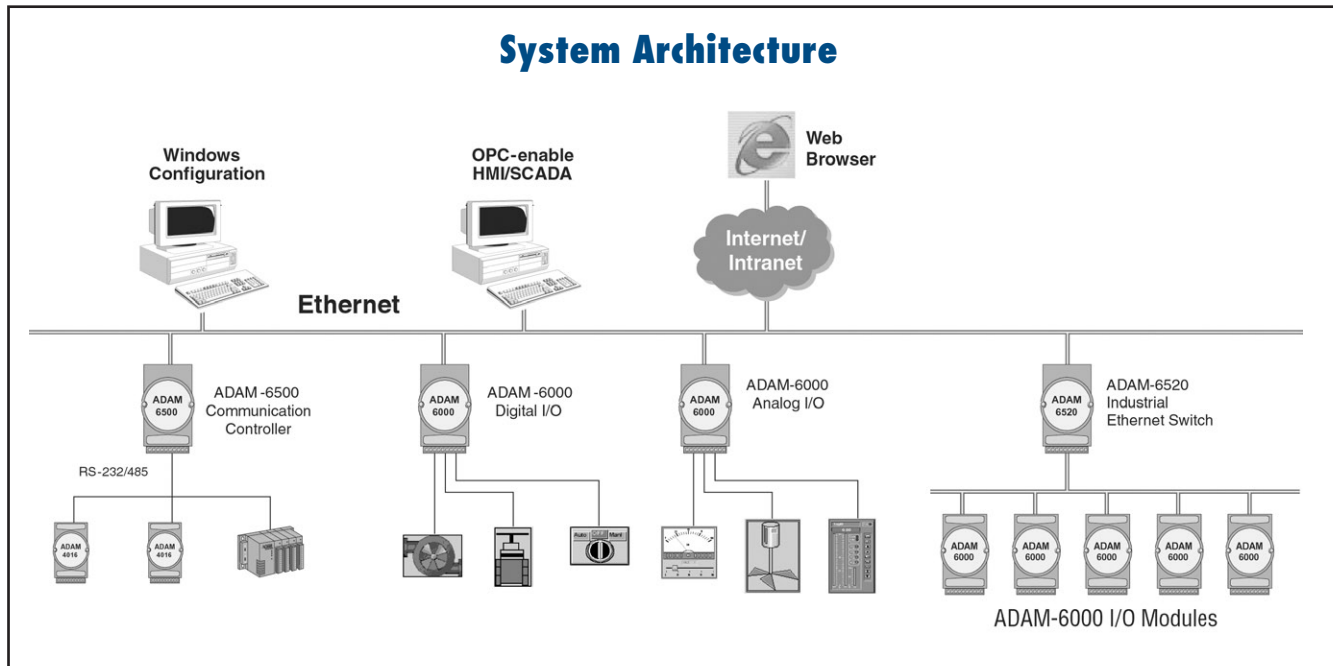
3. Built-in Standard and User-defined Web Pages

ADAM-6000 adopts web technology to enable remote monitoring via Internet. In addition to standard web pages, ADAM-6000 allows users to use the Java programming language to develop pages to meet their own requirements. ADAM-6000 supports standard HMI software with Modbus/TCP, OPC drivers and ActiveX drivers.



ADAM-6000 Application Diagram

I/O System Architecture



The ADAM-6000 is a controller independent, distributed I/O solution with modular design for maximum flexibility. Its powerful onboard intelligence makes it well suited to SCADA and stand-alone control applications.

Ethernet-enabled Networking

The ADAM-6000 series Ethernet-enabled data acquisition and control module works as an Ethernet I/O data processing center. This new product is not only a standard I/O, but also an intelligent system designed with local control functions and a Modbus/TCP standard for users to easily develop various applications over Ethernet.

Analog Input Modules

The ADAM-6000 analog input modules use microprocessor-controlled, high-resolution, 16-bit, sigma-delta A/D converters to acquire sensor signals such as voltage, current, thermocouple or RTD. They translate analog data into two's complement. After the modules receive a request from the host, they send the data in the desired format over the Ethernet network. ADAM-6000 analog input modules protect your equipment from ground loops by providing 3000 V_{DC} isolation. The ADAM-6017 and ADAM-6018 modules feature digital outputs which may also be used for alarms and event counting. The analog input module's two digital output channels are open-collector transistor switches that you can control from the host computer. By switching solid state relays, the output channels can control heaters, pumps and other power equipment. The module can use its digital input channel to sense the state of a remote digital signal.

Programmable Alarm Output

Analog input modules include high and low alarm signals with remotely configurable boundary values. After each A/D conversion, the digital value is compared with the high and low limit. The module can change the state of a digital output depending on the result of this comparison. This function allows it to perform on/off control of a device independently of the host PC.

Independent Channel Input Type Configuration

The ADAM-6015 6-channel RTD module, provides independent channel input type configuration. You can configure PT-100, Pt-1000 or Balco mA for each channel. This independent channel input type configuration gives the ADAM-6015 more flexibility for versatile applications. This functionality saves customers the cost of buying multiple modules and reduces inventory as well.

I/O System Architecture

Loop Controller Module

The ADAM-6022 offers two analog inputs, two analog outputs, two digital inputs and four digital outputs in one module. The ADAM-6022 is a two loop PID controller. Each loop may be configured as single loop, dual loop ratio, dual loop cascade or single loop with override. An auto tune function is provided to maximize the effectiveness of the control.

Analog Input Modules

The ADAM-6017/6018 are 16-bit, 8-channel analog input modules that provide programmable input ranges on all channels. These modules are an extremely cost-effective solution for industrial measurement and monitoring applications. 3000 V_{DC} optical isolation between the analog input and the modules protects the modules and peripherals from damage due to high input-line voltages.

The ADAM-6018 also supports thermocouple input in combination with the ADAM-6015 7 channels RTD input module. These two modules can offer a complete solution for temperature measurement applications.

Digital Input and Output Modules

The ADAM-6050 features twelve isolated digital input channels and six isolated digital output channels. The outputs are open-collector transistor switches that you can control from the host computer. You can also use the switches to control solid-state relays, which in turn can control heaters, pumps or other power equipment. The host computer can use the module's digital inputs to determine the state of limit switches, safety switches or remote digital signals. The ADAM-6051 provides twelve isolated digital input channels, two isolated digital output channels and two counter channels. All have 5000 V_{RMS} isolation to prevent ground loop effects and prevent damage from power surges on the input lines.

Digital Input

The ADAM-6050 & ADAM-6051 digital input channels provide four operational modes:

- Normal digital input with inverter setting
- 3 kHz frequency
- 3 kHz counter with digital filter
- Hi-to-Lo, Lo-to-Hi latch

Each digital input channel can set its operational mode independently.

Digital Output

The ADAM-6050 & ADAM-6051 digital output channels also provide four operational modes: normal digital output, pulse output with continuous or burst count mode, Hi-to-Lo, Lo-to-Hi delay. Each digital output channel can set its operational mode independently as well.

Counter/Frequency

The ADAM-6051 offers two 32-bit counter channels and a built-in programmable timer for frequency measurement.

Programmable Alarm Output

The ADAM-6051 modules include two digital output channels for alarm functions. You can set alarm values (32-bit) into the module from your host computer.

Relay Output Module

The ADAM-6060 offers six isolated digital input channels and six isolated relay channels. The digital input channel accepts 10 ~ 30 V_{DC} input. Just like other ADAM modules, the ADAM-6060 relay module is controlled remotely and stores its configuration data in EEPROM. It provides six Form A relay channels with 24 V_{AC} output. This module is excellent for on/off control or low-power switching applications.

12-ch Universal Input/Output Module

The ADAM-6024 offers six analog inputs, two analog outputs, two digital inputs and two digital outputs. This module is especially cost-effective for applications that require various signal type I/O points. The ADAM-6000 series also offers analog output functions.

1

PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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Plug-in I/O

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Signal Conditioning

13

USB I/O

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Motion Control I/O

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Ethernet Switch

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EDG

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ICOM

System Configuration & Application Development Tools

Software Support

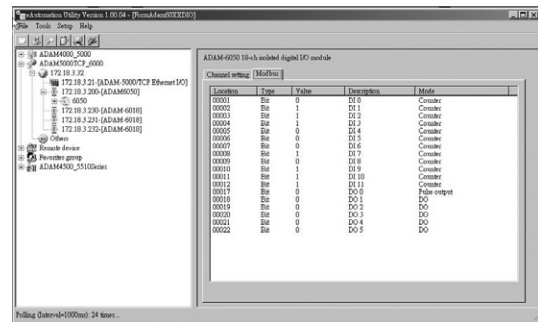
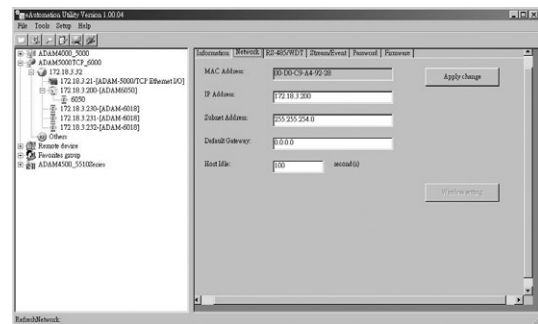
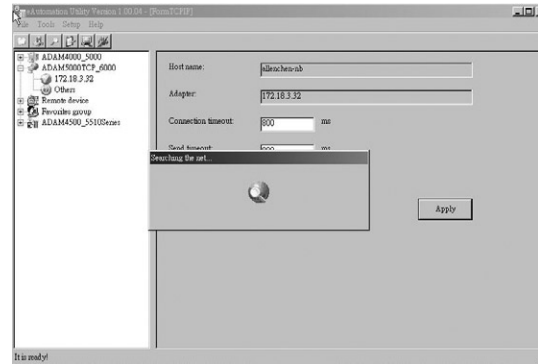
Based on the Modbus/TCP standard, the ADAM-6000 firmware has a built-in Modbus/TCP server. Advantech provides the necessary DLL drivers, OPC Server, and ADAM.Net Utility for the ADAM-6000. You can configure this DA&C system via ADAM.Net Utility and integrate it with a HMI software package via Modbus/TCP driver or Modbus/TCP OPC Server. Furthermore, you can use the DLL driver to develop your own applications.

ADAM.Net Utility

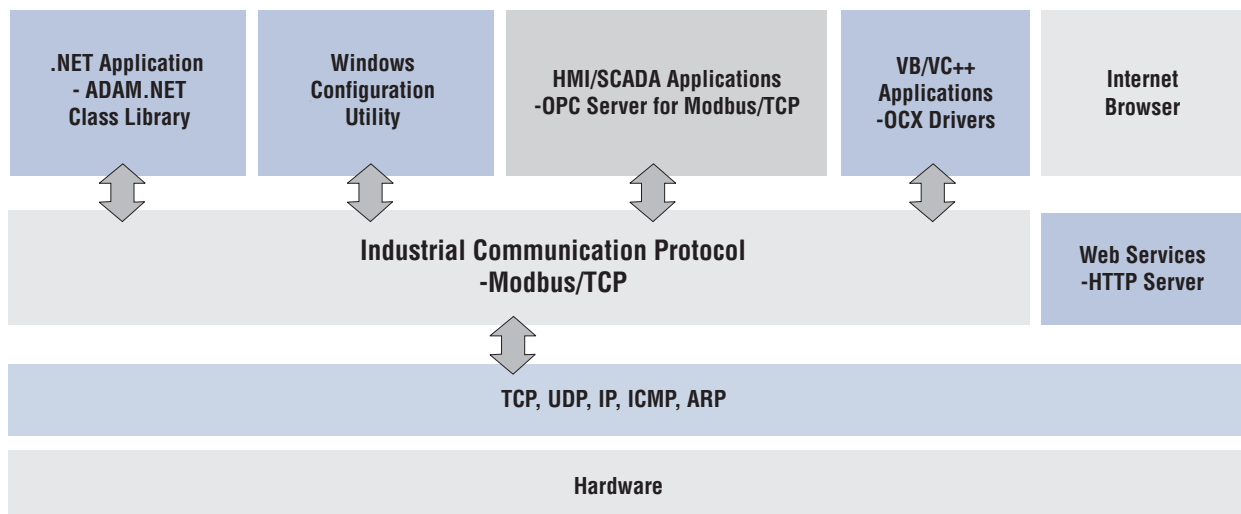
For system configuration, ADAM.Net Utility offers a friendly operating environment to calibrate I/O modules, monitor current data, set IP addresses etc. As you execute this program, it will automatically search each ADAM-6000 device on the network. There are also some advanced functions, such as the scaling function, which helps users convert various field signals to engineering units, and a latch output function, which forces data or status to create system simulations.

Browser-based Online Monitoring

Each ADAM-6000 module features an embedded HTTP server for remote monitoring and diagnostics. The ADAM-6000 also pre-builds a default html page in each module for online support for monitoring analog input/output, digital input/output, alarm/event, counter, or real-time values, all done remotely via the Intranet/Internet. Just enter the IP address of the ADAM-6000 module in any standard browser, and you can get dynamic, real-time values of ADAM-6000 I/O modules immediately, without any required programming.



How to Develop Applications



Rank	Product Name
1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWIS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com

ADAM-6000 Selection Guide

Spec.	Module	ADAM-6015	ADAM-6017	ADAM-6018	ADAM-6022	ADAM-6024	ADAM-6050	ADAM-6051	ADAM-6052	ADAM-6060	ADAM-6066	ADAM-6050W	ADAM-6051W	ADAM-6060W
Interface *		10/100 Mbps Ethernet										802.11 b wireless LAN		
Resolution		16 bit	16 bit	16 bit	16 bit for AI 12 bit for AO	16 bit for AI 12 bit for AO	-	-	-	-	-	-	-	-
Analog Input	Input Channels	7 differential	8 differential	8 differential	6 differential	6 diff. AI	-	-	-	-	-	-	-	-
	Sampling Rate	10 samples/sec					-	-	-	-	-	-	-	-
	Voltage Input	PT-50 PT-100 PT-200 PT-1000 Balco 500 NI 50	±150 mV ±500 mV ±1 V ±5 V ±10 V	-	±10 V	±10 V	-	-	-	-	-	-	-	-
	Current Input		0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA	-	-	-	-	-	-	-	-
	Direct Sensor Input	Pt, Balco and Ni RTD	-	J.K.T.E.R.S.B. Thermocouple	-	-	-	-	-	-	-	-	-	-
	Burn-out Detection	Yes	-	Yes	-	-	-	-	-	-	-	-	-	-
	Channel Independent Configuration	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	-	-	-
Analog Output	Math. Functions	Max. Min. Avg.	Max. Min. Avg.	Max. Min. Avg.	-	-	-	-	-	-	-	-	-	-
	Output Channels	-	-	-	2 AO	2 AO	-	-	-	-	-	-	-	-
	Voltage Output	-	-	-	0 ~ 20 mA, 4 ~ 20 mA with 15 V _{DC}	0 ~ 20 mA, 4 ~ 20 mA with 15 V _{DC}	-	-	-	-	-	-	-	-
Digital Input and Output	Drive Current	-	-	-	0 ~ 10 V _{DC} with 30 mA	0 ~ 10 V _{DC} with 30 mA	-	-	-	-	-	-	-	-
	Digital Input Channels	-	-	-	2	2	12	12	8	6	6	12	12	6
	Digital Output Channels	-	2 (Sink)	8 (Sink)	2 (Sink)	2 (Sink)	6 (Sink)	2 (Sink)	8 (Source)	6-channel relay	6-channel power relay	6 (Sink)	2 (Sink)	6-channel relay
	Event Counter	-	-	-	-	-	-	2 (4.5 kHz)	-	-	-	-	2 (4.5 kHz)	-
Isolation	High/Low Alarm Settings	Yes	Yes	Yes	-	-	-	-	-	-	-	-	-	-
	Watchdog Timer	Yes												
	Remark	-	-	-	Built-in Dual Loop PID Control Algorithm	-	-	-	-	-	-	-	-	-
Page		5-16	5-17		5-18	5-17	5-15			5-16		5-12		

Selection Guide

Name	ADAM-6501	ADAM-6520/6521	ADAM-6541/6542
Interface	10/100Base-T	10/100Base-T, 100Base-FX	10/100Base-TX and 100Base-FX
Ethernet Port	1	5	2
Serial Port	2	-	-
Speed	10/100 Mbps	up to 100 Mbps	up to 100 Mbps
Parity	Even, odd, none, space, mark	-	-
Data Bit	5, 6, 7, 8	-	-
Stop Bit	1, 1.5, 2	-	-
Software	Configuration/ port mapping utility	-	-
Connector	Network: RJ-45 Serial: RJ-48 & Screw Terminator	Network: RJ-45 Fiber: SC type multi/single mode	Network: RJ-45 Fiber: SC type multi-mode ST type single-mode
Mounting	DIN 35 rail, stack, wall		
Power Requirement	10 - 30 V		
Power Consumption	4 W	6520: 2.4 W 6521: 3 W	3 W
Operating Temperature	0 ~ 55° C	-10 ~ 65° C	-10 ~ 65° C
Page	5-10	5-14	

1
PAC & Software

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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Motion Control I/O

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Ethernet Switch

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EDG

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ICOM

ADAM-6501

Web-enabled Universal Communication Controller with Intel® XScale



CE FCC

Features

- Powerful Ethernet-enabled communication controller in a tiny package
- Built-in Windows CE .NET to run embedded Ethernet applications
- Embedded web server
- Microsoft embedded VC++ development environment supported
- Built-in CompactFlash® slot
- Built-in Flash disk for Win CE and user applications
- Built-in 32 MB real-time clock and watchdog timer
- Offers RS-232 and RS-485 series communication port
- Automatic data flow control in RS-485 mode
- Communication speed up to 115.2 kbps
- Easy to mount on a DIN-rail or wall
- ADAM.Net Class Library software support

Introduction

ADAM-6501 is a fully functional Ethernet-enabled controller for industrial automation and control. It provides an ideal environment to develop applications converting RS-232/485 devices/equipment data to the Ethernet/Internet world with minimum effort. Their built-in Windows CE .NET operating system lets users run new programs produced in Microsoft embedded VC++ & VS.Net development Software. The Windows environment also includes a web server to allow the designer to develop web-enabled applications.

Specifications

General

- **Certifications** CE, FCC class A
- **Connectors** 1 x RJ-45 (LAN), 1 x RJ-48 (RS-232), Plug-in screw terminal blocks (RS-485 and power)
- **Enclosure** ABS+PC
- **LED Indicators** Power, diagnostics, communications
- **Mounting** DIN 35 rail, stack, wall
- **Power Consumption** 4 W @ 24 V_{DC}
- **Power Input** Unregulated 10 ~ 30 V_{DC} (max. 6 W)
- **Real-time Clock** Yes
- **Watchdog Timer** Yes, programmable

System Hardware

- **CPU** 32-bit Intel® XScale 400 MHz
- **Flash Memory** 32 MB flash memory
- **RAM** 64 MB SDRAM
- **Battery Backup RAM** 2 MB
- **Storage** 1 x CompactFlash slot (external)

Protection

- **Power Reversal Protection**

Software

- **Operating System** Windows® CE .NET
- **System Management** Web-based remote configuration via standard browser with Java® support.
Command line configuration in console mode.

Communications

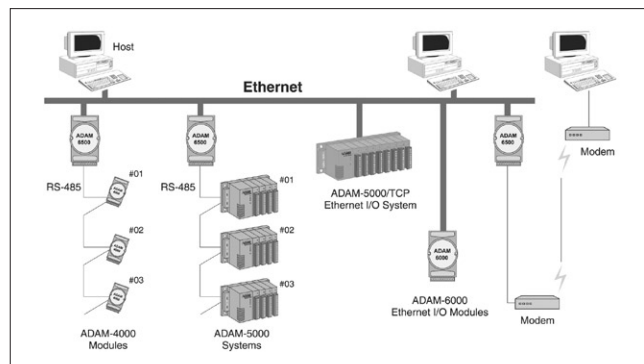
- **Default Setting Recovery** Onboard
- **LAN** 1 x 10/100Base-T (RJ-45)
- **Serial Ports (Isolated)** 1 x RS-232 (RJ-48), 1 x RS-485
Speed: 115.2 kbps
- **Protocols Supported** TCP/IP, UDP

Environment

- **Humidity** 5 ~ 95% RH, non-condensing
- **Operating Temperature** 0 ~ 55° C
- **Storage Temperature** -20 ~ 80° C (-13 ~ 185° F)

Ordering Information

- **ADAM-6501** Web-enabled Universal Communication Controller



ADAM-6501 Modules Installed as Controllers in a Typical System

Feature Details

Built-in Ethernet and RS-232/485 COM Ports

The ADAM-6501 has one Ethernet (10/100BASE-T), one RS-232 and one RS-232/485 ports. These provide easy communication between the controller and devices in your applications, and has been designed for program downloading, debugging and linking serial devices with the Ethernet/Internet. ADAM-6501 is equipped with a COM1 port (RS-232) supporting full RS-232 signals for applications such as modem connections, while the 3-pin RS-232 and RS-485 are designed as the interface for traditional RS-232/485 devices/equipment. This design allows the controller to be used in a variety of applications. For example, the user may download a data logging application into the ADAM-6501's memory while the ADAM-6501 is connected to a RS-485 network, and then collect the data over the network.

Built-in Real-time Clock and Watchdog Timer

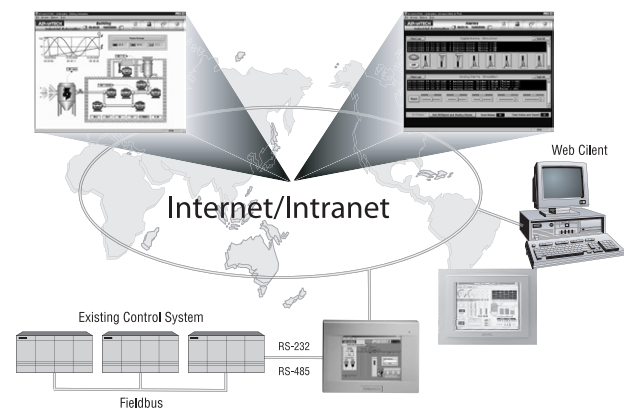
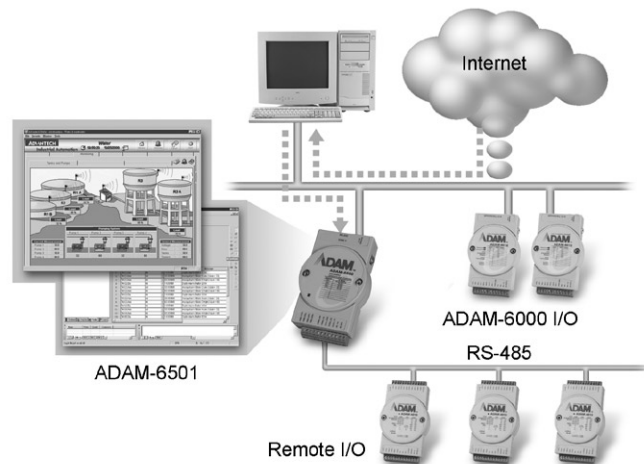
The real-time clock in the controller ensures accurate time recording when the system operates. The watchdog timer is designed to automatically reset the CPU if the system fails.

ADAM-6501AS PC-Based HMI Station/SCADA

The ADAM-6501AS embeds Advantech Studio into ADAM-6501 hardware. So you can easily develop the required application in a desktop PC, then download it into ADAM-6501AS as a cost effective, compact size SCADA/HMI station. Advantech Studio (AStudio), a powerful, integrated collection of automation tools that includes all the building blocks required to develop modern Human Machine Interfaces (HMI), and Supervisory Control and Data Acquisition System (SCADA) applications. AStudio in ADAM-6501AS can run native on Windows CE.NET or in an Internet and Intranet environment. A simple drag and drop, point and click development environment mimics the most complex behavior of your live processes. AStudio is an eAutomation solution that allows designers to develop web-enabled applications.

Applications

- Distributed data acquisition and control
- Embedded control application (Advantech AStudio SCADA Software)
- Data logging applications
- Serial to Ethernet conversion
- Web-enabled data acquisition and control



1	PAC & Software
2	BAS
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ADAM-6050W ADAM-6051W ADAM-6060W

18-ch Wireless LAN-enabled DI/O Module
16-ch Wireless LAN-enabled Isolated I/O w/Counter Module
6-ch Wireless LAN-enabled Relay Output Module



CE FCC

Features

- Supports IEEE802.11b wireless LAN
- Embedded web server with built-in web page
- Supports Modbus/TCP & UDP protocols
- Supports event trigger function

Introduction

ADAM-6050W, ADAM-6051W, and ADAM-6060W bring wireless LAN communication to your network. The hardware design of the modules were based on ADAM-6050, 6051, and 6060, but a wireless LAN interface has replaced the RJ-45 Ethernet port. With support for the common IEEE802.11b, these modules can be accessed on your wireless LAN without any hardwiring. A sensible choice for environments with wiring limitations, or expensive wiring requirements.

Specifications

General

- **Certifications** CE, FCC class A
- **Connectors** Plug-in screw terminal block (#14 ~ 28 AWG)
- **Dimensions (WxHxD)** 70 x 112 x 25 mm
- **Enclosure** ABS+PC
- **LAN** IEEE802.11b WLAN
- **LED Indicators** Power, communication, signal, strength
- **Mounting** DIN 35 rail, stack, wall
- **Power Consumption** ADAM-6050W, ADAM-6060W: 2 W @ 24 Vdc
ADAM-6051W: 2.5 W @ 24 Vdc
- **Power Input** Unregulated 10 ~ 30 V_{DC}
- **Watchdog Timer** Yes, programmable

Communications

- **Channels** ADAM-6050W: 12 DI, 6 DO
ADAM-6051W: 12 DI/2 DO/2 Counter
ADAM-6060W: 6 DI, 6 Relay
- **Counter** Maximum Count: 4,294,967,285 (32 bit)
Input frequency: 0.3 ~ 4500 Hz max. (frequency mode)
4500 Hz max. (counter mode)
Modes: Counter, Frequency
- **Digital Input**
 - Dry Contact: Logic level 0: Close to GND
Logic level 1: Open (Status inversable by utility)
(ADAM-6050W and ADAM-6051W only)
Logic level 0: +3 V (max.)
Logic level 1: +10 to 30 V
 - Wet Contact
 - Counter Mode: Up to 3 kHz for ADAM-6050W/6060W
Up to 4.5 kHz for ADAM-6051W
 - Frequency Mode: Up to 3 kHz for ADAM-6050W/6060W
Up to 4.5 kHz for ADAM-6051W
- **Digital Output** Open collector to 30 V, 100 mA max. load 300 mW
Pulse output : up to 5 kHz for ADAM-6050W and ADAM-6051W

- **Relay Output (Form A)** Contact rating: AC: 120 V @ 0.5 A, DC: 30 V @ 1 A
Breakdown voltage: 500 V_{AC} (50/60 Hz)
Relay on time: 7 msec; Relay off time: 3 ms
Total switching time: 10 ms
Insulation resistance: 1 GΩ minimum at 500 V_{DC}

Protection

- **Isolation Voltage** 2,000 V_{RMS}
- **Power Reversal Protection**

Software

- **Support Protocol** Modbus/TCP and UDP
- **Web Server** Embedded, with web page for configuration

Environment

- **Humidity** 5 ~ 95 % RH, non-condensing
- **Operating Temperature** -10 ~ 60 °C (14 ~ 140 °F)
- **Storage Temperature** -25 ~ 85 °C (-13 ~ 185 °F)

Ordering Information

- **ADAM-6050W** 18-ch Wireless LAN-enabled DI/O Module
- **ADAM-6051W** 16-ch Wireless LAN-enabled Isolated I/O w/Counter Module
- **ADAM-6060W** 6-ch Wireless LAN-enabled Relay Output Module

Feature Details

Communication

ADAM-6050W, ADAM-6051W and ADAM-6060W support IEEE802.11b, so they can connect to most wireless LAN access points.

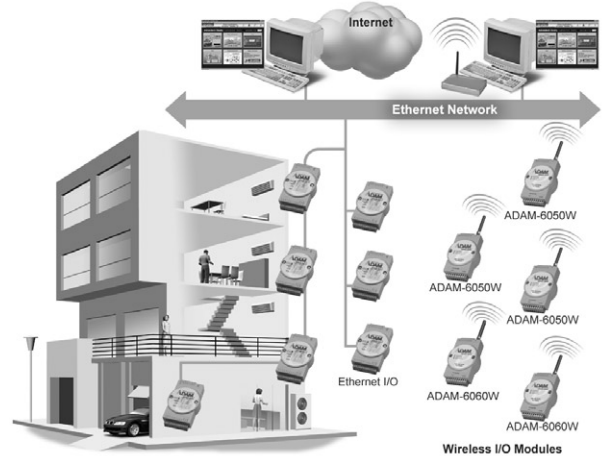
Like other ADAM-6000 modules, ADAM-6050W, ADAM-6051W and ADAM-6060W also support the Modbus/TCP and UDP protocols. You can use HMI/SCADA software to communicate with the modules through Modbus/TCP. The pre-built UDP protocol supports event trigger and data streaming functions for critical and real time responses.

Embedded Web Server with Built-in Web Page

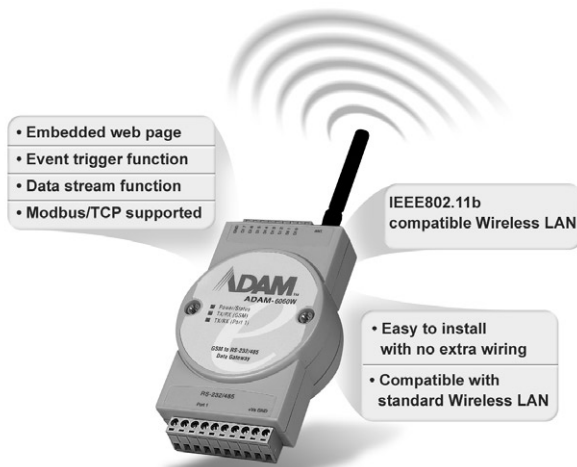
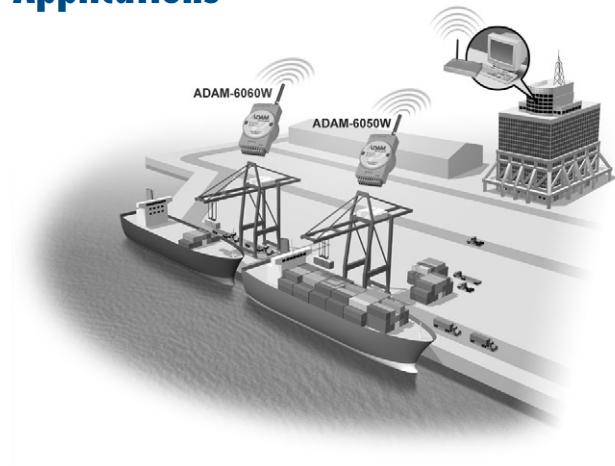
The modules have an embedded web server with a built-in webpage that can be configured by an utility for: Tag Name, Status Label (for example, Start/Stop, Run/Stop, Enable/Disable and Alarm/Normal), and Channel Enable.

Although it is based on Java technology, there is no need to learn how to write Java applets to design a customized web page. By using ADAM-6000 utility software, the webpage can be customized to exact requirements.

Home/Building Applications



Port Crane Monitoring & Control Applications



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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TCP

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IPPC

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FPM

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AWS

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Plug-in I/O

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Motion Control I/O

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Ethernet Switch

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EDG

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ICOM

ADAM-6520 ADAM-6521 ADAM-6541 ADAM-6542

5-port Industrial 10/100 Mbps Ethernet Switch

5-port Industrial 10/100 Mbps Ethernet Switch with Fiber Optic Ethernet to Multi-mode Fiber Optic Converter Ethernet to Single Strand WDM Fiber Optic Converter



ADAM-6520

ADAM-6521



ADAM-6542

ADAM-6541



Specifications

- **Standard** IEEE 802.3, IEEE 802.3u
- **LAN** ADAM-6520 : 10/100Base-T standard network
ADAM-6521 : 10/100Base-T & 10/100 Base-FX standard
- **Transmission Distance** Ethernet: 100 m, Multi-mode Fiber: Up to 2 km (ADAM-6521)
- **Transmission Speed** ADAM-6520 : up to 10/100 Mbps
ADAM-6521 : 4 x 10/100 Mbps & 1 x 100 Mbps (Fiber)
- **Connectors** ADAM-6520 : RJ-45,
ADAM-6521 : 4 x RJ-45 & 1 x Fiber (SC type)
- **LED Indicators** Power, 10/100 Mbps
- **Power Inputs** Unregulated 10 ~ 30 V_{DC}
- **Power Consumption** 2.4 W @ 24 V_{DC}
- **Enclosure** ABS with captive mounting hardware
- **Operating Temperature** -10 ~ 65° C (14 ~ 149° F)
- **Storage Temperature** -20 ~ 80° C (14 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)

Ordering Information

- **ADAM-6520** 5-port Industrial 10/100 Mbps Ethernet Switch
- **ADAM-6521** 5-port Industrial 10/100Mbps Ethernet Switch with Fiber port

Specifications

- **Standard** IEEE 802.3, 802.3u, 802.3x
- **LAN** 10/100Base-TX, 100Base-FX
- **Transmission Distance** Ethernet : 100 m
Fiber:
ADAM-6541: Multi-mode: Up to 2 km,
Single-mode: Up to 20 km
ADAM-6542: Up to 20 km
- **Transmission Speed** Up to 100 Mbps
- **Connectors** 1 x RJ-45
1 x SC type fiber optic connector (ADAM-6541, ADAM-6542/W13, ADAM-6542/W15)
1 x ST type fiber optic connector (ADAM-6541/ST)
- **LED Indicators** Power, Full/Link (100Base-FX), 100/10 M Ethernet (ADAM-6541)
Power, Link (100Base-FX) , 100/10 M Ethernet (ADAM-6542)
- **Power Input** Unregulated 10 ~ 30 V_{DC}
- **Power Consumption** 3 W @ 24 V_{DC}
- **Isolation Protection** 1,500 V_{RMS} (Ethernet port)
- **Enclosure** IP30, ABS+PC with solid mounting hardware Mounting DIN 35 rail, stack, wall Protection
- **Operating Temperature** -10 ~ 65° C (14 ~ 149° F),
stack : -10 ~ 60° C (14 ~ 140° F)
- **Storage Temperature** -20 ~ 80° C (-4 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)

Ordering Information

- **ADAM-6541** 10/100 Base-TX Ethernet to 100 Base-FX Multi-mode SC Type Fiber Optic Converter
- **ADAM-6541/ST** 10/100 Base-TX Ethernet to 100 Base-FX Multi-mode ST Type Fiber Optic Converter
- **ADAM-6542/W15** 10/100Base-TX Ethernet to 100Base-FX WDM Single Strand Fiber Optic Converter (Tx:1550nm, Rx:1310nm)
- **ADAM-6542/W13** 10/100Base-TX Ethernet to 100Base-FX WDM Single Strand Fiber Optic Converter (Tx:1310 nm, Rx:1550nm)

ADAM-6050

ADAM-6051

ADAM-6052

18-ch Isolated Digital I/O Module

16-ch Isolated Digital I/O w/Counter Module

16-ch Source Type Digital I/O Module



ADAM-6050

CE FCC RoHS



ADAM-6051

CE FCC RoHS



ADAM-6052

CE FCC RoHS

Specifications

General

- Power Consumption 2 W @ 24 V_{DC}
- Watchdog Timer Yes, programmable (comm.)

Digital Input

- Channels 12
- Dry Contact Logic level 0: close to GND
Logic level 1: open
- Wet Contact Logic level 0: 3 V max
Logic level 1: 10 ~ 30 V_{DC}

Digital Output

- Channels 6
- Open Collector to 30 V, 100 mA max. load
- Power Dissipation 300 mW for each module

Ordering Information

- ADAM-6050 18-ch Isolated Digital I/O Module

Specifications

General

- Power Consumption 2 W @ 24 V_{DC}
- Watchdog Timer Yes, programmable (comm.)

Counter

- Channels 2
- Maximum Count 4,294,967,285 (32 bit)
- Input Frequency 0.3 ~ 4500 Hz max. (frequency mode)
4500 Hz max. (counter mode)
- Modes Counter, Frequency

Digital Input

- Channels 12
- Dry Contact Logic level 0: close to GND
Logic level 1: open
- Wet Contact Logic level 0: +3 V max
Logic level 1: +10 V to 30 V_{DC}

Digital Output

- Channels 2
- Open Collector to 30 V, 100 mA max. load
- Power Dissipation 300 mW for each module

Ordering Information

- ADAM-6051 16-ch Isolated Digital I/O with Counter Module

Specifications

General

- Power Consumption 2 W @ 24 V_{DC}
- Watchdog Timer Yes, programmable (comm.)

Digital Input

- Channels 8
- Dry Contact Logic level 0: close to GND
Logic level 1: open
- Wet Contact Logic level 0: +3 V max
Logic level 1: +10 V to 30 V_{DC}

Digital Output

- Channels 8
- V_{DC} 35 V (Source Type)
- Current 1 A

Ordering Information

- ADAM-6052 16-ch Source Type Digital I/O Module

Common Specifications

General

- Certifications CE, FCC class A
- Connectors 1 x RJ-45 (LAN)
Plug-in screw terminal block (I/O, and power)
- LAN 10/100Base-T
- LED Indicators Power and communication
- Power Input Unregulated 10 ~ 30 V_{DC}

Digital Input

- Support 3kHz Counter Input
- Support 3kHz Frequency Input
- Support Invert DI Status

Digital Output

- Support 1kHz Pulse Output
- Support High-to-Low Delay Output
- Support Low-to-High Delay Output

Protection

- Power Reversal Protection
- Power Reversal Protection
- Isolation Voltage 2,000 V_{DC}

Environment

- Humidity (Operating) 20 ~ 95% RH (non-condensing)
- Humidity (Storage) 0 ~ 95% RH (non-condensing)
- Operating Temperature -10 ~ 70° C
- Storage Temperature -20 ~ 80° C

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPCC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-6060

ADAM-6066

ADAM-6015

6-ch Digital Input/Relay Module

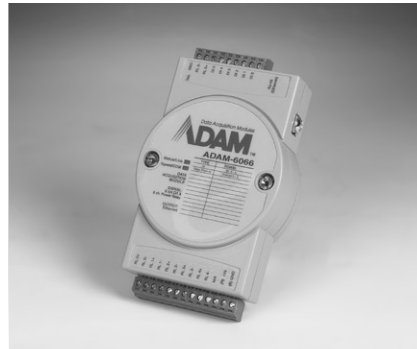
6-ch Digital Input/Power Relay Module

7-ch RTD Input Module



ADAM-6060

CE FCC RoHS



ADAM-6066

CE FCC RoHS



ADAM-6015

CE FCC RoHS

Specifications

General

- Power Consumption 2 W @ 24 Vdc
- Watchdog Timer Yes, programmable (Comm.)

Digital Input

- Channels 6 DI
- Dry Contact Logic level 0: close to GND
Logic level 1: open
- Wet Contact Logic level 0: +3 V max
Logic level 1: 10 ~ 30 V_{DC}

Relay Output (Form A)

- Channels 6 Relay
- Contact Rating AC: 120 V @ 0.5 A
- DC 30 V @ 1 A
- Breakdown Voltage 500 V_{AC} (50/60 Hz)
- Relay On Time 7 ms
- Relay Off Time 3 ms
- Total Switching Time 10 ms
- Insulation Resistance 1 G. min. at 500 V_{DC} Protection

Ordering Information

- ADAM-6060 6-ch Digital Input/Relay Module

Common Specifications

General

- Certifications CE, FCC class A
- Connectors 1 x RJ-45 (LAN)
Plug-in screw terminal block (I/O, and power)
- LAN 10/100Base-T
- LED Indicators Power and communication
- Power Input Unregulated 10 ~ 30 V_{DC}

Digital Input

- Support 3 kHz Counter Input
- Support 3 kHz Frequency Input
- Support Invert DI Status

Specifications

General

- Power Consumption 2.5 W @ 24 Vdc
- Watchdog Timer Yes, programmable (Comm.)

Digital Input

- Channels 6 DI
- Dry Contact Logic level 0: close to GND
Logic level 1: open
- Wet Contact Logic level 0: +3 V max
Logic level 1: 10 ~ 30 V_{DC}

Relay Output (Form A)

- Channels 6 Relay
- Contact Rating AC: 250 V @ 5 A
- DC 30 V @ 5 A
- Breakdown Voltage 500 V_{AC} (50/60 Hz)
- Relay On Time 7 ms
- Relay Off Time 3 ms
- Total Switching Time 10 ms
- Insulation Resistance 1G. min. at 500 V_{DC} Protection

Ordering Information

- ADAM-6066 6-ch Digital Input/Power Relay Module

Digital Output

- Support Pulse Output
- Support High-to-Low Delay Output
- Support Low-to-High Delay Output

Protection

- Power Reversal Protection
- Isolation Voltage 2,000 V_{DC}

Environment

- Humidity (Operating) 20 ~ 95% RH (non-condensing)
- Humidity (Storage) 0 ~ 95% RH (non-condensing)
- Operating Temperature -10 ~ 70° C
- Storage Temperature -20 ~ 80° C

Specifications

General

- Power Consumption 2 W @ 24 Vdc
- Watchdog Timer Yes, programmable (comm.)

Analog Input

- Accuracy ± 0.05 % or better
- Channels 7 differential
- CMR @ 50/60 Hz 150 dB
- Input Connections 2 or 3 wire
- Input Type Pt, Balco and Ni RTD
- Input Impedance 10 k.
- NMR @ 50/60 Hz 100 dB
- Resolution 16 bits
- RTD Types and Temperature Ranges

PT-100 RTD		
Pt-50° C	to	150° C
Pt 0° C	to	100° C
Pt 0° C	to	200° C
Pt 0° C	to	400° C
Pt-200° C	to	200° C
EC RTD 100 ohms.= 0.00385)		
JIS RTD 100 ohms.= 0.00392)		
Pt 1000 RTD: Pt -40 ~ 160° C		
Balco 500 RTD: -30 ~ 120° C		
Ni 518: -80 ~ 100° C		
Ni 518: 0 ~ 100° C		
- Sampling Rate 10 samples / sec.
- Span Drift ± 25 ppm/° C
- Zero Drift ± 3 µV/° C

Protection

- Individual Wire Burn-out Detection

Ordering Information

- ADAM-6015 7-ch RTD Input Module

ADAM-6017 ADAM-6018 ADAM-6024

8-ch Analog Input w/DO Module

8-ch Thermocouple Input w/DO Module

12-ch Universal Input/Output Module



ADAM-6017

CE FCC



ADAM-6018

CE FCC



ADAM-6024

CE FCC

Specifications

General

- Power Consumption 2 W @ 24 Vdc
- Watchdog Timer Yes, programmable (Comm.)

Analog Input

- Channels 8 differential
- Input Impedance 20 M Ω
- Input Type mV, V, mA
- Input Range ± 150 mV, ± 500 mV, ± 1 V, ± 5 V, ± 10 V, 0-20 mA, 4-20 mA
- Sampling Rate 10 samples/sec.

Digital Output

- Channels 2
- Open Collector to 30 V, 100 mA max. load
- Power Dissipation 300 mW for each module

Ordering Information

- ADAM-6017 8-ch Analog Input with DO Module

Specifications

General

- Power Consumption 2 W @ 24 Vdc
- Watchdog Timer Yes, programmable (Comm.)

Analog Input

- Channels 8 differential
- Input Impedance 20 k Ω
- Input Type Thermocouple
- Thermocouple Type and Thermocouple Range:

J	0	~	760° C
K	0	~	1370° C
T	-100	~	400° C
E	0	~	1000° C
R	500	~	1750° C
S	500	~	1750° C
B	500	~	1800° C
- Sampling Rate 10 samples/sec.

Digital Output

- Channels 8
- Open Collector to 30 V, 100 mA max. load
- Power Dissipation 300 mW for each module

Ordering Information

- ADAM-6018 8-ch Thermocouple Input with DO Module

Specifications

General

- Power Consumption 4 W @ 24 Vdc
- Watchdog Timer Yes, programmable (Comm.)

Analog Input

- Channels 6 differential
- Input Impedance 20 M Ω
- Input Type mA, V
- Input Range ± 10 V_{DC}, 0 ~ 20 mA, 4 ~ 20 mA
- Sampling Rate 10 samples/sec.

Analog Output

- Accuracy 0.05% of FSR
- Channels 2
- Drift ± 50 ppm/° C
- Drive Voltage 15 V_{DC} (current output)
- Output Type V, mA
- Output Range 0 ~ 10 V_{DC}, 4 ~ 20 mA, 0 ~ 20 mA

Resolution

Digital Inputs

- Channels 2
- Dry Contact:
 - Logic level 0: close to GND
 - Logic level 1: open
 - Logic level 0: +3 V_{max}
 - Logic level 1: 10-30 V_{DC}
- Wet Contact:

Digital Outputs

- Channels 2
- Open Collector to 30 V 100 mA max. load
- Power Dissipation 300 mW for each module

Ordering Information

- ADAM-6024 12-ch Universal Input/Output Module

Common Specifications

General

- Certifications CE, FCC class A
- Connectors 1 x RJ-45 (LAN) Plug-in screw terminal block (I/O, and power)
- LAN 10/100Base-T
- LED Indicators Power and communication
- Power Input Unregulated 10 ~ 30 V_{DC}

Analog Input

- Accuracy $\pm 0.1\%$ or better
- Bandwidth 13.1 Hz @ 50 Hz, 15.72 Hz @ 60 Hz

- CMR @ 50/60 Hz 92 dB min.
- Resolution 16 bits
- Span Drift ± 25 ppm/° C
- Zero Drift ± 6 μ V/° C

Protection

- Fault and Overvoltage withstands overvoltage
- Isolation Voltage 2,000 V_{DC}
- Protection up to ± 35 Vdc

Digital Input

- Supports 3 kHz Counter Input
- Supports 3 kHz Frequency Input
- Supports Invert DI Status

Digital Output

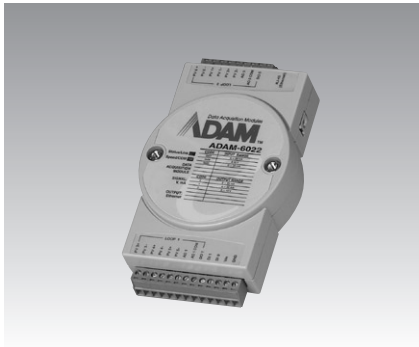
- Supports 1 kHz Pulse Output
- Supports High-to-Low Delay Output
- Supports Low-to-High Delay Output

Environment

- Humidity (Operating) 20 ~ 95% RH (non-condensing)
- Humidity (Storage) 0 ~ 95% RH (non-condensing)
- Operating Temperature
 - ADAM-6017/6018: -10 ~ 70° C
 - ADAM-6024: -10 ~ 50° C
- Storage Temperature -20 ~ 80° C

ADAM-6022

Ethernet-based Dual-loop PID Controller



ADAM-6022

CE FCC

Specifications

General

- Power Consumption 4 W @ 24 Vdc
- Loop Number 2 (3 AI, 1 AO, 1 DI, 1 DO for each control loop)
- LAN 10/100Base-T

Analog Input

- Accuracy $\pm 0.1\%$ or better
- Bandwidth 13.1 Hz @ 50 Hz
15.72 Hz @ 60 Hz
- Channels 6 differential
- CMR @ 50/60 Hz 92 dB min.
- Resolution 16 bits
- Input Impedance 20 M
- Input Range 0 ~ 10 V_{DC}, 0 ~ 20 mA,
4 ~ 20 mA
- Isolation Voltage 2,000 V_{DC}
- Sampling Rate 10 samples/sec.
- Span Drift ± 25 ppm/°C
- Zero Drift ± 6 μ V/°C

Analog Output

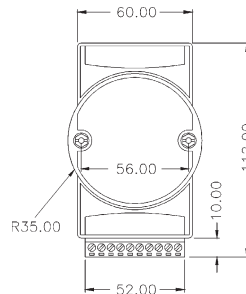
- Channels 1
- Accuracy 0.05% of FSR
- Channels 2
- Drift ± 50 ppm/°C
- Drive Voltage 15 V_{DC} (current output)
- Output Range 0 ~ 10 V_{DC}, 4 ~ 20 mA,
0 ~ 20 mA
- Resolution 12 bits

Digital Inputs

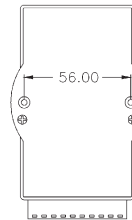
- Channels 2
- Open Collector to 30 V 100 mA max. load 300 mW
- Isolation Voltage 2,000 V_{DC}
- Fault and Overvoltage Withstands overvoltage overvoltage
- Power Reversal Protection
- Protection up to ± 35 V_{DC}

ADAM-6000 Series Dimensions

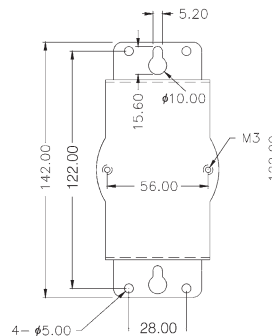
Unit: mm



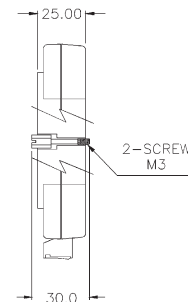
FRONT VIEW



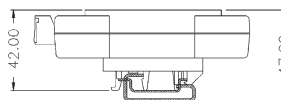
REAR VIEW



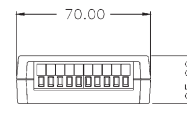
PANEL MOUNTING BRACKET



SIDE VIEW



DIN - RAIL MOUNTING ADAPTER



TOP VIEW

Digital Outputs

- Channels 2
- Open Collector to 30 V 100 mA max. load
- Fault and Overvoltage Protection Withstands overvoltage up to ± 35 V_{DC}

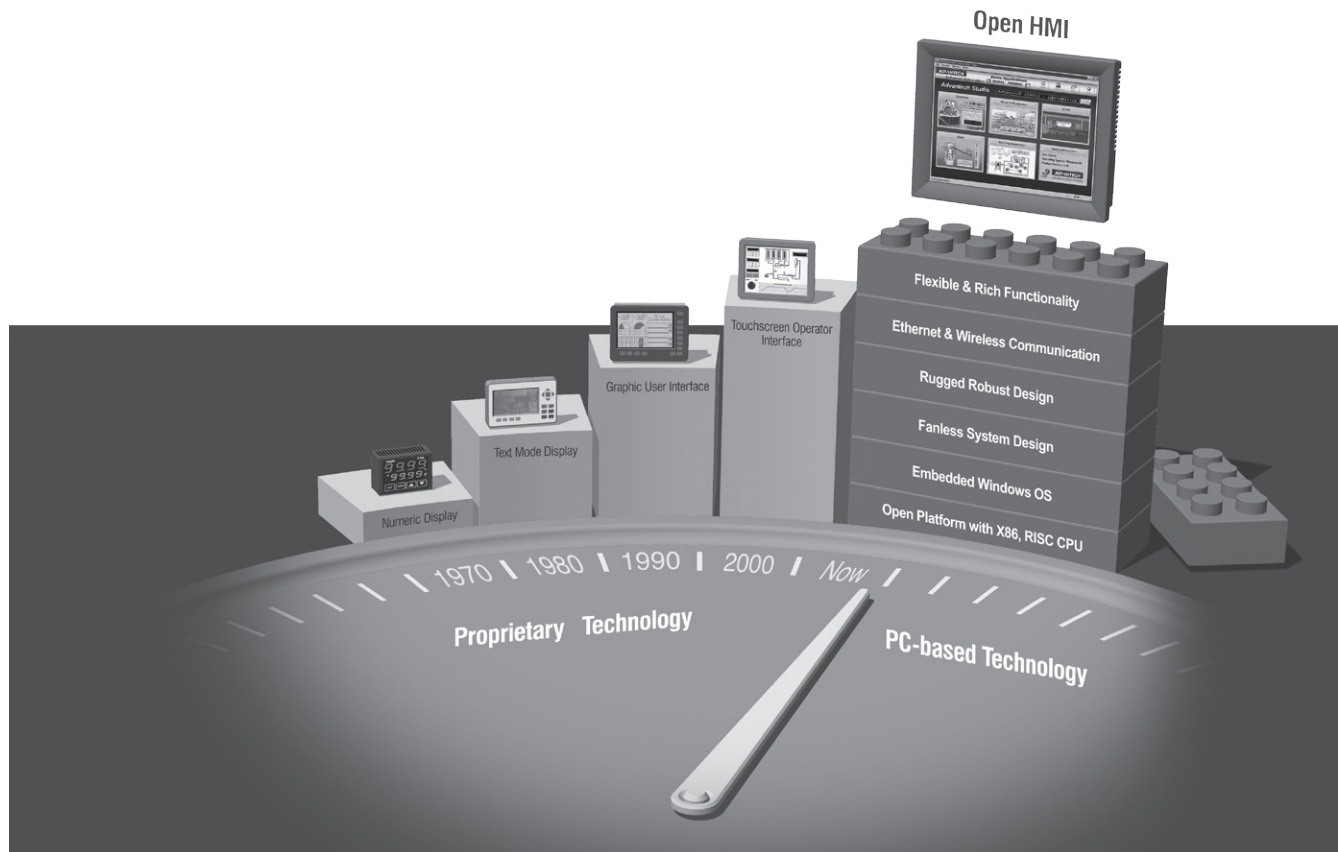
Environment

- Humidity (Operating) 20 ~ 95% RH, (non-cond)
- Humidity (Storage) 0 ~ 95% RH, (non-cond.)
- Operating Temperature -10 ~ 50° C
- Storage Temperature -20 ~ 80° C

Ordering Information

- ADAM-6022 Dual-loop PID Controller

Breaking Through with Open HMI Solutions



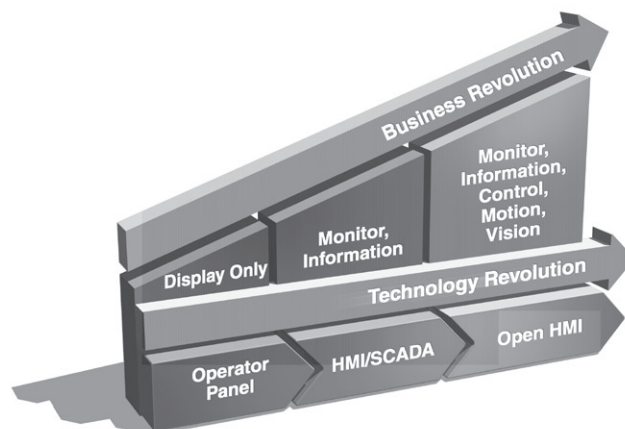
Open HMI, Unlimited Potential

Advantech's vision is to become the leading HMI platform provider in the PC-based industrial automation market by creating value-added, standard product solutions and by offering customization to meet unique requirements. We offer a wide range of HMI products for automation needs, including; hardware platforms such as the industrial panel PC's (IPPC), industrial workstations (AWS), flat panel monitors (FPM), and the touch panel computers (TPC). We also offer very powerful NT/CE and Linux-based HMI solutions to easily migrate applications up or down as scope changes.

Open HMI operates with a scalable (and open) operating system (providing standard file formats, interfaces and communications) and can provide some PC-based functionality, such as increased information processing. These are diskless and fanless products that offer advanced functionality over traditional HMI products with improved data handling and standard interfaces and communications.

Applications:

- Environmental Monitoring
- Facility Management
- Machine Automation
- Factory Automation
- Building Automation

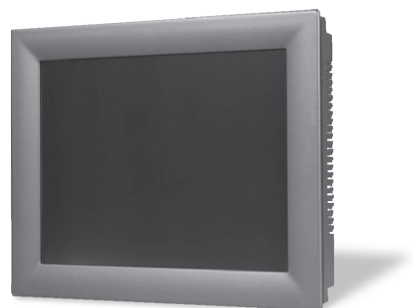


Open HMI Provides an Open & Integrated Platform to Simplify System Architectures and Reduce System Maintenance Costs

Touch Panel Computers (TPC)

Compact & Rugged HMI Platforms for Seamless Interaction between Humans and Machines

The ultra-slim, light, fanless and vibration-resistant design of Advantech's TPC Series provides an ideal HMI platform for most automation applications. TPC products are available in display sizes of 5.7", 6.4", 10.4", 12.1", and 15". TPC's feature processors that are low in power consumption, and they also have a unique fanless design. With their stable system architecture, TPC is an ideal solution for any industrial environment. In addition, the product housings are made from a Aluminum-Magnesium Alloy which results in a lightweight unit, with corrosion resistance and excellent heat dissipation.



Industrial Panel PCs (IPPC)

Powerful Computing and Robust Platforms with High Performance for Factory Floors

Advantech's IPPC series has proven their reliability through years of operation in all parts of the world. They can be built to achieve a performance and cost ratio that is optimum for any industrial application. Constructed with stainless steel chassis and heavy-duty aluminum front panels, the rugged design of Advantech's IPPC series can withstand tough industrial environments. Equipped with powerful Intel Pentium III & 4 processors, the IPPC has high computing power, and also provides expansion slots for add-on boards. The IPPC can be configured with memory, drives, and operating systems that meet your diverse needs.



Flat Panel Monitors (FPM)

Full Range of Industrial-grade Units with Multifunction Capabilities and Brilliant Displays

Advantech's flat panel monitors are designed specifically for industrial environments. These monitors feature industrial-grade flat panel LCDs with brightness that is often more than twice that of commercial monitors, making them much easier to see. FPM products are designed for factory floor environments and can withstand the higher temperatures, vibration, and the dirt and dust that can be commonplace. High NEMA and IP ratings for the bezel design enable these products to be installed in wet and dusty areas. A full-range selection is provided in sizes ranging from 6", 12", 15", 17" to 19".



Industrial Workstations (ATM & AWS)

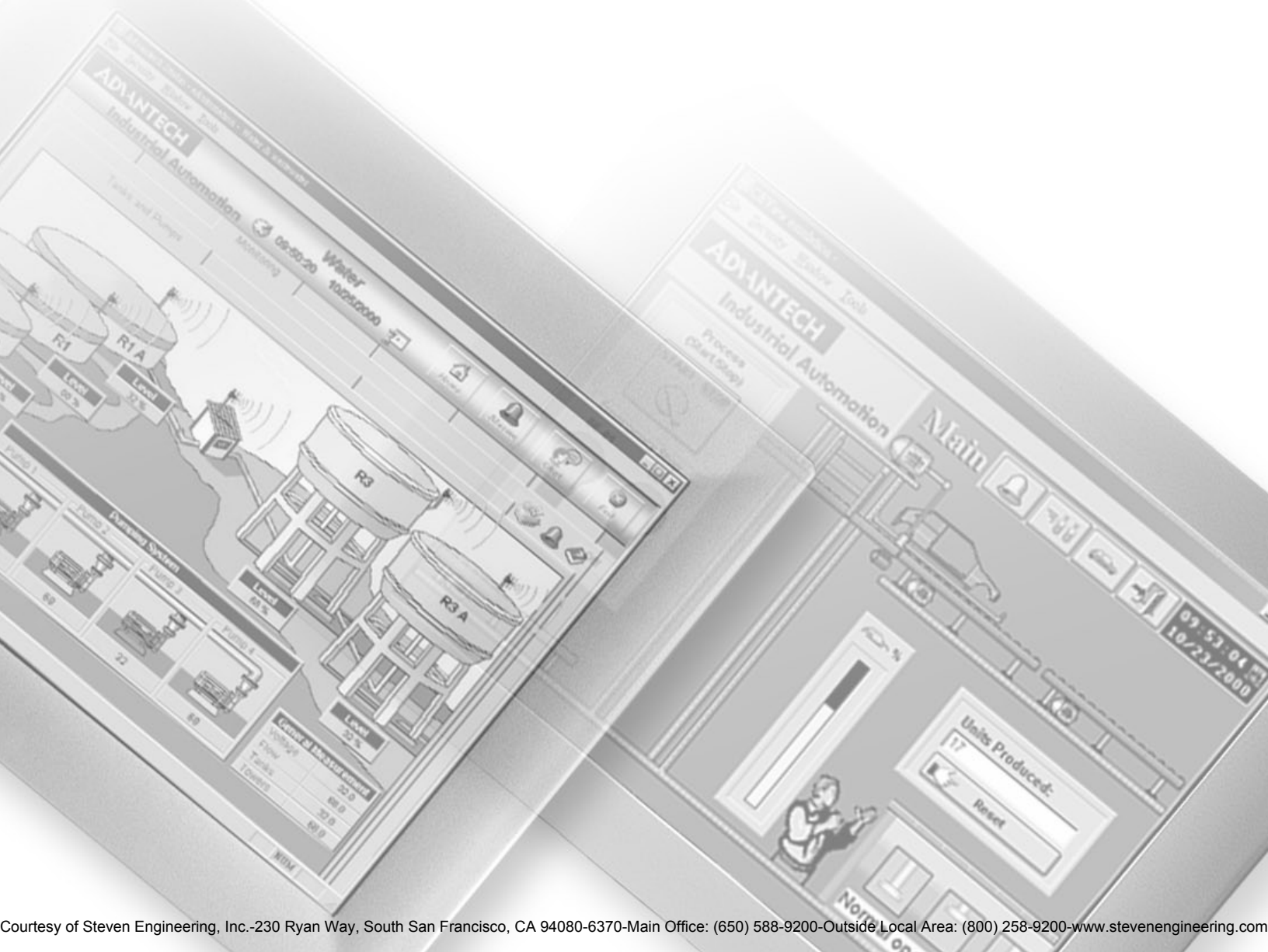
Heavy-duty, Expandable & Reliable Solutions to Optimize Site Operations and Visualization

Advantech provides a series of powerful industrial workstations with open architecture that incorporates widely used PC technology for industrial platforms. The compact and heavy-duty industrial workstations are specially designed for controlling machinery or processes; displaying the information necessary to repair, maintain, or starting up a process, and gathering basic production information for making informed business decisions. The AWS Series provides multiple CPU choices, and supports different PCI/ISA passive backplanes. In addition, our ATM series integrates TFT-LCD display, built-in keyboard, touchpad, and front access/wiring and chassis in one box. The all-in-one design gives great benefits in test and measurement application.



Touch Panel Computers

Selection Guide	Touch Panel Computer Selection Guide	6-2
TPC-1570H	Intel Celeron M Touch Panel Computer with 15" XGA TFT LCD	6-4
TPC-1270H (new)	Intel Pentium M Touch Panel Computer with 12.1" SVGA TFT LCD	6-6
TPC-1261H	AMD LX800 Touch Panel Computer with 12.1" SVGA TFT LCD	6-8
TPC-1070H (new)	Intel Pentium M Touch Panel Computer with 10.4" SVGA TFT LCD	6-10
TPC-660G (new)	AMD LX800 Touch Panel Computer with 6.4" VGA TFT LCD Display	6-12
TPC-120H (new)	Intel XScale PXA Touch Panel Computer with 12.1" SVGA TFT LCD Display	6-14
TPC-66S	Intel XScale Touch Panel Computer with 5.7" QVGA STN LCD Display	6-16
TPC-66T (new)	Intel XScale Touch Panel Computer with 5.6" QVGA TFT LCD Display	
TPC-68T (new)	Intel XScale Touch Panel Computer with 5.6" QVGA TFT LCD Display and CAN-bus Support	6-18
TPC Accessories		6-20



TPC Selection Guide

Specifications		Model	TPC-1570H	TPC-1270H	TPC-1261H
CPU			Intel Celeron M 1 GHz Intel Celeron M 600 MHz	Intel Pentium M 1.4 GHz Intel Celeron M 1 GHz	AMD LX800 500 MHz
Memory			512 MB DDR SDRAM (up to 1 GB DDR SDRAM)	512 MB DDR2 SDRAM (up to 1 GB DDR2 SDRAM)	256 MB DDR SDRAM (up to 1 GB DDR SDRAM)
Display	Type		TFT color LCD	TFT color LCD	TFT color LCD
	Size		15"	12.1"	12.1"
	Max. Resolution		1024 x 768	800 x 600	800 x 600
	Max. Colors		262 K	262 K	262 K
	Luminance (cd/m ²)		350	350	340
	Viewing Angle (H°/V°)		120/100	140/120	100/60
	Backlight Life (hrs)		50,000	50,000	50,000
Touchscreen			Resistive	Resistive	Resistive
Flash Memory			N/A	N/A	N/A
HDD			1 x Internal 2.5" (optional)	1 x Internal 2.5" SATA (optional)	1 x Internal 2.5" (optional)
FDD			External from USB interface	External from USB interface	External from USB interface
CD-ROM			External from CF slot	External from CF slot	External from CF slot
Network (LAN)			1 x 10/100Base-T, 1 x 10/100/1000Base-T (TPC-1570H-A1E) 2 x 10/100Base-T (TPC-1570H-B1E)	1 x 10/100Base-T, 1 x 10/100/1000Base-T (TPC-1270H-P1E) 2 x 10/100Base-T (TPC-1270H-C1E)	1 x 10/100Base-T
I/O Ports			Serial Port x 3 (2 x RS-232 and 1 x RS-232/485/422) Parallel Port x 1 VGA x 1 USB x 2 Audio x 3 (1 x MIC-in, 1 x Line-in, 1 x Line-out) PS/2 x 1	Serial Port x 4 (3 x RS-232 and 1 x RS-232/485/422) VGA x 1 USB x 4 Audio x 2 (1 x MIC-in, 1 x Line-out)	Serial Port x 4 (3 x RS-232 and 1 x RS-232/485/422) Parallel Port x 1 USB x 2 PS/2 x 1
CompactFlash Slots			Type II x 1	Type II x 1	Type II x 1
PCMCIA Slots			Type II x 1	N/A	N/A
Expansion Slots			N/A	PCI-104 x 1	PCI-104 x 1
Power	Input Voltage		18 ~ 32 Vdc	18 ~ 32 Vdc	18 ~ 32 Vdc
	Power Consumption		60 W	60 W	60 W
Dimensions		W x D x H (mm)	383 x 307 x 65 mm (15.08" x 12.09" x 2.56")	311 x 237 x 65 mm (12.24" x 9.33" x 2.56")	311 x 237 x 50 (12.24" x 9.33" x 1.97")
Weight (Net)			5.5 kg (12.13 lb)	3.5 kg (7.72 lb)	2.2 kg (4.85 lb)
Front Cover			Al-Mg	Al-Mg	Al-Mg
Operating Temperature			0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)
Ingress Protection (Front Panel)			NEMA4/IP65	NEMA4/IP65	NEMA4/IP65
Certifications			BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL
Operating System			Windows 2000, Windows XP Windows CE, XP Embedded	Windows 2000, Windows XP Windows XP Embedded	Windows XP Windows CE, XP Embedded
Page			6-4	6-6	6-8

Selection Guide

TPC-1070H	TPC-660G	TPC-120H	TPC-66S	TPC-66T/TPC-68T
Intel Pentium M 1.4 GHz Intel Celeron M 1 GHz	AMD LX800 500 MHz	Intel PXA270 520 MHz	Intel PXA270 416 MHz	
512 MB DDR SDRAM	256 MB DDR SDRAM (up to 1 GB DDR SDRAM)	64 MB SDRAM on board	64 MB SDRAM on board	
TFT color LCD	TFT color LCD	TFT color LCD	STN color LCD	TFT color LCD
10.4"	6.4"	12.1"	5.7"	5.6"
800 x 600	640 x 480	800 x 600	320 x 240	320 x 234
260 K	262 K	262 K	64 K	64 K
400	150	340	400	500
140/100	90/50	100/60	100/55	100/60
50,000	20,000	50,000	60,000	30,000
Resistive	Resistive	Resistive	Resistive	
N/A	N/A	64 MB on board	64 MB on board	
1 x Internal 2.5" (optional)	1 External 2.5" (optional)	N/A	N/A	
External from USB interface	N/A	N/A	N/A	
External from CF slot	N/A	N/A	N/A	
1 x 10/100Base-T, 1 x 10/100/1000Base-T (TPC-1070H-P1E) 2 x 10/100Base-T (TPC-1070H-C1E)	10/100Base-T	2 x 10/100Base-T	10/100Base-T	
Serial Port x 3 (2 x RS-232 and 1 x RS-232/485/422) USB x 2 PS/2 x 1	Serial Port x 2 (1 x RS-232 and 1 x RS-232/485/422) USB x 2	Serial Ports x 3 (2 x Full RS-232; 1 x 4-pin RS-232/RS485) VGA x 1 USB x 2 CAN Bus x 1 (optional)	Serial Port x 3 USB x 2 (Host x 1, Client x 1)	TPC-66T Serial Port x 3, USB x 2 (Host x 1, Client x 1) TPC-68T Serial Port x 2, CAN Bus x 1, USB x 2 (Host x 1, Client x 1)
Type II x 1	Type II x 1	Type II x 1	Type II x 1	
N/A	N/A	N/A	N/A	
N/A	PC-104 x 1	N/A	N/A	
18 ~ 32 Vdc	18 ~ 32 Vdc	18 ~ 32 Vdc	18 ~ 32 Vdc	
60 W	30 W	30 W	20 W	
286 x 266 x 58 mm (11.26" x 8.9" x 2.28")	195 x 148 x 44.4 (7.68" x 5.83" x 1.75")	311 x 237 x 50 (12.24" x 9.33" x 1.97")	195 x 148 x 44.4 (7.68" x 5.83" x 1.75")	
3.5 kg (7.72 lb)	0.8 kg (1.76 lbs)	2.2 kg (4.85 lbs)	0.8 kg (1.76 lbs)	
Die-Cast Aluminum Alloy	ABS	Al-Mg	ABS	
0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	
NEMA4/IP65	NEMA4/IP65	NEMA4/IP65	NEMA4 / IP65	
BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL	
Windows 2000, Windows XP Windows CE, XP Embedded	Windows XP, Windows CE, XP Embedded	Windows CE	Windows CE	
6-10	6-12	6-14	6-16, 6-18	

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

TPC-1570H

Intel® Celeron® M Touch Panel Computer with 15" XGA TFT LCD



Features

- Intel® Celeron® M Processor up to 1 GHz on board
- 15" XGA TFT LCD
- Compact design with Al-Mg housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Supports Microsoft® Windows® XP/2000/CE and WinXPe
- Automatic data flow control RS-485
- Giga Ethernet and fast Ethernet supported

Introduction

With a high quality TFT LCD display, TPC-1570H is designed with the Intel Celeron M 600 MHz/1 GHz with 512 K cache processor as its core. The Intel Celeron M has low power consumption and 600 MHz/1 GHz operating frequency. This system is fanless although the kernel is powerful. In addition, spindle-free storage makes the TPC-1570H a durable and reliable platform. For applications where spindle-free storage is not critical, a fast-access HDD module can be used. The rich I/O portfolio meets diverse requests.

Specifications

General

- **BIOS** Award® 4 MB
- **Certifications** BSMI, CCC, CE, FCC, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 383 x 307 x 65 mm (15.08" x 12.09" x 2.56")
- **Enclosure** Front bezel: Al-Mg
Back housing: ABS + PC
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft Windows XP/2000/CE and WinXPe
- **Power Consumption** 60 W
- **Power Input** 18 ~ 32 V_{DC}
- **Watchdog Timer** 1 sec (system)
- **Weight (Net)** 5.5 kg (12.13 lb)

System Hardware

- **Audio Ports** 1 x MIC-in, 1 x Line-in, 1 x Line-out
- **CPU** Intel Celeron M 600 MHz/1 GHz with 512 K cache
- **Expansion Slots** 1 x CompactFlash® slot
1 x PCMCIA
- **Graphics Controller** Intel 855 GME (Celeron M 1 GHz)/Intel 852 GM (Celeron M 600 MHz)
- **Keyboard/Mouse Ports** 1 x PS/2
- **LAN** 1 x 10/100Base-T, 1 x 10/100/1000Base-T (TPC-1570H-A1E)
2 x 10/100Base-T (TPC-1570H-B1E)
- **Memory** 512 MB DDR SDRAM (up to 1 GB)
- **Parallel Ports** 1 x Parallel port
- **Serial Ports** 2 x RS-232 and 1 x RS-232/485/422
- **Storage** 1 x CompactFlash card, or 1 x 2.5" HDD (optional)
- **USB Ports** 2 x USB 2.0
- **Video Ports** 1 x VGA

LCD Display

- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 500:1
- **Display Size** 15"
- **Display Type** XGA TFT LCD
- **Luminance cd/m²** 350
- **Max. Colors** 262 K
- **Max. Resolution** 1024 x 768
- **Viewing Angle (H/V)** 120/100

Touchscreen

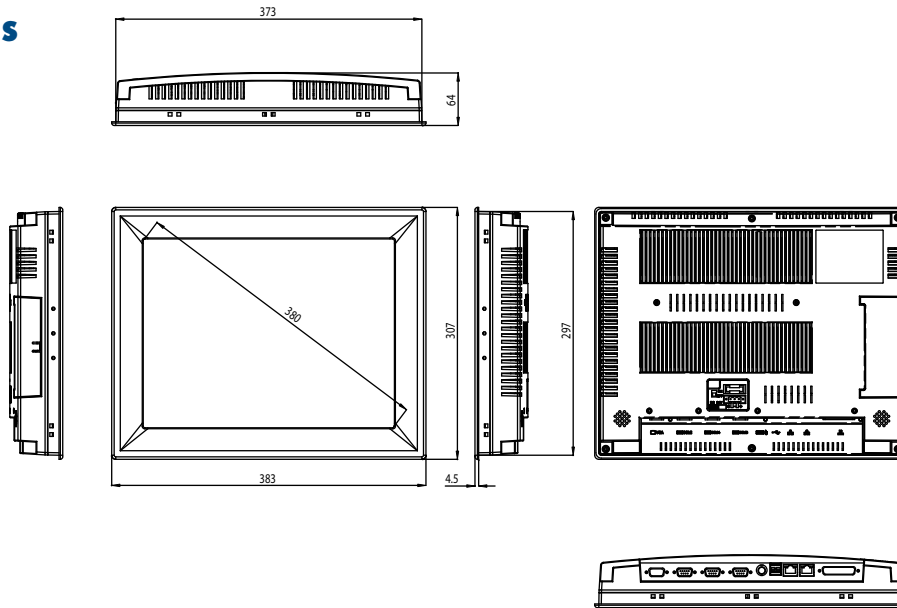
- **Lifespan** 1 million touches at single point
- **Light Transmission** Above 75%
- **Pixel Pitch (H x V)** 0.3075 x 0.3075 mm
- **Resolution** 1024 x 1024
- **Type** 8-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Vibration Protection** With CompactFlash: 2 grms (5 ~ 500 Hz)
With HDD: 1 grms (5 ~ 500 Hz)
(Operating, random vibration)

Dimensions

Unit: mm



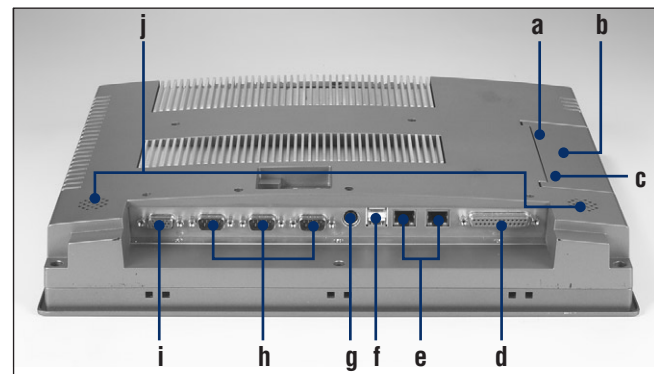
Panel Cut-out Dimensions: 375 x 299 mm

Ordering Information

- **TPC-1570H-A1E** 15" TFT LCD Display TPC with Intel Celeron M 1 GHz CPU, 512 K cache, 512 MB DDR SDRAM
- **TPC-1570H-B1E** 15" TFT LCD Display TPC with Intel Celeron M 600 MHz CPU, 512 MB DDR SDRAM
- **TPC-1570H-C1E** 15" TFT LCD Display TPC with Intel Celeron M 1 GHz CPU, 512 MB DDR SDRAM
- **TPC-1570H-P1E** 15" TFT LCD Display TPC with Intel Pentium M 1.4 GHz CPU, 512 MB DDR SDRAM
- **TPC-1570 STAND** TPC-1570H desktop stand
- **TPC-1570 WALLMT** TPC-1570H wallmount kit

Rear View

TPC-1570H



- | | |
|--------------------------|----------------|
| a. CompactFlash Slot x 1 | f. USB x 2 |
| b. PCMCIA x 1 | g. PS2 x 1 |
| c. Audio x 3 | h. COM x 3 |
| d. LPT x 1 | i. VGA x 1 |
| e. LAN x 2 | j. Speaker x 2 |

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

TPC-1270H

Intel® Pentium® M/Celeron® M Touch Panel Computer with 12.1" SVGA TFT LCD

NEW



Features

- Intel® Pentium® M Processor up to 1.4 GHz on board
- 12.1" SVGA TFT LCD
- Compact design with Al-Mg housing and Al alloy die-casting
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Supports Microsoft® Windows® XP/2000/CE and WinXPe
- Downward I/O cabling
- Automatic data flow control RS-485
- Giga Ethernet and fast Ethernet supported

Introduction

With a high quality TFT LCD display, TPC-1270H is designed with the Intel Pentium M 1.4 GHz/Celeron M 1 GHz processor as its core. The Intel Pentium M/Celeron M has low power consumption and 1.4 GHz/1 GHz operating frequency. This system is fanless although the kernel is powerful. In addition, spindle-free storage makes the TPC-1270H a durable and reliable platform. For applications where spindle-free storage is not critical, a fast-access HDD module can be used. The rich I/O portfolio meets diverse requests.

Specifications

General

- **BIOS** Award® 4 MB
- **Certifications** BSMI, CCC, CE, FCC, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 311 x 237 x 65 mm (12.24" x 9.33" x 2.56")
- **Enclosure** Front bezel: Al-Mg
Back housing: Al alloy die-casting
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft Windows XP/2000 and WinXPe
- **Power Consumption** 60 W
- **Power Input** 18 ~ 32 V_{DC}
- **Watchdog Timer** 1 sec (system)
- **Weight (Net)** 3.5 kg (7.72 lb)

System Hardware

- **Audio Ports** 1 x MIC-in, 1 x Line-out
- **CPU** Intel Pentium M 1.4 GHz/Celeron M 1 GHz
- **Expansion Slots** 1 x CompactFlash® slot
1 x PCI-104 Slot
- **Graphics Controller** Intel 915 GME
- **LAN** 1 x 10/100Base-T, 1 x 10/100/1000Base-T (TPC-1270H-P1E)
2 x 10/100Base-T (TPC-1270H-C1E)
- **Memory** 512 MB DDR2 SDRAM
- **Serial Ports** 3 x RS-232 and 1 x RS-232/485/422
- **Storage** 1 x CompactFlash card (optional), or
1 x 2.5" SATA HDD (optional)
- **USB Ports** 4 x USB 2.0
- **Video Ports** 1 x VGA

LCD Display

- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 500:1
- **Display Size** 12.1"
- **Display Type** SVGA TFT LCD
- **Luminance cd/m²** 350
- **Max. Colors** 262 K
- **Max. Resolution** 800 x 600
- **Viewing Angle (H/V)** 140/120

Touchscreen

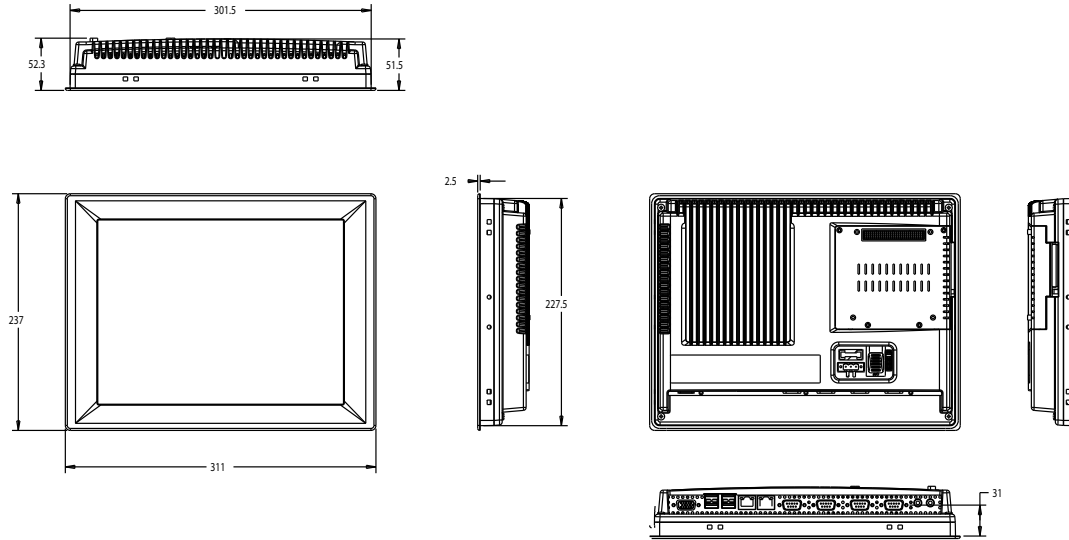
- **Lifespan** 1 million touches at single point
- **Light Transmission** Above 75%
- **Pixel Pitch (H x V)** 0.3075 x 0.3075 mm
- **Resolution** 1024 x 1024
- **Type** 8-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Vibration Protection** With CompactFlash: 2 grms (5 ~ 500 Hz)
With HDD: 1 grms (5 ~ 500 Hz)
(Operating, random vibration)

Dimensions

Unit: mm



Panel Cut-out Dimensions: 312.5 x 228.5 mm

Ordering Information

- **TPC-1270H-P1E** 12.1" TFT LCD Display TPC with Intel Pentium M 1.4 GHz CPU, 512 MB DDR SDRAM
- **TPC-1270H-C1E** 12.1" TFT LCD Display TPC with Intel Celeron M 1 GHz CPU, 512 MB DDR SDRAM

Accessories

- **TPC-1260 STAND** TPC-1261H desktop stand
- **TPC-1260 WALLMT** TPC-1261H wallmount kit

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

TPC-1261H

AMD LX800 Touch Panel Computer with 12.1" SVGA TFT LCD



Features

- AMD LX800 processor on board
- 12.1" SVGA TFT LCD
- Super slim and compact design with Al-Mg housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Supports Microsoft® Windows® XP/CE and WinXPe
- Automatic data flow control RS-485

Introduction

With a high quality TFT LCD display, TPC-1261H is designed with the AMD LX800 processor as its core. The LX800 has low power consumption 500 MHz operating frequency. This system is fanless although the kernel is powerful. In addition, spindle-free storage makes the TPC-1261H a durable and reliable platform.

For applications where spindle-free storage is not critical, a fast-access HDD module can be used. It also provides a PCI-104 expansion slot for TPC-1270H-C1E.

Specifications

General

- **BIOS** Award® 4 MB
- **Certifications** BSMI, CCC, CE, FCC, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 311 x 237 x 50 mm (12.24" x 9.33" x 1.97")
- **Enclosure** Al-Mg and ABS
- **Mounting** Desktop, swing arm or wall (with mounting kit)
- **OS Support** Microsoft Windows XP/CE and WinXPe
- **Power Consumption** 60 W
- **Power Input** 18 ~ 32 V_{DC}
- **Watchdog Timer** 1 sec (system)
- **Weight (Net)** 2.2 kg (4.85 lb)

System Hardware

- **CPU** AMD LX800 500 MHz
- **Expansion Slots** 1 x CompactFlash® slot
1 x PCI-104
- **Graphics Controller** AMD LX800 (Internal)
- **Keyboard/Mouse Ports** 1 x PS/2
- **LAN** 1 x 10/100Base-T
- **Memory** 256 MB DDR SDRAM (up to 1 GB DDR SDRAM)
- **Parallel Ports** 1 x Parallel Port
- **Serial Ports** 3 x RS-232 and 1 x RS-232/485/422
- **Storage** 1 x CompactFlash card, or
1 x 2.5" HDD (optional)
- **USB Ports** 2 x USB 2.0

LCD Display

- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 300:1
- **Display Size** 12.1"
- **Display Type** SVGA TFT LCD
- **Luminance cd/m²** 340
- **Max. Colors** 262 K
- **Max. Resolution** 800 x 600
- **Viewing Angle (H/V)** 100/60

Touchscreen

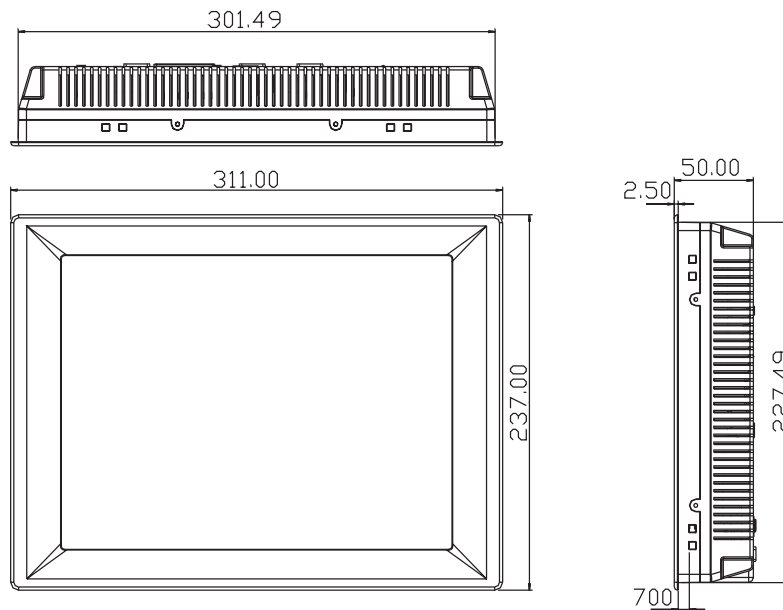
- **Lifespan** 1 million touches at single point
- **Light Transmission** Above 75%
- **Pixel Pitch (H x V)** 0.3075 x 0.3075 mm
- **Resolution** 1024 x 1024
- **Type** 8-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Vibration Protection** With CompactFlash: 2 grms (5 ~ 500 Hz)
With HDD: 1 grms (5 ~ 500 Hz)
(Operating, random vibration)

Dimensions

Unit: mm



Ordering Information

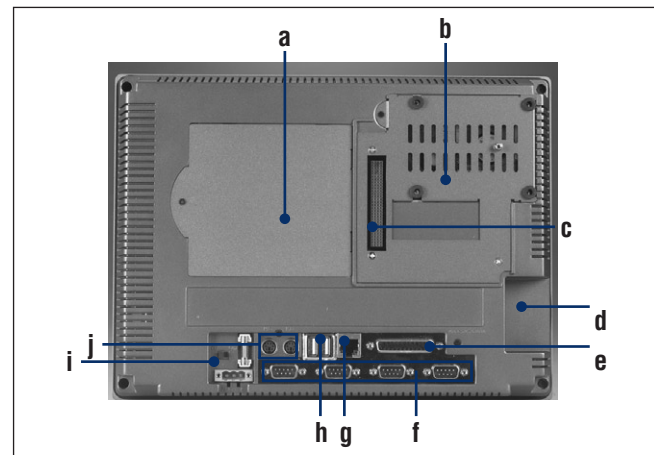
- TPC-1261H-A1E 12.1" TFT LCD Display TPC with AMD LX800 500 MHz CPU and 256 MB DDR SDRAM

Accessories

- TPC-1260 STAND TPC-1261H desktop stand
- TPC-1260 WALLMT TPC-1261H wallmount kit

Rear View

TPC-1261H



- a. CPU Card Cover
- b. 2.5" HDD
- c. PCI-104 Slot
- d. CompactFlash Slot
- e. Parallel Port
- f. Serial Ports
- g. Ethernet Port
- h. USB Ports
- i. Power Switch
- j. PS/2 Ports

1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

TPC-1070H

Intel® Pentium® M/Celeron® M Touch Panel Computer with 10.4" SVGA TFT LCD

NEW



Features

- Intel® Pentium® M Processor up to 1.4 GHz on board
- 10.4" SVGA TFT LCD
- Compact design with Die-Casting
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Supports Microsoft® Windows® XP/2000/CE and WinXPe
- Downward I/O cabling
- Automatic data flow control RS-485
- Dual fast Ethernet supported

Introduction

With a high quality TFT LCD display, TPC-1070H is designed with the Intel Pentium M 1.4 GHz/Celeron M 1 GHz processor as its core. The Intel Pentium M/Celeron M has low power consumption and 1.4 GHz/1 GHz operating frequency. This system is fanless although the kernel is powerful. In addition, spindle-free storage makes the TPC-1070H a durable and reliable platform. For applications where spindle-free storage is not critical, a fast-access HDD module can be used. The rich I/O portfolio meets diverse requests.

Specifications

General

- **BIOS** Award® 4 MB
- **Certifications** BSMI, CCC, CE, FCC, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 286 x 226 x 58 mm (11.26" x 8.9" x 2.28")
- **Enclosure** Die-Casting Aluminum alloy
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft Windows XP/2000/CE and WinXPe
- **Power Consumption** 60 W
- **Power Input** 18 ~ 32 V_{DC}
- **Watchdog Timer** 1 sec (system)
- **Weight (Net)** 3.5 kg (7.72 lb)

System Hardware

- **CPU** Intel Pentium M 1.4 GHz/Celeron M 1 GHz
- **Expansion Slots** 1 x CompactFlash slot
- **Graphics Controller** Intel 855 GME
- **Keyboard/Mouse Ports** 1 x PS/2
- **LAN** 1 x 10/100Base-T, 1 x 10/100/1000Base-T (TPC-1070H-P1E)
2 x 10/100Base-T (TPC-1070H-C1E)
- **Memory** 512 MB DDR SDRAM
- **Serial Ports** 2 x RS-232 and 1 x RS-232/485/422
- **Storage** 1 x CompactFlash card (optional), or
1 x 2.5" HDD (optional)
- **USB Ports** 2 x USB 2.0

LCD Display

- **Backlight Life** 50,000
- **Contrast Ratio** 500:1
- **Display Size** 10.4"
- **Display Type** SVGA TFT LCD
- **Luminance cd/m²** 400
- **Max. Colors** 260 K
- **Max. Resolution** 800 x 600
- **Viewing Angle (H/V)** 140/110

Touchscreen

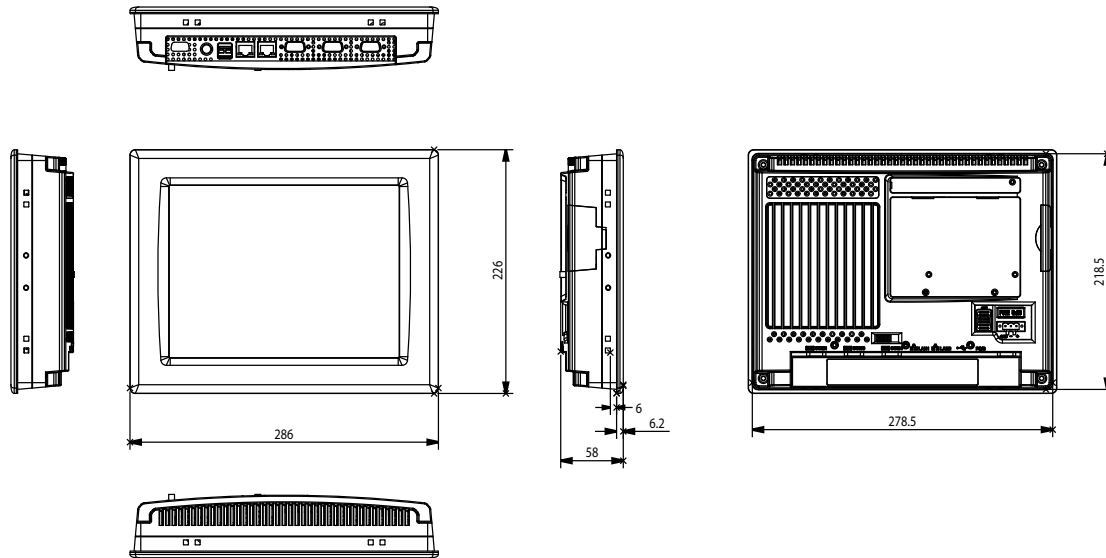
- **Lifespan** 1 million touches at single point
- **Light Transmission** Above 75%
- **Pixel Pitch (H x V)** 0.3075 x 0.3075 mm
- **Resolution** 1024 x 1024
- **Type** 8-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Vibration Protection** With CompactFlash: 2 grms (5 ~ 500 Hz)
With HDD: 1 grms (5 ~ 500 Hz)
(Operating, random vibration)

Dimensions

Unit: mm



Panel Cut-out Dimensions: 279.5 x 219.5 mm

Ordering Information

- **TPC-1070H-P1E** 10.4" TFT LCD Display TPC with Intel Pentium M 1.4 GHz CPU, 512 MB DDR SDRAM
- **TPC-1070H-C1E** 10.4" TFT LCD Display TPC with Intel Celeron M 1 GHz CPU, 512 MB DDR SDRAM

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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

TPC-660G

AMD LX800 Touch Panel Computer with 6.4" VGA TFT LCD Display

NEW



Features

- AMD LX800 processor on board
- 6.4" TFT LCD
- Super slim and compact design with plastic housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- One CompactFlash® slot
- Automatic data flow control RS-485
- Supports Windows® XP/CE and WinXPe

Introduction

The TPC-660G models are compact platforms without redundant functions, which have been designed for small-sized operator interface applications. The integration of a fanless kernel, touchscreen and non-volatile storage makes this machine a reliable solution for industrial environments. The 16-bit PC/104 expansion slot provides a dependable and convenient way to add-on functions. Common PC/104 cards for a variety of applications can fit in the TPC-660G.

Specifications

General

- **Certifications** BSMI, CCC, CE, FCC, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 195 x 148 x 44.4 mm (7.68" x 5.83" x 1.75")
- **Enclosure** ABS and ABS + PC
- **Mounting** Panel
- **OS Support** Windows XP/CE and WinXPe
- **Power Consumption** 43.52 W
- **Power Input** 18 ~ 32 V_{DC}
- **Watchdog Timer** Programmable as 250 ms, 500 ms, 1 second
- **Weight (Net)** 0.8 kg (1.76 lb)

System Hardware

- **Audio Ports** 1 x Line-out, 1 x Microphone
- **CPU** AMD LX800 500 MHZ
- **Expansion Slots** 1 x CompactFlash® slot
1 x PCI-104
- **Graphics Controller** AMD LX800 (Internal)
- **Keyboard/Mouse Ports** 1 x PS/2
- **LAN** 1 x 10/100Base-T
- **Memory** 256 MB DDR SDRAM (up to 1 GB DDR SDRAM)
- **Serial Ports** 1 x RS-232
1 x RS-232/RS422/RS485
- **Storage** 1 x CompactFlash card (optional)
- **USB Ports** 2 x USB 2.0

LCD Display

- **Backlight Life** 20,000 hrs
- **Contrast Ratio** 180:1
- **Display Size** 6.4"
- **Display Type** TFT LCD
- **Luminance (cd/m²)** 150
- **Max. Colors** 262 K
- **Max. Resolution** 640 x 480
- **Viewing Angle (H/V)** 90/50

Touchscreen

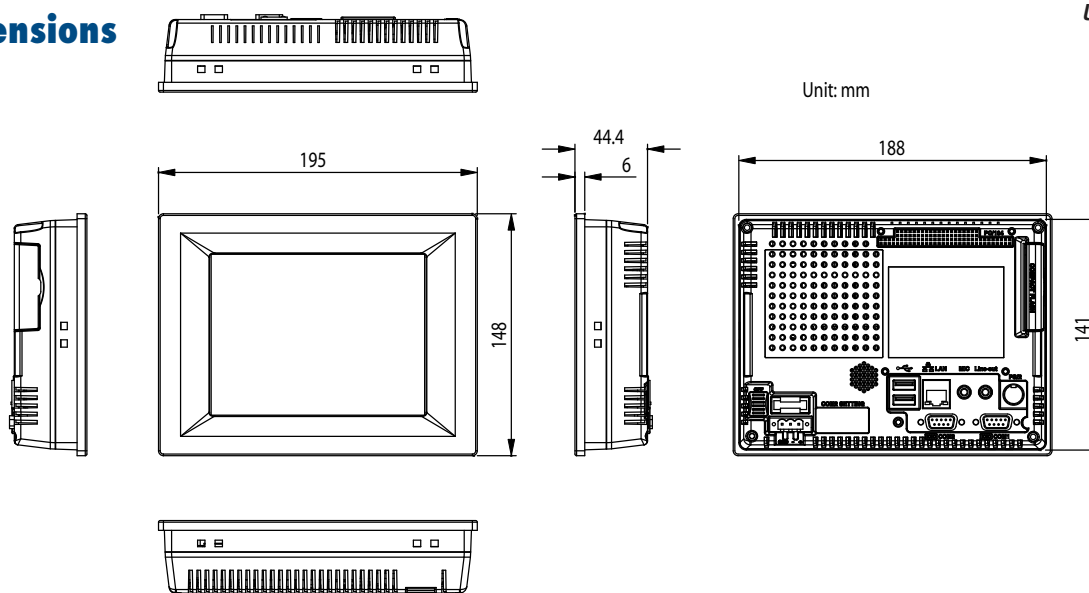
- **Lifespan** 10 millions times with a silicone rubber of 8 mm diameter finger
- **Light Transmission** Above 75%
- **Resolution** 1024 x 1024
- **Type** 4-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Vibration Protection** 1 Grms (Random, Operating)

Dimensions

Unit: mm

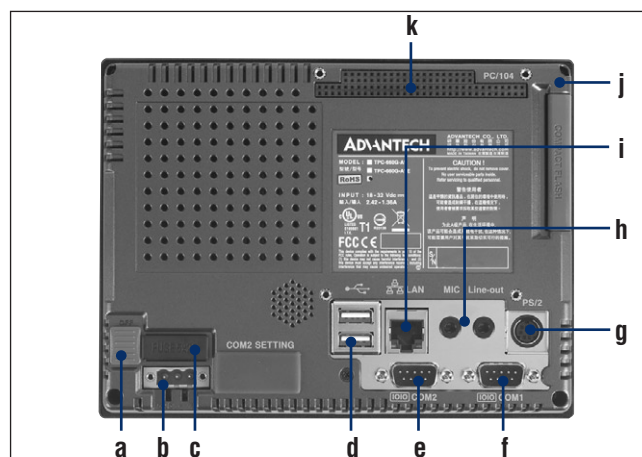


Panel Cut-out Dimensions: 188.4 x 141.4 mm

Ordering Information

- TPC-660G-B1E 6.4" TFT LCD Display TPC with AMD LX800 500 MHz and 256 MB DDR SDRAM

Rear View



- a. Power
- b. Power Receptor
- c. Fuse
- d. USB 1.1 Host
- e. COM2 (RS232/422/485)
- f. COM1 (RS232)
- g. PS/2
- h. Audio (MIC, Line-out)
- i. 10/100Mb LAN
- j. CompactFlash
- k. PC/104

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

TPC-120H

Intel® XScale PXA Touch Panel Computers with 12.1" SVGA TFT LCD Display

NEW



Features

- Intel® PXA 270 processor on board
- 12.1" SVGA TFT LCD
- Super slim and compact design with Al-Mg housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Automatic data flow control RS-485
- Supports Microsoft® Windows® CE

Introduction

TPC-120H models are compact platforms without redundant functions that have been designed for operator interface applications. Its RISC kernel, Intel PXA, consumes minimum power without sacrificing performance. With a high quality TFT LCD display, TPC-120H models support two 10/100BASE-T Ethernet ports to offer solid communication ability, and comes bundled with a Windows CE OS to support thin-client solutions.

Specifications

General

- **Certifications** BSMI, CCC, CE, FCC, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 311 x 237 x 50 mm (12.24" x 9.33" x 1.97")
- **Enclosure** Al-Mg and ABS
- **Mounting** Desktop, swing arm or wall (with mounting kit)
- **OS Support** Windows
- **Power Consumption** 30 W
- **Power Input** 18 ~ 32 V_{DC}
- **Watchdog Timer** 1.6 sec (system)
- **Weight (Net)** 2.2 kg (4.85 lb)

System Hardware

- **CPU** Intel® PXA 270 520 MHz
- **Expansion Slots** 1 x CompactFlash® slot
- **LAN** 2 x 10/100Base-T
- **Memory** 64 MB SDRAM on board
- **Serial Ports** 3 serial ports
(2 x Full RS-232; 1 x 4-pin RS-232/RS-485)
- **Storage** 64 MB MDOC on board
1 x CompactFlash card (optional)
- **USB Ports** 2 x USB 1.1
- **Video Ports** 1 x VGA
- **CAN Port** 1 x Isolated CAN 2.0B Interface (Optional)
CAN Controller: SJA-1000
CAN Transceiver: 82C250

LCD Display

- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 300:1
- **Display Size** 12.1"
- **Display Type** SVGA TFT LCD
- **Luminance cd/m²** 340
- **Max. Colors** 262 K
- **Max. Resolution** 800 x 600
- **Viewing Angle (H/V)** 100/60

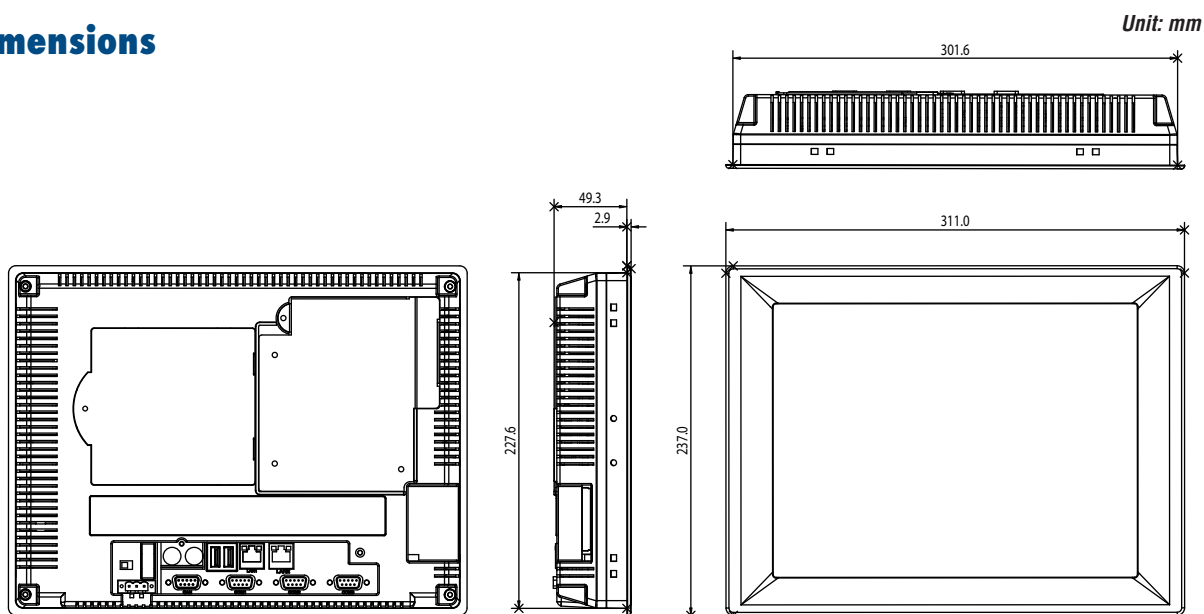
Touchscreen

- **Lifespan** 1 million touches at single point
- **Light Transmission** Above 75%
- **Pixel Pitch (H x V)** 0.3075 x 0.3075 mm
- **Resolution** 1024 x 1024
- **Type** 8-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Vibration Protection** 1 grms (5 ~ 500 Hz)
(Operating, random vibration)

Dimensions



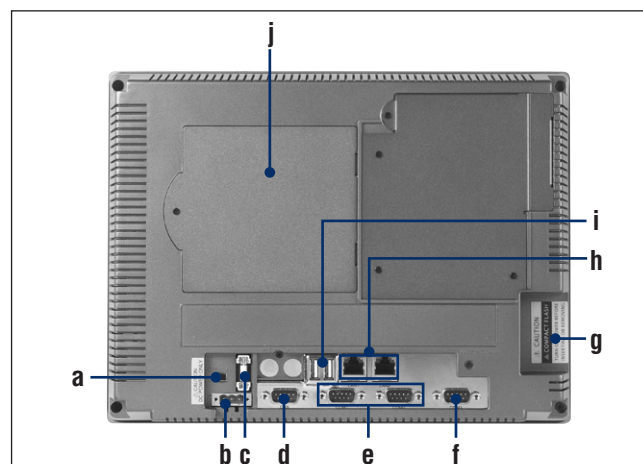
Ordering Information

- **TPC-120H-E2E** 12.1" TFT LCD Display TPC with Intel PXA 520MHz, 64MB SDRAM/64 MB Flash on board and Windows CE 5.0 OS

Accessories

- **TPC-1260 STAND** TPC-1260T/TE desktop stand
- **TPC-1260 WALLMT** TPC-1260T/TE wallmount kit
- **TPC-120CAN-01** CAN-Bus 2.0 module for TPC-120H

Rear View



- a. Power
- b. Power Receptor
- c. Fuse
- d. CAN Port
- e. COM Port (RS232)
- f. COM3 (RS232/485)
- g. Compact Flash
- h. Ethernet Port
- i. USB Port
- j. CAN Module Cover

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

TPC-66S TPC-66T

Intel® XScale Touch Panel Computer with 5.7" QVGA STN LCD Display

Intel XScale Touch Panel Computer with 5.6" QVGA TFT LCD Display



Features

- Intel® XScale PXA processor on board
- 5.7" QVGA color STN LCD
- Super slim and compact design with plastic housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Built-in flash memory and Windows® CE OS
- One CompactFlash® slot
- Automatic data flow control RS-485

Introduction

The TPC-66S models are compact platforms without redundant functions, which have been designed for small-sized operator interface applications. They have 5.7" STN LCD display which is a cost effective choice for a limited budget. Its RISC kernel, the Intel XScale PXA processor consumes minimum power without sacrificing performance. The TPC-66S has 10/100Base-T Ethernet port offering solid communication ability and comes bundled with a Windows® CE OS that supports Thin-Client solutions. The built-in Windows CE OS platform lets TPC-66S become an Open HMI solution for system integration.

Specifications

General

- **Certifications** BSMI, CCC, CE, FCC, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 195 x 148 x 44.4 mm (7.68" x 5.83" x 1.75")
- **Enclosure** ABS
- **Mounting** Panel
- **OS Support** Built-in Windows CE
- **Power Consumption** 20 W
- **Power Input** 18 ~ 32 V_{DC}
- **Watchdog Timer** Programmable as 250 ms, 500 ms, 1 second
- **Weight (Net)** 0.8 kg (1.76 lb)

System Hardware

- **CPU** Intel XScale PXA270 416 MHz
- **Expansion Slots** 1 x CompactFlash slot
- **Graphics Controller** Controlled by CPU
- **LAN** 1 x 10/100Base-T
- **Memory** 64 MB SDRAM on board
- **Serial Ports** 2 x full RS-232
1 x 4-pin RS-232/RS485
- **Storage** 64 MB Flash memory on board
1 x CompactFlash card (optional)
- **USB Ports** 2 x USB 1.1 (one host, one client)

LCD Display

- **Backlight Life** 60,000/30,000 hrs (TPC-66S/TPC-66T)
- **Contrast Ratio** 55:1/400:1 (TPC-66S/TPC-66T)
- **Display Size** 5.7"/5.6" (TPC-66S/TPC-66T)
- **Display Type** STN LCD/TFT LCD (TPC-66S/TPC-66T)
- **Luminance (cd/m²)** 400/500 (TPC-66S/TPC-66T)
- **Max. Colors** 64 K
- **Max. Resolution** 320 x 240/320 x 234 (TPC-66S/TPC-66T)
- **Viewing Angle (H/V)** 100/55/100/60 (TPC-66S/TPC-66T)

Touchscreen

- **Type** 4-wire, analog resistive
- **Resolution** 1024 x 1024
- **Light Transmission** Above 75%
- **Lifespan** 10 millions times with a silicone rubber of 8 mm diameter finger

Environment

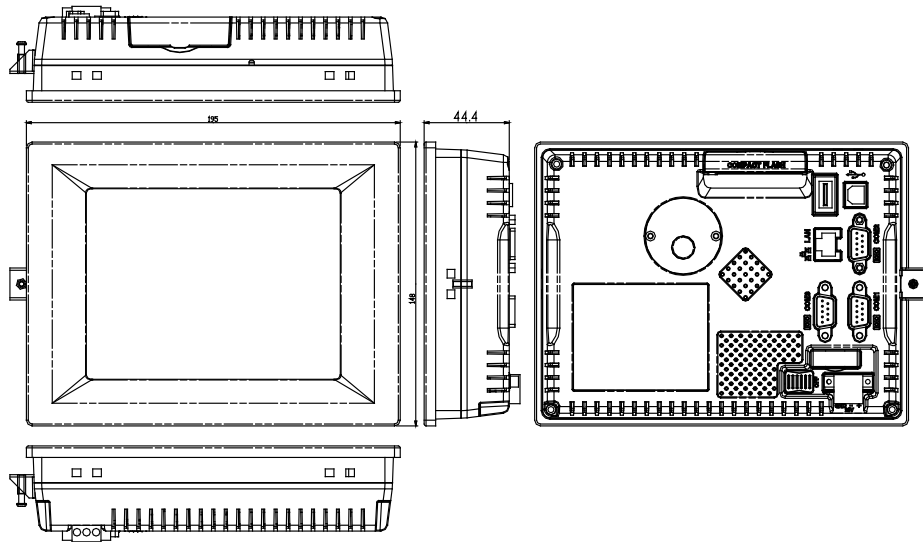
- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Vibration Protection** 1 Grms (Random, Operating)

Ordering Information

- **TPC-66SN-E2E** 5.7" color STN LCD Display TPC with PXA270 416 MHz CPU, 64 MB SDRAM/64 MB flash on board and Windows CE5.0
- **TPC-66T-E2E** 5.6" color TFT LCD Display TPC with PXA270 416 MHz CPU, 64 MB SDRAM/64 MB flash on board and Windows CE5.0

Dimensions

Unit: mm

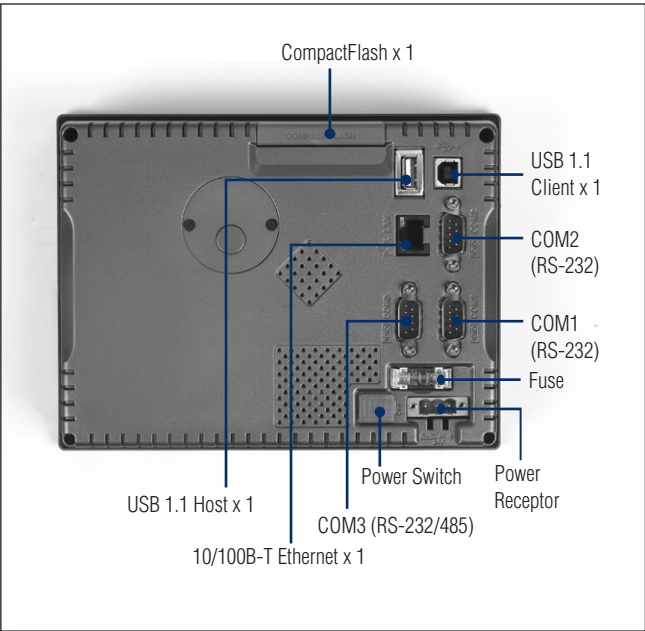


Panel Cut-out Dimensions: 188.4 x 141.4 mm

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

Rear View

TPC-66S/TPC-66T



TPC-68T

Intel® XScale Touch Panel Computer with 5.6" QVGA TFT LCD Display and CAN-bus Support

NEW



Features

- Intel® XScale PXA processor on board
- 5.6" color TFT LCD
- Super slim and compact design with plastic housing
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Built-in flash memory and Windows® CE OS
- One CompactFlash® slot
- Automatic data flow control RS-485
- CAN-bus 2.0B protocol compatibility

Introduction

The TPC-68T models are compact platforms without redundant functions, which have been designed for small-sized operator interface applications. They have 5.6" TFT LCD display which is a cost effective choice for a limited budget. Its RISC kernel, the Intel XScale PXA processor consumes minimum power without sacrificing performance. The TPC-68T has 10/100Base-T Ethernet port offering solid communication ability and comes bundled with a Windows CE OS that supports Thin-Client solutions. The built-in Windows CE OS platform lets TPC-68T become an Open HMI solution for system integration.

Specifications

General

- **Certifications** BSMI, CCC, CE, FCC, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 195 x 148 x 44.4 mm (7.68" x 5.83" x 1.75")
- **Enclosure** ABS
- **Mounting** Panel
- **OS Support** Built-in Windows CE
- **Power Consumption** 20 W
- **Power Input** 18 ~ 32 V_{DC}
- **Watchdog Timer** Programmable as 250 ms, 500 ms, 1 second
- **Weight (Net)** 0.8 kg (1.76 lb)

System Hardware

- **CPU** Intel XScale PXA270 416 MHz
- **Expansion Slots** 1 x CompactFlash slot
- **Graphics Controller** Controlled by CPU
- **LAN** 1 x 10/100Base-T
- **Memory** 64 MB SDRAM on board
- **Serial Ports** 1 x full RS-232
1 x CAN-Bus 2.0b/ RS-485
- **Storage** 64 MB Flash memory on board
1 x CompactFlash card (optional)
- **USB Ports** 2 x USB 1.1 (one host, one client)
- **CAN Port** 1 x Isolated CAN 2.0B Interface
CAN Controller: SJA-1000
CAN Transceiver: 82C250

LCD Display

- **Backlight Life** 30,000 hrs
- **Contrast Ratio** 400:1
- **Display Size** 5.6"
- **Display Type** TFT LCD
- **Luminance (cd/m²)** 500
- **Max. Colors** 64 K
- **Max. Resolution** 320 x 236
- **Pixel Pitch (H x V)** 0.36 x 0.36 mm
- **Viewing Angle (H/V)** 100/60

Touchscreen

- **Type** 4-wire, analog resistive
- **Resolution** 1024 x 1024
- **Light Transmission** Above 75%
- **Lifespan** 10 millions times with a silicone rubber of 8 mm diameter finger

Environment

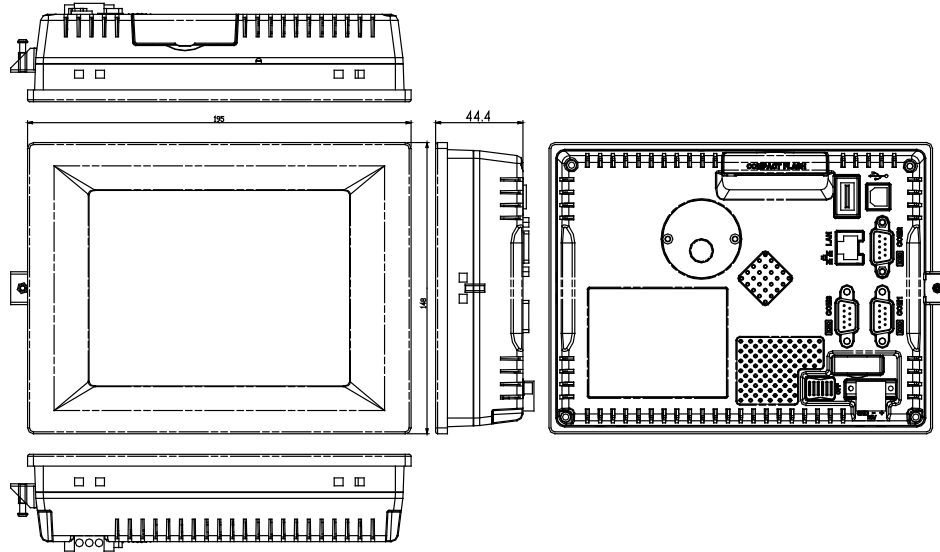
- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Vibration Protection** 1 Grms (Random, Operating)

Ordering Information

- **TPC-68T-E2E** 5.6" color TFT LCD Display TPC with PXA270 416 MHz CPU, 64 MB DRAM/64 MB flash on board and Windows CE5.0

Dimensions

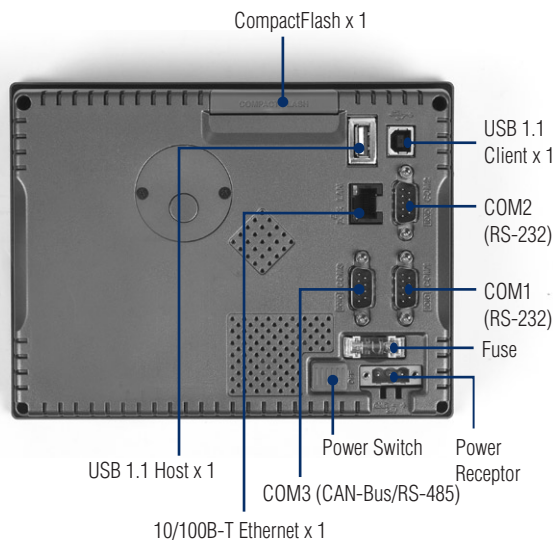
Unit: mm



Panel Cut-out Dimensions: 188.4 x 141.4 mm

Rear View

TPC-68T



1

PAC & Software

2

BAS

3

UNO

4

RS-485 I/O

5

Ethernet I/O

6

TPC

7

IPPC

8

FPM

9

AWS

10

Plug-in I/O

11

CompactPCI

12

Signal Conditioning

13

USB I/O

14

Motion Control I/O

15

Ethernet Switch

16

EDG

17

ICOM

TPC Installation Accessories

Introduction

Advantech's Touch Panel Computers have been designed to be slim and compact so they can be installed into all kinds of environments. They can be wallmounted, panel mounted or simply placed on a desktop with a stand. Standard mounting holes and features make a wide range of mounting options available.

Ordering Information

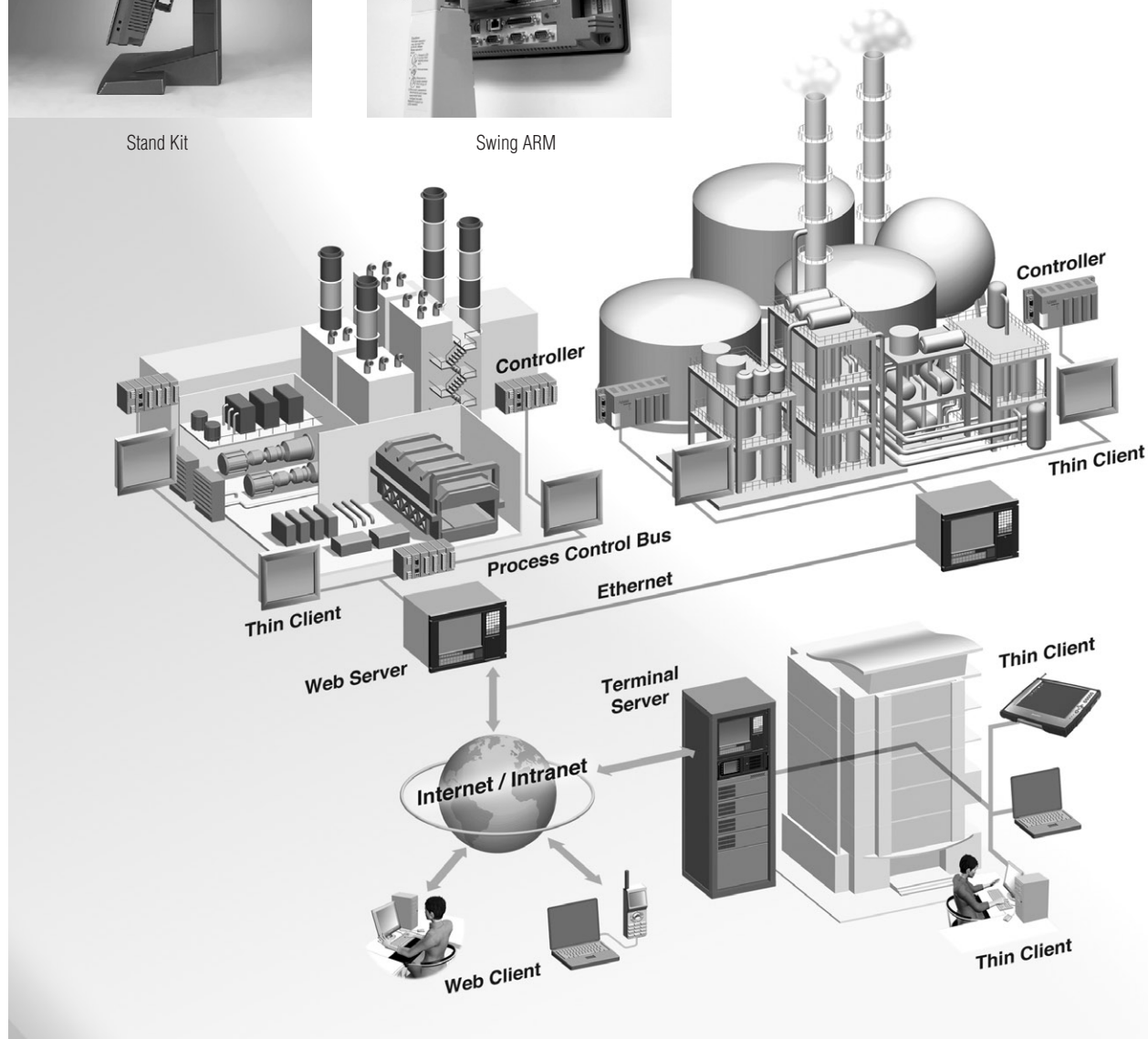
- **TPC-1260 WALLMT** TPC-1270H, TPC-1261H wallmount kit
- **TPC-1260 STAND** TPC-1270H, TPC-1261H stand kit
- **TPC-1570H WALLMT** TPC-1570H wallmount kit
- **TPC-1570H STAND** TPC-1570H stand kit



Stand Kit



Swing ARM



Industrial Panel PCs

Industrial Panel PC Selection Guide

7-2

IPPC-9171G

Rugged Pentium 4 Industrial Panel PC with 17" LCD

7-4

IPPC-9151G

Rugged Pentium 4 Industrial Panel PC with 15" LCD

7-6

IPPC-9151F (new)

Rugged Pentium 4 Industrial Panel PC with 15" LCD Flat-Sealed Front Panel

7-6

IPPC-9150G

Rugged Pentium III Industrial Panel PC with 15" LCD

7-8

IPPC-9120G

Rugged Pentium III Industrial Panel PC with 12.1" LCD

7-10

IPPC Accessories and Installation/CTOS for IPPC

7-12

Industrial Panel PC Selection Guide

Specifications		Model	IPPC-9171G	IPPC-9151G
LCD Display	Type		SXGA TFT LCD	XGA TFT LCD
	Size		17"	15"
	Max. Resolution		1280 x 1024	1024 x 768
	Max. Colors		16.2 M (RGB 6-bit + FRC data)	262,144
	Viewing Angle (H,V°)		140,130	120, 100
	Luminance (cd/m ²)		260	350
	Backlight Life (hrs)		50,000	50,000
	Contrast Ratio		450:1	400:1
CPU			Socket 478 Pentium 4 (up to 2.8 GHz)	Socket 478 Pentium 4 (up to 2.8 GHz)
Memory			Up to 2 GB DDR SDRAM (DDR-DIMM 184 pin)	Up to 2 GB DDR SDRAM (DDR-DIMM 184 pin)
IEEE 1394 (Firewire) Ports			Two	Two
Serial Ports			1 x RS-232, 1 x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485
Parallel Ports			One	One
Video Ports			S-Video x 1	S-Video x 1
USB Ports			4 x USB 2.0	4 x USB 2.0
Network (LAN)			10/100Base-T	10/100Base-T
Floppy Disk Drive			One	One
CD-ROM Drive			Slim Type x 1	Slim Type x 1
Hard Disk Drive (Optional)			1 x 3.5"	1 x 3.5"
PCMCIA Slot			Type II x 2	Type II x 2
Expansion Slots			2 x PCI	2 x PCI
Touchscreen Type (Optional)			Resistive	Resistive
Power Supply (AC)			180 W	180 W
Operating Temperature			0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)
Storage Temperature			-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)
Certifications			BSMI CCC, CE, FCC UL	BSMI, CCC, CE, FCC, UL
Dimensions (W x H x D)			482 x 354.8 x 162 mm (18.97" x 13.96" x 6.37")	428 x 310 x 150 mm (16.85" x 12.2" x 5.9")
Page			7-4	7-6

IPPC-9151F	IPPC-9150G	IPPC-9120G
XGA TFT LCD	XGA TFT LCD	SVGA TFT LCD
15"	15"	12.1"
1024 x 768	1024 x 768	800 x 600
262,144	262,144	262,144
120, 100	120,100	100, 60
350	350	340
50,000	50,000	50,000
400:1	400:1	300:1
Socket 478 Pentium 4 (up to 2.8 GHz)	Socket 370 Pentium III (up to 1.26 GHz) Socket 370 Celeron (up to 1.2 GHz)	Socket 370 Pentium III (up to 1.26 GHz) Socket 370 Celeron (up to 1.2 GHz)
Up to 2 GB DDR SDRAM (DDR-DIMM 184 pin)	Up to 1 GB SDRAM (SODIMM 168 pin)	Up to 1 GB SDRAM (SODIMM 168 pin)
Two	-	-
1 x RS-232, 1 x RS-232/422/485	2 x RS-232, 1 x RS-232/422/485 (IPPC-9150G-RAE) 3 x RS-232, 1 x RS-232/422/485 (IPPC-9150G-XAE)	2 x RS-232, 1 x RS-232/422/485 (IPPC-9120G-RAE) 3 x RS-232, 1 x RS-232/422/485 (IPPC-9120G-XAE)
One	One	One
S-Video x 1	-	-
4 x USB 2.0	2 x USB 1.1	2 x USB 1.1
10/100Base-T	10/100Base-T	10/100Base-T
One	-	-
Slim Type x 1	Slim Type x 1	Slim Type x 1
1 x 3.5"	2.5" x 1	2.5" x 1
Type II x 2	Type II x 2	Type II x 2
2 x PCI	PCI x 1, PCI/ISA x 1	PCI x 1, PCI/ISA x 1
Resistive	Resistive	Resistive
180 W	100 W	100 W
0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)
-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)
BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL
428 x 310 x 150 mm (16.85" x 12.2" x 5.9")	402 x 302 x 127 mm (15.9" x 11.9" x 5")	402 x 302 x 127 mm (15.9" x 11.9" x 5")
7-6	7-8	7-10

1

PAC & Software

2

BAS

3

UNO

4

RS-485 I/O

5

Ethernet I/O

6

TPC

7

IPPC

8

FPM

9

AWS

10

Plug-in I/O

11

CompactPCI

12

Signal Conditioning

13

USB I/O

14

Motion Control I/O

15

Ethernet Switch

16

EDG

17

ICOM

IPPC-9171G

Rugged Intel® Pentium® 4 Industrial Panel PC with 17" LCD



Features

- Intel® Pentium® 4 processor up to 2.8 GHz
- 17" SXGA TFT LCD provides vivid, sharp and large images
- Offers two expansion slots for PCI add-on cards
- Heavy-duty stainless steel chassis with aluminum front panel
- Strengthened glass protects the front panel from shock damage and is NEMA4/IP65 compliant
- Front access USB connector
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Supports industrial mounting rack and panel mounting

Introduction

The IPPC-9171G is an Industrial Panel PC with support for Pentium 4 processors to meet the demands of today's applications. The IPPC-9171G is a rugged unit with an aluminum panel, tempered glass, 17" TFT LCD, a stainless steel structure and two expansion slots. The IPPC-9171G is rugged enough to handle the toughest industrial operating environments.

With optional mounting accessories from panels to racks, it can be mounted almost anywhere.

Specifications

General

- **BIOS** Award® 256KB Flash BIOS
- **Certifications** CCC, CE, FCC, UL, BSMI
- **Cooling System** 2 x 10.1 CFM fans w/50,000 hrs MTBF
- **Dimensions (W x H x D)** 482 x 354.8 x 162 mm (18.97" x 13.96" x 6.37")
- **Disk Drive Bay** Supports one 3.5" HDD and build-in slim type CD-ROM & FDD
- **Enclosure** Stainless steel back housing
10 mm thick aluminum front panel
- **Mounting** Panel, rack
- **Power Input** 100 ~ 240 V_{AC} @ 50 ~ 60 Hz, 2 A
- **Power Output** + 5 V @ 15 A, +12 V @ 5 A, -12 V @ 0.5 A
- **Power Supply** 180 W, MTBF: 200,000 hrs
- **Weight (Gross)** 13 kg (28 lb)

System Hardware

- **Audio Ports** Mic-in, Line-in, Line-out, and game port
- **Chipset** Intel 845GV
- **CPU** Socket 478, Intel Pentium 4 up to 2.8 GHz
Intel Celeron® up to 2.5 GHz (400/533 MHz)
- **Expansion Slots** 2 x low-profile PCI
- **IEEE-1394 Ports** 2 x IEEE 1394 ports (Firewire)
- **Keyboard/Mouse** 1 x PS/2 mouse and keyboard interface
- **LAN** 1 x 10/100Base-T
- **Memory** Two 184 pin DDR DIMM sockets supports up to 2 GB (Clock 266)
- **Parallel Port** 1 x standard parallel port
1 x enhanced parallel port, supports SPP/EPP/ECP parallel mode. BIOS configurable to LPT1, LPT2, LPT3 or disabled
- **PCMCIA Slots** 2 x Type II

- **Serial Ports** 1 x RS-232, 1 x RS-232/422/485
- **USB Ports** 4 x USB 2.0
- **Video Port** S-Video

LCD Display

- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 450 : 1
- **Display Size** 17"
- **Display Type** SXGA TFT LCD
- **Luminance** 260 cd/m²
- **Max. Colors** 16.2 M (RGB 6-bit + FRC data)
- **Max. Resolution** 1280 x 1024
- **OSD Control** LCD ON/OFF, Brightness down, up
- **Viewing Angle (H/V°)** 140/130

Touchscreen (Optional)

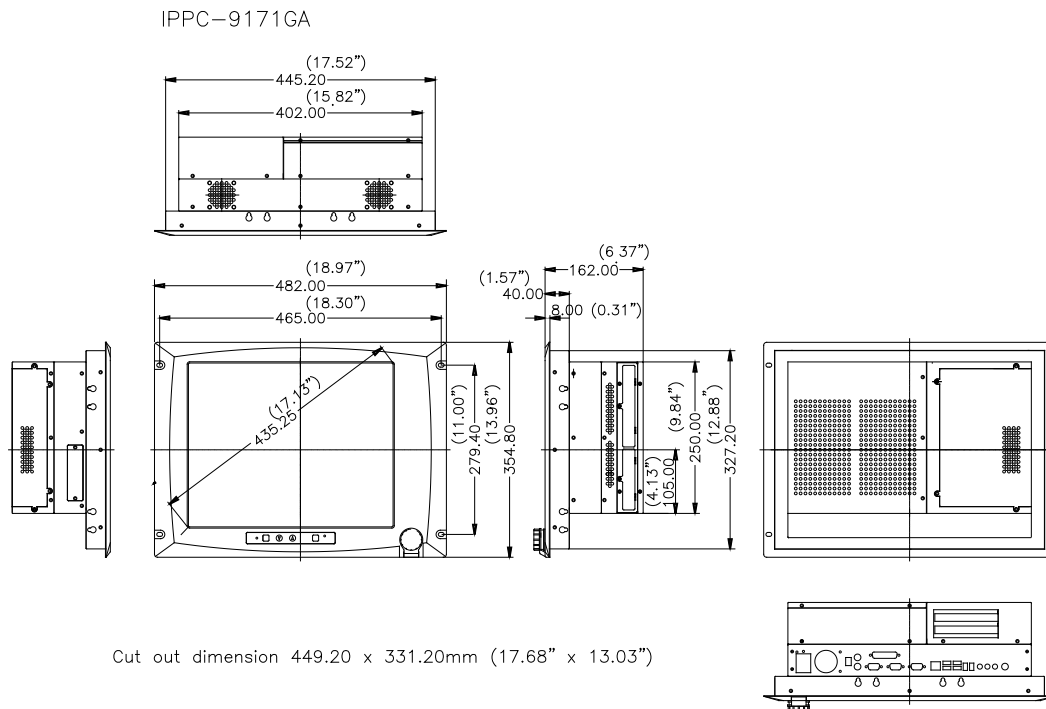
- **Interface** USB
- **Lifespan** 1 million touch lifetime at the single point
- **Light Transmission** 75%
- **OS Support** Windows 95/98/2000/XP
- **Type** Analog resistive (8-wire)

Environment

- **Humidity** 5 ~ 85% RH @ 40° C (non-condensing)
- **Ingress Protection** Front panel: NEMA4/IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Vibration Protection** 5 ~ 500 Hz, 1 G_{RMS} random vibration (operating)

Dimensions

Unit: mm



Ordering Information

- **IPPC-9171G-XAE** Rugged Pentium 4 Industrial Panel PC with 17" LCD
- **IPPC-9171G-RAE** IPPC-9171G-XAE with Resistive Touchscreen

Accessories

- **CDR-9151-COMBO** Slim type Combo CD-ROM

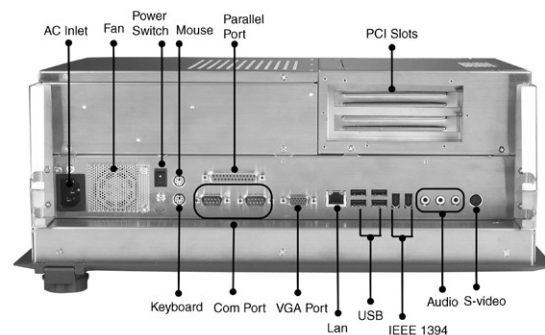
Notes:

1. When used in a panel mounted environment, the panel's thickness can not be over 10 mm
2. 4 mm stainless front panel supported by request

Back View



Bottom View



1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

IPPC-9151G IPPC-9151F

**Rugged Intel® Pentium® 4
Industrial Panel PC with
15" LCD**

NEW



Features

- Intel® Pentium® 4 processors up to 2.8 GHz
- 15" XGA TFT LCD provides vivid, sharp and large images
- Offers two expansion slots for PCI add-on cards
- Front access USB connector
- Heavy-duty stainless steel chassis with aluminum front panel
- Strengthened glass protects the front panel from shock damage and is NEMA4/IP65 compliant
- Built-in FDD and support for one CD-ROM and 3.5" HDD Drive
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Supports industrial mounting rack and panel mounting

Introduction

IPPC-9151G is a fully functional computer system with support for CPUs of different classes (Pentium 4 up to 2.8 GHz) and resolution up to 1024 x 768 to meet the demands of today's high-end industrial software. IPPC-9151G is a rugged unit with an aluminum panel, tempered glass 15" TFT LCD, a stainless steel structure and two expansion slots. IPPC-9151G is rugged enough to handle the toughest industrial operating environments. With optional mounting accessories, from panels to racks, it can be mounted anywhere. There is also IPPC-9151F, which has a flat-sealed front panel for easier cleaning and liquid run-off, which is suitable for tough hygiene requirements in food & beverage manufacturing.

Specifications

General

- **BIOS** Award® 256 KB Flash BIOS
- **Certifications** BSMI, CCC, CE, FCC, UL
- **Cooling System** 2 x 10.1 CFM fans w/50,000 hrs MTBF
- **Dimensions (W x H x D)** 428 x 310 x 162 mm (16.85" x 12.2" x 6.37")
- **Disk Drive Bay** Supports one 3.5" HDD and build-in slim type CDROM & FDD
- **Enclosure** Stainless steel back case, 10 mm aluminum front panel
- **Mounting** Panel, rack
- **Power Input** 100 ~240 V_{AC} @ 50 ~ 60 Hz, 2 A
- **Power Output** + 5 V @ 15 A, +12 V @ 5 A, -12 V @ 0.5 A
- **Power Supply** 180 W, MTBF: 200,000 hrs
- **Weight (Gross)** 13 kg (28 lb)

System Hardware

- **Audio Ports** Mic-in, Line-in, Line-out, and game port
- **Chipset** Intel 845 GV
- **CPU** Socket 478 Intel Pentium 4 up to 2.8 GHz
Intel Celeron® up to 2.5 GHz (400/533 MHz)
- **Expansion Slots** 2 x low-profile PCI
- **IEEE-1394 Ports** 2 x IEEE 1394 ports (Firewire)
- **Keyboard/Mouse** 1 x PS/2 mouse and keyboard interface
- **LAN** 1 x 10/100Base-T
- **Memory** Two 184 pin DDR DIMM sockets supports up to 2 GB (Clock 266)
- **Parallel Ports** 1 x standard parallel port
1 x enhanced parallel port, supports SPP/EPP/ECP parallel mode.
BIOS configurable to LPT1, LPT2, LPT3 or disabled
- **PCMCIA Slots** 2 x Type II
- **Serial Ports** 1 x RS-232, 1 x RS-232/422/485
- **USB Ports** 4 x USB 2.0
- **Video Ports** S-Video

LCD Display

- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 400 : 1
- **Display Size** 15"
- **Display Type** XGA TFT LCD
- **Luminance** 350 cd/m²
- **Max. Colors** 262,144
- **Max. Resolution** 1024 x 768
- **OSD Control** LCD ON/OFF, Brightness drop, up
- **Viewing Angle (H/V°)** 120/100

Touchscreen (Optional)

- **Interface** USB
- **Lifespan** 1 million touches at single point
- **Light Transmission** 75%
- **OS support** Windows 95/98/2000/XP
- **Type** Analog resistive (8-wire)

Environment

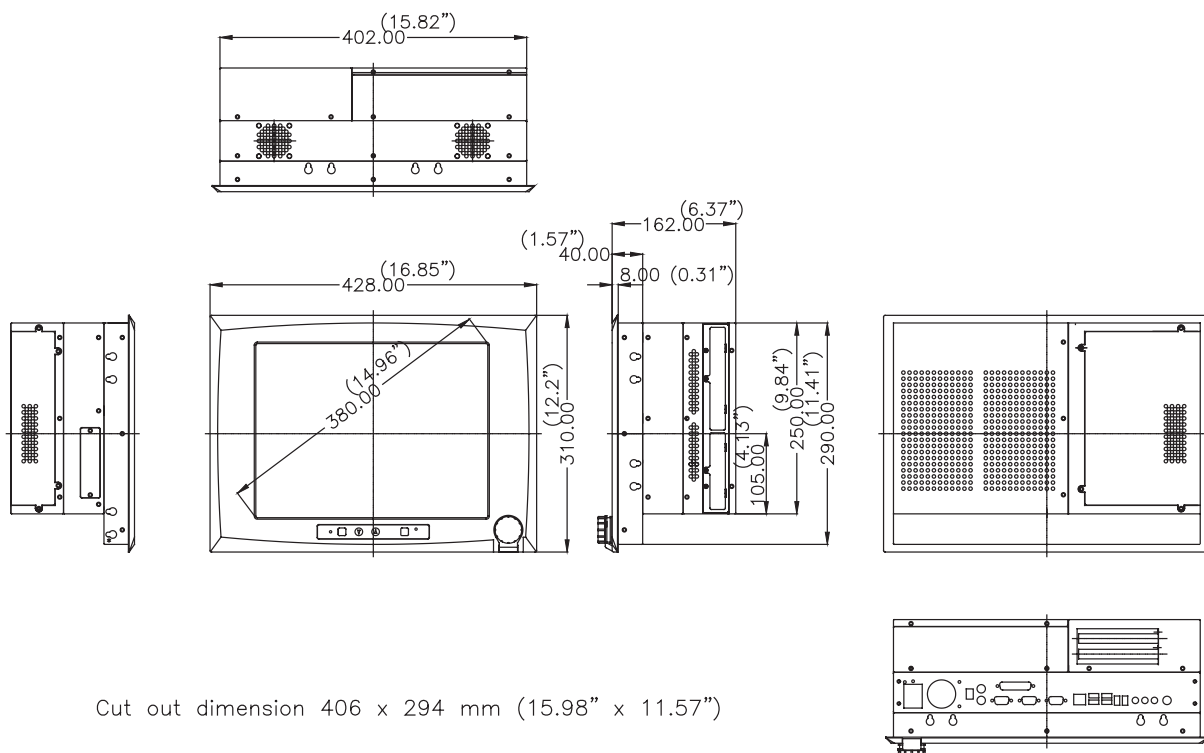
- **Humidity** 5 ~ 85% @ 40° C (non-condensing)
- **Ingress Protection** Front panel: NEMA4/IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Vibration Protection** 5 ~ 500 Hz, 1 G_{RMS} random vibration

Ordering Information

- **IPPC-9151G-XAE** Rugged Pentium 4 Industrial Panel PC with 15" LCD
- **IPPC-9151G-RAE** IPPC-9151G-XAE with Resistive Touchscreen
- **IPPC-9151F-XAE** Rugged Pentium 4 Industrial Panel PC with 15" LCD
- **IPPC-9151F-RAE** IPPC-9151F-XAE with Resistive Touchscreen

Dimensions

Unit: mm



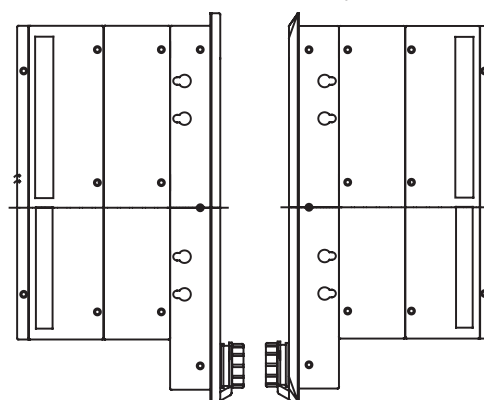
Accessories

- **IPPC-9151RACK-MT** Mounting Kit for Standard 19" Industrial Rack

Notes:

1. When used in a panel mounted environment, the panel's thickness can not be over 10 mm.

Flat-Sealed Front Panel (IPPC-9151F-XAE)



The flat-sealed front panel of IPPC-9151F-XAE (shown above left), is designed for minimum projection in panel mounts. This ensures easier liquid run-off, prevents dirty edges, and is useful in applications where hygiene is crucial (e.g. food processing).

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

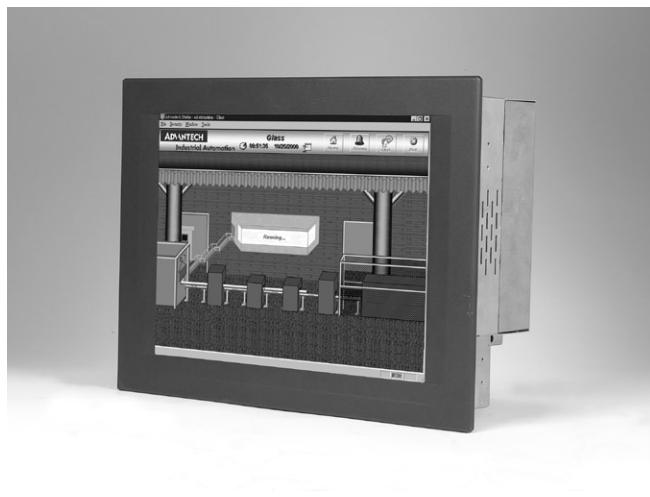
15
Ethernet Switch

16
EDG

17
ICOM

IPPC-9150G

Rugged Pentium® III Industrial Panel PC with 15" LCD



Features

- Pentium® III processors up to 1.26 GHz and Celeron® processors up to 1.2 GHz
- 15" XGA TFT LCD provides vivid, sharp and large images
- Offers two expansion slots for PCI/ISA add-on cards
- Heavy-duty stainless steel chassis with aluminum front panel
- Strengthened glass protects the front panel from shock damage and is NEMA4/IP65 compliant
- Back door with lock allows easy maintenance and optimal security
- Support for optional PCMCIA wireless LAN adapter accessory
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Supports industrial mounting rack and panel mounting

Introduction

The IPPC-9150G is a fully functional computer system with support for CPUs of different classes (Pentium III up to 1.26 GHz & Celeron up to 1.2 GHz) to meet the demands of today's industrial software. The IPPC-9150G is a rugged unit with an aluminum panel, tempered glass 15" TFT LCD, a stainless steel structure and two expansion slots. The IPPC-9150G is rugged enough to handle the toughest industrial operating environments. With optional mounting accessories, from swing arm to panels to racks, it can be mounted anywhere.

Specifications

General

- **BIOS** Award® 256 KB Flash BIOS
- **Certifications** BSMI, CCC, CE, FCC, UL
- **Cooling System** 2 x 15.6 CFM fans w/50,000 hrs MTBF
- **Dimensions (W x H x D)** 402 x 302 x 127 mm (15.8" x 11.9" x 5")
- **Disk Drive Bay** Supports one 2.5" HDD, and built-in slim type CDROM
- **Enclosure** Stainless steel back case, 10 mm aluminum front panel
- **Mounting** Panel, swing-arm, rack
- **Power Input** 100 V_{AC} ~240 V_{AC} @ 47 ~ 63 HZ
- **Power Output** + 5 V @ 15 A, +12 V @ 5 A
- **Power Supply** 100 W, MTBF: 200,000 hrs
- **Watchdog Timer** 62-level, interval 1 ~ 62 seconds
- **Weight (Gross)** 10 kg (22 lb)

System Hardware

- **Chipset** VT82C686B
- **CPU** Socket 370, Intel® Pentium III up to 1.26 GHz, Intel Celeron up to 1.2 GHz
- **Expansion Slots** 2 x low-profile PCI, or 1 x low-profile PCI and 1 x half-size ISA
- **LAN** 1 x 10/100Base-T
- **Memory** 2 x DIMM sockets support up to 1 GB SDRAM
- **Parallel Ports** 1 x enhanced parallel port, supports SPP/EPP/ECP parallel mode.
BIOS configurable to LPT1, LPT2, LPT3 or disabled.
- **PCMCIA Slots** 2 x Type II
- **Serial Ports** 3 x RS-232 (COM1, 3, and 4)
1 x RS-232/422/485 (COM2).
All ports are compatible with 16C550 UARTs.
- **USB Ports** 2 x USB 1.1

LCD Display

- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 400 : 1
- **Display Size** 15"
- **Display Type** XGA TFT LCD
- **Luminance** 350 cd/m²
- **Max. Colors** 262,144
- **Max. Resolution** 1024 x 768
- **OSD Control** None
- **Viewing Angle (H/V°)** 120/100

Touchscreen (Optional)

- **Interface** RS-232 (through COM4)
- **Lifespan** 1 million touches at single point
- **Light Transmission** 75%
- **OS support** MS DOS, Windows® 95/98/NT/2000/XP
- **Type** Analog resistive (8-wire)

Environment

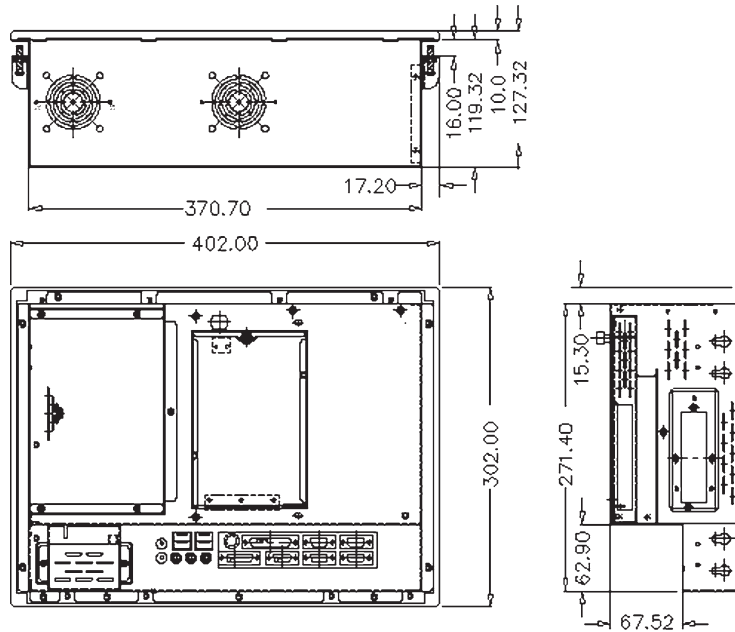
- **Humidity** 5 ~ 85% @ 40° C (non-condensing)
- **Ingress Protection** Front panel: NEMA4/IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Vibration Protection** 5 ~ 500 Hz 1 G_{RMS} random vibration

Ordering Information

- **IPPC-9150G-XAE** Rugged Pentium III/Celeron Industrial Panel PC with 15" LCD
- **IPPC-9150G-RAE** IPPC-9150G-XAE with Resistive Touchscreen

Dimensions

Unit: mm



Cut-out dimensions: 374 x 275 mm

Accessories

- **IPPC-9150 Stand** Stand kit for IPPC-9150/9120 series product
- **IPPC-9150 S-ARM** Swing arm for IPPC-9150/9120
- **IPPC-9150RACKMT** Mounting kit for standard 19" industrial rack
- **CDR-9150-COMBO** Slim type Combo CD-ROM

Notes:

1. When used in a panel mounted environment, the panel's thickness can not be over 10 mm.

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

IPPC-9120G

Rugged Pentium® III Industrial Panel PC with 12.1" LCD



Features

- Pentium® III processors up to 1.26 GHz and Celeron® processors up to 1.2 GHz
- 12.1" SVGA TFT LCD provides vivid, sharp and large images
- Offers two expansion slots for PCI/ISA add-on cards
- Heavy-duty stainless steel chassis with aluminum front panel
- Strengthened glass protects the front panel from shock damage and is NEMA4/IP65 compliant
- Back door with lock allows easy maintenance and optimal security
- Support for optional PCMCIA wireless LAN adapter accessory
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Supports industrial mounting rack and panel mounting

Introduction

IPPC-9120G is a fully functional computer system with support for CPUs of different classes (Pentium III up to 1.26 GHz and Celeron up to 1.2 GHz) to meet the demands of today's industrial software. IPPC-9120G is a rugged unit with an aluminum panel, tempered glass 12.1" TFT LCD, a stainless steel structure and two expansion slots. IPPC-9120G is rugged enough to handle the toughest industrial operating environments. With optional mounting accessories - from swing arm to panels to racks - it can be mounted almost anywhere.

Specifications

General

- **BIOS** Award® 256 KB Flash BIOS
- **Certifications** CCC, CE, FCC, UL, BSMI
- **Cooling Systems** 2 x 15.6 CFM fans w/50,000 hrs MTBF
- **Dimensions (W x H x D)** 402 x 302 x 127 mm (15.8" x 11.9" x 5")
- **Disk Drive Bay** Supports one 2.5" HDD, and built-in slim type CDROM
- **Enclosure** Stainless steel back case, 10 mm aluminum front panel
- **Mounting** Panel, swing-arm, rack
- **Power Input** 100 V_{AC} ~240 V_{AC} @ 47 ~ 63 HZ
- **Power Output** + 5 V @ 15 A, + 12 V @ 5 A, -12 V @ 0.5 A
- **Power Supply** 100 W, MTBF: 200,000 hrs
- **Watchdog Timer** 62-level, interval 1 ~ 62 seconds
- **Weight (Gross)** 10 kg (22 lb)

System Hardware

- **Chipset** Intel 82443B/82371EB
- **CPU** Socket 370 Intel® Pentium III up to 1.26 GHz, Celeron up to 1.2 GHz
- **Expansion Slots** 2 x low-profile PCI, or 1 x low-profile PCI and 1 x half-size ISA
- **LAN** 1 x 10/100Base-T
- **Memory** 2 x DIMM sockets supports up to 1 GB SDRAM
- **Parallel Ports** 1 x enhanced parallel port, supports SPP/EPP/ECP parallel mode.
BIOS configurable to LPT1, LPT2, LPT3 or disabled.
- **PCMCIA Ports** 2 x Type II
- **Serial Ports** 3 x RS-232 (COM1, 3, and 4)
1 x RS-232/422/485 (COM2).
All ports are compatible with 16C550 UARTs
- **USB Ports** 2 x USB 1.1

LCD Display

- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 300 : 1
- **Display Size** 12.1"
- **Display Type** SVGA TFT LCD
- **Luminance** 340 cd/m²
- **Max. Colors** 262,144
- **Max. Resolution** 800 x 600
- **Viewing Angle (H/V°)** 100/60

Touchscreen (Optional)

- **Interface** RS-232 (interface through COM4)
- **Lifespan** 1 million touches at single point
- **Light Transmission** 75%
- **OS Support** MS DOS, Windows® 95/98/NT/2000/XP
- **Type** Analog resistive (8-wire)

Environment

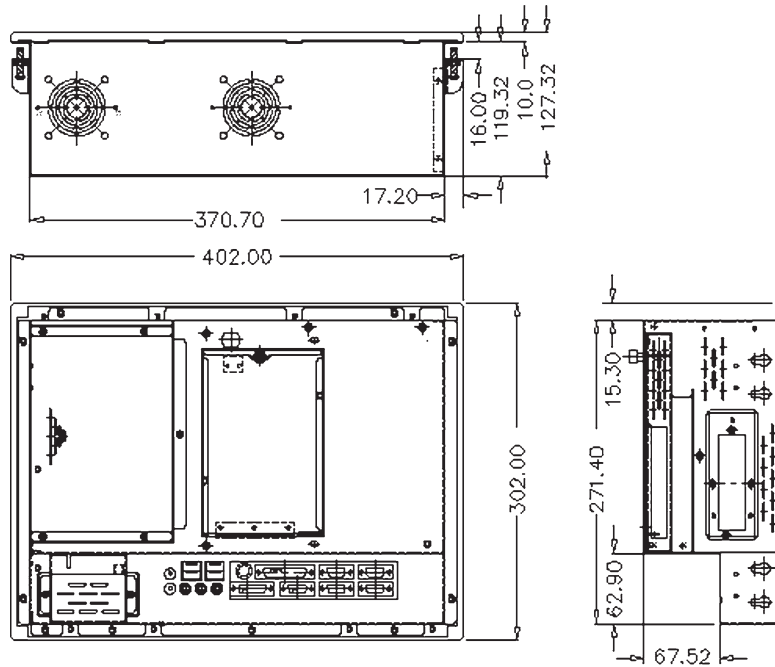
- **Humidity** 5 ~ 85% @ 40° C (non-condensing)
- **Ingress Protection** Front panel: NEMA4/IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Vibration Protection** 5 ~ 500 Hz 1 G_{RMS} random vibration (operating)

Ordering Information

- **IPPC-9120G-XAE** Rugged Pentium III/Celeron Industrial Panel PC with 12.1" LCD
- **IPPC-9120G-RAE** IPPC-9120G-XAE with Resistive Touchscreen

Dimensions

Unit: mm



Cut-out dimensions: 374 x 275 mm

Accessories

- **IPPC-9150 Stand** Stand kit for IPPC-9150/9120 series product
- **IPPC-9150 S-ARM** Swing arm for IPPC-9150/9120
- **IPPC-9150RACKMT** Mounting kit for standard 19" industrial rack
- **CDR-9150-COMBO** Slim type Combo CD-ROM

Note:

1. When used in a panel, the panel's thickness can not be over 10 mm.

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

IPPC Accessories



1700060202

Y-cable for PS/2 mouse & keyboard for CPU cards



IPPC-9151RACK-MT

19" Rack mounting kit for 9151 Series



IPPC-9150 STAND

Stand kit for IPPC-9150/9120 Series



1750000080

CPU cooler for Pentium III up to 1.26 GHz



IPPC-9150RACKMT

19" Rack mounting kit for 9150/9120 Series



1750000078

CPU cooler for Pentium 4 up to 3.06 GHz



IPPC-9150 S-ARM

Swing arm for IPPC-9150G/9120G

Flat Panel Monitors

Selection Guide	Industrial Flat Panel Monitor Selection Guide	8-2
FPM-3190G (new)	Industrial 19" SXGA Flat Panel Monitor with Direct-VGA Port, DVI, Video, S-Video	8-4
FPM-3191G	Industrial 19" SXGA Flat Panel Monitor with Direct-VGA Port	8-6
FPM-3170G (new)	Industrial 17" SXGA Flat Panel Monitor with Direct-VGA Port, DVI, Video, S-Video	8-8
FPM-3171G	Industrial 17" SXGA Flat Panel Monitor with Direct-VGA Port	8-10
FPM-3150G	Industrial 15" XGA Flat Panel Monitor with Direct-VGA Port	8-12
FPM-2150G	Industrial 15" XGA Flat Panel Monitor with Direct-VGA Port	8-14
FPM-3120G	Industrial 12" SVGA Flat Panel Monitor with Direct-VGA Port	8-16
FPM-3060G (new)	Industrial 6" VGA Flat Panel Monitor with Direct-VGA Port	8-18
FPM Accessories		8-20



Flat Panel Monitor Selection Guide

Specifications		Model	FPM-3190G	FPM-3191G	FPM-3170G	FPM-3171G
LCD Display	Size (diagonal)		19"	19"	17"	17"
	Resolution		1280 x 1024	1280 x 1024	1280 x 1024	1280 x 1024
	Colors		16.7 M	16.7 M	16.2 M	16.2 M
	Viewing Angle (H,V)		178, 178	178, 178	140, 130	140, 130
	Luminance (cd/m ²)		300	300	300	300
	Backlight Life (hrs)		50,000	50,000	40,000	40,000
	Contrast Ratio		1000:1	1000 : 1	500 : 1	500 : 1
Direct VGA Input			Yes	Yes	Yes	Yes
DVI Input			Yes	-	Yes	-
S-Video			Yes	-	Yes	-
Video Input			Yes	-	Yes	-
Touchscreen (Optional)			Resistive	Resistive	Resistive	Resistive
OSD (Onscreen Display)			Yes	Yes	Yes	Yes
Touchscreen Sensor			ELO	ELO	ELO	ELO
Inverter			TDK	TDK	TDK	TDK
Power Supply (Volt, AC)			100-240 V	100-240 V	100-240 V	100-240 V
Front Panel Ingress Protection			NEMA4/IP65	NEMA4/IP65	NEMA4/IP65	NEMA4/IP65
Operating Temperature			0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)
Storage Temperature			-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)
Certifications			BSMI, CCC, CE, FCC	BSMI, CCC, CE, FCC	BSMI, CCC, CE, FCC	BSMI, CCC, CE, FCC
Dimensions (W x H x D)			482 x 399 x 66 mm (18.9" x 15.7" x 2.6")	482 x 399 x 66 mm (18.9" x 15.7" x 2.6")	482 x 354 x 68 mm (18.9" x 13.9" x 2.7")	482 x 354 x 68 mm (18.9" x 13.9" x 2.7")
Page			8-4	8-6	8-8	8-10

Selection Guide

FPM-3150G	FPM-2150G	FPM-3120G	FPM-3060G
15"	15"	12.1"	6.5"
1024 x 768	1024 x 768	800 x 600	640 x 480
16.2 M	16.2 M	262 k	262 k
140, 125	140, 125	140, 120	140, 120
400	250	350	300
50,000	40,000	50,000	50,000
500 : 1	500 : 1	200 : 1	500 : 1
Yes	Yes	Yes	Yes
-	-	-	-
-	-	-	-
-	-	-	-
Resistive	Resistive	Resistive	Resistive
Yes	Yes	Yes	Yes
3 M/AMT	3 M/AMT	3 M/AMT	AMT
TDK	TDK	TDK	TDK
100-240 V	100-240 V	100-240 V	100-240 V
NEMA4/IP65	NEMA4/IP65	NEMA4/IP65	NEMA4/IP65
0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)
-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)
BSMI, CCC, CE, FCC	BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC	BSMI, CCC, CE, FCC
422 x 310 x 86 mm (16.6" x 12.2" x 3.4")	383 x 307 x 48 mm (15" x 12" x 1.89")	312 x 244 x 44.6 mm (12.28" x 9.61" x 1.76")	220 x 150 x 45 mm (8.7" x 5.9" x 1.8")
8-12	8-14	8-16	8-18

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

FPM-3190G

Industrial 19" SXGA Flat Panel Monitor with Direct-VGA Port, DVI, Video, S-Video



Features

- 19" SXGA TFT LCD with resolution up to 1280 x 1024
- Robust design with stainless steel chassis and aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel
- Supports industrial 24-48 V_{DC} power input (Optional)
- Supports transreflective LCD technology (Customization)
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- NEMA4/IP65 Compliant
- RoHS Compliant

Introduction

FPM-3190G is a 19" color TFT LCD flat panel monitor specifically designed for industrial applications. With a viewing size as large as 19", it presents an ample display area as well as vivid and sharp images for your HMI. It features Direct-VGA signal transmission and the onscreen display function makes it easy to adjust the images on the screen. The stainless steel chassis and the NEMA4/IP65 compliant aluminum front panel enable installation in applications with water and dust. An optional stainless steel front panel is available by request.

Specifications

General

- **Button Controls** OSD (Onscreen Display) control pad on front panel
- **Certification** BSMI, CCC, CE, FCC-B
- **Dimension (W x H x D)** 482 x 399 x 66 mm (19" x 15.7" x 2.6")
- **Enclosure** Front panel : Aluminum with hard anodic coating,
Rear cover : Stainless steel chassis
- **Mounting** Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input** External 60 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 5 A output
- **Video Port** VGA, DVI-D, S-Video, Video
- **Weight (Net)** 10.65 kg (23.46 lbs)

LCD Display

- **Display Type** SXGA TFT LCD (AUO)
- **Display Size** 19"
- **Max. Resolution** 1280 x 1024
- **Max. Color** 16.7M
- **Viewing Angle (H, V)°** 178, 178
- **Luminance (cd/m²)** 300
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 1000 : 1

Touchscreen (Optional)

- **Sensor** ELO
- **Type** 5W Resistive
- **Interface** RS-232 or USB
- **Lifespan** 35 million touches at a single point
- **Light Transmission** 80%±5
- **OS Support** DOS, Windows® 95/98/ME/2000/XP/NT
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** 4096 x 4096

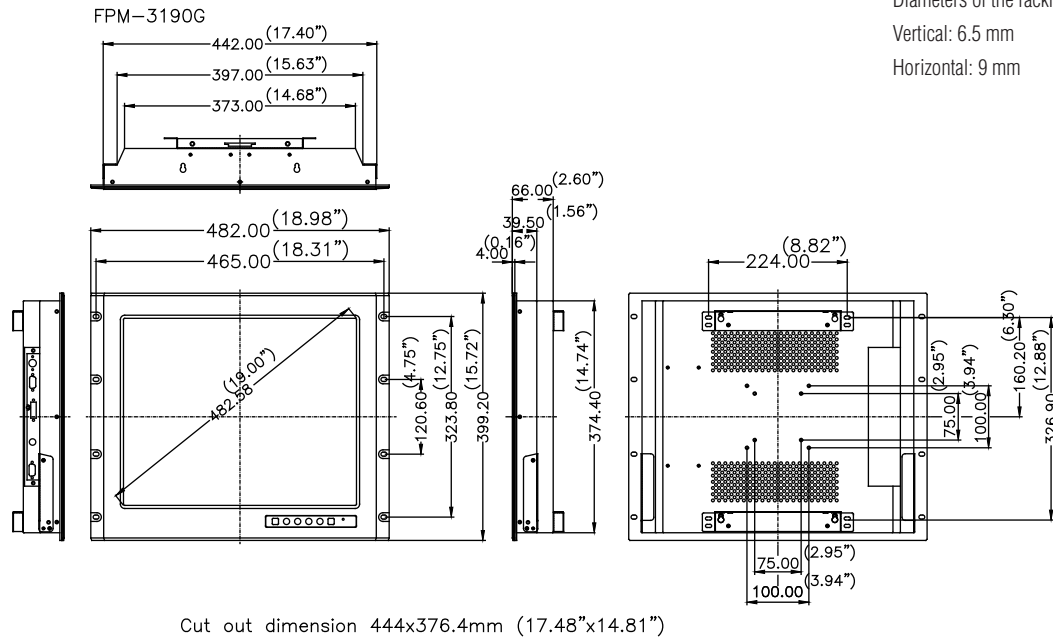
Environment

- **Operation Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** IEC529 IP65 (Front Panel)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

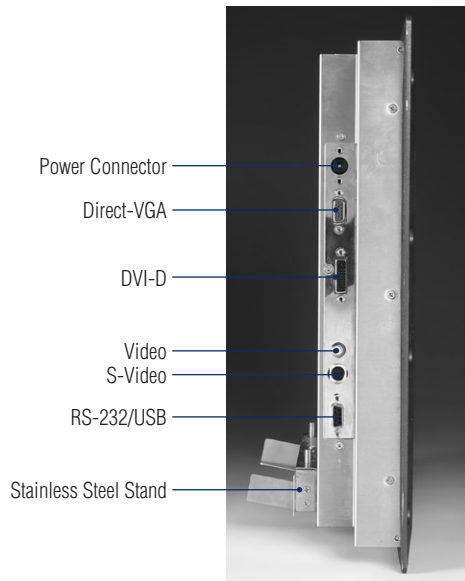
Ordering Information

- **FPM-3190G-XBE** Ind. 19" SXGA FPM w/D-VGA,DVI-D,S-V,Video Input
- **FPM-3190G-RBE** FPM-3190G-XBE w/Resistive TS (RS-232 interface)
- **FPM-3190G-UBE** FPM-3190G-XBE w/Resistive TS (USB Interface)
- **PWR-246E** Ind. DC to DC Converter w/24-48V_{DC} Power Input

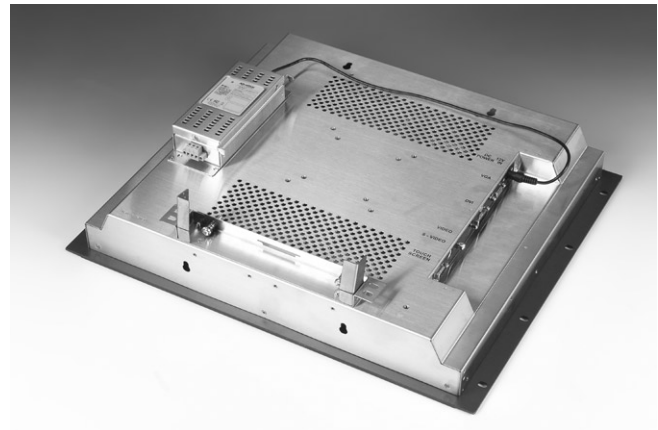
Dimensions



I/O View



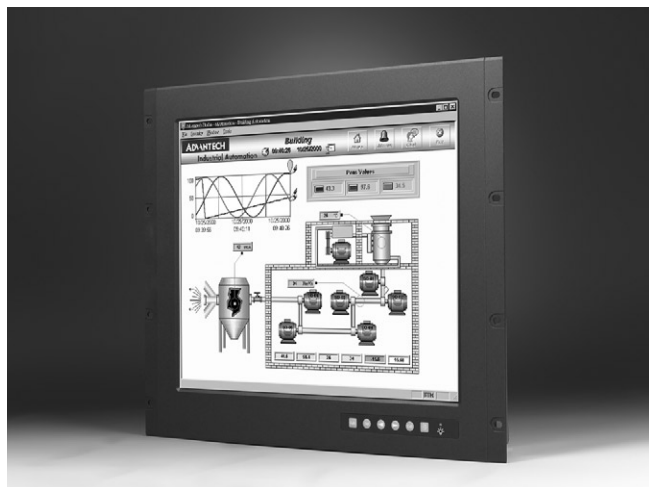
Mounting with DC Source



- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

FPM-3191G

Industrial 19" SXGA Flat Panel Monitor with Direct-VGA Port



Features

- 19" SXGA TFT LCD with resolution up to 1280 x 1024
- Robust design with stainless steel chassis and aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel
- Supports industrial 24-48 V_{DC} power input (Optional)
- Supports transreflective LCD technology (Customization)
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- NEMA4/IP65 Compliant
- RoHS Compliant

Introduction

FPM-3191G is a 19" color TFT LCD flat panel monitor specifically designed for industrial applications. With a viewing size as large as 19", it presents an ample display area as well as vivid and sharp images for your HMI. It features Direct-VGA signal transmission and the onscreen display function makes it easy to adjust the images on the screen. The stainless steel chassis and the NEMA4/IP65 compliant aluminum front panel enable installation in applications with water and dust. An optional stainless steel front panel is available by request.

Specifications

General

- **Button Controls** OSD (Onscreen Display) control pad on front panel
- **Certification** BSMI, CCC, CE, FCC-B
- **Dimension (W x H x D)** 482 x 399 x 66 mm (19" x 15.7" x 2.6")
- **Enclosure** Front panel : Aluminum with hard anodic coating,
Rear cover : Stainless steel chassis
- **Mounting** Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input** External 60 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 5 A output
- **Video Port** VGA
- **Weight (Net)** 10.65 kg (23.46 lbs)

LCD Display

- **Display Type** SXGA TFT LCD (AUO)
- **Display Size** 19"
- **Max. Resolution** 1280 x 1024
- **Max. Color** 16.7M
- **Viewing Angle (H, V)°** 178, 178
- **Luminance (cd/m²)** 300
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 1000 : 1

Touchscreen (Optional)

- **Sensor** ELO
- **Type** 5W Resistive
- **Interface** RS-232 or USB
- **Lifespan** 35 million touches at a single point
- **Light Transmission** 80%±5
- **OS Support** DOS, Windows® 95/98/ME/2000/XP/NT
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** 4096 x 4096

Environment

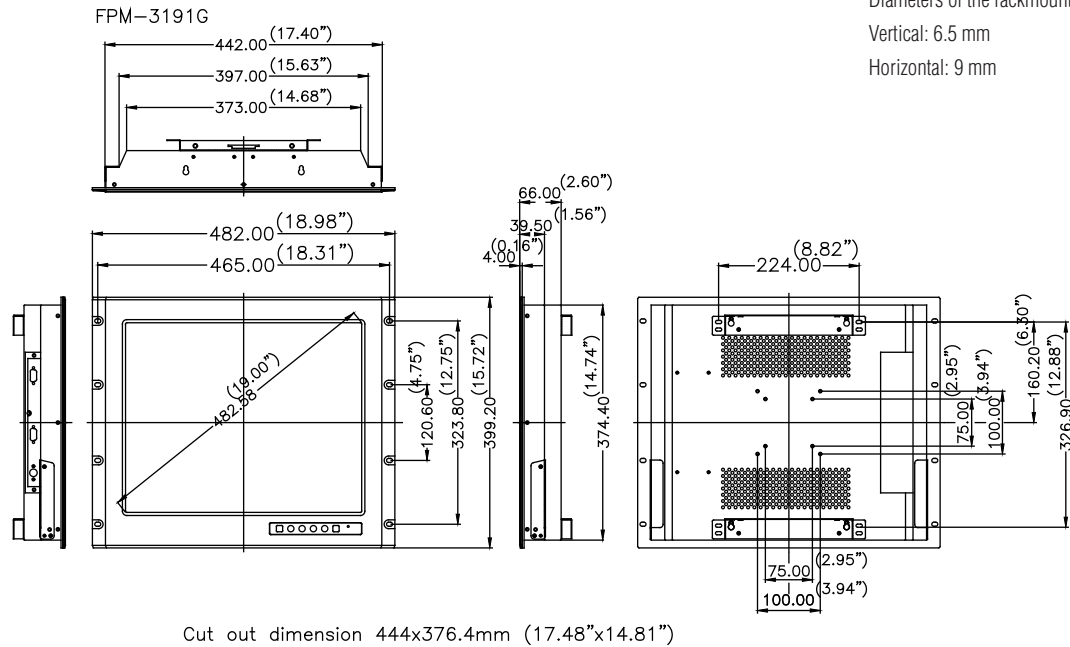
- **Operation Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** IEC529 IP65 (Front Panel)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

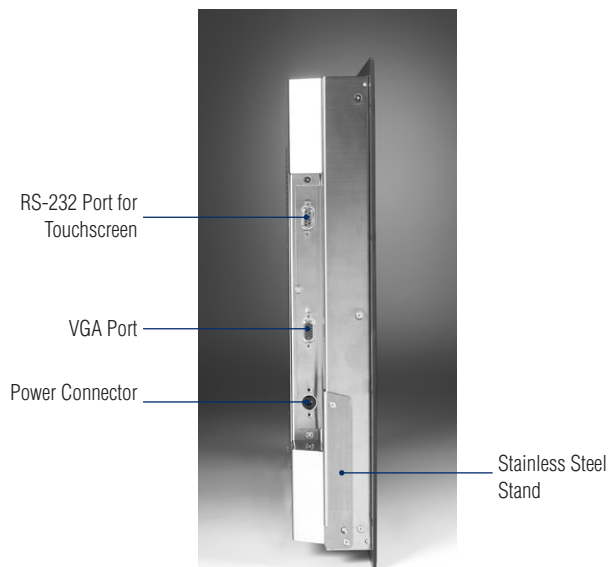
- **FPM-3191G-XBE** Industrial 19" SXGA Flat Panel Monitor
- **FPM-3191G-RBE** FPM-3191G-XBE w/Resistive TS (RS-232 interface)
- **FPM-3191G-UBE** FPM-3191G-XBE w/Resistive TS (USB Interface)
- **PWR-246E** Ind. DC to DC Converter w/24-48V_{DC} Power Input

Dimensions

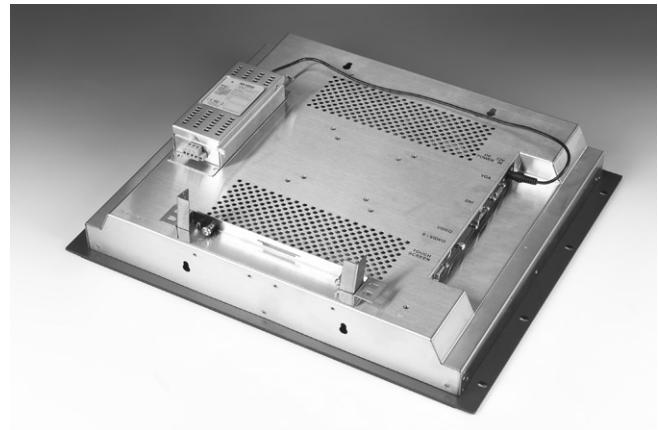
Unit: mm



Side View



Mounting with DC Source



1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

FPM-3170G

Industrial 17" SXGA Flat Panel Monitor with Direct-VGA Port, DVI, Video, S-Video

NEW



Features

- 17" SXGA TFT LCD with resolution up to 1280 x 1024
- Robust design with stainless steel chassis and aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel
- Supports industrial 24-48 V_{DC} power input (Optional)
- Supports transreflective LCD technology (Customization)
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- NEMA4/IP65 Compliant
- RoHS Compliant

Introduction

FPM-3170G is a 17-inch color TFT LCD flat panel monitor specifically designed for industrial applications. With a viewing size as large as 17", it presents an ample display area as well as vivid and sharp images for your HMI. It features direct VGA signal transmission. You can thus upgrade the displays without making changes to the existing system. The onscreen display function also makes it easy to adjust the images on the screen. The whole chassis is designed in stainless steel and the front panel is made of aluminum with NEMA4/IP65 compliance.

Specifications

General

- **Button Controls** OSD (Onscreen Display) control pad on front panel
- **Certification** BSMI, CCC, CE, FCC-B
- **Dimension (W x H x D)** 482 x 354 x 68 mm (19" x 13.9" x 2.7")
- **Enclosure** Front panel : Aluminum with hard anodic coating.
Rear cover : Stainless steel chassis
- **Mounting** Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input** External 50 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 4.16 A output
- **Video Port** VGA, DVI-D, S-Video, Video
- **Weight (Net)** 9.25 kg (20.39 lbs)

LCD Display

- **Display Type** SXGA TFT LCD (CPT)
- **Display Size** 17"
- **Max. Resolution** 1280 x 1024
- **Max. Color** 16.2M
- **Viewing Angle (H, V)°** 140, 130
- **Luminance (cd/m²)** 300
- **Backlight Life (hrs)** 40,000
- **Contrast Ratio** 500 : 1

Touchscreen (Optional)

- **Sensor** ELO
- **Type** 5W Resistive
- **Interface** RS-232 or USB
- **Lifespan** 35 million touches at a single point
- **Light Transmission** 80%±5
- **OS Support** DOS, Windows® 95/98/ME/2000/XP/NT
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** 4096 x 4096

Environment

- **Operation Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** IEC529 IP65 (Front Panel)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

- **FPM-3170G-XBE** Ind.17" SXGA FPM w/D-VGA,DVI-D,S-V,Video Input
- **FPM-3170G-RBE** FPM-3170G-XBE w/Resistive TS (RS-232 interface)
- **FPM-3170G-UBE** FPM-3170G-XBE w/Resistive TS (USB Interface)
- **PWR-246E** Ind. DC to DC Converter w/24-48 V_{DC} Power Input

Dimensions

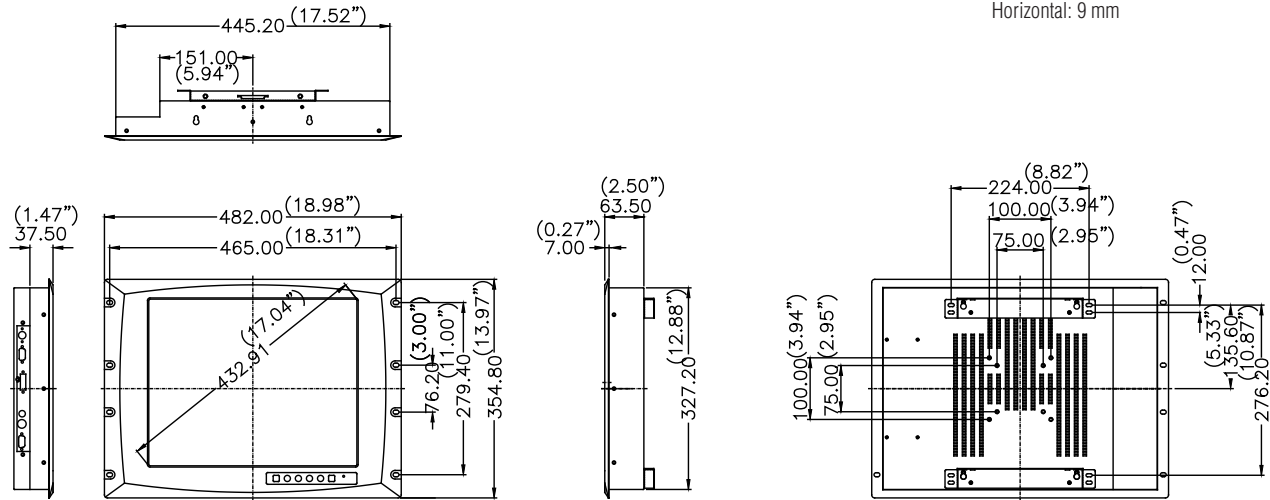
FPM-3170G

Unit: mm

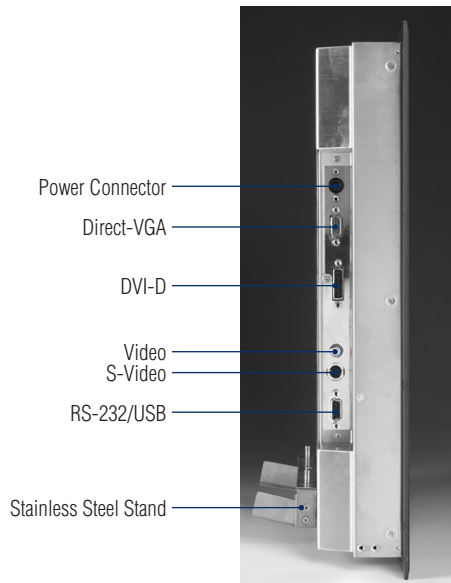
Diameters of the rackmount holes:

Vertical: 6.5 mm

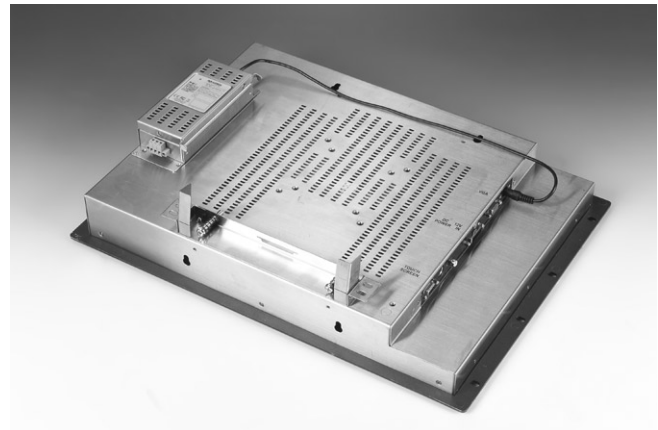
Horizontal: 9 mm



I/O View



Mounting with DC Source



- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

FPM-3171G

Industrial 17" SXGA Flat Panel Monitor with Direct-VGA Port



Features

- 17" SXGA TFT LCD with resolution up to 1280 x 1024
- Robust design with stainless steel chassis and aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel
- Supports industrial 24-48 V_{DC} power input (Optional)
- Supports transreflective LCD technology (Customization)
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- NEMA4/IP65 Compliant
- RoHS Compliant

Introduction

FPM-3171G is a 17-inch color TFT LCD flat panel monitor specifically designed for industrial applications. With a viewing size as large as 17", it presents an ample display area as well as vivid and sharp images for your HMI. It features direct VGA signal transmission. You can thus upgrade the displays without making changes to the existing system. The onscreen display function also makes it easy to adjust the images on the screen. The whole chassis is designed in stainless steel and the front panel is made of aluminum with NEMA4/IP65 compliance.

Specifications

General

- **Button Controls** OSD (Onscreen Display) control pad on front panel
- **Certification** BSMI, CCC, CE, FCC-B
- **Dimension (W x H x D)** 482 x 354 x 68 mm (19" x 13.9" x 2.7")
- **Enclosure** Front panel : Aluminum with hard anodic coating,
Rear cover : Stainless steel chassis
- **Mounting** Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input** External 50 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 4.16 A output
- **Video Port** VGA
- **Weight (Net)** 9.25 kg (20.39 lbs)

LCD Display

- **Display Type** SXGA TFT LCD (CPT)
- **Display Size** 17"
- **Max. Resolution** 1280 x 1024
- **Max. Color** 16.2M
- **Viewing Angle (H, V)°** 140, 130
- **Luminance (cd/m²)** 300
- **Backlight Life (hrs)** 40,000
- **Contrast Ratio** 500 : 1

Touchscreen (Optional)

- **Sensor** ELO
- **Type** 5 W Resistive
- **Interface** RS-232 or USB
- **Lifespan** 35 million touches at a single point
- **Light Transmission** 80%±5
- **OS Support** DOS, Windows® 95/98/ME/2000/XP/NT
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** 4096 x 4096

Environment

- **Operation Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** IEC529 IP65 (Front Panel)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

- **FPM-3171G-XBE** Industrial 17" SXGA Flat Panel Monitor
- **FPM-3171G-RBE** FPM-3171G-XBE w/Resistive TS (RS-232 Interface)
- **FPM-3171G-UBE** FPM-3171G-XBE w/Resistive TS (USB Interface)
- **PWR-246E** Ind. DC to DC Converter w/24-48 V_{DC} Power Input

Dimensions

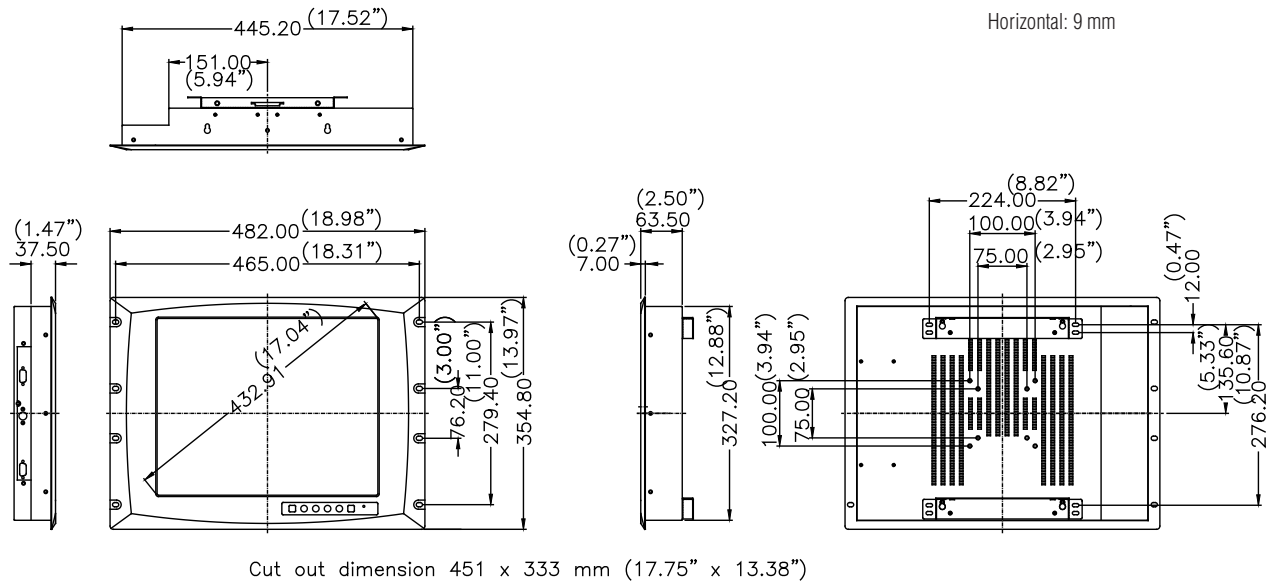
FPM-3171G

Unit: mm

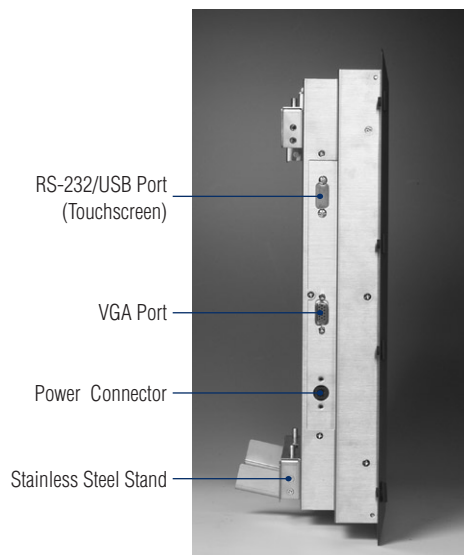
Diameters of the rackmount holes:

Vertical: 6.5 mm

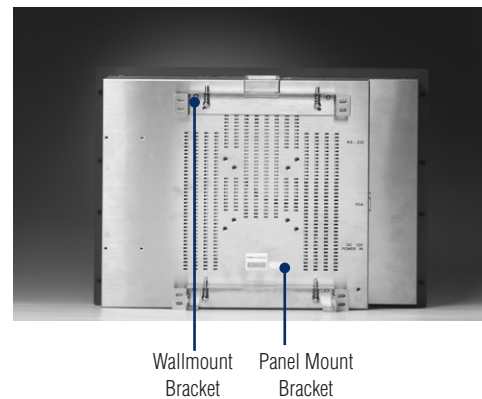
Horizontal: 9 mm



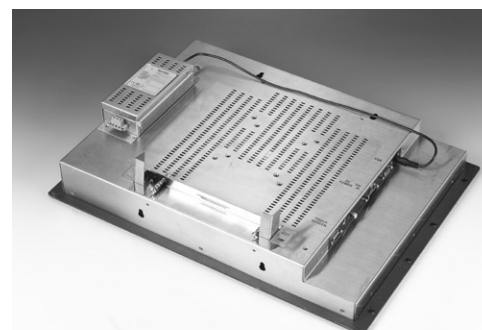
Side View



Rear View



Mounting with DC Source



FPM-3150G

Industrial 15" XGA Flat Panel Monitor with Direct-VGA Port



Features

- 15" XGA TFT LCD with resolution up to 1024 x 768
- Robust design with stainless steel chassis and aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel
- Supports industrial 24-48 V_{DC} power input (Optional)
- Supports transreflective LCD technology (Customization)
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- NEMA4/IP65 Compliant
- RoHS Compliant

Introduction

FPM-3150G is a 15-inch color TFT LCD flat panel monitor specifically designed for industrial applications. With a viewing size as large as 15", it presents an ample display area as well as vivid and sharp images for your HMI. It features Direct-VGA signal transmission, which allows a regular VGA control card to be used in your system. Users can thus upgrade the display without making changes to the existing system. Its on screen display function also allows users to adjust the images on the screen with ease. The whole chassis is stainless steel and the front panel is made of aluminum with NEMA4/IP65 compliance.

Specifications

General

- **Button Controls** OSD (Onscreen Display) control pad on front panel
- **Certification** BSMI, CCC, CE, FCC-B
- **Dimension (W x H x D)** 422 x 310 x 86 mm (16.6" x 12.2" x 3.4")
- **Enclosure** Front panel : Aluminum with hard anodic coating,
Rear cover : Stainless steel chassis
- **Mounting** Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input** External 50 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 4.16 A output
- **Video Port** VGA
- **Weight (Net)** 7.73 kg (17.04 lbs)

LCD Display

- **Display Type** XGA TFT LCD (CPT)
- **Display Size** 15"
- **Max. Resolution** 1024 x 768
- **Max. Color** 16.2M
- **Viewing Angle (H, V)°** 140, 125
- **Luminance (cd/m²)** 400
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 500 : 1

Touchscreen (Optional)

- **Sensor** 3 M/AMT
- **Type** 8W Resistive
- **Interface** RS-232 or USB
- **Lifespan** 1 million touches at a single point (3 M)
10 million with a silicone rubber of R8 finger, writing rate is by 250g at 2 times/s (AMT)
- **Light Transmission** 79%±2 (3 M)
> 80% (AMT)
- **OS Support** (RS-232) Windows® 95/98/ME/2000/XP/CE/NT, Linux (USB) Linux, Windows CE/XP
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** Linearity

Environment

- **Operation Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** IEC529 IP65 (Front Panel)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

- **FPM-3150G-XBE** Industrial 15" XGA Flat Panel Monitor
- **FPM-3150G-RBE** FPM-3150G-XBE with Resistive Touchscreen (RS-232 interface)
- **FPM-3150G-UBE** FPM-3150G-XBE with Resistive Touchscreen (USB interface)
- **PWR-246E** Ind. DC to DC Converter w/24-48 V_{DC} Power Input

FPM-2150G

Industrial 15" XGA Flat Panel Monitor with Direct-VGA Port



Features

- 15" XGA TFT LCD with resolution up to 1024 x 768
- Robust design with aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel
- Supports industrial 24-48 V_{DC} power input (Optional)
- Supports transreflective LCD technology (Customization)
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- NEMA4/IP65 Compliant
- RoHS Compliant

Introduction

FPM-2150G is an industrial-grade 15" TFT LCD flat panel monitor with an Al-Mg front panel, a modern appearance, and one of the most competitive prices for 15" LCD monitors on the market. The FPM-2150G is also extremely light and thin, and provides many industrial-grade features such as a NEMA4/IP65 certified front panel, stainless steel chassis, VESA mounting flexibility, and more. The FPM-2150G is especially suitable for industrial PCs such as IPC-610 or IPC-6806. This combination leads to an extremely reliable and tough system, ready to operate in a wide variety of industrial applications.

Specifications

General

- **Button Controls** OSD (Onscreen Display) control pad on front panel
- **Certification** BSMI, CCC, CE, FCC-B
- **Dimension (W x H x D)** 383 x 307 x 48 mm (15" x 12" x 1.9")
- **Enclosure** Front panel : Aluminum with hard anodic coating,
Rear cover : SECC coating chassis
- **Mounting** Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input** External 50 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 4.16 A output
- **Video Port** VGA
- **Weight (Net)** 5.60 kg (12.34 lbs)

LCD Display

- **Display Type** XGA TFT LCD (CPT)
- **Display Size** 15"
- **Max. Resolution** 1024 x 768
- **Max. Color** 16.2M
- **Viewing Angle (H/V)°** 140, 125
- **Luminance (cd/m²)** 250
- **Backlight Life (hrs)** 40,000
- **Contrast Ratio** 500 : 1

Touchscreen (Optional)

- **Sensor** 3 M/AMT
- **Type** 8W Resistive
- **Interface** RS-232 or USB
- **Lifespan** 1 million touches at a single point (3 M)
10 million with a silicone rubber of R8 finger, writing rate is by 250g at 2 times/s (AMT)
- **Light Transmission** 79%±2 (3 M)
> 80% (AMT)
- **OS Support** (RS-232) Windows® 95/98/ME/2000/XP/CE/NT, Linux (USB) Linux, Windows CE/XP
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** Linearity

Environment

- **Operation Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** IEC529 IP65 (Front Panel)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

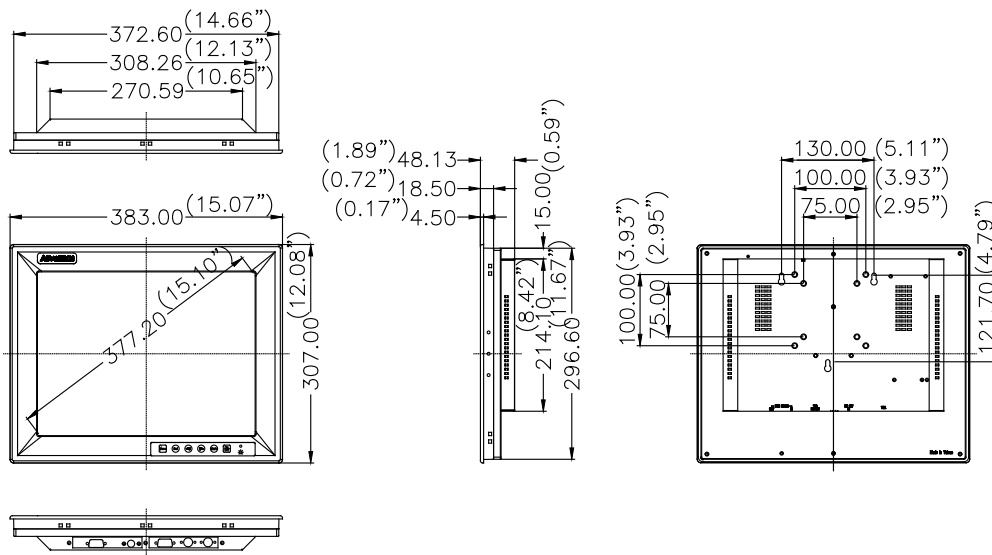
Ordering Information

- **FPM-2150GBE** Industrial 15" XGA Flat Panel Monitor
- **FPM-2150GB-RE** FPM-2150GBE with Resistive Touchscreen (RS-232 interface)
- **FPM-2150GB-UE** FPM-2150GBE with Resistive Touchscreen (USB interface)
- **PWR-246E** Ind. DC to DC Converter w/24-48 V_{DC} Power Input

Dimensions

FPM-2150G

Unit: mm



Cut out dimension 374.6 x 298.6 mm (14.74" x 11.75")

I/O View

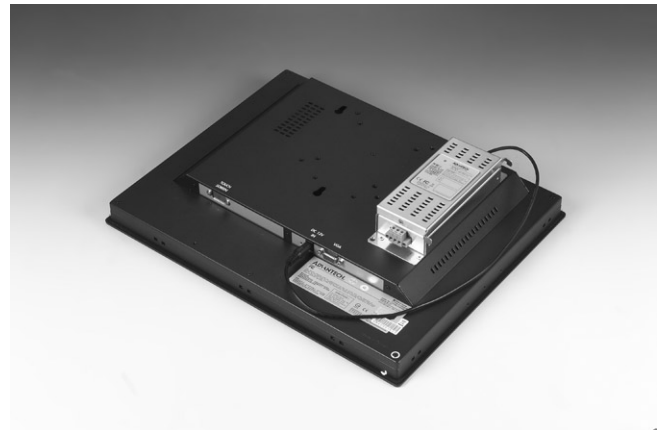


Touchscreen
(RS-232/USB)

Power
Connector

VGA Port

Mounting with DC Source



1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

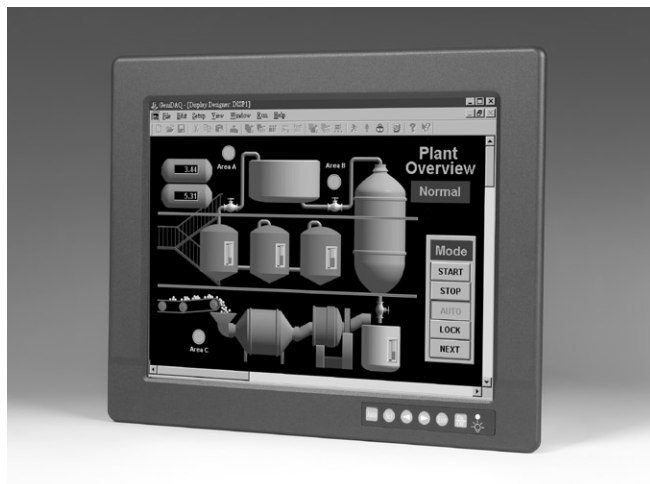
15
Ethernet Switch

16
EDG

17
ICOM

FPM-3120G

Industrial 12" SVGA Flat Panel Monitor with Direct-VGA Port



Features

- 12.1" SVGA TFT LCD with resolution up to 800 x 600
- Robust design with stainless steel chassis and aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel
- Supports industrial 24-48 V_{DC} power input (Optional)
- Supports transreflective LCD technology (Customization)
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- NEMA4/IP65 Compliant
- RoHS Compliant

Introduction

FPM-3120G is 12-inch color TFT LCD flat panel monitor specially designed for industrial or public applications with limited installation space. With a new industrial design, mounting is extremely easy and fits most environments perfectly. The FPM-3120G features Direct-VGA signal transmissions to allow a regular VGA control card to be used in your system. Users can thus upgrade the display without making changes to the existing system. Its onscreen display function lets users adjust the image easily. The whole chassis is stainless steel and the front panel is made of aluminum with NEMA4/IP65 compliance.

Specifications

General

- **Button Controls** OSD (Onscreen Display) control pad on front panel
- **Certification** BSMI, CCC, CE, FCC-B
- **Dimension (W x H x D)** 312 x 244 x 44.6 mm (12.3" x 9.6" x 1.8")
- **Enclosure** Front panel : Aluminum with hard anodic coating, Rear cover : Stainless steel chassis
- **Mounting** Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input** External 42 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 3.5 A output
- **Video Port** VGA
- **Weight (Net)** 4.07 kg (8.975 lbs)

LCD Display

- **Display Type** SVGA TFT LCD (Toshiba)
- **Display Size** 12.1"
- **Max. Resolution** 800 x 600
- **Max. Color** 262K
- **Viewing Angle (H/V)°** 140, 120
- **Luminance (cd/m²)** 350
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 200 : 1

Touchscreen (Optional)

- **Sensor** 3 M/AMT
- **Type** 8W Resistive
- **Interface** RS-232
- **Lifespan** 1 million touches at a single point (3 M)
10 million with a silicone rubber of R8 finger, writing rate is by 250g at 2 times/s (AMT)
- **Light Transmission** 79%±2 (3 M)
> 80% (AMT)
- **OS Support** (RS-232) Windows® 95/98/ME/2000/XP/CE/NT, Linux (USB) Linux, Windows CE/XP
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** Linearity

Environment

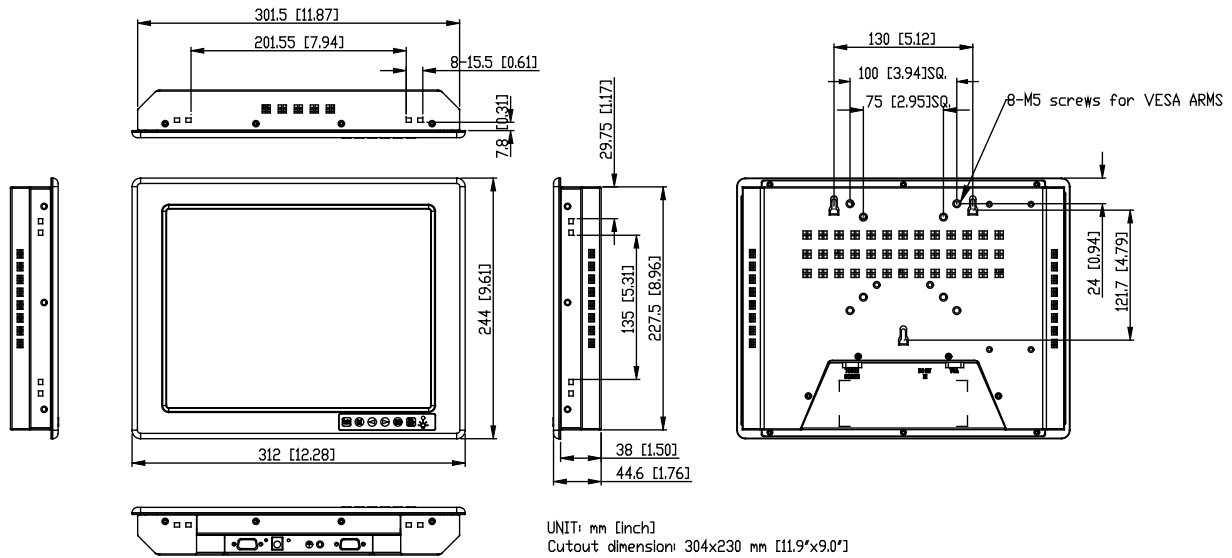
- **Operation Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** IEC529 IP65 (Front Panel)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

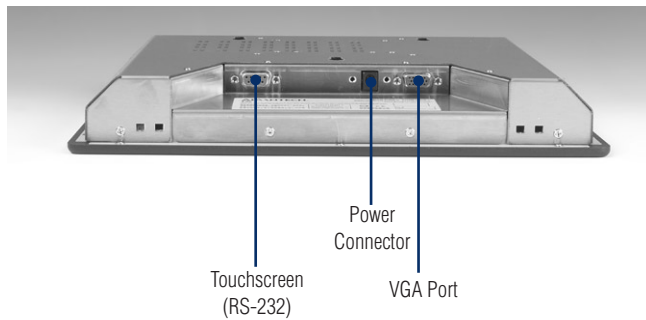
- **FPM-3120G-XAE** Industrial 12" SVGA Flat Panel Monitor
- **FPM-3120G-RAE** FPM-3120G-XAE with Resistive Touchscreen (RS-232 interface)
- **PWR-246E** Ind. DC to DC Converter w/24-48 V_{DC} Power Input

Dimensions

Unit: mm



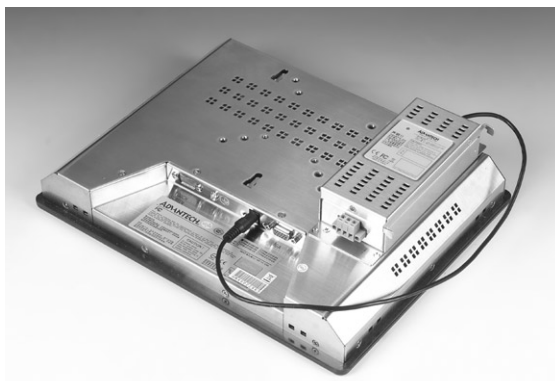
I/O View



With Desktop Stand



Mounting with DC Source



1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

FPM-3060G

Industrial 6" VGA Flat Panel Monitor with Direct-VGA Port



Features

- 6" VGA TFT LCD with resolution up to 640 x 480
- Robust design with stainless steel chassis and aluminum front panel
- Hard anodic coating to prevent panel abrasion and acid corrosion
- Anti-reflective screen with tempered glass
- Supports stainless steel front panel (Customization)
- OSD control pad on front panel
- Supports industrial 24-48 V_{DC} power input (Optional)
- Supports transreflective LCD technology (Customization)
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- NEMA4/IP65 Compliant
- RoHS Compliant

Introduction

FPM-3060G is a 6" flat panel monitor designed for industrial applications with small display requirements. High brightness of up to 400 nits makes the display clearly visible, while the wide operating temperature range of 0 to 50° C combined with vibration resistance makes it suitable for rugged environments. Mounting of the small and compact display can be done in panels, with VESA arms, and even directly on products in the UNO-2000 and MBPC-200 series. Optional versions of FPM-3060G provide RS-232 or USB interfaces for a resistive touchscreen.

Specifications

General

- **Button Controls** OSD (Onscreen Display) control pad on front panel
- **Certification** BSMI, CCC, CE, FCC-B
- **Dimension (W x H x D)** 220 x 150 x 45 mm (8.7" x 5.9" x 1.8")
- **Enclosure** Front panel : Aluminum with hard anodic coating, Rear cover : Stainless steel chassis
- **Mounting** Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input** External 42 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 3.5 A output
- **Video Port** VGA
- **Weight (Net)** 1.82 kg (4.01 lbs)

LCD Display

- **Display Type** VGA TFT LCD (TOSHIBA)
- **Display Size** 6.5"
- **Max. Resolution** 640 x 480
- **Max. Color** 262K
- **Viewing Angle (H/V)°** 140, 120
- **Luminance (cd/m²)** 300
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 500 : 1

Touchscreen (Optional)

- **Sensor** AMT
- **Type** 4W Resistive
- **Interface** RS-232 or USB
- **Lifespan** 10 million with a silicone rubber of R8 finger, writing rate is by 250g at 2 times/s
- **Light Transmission** > 80%
- **OS Support** (RS-232) DOS, Windows® 95/98/ME/2000/XP (USB) Windows 95/98/ME/2000/XP/CE
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** Linearity

Environment

- **Operation Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** IEC529 IP65 (Front Panel)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

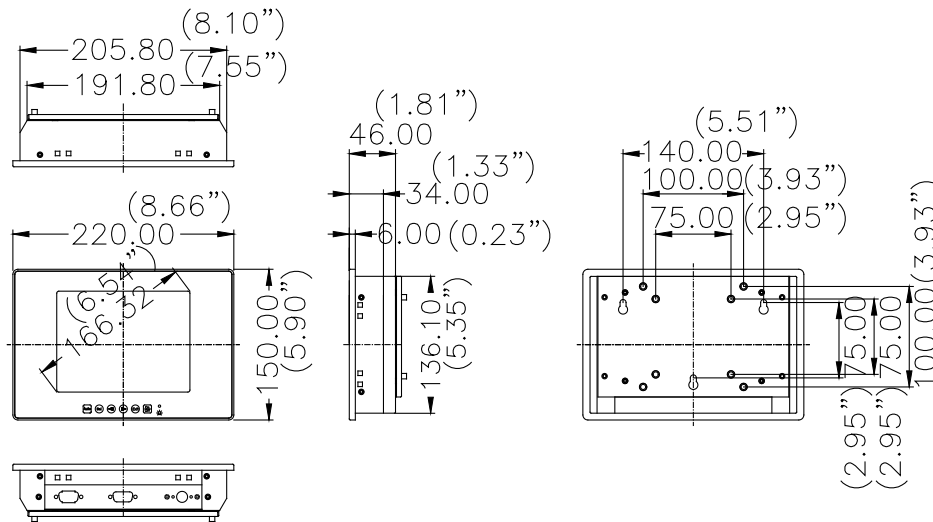
Ordering Information

- **FPM-3060G-XAE** Ind. 6" VGA FPM w/Direct-VGA Input
- **FPM-3060G-RAE** FPM-3060G-XAE w/Resistive TS (RS-232 interface)
- **FPM-3060G-UAE** FPM-3060G-XAE w/Resistive TS (USB interface)
- **PWR-246E** Ind. DC to DC Converter w/24-48 V_{DC} Power Input

Dimensions

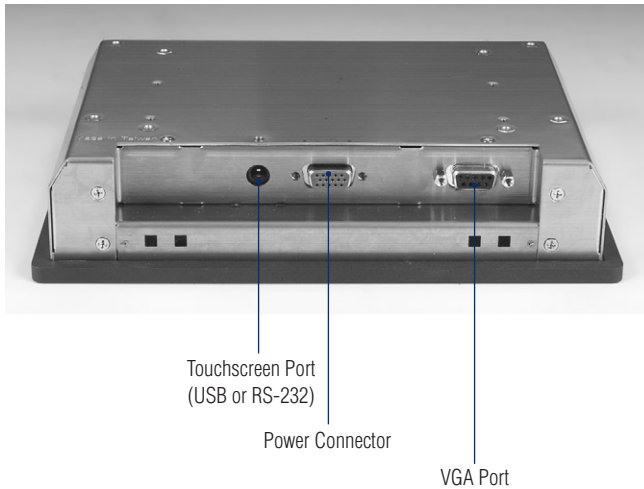
FPM-3060-XAE

Unit: mm



Cut out dimension 209.80 x 140.10mm (8.25"x5.51")

I/O View



Mounting with DC Source



1
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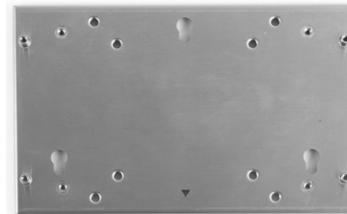
FPM-2150DESK-MTE



FPM-2150RACK-MTE



FPM-3150RACK-MTE



FPM-3060VESA-MTE



PWR-246E

Ind. DC to DC Converter w/ 24-48VDC Power Input



1700091800

RS-232 Cable 9-pin to 9-pin 180 cm

1700090001

RS-232 Cable 9-pin to 9-pin 4.5 m

1700090002

RS-232 Cable 9-pin to 9-pin 3 m

1700090000

RS-232 Cable 9-pin to 9-pin 10 m



1700151801

VGA Cable 15-pin to 15-pin 180 cm

1700155001

VGA Cable 15-pin to 15-pin 50 m

1700155000

VGA Cable 15-pin to 15-pin 5 m

1700152000

VGA Cable 15-pin to 15-pin 20 m

1700151000

VGA Cable 15-pin to 15-pin 10 m

1700153000

VGA Cable 15-pin to 15-pin 30 m

Industrial Workstations

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Industrial Workstations Selection Guide

Product Series		AWS-8259	AWS-8248V	AWS-8129H	AWS-8124H
Brief Description		Modular Workstation	Modular Workstation	Workstation with 9 expansion slots	Mini Workstation
LCD Display	Diagonal	15"	15"	12.1"	12.1"
	Type	XGA TFT LCD	XGA TFT LCD	SVGA TFT LCD	SVGA TFT LCD
	Resolution	1024 x 768	1024 x 768	800 x 600	800 x 600
	Colors	262 K	262 K	262 K	262 K
	Viewing Angle (H°, V°)	120, 100	120, 100	140, 120	120, 90
	Luminance (cd/m²)	350	350	350	350
	Backlight Lifetime (hrs)	50,000	50,000	50,000	50,000
	Interface	VGA	VGA	VGA, LVDS	VGA
	Other	Detachable display module	-	-	-
OSD (Optional Display)		Yes	Yes	Yes	Yes
Backplane	Slot Number	9	14	9	4
	CPU, PCI, ISA, PCI/ISA	1, 0, 8, 0 (AWS-8259T)	0, 0, 14, 0 (AWS-8248VT)	2, 4, 3, 0 (AWS-8129H1-X(R)AE)	1, 3, 0, 0 (AWS-8124H1)
		1, 4, 4, 0 (AWS-8259TP)	1, 4, 9, 0 (AWS-8248VTP)		1, 0, 3, 0 (AWS-8124H2)
Storage Device	FDD (Standard)	1	1	Slim Type x 1	1
	HDD Housing	3.5" x 1	3.5" x 2	3.5" x 1	3.5" x 1
	CD-ROM (Optional)	Slim Type x 1	5.25" x 1	Slim Type x 1	N/A
Key Pad	Data Entry Keys	39	39	60	-
	Function Keys	10	10	10	-
	Macro Function Keys	10	10	10	-
Touchscreen (Optional)		Analog Resistive	Analog Resistive	Analog Resistive	Analog Resistive
Power Supply (AC)		300 W	250 W	250 W	100 W
Front Panel Compliance		NEMA 4/IP65	NEMA 4/IP65	NEMA 4/IP65	NEMA 4/IP65
Operating Temperature		0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)
Storage Temperature		-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)
Certifications		CE,FCC, BSMI, CCC	CE, FCC, BSMI, CCC	CE, FCC, BSMI, CCC	CE, FCC, BSMI, CCC
Dimensions (W x H x D)		482 x 356 x 229 mm (18.98" x 14" x 9")	482 x 356 x 465 mm (18.98" x 14" x 18.32")	482 x 266 x 317 mm (18.98" x 10.5" x 12.5")	344 x 260 x 159.8 mm (13.5" x 10.2" x 6.2")
Weight		22 kg	25.5 kg	17 kg	7 kg
CPU Card Suggestion		PCA-6186VE PCA-6186LV PCA-6003VE	PCA-6186VE PCA-6186LV PCA-6003H	PCA-6186 PCA-6187	PCI-6881 PCI-6872 PCA-6774
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Selection Guide

ATM-4233	ATM-4008	ATM-4023	PWS-1409	PWS-1419
Industrial Automation Platform	Industrial Automation Platform	Industrial Automation Platform	Ruggedized Portable Workstation	
6"	6"	6.4"	14.1"	
VGA TFT LCD	VGA TFT LCD	VGA TFT LCD	VGA TFT LCD	
640 x 480	640 x 480	640 x 480	1024 x 768	
262 K	262 K	262 K	262 K	
120, 100	120, 100	55, 50	80, 45	100, 55
400	400	300	130	220
10,000	10,000	20,000	25,000	
VGA	VGA	VGA	VGA	
OSD control for Brightness adjustment & backlight	OSD control for Brightness adjustment & backlight	OSD control for Brightness adjustment & backlight	OSD control for Brightness adjustment & backlight	
Yes	Yes	Yes	-	
14	8	8	9	
1, 10, 2, 0 (ATM-4233N10)	1, 7, 0, 0 (ATM-4008R1)	1, 7, 0, 0 (front wire) (ATM-4023H8)	1, 0, 8, 0	
-	-	-	1, 4, 4, 0	
-	-	-	1	
3.5" x 1	3.5" x 1	3.5" x 2	3.5" x 1	
5.25" x 2	5.25" x 2	Slim Type x 1	Slim Type x 1	
-	-	-	-	
-	-	-	-	
-	-	-	-	
N/A	N/A	N/A	N/A	
250 W	250 W	250 W	200 W	
N/A	N/A	N/A	N/A	
0 ~ 45° C (32 ~ 113° F)	0 ~ 45° C (32 ~ 113° F)	0 ~ 45° C (32 ~ 113° F)	-8 ~ 60° C (18 ~ 140° F)	
-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)	-20 ~ 60° C (-4 ~ 140° F)	
CE, FCC, BSMI, CCC	CE, FCC, BSMI, CCC	CE, FCC, BSMI, CCC	CE, FCC, BSMI, CCC	
482 x 173 x 450 mm (18.98" x 6.8" x 17.7")	482 x 173 x 360 mm (18.98" x 6.8" x 14.2")	482 x 173 x 265 mm (18.98" x 6.8" x 10.4")	421 x 282 x 230 mm (16.6" x 11.1" x 9.1")	
18 kg	14 kg/16 kg	12 kg	9 kg	12 kg
PCA-6186VE PCA-6003VE PCA-6004VE	PCA-6108 PCA-6872 PCA-6881 PCA-6774	PCI-6872F PCI-6870F PCA-6774 PCA-6108 PCA-6751		
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AWS-8259

Modular Workstation with 15" LCD and 9 Expansion Slots



Features

- 9-slot, 15" TFT LCD workstation
- Resolution: 1024 x 768
- Two-piece design: integrated or separated LCD panel & control chassis
- Built-in touchpad, USB port and floppy drive on front panel
- Designed for simple maintenance with hinged rear door for easy access
- Vibration protection up to 1G
- IP65/NEMA 4, Aluminum front panel and stainless steel chassis

Introduction

AWS-8259 is an industrial workstation with 9-slot expansion capability. Featuring a 15" detachable display module, the AWS-8259 has a rugged yet flexible design for factory floor applications. Its 15" high-brightness 1024 x 768 LCD fulfills the needs for large information viewing. In addition, the display module can be easily separated for maintenance.

With waterproof character keypads & touchpad features, an additional keyboard or mouse is not needed for operation. The standard 8U size can easily be installed in either racks or mounted in panels.

Specifications

General

- **Button Controls**
 - Membrane Keypad 1 39 operating keys
 - Membrane Keypad 2 10 function keys
 - OSD 10 programmable macro function keys
 - Touchpad On front panel with backlight on/off switch
- **Certifications** BSMI, CE, CCC, and FCC class A
- **Connectors** 1 x front-accessible 6-pin PS/2 with dust-protection door for keyboard
- **Cooling System** 1 x 86 CFM fan
- **Dimensions (W x H x D)** 482 x 356 x 229 mm (18.98" x 14.0" x 9")
- **Enclosure** Aluminum
- **Disk Drive Bay** Supports one 3.5" FDD, one 3.5" HDD & one slim CD-ROM (HDD and CD-ROM optional)
- **LED Indicators** Power on/off and HDD activity
- **Mounting** 19" rack
- **Power Input**

Model Name	Watt	Input	Output	MTBF	Safety
PS-300ATX-ZB	300 W	90 ~ 264 V _{AC} @ 47 ~ 63 Hz full range 6.0/3.0 A	+5 V @ 30 A +12 V @ 15 A +3.3 V @ 28 A -5 V @ 0.3 A -12 V @ 0.8 A +5 VSB @ 2 A	100,000 hrs	UL/cUL/TUV/ Nemko/FCC/CE EN61000-3-2 Class D/CB/CCC

- **Weight (Net/ Gross)** 18.5 kg (40.79lbs)/20 kg (44.09lbs)

Backplane Options

- **PCA-6109P4** 4 PCI, 4 ISA, 1 CPU slot backplane
- **PCA-6109** 9 ISA slot backplane

LCD Display

- **Backlight Life** 50,000 hours
- **Display Size** 15"
- **Display Type** XGA TFT LCD
- **Luminance** 350 cd/m²
- **Max. Colors** 262K
- **Max. Resolution** 1024 x 768
- **Viewing Angle (H/V°)** 120/100

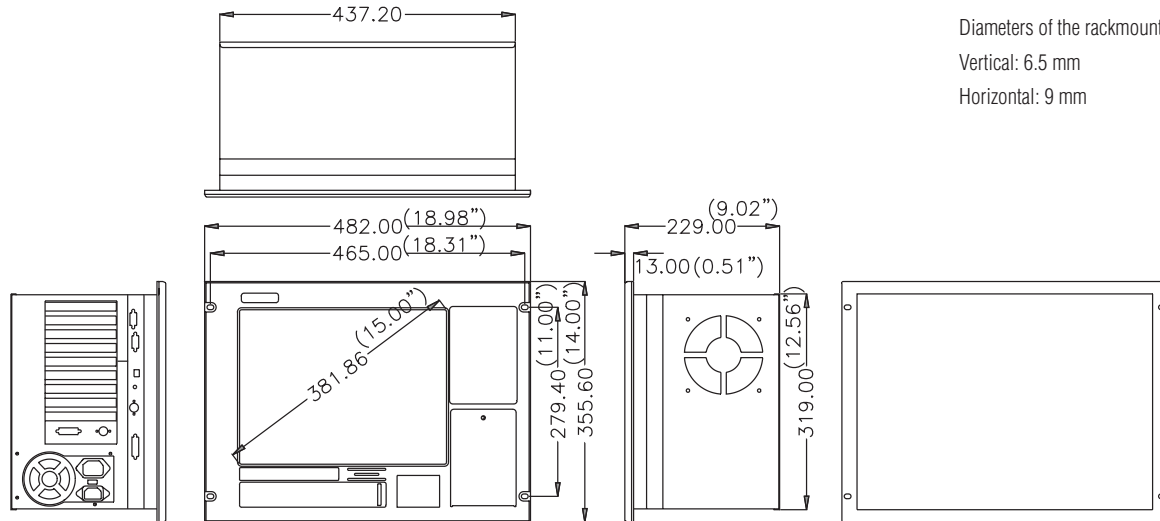
Touchscreen (Optional)

- **Interface** RS-232
- **Lifespan** 1 million touches at a single point
- **Light Transmission** 75 %
- **OS Support** MS-DOS, Windows 95/98/NT/2000/XP
- **Power Consumption** +5 V @ 200 mA
- **Resolution** 1024 x 1024
- **Type** 8-wire, analog resistive

Environment

- **Humidity** 5 ~ 85% RH @ 40° C, non-condensing
- **Humidity (Storage)** 5 ~ 95% non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C

Dimensions



Ordering Information

- **AWS-8259TP-XAE** 15" TFT, 4 ISA & 4 PCI & 1 CPU slots, 300 W 110/220 V_{AC} power supply, 3.5" slim FDD
- **AWS-8259TP-RAE** AWS-8259TP with Resistive Touchscreen (RS-232 interface)
- **AWS-8259T-XAE** 15" TFT, 9 ISA slots, 300 W 110/220 V_{AC} power supply, 3.5" slim FDD
- **AWS-8259T-RAE** AWS-8259T with Resistive Touchscreen (RS-232 interface)

CPU Card Suggestions

Part No	CPU Grade	Description
PCA-6186VE-00B1	Intel Pentium 4 (400/533 MHz FSB)	Socket 478 Pentium 4/Celeron processor card with VGA/LAN/HISA
PCA-6186LV-00B1	Intel Pentium 4 (400/533 MHz FSB)	Socket 478 Pentium 4/Celeron processor card with VGA/HISA
PCA-6003VE-00A1	Intel Pentium III (133 MHz FSB)	Socket 370 Pentium/Celeron processor card with VGA/LAN

Back View



Side View



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AWS-8248V

Modular 15" TFT LCD Workstation with 14 Expansion Slots



Features

- Cost-effective 14-slot, 15" TFT LCD workstation, and resolution of 1024 x 768
- Three card-cage design: easy to maintain add-on cards, CPU card and power supply
- Two 3.5" HDDs with mobile rack drive & CD-ROM drive in back of chassis
- Equipped with onscreen display (OSD) operation keypad on the front panel
- NEMA4/IP65, aluminum panel

Introduction

The AWS-8248V is a 14-slot, 15" TFT LCD workstation. It improves on earlier models by offering more expansion capability, a larger LCD screen, and increased usability, all at an even more competitive price. The AWS-8248V also provides an additional major feature for users: easy maintenance. Using three card-cages and thumbscrew fasteners, the AWS-8248V makes maintenance quick and easy. The AWS-8248V combines multiple slots and 15" LCD in a more cost effective and easier to maintain design.

Specifications

General

- **Button Controls**
 - Membrane Keypad 1 39 operating keys
 - Membrane Keypad 2 10 function keys
 - 10 programmable macro function keys
 - Reset and power on/off
- **OSD** On front panel
- **Touchpad** On front panel
- **Certifications** BSMI, CCC, CE, and FCC class A
- **Enclosure** Aluminum, meets NEMA4/IP65 standard
- **Disk Drive Housing** Supports one 3.5" FDD, two 3.5" HDD and one 5.25" CD-ROM (HDD and CD-ROM optional)
- **Cooling System**
 - 32 CFM fan for power supply
 - 36 CFM fan for plug-in cards
- **Connectors** 2 x 5-pin DIN connector for keyboard (front and rear)
- **Dimensions (W x H x D)** 482 x 356 x 465 mm (18.98" x 14.0" x 18.32")
- **LED Indicators** Power on/off, and HDD activity
- **Mounting** 19" rack, desktop
- **Power Input**

Model	Watt	Input	Output	MTBF	Safety
FSP250-60ATV-PF	250 W	95 ~ 132 V _{AC} or 190 ~ 264 V _{AC} (switchable)	+5 V @ 27 A +12 V @ 13 A +5 VSB @ 2 A -5 V @ 0.3 A -12 V @ 0.8 A +3.3 V @ 12 A	100,000 hrs	UL/CSA/ TUV

- **Weight (Gross)** 25.5 kg (56 lb)

LCD Display

- **Backlight Life** 50,000 hrs
- **Display Type** 15" TFT LCD
- **Max. Resolution** 1024 x 768
- **Max. Colors** 262 K
- **Luminance** 350 cd/m²
- **Viewing Angle (H/V°)** 120/100
- **Interface** Direct VGA
- **Display Setting** OSD

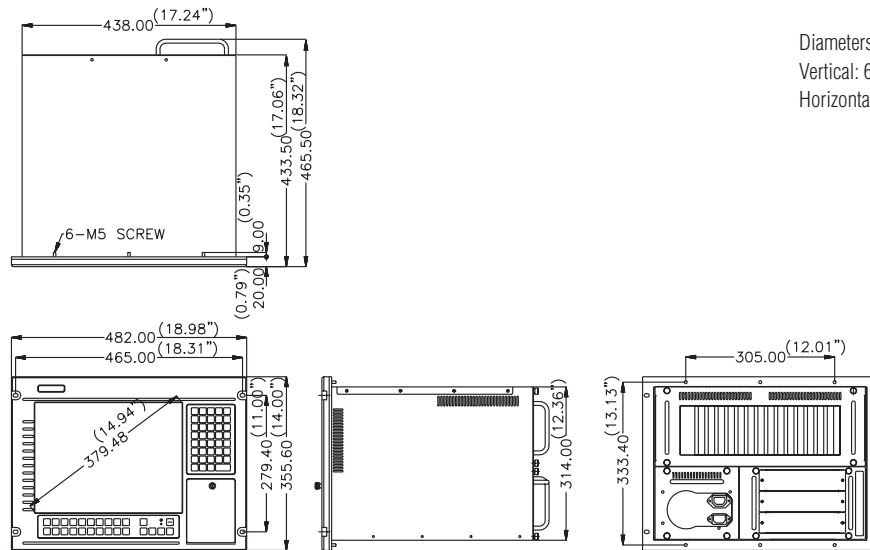
Touchscreen (Optional)

- **Interface** RS-232
- **Lifespan** 1 million touches at a single point
- **Light Transmission** 75 %
- **OS Support** MS-DOS, Windows 95/98/NT/2000/XP
- **Power Consumption** +5 V @ 200 mA
- **Resolution** 1024 x 1024
- **Type** 8-wire, analog resistive

Environment

- **Humidity (Storage)** 5 ~ 95% non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -40 ~ 60° C
- **Vibration (Operating)** 5 ~ 17 Hz, double-amplitude displacement
17 ~ 500 Hz, 1.0 G peak to peak

Dimensions



Cut-out dimensions: 450 x 326 mm

(17.72" x 12.83")

Ordering Information

- AWS-8248VTP-XAE** 15" TFT LCD, 4 PCI, 9 ISA, 1 CPU slot, 250 W 110/220 V_{AC} Power Supply, 3.5" FDD
- AWS-8248VT-XAE** 15" TFT LCD, 14 ISA slots, 250 W 110/220 V_{AC} Power Supply, 3.5" FDD
- AWS-8248VTP-RAE** AWS-8248VTP with Resistive Touchscreen (RS-232 interface)
- AWS-8248VT-RAE** AWS-8248VT with Resistive Touchscreen (RS-232 interface)

CPU Card Suggestions

Part No	CPU Grade	Description
PCA-6186VE-00A1	Intel Pentium 4 (400/533 MHz FSB)	Socket 478 Pentium 4/Celeron processor card with VGA/LAN/HISA
PCA-6186LV-00A1	Intel Pentium 4 (400/533 MHz FSB)	Socket 478 Pentium 4/Celeron processor card with VGA/HISA
PCA-6003H-00A1	Intel Pentium III (133 MHz FSB)	Socket 370 Pentium/Celeron processor card with VGA/LAN/HISA

Back View



Feature Details

Easy to Maintain

The AWS-8248V's "work drawer" designed card cage conveniently slides out for easy access. These three card-cages allow add-on cards, HDD/CD-ROMs and power supplies to be easily changed or added. It only takes a few minutes to service the unit, saving time and money while reducing downtime. The thumbscrew fasteners make access fast and easy, speeding maintenance procedures.

Easy Access Control Panel

Users can easily access the AWS-8248V's controls from the front of the unit via a sturdy protective door. Controls include LEDs and switches for power and system reset, as well as an OSD in front. The front panel also holds a 3.5" 1.44 MB FDD. The aluminum door protects controls from the environment. The door has a waterproof foam-rubber seal and retaining hand screw to securely hold it closed. In addition, the door offers protection against accidental operation of the unit's controls.

Ruggedized Design Meets Harsh Environment Needs

In addition, the AWS-8248V also features many powerful functions that meet or exceed industrial-grade requirements. The front panel is made of aluminum, which prevents the panel from being damaged by acid, salt and other elements. The unit is also waterproof and NEMA4/IP65 compliant. The AWS-8248V provides three mounting configurations to fit various applications: 19" rack mount, panel mounting and desktop.

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AWS-8129H

Workstation w/12.1" LCD, 9 Expansion Slots & Touchpad w/Mouse Key

NEW



Features

- 3 ISA, 4 PCI, 2 PICMG slot combined backplanes
- Case dimensions (W x H x D): 482 x 266 x 317 mm (18.98" x 10.5" x 12.5")
- Front accessible FDD, Power switch and CD-ROM
- Front accessible USB port
- OSD & Membrane Key & Touchpad with two mouse buttons
- NEMA4/IP65 compliant front panel
- Optional analog resistive touchscreen (USB Interface)
- RoHS Compliant

Introduction

The AWS-8129H is a PC-based industrial workstation with an industrial grade 12.1" color TFT LCD display. The AWS-8129H is specifically designed for use within factories and other harsh industrial environments. This 19" frame can be rack or panel mounted. The AWS-8129H provides 3 ISA, 4 PCI, 2 PICMG slots, which offers great flexibility for application specific requirements.

Specifications

General

- Button Controls**
 - Membrane Keypad 1 47 operating keys included 26 alpha characters
 - Membrane Keypad 2 10 function keys
 - 10 programmable macro function keys
 - Reset and power on/off
- OSD 6 OSD keys (Display On/Off, Brightness up, Brightness down, Menu Select, Exit)
- Touchpad Touchpad with two mouse buttons
- Certifications** CE, FCC, BSMI, CCC compliant
- Connectors** Front-accessible 6-pin PS/2 connector w/dust-protection door
- Cooling System** 1 x 49 CFM fan on rear panel
- Dimensions (W x H x D)** 482 x 266 x 317 mm (18.98" x 10.5" x 12.5")
- Enclosure** Aluminum
- Disk Drive Bay** Supports one slim FDD, one 3.5" HDD & one slim CD-ROM (HDD and CD-ROM optional)
- LED Indicators** Power on/off and HDD activity
- Mounting** 19" rack
- Power Input Options**

Type	Watt	Input	Output	MTBF	Safety
AC (Standard)	250 W	90 ~ 132 V _{AC} /10 A or 190 ~ 264 V _{AC} /5 A (Switchable) 47 ~ 63 Hz	3.3 V @ 10 A 5 V @ 10.9 A 12 V @ 2.25 A -12 V @ 0.4 A -5 V @ 0.15 A +5 VSB @ 1 A	100,000 hrs	UL/CSA/ TUV/CCIB

- Weight (Gross)** 17 kg (37.5 lb)

LCD Display

- Backlight Life** 50,000 hrs
- Display Type** 12.1" TFT color LCD
- Max. Resolution** 800 x 600
- Max. Colors** 262 K
- LCD Interface** VGA
- Luminance** 350 cd/m²
- Viewing Angle (H/V°)** 140/120

Touchscreen (Optional)

- Interface** USB
- Lifespan** 10 million touches at a single point
- Light Transmission** 88 %
- OS Support** Windows 95/98/2000/XP
- Power Consumption** +5 V @ 200 mA
- Resolution** 1024 x 1024
- Type** 8-wire, analog resistive

Environment

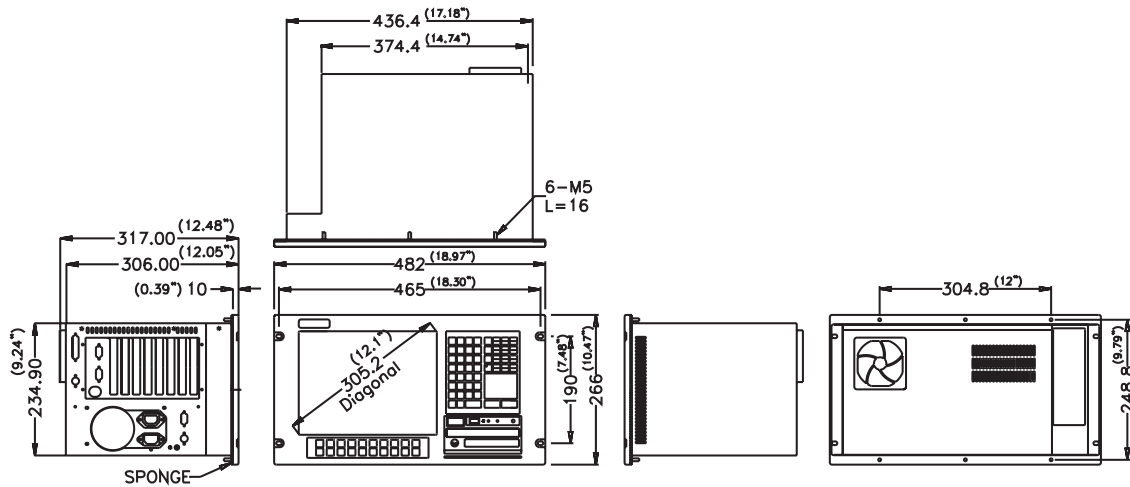
- Humidity** 5 ~ 85% RH @ 50° C, non-condensing
- Humidity (Storage)** 5 ~ 95% RH, non-condensing
- Ingress Protection** Front panel: NEMA4, IP65
- Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- Storage Temperature** -20 ~ 60° C

Passive Backplanes

- 9693610900E** PCA-6109P4 (4 PCI, 3 ISA, 2 PICMG slot backplane)

Dimensions

Unit: mm



Cut out dimension: 440.4 mm x 238.9 mm (17.18" x 9.24")

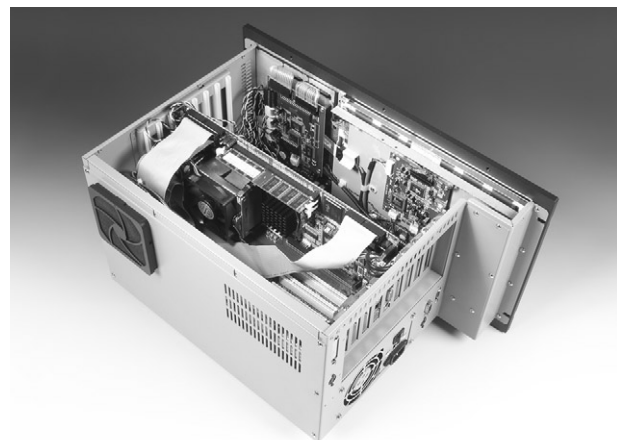
Ordering Information

- **AWS-8129H1-XAE** 12.1" TFT, 3 ISA & 4 PCI slots & 2 PICMG, 250 W 110/220 V_{AC} Power Supply, 3.5" slim FDD
- **AWS-8129H1-RAE** AWS-8129H1-XAE with Resistive Touchscreen

CPU Card Suggestions

Part No	CPU Grade	Description
PCA-6186E2-00B2E	Intel Pentium 4 (400/533 MHz FSB)	Socket 478 Pentium 4/Celeron Processor card with VGA/Dual LAN/HISA, RoHS
PCA-6186VE-00B2E	Intel Pentium 4 (400/533 MHz FSB)	Socket 478 Pentium 4/Celeron Processor card with VGA/LAN/HISA, RoHS
PCA-6186LV-00B2E	Intel Pentium 4 (400/533 MHz FSB)	Socket 478 Pentium 4/Celeron Processor card with VGA/HISA, RoHS
PCA-6187VE-00B2E	Intel Pentium 4 (400/533 MHz FSB)	Socket 478 Pentium 4/Celeron Processor card with VGA/Single LAN/HISA, RoHS

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AWS-8124H

Mini Workstation with 12.1" LCD & 4 Expansion Slots



Features

- 12.1" Color TFT LCD
- 4 Slot Backplane
- Compact Size
- NEMA4/IP65 compliant front panel
- Optional Resistive Touchscreen

Introduction

The AWS-8124H PC-based mini workstation is a compact unit that meets the requirements of human-machine interfaces. Its half-sized, four slot backplane provides a space-saving and economical solution for industrial control. At only 6" in depth, this system can be used in the tight spaces around machinery. Equipped with an optional touchscreen, it can even be used as a controlling interface. Mounted in an airplane, vehicle or machine platform, this mini workstation is designed to fit where others can't.

Specifications

General

- **Certifications** CE, CCC, BSMI, and FCC
- **Cooling System** 1 x 32.8 CFM fan on side
- **Dimensions (W x H x D)** 344 x 260 x 159.8 mm (13.5" x 10.2" x 6.2")
- **Enclosure** Aluminum
- **Disk Drive Housing** Holds one 3.5" FDD and one 3.5" HDD (HDD optional)
- **Slots** 4 ISA slots (8124H2), 4 PCI slots (8124H1)
- **LCD Interface** 3.3 V TTL
- **Weight (Net/Gross)** 7 kg (15.43lbs)/9 kg(19.84lbs)
- **Power Input**

Model	Watt	Input	Output	MTBF	Safety
AC	100 W	AC 90~264 V @ 47~63 Hz, full range 2.0/1.0 A	+5 V @ 11.5 A +12 V @ 3.0 A -12 V @ 0.5 A	200,000 hrs	UL/CSA/CE/ FCC class B

LCD Display

- **Backlight Life** 50,000 hrs
- **Display Size** 12.1"
- **Display Type** SVGA TFT LCD AWS-8124H1 (2)
- **Luminance** 350 cd/m2 AWS-8124H1 (2)
- **Max. Colors** 262K
- **Max. Resolution** 800 x 600 AWS-8124H1 (2)
- **Viewing Angle (H/V°)** 120/90

Touchscreen (Optional)

- **Interface** USB
- **Lifespan** 1 million touches at a single point
- **Light Transmission** 72%
- **Type** Analog resistive, continuous resolution
- **OS Support** Windows® 98/2000/XP
- **Power Consumption** +5 V @ 200 mA
- **Resolution** 1024 x 1024
- **Type** 8-wire, analog resistive

Environment

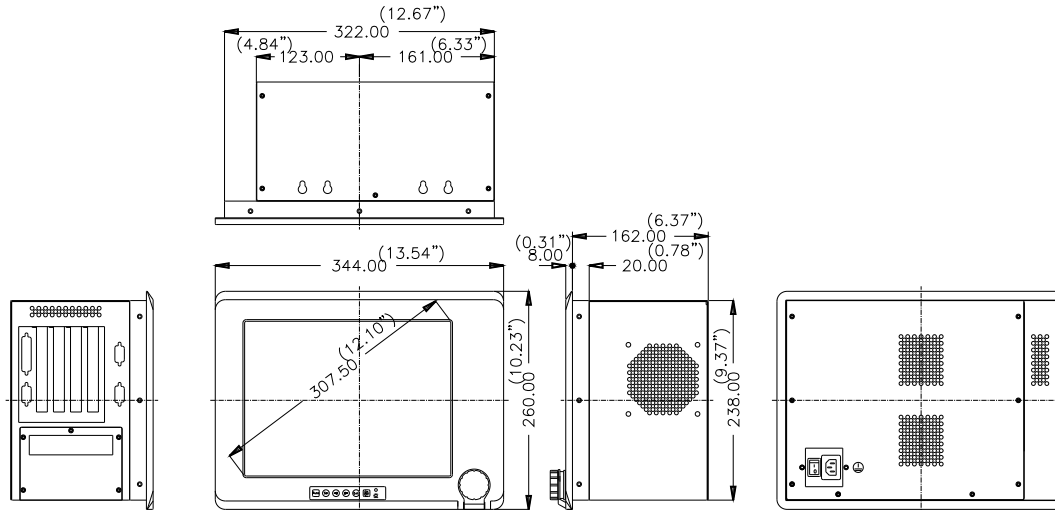
- **Humidity** 5 ~ 95% RH @ 40° C (non-condensing)
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 60° C
- **Vibration (Operating)** 5 ~ 500 Hz, 0.5 Grms (random)

Ordering Information

- **AWS-8124H1-XAE** 12.1" TFT LCD, 4 PCI slot Backplane, 3.5" FDD, 100 W AC Power Supply
- **AWS-8124H1-RAE** AWS-8124H1-XA1E with Resistive touchscreen
- **AWS-8124H2-XAE** 12.1" TFT LCD, 4 ISA slot Backplane, 3.5" FDD, 100 W AC Power Supply
- **AWS-8124H2-RAE** AWS-8124H2-XA1E with Resistive Touchscreen

Dimensions

Unit: mm



Cut out dimension 322 x 238 mm (12.67" x 9.37")

CPU Card Suggestions

Part No	CPU Grade	Description
PCI-6881F-S0A2E	1.1 GHz Pentium M	PCI FCPGA2 478 Slot PC, Pentium M 1.1GHz on Board w/LAN/VGA/LVDS/CFC
PCI-6872F-00A1E	1.26 GHz Pentium III	PCI Socket 370 half-sized CPU Card with VGA/LCD/LVDS/LAN/CFC
PCA-6774F-00A1E	1.26 GHz Pentium III	ISA Socket 370 Slot CPU Card with VGA/LCD/LAN/CFC

1

PAC & Software

2

BAS

3

UNO

4

RS-485 I/O

5

Ethernet I/O

6

TPC

7

IPPC

8

FPM

9

AWS

10

Plug-in I/O

11

CompactPCI

12

Signal Conditioning

13

USB I/O

14

Motion Control I/O

15

Ethernet Switch

16

EDG

17

ICOM

ATM-4233

4U 14-slot Industrial Automation Platform with 6" LCD



Features

- 4U height 19" rackmount platform with 6" TFT LCD display
- Integrated Video A/D Board ensures CPU compatibility up to Intel® Pentium® 4
- 14-slot expansion passive backplane
- Front accessible disk drive bays for easy installation of two vibration damped 5.25" drives, and one 3.5" drive
- OSD control for brightness adjustment
- Applicable for industrial automation control and monitoring
- Suitable for automated test & measurement equipment and production line quality control
- High brightness color TFT LCD panel: 400 nits
- VGA resolution: 640 x 480
- Front accessible USB ports x 2, power on/off and reset button
- Telecom/power station platform for test & measurement equipment

Introduction

In response to customer requests, and to increase overall product performance and competitiveness in the current IPC market, ATM-4233 is a new product based on the popular ACP-4001. ATM-4233 has been equipped with a high brightness 6" color TFT LCD panel, an integrated video A/D board with VGA input, a new passive backplane (2 options), and is compatible with CPU cards up to Intel Pentium 4.

Specifications

General

- **Button Controls**
 - Behind Lockable Door: Power on/off
Reset button
 - Front: OSD: (On/Off, Menu, Select, Auto, Right, Left)
10 configurable membrane buttons
 - Keyboard Drawer: QWERTY keyboard with mouse touchpad
- **Certifications** BSMI, CE, CCC, and FCC class A
- **Connectors**
 - Front: 2 x USB
 - Rear: 1 x 6-pin PS/2 keyboard port for external connection
- **Cooling System** 2 x 90 mm easy-to-replace 115.84 CFM cooling fans
- **Dimensions (W x H x D)** 482 x 173 x 450 mm (18.98" x 6.8" x 17.7") (4U)
- **Disk Drive Bay** Vibration damped, front-accessed 5.25" x 2 and 3.5" x 1 bays.
- **Enclosure** Prepainted galvanized steel. Front door with lock. A replaceable air filter is located behind the door. Color: Pantone 4C 2X black
- **LED Indicators** 1 x system power, 1 x HDD data access
- **Mounting** 19" rack (4U)
- **Power Input** 115/230 V_{AC} or 220 V_{AC}, 60/50 Hz, 10/5 A
- **Weight (Net/Gross)** 18.5 kg (40.79lbs)/20 kg (44.09lbs)

Backplane Options

- **PCA-6114P10-B** 2 ISA/10 PCI/2 PCIMG

LCD Display

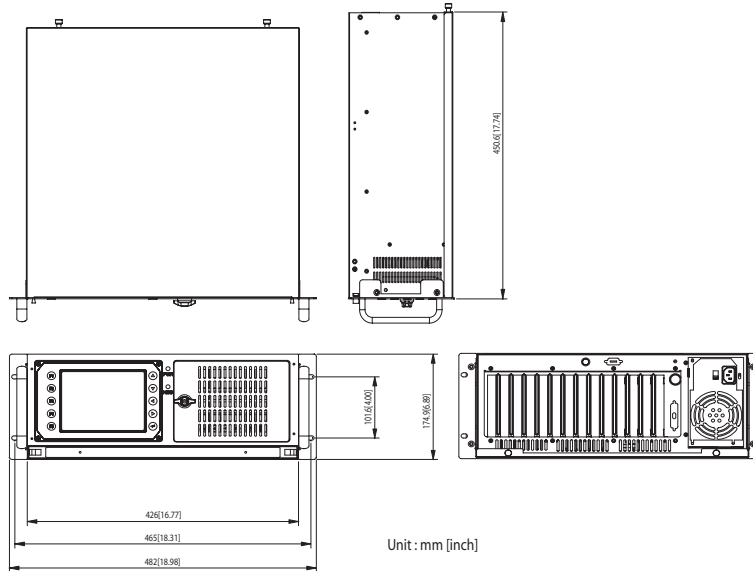
- **Backlight Life** 20,000 hours
- **Display Size** 6"
- **Display Type** VGA TFT LCD
- **Luminance** 400 cd/m²
- **Max. Resolution** 640 x 480
- **Max. Colors** 262 K
- **OSD Control** Front panel
- **Viewing Angle (H/V°)** 120/100

Environment

- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Operating Temperature** 0 ~ 45° C (32 ~ 113° F),
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Vibration (Operating)** 5 ~ 500 Hz, 1 grms (Random)
- **Vibration (Storage)** 5 ~ 500 Hz, 2.16 grms (Random)

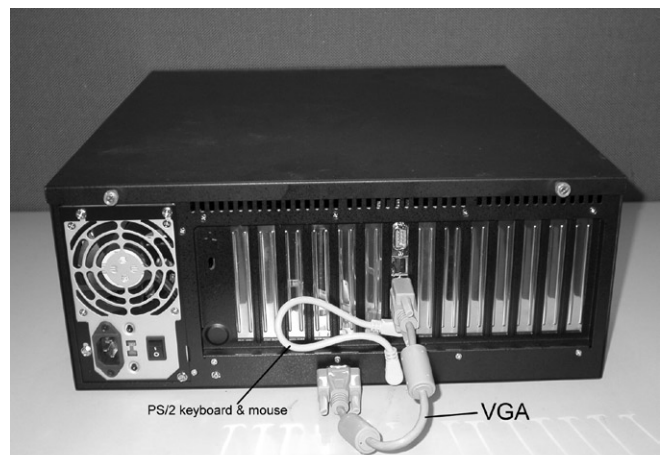
Dimensions

Unit: mm



Ordering Information

- **ATM-4233N10-25Z** 14-slot (2 ISA/10 PCI/2 PCIMG) Industrial Automation Platform with 6" LCD/4U/Standard Size/Rear Wiring/PCA-6114P10-B/250W Power Supply



1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

ATM-4008

4U 8-slot Industrial Automation Platform with 6" LCD



Features

- 4U height 19" rackmount chassis with 6" TFT LCD display
- Integrated Video A/D Board ensures CPU compatibility (to Intel® Pentium® 4)
- 8-slot expansion passive backplane
- Front accessible disk drive bays for installation of 3 vibration damped drives
- OSD control for brightness adjustment
- Applicable for industrial automation control and monitoring
- Suitable for Automatic Testing Equipment and Production Line Testing
- High brightness color TFT LCD panel: 400 nits
- VGA resolution: 640 x 480
- Front accessible USB ports x 2, Power on/off and reset button
- Telecom/power station platform for test & measurement equipment

Introduction

ATM-4008 is a 4U 8-slot rackmount industrial workstation with a 6" LCD display, and a built-in slim type keyboard and touchpad. ATM-4008 is a half-size chassis based on the ATM-4233. The compact design caters for use in limited spaces such as test and measurement stations and machinery.

Specifications

General

- **Button Controls**
 - Behind Lockable Door: Power on/off, Reset button
 - Front: OSD: (On/Off, Menu, Select, Auto, Right, Left), 10 configurable membrane buttons
 - Keyboard Drawer: QWERTY keyboard with mouse touchpad
- **Certifications**
 - BSMI, CE, CCC, and FCC class A
- **Connectors**
 - Front: 2 x USB
 - Rear: 1 x 6-pin PS/2 keyboard port for external connection
- **Cooling System**
 - 2 x 90 mm easy-to-replace 115.84 CFM cooling fans
- **Dimension (W x H x D)**
 - 482 x 173 x 360 mm (18.98" x 6.8" x 14.2") (4U)
- **Disk Drive Bay**
 - 3 x vibration damped, front-accessed 5.25" x 2 and 3.5" x 1 bays
- **Enclosure**
 - Prepainted galvanized steel. Front door with lock. A replaceable air filter is located behind the door. Color: Pantone 4C 2X black
- **LED Indicators**
 - 1 x system power, 1 x HDD data access
- **Mounting**
 - 19" rack (4U)
- **Power Input**
 - 115/230 V_{AC} or 220 V_{AC}; 60/50 Hz, 10/5 A
- **Weight (Net/Gross)**
 - 14 kg (30.87 lbs)/16 kg (35.28 lbs)

Backplane Options

- **PCA-6108P8-0A1** 8 PCI
- **PCA-6108E-0C1** 8 ISA

LCD Display

- **Backlight MTBF (hrs)** 20,000 hours
- **Display Size** 6"
- **Display Type** VGA TFT LCD
- **Luminance** 400 cd/m²
- **Max. Colors** 262 K
- **Max. Resolution** 640 x 480
- **OSD Control** Front panel
- **Viewing Angle (H/V°)** 120/100

Environment

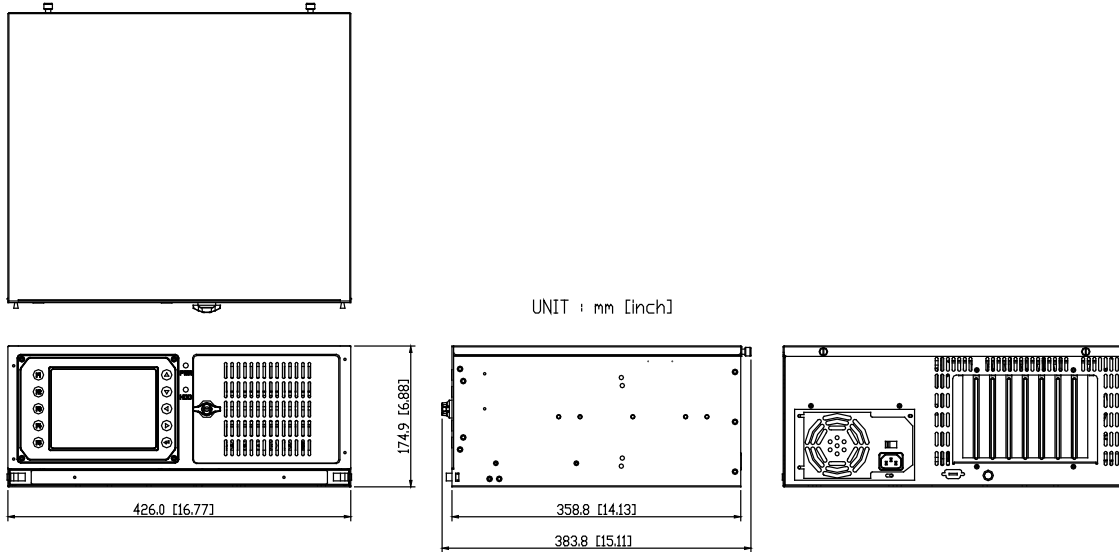
- **Humidity** 10 ~ 95% RH @ 40° C, non-condensing
- **Operating Temperature** 0 ~ 45° C (32 ~ 113° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Vibration (Operating)** 5 ~ 500 Hz, 1 Grms (Random)
- **Vibration (Storage)** 5 ~ 500 Hz, 2.16 Grms (Random)

Ordering Information

- **ATM-4008R1-X** 8 PCI slot Industrial Automation Platform with 6" LCD/4U/Half size/Rear Wiring/PCA-6108P8-0A1/250 W Power Supply

Dimensions

Unit: mm



1

PAC & Software

2

BAS

3

UNO

4

RS-485 I/O

5

Ethernet I/O

6

TPC

7

IPPC

8

FPM

9

AWS

10

Plug-in I/O

11

CompactPCI

12

Signal Conditioning

13

USB I/O

14

Motion Control I/O

15

Ethernet Switch

16

EDG

17

ICOM

ATM-4023

8-slot Industrial Automation Platform with 6.4" LCD/4U, Front-access & Wiring



Features

- Compact all-in-one solution for automated test stations
- 4U height 19" rackmount platform with 6.4" TFT LCD display
- High-brightness color TFT LCD panel: 300 nits
- Quiet operation
- Integrated with video A/D board with VGA input
- 8-slot expansion passive backplane for half-sized cards (8 PCI or 8 ISA)
- Front accessible, easy maintenance CD-ROM Drawer (Optional)
- Front accessible USB, PS/2 Keyboard and Mouse I/O interface for easy plug-in
- OSD menu control for brightness adjustment

Introduction

ATM-4023 features a revolutionary design that is ideal for automatic test stations. At only 4U, the ATM-4023 has 8 front-accessible slots, a 6.4" high-brightness TFT color LCD display, 5 function keys, 5 cursor keys, and an optional slim type CD-ROM drawer. Various mounting kits, including a rackmounting and desktop kit are designed to fit different applications. ATM-4023 is designed to be an automatic testing platform for test and measurement equipment, but can also be suitable in transportation control stations, and industrial control. The front-accessible I/O design makes production test line changes quick, also ensures easy maintenance.

Specifications

General

- **Button Controls** Front-accessible OSD control, reset and power switch
5 function keys, 5 cursor keys
- **Certifications** BSMI, CCC, CE, and FCC class A
- **Connectors** 2 x front-accessible PS/2 for keyboard and mouse
2 x front-accessible USB ports
- **Cooling System** 61.8 CFM (2 x 30.9 cooling fans) w/easy maintenance
- **Dimensions (W x H x D)** 482 x 173 x 265 mm (18.98" x 6.8" x 10.4") (4U)
- **Disk Drive Bay** 2 x 3.5"
1 x slim type CD-ROM drawer (optional)
- **Enclosure** Prepainted galvanized steel
- **LED Indicators** 1 x power, 1 x HDD
- **Mounting** 19" rack, desktop
- **Power Input**

Model Name	Watt	Input	Output	Mini-load	Safety
P1A-6250P	250 W	100/240 V _{AC} 6-3A 50/60 Hz	+5 V @ 24 A +3.3 V @ 20 A +12 V @ 12 A -12 V @ 1 A -5 V @ 0.5 A +5 Vsb @ 1.5 A	+5 V @ 3 A +12 V @ 2 A +3.3 V @ 1 A	UL 1950, CSA 22.2 NO/950, TUV IEC 950 FCC class B, CISPR22 CLASS B

- **Weight (Gross)** 12 kg (26.4 lb)

CPU Card Selection

- **PCI-6872F-00A1** PCI Socket 370 Slot PC, VGA/LCD/LVDS/LAN/CFC
- **PCI-6870F-00A2** PCI Socket 370 815E Slot PC VGA/82562/Audio/CFC2
- **PCA-6774-00A1** ISA Socket 370 Slot PC with VGA/LCD/LAN/CFC

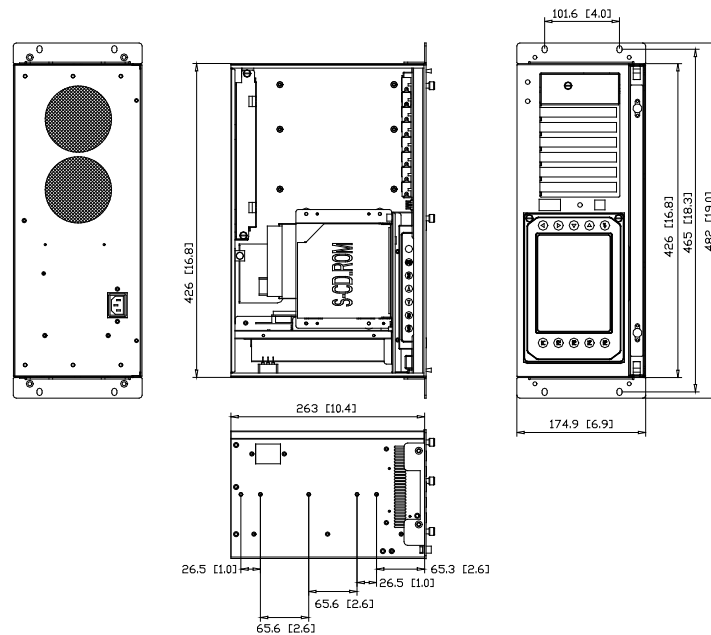
LCD Display

- **Backlight Life** 20,000 hours
- **Display Size** 6.4"
- **Display Type** VGA TFT LCD
- **Luminance** 300 cd/m²
- **Max. Colors** 262 K
- **Max. Resolution** 640 x 480
- **OSD Control** Front panel
- **Viewing Angle (H/V°)** 55/50

Environment

- **Humidity** 10 ~ 95 % RH @ 40° C, non-condensing
- **Operating Temperature** 0 ~ 45° C (32 ~ 113° F)
- **Storage Temperature** -20 ~ 60° C (-4 ~ 140° F)
- **Vibration (Operating)** 1 Grms (5 ~ 500 Hz) (random)
- **Vibration (Storage)** 2 G (5 ~ 500 Hz) (sine)
- **Vibration (Package)** 2.16 Grms (5 ~ 500 Hz) (random)
- **Acoustic Noise** Less than 52 dB @ 5 ~ 28° C (41 ~ 82° F)

Dimensions



Unit: mm

Ordering Information

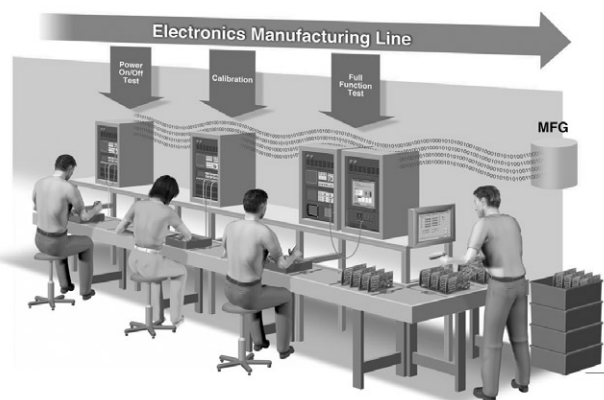
- **ATM-4023H8-25Z** 8 PCI slot Industrial Automation Platform with 6.4" LCD/4U/Half Size/Front Wiring/PCA-6108P8 (rev.A1) 250 W

Accessories

- **9663402304** Slim-type CD-ROM kit with 40-pin IDE connector
- **9684000014** 3.5" FDD with black bezel

Applications

ATM-4023 saves space and offers unparalleled convenience with its all-in-one solution for automated test stations. With front-accessible PCI and ISA slots, connections to test-station fixtures are convenient and can quickly be changed when the production line changes.



The 6.4" LCD screen offers enough space to display visual feedback to the operator for test results, and the front-accessible PS/2 port makes it easy to connect a mouse or keyboard so the operator can respond to test results. The front-accessible USB ports can be used for barcode scanners that identify the serial number of the product being tested, or other peripherals.

By connecting the test stations in an Ethernet network, the test results from several test stations can be stored on a central server for analysis by quality engineers.

1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

PWS-1409

PWS-1419

9-slot 14.1" TFT LCD Portable Workstation

9-slot 14.1" TFT LCD Ruggedized Portable Workstation



Features

- 9-slot ISA/PCI backplane platform
- Full size mechanical key-switch keyboard with touchpad
- Built-in amplified stereo speakers
- 14.1" TFT LCD w/1024 x 768 resolution
- Add-on Card Retention bar
- Built-in Standard PC I/O Ports
- CE, FCC, CCC, BSMI compliant
- Carrying case for easy travel

For PWS-1419T/TP only

- Impact-resistance protective glass for LCD
- Complete aluminum enclosure

Introduction

PWS-1419T/TP Ruggedized Portable Workstation

The PWS-1419 complies with stringent industrial standards. Built with an all aluminum enclosure that has a hard anodized surface, the PWS-1419T/TP has been thoroughly tested and certified to withstand the most demanding environments. The PWS-1419 is dustproof, moisture resistant, shock/drop proof, and heat/cold resistant. Built-in sound and standard PC I/O ports are provided along with a 14.1" TFT LCD with 1024 x 768 resolution.

Its compact size makes it an ideal solution for field operations and it is extremely mobile with the ability to be carried on to a plane or easily fitted into a vehicle. It is ruggedly built and expandable, while meeting MIL-STD-810E military standards and industrial requirements.

PWS-1409T/TP Portable Workstation

The PWS-1409T/TP is a light version of PWS-1419 Portable Workstation, making it also ideal for rugged field and mobile applications. The product is built on an aluminum chassis surrounded by a highly durable ABS plastic shell. It offers a cost effective solution for applications such as portable servers, network/communications testing, field data acquisition, remote field service, factory monitoring automation, etc.

Specifications

General

- **Backplane** TP version-1 CPU, 4 ISA, 4 PCI
T version-1 CPU, 8 ISA
- **Chassis** PWS-1419 - complete aluminum
PWS-1409 - aluminum chassis w/ABS plastic shell
- **Dimensions (W x H x D)** PWS-1419: 421 x 282 x 230 mm (16.6" x 11.1" x 9.1")
PWS-1409: 400 x 320 x 200 mm (15.7" x 13.2" x 10.4")
- **Keyboard** Full size mechanical key-switch, detachable
- **Power Supply** AC 110/220 V auto switch
- **Storage Device** FDD built-in, plus 1 hard disk bay and 1 slim type CD-ROM bay

Environment

- **Humidity** PWS-1419 5 ~ 95 % RH, non-condensing
PWS-1409 10 ~ 90 % RH, non-condensing
- **Operating Temperature** -8 ~ 60° C
- **Storage Temperature** -20 ~ 60° C
- **Weight** PWS-1419: 12 kg (26.4 lb)
PWS-1409: 9 kg (19.8 lb)

LCD Display

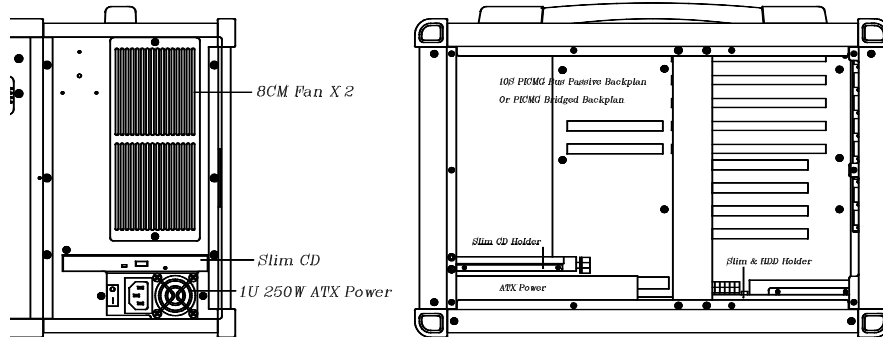
Model	PWS-1409	PWS-1419
Display Type	14"1 Active Matrix TFT	14"1 Active Matrix TFT
Max. Resolution	1024 x 768	1024 x 768
Max. Colors	262 K	262 K
Viewing Angle	H: left side 40°, right side 40° V: up side 15°, down side 30°	H: left side 50°, right side 50° V: up side 20°, down side 35°
Luminance	130 cd/m ²	130 cd/m ²
Backlight Lifetime	25,000 hrs	25,000 hrs

Ordering Information

- **PWS-1419T** 14.1" LCD, Aluminum Chassis, 8ISA/1CPU, Slim Type FDD
- **PWS-1419TP** 14.1" LCD, Aluminum Chassis, 4ISA/4PCI/1CPU, Slim Type FDD
- **PWS-1409T** 14.1" LCD, Aluminum Chassis w/ABS Plastic Shell, 8ISA/1CPU, Standard Type FDD
- **PWS-1409TP** 14.1" LCD Aluminum Chassis w/ABS Plastic Shell, 4 ISA/4 PCI/1 CPU, Standard Type FDD

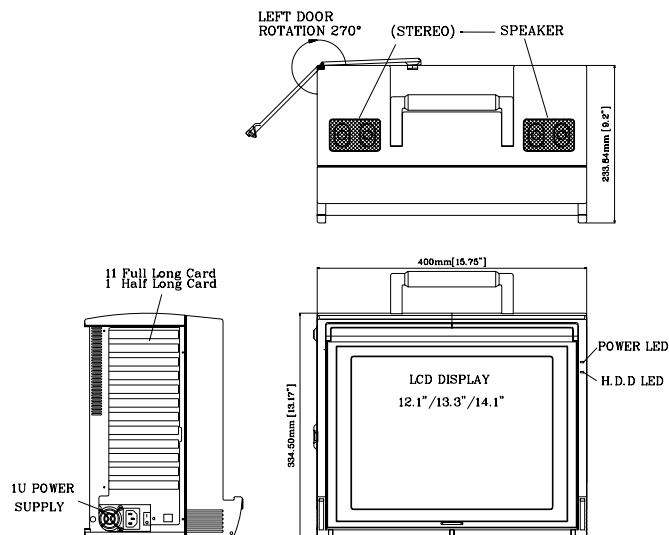
Dimensions

Unit: mm



Dimensions

Unit: mm



Front View

PWS-1409



PWS-1419



- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

Accessories



1757930070

300W AC-DC ATX Power Supply
with PFC



1700260200

AWS- 8259 Signal Cable 26-pin to
26-pin 20 cm

1700262500

AWS- 8259 Signal Cable 26-pin to
26-pin 250 cm



1700150201

VGA Cable 15-pin to 15-pin 20 cm

1700150501

VGA Cable 15-pin to 15-pin 50 cm

1700151801

VGA Cable 15-pin to 15-pin 180 cm

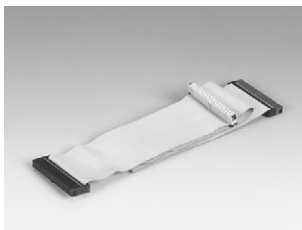


1700060206

PS/2 Cable 6-pin to 6-pin 20 cm

1700061801

PS/2 Cable 6-pin to 6-pin 180 cm



1701400972

HDD Cable, ATA 66/100,
82 cm + 15 cm

1701400652

HDD Cable, ATA 66/100,
45 cm + 20 cm

1701400452

HDD Cable, ATA 66/100,
30 cm + 15 cm



1700340640

FDD Cable for tw 3.5" FDD 64 cm



1750000078

CPU cooler for Pentium 4 up to
3.06 GHz



1759254100

CPU cooler for Pentium III up to
1.26 GHz

Excellence in PC-based Measurement and Control

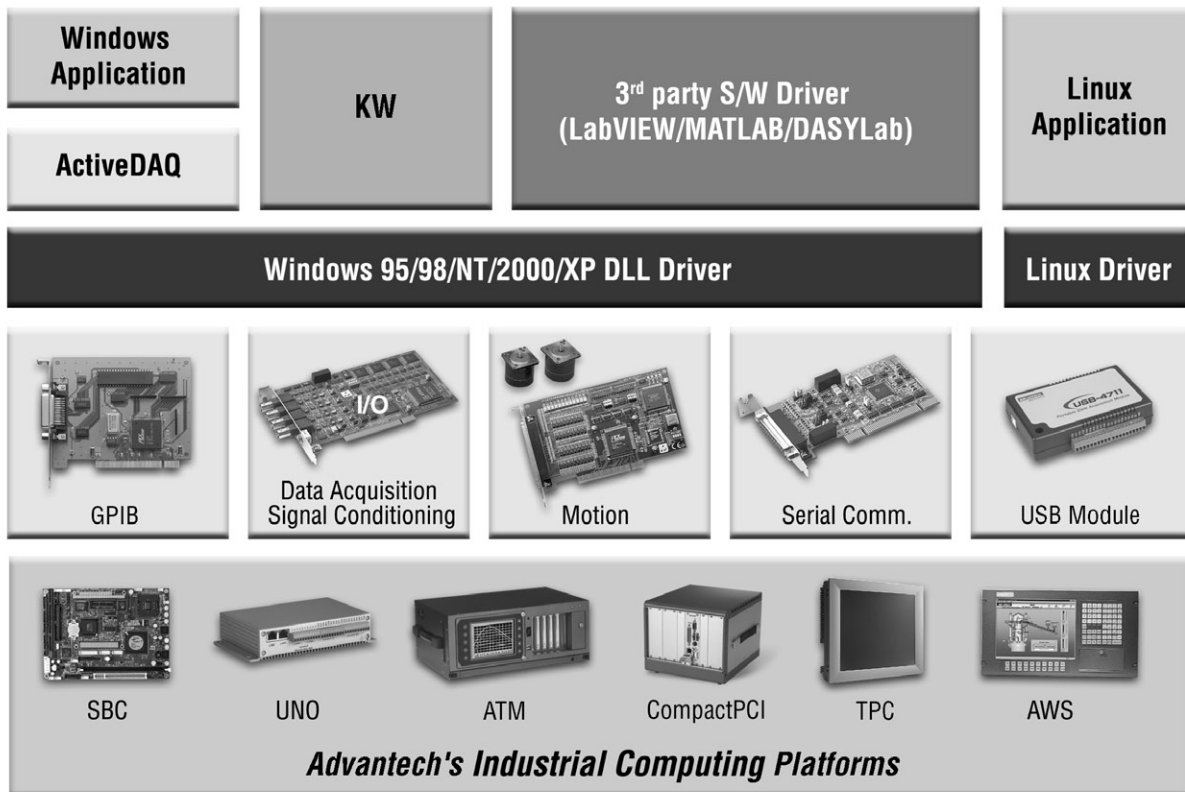
Advantech is excited to be your partner in innovation. We specialize in using industrial-grade computers, the internet, and other cutting edge technologies to help you achieve your goals - faster, better, and well under budget.

For more than 20 years, Advantech has developed for various form factors such as ISA, PCI, PC/104, USB, and CompactPCI. The result is a solid range of plug-in I/O, signal conditioning and multi-port serial communication products to help engineers and scientists build, test, measure and control solutions. Advantech delivers a fully integrated set of software and hardware tools for building measurement and control applications. From application software to hardware devices that interface with real-world signals, this framework gives engineers and scientists improved productivity when defining measurement and control systems. In addition to providing tight integration with Advantech hardware, the measurement software framework delivers essential interoperability with the widest set of third-party software support in the industry. With these PC-based measurement and automation products, engineers may use intuitive, powerful off-the-shelf application software, and flexible modular hardware to build customer-defined solutions. It makes the application development easier and more productive.

Extensive Software Support

For Windows programmers, Advantech not only offers Windows DLL drivers, but also supports ActiveX technology via our ActiveDAQ product to speed up the application development. Direct drivers for popular software packages such as LabView, MatLab and DASyLab are also supported. In addition, user-friendly KW software can help complete log-control application development very easily. For Linux programmers we also offer Linux drivers to develop their applications.

Framework of PC-based Measurement & Control



Versatile Hardware Platforms

Advantech offers a full range of measurement and control hardware, from high accuracy and quality plug-in data acquisition boards, to motion control, to serial and Fieldbus communication. With the addition of Advantech signal conditioning hardware, you can also build systems for measuring low and high voltages, current, strain, temperature, frequency, and more. Advantech offers products for the following measurement platforms:

- Universal PCI for Desktop PC's and Server Platforms - Transform your desktop PC into a custom measurement solution with high performance PCI plug-in devices and signal conditioning.
- PC/104 for Embedded PC's - For an embedded application, you may adopt an embedded PC with PC/104 measurement devices.
- CompactPCI Real-Time System - Combine embedded controller, data acquisition devices, motion and vision, and hot swap capability for embedded and real-time applications.
- ISA for Industrial Applications - ISA-bus products offer an easy-to-use and cost-effective measurement and control solution to the users.
- Signal Conditioning Modules-With signal conditioning modules, you can measure sensor output raw signals, generate voltages & currents, or route signals with switching into a single integrated system.
- USB for Notebook PC's- For a portable application, you can easily plug and play USB-based measurement devices with USB module into any portable computers, such as Notebook PC's.

With abundant resources of hardware modules and software support, Advantech provides high-speed, high quality yet cost-saving products for industrial requirements. Moreover, bundled with versatile industrial PC chassis, backplanes, CPU modules and flat panel monitors, Advantech offers a one-stop-shop solution to serve all your needs.



PCI for Desktop PC's



PC/104 for Embedded Applications



CompactPCI Real-time System



ISA for Industrial Applications



USB for Portable Applications

Plug-In I/O Cards

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PCI-1716/PCI-1716L	250 kS/s, 16-bit, 16-ch High-resolution Multifunction Cards 10-20
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PCL-818	High-performance Multifunction Card 10-30
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Data Acquisition and Control Tutorial & Software

PC-based Data Acquisition System Overview

In the last few years, industrial PC I/O interface products have become increasingly reliable, accurate and affordable. Because of this, PC-based data acquisition and control systems are now widely used in industrial and laboratory applications such as: monitoring, control, data acquisition and automated testing.

Selecting and building a DA&C (Data Acquisition and Control) system that actually does what you want it to do requires some knowledge of electrical and computer engineering. This tutorial gives a brief introduction to what DA&C systems do and how to configure them. It covers:

- Transducers and Actuators
- Signal Conditioning
- Data Acquisition and Control Hardware
- Getting Started
- Computer System Software

Transducers and Actuators

A transducer converts temperature, pressure, level, length, position, etc. into voltage, current, frequency, pulses or other signals.

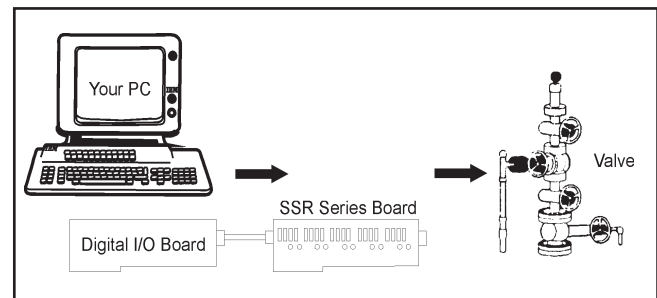
Thermocouples, thermistors and resistance temperature detectors (RTDs) are common transducers for temperature measurements. Other types of transducers include flow sensors, pressure sensors, strain gauges, load cells and LVDTs, which measure flow rate, pressure variances, force or displacement.

An actuator is a device that activates process control equipment by using pneumatic, hydraulic or electrical power. For example, a valve actuator can open and close a valve to control fluid rates.

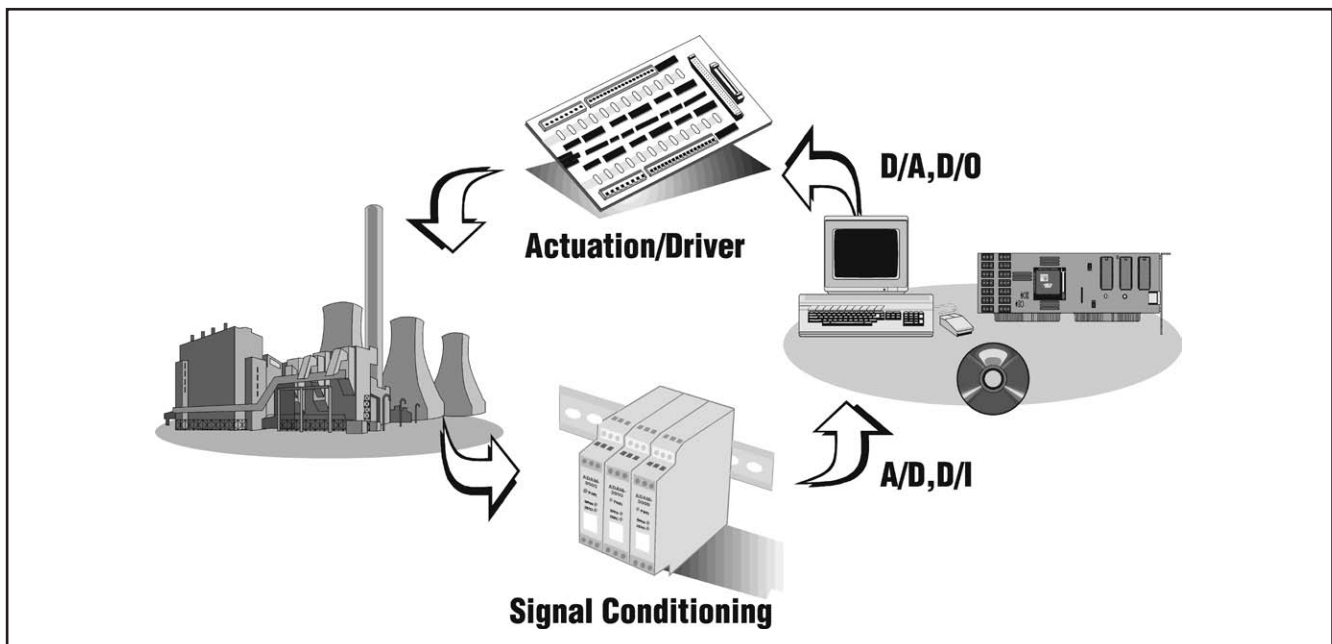
Signal Conditioning

Signal conditioning circuits improve the quality of signals generated by transducers before they are converted into digital signals by the PC's data-acquisition hardware. Examples of signal conditioning are signal scaling, amplification, linearization, cold-junction compensation, filtering, attenuation, excitation, common-mode rejection, and so on.

One of the most common signal conditioning functions is amplification. For maximum resolution, the voltage range of the input signals should be approximately equal to the maximum input range of the A/D converter. Amplification expands the range of the transducer signals so that they match the input range of the A/D converter. For example, a x10 amplifier maps transducer signals that range from 0 to 1 V into the range 0 to 10 V before they go into the A/D converter.



Using digital I/O and SSRs to open and close a valve



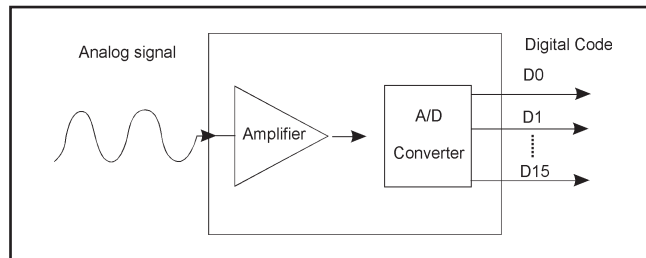
The layout of a typical PC-based data acquisition system

Data Acquisition & Control Hardware

Data acquisition and control hardware generally performs one or more of the following functions: analog input, analog output, digital input, digital output and counter/timer functions. This section will discuss each function and list some considerations that are important when you select a data acquisition and control system.

Analog Inputs (A/D)

Analog to digital (A/D) conversion changes analog voltage or current levels into digital information. The conversion is necessary to enable a computer to process or store the signals.

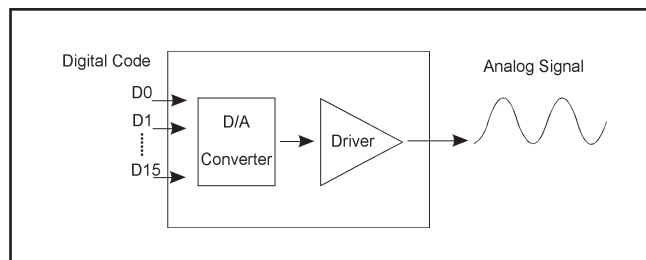


The most significant criteria when selecting A/D hardware are:

1. Number of input channels
2. Single-ended or differential input signals
3. Sampling rate (in samples per second)
4. Resolution (usually measured in bits of resolution)
5. Input range (specified in full-scale volts)
6. Noise and nonlinearity

Analog Outputs (D/A)

The opposite of analog to digital conversion is digital to analog (D/A) conversion. This operation converts digital information into analog voltage or current. D/A devices allow a computer to control real-world events.



Analog output signals may directly control process equipment. The process can give feedback in the form of analog input signals. This is referred to as a closed loop control system with PID control. Analog outputs can also be used to generate waveforms. In this case, the device behaves as a function generator.

Digital Inputs and Outputs

Digital input/output functions are useful in applications such as contact closure and switch status monitoring, industrial On/Off control and digital communications.

Counter/Timer

A counter/timer can be used for event counting, flowmeter monitoring, frequency counting, pulse width measurement, time period measurement, and so on.

Getting Started

Advantech: The source for what you need

Advantech manufactures data acquisition hardware and software for measurement, monitoring and applications control. The following guide is provided to help you choose components for your data acquisition system.

Step 1: Know your fundamental goal

Decide whether your DA&C system will be used primarily for measurement, monitoring, control, or analysis. Know the data requirements of your process, and know the number of data collection points in your system. Know the required data collection speed, the sampling rate, the type of measurement, the voltage or current being produced, the desired accuracy and the output resolution at each data collection point. Finally, know the timing of events in your system, and any special environmental conditions that exist.

Step 2: Hardware selection

Select the hardware required to achieve your fundamental goal. Advantech provides plug-in boards for Analog-to-Digital, Digital-to-Analog, Digital I/O, RS-232 or RS-485 needs. Both ISA and PCI bus products are available. Your hardware selection should be based on five major criteria:

1. Number and types of channels
2. Differential or single-ended inputs
3. Resolution
4. Speed
5. Software compatibility with hardware

Step 3: Accessory selection

Most applications require additional accessories which are available as separate items. These include:

1. Expansion peripherals to add channels to your system
2. Cables, signal conditioners and external boxes such as screw terminals or BNC accessories

Step 4: Software selection

More than any other single factor, software will determine your system start-up time, as well as its effectiveness, suitability for your application, and ease of modification.

Three major criteria should determine the choice of software:

1. Operating system used
2. User programming expertise
3. Software compatibility with hardware

1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

ActiveDAQ Pro Introduction

What is ActiveDAQ Pro ?

ActiveDAQ Pro is a collection of ActiveX controls for performing I/O operations within any compatible ActiveX control container, such as Visual Basic, Delphi, etc. You can easily perform the I/O operations through properties, events and methods. With ActiveDAQ Pro, you can perform versatile I/O operations to control your Advantech devices.

The ActiveDAQ Pro package contains the following components:

- Advantech ActiveDAQ Pro Device Control: Enumerate all ADVANTECH devices, direct I/O operation.
- Advantech ActiveDAQ Pro AI Control: Retrieve data from ADVANTECH AI device.
- Advantech ActiveDAQ Pro AO Control: Export data to ADVANTECH AO device.
- Advantech ActiveDAQ Pro DIO Control: Digital input/output operation.
- Advantech ActiveDAQ Pro Thermo Control: Retrieve temperature by thermocouple measurement.
- Advantech ActiveDAQ Pro Counter Control: Counter input signal.
- Advantech ActiveDAQ Pro Pulse Control: Pulse signal output.

You can use these ActiveX controls in any development tool that supports them, including Microsoft Visual C++, Microsoft Visual Basic, Borland C++ Builder, Borland Delphi and Microsoft Visual Studio .NET.



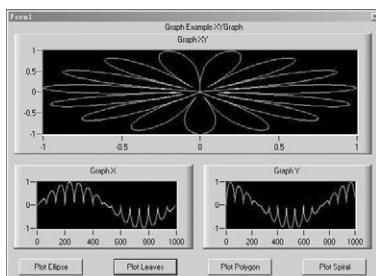
What's New in ActiveDAQ Pro ?

In the latest version of the ActiveDAQ series: ActiveDAQ Pro, efforts have been made to improve on the technical aspects and to provide a clear-cut mode of operation, as explained in the following summary:

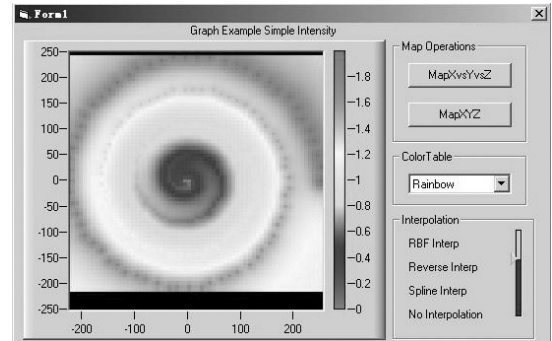
Graphic User Interface Control Components

Advantech ActiveDAQ Pro GUI control collection consists of abundant of graphic user interface (GUI) control components, which enable users to conveniently and quickly build graph display modules for data acquisition so as to supervise the changing status of the object. ActiveDAQ Pro GUI control collection also helps users easily develop prototype vision applications in an interactive environment without programming. These control components include:

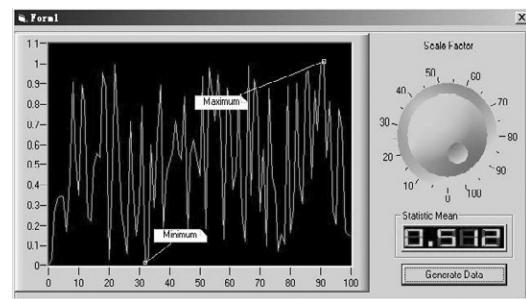
- **Button control:** It offers various display styles(2D and 3D) and is a Boolean control that displays an on or off state (True or False).
- **Graph control:** This control provides abundant graph display functions, which enable the user to displays data of various sources simultaneously.



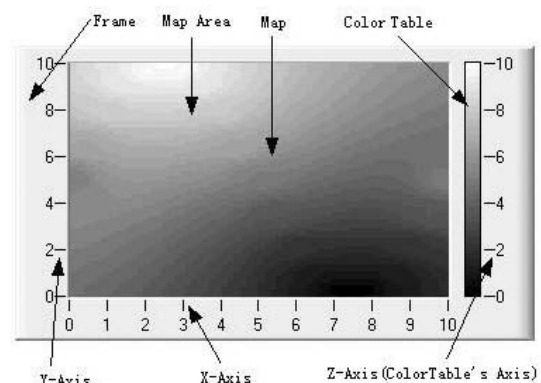
- **Intensity control:** It offers two-dimensional display and simple interpolation for scattered 3D data points so that the user can conveniently check the intensity variation trend of scattered 3D data points.



- **Knob control:** It is a circular data controlling control that provides various graph styles and can be used to display one or more values on the same interface.



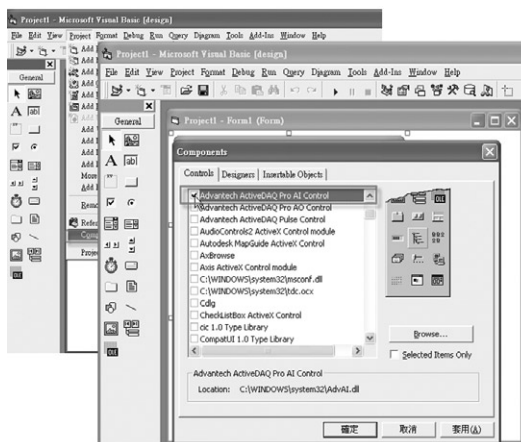
- **LED control:** This control provides data display and editing functions with the seven-segment nixie tube mode. After the FormatString has been chosen or defined by the user, the displayed value of the control will be adjusted automatically according to the FormatString and displayed in the text edit box.
- **NumEditor control:** This control provides the user with the functions of data displaying and editing. After the FormatString has been chosen or defined by the user, the values of the control will be adjusted automatically according to the FormatString and displayed in the text edit box.
- **Slider control:** It is a linear data controlling control that provides various graph styles. A Slider control can be used to set or display one or more values.



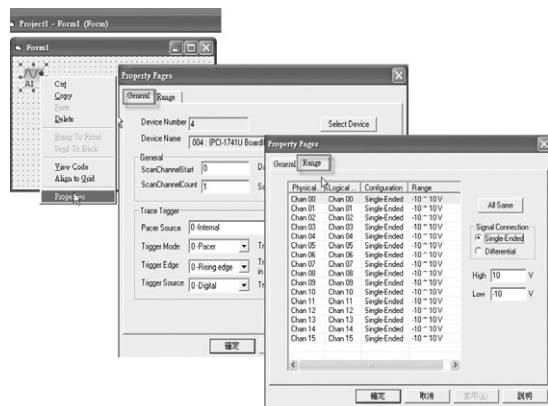
ActiveDAQ Pro now fully supports all Advantech DAQ cards and functions with complete high speed data acquisition, including AI (analog input), AO (analog output), DI/O (digital input/output) and counter cards. These high speed functions are preformed by interrupt and DMA data transfer which were previously excluded.

The property page will offer selections which will give easy access to all settings eliminate unnecessary programming. Programming will only be required in specialized situations.

ActiveDAQ Pro offers total independent control operation, needing no support from other existing controls.



Physical properties like voltage, current and frequency can now be directly applied by the user and will automatically be reassigned to the data needed by GainCode and sampling rate. Making these changes has ensured that ActiveDAQ Pro has become much more user friendly.



The new version has become less-hardware dependent and it has relied more on intuition during the user interface. During the redesigned process, the target was to decrease the development difficulties. It has become easier for both entry level and advanced level users to manage.

Now lists are provided with values which remain limited over various processes. This option is much more convenient to input and will eliminate a large portion of the direct data input.

Proper default settings have now been added to all methods and properties. That means quicker execution for the user, which will offer a prompt response.

When the user opts for some specific methods in ActiveDAQ Pro it can result automatically in appropriate properties and parameters. For example, ActiveDAQ Pro control can automatically determine an appropriate data transferring method to perform the data acquisition. (Software, interrupt and DMA transfer)

Each input parameter has to be within a certain range. As a result it has to have check-up to ensure legitimacy. In most cases the user will be notified and in others there will be an automatic correction.

ActiveDAQ Pro offers clear error messages description and diagnostic guides for all return errors.

ActiveDAQ Pro support Microsoft Windows 2000 and Windows XP operation system.

As with the previous version, ActiveDAQ 1.6x, it continues to support all widely known development platforms based on ActiveX technology. These platforms include Microsoft Visual Basic, Visual C++, Visual Basic.Net, Visual C#, Borland C++ Builder and Delphi.

- IBM compatible PC using at least a 266 MHz or higher microprocessor
- Microsoft Windows 2K / XP
- VGA compatible graphics card, supporting at least 256 colors.
- Minimum 64 MB of RAM.
- 74MB of free local hard disk space.
- One CD-ROM driver

Glossary

Accuracy

Accuracy is the deviation of a measurement from a known standard. Accuracy is normally specified in percent.

ADC - Analog-to-Digital Converter

ADC is used to convert DC voltage from transducers into digital words (data). The voltage represents a temperature, pressure, flow, pH, or speed and must be converted to a digital word before it can be passed to an intelligent device like a computer.

Amplifier

Amplifiers are used to boost the analog level (voltage) of the signal.

AO - Analog Output

The D/A converter performs the opposite function of an A/D converter. It interprets commands from the computer and outputs the proper DC voltage or current. The output stays at this output level until the computer tells the D/A converter to output a new value.

Auto calibration

The built-in auto-calibration circuitry corrects gain and offset errors in analog input and analog output channels thereby eliminating the need for external equipment and user adjustments.

Automatic channel/gain/SD*/BU* scanning

Advantech's DA&C card's with this function feature an automatic channel/gain/SD/BU scanning circuit. This circuit controls multiplexer switching during sampling in a way that is more efficient than software implementation. Onboard SRAM stores different gain, SD and BU values for each channel. This combination lets users perform multi-channel high-speed sampling with different gain, SD and BU values for each channel.

*Note: SD: Single-Ended/Differential; BU: Bipolar/Unipolar

BoardID switch

BoardID DIP switch helps define each card's unique identity when multiple identical PCI cards have been installed in the same computer. The BoardID switch is very useful when you build your system with multiple identical PCI cards. With the correct BoardID switch settings, you can easily identify and access each card during hardware configuration and software programming.

C/T - Counter/Timer

The counter card can be used to sense the presence or absence of a voltage, much like digital input card. The counter is used to count the number of electronic pulses (totalize), the duration of the pulse (pulse width), or the rate of pulses (frequency) coming out of an external device.

Channel-freeze

The channel-freeze function can be enabled either in dry contact or wet contact mode (selected by the onboard jumper). When the channel-freeze function is enabled, the last status of each digital output channel will be safely kept for emergency use. Moreover, you can enable this function through software as it is useful in software simulation and testing program.

C/T - Counter/Timer

The counter card can be used to sense the presence or absence of a voltage, much like digital input card. The counter is used to count the number of electronic pulses (totalize), the duration of the pulse (pulse width), or the rate of pulses (frequency) coming out of an external device.

Common Mode Noise

Electrical interference on both signal leads of an analog measurement which change simultaneously relative to ground. Common mode noise most often results when the ground potential between the measuring instrument and the device being measured are different. The difference in grounds results in a ground loop, a current flowing through

ground and the low lead. Once this current appears in the low lead wire it will cause a voltage because the wire has some resistance. The longer the lead, the more lead resistance and greater the voltage error.

TIP : To reduce common mode noise, use a guarded voltmeter. Tie the guard to the low side of the device being measured. This will shunt any ground loop currents away from the high and low measurement wires.

DI - Digital Input

A digital input card is used to determine whether an external device is on or off by sensing the presence or absence of a voltage. The DI can only report ON/OFF status and not the value of the voltage on each channel (sometimes called a bit). The bit is considered to be ON if the voltage exceeds a certain value.

Digital cards are usually 8, 16, or 32 channels. They can monitor a number of devices. For example, a digital card can be attached to a single operator panel to sense the position of switches on that panel.

Digital filter

The digital filter function is used to eliminate glitches on input data and reduce the number of changes to examine and process. The filter blocks pulses that are shorter than the specified timing interval and passes pulses that are twice as long as the specified interval. Intermediate-length pulses that are longer than half of the interval, but less than the interval, may or may not pass the filter depending on your settings.

DMA - Direct Memory Access

A method of transferring data from or to memory at a high rate without involving the CPU.

DMA is the hardware/software technique that allows the highest speed transfer of data, to or from random memory (RAM). Given the potentially more expensive hardware, DMA can provide the means to read or write data at precise times without restricting the microprocessor's tasks. For example, one system under DMA control can read or write any combination of analog, digital or counter/timer data to or from RAM at rates up to 360KB/second. This is accomplished without taking time from the other tasks of the microprocessor. The amount of time required to respond to a DMA request is very small compared to the time required to service an interrupt. This makes the goal of foreground/background operation, at high speed, possible.

DO - Digital Output

The digital output card interprets a command from the computer and outputs a high or low voltage on each of its channels (bits). It is commonly used to turn on/off small lights or to send digital words to machinery.

FSR - Full Scale Range

Gain - Magnitude ratio

For a linear system or element, the ratio of the magnitude (amplitude) of a steady-state sinusoidal output relative to the causal input; the length of a phasor from the origin to a point of the transfer locus in a complex plane.

GPIB - General Purpose Interface/Instrument Bus

A standard for IEEE-488 communication interface.

Interrupts data transfer

Interrupts to provide a means of tightly controlling the timing of events, while allowing the processing of more than one task. Multitasking systems are also known as "foreground/background" systems. One way of putting data acquisition in the background, is to relegate it to an interrupt routine. The clock or external timing signal, rather than being polled continuously, is used to generate an interrupt to the computer. Whenever the interrupt occurs, the computer suspends current activity, and executes an "interrupt service routine". The interrupt service routine in this case might be a short program which acquires one frame of data, and stores it in memory. The computer can perform other operations in the foreground while collecting data in the background. Whenever a clock tick or external interrupt occurs, the computer will automatically stop the foreground processing, acquire

the data, and then resume where it left off.

The reaction speed of the interrupt system is much higher than that of a polling loop. Speed, for a PC, is about 10K ~ 30K Hz in the interrupt mode.

Isolation protection

Isolation circuits are used to protect sensitive measurement circuitry from interference currents or voltages. These circuits are useful when the external voltage (from a transducer) is different than expected by the measurement hardware.

Keeping the output values after system reset

When the system is hot reset (power is not shut off), the Advantech's DA&C cards with this function can either retain the last digital (or analog) output values, or return to its default configuration, depending on jumper setting. This practical function eliminates danger caused by misoperation during unexpected system reset.

LSB - Least Significant Bit

Onboard FIFO memory

FIFO is the abbreviation of "First-In, First-Out". It functions as a "buffer" memory, which plays an important role in the data acquisition device. You can either enable or disable the interrupt request of the FIFO buffer. While the interrupt request for FIFO is enabled, you can further specify whether the interrupt request will be sent whenever one sampling takes place or when the FIFO buffer is half saturated. Advantech's data acquisition cards with onboard FIFO memory enables a continuous high-speed data transfer with more predictable performance on Windows systems.

Onboard programmable counter

Advantech's multifunction cards provide a programmable counter to generate a pacer trigger for the A/D conversion. The counter chip is an 82C54 or equivalent, which includes three 16-bit counters on a 10 MHz clock. One counter is used as an event counter for counting events coming from the input channels. The other two are cascaded together to make a 32-bit timer for a pacer trigger.

Optical isolators

Optical isolators are used with digital circuitry to shield high voltage signals from affecting digital circuitry

PCI-Bus mastering data transfer

Advantech's high-speed DA&C cards support PCI-Bus mastering DMA for high-speed data transfer and gap-free analog input and analog output. By setting aside a block of memory in the PC, the DA&C cards performs bus-mastering data transfers without CPU intervention, setting the CPU free to perform other more urgent tasks such as data analysis and graphic manipulation. The function allows users to run all I/O functions simultaneously at full speed without losing data.

Plug & Play function

PCI-1711 and PCI-1711L fully comply with the PCI Specification Rev 2.2 and thus are Plug & Play devices. During card installation, it is virtually unnecessary to set any jumpers or DIP switches. Instead, all bus-related configurations such as base I/O address and interrupts are conveniently taken care of by the Plug & Play function.

Polling

Polling is the simplest method for detecting a unique condition and then taking action. This involves a software loop that contains all of the required measurement, analysis, decision-making algorithms and planned actions. The data acquisition program periodically tests the system's clock or external trigger input to sense a transition. Whenever a transition occurs, the program then samples each of the inputs and stores their values in a "frame". A frame is simply a list that contains the values representing the specified inputs at a given time. The frames can be stored in RAM, disk or other types of memory. Each time the program senses a clock "tick", the inputs are scanned and converted, and a new frame is added to memory. In this mode, generic PC/AT's can support an acquisition rate of about 10KHz.

In addition, the PC is continuously busy when the polling loop is operational, and hence no other tasks can be serviced. When an application cannot tolerate these characteristics, interrupt techniques may be needed.

Programmable Power-Up States

With this function, all output lines are user-configurable for logic high or logic low when the system is powering up. User-configurable power-up states are useful for ensuring that the data acquisition card powers up in a known state. Power-up states are programmed in the EEPROM through the driver. The default settings are all set to 0.

PWM - Pulse width modulation

Pulse width modulation (PWM) technology is widely used for industrial applications such as measurement, motor control, power control and so on. It offers a simple way for digital control logic to create an analog equivalence. By using Advantech's high-resolution counter cards, the duty cycle of a square wave could be modulated to encode some specific analog signal levels so they can be used to control many electronic devices.

Resolution

Resolution is the smallest change that a measurement instrument can sense. Resolution is normally specified in bits.

S.E. Input - Single Ended Input

A single-ended configuration is best when you need to make analog measurements with respect to a common external ground. This configuration is also appropriate when there is no practical way to bring both a signal ground and an analog ground (AGND) back to the system's input terminals.

Shielding

An extra layer of conductive material surrounding a wire to prevent external electrical signals from interfering with the signal on the wire.

SPDT relay - Single-Pole Dual-Throw relay

SPST relay - Single-Pole Single-Throw relay

TTL - Transistor Transistor Logic

Watchdog Timer

The watchdog timer is a software-configurable feature used to set critical outputs to safe states in the event of a software failure. It will activate if there is a loss of communication between the application and the data acquisition card. If the card does not receive a watchdog clear software command within the interval time specified for the watchdog timer, the outputs go to a user-defined safe state and remain in that state until the watchdog timer is disabled and new values are written by the software.

After the watchdog timer expires, the card ignores any writes until the watchdog timer is disabled. Users can set the watchdog timer timeout period through WDT register to specify the amount of time that must elapse before the watchdog timer expires. The counter on the watchdog timer is configurable up to (232-1) x 100 ns (approximately seven minutes) before it expires.

1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

Analog I/O & Multifunction Cards

Category			Multifunction						
Bus			PCI						
Model			PCI-1710/1710L	PCI-1710HG/ 1710HGL	PCI-1711/1711L	PCI-1712/17112L	PCI-1716/1716L	PCI-1718HDL/ HGU	PCI-1741U
Analog Input	General Spec.	Resolution	12 bits	12 bits	12 bits	12 bits	16 bits	12 bits	16 bits
		Channels	16 SE/8 Diff.	16 SE/8 Diff.	16 SE	16 SE/8 Diff.	16 SE/8 Diff.	16 SE/8 Diff.	16 SE/8 Diff.
		Onboard FIFO	4096 samples	4096 samples	1024 samples	1024 samples	1024 samples	1024 samples	1024 samples
		Smapling Rate	100 kS/s	100 kS/s	100 kS/s	1 MS/s	250 kS/s	100 kS/s	200 kS/s
		Auto Channel Scanning	✓	✓	✓	✓	✓	✓	✓
	Input Ranges	Unipolar Inputs (V)	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 1, 0 ~ 0.1, 0 ~ 0.01	-	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 (PCI-1718HDL) 0 ~ 10, 0 ~ 1, 0 ~ 0.1, 0 ~ 0.01 (PCI-1718HGU)	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25**
		Bipolar Inputs (V)	±10, 5, 2.5, 1.25, 0.625	±10, 5, 1, 0.5, 0.1, 0.05, 0.01, 0.005	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625 (PCI-1718HDL) ±10, 5, 1, 0.5, 0.1, 0.05, 0.01, 0.005 (PCI-1718HGU)	±10, 5, 2.5, 1.25, 0.625**
		Configurable Per-Channel	✓	✓	✓	✓	✓	✓	-
	Trigger Mode	Pacer/Software/ External Pulse	✓	✓	✓	✓	✓	✓	✓
		Analog Slope	-	-	-	✓	-	-	-
		Pretrigger	-	-	-	✓	-	-	-
		Post-trigger	-	-	-	✓	-	-	-
		About-trigger	-	-	-	✓	-	-	-
	Data Transfer Mode	Software	✓	✓	✓	✓	✓	✓	✓
		DMA	-	-	-	Bus-mastering	Bus-mastering	-	-
Analog Output	Resolution	12 bits	12 bits	12 bits	12 bits	16 bits	12 bits	16 bits	
	Number of Channels	2 (PCI-1710 only)	2 (PCI-1710HG only)	2 (PCI-1711 only)	2 (PCI-1712 only)	2 (PCI-1716 only)	1	1	
	Onboard FIFO	-	-	-	32 K samples	-	-	-	
	Output range (V)	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10, ±5, ±10	0 ~ 5, 0 ~ 10, ±5, ±10	0 ~ 5, 0 ~ 10	±5, ±10	
	Throughput	Static update	Static update	Static update	1 MS/s	Static update	Static update	Static update	
	DMA transfer	-	-	-	✓	-	-	-	
Digital I/O	Input Channels	16	16	16	16 (mixed)	16	16	16	
	Output Channels	16	16	16		16	16		
Timer/Counter	Channels	1	1	1	3	1	1	1	
	Resolution	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit	16-bit	
	Time Base	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	
Isolation Voltage			-	-	-	-	-	-	
Auto Calibration			-	-	-	✓	✓	✓	
BoardID Switch			✓	✓	-	-	✓	✓	
Dimensions (mm)			175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	
Connector			68-pin SCSI-II	68-pin SCSI-II	68-pin SCSI-II	68-pin SCSI-II	68-pin SCSI-II	DB-37	
Windows 98/2000/XP DLL Driver			✓	✓	✓	✓	✓	✓	
Windows 98/2000/XP Test Utility			✓	✓	✓	✓	✓	✓	
VC++, VB & delphi Examples			✓	✓	✓	✓	✓	✓	
Advantech ActiveDAQ/ActiveDAQ Pro			✓	✓	✓	✓	✓	✓	
Labview I/O Drivers (Ver. 6i and 7.0)			✓	✓	✓	✓	✓	✓	
Mathworks MATLAB Data Acquisiton Tool Box 2.5.1			✓	✓	✓	✓	-	-	
KW Win32 Driver			✓	✓	✓	-	✓	-	
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* Note: SS = Single DMA channel, Single A/D channel scan SM = Single DMA channel, Multiple A/D channel scan

** Note: All channels should be set to the same range.

Selection Guide

Multifunction									AI		
PCI	ISA					PC/104			PCI		
PCI-1742U	PCL-711B	PCL-812PG	PCL-818L	PCL-818HD	PCL-818HG	PCM-3718H	PCM-3718HG	PCM-3718HO	PCI-1713	PCI-1714	PCI-1714UL
16 bits	12 bits	12 bits	12 bits	12 bits	12 bits	12 bits	12 bits	12 bits	12 bits	12 bits	12 bits
16 SE/8 Diff.	8 SE	16 SE	16 SE/8 Diff	16 SE/8 Diff	16 SE/8 Diff	16 SE/8 Diff.	16 SE/8 Diff.	16 SE/8 Diff.	32 SE/16 Diff. (Isolation)	4 SE	4 SE
1024 samples	-	-	-	1024 samples	1024 samples	-	-	1024 samples	4096 samples	32,768 samples	8,192 samples
1 MS/s	25 kS/s	30 kS/s	40 kS/s	100 kS/s	100 kS/s	100 kS/s	100 kS/s	100 kS/s*	100 kS/s	30 MS/s	10 MS/s
✓	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
0 ~ 10, 0 ~ 5 0 ~ 2.5, 0 ~ 0.125	-	-	-	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 0.125	0 ~ 10, 0 ~ 1, 0 ~ 0.1, 0 ~ 0.01	0 ~ 10, 0 ~ 5 0 ~ 2.5, 0 ~ 0.125	0 ~ 10, 0 ~ 1 0 ~ 0.1, 0 ~ 0.01	0 ~ 10, 0 ~ 5 0 ~ 2.5, 0 ~ 0.125	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 0.125	-	-
±10, 5, 2.5, 1.25 0.625	±5, 2.5, 1.25, 0.625, 0.3125	±10, 5, 2.5, 1.25, 0.625, 0.3125	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625	±10, 5, 1, 0.5, 0.1, 0.05, 0.01, 0.005	±10, 5, 2.5, 1.25 0.625	±10, 5, 1, 0.5, 0.1, 0.05, 0.01, 0.005	±10, 5, 2.5, 1.25 0.625	±10, 5, 2.5, 1.25, 0.625	±5, 2.5, 1, 0.5	±5, 2.5, 1, 0.5
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
-	-	-	-	-	-	-	-	-	-	✓	✓
-	-	-	-	-	-	-	-	-	-	✓	✓
-	-	-	-	-	-	-	-	-	-	✓	✓
-	-	-	-	-	-	-	-	-	-	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bus-mastering	-	SS*	SM*	SM*	SM*	SS*	SS*	SS*	-	Bus-mastering	Bus-mastering
16 bits	12 bits	12 bits	12 bits	12 bits	12 bits	-	-	12 bits	-	-	-
2	1	2	1	1	1	-	-	1	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
0 ~ 5, 0 ~ 10 ±5, ±10	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10	0 ~ 5, 0 ~ 10, ±10	0 ~ 5, 0 ~ 10, ±10	-	-	0 ~ 5, 0 ~ 10	-	-	-
Static Update	Static update	Static update	Static update	Static update	Static update	-	-	Static update	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
16	16	16	16	16	16	16	16	16	-	-	-
16	16	16	16	16	16	-	-	-	-	-	-
1	-	1	1	1	1	1	1	1	-	1	-
16 bits	-	16-bit	16-bit	16-bit	16-bit	16 bits	16 bits	16 bits	-	8-bit	1
10 MHz	2 MHz	2 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	-	60 MHz	60 MHz
-	-	-	-	-	-	-	-	-	2,500 V _{OC}	-	-
-	-	-	-	-	-	-	-	-	-	✓	✓
✓	-	-	-	-	-	-	-	-	-	✓	✓
175 x 100	175 x 100	185 x 100	155 x 100	185 x 100	185 x 100	96 x 90	96 x 90	96 x 90	175 x 100	175 x 100	175 x 100
68-pin SCSI-II	2 x 20-pin	2 x 20-pin	DB-37	DB-37	DB-37	2 x 20-pin	2 x 20-pin	2 x 20-pin	DB-37	4 BNC	4 BNC
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	-	-	-	✓	-	-
-	-	-	-	-	-	-	-	-	-	-	-
10-24	10-26	10-27	10-28	10-20	10-20	10-63	10-63	10-63	10-30	10-31	10-31

* 80kHz on P4-based (or upper) system

** Note: System-dependent

1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

Analog I/O & Multifunction Cards

Category			AI			AO								
Bus			PCI		ISA	PCI				ISA			PC./104	
Model			PCI-1715U	PCI-1747U	PCL-813B	PCI-1720U	PCI-1721	PCI-1723	PCI-1724	PCI-1727U	PCL-726	PCL-727	PCL-728	PCM-3712
Analog Input	General Spec.	Resolution	12bits	16 bits	12 bits	-	-	-	-	-	-	-	-	-
		Channels	32 SE/16 Diff.	64 SE/32 Diff.	32 SE	-	-	-	-	-	-	-	-	-
		Onboard FIFO	1024 samples	1024 samples	-	-	-	-	-	-	-	-	-	-
		Smapling Rate	500 kS/s	250 kS/s	25 kS/s	-	-	-	-	-	-	-	-	-
		Auto Channel Scanning	✓	✓	-	-	-	-	-	-	-	-	-	-
	Input Ranges	Unipolar Inputs (V)	0 ~10, 0 ~ 5, 0 ~ 2.5, 0 ~ 0.125	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25	-	-	-	-	-	-	-	-	-
		Bipolar Inputs (V)	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625	-	-	-	-	-	-	-	-	-
		Configurable Per-Channel	✓	✓	✓	-	-	-	-	-	-	-	-	-
	Trigger Mode	Pacer/Software/ External Pulse	✓	Pacer/ Software	Software only	-	-	-	-	-	-	-	-	-
		Analog Slope	-	-	-	-	-	-	-	-	-	-	-	-
		Pretrigger	-	-	-	-	-	-	-	-	-	-	-	-
		Post-trigger	-	-	-	-	-	-	-	-	-	-	-	-
	Data Transfer Mode	About-trigger	-	-	-	-	-	-	-	-	-	-	-	-
		Software	✓	✓	Software only	-	-	-	-	-	-	-	-	-
		DMA	Bus-mastering	Bus-mastering	-	-	-	-	-	-	-	-	-	-
	Analog Output	Resolution	-	-	-	12 bits	12 bits	16 bits	14 bits	14 bits	12 bits	12 bits	12 bits	12 bits
		Number of Channels	-	-	-	4 (Isolation)	4 (Waveform Output)	8	32	12	6	12	2 (Isolation)	2
Onboard FIFO		-	-	-	-	1K samples	-	-	-	-	-	-	-	
Output range (V)		-	-	-	0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20 mA, 4 ~ 20 mA	0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20 mA, 4 ~ 20 mA	-10 ~ 10 0 ~ 20 mA, 4 ~ 20 mA	±10, 0 ~ 20 mA	0 ~ 5, 0 ~ 10 ±5, ±10, 4 ~ 20 mA	0 ~ 5, 0 ~ 10, ±5, ±10, 4 ~ 20 mA	-0 ~ 5, 0 ~ 10, ±5, ±10, 4 ~ 20 mA	0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20 mA, 4 ~ 20 mA	0 ~ 5, 0 ~ 10, ±5, ±10, 4 ~ 20 mA	
Throughput		-	-	-	Static update	10M	Static update	Static update	Static update	Static update	Static update	Static update	Static update	
DMA transfer		-	-	-	-	Bus-mastering	-	-	-	-	-	-	-	
Digital I/O	Input Channels	-	-	-	-	16	16	-	16	16	16	-	-	
	Output Channels	-	-	-	-				16	16	16	-	-	
Timer/Counter	Channels	-	1	-	-	1	-	-	-	-	-	-	-	
	Resolution	-	16-bit	-	-	16-bit	-	-	-	-	-	-	-	
	Time Base	-	10 MHz	-	-	10 MHz	-	-	-	-	-	-	-	
Isolation Voltage			2,500 V _{DC}	-	500 V _{DC}	2,500 V _{DC}	-	-	-	-	-	-	500 V _{DC}	-
Auto Calibration			-	✓	-	-	✓	✓	-	-	-	-	-	-
BoardID Switch			✓	✓	-	✓	✓	✓	✓	✓	-	-	-	-
Dimensions (mm)			175 x 100	175 x 100	219 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	337 x 112	337 x 112	185 x 120	96 x 90
Connector			DB-37	68-pin SCSI-II	DB-37	DB-37	68-pin SCSI-II	68-pin SCSI-II	DB-62	2 x 20-pin, DB-37	4 x 20-pin	2 x 20-pin, DB-37	2 x DB-9	1 x 10-pin box header
Windows 98/2000/XP DLL Driver			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 98/2000/XP Test Utility			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
VC++, VB & delphi Examples			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Advantech ActiveDAQ/ActiveDAQ Pro			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Labview I/O Drivers (Ver. 6i and 7.1)			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mathworks MATLAB Data Acquisiton Tool Box 2.5.1			-	-	✓	✓	-	-	-	-	✓	✓	✓	-
KW Win32 Driver			-	-	-	-	-	-	-	-	-	-	-	-
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* Note: SS = Single DMA channel, Single A/D channel scan SM = Single DMA channel, Multiple A/D channel scan

Digital I/O & Counter Cards

Category			Non-Isolated DI/O								
Bus			PCI						ISA		
Model			PCI-1735U	PCI-1737U	PCI-1739U	PCI-1751U	PCI-1753/1753E	PCI-1755	PCI-1757UP	PCL-720+	PCL-722
TTL DI/O	Input Channels		32	24	48	48	96	32	24	32	144
	Output Channels		32							32	
	Output Channel	Sink Current	0.5 V @ 24 mA	0.5 V @ 24 mA	0.5 V @ 24 mA	24 mA @ 0.4 V	24 mA @ 0.44 V	48 mA @ 0.5 V	0.5 V @ 24 mA	24 mA @ 0.5 V	24 mA @ 0.5 V
		Source Current	2.0 V @ 15 mA	2.0 V @ 15mA	2.0 V @ 15 mA	15 mA @ 2.4 V	24 mA @ 3.76 V	15 mA @ 2.4 V	2.0 V @15 mA	3 mA @ 2.4 V	15 mA @ 2.4 V
Isolated DI/O	Input	Channels	-	-	-	-	-	-	-	-	-
		Isolation Voltage	-	-	-	-	-	-	-	-	-
		Input Range	-	-	-	-	-	-	-	-	-
	Output	Channels	-	-	-	-	-	-	-	-	-
		Isolation Voltage	-	-	-	-	-	-	-	-	-
		Output range	-	-	-	-	-	-	-	-	-
		Max. Sink Current	-	-	-	-	-	-	-	-	-
Timer/Counter	Channels	3	-	-	3	-	3	-	3	-	
	Resolution	16 bits	-	-	16-bit	-	16-bit	-	16-bit	-	
	Time Base	10 MHz	-	-	5 MHz	-	10 MHz	-	1 MHz	-	
Advanced Function	Pattern Match		-	-	-	-	✓	✓	-	-	-
	Change of State		-	-	-	-	✓	✓	-	-	-
	BoardID Switch		✓	✓	✓	✓	✓	✓	✓	-	-
	Channel-Freeze Function		-	-	-	-	-	✓	-	-	-
	Output Status Read Back		✓	✓	✓	✓	✓	-	✓	-	-
	Dry/Wet Contact		-	-	-	✓	✓	-	✓	-	-
Dimensions (mm)			175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	120 x 65	185 x 100	334 x 100
Connectors			5 x 20-pin	1 x 50-pin	2 x 50-pin	68-pin SCSI-II	100-pin SCSI-II	100-pin SCSI-II	1 x DB-25	5 X 20- pin	6 x 50-pin
Windows 98/2000/XP DLL Driver			✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 98/2000/XP Test Utility			✓	✓	✓	✓	✓	✓	✓	✓	✓
VC++, VB & delphi Examples			✓	✓	✓	✓	✓	✓	✓	✓	✓
Advantech ActiveDAQ/ ActiveDAQ Pro			✓	✓	✓	✓	✓	-	✓	✓	✓
Labview I/O Drivers (Ver. 6i and 7.0)			✓	✓	✓	✓	✓	✓	✓	✓	✓
Mathworks MATLAB & Simulink Data Acquisition Tool Box 2.5.1			-	-	-	✓	✓	-	-	✓	✓
KW Win32 Driver			-	-	-	-	-	-	-	-	-
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* Dry/wet contact can be mixed at the same time within one group.

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPCC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

Digital I/O & Counter Cards

Category			Non-Isolated DI/O			Isolated DI/O										
Bus			ISA		PC/104	USB	PCI									
Model			PCL-724	PCL-731	PCM-3724	USB-4761	PCI-1730	PCI-1733	PCI-1734	PCI-1736UP	PCI-1750	PCI-1752	PCI-1754	PCI-1756	PCI-1758UDI	PCI-1758UDO
TTL DI/O	Input Channels		24	48	48	-	16	-	-	24	-	-	-	-	-	-
	Output Channels					-	16	-	-		-	-	-	-	-	-
	Output Channel	Sink Current	24 mA @ 0.4 V	24 mA @ 0.4 V	0.5 V @ 24 mA	-	8 mA @ 0.5 V	-	-	0.5 V @ 24 mA	-	-	-	-	-	-
		Source Current	15 mA @ 2.4 V	15 mA @ 2.4 V	2.0 V @ 15 mA	-	0.4 mA @ 2.4 V	-	-	2.0 V @ 15 mA	-	-	-	-	-	-
Isolated DI/O	Input	Channels	-	-	-	8 (Sink)	16 (Sink)	32 (Sink)	-	-	16 (Sink)	-	64 (Sink)	32 (Sink)	128	-
		Isolation Voltage	-	-	-	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	-	-	2,500 V _{DC}	-	2,500 V _{DC}	2,500 V _{DC}	2500 V _{RMS}	-
		Input Range	-	-	-	5~30 V _{DC}	5 ~ 30 V _{DC}	5 ~ 30 V _{DC}	-	-	5 ~ 50 V _{DC}	-	10 ~ 50 V _{DC}	10 ~ 50 V _{DC}	5 ~ 25 V _{DC}	-
	Output	Channels	-	-	-	8 x Form C	16 (Sink)	-	32 (Sink)	-	16 (Sink)	64 (Sink)	-	32 (Sink)	-	128
		Isolation Voltage	-	-	-	2,500 V _{DC}	2,500 V _{DC}	-	2,500 V _{DC}	-	2,500 V _{DC}	2,500 V _{DC}	-	2,500 V _{DC}	-	2500 V _{RMS}
		Output Range	-	-	-	30 V _{DC} @ 1 A 240 V _{AC} @ 0.25 A	5 ~ 40 V _{DC}	-	5 ~ 40 V _{DC}	-	5 ~ 40 V _{DC}	5 ~ 40 V _{DC}	-	5 ~ 40 V _{DC}	-	5 ~ 40 V _{DC}
		Max. Sink Current	-	-	-		200 mA	-	200 mA	-	200 mA	200 mA	-	200 mA	-	90 mA
	Timer/Counter	Channels	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Resolution		-	-	-	-	-	-	-	-	16-bit	-	-	-	-	-	
Time Base		-	-	-	-	-	-	-	-	1 MHz	-	-	-	-	-	
Advanced Function	Pattern Match		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Change of State		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BoardID Switch		-	-	-	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
	Channel-Freeze Function		-	-	-	-	✓	-	-	-	-	✓	-	✓	-	-
	Output Status Read Back		-	-	-	-	✓	-	✓	-	-	✓	-	✓	-	✓
	Dry/Wet Contact		-	-	-	-	✓	✓	-	-	✓	-	-	-	-	-
Dimensions (mm)			125 x 100	185 x 100	96 x 90	132 x 80	175 x 100	175 x 100	175 x 100	120 x 65	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100
Connectors			1 x 50-pin 2 x 20-pin	2 x 50-pin	2 x 50-pin	2 x opto-22 compatible box header	1 x DB-37 4 x 20-pin	1 x DB-37	1 x DB-37	1 x DB-44	1 X DB-37	100-pin SCSI-II	100-pin SCSI-II	100-pin SCSI-II	dual 100-pin mini-SCSI	dual 100-pin mini-SCSI
Windows 98/2000/XP DLL Driver			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 98/2000/XP Test Utility			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
VC++, VB & delphi Examples			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Advantech ActiveDAQ/ ActiveDAQ Pro			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Labview I/O Drivers (Ver. 6i and 7.0)			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mathworks MATLAB & Simulink Data Acquisition Tool Box 2.5.1			✓	✓	-	-	✓	✓	✓	-	✓	✓	✓	✓	-	✓
KW Win32 Driver			-	-	-	-	✓	✓	✓	-	-	✓	✓	✓	-	-
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Selection Guide

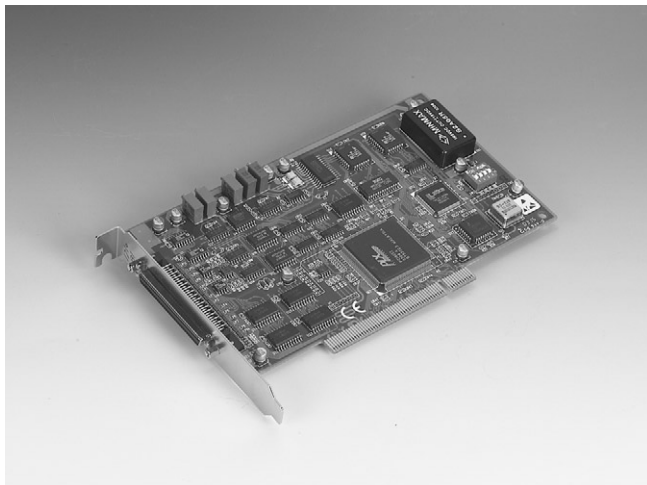
Isolated DI/O												Counter		
PCI					ISA					PC/104		PCI	ISA	PC/104
PCI-1758AUDIO	PCI-1760U	PCI-1761	PCI-1762	PCI-1763UP	PCL-725	PCL-730	PCL-733	PCL-734	PCL-735	PCM-3725	PCM-3730	PCI-1780U	PCL-836	PCM-3780
-	-	-	-	-	-	16	-	-	-	8	16	8	16	24
-	-	-	-	-	-	16	-	-	-	8	16	8	16	-
-	-	-	-	-	-	8 mA @ 0.5 V	-	-	-	-	0.5 V @ 8 mA	24 mA @ 0.5 V	8 mA @ 0.5 V	24 mA @ 0.5 V
-	-	-	-	-	-	0.4 mA @ 2.4 V	-	-	-	-	-0.4 mA @ 2.4 V	15 mA @ 2.4 V	0.4 mA @ 2.4 V	15 mA @ 2.0 V
64	8 (Sink)	8 (Sink)	8 (Sink)	8	8 (Sink)	16 (Sink)	32 (Sink)	-	-	8	8	-	-	-
2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	1,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	-	-	2,500 V _{DC}	2,500 V _{DC}	-	-	-
5 ~ 25 V _{DC}	5 ~ 12 V _{DC}	10 ~ 50 V _{DC}	10 ~ 50 V _{DC}	10 ~ 50 V _{DC}	5 ~ 24 V _{DC}	5 ~ 24 V _{DC}	5 ~ 24 V _{DC}	-	-	10 ~ 50 V _{DC}	5 ~ 24 V _{DC}	-	-	-
64	8 x Form C	4 x Form A 4 x Form C	16 x Form C	8 x Form C	4 x Form A 4 x Form C	16 (Sink)	-	32 (Sink)	12 x Form C	8 x Form C	8	-	-	-
2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	1,000 V _{DC}	1,000 V _{DC}	-	1,000 V _{DC}	1,000 V _{DC}	2,000 V _{DC}	2,500 V _{DC}	-	-	-
5 ~ 40 V _{DC}	120 V _{AC} @ 0.5 A 30 V _{DC} @ 1 A	250 V _{AC} @ 3 A 24 V _{DC} @ 3 A	120 V _{AC} @ 0.5 A 30 V _{DC} @ 1 A	250 V _{AC} @ 3 A 24 V _{DC} @ 3 A	120 V _{AC} @ 0.5 A 30 V _{DC} @ 1 A	5 ~ 40 V _{DC}	-	5 ~ 40 V _{DC}	0.6 A @ 100 V _{DC} 0.6 A @ 125 V _{DC}	240 V _{AC} @ 0.25 A 30 V _{DC} @ 1 A	5 ~ 40 V _{DC}	-	-	-
90 mA	-	-	-	-	-	200 mA	-	200 mA	-	-	200 mA	-	-	-
-	Up CTR for DI 2 X PWM	-	-	-	-	-	-	-	-	-	-	8 X CTR	6 X CTR 3 X PWM	2
-	16-bit (2,500 Isolation)	-	-	-	-	-	-	-	-	-	-	16-bit	16-bit	16 bits
-	500 Hz for Up CTR	-	-	-	-	-	-	-	-	-	-	20 MHz	10 MHz	20 MHz
-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-
-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-
✓	✓	✓	✓	✓	-	-	-	-	-	-	-	✓	-	-
-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-
✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
175 x 100	175 x 100	175 x 100	175 x 100	120 x 65	147 x 95	185 x 100	185 x 100	185 x 100	155 x 100	96 x 90	96 x 90	175 x 100	185 x 100	96 x 90
dual 100-pin mini-SCSI	1 X DB-37	1 X DB-37	1 x DB-62	1 x DB-44	1 x DB-37	1 x DB-37 4 x 20-pin	1 x DB-37	1 x DB-37	1 x DB-37	1 x 20-pin 1 x 50-pin	3 x 20-pin	68-pin SCSI-II	1 x DB-37 2 x 20-pin	1 x 50-pin 1 x 20-pin
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
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✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
-	✓	✓	✓	-	✓	✓	✓	✓	✓	-	-	-	✓	-
-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-
10-54	10-58	10-57	10-59	10-56	10-57	10-49	10-50	10-51	10-60	10-64	10-64	10-62	10-61	10-64

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

PCI-1710 PCI-1710HG

**100 kS/s, 12-bit, PCI-bus
Multifunction Card**

**100 kS/s, 12-bit, PCI-bus,
High Gain, Multifunction Card**



Features

- 16 single-ended, 8 differential or a combination of analog inputs
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Programmable gain
- Automatic channel/gain scanning
- Onboard FIFO memory (4096 samples)
- Two 12-bit analog output channels
- 16 digital inputs and 16 digital outputs
- Onboard programmable counter
- BoardID™ switch

Introduction

The PCI-1710 Series are multifunction cards for the PCI bus. Their advanced circuit design provides higher quality and more functions, including the five most desired measurement and control functions: 12-bit A/D conversion, D/A conversion, digital input, digital output, and counter/timer.

Specifications

Analog Input

- **Channels** 16 single-ended/ 8 differential (SW programmable)
- **Resolution** 12 bits
- **Max. Sampling Rate*** 100 kS/s
- **FIFO Size** 4096 samples
- **Overvoltage Protection** $\pm 30\text{Vp-p}$
- **Input Impedance** 1 $\text{G}\Omega$
- **Sampling Modes** Software, onboard programmable pacer, or external
- **Input Range** (V, software programmable)

PCI-1710/1710L					
Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Unipolar	-	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Accuracy (% of FSR $\pm 1\text{LSB}$)	0.1	0.1	0.2	0.2	0.4

PCI-1710HG/1710HGL								
Bipolar	± 10	± 5	± 1	± 0.5	± 0.1	± 0.05	± 0.01	± 0.005
Unipolar	-	0 ~ 10	-	0 ~ 1	-	0 ~ 0.1	-	0 ~ 0.01
Accuracy (% of FSR $\pm 1\text{LSB}$)	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.4

*Note:

The sampling rate and throughput depends on the computer hardware architecture and software environment. The rates may vary due to programming language, code efficiency, CPU utilization and so on.

Analog Output (PCI-1710/1710HG only)

- **Channels** 2
- **Resolution** 12 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable)

Internal Reference	Unipolar	0 ~ +5 V @ -5 V 0 ~ +10 V @ -10 V
External Reference		0 ~ +x V @ -x V ($-10 \leq x \leq 10$)

- **Slew Rate** 10 V/ms
- **Driving Capability** 3 mA
- **Operation Mode** Software polling
- **Accuracy** INLE: $\pm 1/2$ LSB, DNLE: $\pm 1/2$ LSB

Digital Input

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 8.0 mA @ 0.8 V
Source: -0.4 mA @ 2.0 V

Pacer/Counter

- **Channels** 1
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 1 MHz

Specifications Continued

General

- **Bus Type** PCI V2.2
- **I/O Connector** SCSI-68P female x 1
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA
Max: 5 V @ 1.0 A
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1710** 100 kS/s, 12-bit multifunction card
- **PCI-1710L** 100 kS/s, 12-bit multifunction card without AO
- **PCI-1710HG** 100 kS/s, 12-bit high-gain multifunction card
- **PCI-1710HGL** 100 kS/s, 12-bit high-gain multifunction card without AO
- **PCLD-8710** SCSI-68 wiring terminal w/CJC, DIN-rail mount
- **PCLD-8710BNC** SCSI-68 wiring terminal w/CJC and BNC connectors, DIN-rail mount
- **PCL-10168-1** SCSI-68 Shielded Cable, 1 m
- **PCL-10168-2** SCSI-68 Shielded Cable, 2 m
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount

Pin Assignments

AI0	68	34	AI1
AI2	67	33	AI3
AI4	66	32	AI5
AI6	65	31	AI7
AI8	64	30	AI9
AI10	63	29	AI11
AI12	62	28	AI13
AI14	61	27	AI15
AIGND	60	26	AIGND
AO0_REF	59	25	AO1_REF
AO0_OUT	58	24	AO1_OUT
AOGND	57	23	AOGND
DI0	56	22	DI1
DI2	55	21	DI3
DI4	54	20	DI5
DI6	53	19	DI7
DI8	52	18	DI9
DI10	51	17	DI11
DI12	50	16	DI13
DI14	49	15	DI15
DGND	48	14	DGND
DO0	47	13	DO1
DO2	46	12	DO3
DO4	45	11	DO5
DO6	44	10	DO7
DO8	43	9	DO9
DO10	42	8	DO11
DO12	41	7	DO13
DO14	40	6	DO15
DGND	39	5	DGND
CNT0_CLK	38	4	PACER_OUT
CNT0_OUT	37	3	TRG_GATE
CNT0_GATE	36	2	EXT_TRG
+12V	35	1	+5V

*: Pins 23~25 and pins 57~59 are not defined for PCI-1710L/1710HGL

1

PAC & Software

2

BAS

3

UNO

4

RS-485 I/O

5

Ethernet I/O

6

TPC

7

IPPC

8

FPM

9

AWS

10

Plug-in I/O

11

CompactPCI

12

Signal Conditioning

13

USB I/O

14

Motion Control I/O

15

Ethernet Switch

16

EDG

17

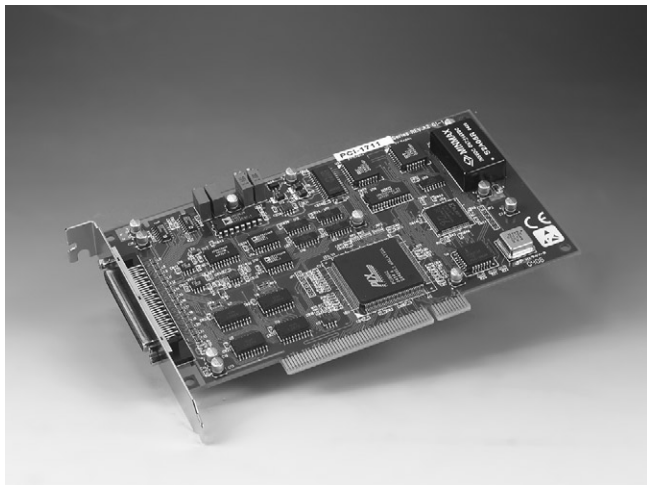
ICOM

PCI-1711

PCI-1711L

100 kS/s, 12-bit, 16-ch S.E. Input Low-cost
Multifunction Card

100 kS/s, 12-bit, 16-ch S.E. Input Low-cost
Multifunction Card w/o AO function



Features

- 16 single-ended analog inputs
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Programmable gain
- Automatic channel/gain scanning
- Onboard FIFO memory (1024 samples)
- Two 12-bit analog output channels (PCI-1711 only)
- 16 digital inputs and 16 digital outputs
- Onboard programmable counter

Introduction

PCI-1711 and PCI-1711L are powerful, but low-cost multifunction cards for the PCI bus. PCI-1711 comes with 2 analog output channels, while the PCI-1711L doesn't. Thus, PCI-1711L represents a cost saver for those that do not need analog output.

Specifications

Analog Input

- **Channels** 16 Single-ended
- **Resolution** 12 bits
- **Max. Sampling Rate*** 100 kS/s max.
- **FIFO Size** 1024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 2 M Ω /5 pF
- **Sampling Modes** Software, onboard programmable pacer, or external
- **Input Range** (V, software programmable)

Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Accuracy (% of FSR ± 1LSB)	0.1	0.1	0.2	0.2	0.4

*Note:

The sampling rate and throughput depends on the computer hardware architecture and software environment. The rates may vary due to programming language, code efficiency, CPU utilization and so on.

Analog Output (only for PCI-1711)

- **Channels** 2
- **Resolution** 12 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable)

Internal Reference	Unipolar	0 ~ +5 V, 0 ~ +10 V
External Reference		0 ~ +x V @ -x V (-10 \leq x \leq 10)

- **Slew Rate** 11 V/ μ s
- **Driving Capability** 3 mA
- **Output Impedance** 0.81 Ω
- **Operation Mode** Software polling
- **Accuracy** INLE: $\pm 1/2$ LSB
DNLE: $\pm 1/2$ LSB

Digital Inputs

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Outputs

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.8 V
Logic 1: 2.0 V
- **Output Capability** Sink: 8.0 mA @ 0.8 V
Source: -0.4 mA @ 2.0 V

Pacer/Counter

- **Channels** 1
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 10 MHz
- **Reference Clock** Internal: 10 MHz

General

- **Bus Type** PCI V2.2
- **I/O Connector** SCSI-68P female x 1
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption**
PCI-1711: Typical: +5 V @ 850 mA
Max: +5 V @ 1.0 A
PCI-1711L: Typical: +5 V @ 700 mA
Max: +5 V @ 1.0 A
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1711** 100 kS/s, 12-bit multifunction card
- **PCI-1711L** 100 kS/s, 12-bit multifunction card without AO
- **PCLD-8710** SCSI-68 wiring terminal w/CJC, DIN-rail mount
- **PCLD-8710BNC** SCSI-68 wiring terminal w/CJC and BNC connectors, DIN-rail mount
- **PCL-10168-1** SCSI-68 shielded cable, 1 m
- **PCL-10168-2** SCSI-68 shielded cable, 2 m
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount

Pin Assignments

AI0	68	34	AI1
AI2	67	33	AI3
AI4	66	32	AI5
AI6	65	31	AI7
AI8	64	30	AI9
AI10	63	29	AI11
AI12	62	28	AI13
AI14	61	27	AI15
AIGND	60	26	AIGND
AO0_REF	59	25	AOI_REF
AO0_OUT	58	24	AOI_OUT
AOGND	57	23	AOGND
DI0	56	22	DI1
DI2	55	21	DI3
DI4	54	20	DI5
DI6	53	19	DI7
DI8	52	18	DI9
DI10	51	17	DI11
DI12	50	16	DI13
DI14	49	15	DI15
DGND	48	14	DGND
DO0	47	13	DO1
DO2	46	12	DO3
DO4	45	11	DO5
DO6	44	10	DO7
DO8	43	9	DO9
DO10	42	8	DO11
DO12	41	7	DO13
DO14	40	6	DO15
DGND	39	5	DGND
CNT0_CLK	38	4	PACER_OUT
CNT0_OUT	37	3	TRG_GATE
CNT0_GATE	36	2	EXT_TRG
+12V	35	1	+5V

*: Pins 23~25 and pins 57~59 are not defined for PCI-1711L

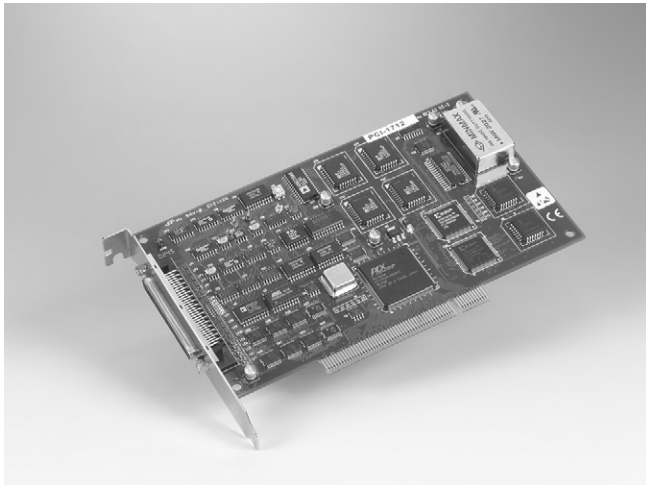


PCI-1712

PCI-1712L

**1 MS/s, 12-bit High-speed
Multifunction Card**

**1 MS/s, 12-bit High-speed
Multifunction Card w/o AO function**



Features

- 16 single-ended, 8 differential or a combination of analog inputs
- 12-bit A/D converter, with up to 1 MHz sampling rate
- Programmable gain
- Automatic channel/gain/SD*/BU* scanning
- Onboard FIFO memory (AI:1024 samples AO:32768 samples)
- Two 12-bit analog output channels with continuous waveform output function
- 16 digital input and output channels
- Three 16-bit programmable multifunction counter/timers on 10 MHz
- Auto-calibration (AI/AO)
- PCI-Bus mastering data transfer
- Pre-, post-, about- and delay-trigger data acquisition modes for analog input channels
- Onboard programmable multifunction counter/timer
- Continuous analog output (PCI-1712 only)
- Flexible triggering and clocking capabilities

Introduction

PCI-1712 and PCI-1712L are powerful high-speed multifunction cards for the PCI bus. They feature a 1 MHz 12-bit A/D converter, an onboard FIFO buffer (storing up to 1024 samples for A/D, and up to 32 K samples for D/A conversion). The PCI-1712 cards provide a total of up to 16 single-ended or 8 differential A/D input channels or a mixed combination, two 12-bit D/A output channels, 16 digital input/output channels, and three 10 MHz 16-bit multifunction counter channels. PCI-1712L is a low-cost version without analog output.

Specifications

Analog Input

- **Channels** 16 single-ended/ 8 differential (SW programmable)
- **Resolution** 12 bits
- **Max. Sampling Rate*** Multi-channel, single gain: 1 MS/s
Multi-channel, multi gain: 600 kS/s
Multi-channel, multi gain, unipolar/bipolar: 400 kS/s
- **FIFO Size** 1024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 100 M Ω 10 pF (Off), 100 M Ω 100 pF (On)
- **Sampling Modes** Software, onboard Programmable Pacer or External
- **Input Range** (V, software programmable)

Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Accuracy (% of FSR ± 1LSB)	0.05	0.03	0.03	0.05	0.1

*Note:

The sampling rate and throughput depends on the computer hardware architecture and software environment. The rates may vary due to programming language, code efficiency, CPU utilization and so on.

Analog Output

- **Channels** 2
- **Resolution** 12 bits
- **Output Rate** 1 MS/s
- **FIFO Size** 32768 samples
- **Output Range** (V, software programmable)

Internal Reference	Bipolar	$\pm 5, \pm 10$
	Unipolar	0 ~ 5, 0 ~ 10
External Reference		0 ~ +x V @ +x V (-10 \leq x \leq 10)
		-x ~ +x V @ +x V (-10 \leq x \leq 10)

- **Slew Rate** 20 V/ μ s
- **Driving Capability** ± 10 mA

- **Output Impedance** 0.1 Ω max.
- **Operation Mode** Software polling, continuous output, waveform output
- **Accuracy** INLE: ± 1 LSB
DNLE: ± 1 LSB (monotonic)

Digital Input

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Output Capability** Sink: 8.0 mA @ 0.8 V
Source: -0.4 mA @ 2.0 V

Pacer/Counter

- **Channels** 3
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 10 MHz
- **Reference Clock** Internal: 10 MHz, 1 MHz, 100 kHz, 10 kHz
External Frequency: 10 MHz max.

General

- **Bus Type** PCI V 2.2
- **I/O Connector** SCSI-68P female x 1
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA, +12 V @ 600 mA
Max: +5 V @ 1.0 A, +12 V @ 700 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 185° F)
- **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1712** 1M S/s, 12-bit high-speed multifunction card
- **PCI-1712L** 1M S/s, 12-bit high-speed multifunction card without AO
- **PCLD-8712** Industrial Wiring Terminal Board for DIN-rail mounting
- **PCL-10168-1** SCSI-68 Shielded Cable, 1 m
- **PCL-10168-2** SCSI-68 Shielded Cable, 2 m
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount

Pin Assignments

AI0	68	34	AI1
AI2	67	33	AI3
AI4	66	32	AI5
AI6	65	31	AI7
AI8	64	30	AI9
AI10	63	29	AI11
AI12	62	28	AI13
AI14	61	27	AI15
AIGND	60	26	ANA_TRG
AO0_REF*	59	25	AO1_REF*
AO0_OUT*	58	24	AO1_OUT*
AOGND*	57	23	AOGND*
AL_CLK*	56	22	AL_TRG*
DGND	55	21	DGND
AO_CLK*	54	20	AO_TRG*
CNT0_CLK	53	19	CNT0_GA TE
CNT0_OUT	52	18	DGND
CNT1_CLK	51	17	CNT1_GA TE
CNT1_OUT	50	16	DGND
CNT2_CLK	49	15	CNT2_GA TE
CNT2_OUT	48	14	DGND
DIO0	47	13	DIO1
DIO2	46	12	DIO3
DIO4	45	11	DIO5
DIO6	44	10	DIO7
DGND	43	9	DGND
DIO8	42	8	DIO9
DIO10	41	7	DIO11
DIO12	40	6	DIO13
DIO14	39	5	DIO15
DGND	38	4	DGND
AL_TRG_OUT	37	3	AL_CLK_OUT
NC	36	2	NC
+12V	35	1	+5V

*: Pin 20, 22~25, 54, 56~59 are not defined on PCI-1712L

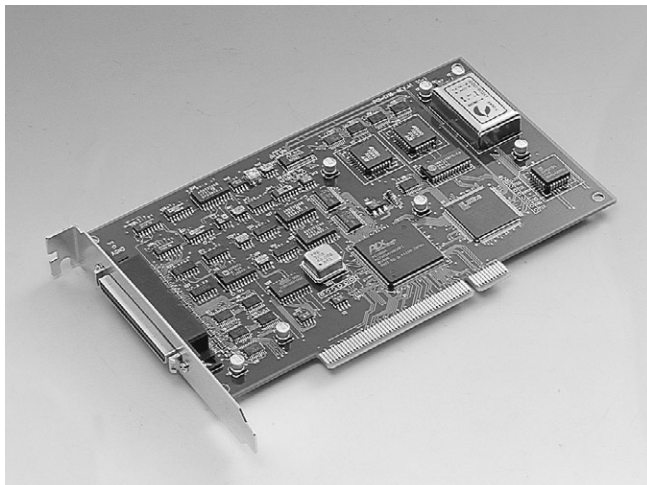


PCI-1716

PCI-1716L

**250 kS/s, 16-bit High-Resolution
Multifunction Card**

**250 kS/s, 16-bit High-Resolution
Multifunction Card w/o AO Function**



Features

- 16 single-ended, 8 differential or a combination of analog inputs
- 16-bit A/D converter, with up to 250 kHz sampling rate
- Onboard FIFO memory (1024 samples)
- Auto-calibration
- PCI-Bus mastering data transfer
- 2 analog output channels (PCI-1716 only)
- 16 digital inputs and 16 digital outputs
- Onboard programmable counter
- BoardID™ switch

Introduction

PCI-1716 and PCI-1716L are powerful high-resolution multifunction cards for the PCI bus. They feature a 250 kS/s 16-bit A/D converter, and an onboard 1K sample FIFO buffer for A/D. The cards can also have up to sixteen single-ended or eight differential A/D input channels or a combination of these; two 16-bit D/A output channels, 16 digital input/output channels, and one 10 MHz 16-bit counter channel. PCI-1716 and PCI-1716L provide specific functions for different user requirements.

Specifications

Analog Input

- **Channels** 16 single-ended/ 8 differential (SW programmable)
- **Resolution** 16 bits
- **Max. Sampling Rate*** 250 kS/s max.
- **FIFO Size** 1024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** Off: 100 M Ω /10 pF, On: 100 M Ω /100 pF
- **Sampling Modes** Software, onboard programmable pacer, or external
- **Trigger Modes** Pre-trigger, Post-trigger, Delay-trigger, About-trigger
- **Input Range** (V, software programmable)

Unipolar	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Accuracy (% of FSR ± 1LSB)	0.05	0.03	0.03	0.05	0.1

*Note:

The sampling rate and throughput depends on the computer hardware architecture and software environment. The rates may vary due to programming language, code efficiency, CPU utilization and other factors.

Analog Output (PCI-1716 only)

- **Channels** 2
- **Resolution** 16 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable)

Internal Reference	Unipolar	0 ~ 5, 0 ~ 10
	Bipolar	± 5 V, ± 10 V
External Reference	0 ~ +x V @ +x V (-10 \leq x \leq 10)	
	-x ~ +x V @ +x V (-10 \leq x \leq 10)	

- **Slew Rate** 20 V/ μ s
- **Driving Capability** ± 20 mA
- **Output Impedance** 0.1 Ω max.
- **Operation Mode** Software polling
- **Accuracy** INLE: ± 1 LSB

Digital Input

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 0.8 mA @ 0.8 V
Source: -2.4 mA @ 2.0 V

Pacer/Counter

- **Channels** 1
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 1 MHz
- **Reference Clock** Internal: 10 MHz
External Clock Frequency: 10 MHz max.

General

- **Bus Type** PCI V2.2
- **I/O Connector** SCSI-68P female x 1
- **Dimensions** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA, +12 V @ 600 mA
Max.: +5 V @ 1 A, +12 V @ 700 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 158° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 158° F)
- **Operating Humidity** 5 ~ 85% RH non-condensing (refer to IEC 68-1, -2, -3)
- **Storage Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-1, -2, -3)

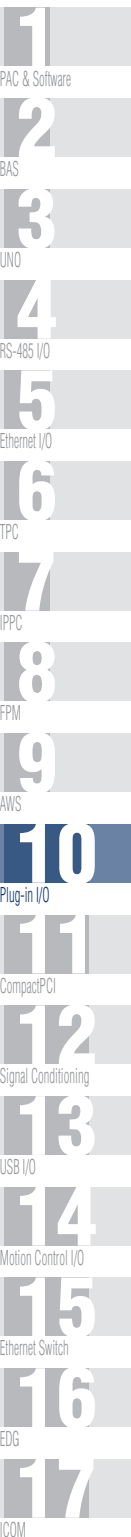
Ordering Information

- **PCI-1716** 250 kS/s, 16-bit high-resolution multifunction card
- **PCI-1716L** 250 kS/s, 16-bit high-resolution multifunction card without AO
- **PCLD-8710** SCSI-68 wiring terminal w/CJC, DIN-rail mount
- **PCLD-8710BNC** SCSI-68 wiring terminal w/CJC and BNC connectors, DIN-rail mount
- **PCL-10168-1** SCSI-68 Shielded Cable, 1 m
- **PCL-10168-2** SCSI-68 Shielded Cable, 2 m
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount

Pin Assignments

AI0	68	34	AI1
AI2	67	33	AI3
AI4	66	32	AI5
AI6	65	31	AI7
AI8	64	30	AI9
AI10	63	29	AI11
AI12	62	28	AI13
AI14	61	27	AI15
AIGND	60	26	AIGND
AO0_REF	59	25	AO1_REF
AO0_OUT	58	24	AO1_OUT
AOGND	57	23	AOGND
DI0	56	22	DI1
DI2	55	21	DI3
DI4	54	20	DI5
DI6	53	19	DI7
DI8	52	18	DI9
DI10	51	17	DI11
DI12	50	16	DI13
DI14	49	15	DI15
DGND	48	14	DGND
DO0	47	13	DO1
DO2	46	12	DO3
DO4	45	11	DO5
DO6	44	10	DO7
DO8	43	9	DO9
DO10	42	8	DO11
DO12	41	7	DO13
DO14	40	6	DO15
DGND	39	5	DGND
CNT0_CLK	38	4	PACER_OUT
CNT0_OUT	37	3	TRG_GATE
CNT0_GATE	36	2	EXT_TRG
+12V	35	1	+5V

*: Pins 23~25 and pins 57~59 are not defined for the PCI-1742U

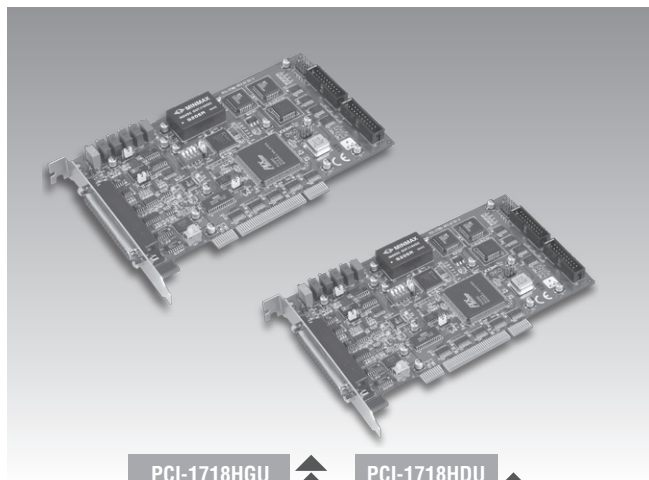


PCI-1718H DU

PCI-1718H GU

100 kS/s, 12-bit, PCI Multifunction Card

100 kS/s, 12-bit High-Gain, PCI Multifunction Card



PCI-1718H DU

PCI-1718H GU



Features

- 16 single-ended or 8 differential analog inputs
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Programmable gain
- Automatic channel/gain scanning
- Onboard FIFO memory (1024 samples)
- One 12-bit analog output channel
- 16 digital inputs and 16 digital outputs
- Universal PCI bus (support 3.3 V or 5 V PCI bus signal)
- BoardID™ switch

Introduction

The PCI-1718 series and the PCL-818H series are 100 kS/s multifunction data acquisition cards that offer the five most desired measurement and control functions: 12-bit A/D conversion, 12-bit D/A conversion, digital input, digital output, and counter/timer. With 3-way compatibility, migration is possible from ISA bus to PCI bus. The HG cards have the same specifications as the HD cards, but also offer a special high-gain programmable instrument amplifier for reading very low input signals.

Specifications

Analog Input

- Channels** 16 single-ended/8 differential (SW programmable)
- Resolution** 12 bits
- Max. Sampling Rate** 100 kS/s
- FIFO Size** 1024 samples
- Overvoltage Protection** 30 Vp-p
- Input Impedance** 100 MΩ
- Sampling Modes** Software, onboard or external programmable pacer
- Input Range**

PCI-1718H DU	Unipolar	N/A	0~10	0~5	0~2.5	0~1.25	0~1.25
	Bipolar	±10	±5	±2.5	±1.25	±0.625	±0.625
PCI-1718H GU	Accuracy (% of FSR ±1LSB)	0.1	0.1	0.2	0.2	0.4	0.4
	Unipolar	N/A	0~10	N/A	0~1	N/A	0~0.1
PCI-1718H GU	Bipolar	±10	±5	±1	±0.5	±0.1	±0.05
	Accuracy (% of FSR ±1LSB)	0.1	0.1	0.2	0.2	0.4	0.4

Analog Output

- Channels** 1
- Resolution** 12 bits
- Output Rate** Static Update
- Output Range** (V, software programmable)

Internal Reference	Unipolar	0 ~ 5, 0 ~ 10
External Reference	PCI-1718H	0 ~ x V @ x V (-10 ≤ x ≤ 10)

- Slew Rate** 10 V/μs
- Driving Capability** ±10 mA
- Output Impedance** 0.1 Ω max.
- Operation Mode** Software polling
- Accuracy** INLE: ±1/2 LSB

Digital Input

- Channels** 16
- Compatibility** 5 V/TTL
- Input Voltage** Logic 0: 0.8 V max., Logic 1: 2 V min.

Digital Output

- Channels** 16
- Compatibility** 5 V/TTL
- Output Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- Output Capability** Sink: 8.0 mA @ 0.8 V
Source: -0.4 mA @ 2.0 V

Counter/Timer

- Channels** 1
- Resolution** 16 bits
- Compatibility** 5 V/TTL
- Max. Input Frequency** 10 MHz
- Reference Clock** Internal: 10 MHz
External Clock Frequency: 10 MHz

General

- Bus Type** Universal PCI 2.2
- I/O Connector** DB-37P female x 1
Box header 20P x 2
- Dimensions** 175 x 100 mm (6.9" x 3.9")
- Power Consumption** Typical: +5 V @ 850 mA
Max.: +5 V @ 1 A
- Operating Temperature** 0 ~ 60 °C (32 ~ 158 °F)
- Storing Temperature** -20 ~ 70 °C (-4 ~ 158 °F)
- Operating Humidity** 5 ~ 85% RH non-condensing (refer to IEC 68-1,-2,-3)
- Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-1,-2,-3)
- Certifications** CE

Ordering Information

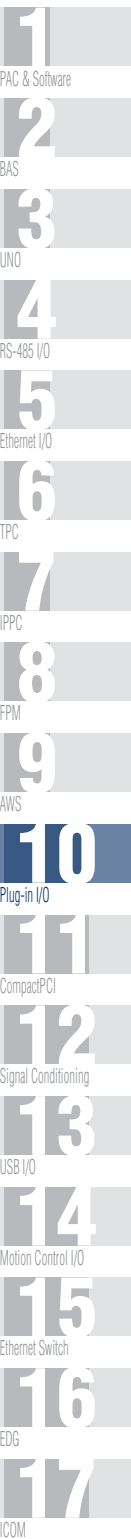
- **PCI-1718HDU** 12-bit multi-function card with PCI bus
- **PCI-1718HGU** 12-bit high-gain multi-function card with PCI bus
- **PCL-818HG** High-performance and High-gain multifunction card
- **PCL-10120-1** 20-pin flat cable, 1 m
- **PCL-10120-2** 20-pin flat cable, 2 m
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m
- **PCLD-8115** Industrial Wiring Terminal with CJC circuit and DB37 connector
- **PCLD-880** Industrial Wiring Terminal with DB37 connector

Pin Assignments

A/D S0	1	20	A/D S8
A/D S1	2	21	A/D S9
A/D S2	3	22	A/D S10
A/D S3	4	23	A/D S11
A/D S4	5	24	A/D S12
A/D S5	6	25	A/D S13
A/D S6	7	26	A/D S14
A/D S7	8	27	A/D S15
A.GND	9	28	A.GND
A.GND	10	29	A.GND
V.REF	11	30	DA0.OUT
S0*	12	31	DA0.VREF
+12 V	13	32	S1*
S2*	14	33	S3*
D.GND	15	34	D.GND
NC	16	35	EXT.TRIG
Counter 0 CLK	17	36	Counter 0 GATE
Counter 0 OUT	18	37	PACER
+5V	19		

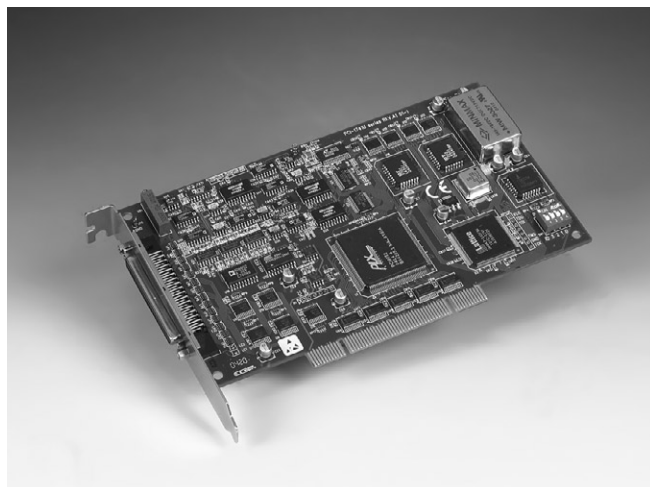
	CN1	
D/O 0	1	2 D/O 1
D/O 2	3	4 D/O 3
D/O 4	5	6 D/O 5
D/O 6	7	8 D/O 7
D/O 8	9	10 D/O 9
D/O 10	11	12 D/O 11
D/O 12	13	14 D/O 13
D/O 14	15	16 D/O 15
D.GND	17	18 D.GND
+5 V	19	20 +12 V

	CN2	
D/I 0	1	2 D/I 1
D/I 2	3	4 D/I 3
D/I 4	5	6 D/I 5
D/I 6	7	8 D/I 7
D/I 8	9	10 D/I 9
D/I 10	11	12 D/I 11
D/I 12	13	14 D/I 13
D/I 14	15	16 D/I 15
D.GND	17	18 D.GND
+5 V	19	20 +12 V



PCI-1741U

**16-bit, 200 kS/s Low-Cost
Multifunction Card w/AO**



Features

- 16 single-ended, 8 differential or a combination of analog inputs
- 16-bit A/D converter, with up to 200 kHz sampling rate
- Onboard FIFO memory (1024 samples)
- Auto calibration
- Universal PCI bus (support 3.3 V or 5 V PCI bus signal)
- Onboard programmable counter
- BoardID™ switch

Introduction

PCI-1741U is a powerful high-resolution multifunction DAS card for the PCI bus. Its sampling rate is up to 200 kS/s and the 16-bit resolution makes it suitable for most data acquisition applications. PCI-1741U provides 16 single-ended or 8 differential analog input channels, one 16-bit D/A output channel, 16 digital input/output channels, and one 10 MHz 16-bit counter channel.

Specifications

Analog Input

- **Channels** 16 single-ended/8 differential (SW programmable)
- **Resolution** 16 bits
- **Max. Sampling Rate** 200 kS/s
- **FIFO Size** 1024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 100 M Ω /10pF (Off); 100 M Ω /100pF (On)
- **Sampling Mode** Software, onboard programmable pacer or external
- **Input Range*** (V, software programmable)

Unipolar	N/A	0~10	0~5	0~2.5	0~1.25
Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Accuracy (% of FSR ± 1 LSB)	0.03	0.02	0.02	0.03	0.04

* Note: All channels should be set to the same range

Analog Output

- **Channels** 1
- **Resolution** 16 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable)

Internal Reference	Bipolar	$\pm 5, \pm 10$
	Unipolar	0 ~ 5, 0 ~ 10
External Reference		0 ~ +xV @ +xV (-10 \leq x \leq 10) -x ~ +xV @ +xV (-10 \leq x \leq 10)

- **Slew Rate** 20 V/ μ s
- **Driving Capability** ± 20 mA
- **Output Impedance** 0.1 Ω max.
- **Operation Mode** Software polling
- **Accuracy** INLE: ± 1 LSB

Digital Input

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Output Capability** Sink: 24 mA @ 0.8 V
Source: -15 mA @ 2.0 V

Counter/Timer

- **Channels** 1
- **Compatibility** 5 V/TTL
- **Resolution** 16 bits
- **Max. Input Frequency** 10 MHz
- **Reference Clock** Internal: 10 MHz
External Clock Frequency: 10 MHz

General

- **Bus Type** Universal PCI 2.2
- **I/O Connector Type** SCSI-68P female x 1
- **Dimensions** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA, +12 V @ 600 mA
Max.: +5 V @ 1 A, +12 V @ 700 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 158° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 185° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Certifications** CE

Ordering Information

- **PCI-1741U** 200k S/s, 16-bit high-resolution multifunction card
- **PCI-1741S** PCI-1741U with PCLD-8710 and PCL-10168 cable
- **PCL-10168-1** SCSI-68 Shielded Cable, 1 m
- **PCL-10168-2** SCSI-68 Shielded Cable, 2 m
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount
- **PCLD-8710** SCSI-68 wiring terminal w/CJC, DIN-rail mount
- **PCLD-8710BNC** SCSI-68 wiring terminal w/CJC and BNC connectors, DIN-rail mount

Pin Assignments

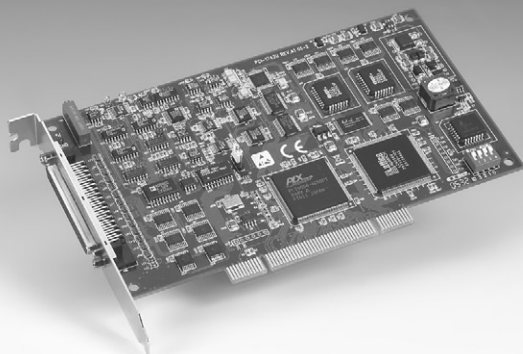
AI0	68	34	AI1
AI2	67	33	AI3
AI4	66	32	AI5
AI6	65	31	AI7
AI8	64	30	AI9
AI10	63	29	AI11
AI12	62	28	AI13
AI14	61	27	AI15
AIGND	60	26	AIGND
AOO_REF	59	25	NC
AOO_OUT	58	24	NC
AOGND	57	23	NC
DIO	56	22	DI1
DI2	55	21	DI3
DI4	54	20	DI5
DI6	53	19	DI7
DI8	52	18	DI9
DI10	51	17	DI11
DI12	50	16	DI13
DI14	49	15	DI15
DGND	48	14	DGND
DO0	47	13	DO1
DO2	46	12	DO3
DO4	45	11	DO5
DO6	44	10	DO7
DO8	43	9	DO9
DO10	42	8	DO11
DO12	41	7	DO13
DO14	40	6	DO15
DGND	39	5	DGND
CNT0_CLK	38	4	PACER_OU
CNT0_OUT	37	3	TRG_GATE
CNT0_GATE	36	2	EXT_TRG
+12V	35	1	+5V



PCI-1742U

1 MS/s, 16-bit, 16-ch High-Resolution Multifunction Card

NEW



Features

- 16 single-ended, 8 differential or a combination of analog inputs
- 16-bit A/D converter, with up to 1 MHz sampling rate
- Onboard FIFO memory (1024 samples)
- Auto calibration
- Two 16-bit analog output channels
- 16 digital inputs and 16 digital outputs
- Onboard programmable counter
- Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)
- BoardID™ switch

Introduction

PCI-1742U is a powerful high-resolution multifunction DAS card for the PCI bus. Its sampling rate of up to 1 MS/s and 16-bit resolution, fulfill the needs of most data acquisition applications. PCI-1742U provides 16 single-ended or 8 differential analog input channels, two 16-bit D/A output channels, 16 digital input/output channels, and one 10 MHz 16-bit counter channel.

Specifications

Analog Input

- **Channels** 16 single-ended /8 differential (SW programmable)
- **Resolution** 16 bits
- **Max. Sampling Rate** 1 MS/s single-channel
800kS/s multi-channel
250kS/s unipolar bipolar mixed
- **FIFO Size** 1024 samples
- **Overvoltage Protection**
- **Input Impedence** 100 M Ω /10pF (Off); 100 M Ω /100pF (On)
- **Sampling Mode** Software, onboard programmable pacer or external
- **Trigger Mode**
- **Input Range** (V, Software programmable)

Unipolar	N/A	0~10	0~5	0~2.5	0~1.25
Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625

Analog Output

- **Channels** 2
- **Resolution** 16 bits
- **Output Rate** Static Update
- **Reference Clock**
- **Output Range** (V, Software programmable)

Internal Reference	Bipolar	-5~+5, -10~+10
	Unipolar	0~+5, 0~+10
External Reference		0 ~ +x V @ +x V (-10 < x < 10) -x ~ +x V @ +x V (-10 < x < 10)

- **Slew Rate** 40 V/ μ s
- **Driving Capability** ± 20 mA
- **Output Impedence** 0.1 Ω max.
- **Operation Mode** Single Output

Digital Input

- **Channels** 16
- **Capability** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output

- **Channels** 16
- **Capability** 5 V/TTL
- **Output Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Output Capability** Sink: 0.5 V max. @ +24 mA
Source: 2.4 V min. @ -15 mA

Counter/Timer

- **Channels** 1
- **Compatibility** 5V/TTL
- **Resolution** 16 bits
- **Max. Input Frequency** 10 MHz
- **Reference Clock**

General

- **Bus Type** Universal PCI 2.2
- **I/O connector Type** 68-pin SCSI-II female
- **Dimensions** 175 mm \times 100 mm (6.9" \times 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA, +12 V @ 600 mA
Max.: +5 V @ 1 A, +12 V @ 700m A
- **Operating Temperature** 0 ~ +60°C (32 ~ 158°F) (refer to IEC 68-2-1,2)
- **Storing Temperature** -20 ~ +85°C (-4 ~ 185°F)
- **Storing Humidity** 5 ~ 95%RH non-condensing (refer to IEC 68-2-3)
- **Certificates** CE

Ordering Information

- **PCI-1742U** 16-bit, 1MS/s Multifunction Card
- **PCL-10168** SCSI-68 Shielded Cable, 1 m
- **PCL-10168-2** SCSI-68 Shielded Cable, 2 m
- **ADAM-3968** SCSI-68 Wiring Terminal, DIN-rail Mount
- **PCLD-8710** SCSI-68 Wiring Terminal w/CJC, DIN-rail Mount
- **PCLD-8710BNC** SCSI-68 Wiring Terminal w/CJC and BNC connectors, DIN-rail Mount

Pin Assignments

AI0	68	34	AI1
AI2	67	33	AI3
AI4	66	32	AI5
AI6	65	31	AI7
AI8	64	30	AI9
AI10	63	29	AI11
AI12	62	28	AI13
AI14	61	27	AI15
AIGND	60	26	AIGND
AO0_REF	59	25	AO1_REF
AO0_OUT	58	24	AO1_OUT
AOGND	57	23	AOGND
DI0	56	22	DI1
DI2	55	21	DI3
DI4	54	20	DI5
DI6	53	19	DI7
DI8	52	18	DI9
DI10	51	17	DI11
DI12	50	16	DI13
DI14	49	15	DI15
DGND	48	14	DGND
DO0	47	13	DO1
DO2	46	12	DO3
DO4	45	11	DO5
DO6	44	10	DO7
DO8	43	9	DO9
DO10	42	8	DO11
DO12	41	7	DO13
DO14	40	6	DO15
DGND	39	5	DGND
CNT0_CLK	38	4	PACER_OUT
CNT0_OUT	37	3	TRG_GATE
CNT0_GATE	36	2	EXT_TRG
+12V	35	1	+5V

*: Pins 23~25 and pins 57~59 are not defined for the PCI-1742U

1

PAC & Software

2

BAS

3

UNO

4

RS-485 I/O

5

Ethernet I/O

6

TPC

7

IPPC

8

FPM

9

AWS

10

Plug-in I/O

11

CompactPCI

12

Signal Conditioning

13

USB I/O

14

Motion Control I/O

15

Ethernet Switch

16

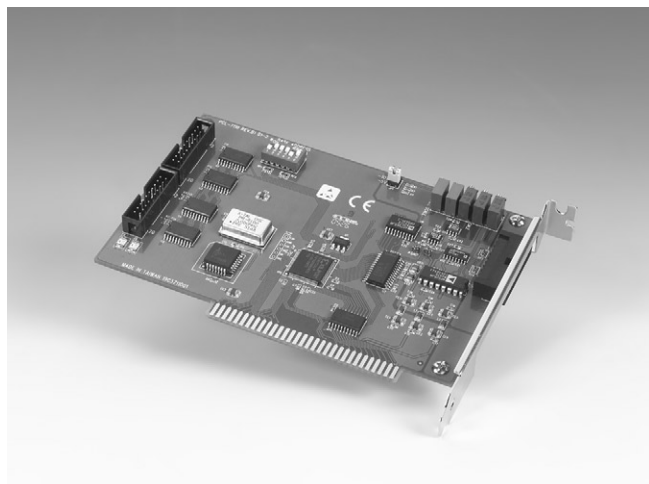
EDG

17

ICOM

PCL-711B

40 kS/s, 12-bit, ISA-bus Multifunction Card



Features

- 8 single-ended analog inputs
- 12-bit A/D converter, with up to 40 kHz sampling rate
- Programmable gain
- One 12-bit analog output channel
- 16 digital inputs and 16 digital outputs
- Screw-terminal board and cable included

Introduction

PCL-711 offers four of the most popular I/O functions for PC/AT and compatible systems: A/D conversion, D/A conversion, digital input and digital output. The inexpensive PCL-711 is ideal for entry level applications. The features of this half-sized card include: eight 12-bit analog inputs, one 12-bit analog output, 16 digital inputs and 16 digital outputs. In addition, it comes with a 20-point screw-terminal board and a flat cable connector. PCL-711 performs a variety of I/O jobs, and features solid software support and a large selection of available daughterboards and accessories. It is an ideal and affordable performer for OEMs, schools and hobbyists who require a combination of analog and digital I/O.

Specifications

Analog Input

- **Channels** 8 single-ended
- **Resolution** 12 bits
- **Max. Sampling Rate** 40 kS/s
- **FIFO Size** 0
- **Overvoltage Protection** $\pm 30 V_{DC}$
- **Input Impedance** $> 10 M\Omega$
- **Sampling Modes** Software, pacer or external trigger
- **Input Range (V)** $\pm 5, \pm 2.5, \pm 1.25, \pm 0.625, \pm 0.3125$
- **Accuracy** ± 2 LSB

Analog Output

- **Channels** One double-buffered channel
- **Resolution** 12 bits
- **Output Rate** Static Update
- **Output Range** 0 ~ 5 V or 0 ~ 10 V
- **Driving Capability** 10 mA

Digital Input

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8V max.
Logic 1: 2.0V min.

Digital Output

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Output Capability** Sink: 8 mA
Source: 0.4 mA

General

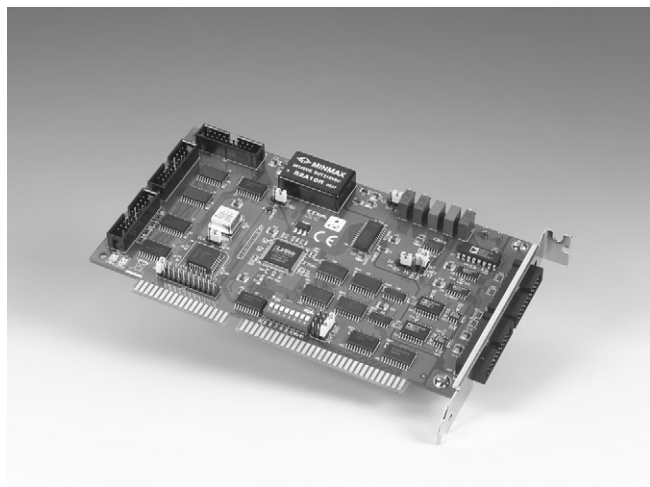
- **Bus Type** ISA
- **I/O Connectors** Box header 20P x 3
- **Dimensions (L x H)** 155 x 100 mm (6.1" x 3.9")
- **Power Consumption** +5 V @ 500 mA typical, 1.0 A max.
+12 V @ 50 mA typical, 100 mA max.
-12 V @ 14 mA typical, 20 mA max.
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storing Temperature** -20 ~ 65° C (-4 ~ 149° F)
- **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)
- **Certifications** CE

Ordering Information

- **PCL-711S** PCL-711B card, user's manual, driver CD-ROM, PCLD-7115 and 1 m 20-pin flat cable (PCL-10120-1)
- **PCL-711B** 40kS/s, 12-bit multifunction card
- **PCL-10120-1** 20-pin flat cable, 1 m
- **PCL-10120-2** 20-pin flat cable, 2 m

PCL-812PG

30 kS/s, 12-bit, ISA-bus Multifunction Card



Features

- 16 single-ended analog inputs
- 12-bit A/D converter, with up to 30 kHz sampling rate
- Programmable gain
- Two 12-bit analog output channels
- 16 digital inputs and 16 digital outputs
- Onboard programmable counter
- A/D with DMA or interrupt

Introduction

PCL-812PG is a multifunction analog and digital I/O card that features the five most desired measurement and control functions for PC/AT and compatible systems: A/D conversion, D/A conversion, digital input, digital output and counter/timer. This half-size card neatly packages 16 12-bit analog input channels, two 12-bit analog output channels, 16 digital input channels, 16 digital output channels and a programmable counter/timer.

In addition to all the features listed above, PCL-812PG offers the convenience of programmable analog input ranges, where the analog input range can be switched by software commands instead of DIP switches. PCL-812PG also delivers convenience and maximum resolution for applications that need different gains for different channels or different gains for different stages of a process. Comprehensive software support, numerous I/O options and a wide range of available daughterboards make the PCL-812PG ideal for industrial applications that require a combination of analog and digital I/O.

Specifications

Analog Input

- **Channels** 16 single-ended
- **Resolution** 12 bits
- **Max. Sampling Rate** 30 kS/s
- **FIFO Size** 0
- **Overvoltage Protection** $\pm 30 V_{DC}$
- **Input Impedance** $>10 M\Omega$
- **Sampling Modes** Software, pacer or external trigger
- **Input Range** (V, software programmable)
 $\pm 10, \pm 5, \pm 2.5, \pm 1.25, \pm 0.625, \pm 0.3125$
- **Accuracy** 0.01% of reading ± 1 LSB

Analog Output

- **Channels** 2 double-buffered
- **Resolution** 12 bits
- **Output Rate** Software polling
- **Output Range** (V, software programmable)

Internal Reference	Unipolar	0 ~ 5, 0 ~ 10
External Reference		± 10 max.

- **Driving Capability** 10 mA max.

Digital Input

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V
Logic 1: 2.0 V

Digital Output

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.5 V max., Logic 1: 2.4 V min.
- **Output Capacity** Sink: 8.0 mA, Source: 0.4 mA

Counter/Timer

- **Channels** 1
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 500 kHz
- **Reference Clock** Internal: 2 MHz
External Frequency: 10 MHz
External Voltage Range: 5V/TTL

General

- **Bus Type** ISA
- **I/O Connectors** Box header 20P x 2
- **Dimensions (L x H)** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** +5 V @ 500 mA typical, 1.0 A max.
+12 V @ 50 mA typical, 100 mA max.

- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storing Temperature** -20 ~ 65° C (-4 ~ 149° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCL-812PG** 30 kS/s, 12-bit, multifunction card
- **PCL-10120-1** 20-pin flat cable, 1 m
- **PCL-10120-2** 20-pin flat cable, 2 m
- **PCLD-780** Screw terminal board

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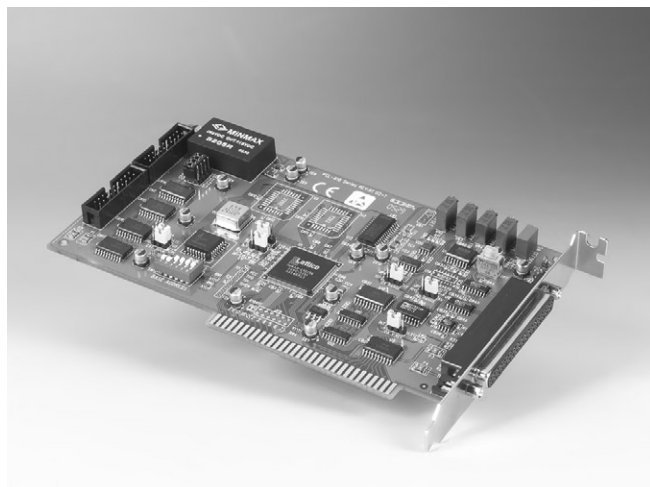
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PCL-818HD/HG

PCL-818L

100 kS/s, 12-bit ISA Multifunction Card

40 kS/s, 12-bit ISA Multifunction Card



Features

- 16 single-ended or 8 differential analog inputs
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Programmable gain
- Automatic channel/gain scanning
- Onboard FIFO memory (1024 samples, PCL-818HD/HG only)
- One 12-bit analog output channel
- 16 digital inputs and 16 digital outputs
- Onboard programmable counter

Introduction

The PCL-818L series was designed for entry-level models to the PCL-818 series. The cards have been designed with the cost-sensitive customer in mind, but still offers the same functions as the rest of the series, except that they have a 40 kHz sampling rate and only accepts bipolar inputs. They are fully software and connector compatible with the PCL-818HD and PCL-818HG. This lets you upgrade your applications to these higher performance cards without hardware or software changes.

The PCL-818LS bundle consists of the PCL-818L card, the PCLD-8115 wiring terminal board and a DB37 cable assembly. The PCLD-8115 accommodates onboard passive signal conditioning components (resistors and capacitors), allowing you to easily implement a low-pass filter, a voltage attenuator or a 4 ~ 20 mA voltage converter.

Specifications

Analog Input

- **Channels** 16 single-ended, or 8 differential
- **Resolution** 12 bits
- **Max. Sampling Rate** 40 kS/s for all input ranges
- **Overvoltage Protection** $\pm 30 V_{DC}$ max.
- **Input Impedance** 10 M Ω
- **Sampling Modes** Software, pacer or external
- **Input Range** (V, software programmable)

Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Accuracy (% of FSR $\pm 1LSB$)	0.1	0.1	0.2	0.2	0.4

Analog Output

- **Channels** 1
- **Resolution** 12 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable)

Internal Reference	Unipolar	0 ~ 5, 0 ~ 10
External Reference		0 ~ 10, 0 ~ -10

Digital Input

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 8 mA
Source: -0.4 mA

Timer/Counter

- **Channels** 1
- **A/D Pacer** 32-bit with 10 MHz or 1 MHz time base
- **Max. and Min. Rates** 2.5 MHz to 0.00023 Hz
- **Counter** One 16-bit counter with 100 kHz time base

General

- **Power Consumption** +5 V @ 210 mA typical, 500 mA max.
+12 V @ 20 mA typical, 100 mA max.
-12 V @ 20 mA typical, 40 mA max.
- **I/O Connector** DB37-F
- **Dimensions (L x H)** 155 x 100 mm (6.1" x 3.9")
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature** -20 ~ 65° C (-4 ~ 149° F)
- **Operating Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCL-818L** Low-cost high-performance half-size multi-function card, user's manual and driver CD-ROM. (cable not included)
- **PCL-818LS** PCL-818L with PCLD-8115 and DB-37 cable assembly (PCL-10137-1)
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m
- **PCLD-8115** Industrial Wiring Terminal with CJC circuit and DB37 connector
- **PCLD-880** Industrial Wiring Terminal with DB37 connector

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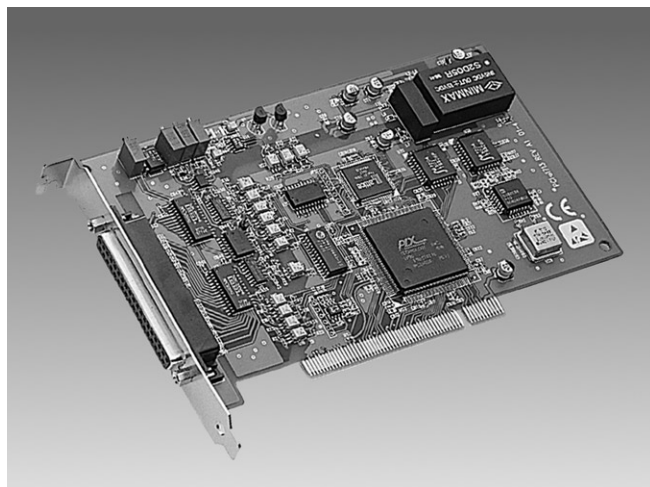
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PCI-1713

100 kS/s, 12-bit, 32-ch, Isolated
Analog Input Card



Features

- 32 single-ended, 16 differential or a combination of analog inputs
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Programmable gain
- Onboard FIFO memory (4096 samples)
- Isolation protection (2500 V_{DC})
- S/W, internal or external pacer sampling modes supported

Introduction

The PCI-1713 is an isolated high-speed analog input card for the PCI bus. It provides 32 analog input channels with a sampling rate up to 100 kS/s, 12-bit resolution and isolation protection of 2500 V_{DC}.

Specifications

Analog Input

- **Channels** 32 single-ended/16 differential (SW programmable)
- **Resolution** 12 bits
- **Max. Sampling Rate** 100 kS/s
- **FIFO Size** 4096 samples
- **Overvoltage Protection** ± 30 V
- **Isolation Protection** 2,500 V_{DC}
- **Input Impedance** 1 G Ω
- **Sampling Modes** Software, onboard programmable pacer or external (TTL level)
- **Input Range** (V, software programmable)

Unipolar	-	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Accuracy (% of FSR ± 1 LSB)	0.01	0.01	0.02	0.02	0.04

General

- **Bus Type** PCI V2.2
- **I/O Connector** 37-pin D-type female
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA
Max: +5 V @ 1.0 A
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Programmable Parameters

- **Timer** 32-bit programmable timer
- **Timer Base** 10 MHz

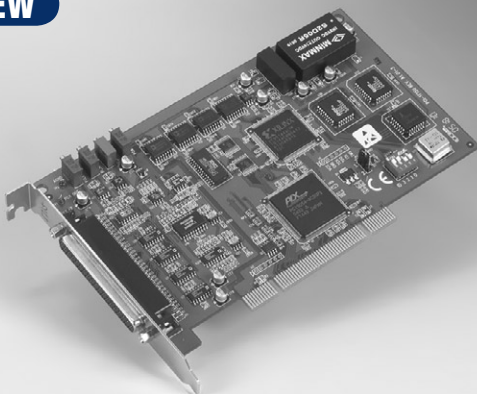
Ordering Information

- **PCI-1713** 100 kS/s, 12-bit, 32-channel Isolated Analog Input Card, user's manual and driver CD-ROM. (cable not included)
- **PCLD-881B** Industrial Wiring Terminal Board (cable not included)
- **ADAM-3937** Wiring Terminal Board
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m

PCI-1715U

500 kS/s, 12-bit, 32-channel
Isolated Analog Input Card

NEW



Features

- 2500 V_{DC} isolation protection
- 32 single-ended or 16 differential analog inputs, or a combination
- 12-bit resolution for A/D conversion
- Up to 500 kS/s sampling rate for A/D conversion
- Programmable gain for each input channel
- Onboard 1024 samples FIFO buffer
- S/W, internal or external pacer sampling modes supported
- Universal PCI Bus
- BoardID™ switch

Introduction

The PCI-1715U is an isolated high-speed analog input card for the PCI bus. It provides 32 analog input channels with a sampling rate up to 500 kS/s, 12-bit resolution and isolation protection of 2500 V_{DC}.

Specifications

Analog Input

- **Channels** 32 single-ended /16 differential (SW programmable)
- **Resolution** 12 bits
- **Max. Sampling Rate** 500 kS/s
- **FIFO Size** 1024 samples
- **Overvoltage Protection** +/- 30 Vp-p
- **Isolation Protection** 2,500 V_{DC}
- **Input Impedance** 1 GΩ
- **Sampling Modes** Software, onboard programmable pacer or external (TTL level)
- **Input Range** (V, software programmable)

Unipolar	-	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar	±10	±5	±2.5	±1.25	±0.625
Accuracy (% of FSR ±1LSB)	0.01	0.01	0.02	0.02	0.04

General

- **Bus Type** Universal PCI V2.2
- **I/O Connector** 37-pin D-type female
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA
Max: +5 V @ 1.0 A
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1715U** 500 kS/s 12-bit, 32-channel Isolated Analog Input Card, user's manual and driver CD-ROM. (cable not included)
- **PCLD-881B** Industrial Wiring Terminal Board (cable not included)
- **ADAM-3937** Wiring Terminal Board
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m

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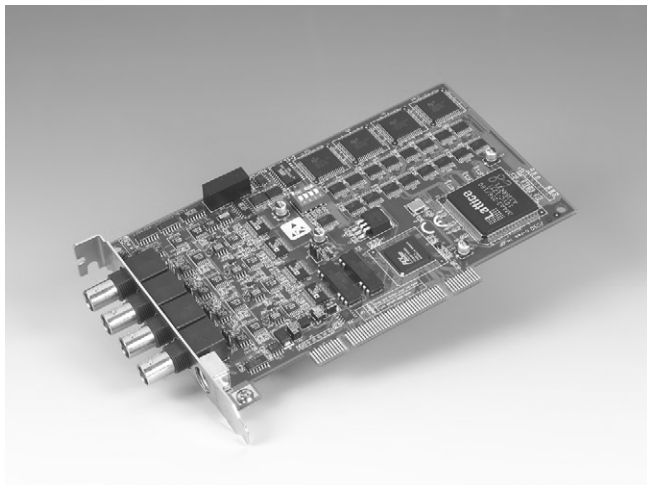
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PCI-1714 PCI-1714UL

30 MS/s Simultaneous 4-ch Analog Input Card

10 MS/s Simultaneous 4-ch Analog Input Card



Features

- 4 single-ended analog input channels
- 12-bit A/D converter, with up to 30 MHz sampling rate
- Programmable gain
- Onboard FIFO memory
(PCI-1714: 32,768 samples PCI-1714UL: 8,192 samples, each channel)
- 4 A/D converters simultaneously sampling
- Multiple A/D triggering modes
- Programmable pacer/counter
- BoardID™ switch

Introduction

PCI-1714 is an advanced high-performance data acquisition card based on the PCI bus. With a large FIFO of 32 K for each channel, the maximum sampling rate of PCI-1714 can get up to 30 MS/s, on each channel, with an emphasis on continuous, non-stop, high-speed, streaming data of samples to host memory. The low-cost PCI-1714UL offers 10MS/s on each channel at a stable rate, and has also been equipped with a universal PCI interface.

Specifications

Analog Input

- **Channels** 4 single-ended
- **Resolution** 12 bits
- **Max. Sampling Rate** 30 MS/s for PCI-1714
(Under 32,768 samples for ea. ch)
10 MS/s for PCI-1714UL
(Under 8,192 samples for ea. ch)
- **FIFO Size** PCI-1714: 32,768 samples for each channel
PCI-1714UL: 8,192 samples for each channel
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 50 Ω /1 M Ω /Hi Z jumper selectable/100 pF
- **Sampling Modes** Software polling, pacer
- **Trigger Modes** Post-trigger, pre-trigger, delay-trigger, about-trigger
- **Input Range** (V, software programmable)

Bipolar	$\pm 5V$	$\pm 2.5V$	$\pm 1V$	$\pm 0.5V$
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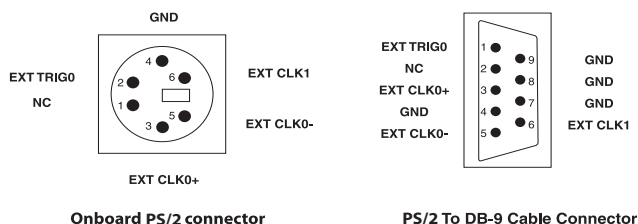
General

- **Bus Type** PCI-1714: PCI V2.2
PCI-1714UL: Universal PCI V2.2
- **I/O Connectors** 4 x BNC connector (for AI)
1 x PS/2 connector (for Ext. clock and trigger)
- **Dimensions** 175 x 100mm (6.9" x 3.9")
- **Power Consumption** Typical +5 V @ 850 mA ; +12 V @ 600 mA
Max.: +5 V @ 1 A ; +12 V @ 700mA
- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)
- **Storage Temperature** -20 ~ 85° C (-4 ~ 185° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Certifications** CE

Ordering Information

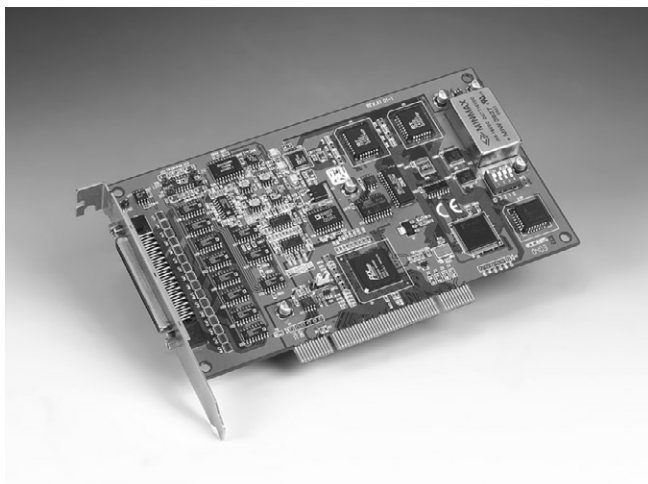
- **PCI-1714** 30 MHz Simultaneous 4-ch Analog Input card
- **PCI-1714UL** 10 MHz Simultaneous 4-ch Analog Input card
- **ADAM-3909** DB-9 Wiring Terminal for DIN-rail Mounting
- **PCL-10901-1** PS2 to DB9 Wiring Cable, 1 m
- **PCL-10901-3** PS2 to DB9 Wiring Cable, 3 m
- **PCL-1010B-1** BNC to BNC Wiring Cable, 1 m

Pin Assignments



PCI-1747U

250 kS/s, 16-bit, 64-ch Analog Input Card



Features

- 64 single-ended, 32 differential or a combination of analog inputs
- 16-bit A/D converter, with up to 250 kHz sampling rate
- Auto calibration
- Onboard FIFO memory (1024 samples)
- PCI-Bus mastering data transfer
- Universal PCI Bus (support 3.3 V or 5 V PCI bus signal)
- BoardID™ switch

Introduction

PCI-1747U is a high-resolution, high-channel-count analog input card for the PCI bus. Its sampling rate is up to 250 kS/s and 16-bit resolution provides the resolution needed for most data acquisition applications. PCI-1747U provides 64 single-ended, 32 differential analog input channels or a combination of these. It also has built in a 1 K FIFO buffer for analog input data.

Specifications

Analog Input

- **Channels** 64 single-ended, 32 differential, or combination
- **Resolution** 16 bits
- **Max. Sampling Rate** 250 kS/s
- **FIFO Size** 1024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 100 M Ω /10 pF(Off); 100 M Ω /100 pF(On)
- **Sampling Modes** Software, onboard programmable pacer or external
- **Input Range** (V, software programmable)

Unipolar	-	0~10	0~5	0~2.5	0~1.25
Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Accuracy (% of FSR ± 1 LSB)	0.03	0.02	0.02	0.03	0.04

General

- **Bus Type** Universal PCI V2.2
- **I/O Connector** 68-pin SCSI-II female
- **Dimensions** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA, +12 V @ 600 mA
Max: +5 V @ 1 A, +12 V @ 700 mA
- **Operating Temperature** 0 ~ 60 °C (32 ~ 158 °F) (refer to IEC 68-2-1,2)
- **Storing Temperature** -20 ~ 70°C (-4 ~ 185°F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Certifications** CE

Ordering Information

- **PCI-1747U** 250 kS/s, 16-bit, 64-ch, analog input universal PCI bus card
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount
- **PCL-10168-1** SCSI-68 shielded cable, 1 m
- **PCL-10168-2** SCSI-68 shielded cable, 2 m

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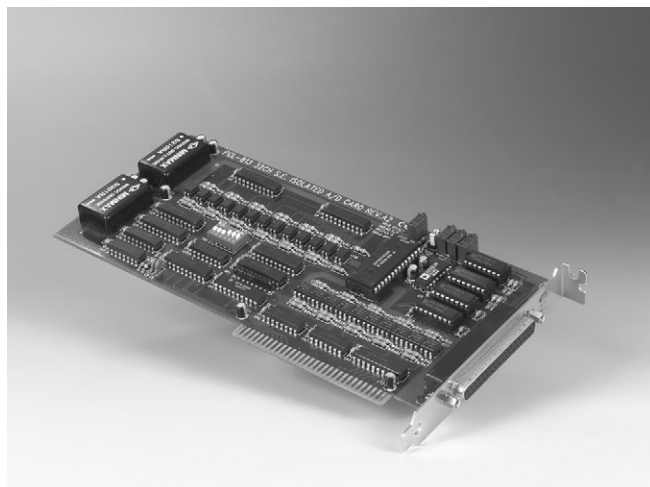
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PCL-813B

32-ch S.E. Isolated Analog Input Card



Features

- 32 single-ended analog input channels
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Isolation protection (500 V_{DC})
- Program-controlled A/D trigger and data transfer

Introduction

PCL-813B is a 12-bit 32-channel analog input card that offers high-voltage isolation on each analog input. It is an extremely cost effective solution for applications in industrial measurement and monitoring. The card offers 32 analog input channels with software programmable gain on each channel and two DC-to-DC converters on a 4-layer PCB with an integral ground plane. Optically-isolated inputs provide over 500 V_{DC} of isolation between the analog inputs and the PC, protecting the PC and peripherals from damage due to high voltages on the input lines. PCL-813B is ideal for situations where the budget-conscious user requires flexibility, stability and a high level of isolation protection. PCL-813B comes with the PCLD-881 wiring terminal board and a DB-37 cable assembly.

Specifications

Analog Input

- **Channels** 32 single-ended
- **Resolution** 12 bits,
- **Max. Sampling Rate** 25 kHz
- **Overvoltage Protection** Continuous ± 30 V (max.)
- **Isolation Protection** 500 V_{DC} from analog input to PC
- **Input Impedance** > 10 M Ω
- **Sampling Modes** software trigger
- **Input Range** (V)

Unipolar (jumper selection)	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Bipolar (software selection)	± 5	± 2.5	± 1.25	± 0.625
Accuracy (% of FSR ± 1LSB)	0.01	0.01	0.01	0.01

- **Accuracy** 0.01% of reading ± 1 LSB

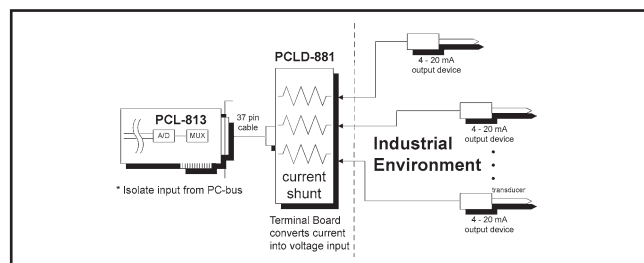
General

- **Bus Type** ISA
- **I/O Connectors** 1 x DB37-F
- **Dimensions (L x H)** 219 x 100 mm (8.6" x 3.9")
- **Power Consumption** +5 V @ 660 mA max.
+12 V @ 140 mA max.
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storing Temperature** -20 ~ 65° C (-4 ~ 149° F)
- **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCL-813B** 32-ch. isolated analog input card, PCLD-881B wiring terminal board, DB-37 cable assembly, manual and driver CD-ROM.
- **PCLD-881B** Industrial terminal board for PCI-1713 & PCL-813B
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m
- **ADAM-3937** DB37 wiring terminal for DIN-rail mounting

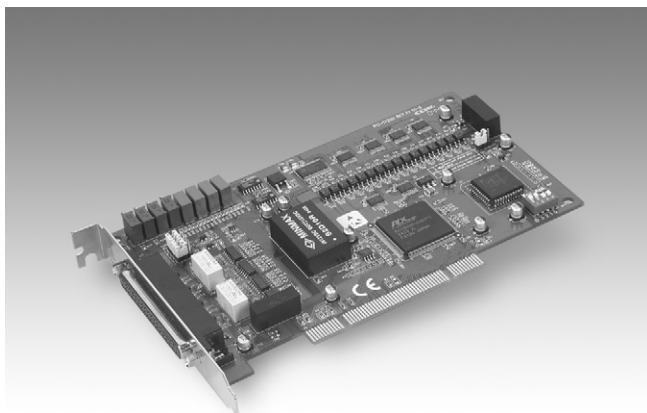
Typical application for PCL-813B:



Industrial 4 ~ 20 mA Output Device Monitoring

PCI-1720U

4-ch Universal Isolated Analog Output Card



Features

- 4 12-bit D/A output channels
- Multiple output ranges
- 2,500 V_{DC} isolation between the outputs and the PCI bus
- Keeps the output settings and values after system reset
- One DB37 connector for easy wiring
- Universal PCI and BoardID™ switch

Introduction

The PCI-1720U provides four 12-bit isolated digital-to-analog outputs for the Universal PCI bus. With isolation protection of 2500 V_{DC} between the outputs and the PCI bus, the PCI-1720U is ideal for industrial applications where high-voltage protection is required.

Specifications

Analog Output

- **Channels** 4 isolated channels
- **Resolution** 12 bits
- **Output Rate** Static update
- **Output Range** (Software programmable)

Internal Reference	Unipolar (V)	0 ~ 5, 0 ~ 10
	Bipolar (V)	±5, ±10
	Current Loop (mA)	0~ 20, 4 ~ 20

- **Slew Rate** 2 V/μs
- **Isolation Protection** 2,500 V_{DC} (between the outputs and the PCI bus)
- **Driving Capability** ±5 mA max.
- **Operation Modes** Software polling
- **Accuracy** ±0.024%
- **Current Loop Excitation**
- **Voltage** 50 V (max.)

General

- **Bus Type** PCI-1720: PCI V2.2
PCI-1720U: Universal PCI 2.2
- **I/O Connectors** 1 x DB37-F
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** +5 V @ 350 mA (typical), 500 mA (max.)
+12 V @ 200 mA (typical), 350 mA (max.)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ +70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Certifications** CE

Ordering Information

- **PCI-1720U** 4-ch, 12-bit isolated Universal PCI analog output card
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m
- **ADAM-3937** DB37 Wiring terminal for DIN-rail mounting
- **PCLD-880** Screw terminal board

Pin Assignments

NC	1	20	NC
+12 Vout	2	21	NC
AGND	3	22	NC
AGND	4	23	NC
Vout 0	5	24	NC
AGND	6	25	NC
Isin k 0	7	26	NC
Vout 1	8	27	NC
AGND	9	28	NC
Isin k 1	10	29	NC
Vout 2	11	30	NC
AGND	12	31	NC
Isin k 2	13	32	NC
Vout 3	14	33	NC
AGND	15	34	NC
Isin k 3	16	35	NC
NC	17	36	NC
NC	18	37	NC
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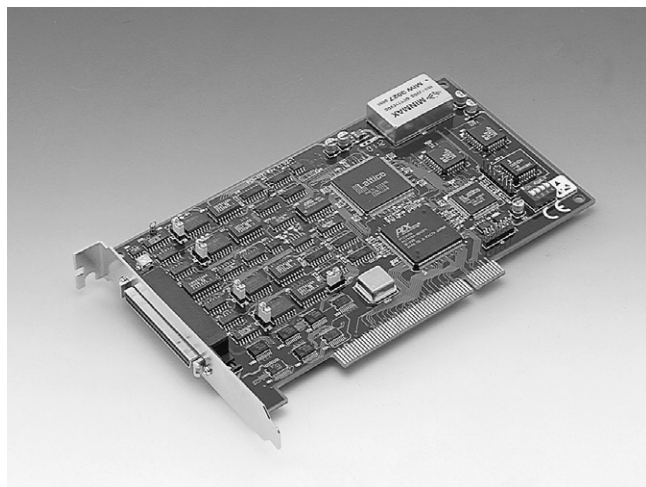
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PCI-1721

12-bit, 4-ch Advanced Analog Output Card



RoHS
Compliant
FCC CE

Features

- 10 MHz maximum digital update rate
- PCI-bus mastering for data transfer
- Auto calibration function
- Four analog output channels with 1024 samples FIFO buffer
- A 12-bit DAC is equipped for each of analog output channels
- Real-time waveform output function with internal/external pacer
- Synchronized output function
- Flexible output types and range settings
- Keeps the output settings and values after system hot reset
- 16-ch DI/O and one 10 MHz 16-bit resolution counter
- BoardID™ switch

Introduction

PCI-1721 is an advanced high-speed analog output card for the PCI bus, and each of analog output channels are equipped with a 12-bit, double-buffered DAC. It features many powerful and unique functions, like a waveform output function with 10 MHz maximum update rate, auto-calibration and a BoardID switch. PCI-1721 is an ideal solution for industrial applications where high-speed continuous analog output or real-time waveform output functions are required.

Specifications

Analog Output

- **Channels** 4
- **Resolution** 12 bits
- **FIFO Size** 1024 samples
- **Output Rate** 10 MHz or static update
- **Reference Clock** Internal: 10 MHz
External Clock Frequency: 10 MHz max.
External Voltage Range: 0.8 V max., 2 V min.
- **Output Range** (Software programmable)

Internal Reference	Unipolar	0 ~ 5 V, 0 ~ 10 V,
	Bipolar	±5 V, ±10 V
	Current Loop	0 ~ 20 mA, 4 ~ 20 mA
External Reference		0 ~ +x V @ +x V (-10 ≤ x ≤ 10) -x ~ +x V @ +x V (-10 ≤ x ≤ 10)

- **Slew Rate** 10 V/μs
- **Driving Capability** ±10 mA
- **Output Impedance** 0.1 Ω max.
- **Operation Modes** Single/Continuous/Waveform/Synchronized output
- **Accuracy** Relative: ±1 LSB
Differential Non-Linearity: ±1 LSB (monotonic)
- **Current Loop Excitation** +15 V (external)
- **Voltage**

Digital Input/Output

- **Channels** 16 (shared by input/output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Output Capability** Sink: 0.5 V @ 24 mA
Source: 2.0 V @ -15 mA

Counter/Timer

- **Channels** 1
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 10 MHz
- **Reference Clock** Internal: 10 MHz
External Clock Frequency: 10 MHz max.
External Voltage Range: 0.8 V max, 2.0 V min.

General

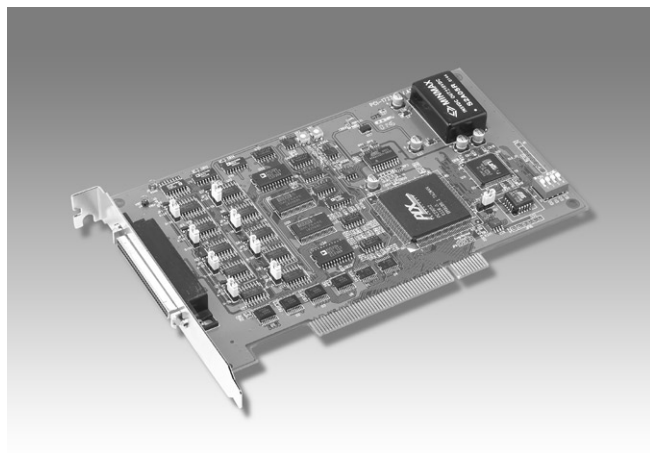
- **Bus Type** PCI V2.2
- **I/O Connectors** 1 x 68-pin SCSI-II female
- **Dimensions** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA, +12 V @ 600 mA
Max: +5 V @ 1 A, +12 V @ 700 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 185° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Certifications** CE

Ordering Information

- **PCI-1721** 4-ch, 12-bit advanced PCI analog output card
- **PCL-10168-1** SCSI-68 shielded cable, 1 m
- **PCL-10168-2** SCSI-68 shielded cable, 2 m
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount

PCI-1723

16-bit, 8-ch Non-isolated Analog Output Card



Features

- Auto calibration function
- A 16-bit DAC is equipped for each analog output channel
- Synchronized output function
- Output values retained after system hot reset
- 2-port (16-channel) user-defined digital input/output
- BoardID™ switch

Introduction

PCI-1723 is a non-isolated multiple channel analog output card for the PCI bus, and each analog output channel is equipped with a 16-bit, double-buffered DAC. It also features an auto-calibration function and a BoardID™ switch. The PCI-1723 is an ideal solution for industrial applications where multiple analog output channels are required.

Specifications

Analog Output

- **Channels** 8
- **Resolution** 16 bits
- **Output Rate** Static update
- **Output Range** (Software programmable)

Internal Reference	Bipolar (V)	±10
	Current Loop (mA)	0 ~ 20, 4 ~ 20

- **Driving Capability** 5 mA
- **Output Impedance** 0.1 Ω max.
- **Operation Modes** Software polling, Synchronized output
- **Accuracy** Relative ± 6 LSB
Differential Non-linearity ± 6 LSB (monotonic)

Digital Input/Output

- **Channels** 16 (shared by input/output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Output Capability** Sink: 0.5 V @ 24 mA
Source: 2.0 V @ -15 mA

General

- **Bus Type** PCI V2.2
- **I/O Connectors** 1 x 68-pin SCSI-II female
- **Dimensions** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 850 mA, +12 V @ 600 mA
Max.: +5 V @ 1 A, +12 V @ 700 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 158° F) (IEC 68-2-1,2)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 185° F)
- **Storing Humidity** 5 ~ 95 % RH non-condensing (IEC 68-2-3)
- **Certifications** CE

Ordering Information

- **PCI-1723** 16-bit, 8-ch Non-isolated Analog Output Card
- **PCL-10168-1** SCSI-68 shielded cable, 1 m
- **PCL-10168-2** SCSI-68 shielded cable, 2 m
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount

Pin Assignments

NC	68	34	NC
Vout0	67	33	Vout1
AGND	66	32	AGND
Iout0	65	31	Iout1
NC	64	30	NC
AGND	63	29	AGND
Vout2	62	28	Vout3
AGND	61	27	AGND
Iout2	60	26	Iout3
NC	59	25	NC
AGND	58	24	AGND
Vout4	57	23	Vout5
AGND	56	22	AGND
Iout4	55	21	Iout5
NC	54	20	NC
AGND	53	19	AGND
Vout6	52	18	Vout7
AGND	51	17	AGND
Iout6	50	16	Iout7
NC	49	15	NC
AGND	48	14	AGND
DIO0	47	13	DIO1
DIO2	46	12	DIO3
DIO4	45	11	DIO5
DIO6	44	10	DIO7
DIO8	43	9	DIO9
DIO10	42	8	DIO11
DIO12	41	7	DIO13
DIO14	40	6	DIO15
DGND	39	5	DGND
NC	38	4	NC
NC	37	3	NC
NC	36	2	NC
+12V	35	1	+5V

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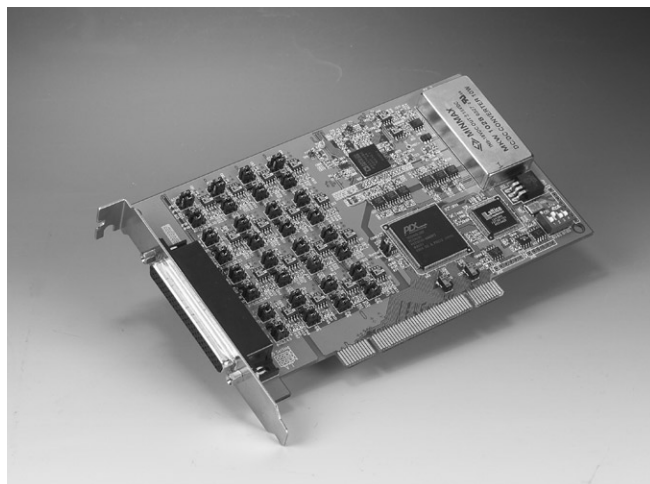
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PCI-1724U

14-bit, 32-ch Isolated Analog Output Card



FCC CE

Features

- 32 high-density analog output channels
- Flexible Output Range: +/-10 V, 0 ~ 20 mA and 4 ~ 20 mA
- Synchronized output function
- Keeps output values after system hot reset
- BoardID™ switch

Introduction

PCI-1724U is an isolated high-density multiple channel analog output card for the PCI bus, where each analog output channel is equipped with a 14-bit DAC. It features optional voltages, current output and a BoardID™ switch. PCI-1724U is an ideal solution for industrial applications where multiple analog output channels are required.

Specifications

Analog Output

- **Channels** 32 isolated
- **Resolution** 14 bits
- **Output Rate** Static update
- **Output Range** (Software programmable)

Internal Reference	Bipolar (V)	±10
	Current Loop (mA)	0 ~ 20, 4 ~ 20

- **Isolation Protection** 1,500 V_{DC} system isolation
- **Output Impedance** 0.1 Ω max.
- **Operation Modes** Software polling, synchronized output
- **Accuracy** Relative +/- 4 LSB
Differential Non-linearity +/- 2 LSB (monotonic)
- **Driving Capacity** +/- 10 mA

General

- **Bus Type** Universal PCI V2.2
- **I/O Connectors** 1 x 62-pin D-type
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** +5 V @ 400 mA, +12 V @ 270 mA max.
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95 % RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1724U** 14-bit, 32-ch isolated analog output Card
- **PCI-10162** DB62 cable assembly (1 m, 3 m)
- **ADAM-3962** DB62 cable wiring terminal for DIN-rail mounting

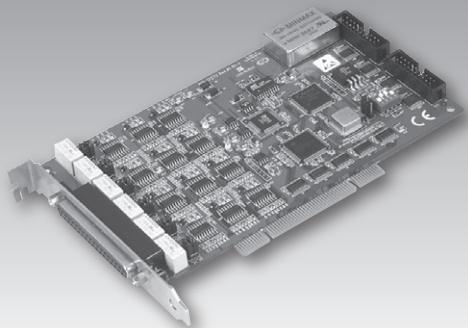
Pin Assignments

AGND			22		
AO8	AGND	1	23	43	AGND
AGND	AO0	2	24	44	AO16
AO9	AGND	3	25	45	AGND
AGND	AO1	4	26	46	AO17
AO10	AGND	5	27	47	AGND
AGND	AO2	6	28	48	AO18
AO11	AGND	7	29	49	AGND
AGND	AO3	8	30	50	AO19
AO12	AGND	9	31	51	AGND
AGND	AO4	10	32	52	AO20
AO13	AGND	11	33	53	AGND
AGND	AO5	12	34	54	AO21
AO14	AGND	13	35	55	AGND
AGND	AO6	14	36	56	AO22
AO15	AGND	15	37	57	AGND
AGND	AO7	16	38	58	AO23
AGND	AO24	17	39	59	AO28
AGND	AO25	18	40	60	AO29
AGND	AO26	19	41	61	AO30
NC	AO27	20	42	62	AO31
	NC	21			

PCI-1727U

14-bit, 12-ch Analog Output PCI Card with Digital I/O

NEW



Features

- 12 independent analog output channels
- Fuse on each channel
- Universal PCI for 5 V and 3.3 V support
- BoardID™ switch
- Synchronized output function
- Supports PCL-727 compatible mode

Introduction

PCI-1727U provides twelve 14-bit analog output channels, and is pin-compatible with the ISA PCL-727 card for easy migration. It supports both +/-10V and 0 ~ 20mA current loop (sink). The card's on board DC-to-DC converter ensures the full 10V D/A output is always available.

Each analog output channel has a built-in fuse to protect the circuit, PC and the external devices. PCI-1727U is an ideal, economical solution for the applications which require multiple PID control loops.

In addition to its analog outputs, PCI-1727U provides 16 TTL DI and 16 TTL DO channels that are easily applied with industrial on/off control applications.

Specifications

Analog Output

- **Channels** PCI-1727U: 12
PCL-727: 12
- **Resolution** PCI-1727U: 14 bits
PCL-727: 12 bits
- **Output Rate** Static output
- **Output Range** (Software programmable)

Internal Reference	Bipolar (V)	±10
	Current Loop (mA)	0 ~ 20

- **Slew Rate** 0.7 V/μs
- **Driving Capability** 15 mA
- **Operation Modes** Software polling, synchronized output
- **Current Loop Excitation Voltage** 8 ~ 36 V

Digital Input

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max
Logic 1: 2.0 V min.
- **Input loading** 0.5 V @ 0.4 mA max. (low)
2.7 V @ 50 μA max (high)

Digital Output

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.5 V, Logic 1: 2.4 V
- **Output Capability** Sink: 0.8 mA @ 0.5 V
Source: 0.4 mA @ 2.4 V

General

- **Bus Type** PCI-1727U: Universal PCI V2.2
PCL-727: ISA
- **I/O Connectors** 1 x 37-pin D-type female
2 x 20-pin male ribbon cable connectors
- **Power Consumption** PCI-1727U
+5 V @ 460 mA typical, 500 mA max
+12 V @ 150 mA typical, 100 mA max
PCL-727
+5 V @ 500 mA typical, 1A max
+12 V @ 50 mA typical, 110 mA max
-12 V @ 14 mA typical, 90 mA max
Dimensions PCI-1720U: 175 x 100 mm (6.9" x 3.9")
PCL-727: 340 x 100 mm (13.4" x 3.9")
Operating Temperature 0 ~ 50° C (32 ~ 122° F)
Storing Temperature PCI-1727U: -20 ~ 65° C (-4 ~ 149° F)
PCL-727: 0 ~ 65° C (32 ~ 149° F)
Storing Humidity 5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1727U** 12-ch, 14-bit Universal PCI analog output card
- **PCL-10120-1** 20-pin flat cable, 1 m
- **PCL-10137-1** DB37 cable assembly, 1 m
- **ADAM-3937** DB37 wiring terminal for DIN-rail mounting
- **PCLD-780** Two 20-pin screw terminal board
- **PCLD-782** Opto-isolated D/I board
- **PCLD-785** Relay output board

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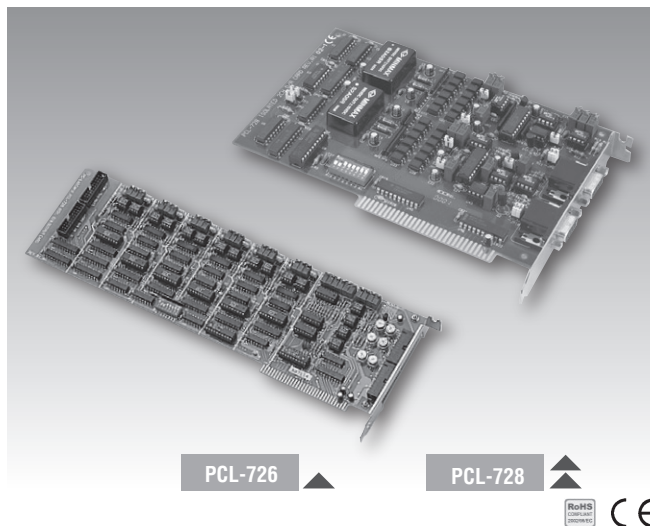
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PCL-726 PCL-728

6-ch Analog Output Card with Digital I/O

2-ch Isolated Analog Output Card



Features

- Independent analog output channels
- 12-bit resolution double-buffered D/A converter
- Multiple voltage ranges: ± 10 V, ± 5 V, $0 \sim +5$ V, $0 \sim +10$ V and $4 \sim 20$ mA current loop (sink)
- 16 digital input and 16 digital output channels (PCL-726)
- Two DB9 connectors for easy wiring (PCL-728)

Introduction

PCL-726, and PCL-728 are analog output cards with 12-bit analog output channels. You can individually configure each channel to any of the following ranges: 0 to $+5$ V, 0 to $+10$ V, ± 5 V, ± 10 V and 4 to 20 mA current loop (sink). Designed for use in industrial environments, these cards are ideal, economical solutions for applications that require multiple analog outputs or current loops.

Specifications

Analog Output

- **Channels** 6
- **Resolution** 12 bits, double buffered
- **Output Rate** Static update
- **Reference Clock** Internal:
External Clock Frequency:
External Voltage Range:
- **Output Range** (Software programmable)

Internal Reference	Bipolar (V)	± 5 , ± 10
	Unipolar (V)	$0 \sim 5$, $0 \sim 10$
	Current Loop (mA)	$4 \sim 20$

- **Slew Rate** 0.3 V/ μ s
- **Driving Capability** ± 5 mA max.
- **Output Impedance** 0.1Ω
- **Operation Modes** Software polling
- **Accuracy** Relative: $\pm 0.012\%$ full scale range
Differential Linearity: $\pm 1/2$ bit
- **Current Loop Excitation Voltage** Minimum $+8$ V, maximum $+36$ V for $4 \sim 20$ Voltage mA current loop

Digital Input (PCL-726)

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output (PCL-726)

- **Channels** 16
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.5 V, Logic 1: 2.4 V
- **Output Capability** Sink: 0.5 V @ 0.4 mA max.
Source: 2.7 V @ 50 mA max.

General

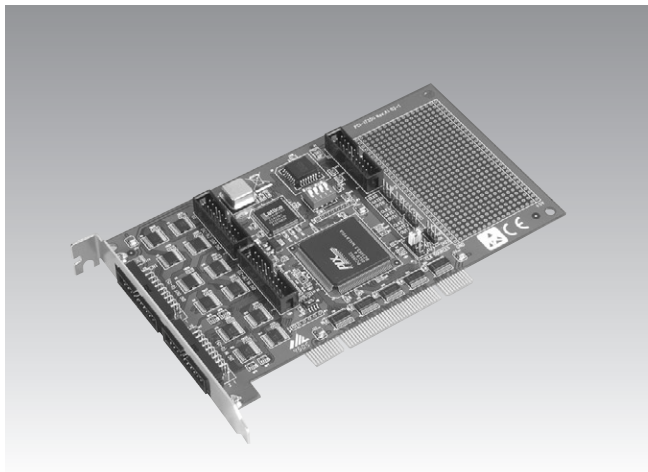
- **Bus Type** ISA
- **I/O Connectors** 4×20 -pin male ribbon cable connectors
PCL-728: $2 \times$ DB9 connectors
- **Dimensions (L x H)**
PCL-726: 340×100 mm ($13.4" \times 3.9"$)
PCL-728: 184×119 mm ($7.25" \times 4.7"$)
- **Power Consumption**
PCL-726: $+5$ V @ 500 mA typical, 1 A max.
 $+12$ V @ 80 mA typical, 110 mA max.
 -12 V @ 60 mA typical, 90 mA max.
 $+5$ V @ 800 mA max.
PCL-728: $0 \sim 50^\circ$ C ($32 \sim 122^\circ$ F)
- **Operating Temperature** $0 \sim 50^\circ$ C ($32 \sim 122^\circ$ F)
- **Storing Temperature** $0 \sim 65^\circ$ C ($32 \sim 149^\circ$ F)
- **Operating Humidity** $5 \sim 95\%$ RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCL-726** 6-ch analog output card with digital I/O, user manual and driver CD-ROM (cable not included)
- **PCL-728** Isolated 2-ch analog output card, user manual and driver CD-ROM (cable not included)
- **PCL-10120-1** 20-pin flat cable, 1 m
- **PCL-10120-2** 20-pin flat cable, 2 m
- **PCLD-780** Screw terminal board
- **PCLD-782** Opto-Isolated D/I board (16-ch)
- **PCLD-785** Relay output board (16-ch)
- **PCLD-880** Universal screw terminal board
- **ADAM-3909** DB9 wiring terminal for DIN-rail mounting
- **ADAM-3920** 20-pin wiring terminal for DIN-rail mounting

PCI-1735U

64-ch Digital I/O and Counter PCI Card



Features

- 32 TTL-level digital input channels
- 32 TTL-level digital output channels
- High-output driving capacity
- Low-input loading
- 3 programmable counter/timer channels
- User configurable clock source
- Breadboard area for custom circuits

Introduction

The PCL-720+ and PCI-1735U digital I/O and counter cards are PC-compatible add-on cards with 32 digital input channels, 32 digital output channels and three programmable counter/timer channels. Their digital I/O channels are TTL-compatible and use 74LS244 driver/buffer circuits to provide high output driving capacity. These buffered circuits also require lower input loading current than regular TTL circuits. The cards' 8254 programmable counter/timer provides three flexible 16-bit counter/timer channels. You can generate waves and pulses by programming the 8254. Jumper settings determine the clock crystal frequency. The cards also includes a breadboard area perfect for customized circuits.

Specifications

Digital Input

- **Channels** 32
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output

- **Channels** 32
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.5 V max.
Logic 1: 2.0 V min.
- **Output Capability** Sink: 0.5 V max @ 24 mA
Source: 2.0 V min. @ 15 mA

Counter/Timer

- **Channels** 3
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 1 MHz
- **Reference Clock**
Internal: Selectable 1 MHz, 100 kHz, or 10 kHz base clock
External Clock Frequency: Jumper selectable divider: x2, x1, x0.5, and x0.25
- **Programmable Counter Modes** 6

General

- **Breadboard Area** 540 (30 x 18) plated-through "donuts", each with a .036" hole on 0.10" centers. Further, provide +5 V on the left side, and provide GND on the right side
- **Bus Type** PCI-1735U: Universal PCI V2.2
PCL-720+: ISA
- **I/O Connectors** 5 x 20-pin male ribbon-cable connectors
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Max: +5 V @ 98.8 mA
- **Operating Temperature** 0 ~ 65° C (32 ~ 149° F)
- **Storing Temperature** -25 ~ 80° C (-13 ~ 176° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1735U** 64-ch TTL Digital I/O Card w/Counter
- **PCL-10120-1** IDC-20 Flat Cable, 1 m
- **PCL-10120-2** IDC-20 Flat Cable, 2 m
- **PCLD-780** 2*IDC-20 Wiring Terminal
- **PCLD-782** Opto-Isolated D/I Board
- **PCLD-785** 16-ch Relay Output Terminal
- **PCLD-786** SSR and Relay Driver Board
- **PCLD-885** 16-ch Power Relay Output Terminal
- **ADAM-3920** 20-Pin Flat Cable Terminal, DIN-rail Mount

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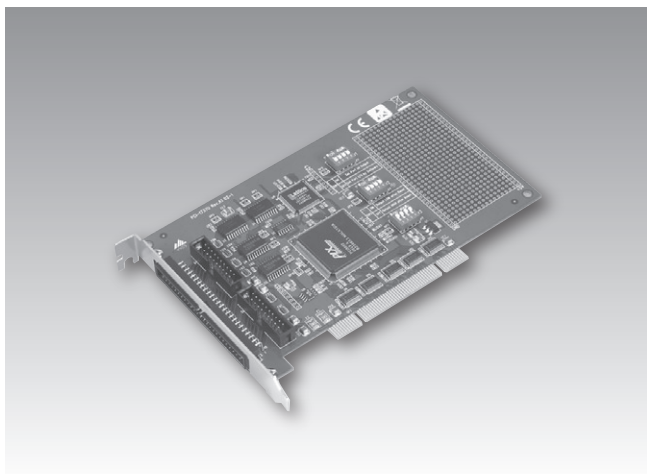
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PCI-1737U

24-ch Digital I/O Card



Features

- 24 TTL digital I/O channels
- Emulates mode 0 of 8255 PPI
- Interrupt handling
- Opto-22 compatible 50-pin connectors
- Output status readback
- PCI universal card

Specifications

Digital Input

- **Channels** 24 (shared with output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Interrupt Capable Ch.** 1

Digital Output

- **Channels** 24 (shared with input)
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 0.4 V max. @ 24 mA
Source: 2.4 V min. @ 15 mA

General

- **Bus Type** PCI-1737: Universal PCI V2.2
PCL-724: ISA
- **I/O Connectors** 50-pin male ribbon-cable connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Max: +5 V @ 294.9 mA
- **Operating Temperature** 0 ~ 65° C (32 ~ 149° F)
- **Storing Temperature** -25 ~ 80° C (-13 ~ 176° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

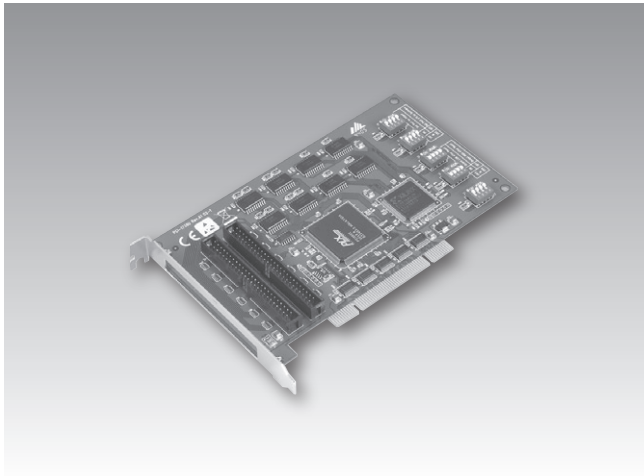
- **PCI-1737U** 24-ch TTL Digital I/O Card
- **PCL-10150-1.2** IDC-50 Flat Cable, 1.2 m
- **PCLD-782B** 16/24-ch Opto-isolated DI Board
- **PCLD-785B** 24/16-ch. relay output board
- **PCLD-7216** 16-ch SSR Carrier Module Board
- **PCLD-885** 16-ch Power Relay Output Terminal
- **ADAM-3950** 50-Pin Flat Cable Terminal, DIN-rail Mount

Pin Assignments

PC 7	1	2	GND
PC 6	3	4	GND
PC 5	5	6	GND
PC 4	7	8	GND
PC 3	9	10	GND
PC 2	11	12	GND
PC 1	13	14	GND
PC 0	15	16	GND
PB 7	17	18	GND
PB 6	19	20	GND
PB 5	21	22	GND
PB 4	23	24	GND
PB 3	25	26	GND
PB 2	27	28	GND
PB 1	29	30	GND
PB 0	31	32	GND
PA 7	33	34	GND
PA 6	35	36	GND
PA 5	37	38	GND
PA 4	39	40	GND
PA 3	41	42	GND
PA 2	43	44	GND
PA 1	45	46	GND
PA 0	47	48	GND
+5 V	49	50	GND

PCI-1739U

48-ch Digital I/O PCI Card



Specifications

Digital Input

- **Channels** 48 (shared with output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Interrupt Capable Ch.** 2

Digital Output

- **Channels** 48 (shared with input)
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 0.4 V max. @ 24 mA
Source: 2.4 V min. @ 15 mA

General

- **Bus Type** PCI V2.2
- **I/O Connectors** 2 x 50-pin male ribbon-cable connectors
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Max: +5 V @ 540.8 mA
- **Operating Temperature** 0 ~ 65° C (32 ~ 149° F)
- **Storing Temperature** -25 ~ 80° C (-13 ~ 176° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Features

- 48 TTL digital I/O channels
- Emulates mode 0 of 8255 PPI
- Interrupt handling
- Opto-22 compatible 50-pin connectors
- Output status readback
- PCI universal card

Ordering Information

- **PCI-1739U** 48-ch TTL Digital I/O Card
- **PCL-10150-1.2** IDC-50 Flat Cable, 1.2 m
- **PCLD-782B** 16/24-ch Opto-isolated DI Board
- **PCLD-785B** 16/24-ch Relay Output Terminal
- **PCLD-7216** 16/24-ch Relay Output Terminal
- **PCLD-885** 16-ch Power Relay Output Terminal
- **ADAM-3950** 50-Pin Flat Cable Terminal, DIN-rail Mount

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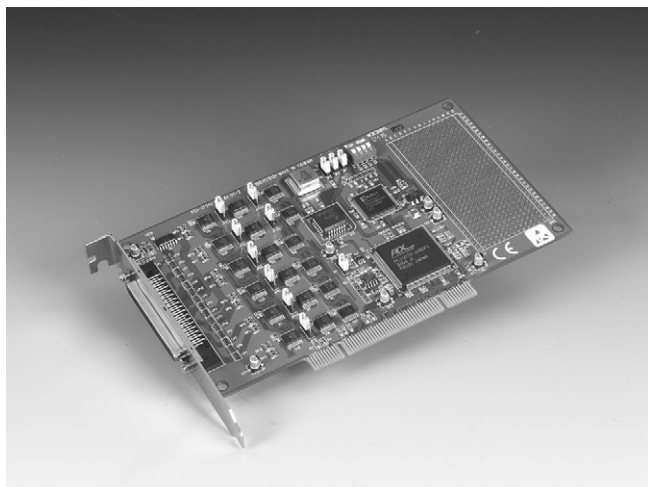
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PCI-1751

48-bit Digital I/O and Counter Card



Features

- 48 TTL digital I/O lines
- Emulates mode 0 of 8255 PPI
- Buffered circuits for higher driving capacity than 8255
- Interrupt handling
- Timer/Counter interrupt capability
- Supports both dry and wet contact
- Keeps the I/O port setting and DO state after system reset
- Universal PCI & BoardID switch

Introduction

PCI-1751U is a 48-bit digital I/O card for the PCI bus. Its 48 bits are divided into six 8-bit I/O ports and users can configure each port as input or output via software. PCI-1751 also provides one event counter and two 16-bit timers, which can be cascaded to become a 32-bit timer. PCI-1751 adds a universal PCI interface for 3.3 V compatibility.

Specifications

Digital Input

- **Channels** 48 (shared with output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2 V min.
- **Interrupt Capable Ch.** 2

Digital Output

- **Channels** 48 (shared with input)
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 0.4 V @ 24 mA
Source: 2.4 V @ 15 mA

Counter/Timer

- **Channels** 3
- **Resolution** 2 x 16-bit counters, or 1 x 32-bit counter
(Jumper selectable)
1 x 16-bit event counter
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 10 MHz
- **Reference Clock** Internal: 10 MHz
External Clock Frequency: 10 MHz
External Voltage Range: 5 V/TTL

General

- **Bus Type** Universal PCI V2.2
- **I/O Connectors** 68-pin SCSI-II female connector (Centronics type)
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA
Max: 5 V @ 1.0 A
- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)
- **Storing Temperature** -20 ~ 80° C (-4 ~ 176° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

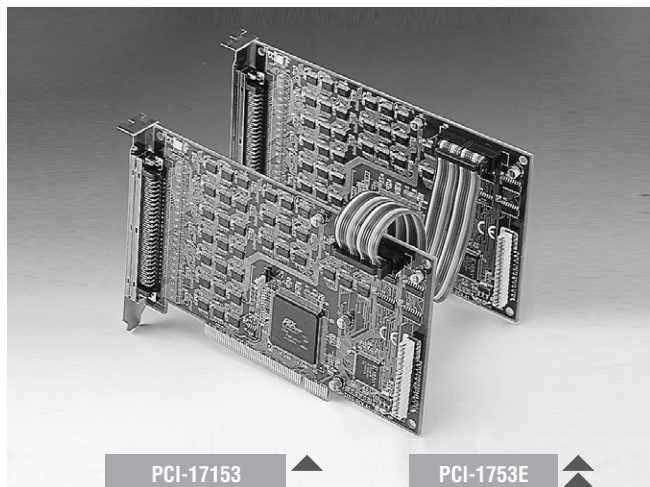
Ordering Information

- **PCI-1751** 48-bit universal digital I/O card and Counter Card,
- **PCL-10168** 68-pin SCSI cable, 1 and 2 m
- **ADAM-3968** 68-pin SCSI cable wiring terminal for DIN-rail mounting
- **ADAM-3968/20** 68-pin SCSI-II to three 20-pin Wiring Terminal Module for DIN-Rail Mounting
- **ADAM-3968/50** 68-pin SCSI to 2 x 50-pin box headers converter module
- **PCLD-8751** 48-ch Isolated DI Board
- **PCLD-8761** 24-ch Replay and 24-IDI Board

PCI-1753 PCI-1753E

96-ch Digital I/O Card

96-ch Digital I/O Extension Card for PCI-1753



Features

- Up to 192 (96 + 96) TTL digital I/O lines
- Emulates mode 0 of 8255 PPI
- Buffered circuits for higher driving capacity than 8255
- Multiple-source interrupt handling
- Interrupt output pin for simultaneously triggering external devices with the interrupt
- Output status read-back
- "Pattern match" and "Change of state" interrupt functions for critical I/O monitoring
- Keeps I/O setting and digital output values when hot system reset
- Supports dry contact and wet contact
- High-density 100-pin SCSI connector

Introduction

PCI-1753 is a 96-bit digital I/O card for the PCI bus, which can be extended to 192 digital I/O channels by connecting its extension board - PCI-1753E. The card emulates mode 0 of the 8255 PPI chip, but the buffered circuits offer a higher driving capability than the 8255. The 96 I/O lines are divided into twelve 8-bit I/O ports: A0, B0, C0, A1, B1, C1, A2, B2, C2, A3, B3 and C3. You can configure each port as input or output via software.

Specifications

Digital Input/Output

- I/O Channels** 96 digital I/O lines for PCI-1753
192 digital I/O lines if extending with PCI-1753E
- Programming Mode** 8255 PPI mode 0
- Compatibility** 5 V/TTL
- Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- Output Voltage** Logic 0: 0.44 V max.
Logic 1: 3.76 V min.
- Output Capability** Sink: 0.44 V max. @ 24 mA
Source: 3.76 V min. @ 24 mA

General

- Bus Type** PCI V2.2
- I/O Connector** 1 x 100-pin SCSI female connector (Centronics™)
- Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- Power Consumption** Typical: +5 V @ 400 mA
Max: +5 V @ 2.7 A
- Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- Storing Temperature** -20 ~ 70° C (-4 ~ 158° F) (refer to IEC 68-2-3)
- Storing Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- PCI-1753** 96 ch. Digital I/O Card, user's manual and driver CD-ROM. (cable not included)
- PCI-1753E** Extension Board for PCI-1753
- PCL-10268** 100-pin to 2x68-pin SCSI cable, 1 and 2m
- ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount
- ADAM-3968/20** 68-pin SCSI-II to Three 20-pin Wiring Terminal Module for DIN-Rail Mounting
- ADAM-3968/50** 68-pin SCSI wiring terminal for DIN-rail mounting
- PCLD-8751** 48-ch Isolated DI Board
- PCLD-8761** 24-ch Relay and 24-IDI Board

Pin Assignments

PA00	1	51	PA20	
PA01	2	52	PA21	
PA02	3	53	PA22	
PA03	4	54	PA23	
PA04	5	55	PA24	
PA05	6	56	PA25	
PA06	7	57	PA26	
PA07	8	58	PA27	
PB00	9	59	PB20	
PB01	10	60	PB21	
PB02	11	61	PB22	
PB03	12	62	PB23	
PB04	13	63	PB24	
PB05	14	64	PB25	
PB06	15	65	PB26	
PB07	16	66	PB27	
PC00	17	67	PC20	
PC01	18	68	PC21	
PC02	19	69	PC22	
PC03	20	70	PC23	
PC04	21	71	PC24	
PC05	22	72	PC25	
PC06	23	73	PC26	
PC07	24	74	PC27	
GND	25	75	GND	
PA10	26	76	PA30	
PA11	27	77	PA31	
PA12	28	78	PA32	
PA13	29	79	PA33	
PA14	30	80	PA34	
PA15	31	81	PA35	
PA16	32	82	PA36	
PA17	33	83	PA37	
PB10	34	84	PB30	
PB11	35	85	PB31	
PB12	36	86	PB32	
PB13	37	87	PB33	
PB14	38	88	PB34	
PB15	39	89	PB35	
PB16	40	90	PB36	
PB17	41	91	PB37	
PC10	42	92	PC30	
PC11	43	93	PC31	
PC12	44	94	PC32	
PC13	45	95	PC33	
PC14	46	96	PC34	
PC15	47	97	PC35	
PC16	48	98	PC36	
PC17	49	99	PC37	
VCC	50	100	VCC	

PA00 ~PA07: I/O pins of Port A0
PA10 ~PA17: I/O pins of Port A1
PA20 ~PA27: I/O pins of Port A2
PA30 ~PA37: I/O pins of Port A3
PB00 ~PB07: I/O pins of Port B0
PB10 ~PB17: I/O pins of Port B1
PB20 ~PB27: I/O pins of Port B2
PB30 ~PB37: I/O pins of Port B3
PC00 ~PC07: I/O pins of Port C0
PC10 ~PC17: I/O pins of Port C1
PC20 ~PC27: I/O pins of Port C2
PC30 ~PC37: I/O pins of Port C3
GND: Ground
VCC: +5V voltage output

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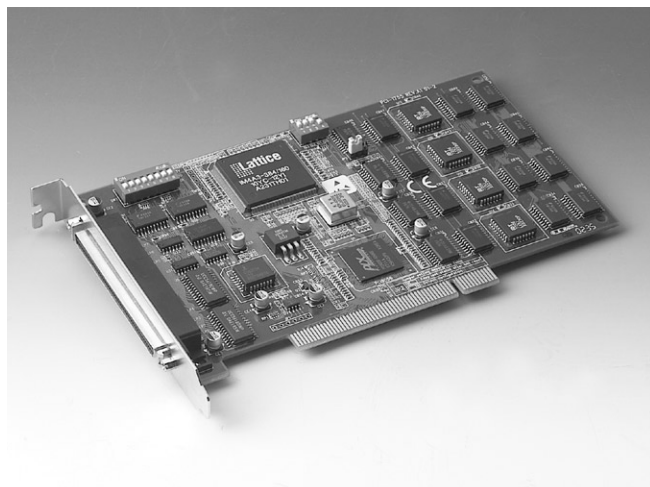
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PCI-1755

Ultra-Speed 32-ch Digital I/O Card



FCC CE

Features

- Bus-mastering DMA data transfer with scatter gather technology
- 32/16/8-bit Pattern I/O with start and stop trigger function, 2 modes Handshaking I/O Interrupt handling capability
- Onboard active terminators for high speed and long distance transfer
- Pattern match and Change state detection interrupt function
- General-purpose 8-ch DI/O

Introduction

The PCI-1755 supports PCI-bus mastering DMA for high-speed data transfer. By setting aside a block of memory in the PC, the PCI-1755 performs bus-mastering data transfers without CPU intervention, setting the CPU free to perform other more urgent tasks such as data analysis and graphic manipulation. The function allows users to run all I/O unctons simultaneously at full speed without losing data.

Specifications

Channels	32 TTL compatible		
Number of Ports	Port A, Port B, Port C and Port D (8 bits/port)		
I/O Configuration	32DI (PA-PD) (default); 32DO (PA-PD); 16DI (PA-PB) & 16DO (PC-PD); 8DI (PA) & 8DO (PC) (Programmable)		
Onboard FIFO	16 KB for DI & 16 KB DO channels		
Transfer Characteristics	Data Transfer Mode	Bus Mastering DMA with Scatter-Gather	
	Data Transfer Bus Width	8/16/32 bits (programmable)	
	Max. Transfer Rate	DI: 80 M bytes/sec, 32-bit @ 20 MHz 120 M bytes/sec, 32-bit @ 40 MHz external pacer when data length is less than FIFO size DO: 80 MBytes/sec, 32-bit @ 20 MHz	
	Operation Mode	Handshaking	
Handshaking Mode	Direction	I/O	Samples No. Finite transfer, Continuous I/O
	Asynchronous	8255 Emulation	Synchronous Burst Handshaking
Normal Mode	Clock source for Burst Handshaking	Internal: 30 MHz, 20 MHz, 15 MHz, 12 MHz, 10 MHz, Timer#0 for DI & Timer#1 for DO External: EXT_CLKIN for DI & EXT_CLKOUT for DO	
	Input	Data Acquisition at a predetermined rate by internal/external clock	
	Output	Waveform Generation at a predetermined rate by internal/external clock	
	Clock Source for DI	Internal: 30 MHz, 20 MHz, 15 MHz, 12 MHz, 10 MHz, Timer#0 External: EXT_CLKIN	
	Clock Source for DO	Internal: 30 MHz, 20 MHz, 15 MHz, 12 MHz, 10 MHz, Timer#1 External: EXT_CLKOUT	
	Start Mode	Software command/Trigger signal occurred from DI_STR or DO_STR/Pattern DI	
Stop Mode	Software command/Trigger signal occurred from DI_STP (for DI) or DO_STR (for DO)/Pattern DI/Finite transfers"		
Chang Detection (DI only)	Monitor the selected input channel and capture data whenever there is a transition on one of the channels, and then issue a IRQ		
	Clock Source for DI	Internal: 30 MHz, 20 MHz, 15 MHz, 12 MHz, 10 MHz, Timer#0 External: EXT_CLKIN	
	Start Mode	Software command/Trigger signal occurred from DI_STP/Pattern DI	
	Stop Mode	Software command/Trigger signal occurred from DI_STP/Pattern DI/Finite transfers"	
Trigger Capability	DI trigger signal	DI_STR, DI_STP	DO trigger signal DO_STR, DO_STP
	Low	0.8 V max.	High 2.0 V min.
	Trigger Type	Rising or falling edge, or digital pattern (for DI only)	
	Pulse width for edge triggers	10 ns min.	
	Pattern trigger detection capabilities	Detect pattern match or mismatch on user-selected data lines	
Terminator	Onboard Schottky diode termination		
Messaging	The messages can be generated when1. A specified number of bytes have been transferred, 2. When a specified input pattern is matched, 3. When a measurement operation completes.		
Input Voltage	Low	0 V min., 0.8 V max.	High 2.0 V min., 5 V max.

Input Load	Terminator OFF: TTL compatible			
	Low	+0.5 V @ ±20 mA	High	+2.7 V @ ±1 mA max.
	Terminator ON			
	Terminator Resistor	110 Ω	Termination Voltage	2.9 V
	Low	+0.5 V @ ±22.4 mA	High	+2.7 V @ ±1 mA max.
Output Voltage	Low	0.5 V max.	High	2.7 V min.
Driving Capacity	Low	0.5 V max @ +48	mA (sink)	High 2.4 V min. @ -15 mA (source)
Hysteresis	500 mV	Power Available at I/O connector	+4.65 – +5.25 V _{oc} @ 1A	
General-purpose DI/O	DI Channels	DIO – DI7 (TTL compatible)		
	DO Channels	D00 – DO7 (TTL compatible)		
Interrupt Source	DIO-7 and Timer#2, Pattern match and Change detection, DI FIFO overflow and DO FIFO underflow, DI_STP and DO_STP			

Pacer

- Channels** Timer#0, Timer#1 and Timer#2
- Timer#0** Timer pacer for digital input
- Timer#1** Timer pacer for digital output
- Timer#2** Interrupt source
- Resolution** 16-bit
- Base Clock** 10 MHz

General

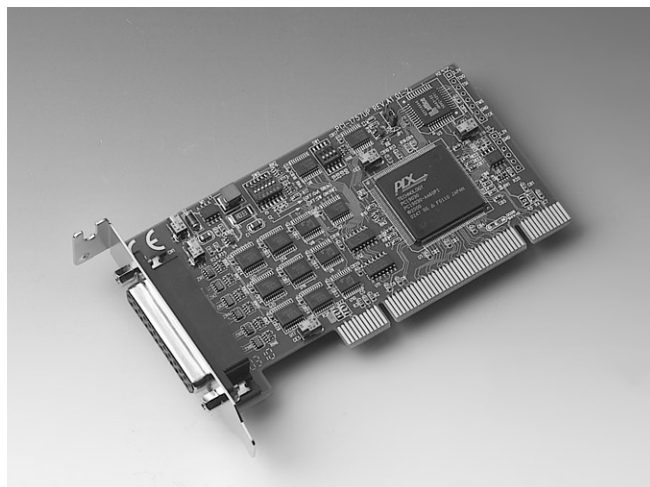
I/O Connector Type	100-pin SCSI-II female		
Dimensions (L x H)	175 x 100 mm (6.9" x 3.9")		
Power Consumption	Typical	Terminator OFF: +5 V @ 1 A Terminator ON: +5 V @ 1 A	Max. Terminator OFF: +5 V @ 1 A Terminator ON: +5 V @ 1 A
	Operating	0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1,2)	Storage -20 ~ 85° C (-4 ~ 185° F)
Relative Humidity	5 ~ 95% RH non-condensing (refer to IEC 68-2-3)		Cert. FCC, CE certified

Ordering Information

- PCI-1755** Ultra-speed 32-ch Digital I/O Card
- ADAM-39100** PCI-1755 Wiring Terminal for DIN-rail Mounting
- PCL-101100-1** 100-pin SCSI-II cable with male connectors on both ends and special shielding for noise reduction, 1 m

PCI-1757UP

24-ch Digital Input/Output Low Profile Universal PCI Card



Features

- Low profile PCI form factor
- Universal PCI bus
- 24 TTL level digital I/O channels
- Emulates mode 0 of 8255 PPI
- Buffered circuits provide higher driving capability
- Output status read-back
- I/O configurable by software or on board DIP switch
- Keeps port I/O settings and digital output states after hot reset
- BoardID™ switch
- Convenient DB-25 connector
- Dry/wet contact support

Introduction

PCI-1757UP is a 24-channel DI/O low profile PCI card that meets the PCI standard REV.2.2 (universal PCI expansion card). The card also works with 3.3 V and 5 V PCI slots, and provides you with 24 parallel digital input/output channels that emulate mode 0 of the 8255 PPI chip. However, the buffered circuits offer a higher driving capability than the 8255.

Specifications

Digital Input

- **Channels** 24 (shared with output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V @ -0.2 mA
Logic 1: 2.0 V @ 20 mA
- **Interrupt Capable Ch.** 2

Digital Output

- **Channels** 24 (shared with input)
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.5 V max. @ -24 mA
Logic 1: 3.7 V max. @ 24 mA
- **Output Capability** Sink: 24 mA
Source: 15 mA

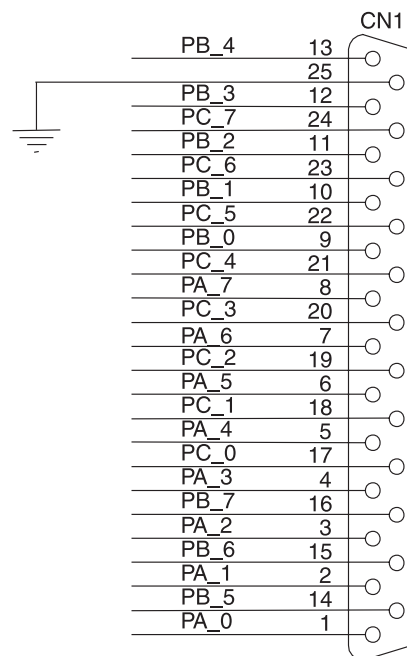
General

- **Bus Type** Universal PCI V2.2
- **I/O Connectors** 1 x DB-25 female
- **Dimensions** 119.91 x 64.41 mm (4.721" x 2.536") Low profile MD1
- **Power Consumption** Typical: 5 V @ 140 mA
Max: 5 V @ 200 mA
- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)
- **Storing Temperature** -20 ~ 80° C (-4 ~ 176° F)
- **Storing Humidity** 5 ~ 95% non-condensing

Ordering Information

- **PCI-1757UP** 24-channel digital input/output card
- **ADAM-3925** DB25 Wiring terminal for DIN-rail mounting
- **PCL-10125-1** DB25 cable assembly, 1 m
- **PCLD-782B** 24/16-ch. opto-isolated digital input board
- **PCLD-785B** 24/16-ch. relay output board
- **PCL-12125-1** DB25 to IDC50 flat cable for PCI-1757UP, 1 m

Pin Assignments



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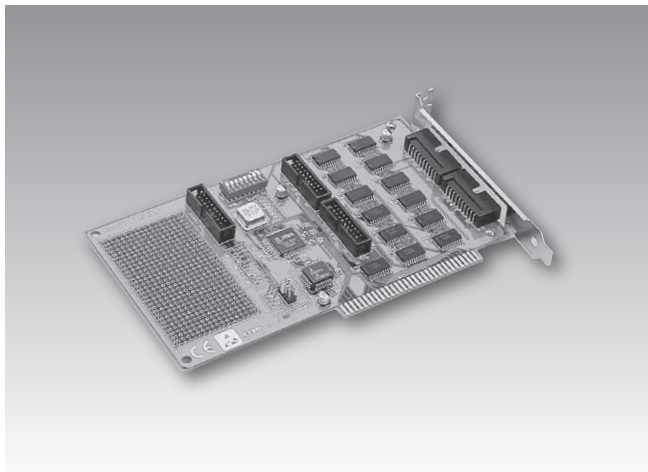
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PCL-720+

64-ch TTL Digital I/O Card w/Counter



Features

- 32 TTL-level digital input channels
- 32 TTL-level digital output channels
- High-output driving capacity
- Low-input loading
- 3 programmable counter/timer channels
- User configurable clock source
- Breadboard area for custom circuits

Introduction

The PCL-720+ digital I/O and counter cards are PC-compatible add-on cards with 32 digital input channels, 32 digital output channels and three programmable counter/timer channels. Their digital I/O channels are TTL-compatible and use 74LS244 driver/ buffer circuits to provide high output driving capacity. These buffered circuits also require lower input loading current than regular TTL circuits. The cards' 8254 programmable counter/timer provides three flexible 16-bit counter/timer channels. You can generate waves and pulses by programming the 8254. Jumper settings determine the clock crystal frequency. The cards also includes a breadboard area perfect for customized circuits.

Specifications

Digital Input

- **Channels** 32
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output

- **Channels** 32
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.5 V max.
Logic 1: 2.0 V min.
- **Output Capability** Sink: 0.5 V max @ 24 mA
Source: 2.0 V min. @ 15 mA

Counter/Timer

- **Channels** 3
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 1 MHz
- **Reference Clock**
Internal: Selectable 1 MHz, 100 kHz, or 10 kHz base clock
External Clock Frequency: Jumper selectable divider: x2, x1, x0.5, and x0.25
- **Programmable Counter Modes** 6

General

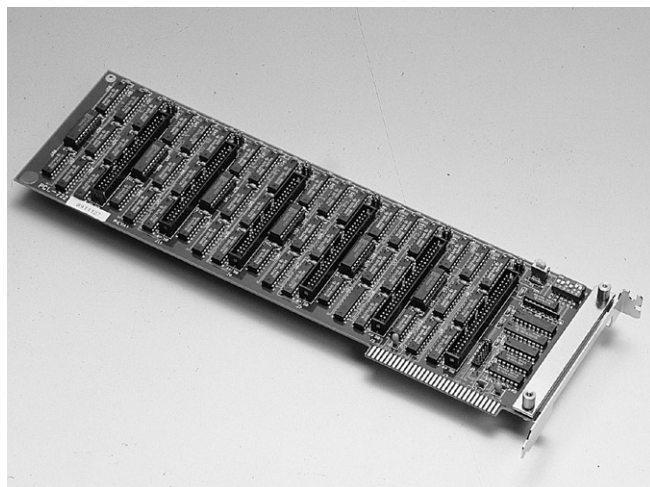
- **Breadboard Area** 540 (30 x 18) plated-through "donuts", each with a .036" hole on 0.10" centers. Further, provide +5 V on the left side, and provide GND on the right side
- **Bus Type** PCI-1735U: Universal PCI V2.2
PCL-720+: ISA
- **I/O Connectors** 5 x 20-pin male ribbon-cable connectors
- **Dimensions (L x H)** 185 x 100 mm (7.3" x 4")
- **Power Consumption** Typical: +5 V @ 500 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCL-720+** 64-ch TTL Digital I/O Card w/Counter
- **PCL-10120-1** IDC-20 Flat Cable, 1 m
- **PCL-10120-2** IDC-20 Flat Cable, 2 m
- **PCLD-780** 2*IDC-20 Wiring Terminal
- **PCLD-782** Opto-Isolated D/I Board
- **PCLD-785** 16-ch Relay Output Terminal
- **PCLD-786** SSR and Relay Driver Board
- **PCLD-885** 16-ch Power Relay Output Terminal
- **ADAM-3920** 20-Pin Flat Cable Terminal, DIN-rail Mount

PCL-722

144-ch TTL Digital I/O ISA Card



Specifications

Digital Input

- **Channels** 144 (24 channels x 6 ports) shared with output
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Interrupt Capable Ch.** Bits 0 and 3 of Port C can generate an interrupt to IRQ 2, 3, 4, 5, 6 or 7

Digital Output

- **Channels** 144 (24 channels x 6 ports) shared with input
- **Compatibility** 5 V/TTL
- **Output Voltage**
Port A, B Logic 0: 0.5 V max.
Logic 1: 2.4 V min.
Port C Logic 0: 0.4 V max.
Logic 1: 2.0 V min.
- **Output Capability**
Port A, B Sink: 12 mA
Source: 8 mA
Port C Sink: 24 mA
Source: 15 mA

General

- **Power Consumption** Typical: +5 V @ 1.3 A
Max: +5 V @ 1.8 A
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Operating Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **I/O Connectors** 6 x 50-pin male ribbon-cable connectors. Pin assignments are fully compatible with Opto-22 I/O module racks
- **Dimensions (L x H)** 334 x 100 mm (13.2" x 3.9")

Features

- Emulates 8255 PPI mode 0
- Buffered circuits for higher driving capacity than the 8255
- Interrupt handling
- Output status readback
- Pin compatible with Opto-22 I/O module racks

Ordering Information

- **PCL-722** 144-ch TTL digital I/O ISA card
- **PCL-10150-1.2** 50-pin flat cable, 1.2 m
- **PCLD-782B** 24/16-ch. opto-isolated digital input board
- **PCLD-785B** 24/16-ch. relay output board
- **PCLD-7216** 16-ch. carrier board for SSR I/O modules
- **PCLD-885** 16-ch. power relay (Form A) output board
- **ADAM-3950** 50-pin flat cable wiring terminal for din-rail mounting

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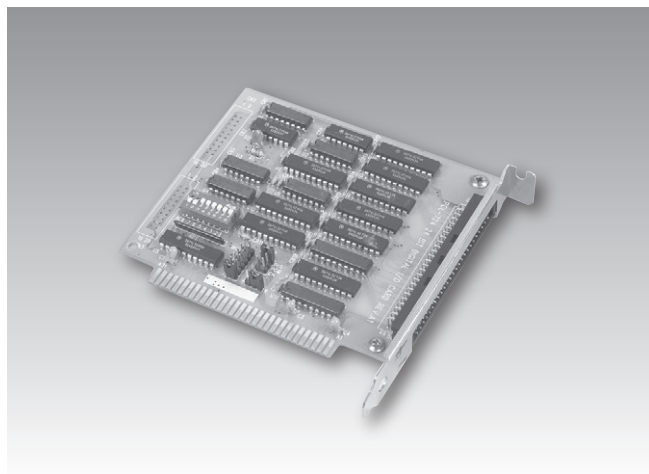
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PCL-724

24-ch Digital I/O Card



Features

- 24 TTL digital I/O channels
- Emulates mode 0 of 8255 PPI
- Interrupt handling
- Opto-22 compatible 50-pin connectors
- Output status readback

Specifications

Digital Input

- **Channels** 24 (shared with output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Interrupt Capable Ch.** 1

Digital Output

- **Channels** 24 (shared with input)
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 0.4 V max. @ 24 mA
Source: 2.4 V min. @ 15 mA

General

- **Bus Type** ISA
- **I/O Connectors** 50-pin male ribbon-cable connector
- **Dimensions (L x H)** 125 x 100 mm (4.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 0.5 A
Max: +5 V @ 0.8 A
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

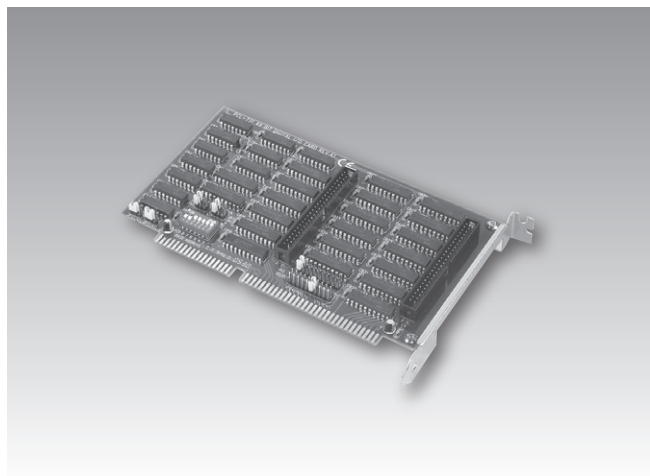
- **PCL-724** 24-ch TTL Digital I/O Card
- **PCL-10150-1.2** IDC-50 Flat Cable, 1.2 m
- **PCLD-782B** 16/24-ch Opto-isolated DI Board
- **PCLD-785B** 24/16-ch. relay output board
- **PCLD-7216** 16-ch SSR Carrier Module Board
- **PCLD-885** 16-ch Power Relay Output Terminal
- **ADAM-3950** 50-Pin Flat Cable Terminal, DIN-rail Mount

Pin Assignments

PC 7	1	2	GND
PC 6	3	4	GND
PC 5	5	6	GND
PC 4	7	8	GND
PC 3	9	10	GND
PC 2	11	12	GND
PC 1	13	14	GND
PC 0	15	16	GND
PB 7	17	18	GND
PB 6	19	20	GND
PB 5	21	22	GND
PB 4	23	24	GND
PB 3	25	26	GND
PB 2	27	28	GND
PB 1	29	30	GND
PB 0	31	32	GND
PA 7	33	34	GND
PA 6	35	36	GND
PA 5	37	38	GND
PA 4	39	40	GND
PA 3	41	42	GND
PA 2	43	44	GND
PA 1	45	46	GND
PA 0	47	48	GND
+5 V	49	50	GND

PCL-731

48-ch Digital I/O ISA Card



Specifications

Digital Input

- **Channels** 48 (shared with output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Interrupt Capable Ch.** 2

Digital Output

- **Channels** 48 (shared with input)
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 0.4 V max. @ 24 mA
Source: 2.4 V min. @ 15 mA

General

- **Bus Type** ISA
- **I/O Connectors** 2 x 50-pin male ribbon-cable connectors
- **Dimensions (L x H)** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** Typical: +5 V @ 0.5 A
Max: +5 V @ 0.8 A
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Features

- 48 TTL digital I/O channels
- Emulates mode 0 of 8255 PPI
- Interrupt handling
- Opto-22 compatible 50-pin connectors
- Output status readback

Ordering Information

- | | |
|------------------------|--|
| ▪ PCL-731 | 48-ch TTL Digital I/O Card |
| ▪ PCL-10150-1.2 | IDC-50 Flat Cable, 1.2 m |
| ▪ PCLD-782B | 16/24-ch Opto-isolated DI Board |
| ▪ PCLD-785B | 16/24-ch Relay Output Terminal |
| ▪ PCLD-7216 | 16/24-ch Relay Output Terminal |
| ▪ PCLD-885 | 16-ch Power Relay Output Terminal |
| ▪ ADAM-3950 | 50-pin Flat Cable Terminal, DIN-rail Mount |

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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

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Plug-in I/O

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CompactPCI

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Signal Conditioning

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USB I/O

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Motion Control I/O

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Ethernet Switch

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EDG

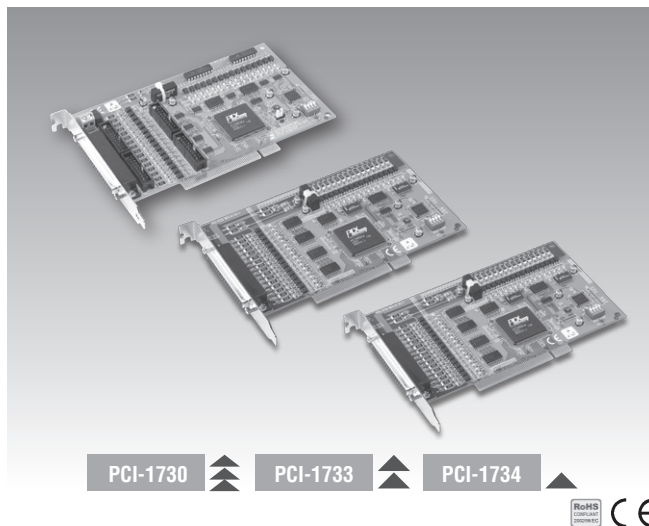
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PCI-1730 PCI-1733 PCI-1734

32-ch Isolated Digital I/O PCI Card

32-ch Isolated Digital Input PCI Card

32-ch Isolated Digital Output PCI Card



Features

- 32-ch Isolated DI/O (16 inputs and 16 outputs)
- 32-ch TTL Isolated DI/O (16 inputs and 16 outputs)
- High output driving capacity
- Interrupt capability
- Two 20-pin connectors for isolated digital I/O channels and two for TTL digital I/O channels
- D-type connector for isolated input and output channels
- High-voltage isolation on output channels

Introduction

PCI-1730, PCI-1733, and PCI-1734 offer isolated digital input channels as well as isolated digital output channels with isolation protection up to 2,500 V_{DC}, which makes them ideal for industrial applications where high-voltage isolation is required. There are also 32 TTL DIO channels.

Specifications

Digital Input

- **Channels** 16 (16-ch/group)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Interrupt Capable Ch.** 2 (DIO, DI1)

Isolated Digital Input

- **Channels** 16 (16-ch/group)
- **Input Voltage** Logic 0: 1 V max. (2 V max.)
Logic 1: 5V min. (30 V max.)
- **Interrupt Capable Ch.** 2 (IDIO, IDI1)
- **Isolation Protection** 2,500 V_{DC}
- **Opto-Isolator Response** 25 μ s
- **Input Resistance** 2.7 k Ω @ 1 W

Digital Output

- **Channels** 16 (16-ch/group)
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Output Capability** Sink: 24 mA
Source: 15 mA

Isolated Digital Output

- **Channels** 16 (16-ch/group)
- **Output Type** Sink type (NPN)
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage** 5 ~ 40 V_{DC}
- **Sink Current** 200 mA max./channel
- **Opto-Isolator Response** 25 ms

General

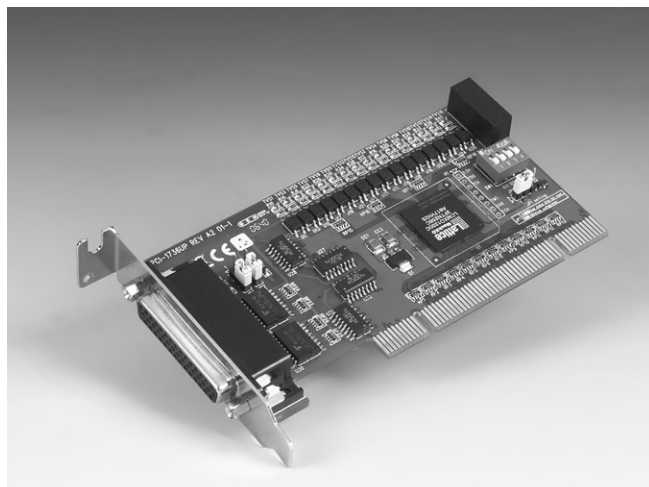
- **Bus Type** PCI V2.2
- **I/O Connectors** 1 x 37-pin D-type female
2 x 20-pin box header for flat cable
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 250 mA, 12 V @ 35 mA
Max: 5 V @ 400 mA, 12 V @ 60 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -25 ~ 85° C (-13 ~ 185° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (see IEC 68-2-3)

Ordering Information

- **PCI-1730** 32-ch Isolated DIO Card, manual and driver CD-ROM (cable not. included.)
- **PCL-10120-1** 20-pin flat cable, 1 m
- **PCL-10120-2** 20-pin flat cable, 2 m
- **PCLD-782** 16-ch opto-isolated D/I board
- **ADAM-3920** 20-pin flat cable wiring terminal for DIN-rail mounting
- **PCLD-885** 16-ch power relay (form A) output board
- **PCLD-785** 16-ch relay output board
- **PCLD-786** 8-ch SSR I/O module carrier board
- **PCLD-780** Universal screw terminal board
- **PCLD-880** Universal screw terminal board
- **ADAM-3937** DB37 wiring terminal for DIN-rail mounting
- **PCL-10137-1** DB37 cable, 1 m
- **PCL-10137-2** DB37 cable, 2 m
- **PCL-10137-3** DB37 cable, 3 m

PCI-1736UP

32-ch Low-Profile Isolated Digital I/O Card



Features

- 32 isolated DI/O channels (16 inputs and 16 outputs)
- High output driving capacity
- High-voltage isolation on I/O channels (2500 V_{DC})
- Interrupt handling capability
- D-type connector for isolated input and output channels
- Keep digital output values when hot system reset
- Wide input range (5 ~ 30 V_{DC})
- Surge protection
- Universal PCI Bus
- Low profile card
- BoardID™ switch

Introduction

PCI-1736UP offer isolated digital input channels as well as isolated digital output channels with isolation protection up to 2,500 V_{DC}, which makes it ideal for industrial applications where high-voltage isolation is required. In addition, all output channels provide high-voltage protection. The low profile PCI form factor and universal PCI connector (V2.2 compliant) meet requirements for size and power consumption.

Specifications

Isolated Digital Input

- **Channels** 16
- **Input Voltage** Logic 0: 2 V max.
Logic 1: 5 V min. (30 V max.)
- **Interrupt Capable Ch.** 2
- **Isolation Protection** 2500 V_{DC}
- **Opto-Isolator Response** 25 μs
- **Input Resistance** 2.8 KΩ

Isolated Digital Output

- **Channels** 16
- **Output Type** Sink (NPN)
- **Isolation Protection** 2500 V_{DC}
- **Output Voltage** 5~40 V_{DC}
- **Sink Current** 200 mA max./channel
- **Opto-isolator Response** 25 μs

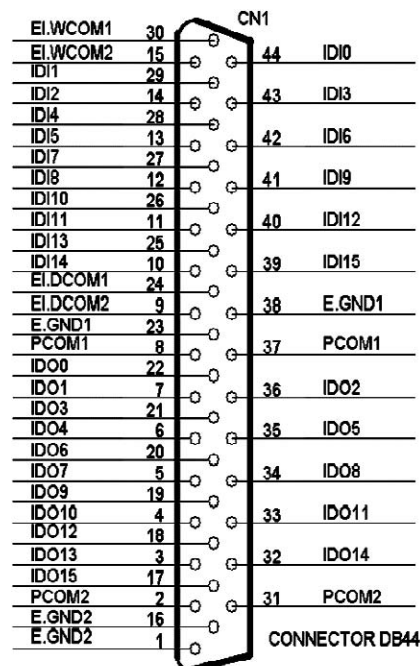
General

- **Bus Type** Universal PCI V2.2
- **I/O Connectors** DB-44 female
- **Dimensions** 119.91 x 64.41 mm (Low profile MD1)
- **Power Consumption** Typical: 5 V @ 250 mA, 12 V @ 35 mA
Max: 5 V @ 400 mA, 12 V @ 60 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -25 ~ 85° C (-4 ~ 185° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **PCI-1736UP** 32-ch low-profile isolated digital I/O card
- **PCL-10144-1** DB 44-pin cable, 1 m
- **ADAM-3944** DB-44 Wiring Terminal for DIN-rail mounting

Pin Assignments



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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

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Plug-in I/O

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CompactPCI

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Signal Conditioning

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USB I/O

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Motion Control I/O

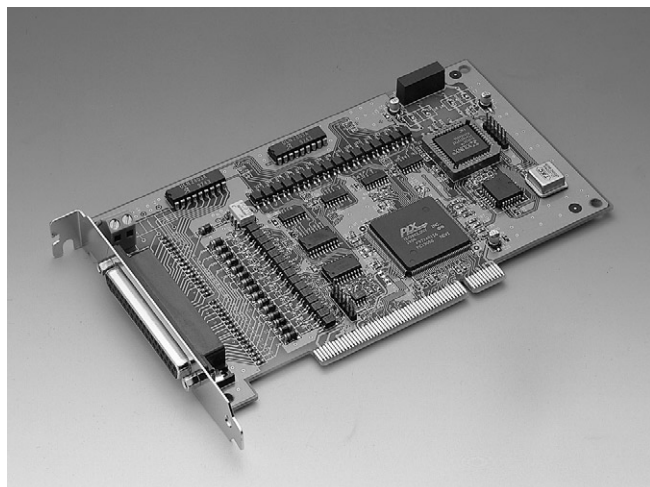
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Ethernet Switch

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EDG

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PCI-1750

32-ch Isolated Digital I/O and Counter Card



Features

- 16 isolated DI and 16 isolated DO channels
- High voltage isolation on all isolated channels (2,500 V_{DC})
- High sink current on isolated output channels (200 mA/channel)
- Supports dry contact or 5 ~ 50 V_{DC} isolated inputs
- Interrupt handling
- Timer/counter interrupt capability

Introduction

PCI-1750 offers 16 isolated digital input channels, 16 isolated digital output channels, and one isolated counter/timer for the PCI bus. With isolation protection of 2,500 V_{DC}, and dry contact support, PCI-1750 is ideal for industrial applications where high-voltage protection is required. Each I/O channel of the PCI-1750 corresponds to a bit in a PC I/O port. This makes PCI-1750 very easy to program. This card also offers a counter or timer interrupt and two digital input interrupt lines to a PC. So you can then easily do configurations by software.

Specifications

Isolated Digital Input

- **Channels** 16
- **Input Voltage** Logic 0: 2 V max.
Logic 1: 5 V min. (50 V_{DC} max.) or dry contact
- **Interrupt Capable Ch.** 2
- **Isolation Protection** 2,500 V_{DC}
- **Opto-Isolator Response** 100 μ s

Isolated Digital Output

- **Channels** 16
- **Output Type** Sink (NPN)
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage** 5 ~ 40 V_{DC}
- **Sink Current** 200 mA max. per channel
- **Opto-Isolator Response** 100 μ s

Counter/Timer

- **Channels** 1
- **Resolution** 1 x 32-bit timer
1 x 16-bit isolated counter
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 1 MHz
- **Isolation Protection** 2,500 V_{DC}

General

- **Bus Type** PCI V2.2
- **I/O Connectors** 1 x 37-pin D-type female connector
1 x 2-pin terminal block for extended ground
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA
Max: 5 V @ 1.0 A
- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)

- **Storing Temperature** -20 ~ 80° C (-4 ~ 176° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1750** 32-ch isolated digital I/O and counter card
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m
- **ADAM-3937** 37-pin D-type cable wiring terminal for DIN-rail mounting

Pin Assignments

IDI 0	1	20	IDI 1
IDI 2	2	21	IDI 3
IDI 4	3	22	IDI 5
IDI 6	4	23	IDI 7
IDI 8	5	24	IDI 9
IDI 10	6	25	IDI 11
IDI 12	7	26	IDI 13
IDI 14	8	27	IDI 15/Counter2
IGND	9	28	IGND
COM1	10	29	IGND
IDO 0	11	30	IDO 1
IDO 2	12	31	IDO 3
IDO 4	13	32	IDO 5
IDO 6	14	33	IDO 7
IDO 8	15	34	IDO 9
IDO 10	16	35	IDO 11
IDO 12	17	36	IDO 13
IDO 14	18	37	IDO 15
COM2	19		

PCI-1752U/1752US0

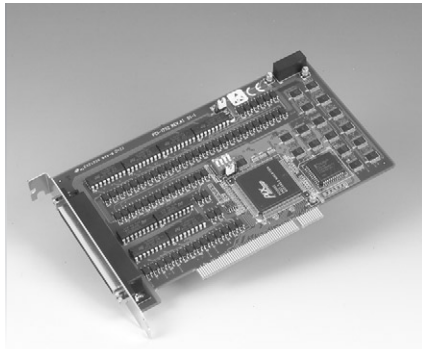
PCI-1754

PCI-1756

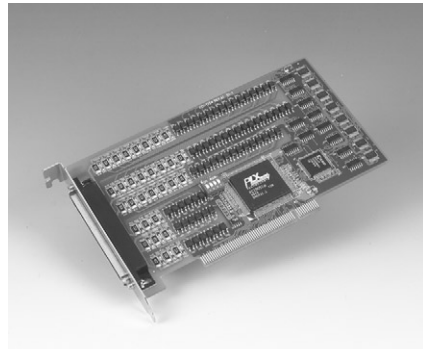
64-ch Isolated Digital Output Card

64-ch Isolated Digital Input Card

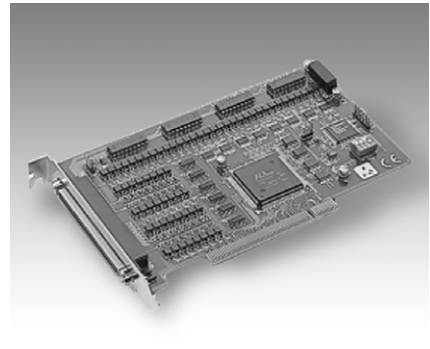
64-ch Isolated Digital I/O Card



PCI-1752



PCI-1754



PCI-1756



Features

- 64 isolated digital output channels
- High-voltage isolation on output channels (2500 V_{DC})
- 2000 V_{DC} ESD protection
- Wide output range (5 ~ 40 V_{DC})
- High-sink current on isolated output channels (200 mA max./channel)
- Output status read-back
- Keeps digital output values when hot system reset
- Channel-freeze function
- High-density 100-pin SCSI connector
- Support sink (1752U) & Source (1752US0) DO type

Specifications

Isolated Digital Output

- Channels** 64 (16-ch/group)
- Output Type** Sink (NPN)
- Isolation Protection** 2,500 V_{DC}
- Output Voltage** 5 ~ 40 V_{DC}
- Sink Current** 200 mA max./channel
- Opto-isolator Response** 25 µs

General

- Bus Type** Universal PCI V2.2
- I/O Connectors** 1 x 100-pin SCSI-II female
- Dimensions (L x H)** 175x100mm (6.9" x 3.9")
- Power Consumption** Typical: +5 V @ 230 mA
Max.: +5 V @ 500 mA
- Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
(IEC 68-2-1, 2)
- Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- Storing Humidity** 5 ~ 95% RH, (IEC 68-2-3)
non-condensing

Ordering Information

- PCI-1752U** PCI-1752U 64-ch isolated PCI card (Sink type)
- PCI-1752US0** 64-ch isolated PCI card (Source type)
- PCI-10250-1** 1w-pin to two 50-pin SCSI Caste, Im
- ADAM-3951** Wiring terminal module with LED-indicators for DIN-rail Mounting

Features

- 64 isolated digital input channels
- Either +/- voltage input for DI by group
- High-voltage isolation on input channels (2500 V_{DC})
- High over-voltage protection (70 V_{DC})
- Wide input range (10 ~ 50 V_{DC})
- Interrupt handling capability
- High-density 100-pin SCSI connector

Specifications

Isolated Digital Input

- Channels** 64 (16-ch/group)
- Input Voltage** Logic 0: 3 V max.
Logic 1: 10 V min.
(50 V max.)
- Input Current (Typical)** 10 V_{DC} @ 1.7 mA, 12 V_{DC} @ 2.1 mA
24 V_{DC} @ 4.4 mA, 48 V_{DC} @ 9.0 mA
50 V_{DC} @ 9.4 mA
- Interrupt Capable Ch.** 4
- Isolation Protection** 2,500 V_{DC}
- Overvoltage Protection** 70 V_{DC}
- ESD** 2,000 V_{DC}
- Opto-isolator Response** 25 µs

General

- Bus Type** PCI V2.2
- I/O Connectors** 100-pin SCSI-II female
- Dimensions (L x H)** 175 x 100mm (6.9" x 3.9")
- Power Consumption** Typical: +5 V @ 340 mA
Max.: +5 V @ 450 mA
- Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
(IEC 68-2-1, 2)
- Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- Storing Humidity** 5 ~ 95% RH (IEC 68-2-3)
non-condensing

Ordering Information

- PCI-1754** 64-ch isolated digital input card
- PCI-10250-1** 1w-pin to two 50-pin SCSI Caste, Im
- ADAM-3951** Wiring terminal module with LED-indicators for DIN-rail Mounting

Features

- Either +/- voltage input for DI by group
- Output status read-back for output channels
- Keeps digital output values after hot system reset

Specifications

Isolated Digital Input

- Channels** 32 (16-ch/group)
- Input Voltage** Logic 0: 3 V max.
Logic 1: 10 V min.
(50 V max.)
- Interrupt Capable Ch.** 2 (ID10, ID116)
- Isolation Protection** 2,500 V_{DC}
- Overvoltage Protection** 70 V_{DC}
- ESD** 2,000 V_{DC}
- Opto-isolator Response** 25 µs
- Input Current** 10 V_{DC} @ 1.7 mA, 12 V_{DC} @ 2.1 mA
24 V_{DC} @ 4.4 mA, 48 V_{DC} @ 9.0 mA
50 V_{DC} @ 9.4 mA

Isolated Digital Output

- Channels** 32 (16-ch/group)
- Output Type** Sink (NPN)
- Isolation Protection** 2,500 V_{DC}
- Output Voltage** 5 ~ 40 V_{DC}
- Sink Current** 200 mA max./channel
- Opto-isolator Response** 25 µs

General

- Bus Type** PCI V2.2
- I/O Connectors** 1 x 100-pin SCSI-II female
- Dimensions (L x H)** 175x100mm (6.9" x 3.9")
- Power Consumption** Typical: +5 V @ 285 mA
Max.: +5 V @ 475 mA
- Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
(IEC 68-2-1, 2)
- Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- Storing Humidity** 5 ~ 95% (IEC 68-2-3)
non-condensing

Ordering Information

- PCI-1756** 64-ch Isolated Digital I/O Card
- PCI-10250-1** 1w-pin to two 50-pin SCSI Caste, Im
- ADAM-3951** Wiring terminal module with LED-indicators for DIN-rail Mounting

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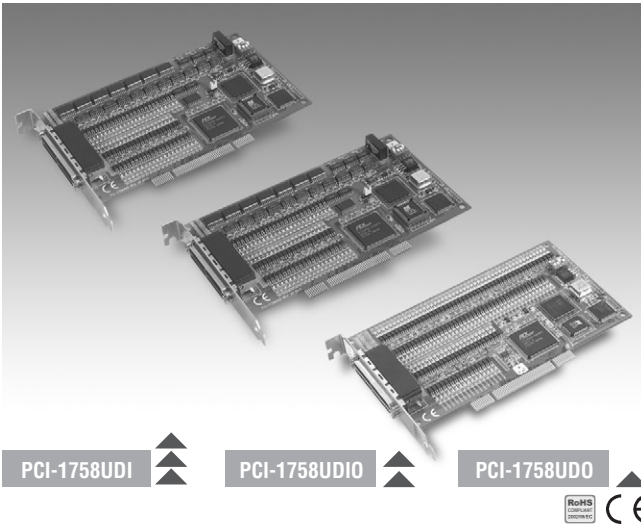
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PCI-1758UDI PCI-1758UDO PCI-1758UDIO

128-ch Isolated Digital Input Card

128-ch Isolated Digital Output Card

128-ch Isolated Digital I/O Card



Features

PCI-1758UDO and PCI-1758UDIO

- 128 isolated digital output channels (64 for PCI-1758UDIO)
- High-voltage isolation on output channels (2,500 V_{DC})
- Wide output range (5 ~ 40 V_{DC})
- High-sink current for isolated output channels (90 mA max./Channel)
- Current protection for each port
- BoardID™ switch
- Output status read-back
- Digital output value retained after hot system reset
- Programmable Power-Up States
- Watchdog timer

PCI-1758UDI and PCI-1758UDIO

- 128 isolated digital input channels (64 for PCI-1758UDIO)
- Wide input range (5 ~ 25 V_{DC})
- High ESD protection (2,000 V_{DC})
- Digital Filter function
- BoardID™ switch
- Interrupt handling capability for each channel

Specifications

Isolated Digital Input

- Channels** PCI-1758UDI: 128
PCI-1758UDIO: 64
- Input Voltage** Logic 0: 2.5 V max.
Logic 1: 5 V min. (25 V max.)
- Interrupt Capable Ch.** PCI-1758UDI: 128
PCI-1758UDIO: 64
- Isolation Protection** 2,500 V_{DC}
- Opto-Isolator Response** 20 μs
- Input Resistance** 3 kΩ

Isolated Digital Output

- Channels** PCI-1758UDO: 128
PCI-1758UDIO: 64
- Output Type** Sink (NPN)
- Isolation Protection** 2,500 V_{DC}
- Output Voltage** 5 ~ 40 V_{DC}
- Sink Current** 90 mA max./channel
- Opto-isolator Response** 20 μs

General

- Bus Type** Universal PCI V2.2
- I/O Connectors** 1 x MINI-SCSI HDRA-E100 Female
- Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- Power Consumption**

	PCI-1758UDI	PCI-1758UDO	PCI-1758UDIO
Typical	+5 V @ 0.3 A	+5 V @ 1.1 A	+5 V @ 1.2 A
Max.	+5 V @ 0.6 A	+5 V @ 2.2 A	+5 V @ 1.8 A

- Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (IEC 68-2-1, 2)
- Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- Storing Humidity** 5 ~ 95 % (IEC 68-2-3) non-condensing

Ordering Information

- PCI-1758UDI** 128-ch Isolated Digital Input Card
- PCI-1758UDO** 128-ch Isolated Digital Output Card
- PCI-1758UDIO** 128-ch Isolated Digital Input/Output Card
- PCL-101100S-1** 100-pin SCSI Cable, 1 m
- ADAM-39100** 100-pin SCSI wiring terminal, DIN-rail mounting

Feature Details

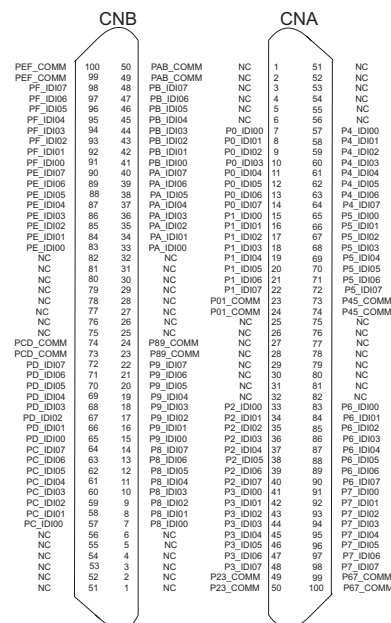
Interrupt Function (PCI-1758UDI/PCI-1758UDIO)

PCI-1758UDI and PCI-1758UDIO provide an interrupt function for every digital input channel. You can disable/enable the interrupt functions, and select trigger type by setting the Rising Edge Interrupt Registers or Falling Edge Interrupt Registers of the card. When the interrupt request signals occur, software will service these interrupt requests by ISR. The multiple interrupt sources provide the card with more flexibility.

Digital Filter Function (PCI-1758UDI/PCI-1758UDIO)

The digital filter function is used to eliminate glitches on input data and reduce the number of changes to examine and process. The filter blocks pulses that are shorter than the specified timing interval and passes pulses that are twice as long as the specified interval. Intermediate-length pulses that are longer than half of the interval, but less than the interval, may or may not pass the filter depending on your settings.

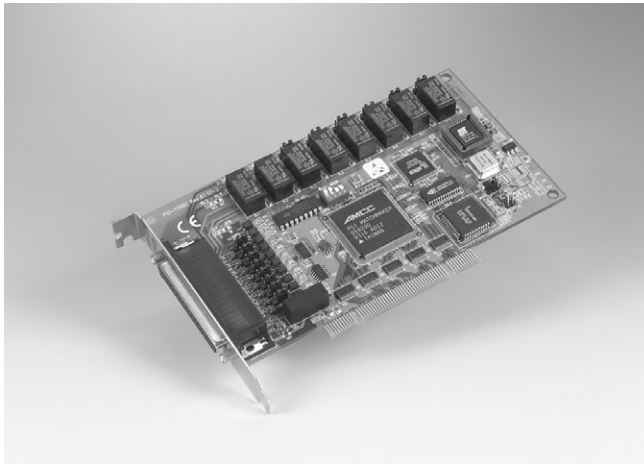
Pin Assignments



I/O Connector Pin Assignment for PCI-1758UDI

PCI-1760U

8-ch Relay Actuator and Isolated DI Card



Features

- Universal PCI card, for 3.3 V and 5 V PCI slot
- 8 opto-isolated digital input channels
- 8 relay actuator output channels
- 2 opto-isolated PWM outputs
- LED indicators to show activated relays
- Jumper selectable dry contact/wet contact input signals
- Up event counters for DI
- Programmable digital filter function for DI
- Pattern match interrupt function for DI
- "Change of State" interrupt function for DI
- Universal PCI and BoardID switch

Introduction

PCI-1760U relay actuator and isolated digital input card is a PC add-on card for the PCI bus. It meets the PCI standard Rev. 2.2 (Universal PCI expansion card), and works with both 3.3 V and 5 V PCI slots. It provides 8 opto-isolated digital inputs with isolation protection of 2,500 V_{DC} for collecting digital inputs in noisy environments, 8 relay actuators that can be used as a on/off control devices or small power switches, and 2 isolated PWM (Pulse Width Modulation) outputs for custom applications.

For easy monitoring, each relay is equipped with one red LED to show its on/off status. Each isolated input supports both dry contact and wet contact so that it can easily interface with other devices when no voltage is present in the external circuit.

Specifications

Isolated Digital Input

- **Channels** 8 (Sink)
- **Input Voltage** Logic 0: 1.0 V max.
Logic 1: 4.5 V min. (12 V max.)
- **Interrupt Capable Ch.** 8 (ID10 ~ ID17)
- **Isolation Protection** 2,500 V_{DC}
- **Opto-Isolator Response** 25 μ s
- **Input Resistance** 1 k Ω 1/4 W

Counter/Timer

- **Channels** 8
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 500 Hz
- **Isolation Protection** 2,500 V_{DC}
- **PWM Channels** 2
- **Digital Noise Filter** Minimum effective high input period $\geq [(2 \sim 65535) \times 5 \text{ ms}] + 5 \text{ ms}$
Minimum effective low input period $\geq [(2 \sim 65535) \times 5 \text{ ms}] + 5 \text{ ms}$

Relay Output

- **Channels** 8
- **Relay Type** 2 x Form C, and 6 x Form A
- **Contact Rating** 120 V_{DC} @ 0.5 A, or 30 V_{DC} @ 1 A
- **Relay on Time** 5 ms max.
- **Relay off Time** 5 ms max.
- **Life Span** 200,000 operations @ 0.5 A 120 V_{AC}
500,000 operations @ 1.0 A 30 V_{DC}
- **Resistance** Contact: < 100 m Ω
Insulation: 50 M Ω

General

- **Bus Type** PCI-1760U: Universal PCI V2.2
- **I/O Connectors** 1 x 37-pin D-type connector, female
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 450 mA
Max: +5 V @ 850 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (IEC 68 - 2 - 1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95 % RH, non-condensing (IEC 68-2-3)

Ordering Information

- **PCI-1760U** 8-ch Relay Actuator and Isolated D/I Card
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m
- **ADAM-3937** DB37 wiring terminal for DIN-rail mounting

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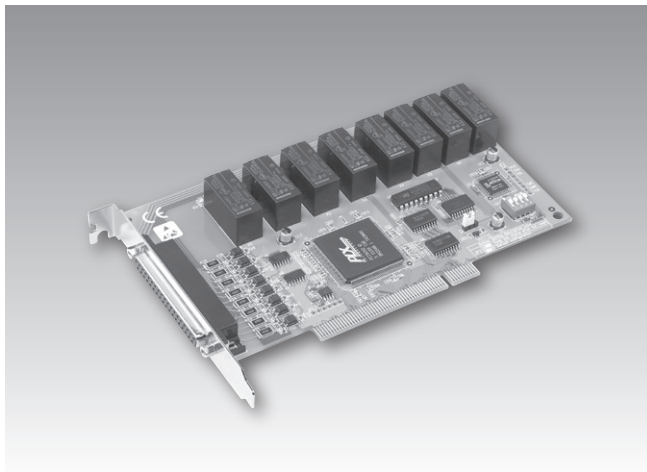
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PCI-1761

8-ch Relay Actuator/Isolated DI PCI Card



Features

- 8 relay output channels and 8 isolated digital input channels
- LED indicators to show activated relays
- 4 Form C and 4 Form A type relay output channels
- Male DB37 matching connector included
- Output status read-back
- Retained relay output values when hot system reset
- High-voltage isolation on input channels (3,750 V_{DC})
- High ESD protection (2,000 V_{DC})
- High over-voltage protection (70 V_{DC})
- Wide input range (10 ~ 50 V_{DC})
- Interrupt handling capability
- BoardID™ switch

Introduction

The PCI-1761 relay actuator and isolated D/I card is an add-on card for the PCI bus. It provides 8 optically-isolated digital inputs with isolation protection of 3,750 V_{DC} for collecting digital inputs in noisy environments and 8 relay actuators for serving as on/off control devices or small power switches. For easy monitoring, each relay is equipped with one red LED to show its on/off status. The PCI-1761's eight optically-isolated digital input channels are ideal for digital input in noisy environments or with floating potentials.

The PCI-1761 digital input channels feature a rugged isolation protection for industrial, lab and machinery automation applications. It durably withstands voltage up to 3,750 V_{DC}, protecting your host system from any incidental harms. If connected to an external input source with surge-protection, the PCI-1761 can offer up to a maximum of 2,000 V_{DC} ESD (Electrostatic Discharge) protection. Even with an input voltage rising up to 70 V_{DC}, the PCI-1761 can still manage to work properly, albeit for only a short period of time.

When the system has undergone a hot reset (i.e. without turning off the system power), the PCI-1761 can either retain output values of each channel, or return to its default configuration as open status, depending on its onboard jumper setting. This function protects the system from unwanted operations during unexpected system resets.

Specifications

Isolated Digital Input

- **Channels** 8
- **Input Voltage** Logic 0: 3 V max.
Logic 1: 5V min. (50V max.).
- **Interrupt Capable Ch.** 8
- **Isolation Protection** 3,750 V_{DC}
- **Overvoltage Protection** 70 V_{DC}
- **Opto-Isolator Response** 25 μ s
- **Input Resistance** 5600 Ω
- **Input Current** 1.6 mA @ 10 V_{DC}, 8.9 mA @ 50 V_{DC}

Relay Output

- **Channels** 8
- **Relay Type** SPDT (4 x Form C, and 4 x Form A)
- **Contact Rating** 250 V_{AC} @ 3 A, or 24 V_{DC} @ 3 A
- **Relay on Time** 15 ms max.
- **Relay off Time** 5 ms max.
- **Life Span** 2 x 10⁷
- **Resistance**
Contact: 50 M Ω
Insulation: 1 G Ω min.

General

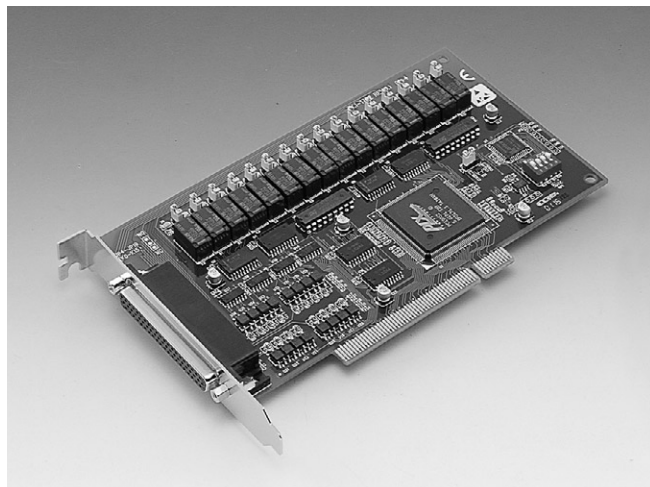
- **Bus Type** PCI V2.2
- **I/O Connectors** 1 x 37-pin D-type
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 220 mA
Max: +5 V @ 750 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95 % RH, non-condensing (IEC 68-2-3)

Ordering Information

- **PCI-1761** 8-ch Relay Actuator/Isolated DI PCI Card
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m
- **ADAM-3937** DB37 Wiring Terminal for Din-rail Mounting
- **PCLD-880** Universal screw terminal board

PCI-1762

16-ch Isolated DI/Relay Output Card



Features

- 16 relay output channels and 16 isolated digital input channels
- LED indicators to show activated relays
- Jumper selectable Form A/Form B-type relay output channel
- Output status read-back
- Retain relay output values when hot system reset
- High-voltage isolation on input channels (2,500 V_{DC})
- High ESD protection (2,000 V_{DC})
- High over-voltage protection (70 V_{DC})
- Wide input range (10 ~ 50 V_{DC})
- Interrupt handling capability
- High-density DB-62 connector
- BoardID™ switch

Introduction

The PCI-1762 relay actuator and isolated D/I card is a PC add-on card for the PCI bus. It provides 16 opto-isolated digital inputs with isolation protection of 2,500 V_{DC} for collecting digital inputs in noisy environments, 16 relay actuators for serving as on/off control devices or small power switches. For easy monitoring, each relay is equipped with one red LED to show its on/off status. The PCI-1762's sixteen optically-isolated digital input channels are ideal for digital input in noisy environments or with floating potentials.

Specifications

Isolated Digital Input

- **Channels** 16
- **Input Voltage** Logic 0: 3 V max.
Logic 1: 10 V min. (50 V max.)
- **Interrupt Capable Ch.** 2
- **Isolation Protection** 2,500 V_{DC}
- **Overvoltage Protection** 70 V_{DC}
- **Opto-Isolator Response** 25 μs
- **Input Resistance** 4.7 KΩ

Relay Output

- **Channels** 16
- **Relay Type** SPDT (Form A or Form B, jumper selectable)
- **Contact Rating** 0.5 A @ 125 V_{AC} or 1 A @ 30 V_{DC}
- **Relay on Time** 6 ms max.
- **Relay off Time** 4 ms max.
- **Life Span** 2 x 10⁵ ops. min. (0.5 A @ 125 V_{AC}),
5 x 10⁵ ops. min. (1 A @ 30 V_{DC})
- **Resistance** Contact: 50 MW
Insulation: 1,000 MW min. (at 500 V_{DC})

General

- **Bus Type** PCI V2.2
- **I/O Connectors** 1 x DB62 D-type female
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5V @ 250 mA
Max: +5V @ 620 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (IEC 68-2-1,2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 - 95 % non-condensing (IEC 68-2-3)

Ordering Information

- **PCI-1762** 16-ch Isolated DI/Relay Output Card
- **PCL-10162-1** PCL-10162-1 DB-62 cable assembly, 1 m
- **PCL-10162-3** PCL-10162-3 DB-62 cable assembly, 3 m
- **PCL-10162-5** PCL-10162-5 DB-62 cable assembly, 5 m
- **ADAM-3962** DB62 Wiring Terminal for Din-rail Mounting

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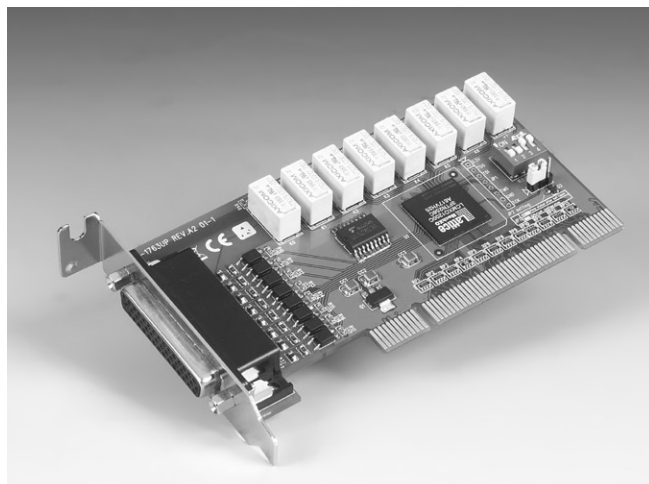
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PCI-1763UP

Low-profile 8-ch Relay/Isolated DI Card



Features

- 8 relay output channels and 8 isolated digital input channels
- LED indicators to show activated relays
- 8 Form C type relay output channels
- Output status read-back
- Retained relay output values when hot system reset
- High-voltage isolation on input channels (2,500 V_{DC})
- High ESD protection (2,000 V_{DC})
- High over-voltage protection (70 V_{DC})
- Wide input range (10 ~ 50 V_{DC})
- Interrupt handling capability
- Support Universal PCI Bus
- Low Profile PCI card
- BoardID™ switch

Introduction

PCI-1763UP relay actuator and isolated digital input card is an add-on card for the PCI bus. It provides 8 optically-isolated digital inputs with isolation protection of 2500 V_{DC} for collecting digital inputs in noisy environments, and 8 relay actuators for serving as on/off control devices or small power switches. For easy monitoring, each relay is equipped with one red LED to show its on/off status. PCI-1763UP's eight optically-isolated digital input channels are ideal for digital input in noisy environments or with floating potentials. The low profile PCI form factor and universal PCI connector (V2.2 compliant), meet requirements for size and reduced power consumption.

Specifications

Isolated Digital Input

- Channels 8
- Input Voltage Logic 0: 3 V max.
Logic 1: 10 V min. (50 V max.)
- Input Current 3.16 mA @ 10 V_{DC}
17.3 mA @ 50 V_{DC}
- Interrupt Capable Ch. 8
- Isolation Protection 2,500 V_{DC}
- Overvoltage Protection 70 V_{DC}
- Opto-isolator Response 25 μs
- Input Resistance 2.8 KΩ

Relay Output

- Channels 8
- Relay Type DPDT, Form C
- Contact Rating 240 V_{AC} @ 0.25 A, or 30 V_{DC} @ 1 A
- Relay on Time 5 ms max.
- Relay off Time 4 ms max.
- Life Span 1 x 10⁷ @ 6 V/100 mA
- Resistance Contact: < 50 mΩ
Insulation: 1 GΩ min. (at 500 V_{DC})

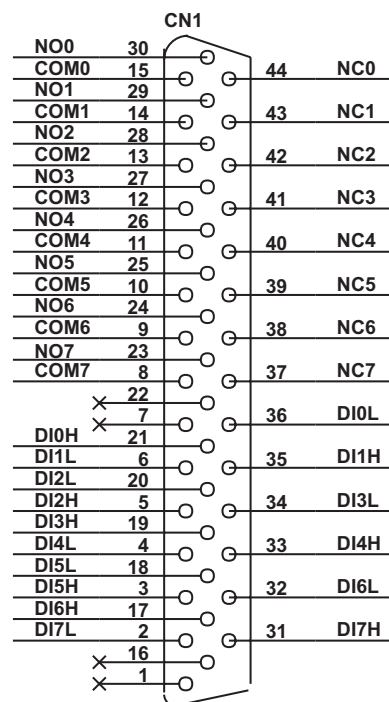
General

- I/O Connector Type DB44 female
- Dimensions 119.91 x 64.41 mm (Low-Profile MD1)
- Power Consumption +5V @ 107.5 mA (typical)
+5V @ 301.3 mA (max.)
- Operating Temperature 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1,2)
- Storing Temperature -20 ~ 70° C (-4 ~ 158° F)
- Storing Humidity 5 ~ 95 % RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

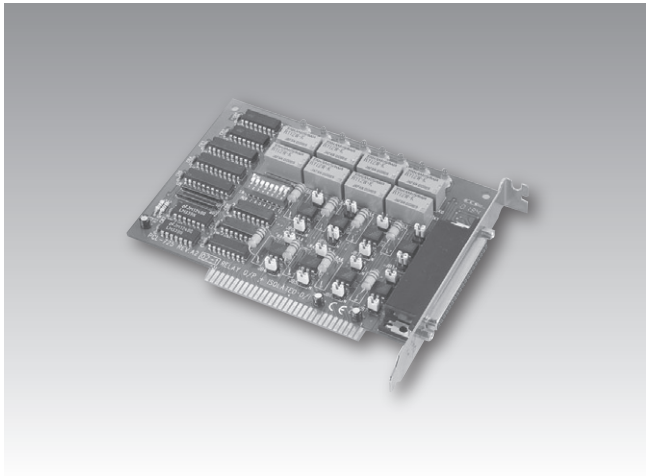
- **PCI-1763UP** Low-profile 8-ch Relay/Isolated DI Card
- **PCL-10144-1** DB 44-pin cable, 1 m
- **ADAM-3944** DB-44 Wiring Terminal for DIN-rail mounting

Pin Assignments



PCL-725

8-ch Relay Actuator/Isolated DI ISA Card



Features

- 8 relay output channels and 8 isolated digital input channels
- LED indicators to show activated relays
- 4 Form C and 4 Form A type relay output channels
- Male DB37 matching connector included
- Output status read-back

Introduction

The PCI-1761 relay actuator and isolated D/I card is an add-on card for the PCI bus. It provides 8 optically-isolated digital inputs with isolation protection of 3,750 V_{DC} for collecting digital inputs in noisy environments and 8 relay actuators for serving as on/off control devices or small power switches. For easy monitoring, each relay is equipped with one red LED to show its on/off status. The PCI-1761's eight optically-isolated digital input channels are ideal for digital input in noisy environments or with floating potentials.

The PCI-1761 digital input channels feature a rugged isolation protection for industrial, lab and machinery automation applications. It durably withstands voltage up to 3,750 V_{DC}, protecting your host system from any incidental harms. If connected to an external input source with surge-protection, the PCI-1761 can offer up to a maximum of 2,000 V_{DC} ESD (Electrostatic Discharge) protection. Even with an input voltage rising up to 70 V_{DC}, the PCI-1761 can still manage to work properly, albeit for only a short period of time.

When the system has undergone a hot reset (i.e. without turning off the system power), the PCI-1761 can either retain output values of each channel, or return to its default configuration as open status, depending on its onboard jumper setting. This function protects the system from unwanted operations during unexpected system resets.

Specifications

Isolated Digital Input

- **Channels** 8
- **Input Voltage** Logic 0: 3 V max.
Logic 1: 5V min. (30V max.).
- **Interrupt Capable Ch.** 8
- **Isolation Protection** 1500 V_{DC}
- **Overvoltage Protection** 70 V_{DC}
- **Opto-Isolator Response** 25 μ s
- **Input Resistance** 560 Ω
- **Input Current** 42 mA @ 24 V

Relay Output

- **Channels** 8
- **Relay Type** SPDT (4 x Form C, and 4 x Form A)
- **Contact Rating** 120 V_{AC} @ 0.5 A, or 30 V_{DC} @ 1 A
- **Relay on Time** 8 ms max
- **Relay off Time** 8 ms max
- **Life Span** 1 x 10⁷
- **Resistance**
Contact: 50 M Ω
Insulation: 100 M Ω min.

General

- **Bus Type** ISA
- **I/O Connectors** 1 x 37-pin D-type
- **Dimensions (L x H)** 147 x 100 mm (5.75" x 3.9")
- **Power Consumption** +5 V @ < 0.2 A; +12 V @ 33 mA for each relay
< 0.27 A if all eight relays are energized
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95 % RH, non-condensing (IEC 68-2-3)

Ordering Information

- **PCL-725** 8-ch Relay Actuator/Isolated DI ISA Card
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m
- **ADAM-3937** DB37 Wiring Terminal for Din-rail Mounting
- **PCLD-880** Universal screw terminal board

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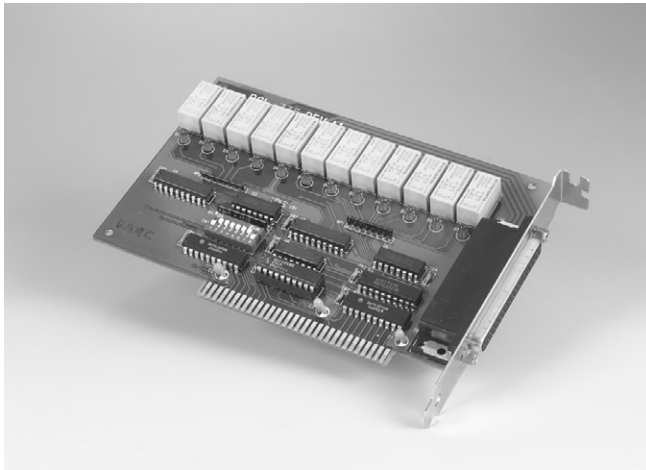
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PCL-735

12-ch Relay Actuator Card



Features

- 12 relay outputs
- LED relay status indicators
- Male DB37 matching connector included
- Relay status readback function

Introduction

Ideal for applications such as On/Off control or signal switching, the PCL-735 12-channel relay actuator provides 12 SPDT relays on a half-size card.

The On/Off status of each relay is easy to monitor. A red LED next to each relay shows its On/Off status, and the software can read each relay's status. An onboard DB-37 connector provides access to all output channels.

Specifications

Relay Output

- **Channels** 12
- **Relay Type** SPDT, Form C
- **Contact Rating** 2 A @ 30 V_{DC}, 1 A @ 125 V_{AC}
- **Relay on Time** 5 ms. typical
- **Relay off Time** 5 ms. typical
- **Life Span** > 5 x 10⁶ operations @ 30 V_{DC} and 2 A
> 2 x 10⁶ operations @ 30 V_{DC} and 1 A
- **Resistance** Contact: 50 M Ω
Insulation: 1 G Ω @ 500 V_{DC} min.

General

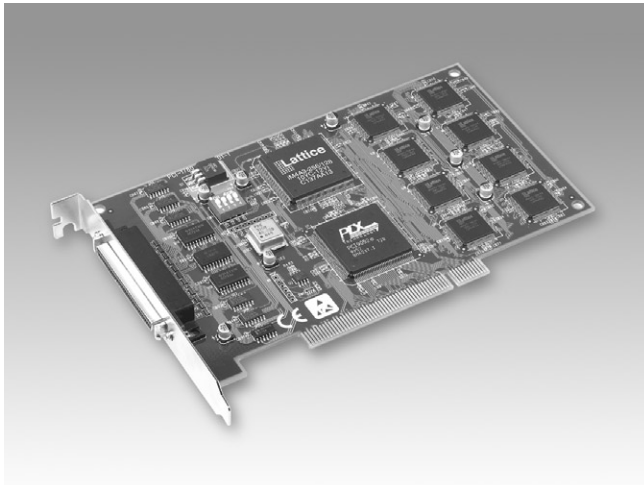
- **Bus Type** ISA
- **I/O Connectors** 1 x 37-pin D-type female
- **Dimensions (L x H)** 155 x 100 mm (6.1" x 3.9")
- **Power Consumption** Typical: +5 V @ 280 mA
Max: +12 V @ 200 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCL-735** 12-ch Relay Actuator Card
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m
- **PCLD-880** Screw terminal board
- **ADAM-3937** DB37 wiring terminal for DIN-rail mounting

PCI-1780U

8-ch Counter/Timer Card



Features

- 8 independent 16-bit counters
- 8 programmable clock source
- 8 digital TTL outputs and 8 digital TTL inputs
- Up to 20 MHz input frequency
- Multiple counter clock source selectable
- Counter output programmable
- Counter gate function
- Flexible interrupt source select
- BoardID™ switch

Introduction

PCI-1780 is a general purpose multi-channel counter/timer card for the PCI bus. It targets the AM9513 to implement the counter/timer function by CPLD. It provides eight 16-bit counter channels, 8 digital outputs and 8 digital inputs. Its powerful counter functions cater to a broad range of industrial and laboratory applications.

The card features 12 programmable counter modes, to provide one shot output, PWM output, periodic interrupt output, time-delay output, and to measure the frequency and the pulse width. The PCL-10168 shielded cable works well with PCI-1780 to reduce noise. Its wires are all twisted pairs, and the input signals and output signals are separately shielded, providing minimal cross talk between signals and the best protection against EMI/EMC problems.

For easier configuration, PCI-1780 supports Plug & Play, and have also been equipped with an Advantech BoardID™ DIP switch that helps define each card's unique identity when multiple identical PCI cards have been installed in the same computer. The BoardID switch is very useful when you build your system with multiple identical PCI cards. With the correct BoardID switch settings, you can easily identify and access each card during hardware configuration and software programming.

Specifications

Digital Input

- **Channels** 8
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- **Interrupt Capable Ch.** CH0

Digital Output

- **Channels** 8
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.8 V
Logic 1: 2.0 V
- **Output Capability** Sink: 24 mA @ 0.8 V
Source: -15 mA @ 2.0 V

Counter/Timer

- **Channels** 8 (independent)
- **Resolution** 16 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 20 MHz
- **Reference Clock** Internal: 20 MHz
External clock: 20 MHz max.
- **Counter Modes** 12 (programmable)
- **Interrupt Capable Ch.** 8
- **PWM Channels** 8

General

- **Bus Type** PCI V2.2
- **I/O Connectors** 1 x 68-pin SCSI-II female
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 900 mA
Max.: +5 V @ 1.2 A
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95 % RH, non-condensing (IEC 68-2-3)

Ordering Information

- **PCI-1780** 8-ch Counter/Timer Card
- **PCL-10168-1** SCSI-68 shielded cable, 1 m
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount

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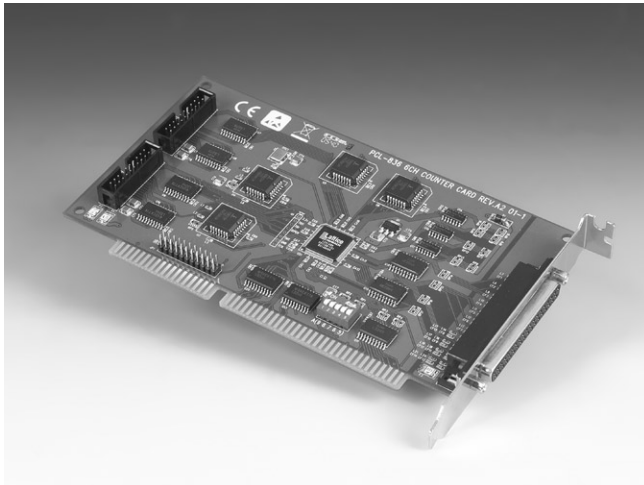
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PCL-836

6-ch Counter/Timer Card



Features

- Periodic interrupt generation
- 6 independent 16-bit counters
- Digital filter for noise reduction
- Binary or BCD counting
- Programmable frequency output
- Complex duty-cycle output
- Single-shot output
- 16-bit TTL input and 16-bit TTL output ports
- Selectable interrupt input channel
- Up to 10 MHz input frequency
- Pulsewidth and period measurement
- Time-delay generation
- F/V conversion and accumulation

Introduction

PCL-836 is a general purpose counter/timer and digital I/O card for PC/AT compatible computers. It provides six 16-bit counter channels. It also includes 16 digital outputs and 16 digital inputs. Two 8254 chips provide a variety of powerful counter/timer function modes to match your industrial and/or laboratory applications.

Unique Digital Filter

PCL-836 includes a unique digital filter to eliminate noise on the input signal. The frequency can be adjusted to provide more stable output readings.

Specifications

Digital Input

- Channels 16
- Compatibility 5 V/TTL
- Input Voltage Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output

- Channels 16
- Compatibility 5 V/TTL
- Output Voltage Logic 0: 0.8 V
Logic 1: 2.0 V
- Output Capability Sink: 8 mA @ 0.8 V
Source: -0.4 mA @ 2.0 V

Counter/Timer

- Channels 6
- Resolution 16 bits
- Compatibility 5 V/TTL
- Max. Input Frequency 10 MHz
- Reference Clock Internal: 10 MHz
External clock: 10 MHz
- Counter Modes 6 programmable counter modes
- Interrupt Capable Ch. IRQ 2, 4, 5, 7, 10, 11, 12, 15 (jumper selectable)
- PWM Channels 3
- Digital Noise Filter 1.6 ms to 52 ms (programmable)

General

- Power Consumption +5 V @ 360 mA (typical)
+5 V @ 400 mA (max.)
- Operating Temperature 0 ~ 60° C (32 ~ 140° F)
- Storage Temperature -20 ~ 70° C (-4 ~ 158° F)
- Operating Humidity 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)
- Connector One 37-pin D-type female connector for counter I/O
Two 20-pin male flat-cable connector for digital I/O
- Dimensions (L x H) 185 x 100 mm (7.3" x 3.9")

Ordering Information

- PCL-836 6-ch Counter/Timer Card
- PCL-10137-1 DB37 cable assembly, 1 m
- PCL-10137-2 DB37 cable assembly, 2 m
- PCL-10137-3 DB37 cable assembly, 3 m
- PCLD-880 Screw terminal board
- ADAM-3937 DB-37 wiring terminal for DIN-rail mounting

Pin Assignments

CLK1	1	20	OUT1
GATE1	2	21	GND
CLK2	3	22	OUT2
GATE2	4	23	GND
CLK3	5	24	OUT3
GATE3	6	25	GND
CLK4	7	26	OUT4
GATE4	8	27	GND
CLK5	9	28	OUT5
GATE5	10	29	GND
CLK6	11	30	OUT6
GATE6	12	31	GND
Interrupt Input	13	32	Interrupt Enable
PWM1	14	33	PWM2
PWM3	15	34	GND
Fout1	16	35	Fout2
Fout3	17	36	Fout4
Fout5	18	37	Fout6
+5V	19		

PCM-3712 PCM-3718H/HG/HO PCM-3724

**2-ch Analog Output Module
12-bit Multifunction Module
with Programmable Gain**

48-ch Digital I/O Module

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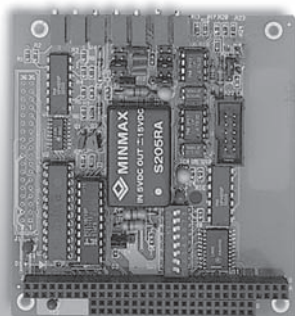
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PCM-3712



Features

- Good selection of output ranges, including current loop, unipolar and bipolar.

Specifications

Analog Output

- Channels** 2
- Resolution** 12 bits
- Output Rate** Static update
- Output Range**

Internal Reference	Unipolar (V)	0~5, 0~10
	Bipolar (V)	± 2.5, ±5, ±10
	Current Loop	4 ~ 20 mA
External Reference		±10 V

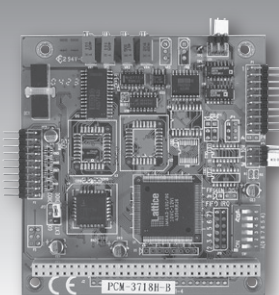
- Slew Rate** 0.3 V/μs typ. (Voltage)
1.2 mA/μs (Current)
- Driving Capability** ±5 mA
- Output Impedance** 0.1 Ω max./0.02 Ω typ.
- Accuracy**
Relative: ±1 LSB
Differential Non-Linearity ±1/2 LSB

General

- Bus Type** PC/104
- I/O Connectors** 1 x 10-pin box header
- Dimensions (L x H)** 96 x 90 mm (3.8" x 3.5")
- Power Consumption** 5 V @ 700 mA max.
- Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- Storing Temperature** -20 ~ 85° C (-4 ~ 185° F)
- Storing Humidity** 0 ~ 90% RH, noncondensing

Ordering Information

- PCM-3712** 2-ch AO Module (18 cm flat cable 10-pin to DB9-F included)
- ADAM-3909** DB9 cable wiring for DIN-rail mounting



PCM-3718H/HG/HO



Specifications

Analog Input

- Channels** 16 single-ended, or 8 differential inputs
- Resolution** 12 bits
- Max. Sampling Rate** 100 kHz* (DAM transfer)
*80 kHz on P4-based (or upper) system.
- Input Impedance** 10 MΩ
- Sampling Modes** Software, pacer or ext.
- Input Range** 80 kHz on P4-based (or upper) system.

PCM-3718H and PCM-3718HO

- Bipolar** ±10, ±5, ±2.5, ±1.25, ±0.625
- Unipolar** 0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25

PCM-3718HG

- Bipolar** ±10, ±5, ±1, ±0.5, ±0.1, ±0.05, ±0.01, ±0.005
- Unipolar** 0 ~ 10, 0 ~ 1, 0 ~ 0.1, 0 ~ 0.01

Analog Output (PCM-3718HO only)

- Channels** 1 (12 bits)
- Output Rate** Static update
- Output Range**

Internal Reference	Unipolar (V)	0 ~ 5, 0 ~ 10
External Reference (V)		0 ~ 10, 0 ~ -10

- Slew Rate** 10 V/μs
- Driving Capability** 10 mA
- Output Impedance** 0.1 Ω max.
- Accuracy** Relative: ±1 LSB

Digital Input/Output

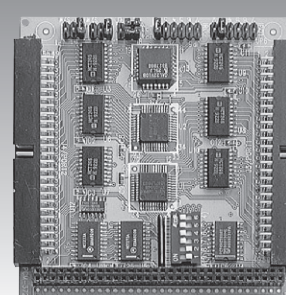
- Channels** 16, 5V/TTL
- Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- Output Voltage** Logic 0: 0.33 V max. @ 6 mA (sink)
Logic 1: 3.84 V min. @ 6 mA (source)

General

- Bus Type** PC/104
- I/O Connectors** 2 x 20-pin box header
- Dimensions (L x H)** 96 x 90 mm (3.8" x 3.5")
- Power Consumption** Typical: 5 V @ 180 mA
Max.: 5 V @ 400 mA
- Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- Storing Temperature** -40 ~ 85° C (-40 ~ 185° F)

Ordering Information

- PCM-3718H** 12-bit Multifunction Module w/ Programmable Gain (cable not included)
- PCM-3718HG** PCM-3718H w/high gain
- PCM-3718HO** PCM-3718H w/AO
- ADAM-3920** 20-pin flat cable wiring terminal for DIN-Rail
- PCLD-780** Screw-terminal board for 20-pin flat cable
- PCL-10120-1** 20-pin flat cable, 1 m
- PCL-10120-2** 20-pin flat cable, 2 m
- ADAM-3909** DB-9 Cable Wiring Terminal



PCM-3724



Features

- Output status read back
- Channels simulate 8255 PPI mode 0
- Interrupt triggering, rising/falling edge

Specifications

Digital Input

- Channels** 48 (shared with output)
- Compatibility** 5 V/TTL
- Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- Interrupt Capable Ch.** 1

Digital Output

- Channels** 48 (shared with input)
- Compatibility** 5 V/TTL
- Output Voltage** Logic 0: 0.5 V max. @ 24 mA (sink)
Logic 1: 2.0 V min. @ 15 mA (source)

General

- Bus Type** PC/104
- I/O Connectors** 2 x 50-pin box header
- Dimensions (L x H)** 96 x 90 mm (3.8" x 3.5")
- Power Consumption** 5 V @ 90 mA
- Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- Storing Temperature** -40 ~ 85° C (-40 ~ 185° F)
- Storing Humidity** 0 ~ 90% RH, non-condensing

Ordering Information

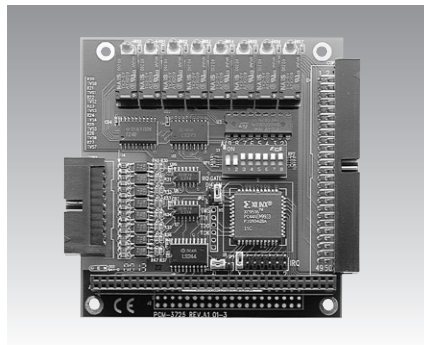
- PCM-3724** 48-ch DI/O Module (cable not included)
- ADAM-3950** 50-pin flat cable wiring terminal for DIN-Rail mounting
- PCLD-785B** 24-ch Relay Output Board
- PCLD-782B** 24-ch Opto-isolated DI Board
- PCL-10150-1.2** 50-pin flat cable, 1.2 m

PCM-3725 PCM-3730 PCM-3780

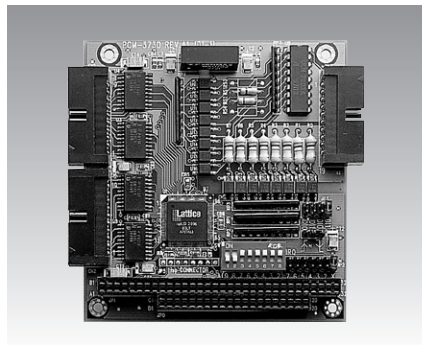
8-ch Isolated DI/Relay Output Module

16-ch Isolated Digital I/O Module

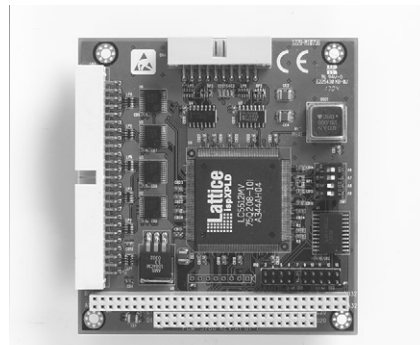
2-ch Counter/Timer with 24-ch TTL DI/O Module



PCM-3725



PCM-3730



PCM-3780



Features

- LED indicators to show activated relays

Specifications

Isolated Digital Input

- Channels** 8
- Input Voltage** Logic 0: 3 V
Logic 1: 10 V (50 V max.)
- Isolation Protection** 2500 V_{DC}
- Overvoltage Protection** 70 V_{DC}
- Opto-Isolator Response** 25 μ s
- Input Resistance** 4.7 k Ω

Relay Output

- Channels** 8
- Relay Type** SPDT (Form C)
- Contact Rating** 30 V_{DC} @ 1.5 A
- Relay on Time** 4 ms
- Relay off Time** 4 ms
- Life Span** 100000 min @ 2 A/30 V
- Resistance** Contact: 100 M Ω
Insulation: 1 G Ω @ 500 V_{DC}

General

- Bus Type** PC/104
- I/O Connectors** 1 x 20-pin head for IDI
1 x 50-pin head for relay
- Dimensions (L x H)** 96 x 90 mm (3.8" x 3.5")
- Power Consumption**
Typical: 100 mA @ +5 V
Max: 280 mA @ +5 V
- Operating Temperature** 0 ~ 60° C (32 ~ 158° F)
- Storing Temperature** -20~70° C (-4 ~ 158° F)
- Storing Humidity** 5 ~ 95% RH, non-cond.

Ordering Information

- PCM-3725** 8-ch Isolated DI/Relay Output Module (no cables inc.)
- PCL-10120-1** 20-pin flat cable 1 m
- PCL-10120-2** 20-pin flat cable 2 m
- PCL-10150-1.2** 50-pin flat cable 1.2 m
- ADAM-3920** 20-pin flat cable wiring terminal for DIN-rail
- ADAM-3950** 50-pin flat cable wiring terminal for DIN-rail
- PCLD-780** Screw-Terminal Board for 20-pin Flat Cable

Features

- High driving capacity and high-voltage isolation

Specifications

Digital Input

- Channels** 16, 5 V/TTL
- Interrupt Capable Ch.** 4

Isolated Digital Input

- Channels** 8
- Input Voltage** Logic 0: 2 V max.
Logic 1: 5 V min. (24 V max.)
- Isolation Protection** 2,500 V_{DC}
- Opto-Isolator Response** 0.1 ms
- Input Resistance** 2 k Ω @ 0.5 V

Digital Output

- Channels** 16, 5 V/TTL
- Output Capability**
Sink: 8 mA @ 0.5 V max.
Source: -0.4 mA @ 2.4 V min.

Isolated Digital Output

- Channels** 8
- Output Type** Sink (NPN)
- Isolation Protection** 2,500 V_{DC}
- Output Voltage** 5 ~ 40 V_{DC}
- Sink Current** 200 mA max./channel
- Opto-Isolator Response** 100 μ s

General

- Bus Type** PC/104
- I/O Connectors** 3 x 20-pin box header
- Dimensions (L x H)** 96 x 90 mm (3.8" x 3.5")
- Power Consumption**
Typical: 330 mA @ +5 V
Max: 500 mA @ +5 V
- Operating Temperature** 0 ~ 60° C (32 ~ 158° F)
- Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- Storing Humidity** 5 ~ 95% RH, non-cond.

Ordering Information

- PCM-3730** 16-ch Isolated DI/O Module (cable included)
- PCL-10120-1** 20-pin flat cable, 1 m
- PCL-10120-2** 20-pin flat cable, 2 m
- ADAM-3920** 20-pin flat cable wiring terminal for DIN-Rail mt.
- PCLD-780** Screw-terminal board for 20-pin flat cable
- PCLD-785/885** 16-ch relay/power relay output board

Specifications

Programmable counter

- 2 independent 16-bit counters
- 4 independent programmable clock sources (10 M, 1 M, 100 k, 10 k)
- 12 programmable counter modes

Digital Input

- Channels** 24 (shared with output)
- Compatibility** 5 V/TTL
- Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.4 V min.
- Interrupt Capable Ch.** 24

Digital Output

- Channels** 24 (shared with input)
- Compatibility** 5 V/TTL
- Output Voltage** Logic 0: 0.5 V max. @ 24 mA (sink)
Logic 1: 2.4 V min. @ 15 mA (source)

Counter/Timer

- Channels** 2
- Resolution** 16 bits
- Compatibility** 5 V/TTL
- Max. Input Frequency** 20 MHz
- Counter Modes** 12 (programmable)
- Interrupt Capable Ch.** 2

General

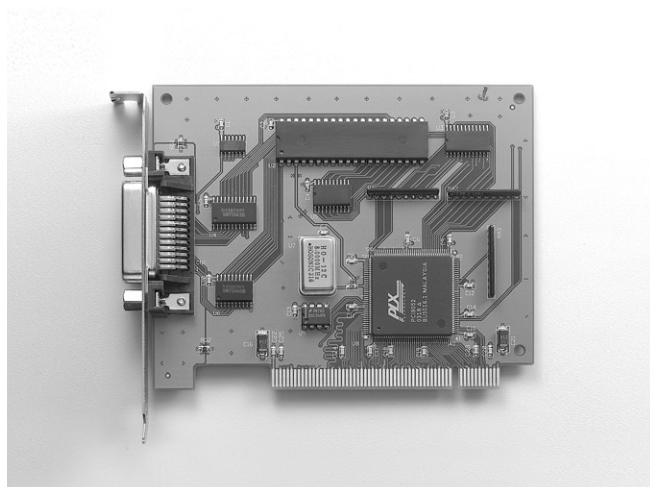
- Bus Type** PC/104
- I/O Connectors** 1 x 50-pin box header
1 x 20-pin box header
- Dimensions (L x H)** 96 x 90 mm (3.8" x 3.5")
- Power Consumption** Typical: +5 V @ 300 mA
Max.: +5 V @ 0.8 A
- Operating Temperature** 0 ~ 60° C (32 ~ 158° F)
- Storing Temperature** -20~70° C (-4 ~ 158° F)
- Operating Humidity** 5 ~ 85% RH non-cond.

Ordering Information

- PCM-3780** 2-ch Counter/Timer with 24-ch TTL DI/O
- PCL-10120-1** 20-pin flat cable 1 m
- PCL-10150-1.2** 50-pin flat cable 1.2 m
- ADAM-3920/50** 20/50-pin flat cable wiring terminal for DIN-rail

PCI-1670

GPIB Interface PCI-bus Card



FCC CE

Features

- Complete IEEE 488.2 compatibility
- Supports Windows® 95/98/NT/ME/2000/XP and DOS.
- Full driver, library, and example support, including Visual C++®, C++ Builder®, LabWindows/CVI, Visual Basic®, Delphi® and LabView® drivers.
- Provides NI-like driver & function libraries.
- PCI bus specification 2.1 compliant
- I/O address automatically assigned by PCI Plug & Play
- Provides powerful and easy-to-use configuration utility

Introduction

PCI-1670 is a high-performance PCI-bus card with a GPIB interface. The card is fully compatible with IEEE 488.1 and 488.2 standards with its PCI 2.1 bus specification. With two driver control modes: controller mode and slave mode; PCI-1670 can perform basic the IEEE 488 talker, listener and controller functions required by IEEE 488.2. You can also connect up to 15 GPIB instruments. Therefore, PCI-1670 is especially suitable for instrument measurements and control.

PCI-1670 is available for Windows 95/98/NT/ME/2000/XP and DOS, and it supports complete drivers and libraries. To make driver development easier, PCI-1670 comes with example drivers programmed in: Visual C++, C++ Builder, Labwindows/CVI, Visual Basic, Delphi and LabVIEW.

Furthermore, PCI-1670 also offers powerful testing features and a configuration utility that allows users to easily access and control instruments.

PCI-1670 offers a comprehensive supplementary controller driver database and provides NI-like commands to help users develop applications. Users can use an interactive GPIB window interface to control devices directly without any need of programming.

Specifications

GPIB

- **Compatibility** IEEE 488, 488.1, 488.2
- **GPIB Transfer Rate** 1 MB/s
- **OS Support** Windows 95/98/NT/2000/XP, DOS
- **Library Support** Visual C++, Borland C++ Builder, LabWindows/CVI, Visual Basic, Delphi, LabVIEW
- **Max. GPIB Connections** 15

General

- **Bus Type** PCI V2.1
- **I/O Connectors** 1 x IEEE 488 standard 24-pin
- **Dimensions (L x H)** 131 x 106 mm (5.15" x 4.17")
- **Operating Temperature** 0 ~ 55° C (32~131° F)
- **Storing Temperature** -20~70° C (-4 ~ 158° F)
- **Operating Humidity** 10 ~ 90% RH, non-condensing

Ordering Information

- **PCI-1670** GPIB Interface PCI-bus Card, IEEE-488 Cable, 2 M
- **PCL-1670L** GPIB Interface PCI-bus Card without cable
- **PCL-10488-2** IEEE-488 Cable, 2 M

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

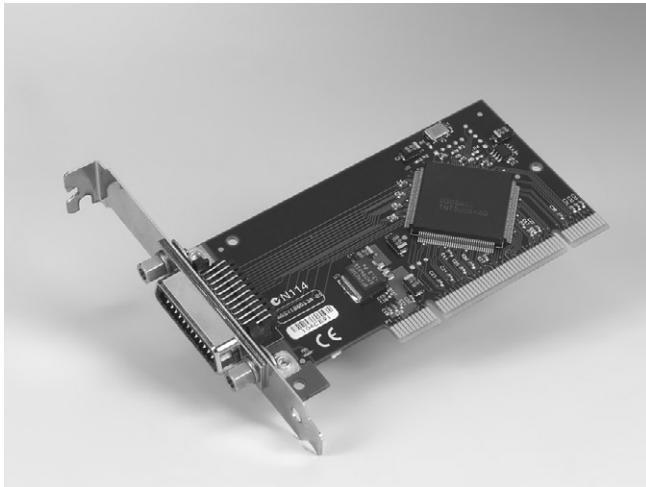
15
Ethernet Switch

16
EDG

17
ICOM

PCI-1671UP

High-Performance IEEE-488.2 Interface for PCI



CE

Features

- IEEE 488.2 Standard interface
- Complete Talker/Listener/Controller
- Industry standard 32-bit PCI bus
- Data transfer rates over 1.5 Megabytes/sec
- 1024-word FIFO buffer
- High-Speed State Machine Bus Manager
- 7 Interrupt lines, shared interrupt capability
- Transparent interrupt enabling/disabling
- Includes GPIB-Library software
- Low profile MD1 size

Introduction

The PCI-1671UP IEEE-488 interface converts any PCI bus personal computer into an instrumentation control and data acquisition system. Connect up to 14 instruments using standard IEEE-488 cables such as the PCL-10488-2, 2 meter IEEE-488 interface cable.

Greater than 1.5 MB/s Transfer Rates

The PCI-1671UP transfers data over the GPIB at rates in excess of 1.5 million bytes per second using the maximum IEEE-488 specification cable length (2 meters times the # of devices). A 1024-word FIFO buffer and the advanced REP-INSW ISR data transfer method provide the horsepower required to then transfer the data between the GPIB board and the host computer. The high-speed state machine also provides byte-to-word packing and unpacking, and because words carry twice the information that bytes do, packed data requires fewer bus cycles to transfer the same GPIB information.

IEEE-488.2 (GPIB) Compatibility

The PCI-1671UP adheres to ANSI/IEEE Standard 488-1978. Often referred to as the IEEE-488.2 bus, GPIB bus or HP-IB bus, the GPIB (General Purpose Interface Bus) is a standard for instrumentation communication and control for instruments from manufacturers the world over. The GPIB provides handshaking and interface communications over an 8-bit data bus employing 5 control and 3 handshake signals. Equipped with PCI-1671UP, a personal computer can:

Control GPIB instruments, gather data from GPIB test equipment, or become a data acquisition station in a GPIB system.

Software

The PCI-1671UP includes powerful GPIB-Library. The library greatly simplifies your programming effort. The PCI-1671UP is also supported by a wide variety of application software packages including LabWindows/CVI®, LabVIEW® and many others.

Specifications

GPIB

- **Compatibility** IEEE 488.1, 488.2
- **GPIB Transfer Rate** 1.5 MB/s
- **OS Support** Windows® 2000/XP
- **Library Support** Visual C++, Borland C++ Builder®, LabWindows/CVI, Visual Basic®, Delphi®, LabVIEW
- **Max. GPIB Connections** 15

General

- **Bus Type** PCI-1671UP: Universal PCI V2.2
- **I/O Connectors** 1 x IEEE 488 standard 24-pin
- **Dimensions (L x H)** 119.91 x 64.41mm (Low profile MD1)
- **Power Consumption** Typical: 5 VDC @ 375 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 158° F) @ 0-90% RH
- **Storing Temperature** -40 ~ 100° C (-40 ~ 212° F) @ 5-90% RH
- **Operating Humidity** 0 ~ 90% RH, non-condensing

Ordering Information

- **PCI-1671UP** High-Performance IEEE-488.2 Interface for PCI-Bus Computers (cable is not included)
- **PCL-10488-2** IEEE-488 Cable, 2 m
- **PCL-ADP488** GPIB Adapter (Necessary while using PCI-1671UP in low-profile chassis)
- **PCI-1671S2** High-performance IEEE-488.2 Interface Card, PCI-1671UP, with IEEE-488 cable 2 m

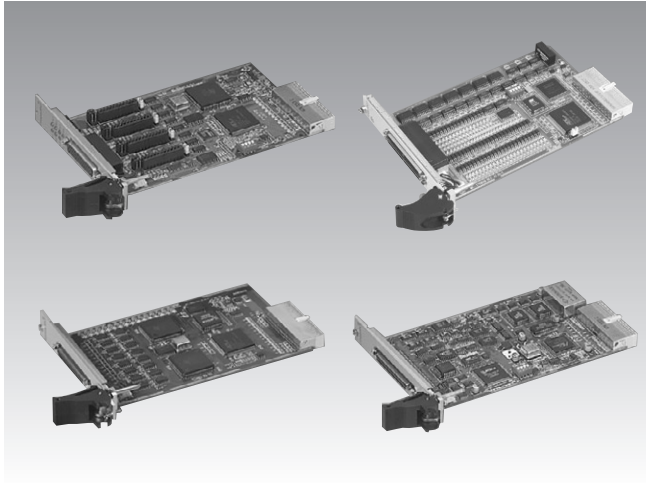
CompactPCI Systems



Advantech CompactPCI Introduction		11-2
3U CPU Cards		
MIC-3321	3U CompactPCI Pentium M 760 2.0 GHz High-performance Controller	11-4
3U Backplane Enclosure		
MIC-3001	4U CompactPCI Enclosure with 8/14-slot 3U Backplane	11-6
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Data Acquisition and Control Cards		
MIC-3716	250 kS/s, 16-bit, 16-ch High-resolution Multifunction Cards	11-9
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Advantech CompactPCI



Features

- Commercial standard PCI chips provide high performance at a low price
- Up to eight slots in one bus segment. Expandable using PCI-to-PCI bridge chips
- Eurocard form factor
- Airtight, high density, 2 mm pin-and-socket connectors
- Front loading and removal
- Vertical card orientation for better cooling
- Staged power pins for hot-swap capability
- Excellent shock and vibration characteristics

Introduction

Engineers have been trying to apply high-performance, low-cost PC technologies to critical applications such as telecommunications and industrial automation for quite some time. Unfortunately, the characteristics of desktop PC technologies do not readily lend themselves to critical applications where high serviceability, vibration & shock resistance, and good ventilation are required. CompactPCI may be the answer.

What is CompactPCI ?

CompactPCI is a small, rugged, high-performance industrial computer architecture based on the standard PCI bus specification. It was developed by the PCI Industrial Computers Manufacturers Group (PICMG) in late 1994, and is ideal for embedded applications.

Three important technologies form the core of CompactPCI: PCI local bus, Eurocard mechanics, and airtight pin-and-socket connectors.

PCI Local Bus

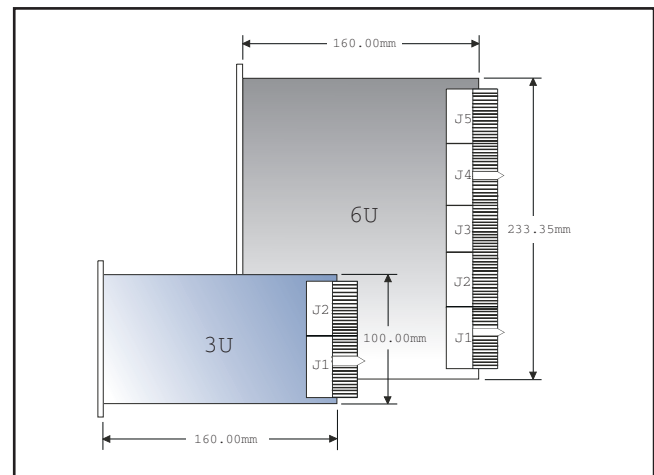
PCI stands for Peripheral Component Interconnect. It was published by Intel in 1992, and soon became popular in commercial PC designs. It is a high-performance, processor-independent data bus, and most importantly, it is very inexpensive. The PCI local bus specification defines two data widths: 32-bit and 64-bit operating at speeds up to 66 MHz. This provides theoretical throughput up to 264 MB/s at 32-bit or 528 MB/s at 64-bit. Most computer systems and operating systems support the PCI bus. For example, Pentium, Alpha, PowerPC, Windows, Unix, and MacOS. Because PCI components are manufactured in large quantities, they are inexpensive and readily available. With these advantages, the PCI bus is very suitable for high speed computing and high speed data communication applications.

Eurocard Mechanics

Eurocard is an industrial-grade packaging standard popularized by VMEbus. CompactPCI allows the use of 3U and 6U Eurocards. The dimensions of a 3U CompactPCI board are 160 mm deep x 100 mm high, while the dimensions of a 6U CompactPCI board are 160 mm deep x 233.35 mm high. The front panels of CompactPCI boards are IEEE 1101.1 and IEEE 1101.10 compliant, and may include optional EMC gaskets to minimize electromagnetic interference. Typically, the front panel contains I/O connectors, LED indicators, and switches. CompactPCI also supports rear panel I/O, which is compliant with IEEE 1101.11. Rear panel I/O is popular for telecommunication equipment because of its easy-to-maintain characteristics. If all the wiring is done on rear transition boards (passive boards), the front CompactPCI boards (active boards), which may require maintenance, are "clean" without any connected wiring. The front CompactPCI boards can then simply be replaced without the need for rewiring.

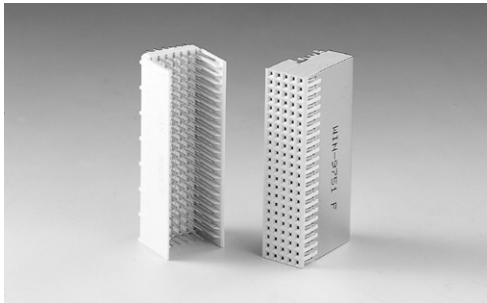
Airtight Pin-and-Socket Connectors

CompactPCI uses airtight, high-density pin-and-socket connectors as specified in the IEC-1076 international standard. These 2 mm "hard metric" connectors have low inductance and controlled impedance, which reduce signal reflections caused by the high speed PCI bus. They enable CompactPCI systems to have up to eight slots in one bus segment.



Eurocard Form Factor

The CompactPCI specification defines five connectors, designated as J1 through J5. The 3U CompactPCI board has two connectors labeled J1 and J2, while the 6U CompactPCI board has five connectors labeled J1 through J5. J1 and J2 are defined identically on both 3U and 6U CompactPCI boards, so 3U and 6U CompactPCI boards are electrically interchangeable.



Pin-and-Socket Connector

CompactPCI versus Conventional Industrial PCs

Serviceability

Replacement of a card from a conventional industrial PC system is always time-consuming. Users need to unfasten the chassis cover, disconnect all wiring from the card, replace the card, reconnect the wiring, and refasten the chassis cover. It is a process prone to error because there can be internal cabling between cards and peripheral devices, and it is necessary to remove all cabling before a card can be replaced. The serviceability of conventional industrial PC systems is not as simple and fast as CompactPCI systems.

CompactPCI is designed to be a front loading and removable system. The replacement of a CompactPCI board is very simple, with no need to remove the chassis cover. In addition, if the I/O is cabled through the back of the system, the front CompactPCI boards are "clean" without any connected wiring, and the replacement of a CompactPCI board is quick and easy. The maintenance time can be reduced from a matter of hours (conventional industrial PCs) to a matter of minutes, yielding a lower Mean Time To Repair (MTTR).



4U 8-Slot CompactPCI Enclosure

Vibration and Shock Resistance

Conventional industrial PCs do not provide reliable and secure support for peripheral cards in the system. Cards inside conventional industrial PCs are screwed down at one point only, and the top and bottom card edges are not supported by guide rails. Therefore, the connecting edge of a card is prone to shift under shock and vibration.

CompactPCI boards are firmly mounted in the system. Guide rails support the top and bottom edges of the boards. Front panel retaining mechanisms securely lock the front panel to the surrounding mechanical frame. The connecting edge of the board is held tightly in place by the pin-and-socket connectors. With all four sides of the board firmly held in place, it is much less prone to suffer loss of electrical contact in high vibration and shock environments.

Ventilation

Conventional industrial PC systems cannot provide regular airflow paths, resulting in uneven cooling within the chassis. Airflow is blocked by backplanes, card brackets, and disk drives. Cooling air cannot circulate over all the cards, and hot air is not immediately forced out of the chassis. Electronic devices and circuit boards deteriorate because of these cooling related problems: warped circuit boards, bad connections, broken traces, and shortened component lives.

CompactPCI systems provide clear paths for airflow over all active, heat-producing boards in the system. Cooling air easily flows through the spaces between cards, and carries heat out of the spaces. A fan system can be integrated at the bottom of the boards to provide forced air to each slot. CompactPCI systems are therefore much less susceptible to cooling problems because of the even cooling pattern inherent in their mechanical design.

The Complete Offering for Mission-Critical Applications

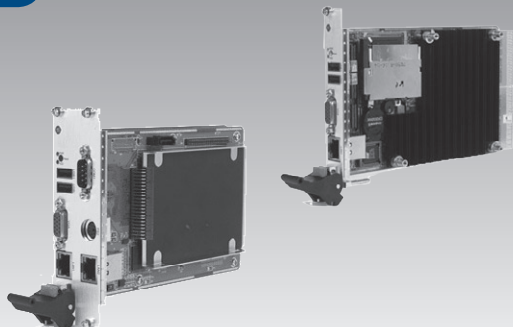
The MIC-3000 series is an industrial CompactPCI solution which features front-end access, high shock and vibration tolerance characteristics, automatic cooling system, fault resilient and hot swappable capabilities. These features make MIC-3000 the most reliable PC-based computing platform, for mission-critical applications. Advantech leverages 3U CompactPCI as the industrial high-end computing platform, providing Pentium 4-grade CPU modules, 8-slot chassis, high-speed I/O and serial communication modules, to become a total solution provider for industrial CompactPCI solutions. Target applications include military defense, transportation, traffic control, test and measurement (T&M) and critical data acquisition & control markets.

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPCC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

MIC-3321

3U CompactPCI® Pentium® M 760 2.0G High-performance Controller

NEW



MIC-3321

MIC-3321S



Features

- Built-in Intel® Pentium® M 760 2.0G processor with 2MB L2 Cache
- Mobile Intel 915GM express chipset
- Supports up to 1GB DDR2 533/400 SDRAM soldered on board
- Extended operating temp: -25 ~ 70° C (Optional; MIC-3321C/ CS only)
- Dual Giga LAN on PCI-Express
- High-performance Intel Graphics Media Accelerator 900 VGA display
- Onboard CompactFlash® disk socket
- Onboard 2.5" HDD support
- Rear I/O signal support for easy wiring

Introduction

The MIC-3321 3U is a CompactPCI system controller board that combines the performance of Intel's Mobile Pentium M 760 2.0GHz processor with the high integration of the 915GM chipset and the I/O Controller Hub ICH6. The low power of the Intel Mobile Celeron® M makes it possible to work with high extended temperature ranges. The directed soldered CPU and memory provide less weight and a higher shock/vibration resistance than socket devices.

MIC-3321 is a powerful 3U CompactPCI Controller that fulfills your requirements in mission critical applications, such as military defense, transportation, traffic control, test and measurement (T&M) as well as critical data acquisition & control applications.

Specifications

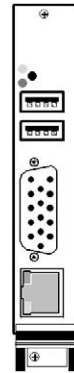
CPU		MIC-3321: Intel Pentium M 760 2.0 GHz with 2 MB L2 cache	
		MIC-3321C: Intel Celeron M Ultra Low Voltage 373 1.0 GHz with 512 KB L2 cache	
		MIC3321L: Intel Celeron M 800 MHz (no cache)	
Chipset		Intel 915 GM (GMCH) + Intel 82801FBM (ICH6-M)	
BIOS		Award 4 MB Flash	
Bus	Front Side Bus	533 MHz (Intel Pentium M 760 2.0 GHz CPU)	
		400 MHz (Intel Celeron M Ultra Low Voltage 373 1.0 GHz CPU)	
	PCI Bus	PCI-to-PCI Bridge: PERICOM PI7C8150	
		7 x 32bit/33MHz CompactPCI bus Master interface	
		3.3 V/5 V VIO adjustable	
Memory		Directed Soldered 512MB DDR2 SDRAM (MIC-3321, MIC-3321C)	
		Directed Soldered 256MB DDR2 SDRAM (MIC-3321L)	
Graphics		Controller: Intel Graphics Media Accelerator 900	
		VRAM: DVM T3.0 128MB	
		Resolution: Up to 2048 x 1536 with 32-bit color at 75 Hz	
Ethernet		Interface: 10/100/1000Base-TX Gigabit Ethernet	
		Controller: 2 x Intel 82573E/L PCI Express Gigabit Ethernet Controller	
		Connector: 2 x RJ-45	
		Supports Pre-boot Execution Environment (PXE)	

Serial	Interface: RS-232
	Controller: 2 x 16C550 Compatible
	Data Bits: 5, 6, 7, 8
	Stop Bits: 1, 1.5, 2
	Parity: None, Even, Odd
	Speed (bps): 50 ~ 115.2K
	Data Signal: Tx/D, Rx/D, RTS, CTS, DTR, DSR, DCD, RI, GND
	Connector: 2 x DB9 male
P-IDE	One as front I/O, one as rear I/O
	One channel P-IDE
	Supports PIO mode 4 (16.67MB/s data transfer rate) and ATA 33/66/100 (33/66/100MB/s data transfer rate)
	1 x CompactFlash Socket Type II
SATA	1 x 44-pin 2.5" HDD connector
	SATA interface with data transfer rate up to 150MB/s
USB	1 x External SATA connector
	4 x USB 2.0 channels up to 480Mbps, 2 as front I/O, 2 as rear I/O
PS/2	PS/2 for keyboard and mouse legacy support
Watchdog Timer	0 ~ 64s, 0.25s step, generate reset signal
Hot Swap	Support for all signals to allow peripheral boards to be hot swapped. The individual clocks for each slot and access to the backplane ENUM# signal comply with the PICMG 2.1 Hot Swap specification. (PCI to PCI bridge GPIO3)

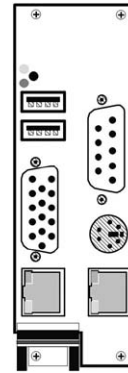
Front Panel Functions	4HP Board	1 x VGA-CRT 15-pin D-SUB connector	
		Ethernet: 1 x RJ-45 connector with integrated LEDs	
		USB: 2 x 4-pin connectors	
		Reset: Reset button, guarded	
		LED: Power, HDD	
	8HP Board (Additional to 4HP)	COM1: 1 x DB9 RS-232 connector	
PS/2: 1 x PS/2 connector for keyboard and mouse			
Ethernet: 1 x RJ-45 connector with integrated LEDs			
Rear I/O via J2	2 x USB 2.0 channels		
	2 x Gigabit Ethernet channels with LED (shared with front I/O)		
	1 x COM port		
	1 x VGA-CRT channel (shared with front I/O)		
	1 x PS/2 keyboard/mouse channel (shared with front I/O)		
Compliance	PICMG 2.0 Rev. 3.0 compatible		
	CompactPCI Hot Swap Specification PICMG 2.1 R2.0		
Environment	Operating Temperature	0 ~ 50° C (MIC-3321 Pentium M 2.0G)	
		0 ~ 50° C (MIC-3321L Celeron M 800M)	
		0 ~ 50° C (MIC-3321C Celeron M 1.0G)	
		-25 ~ 70° C (Optional; MIC-3321C/MIC-3321CS only)	
	Storage Temperature	-40 ~ 80° C	
Physical	Dimensions (W x H)	160 x 100 mm (3U)	
	Weight	0.6 Kg	
Rear Transition Board	P/N	MIC-3521	
	Width	8HP	

Front View of MIC-3321

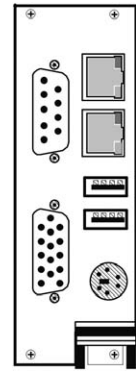
MIC-3321S



MIC-3321



MIC-3521



Ordering Information

- **MIC-3321** Pentium M 2.0 GHz, 2MByte L2 cache, 512 MByte soldered DDR2 SDRAM, 8 HP width
- **MIC-3321S** Pentium M 2.0 GHz, 2MByte L2 cache, 512 MByte soldered DDR2 SDRAM, 4 HP width
- **MIC-3321C** Celeron M 1.0 GHz, 512KByte L2 cache, 512 MByte soldered DDR2 SDRAM, 8 HP width
- **MIC-3321CS** Celeron M 1.0 GHz, 512KByte L2 cache, 512 MByte soldered DDR2 SDRAM, 4 HP width
- **MIC-3321L** Celeron M 800 MHz, 0KByte L2 cache, 256 MByte soldered DDR2 SDRAM, 8 HP width
- **MIC-3321LS** Celeron M 800 MHz, 0KByte L2 cache, 256 MByte soldered DDR2 SDRAM, 4 HP width
- **MIC-3521** Rear I/O Transition Board for MIC-3321 series

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AWS

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Plug-in I/O

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CompactPCI

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Signal Conditioning

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USB I/O

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Motion Control I/O

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Ethernet Switch

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ICOM

MIC-3001

4U CompactPCI® Enclosure with 8/14-slot 3U Backplane



Features

- Eight, fourteen 3U CompactPCI® slots
- Easy installation: rackmount or panelmount
- Hot swap compliant backplane
- Hot swap fan tray module
- Optional fault detection and alarm notification
- Logic Ground and Chassis Ground can be isolated or common

Introduction

The MIC-3001/8 is a 4U-size enclosure with eight 3U CompactPCI slots for rack or panel mounting. Its flexible modular design allows users to configure for a variety of applications. Reserved space in Device Bay can be used to install peripherals such as 3.5" HDD, or a CD-ROM drive.

The 3U size 8, 14-slot backplane of the MIC-3001 series supports 32-bit operation. The backplane complies with the PICMG 2.1 Hot-Swap Specification, and you can build easy-to-maintain systems with hot-swappable CompactPCI boards and software.

A 1U-high fan module provides forced cooling air into the system. Two 113-CFM high-speed fans are mounted in a hot-swap tray directly underneath the card slots. The fan's tachometer output enables the alarm module to monitor the speed of the fans, and a protective circuit has been designed into the fan backplane to reduce spikes and noise during hot-swapping. This design allows replacement of fans without turning the system off.

Specifications

Backplane

- **Slots** MIC-3001AR/8-A, MIC-3001HR/8-A: 8
MIC-3001CR/14-A: 14
- **Bus** 32-bit/33 MHz
- **Vio Voltage** 3.3 V/5 V (short-bar selectable)

Device Bay

- **HDD or CD-ROM** Yes

Cooling

- **Fan** MIC-3001AR/8-A, MIC-3001HR/8-A: 2 (2 *113 CFM)
MIC-3001CR/14-A: 3 (3 *113 CFM)

Power

- **Input**
MIC-3001AR/8-A: 90 ~ 132 V_{AC}/180 ~ 264 V_{AC} @ 47 ~ 63 Hz.
MIC-3001HR/8-A: 100 ~ 240 V_{AC} (With ±10% tolerance)
MIC-3001CR/14-A: 90 ~ 264 V_{AC} @ 47~63 Hz
- **Output**
MIC-3001AR/8-A: 400 W
MIC-3001HR/8-A: 300 W
MIC-3001CR/14-A: 250 W

Loading (A)

Model	Load	+3.3 V	+5 V	-5 V	+12 V	-12 V	+5 Vsb
MIC-3001AR/8-A	Max.	20	42	1	14	1	0.75
	Min.	0.2	2.5	0	0.5	0	0
MIC-3001HR/8-A	Max.	18	25	0.5	16	0.5	2
	Min.	1	3	0	2	0	0.1
MIC-3001CR/14-A	Max.	18	25	N/A	5	0.5	N/A
	Min.	0	0	0	0	0	0

Environment

- **Operating Temperature** 0~50° C (32 ~ 122° F)

- **Storing Temperature** -40 ~ 80° C (-40 ~ 176° F)
- **Storing Humidity** 10 ~ 90% @ 40° C, non-condensing

Physical

Model	MIC-3001/8	MIC-3001R series
Dimensions (W x H x D)	440 x 178 x 240mm	440 x 178 x 283mm
Weight	7 Kg (15.4lb)	MIC-3001AR/8: 10 kg (22 lb) MIC-3001HR/8: 11.5 kg (25.3 lb) MIC-3001CR/14: 12 kg (26.4 lb)

- **Operating Vibration** 1.0 Grms w/CF disk
0.5 Grms w/3.5" HDD
- **Shock** 10 G peak-to-peak, 11ms duration

Reliability

- **MTBF (hours)** 71174 hours

Compliance

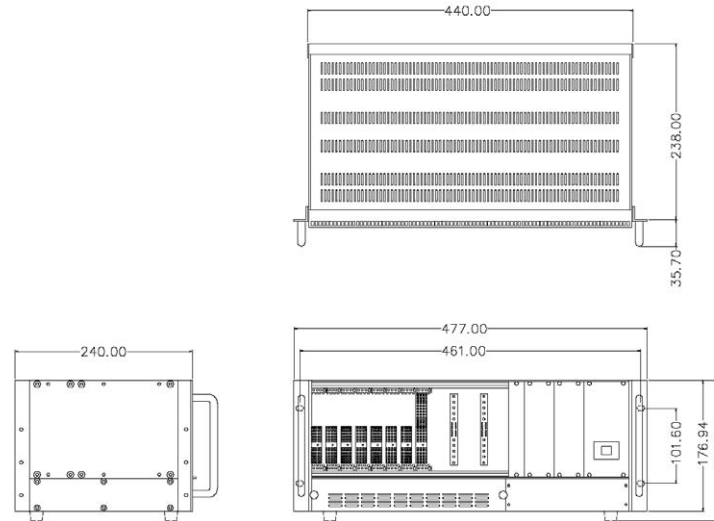
- **PICMG Compliance** PICMG 2.0, R 2.1 CompactPCI Specification
PICMG 2.1, R 1.0 Hot Swap Specification

Ordering Information

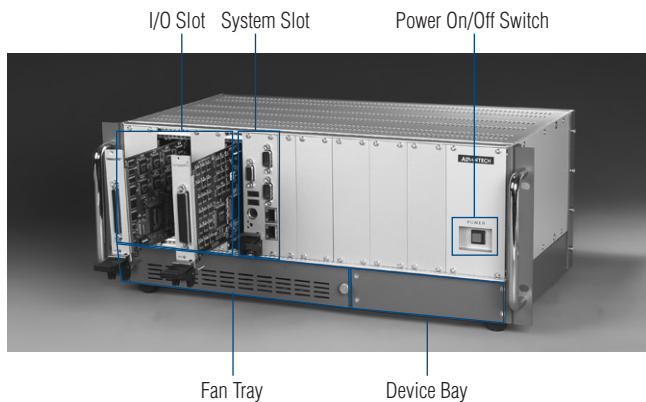
- **MIC-3001/8** 4U CompactPCI chassis with 8-slot backplane, fan tray module, and AC ATX power supply
- **MIC-3001AR/8** 4U CompactPCI chassis with 8-slot backplane, fan tray module, rear I/O and AC ATX power supply
- **MIC-3001HR/8** 4U CompactPCI chassis with 8-slot backplane, fan tray module, rear I/O and AC ATX redundant power supply
- **MIC-3001CR/14** 4U CompactPCI chassis with 14-slot backplane, fan tray module, rear I/O and cPCI standard redundant power supply
- **9663300100** 3.5" FDD/HDD bracket accessory for MIC-3000 chassis
- **9663300101** 3U-4TE Blank Cover accessory for MIC-3000 chassis

MIC-3001 Series

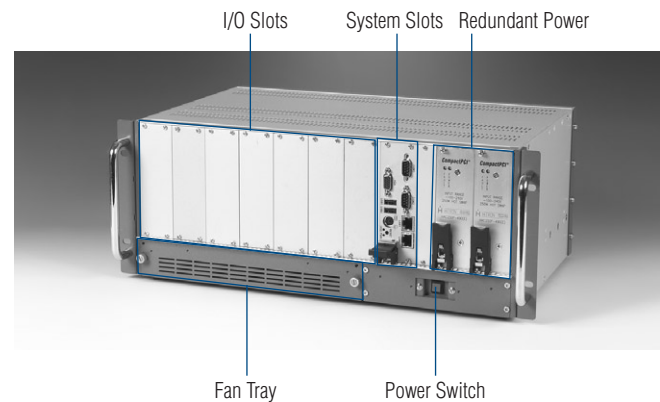
Dimensions



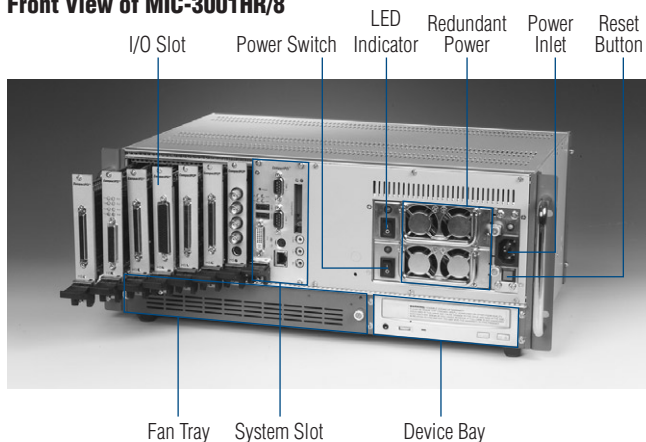
Front View of MIC-3001/8 and MIC-3001R/8



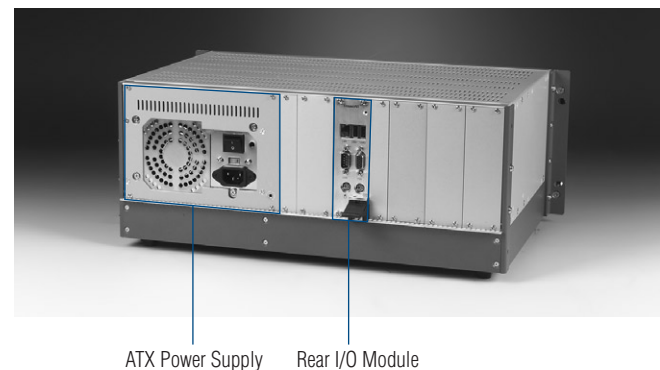
Front View of MIC-3001CR/14



Front View of MIC-3001HR/8



Rear View of MIC-3001R/8



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ICOM

MIC-3002A

4U CompactPCI® Enclosure with 6-slot 3U Backplane



Features

- 6-slot 3U CompactPCI® backplane
- Compact size, 4U high enclosure for 3U cPCI modules
- Side handle design and optional 6" LCD display for portable applications
- Stand feet on the bottom side for desktop applications
- Hot-swap compliant backplane
- Logic ground and chassis ground can be isolated or common

Introduction

The MIC-3002AD/6 is a compact 4U CompactPCI chassis designed specially for portable applications. With a side handle design it can be carried conveniently, and it also has an onboard 6" LCD display on the rear panel. The MIC-3002AD/6 is therefore suitable as a rugged all-in-one mobile controller for applications in battle fields, production lines, transportation systems and traffic control systems.

Hot Swap Passive Backplane

The 3U-size, 6-slot backplane of MIC-3002AD/6 supports 32-bit operation. The backplane complies with the PICMG 2.1 Hot swap specifications, and you can build easy-to-maintain systems with hot-swappable CompactPCI boards and software.

Specifications

System

Backplane	Slots	6 CompactPCI slots (one system slot and 6 peripheral slots)					
	Bus	32-bit/33 MHz					
	I/O Voltage	3.3 V or 5 V, jumper selectable					
Cooling System	Air Flow	Two 46 CFM fans, 12 V _{DC} brush less, dual ball bearing (with removable filter)					
	Life Span	80,048 hours @ 25° C					
Power Supply	Input	100 ~ 240 V _{AC} @ 47~63 Hz, full range					
	Output	250 W ATX power supply					
	MTBF	105,405 hours @ 25° C					
		+5 V	-5 V	+12 V	-12 V	+3.3 V	+5 Vsb
	Max. Load	24	0.5	12	0.5	20	1.5
	Min. Load	3	0	2	0	1	0.1
Environment		Operating			Storing		
	Temperature	0 ~ 60° C (32~140°F) or 0 ~ 50° C (32~122° F) for LCD model			-40 ~ 80° C (-40~112° F) or 0 ~ 70° C (32 ~ 158° F) for LCD model		
	Humidity	95% @ 60° C (140° F), non-condensing					
	Vibration	0.5 Grms			2.0 Grms		
	Shock	20 G peak-to-peak, 11 ms duration					

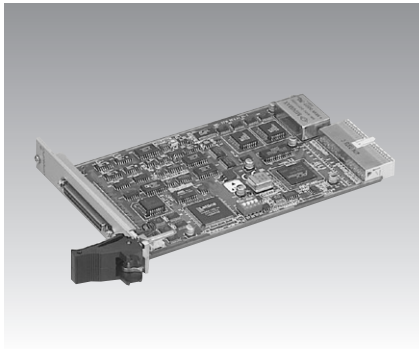
	Model	MIC-3002 MIC-3002AD	MIC-3002AR
Physical	Dimensions (W x H x D) (not inc.mnt flanges)	220 x 190 x 245 mm (8.7" x 7.5" x 9.7")	220 x 190 x 279 mm (8.7" x 7.5" x 11")
	Weight	5.6 kg (12.32 lb) for MIC-3002A 6.6 kg (14.52lb) for MIC-3002AD	6.2 kg (14.3lb) for MIC-3002AR
	U Height (Slots)	3 U	
	Mounting Options	wall, panel on front or rear side, desktop feet included	
	Enclosure Materials	Aluminum frame and galvanized sheet steel	
	Reliability	MTBF	87,191 hours @ 25° C
Compliance	PICMG 2.0, Ver. 3.0 CompactPCI PICMG 2.1, Ver. 2.0 Hot Swap		
LCD Option	Screen Size	6"	
	Dimensions	3U height x 10-slot (40 HP) width	
	Resolution	640 x 480 x 18-bit colors (262,144 colors)	
	Pixel Pitch	0.1905 x 0.1905 mm	
	Brightness	400 cd/m2	

Ordering Information

- **MIC-3002A/6** 4U CompactPCI chassis with 6-slot backplane
- **MIC-3002AD/6** 4U CompactPCI chassis with 6-slot backplane and 6" LCD
- **MIC-3002AR/6** 4U CompactPCI chassis with 6-slot backplane and Rear I/O support
- **1960002861** 2.5" HDD support kit for anti-vibration for MIC-3002A/6 and MIC-3002AD/6

MIC-3716 MIC-3714 MIC-3723/3723R

**250 kS/s, 16-bit, 16-ch
High-resolution Multifunction Cards**
**30 MS/s Simultaneous 4-ch Analog
Input Card**
**16-bit, 8-ch Non-isolated Analog
Output Cards**



MIC-3716/3

Specifications

Analog Input

- Channels: 16 single-ended, 8 differential, or combination
- Resolution: 16 bits
- Max. Sampling Rate: 250 kS/s
- FIFO Size: 1024 samples/ch
- Overvoltage Protection: 30 Vp-p
- Input Impedance: 100 M Ω /10 pF (Off); 100 M Ω /100 pF (On)
- Sampling Modes: Software, pacer, or external
- Input Range: Bipolar, Unipolar

	Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Unipolar	-	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25	0 ~ 0.625
Accuracy (% of FSR ± 1 LSB)	0.15	0.03	0.03	0.05	0.1	0.1

Analog Output

- Channels: 2
- Resolution: 16 bits
- Output Rate: Static update
- Output Range: Bipolar, Unipolar

Internal Reference	Bipolar	± 5 , ± 10
Unipolar	-	0 ~ 5, 0 ~ 10
External Reference	0 ~ +x V @ +x V (-10 \leq x \leq 10) -x ~ +x V @ +x V (-10 \leq x \leq 10)	

- Slew Rate: 20 V/ μ s
- Driving Capability: ± 20 mA
- Output Impedance: 0.1 Ω max.
- Operation Mode: Single output
- Accuracy: Relative: ± 1 LSB

Digital Input/Output

- Channels: 16, 5V/TTL
- Input Voltage: Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- Output Voltage: Logic 0: 0.4 V max.
Logic 1: 2.7 V min.
- Output Capability: Sink: 0.4 V max. @ +8 mA
Source: 2.4 V min. @ -0.4 mA

Counter/Timer

- Channels: 3

Applications

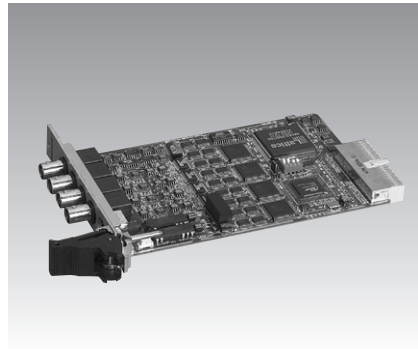
- Compatibility: 5 V/TTL
- Resolution: 16 bits
- Max. Input Frequency: 1 MHz
- Reference Clock: Internal 10 MHz
External Clock Frequency 10 MHz
External Voltage Range TTL (Low: 0.8, High: 2 V)

General

- PICMG Compliance: CompactPCI V2.0, R 2.1 Hot-Swap V2.1, R 2.0
- Bus Type: CompactPCI
- I/O Connector Type: 68-pin SCSI-II female
- Dimensions: 160 x 100 mm (6.3" x 3.9") with 3U/6U Bracket
- Power Consumption: Typical: +5 V @ 850 mA, +12 V @ 600 mA
Max.: +5 V @ 1 A, +12 V @ 700 mA
- Certifications: CE

Ordering Information

- MIC-3716/3: 3U, 250 kS/s, 16-bit, 16-ch High-Resolution Multifunction Card Industrial Wiring Terminal Board with CJC circuit for DIN-rail Mounting, (cable not included)
- PCLD-8710: 68-pin SCSI-II cable with male connectors on both ends and special shielding for noise reduction, 1 and 2 m
- PCL-10168: 68-pin SCSI-II cable with male connectors on both ends and special shielding for noise reduction, 1 and 2 m
- ADAM-3968: 68-pin SCSI-II Wiring Terminal Board for DIN-rail Mounting



MIC-3714/3

Specifications

Analog Input

- Channels: 4 single-ended channels
- Resolution: 12 bits
- Max. Sampling Rate: 30 MS/s (Only in FIFO 32k)
- FIFO Size: 32,768 samples/ch
- Overvoltage Protection: 30 Vp-p
- Input Impedance: 50 Ω /1 M Ω /jumper selectable, 100 pF
- Sampling Modes: Software, pacer, post-trigger, pre-trigger, delay-trigger, about-trigger

- Input Range: (V, software programmable)

General

- Bus Type: CompactPCI
- I/O Connectors: 4 x BNC connector (for AI)
1 x PS/2 connector (for ext. clock and trigger)

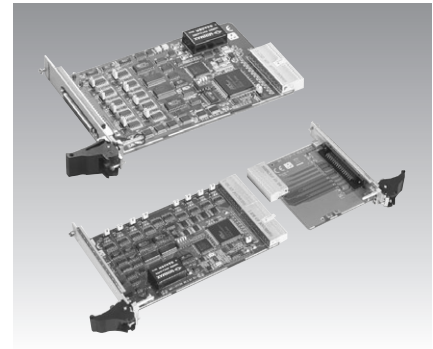
Dimensions (L x H)

Power Consumption

- Operating Temperature: 0 ~ 70° C (32~158° F)
- Storing Temperature: -20 ~ 85° C (-4~185° F)
- Storing Humidity: 5~95% RH, non-condensing (refer to IEC 68-2-3)
- Certifications: CE and FCC certified

Ordering Information

- MIC-3714/3: 3U, 30 MS/s Simultaneous 4-ch Analog Input Card DB-9 Wiring Terminal for DIN-rail Mounting PS2 to DB-9 wiring cable, 1 m
- ADAM-3909: PS2 to DB-9 wiring cable, 3 m
- PCL-10901-1: BNC to BNC wiring cable, 1 m
- PCL-10901-3: BNC to BNC wiring cable, 3 m
- PCL-1010B-1: BNC to BNC wiring cable, 1 m



MIC-3723R/3

MIC-3723/3

Specifications

Analog Output

- Channels: 8
- Resolution: 16 bits
- Output Rate: Static update
- Output Range: (V, software programmable)

Internal Reference	Unipolar	± 10 V
Current Loop	-	0 ~ 20 mA, 4 ~ 20 mA

- Slew Rate: 20 V/ μ s
- Driving Capability: 5mA
- Output Impedance: 0.1 Ω max.
- Operation Modes: Single output, synchronized output

Digital Input/Output

- Channels: 16, 5V/TTL
- Input Voltage: Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- Output Voltage: Logic 0: 0.5 V max. @ 24 mA
Logic 1: 2.4 V min. @ -15 mA
- Output Capability: Sink: 0.5 V max. @ 24 mA
Source: 2.4 V min. @ -15 mA

General

- PICMG Compliance: CompactPCI V2.0, R 2.1 Hot-Swap V2.1, R 2.0
- Bus Type: CompactPCI
- I/O Connector Type: 68-pin SCSI-II female
- Dimensions: 160 x 100 mm (6.3" x 3.9") with 3U/6U Bracket
- Power Consumption: Typical: 5 V @ 850, 12 V @ 600 mA
- Certifications: CE

Ordering Information

- MIC-3723/3: 3U CompactPCI 16-bit, 8-ch non-isolated analog output card
- MIC-3723R/3: 3U CompactPCI 16-bit, 8-ch non-isolated analog output card with Rear I/O support
- PCL-10168-1: 68-pin SCSI-II cable with male connectors on both ends and special shielding for noise reduction, 1 and 2 m
- PCL-10168-2: 68-pin SCSI-II Wiring Terminal Board for DIN-rail mounting
- ADAM-3968: 68-pin SCSI-II Wiring Terminal Board for DIN-rail mounting

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MIC-3753/3753R

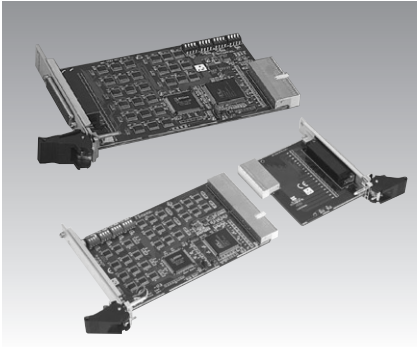
MIC-3756

MIC-3758

72-ch Digital I/O Cards

64-ch Isolated Digital I/O Card

128-ch Isolated Digital I/O Card



MIC-3753R/3

MIC-3753/3



Specifications

Digital Input

- Channels 72 (shared with output)
- Compatibility 5 V/TTL
- Input Voltage Logic 0: 0.8 V max.
Logic 1: 2.0 V min.
- Interrupt Capable Ch. 6 (2 for each C port)

Digital Output

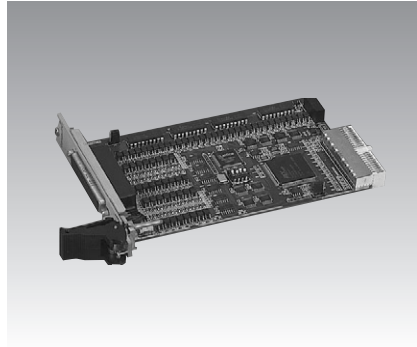
- Channels 72 (shared with input)
- Compatibility 5 V/TTL
- Output Voltage Logic 0: 0.44 V max. @ 24 mA
Logic 1: 3.76 V min. @ 24 mA
Sink: 0.44 V max. @ 24 mA
Source: 3.76 V min. @ 24 mA
- Output Capability

General

- PICMG Compliance CompactPCI V2.0, R 2.1
Hot-Swap V2.1, R 2.0
- Bus Type CompactPCI
- I/O Connectors 1 x 78-pin D-type female connector
- Dimensions 160 x 100 mm (6.9" x 3.9")
with 3U/6U Bracket
- Power Consumption Typical: +5 V @ 400 mA
Max.: +5 V @ 0.7 A
- Operating Temperature 0 ~ 60° C (32 ~ 140° F)
(refer to IEC 68-2-1, 2)
- Operating Humidity 5 ~ 95% RH, non-condensing
(refer to IEC 68-2-3)
- Storing Temperature -20 ~ 70° C (-4 ~ 158° F)
- Certifications CE

Ordering Information

- MIC-3753/3 3U CompactPCI 72-ch Digital I/O card
- MIC-3753R/3 3U CompactPCI 72-ch Digital I/O card with Rear I/O support
- PCL-10178-1 DB-78 cable assembly, 1 m
- ADAM-3978 DB-78 wiring terminal for DIN-rail mounting



MIC-3756/3



Specifications

Isolated Digital Input

- Channels 32
- Input Voltage Logic 0: 2 V max.
Logic 1: 10 V min.
(50 V max.)
- Interrupt Capable Ch. 2 (DI00, DI16)
- Isolation Protection 2,500 V_{DC}
- Input Resistance 5.7kΩ

Isolated Digital Output

- Channels 32
- Output Type Sink (NPN)
- Isolation Protection 2,500 V_{DC}
- Output Voltage 5 ~ 40 V_{DC}
- Sink Current 100 mA max./channel
- Opto-Isolator Response OFF delay (±20%) 5 μs
ON delay (±20%) 120 μs

Photocouple Response Time

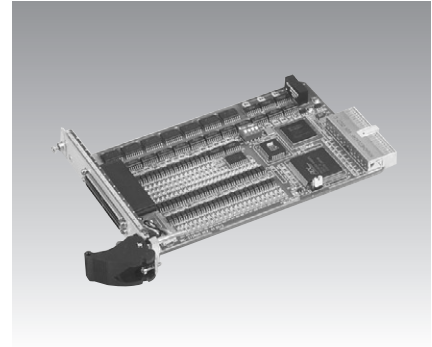
Input Voltage	*OFF delay (±20%)	*ON delay (±20%)
12 V	120 μs	10 μs
24 V	140 μs	5 μs
30 V	150 μs	4 μs
50 V	200 μs	4 μs

General

- PICMG Compliance CompactPCI V2.0, R 3.0
Hot-Swap V2.1, R 2.0
- Bus Type CompactPCI
- I/O Connectors 1 x 78-pin D-type female connector
- Dimensions 160 x 100 mm (6.9" x 3.9")
with 3U/6U Bracket
- Power Consumption Typical: 5 V @ 220 mA
Max: 3.3 V @ 260 mA
- Operating Temperature 0 ~ 60° C (32 ~ 140° F)
(refer to IEC 68-2-1, 2)
- Operating Humidity 5 ~ 95% RH, non-condensing
(refer to IEC 68-2-3)
- Storing Temperature -20 ~ 70° C (-4 ~ 158° F)
- Certifications CE

Ordering Information

- MIC-3756/3 3U 64-channel isolated digital I/O Card
- PCL-10178-1 DB-78 cable assembly, 1 m
- ADAM-3978 DB-78 wiring terminal for DIN-rail mounting



MIC-3758/3



Specifications

Isolated Digital Input

- Channels 64
- Input Voltage Logic 0: 2.5 V max.
Logic 1: 5 V min. (25 V max)
- Interrupt Capable Ch. 64
- Isolation Protection 2500 V_{DC}
- Opto-Isolator Response 50 μs
- Input Resistance 3 kΩ

Isolated Digital output

- Channels 64
- Output Type Sink (NPN)
- Isolation Protection 2500 V_{DC}
- Output Voltage 5 ~ 40 V_{DC}
- Sink Current 90 mA max./Channel
- Opto-isolator Response 50 μs

General

- Bus Interface CPCI bus spec. 2.1 compliant
- I/O Connectors 1 x MINI-SCSII HDRA-E100 Female
- Board Dimensions CPCI 3U (160 mm x 100 mm)
- Power Consumption Typical : +5 V @ 800 mA,
+3.3 V @ 600 mA
Max : +5 V @ 1 A, +3.3 V @ 1 A
- Operating Temperature 0 ~ 60° (32 ~ 140 °F)
(IEC 68-2-1,2)
- Storing Temperature -20° ~ 70 °C (-4° ~ 158 °F)
- Storing Humidity 5 ~ 95% (IEC 68-2-3)
non-condensing

Ordering Information

- MIC-3758/3 3U CompactPCI 128-ch isolated Digital I/O card
- PCL-101100S-1 100-pin SCSI Cable, 1 m
- ADAM-39100 100-pin SCSI wiring terminal, DIN-rail mounting

MIC-3761

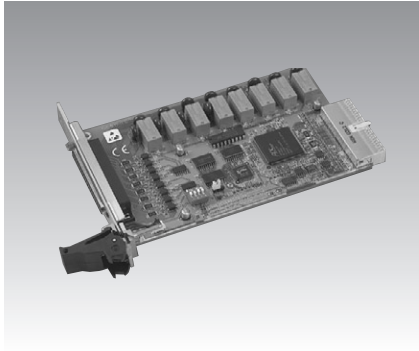
MIC-3780/3780R

MIC-3611/3611R

8-ch Relay Actuator and 8-ch Isolated Digital Input Card

8-ch Counter/Timer Cards

4-port RS-422/485 Communication Cards, w/Surge and Isolation Protection



MIC-3761/3

Specifications

Isolated Digital Input

- Channels 8
- Input Voltage Logic 0: 3 V max.
Logic 1: 10 V min.
(50 V max.)
- Input Current* 10 V_{DC} 1.6 mA (typical)
12 V_{DC} 1.9 mA (typical)
24 V_{DC} 4.1 mA (typical)
48 V_{DC} 8.5 mA (typical)
50 V_{DC} 8.9 mA (typical)
- Interrupt Capable Ch. ID0 ~ ID7
- Isolation Protection 3,750 V_{DC}
- Overvoltage Protection 70 V_{DC}
- Opto-Isolator Response 25 µs
- Input Resistance 560 Ω

Relay Output

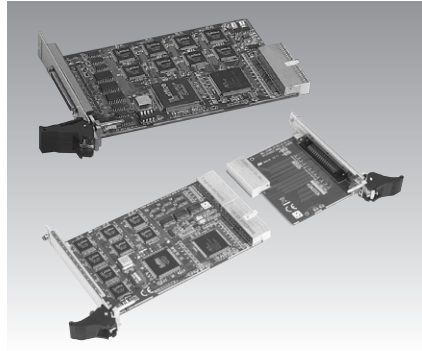
- Channels 8
- Relay Type SPDT
(4 Form A, and 4 Form C)
- Contact Rating 3 A @ 250 V_{AC} or
3 A @ 24 V_{DC}
- Relay on Time 15 ms max.
- Relay off Time 5 ms max.
- Life Span Mechanical
2 x 10⁷ ops. min.
Electrical
2 x 10⁶ ops. min.
(contact rating)
- Resistance 1 GΩ min. (at 500 V_{DC})

General

- PICMG Compliance CompactPCI V2.0, R 3.0
Hot-Swap V2.1, R 2.0, R 2.1
- Bus Type CompactPCI
- I/O Connectors 1 x 37-pin D-type female
connector
- Dimensions 160 x 100 mm (6.3" x 3.9")
with 3U/6U Bracket
- Power Consumption Typical: +5 V @ 220 mA
Max.: +5 V @ 750 mA
- Certifications CE

Ordering Information

- MIC-3761/3 3U 8-ch Relay Actuator and
8-ch Isolated D/I Card
- PCL-10137-1/2/3 DB-37 cable assembly, 1, 2
and 3 m
- ADAM-3937 DB-37 Wiring Terminal for
DIN-rail Mounting
- PCLD-780 Universal Screw Terminal
Board



MIC-3780R/3

MIC-3780/3

Specifications

Counter/Timer

- Channels 8 (independent)
- Resolution 16 bits
- Compatibility 5 V/TTL
- Max. Input Frequency 20 MHz
- Reference Clock Internal: 20 MHz
- Counter Modes 12 (programmable)
- Interrupt Capable Ch. 8

Digital Input

- Channels 8
- Compatibility 5 V/TTL
- Input Voltage Logic 0: 0.8 V max.
Logic 1: 2.4 V min.
- Interrupt Capable Ch. 1 (channel 0)

Digital Output

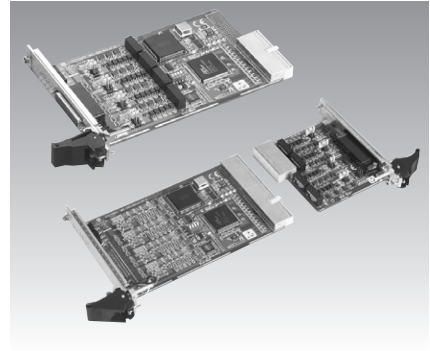
- Channels 8
- Compatibility 5 V/TTL
- Output Voltage Logic 0: 0.5 V max. @ 24 mA
Logic 1: 2.4 V min. @ -15 mA
- Output Capability Sink: 0.5 V max. @ 24 mA
Source: 2.4 V min. @ -15 mA

General

- PICMG Compliance CompactPCI V2.0, R 3.0
Hot-Swap V2.1, R 2.0
- Bus Type CompactPCI V2.1
- I/O Connectors 68-pin SCSI-II female
160 x 100 mm (6.3" x 3.9")
with 3U/6U Bracket
- Dimensions (L x H)
- Power Consumption Typical: +5 V @ 900 mA
Max: +3.3 V @ 1.2 A
- Operating Temperature 0 ~ 60°C (32 ~ 140°F)
(refer to IEC 68-2-1, 2)
- Storage Temperature -20 ~ 70°C (-4 ~ 158°F)
- Relative Humidity 5 ~ 95% RH non-condensing
(refer to IEC 68-2-3)
- Certifications CE, FCC Class A

Ordering Information

- MIC-3780/3 3U Compact PCI 8-ch, 16 bit
counter/timer card
- MIC-3780R/3 3U Compact PCI 8-ch, 16 bit
counter/timer card with Rear
I/O support
- PCL-10168 68-pin SCSI-II cable with
male connectors on both
ends and special shielding for
noise reduction,
1 and 2 m
- ADAM-3968 68-pin SCSI-II Wiring
Terminal Board for DIN-rail
mounting



MIC-3611R/3

MIC-3611/3

Specifications

- Bus Interface CPCI bus spec. 2.1 compliant
- Communication Controller BUS controller: PLX9030
- UART OXFORD 16c954 UART with
128-byte FIFOs
- IRQ All ports use the same IRQ
assigned by PCI
Plug-and-Play
5, 6, 7, 8
- Data Bits 1, 1.5, 2
- Stop Bits none, even, odd
- Parity OXFORD 16c954 UART with
128-byte FIFOs
- Communication Controller 50bps ~ 921.6 Kbps
- Speed TxD, RxD, RTS, CTS
(for RS-422/485)
- Data Signals DB44 connector, Four
RS422/485 DB9 (M)
connectors provided via
included cable
- Connector 2000 V_{DC}
2500 V_{DC}
- Surge Protection +5 V @ 600 mA
- Isolate Protection 0 ~ 60 °C
- Board Dimensions -20 ~ 80 °C
- Power Consumption 5 ~ 95% Relative Humidity,
non-condensing
- Operating Temperature CE, FCC
- Operating Humidity
- Certifications

Ordering Information

- MIC-3611/3 4-port RS-422/485 3U
CompactPCI communication
card w/isolation & surge
protection
- MIC-3611R/3 4-port RS-422/485 3U
CompactPCI communication
card w/isolation & surge
protection, Rear IO support

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

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CompactPCI

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Signal Conditioning

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USB I/O

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Motion Control I/O

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Ethernet Switch

16
EDG

17
ICOM

MIC-3612

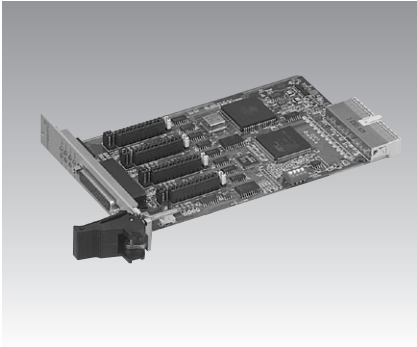
MIC-3620

MIC-3680/3680R

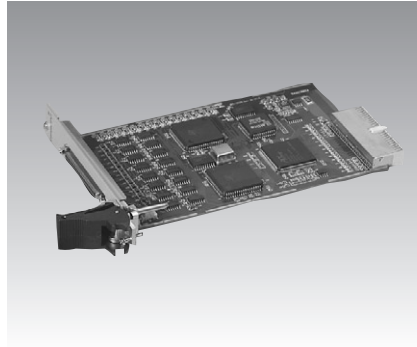
4-port RS-232/422/485 Communication Card, w/Surge Protection

8-port RS-232 Communication Card

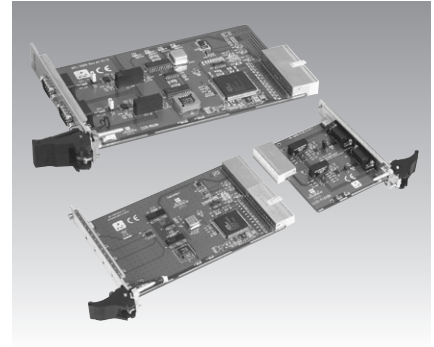
2-port Isolated CAN Communication Cards



MIC-3612/3



MIC-3620/3



MIC-3680R/3

MIC-3680/3

Features

- PCI Specification 2.1 compliant
- Speeds up to 921.6 kbps
- 4-port RS-232/422/485
- With Surge protection
- 16C954 UARTs with 128-byte standard
- Standard Industrial CompactPCI® 3U Board size
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows® 98/2000/XP, Linux
- Interrupt status register for increased performance
- Automatic RS-485 data flow control
- Tx/Rx LED indicator

Specifications

Communications

- **Communication** BUS controller: PLX9030 Controller
UART: 16C954
- **Data Bits** 5, 6, 7, 8
- **Data Signals** Tx/D, Rx/D, RTS, CTS, DTR, DSR, DCD, RI, GND (for RS-232)
Tx/D, Rx/D, RTS, CTS (for RS-422)
DATA+, DATA- (for RS-485)
All ports use the same IRQ assigned by PCI Plug & Play
- **IRQ**
- **Parity** None, even, odd
- **Speed (bps)** 50 ~ 921.6 k
- **Stop Bits** 1, 1.5, 2

General

- **PICMG Compliance** CompactPCI V2.0, R 3.0
Hot swap V2.1, R 2.0
- **Bus Type** CompactPCI V2.1
- **I/O Connectors** DB 44pin female
- **Dimensions (L x H)** 160 x 100 mm (6.3" x 3.9"), 3U/6U bracket
- **Power Consumption**

	Typical	Max.
+5 V	220 mA	285 mA
+3.3 V	100 mA	200 mA
+12 V	60 mA	80 mA

- **Operating Temperature** 0 ~ 70° C (IEC68-2-1, 2)
- **Storing Temperature** -20 ~ 80° C
- **Operating Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-1, 2)

Ordering Information

- **MIC-3612/3** 3U CompactPCI 4-port RS-232/422/485 Card

Features

- PCI Specification 2.1 compliant
- Speeds up to 921.6 kbps
- 16C954 UARTs with 128-byte standard
- 8-port RS-232
- Standard Industrial CompactPCI 3U Board size
- I/O address automatically assigned by PCI Plug & Play
- OS support: Windows 98/2000/XP, Linux
- Interrupt status register for increased performance

Specifications

Communications

- **Communication** PCI9030 + 16C954 Controller
- **Data Bits** 5, 6, 7, 8
- **Data Signals** Tx/D, Rx/D, RTS, CTS, DTR, DSR, DCD, RI, GND
- **IRQ** All ports use the same IRQ assigned by PCI Plug & Play
- **Parity** None, even, odd
- **Speed (bps)** 50 ~ 921.6 k
- **Stop Bits** 1, 1.5, 2

General

- **PICMG Compliance** CompactPCI V2.0, R 3.0
Hot swap V2.1, R 2.0
CompactPCI bus specification 2.1 compliant
- **Bus Type**
- **I/O Connectors** SCSI 68pin female
- **Dimensions (L x H)** 160 x 100 mm (6.3" x 3.9"), 3U/6U Bracket
- **Power Consumption** +5 V, +3.3 V, +12 V
0 ~ 70° C
(refer to IEC68-2-1, 2)
- **Operating Temperature** -20 ~ 80° C
- **Storing Temperature** 5 ~ 95% Relative Humidity, non-condensing (IEC 68-2-1, 2)
- **Storing Humidity**

Ordering Information

- **MIC-3620/3** 3U CompactPCI 8-port RS-232 Card

Features

- CompactPCI specification PICMG 2.0 R3.0 compatible
- Hot swap support
- Two individual CAN ports
- Supports CAN2.0 A/B
- High speed transmission up to 1 Mbps
- 16 MHz CAN controller frequency
- Optical isolation up to 2,500 VDC
- Microsoft® Windows DLL library and examples included
- Supports Windows 98/ME/2000/XP drivers and utility
- Support Rear IO

Specifications

Communications

- **CAN Controller Frequency** 16 MHz
- **CAN Transceiver** 82C250
- **Communication Controller** SJA-1000
- **Ports** 2
- **Protocol** CAN 2.0 A/B
- **Signal Support** CAN_H, CAN_L, GND
- **Speed (bps)** Up to 1 Mbps programmable transfer rate

Protection

- **Isolation Protection** 2,500 V_{OC}

General

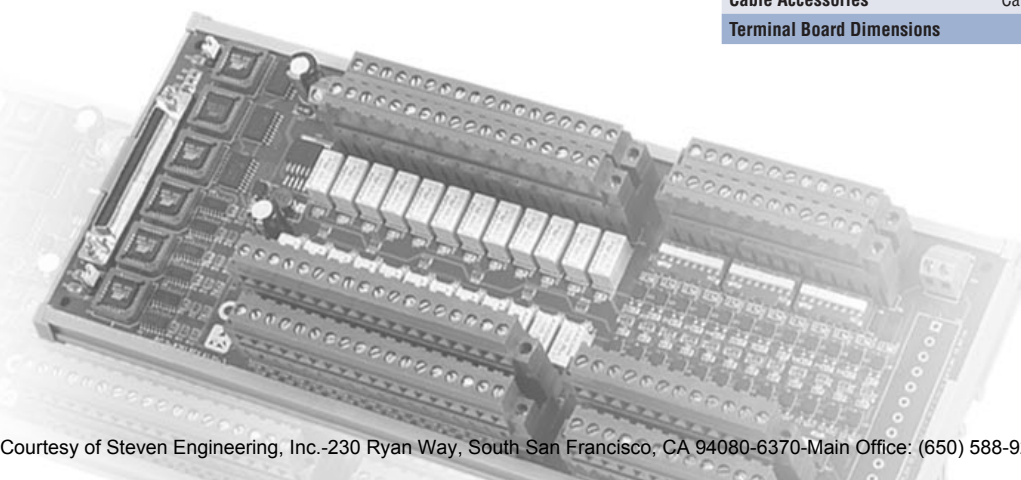
- **PICMG Compliance** CompactPCI V2.0, R 3.0
Hot swap V2.1, R 2.0
- **Bus Type** CompactPCI
- **I/O Connectors** 2 x DB9-M
- **Dimensions** 160 x 100 mm (6.3" x 3.9")
- **Power Consumption** 5 V @ 400 mA (Typical)
- **Operating Temperature** 0 ~ 65° C
- **Storing Temperature** -25 ~ 85° C
- **Storing Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

- **MIC-3680/3** 3U CompactPCI 2-port Isolated CAN Communication Card
- **MIC-3680R/3** 3U CompactPCI 2-port Isolated CAN Communication Card with Rear I/O Support

Signal Conditioning Modules and Terminal Boards

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Isolated Digital I/O Terminal Boards		
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Terminal Board Dimensions		12-22



Terminal Boards Selection Guide

Recommended Cables, I/O Wiring Terminal Boards and Isolated DI/O Terminals for Connecting to PCI-bus/CompactPCI DA&C Cards

DA&C Card	Cable	I/O Wiring Terminal Board	Cable	Isolated DI/O Terminal
PCI-1710/1710L/1710HGL/1710HG/ 1711/1711L/1716/1716L/1741U/1742U	PCL-10168	PCLD-8710 PCLD-8710BNC	PCL-10120	PCLD-782
PCI-1712/1712L	PCL-10168	PCLD-8712		
PCI-1721/1723/PCI-1780U MIC-3716/3780	PCL-10168	ADAM-3968		PCLD-782B
PCI-1751	PCL-10168	ADAM-3968		PCLD-785
		ADAM-3968/50	PCL-10150	
		ADAM-3968/20	PCL-10120	
PCI-1713/1715U	PCL-10137	ADAM-3937		PCLD-785B
		PCLD-881B		
PCI-1720U/1727/1730/1733/1734/ 1750/1760U/1761 MIC-3761	PCL-10137	ADAM-3937		
PCI-1784U	PCI-10137H			
PCI-1753/1753E	PCL-10268	PCLD-8751/8761/8762		PCLD-786
		ADAM-3968		
		ADAM-3968/50	PCL-10150	
		ADAM-3968/20	PCL-10120	
PCI-1752U/1752US0/1754/1756	PCL-10250	ADAM-3951		
PCI-1724/1762	PCL-10162	ADAM-3962		
PCI-1240U	PCL-10251	ADAM-3952		
		ADAM-3952M		
PCI-1241/1242	PCL-10168	ADAM-3968M		
PCI-1261	PCL-101101	ADAM-39100M		
PCI-1714/1714UL/MIC-3714	PCL-10901	ADAM-3909		
	PCL-1010B			
PCI-1755	PCL-101100	ADAM-39100		PCLD-7216
MIC-3753/3756	PCL-10178	ADAM-3978		

Selection Guide

Recommended Cables, I/O Wiring Terminal Boards and Isolated DI/O Terminals for Connecting to ISA-bus DA&C Cards

ISA-bus DA&C Card	Cable	I/O Wiring Terminal Board	Isolated DI/O Terminal
PCL-711B/S	PCL-10120 PCL-10120	PCLD-7115	PCLD-782
PCL-818L/818HD/818HG	PCL-10137 PCL-10120	PCLD-8115	PCLD-782B
PCL-818H	PCL-10120 PCL-10120	PCLD-8115	PCLD-785
PCL-812PG	PCL-10120 PCL-10120		PCLD-785B
PCL-813B	PCL-10137	PCLD-881B	PCLD-885
PCL-726	PCL-10120 PCL-10120	PCLD-780	PCLD-786
PCL-727/730/836/839	PCL-10137 PCL-10120	PCLD-880	PCLD-7216
PCL-720+	PCL-10120		
PCL-722/724/731	PCL-10150		
PCL-725/733/734/735	PCL-10137	PCLD-880	

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

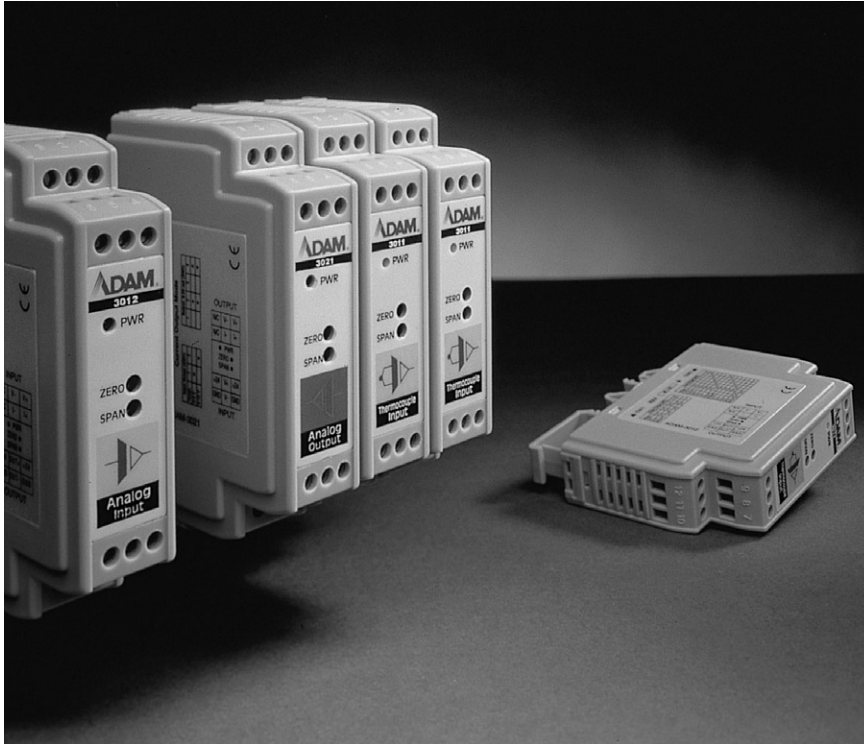
14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

ADAM-3000 Series



Features

- 1,000 V_{DC} three-way isolation
- Easy input/output range configuration
- Flexible DIN-rail mounting
- Linearized thermocouple/RTD measurement
- Low power consumption
- Wide input bandwidth

Introduction

The ADAM-3000 Series consist of the most cost-efficient, field configurable, isolation-based, signal conditioners on the market today. The modules are easily installed to protect your instruments and process signals from the harmful effects of ground loops, motor noise, and other electrical interferences.

Affordable Signal Isolation Solution

Featuring optical isolation technology, the ADAM-3000 modules provide three-way (input/output/power) 1,000 V_{DC} isolation. Optical isolation provides pin-point accuracy and stability over a wide range of operations at minimal power consumption.

Flexible Analog Data Conversion

The input/output range for the ADAM-3000 modules can be configured through switches located inside the module. The modules accept voltage, current, thermocouple or RTD as input, and pass voltage or current as output.

Thermocouple input is handled by the built-in input thermocouple linearization circuitry and a cold junction compensation function. These ensure accurate temperature measurement and accurate conversion of this information to the voltage or current output.

Configuration

The ADAM-3000 modules use +24 V_{DC} power. This electrical power wiring can be acquired from adjacent modules, which greatly simplifies wiring and maintenance. The I/O configuration switches are located inside the modules. To reach the switches, simply remove the modules from the DIN-rail bracket by sliding the modules downward.

Modular Industrial Design

The ADAM-3000 modules can be easily mounted on a DIN-rail, and signal wires can be connected through screw terminals. The screw terminals and input/output configuration switches are built inside the industrial grade plastic casing. With simple two-wire input/output cables, wiring is easy and reliable in harsh industrial environments.

Applications

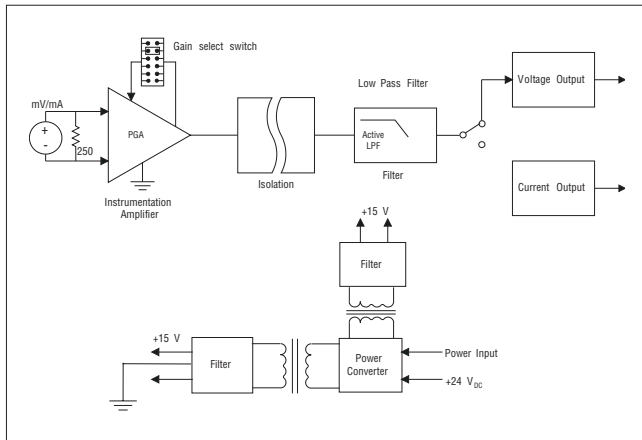
- Signal isolation
- Signal transmitters
- Thermocouple/RTD/strain gauge measurements
- Signal amplifiers
- Noise filter

Common Specifications

- | | |
|-------------------------|---|
| ▪ Isolation | 1,000 V _{DC} |
| ▪ Indicators | Power LED indicator |
| ▪ Power Requirement | +24 V _{DC} ± 10% |
| ▪ Case | ABS |
| ▪ Screw Terminal | Accepts 0.5 mm ² ~ 2.5 mm ²
1- #12 or 2- #14 ~ #22 AWG |
| ▪ Operating Temperature | 0 ~ 70° C (32 ~ 158° F)
(except ADAM-3011) |
| ▪ Storage Temperature | -25~ 85° C (-13~185° F) |

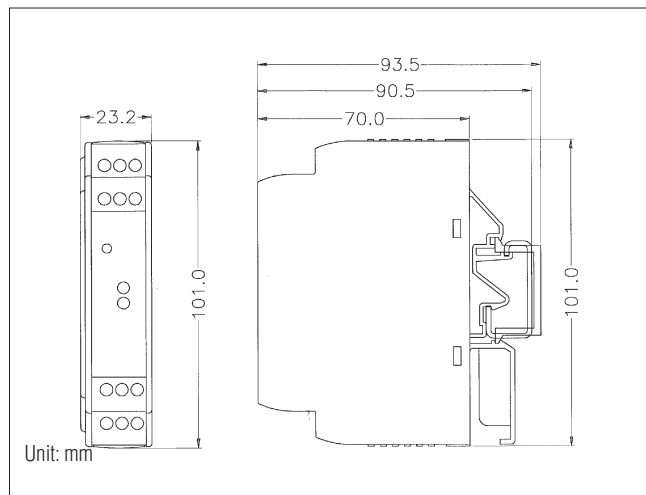
Isolated Signal Conditioning Modules

Block Diagram



Block Diagram of ADAM-3014

Dimensions

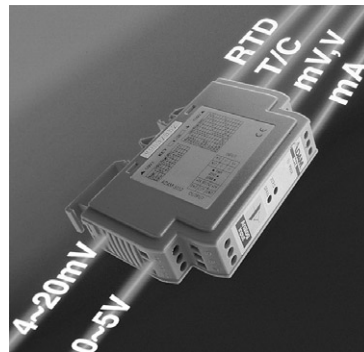


ADAM-3000 Series Modules



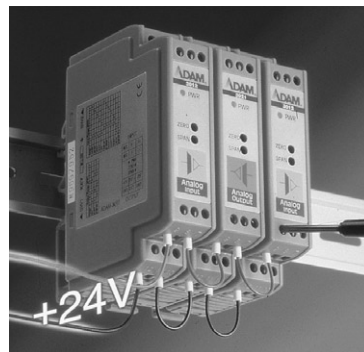
3-Way Signal Isolation

3-way (input/output/power) 1,000 V_{DC} isolation.



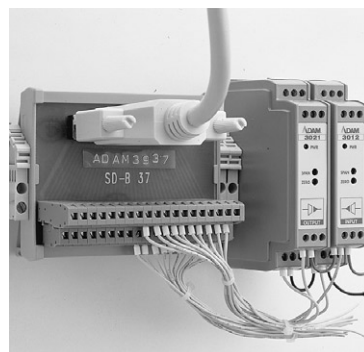
Field Configurable I/O Range

The I/O range can be configured on site with switches inside the module.



Easy Daisy Chain Power Wiring

Power can be connected conveniently from adjacent modules.



Interfacing to DAQ Cards

A wiring adapter can connect modules to a data acquisition card.

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPCC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-3011

ADAM-3013

Isolated Thermocouple Input Module

Isolated RTD Input Module



ADAM-3011



ADAM-3013



Specifications

Thermocouple Input

- **Common Mode** 115 dB min
- **Rejection**
- **Input Type**
T/C type, temperature range and accuracy at 25° C:

J	-40° ~	760° C	(±2° C)
K	0° ~	1000° C	(±2° C)
T	-100° ~	400° C	(±2° C)
E	0° ~	1000° C	(±2° C)
S	500° ~	1750° C	(±4° C)
R	500° ~	1750° C	(±4° C)
B	500° ~	1800° C	(±4° C)
- **Isolation (three way)** 1,000 V_{DC}
- **Output Impedance** 0.5 Ω
- **Stability (temperature drift)** ±2° C
- **Voltage Output** 0 ~ 10 V

General

- **Certifications** CE, FM
- **Connectors** Screw terminal
- **Enclosure** ABS
- **Indicators** Power LED indicator
- **Isolation** 1,000 V_{DC}
- **Power Consumption** 1.4 W
- **Power Input** +24 V_{DC} ± 10%

Environment

- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Storing Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-3011** Isolated Thermocouple Input Module

Specifications

RTD Input

- **Accuracy** +/- 0.1% of full range (voltage) or +/- 0.15° C (voltage)
+/- 0.2% of full range (current)
- **Bandwidth** 4 Hz
- **Input CMR at DC** 92 dB minimum
- **Input Connections** 2, 3 or 4 wires
- **Input Type** Pt or Ni RTD
- **RTD Types and Temperature Ranges**

Pt	-100° ~	100° C	a=0.00385
Pt	0° ~	100° C	a=0.00385
Pt	0° ~	200° C	a=0.00385
Pt	0° ~	600° C	a=0.00385
Pt	-100° ~	0° C	a=0.00385
Pt	-100° ~	200° C	a=0.00385
Pt	-50° ~	50° C	a=0.00385
Pt	-50° ~	150° C	a=0.00385
Pt	-100° ~	100° C	a=0.00392
Pt	0° ~	100° C	a=0.00392
Pt	0° ~	200° C	a=0.00392
Pt	0° ~	600° C	a=0.00392
Ni	0° ~	100° C	
Ni	-80° ~	100° C	
- **Output Range** 0 ~ 5 V, 0 ~ 10 V, 0 ~ 20 mA
- **Output Resistance** < 5 Ω
- **Temperature Drift** +/- 30 ppm of full range

General

- **Certifications** CE, FM
- **Connectors** Screw terminal
- **Enclosure** ABS
- **Indicators** Power LED indicator
- **Isolation** 1,000 V_{DC}
- **Power Consumption** < 0.95 W
- **Power Input** 24 V_{DC} ± 10%

Environment

- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)
- **Storing Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-3013** Isolated RTD Input Module

ADAM-3014

ADAM-3016

Isolated DC Input/Output Module

Isolated Strain Gauge Input Module



ADAM-3014



Specifications

I/O

- **Accuracy** $\pm 0.1\%$ of full range (typical)
- **Common Mode** > 100 dB @ 50 Hz/60 Hz

Rejection

- **Current Input** Bipolar: ± 20 mA
Unipolar: $0 \sim 20$ mA
Input impedance: 250Ω
- **Current Output** $0 \sim 20$ mA
- **Stability (temperature drift)** 150 ppm (typical)
- **Voltage Input** Bipolar input: ± 10 mV, ± 50 mV, ± 100 mV, ± 0.5 V, ± 1.0 V, ± 5 V, ± 10 V
Unipolar input: $0 \sim 10$ mV, $0 \sim 50$ mV, $0 \sim 100$ mV, $0 \sim 0.5$ V, $0 \sim 1$ V, $0 \sim 5$ V, $0 \sim 10$ V
Input impedance: $2 M\Omega$
Input bandwidth: 2.4 kHz (typical)
- **Voltage Output** Bipolar: ± 5 V, ± 10 V
Unipolar: $0 \sim 10$ V
Impedance: $< 50 \Omega$
Drive: 10 mA max.

General

- **Certifications** CE, FM
- **Connectors** Screw terminal
- **Enclosure** ABS
- **Indicators** Power LED indicator
- **Isolation (three way)** 1,000 V_{DC}
- **Power Consumption** 0.85 W (voltage output)
1.2 W (current output)
- **Power Input** 24 V_{DC} $\pm 10\%$

Environment

- **Operating Temperature** $0 \sim 70^\circ \text{C}$ ($32 \sim 158^\circ \text{F}$)
- **Storing Temperature** $-25 \sim 85^\circ \text{C}$ ($-13 \sim 185^\circ \text{F}$)

Ordering Information

- **ADAM-3014** Isolated DC Input/Output Module



ADAM-3016



Specifications

I/O

- **Accuracy** $\pm 0.1\%$ of full range
- **Bandwidth** 2.4 kHz (typical)
- **Isolation Mode Rejection** > 100 dB @ 50 Hz/60 Hz
- **Current Output** Current: $0 \sim 20$ mA
Current load resistor: $0 \sim 500 \Omega$ (Source)
- **Stability (temperature drift)** 150 ppm (typical)
- **Voltage Specifications** Electrical input: ± 10 mV, ± 20 mV, ± 30 mV, ± 100 mV
Excitation voltage: $1 \sim 10$ V_{DC} (60 mA max)
- **Voltage Output** Bipolar: ± 5 V, ± 10 V
Unipolar: $0 \sim 10$ V
Impedance: $< 50 \Omega$

General

- **Certifications** CE
- **Connectors** Screw terminal
- **Enclosure** ABS
- **Indicators** Power LED indicator
- **Isolation (three way)** 1,000 V_{DC}
- **Power Consumption** ≤ 1.85 W (voltage output)
 ≤ 2.15 W (current output)
- **Power Input** 24 V_{DC} $\pm 10\%$

Environment

- **Operating Temperature** $-10 \sim 70^\circ \text{C}$ ($14 \sim 158^\circ \text{F}$)
- **Storing Temperature** $-25 \sim 85^\circ \text{C}$ ($-13 \sim 185^\circ \text{F}$)

Ordering Information

- **ADAM-3016** Isolated Strain Gauge Input Module

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

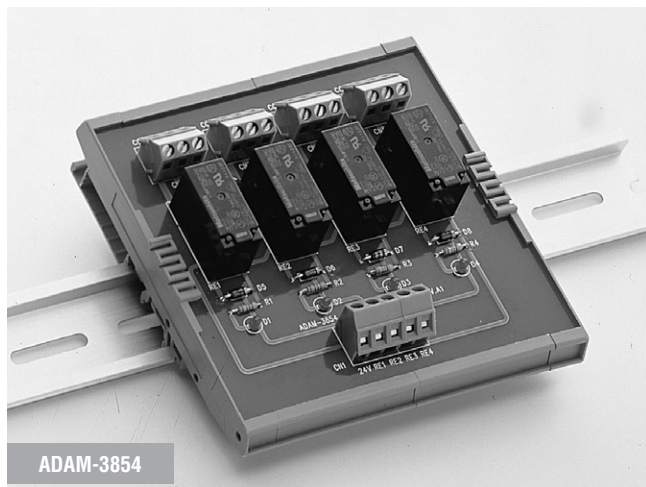
17
ICOM

ADAM-3854

ADAM-3864

4-ch Power Relay Module

4-ch Solid State Digital I/O Module Carrier Backplane



Features

- High power relays can handle up to 5 A @ 250 V_{AC} and 5 A @ 30 V_{DC}
- 4 single-pole double-throw (SPDT) relays
- Industrial screw terminals for easy output wiring
- LED status indicators
- Onboard varistor protects relay contact points
- DIN-rail mounting
- All the relay outputs and relay controls are accessible through wiring terminals, allowing the ADAM-3854 to be easily connected to any item of equipment or device such as programmable logic controllers (PLCs).

Specifications

I/O

- Channels** 4
- Contact Rating** AC: 250 V @ 5 A
DC: 30 V @ 5 A
- Contact Resistance** 100 mΩ
- Operation Time** 15 ms max.
- Relay Type** SPDT (Form C)
- Release Time** 5 ms max.
- Life Expectancy** 1.7 x 10⁵ at rated load

Varistor

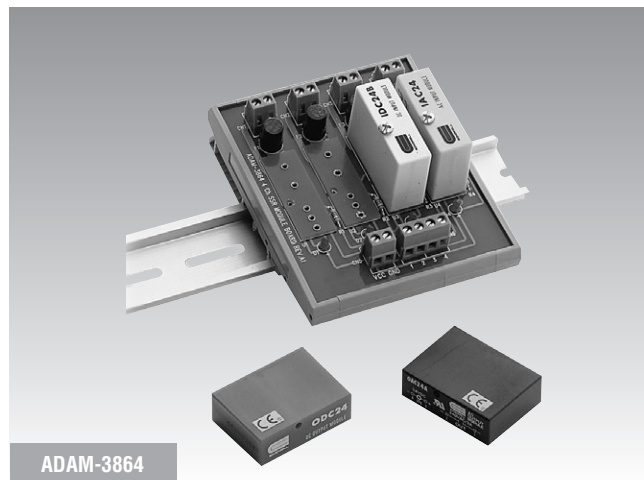
- Clamping Voltage** 760 V (10 A)
- Maximum Applied Voltage** 300 V_{RMS}
- Max. Peak Current** 1,200 A for 8 ms
- Varistor Voltage** 470 V (current = 1 mA)

General

- Connectors** Screw terminals
- Dimensions (L x W x H)** 112.5 x 118.4 x 46 mm (4.43" x 4.66" x 1.81")
- LED Indicators** Status displayed for each relay
- Mounting** DIN 35 rail
- Power Consumption** 2.2 W
- Power Input** +24 V_{DC}

Ordering Information

- ADAM-3854** 4-ch DIN-rail Mounting Power Relay Module



Features

- 4-channel carrier backplane for any combination of AC or DC I/O modules
- 2,500 V_{RMS} optical isolation
- LED channel status indicator for easy monitoring
- Onboard fuse protection
- DIN-rail mounting

Specifications

Input Modules

Field Side:

- Turn on/off Time** IAC24 series: 20 msec. max.
IAC24A series: 20 msec. max.
IDC24B series: 100 msec. max.
- Input on/off Voltage Range** IAC24 series: 90 ~ 140 V/45 V_{RMS}
IAC24A series: 180 ~ 280 V/80 V_{RMS}
IDC24B series: 3 ~ 32 V/1 V_{DC}
- Input Resistance** IAC24 series: 14 kΩ
IAC24A series: 44 kΩ
IDC24B series: 1.5 kΩ

Logic Side:

- Breakdown Voltage** 30 V_{DC}
- Output Current** 100 mA max.
- Output Voltage Drop** 0.4 V max.
- Supply Current** 12 mA max.
- Supply Voltage** 24 V_{DC}

Output Modules

Field Side:

- Contact Voltage Drop** 1.6 V max.
- Current Rating** 3 A max. (@ 25° C)
- Turn on/ Turn off Time** OAC series: ½ AC cycle max.
ODC series: 100 μsec./750 μsec. max.

Logic Side:

- Input Resistance** 220 Ω
- Supply Current** 12 mA max.
- Supply Voltage** 24 V

CANNOT FIT ALL SPECS

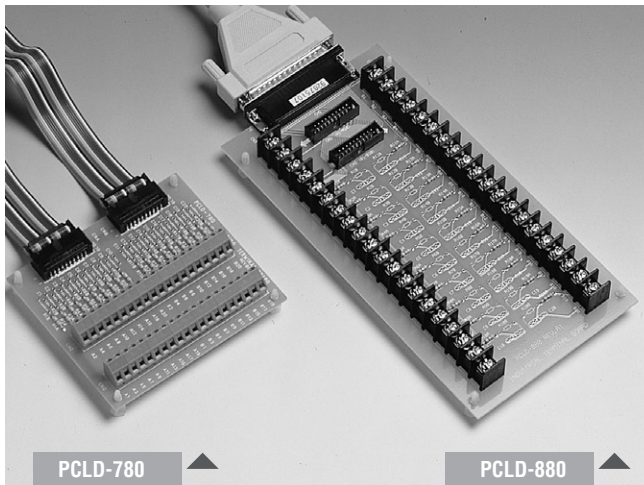
- Dimensions (L x H x W)** 118.4 x 90 x 59 mm (4.66" x 3.54" x 2.32")
- Mounting** DIN 35 rail

Ordering Information

- ADAM-3864** 4-ch Solid State Digital I/O Module Carrier Backplane
- OAC24A** AC Output Module (24-280 V_{AC}, 3 A)
- ODC24** DC Output Module (5-60 V_{DC}, 3 A)
- PCLM-ODC5** DC Output Module (ODC5, 5-60 V_{AC})
- IAC24** AC Input Module (90-140 V_{AC})
- IAC24A** AC Input Module (180-280 V_{AC})
- IDC24B** DC Input Module (3-32 V_{DC})

PCLD-780 PCLD-880

Screw Terminal Board Industrial Wiring Terminal Board w/Adapter



Features

- Pin to pin design
- Low-cost universal screw-terminal boards for industrial applications
- 40 terminal points for two 20-pin flat cable connector ports
- Reserved space for signal-conditioning circuits such as low-pass filter, voltage attenuator and current-to-voltage conversion
- Table-top mounting using nylon standoffs. Screws and washers provided for panel or wall mounting
- PCLD-780 Only**
 - Screw-clamp terminal-blocks allow easy and reliable connections
 - Dimensions: 102 x 114 mm (4.0" x 4.5")
- PCLD-880 Only**
 - Supports PC-LabCard™ products with DB-37 connectors
 - Industrial-grade terminal blocks (barrier-strip) permit heavy-duty and reliable connections
 - Dimensions: 221 x 115 mm (8.7" x 4.5")

Introduction

PCLD-780 and PCLD-880 universal screw-terminal boards provide convenient and reliable signal wiring for PC-LabCard™ products with 20-pin flat-cable connectors. PCLD-880 is also equipped with a DB37 connector to support PC-LabCard™ products with DB37 connectors.

PCLD-780 and PCLD-880 let you install passive components on the special PCB layout to construct your own signal-conditioning circuits.

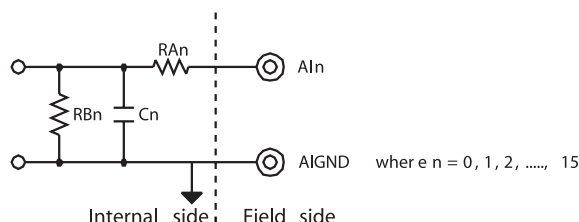
You can easily construct a low-pass filter, attenuator or current-to-voltage converter by adding resistors and capacitors onto the board's circuit pads.

Applications

- Field wiring for analog and digital I/O channels of PC-LabCard™ products which employ the standard 20-pin flat cable connectors or DB37 connectors (only PCLD-880)
- Signal conditioning circuits can be implemented as illustrated in the following examples:

a) Straight-through connection (factory setting)

$R_{An} = 0\Omega$ jumper



$R_{Bn} = \text{none}$

$C_n = \text{none}$

b) 1.6 kHz (3dB) low pass filter

$R_{An} = 10 K\Omega$

$R_{Bn} = \text{none}$

$C_n = 0.01\mu F$

$$f_{3dB} = \frac{1}{2\pi R_{An} C_n}$$

c) 10 : 1 voltage attenuator:

$R_{An} = 9 K\Omega$

$R_{Bn} = 1 K\Omega$

$C_n = \text{none}$

$$\text{Attenuation} = \frac{R_{Bn}}{R_{An} + R_{Bn}}$$

(Assume source impedance $\ll 10 K\Omega$)

d) 4 ~ 20 mA to 1 ~ 5 VDC signal converter:

$R_{An} = 0\Omega$ (short)

$R_{Bn} = 250\Omega$ (0.1% precision resistor)

$C_n = \text{none}$

Pin Assignments

CN1				CN2				CN5 (PCLD-880 only)			
A1	1	2	A2	B1	1	2	B2	A1	1	20	A2
A3	3	4	A4	B3	3	4	B4	A3	2	21	A4
A5	5	6	A6	B5	5	6	B6	A5	3	22	A6
A7	7	8	A8	B7	7	8	B8	A7	4	23	A8
A9	9	10	A10	B9	9	10	B10	A9	5	24	A10
A11	11	12	A12	B11	11	12	B12	A11	6	25	A12
A13	13	14	A14	B13	13	14	B14	A13	7	26	A14
A15	15	16	A16	B15	15	16	B16	A15	8	27	A16
A17	17	18	A18	B17	17	18	B18	A17	9	28	A18
A19	19	20	A20	B19	19	20	B20	A19	10	29	A20
								B1	11	30	B2
								B3	12	31	B4
								B5	13	32	B6
								B7	14	33	B8
								B9	15	34	B10
								B11	16	35	B12
								B13	17	36	B14
								B15	18	37	B16
								B17	19		

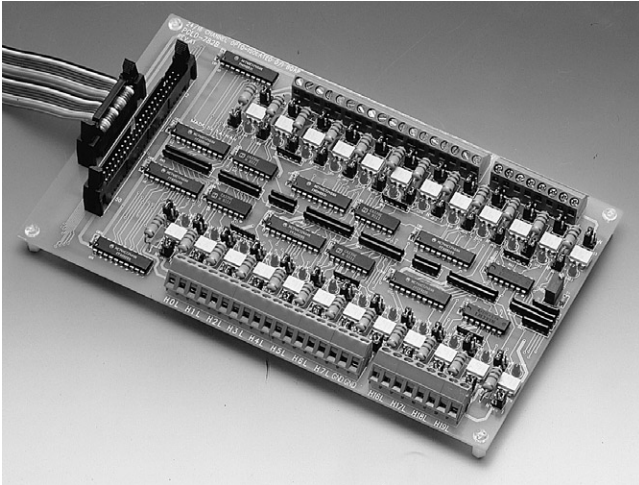
Ordering Information

- PCLD-780** Screw terminal Board, two 1m 20-pin flat cables (PCL-10120-1)
- PCLD-880** Industrial Wiring Terminal Board, two 1m 20-pin flat cables (PCL-10120-1), and one PCL-10501 adapter (20-pin analog flat connector to DB37 connector)
- PCL-10137-1** DB37 cable assembly, 1 m
- PCL-10137-2** DB37 cable assembly, 2 m
- PCL-10137-3** DB37 cable assembly, 3 m

PCLD-782 PCLD-782B

16-ch Opto-Isolated DI Board

16/24-ch Opto-Isolated DI Board



CE

Features

- Compatible with all PC-LabCard™ products with DI channels on either 20-pin flat cable or 50-pin Opto-22 compatible connectors.
- 16 or 24 optically-isolated digital input channels
- Built-in screw terminals for easy input wiring
- LEDs indicate input logic status
- Inputs buffered with voltage comparators

Introduction

PCLD-782 and PCLD-782B digital input daughterboards feature high-voltage ($> 1,500 V_{DC}$) optical isolation on all inputs. PCLD-782 provides 16 input channels accessible through one 20-pin flat cable connector, which is standard on most PC-LabCard™ products. The PCLD-782B provides either 16 or 24 channels, depending on what connector you use. The PCLD-782B's 20-pin connector lets you access 16 channels, similar to the PCLD-782, but also provides a 50-pin Opto-22 connector with access to 24 channels.

Both cards have onboard screw terminals for easy input wiring. Optically isolated signal conditioning provides isolation between separate channels, as well as between each input channel and the PC. This isolation prevents floating potential and ground loop problems while protecting the input lines from potentially damaging fault conditions.

A red LED on each input channel indicates its status. If the input signal is high, the LED is lit. You can configure each channel to work in either isolated or non-isolated mode. A variable resistor adjusts the threshold level for all 24 isolated input channels simultaneously.

Specifications

Digital Input

- Input Channels** 24 (PCLD-782B), 16 (PCLD-782)
- Input Range** 0 ~ 24 V_{DC}
- Input Resistance** 560 Ω
- Isolation Voltages** 1,500 V_{DC} min.
- Threshold Voltage** 1.5 V_{DC} (VR adjustable)

General

- Certifications** CE
- Connectors**
 - Digital Input: Screw terminals (#12 ~ 22 AWG)
 - Controller: PCLD-782: 1 x 20-pin flat cable connector (CN1)
- Dimensions (L x W)**
 - PCLD-782: 3U—205 x 114 mm (8.1" x 4.5")
 - PCLD-782B: 4U—220 x 132 mm (8.7" x 5.2")
- LED Indicators** Indicates input logic status
- Mounting** 4 x screw holes for flat surface mounting

Ordering Information

- PCLD-782B** 16/24-ch Opto-isolated DI Board, user's manual, one 1m 20-pin flat cable assembly (P/N: PCL-10120-1) and one 1.2m 50-pin flat cable (P/N: PCL-10150-1.2)
- PCLD-782** 16-ch Opto-isolated DI Board, user's manual and 1 x 1 m 20-pin flat cable assembly (P/N: PCL-10120-1)
- PCL-10120-1** 20-pin flat cable assembly, 1 m
- PCL-10120-2** 20-pin flat cable assembly, 2 m
- PCL-10150-1.2** 50-pin flat cable, 1.2 m (for connecting the PCL-722 or 724 to the PCLD-885, 782B or 785B)

Pin Assignments

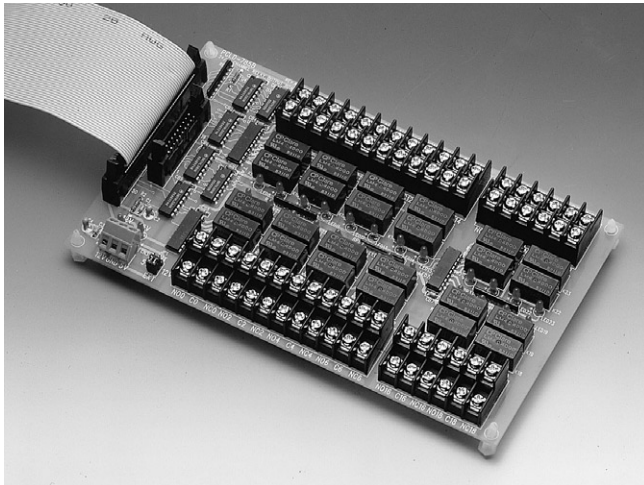
CN1				CN2			
DI0	1	2	DI1	DI23	1	2	GND
DI2	3	4	DI3	DI22	3	4	GND
DI4	5	6	DI5	DI21	5	6	GND
DI6	7	8	DI7	DI20	7	8	GND
DI8	9	10	DI9	DI19	9	10	GND
DI10	11	12	DI11	DI18	11	12	GND
DI12	13	14	DI13	DI17	13	14	GND
DI14	15	16	DI15	DI16	15	16	GND
GND	17	18	GND	DI15	17	18	GND
+5 V	19	20	+12 V	DI14	19	20	GND
				DI13	21	22	GND
				DI12	23	24	GND
				DI11	25	26	GND
				DI10	27	28	GND
				DI9	29	30	GND
				DI8	31	32	GND
				DI7	33	34	GND
				DI6	35	36	GND
				DI5	37	38	GND
				DI4	39	40	GND
				DI3	41	42	GND
				DI2	43	44	GND
				DI1	45	46	GND
				DI0	47	48	GND
				+5 V	49	50	GND

PCLD-785 PCLD-785B PCLD-885

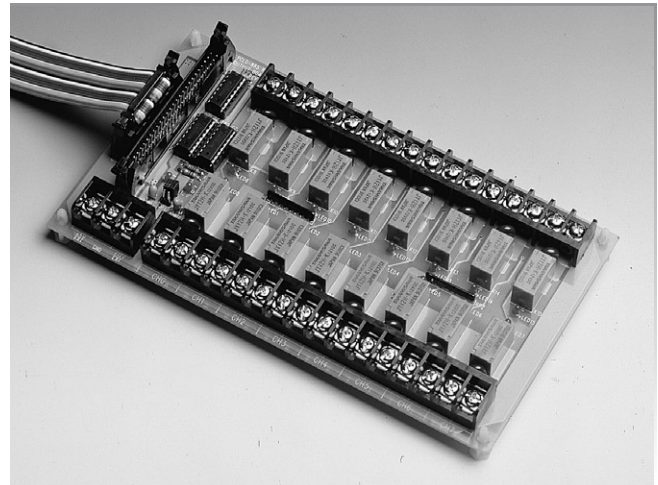
16-ch Relay Output Board

24-ch Relay Output Board

16-ch Power Relay Output Board



PCLD-785/785B



PCLD-885



Features

- Compatible with PC-LabCard™ products with 20-pin digital output connector and 50-pin Opto-22 digital output connector (PCLD-785B only)
- Automatic selection of control logic (PCLD-785B only): Negative logic for the Opto-22 connector Positive logic for the 20-pin flat cable connector
- Relays: PCLD-785: 16 SPDT, PCLD-785B: 16 or 24 SPDT
- Onboard relay driver circuits
- Screw terminals for easy output wiring
- LED status indicators

Specifications

Relay

- Channels**

PCLD-785:	16 (CN1, 20-pin conn.)
PCLD-785B:	16 (CN1, 20-pin conn.) 24 (CN2, 50-pin conn.)
- Contact Ratings** 120 V_{AC} @ 0.5 A, 30 V_{DC} @ 1 A
- Contact Resistance** < 100 mΩ
- Control Logic** 20-pin flat cable conn.: Input TTL high (+5 V) = Relay on
50-pin Opto-22 conn.: Input TTL low (0 V) = Relay on
- Operation Time** 5 ms max.
- Insulation Resistance** 100 MΩ
- Life Expectancy** AC: 5 x 10⁵ @ 110 V/0.3 A
DC: 5 x 10⁵ @ 24 V/1.25 A
- Relay Type** SPDT (Single-Pole Double-Throw) Form C
- Release Time** 5 ms max.

General

- Dimensions (L x W)** PCLD-785: 114 x 220 mm (4.5" x 8.7")
PCLD-785B: 132 x 220 mm (5.2" x 8.7")
- Power Consumption** +5 V @ < 100 mA; +12 V @ 33 mA for each relay
- Power Input** 20-pin connector:
+5 V_{DC}: Jumper select either PC bus or external supply
+12 V_{DC}: Jumper select either PC bus or external supply
50-pin connector: external 12 V supply

Ordering Information

- PCLD-785B** 24-ch Relay Output Board, user's manual, 1 m 20-pin flat cable assembly (P/N: PCL-10120-1) and 1.2 m 50-pin flat cable assembly (P/N: PCL-10150-1.2)
- PCLD-785** 16-ch Relay Output Board, user's manual, 1 m 20-pin flat cable assembly (P/N: PCL-10120-1)
- PCL-10120-1** 20-pin flat cable assembly, 1 m
- PCL-10120-2** 20-pin flat cable assembly, 2 m
- PCL-10150-1.2** 50-pin flat cable, 1.2 m (connects the PCL-722 or 724 to the PCLD-885, 782B or 785B)

Features

- Accepts 20-pin or 50-pin (Opto-22 compatible) connectors
- 16 single-pole single-throw (SPST) relays
- High-power relay handles up to 5 A @ 250 V_{AC}
- Onboard varistors protect all relay contact points
- Industrial screw terminals for ease of wiring
- LED On/Off status indication for each relay
- +5 V/+12 V power/status LED indicator

Specifications

Relay

- Breakdown Voltage** 750 V_{AC} for 1 minute, between open contacts
2500 V_{AC} for 1 minute, between coil and contacts
- Contact Rating** AC: 250 V @ 5 A
DC: 30 V @ 5 A
- Contact Resistance** 30 mΩ max.
- Insulation Resistance** 1000 mΩ @ 500 V_{DC}
- Life Expectancy** >100,000 cycles at rated load
- Relay on Time** 6 ms max.
- Relay off Time** 3 ms max.
- Relay Type** SPST (Form A), normally open

Varistor

- Clamping Voltage** 760 V (10 A)
- Max. Peak Current** 1200 A for 8 msec.
- Max. Applied Voltage** 300 V_{RMS} AC continuous
- Varistor Voltage** 470 V (current = 1 mA)

General

- Power Consumption** 12 V @ 22 mA for each relay,
352 mA if all relays energized; 5 V @ 200 mA max.
- Connectors** Input: 20-pin flat cable or 50-pin Opto-22 compatible
Output: Barrier strip screw terminal
- Dimensions (L x W)** 205 x 114 mm (8" x 4.5")
- Operating Temperature** 0 ~ 60° C (32 ~ 140° F)

Ordering Information

- PCLD-885** 16-ch Power Relay Output Board, one 1m 20-pin flat cable assembly (P/N: PCL-10120-1) and a 1.2 m 50-pin flat cable assembly (P/N: PCL-10150-1.2)

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

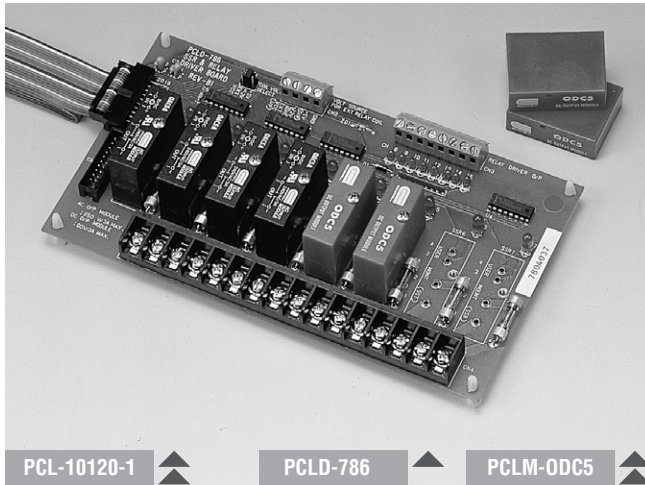
16
EDG

17
ICOM

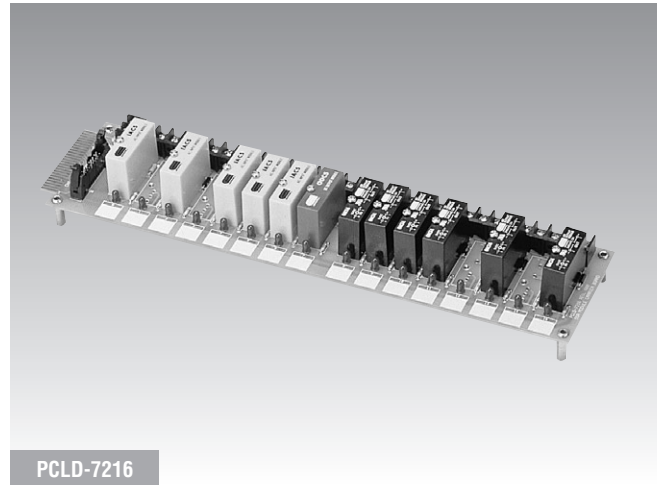
PCLD-786 PCLD-7216

8-ch SSR I/O Module Carrier Board

16-ch SSR I/O Module Carrier Board



PCL-10120-1 ▲ PCLD-786 ▲ PCLM-ODC5 ▲



PCLD-7216

Features

- Up to eight AC or DC solid state relay modules
- Photo-coupler isolated operation
- Eight external relay drivers
- LED status indicators

Specifications

AC Solid State Relays

- 1 Cycle Surge** 40 A
- Blocking Voltage** ± 600 V min.
- OFF Leakage Current** 8 mA max.
- ON-state Voltage** 1.6 V max.
- Output Rating** 24 ~ 280 V_{AC} @ 3.0 A
- Turn On** zero volts
- Turn On/Turn Off Time** < 1/2 cycle
- Type** PCLM-OAC5A

DC Solid State Relays

- 1 Second Surge** 5 A
- OFF Leakage Current** 1 mA max.
- ON-state Voltage** 1.4 V max.
- Output Rating** 5 ~ 60 V_{DC} @ 3.0 A
- Turn On/Turn Off Time** 750 μ s max.
- Type** PCLM-ODC5

External Relay Drivers

- Channels** 8 channels
- Coil Driving Voltage** +5 V, +12 V from PC or external source
- Driver Type** ULN2003, open collector type
- Max. Driving Current** 125 mA each channel

General

- Dimensions (L x W)** 205 x 114 mm (8.1" x 4.5")

Ordering Information

- PCLD-786** 8-ch SSR I/O Module Carrier Board, user's manual and one 1 m 20-pin flat cable assembly (P/N: PCL-10120-1)

Note:

PCLD-786 does not include SSRs. They must be ordered by selecting single piece SSR modules according to your requirements.

- PCLM-OAC5A** Single piece AC SSR module (280 V_{AC}, 3 A)
- PCLM-ODC5** Single piece DC SSR module (60 V_{DC}, 3 A)

Features

- Channel status reflected by onboard LED for easy monitoring
- Optically isolated inputs and outputs between computer and field devices
- Onboard fuse protection

Specifications

Module type		Field side		Logic side
Output modules	Part No.	Output voltage rating	Output current rating	Input logic and SSR status
AC output	PCLM-OAC5A	24 ~ 280 V _{AC}	3.0 A _{AC}	TTL low (On)
		12 ~ 280 V _{AC}		TTL high (Off)
DC output	PCLM-ODC5	5 ~ 60 V _{AC}	3.0 A _C	TTL low (On)
Input modules	Part No.	Input On voltage	Input Off voltage	TTL high (Off)
				Output logic & On/Off status
AC input	PCLM-IAC5	90 ~ 140 V _{AC}	< 45 V _{AC}	TTL low (On)
	PCLM-IAC5A	180 ~ 280 V _{AC}	< 80 V _{AC}	TTL high (Off)
DC input	PCLM-IDC5B	3 ~ 32 V _{AC}	< 1 V _{AC}	TTL low (On)
				TTL high (Off)

Input Modules

- Field Side**
- Input On/Off Voltage Range** IAC5 series: 90 ~ 140 V/45 V_{RMS}
IAC5A series: 180 ~ 280 V/80 V_{RMS}
IDC5B series: 3 ~ 32 V/1 V_{DC}
- Input Resistance** IAC5 series: 14 k Ω , IAC5A series: 44 k Ω ,
IDC5B series: 1.5 k Ω
- Turn on/off Time** IAC5 series: 20 msec. max., IAC5A series: 20 msec. max.
IDC5B series: 100 msec. max.
- Logic Side**
- Breakdown Voltage** 30 V_{DC}
- Output Current** 100 mA max.
- Output Voltage Drop** 0.4 V max.
- Supply Current** 12 mA max.
- Supply Voltage** 4 ~ 6 V

Output Modules

- Field Side**
- Current Rating** 3 A max. (@ 25° C)
- Contact Voltage Drop** 1.6 V max.
- Turn on/off Time** OAC series: 1/2 AC cycle max.
ODC series: 100 μ sec/750 μ sec. max.
- Logic Side**
- Input Resistance** 220 Ω
- Supply Voltage** 4 ~ 6 V
- Supply Current** 12 mA max.

General

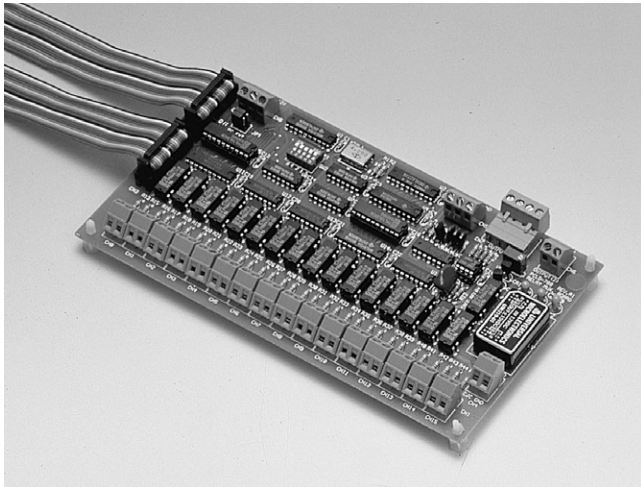
- Logic side connectors: 50-pin edge connector, Opto-22 compatible
- Dimensions (L x W x H): 367 x 111 x 56 mm (14.4" x 4.4" x 2.2")

Ordering Information

- PCLD-7216** 16-ch SSR I/O Module Carrier Board, one 1.2 m, 50-pin flat cable (PCL-10151-1.2), one 1 m 20-pin flat cable (PCL-10120-1) and user's manual

PCLD-788

16-ch Relay Multiplexer Board



CE

Features

- 16 to 1 channel expansion
- Differential and fully isolated multiplexing
- Break-before-make relay control
- "Channel closed" signal for precise A/D triggering
- Up to 16 PCLD-788s can be cascaded for 256 channels
- Easy wiring for large channel count configuration
- Onboard cold-junction circuitry for thermocouple measurement

Introduction

PCLD-788 multiplexes 16 channels into a single I/O channel of an A/D converter, voltmeter or IEEE-488-based instrument. Up to 16 PCLD-788s can be cascaded for a total of 256 fully-isolated differential channels. The PCLD-788 can be controlled by any PC-LabCard™ product via a 16-bit 20-pin digital output port, found on cards such as the PCL-711B, PCL-812PG or the PCL-818 series.

Channel selection (0-15) and board selection (0-15) are done by programming the high-order four bits and low order four bits of a digital output byte from the main I/O card in use.

Specifications

I/O

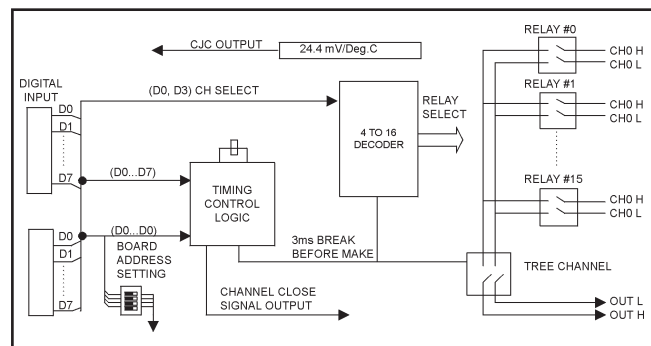
- **Channel Closed Signal** TTL-level pulse
- **Cold-junction Sensor Output** +24.4 mV/° C, 0 V at 0° C
- **Contact Rating** Break-before-make with 3 msec. minimum break time
- **Contact Resistance** 200 Ω max.
- **Input Channels** 16 isolated differential inputs
- **Programming** D/O bit 0, 1, 2 and 3 for channel selection, D/O bit 4, 5, 6 and 7 for board selection. Onboard DIP switches for board-address setting
- **Max. Input Voltage** 100 V_{DC} or 100 V peak AC
- **Max. Switching Current** 0.5 A
- **Max. Switching Power** 10 Ω
- **Operating Time** 1 msec. max.
- **Relay Life Expectancy** 100 million cycles min. at 10 V_{DC} and 1 mA
- **Release Time** 1 msec. max.

General

- **Certifications** CE
- **Connectors**
 - Controller: 2 x 20-pin flat-cable connectors, second connector in parallel for daisy chaining
 - I/O: Screw terminals
- **Dimensions (L x W)** 205 x 114 mm (8" x 4.5")
- **Mounting** 4 x screw holes for flat surface mounting
- **Power Consumption** +5 V @ 380 mA max.

Ordering Information

- **PCLD-788** 16-ch Relay Multiplexer Board, user's manual and two 1 meter 20-pin flat cables (P/N: PCL-10120-1)



PCLD-788 Block Diagram

Pin Assignments

CN2 & CN3			
C0	1	2	C1
C2	3	4	C3
C4	5	6	C5
C6	7	8	C7
	9	10	
	11	12	
	13	14	
	15	16	
GND	17	18	GND
+5V	19	20	+12V

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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

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Plug-in I/O

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CompactPCI

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Signal Conditioning

13
USB I/O

14
Motion Control I/O

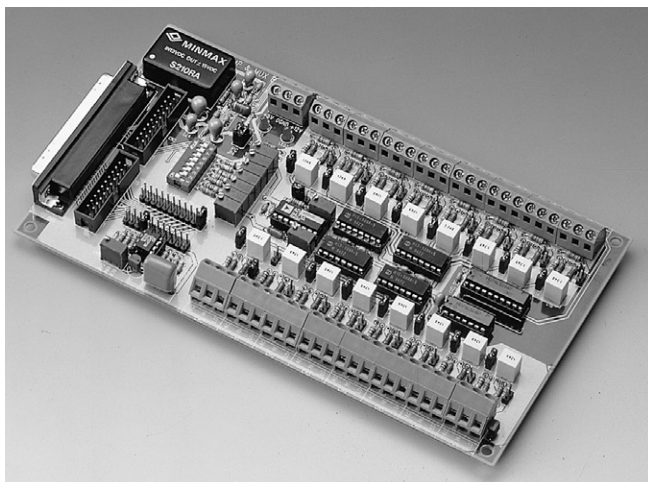
15
Ethernet Switch

16
EDG

17
ICOM

PCLD-789D

Amplifier and Multiplexer Board



CE

Features

- Multiplexes 16 differential inputs to one A/D input
- Expands a PC-LabCard™ product's analog inputs to 128 channels
- High-grade instrumentation amplifier provides switch selectable gains of 1, 2, 10, 50, 100, 200, 1,000
- Onboard cold-junction compensation circuits for direct thermocouple measurement
- Built-in signal conditioning functions include filter, attenuator and current shunt
- Second connectors onboard allow daisy chaining
- Screw-clamp terminal blocks permit easy and reliable connections

Introduction

PCLD-789D is a front-end signal conditioning and channel multiplexing daughterboard for use with PC-LabCard™ product's analog input ports. It multiplexes 16 differential input channels into a single A/D converter input channel. You can cascade up to ten PCLD-789Ds, allowing a single data acquisition card to access 160 analog input channels.

PCLD-789D has DB37 and 20-pin flat cable connectors and lets your PCL-818L or PCL-818HD access up to 128 channels without using an additional digital output cable to select channels.

The PCLD-789D uses a high-grade instrumentation amplifier that provides switch-selectable gains of 1, 2, 10, 50, 100, 200 and 1,000. This amplifier lets you accurately measure low-level signals with your PC-LabCard™ product. The board also contains a cold-junction sensing circuit that allows direct temperature measurement from thermocouple transducers. A wide variety of thermocouples are supported with software compensation and linearization.

Specifications

I/O

- **Cold-Junction Compensation** +24.4 mV/°C, 0 V at 0° C
- **Input Channels** 16 differential
- **Input Conditions**

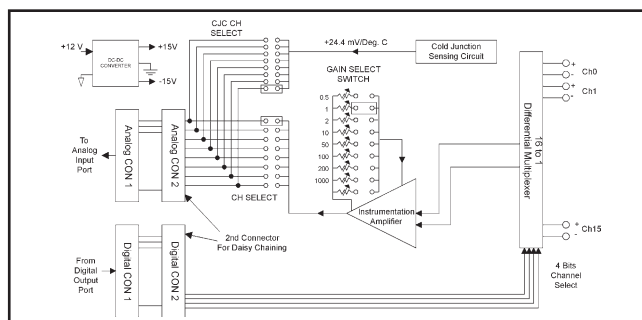
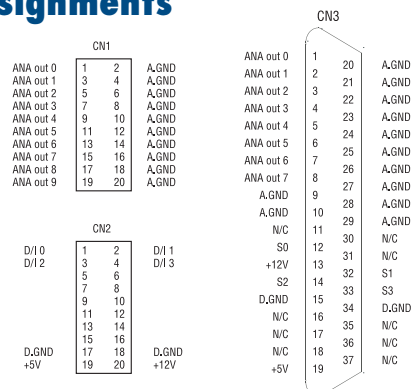
Gains	CMRR	Nonlinearity	Setting Time
1,000	125 dB	0.005% FSR	75 μ sec.
100	115 dB	0.005% FSR	15 μ sec.
10	105 dB	0.007% FSR	15 μ sec.
1	85 dB	0.015% FSR	15 μ sec.

- **Input Range** ± 10 V maximum, depending on the selected gain
- **Output Range** ± 10 V maximum
- **Overvoltage Protection** ± 30 V continuous

General

- **Certifications** CE
- **Connectors**
Controller: 1 x DB37 (male) connector
2 x 20-pin flat cable connectors for daisy chaining
Screw terminals
- **Dimensions (L x W)** 205 x 114 mm (8.1" x 4.5")
- **Mounting** 4 x screw holes for flat surface mounting
- **Power Consumption** +5 V @ 30 mA max, +12 V @ 80 mA max

Pin Assignments



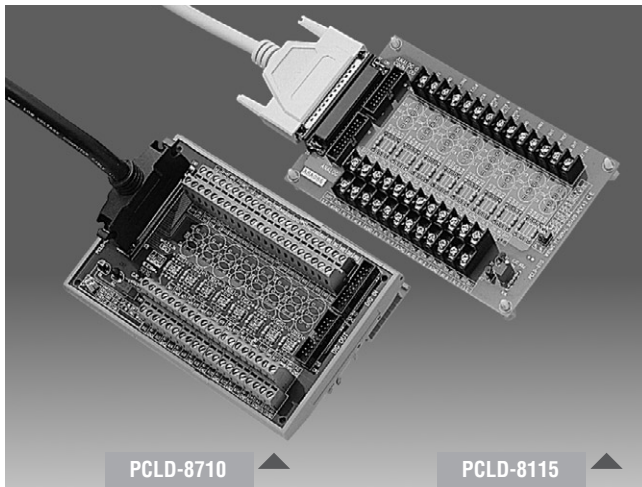
Block Diagram

Ordering Information

- **PCLD-789D** Amplifier and Multiplexer Board with DB37 connector and 20-pin flat-cable connectors. (Includes DB37 and 20-pin flat cable assemblies)

PCLD-8115 PCLD-8710

Industrial Wiring Terminal Board With CJC Circuit



Features

- Low-cost screw-terminal boards
- Onboard CJC (Cold Junction Compensation) circuits for direct thermocouple measurement.
- Reserved space for signal-conditioning circuits such as low-pass filter, voltage attenuator and current shunt.
- Industrial-grade screw-clamp terminal blocks for heavy-duty and reliable connections.
- PCLD-8115 only
- Supports PCL-818 series multifunction cards
- Nylon standoffs, screws and washers included for easy mounting
- Dimensions (W x L): 169 x 112 mm (6.7" x 4.4")
- PCLD-8710 only
- Supports PCI-1710/1710L/1710HG/1710HGL/1711/1711L/1716/1716L cards
- DIN-rail mounting case for easy mounting
- Dimensions (W x L x H): 169 x 112 x 51 mm (6.7" x 4.4" x 2.0")

Introduction

The PCLD-8115 screw-terminal board offers convenient and reliable signal wiring for multifunction cards with 20-pin flat cable connectors or DB37 connectors, such as the PCL-818 series cards. PCLD-8710 is designed to match multifunction cards with 68-pin SCSI-II connectors, such as the PCI-1710/1710L/1710HG/1710HGL/1711/1711L/1716/1716L cards.

This screw-terminal board also includes cold junction sensing circuitry that allows direct measurements from thermocouple transducers. Together with software compensation and linearization, every thermocouple type can be accommodated.

Due to its special PCB layout, you can install passive components to construct your own signal-conditioning circuits. So you can easily construct a low-pass filter, attenuator or current shunt converter by adding resistors and capacitors onto the board circuit pads.

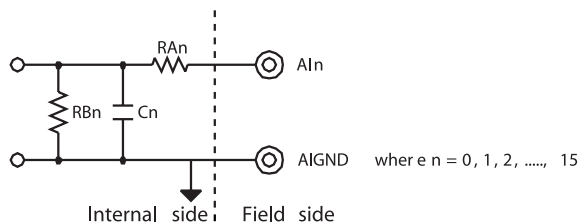
Applications

Field wiring for analog and digital I/O channels of PC-LabCard™ products.

Signal conditioning circuits can be implemented as illustrated in the following examples:

a) Straight-through connection (factory setting)

$R_{An} = 0 \Omega$ (short)
 $R_{Bn} = \text{none}$
 $C_n = \text{none}$



b) 1.6 kHz (3 dB) low pass filter

$R_{An} = 10 \text{ K}\Omega$
 $R_{Bn} = \text{none}$
 $C_n = 0.01 \mu\text{F}$

$$f_{3dB} = \frac{R_{Bn}}{R_{An} + R_{Bn}}$$

c) 10 : 1 voltage attenuator:

$R_{An} = 9 \text{ K}\Omega$
 $R_{Bn} = 1 \text{ K}\Omega$
 $C_n = \text{none}$
 $\text{Attenuation} = \frac{R_{Bn}}{R_{An} + R_{Bn}}$

(Assume source impedance $\ll 10 \text{ K}\Omega$)

d) 4 ~ 20 mA to 1 ~ 5 V_{DC} signal converter:

$R_{An} = 0 \Omega$ (short)
 $R_{Bn} = 250 \Omega$ (0.1% precision resistor)
 $C_n = \text{none}$

Ordering Information

- **PCLD-8115** Industrial Wiring Terminal Board with CJC circuit and DB37 cable assembly
- **PCLD-8710** Industrial Wiring Terminal Board with CJC circuit for DIN-rail mounting (cable not included)
- **PCL-10137-1** DB37 cable assembly, 1 m
- **PCL-10137-2** DB37 cable assembly, 2 m
- **PCL-10137-3** DB37 cable assembly, 3 m
- **PCL-10168-1** 68-pin SCSI-II cable with special shielding for noise reduction, 1 m
- **PCL-10168-2** 68-pin SCSI-II cable with special shielding for noise reduction, 2 m

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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

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Plug-in I/O

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CompactPCI

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Signal Conditioning

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USB I/O

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Motion Control I/O

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Ethernet Switch

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EDG

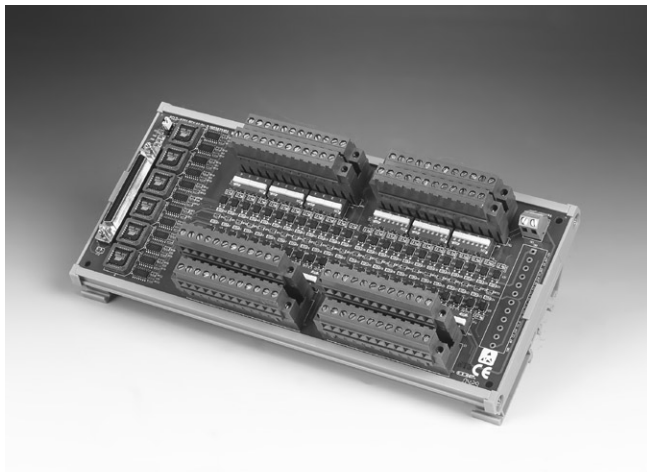
17
ICOM

PCLD-8751

PCLD-8761

48-ch Opto-Isolated Digital Input Board

24-ch Opto-Isolated DI and 24-ch Relay Output Board



PCLD-8751



Features

- 48 optically-isolated digital input channels
- Built-in plug-in screw terminals for easier wiring
- LEDs indicate input logic status
- Input buffered with voltage comparators
- Wet/Dry contact set by DIP switches
- Input logic set by jumper
- Wide input range from 5 to 30 V

Specifications

Digital Input

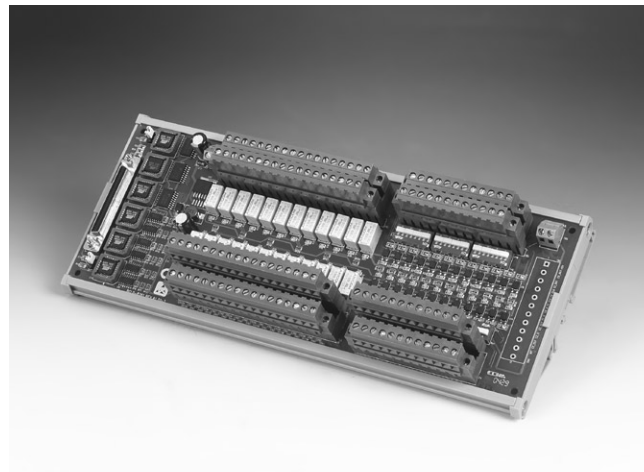
- **Channels** 48 isolated digital inputs
- **Contact Mode** Wet contact
Dry contact (set by switch)
- **Isolation Voltage** 3500 V
- **Logic Modes** Positive Logic
Negative Logic (set by jumper)
- **Signal Voltage** 0 ~ 30 V
VIH (MIN) : 4 V, VIL (MAX) : 1 V

General

- **Certifications** CE
- **Connectors** Controller: SCSI-68 male
Digital Input: Plug-in screw terminals: (#14 ~ 24 AWG)
- **Dimensions** 255 x 121 mm
- **LED Indicators** One for each channel to indicate logic status
- **Mounting** DIN-rail

Ordering Information

- **PCLD-8751** 48-ch Opto-isolated Digital Input Board



PCLD-8761



Features

- Built-in plug-in screw terminals for easier wiring
- LED status indicators for D/I and relay output
- Digital inputs buffered with voltage comparators
- Wet/Dry contact set by DIP switches for D/I
- Wide input range from 5 to 30 V
- INT/EXT Power selection by jumper

Specifications

Digital Input

- **Channels** 24 IDI with LED and 24 Relay (SPDT) Form C with LED
- **Contact Mode** Wet contact and dry contact for each IDI (set by switch)
- **Digital Input** 0 ~ 30 V VIH (MIN) : 4 V, VIL (MAX) : 1 V
- **Isolation Voltage** 3,500 V (Isolated DI), 1,500V (Relay)
- **Logic Mode** Positive Logic Negative Logic (set by jumper)
(IDI and Relay are independent)

Relay Output

- **Contact Rating** 30 V_{DC} @ 1 A, 120 V_{AC} @ 0.5 A
- **Contact Resistance** < 100 ohm
- **Electrical Endurance** 5*10⁷ times at 12 V/10 mA
- **Mechanical Endurance** 108 times
- **Operation Time** 5 ms Max
- **Release Time** 6 ms Max

General

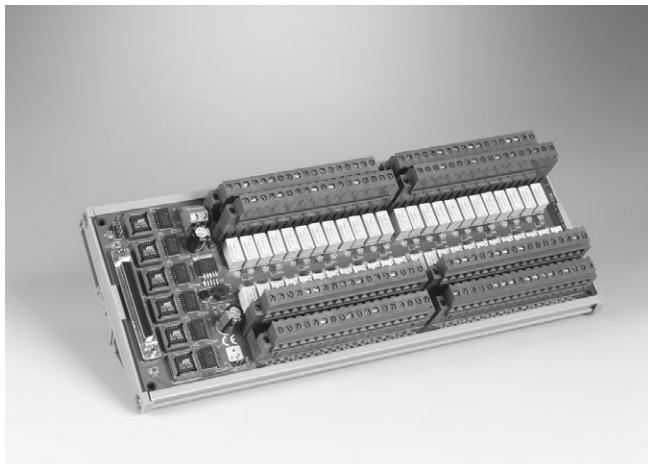
- **Certifications** CE
- **Connectors** Controller: SCSI-68 male
Digital Input: Plug-in screw terminals: (#14 ~ 24 AWG)
- **Dimensions** 285 x 121 mm
- **Mounting** DIN 35 rail
- **Power Consumption** +5 V @ < 380 mA +50*n (mA)
+12 V @ < 240 mA +70*n (mA)
(*n indicate the number of relays)
- **Power Selection** PCI Bus or External power(7 ~ 30 V) by jumper

Ordering Information

- **PCLD-8761** 24-ch Opto-isolated DI and 24-Channel Relay (SPDT) Output Board

PCLD-8762

48-ch Relay Output Board



Features

- Built-in plug-in screw terminals for easier wiring
- LED status indicators for Relay output
- DIN-rail mounting
- Onboard relay driver circuits

Specifications

Relay Output

- **Contact Rating** 30 V_{DC} @ 1 A, 120 V_{AC} @ 0.5 A
- **Contact Resistance** < 100 ohm
- **Electrical Endurance** 5*10⁴ times at 12 V/10 mA
- **Mechanical Endurance** 108 times
- **Operation Time** 5 ms Max
- **Release Time** 6 ms Max

General

- **Certifications** CE
- **Connectors**
Controller: SCSI-68 (male)
Digital Input: Plug-in screw terminals: (#14 ~ 24 AWG)
- **Dimensions** 285 x 117 mm
- **Mounting** DIN-rail
- **Power Input** Unregulated 7 ~ 30 V_{DC}
- **Power Consumption** 7 V @ 1.8 A, 30 V @ 0.45 A
(External power supply is required)

Ordering Information

- **PCLD-8762** 48-ch Relay (SPDT) Output Board

1

PAC & Software

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BAS

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UNO

4

RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

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Plug-in I/O

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CompactPCI

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Signal Conditioning

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USB I/O

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Motion Control I/O

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Ethernet Switch

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EDG

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ICOM

ADAM-3900 Series

Wiring Terminals for DIN-rail Mounting



ADAM-3909

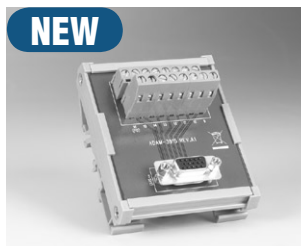
DB9 Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard™ products with DB9 connector.
- Case dimensions (W x L x H): 77.5 x 45 x 51 mm (3.1" x 1.8" x 2.0")

To Be Used With

PCL-728, PCL-740, PCL-741, PCL-743B, PCL-745B, PCL-832



NEW

ADAM-3915

DB15 Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for AMONet cards with DB15 female connector.
- Case dimensions (W x L x H): 77.5 x 68 x 51 mm (3.1" x 2.7" x 2.0")

To Be Used With

PCI-1202



ADAM-3920

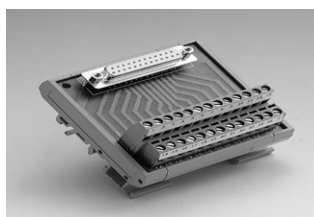
20-pin Flat Cable Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard products with 20-pin connector
- Case dimensions (W x L x H): 77.5 x 67.5 x 51 mm (3.1" x 2.7" x 2.0")

To Be Used With

PCI-1735U, PCL-711B/S, PCL-720+, PCL-726, PCL-727, PCL-730, PCL-812PG, PCL-816, PCL-818 Series, PCL-836



ADAM-3925

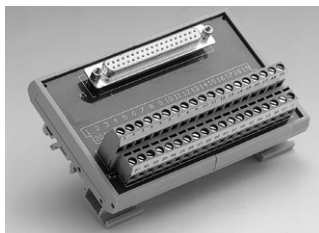
DB25 Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard products with DB25 connector
- Screw-clamp terminal blocks allow easy and reliable connections
- Case dimensions (W x L x H): 77.5 x 56.3 x 51 mm (3.1" x 2.2" x 2.0")

To Be Used With

PCL-725, PCL-740, PCL-746+, PCL-833



ADAM-3937

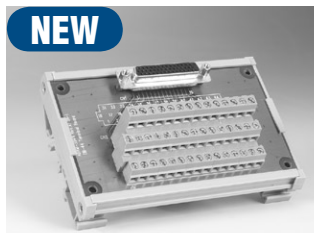
DB37 Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for DA&C cards with DB37 female connector
- Case dimensions (W x L x H): 77.5 x 146.3 x 51 mm (3.1" x 5.8" x 2.0")

To Be Used With

PCI-1713, PCI-1715U, PCI-1718H DU/1718H GU, PCI-1720U, PCI-1727U, PCI-1730, PCI-1733, PCI-1734, PCI-1750, PCI-1760, PCI-1761



NEW

ADAM-3944

DB44 Wiring Terminal for DIN-rail Mounting

Features

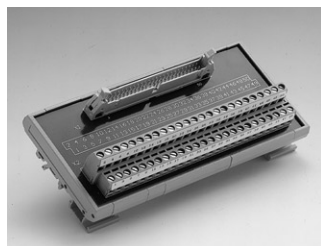
- Low cost universal DIN-rail mounting screw terminal module for DA&C cards with DB44 female connector.
- Case dimensions (W x L x H): 77.5 x 203 x 51 mm (3.1" x 8" x 2.0")

To Be Used With

PCI-1736UP, PCI-1763UP

ADAM-3900 Series

Wiring Terminals for
DIN-rail Mounting



ADAM-3950

50-pin Flat Cable Wiring
Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard™ products with 50-pin flat cable connector.
- Case dimensions (W x L x H): 77.5 x 146.3 x 51 mm (3.1" x 5.8" x 2.0")

To Be Used With

USB-4751/4751L, PCI-1737U, PCI-1739U, PCL-722, PCL-724, PCL-731



ADAM-3950D

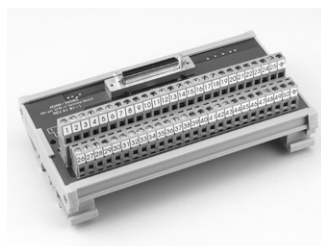
Dual 50-pin SCSI-II Wiring
Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for industrial applications with dual 50-pin SCSI-II female connectors
- Case dimensions (W x L x H): 77.5 x 179.5 x 51 mm (3.1" x 7.1" x 2.0")

To Be Used With

PCI-1240U, PCI-1752U, PCI-1752USo, PCI-1754, PCI-1756



ADAM-3950S

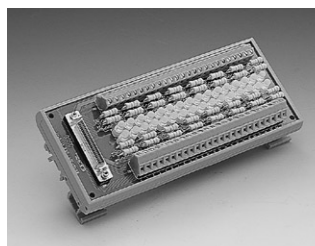
50-pin SCSI-II Wiring Terminal
for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for industrial applications with 50-pin SCSI-II female connector
- Case dimensions (W x L x H): 77.5 x 146.3 x 51 mm (3.1" x 5.8" x 2.0")

To Be Used With

PCI-1752U, PCI-1752USO, PCI-1754, PCI-1756



ADAM-3951

Wiring Terminal Module with
LED indicators for DIN-rail
Mounting

Features

- Low-cost DIN-rail mounting wiring terminal module for PCI-1752/1754/1756 with 50-pin SCSI-II female connector.
- Screw-clamp terminal blocks allow easy and reliable connections.
- Each LED indicates its current bi-directional I/O logic status with either green or red light.
- Case dimensions (W x L x H): 77.5 x 179.5 x 41.5 mm (3.1" x 7.1" x 1.6")

To Be Used With

PCI-1752U, PCI-1752USO, PCI-1754, PCI-1756

1

PAC & Software

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BAS

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UNO

4

RS-485 I/O

5

Ethernet I/O

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TPC

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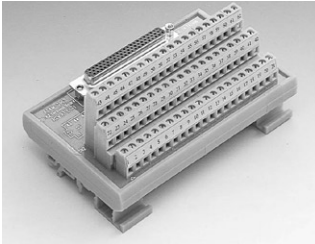
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ADAM-3900 Series

Wiring Terminals for DIN-rail Mounting



ADAM-3962

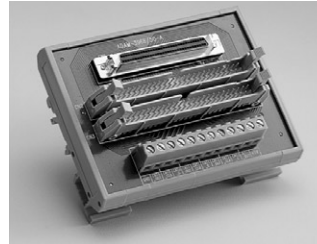
DB62 Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for DA&C cards with DB62 female connector
- Screw-clamp terminal blocks allow easy and reliable connections
- Case dimensions (W x L x H): 77.5 x 124.5 x 63.5 mm (3.1" x 4.9" x 2.5")

To Be Used With

PCI-1243U, PCI-1762



ADAM-3968/50

68-pin SCSI-II to Two 50-pin Box Header for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard™ products with 68-pin SCSI-II connectors
- Converts one 68-pin SCSI-II connector to two 50-pin Opto-22 compatible box headers
- Case dimensions (W x L x H): 77.0 x 101.0 x 54.3 mm (3.0" x 4.0" x 2.1")

To Be Used With

PCI-1751, PCI-1753, PCI-1753E



ADAM-3968

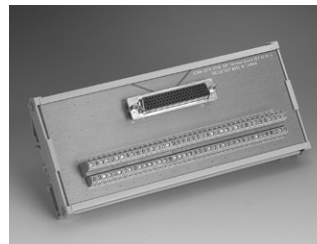
68-pin SCSI-II Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for industrial applications with 68-pin SCSI-II female connector
- Case dimensions (W x L x H): 77.5 x 191.2 x 51 mm (3.1" x 8.4" x 2.0")

To Be Used With

PCI-1710/1710L, PCI-1710HG/1710HGL, PCI-1711/1711L, PCI-1712/1712L, PCI-1716/1716L, PCI-1741U, PCI-1742U, PCI-1747U, PCI-1721, PCI-1723, PCI-1751, PCI-1753/1753E, PCI-1723, PCI-1780U



ADAM-3978

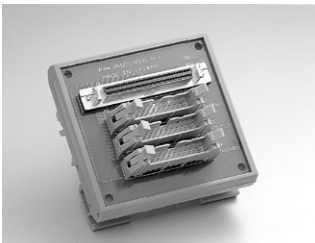
DB78 Wiring Terminal for DIN-rail Mounting

Features

- Mounting Low cost universal DIN-rail mounting screw terminal module for industrial applications with DB78 female connector
- Case dimensions (W x L x H): 86 x 191 x 42 mm (3.39" x 7.51" x 1.65")

To Be Used With

MIC-3753, PCI-1756



ADAM-3968/20

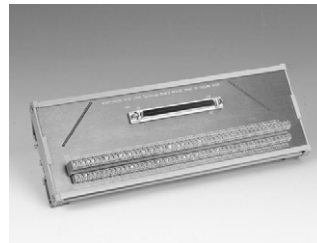
68-pin SCSI-II to Three 20-pin Wiring Terminal Module for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard™ products with 68-pin SCSI-II connectors
- Converts one 68-pin SCSI-II connector to three 20-pin connectors
- Case dimensions (W x L x H): 77.5 x 80 x 54.3 mm (3.1" x 3.2" x 2.1")

To Be Used With

PCI-1751, PCI-1753, PCI-1753E



ADAM-39100

100-pin SCSI-II Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for industrial applications with 100 pin SCSI-II female connector
- Case dimensions (W x L x H): 80 x 230 x 42 mm (3.14" x 9.05" x 1.65")

To Be Used With

PCI-1755

Cable Accessories



PCL-1010B-1
BNC to BNC Cable, Male, 1 m



PCL-101100-1
SCSI Cable 100P Male 1m w/ Bolt Screw



PCL-10120-1
20-Pin Flat Cable, 1 m



PCL-10121-1
20-Pin Shielded Cable, 1 m



PCL-10125-1
DB25 Cable Assembly, 1 m



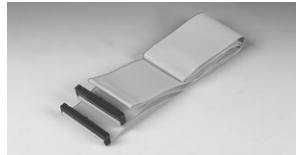
PCL-10137-1
DB37 Cable Assembly, 1 m



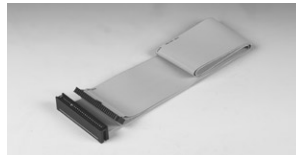
PCL-10137H-1
High-speed DB37 Cable Assembly, 1 m



PCL-10137H-3
High-speed DB37 Cable Assembly, 3 m



PCL-10150-1.2
50-Pin Flat Cable, 1.2 m



PCL-10151-1.2
50-Pin Flat Cable Assembly with Edge 1.2 m



PCL-10162-1
DB62 Cable Assembly, 1 m



PCL-10162-3
DB62 Cable Assembly, 3 m



PCL-10168
68-Pin SCSI Cable, 1 m



PCL-10168-2
68-Pin SCSI Cable, 2 m



PCL-10250
100-Pin SCSI to Two 50-Pin SCSI Cable, 1 m



PCL-10250-2
100-Pin SCSI to Two 50-Pin SCSI Cable, 2 m



PCL-10251-1
100-Pin to Two 50-Pin SCSI Cable for PCI-1240, 1 m



PCL-12250-1
100-Pin to Two 50-Pin Flat Cable for PCM-3240, 1 m



PCL-10268
100-Pin to Two 68-Pin SCSI Cable, 1 m



PCL-10268-2
100-Pin to Two 68-Pin SCSI Cable, 2 m



PCL-10901-1
DB9 to PS/2 Cable Assembly with Shielding, 1 m

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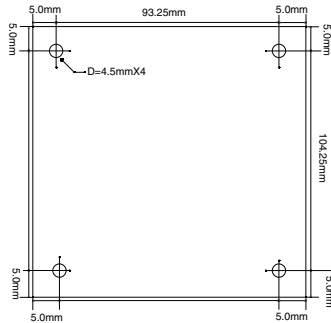
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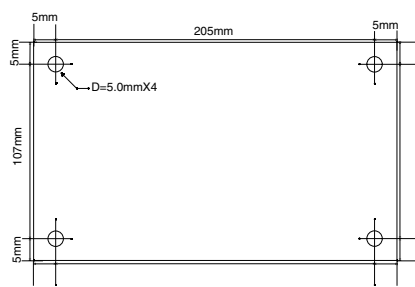
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Terminal Board Dimensions

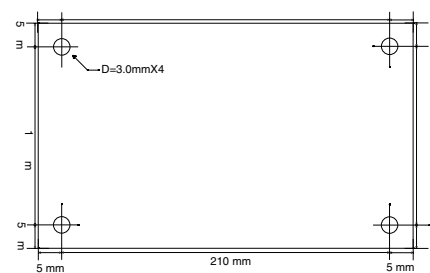
PCLD-780



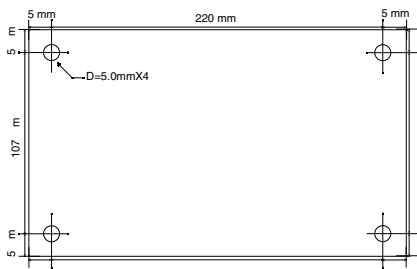
PCLD-782



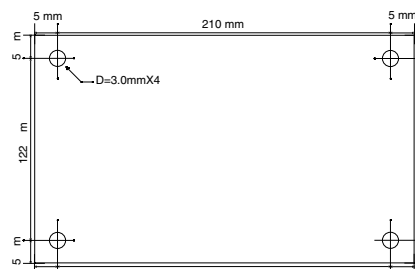
PCLD-782B



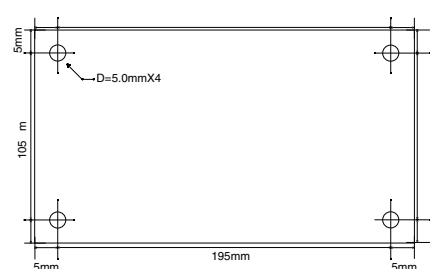
PCLD-785



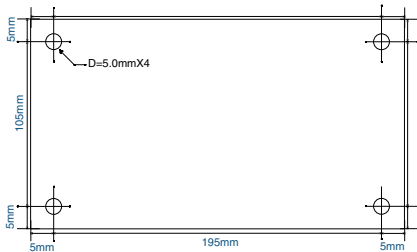
PCLD-785B



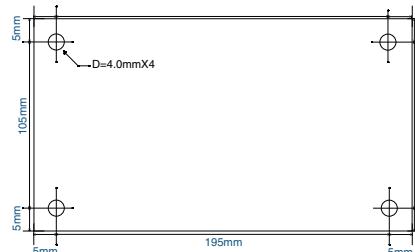
PCLD-786



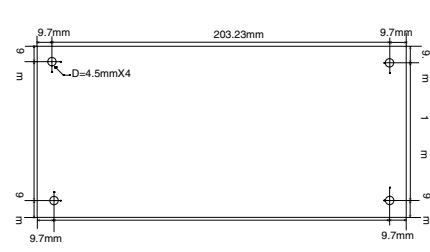
PCLD-788



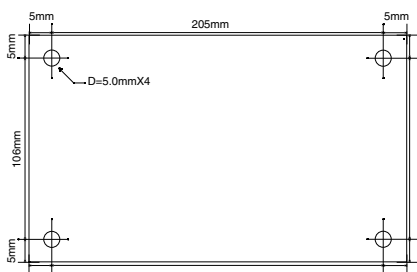
PCLD-789D



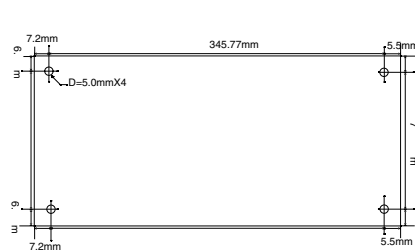
PCLD-880



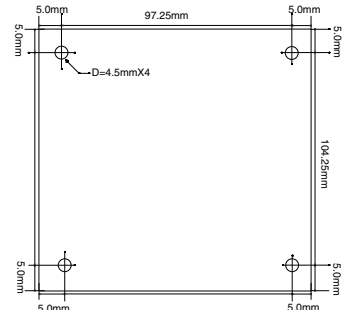
PCLD-885



PCLD-7216



PCLD-8115



Industrial USB I/O Modules

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USB-4761	8-ch Relay/Isolated DI USB Module 13-12
USB-4671	USB GPIB Module 13-13
USB Assembly	13-14



Advantech USB Data Acquisition Series



Introduction

USB data acquisition products are becoming very popular in the field. Many customers in Asia have utilized our plug-in data acquisition, motion control and communication cards to develop machines, and then distribute them to China, Thailand, Vietnam ... and so forth. So far the machine builders needed to bring many tools & spare parts to the end-customer for after service work.

Now we offer a better solution, Engineers can just use a Notebook and a USB data acquisition module to do the job. Because all the specifications are the same, engineers can directly evaluate the program and troubleshoot on their notebooks.

Besides, the embedded controller is well proved by several industrial applications, and now can provide faster fanless low-power CPU with USB 2.0 interface. The idea is coming to separate computing platform and data acquisition interface into two parts.

The technology of computing platform is always changing. People can enjoy high-stability and high-performance computing platform by leverage those latest embedded technology, also to save the maintenance cost and system upgrade effort.

On the other hand, the data acquisition and control interface technology is not changing frequently. Most of the time those interface will come together with cable and terminal board, engineer intend to keep the same configuration to provide the stable and reliable data acquisition and control system. That means its life cycle is longer than computing platform, and engineer can reduce the effort by maintain two parts separately.

The transmission rate of USB 2.0 is 480Mb/s, which can provide the same performance as general purpose PCI-bus data acquisition and control cards. With Advantech's innovative designed on the screw-type USB connection cable, the Advantech USB-based data acquisition and control modules are the next generation solution for industrial test and measurement applications.

Portable, Easy to Install & Use

The Key Benefits of USB DAQ Modules Are:

- **Plug & Play**
 - Advantech USB data acquisition series features the plug & play function that users can install/setup the devices and ready to go within seconds.
- **Single Cable Connection with PC**
 - The USB series connects to the user's host system via a shielded USB cable and are powered through this cable, which saves users from the annoying wiring and extra accessory costs.
- **Best Mate for Notebook**
 - The bus-powered design and compact size make Advantech USB data acquisition series the best mate for the notebook.

Features

- USB 2.0 Hub and data acquisition & control modules
- Full family extend compatible with PCI-bus data acquisition & control cards
- Versatile mounting methods – wall, panel, DIN-rail, and VESA
- Palm sized and bus-powered
- Wiring terminal on modules
- Ready-to-Use software & drivers
- **480 Mb/s Transmission Rates**
 - High speed data transmission realizes the high-performance and high-accuracy on the USB data acquisition.

Design Concepts

- **Efficient**
 - Advantech USB data acquisition series needs no external power source and can get rid of the power cord and adapters, give users the most convenience on the field side applications.
- **Portable**
 - The palm-sized and light-weight USB data acquisition series is suitable for hand carry when you travel to exhibitions or business shows.
- **Fast**
 - 480Mbps data transmission rate is 20000 times faster than traditional RS-485 based I/O, make the USB series possible to achieve heavy-loaded tasks.
- **Integrated**
 - All the analog input, analog out, digital input, and digital output functions are integrated into the USB series. Users can get multiple functions by getting only module on hand.
- **Convenient**
 - The built-in wiring terminals facilitate the operations without using any wiring cables or terminal boards.



Efficient



Portable



Speedy



Integrated



Convenient

Extending Benefits to PCI Card Users

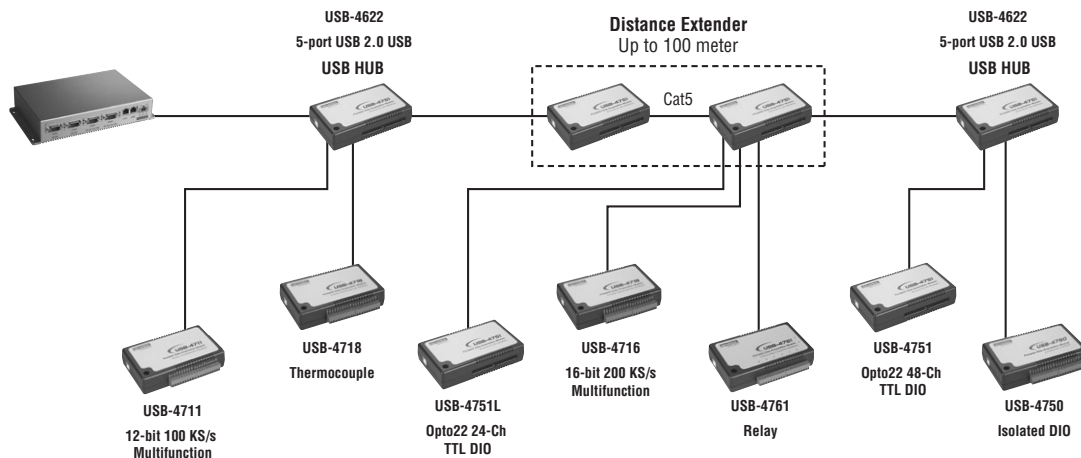
Our concept is to keep same specification as our existed PCI-bus data acquisition cards.

- Same specifications and drivers as PCI cards
- For R&D, easy to develop and diagnose the system
 - The same H/W and S/W between development and run-time
 - Save time and effort on simulation and troubleshooting

USB Module	PCI Card	Functions
USB-4711	PCI-1711	100kS/s, 12-bit multifunction
USB-4716	PCI-1716	200kS/s, 16-bit multifunction
USB-4750	PCI-1750	32-ch Isolated Digital IO
USB-4751	PCI-1751	48-ch TTL Digital IO
USB-4761	PCI-1761	8-ch Relay and 8-ch Isolated DI
USB-4671	PCI-1671	GPIO device

*Note: For more detailed specifications, please refer to the respective product pages.

Advantech USB-based Data Acquisition and Control Solution Architecture



Mounting Scheme of USB DAQ Modules

Advantech has provides versatile mounting methods to fit the demand in the field.

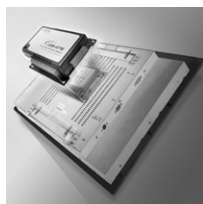
- **Wall/panel mount**
 - The wallmount kit can help users hang their modules on the wall or other flat surfaces.
- **DIN-rail mount**
 - Advantech's USB DAQ modules come with a bracket that facilitates the DIN-rail mounting onto some streamlined system with Industry standards
- **VESA mount**
 - The VESA bracket can mount the USB data acquisition module to the VESA-ready appliances, such as Advantech's touch panel computers (TPC series) and the flal panel monitors (FPM series).



DIN-rail Mounting



Panel/Wall



VESA Mounting

Lockable USB Connector

The standard USB cable is designed for easy plug and remove, but it's not suitable in industrial application. However the USB 2.0 is one of the high-speed and high-reliable extension interface, Advantech invest R&D effort to provide screw-type USB connection cable. With this innovative cable, the USB-based data acquisition module can be connected firmly.



Robust & Anti-vibration

Advantech also provide another innovated accessory for make the other end of USB cable can be connected to UNO and TPC's USB port firmly. We provide the complete embedded data acquisition and control solution.

Software Support for the USB DAQ Series

Advantech has provides five software solution for USB-based data acquisition and control modules.

- **WaveScan**
 - Wavescan is a real-time waveform display utility capable of displaying on the screen and storing the incoming data into users' HDD. In the Version 2.0, moreover, Wavescan extend its support list to all our PCI cards. The ActiveDAQ-based design concept gives more flexibility to the users by designing their own Wavescan edition.
- **ActiveDAQ Pro**
 - ActiveDAQ Pro is a collection of ActiveX controls for performing I/O operations within any compatible ActiveX control container, such as Visual Basic, Delphi, etc. You can easily perform the I/O operations through properties, events and methods. With ActiveDAQ Pro, you can perform versatile I/O operations to control your Advantech devices.
- **LabVIEW driver**
 - Advantech 32-bit LabVIEW drivers enable you to use Advantech plug-in I/O cards with LabVIEW software. The LabVIEW driver forms an interface between Advantech DA&C device DLL drivers, which contain all the relevant functions to control Advantech plug-in I/O cards and the LabVIEW software. LabVIEW driver forms a VI (virtual instrument) in the LabVIEW package, which enables other applications to be used in conjunction with Advantech plug-in I/O cards
- **DLL driver**
 - For Windows programmers, Advantech provides the complete set of Windows platform DLL drivers and OCX support for Windows 2000 and XP.
- **GeniDAQ**
 - Advantech GeniDAQ is a 32-bit Microsoft Windows-based graphical application software for data acquisition. It supports Windows NT and Windows 95/98, as well as Windows CE for Runtime applications. This software features multi-threaded technology for optimizing application performance, OPC (OLE for Process Control) standard compliant driver interface for connecting diverse I/O devices, and TCP/IP networking for integrating real time data between Windows NT and Windows CE platforms.

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Selection Guide

Category			Multifunction			Analog Input
Bus			USB	USB	USB	USB
Model			USB-4711	USB-4711A	USB-4716	USB-4718
Analog Input	General Spec.	Resolution	12 bits	12 bits	16 bits	16 bits
		Channels	16 SE	16 S.E./ 8 Diff.	16 SE/8 Diff	8 Diff
		Onboard FIFO	1024 samples	1024 samples	1024 samples	10 S/s
		Sampling Rate	100 kS/s	150 kS/s	200 kS/s	10 S/s
		Auto Channel Scanning	v	v	v	
	Input Ranges	Unipolar Inputs (V)	-	-	-	J,K,T,E,R,S,B types
		Bipolar Inputs (V)	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V 0 ~ 10 V, 0 ~ 5 V, 0 ~ 2.5 V, 0 ~ 1.25 V	-
		Configurable Per-Channel	v	v	v	v
	Trigger Mode	Pacer/Software/ External Pulse	v	v	v	Software
	Data Transfer Mode	Software	v	v	v	v
	DMA	-	-	-	-	
Analog Output		Resolution	12 bits	12 bits	16 bits	-
		Number of Channels	2	2	2	-
		Output Range (V)	0 ~ 5, 0 ~ 10, ±5, ±10	0 ~ 5, 0 ~ 10, ±5, ±10	0 ~ 5, 0 ~ 10, ±5, ±10	-
		Throughput	Static update	Static update	Static update	-
Digital I/O		Input Channels	8	8	8	8 (Isolated)
		Output Channels	8	8	8	8 (Isolated)
Timer/Counter		Channels	1	1	1	-
		Resolution	16 bits	16 bits	16 bits	-
		Time Base	1 kHz	1 kHz	1 kHz	-
Isolation Voltage			-	-	-	2,500 V _{DC}
Auto Calibration			v	v	v	v
BoardID Switch			Software	Software	Software	Software
Dimensions (mm)			132 x 80 x 32	132 x 80 x 32	132 x 80 x 32	132 x 80 x 32
Connector			Onboard screw terminal	Onboard screw terminal	Onboard screw terminal	Onboard screw terminal
Windows 2000/XP DLL Driver			v	v	v	v
Windows 2000/XP Test Utility			v	v	v	v
VC++, VB & Delphi Examples			v	v	v	v
Advantech ActiveDAQ/ActiveDAQ Pro			v	v	v	v
Labview I/O Drivers (Ver. 6i and 7.0)			v	v	v	v
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Category			Non-Isolated DI/O		Isolated DI/O	
Bus			USB	USB	USB	USB
Model			USB-4751	USB-4751L	USB-4750	USB-4761
TTL DI/O	Input Channels		48	24	-	-
	Output Channels				-	-
	Output Channel	Sink Current	0.4 V @ 8 mA	0.4 V @ 8 mA	-	-
		Source Current	2.4 V @ 4 mA	2.4 V @ 4 mA	-	-
Isolated DI/O	Input	Channels	-	-	16	8
		Isolation Voltage	-	-	2,500 V _{DC}	2,500 V _{DC}
		Input Range	-	-	5 ~ 50 V _{DC}	5 ~ 30 V _{DC}
	Output	Channels	-	-	16	8 x Form C
		Isolation Voltage	-	-	2,500 V _{DC}	2,500 V _{DC}
		Output Range	-	-	5 ~ 40 V _{DC}	-
		Max. Sink Current	-	-	100 mA max. per channel	30 V _{DC} @ 1A, 240 VAX @ 0.25 A
		Timer/Counter	Channels	3	3	1
Resolution	16 bits		16 bits	32 bits	-	
Time Base	10 MHz		10 MHz	1 MHz	-	
Advanced Function	Output Status Read Back		v	v	v	v
Dimensions			132 x 80 x 32	132 x 80 x 32	132 x 80 x 32	132 x 80 x 32
Connectors			2 x opto-22 compatible box header	1 x opto-22 compatible box header	Ob board screw terminal	Ob board screw terminal
Windows 2000/XP DLL Driver			v	v	v	v
Windows 2000/XP Test Utility			v	v	v	v
VC++, VB & Delphi Examples			v	v	v	v
Advantech ActiveDAQ/ActiveDAQ Pro			v	v	v	v
Labview I/O Drivers (Ver. 6 AND 7.0)			v	v	v	v
Mathworks Matlab & Simulink Data Acquisition Tool Box x 2.5.1			-	-	-	-
KW Win32 Driver			-	-	-	-
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USB-4622

5-port USB 2.0 Hub



Features

- 5 downstream USB 2.0 port (Type A)
- Compatible with USB 2.0/1.1/1.0
- 480Mbit/s high-speed data transfer
- LED indicators
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

Introduction

USB-4622 is a USB 2.0 hub capable of connecting at most 5 USB slave modules. It supports the USB 2.0 high-speed mode that can achieve 480Mbps data transmitting rate, realizing the USB-4700 series' high performance for heavy-loaded applications. The Advantech's unique lockable cable design secures the slave module connections, preventing the cable from being unplugged accidentally.

Specifications

- **Ports** Upstream x 1 (TypeB)/Downstream x 5(TypeA)
- **Compatibility** Universal Serial Bus Specification Rev. 2.0/1.1/1.0 Compliant
Advanced Configuration and Power Interface (ACPI), OnNow and USB power management requirements
- **Transfer Speed** 480 Mbit/s (High Speed Mode)
12 Mbit/s (Full-speed Mode)
1.5 Mbit/s (low-speed mode)
- **Supply Current** 500 mA max. per channel

General

- **Housing** Plastic (ABS+PC)
- **Dimensions** 132 x 80 x 32 mm (L x W x H)
- **Power Consumption** +5 V @ 2.5A max.
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

- **USB-4622** 5-port USB 2.0 Hub (Power adapter included)

USB-4711 USB-4711A

100 kS/s, 12-bit Multifunction USB Module

150 kS/s, 12-bit Multifunction USB Module



Features

- Supports USB 2.0
- Portable
- Bus-powered
- 16 analog input channels
- 12-bit resolution AI
- Sampling rate up to 150 kS/s
- 8 DI/8 DO, 2 AO and one 32-bit event counter
- Wiring terminal on modules
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

Introduction

The USB-4700 series consists of true Plug & Play data acquisition modules. No more opening up your computer chassis to install boards. Just plug in the module, then get the data. It's easy and efficient. Reliable and rugged enough for industrial applications, yet inexpensive enough for home projects, the USB-4711 is the perfect way to add measurement and control capability to any USB capable computer. The USB-4711 is fully USB Plug & Play and easy to use. It obtains all required power from the USB port, so no external power connection is ever required.

Specifications

Analog Input

- Channels** USB-4711: 16 Single-ended
USB-4711A: 16 Single-ended/8 Differential (SW selectable)
- Resolution** 12 bits
- Max. Sampling Rate*** USB-4711: 100k S/s max.
USB-4711A: 150k S/s max.
- FIFO Size** 1024 samples
- Overvoltage Protection** 30 Vp-p
- Input Impedance** USB-4711: 2 M Ω
USB-4716: 1 G Ω
- Sampling Modes** Software, onboard programmable pacer, or external
- Input Range** (V, software programmable)

Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Accuracy (% of FSR ± 1LSB)	0.1	0.1	0.2	0.2	0.4

*Note:

The sampling rate and throughput depends on the computer hardware architecture and software environment. The rates may vary due to programming language, code efficiency, CPU utilization and so on.

Analog Output

- Channels** 2
- Resolution** 12 bits
- Output Rate** Static update
- Output Range** (V, software programmable)

Internal Reference	Unipolar	0 ~ 5, 0 ~ 10
	Bipolar	$\pm 5, \pm 10$

- Slew Rate** USB-4711: 0.7 V/ μ s
USB-4711A: 0.15 V/ μ s
- Driving Capability** USB-4711: 3 mA @ 10 V
USB-4711A: 2 mA @ 10 V
- Output Impedance** 0.5 Ω
- Operation Mode** Single output
- Accuracy** Relative: ± 1 LSB
Differential Non-linearity: ± 1 LSB

Digital Inputs

- Channels** 8
- Compatibility** 3.3 V/5 V TTL
- Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Outputs

- Channels** 8
- Compatibility** 3.3 V/TTL
- Output Voltage** Logic 0: 0.8 V max.@ 4 mA (sink)
Logic 1: 2.0 V min.@ 4 mA (source)

Event Counter

- Channels** 1
- Compatibility** 3.3 V/TTL
- Max. Input Frequency** 1 kHz

General

- Bus Type** USB 2.0
- I/O Connector** On board screw terminal
- Dimensions (L x W x H)** 132 x 80 x 32 mm
- Power Consumption** Typical: +5 V @ 340 mA
Max: +5 V @ 440 mA
- Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

- USB-4711** 100 kS/s, 12-bit Multifunction USB Module, one 1.8 m USB 2.0 cable included
- USB-4711A** 150 kS/s, 12-bit Multifunction USB Module, one 1.8 m USB 2.0 cable included

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USB-4716

200 kS/s, 16-bit Multifunction USB Module



Features

- Supports USB 2.0
- Portable
- Bus-powered
- 16 analog input channels
- 16-bit resolution AI
- Sampling rate up to 200 kS/s
- 8DI/8DO, 2 AO and 1 32-bit counter (USB-4716L w/o AO)
- Wiring terminal on modules
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

Introduction

The USB-4700 series consists of true Plug & Play data acquisition devices. No more opening up your computer chassis to install boards—just plug in the module, then get the data. It's easy and efficient. USB-4716 offers 16SE/8Diff. inputs with 16-bit resolution, up to 200 kS/s throughput, 16 digital I/O lines and 1 user counter, and 16-bit analog outputs.

Reliable and rugged enough for industrial applications, yet inexpensive enough for home projects, the USB-4716 is the perfect way to add measurement and control capability to any USB capable computer. The USB-4716 is fully USB Plug & Play and easy to use. It obtains all required power from the USB port, so no external power connection is ever required.

Specifications

Analog Input

- **Channels** 16 single-ended/ 8 differential (SW programmable)
- **Resolution** 16 bits
- **Max. Sampling Rate*** 200 kS/s max. (For USB 2.0)
- **FIFO Size** 1024 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** Off: 100 M Ω /10 pF, On: 100 M Ω /100 pF
- **Sampling Modes** Software, onboard programmable pacer, or external
- **Input Range** (V, software programmable)

Bipolar	± 10	± 5	± 2.5	± 1.25	± 0.625
Accuracy (% of FSR ± 1LSB)	0.15	0.03	0.03	0.05	0.1

*Note:

The sampling rate and throughput depends on the computer hardware architecture and software environment. The rates may vary due to programming language, code efficiency, CPU utilization and other factors.

Analog Output

- **Channels** 2
- **Resolution** 16 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable)

Internal Reference	Unipolar	0 ~ 5, 0 ~ 10
	Bipolar	± 5 V, ± 10 V

- **Slew Rate** 0.125 V/ μ s
- **Driving Capability** 5 mA
- **Output Impedance** 0.1 Ω max.
- **Operation Mode** Single output
- **Accuracy** Relative: ± 1 LSB

Digital Input

- **Channels** 8
- **Compatibility** 3.3 V/5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2.0 V min.

Digital Output

- **Channels** 8
- **Compatibility** 3.3 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 4 mA (sink)
Source: 4 mA (source)

Event Counter

- **Channels** 1
- **Compatibility** 3.3 V/5 V/TTL
- **Max. Input Frequency** 0.1~1K while using FAI; 0.1~10K while using SWAI

General

- **Bus Type** USB V2.0
- **I/O Connector** On board screw terminal
- **Dimensions (L x W x H)** 132 x 80 x 32 mm
- **Power Consumption** Typical +5 V @ 340 mA
Max.: +5 V @ 440 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 158° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 158° F)
- **Operating Humidity** 5 ~ 85% RH non-condensing (refer to IEC 68-1, -2, -3)
- **Storage Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-1, -2, -3)

Ordering Information

- **USB-4716** 200 kS/s, 16-bit Multifunction USB Module, one 1.8 m USB 2.0 cable included

USB-4718

8-ch Thermocouple Input USB Module



Features

- Supports USB 2.0
- Support voltage, current, and thermocouple inputs
- Bus-powered
- 8 thermocouple input channels
- 2,500 V_{DC} isolation
- Support 4 ~ 20 mA current output
- Wiring terminal on modules
- 8-ch isolated DI and 8-ch isolated DO
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

Introduction

The USB-4700 series consists of true Plug & Play data acquisition devices. No more opening up your computer chassis to install boards—just plug in the module, then get the data. It's easy and efficient. USB-4718 offers 8 thermocouple inputs with 16-bit resolution, up to 0.1% input range accuracy, or 4 ~ 20 mA inputs.

Reliable and rugged enough for industrial applications, yet inexpensive enough for home projects, the USB-4718 is the perfect way to add measurement and control capability to any USB capable computer. The USB-4718 is fully USB plug and play and easy to use. It obtains all required power from the USB port, so no external power connection is ever required.

Specifications

Analog Input

- **Accuracy** $\pm 0.1\%$ for voltage input
- **Bandwidth** 13.1 Hz @ 50 Hz,
15.72 Hz @ 60 Hz
- **Channels** Eight differential
- **Ch. Independent Conf.** Yes
- **CMR @ 50/60 Hz** 92 dB min.
- **Resolution** 16 bits
- **Input Impedance** 20 M Ω
- **Input Range** 0 ~ 15 mV, 0 ~ 50 mV, 0 ~ 100 mV, 0 ~ 500 mV,
0 ~ 1 V, 0 ~ 2.5 V, 0 ~ 20 mA, 4 ~ 20 mA
- **Input Types** Thermocouple, mV, V, mA
- **Sampling Rate** 10 samples/sec. (total)
- **Span Drift** ± 25 ppm/ $^{\circ}$ C
- **T/C Type and Temperature Ranges**

J	0 ~ 760 $^{\circ}$ C	R	500 ~ 1750 $^{\circ}$ C
K	0 ~ 1370 $^{\circ}$ C	S	500 ~ 1750 $^{\circ}$ C
T	-100 ~ 400 $^{\circ}$ C	B	500 ~ 1800 $^{\circ}$ C
E	0 ~ 1000 $^{\circ}$ C		

- **TVS/ESD Protection** Built-in
- **Zero Drift** ± 3 μ V/ $^{\circ}$ C

Isolated Digital Input

- **Channels** 8
- **Input Voltage** Logic 0: 2 V max.
Logic 1: 5 V min. (30 V max.)
- **Isolation Protection** 2,500 V_{DC}
- **Opto-Isolator Response** 25 μ s

Isolated Digital Output

- **Channels** 8
- **Output Type** Sink (NPN)
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage** 5 ~ 30 V_{DC}, 1.1 A max/total
- **Sink Current** 200 mA max./channel
- **Opto-isolator Response** 25 μ s

General

- **Bus Type** USB 2.0
- **I/O Connector** Onboard screw terminal
- **Dimensions (L x W x H)** 132 x 80 x 32 mm
- **Power Consumption** 100 mA @ 5 V
- **Power Input** 5 V from USB line
- **Watchdog Timer** 1.6 sec. (system)
- **Operating Temperature** 0 ~ 60 $^{\circ}$ C (32 ~ 140 $^{\circ}$ F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70 $^{\circ}$ C (-4 ~ 158 $^{\circ}$ F)
- **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

- **USB-4718** 8-ch Thermocouple Input USB Module, one 1.8 m USB 2.0 cable included

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USB-4750

32-ch Isolated Digital I/O USB Module

NEW



Features

- Compatible with USB 1.1/2.0
- Bus-powered
- 16 isolated DI and 16 isolated DO channels
- High voltage isolation on all channels (2500 V_{DC})
- High sink current on isolated output channels (100 mA/Channels)
- Supports 5 ~ 40 V_{DC} isolated input channels
- Interrupt handling
- Timer/Counter capability
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

FCC CE

Introduction

The USB-4700 series consists of true Plug & Play data acquisition devices. No more opening up your computer chassis to install boards—just plug in the module, then get the data. It's easy and efficient. USB-4750 is a 32-channel isolated digital I/O module for the USB bus. With isolation protection of 2,500 V_{DC}, and dry contact support, USB-4750 is ideal for industrial applications where high-voltage protection is required. Each I/O channel of the USB-4750 corresponds to a bit in an I/O port. This makes USB-4750 very easy to program. This module also offers a counter or timer and one digital input interrupt lines to a PC. So users can then easily do configurations by software.

Reliable and rugged enough for industrial applications, yet inexpensive enough for home projects, the USB-4750 is the perfect way to add measurement and control capability to any USB capable computer. The USB-4750 is fully USB Plug & Play and easy to use. It obtains all required power from the USB port, so no external power connection is ever required.

Specifications

Isolated Digital Input

- **Channels** 16
- **Input Voltage** Logic 0: 2 V Max
Logic 1: 5 V Min (50 V_{DC} Max) or dry contact
- **Interrupt Capable Ch.** 2
- **Isolation Protection** 2,500 V_{DC}

Isolated Digital Output

- **Channels** 16
- **Output Type** Sink (NPN)
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage** 5 ~ 40 V_{DC}
- **Sink Current** 200 mA max. per channel

Counter/Timer

- **Channels** 1
- **Resolution** 1 x 32-bit timer

1 x 16-bit Isolated Counter

- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 1 MHz
- **Isolation Protection** 2,500 V_{DC}

General

- **Bus Type** USB 1.1/2.0
- **I/O Connectors** Onboard screw terminals
- **Dimensions (L x W x H)** 132 x 80 x 32 mm
- **Power Consumption**
Typical: 5 V @ 200 mA
Max: 5 V @ 300 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **USB-4750** 32-ch Isolated Digital I/O USB Module

USB-4751/4751L

48/24-ch TTL DI/O USB Modules

NEW



Features

- Compatible with USB 1.1/2.0
- Portable
- Bus-powered
- 48/24 TTL digital I/O lines
- Emulates mode 0 of 8255 PPI
- Buffered circuits for higher driving capacity than 8255
- Interrupt handling
- Timer/Counter interrupt capability
- Supports both dry and wet contact
- 50-pin Opto-22 compatible box header
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

Introduction

The USB-4700 series consists of true Plug & Play data acquisition devices. No more opening up your computer chassis to install boards—just plug in the module, then get the data. It's easy and efficient. USB-4751/4751L is a 48/24-bit digital I/O module for the USB bus. Its 48/24 bits are divided into six/three 8-bit I/O ports and users can configure each port as input or output via software. USB-4751/USB-4751L also provides one event counter and three 16-bit timers, which can be cascaded to become a 32-bit timer.

Specifications

Digital Input

- **Channels** 48/24 (shared with output)
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.
Logic 1: 2 V min.

Digital Output

- **Channels** 48/24 (shared with input)
- **Compatibility** 5 V/TTL
- **Output Voltage** Logic 0: 0.4 V max.
Logic 1: 2.4 V min.
- **Output Capability** Sink: 0.4 V @ 8 mA
Source: 2.4 V @ 4 mA

Counter/Timer

- **Channels** 3
- **Resolution** 2 x 16-bit counters, or 1 x 32-bit counter
1 x 16-bit event counter
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 10 MHz

General

- **Bus Type** USB 1.1/2.0
- **I/O Connectors** 50-pin IDC male connectors, pin assignments are fully compatible with Opto-22 I/O module racks
- **Dimensions (L x W x H)** 132 x 80 x 32 mm
- **Power Consumption** Typical: 5 V @ 200 mA
Max: 5 V @ 300 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)

Ordering Information

- **USB-4751** 48-ch TTL Digital I/O USB Module
- **USB-4751L** 24-ch TTL Digital I/O USB Module

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USB-4761

8-ch Relay/Isolated DI USB Module



Features

- Compatible with 1.1/2.0
- Portable
- Bus-powered
- 8 relay output channels and 8 isolated digital input channels
- LED indicators to show activated relays
- 8 Form C type relay output channels
- High-voltage isolation on input channels (2,500 V_{DC})
- High ESD protection (2,000 V_{DC})
- Wide input range (5 ~ 30 V_{DC})
- Interrupt handling capability
- Wiring terminal on Modules
- Suitable for DIN-rail mounting
- Lockable USB cable for rigid connection

Introduction

The USB-4761 is a relay actuator and isolated D/I module for USB bus. It provides 8 optically-isolated digital inputs with isolation protection of 2,500 V_{DC} for collecting digital inputs in noisy environments and 8 relay actuators for serving as on/off control devices or small power switches. For easy monitoring, each relay is equipped with one red LED to show its on/off status. The USB-4761's eight optically-isolated digital input channels are ideal for digital input in noisy environments or with floating potentials.

Rugged Protection

The USB-4761 digital input channels feature a rugged isolation protection for industrial, lab and machinery automation applications. It durably withstands voltage up to 2,500 V_{DC}, protecting your host system from any incidental harms. If connected to an external input source with surge-protection, the USB-4761 can offer up to a maximum of 2,000 V_{DC} ESD (Electrostatic Discharge) protection.

Specifications

Isolated Digital Input

- **Channels** 8
- **Input Voltage** Logic 0: 2 V max.
Logic 1: 10 V (30 V max.)
- **Isolation Protection** 2,500 V_{DC}
- **Opto-Isolator Response** 25 μ s
- **Input Current** 30 V_{DC}/1 A

Relay Output

- **Channels** 8
- **Relay Type** SPDT (8 x Form C)
- **Contact Rating** 250 V_{AC} @ 3 A, or 24 V_{DC} @ 3 A
- **Relay on Time** 15 ms max.
- **Relay off Time** 5 ms max.
- **Life Span** 2 x 10⁷
- **Resistance** Contact: 50 M Ω
Insulation: 1 G Ω min. (at 500 V_{DC})

General

- **Bus Type** USB 1.1/2.0
- **I/O Connectors** Onboard screw terminal
- **Dimensions (L x W x H)** 132 x 80 x 32 mm
- **Power Consumption** Typical: +5 V @ 60 mA
Max: +5 V @ 400 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) (IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95 % RH, non-condensing (IEC 68-2-3)

Ordering Information

- **USB-4761** 8-ch Relay/Isolated DI USB Module

USB-4671

GPIO USB Module



Features

- Supports USB 2.0
- Convenient portable design
- Bus-powered
- Complete IEEE 488.2 compatibility
- Full driver, library, and example support, including; Visual C++®, C++ Builder®, Visual Basic®, and Delphi® drivers
- Provides powerful and easy-to-use configuration utility
- No GPIB cable required for instrument connection
- Plug & Play installation and configuration

Introduction

USB-4671 is a high-performance USB Module with a GPIB interface. The Module is fully compatible with IEEE 488.1 and 488.2 standards with its USB 2.0 bus specification. With two driver control modes: controller mode and slave mode; USB-4671 can perform basic the IEEE 488 talker, listener and controller functions required by IEEE 488.2. You can also connect up to 15 GPIB instruments. Therefore, USB-4671 is especially suitable for instrument measurements and control.

USB-4671 is available for Windows® 2000/XP, and it supports complete drivers and libraries. To make driver development easier, USB-4671 comes with example drivers programmed in: Visual C++, C++ Builder, Visual Basic, and Delphi.

Furthermore, USB-4671 also offers powerful testing features and a configuration utility that allows users to easily access and control instruments. USB-4671 offers a comprehensive supplementary controller driver database and provides standard IEEE-488 commands to help users develop applications. Users can use an interactive GPIB window interface to control devices directly without any need of programming.

Specifications

GPIO

- **Compatibility** IEEE 488, 488.1, 488.2
- **GPIO Transfer Rate** 1.8 MB/s
- **OS Support** Windows 2000/XP
- **Library Support** Visual C++, C++ Builder, Visual Basic, Delphi
- **Max. GPIO Connections** 15

General

- **Bus Type** USB 2.0
- **I/O Connectors** 1 x IEEE 488 standard 24-pin
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Operating Humidity** 10 ~ 90% RH, non-condensing
- **Dimensions** 107 x 66 x 26 mm (4.2 x 2.6 x 1.0 in.)

Ordering Information

- **USB-4671** GPIO USB Module
- **PCL-10488-1** IEEE-488 Cable, 1 m
- **PCL-10488-2** IEEE-488 Cable, 2 m
- **PCL-10488-4** IEEE-488 Cable, 4 m

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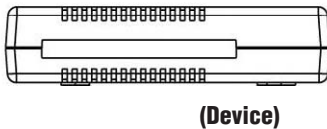
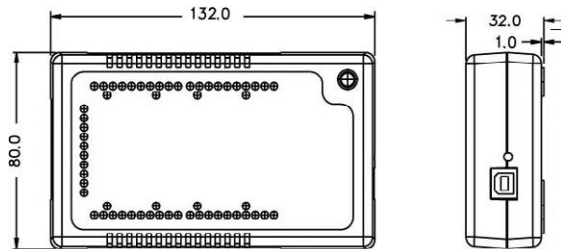
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USB Assembly

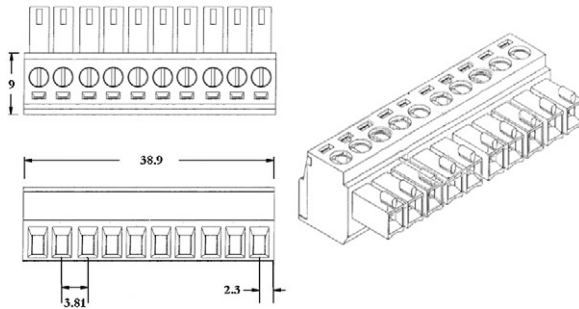
Advantech USB Data Acquisition Series Assembly Guide

The unique design of Advantech's USB Data Acquisition (DAQ) Series can fulfill demands on rigid connections between USB cables and the devices, as well as allow modules to be used with a variety of alternate mounting solutions. The following information will provide the necessary information and guide you through the basic operations of these kits.

Dimensions



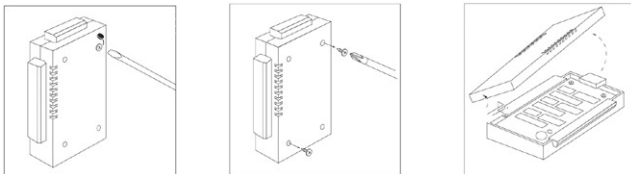
(Device)



(Screw Terminal)

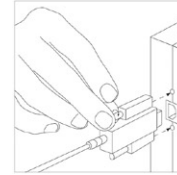
Removing the Casing

You may need to remove the modules' outer casing to access the jumpers inside the module. To remove the casing, you'll have to first remove the rubber padding covering the screws, and then remove the two screws holding the casing in place, as shown below.



Attaching the Lockable USB Cable

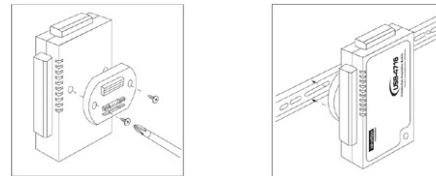
Advantech USB DAQ series feature the lockable cable design to secure the device connection. To prevent the USB cable from being unplugged accidentally, please insert the cable into the module, and screw in the two fasteners as shown below.



*Note: Every USB-4700 series data acquisition module comes with a 1.8m lockable USB cable.

Attaching the DIN-rail Bracket

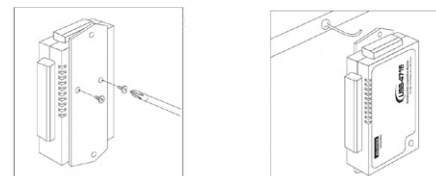
Advantech's USB DAQ modules come with a bracket that facilitates the industry standard DIN-rail mounting. To attach, simply place the bracket firmly on the back, and secure it by attaching the two screws into the holes as shown below.



*Note: Every Advantech's USB data acquisition/hub module comes with a set of DIN-rail kit.

Attaching the Wallmount Bracket (Optional)

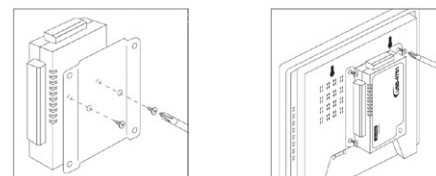
The wallmount kit can help you hang your modules on the wall or other flat surfaces. To attach the wallmount bracket, remove all 4 rubber pads on the rear of the module, and secure it by attaching the two screws into the holes as shown below.



Wallmount kit part number: 1960004544

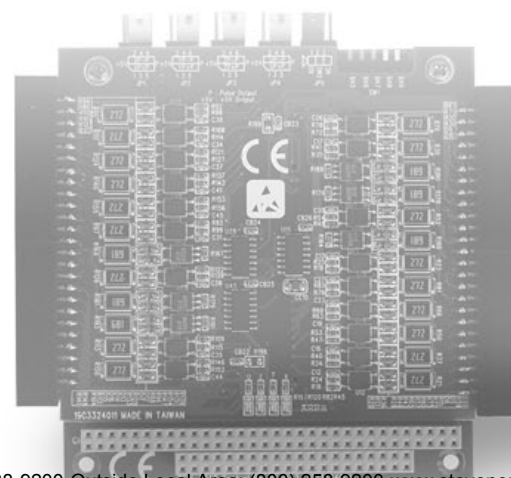
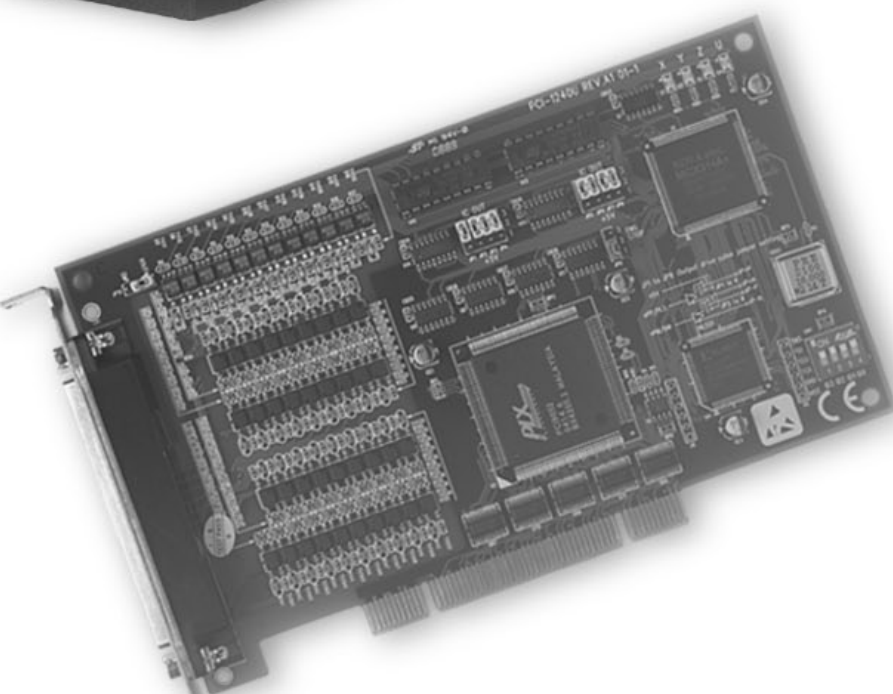
Attaching a VESA Bracket (Optional)

Use the VESA bracket to mount your module to the VESA-ready appliances, such as Advantech's TPC series. To attach, remove all 4 rubber pads on the back, and secure it by attaching the two screws into the holes as shown below.



VESA bracket part number: 1960005788

Motion Control I/O Modules



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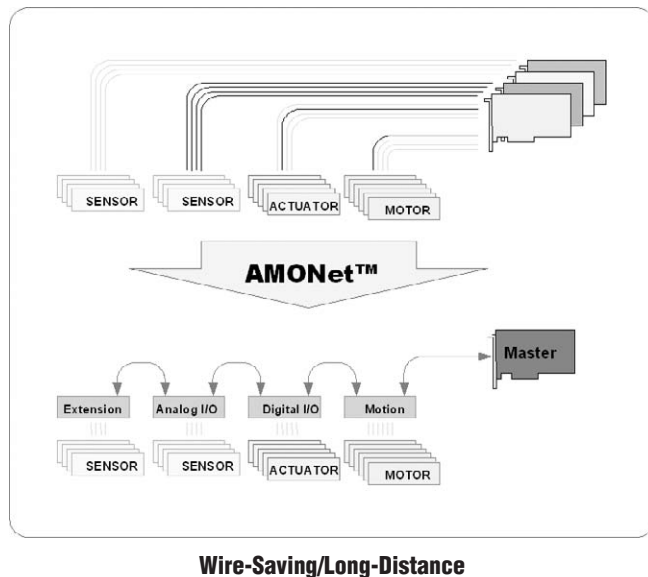
Overview

Complete Application-Ready Platforms for General Motion Control Tasks

Since the release of motion control cards in the 1990's, Advantech has been developing various types of motion control cards for users worldwide. Today, Advantech is still focused on providing the most robust, cost-effective and application-ready platforms for General Motion Control (GMC).

Advantech offers application-ready platforms that range from industrial workstations and industrial-grade CPUs, to motion control, encoder input and isolated I/O cards for general motion control (GMC) applications such as SMT/PCB, semiconductor and LCD manufacturing machinery. Advantech provides a full-range of industrial computing platforms that include high-brightness LCD displays, keypads, up to 20-slot backplanes and redundant power supplies for machine builders.

Advantech motion control solutions have 3-axis, 4-axis and 6-axis inputs with pulse-type and voltage-pulse models and the AMONet series of distributed motion modules. Furthermore, these cards are supported by complete motion control libraries under Windows OS, which are widely applied in GMC applications.



AMONet - Advantech Distributed Motion Control Solutions

Motion control is growing in complexity as the number of axes in newly developed machines with motion control increases each year. Distance is also becoming an issue, as motors are located further and further away from the host computer. AMONet (Advantech Motion Network) was engineered to tackle the problems of increasing spending on wiring and maintenance of these complex motion control systems, and it also gets rid of distance limitations.

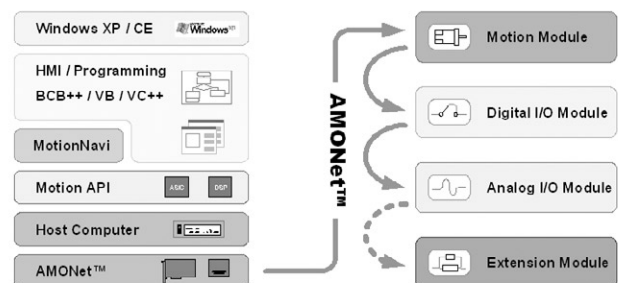
The first series of distributed motion control products from Advantech are called the AMONet RS-485 Series. AMONet RS-485 products are categorized as Master cards or Slave modules. While the Master card is kept in the host PC, the slave modules can be distributed so that they are next to motor drivers on the factory floor. The communication speed between the AMONet RS-485 slave modules can be up to 20 Mbps. This makes it possible to scan 2048 I/O points within 1.04 ms (or 1024 I/O points in 0.56 ms). Furthermore, an AMONet RS-485 master will update the I/O status automatically, and map data into local memory. Software running on the host PC can then read the status by simply reading the onboard memory, so no polling of slave modules is necessary.

Each port of a master card can control up to 2048 I/O connections or 64 motion axes, so future extensions are easily implemented. The distance between a master card and its slave modules can be up to 100 meters, and this distance is covered with a low-cost Cat 5 network cable. In addition to saving wiring costs - debugging and maintenance is also simplified.

Another advantage of AMONet RS-485 is its compatibility with motor drivers from different vendors. Advantech provides specially designed wiring boards for popular motion drivers from vendors such as Panasonic, Mitsubishi and Yaskawa. This makes configuration easier, as pin-to-pin cables can be used. Having a selection of motor vendors can also be an advantage when sourcing of a certain motor is difficult.

Motion control and I/O functions with AMONet RS-485 use the same library. This unique feature saves time, as programmers do not need to study both a motion library and an I/O library. You can also connect to a manual pulse generator directly to adjust and calibrate the system without having to write programs first.

AMONet makes machine building with motion control easier. The savings made on wiring and programming effort, as well as the compatibility with a wide range of popular motors have already led to many requests for AMONet products. Advantech is not content with the current selection though. There are already plans to release more AMONet products based on PCI, PC/104, and 1-axis motion slave modules as well as DI/O slave modules.



System Architecture

A Broad Array of Products for Centralized Motion Control

Advantech's full product offering can accommodate all your motion control needs. You can choose from 3-axis, 4-axis or 6-axis controllers, pulse-output or voltage-output, ISA-bus-based or PCI-bus-based, and standard PC-based or embedded in a system. The functions of the motion cards also vary, from high-end 3-axis circular interpolation cards to low-cost point-to-point motion devices. And if you cannot find a controller to meet your exact requirements for an embedded motion controller, then Advantech can design one to your specifications. We are ready to build cost-effective controllers to meet your criteria, whether it be adding digital I/O channels or changing connector styles, or perhaps changing CPU grade. With all the inherent costs, time and risks involved, there's no reason why you should design your own controller when you can instead rely on the expertise, cost-efficiency, experience and proven reliability of Advantech.

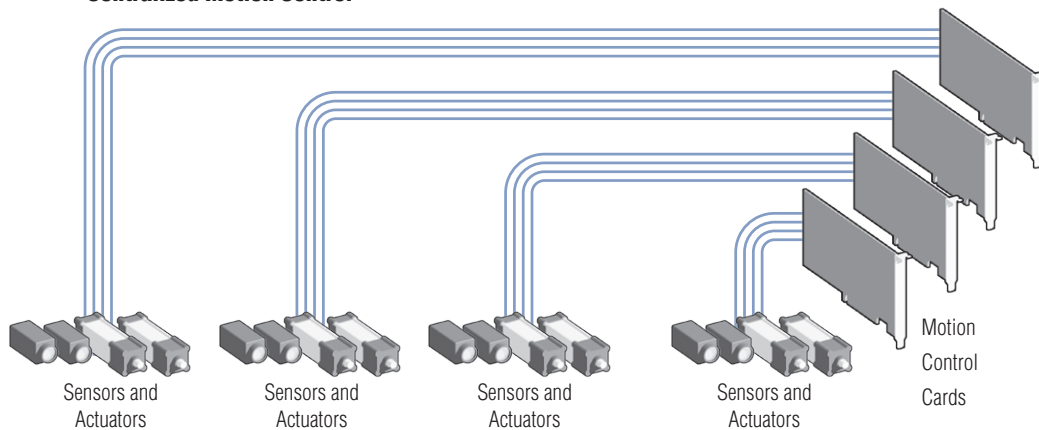
The Differences Between Centralized & Distributed Motion Control

Machine control system architectures generally fall into two categories - centralized or distributed. In a centralized system, all control loops including logic, trajectory generation, and PID control, are executed on a single processor on a programmable automation controller (PAC). In a distributed system, the trajectory generation and logic control executes in the central processor, but the PID control loop is executed in the intelligent slave module. A distributed approach gives more processing power, while it reduces overall wiring cost and system complexity.

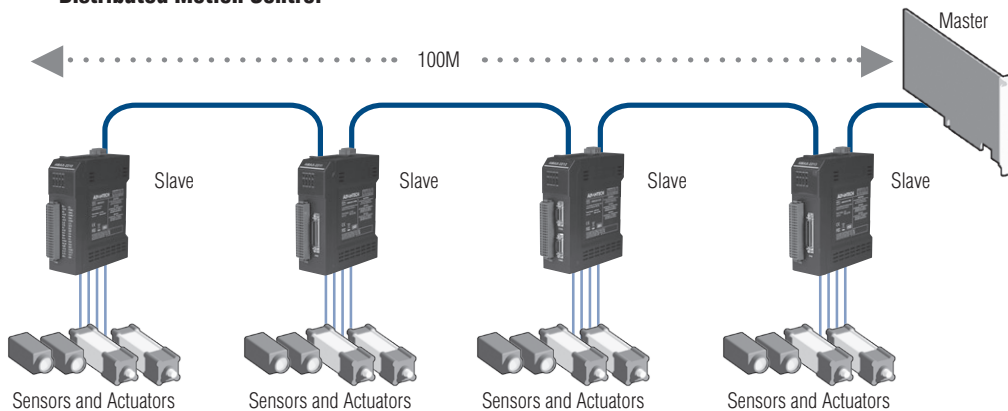
The Distributed Motion Control Products are categorized in two groups - Master Cards and Slave Modules. Communication between master and slave is based on a custom-engineered technology based on RS-485, which saves wires, transmits over long distances at high speeds, and have time-deterministic features.

The communication interface between master and host PC is based on memory mapping. Various functions can be chosen on the slave modules, and the industrial DIN-rail mountable design makes it easy to distribute them in the field. The master card collects information from slave modules and publishes the data to its host PC, and vice versa.

Centralized Motion Control



Distributed Motion Control



Distributed Motion Control

1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

Selection Guide

Centralized Motion Control Cards

Bus		PCI					ISA		
Category		Pulse type			Voltage type	Encoder card	Pulse type		Encoder card
Model		PCI-1240U	PCI-1242	PCI-1243U	PCI-1241	PCI-1784U	PCL-839+	PCM-3240	PCL-833
Axes	Number of Axes	4	4	4	4	-	3	4	-
	Linear Interpolation	✓	✓	-	✓	-	-	✓	-
	2-axis Circle Interpolation	✓	✓	-	✓	-	-	✓	-
	Helical Interpolation	-	✓	-	✓	-	-	-	-
Advanced Functions	Encoder Channels	4	5	-	5	4	-	4	3
	Limit Switch Input Channels	8	8	8	8	-	6	8	-
	Home Input Channels	4	4	4	4	-	3	4	-
	Emergency Stop Input Channels	1	1	1	1	-	-	1	-
	Slow Down Limit Switches	8	-	8	-	-	6	8	-
	General Purpose DI Channels	-	-	8	-	4	16	-	2
	Servo On Output Channels	4	4	-	4	-	-	4	-
	General Purpose DO Channels	4	-	8	-	4	16	4	-
	BoardID Switch	✓	-	✓	-	✓	-	✓	-
	Position Compare Event	✓	✓	-	✓	-	-	-	-
Dimensions (mm)		175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	185 x 100	96 x 90	185 x 100
Connectors		100-pin SCSI-II	68-pin SCSI-II	DB-62	68-pin SCSI-II	DB-37	1xDB-37 2 x 20-pin	2 x 50-pin IDC	1 x DB-25
Wiring Boards		ADAM-3952 ADAM-3952/J2S ADAM-3952/PMA	ADAM-3968	ADAM-3962 ADAM-3943	ADAM-3968	ADAM-3937	ADAM-3937 ADAM-3920	ADAM-3950 ADAM-3952 ADAM-3952/PMA ADAM-3952/J2S	ADAM-3925
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AMONet Distributed Motion Control Cards

Bus		PCI	PC/104+
Category		Remote Card	Remote Card
Model		PCI-1202U	PCM-3202P
Advanced Functions	General Purpose DI Channels	8	-
	General Purpose DO Channels	4	-
	Remote Motion	✓	✓
	Remote I/O	✓	✓
Dimensions (mm)		175 x 100	96 x 90
Connectors		2 x RJ45	4 x RJ45
Digital I/O Slave Modules		AMAX-2730 AMAX-2752 AMAX-2754 AMAX-2756	AMAX-2730 AMAX-2752 AMAX-2754 AMAX-2756
Motion Slave Modules		AMAX-2210 AMAX-2211/PMA AMAX-2212/J2S AMAX-2213/YS2 AMAX-2241/PMA AMAX-2242/J2S AMAX-2243/YS2	AMAX-2210 AMAX-2211/PMA AMAX-2212/J2S AMAX-2213/YS2 AMAX-2241/PMA AMAX-2242/J2S AMAX-2243/YS2
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AMAX-2050KW

GX2-400 Machine Control Box with AMONet™ Interface

NEW



Features

- Onboard AMD Geode™ GX2 processor, up to 256 MB onboard DDR
- 128 Kbyte battery backup RAM
- Supports AMONet™ series for remote motion control and data acquisition
- Two RS-232 and One RS-422/485 ports with automatic flow control
- One 10/100Base-T RJ-45 port and two USB ports
- Four programmable diagnostic LEDs, and one buzzer
- Design-in IP protection mechanism
- KW ready solution

Introduction

Advantech's AMAX-2050KW is a Pentium® III grade platform with an onboard AMONet controller, which is designed for embedded machine automation applications. It provides special mechanism to protect machine builder's IP, also the self diagnostic function. From the peripheral point of view, with one AMONet, master port AMAX-2050KW can control up to 2048 I/O points and 64 axes. Also, AMAX-2050KW offers one LAN and dual USB interfaces to fulfill user's various communication needs. In addition, it also offers two RS-232 and one RS-422/485 communication port with automatic flow control functionality. Therefore, the AMAX-2050KW is an ideal solution for data gateway applications.

AMAX-2050KW supports Windows CE .NET, which offers a pre-configured image with optimized onboard device drivers. MULTIPROG supports all IEC 61131-3 programming languages. Depending on the task to be handled, your experience and company standards, you may choose one of the five standardized programming languages. The use of MULTIPROG offers you many advantages. As all essential data can be displayed in MULTIPROG, frequent switching between different tools during PLC programming and commissioning is no longer necessary. Observers guarantee data consistency with other tools, thus the engineering effort for the programming of PLCs is reduced.

Specifications

General

- **Certifications** CE
- **Dimensions (W x H x D)** 47.6 x 156 x 125 mm
- **Power Consumption** 8 W (Typical), 15 W (Max.)
- **Power Supply Spec.** Min. 15 W (9 ~ 36 V_{DC}) (e.g. +24 V @ 625 mA)
- **OS Support** Windows® CE .NET 5.0

System Hardware

- **CPU** AMD Geode GX2-400
- **Battery Backup RAM** 128 KB
- **Indicators** Power, CF, Alarm for RAM backup battery and 4 programmable diagnostic LEDs
- **Keyboard/Mouse** 1 x PS/2
- **Memory** 256MB DDR onboard
- **Storage** SSD: 1 x Internal (Master) & 1 x External (Slave) type I/II CompactFlash® slot
- **VGA** DB15 VGA connector
- **Watchdog Timer** Programmable

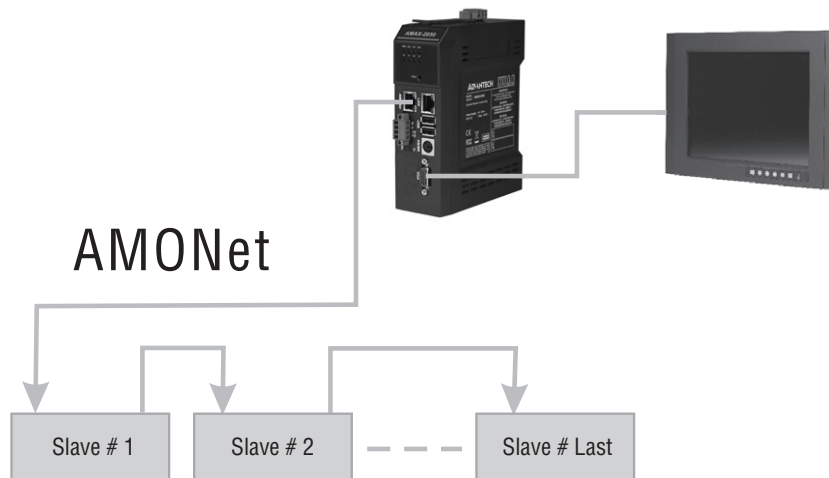
Communications

- **Serial Ports** 2 x RS-232, 1 x RS-422/485
Automatic RS-485 data flow control
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps
RS-422/485: 50 ~ 921.6 kbps (Max.)
- **LAN** 1 x 10/100 Base-T RJ-45 ports
- **USB Ports** 2 x USB, UHCI, Rev. 1.1 compliant
- **AMONet Rings** 1 x Isolated AMONet, connect up to 2048 DIO channels or 64 motion axes

Environment

- **Operating Humidity** 5 ~ 85% RH, non-condensing (refer to IEC 68-2-3)
- **Operating Temperature** 0 ~ 50° C

System Architecture



*Slave can be Motion or Digital I/O modules
 **Last Slave module needs [Terminator] setting

Ordering Information

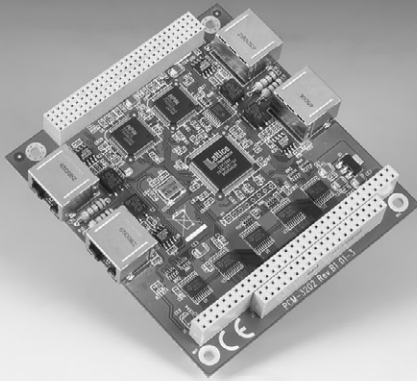
- **AMAX-2050KW** GX2-400 Machine Control Box with AMONet Interface
- **AMAX-2210** 1-axis AMONet RS-485 Motion Slave Module
- **AMAX-2211/PMA** 1-axis AMONet RS-485 Motion Slave Module for Panasonic Minus A
- **AMAX-2212/J2S** 1-axis AMONet RS-485 Motion Slave Module for Mitsubishi MR-J2S
- **AMAX-2213/YS2** 1-axis AMONet RS-485 Motion Slave Module for Yaskawa Sigma-II
- **AMAX-2241/PMA** 4-axis AMONet RS-485 Motion Slave Module for Panasonic Minus A
- **AMAX-2242/J2S** 4-axis AMONet RS-485 Motion Slave Module for Mitsubishi MR-J2S
- **AMAX-2243/YS2** 4-axis AMONet RS-485 Motion Slave Module for Yaskawa Sigma-II
- **AMAX-2752** 32-ch Isolated Digital Input Module
- **AMAX-2754** 32-ch Isolated Digital Output Module
- **AMAX-2756** 16/16-ch Isolated Digital Input/Output Module
- **AMAX-2730** 8/8-ch Isolated Digital Input/Output Module
- **AMAX-2710** 12-bit, 100kS/s, 16-ch Analog Input, 4-ch Analog Output Slave Module
- **PCL-10120M-2** SCSI 20-pin cable, 2 m (Optional for AMAX-2212/J2S)
- **PCL-10150M-2** SCSI 50-pin cable, 2 m (Optional for AMAX-2211/PMA and AMAX-2213/YS2)
- **MPROG-BAS33** KW Multiprog Softlogic Development Kit Basic Edition v3.3 for Windows NT/2000/XP (128-byte I/O)
- **MPROG-ADV33** KW Multiprog Softlogic Development Kit Advanced Edition v3.3 for Windows® NT/2000/XP (64k-byte I/O)

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PCM-3202P

2-port PC/104+ AMONet™ RS-485 Master Card

NEW



Features

- Max. 20 Mbps transfer rate
- Supports 2 independent AMONet™ RS-485 rings
- Supports up to 128 AMONet RS-485 slave modules
- Easy installation with RJ45 phone jack and LED diagnostics
- Max. 100 m (20 Mbps/32 slave modules) communication distance

Introduction

PCM-3202P is a PC/104+ interface card which supports two AMONet RS-485 master rings, and transfers data between host and slaves directly without any operations in between. Each ring can control up to 2048 I/O points, 64 axes, or a combination of I/O points and axes for motion control. The ring can support up to 20 Mbps transfer rate and a maximum communication distance of up to 100 meters.

The communication between master and slave is based on a customized RS-485 solution that saves wires, covers a long distance, supports high-speed communication and has time-deterministic features. The communication interface between master and host PC is accomplished by memory mapping. Various functions can be chosen on the slave modules, and standard industrial DIN-rail mounting design makes it easy to distribute them in the field. The master collects information from slave modules and publishes the information to its host PC.

Specifications

AMONet RS-485 Motion Control

- **AMONet RS-485 Rings** 2
- **Interface** Half duplex RS-485
- **Cable Type** CAT5 UTP/STP Ethernet cable
- **Surge Protection** 10 kV
- **Transmission Speeds** 2.5, 5, 10, and 20 Mbps
- **Data Flow Control** Automatic
- **Communication Distance** 100 m @ 20 Mbps w/32 slave modules
- **Slave Module Support** Digital I/O, Motion Control, Analog I/O

General

- **Bus Type** PC/104+
- **Certifications** CE
- **Connectors** RJ45 x 4
- **Dimensions** 96 x 90 mm (3.8" x 3.5")
- **Power Consumption** +5 V_{DC} @ 0.5 A typical
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 185° F)

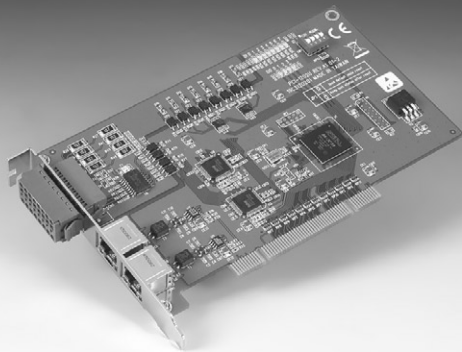
Ordering Information

- **PCM-3202P** 4-port PC/104+ AMONet RS-485 Master Card
- **AMAX-2210** 1-axis AMONet RS-485 Motion Slave Module
- **AMAX-2211/PMA** 1-axis AMONet RS-485 Motion Slave Module for Panasonic Minas A
- **AMAX-2212/J2S** 1-axis AMONet RS-485 Motion Slave Module for Mitsubishi MR-J2S
- **AMAX-2213/YS2** 1-axis AMONet RS-485 Motion Slave Module for Yaskawa Sigma-II
- **AMAX-2241/PMA** 4-axis AMONet RS-485 Motion Slave Module for Panasonic Minas A
- **AMAX-2242/J2S** 4-axis AMONet RS-485 Motion Slave Module for Mitsubishi MR-J2S
- **AMAX-2243/YS2** 4-axis AMONet RS-485 Motion Slave Module for Yaskawa Sigma-II
- **AMAX-2752** 32-ch Isolated Digital Input Module
- **AMAX-2754** 32-ch Isolated Digital Output Module
- **AMAX-2756** 16/16-ch Isolated Digital Input/Output Module
- **AMAX-2730** 8/8-ch Isolated Digital Input/Output Module
- **AMAX-2710** 12-bit, 100kS/s, 16-ch Analog Input, 4-ch Analog Output Slave Module
- **PCL-10120M-2** SCSI 20-pin cable, 2 m (Optional for AMAX-3212/J2S)
- **PCL-10150M-2** SCSI 50-pin cable, 2 m (Optional for AMAX-3211/PMA and AMAX-3213/YS2)

PCI-1202U

2-port AMONet™ RS-485 Master Card

NEW



Features

- Max. 20 Mbps transfer rate
- 2 independent AMONet™ RS-485 Master Rings
- Max. 128 AMONet RS-485 slave modules supported
- Programmable digital input to notify events
- Easy installation with RJ45 phone jack and LED diagnostic

Introduction

PCI-1202U is a PCI interface card which supports two AMONet RS-485 master rings, and transfers data between host and slaves directly without any operations in between. Each ring can control up to 2048 I/O points, 64 axes, or a combination of I/O points and axes for motion control. The ring can support up to 20 Mbps transfer rate and a maximum communication distance of up to 100 meters.

The communication between master and slave is based on a customized RS-485 solution that saves wires, covers a long distance, supports high-speed communication and has time-deterministic features. The communication interface between master and host PC is accomplished by memory mapping. Various functions can be chosen on the slave modules, and standard industrial DIN-rail mounting design makes it easy to distribute them in the field. The master collects information from slave modules and publishes the information to its host PC.

Specifications

AMONet RS-485 Motion Control

- **AMONet RS-485 Rings** 2
- **Interface** Half duplex RS-485
- **Cable Type** CAT5 UTP/STP Ethernet cable
- **Surge Protection** 10 kV
- **Transmission Speeds** 2.5, 5, 10, and 20 Mbps
- **Data Flow Control** Automatic
- **Communication Distance** 100 m @ 20 Mbps w/32 slave modules
- **Slave Module Support** Digital I/O, Motion Control, Analog I/O

Isolated Digital Input

- **Channels** 8
- **Input Voltage** Dry contact (but need External Vcc)
- **Isolation Protection** 2,500 V_{DC}
- **Input Resistance** 2.4 kΩ @ 0.5 W

Isolated Digital Output

- **Channels** 4
- **Output Type** Open collector
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage** 5 ~ 30 V_{DC}
- **Sink Current** 1 ch: Max. 1A
4 ch: Max. 1.1 (total)

General

- **Bus Type** PCI V2.2
- **Certifications** CE
- **Connectors** RJ45 x 2

- **Dimensions** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** +5 V_{DC} @ 0.5 A typical
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 185° F)

Ordering Information

- **PCI-1202U** 2-port AMONet RS-485 Master Card
- **AMAX-2210** 1-axis AMONet RS-485 Motion Slave Module
- **AMAX-2211/PMA** 1-axis AMONet RS-485 Motion Slave Module for Panasonic Minas A
- **AMAX-2212/J2S** 1 axis AMONet RS-485 Motion Slave Module for Mitsubishi MR-J2S
- **AMAX-2213/YS2** 1-axis AMONet RS-485 Motion Slave Module for Yaskawa Sigma-II
- **AMAX-2241/PMA** 4-axis AMONet RS-485 Motion Slave Module for Panasonic Minas A
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- **AMAX-2710** 12-bit, 100kS/s, 16-ch Analog Input, 4-ch Analog Output Slave Module
- **PCL-10120M-2** SCSI 20-pin cable, 2 m (Optional for AMAX-2212/J2S)
- **PCL-10150M-2** SCSI 50-pin cable, 2 m (Optional for AMAX-2211/ PMA and AMAX-2213/YS2)

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AMAX-2240 Series 4-axis AMONet™ RS-485 Motion Slave Modules

NEW



AMAX-2242/J2S



Features

- Max. 20 Mbps transfer rate
- Max. 6.5 Mhz, 4-Axes pulse output
- 28 bits counter for incremental encoder
- 2~4 axes Linear interpolation
- 2 axes circular interpolation
- T-curve and S-curve velocity profiles support
- Change speed on-the-fly
- Easy installation with RJ45 phone jack and LED diagnostic
- Easy installation for servo or stepping motor driver

Introduction

AMAX-2240 series is used to increase the number of axes for an AMONet™ RS-485 distributed motion control network. These extension slave modules connect serially by a simple and affordable Cat.5 LAN cable, reducing the wiring between driver and controller. This is very suitable for highly integrated machine automation applications. Please select cable SCSI-20P and plug this cable into the motor driver and motion slave module.

Specifications

Pulse Type Motion Control

- **Motor Driver Support** Pulse-type servo
- **Number of Axes** 4
- **Interpolation** Linear or Circular
- **Max. Output Speed** 6.5 Mpps
- **Step Count Range** $\pm 134,217,728$
- **Pulse Output Type** $\pm \text{OUT/DIR}$, $\pm \text{CW/CCW}$, $\pm \text{A/B phase}$
- **Position Counter** $\pm 134,217,728$
- **Home Modes** 13
- **Velocity Profiles** T-curve, S-curve
- **Local I/O**
 - Machine Interfaces EL+ x 4, EL- x 4, ORG x 4, SD x 4
 - Servo Driver Interfaces ALM x 4, RDY x 4, SVON x 4, INP x 4, ERC x 4
 - Position Compare I/O LTC x 4, CMP x 4

Encoder Interface

- **Input Type** AB phase, CW/CCW
- **Counts per Enc. Cycle** x1, x2, x4 (AB phase only)
- **Input Range** Compatible with TIA/EIA-422 Differential Line Driver
 $I = \pm 20 \text{ mA}$, $V_{OD} = \pm 2 \text{ V/min}$
- **Isolation Protection** 2,500 Vrms
- **Max. Input Frequency** 2 MHz @ 5 V

General

- **Bus Type** AMONet RS-485
- **Certifications** CE
- **Connectors** RJ45 x 2, SCSI-20P x 8
- **Dimensions (L x W x H)** 125 x 47.6 x 156 mm
- **Power Consumption** 5 W @ 24 V typical
- **Power Supply** Module: 18 ~ 30 V_{DC}
External: 24 V_{DC} $\pm 10\%$
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)

Ordering Information

- **AMAX-2241/PMA** 4-axis AMONet RS-485 Motion Slave Module for Panasonic Minas A
- **AMAX-2242/J2S** 4-axis AMONet RS-485 Motion Slave Module for Mitsubishi MR-J2S
- **AMAX-2243/YS2** 4-axis AMONet RS-485 Motion Slave Module for Yaskawa Sigma-II
- **PCL-10120M-2** SCSI 20-pin cable, 2 m

AMAX-2210 Series

**1-axis AMONet™
RS-485 Motion
Slave Modules**

NEW



AMAX-2210 AMAX-2211/PMA AMAX-2212/J2S AMAX-2213/YS2



Features

- DIN-rail mounting (L x W x H): 125 x 47.6 x 156 mm
- Max. 20 Mbps transfer rate
- Max. 6.5 Mhz, 1-Axis pulse output
- 28 bits counter for incremental encoder
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support
- Change speed on-the-fly
- Easy installation with RJ45 phone jack and LED diagnostic
- Easy installation for servo or stepping motor driver

Introduction

Products in the AMAX-2210 Series are used to increase the number of axes for an AMONet™. RS-485 distributed motion control network. These extension slave modules connect serially by a simple and affordable Cat.5 LAN cable, reducing the wiring between driver and controller. This is very suitable for highly integrated machine automation applications.

AMONet. RS-485 has driver specific motion slave modules to support a range of common motor vendors such as: Mitsubishi J2-Super series, Panasonic Minas A type, and Yaskawa Sigma-II. Please select the respective cable SCSI-20P or SCSI-50P and plug this cable into the motor driver and motion slave module.

AMONet. RS-485 also supports a general purpose motion slave module for general motor drivers, including step motor drivers. This general purpose motion slave module is designed with many detachable terminals to support easy wiring. Please refer to the related installation guides.

Specifications

Pulse Type Motion Control

- **Motor Driver Support** Pulse-type servo
- **Number of Axes** 1
- **Interpolation** None
- **Max. Output Speed** 6.5 Mpps
- **Step Count Range** ±134, 217, 728
- **Pulse Output Type** ±OUT/DIR, ±CW/CCW, ±A/B phase
- **Position Counter** ±134, 217, 728
- **Home Modes** 13
- **Velocity Profiles** T-curve, S-curve
- **Local I/O**
 - Machine Interfaces EL+ x 1, EL- x 1, ORG x 1, SD x 1
 - Servo Driver Interfaces ALM x 1, RDY x 1, SVON x 1, INP x 1, ERC x 1
 - Position Compare I/O LTC x 1, CMP x 1
 - General Inputs 2
 - General Outputs 2

Encoder Interface

- **Input Type** Quadrature (AB phase), Up/Down
- **Counts per Enc. Cycle** x0, x1, x2, x4 (AB phase only)
- **Input Range** Compatible with TIA/EIA-422 Differential Line Driver
I = ±20 mA, VOD = ±2 V/min
- **Isolation Protection** 2,500 Vrms
- **Max. Input Frequency** 2 Mhz @ 5V

General

- **Bus Type** AMONet RS-485
- **Certifications** CE
- **Connectors** RJ45 x 2, SCSI-20P x 2 (AMAX-2212/J2S), SCSI-50P x 1 (AMAX-2211/PMA and AMAX-2213/YS2)
- **Dimensions (L x W x H)** 126 x 46 x 162 mm
- **LED Indicators** PWR, RUN, ERR, EMG, ORG, SD, EL-, EL+, SVON, BSY, INP, ALM
- **Power Consumption** 3 W @ 24 V typical
- **Power Supply** 10 ~ 30 V_{DC}
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)

Ordering Information

- **AMAX-2210** 1-axis AMONet RS-485 Motion Slave Module
- **AMAX-2211/PMA** 1-axis AMONet RS-485 Motion Slave Module for Panasonic Minas A
- **AMAX-2212/J2S** 1-axis AMONet RS-485 Motion Slave Module for Mitsubishi MR-J2S
- **AMAX-2213/YS2** 1-axis AMONet RS-485 Motion Slave Module for Yaskawa Sigma-II
- **PCL-10120M-2** SCSI 20-pin cable, 2 m (Optional for AMAX-2212/J2S)
- **PCL-10150M-2** SCSI 50-pin cable, 2 m (Optional for AMAX-2211/PMA and AMAX-2213/YS2)

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AMAX-2750 Series

32-ch Isolated Digital Input/Output Slave Modules

NEW



AMAX-2752

AMAX-2754

AMAX-2756



Features

- DIN-rail mounting (L x W x H): 125 x 47.6 x 156 mm
- Max. 20 Mbps transfer rate
- Onboard terminal for direct wiring
- Easy installation with RJ45 phone jack and LED diagnostic
- LED indicator for each IO channel (Switch by SW4)
- Selection of I/O-channel configuration (32 DI, 32 DO or 16/16 DI/O)
- 2500 Vrms Isolation voltage

Introduction

The AMAX-2750 Series consists of digital slave modules for AMONet™ RS-485 that extend the digital I/O capacity. All the DIO slave extension modules are connected serially with a simple Cat.5 cable. This reduces wiring between driver and controller and is very suitable for highly integrated machine automation applications. High speed, scalability and cost-effectiveness ensures a solid solution for machine builders.

There are 3 main types of DI/O slave modules, 32In, 32Out, and 16In/16Out. With these slave modules, you can connect actuators/sensors directly with minimum hassle. You can access I/O points nearby or 100 meters away using simple and low-cost wiring, and the high speed of AMONet RS-485 makes it possible to scan 2048 IO channels in 1.04 ms.

Specifications

Isolated Digital Input

- **Channels** AMAX-2752: 32, AMAX-2756: 16
- **Input Type** Dry contact
- **Isolation Protection** 2,500 V_{RMS}
- **Opto-Isolator Response** 18 μs
- **Input Resistance** 1 kΩ @ 0.5 W

Isolated Digital Output

- **Channels** AMAX-2754: 32 (4 ports), AMAX-2756: 16 (2 ports)
- **Output Type** Sink (NPN) (open collector Darlington transistors)
- **Isolation Protection** 2,500 V_{RMS}
- **Output Voltage** 5 ~ 30 V_{DC}
- **Sink Current** 1CH: 500 mA (1 port)
8CH: 150 mA (1 port)

General

- **Bus Type** AMONet RS-485
- **Certifications** CE
- **Connectors** 2 x RJ45, 2 x 40-pin wiring terminal
- **Dimensions (L x W x H)** 126 x 46 x 162 mm
- **Power Consumption** Typical: 1 W
- **Power Supply** 10 ~ 30 V_{DC}
- **Power Supply for DIO** 10 ~ 30 V_{DC} (Current < 2A)
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)

Ordering Information

- **AMAX-2752** 32-ch Isolated Digital Input Slave Module
- **AMAX-2754** 32-ch Isolated Digital Output Slave Module
- **AMAX-2756** 16/16-ch Isolated Digital Input/Output Slave Module

AMAX-2730

8/8-ch Isolated Digital Input/Output Slave Module

NEW



Features

- DIN-rail mounting (L x W x H): 125 x 47.6 x 156 mm
- Max. 20 Mbps transfer rate
- Onboard terminal for direct wiring
- Easy installation with RJ45 phone jack and LED diagnostic
- LED indicator for each IO channel (Switch by SW4)
- Highly integrated and compact size
- 2500 Vrms Isolation voltage

Introduction

AMAX-2730 is a digital slave module for AMONet™ RS-485 that extend the digital I/O capacity by 16 channels. (8 input, 8 output). All digital I/O slave modules are connected serially with a simple cat.5 cable. This reduces wiring between driver and controller and is very suitable for highly integrated machine automation applications. High speed, scalability and cost-effectiveness ensure a solid solution for machine builders.

AMAX-2730 is designed for the applications which with limited installation space. it integrates 8 DI, 8 DO, and on board terminal for direct wiring in a compact module. With it, you can connect actuators/sensors directly with minimum hassle. You can access I/O points nearby or 100 meters away using simple and low-cost wiring.

Specifications

Isolated Digital Input

- Channels 8
- Input Type Dry contact
- Isolation Protection 2,500 V_{RMS}
- Opto-Isolator Response 18 μs
- Input Resistance 1 kΩ

Isolated Digital Output

- Channels 8
- Output Type Sink (NPN) (open collector Darlington transistors)
- Isolation Protection 2,500 V_{RMS}
- Output Voltage 5 ~ 30 V_{DC}
- Sink Current 1CH: 500 mA (1 port)
8CH: 150 mA @ (duty 50%, 25° C) (1 port)

General

- Bus Type AMONet RS-485
- Certifications CE
- Connectors 2 x RJ45, 2 x 40-pin wiring terminal
- Dimensions (L x W x H) 126 x 46 x 162 mm
- LED Indicators I/O, power, error, run
- Power Consumption Typical: 1 W
- Power Supply 10 ~ 30 V_{DC}
- Power Supply for DIO 10 ~ 30 V_{DC} (Current<2A)
- Humidity 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- Operating Temperature 0 ~ 60° C (32 ~ 140° F)

Ordering Information

- **AMAX-2730** 8/8-ch Isolated Digital Input/Output Slave Module

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AMAX-2710

**12-bit, 100kS/s, 16-ch Analog Input,
4-ch Analog Output Slave Module**

NEW



Features

- DIN-rail mounting (L x W x H): 125 x 47.6 x 156 mm
- Max. 20 Mbps transfer rate
- 16-ch single-ended or 8-ch differential analog input
- Resolution: 12-bit
- Maximum sampling rate: 100 kS/s
- Easy installation with RJ45 phone jack

Introduction

AMAX-2710 is an analog input/output slave module for AMONet™ RS-485 that adds analog I/O points to your system. Like other AMONet modules, these analog I/O slave modules are connected serially with a simple Cat.5 cable. This reduces wiring between driver and controller and is very suitable for integrated machine automation applications. High speed, scalability and cost-effectiveness ensure a solid solution for machine builders.

AMAX-2710 is designed for analog sensor applications like thermocouple, pressure sensors, or flow sensors. It integrates 16-ch AI, 4-ch AO, and wiring screw terminals in a module. With this slave module, you can connect actuators/sensors directly with minimum hassle. You can access I/O points nearby or 100 meters away using simple and low-cost wiring.

Specifications

Analog Input

- **Channels** 16 single-ended or 8 differential
- **Resolution** 12 bits
- **Max. Sampling Rate** 100 kS/s
- **Overvoltage Protection** 30 V_{DC}
- **Input Range (V, software programmable)** Bipolar $\pm 10 \pm 5 \pm 2.5 \pm 1.25$
- **Current** 4 ~ 20 mA
- **Accuracy** 0.1%

Analog Output

- **Channels** 4
- **Resolution** 12 bits
- **Output Rate** Static update
- **Output Range (V, software programmable)** Bipolar $\pm 5, \pm 10$
- **Current** 4 ~ 20 mA

General

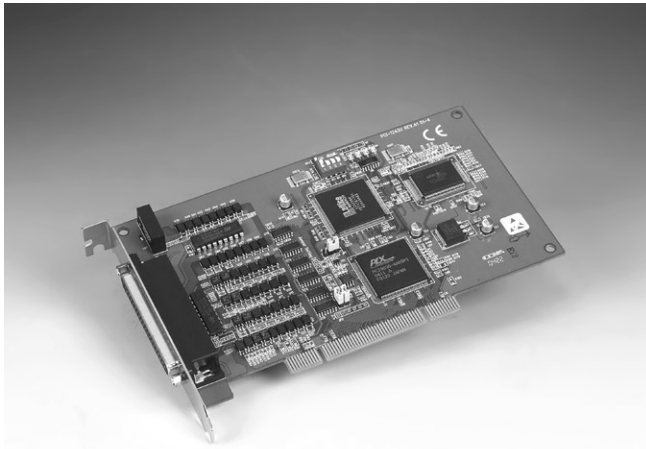
- **Bus Type** AMONet RS-485
- **Certifications** CE
- **Connectors** 2 x RJ45 and on board terminal for direct wiring
- **Power Consumption** Typical: 3 W
- **Power Supply** 10 ~ 30 V_{DC}
- **Power Supply for DIO** 10 ~ 30 V_{DC}
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)

Ordering Information

- **AMAX-2710** 12-bit, 100kS/s, 16-ch Analog Input, 4-ch Analog Output Slave Module

PCI-1243U

4-axis Low Cost Stepping Motor Control Card



Features

- 4 axis stepping motor control
- PCI universal bus
- Up to 400 k pulse output rate
- T-curve acceleration/deceleration
- Pulse/Dir and CW/CCW pulse output mode
- Up 24-bit step count
- Opto-Isolated Digital input and output
- Up to 1,500 Vrms system isolation
- BoardID™ switch

Introduction

PCI-1243U is a 4-axis intelligent stepping motor control card with universal PCI interface. The card's PCD-4541 motion controller can execute a variety of motion-control commands. For advanced applications, we supply a DLL so that programs can be created for the Microsoft® Windows® environment.

PCI-1243U is a cost-effective solution for PCI based motion control. Each axis can be controlled directly through the card's I/O registers. However, use of the card's high-level DLL driver is recommended. With the DLL driver, you can easily link to VC++®, Visual Basic® or BCB.

Specifications

Pulse Type Motion Control

- **Motor Driver Support** Stepping
- **Number of Axes** 4
- **Max. Output Speed** 400 kpps
- **Step Count Range** 0 ~ 16,777,215
- **Pulse Output Type** Pulse/Direction, CW/CCW
- **Position Counters** ±16,777,215
- **Home Modes** 4
- **Velocity Profiles** T or S-curve acceleration/deceleration
- **Local I/O**
 - Machine Interfaces: PEL x 4, NEL x 4, ORG x 4, SLD x 4, EMG x 1
 - General Inputs: 8
 - General Outputs: 8

Isolated Digital Input

- **Channels** 8
- **Input Voltage** Logic 0: 1 V
Logic 1: 12 V (24 V max.)
- **Isolation Protection** 3,750 V_{RMS}
- **Opto-Isolator Response** 25µs
- **Input Resistance** 4.7 kΩ

Isolated Digital Output

- **Channels** 8
- **Output Type** Sink (NPN)
- **Isolation Protection** 3,750 V_{RMS}
- **Output Voltage** 5 ~ 30 V_{DC}
- **Sink Current** 200 mA max./channel; 1.1 A max. total
- **Opto-Isolator Response** 25µs

General

- **Bus Type** PCI V2.2
- **Certifications** CE
- **Connectors** 1 x DB-62 female
- **Dimensions** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 340 mA
Max: 5 V @ 500 mA
- **Storing Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 80° C (-4 ~ 170° F)

Ordering Information

- **PCI-1243U** 4-axis Stepping Motor Control card
- **PCL-10162-1** DB-62 Cable Assembly, 1 M
- **PCL-10162-3** DB-62 Cable Assembly, 3 M
- **ADAM-3962** DB-62 wiring terminal with DIN-rail mounting
- **ADAM-3943** PCI-1243U wiring board with LED

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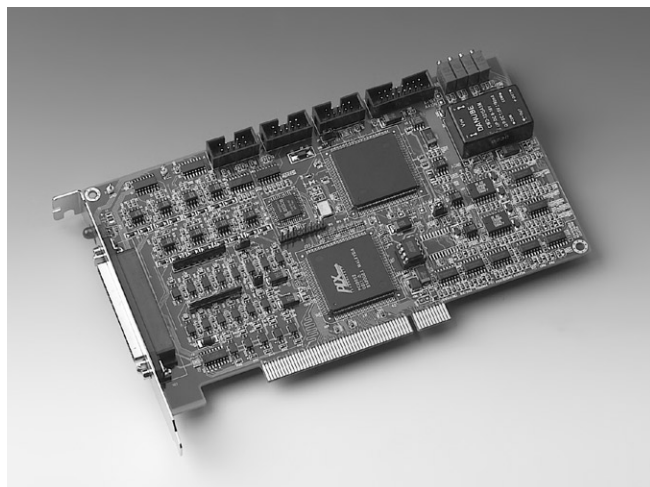
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PCI-1241

4-axis Voltage-type Servo Motor Control Card



FCC CE

Features

- PCI Bus interface
- 4-axis servo positioning control
- 5-ch encoder input
- 4-ch 16-bit D/A Converters
- 13 dedicated input and 5 dedicated output

Introduction

PCI-1241 uses an ASIC for 4-axis servo positioning and synchronized control with a DDA (Digital Differential Analyzer) to evenly move each axis. Closed-Loop control is implemented with P control, and -10 to +10 V signals are used for outputs to the speed type servo motor driver. It can be applied to multi-axis precision servo control, and it can also read back motor encoder values via its encoder input port to allow stepping motor control. In the control of each axis, there is a set of sensor input points, including: home points, plus limit points and minus limit points. Furthermore, there are inhibit signal output points, position ready output points and an emergency stop input point.

Specifications

V-Command Motion Control

- **Motor Driver Support** Voltage-type servo
- **Number of Axes** 4
- **Interpolation** 3-axis linear, 2-axis circular, helical
- **Voltage Output Range** ± 10 V
- **Resolution** 16 bits
- **Channels** 4
- **Position Counter** $\pm 2, 146, 483, 647$
- **Home Modes** 14
- **Velocity Profiles** T-curve, S-curve
- **Local I/O**
 - Machine Interfaces: PEL x 4, MEL x 4, ORG x 4, EMG x 1
 - Servo Driver Interfaces: SVON x 4, PRDY x 1
 - Manual Pulse Generator Input: 1 set

Isolated Digital Input

- **Input Voltage** Logic 0: 1 V max.
Logic 1: 18 V (30 V max.)
- **Isolation Protection** 2,500 V_{RMS}
- **Opto-Isolator Response** 50 μ s
- **Input Resistance** 5.4 k Ω @ 18 V

Isolated Digital Output

- **Output Type** Sink (NPN) (open collector Darlington transistors)
- **Isolation Protection** 2,500 V_{RMS}
- **Output Voltage** 5 ~ 40 V_{DC}
- **Sink Current** 100 mA max./channel; 500 mA max (Total).

Interface

- **Input Type** Quadrature (A/B phase) or Up/Down
- **Drive Type** Single-ended or differential
- **Counts per Enc. Cycle** 0x, 1x, 2x, 4x (AB phase only)

Input Range

Single Ended Configuration

Logic 0 : 1 V max.
Logic 1 : 5 V min. (5 V \pm 10% max.)

Differential Configuration

Logic 0 : -3 V max.
Logic 1 : 3 V min. (\pm 5 V max.)

- **Isolation Protection** 2,500 V_{DC}
- **Max. Input Frequency** 2 MHz

General

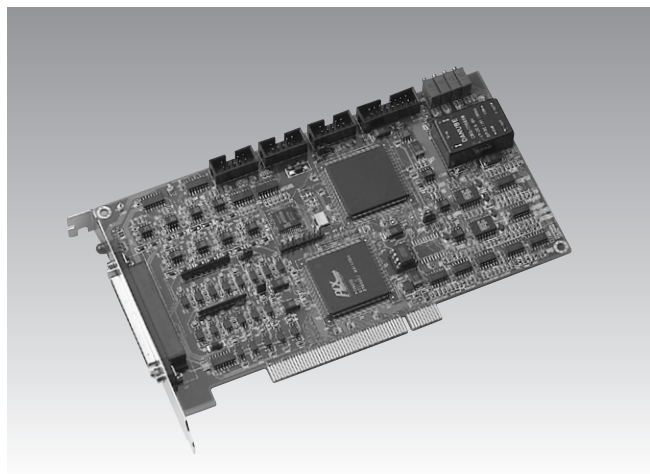
- **Bus Type** PCI V2.2
- **Certifications** CE, FCC class A
- **Connectors** 3 x 10-pin box head, 1 x 16-pin box head, 1 x SCSI 68-pin female
- **Dimensions** 174 x 107 mm (6.85" x 4.2")
- **Power Consumption** Typical: 5 V @ 850 mA
Max: 5 V @ 1 A
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)

Ordering Information

- **PCI-1241** 4-axis Voltage-type Servo Motor Control Card
- **PCL-10168** 68-pin SCSI-II cable with male connectors on both ends and special shielding for noise reduction, 1 and 2 m
- **ADAM-3968** 68-pin SCSI-II Wiring Terminal Board for DIN-rail mounting

PCI-1242

4-axis Pulse-type Servo Motor Control Card



FCC CE

Features

- PCI bus interface
- Asynchronous 4-axis motion control
- Linear, helical interpolation functions
- 2/3-axis arc, circle interpolation functions
- Jog functions
- Continuous interpolation functions
- T/S-curve acceleration/decelerations
- Constant speed and over speed control
- In position and compensation functions
- Go home functions
- Position management and software limit switch functions
- Event trigger functions
- Up to 4 MPPS pulse output for each axis

Introduction

The PCI-1242 realizes 4-axis asynchronous control with a DDA (Digital Differential Analyzer) that ensures even movement of each axis. At pulse output control, it can also read back motor encoder values via its encoder input port. In the control of each axis, there is a set of sensor input points, including home points, plus limit points and minus limit points. Further, there are servo-on signal output points, position ready output point and an emergency stop input point. For advanced applications, we supply Windows® DLL drivers and user-friendly examples to decrease your programming load. Moreover, through a free bundled PCI-1242 motion utility, you can complete configuration and diagnosis easily.

Specifications

Pulse Type Motion Control

- **Motor Driver Support** Pulse-type servo/stepping
- **Number of Axes** 4 axes
- **Interpolation** 3-axis linear, 2-axis circular, Helical
- **Max. Output Speed** 4 Mpps
- **Step Count Range** $\pm 8,388,608$
- **Pulse Output Type** Pulse/Direction, CW/CCW, A/B Phase
- **Position Counters** $\pm 2, 147, 483, 647$
- **Home Modes** 14
- **Velocity Profiles** T/S-Curve, Acceleration/Deceleration
- **Local I/O**
 - Machine Interfaces: PEL x 4, MEL x 4, ORG x 4, EMG x 1
 - Servo Driver Interfaces: SVON x 4, PRDY x 1
 - Manual Pulse: General Input: 1 set

Isolated Digital Input

- **Input Voltage** Logic 0 : 1 V max.
Logic 1 : 18 V (30 V max.)
- **Isolation Protection** 2,500 V_{RMS}
- **Opto-Isolator Response** 50 μ s
- **Input Resistance** 5.4 k Ω @ 18 V

Isolated Digital Output

- **Output Type** Sink (NPN) (open collector Darlington transistors)
- **Isolation Protection** 2,500 V_{RMS}
- **Output Voltage** 5 ~ 40 V_{DC}
- **Sink Current** 100 mA max./channel; 500 mA max (Total)

Encoder Interface

- **Input Type** Quadrature (AB phase), or Up/Down
- **Drive Type** Single-ended or differential
- **Counts per Enc. Cycle** x0, x1, x2, x4 (A/B phase only)
- **Input Range**
 - Single Ended Configuration**
Logic 0 : 1 V max.
Logic 1 : 5 V min. (5 V \pm 10% max.)
 - Differential Configuration**
Logic 0 : -3 V max.
Logic 1 : 3 V min. (\pm 5 V max.)
- **Isolation Protection** 2,500 V_{DC}
- **Max. Input Frequency** 2 MHz

General

- **Bus Type** PCI V2.2
- **Certifications** CE, FCC class A
- **Connectors** 1 x 10-pin block head, 1 x 68-pin SCSI II femal
- **Dimensions** 175 x 107 mm (6.85" x 4.2")
- **Power Consumption** Typical: 5 V @ 850 mA, 12 V @ 600 mA
Max: 5 V @ 1 A, 12 V @ 700 mA
- **Storing Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 185° F)

Ordering Information

- **PCI-1242** 4-axis Pulse-type Servo Motor Control Card
- **PCL-10168** 68-pin SCSI-II cable with male connectors on both ends and special shielding for noise reduction, 1 and 2 m
- **ADAM-3968** 68-pin SCSI-II Wiring Terminal Board for DIN-rail mounting

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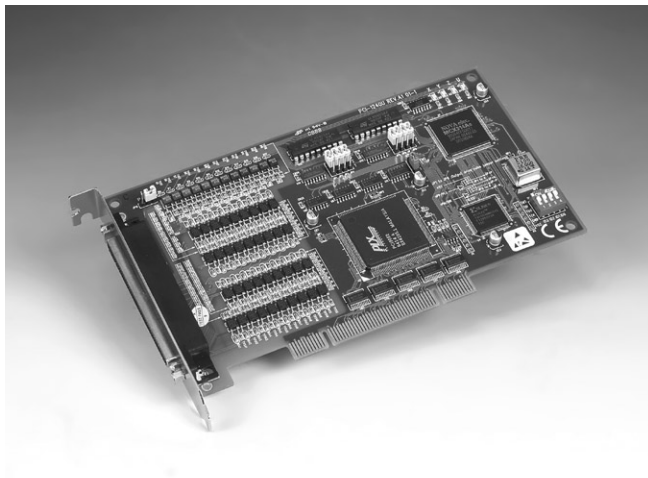
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PCI-1240U

4-axis Universal PCI Stepping/Pulse-type Servo Motor Control Card



Features

- Independent 4-axis motion control
- Hand wheel and jog function
- 2/3-axis linear interpolation function
- 2-axis circular interpolation function
- Continuous interpolation function
- Programmable T/S-curve acceleration/deceleration rate
- Up to 4 MPPS output for each axis
- Two pulse output types: CW/CCW or Pulse/Direction
- Up to 1 MHz encoder input for each axis
- Two encoder pulse input types: A/B phase or Up/Down
- Constant speed control
- Position management and software limit switch function
- BoardID™ switch

Introduction

Advantech introduces the PCI-1240U 4-axis Universal PCI (supports both 3.3 V and 5 V signal slot) stepping/pulse-type servo motor control card designed for general-purpose extreme motion applications. The PCI-1240U is a high-speed 4-axis motion control card for the PCI bus that simplifies stepping and pulse-type servo motor control, giving you added performance from your motors. The card's intelligent NOVA® MCX314-motion ASIC builds in a variety of motion control functions, such as 2/3-axis linear interpolation, 2-axis circular interpolation, T/S-curve acceleration/deceleration rate and more. In addition, the PCI-1240U performs these motion control functions without processor loading during driving. For advanced applications, Advantech supplies Windows® DLL drivers and user-friendly examples to decrease your programming load. Moreover, through a free bundled PCI-1240U motion utility, you can complete configuration and diagnosis easily.

Specifications

Pulse Type Motion Control

- **Motor Driver Support** Pulse-type servo/stepping
- **Number of Axes** 4
- **Interpolation** 2-axis linear, 3-axis linear, 2-axis circular
- **Max. Output Speed** 4 Mpps
- **Step Count Range** $\pm 2, 147, 483, 646$
- **Pulse Output Type** Pulse/Direction (1-pulse, 1-direction type), or CW/CCW (2-pulse type)
- **Position Counters** Range of Command, Range of Actual Position
- **Velocity Profiles** T-Curve, S-Curve
- **Local I/O**
 - Machine Interfaces: PEL x 4, MEL x 4, ORG x 4
 - Servo Driver Interfaces: ALM x 4, RDY x 4, SVON x 4, INP x 4
 - Position Compare I/O: CMP x 4
 - General Inputs: 3
 - General Outputs: 4

Encoder Interface

- **Input Type** Quadrature (A/B phase or Up/Down)
- **Counts per Enc. Cycle** x1, x2, x4 (A/B phase only)
- **Input Range** 5 ~ 25 V
- **Isolation Protection** 2,500 V_{DC}
- **Max. Input Frequency** 1 MHz

General

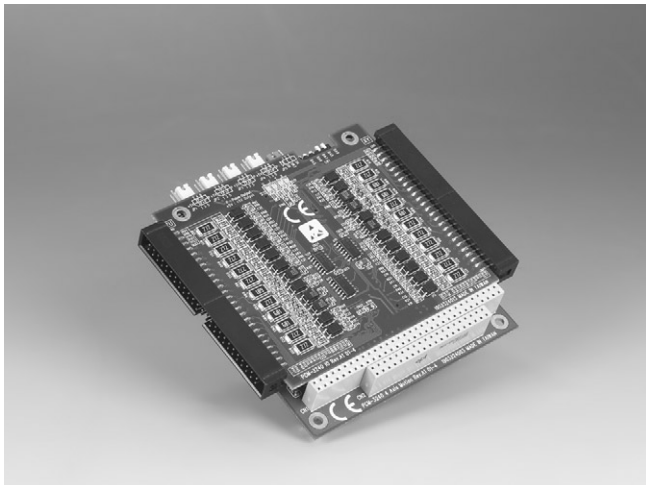
- **Bus Type** Universal PCI V2.2
- **Certifications** CE
- **Connectors** 1 x 100-pin SCSI-II female
- **Dimensions** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA
Max: 5 V @ 1 A
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 185° F)

Ordering Information

- **PCI-1240U** 4-axis universal PCI stepping/pulse-type servo motor control card
- **ADAM-3952** 50-pin SCSI-II wiring terminal for DIN-rail mounting
- **ADAM-39100** 100-pin SCSI-II wiring terminal, DIN-rail mounting
- **PCL-101100M-1** 100-pin SCSI cable, 1 m
- **PCL-101100M-3** 100-pin SCSI cable, 3 m
- **ADAM-3952/J2S** PCI-1240U Wiring Board for Mitsubishi J2S series
- **ADAM-3952/PMA** PCI-1240U Wiring Board for Panasonic Minas A series
- **PCL-10251-1** 100-pin SCSI to two 50-pin SCSI cable for PCI-1240U, 1 m
- **PCL-10251-3** 100-pin SCSI to two 50-pin SCSI cable for PCI-1240U, 3 m

PCM-3240

4-axis PC/104 Stepping/Pulse-type Servo Motor Control Card



Features

- PC/104 interface
- Independent 4-axis motion control
- Hand wheel and jog function
- 2/3-axis linear interpolation function
- 2-axis circular interpolation function
- Continuous interpolation function
- Programmable T/S-curve acceleration/deceleration rate
- Up to 4 MPPS pulse output for each axis
- Two pulse output types: CW/CCW or Pulse/Direction
- Up to 1 MHz encoder input for each axis
- Two encoder pulse input types: A/B phase or Up/Down
- Constant speed control
- Position management and software limit switch function
- BoardID™ switch

Introduction

PCM-3240 is a 4-axis stepping/pulse-type servo motor control card designed for general-purpose motion applications. PCM-3240 is a high-speed 4-axis motion control card for the PC/104 bus that simplifies stepping and pulse-type servo motor control, giving you added performance from your motors. The card's intelligent NOVA® MCX314-motion ASIC builds in a variety of motion control functions, such as 2/3-axis linear interpolation, 2-axis circular interpolation, T/S-curve acceleration/deceleration rate and more. In addition, the PCM-3240 performs these motion control functions without processor loading during driving. For advanced applications, we supply Windows® DLL drivers and user-friendly examples to decrease your programming load. Moreover, with a free bundled PCM-3240 motion utility, you can easily complete configuration and diagnosis.

Specifications

Pulse Type Motion Control

- **Motor Driver Support** Pulse-type servo/stepping
- **Number of Axes** 4
- **Interpolation** 2-axis linear, 3-axis linear, 2-axis circular
- **Max. Output Speed** 4 Mpps
- **Step Count Range** $\pm 2, 147, 483, 646$
- **Pulse Output Type** Pulse/Direction (1-pulse, 1-direction type), or CW/CCW (2-pulse type)
- **Position Counters** Range of Command, Range of Actual Position
- **Velocity Profiles** T-Curve, S-Curve
- **Local I/O**
 - Machine Interfaces: PEL x 4, MEL x 4, ORG x 4
 - Servo Driver Interfaces: ALM x 4, RDY x 4, SVON x 4, INP x 4
 - Position Compare I/O: CMP x 4
 - General Inputs: 3
 - General Outputs: 4

Encoder Interface

- **Input Type** Quadrature (A/B phase or Up/Down)
- **Counts per Enc. Cycle** x1, x2, x4 (A/B phase only)
- **Input Range** 5 ~ 25 V
- **Isolation Protection** 2,500 V_{dc}
- **Max. Input Frequency** 1 MHz

General

- **Bus Type** PC/104
- **Certifications** CE
- **Connectors** 2 x IDC 50-pin male
- **Dimensions** 96 x 91 mm
- **Power Consumption** Typical: 5 V @ 850 mA
Max: 5 V @ 1 A
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 185° F)

Ordering Information

- **PCM-3240** 4-axis stepping/pulse-type servo motor control card
- **PCL-10150-1.2** 50-pin flat cable, 1.2 m
- **ADAM-3950** 50-pin flat cable wiring terminal for DIN-rail mounting
- **PCL-12250-1** Two 50-pin flat cable to 100-pin SCSI connector, 1 m
- **ADAM-3952/J2S** PCM-3240 Wiring Board for Mitsubishi J2S series
- **ADAM-3952/PMA** PCM-3240 Wiring Board for Panasonic Minus A series
- **ADAM-39100** 100-pin SCSI-II wiring terminal for DIN-rail mounting
- **ADAM-3952** Wiring Terminal for DIN-rail mounting

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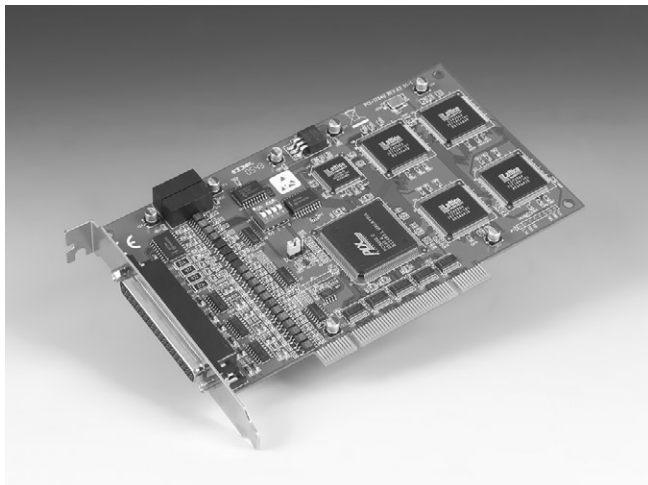
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PCI-1784U

4-axis Quadrature Encoder and Counter Card



Features

- Four 32-bit up/down counters
- Single ended or differential inputs
- Pulse/direction and up/down counter
- x1, x2, x4 counts for each encoder cycle
- Optically isolated up to 2,500 V_{DC}
- 4-stage digital filter with selectable sampling rate
- Onboard 8-bit timer with wide range time-base selector
- Multiple interrupt sources for precision application
- 4 isolated digital input
- 4 isolated digital output
- BoardID™ switch

Introduction

PCI-1784U is a 4-axis quadrature encoder and counter add-on card for PCI bus. The card includes four 32-bit quadruple AB phase encoder counters, 8-bit timer with multi range time-base selector and 4 isolated digital inputs as well as 4 isolated digital outputs. Its flexible interrupt sources are suitable for motor control and position monitoring.

Specifications

Encoder Input

- **Number of Axes** 4 (independent)
- **Resolution** 32-bit
- **Max. Quadrature Input** 1.0 MHz with digital filter
2.0 MHz without digital filter
- **Digital Filter** 4 stage
- **Drive Type** Single-ended or differential
- **Counter Modes** Quadrature, Up/Down, Count/Direction
- **Isolation Protection** 2,500 V_{DC}
- **Max. Input Pulse Freq.** x 1, x 2, x 4
- **Sample Clock Freq.** 8, 4, 2, or 1 MHz

Input Range

- **Single Ended Configuration**
Logic 0 : 0.8 V max.
Logic 1 : 2.8 V min. (12 V max.)
- **Differential Configuration**
Logic 0 : -0.2 V max.
Logic 1 : 0.2 V min. (±12 V max.)

Isolated Digital Input

- **Channels** 4
- **Input Voltage** Logic 0 : 3 V max.
Logic 1 : 10 V min. (30 V max.)
- **Interrupt Capable Ch.** DI0-DI3
- **Isolation Protection** 2,500 V_{DC}
- **Opto-Isolator Response** 25µs
- **Overvoltage Protection** 70 V_{DC}

Isolated Digital Output

- **Channels** 4
- **Compatibility** 5 V/TTL
- **Isolation Protection** 2,500 V_{DC}
- **Output Voltage** Logic 0: 0.8 V min.
Logic 1: 2.0 max.
- **Sink/Source Current** 50 mA max./channel
- **Opto-Isolator Response** 20 ms

Counter/Timer

- **Channels** 4
- **Resolution** 32 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 8 MHz
- **Counter Modes** Quadrature, 2-pulse, Pulse/Direction
- **Interrupt Capable Ch.** Counter0 ~ Counter3
- **Digital Noise Filter** 4 stage

General

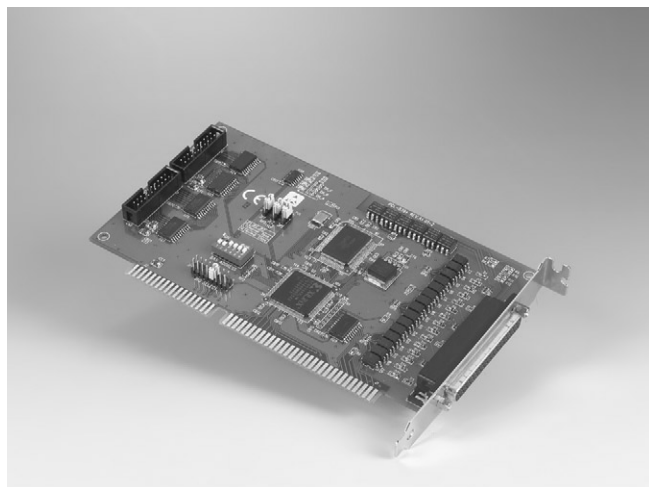
- **Bus Type** PCI V2.2
- **Connectors** 37-pin D-sub female
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 200 mA
Max: +5 V @ 450 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5~95% RH, non-condensing (refer to IEC 68-2-3)
- **Certifications** CE certified

Ordering Information

- **PCI-1784U** 4-axis Quadrature Encoder and Counter Card
- **PCL-10137H-1** High-speed DB-37 cable assembly, 1 m
- **PCL-10137H-3** High-speed DB-37 cable assembly, 3 m
- **ADAM-3937** DB-37 Wiring Terminal Board for DIN-rail mounting

PCL-839+

3-axis Stepping Motor Control Card



Features

- Independent, simultaneous control of three stepping motors
- Optically-isolated outputs
- Five isolated digital inputs per axis for limit switches
- Half-size PC add-on card
- Up to 200 kpps step rate
- 16 DI and 16 DO

Introduction

PCL-839+ three axis intelligent stepping motor control card turns your IBM-compatible PC into a 3-axis motion-control station. The card's one PCD-4541 intelligent controller chips can execute a variety of motion-control commands. For advanced applications, we supply function libraries which you can link to your C program.

Programming PCL-839+

You can control each axis directly through the card's I/O registers, but use of the card's high-level interpreter is recommended. This interpreter reads high-level commands from a text file to perform specific tasks. We also supply function libraries which you can call from your C program. The libraries come with 'Turbo C' source code which you can recompile if you want to access the libraries from other C compilers.

Specifications

Pulse Type Motion Control

- **Motor Driver Support** Stepping
- **Number of Axes** 3
- **Max. Output Speed** 200 kpps
- **Step Count Range** 0 ~ 16, 777, 215
- **Pulse Output Type** Pulse/Direction, CW/CCW
- **Velocity Profiles** T-Curve
- **Local I/O**
 - Machine Interfaces: PEL x 3, MEL x 3, ORG x 3, SLD x 6
 - General Inputs: 16 (5 V/TTL)
 - General Outputs: 16 (5 V/TTL)

General

- **Bus Type** ISA
- **Certifications** CE
- **Connectors**
 - 1 x DB-37 (limit switches and pulse output)
 - 1 x 20-pin flat cable (DIO)
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** Max: 5 V @ 390 mA
- **Storing Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)

Ordering Information

- **PCL-839+** 3-axis stepping motor control card
- **PCL-10137-1** DB-37 cable assembly, 1 m
- **PCL-10137-2** DB-37 cable assembly, 2 m
- **PCL-10137-3** DB-37 cable assembly, 3 m
- **ADAM-3937** DB-37 wiring terminal for DIN-rail mounting
- **ADAM-3920** 20-pin flat cable wiring terminal for DIN-rail mounting

Applications

- X-Y table control
- Rotary machine control
- Robotics control
- Precision position control using stepping motors

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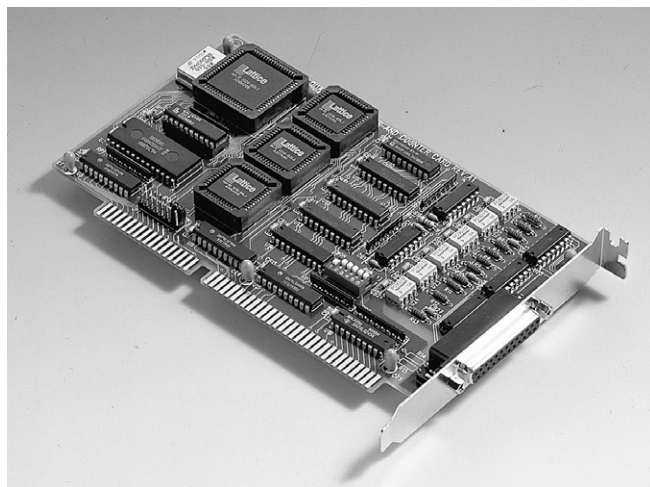
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PCL-833

3-axis Quadrature Encoder and Counter Card



Features

- 1.0 MHz max. quadrature input rate
- Three 24-bit counters (can cascade up to 48 bits)
- Optically isolated up to 2,500 V_{RMS}
- 4-stage digital filter
- 2.4 MHz max. input pulse rate
- Pulse/direction and up/down counting
- Digital input with interrupt for each axis
- Programmable time-interval interrupt
- Half-size AT bus card

Introduction

PCL-833 is a 3-axis quadrature encoder and counter add-on card for the IBM PC/AT and compatibles (ISA bus). This card lets your PC perform position monitoring for motion control systems. Each input includes a decoding circuit for incremental quadrature encoding. Inputs accept either single-ended or differential signals. Quadrature input works with or without an index, allowing linear or rotary encoder feedback.

PCL-833 has three independent 24-bit counters. The maximum quadrature input rate is 1.0 MHz, and the maximum input rate in counter mode is 2.4 MHz. You can individually configure each counter for quadrature decoding, pulse/direction counting or up/down counting.

PCL-833 provides five digital input channels. Each channel accepts digital input as an index input for a rotary encoder or as a home sensor input for a linear encoder. The card can generate an interrupt to the system based on a signal from its digital inputs, overflow/underflow of its counters, or on a programmed time interval. It can repeatedly generate interrupts at any time interval you specify, from 0.1 msec. to 255 sec. These interrupts let you precisely monitor the speed of a control system.

Specifications

Encoder Interface

- **Input Type** Single-ended or differential
- **Counts per Encoder** x1, x2, x4 (S/W selectable)
Cycle
- **Input Range** 12 V max.
- **Isolation Protection** 2,500 V_{RMS} (optical)
- **Max. Input Frequency** 2.4 MHz

Counter/Timer

- **Channels** 3
- **Resolution** 24 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 2.4 MHz
- **Counter Modes** 3 (quadrature, up/down, pulse/direction)
- **Interrupt Capable Ch.** Counter 0 ~ 2
- **Digital Noise Filter** 4 stage

Isolated Digital Input

- **Channels** 5 (Zin x 3 + DI0 + DI1)
- **Input Voltage** Logic 0: 1 V max.
Logic 1: 5 V min. (12 V max.)
- **Interrupt Capable Ch.** DI0, DI1
- **Isolation Protection** 2,500 V_{RMS} (optical)

General

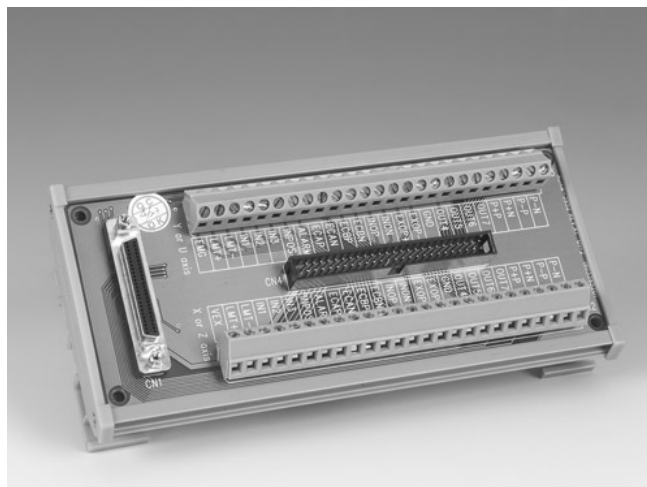
- **Bus Type** ISA
- **Certifications** CE
- **Connectors** 1 x DB-25 female
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** Typical: 5 V @ 700 mA, 12 V @ 15 mA
- **Storing Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-3)
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)

Ordering Information

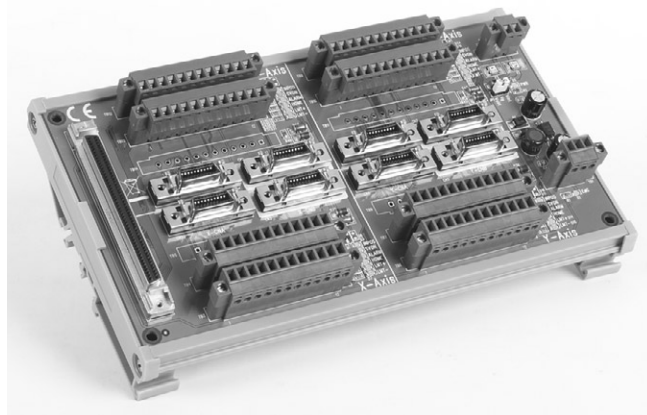
- **PCL-833** 3-axis quadrature encoder and counter card
- **ADAM-3925** DB-25 wiring terminal for DIN-rail mounting
- **PCL-10125-1** DB-25 cable assembly, 1 m
- **PCL-10125-3** DB-25 cable assembly, 3 m

ADAM-3952 Series

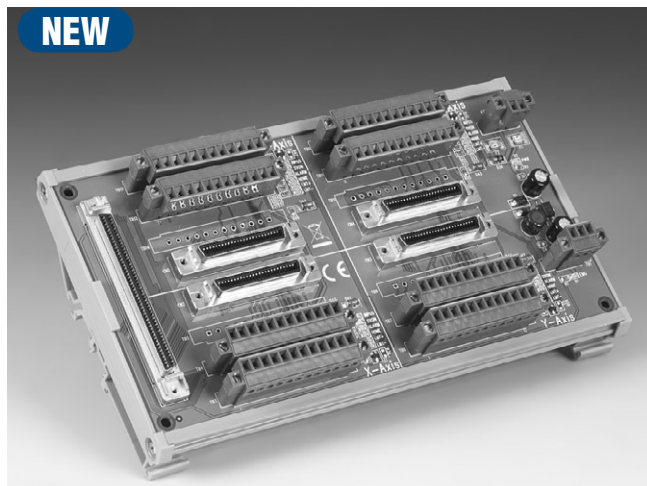
**PCI-1240U/PCM-3240
Wiring Terminals for
DIN-rail Mounting**



NEW



NEW



ADAM-3952

PCI-1240U/PCM-3240 50-Pin SCSI-II and IDC Wiring Terminal for DIN-rail Mounting

Features

- DIN-rail mounting wiring terminal for PCI-1240U/PCM-3240 applications
- Case dimensions (W x L x H): 77.5 x 179.5 x 41.5 mm (3.1" x 7.1" x 1.6")
- 50-pin SCSI and IDC connectors
- To be used with PCI-1240U and PCM-3240

ADAM-3952/J2S

PCI-1240U/PCM-3240 Wiring Terminal for Mitsubishi MR-J2S

Features

- DIN-rail mounting wiring terminal for PCI-1240U/PCM-3240 connecting with Mitsubishi MR-J2S servo motor driver
- Case dimensions (W x L x H): 121 x 202 x 45 mm (4.76" x 7.95" x 1.77")
- One SCSI-100-pin connector to connect with PCI-1240U/PCM-3240
- Eight SCSI 20-pin connector to connect with Mitsubishi motor driver
- Optional cable PCL-101100M-1, PCL-101100M-3 and PCL-10120M-2

ADAM-3952/PMA

PCI-1240U/PCM-3240 Wiring Terminal for Panasonic Minas A

Features

- DIN-rail mounting wiring terminal for PCI-1240U/PCM-3240 connecting with Panasonic Minas A servo motor driver
- Case dimensions (W x L x H): 121 x 202 x 45 mm (4.76" x 7.95" x 1.77")
- One SCSI-100-pin connector to connect with PCI-1240U/PCM-3240
- Four SCSI 50-pin connector to connect with Panasonic motor driver
- Optional cable PCL-101100M-1, PCL-101100M-3 and PCL-10150M-2

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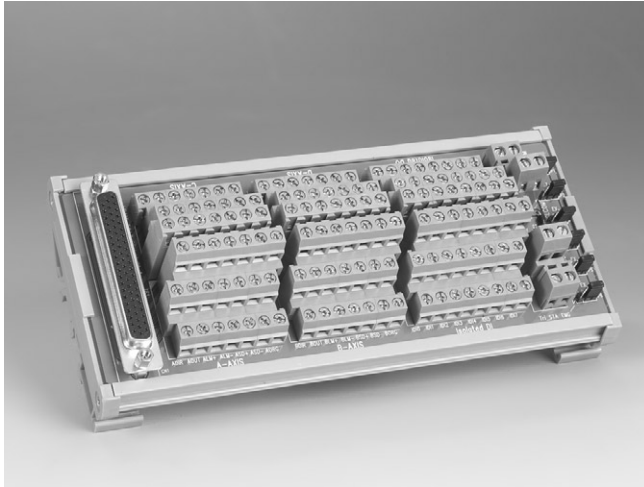
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ADAM-3900 Series

Wiring Terminals for
DIN-rail Mounting



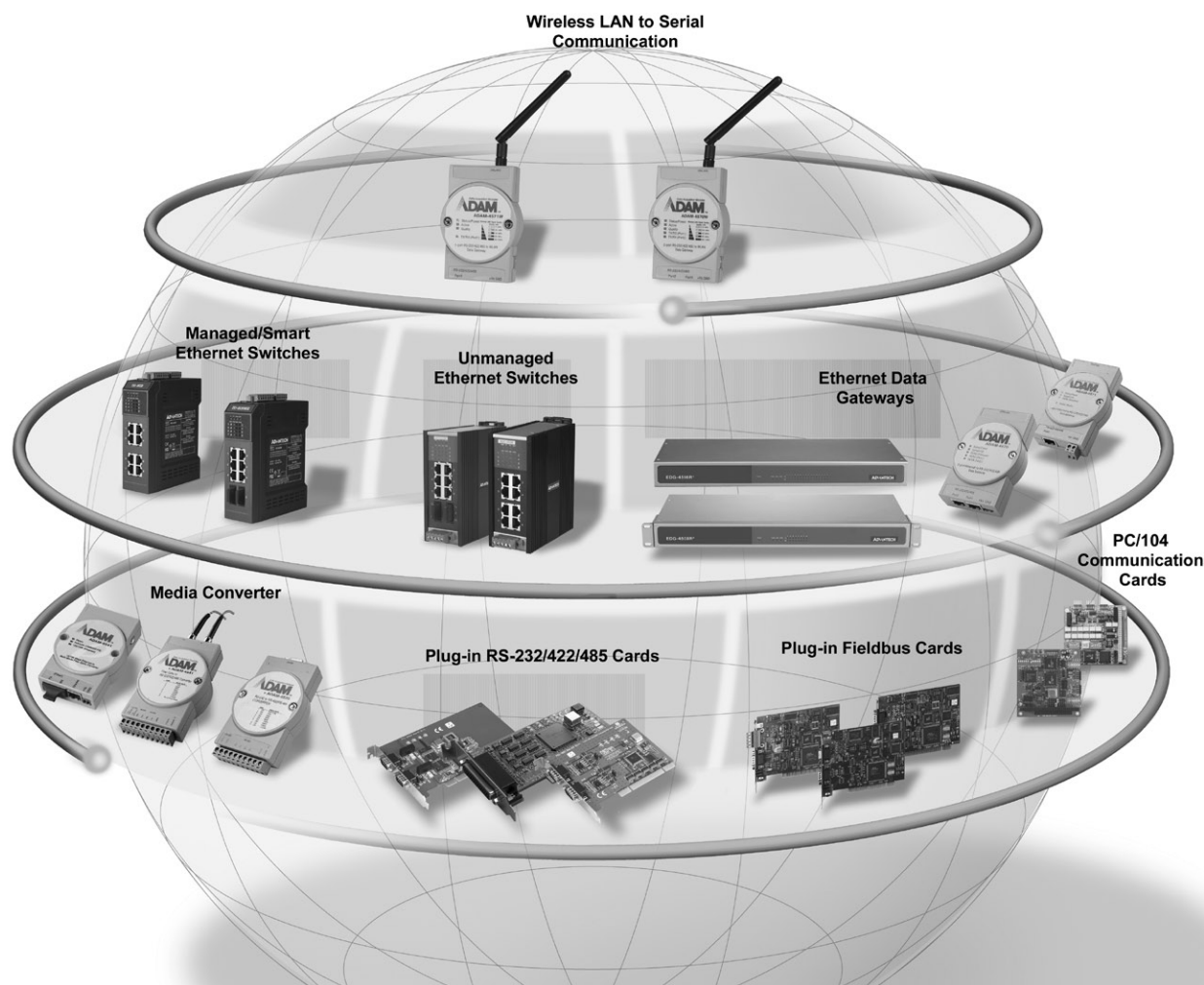
ADAM-3943

PCI-1243U Wiring Board with LED

Features

- DIN-rail mounting wiring terminal for PCI-1243U applications
- Case dimensions (W x L x H): 123 x 85 x 56 mm (4.8" x 3.3" x 2.2")
- DB 62-pin female connector
- Tree-wire wiring for each channel

Link Your Devices to the eWorld with eConnectivity Solutions



Industrial Communication Solutions

Industrial Ethernet Switches

Advantech's Ethernet switches and hubs are designed especially for industrial environments with Ethernet networking needs, so you can expand your industrial network efficiently and cost-effectively. For example, the redundant dual power inputs ensure stable power supply, while surge protection for the power line and ESD protection for Ethernet ports make the Advantech switches more suitable for harsh environments. The unmanaged switches support networking standard IEEE802.3/ 802.3u, while smart switches featured several critical functions, like VLAN, QoS, Port Trunk and Port Mirroring. Advanced managed functions are ring redundancy for better reliability, and SNMP for security. In addition, fiber solution is also available for long distance and anti-noise application.

Media Converters

Advantech offers six types of media converters for various applications, including Ethernet to multi-mode fiber optic converters, Ethernet to single strand WDM fiber optic converters, fiber optic to RS-232/422/485 converters/repeaters, RS-422/485 repeaters, RS-232 to RS-422/485 converters and USB to RS-232/422/485 converters. Ethernet media converters are designed to convert Ethernet network (10/100Base-TX) to fiber-optic networks (100Base-FX). Fiber optic communication provides wide bandwidth and secures long-distance transmissions from electromagnetic interference. Serial Media Converters provide conversion between serial networks and other media. They can convert RS-232 signals to RS-422/485 signals, as well as wireless and fiber optic signals.

Serial to Ethernet/Wireless Data Gateways

Advantech offers wired and wireless devices to meet the needs of diverse industrial applications, including:

Ethernet/Wireless Data Gateways

Ethernet data gateways enable RS-232/422/485 serial devices to be connected to a host computer over an Ethernet network quickly and cost-effectively. No extra programming effort is required at the host computer, so software development costs can be saved. In addition, Advantech's newly serial to wireless LAN Data Gateways can be applied in mobile environments, and connect your serial devices to an Ethernet network or 802.11b wireless LAN easily.

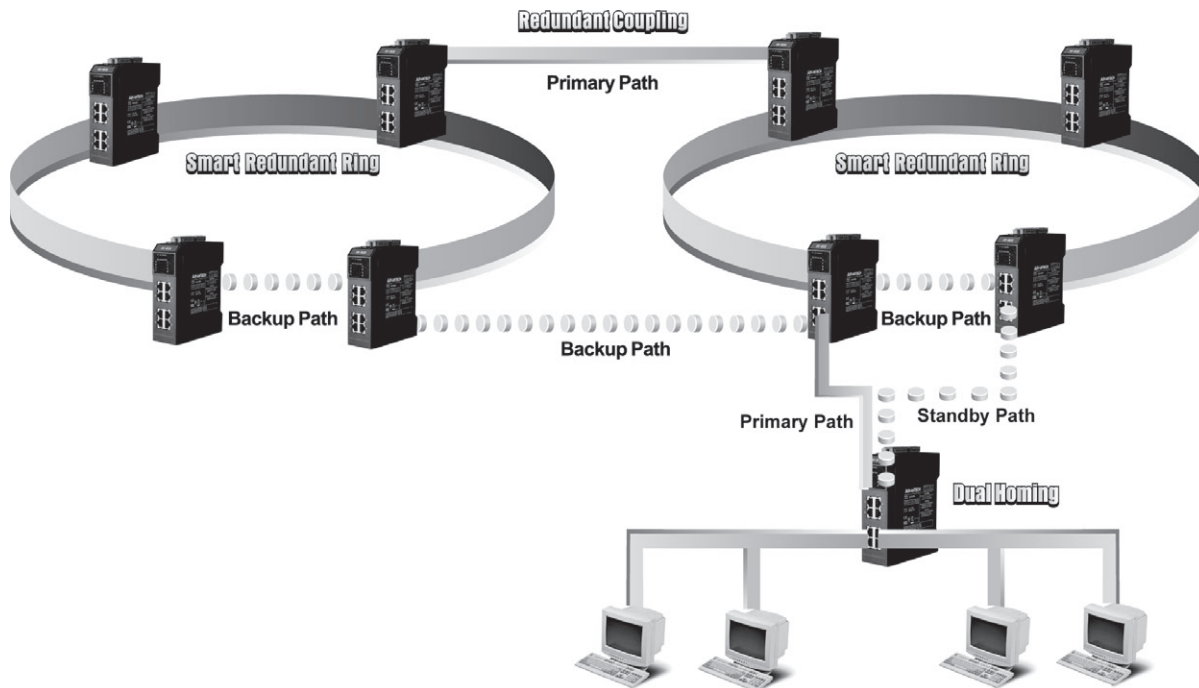
Modbus to Ethernet Data Gateways

Fully compliant with Modbus/TCP, Advantech's Modbus to Ethernet Data gateways are ideal for customers who are looking for an easy way to connect their existing devices or controllers running Modbus serial protocols (Modbus/ASCII or Modbus/RTU) to Ethernet networks.

Communication Card Solutions

Advantech serial communication cards accommodate multiple high performance peripherals for serial communications, such as field devices, modems, PCs and PLCs, using the RS-232, RS-422 and RS-485 serial communication protocols. Advantech PCI cards leverage the "Plug and Play" capability defined in the PCI 2.1/2.2 bus specification, and also come with a standard 16PC1954/16PC1952 UART containing a 128 byte FIFO. Optical isolation, surge and ESD protection are available to protect your system from damages and transient from lightning, electrostatic discharges and ground loops.

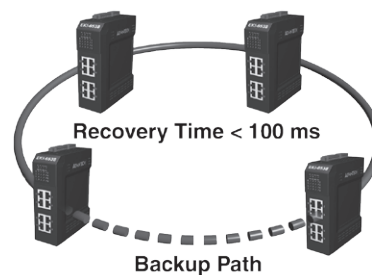
Non-Stop Communication within Advantech's Smart Redundant Ring



Three Redundant Ways to Maximize Communication Reliability

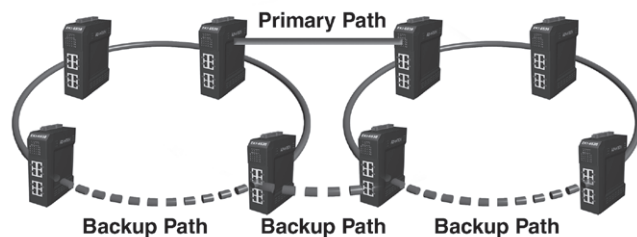
Smart Redundant Ring

EKI-6558 supports Smart Redundant Ring architecture, which allows one segment in the ring to be treated as a backup path. EKI-6558 will activate the backup path automatically and recover communications with deterministic recovery time in less than 100 ms if any Ethernet path with the ring fails. With the smart redundant ring function, EKI-6558 provides highly solid and reliable communications for your system.



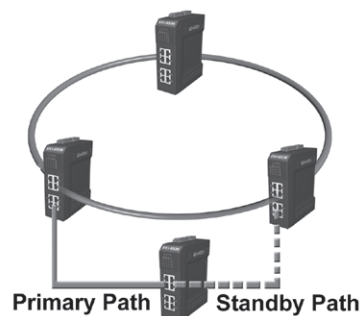
Redundant Coupling

Redundant coupling is a flexible topology to connect several distributed rings together to act as one virtual ring. Communication between rings will recover itself automatically if any coupling path fails.



Dual Homing

EKI-6558 also supports another redundant way for you even your network is not set up as a ring. Dual homing means that the EKI-6558 is connected to a network with two independent connecting paths. The standby path is automatically activated when the primary path fails.



Industrial Ethernet Solutions



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Ethernet Switches

	Model Name	EKI-6558	EKI-6538	EKI-6728
	Description	8-port 10/100 Mbps Industrial Managed Redundant Ethernet Switch	8-port 10/100 Mbps Industrial Smart Ethernet Switch	8-port Gigabit Industrial Ethernet Switch
Communications	Standard	IEEE 802.3, 802.3ad, 802.3u, 802.3x, 802.1p, 802.1Q, 802.1W	IEEE 802.3, 802.3ad, 802.3u, 802.3x, 802.1p, 802.1Q	IEEE 802.3, 802.3u, 802.3x, 802.3ab
	LAN	10/100Base-TX	10/100Base-TX	10/100/1000Base-TX
	I/O Type	2 Digital Input - Logic Level 0 : close to GND Logic Level 1 : open 2 Digital Output - Open collector to 30 V, 200 mA (Max. load)	2 Digital Input - Logic Level 0 : close to GND Logic Level 1 : open 2 Digital Output - Open collector to 30 V, 200 mA (Max. load)	N/A
	Transmission Distance	Up to 100 m	Up to 100 m	Up to 100 m (Cat.5e, Cat.6 RJ-45 cable suggested)
	Transmission Speed	Up to 100 Mbps	Up to 100 Mbps	Up to 1000 Mbps
Interface	Connectors	8 x RJ-45 (Ethernet) 7-pin removable screw terminal (power) 5-pin removable screw terminal (DI/O)	8 x RJ-45 7-pin removable screw terminal (power) 5-pin removable screw terminal (DI/O)	8 x RJ-45 7-pin removable screw terminal (power)
	LED Indicators	P1, P2, P-Fail, Fault, LINK, 10/100 Mbps	P1, P2, P-Fail, Fault, LINK, 10/100 Mbps	P1, P2, P-Fail, LINK, 10/100/1000 Mbps
	Console	RS-232 (RJ-48)	RS-232 (RJ-48)	N/A
Network Management	Redundancy	Advantech Smart Ring (recovery time < 100 ms at 50 pcs full loading ring structure), 802.1W RSTP	N/A	N/A
	Diagnostics	Push button for port diagnostic Port Mirroring Real-time traffic statistic	Push button for port diagnostic Port Mirroring Real-time traffic statistic	
	VLAN	IEEE 802.1Q tagged VLAN Port-based VLAN	IEEE 802.1Q tagged VLAN Port-based VLAN	
	Configuration	Web browser, Telnet/Serial console, Speed/duplex auto-negotiation	Web browser, RS-232 console, Speed/duplex auto-negotiation	
	SNMP	SNMP v1, Advantech Utility	N/A	
	Security	MAC-based security per port	MAC-based security per port	
	Traffic Control	IGMP Snooping for multicast group management IEEE 802.3ad Link Aggregation Rate limit and storm control IEEE 802.1p QoS DSCP/TOS/CoS priority queuing IEEE 802.3x flow control	IEEE 802.3ad Link Aggregation Rate limit and storm control IEEE 802.1p QoS IEEE 802.3x flow control	
	Others	DHCP Client, Trap	N/A	
Power	Power Consumption	Max. 8 W	Max. 7 W	Max. 9 W
	Power Input	2 x Unregulated 10 ~ 48 V _{DC}	2 x Unregulated 10 ~ 48 V _{DC}	2 x Unregulated 10 ~ 48 V _{DC}
	Power Fault Output	1 Relay Output	1 Relay Output	1 Relay Output
Mechanism	Dimensions (W x H x D)	46 x 162 x 126 mm	46 x 162 x 126 mm	46 x 162 x 126 mm
	Enclosure	IP30, ABS+PC with solid mounting kits	IP30, ABS+PC with solid mounting kits	IP30, ABS+PC with solid mounting kits
	Mounting	DIN 35 rail, Wall	DIN 35 rail, Wall	DIN 35 rail, Wall
Protection	ESD (Ethernet)	4,000 V _{DC}	4,000 V _{DC}	4,000 V _{DC}
	Surge (EFT for power)	3000 V _{DC}	3000 V _{DC}	3000 V _{DC}
	Power Reverse	Yes	Yes	Yes
	Overload	4 A/125 V Replaceable Fuse	4 A/125 V Replaceable Fuse	2.5 A/125 V Replaceable Fuse
Environment	Operating Temperature	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	Storage Temperature	-10 ~ 70 °C (14 ~ 158 °F)	-10 ~ 70 °C (14 ~ 158 °F)	-10 ~ 70 °C (14 ~ 158 °F)
	Operating Humidity	20 ~ 95 % (non-condensing)	20 ~ 95 % (non-condensing)	20 ~ 95 % (non-condensing)
	Storage Humidity	0 ~ 95 % (non-condensing)	0 ~ 95 % (non-condensing)	0 ~ 95 % (non-condensing)
	MTBF	230,000 hrs	230,000 hrs	230,000 hrs
Certifications	Safety	UL 60950-1, CAN/CSA-C22.2 No.60950 U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4	UL 60950-1, CAN/CSA-C22.2 No.60950 U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4	UL 60950-1, CAN/CSA-C22.2 No.60950 U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4
	EMC	EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2	EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2	EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2

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Ethernet I/O

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CompactPCI

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Signal Conditioning

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Motion Control I/O

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Ethernet Switch

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ICOM

EKI-6628F	EKI-7629C	EKI-2528/EKI-2525	EDG-6528 Series
Industrial Gigabit Ethernet Switch with 6 10/100Base-TX Ports & 2 SFP (mini-GBIC) Ports	Industrial Gigabit Ethernet Switch with 8 10/100Base-TX Ports & 2 Combo 10/100/1000Base-TX/ SFP (mini-GBIC) Ports	8/5-port 10/100 Mbps Industrial Unmanaged Ethernet Switch	8-port 10/100 Mbps Industrial Ethernet Switch
IEEE 802.3, 802.3u, 802.3x, 802.3z	IEEE 802.3, 802.3ab, 802.3u, 802.3x, 802.3z	IEEE 802.3, 802.3u, 802.3x	IEEE 802.3, 802.3u, 802.3x
10/100Base-TX, 1000Base-SX/LX	10/100/1000Base-TX, 1000Base-FX, 1000Base-SX/LX	10/100Base-TX	10/100Base-TX
N/A	N/A	N/A	N/A
Ethernet : Up to 100 m Gigabit Fiber : Up to 110 km (depends on the SFP module)	Ethernet : Up to 100 m Gigabit Fiber : Up to 110 km (depends on the SFP module)	Up to 100m	Up to 100m
Ethernet : Up to 100 Mbps Gigabit Fiber : Up to 1000 Mbps	Ethernet : Up to 100 Mbps Gigabit Copper : Up to 1000 Mbps Gigabit Fiber : Up to 1000 Mbps	Up to 100 Mbps	Up to 100 Mbps
6 x RJ-45 2 x mini-GBIC socket 7-pin removable screw terminal (power)	8 x RJ-45 2 x mini-GBIC socket 6-pin removable screw terminal (power)	8 x RJ-45 (EKI-2528) or 5 x RJ-45 (EKI-2525)	8 x RJ-45 5-pin removable screw terminal (power)
P1, P2, P-Fail, LINK, 10/100/1000 Mbps	Unit: PWR1, PWR2, P-Fail TX Port: Link/Active, Duplex/Collision Gigabit Port: Link/Active	P1, P2, P-Fail	PWR, P1, P2, FAULT, LINK, 10/100 Mbps
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
Max. 6 W	Max. 6.5 W	EKI-2528: Max. 4 W EKI-2525: Max. 3 W	Max. 3.1 W
2 x Unregulated 10 ~ 48 V _{DC}	2 x Unregulated 12 ~ 48 V _{DC}	2 x Unregulated 12 ~ 48 V _{DC}	EDG-6528/6528L: 2 x Unregulated 10 ~ 48 V _{DC} EDG-6528L: 1 x Unregulated 10 ~ 48 V _{DC}
1 Relay Output	1 Relay Output	1 Relay Output	1 Relay Output (EDG-6528L not equipped)
46 x 162 x 126 mm	79 x 152 x 105 mm	37 x 140 x 95 mm	56 x 134 x 114 mm
IP30, ABS+PC with solid mounting kits	IP30, Metal shell with solid mounting kits	IP30, Metal shell with solid mounting kits	IP30, Metal shell with PC side panel (mounting kits included)
DIN 35 rail, Wall	DIN 35 rail, Wall	DIN 35 rail, Wall	DIN 35 rail, Wall
4,000 V _{DC}	4,000 V _{DC}	4,000 V _{DC}	4,000 V _{DC} (EDG-6528L not equipped)
3000 V _{DC}	3000 V _{DC}	3,000 V _{DC}	3000 V _{DC}
Yes	Yes	Yes	Yes
2 A/125 V Replaceable Fuse	3.2 A/60 V Resettable Fuse	1.8 A/60 V Resettable Fuse	N/A
0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	EDG-6528, EDG-6528L: 0 ~ 70 °C (32 ~ 158 °F) EDG-6528L: -40 ~ 85 °C (-40 ~ 185 °F)
-10 ~ 70 °C (14 ~ 158 °F)	-10 ~ 70 °C (14 ~ 158 °F)	-10 ~ 70 °C (14 ~ 158 °F)	EDG-6528, EDG-6528L: -10 ~ 80 °C (14 ~ 176 °F) EDG-6528L: -50 ~ 95 °C (-58 ~ 203 °F)
20 ~ 95 % (non-condensing)	20 ~ 95 % (non-condensing)	20 ~ 95 % (non-condensing)	20 ~ 95 % (non-condensing)
0 ~ 95 % (non-condensing)	0 ~ 95 % (non-condensing)	0 ~ 95 % (non-condensing)	0 ~ 95 % (non-condensing)
230,000 hrs	295,000 hrs	1,260,000 hrs	1,260,000 hrs
UL 60950-1, CAN/CSA-C22.2 No.60950	UL 60950-1, CAN/CSA-C22.2 No.60950	UL 60950-1, CAN/CSA-C22.2 No.60950	UL 60950-1, CAN/CSA-C22.2 No.60950
U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2	U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2	U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2	U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2

Industrial Ethernet Solutions Selection Guide

	Model Name	EKI-6527 Series	ADAM-6520 Series	ADAM-6521 Series
	Description	Industrial Ethernet Switch with 6 10/100Base-TX Ports & 1 100Base-FX Fiber Port	5-port 10/100 Mbps Industrial Ethernet Switch	Industrial Ethernet Switch with 4 10/100Base-TX Ports & 1 100Base-FX Fiber Port
Communications	Standard	IEEE 802.3, 802.3u, 802.3x	IEEE 802.3, 802.3u, 802.3x	IEEE 802.3, 802.3u, 802.3x
	LAN	10/100Base-TX, 100Base-FX	10/100Base-TX	10/100Base-TX, 100Base-FX
	I/O Type	N/A	N/A	N/A
	Transmission Distance	Ethernet : Up to 100 m Multi-mode Fiber : Up to 2 km Single-mode Fiber : Up to 15 km	Up to 100m	Ethernet : Up to 100 m Multi-mode Fiber : Up to 2 km Single-mode Fiber : Up to 15 km
	Transmission Speed	Up to 100 Mbps	Up to 100 Mbps	Up to 100 Mbps
Interface	Connectors	6 x RJ-45 1 x SC type fiber connector 7-pin removable screw terminal (power)	5 x RJ-45 2-pin removable screw terminal (power)	4 x RJ-45 1 x SC type fiber connector (ADAM-6521, ADAM-6521S) or 1 x ST type fiber connector (ADAM-6521/ST) 2-pin removable screw terminal (power)
	LED Indicators	P1, P2, P-Fail, LINK, 10/100 Mbps	Power, Link/Speed	Power, Link (100BASE-FX), 100/10M (Ethernet)
	Console	N/A	N/A	N/A
Network Management	Redundancy	N/A	N/A	N/A
	Diagnostics			
	VLAN			
	Configuration			
	SNMP			
	Security			
	Traffic Control			
	Others			
Power	Power Consumption	Max. 5W	ADAM-6520, ADAM-6520L: Max. 2.4 W ADAM-6520L: Max. 3 W	ADAM-6521, ADAM-6521/ST: Max. 3 W ADAM-6521S: Max. 4 W
	Power Input	2 x Unregulated 10 ~ 48 V _{DC}	1 x Unregulated 10 ~ 30 V _{DC}	1 x Unregulated 10 ~ 30 V _{DC}
	Power Fault Output	1 Relay Output	N/A	N/A
Mechanism	Dimensions (W x H x D)	46 x 162 x 126 mm	70 x 102 x 27 mm	70 x 112 x 27 mm
	Enclosure	IP30, ABS+PC with solid mounting kits	IP30, ABS+PC with solid mounting kits	IP30, ABS+PC with solid mounting kits
	Mounting	DIN 35 rail, Wall	DIN 35 rail, Wall, Stack	DIN 35 rail, Wall, Stack
Protection	ESD (Ethernet)	4,000 V _{DC}	4,000 V _{DC} (ADAM-6520L not equipped)	4,000 V _{DC}
	Surge (EFT for power)	3000 V _{DC}	3000 V _{DC} (ADAM-6520L not equipped)	3000 V _{DC}
	Power Reverse	Yes	N/A	N/A
	Overload	4 A/125 V Replaceable Fuse	N/A	N/A
Environment	Operating Temperature	0 ~ 60 °C (32 ~ 140 °F)	ADAM-6520: -10 ~ 70 °C (14 ~ 158 °F) -10 ~ 60 °C (14 ~ 140 °F) (Stack) ADAM-6520L: -40 ~ 85 °C (-40 ~ 185 °F) -40 ~ 75 °C (-40 ~ 167 °F) (Stack) ADAM-6520L: 0 ~ 60 °C (32 ~ 140 °F) 0 ~ 50 °C (32 ~ 122 °F) (Stack)	-10 ~ 65 °C (14 ~ 149 °F) -10 ~ 55 °C (14 ~ 131 °F) (Stack)
	Storage Temperature	-10 ~ 70 °C (14 ~ 158 °F)	ADAM-6520: -20 ~ 80 °C (-4 ~ 176 °F) ADAM-6520L: -50 ~ 95 °C (-58 ~ 203 °F) ADAM-6520L: -10 ~ 70 °C (14 ~ 158 °F)	-20 ~ 80 °C (-4 ~ 176 °F)
	Operating Humidity	20 ~ 95 % (non-condensing)	20 ~ 95 % (non-condensing)	20 ~ 95 % (non-condensing)
	Storage Humidity	0 ~ 95 % (non-condensing)	0 ~ 95 % (non-condensing)	0 ~ 95 % (non-condensing)
	MTBF	230,000 hrs	1,580,000 hrs	1,150,000 hrs
Certifications	Safety	UL 60950-1, CAN/CSA-C22.2 No.60950	UL 60950-1, CAN/CSA-C22.2 No.60950	UL 60950-1, CAN/CSA-C22.2 No.60950
	EMC	U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2	U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2	U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2

Ethernet Media Converters

	Model Name	ADAM-6841 Series	ADAM-6541 Series	ADAM-6542 Series
	Description	Gigabit Ethernet to Fiber Optic Converter	Ethernet to Fiber Optic Converter	Ethernet to WDM Fiber Optic Converter
Communications	Standard	IEEE 802.3ab, 802.3z	IEEE 802.3, 802.3u, 802.3x	IEEE 802.3, 802.3u, 802.3x
	LAN	1000Base-T, 1000Base-SX, 1000Base-LX	10/100Base-TX, 100Base-FX	10/100Base-TX, 100Base-FX
	Transmission Distance	Ethernet : Up to 100m (Cat.5e, Cat.6) Multi-mode Fiber : Up to 2 km Single-mode Fiber : Up to 25 km	Ethernet : Up to 100 m Multi-mode Fiber : Up to 2 km Single-mode Fiber : Up to 20 km	Ethernet : Up to 100 m Fiber : Up to 20 km
	Transmission Speed	Up to 1000 Mbps	Up to 100 Mbps	Up to 100 Mbps
	Link Fault Pass Through	N/A	ADAM-6541, ADAM-6541/ST: N/A ADAM-6541P, ADAM-6541S: YES	N/A
Interface	Connectors	1 x RJ-45 1 x SC type fiber connector 2-pin removable screw terminal (power)	1 x RJ-45 1 x SC type fiber connector (ADAM-6541, ADAM-6541P, ADAM-6541S) or 1 x ST type fiber connector (ADAM-6541/ST) 2-pin removable screw terminal (power)	1 x RJ-45 1 x SC type fiber connector 2-pin removable screw terminal (power)
	LED Indicators	Power, Link/Active (Fiber), Link/Active (Ethernet)	ADAM-6541, ADAM-6541/ST: Power, Full/ Link (100BASE-FX), 100/10M (Ethernet) ADAM-6541P, ADAM-6541S: Power, Link/Speed (Fiber), Link/Speed (Ethernet), LFS/Duplex (TX)	Power, Link (100BASE-FX), 100/10M (Ethernet)
Power	Power Consumption	Max. 3.5 W	ADAM-6541, ADAM-6541/ST : Max. 3 W ADAM-6541P, ADAM-6541S : Max. 3.5 W	Max. 3 W
	Power Input	1 x Unregulated 10 ~ 30 V _{DC}	1 x Unregulated 10 ~ 30 V _{DC}	1 x Unregulated 10 ~ 30 V _{DC}
Mechanism	Dimensions (W x H x D)	70 x 112 x 27 mm	70 x 112 x 27 mm	70 x 112 x 27 mm
	Enclosure	IP30, ABS+PC with solid mounting kits	IP30, ABS+PC with solid mounting kits	IP30, ABS+PC with solid mounting kits
	Mounting	DIN 35 rail, Wall, Stack	DIN 35 rail, Wall, Stack	DIN 35 rail, Wall, Stack
Protection	ESD (Ethernet)	4,000 V _{DC}	4,000 V _{DC}	4,000 V _{DC}
	Isolation (Ethernet)	1,500Vrms	1,500Vrms	1,500Vrms
	Surge (EFT for power)	3000 V _{DC}	3000 V _{DC}	3000 V _{DC}
	Power Reverse	Yes	ADAM-6541, ADAM-6541/ST: N/A ADAM-6541P, ADAM-6541S: YES	N/A
	Overload	1A/125V Replaceable Fuse	ADAM-6541, ADAM-6541/ST: N/A ADAM-6541P, ADAM-6541S: 1A/125V Replaceable Fuse	N/A
Environment	Operating Temperature	0 ~ 60 °C (32 ~ 140 °F) 0 ~ 55 °C (32 ~ 131 °F) (Stack)	0 ~ 60 °C (32 ~ 140 °F) 0 ~ 55 °C (32 ~ 131 °F) (Stack)	0 ~ 60 °C (32 ~ 140 °F) 0 ~ 55 °C (32 ~ 131 °F) (Stack)
	Storage Temperature	-10 ~ 70 °C (14 ~ 158 °F)	-10 ~ 70 °C (14 ~ 158 °F)	-10 ~ 70 °C (14 ~ 158 °F)
	Operating Humidity	20 ~ 95 % (non-condensing)	20 ~ 95 % (non-condensing)	20 ~ 95 % (non-condensing)
	Storage Humidity	0 ~ 95 % (non-condensing)	0 ~ 95 % (non-condensing)	0 ~ 95 % (non-condensing)
	MTBF	550,000 hrs	550,000 hrs	550,000 hrs
Certifications	Safety	UL 60950-1, CAN/CSA-C22.2 No.60950	UL 60950-1, CAN/CSA-C22.2 No.60950	UL 60950-1, CAN/CSA-C22.2 No.60950
	EMC	U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2	U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2	U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3 EN55024 IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2

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Motion Control I/O

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Ethernet Switch

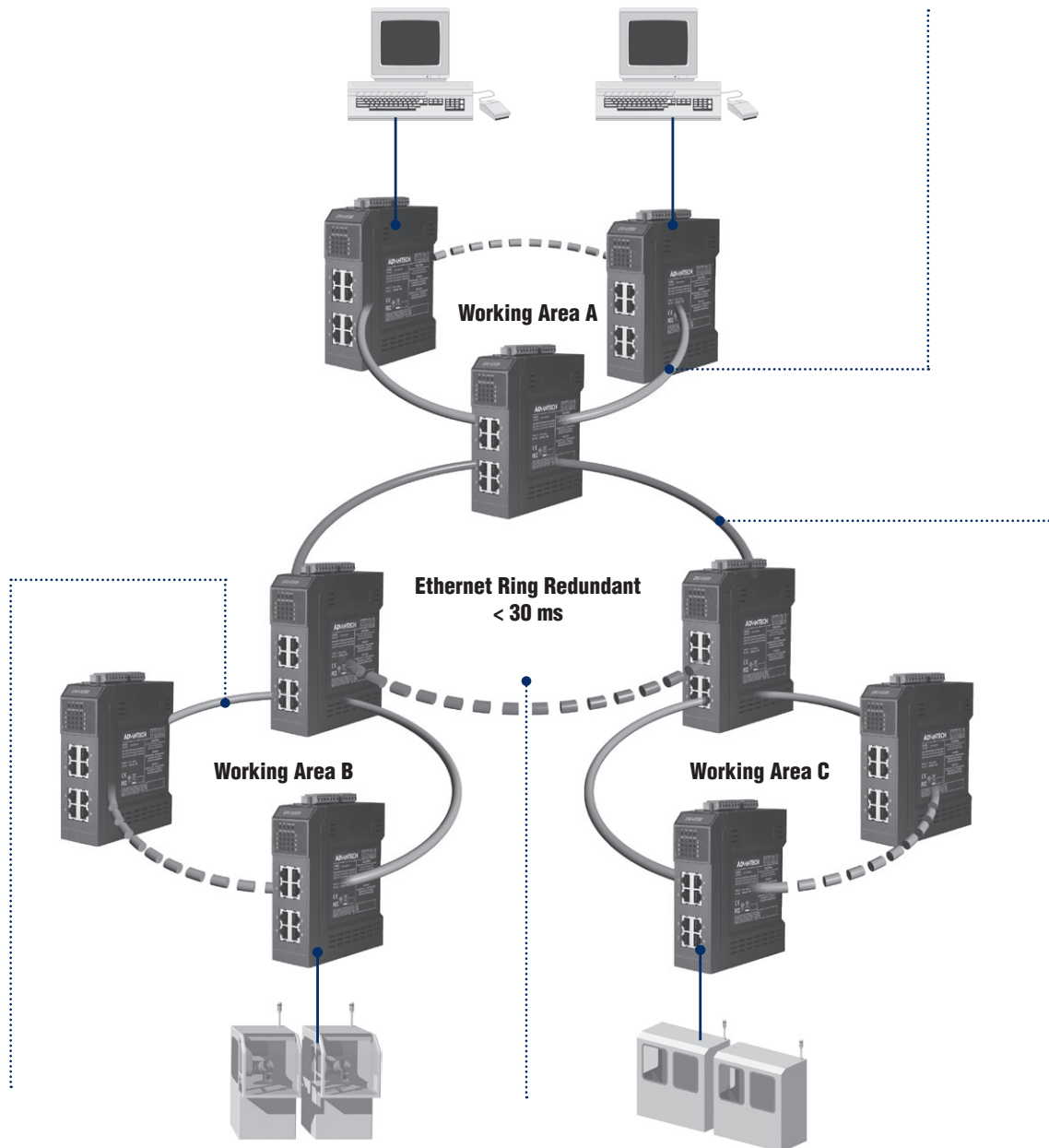
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Non-stop Ethernet Redundant Ring

Non-stop communication

The Redundant Ethernet Ring feature provides reliable communications that can find a backup path automatically if the field Ethernet path is broken.



Easy to Install Without a Dedicated Master

Simple configuration setup that allows users to easily build their own Redundant Ethernet Ring networks. Unlike generally managed Ethernet switches, EKI-6558 doesn't need to setup a master/client device; the EKI-6558 will enable a redundant Ethernet ring system actively.

Deterministic Recovery Time

EKI-6558 supports the Redundant Ethernet Ring Network. If the field Ethernet path is broken, the system will recover communications with deterministic recovery time in less than 30 ms. (at 50 pcs full loading ring structure)

Double Rings, Double Defenses

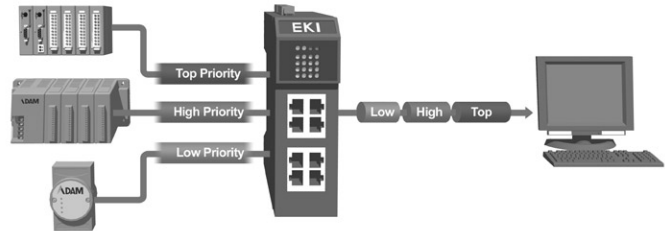
EKI-6558 is featuring with interconnection redundant ring which improves the reliability of Ethernet networks.

Efficient Network Management

Optimized Network Performance

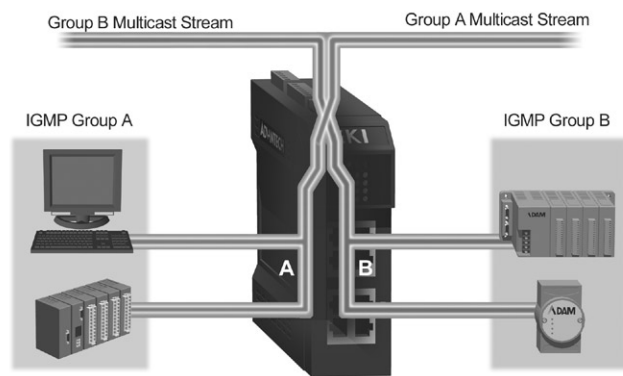
Traffic Prioritization - Quality of Service (QoS)

Quality of Service (QoS) ensures critical data is delivered consistently and predictably. Advantech's EKI series supports Layer 2 802.1p priority queue control to prioritize network packets depending on customer's needs. The feature of QoS is useful in improving determinism.



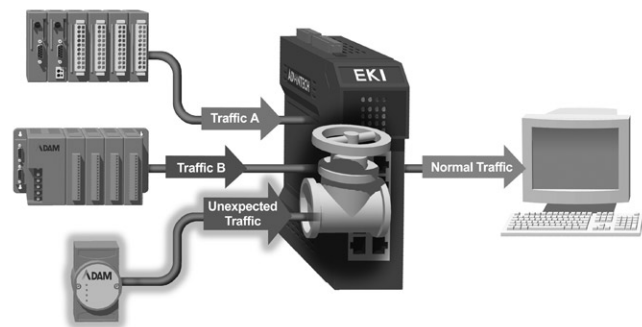
Filters Unnecessary Multicast Traffic - IGMP Snooping

Internet Group Management Protocol (IGMP) snooping can automatically filter multicast/broadcast frames to only the devices which have requested them. It is also able to refine multicast traffic and improve the utilization of Ethernet network bandwidth.



Bandwidth Administration Avoids Unexpected Network Traffic

Network broadcast storms or malfunctioning network devices will generate unexpected, large packets which can block network traffic. Advantech's EKI series is able to configure the ingress/egress rate of unicast/multicast/broadcast packets in parts and limit the bandwidth of each individual port to prevent unexpected network traffic.



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Ethernet Switch

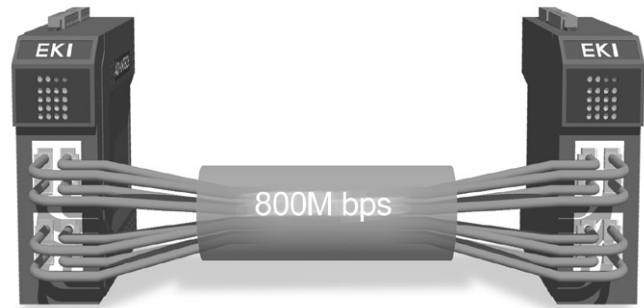
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Efficient Network Management

Grouped Bandwidths for Flexible Networking - Port Trunking

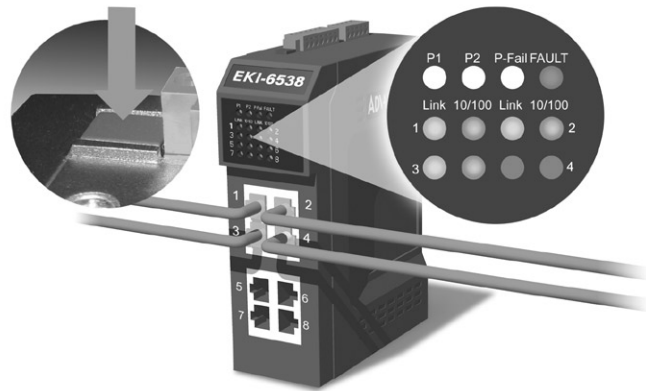
Port trunking is grouping two or more ports together and working as a logical path. This can be used to increase the bandwidth up to 800 Mbps between two cascaded switches.



Easy to Maintain

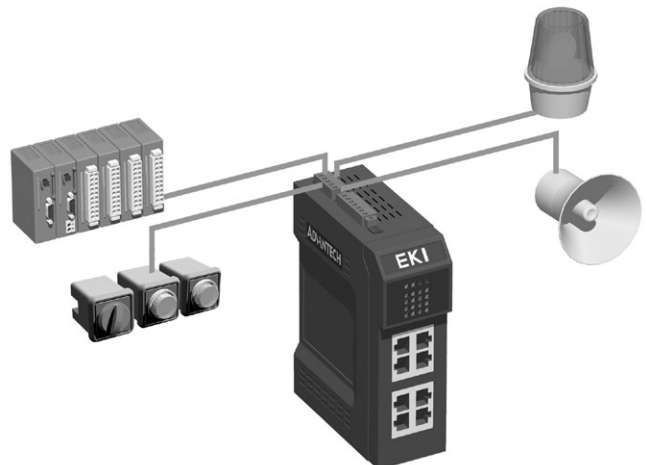
Convenient Self Diagnosis Button

Advantech's EKI series come with a self diagnosis button and front-viewable LEDs for field troubleshooting. Without the need for extra tools, you can recognize the hardware status of the Ethernet port instantly through one single button.



Onboard DI/O's to Integrate Field Alarm Devices

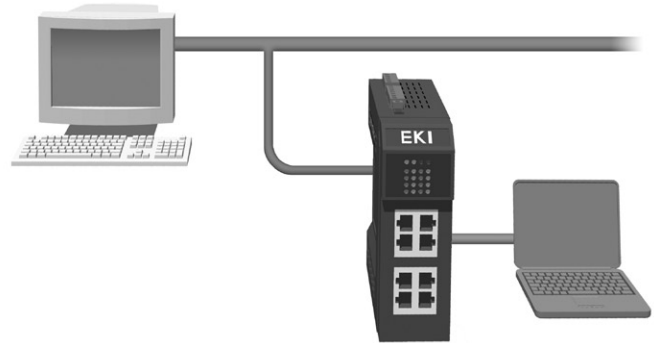
By simply setting up a web-based configuration, you can manage the connection between two digital inputs and two digital outputs that are built into EKI. These are invaluable when integrating field indicators or alarm devices that will respond to messages according to individual user's configured settings.



Efficient Network Management

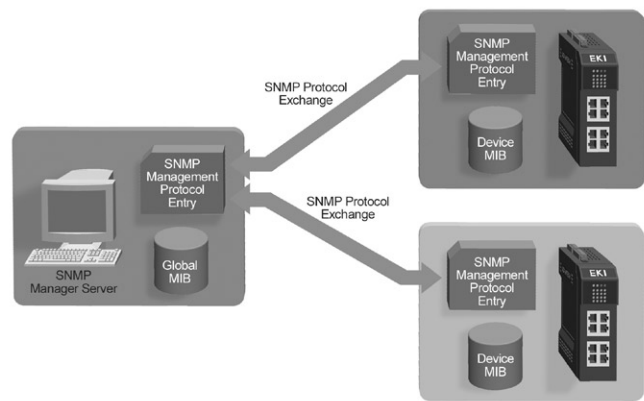
Flexible Configuration Modes for Different Applications

Advantech's EKI series supports web and console based configurations for different applications. You can configure EKI through a web browser remotely without extra utilities or by using a direct connection to the console port of EKI through a single serial cable.



Simple Network Management Protocol (SNMP)

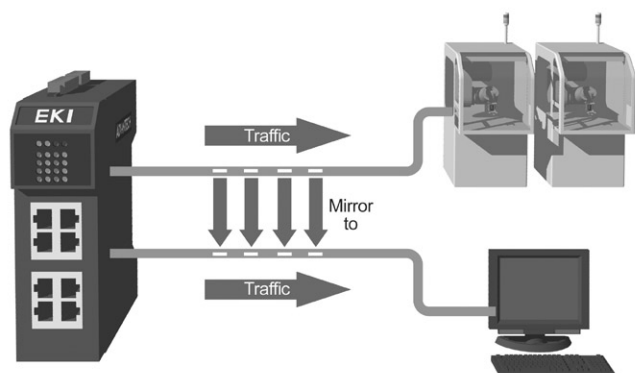
Advantech's EKI-6558 supports the Simple Network Management Protocol (SNMP), which is an application-layer protocol designed to facilitate the exchange of management and performance information between networked devices. Using SNMP facilitates monitoring of device and network performance, and easier diagnosis and solution of problems.



Secured Communication Mechanism

Traffic Monitoring & Analysis - Port Mirroring

Port mirroring allows one port of the switch to monitor the traffic transmitted/received by the other port of the switch. The network administrator with a protocol analyzer is allowed to capture packets from mirrored port to evaluate and monitor without affecting the operation of clients on the original port.



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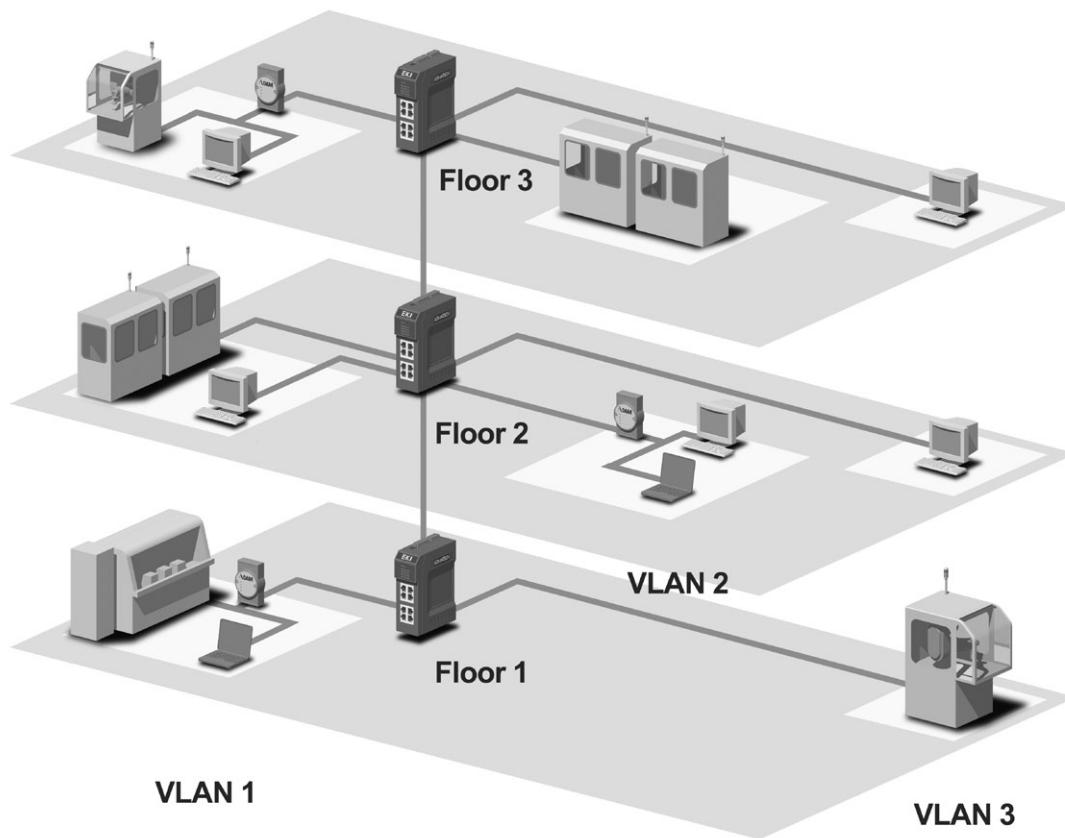
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Efficient Network Management

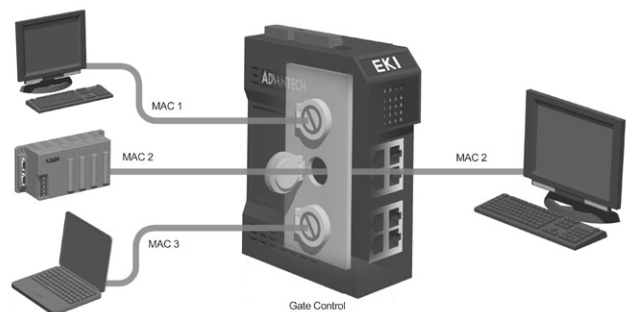
Virtual Local Area Network (VLAN)

Virtual Local Area Network (VLAN) improves the security by grouping Ethernet devices locally and confining traffic between these groups even if the devices all share the same physical switch.



Security Gate Control Avoids Unauthorized Access

Advantech's EKI series provides specific gate controls for each individual port to improve network security. Only the packets from authorized MAC addresses are allowed to pass through the switch. You can block unwanted invasions and usage thru this defense mechanism.



EKI-6558

8-port 10/100 Mbps Industrial Managed Redundant Ethernet Switch

NEW



Features

- Redundant Ethernet Ring (recovery time < 100 ms at 50 pcs full loading ring structure) and RSTP (IEEE 802.1W)
- IGMP Snooping for filtering multicast traffic from industrial Ethernet
- Provides push button for port diagnostic
- Supports web browser and telnet/RS-232 console for configuration
- Supports IEEE 802.1Q VLAN and GVRP protocol to ease network planning
- Supports QoS -- IEEE 802.1p/1Q and TOS/DiffServ to increase determinism
- Supports SNMP V1 for network management security and Trap for automatic alarm and warning by utility or exception through email
- Supports 802.3ad link aggregation control protocol
- Provides 2-ch DI/O and power fail relay output for field event control
- Supports dual 10 ~ 48 V_{DC} power input, wide operating temperature (0 ~ 60° C)

Introduction

For many industrial automation applications, redundancy helps increase the reliability of your system. To create reliability in your network, the EKI-6558 comes equipped with a proprietary redundant network protocol -- Smart Ring that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 30 ms. Furthermore, EKI-6558 also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety. With many additional industrial features such as dual wide power inputs (10 ~ 48 V_{DC}), a wide operating temperature (0 ~ 60° C) and a rugged, flexible design, the EKI-6558 is an ideal Ethernet solution for any industrial environment.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3ad, 802.3u, 802.3x, 802.1p, 802.1Q, 802.1W.
- **LAN** 10/100Base-TX
- **I/O Type**
 - 2 Digital Input - Logic Level 0 : close to GND
 - Logic Level 1 : open
 - 2 Digital Output - Open collector to 30 V, 200 mA (Max. load)
- **Transmission Distance** Up to 100 m
- **Transmission Speed** Up to 100 Mbps

Interface

- **Connectors**
 - 8 x RJ-45 (Ethernet)
 - 7-pin removable screw terminal (power)
 - 5-pin removable screw terminal (DI/O)
- **LED Indicators** P1, P2, P-Fail, Fault, LINK, 10/100 Mbps
- **Console** RS-232 (RJ-48)

Network Management

- **Diagnostics**
 - Push button for port diagnostic
 - Port Mirroring
 - Real-time traffic statistic
- **VLAN**
 - IEEE 802.1Q tagged VLAN
 - Port-based VLAN
- **Configuration** Web browser, Telnet/Serial console, Speed/duplex auto-negotiation
- **Redundancy** ADVANTECH Smart Ring (recovery time < 100 ms at 50 pcs full loading ring structure), 802.1W/D RSTP/STP
- **Security** MAC-based security per port
- **Traffic Control**
 - IGMP Snooping for multicast group management
 - IEEE 802.3ad Link Aggregation
 - Rate limit and storm control
 - IEEE 802.1p QoS DSCP/TOS/CoS priority queuing
 - IEEE 802.3x flow control

Mechanism

- **Enclosure** IP30, ABS+PC with solid mounting kits
- **Dimensions (W x H x D)** 46 x 162 x 126 mm
- **Mounting** DIN 35 rail, wall

Power

- **Power Consumption** Max. 8 W
- **Power Input** 2 x Unregulated 10 ~ 48 V_{DC}
- **Fault Output** 1 Relay Output

Protection

- **ESD (Ethernet)** 4,000 V_{DC}
- **Surge (EFT for power)** 3,000 V_{DC}
- **Power Reverse** YES
- **Overload** 4 A/125 V Replaceable Fuse

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 230,000 hours

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC**
 - EU: EN55011, EN61000-6-4
 - EN55022 Class A,
 - EN61000-3-2/3
 - EN55024
 - IEC61000-4-2/3/4/5/6/8/11
 - EN61000-6-2

Ordering Information

- **EKI-6558** 8-port 10/100 Mbps Industrial Managed Redundant Ethernet Switch

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

EKI-6538

8-port 10/100 Mbps Industrial Smart Ethernet Switch



Features

- Provides push button for port diagnostic
- Supports web browser configuration and RS-232 console
- Supports IEEE 802.1Q tagged VLAN
- Supports ports aggregation, aggregated ports auto failed over and load balance per trunk
- Supports port mirroring for traffic monitoring
- Supports IEEE 802.1p QoS for traffic classification and prioritization
- Provides port configuration for auto-negotiation setting of speed/flow control
- Supports ingress/egress rate control per port and broadcast storm protection
- Supports MAC-based security per port
- Supports traffic statistic monitor per port
- Supports two individual +10 ~ 48 V_{DC} power inputs
- Supports operating temperatures from 0 ~ 60° C

Introduction

Equipped with 8 10/100Base-TX Fast Ethernet ports with RJ-45 connector, Advantech EKI-6538 Industrial Smart Ethernet Switch presents as a cost-effective solution for the industrial customers to implement Ethernet packet switching with easy configuration of network performance and security in the harsh environment. Besides of the compliance with standard industrial design, like wide dual power input (10 ~ 48 V_{DC}), wide operating temperature (0 ~ 60° C), rugged mechanism design and multiple mounting ways, EKI-6538 plays smarter than other unmanaged switches in the network management: VLAN, QoS, Port Mirroring, and Port Trunk.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3ad, 802.3u, 802.3x, 802.1p, 802.1Q
- **LAN** 10/100Base-TX
- **I/O Type**
 - 2 Digital Input - Logic Level 0 : close to GND
Logic Level 1 : open
 - 2 Digital Output - Open collector to 30 V, 200 mA (Max.load)
- **Transmission Distance** Up to 100 m
- **Transmission Speed** Up to 100 Mbps

Interface

- **Connectors**
 - 8 x RJ-45 (Ethernet)
 - 7-pin removable screw terminal (power)
 - 5-pin removable screw terminal (DI/O)
- **LED Indicators** P1, P2, P-Fail, FAULT, LINK, 10/100 Mbps
- **Console** RS-232 (RJ-48)

Network Management

- **Diagnostics**
 - Push button for port diagnostic
 - Port Mirroring
 - Real-time traffic statistic
- **VLAN**
 - IEEE 802.1Q tagged VLAN
 - Port-based VLAN
- **Configuration**
 - Web browser, RS-232 console, Speed/duplex auto-negotiation
- **Security**
 - MAC-based security per port
- **Traffic Control**
 - IEEE 802.3ad Link Aggregation
 - Rate limit and storm control
 - IEEE 802.1p QoS
 - IEEE 802.3x flow control

Power

- **Power Consumption** Max. 7 W
- **Power Input** 2 x Unregulated 10 ~ 48 V_{DC}
- **Fault Output** 1 Relay Output

Mechanism

- **Dimensions (W x H x D)** 46 x 162 x 126 mm
- **Enclosure** IP30, ABS+PC with solid mounting kits
- **Mounting** DIN 35 rail, Wall

Protection

- **ESD (Ethernet)** 4,000 V_{DC}
- **Surge (EFT for power)** 3,000 V_{DC}
- **Power Reverse** YES
- **Overload** 4 A/125 V Replaceable Fuse

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 230,000 hrs

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3
EN55024
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

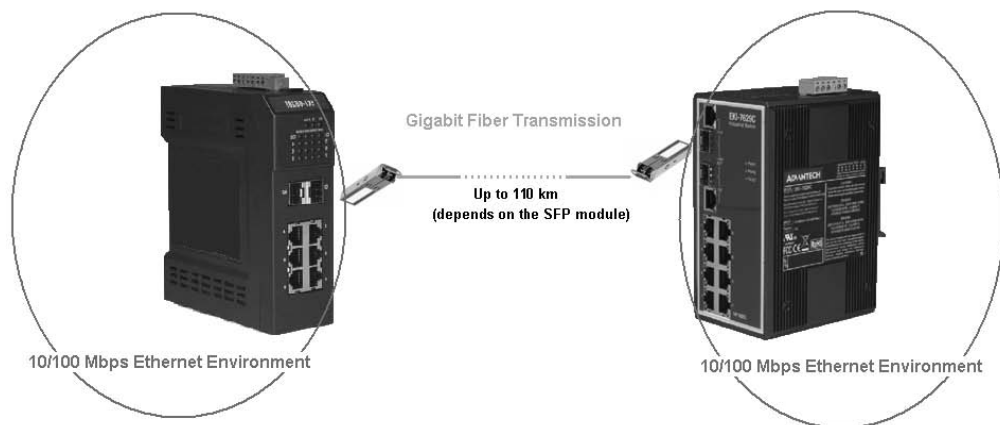
- **EKI-6538** 8-port 10/100 Mbps Industrial Smart Ethernet Switch

Gigabit Solution Introduction

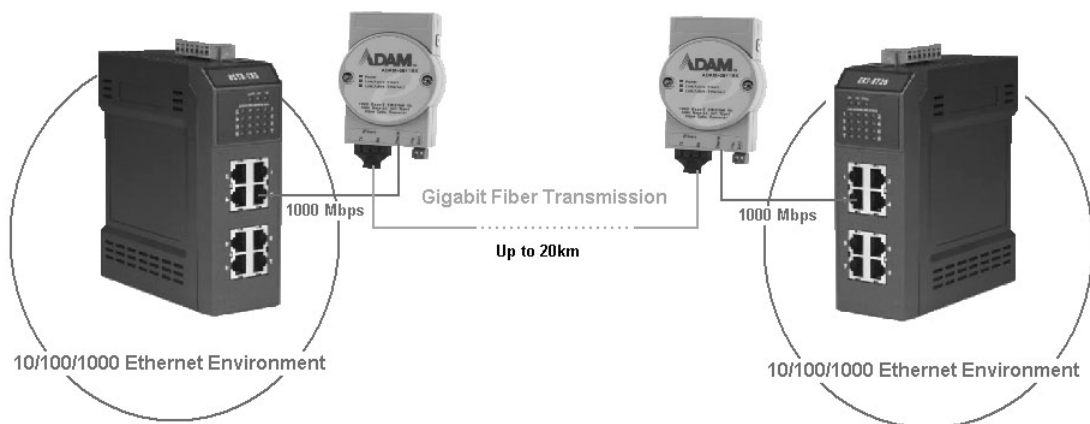
Gigabit Ethernet Solutions

Gigabit Ethernet is the latest development in Ethernet communications and is rapidly becoming an accepted standard, not just for use in high speed transmissions, but also for links between PCs and servers. As the name suggests, Gigabit Ethernet allows data transfer speeds up to 1Gbps (or 1000 Mbps). Many PCs already have Gigabit Ethernet, which means that networks are beginning to add Gigabit Ethernet switches, routers, etc. It is particularly easy to install because the 100Base-T variant is designed to run over Cat 5 UTP (unshielded twisted pair) that is widely and cheaply available. That means that Gigabit Ethernet will rapidly take over from the previous variants of Ethernet, allowing speeds to steadily increase.

Advantech has developed a series of rugged Gigabit switches and converters for industrial use. For high speed and large data transmissions, the EKI-7629C and EKI-6628F come equipped with two mini-GBIC ports which provide long distance, anti-noise, high speed and wide-band transmissions via optional SFP module.



In an advanced factory, 10/100/1000 Mbps compliant devices and PCs may set up together with the original 10/100 Mbps equipment. With 8 x 10/100/1000 Mbps ports, the EKI-6728 acts as a bridge to connect devices from different generations. Together with a Gigabit converter, such as the ADAM-6841, you can realize Gigabit fiber optic transmission between two zones and across great distances.



- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

EKI-6728

8-port 10/100/1000 Mbps Industrial Gigabit Ethernet Switch

NEW



Features

- Provides 8 x 10/100/1000 Mbps Ethernet ports with RJ45 connector
- Supports full/half duplex flow control
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Embedded with a switch controller, supports auto-negotiation
- Embedded with a memory buffer, supports store and forward transmission
- Provides surge (EFT) protection 3,000 V_{DC} for power line
- Supports 4,000 V_{DC} Ethernet ESD protection
- Supports redundant +10 ~ 48 V_{DC} power input
- Provides flexible mounting: DIN-rail, Panel Mounting
- Supports operating temperatures from 0 ~ 60° C

Introduction

EKI-6728 is an industrial-grade Ethernet switch that realizes fast and efficient Gigabit industrial networks. With 8 x 10/100/1000 Mbps Ethernet ports, EKI-6728 is a good solution for mixed fast/Gigabit networking environments without external converters. The long MTBF (Mean Time Between Failures) ensure EKI-6728 will work continue till the Gigabit network infrastructure is built-in without any extra upgrade cost.

EKI-6728 includes a switch controller that can automatically sense transmission speeds. (10/100/1000 Mbps) The RJ-45 interface can also be auto-detected, so MDI or MDI-X is automatically selected and a cross-over cable is not required. All Ethernet ports have memory buffers that support the store-and-forward mechanism. This assures that data can be transmitted properly. Furthermore, the power line of EKI-6728 supports up to 3,000 V_{DC} surge (EFT) protection, which secure equipment against unregulated voltage and make systems safer and more reliable.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3ab
- **LAN** 10/100/1000Base-TX
- **Transmission Distance** Up to 100 m (Cat.5e, Cat.6 RJ-45 cable suggested)
- **Transmission Speed** Up to 1000 Mbps

Interface

- **Connectors** 8 x RJ-45 (Ethernet)
7-pin removable screw terminal (power)
- **LED Indicators** P1, P2, P-Fail, LINK,
10/100/1000 Mbps

Power

- **Power Consumption** Max. 9 W
- **Power Input** 2 x Unregulated 10 ~ 48 V_{DC}
- **Fault Output** 1 Relay Output

Mechanism

- **Dimensions (W x H x D)** 46 x 162 x 126 mm
- **Enclosure** IP30, ABS+PC with solid mounting kits
- **Mounting** DIN 35 rail, Wall

Protection

- **ESD (Ethernet)** 4,000 V_{DC}
- **Surge (EFT for power)** 3,000 V_{DC}
- **Power Reverse** YES
- **Overload** 2.5 A/125 V Replaceable Fuse

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 230,000 hrs

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3
EN55024
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

- **EKI-6728** 8-port 10/100/1000 Mbps Industrial Gigabit Ethernet Switch

EKI-6628F

Industrial Gigabit Ethernet Switch with 6 x 10/100Base-TX Ports & 2 SFP (mini-GBIC) Ports

NEW



Features

- Provides 6 x 10/100 Mbps Ethernet ports with RJ45 connector
- Provides 2 x 1000 Mbps SFP type fiber ports for optional 1000Base-SX/LX device
- Supports full/half duplex flow control
- Supports MDI/MDI-X auto crossover
- Supports surge (EFT) protection 3,000 V_{DC} for power line
- Supports 4,000 V_{DC} Ethernet ESD protection
- Provides broadcast storm protection
- Embedded with a switch controller, supports auto-negotiation
- Embedded with a memory buffer, supports store and forward transmission
- Supports redundant +10 ~ 48 V_{DC} power input
- Provides flexible mounting: DIN-rail, Panel Mounting
- Supports operating temperatures from 0 ~ 60° C

Introduction

Equipped with 6 x 10/100Base-TX fast Ethernet ports and 2 mini-GBIC expansion ports, EKI-6628F is an ideal solution for the application of wideband upload and long distance transmissions. Users can choose the appropriate replaceable SFP module to fit the field request flexibly. Also, the long MTBF (Mean Time Between Failures) ensure EKI-6628F will continue to operate until the Gigabit network infrastructure is built-in without any extra upgrade costs.

EKI-6628F includes a switch controller that can automatically sense transmission speeds (10/100 Mbps). The RJ-45 interface can also be auto-detected, so MDI or MDI-X is automatically selected and a cross-over cable is not required. All Ethernet ports have memory buffers that support the store-and-forward mechanism, which assures that data can be transmitted properly. Furthermore, the power line of EKI-6628F supports up to 3,000 V_{DC} surge (EFT) protection, which secure equipment against unregulated voltage and make systems safer and more reliable.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z
- **LAN** 10/100Base-TX, 1000Base-SX/LX
- **Transmission Distance** Ethernet : Up to 100 m
Gigabit Fiber : Up to 110 km
(depends on the SFP module)
- **Transmission Speed** Ethernet : Up to 100 Mbps
Gigabit Fiber : Up to 1000 Mbps

Interface

- **Connectors** 6 x RJ-45
2 x mini-GBIC socket
7-pin removable screw terminal (power)
- **LED Indicators** P1, P2, P-Fail, LINK,
10/100/1000 Mbps

Power

- **Power Consumption** Max. 6W
- **Power Input** 2 x Unregulated 10 ~ 48 V_{DC}
- **Fault Output** 1 Relay Output

Mechanism

- **Dimensions (W x H x D)** 46 x 162 x 126 mm
- **Enclosure** IP30, ABS+PC with solid mounting kits
- **Mounting** DIN 35 rail, Wall

Protection

- **ESD (Ethernet)** 4,000 V_{DC}
- **Surge (EFT for power)** 3,000 V_{DC}
- **Power Reverse** YES
- **Overload** 2 A/125 V Replaceable Fuse

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 230,000 hrs

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3
EN55024
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

- **EKI-6628F** Industrial Gigabit Ethernet Switch with 6 x 10/100Base-TX Ports & 2 SFP (mini-GBIC) Ports
- **SFP-GSX/LC** Pluggable LC Type Gigabit Fiber Transceiver, 1000Base-SX, 500 m
- **SFP-GLX/LC-10** Pluggable LC Type Gigabit Fiber Transceiver, 1000Base-LX, 10 km
- **SFP-GLX/LC-20** Pluggable LC Type Gigabit Fiber Transceiver, 1000Base-LX, 20 km
- **SFP-GLX/LC-40** Pluggable LC Type Gigabit Fiber Transceiver, 1000Base-LX, 40 km

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

EKI-7629C

Industrial Gigabit Ethernet Switch with 8 x 10/100Base-TX Ports & 2 Combo 10/100/1000Base-TX/SFP (mini-GBIC) Ports

NEW



Features

- Provides 8 x 10/100 Mbps Ethernet ports with RJ45 connector
- Provides 2 combo 10/100/1000 Mbps Ethernet ports/SFP type fiber ports for optional 100Base-FX or 1000Base-SX/LX device
- Supports full/half duplex flow control
- Supports MDI/MDI-X auto crossover
- Supports surge (EFT) protection 3,000 V_{DC} for power line
- Supports 4,000 V_{DC} Ethernet ESD protection
- Provides broadcast storm protection
- Embedded with a switch controller, supports auto-negotiation
- Embedded with a memory buffer, supports store and forward transmission
- Supports redundant 12 ~ 48 V_{DC} power input
- Provides flexible mounting: DIN-rail, Panel Mounting
- Supports operating temperature from 0 ~ 60° C

Introduction

Aside from 8 x 10/100Base-TX fast Ethernet ports, the EKI-7629C comes equipped with 2 combo 10/100/1000 Mbps RJ-45 copper ports or mini-GBIC expansion ports. Traditional RJ-45 ports can be used for uplinking wide-band paths in short distance (< 100 m), or the appropriate replaceable SFP module can be used for the application of wideband uploading and long distance transmissions to fit the field request flexibly. Also, the long MTBF (Mean Time Between Failures) ensures that the EKI-7629C will continue to operate until a Gigabit network infrastructure has been established, without requiring any extra upgrade costs.

EKI-7629C includes a switch controller that can automatically sense transmission speeds (10/100 Mbps). The RJ-45 interface can also be auto-detected, so MDI or MDI-X is automatically selected and a cross-over cable is not required. All Ethernet ports have memory buffers that support the store-and-forward mechanism, which assures that data can be transmitted properly. Furthermore, the power line of EKI-7629C supports up to 3,000 V_{DC} surge (EFT) protection, which secures equipment against unregulated voltage and makes systems safer and more reliable.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3ab, 802.3u, 802.3x, 802.3z
- **LAN** 10/100/1000Base-TX, 100Base-FX, 1000Base-SX/LX
- **Transmission Distance** Ethernet : Up to 100 m (Cat.5e, Cat.6 RJ-45 cable suggested for Gigabit port)
Gigabit Fiber : Up to 110 km (depends on the SFP module)
- **Transmission Speed** Ethernet : Up to 100 Mbps
Gigabit Copper : Up to 1000 Mbps
Gigabit Fiber : Up to 1000 Mbps

Interface

- **Connectors** 8 x RJ-45
2 x mini-GBIC socket
6-pin removable screw terminal (power)
- **LED Indicators** Unit: PWR1, PWR2, P-Fail
TX Port: Link/Active, Duplex/Collision
Gigabit Port: Link/Active

Power

- **Power Consumption** Max. 6.5W
- **Power Input** 2 x Unregulated 12 ~ 48 V_{DC}
- **Fault Output** 1 Relay Output

Mechanism

- **Dimensions (W x H x D)** 79 x 152 x 105 mm
- **Enclosure** IP30, Metal shell with solid mounting kits
- **Mounting** DIN 35 rail, Wall

Protection

- **ESD (Ethernet)** 4,000 V_{DC}
- **Surge (EFT for power)** 3000 V_{DC}
- **Power Reverse** YES
- **Overload** 3.2A/60V Resettable Fuse

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 158° F)
- **Storage Temperature** -10 ~ 70° C (14 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 295,000 hrs

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3
EN55024
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

- **EKI-7629C** Industrial Gigabit Ethernet Switch with 8 x 10/100Base-TX Ports & 2 Combo 10/100/1000Base-TX/ SFP (mini-GBIC) Ports
- **SFP-GSX/LC** Pluggable LC Type Gigabit Fiber Transceiver, 1000Base-SX, 500 m
- **SFP-GLX/LC-10** Pluggable LC Type Gigabit Fiber Transceiver, 1000Base-LX, 10 km
- **SFP-GLX/LC-20** Pluggable LC Type Gigabit Fiber Transceiver, 1000Base-LX, 20 km
- **SFP-GLX/LC-40** Pluggable LC Type Gigabit Fiber Transceiver, 1000Base-LX, 40 km

EKI-2528

EKI-2525

8-port 10/100 Mbps Industrial Unmanaged Ethernet Switch

5-port 10/100 Mbps Industrial Unmanaged Ethernet Switch

NEW



EKI-2525



EKI-2528

Features

- Provides 8 or 5 x 10/100 Mbps Ethernet ports with RJ45 connector
- Slim design with IP30 metal mechanism
- Supports full/half duplex flow control
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Embedded with a switch controller, supports auto-negotiation
- Embedded with a memory buffer, supports store and forward transmission
- Provides surge (EFT) protection 3,000 V_{DC} for power line
- Supports 4,000 V_{DC} Ethernet ESD protection
- Supports redundant 12 ~ 48 V_{DC} power input
- Provides flexible mounting: DIN-rail, Panel Mounting
- Supports operating temperatures from 0 ~ 60° C

Introduction

EKI-2528/2525 is an entry-level industrial-grade unmanaged Ethernet switch that realizes fast and cost-effective expansion with special designed IP30 slim metal mechanism. EKI-2528 has eight 10/100 Mbps Ethernet ports for connection with up to eight Ethernet devices while EKI-2525 has five 10/100 Mbps Ethernet ports.

The EKI-2528/2525 is extremely compact (37 x 140 x 95 mm) and can be mounted on a DIN-rail or a panel, so it is suitable for any space-constrained environment. The power line of EKI-2528/2525 supports up to 3,000 V_{DC} surge protection, which secure equipment against unregulated voltage and make systems safer and more reliable. Meanwhile, EKI-2528/2525 operates at temperature ranging from 0 ~ 60°C, and be equipped with redundant 12 ~ 48 V_{DC} power inputs with simply 3 LEDs for easily diagnosis. Which are rugged enough for any harsh industrial environment.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x
- **LAN** 10/100Base-TX
- **Transmission Distance** Up to 100 m
- **Transmission Speed** Up to 100 Mbps

Interface

- **Connectors** 8 x RJ-45 (EKI-2528) or 5 x RJ-45 (EKI-2525)
6-pin removable screw terminal (power)
- **LED Indicators** P1, P2, P-Fail

Power

- **Power Consumption** EKI-2528: Max. 4 W
EKI-2525: Max. 3 W
- **Power Input** 2 x Unregulated 12 ~ 48 V_{DC}
- **Fault Output** 1 Relay Output

Mechanism

- **Dimensions (W x H x D)** 37 x 140 x 95 mm
- **Enclosure** IP30, Metal shell with solid mounting kits
- **Mounting** DIN 35 rail, Wall

Protection

- **ESD (Ethernet)** 4,000 V_{DC}
- **Surge (EFT for power)** 3,000 V_{DC}
- **Power Reverse** Yes
- **Overload** 1.8A/60V Resetable Fuse

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 1,260,000 hrs

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3
EN55024
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

- **EKI-2528** 8-port 10/100 Mbps Industrial Unmanaged Ethernet Switch
- **EKI-2525** 5-port 10/100 Mbps Industrial Unmanaged Ethernet Switch

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

EKI-6527 Series

**Industrial Ethernet Switches
with 6 x 10/100Base-TX Ports
& 1 x 100Base-FX Fiber Port**

NEW



Features

- Provides 6 x 10/100 Mbps Ethernet ports with RJ45 connector
- Provides 1 x 100 Mbps multi-mode (EKI-6527M/SC)/single-mode (EKI-6527S/SC) SC type fiber port
- Supports full/half duplex flow control
- Supports MDI/MDI-X auto crossover
- Supports surge (EFT) protection (3,000 V_{DC})
- Supports 4,000 V_{DC} Ethernet ESD protection
- Provides broadcast storm protection
- Embedded with a switch controller, supports auto-negotiation
- Embedded with a memory buffer, supports store and forward transmission
- Supports redundant +10 ~ 48 V_{DC} power input
- Provides flexible mounting: DIN-rail, Panel Mounting
- Supports operating temperatures from 0 ~ 60° C

Introduction

The EKI-6527M and EKI-6527S are industrial-grade Ethernet switches that enable you to expand your industrial network fast and cost-effectively. The EKI-6527M/6527S have six 10/100 Mbps Ethernet ports, and additionally the EKI-6527M provides one multi-mode fiber optic port, while the EKI-6527S provides one single-mode fiber optic port with an SC-type connector. Using fiber optics, you can prevent noise from interfering with your system and support high-speed (100 Mbps) and high-distance (up to 15 km) transmissions. EKI-6527M and EKI-6527S have industrial-grade designs that assures high reliability and stability in harsh industrial environments, which makes it a robust bridge between enterprise fiber backbones and Ethernet devices.

EKI-6527M and EKI-6527S includes a switch controller that can automatically sense transmission speeds. (10/100 Mbps) The RJ-45 interface can also be auto-detected, so MDI or MDI-X is automatically selected and a cross-over cable is not required. All the Ethernet ports have memory buffers that support the store-and-forward mechanism, assuring that all data can be transmitted properly and reliably.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x
- **LAN** 10/100Base-TX, 100Base-FX
- **Transmission Distance** Ethernet : Up to 100 m
Multi-mode Fiber : Up to 2 km
Single-mode Fiber : Up to 15 km
- **Transmission Speed** Up to 100 Mbps

Interface

- **Connectors** 6 x RJ-45
1 x SC type fiber connector
7-pin removable screw terminal (power)
- **LED Indicators** P1, P2, P-Fail, LINK, 10/100 Mbps

Power

- **Power Consumption** Max. 5W
- **Power Input** 2 x Unregulated 10 ~ 48 V_{DC}
- **Fault Output** 1 Relay Output

Mechanism

- **Dimensions (W x H x D)** 46 x 162 x 126 mm
- **Enclosure** IP30, ABS+PC with solid mounting kits
- **Mounting** DIN 35 rail, Wall

Protection

- **ESD (Ethernet)** 4,000 V_{DC}
- **Surge (EFT for power)** 3,000 V_{DC}
- **Power Reverse** YES
- **Overload** 4 A/125 V Replaceable Fuse

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 230,000 hrs

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3
EN55024
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

- **EKI-6527M/SC** Industrial Ethernet Switch with 6 x 10/100Base-TX Ports & 1 Multi-mode SC Type Fiber Optic Port
- **EKI-6527S/SC** Industrial Ethernet Switch with 6 x 10/100Base-TX Ports & 1 Single-mode SC Type Fiber Optic Port

EDG-6528 Series

8-port 10/100 Mbps Industrial Ethernet Switches



Features

- Provides 8 x 10/100 Mbps Ethernet ports with RJ-45 connector
- Supports full/half duplex flow control
- Supports MDI/MDIX auto crossover
- Provides broadcast storm protection
- Embedded with a switch controller, supports auto-negotiation
- Embedded with the memory buffer, supports store-and-forward transmission
- Supports +12 ~ 48 V_{DC} voltage
- Provides surge protection 3,000 V_{DC} for power line
- Supports 4000 V_{DC} Ethernet ESD protection (6528 and 6528L only)
- Provides flexible mounting: DIN-rail and panel-mounting
- Supports wide-range operating temperature: -40 ~ 85° C (EDG-6528L)
- Supports two individual power sources (6528 and 6528L only)

Introduction

EDG-6528 is an industrial-grade Ethernet switch that realizes fast and cost-effective expansion of industrial networks. EDG-6528 has eight 10/100 Mbps Ethernet ports for connection with up to eight Ethernet devices. Moreover, EDG-6528 has industrial-grade design that assures high reliability and stability. Therefore, EDG-6528 is an excellent solution for industrial environments with Ethernet networking, such as semi-conductor factories, inventory control environments, assembly lines and production.

EDG-6528 includes a switch controller that can automatically sense transmission speeds. (10/100 Mbps) The RJ-45 interface can also be auto-detected, so MDI or MDIX is automatically selected and a cross-over cable is not required. All Ethernet ports have memory buffers that support the store-and-forward mechanism. This assures that data can be transmitted properly. The EDG-6528 is extremely compact and can be mounted on a DIN-rail or a panel, so it is suitable for any space-constrained environment. The power line of EDG-6528 supports up to 3,000 V_{DC} surge protection, which secure equipment against unregulated voltage and make systems safer and more reliable.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x
- **LAN** 10/100 Base-TX
- **Transmission Distance** Up to 100 m
- **Transmission Speed** Up to 100 Mbps

Interface

- **Connectors** 8 x RJ-45
5-pin removable screw terminal (power)
- **LED Indicators** EDG-6528/6528L: PWR, P1, P2, FAULT, LINK, 10/100 Mbps
EDG-6528L: PWR, LINK, 10/100 Mbps

Power

- **Power Consumption** Max. 3.1 W
- **Power Input** EDG-6528, EDG-6528L: 2 x Unregulated 10 ~ 48 V_{DC}
EDG-6528L: 1 x Unregulated 10 ~ 48 V_{DC}
- **Fault Output** 1 Relay Output (EDG-6528L not equipped)

Mechanism

- **Dimensions (W x H x D)** 56 x 134 x 114 mm
- **Enclosure** IP30, Metal shell with PC side panel (mounting kits included)
- **Mounting** DIN 35 rail, Wall

Protection

- **ESD (Ethernet)** 4,000 V_{DC} (EDG-6528L not equipped)
- **Surge (EFT for power)** 3,000 V_{DC}
- **Power Reverse** YES

Environment

- **Operating Temperature** EDG-6528, EDG-6528L: 0 ~ 70° C (32 ~ 158° F)
EDG-6528L: -40 ~ 85° C (-40 ~ 185° F)
- **Storage Temperature** EDG-6528, EDG-6528L: -10 ~ 80° C (14 ~ 176° F)
EDG-6528L: -50 ~ 95° C (-58 ~ 203° F)
- **Operating Humidity** 20~95% (non-condensing)
- **Storage Humidity** 0~95% (non-condensing)
- **MTBF** 1,260,000 hrs

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3,
EN55024,
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

- **EDG-6528** 8-port 10/100 Mbps Industrial Ethernet Switch
- **EDG-6528L** 8-port 10/100 Mbps Industrial Unmanaged Ethernet Switch
- **EDG-6528I** 8-port 10/100 Mbps Industrial Ethernet Switch w/Wide Operating Temperature

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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

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USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

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ICOM

ADAM-6520 Series

**5-port 10/100 Mbps
Industrial Ethernet
Switches**



Features

- Supports full/half duplex flow control
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Embedded with a switch controller, supports auto-negotiation
- Supports +10 ~ 30 V_{DC} voltage power input
- Provides surge (EFT) protection 3,000 V_{DC} for power line (ADAM-6520L not equipped)
- Supports 4,000 V_{DC} Ethernet ESD protection (ADAM-6520L not equipped)
- Provides flexible mounting: DIN-rail, Wall, Stack
- Supports wide operating temperature range : -40 ~ 85° C (ADAM-6520I)

Introduction

ADAM-6520 is a 5-port industrial-grade switch with Ethernet connectivity and from 10 to 100 Mbps transfer rates. (Auto-negotiation). Just like any other product in the ADAM family, ADAM-6520 can be mounted in three different ways: DIN rail, Wall and Stack. Solid industrial-grade design assures reliable operation in common application areas like: semi-conductor factories, inventory control environments, assembly lines, manufacturing and many more.

All modules support a wide voltage range of +10 ~ 30 V_{DC} over the terminal block, and 3,000 V_{DC} surge (EFT) protection ensures that over-voltage is no concern. The wide operating temperature of ADAM-6520 goes from -10 ~ 70°, while ADAM-6520I from -40 ~ 85°. This permits them to be functional in harsh environments.

The six inclusive LED indicators make troubleshooting of the modules easier. Each port has a pair of LEDs that indicate link status and port activities. This easily informs users of any collisions, the link status, power failure and data receipts for immediate on-site diagnosis.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x
- **LAN** 10/100Base-TX
- **Transmission Distance** Up to 100 m
- **Transmission Speed** Up to 100Mbps

Interface

- **Connectors** 5 x RJ-45
2-pin removable screw terminal (power)
- **LED Indicators** Power, Link/Speed

Power

- **Power Consumption** ADAM-6520L: Max. 3W
ADAM-6520/6520I: Max. 2.4 W
- **Power Input** 1 x Unregulated 10 ~ 30 V_{DC}

Mechanism

- **Dimensions (W x H x D)** 70 x 102 x 27 mm
- **Enclosure** IP30, ABS+PC with solid mounting kits
- **Mounting** DIN 35 rail, Wall, Stack

Protection

- **ESD (Ethernet)** 4,000 V_{DC} (ADAM-6520L not equipped)
- **Surge (EFT for power)** 3,000 V_{DC} (ADAM-6520L not equipped)

Environment

- **Operating Temperature**
ADAM-6520 : -10 ~ 70° C (14 ~ 158° F), Stack : -10 ~ 60° C (14 ~ 140° F)
ADAM-6520L : 0 ~ 60° C (32 ~ 140° F), Stack : 0 ~ 50° C (32 ~ 122° F)
ADAM-6520I : -40 ~ 85° C (-40 ~ 185° F), Stack : -40 ~ 75° C (-40 ~ 167° F)
- **Storage Temperature**
ADAM-6520 : -20 ~ 80° C (-4 ~ 176° F)
ADAM-6520L : -10 ~ 70° C (14 ~ 158° F)
ADAM-6520I : -50 ~ 95° C (-58 ~ 203° F)
- **Operating Humidity** 20 ~ 95 % (non-condensing)
- **Storing Humidity** 0 ~ 95 % (non-condensing)
- **MTBF** 1,580,000 hrs

Certifications

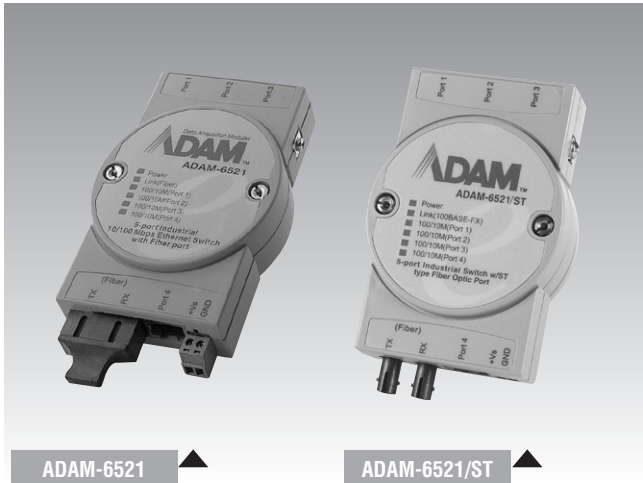
- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3
EN55024,
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

- **ADAM-6520** 5-port 10/100 Mbps Industrial Ethernet Switch
- **ADAM-6520L** 5-port 10/100 Mbps Industrial Unmanaged Ethernet Switch
- **ADAM-6520I** 5-port 10/100 Mbps Industrial Ethernet Switch w/Wide Operating Temperature

ADAM-6521 Series

Industrial Ethernet Switches with 4 x 10/100Base-TX Ports & 1 x 100Base-FX Fiber Optic Port



ADAM-6521

ADAM-6521/ST



Features

- Provides 4 x 10/100 Mbps Ethernet ports with RJ-45 connector
- Provides 1 x 100 Mbps multi/single-mode fiber port with SC/ST connector
- Supports full/half duplex flow control
- Supports Integrated Loop-up engine
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Supports +10 ~ 30 V_{DC} voltage power input
- Provides surge (EFT) protection 3,000 V_{DC} for power line
- Supports 4,000 VDC Ethernet ESD protection
- Provides flexible mounting: DIN-rail, Wall, Stack
- Supports operating temperatures from -10 ~ 65° C

Introduction

ADAM-6521 and ADAM-6521S are industrial-grade Ethernet switch with a fiber optic port that makes it possible to expand industrial networks fast and cost-effectively. ADAM-6521 and ADAM-6521S of 1 fiber port and 4-RJ-45 ports. With fiber optics, you can prevent noise interfering with your system and implement transmission distances up to 15 km.

ADAM-6521 and ADAM-6521S are especially suited for industrial environments with Ethernet networking needs such as: semi-conductor factories, inventory control environments, assembly line and production and more.

ADAM-6521 and ADAM-6521S support a wide voltage range of +10 ~ 30 V_{DC} over the terminal block, and 3,000 V_{DC} surge (EFT) protection to protect it from being damaged by over-voltage. A wide operating temperature range from -10 to 65° C (14 ~ 149° F), makes it functional in harsh operating environments. They also have six inclusive LED indicators which make troubleshooting the ADAM-6521 and ADAM-6521S easier. Each port has a pair of LEDs that indicate link status and transmission speed. This function conveniently informs users of any collisions, the link status, power failure and data receipts for immediate on-site diagnostics.

Specifications

Communications

- Standard** IEEE 802.3, 802.3u, 802.3x
- LAN** 10/100Base-T, 100Base-FX
- Transmission Distance** Ethernet : Up to 100 m
Multi-mode Fiber : Up to 2 km (ADAM-6521, ADAM-6521/ST)
Single-mode Fiber : Up to 15 km (ADAM-6521S)
- Transmission Speed** Up to 100 Mbps

Interface

- Connectors** 4 x RJ-45, 1 x SC type fiber connector (ADAM-6521, ADAM-6521S) or 1 x ST type fiber connector (ADAM-6521/ST)
2-pin removable screw terminal (power)
- LED Indicators** Power, Link (100Base-FX), 100/10M (Ethernet)

Power

- Power Consumption** ADAM-6521, ADAM-6521/ST: Max. 3 W
ADAM-6521S: Max. 4 W
- Power Input** 1 x Unregulated 10 ~ 30 V_{DC}

Mechanism

- Dimensions (W x H x D)** 70 x 112 x 27 mm
- Enclosure** IP30, ABS+PC with solid mounting kits
- Mounting** DIN 35 rail, Wall, Stack

Protection

- ESD (Ethernet)** 4,000 V_{DC}
- Surge (EFT for power)** 3,000 V_{DC}

Environment

- Operating Temperature** -10 ~ 65° C (14 ~ 149° F)
stack : -10 ~ 60° C (14 ~ 140° F)
- Storage Temperature** -20 ~ 80° C (-4 ~ 176° F)
- Operating Humidity** 20 ~ 95% (non-condensing)
- Storage Humidity** 0 ~ 95% (non-condensing)
- MTBF** 1,150,000 hrs

Certifications

- Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3,
EN55024,
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

- ADAM-6521** Industrial Ethernet Switch with 4 x 10/100Base-TX Ports & 1 Multi-mode SC Type Fiber Optic Port
- ADAM-6521/ST** Industrial Ethernet Switch with 4 x 10/100Base-TX Ports & 1 Multi-mode ST Type Fiber Optic Port
- ADAM-6521S** Industrial Ethernet Switch with 4 x 10/100Base-TX Ports & 1 Single-mode SC Type Fiber Optic Port

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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AWS

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Plug-in I/O

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CompactPCI

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Signal Conditioning

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USB I/O

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Motion Control I/O

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Ethernet Switch

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ICOM

ADAM-6841 Series

Gigabit Ethernet to Fiber Optic Converters



Features

- Provides 1 x 1000 Mbps Ethernet port with RJ45 connector
- Provides 1 x 1000 Mbps fiber port with SC type connector for 1000Base-SX/LX device
- Provides internal jumper for full/half duplex setting
- Supports MDI/MDI-X auto crossover
- Supports auto-negotiation
- Supports surge (EFT) protection 3,000 V_{DC} for power line
- Supports 4,000 V_{DC} Ethernet ESD protection
- Supports +10 ~ 30 V_{DC} power input
- Provides flexible mounting: DIN-rail, Panel Mounting, Piggy-back
- Supports operating temperatures from 0 ~ 60° C

Introduction

As Gigabit networks becomes more and more popular, communications between different media in Gigabit transmission rates becomes more and more frequent. ADAM-6841 is designed to convert Gigabit Ethernet networks to Gigabit fiber networks. It does so by transparently converting Ethernet signals to optic signals. The advantages of fiber optics are wide bandwidth, EMI immunity and long-distance transmission capability. Therefore, ADAM-6841 is an ideal solution for "fiber to building" applications at central offices or local sites.

ADAM-6841 supports MDI/MDIX auto detection, so you don't need to use crossover wires. Meanwhile, ADAM-6841 also provides internal jumper for manual full/half duplex setting in specific application. Furthermore, the ADAM-6841 can work normally from 0 ~ 60° C and accepts a wide voltage range from +10 ~ 30 V_{DC}. Besides, it also provides 3,000 V_{DC} surge (EFT) protection against over-voltage, so it is suitable for harsh operating environments.

Specifications

Communications

- **Standard** IEEE 802.3ab, 802.3z
- **LAN** 1000Base-T, 1000Base-SX or 1000Base-LX
- **Transmission Distance** Ethernet : Up to 100m
Fiber :
Multi-mode : Up to 500 m
Single-mode : Up to 25 km
- **Transmission Speed** Up to 1000 Mbps

Interface

- **Connectors** 1 x RJ-45
1 x SC type fiber connector
2-pin removable screw terminal (power)
- **LED Indicators** Power,
Link/Active (Fiber),
Link/Active (Ethernet)

Power

- **Power Consumption** Max. 3.5W
- **Power Input** 1 x Unregulated 10 ~ 30 V_{DC}

Mechanism

- **Dimensions (W x H x D)** 70 x 112 x 27 mm
- **Enclosure** IP30, ABS+PC with solid mounting kits
- **Mounting** DIN 35 rail, Wall, Stack

Protection

- **ESD (Ethernet)** 4,000 V_{DC}
- **Isolation (Ethernet)** 1,500 V_{rms}
- **Surge (EFT for power)** 3,000 V_{DC}
- **Power Reverse** YES
- **Overload** 1 A/125 V Replaceable Fuse

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
Stack: 0 ~ 55° C (32 ~ 131° F)
- **Storage Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 550,000 hrs

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3
EN55024
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

- **ADAM-6841SX** 1000Base-TX to 1000Base-SX SC Type Fiber Optic Converter
- **ADAM-6841LX** 1000Base-TX to 1000Base-LX SC Type Fiber Optic Converter

ADAM-6541 Series

Ethernet to Fiber
Optic Converters



Features

- Provides 1 x 10/100 Mbps Ethernet port with RJ45 connector
- Provides 1 x 100 Mbps multi/single-mode fiber optic port
- Provides internal jumper for Link Fault Pass-through (LFP) setting (ADAM-6541P/6541S only)
- Supports full/half duplex flow control and internal jumper for setting
- Supports store and forward transmission
- Supports auto-negotiation
- Supports MDI/MDI-X auto crossover
- Provides surge protection (EFT) 3,000 VDC for power line
- Provides 4,000 VDC Ethernet ESD protection
- Supports +10 ~ 30 V_{DC} power input
- Provides flexible mounting : DIN-rail, Panel Mounting, Piggy-back
- Supports operating temperature from 0 ~ 60 °C

Introduction

ADAM-6541 is designed to convert Ethernet networks to fiber networks. It does so by transparently converting Ethernet signals to optic signals. The advantages of fiber optics are wide bandwidth, EMI immunity and long-distance transmission capability. Therefore, ADAM-6541 is an ideal solution for "fiber to building" applications at central offices or local sites.

ADAM-6541 supports MDI/MDIX auto detection, so you don't need to use crossover wires. It also includes a switch controller that can sense the transmission speed (10/100 Mbps) automatically. Both the Ethernet port and the fiber port have memory buffers that support store-and-forward mechanisms. This assures data can be transmitted properly.

ADAM-6541 is extremely compact and can be mounted in three different ways: DIN-rail, Wall and Stack. ADAM-6541 can work normally from 0 ~ 60 °C and accepts a wide voltage range from +10 ~ 30 V_{DC}. Besides, it also provides 3,000 V_{DC} surge (EFT) protection against over-voltage, so it is suitable for harsh operating environments.

Link Fault Pass-Through (LFP)

ADAM-6541P/6541S is an enhanced Ethernet to fiber-optic converter. Aside from its standard features, the versatile ADAM-6541P/6541S also has the LFP (Link Fault Pass-through) feature. When one side of the link fails, the other side continues transmitting packets, and waiting for a response that never arrives from the disconnected side. Use the internal jumper to enable the LFP function, then ADAM-6541P/6541S will force the link to shut down as soon as noticed that the other link has failed, giving the application software a chance to react to the situation.

Specifications

Communications

- Standard** IEEE 802.3, 802.3u, 802.3x
- LAN** 10/100Base-TX, 100Base-FX
- Transmission Distance**
 - Ethernet : Up to 100 m
 - Fiber : Multi-mode : Up to 2 km
 - Single-mode : Up to 20 km
- Transmission Speed** Up to 100 Mbps

Interface

- Connectors**
 - 1 x RJ-45
 - 1 x SC type fiber connector (ADAM-6541, ADAM-6541P, ADAM-6541S) or 1 x ST type fiber connector (ADAM-6541/ST)
 - 2-pin removable screw terminal (power)
- LED Indicators**
 - ADAM-6541, ADAM-6541/ST : Power, Full/Link (100BASE-FX), 100/10M (Ethernet)
 - ADAM-6541P, ADAM-6541S : Power, Link/Speed (Fiber), Link/Speed (Ethernet), LFS/Duplex(TX)

Power

- Power Consumption** ADAM-6541, ADAM-6541/ST : Max. 3W
ADAM-6541P, ADAM-6541S : Max. 3.5W
- Power Input** 1 x Unregulated 10 ~ 30 V_{DC}

Mechanism

- Dimensions (W x H x D)** 70 x 112 x 27 mm
- Enclosure** IP30, ABS+PC with solid mounting kits
- Mounting** DIN 35 rail, Wall, Stack

Protection

- ESD (Ethernet)** 4,000 V_{DC}
- Isolation (Ethernet)** 1,500 V_{rms}
- Surge (EFT for power)** 3,000 V_{DC}
- Power Reverse** ADAM-6541P/6541S only
- Overload** 1A/125V Replaceable Fuse (ADAM-6541P/6541S only)

Environment

- Operating Temperature**
 - 0 ~ 60° C (32 ~ 140° F)
 - Stack: 0 ~ 55° C (32 ~ 131° F)
- Storage Temperature** -10 ~ 70° C (-14 ~ 158° F)
- Operating Humidity** 20 ~ 95% (non-condensing)
- Storage Humidity** 0 ~ 95% (non-condensing)
- MTBF** 550,000 hrs

Certifications

- Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3
EN55024,
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

- ADAM-6541** Ethernet to Multi-mode SC Type Fiber Optic Converter
- ADAM-6541/ST** Ethernet to Multi-mode ST Type Fiber Optic Converter
- ADAM-6541P** Ethernet to Multi-mode SC Type Fiber Optic Converter w/LFP
- ADAM-6541S** Ethernet to Single-mode SC Type Fiber Optic Converter w/LFP

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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

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Plug-in I/O

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CompactPCI

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Signal Conditioning

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USB I/O

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Motion Control I/O

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Ethernet Switch

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EDG

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ICOM

ADAM-6542 Series

Ethernet to WDM Fiber Optic Converters



Features

- Supports 1-port 100 Mbps single strand fiber optic (ADAM-6542)
- Supports full/half duplex flow control
- Supports Integrated Loop-up engine
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Supports +10~ 30 V_{DC} voltage power input
- Provides surge (EFT) protection 3,000 V_{DC} for power line
- Provides flexible mounting: DIN-rail, Wall, Stack
- Supports operating temperatures from -10 ~ 65° C
- Embedded a switch controller-supports auto-negotiation
- Embedded a memory buffer-supports store and forward transmission

Introduction

ADAM-6542 is designed to convert Ethernet networks to fiber networks. It does so by transparently converting Ethernet signals to optic signals. The advantages of fiber optics are wide bandwidth, EMI immunity and long-distance transmission capability. Therefore, ADAM-6542 is the ideal solution for “fiber to building” applications at central offices or local sites.

ADAM-6542 uses WDM (Wavelength Division Multiplexing) technology, which increases the information-carrying capacity of fiber by multiplex transmission and reception of signals at different wavelengths on a single strand cable. WDM technology is implemented in couples. One site uses an ADAM-6542/W15 where the transmission channel is 1550 nm and the reception channel is 1310nm. The other site installs an ADAM-6542/W13 where the transmission channel is 1310nm and the reception channel is 1550nm. Both the transmission and reception channels of ADAM-6542/W15 and ADAM-6542/W13 are multiplexed to a single strand cable. This means that cabling costs are halved when you use ADAM-6542/W15 and ADAM-6542/W13 instead of a dual fiber converter.

ADAM-6542 support MDI/MDIX auto detection, so you don't need to use crossover wires. It also includes a switch controller that can sense the transmission speed (10/100 Mbps) automatically. Both the Ethernet port and the fiber port have memory buffers that support store-and-forward mechanisms.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x
- **LAN** 10/100Base-TX, 100Base-FX
- **Transmission Distance** Ethernet : Up to 100 m
Fiber: Up to 20 km
- **Transmission Speed** Up to 100 Mbps

Interface

- **Connectors** 1 x RJ-45
1 x SC type fiber connector
2-pin removable screw terminal (power)
- **LED Indicators** Power, Link (100Base-FX),
100/10 M (Ethernet)

Power

- **Power Consumption** Max. 3 W
- **Power Input** 1 x Unregulated 10 ~ 30 V_{DC}

Mechanism

- **Dimensions (W x H x D)** 70 x 112 x 27 mm
- **Enclosure** IP30, ABS+PC with solid mounting kits
- **Mounting** DIN 35 rail, Wall, Stack

Protection

- **ESD (Ethernet)** 4,000 V_{DC}
- **Isolation (Ethernet)** 1,500 V_{rms}
- **Surge (EFT for power)** 3,000 V_{DC}

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
Stack : 0 ~ 55° C (32 ~ 131° F)
- **Storage Temperature** -10 ~ 70° C (-14 ~ 158° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 550,000 hrs

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** U.S.A.: FCC Part 15 CISPR 22
EU: EN55011, EN61000-6-4
EN55022 Class A,
EN61000-3-2/3
EN55024
IEC61000-4-2/3/4/5/6/8/11
EN61000-6-2

Ordering Information

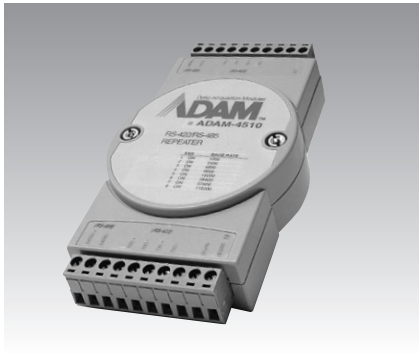
- **ADAM-6542/W15** Ethernet to WDM Single Strand Fiber Optic Converter
(Tx : 1550 nm, Rx : 1310 nm)
- **ADAM-6542/W13** Ethernet to WDM Single Strand Fiber Optic Converter
(Tx : 1310 nm, Rx : 1550 nm)

ADAM-4510 ADAM-4520/4522 ADAM-4521

RS-422/485 Repeater

RS-232 to RS-422/485 Converters

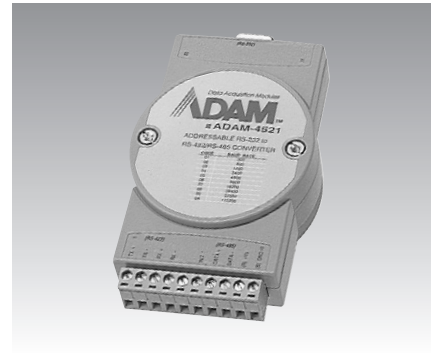
Addressable RS-422/485 to
RS-232 Converter



ADAM-4510



ADAM-4520/4522



ADAM-4521



Specifications

General

- **Connectors** 2 x Plug-in terminal blocks (#14 ~ 22 AWG)
- **Isolation Protection** 3000 V_{DC} (ADAM-4510S only)
- **Power Consumption** 1.4 W @ 24 V_{DC}

Communications

- **Input** RS-485 (2-wire) or RS-422 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire).
- **Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422. (switchable)

Environment

- **Operating Temperature**
ADAM-4510/4510S: -10 ~ 70° C (14 ~ 158° F)
ADAM-4510I: -40 ~ 85° C (-40 ~ 185° F)
- **Storage Temperature**
ADAM-4510/4510S: -25 ~ 85° C (-13 ~ 185° F)
ADAM-4510I: -40 ~ 85° C (-40 ~ 185° F)

Specifications

General

- **Connectors** 1 x Plug-in terminal block (#14 ~ 22 AWG) (RS-422, RS-485)
1 x DB9-F (RS-232)
- **Isolation Protection** 3000 V_{DC} (4520 only)
- **Power Consumption** 1.2 W @ 24 V_{DC}

Communications

- **Input** RS-232 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire).
- **Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422. (switchable)

Environment

- **Operating Temperature**
ADAM-4520/4522: -10 ~ 70° C (14 ~ 158° F)
ADAM-4520I: -40 ~ 85° C (-40 ~ 185° F)
- **Storage Temperature**
ADAM-4520/4522: -25 ~ 85° C (-13 ~ 185° F)
ADAM-4520I: -40 ~ 85° C (-40 ~ 185° F)

Specifications

General

- **Connectors** 1 x Plug-in terminal block (#14 ~ 22 AWG) (RS-422, RS-485)
1 x DB9-F (RS-232)
- **Power Consumption** 1.0 W @ 24 V_{DC}

Communications

- Built-in microprocessor and watchdog timer
- RS-232 and 485 can be set to different baudrates
- RS-485 surge protection and automatic RS-485 data flow control
- Software configurable to either addressable or non-addressable mode
- **Speed Modes (bps)** 300, 600, 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k (software configurable)

Environment

- **Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Common Specifications

General

- **Dimensions (W x H x D)** 70 x 122 x 30 mm
- **Enclosure** ABS + PC
- **Mounting** DIN 35 rail, stack, wall
- **Power Input** Unregulated 10 ~ 30 V_{DC} w/power reversal protection

Environment

- **Humidity** 5 ~ 95% RH

Ordering Information

- **ADAM-4510** RS-422/RS-485 Repeater
- **ADAM-4510S** Isolated RS-422/RS-485 Repeater
- **ADAM-4510I** Robust Isolated RS-422/485 Repeater
- **ADAM-4520** Isolated RS-232 to RS-422/RS-485 Converter
- **ADAM-4520I** Robust Isolated RS-232 to RS-422/485 Converter
- **ADAM-4521** Addressable RS-422/485 to RS-232 Converter
- **ADAM-4522** RS-232 to RS-422/485 Converter

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ADAM-4541

ADAM-4542+

Multi-mode Fiber-Optic to
RS-232/422/485 Converter

Single-mode Fiber-Optic to
RS-232/422/485 Converter



ADAM-4541



Specifications

General

- **Connectors** 1 x Plug-in terminal block (#14 ~ 22 AWG) (RS-422, RS-485)
2 x ST fiber connector
- **Power Consumption** 1 W (typical)
1.5 W (max.)

Serial Communications

- **Communication Mode** Asynchronous
- **Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k and RS-232/422 mode (switchable)
- **Transmission Mode** Full/half duplex, bidirectional

Fiber Optic Communications

- **Optical Power Budget (attenuation)** 12.5 db (measured with 62.5/125 mm)
- **Transmission Distance** 2.5 km
- **Transmission Mode** Multi mode (Send and receive)
- **Wavelength** 820 nm

Common Specifications

General

- **Dimensions (W x H x D)** 70 x 112 x 25 mm
- **Enclosure** ABS+PC
- **Mounting** DIN 35 rail, stack, wall
- **Power Input** Unregulated 10 ~ 30 V_{DC}

Environment

- **Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)



ADAM-4542+



Specifications

General

- **Connectors** 1 x Plug-in terminal block (#14 ~ 22 AWG) (RS-232/422/485)
1 x SC fiber connector
- **Power Consumption** 1 W (typical)
1.5 W (max.)

Serial Communications

- **Communication Mode** Asynchronous
- **Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4k, 57.6 k, 115.2 k
- **Transmission Mode** Full/half duplex, bidirectional

Fiber Optic Communications

- **Optical Power Budget (attenuation)** 15 db (measured with 62.5/125 mm)
- **Transmission Distance** 15 km
- **Transmission Mode** Single mode (Send and receive)
- **Wavelength** 1310 nm

Ordering Information

Converter

- **ADAM-4541** Multi-mode Fiber Optic to RS-232/422/485 Converter
- **ADAM-4542+** Single-mode Fiber Optic to RS-232/422/485 Converter

Industrial Ethernet Data Gateways



Connect Your Devices to the eWorld - Ethernet Data Gateways

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EDG Series Selection Guide

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Wireless Gateway Application Modules

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ADAM-4570W (new) 2-port RS-232/422/485 to 802.11b/g WLAN Data Gateway

ADAM-4571W (new) 1-port RS-232/422/485 to 802.11b/g WLAN Data Gateway

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ADAM-4579W (new) 2-port RS-232/422/485 to 802.11b/g WLAN Universal Device Gateway

ADAM-4577W (new) 1-port RS-232/422/485 to 802.11b/g WLAN Universal Device Gateway

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Serial to Ethernet Data Gateway

ADAM-4571 1-port RS-232/422/485 to Ethernet Data Gateway

ADAM-4571L 1-port RS-232 to Ethernet Data Gateway

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ADAM-4570 2-port RS-232/422/485 to Ethernet Data Gateway

ADAM-4570L 2-port RS-232 to Ethernet Data Gateway

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ADAM-4577 1-port Universal Serial Device Gateway

ADAM-4579 2-port Universal Serial Device Gateway

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ADAM-4572 1-port Modbus to Ethernet Data Gateway

16-10

EDG-4504 4-port RS-232/422/485 to Ethernet Data Gateway

16-11

EDG-4508(R)+ 8-port RS-232/422/485 to Ethernet Data Gateway

EDG-4516(R)+ 16-port RS-232/422/485 to Ethernet Data Gateway

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USB to Serial Data Gateways

ADAM-4561 1-port Isolated USB to RS-232/422/485 Converter

ADAM-4562 1-port Isolated USB to RS-232 Converter

16-14

USB-4602B 2-port RS-232 to USB Converter w/Surge Protection

USB-4602BM 2-port RS-232/422/455 to USB Converter w/Surge Protection

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USB-4604B 4-port RS-232 to USB Converter w/Surge Protection

USB-4604BM 4-port RS-232/422/455 to USB Converter w/Surge Protection

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Connect Your Devices to the eWorld



Introduction

As the world becomes more and more wired, it becomes critical to manage and connect devices. Advantech offers a comprehensive and cost-effective eConnectivity solution for easy installation and operation in critical industrial environments. This solution fulfills all requirements from worldwide enterprises that need supervisory control, operator interfaces, and logging of events and alarms via serial communication over Ethernet networks.

Advantech's eConnectivity Solution is Divided into 3 Parts:

- Ethernet data gateways
- Web-enabled communication controllers
- Serial media converters

Ethernet Data Gateways

Ethernet data gateways enable RS-232/422/485 serial devices to be connected to a host computer over an Ethernet network quickly and cost-effectively. No extra programming effort is required at the host computer, so software development costs can be saved. Ethernet data gateways are especially suitable for remotely controlling and monitoring your serial devices via Ethernet.

RS-232/422/485 to Ethernet Universal Data Gateways

Universal Serial Device Gateways allow RS-232/422/485 serial devices to connect to Ethernet networks and operate as Ethernet nodes. Through TCP, UDP, IP, Socket or Winsock, Universal Serial Device Gateways can be used for different operating systems ranging from Microsoft Windows to Linux. Moreover, serial devices can use peer-to-peer communication without any intermediate host PCs and software programming to save costs and effort.

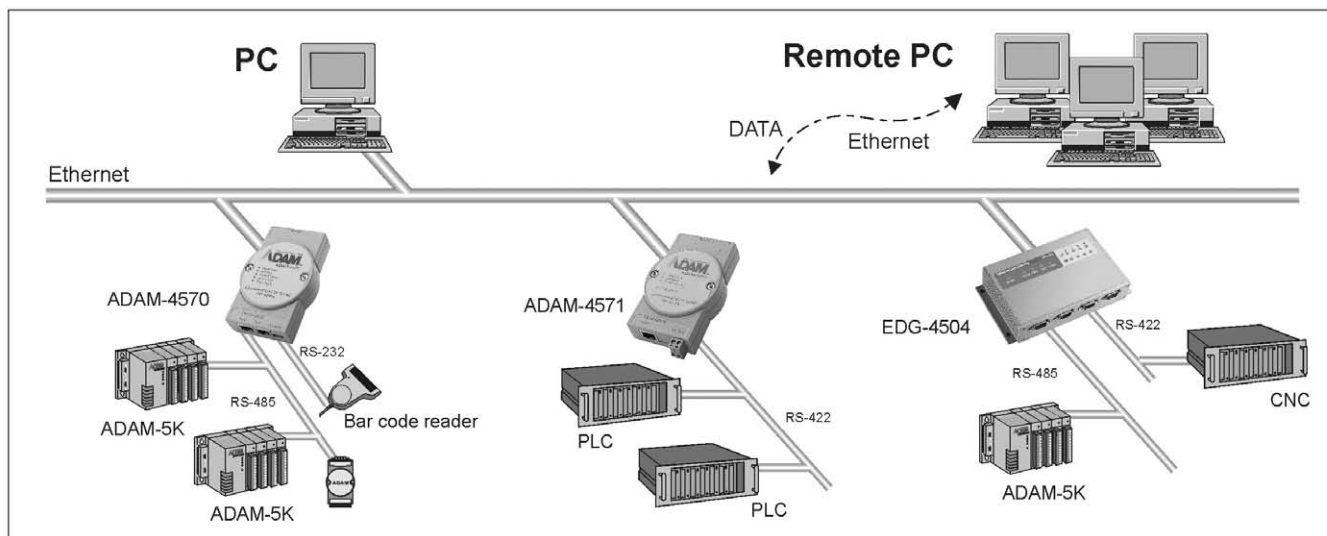
Modbus to Ethernet Data Gateways

The ADAM-4572 Modbus gateway serves as an interface between Modbus serial devices and computer hosts running Modbus/TCP on Ethernet networks. Fully compliant with Modbus/TCP, the ADAM-4572 offers a convenient solution to connect existing devices or controllers running Modbus serial protocol (Modbus/ASCII or Modbus/RTU) to an Ethernet network.

USB to Serial Data Gateways

The industrial-grade USB to serial converters (ADAM-4561/4562, USB-4602B/4602BM/4604B/4604BM) are especially suitable for wide variety of industries such as banking, retail, factory automation, and industrial automation. USB to serial converter provide software selectable RS-232/422/485 port that are compatible with all standard RS-232 or RS-422/485 devices and suitable for printers, POS system, and industrial control devices. Use them to expand your serial ports fast, easily, and cost-effectively.

EDG System Architecture



Industrial Networking Selection Guide

Ethernet Data Gateways

Model Name	Interface	Serial Port	Serial Type	Baud Rate	Connector		Operation Mode	Driver
					Network	Serial		
ADAM-4571	10/100Mbps	1	RS-232/422/485	50 ~ 230 kbps	RJ-45	RJ-48	Virtual COM	Windows NT/2000/XP
ADAM-4571L	10/100Mbps	1	RS-232	50 ~ 230 kbps	RJ-45	RJ-48	Virtual COM	Windows NT/2000/XP
ADAM-4570	10/100Mbps	2	RS-232/422/485	50 ~ 230 kbps	RJ-45	RJ-48	Virtual COM	Windows NT/2000/XP
ADAM-4570L	10/100Mbps	2	RS-232	50 ~ 230 kbps	RJ-45	RJ-48	Virtual COM	Windows NT/2000/XP
EDG-4504	10/100Mbps	4	RS-232/422/485	50 ~ 230 kbps	RJ-45	DB9	Virtual COM	Windows NT/2000/XP
EDG-4508(R)+	10/100Mbps	8	RS-232/422/485	50 ~ 230 kbps	RJ-45	RJ-48	Virtual COM, TCP/UDP server mode, TCP/UDP client mode	Windows NT/2000/XP
EDG-4516(R)+	10/100Mbps	16	RS-232/422/485	50 ~ 230 kbps	RJ-45	RJ-48	Virtual COM, TCP/UDP server mode, TCP/UDP client mode	Windows NT/2000/XP
ADAM-4572	10/100Mbps	1	RS-232/422/485	300 ~ 115.2 kbps	RJ-45	RJ-48	Modbus/TCP	Socket or WinSocket
ADAM-4577	10Mbps	1	RS-232/422/485	50 ~ 230 kbps	RJ-45	RJ-48	TCP/UDP server mode, TCP/UDP client mode	Socket or WinSocket
ADAM-4579	10/100Mbps	2	RS-232/422/485	50 ~ 230 kbps	RJ-45	RJ-48	TCP/UDP server mode, TCP/UDP client mode	Socket or WinSocket

Wireless Data Gateways

Model Name	Interface	Serial Port	Serial Type	Baud Rate	Connector	Operation Mode	Driver
ADAM-4571W	802.11b/g	1	RS-232/422/485	50 ~ 230 kbps	RJ-48	Virtual COM	Windows NT/2000/XP
ADAM-4570W	802.11b/g	2	RS-232/422/485	50 ~ 230 kbps	RJ-48	Virtual COM	Windows NT/2000/XP
ADAM-4577W	802.11b/g	1	RS-232/422/485	50 ~ 230 kbps	RJ-48	TCP/UDP server mode, TCP/UDP client mode	Socket or WinSocket
ADAM-4579W	802.11b/g	2	RS-232/422/485	50 ~ 230 kbps	RJ-48	TCP/UDP server mode, TCP/UDP client mode	Socket or WinSocket

USB to Serial Data Converters

Model Name	Interface	Serial Port	Serial Type	Baud Rate	Connector		Protection		Driver
					USB	Serial	Isolation	Surge	
ADAM-4561	USB 1.1	1	RS-232/422/485	50 ~ 115.2 kbps	Type B	Screw terminal	3000 V _{DC} (RS-232/422/485)	3000 V _{DC} (RS-485)	Windows NT/2000/XP
ADAM-4562	USB 1.1	1	RS-232	75 ~ 115.2 kbps	Type B	DB9	2500 V _{DC}	-	Windows NT/2000/XP
USB-4602B	USB2.0	2	RS-232	50 ~ 921kbps	Type B	DB9	-	3000 V _{DC}	Windows NT/2000/XP/2003, Linux
USB-4602BM	USB2.0	2	RS-232/422/485	50 ~ 921kbps	Type B	DB9	-	3000 V _{DC}	Windows NT/2000/XP/2003, Linux
USB-4604B	USB2.0	4	RS-232	50 ~ 921kbps	Type B	DB9	-	3000 V _{DC}	Windows NT/2000/XP/2003, Linux
USB-4604BM	USB2.0	4	RS-232/422/485	50 ~ 921kbps	Type B	DB9	-	3000 V _{DC}	Windows NT/2000/XP/2003, Linux

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Wireless Gateway Application Modules

Wireless Data Gateways

Advantech's Wireless Data Gateways ADAM-4570W and ADAM-4571W make it possible to quickly connect RS-232/422/485 serial devices with PC hosts over 802.11g wireless LAN networks. Functionally transparent and efficient, ADAM-4570W and ADAM-4571W saves costs when existing H/W & S/W must continue to be used and also bring the advantages of remote management and data accessibility to RS-232/422/485 devices that cannot connect to the network.

Problem Free Wireless

Wireless technology allows ADAM-4570W and ADAM-4571W overcome physical limitations and problems saving you installation and maintenance costs. Wireless ADAM-4570W and ADAM-4571W are also suitable for mobile applications.

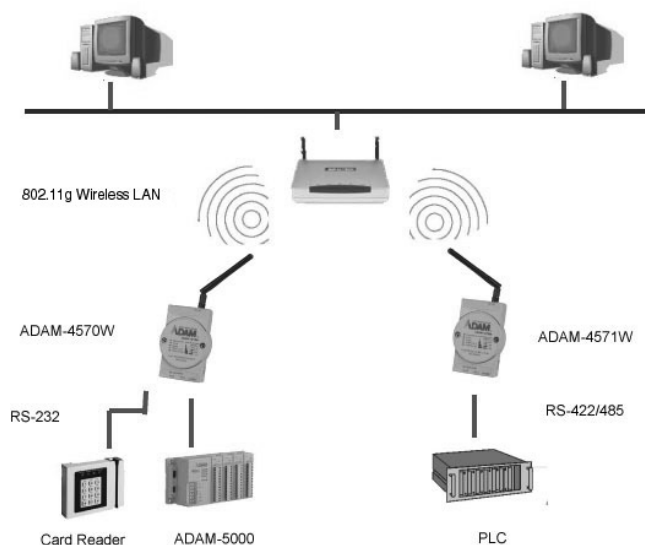
64/128-bit WEP Protection

ADAM-4570W and ADAM-4571W provides 64/128-bit WEP (Wired Equivalent Privacy) to protect your data from hackers trying to steal your valuable data. This function guarantees a safe and reliable transmission of the wireless connection between your host and the serial device.

Flexibility

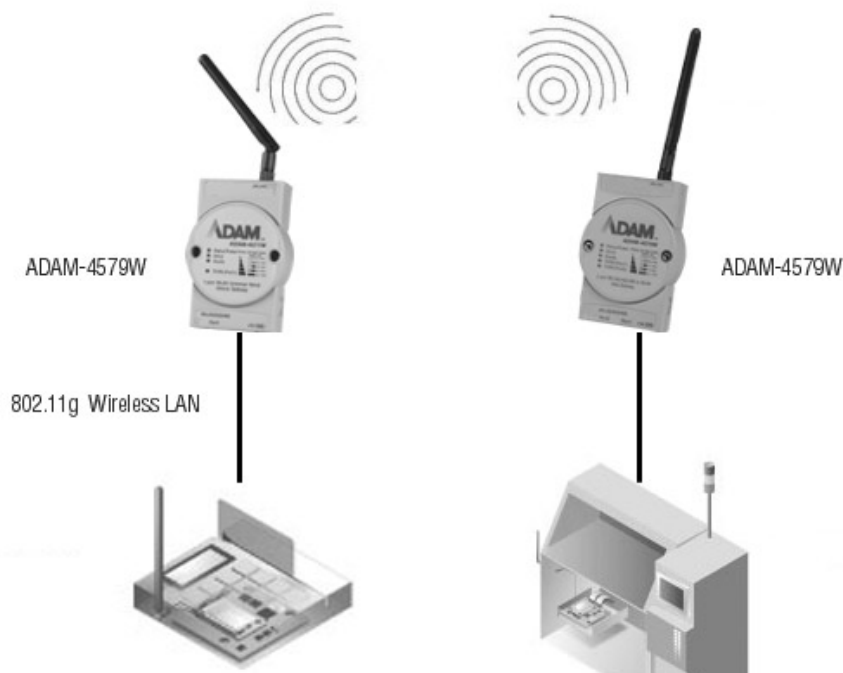
When your production line or processes change, your production facilities must also change. Wiring must be replaced or re-routed to accommodate the changes. With wireless technology, you could configure your whole system without any interrupt and stop, ADAM-4570W and ADAM-4571W actually bring your system convenience and flexibility and make your management easier and more efficient.

Wireless Data Gateway System Architecture



The Wireless Universal Serial Device Gateway

ADAM-4579W and ADAM-4577W are cost effective RS-232/422/485 wireless universal serial device gateway. There is no need to write special driver for specific operating system. Moreover, you can make serial device communicate with other devices peer-to-peer, without any intermediate host PC and software programming.



ADAM-4570W ADAM-4571W

**2-port RS-232/422/485 to 802.11b/g
WLAN Data Gateway**

**1-port RS-232/422/485 to 802.11b/g
WLAN Data Gateway**

NEW



CE FCC

Features

- Supports 802.11g and 802.11b
- Supports Wireless LAN Ad-Hoc and Infrastructure modes
- Supports high transmission speeds up to 230 kbps
- Supports an advanced security mechanism to avoid unauthorized access
- Auto-reconnection
- Remote download firmware
- Auto-detecting
- Easy-managing Port Mapping Utility
- Supports Windows® NT/2000/XP drivers
- Surge protection for serial signals
- Automatic RS-485 data flow control

Introduction

ADAM-4570W and ADAM-4571W are a cost-effective data gateway between RS-232/422/485 and 802.11 b/g Wireless LAN interfaces. Functionally transparent and efficient, ADAM-4570W and ADAM-4571W save costs when existing H/W & S/W must continue to be used. ADAM-4570W and ADAM-4571W bring the advantages of remote management and data accessibility to thousands of RS-232/422/485 devices that cannot connect to the network.

ADAM-4570W and ADAM-4571W provide one or two RS-232/422/485 serial ports, and the transmission speed is up to 230 kbps, meeting the demand for high-speed data exchange. In addition, you can use a Windows utility to configure ADAM-4570W and ADAM-4571W without further programming. This not only protects your current hardware investment but also ensures future network expandability. Since the protocol conversion is transparent, all your existing devices can be seamlessly integrated with the 802.11g/b wireless LAN network. Therefore, ADAM-4570W and ADAM-4571W can be used in security systems, factory automation, SCADA, transportation and more.

Specifications

Ethernet Communications

- Compatibility** IEEE 802.11g and 802.11b
- Speed** 54/11 Mbps
- Connectors** Wireless

Serial Communications

- Type** RS-232/422/485
- Connectors** ADAM-4570W: 2 x RJ-48, ADAM-4571W: 1 x RJ-48
- Ports** ADAM-4570W: 2, ADAM-4571W: 1
- Data Bits** 5, 6, 7, 8
- Stop Bits** 1, 1.5, 2
- Parity Bits** Odd, even, none, space, mark
- Baud Rate** 50 bps ~ 230 kbps
- Data Signals** RS-232: Tx+, Tx-, Rx+, Rx-, GND
RS-422: Tx+, Tx-, Rx+, Rx-, GND
RS-485: Data+, Data-, GND

Protection

- Surge Protection** 15 kV_{ESD}

Software

- Driver Supported** Windows NT/2000/XP
- Utility Software** Auto-detecting configuration utility (up to 128 devices)
Port mapping utility
Virtual COMport
Configuration utility
Port mapping utility

Mechanics

- Dimensions (H x W x D)** 70 x 130 x 30 mm
- Enclosure** ABS+PC with solid mounting hardware
- Mounting** DIN-rail, stack, wall

General

- Certifications** CE, FCC class B
- LED Indicators** WLAN: Active, Quality
Serial: Tx, Rx
System: Status, Power

Power

- Power Input** Unregulated 10 to 30 V_{DC}
- Power Consumption** 4 Watt

Environment

- Operating Temperature** 0 ~ 55° C (32 ~ 131°F)
- Storing Temperature** -20 ~ 80° C (-4 ~ 176°F)
- Operating Humidity** 20 ~ 95% (non-condensing)
- Storage Humidity** 0 ~ 95% (non-condensing)

Ordering Information

- ADAM-4571W-AE** 1-port RS-232/422/485 to WLAN Data Gateway (802.11b)
(1 pcs of 1m RJ-48 to male DB9 RS-232/422/485 cable included)
- ADAM-4570W-AE** 2-port RS-232/422/485 to WLAN Data Gateway (802.11b)
(2 pcs of 1m RJ-48 to male DB9 RS-232/422/485 cable included)
- ADAM-4571W-BE** 1-port RS-232/422/485 to WLAN Data Gateway (802.11b/g)
(1 pcs of 1m RJ-48 to male DB9 RS-232/422/485 cable included)
- ADAM-4570W-BE** 2-port RS-232/422/485 to WLAN Data Gateway (802.11b/g)
(2 pcs of 1m RJ-48 to male DB9 RS-232/422/485 cable included)

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ADAM-4579W

ADAM-4577W

**2-port RS-232/422/485 to 802.11b/g
WLAN Universal Device Gateway**

**1-port RS-232/422/485 to 802.11b/g
WLAN Universal Device Gateway**



CE FCC

Features

- Supports 802.11g and 802.11b
- Supports Wireless LAN Ad-Hoc and Infrastructure modes
- Supports standard networking API: WinSock, Socket
- Provides multiple networking architectures: polling, event handling, peer-to-peer
- Supports several AT-style Commands control mode
- Allows a maximum of 8 host PCs to access with command response mode using UDP protocol
- Supports any operating system with TCP/IP protocol: Windows®, Linux® etc.
- Auto-searching Windows configuration utility
- Download and testing utility: Easy to download firmware and self-diagnostic
- Easy to locate specific EDG series
- Mounts on DIN-rail, panel or piggyback easily

Introduction

ADAM-4577W and ADAM-4579W are universal serial device gateways that bring RS-232/422/485 to wireless Ethernet. They allow nearly any device with serial ports to connect and share an Wireless Ethernet network. ADAM-4577W and ADAM-4579W provide a quick, simple and cost-effective way to bring the advantages of remote management and data accessibility to thousands of devices that cannot connect to a network.

With ADAM-4577W or ADAM-4579W, your existing serial devices can be used with the most popular operating systems on the market. There is no need to write special drivers for specific operating systems. Moreover, you can make serial devices communicate with other devices peer-to-peer, without any intermediate host PCs and software programming. That saves a lot of cost and effort. In addition, you can actively request data or issue commands from the RS-232/422/485 side or Wireless Ethernet side. This data can be sent bilaterally. Thus, the ADAM-4577W and ADAM-4579W are especially suitable for remote monitoring environments such as security systems, factory automaton, SCADA, transportation and more.

Specifications

Ethernet Communications

- **Compatibility** IEEE 802.11g and 802.11b
- **Speed** 54/11 Mbps
- **Connectors** Wireless

Serial Communications

- **Type** RS-232/422/485
- **Connectors** ADAM-4577: 1 x RJ-48
ADAM-4579: 2 x RJ-48
- **Ports** ADAM-4577: 1
ADAM-4579: 2
- **Data Bits** 5, 6, 7, and 8
- **Stop Bits** 1, 1.5, and 2
- **Parity Bits** Odd, even, none, space, mark
- **Baud Rate** 30 bps ~ 230 kbps
- **Data Signals** RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485: Data+, Data-, GND

Software

- **Utility Software** Auto-detecting configuration utility (up to 256 devices)
Easy-to-diagnose download & testing utility
UDP testing utility
- **Operation Modes** TCP Server (polling)
TCP Client (event handling)
Pair connection (Peer to Peer)
UDP command response mode (multi-host)
AT-Style Commands control mode
- **Configuration** Configuration utility

Mechanics

- **Dimensions (H x W x D)** 70 x 130 x 30 mm
- **Enclosure** ABS+PC with solid mounting hardware
- **Mounting** DIN-rail, stack, wall

General

- **Certifications** CE, FCC class B
- **LED Indicators** System: Power, status
WLAN: Active, Quality
Serial: TX/RX

Power

- **Power Input** Unregulated 10 ~ 30 V_{DC}
- **Power Consumption** ADAM-4577W: 2 W
ADAM-4579W: 4 W

Environment

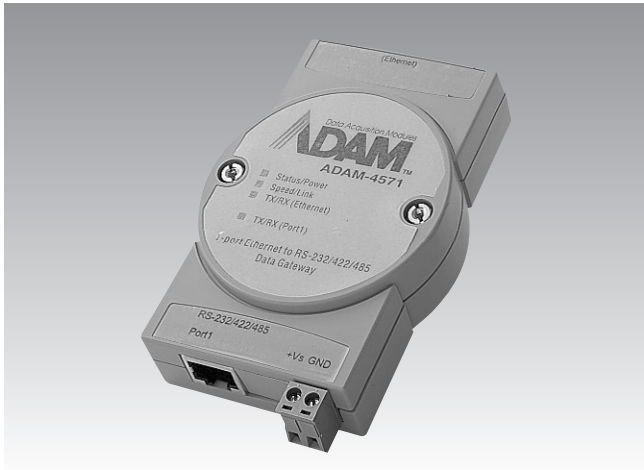
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -20 ~ 80° C (-4 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)

Ordering Information

- **ADAM-4577W** 1-port RS-232/422/485 to 802.11 b/g WLAN Universal Device Gateway (1 pcs of 1m RJ-48 to male DB9 RS-232/422/485 cable included)
- **ADAM-4579W** 2-port RS-232/422/485 to 802.11 b/g WLAN Universal Device Gateway (2 pcs of 1 m RJ-48 to male DB9 RS-232/422/485 cable included)
- **OPT1A** 1m RJ-48 to male DB9 RS-232/422/485 cable
- **OPT1D** 30cm RJ-48 to male DB9 RS-232/422/485 cable

ADAM-4571/4571L

1-port Serial to Ethernet Data Gateway



CE FCC

Features

- Supports RS-232/422/485 serial communication (ADAM-4571)
- Supports RS-232 serial communication (ADAM-4571L)
- Supports 10/100Base-T Ethernet port
- Supports high transmission speeds up to 230 kbps
- Supports an advanced security mechanism to avoid unauthorized access
- Auto-reconnection
- Remote updating firmware
- Easy management with port Mapping Utility
- Supports Windows® NT/2000/XP drivers
- Surge protection for serial line signals
- Automatic RS-485 data flow control (ADAM-4571)

Introduction

ADAM-4571 and ADAM-4571L are fast and cost effective data gateways between serial and Ethernet interfaces. The units also bring the advantages of remote management and data accessibility to RS-232/422/485 devices. The transmission speed of the units is up to 230 kbps, meeting the demands for high-speed data exchanges. In addition, you can use Windows utility to configure ADAM-4571 and ADAM-4571L without further programming. The units not only protect your current hardware investment but also ensure future network expandability. Since the protocol conversion is transparent, all your existing devices can be seamlessly integrated with an Ethernet network. Therefore, ADAM-4571 and ADAM-4571L can be used in security systems, factory automation, SCADA, transportation and more. ADAM-4571 and ADAM-4571L link both your existing human-machine interface(HMI) PC and your RS-232/422/485 devices with Ethernet cables.

ADAM-4571 and ADAM-4571L come with a Windows configuration and port-mapping utility. The configuration tool can auto-detect all Ethernet Data Gateway devices on the local network, and let you adjust all settings. The port mapping utility helps you to setup up COM ports for Windows NT/2000/XP platform. This helps you configure all ports to meet your needs.

Specifications

Ethernet Communication

- **Compatibility** IEEE802.3, IEEE802.3u
- **Speed** 10/100 Mbps
- **Connectors** 1 x RJ-45

Serial Communication

- **Type** RS-232/422/485 (ADAM-4571)
RS-232 (ADAM-4571L)
- **Connectors** 1 x RJ-48
- **Ports** 1
- **Data Bits** 5,6,7,8
- **Stop Bits** 1,1.5,2
- **Parity Bits** Odd,even,none,space,mark
- **Baudrate** 50 bps ~ 230 Kbps
- **Data Signals** RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
RS-422: TxD+, TxD-, RxD+, RxD-
RS-485: Data+, Data-, GND

Protection

- **Surge Protection** 15 k V_{EDS}

Software

- **Drivers Supported** Windows NT/2000/XP
- **Utility Software** Auto-detecting configuration utility (up to 128 devices)
Port mapping utility
- **Operation Mode** Virtual COMport
- **Configuration** Configuration utility
Port mapping utility

Mechanics

- **Enclosure** ABS+PC with solid mounting hardware
- **Mounting** DIN-rail, Panel Mounting, Piggyback stack
- **Dimensions (H x W x D)** 70 x 130 x 30 mm

General

- **Certification** CE,FCC ClassA
- **LED** System: Power, Status
Ethernet: Speed,Link, Tx/Rx
Serial: Tx, Rx

Power

- **Power Input** Unregulated 10 ~ 30 V_{DC}
- **Power Consumption** 4 W

Environment

- **Operating Temp.** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temp.** -20 ~ 80° C (-4 ~ 176° F)
- **Operating Humidity** 20% ~ 95% (non-condensing)
- **Storage Humidity** 0% ~ 95% (non-condensing)

Ordering Information

- **ADAM-4571** 1-port RS-232/422/485 to Ethernet Data Gateway
(1 pc of 1m RJ-48 to male DB9 RS-232/422/485 cable included)
- **ADAM-4571L** 1-port RS-232 to Ethernet Data Gateway
(2 pcs of 1 m RJ-48 to male DB9 RS-232/422/485 cable included)
- **OPT1A** 1m RJ-48 to male DB9 RS-232/422/485 cable
- **OPT1D** 30cm RJ-48 to male DB9 RS-232/422/485 cable

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

ADAM-4570/4570L

2-port Serial to Ethernet Data Gateway



CE FCC

Features

- Supports RS-232/422/485 serial communications (ADAM-4570)
- Supports RS-232 serial communication (ADAM-4570L)
- Supports 10/100Base-T Ethernet port
- Supports high transmission speeds up to 230 kbps
- Supports an advanced security mechanism to avoid unauthorized access
- Auto-reconnection
- Remote updating of firmware
- Easy management with Port Mapping Utility
- Supports Windows® NT/2000/XP drivers
- Surge protection for serial line signals
- Automatic RS-485 data flow control (ADAM-4570)

Introduction

ADAM-4570 and ADAM-4570L are fast and cost effective data gateways between serial and Ethernet interfaces. They immediately upgrade your existing device(s) to the Ethernet world. Functionally transparent and efficient, ADAM-4570 and ADAM-4570L are specially designed for remote control and monitoring of devices via the Internet.

Two serial ports can each be easily configured for your needs. There is also support for transmission speeds up to 230 kbps, which meets the demand for today's high-speed data exchanges. You can use a Windows utility to configure the units without need for further programming. ADAM-4570 and ADAM-4570L not only protect your current hardware investment but also ensure future network expandability. Since the protocol conversion is transparent, all existing devices can be seamlessly integrated into the Ethernet network. Therefore, ADAM-4570 and ADAM-4570L can be used in security systems, factory automation, SCADA, transportation and more.

Specifications

Ethernet Communications

- **Compatibility** IEEE802.3, IEEE802.3u
- **Speed** 10/100 Mbps
- **Connectors** 1 x RJ-45

Serial Communications

- **Type** RS-232/422/485 (ADAM-4570)
RS-232 (ADAM-4570L)
- **Connectors** 2 x RJ-48
- **Ports** 2
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity Bits** Odd, even, none, space, mark
- **Baud Rate** 50 bps ~ 230 kbps
- **Data Signals** RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485: Data+, Data-, GND

Protection

- **Surge Protection** 15 kV_{ESD}

Software

- **Drivers Supported** Windows NT/2000/XP
- **Utility Software** Auto-detecting configuration utility (up to 128 devices)
port mapping utility
- **Operation Modes** Virtual COMport
- **Configuration** Configuration utility
Port mapping utility

Mechanics

- **Dimensions (H x W x D)** 70 x 130 x 30 mm
- **Enclosure** ABS+PC with solid mounting hardware
- **Mounting** DIN-rail, stack, wall

General

- **Certifications** CE, FCC class A
- **LED Indicators** Network: Tx/Rx, Link, Speed (10/100 Mbps),
Serial: Tx/Rx
System: Status, Power

Power

- **Power Input** Unregulated 10 to 30 V_{DC}
- **Power Consumption** 4 W

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -20 ~ 80° C (-4 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)

Ordering Information

- **ADAM-4570** 2-port RS-232/422/485 to Ethernet Data Gateway
(2 pcs of 1 m RJ-48 to male DB9 RS-232/422/485 cable included)
- **ADAM-4570L** 2-port RS-232 to Ethernet Data Gateway
(2 pcs of 1 m RJ-48 to male DB9 RS-232/422/485 cable included)
- **OPT1A** 1m RJ-48 to male DB9 RS-232/422/485 cable
- **OPT1D** 30cm RJ-48 to male DB9 RS-232/422/485 cable

ADAM-4577 ADAM-4579

1-port Universal Serial Device Gateway

2-port Universal Serial Device Gateway



CE FCC

Features

- Supports 10/100Base-T (ADAM-4579); 10Base-T (ADAM-4577)
- Supports standard networking API: WinSock, Socket
- Provides multiple networking architectures: polling, event handling, peer-to-peer
- Supports several AT-style commands to control (ADAM-4579)
- Allows a maximum of 8 host PCs to access with command response mode using UDP protocol
- Supports any operating system with TCP/IP protocol: Windows®, Linux® etc.
- Auto-searching Windows configuration utility
- Download and testing utility: Easy to download firmware and self-diagnostic
- Easy to locate specific EDG series
- Mounts on DIN-rail, panel or piggyback easily

Introduction

ADAM-4577 and ADAM-4579 are universal serial device gateways that bring RS-232/422/485 to Ethernet. They allow nearly any device with serial ports to connect and share an Ethernet network. ADAM-4577 and ADAM-4579 provide a quick, simple and cost-effective way to bring the advantages of remote management and data accessibility to thousands of devices that cannot connect to a network.

With ADAM-4577 or ADAM-4579, your existing serial devices can be used with the most popular operating systems on the market. There is no need to write special drivers for specific operating systems. Moreover, you can make serial devices communicate with other devices peer-to-peer, without any intermediate host PCs and software programming. That saves a lot of cost and effort. In addition, you can actively request data or issue commands from the RS-232/422/485 side or Ethernet side. This data can be sent bilaterally. Thus, the ADAM-4577 and ADAM-4579 are especially suitable for remote monitoring environments such as security systems, factory automaton, SCADA, transportation and more.

Specifications

Ethernet Communications

- Compatibility** IEEE 802.3, IEEE 802.3u
- Speed** ADAM-4579: 10/100 Mbps
ADAM-4577: 10 Mbps
- Connectors** 1 x RJ-45

Serial Communications

- Type** RS-232/422/485
- Connectors** ADAM-4577: 1 x DB-9 Male
ADAM-4579: 2 x RJ-48
- Ports** ADAM-4577: 1
ADAM-4579: 2
- Data Bits** 5, 6, 7, and 8
- Stop Bits** 1, 1.5, and 2
- Parity Bits** Odd, even, none, space, mark
- Baud Rate** 30 bps ~ 230 kbps
- Data Signals** RS-232: Tx/D, Rx/D, CTS, RTS, DTR, DSR, DCD, RI, GND
RS-422: Tx/D+, Tx/D-, Rx/D+, Rx/D-, GND
RS-485: Data+, Data-, GND

Software

- Utility Software** Auto-detecting configuration utility (up to 128 devices)
Easy-to-diagnose download & testing utility
UDP testing utility (ADAM-4577)
- Operation Modes** TCP Server (polling)
TCP Client (event handling)
Pair connection (Peer to Peer)
UDP command response mode (multi-host, ADAM-4577)
At command like control mode (ADAM-4579)
- Configuration** Configuration utility

Mechanics

- Dimensions (H x W x D)** 70 x 130 x 30 mm
- Enclosure** ABS+PC with solid mounting hardware
- Mounting** DIN-rail, stack, wall

General

- Certifications** CE, FCC class A
- LED Indicators** System: Power, status
Network: Tx/Rx, Link, Speed (10/100 Mbps),
Serial: TX/RX

Power

- Power Input** Unregulated 10 ~ 30 V_{DC}
- Power Consumption** ADAM-4577: 2 W
ADAM-4579: 4 W

Environment

- Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- Storage Temperature** -20 ~ 80° C (-4 ~ 176° F)
- Operating Humidity** 20 ~ 95% (non-condensing)
- Storage Humidity** 0 ~ 95% (non-condensing)

Ordering Information

- ADAM-4577** 1-port Universal Serial Device Gateway
- ADAM-4579** 2-port Universal Serial Device Gateway
(2 pcs of 1 m RJ-48 to male DB9 RS-232/422/485 cable included)
- OPT1A** 1m RJ-48 to male DB9 RS-232/422/485 cable
- OPT1D** 30cm RJ-48 to male DB9 RS-232/422/485 cable

1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

1-port Modbus® to Ethernet Data Gateway



C E FCC

Features

- Supports 10/100 Mbps communication speeds
- Allows up to 8 clients to access field data simultaneously
- Supports popular HMI software with Modbus®/TCP driver or OPC server
- Up to 3 Independent serial ports capacity if configured to RS-485 serial mode
- Provides auto-searching device ID Windows utility
- Surge protection for RS-485 and power line
- Automatic RS-485 data flow control
- Easy mounting on DIN-rail and wall, and can also be stacked
- Supports Modbus/ASCII, Modbus/RTU Protocol to control devices

Introduction

ADAM-4572 serves as an interface between Modbus serial devices and computer hosts running Modbus/TCP on an Ethernet network. Fully compliant with Modbus/TCP, it is ideal for those who looking for an easy way to connect their existing devices or controllers running Modbus serial protocols (Modbus/ASCII or Modbus/RTU) to Ethernet networks. It works like a bridge between Modbus serial devices and controllers over TCP/IP Ethernet networks. Benefits are also abundant for customers who want to expand their Ethernet-based Modbus (Modbus/TCP) applications.

Networks have become increasingly vital for industrial automation applications, but many control devices today do not have a network port and can only communicate with a dedicated local PC or control panel. Advantech's revolutionary network-enabling technology is now allowing control devices with serial ports to connect to the Ethernet and share networks quickly and cost-effectively. The ADAM-4572 Modbus to Ethernet Data Gateway allows users to integrate new and existing Modbus/RTU and Modbus/ASCII serial devices to newer TCP/IP network-based devices. Manufacturers, system integrators, and end users can now use the ADAM-4572 to create networked applications to remotely manage and access data from control devices no matter where they are.

Specifications

Ethernet Communications

- **Compatibility** IEEE 802.3, IEEE 802.3u
- **Speed** 10/100 Mbps
- **Connectors** 1 x RJ-45

Serial Communications

- | | |
|-----------------------|---|
| ▪ Type | RS-232/422/485 |
| ▪ Connectors | Screw terminal |
| ▪ Ports | 1 |
| ▪ Data Bits | 7, 8 |
| ▪ Stop Bits | 1, 2 |
| ▪ Baud Rate | 300 bps ~ 115.2 kbps |
| ▪ Data Signals | RS-232: TxD, RxD, GND
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485: Data+, Data-, GND |

Protection

- **Surge Protection** 15 kV_{ESD}

Software

- | | |
|----------------------------|--|
| ▪ Drivers Supported | Windows® 98/NT/2000/XP |
| ▪ Utility Software | Auto-detecting configuration utility (up to 128 devices)
Device setting: name, description, serial port |
| ▪ Operation Mode | Modbus/TCP, Modbus/RTU, Modbus/ASCII |
| ▪ Configuration | Configuration utility |

Mechanics

- **Dimensions (H x W x D)** 70 x 130 x 30 mm
- **Enclosure** ABS+PC with solid mounting hardware
- **Mounting** DIN-rail, stack, wall

General

- | | |
|-------------------------|---|
| ▪ Certifications | CE, FCC class A |
| ▪ LED Indicators | Network: Tx/Rx, Link, Speed (10/100 Mbps)
Serial: Tx/Rx
System: Power, Status |

Power

- **Power Input** Unregulated 10 ~ 30 V_{DC}
- **Power Consumption** 3 W

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140°F)
- **Storing Temperature** -20 ~ 80° C (-4 ~ 176°F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storing Humidity** 0 ~ 95% (non-condensing)

Ordering Information

- **ADAM-4572** 1-Port Modbus to Ethernet Data Gateway

EDG-4504

4-port RS-232/422/485 to Ethernet Data Gateway



CE FCC

Features

- 4 x RS-232/422/485 serial communication devices
- Automatic network connection recovery
- Auto-detects 10/100 Mbps Ethernet interface
- Supports an advanced security mechanism to avoid unauthorized access
- Tx/Rx LEDs for all ports to monitor data transmission
- Convenient and simple installation wizard
- Simple setup and configuration
- Auto-reconnection
- Remote updating firmware
- Automatic RS-485 data flow control

Introduction

The EDG-4504 is an industrial-grade, network-based, serial device server for connecting four RS-232/422/485 devices, such as CNCs, PLCs, scales, and scanners, directly to a TCP/IP network (Ethernet or Internet). Compared to similar devices on the market, it has a lower cost, great performance, and the most advanced features. Both 10 Mbps and 100 Mbps Ethernet connections are supported, providing higher bandwidth, lower traffic impact, and more layout flexibility.

You can use the Windows utility to configure EDG-4504 without programming. This not only protects your current hardware investment but also ensures future network expandability. Since the protocol conversion is transparent, all your existing devices can be seamlessly integrated with the Ethernet LAN network. Therefore, EDG-4504 can be used in security system, factory automation, SCADA, transportation and more.

Specifications

Ethernet Communications

- **Compatibility** IEEE802.3, IEEE802.3u
- **Speed** 10/100 Mbps
- **Connectors** 1 x RJ-45

Serial Communications

- **Type** RS-232/422/485
- **Connectors** 4 x DB9 Male
- **Ports** 4
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity Bits** None, even, odd, space, mark
- **Baud Rate** 50 bps ~ 230.4 kbps
- **Data Signals** RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485: Data+, Data-, GND

Protection

- **Surge Protection** 15 kV_{ESD}

Software

- **Drivers Supported** Windows® NT/2000/XP
- **Utility Software** Auto-detecting configuration utility (up to 128 devices)
port mapping utility
- **Operation Modes** Virtual COMport
- **Configuration** Configuration utility
Port mapping utility

Mechanics

- **Dimensions (H x W x D)** 36 x 188 x 120 mm
- **Enclosure** Aluminum chassis
- **Mounting** DIN-rail, wall

General

- **Certifications** CE, FCC class A
- **LED Indicators** System: status
Network: Tx/Rx, Link, Speed (10/100 Mbps),
Serial: Tx/Rx

Power

- **Power Input** Unregulated 10 ~ 30 V_{DC}
- **Power Consumption** 4.5 W

Environment

- **Operating Temperature** 0 ~ 55° C (32 ~ 131° F)
- **Storage Temperature** -20 ~ 80° C (-4 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)

Ordering Information

- **EDG-4504** 4-port RS-232/422/485 to Ethernet Data Gateway

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

EDG-4508(R)+ EDG-4516(R)+

**8-port RS-232/422/485 to Ethernet
Data Gateway with Front/Rear Wiring**

**16-port RS-232/422/485 to Ethernet
Data Gateway with Front/Rear Wiring**



Features

- RS-232/422/485 Serial Communication, up to 8 or 16 port
- Supports 10/100Base-T Ethernet network
- Supports Baud rate up to 230.4 kbps
- Provides Virtual COMport, TCP/IP and UDP operation modes
- 4 x DI/O for alarm/event control
- Provides rich configuration ways: Serial Console, Windows utility, and Web
- Supports an advanced security mechanism to avoid unauthorized access
- Auto connection recovery
- Remote download firmware
- Easy-managing Port Mapping Utility and configuration utility for Windows NT/2000/XP
- Buzzer for easy locate
- Rack mounted
- Rear wiring (EDG-4508R+/16R+)
- Automatic RS-485 data flow control

Introduction

EDG-4508 and EDG-4516 are industrial-grade network-based serial device servers for connecting up to 8 or 16 serial RS-232/422/485 device, such as CNCs, PLCs, scales and scanners, directly to Ethernet network. Compared with similar product on the market, EDG-4508 and EDG-4516 are low cost, but with high performance and reliability.

EDG-4508 and EDG-4516 provide 8 and 16 ports of serial communication. For many applications, you could also use EDG-4508 and EDG-4516 to remote monitor and control your serial device. Furthermore, EDG-4508 and EDG-4516 also build-in 4 channel digital inputs and 4 channel digital outputs for alarm or event control. EDG-4508 and EDG-4516 offer different ways to configured through windows utility, COM port mapping utility or serial interface console, these configuration methods make it easy manage many EDG-4508 and EDG-4516 or serial devices on your network.

Specifications

Ethernet Communication

- **Compatibility** IEEE802.3, IEEE802.3u
- **Speed** 10/100Mbps
- **Connectors** 1 x RJ-45

Serial Communication

- **Type** RS-232/422/485
- **Connectors** 8 x RJ-48(EDG-4508)
16 x RJ-48(EDG-4516)
- **Ports** 8 (for EDG-4508)
16 (for EDG-4516)
- **Data Bits** 5,6,7,8
- **Stop Bits** 1,1.5,2
- **Parity Bits** Odd,even,none,space,mark
- **Baudrate** 50bps ~ 230.4 kbps
- **Data Signals** Tx+, Tx-, CTS, RTS, DTR, DSR, DCD, RI, GND (RS-232)
Tx+, Tx-, Rx+, Rx-, GND (RS-422)
Data+, Data-, GND (RS-485)
- **Digital I/O** 4DI & 4DO
Digital Input:
Logic level 0 : 0 ~ 4.2 V , close to GND
Logic level 1 : 4.4 ~ 5 V , open
Digital Output:
Open collector up to 30 V, 200 mA Max load

Protection

- **Serial Protection** 15 KV_{ESD}

Software

- **Drivers Supported** Windows® NT/2000/XP

- **Utility Software** Auto-detecting configuration utility (up to 256 devices)
Port mapping utility
- **Operation Mode** Virtual COM port
TCP/UDP server data mode
TCP/UDP client data mode,
AT command like control mode
- **Configuration** Configuration utility
Port mapping utility
Console serial command line interface configuration
Web interface configuration

Mechanics

- **Enclosure** SECC Chassis
- **Mounting** Rack
- **Dimensions (H x W x D)** 44 x 442 x 190 mm

General

- **Certification** CE,FCC ClassA
- **LED** Power, Status
Ethernet: Speed, Link
Serial: Tx, Rx

Power

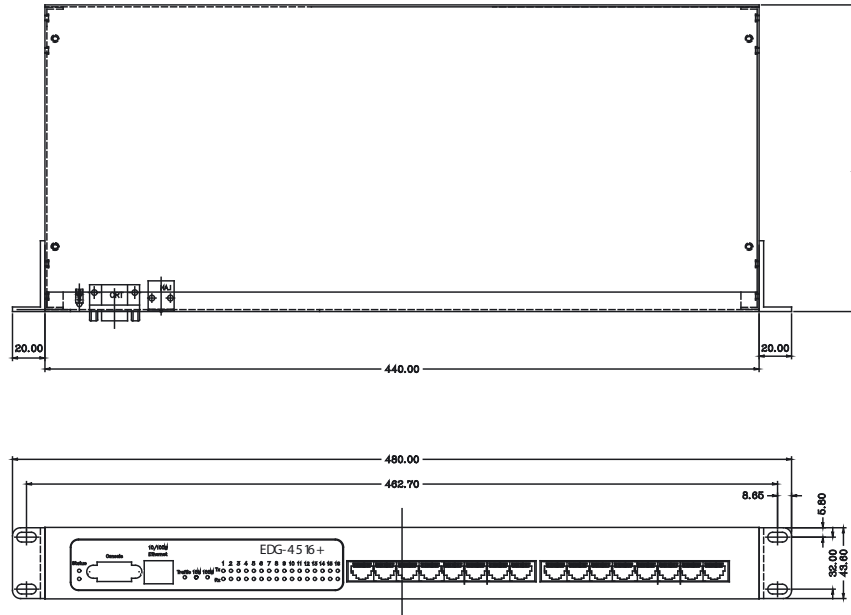
- **Power Input** 90 ~ 260 V_{AC}, 47 ~ 63 Hz
- **Power Consumption** 10 W (EDG-4516)
8 W (EDG-4508)

Environment

- **Operating Temp.** 0 ~ 55° C (32 ~ 131° F)
- **Storage Temp.** -20 ~ 80° C (-4 ~ 176° F)
- **Operating Humidity** 20% ~ 95% (non-condensing)
- **Storage Humidity** 0% ~ 95% (non-condensing)

Dimensions

Unit: mm



Ordering Information

- **EDG-4508+** 8-port RS-232/422/485 to Ethernet Data Gateway with front wiring
- **EDG-4516+** 16-port RS-232/422/485 to Ethernet Data Gateway with front wiring
- **EDG-4508R+** 8-port RS-232/422/485 to Ethernet Data Gateway with rear wiring
- **EDG-4516R+** 16-port RS-232/422/485 to Ethernet Data Gateway with rear wiring

*all items include 1 PC 30cm RJ-48 to male DB9 RS-232/422/485 cable

- **OPT1A** 1 m RJ-48 to male DB9 RS-232/422/485 cable
- **OPT1D** 30 cm RJ-48 to male DB9 RS-232/422/485 cable
- **OPT1G** 1 m RJ-48 to male DB25 RS-232/422/485 cable
- **OPT1H** 1 m RJ-48 to female DB25 RS-232/422/485 cable

- 1 PAC & Software
- 2 BAS
- 3 UNO
- 4 RS-485 I/O
- 5 Ethernet I/O
- 6 TPC
- 7 IPPC
- 8 FPM
- 9 AWS
- 10 Plug-in I/O
- 11 CompactPCI
- 12 Signal Conditioning
- 13 USB I/O
- 14 Motion Control I/O
- 15 Ethernet Switch
- 16 EDG
- 17 ICOM

ADAM-4561

ADAM-4562

1-port Isolated USB to RS-232/422/485 Converter

1-port Isolated USB to RS-232 Converter



Features

- Full compliance with USB V1.1 specifications
- RS-232/422/485 port supported (only ADAM-4561)
- Transmission speed up to 115.2 kbps
- Isolation protection 3000 V_{DC} provided
- Automatic RS-485 data flow control
- No external power supply necessary; the hub derives its power from the USB port
- Plug & Play installation
- No additional IRQs or I/O ports required
- Hot swap function supported

Introduction

ADAM-4561/4562 allows PC users to connect a serial device to a system that use a USB interface. To attach the ADAM-4561/4562 to a PC, you don't need to open the chassis or power down your PC. Instantly get one or two extra high-speed RS-232/422/485 ports. The power is derived from the USB port, so there are no power adapters to deal with. This makes the ADAM-4561/4562 especially suitable for modems, printers, POS systems and industrial control devices.

Compliant with USB V1.1, ADAM-4561/4562 features several powerful functions such as high-speed 115.2 kbps transmission, support for various operating systems, independent RS-232/422/485 ports and more. By simply plugging in a USB hub, ADAM-4561/4562 eliminates the configuration issues associated with high-priced, older card solutions. You only have to install the drivers, no need to set cards slots, IRQ addresses, DMA channels, or device addresses. This reduces programming effort.

Specifications

General

- **Certifications** CE, FCC
- **Connectors** 1 x USB Type B (Type A to Type B cable provided)
1 x Plug-in screw terminal (#14 ~ 22 AWG)
- **Enclosure** ABS+PS
- **Mounting** DIN 35 rail, stack, wall
- **Power Consumption** ADAM-4561: 270 mA @ 5 V (Typical)
300 mA @ 5 V (Max.)
ADAM-4562: 155 mA @ 5 V (Typical)
220 mA @ 5 V (Max.)

Communications

- **Data Bits** 5, 6, 7, 8
- **Error Detection** Parity error, frame error, serial break (ADAM-4562)
- **Max. Distance** 15 ft (4.6 m)
- **Parity Bits** ADAM-4561: Odd, even, none
ADAM-4562: Odd, even, mark, space, none
- **RS-232 Signals** ADAM-4561: 3-wire(Tx, Rx, GND)
ADAM-4562: 9-wire
- **Stop Bits** 1, 1.5, 2
- **Transmission Speed** ADAM-4561: 50 bps to 115.2 kbps
ADAM-4562: 75 bps to 115.2 kbps

Protection

- **Isolation Protection** ADAM-4561: 3,000 V_{DC} (RS-232/422/485)
ADAM-4562: 2,500 V_{DC}
- **Surge Protection** 3,000 V_{DC} (RS-485)

Software

- **Driver Support** Windows® 98/2000/ME/XPEEnvironment
- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)
- **Storage Temperature** -25 ~ 80° C (-13 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 5 ~ 95% (non-condensing)

Ordering Information

- **ADAM-4561** 1-port Isolated USB to RS-232/422/485 Converter
- **ADAM-4562** 1-port Isolated USB to RS-232 Converter

USB-4602B USB-4602BM

2-port RS-232 to USB Converter w/Surge Protection 2-port RS-232/422/485 to USB Converter w/Surge Protection



Features

- Full compliance with USB V1.1 and V2.0 specifications.
- RS-232/422/485 port supported
- Transmission speed up to 921.6 kbps
- Automatic RS-485 data flow control
- No external power supply necessary; the hub derives its power from the USB port
- Plug & Play installation
- No additional IRQs or I/O ports required
- Hot swap function supported

Introduction

USB-4602B and USB-4602BM USB to serial converters are the easiest, most reliable way to add serial ports to a PC. To attach the USB-4602B/4602BM to a PC, you don't need to open the chassis or power down your PC. Instantly get extra high-speed RS-232/422/485 ports. The devices are powered by the USB connection, so there are no power adapters to deal with. This makes the USB-4602 series especially suitable for printers, POS system, and industrial control devices.

Support high speed USB 2.0 up to 480M bps, USB-4602 series support for transmission speeds up to 921.6 kbps, which meets the demand for high-speed data exchange. USB-4602 series also gestures several powerful functions such as independent RS-232/422/485 ports, support for various operating systems and more. By simply plugging in a USB hub, USB-4602 series eliminate the configuration issues associated with high-priced, older card solution. You only have install the driver, no need to set cards slots, IRQ addresses, or device addresses. This reduces programming effort.

USB 2.0, now standard on virtually all new PCs, can connect up to 127 devices at data rates up to 480Mbps. The significant advantage over earlier bus means that your serial connection can grow with your requirement easily and conveniently.

Specifications

General

- **Certifications** CE, FCC
- **Connectors** 1 x USB Type B (Type A to Type B cable provided)
2 x DB9
- **Enclosure** ABS+PS
- **USB Cable** Max. 15ft (4.6 m)
- **Mounting** DIN 35 rail, stack, wall

Insert

- **Power Input** 10 to 48 V_{DC} (external) or 5 V_{DC} (Bus Power)
- **Power Consumption** 100 mA @ 5 V (Typical)
150 mA @ 5 V (Max.)

Communications

- **Data Bits** 5, 6, 7, 8
- **Parity Bits** Odd, even, none, space, mark
- **Stop Bits** 1, 1.5, 2
- **Transmission Speed** up to 921.6 kbps

Protection

- **Surge Protection** 3,000 V_{DC}

Software

- **Driver Support** Windows® 2000/XP/2003

Environment

- **Operating Temperature** 0 ~ 55° C (32 ~ 158° F)
- **Storage Temperature** -25 ~ 80° C (-13 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 5 ~ 95% (non-condensing)

Ordering Information

- **USB-4602B** 2-port RS-232 to USB Converter w/Surge Protection
- **USB-4602BM** 2-port RS-232/422/485 to USB Converter w/Surge Protection

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

USB-4604B

USB-4604BM

4-port RS-232 to USB Converter w/Surge Protection

4-port RS-232/422/485 to USB Converter w/Surge Protection



Features

- Full compliance with USB V1.1 and V2.0 specifications.
- RS-232/422/485 port supported
- Transmission speed up to 921.6 kbps
- Automatic RS-485 data flow control
- No external power supply necessary; the hub derives its power from the USB port
- Plug & Play installation
- No additional IRQs or I/O ports required
- Hot swap function supported

Introduction

USB-4604 series allows PC users to connect a serial device to a system that use a USB interface. To attach the USB-4604B/USB-4604BM to a PC, you don't need to open the chassis or power down your PC. Instantly get extra high-speed RS-232/422/485 ports. The power is derived from the USB port, so there are no power adapters to deal with. This makes the USB-4602/4604 especially suitable for modems, printers, POS systems and industrial control devices.

Support USB2.0 high speed, USB-4604B/USB-4604BM features several powerful functions such as high-speed 921.6 kbps transmission, support for various operating systems, independent RS-232/422/485 ports and more. By simply plugging in a USB hub, USB-4604B and USB-4604BM eliminates the configuration issues associated with high-priced, older card solutions. You only have to install the drivers, no need to set cards slots, IRQ addresses, DMA channels, or device addresses. This reduces programming effort.

USB2.0, now standard on virtually all new PCs, offers significant advantages over earlier bus types. A single USB interface can connect up to 127 devices at data rates up to 480 Mbps. That kind of easy and convenient connectivity means that your network can grow with your requirements.

Specifications

General

- **Certifications** CE, FCC
- **Connectors** 1 x USB Type B (Type A to Type B cable provided)
4 x DB9
- **Enclosure** ABS+PS
- **USB Cable** Max. 15ft (4.6 m)
- **Mounting** DIN 35 rail, stack, wall

Insert

- **Power Input** 10 to 48 V_{DC} (external) or 5 V_{DC} (Bus Power)
- **Power Consumption** 130 mA @ 5 V (Typical)
200 mA @ 5 V (Max.)

Communications

- **Data Bits** 5, 6, 7, 8
- **Parity Bits** Odd, even, none, space, mark
- **Stop Bits** 1, 1.5, 2
- **Transmission Speed** up to 921.6 kbps

Protection

- **Surge Protection** 3,000 V_{DC}

Software

- **Driver Support** Windows® 2000/XP/2003

Environment

- **Operating Temperature** 0 ~ 55° C (32 ~ 158° F)
- **Storage Temperature** -25 ~ 80° C (-13 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 5 ~ 95% (non-condensing)

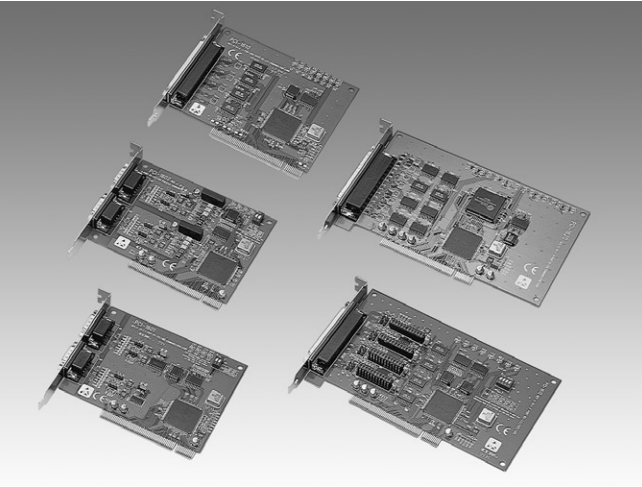
Ordering Information

- **USB-4604B** 4-port RS-232 to USB Converter w/Surge Protection
- **USB-4604BM** 4-port RS-232/422/485 to USB Converter w/Surge Protection

Plug-in Communication Cards

PCI-bus Communication Cards	17-2
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PCI-1610 Series	4-port RS-232 PCI Communication Cards 17-6
PCI-1611U	4-port RS-422/485 Universal PCI Comm. Card w/EFT Surge & Isolation 17-7
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PCL-740/741	RS-232/422/485, Current-loop Communication Cards 17-14
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PCM-3618	8-port RS-422/485 High-speed Module 17-17
PCM-3640/3641	4-port RS-232 High-speed Modules 17-17
PCM-3660	Jumperless Ethernet Module 17-17
CAN Communication Cards	
PCI-1680U	2-port Isolated CAN Interface Universal PCI Communication Card 17-18
PCL-841	2-port Isolated CAN-bus Interface ISA Communication Card 17-19
PCM-3680	2-port Isolated CAN Interface PC/104 Module 17-19
Accessories	17-20

Universal PCI/PCL COMM Card Series



Features

- PCI bus specification 2.1/2.2 compliant
- Speeds up to 921.6 kbps
- UARTs with 128-byte standard
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows® 98/ME/2000/XP/XP Embedded, Linux
- Optional EFT surge protection up to 3,000 V_{DC}
- Optional isolation protection for RS-232/422/485 up to 3,000 V_{DC}
- Interrupt status register for increased performance
- Space reserved for termination resistors
- Automatic RS-485 data flow control
- Communication performance analysis tools

Introduction

The PCI Local Bus is a high-performance bus that provides a processor-independent data path between the CPU and high-speed peripherals. PCI is a robust interconnection mechanism designed specifically to accommodate multiple high performance peripherals for serial communication, SCSI, LAN, etc.

Advantech serial communication cards leverage the "Plug & Play" capability defined in the PCI 2.1/2.2 bus specification, and are available with up to 8 ports. The board requires only one PCI slot within the personal computer and provides independent serial channels. All channels are addressed in a continuous 32 byte I/O block for simplified software access. And, all channels may also share one PCI interrupt. An interrupt status register is available for determining the interrupt source.

The Advantech PCI communication cards come with standard 16PC1954/16PC1952 UARTs containing 128 byte FIFOs which are available as an option. These upgraded FIFOs greatly reduce CPU overhead and are an ideal choice for demanding multi-tasking environments.

The Advantech PCI communication cards are available with optical isolation up to 3000 V_{DC}. This protects your PC and equipment against damages from ground loops, which increases system reliability in harsh environments. To further increase reliability, the boards offer EFT surge protection; protecting your system from abrupt high voltage surges (up to 3000 V_{DC}), such as those caused by lightning during thunderstorms.

16PC1954/16PC1952 UART

The 16PC1954/16PC1952 is a high performance Quad UART with an on-chip PCI interface. Targeted at PCI-based serial and parallel expansion cards, PCI-architecture computer systems and embedded applications, the 16PC1954/16PC1952 integrates a PCI bus interface together with four 16C950 high performance UARTs, a bi-directional parallel port and a local bus bridge function. This single-chip solution replaces five or more integrated circuits used in today's products, giving performance, cost and size advantages to new designs.

Quick Troubleshooting

Advantech provides easy-to-use analysis tools and utilities that allow you to monitor or log data between two communicating devices, and help you acquire the data within a friendly user interface. Diagnostic functions make the installation process trouble free.

An RS-485 Network with Automatic Data Flow Control Using RS-232 Software

The RS-485 mode automatically senses the direction of incoming data and switches its transmission direction accordingly. The feature makes your network look and act just like an RS-232 network. Application software written for half duplex RS-232 can be used without modification. Moreover, you can simply and quickly build an RS-485 network with just two wires.

Industrial Communication Cards Selection Guide

Bus	Model Name	Ports	Communication Interfaces					Protection		Cable Connector Type	Page
			Current Loop	RS-232	RS-422	RS-485	CAN	Surge	Isolation		
Universal Low Profile PCI	PCI-1602UP	2			V	V		2500 V _{OC}	2500 V _{OC}	DB9 Male	17-13
	PCI-1604UP	2		V				2500 V _{OC}		DB9 Male	17-13
	PCI-1610UP	4		V				2500 V _{OC}		DB9 Male	17-13
	PCI-1610AUP	4		V						DB9 Male	17-13
PCI & Universal PCI	PCI-1601A	2			V	V				-	17-4
	PCI-1601B	2			V	V		2500 V _{OC}		-	17-4
	PCI-1602A	2			V	V			3000 V _{OC}	-	17-4
	PCI-1602B	2			V	V		2500 V _{OC}	3000 V _{OC}	-	17-4
	PCI-1603	2	V	V					3000 V _{OC}	-	17-5
	PCI-1610A	4		V						DB25 Male	17-6
	PCI-1610A/9	4		V						DB9 Male	17-6
	PCI-1610B	4		V				3000 V _{OC}		DB25 Male	17-6
	PCI-1610B/9	4		V				3000 V _{OC}		DB9 Male	17-6
	PCI-1610CU	4		V				2500 V _{OC}	2500 V _{OC}	DB25 Male	17-6
	PCI-1610CU/9	4		V				2500 V _{OC}	2500 V _{OC}	DB9 Male	17-6
	PCI-1611U	4			V	V		2500 V _{OC}	2000 V _{OC}	DB25 Male	17-7
	PCI-1611U/9	4			V	V		2500 V _{OC}	2000 V _{OC}	DB9 Male	17-7
	PCI-1612A	4		V	V	V				DB25 Male	17-8
	PCI-1612A/9	4		V	V	V				DB9 Male	17-8
	PCI-1612B	4		V	V	V		2500 V _{OC}		DB25 Male	17-8
	PCI-1612B/9	4		V	V	V		2500 V _{OC}		DB9 Male	17-8
	PCI-1612AU	4		V	V	V				DB25 Male	17-8
	PCI-1612AU/9	4		V	V	V				DB9 Male	17-8
	PCI-1612BU	4		V	V	V		2500 V _{OC}		DB25 Male	17-8
	PCI-1612BU/9	4		V	V	V		2500 V _{OC}		DB9 Male	17-8
	PCI-1612CU	4		V	V	V		2500 V _{OC}	2500 V _{OC}	DB25 Male	17-8
	PCI-1612CU/9	4		V	V	V		2500 V _{OC}	2500 V _{OC}	DB9 Male	17-8
	PCI-1620A	8		V						Optional	17-9
	PCI-1620B	8		V				3000 V _{OC}		Optional	17-9
	PCI-1620AU	8		V						Optional	17-9
	PCI-1620BU	8		V				2500 V _{OC}		Optional	17-9
	PCI-1622CU	8			V	V		2500 V _{OC}	2500 V _{OC}	Optional	17-10
	PCI-1625U *	8		V	V**					Optional	17-11
	PCI-1680U	2					V		2500 V _{OC}	-	17-18
ISA	PCL-740	1	V	V	V	V				-	17-14
	PCL-741	2	V	V					2500 V _{OC}	-	17-14
	PCL-743B	2			V	V				-	17-14
	PCL-743S	2			V	V		2500 V _{OC}		-	17-14
	PCL-745B	2			V	V			3000 V _{OC}	-	17-14
	PCL-745S	2			V	V		2500 V _{OC}	3000 V _{OC}	-	17-14
	PCL-841	2					V		1000 V _{OC}	-	17-19
	PCL-746+	4		V	V	V				DB25 Male	17-14
	PCL-746+/9	4		V	V	V				DB9 Male	17-14
	PCL-846A	4			V	V			1000 V _{OC}	DB9 Male	17-15
	PCL-846B	4			V	V		2000 V _{OC}	1000 V _{OC}	DB9 Male	17-15
	PCL-849A	4		V						DB25 Male	17-15
	PCL-849A/9	4		V						DB9 Male	17-15
	PCL-849B	4		V				3000 V _{OC}		DB25 Male	17-15
	PCL-849B/9	4		V				3000 V _{OC}		DB9 Male	17-15
	PCL-849+	4		V				3000 V _{OC}		DB25 Male	17-15
	PCL-849+/9	4		V				3000 V _{OC}		DB9 Male	17-15
	PCL-849L	4		V						DB25 Male	17-16
	PCL-849L/9	4		V						DB9 Male	17-16
	PCL-844+ *	8		V	V**					Optional	17-15
	PCL-858A	8		V						Optional	17-15
	PCL-858B	8		V				3000 V _{OC}		Optional	17-15
PC/104	PCM-3610	2		V	V	V			1000 V _{OC}	-	17-16
	PCM-3612	2			V	V				-	17-16
	PCM-3680	2					V		1000 V _{OC}	-	17-19
	PCM-3614	4			V	V		1000 V _{OC}		-	17-16
	PCM-3640/3641	4		V						-	17-17
	PCM-3618	8			V	V		1000 V _{OC}		-	17-17

Accessories (See Page 16-20)

Model Name	Connectors Side 1	Connectors Side 2	Length	Type	Use With
OPT8AP	1 x DB62 Male	8 x DB25 Female	1.5 m	Connection Box	PCI-1620A/B/AU/BU PCI-1625U PCL-844+ PCL-858A/B
OPT8BP	1 x DB62 Male	8 x DB25 Male	1.5 m	Connection Box	
OPT8FP	1 x DB62 Male	8 x DB25 Female	1.5 m	Connection Box	
OPT8C	1 x DB62 Male	8 x DB25 Male	1 m	Cable	
OPT8H	1 x DB62 Male	8 x DB9 Male	1 m	Cable	PCI-1622CU
OPT8I	1 x DB78 Male	8 x DB25 Male	1 m	Cable	
OPT8J	1 x DB78 Male	8 x DB9 Male	1 m	Cable	

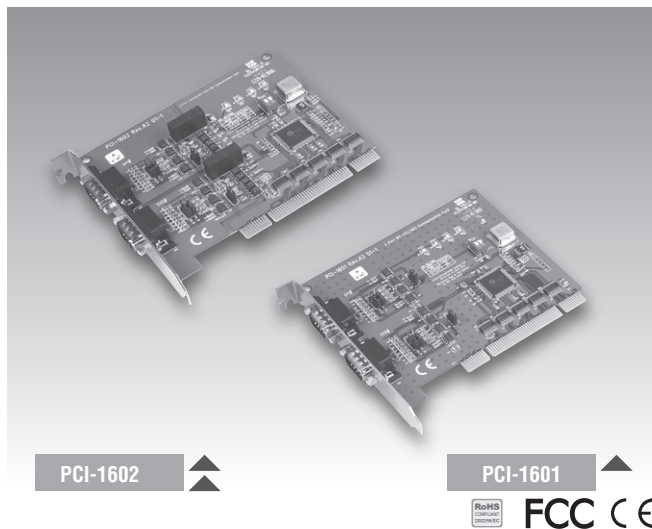
* Intelligent Communication Card, ** Link with OPT8FP can support RS-422

1	PAC & Software
2	BAS
3	UNO
4	RS-485 I/O
5	Ethernet I/O
6	TPC
7	IPPC
8	FPM
9	AWS
10	Plug-in I/O
11	CompactPCI
12	Signal Conditioning
13	USB I/O
14	Motion Control I/O
15	Ethernet Switch
16	EDG
17	ICOM

PCI-1601 PCI-1602

2-port RS-422/485 PCI Communication Card

2-port RS-422/485 PCI Communication Card, w/Isolation Protection



Features

- PCI bus specification 2.2 compliant
- Speeds up to 921.6 kbps
- 2-port RS-422/485 interface
- I/O address automatically assigned by PCI Plug & Play
- OS support: Windows® 98/ME/2000/XP/XP Embedded, Linux
- Optional EFT Surge protection
- Optional isolation protection for RS-422/485
- Interrupt status register for increased performance
- Space reserved for termination resistors
- Automatic RS-485 data flow control
- Powerful and easy-to use utility (ICOM Tools)

Introduction

PCI-1601 and PCI-1602 are 2 port RS-422/485 PCI communication cards that are compatible with the PCI 2.1 bus specification. Both cards provide two optional isolated and EFT surge protected RS-422/485 ports, and comes with features such as: high transmission speed of 921.6 kbps, optional EFT Surge & isolation protection, windows utility software and more. The cards also come with high-performance 16PCI952 UART with a 128-byte FIFO to reduce CPU load. This makes the PCI-1601 and PCI-1602 especially suitable for multitasking environments.

PCI-1602 is available with 3,000 V_{DC} optical isolation to protect your PC and equipment against damages from ground loops in harsh environments. To further increase reliability, both boards has EFT surge protection technology, protecting your system from abrupt high voltages up to 2,500 V_{DC} (PCI-1601B and PCI-1602B). Besides, Advantech also provides a convenient utility program called ICOM Tools, to help test the PCI card performance by analyzing the port status. Controlled by easy-to-use menu commands and toolbar buttons, ICOM Tools acts as a PC-based data scope that lets you set a trigger condition, capture the communications data and monitors the signal status. In addition, ICOM Tools is applicable to all series of Advantech ICOM cards.

Specifications

General

▪ Bus Type	PCI V 2.2	
▪ Certifications	CE, FCC class A	
▪ Connectors	2 x DB9-M	
▪ Dimensions	123 x 92 mm (4.8" x 3.6")	
▪ Power Consumption	Typical	Max
PCI-1601	220 mA (+5 V)	270 mA (+5 V)
PCI-1602	250 mA (+5 V)	300 mA (+5 V)

Communications

▪ Communications Controller	16PCI952
▪ Data Bits	5, 6, 7, 8
▪ Data Signals	Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS-, GND (RS-422) Data+, Data-, GND (RS-485)
▪ FIFO	128 bytes
▪ Flow Control	RTS/CTS. Xon/Xoff
▪ IRQ	Assigned by Plug & Play
▪ Parity	None, even, odd
▪ Speed	50 bps ~ 921.6 kbps
▪ Stop Bits	1, 1.5, 2

Protection

▪ ESD Protection	16 kV
▪ Isolation Protection	3,000 V _{DC} (PCI-1602A/B only)
▪ EFT Surge Protection	2,500 V _{DC} (PCI-1601B/PCI-1602B only)

Software

▪ Bundled Software	ICOM Tools
▪ Driver Support	Windows 98/ME/2000/XP/XP Embedded, Linux

Environment

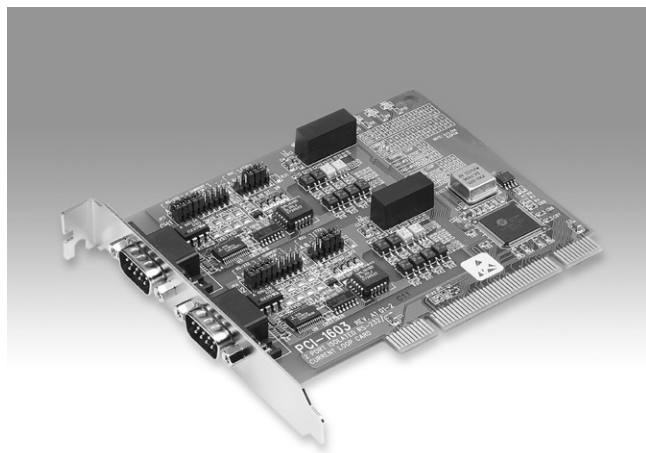
▪ Humidity (Operating)	5 ~ 95 % RH, non-condensing (refer to IEC 68-2-3)
▪ Operating Temperature	0 ~ 65° C (refer to IEC 68-2-1, 2) (32 ~ 149° F)
▪ Storage Temperature	-25 ~ 85° C (-13 ~ 185° F)

Ordering Information

▪ PCI-1601A	2-port RS-422/485 PCI COMM Card
▪ PCI-1601B	2-port RS-422/485 PCI COMM Card, w/EFT Surge Protection
▪ PCI-1602A	2-port RS-422/485 PCI COMM Card, w/Isolation Protection
▪ PCI-1602B	2-port RS-422/485 PCI COMM Card, w/Isolation and EFT Surge Protection

PCI-1603

2-port Isolated RS-232/Current-loop PCI Communication Card



Features

- Two independent RS-232 or Current-loop serial ports
- Each port can be individually configured to RS-232 or current-loop
- 16PCI952 FIFO UART (128-byte FIFO)
- PCI bus specification 2.2 compliant
- Speeds:
 - RS-232: 50 bps ~ 230.4 kbps
 - Current-loop: 57.6 kbps
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows® 98/ME/2000/XP/XP Embedded, Linux
- Interrupt status register for increased performance
- Powerful and easy-to-use utility (ICOM Tools)
- Universal PCI (Supports 3.3 V or 5 V PCI bus signal)

Introduction

PCI-1603 offers a versatile range of high-speed interfacing options. You can switch its ports between the popular RS-232 or noise-resistant current-loop. The card utilizes 16PCI952 UARTs with 128-byte FIFO buffer for faster and more reliable communication, especially under multi-tasking environments such as Windows operating systems.

PCI-1603 provides two isolated RS-232 or current-loop serial ports. You can configure each port individually to RS-232 or current-loop using onboard jumpers.

The card utilizes 16PCI952 UART that buffers data into packets before sending it to the bus. This drastically reduces CPU load and avoids data loss when the system is busy and cannot process an interrupt quickly. These FIFO buffers make the PCI-1603 especially suitable for high speed serial I/O under Windows.

Onboard optical isolators protect your PC and equipment against damage from ground loops, increasing system reliability in harsh environments.

Specifications

General

- **Bus Type** Universal PCI V 2.2
- **Certifications** CE, FCC class A
- **Connectors** 2 x DB9-M
- **Dimensions** 123 x 92 mm (4.8" x 3.6")
- **Power Consumption** +5 V (250 ~ 300 mA)

Current-loop Interface

- **Baud-rate** 50 ~ 57600 bps
- **Current Value** 20 mA (Standard)
- **Mode** Asynchronous, full duplex
- **Signal Driver/receiver** 6N136
- **Signals** TxD+, TxD-, RxD+, RxD-
- **Transmission Distance** 1000 m

Communications

- **Communication Controller** 16PCI952
- **Data Bits** 5, 6, 7, 8
- **Data Signals** RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
Current Loop: Tx+, Tx-, Rx+, Rx-
- **FIFO** 128 bytes
- **Flow Control** RTS/CTS, Xon/Xoff
- **IRQ** Assigned by Plug & Play
- **Parity** None, even, odd
- **Speed** RS-232: 50 bps ~ 230.4 kbps
Current Loop: 50 bps ~ 57.6 kbps
- **Stop Bits** 1, 1.5, 2

Software

- **Bundled Software** ICOM Tools
- **Driver Support** Windows 98/ME/2000/XP/XP embedded, Linux

Protection

- **ESD Protection** 16 kV
- **Isolation Protection** 3,000 V_{DC} for RS-232 and current-loop

Environment

- **Humidity (Operating)** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Operating Temperature** 0 ~ 65° C (refer to IEC 68-2-1, 2) (32 ~ 149° F)
- **Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **PCI-1603** 2-port Isolated RS-232/current-loop PCI Comm. Card

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

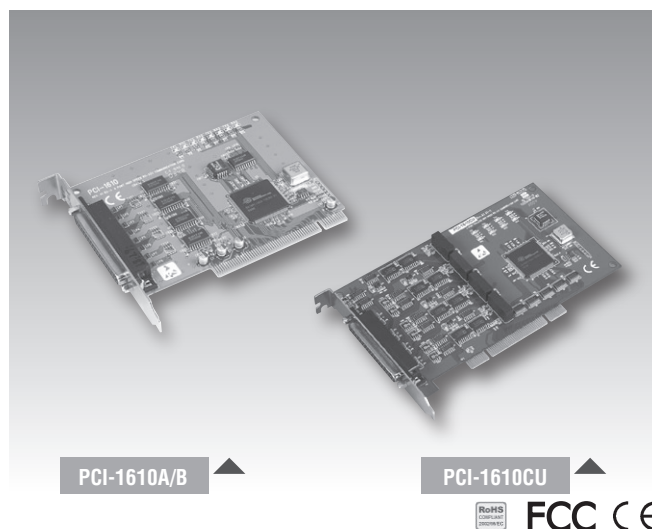
15
Ethernet Switch

16
EDG

17
ICOM

PCI-1610 Series

4-port RS-232 PCI Communication Cards



Features

- PCI bus specification 2.1(PCI-1610A/1610B), 2.2 (PCI-1610CU) compliant
- Speeds up to 921.6 kbps
- 4-port RS-232
- 16PCI954 UARTs with 128-byte FIFOs standard
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows® 98/ME/2000/XP/XP Embedded, Linux
- Interrupt status register for increased performance
- Powerful and easy to use Utility (ICOM Tools)
- Universal PCI (Supports 3.3 V or 5 V PCI bus signal) (PCI-1610CU only)
- 2,500 V_{DC} EFT Surge Protection (PCI-1610B/1610CU)
- 2,500 V_{DC} Isolation Protection (PCI-1610CU only)

Introduction

PCI-1610 is a 4-port RS-232 PCI communication card that is compatible with the PCI 2.1 bus specification. (PCI-1610CU is also compliant with 2.2) and offer transmission speeds up to 921.6 kbps. PCI-1610 also comes with high-performance 16PCI954 UART with a 128-byte FIFO to reduce CPU load. These components make your system more stable and reliable. Thus, the PCI-1610 is especially suitable for multitasking environments.

PCI-1610CU has a universal PCI connector that is compatible with both the latest 3.3 V signaling systems and the traditional 5V signaling system. This gives high compatibility and allows usage in diverse systems. To further increase reliability, the PCI-1610B and PCI-1610CU offers EFT surge protection technology, protecting your system from abrupt high voltages up to 2,500 V_{DC}. PCI-1610CU also provides 2,500 V_{DC} isolation to protect your PC and equipment against damages from ground loops in harsh environments.

Advantech also provides a convenient utility program, ICOM Tools, to help test the PCI card performance by analyzing the port status. With menu commands and toolbar buttons, ICOM Tools acts as a PC-based data scope that lets you set a trigger condition, capture the communications data and monitor the signal status. ICOM Tools is applicable to all series of Advantech ICOM cards.

Specifications

General

- **Bus Type** PCI V 2.1 (PCI-1610A/1610B)
Universal PCI V 2.2 (PCI-1610CU)
- **Certifications** CE, FCC class A
- **Connectors** 1 x DB37-F
- **Dimensions (L x W)** 123 x 92 mm (4.8" x 3.6") (for 1610A and PCI-1610B)
185 x 100 mm (7.3" x 3.9") (for PCI-1610CU)
- **Power Consumption**

	Typical	Max
+12 V:	60 mA	80 mA
+5 V:	150 mA	180 mA

Communications

- **Communication Controller** 16PCI954
- **Data Bits** 5, 6, 7, 8
- **Data Signals** TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND, RI
- **FIFO** 128 bytes
- **Flow Control** RTS/CTS, Xon/Xoff
- **IRQ** Assigned by Plug & Play
- **Parity** None, even, odd
- **Stop Bits** 1, 1.5, 2
- **Speed** 50 bps ~ 921.6 kbps

Protection

- **ESD Protection** 16 kV
- **Isolation Protection** 2,500 V_{DC} (PCI-1610CU only)
- **EFT Surge Protection** 2,500 V_{DC} (PCI-1610B/1610CU only)

Software

- **Bundled Software** ICOM Tools
- **Driver Support** Windows 98/ME/2000/XP/XP Embedded, Linux

Environment

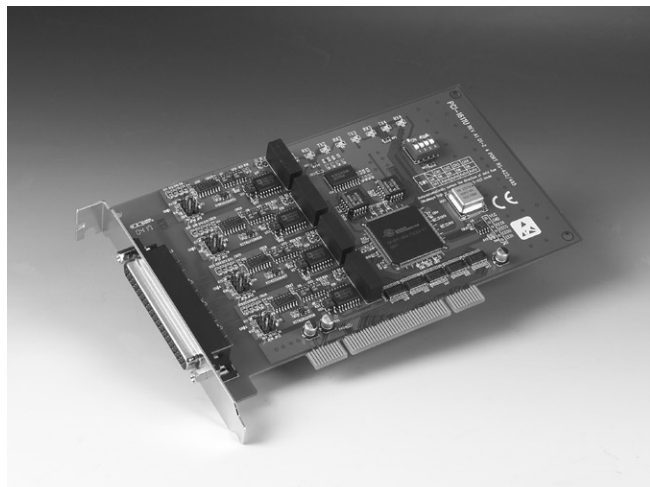
- **Humidity (Operating)** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Operating Temperature** 0 ~ 65° C (refer to IEC 68-2-1, 2), (32 ~ 149° F)
- **Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **PCI-1610A** 4-port RS-232 PCI COMM Card (30 cm DB37 to 4 DB25 cable included)
- **PCI-1610A/9** 4-port RS-232 PCI COMM Card (30 cm DB37 to 4 DB9 cable included)
- **PCI-1610B** 4-port RS-232 PCI COMM Card w/EFT Surge Protection (30 cm DB37 to 4 DB25 cable included)
- **PCI-1610B/9** 4-port RS-232 PCI COMM Card w/ EFT Surge Protection (30cm DB37 to 4 DB9 cable included)
- **PCI-1610CU** 4-port RS-232 Universal PCI COMM Card w/Isolation & EFT Surge Protection (30 cm DB37 to 4 DB25 cable included)
- **PCI-1610CU/9** 4-port RS-232 Universal PCI COMM Card w/Isolation & EFT Surge Protection (30 cm DB37 to 4 DB9 cable included)

PCI-1611U

4-port RS-422/485 Universal PCI Communication Card, w/Isolation & EFT Surge Protection



Features

- PCI bus Specification 2.2 compliant
- Speeds up to 921.6 kbps
- 4-port RS-422/485
- 16PCI954 UARTs with 128-byte FIFOs standard
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows® 98/ME/2000/XP/XP Embedded, Linux
- Interrupt status register for increased performance
- Space reserved for termination resistors
- Automatic RS-485 data flow control
- Powerful and easy to use utility (ICOM Tools)
- Universal PCI (Supports 3.3 V or 5 V PCI bus signal)
- 2,500 V_{DC} EFT Surge Protection
- 2,000 V_{DC} Isolation Protection

Introduction

PCI-1611U is a 4-port RS-422/485 PCI communication card that is compatible with the PCI 2.2 bus specification. The PCI-1611U provides many functions such as four independent RS-422/485 ports with isolation protection, high transmission speed of 921.6 kbps, and EFT surge protection. PCI-1611U also comes with high-performance 16PCI954 UARTs with a 128-byte FIFO to reduce CPU loading. These components make your system more stable and reliable. Thus, the PCI-1611U is especially suitable for multitasking environments.

PCI-1611U has a universal PCI connector that is compatible with both newer 3.3 V signaling systems and the traditional 5 V signaling systems. This gives high compatibility and allows usage in diverse systems.

To improve the performance of the system, the PCI-1611U allows transmission rates up to 921.6 kbps, and to further increase reliability, the PCI-1611U offers EFT surge protection technology, protecting your system from abrupt high voltages up to 2,500 V_{DC}. Besides, Advantech also provides a convenient utility program, ICOM Tools, to help you test the PCI card's performance by analyzing the port status. The easy-to-use graphical user interface of ICOM Tools works like a PC-based data scope that lets you set trigger conditions to capture communication data and monitor a signal's status. ICOM Tools is applicable to all series of Advantech ICOM cards.

Specifications

General

- **Bus Type** Universal PCI V 2.2
- **Certifications** CE, FCC class A
- **Connectors** 1 x DB37-F
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** 600 mA @ 5 V

Communications

- **Communication Controller** 16PCI954
- **Data Bits** 5, 6, 7, 8
- **Data Signals** Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS-, GND (RS-422), Data+, Data-, GND (RS-485)
- **FIFO** 128 bytes
- **Flow Control** RTS/CTS, Xon/Xoff
- **IRQ** Assigned by Plug & Play
- **Parity** None, even, odd
- **Speed** 50 bps ~ 921.6 kbps
- **Stop Bits** 1, 1.5, 2

Protection

- **ESD Protection** 16 kV
- **Isolation Protection** 2,000 V_{DC}
- **EFT Surge Protection** 2,500 V_{DC}

Software

- **Bundled Software** ICOM Tools
- **Driver Support** Windows 98/ME/2000/XP/XP Embedded, Linux

Environment

- **Operating Temperature** 0 ~ 65° C (refer to IEC 68-2-1, 2), (32 ~ 149° F)
- **Humidity (Operating)** 5 ~ 95 % Relative Humidity, non-condensing (refer to IEC 68-2-3)
- **Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **PCI-1611U** 4-port RS-422/485 Universal PCI Communication Card, w/Isolation & EFT Surge Protection (30 cm DB37 to 4 DB25 cable included)
- **PCI-1611U/9** 4-port RS-422/485 Universal PCI Communication Card, w/Isolation & EFT Surge Protection (30 cm DB37 to 4 DB9 cable included)

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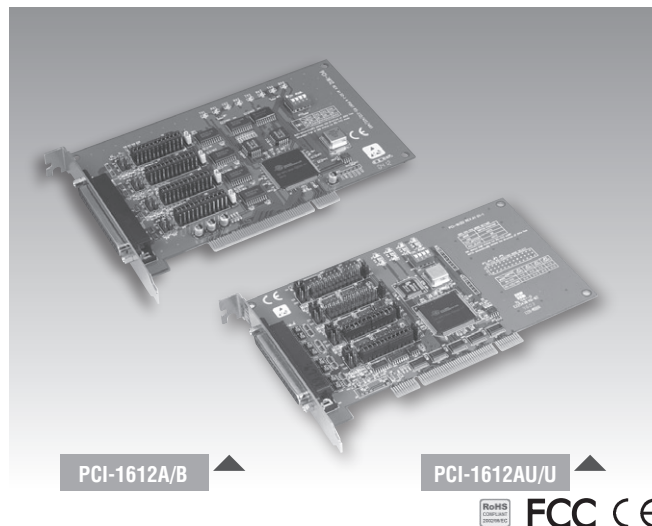
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PCI-1612 Series

4-port RS-232/422/485 PCI Communication Cards



Features

- PCI bus specification 2.1(PCI-1612A/1612B), 2.2 (PCI-1612AU/1612BU/1612CU) compliant
- Speeds up to 921.6 kbps
- 4-port RS-232/422/485
- 16PCI954 UARTs with 128-byte FIFOs standard
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows® 98/ME/2000/XP/XP Embedded, Linux
- Interrupt status register for increased performance
- Space reserved for termination resistors
- Automatic RS-485 data flow control
- Powerful and easy to use utility (ICOM Tools)
- Universal PCI (Supports 3.3 V or 5 V PCI bus signal) (PCI-1612AU, PCI-1612BU, PCI-1612CU)
- 2,500 V_{DC} EFT Surge Protection (PCI-1612B/1612BU/1612CU)
- 2,500 V_{DC} Isolation Protection (PCI-1612CU only)

Introduction

PCI-1612 is a 4-port RS-232/422/485 PCI communication card that is compatible with the PCI 2.1/2.2 bus specification and offer transmission rates up to 921.6 kbps. PCI-1612 comes with high-performance 16PCI954 UARTs with a 128-byte FIFO to reduce CPU load. These components make your system more stable and reliable. Thus, the PCI-1612 is especially suitable for multitasking environments.

PCI-1612AU, PCI-1612BU and PCI-1612CU have universal PCI connectors that are compatible with both newer 3.3 V signaling systems and the traditional 5 V signaling system. This gives highly-compatibility and allows usage in diverse systems. To further increase reliability, PCI-1612B, PCI-1612BU and PCI-1612CU offers EFT surge protection for high voltages up to 2,500 V_{DC}. Meanwhile, PCI-1612CU provides 2,500 V_{DC} isolation to protect your PC and equipment against damages from ground loops in harsh environments. Advantech also provides a convenient utility program called ICOM Tools to help test the PCI card performance by analyzing the port status. The menu commands and toolbar buttons of ICOM Tools acts as a PC-based data scope that lets you set a trigger condition, capture the communications data and monitor the signal status. ICOM Tools is applicable to all series of Advantech ICOM cards.

Specifications

General

- **Card Interface** PCI V 2.1 (PCI-1612A, PCI-1612B)
Universal PCI V2.2 (PCI-1612BU, PCI-1612AU, 1612CU)
- **Certifications** CE, FCC class A
- **Connectors** 1 x DB37-F
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption**

Typical	Max
+12 V: 60 mA	+12 V: 80 mA
+5 V: 270 mA	+5 V: 338 mA

Communications

- **Communication Controller** 16PCI954
- **Data Bits** 5, 6, 7, 8
- **Data Signals** Tx+, Rx+, RTS, CTS, DTR, DSR, DCD, RI, GND(RS-232)
Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS- (RS-422)
Data+, Data- (RS-485)
- **FIFO** 128 bytes
- **Flow Control** RTS/CTS, Xon/Xoff
- **IRQ** Assigned by Plug & Play
- **Parity** None, even, odd
- **Speed** 50 bps ~ 921.6 kbps
- **Stop Bits** 1, 1.5, 2

Protection

- **EFT Surge Protection** 2,500 V_{DC} (PCI-1612B/1612BU/1612CU only)
- **ESD Protection** 16 kV
- **Isolation Protection** 2,500 V_{DC} (PCI-1612CU only)

Software

- **Bundled Software** ICOM Tools
- **Driver Support** Windows 98/ME/2000/XP/XP Embedded, Linux

Environment

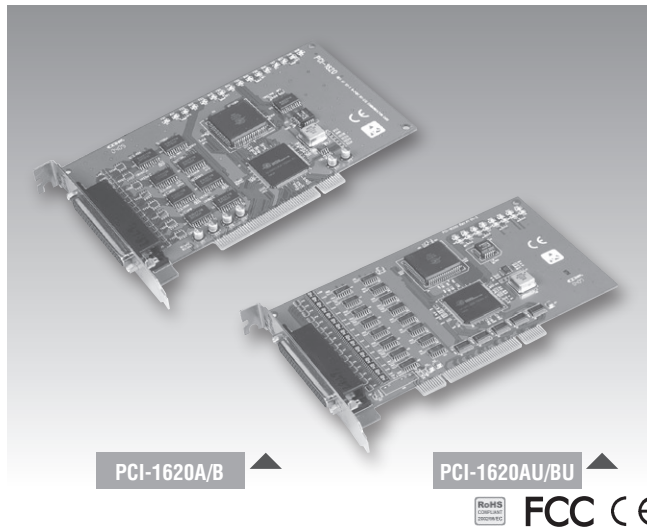
- **Humidity (Operating)** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Operating Temperature** 0 ~ 65° C (refer to IEC 68-2-1, 2), (32 ~ 149° F)
- **Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **PCI-1612A** 4-port RS-232/422/485 PCI COMM Card (30 cm DB37 to 4 DB25 cable included)
- **PCI-1612A/9** 4-port RS-232/422/485 PCI COMM Card (30 cm DB37 to 4 DB9 cable included)
- **PCI-1612B** 4-port RS-232/422/485 PCI COMM Card w/EFT Surge Protection (30 cm DB37 to 4 DB25 cable included)
- **PCI-1612B/9** 4-port RS-232/422/485 PCI COMM Card w/EFT Surge Protection (30 cm DB37 to 4 DB9 cable included)
- **PCI-1612AU** 4-port RS-232/422/485 Universal Comm. Card (30 cm DB37 to 4 DB25 cable included)
- **PCI-1612AU/9** 4-port RS-232/422/485 Universal Comm. Card (30 cm DB37 to 4 DB9 cable included)
- **PCI-1612BU** 4-port RS-232/422/485 Universal PCI COMM Card w/EFT Surge Protection (30 cm DB37 to 4 DB25 cable included)
- **PCI-1612BU/9** 4-port RS-232/422/485 Universal PCI COMM Card w/EFT Surge Protection (30 cm DB37 to 4 DB9 cable included)
- **PCI-1612CU** 4-port RS-232/422/485 Universal PCI COMM Card w/Isolation & EFT Surge Protection (30 cm DB37 to 4 DB25 cable included)
- **PCI-1612CU/9** 4-port RS-232/422/485 Universal PCI COMM Card w/Isolation & EFT Surge Protection (30 cm DB37 to 4 DB9 cable included)

PCI-1620 Series

8-port RS-232 PCI Communication Cards



Features

- PCI bus specification 2.1, 2.2 (PCI-1620U, PCI-1620AU) compliant
- Speeds up to 921.6 kbps
- 8-port RS-232
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows® 98/ME/2000/XP/XP Embedded, Linux
- Interrupt status register for increased performance
- Powerful and easy-to-use utility (ICOM Tools)
- Universal PCI (Supports 3.3 V or 5 V PCI bus signal) (PCI-1620AU, PCI-1620U)

Introduction

PCI-1620 is an 8-port RS-232 PCI communication card that is compatible with the PCI 2.1 bus specification. The card provides eight optional EFT surge protected RS-232 ports, and has many functions such as high transmission speed of 921.6 kbps, eight independent RS-232 ports and also comes with high-performance 16PC1954 UARTs with 128-byte FIFO and a 16C954 UART to reduce CPU load. Thus, the PCI-1620 is especially suitable for making your system reliable in multitasking environments.

PCI-1620AU and PCI-1620BU have an universal PCI connector that is compatible with both 3.3 V signaling and 5 V signaling. This means that PCI-1610AU and PCI-1620BU can not only be used in traditional systems with 5 V signaling but also newer systems with 3.3 V signaling.

To further increase reliability, PCI-1620B and PCI-1620BU offer EFT surge protection technology, protecting your system from abrupt high voltages of up to 3,000 V_{dc}. Advantech also provides a convenient utility program called ICOM Tools, to help you test the PCI card's performance by analyzing the port status. ICOM Tools is easy to use with its menu commands and toolbar buttons, and acts as a PC-based data scope that lets you set a trigger condition, capture the communications data and monitor the signal status. ICOM Tools is applicable to all series of Advantech ICOM cards.

Specifications

General

- **Bus Type** PCI-1620A, PCI-1620B: PCI V2.1
PCI-1620AU, PCI-1620BU: Universal PCI V2.2
- **Certifications** CE, FCC class A
- **Connectors** 1 x DB62-F
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption**

Typical	Max
+12 V: 120 mA	+5 V: 180 mA
+12 V: 150 mA	+5 V: 220 mA
- **Power Requirement** ±12 V

Communications

- **Communication Controller** 16PC1954+16C954
- **Data Bits** 5, 6, 7, 8
- **Data Signals** Tx/D, Rx/D, RTS, CTS, DTR, DSR, DCD, GND (RS-232)
- **FIFO** 128 bytes
- **Flow Control** RTS/CTS, Xon/Xoff
- **IRQ** Assigned by Plug & Play
- **Parity** None, even, odd
- **Speed** 50 bps ~ 921.6 kbps
- **Stop Bits** 1, 1.5, 2

Protection

- **ESD Protection** 16 kV
- **EFT Surge Protection** 3,000 V_{dc} (PCI-1620B)
2,500 V_{dc} (PCI-1620U)

Software

- **Bundled Software** ICOM Tools
- **Driver Support** Windows 98/ME/2000/XP/XP Embedded, Linux

Environment

- **Operating Temperature** 0 ~ 65° C (refer to IEC 68-2-1,2) (32 ~ 149° F)
- **Humidity (Operating)** 5 ~ 95 % RH, non-condensing (refer to IEC 68-2-3)
- **Storage Temperature** -25 ~85° C (-13 ~ 185° F)

Ordering Information

- **PCI-1620A** 8-port RS-232 PCI COMM Card (cables not included)
- **PCI-1620B** 8-port RS-232 PCI COMM Card, w/EFT Surge Protection (cables not included)
- **PCI-1620AU** 8-port RS-232 Universal PCI COMM Card (cables not included)
- **PCI-1620BU** 8-port RS-232 Universal PCI COMM Card w/Surge Protection (cables not included)
- **Opt8C** 8-port RS-232 cable with male DB62 to DB25 connector (1 m)
- **Opt8H** 8-port RS-232 cable with male DB62 to DB9 connector (1 m)
- **OPT8AP** 8-port RS-232(DCE) connection box with female DB25 connectors
- **OPT8BP** 8-port RS-232(DTE) connection box with male DB25 connectors
- **OPT8FP** 8-port RS-422 to RS-232 converter connection box with Isolation Protection

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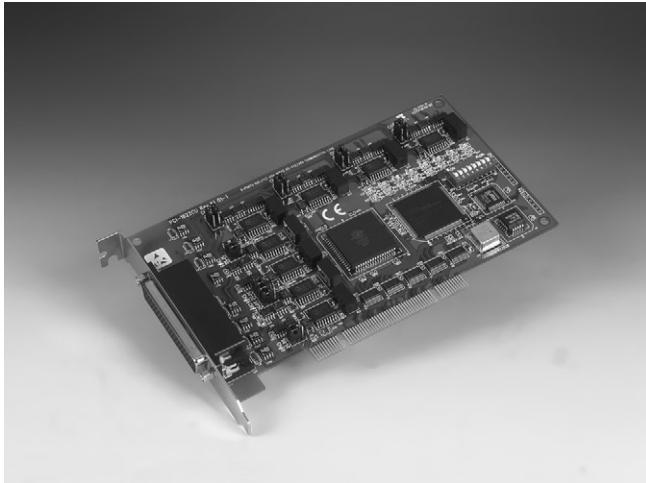
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PCI-1622CU

8-port RS-422/485 Universal PCI Communication Card, w/Isolation & EFT Surge Protection



RoHS Compliant FCC CE

Features

- PCI Specification 2.2 compliant
- Speeds up to 921.6 kbps
- 8-port RS-422/485
- 16PCI954 UARTs with 128-byte FIFOs standard
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows® 98/ME/2000/XP/XP Embedded, Linux
- Interrupt status register for increased performance
- Space reserved for termination resistors
- Automatic RS-485 data flow control
- Powerful and easy to use utility (ICOM Tools)
- Universal PCI (Supports 3.3 V or 5 V PCI bus signal)
- 2,500 V_{DC} EFT Surge Protection
- 2,500 V_{DC} Isolation Protection

Introduction

PCI-1622CU is an 8-port RS-422/485 PCI communication card that is compatible with the PCI 2.2 bus specification. PCI-1622CU provides many functions such as eight independent RS-422/485 ports with isolation protection, high transmission speed of 921.6 kbps, surge protection and comes with high-performance 16PCI954 UARTs with a 128-byte FIFO to reduce CPU load. These components make your system more stable and reliable. Thus, the PCI-1622CU is especially suitable for multitasking environments.

PCI-1622CU has a universal PCI connector that is compatible with both newer 3.3 V signaling systems and the traditional 5 V signaling system. This gives high-compatibility and allows usage in diverse systems.

To further increase reliability, the PCI-1622CU offers EFT surge protection from high voltages up to 2,500 V_{DC} and 2,500 V_{DC} isolation to protect your PC and equipment against damages from ground loops in harsh environments.

Advantech provides a convenient utility program called ICOM Tools to help test the PCI card's performance by analyzing the port status. The menu commands and toolbar buttons of ICOM Tools acts as a PC-based data scope that lets you set a trigger condition captures the communication data and monitors the signal status. ICOM Tools is applicable to all series of Advantech ICOM cards.

Specifications

General

- **Card Interface** Universal PCI V2.2
- **Certifications** CE, FCC class A
- **Connectors** 1 x DB78-F
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** 600 mA @ 5 V

Communications

- **Communication Controller** 16PCI954+16C954
- **Data Bits** 5, 6, 7, 8
- **Data Signals** RTS+,RTS-,CTS+,CTS-,TX+,TX-,RX+,RX-,GND (for RS-422)
Data+,Data-, GND (for RS-485)
- **FIFO** 128 bytes
- **Flow Control** RTS/CTS, Xon/Xoff
- **IRQ** Assigned by Plug & Play
- **Parity** None, even, odd
- **Ports** 8
- **Speed** 50 bps ~ 921.6 kbps
- **Stop Bits** 1, 1.5, 2

Protection

- **ESD Protection** 16 kV
- **Isolation Protection** 2,500 V_{DC}
- **EFT Surge Protection** 2,500 V_{DC}

Software

- **Bundled Software** ICOM Tools
- **Driver Support** Windows 98/ME/2000/XP/XP Embedded, Linux

Environment

- **Humidity** 5 ~ 95% RH, non-condensing, (IEC 68-2-3)
- **Operating Temperature** 0 ~ 65° C (32 ~ 149° F) (IEC 68-2-1, 2)
- **Storing Temperature** -25 ~ 85° C (-13 ~ 185° F)

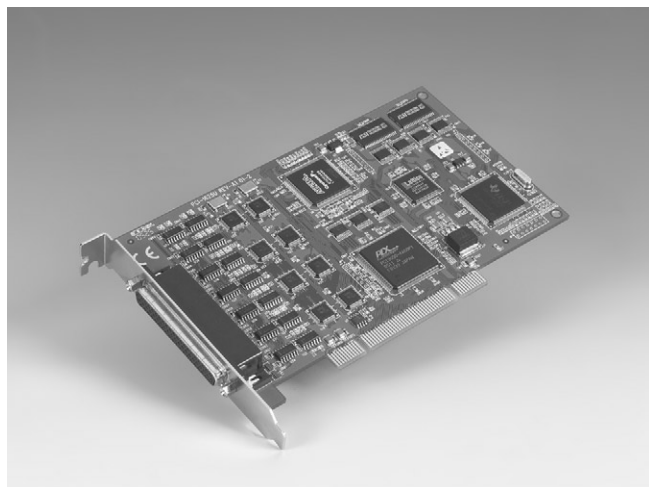
Ordering Information

- **PCI-1622CU** 8-port RS-422/485 Universal PCI COMM Card w/Isolation and EFT Surge Protection (cables not included)
- **OPT8I** 1 m DB78 to 8 DB25 cable
- **OPT8J** 1 m DB78 to 8 DB9 cable

Note: For most applications the PCI-1622 requires an OPT8I or OPT8J cable.

PCI-1625U

8-port Intelligent RS-232 Universal PCI Communication Card



Features

- RISC processor (TMS320)
- 1 MB SRAM
- PCI Specification 2.2 compliant
- Speed up to 921.6 kbps
- 8-port RS-232
- I/O address automatically assigned by PCI Plug & Play
- OS supported: Windows 2000/XP
- Powerful and easy to use utility (ICOM tools)
- Link with OPT8FP peripherals up to 1200m (4000ft) from controller (RS-422)
- Universal PCI (Supports 3.3 V or 5 V PCI bus signal)

Introduction

The intelligent PCI-1625U is virtually a self contained computer. The card has an onboard DSP processor that takes over the processing load from the host PC. When you are transferring large amounts of data from multiple ports, servicing the interrupts alone consumes a large percentage of the capacity of your computer's CPU. PCI-1625U serves as a high-speed dedicated interrupt processor. PCI-1625U also has 1 MB of SRAM which can store serial data and reduce host CPU loading effectively. When PCI-1625U initializes, it downloads the driver software (which functions like a PC's BIOS) into its onboard DSP. This improves performance and makes version upgrading easy so there is no hardware redundancy.

PCI-1625U has a universal PCI connector that is compatible with both newer 3.3 V PCI bus and the traditional 5 V PCI bus. It also provides a convenient utility program called ICOM Tools to help test the PCI card performance by analyzing the port status. The menu commands and toolbar buttons of ICOM Tools acts as a PC-based data scope that lets you set a trigger condition, capture the communications data and monitor the signal status. ICOM Tools is applicable to all series of Advantech ICOM cards.

The intelligent PCI-1625U 8-port RS-232 or RS-422 interface card is designed for industrial applications where a PC needs to communicate with terminals, modems, or other instruments. RS-422 applications have to use the optional OPT8FP, 8-port RS-232 to RS-422 converter with 2,500 V_{DC} isolation protection. You can install up to four PCI-1625U cards for total of 32 ports in any PCI bus-based PC.

Specifications

General

- **Card Interface** Universal PCI V2.2
- **Certifications** CE, FCC class A
- **Connectors** 1 x DB62-F
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** 504 mA, max 558 mA @ 5 V

Communications

- **Controller** 8 x 16c550
- **Processor** TMS320c5402
- **Memory** 1 MB
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Data Signals** Tx/D, Rx/D, RTS, CTS, DTR, DSR, DCD, GND(RS-232)
- **Flow Control** RTS/CTS, Xon/Xoff
- **IRQ** Assigned by Plug & Play
- **Parity** None, even, odd
- **Speed** 50 bps ~ 921.6 kbps

Protection

- **ESD Protection** 16 kV

Software

- **Bundled Software** ICOM Tools
- **Driver Support** Windows 2000/XP

Environment

- **Operating Temperature** 0 ~ 65° C (refer to IEC 68-2-1,2) (32 ~ 149° F)
- **Storing Temperature** 5 ~ 95 % RH, non-condensing (refer to IEC 68-2-3)
- **Storing Humidity** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **PCI-1625U** 8-port Intelligent RS-232 Universal PCI Communication Card (cables not included)
- **OPT8AP** 8-port RS-232 (DCE) connection box with female DB25 connectors
- **OPT8BP** 8-port RS-232 (DTE) connection box with male DB25 connectors
- **OPT8C** 8-port RS-232 cable with male DB25 connector (1 m)
- **OPT8H** 8-port RS-232 cable with male DB9 connector (1 m)
- **OPT8FP** 8-port RS-422 to RS-232 converter connection box w/ Isolation Protection

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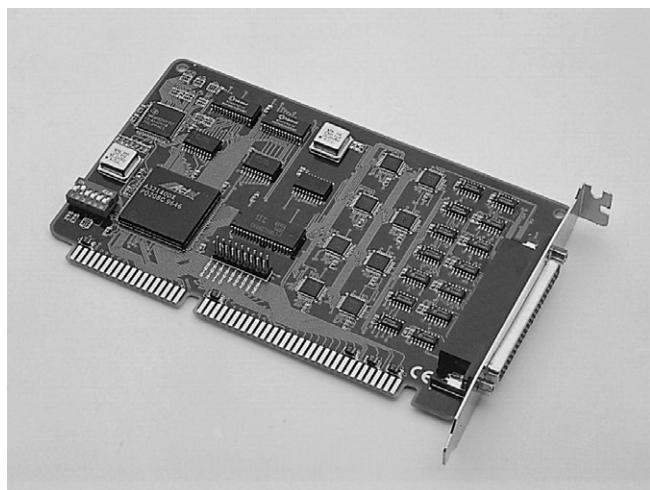
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PCL-844+

8-port Intelligent RS-232 ISA Communication Card



CE

Features

- RISC Processor (TMS 320)
- 512 KB dual-port RAM
- Transmission speed up to 921.6 kbps with eight ports on-line
- Complete RS-232 modem control signals
- Maps to just 16 KB of system memory. Choose one of six addresses from C8000 to DC000.
- Many IRQ options: 2, 3, 4, 5, 7, 10, 11, 12 or 15
- Easy-to-use menu driven installation program
- LEDs on connection box let you monitor the TxD/RxD status of any port
- Links via OPT8FP to peripherals up to 1200 m (4000 ft) from controller (RS-422)

Introduction

The intelligent PCL-844+ was designed as a 8-port RS-232 or RS-422 interface card for lab and industrial applications where a PC needs to communicate with terminals, modems, or other instruments. RS-422 applications have to use OPT8FP which is an 8-port RS-232 to RS-422 converter with 2,500 Vdc isolation protection. You can install up to four PCL-844+ cards for a total of 32 ports in any AT/ISA bus-based PC.

The PCL-844+ card has an onboard RISC processor that takes over the communications load from the host PC. When you are processing large amounts of data from multiple ports, servicing the interrupts alone consumes a large percentage of the capacity of your computer's CPU. The PCL-844+ serves as a high speed, dedicated interrupt processor.

PCL-844+ is virtually a self contained computer in its own right. It contains 512 KB of dual-port RAM which you can use to store and run programs. The dual-port RAM maps into the host system's address space to give you the fastest possible data transfers between PCL-844+ and the PC memory.

When the PCL-844+ initializes, it downloads the driver software (which functions like a PC's BIOS) into onboard SRAM. This improves performance and makes version upgrading easy, with no hardware redundancy.

Specifications

General

- **Card Interface** ISA
- **Certifications** CE
- **Connectors** 1 x DB62-F
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** +5 V @ 155 mA, +12 V @ 110 mA, -12 V @ 160 mA

Communications

- **Number of Ports** 8
- **Processor** RISC, TI TMS320C203-57
- **Dual-ported RAM** 512 KB
- **SRAM** 16 KB
- **UART** RISC-based CD180
- **Interrupt** 2, 3, 4, 5, 7, 10, 11, 12 or 15
- **Maximum Ports in One System** 32

RS-232 Interface

- **Signals** TxD, RxD, RTS, CTS, DTR, DSR, DCD and GND
- **Mode** Asynchronous full duplex
- **Communication Speed** 50 bps ~ 921.6 kbps
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity** Even, odd or none

Environment

- **Operating Temperature** 0 ~ 55° C (32 ~ 131° F)
- **Storing Temperature** -20 ~ 85° C (-4 ~ 185° F)
- **Storing Humidity** 5 ~ 95% RH, non-condensing (refer to IEC68-2-3)

Ordering Information

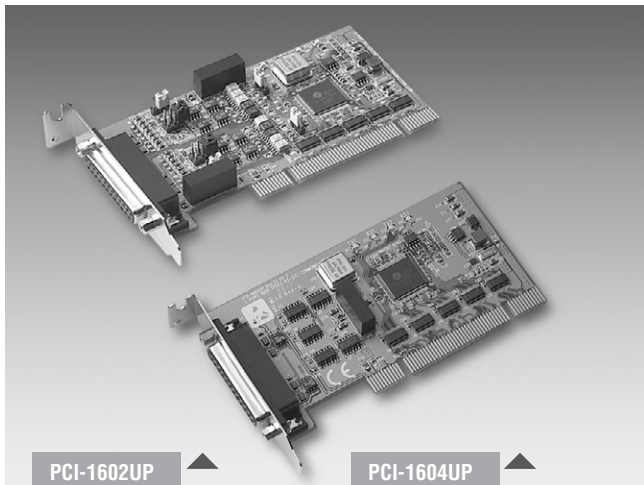
- **PCL-844+** 8-port Intelligent RS-232 Card, with ISA bus (cables not included)
- **Opt8AP** 8-port RS-232 (DCE) connection box with female DB25 connectors
- **Opt8BP** 8-port RS-232 (DTE) connection box with male DB25 connectors
- **Opt8C** 8-port RS-232 connection cable with male DB25 connectors
- **Opt8H** 8-port RS-232 connector cable with male DB9 connector (1 m length)
- **Opt8FP** 8-port RS-422 to RS-232 converter connection box with Isolation Protection

PCI-1602UP PCI-1604UP PCI-1610UP/AUP

2-port RS-422/485 Low-Profile PCI Communication Card, w/Isolation and EFT Surge Protection

2-port RS-232 Low-Profile PCI Communication Card, w/EFT Surge Protection

4-port RS-232 Low-Profile Universal PCI Communication Card, w/EFT Surge Protection



RoHS
FCC CE

Features

- PCI bus specification 2.2 compliant
- Speeds up to 921.6 kbps
- 2-port RS-232 (PCI-1604UP); 2-port RS-422/485 (PCI-1602UP); 4-port RS-232 (PCI-1610UP)
- I/O address automatically assigned by PCI Plug & Play
- OS support: Windows® 98/ME/2000/XP, XP Embedded, Linux
- 2,500V_{DC} EFT Surge Protection
- 2,500V_{DC} Isolation protection for RS-422/485 (PCI-1602UP)
- Interrupt status register for increased performance
- Space reserved for termination resistors (PCI-1602UP)
- Automatic RS-485 data flow control (PCI-1602UP)
- Powerful and easy-to-use utility (ICOM Tools)
- Universal and Low-profile PCI (Supports 3.3 V or 5 V PCI bus signal)

Introduction

These RS-232/422/485 PCI communication cards are compatible with the PCI 2.2 bus specification for universal connectivity and low profile PCI cards. PCI-1604UP provides two independent RS-232 ports, while PCI-1602UP has two RS-422/485 ports. PCI-1610UP and PCI-1610AUP provide 4 RS-232 ports. To improve system performance, all cards allow transmission rates up to 921.6 kbps. To increase reliability, the cards offer EFT surge protection, protecting your system from abrupt high voltages up to 2,500 V_{DC}. High-performance 16PC1952 and 16PC1954 UARTs with 128-byte FIFO, reduces the CPU load, making the cards especially suitable for multitasking environments.

The cards follow the Low Profile PCI MD1 standard. This standard has the same protocol and electronic definition as standard PCI, but the Low Profile PCI standard is smaller. Thus, the cards are suitable for embedded systems, and size-constrained environments. Moreover, all cards are equipped with an universal PCI connector, which allows support for traditional systems with 5 V signaling or newer systems with 3.3 V signaling.

Advantech also provides a convenient utility called ICOM Tools, to help test the PCI card's performance by analyzing the port status. The menu commands and toolbar buttons of ICOM Tools acts as a PC-based data scope that lets you set a trigger condition, capture the communication data and monitor the signal status. ICOM Tools can be used with all series of Advantech ICOM cards.

Specifications

General

- **Bus Type** Universal PCI V 2.2
- **Certifications** CE, FCC class A
- **Connectors** PCI-1610UP: 1 x Female DB44
PCI-1602UP and PCI-1604UP: 1 x Female DB25
- **Dimensions** 119.91 x 64.41 mm (4.7" x 2.5") (Low profile MD1)
- **Power Consumption** 5 V @ 400 mA (Max.)
- **Power Requirement** 5 V

Communications

- **Communication Controller** PCI-1602UP, PCI-1604UP: 16PC1952
PCI-1610UP: 16PC1954
- **Data Bits** 5, 6, 7, 8
- **Data Signals** RS-232: Tx+, Rx+, RTS-, CTS-, DTR, DSR, DCD, GND, RI
RS-422: Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS-, GND
RS-485: Data+, Data-, GND
- **FIFO** 128 bytes
- **Flow Control** CTS/RTS, Xon/Xoff
- **IRQ** Assigned by Plug & Play
- **Parity** None, even, odd
- **Speed** 50 bps ~ 921.6 kbps
- **Stop Bits** 1, 1.5, 2

Protection

- **ESD Protection** 16 kV
- **Isolation Protection** 2,500 V_{DC} (PCI-1602UP)
- **EFT Surge Protection** 2,500 V_{DC} (PCI-1602UP, PCI-1604UP, PCI-1610UP)

Software

- **Bundled Software** ICOM Tools
- **Driver Support** Windows 98/ME/2000/XP/XP Embedded, Linux

Environment

- **Humidity (Operating)** 5 ~ 95 % RH, non-condensing (refer to IEC 68-2-3)
- **Operating Temperature** 0 ~ 65° C (refer to IEC 68-2-1, 2) (32 ~ 149° F)
- **Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **PCI-1602UP** 2-port RS-422/485 Low-Profile Universal PCI COMM Card, w/Isolation and EFT Surge Protection (30 cm DB25 to 2DB9 cable included)
- **PCI-1604UP** 2-port RS-232 Low-Profile Universal PCI COMM Card, w/EFT Surge Protection (30 cm DB25 to 2DB9 cable included)
- **PCI-1610UP** 4-port RS-232 Low-Profile Universal PCI COMM Card, w/EFT Surge Protection (30 cm DB44 to 4DB9 cable included)
- **PCI-1610AUP** 4-port RS-232 Low-Profile Universal PCI COMM Card, (30cm DB44 to 4 DB9 cable included)

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PAC & Software

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BAS

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UNO

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RS-485 I/O

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Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

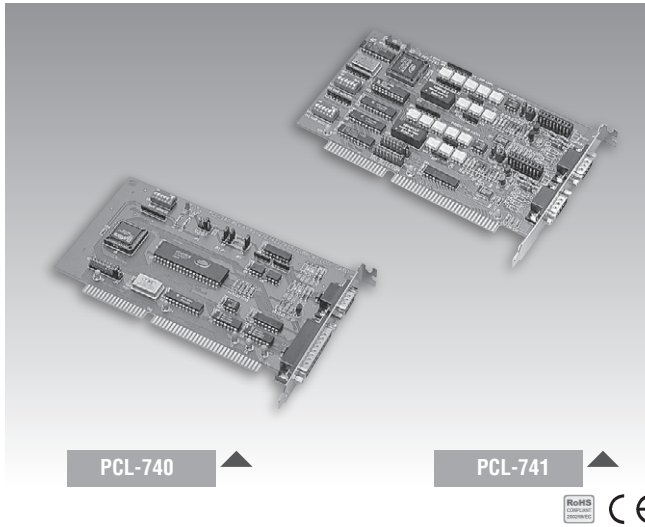
PCL-740 PCL-741 PCL-743/745 PCL-746+

RS-232/422/485, Current-loop Communication Card

2-port RS-232, Current-loop Communication Card

2-port RS-422/485 Communication Cards

4-port RS-232/422/485 Communication Card



Features

- RS-232, RS-422, RS-485 or current-loop interface
- 16C550 UART with 16-byte FIFO
- Transmission speeds up to 921.6 kbps
- Flexible I/O address and IRQ selection
- IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- Complete RS-232 modem control signals
- Supports 4-wire or 2-wire operation for RS-422/485
- Automatic RS-485 data flow control
- Space reserved for termination resistors
- Supports Windows® 98/ME/2000/XP, Linux
- Powerful and easy-to-use utility (ICOM Tools)

Introduction

The PCL-740 offers a versatile range of high speed interfacing options. You can switch its single port between the popular RS-232, long distance RS-422, multi-drop RS-485, or noise-resistant current-loop. The card's 16C550 UART has an on-chip 16-byte FIFO buffer for faster and more reliable communication, especially under Windows.

The PCL-741 provides two isolated RS-232 or current-loop serial ports. You can configure each port individually to RS-232 or current-loop using onboard jumpers.

The card has two 16C550 UARTs with on-chip 16-byte FIFO buffers. The UARTs buffer data into 16-byte packets before sending it to the bus. This drastically reduces CPU load and avoids data loss when the system is busy and cannot process the interrupt quickly. These FIFO buffers make the PCL-741 especially suitable for high speed serial I/O under Windows. Onboard optical isolators protect your PC and equipment against damage from ground loops, increasing system reliability in harsh environments.

Specifications

General

- **Card Interface** ISA
- **Certifications** CE
- **Connectors** PCL-740: 1 x DB9-M, 1 x DB25-M
PCL-741, PCL-743, PCL-745: 2 x DB9-M
PCL-746+: 1 x DB37-F
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** PCL-740: +5 V @ 180 mA max., ±12 V @ 20 mA max.
PCL-741: +5 V @ 300 mA (typical), +5 V @ 1.1 A max.
PCL-743, PCL-745: +5V @ 400 mA typical, 950 mA max.
PCL-746+: +5 V @ 800 mA typical, 1.5 A max.
±12 V @ 60 mA typical, 120 mA max.
- **Weight (Gross)** PCL-740, PCL-741, PCL-743, PCL-745: 0.6 kg (1.3 lb)
PCL-746+: 1.1 kg (2.4 lb) (including cable)

Communications

- **Data Bits** 5, 6, 7, 8
- **Data Signals** RS-232: Tx, Rx, CTS, RTS, DTR, DSR, DCD, GND, RI
Current loop: Tx+, Tx-, Rx+, Rx-
RS-422: Tx+, Tx-, Rx+, Rx-, GND, CTS+, CTS-, RTS+, RTS-
RS-485: Data+, Data-, GND
- **I/O Address** From 200H to 3F8H (for PCL-740/741/743/745)
From 000h to 3F8H (for PCL-746+)
- **IRQ** 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- **Ports** PCL-740: 1, PCL-741: 2
PCL-743, PCL-745: 2
PCL-746+: 4
- **Parity** None, even, odd
- **Protocols** PCI-740: RS-232/422/485, current-loop
PCI-741: RS232, current-loop
PCI-743, 745: RS-422/485
PCI-746+: RS-232/422/485
- **Speed** PCL-740, PCL-741: 50 bps ~115.2 kbps
(for RS-232/422/485)

- **Stop Bits**
- **UART**

50 bps~57.6 kbps (current-loop)
PCL-743, PCL-745: 50 bps ~ 921.6 kbps
PCL-746+: 50 bps ~ 115.2 kbps
1, 1.5, 2
PCL-743, PCL-745: 2 x 16C550 with 16-byte FIFO
PCL-746+: 4 x 16C550 16-byte FIFO
PCL-740: 1 x 16C550 with 16-byte FIFO
PCL-741: 2 x 16C550 with 16-byte FIFO

Protection

- **Isolation Protection** 2500 V_{DC} (PCL-741), 3000 V_{DC} (PCL-745B/745S)
- **EFT Surge Protection** 2500 V_{DC} (PCL-743S/745S)

Software

- **Bundled Software** ICOM Tools
- **Driver Support** Windows 98/ME/2000/XP, Linux

Environment

- **Operating Temperature** PCL-740, PCL-741, PCL-746+: 0 ~ 50° C (32 ~ 122° F)
PCL-743, PCL-745: 0 ~ 65° C (32 ~ 149° F)

Ordering Information

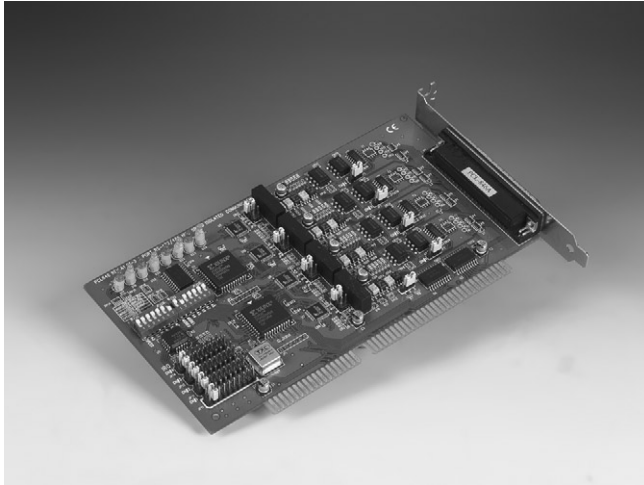
- **PCL-740** RS-232/RS-422/RS-485/current-loop serial interface card
- **PCL-741** Isolated dual-port RS-232/current-loop interface card.
- **PCL-743B** 2-port RS-422/485 communication card
- **PCL-743S** 2-port RS-422/485 communication card with EFT surge protection
- **PCL-745B** 2-port RS-422/485 communication card with isolation protection
- **PCL-745S** 2-port RS-422/485 communication card with isolation and EFT Surge Protection
- **PCL-746+** 4-port RS-232/422/485 communication card (30cm DB37 to 4 DB25 cable included)
- **PCL-746+/9** 4-port RS-232/422/485 communication card (30cm DB37 to 4 DB9 cable included)

PCL-846 PCL-849 PCL-858

4-port High-speed RS-422/485 Communication Card

4-port RS-232 Communication Card

8-port High-speed RS-232 Communication Card



CE

Features

- Four or eight RS-232 or RS-422/485 serial ports
- Transmission speeds up to 921.6 kbps
- Independent/shared IRQ settings between each of the 4 serial ports
- Wide IRQ selection: 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- Supports COM1, COM2, COM3, and COM4
- Provides 1000 V_{DC} isolation (PCL-846 only)
- Provides 2000 V_{DC} EFT Surge Protection (PCL-846B only)
- Provides 3000 V_{DC} EFT Surge Protection (PCL-849B, PCL-849+, PCL-858B)
- Space reserved for termination resistors
- Supports 2 wire or 4 wire operation
- Automatic RS-485 data flow control or RTS control
- Supports Windows® 98/ME/2000/XP, Linux
- Powerful and easy-to-use utility (ICOM Tools)

Introduction

PCL-800 series communication card provides reliable, high-speed serial communication. The unique shared interrupt can be set to most common (extended) AT interrupts. This simplifies programming, speeds up interrupt processing and frees up interrupts for other devices. PCL-800 series cards also provide EFT surge or isolation protection to prevent your PC and equipment against damage from ground loops, increasing system reliability in harsh environments or abrupt high voltage surges such as those caused by lightning during thunderstorms.

Specifications

General

- **Card Interface** ISA
- **Certifications** CE
- **Connectors** 1 x DB37-F (PCL-846, PCL-849)
1 x DB62-F (PCL-858)
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Power Consumption** PCL-846: +5 V @ 970 mA typical, 1.2 A max.
PCL-849: +5 V @ 250 mA typical, 500 mA max.
±12 V @ 70 mA typical, 120 mA max.
PCL-858: +5 V @ 450 mA typical, 950 mA max.
±12 V @ 140 mA typical, 240 mA max

Communications

- **Data Bits** 5, 6, 7, 8
- **Ports** PCL-846 and PCL-849: 4, PCL-858: 8
- **Stop Bits** 1, 1.5, 2
- **Speed** PCL-849L: 50 ~ 115.2 kbps
PCL-849B, PCL-849+: 50 ~ 307.2 kbps
Other: 50 ~ 921.6 kbps
- **Parity** None, even and odd
- **I/O Address Range** PCL-846, PCL-849: From 200H to 3F8H
PCL-858: From 000H to 3FFH
- **IRQ** 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- **Data Signals** RS-232: Tx, Rx, CTS, RTS, DTR, DSR, DCD, GND, RI (PCL-849)
RS-232: Tx, Rx, CTS, RTS, DTR, DSR, DCD, GND (PCL-858)
RS-422: Tx+, Tx-, Rx+, Rx-, GND, CTS+, CTS-, RTS+, RTS-
RS-485: Data+, Data-, GND
- **UART** PCL-846: 4 x 16C550 with 16-byte FIFO
PCL-849A/849B/849L: 1 x 16C554
PCL-849+: 1 x 16C654
PCL-858A/858B: 2 x 16C554

Protection

- **Isolation Protection** PCL-846: 1,000 V_{DC}
- **EFT Surge Protection** PCL-846B: 2,000 V_{DC}
PCL-849B, PCL-849+, PCL-858B: 3,000 V_{DC}

Software

- **Bundled Software** ICOM Tools
- **Driver Support** Windows 98/ME/2000/XP/Linux

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -25 ~ 80° C (-13 ~ 176° F)

Ordering Information

- **PCL-846A** 4-port RS-422/485 interface card w/isolation protection (30 cm DB37 to 4 DB9 cable included)
- **PCL-846B** 4-port RS-422/485 interface card w/isolation and EFT surge protection (30 cm DB37 to 4 DB9 cable included)
- **PCL-849A** 4-port high-speed RS-232 interface card (30 cm DB37 to 4 DB25 cable included)
- **PCL-849A/9** 4-port high-speed RS-232 interface card (30 cm DB37 to 4 DB9 cable included)
- **PCL-849B** 4-port high-speed RS-232 interface card w/EFT surge protection (30 cm DB37 to 4 DB25 cable included)
- **PCL-849B/9** 4-port high-speed RS-232 interface card w/EFT surge protection (30 cm DB37 to 4 DB9 cable included)
- **PCL-849+** 4-port high-speed RS-232 interface card w/EFT surge protection and 16C654 UART (30 cm DB37 to 4 DB25 cable included)
- **PCL-849+/9** 4-port high-speed RS-232 interface card w/EFT surge protection and 16C654 UART (30 cm DB37 to 4 DB9 cable included)
- **PCL-849L** 4-port RS-232 interface card (30 cm DB37 to 4 DB25 cable included)
- **PCL-849L/9** 4-port RS-232 interface card (30 cm DB37 to 4 DB9 cable included)
- **PCL-858A** 8-port high-speed RS-232 interface card (cables not included)
- **PCL-858B** 8-port high-speed RS-232 interface card w/EFT surge protection (cables not included)

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UNO

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RS-485 I/O

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Ethernet I/O

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TPC

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IPPC

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FPM

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AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

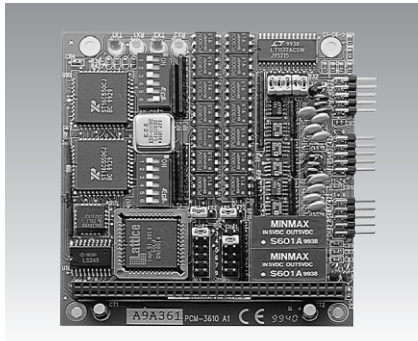
17
ICOM

PCM-3610 PCM-3612 PCM-3614

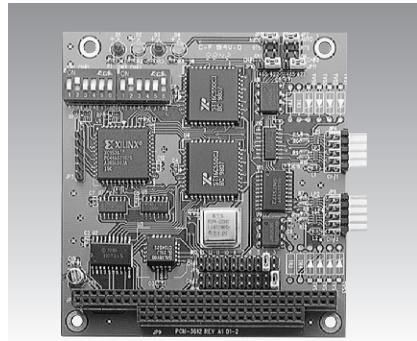
Isolated RS-232/422/485 Module

2-port RS-422/485 Module

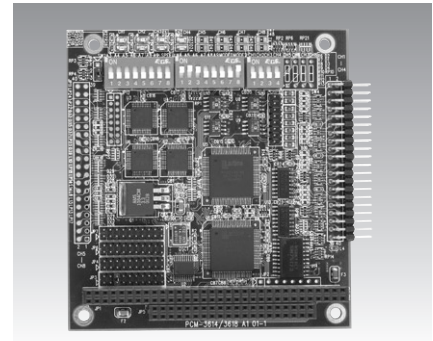
4-port RS-422/485 High-speed Module



PCM-3610



PCM-3612



PCM-3614



Features

- High speed transmission rate
- Automatic RS-485 data flow control
- Jumper selectable interrupt level
- Supports Windows® 98/2000/XP
- Supports WinCE 3.0, 4.2
- Powerful and easy-to-use utility (ICOM Tools)

Specifications

General

- **Card Interface** PC/104
- **Certifications** CE
- **Connectors** 2 x DB9-M
- **Ports** 2
- **Power Consumption** +5 V @ 400 mA typical
±12 V @ 950 mA max

Communications

- **Channel 1** RS-232, 422, or 485
- **Channel 2** RS-422, or RS-485
- **Character Length** 5, 6, 7, or 8 bits
- **IRQ** 3, 4, 5, 6, 7, 9
- **Parity** Even, odd, or none
- **Speed** 50 bps ~ 115.2 kbps
- **Stop Bit** 1, 1.5, or 2

Protection

- **Isolation Protection** 1,000 V_{DC}

Environment

- **Humidity (Operating)** 0 ~ 90 % RH
- **Operating Temperature** 0 ~ 65° C (32 ~ 149° F)
- **Storing Temperature** -40 ~ 85° C
(-40 ~ 185° F)

Ordering Information

- **PCM-3610-B** Isolated RS-232/422/
485 Module

Features

- Long distance communication
- Automatic RS-485 data flow control
- Jumper selectable interrupt level
- Supports Windows 98/2000/XP
- Supports WinCE 3.0, 4.2
- Powerful and easy-to-use utility (ICOM Tools)

Specifications

General

- **Card Interface** PC/104
- **Certifications** CE
- **Connectors** 2 x DB9-M
- **Indicators** Red LED for TX
Green LED for RX
- **Ports** 2
- **Power Consumption** +5 V @ 400 mA typical

Communications

- **Channel 1 and 2** RS-422, or RS-485
- **Character Length** 5, 6, 7, or 8 bits
- **IRQ** 3, 4, 5, 6, 7, 9, 10, 11,
12 or 15
- **Parity** Even, odd, or none
- **Speed** 50 bps ~ 115.2 kbps
- **Stop Bit** 1, 1.5, or 2

Environment

- **Humidity (Operating)** 0 ~ 90 % RH
- **Operating Temperature** 0 ~ 65° C (32 ~ 149° F)
- **Storing Temperature** -40 ~ 85° C
(-40 ~ 185° F)

Ordering Information

- **PCM-3612-A** Dual port RS-422/485
Module

Features

- Automatic RS-485 data flow control
- Shared IRQ settings for each ports
- LED indicators: TX, RX
- Standard PC ports: COM1, COM2, COM3, COM4
compatible
- Supports Windows 98/2000/XP
- Supports WinCE 4.2
- Powerful and easy-to-use utility (ICOM Tools)

Specifications

General

- **Card Interface** PC/104
- **Certifications** CE
- **Connectors** 4 x DB9-M
- **Ports** 4
- **Power Consumption** +5 V @ 450 mA

Communications

- **Data Bits** 5, 6, 7, 8
- **I/O Address Range** 0 x 000 ~ 0 x 3F8
- **IRQ** 3, 4, 5, 6, 7, 9, 10, 11,
12, or 15
- **Parity** Even, odd, or none
- **RS-422 Signal Support** TxD+, TxD-, RxD+,
RxD-, CTS+, CTS-,
RTS+ and RTS-
- **RS-485 Signal Support** DATA+, DATA-, CTS+,
CTS-
- **Speed** 50 bps ~ 921.6 kbps
- **Stop Bits** 1, 1.5, 2

Protection

- **EFT Surge Protection** 1000 V_{DC}
- **Termination Resistor** 120 Ω

Environment

- **Humidity (Operating)** 0 ~ 90 % RH
- **Operating Temperature** 0 ~ 65° C (32 ~ 149° F)
- **Storing Temperature** -40 ~ 85° C
(-40 ~ 185° F)

Ordering Information

- **PCM-3614-A** 4-port RS-422/485
High-speed Module

PCM-3618

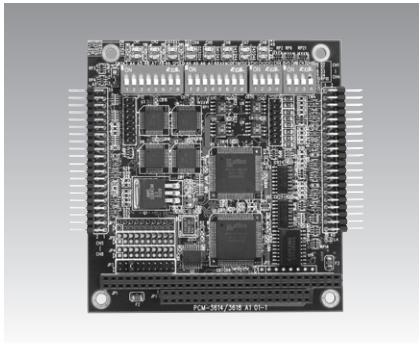
PCM-3640/3641

PCM-3660

8-port RS-422/485 High-speed Module

4-port RS-232 High-speed Modules

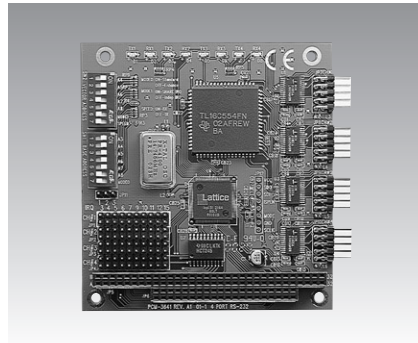
Jumperless Ethernet Module



PCM-3618



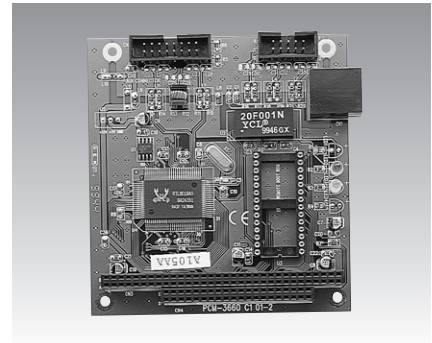
FCC CE



PCM-3640/3641



CE



PCM-3660



CE

Features

- Automatic RS-485 data flow control
- Shared IRQ settings for each ports
- LED indicators: TX, RX
- Supports Windows® 98/2000/XP
- Supports WinCE 4.2
- Powerful and easy-to-use utility (ICOM Tools)

Specifications

General

- Card Interface** PC/104
- Certifications** CE
- Connectors** 8 x DB9-M
- Ports** 8
- Power Consumption** +5 V @ 650 mA

Communications

- Data Bits** 5, 6, 7, 8
- I/O Address Range** 0 x 000 ~ 0 x 3F8
- IRQ** 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- Parity** None, even and odd
- RS-422 Signal Support** TxD+, TxD-, RxD+, RxD-, CTS+, CTS-, RTS+ and RTS-
- RS-485 Signal Support** DATA+, DATA-, CTS+, CTS-
- Speed** 50 bps ~ 921.6 kbps
- Stop Bits** 1, 1.5, 2
- Termination Resistor** 120 Ω

Protection

- EFT Surge Protection** 1,000 V_{oc}

Environment

- Humidity (Operating)** 0 ~ 90 % RH
- Operating Temperature** 0 ~ 65° C (IEC-68-1-1, 2) (32 ~ 149° F)
- Storing Temperature** -25 ~ 80° C (-13 ~ 176° F)

Ordering Information

- PCM-3618-A** 8-port RS-422/485 High-Speed Module

Features

- Transmission speeds up to 460 kbps (PCM-3641)
- Shared IRQ settings for each of 4 RS-232 ports (PCM-3641)
- Standard PC ports: COM1, COM2, COM3, COM4 compatible
- Supports Windows 98/2000/XP
- Supports WinCE 3.0, 4.2
- Powerful and easy-to-use utility (ICOM Tools)

Specifications

General

- Card Interface** PC/104
- Certifications** CE
- Connectors** 4 x DB9-M
- Ports** 4
- Power Consumption** +5 V @ 200 mA (Typical); +5 V @ 250 mA (Max.)

Communications

- Data Bits** 5, 6, 7, 8
- Data Signals** TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
- I/O Address Range** 0 x 0200 ~ 0 x 03F8
- IRQ** 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- Parity** None, even and odd
- Speed** 50 bps ~ 460.3 kbps (PCM-3641) 50 bps ~ 115.2 kbps (PCM-3640)
- Stop Bits** 1, 1.5, 2

Environment

- Humidity (Operating)** 0 ~ 90 % RH
- Operating Temperature** 0 ~ 65° C (32 ~ 149° F) (IEC-68-1-1, 2)
- Storing Temperature** -25 ~ 80° C (-13 ~ 176° F)

Ordering Information

- PCM-3640-A** 4-port RS-232 Module
- PCM-3641-A** 4-port RS-232 High-speed Module

Features

- Automatically detects 8-bit or 16-bit
- AUI connector supports external MAUs
- Onboard 32 KB buffer for multi-packages

Specifications

General

- Boot ROM Address** C0000, C8000, D0000, or D8000H
- Card Interface** PC/104
- Certifications** CE
- Connectors** 1 x PC/104 stackthrough 1 x 10Base-T (RJ-45) 1 x 16-pin insulation displacement connector for AU1
- Power Consumption** +5 V @ 400 mA max

Communications

- Data Bus** 8-bit, 16-bit, or auto-sending
- I/O Address** 200, 220, 240, 260, 280, 2A0, 2C0, 300, 320, 340, 380, 3A0
- IRQ** 3, 4, 5, 9, 10, 11, 12 or 15
- Standard** IEEE 802.3 10 Mbps CSMA/CD 10Base-T Transceiver

Ordering Information

- PCM-3660-C1** Jumperless Ethernet Module

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

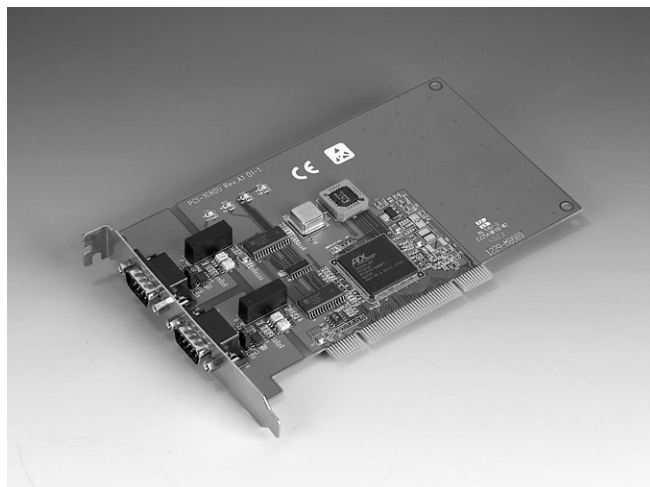
15
Ethernet Switch

16
EDG

17
ICOM

PCI-1680U

2-Port CAN Interface Universal PCI Communication Card w/Isolation



RoHS
Compliant
FCC CE

Features

- PCI bus specification 2.2 compliant
- Operates two separate CAN networks at the same time
- High speed transmission up to 1 Mbps
- 16 MHz CAN controller frequency
- Optical isolation protection of 1000 V_{DC} ensures system reliability
- I/O address automatically assigned by PCI PnP
- LED indicated transmit/receive status on each port
- Windows® DLL library and examples included
- Universal PCI Universal PCI (Supports 3.3 V or 5 V PCI bus signal)
- Supports Windows 95/98/2000/XP and Linux

Introduction

PCI-1680U is a special purpose communication card that offers the connectivity of the Controller Area Network (CAN) to your PC. With its built-in CAN controllers, the PCI-1680U provides bus arbitration and error detection with an automatic transmission repeat function. This drastically reduces the chance of data loss and ensures system reliability. The onboard CAN controllers are located at different positions in the memory, and you can run both CAN controllers independently at the same time. Besides, PCI-1680U has a universal PCI connector, which is compatible with both new 3.3 V signaling systems and traditional 5 V signaling systems. With high-compatibility, the PCI-1680U can be used in diverse systems.

Controller Area Network (CAN)

The CAN is a serial bus system especially suitable for networking "intelligent" I/O devices as well as sensors and actuators within a machine or plant. Characterized by its multi-master protocol, real-time capability, error correction, high noise immunity, and the existence of many different silicon components, the CAN serial bus system, originally developed by Bosch™ for use in automobiles, is increasingly being used in industrial automation.

Direct Memory Mapping Enables Direct Access to the CAN Controller

The PCI-1680U is assigned a memory address. This is the simplest method of integrating a board in a PC and provides the quickest access since the board is treated by the PC as being standard RAM.

Optical Isolation Protection

Onboard optical isolators protect your PC and equipment against damage from ground loops, which increases system reliability in harsh environments.

Specifications

General

- **Card Interface** Universal PCI V 2.2
- **Certifications** CE, FCC class A
- **Connectors** 2 x DB9-M
- **Dimensions** 185 x 100 mm (7.3" x 3.9")
- **Ports** 2
- **Power Consumption** 5 V @ 400 mA (Typical)

Communication

- **CAN Controller** SJA-1000
- **CAN Transceiver** 82C250
- **Protocol** CAN 2.0 A/B
- **Signal Support** CAN_H, CAN_L
- **Speed** 1 Mbps

Protection

- **Isolation Protection** 1,000 V_{DC}

Environment

- **Humidity (Operating)** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Operating Temperature** 0 ~ 65° C (refer to IEC 68-2-1, 2) (32 ~ 149° F)
- **Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

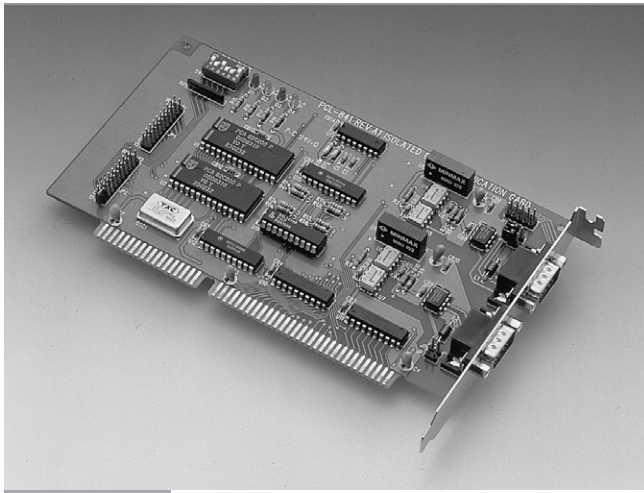
- **PCI-1680U-A** 2-Port CAN Interface Universal PCI Communication Card w/ Isolation

PCL-841

PCM-3680

Dual-port Isolated CAN-bus Interface ISA Card

Dual-port Isolated CAN Interface PC/104 Module



PCL-841



Features

- Operates two separate CAN networks at the same time
- High speed transmission up to 500 kbps
- 16 MHz CAN controller frequency
- Optical isolation protection of 1000 V_{DC} ensures system reliability
- Wide IRQ selection for each port: IRQ 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- LEDs indicate Transmit/Receive status on each port
- Direct memory mapping enables very fast access to the CAN controllers
- Windows® DLL library and examples included
- Supports Windows® 95/98/2000/XP and Linux

Specifications

General

- Card Interface** ISA
- Certifications** CE
- Connectors** 2 x DB9-M
- Dimensions** 185 x 100 mm (7.3" x 3.9") (PCL-841)
- Ports** 2
- Power Consumption** +5 V @ 400 mA typical, 950 mA max.
- Weight (Gross)** 0.6 kg (1.3 lb)

Communications

- CAN Controller** SJA-1000
- CAN Transceiver** 82C250
- Protocol** CAN2.0 A/B
- IRQ** 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- Memory Segment Base Address** From C800H to EF00H
- Signal Support** CAN_H, CAN_L

Protection

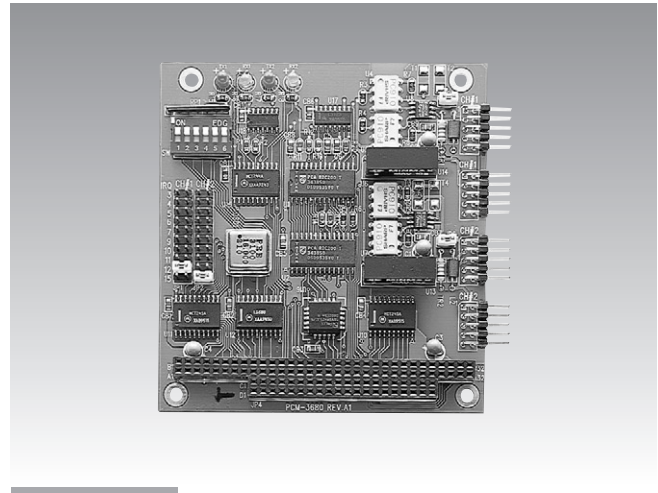
- Isolation Protection** 1,000 V_{DC}

Environment

- Operating Temperature** 0 ~ 50° C (32 ~ 122° F)

Ordering Information

- PCL-841-A** Dual-port Isolated CAN-bus Interface Card



PCM-3680



Features

- Operates two separate CAN networks at the same time
- High speed transmission up to 500 kbps
- 16 MHz CAN controller frequency
- Optical isolation protection of 1000 V_{DC} ensures system reliability
- Wide IRQ selection for each port: IRQ 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- LEDs indicate Transmit/Receive status on each port
- Direct memory mapping enables very fast access to the CAN controllers
- Windows DLL library and examples included
- Supports Windows 95/98/2000/XP and Linux

Specifications

General

- Card Interface** PC/104
- Certifications** CE
- Connectors** 2 x DB9-M w/cable
- Dimensions** 90 x 96 mm (3.6" x 3.8")
- Ports** 2
- Power Consumption** +5 V @ 400 mA

Communications

- CAN Controller** SJA-1000
- CAN Transceiver** 82C250
- Protocol** CAN2.0 A/B
- IRQ** 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- Memory Segment Base Address** From C800H to EF00H
- Signal Support** CAN_H, CAN_L

Protection

- Isolation Protection** 1,000 V_{DC}

Environment

- Operating Temperature** 0 ~ 65° C (32 ~ 122° F)

Ordering Information

- PCM-3680-A** Dual-port Isolated CAN Interface Module

1
PAC & Software

2
BAS

3
UNO

4
RS-485 I/O

5
Ethernet I/O

6
TPC

7
IPPC

8
FPM

9
AWS

10
Plug-in I/O

11
CompactPCI

12
Signal Conditioning

13
USB I/O

14
Motion Control I/O

15
Ethernet Switch

16
EDG

17
ICOM

Accessories



OPT1A: 1 m RJ-48 to male DB9 RS-232/422/485 cable

To be used with:

EDG-4508P/16P, EDG-4508(R)+/16(R)+, ADAM-4570, ADAM-4570L, ADAM-4571, ADAM-4570S, ADAM-4571S, ADAM-4579



OPT1D: 30 cm RJ-48 to male DB9 RS-232/422/485 cable

To be used with:

EDG-4508P/16P, EDG-4508(R)+/16(R)+, ADAM-4570, ADAM-4570L, ADAM-4571, ADAM-4570S, ADAM-4571S, ADAM-4579



OPT1E: 1 m RJ-45 to male DB9 cable

To be used with:

PCI-1610AJU



OPT1F: 30 cm RJ-45 to male DB9 cable

To be used with:

PCI-1610AJU



OPT4A: 30 cm DB-37 to 4 x male DB9 cable

To be used with:

PCI-1610A/B/CU, PCI-1611U, PCI-1612A/B/AU/BU/CU, PCL-746+, PCL-846A/B, PCL-849A/B/+L



OPT8C: 1 m DB62 to 8 x male DB25 cable

To be used with:

PCI-1620A/B/AU/BU, PCI-1625U, PCL-844+, PCL-858A/B



OPT8H: 1m DB-62 to 8 x male DB9 cable

To be used with:

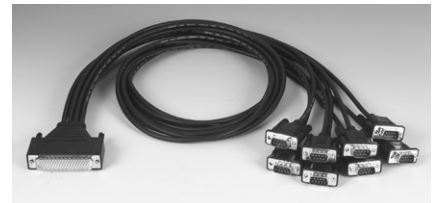
PCI-1620A/B/AU/BU, PCI-1625U, PCL-844+, PCL-858A/B



OPT8I: 1 m DB-78 to 8 x male DB25 cable

To be used with:

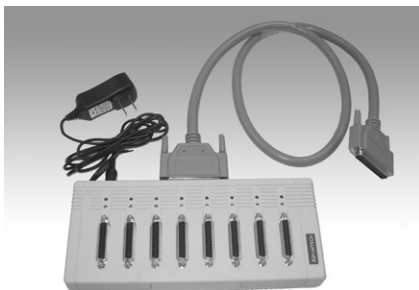
PCI-1622CU



OPT8J: 1 m DB-78 to 8 x male DB9 cable

To be used with:

PCI-1622CU

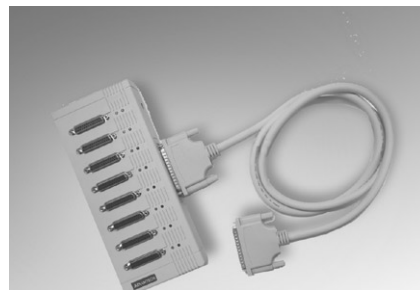


OPT8FP: 8-port RS-422 to RS-232 converter connection box with isolation protection

To be used with:

PCI-1620A/B/AU/BU, PCI-1625U, PCI-844+, PCL-858A/B

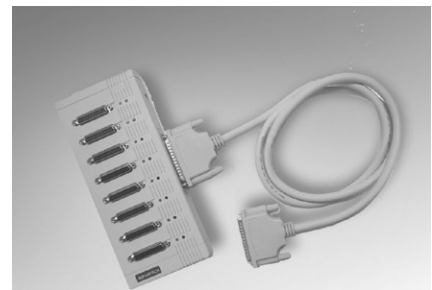
Isolation Protection 2500V_{DC}



OPT8AP: 8-port RS-232 Connection Box (DCE) with female DB25 connector

To be used with:

PCI-1620A/B/AU/BU, PCI-1625U, PCL-844+, PCL-858A/B



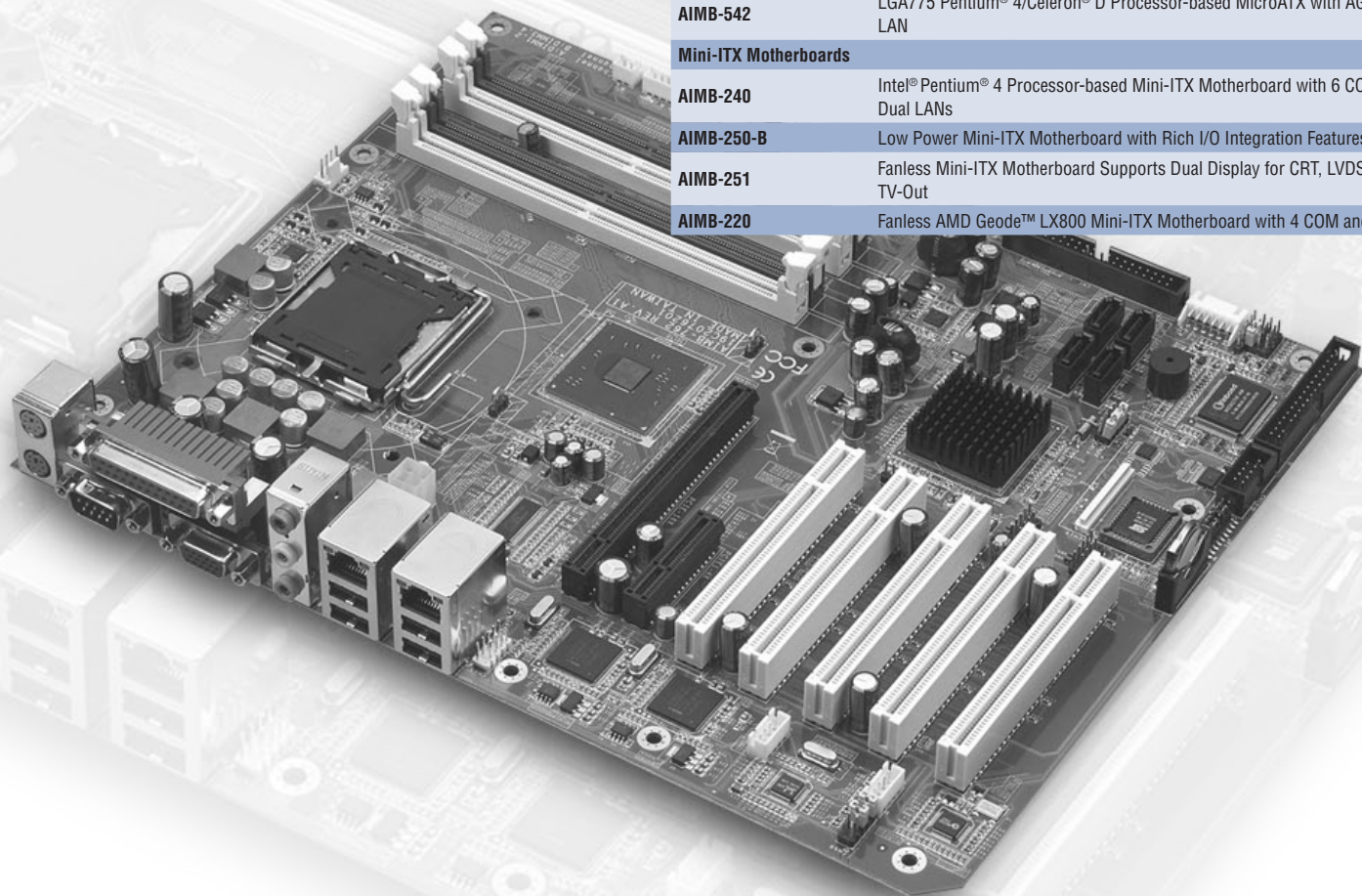
OPT8BP: 8-port RS-232 Connection Box (DTE) with male DB25 Connector

To be used with:

PCI-1620A/B/AU/BU, PCI-1625U, PCL-844+, PCL-858A/B

Industrial Motherboards

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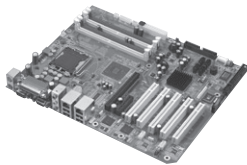


Introduction

Comprehensive Range of Industrial Motherboards

Advantech provides a wide range of industrial motherboards from full-size ATX, MicroATX, to Mini-ITX form factors. These scalable platforms are built using popular form factors that feature "ease-of-use" and full compatibility. All of them are designed with standardized ATX mounting holes and rear I/O coastline areas. All support ATX power supplies, which facilitate quick system upgrades and enable customers to leverage existing chassis and investments.

Unlike commercial motherboards, which typically have a short life-cycle, Advantech industrial motherboards are designed under strict revision control. That means all engineering changes are kept to the minimum to extend the longevity of the product; in this way you save the expense of costly design changes, maintenance and upgrades. Our motherboards are ideal solutions for customers who require commercial off-the-shelf products that also offer the flexibility of PCIe, PCI-X, PCI and AGP card expansions with key industrial features like longevity, reliability and manageability.



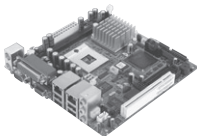
Full-sized ATX Motherboards – Rich Performance with Massive Expandability

Advantech full-size industrial ATX motherboards measure 12" x 9.6" and support up to 7 expansion slots. These ATX motherboards offer a wide range of computing capacities from low power Intel Pentium M based solutions to the latest dual core processors.



MicroATX Motherboards – Best Price/Performance/Expandability

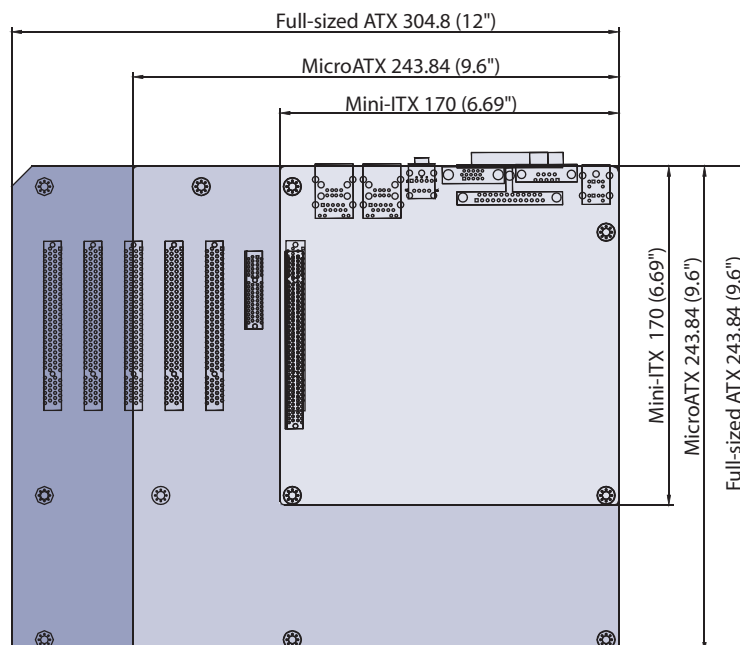
MicroATX motherboards are only 9.6" x 9.6", and are ideal for space/cost sensitive applications where less than 4 slots are required. They enable the same high integration of ATX but with a smaller footprint that fills the gap between mini ITX and full-size ATX, balancing performance and expandability.



Mini-ITX Motherboards – Ultra Compact yet Highly Integrated Platform

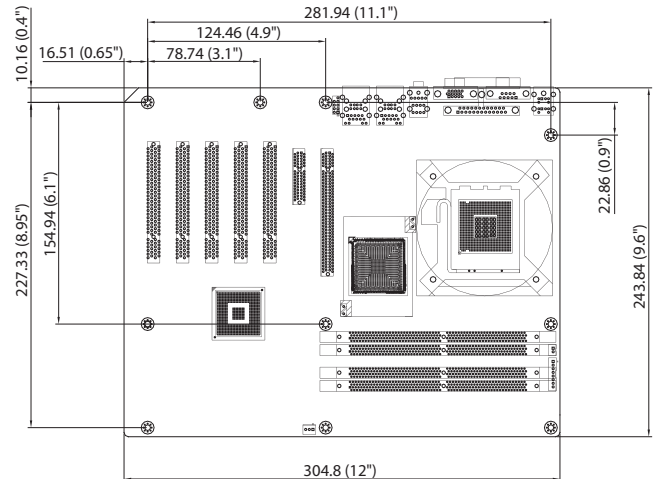
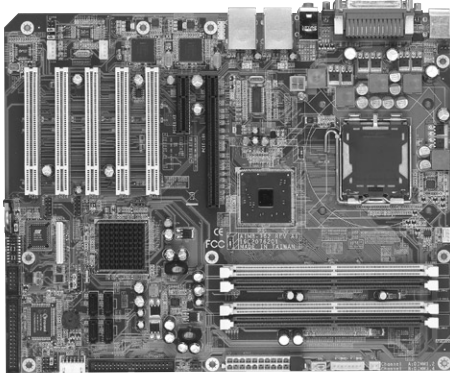
Mini-ITX motherboards are designed with rich functionality and reliable performance in a small footprint that measures just 6.69" x 6.69". The highly integrated platforms feature low power consumption of less than 100 Watts and have one basic expansion slot. They're ideal platforms for fast-emerging markets where size and power efficiency are required, such as information station kiosks, POS, lottery and gaming machines, and many other applications.

Form Factor Comparison

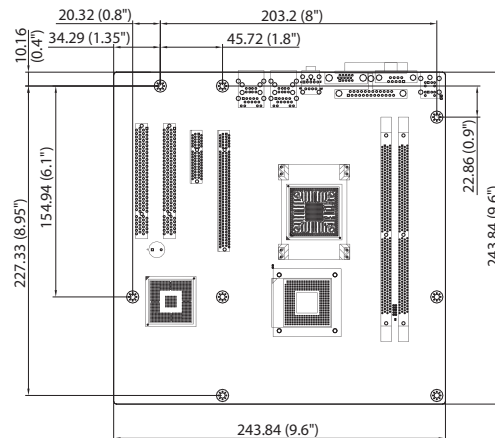


Form Factors

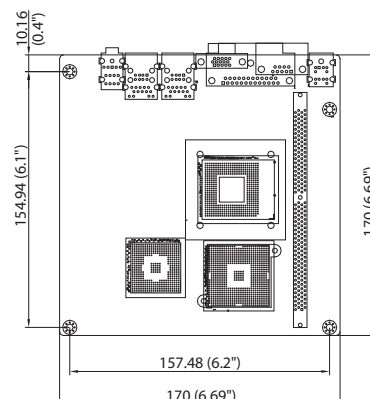
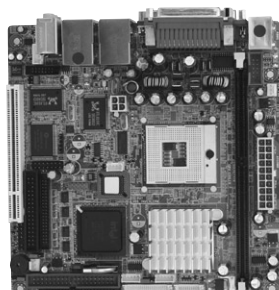
Full-sized ATX



MicroATX



Mini-ITX



18
Industrial Motherboards

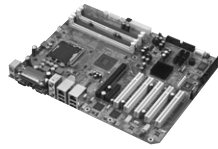
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High Performance Computing

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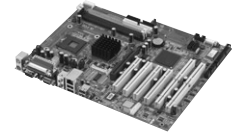
Full-sized ATX Motherboards



AIMB-762



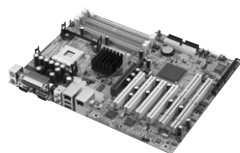
AIMB-760



AIMB-750

Selection Guide

Specification		AIMB-762	AIMB-760	AIMB-750
Processor System	CPU	Intel Pentium D/Pentium 4 Celeron D LGA775	Intel Pentium 4 Celeron D LGA775	Intel Pentium M Celeron M Socket 479
	Max. Speed	3.2 GHz 3.8 GHz 3.06 GHz	3.8 GHz 3.06 GHz	2.1 GHz 1.5 GHz
	L2 Cache (Depends on CPU)	4 MB/ 1 MB/ 256 KB	2 MB/ 1 MB/ 256 KB	2 MB/ 1 MB/ 512 KB
	Chipset	Intel 945G + ICH7R	Intel 915GV + ICH6	Intel 855GME + 6300ESB
	BIOS	Award 4 Mbit FWH	Award 4 Mbit FWH	Award 4 Mbit FWH
	FSB	533/800 MHz	533/800 MHz	400 MHz
Expansion Slot	Graphic Expansion Slot	1 (PCIe x16)	-	1 (AGP 4X)
	PCI	1 (PCIe x4) 5 (PCI 32-bit/33 MHz)	1 (PCIe x1) 5 (PCI 32-bit/33 MHz)	2 (PCI-X 64-bit/66 MHz) 4 (PCI 32-bit/33 MHz)
	ISA	-	-	-
Graphic	Controller	Chipset integrated	Chipset integrated	Chipset integrated
	VRAM	Shared system memory up 224 MB	Shared system memory up 128 MB	Shared system memory up to 64 MB
	LVDS	-	-	Single channel 18-bit/ Dual channel 36-bit
Ethernet	Interface	10/100/1000Base-T	10/100/1000Base-T	10/100/1000Base-T or 10/100Base-T
	Controller	Intel 82573V (GbE)	Broadcom BCM5721 (GbE)	Intel 82541 (GbE) Intel 82551 (FE)
	Connector	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
	Disable from BIOS	Yes	Yes	Yes
Memory	Technology	Dual channel DDR2 533/667 SDRAM	Dual channel DDR2 400/533 SDRAM	Single channel DDR 200/266/333 SDRAM support ECC
	Max. Capacity	4 GB	4 GB	2 GB
	Socket	240-pin DIMM x4	240-pin DIMM x4	184-pin DIMM x 2
SATA	Max. Data Transfer Rate	300 MB/s (SATA II)	150 MB/s	150 MB/s
	Channel	4	4	2
EIDE	Mode	ATA 100/66/33	ATA 100/66/33	ATA 100/66/33
	Channel	1 (Max. two devices)	1 (Max. two devices)	2 (Max. four devices)
I/O Interface	VGA	1	1	1
	USB	Max. 8 (USB 2.0 compliant)	Max. 8 (USB 2.0 compliant)	Max. 4 (USB 2.0 complaint)
	Serial	2 (1 of RS-232/422/485, 1 of RS-232)	2 (RS-232)	4 (RS-232)
	Parallel	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)
	FDD	1	1	1
	PS/2	2 (keyboard and mouse)	2 (keyboard and mouse)	2 (keyboard and mouse)
	LAN	1 (for VG version) 2 (for G2 version)	1 (for VG version) 2 (for G2 version)	1 (for VE, VG versions) 2 (for E2, G2 versions)
	OBS (Hardware Monitor)	Yes	Yes	Yes
	Audio	Line-Out, Mic-In	Line-Out, Mic-In	Line-Out, Mic-In
Watchdog Timer	Output	System reset	System reset	System reset
	Interval	Programmable, 1 ~ 255 sec/min	Programmable, 1 ~ 255 sec/min	Programmable, 1 ~ 255 sec/min
Miscellaneous	Advantech SNMP-1000-B	Yes	Yes	Yes
	Solid State Disk	-	-	Compact Flash socket (optional)
Reference Page		18-6	18-8	18-10



AIMB-744



AIMB-742



AIMB-740-B

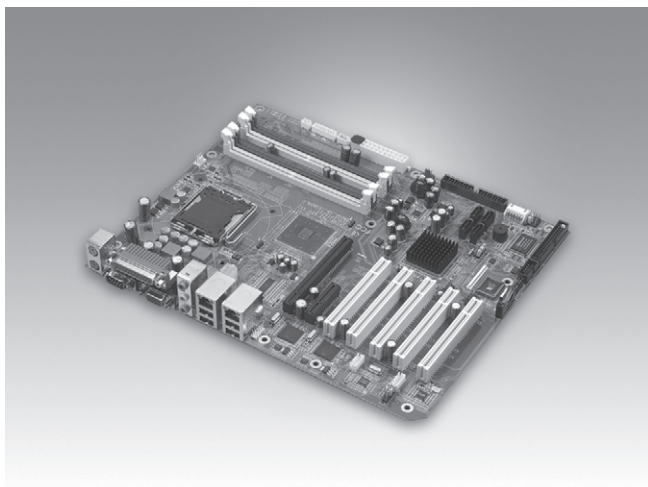


AIMB-740-6CB1

AIMB-744	AIMB-742	AIMB-740-B	AIMB-740-6CB1
Intel Pentium 4 Celeron D/ Celeron Socket 478	Intel Pentium 4 Celeron D/ Celeron Socket 478	Intel Pentium 4 Celeron D/ Celeron Socket 478	Intel Pentium 4/ Celeron D/ Celeron Socket 478
3.4 GHz 3.06 GHz 2.8 GHz	3.4 GHz 3.06 GHz 2.8 GHz	3.06 GHz 3.06 GHz 2.8 GHz	3.06 GHz 3.06 GHz 2.8 GHz
1 MB/ 512 KB/ 256 KB/ 128 KB	1 MB/ 512 KB/ 256 KB/ 128 KB	512 KB/ 256 KB/ 128 KB	512 KB/ 256 KB/ 128 KB
Intel 875P + 6300ESB	Intel 865G + ICH5	Intel 845GV + ICH4	Intel 845GV + ICH4
Award 4 Mbit FWH	Award 4 Mbit FWH	Award 4 Mbit FWH	Award 4 Mbit FWH
400/533/800 MHz	400/533/800 MHz	400/533 MHz	400/533 MHz
1 (AGP 8X)	1 (AGP 8X)	-	-
2 (PCI-X 64-bit/66 MHz) 4 (PCI 32-bit/33 MHz)	5 (32-bit/33 MHz)	5 (32-bit/33 MHz)	5 (32-bit/33 MHz)
-	2	2	-
-	Chipset integrated	Chipset integrated	Chipset integrated
-	Shared system memory up to 64 MB	Shared system memory up to 64 MB	Shared system memory up to 64 MB
-	-	-	-
10/100/1000Base-T	10/100/1000Base-T or 10/100Base-T	10/100/1000Base-T or 10/100Base-T	10/100Base-T
Intel 82547/82541 (GbE)	Intel 82547/82541 (GbE), Intel 82562/82551 (FE)	Intel 82541 (GbE), Intel 82562/82551 (FE)	Intel 82562 (FE)
RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 1
Yes	Yes	Yes	Yes
Dual channel DDR 266/333/400 SDRAM support ECC	Dual channel DDR 266/333/400 SDRAM	Single channel DDR 200/266/333 SDRAM	Single channel DDR 200/266/333 SDRAM
4 GB	4 GB	2 GB	2 GB
184-pin DIMM x 4	184-pin DIMM x 4	184-pin DIMM x 2	184-pin DIMM x 2
150 MB/s	150 MB/s	-	-
2	2	-	-
ATA 100/66/33	ATA 100/66/33	ATA 100/66/33	ATA 100/66/33
2 (Max. four devices)	2 (Max. four devices)	2 (Max. four devices)	2 (Max. four devices)
-	1	1	1
Max. 4 (USB 2.0 compliant)	Max. 8 (USB 2.0 compliant)	Max. 6 (USB 2.0 compliant)	Max. 6 (USB 2.0 compliant)
4 (RS-232)	2 (RS-232)	2 (RS-232)	6 (2 of RS-232/422/485, 4 of RS-232)
1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)
1	1	1	1
2 (keyboard and mouse) 1 (for G version) 2 (for G2 version)	2 (keyboard and mouse) 1 (for VE, VG versions) 2 (for E2, G2 versions)	2 (keyboard and mouse) 1 (for VE, VG versions) 2 (for E2 version)	2 (keyboard and mouse) 1 (for VE version)
Yes	Yes	Yes	Yes
Line-Out, Mic-In	Line-Out, Mic-In	Line-Out, Mic-In	Line-Out, Mic-In
System reset	Interrupt, system reset	Interrupt, system reset	System reset
Programmable, 1 ~ 255 sec/min	Programmable, 1 ~ 255 sec/min	Programmable, 1 ~ 255 sec/min	Programmable, 1 ~ 255 sec/min
Yes	Yes	Yes	Yes
-	Compact Flash socket (optional)	Compact Flash socket (optional)	Compact Flash socket (optional)
18-12	18-14	18-16	18-18

AIMB-762

LGA775 Pentium® D/Pentium 4/Celeron® D Processor-based ATX with DDR2/PCIe/Dual GbE LAN



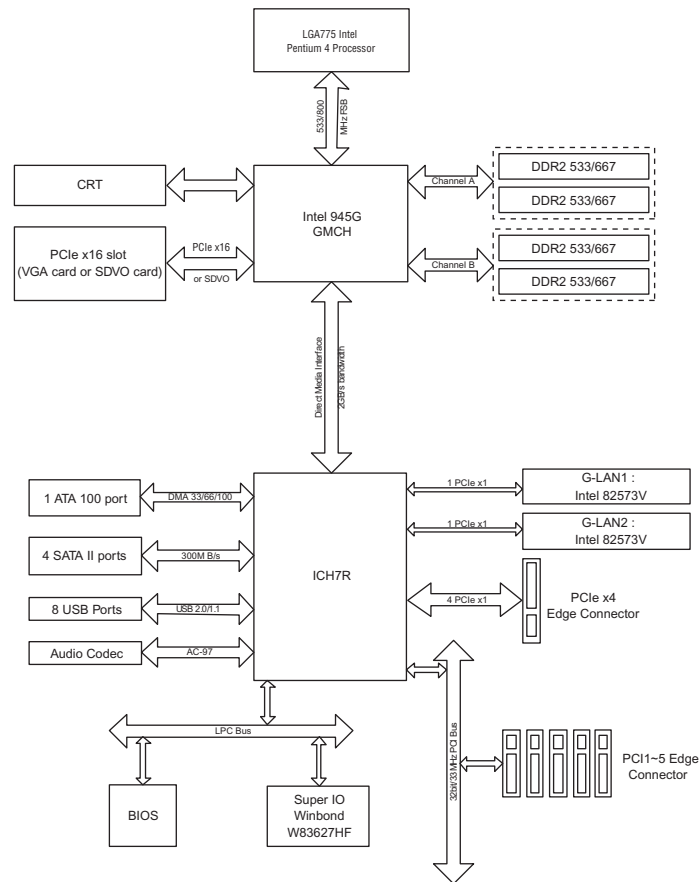
Features

- Intel® 945G chipset 800 MHz FSB
- Dual channel DDR2 533/667 SDRAM up to 4 GB
- Chipset integrated VGA sharing 128 MB system memory
- PCIe x16 slot for VGA card
- Four SATA II ports with 300 MB transfer rate and software RAID 0, 1, 10, 5
- Supports dual 10/100/1000Base-T Ethernet via dedicated PCIe x1 bus
- Compatible with Advantech's 2U, 4U, 5U and 7U Chassis

Specifications

Processor System	CPU (65nm/ 90nm)	Intel® Pentium® D	Intel® Pentium® 4	Intel® Celeron® D
	Max. Speed	3.2 GHz (Dual-core)	3.8 GHz	3.06 GHz
	L2 Cache	1MB x 2	2 MB/1 MB	512KB/256KB
	Chipset	Intel 945G + ICH7R		
	BIOS	Award™ 8 Mbit FWH		
	Front Side Bus	533/800 MHz		
Expansion Slot	PCIe x16	4.0 GB/s per direction, 1 slot		
	PCIe x4	1.0 GB/s per direction, 1 slot		
	PCI	32-bit/33 MHz, 5 slots		
Memory	Technology	Dual channel DDR2 533/667 MHz		
	Max. Capacity	4 GB		
	Socket	240-pin DIMM x 4		
Graphic	Embedded	Chipset integrated VGA controller sharing 224 MB system memory		
	Add-on	PCIe x16 slot		
Ethernet	Interface	10/100/1000 Base-T		
	Controller	G-LAN1: Intel 82573V G-LAN2: Intel 82573V (2 PCIe x1)		
	Connector	RJ45 with LED connector x 2		
SATA II	Max. Data Transfer Rate	300 MB/s		
	Channel	4 (Supporting S/W RAID 0, 1, 10, 5)		
EIDE	Mode	ATA 100/66/33		
	Channel	1 (Max. 2 devices)		
I/O Interface	VGA	1		
	USB	Max. 8 (USB 2.0 compliant), 4 ports on board		
	Audio	2 (Line-Out and Mic-In)		
	Serial	2 (1 of RS-232/422/485 on pin header, 1 of RS-232 on rear I/O)		
	Parallel	1 (SPP/EPP/ECP)		
	FDD	1		
	PS/2	2		
Watchdog Timer	Output	System reset		
	Interval	Programmable 1 ~ 255 sec		
Power Requirement	Typical	Pentium D 3.2 GHz (800 MHz FSB), 4 x 1 GB DDR2 667 SDRAM		
		+5 V	+3.3 V	+12 V
		3.10 A	1.54 A	9.90 A
Environment		Operating		Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution.		-20 ~ 70° C (-40 ~ 158° F)
Physical Characteristics	Dimensions (W x D)	304.8 x 244 mm (12" x 9.6")		

Block Diagram



Ordering Information

Part Number	Embedded VGA	PCIe x16 for VGA	Gigabit LAN
AIMB-762VG-00A1E	Yes	Yes	Single
AIMB-762G2-00A1E	Yes	Yes	Dual

*AIMB-762 cannot be installed in the ACP-2000MB chassis

We strongly suggest to use only Advantech's certified LGA 775 CPU coolers to ensure board reliability under harsh environments

Bracket View



AIMB-762VG-00A1E



AIMB-762G2-00A1E

Packing List

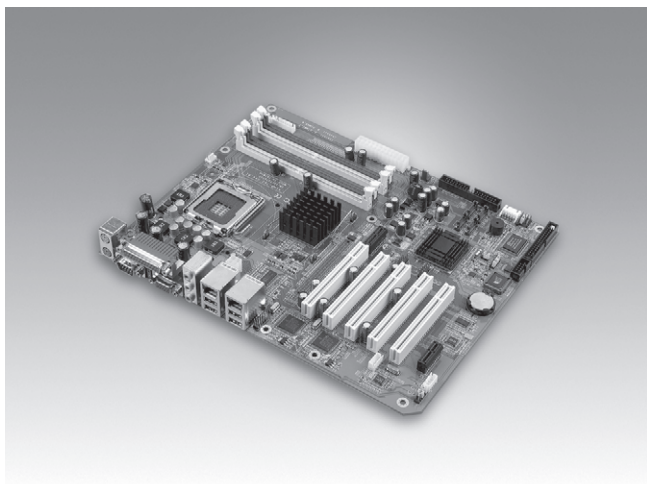
Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 1
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
1701090401	COM port cable kit	x 1
9689000068	Jumper pack	x 1
1962015680	I/O port bracket	x 1
-	Startup manual	x 1
-	Utility CD	x 1

Accessories

Part Number	Description
1750000334	LGA775 CPU cooler up to 3.8 GHz (115 W), 4U, 5U and 7U chassis
1750000332	LGA775 CPU cooler up to 3.8 GHz (115 W), best for 2U and wallmount chassis

AIMB-760

LGA775 Pentium® 4/ Celeron® D Processor-based ATX with DDR2/ Dual GbE LAN



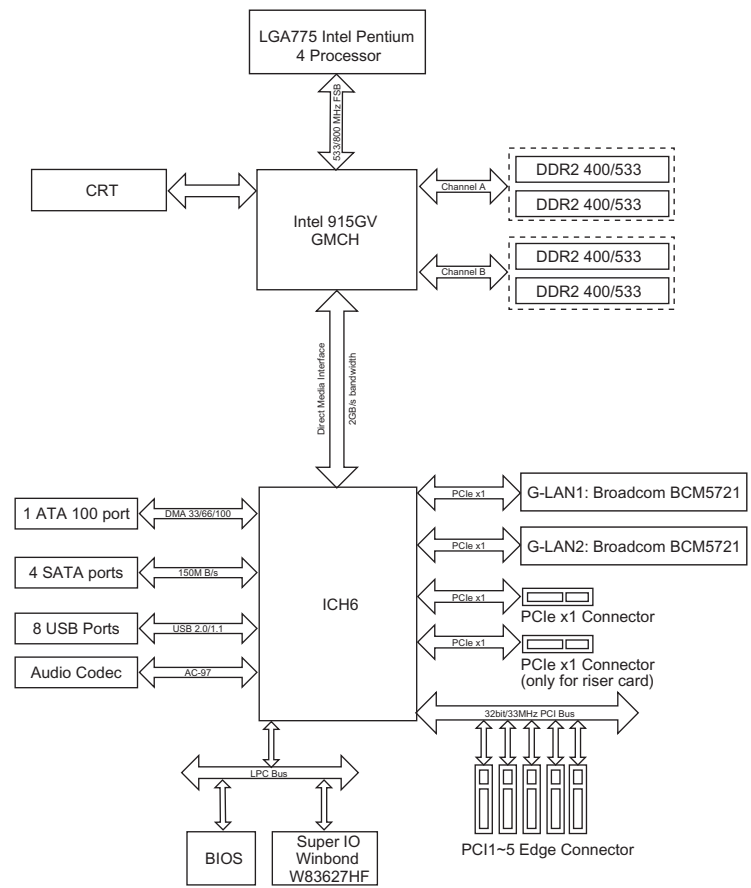
Features

- Intel® 915GV chipset 800 MHz FSB
- Supports dual channel DDR2 400/533 SDRAM
- Chipset integrated VGA
- Four SATA ports
- Supports dual 10/100/1000Base-T Ethernet via dedicated PCIe x1 bus
- CMOS automatic backup and restore to prevent accidental data loss of BIOS setup
- Compatible with Advantech's 2U, 4U, 5U and 7U chassis

Specifications

Processor System	CPU (65nm/ 90nm)	Intel Pentium® 4	Intel Celeron® D			
	Max. Speed	3.8 GHz	3.06 GHz			
	L2 Cache	2048 KB/1024 KB	256 KB			
	Chipset	Intel 915GV+ICH6				
	BIOS	Award™ 4 Mbit FWH				
	Front Side Bus	533/800 MHz				
Expansion Slot	PCIe x1	250 MB/s per direction, 1 slot				
	PCI	32-bit/33 MHz, 5 slots				
Memory	Technology	Dual channel DDR2 400/533 SDRAM				
	Max. Capacity	4 GB				
	Socket	240-pin DIMM x 4				
Graphic	Controller	Chipset integrated VGA controller (No PCIe x16 slot)				
	VRAM	Dynamically shared system memory up to 128 MB				
Ethernet	Interface	10/100/1000Base-T				
	Controller	Broadcom® BCM5721 (PCIe x1) x 2				
	Connector	RJ-45 x 2				
SATA	Max. Data Transfer Rate	150 MB/s				
	Channel	4				
EIDE	Mode	ATA 100/66/33				
	Channel	1 (Max. two devices)				
I/O Interface	VGA	1				
	LAN	1 (for VG version); 2 (for G2 vesion)				
	USB	8 (USB 2.0, 480Mbps; 4 external ports and 4 on-board pin headers)				
	Audio	2 (Line-Out and Mic-In)				
	Serial	2 (RS-232, 1 port and 1 onboard pin header)				
	Parallel	1 (SPP/EPP/ECP)				
	FDD	1				
Watchdog Timer	PS/2	2 (keyboard and mouse)				
	Output	System reset				
Power Requirement	Interval	Programmable 1 ~ 255 sec.				
	Typical	Pentium 4, 3.4 GHz (800 MHz FSB), 2 x 512 MB, 2 x 256 MB DDR2 533 SDRAM				
		+5 V	-5 V	+12 V	-12 V	+5 VSB
Environment		6.64 A	0.01 A	12.59 A	0.01 A	0.3 A
		Operating		Non-Operating		
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution.		-20 ~ 70° C (-4 ~ 158° F)		
Physical Characteristics	Dimensions (W x D)	304.8 mm x 244 mm (12" x 9.6")				

Block Diagram



Ordering Information

Part Number	Gigabit LAN	VGA
AIMB-760VG-00A1E	Single	Yes
AIMB-760G2-00A1E	Dual	Yes

*AIMB-760 cannot be installed in ACP-2000MB chassis
We strongly suggest to use only Advantech's certified LGA 775 CPU coolers to ensure board reliability under harsh environments

Bracket View



AIMB-760VG-00A1E



AIMB-760G2-00A1E

Packing List

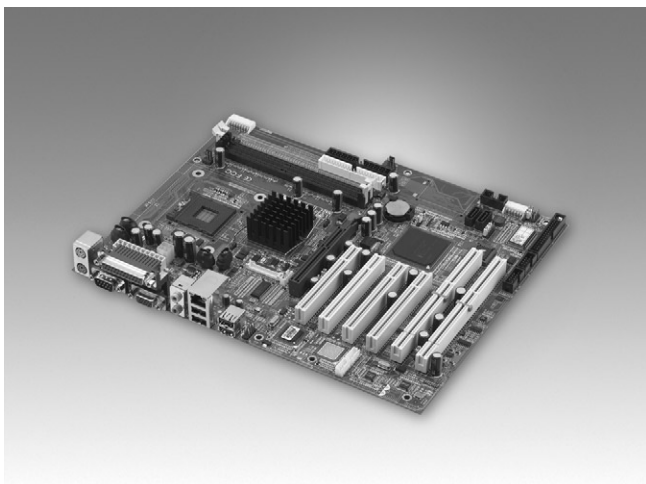
Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 1
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
1701090401	COM port cable kit	x 1
9689000068	Jumper pack	x 1
1962015680	I/O port bracket	x 1
-	Startup manual	x 1
-	Utility CD	x 1

Accessories

Part Number	Description
1750000334	LGA775 CPU cooler up to 3.8 GHz (115 W), 4U, 5U and 7U chassis
1750000332	LGA775 CPU cooler up to 3.8 GHz (115 W), 2U, 4U, 5U and 7U chassis

AIMB-750

**Socket 479 Pentium® M/Celeron® M
Processor-based ATX with 64-bit
PCI-X/AGP/Dual GbE LAN**



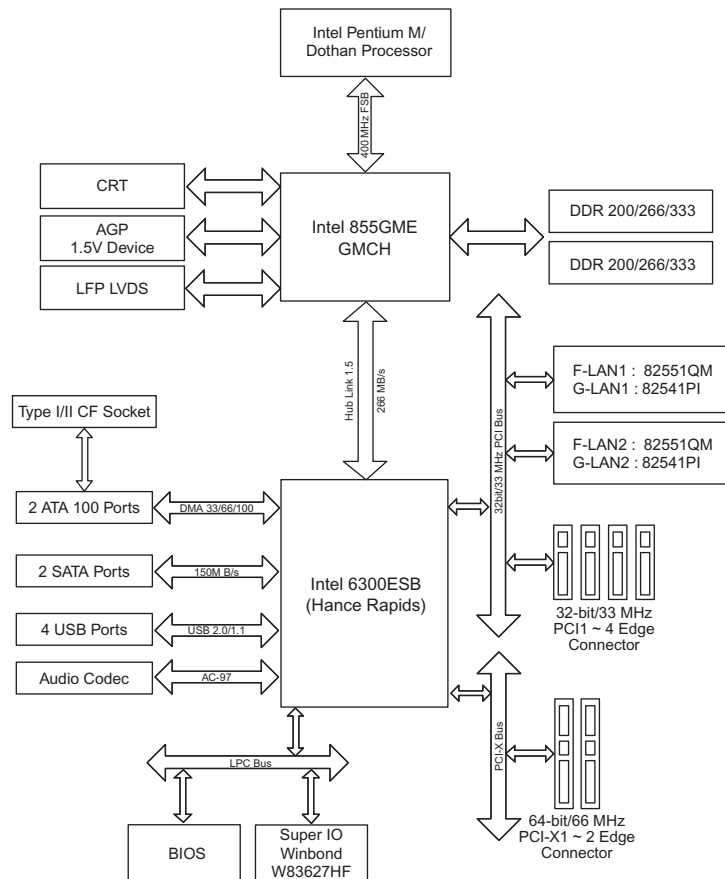
Features

- Intel® 855GME with 6300ESB chipset 400 MHz FSB
- Supports single channel DDR 200/266/333 SDRAM with ECC/non-ECC support
- Chipset integrated VGA
- Supports up to two devices with software Serial ATA RAID 0, 1
- 64-bit/66 MHz PCI-X
- One onboard LVDS connector
- Supports 10/100Base-T Ethernet or 10/100/1000Base-T Ethernet
- AGP 4X slot
- CMOS automatic backup and restore to prevent accidental data loss of BIOS setup data
- Compatible with Advantech's 1U, 2U, 4U, 5U and 7U chassis

Specifications

Processor System	CPU (90nm/ 130nm)	Intel Pentium® M		Intel Celeron® M	
	Max. Speed	2.1 GHz and above (400 FSB)		1.5 GHz and above (400 FSB)	
	L2 Cache	1024/2048 KB		512/1024 KB	
	Chipset	Intel 855GME + 6300ESB			
	BIOS	Award™ 4 Mbit FWH			
	Front Side Bus	400 MHz			
Expansion Slot	AGP	AGP 2.0 with 4x, 1.5V			
	PCI	32-bit/33 MHz, 4 slots			
	PCI-X	64-bit/66 MHz, 2 slots			
Memory	Technology	Single channel DDR 200/266/333 SDRAM with ECC/non-ECC support			
	Max. Capacity	2 GB			
	Socket	184-pin DIMM x 2			
Graphic	Controller	Chipset integrated VGA controller			
	VRAM	Dynamically shared system memory up to 64 MB			
Ethernet	Interface	10/100Base-T or 10/100/1000Base-T			
	Controller	LAN 1: Intel 82551QM (FE); Intel 82541PI (Gigabit) LAN 2: Intel 82551QM (FE); Intel 82541PI (Gigabit)			
	Connector	RJ-45 x 2			
SATA	Max. Data Transfer Rate	150 MB/s			
	Channel	2			
EIDE	Mode	ATA 100/66/33			
	Channel	2 (Max. 4 devices)			
I/O Interface	VGA	1			
	LVDS	1 (single channel 18-bit/ dual channel 36-bit)			
	USB	4 (USB 2.0, 480 Mbps; 2 headers and 2 external ports)			
	Audio	2 (Line-Out and Mic-In)			
	Serial	4 (RS-232, 1 port and 3 onboard pin headers)			
	Parallel	1 (SPP/EPP/ECP)			
	FDD	1			
	PS/2	2 (keyboard and mouse)			
Watchdog Timer	Output	Reset			
	Interval	Programmable 1 ~ 255 sec.			
Miscellaneous	Solid State Disk	1 Type I/II CompactFlash socket (Optional, upon request)			
Power Requirement	Typical	Pentium M			
		+3.3 V	+5 V	+12 V	+5 VSB
Environment		4.09 A	2.77 A	0.75 A	2.0A
	Temperature	Operating 0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution			Non-Operating -20 ~ 70° C (-4 ~ 158° F)
Physical Characteristics	Dimensions (W x D)	304.8 x 243.6 mm (12" x 9.6")			

Block Diagram



Ordering Information

Part Number	Fast Ethernet LAN	Gigabit LAN
AIMB-750VE-00A1E	Single	-
AIMB-750E2-00A1E	Dual	-
AIMB-750VG-00A1E	-	Single
AIMB-750G2-00A1E	-	Dual

Bracket View



AIMB-750VE-00A1E
AIMB-750VG-00A1E



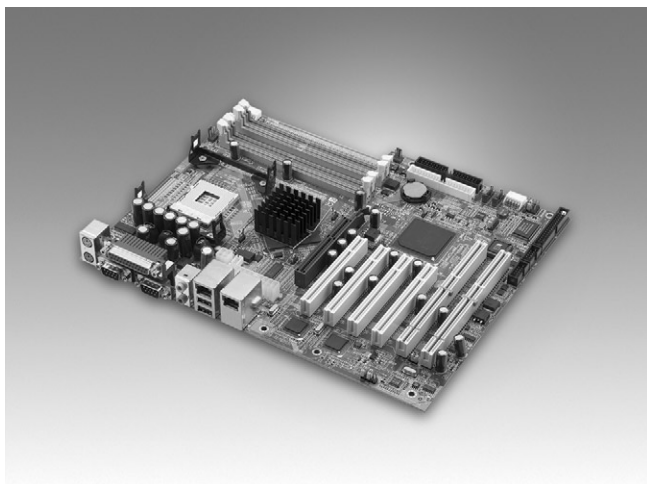
AIMB-750E2-00A1E
AIMB-750G2-00A1E

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 2
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
1701092300	Dual COM port cable kit	x 1
9689000068	Jumper pack	x 1
1962015680	I/O port bracket	x 1
1960001631	Low profile CPU cooler	x 1
-	Startup manual	x 1
-	Utility CD	x 1

AIMB-744

Socket 478 Pentium® 4/Celeron® D/Celeron Processor-based ATX with 64-bit PCI-X/AGP/ Dual GbE LAN



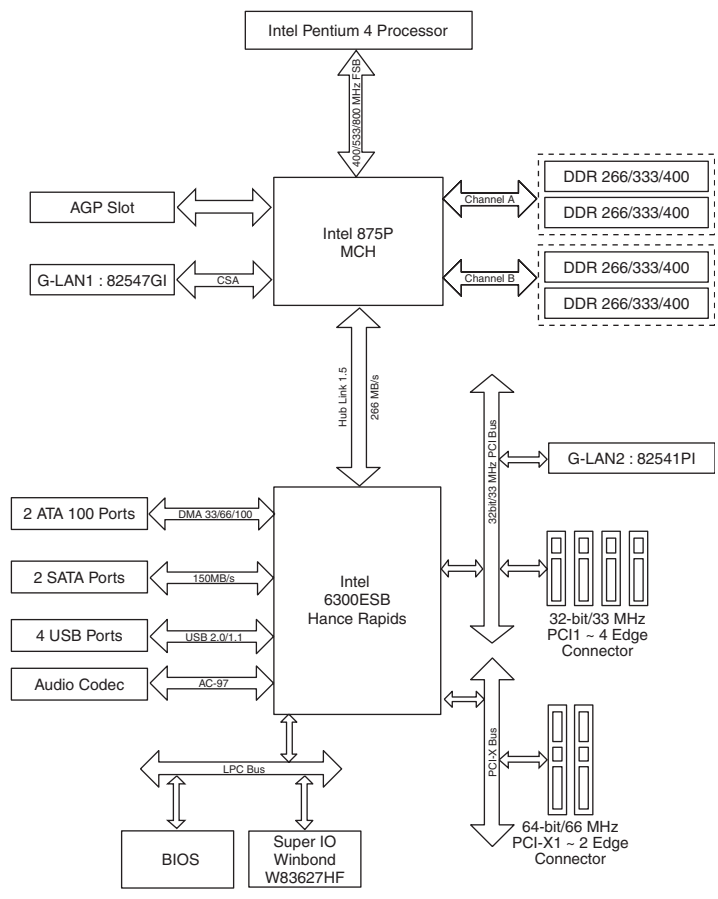
Features

- Intel® 875P with 6300ESB chipset 400/533/800 MHz FSB
- Supports dual channel DDR 400 SDRAM with ECC/non-ECC support
- Supports up to two devices with software Serial ATA RAID 0,1
- 64-bit, 66 MHz PCI-X
- Supports 10/100/1000Base-T Ethernet
- One AGP slot
- CMOS automatic backup & restore prevents accidental loss of BIOS setup
- Compatible with Advantech's 1U, 2U, 4U, 5U and 7U chassis

Specifications

Processor System	CPU (90nm/ 130nm)	Intel® Pentium® 4	Intel® Celeron® D	Intel® Celeron®
	Max. Speed	3.06 GHz (533 FSB) 3.4 GHz (800 FSB) * Vcore 1.75V CPU (Willamette) not supported	3.06 GHz	2.8 GHz
	L2 Cache	256/512/1024 KB	256 KB	128/256 KB
	Chipset	Intel 875P + 6300ESB		
	BIOS	Award™ 4 Mbit FWH		
	Front Side Bus	400/533/800 MHz		
Expansion Slot	AGP	AGP 3.0 with 4x and 8x, 0.8 V and 1.5 V, 1 slot		
	PCI	32-bit/33 MHz, 4 slots		
	PCI-X	64-bit/66 MHz, 2 slots		
Memory	Technology	Dual Channel DDR 266/333/400 SDRAM with ECC/non-ECC support		
	Max. Capacity	4 GB		
	Socket	184-pin DIMM x 4		
Ethernet	Interface	10/100/1000Base-T		
	Controller	LAN 1: Intel 82547GI (Gigabit, CSA) LAN 2: Intel 82541PI (Gigabit)		
	Connector	RJ-45 x 2		
SATA	Max. Data Transfer Rate	150 MB/s		
	Channel	2		
EIDE	Mode	ATA 100/66/33		
	Channel	2 (Max. 4 devices)		
I/O Interface	USB	4 (USB 2.0, 480Mbps; 4 external ports)		
	Audio	2 (Line-Out and Mic-In)		
	Serial	4 (RS-232, 2 ports and 2 onboard pin headers)		
	Parallel	1 (SPP/EPP/ECP)		
	FDD	1		
	PS/2	2 (keyboard and mouse)		
Watchdog Timer	Output	System reset		
	Interval	Programmable 1 ~ 255 sec.		
Power Requirement	Typical	Pentium 4 3.2 GHz, 4 GB DDR 266/333/400 SDRAM		
		+3.3 V	+5 V	+12 V
		8.13 A	0.57 A	5.29 A
Environment		Operating		Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution		-20 ~ 70° C (-4 ~ 158° F)
Physical Characteristics	Dimensions (W x D)	304.8 x 243.8 mm (12" x 9.6")		

Block Diagram



Ordering Information

Part Number	Fast Ethernet LAN	Gigabit LAN
AIMB-744G-00A3E	-	Single
AIMB-744G2-00A3E	-	Dual

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 2
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
1701092300	Dual COM port cable kit	x 1
9689000068	Jumper pack	x 1
1962015680	I/O port bracket	x 1
-	Startup manual	x 1
-	Utility CD	x 1

Bracket View



AIMB-744G2-00A3E



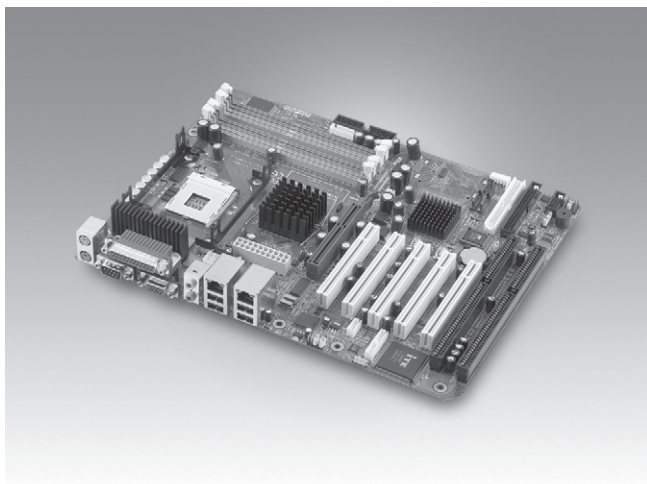
AIMB-744G-00A3E

Accessories

Part Number	Description
1759214200	CPU cooler for Pentium 4 processor up to 2.8 GHz (70 W), for 1U chassis
1750000257	CPU cooler for Pentium 4 processor up to 3.2 GHz (89 W), for 2U or higher chassis

AIMB-742

Socket 478 Pentium® 4/Celeron® D/ Celeron Processor-based ATX with AGP/Dual GbE LAN



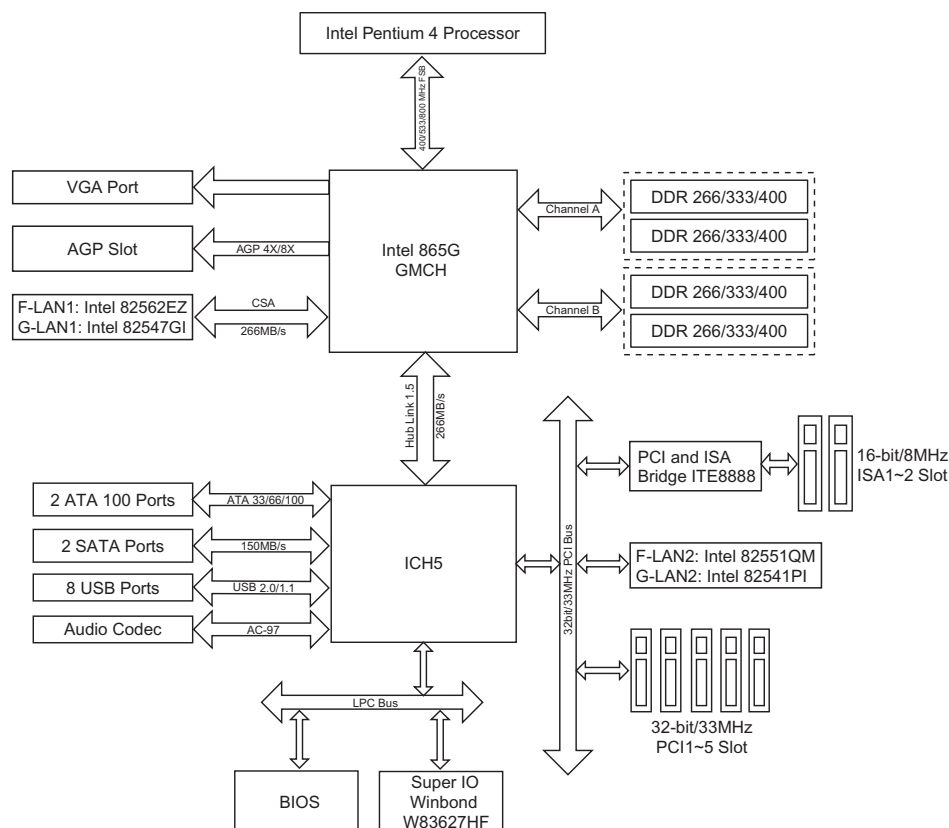
Features

- Intel® 865G chipset 400/533/800 MHz FSB
- Supports dual channel DDR 266/333/400 SDRAM
- Chipset integrated VGA
- Supports up to 2 Serial ATA devices
- Onboard AGP 8X slot
- Supports 10/100Base-T Ethernet or 10/100/1000Base-T Ethernet
- CMOS automatic backup and restore to prevent accidental data loss of BIOS setup
- Compatible with Advantech's 1U, 2U, 4U, 5U and 7U chassis

Specifications

	CPU (90nm/ 130nm)	Intel® Pentium® 4	Intel® Celeron® D	Intel® Celeron®
Processor System		3.06 GHz (533 FSB)		
	Max. Speed	3.4 GHz (800 FSB) * Vcore 1.75V CPU (Willamette) not supported	3.06 GHz	2.8 GHz
	L2 Cache	256/512/1024 KB	256 KB	128/256 KB
	Chipset	Intel 865G + ICH5		
	BIOS	Award™ 4 Mbit FWH		
	Front Side Bus	400/533/800 MHz		
Expansion Slot	AGP	AGP 3.0 with 4X and 8X, 0.8 V and 1.5 V, 1 slot		
	PCI	32-bit/33 MHz, 5 slots (1 shared with ISA slot)		
	ISA	16-bit/8 MHz, 2 slots		
Memory	Technology	Dual channel DDR 266/333/400 SDRAM		
	Max. Capacity	4 GB		
	Socket	184-pin DIMM x 4		
Graphic	Controller	Chipset integrated VGA controller		
	VRAM	Dynamically shared system memory up to 64 MB		
Ethernet	Interface	10/100Base-T or 10/100/1000Base-T		
	Controller	LAN 1: Intel 82562EZ (FE); Intel 82547GI (Gigabit, CSA) LAN 2: Intel 82551QM (FE); 82541PI (Gigabit)		
	Connector	RJ-45 x 2		
SATA	Max. Data Transfer Rate	150 MB/s		
	Channel	2		
EIDE	Mode	ATA 100/66/33		
	Channel	2 (Max. 4 devices)		
I/O Interface	VGA	1		
	USB	8 (USB 2.0, 480 Mbps; 4 external ports and 4 onboard pin headers)		
	Audio	2 (Line-Out and Mic-In)		
	Serial	2 (RS-232, 1 port and 1 onboard pin header)		
	Parallel	1 (SPP/EPP/ECP)		
	FDD	1		
	PS/2	2 (keyboard and mouse)		
Watchdog Timer	Output	Interrupt, system reset		
	Interval	Programmable 1 ~ 255 sec.		
Miscellaneous	Solid State Disk	1 Type I/II CompactFlash socket (Optional, upon request)		
Power Requirement	Typical	Pentium 4 3.2 GHz, 4 GB DDR 266/333/400 SDRAM		
		+3.3 V	+5 V	+12 V
		9.26 A	0.43 A	5.42 A
Environment	Operating			
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution		
Physical Characteristics	Dimensions (W x D)	304.8 x 228.6 mm (12" x 9")		

Block Diagram



Ordering Information

Part Number	Fast Ethernet LAN	Gigabit LAN	AGP slot
AIMB-742VE-00A2E	Single	-	Yes
AIMB-742E2-00A2E	Dual	-	Yes
AIMB-742VG-00A2E	-	Single	Yes
AIMB-742G2-00A2E	-	Dual	Yes

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 2
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
1701090401	COM port cable kit	x 1
9689000068	Jumper pack	x 1
1962015680	I/O port bracket	x 1
-	Startup manual	x 1
-	Utility CD	x 1

Bracket View



AIMB-742VE-00A2E
AIMB-742VG-00A2E



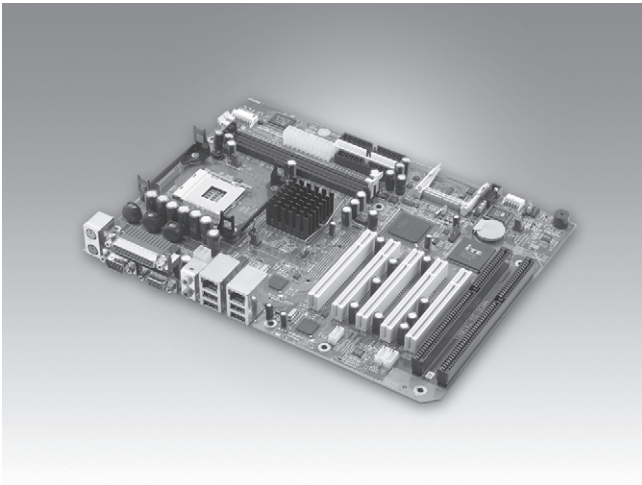
AIMB-742E2-00A2E
AIMB-742G2-00A2E

Accessories

Part Number	Description
1759214200	CPU cooler for Pentium 4 processor up to 2.8 GHz (70 W), for 1U chassis
1750000257	CPU cooler for Pentium 4 processor up to 3.2 GHz (89 W), for 2U or higher chassis

AIMB-740-B

Socket 478 Pentium® 4/Celeron® D/Celeron Processor-based ATX with VGA/Dual LAN



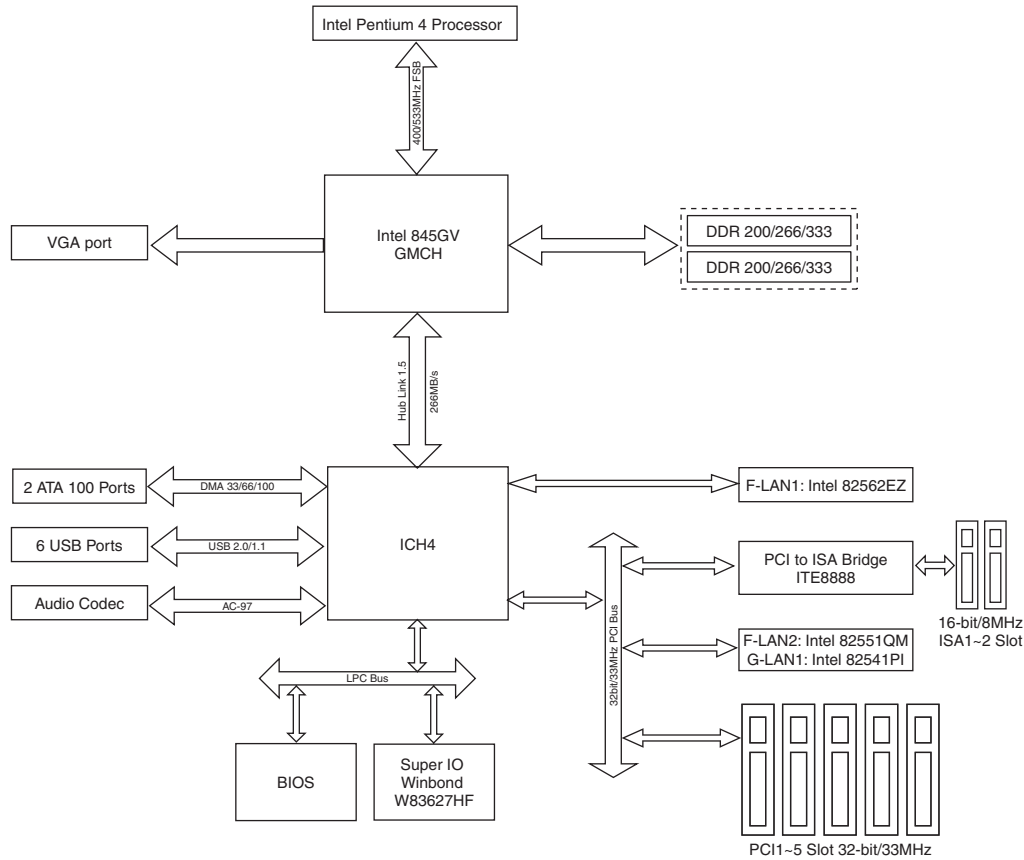
Features

- Intel® 845GV chipset 400/533 MHz FSB
- Chipset integrated VGA
- Supports 10/100Base-T Ethernet or 10/100/1000Base-T Ethernet
- CMOS automatic backup and restore to prevent accidental data loss of BIOS setup
- Compatible with Advantech's 1U, 2U, 4U, 5U and 7U chassis

Specifications

Processor System	CPU (90 nm/130 nm)	Intel® Pentium® 4	Intel® Celeron® D	Intel® Celeron®
	Max. Speed	3.06 GHz (533 FSB)	3.06 GHz	2.8 GHz
	L2 Cache	256/512 KB	256 KB	128 KB
	Chipset	Intel 845GV		
	BIOS	Award™ 4 Mbit FWH		
	Front Side Bus	400/533 MHz		
Expansion Slot	PCI	32-bit/33 MHz, 5 slots (1 shared with ISA slot)		
	ISA	16-bit/8 MHz, 2 slots		
Memory	Technology	Single channel DDR 200/266/333 SDRAM		
	Max. Capacity	2 GB		
	Socket	184-pin DIMM x 2		
Graphic	Controller	Chipset integrated VGA controller		
	VRAM	Dynamically shared system memory 8-64 MB		
Ethernet	Interface	10/100Base-T or 10/100/1000Base-T		
	Controller	LAN1: Intel 82562EZ (FE) LAN2: Intel 82551QM (FE) LAN1: Intel 82541PI (Gigabit)		
	Connector	RJ-45 x 2		
EIDE	Mode	ATA 100/66/33		
	Channel	2 (Max. 4 devices)		
I/O Interface	VGA	1		
	USB	6 (USB 2.0, 480 Mbps; 2 external ports and 4 onboard pin headers)		
	Audio	2 (Line-Out and Mic-In)		
	Serial	2 (RS-232, 1 port and 1 onboard pin header)		
	Parallel	1 (SPP/EPP/ECP)		
	FDD	1		
	PS/2	2 (keyboard and mouse)		
Watchdog Timer	Output	Interrupt, system reset		
	Interval	Programmable, 1 ~ 255 sec.		
Miscellaneous	Solid State Disk	1 Type I/II CompactFlash socket (Optional, upon request)		
	Typical	Pentium 4, 3.06 GHz, 2 GB DDR 200/266/333 SDRAM		
Power Requirement		+3.3 V	+ 5 V	+ 12 V
		4.23 A	1.35 A	4.17 A
Environment		Operating		Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution		-20 ~ 70° C (-4 ~ 158° F)
Physical Characteristics	Dimensions (W x D)	304.8 x 228.6 mm (12" x 9")		

Block Diagram



Ordering Information

Part Number	VGA	Fast Ethernet LAN	Gigabit LAN
AIMB-740VE-00B1E	Yes	Single	-
AIMB-740E2-00B1E	Yes	Dual	-
AIMB-740VG-00B1E	Yes	-	Single
AIMB-740V-00B1E	Yes	-	-

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 2
1701090401	COM port cable kit	x 1
9689000068	Jumper pack	x 1
1962015680	I/O port bracket	x 1
-	Startup manual	x 1
-	Utility CD	x 1

Bracket View



AIMB-740VE-00B1E
AIMB-740VG-00B1E



AIMB-740E2-00B1E



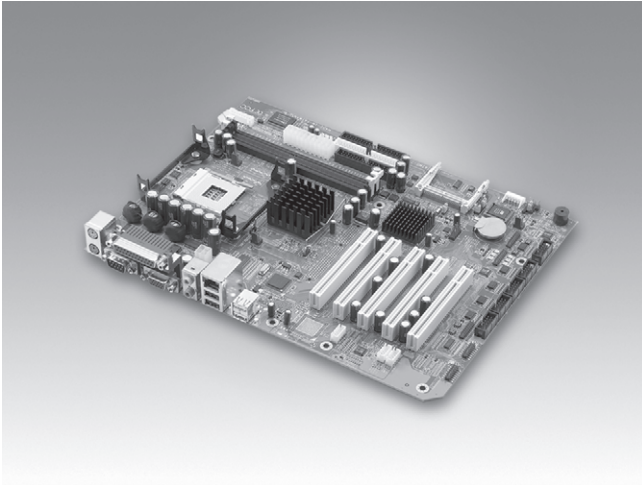
AIMB-740V-00B1E

Accessories

Part Number	Description
1759214200	CPU cooler for Pentium 4 processor up to 2.8 GHz (70 W), for 1U chassis
1750000257	CPU cooler for Pentium 4 processor up to 3.2 GHz (89 W), for 2U or higher chassis

AIMB-740-6CB1

Socket 478 Pentium® 4/
Celeron® D/Celeron Processor-
based ATX with VGA/FE LAN



Features

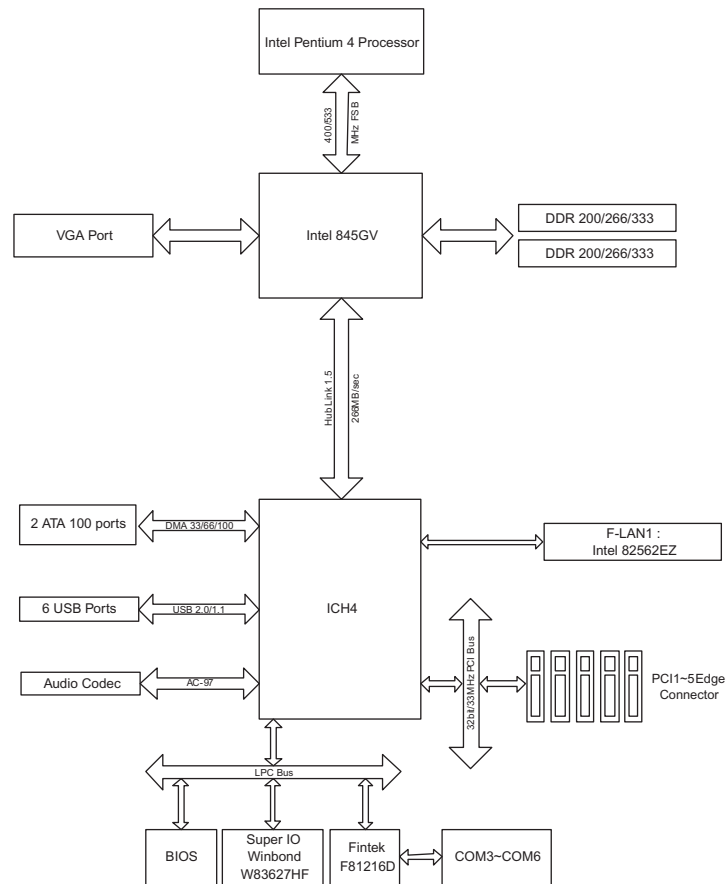
- Single channel DDR 200/266/333 SDRAM up to 2 GB
- Intel® 845GV chipset 400/533 MHz FSB
- Chipset integrated VGA sharing 8-64 MB system memory
- Six serial ports (2 of RS-232/422/485, 4 of RS-232)
- Supports single 10/100Base-T Ethernet
- Two 8-bit GPIO headers

CE FCC

Specifications

Processor System	CPU (90 nm/130 nm)	Intel® Pentium® 4	Intel® Celeron® D	Intel® Celeron®
	Max. Speed	3.06 GHz	3.06 GHz	2.8 GHz
	L2 Cache	256/512 KB	256 KB	128/256 KB
	Chipset	Intel 845GV+ICH4		
	BIOS	Award™ 4 Mbit FWH		
	Front Side Bus	400/533 MHz		
Expansion Slot	PCI	32 bit/33MHz, 5 slots		
Memory	Technology	Single channel DDR 200/266/333 MHz		
	Max. Capacity	2 GB		
	Socket	184-pin DIMM x 2		
Graphic	Controller	Chipset integrated VGA controller		
	VRAM	Dynamically shared system memory 8-64 MB		
Ethernet	Interface	10/100 Base-T		
	Controller	F-LAN1: Intel 82562EZ (FE)		
	Connector	RJ45 with LED connector x 1		
EIDE	Mode	ATA 100/66/33		
	Channel	2 (Max. 4 devices)		
I/O Interface	VGA	1		
	USB	Max. 6 (USB 2.0 compliant), 2 ports on board		
	Audio	2 (Line-out and MIC-in)		
	Serial	6 (2 of RS-232/422/485, 4 of RS-232)		
	Parallel	1 (SPP/EPP/ECP)		
	FDD	1		
	PS/2	1		
	GPIO	Two 8-bit GPIO headers		
Watchdog Timer	Output	System reset		
	Interval	Programmable 1 ~ 255 sec		
Miscellaneous	Solid State Disk	1 Type I/II Compact Flash socket (Optional, upon request)		
Power Requirement	Typical	Pentium 4, 3.06 GHz, 2 GB DDR 200/266/333 SDRAM		
		+3.3 V	+5 V	+12 V
		4.23 A	1.35 A	4.17 A
Environment	Temperature	Operating		
		0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution		
Physical		Non-Operating		
		-20 ~ 70° C (-4 ~ 158° F)		
Physical	Dimensions (W x D)	304.8 x 228.6 mm (12" x 9")		

Block Diagram



Ordering Information

Part Number	VGA	Fast Ethernet LAN
AIMB-740VE-6CB1	Yes	Single

Bracket View



AIMB-740VE-6CB1

Packing List

Part Number	Description	Qty
1700340640	FDD cable	x 1
-	Startup manual	x 1
-	CD with driver and manual	x 1
1701400452	Ultra ATA 100 HDD cables	x 2
1701090401	Single COM port cable kit	x 1
1701092300	Dual COM ports cable kit	x 2
1962015680	I/O port bracket	x 1
2190000902	Warranty certificate	x 1
-	EMI sponge	x 1

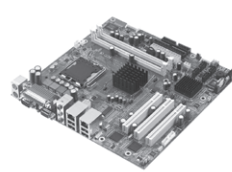
MicroATX Motherboards



AIMB-554



AIMB-562



AIMB-560



AIMB-542

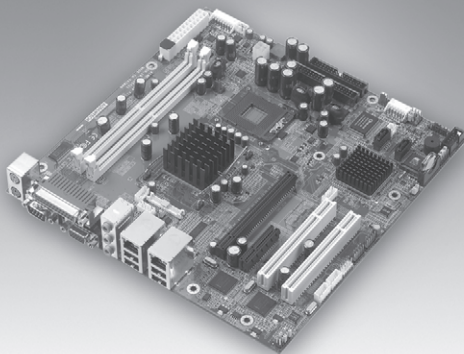
Selection Guide

Specifications		AIMB-554	AIMB-562	AIMB-560	AIMB-542
Processor System	CPU	Intel Core 2 Duo Core Duo Core Solo Socket 479	Intel Core 2 Duo Pentium 4/Celeron D LGA775	Intel Pentium 4 Celeron D LGA775	Intel Pentium 4 Celeron D LGA775
	Max. Speed	2.16 GHz	2.66 GHz/3.8 GHz/ 2.93 GHz	3.8 GHz/3.06 GHz	3.8 GHz/ 3.06 GHz
	L2 Cache	2 MB/1 MB	4 MB/2 MB/512 KB	2 MB/256 KB	2 MB/1 MB/512 KB/256 KB
	Chipset	Intel 945GM + ICH7M-DH	Intel 945G + ICH7	Intel 915GV + ICH6	Intel 865G + ICH5
	BIOS	Award 4 Mbit FWH	AMI 8 Mbit FWH	Award 4 Mbit FWH	AMI 4 Mbit FWH
Expansion Slot	Front Side Bus	533/667 MHz	533/800/1066 MHz	533/800 MHz	533/800 MHz
	Graphic Expansion Slot	1 PCIe x16	1 PCIe x16	-	AGP 8X
	PCI	2 (PCI 32-bit/33 MHz)	2 (PCI 32-bit/33 MHz)	3 (PCI 32-bit/33 MHz)	3 (PCI 32-bit/33 MHz)
	PCIe x4	1	-	-	-
Graphic	PCIe x1	-	1	-	-
	Controller	Chipset integrated	Chipset integrated	Chipset integrated	Chipset integrated
	VRAM	Shared system memory up 224 MB	Shared system memory up 224 MB	Shared system memory up 128 MB	Shared system memory up 64 MB
Ethernet	LCD	LVDS	-	-	-
	Interface	10/100/1000Base-T	10/100/1000Base-T	10/100/1000Base-T	10/100Base-T
	Controller	Intel 82573L	Intel 82573L	Broadcom BCM5721 (GbE)	Realtek RTL 8100C
	Connector	RJ-45 x 2	RJ-45 x 1	RJ-45 x 2	RJ-45 x 1
Memory	Disable from BIOS	Yes	Yes	Yes	Yes
	Technology	Dual channel DDR2 533/667 SDRAM	Dual channel DDR2 533/667 SDRAM	Dual channel DDR2 400/533 SDRAM	Dual channel DDR 333/400 SDRAM
	Max. Capacity	4 GB	4 GB	2 GB	4 GB
SATA	Socket	240-pin DIMM x2	240-pin DIMM x4	240-pin DIMM x2	184-pin DIMM x4
	Max. Data Transfer Rate	150 MB/s	300 MB/s	150 MB/s	150 MB/s
EIDE	Channel	2	4	4	2
	Mode	ATA 100/66/33	ATA 100/66/33	ATA 100/66/33	ATA 100/66/33
I/O Interface	Channel	1 (Max. two devices)	1 (Max. two devices)	1 (Max. two devices)	2 (Max. four devices)
	VGA	1	1	1	1
	USB	Max. 8 (USB 2.0 compliant)	Max. 8 (USB 2.0 compliant)	Max. 8 (USB 2.0 compliant)	Max. 8 (USB 2.0 compliant)
	Serial	2 (1 of RS-232/422/485, 1 of RS-232)	2 (RS-232)	2 (RS-232)	1 (RS-232)
	Parallel	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)
	FDD	1	1	1	1
	PS/2	2 (keyboard and mouse)	2 (keyboard and mouse)	2 (keyboard and mouse)	2 (keyboard and mouse)
	LAN	1 (for VG version) 2 (for G2 version)	1 (for VG version)	1 (for VG version) 2 (for G2 version)	1 (for VE version)
	OBS (Hardware Monitor)	Yes	Yes	Yes	Yes
	Audio	Line-Out, Mic-In	Mic-In, Line-In, Line-Out	Line-Out, Mic-In	Mic-In, Line-In, Line-Out
	Output	System reset	-	System reset	-
Watchdog Timer	Interval	Programmable, 1 ~ 255 sec/min	-	Programmable, 1 ~ 255 sec/min	-
Miscellaneous	Advantech SNMP-1000-B	Yes	-	Yes	-
Reference Page		18-21	18-23	18-25	18-27

AIMB-554

Socket 479 Core™ 2 Duo/Core Duo/Core Solo Processor-based MicroATX with DDR2/Dual GbE LAN

NEW



Features

- Intel® 945 GM with ICH7M-DH chipset 667 MHz FSB
- Supports dual channel DDR2 400/533/667 SDRAM up to 2 GB
- Two SATA ports with support for software Serial ATA RAID 0,1
- Supports dual 10/100/1000Base-T Ethernet via dedicated PCIe x1 bus
- Chipset integrated VGA
- PCI Express x16 interface for VGA
- CMOS automatic backup and restore to prevent accidental data loss of BIOS setup
- Supports LVDS/TV out connectors

Specifications

Processor System	CPU (65nm)	Intel® Core™ 2 Duo	Intel® Core™ Duo	Intel® Core™ Solo
	Max. Speed	2.16 GHz	2.0 GHz	1.5 GHz
	L2 Cache	2 MB/4 MB	2 MB	1 MB
	Chipset	Intel 945GM + ICH7M-DH		
	BIOS	Award® 4 Mbit FWH		
	Front Side Bus	400/533/667 MHz		
Expansion Slot	PCIe x16	4.0 GB/s per direction, 1 slot		
	PCIe x4	1.0 GB/s per direction, 1 slot		
	PCI	32-bit/33 MHz, 2 slots		
Memory	Technology	Dual channel DDR2 400/533/667 SDRAM		
	Max. Capacity	4 GB		
	Socket	240-pin DIMM x 2		
Graphic	Embedded	Chipset integrated VGA controller sharing 224 MB system memory		
	LVDS	Supports single channel 18-bit/ dual channel 36-bit		
	TV-Out	Supports both S-video and composite video (TV-out function is not supported during POST stage)		
	Add-on	PCIe x16 slot		
Ethernet	Interface	10/100/1000 Base-T		
	Controller	G-LAN1: Intel 82573L G-LAN2: Intel 82573L (2 PCIe x1)		
	Connector	RJ-45 x 2		
SATA	Max. Data Transfer Rate	150 MB/s		
	Channel	2		
EIDE	Mode	ATA 100/66/33		
	Channel	1 (Max. two devices)		
I/O Interface	VGA	1		
	LAN	1 (for VG version); 2 (for G2 version)		
	USB	8 (USB 2.0, 480Mbps; 4 external ports and 4 onboard pin headers)		
	Audio	2 (Line-Out and Mic-In)		
	Serial	2 (1 of RS-232/422/485 on pin header, 1 of RS-232 on rear I/O)		
	Parallel	1 (SPP/EPP/ECP)		
	FDD	1		
	PS/2	2 (keyboard and mouse)		
Watchdog Timer	Output	System reset		
	Interval	Programmable 1 ~ 255 sec.		
Power Requirement	Typical	Intel Core Duo-T2400 1.83GHz (667FSB) DDR2 667 1GB SDRAM X2		
		+5 V	+3.3 V	+12 V
		2.4 A	3 A	1.5 A
Environment		Operating		
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution.		
Physical Characteristics	Dimensions (W x D)	244 mm x 244 mm (9.6" x 9.6")		

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Industrial Motherboards

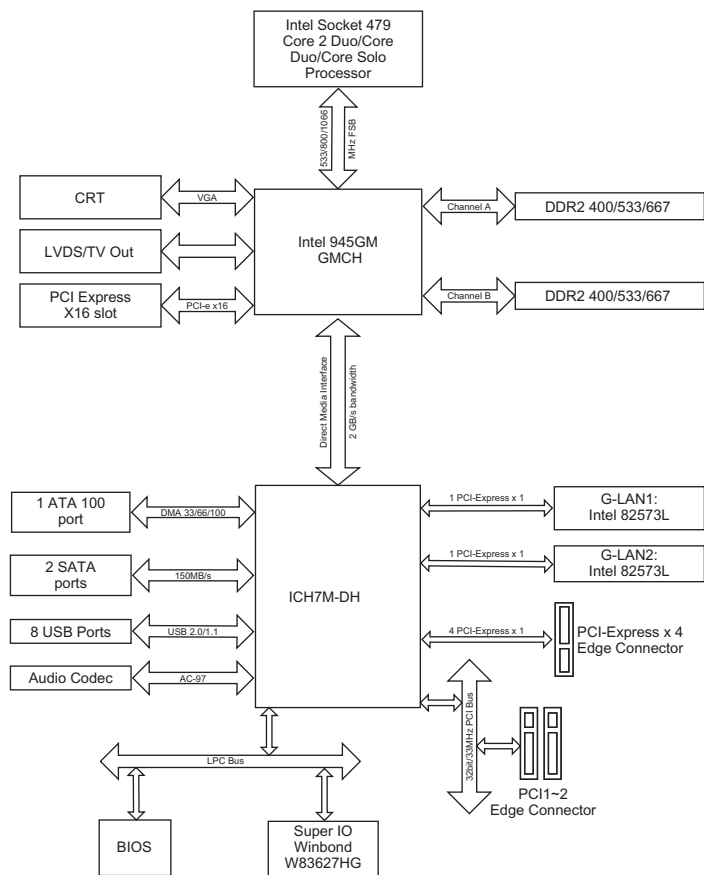
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Industrial PC Peripherals

Block Diagram



Ordering Information

Part Number	Gigabit LAN	VGA
AIMB-554VG-00A1E	Single	Yes
AIMB-554G2-00A1E	Dual	Yes

*AIMB-554 cannot be installed in ACP-2000MB chassis

Bracket View



AIMB-554VG-00A1E



AIMB-554G2-00A1E

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 1
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
1701090401	COM port cable kit	x 1
9689000068	Jumper pack	x 1
1960004027	I/O port bracket	x 1
-	Startup manual	x 1
-	Utility CD	x 1
1750000540	CPU cooler (for 2U and 2U+ chassis)	x 1

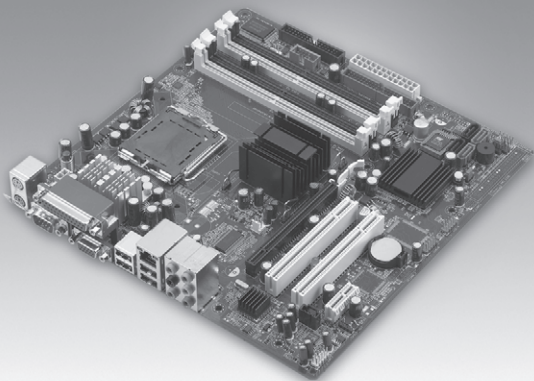
Accessories

Part Number	Description
1700002331	TV-out cable
1750000348	CPU cooler (for 1U chassis, ambient temperature reduce to 55 degree C)

AIMB-562

**LGA 775 Core™ 2 Duo/Pentium® D/Pentium 4/
Celeron® D Processor-based MicroATX with
DDR2/PCIe/Single GbE LAN**

NEW



CE FCC

Features

- Intel® 945G chipset 533/800/1066 MHz FSB
- Supports Intel Core 2 Duo processor
- Dual channel DDR2 533/667 SDRAM up to 4 GB
- Chipset integrated VGA sharing 224 MB system memory
- PCIe x16 slot for VGA card
- Four SATA II ports with 300 MB transfer rate
- Supports single 10/100/1000Base-T Ethernet via dedicated PCIe x1 bus

Specifications

Processor System	CPU (65nm/ 90nm)	Intel® Core™ 2 Duo		Pentium® D	Pentium® 4	Celeron® D
	Max. Speed	2.66 GHz		3.2 GHz (Dual-core)	3.8 GHz	3.06 GHz
	L2 Cache	4 MB		1 MB x 2, 2 MB x 2	2 MB/1 MB	512KB/256KB
	Chipset	Intel 945G + ICH7				
	BIOS	AMI® 8 Mbit FWH				
	Front Side Bus	533/800/1066 MHz				
Expansion Slot	PCIe x16	4.0 GB/s per direction, 1 slot				
	PCIe x1	250 MB per direction, 1 slot				
	PCI	32-bit/33MHz, 2 slots				
Memory	Technology	Dual channel DDR2 533/667 MHz				
	Max. Capacity	4 GB				
	Socket	240-pin DIMM x 4				
Graphic	Embedded	Chipset integrated VGA controller sharing 224 MB system memory				
	Add-on	PCIe x16 slot				
Ethernet	Interface	10/100/1000 Base-T				
	Controller	G-LAN: Intel 82573L				
	Connector	RJ45 with LED connector x 1				
SATA II	Max. Data Transfer Rate	300 MB/s				
	Channel	4				
EIDE	Mode	ATA 100/66/33				
	Channel	1 (Max. 2 devices)				
I/O Interface	VGA	1				
	USB	Max. 8 (USB 2.0 compliant), 4 ports on board				
	Audio	3 (MIC-In, Line-In, Line-Out)				
	Serial	2				
	Parallel	1 (SPP/EPP/ECP)				
	FDD	1				
	PS/2	2				
Watchdog Timer		None				
Power Requirement	Typical	Pentium 4 3.4 GHz, 1 GB SDRAM, 80 GB HDD				
		+12 V	+5 V	+3.3 V	5 Vsb	-5 V
		10.36 A	3.95 A	4.5 A	1.2 A	12 mA
Environment		Operating				Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution				-20 ~ 70° C (-4 ~ 158° F)
Physical Characteristics	Dimensions (W x D)	244 x 244 mm (9.6" x 9.6")				

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Industrial Motherboards

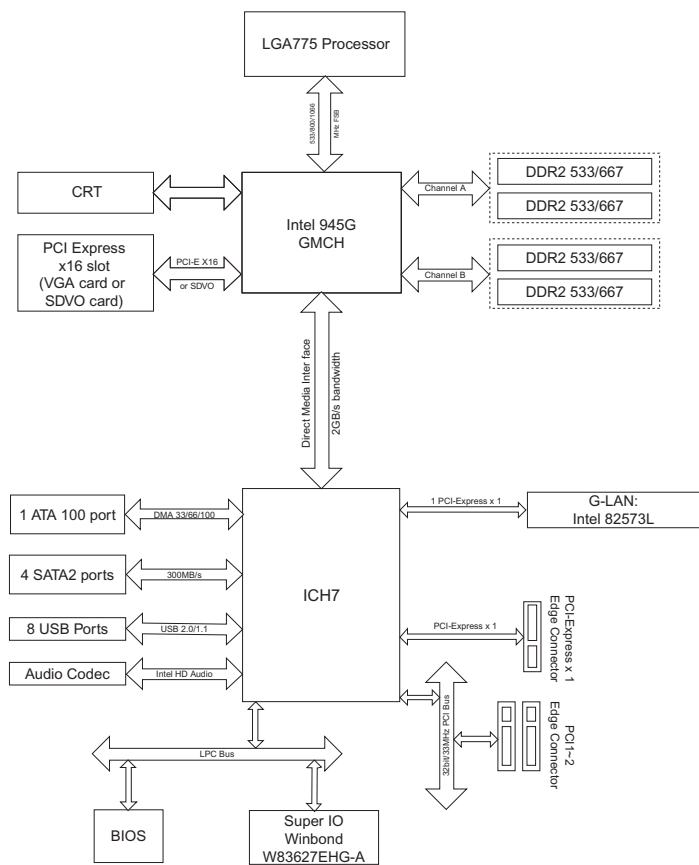
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Industrial PC Peripherals

Block Diagram



Ordering Information

Part Number	VGA	Gigabit LAN
AIMB-562VG-00A1E	Yes	Single

*AIMB-562 cannot be installed in ACP-2000MB chassis
**We strongly suggest to use only Advantech's certified LGA 775 CPU coolers to ensure board reliability under harsh environments

Bracket View



AIMB-562VG-00A1E

Packing List

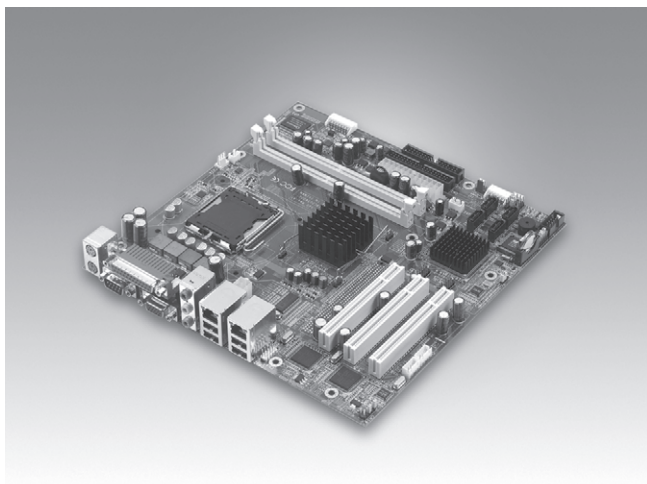
Description	Quantity
FDD cable	x 1
IDE HDD cable	x 1
Serial ATA HDD data cable	x 2
Serial ATA HDD power cable	x 2
COM port cable kit	x 1
I/O port bracket	x 1
Startup manual	x 1
Utility CD	x 1

Accessories

Part Number	Description
1750000334	LGA 775 CPU cooler (115W)

AIMB-560

**LGA775 Pentium® 4/Celeron® D
Processor-based MicroATX
with DDR2/Dual GbE LAN**



Features

- Intel® 915GV with ICH6 chipset 800 MHz FSB
- Supports dual channel DDR2 400/533 SDRAM up to 2 GB
- Four SATA ports
- Supports dual 10/100/1000Base-T Ethernet via dedicated PCIe x1 bus
- Chipset integrated VGA
- CMOS automatic backup and restore to prevent accidental data loss of BIOS setup
- Compatible with Advantech's 2U, 4U, 5U and 7U chassis

Specifications

Processor System	CPU (90nm)	Intel® Pentium® 4	Intel® Celeron® D			
	Max. Speed	3.8 GHz	3.06 GHz			
	L2 Cache	1024 KB/2048 KB	256 KB			
	Chipset	Intel 915GV + ICH6				
	BIOS	Award™ 4 Mb FWH				
	Front Side Bus	533/800 MHz				
Expansion Slot	PCI	32-bit/33 MHz, 3 slots				
Memory	Technology	Dual channel DDR2 400/533 SDRAM				
	Max. Capacity	2 GB				
	Socket	240-pin DIMM x 2				
Graphic	Controller	Chipset integrated VGA controller (No PCIe x16 slot)				
	VRAM	Dynamically shared system memory up to 128 MB				
Ethernet	Interface	10/100/1000 Base-T				
	Controller	Broadcom® BCM5721 (PCIe x1) x 2				
	Connector	RJ-45 x 2				
SATA	Max. Data Transfer Rate	150 MB/s				
	Channel	4				
EIDE	Mode	ATA 100/66/33				
	Channel	1 (Max. two devices)				
I/O Interface	VGA	1				
	LAN	1 (for VG version); 2 (for G2 vesion)				
	USB	8 (USB 2.0, 480 Mbps; 4 external ports and 4 onboard pin headers)				
	Audio	2 (Line-Out and Mic-In)				
	Serial	2 (RS-232, 1 port and 1 onboard pin header)				
	Parallel	1 (SPP/EPP/ECP)				
	FDD	1				
	PS/2	2 (keyboard and mouse)				
Watchdog Timer	Output	System reset				
	Interval	Programmable 1 ~ 255 sec.				
Power Requirement	Typical	Pentium 4, 3.4 GHz (800 MHz FSB), 2 x 512 MB, 2 x 256 MB DDR2 533 SDRAM				
		+5 V	-5 V	+12 V	-12 V	+5 VSB
		6.64 A	0.01 A	12.59 A	0.01 A	0.3 A
Environment		Operating		Non-Operating		
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution.			-20 ~ 70° C (-4 ~ 158° F)	
Physical Characteristics	Dimensions (W x D)	244 mm x 244 mm (9.6" x 9.6")				

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Industrial Motherboards

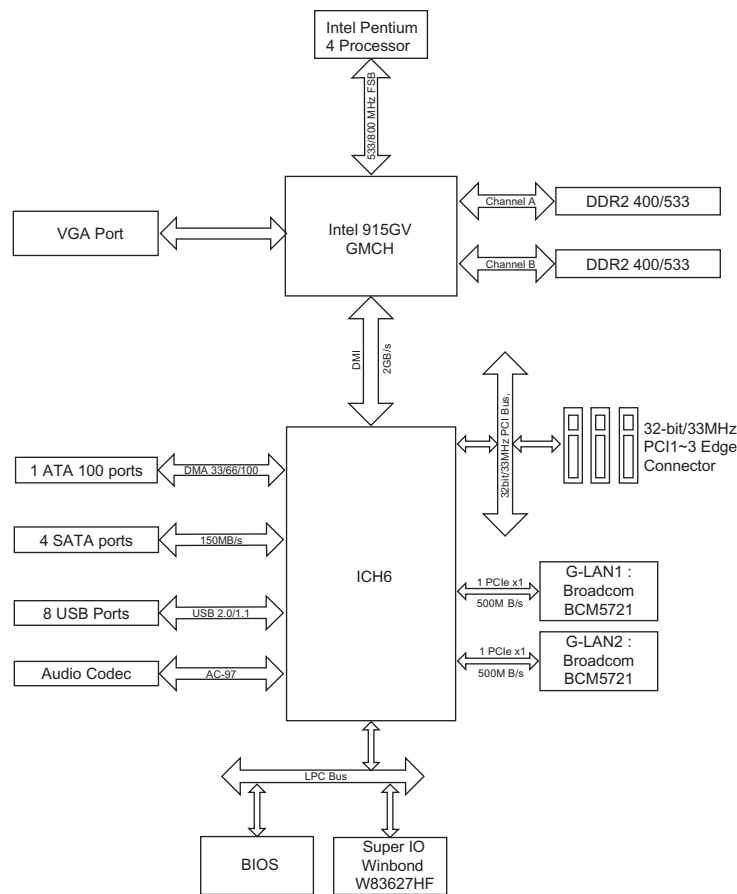
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Block Diagram



Ordering Information

Part Number	Gigabit LAN	VGA
AIMB-560VG-00A1E	Single	Yes
AIMB-560G2-00A1E	Dual	Yes

*AIMB-560 cannot be installed in ACP-2000MB chassis
**We strongly suggest using only Advantech's certified LGA 775 CPU coolers to ensure board reliability under harsh environments

Bracket View



AIMB-560VG-00A1E



AIMB-560G2-00A1E

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 1
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
1701090401	COM port cable kit	x 1
9689000068	Jumper pack	x 1
1962015680	I/O port bracket	x 1
-	Startup manual	x 1
-	Utility CD	x 1

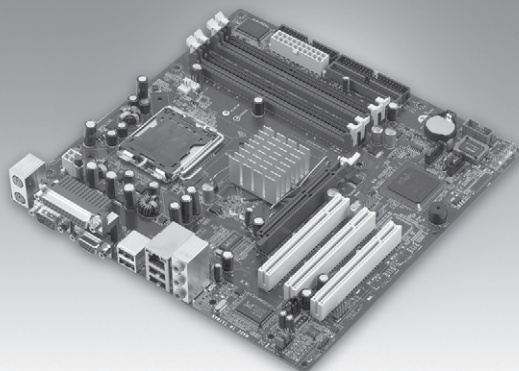
Accessories

Part Number	Description
1750000334	LGA775 CPU cooler up to 3.8 GHz (115 W), 4U, 5U and 7U chassis
1750000332	LGA775 CPU cooler up to 3.8 GHz (115 W), 2U, 4U, 5U and 7U chassis

AIMB-542

**LGA775 Pentium® 4/Celeron® D
Processor-based MicroATX with
AGP/Single FE LAN**

NEW



RoHS
COMPLIANT
2002/95/EC

CE FCC

Features

- Intel® 865G chipset 533/800 MHz FSB
- Supports dual channel DDR 333/400 SDRAM
- Chipset integrated VGA
- Supports up to two Serial ATA devices
- Onboard AGP 8X slot
- Supports 10/100Base-T Ethernet

Specifications

Processor System	CPU (90nm)	Intel® Pentium® 4	Intel® Celeron® D
	Max. Speed	3.8 GHz (800 FSB)	3.06 GHz
	L2 Cache	1/ 2 MB	256 KB
	Chipset	Intel 865G + ICH5	
	BIOS	AMI® 4 Mbit FWH	
	Front Side Bus	533/800 MHz	
Expansion Slot	AGP	AGP 8X	
	PCI	32-bit/33 MHz, 3 slots	
	ISA	None	
Memory	Technology	Dual channel DDR 333/400 SDRAM	
	Max. Capacity	4 GB	
	Socket	184-pin DIMM x 4	
Graphic	Controller	Chipset integrated VGA controller	
	VRAM	Dynamically shared system memory up to 64 MB	
Ethernet	Interface	10/100Base-T	
	Controller	Realtek™ RTL 8100C	
	Connector	RJ-45 x 1	
SATA	Max. Data Transfer Rate	150 MB/s	
	Channel	2	
EIDE	Mode	ATA 100/66/33	
	Channel	2 (Max. 4 devices)	
I/O Interface	VGA	1	
	USB	8 (USB 2.0, 480Mbps; 4 external ports and 4 onboard pin headers)	
	Audio	3 (Mic-In, Line-In, Line-Out)	
	Serial	1	
	Parallel	1 (SPP/EPP/ECP)	
	FDD	1	
	PS/2	2 (keyboard and mouse)	
Watchdog Timer		None	
Power Requirement	Typical	Pentium 4 3.4 GHz, 1 GB SRAM, 80 GB HDD	
		+12 V +5 V +3.3 V 5 Vsb -5 V -12 V	
		9.95 A 1.51 A 5.18 A 282 mA 9 mA 18 mA	
Environment		Operating	Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed and cooler solution	-20 ~ 70° C (-4 ~ 158° F)
Physical Characteristics	Dimensions (W x D)	244 x 244 mm (9.6" x 9.6")	

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Industrial Motherboards

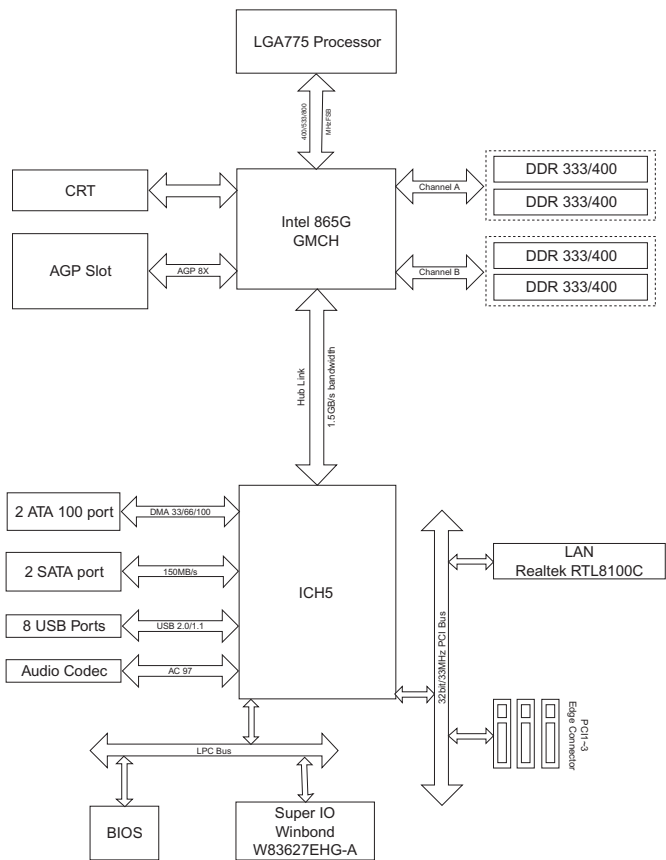
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Block Diagram



Ordering Information

Part Number	Embedded VGA	Fast Ethernet	AGP
AIMB-542VE-00A1E	Yes	Single	Yes

*AIMB-542 cannot be installed in ACP-2000MB chassis
**We strongly suggest using only Advantech's certified LGA 775 CPU coolers to ensure board reliability under harsh environments

Bracket View



AIMB-542VE-00A1E

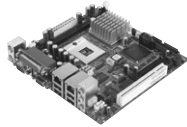
Packing List

Description	Quantity
FDD cable	x 1
IDE HDD cable	x 1
Serial ATA HDD data cable	x 2
Serial ATA HDD power cable	x 2
I/O port bracket	x 1
Startup manual	x 1
Utility CD	x 1

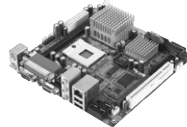
Accessories

Part Number	Description
1750000334	LGA 775 CPU cooler (115W)

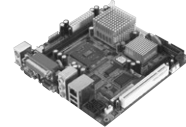
Mini-ITX Motherboards



AIMB-240



AIMB-250-B



AIMB-251



AIMB-220

Selection Guide

Specifications		AIMB-240	AIMB-250-B	AIMB-251	AIMB-220
Processor System	CPU	Intel Pentium 4 Celeron	Intel Pentium M Celeron M	Onboard Intel ULV Celeron 600 MHz	Onboard AMD Geode LX 800
	Max. Speed	2.8 GHz 2.8 GHz	1.8 GHz 1.5 GHz	600 MHz	500 MHz
	Front Side Bus	400/533 MHz 400 MHz	400 MHz	400 MHz	133 MHz
	L2 Cache	512 KB 256 KB	2 MB 1 MB	512 KB	128 KB L2 cache & 64 KB L1 cache
	Chipset	Intel 82852GME + ICH4	Intel 82855GME + ICH4	Intel 82852GM + ICH4	AMD Geode LX800 CS5536
Expansion Slot	BIOS	Award 4 Mb FWH	Award 4Mb FWH	Award 4 Mb FWH	Award 4 Mb
	PCI	32-bit/33MHz, 1 slot	32-bit/33MHz, 1 slot	32-bit/33MHz, 1 slot	32-bit/33MHz, 1 slot
	Mini-PCI	32-bit/33MHz, 1 slot	32-bit/33MHz, 1 slot	32-bit/33MHz, 1 slot	32-bit/33MHz, 1 slot
Memory	Technology	DDR 266/333 SDRAM	DDR 266/333 SDRAM	DDR 266/333 SDRAM	DDR 333 SDRAM
	Max. Capacity	1 GB	1 GB	1 GB	1 GB
	Socket	One 184-pin DIMM socket	One 184-pin DIMM socket	One 184-pin DIMM socket	One 184-pin DIMM socket
Graphic	Controller	Chipset Integrated	Chipset Integrated	Chipset Integrated	Chipset Integrated
	VRAM	Shared system memory up to 64 MB	Shared system memory up to 64 MB	Shared system memory up to 64 MB	Shared system memory up to 32 MB
	LVDS	Single Channel 18-bit/ Dual channel 36-bit	Single Channel 18-bit/ Dual channel 36-bit	Single Channel 18-bit/ Dual channel 36-bit	Single channel 18-bit
	TV-Out	Yes	Yes	Yes	-
	DVI	Yes	Yes	Yes	-
	Dual Display	CRT + LVDS DVI/ TV-Out + LVDS CRT + DVI	CRT + LVDS DVI/ TV-Out + LVDS CRT + DVI	CRT + LVDS DVI/ TV-Out + LVDS CRT + DVI	CRT + LVDS
Ethernet	Interface	10/100Base-T	10/100/1000Base-T	10/100/1000Base-T	10/100Base-T
	Controller	2 x Realtek LAN	1 x Realtek LAN	1 x Realtek LAN	2 x Realtek LAN
EIDE	Mode	EIDE (Ultra DMA 100)	2 x EIDE (Ultra DMA 100)	2 x EIDE (Ultra DMA 100)	EIDE (Ultra DMA 66)
	Channel	2	2	2	1
Rear I/O	VGA	1	1	1	1
	Ethernet	2	1	1	2
	USB	4 (USB 2.0 ports)	2 (USB 2.0 ports)	2 (USB 2.0 ports)	4 (USB 2.0 ports)
	Audio	Mic-In, Line-In, Line-Out	Mic-In, Line-In, Line-Out	Mic-In, Line-In, Line-Out	Mic-In, Line-In, Line-Out
	Parallel	1	1	1	1
	Serial	1 (RS232)	1 (RS-232/422/485)	1 (RS-232/422/485)	1 (RS-232)
	PS/2	2 (keyboard and mouse)	2 (keyboard and mouse)	2 (keyboard and mouse)	2 (keyboard and mouse)
Internal Connector	LVDS	1	1	1	1
	TV-Out	1	1	1	-
	DVI	1	1	1	-
	USB	2 (USB 2.0 ports)	4 (USB 2.0 ports)	4 (USB 2.0 ports)	2 (USB 2.0 ports)
	Serial	5 (one is RS-232/422/485)	3	3	3
	IDE	2	2	2	1
	Compact Flash	1	1	1	1
	IrDA	115 kbps, IrDA 1.0 compliant	115 kbps, IrDA 1.0 compliant	115 kbps, IrDA 1.0 compliant	115 kbps, IrDA 1.0 compliant
	FDD	1	1	1	1
	DIO	8-bit General Purpose I/O for DI and DO	16-bit General Purpose I/O for DI and DO	16-bit General Purpose I/O for DI and DO	16-bit General Purpose I/O for DI and DO
Watchdog Timer	Output	System reset	System reset	System reset	System reset
	Interval	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec
Reference Page		18-30	18-32	18-34	18-36

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Industrial Motherboards

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Single Board Computers

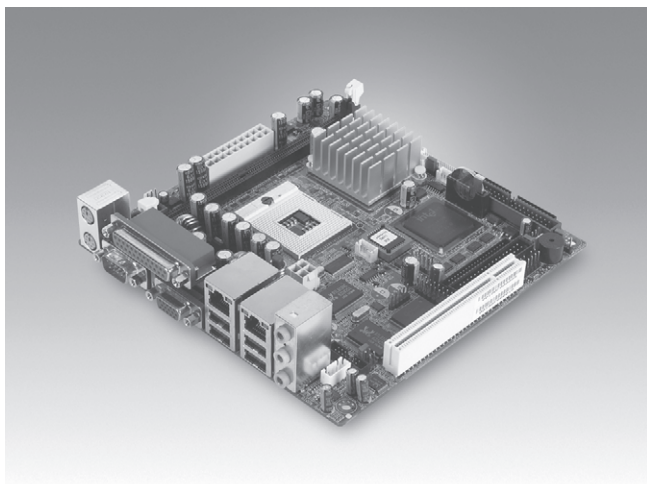
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Industrial Computer Chassis

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High Performance Computing

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Industrial PC Peripherals

AIMB-240

Intel® Pentium® 4 Processor-based Mini-ITX Motherboard with 6 COM ports and Dual LANs



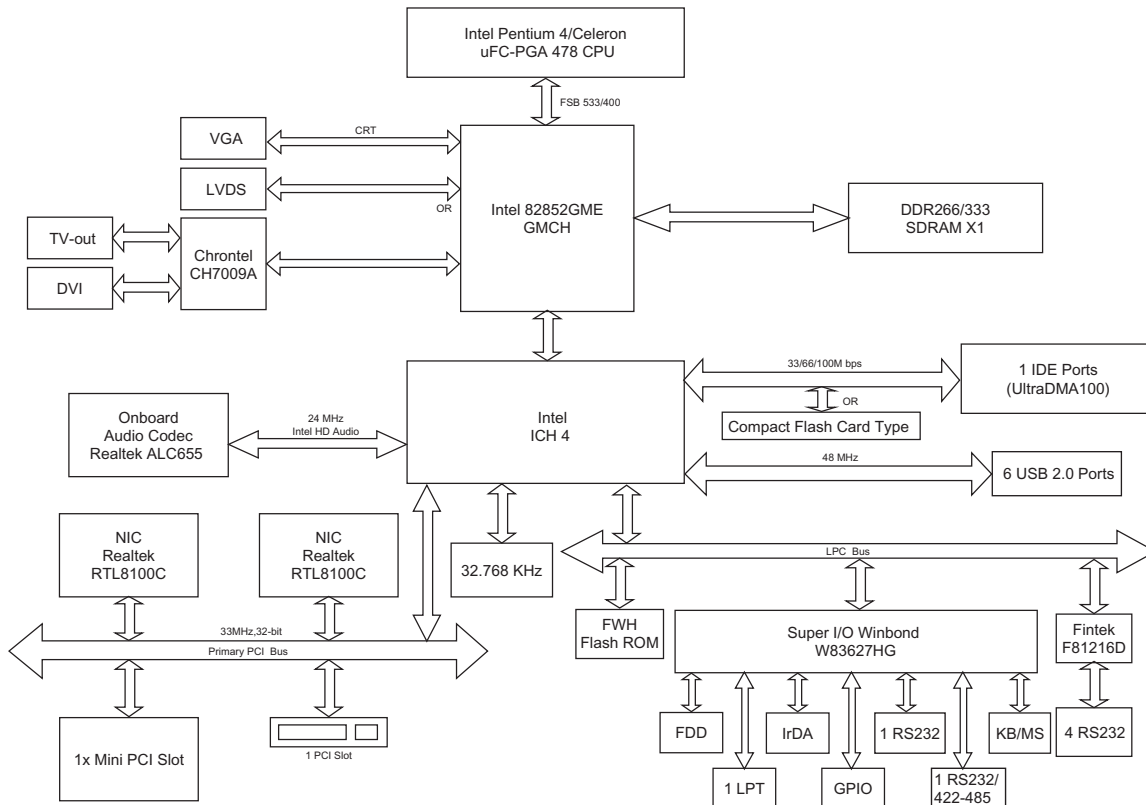
Features

- Supports 90nm Intel® µFC-PGA 478 Pentium® 4/Celeron® CPU
- Intel 82852GME Chipset
- One DIMM socket supports up to 1 GB DDR 266/333 SDRAM
- 2-CH LVDS, DVI
- 5.1 CH Audio, TV-out
- Dual Realtek™ RTL8100C 10/100 Mbps LAN
- One PCI, one mini PCI, Type I/O CF
- Six COM, six USB 2.0, 8-bit GPIO

Specifications

Processor System	CPU	Intel Pentium 4	Celeron
	Max. Speed	2.8 GHz	2.8 GHz
	Front Side Bus	400/533 MHz	400 MHz
	L2 Cache	512 KB	256 KB
	Chipset	Intel 82852GME + ICH4	
	BIOS	Award™ 4 Mb FWH	
Expansion Slot	PCI	32-bit/33MHz, 1 slot	
	Mini-PCI	32-bit/33MHz, 1 slot	
Memory	Technology	DDR 266/333 SDRAM	
	Max. Capacity	1GB	
	Socket	One 184-pin DIMM socket	
Graphic	Controller	Chipset Integrated VGA Controller	
	VRAM	Shared system memory up to 64 MB video memory	
	LVDS	Single channel 18-bit/ Dual-channel 36-bit LVDS	
	TV-Out	Supports both S-video and composite video	
	DVI	Chrontel® CH7009A TV encoder supports both NTSC/PAL	
	Dual Display	Chrontel CH7009A DVI transmitter up to 135M pixels/second	
Ethernet	Interface	CRT + LVDS, or DVI/TV-out + LVDS or CRT + DVI	
	Controller 1	10/100Base-T	
	Controller 2	LAN 1 Realtek RTL8100C FE LAN (PCI)	
	Connector	LAN 2 Realtek RTL8100C FE LAN (PCI)	
EIDE	Mode	2 (RJ45)	
	Channel	EIDE (Ultra DMA 100)	
Rear I/O	VGA	2	
	Ethernet	4 (USB 2.0 ports)	
	USB	Mic-In, Line-In, Line-Out (Realtek ALC655 supports 5.1 CH AC97 Audio)	
	Audio	1	
	Parallel	1 (RS232)	
	Serial	2 (1 x keyboard and 1 x mouse)	
	PS/2		
Internal Connector	LVDS	1	
	TV-Out	1	
	DVI	1	
	USB	2 (USB 2.0 ports)	
	Serial	5 (one is RS-232/422/485)	
	IDE	2 (40/44-pin)	
	Compact Flash	1	
	IrDA	115k bps, IrDA 1.0 compliant	
	FDD	1	
	DIO	8-bit general purpose I/O for DI and DO	
Watchdog Timer	Output	System reset	
	Interval	Programmable 1 ~ 255 sec	
Power Requirement	Typical	Pentium 4 2.4 GHz FSB533, 256 MB SDRAM	
		+5 V	+3.3 V
		1.41 A	4.84 A
		+12 V	+5 VSB
Environment	Operating	2 A	
	Temperature	0 ~ 60° C (32 ~ 140° F)	
Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")	

Block Diagram



Ordering Information

Part Number	Specification
AIMB-240F-00A1E	Intel Pentium 4/Celeron Mini-ITX Motherboard with VGA, 2-CH LVDS, DVI, TV-out, 5.1 CH Audio, Dual LAN, CF, PCI, Mini-PCI, 6 COM, 6 USB 2.0 & GPIO

*CPU cooler is not included. Please use Advantech certified CPU coolers. Part number can be found in Ch6 accessories list.

Bracket View



AIMB-240F-00A1E

Packing List

Description	Quantity
AIMB-240 SBC	x 1
IDE HDD cable (40 pin)	x 1
IDE HDD cable (44 pin)	x 1
FDD cable	x 1
CPU cooler (supports Pentium 4 2.0 GHz)	x 1
I/O port bracket	x 1
Startup manual	x 1
Driver CD	x 1
Serial cable (RS-232)	x 1
Serial cable (RS-422/485)	x 1

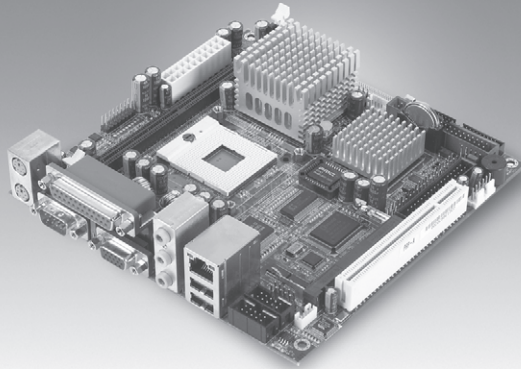
Accessories

Part Number	Description
1701400181	Cable kits for 4 serial ports
1703050306	TV-Out cable
1700100170	USB cable (17.5 cm)
1700000410	DVI cable
1750000880	CPU cooler supports max. Pentium 4 2.0 GHz
1750000882	CPU cooler supports max. Pentium 4 2.8 GHz

AIMB-250-B

**Low Power Mini-ITX Motherboard
with Rich I/O Integration Features**

NEW



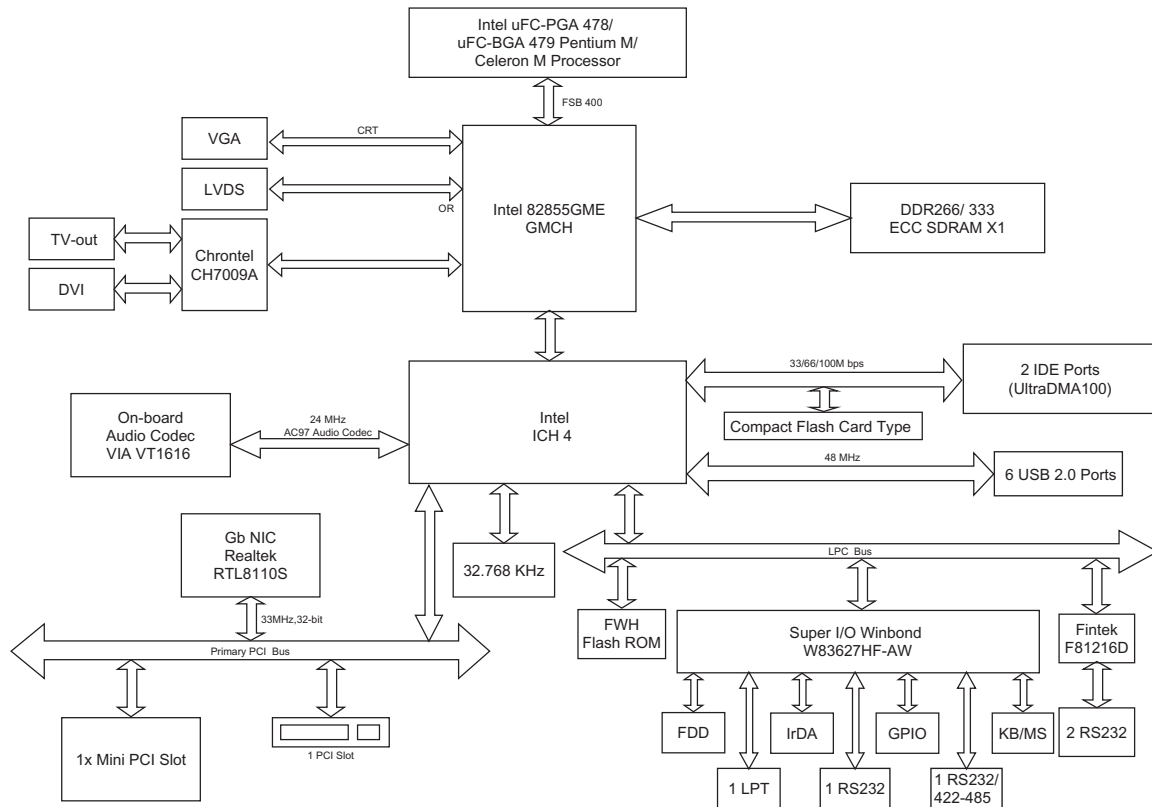
Features

- Supports 90nm Intel® µFC-PGA 478/µFC-BGA 479 Pentium® M/Celeron® M CPU
- Intel 82855GME Chipset
- One DIMM socket supports up to 1 GB DDR 266/333 SDRAM
- 2-CH LVDS, DVI
- 5.1 CH Audio, TV-out
- Realtek™ RTL8110S Gigabit LAN
- One PCI, one Mini PCI, Type I/II CF
- Four COM, six USB 2.0, 16-bit GPIO

Specifications

Processor System	CPU	Intel Pentium M	Intel Celeron M
	Max. Speed	1.8 GHz	1.5 GHz
	Front Side Bus	400 MHz	400 MHz
	L2 Cache	2 MB	1 MB
	Chipset	Intel 82855GME + ICH4	
Expansion Slot	BIOS	Award™ 4Mb FWH	
	PCI	32-bit/33MHz, 1 slot	
	Mini-PCI	32-bit/33MHz, 1 slot	
	Technology	DDR 266/333 SDRAM (ECC/Non-ECC support)	
	Max. Capacity	1 GB	
Memory	Socket	One 184-pin DIMM socket	
	Controller	Chipset Integrated VGA Controller	
	VRAM	Shared system memory up to 64 MB video memory	
	LVDS	Single channel 18-bit/Dual-channel 36-bit LVDS	
	TV-Out	Supports both S-video and composite video	
Graphic	Chrontel® CH7009A	TV encoder supports both NTSC/PAL	
	DVI	Chrontel CH7009A DVI transmitter up to 135M pixels/second	
	Dual Display	CRT + LVDS, or DVI/TV-out + LVDS or CRT + DVI	
	Interface	10/100/1000Base-T	
	Controller 1	LAN 1 Realtek™ RTL8110S Gigabit LAN (PCI)	
Ethernet	Connector	1 (RJ45)	
	Mode	2 x EIDE (Ultra DMA 100)	
EIDE	Channel	2	
	VGA	1	
	Ethernet	1	
	USB	2 (USB 2.0 ports)	
	Audio	Mic-In, Line-In, Line-Out (VIA® VT1616 supports 5.1 CH AC97 Audio)	
Rear I/O	Parallel	1	
	Serial	1 (RS-232/422/485), supply 5 V or 12 V via jumper	
	PS/2	2 (keyboard and mouse)	
	LVDS	1	
	TV-Out	1	
Internal Connector	DVI	1	
	USB	4 (USB 2.0 ports)	
	Serial	3	
	IDE	2 (40/44 Pin)	
	Compact Flash	1	
	IrDA	115k bps, IrDA 1.0 compliant	
	FDD	1	
	DIO	16-bit General Purpose I/O for DI and DO	
	Output	System reset	
	Interval	Programmable 1 ~ 255 sec.	
Watchdog Timer	Typical	Pentium M 1.8 GHz, 256 MB DDR SDRAM	
	+5 V	+3.3 V	+12 V
	3.61 A	3.72 A	0.31 A
			+5 VSB
Power Requirement			0.4 A
	Operating		
Environment	Temperature	0 ~ 60° C (32 ~ 140° F)	
	Dimensions	170 mm x 170 mm (6.69" x 6.69")	
Physical Characteristics			

Block Diagram



Ordering Information

Part Number	Specification
AIMB-250F-00B1E	Intel Pentium M/Celeron M Mini ITX Motherboard with VGA, 2-CH LVDS, DVI, TV-out, 5.1 CH Audio, Gb LAN, CF, PCI, Mini PCI, 4 COM, 6 USB 2.0 & GPIO

Bracket View



AIMB-250F-00B1E

Packing List

Description	Quantity
AIMB-250 SBC	x 1
IDE HDD cable (40 pin)	x 1
IDE HDD cable (44 pin)	x 1
FDD cable	x 1
CPU Cooler	x 1
I/O port bracket	x 1
Startup Manual	x 1
Driver CD	x 1
Serial cable (RS-232)	x 3

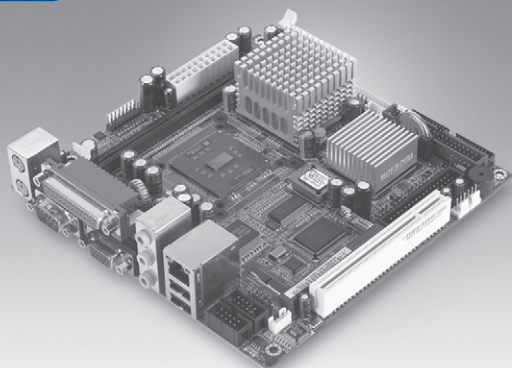
Accessory

Part Number	Description
1700003434	TV-Out cable
1700003433	USB cable
1700003435	DVI cable

AIMB-251

Fanless Mini-ITX Motherboard Supports Dual Display for CRT, LVDS, DVI and TV-Out

NEW



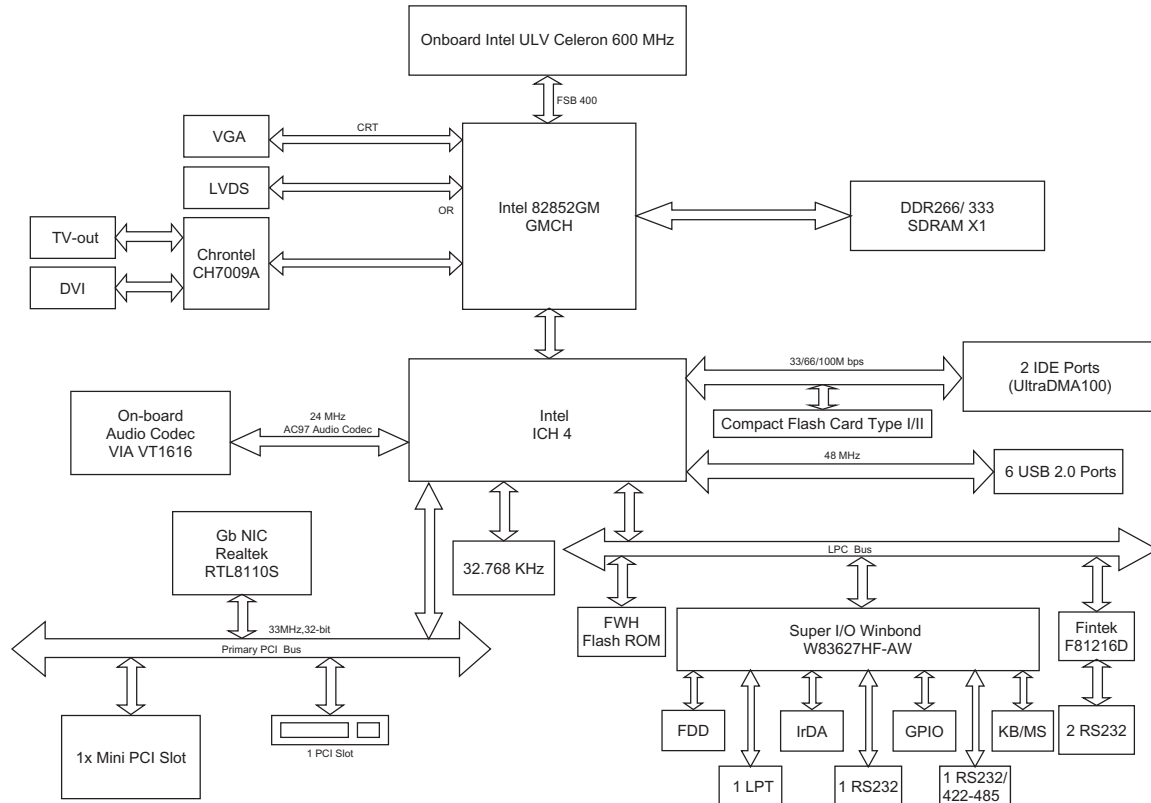
Features

- Onboard Intel® ULV 600 MHz processor
- Intel 82852GM Chipset
- One DIMM socket supports up to 1 GB DDR 200/266 SDRAM
- 2-CH LVDS, DVI
- 5.1 CH Audio, TV-out
- Realtek™ RTL8110S Gigabit LAN
- One PCI, one Mini PCI, Type I/II CF
- Four COM, six USB 2.0, 16-bit GPIO

Specifications

Processor System	CPU	Onboard Intel ULV Celeron® 600 MHz			
	Max. Speed	600 MHz			
	Front Side Bus	400 MHz			
	L2 Cache	512 KB			
	Chipset	Intel 82852GM + ICH4			
	BIOS	Award™ 4 Mb FWH			
Expansion Slot	PCI	32-bit/33MHz, 1 slot			
	Mini-PCI	32-bit/33MHz, 1 slot			
Memory	Technology	DDR 200/266 SDRAM			
	Max. Capacity	1GB			
	Socket	One 184-pin DIMM socket			
Graphic	Controller	Chipset Integrated VGA Controller			
	VRAM	Shared system memory up to 64 MB video memory			
	LVDS	Single channel 18-bit/ Dual-channel 36-bit LVDS			
	TV-Out	Supports both S-video and composite video			
	DVI	Chrontel CH7009A TV encoder supports both NTSC/PAL			
	Dual Display	Chrontel CH7009A DVI transmitter up to 135M pixels/second			
Ethernet	Interface	10/100/1000Base-T			
	Controller 1	LAN 1 Realtek™ RTL8110S Gigabit LAN (PCI)			
	Connector	1 (RJ45)			
EIDE	Mode	2 x EIDE (Ultra DMA 100)			
	Channel	2			
Rear I/O	VGA	1			
	Ethernet	1			
	USB	2 (USB 2.0 ports)			
	Audio	Mic-In, Line-In, Line-Out (VIA VT1616 supports 5.1 CH AC97 Audio)			
	Parallel	1			
	Serial	1 (RS-232/422/485), supply 5 V or 12 V via jumper			
	PS/2	2 (keyboard and mouse)			
Internal Connector	LVDS	1			
	TV-Out	1			
	DVI	1			
	USB	4 (USB 2.0 ports)			
	Serial	3 (RS-232)			
	IDE	2 (40/44 Pin)			
	Compact Flash	1			
	IrDA	115k bps, IrDA 1.0 compliant			
	FDD	1			
Watchdog Timer	DIO	16-bit General Purpose I/O for DI and DO			
	Output	System reset			
	Interval	Programmable 1 ~ 255 sec			
Power Requirement	Typical	Celeron 600 MHz, 1 GB DDR SDRAM			
		+5 V	+3.3 V	+12 V	+5 VSB
		1.58 A	4.66 A	0.05 A	0.4 A
Environment		Operating			
	Temperature	0 ~ 60° C (32 ~ 140° F)			
Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")			

Block Diagram



Ordering Information

Part Number	Specification
AIMB-251F-00A1E	Intel® ULV Celeron 600 MHz Mini ITX Motherboard with VGA, 2-CH LVDS, DVI, TV-out, 5.1 CH Audio, Gb LAN, CF, PCI, Mini PCI, 4 COM, 6 USB 2.0 & GPIO

Bracket View



AIMB-251F-00A1E

Packing List

Description	Quantity
AIMB-251 SBC	x 1
IDE HDD cable (40 pin)	x 1
IDE HDD cable (44 pin)	x 1
FDD cable	x 1
CPU Cooler	x 1
I/O port bracket	x 1
Startup Manual	x 1
Driver CD	x 1
Serial cable (RS-232)	x 3

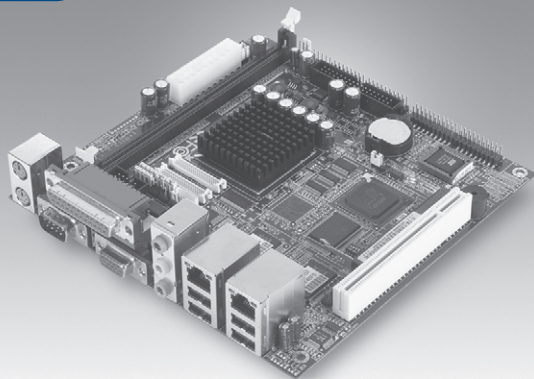
Accessory

Part Number	Description
1700003434	TV-Out cable
1700003433	USB cable
1700003435	DVI cable

AIMB-220

Fanless AMD Geode™ LX800 Mini-ITX Motherboard with 4 COM and Dual LAN

NEW



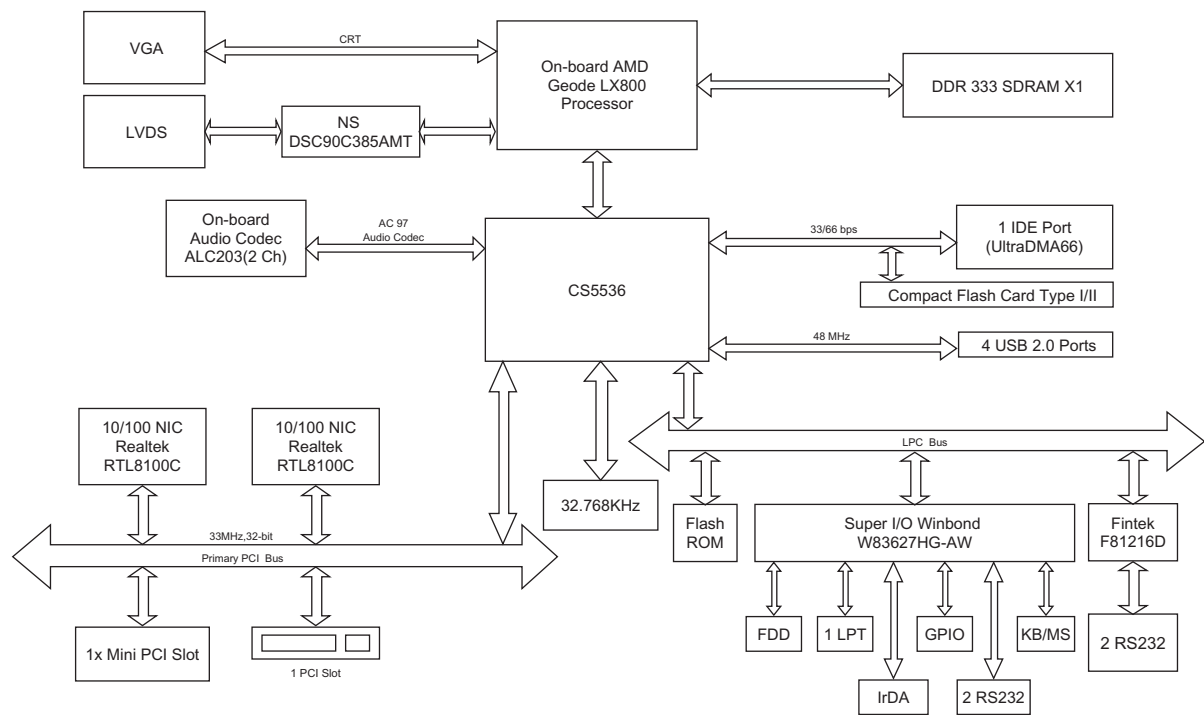
Features

- Onboard AMD Geode™ LX800 with 128 KB L2 Cache & 64 KB L1 Cache CPU
- AMD Geode CS5536 Companion Chip
- One DIMM socket supports up to 1 GB DDR 333 SDRAM
- Single channel 18-bit LVDS
- Dual Realtek™ RTL8100C 10/100Mbps LAN
- One PCI, one Mini PCI, Type I/II CF
- Four COM, four USB 2.0

Specifications

Processor System	CPU	Onboard AMD Geode LX 800			
	Max. Speed	500 MHz			
	Front Side Bus	133 MHz			
	Cache	128 KB L2 Cache & 64 KB L1 Cache			
	Chipset	AMD Geode LX800 CS5536			
	BIOS	Award™ 4 Mb			
Expansion Slot	PCI	32-bit/33MHz, 1 slot			
	Mini-PCI	32-bit/33MHz, 1 slot			
Memory	Technology	DDR 333 SDRAM			
	Max. Capacity	1GB			
	Socket	One 184-pin DIMM socket			
Graphic	Controller	Chipset Integrated VGA Controller			
	VRAM	Shared system memory up to 32 MB video memory			
	LVDS	Single channel 18-bit			
	Dual Display	CRT + LVDS			
Ethernet	Interface	10/100Base-T			
	Controller 1	LAN 1 Realtek RTL8100C LAN			
	Controller 2	LAN 2 Realtek RTL8100C LAN			
	Connector	2 (RJ45)			
EIDE	Mode	EIDE (Ultra DMA 66)			
	Channel	1			
Rear I/O	VGA	1			
	Ethernet	2			
	USB	4			
	Audio	Mic-In, Line-In, Line-Out (Realtek ALC203 supports 2 CH AC97 Audio)			
	Parallel	1			
	Serial	1 (RS-232), supply 5 V or 12 V via jumper			
	PS/2	2 (1 x keyboard and 1 x mouse)			
Internal Connector	LVDS	1			
	Serial	3			
	IDE	1			
	Compact Flash	1			
	IrDA	115k bps, IrDA 1.0 compliant			
	FDD	1			
	DIO	16-bit General Purpose I/O for DI and DO			
Watchdog Timer	Output	Interrupt, system reset			
	Interval	Programmable 1 ~ 255 sec			
Power Requirement	Typical	AMD Geode LX 800 500 MHz, 1 GB DDR SDRAM			
		+3.3 V	+5 V	+12 V	5 VSB
		0.516 A	1.293 A	0.122 A	0.067 A
Environment		Operating			
	Temperature	0 ~ 60° C (32 ~ 140° F)			
Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")			

Block Diagram



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High Performance Computing

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Industrial PC Peripherals

Ordering Information

Part Number	Specification
AIMB-220F-Q0A1E	AMD Geode LX800 500 MHz Mini-ITX Motherboard with VGA, LVDS, Audio, Dual LAN, CF, PCI, Mini PCI, 4 COM & 4 USB 2.0 & GPIO

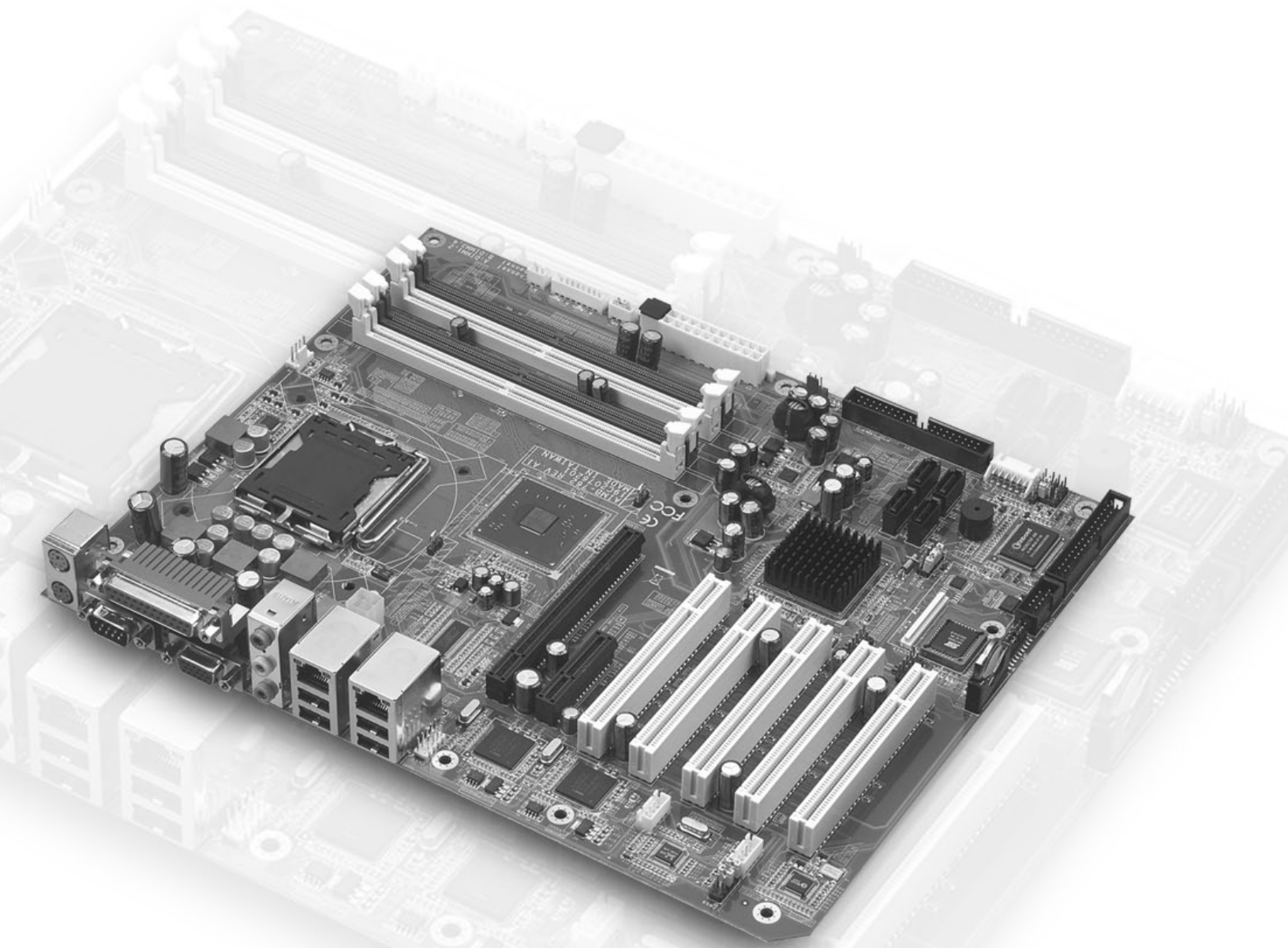
Bracket View



AIMB-220F-Q0A1E

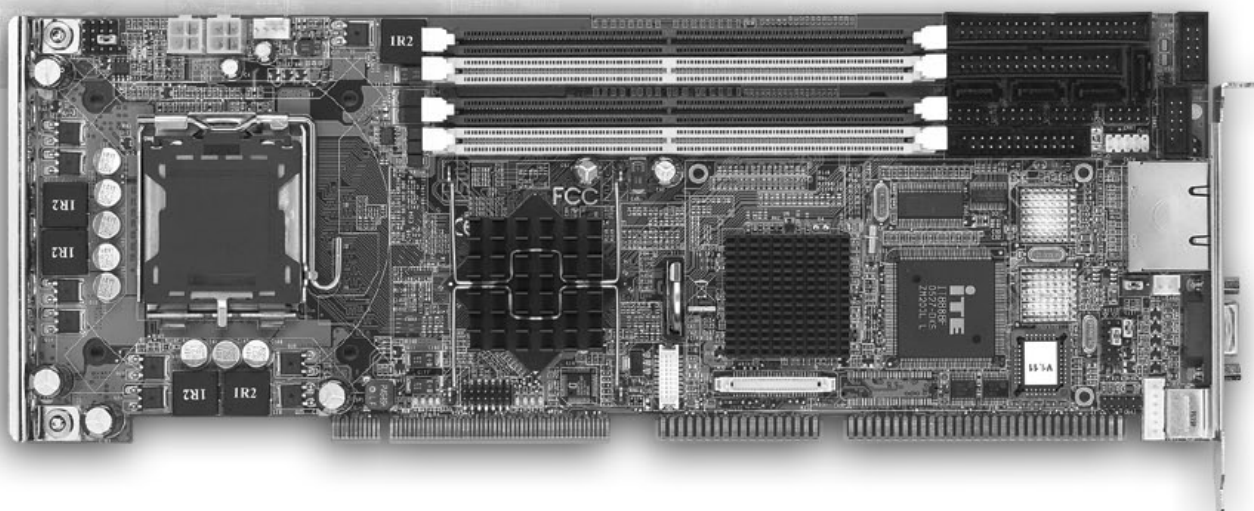
Packing List

Description	Quantity
AIMB-220 SBC	x 1
IDE HDD cable (40 pin)	x 1
FDD cable	x 1
CPU Cooler	x 1
I/O port bracket	x 1
Startup Manual	x 1
Driver CD	x 1
Serial cable (RS-232)	x 3



Single Board Computers

Introduction		19-2
System Host Board		19-3
PCE-7210	Dual Socket 604 Intel® Xeon®/ LV Xeon® Processor Card with PCI Express/IPMI/VGA/Dual GbE LAN	19-4
PCE-5120	LGA775 Core™ 2 Duo/Pentium® D/Pentium® 4/Celeron® D Processor Card with PCI Express/VGA/Dual GbE LAN	19-6
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PCA-6190	LGA775 Pentium® 4/Celeron® D Processor Card with VGA/Dual GbE LAN/DVI	19-14
PCA-6289	Socket 604 Dual Xeon®/LV Xeon Processor Card with VGA/Dual GbE LAN	19-16
PCA-6189	Socket 479 Pentium® M/Celeron® M Processor Card with 64-bit PCI-X/VGA/Dual GbE LAN	19-17
PCA-6187	Socket 478 Pentium® 4/Celeron® D/Celeron Processor Card with VGA/Dual GbE LAN/SCSI	19-18
PCA-6186-B	Socket 478 Pentium® 4/Celeron® D/Celeron Processor Card with VGA/Dual GbE LAN	19-20
PCA-6003	Socket 370 Pentium® III/Celeron® Processor (Tualatin) Card with VGA/FE LAN/LCD	19-21
PCA-6178-C	Socket 370 Pentium® III/Celeron® Processor Card with VGA/FE LAN/SCSI	19-22
PCA-6002-B	Ultra Low Voltage Celeron® (Tualatin) Processor Card with VGA/Dual FE LAN	19-23
PCI/ISA Backplanes		19-24



Introduction

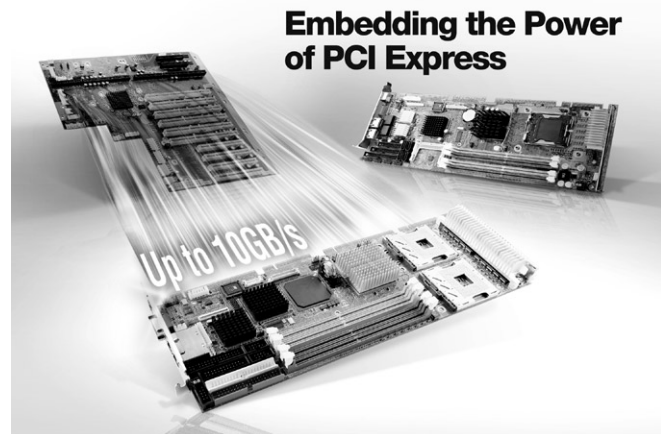
Enjoy Bottleneck-Free Performance with SHB Express (PICMG 1.3) Solutions

Advantech is building today's most comprehensive family of RoHS compliant SHB Express (PICMG 1.3) solutions, extending its leadership in the single board computer market. Advantech's total solutions include SHB Express system host boards (SHB), the largest selection of backplanes along with backplane customization, a full line of chassis, device drivers and OS integration, as well as support for all peripherals. These solutions feature the latest PCI Express technology, offering scalable I/O bandwidth of more than 10 GB/s. This is equivalent to almost twenty times the bandwidth of previous standards. Designed using a system approach, these exciting solutions feature guaranteed system compatibility and longevity that empower system designers to create a new generation of servers, workstations and industrial platforms.

The Benefits of SHB Express

Solving bandwidth problems with high-speed, high-bandwidth serial links

The new SHB Express/PICMG 1.3 industry specifications define PCI Express communication links from an SHB to a passive backplane. It scales up the performance of its predecessors' standards, offering a peak throughput of up to 10,266 MB/s (based on a PCI Express x16 + PCI Express x4 + 32/64 PCI configuration), almost twenty times the bandwidth of the previous standard.



	PCI-ISA (PICMG 1.0)	SHB Express (PICMG 1.3)
Interface	ISA + PCI (32/64-bit)	PCI Express (x16 + x4) + PCI-X (32-bit/66 MHz)
Bandwidth	538MB/s	10,266 MB/s

Supporting advanced I/O connectors

SHB Express brings support for high-speed Serial ATA storage devices to the industrial computing platform, and provides a significant boost to hard drive bandwidth. It also supports other advanced I/O interfaces, including: Intelligent Platform Management Interface (IPMI), Intelligent Platform Management Bus (IPMB), USB 2.0 and Gigabit Ethernet. SHB Express provides additional benefits by bringing Southbridge I/O support to the backplane. This support saves customers the additional cost of expansion cards. It also reduces the number of pin headers on CPU cards, enabling more space for board layout. There is less cabling inside, which enhances in-chassis airflow for better system thermals and increased system reliability. Reduced complexity and modular design together result in faster MTTR.

More efficient power management

As opposed to previous standards, which limited choice of compatible power supplies to AT, the SHB Express supports for ATX and BTX power management signals and the ACPI power management standard, meaning no special cabling is required. SHB Express enables support for up to 500W of power, meaning systems can work with today's latest power-hungry CPUs. Furthermore, enhanced power management support helps ensure systems run cooler and are less likely to overheat, extending product life and MTBF, as well as reducing RMA costs.

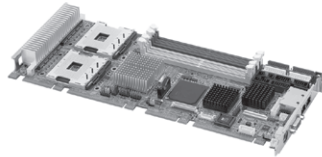
Leveraging commercially available, "off-the-shelf" I/O cards

Another key advantage of the SHB Express standard is that it enables industrial computing platforms to support a broad range of commercially available, "off-the-shelf" peripheral cards, including the latest high-performance PCI Express x16 graphics cards. Access to commercially available solutions such as these significantly opens up the number of options available to system designers. For example, a PICMG 1.0 system, with only PCI and ISA expansion slots, is unable to support high performance AGP graphics cards, limiting its potential application scope. However, an SHB Express equipped system supports a full range of PCI Express graphics cards, significantly broadening the application scope of SHB Express systems.

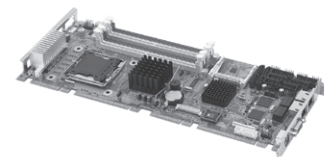
Maintaining backwards compatibility with PCI and PCI-X

SHB Express offers a tremendous amount of scalability and flexibility to system designers, allowing support for legacy PCI and PCI-X peripherals in addition to newer PCI Express peripherals. This unparalleled level of flexibility smoothes the transition to SHB Express for system designers, and ensures customers' previous investments in PCI and PCI-X technologies have not been wasted. PCI Express maintains the PCI/PCI-X addressing model so that legacy (current) drivers and software can be used, and eliminates the need to completely scrap an organization's investment in operating systems, application software, and device drivers.

System Host Board



PCE-7210



PCE-5120

Selection Guide

Specification		Dual Xeon PICMG 1.3 System Host Board PCE-7210	Core 2 Duo PICMG 1.3 System Host Board PCE-5120
Processor System	CPU	Dual Intel Xeon/LV Xeon processors	Intel Core 2 Duo/Pentium D/Pentium 4/Celeron D (LGA 775)
	Max. Speed	3.6 GHz	2.66 GHz / 3.2 GHz (Dual Core)/3.8 GHz/3.06 GHz
	L2 Cache	2 MB	4 MB/1 MB x 2, 2 MB x 2/1MB, 2 MB/512 KB, 256 KB
	Chipset	Intel E7520 + 6300ESB	Intel 945G + ICH7R
Bus	BIOS	Award 4 Mb FWH	Award 4 Mb FWH
	FSB	800 MHz	1066/800/533 MHz
	PCIe	Two x8 & one x4 to backplane	One x16 & four x1 to backplane
Graphic	PCI	32 bit/66 MHz PCI-X	32 bit/33 MHz PCI
	Controller	ATI Radeon 7000M (PCI 32 bit/33 MHz)	Chipset integrated
	VRAM	16 MB frame buffer memory	Shared with 224 MB system memory
Ethernet	LCD	-	-
	Interface	10/100/1000Base-T	10/100/1000Base-T
	Controller	Broadcom 5715C	Intel 82573V x 2
	Connector	RJ-45 x 2	RJ-45 x 2
Memory	Disable from BIOS	-	Yes
	Technology	Dual-channel DDR2 400 MHz (ECC Registered DIMMs)	Dual-channel DDR2 533/667 MHz DIMMs
	Max. Capacity	8 GB	4 GB
SATA	Socket	240-pin DIMM x 4	240-pin DIMM x 4
	Max. Data Transfer Rate	150 MB/s	300 MB/s (SATA 2)
	Channel	2	4
EIDE	RAID	0, 1	0, 1, 5, 10
	Mode	ATA 100/66/33	ATA 100/66/33
	Channel	2 (Max. four devices)	1 (Max. two devices)
I/O Interface	USB	Max. 4 (USB 2.0 compliant) to backplane	Max. 8 (USB 2.0 compliant) 4 on SHB by Pin Header, 4 to backplane
	Serial	3 (RS-232) with Pin Header	4 (RS-232) with Pin Header
	Parallel	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)
	FDD	1	1
	PS/2	1	1
	LAN	2	1 (for VG versions) 2 (for G2 versions)
	OBS (Onboard Security Hardware Monitor)	Yes	Yes
Watchdog Timer	Output	System reset	System reset
	Interval	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min
Miscellaneous	Audio (requires PCA-AUDIO-00A1E)	Yes	Yes
	Advantech SNMP-1000	Yes	Yes
	IPMI	Optional	Optional
	Solid State Disk	-	Optional (CompactFlash Type I/II)
Reference Page		19-4	19-6

18
Industrial Motherboards

19
Single Board Computers

20
Industrial Computer Chassis

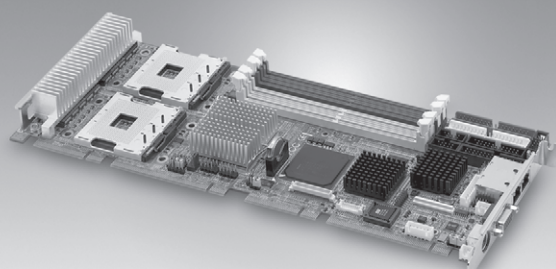
21
High Performance Computing

22
Industrial PC Peripherals

PCE-7210

Dual Socket 604 Intel® Xeon®/ LV Xeon® Processor Card with PCI Express/IPMI/VGA/Dual GbE LAN

NEW



Features

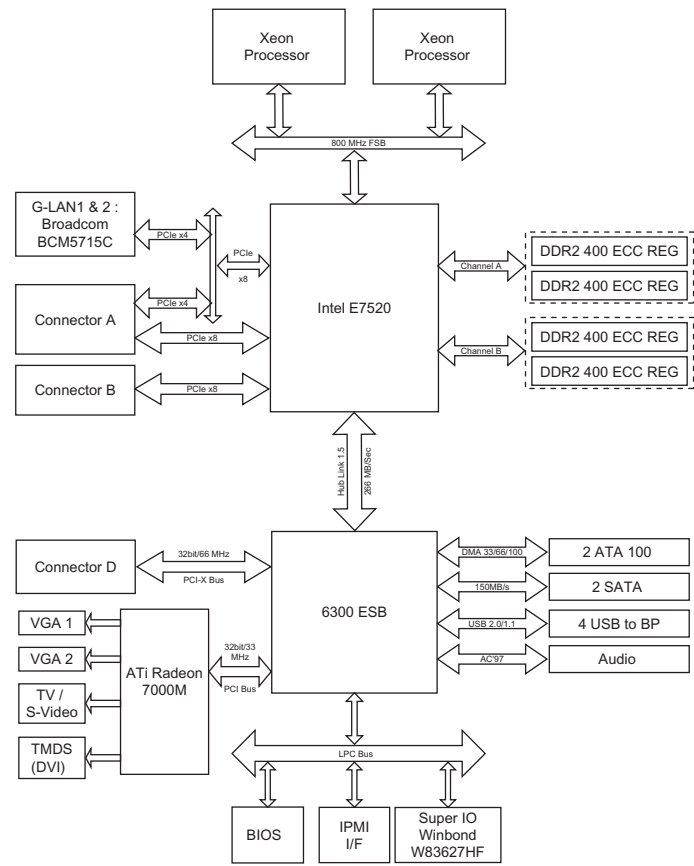
- Complies with PICMG 1.3
- Supports single/dual socket 604 Intel® Xeon®/LV Xeon® with 800 MHz FSB
- Supports dual channel DDR2 400 ECC registered SDRAM up to 8 GB
- Two PCIe x8 and one PCIe x4 links to backplane
- Dual Gigabit Ethernet via PCIe x4 port
- Onboard IPMI module (optional)
- Two SATA channels with software RAID 0 and 1



Specifications

Processor System	CPU	Dual Intel Xeon/LV Xeon processors					
	Max. Speed	3.6 GHz					
	L2 Cache	2 MB					
	Chipset	Intel E7520+6300ESB					
	BIOS	Award™ 4 Mb FWH					
	Front Side Bus	800 MHz					
Bus	PCI Express	Two x8 & one x4 to backplane; one x4 for LAN chip					
	PCI	32-bit/66 MHz PCI-X					
	PCI Daughterboard	32-bit/33 MHz Advantech PCI expansion connector for SCSI or PCA-GIGA cards					
Memory	Technology	Dual-channel DDR2 400 MHz (ECC Registered DIMMs)					
	Max. Capacity	8 GB					
	Socket	240-pin DIMM x 4					
Graphic	Controller	ATI Radeon® 7000M (PCI 32-bit/33 MHz)					
	VRAM	16 MB frame buffer memory					
	Video Output	15 pin CRT connector x 1 (up to 2048 x 1536 at 60 Hz), VGA2, TV-out, S-video, DVI					
Ethernet	Interface	10/100/1000Base-T					
	Controller	LAN1 & 2: Broadcom® 5715C (PCIe x4)					
	Connector	RJ-45 with LED connector x 2					
SATA	Max. Data Transfer Rate	150 MB/s					
	Channel	2					
EIDE	Mode	ATA 100/66/33					
	Channel	2 (Max. 4 devices)					
I/O Interface	USB	Max. 4 (USB 2.0 compliant) to backplane					
	Serial	3 (RS-232) with Pin Header					
	Parallel	1 (SPP/EPP/ECP)					
	FDD	1					
	PS/2	1					
	GPIO	8					
Watchdog Timer	Output	System reset					
	Interval	Programmable 1, 2, 4, 8,..., 256 sec					
Miscellaneous	Audio Output	AC'97 audio interface (requires an audio extension module P/N: PCA-AUDIO-00A1E)					
Power Requirement	Test Conditions	2 x Intel Xeon 3.2 GHz/2 MB/800 MHz/110 W; 2 x DDR2 2 GB					
	Voltage	+12 V	+5 V	+3.3 V	+5 VSB	-12 V	-5 V
	Typical Current	20.5 A	3.28 A	11.51 A	0.42 A	0 A	0 A
Environment		Operating			Non-Operating		
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed			-20 ~ 80° C (-4 ~ 176° F)		
Physical	Dimensions (L x W)	338.58 x 126.39 mm (13.3" x 4.98")					

Block Diagram



Ordering Information

Part Number	IPMI	Gigabit LAN	VGA	RoHS
PCE-7210G2-00A1E	Optional	Dual	Yes	Yes

Bracket View



PCE-7210G2-00A1E

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	Ultra ATA 66/100 HDD cable	x 2
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
1701260305	Printer + COM cable	x 1
1701092300	Dual COM port cable kit	x 1
1700060202	Y cable for PS/2 keyboard and mouse	x 1
1750000282	CPU cooler	x 2
1700000259	VGA cable	x 1
1700000784	S-Video/Composite Video cable	x 1
9689000068	Jumper pack	x 1
-	Startup manual	x 1
-	Utility CD	x 1

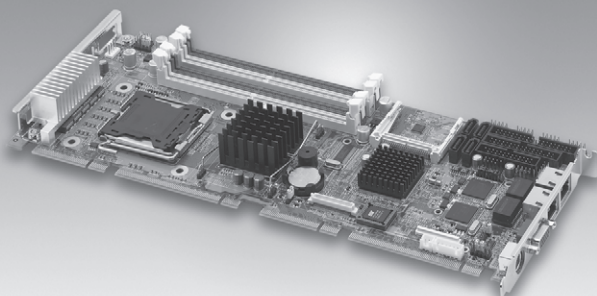
Accessories

Part Number	Description
PCA-AUDIO-00A1E	Audio extension module
1700000821	DVI cable

PCE-5120

LGA775 Core™ 2 Duo/Pentium® D/Pentium® 4/ Celeron® D Processor Card with PCI Express/ VGA/Dual GbE LAN

NEW



Features

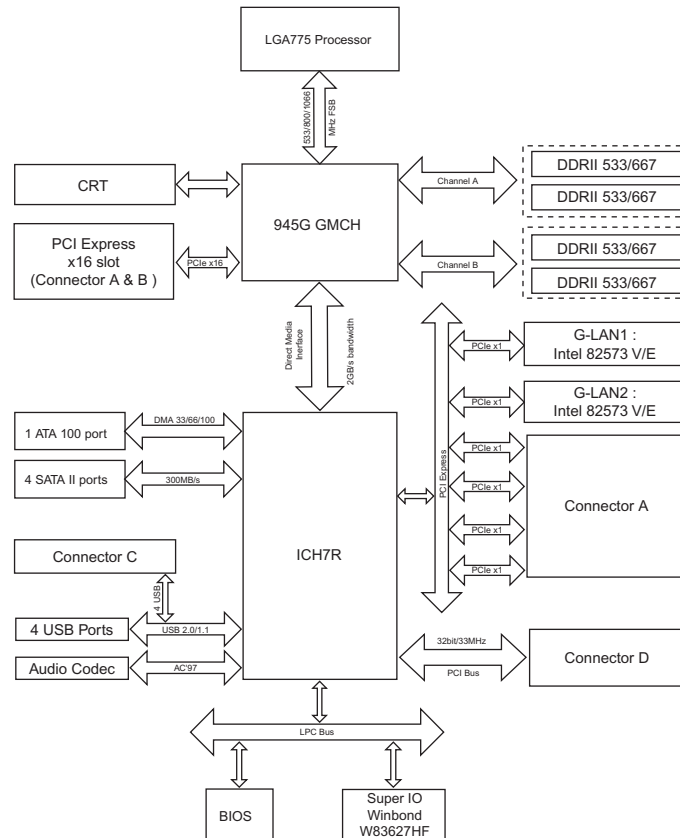
- Complies with PICMG 1.3
- Supports LGA 775 Intel® Core™ 2 Duo/ Pentium® D/Pentium® 4/Celeron® D with 1066/800/533 MHz FSB
- Supports dual-channel DDR2 533/667 SDRAM up to 4 GB
- One PCIe x16 and four PCIe x1 links to backplane
- Dual Gigabit Ethernet via two PCIe x1 ports
- Onboard IPMI module (optional)
- Four SATA II channels with software RAID 0, 1, 5 and 10



Specifications

Processor System	CPU	Intel® Core™ 2 Duo	Intel Pentium D	Intel Pentium 4	Intel Celeron D		
	Max. Speed	2.66 GHz	3.2 GHz (dual core)	3.8 GHz	3.06 GHz		
	L2 Cache	4 MB	2 MB x 2/1 MB x 2	2 MB/1 MB	512 KB/256 KB		
	Chipset	Intel 945G + ICH7R					
	BIOS	4 Mb flash via LPC					
	Front Side Bus	1066/800/533 MHz					
Bus	PCI Express	One x16 & four x1 to backplane					
	PCI	32-bit/33 MHz					
	PCI Daughterboard	32-bit/33 MHz Advantech PCI expansion connector for SCSI or PCA-GIGA cards					
Memory	Technology	Dual-channel DDR2 533/667 MHz DIMMs					
	Max. Capacity	4 GB					
	Socket	240-pin DIMM x 4					
Graphic	External Card	PCI Express x16 graphic card					
	Chipset Integrated	Up to 2048 x 1536 @ 75 Hz refresh					
	VRAM	Shared with 224 MB system memory					
	Video Output	15-pin CRT connector x 1					
Ethernet	Interface	10/100/1000Base-T					
	Controller	LAN1: Intel 82573V (PCI Express x1) LAN2: Intel 82573V (PCI Express x1)					
	Connector	RJ-45 with LED connector x 2					
SATA II	Max. Data Transfer Rate	300 MB/s					
	Channel	4 on SHB; supports software RAID 0, 1, 5 and 10					
EIDE	Mode	ATA 100/66/33					
	Channel	1 (supports up to 2 IDE devices including 1 optional type II CF card)					
I/O Interface	USB	Max. 8 (USB 2.0 compliant) 4 on SHB by Pin Header, 4 to Backplane					
	Serial	4 (RS-232) with Pin Header (COM2 can be configured to RS-232/422/485)					
	Parallel	1 (EPP/ECP)					
	FDD	1					
	PS/2	1 (Y cable for mouse and keyboard included)					
Watchdog Timer	Output	Interrupt, system reset					
	Interval	Programmable 1, 2, 4, 8,..., 256 sec					
Miscellaneous	Audio Output	AC'97 audio interface (requires an audio extension module P/N: PCA-AUDIO-00A1E)					
Power Requirement	Test Conditions	Intel Pentium D 3.2 GHz/2 MB/800 MHz/130 W; DDR2 667 MHz 1 GB x 4					
	Voltage	+12 V	+5 V	+3.3 V	+5 VSB	-12 V	-5 V
	Typical Current	15 A	2 A	20 A	0.7 A	0 A	0 A
Environment		Operating			Non-Operating		
	Temperature	0 ~ 55° C (32 ~ 131° F), depends on CPU's speed			-20 ~ 80° C (-4 ~ 176° F)		
Physical	Dimensions (L x W)	338.58 x 126.39 mm (13.3" x 4.98")					

Block Diagram



Ordering Information

Part Number	Gigabit LAN	VGA	RoHS
PCE-5120G2-00A2E	Dual	Yes	Yes
PCE-5120VG-00A2E	Single	Yes	Yes

Bracket View



PCE-5120G2-00A2E



PCE-5120VG-00A2E

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	Ultra ATA 66/100 HDD cables	x 1
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
1701260305	Printer + COM cable	x 1
1701092300	Dual COM port cable kit	x 1
1700060202	Y cable for PS/2 keyboard and mouse	x 1
1750000400	CPU cooler	x 1
1700002314	USB cable with 4 ports	x 1
9689000068	Jumper pack	x 1
-	Startup manual	x 1
-	Utility CD	x 1

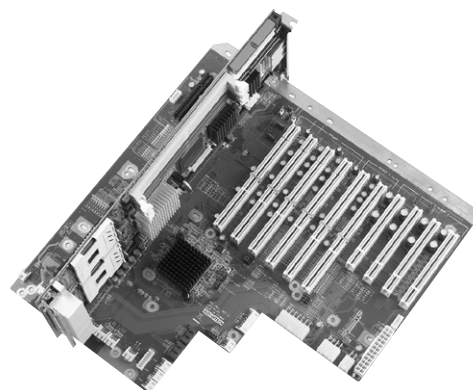
Accessories

Part Number	Description
PCA-AUDIO-00A1E	Audio extension module

SHB Express Backplanes

Features

Advantech's SHB Express design policy provides clear solutions that ensure system compatibility. Customers can easily recognize specific solutions from the product naming. Customers requiring a server grade solution choose the "PCE-7000" series. For excellent graphics performance, customers can select the "PCE-5000" series. Advantech's precise naming policy offers clear purchasing guidelines that help prevent incorrect or incompatible SHB and SHB Express backplane combinations.



Server Grade Backplanes

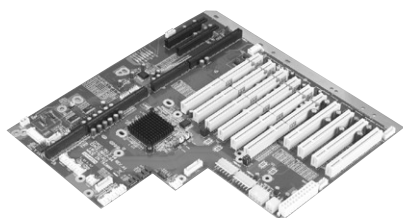
Yes: Supported/ -: Not Supported

BP Model	Slots Per Segment								2U Chassis		4U Chassis		
	PCIe				PCI-X			PCI	ACP-2000	IPC-602	IPC-610-L	IPC-610-H	IPC-610-F
	x16	x8	x4	x1	64/66	64/100	64/133		6-slot	6-slot	15-slot	15-slot	15-slot
PCE-7B06V-04A1E	-	1	-	-	-	-	-	4	Yes	Yes	-	-	-
PCE-7B06V-30A1E	-	2	-	-	-	2	1	-	Yes	Yes	-	-	-
PCE-7B06-04A1E	-	1	-	-	-	-	-	4	-	-	-	-	-
PCE-7B08-04A1E	-	2	1	-	-	-	-	4	-	-	-	-	-
PCE-7B13-64B1E	-	2	-	-	4	2	-	4	-	-	Yes	Yes	Yes
PCE-7B13D-04A1E	-	1, 2	-	-	-	-	-	4	-	-	Yes	Yes	Yes
PCE-7B19-88A1E	-	2	-	-	8	-	-	8	-	-	-	-	-
PCE-7B16Q-02A1E	-	1	-	-	-	-	-	2	-	-	-	-	-

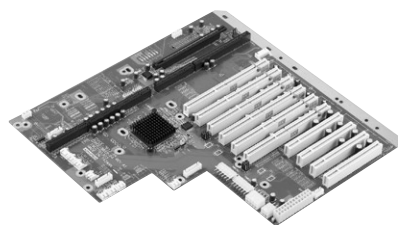
Mainstream Backplanes

Yes: Supported/ -: Not Supported

BP Model	Slots Per Segment								2U Chassis		4U Chassis		
	PCIe				PCI-X			PCI	ACP-2000	IPC-602	IPC-610-L	IPC-610-H	IPC-610-F
	x16	x8	x4	x1	64/66	64/100	64/133		6-slot	6-slot	15-slot	15-slot	15-slot
PCE-5B06V-04A1E	1	-	-	-	-	-	-	4	Yes	Yes	-	-	-
PCE-5B05V-30A1E	1	-	-	-	-	2	1	-	Yes	Yes	-	-	-
PCE-5B06-04A1E	1	-	-	-	-	-	-	4	-	-	-	-	-
PCE-5B06-00A1E	1	-	-	4	-	-	-	-	-	-	-	-	-
PCE-5B07-04A1E	1	-	1	-	-	-	-	4	-	-	-	-	-
PCE-5B12-64B1E	1	-	-	-	4	2	-	4	-	-	Yes	Yes	Yes
PCE-5B13-08A1E	1	-	-	3	-	-	-	8	-	-	Yes	Yes	Yes
PCE-5B12D-04A1E	1	-	-	-	-	-	-	4	-	-	Yes	Yes	Yes
PCE-5B18-88A1E	1	-	-	-	8	-	-	8	-	-	-	-	-
PCE-5B16Q-02A1E	1	-	-	-	-	-	-	2	-	-	-	-	-



PCE-7B13-64B1E



PCE-5B12-64B1E

4U Chassis							5U Chassis	7U Chassis	Wallmount Chassis		
IPC-611	IPC-630	ACP-4010	ACP-4000	ACP-4320	ACP-4362	IPC-623	ACP-5260	ACP-7000	IPC-6606	IPC-6608	IPC-6908
15-slot	15-slot	15-slot	15-slot	15-slot	15-slot	20-slot	20-slot	20-slot	6-slot	8-slot	8-slot
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	Yes	-	-
-	-	-	-	-	-	-	-	-	-	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	-
Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	-
-	-	-	-	-	-	Yes	Yes	Yes	-	-	-
-	-	-	-	-	-	Yes	Yes	Yes	-	-	-

4U Chassis							5U Chassis	7U Chassis	Wallmount Chassis		
IPC-611	IPC-630	ACP-4010	ACP-4000	ACP-4320	ACP-4362	IPC-623	ACP-5260	ACP-7000	IPC-6606	IPC-6608	IPC-6908
15-slot	15-slot	15-slot	15-slot	15-slot	15-slot	20-slot	20-slot	20-slot	6-slot	8-slot	8-slot
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	Yes	-	-
-	-	-	-	-	-	-	-	-	Yes	-	-
-	-	-	-	-	-	-	-	-	-	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	-
Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	-
Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	-
-	-	-	-	-	-	Yes	Yes	Yes	-	-	-
-	-	-	-	-	-	Yes	Yes	Yes	-	-	-

SHB Express Backplanes

Server Grade Backplanes

PCE-7B06V-04A1E

- 6-slot Butterfly BP for 2U chassis
- Segment: 1
- One CPU card slot
- PCIe slot: One x8
- PCI-X slot: N/A
- PCI slot: Four 32/33
- Compatible with IPC chassis: ACP-2000 and IPC-602

Available in April

PCE-7B06V-30A1E

- 6-slot Butterfly BP for 2U chassis
- Segment: 1
- One CPU card slot
- PCIe slot: Two x8
- PCI-X slot: Two 64/100; one 64/133 (1 x Intel 6700PXH)
- PCI slot: N/A
- Compatible with IPC chassis: ACP-2000 and IPC-602

Available in April

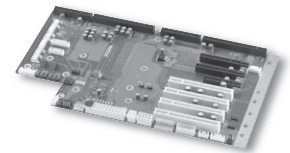
PCE-7B06-04A1E

- 6-slot BP for 6-slot chassis
- Segment: 1
- One CPU card slot
- PCIe slot: One x8
- PCI-X slot: N/A
- PCI slot: Four 32/33
- Compatible with IPC chassis: IPC-6606

Available in April

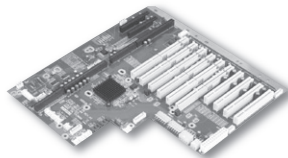
PCE-7B08-04A1E

- 8-slot BP for 8-slot chassis
- Segment: 1
- One CPU card slot
- PCIe slot: Two x8; One x4
- PCI-X slot: N/A
- PCI slot: Four 32/33
- Compatible with IPC chassis: IPC-6608 and IPC-6908



PCE-7B13-64B1E

- 13-slot backplane for 14-slot Chassis
- Segment: 1
- One CPU card slot
- PCIe slot: Two x8
- PCI-X slot: Two 64/100; Four 64/66 (1 x Intel 6700PXH)
- PCI slot: Four 32/33
- Compatible with IPC chassis: IPC-610-L, IPC-610-H, IPC-610-F, IPC-611, IPC-615, IPC-630, ACP-4000, ACP-4320 and ACP-4362



PCE-7B13D-04A1E

- 13-slot BP for 14-slot chassis
- Segment: 2

Each segment:

- One CPU card slot
- PCIe slot: One or Two x8
- PCI-X slot: N/A
- PCI slot: Four 32/33
- Compatible with IPC chassis: IPC-610-L, IPC-610-H, IPC-610-F, IPC-611, IPC-615, IPC-630, ACP-4000, ACP-4320 and ACP-4362

Available in April

PCE-7B19-88A1E

- 19-slot BP for 20-slot chassis
- Segment: 1
- One CPU card slot
- PCIe slot: Two x8
- PCI-X slot: Eight 64/66 (1 x Intel 6700PXH)
- PCI slot: Eight 32/33 (1 x Pericom PI7C8150BMAE)
- Compatible with IPC chassis: IPC-623, ACP-5260 and ACP-7000

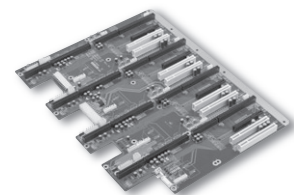
Available in April

PCE-7B16Q-02A1E

- 16-slot BP for 20-slot chassis
- Segment: 4

Each segment:

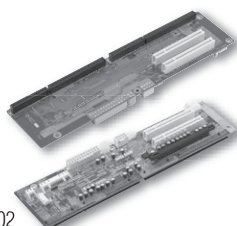
- One CPU card slot
- PCIe slot: One x8
- PCI-X slot: N/A
- PCI slot: Two 32/33
- Compatible with IPC chassis: IPC-623, ACP-5260 and ACP-7000



Mainstream Backplanes

PCE-5B06V-04A1E

- 6-slot Butterfly BP for 2U chassis
- Segment: 1
- One CPU card slot
- PCIe slot: One x16
- PCI-X slot: N/A
- PCI slot: Four 32/33
- Compatible with IPC chassis: ACP-2000 and IPC-602



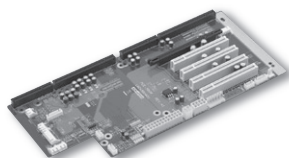
PCE-5B05V-30A1E

- 5-slot Butterfly BP for 2U chassis
- Segment: 1
- One CPU card slot
- PCIe slot: One x16
- PCI-X slot: Two 64/100; one 64/133 (1 x Intel 6700PXH)
- PCI slot: N/A
- Compatible with IPC chassis: ACP-2000 and IPC-602

Available in April

PCE-5B06-04A1E

- 6-slot BP for 6-slot chassis
- Segment: 1
- One CPU card slot
- PCIe slot: One x16
- PCI-X slot: N/A
- PCI slot: Four 32/33
- Compatible with IPC chassis: IPC-6606



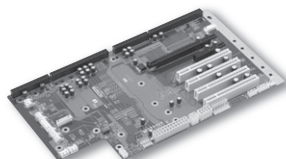
PCE-5B06-00A1E

- 6-slot BP for 6-slot chassis
- Segment: 1
- One CPU card slot
- PCIe slot: One x16; Four x1
- PCI-X slot: N/A
- PCI slot: N/A
- Compatible with IPC chassis: IPC-6606

Available in April

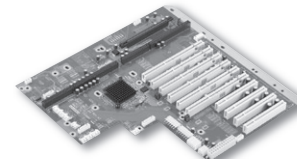
PCE-5B07-04A1E

- 7-slot BP for 8-slot chassis
- Segment: 1
- One CPU card slot
- PCIe slot: One x16; One x4
- PCI-X slot: N/A
- PCI slot: Four 32/33
- Compatible with IPC chassis: IPC-6608 and IPC-6908



PCE-5B12-64B1E

- 12-slot backplane for 14-slot Chassis
- Segment: 1
- One CPU card slot
- PCIe slot: One x16
- PCI-X slot: Two 64/100; Four 64/66 (1 x Intel 6700PXH)
- PCI slot: Four 32/33
- Compatible with IPC chassis: IPC-610-L, IPC-610-H, IPC-610-F, IPC-611, IPC-615, IPC-630, ACP-4000, ACP-4320 and ACP-4362



PCE-5B13-08A1E

- 13-slot BP for 14-slot chassis
- Segment: 1
- One CPU card slot
- PCIe slot: One x16; Three x1
- PCI-X slot: N/A
- PCI slot: Eight 32/33 (1 x PLX PEX-8111)
- Compatible with IPC chassis: IPC-610-L, IPC-610-H, IPC-610-F, IPC-611, IPC-615, IPC-630, ACP-4000, ACP-4320 and ACP-4362

Available in April

PCE-5B12D-04A1E

- 12-slot BP for 14-slot chassis
 - Segment: 2
- Each segment:**
- One CPU card slot
 - PCIe slot: One x16
 - PCI-X slot: N/A
 - PCI slot: Four 32/33
 - Compatible with IPC chassis: IPC-610-L, IPC-610-H, IPC-610-F, IPC-611, IPC-615, IPC-630, ACP-4000, ACP-4320 and ACP-4362

Available in April

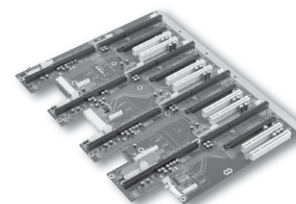
PCE-5B18-88A1E

- 18-slot BP for 20-slot chassis
- Segment: 1
- One CPU card slot
- PCIe slot: One x16
- PCI-X slot: Eight 64/66 (1 x Intel 6700PXH)
- PCI slot: Eight 32/33 (1 x Pericom PI7C8150BMAE)
- Compatible with IPC chassis: IPC-623, ACP-5260 and ACP-7000

Available in April

PCE-5B16Q-02A1E

- 16-slot BP for 20-slot chassis
 - Segment: 4
- Each segment:**
- One CPU card slot
 - PCIe slot: One x16
 - PCI-X slot: N/A
 - PCI slot: Two 32/33
 - Compatible with IPC chassis: IPC-623, ACP-5260 and ACP-7000



18
Industrial Motherboards

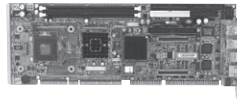
19
Single Board Computers

20
Industrial Computer Chassis

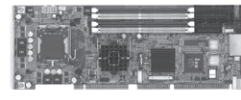
21
High Performance Computing

22
Industrial PC Peripherals

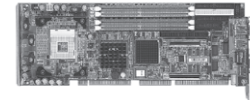
PCI/ISA Single Board Computers



PCA-6189



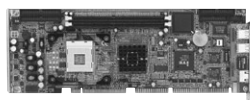
PCA-6190



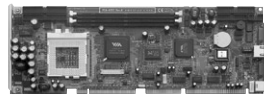
PCA-6187

Selection Guide

Specifications		PCA-6190	PCA-6289	PCA-6189	PCA-6187
Processor System	CPU	Intel Pentium 4/Celeron D LGA775	Dual Intel Xeon LV/Xeon	Intel Pentium M/Celeron M Socket 479	Intel Pentium 4/Celeron D/Celeron Socket 478
	Max. Speed	3.8/3.06 GHz	3.2 GHz	2.10/1.50 GHz	3.4/3.06/2.8 GHz
	Max. L2 Cache	1 MB, 2 MB/256 KB	512 KB	1 MB, 2 MB/512 KB, 1 MB	256 KB, 512 KB, 1 MB/256 KB /128, 256 KB
	Chipset	Intel 915GV + ICH6	Intel E7501 + ICH3-S + P64H2	Intel 855GME + 6300ESB	Intel 865G + ICH5
	BIOS	Award 8 Mbit FWH	Award 8 Mbit FWH	Award 4 Mbit FWH	Award 4 Mbit FWH
Bus	FSB	533/800 MHz	400/533 MHz	400 MHz	400/533/800 MHz
	PCI	PCI 32-bit/33 MHz; 2 PCIe x1 for LAN chip	64-bit/66 MHz PCI	64-bit/33/66 MHz PCI/66 MHz PCI-X	32-bit/33 MHz
	ISA	HISA (ISA high drive)	HISA (ISA high drive)	HISA (ISA high drive)	HISA (ISA high drive)
Graphic	Controller	Chipset integrated	ATI Rage XL	Chipset integrated	Chipset integrated
	VRAM	Shared system memory up to 128 MB	8 MB frame buffer memory	Shared system memory up to 64 MB	Shared system memory up to 64 MB
	LCD	DVI	-	LVDS/DVI	-
Ethernet	Interface	10/100/1000Base-T	10/100/1000Base-T	10/100Base-T or 10/100/1000Base-T	10/100Base-T or 10/100/1000Base-T
	Controller	Broadcom BCM5721 x 2	Intel 82545EM X 2	Intel 82541/82551	Intel 82547/82541, Intel 82562 (FE)
	Connector	RJ-45 x 2	-	RJ-45 x 2	RJ-45 x 2
	Disable from BIOS	Yes	-	Yes	Yes
SCSI (Non-RoHS)	Interface	Ultra 160	-	Ultra 160	Ultra 160
	Controller	Adaptec AIC-7899	-	Adaptec AIC-7899	Adaptec AIC-7899
	Max. Data Transfer Rate	160 MB/s	-	160 MB/s	160 MB/s
	Channel	2	-	2	2
Memory	Technology	Dual channel DDR2 400/533	Dual channel DDR 200/266	DDR 200/266/333 with ECC support	Dual channel DDR 266/333/400 SDRAM
	Max. Capacity	4 GB	8 GB	2 GB	4 GB
	Socket	240-pin x 4	184-pin DIMM x 4	184-pin DIMM x 2	184-pin DIMM x 4
SATA	Max. Data Transfer Rate	150 MB/s	-	150 MB/s	150 MB/s
	Channel	4	-	2	2
EIDE	Mode	ATA 100/66/33	ATA 100/66/33	ATA 100/66/33	ATA 100/66/33
	Channel	1 (Max. two devices)	2 (Max. four devices)	2 (Max. four devices)	2 (Max. four devices)
I/O Interface	USB	8 (USB 2.0)	4 (USB 1.1)	4 (USB 2.0 compliant)	6 (USB 2.0 compliant)
	Serial	2 (RS-232)	2 (RS-232)	2 (RS-232)	2 (RS-232)
	Parallel	1 (SPP/EPP/ECP)	1 (EPP/ECP)	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)
	FDD	1	1	1	1
	PS/2	1	1	1	1
	LAN	1 (for VG version) 2 (for G2 version)	2	1 (for VE, VG versions) 2 (for G2, versions)	1 (for VE, VG versions) 2 (for G2, versions)
	OBS (hardware monitor)	Yes	-	Yes	Yes
	Output	Interrupt, system reset	Interrupt, system reset	Interrupt, system reset	Interrupt, system reset
Watchdog Timer	Interval	Programmable, 1 ~ 255 sec.	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min
	Audio (require PCA-AUDIO-00A1E)	Yes	-	Yes	Yes
Miscellaneous	Advantech SNMP-1000-B	Yes	-	Yes	Yes
	Solid State Disk	IDE Flash Disk	IDE Flash Disk	Compact Flash socket (Compact Flash Type I/II)	IDE Flash Disk
Reference Page		19-14	19-16	19-17	19-18



PCA-6186-B

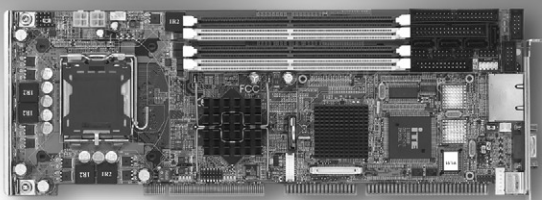


PCA-6003

PCA-6186-B	PCA-6003	PCA-6178-C	PCA-6002-B
Intel Pentium 4/Celeron D/ Celeron Socket 478	Intel Pentium III/Celeron (Tualatin) Socket 370	Intel Pentium III/Celeron Socket 370	Intel Celeron (Ultra Low Voltage)
3.06/3.06/2.8 GHz	1.4 GHz/1.3 GHz	1.0 GHz/1.1 GHz	650/400 MHz
256, 512 KB/256 KB/128, 256 KB	256, 512 KB/128, 256 KB	256 KB/128 KB	256 KB
Intel 845GV + ICH4	VIA Apollo PLE 133T (VT8601 + 686B)	Intel 440BX	Intel 815E + ICH2
Award 4 Mb FWH	Award 2 Mbit FWH	Award 2 Mbit FWH	Award 4 Mbit FWH
400/533 MHz	66/100/133 MHz	66/100 MHz	100 MHz
32-bit/33 MHz	32-bit/33 MHz	32-bit/33 MHz	32-bit/33 MHz
HISA (ISA high drive)	HISA (ISA high drive) optional	HISA (ISA high drive)	HISA (ISA high drive)
Chipset integrated	Chipset integrated	ATI RAGE XL (AGP 2X)	Chipset integrated
Shared system memory 8 ~ 64 MB	Shared system memory up to 8 MB	8 MB	Shared system memory up to 11 MB
-	Optional 18-bit TFT LCD support	-	-
10/100Base-T or 10/100/1000Base-T	10/100Base-T	10/100Base-T	10/100Base-T
Intel 82562/82551, Intel 82541 (GbE)	Realtek 8139C	Intel 82551	Intel 82562/82551
RJ-45 x 2	RJ-45	RJ-45	RJ-45 x 2
Yes for FE LAN NO for GbE	Yes	No	Yes
-	-	Ultra2 wide	-
-	-	Symbios SYM53C895	-
-	-	80 MB/s	-
-	-	1	-
DDR 200/266/333	PC-133/100	PC-100 with ECC support	PC-133/100
2 GB	1 GB	768 MB	512 MB
184-pin DIMM x 2	168-pin DIMM x 2	168-pin DIMM x 3	168-pin DIMM x 2
-	-	-	-
ATA 100/66/33	ATA 100/66/33	ATA 33	ATA 100/66/33
2 (Max. four devices)	2 (Max. four devices)	2 (Max. four devices)	2 (Max. four devices)
6 (USB 2.0 compliant)	2 (USB 1.1 compliant)	2 (USB 1.1 compliant)	4 (USB 1.1 compliant)
2 (RS-232)	2 (RS-232)	2 (RS-232)	2 (RS-232)
1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)	1 (SPP/EPP/ECP)
1	1	1	1
1 (for LV, VE, VG versions)	1	1	1 (for VE version)
2 (for E2 versions)			2 (for E2 version)
1 (for VE, VG versions)	1 (for VE version)	1 (for VE, versions)	1 (for VE versions)
2 (for E2, G2 versions)			2 (for E2 versions)
Yes	Yes	Yes	Yes
Interrupt, system reset	Interrupt, system reset	Interrupt, system reset	Interrupt, system reset
Programmable, 1 ~ 255 sec./min	Programmable, 1 ~ 63 sec.	Programmable, 1 ~ 63 sec.	Programmable, 1 ~ 255 sec./min
Yes	Yes	-	Yes
Yes	Yes	-	Yes
IDE Flash Disk	IDE Flash Disk	M-systems' DOC 2000 (144 MB)	Compact Flash socket (Compact Flash Type I/II)
19-20	19-21	19-22	19-23

PCA-6190

LGA775 Pentium® 4/Celeron® D Processor Card with VGA/Dual GbE LAN/DVI



Features

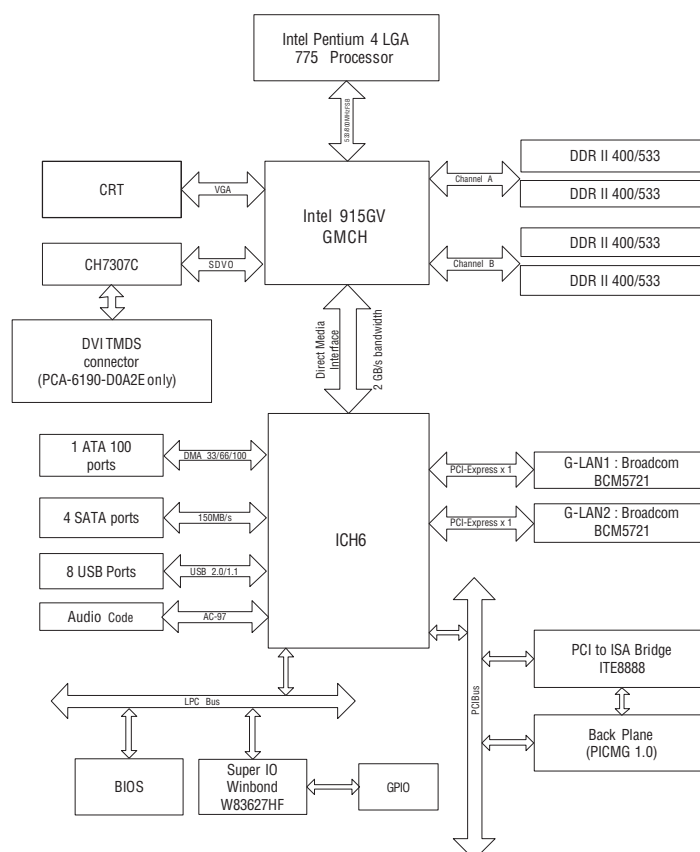
- Intel® 915GV (Grantsdale-GV) chipset 533/800 MHz FSB
- Supports dual channel DDR2 400/533 SDRAM
- Supports up to four Serial ATA devices
- Eight USB 2.0 ports
- Two PCI-Express x1 for LAN chip
- Supports DVI interface (PCA-6190G2-D0A2E only)
- 14-pin General Purpose I/O interface as 8-bit programmable Digital I/O or port80 function
- CMOS automatic backup and restore to prevent accidental data loss of BIOS setup



Specifications

Processor System	CPU	Intel Pentium® 4 (Prescott)	Intel Celeron® D		
	Max. Speed	3.8 GHz (800 FSB) (90 nm and 65 nm)	3.06 GHz (533 FSB)		
	L2 Cache	2 MB/1 MB	256 KB		
	Chipset	Intel® 915GV + ICH6			
	BIOS	Award™ 4 Mbit FWH			
	Front Side Bus	533/800 MHz			
Bus	PCI	PCI 32 bit/33 MHz ; 2 PCIe x1 for LAN chip			
	ISA	HISA (ISA high drive)			
Memory	Technology	Dual Channel DDR2 400/533 SDRAM			
	Max. Capacity	4 GB			
	Socket	240-pin DIMM x 4			
Graphic	Controller	Chipset integrated VGA controller			
	VRAM	Dynamically shared system memory up to 128 MB			
Ethernet	Interface	10/100/1000 Base-T			
	Controller	LAN 1: Broadcom® BCM 5721 LAN 2: Broadcom® BCM 5721			
	Connector	RJ-45 x 2			
SATA	Max. Data Transfer Rate	150 MB/Sec.			
	Channel	4			
EIDE	Mode	ATA 100/66/33			
	Channel	1 (Max 2 devices)			
I/O Interface	USB	Max. 8 (USB 2.0 compliant, 480 Mbps, 8 by internal pin header)			
	Serial	2 (RS-232)			
	Parallel	1 (SPP/EPP/ECP)			
	FDD	1			
	PS/2	1			
Watchdog Timer	Output	Interrupt, system reset			
	Interval	Programmable, 1 ~ 255 sec.			
Miscellaneous	Audio Output	AC-97 audio interface (requires an audio extension module P/N: PCA-AUDIO-00A1E)			
Power Requirement	Typical	Pentium 4 3.4 GHz (800 MHz FSB), 2 x 512 MB, 2 x 256 MB DDR2 533 SDRAM			
		+5 V	-5 V	+12 V	-12 V
		6.64 A	0.01 A	12.59 A	0.01 A
Environment		Operating		Non-Operating	
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed		-20 ~ 70° C (-4 ~ 158° F)	
Physical Characteristics	Dimensions (W x D)	338 x 122 mm (13.3" x 4.8")			

Block Diagram



Ordering Information

Part Number	VGA	DVI	Gigabit LAN
PCA-6190VG-00A2E	Yes	-	Single
PCA-6190G2-00A2E	Yes	-	Dual
PCA-6190G2-D0A2E	Yes	Yes	Dual

Bracket View



PCA-6190VG-00A2E

PCA-6190G2-00A2E
PCA-6190G2-D0A2E

Packing List

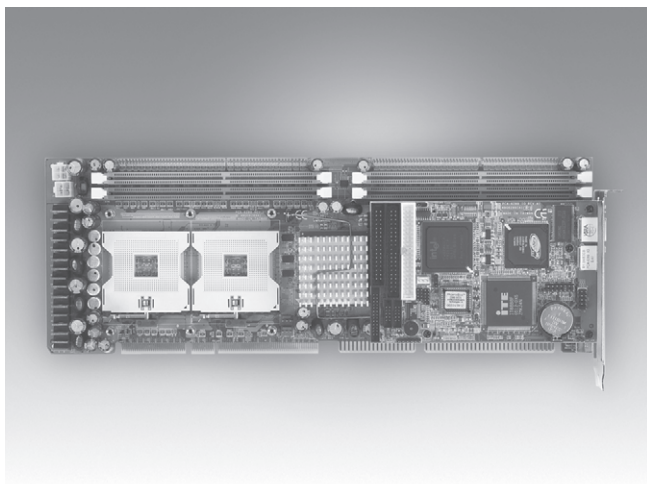
Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 1
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
170304015K	ATX 12 V power converter cable	x 1
1701260305	Printer + COM cable	x 1
1700060202	Y cable for PS/2 mouse & keyboard	x 1
9689000068	Jumper pack	x 1
-	Startup manual	x 1
-	Utility CD	x 1
1700000719	USB cable with 4 ports	x 1
1701092300	Dual COM port cable kit (for G2-00A2E and G2-D0A2E)	x 1
1700000821	DVI Cable (G2-D0A2E only)	x 1

Accessories

Part Number	Description
1750000332	CPU cooler for LGA775 Pentium 4 processor up to 3.8 GHz (115 w), for 2U or higher chassis
1750000334	CPU cooler for LGA775 Pentium 4 processor up to 3.8 GHz (115 w), for 4U or higher chassis

PCA-6289

Socket 604 Dual Xeon®/LV Xeon Processor Card with VGA/Dual GbE LAN



CE FCC

Features

- Supports single/dual socket 604 Intel® Xeon®/LV Xeon processors up to 3.06 GHz
- Dual channel DDR 200/266 SDRAM up to 8 GB
- Intel E7501 chipset 400/533 MHz FSB
- Onboard ATI Rage™ XL with 8 MB frame buffer memory
- 64-bit, 66 MHz PCI-X
- Supports 10/100/1000Base-T Ethernet
- Four USB 1.1 ports
- Low-profile customized CPU cooler included

Specifications

Processor System	CPU	Single/Dual Intel Xeon/LV Xeon processors		
	Max. Speed	3.06 GHz		
	L2 Cache	512 KB		
	L3 Cache	2 MB		
	Chipset	Intel E7501 + ICH3-S + P64H2		
	BIOS	Award™ 8 Mbit FWH		
	Front Side Bus	400/533 MHz		
Bus	PCI	64 bit/66 MHz PCI-X		
	ISA	HISA (ISA high drive)		
Memory	Technology	Dual channel DDR 200/266 MHz (Registered/ECC DIMMs only)		
	Max. Capacity	8 GB		
	Socket	184-pin DIMM x 4		
Graphic	Controller	ATI Rage™ XL		
	VRAM	8 MB frame buffer memory		
	Video Output	15 pin CRT connector x 1		
Ethernet	Interface	10/100/1000 Base-T		
	Controller	Dual Intel 82545EM (Gigabit)		
	Connector	RJ45 with LED connector x 2		
EIDE	Mode	ATA 100/66/33		
	Channel	2 (Max. 4 devices)		
I/O Interface	USB	Max. 4 (USB 1.1 compliant), 2 ports on board		
	Serial	2 (RS-232)		
	Parallel	1 (EPP/ECP)		
	FDD	1		
	PS/2	1		
Watchdog Timer	Output	Interrupt, system reset		
	Interval	Programmable 1, 2, 4, 8...256 sec.		
Miscellaneous	Audio Output	AC-97 audio interface		
Power Requirement	Typical	Dual Xeon 3.06 GHz	Dual LV Xeon 2.4 G	
		+5 V (10 A)	+12 V (13.5 A)	+5 V (8.5 A) +12 V (7.5 A)
Environment	Operating	Non-Operating		
		-20 ~ 80° C (-4 ~ 176° F)		
Physical Characteristics	Dimensions (W x D)	338 x 122 mm (13.3" x 4.8")		

Ordering Information

Part Number	VGA (PCI)	Gigabit LAN
PCA-6289G2-00A1E	Yes	Dual

Suggested System Configurations

System	Chassis	Backplane	Power Supply
2U	ACP-2000X3-00XE	-	PS-400ATX-ZBE
4U	ACP-4000BP-00XE	PCA-6113P7XE PCA-6114P12X-0A2E	PS-400ATX-ZBE PS-500ATX-ZE
5U	ACP-5260BP-46RE ACP-5260BP-57NE ACP-5260BP-81NE	PCA-6115QP2X-0A2E PCA-6119P16X-0A2E	-
7U	ACP-7000BP-46RE ACP-7000BP-57NE ACP-7000BP-81NE	PCA-6115QP2X-0A2E PCA-6119P16X-0A2E	-

Packing List

Part Number	Description	Quantity
-	PCA-6289 single board computer	X 1
-	Dual CPU cooler set	X 1
-	PCA-6289 startup manual	X 1
-	CD with driver utility and manual (in PDF format)	X 1
-	FDD cable	X 1
-	Ultra ATA 33/66/100 HDD cables	X 2
-	Y cable for PS/2 mouse/keyboard	X 1
-	Printer/COM port cable kit	X 1
-	COM port cable kit	X 1
-	180 mm AUX power cable	X 2

Bracket View



PCA-6289G2-00A1E

PCA-6189

**Socket 479 Pentium® M/Celeron® M
Processor Card with 64-bit PCI-X/VGA/
Dual GbE LAN**

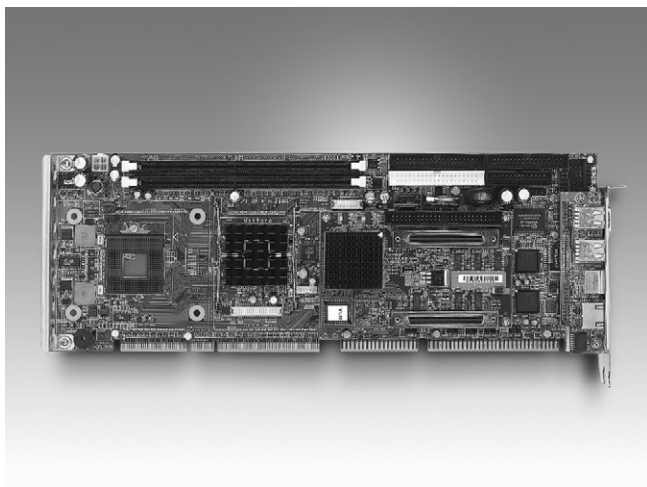
18
Industrial Motherboards

19
Single Board Computers

20
Industrial Computer Chassis

21
High Performance Computing

22
Industrial PC Peripherals



Features

- Intel® 855GME chipset 400 MHz FSB
- Supports two DIMMs DDR 200/266/333 SDRAM
- Supports up to two devices with software Serial ATA RAID 0,1
- Onboard integrated VGA controller, supports dual display
- LVDS and DVI panel support
- 64-bit/66 MHz PCI-X
- Supports 10/100/1000Base-T Ethernet
- Optional fanless solution with onboard ultra low voltage Celeron® M processor at 1.0 GHz



Specifications

Processor System	CPU	Intel Pentium® M	Intel Celeron M
	Max. Speed	2.1 GHz and above (400 FSB)	1.5 GHz and above (400 FSB)
	L2 Cache	1 MB/2 MB	512 KB/1 MB
	Chipset	Intel 855GME + 6300ESB	
	BIOS	Award™ 4 Mbit FWH	
Bus	Front Side Bus	400 MHz	
	PCI	64-bit/33/66 MHz PCI, 66 MHz PCI-X	
Memory	ISA	HISA (ISA high drive), no DMA support	
	Technology	One channel DDR 200/266/333 MHz with ECC support	
Graphic	Max. Capacity	2 GB	
	Socket	184-pin DIMM x 2	
Ethernet	Controller	Chipset integrated VGA controller	
	VRAM	Dynamically shared system memory, 8 ~ 64 MB	
SATA	Interface	10/100Base-T; 10/100/1000Base-T (optional)	
	Controller	LAN 1: Intel 82551QM (FE); Intel 82541PI (GbE)	
EIDE	Connector	LAN 2: Intel 82541PI (GbE)	
	Channel	RJ-45 x 2	
I/O Interface	Max. Data Transfer Rate	150 MB/s	
	Channel	2	
Watchdog Timer	Mode	ATA 100/66/33	
	Channel	2 (Max. 4 devices)	
Miscellaneous	USB	Max. 4 (USB 2.0 compliant)	
	Serial	2 (RS-232)	
Power Requirement	Parallel	1 (SPP/EPP/ECP)	
	FDD	1	
Environment	PS/2	1	
	Output	Interrupt, system reset	
Physical Characteristics	Interval	Programmable, 1 ~ 255 sec.	
	Audio Output	AC-97 audio interface (requires an audio extension module P/N: PCA-AUDIO-00A1E)	
Typical	Solid State Disk	Compact Flash socket (Type I / II), shared with secondary IDE	
	Typical	Intel Pentium M 1.8 GHz with 400 MHz FSB, 512 MB DDR 333 SDRAM	
Operating	Temperature	+5 V (3.29 A) -5 V (0.01 A) +12 V (1.45 A) -12 V (0.01 A)	
	Dimensions (W x D)	338 x 122 mm (13.3" x 4.8")	

Ordering Information

Part Number	Fast Ethernet LAN	Gigabit LAN
PCA-6189VE-00A2E	Single	-
PCA-6189VG-00A2E	-	Single
PCA-6189G2-00A2E	-	Dual

Bracket View



PCA-6189VE-00A2E
PCA-6189VG-00A2E



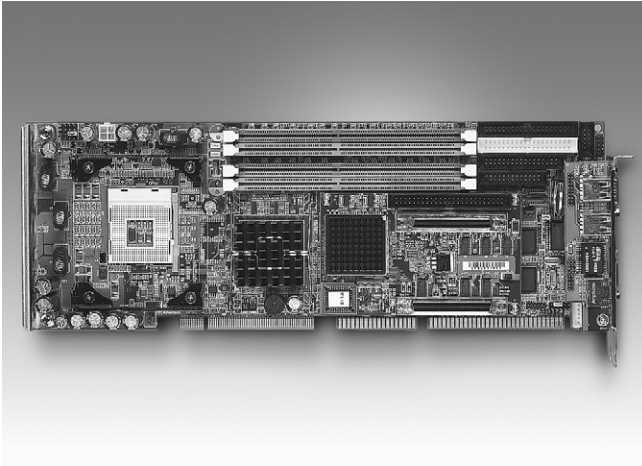
PCA-6189G2-00A2E

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 2
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
170304015K	ATX 12 V power converter cable	x 1
1701260305	Printer + COM cable	x 1
1700060202	Y cable for PS/2 mouse & keyboard	x 1
1700002204	USB cable with 2 ports	x 1
1960001631	Low profile CPU cooler	x 1
9689000068	Jumper pack	x 1
-	Startup manual	x 1
-	Utility CD	x 1

PCA-6187

Socket 478 Pentium® 4/Celeron® D/Celeron Processor Card with VGA/Dual GbE LAN/SCSI



Features

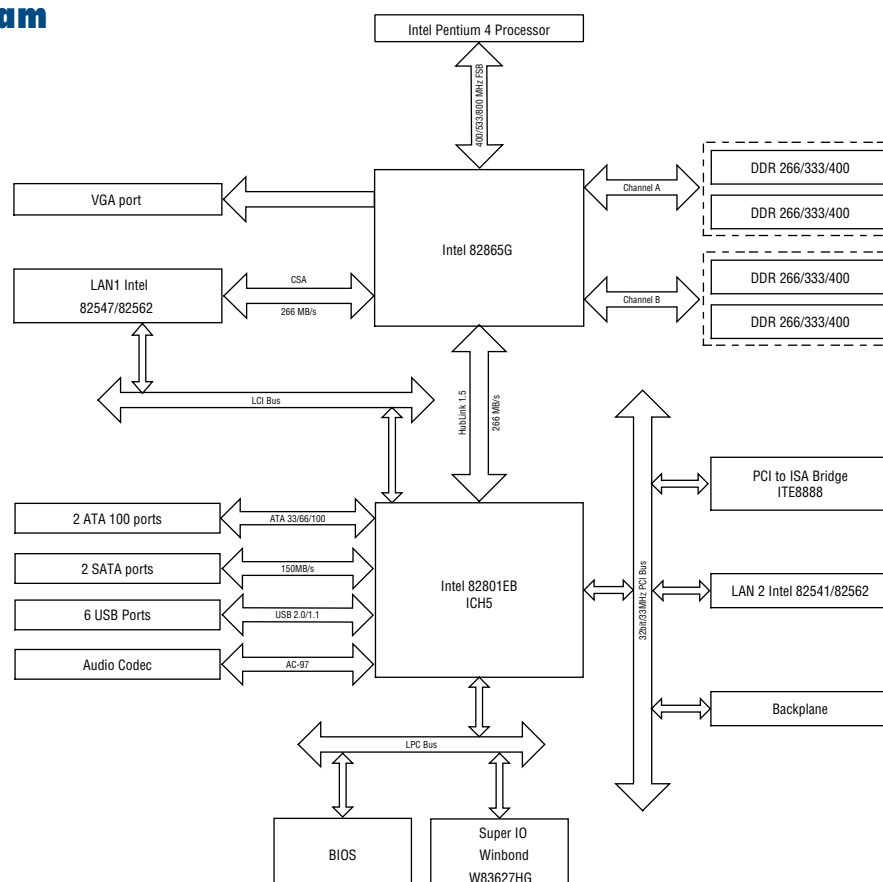
- Supports up to two Serial ATA devices
- Supports Dual Channel DDR 266/333/400 SDRAM
- Onboard Adaptec® AIC-7899 dual channel Ultra160 SCSI up to 160 MB/s
- Intel® 865G chipset 400/533/800 MHz FSB
- Onboard integrated VGA controller, shared memory architecture
- Supports 10/100Base-T Ethernet or 10/100/1000Base-T Ethernet
- Six USB 2.0 ports
- CMOS automatic backup and restore to prevent accidental data loss of BIOS setup



Specifications

Processor System	CPU	Intel Pentium® 4	Intel Celeron® D	Intel Celeron
	Max. Speed	3.06 GHz (533 FSB) 3.4 GHz (800 FSB) * Vcore 1.75 V CPU (Willamette) not supported	3.06 GHz	2.8 GHz
	L2 Cache	256 KB/ 512 KB/ 1 MB	256 KB	128/256 KB
	Chipset	Intel 865G + ICH5		
	BIOS	Award™ 4 Mbit FWH		
	Front Side Bus	400/533/800 MHz		
Bus	PCI	32-bit/33 MHz		
	ISA	HISA (ISA high drive)		
Memory	Technology	Dual Channel DDR 266/333/400 SDRAM		
	Max. Capacity	4 GB		
	Socket	184-pin DIMM x 4		
Graphic	Controller	Chipset integrated VGA controller		
	VRAM	Dynamically shared system memory, 8 ~ 64 MB		
Ethernet	Interface	10/100Base-T, 10/100/1000Base-T (optional)		
	Controller	LAN 1: Intel 82562EZ (FE); Intel 82547GI (Gigabit, CSA) LAN 2: Intel 82541PI (Gigabit)		
	Connector	RJ-45 x 2		
SATA	Max. Data Transfer Rate	150 MB/s		
	Channel	2		
EIDE	Mode	ATA 100/66/33		
	Channel	2 (Max. 4 devices)		
I/O Interface	USB	Max. 6 (USB 2.0 compliant), 4 ports on board for G2 versions		
	Serial	2 (RS-232)		
	Parallel	1 (SPP/EPP/ECP)		
	FDD	1		
	PS/2	1		
Watchdog Timer	Output	Interrupt, system reset		
	Interval	Programmable, 1 ~ 255 sec.		
Miscellaneous	Audio Output	AC-97 audio interface (requires an audio extension module P/N: PCA-AUDIO-00A1E)		
Power Requirement	Typical	Pentium 4 3.0 GHz (800 MHz FSB), 4 x 512 MB DDR 400 SDRAM		
		+5 V -5 V +12 V -12 V 6.53 A 0.1 A 4.6 A 0.2 A		
Environment	Operating		Non-Operating	
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed	-20 ~ 70° C (-4 ~ 158 ° F)	
Physical Characteristics	Dimensions (W x D)	338 x 122 mm (13.3" x 4.8")		

Block Diagram



Ordering Information

Part Number	VGA	Fast Ethernet LAN	Gigabit LAN
PCA-6187VE-00A2E	Yes	Single	-
PCA-6187VG-00A2E	Yes	-	Single
PCA-6187G2-00A2E	Yes	-	Dual

Bracket View



PCA-6187VE-00A2E
PCA-6187VG-00A2E



PCA-6187G2-00A2E

Packing List

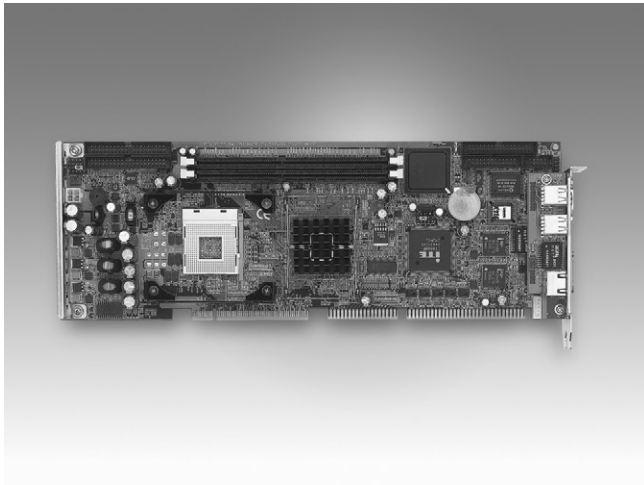
Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 2
1700003194	Serial ATA HDD data cable	x 2
1703150102	Serial ATA HDD power cable	x 2
170304015K	ATX 12 V power converter cable	x 1
1701260305	Printer + COM cable	x 1
1700060202	Y cable for PS/2 mouse & keyboard	x 1
9689000068	Jumper pack	x 1
-	Startup manual	x 1
-	Utility CD	x 1

Accessories

Part Number	Description
1700100170	USB cable with 2 ports
PCA-USB4-00A1E	USB extension module with 4 ports (only for VE, VG versions)
1750000242	CPU cooler for Pentium 4 processor up to 2.5 GHz (70 W), for 1U chassis
1750000257	CPU cooler for Pentium 4 processor up to 3.2 GHz (89 W), for 2U or higher chassis
2070000128	Embedded Windows XP Kit

PCA-6186-B

Socket 478 Pentium® 4/Celeron® D/Celeron Processor Card with VGA/Dual GbE LAN



Features

- Socket 478 Pentium® 4/Celeron® D/Celeron up to 3.06/3.06/2.8 GHz
- Supports Intel® Hyper-Threading technology
- Intel 845GV chipset 400/533 MHz FSB
- Onboard integrated VGA controller, shared memory architecture
- Supports dual 10/100Base-T Ethernet or dual 10/100/1000Base-T Ethernet
- Six USB 2.0 ports
- CMOS automatic backup and restore to prevent accidental data loss of BIOS setup



Specifications

Processor System	CPU	Intel Pentium 4	Intel Celeron D	Intel Celeron
	Max. Speed	3.06 GHz	3.06 GHz	2.8 GHz
	L2 Cache	256/512 KB	256 KB	128 KB
	Chipset	Intel 845 GV + ICH4		
	BIOS	Award™ 4 Mbit FWH		
	Front Side Bus	400/533 MHz		
Bus	PCI	32-bit/33 MHz		
	ISA	HISA (ISA high drive)		
Memory	Technology	DDR 200/266/333 SDRAM		
	Max. Capacity	2 GB		
	Socket	184-pin DIMM x 2		
Graphic	Controller	Chipset integrated VGA controller		
	VRAM	Dynamically shared system memory 8 – 64 MB		
Ethernet	Interface	10/100Base-T; 10/100/1000Base-T (optional)		
	Controller	LAN 1: Intel 82562 (FE); Intel 82541 (Gigabit); LAN 2: Intel 82551 (FE); Intel 82541 (Gigabit)		
	Connector	RJ-45 x 2		
EIDE	Mode	ATA 100/66/33		
	Channel	2 (Max. 4 devices)		
I/O Interface	USB	Max. 6 (USB 2.0 compliant), 4 ports onboard for E2, G2 versions		
	Serial	2 (RS-232)		
	Parallel	1 (SPP/EPP/ECP)		
	FDD	1		
	PS/2	1 (for LV, VE, VG, G2 versions), 2 (for E2 version)		
Watchdog Timer	Output	Interrupt, system reset		
	Interval	Programmable, 1 ~ 255 sec.		
Miscellaneous	Audio Output	AC-97 audio interface (requires an audio extension module P/N: PCA-AUDIO-00A1E)		
Power Requirement	Typical	Pentium 4 2.8 GHz 533 MHz, DDR 333 1 GB x 2		
		+5 V (3.23 A) -5 V (0.1 A)	+12 V (4.64 A)	-12 V (0.2 A)
Environment	Operating	0 ~ 60° C (32 ~ 140° F), depends on CPU's speed	Non-Operating	
			-20 ~ 70° C (-4 ~ 158° F)	
Physical Characteristics	Dimensions (W x D)	338 x 122 mm (13.3" x 4.8")		

Ordering Information

Part Number	VGA	Fast Ethernet LAN	Gigabit LAN
PCA-6186LV-00B2E	Yes	-	-
PCA-6186VE-00B2E	Yes	Single	-
PCA-6186E2-00B2E	Yes	Dual	-
PCA-6186VG-00B2E	Yes	-	Single
PCA-6186G2-00B2E	Yes	-	Dual

Bracket View



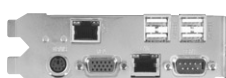
PCA-6186LV-00B2E



PCA-6186VE-00B2E
PCA-6186VG-00B2E



PCA-6186E2-00B2E



PCA-6186G2-00B2E

Packing List

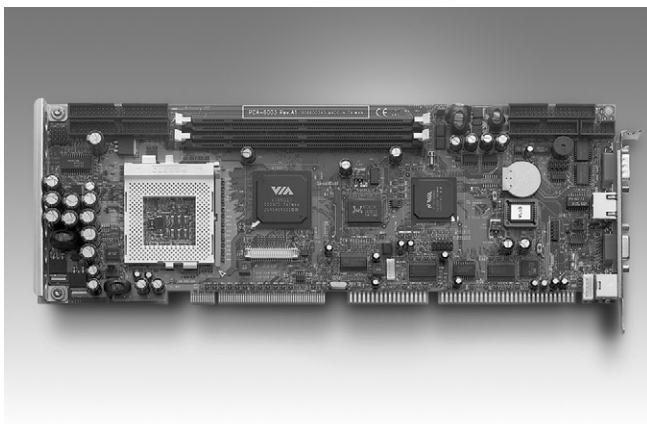
Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 2
1701260305	Printer + COM cable	x 1
1700060202	Y cable for PS/2 mouse & keyboard (LV, VE, VG, G2 versions only)	x 1
9689000068	Jumper pack	x 1
1962159010	Single slot bracket (E2, G2 versions only)	x 1
-	Startup manual	x 1
-	Utility CD	x 1
170304015K	ATX 12 V power converter cable	x 1

Accessories

Part Number	Description
1700100170	USB cable with 2 ports
PCA-USB4-00A1E	USB extension module with 4 ports
1750000242	CPU cooler for Pentium 4 processor up to 2.5 GHz (70 W)
1750000257	CPU cooler for Pentium 4 processor up to 3.2 GHz (89 W), for 2U or higher chassis
2070000127	Embedded Windows XP Kit

PCA-6003

Socket 370 Pentium® III/Celeron® Processor (Tualatin) Card with VGA/FE LAN/LCD



Specifications

Processor System	CPU	Intel® Pentium III	Intel Celeron
	Max. Speed	1.4 GHz	1.3 GHz
	L2 Cache	256/512 KB	128/256 KB
	Chipset	VIA Apollo PLE133T	
	BIOS	Award™ 2 Mbit Flash	
Bus	Front Side Bus	66/100/133 MHz	
	PCI	32-bit/33 MHz	
Memory	ISA	HISA (ISA high drive), only for PCA-6003H-00A2E	
	Technology	PC-133/100 SDRAM	
Graphic	Max. Capacity	1 GB	
	Socket	168-pin DIMM x 2	
Ethernet	Controller	Chipset integrated VGA controller	
	VRAM	Shared system memory up to 8 MB	
	LCD	Optional 18-bit TFT LCD support	
Ethernet	Interface	10/100Base-T	
	Controller	RTL8139C	
	Connector	RJ-45	
EIDE	Mode	ATA 100/66/33	
	Channel	2 (Max. 4 devices)	
I/O Interface	USB	Max. 2 (USB 1.1 compliant)	
	Serial	2 (RS-232)	
	Parallel	1 (SPP/EPP)	
	FDD	1	
	PS/2	1 (for mouse and keyboard, Y cable included)	
Watchdog Timer	Output	Interrupt, system reset	
	Interval	Programmable, 1 ~ 63 sec.	
Miscellaneous	Audio Output	AC-97 audio interface (requires an audio extension module P/N: PCA-AUDIO-00A1E)	
Power Requirement	Typical	Pentium III 1 GHz, 256 MB SDRAM	
		+5 V	+12 V
Environment		6.8 A	0.4 A
		Operating	Non-Operating
Physical Characteristics	Temperature	0 ~ 60° C (32 ~ 140° F)	-20 ~ 70° C (-4 ~ 158° F)
	Dimensions (W x D)	338 x 122 mm (13.3" x 4.8")	

Ordering Information

Part Number	HISA	VGA	LAN	LCD
PCA-6003V-00A2E	-	Yes	-	-
PCA-6003VE-00A2E	-	Yes	Yes	-
PCA-6003H-00A2E	Yes	Yes	Yes	Yes

Bracket View



PCA-6003V-00A2E



PCA-6003VE-00A2E
PCA-6003H-00A2E

Features

- Cost-effective Socket 370 SBC with full features
- Pentium® III up to 1.4 GHz, Celeron® up to 1.3 GHz
- VIA® Apollo PLE133T chipset, supports 66/100/133 MHz FSB
- Two DIMM sockets for SDRAM up to 1 GB
- Onboard AGP/VGA
- Onboard 10/100Base-T networking controller
- Optional ISA high drive (HISA)

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 2
1701260305	Printer + COM cable	x 1
1700060202	Y cable for PS/2 mouse & keyboard	x 1
9689000068	Jumper pack	x 1
-	Startup manual	x 1
-	Utility CD	x 1

Accessories

Part Number	Description
1700100170	USB cable with 2 ports
PCA-AUDIO-00A1E	Audio extension module
1759254100	CPU cooler for Pentium III processor up to 1.26 GHz, for 1U chassis
2070000140	Embedded Windows XP Kit

18
Industrial Motherboards

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Single Board Computers

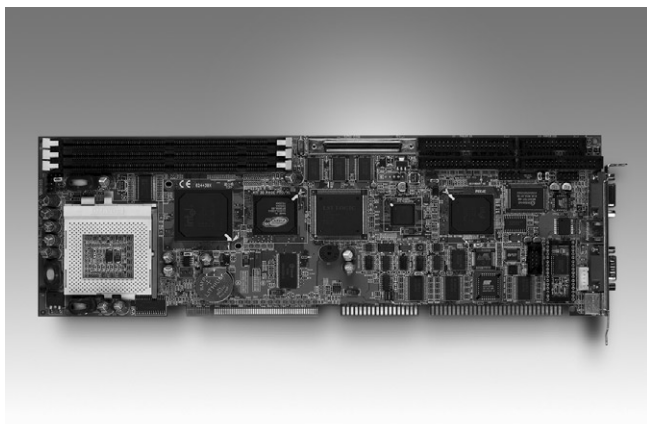
20
Industrial Computer Chassis

21
High Performance Computing

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Industrial PC Peripherals

PCA-6178-C

**Socket 370 Pentium® III/Celeron®
Processor Card with VGA/FE LAN/
SCSI**



Features

- Socket 370 Pentium® III/Celeron® up to 1.0 GHz/1.1 GHz
- Intel® 440BX chipset 66/100 FSB
- Onboard high performance AGP 2X VGA with 8 MB SDRAM
- Supports 10/100Base-T Ethernet
- CMOS automatic backup and restore to prevent accidental data loss of BIOS setup data

Specifications

Processor System	CPU	Intel Pentium III	Intel Celeron
	Max. Speed	1.0 GHz	1.1 GHz
	L2 Cache	256 KB	128 KB
	Chipset	Intel 440BX	
	BIOS	Award™ 2 Mbit Flash	
Bus	Front Side Bus	66/100 MHz	
	PCI	32-bit/33 MHz	
	ISA	HISA (ISA high drive)	
Memory	Technology	PC-100 SDRAM with ECC support	
	Max. Capacity	768 MB	
	Socket	168-pin DIMM x 3	
Graphic	Controller	ATI RAGE XL™ (AGP 2x)	
	VRAM	8 MB	
Ethernet	Interface	10/100Base-T	
	Controller	Intel 82551	
	Connector	RJ-45	
EIDE	Mode	ATA 33	
	Channel	2 (Max. 4 devices)	
I/O Interface	USB	Max. 2 (USB 1.1 compliant)	
	Serial	2 (RS-232)	
	Parallel	1 (SPP/EPP/ECP)	
	FDD	1	
	PS/2	1 (for mouse and keyboard, Y cable included)	
Watchdog Timer	Output	Interrupt, system reset	
	Interval	Programmable, 1 ~ 63 sec.	
Miscellaneous	Solid State Disk	M-systems DOC 2000 (144 MB)	
	Typical	Pentium III 700 MHz, 192 MB SDRAM	
Power Requirement	+5 V	+12 V	-12 V
	5.2 A	0.4 A	0.1 A
Environment	Operating		Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F)	-20 ~ 70° C (-4 ~ 158° F)
Physical Characteristics	Dimensions (W x D)	338 x 122 mm (13.3" x 4.8")	

Ordering Information

Part Number	VGA (AGP)	SCSI	LAN
PCA-6178L-00C1E	-	-	-
PCA-6178V-00C1E	Yes	-	-
PCA-6178VE-00C1E	Yes	-	Yes

Bracket View



PCA-6178L-00C1E

PCA-6178VE-00C1E

PCA-6178V-00C1E

Packing List

Part Number	Description	Quantity
1759212600	CPU fan	x 1
1700340640	FDD cable	x 1
1701400607	IDE HDD cable	x 2
1701260305	Printer + COM cable	x 1
1700000450	ATX-to-PS/2 power cable	x 1
1700060202	Y cable for PS/2 mouse & keyboard	x 1
9689000068	Jumper pack	x 1
-	Startup manual	x 1
-	Utility CD	x 1

Accessories

Part Number	Description
1700100170	USB cable with 2 ports

PCA-6002-B

Ultra Low Voltage Celeron® (Tualatin)
Processor Card with VGA/Dual FE LAN

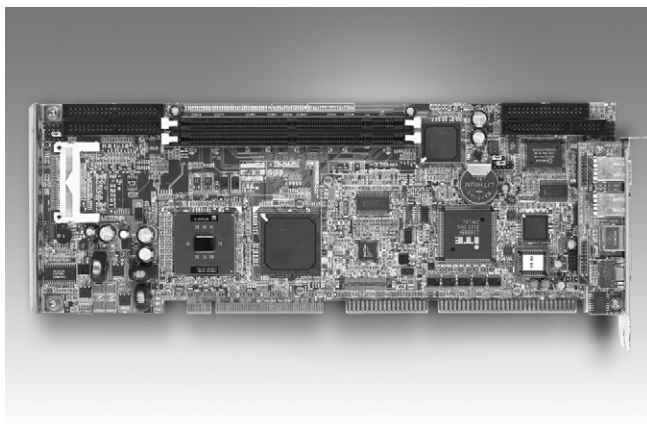
18
Industrial Motherboards

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Single Board Computers

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Industrial Computer Chassis

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Industrial PC Peripherals



Features

- Onboard Ultra Low Voltage Celeron® (Tualatin)
- Fanless operation
- Intel® 815E 100 MHz FSB
- Onboard integrated VGA controller, shared memory architecture
- Supports dual 10/100Base-T Ethernet, Intel 82551QM/82562ET controller
- CMOS automatic backup and restore to prevent accidental loss of BIOS setup data
- Supports Type I/II CompactFlash

Specifications

Processor System	CPU	Celeron (Tualatin)			
	Max. Speed	400/650 MHz			
	L2 Cache	256 KB			
	Chipset	Intel 815E + ICH2			
	BIOS	Award™ 4 Mbit FWH			
Bus	Front Side Bus	100 MHz			
	PCI	32-bit/33 MHz			
	ISA	HISA (ISA high drive)			
Memory	Technology	PC-133/100 SDRAM			
	Max. Capacity	512 MB			
	Socket	168-pin DIMM x 2			
Graphic	Controller	Chipset integrated VGA controller			
	VRAM	Dynamically shared system memory			
Ethernet	Interface	10/100Base-T			
	Controller	LAN 1: Chipset Built-in MAC with external PHY (Intel 82562ET) LAN 2: Intel 82551QM			
	Connector	RJ-45 x 2			
EIDE	Mode	ATA 100/66/33			
	Channel	2 (Max. 4 devices)			
I/O Interface	USB	Max. 4 (USB 1.1 compliant), 4 ports onboard for E2 version			
	Serial	2 (RS-232)			
	Parallel	1 (SPP/EPP/ECP)			
	FDD	1			
	PS/2	1 (for VE version), 2 (for E2 version)			
Watchdog Timer	Output	Interrupt, system reset			
	Interval	Programmable, 1 ~ 255 sec.			
Miscellaneous	Solid State Disk	Compact Flash socket (Type I/II)			
Power Requirement	Typical	Celeron 650 MHz, 256 MB SDRAM			
		+5 V	-5 V	+12 V	-12 V
		3.4 A	0.1 A	0.2 A	0.2 A
Environment	Operating	Non-Operating			
	Temperature	0 ~ 60° C (32 ~ 140° F) -20 ~ 70° C (-4 ~ 158° F)			
Physical Characteristics	Dimensions (W x D)	338 x 122 mm (13.3" x 4.8")			

Ordering Information

Part Number	Processor	VGA (AGP)	LAN
PCA-6002VE-00B1E	Celeron 400 MHz	Yes	Single
PCA-6002E2-00B1E	Celeron 400 MHz	Yes	Dual
PCA-6002VE-03B1E	Celeron 650 MHz	Yes	Single
PCA-6002E2-03B1E	Celeron 650 MHz	Yes	Dual

Bracket View



PCA-6002VE-00B1E
PCA-6002VE-03B1E



PCA-6002E2-00B1E
PCA-6002E2-03B1E

Packing List

Part Number	Description	Quantity
1700340640	FDD cable	x 1
1701400452	IDE HDD cable	x 2
1701260305	Printer + COM cable	x 1
1700060202	Y cable for PS/2 mouse & keyboard (only for VE version)	x 1
9689000068	Jumper pack	x 1
-	Startup manual	x 1
-	Utility CD	x 1

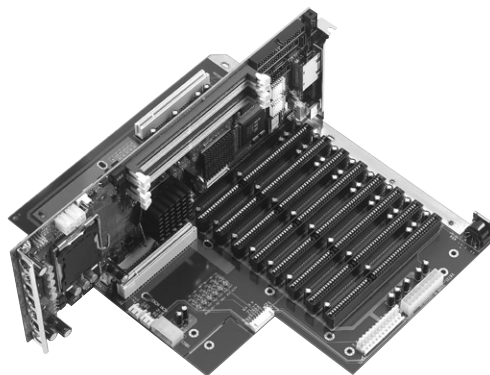
Accessories

Part Number	Description
1700100170	USB cable with 2 ports
PCA-USB4-00A1E	USB extension module with 4 ports (only for VE version)

PCI/ISA Backplanes

Features

- Follows PICMG PCI/ISA specifications
- Versatile options for PCI and ISA slot combinations
- Supports both AT and ATX power supplies



Selection Guide

Yes: supported / - : no supported / △ : optional

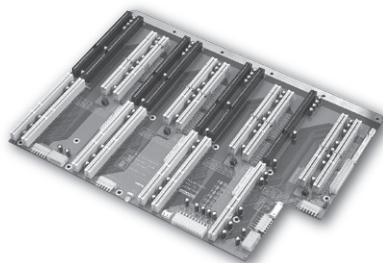
Category	Model Name	Slots per segment					Segment	AT	ATX	1U Chassis	2U Chassis		4U Chassis	
		ISA	PCI	PICMG	PICMG/PCI	ISA/PCI				ACP-1000	ACP-2000	IPC-602	ACP-4362	ACP-4320
										2-slot	6-slot	6-slot	15-slot	15-slot
1U butterfly BP	PCA-6103P2V-0A2E**	-	2	1	-	-	1	-	Yes	Yes	-	-	-	-
	PCA-6103P2VX-B3E**	-	2	1	-	-	1	-	Yes	Yes	-	-	-	-
	PCA-6105P4V-0B3E**	-	4	1	-	-	1	-	Yes	-	Yes	Yes	-	-
2U butterfly BP	PCA-6106P3V-0B2E**	1	3	2	-	-	1	Yes	Yes	-	Yes	Yes	-	-
	PCA-6106P3VX-0A2E**	1	3	2	-	-	1	-	Yes	-	Yes	Yes	-	-
	PCA-6106P4V-0A2E**	1	4	1	-	-	1	-	Yes	-	Yes	Yes	-	-
	PCA-6106P5V-0A2E**	-	5	1	-	-	1	-	Yes	-	Yes	Yes	-	-
	PCA-6106P4-0A2E	-	4	2	-	-	1	Yes	Yes	-	-	-	-	-
6/8 slot BP	PCA-6106P3-0D2E	2	2	1	1	-	1	Yes	Yes	-	-	-	-	-
	PCA-6106-0B2E	6	-	-	-	-	1	Yes	Yes	-	-	-	-	-
	PCA-6108P3X-0A2E	3	3	2	-	-	1	-	Yes	-	-	-	-	-
	PCA-6108E-0C2E	8	-	-	-	-	1	Yes	Yes	-	-	-	-	-
	PCA-6108P6-0B4E	1	5	1	1	-	1	Yes	Yes	-	-	-	-	-
	PCA-6108E-0C2E	3	3	1	1	-	1	Yes	Yes	-	-	-	-	-
	PCA-6108-0B2E	8	-	-	-	-	1	Yes	Yes	-	-	-	-	-
	PCA-6114P12X-0A2E	1	11	1	1	-	1	Yes	Yes	-	-	-	Yes	Yes
14/15 slot BP	PCA-6114P12-0B3E	1	11	1	1	-	1	Yes	Yes	-	-	-	Yes	Yes
	PCA-6114P10-0B2E	2	10	2	-	-	1	Yes	Yes	-	-	-	Yes	Yes
	PCA-6113P7XE	4	7	2	-	-	1	Yes	Yes	-	-	-	Yes	Yes
	PCA-6114P7-0D3E	4	6	3	-	1	1	Yes	Yes	-	-	-	Yes	Yes
	PCA-6114P4-0C2E	8	4	2	-	-	1	Yes	Yes	-	-	-	Yes	Yes
	PCA-6113P4R-0C2E	7	4	2	-	-	1	Yes	Yes	-	-	-	Yes	Yes
	PCA-6114-0B2E	14	-	-	-	-	1	Yes	Yes	-	-	-	Yes	Yes
	PCA-6115-0B2E	15	-	-	-	-	1	Yes	Yes	-	-	-	-	-
20 slot BP	PCA-6115QP2X-0A2E	-	2	2	-	-	4	Yes	Yes	-	-	-	-	-
	PCA-6119P16X-0A2E	1	16	2	-	-	1	Yes	△	-	-	-	-	-
	PCA-6119P17-0B2E	-	16	1	1	-	1	Yes	△	-	-	-	-	-
	PCA-6120P18-0A2E	1	17	1	1	-	1	Yes	△	-	-	-	-	-
	PCA-6116QP2-0B2E	-	2	2	-	-	4	Yes	△	-	-	-	-	-
	PCA-6120P4-0B2E	14	4	2	-	-	1	Yes	△	-	-	-	-	-
	PCA-6120P12-0A2E	7	11	1	1	-	1	Yes	△	-	-	-	-	-
	PCA-6119P7-0B3E	10	7	2	-	-	1	Yes	△	-	-	-	-	-
	PCA-6120DP4-0B2E	3	3	2	1	-	2	Yes	△	-	-	-	-	-
	PCA-6120Q-0B2E	5	-	-	-	-	4	Yes	△	-	-	-	-	-
Pure PCI/ISA BP	PCA-6105P5-0B2E*	-	5	-	-	-	1	Yes	Yes	-	-	-	-	-
	PCA-6104P4-0B2E*	-	4	-	-	-	1	Yes	Yes	-	-	-	-	-
	PCA-6104-0C2E	4	-	-	-	-	1	Yes	Yes	-	-	-	-	-

Remark

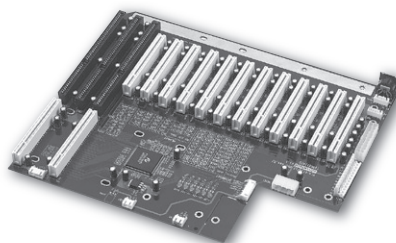
1. *: only compatible with half-size SBCs

2. **: only sold with Advantech's 1U/2U chassis

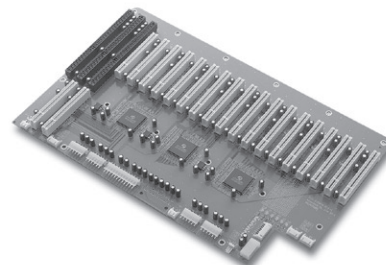
3. IPC-622, IPC-623, ACP-7000 provides for reset buttons and four KB connectors. For more information regarding chassis, please refer to chapter 4.



PCA-6115QP2X-0A2E



PCA-6114P12-0B3E



PCA-6120P18-0A2E

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PCI/ISA Backplanes

1U Butterfly Backplanes



Compatible with IPC Chassis: ACP-1000 (Only Sold with Advantech's 1U Chassis)

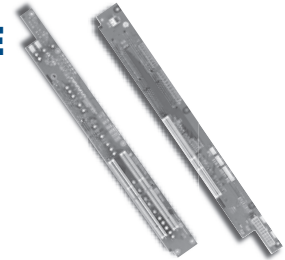
PCA-6103P2V-0A2E

- Segment: 1
- Slots: 2 PCI, 1 CPU
- PCI bus: 32-bit/33 MHz
- Size: 40 x 400 mm (1.57" x 15.75")
- Ordering Information: 969K610301E



PCA-6103P2VX-B2E

- Segment: 1
- Slots: 2 PCI, 1 CPU
- PCI bus: 64-bit/66 MHz
- Size: 40 x 400 mm (1.57" x 15.75")
- Ordering Information: 9692610334E



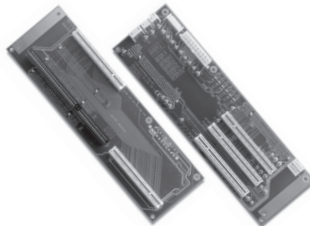
2U Butterfly Backplanes



Compatible with IPC Chassis: ACP-2000 / IPC-602 (Only Sold with Advantech's 2U Chassis)

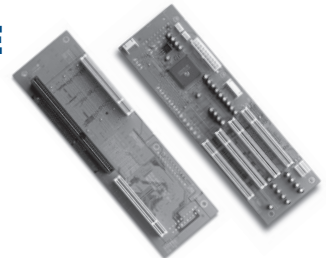
PCA-6105P4V-0B3E

- Segment: 1
- Slots: 4 PCI, 1 PICMG
- PCI bus: 32-bit/33 MHz
- Size: 80 x 260 mm (3.15" x 10.23")
- Ordering Information: 969K610510E



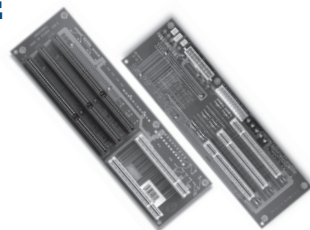
PCA-6106P5V-0A2E

- Segment: 1
- Slots: 5 PCI, 1 PICMG
- PCI bus: 32-bit/33 MHz
- Size: 80 x 260 mm (3.15" x 10.23")
- PCI bridge: Pericom PI7C8150MA
- Ordering Information: 969K610600E



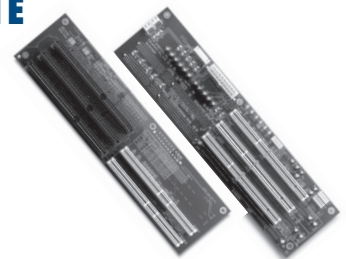
PCA-6106P3V-0B2E

- Segment: 1
- Slots: 1 ISA, 3 PCI, 2 PICMG
- PCI bus: 32-bit/33 MHz
- Size: 80 x 260 mm (3.15" x 10.23")
- Ordering Information: 969K610621E



PCA-6106P3VX-A1E

- Segment: 1
- Slots: 1 ISA, 3 PCI, 2 PICMG
- PCI bus: 64-bit/66 MHz
- Size: 80 x 303 mm (3.15" x 11.93")
- Ordering Information: 9692610691E

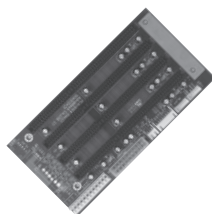


4-slot ISA Backplanes



PCA-6104-0C2E

- Segments: 1
- Slots: 4 ISA
- Size: 94.7 x 186 mm (3.7" x 7.3")
- Ordering Information: PCA-6104-0C2E



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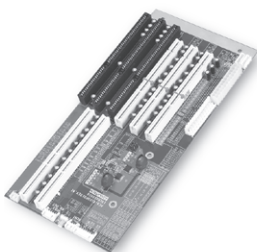
6-slot PCI/ISA Backplanes



Compatible with IPC Chassis: IPC-6806/IPC-6606/IPC-6006

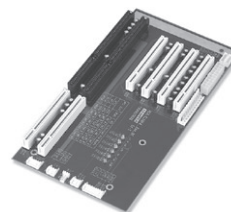
PCA-6105P3X-0A2E

- Segments: 1
- Slots: 1 ISA, 2 PCI, 1 PICMG, 1 PICMG/PCI
- Size: 142.17 x 300 mm (5.59" x 11.81")
- Ordering information: PCA-6105P3X-0A2E



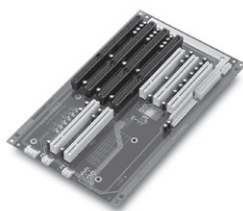
PCA-6106P4-0A2E

- Segments: 1
- Slots: 4 PCI, 2 PICMG
- Size: 142 x 270 mm (5.59" x 10.63")
- Ordering Information: PCA-6106P4-0A2E



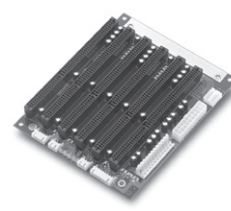
PCA-6106P3-0D2E

- Segments: 1
- Slots: 2 ISA, 2 PCI, 1 PICMG/PCI, 1 PICMG
- Size: 142 x 270 mm (5.59" x 10.63")
- Ordering Information: PCA-6106P3-0D2E



PCA-6106-0B2E

- Segments: 1
- Slots: 6 ISA
- Size: 142 x 175 mm (5.59" x 6.89")
- Ordering Information: PCA-6106-0B2E



PCI/ISA Backplanes

8-slot PCI/ISA Backplanes



Compatible with IPC Chassis: IPC-6908/IPC-6608

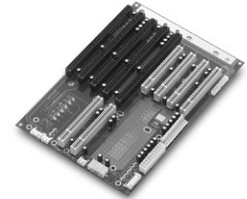
PCA-6108P3X-0A2E

- Segments: 1
- Slots: 3 ISA, 3 PCI (64-bit/66MHz), 2 PICMG
- Size: 180 x 305 mm (7.09" x 12")
- Ordering Information: PCA-6108P3X-0A2E



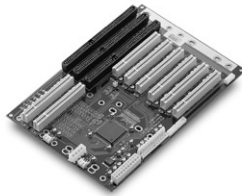
PCA-6108P4-0C2E

- Segments: 1
- Slots: 3 ISA, 3 PCI, 1 PICMG/PCI, 1 PICMG
- Size: 180 x 260 mm (7.09" x 10.24")
- Ordering Information: PCA-6108P4-0C2E



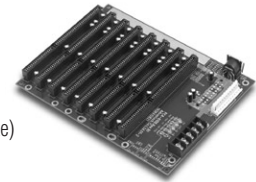
PCA-6108P6-0B4E

- Segments: 1
- Slots: 1 ISA, 5 PCI, 1 PICMG/PCI, 1 PICMG
- Size: 180 x 260 mm (7.09" x 10.24")
- PCI bridge: Intel 21152
- Primary PCI: 3 slots; Secondary PCI: 3 slots
- Ordering Information: PCA-6108P6-0B4E



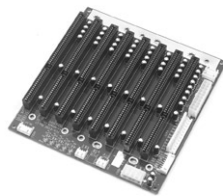
PCA-6108-0B2E

- Segments: 1
- Slots: 8 ISA
- Size: 222 x 171 mm (8.74" x 6.73")
- Only for commercial PC chassis (baby AT size)
- Ordering Information: PCA-6108-0B2E



PCA-6108E-0C2E

- Segments: 1
- Slots: 8 ISA
- Size: 180 x 190 mm (7.09" x 7.48")
- Ordering Information: PCA-6108E-0C2E



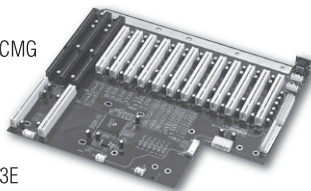
14-slot PCI/ISA Backplanes



Compatible with IPC Chassis: ACP-4000, ACP-4320, ACP-4362, IPC-610, IPC-611, IPC-615 and IPC-630

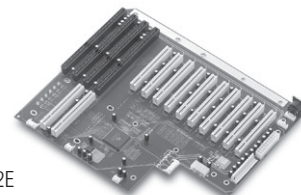
PCA-6114P12-0B3E

- Segments: 1
- Slots: 1 ISA, 11 PCI, 1 PICMG/PCI, 1 PICMG
- Size: 315 x 300 mm (12.4" x 11.8")
- PCI bridge: Pericom PI7C8150MA
- Primary PCI: 3 slots; Secondary PCI: 9 slots
- Ordering Information: PCA-6114P12-0B3E



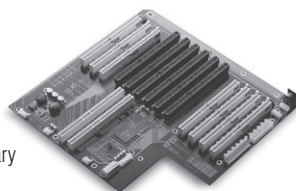
PCA-6114P10-0B2E

- Segments: 1
- Slots: 2 ISA, 10 PCI, 2 PICMG
- Size: 315 x 260 mm (12.4" x 10.24")
- PCI bridge: Pericom PI7C8150MA
- Primary PCI: 3 slots; Secondary PCI: 7 slots
- Ordering Information: PCA-6114P10-0B2E



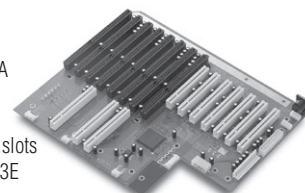
PCA-6113P7XE

- Segments: 1
- Slots: 4 ISA, 7 PCI, 2 PICMG
- Size: 315 x 300 mm (12.4" x 11.8")
- PCI bridge: Intel 21154
- Primary (64-bit/66 MHz): 3 slots; Secondary (64-bit/66 MHz): 4 slots
- Jumper selectable 1: V/I/O 3.3 V or 5 V
- Jumper selectable 2: PCI bus 33 MHz or PCI bus 66 MHz
- Chassis: IPC-616, IPC-615, IPC-611, IPC-610, ACP-4000
- Ordering Information: PCA-6113P7XE



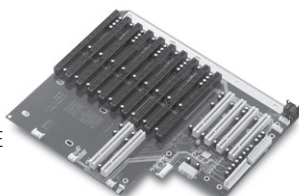
PCA-6114P7-0D3E

- Segments: 1
- Slots: 4 ISA, 6 PCI, 3 PICMG, 1 PCI/ISA
- Size: 315 x 260 mm (12.4" x 10.24")
- PCI bridge: Intel 21152
- Primary PCI: 3 slots; Secondary PCI: 4 slots
- Ordering Information: PCA-6114P7-0D3E



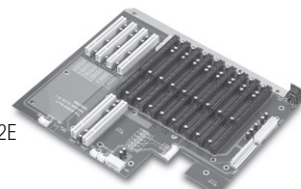
PCA-6114P4-0C2E

- Segments: 1
- Slots: 8 ISA, 4 PCI, 2 PICMG
- Size: 315 x 260 mm (12.4" x 10.24")
- Ordering Information: PCA-6114P4-0C2E



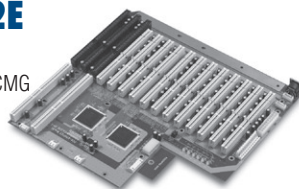
PCA-6113P4R-0C2E

- Segments: 1
- Slots: 7 ISA, 4 PCI, 2 PICMG
- Size: 315 x 260 mm (12.4" x 10.24")
- Ordering Information: PCA-6113P4R-0C2E



PCA-6114P12X-0A2E

- Segments: 1
- Slots: 1 ISA, 11 PCI, 1 PICMG/PCI, 1 PICMG
- Size: 315 x 260 mm (12.4" x 10.24")
- PCI bridge: Intel 21154
- Secondary (64-bit/66 MHz): 4 slots
- Secondary (64-bit/33 MHz): 8 slots
- Ordering Information: PCA-6114P12X-0A2E



PCA-6114-0B2E

- Segments: 1
- Slots: 14 ISA
- Size: 315 x 175 mm (12.4" x 6.89")
- Ordering Information: PCA-6114-0B2E



PCA-6115-0B2E

- Segments: 1
- Slots: 15 ISA
- Size: 326 x 190 mm (12.83" x 7.48")
- Only Compatible with IPC-615
- Ordering Information: PCA-6115-0B2E



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PCI/ISA Backplanes

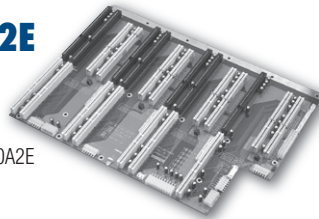
20-slot PCI/ISA Backplanes



Compatible with IPC Chassis : IPC-623, IPC-622, ACP-7000, ACP-5260

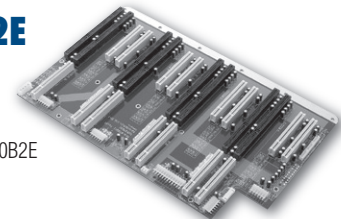
PCA-6115QP2X-0A2E

- Segments: 4
- Slots: 8 PCI, 7 PICMG
- Size: 417 x 300 mm (16.42" x 11.81")
- Ordering Information: PCA-6115QP2X-0A2E



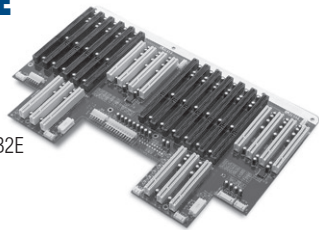
PCA-6116QP2-0B2E

- Segments: 4
- Slots: 1 ISA, 8 PCI, 7 PICMG
- Size: 417 x 260 mm (16.42" x 10.24")
- Ordering Information: PCA-6116QP2-0B2E



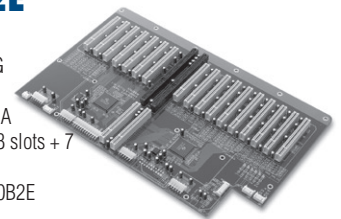
PCA-6120DP4-0B2E

- Segments: 2
- Slots: 7 ISA, 6 PCI, 2 PICMG/PCI, 4 PICMG
- Size: 420 x 260 mm (16.42" x 10.24")
- Ordering Information: PCA-6120DP4-0B2E



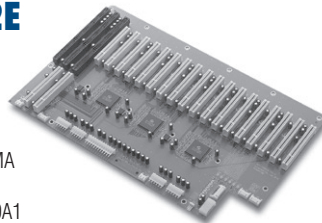
PCA-6119P17-0B2E

- Segments: 1
- Slots: 16 PCI, 1 PICMG/PCI, 1 PICMG
- Size: 417 x 260 mm (16.42" x 10.24")
- PCI bridge: Dual Pericom PI7C8150MA
- Primary PCI: 2 slots; Secondary PCI: 8 slots + 7 slots
- Ordering Information: PCA-6119P17-0B2E



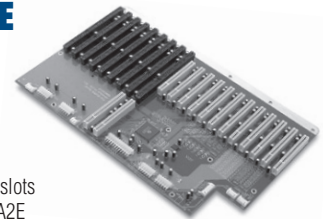
PCA-6120P18-0A2E

- Segments: 1
- Slots: 1 ISA, 17 PCI, 1 PICMG/PCI, 1 PICMG
- Size: 417 x 260 mm (16.42" x 10.24")
- PCI bridge: Three Pericom PI7C8150MA
- Secondary: 6 slot/6 slot/6 slot
- Ordering Information: PCA-6120P18-0A1



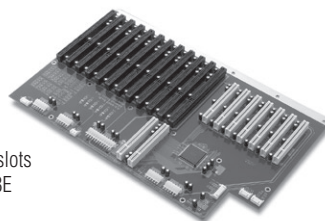
PCA-6120P12-0A2E

- Segments: 1
- Slots: 7 ISA, 11 PCI, 1 PICMG/PCI, 1 PICMG
- Size: 417 x 260 mm (16.42" x 10.24")
- PCI bridge: Pericom PI7C8150MA
- Primary PCI: 3 slots; Secondary PCI: 9 slots
- Ordering Information: PCA-6120P12-0A2E



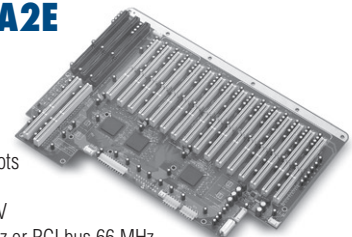
PCA-6119P7-0B3E

- Segments: 1
- Slots: 10 ISA, 7 PCI, 2 PICMG/PCI
- Size: 417 x 260 mm (16.42" x 10.24")
- PCI bridge: Intel 21152
- Primary PCI: 3 slots; Secondary PCI: 4 slots
- Ordering Information: PCA-6119P7-0B3E



PCA-6119P16X-0A2E

- Segments: 1
- Slots: 1 ISA, 16 PCI, 2 PICMG
- Size: 417 x 300 mm (16.4" x 11.8")
- PCI bridge: Three Intel 21154
- Secondary (64-bit/66 MHz): 4 + 3 slots
- Secondary (64-bit/33 MHz): 9 slots
- Jumper selectable 1: V/I/O 3.3 V or 5V
- Jumper selectable 2: PCI bus 33 MHz or PCI bus 66 MHz
- Chassis: IPC-623, IPC-622, ACP-7000, ACP-5260
- Ordering Information: PCA-6119P16X-0A2E



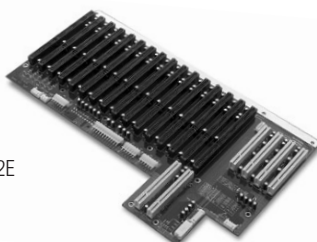
20-slot PCI/ISA Backplanes



Compatible with IPC Chassis: IPC-623, IPC-622, ACP-7000, ACP-5260

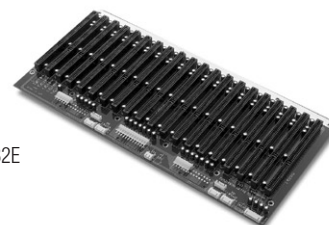
PCA-6120P4-0B2E

- Segments: 1
- Slots: 14 ISA, 4 PCI, 2 PICMG
- Size: 417 x 260 mm (16.42" x 10.24")
- Ordering Information: PCA-6120P4-0B2E



PCA-6120D-0B2E

- Segments: 2
- Slots: 10-10 ISA
- Size: 417 x 200 mm (16.42" x 7.87")
- Ordering Information: PCA-6120D-0B2E



PCA-6120Q-0B2E

- Segments: 4
- Slots: 5-5-5-5 ISA
- Size: 417 x 200 mm (16.42" x 7.87")
- Ordering Information: PCA-6120Q-0B2E



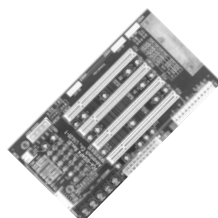
Pure PCI Backplanes



Only Compatible with Half-sized CPU Cards

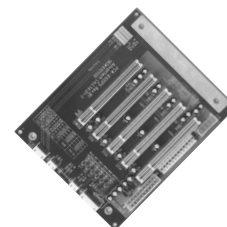
PCA-6104P4-0B2E

- Segments: 1
- Slots: 4 PCI
- Size: 110 x 180 mm (4.3" x 7")
- Chassis: IPC-644
- Ordering Information: PCA-6104P4-0B2E



PCA-6105P5-0B2E

- Segments: 1
- Slots: 5 PCI
- Size: 143 x 155 mm (5.6" x 6")
- Chassis: IPC-6806, IPC-6606, IPC-6006
- Ordering Information: PCA-6105P5-0B2E



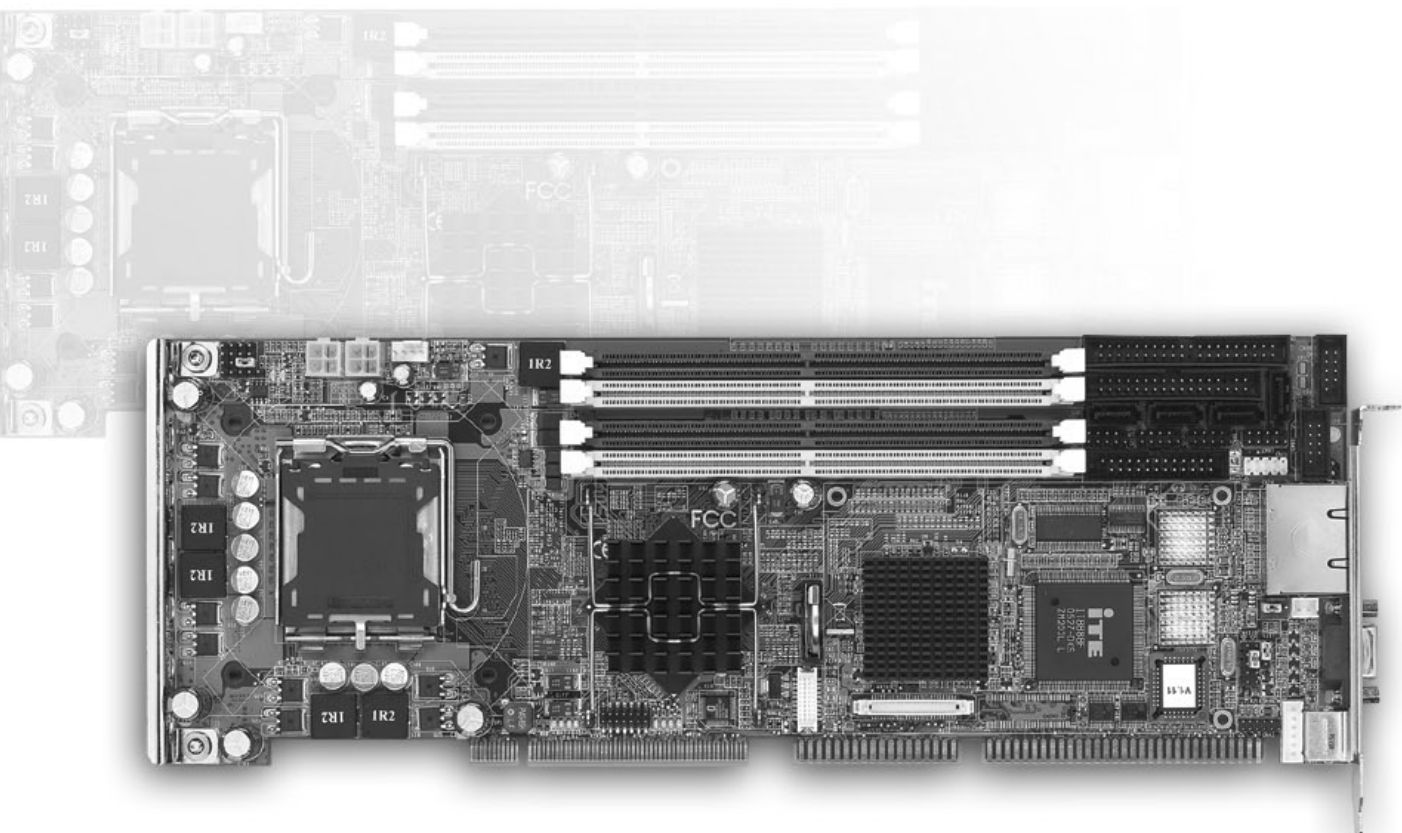
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ACP-1000MB	1U 1-slot Rackmount Chassis for ATX/MicroATX Motherboard	20-8
ACP-2010MB/2000MB	2U Rackmount Chassis for ATX/MicroATX Motherboard with Low-profile Rear Bracket Option	20-10
ACP-2320MB	2U 3-slot Rackmount Chassis for ATX Motherboard with Dual SATA HDD Trays	20-12
ACP-2000/IPC-602	2U 6-slot Rackmount Chassis with Front USB and PS/2 Interfaces	20-14
IPC-603MB	2U 3-slot Rackmount Chassis for ATX/MicroATX Motherboard with Front I/O	20-16
ACP-4362/4360	4U Rackmount Chassis with 6 Hot-swap SATA Trays for RAID	20-18
ACP-4010	4U 15-slot Rackmount Chassis with Dual System Support	20-20
ACP-4320	4U Rackmount Chassis with Front-accessible SATA HDD Trays for Easy Maintenance	20-22
ACP-4000	4U Rackmount Chassis with Visible & Audible Alarm Notification	20-24
IPC-630	4U Rackmount Chassis for General Purpose Industrial Applications	20-26
IPC-610-F	4U 14-slot Rackmount Chassis with ATX Motherboard Option	20-28
IPC-610-H/L	4U 14-slot Rackmount Chassis with Front-accessible USB/PS2 Connectors	20-30
IPC-611	4U 14-slot Rackmount Chassis with Front-accessible Fan	20-32
IPC-510	4U Rackmount Chassis with Front USB and PS/2 Interfaces	20-34
IPC-623	4U 20-slot Rackmount Chassis with Multi-system and Front-accessible Redundant Power Supply	20-36
ACP-5260	5U 20-slot Rackmount Chassis with 6 Hot-swap Ultra320 SCSI SCA HDD Trays and Redundant Power Supply	20-38
IPC-622	6U 20-slot Rackmount Chassis Supporting Quad-system and Redundant Power Supply	20-40
ACP-7000	7U 20-slot Rackmount Chassis with 6 Hot-swap Ultra320 SCSI SCA HDD Bays and RPS	20-42
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IPC-7120	Compact Desktop/Wallmount Chassis with Front I/O Interfaces & Expansion Slots for ATX Motherboard	20-46
IPC-7143	Desktop/Wallmount Chassis for ATX Motherboard with 2 SATA HDD Trays & Bottom-accessible I/O	20-48
IPC-7220	Desktop/Wallmount Chassis for ATX Motherboard	20-50
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IPC-6606/6608	8/6-slot Desktop/Wallmount Chassis with PS/2 Power Supply	20-54
IPC-6806	6-slot Desktop/Wallmount Chassis with 1U Power Supply	20-56
IPC-644	4-slot Ultra-compact Wallmount/Desktop Chassis with 150 W ATX Power Supply	20-58
IPC-6006	6-slot Card Cage	20-60



Industrial Computer Chassis



ACP-1000



ACP-2010MB/2000MB



ACP-2320MB



ACP-2000/
IPC-602



IPC-603MB

Selection Guide

Height (1U = 1.75")		1U	2U	2U	2U	2U
Model		ACP-1000	ACP-2010MB/ ACP-2000MB	ACP-2320MB	ACP-2000/IPC-602	IPC-603MB
Form Factor Support		PICMG 1.0 ATX/MicroATX	ATX/MicroATX	ATX/MicroATX	PICMG 1.0/1.3 ATX/MicroATX	ATX/MicroATX
Drive Bay	Slim CD-ROM	1	-	1	1/-	1
	3.5"	Front	1	2 (SATA)	2/1	-
		Internal	1	2	-/1	1
	5.25"	-	1	-	-/1	-
Front I/O	USB	Yes	Yes	Yes	Yes	Yes (on motherboard)
	PS/2	Yes	Yes	Yes	Yes	Yes (on motherboard)
Cooling	No. of Fans	4	2	3	2	2
	CFM	10	47	2 x 47 1 x 28	47/40	47
Power	AC	200 W ATX/PFC	300 W ATX/PFC 400 W ATX/PFC (ACP-2010MB)	300 W ATX/PFC 400 W ATX/PFC	250 W ATX/PFC (IPC-602) 300 W ATX/PFC 400 W ATX/PFC (IPC-602)	300 W ATX/PFC
	AC Redundant	-	-	-	300 W 1+1 (ACP-2000)	-
	DC	180W ATX (ACP-1000BP)	-	-	300 W ATX	-
No. of Slots / No. of Full-sized Cards		3/3	3/3	3/3	6/6	3/0
Passive Backplane Options	PICMG 1.0	refer to Chapter 3				
	PICMG 1.3	refer to Chapter 3				
System Fault Detection		Yes (MB version)	Yes	Yes	Yes/-	-
Dimensions (W x H x D)	mm	BP: 480 x 44 x 497 MB: 480 x 44 x 450	482 x 88 x 480 (ACP-2010MB) 482 x 88 x 450 (ACP-2000MB)	482 x 88 x 480	482 x 88 x 450	482 x 88 x 310
	inch	BP: 19 x 1.7 x 19.6 MB: 19 x 1.7 x 17.7	19 x 3.5 x 18.9 (ACP-2010MB) 19 x 3.5 x 17.7 (ACP-2000MB)	19 x 3.5 x 18.9	19 x 3.5 x 17.7	19 x 3.5 x 12.2
Weight	kg	8.8/8.0	13.0/12.5	13.5	13.5/13	8
	lb	19.4/17.6	28.6/27.5	29.7	29.7/28.6	17.6
Reference Page		20-6/20-8	20-10	20-12	20-14	20-16



ACP-4362/4360



ACP-4010



ACP-4320



ACP-4000



IPC-630



IPC-610-F



IPC-610-H/L



IPC-611

4U	4U	4U	4U	4U	4U	4U	4U
ACP-4362	ACP-4010	ACP-4320	ACP-4000	IPC-630	IPC-610-F	IPC-610-H/IPC-610L	IPC-611
PICMG 1.0/1.3 ATX/MicroATX	PICMG 1.0/1.3 ATX/MicroATX	PICMG 1.0/1.3 ATX/MicroATX	PICMG 1.0/1.3 ATX/MicroATX	PICMG 1.0/1.3 ATX/MicroATX	PICMG 1.0/1.3 ATX/MicroATX	PICMG 1.0/1.3 ATX/MicroATX	PICMG 1.0/1.3 ATX/MicroATX
1	-	-	-	-	-	-	-
6 (SATA) + 1	1	2 (SATA) + 1	1	1	1	1	1
-	1	-	-	1	1	-	-
-	2	2	3	3	3	3	3
Yes	Yes	Yes	Yes	Yes	-	Yes/-	-
-	-	-	Yes	-	-	Yes/-	-
3	2	2	2	1	1	2/1	1
1 x 114 2 x 47	85	1 x 114 1 x 28	85	114	85	85	85
400 W ATX/PFC 500 W ATX/PFC	300 W ATX/PFC 400 W ATX/PFC	300 W ATX/PFC 400 W ATX/PFC	300 W ATX/PFC 400 W ATX/PFC	300 W ATX/PFC 400 W ATX/PFC	300 W ATX/PFC 400 W ATX/PFC	250W ATX/PFC 300 W ATX/PFC 400 W ATX/PFC (IPC-610-H)	250 W ATX/PFC 300 W ATX/PFC
400 W 1+1	300 W 1+1 400 W 1+1	300 W 1+1 400 W 1+1	300 W 1+1 400 W 1+1	300 W 1+1 400 W 1+1	300 W 1+1	300 W 1+1 (IPC-610-H)	-
-	-	300 W ATX	300 W ATX	300 W ATX	300 W ATX	300 W ATX (IPC-610-H)	-
15/9	15/15	15/10	14/11	15/10	14/10	14/11	14/11
refer to Chapter 3							
refer to Chapter 3							
Yes	Yes	Yes	Yes	Yes	-	-	-
482 x 177 x 478	482 x 177 x 480	482 x 177 x 478	482 x 177 x 478	BP:482 x 177 x 447 MB:482 x 177 x 497	482 x 177 x 452	482 x 177 x 478	482 x 177 x 478
19 x 7 x 18.8	19 x 7 x 18.9	19 x 7 x 18.8	19 x 7 x 18.8	BP:19 x 7 x 17.6 MB:19 x 7 x 17.6	19 x 7 x 17.8	19 x 7 x 18.8	19 x 7 x 18.8
19	18.5	18	18	18	18	17/16.5	16.5
41.8	40.7	39.6	39.6	39.6	39.6	37.4/36.3	36.3
20-18	20-20	20-22	20-24	20-26	20-28	20-30	20-32

Industrial Computer Chassis



Selection Guide

Height (1U = 1.75")		4U	4U	5U	6U	7U	-	-
Model		IPC-510	IPC-623	ACP-5260	IPC-622	ACP-7000	IPC-5120	IPC-7120
Form Factor Support		PICMG 1.0/1.3 ATX/microATX	PICMG 1.0/1.3	PICMG 1.0/1.3 ATX/microATX	PICMG 1.0	PICMG 1.0/1.3 ATX/microATX	microATX	ATX/microATX
Drive Bay	Slim CD-ROM		-	-	1	-	1	-
	3.5"	Front	1	1	6 (SCSI) + 1	-	6 (SCSI) + 1	1
		Internal	1	1	-	2	-	1
	5.25"		3	3	1	4	2	1
Front I/O	USB		Yes	-	Yes	Yes	Yes	Yes
	PS/2		Yes	-	Yes	-	Yes	Yes
Cooling	No. of Fans		1	3	7	4	6	2
	CFM		85	114	2 x 47 3 x 114 2 x 25	53	4 x 58 2 x 47	1 x 85 1 x 10
Power	AC		250 W ATX/PFC 300 W ATX/PFC	400 W ATX/PFC 500 W ATX/PFC	-	400 W ATX/PFC 500 W ATX/PFC	-	300 W ATX/PFC
	AC Redundant		-	460 W 1+1 570 W 2+1 810 W 3+1	460 W 1+1 570 W 2+1 810 W 3+1	460 W 1+1	460 W 1+1 570 W 2+1 810 W 3+1	-
	DC		-	-	-	-	-	-
No. of Slots / No. of Full-sized Cards		14/8	20/20	20/20	20/20	20/20	4/0	7/0
Passive Backplane Options	PICMG 1.0		refer to Chapter 3					
	PICMG 1.3		refer to Chapter 3					
System Fault Detection		-	Yes	Yes	Yes	Yes	-	-
Dimensions (W x H x D)	mm		482 x 177 x 450	482 x 177 x 657	482 x 222 x 660	482 x 266 x 463	482 x 307 x 500	320 x 164 x 307
	inch		19 x 7 x 17.7	19 x 7 x 25.9	19 x 8.75 x 26	19 x 10.5 x 18	19 x 12.1 x 19.7	12.6 x 6.5 x 12.1
Weight	kg		12.5	26	30	30	35	8
	lb		27.5	57	66	66	77	17.6
Reference Page		20-34	20-36	20-38	20-40	20-42	20-44	20-46



IPC-7143



IPC-7220



IPC-6908



IPC-6608/6606



IPC-6806



IPC-644



IPC-6006

-	-	-	-	-	-	-
IPC-7143	IPC-7220	IPC-6908	IPC-6608/6606	IPC-6806	IPC-644	IPC-6006
ATX/microATX	ATX/microATX	PICMG 1.0/1.3	PICMG 1.0/1.3	PICMG 1.0	PICMG 1.0/1.3	PICMG 1.0
1	-	-	-	-	-	-
2 (SATA) + 2	1	1	1	1	1	-
-	1	1	-	1	1	-
-	2	2	2 (IPC-6608) 1 (IPC-6606)	1 (IPC-6806W) 0 (IPC-6806/6806S)	-	-
Yes	Yes	-	-	Yes (IPC-6806W/6806S)	-	-
Yes	Yes	-	-	-	-	-
2	1	2	1	1	2	-
1 x 85 1 x 47	85	53	85 (IPC-6608) 53 (IPC-6606)	58 (IPC-6806W) 53 (IPC-6806/6806S)	1 x 53 1 x 14	-
300 W ATX/PFC 400 W ATX/PFC	300 W ATX/PFC 400 W ATX/PFC	250 W ATX/PFC 300 W ATX/PFC 400 W ATX/PFC	250 W ATX/PFC 300 W ATX/PFC	150 W (IPC-6806S) 200 W (IPC-6806) 300 W (IPC-6806W)	150 W ATX/PFC	-
300 W 1+1 400 W 1+1	300 W 1+1 400 W 1+1	300 W 1+1	-	-	-	-
300 W ATX	300 W ATX	300 W ATX	-	-	-	-
7/7	7/7	8/8	8/8 (IPC-6608) 6/6 (IPC-6606)	6/0 (IPC-6806S) 6/6 (IPC-6806/6806W)	4/0	6/6 (IPC-6006/6006P) 6/0 (IPC-6006S)
refer to Chapter 3						
refer to Chapter 3						
Yes	Yes	Yes	-	-	-	-
320 x 450 x 200	200 x 320 x 480	200 x 300 x 463	173 x 315 x 410 (IPC-6608) 173 x 254 x 396 (IPC-6606)	191 x 170 x 285 (IPC-6806S) 166 x 170 x 393 (IPC-6806) 198 x 213 x 393 (IPC-6806W)	135 x 209 x 305	158 x 186 x 368 (IPC-6006/6006P) 158 x 186 x 215 (IPC-6006S)
12.6 x 17.7 x 7.9	7.9 x 12.6 x 18.9	7.9 x 11.8 x 18.2	6.8 x 12.4 x 16.1	7.7 x 6.7 x 11.2 (IPC-6806S) 6.5 x 6.7 x 15.4 (IPC-6806) 7.8 x 8.4 x 15.4 (IPC-6806W)	5.3 x 8.2 x 12	6.2 x 7.3 x 14.5 (IPC-6006/6006P) 6.2 x 7.3 x 8.4 (IPC-6006S)
14	14	13	11 (IPC-6608) 9 (IPC-6606)	6 ~ 8	5	2.2 (IPC-6006/6006P) 1.6 (IPC-6006S)
30.8	30.8	28.6	24.2 (IPC-6608) 19.8 (IPC-6606)	13.2 ~ 17.6	11.4	4.8 (IPC-6006/6006P) 3.5 (IPC-6006S)
20-48	20-50	20-52	20-54	20-56	20-58	20-60

ACP-1000

1U Rackmount Chassis with Dual 64/32-bit PCI Slots



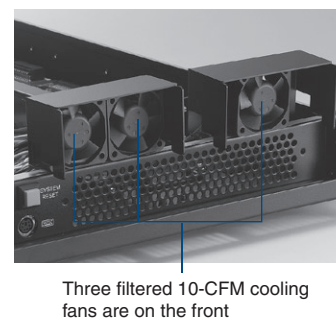
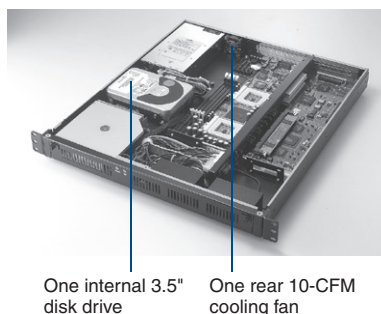
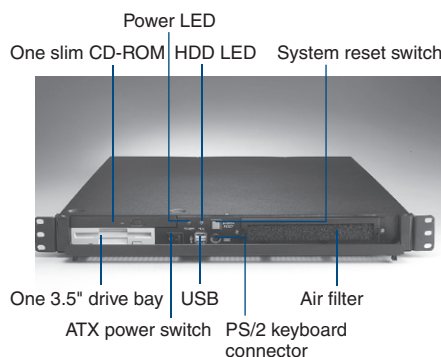
Features

- Easy-to-install disk drive bay to hold a slim CD-ROM and 3.5" disk drive
- Front-accessible USB and PS/2 ports for easy data transfer
- Reserved 9-pin D-Sub opening at rear for external COM or LAN connection
- Supports up to two 64-bit full-length PCI cards
- Four cooling fans designed for optimizing the system's airflow



Specifications

		Front-accessible	Internal
Drive Bay	Slim CD-ROM	1	-
	3.5"	1	1
Cooling		Front-accessible	Rear Panel
	Fan	3 (10 CFM each)	1 (10 CFM)
	Air Filter	Yes	-
I/O Interface	USB	2 (front-accessible)	
	PS/2	PS/2 keyboard & mouse, or PS/2 keyboard only, depending on the enclosed CPU board	
Miscellaneous	Rear Panel	Reserved one 9-pin D-Sub opening	
	Slide Rails	General Devices (http://www.generaldevices.com/) C-300 series supported (not included)	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical Characteristics	Dimensions (W x H x D)	480 x 44 x 497 mm (18.9" x 1.7" x 19.6")	
	Weight	8.8 kg (19.4 lb)	



ACP-1000MB

1U 1-slot Rackmount Chassis for ATX/MicroATX Motherboard

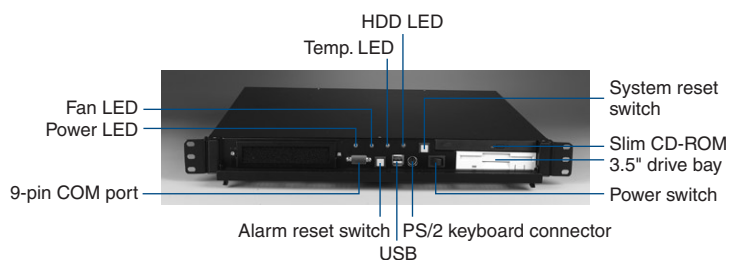


Features

- System alarm notification by front LED indicators
- Front-accessible USB and PS/2 interfaces
- Easy-to-install disk drive bay to hold one slim CD-ROM, one 3.5" FDD and one internal 3.5" HDD
- Various riser card options to support one full-length PCI or PCIe card for expansion
- Streamlined & efficient cooling design with three fans in the front side and one fan in the rear side

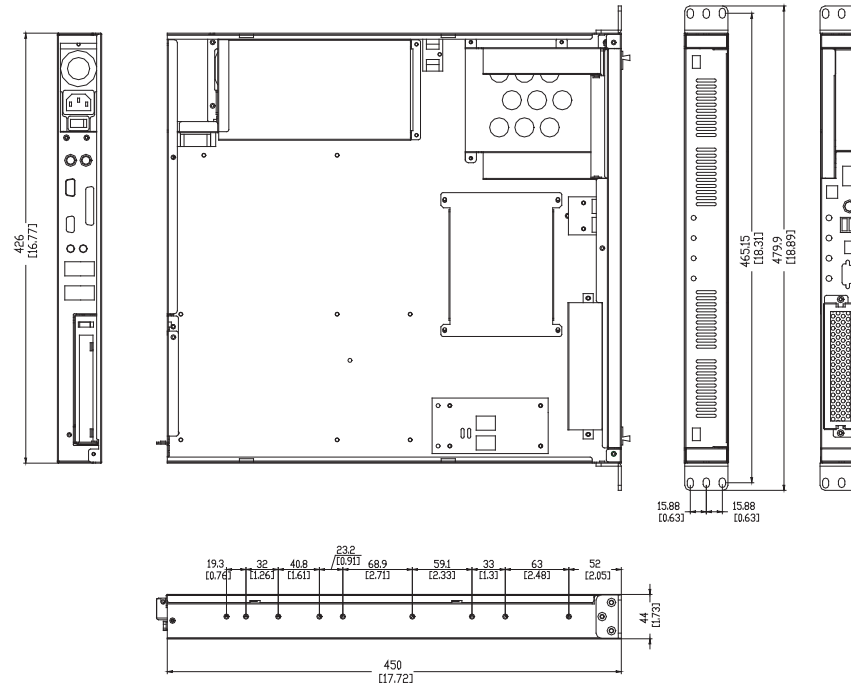
Specifications

		Front-accessible	Internal
	Drive Bay		
	Slim CD-ROM	1	-
	3.5"	1	1
Cooling	Fan	Front	Rear
		3 (10 CFM each)	1 (15 CFM)
	Air Filter	Yes (Front-accessible)	
I/O Interface	USB	2 (Front-accessible)	
	PS/2	1 (for keyboard, front-accessible)	
Miscellaneous	Front Panel	Reserved one 9-pin D-Sub opening	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical Characteristics	Dimensions (W x H x D)	480 x 44 x 450 mm (18.9" x 1.7" x 17.7")	
	Weight	8 kg (17.6 lb)	



200 W ATX PFC power supply & rear panel of motherboard

Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Watt	Input	Output	Specifications		
				Mini-load	Safety	MTBF
1757000005G (ATX, PFC)	200 W	AC 100 ~ 240 V (full-range)	+5 V @ 16 A, +3.3 V @ 14 A +12 V @ 9 A, -12 V @ 0.7 A -5 V @ 0.2 A, +5 Vsb @ 1.5 A	+5 V @ 2 A, +12 V @ 1 A -5 V @ 0.1 A, -12 V @ 0.1 A +3.3 V @ 1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	84,000 hours @ 25° C

Ordering Information

Part Number	Power Supply	Motherboard	Regulation
ACP-1000MB0-20ZE	1757000005G	-	CE

Riser Card Options

Part Number	Interface	Expansion Slot	Supported Motherboard
AIMB-R4104-01A1E	PCIe x4	one PCIe x4	AIMB-554
AIMB-RP10P-01A1E	PCI	one PCI	AIMB-740/742/744/750



Supports one full-length 32-bit PCI card

Accessories

Part Number	Description
96SCD-24X-I-OD-B	Black slim 24X CD-ROM
96SCOM-24X8X-TE-B1	Black slim 24X/8X/24X DVD-RW-ROM
96FDD-144-TE-B1	Black 3.5" FDD
1750000432	Low-profile P4 CPU cooler up to 2.8 GHz (0.13 micron 70 W)
1999002310	Filter for ACP-1000 MB (122.5 x 32 x 5 mm)



Three filtered 10-CFM cooling fans at the front

ACP-2010MB/ 2000MB

2U Rackmount Chassis for ATX/ MicroATX Motherboard with Low-profile Rear Bracket Option

NEW

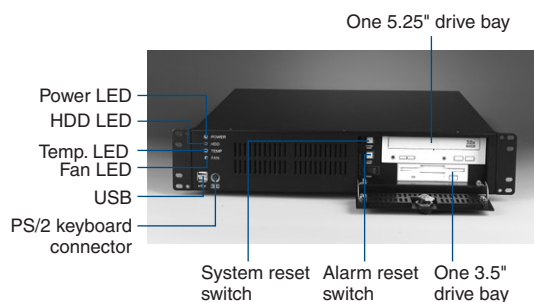


Features

- LED indicators and audible alarm notification for system fault detection
- Shock-resistant drive bays to hold one 5.25" and three 3.5" drives (one front-accessible and two internal)
- Various riser card options to support three full-length PCI or PCIe cards for expansion
- Supports 300 W / 400 W ATX PFC power supply
- Reusable and washable air filters

Specifications

Disk Drive Bay		Front-accessible	Internal
		5.25"	1
Cooling		3.5"	2
		Fan	2 (47 CFM each)
I/O Interface		Air Filters	Yes
		USB	2 (Front accessible)
Miscellaneous		PS/2	PS/2 keyboard and mouse, or PS/2 keyboard depends on the enclosed motherboard
		LED Indicators	Power, HDD, Temperature, Fan
Environment		Rear Panel	Reserved two 9-pin D-Sub openings
		Slide Rails	General Devices (http://www.generaldevices.com) C-300 series supported (not included)
Physical Characteristics		Operating	Non-operating
		Temperature	0 ~ 40° C (32 ~ 104° F)
		Humidity	-20 ~ 60° C (-4 ~ 140° F)
		Vibration (5-500 Hz)	10 ~ 95 % @ 40° C, non-condensing
		Shock	10 ~ 95 % @ 40° C, non-condensing
		Acoustic Noise	2 G
		Altitude	30 G
		Dimensions (W x H x D)	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)
		Weight	0 to 3,048 m (0 ~ 10,000 ft)
			482 x 88 x 480 mm (19" x 3.46" x 18.9") (ACP-2010MB)
			482 x 88 x 450 mm (19" x 3.46" x 17.7") (ACP-2000MB)
			13.0 kg / 28.6 lb (ACP-2010MB)
			12.5 kg / 27.5 lb (ACP-2000MB)



Inside View



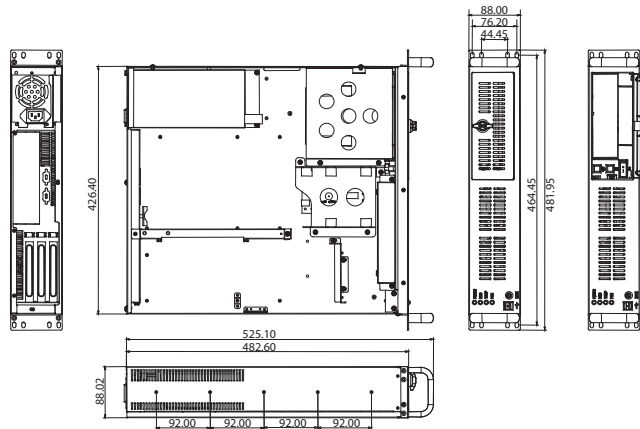
Rear view of ACP-2010MB



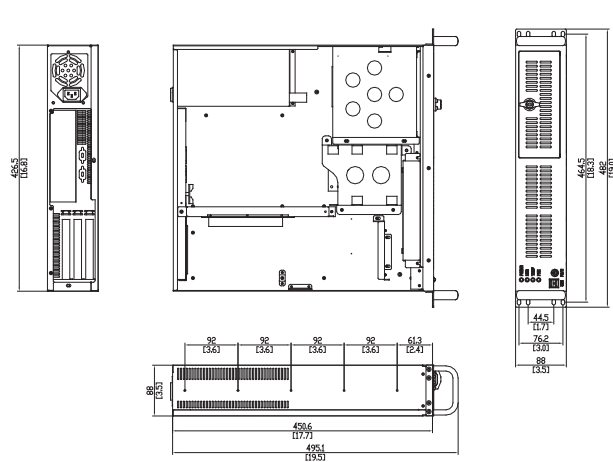
Rear I/O bracket for low profile
add-on cards

Dimensions

ACP-2010MB



ACP-2000MB



Unit: mm (inch)

Power Supply Options

Part Number	Watt	Input	Output	Specifications		
				Mini-load	Safety	MTBF
1757000007G (ATX, PFC)	300 W	AC 100 ~ 240 V (full range)	+5 V @ 35 A, +3.3 V @ 20 A, +12 V @ 16 A, -5 V @ 0.5 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 2 A, -5 V @ 0.05 A, -12 V @ 0.05 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	97,800 hrs @ 25° C
1757000105G (ATX, PFC) (ACP-2010MB only)	400 W	AC 100 ~ 240 V (full range)	+5 V @ 25 A, +3.3 V @ 20 A, +12 V @ 28 A, -5 V @ 0.5 A, -12 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C

Ordering Information

Model Name	Power Supply	Motherboard	Regulation
ACP-2010MB0-00XE	Without power supply, with ATX switch	Supports AIMB-7XX & AIMB-5XX series. Riser card is not included.	-
ACP-2010MB0-30ZE	1757000007G		CE
ACP-2000MB-00XE	Without power supply, with ATX switch	Only AIMB-740, 742, 744, 750 recommended.	-
ACP-2000MB-30ZE	1757000007G	A 3-slot PCI riser card is included.	CE

Riser Card Options

Model Name	Interface	Expansion Slot	Motherboard
AIMB-R430P-03A1E	PCIe x4	three PCI	AIMB-762/554
AIMB-RP30P-03A1E	PCI	three PCI	AIMB-750/744/742/740/560
AIMB-RH31P-12A1E	PCI+ PCIe x1	two PCI + one PCIe x1	AIMB-760

* The riser cards are specially designed to support all Advantech AIMB series motherboards except AIMB-562 & AIMB-542.

There might be compatibility issues with other vendor's motherboards, so an optional rear I/O bracket for low-profile add-on cards is provided.

Accessories

Part Number	Description
9680002285	Rear I/O bracket for low-profile add-on cards
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVDRW-ROM
96FDD-144-TE-B	Black 3.5" FDD
SDVD-FDD-COMBOE	5.25" storage kit with slim 8X DVD, 24X CD-RW & standard 3.5" black FDD
SDVD-COMBOE	5.25" storage kit with slim 8X DVD, 24X CD-RW & a 3.5" drive bay for FDD or HDD
SCD-FDD-COMBOE	5.25" storage kit with slim 24X CD-ROM & standard 3.5" black FDD
SCD-COMBOE	5.25" storage kit with slim 24X CD-ROM & a 3.5" drive bay for FDD or HDD
1759200650	Fan 80 x 80 x 25 mm
1700060202	Y-cable for PS/2 mouse and keyboard

ACP-2320MB

2U 3-slot Rackmount Chassis for ATX Motherboard with Dual SATA HDD Trays



Features

- Dual easy-to-maintain SATA HDD trays for data mirroring applications
- Front LED indicators for system alarm notification
- Front-accessible USB and PS/2 interfaces
- Shock-resistant disk drive bay to hold two internal 3.5" HDDs
- Front-accessible and easy-to-replace air filters
- Butterfly riser card supporting up to three full-length PCI cards
- 300 W / 400 W ATX PFC power supply

Specifications

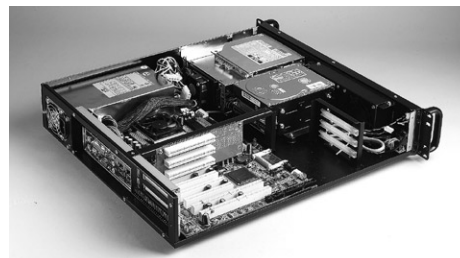
		Front-accessible	Internal
Drive Bay	Slim CD-ROM	1	-
	3.5"	2 (SATA HDD)	2 (SATA or ATA HDD, depending on the enclosed motherboard)
Cooling	Fan	2 (47 CFM each) + 1 (28 CFM)	
	Air Filter	One 5.3 cm x 12 cm filter in front of dual fans, and one smaller filter in the drive bay door; both are front accessible	
I/O Interface	USB	2 (Front-accessible)	
	PS/2	PS/2 keyboard and mouse, or PS/2 keyboard depends on the enclosed motherboard	
Miscellaneous	Notification LEDs	PWR, HDD (Internal), temperature, Fan, SATA HDD power & activity	
	Rear Panel	Reserved one D-Sub 9-pin opening and one 68-pin SCSI opening	
	Riser Card (9696070000)*	Supports up to three PCI add-on cards	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5-500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 55 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
Physical Characteristics	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
	Dimensions (W x H x D)	482 x 88 x 480 mm (19" x 3.46" x 18.9")	
	Weight	13.5 kg (29.7 lb)	



The front view of ACP-2320MB

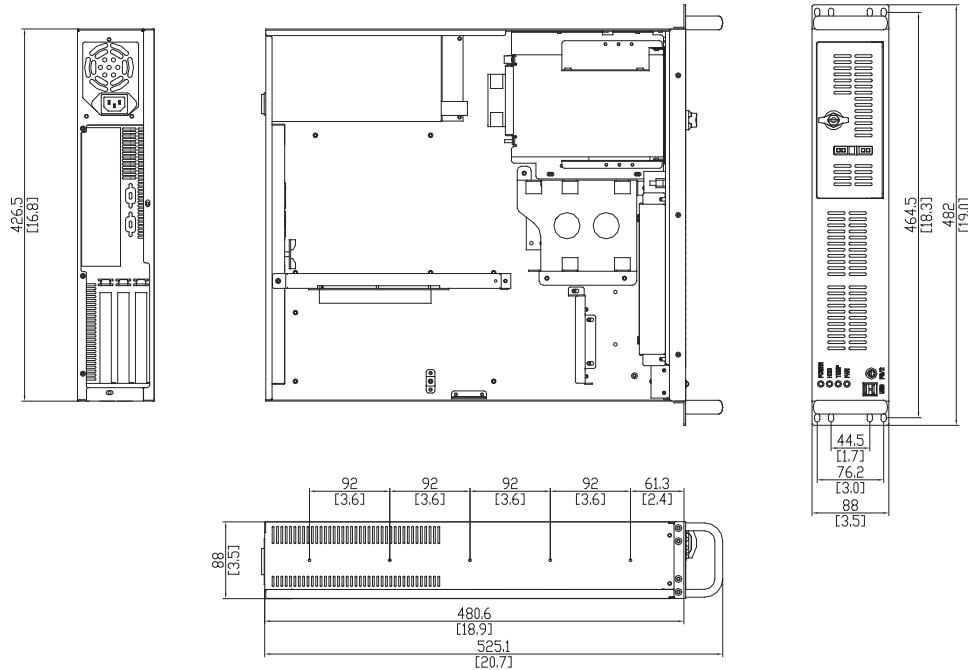


Dual easy-to-maintain
SATA HDD trays



The inside view of ACP-2320MB

Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
1757000105G (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 20 A +12 V @ 28 A, -12 V @ 0.5 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +12 V @ 2 A +3.3 V @ 1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
1757000007G (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 20 A +12 V @ 16 A, -12 V @ 1 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +12 V @ 2 A -5 V @ 0.05 A, -12 V @ 0.05 A +3.3 V @ 1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	97,800 hours @ 25° C

Ordering Information

Part Number	Power Supply	Motherboard/ Backplane	Regulation
ACP-2320MB0-00XE	-	-	-
ACP-2320MB0-30ZE	1757000007G	-	CE
ACP-2320MB0-40ZE	1757000105G	-	CE

Riser Card Options

Model Name	Interface	Expansion Slot	Motherboard
AIMB-R4301-03A1E	PCIe x4	three PCIe x1	AIMB-762/AIMB-554
AIMB-R430P-03A1E	PCIe x4	three PCI	AIMB-762/554
AIMB-RP30P-03A1E	PCI	three PCI	AIMB-750/744/742/740/560
AIMB-RH31P-12A1E	PCI+ PCIe x1	two PCI + one PCIe x1	AIMB-760

* The riser cards are specially designed to support all Advantech AIMB series motherboards except AIMB-562 & AIMB-542.
There might be compatibility issues with other vendor's motherboards, so an optional rear I/O bracket for low-profile add-on cards is provided.

Accessories

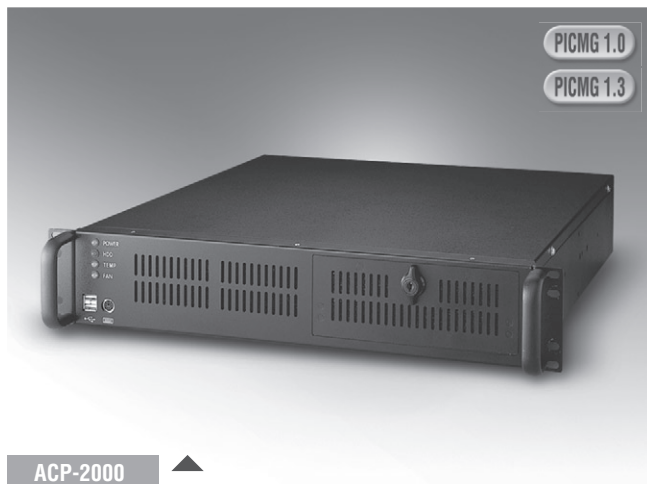
Part Number	Description
1700060202	Y-cable for PS/2 mouse and keyboard
1750000257	2U-high P4 Socket 478 CPU cooler up to 3.2 GHz (89 W)
1750000332	2U-high LGA775 P4 CPU cooler up to 3.8 GHz
1750000191	Fan 60 x 60 x 25 mm
1759200650	Fan 80 x 80 x 25 mm
SDVD-CDRWE	Black slim 8X DVD + 24X CD-RW with 40-pin IDE connector
SCD-R0ME	Black slim 24X CD-ROM with 40-pin IDE connector
9680002285	Rear I/O bracket for 1025-profile add-on cards



The rear view of ACP-2320MB

ACP-2000/ IPC-602

2U 6-slot Rackmount Chassis with Front USB and PS/2 Interfaces



ACP-2000

Features

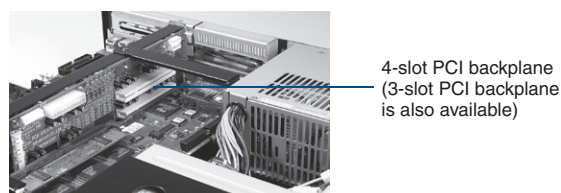
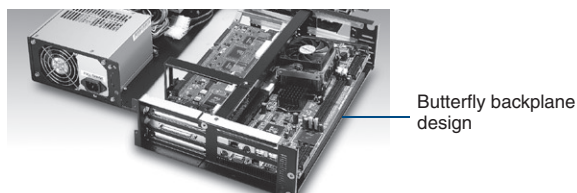
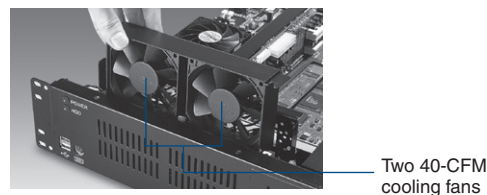
- 2U-high rackmount chassis supports up to 6 cards
- Butterfly backplane design
- Front-accessible USB and PS/2 connectors
- 250 W / 300 W AC ATX and DC power supply options
- Two 40-CFM cooling fans with air filter
- Recommended CPU cards for optimum integration
- Lockable front door prevents unauthorized access
- System alarm notification by front LED indicators (ACP-2000 only)

Specifications

		Front-accessible	Internal
Drive Bay	Slim optical disk drive	1/-	
	3.5"	2/1	-/1
	5.25"	-/1	-
Cooling	Fan	2 (47 CFM each)/2 (40 CFM each)	
	Air Filter	Yes	
I/O Interface	USB	2 (front-accessible)	
	PS/2	PS/2 keyboard & mouse, or PS/2 keyboard only, depending on the enclosed CPU board	
Miscellaneous	Notification LEDs	Power status and HDD activity; Fan, Temperature for ACP-2000 only	
	Rear Panel	Reserved one 9-pin D-Sub opening	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	0.5 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
Physical Characteristics	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
	Dimensions (W x H x D)	482 x 88 x 450 mm (19" x 3.5" x 17.7")	
	Weight	13.5 kg (29.7 lb)/13.0 kg (28.6 lb)	

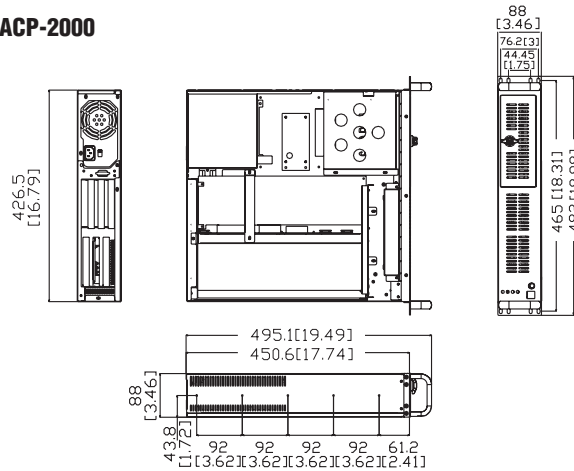


IPC-602 Front View

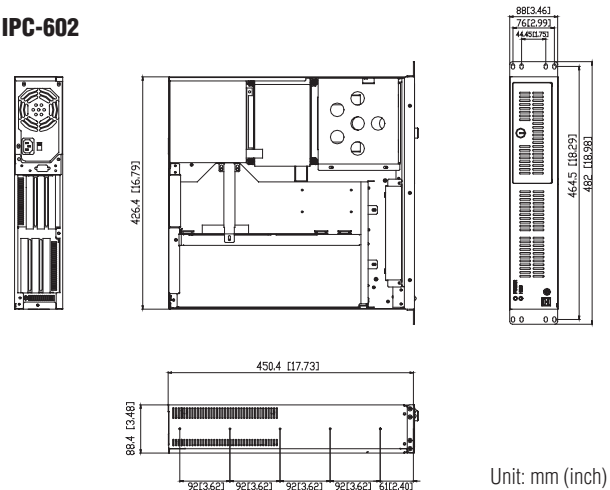


Dimensions

ACP-2000



IPC-602



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
PS-250ATX-ZE (ATX, PFC) (IPC-602 only)	250 W	AC 115/230 V (selectable)	+5 V @ 27 A, +3.3 V @ 20 A +12 V @ 13 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 1.5 A +12 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-400ATX-ZBE (ATX, PFC) (IPC-602 only)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 30 A, -12 V @ 1 A -5 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 3 A +12 V @ 1 A +3.3 V @ 1 A	UL/TUV/CB/CCC	91,000 hours @ 25° C
PS-300ATX-DC48E (ATX)	300 W	DC -48 V	+3.3 V @ 28 A, +5 V @ 30 A, +12 V @ 15 A, -5 V @ 0.3 A, -12 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 0.3 A, +3.3 V @ 0.3 A, +12 V @ 0.2 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
RPS-300ATX-ZE (ATX, PFC) (ACP-2000 only)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 18 A +12 V @ 16 A, -12 V @ 1.5 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A +3.3 V @ 1 A +12 V @ 2 A +5Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Accessories

Part Number	Description
1701400652	HDD cable, ATA 66/100, 45 cm + 20 cm
1750000257	2U-high P4 Socket 478 CPU cooler up to 3.2 GHz (89 W)
1750000432	Low profile P4 CPU cooler up to 2.8 GHz (0.13 micron 70 W)
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVDRW-ROM
96FDD-144-TE-B1	Black 3.5" FDD
SCD-COMBOE	Black 5.25" compact storage kit with slim 24X CD-ROM and a 3.5" drive bay for FDD or HDD
SDVD-COMBOE	Black 5.25" compact storage kit with slim 8X DVD + 24X CD-RW and a 3.5" drive bay for HDD/FDD
SCD-FDD-COMBOE	Black 5.25" storage kit with slim 24X CD-ROM and standard 3.5" black FDD
SDVD-FDD-COMBOE	Black 5.25" storage kit with slim 8X DVD + 24X CD-RW and standard 3.5" FDD

Ordering Information

Part Number	Power Supply	Backplane	Regulation
PICMG 1.0			
ACP-2000P3-00XE	Without power supply, with ATX switch	969K610621E (PCA-6106P3V)	-
ACP-2000P3-30ZE	PS-300ATX-ZBE	969K610621E (PCA-6106P3V)	CE
ACP-2000P3-30RE	RPS-300ATX-ZE	969K610621E (PCA-6106P3V)	CE
ACP-2000P4-00XE	Without power supply, with ATX switch	969K610510E (PCA-6105P4V)	-
ACP-2000P4-30ZE	PS-300ATX-ZBE	969K610510E (PCA-6105P4V)	CE
ACP-2000P4-30RE	RPS-300ATX-ZE	969K610510E (PCA-6105P4V)	CE
ACP-2000X3-00XE	Without power supply with ATX switch	9692610691E (PCA-6106P3VX)	-
IPC-602P3-00XBE	Without power supply, with ATX switch	969K610621E (PCA-6106P3V)	-
IPC-602P3-25ZBE	PS-250ATX-ZE	969K610621E (PCA-6106P3V)	CE
IPC-602P3-30ZBE	PS-300ATX-ZBE	969K610621E (PCA-6106P3V)	CE
IPC-602P4-00XBE	Without power supply, with ATX switch	969K610510E (PCA-6105P4V)	-
IPC-602P4-25ZBE	PS-250ATX-ZE	969K610510E (PCA-6105P4V)	CE
IPC-602P4-30ZBE	PS-300ATX-ZBE	969K610510E (PCA-6105P4V)	CE
PICMG 1.3			
ACP-2000EBP-00XE	Without power supply, with ATX switch	-	-
ACP-2000EBP-30ZE	PS-300ATX-ZBE	-	CE

IPC-603MB

2U 3-slot Rackmount Chassis for ATX/MicroATX Motherboard with Front I/O

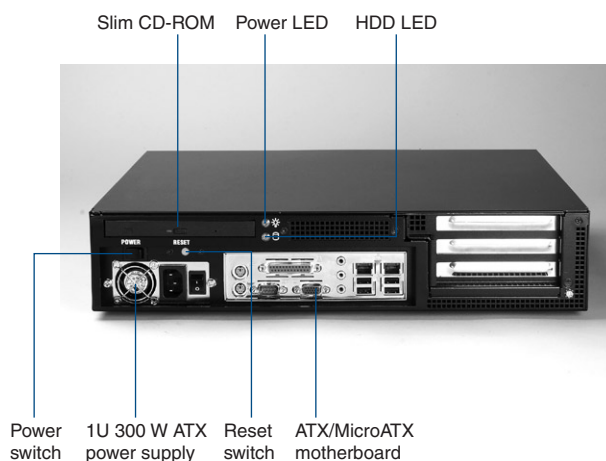


Features

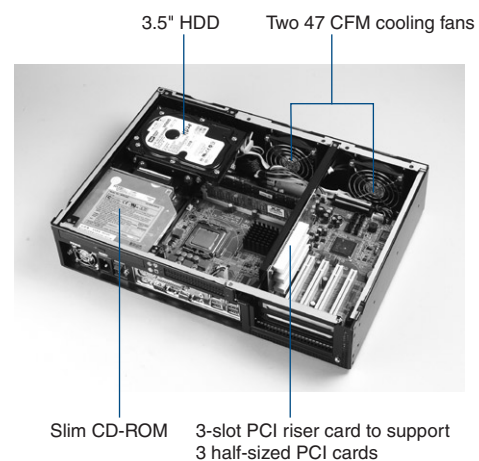
- The best embedded computing system for machinery applications
- Streamlined in-chassis airflow design supporting LGA775 Pentium® 4 CPU up to 3.8 GHz with suggested CPU cooler
- All I/O interfaces are in the front
- Shock resistant disk drive bay design to hold one slim CD-ROM and one internal 3.5" HDD
- Equipped with 1U-high 300 W ATX PFC power supply
- Easy-to-replace air filters

Specifications

		Front-accessible	Internal
Drive Bay	Slim CD-ROM	1	-
	3.5"	-	1
Cooling	Fan	2 (47 CFM each)	
	Air Filters	3 (85 x 80 mm)	
Miscellaneous	Notification LEDs	PWR & HDD (internal)	
	Riser Card (9696070000)*	Supports up to three half-sized PCI add-in cards	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85% @ 40° C, non-condensing	10 ~ 95% @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical Characteristics	Dimensions (W x H x D)	482 x 88 x 310 mm (19" x 3.46" x 12.2")	
	Weight	8 kg (17.6 lb)	

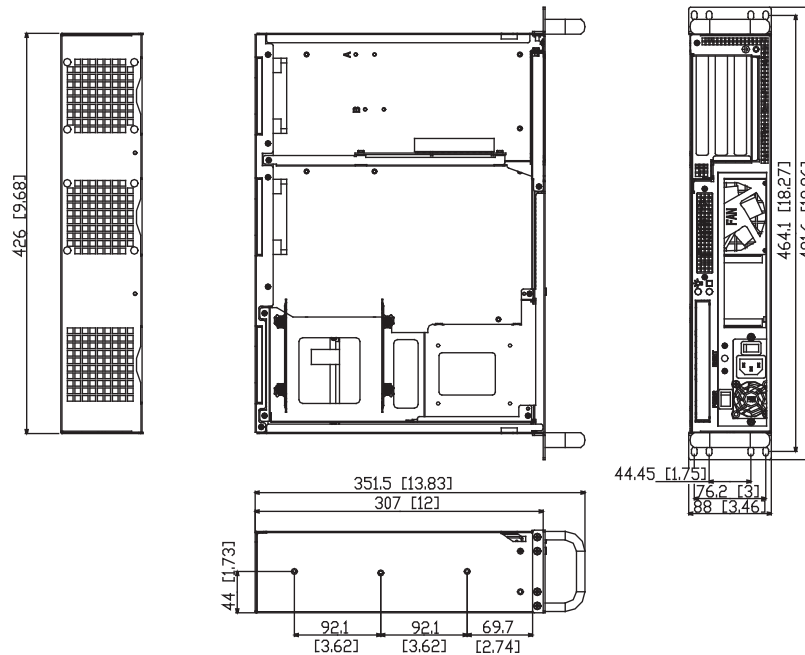


The front view of IPC-603MB



The inside view of IPC-603MB

Dimensions



Unit: mm (inch)

Power supply

Part Number				Specifications		
	Watt	Input	Output	Mini-load	Safety	MTBF
1757000160G (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 14 A +12 V @ 16 A, -12 V @ 1 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +12 V @ 2 A -5 V @ 0.05 A, -12 V @ 0.05 A +3.3 V @ 1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Accessories

Part Number	Description
96SCOM-24X8X-TE-B1	Black slim 24X/8X/24X DVD RW-ROM
96SCD-24X-I-OD-B	Black slim 24X CD-ROM
1750000257	2U-high Socket 478 P4 CPU cooler up to 3.2 GHz (89 W)
1750000332	2U-high LGA775 P4 CPU cooler up to 3.8 GHz
1759200650	Fan 80 x 80 x 25 mm
1990001176	Fan filter 80 x 85 x 5 mm

Ordering Information

Part Number	Power Supply	Motherboard	Regulation
IPC-603MB0-30ZE	1757000160G	-	CE

Riser Card Options

Model Name	Interface	Expansion Slot	Motherboard
AIMB-R430P-03A1E	PCIe x4	three PCI	AIMB-762/554
AIMB-RP30P-03A1E	PCI	three PCI	AIMB-750/744/742/740/560
AIMB-RH31P-12A1E	PCI+ PCIe x1	two PCI + one PCIe x1	AIMB-760

* The riser cards are specially designed to support all Advantech AIMB series motherboards except AIMB-562 & AIMB-542.

ACP-4362/4360

4U Rackmount Chassis with 6 Hot-swap SATA Trays for RAID

NEW

PICMG 1.0

PICMG 1.3



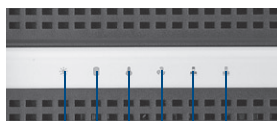
Features

- Supports up to six SATA HDDs, which can be hot-swappable if a SATA RAID card is used
- Supports either an ATX motherboard or a backplane up to 15 slots
- Supports one slim CD-ROM and one 3.5" FDD or internal HDD
- LED indicators for LAN connectivity and alarm notification for redundant power supply, HDD activity, system fan & in-chassis temperature
- Reusable, front-accessible filters for easy maintenance
- Two alternative series: the standard ACP-4360 features better flexibility for RAID cards; the deluxe ACP-4362 provides complete RAID solutions with two optional RAID cards

Specifications

Drive Bay		Front-accessible	
	Slim CD-ROM	1	
	3.5"	6 SATA HDDs + 1	
Cooling	Fans	One 114 CFM and two 47 CFM	
	Air Filters	Yes	
I/O Interfaces	USB	2 (front-accessible)	
Miscellaneous	Notification LEDs	System: PWR, HDD (for IDE drives only), Fan, Temperature, LAN1 and LAN2 * Six SATA HDD trays: HDD power on/off and activity	
	Rear Panel	BP version: One D-Sub 9-pin opening MB version: Five D-Sub 9-pin and one 68-pin SCSI openings	
	Slide Rails	General Devices (http://www.generaldevices.com) C-300 series supported (not included)	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 56 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical Characteristics	Dimensions (W x H x D)	482 x 177 x 500 mm (19" x 7" x 19.7")	
	Weight	19.0 ka (41.8 lb)	

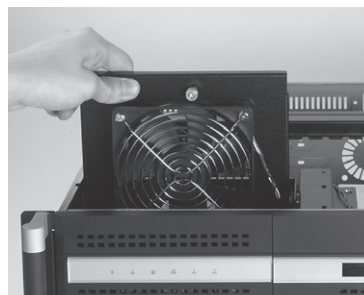
* If a third party RAID card is used, SATA HDD hot swappability may be supported, but no HDD failure and data rebuild indication is available.



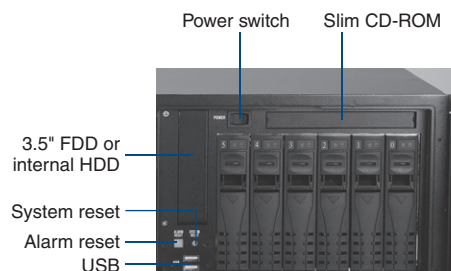
PWR Temp. LAN1
HDD FAN LAN2



Rear view of ACP-4362MB

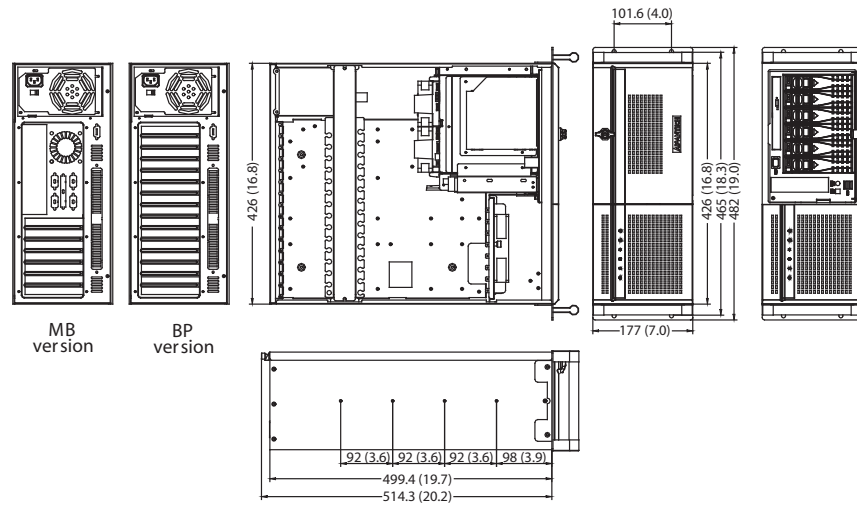


Easy-to-maintain system fan



Six hot-swap SATA HDD trays

Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Watt	Input	Output	Specifications Mini-load	Safety	MTBF
PS-400ATX-ZBE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 30 A, -5 V @ 0.8 A -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	91,000 hrs @ 25° C
PS-500ATX-ZE (ATX, PFC)	500 W	AC 100 ~ 240 V (full-range)	+5 V @ 40 A, +3.3 V @ 30 A +12 V @ 32 A, -5 V @ 0.8 A -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 2.5 A, +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	98,000 hrs @ 25° C
PS-700ATX-ZE (ATX, PFC)	700 W	AC 100 ~ 240 V (full-range)	+5 V @ 50 A, +3.3 V @ 45 A +12 V @ 36 A, -5 V @ 0.8 A -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 2.5 A, +3.3 V @ 1 A +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	72,000 hrs @ 25° C
RPS-400ATX-ZE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 28 A, -5 V @ 0.5 A -12 V @ 1.2 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C

Recommended Configurations

CPU Card and Supported Backplane	Chassis and P/S	SATA RAID Card
PCE-7210 (PICMG 1.3 Dual Xeon SHB) and PCE-7B13-64A1E (backplane with 1 SHB, 2 PCIe x8, 6 PCI-X, and 4 PCI slots)	ACP-4362BP-00XE with PS-700ATX-ZE	9680001857 9680001858
PCE-5120 (PICMG 1.3 LGA775 Pentium SHB) and PCE-5B12-64A1E (backplane with 1 SHB, 1 PCIe x16, 6 PCI-X, 4 PCI slots)	ACP-4362BP-40ZE ACP-4362BP-50ZE ACP-4362BP-40RE	9680001857 9680001858
AIMB-762 (LGA775 Pentium ATX motherboard)	ACP-4362MB-40ZE ACP-4362MB-50ZE ACP-4362MB-40RE	9680001858 (PCIe 8-port SATA RAID card)
AIMB-744 (Socket 478 Pentium ATX motherboard)	ACP-4362MB-40ZE ACP-4362MB-50ZE ACP-4362MB-40RE	9680001857 (PCI-X 8-port SATA RAID card)

ACP-4360 supports all Advantech ATX/microATX motherboards and most 14/15-slot passive backplanes. For more information about backplane options, please refer to Advantech's backplane selection guide.

Accessories

Part Number	Description
9680001857	PCI-X eight-port SATA RAID card
9680001858	PCIe x8 eight-port SATA RAID card
96FDD-144-TE-B	Black 3.5" FDD
96SCD-24X-I-OD-B	Black slim 24X CD-ROM
96SCOM-24X8X-TE-B1	Black slim 24X/8X/24X DVDRW-ROM

Ordering Information

Part Number	Power Supply	Motherboard/ Backplane	Regulation
MB Version			
ACP-4362MB-00XE	Without power supply, with ATX switch	-	-
ACP-4362MB-40ZE	PS-400ATX-ZBE	-	CE
ACP-4362MB-50ZE	PS-500ATX-ZE	-	CE
ACP-4362MB-40RE	RPS-400ATX-ZE	-	CE
BP Version			
ACP-4360BP-00XE	Without power supply, with ATX switch	-	-
ACP-4360BP-40ZE	PS-400ATX-ZE	-	CE
ACP-4360BP-50ZE	PS-500ATX-ZE	-	CE
ACP-4360BP-40RE	RPS-400ATX-ZE	-	CE
ACP-4360BP-00XE	Without power supply, with ATX switch	-	-
ACP-4360BP-40ZE	PS-400ATX-ZE	-	CE

ACP-4010

4U 15-slot Rackmount Chassis with Dual System Support

NEW

PICMG 1.0

PICMG 1.3



Features

- Supports up to 15 add-on cards
- Supports one or two systems in a single chassis
- Supports two 5.25" and two 3.5" disk drives (one front-accessible and one internal)
- LED indicators and alarm notification for system fault detection and network connection
- Lockable front door prevents from unauthorized access

Specifications

Drive Bay	5.25"	Front-accessible	
	3.5"	2 (int. x 1 + ext. x 1)	
Cooling	Fan	2 (85 CFM each)	
	Air Filter	Yes	
I/O Interface	USB	4 (front-accessible)	
	9-pin D-Sub	Two 9-pin D-Sub openings reserved	
Miscellaneous	Notification LEDs	PWR, HDD, Temperature, Fan, LAN1, and LAN2 status	
	Rear Panel	BP version: One 9-pin D-Sub opening MB version: Five 9-pin D-Sub and one 68-pin SCSI openings	
	Slide Rails	General Devices (http://www.generaldevices.com/) C-300 series supported (not included)	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5-500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical	Dimensions (W x H x D)	482 x 177 x 480 mm (19" x 7.0" x 18.9")	
	Weight	18.5 kg (40.7 lb)	

Two reset buttons for dual systems

Two 3.5" drive bays (int. x 1 & ext. x 1)

Easy-to-maintain dual fans



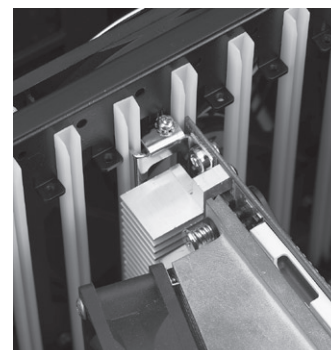
Two 9-pin D-Sub openings reserved

Four USB ports

Two 5.25" drive bays

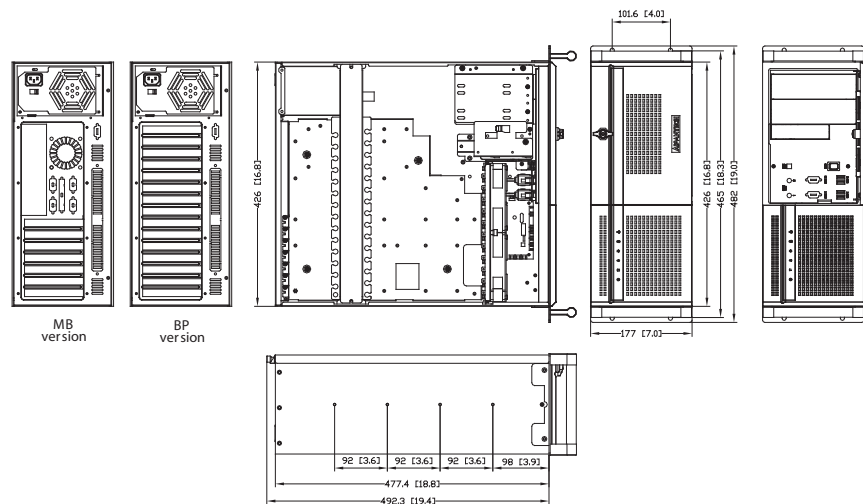


Inside View



Enhanced anti-vibration mechanical design for full-length CPU card

Dimensions



Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full range)	+5 V @ 30 A, +3.3 V @ 28 A, +12 V @ 15 A, -5 V @ 0.3 A, -12 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C
PS-400ATX-ZBE (ATX, PFC)	400 W	AC 100 ~ 240 V (full range)	+5 V @ 35 A, +3.3 V @ 25 A, +12 V @ 30 A, -5 V @ 0.8 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C
PS-500ATX-ZE (ATX, PFC)	500 W	AC 100 ~ 240 V (full range)	+5 V @ 40 A, +3.3 V @ 30 A, +12 V @ 32 A, -5 V @ 0.8 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 2.5 A, +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	98,000 hrs @ 25° C
RPS-300ATX-ZE (ATX, PFC)	300 W	AC 100 ~ 240 V (full range)	+5 V @ 25 A, +3.3 V @ 18 A, +12 V @ 16 A, -5 V @ 0.5 A, -12 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C
RPS-400ATX-ZE (ATX, PFC)	400 W	AC 100 ~ 240 V (full range)	+5 V @ 35 A, +3.3 V @ 25 A, +12 V @ 28 A, -5 V @ 0.5 A, -12 V @ 1.2 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C

Ordering Information

Model Name	Power Supply	Motherboard/Backplane	Regulation
BP Version			
ACP-4010BP-00XE	Without power supply, with ATX switch	-	-
ACP-4010BP-30ZE	PS-300ATX-ZBE	-	CE
ACP-4010BP-40ZE	PS-400ATX-ZBE	-	CE
ACP-4010BP-30RE	RPS-300ATX-ZE	-	CE
MB Version			
ACP-4010MB-00XE	Without power supply, with ATX switch	-	-
ACP-4010MB-30ZE	PS-300ATX-ZBE	-	CE
ACP-4010MB-40ZE	PS-400ATX-ZBE	-	CE
ACP-4010MB-30RE	RPS-300ATX-Z	-	CE

Accessories

Part Number	Descriptions
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVDRW-ROM
96FDD-144-TE-B	Black 3.5" FDD
1990001299	Fan filter
1990001298	Door filter
96624K0000E	System cooling fan 120 x 120 x 25 mm

ACP-4320

4U Rackmount Chassis with Front-accessible SATA HDD Trays for Easy Maintenance

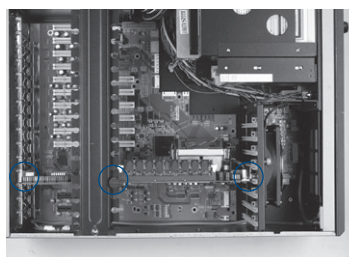
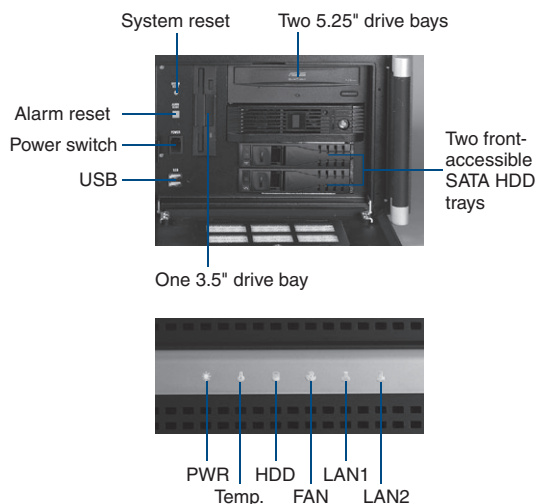


Features

- New generation 4U IPC chassis with latest industrial design
- Dual front-accessible and easy-to-maintain SATA HDD trays for data mirroring applications
- Shock-resistant drive bay design supports up to two 5.25" and one 3.5" disk drives
- Front indicators for LAN connectivity and alarm notification of redundant power supply, HDD activity, system fan & in-chassis temperature
- Reusable, front-accessible fan filters for easy system maintenance
- Supports front USB interface
- Lockable front door prevents unauthorized access
- Versatile power supply options from single PS/2 300 W / 400 W to redundant 300 W / 400 W power supply

Specifications

Drive Bay	5.25"	Front-accessible
	3.5"	2
Cooling	Fan	1 x 114 CFM, 1 x 28 CFM
	Air Filters	Yes
I/O Interface	USB	2 (front-accessible)
	Notification LEDs	PWR, HDD, Fan, Temperature, LAN1 and LAN2
Miscellaneous	Rear Panel	BP version: One D-Sub 9-pin opening MB version: Five D-Sub 9-pin & one 68-pin SCSI openings
	Slide Rails	General Devices (http://www.generaldevices.com) C-300 series supported (not included)
Environment	Operating Temperature	0 ~ 40° C (32 ~ 104° F)
	Non-Operating Temperature	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing
	Non-Operating Humidity	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms
	Shock	10 G (with 11 ms duration, half sine wave)
	Acoustic Noise	Less than 54 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)
Physical Characteristics	Altitude	0 to 3,048 m (0 ~ 10,000 ft)
	Dimensions (W x H x D)	482 x 177 x 478 mm (19" x 7" x 18.8")
	Weight	18.0 kg (39.6 lb)



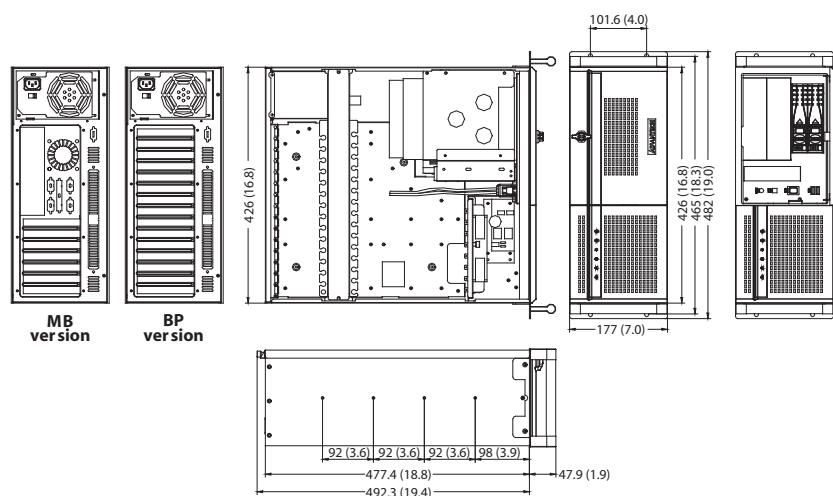
Enhanced anti-vibration mechanical design for full-sized CPU card

Easy-to-replace system fan design



Reusable and easy-to-maintain fan filters

Dimensions



Unit: mm (inch)

Power supply

Part Number	Watt	Input	Output	Specifications		
				Mini-load	Safety	MTBF
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A, +12 V @ 15 A, -5 V @ 0.3 A, -12 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A, +3.3 V @ 0.3 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C
PS-400ATX-ZBE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A, +12 V @ 30 A, -5 V @ 0.8 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C
RPS-300ATX-ZE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 18 A, +12 V @ 16 A, -5 V @ 0.5 A, -12 V @ 1.2 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C
RPS-400ATX-ZE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A, +12 V @ 28 A, -5 V @ 0.5 A, -12 V @ 1.2 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C

Accessories

Part Number	Descriptions
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVDRW-ROM
96FDD-144-TE-B	Black 3.5" FDD
1990001299	Fan filter
1990001298	Door filter
96624K0000E	System cooling fan 120 x 120 x 25 mm

Ordering Information

Part Number	Power Supply	Motherboard/Backplane	Regulation
MB Version			
ACP-4320MB-00XE	Without power supply, with ATX switch	-	-
ACP-4320MB-30ZE	PS-300ATX-ZBE	-	CE
ACP-4320MB-40ZE	PS-400ATX-ZBE	-	CE
ACP-4320MB-30RE	RPS-300ATX-ZE	-	CE
BP Version			
ACP-4320BP-00XE	Without power supply, with ATX switch	-	-
ACP-4320BP-30ZE	PS-300ATX-ZBE	-	CE
ACP-4320BP-40ZE	PS-400ATX-ZBE	-	CE
ACP-4320BP-30RE	RPS-300ATX-ZE	-	CE



Rear view of ACP-4320BP-30RE



Rear view of ACP-4320MB

ACP-4000

4U Rackmount Chassis with Visible & Audible Alarm Notification

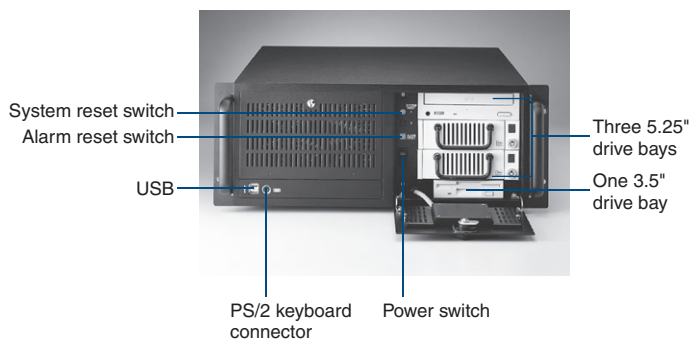


Features

- 4U rackmount chassis supports up to 14 cards
- Shock-resistant disk drive bay design holds up to three 5.25" and one 3.5" disk drives
- Front accessible USB & PS/2 interfaces for easy data transfer
- Dual front-accessible filtered cooling fans provide optimized and streamlined airflow
- Front LEDs indicate system health, such as power status, fan operation, in chassis temperature and HDD activity
- Lockable front door prevents unauthorized access
- Supports 300 W single PS/2 and redundant ATX power supplies

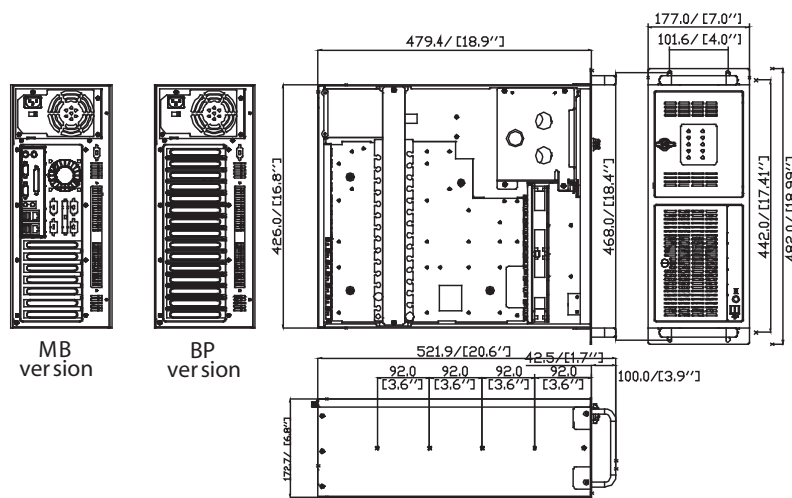
Specifications

Drive Bay	3.5"	Front-accessible	1
	5.25"		3
Cooling	Fan		2 (85 CFM each)
	Air Filter		Yes
I/O Interface	USB		2 (front-accessible)
	PS/2		PS/2 keyboard & mouse, or PS/2 keyboard only, depending on the enclosed CPU board/motherboard
Miscellaneous	Slide Rail	General Devices (http://www.generaldevices.com/) C-300 series supported (not included)	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
Physical Characteristics	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
	Dimensions (W x H x D)	482 x 177 x 480 mm (19" x 7" x 18.9")	
	Weight	18 kg (39.6 lb)	



Dimensions

BP & MB version



Unit: mm (inch)

Power Supply Options

Part Number	Watt	Input	Output	Specifications		
				Mini-load	Safety	MTBF
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-400ATX-ZBE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 30 A, -12 V @ 1 A -5 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 3 A +12 V @ 1 A +3.3 V @ 1 A	UL/TUV/CB/CCC	91,000 hours @ 25° C
RPS-300ATX-ZE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 18 A +12 V @ 16 A, -12 V @ 0.5 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A +3.3 V @ 1 A +12 V @ 2 A +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-DC48E (ATX)	300 W	DC -48 V	+3.3 V @ 28 A, +5 V @ 30 A, +12 V @ 15 A, -5 V @ 0.3 A, -12 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 0.3 A, +3.3 V @ 0.3 A, +12 V @ 0.2 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Accessories

Part Number	Description
19914K0010	Door filter 97.6 x 36.6 x 5 mm
1999615000	Fan filter 115 x 195 x 5 mm
96FDD-144-TE-B1	Black 3.5" FDD
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVDRW-ROM

Ordering Information

Part Number	Power Supply	Motherboard/Backplane	Regulation
BP version			
ACP-4000BP-00XE	Without power supply, with ATX switch	-	-
ACP-4000BP-30ZE	PS-300ATX-ZBE	-	CE
ACP-4000BP-40ZE	PS-400ATX-ZBE	-	CE
ACP-4000BP-30RE	RPS-300ATX-ZE	-	CE
MB version			
ACP-4000MB-00ZE	Without power supply, with ATX switch	-	-
ACP-4000MB-30ZE	PS-300ATX-ZBE	-	CE
ACP-4000MB-30RE	RPS-300ATX-ZE	-	CE
ACP-4000MB-40ZE	PS-400ATX-ZBE	-	CE

IPC-630

4U Rackmount Chassis for General Purpose Industrial Applications

NEW

PICMG 1.0

PICMG 1.3

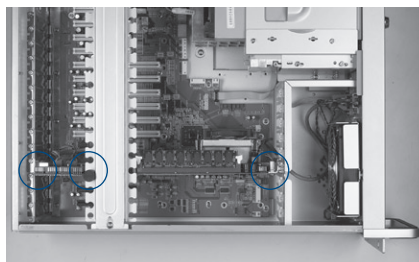
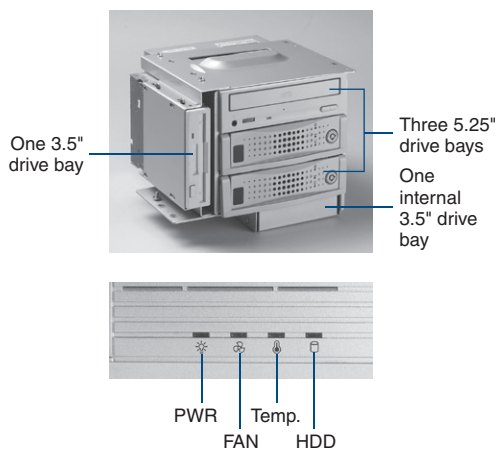


Features

- New generation 4U IPC chassis with world-class industrial design
- Supports either an ATX motherboard or a backplane up to 15 slots
- Shock-resistant drive bay design supports up to three 5.25" and two 3.5" (one external & one internal) disk drives
- Front indicators for alarm notification of redundant power supply, HDD activity, system fan & in-chassis temperature
- Reusable, front-accessible fan filters for easy system maintenance
- Supports front USB interface
- Lockable front door prevents unauthorized access
- Versatile power supply options from single PS/2 300 W / 400 W to redundant 300 W / 400 W power supplies

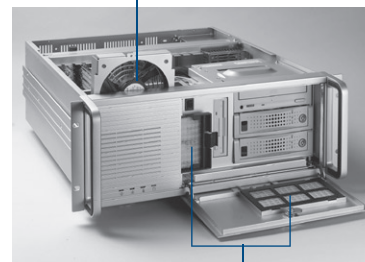
Specifications

		Front-accessible	Internal
Drive Bay	5.25"	3	
	3.5"	1	1
Cooling	Fan	1 x 114 CFM	
	Air Filters	Yes	
I/O Interface	USB	2 (front-accessible)	
	Notification LEDs	PWR, HDD, Fan & Temperature	
	Rear Panel	BP version: One D-Sub 9-pin opening MB version: Five D-Sub 9-pin & one 68-pin SCSI openings	
	Slide Rails	General Devices (http://www.generaldevices.com) C-300 series supported (not included)	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical Characteristics	Dimensions (W x H x D)	IPC-630BP: 482 x 177 x 447 mm (19" x 7" x 17.6") IPC-630MB: 482 x 177 x 497 mm (19" x 7" x 19.6")	
	Weight	18.0 kg (39.6 lb)	



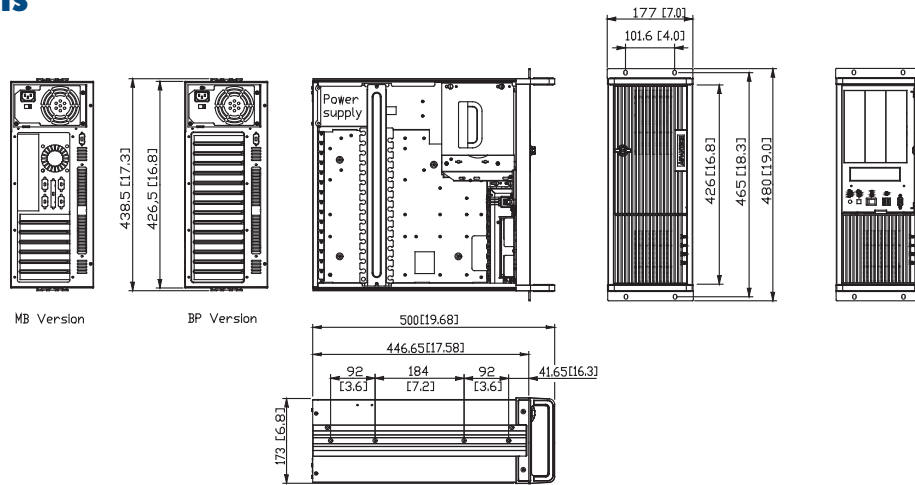
Enhanced anti-vibration mechanical design for PICMG 1.3 full-sized CPU card

Easy-to-replace system fan design



Reusable and easy-to-maintain fan filters

Dimensions



Power Supply Options

Part Number	Watt	Input	Output	Specifications	Safety	MTBF
				Mini-load		
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A, +12 V @ 15 A, -5 V @ 0.3 A, -12 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A, +3.3 V @ 0.3 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C
PS-400ATX-ZBE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 30 A, -5 V @ 0.8 A -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	91,000 hrs @ 25° C
RPS-300ATX-ZE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 18 A +12 V @ 16 A, -5 V @ 0.5 A -12 V @ 1.2 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C
RPS-400ATX-ZE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 28 A, -5 V @ 0.5 A -12 V @ 1.2 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hrs @ 25° C

Ordering Information

Part Number	Power Supply	Motherboard/ Backplane	Regulation
MB version			
IPC-630MB-00XE	Without power supply, with ATX switch	-	-
IPC-630MB-30ZE	PS-300ATX-ZBE	-	CE
IPC-630MB-40ZE	PS-400ATX-ZBE	-	CE
IPC-630MB-30RE	RPS-300ATX-ZE	-	CE
BP version			
IPC-630BP-00XE	Without power supply, with ATX switch	-	-
IPC-630BP-30ZE	PS-300ATX-ZBE	-	CE
IPC-630BP-40ZE	PS-400ATX-ZBE	-	CE
IPC-630BP-30RE	RPS-300ATX-ZE	-	CE

IPC-610-F

4U 14-slot Rackmount Chassis with ATX Motherboard Option

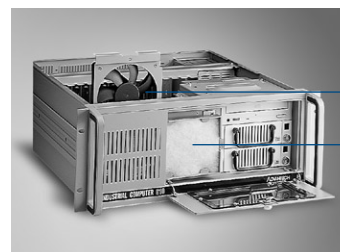
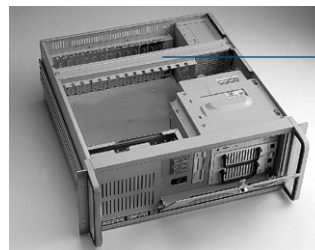
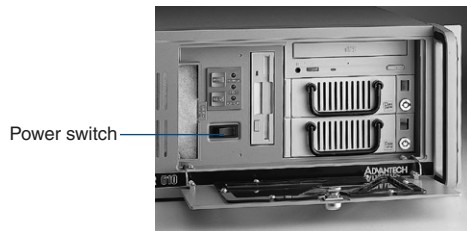


Features

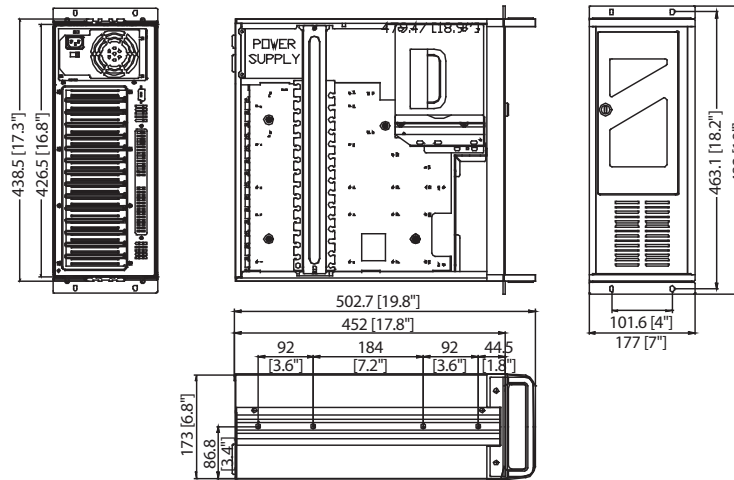
- 4U rackmount chassis supports up to 14 cards
- Shock-resistant disk drive bay design holds up to three 5.25" and two 3.5" (one external & one internal) disk drives
- Special hold-down clamp design with rubber cushions protects the cards from harsh environments and any unexpected shocks
- Power and HDD activity notification improves system availability
- User-friendly and front-accessible filter for system maintenance
- Lockable front door prevents unauthorized access
- 300 W / 400 W AC and 300 W DC ATX power supply options

Specifications

		Front-accessible	Internal
Drive Bay	3.5"	1	1
	5.25"	3	-
Cooling	Fan	1 (85 CFM)	
	Air Filter	Yes	
Miscellaneous	Hold-down Clamp	Hold-down clamp with rubber cushions	
Environment	Temperature	0 ~ 40° C (32 ~ 104° F), operating	
Physical Characteristics	Dimensions (W x H x D)	IPC-610BP: 482 x 177 x 452 mm (19" x 7" x 17.8") IPC-610MB: 482 x 177 x 502 mm (19" x 7" x 19.76")	
	Weight	18.0 kg (39.6 lb)	



Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
PS-250ATX-ZE (ATX, PFC)	250 W	AC 115/230 V (selectable)	+5 V @ 27 A, +3.3 V @ 20 A +12 V @ 13 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.5 A, +12 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A, +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-400ATX-ZBE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 30 A, -12 V @ 1 A -5 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 3 A, +12 V @ 1 A +3.3 V @ 1 A	UL/TUV/CB/CCC	91,000 hours @ 25° C
PS-300ATX-DC48E (ATX)	300 W	DC -48 V	+3.3 V @ 28 A, +5 V @ 30 A +12 V @ 15 A, -5 V @ 0.3 A -12 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 0.3 A, +3.3 V @ 0.3 A +12 V @ 0.2 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
RPS-300ATX-ZE	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 18 A +12 V @ 16 A, -5 V @ 0.5 A -12 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 2 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Ordering Information

Part Number	Power Supply	Motherboard/Backplane	Regulation
IPC-610BP-00XFE	Without power supply, with ATX switch	-	-
IPC-610BP-30ZFE	PS-300ATX-ZBE	-	CE
IPC-610BP-40ZFE	PS-400ATX-ZBE	-	CE
IPC-610MB-00XFE	Without power supply, with ATX switch	-	-
IPC-610MB-30ZFE	PS-300ATX-ZBE	-	CE
Black Color Chassis Options			
IPC-610BP-00XFBE	-	-	-
IPC-610BP-30ZFBF	PS-300ATX-ZBE	-	CE
IPC-610MB-00XFBE	-	-	-
IPC-610MB-30ZFBF	PS-300ATX-ZBE	-	CE

IPC-610-H/L

4U 14-slot Rackmount Chassis with Front-accessible USB/PS2 Connectors



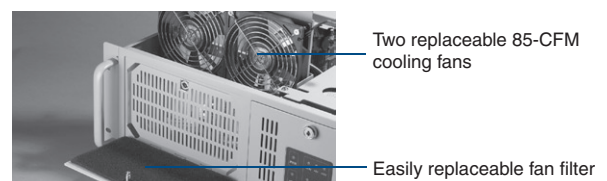
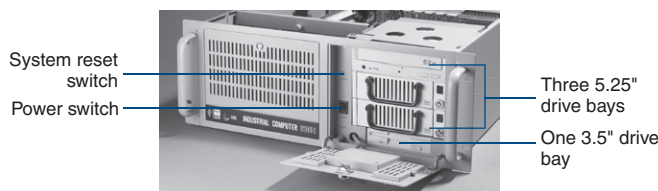
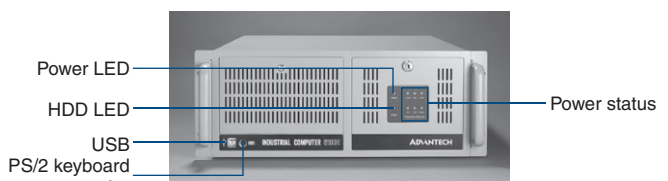
Features

- 4U rackmount chassis supports up to 14 cards
- Shock-resistant disk drive bay design holds up to three 5.25" and one 3.5" disk drives
- Front accessible USB & PS/2 interfaces for easy data transferring
- Dual front-accessible filtered cooling fans provide optimal, streamlined airflow
- Special hold-down clamp design with rubber cushions protects the cards from harsh environments and any unexpected shocks
- Visible power status and HDD activity improves system availability
- User-friendly and front-accessible filter for easy system maintenance
- Flexible mechanical design supports both single PS/2 and redundant ATX power supply

Specifications

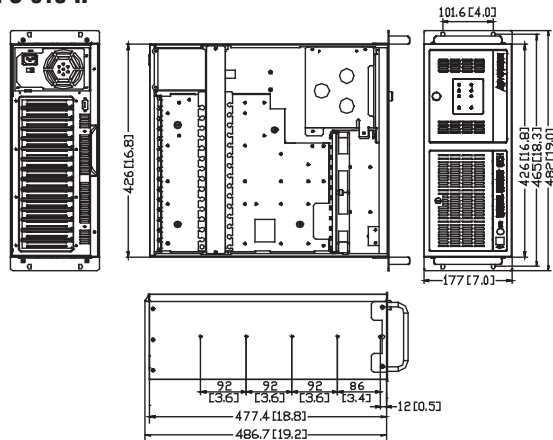
Drive Bay		Front-accessible	
	3.5"	1	
	5.25"	3	
Cooling	Fan	2 (85 CFM each)/1 (85 CFM each)	
	Air Filter	Yes	
I/O Interface	USB	2/-	
	PS/2	PS/2 keyboard & mouse, or PS/2 keyboard only, depending on the enclosed CPU card/ motherboard (IPC-610-H only)	
Miscellaneous	Slide Rail	General Devices (http://www.generaldevices.com/) C-300 series supported (not included)	
	Indicators	Power & HDD activity	
	Rear Panel	D-Sub 9-pin and 25-pin openings	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, 1/2 sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical Characteristics	Dimensions (W x H x D)	482 x 177 x 478 mm (19" x 7" x 18.8")	
	Weight	17.0 ka (37.4 lb)/16.5 ka (36.3 lb)	

IPC-610-H

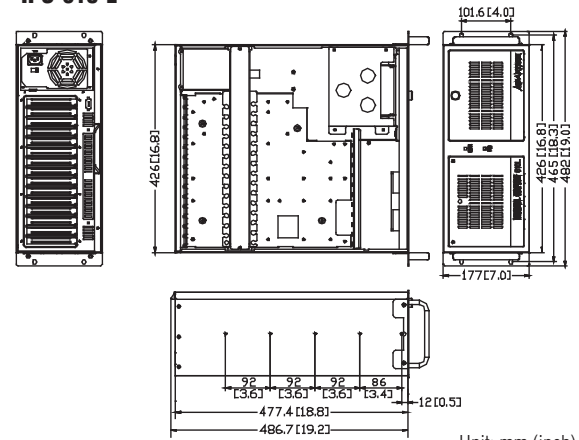


Dimensions

IPC-610-H



IPC-610-L



Unit: mm (inch)

Power Supply Options

Part Number	Watt	Input	Output	Specifications	Safety	MTBF
PS-250ATX-ZE (ATX, PFC)	250 W	AC 115/230 V (selectable)	+5 V @ 27 A, +3.3 V @ 20 A +12 V @ 13 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.5 A, +12 V @ 1 A +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.3 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A, +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
RPS-300ATX-ZE (ATX, PFC) (IPC-610-H only)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 18 A +12 V @ 16 A, -12 V @ 0.5 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 2 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-400ATX-ZBE (ATX, PFC) (IPC-610-H only)	400 W	AC 100 ~ 240V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 30 A, -12 V @ 1 A -5 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 3 A, +12 V @ 1 A +3.3 V @ 1 A	UL/TUV/CB/CCC	91,000hours @ 25° C
RPS-400ATX-ZE (ATX, PFC) (IPC-610-H only)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 28 A, -5 V @ 0.5 A -12 V @ 1.2 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/cUL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-DC48E (IPC-610-H only)	300 W	DC -48 V	+3.3 V @ 28 A, +5 V @ 30 A +12 V @ 15 A, -5 V @ 0.3 A -12 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 0.3 A, +3.3 V @ 0.3 A +12 V @ 0.2 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C

Accessories

Part Number	Description
19914K0010	Door filter 97.6 x 36.6 x 5 mm
1999615000	Fan filter 115 x 195 x 5 mm



IPC-610-L

Ordering Information

Part Number	Power Supply	Motherboard/Backplane	Regulation
BP version			
IPC-610BP-00XHE	Without power supply, with ATX switch	-	-
IPC-610BP-25ZHE	PS-250ATX-ZE	-	CE
IPC-610BP-30ZHE	PS-300ATX-ZBE	-	CE
IPC-610BP-30RHE	RPS-300ATX-ZE	-	CE
IPC-610BP-40ZHE	PS-400ATX-ZBE	-	CE
MB version			
IPC-610MB-00XHE	Without power supply with ATX switch	-	-
IPC-610MB-30ZHE	PS-300ATX-ZBE	-	CE
IPC-610MB-30RHE	RPS-300ATX-ZE	-	CE
IPC-610MB-00XLE	Without power supply, with ATX switch	-	-
IPC-610MB-25ZLE	PS-250ATX-ZE	-	CE
IPC-610MB-30ZLE	PS-300ATX-ZBE	-	CE

IPC-611

4U 14-slot Rackmount Chassis with Front-accessible Fan

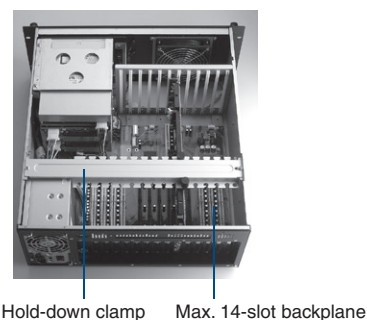
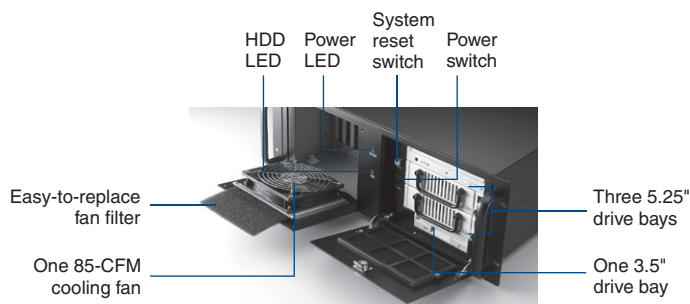


Features

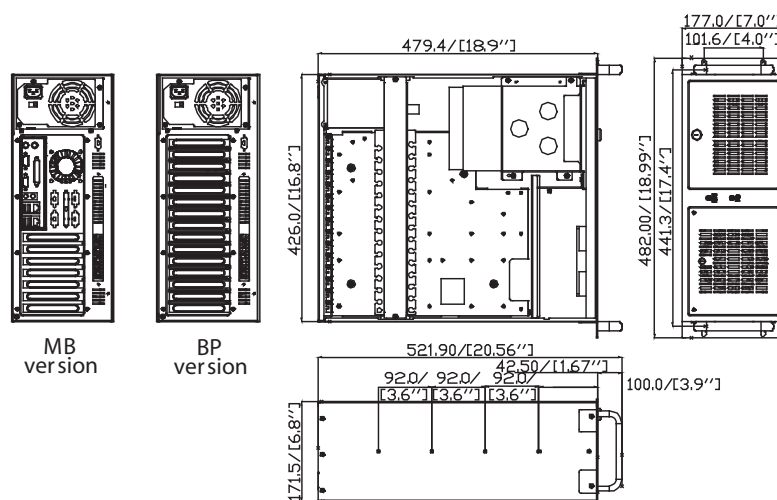
- 4U rackmount chassis supports up to 14 cards
- Shock-resistant disk drive bay design holds up to three 5.25" and one 3.5" disk drives
- Special hold-down clamp design with rubber cushions protects the cards from harsh environments and any unexpected shocks
- Visible power and HDD activity notification improves system availability
- User-friendly and front-accessible filter for system maintenance
- Lockable front door prevents unauthorized access
- Flexible mechanical design supports both 300 W single PS/2 and redundant ATX power supply

Specifications

Drive Bay	3.5"	Front-accessible	1
	5.25"		3
Cooling	Fan		1 (85 CFM)
	Air Filter		Yes
Miscellaneous	Slide Rail	General Devices (http://www.generaldevices.com/) C-300 series supported (not included)	
	Indicator	Power on and HDD activity	
	Rear Panel	D-Sub 9-pin and 25-pin openings	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, 1/2 sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (-4 ~ 82° F)	
Physical Characteristics	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
	Dimensions (W x H x D)	482 x 177 x 478 mm (19" x 7" x 18.8")	
	Weight	16.5 kg (36.3 lb)	



Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Watt	Input	Output	Specifications		MTBF
				Mini-load	Safety	
PS-250ATX-ZE (ATX, PFC)	250 W	AC 115 / 230 V (selectable)	+5 V @ 27 A, +3.3 V @ 20 A +12 V @ 13 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.5 A +12 V @ 1 A +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
RPS-300ATX-ZE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 18 A +12 V @ 16 A, -12 V @ 0.5 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A +3.3 V @ 1 A +12 V @ 2 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-DC48E (ATX)	300 W	DC -48 V	+3.3 V @ 28 A, +5 V @ 30 A, +12 V @ 15 A, -5 V @ 0.3 A, -12 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 0.3 A, +3.3 V @ 0.3 A, +12 V @ 0.2 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-400ATX-ZBE (ATX, PFC)	400 W	AC 100 ~ 240 V (full range)	+5 V @ 35 A, +3.3 V @ 25A +12 V @ 30 A, -12 V @ 1.0 A -5 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	91,000 hrs @ 25° C

Accessories

Part Number	Description
1999001030	Fan filter 127 x 127 x 5 mm
1999611000	Door filter 142 x 97 x 5 mm
96FDD-144-TE-B1	Black 3.5" FDD
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVDRW-ROM

Ordering Information

Part Number	Power Supply	Motherboard/Backplane	Regulation
IPC-611BP-00XE	Without power supply, with ATX switch	-	-
IPC-611BP-25ZE	PS-250ATX-ZE	-	CE
IPC-611BP-30ZE	PS-300ATX-ZBE	-	CE
IPC-611BP-40ZE	PS-400ATX-ZBE	-	CE
IPC-611MB-00XE	Without power supply, with ATX switch	-	-
IPC-611MB-25ZE	PS-250ATX-ZE	-	CE
IPC-611MB-30ZE	PS-300ATX-ZBE	-	CE



Rear panel of backplane version

IPC-510

4U Rackmount Chassis with Front USB and PS/2 Interfaces

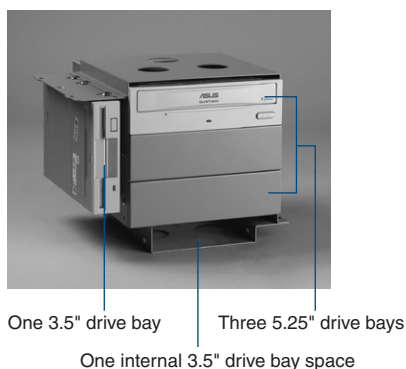
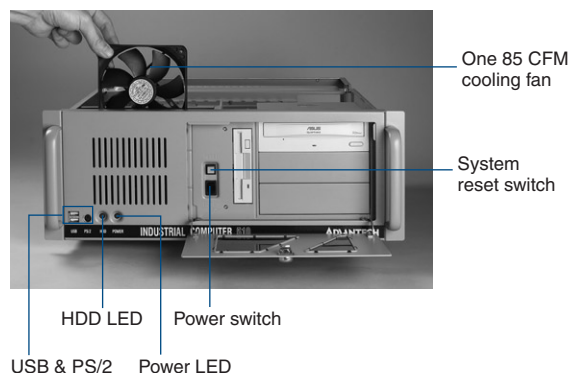


Features

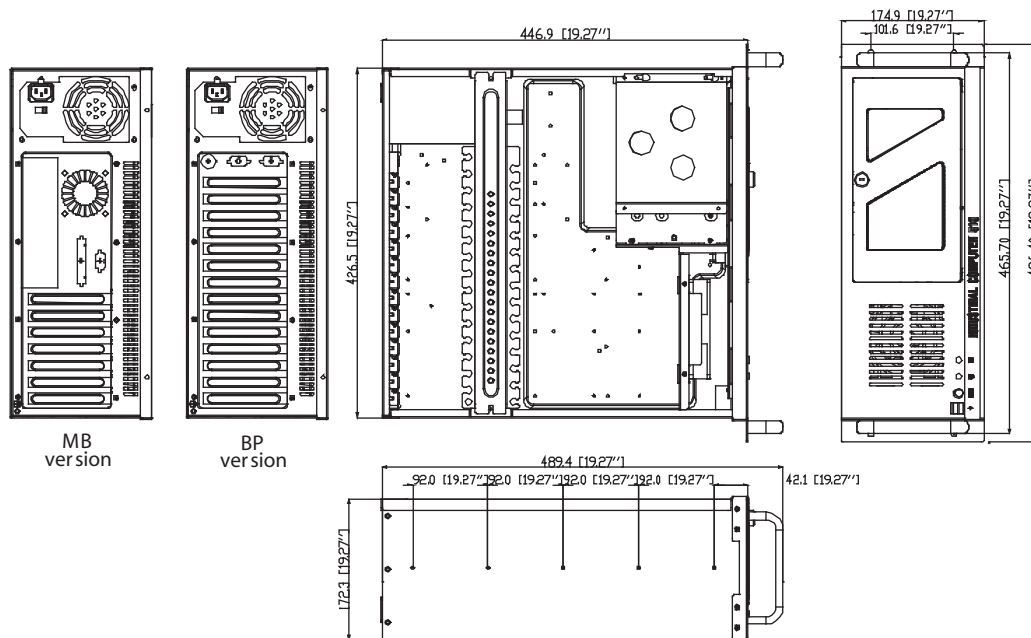
- The most cost-effective rackmount chassis
- Equipped with 250/300 W ATX PFC PS/2 power supply
- Easy to install front-accessible drive bays to hold three 5.25" and two 3.5" drives (one external & one internal)
- Front-accessible USB & PS/2 interfaces
- Designed to withstand environmental extremes, such as shock, vibration and high temperature

Specifications

		Front-accessible	Internal
	Drive Bay		
	5.25"	3	-
	3.5"	1	1
Cooling	Fan	1 (85 CFM)	
I/O Interface	USB	2 (front-accessible)	
	PS/2	PS/2 keyboard and mouse, or PS/2 keyboard depends on the enclosed motherboard	
Miscellaneous	Rear Panel	BP version: One D-Sub 9-pin opening MB version: One D-Sub 9-pin and one 68-pin SCSI openings	
	Indicator	Power & HDD activity	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Altitude	0 ~ 3,048 m (0 ~ 10,000 ft)	
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
Physical Characteristics	Dimensions (W x H x D)	482 x 177 x 450 mm (19" x 7" x 17.7")	
	Weight	12.5 kg (27.5 lb)	



Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
PS-250ATX-ZE (ATX, PFC)	250 W	AC 115 / 230 V (selectable)	+5 V @ 27 A, +3.3 V @ 20 A +12 V @ 13 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.5 A +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Ordering Information

Part Number	Power Supply	Motherboard/Backplane	Regulation
IPC-510MB-00XE	Without power supply, with ATX switch	-	-
IPC-510MB-25ZE	PS-250ATX-ZE	-	CE
IPC-510MB-30ZE	PS-300ATX-ZBE	-	CE
IPC-510BP-00XE	Without power supply, with ATX switch	-	-
IPC-510BP-25ZE	PS-250ATX-ZE	-	CE
IPC-510BP-30ZE	PS-300ATX-ZBE	-	CE

IPC-623

4U 20-slot Rackmount Chassis with Multi-system and Front-accessible Redundant Power Supply

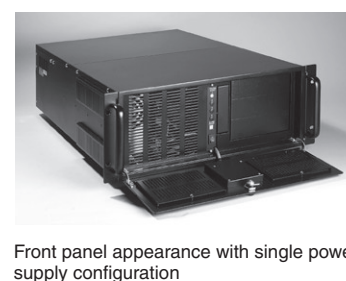
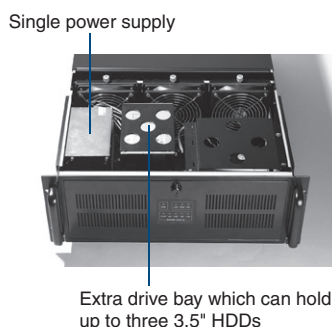
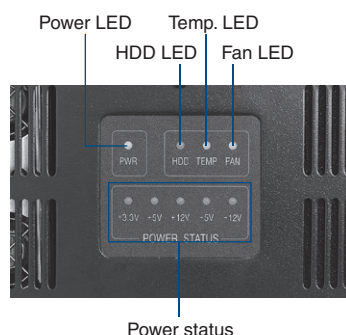
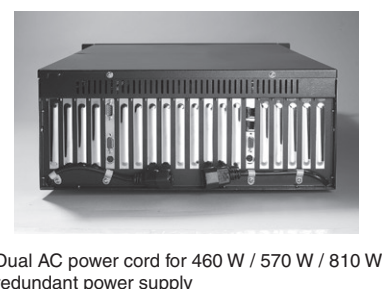
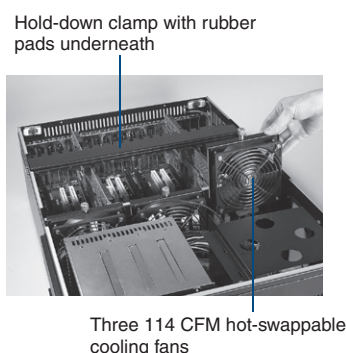
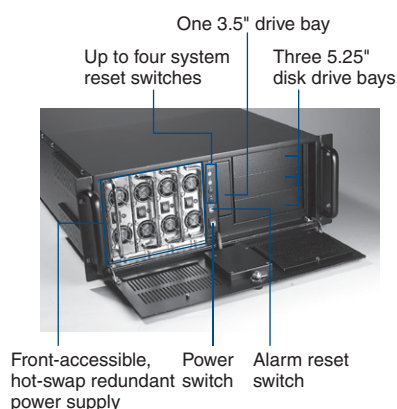


Features

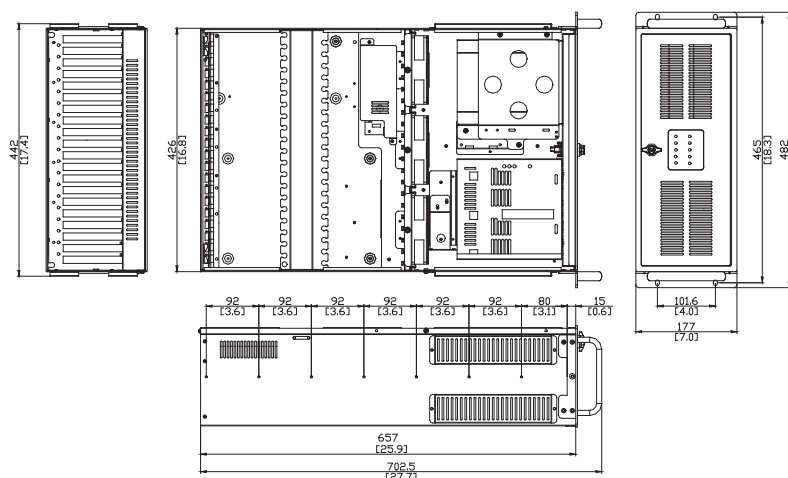
- 4U-high rackmount chassis supports up to 4 multi-systems
- Front-accessible redundant power supply
- Shockproof disk drive bay design can hold up to three front-accessible 5.25" and one 3.5" disk drives, and one internal 3.5" HDD
- Three hot swap 114 CFM cooling fans
- Front LEDs and audible alarm notifications for system power status, fan operation, HDD status, and in-chassis temperature monitoring
- Dual top cover designed for easy maintenance
- Five easily replaceable air filters providing good airflow
- 570 W and 810 W N+1 redundant power supply with dual AC input options

Specifications

		Front-accessible	Internal
Drive Bay	3.5"	1	1
	5.25"	3	-
Cooling	Fans	3 (hot-swap, 114 CFM each)	
	Air Filters	4 (200 x 45 mm) + 1 (128 x 95 mm)	
Miscellaneous	LED Indicators	System status notification for Power, Fan, HDD and Temperature	
	Switches	Power status notification for +5 V, +12 V, -5 V, -12 V, and +3.3 V	
	Hold-down Clamp	Power, system reset, alarm reset	
		Hold-down clamp with rubber pad underneath and accessory rubber cushions	
Physical Characteristics	Dimensions (W x H x D)	482 x 177 x 657 mm (19" x 7" x 25.9")	
	Weight	26 kg (57 lb)	



Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
1757000131G (single P/S)	400 W (ATX, PFC)	AC 100 ~ 240 V (full range)	+5 V @ 35 A, +3.3 V @ 25 A, +12 V @ 30 A, -5 V @ 0.8 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	91,000 hours @ 25° C
1757000133G (single P/S)	500 W (ATX, PFC)	AC 100 ~ 240 V (full-range)	+5 V @ 40 A, +3.3 V @ 30 A, +12 V @ 32 A, -5 V @ 0.8 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 2.5 A, +3.3 V @ 1 A, +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	98,000 hours @ 25° C
1757000197G (1+1 redundant)	460 W (ATX, PFC)	AC 100 ~ 240 V (full-range)	+5 V @ 40 A, +3.3 V @ 30 A, +12 V @ 32 A, -5 V @ 0.8 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 5 A, +3.3 V @ 1 A, +12 V @ 2.5 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
1757000127G (2+1 redundant)	570 W (ATX, PFC)	AC 115 ~ 230 V (full-range)	+5 V @ 50 A, +3.3 V @ 40 A, +12 V @ 34 A, -5 V @ 1 A, -12 V @ 1 A, +5 Vsb @ 1.2 A	+5 V @ 6 A, +3.3 V @ 2 A, +12 V @ 3 A, -12 V @ 0.1 A, -5 V @ 0.1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
1757000128G (3+1 redundant)	810 W (ATX, PFC)	AC 115 ~ 230 V (full-range)	+5 V @ 75 A, +3.3 V @ 60 A, +12 V @ 51 A, -5 V @ 1.5 A, -12 V @ 1.5 A, +5 Vsb @ 1.6 A	+5 V @ 9 A, +3.3 V @ 3 A, +12 V @ 4.5 A, -12 V @ 0.15 A, -5 V @ 0.15 A, +5 Vsb @ 0.15 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Accessories

Part Number	Description
1999000480	Side filter 45 x 200 x 6 mm
1999000490	Front filter 130 x 95 x 6 mm
96FDD-144-TE-B1	Black 3.5" FDD
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVD-RW-ROM

Ordering Information

Part Number	Power Supply	Backplane	Regulation
IPC-623BP-40ZBE	1757000131G (single P/S)	-	CE
IPC-623BP-50ZBE	1757000133G (single P/S)	-	CE
IPC-623BP-46RZBE	1757000197G (1+1 RPS)	-	CE
IPC-623BP-57NBE	1757000127G (2+1 RPS)	-	CE
IPC-623BP-81NBE	1757000128G (3+1 RPS)	-	CE

ACP-5260

5U 20-slot Rackmount Chassis with 6 Hot-swap Ultra320 SCSI SCA HDD Trays and Redundant Power Supply



PICMG 1.0
PICMG 1.3

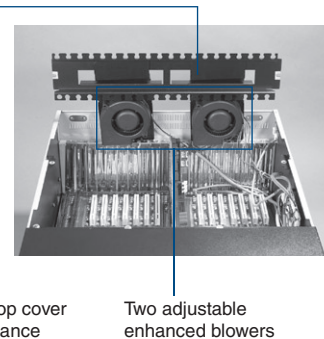
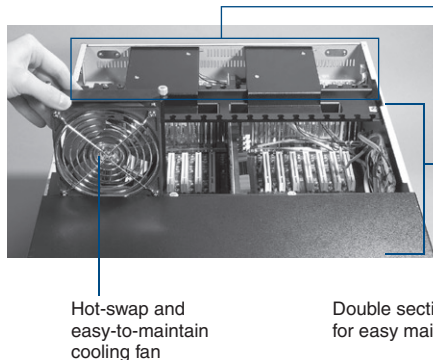
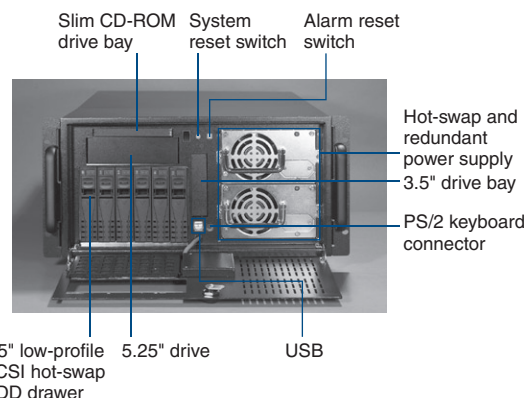


Features

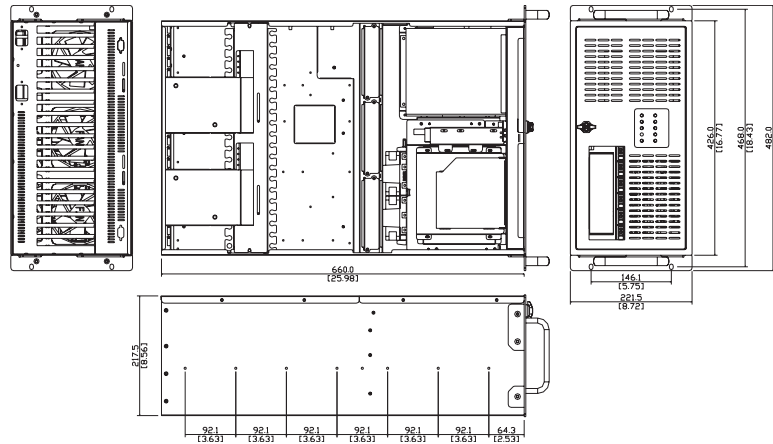
- Supports ATX motherboard or backplane with up to 20 slots
- Ultra320 SCA SCSI data storage unit, which meets the SAF-TE (SCSI Accessed Fault-Tolerant Enclosure) specification
- Hot-swappable SCSI HDD trays, high-speed cooling fans and redundant power supply
- System alarm notification LEDs, including system operation, system power, and SCSI storage status
- Front-accessible USB and PS/2 interfaces for easy data transfer
- Lockable front-door prevents unauthorized access

Specifications

Drive Bay	3.5"	Front-accessible	
	5.25"	6 (hot-swap), 1 (standard)	
	Slim CD-ROM	1	
Cooling	Fan	2 (47 CFM each) for SCSI storage, 3 (114 CFM each) in the middle of the chassis	
	Blower	2 (25 CFM each) on rear	
	Air Filter	Yes	
I/O Interface	USB	2 (front-accessible)	
	PS/2	PS/2 keyboard & mouse, or PS/2 keyboard only, depending on the enclosed CPU board	
Miscellaneous	Rear Panel	Two D-Sub 9-pin openings	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
Physical Characteristics	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
	Dimensions (W x H x D)	482 x 222 x 660 mm (19" x 8.75" x 26")	
	Weight	30 kg (66 lb)	



Dimensions



Unit: mm (inch)

Power Supply Options

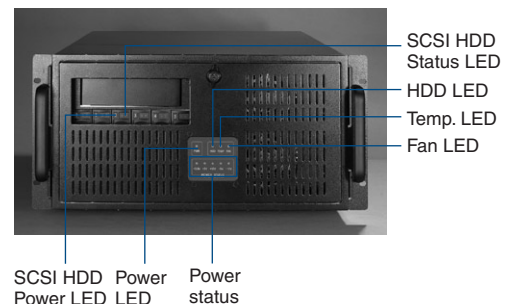
Part Number	Watt	Input	Output	Specifications		
				Mini-load	Safety	MTBF
1757000197G (ATX, PFC) (B/P version)	460 W	AC 100 ~ 240 V (full-range)	+5 V @ 40 A, +3.3 V @ 30 A +12 V @ 32 A, -12 V @ 1 A -5 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 5 A +3.3 V @ 1 A +12 V @ 2.5 A +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
1757946006G (ATX, PFC) (M/B version)	460 W	AC 100 ~ 240 V (full-range)	+5 V @ 40 A, +3.3 V @ 30 A +12 V @ 27 A, -12 V @ 1 A -5 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 5 A +3.3 V @ 1 A +12 V @ 2.5 A +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
1757000127G (ATX, PFC) (2+1 redundant)	570 W	AC 115 ~ 230 V (full-range)	+5 V @ 50 A, +3.3 V @ 40 A +12 V @ 34 A, -5 V @ 1 A -12 V @ 1 A, +5 Vab @ 1.2 A	+5 V @ 6 A, 3.3 V @ 2 A +12 V @ 3 A, -5 V @ 0.1 A -12 V @ 0.1 A, 5 Vab @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
1757000128G (ATX, PFC) (3+1 redundant)	810 W	AC 115 ~ 230 V (full-range)	+5 V @ 75 A, +3.3 V @ 60 A +12 V @ 51 A, -5 V @ 1.5 A -12 V @ 1.5 A, +5 Vab @ 1.6 A	+5 V @ 9 A, +3.3 V @ 3 A +12 V @ 4.5 A, -5 V @ 0.15 A -12 V @ 0.15 A, +5 Vab @ 0.15 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Accessories

Part Number	Description
SCD-ROME	Black slim 24X CD-ROM drive with 40-pin IDE connector
SDVD-CDRWE	Black slim 8X DVD + 24X CD-ROM drive with 40-pin IDE connector
96FDD-144-TE-B1	Black 3.5" FDD
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVDRW-ROM

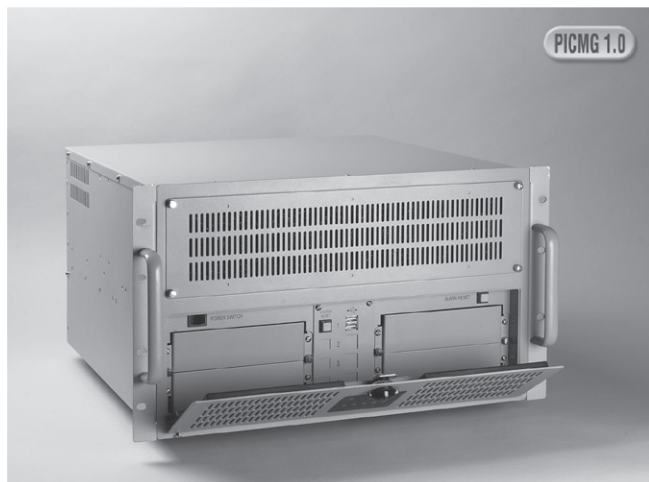
Ordering Information

Part Number	Power Supply	Motherboard/Backplane	Regulation
ACP-5260MB-46RE	1757946006G	-	CE
ACP-5260BP-46RE	1757000197G	-	CE
ACP-5260BP-57NE	1757000127G	-	CE
ACP-5260BP-81NE	1757000128G	-	CE



IPC-622

6U 20-slot Rackmount Chassis Supporting Quad-system and Redundant Power Supply

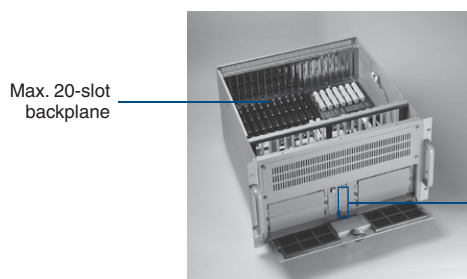


Features

- 6U rackmount chassis supports up to 4 multi-systems
- Front LEDs and audible alarm notifications for system power status, fan operation, HDD status, and temperature monitoring
- Four 53-CFM cooling fans with filters
- Various backplane options for up to 20 slots
- Lockable front door prevents unauthorized access and displays the system status clearly
- Supports up to four sets of dual USB ports in the front
- Four reserved COM port openings on the rear panel

Specifications

		Front-accessible	Internal
Drive Bay	5.25"	4	-
	3.5"	-	2
Cooling	Fan	4 (53 CFM each)	
	Air Filters	Yes	
I/O Interface	USB	2 (default) and up to 4 sets of dual USB ports in the front	
	Notification LEDs	PWR, HDD, Fan & Temperature	
Miscellaneous	Control	Power on/off, system reset and alarm reset switches	
	Real Panel	Four COM openings	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical	Dimensions (W x H x D)	482 x 266 x 463 mm (19" x 10.5" x 18")	
	Weight	30.0 kg (66 lb)	



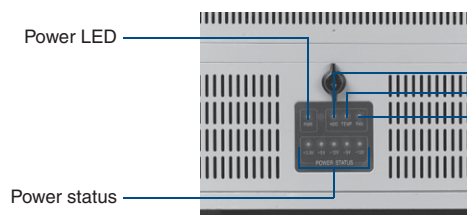
Max. 20-slot backplane

Up to four sets of dual USB ports



Four 53-CFM cooling fans

Easy-to-replace fan filter



Power LED

HDD LED
Temp. LED
FAN LED

Power status

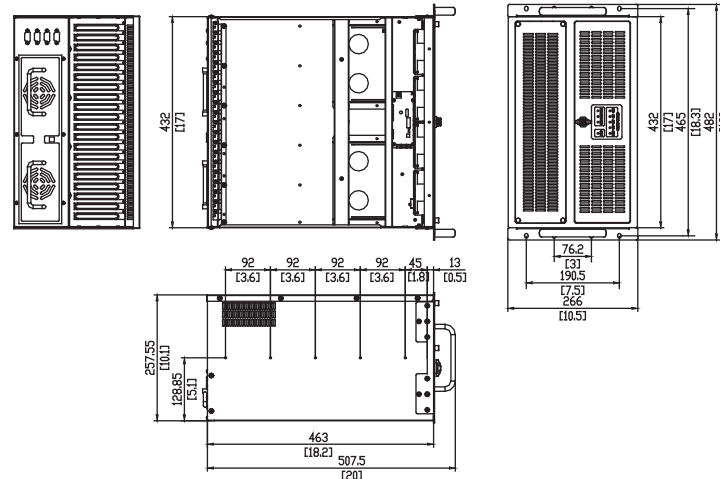


Rear vents for better airflow

Hot-swap redundant power supply

Four COM port openings

Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
1757000193G (single P/S)	400 W (ATX, PFC)	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A, +12 V @ 30 A, -5 V @ 0.8 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 3 A, +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	91,000 hours @ 25° C
1757000162G (single P/S)	500 W (ATX, PFC)	AC 100 ~ 240 V (full-range)	+5 V @ 40 A, +3.3 V @ 30 A, +12 V @ 32 A, -5 V @ 0.8 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 2.5 A, +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	98,000 hours @ 25° C
1757000177G (1+1 redundant)	460 W (ATX, PFC)	AC 100 ~ 240 V (full range)	+5 V @ 40 A, +3.3 V @ 30 A, +12 V @ 32 A, -5 V @ 0.8 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 5 A, +3.3 V @ 1 A, +12 V @ 2.5 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Accessories

Part Number	Description
1701400971	HDD cable, ATA 33, 62 cm + 35 cm
1701400973	HDD cable, ATA 66/100, 62 cm + 35 cm
1999611000	Door filter 142 x 97 x 5 mm
1999622000	Fan filter 382 x 93 x 5 mm

Ordering Information

Part Number	Power Supply	Backplane	Regulation
IPC-622BP-00RCE	Without power supply, with ATX switch	-	-
IPC-622BP-40ZCE	1757000193G (single P/S)	-	CE
IPC-622BP-50ZCE	1757000162G (single P/S)	-	CE
IPC-622BP-46RCE	1757000177G (1+1 RPS)	-	CE
Black Color Chassis Options			
IPC-622BP-00RCBE	Without power supply, with ATX switch	-	-
IPC-622BP-46RCBE	1757000177G (1+1 RPS)	-	CE

ACP-7000

7U 20-slot Rackmount Chassis with 6 Hot-swap Ultra320 SCSI SCA HDD Bays and RPS



Features

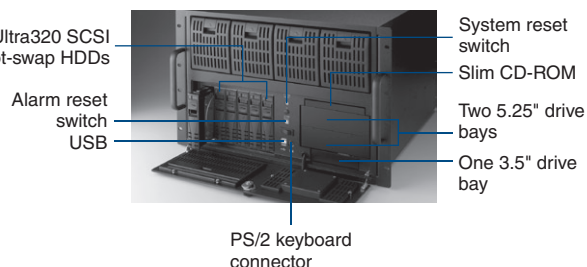
- Supports ATX motherboard and backplane with up to 20 slots
- Ultra320 SCA SCSI data storage unit, which meets the SAF-TE (SCSI Accessed Fault-Tolerant Enclosure) specification
- Hot-swappable SCSI HDD trays, high-speed cooling fans and redundant power supply
- System alarm notification LEDs, including system operation, system power, and SCSI storage status
- Front-accessible USB and PS/2 interfaces for easy data transfer
- Lockable front-door prevents unauthorized access

Specifications

Drive Bay		Front-accessible	
	Slim CD-ROM	1	
	3.5"	6 (hot-swap), 1 (FDD, or HDD)	
	5.25"	2	
Cooling	Fans	4 (58 CFM each) hot-swap; 2 (47 CFM each) for SCSI storage unit	
	Air Filters	Yes	
I/O Interface	USB	2 (front-accessible)	
	PS/2	PS/2 keyboard & mouse, or PS/2 keyboard only, depending on the enclosed CPU board	
Miscellaneous	Slide Rail	General Device C-300 series supported (not included)	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical Characteristics	Dimensions (W x H x D)	482 x 307 x 500 mm (19" x 12.1" x 19.7")	
	Weight	35 kg (77 lb)	



Supports six Ultra320 SCSI SCA hot-swap HDDs

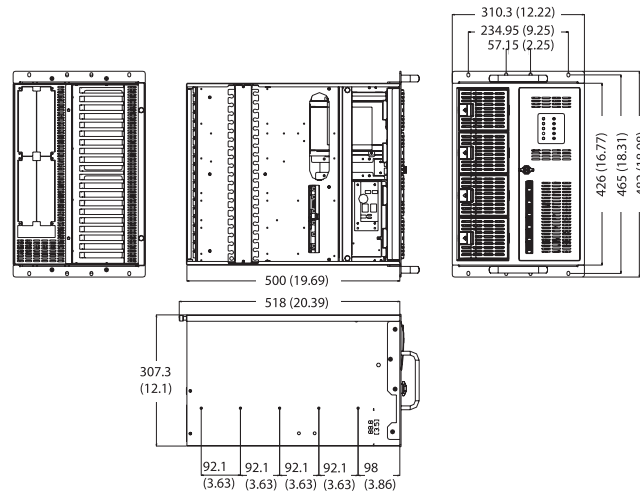


Four hot-swap cooling fans with filter



Hot-swap redundant power supply

Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
1757000177G (for ACP-7000BP) 1757946007G (for ACP-7000MB)	460 W ATX PFC	AC 100 ~ 240 V (full-range)	+5 V @ 40 A, +3.3 V @ 30 A +12 V @ 32 A, -5 V @ 0.8 A -12 V @ 1 A, +5 Vsb @ 2 A	+5 V @ 5 A +3.3 V @ 1 A +12 V @ 2.5 A +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
1757957002G (for ACP-7000BP) 1757957001G (for ACP-7000MB)	570 W ATX PFC	AC 115 ~ 230 V (full-range)	+5 V @ 50 A, +3.3 V @ 40 A +12 V @ 34 A, -12 V @ 1 A -5 V @ 1 A, +5 Vsb @ 1.2 A	+5 V @ 6 A +3.3 V @ 2 A +12 V @ 3 A -12 V @ 0.1 A -5 V @ 0.1 A +5 Vsb @ 0.1 A	UL/TUV/CB	100,000 hours @ 25° C
1757981000G (for ACP-7000BP) 1757981001G (for ACP-7000MB)	810 W ATX PFC	AC 115 ~ 230 V (full-range)	+5 V @ 75 A, +3.3 V @ 60 A +12 V @ 51 A, -12 V @ 1.5 A -5 V @ 1.5 A, +5 Vsb @ 1.6 A	+5 V @ 9 A +3.3 V @ 3 A +12 V @ 4.5 A -12 V @ 0.15 A -5 V @ 0.15 A +5 Vsb @ 0.15 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Accessories

Part Name	Description
19914K0010	Door filter 97.6 x 36.6 x 5 mm
19997K0010	Door filter 174 x 79.2 x 5 mm
19997K0020	Fan filter 104 x 92 x 5 mm
96FDD-144-TE-B1	Black 3.5" FDD
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVDRW-ROM
SCD-ROME	Black slim 24X CD-ROM drive with 40-pin IDE connector
SDVD-CDRWE	Black slim 8X DVD + 24X CD-ROM drive with 40-pin IDE connector

Ordering Information

Part Number	Power Supply	Motherboard/ Backplane	Regulation
ACP-7000BP-46RE	1757000177G (1+1 redundant)	-	CE
ACP-7000BP-57NE	1757957002G (2+1 redundant)	-	CE
ACP-7000BP-81NE	1757981000G (3+1 redundant)	-	CE
ACP-7000MB-46RE	1757946007G (1+1 redundant)	-	CE

IPC-5120

Compact Desktop/Wallmount Chassis with Front I/O Interfaces & Expansion Slots for MicroATX Motherboard

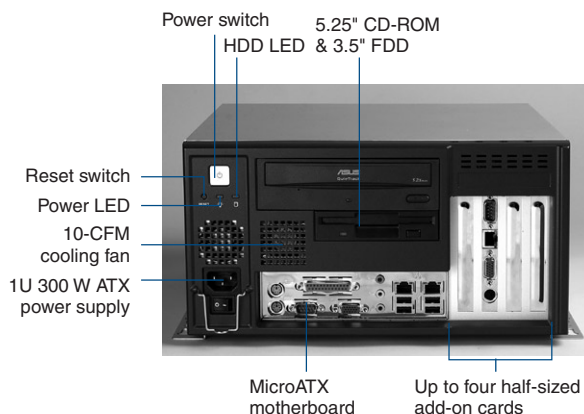


Features

- Streamlined in-chassis airflow design supporting LGA775 Pentium® 4 CPU with suggested CPU cooler
- All I/O interfaces are in the front
- Shock-resistant drive bay to hold one 5.25" and two 3.5" drives (one external & one internal)
- Supports up to four half-sized add-in cards in the front
- LED indicators for power status and HDD activity
- Equipped with 1U-high 300 W ATX/PFC power supply
- Easy-to-replace air filter

Specifications

		Front-accessible	Internal
Drive Bay	5.35"	1	
	3.5"	1	1
Cooling	Fan	1 (85 CFM) + 1 (10 CFM)	
	Air Filter	1 (133 x 112 mm)	
Miscellaneous	Control	Power on/off switch and system reset button	
	Indicators	Power status and HDD activity	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5-500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
Physical Characteristics	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
	Dimensions (W x H x D)	320 x 164 x 307 mm (12.6" x 6.5" x 12.1")	
	Weight	8.0 kg (17.6 lb)	



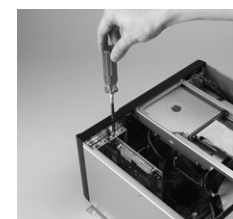
Solid disk drive housing & easy-to-maintain fan filter



Shock-resistant drive bay for holding an internal 3.5" HDD

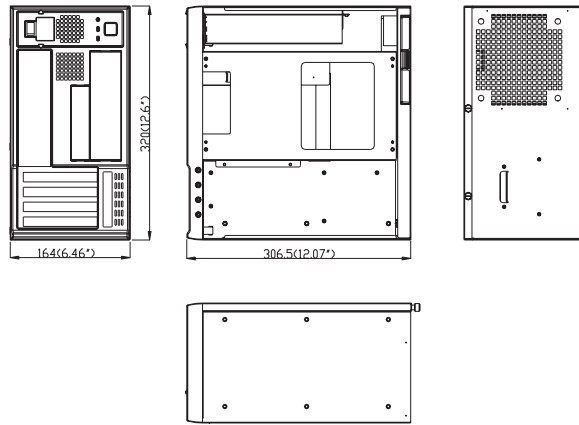


Plug ring-lock securely fastens the power cord



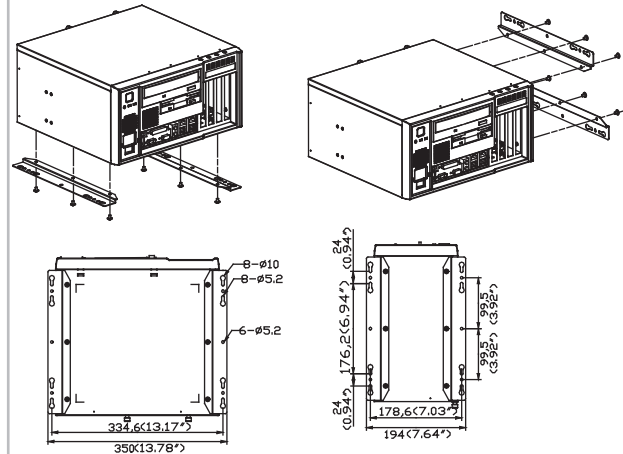
User-friendly mechanical design for installing an add-on card

Dimensions



Unit: mm (inch)

Installation



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
1757000229G (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 14 A, +12 V @ 16 A, -5 V @ 0.5 A, -12 V @ 1.0 A, +5 Vsb @ 1.5 A	+5 V @ 3 A, +3.3 V @ 1.0 A, +12 V @ 2 A, -5 V @ 0.05 A, -12 V @ 0.05 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C

Accessories

Part Number	Description
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVD RW-ROM
96FDD-144-TE-B1	Black 3.5" FDD
1750000257	2U-high Socket 478 P4 CPU cooler up to 3.2 GHz (89 W)
1750000332	2U-high LGA775 P4 CPU cooler up to 3.8 GHz

Ordering Information

Part Number	Power Supply	Motherboard	Regulation
IPC-5120-30ZE	1757000229G	-	CE

18
Industrial Motherboards19
Single Board Computers20
Industrial Computer Chassis21
High Performance Computing22
Industrial PC Peripherals

IPC-7120

Compact Desktop/Wallmount Chassis with Front I/O Interfaces & Expansion Slots for ATX Motherboard

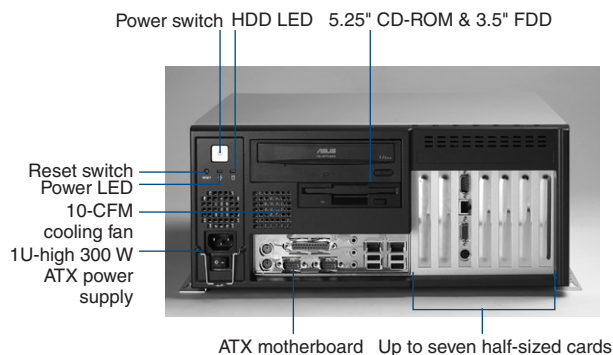


Features

- Streamlined in-chassis airflow design supporting LGA775 Pentium® 4 CPU with suggested CPU cooler
- All I/O interfaces are in the front
- Shock-resistant drive bay to hold one 5.25" and two 3.5" drives (one external & one internal)
- Supports up to seven half-sized add-in cards in the front
- LED indicators for power status and HDD activity
- Equipped with 1U-high 300 W ATX/PFC power supply
- Easy-to-replace air filter

Specifications

		Front-accessible	
		Internal	Internal
Disk Drive Bay	5.35"	1	
	3.5"	1	1
Cooling	Fan	1 (85 CFM) + 1 (10 CFM)	
	Air Filter	1 (133 x 112 mm)	
Miscellaneous	Control	Power on/off switch and system reset button	
	LED Indicators	Power status and HDD activity	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
Physical Characteristics	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
	Dimensions (W x H x D)	380 x 164 x 307 mm (15" x 6.5" x 12.1")	
	Weight	9.0 kg (19.8 lb)	



User-friendly mechanical design for installing an add-on card



Solid disk drive housing & easy-to-maintain fan filter

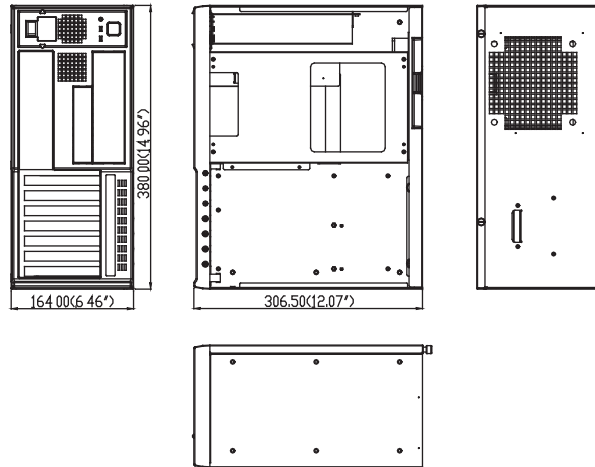


Plug ring-lock securely fastens the power cord



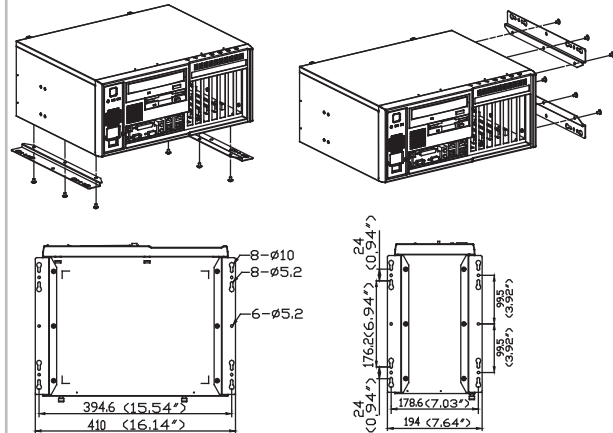
Shock-resistant drive bay for holding an internal 3.5" HDD

Dimensions



Unit: mm (inch)

Installation



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
1757000229G (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 14 A, +12 V @ 16 A, -5 V @ 0.5 A, -12 V @ 1.0 A, +5 Vsb @ 2.0 A	+5 V @ 3 A, +3.3 V @ 1.0 A, +12 V @ 2 A, -5 V @ 0.05 A, -12 V @ 0.05 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C

Accessories

Part Number	Description
96CD-52X-I-AS-B3	Black 5.25" 52X CD-ROM
96DVR-40X-I-AS-B	Black 5.25" 16X/40X/24X DVDRW-ROM
96FDD-144-TE-B1	Black 3.5" FDD
1750000257	2U-high Socket 478 P4 CPU cooler up to 3.2 GHz (89 W)
1750000332	2U-high LGA775 P4 CPU cooler up to 3.8 GHz

Ordering Information

Part Number	Power Supply	Motherboard	Regulation
IPC-7120-30ZE	1757000229G	-	CE

18
Industrial Motherboards19
Single Board Computers20
Industrial Computer Chassis21
High Performance Computing22
Industrial PC Peripherals

IPC-7143

Desktop/Wallmount Chassis for ATX Motherboard with 2 SATA HDD Trays & Bottom-accessible I/O

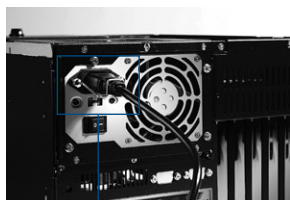


Features

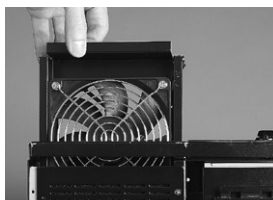
- Supports one slim CD-ROM drive, two removable 3.5" SATA HDDs and two standard 3.5" drives
- Bi-directional wall-mount options with bottom accessible I/O interfaces
- Easy-to-replace 85-CFM cooling fan with air filter
- Front-accessible USB and PS/2 interfaces
- Visible LED indicators and audible alarm notification for system fault detection
- Removable and shock-resistant drive housings
- Lockable front door prevents unauthorized access
- Optional dual redundant power supply

Specifications

Drive Bay	5.25"	Front-accessible	
	3.5"	1 (Slim CD-ROM drive)	
Cooling	Fan	One 12 x 12 cm (up to 3.8 cm depth) 85 CFM; one 5 x 5 cm 47 CFM blower	
	Air Filter	One 120 x 120 mm	
I/O Interface	USB	2 (front-accessible)	
	PS/2	PS/2 keyboard and mouse, or PS/2 keyboard depends on the enclosed motherboard	
Miscellaneous	Indicators	PWR, HDD, Temperature and Fan	
	Switches	Power, system reset and alarm reset	
	Bottom Panel	Reserved two D-Sub 9-pin openings	
	Hold-down clamp	Hold-down clamp with attached rubber cushions	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (With 11 ms duration, half sine wave)	30 G
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical Characteristics	Dimensions (W x H x D)	320 x 450 x 200 mm (12.6" x 17.7" x 7.9")	
	Weight	14 kg (30.8 lb)	



Plug ring-lock securely fastens the power cord (PS-400ATX-ZB)



Easy-to-maintain cooling fan & filter



One slim CD-ROM drive, two 3.5" disk drives & two removable SATA HDD trays



Bottom view of IPC-7143

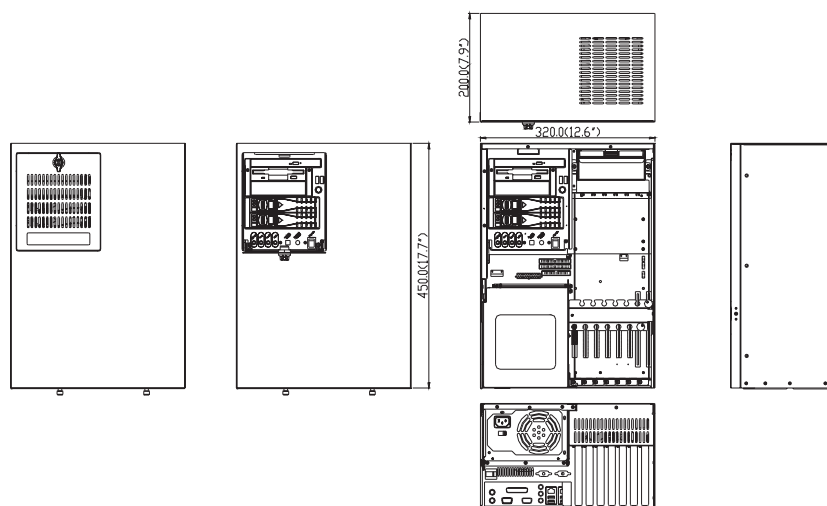


Power supply bracket with hinges



Bidirectional wall-mountable design

Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +12 V @ 15 A, +3.3 V @ 28 A, -5 V @ 0.3 A, -12 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 0.1 A, +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C
RPS-300ATX-ZE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +12 V @ 16 A, +3.3 V @ 18 A, -5 V @ 0.5 A, -12 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C
PS-400ATX-ZBE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +12 V @ 30 A, +3.3 V @ 25 A, -5 V @ 0.8 A, -12 V @ 1 A, +5 Vsb @ 2 A	+5V @ 3 A, +3.3 V @ 1 A, +12 V @ 1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	91,000 hrs @ 25° C
RPS-400ATX-ZE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +12 V @ 28 A, +3.3 V @ 25 A, -5 V @ 0.5 A, -12 V @ 1.2 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A, +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C
PS-300ATX-DC48E	300 W	DC -48 V	+5 V @ 30 A, +12 V @ 15 A, +3.3 V @ 28 A, -5 V @ 0.3 A, -12 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 0.3 A, +3.3 V @ 0.3 A, +12 V @ 0.2 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C

Accessories

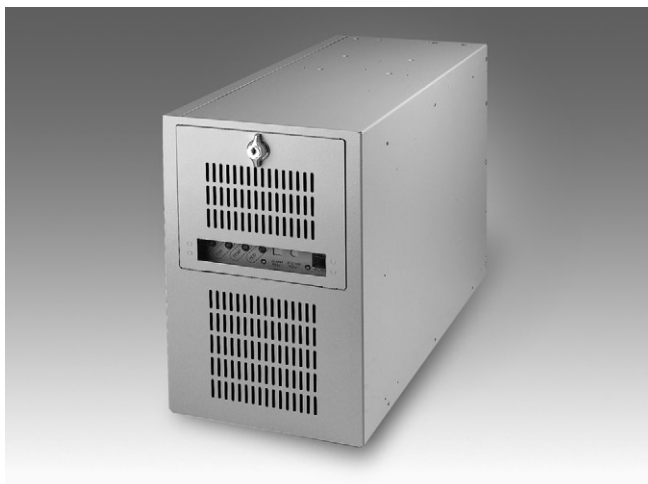
Part Number	Description
SCD-ROME	Black slim 24X CD-ROM drive with 40-pin IDE connector
SDVD-CDRWE	Black slim 8X DVD + 24X CD-RW with 40-pin IDE connector
96FDD-144-TE-B1	Black 3.5" FDD
1750000257	2U-high P4 Socket 478 CPU cooler up to 3.2 GHz (89 W)
1700060202	Y-cable for PS/2 mouse & keyboard
1990000486	Fan filter 133 x 112 x 5 mm

Ordering Information

Part Number	Power Supply	Motherboard	Regulation
IPC-7143-00XE	Without power supply, with ATX switch	-	-
IPC-7143-30ZE	PS-300ATX-ZBE	-	CE
IPC-7143-30RE	RPS-300ATX-ZE	-	CE
IPC-7143-40ZE	PS-400ATX-ZBE	-	CE

IPC-7220

Desktop/Wallmount Chassis for ATX Motherboard

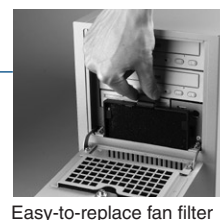
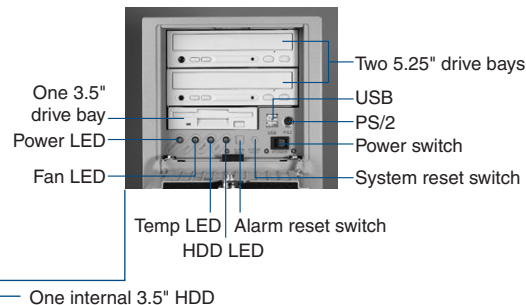
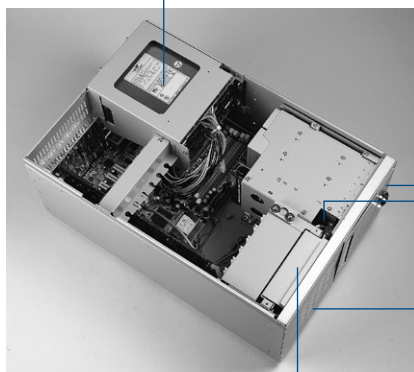
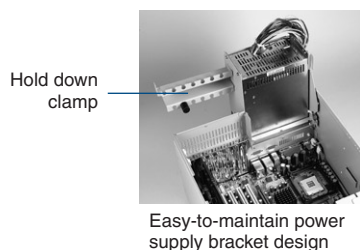


Features

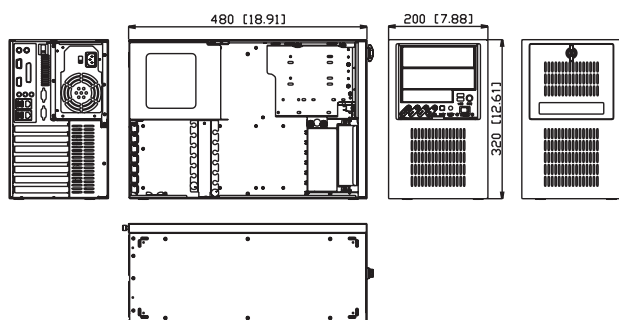
- Supports two front-accessible 5.25" and two standard 3.5" drives (one external & one internal)
- Lockable front door prevents unauthorized access
- Front-accessible USB and PS/2 interfaces
- Front LED indicators for fault detection and alarm notification
- Easy-to-maintain air filters
- Shock-resistant drive bay
- Bidirectionally mountable on panels or walls with supplied bracket
- Optional redundant power supply

Specifications

		Front-accessible	
		Internal	Internal
Drive Bay	5.25"	2	-
	3.5"	1	1
Cooling	Air Filters	2 (one 7 x 12 cm and one 12 x 12 cm)	
	Fan	One (85 CFM)	
I/O Interface	USB	2 (front-accessible)	
	PS/2	PS/2 keyboard and mouse, or PS/2 keyboard depends on the enclosed motherboard	
Miscellaneous	Indicators	PWR, HDD, Temperature and Fan	
	Switches	Power, system reset and alarm reset	
	Rear Panel	Reserved two D-Sub 9-pin openings	
Environmental		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)	
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical Characteristics	Dimensions (W x H x D)	200 x 320 x 480 mm (7.9" x 12.6" x 18.9")	
	Weight	14 kg (30.8 lb)	

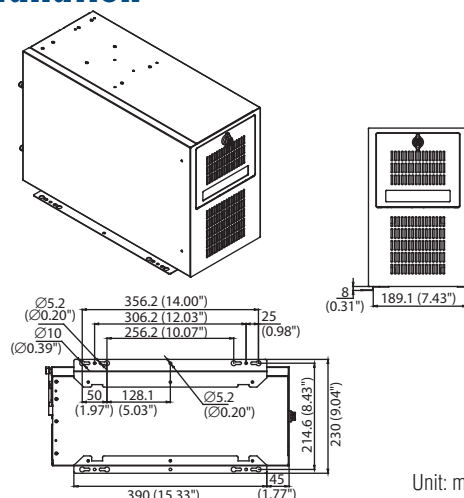


Dimensions



Unit: mm (inch)

Installation



Unit: mm (inch)

Power Supply Options

Part Number	Watt	Input	Output	Specifications		
				Mini-load	Safety	MTBF
PS-300ATX-DC48E (ATX)	300 W	DC -48 V	+5 V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.3 A, +3.3 V @ 0.3 A +12 V @ 0.2 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A, +12 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C
RPS-300ATX-ZE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 18 A +12 V @ 16 A, -12 V @ 0.5 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C
PS-400ATX-ZBE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 30 A, -12 V @ 1.0 A -5 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	91,000 hrs @ 25° C
RPS-400ATX-ZE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5 V @ 35 A, +3.3 V @ 25 A +12 V @ 28 A, -12 V @ 1.2 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +3.3 V @ 1 A +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hrs @ 25° C

Accessories

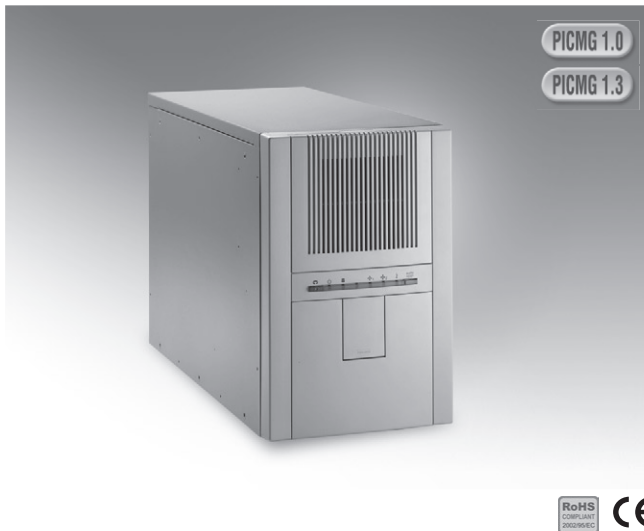
Part Number	Description
1700060202	Y-cable for PS/2 mouse and keyboard
1750000257	2U-high P4 Socket 478 CPU cooler up to 3.2 GHz (89 W)
1759208500	Fan 120 x 120 x 25.4 mm with housing
1990000486	Fan filter 133 x 112 x 5 mm
1990000488	Door filter

Ordering Information

Part Number	Power Supply	Motherboard	Regulation
IPC-7220-00XE	Without power supply, with ATX switch	-	-
IPC-7220-30ZE	PS-300ATX-ZBE	-	CE
IPC-7220-30RE	RPS-300ATX-ZE	-	CE
IPC-7220-40ZE	PS-400ATX-ZBE	-	CE

IPC-6908

8-slot Desktop/Wallmount Chassis with Front Alarm Notification and Redundant Power Supply Option

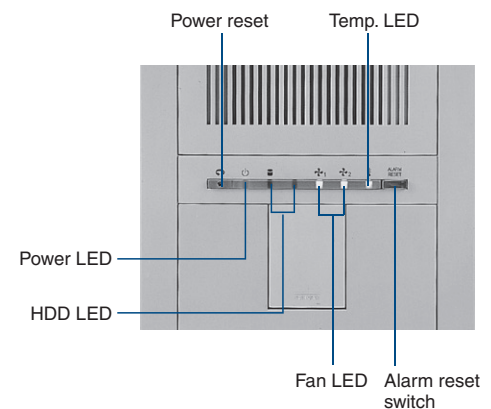
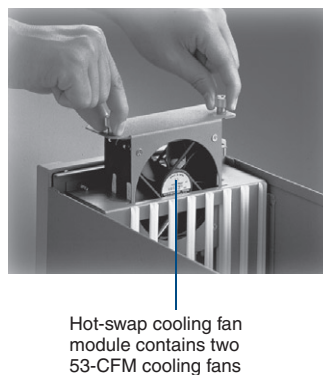
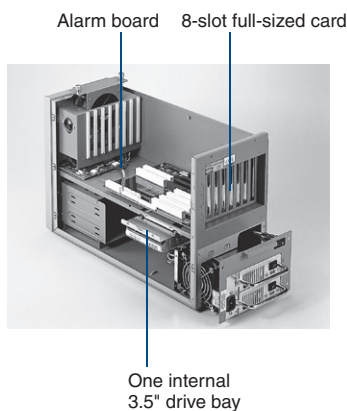


Features

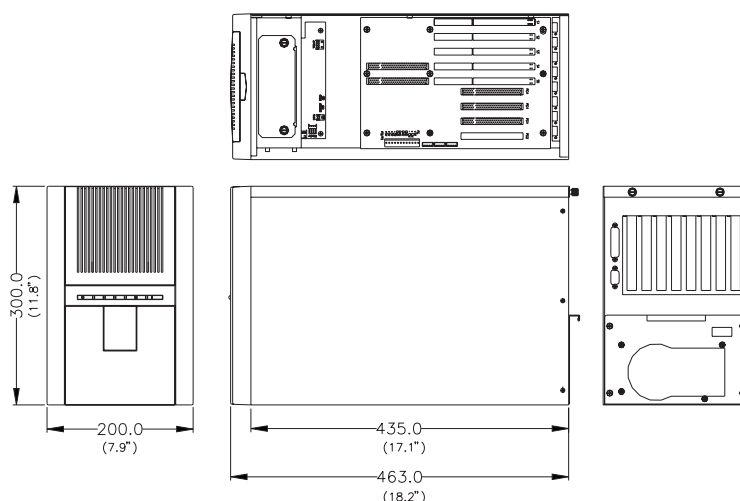
- 8-slot desktop/wallmount industrial computer chassis
- Shock-resistant drive bay with rubber cushions
- Visible LED indicators and audible alarm notification for system fault detection
- Easy-to-open top-cover, no screwdriver required
- Hot-swap dual cooling fans
- Various 8-slot backplane options
- 250 W / 300 W / 400 W ATX PS/2 and 300W ATX redundant power supply options

Specifications

		Front-accessible	Internal
Drive Bay	3.5"	1	1
	5.25"	2	-
Cooling	Fan	2 (58 CFM each) hot-swap	
	Air Filter	Yes	
Physical Characteristics	Dimensions (W x H x D)	200 x 300 x 463 mm (7.9" x 11.8" x 18.2")	
	Weight	12 kg (26.4 lb)	



Dimensions



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
PS-250ATX-ZE (ATX, PFC)	250 W	AC 115 / 230 V (selectable)	+5V @ 27 A, +3.3 V @ 20 A +12 V @ 13 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.5 A +12 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-400ATX-ZBE (ATX, PFC)	400 W	AC 100 ~ 240 V (full-range)	+5V @ 35 A, +3.3 V @ 25 A +12 V @ 30 A, -12 V @ 1 A -5 V @ 0.8 A, +5 Vsb @ 2 A	+5 V @ 3 A +12 V @ 2 A +3.3 V @ 1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-DC48E (ATX)	300 W	DC -48 V	+5V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.3 A +3.3 V @ 0.3 A +12 V @ 0.2 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
RPS-300ATX-ZE (ATX, PFC)	300 W	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 18 A +12 V @ 16 A, -12 V @ 0.5 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A +3.3 V @ 1 A +12 V @ 2 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Accessories

Part Number	Description
1701400971	HDD cable, ATA 33, 62 cm + 35 cm
1701400973	HDD cable, ATA 66/100, 62 cm + 35 cm
1999908000	Fan filter 92 x 92 x 5 mm

Ordering Information

Part Number	Power Supply	Backplane	Regulation	Switch
IPC-6908BP-CE	-	-	-	AT/ATX
IPC-6908BP-25ZCE	PS-250ATX-ZE	-	CE	ATX
IPC-6908BP-30ZCE	PS-300ATX-ZBE	-	CE	ATX
IPC-6908BP-40ZCE	PS-400ATX-ZBE	-	CE	ATX

IPC-6606/6608

8/6-slot Desktop/Wallmount Chassis with PS/2 Power Supply



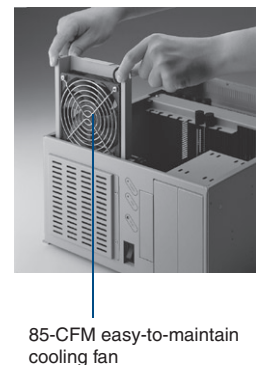
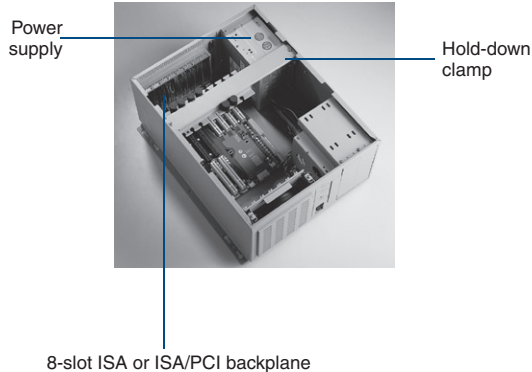
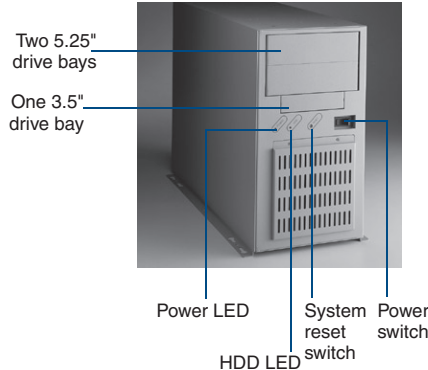
Features

- Bidirectional options to mount the chassis on the wall or workbench
- Equipped with an 8/6-slot ISA or ISA/PCI backplane to hold eight full-length cards
- Two/One front accessed 5.25" disk drives and one 3.5" FDD
- High-speed cooling fan supports abundant cooling and streamlined ventilation
- Shockproof disk drive bay design for industrial applications

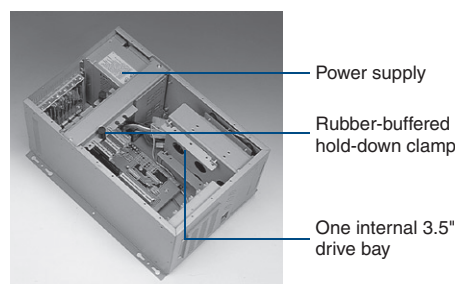
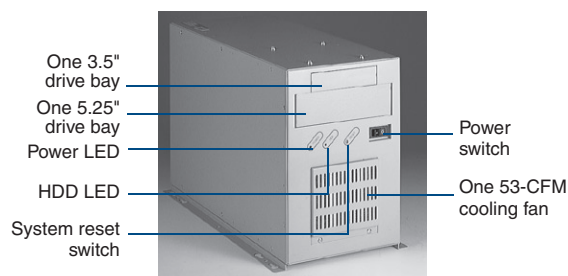
Specifications

Model Name		IPC-6608	IPC-6606
Drive Bay	3.5"	Front-accessible	
	5.25"	1	2 (1 external, 1 internal)
		2	1
Cooling	Fan	1 (85 CFM) hot-swap	
	Air Filter	Yes	
Miscellaneous	Control	Front panel power switch and reset switch	
	Indicator	Power on/off and HDD activity	
Environment	Temperature	0 ~ 40° C (32 ~ 104° F), operating	
	Humidity	10 ~ 85 % @ 40° C, non-condensing	
Physical Characteristics	Dimensions (W x H x D)	173 x 315 x 410 mm (6.8" x 12.4" x 16.1")	173x 254 x 396mm (6.8"x 10" x 15.6")
	Weight	11.0 kg (24.2 lb)	9 kg (19.8 lb)

IPC-6608

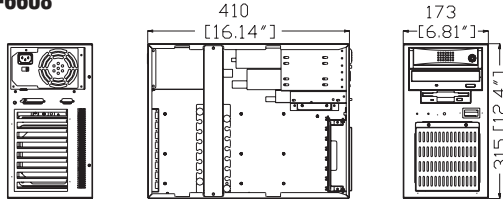


IPC-6606

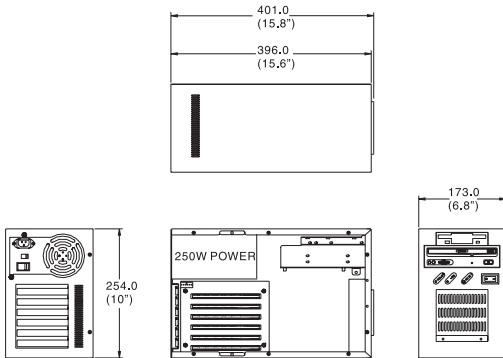


Dimensions

IPC-6608



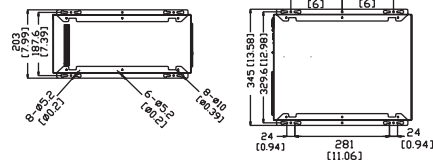
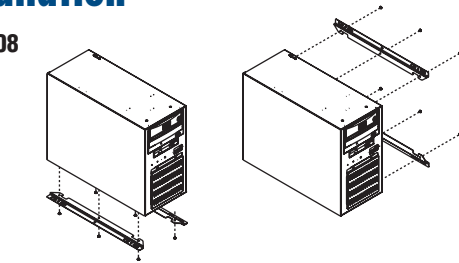
IPC-6606



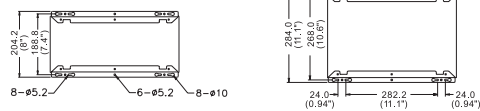
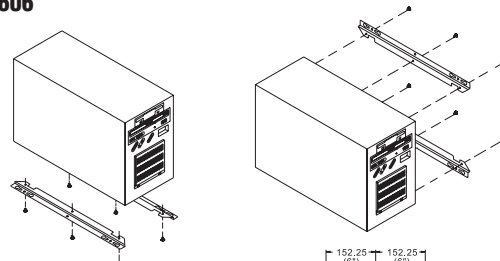
Unit: mm (inch)

Installation

IPC-6608



IPC-6606



Bidirectional mounting

Unit: mm (inch)

Power Supply Options

Part Number	Watt	Input	Output	Specifications Mini-load	Safety	MTBF
PS-250ATX-ZE (ATX, PFC)	250 W	AC 115 / 230 V (selectable)	+5 V @ 27 A, +3.3 V @ 20 A +12 V @ 13 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.5 A, +12 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C
PS-300ATX-ZBE (ATX, PFC)	300 W	AC 110 ~ 240 V (full-range)	+5 V @ 30 A, +3.3 V @ 28 A +12 V @ 15 A, -12 V @ 0.8 A -5 V @ 0.3 A, +5 Vsb @ 2 A	+5 V @ 0.1 A, +3.3 V @ 0.3 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Accessories

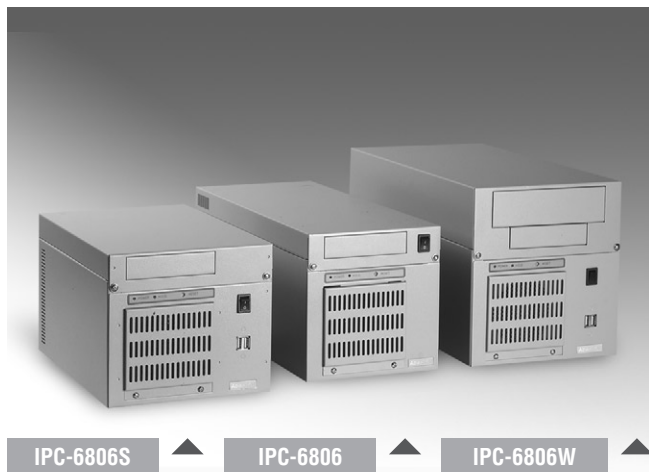
Part Number	Description
1999806020	Fan filter 100 x 90 x 3 mm (for IPC-6606)
1999806030	Fan filter 127 x 127 x 5 mm (for IPC-6608)

Ordering Information

Part Number	Power Supply	Backplane	Regulation	Switch
IPC-6608				
IPC-6608BP-00E	-	-	-	AT/ATX
IPC-6608BP-25ZE	PS-250ATX-ZE	-	CE	ATX
IPC-6608BP-30ZE	PS-300ATX-ZBE	-	CE	ATX
IPC-6606				
IPC-6606BP-00XE	-	-	-	AT/ATX
IPC-6606BP-25ZE	PS-250ATX-ZE	-	CE	AT
IPC-6606P3-25ZE	PS-250ATX-ZE	PCA-6106P3-0D2E	CE	AT
IPC-6606BP-30ZE	PS-300ATX-ZBE	-	CE	ATX
IPC-6606P3-30ZE	PS-300ATX-ZBE	PCA-6106P3-0D2E	CE	ATX
IPC-6606P4-30ZE	PS-300ATX-ZBE	PCA-6106P4-0A2E	CE	ATX
IPC-6606P5-30ZE	PS-300ATX-ZBE	PCA-6105P5-0B2E	CE	ATX

IPC-6806

6-slot Desktop/Wallmount Chassis with 1U Power Supply

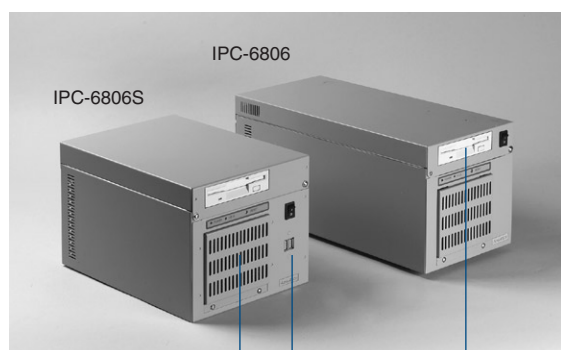


Features

- Three models with different sizes to support various industrial applications
- Supports 6-slot backplane
- Supports front USB interface (IPC-6806S and IPC-6806W)
- IPC-6806W is especially equipped with a front-mounted 5.25" drive bay for a CD-ROM
- Streamlined filtered airflow
- Versatile 6-slot backplane options

Specifications

Cooling	Fan	One (58 CFM for IPC-6806W; 53 CFM for IPC-6806 and IPC-6806S)	
	Air Filter	Yes	
I/O Interface	USB	IPC-6806W and IPC-6806S only	
Miscellaneous	Control	Power on/off switch and system reset switch	
	Indicators	Power on/off and HDD activity	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	0.5 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB at 5 ~ 28° C (41 ~ 82° F)	
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	



One 53-CFM cooling fan with filter

USB

3.5" FDD



Hold down clamp

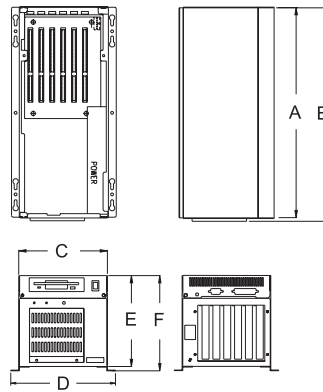
1U 300 W ATX power supply

One internal 3.5" HDD

USB

5.25" CD-ROM & FDD

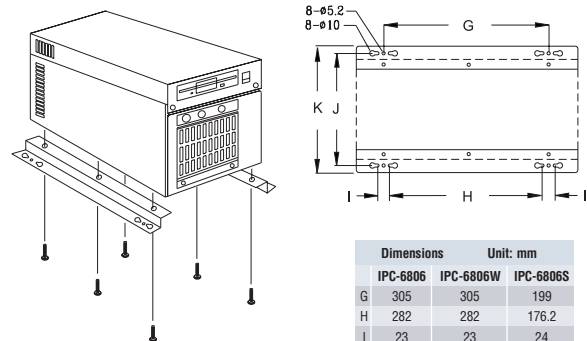
Dimensions



Dimensions	Unit: mm		
	IPC-6806S	IPC-6806	IPC-6806W
A	285	393	393
B	290	398	398
C	191	166	198
D	221	196	228
E	170	170	213
F	178	178	221

Unit: mm (inch)

Installation



Dimensions	Unit: mm		
	IPC-6806	IPC-6806W	IPC-6806S
G	305	305	199
H	282	282	176.2
I	23	23	24
J	180.6	212.6	205.6
K	196	228	221

Unit: mm (inch)

Selection Guide

Part Number	IPC-6806SB-15ZBE	IPC-6806BP-20ZBE	IPC-6806WB-30ZBE
Drive Bay	3.5" FDD x 1, 3.5" HDD x 1	3.5" FDD x 1, 3.5" HDD x 1	5.25" CD-ROM x 1, 3.5" FDD x 1, 3.5" HDD x 1
Power Supply	150 W PFC	200 W PFC	300 W PFC
Backplane	PCA-6106-0B2E, PCA-6105P5-0B2E (for half-sized cards only)	PCA-6106-0B2E, PCA-6106P3-0D2E, PCA-6105P5-0B2E	PCA-6106-0B2E, PCA-6106P3-0D2E, PCA-6106P4-0A2E, PCA-6105P5-0B2E
Dimensions (W x H x D)	191 x 170 x 285 mm (7.5" x 6.7" x 11.2")	166 x 170 x 393 mm (6.5" x 6.7" x 15.4")	198 x 213 x 393 mm (7.8" x 8.4" x 15.4")
Weight	6 kg (13.2 lb)	7.2 kg (15.9 lb)	8 kg (17.6 lb)

Power supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
1757000209G (IPC-6806S)	150 W ATX	AC 100 ~ 240 V (full-range)	+5 V @ 14 A, +3.3 V @ 10 A +12 V @ 6 A, -12 V @ 0.8 A -5 V @ 0.5 A, +5 Vsb @ 1.5 A	+5 V @ 2 A, +12 V @ 1 A -5 V @ 0.1 A, -12 V @ 0.1 A +3.3 V @ 1 A, +5 V @ 0.1 A	UL/TUV/CB/CCC	84,000 hours @ 25° C
OP-20PZE (IPC-6806)	200 W AT	AC 100 ~ 240 V (full-range)	+5 V @ 16 A, +12 V @ 9 A, -12 V @ 0.7 A, -5 V @ 0.2 A	+5 V @ 2 A, +12 V @ 1 A -5 V @ 0.1 A, -12 V @ 0.1 A	UL/TUV/CB/CCC	84,000 hours @ 25° C
1757000160G (IPC-6806W)	300 W ATX	AC 100 ~ 240 V (full-range)	+5 V @ 25 A, +3.3 V @ 14 A +12 V @ 16 A, -12 V @ 1 A -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 3 A, +12 V @ 2 A -5 V @ 0.05 A, -12 V @ 0.05 A +3.3 V @ 1 A, +5 Vsb @ 0.1 A	UL/TUV/CB/CCC	100,000 hours @ 25° C

Ordering Information

Part Number	Power Supply	Backplane	Regulation	Switch
IPC-6806SB-15ZBE	1757000209G	-	CE	AT
IPC-6806BP-20ZBE	OP-20PZE	-	CE	AT
IPC-6806-20ZBE	OP-20PZE	PCA-6106-0B2E	CE	AT
IPC-6806P3-20ZBE	OP-20PZE	PCA-6106P3-0D2E	CE	AT
IPC-6806WB-30ZBE	1757000160G	-	CE	AT
IPC-6806WP-30ZBE	1757000160G	PCA-6106P3-0D2E	CE	AT

IPC-644

4-slot Ultra-compact Wallmount/Desktop Chassis with 150 W ATX Power Supply

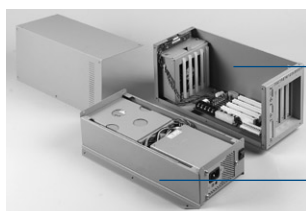


Features

- Ultra-compact wallmount/desktop IPC chassis
- Supports up to 4 half-sized cards
- Supports one 3.5" FDD and one internal 3.5" HDD
- Power switch on the rear plate
- One 53-CFM cooling fan
- Equipped with 150 W ATX power supply
- Easy-to-replace fan filter
- Reserved I/O port openings (two 9-pin and one 25-pin) on the rear plate

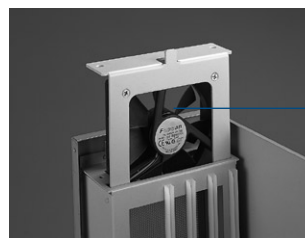
Specifications

Drive Bay		Front-accessible	Internal
	3.5"	1	1
Cooling	Fan	1 (53 CFM)	
	Air Filter	Yes	
Miscellaneous	Control	Power on/off switch and system reset button	
	Indicators	Power status and HDD activity	
	Rear Panel	Reserved two 9-pin COM and one 25-pin printer port openings	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85 % @ 40° C, non-condensing	10 ~ 95 % @ 40° C, non-condensing
	Vibration (5 ~ 500 Hz)	1 Grms	2 G
	Shock	10 G (with 11 ms duration, half sine wave)	30 G
	Acoustic Noise	Less than 52 dB sound pressure at 5 ~ 28° (41 ~ 82° F)	
	Altitude	0 to 3,048 m (0 ~ 10,000 ft)	
Physical Characteristics	Dimensions (W x H x D)	135 x 209 x 305 mm (5.3" x 8.2" x 12")	
	Weight	5.0 kg (11.4 lb)	



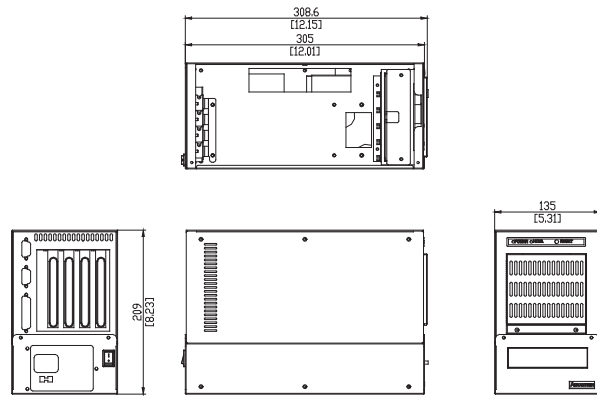
Upper cage to hold
4 half-sized cards

Lower deck for
one 3.5" FDD, one
internal 3.5" HDD
& power supply



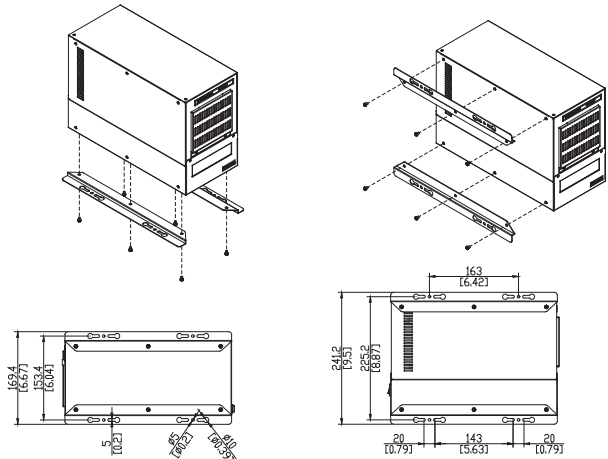
Easy-to-maintain
cooling fan

Dimensions



Unit: mm (inch)

Installation



Unit: mm (inch)

Power Supply Options

Part Number	Specifications					
	Watt	Input	Output	Mini-load	Safety	MTBF
1757000170G (ATX, PFC)	150 W	AC 115/230 V (selectable)	+5 V @ 15 A, +3.3 V @ 17 A, +12 V @ 8 A, -12 V @ 0.8 A, -5 V @ 0.5 A, +5 Vsb @ 2 A	+5 V @ 1 A +3.3 V @ 0.5 A, +12 V @ 2 A, +5 Vsb @ 0.1 A	UL/ TUV/CB	100,000 hrs @ 25° C

Accessories

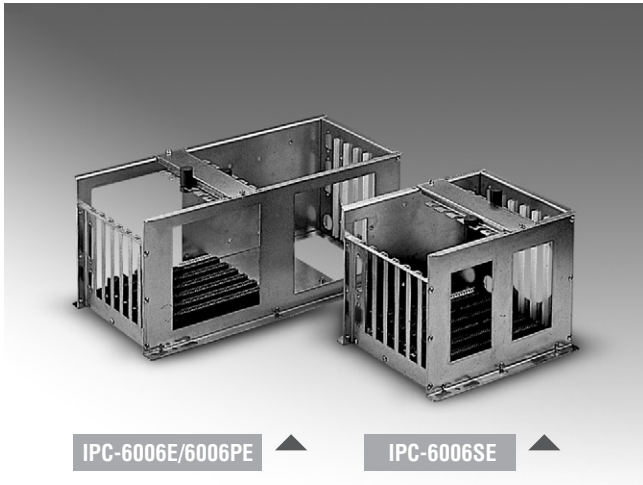
Part Number	Description
1999806020	Fan filter 100 x 90 x 3 mm

Ordering Information

Part Number	Power Supply	Backplane	Regulation	Switch
IPC-644BP-15ZE	1757000170G	-	CE	AT
IPC-644-15ZE	1757000170G	PCA-6104-0C2E	CE	AT
IPC-644P4-15ZE	1757000170G	PCA-6104P4-0B2E	CE	AT

IPC-6006

6-slot Card Cage



Features

- Optimized open-frame card cage design for embedded systems
- Adjustable hold-down clamp protects cards from vibration
- Plug-in termination resistors for high-speed signals
- Terminal-block connectors supply power from board
- Supports 6-slot backplanes
- Mounting holes provided for installing one PS/2 power supply, one 3.5" HDD, and one cooling fan

Specifications

Model Name	IPC-6006E	IPC-6006PE	IPC-6006SE
Supported Backplanes	PCA-6106-0B2E PCA-6106P3-0D2E PCA-6106P4-0A2E PCA-6105P5-0B2E PCA-6105P3X-0A2E	PCA-6106P3-0D2E (included)	PCA-6106-0B2E PCA-6105P5-0B2E
Dimensions (W x H x D)	158 x 186 x 368 mm (6.2" x 7.3" x 14.5")	158 x 186 x 368 mm (6.2" x 7.3" x 14.5")	158 x 186 x 215 mm (6.2" x 7.3" x 8.4")
Weight	2.2 kg (4.8 lb)	2.5 kg (5.5 lb)	1.6 kg (3.5 lb)

Passive Backplane Options

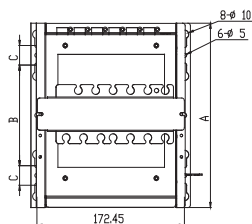
Part Number	Slot	Segment
PCA-6106-0B2E	6 ISA	Single
PCA-6106P3-0D2E	2 ISA, 2 PCI, 1 PICMG/PCI, 1 PICMG	Single
PCA-6106P4-0A2E	4 PCI, 2 PICMG	Single
PCA-6105P5-0B2E	5 PCI	Single
PCA-6105P3X-0A2E	1 ISA, 2 PCI, 1 PICMG/PCI, 1 PICMG (64-bit)	Single

Ordering Information

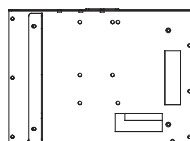
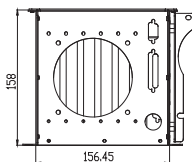
Part Number	Description
IPC-6006E	Card cage with backplane PCA-6106
IPC-6006PE	Card cage with backplane PCA-6106P3
IPC-6006SE	Half-sized card cage with backplane PCA-6106
IPC-6006-BAREE	Card cage without backplane
IPC-6006S-BAREE	Half-sized card cage without backplane

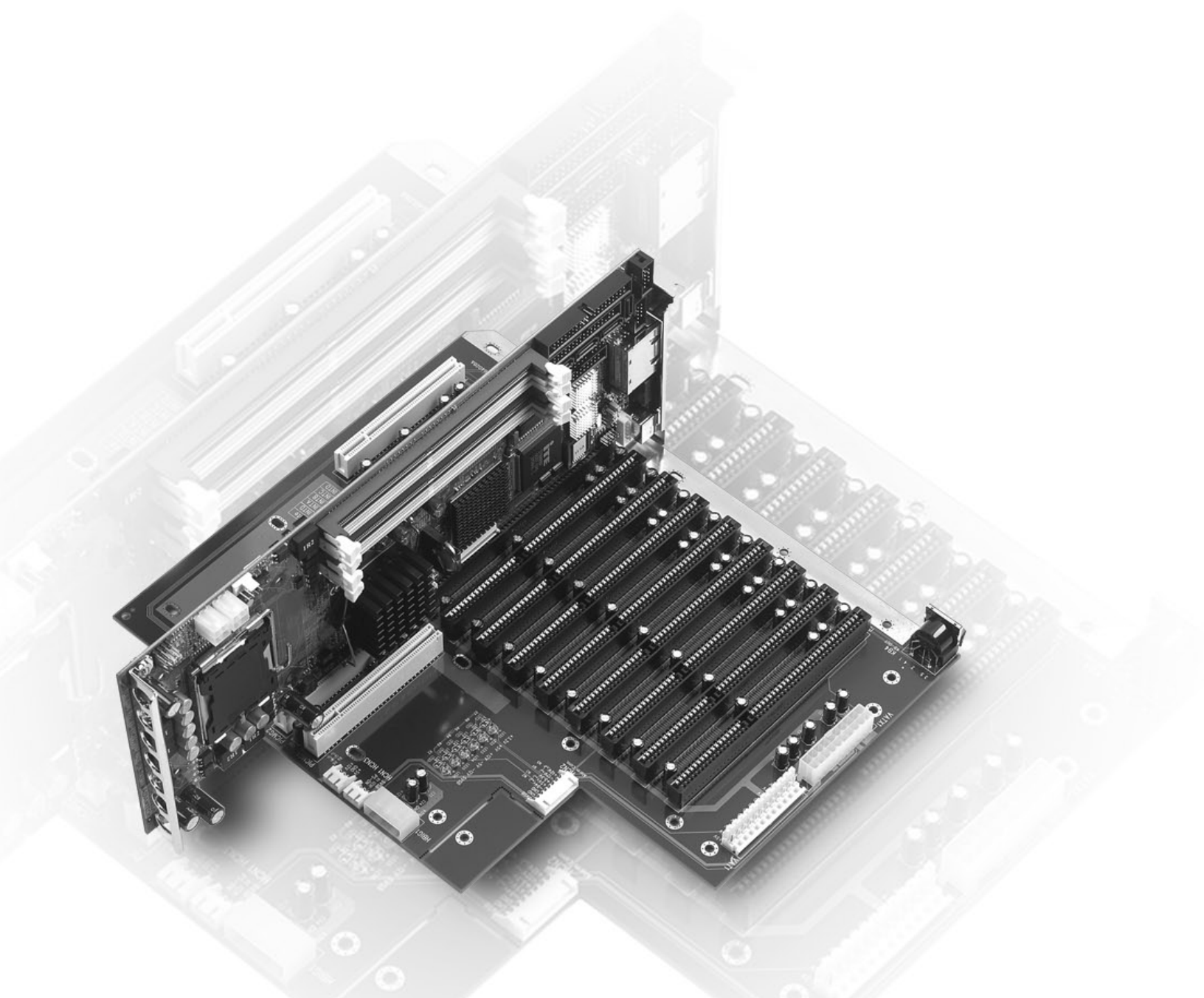
Dimensions

Unit: mm (inch)



Dimensions	Unit: mm
IPC-6006	IPC-6006S
A	368
B	270
C	24





High Performance Computing

High Performance Computing Systems

21-2

HPC-1420-ISSE

Robust 1U Intel® Quad Core Xeon® Server with Innovative Cable-less Design

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HPC-2820-ISSE

2U Intel® Quad Core Xeon® Server supports 8 SAS/ SATA Hot-swappable HDDs

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High Performance Computing Systems



HPC-1420-ISSE



HPC-2820-ISSE

Selection Guide

Specifications		HPC-1420-ISSE	HPC-2820-ISSE
Processor System	CPU	5000/5100/5300 family Xeon Processor	5000/5100/5300 family Xeon Processor
	Max. Speed	3.0 GHz	3.0 GHz
	Front Side Bus	667/1066/1333 MHz	667/1066/1333 MHz
	L2 Cache	2 x 2 MB or 4 MB L2 cache	2 x 2 MB or 4 MB L2 cache
	Chipset	Intel 5000P MCH Intel 6321 ICH Intel 6702 PXH	Intel 5000P MCH Intel 6321 ICH Intel 6702 PXH
Expansion Slot (via riser card)	PCI	1 x Full-Height/Half-Length 64-bit PCI-X	2 x Full-Height/Full-Length 64-bit PCI-X
	PCIe	1 x Low Profile PCI Express x8 slot	1 x Full-Height/Full-Length PCI Express x8 slot
Memory	Technology	Four Channel ECC Reg. DDR2 533/667 FBD	Four Channel ECC Reg. DDR2 533/667 FBD
	Max. Capacity	48 GB	48 GB
	Socket	12	12
Graphic	Controller	ATI ES1000 VGA Controller	ATI ES1000 VGA Controller
	VRAM	16 MB DDR SDRAM	16 MB DDR VRAM
Storage	SAS Controller	LSI 1068 PCI-X 8-port SAS controller: Support RAID 0, 1, 1E and Raid 5 (optional ZCR)	LSI 1068 PCI-X 8-port SAS controller: Support RAID 0, 1, 1E and Raid 5 (optional ZCR)
	HDD Bays	Supports 4 x Hotswap SAS/ SATA2 HDDs	Supports 8 x Hotswap SAS/ SATA2 HDDs
	Optical Drive	Slim Type DVD-ROM	Slim Type DVD-ROM
Ethernet	Interface	10/100/1000Base-T	10/100/1000Base-T
	Controller	Intel 82563EB PCIe Dual-port GbE	Intel 82563EB PCIe Dual-port GbE
	Connector	2 x RJ-45	2 x RJ-45
I/O Connectors	Serial Port	1	1
	RJ-45	2	2
	USB	4 x USB 2.0 ports (Front x 2, Rear x 2)	4 x USB 2.0 ports (Front x 2, Rear x 2)
	VGA	1	1
	PS/2 Keyboard	1	1
	PS/2 Mouse	1	1
Power Supply	Power Supply	700 W Single ATX	750 W Single ATX
Environment	Temperature	Operating: 10 ~ 35° C Non-Operating: -40 ~ 70° C	Operating: 10 ~ 35° C Non-Operating: -40 ~ 70° C
	Humidity	Non operation humidity: 20% ~ 90% (Non-Condensing)	Non operation humidity: 20% ~ 90% (Non-Condensing)
Physical Characteristics	Dimensions	686 x 444 x 43.4 mm (27" x 17.5" x 1.75")	732 x 448 x 87.7 mm (28.8" x 17.6" x 3.42")
	Weight	15 kg	19.7 kg
Reference Page		21-3	21-5

HPC-1420-ISSE

**Robust 1U Intel® Quad Core
Xeon® Server with Innovative
Cable-less Design**



FCC CE UL cUL

Features

- Supports advanced Intel® Dual Core 5000/5100 and Quad Core 5300 family Xeon® processors
- High memory capacity up to 48 GB
- 2 expansion slots support PCI-X and PCI Express
- Cable-less design to enhance system reliability
- Built-in 700 W single power supply

Specifications

Processor System	CPU	Intel Dual Core 5000/5100 and Quad Core 5300 family Xeon processor
	Max. Speed	3.0 GHz
	Front Side Bus	667/1066/1333 MHz
	L2 Cache	2 x 2 MB or 4 MB L2 cache
	Chipset	Intel 5000P MCH Intel 6321 ICH Intel 6702 PXH
Expansion Slot (via riser card)	PCI	1 x Full-Height/Half-Length 64-bit PCI-X
	PCIe	1 x Low Profile PCI Express x8 slot
Memory	Technology	Four Channel ECC Reg. DDR2 533/667 FBD SDRAM
	Max. Capacity	48 GB
	Socket	12
Graphic	Controller	ATI ES1000 VGA Controller
	VRAM	16 MB DDR SDRAM
Storage	SAS Controller	LSI 1068 PCI-X 8-port SAS controller: Supports RAID 0, 1, 1E (RAID 5 only with optional ZCR)
	HDD Bays	Supports 4 x Hotswap SAS/ SATA2 HDDs
	Optical Drive	Slim Type DVD-ROM
Ethernet	Interface	10/100/1000Base-T
	Controller	Intel 82563EB PCIe Dual-port GbE
	Connector	2 x RJ-45
I/O Connectors	Serial Port	1
	RJ-45	2
	USB	4 x USB 2.0 ports (Front x 2, Rear x 2)
	VGA	1
	PS/2 Keyboard	1
	PS/2 Mouse	1
Power Supply	Power Supply	700 W Single ATX
Environment	Temperature	Operating: 10 ~ 35° C / Non-Operating: -40 ~ 70° C
	Humidity	Non-Operating: 20% ~ 90% (Non-Condensing)
Physical Characteristics	Dimensions (D x W x H)	686 x 444 x 43.4 mm (27" x 17.5" x 1.75")
	Net Weight	15 kg

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Industrial Motherboards

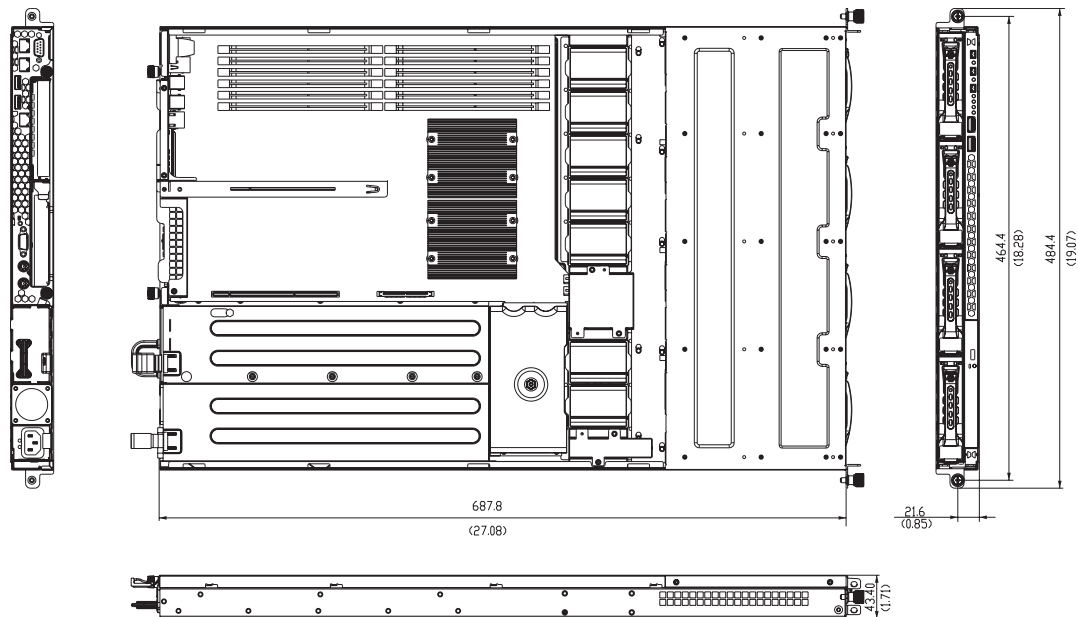
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Dimensions



Unit: mm (inch)

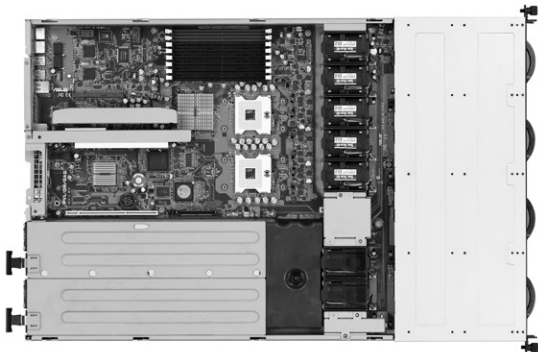
Ordering Information

Model Name	Server board	DVD-ROM FDD	PSU	CPU	RAM	HDD
HPC-1420-ISSE	Yes	Yes	Yes	-	-	-

Front View



Top View



Rear View



Standard Accessories

Item	Quantity
Rack mounting brackets	x 1
Air duct	x 1
CPU cooler	x 2
COM port cable	x 1
US power cord	x 1
Driver CD	x 1
Manual	x 1

Optional Accessories

Part Number	Description
-	ZCR module for SAS RAID 5 (PCI-X card)
-	IPMI 2.0 server management board (SODIMM type)
-	700W power module for redundant power

HPC-2820-ISSE

**2U Intel® Quad Core Xeon®
Server supports 8 SAS/ SATA
Hot-swappable HDDs**



FCC CE UL cUL

Features

- Supports advanced Intel® Dual Core 5000/5100 and Quad Core 5300 family Xeon® processors
- Maximize system performance with high memory capacity up to 48 GB
- High expandability with three expansion slots
- Massive storage with eight hot-swappable SATA/SAS HDD bays
- Built-in 750 W single power supply

Specifications

Processor System	CPU	Intel Dual Core 5000/5100 and Quad Core 5300 family Xeon processor
	Max. Speed	3.0 GHz
	Front Side Bus	667/1066/1333 MHz
	L2 Cache	2 x 2 MB or 4 MB L2 cache
	Chipset	Intel 5000P MCH Intel 6321 ICH Intel 6702 PXH
Expansion Slot (via riser card)	PCI	2 x Full-Height/Full-Length 64-bit PCI-X
	PCIe	1 x Full-Height/Full-Length PCI Express x8 slot
Memory	Technology	Four Channel ECC Reg. DDR2 533/667 FBD SDRAM
	Max. Capacity	Maximum up to 48 GB
	Socket	12
Graphic	Controller	ATI ES1000 VGA Controller
	VRAM	16 MB DDR VRAM
Storage	SAS Controller	LSI 1068 PCI-X 8-port SAS controller: Supports RAID 0, 1, 1E (RAID 5 only with optional ZCR)
	HDD Bays	Supports 8 x Hotswap SAS/ SATA HDDs
	Optical Drive	Slim Type DVD-ROM
Ethernet	Interface	10/100/1000Base-T
	Controller	Intel 82563EB PCIe Dual-port GbE
	Connector	2 x RJ-45
I/O Connectors	Serial Port	1
	RJ-45	2
	USB	4 x USB 2.0 ports (Front x 2, Rear x 2)
	VGA	1
	PS/2 Keyboard	1
	PS/2 Mouse	1
Power Supply	Power Supply	750 W Single ATX
Environment	Temperature	Operating: 10 ~ 35° C / Non-Operating: -40 ~ 70° C
	Humidity	Non-Operating: 20% ~ 90% (Non-Condensing)
Physical Characteristics	Dimensions (D x W x H)	732 x 448 x 87.7 mm (28.8" x 17.6" x 3.42")
	Net Weight	19.7 kg

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Industrial Motherboards

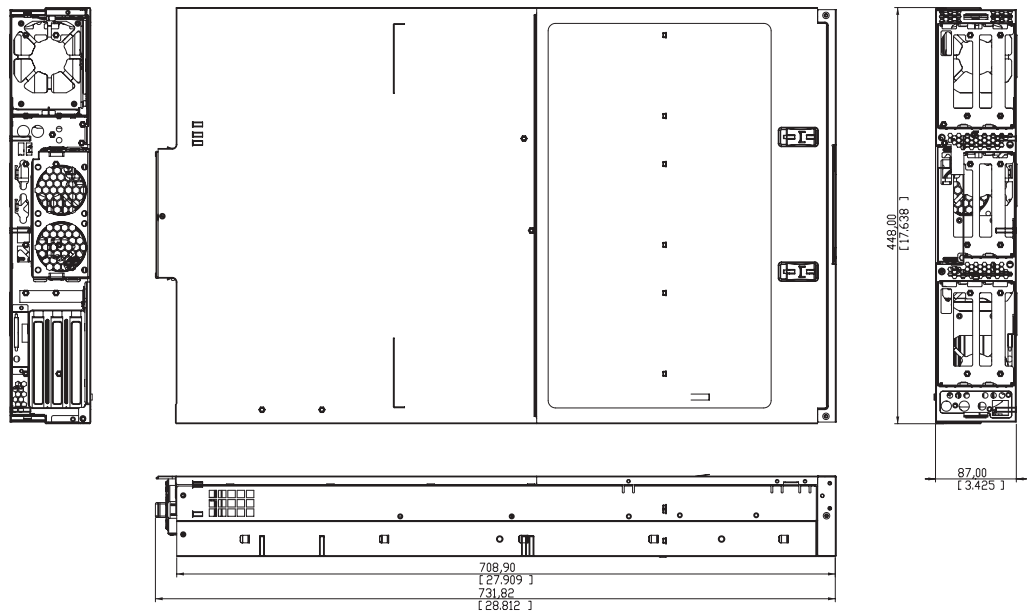
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Dimensions



SCALE 0,450

Unit: mm (inch)

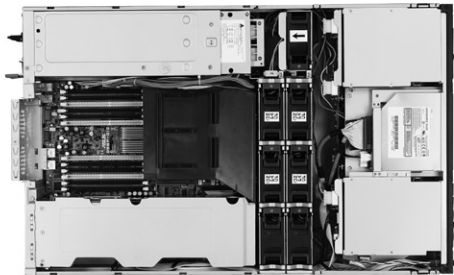
Ordering Information

Model Name	Server board	DVD-ROM FDD	PSU	CPU	RAM	HDD
HPC-2820-ISSE	Yes	Yes	Yes	-	-	-

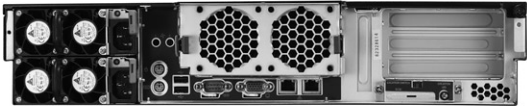
Front View



Top View



Rear View



Standard Accessories

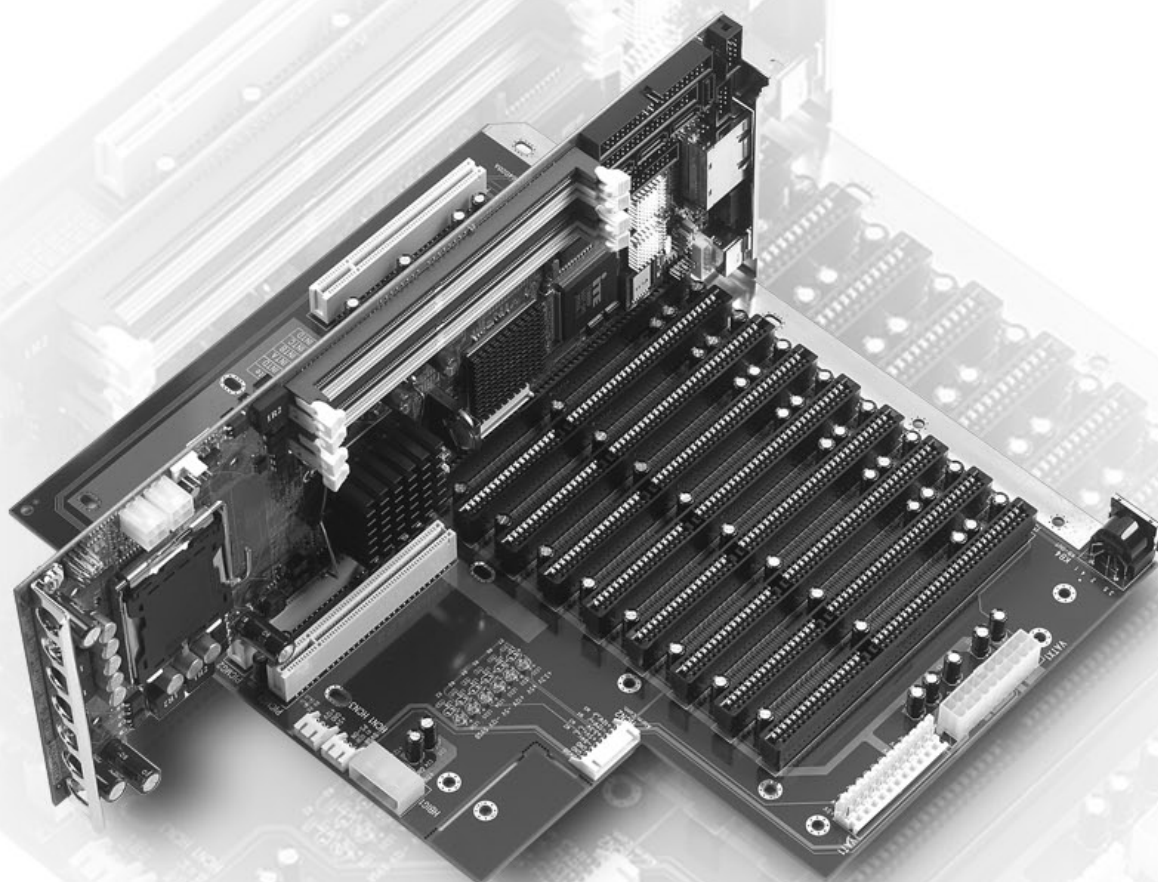
Item	Quantity
Air duct	x 1
Slide rail	x 1
CPU cooler	x 2
COM port cable	x 1
US power cord	x 1
Driver CD	x 1
Manual	x 1

Optional Accessories

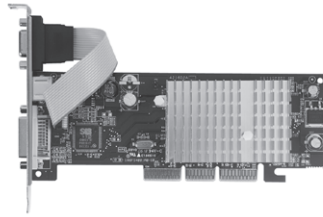
Part Number	Description
-	ZCR module for SAS RAID 5 (PCI-X card)
-	IPMI 2.0 server management board (SODIMM type)
-	750W power module for redundant power

Industrial PC Peripherals

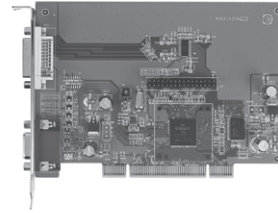
Industrial Graphics Cards	22-2
PCA-5612	Value Industrial PCI Graphics Card with Low Power Consumption 22-3
PCA-5630	Industrial AGP Graphics Card for Multimedia Applications 22-4
Riser Cards	22-5
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Industrial Graphics Cards



PCA-5630



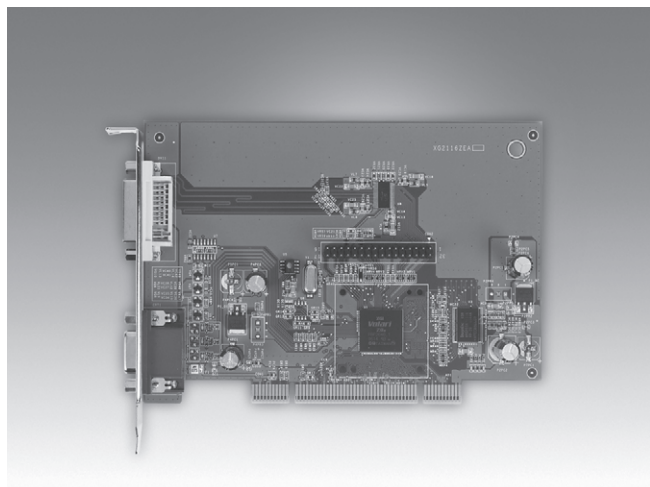
PCA-5612

Selection Guide

	PCA-5630	PCA-5612
GPU	XGI Volari™ V3XE	XGI Volari™ Z9s
Bus	AGP 3.0-4X	PCI 2.2
Memory	128MB DDR SDRAM support (64-bit, 200 MHz)	32MB DDR2 SDRAM (16-bit, 125 MHz)
CRT1 Output	2048 x 1536, up to 85 Hz vertical rate	1600 x 1200, up to 60 Hz vertical rate
CRT2 Output	1600 x 1200, up to 60 Hz vertical rate	-
TV-out Output	S-Video/Composite port, up to 720p & 1080i	-
DVI	Single Link TMDS up to UXGA (1600 x 1200 @ 60 Hz)	Single Link TMDS up to UXGA (1600 x 1200 @ 60 Hz)
OS Supported	Microsoft® WindowsXP/2K/Linux	Microsoft® WindowsXP/2K/Linux/Unix/FreeBSD
Reference Page	22-3	22-4

PCA-5612

Value Industrial PCI Graphics Card with Low Power Consumption



Features

- Industrial graphics card with long life support
- 32 MB DDR2 SDRAM
- Support mirror mode dual display
- Support VGA and DVI outputs

Specifications

Processor System	GPU (0.13 micron)	XGI Volari™ Z9s	
Bus	PCI	PCI 2.2	
Memory	Memory Clock	125 MHZ	
	Memory Interface	16-bit	
	Memory Size	32 MB DDR2 SDRAM	
Video Output	CRT	1600 x 1200, up to 60 Hz vertical rate	
	DVI	Single Link TMDS up to UXGA (1600 x 1200 @ 60 Hz).	
Display Mode	Dual Display	CRT + DVI in Windows XP/2K/Linux, supporting mirror only, NOT supporting extension mode.	
Power Requirement	+3.3V	+5V	
	0.658A	0.294A	
Environment	Temperature	Operating	Non-Operating
		0 ~ 60° C (32 ~ 140° F)	-20 ~ 70° C (-4 ~ 158° F)
Physical	Dimensions	150 x 105 mm (5.91" x 4.13")	

Ordering Information

Part Number	VGA	TV-out	DVI
PCA-5612-00A1E	Yes	-	Yes

Packing List

Part Number	Quantity
PCA-5612 Industrial VGA card	X 1
PCA-5612 Startup Manual	X 1
Warranty Certificate	X 1
CD with driver utility	X 1

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Single Board Computers

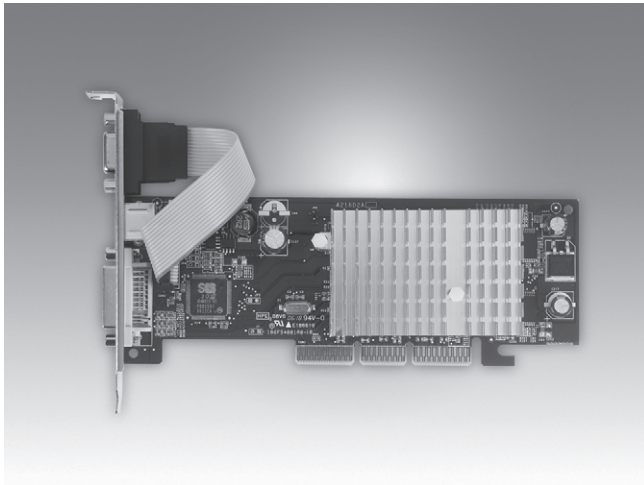
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PCA-5630

Industrial AGP Graphics Card for Multimedia Applications



Features

- Industrial AGP graphics card with long life support
- 128 MB DDR SDRAM
- Support dual display modes
- Support VGA, S-Video and DVI outputs

Specifications

Processor System	GPU (0.13 micron)	XGI Volari™ V3XE	
	Graphics Clock	250 MHz	
Bus	AGP	AGP 3.0, 4X	
Memory	Memory Clock	200 MHZ	
	Memory Interface	64-bit	
	Memory Size	128 MB DDR SDRAM	
Video Output	CRT 1	2048 x 1536, up to 85 Hz vertical rate	
	CRT 2 (DVI + Adapter)	1600 x 1200, up to 60 Hz vertical rate	
	TV-out	S-Video/Composite port; HDTV up to 720p & 1080i	
	DVI	Single Link TMDS up to UXGA (1600 x 1200 @ 60 Hz).	
Display Mode	Dual Display	Under Windows® XP, all the 4 combinations shown below support mirror mode and extension mode, while under Windows 2000, these combinations support only mirror mode. (1) CRT1 (CON3) + CRT2 (DVI1 + DVI-VGA Adapter) (2) CRT1 + DVI (3) CRT1 + S-Video (4) S-Video + DVI Under Linux, this product only supports CRT1 + DVI mirror mode.	
Power Requirement	+3.3V	+5V	+12V
	2.884A	1.247A	0A
Environment	Temperature	Operating	Non-Operating
		0 ~ 60° C (32 ~ 140° F)	-20 ~ 70° C (-4 ~ 158° F)
Physical	Dimensions	175 x 65 mm (6.89" x 2.56")	

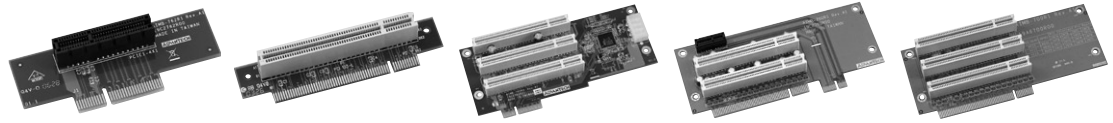
Ordering Information

Part Number	VGA	TV-out	DVI
PCA-5630-00A1E	Yes	Yes	Yes

Packing List

Part Number	Quantity
PCA-5630 Industrial VGA card	X 1
PCA-5630 Startup Manual	X 1
DVI-VGA Adapter	X 1
Warranty Certificate	X 1
CD with driver utility	X 1

Riser Cards



		AIMB-R4104-01A1E	AIMB-RP10P-01A1E	AIMB-R430P-03A1E	AIMB-RH31P-12A1E	AIMB-RP30P-03A1E
Interface		PCIe x4	PCI	PCIe x4	PCIe x1 + PCI	PCI
Expansion Slot		1 PCIe x4	1 PCI	3 PCI	1 PCIe x1 + 2 PCI	3 PCI
Chassis	1U	Yes	Yes	-	-	-
	2U	-	-	Yes	Yes	Yes
ATX	AIMB-762	Yes	-	Yes	-	-
	AIMB-760	-	Yes	-	Yes	Yes
	AIMB-750	-	Yes	-	-	Yes
	AIMB-744	-	Yes	-	-	Yes
	AIMB-742	-	Yes	-	-	Yes
	AIMB-740	-	Yes	-	-	Yes
Micro ATX	AIMB-562	-	Yes	-	-	△
	AIMB-560	-	Yes	-	-	Yes
	AIMB-554	Yes	-	Yes	-	-
	AIMB-542	-	Yes	-	-	△

Yes: Fully compatible.

△: Due to design limitation, only the PCI 1 slot of AIMB-RP30P-03A1 functions.

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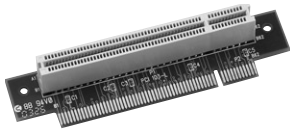
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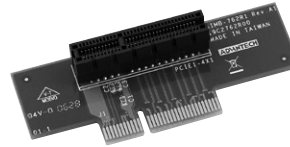
Riser Cards

1U Riser Cards



AIMB-RP10P-01A1E

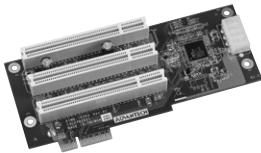
- Connecting Interface: PCI x1
- Expansion Slots: 1 PCI



AIMB-R4104-01A1E

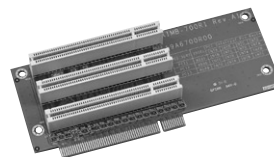
- Connecting Interface: PCIe x4
- Expansion Slots: 1 PCIe x4

2U Riser Cards



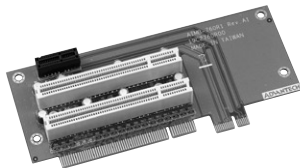
AIMB-R430P-03A1E

- Connecting Interface: PCIe x4
- Expansion Slots: 3 x 32-bit/33 MHz PCI



AIMB-RP30P-03A1E

- Connecting Interface: 3 x 32-bit/33 MHz PCI
- Expansion Slots: 3 x 32-bit/33 MHz PCI

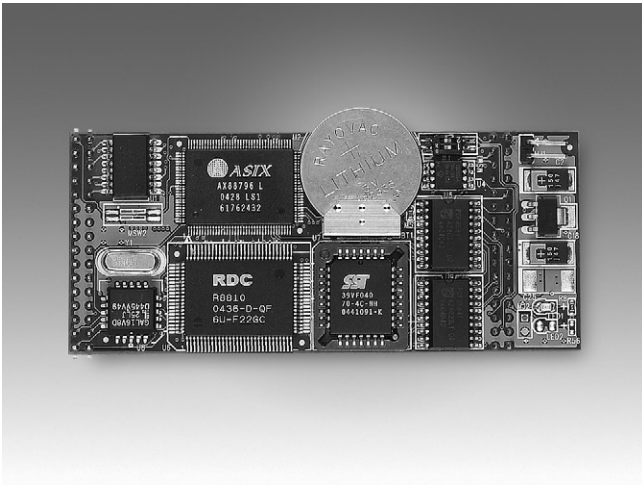


AIMB-RH31P-12A1E

- Connecting Interface: 32-bit/33 MHz PCI + PCIe x1
- Expansion Slots: 2 x 32-bit/33 MHz PCI, 1 PCIe x1

SNMP-1000-B

Intelligent SNMP/HTTP System Manager



Features

- Monitors system fans, temperature, voltage, power supply, CPU fan, CPU temperature, Vcore, watchdog timer, etc.
- Stand alone system monitoring: no driver needed, OS-independent
- Remote alarm notification through SNMP/HTTP, e-mail or pager
- Easy status monitoring through Ethernet using a browser
- Highly reliable: functions even when system or power fails
- Modular design eases system integration and customization

Introduction

The SNMP-1000-B is a platform independent system management module that can detect system operating conditions and notify users to take necessary action to avert system failure through multiple communication protocols. With the SNMP-1000-B installed, a system monitoring and management can be integrated into an existing SNMP-based network management environment. The SNMP-1000-B also has a built-in web-based administration interface which allows users to monitor the system operation from any place with Internet connectivity. The SNMP-1000-B adds another dimension of reliability to your most critical applications.

Powerful yet Easy to Use

The SNMP-1000-B can detect a wide variety of internal system conditions, including temperature, voltage, fan rotation, power supply or CPU operations such as watchdog timer output. Through its I2C interface it can even monitor CPU temperature and voltages of Advantech's full-sized CPU cards. Depending on the alarm severity or user setup, it can generate several different alarm outputs, including SNMP trap, e-mail, pager, acoustic signal, system reset and digital output. Through the easy-to-use web-based user interface, users can set the alarm criteria and select alarm outputs for each sensor input independently to meet user requirements. The backup battery enables the SNMP-1000-B to perform its alarm function even during total system power failure.

Web-enabled, No Driver Needed

The onboard 10/100 Mbps Fast Ethernet interface enables the SNMP-1000-B to be connected to your existing network, independent from the system's connection. It supports multiple network protocols such as TCP/IP, SNMP, HTTP and Telnet, allowing you to manage your systems simply by using a web browser. No special software driver is needed thus eliminating compatibility issues with different operating systems.

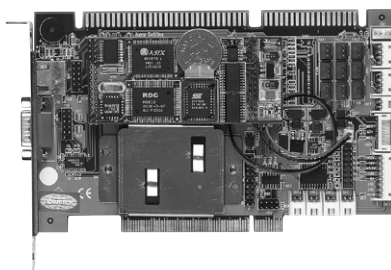
Online Upgrade and Batch Setup

You can upgrade the firmware online by using the included setup utility. There is no need to go to a remote site and disassemble the chassis to collect each SNMP-1000-B module or card for firmware upgrade. The setup utility also supports "batch setup" function, which allows you to save a configuration and duplicate it to many other SNMP-1000-B modules and cards. This function saves tremendous time and effort when you have a number of SNMP-1000-B units installed in your environment.

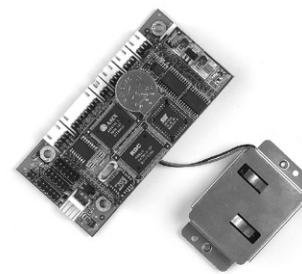
Flexible Modular Hardware Design

The modular design of the SNMP-1000-B allows it to be easily customized to fit into any system. The ultra compact module is only 41 mm wide and 94 mm long. It can be mounted on standard or customized carrier boards to plug into any standard PCI/ISA slot.

Optional



SNMP-1000-E1B1E



SNMP-1000-E2B1E

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Firmware Specifications

System Status Monitoring and Management	Real-time healthy status monitoring: Provides real-time status display in HTTP/Java graphical format
	History log up to 600 records. Data can be downloaded through network or sent by e-mail
	Alarm event record display
Alarm Notification	E-mail: Can set up to 4 addresses to receive e-mails
	SNMP trap: Notify up to 8 SNMP administrators
	Pager notification: Dial out through external modem to send messages to up to 8 pagers
Supported Protocols	Audible alarm sound
	TCP, UDP, IP, ICMP, DHCP, BOOTP, ARP, SNMP, HTTP, Telnet
Management Function	Web-based remote configure, control and monitor
	Remote reset, power down and power up
	Remote digital output signal control
	Remote message display control
	Firmware upgrade from serial port and Ethernet port
	Modem dial in (console mode only)

Sensor Specifications

Voltage	Input	+5 V _{DC} , -5 V _{DC} , +5 V _{SB} , +3.3 V _{DC} , +12 V _{DC} , -12 V _{DC}
Temperature	Input	9 (one for on-board sensor, eight for external sensors)
	Sensor	LM75
	Interface	I ² C
	Range	-30 ~ 125° C (-22 ~ 257° F)
Fan Speed	Input	9 (7 for SNMP-1000-E2B1E)
	Range	700 ~ 10000 rpm
Power Good	Input	4 (1 for SNMP-1000-E2B1E)
	Range	High > 2.4 V _{DC} , Low < 0.8 V _{DC}
CPU Card Healthy	Interface	I ² C
	Input	CPU Vcore, CPU fan, CPU temperature (up to 2 CPUs), +5 V _{DC} , -5 V _{DC} , V _{IO} , +12 V _{DC} , -12 V _{DC}
	Compatibility	PCA-6002-B, 6003, 6004, 6186, 6187, 6188, 6189, 6190
		AIMB-740, 742, 744, 750, 760, 762, 560, 554
Digital Input/Output	Input	8 (SNMP-1000-E1B1E only)
	Output	4 (3 for SNMP-1000-E2B1E)

System Specifications

Processor System	CPU	80188 compatible	
Environment	Firmware	512 KB Embedded Flash ROM	
	Memory	512 KB SRAM	
Ethernet	Interface	10/100Base-T	
Serial Port	Interface	RS-232	
	Baud Rate	9600 bps	
Miscellaneous	Buzzer Support	Yes	
	Detect Time-out Signal of System	Yes	
	Watchdog Timer	Yes	
Battery	Charge Time	3 hr	
	Battery Type	Li-Ion	
	Capacity	1800 mAh (full charged, for 45 ~ 50 minutes operation, depending on system configuration)	
	Battery Life	1 year @ 20° C, 80% capacity after 500 cycles of charge and discharge	
Power Requirement	Typical	5 V @ 550 mA	
		Operating	Non-Operating
	Temperature	0 ~ 60° C (-32 ~ 140° F) -20 ~ 70° C (4 ~ 158° F)	
	Humidity	- 5 ~ 95% RH, non-condensing	
Physical Characteristics	Dimensions	Kernel module: 40.5 x 93 mm (1.59" x 3.66")	
		Carrier board: 55 x 115 mm (2.17" x 4.53")	
		PCI/ISA I/O extension module: 175 x 107 mm (6.89" x 4.21")	

Ordering Information

Part Number	Description
SNMP-1000-E1B1E	SNMP/HTTP system manager development kit, including the kernel module mounted on a PCI/ISA carrier board, 3 sets of temperature sensors, and cables
SNMP-1000-E2B1E	SNMP/HTTP system manager card for ACP series chassis, including the kernel module * Compatible with Advantech chassis series: IPC-622, IPC-623, IPC-7143, IPC-7220 and all ACP series chassis (except ACP-1000P2/X2)

Power Supplies



Redundant Power Supplies



Model Names	1757000177G 1757946007G	1757000197G 1757946006G	RPS-400ATX-ZE
Wattage	460 W	460 W	400 W
Input Range	100 ~ 240 V _{AC} 47 ~ 63 Hz 8 ~ 4 A	100 ~ 240 V _{AC} 47 ~ 63 Hz 8 ~ 4 A	100 ~ 240 V _{AC} 47 ~ 63 Hz 8 ~ 4 A
Outputs	+5 V @ 40 A (5 A min) +3.3 V @ 30 A (1 A min) +12 V @ 32 A (2.5 A min) -12 V @ 1 A -5 V @ 0.8 A +5 Vsb @ 2 A	+5 V @ 40 A (5 A min) +3.3 V @ 30 A (1 A min) +12 V @ 32 A (2.5 A min) -12 V @ 1 A -5 V @ 0.8 A +5 Vsb @ 2 A	+5 V @ 35 A (3 A min) +3.3 V @ 25 A (1 A min) +12 V @ 28 A (2 A min) -12 V @ 1.2 A -5 V @ 0.5 A +5 Vsb @ 2 A
Power Module PN	1757946008G	1757000228G	1757000227G
MTBF (hrs)	100,000	100,000	100,000
Dimension (H x W x D, mm)	106 x 354 x 185.8	183 x 167 x 187.8	86 x 150 x 185
Safety	UL, TUV, CB, CCC	UL, TUV, CB, CCC	UL, TUV, CB, CCC
Compatible with Advantech Chassis	1757000177G: ACP-7000BP, IPC-622 1757946007G: ACP-7000MB	1757000197G: ACP-5260BP, IPC-623 1757946006G: ACP-5260MB	ACP-4000, ACP-4320, ACP-4362, IPC-610, IPC-611, IPC-630, IPC-7220, IPC-7143



Model Names	RPS-300ATX-ZE	1757957002G 1757957001G 1757000127G	1757981000G 1757981001G 1757000128G
Wattage	300 W	570 W/810 W N+1	810 W 3+1
Input Range	100 ~ 240 V _{AC} 60 ~ 50 Hz 6 ~ 3 A	115 ~ 230 V _{AC} 60 ~ 50 Hz 12 ~ 6 A	115 ~ 230 V _{AC} 60 ~ 50 Hz 12 ~ 6 A
Outputs	+5 V @ 25 A (3 A min) +3.3 V @ 18 A (1 A min) +12 V @ 16 A (2 A min) -12 V @ 0.5 A -5 V @ 0.5 A +5 Vsb @ 2 A	+5 V @ 50 A (6 A min) +3.3 V @ 40 A (2 A min) +12 V @ 34 A (3 A min) -12 V @ 1 A -5 V @ 1 A +5 Vsb @ 1.2 A	+5 V @ 75 A (9 A min) +3.3 V @ 60 A (3 A min) +12 V @ 51 A (4.5 A min) -12 V @ 1.5 A -5 V @ 1.5 A +5 Vsb @ 1.6 A
Power Module PN	1757930060G	1757930057G: ACP-7000 1757000126G: ACP-5260, IPC-623	1757930057G: ACP-7000 1757000126G: ACP-5260, IPC-623
MTBF (hrs)	100,000	100,000	100,000
Dimension (H x W x D, mm)	86 x 150 x 185	1757957002G: 95 x 356 x 230 1757957001G: 95 x 356 x 230 1757000127G: 200.6 x 164 x 230	1757981000G: 95 x 356 x 230 1757981001G: 95 x 356 x 230 1757000128G: 200.6 x 164 x 230
Safety	UL, TUV, CB, CCC	UL, TUV, CB	UL, TUV, CB, CCC
Compatible with Advantech Chassis	ACP-2000, ACP-4000, ACP-4320, IPC-610, IPC-611, IPC-630, IPC-7220, IPC-7143	1757957002G: ACP-7000BP 1757957001G: ACP-7000MB 1757000127G: IPC-623BP, ACP-5260BP	1757981000G: ACP-7000BP 1757981001G: ACP-7000MB 1757000128G: IPC-623BP, ACP-5260BP

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Power Supplies



PS/2 Power Supplies



Model Names	PS-700ATX-ZE	PS-500ATX-ZE	PS-400ATX-ZBE
Wattage	700 W	500 W	400 W
Input Range	100 ~ 240 V _{AC} 60 ~ 50 Hz 11 ~ 5 A	115 ~ 250 V _{AC} 63 ~ 47 Hz 8 ~ 4 A	100 ~ 240 V _{AC} 63 ~ 47 Hz 8 ~ 4 A
Outputs	+5 V @ 50 A (2.5 A min) +3.3 V @ 45 A (1 A min) +12 V @ 36 A (1 A min) -12 V @ 1 A -5 V @ 0.8 A +5 Vsb @ 2 A	+5 V @ 40 A (3 A min) +3.3 V @ 30 A (1 A min) +12 V @ 32 A (1 A min) -12 V @ 1 A -5 V @ 0.8 A +5 Vsb @ 2 A	+5 V @ 35 A (2.5 A min) +3.3 V @ 25 A (1 A min) +12 V @ 30 A (1 A min) -12 V @ 1 A -5 V @ 0.8 A +5 Vsb @ 2 A
Power Module PN	-	-	-
MTBF (hrs)	72,100	98,000	91,000
Dimension (H x W x D, mm)	86 x 150 x 220	86 x 150 x 140	86 x 150 x 140
Safety	UL, TUV, CB, CCC	UL, TUV, CB, CCC	UL, TUV, CB, CCC
Compatible with Advantech Chassis	ACP-4000, ACP-4320, ACP-4362, IPC-610MB-F, IPC-611, IPC-615, IPC-630MB	ACP-4000, ACP-4320, ACP-4362, IPC-610, IPC-611, IPC-615, IPC-622 (P/N: 1757000162G), IPC-623 (P/N: 1757000133G), IPC-630, IPC-6608, IPC-6908, IPC-7143, IPC-7220	ACP-4000, ACP-4320, ACP-4362, IPC-610, IPC-611, IPC-615, IPC-622 (P/N: 1757000193G), IPC-623 (P/N: 1757000131G), IPC-630, IPC-6608, IPC-6908, IPC-7143, IPC-7220



Model Names	PS-300ATX-DC48E	PS-300ATX-ZBE	PS-250ATX-ZE
Wattage	300 W	300 W	250 W
Input Range	72 ~ 36 V _{DC} 15 A	100 ~ 240 V _{AC} 60 ~ 50 Hz 10 A	115 ~ 230 V _{AC} 60 ~ 50 Hz 10-5 A
Outputs	+5 V @ 30 A (0.3 A min) +3.3 V @ 28 A (0.3 A min) +12 V @ 15 A (0.2 A min) -12 V @ 0.8 A -5 V @ 0.3 A +5 Vsb @ 2 A	+5 V @ 30 A (0.5 A min) +3.3 V @ 28 A (0.3 A min) +12 V @ 15 A (1 A min) -12 V @ 0.8 A -5 V @ 0.3 A +5 Vsb @ 2 A	+5 V @ 27 A (0.5 A min) +3.3 V @ 20 A (0.3 A min) +12 V @ 13 A (1 A min) -12 V @ 0.8 A -5 V @ 0.3 A +5 Vsb @ 2 A
Power Module PN	-	-	-
MTBF (hrs)	100,000	100,000	100,000
Dimension (H x W x D, mm)	86 x 150 x 140	86 x 150 x 140	86 x 150 x 140
Safety	UL, TUV, CB, CCC	UL, TUV, CB, CCC	UL, TUV, CB, CCC
Compatible with Advantech Chassis	ACP-2000, ACP-4000, ACP-4320, ACP-4362, IPC-602, IPC-610, IPC-611, IPC-615, IPC-630, IPC-6606, IPC-6608, IPC-6908, IPC-7143, IPC-7220	ACP-2000, ACP-4000, ACP-4320, ACP-4362, IPC-602, IPC-610, IPC-611, IPC-615, IPC-630, IPC-6606, IPC-6608, IPC-6908, IPC-7143, IPC-7220	ACP-2000, IPC-602, IPC-610, IPC-611, IPC-615, IPC-6606, IPC-6608, IPC-6908

Power Supplies



Small Form Factor Power Supplies



Model Names	1757000160G 1757000229G	OP-20PZE	1757000209G
Wattage	1U, 300 W	200 W	1U, 150 W
Input Range	100 ~ 240 V _{AC} 63 ~ 47 Hz 6 ~ 3 A	100 ~ 240 V _{AC} 63 ~ 47 Hz 4 ~ 2 A	100 ~ 240 V _{AC} 63 ~ 47 Hz 4 ~ 2 A
Outputs	+5 V @ 25 A (3 A min) +3.3 V @ 14 A (1 A min) +12 V @ 16 A (2 A min) -12 V @ 1 A -5 V @ 0.5 A +5 Vsb @ 2 A	+5 V @ 16 A (2 A min) +12 V @ 9 A (1 A min) -12 V @ 0.7 A -5 V @ 0.2 A	+5 V @ 14 A (2 A min) +3.3 V @ 10 A (1 A min) +12 V @ 6 A (1 A min) -12 V @ 0.8 A -5 V @ 0.5 A +5 Vsb @ 1.5 A
Power Module PN	-	-	-
MTBF (hrs)	100,000	84,000	84,000
Dimension (H x W x D, mm)	40 x 100 x 205	40 x 100 x 190	40 x 100 x 190
Safety	UL, TUV, CB, CCC	UL, TUV, CB, CCC	UL, TUV, CB, CCC
Compatible with Advantech Chassis	1757000160G: IPC-603MB, IPC-6806W 1757000229G: IPC-5120, IPC-7120	IPC-6806	IPC-6806S



Model Names	1757920011G	1757000170G
Wattage	200 W	150 W
Input Range	100 ~ 240 V _{AC} 63 ~ 47 Hz 4 ~ 2 A	115 ~ 230 V _{AC} 63 ~ 47 Hz 4 ~ 2 A
Outputs	+5 V @ 16 A (2 A min) +3.3 V @ 14 A (1 A min) +12 V @ 9 A (1 A min) -12 V @ 0.7 A -5 V @ 0.2 A +5 Vsb @ 1.5 A	+5 V @ 15 A (1 A min) +3.3 V @ 17 A (0.5 A min) +12 V @ 8 A (2 A min) -12 V @ 0.8 A +5 Vsb @ 2 A
Power Module PN	-	-
MTBF (hrs)	84,000	100,000
Dimension (H x W x D, mm)	40 x 100 x 190	63.5 x 100 x 125
Safety	UL, TUV, CB, CCC	UL, TUV, CB
Compatible with Advantech Chassis	IPC-6806 by OEM inquiry	IPC-644

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CPU Coolers



Model Names	Special CPU Cooler		Pentium 4 LGA775		Pentium 4 Socket 478
	1750000400	1750000282	1750000332	1750000334	1750000242
Minimum Chassis Height	2U	2U	2U	4U	1U
CPU Package	Only for PCE-5120	Only for PCE-7210	Intel Pentium 4 LGA775	Intel Pentium 4 LGA775	Intel Pentium 4 Socket 478
CPU Speed	up to 3.4 GHz (90 nm, 110 W, L2: 1 MB)	up to 3.8 GHz (90 nm, 115 W, L2: 1 MB)	up to 3.8 GHz (90 nm, 115 W, L2: 1 MB)	up to 3.8 GHz (90 nm, 115 W, L2: 1 MB)	up to 2.5 GHz (0.13 micron, 61 W, L2: 512 KB)
Heat Sink Material	Copper	Copper	Copper	Aluminum fins & copper heart	Copper
Fan Speed	5,400 +- 10% RPM	6,800 +- 10% RPM	5,300 +- 10% RPM	4,500 +- 10% RPM	3,800 +- 10% RPM
Weight	672 g	624 g	560 g	550 g	335 g
Dimension	89 x 74 x 51 mm	82 x 58 x 65.5 mm	80 x 80 x 55 mm	110 x 110 x 67 mm	88.5 x 62 x 29.9 mm



Model Names	Pentium 4 Socket 478		Pentium III	Intel MMX	
	1750000432	1750000257	1759254100	1759200100	1759212600
Minimum Chassis Height	1U	2U	1U	1U	2U
CPU Package	Intel Pentium 4 Socket 478	Intel Pentium 4 Socket 478	Intel Pentium III FC-PGA II	Intel MMX	Intel MMX
CPU Speed	up to 2.8 GHz (0.13 micron, 70 W, L2: 512 KB)	up to 3.2 GHz (90 nm, 89 W, L2: 1 MB)	up to 1.26 GHz (Tualatin)	-	-
Heat Sink Material	Copper	Copper	Aluminum	Aluminum	Aluminum
Fan Speed	4,800 +- 10% RPM	4,500 +- 10% RPM	4,700 +- 10% RPM	5,000 +- 10% RPM	5,000 +- 10% RPM
Weight	478 g	565 g	101 g	77 g	77 g
Dimension	93 x 77 x 27 mm	83 x 69 x 55.5 mm	59 x 57x 28 mm	52 x 52x 29 mm	52 x 52x 42 mm

Keyboards



KBD-6307

105-key Keyboard with Touchpad

- 105-Key, supports Windows key
- Built-in pressure activated touchpad, fully compatible with Windows, supporting plug & play
- Spiral cable with PS/2 keyboard & mouse connector
- Dimensions (W x H x D): 392 x 26 x 255 mm (15.4" x 1" x 10")
- Weight: 2 kg (8.8 lb)
- CE compliant
- Language: US
- P/N: KBD-6307



KBD-6312

Rackmount Keyboard with Touchpad

- 105-Key, supports Windows key
- Built-in pressure activated touchpad, fully compatible with Windows, supporting plug & play
- Spiral cable with PS/2 keyboard & mouse connector
- 19" rackmount
- Height: 1U (44.4 mm, 1.75")
- Ball bearing slide rail with handle and lock
- Dimensions (W x H x D): 482 x 44.4 x 360 mm (19" x 1.75" x 14.2")
- Language: US
- Available in black color
- P/N: KBD-6312, KBD-6312-BLK

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KBD-RMK

Rackmount Keyboard Drawer

- 19" rackmount
- Height: 1U (44.4 mm, 1.75")
- Ball bearing slide rail with handle and lock
- Compatible with KBD-6304, KBD-6305 and KBD-6307
- Dimensions (W x H x D): 482 x 44.4 x 360 mm (19" x 1.75" x 14.2")
- Weight: 1.5 kg (3.3 lb)
- 2 mounting brackets and 4 screws included
- CE compliant
- Available in black color
- P/N: KBD-RMK, KBD-RMK-BLK



PCA-6302

Compact 104-key Keyboard

- 104-Key with tactile response
- AT & PS/2 compatible
- Over 20 million cycles
- Spiral cable with 6-pin PS/2 keyboard connector (not including PS/2 to 5-pin DIN PC/AT adapter)
- Dimensions (W x H x D): 400 x 40 x 188 mm (15.7" x 1.6" x 7.4")
- Language options: US, CH
- P/N: PCA-6302, PCA-6302C



KBD-6304

Compact 88-key Keyboard

- 88-Key with membrane structure
- PC/AT, PS/2, DOSV compatible
- 5 million life cycles
- Spiral cable with 6-pin PS/2 keyboard connector (not including PS/2 to 5-pin DIN PC/AT adapter)
- Dimensions (W x H x D): 287 x 29 x 140 mm (11.3" x 1.14" x 5.5")
- Weight: 0.5 kg (1.1 lb)
- CE compliant
- FCC, CSA, UL, CNS approvals
- Language options: US, CH
- P/N: KBD-6304, KBD-6304C



KBD-6305

Compact 88-key Keyboard with Touchpad

- 88-Key with membrane structure
- PC/AT, PS/2, DOSV compatible
- Built-in Touch-pad for pointing input device
- 5 million life cycles
- Spiral cable with PS/2 keyboard & mouse connector (not including PS/2 to PC/AT and PS/2 to DB-9 adapter)
- Dimensions (W x H x D): 289 x 27 x 227 mm (11.4" x 1.06" x 8.9")
- Weight: 0.8 kg (1.76 lb)
- CE compliant
- FCC, CSA, UL, CNS approvals
- Language options: US
- P/N: KBD-6305

Accessories

5.25 Industrial Disk Tray

IDT-5101

Shockproof Industrial Hard Disk Drive Tray with Cooling Fan and Optional Front USB and PS/2 Interfaces



- Accepted HDD: 1 x 3.5"
- Cooling Fan: 1 x 7 CFM
- Material: Heavy duty steel plate with coating
- Color Codes: 414U (Gray), 4C2X (Black)
- Dimensions (W x H x D): 148.5 x 42.6 x 171 mm (5.85" x 1.68" x 6.73")
- Net Weight: 400 g (0.88 lb)
- P/N: IDT-5101, IDT-5101-BLK
IDT-5121, IDT-5121-BLK with dual USB & PS/2

Connectors and Cables



P/N 1700000719

USB cable with four ports, 30.5 cm

- The key is in pin #10

P/N 1700002314

USB cable with four ports, 30.5cm

- For AIMB-764, 762, 760, 750, 744, 742, 562, 560, 556, 554, 542, PCA-6189, PCE-5120, PCE-7210
- The key is in pin #9



P/N 1700100170

USB cable with dual ports, 17.5 cm

- The key is in pin #10

P/N 1700003195

USB cable with dual ports, 17.5 cm

- For AIMB-764, 762, 760, 750, 744, 742, 562, 560, 556, 554, 542, PCA-6189, PCE-5120, PCE-7210
- The key is in pin #9



P/N 1700100301

USB cable with dual ports, 30 cm

- The key is in pin #10

P/N 1700002204

USB cable with dual ports, 27cm

- For AIMB-764, 762, 760, 750, 744, 742, 562, 560, 556, 554, 542, PCA-6189, PCE-5120, PCE-7210
- The key is in pin #9



P/N 1700060202

Y-cable for PS/2 mouse & keyboard for CPU card



P/N 1700060201

Y-cable for PS/2 mouse & AT keyboard for CPU card



P/N 1700000259

15-pin to 9-pin D-sub VGA cable, 20 cm

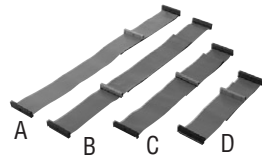


P/N 1701260305

Serial and parallel ports with cables and bracket

Accessories

Connectors and Cables



A. P/N 1701400973

HDD cable, ATA 66/100, 62 cm + 35 cm

B. P/N 1701400972

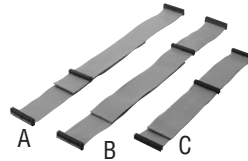
HDD cable, ATA 66/100, 82 cm + 15 cm

C. P/N 1701400652

HDD cable, ATA 66/100, 45 cm + 20 cm

D. P/N 1701400452

HDD cable, ATA 66/100, 45 cm



A. P/N 1701400971

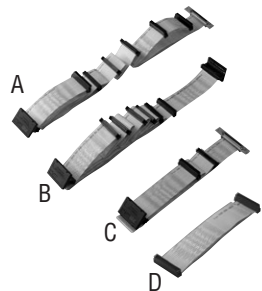
HDD cable, ATA 33, 62 cm + 35 cm

B. P/N 1701400970

HDD cable, ATA 33, 82 cm + 15 cm

C. P/N 1701400607

HDD cable, ATA 33, 60 cm



A. P/N 1701681790

68-pin SCSI LVDS cable, F-6M-T, 179 cm, for RAID-500U3

B. P/N 1701681560

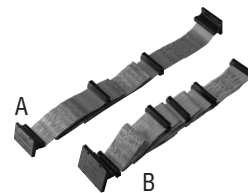
68-pin SCSI LVDS cable, T-6M-T, 156 cm

C. P/N 1701681100

68-pin SCSI LVDS cable, F-M-M-T, 110 cm

D. P/N 1701680550

68-pin SCSI LVDS cable, F-M-M-T, 53 cm



A. P/N 1701680670

68-pin SCSI LVDS cable, with 2 male connectors and terminators at both ends, 67 cm

B. P/N 1700000182

68-pin SCSI LVDS cable, with 5 male connectors and 1 terminator, 125 cm



P/N 1700340640

FDD cable for two 3.5" FDD



P/N 1700003194

SATA Cable 7-pin, 180D w/lock, 60 cm



P/N 1700000136

S-Video cable, 180 cm



P/N 1700000137

AV cable, 180 cm



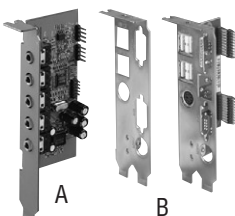
P/N 1700030500

ATX connector cable from CPU card to backplane



P/N 1700000450

ATX to AT power converter



A. P/N PCA-AUDIO-00A1

Audio extension module (AC-97) provides Line-in, Mic-in, Aux-in, Line-out, Speaker-out, CD-in and Buzzer-in from CPU card

B. P/N PCA-USB4-00A1

USB extension module with 4 ports



IDT-3030

3.5" docking station with

- Dual USB 2.0 ports
- PS/2 port
- 9-pin D-sub port and cables to motherboard or CPU card

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