

Industrial Communication

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Universal PCI/PCI 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, Linux[®] (by product)
- Optional surge protection up to 3,000 V_{DC}
- Optional isolation protection for RS-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 leverages 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 16PCI954/16PCI952 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 offers surge protection; protecting your system from abrupt high voltage surges (up to $3000 V_{DC}$), such as those caused by lightning during thunderstorms.

16PCI954/16PCI952 UART

The 16PCI954/16PCI952 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 16PCI954/16PC1952 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 allows 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

Quick Appendix of Advantech Industrial Communication Cards

Bus	Model Name	Port		Comm	unication Inter	face		Prote	ection	Cable Connector	Page
543				1						Type	1 496
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		4		V				2500 VDC	2500 VDC	DZJ IVIAIC DR0 Malo	10-0
	DCL 161111	4		v	V	M		2500 V _{DC}	2000 V _{DC}	DD3 Walc	10-0
CI & Universal		4			V	V V		2500 V _{DC}	2000 V _{DC}	DD23 IVIdIC	10-7
PCI		4		17	V V			2500 V _{DC}	ZUUU V _{DC}	DB3E Maile	10-7
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	DCI 7/20	2			V	V		2500 V		-	10 1/
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ISA	PCL-846B	4			V	V		2000 V _{DC}	1000 V _{DC}	DB9 Male	10-16
ion	PCL-849A	4		V						DB25 Male	10-17
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	DOM 2010	0		V	M	M		SUUU V _{DC}	1000.1/		10-1
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Form Fieldbus Communication Interface Support			Support	Туре		Model Name	Daug	
Factor							MOUEI Nallie	гауе
	Yes	Yes			Yes		AD-CIF50-PB	10-29
PCI 🛛			Yes		Yes		AD-CIF50-DNM	10-30
[Yes	Yes		AD-CIF50-COM	10-31
	Yes	Yes			Yes		AD-CIF104-PB	10-29
[Yes					Yes	AD-CIF104-DPS	10-29
DC/104			Yes		Yes		AD-CIF104-DNM	10-30
P6/104			Yes			Yes	AD-CIF104-DNS	10-30
				Yes	Yes		AD-CIF104-COM	10-31
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D0/404	Yes	Yes			Yes		AD-CIF104P-PB	10-29
PU/104			Yes		Yes		AD-CIF104P-DNM	10-30
1 105				Yes	Yes		AD-CIF104P-COM	10-31

Accessories (Optional)

	Cable Connector Type	Model Name
	DB25 Female	OPT8A
	DB25 Male	OPT8B
Cable Connectors	DB25 Male	OPT8C
	DB9 Male	OPT8H
	DB25 Female	OPT8E+

* Intelligent Communication Card

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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 2.1 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
- Optional 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 surge protected RS-422/485 ports, and comes with features such as: high transmission speed of 921.6 kbps, optional 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 3000 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 surge protection technology, protecting your system from abrupt high voltages up to 2500 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

•	Bus Interface	PCI bus spec. 2.1 c	compliant	• P	C
•	All ports use the same I	RQ assigned by F	PCI Plug & Play	• P	C
•	Data Bits	5, 6, 7, 8			
•	Stop Bits	1, 1.5, 2		• P	C
	Parity	None, even, odd			
	Communication	16PCI952		• P	C
	Controller				
•	Speed	50 bps ~ 921.6 kbp	IS		
•	Data Signals	TxD, RxD, RTS, CT	S (RS-422/485)		
•	Surge Protection	2500 V _{pc} (PCI-1601B/PCI-1602B only)			
•	ESD Protection	16 kV			
•	Isolation Protection	3000 V _{pc} (PCI-1602A/B only)			
•	Power Consumption	50			
		Typical	Max		
	PCI-1601	220 mA (+5 V)	270 mA (+5 V)		
	PCI-1602	250 mA (+5 V)	300 mA (+5 V)		
•	Dimensions	123 x 92 mm (4.8"	x 3.6")		
	Operating Temperature	0 ~ 65° C (refer to IEC 68-2-1, 2) (32 ~ 149° F)			
•	Operating Humidity	5 ~ 95 % Relative Humidity, non-condensing (refer to IEC 68-2-3)			
	Storage Temperature	-25 ~ 85° C (-13 ~	185° F)		

PCI-1601A	2-port RS-422/485 PCI COMM Card
 PCI-1601B 	2-port RS-422/485 PCI COMM Card, w/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 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, Linux®
- Interrupt status register for increased performance
- Powerful and easy-to use utility (ICOM Tools)

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Introduction

The 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.

The 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 on-board 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

 Bus Interface PCI bus spec. 2.2 compliant PCI Interface PCI Universal card All ports use the same IRQ assigned by PCI Plug & Play 5.6.7.8

1.1.5.2

16PCI952

16 kV

None, even, odd

RS-232: 50 bps ~ 230.4 kbps Current Loop: 50 bps ~57.6 kbps

Current Loop: Tx+, Tx-, Rx+, Rx-

3,000 V_{DC} for RS-232 and current-loop

+5 V (250 ~ 300 mA)

50 ~ 57600 bps

123 x 92 mm (4.8" x 3.6")

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI

5 ~ 95% Relative Humidity, non-condensing (refer to

- Data Bits
- Stop Bits

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- Parity
- Communication Controller
- Speed
- Data Signals
- Power Requirement
- ESD Protection
- Isolation Protection
- Dimensions
- Operating Temperature 0 ~ 65° C (refer to IEC 68-2-1, 2) (32 ~ 149° F)
- Operating Humidity
- IEC 68-2-3)
- Storage Temperature -25 ~ 85° C (-13 ~ 185° F)

Current-loop Interface

- Signal Driver/receiver 6N136
- Signals TxD+, TxD-, RxD+, RxD-
- **Current Value** 20 mA (Standard) Asynchronous, full duplex
- Mode .
- Baud-rate
- Transmission Distance 1000 m

Pin Assignments



RS-232



Current-loop

Ordering Information

PCI-1603

2-port Isolated RS-232/current-loop PCI Comm. Card

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PCI-1610A PCI-1610B PCI-1610CU

4-port RS-232 PCI Communication Card 4-port RS-232 PCI Communication Card, w/Surge Protection

4-port RS-232 Universal PCI Communication Card, w/Isolation & Surge Protection



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, Linux[®]
- Interrupt status register for increased performance
- Space reserved for termination resistors
- Powerful and easy to use Utility (ICOM Tools)
- Universal PCI (PCI-1610CU only)
- 2,500 V_{DC} Surge Protection (PCI-1610B/1610CU)
- 2,500 V_{DC} Isolation Protection (PCI-1610CU only)

Introduction

The 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-1610B and PCI-1610CU provides four optional surge protected RS232/422/485 ports and four independent RS-232 ports.

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 newer 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 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

•	Bus Interface	PCI bus specification 2.1 (PCI-1610A/1610B), 2.2 (PCI-1610CU) compliant
•	IRQ	All ports use the same IRQ assigned by PCI Plug & Play
•	Data Bits	5, 6, 7, 8
•	Stop Bits	1, 1.5, 2
•	Parity	None, even, odd
•	Communication	16PCI954
	Controller	
•	Speed	50 bps ~ 921.6 kbps
•	Data Signals	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND, RI
•	Surge Protection	2,500 V _{DC} (PCI-1610B/1610CU only)
•	ESD Protection	16 kV
•	Isolation Protection	2,500 V _{pc} (PCI-1610CU only)
•	Power Consumption	Typical +12 V: 60 mA
		+5 V: 150 mA
		Max +12 V: 80 mA
		+5 V: 180 mA
•	Power Requirement	±12 V
•	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)

• Operating Temperature 0~ 65° C (refer to IEC 68-2-1, 2), (32 ~ 149° F)

- Operating Humidity
- 5 ~ 95% Relative Humidity, non-condensing (refer to IEC 68-2-3)
- -25 ~ 85° C (-13 ~ 185° F)

- PCI-1610A 4-port RS-232 PCI COMM Card (30cm DB37 to 4 DB25 cable included) PCI-1610A/9 4-port RS-232 PCI COMM Card (30cm DB37 to 4 DB9 cable included) 4-port RS-232 PCI COMM Card w/Surge Protection PCI-1610B (30cm DB37 to 4 DB25 cable included) PCI-1610B/9 4-port RS-232 PCI COMM Card w/Surge Protection (30cm DB37 to 4 DB9 cable included) PCI-1610CU 4-port RS-232 Universal PCI COMM Card w/Isolation & Surge Protection (30cm DB37 to 4 DB25 cable included) PCI-1610CU/9 4-port RS-232 Universal PCI COMM Card w/Isolation
 - J/9 4-port RS-232 Universal PCI COMM Card w/Isolation & Surge Protection (30cm DB37 to 4 DB9 cable included)

PCI-1611U

4-port RS-422/485 Universal PCI Communication Card, w/ **Isolation & 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, 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
- 2,500 V_{DC} 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 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 surge protection technology, protecting your system from abrupt high voltages up to 2,500 V_{pc}. 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

•	Bus Interface	PCI bus specification 2.2 compliant • PCI-161			
•	IRQ	All ports use the same IRQ assigned by PCI Plug &			
		Play			
•	Data Bits	5, 6, 7, 8	• F	PCI-161	
•	Stop Bits	1, 1.5, 2			
•	Parity	None, even, odd			
•	Communication	16PCI954			
	Controller				
•	Speed	50 bps ~ 921.6 kbps			
•	Data Signals	TxD, RxD, RTS, CTS (for RS-422/485)			
•	Surge Protection	2,500 V _{pc}			
•	ESD Protection	16 kV			
•	Isolation Protection	2,000 V _{pc}			
•	Power Consumption	600 mA @ 5 V			
•	Dimensions	185 x 100 mm (7.3" x 3.9")			
•	Operating Temperature	0 ~ 65° C (refer to IEC 68-2-1, 2), (32 ~ 149° F)			
•	Operating Humidity	5 ~ 95 % Relative Humidity, non-condensing (refer to			
	· · ·	IEC 68-2-3)			
	Storage Temperature	-25 ~ 85° C (-13 ~ 185° F)			

Ordering Information

1U

4-port RS-422/485 Universal PCI Communication Card, w/Isolation & Surge Protection (30cm DB37 to 4 DB25 cable included)

1U/9

4-port RS-422/485 Universal PCI Communication Card, w/Isolation & Surge Protection (30cm DB37 to 4 DB9 cable included)

AD\ANTECH

PCI-1612

4-port RS-232/422/485 PCI Communication Card



Features

- PCI bus specification 2.1(PCI-1612A/1612B), 2.2 (PCI-1612U/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, 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 (PCI-1612U/1612CU)
- 2,500 V_{DC} Surge Protection (PCI-1612B/1612U/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-1612B, PCI-1612U and PCI-1612CU provide four optional surge protected RS232/422/485 ports and also offer four independent RS-232/422/485 ports. PCI-1612U 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-1612U and PCI-1612CU offers surge protection for high voltages up to 2,500 V_{pc}. Meanwhile, PCI-1612CU provides 2,500 V_{pc} 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

•	Bus Interface	PCI bus s (PCI-161	specification 2.1 (PCI-1612A/1612B), 2.2 2U/1612CU) compliant	
•	IRQ	All ports Play	use the same IRQ assigned by PCI Plug &	
•	Data Bits	5, 6, 7, 8		
•	Stop Bits	1, 1.5, 2		
•	Parity	None, eve	en, odd	
•	Communication Controller	16PCI954	4	
•	Speed	50 bps ~	921.6 kbps	
•	Data Signals	TxD, RxD (for RS-2 TxD, RxD	, RTS, CTS, DTR, DSR, DCD, GND 32) , RTS, CTS (for RS-422/485)	
•	Surge Protection	2,500 V _{Dr}	(PCI-1612B/1612U/1612CU only)	
•	ESD Protection	16 kV		
•	Isolation Protection	2,500 V _{DC}	(PCI-1612CU only)	
•	Power Consumption	Typical	+12 V: 60 mA +5 V: 270 mA	
		Max	+12 V: 80 mA +5 V: 338 mA	
•	Power Requirement	±12 V		
•	Dimensions	185 x 100 mm (7.3" x 3.9")		
	Operating Temperature	0 65° C	(rofor to IEC 68 2 1 2) (22 1/0° E)	

Operating Temperature $0 \sim 65^{\circ}$ C (refer to IEC 68-2-1, 2), (32 ~ 149° F)

- Operating Humidity 5 ~ 95%
 - 5 ~ 95% Relative Humidity, non-condensing (refer to IEC 68-2-3)
- Storage Temperature -25 ~ 85° C (-13 ~ 185° F)

 PCI-1612A 	4-port RS-232/422/485 PCI COMM Card (30cm DB37 to 4 DB25 cable included)
PCI-1612A/9	4-port RS-232/422/485 PCI COMM Card (30cm DB37 to 4 DB9 cable included)
 PCI-1612B 	4-port RS-232/422/485 PCI COMM Card w/Surge Protection (30cm DB37 to 4 DB25 cable included)
PCI-1612B/9	4-port RS-232/422/485 PCI COMM Card w/Surge Protection (30cm DB37 to 4 DB9 cable included)
• PCI-1612U	4-port RS-232/422/485 Universal PCI COMM Card w/Surge Protection (30cm DB37 to 4 DB25 cable included)
PCI-1612U/9	4-port RS-232/422/485 Universal PCI COMM Card w/ Surge Protection (30cm DB37 to 4 DB9 cable included)
• PCI-1612CU	4-port RS-232/422/485 Universal PCI COMM Card w/Isolation & Surge Protection (30cm DB37 to 4 DB25 cable included)
 PCI-1612CU/9 	4-port RS-232/422/485 Universal PCI COMM Card w/Isolation & Surge Protection (30cm DB37 to 4 DB9 cable included)

PCI-1620A PCI-1620B PCI-1620U

8-port RS-232 PCI Communication Card 8-port RS-232 PCI Communication Card, with Surge Protection 8-port RS-232 Universal PCI Communication Card, with Surge Protection



Features

- PCI bus specification 2.1, 2.2 (1620U only) 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, Linux[®]
- Interrupt status register for increased performance
- Space reserved for termination resistors
- Powerful and easy-to use utility (ICOM Tools)
- Universal PCI (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 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 16PCI954 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-1620U has an universal PCI connector that is compatible with both 3.3 V signaling and 5 V signaling. This means that PCI-1610U 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-1620U offer surge protection technology, protecting your system from abrupt high voltages of up to 3,000 V_{pc}. 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

Bus Interface PCI bus spec. 2.1, 2.2 (1620U only) compliant

		,, ,			
All ports use the same IRQ assigned by PCI Plug & Play					
 Data Bits 	5, 6, 7, 8				
 Stop Bits 	1, 1.5, 2				
 Parity 	None, even, odd				
 Communication 	16PCI954+16C954				
Controller					
 Speed 	50 bps ~ 921.6 kbps				
 Data Signals 	TxD, RxD, RTS, CTS, DTR, DSR	, DCD, GND			
	(for RS-232)				
 Surge Protection 	3000 V _{DC} (PCI-1620B)				
	2500 V _{DC} (PCI-1620U)				
ESD Protection	16 kV				
 Power Consumption 					
Typical	+12 V: 120 mA	+5 V: 180 mA			
Max	+12 V: 150 mA	+5 V: 220 mA			
Power Requirement	±12 V				
 Dimensions 	185 x 100 mm (7.3" x 3.9")				
 Operating Temperature 	0 ~ 65° C (refer to IEC 68-2-1,2) (32 ~ 149° F)			
 Operation Humidity 	5 ~ 95 % Relative Humidity, nor	n-condensing			
	(refer to IEC 68-2-3)				
 Storage Temperature 	-25 ~85° C (-13 ~ 185° F)				

Ordering Information

PCI-1620A

Opt8C

Opt8H

- PCI-1620B PCI-1620U
- 8-port RS-232 PCI COMM Card, w/surge protection 8-port RS-232 universal PCI COMM card w/surge

8-port RS-232 PCI COMM Card

- protection
 - 8-port RS-232 cable with male DB62 to DB25 connector (1m) 8-port RS-232 cable with male DB62 to DB9 connector
- 8-port RS-232 cable with male DB62 to DB9 connector (1m)

PCI-1622CU

8-port RS-422/485 Universal PCI **Communication Card, w/Isolation & Surge Protection**



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 •
- 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
- 2,500 V_{DC} Surge Protection
- 2,500 V_{DC} Isolation Protection

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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 four 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 surge protection from high voltages up to 2,500 Vnc and 2,500 Vnc 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

- Bus Interface
- IRQ

Data Bits

All ports use the same IRQ assigned by PCI Plug & Play 5, 6, 7, 8 1, 1.5, 2

16PCI954

2,500 V_{DC}

16 kV 2,500 V_{DC}

None, even, odd

50 bps ~ 921.6 kbps

185 x 100 mm (7.3" x 3.9")

PCI bus specification 2.2 compliant

TxD, RxD, RTS, CTS (for RS-422/485)

- Stop Bits
- Parity
- Communication Controller
- Speed
- Data Signals
- Surge Protection
- ESD Protection
- Isolation Protection
- Power Consumption 600 mA @ 5 V
- Dimensions
- Operating Temperature 0~ 65° C (refer to IEC 68-2-1, 2), (32~149° F) 5 ~ 95% Relative Humidity, non-condensing (refer to
- **Operating Humidity**
- IEC 68-2-3) Storage Temperature -25 ~ 85° C (-13 ~ 185° F)

Pin Assignments





- PCI-1622CU
- 8-port RS-422/485 Universal PCI COMM card w/Isolation and Surge Protection (1m DB78 to 8 DB9 cable included)

PCI-1602UP PCI-1604UP

2-port RS-422/485 Low-Profile PCI Communication Card, w/Isolation and Surge Protection

2-port RS-232 Low-Profile PCI Communication Card. w/Surge Protection



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) .
- I/O address automatically assigned by PCI Plug & Play
- OS support: Windows® 98/ME/2000/XP, Linux® (1602UP only) .
- 2,500V_{pc} Surge protection
- 2,500V_{pc} Isolation protection for RS-422/485 (PCI1602UP)
- 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
- Low-profile PCI

Introduction

PCI-1602UP and PCI-1604UP are 2 port RS-232/422/485 PCI communication cards that are compatible with the PCI 2.2 bus specification for universal connectivity and low profile 0 PCI cards. PCI-1604UP provides two independent RS-232 ports, while PCI-1602UP has two RS-422/485 ports. To improve system performance, both cards allow transmission rates up to 921.6 kbps. To increase reliability, the cards offer surge protection, protecting your system from abrupt high voltages up to 2,500 V_{pc}. High-performance 16PCI952 UARTs with 128-byte FIFO, reduces the CPU load, making the cards especially suitable for multitasking environments. PCI-1602UP and PCI-1604UP follows the Low Profile PCI MD1 standard. This standard has the same protocol and electronic definition as standard PCI, but the Low Profile PCI 1 standard is smaller. Thus, PCI-1602UP and PCI-1604UP are suitable for embedded systems, and size-constrained environments. Moreover, both 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

Specifications

of Advantech ICOM cards.

- Bus Interface PCI bus spec. 2.2 compliant All ports use the same IRQ assigned by PCI Plug & Play
- Data Bits
- Stop Bits
- Parity
- Communication Controller
- Speed
- Data Signals
- TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND, RI (for RS-232) Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS-, GND

5, 6, 7, 8

1, 1.5, 2

None, even, odd

16PCI952 (PCI-1602UP) 16PCI952 (PCI-1604UP)

50 bps ~ 921.6 kbps

- (for RS-422) Data+, Data-, GND (for RS-485)
- 2,500 V_{DC}
- Surge Protection ESD Protection
- 16 kV Isolation Protection 2,500 V_{pc} (PCI-1602UP)
- Power Consumption 5 V @ 300 mA (MAX)
- Power Requirement
- Dimensions
- (19.91 x 64.41 mm (4.7" x 2.5"))

5 V

- Operating Temperature 0 ~ 65° C (refer to IEC 68-2-1, 2) (32 ~ 149° F)
- 5 ~ 95 % Relative Humidity, non-condensing (refer to Operating Humidity IEC 68-2-3)

Low profile PCI MD11

 Storage Temperature -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

PCI-1602UP

w/Surge Protection

- 2-port RS-422/485 Low-Profile Universal PCI COMM Card, w/Isolation and Surge Protection 2-port RS-232 Low-Profile Universal PCI COMM Card,
- PCI-1604UP

All product specifications are subject to change without notice

10-11

PCI-1610UP

4-Port RS-232 Low-Profile Universal PCI **Communication Card**, w/Surge Protection



Features

- PCI bus specification 2.2 compliant
- Speeds up to 921.6 kbps
- Four independent RS-232 serial ports
- I/O address automatically assigned by PCI Plug & Play •
- OS supported: Windows® 98/ME/2000/XP, Linux®
- 2500 V_{pc} Surge protection •
- Interrupt status register for increased performance
- Powerful and easy-to-use utility (ICOM Tools)
- Universal PCI .
- Low Profile PCI

Introduction

The PCI-1610UP is a 4-port RS-232 PCI communication card, that is compatible with the PCI 2.2 bus specification for universal connectivity and low profile PCI cards. PCI-1610UP provides four independent RS-232 ports. To improve the performance of the system, the PCI-1610UP provides transmission rates up to 921.6 kbps. To increase reliability, The PCI-1610UP offers surge protection technology, protecting your system from abrupt high voltage up to 2500 Vnc. The PCI-1610UP also comes with high-performance 16PCI954 UARTs with 128-byte FIFO to reduce CPU load. These components allow more stability and reliability. Therefore, PCI-1610UP is especially suitable for multitasking environments.

PCI-1610UP follows the Low Profile PCI MD1 standard. It has the same protocol and electronic definition as standard PCI, but the Low profile PCI card is smaller. Thus, PCI-1610UP is suitable for embedded systems, or any size-constrained environment. Moreover, PCI-1610UP has an universal PCI connector, which allows support in traditional systems with 5 V signaling or newer systems with 3.3 V signaling.

Advantech also provides a convenient utility program called ICOM Tools, to help you test the PCI card's performance by analyzing the port status. The menu commands and toolbar buttons are easy to use. 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

- Bus Interface
- PCI bus spec. 2.2 compliant - All ports use the same IRQ assigned by PCI Plug & Play

5, 6, 7, 8

1, 1.5, 2

16PCI954

2500 V_{DC}

16 kV

None, even, odd

- Data Bits
- Stop Bits
- Parity
- Communication Controller
- Speed
- Data Signals
- Surge Protection
- ESD Protection
- Power Consumption
- Dimensions
- 5 V @ 400 mA (Max.) Low profile PCI MD1 (119.91 x 64.41 mm (4.7" x 2.5"))

50 bps ~ 921.6 kbps

TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND, RI

- Operating Temperature 0 ~ 65° C (refer to IEC 68-2-1,2) (32 ~ 149° F)
- Operating Humidity 5 ~ 95% Relative Humidity, non-condensing (refer to IEC 68-2-3)
- Storage Temperature -25 ~ 85° C (-13 ~ 185°F)

- PCI-1610UP
- 4-Port RS-232 Low-Profile Universal PCI COMM Card, w/surge protection

RS-232/RS-422/RS-485/Current-loop **COMM** Cards

Isolated Dual-port RS-232/Current-loop **COMM** Cards



Features

- RS-232, RS-422, RS-485 or current-loop interface
- 16C550 UART with 16-byte FIFO
- Transmission speeds up to 115 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 COM1, COM2, COM3, or COM4
- Supports Windows[®] 98/2000/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 on-board 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

Board

- Ports Protocol RS-232, RS-422/RS-485 or current-loop (PCL-740) RS-232 or current-loop (20 mA) (PCL-741) From 200H to 3F8H I/O Address IR0 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15 Data Bits 5, 6, 7, 8 Stop Bits 1, 1.5, 2 Parity None, even and odd **Power Isolation** 500 V_{pc} (PCL-741) Signal Isolation 2500 V_{pc} (PCL-741) 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. Connectors DB9 male and DB25 male (PCL-740 only) connectors
- Operating Temperature 0 ~ 50° C (32 ~ 122° F)
- Dimensions
- 185 x 100 mm (7.3" x 3.9") Shipping Weight 0.6 kg (1.3 lb)





PCL-741

PCL-740

O1 DCD ۴O DSR RX O² O RTS тх O3 •О стѕ DTR O4 ۶O GND 0



Ordering Information

- PCL-740
- PCL-741

RS-232/RS-422/RS-485/current-loop serial interface card

Isolated dual-port RS-232/current-loop interface card.

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2-port High-speed RS-422/485 **COMM** Cards

2-port High-speed RS-422/485 **COMM Cards w/ Isolation**



Features

- Two independent RS-422/485 serial ports •
- $\begin{array}{l} \mbox{Provides 3000 V}_{\mbox{\tiny DC}} \mbox{ isolation (PCL-745B/745S)} \\ \mbox{Provides 2500 V}_{\mbox{\tiny DC}} \mbox{ surge protection (PCL-743S/745S)} \end{array}$
- 16C550 UARTs with on-chip 16-byte FIFO
- Transmission speeds up to 921.6 kbps
- I/O address and interrupt selectable
- Wide IRQ selection: 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15 .
- Supports 2 wire or 4 wire operation
- Supports Tx, Rx, RTS, and CTS signals
- Automatic RS-485 data flow control or RTS control .
- Termination resistors jumper enable/disable
- Space reserved for optional surge protection on data lines (PCL-743B/745B)
- Supports standard DOS COM1, COM2, COM3, and COM4
- Supports Windows® 98/2000/XP, Linux®
- Powerful and easy-to-use utility (ICOM Tools)

Introduction

PCL-743 and PCL-745 provide two RS-422/485 serial ports. Each port utilizes a 16C550 UART with an on-chip 16-byte FIFO buffer for reliable, high-speed serial I/O.

The UART buffer divides data into 16-byte packets before sending them onto the bus. This drastically reduces CPU load and avoids data loss due to failure to respond to the interrupt request in time. The UART is especially useful for high speed serial I/O under Windows.

The PCL-745B/745S card differs from the PCL-743B/743S card in that the former uses on-board optical isolators to protect your PC and equipment against damages from ground loops, increasing system reliability in harsh environments. To further increase reliability, PCL-743S and PCL-745S offers surge protection, protecting your system from abrupt high voltage surges (up to 2500 V_{pc}) such as those caused by lightning.

Specifications

- Ports
- UART 2 x 16C550 with 16-byte FIFO

2

- Signal Support TxD+, TxD-, RxD+, RxD-, CTS+, CTS-, RTS+ and RTS-
- I/O Address From 200H to 3F8H
- IRQ
- 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- Isolation Voltage 3000 V_{DC} (PCL-745B/745S)
- Surge Protection 2500 V_{pc} (PCL-743S/745S) .
- Power Consumption +5 V @ 400 mA typical, 950 mA max.
- Connectors Dual DB9 male connectors .
- Operating Temperature 0 ~ 65° C (32 ~ 149° F)
- Dimensions 185 x 100 mm (7.3" x 3.9")
- Shipping Weight 0.6 kg (1.3 lb)

Ordering Information

PCL-745B 2-port RS-422/485 communication card with isolation protection 2-port RS-422/485 communication card with isolation PCL-745S and surge protection PCL-743B 2-port RS-422/485 communication card PCL-743S 2-port RS-422/485 communication card with surge protection

Pin Assignments



Applications

- PLC monitoring and control
- Serial communication interface for harsh environments
- Data entry terminals
- Remote data acquisition and control systems
- Instrument controller and distributed control systems

PCL-746+

4-port RS-232/422/485 COMM Card



Features

- Four independent RS-232/422/485 serial ports
- Speeds up to 115.2 kbps
- Interrupts (jumper selectable): 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- Onboard interrupt status register for greater throughput
- Automatic data flow control in RS-485 mode
- RS-422 or RS-485 modes jumper selectable
- Space reserved for optional surge protection on all port lines (in RS-422/485 modes)
- Space reserved for termination resistors
- Compatible with ARCNET[®] 4-port cards supporting SCO UNIX/XENIX
- Supports Windows[®] 98/2000/XP, Linux[®]
- Powerful and easy-to-use utility (ICOM Tools)

CE

Introduction

PCL-746+ is a four-port serial communication interface card. The main feature of this card is that each port can be configured individually to RS-232, RS-422 or RS-485 using onboard jumpers. The card has 16C550 UARTs and improved interrupt handling for reliable operation at transmission speeds of up to 115.2 kbps.

PCL-746+ supports two operating modes: standard mode and enhanced mode. In standard mode each of the four ports can be set up as either the address or the IRQ channel individually. In enhanced mode all four ports can be set to share the same IRQ. When an on-board interrupt occurs, the interrupt status register indicates which port has generated it. The shared interrupt can be set to the most common (extended) AT interrupts. This simplifies programming, speeds up interrupt processing, and frees up interrupts for other devices.

The RS-485 mode automatically senses the direction of incoming data and switches its transmission direction accordingly. This 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.

Specifications

 Ports 	4 serial ports
Protocol Selection	RS-232/422/485 (jumper selectable)
 UART 	4 x 16C550 16-byte FIFO
 Speed 	50 bps ~ 115.2 kbps
Base I/O Address	From 000H to 3F8H
Selection	
 Interrupt Status 	From 000H to 3F0H
Address Selection	
IRQ Selection	3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
 Data Bits 	5, 6, 7, 8
 Stop Bits 	1, 1.5, 2
 Parity 	None, even and odd
 Power Consumption 	+5 V @ 800 mA typical, 1.5 A max. ±12 V @ 60 mA typical, 120 mA max.
 Operating Temperature 	0 ~ 50° C (32 ~ 122° F)
 Cables 	30cm male DB37 to four male DB25 cables
 Dimensions 	185 x 100 mm (7.3" x 3.9")
 Weight 	1.1 kg (2.4 lbs) (including cable)

Pin Assignments



Ordering Information

- PCL-746+
- 4-port serial interface card.(30cm DB37 to 4 DB25 cable included)
- PCL-746+/9
- Opt4A
- cable included) 4-port serial interface card. (30cm DB37 to 4 DB9 cable included)
- 4-port RS-232/422/485 connector cable with male DB9 connector (30cm length)

RX-

CTS-

10-15

PCL-846

4-port High-speed RS-422/485 **Communication Card**



Features

- Four independent 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 standard DOS COM1, COM2, COM3, and COM4
- Provides 1000 V_{pc} isolation
- Provides 2000 $V_{\rm DC}$ surge protection (PCL-846B only) •
- Space reserved for termination resistors •
- Supports 2 wire or 4 wire operation
- Supports Tx, Rx, RTS, and CTS signals
- Automatic RS-485 data flow control or RTS control
- Supports Windows® 98/2000/XP. Linux®
- Powerful and easy-to-use utility (ICOM Tools)

Introduction

PCL-846 provides four independent RS-422/485 serial ports on a card. Each port has a 16C550 UART with an on-chip 16-byte FIFO buffer for reliable, high-speed serial I/O. The UART buffers data into 16-byte packets before sending it to the bus. This drastically reduces the CPU load and avoids data loss when the system is busy and cannot process the interrupt quickly. The UART is especially useful for high speed serial I/O under Windows.

PCL-846 utilize on-board optical isolators to protect your PC and equipment against damage from ground loops, increasing system reliability in harsh environments. To further increase reliability, PCL-846B include surge protection technology, protecting your system from abrupt high voltage surges (up to 2000 V_nc) such as those caused by lightning during thunderstorms.

The RS-485 mode automatically senses the direction of incoming data and switches its transmission direction accordingly. This 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.

Specifications

- Ports
- UART 4 x 16C550 with 16-byte FIFO 50 bps ~ 921.6 kbps
- Speed
- Parity
- Signal Support
- I/O Address
- IRQ
- **Isolation Voltage**
- $1000 V_{\rm DC}$ Surge Protection 2000 V_{DC} (PCL-846B only)
- Power Consumption +5 V @ 970 mA typical, 1.2 A max.
- Cables 30cm male DB37 to four male DB9 (DTE)

None, even and odd

From 200H to 3F8H

3, 4, 5, 6, 7, 9, 10, 11, 12 or 15

- Operating Temperature 0 ~ 60° C (32 ~ 140° F)
- Storage Temperature
- Dimensions

-25 ~ 80° C (-13 ~ 176° F) 185 x 100 mm (7.3" x 3.9")

TxD+, TxD-, RxD+, RxD-, CTS+, CTS-, RTS+ and RTS-

Pin Assignments



Ordering Information

- PCL-846A
 - PCL-846B

4-port RS-422/485 interface card w/isolation protection (30cm DB37 to 4 DB9 cable included) 4-port RS-422/485 interface card w/isolation and surge protection (30cm DB37 to 4 DB9 cable included)

PCL-849

4-port RS-232 Communication Card



Features

- Four independent RS-232 serial ports
- Transmission speeds up to 921.6 kbps (PCL-849A)
- Independent I/O addresses, independent/shared IRQ settings for each of 4 serial ports
- Wide IRQ selection: 3, 4, 5, 6, 7, 9, 10, 11, 12 or 15
- Supports standard DOS COM1, COM2, COM3, COM4 (PCL-849A/849B/849+)
- Supports surge protection: 3000 V_{pc} (PCL-849B/849+)
- · LED indicators on each port indicate data flow
- Onboard interrupt status register for greater throughput
- Complete RS-232 modem-control signals
- Supports Windows[®] 98/2000/XP, Linux[®]
- Powerful and easy-to-use utility (ICOM Tools)

CE

Introduction

The PCL-849 cards provide four individually configurable RS-232 serial communication ports. PCL-849A, PCL-849B and PCL-849L have a 16C554 UART which makes serial I/O more reliable, while the higher performance PCL-849+ has a 16C654 UART. By buffering data into 64-byte packets before putting it on the bus, UARTs drastically reduce the CPU load. This makes the PCL-849+ especially suitable for high speed serial I/O applications under multitasking environments.

PCL-849 cards support two operating modes: standard mode and enhanced mode. In enhanced mode, the address for all four ports can be set automatically. PCL-849 cards also support either shared IRQ or independent IRQ functions. When an on-board interrupt occurs, the interrupt status register (vector address) indicates which port generated it. The 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.

Specifications

 Ports 	4 serial ports
I/O Address Range	From 200H to 3F8H
IRQ	3, 4, 5, 6, 7, 9, 10, 11, 12, 15
 Data Bits 	5, 6, 7, 8
 Stop Bits 	1, 1.5, 2
 Parity 	None, even and odd
 UARTs 	1 x 16C554 (PCL-849A/849B/849L)
	1 x 16C654 (PCL-849+)
 Speed 	50 ~ 921.6 kbps (PCL-849A)
	50 ~ 307.2 kbps (PCL-849B/849+)
	50 ~ 115.2 kbps (PCL-849L)
 Data Signals 	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
 Surge Protection 	3000 V _{DC} (PCL-849B/849+)
 Power Requirements 	+5 V @ 250 mA typical, 500 mA max.
	±12 V @ 70 mA typical, 120 mA max.
 Dimensions 	185 x 100 mm (7.3" x 3.9")
 Operating Temperature 	0~60°C (32~140°F)

■ Storage Temperature -25 ~ 80° C (-13 ~ 176° F)

Ordering Information

PCL-849A	4-port high-speed RS-232 interface card (30cm DB37 to 4 DB25 cable included)
PCL-849A/9	4-port high-speed RS-232 interface card (30cm DB37 to 4 DB9 cable included)
PCL-849B	4-port high-speed RS-232 interface card
	w/ surge protection (30cm DB37 to 4 DB25 cable included)
PCL-849B/9	4-port high-speed RS-232 interface card
	w/ surge protection (30cm DB37 to 4 DB9 cable included)

PCL-849+ 4-port high-speed RS-232 interface card w/ surge protection and 16C654 UART (30cm DB37 to 4 DB25 cable included) 4-port high-speed RS-232 interface card with surge PCL-849+/9 protection and 16C654 UART (30cm DB37 to 4 DB9 cable included) PCL-849L 4-port RS-232 interface card (30cm DB37 to 4 DB25 cable included) PCL-849L/9 4-port RS-232 interface card (30cm DB37 to 4 DB9 cable included) Opt4A 4-port RS-232/422/485 cable with male DB37 to DB9 connector (30 cm length)

Pin Assignments



.

PCL-858

8-port High-speed RS-232 Communication Cards



Features

- Eight independent RS-232 serial ports
- Transmission speed up to 921.6 kbps
- Independent I/O addresses, shared IRQ settings for each of 8 serial ports
- Wide IRQ selection: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- Supports surge protection: 3000 V_{DC} (PCL-858B only)
- Supports Windows[®] 98/2000/XP, Linux[®]
- Powerful and easy-to-use utility (ICOM Tools)

Introduction

PCL-858 interface cards provide eight RS-232 serial communication ports, where each port can be configured individually using onboard jumpers. PCL-858A and PCL-858B each have two 16C554 UARTs, which make serial I/O more reliable. The PCL-858 cards support automatic addressing for all eight ports. All channels share the same interrupt (IRQ), and an interrupt status register can be used to determine the interrupt source. When an onboard interrupt occurs, the interrupt status register (vector address) indicates which port generated it. The 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.

Specifications

 Ports 	8	
I/O Address Range	From 000H to 3FFH	
• IRQ	3, 4, 5, 6, 7, 9, 10, 11, 12, 15	
 Data Bits 	5, 6, 7, 8	
 Stop Bits 	1, 1.5, 2	
 Parity 	None, even, odd	
 UARTs 	2 × 16C554 (PCL-858A/858B)	
 Speed 	50 bps ~ 921.6 kbps	
 Data Signals 	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND	
 Surge Protection 	3000 V _{DC} (PCL-858B only)	
 Power Consumption 	+5 V @ 450 mA typical, 950 mA max.	
	±12 V @ 140 mA typical, 240 mA max.	
 Dimensions 	185 × 100 mm (7.3" x 3.9")	
 Operating Temperature 	0 ~ 60° C (32 ~ 140° F)	

■ Storage Temperature -25 ~ 80° C (-13 ~ 176° F)

PCL-858A	8-port high-speed RS-232 interface card (must choose Opt-8X)
PCL-858B	8-port high-speed RS-232 interface card w/surge protection (must choose Opt-8X)
OPT8A	8-port RS-232 (DCE) connection box with female DB25 connector
OPT8B	8-port RS-232 (DTE) connection box with male DB25 connector
Opt8C	8-port RS-232 cable with male DB-62 to DB25 connector (1m)
Opt8H	8-port RS-232 cable with male DB-62 to DB9 connector (1m)

2-port RS-422/485 Module

4-port RS-422/485 High-Speed Module



- **Features**
- High speed transmission rate
- Automatic RS-485 data flow control
- . Jumper selectable interrupt level
- Supports Windows[®] 98/2000/XP
- Supports WinCE 3.0
- Powerful and easy-to-use utility (ICOM Tools)

Specifications

Channel 1

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

- Channel 2
- Baud Rate
- **Character Length**
- Parity .
- Stop Bit .
- Interrupt Level
- I/O Connectors Power Consumption
- Isolation
- Operating Temperature 0 ~ 65° C (32 ~ 149° F)
- Storage Temperature
- **Operating Humidity**
 - 0~90 % relative humidity, noncondensing

1,000 V_{DC}



PCM-3612

Features

- Long distance communication
- Automatic RS-485 data flow control
- Jumper selectable interrupt level
- Supports Windows® 98/2000/XP
- Supports WinCE 3.0
- Powerful and easy-to-use utility (ICOM Tools)

RS-422, or RS-485

50 ~ 115,200 bps

Even, odd, or none

IRQ 3, 4, 5, 6, 7, 9, 10,

+5 V @ 400 mA typical

±12 V @ 950 mA max

-40~85° C (-40~185° F)

5,6,7,or 8 bits

1, 1.5, or 2

11, 12 or 15

Dual male DB9

Red LED for TX

Green LED for RX

0~90 % relative

humidity, noncondensing

Specifications

- **Character Length**
- .
- Interrupt Level
- I/O Connectors
- **Power Consumption**
- LED
- - Operating Temperature 0 ~ 65° C (32 ~ 149° F) •
 - **Storage Temperature**
 - **Operating Humidity**



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

0 x 000 ~ 0 x 3F8

None, even, odd

4 male DB9

1000 V_{DC}

120 **Ω**

50 bps ~ 921.6 kbps

RxD-, CTS+, CTS-,

12.15

5, 6, 7, 8

1.1.5.2

3, 4, 5, 6, 7, 9, 10, 11,

.

- .Supports Windows® 98/2000/XP
- Powerful and easy-to-use utility (ICOM Tools)

Specifications

- Number of Ports
- I/O Address
- IR0
- Data Bits
- Stop Bits
- Parity
- Speed
- Connectors
- RS-422 Signal Support TxD+, TxD-, RxD+,
- RTS+ and RTS- RS-485 Signal Support DATA+, DATA-, CTS+, CTS-
- Surge Protection
- Built-in Termination Resistor
 - **Power Consumption** +5 V @ 450 mA
- **Operating Temperature** 0 ~ 65° C (32 ~ 149° F) -40~85° C (-40~185° F)
- Storage Temperature **Operation Humidity**
 - 0~90 % relative humidity, noncondensing

Ordering Information

PCM-3610-B

Isolated RS-232/422/485 module

Ordering Information

PCM-3612-A

Dual port RS-422/485 module

Ordering Information

PCM-3614-A

4-port RS-422/485 High-Speed module

Online Download www.advantech.com/products

10-19

RS-232,422,or 485 RS-422, or RS-485

50 ~ 115,200 bps

Even, odd, or none

IRQ 3, 4, 5, 6, 7, 9

+5 V @ 400 mA typical

±12 V @ 950 mA max

-40~85° C (-40~185° F)

Dual male DB9

5, 6, 7, or 8 bits

1, 1.5, or 2

- Parity
- Stop Bit

- Channel 1 and 2 . **Baud Rate**

PCM-3618 PCM-3640/3641

8-port RS-422/485 High-Speed Module

4-port RS-232 High-Speed Module



PCM-3618

Features

- Automatic RS-485 data flow control
- Shared IRQ settings for each ports
- LED indicators: TX, RX
- Supports Windows[®] 98/2000/XP
- · Powerful and easy-to-use utility (ICOM Tools)

8

5, 6, 7, 8

1, 1.5, 2

None, even and odd

50 bps ~ 921.6 kbps

Eight male DB9

Specifications

- Number of Ports
- I/O Address 0 x 000 ~ 0 x 3F8 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- IRQ

Data Bits

- Stop Bits
- Parity
- Speed
- Connectors
- RS-422 Signal Support TxD+, TxD-, RxD+, RxD-, CTS+, CTS-, RTS+ and RTS-
- RS-485 Signal Support DATA+, DATA-, CTS+, CTS- $1000 V_{DC}$
- Surge Protection **Built-in Termination** 120 **Ω** .
- Resistor
- Power Consumption +5 V @ 650 mA
- Operating Temperature 0 ~ 65° C (IEC-68-1-1, 2) (32 ~ 149° F)
- Storage Temperature -25 ~ 80° C (-13 ~ 176° F)
- Operating Humidity 0 ~ 90% relative humidity, non-condensing

Ordering Information

PCM-3618-A

AD\ANTECH

8-port RS-422/485 High-Speed module

PCM-3640/3641 CE

- **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
- Powerful and easy-to-use utility (ICOM Tools)

Specifications 4

- Number of Ports
 - I/O Address 0 x 0200 ~ 0 x 03F8
 - 3, 4, 5, 6, 7, 9, 10, 11, 12, 15 5, 6, 7, 8

1, 1.5, 2

- Data Bits
- Stop Bits

IRQ

- Paritv
 - None, even and odd Speed 50 bps ~ 460.3 kbps (PCM-3641)
 - 50 bps ~ 115.2 kbps (PCM-3640)
- Connectors Four DB9 male
 - Data Signals TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
- **Power Consumption**
 - +5 V @ 200 mA (Typical); +5 V @ 250 mA (Max.)
- Operating Temperature 0 ~ 65° C (IEC-68-1-1, 2) (32 ~ 149° F)
- Storage Temperature
- -25 ~ 80° C (-13 ~ 176° F)
- **Operating Humidity** 0 ~ 90 % relative humidity, non-condensing

Ordering Information

- PCM-3640-A PCM-3641-A
- 4-port RS-232 module 4-port RS-232 High-Speed module

CE



PCM-3660 PCM-3662

Jumperless Ethernet Module

PC/104-Plus Ethernet Module



PCM-3660

Features

- Automatically detects 8-bit or 16-bit
- AUI connector supports external MAUs
- On-board 32 Kbyte buffer for multi-packages

Specifications

- I/O Address
- 200, 220, 240, 260, 280, 2A0, 2C0, 300, 320, 340, 380, 3A0

16-bit PC/104 stackthrough connector RJ-45

IEEE 802.3 10 Mbps CSMA/CD 10Base-T Transceiver

- Interrupt Level IRQ 3, 4, 5, 9, 10, 11, 12 or 15
- Boot ROM Address C0000, C8000, D0000, or D8000H

+5 V @ 400 mA max

8-bit, 16-bit, or auto-sending

Data Bus

.

- Connector
 - connector for 10Base-T, 16-pin insulation displacement connector for AU1
- Standard
- Power Consumption

CE

Features

PCM-3662

- Supports IEEE 802.3u Ethernet standard
- Supports IEEE 802.3x Full Duplex Flow Control
- Supports 10/100Base-T Ethernet
- Supports Wake-On-LAN function
- Provides 4 modes of LED definitions

Specifications

Software Driver Support

- Windows[®] 95/98/NT/2000 driver
- Novell[®] server driver
- Windows for workgroups driver
- Novell ODI client driver
- Novell ODI driver for client32
- Linux[®] driver

General

- Power +5 V @ 250 mA
- Operating Temperature 0 ~ 70° C
 Observe to the second second
- Storage Temperature -15 ~ 80° C
- Humidity 10 ~ 90% (operating)

Ordering Information

- PCM-3660-C1
 PCM-3661-A
- Jumperless Ethernet module 10Base-2 transceiver module

Ordering Information

PC/104-Plus Ethernet Module

PCM-3662-A

-21

10-21

PCI-1625U

8-port Intelligent RS-232/422 Universal PCI Communication Card



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 to peripherals up to 1200 m (4000 ft) from controller (RS-422) .
- Surge protection: 2500 V_{ESD}, 2000 V_{EFT} (Optional)
- Universal PCI

FCC (€

Introduction

The intelligent PCI-1625U 8-port RS-232 or RS-422 interface card was designed for lab and industrial applications where a PC needs to communicate with terminals, modems, or other instruments. RS-422 applications use the optional Opt-8F/8Z 8-port RS-232 to RS-422 converter, shown on the following page. You can install up to four PCI-1625U cards for a total of 32 ports in any PCI bus-based PC.

The PCI-1625U card has an onboard RISC 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. The PCI-1625U serves as a high speed, dedicated interrupt processor. Its CPU directly controls the board's CD180 RISC-based UART, guaranteeing 921.6 kbps performance of over eight high speed data ports.

The PCI-1625U is virtually a self contained computer. 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 the PCI-1625U and PC memory.

When the PCI-1625U initializes, it downloads the driver software (which functions like a PC's BIOS) into its on-board SRAM. This improves performance and makes version upgrading easy. No hardware redundancy!

Specifications

- Number of Ports
- Processor
- Dual-ported RAM
- SRAM
- UART
- Interrupt
- Maximum Ports in One System
- Operating Temperature 0 ~ 55° C (32 ~ 131° F)
- Power Consumption +5 V @ 155 mA, +12 V @ 110 mA, -12 V @ 160 mA

0.8 kg (1.8 lb)

32

8

512 KB

16 KB

RISC, TI TMS320C203-57

2, 3, 4, 5, 7, 10, 11, 12 or 15

RISC-based CD180

Weiaht

- **Ordering Information**
- PCI-1625U 8-port Intelligent RS-232/422 Universal PCI Commuication Card OPT8A 8-port RS-232 (DCE) connection box with female DB25 connectors OPT8B 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 cable with male DB62 to DB9 connector (1m)

AD\ANTECH

PCL-844+

8-port Intelligent RS-232/422 **ISA Communication Card**



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 to peripherals up to 1200 m (4000 ft) from controller (RS-422)
- Surge protection: 2500 V_{ESD}, 2000 V_{EFT} (Optional)

Ordering Information

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 use the optional Opt-8F/8Z 8-port RS-232 to RS-422 converter, shown on the following page. 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 on-board 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. Its CPU directly controls the board's CD180 RISC-based UART, guaranteeing 921.6 kbps performance of over eight high-speed data ports.

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 on-board SRAM. This improves performance and makes version upgrading easy, with no hardware redundancy.

Specifications

B	oard		PCL-844+	8-port Intelligent RS-232/422 Card, with ISA bus
•	Number of Ports	8	 Opt8A 	8-port RS-232 (DCE) connection box with female DB25 connectors
•	Processor Dual-ported RAM	RISC, TI TMS320C203-57 512 KB	 Op8B 	8-port RS-232 (DTE) connection box with male DB25 connectors
•	SRAM Uart	16 KB RISC-based CD180	• Opt8C	8-port RS-232 connection cable with male DB25 connectors
•	Interrupt Maximum Ports in One System	2, 3, 4, 5, 7, 10, 11, 12 or 15 32	 Opt8H 	8-port RS-232 connector cable with male DB9 connector (1m length)
-	Operating Temperature Power Consumption Weight	0 ~ 55° C (32 ~ 131° F) +5 V @ 155 mA, +12 V @ 110 mA, -12 V @ 160 mA 0.8 kg (1.8 lb)		
R	S-232 Interface			
•	Signals Mode	TxD, RxD, RTS, CTS, DTR, DSR, DCD and GND Asynchronous full duplex		
•	Data Bits Ston Bits	50 DpS ~ 921.6 K0pS 5, 6, 7, 8 1, 15, 2		
	Parity	Even odd or none		

PCI-1680U

2-Port CAN Interface Universal PCI **Communication Card w/ Isolation**



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
- Supports Windows® 95/98/2000/XP driver and utility

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 on-board 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

On-board optical isolators protect your PC and equipment against damage from ground loops, which increases system reliability in harsh environments.

Specifications

 Bus Interface PCI bus spec. 2.2 compliant

2

CAN 2.0 A/B

SJA-1000

82C250

- Port
- Protocol
- CAN Controller
- CAN Transceiver
- Signal Support CAN_H, CAN_L
- Speed
- 1 Mbps Isolation 1000 V_{DC}
- Power Consumption
- Connectors Two standard DB9(M) connectors 185 x 100 mm (7.3" x 3.9")
- **Board Dimension**
- Operating Temperature 0 ~ 65° C (refer to IEC 68-2-1, 2) (32 ~ 149° F)

5 V @ 400 mA (Typical)

- Storage Temperature -25 ~ 85° C (-13 ~ 185° F)
- Operating Humidity 5 ~ 95% Relative humidity, non-condensing (refer to IEC 68-2-3)

Ordering Information

PCI-1680U-A

2-Port CAN Interface Universal PCI Communication Card w/ Isolation

Dual-port Isolated CAN-bus Interface Card Dual-port Isolated CAN Interface Module



Features

- Operates two separate CAN networks at the same time
- High speed transmission up to 500 kbps
- 16 MHz CAN controller frequency
- Takes 4 KB of address space, 40 base address adjustable in steps from C800H to EF00H
- Optical isolation protection of 1000 V_{pc} 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 driver and utility

Specifications

Ports

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

- CAN Controller
- CAN Transceiver
- Signal Support

- Isolation Voltage
- Power Consumption .
- Connectors
- Operating Temperature 0 ~ 50° C (32 ~ 122° F)
- Dimensions
- Shipping Weight

2 SJA-1000

3, 4, 5, 6, 7, 9, 10, 11, 12 or 15

- 82C250
- CAN_H, CAN_L
- Memory Segment From C800H to EF00H
- **Base Address**
- IRQ
 - 1000 V_{DC}
 - +5 V @ 400 mA typical, 950 mA max. Dual DB-9 male connectors
 - 185 x 100 mm (7.3" x 3.9") (PCL-841)
 - 0.6 kg (1.3 lb)

Features

PCM-3680

- Operates two separate CAN networks at the same time
- High speed transmission up to 500 kbps
- Direct memory mapping enables very fast access to the CAN controllers
- · Windows® DLL library and examples included
- Supports Windows[®] 95/98/2000/XP driver and utility

Specifications

- Ports
- CAN Controller CAN Transceiver
- Signal Support
- **Memory Segment**
- From C800H to EFOOI **Base Address**
- IRQ
- **Isolation Voltage**
- Power Consumption Connectors
- +5 V @ 400 mA Two DB-9 male connectors (cable included)

3, 4, 5, 6, 7, 9, 10, 11, 12 or 15

Operating Temperature 0 ~ 65° C (32 ~ 122° F)

 $1000 V_{\rm DC}$

2

SJA-1000

CAN_H, CAN_L

82C250

Dimensions 90 x 96 mm (3.6" x 3.8")

Ordering Information

PCL-841-A

Dual-port Isolated CAN-bus Interface Card

Ordering Information

PCM-3680-A

Dual-port Isolated CAN Interface Module

Online Download www.advantech.com/products

ADVANTECH 10-25 Last updated : January 2005



Fieldbus Communication Overview

Introduction

Today, the PC assumes a key position in automation technology. Together with a real-time operating system such as Windows[®] NT, it creates an ideal hardware platform for control and visualization of process data. Fieldbus systems with remote input and output modules are used for the data transfer between the PC and the automation equipment. Advantech has launched a series of Fieldbus communication interface cards from Hilscher™, a company with a field-proven record in industrial communication technology. We offer special interface PC cards, since PCs do not feature a direct link to the Fieldbus. These intelligent cards manage the entire data transfer so that only useful data are passed onto the user applications.

The idea behind the "Communication Interface - CIF", is to provide common access to the various Fieldbus systems available on the market. We provide a powerful, easy to handle and reliable solution at a low-cost. Thus, you can concentrate on your applications and do not need to "reinvent the wheel" when you're required to use a different Fieldbus system tomorrow.

We place special value on ease of operation. This includes loadable Firmware, configuration data that remain even after a power failure, an online RS-232C diagnostic interface and LED status indicators. Naturally, each card supplied carries the CE mark.

PC Cards in all Formats for the Fieldbus Standards

We supply PC cards with PCI-bus or in the PC/104 and PC/104-Plus format for all leading Fieldbus systems. Careful component selection and focus of the necessary functions has resulted in a single-side surface mounted card with a low cost.

Fieldbuses differ from each other in their physical interfaces and capacity spectrums. We don't use plug-in modules for adaptation. We provide a dedicated card for the Fieldbus system, sometimes different ones for Master or Slave functions. Only in this way can we guarantee you the best performance relationship with the highest degree of reliability.

Fieldbus	Universal PCI	PC/104	PC/104-Plus
CANopen-Slave CANopen-Master	-COM	-COS -COM	-COM
DeviceNet-Slave DeviceNet-Master	-DNM	-DNS -DNM	-DNM
PROFIBUS-DP-Slave PROFIBUS-DP/ FMS-Master	-PB	-DPS -PB	-PB

System Configurator with an Uniform "look and feel"

All cards are configured using the SyCon[®] System Configurator. This software has been coded in C++ and executes under the Windows[®] 95/98/ME and Windows[®] NT/2000/XP operating systems.

Graphical input of the individual bus participants, clearly structured menu guidance and automatic computations of the bus parameters make the configuration a very simple exercise.

By means of the function interface, other programs can exchange data with the configurator and access its database.

The configurator can also be included in your own product as an OEM version.



Uniform and Easy-to-use application Interface

The data exchange between the application and the communication interface takes place via a dual-port memory. This is a type of memory where read/write accesses are performed both from the application and from the interface side. A static data model is used for the dual-port memory. It is uniform for all cards and contains the process image. Commands and message-oriented data are exchanged using two mailboxes. The entire handshake is performed in either polling or interrupt mode using only two bytes.

Driver for all Windows® operating systems and Linux

We supply a 32-bit Device Driver, since you cannot access the hardware directly with modern operating systems. This driver has the same functional interface as our drivers for DOS. Thus you can access the communication interface using the same C interface for all operating system.

Support for Three Types of Popular Fieldbus Communication Interfaces

We support three types of popular fieldbus protocol: PROFIBUS, DeviceNet and CANopen with PCI-bus or in the PC/104 or PC/104-Plus format.

PROFIBUS™

PROFIBUS is a multi-master system that enables mutual operation of several automation, engineering or visualization systems on a bus. We supply two PROFIBUS protocol specifications: PROFIBUS-DP and PROFIBUS-FMS, simultaneously, to satisfy different requirements.

DeviceNet™

DeviceNet utilizes CAN technology for data transmission. The transmission rates of DeviceNet are 125, 250 and 500 kBaud. It is one of the most popular networks for factory automation as it can connect industrial devices to a network at a low cost without expensive wiring.

CANopen

Controller Area Network (CAN) is a serial network and features quick reaction and a high degree of reliability. The transmission rates in the CANopen range from 1 kBaud up to 1Mbaud. CANopen is usually used in an embedded network such as machine control within industries.

AD-CIF50-PB AD-CIF104-PB AD-CIF104-DPS AD-CIF104P-PB

PROFIBUS™ DP/FMS Master PCI Communication Card PROFIBUS™ DP/FMS Master PC/104 Module **PROFIBUS™ DP Slave PC/104 Module PROFIBUS™ DP/FMS Master PC/104-Plus Module**



PCI

8 KB

Plug & Play

EN 50170

ASPC2

isolated

9-pin

9-pin

3-7, 9-12,14, 15 via

9.6 kBaud to 12 MBaud

DSub-female connector

RS232C. non-isolated

DSub-male connector

RDY, RUN, STA, ERR

5 V ±5 % / 650 mA

RS485, optically

AD-CIF50-PB

Specifications

Bus Interface

- Interface
- Dual-port Memory
- Interrupt

PROFIBUS Interface

- Interface
- Transmission Rate
- Connector .
- Interface .
- Connector

Diagnostic Interface

- Interface
- Connector
- General
- Display
- Operating Voltage
- Operating Temperature 0 ~ 55° C (32 ~ 131° F)
- Dimensions (L x W x H) 134 x 107 x 20 mm
- (5.3" x 4.2" x 0.8") Weight 130 g
- Software
- C functions library: DRV-TKIT COM interface: DRV-COM Device driver Windows: DRV-WIN Device driver Linux: DRV-LNX Documentation on CD: CD-SYS Basic version System Configurator

Ordering Information

AD-CIF50-PB

Communication Interface PCI PROFIBUS-DP/FMS-Master Card



AD-CIF104-PB, AD-CIF104-DPS

Specifications

CE

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 Card Format PC/104 **Bus Interface** Interface ISA 8 KB Dual-port Memory Interrupt 3-7,9-12,14,15 **PROFIBUS** interface Interface EN 50170 **Transmission Rate** 9.6 kBaud to 12 MBaud Controller ASPC2 Interface Connector **Diagnostic Interface**

Interface

Connector

General

•

- Display
 - **Operating Voltage**
- Operating Temperature 0 ~ 55° C (32 ~ 131° F) Dimensions (L x W x H) 90 x 96 x 25 mm (3.5" x 3.7" x 1")
- Software

C functions library: DRV-TKIT COM interface: DRV-COM

Ordering Information

- AD-CIF104-PB
- AD-CIF104-DPS

PROFIBUS-DP/FMS-

with left DSub 9-pin

PROFIBUS-DP-Slave PC/104 Module with left DSub 9-pin connector

connector

Master PC/104 Module



CE

PC/104-Plus

Plug & Play

EN 50170

EC1

isolated

9.6 kBaud to 12 MBaud

RS485, optically

DSub-female 9-pin

RS232C, non-isolated

RDY, RUN, STA, ERR

DSub-male 9-pin

PCI

8 KB

.

AD-CIF104P-PB

CE

Specifications

- Card Format
- **Bus Interface**
- Interface
- Dual-port Memory Interrupt

PROFIBUS interface

- Interface
- Transmission Rate
- . Controller
- Interface
- Connector

Diagnostic Interface

- Interface Connector
- - Operating Voltage

 - +3.3 V ±5% < 400 mA • Operating Temperature 0 ~ 55° C
 - (32 ~ 131° F) Dimensions (L x W x H) 90 x 96 x 25 mm
 - (3.5" x 3.7" x 1") Weight 120 g
 - Software
 - C functions library: DRV-TKIT COM interface: DRV-COM Device driver Windows: DRV-WIN Device driver Linux: DRV-LNX Documentation on CD: CD-SYS Basic version System Configurator

Ordering Information

AD-CIF104P-PB

PROFIBUS-DP/FMS-Master PC/104-Plus Module with left DSub 9-pin connector



Online Download www.advantech.com/products

- Weight 120 g
- Device driver Windows: DRV-WIN Device driver Linux: DRV-LNX Documentation on CD: CD-SYS Basic version System Configurator

RS485, optically isolated DSub-female 9-pin

RS232C, non-isolated DSub-male 9-pin

RDY, RUN, STA, ERR

+5 V ±5% / 650 mA





DeviceNet™ Master PCI Communication Card DeviceNet[™] Master PC/104 Module DeviceNet[™] Slave PC/104 Module DeviceNet[™] Master PC/104-Plus Module



AD-CIF50-DNM

Specifications

Bus Interface

- Interface PCI Dual-port Memory 8 KB
- Interrupt 3-7,9-12,14,15 via Plug
- & Play

DeviceNet Interface

- Transmission Rates
- Controller
- Interface
- Connector

Diagnostic Interface

- Interface
- Connector

General

- Display
- Operating Voltage
- +11~25 V / 55 mA Operating Temperature 0 ~ 55° C (32 ~ 131° F)
- Dimensions (L x W x H) 134 x 107 x 20 mm
 - (5.3" x 4.2" x 0.8")
- Weight Software
- C functions library: DRV-TKIT COM interface: DRV-COM Device driver Windows: DRV-WIN Device driver Linux: DRV-LNX Documentation on CD: CD-SYS Basic version System Configurator

Ordering Information

- AD-CIF50-DNM
- Communication Interface PCI DeviceNet-Master Card

Industrial Communication



AD-CIF104-DNM, AD-CIF104-DNS

Specifications

CE

•	Card Format	PC/104
B	us Interface	
•	Interface	ISA
•	Dual-port memory	8 KB
•	Interrupt	3-7,9-12,14,15
D	eviceNet Interface	
•	Transmission Rates	125 kBaud, 250 kBaud, 500 kBaud
•	Controller	SJA1000
•	Interface	ISO 11898, optically isolated
•	Connector	COMBICON 5-pin
Di	iagnostic Interface	
•	Interface	RS-232C, non-isolated
•	Connector	RS-232C, non-isolated COMBICON 5-pin
G	eneral	
•	Display	RDY, RUN, NET, MOD
•	Operating Voltage	+5 V ±5% / 650 mA, +11~25 V / 55 mA
•	Operating Temperature	0 ~ 55° C (32 ~ 131° F
•	Dimensions (L x W x H)	90 x 96 x 25 mm (3.5" x 3.7" x 1")

- 120 g
- Weight Software
- C functions library: DRV-TKIT COM interface: DRV-COM Device driver Windows: DRV-WIN Device driver Linux: DRV-LNX Documentation on CD: CD-SYS Basic version System Configurator

Ordering Information

AD-CIF104-DNM

AD-CIF104-DNS

DeviceNet-Master PC/104 Module with left COMBICON 5-pin connector DeviceNet-Slave PC/104 Module with left COMBICON 5-pin connector



CE AD-CIF104P-DNM CE

Specifications

 Card Format 	PC/104-Plus
Bus Interface	
 Interface 	PCI
 Dual-port memory 	8 KB
 Interrupt 	Plug & Play
DeviceNet Interface	
 Transmission Rates 	125 kBaud, 250 kBaud, 500 kBaud
 Controller 	EC1
 Interface 	ISO 11898, optically isolated
 Connector 	COMBICON 5-pin
Diagnostic Interface	
 Interface 	RS-232C, non-isolated

- Connector
- -232C, non-isolated RS-232C, non-isolated COMBICON 5-pin

General

131° F)

- Display RDY. RUN. NET. MOD Operating Voltage +5 V ±5% / 650 mA, 3.3 V ±5% / 400 mA,
 - +11~25 V / 55 mA
- Operating Temperature 0 ~ 55° C (32 ~ 131° F) Dimensions (L x W x H) 90 x 96 x 25 mm
- (3.5" x 3.7" x 1") Weight 120 g
- Software
 - C functions library: DRV-TKIT COM interface: DRV-COM Device driver Windows: DRV-WIN Device driver Linux: DRV-LNX Documentation on CD: CD-SYS Basic version System Configurator

Ordering Information

AD-CIF104P-DNM

DeviceNet-Master PC/104-Plus Module with left COMBICON 5-pin connector

AD\ANTECH



RS-232C, non-isolated DSub-male connector 9-pin RDY, RUN, NET, MOD +5 V ±5% / 650 mA, ±12 V ±5% / 50 mA.

130 g

125 kBaud, 250 kBaud,

ISO 11898, optically

COMBICON 5-pin

500 kBaud

SJA 1000

isolated

AD-CIF50-COM AD-CIF104-COM **AD-CIF104-COS** AD-CIF104P-COM

CANopen Master PCI Communication Card CANopen Master PC/104 Module CANopen Slave PC/104 Module CANopen Master PC/104-Plus Module



PCI

8 KB

& Play

CiA DS-102

SJA 1000

isolated

9-pin

9-pin

3-7,9-12,14,15 via Plug

10 kBaud to 1MBaud

ISO 11898, optically

DSub-male connector

RS-232C, non-isolated

DSub-male connector

RDY, RUN, STA, ERR

+5 V ±5% / 500 mA,

AD-CIF50-COM

Specifications

Bus Interface

- Bus Interface
- Dual-port Memory
- Interrupt
- **CANopen Interface**
- Interface
- Transmission Rate
- Controller .
- Interface .
- Connector

Diagnostic Interface

- Interface
- Connector
- General
- Display
- Operating Voltage
- ±12 V ±5% / 50 mA Operating Temperature 0 ~ 55° C (32 ~ 131° F)
- Dimensions (L x W x H) 134 x 107 x 20 mm
 - (5.3" x 4.2" x 0.8") 130 g
- Weight
- Software

C functions library: DRV-TKIT COM interface: DRV-COM Device driver Windows: DRV-WIN Device driver Linux: DRV-LNX Documentation on CD: CD-SYS Basic version System Configurator

Ordering Information

All product specifications are subject to change without notice

- AD-CIF50-COM
- Communication Interface PCI CANopen-Master Card



AD-CIF104-COM, AD-CIF104-COS

Specifications

CE

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PC/104 ISA 8 KB 3-7, 9-12, 14, 15 **CANopen Interface** CiA DS - 102 **Transmission Rate** 10 kBaud to 1 MBaud SJA1000 ISO 11898, optically isolated DSub-male 9-pin **Diagnostic Interface** RS-232C, non-isolated DSub-male 9-pin RDY, RUN, STA, ERR +5 V ±5% / 500 mA

Operating Temperature 0 ~ 55° C (32 ~ 131° F) Dimensions (L x W x H) 90 x 96 x 25 mm

120 g

(3.5" x 3.7" x 1")

CANopen-Master

PC/104 Module with left

CANopen-Slave PC/104 Module with left DSub 9-pin connector

DSub 9-pin connector

- Weight Software •

General

- C functions library: DRV-TKIT COM interface: DRV-COM Device driver Windows: DRV-WIN
- Device driver Linux: DRV-LNX Documentation on CD: CD-SYS Basic version System Configurator

Ordering Information

- AD-CIF104-COM
- AD-CIF104-COS

Ordering Information

AD-CIF104P-COM

Specifications PC/104-Plus PCI 8 KB Plug & Play **CANopen Interface** CiA DS - 102 **Transmission Rate** 10 kBaud to 1 MBaud FC1 ISO 11898, optically isolated DSub-male 9-pin

RS-232C, non-isolated

DSub-male 9-pin

RDY, RUN, STA, ERR

CE

.

Diagnostic Interface

 Interface Connector

AD-CIF104P-CON

Card Format

Bus Interface

Bus Interface

Interrupt

Interface

Controller

Interface

Connector

Dual-port memory

General

CE

- Display
 - Operating Voltage
 - +5 V ±5% / 50 mA. 3.3 $V \pm 5\% < 400 \text{ mA}$
 - Operating Temperature 0 ~ 55° C (32 ~ 131° F)
 - Dimensions (L x W x H) 90 x 96 x 25 mm (3.5" x 3.7" x 1")
 - Weight

120 g Software C functions library: DRV-TKIT COM interface: DRV-COM Device driver Windows: DRV-WIN Device driver Linux: DRV-LNX Documentation on CD: CD-SYS Basic version System Configurator

> CANopen-Master PC/104-Plus Module with left DSub 9-pin connector

ADVANTECH Last updated : January 2005

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 Card Format **Bus Interface** Bus Interface Dual-port memory Interrupt Interface Controller Interface Connector Interface Connector Display Operating Voltage

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

SyCon[®] - Fieldbus System Configurator



Features

- Unified operating desktop for all Fieldbus systems
- Supports all Slaves
- Graphical input of the Fieldbus system
- Configuration of the individual bus devices
- Plausibility testing of the bus parameters and the process image
- On-line diagnostic and statistic functions
- Writing and reading I/O data
- Export functions
- Uses GSD, EDS or other device description files

Introduction

SyCon[®] is a universal System Configurator with a unified user desktop for all Fieldbus PC cards. As a basis for the configuration, so-called device description files or electronic data sheets, in which the characteristics of the bus device are defined, are used. These are standardised for some Fieldbus systems and are supplied by the device manufacturer. For other cases, SyCon[®] offers this function for input. The bus structure is determined by a graphic editor where the individual devices are placed. A double click on the device opens the corresponding configuration window. A table displays all the possible modules or data that will be created with the current device configuration. The address of the data in the process image is issued manually or automatically by the configurator. The parameterization of the devices is carried out by means of the selection or entry of the values of the respective Fieldbus system.

The final step is defining the bus parameters. This is limited to the definition of the transmission rate, as all other parameters are independently calculated on the basis of the data in the device description files. All process variables can be provided with a symbolic name. These are made available as labels in the interface for a primary visualisation, SoftLogic or OPC server. In this way the entry and comparison of variable addresses becomes unnecessary. SyCon[®] offers comprehensive diagnostic aids. In diagnostic mode, the status of all devices are cyclically called up and presented in red or green depending on whether a data exchange is taking place with it at the time. By double clicking on 'red' bus devices, the cause of the error is shown in clear text as far as possible. SyCon[®] is provided as a basic version with every device. Without license code, the configuration is limited to two devices on a network, which is sufficient for slave modules.

System Configurator with a Uniform "Look and Feel"

All cards are configured using the SyCon[®] System Configurator, which has been coded in C++ and executes under the Windows[®] 95/98/ME and Windows[®] NT/2000/XP operating systems. Graphical input of the individual bus participants, clearly structured menu guidance and automatic computations of the bus parameters make the configuration a very simple exercise.

	Basic Sycon®	Basic Sycon® w/License code	Basic Sycon® + OPC server	Basic Sycon® w/License code + OPC server
	AD-CIF50-PB	AD-CIF50-PB-S	AD-CIF50-PB-0	AD-CIF50-PB-SO
DDOEIDIISTM	AD-CIF104-PB	AD-CIF104-PB-S	AD-CIF104-PB-0	AD-CIF104-PB-S0
FULLDO3	AD-CIF104-DPS	N/A	AD-CIF104-DPS-0	N/A
	AD-CIF104P-PB	AD-CIF104P-PB-S	AD-CIF104P-PB-0	AD-CIF104P-PB-S0
	AD-CIF50-DNM	AD-CIF50-DNM-S	AD-CIF50-DNM-0	AD-CIF50-DNM-SO
DovicoNET™	AD-CIF104-DNM	AD-CIF104-DNM-S	AD-CIF104-DNM-0	AD-CIF104-DNM-S0
DEVICENLI	AD-CIF104-DNS	N/A	AD-CIF104-DNS-0	N/A
	AD-CIF104P-DNM	AD-CIF104P-DNM-S	AD-CIF104P-DNM-0	AD-CIF104P-DNM-S0
	AD-CIF50-COM	AD-CIF50-COM-S	AD-CIF50-COM-O	AD-CIF50-COM-SO
CANopop	AD-CIF104-COM	AD-CIF104-COM-S	AD-CIF104-COM-0	AD-CIF104-COM-SO
CANOPEII	AD-CIF104-COS	N/A	AD-CIF104-COS-0	N/A
	AD-CIF104P-COM	AD-CIF104P-COM-S	AD-CIF104P-COM-0	AD-CIF104P-COM-SO