

I/O systems

I/O systems from Phoenix Contact are the perfect solution for control cabinet engineering or field installation.

I/O systems for the control cabinet

Axioline F

Axioline F is fast, robust, and easy. Open to all Ethernet-based communication protocols and PROFIBUS, Axioline F enables the shortest response times, fast installation, and is characterized by its particularly robust design and easy handling.

Axioline P

The Axioline P modular proxy can be used to connect PROFIBUS PA segments directly to a PROFINET network. Various redundancy mechanisms ensure high failsafe performance and process reliability.

Inline

Inline, our I/O automation kit, can be used to connect sensors and actuators with a maximum range of functions.

These I/Os can also be found in safety applications or potentially explosive areas.

Stand-alone IO-Link masters

The stand-alone IO-Link masters for the control cabinet are used to easily and conveniently integrate IO-Link devices into higher-level networks.

I/O systems for field installation

Axioline E

The I/O system features a fast response time, robust design, and easy handling.

The comprehensive portfolio with optional plastic or zinc die-cast housing enables use in a wide range of environments.

Fieldline Modular

The devices in the Fieldline Modular product range with IP65/IP67 protection are optimized for use in machine building and systems manufacturing directly in the field.

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I/O systems

Product overview

I/O systems for the control cabinet (IP20)



Axioline F

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Axioline P

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Inline

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Stand-alone IO-Link masters

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Inline Block IO

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INTERBUS ST

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I/O systems for field installation (IP65/IP67)



Axioline E – Devices in plastic and metal version

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Fieldline Modular

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AS-Interface

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Ruggedline

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PLCnext Control



PLCnext Control AXF F 2152 –
Controller for PLCnext Technology

Page 10

Conventional PLCs and small-scale controllers



Axiocontrol and Inline controllers

Page 41

Functional safety



Safe I/Os

Page 265

Industrial Wireless



Wireless multiplexer with antennas

Page 386

Sensor/actuator cabling



• See Catalog 2 –
Corresponding cabling for I/O systems

i Your web code: #0564

Marking and labeling



• See Catalog 3 –
Marking and labeling section

i Your web code: #0575

Software for device parameterization



Startup+ – Software for wiring checks on
Axioline F I/O stations

i Your web code: #1164



IOL-CONF – Software for parameterizing
IO-Link devices

i Your web code: #1164

Software for planning and configuration



Project+ – Software for planning the
I/O configuration

i Your web code: #1161

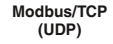
COMPLETE line



The comprehensive solution for
your control cabinet:
Easy planning, intuitive installation

Page 522

Product overview

Bus couplers							
							
	69	68	71	69	71	71	72

Axioccontrol		Power module	
	PLCnext Control 10	Conventional PLCs 44	Power module 73

Input and output modules			
	Digital input 8 - 64 channels 74	Digital output 4 - 64 channels 76	Digital input and output 8 - 16 channels 80
	Analog input 4 - 8 channels 82	Analog output 4 - 8 channels 85	Analog input and output 2 channels 84
Temperature measurement			
RTD / UTH			
86			

Function modules					Safe I/Os		
	Communication	Power measurement	PWM / counter	Position detection		SafetyBridge Technology	PROFIsafe
	RS-485/422/232 IO-Link						
	88	91	92	93		269	270

General accessories						
						
ZB 20,3 AXL UNPRINTED	ZBF 10/5,8 AXL UNPRINTED	EMT (35x...)R	AXL SHIELD SET	AXL BS BK	AXL F BS H	AXL F BS F
Zack marker strip, for device marking, unprinted	Zack marker strip, flat, for connector and slot marking, unprinted	Marking label rolls, unprinted	Shield connection set	Bus base module for bus couplers	Bus base module for housing type H	Bus base module for housing type F

phoenixcontact.net/products

General technical data**Ambient conditions**

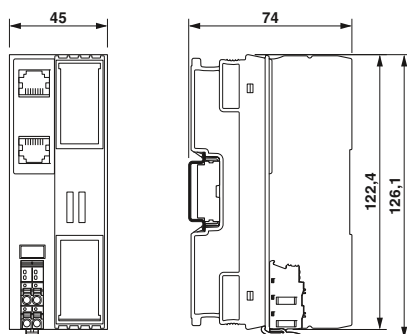
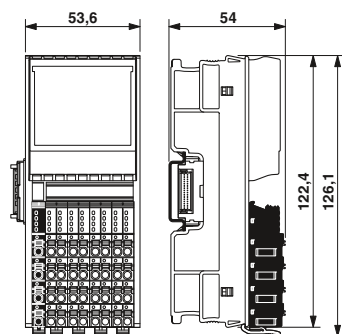
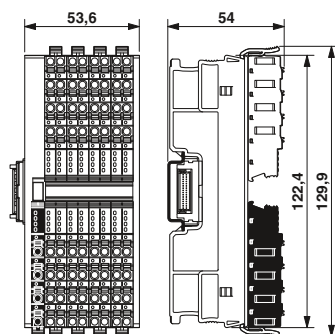
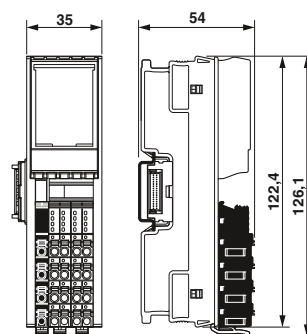
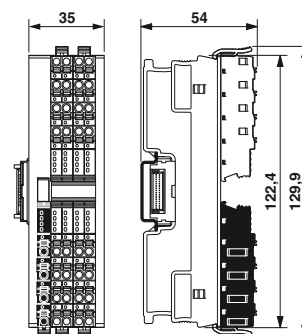
Temperature range (operation)	-25°C ... +60°C
- Extended (...-XC modules)	-40°C ... +70°C
Relative humidity (operation/storage/transport)	5% to 95% (non-condensing)
Vibration	5g in accordance with EN 60068-2-6 / IEC 60068-2-6
Shock	30g in accordance with EN 60068-2-27 / IEC 60068-2-27
Continuous shock	10g in accordance with EN 60068-2-27 / IEC 60068-2-27
Degree of protection	IP20

Electromagnetic compatibility

Noise emission	Class B in accordance with EN 61000-6-3
Noise immunity	In accordance with EN 61000-6-2

System times

System bus cycle time	2 µs
Offset per module	1 µs

Housing types and dimensions**Bus couplers****RJ45 connection****I/O modules****Housing type 1F****Housing type 2F****Housing type 1H****Housing type 2H**

Bus couplers

The Axioline F bus couplers are the link between the Axioline F system and the higher-level network.

For startup tests, the Axioline F station can be started up independently of the higher-level network via either an Ethernet port or the local service interface on the bus coupler using the Startup+ software.

EtherCAT® features:

- Minimum cycle time of EtherCAT® is 50 µs
- Supported mailbox protocols CoE, FoE
- Automatic and manual addressing

Sercos® features:

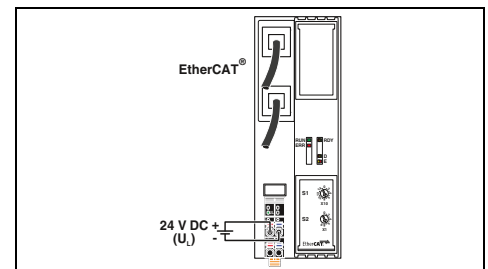
- Sercos specification V1.3
- Minimum Sercos cycle time of 31.25 µs

PROFINET features:

- PROFINET RT and PROFINET in accordance with the latest PROFINET specification
- MRP implemented
- Web-based management



RJ45 connection



Technical data

Interface		EtherCAT®	
Fieldbus system		RJ45 socket	
Connection method		2	
Number		100 Mbps (full duplex)	
Transmission speed		max. 100 m	
Transmission distance		CoE, FoE	
Protocols supported			
Service interface		Micro USB type B	
Connection method			
Local bus interface		Axioline F local bus	
Designation		Bus base module	
Connection method		100 Mbps	
Transmission speed		max. 63 (per station)	
Number of supported devices			
Power supply for module electronics		24 V DC	
Supply of communications power U_L		19.2 V DC ... 30 V DC (including all tolerances, including ripple)	
Maximum permissible voltage range			
Communications power U_{Bus}		5 V DC (via bus base module)	
Current supply at U_{Bus}		2 A	
Protective circuit		Surge protection of the supply voltage	
		Polarity reversal protection of the supply voltage	
General data		Push-in connection	
Connection method		0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16	
Connection data rigid / flexible / AWG		177 g	
Weight		45 mm / 126.1 mm / 74 mm	
Dimensions	W / H / D		
EMC note			
Ordering data			
Description		Type	Order No. Pcs./Pkt.
Axioline F bus coupler			
- For EtherCAT®			
- For Sercos			
- For PROFINET (specification 2.3)			
- For PROFINET (specification 2.2)			
Axioline F bus base module (replacement part)			
		AXL F BK EC	2688899 1
Accessories			
		AXL BS BK	2701422 5

SERCOS
the automation bus



RJ45 connection

PROFINET



RJ45 connection

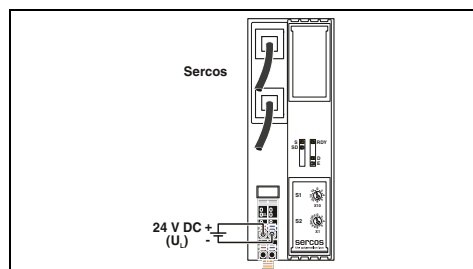
PROFINET



RJ45 connection

ClassNK

ClassNK



Technical data

Sercos
RJ45 socket
2
100 Mbps (full duplex)
max. 100 m
Sercos, TFTP

Micro USB type B

Axioline F local bus
Bus base module
100 Mbps
max. 63 (per station)

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

5 V DC (via bus base module)
2 A
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

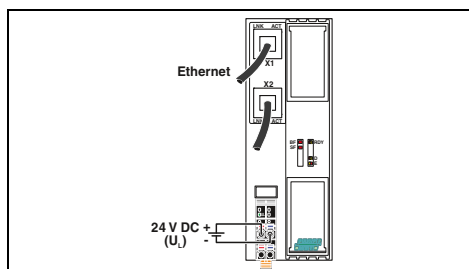
Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
177 g
45 mm / 126.1 mm / 74 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F BK S3	2701686	1

Accessories

AXL BS BK	2701422	5
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Technical data

PROFINET
RJ45 socket
2
100 Mbps (full duplex)
max. 100 m
PROFINET, TFTP, PTCP, LLDP, SNMP, MRP, DDI, BootP
(BootP only for the implementation of firmware updates)

USB type C

Axioline F local bus
Bus base module
100 Mbps
max. 63 (per station)

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

5 V DC (via bus base module)
2 A
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

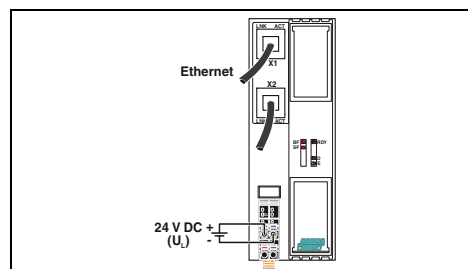
Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
177 g
45 mm / 126.1 mm / 74 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F BK PN TPS	2403869	1

Accessories

AXL BS BK	2701422	5
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Technical data

PROFINET
RJ45 socket
2
100 Mbps (full duplex)
max. 100 m
PROFINET, TFTP, PTCP, LLDP, SNMP, MRP, DDI, BootP
(BootP only for the implementation of firmware updates)

Micro USB type B

Axioline F local bus
Bus base module
100 Mbps
max. 63 (per station)

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

5 V DC (via bus base module)
2 A
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
177 g
45 mm / 126.1 mm / 74 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F BK PN	2701815	1

Accessories

AXL BS BK	2701422	5
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Bus couplers

The Axioline F bus couplers are the link between the Axioline F system and the higher-level network.

For startup tests, the Axioline F station can be started up independently of the higher-level network via either an Ethernet port or the local service interface on the bus coupler using the Startup+ software.

EtherNet/IP™ features:

- ACD (Address Conflict Detection) implemented
- RPI (Request Packet Interval) of 5 µs
- Device Level Ring (DLR) (for AXL F BK EIP EF)

Modbus/TCP (UDP) features:

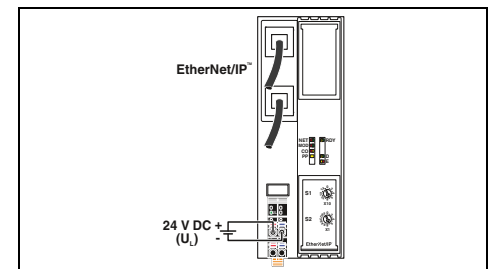
- Two rotary encoding switches for address assignment
- One or two MAC addresses
- Software interfaces for access via TCP/IP:
 - Device Driver Interface (DDI)
 - High-Level Language Fieldbus Interface (HFI)

SAS features (IEC 61850):

- Communication in accordance with IEC 61850-5, MMS, and GOOSE
- Time synchronization via SNTP
- Web server



RJ45 connection

**Technical data**

		AXL F BK EIP	AXL F BK EIP EF
Interface	Fieldbus system	EtherNet/IP™	
	Connection method	RJ45 socket	
	Number	2	
	Transmission speed	10/100 Mbps (half or full duplex mode (automatic detection, can be adjusted manually))	
Transmission distance		max. 100 m	
	Protocols supported	EtherNet/IP™, SNMP, HTTP, BootP, DHCP, FTP, TFTP	EtherNet/IP™, SNMP, DLR, HTTP, BootP, DHCP, FTP, TFTP
		Micro USB type B	
Service interface	Connection method	Axioline F local bus	
	Local bus interface	Bus base module	
	Designation	100 Mbps	
	Transmission speed	max. 63 (per station)	
Power supply for module electronics	Supply of communications power U _i	24 V DC	
	Maximum permissible voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)	
	Communications power U _{Bus}	5 V DC (via bus base module)	
	Current supply at U _{Bus}	2 A	
Protective circuit		Surge protection of the supply voltage	
		Polarity reversal protection of the supply voltage	
General data	Connection method	Push-in connection	
	Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16	
	Weight	177 g	
	Dimensions	45 mm / 126.1 mm / 74 mm	

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F BK EIP	2688394	1
AXL F BK EIP EF	2702782	1

Accessories

AXL BS BK	2701422	5
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Axioline F bus base module (replacement part)

Description**Axioline F bus coupler**

- For EtherNet/IP™
- For EtherNet/IP™, extended functions
- For Ethernet (Modbus/TCP)
- For Ethernet (IEC 61850)
- For extended temperature range of -40°C ... +70°C

Modbus/TCP (UDP)



RJ45 connection

Modbus/TCP (UDP)

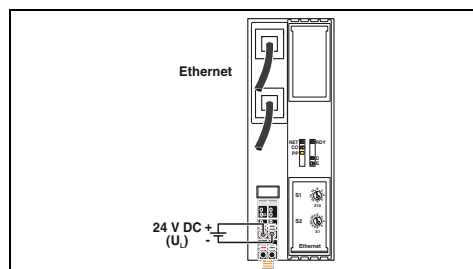
RJ45 connection,
two separate Ethernet ports

Ethernet

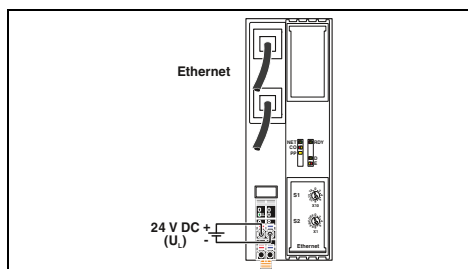
IEC 61850



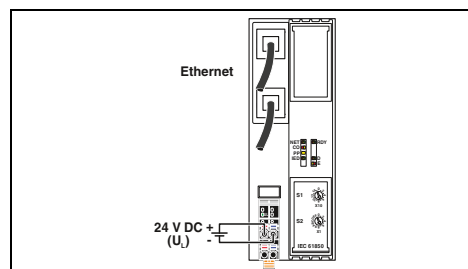
RJ45 connection



Technical data



Technical data



Technical data

Modbus/TCP (UDP)
RJ45 socket
2
10/100 Mbps (half or full duplex mode (automatic detection, can be adjusted manually))

max. 100 m
Modbus/TCP (UDP), SNMP, HTTP, BootP, DHCP, FTP, TFTP

Ethernet (2 networks)
RJ45 socket
2
10/100 Mbps (half or full duplex mode (automatic detection, can be adjusted manually))

max. 100 m
Modbus/TCP (UDP), SNMP, HTTP, BootP, DHCP, FTP, TFTP

Ethernet (IEC 61850, MMS, GOOSE)
RJ45 socket
2
100 Mbps (full duplex)

max. 100 m
MMS, GOOSE, SNMP, HTTP, BootP, DHCP, FTP, TFTP, SNTP

Micro USB type B

Micro USB type B

Micro USB type B

Axioline F local bus
Bus base module
100 Mbps
max. 63 (per station)

Axioline F local bus
Bus base module
100 Mbps
max. 63 (per station)

Axioline F local bus
Bus base module
100 Mbps
max. 63 (per station)

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

5 V DC (via bus base module)
2 A
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

5 V DC (via bus base module)
2 A
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

5 V DC (via bus base module)
2 A
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
177 g
45 mm / 126.1 mm / 74 mm

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
177 g
45 mm / 126.1 mm / 74 mm

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
177 g
45 mm / 126.1 mm / 74 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F BK ETH	2688459	1
AXL F BK ETH XC	2701949	1

Accessories

AXL BS BK	2701422	5
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Ordering data

Type	Order No.	Pcs./Pkt.
AXL F BK ETH NET2	2702177	1

Accessories

AXL BS BK	2701422	5
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Ordering data

Type	Order No.	Pcs./Pkt.
AXL F BK SAS	2701457	1

Accessories

AXL BS BK	2701422	5
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Bus couplers

The Axioline F bus couplers are the link between the Axioline F system and the higher-level network.

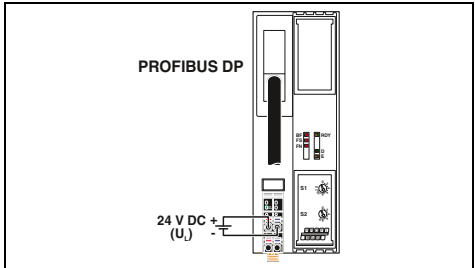
For startup tests, the Axioline F station can be started up independently of the higher-level network via either an Ethernet port or the local service interface on the bus coupler using the Startup+ software.

Features:

- I&M functions
- Operation of PROFI-safe devices



D-SUB connection



Technical data

Interface	
Fieldbus system	PROFIBUS DP
Connection method	D-SUB-9 female connector
Number	1
Transmission speed	9.6 kbps ... 12 Mbps
Service interface	
Connection method	Micro USB type B
Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Transmission speed	100 Mbps
Number of supported devices	max. 63 (per station)
Power supply for module electronics	
Supply of communications power U _L	24 V DC
Maximum permissible voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Communications power U _{Bus}	5 V DC (via bus base module)
Current supply at U _{Bus}	2 A
Protective circuit	Surge protection of the supply voltage Polarity reversal protection of the supply voltage
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	175 g
Dimensions	45 mm / 125.9 mm / 74 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F BK PB	2688530	1
AXL F BK PB XC	2702463	1

Accessories

Axioline F bus base module (replacement part)	AXL BS BK	2701422	5
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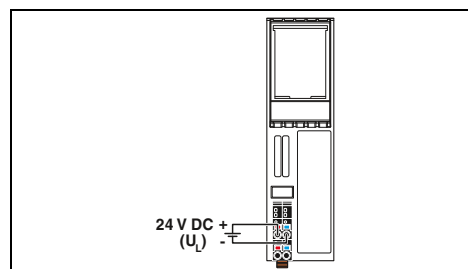
Power module

This module is designed for use within an Axioline F station.

Once the maximum load on a bus coupler has been reached for the Axioline F local bus supply, you can resupply the U_{Bus} communications power with the power module.



For supplying the U_{Bus} communications power



Technical data

Local bus interface

Designation
Connection method
Power supply for module electronics
Supply of communications power U_L
Maximum permissible voltage range

Communications power U_{Bus}
Current supply at U_{Bus}
Protective circuit

Axioline F local bus
Bus base module

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

5 V DC (via bus base module)
max. 4 A
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

General data

Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions
EMC note

W / H / D

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
107 g
35 mm / 126.1 mm / 54 mm
Class A product, see page 527

Ordering data

Description

Axioline F power module, complete with accessories
(bus base module)

Type	Order No.	Pcs./Pkt.
AXL F PWR 1H	2688297	1

Digital input modules

These modules are designed for use within an Axioline F station.

The digital input modules are used to connect 24 V DC sensors. Sensors with up to 4-conductor connection technology can be connected.

Features:

- Minimum update time of < 100 µs
- Adjustable filter times
- Maximum input frequency: 5 kHz
- Stored device rating plate
- Diagnostic and status indicators

AXL DI 8/2... features:

- Impulse withstand voltage: 5 kV
- Developed in accordance with the requirements of IEC 61850-3

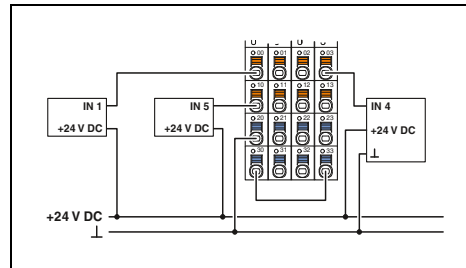
AXL DI 16/1 HS 1H features:

- Minimum update time of 5 µs

IEC 61850-3



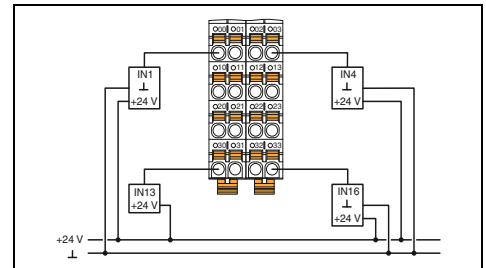
8 inputs,
with increased impulse withstand voltage



Technical data



16 inputs



Technical data

Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{Bus}	5 V DC (via bus base module)
Current consumption from U_{Bus}	max. 120 mA
I/O supply	
Supply of digital input modules U_i	-
Supply voltage range U_i	-
Current consumption from U_i	-
Protective circuit	-
Digital inputs	
Connection technology	2-conductor
Number of inputs	8
Description of the inputs	EN 61131-2 type 1
Nominal input voltage U_{IN}	24 V DC
Nominal input current at U_{IN}	2.5 mA
Input filter time	< 1 ms
Protective circuit	Polarity reversal protection of the inputs
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	173 g
Dimensions	53.6 mm / 126.1 mm / 54 mm

AXL F DI16/1 1H	AXL F DI16/1 HS 1H
AXioline F local bus	AXioline F local bus
Bus base module	Bus base module
5 V DC (via bus base module)	5 V DC (via bus base module)
max. 120 mA	max. 120 mA
24 V DC	24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
20 mA	20 mA
Surge protection of the supply voltage	Surge protection of the supply voltage
Polarity reversal protection of the supply voltage	Polarity reversal protection of the supply voltage
1-conductor	1-conductor
16	16
EN 61131-2 types 1 and 3	EN 61131-2 types 1 and 3
24 V DC	24 V DC
2.4 mA	2.3 mA
3000 µs (default)	< 5 µs
1000 µs	
< 100 µs	
Polarity reversal protection of the inputs	Polarity reversal protection of the inputs
Push-in connection	Push-in connection
0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
133 g	133 g
35 mm / 126.1 mm / 54 mm	35 mm / 126.1 mm / 54 mm

Ordering data

Description
Axioline F digital input module , complete with accessories (bus base module)
- 8 inputs, U_{IN} = 24 V DC
- 8 inputs, U_{IN} = 48 V DC / 60 V DC
- 8 inputs, U_{IN} = 110 V DC / 220 V DC
- 16 inputs
- 16 inputs
- 32 inputs
- 64 inputs
- For extended temperature range of -40°C ... +70°C

Type	Order No.	Pcs./Pkt.
AXL F DI8/2 24DC 1F	2702783	1
AXL F DI8/2 48/60DC 1F	2702654	1
AXL F DI8/2 110/220DC 1F	2700684	1

Accessories

Axioline F bus base module (replacement part)
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AXL F BS F	2688129	5
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Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DI16/1 1H	2688310	1
AXL F DI16/1 HS 1H	2701722	1

Accessories

AXL F BS H	2700992	5
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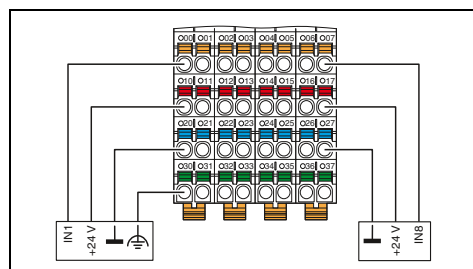
16 inputs



32 inputs



32 / 64 inputs



Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 120 mA

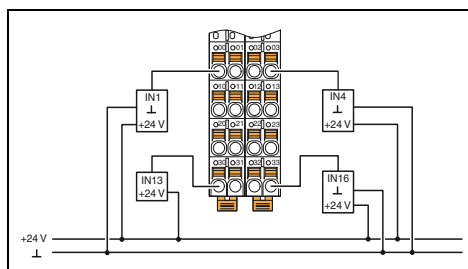
24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

max. 4 A (2 A or each group of 8 inputs)
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

4-conductor
16
EN 61131-2 types 1 and 3
24 V DC
2.4 mA
500 µs (default)
< 100 µs

Polarity reversal protection of the inputs

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
231 g
53.6 mm / 129.9 mm / 54 mm



Technical data

Axioline F local bus
Bus base module

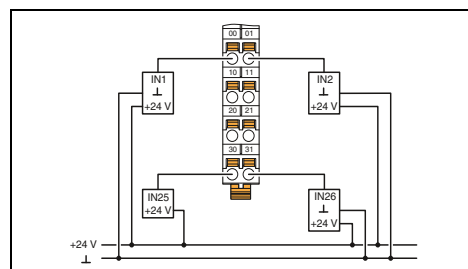
5 V DC (via bus base module)
max. 120 mA

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

max. 50 mA
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

1-conductor
32
EN 61131-2 types 1 and 3
24 V DC
2.4 mA
3000 µs (default)
1000 µs
< 100 µs
Polarity reversal protection of the inputs

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
159 g
35 mm / 129.9 mm / 54 mm



Technical data

AXL F DI32/1 1F

AXL F DI64/1 2F

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 120 mA (up to HW 04) max. 120 mA
max. 60 mA (from HW 05)

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

max. 50 mA max. 60 mA
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

1-conductor
32 64
EN 61131-2 types 1 and 3
24 V DC
2.4 mA
3000 µs (default)
1000 µs
< 100 µs
Polarity reversal protection of the inputs

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
167 g 231 g
53.6 mm / 126.1 mm / 54 mm 53.6 mm / 129.9 mm / 54 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DI16/4 2F	2688022	1
AXL F DI16/4 XC 2F	2701224	1

Accessories

AXL F BS F	2688129	5
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Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DI32/1 2H	2702052	1

Accessories

AXL F BS H	2700992	5
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Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DI32/1 1F	2688035	1
AXL F DI64/1 2F	2701450	1
AXL F DI32/1 XC 1F	2701226	1

Accessories

AXL F BS F	2688129	5
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Digital output modules

These modules are designed for use within an Axioline F station.

The digital output modules are used to output digital 24 V DC signals. Actuators with up to 3 conductors can be connected.

Features:

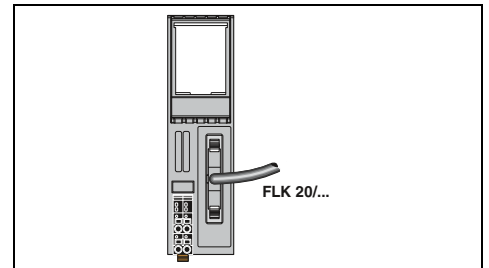
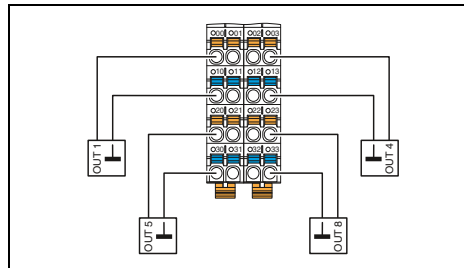
- Short-circuit-proof outputs
- Output behavior can be adjusted for when local bus communication is aborted
- Stored device rating plate



8 outputs,
2 A / 16 outputs



16 outputs,
FLK20 connection for system cabling



Technical data

AXL F DO8/2 2A 1H AXL F DO16/1 1H

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 150 mA max. 120 mA (up to HW 02)
max. 60 mA (from HW 03)

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

max. 16 A (provide external protection; if the total current of 8 A is exceeded, connect the supply at the power connector parallel via both terminal points.)
max. 8 A (provide external protection)

Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

2-conductor 1-conductor

8 16

24 V

2 A 500 mA

16 A (provide external protection) 8 A (provide external protection)

Shutdown with automatic restart

Short-circuit protection, overload protection of the outputs

Push-in connection

0.5 ... 1.5 mm² / 0.5 ... 1.5 mm² / 20 - 16 0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
136 g 134 g
35 mm / 126.1 mm / 54 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DO8/2 2A 1H	2688381	1
AXL F DO16/1 1H	2688349	1
AXL F DO8/2 2A XC 1H	1035427	1

Accessories

AXL F BS H	2700992	5
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Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 120 mA

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

max. 8 A (provide external protection)

Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

FLK connector (20-pos.)

16
24 V
500 mA
8 A (provide external protection)

Shutdown with automatic restart

Short-circuit protection, overload protection of the outputs

Push-in connection

0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
108 g
35 mm / 126.1 mm / 54 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DO16 FLK 1H	2701813	1

Accessories

AXL F BS H	2700992	5
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Local bus interface
Designation
Connection method
Power supply for module electronics
Communications power U_{Bus}
Current consumption from U_{Bus}

I/O supply
Supply of digital output modules U_O
Supply voltage range U_O
Current consumption from U_O

Protective circuit

Digital outputs
Connection technology
Number of outputs
Output voltage
Maximum output current per channel
Maximum output current per module

Behavior in the event of overload
Protective circuit

General data
Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions
EMC note

Description
Axioline F digital output module , complete with accessories (bus base module)
- 8 outputs
- 16 outputs
- 32 outputs
- For extended temperature range of -40°C ... +70°C

AXIOLINE F bus base module (replacement part)



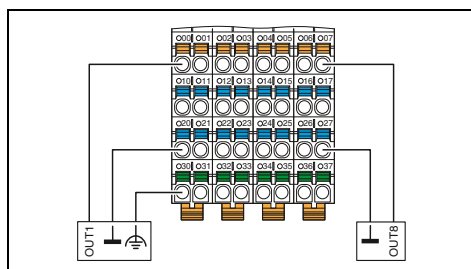
16 outputs



16 / 32 outputs



32 / 64 outputs



Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 120 mA (up to HW 04)
max. 60 mA (from HW 05)

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

max. 8 A (provide external protection)

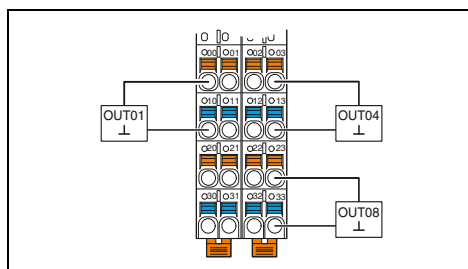
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

3-conductor
16
24 V
500 mA
8 A (provide external protection)

Shutdown with automatic restart
Short-circuit protection, overload protection of the outputs

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16

234 g
53.6 mm / 129.9 mm / 54 mm



Technical data

AXL F DO16/2 2H

AXL F DO32/1 2H

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 60 mA

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

max. 8 A (provide external protection)
max. 16 A (provide external protection; if the total current of 8 A is exceeded, connect the supply at the power connector parallel via both terminal points.)

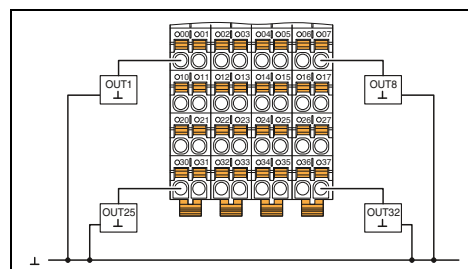
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

2-conductor
16
24 V DC
500 mA
8 A (provide external protection)
1-conductor
32
16 A (provide external protection)

Shutdown with automatic restart
Short-circuit protection, overload protection of the outputs

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16

160 g
35 mm / 129.9 mm / 54 mm
161 g



Technical data

AXL F DO32/1 1F

AXL F DO64/1 2F

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 120 mA (up to HW 04)
max. 60 mA (from HW 05)
max. 120 mA (up to HW 02)
max. 60 mA (from HW 03)

24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

max. 8 A (up to HW 04, provide external protection)
max. 16 A (provide external protection; if the total current of 8 A is exceeded, connect the supply at the power connector parallel via both terminal points.)

Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

1-conductor
32
24 V DC
500 mA
8 A (up to HW 04, provide external protection)
64
24 V
16 A (provide external protection)

Shutdown with automatic restart
Short-circuit protection, overload protection of the outputs

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16

191 g
53.6 mm / 126.1 mm / 54 mm
260 g
53.6 mm / 129.9 mm / 54 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DO16/3 2F	2688048	1
AXL F DO16/3 XC 2F	2701228	1

Accessories

AXL F BS F	2688129	5
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Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DO16/2 2H	1027904	1
AXL F DO32/1 2H	1004925	1

Accessories

AXL F BS H	2700992	5
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Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DO32/1 1F	2688051	1
AXL F DO32/1 XC 1F	2701230	1

Accessories

AXL F BS F	2688129	5
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Digital output modules

This module is designed for use within an Axioline F station.

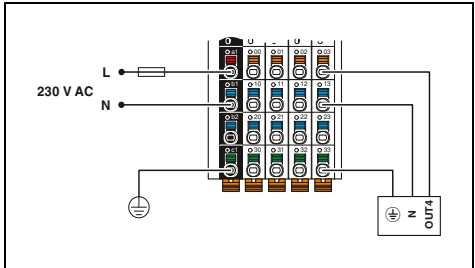
The digital output module is used to output digital signals in the wide voltage range between 12 V AC and 253 V AC. Connection is via 2- or 3-conductor technology.

Features:

- Output behavior can be adjusted for when local bus communication is aborted
- Stored device rating plate



4 outputs,
12 ... 253 V AC wide range



Technical data

Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{Bus}	5 V DC (via bus base module)
Current consumption from U_{Bus}	max. 120 mA
I/O supply	
Supply of digital output modules U_O	230 V AC
Supply voltage range U_O	12 V AC ... 253 V AC (including all tolerances, including ripple, 50 Hz ... 60 Hz)
Current consumption from U_O	max. 8 A (provide external protection)
Protective circuit	Surge protection of the supply voltage
Digital outputs	
Connection technology	3-conductor
Number of outputs	4 (Triac outputs with zero voltage switch)
Output voltage	230 V AC
Maximum output current per channel	2 A AC
Maximum output current per module	8 A AC (provide external protection)
Behavior in the event of overload	Output may be damaged
Protective circuit	External protection required
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.5 ... 1.5 mm ² / 0.5 ... 1.5 mm ² / 20 - 16
Weight	188 g
Dimensions	53.6 mm / 126.1 mm / 54 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DO4/3 AC 1F	2702068	1

Accessories

AXL F BS F	2688129	5
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Description
Axioline F digital output module, complete with accessories (bus base module)
Axioline F bus base module (replacement part)

Digital output modules

This module is designed for use within an Axioline F station.

The digital output module is used to output digital signals via relays with floating N/O contacts. Connection is via 2-conductor technology.

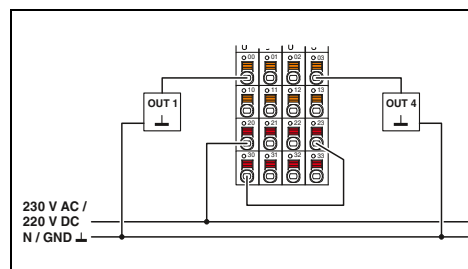
Features:

- Impulse withstand voltage: 5 kV
- Developed in accordance with the requirements of IEC 61850-3
- Output behavior can be adjusted for when local bus communication is aborted
- Stored device rating plate

IEC 61850-3



4 relay outputs



Technical data

Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{Bus}	5 V DC (via bus base module)
Current consumption from U_{Bus}	max. 280 mA (all relays pick up)
Relay outputs	
Contact type	4 floating N/O contacts
Output voltage range	24 V DC ... 220 V DC -20% / +15% 24 V AC ... 230 V AC -20% / +15% (50/60 Hz)
	max. 8 A AC (cos phi = 1)
	max. 2000 VA
	max. 6 (per minute)
	< 5 ms
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	206 g
Dimensions	53.6 mm / 126.1 mm / 54 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DOR4/2 AC/220DC 1F	2700608	1

Accessories

AXL F BS F	2688129	5
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Axioline F bus base module (replacement part)

Description
Axioline F digital output module, complete with accessories (bus base module)

Digital input and output modules

These modules are designed for use within an Axioline F station.

They are used to acquire and output digital 24 V DC signals.

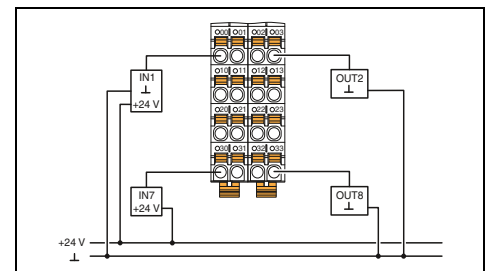
You can adjust the filter times of the inputs to increase noise immunity.

Features:

- Connection of sensors or actuators in 1-, 2- or 3-conductor technology
- Minimum update time of < 100 µs
- Adjustable filter times
- Maximum input frequency: 5 kHz
- Short-circuit-proof outputs
- Stored device rating plate



8 inputs and 8 outputs

**Technical data**

Local bus interface	Axioline F local bus Bus base module	
Designation	5 V DC (via bus base module) max. 120 mA	
Connection method	24 V DC	
Power supply for module electronics	19.2 V DC ... 30 V DC (including all tolerances, including ripple)	
Communications power U_{Bus}	Surge protection of the supply voltage Polarity reversal protection of the supply voltage	
Current consumption from U_{Bus}		
I/O supply		
Digital input and output module supply U_{IO}		
Supply voltage range U_{IO}		
Protective circuit		
Digital inputs	1-conductor 8 EN 61131-2 types 1 and 3 24 V DC 2.4 mA 3000 µs (default) / 1000 µs / < 100 µs Polarity reversal protection of the inputs	
Connection technology	1-conductor	
Number of inputs	8	
Description of the inputs	24 V DC	
Nominal input voltage U_{IN}	2.4 mA	
Nominal input current at U_{IN}	3000 µs (default) / 1000 µs / < 100 µs	
Input filter time	Polarity reversal protection of the inputs	
Protective circuit		
Digital outputs	1-conductor 8 24 V DC 500 mA 4 A (provide external protection) Shutdown with automatic restart Short-circuit protection, overload protection of the outputs	
Connection technology	1-conductor	
Number of outputs	8	
Output voltage	24 V DC	
Maximum output current per channel	500 mA	
Maximum output current per module	4 A (provide external protection)	
Behavior in the event of overload	Shutdown with automatic restart	
Protective circuit	Short-circuit protection, overload protection of the outputs	
General data	Push-in connection 0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16 133 g 35 mm / 126.1 mm / 54 mm Class A product, see page 527	
Connection method		
Connection data rigid / flexible / AWG		
Weight		
Dimensions	W / H / D	
EMC note		
Description		
Axioline F digital input/output module, complete with accessories (bus base module)		
- 8 inputs, 8 outputs		
- 16 inputs, 8 outputs		
- 16 inputs, 16 outputs		
- For extended temperature range of -40°C ... +70°C		
Axioline F bus base module (replacement part)		
AXL F BS H	2700992	5

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DI8/1 DO8/1 1H	2701916	1
AXL F DI8/1 DO8/1 XC 1H	2702017	1

Accessories



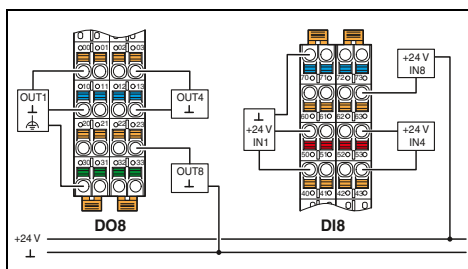
8 inputs and 8 outputs



16 inputs and 8 outputs, 2 A



16 inputs and 16 outputs



Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 120 mA

24 V DC

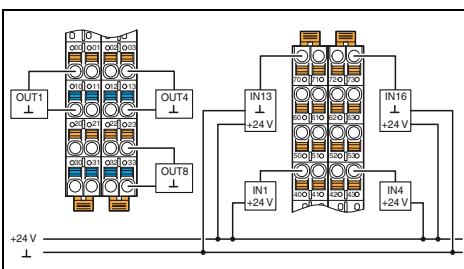
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

3-conductor
8
EN 61131-2 types 1 and 3
24 V DC
2.4 mA
3000 μ s (default) / 1000 μ s / < 100 μ s
Polarity reversal protection of the inputs

3-conductor
8
24 V DC
500 mA
8 A (provide external protection)
Shutdown with automatic restart
Short-circuit protection, overload protection of the outputs

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
159 g
35 mm / 129.9 mm / 54 mm



Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 120 mA

24 V DC

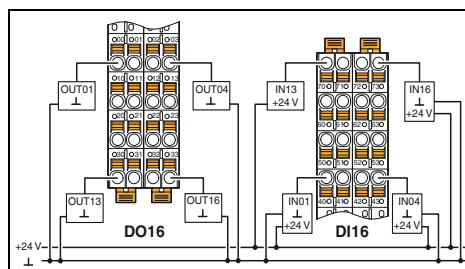
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

1-conductor
16
EN 61131-2 types 1 and 3
24 V DC
2.4 mA
3000 μ s (default) / 1000 μ s / < 100 μ s
Polarity reversal protection of the inputs

2-conductor
8
24 V DC
2 A
16 A (provide external protection)
Shutdown with automatic restart
Short-circuit protection, overload protection of the outputs

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
159 g
35 mm / 129.9 mm / 54 mm



Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 120 mA

24 V DC

19.2 V DC ... 30 V DC (including all tolerances, including ripple)

Surge protection of the supply voltage
Polarity reversal protection of the supply voltage

1-conductor
16
EN 61131-2 types 1 and 3
24 V DC
2.4 mA
3000 μ s (default) / 1000 μ s / < 100 μ s
Polarity reversal protection of the inputs

1-conductor
16
24 V DC
500 mA
8 A (provide external protection)
Shutdown with automatic restart
Short-circuit protection, overload protection of the outputs

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
159 g
35 mm / 129.9 mm / 54 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DI8/3 DO8/3 2H	2702071	1

Accessories

AXL F BS H	2700992	5
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Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DI16/1 DO8/2-2A 2H	2702291	1

Accessories

AXL F BS H	2700992	5
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Ordering data

Type	Order No.	Pcs./Pkt.
AXL F DI16/1 DO16/1 2H	2702106	1

Accessories

AXL F BS H	2700992	5
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Analog input modules

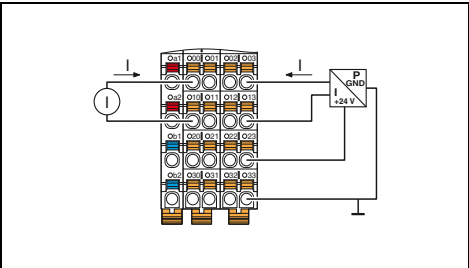
These modules are designed for use within an Axioline F station.

They are used to acquire standard analog current and voltage signals. Connection is via 2-, 3- or 4-conductor technology and a shield connection.

- Features:**
- Up to 8 analog differential signal inputs
 - Current and voltage measuring ranges
 - Input filter selection
 - Minimum update time of 250 µs
 - 16-bit measured value representation
 - Integrated sensor supply
 - Stored device rating plate



4 inputs
Current signals



Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U _{Bus}	5 V DC (via bus base module)
Current consumption from U _{Bus}	max. 150 mA
I/O supply	
Supply for analog modules (U _A)	24 V DC
Protective circuit	Surge protection of the supply voltage Polarity reversal protection of the supply voltage Transient protection
Analog inputs	
Connection technology	2-, 3-, 4-conductor
Number of inputs	4
Voltage input signal	-
Current input signal	0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA
Characteristics	
Measured value representation	16 bits (15 bits + sign bit)
Input filter	30 Hz, 12 kHz and mean-value generation (can be parameterized)
Precision	0.1% (of measuring range final value for active mean-value generation and 30 Hz filter)
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	145 g
Dimensions	35 mm / 126.1 mm / 54 mm

Technical data		
Axioline F local bus		
Bus base module		
5 V DC (via bus base module)		
max. 150 mA		
24 V DC		
Surge protection of the supply voltage		
Polarity reversal protection of the supply voltage		
Transient protection		
2-, 3-, 4-conductor		
4		
-		
0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA		
16 bits (15 bits + sign bit)		
30 Hz, 12 kHz and mean-value generation (can be parameterized)		
0.1% (of measuring range final value for active mean-value generation and 30 Hz filter)		
Push-in connection		
0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16		
145 g		
35 mm / 126.1 mm / 54 mm		

Description	
Axioline F analog input module , complete with accessories (bus base module)	
- 4 inputs	
- 8 inputs	
- For extended temperature range of -40°C ... +70°C	
Axioline F bus base module (replacement part)	
Axioline shield connection set	

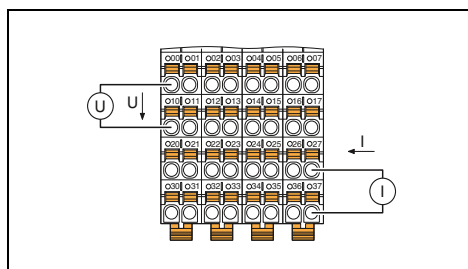
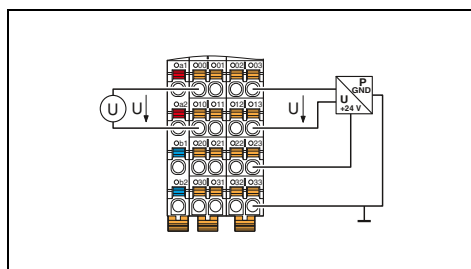
Ordering data		
Type	Order No.	Pcs./Pkt.
AXL F AI4 I 1H	2688491	1
AXL F AI4 I XC 1H	2702007	1
Accessories		
AXL F BS H	2700992	5
AXL SHIELD SET	2700518	1



4 inputs
Voltage signals



8 inputs



Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 150 mA

24 V DC
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage
Transient protection supply voltage

2-, 3-, 4-conductor
4
0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
-

16 bits (15 bits + sign bit)
30 Hz, 12 kHz and mean-value generation (can be parameterized)

0.1% (of measuring range final value for active mean-value generation and 30 Hz filter)

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
145 g
35 mm / 126.1 mm / 54 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F AI4 U 1H	2688501	1
AXL F AI4 U XC 1H	2702008	1

Accessories

AXL F BS H	2700992	5
AXL SHIELD SET	2700518	1

Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 130 mA

24 V DC
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage
Transient protection supply voltage

2-conductor
8
0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA

16 bits (15 bits + sign bit)
30 Hz, 12 kHz and mean-value generation (can be parameterized)

0.1% (of measuring range final value for active mean-value generation and 30 Hz filter)

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
204 g
53.6 mm / 126.1 mm / 54 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F AI8 1F	2688064	1
AXL F AI8 XC 1F	2701232	1

Accessories

AXL F BS F	2688129	5
AXL SHIELD SET	2700518	1

Analog input and output modules

This module is designed for use within an Axioline F station.

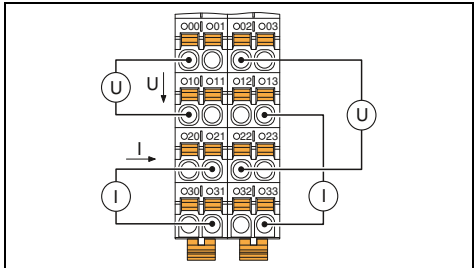
It is used to acquire and output standard analog current and voltage signals. Connection is via 2-conductor technology and a shield connection.

Features:

- 2 analog bipolar inputs and outputs each
- Current and voltage ranges
- Minimum update time of 250 µs
- 16-bit output value
- Overload and short-circuit protected
- Stored device rating plate



2 inputs and 2 outputs



Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{Bus}	5 V DC (via bus base module)
Current consumption from U_{Bus}	max. 150 mA
I/O supply	
Supply for analog modules (U_A)	24 V DC
Analog inputs	
Connection technology	2-conductor
Number of inputs	2
Voltage input signal	0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
Current input signal	0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA
Analog outputs	
Connection technology	2-conductor
Number of outputs	2
Voltage output signal	0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
Current output signal	0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA
Load/output load current output	$\leq 500 \Omega$
Protective circuit	Short-circuit and overload protection
Characteristics	
Representation of output values	Transient protection
Precision	16 bits (15 bits + sign bit)
	0.1% (of measuring range final value for active mean-value generation and 30 Hz filter)
	typ. 0.1% (of output range final value)
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	200 g
Dimensions	35 mm / 126.1 mm / 54 mm
	W / H / D

Technical data		
Axioline F local bus		
Bus base module		
5 V DC (via bus base module)		
max. 150 mA		
24 V DC		
2-conductor		
2		
0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V		
0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA		
$\leq 500 \Omega$		
Short-circuit and overload protection		
Transient protection		
16 bits (15 bits + sign bit)		
0.1% (of measuring range final value for active mean-value generation and 30 Hz filter)		
typ. 0.1% (of output range final value)		
Push-in connection		
0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16		
200 g		
35 mm / 126.1 mm / 54 mm		

Description
Axioline F analog I/O module , complete with accessories (bus base module)
- For extended temperature range of -40°C ... +70°C

Ordering data		
Type	Order No.	Pcs./Pkt.
AXL F AI2 AO2 1H	2702072	1
AXL F AI2 AO2 XC 1H	1035429	1

Axioline F bus base module (replacement part)
Axioline shield connection set

Accessories		
AXL F BS H	2700992	5
AXL SHIELD SET	2700518	1

Analog output modules

These modules are designed for use within an Axioline F station.

They are used to output standard analog current and voltage signals. Connection is via 2-conductor technology and a shield connection.

Features:

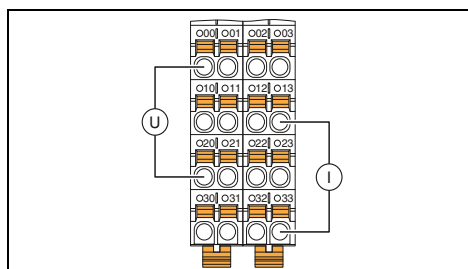
- Up to 8 analog bipolar outputs
- Current and voltage ranges
- Minimum update time of 250 µs
- 16-bit output value
- Overload and short-circuit protected
- Stored device rating plate



4 outputs



8 outputs



Technical data

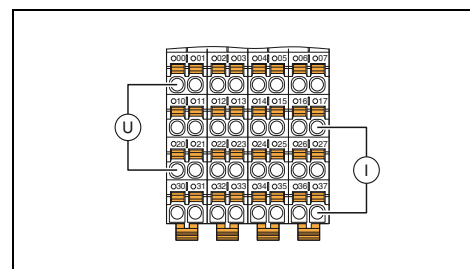
Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{BUS}	5 V DC (via bus base module)
Current consumption from U_{BUS}	max. 150 mA
I/O supply	
Supply for analog modules (U_A)	24 V DC
Analog outputs	
Connection technology	2-conductor
Number of outputs	4
Voltage output signal	0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
Current output signal	0 mA ... 20 mA / 4 mA ... 20 mA
Load/output load current output	≤ 500 Ω
Protective circuit	Short-circuit and overload protection Transient protection
Characteristics	
Representation of output values	16 bits (15 bits + sign bit)
Precision	typ. 0.1% (of output range final value)
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	145 g
Dimensions	35 mm / 126.1 mm / 54 mm

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Axioline F analog output module , complete with accessories (bus base module)			
- 4 outputs	AXL F AO4 1H	2688527	1
- 8 outputs	AXL F AO4 XC 1H	2702153	1
- For extended temperature range of -40°C ... +70°C			

Accessories

Axioline F bus base module (replacement part)	AXL F BS H	2700992	5
Axioline shield connection set	AXL SHIELD SET	2700518	1



Technical data

Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{BUS}	5 V DC (via bus base module)
Current consumption from U_{BUS}	max. 130 mA
I/O supply	
Supply for analog modules (U_A)	24 V DC
Analog outputs	
Connection technology	2-conductor
Number of outputs	8
Voltage output signal	0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
Current output signal	0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA
Load/output load current output	to 500 Ω
Protective circuit	Short-circuit and overload protection Transient protection
Characteristics	
Representation of output values	16 bits (15 bits + sign bit)
Precision	typ. 0.1% (of output range final value)
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	260 g
Dimensions	53.6 mm / 126.1 mm / 54 mm

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Axioline F analog output module , complete with accessories (bus base module)			
- 8 outputs	AXL F AO8 1F	2688080	1
- For extended temperature range of -40°C ... +70°C	AXL F AO8 XC 1F	2701237	1

Accessories

Axioline F bus base module (replacement part)	AXL F BS F	2688129	5
Axioline shield connection set	AXL SHIELD SET	2700518	1

Temperature measurement modules

These modules are designed for use within an Axioline F station.

They are used to acquire data from resistive temperature sensors or thermocouples. Connection is via 2-, 3- or 4-conductor technology and an overall shielding braid.

RTD features:

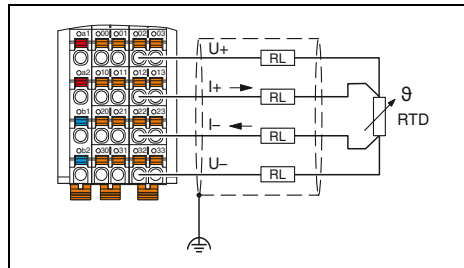
- 0 Ω to 500 Ω and 0 Ω to 5 k Ω linear inputs
- Programmable filters
- Short-circuit-proof inputs
- Stored device rating plate

Features of UTH:

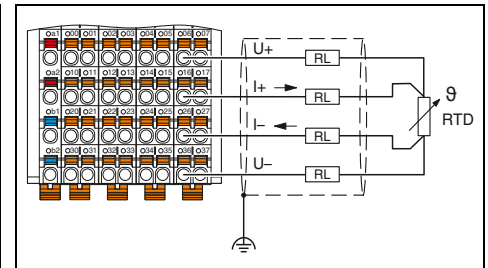
- Linear voltages from -100 mV to +100 mV
- 1 input from -5 V to +5 V
- 4 Pt 100 inputs (external cold junction)
- Configurable cold junction type
- Stored device rating plate



4 RTD inputs



8 RTD inputs

**Technical data**

Local bus interface
Designation
Connection method
Power supply for module electronics
Communications power U_{BUS}
Current consumption from U_{BUS}
I/O supply
Supply for analog modules (U_A)
Protective circuit

Axioline F local bus
Bus base module
5 V DC (via bus base module)
max. 140 mA
24 V DC
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage
Transient protection

Technical data

Analog inputs
Connection technology
Number of inputs
Protective circuit

2-, 3-, 4-conductor (shielded)
4 (for resistance temperature detectors)
Short-circuit protection, overload protection of the inputs
Transient protection of inputs
Transient protection of sensor supplies

Sensor types that can be used (RTD)
Sensor types that can be used (TC)
Linear resistance measuring range
Linear voltage range
Characteristics
Measured value representation
Input filter time
Accuracy

Pt, Ni, KTY, Cu sensors
-
0 Ω ... 500 Ω / 0 k Ω ... 5 k Ω
-
16 bits (15 bits + sign bit)
40 ms / 60 ms / 100 ms / 120 ms (adjustable)
typ. ± 0.1 K (Pt 100 with 3-conductor connection)

2-, 3-, 4-conductor (shielded)
8 (for resistance temperature detectors)
Short-circuit protection, overload protection of the inputs
Transient protection of inputs
Transient protection of sensor supplies

Pt, Ni, KTY, Cu sensors
-
0 Ω ... 500 Ω / 0 k Ω ... 5 k Ω
-
16 bits (15 bits + sign bit)
40 ms / 60 ms / 100 ms / 120 ms (adjustable)
typ. ± 0.1 K (Pt 100 with 3-conductor connection)

General data
Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions

Push-in connection
0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
144 g
35 mm / 126.1 mm / 54 mm

Push-in connection
0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
215 g
53.6 mm / 126.1 mm / 54 mm

Ordering data

Description
Axioline F analog input module , complete with accessories (bus base module)
- For connecting resistance temperature detectors
- For connecting thermocouple sensors
- For extended temperature range of -40°C ... +70°C

Type	Order No.	Pcs./Pkt.
AXL F RTD4 1H	2688556	1
AXL F RTD4 XC 1H	1035430	1

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F RTD8 1F	2688077	1
AXL F RTD8 XC 1F	2701235	1

Accessories

Axioline F bus base module (replacement part)
Axioline shield connection set

AXL F BS H	2700992	5
AXL SHIELD SET	2700518	1

Accessories

AXL F BS F	2688129	5
AXL SHIELD SET	2700518	1



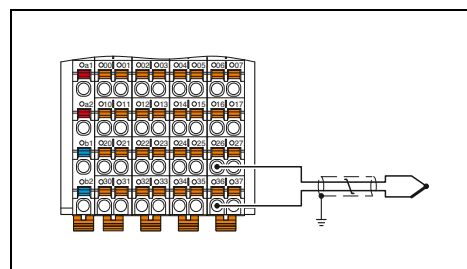
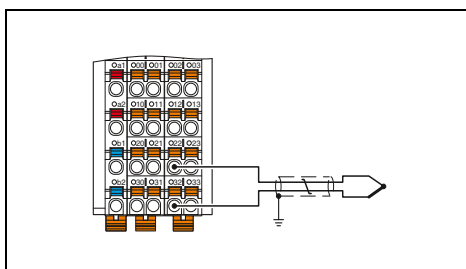
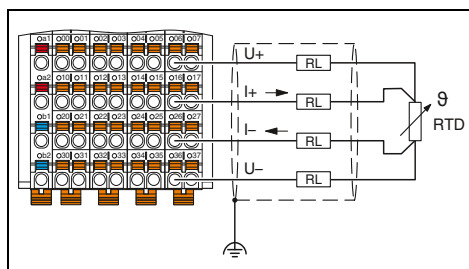
8 RTD inputs,
high dynamic measuring range



4 UTH inputs



8 UTH inputs



Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 180 mA

24 V DC
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage
Transient protection

2-, 4-conductor (shielded)
8 (for resistance temperature detectors)

Short-circuit protection, overload protection of the inputs
Transient protection of inputs
Transient protection of sensor supplies

Pt, Ni, Cu sensors

-
0 Ω ... 500 Ω
-

16 bits (15 bits + sign bit)
8 ms / 16 ms / 32 ms / 120 ms (adjustable)
typ. ± 0.1 K (Pt 100 with 4-conductor connection)

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
215 g
53.6 mm / 126.1 mm / 54 mm

Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 160 mA

24 V DC
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage
Transient protection

2-conductor (shielded, twisted pair)
4 + 1 (4 inputs for thermocouples or linear voltage,
plus 1 input -5 V to +5 V)
Short-circuit protection, overload protection of the inputs
Transient protection of inputs

Pt 100 (2 external cold junctions, can also be used as a sensor input)

-
-100 mV ... 100 mV

16 bits (15 bits + sign bit)
40 ms / 60 ms / 100 ms / 120 ms (adjustable)
typ. ± 0.19 K (thermocouple type K, plus tolerance of cold junction)

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
144 g
35 mm / 126.1 mm / 54 mm

Technical data

Axioline F local bus
Bus base module

5 V DC (via bus base module)
max. 180 mA

24 V DC
Surge protection of the supply voltage
Polarity reversal protection of the supply voltage
Transient protection

2-conductor (shielded, twisted pair)
8 + 1 (8 inputs for thermocouples or linear voltage,
plus 1 input -5 V to +5 V)
Short-circuit protection, overload protection of the inputs
Transient protection of inputs

Pt 100 (4 external cold junctions, can also be used as a sensor input)

U, T, L, J, E, K, N, S, R, B, C, W, HK
-
-100 mV ... 100 mV

16 bits (15 bits + sign bit)
40 ms / 60 ms / 100 ms / 120 ms (adjustable)
typ. ± 0.19 K (thermocouple type K, plus tolerance of cold junction)

Push-in connection
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
203 g
53.6 mm / 126.1 mm / 54 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F RTD8 S 1F	2702120	1

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F UTH4 1H	2688598	1

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F UTH8 1F	2688417	1
AXL F UTH8 XC 1F	2702464	1

Accessories

AXL F BS F	2688129	5
AXL SHIELD SET	2700518	1

Accessories

AXL F BS H	2700992	5
AXL SHIELD SET	2700518	1

Accessories

AXL F BS F	2688129	5
AXL SHIELD SET	2700518	1

Serial communication module

This module is designed for use within an Axioline F station.

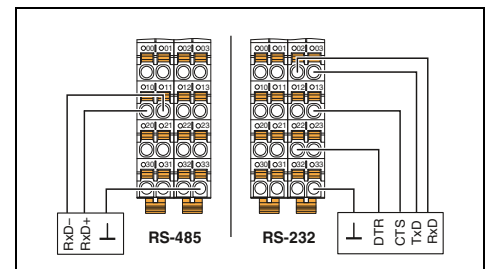
It is used to connect devices with a serial interface, e.g., bar code scanners.

Features:

- Baud rates of up to 250 kbaud
- Communication via acyclic services or process data
- Support of various protocols (e.g., end-to-end protocol)
- 5 RS-232 hardware handshake signals with status indication via LEDs
- Integrated RS-485/RS-422 termination resistor
- Stored device rating plate



1 serial input and output channel as RS-485/RS-422 or RS-232 version



Local bus interface	Axioline F local bus
Designation	Bus base module
Connection method	
Serial port	RS-232, RS-485, RS-422
Interface	Push-in connection
Connection method	
Power supply for module electronics	5 V DC (via bus base module)
Communications power U _{Bus}	typ. 200 mA
Current consumption from U _{Bus}	
Serial input/output channel	4 kByte
Input buffer	1 kByte
Output buffer	110 bps ... 250 kbps (can be parameterized)
Transmission speed	5 ... 8
Data bits	1 or 2
Stop bits	Even, odd or no parity
Parity	Transparent mode, end-to-end mode, XON/XOFF, Modbus/RTU
Transmission type	
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	135 g
Dimensions	35 mm / 126.1 mm / 54 mm

Ordering data		
Type	Order No.	Pcs./Pkt.
AXL F RS UNI 1H	2688666	1
AXL F RS UNI XC 1H	2702006	1

Accessories		
AXL F BS H	2700992	5
AXL SHIELD SET	2700518	1

Description	
Axioline F communication module, complete with accessories (bus base module)	
- 1 serial input and output channel as RS-485/RS-422 or RS-232 version	
- For extended temperature range of -40°C ... +70°C	

Axioline F bus base module (replacement part)	
Axioline shield connection set	

IO-Link master module

This module is designed for use within an Axioline F station.

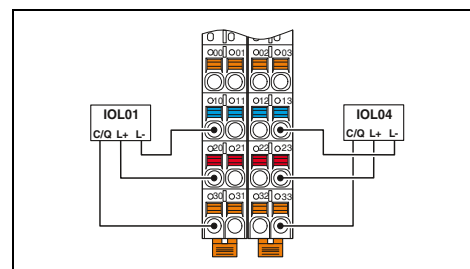
The IO-Link master enables the operation of up to eight IO-Link devices. Alternatively, you can connect a standard sensor or actuator to each port. Connected IO-Link devices can be parameterized easily and conveniently using the IOL-CONF parameterization software.

Features:

- Connection of eight IO-Link devices
- Alternatively: connection of one digital sensor or actuator per port
- Connection of IO-Link devices in 3-conductor technology
- Connection of sensors in 3-conductor technology
- Connection of actuators in 2-conductor technology
- Parameter data storage on the master
- IO-Link specification V1.1.2
- Stored device rating plate

 **IO-Link**


8 IO-Link ports



Technical data

Local bus interface	
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{Bus}	5 V DC (via bus base module)
Current consumption from U_{Bus}	max. 50 mA
IO-Link ports	
Connection technology	3-conductor
Number of ports	8 (Class A)
IO-Link port supply L+	
Nominal voltage for I/O supply	24 V DC
Nominal current per IO-Link port	200 mA (at C/Q) 1 A (at L+/L-)
Digital inputs in the SIO mode	
Connection technology	3-conductor
Number of inputs	max. 8 (EN 61131-2 type 1)
Nominal input voltage U_{IN}	24 V DC
Sensor current per channel	max. 1 A (from L+/L-)
Digital outputs in the SIO mode	
Connection technology	2-, 3-conductor
Number of outputs	max. 8
Nominal output voltage	24 V DC
Nominal current per channel	200 mA
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	162 g
Dimensions	35 mm / 129.9 mm / 54 mm

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Axioline F IO-Link master , complete with accessories (bus base module)	AXL F IOL8 2H	1027843	1

Accessories

Axioline F bus base module (replacement part)	AXL F BS H	2700992	5
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Pulse width module

new

The module is designed for use within an Axioline F station.

Two channels that operate independently of one another offer the option of pulse width modulation (PWM) for the output signals.

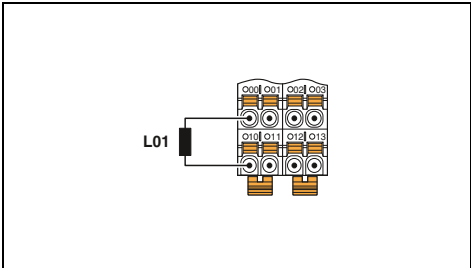
The module supports PWM mode and pulse generator mode.

Features:

- 2 independent channels
- Output of 5 V or 24 V signals
- Push-pull output
- Pulse generator
- Nominal current per output: 500 mA for 24 V output
- Resolution of the frequency output can be set: 1 Hz, 0.1 Hz, 0.01 Hz
- Stored device rating plate



Pulse width modulation, frequency generator or pulse/direction signal output



Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U _{Bus}	5 V DC (via bus base module)
Current consumption from U _{Bus}	max. 150 mA
PWM output	
Connection technology	2-conductor (shielded, twisted pair)
Number of outputs	2
Nominal output voltage	24 V (U _O - 1.1 V)
	5 V DC
Nominal current	max. 500 mA (at 24 V DC)
	max. 10 mA (at 5 V DC)
Frequency range	0 Hz ... 65535 Hz
Pulse duty factor	0% ... 100%
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
Weight	130 g
Dimensions	35 mm / 126.1 mm / 54 mm

Technical data

Axioline F local bus		
Bus base module		
5 V DC (via bus base module)		
max. 150 mA		
2-conductor (shielded, twisted pair)		
2		
24 V (U _O - 1.1 V)		
5 V DC		
max. 500 mA (at 24 V DC)		
max. 10 mA (at 5 V DC)		
0 Hz ... 65535 Hz		
0% ... 100%		

Description	
Axioline F function module	
Axioline F bus base module (replacement part)	
Axioline shield connection set	

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F PWM2 1H	1007352	1

Accessories

AXL F BS H	2700992	5
AXL SHIELD SET	2700518	1

Power measurement module

The module is designed for use within an Axioline F station.

The power measurement module is used for direct measurement of AC currents up to 5 A, including neutral conductor current and phase conductor voltages up to 400 V AC (phase to neutral conductor) or outer conductor voltages up to 690 V AC (phase to phase).

The module is used to analyze AC networks. For example, you can use it in distribution systems to measure current, voltage, and power, and to identify distortions and harmonics.

You can use the power measurement module in two operating modes.

In “r.m.s. values” mode, the module acquires mains variables in three-phase mains. Mains variables are phase currents, neutral conductor current, phase and outer conductor voltages, real power, reactive power, and apparent power as well as the power factors of phases, energy flow directions, and frequency.

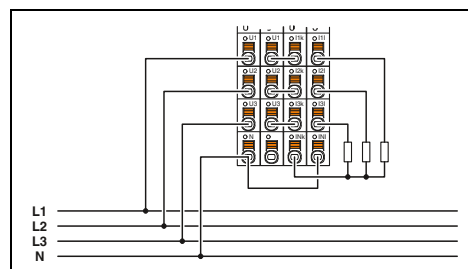
In “instantaneous values” mode, the module acquires the instantaneous (scanning) values of a measuring signal. This measuring mode is used to analyze the waveform of the measuring signal.

Features:

- 4 inputs, 0 A AC ... 5 A AC for phase currents and neutral conductor current
- 3 inputs for outer conductor voltages up to 690 V AC, direct connection supported
- Harmonic analysis
- Determination of maximum value
- Power meter
- Process data update < 500 µs
- Stored device rating plate



Analysis of AC networks



Technical data

Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{Bus}	5 V DC (via bus base module)
Current consumption from U_{Bus}	max. 200 mA
Current measuring input	
Number of inputs	4
Nominal current range	0 A AC ... 5 A AC
Overload	1.4 times continuous; 150 A for 10 ms
Precision	0.25% (of the nominal value)
Scanning rate	8k samples/s
Voltage measuring input	
Number of inputs	3
Nominal voltage range	0 V AC ... 690 V AC (conductor-conductor, chained) 0 V AC ... 400 V AC (conductor to neutral conductor, not phase to phase)
Overload	1.2 times the nominal value
Precision	0.25% (of the nominal value)
Scanning rate	8k samples/s
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	1.5 / 1.5 / 16
Weight	245 g
Dimensions	53.6 mm / 126.1 mm / 65.5 mm
EMC note	Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F PM EF 1F	2702671	1

Accessories

AXL F BS F	2688129	5
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Description

Axioline F power measurement module,
complete with accessories (bus base module)

Axioline F bus base module (replacement part)

Function/position detection module

This module is designed for use within an Axioline F station.

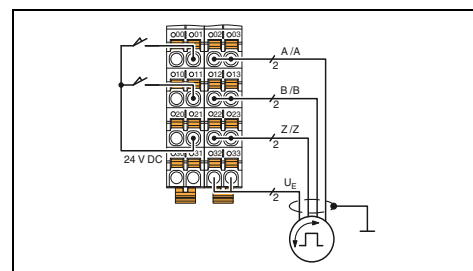
It is used for counting pulses and for position detection using incremental encoders.

Features:

- Two counter inputs (32-bit)
- Two incremental encoder interfaces (32-bit)
- Symmetrical or asymmetrical encoders can be connected
- Maximum frequency of 300 kHz
- Eight digital inputs (gate, direction signal, latch, home position switch)
- Two digital outputs
- 5 V and 24 V sensor/encoder supply
- Encoder monitoring
- Rotary axis function
- Ten homing methods
- Stored device rating plate



**2 counter inputs,
2 incremental encoder interfaces**

**Technical data**

Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{Bus}	5 V DC (via bus base module)
Current consumption from U_{Bus}	max. 120 mA
I/O supply	
Supply of digital input modules U_i	24 V DC
Supply voltage range U_i	19.2 V DC ... 30 V DC including all tolerances, including ripple
Protective circuit	Surge protection of the supply voltage Polarity reversal protection of the supply voltage
Counter input	
Number of inputs	2 (S1, S2)
Input frequency	max. 300 kHz (1 channel wired)
Input voltage	24 V DC
Encoder inputs	
Number of inputs	2 (A1, /A1, B1, /B1, Z1, /Z1; A2, /A2, B2, /B2, Z2, /Z2)
Encoder signals	Symmetrical and asymmetrical encoders
Input frequency	max. 300 kHz (1 channel wired)
Digital inputs	
Connection technology	1-conductor (optional: 2-, 3-conductor)
Number of inputs	8 (CNT: G1, G2, Dir1, Dir2; INC: Ref1, Ref2, L1, L2)
Description of the inputs	EN 61131-2, type 3
Nominal input voltage U_{IN}	24 V DC
Nominal input current at U_{IN}	2.5 mA (per channel)
Digital outputs	
Number of outputs	2 (Out1, Out2)
Output voltage	24 V DC
Maximum output current per channel	500 mA
Protective circuit	Short-circuit protection, overload protection of the outputs
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	205 g
Dimensions	53.6 mm / 126.1 mm / 54 mm

Ordering data

Type	Order No.	Pcs./Pkt.
AXL F CNT2 INC2 1F	2688093	1
AXL F CNT2 INC2 XC 1F	2701239	1

Accessories

AXL F BS F	2688129	5
AXL SHIELD SET	2700518	1

AXIOLINE F bus base module (replacement part)
AXIOLINE shield connection set

Position detection module

This module is designed for use within an Axioline F station.

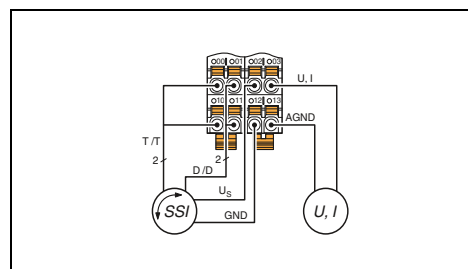
This module enables you to record data from absolute encoders with SSI interface.

Features:

- Position detection using absolute encoders with SSI interface
- Encoder resolution up to 56 bits
- Transmission frequency of up to 2 MHz
- Gray or binary code
- Reversal of direction of rotation
- Synchronized transmission of encoder values
- Detailed encoder diagnostics
- 16-bit resolution of the analog output value
- D/A conversion time typically 5 μ s
- Stored device rating plate



1 SSI interface for absolute encoder,
1 analog output



Technical data

Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{Bus}	5 V DC (via bus base module)
Current consumption from U_{Bus}	max. 140 mA
I/O supply	
Supply U_i	24 V DC
Protective circuit	Surge protection Reverse polarity protection Transient protection
Encoder inputs	
Input name	SSI interface
Number of inputs	1
Transmission frequency	2 MHz
Adjustable resolution	8 ... 56 bit
Analog outputs	
Connection technology	2-conductor (shielded, twisted pair)
Number of outputs	1
Voltage output signal	0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
Current output signal	0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA
Load/output load current output	max. 500 Ω
Protective circuit	Surge protection Short-circuit and overload protection Transient protection
Precision	typ. 0.1% (of output range final value)
Characteristics	
Representation of output values	16 bits (15 bits + sign bit)
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	135 g
Dimensions	35 mm / 126.1 mm / 54 mm

Ordering data		
Type	Order No.	Pcs./Pkt.
AXL F SSI1 AO1 1H	2688433	1
Accessories		
AXL F BS H	2700992	5
AXL SHIELD SET	2700518	1

Description	
Axioline F function module	
Axioline F bus base module (replacement part)	
Axioline shield connection set	

Position detection module

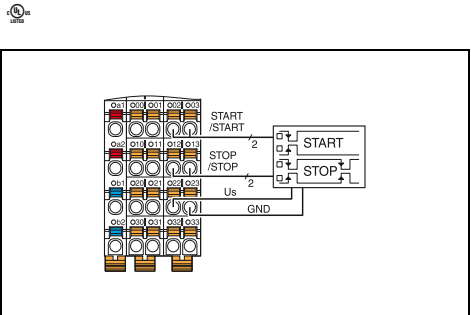
This module is designed for use within an Axioline F station.
It is used to evaluate magnetostrictive position sensors with a start/stop interface.

Features:

- 2 channels for magnetostrictive position sensors with start/stop interface
- 5 stop events per channel
- Automatic parameter upload
- 4 digital inputs
- Can be used under extreme ambient conditions
- Extended temperature range (-40°C ... +70°C)
- Stored device rating plate



2 digital pulse interfaces for evaluating magnetostrictive position sensors



Local bus interface	
Designation	Axioline F local bus
Connection method	Bus base module
Power supply for module electronics	
Communications power U_{Bus}	5 V DC (via bus base module)
Current consumption from U_{Bus}	max. 150 mA
I/O supply	
Supply of digital input modules U_i	24 V DC
Supply voltage range U_i	19.2 V DC ... 30 V DC including all tolerances, including ripple
Protective circuit	
	Surge protection of the supply voltage
	Polarity reversal protection of the supply voltage
	Transient protection
Input for magnetostrictive encoders	
Encoder length range	50 mm ... 10 m
Resolution (measuring length)	1 μ m
Ultrasonic speed (gradient)	2400 m/s ... 3100 m/s
Digital inputs	
Connection technology	1-conductor
Number of inputs	4
Description of the inputs	EN 61131-2 types 1 and 3
Nominal input voltage U_{IN}	24 V DC
Nominal input current at U_{IN}	2.4 mA
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	135 g
Dimensions	35 mm / 126.1 mm / 54 mm

Technical data		
Axioline F local bus		
Bus base module		
5 V DC (via bus base module)		
max. 150 mA		
24 V DC		
19.2 V DC ... 30 V DC including all tolerances, including ripple		
Surge protection of the supply voltage		
Polarity reversal protection of the supply voltage		
Transient protection		
50 mm ... 10 m		
1 μ m		
2400 m/s ... 3100 m/s		
1-conductor		
4		
EN 61131-2 types 1 and 3		
24 V DC		
2.4 mA		
Push-in connection		
0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16		
135 g		
35 mm / 126.1 mm / 54 mm		

Description	
Axioline F position detection module, complete with accessories (bus base module) - For extended temperature range of -40°C ... +70°C	
Axioline F bus base module (replacement part)	
Axioline shield connection set	

Ordering data		
Type	Order No.	Pcs./Pkt.
AXL F IMPULSE2 XC 1H	2702655	1
Accessories		
AXL F BS H	2700992	5
AXL SHIELD SET	2700518	1

Strain gauge capture module

This module is designed for use within an Axioline F station.

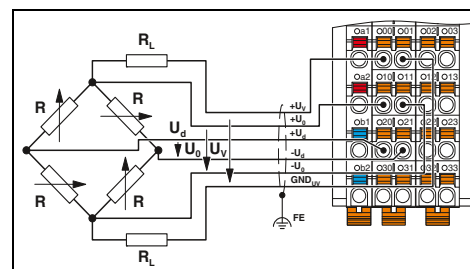
The module is used to evaluate strain gauges that may be located in weighing cells or load cells, for example. The strain gauges can be connected using 6-conductor or 4-conductor technology.

Features:

- 2 high-precision inputs for strain gauges
- Measuring ranges adjusted with nominal characteristic values upon delivery
- Manual entry of characteristic values
- Process data update can be parameterized in increments between 200 μ s and 100 ms
- Path adjustment in the process environment
- 2-point adjustment
- Advanced open-circuit detection
- Sensor supply of up to 115 mA (8 load cells with 350 Ω per channel)
- Each channel: low-impedance, floating N/O contact
- The channels are parameterized independently of one another via the bus system
- Stored device rating plate



2 high-precision inputs



Technical data

Local bus interface	Bus base module
Connection method	
Power supply for module electronics	5 V DC (via bus base module)
Communications power U_{Bus}	max. 75 mA
Current consumption from U_{Bus}	
I/O supply	24 V DC
Supply for analog modules (U_A)	
Analog inputs	6- or 4-wire, twisted pair shielded cable
Connection technology	
Number of inputs	2
Description of the inputs	Input channels for strain gauge
Bridge difference U_d	Measuring range specified by selecting the characteristic
Bridge voltage U_o	5 V
Analog outputs	
Description of the outputs	Jumper supply
Number of outputs	2
Impedance	> 43 Ω (per channel)
Output current	max. 115 mA (per channel)
Characteristics	can be parameterized: 350 μ V/V ... 6500 μ V/V
Unipolar	32 bits
Measured value representation	can be parameterized: 200 μ s, 500 μ s, 1 ms, 2 ms, 5 ms, 10 ms, 12.5 ms, 20 ms, 50 ms, 100 ms
Process data update	
General data	
Connection method	Push-in connection
Connection data rigid / flexible / AWG	0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16
Weight	150 g
Dimensions	35 mm / 126.1 mm / 54 mm

Ordering data		
Type	Order No.	Pcs./Pkt.
AXL F SGI2 1H	2702911	1
Accessories		
AXL F BS H	2700992	5
AXL SHIELD SET	2700518	1

Description
Axioline F strain gauge capture module, complete with accessories (bus base module)
Axioline F bus base module (replacement part)
Axioline shield connection set



The Axioline P modular proxy connects PROFIBUS PA segments directly to a PROFINET network.

The modular station communicates with a PROFINET controller, e.g., a distributed control system (DCS), via a bus coupler. As an option, you can connect up to eight PROFIBUS PA segments to the individual proxy outlets in a compact way. To ensure the individual segments are immune to interference, appropriate shield connection technology is available.

FDT/DTM technology simplifies the startup and device management of the proxy station, which is fully integrated into higher-level control systems, and of the connected PROFIBUS PA devices.

PROFINET redundancy

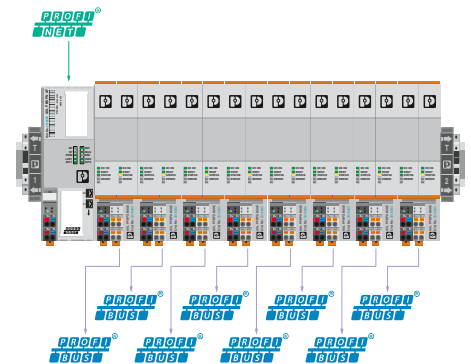
The AXL P BK PN AF PROFINET bus coupler supports the specification for the implementation of S2 system redundancy using a single bus coupler. Two bus couplers are required in order to satisfy PROFINET system redundancy R1 and R2. The hot-swap capability integrated in the bus coupler ensures high system availability.

PROFIBUS PA power supply

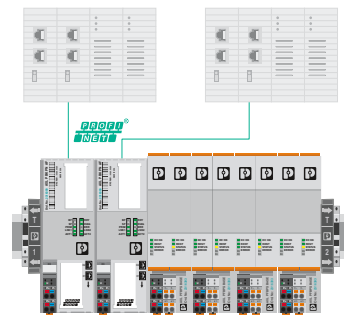
You can supply the PROFIBUS PA segment with power using a single fieldbus power supply module. High failsafe performance and process reliability can be achieved by installing two power supply modules in a single base and thus supplying a PROFIBUS PA segment redundantly. The local LED indicator on the power supply module provides the status of the module and redundancy.

Cost-effective system modernization

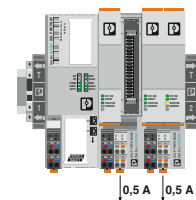
PROFIBUS PA sensors can be connected directly to the modular Axioline P proxy. Proven fieldbus technology, such as HART or Modbus/RTU, can therefore be integrated into PROFINET networks via PROFIBUS PA gateways that are connected to the modular Axioline P proxy.



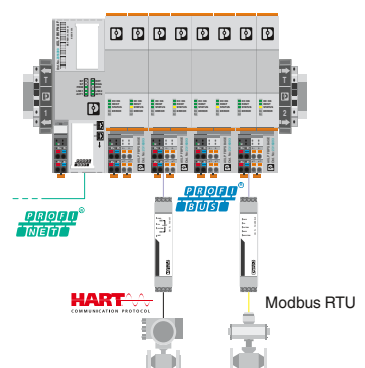
Up to eight PROFIBUS PA segments per station



Support of PROFINET system redundancy S2, R1, and R2



Up to two power supplies per PROFIBUS PA segment



Integration of proven fieldbus technology in PROFINET networks

Product overview

Bus coupler	Fieldbus power supply base	Fieldbus power supply
		
98	99	99

General technical data

Ambient conditions

Temperature range (operation)
Relative humidity
(operation/storage/transport)
Vibration
Shock
Continuous shock
Maximum altitude (operation)
Degree of protection

-40°C ... +65°C

5% to 95% (non-condensing)

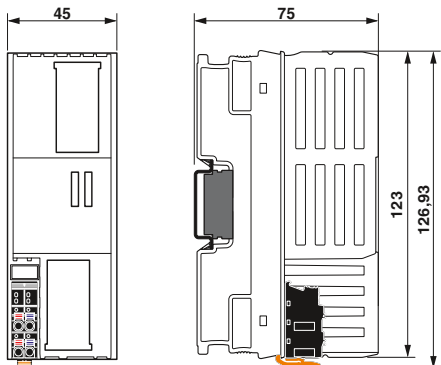
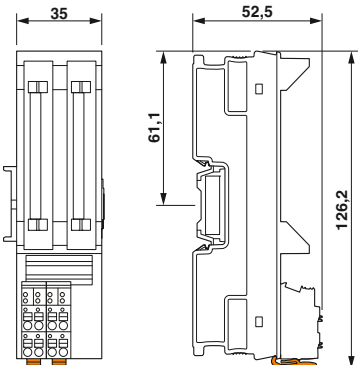
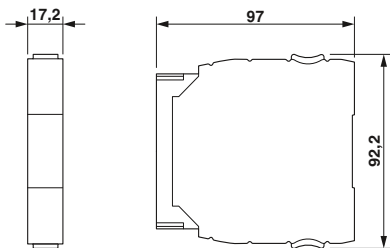
5g in accordance with EN 60068-2-6 / IEC 60068-2-6
30g in accordance with EN 60068-2-27 / IEC 60068-2-27
10g in accordance with EN 60068-2-27 / IEC 60068-2-27
2000 m
IP20

Electromagnetic compatibility

Noise immunity

In accordance with NE 021

Housing types and dimensions

Bus coupler	Fieldbus power supply base	Fieldbus power supply
		

Bus coupler

In conjunction with a fieldbus power supply base and at least one fieldbus power supply, the AXL P BK PN AF Axioline P bus coupler for PROFINET creates a modular proxy for connecting PROFIBUS PA segments to a PROFINET network.

The bus coupler supports PROFINET system redundancy S2, R1, and R2, and is hot swappable during operation with two bus couplers. Parameterization, configuration, and diagnostics of the modular proxy are conveniently carried out via FDT/DTM.

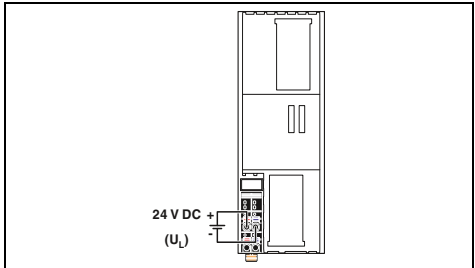
Features:

- 2 Ethernet ports with integrated switch
- PROFINET RT support
- Support of PROFINET system redundancy S2, R1, and R2
- Supports up to 8 PROFIBUS PA segments (in conjunction with a fieldbus power supply base and at least one fieldbus power supply)
- Supports PROFIBUS PA profile 4.0
- Alarm behavior in accordance with NE 107

Interface	
Fieldbus system	
Connection method	
Number	
Transmission speed	
Transmission distance	
Protocols supported	
Local bus interface	
Designation	
Connection method	
Power supply for module electronics	
Supply of communications power U_L	
Maximum permissible voltage range	
Communications power U_{BUS}	
Current supply at U_{BUS}	
Protective circuit	
General data	
Connection method	
Connection data rigid / flexible / AWG	
Weight	
Dimensions	W / H / D
EMC note	

Description
Axioline P bus coupler - For PROFINET, extended functionality

Axioline P bus base module (replacement part)
Axioline P local bus terminator (set)



Technical data	
PROFINET	
RJ45 socket, auto negotiation and auto crossing	
2	
100 Mbps (full duplex)	
max. 100 m	
PROFINET	
Axioline P local bus	
Bus base module	
24 V DC	
10 V DC ... 32 V DC	
5 V DC (via bus base module)	
2 A	
Surge protection of the supply voltage	
Polarity reversal protection of the supply voltage	
Push-in connection	
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16	
249 g	
45 mm / 126.93 mm / 75 mm	
Class A product, see page 527	

Ordering data		
Type	Order No.	Pcs./Pkt.
AXL P BK PN AF	2316390	1

Accessories		
AXL P BS 45	2316397	1
AXL P TERM PAIR	2316402	1

new

- Redundant power supplies, hot swappable



Fieldbus power supply base



Fieldbus power supply

			Technical data			Technical data		
Interface								
Designation			AxioLine P local bus			-		
Connection method			Bus base module			-		
Input data								
Nominal input voltage range			-			18.5 V DC ... 30.5 V DC		
Nominal current range			-			500 mA ... 1.35 A		
Output data								
Output voltage range			-			28 V DC ... 30 V DC (on the trunk)		
Output current			-			500 mA		
Max. power dissipation			-			2.5 W (typical)		
Signaling								
Signaling DC OK			-			Green LED		
Signaling alarm			-			Red LED		
Redundancy indication OK			-			Green LED		
Status indication			-			Green LED		
General data								
Dimensions			W / H / D			17 / 92 / 97 mm		
Degree of protection			IP20			IP20		
Ambient temperature (operation)			-40°C ... 65°C (mounting position: wall mounting on horizontal DIN rail)			-40°C ... 65°C		
Ambient temperature (storage/transport)			-40°C ... 85°C			-40°C ... 85°C		
Conformance/approvals								
ATEX			ⓘ II 3 G Ex ec IIC T4 Gc IBExU 18ATEXB018X			ⓘ II 3 G Ex ec IIC T4 Gc		
IECEx			Ex ec IIC T4 Gc IECEx IBE 18.0023X			Ex ec IIC T4 Gc		
UL, USA/Canada			Class I, Div. 2, Groups A, B, C, D T4 Class I, Zone 2, IIC T4			Class I, Div. 2, Groups A, B, C, D T4 Class I, Zone 2, IIC T4		
			Ordering data			Ordering data		
Description			Type	Order No.	Pcs./Pkt.	Type	Order No.	Pcs./Pkt.
AxioLine P fieldbus power supply base								
AxioLine P fieldbus power supply			AXL P FBPS BASE	2316393	1			
						AXL P FBPS 28DC/0.5A		
						2316394		
						1		
			Accessories			Accessories		
AxioLine P bus base module (replacement part)			AXL P BS 35	2316396	1			

I/O systems

For the control cabinet (IP20) – Inline

Product overview

Bus couplers

	EtherCAT	EtherNet/IP	Modbus/TCP (UDP)	SERCOS the automation bus	PROFINET	CANopen
	102	103	103	103	105	106
	INTERBUS	Modbus/RTU	PROFIBUS	MUX		
	107	108	109	109		

Inline controllers

	Class 100
	48

Adapter terminal

	For connecting Inline I/Os to PLCnext Control AXC F 2152
	12

Power, segment, and accessory terminals

	Power terminals			Boost terminals	Segment terminals	Potential distribution terminals	
	24 V DC	120 V AC	230 V AC		24 V DC	24 V DC	GND
	110	111	111	112	114	115	115

Inline ECO

	Digital input	Digital output	Analog input	Analog output	Temperature measurement	Function terminals
	8 channels	4 - 8 channels	4 channels	4 channels	UTH / RTD	Communication
	117	117	118	118	119	120

Input and output terminals

	Digital input	Digital output	Analog input	Strain gauge	Analog output	Temperature measurement
	1 - 32 channels	1 - 32 channels	2 - 8 channels	2 channels	1 - 8 channels	UTH / RTD / TC
	122	128	134	138	142	140

Intrinsically safe terminals (Ex i)

	PWR	DIO	AIO	TEMP
	24 V	4 / 4 channels	4 / 4 channels	4 channels (RTD/TC)
	144	145	145	145

Safe I/Os

	SafetyBridge Technology	PROFIsafe
	265	268

Function terminals

	Branch	Communication	Counter / PWM	Position detection and position controller
	146	148	153	156

Power-level terminals

	Servo amplifier Direct starter Reversing-load starter
	159

General accessories

						
IB IL FIELD ... Marking fields	ESL 62X... Marking sheets	ZBF 6-... Zack marker strip labeling	IL CP Coding profile	CLIPFIX 35-5 Standard end bracket	FLKM 14-PA-INLINE/... VARIOFACE front adapter	I-L ATP GN End cover plate

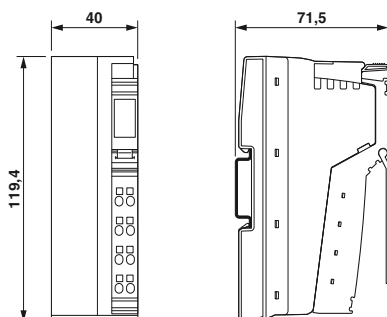
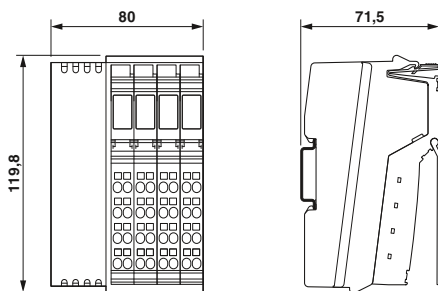
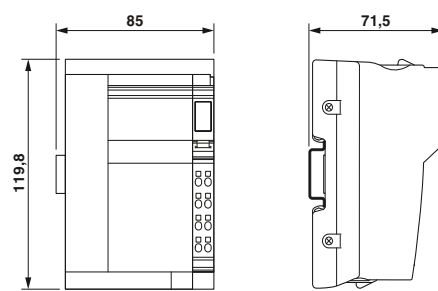
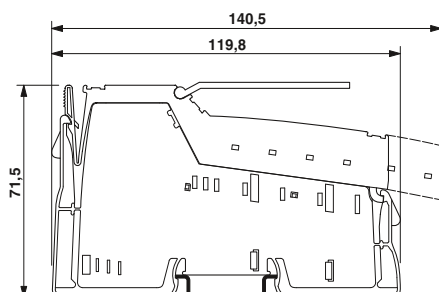
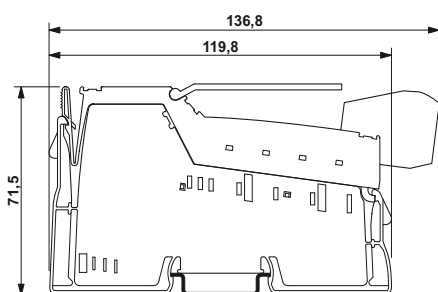
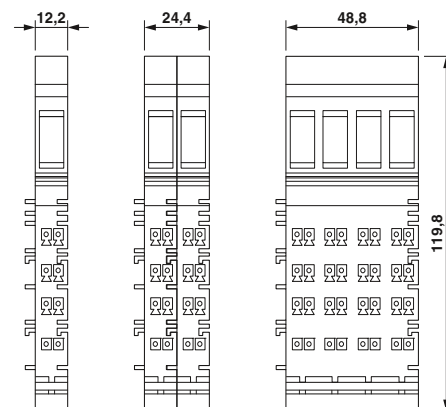
phoenixcontact.net/products

General technical data**Ambient conditions**

Operating temperature range	-25°C ... +55°C
- ECO terminals	0°C ... +55°C
- Extended (...-XC modules)	-40°C ... +70°C
Relative humidity (operation)	5% to 95% (non-condensing)
Relative humidity (storage)	5% to 95% (non-condensing)
Vibration	5g, 2 hours in each space direction in accordance with IEC 60068-2-6
Shock	25g, over 11 ms in accordance with IEC 60068-2-6
Degree of protection	IP20 (in accordance with IEC 60529)

Electromagnetic compatibility

Noise emission	EN 61000-6-3
Noise immunity	EN 61000-6-2

Housing types and dimensions**Bus couplers****BK housing****BK IO housing****Container housing****I/O terminals****Electronics base with standard and double signal connector****Electronics base with shield plug****Terminal widths**

Bus couplers

The Inline bus couplers are the link between the Inline I/O system and the higher-level network.

Features:

- Up to 63 terminals (maximum of 16 PCP devices) can be connected

EtherCAT® features:

- Automatic addressing
- Station mapped as a modular EtherCAT® device using the Modular Device Profile (MDP)
- Acyclic data communication with mailbox protocols
- SafetyBridge V3 supported
- Firmware can be updated

EtherNet/IP™ features:

- Version 1.2
- Web-based management

Modbus/TCP (UDP) features:

- Auto negotiation
- Autocrossing
- Software interfaces for access via TCP/IP:
 - Device Driver Interface (DDI)
 - High-Level Language Fieldbus Interface (HFI)
- Web-based management

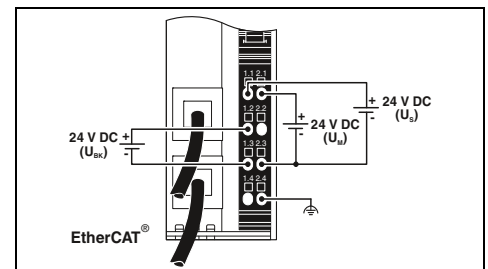
Sercos® features:

- Sercos specification V1.1.2
- Minimum Sercos cycle time of 250 µs
- FSP-IO (Function Specific Profile-IO) for modular I/O devices
- Maximum of 6 real-time connections

EtherCAT®



RJ45 connection

**Technical data**

EtherCAT®
RJ45 socket
100 Mbps (full duplex)

Inline data jumper
max. 63

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

0.9 A
max. 0.8 A
max. 0.5 A DC

-
-
-
-
-

-
-
-
-

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
40 mm / 119.4 mm / 71.5 mm
-25°C ... 55°C
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IL EC BK-PAC	2702507	1

Accessories

IB IL SCN-PWR IN-CP	2727637	10
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Interface	
Fieldbus system	
Connection method	
Transmission speed	
Local bus interface	
Connection method	
Number of local bus devices that can be connected	
Power supply for module electronics	
Supply voltage	
Supply voltage range	
Max. current consumption	
Power supply at U_L	
Power supply at U_{ANA}	
Digital inputs	
Connection technology	
Number of inputs	
Description of the inputs	
Typical response time	
Protective circuit	
Digital outputs	
Connection technology	
Number of outputs	
Maximum output current per channel	
Protective circuit	
General data	
Connection method	
Connection data rigid / flexible / AWG	
Dimensions	W / H / D
Ambient temperature (operation)	
EMC note	

Description
Bus coupler , complete with accessories (connector and marking field)
- For extended temperature range of -40°C ... +70°C

Connector

EtherNet/IP



RJ45 connection,
8 digital inputs and 4 digital outputs

Modbus/TCP (UDP)



RJ45 connection,
8 digital inputs and 4 digital outputs

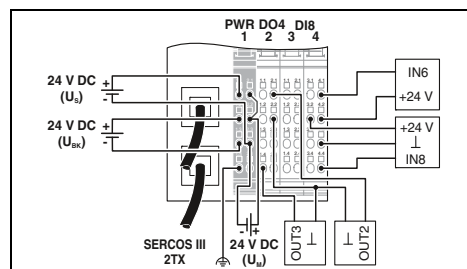
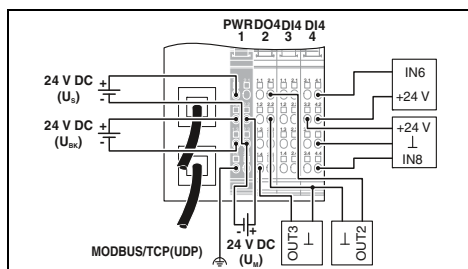
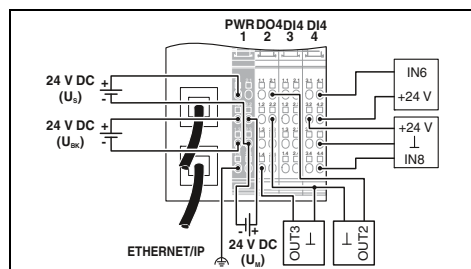
SERCOS
the automation bus

RJ45 connection,
8 digital inputs and 4 digital outputs

UL
Ex:

UL
Ex:

UL
Ex:



Technical data

EtherNet/IP™
RJ45 socket
10/100 Mbps (half or full duplex (automatic detection))

Inline data jumper
max. 61 (on board I/Os are two devices)

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

0.98 A
max. 0.8 A DC
max. 0.5 A DC

3-conductor
8
EN 61131-2 type 1
approx. 500 µs
Reverse polarity protection

3-conductor
4
500 mA
Short-circuit and overload protection

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
80 mm / 119.8 mm / 71.5 mm
-25°C ... 60°C
Class A product, see page 527

Technical data

Modbus/TCP (UDP)
RJ45 socket
10/100 Mbps

Inline data jumper
max. 61 (on board I/Os are two devices)

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

0.98 A
max. 0.8 A DC
max. 0.5 A DC

3-conductor
8
EN 61131-2 type 1
approx. 500 µs
Reverse polarity protection

3-conductor
4
500 mA
Short-circuit and overload protection

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
80 mm / 119.8 mm / 71.5 mm
-25°C ... 55°C
Class A product, see page 527

Technical data

Sercos
RJ45 socket
100 Mbps

Inline data jumper
max. 61 (on board I/Os are two devices)

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

1.05 A
max. 0.8 A DC
max. 0.5 A DC

3-conductor
8
EN 61131-2 type 1
approx. 500 µs
Reverse polarity protection

3-conductor
4
500 mA
Short-circuit and overload protection

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
80 mm / 119.8 mm / 71.5 mm
-25°C ... 60°C
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IL EIP BK DI8 DO4 2TX-PAC	2897758	1
IL EIP BK DI8 DO4 2TX-XC-PAC	2702131	1

Accessories

IL BKDIO-PLSET	2878599	1
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Ordering data

Type	Order No.	Pcs./Pkt.
IL ETH BK DI8 DO4 2TX-PAC	2703981	1
IL ETH BK DI8 DO4 2TX-XC-PAC	2701388	1

Accessories

IB IL SCN-8-CP	2727608	10
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Ordering data

Type	Order No.	Pcs./Pkt.
IL S3 BK DI8 DO4 2TX-PAC	2692380	1

Accessories

IL BKDIO-PLSET	2878599	1
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Bus couplers

The Inline bus couplers are the link between the Inline I/O system and the higher-level network.

Features:

- Up to 63 terminals (maximum of 16 PCP devices) can be connected

PROFINET features:

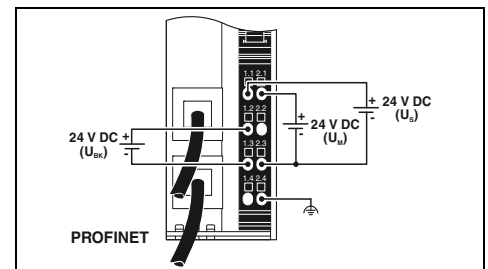
- Conformance with PROFINET specification V2.3
- 2 RJ45 or 2 SC-RJ connections
- IP parameters can be set via PROFINET controller
- Electrical isolation between Ethernet interface and logic
- Automatic data rate detection in the local bus (500 kbps or 2 Mbps)
- Automatic speed detection of the system bus

Additional features of IL PN BK-PAC:

- Support for 3 branch terminals as remote bus branch (4 levels)
- Compact station structure, thanks to 40 mm housing width, saves space in the control cabinet




RJ45 connection

**Technical data**

Interface	
Fieldbus system	PROFINET
Connection method	RJ45 socket, auto negotiation
Transmission speed	100 Mbps (in acc. with PROFINET standard)
Local bus interface	
Connection method	Inline data jumper
Number of local bus devices that can be connected	max. 63
Power supply for module electronics	
Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (via Inline connector)
Max. current consumption	0.91 A DC
Power supply at U_L	max. 0.8 A DC
Power supply at U_{ANA}	max. 0.5 A DC
Digital inputs	
Connection technology	-
Number of inputs	-
Description of the inputs	-
Typical response time	-
Protective circuit	-
Digital outputs	
Connection technology	-
Number of outputs	-
Maximum output current per channel	-
Protective circuit	-
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.8 ... 1.5 mm ² / 0.8 ... 1.5 mm ² / 28 - 16
Dimensions	40 mm / 119.4 mm / 71.5 mm
Ambient temperature (operation)	-25°C ... 55°C (observe derating)
EMC note	

Ordering data

Description	Type	Order No.	Pcs./Pkt.
PROFINET bus coupler , complete with accessories (connector and marking field)	IL PN BK-PAC	2403696	1
Accessories			
Connector	IB IL SCN-PWR IN-CP	2727637	10

PROFINET



RJ45 connection,
8 digital inputs and 4 digital outputs

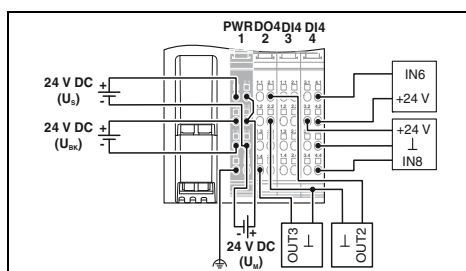
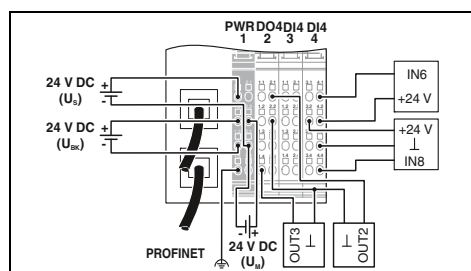
PROFINET



SC-RJ connection,
8 digital inputs and 4 digital outputs

Ex:

Ex:



Technical data

PROFINET
RJ45 socket, auto negotiation
100 Mbps (in acc. with PROFINET standard)

Inline data jumper
max. 61 (on board I/Os are two devices)

24 V DC
19.2 V DC ... 30 V DC (via Inline connector)

0.91 A DC
max. 0.8 A DC (observe derating)
max. 0.5 A DC (observe derating)

2-, 3-conductor
8
EN 61131-2 type 1
approx. 500 μ s
Reverse polarity protection

2-, 3-conductor
4
500 mA
Short-circuit and overload protection

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
80 mm / 119.8 mm / 71.5 mm
-25°C ... 55°C (observe derating)
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IL PN BK DI8 DO4 2TX-PAC	2703994	1

Accessories

IL BKDIO-PLSET	2878599	1
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Technical data

PROFINET
SC-RJ socket
100 Mbps (in acc. with PROFINET standard)

Inline data jumper
max. 61 (on board I/Os are two devices)

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

0.83 A DC
max. 0.8 A DC (observe derating)
max. 0.5 A DC (observe derating)

3-conductor
8
EN 61131-2 type 1
approx. 500 μ s
Reverse polarity protection

3-conductor
4
500 mA
Short-circuit and overload protection

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
80 mm / 119.8 mm / 71.5 mm
-25°C ... 55°C (observe derating)
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IL PN BK DI8 DO4 2SCRJ-PAC	2878379	1

Accessories

IL BKDIO-PLSET	2878599	1
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Bus couplers

The Inline bus couplers are the link between the Inline I/O system and the higher-level network.

Features:

- Up to 63 terminals (maximum of 16 PCP devices) can be connected

CANopen® features:

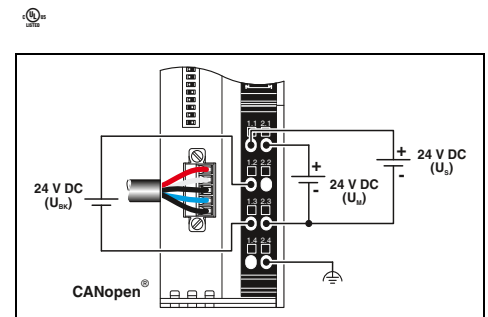
- Address can be set via DIP switches or software
- Supports two SDO servers simultaneously
- Trigger modes: event, timer, remote request
- Node and life guarding
- Heartbeat

Features of INTERBUS:

- Remote bus connections in copper or FO technology
- Electrical isolation of the remote bus segments
- Automatic configuration of the outgoing interface as a remote bus or local bus interface
- Support for up to 15 connected terminals with remote bus branch



MINI COMBICON connection

**Technical data**

Interface		
Fieldbus system		CANopen®
Connection method		MINI COMBICON
Transmission speed		1 Mbps, 800 kbps, 500 kbps, 250 kbps, 125 kbps, 50 kbps, 20 kbps, 10 kbps (can be set via DIP switch or automatic detection)
Local bus interface		
Connection method		Inline data jumper
Number of local bus devices that can be connected		max. 63
Maximum distance to the next remote bus device		-
Power supply for module electronics		
Supply voltage		24 V DC (via Inline connector)
Supply voltage range		19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Max. current consumption		0.9 A
Power supply at U _L		max. 0.8 A
Power supply at U _{ANA}		max. 0.5 A DC
General data		
Connection method		Spring-cage connection
Connection data rigid / flexible / AWG		0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Dimensions	W / H / D	40 mm / 119.4 mm / 71.5 mm
Ambient temperature (operation)		-25°C ... 55°C
EMC note		Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IL CO BK-PAC	2702230	1
IL CO BK-XC-PAC	2702635	1

Accessories

IB IL SCN-PWR IN-CP	2727637	10
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Description
Bus coupler , complete with accessories (connector and marking field)
- For extended temperature range of -40°C ... +70°C
- 45° angled fiber optic connection
- FO connection and FO remote bus branch
Connector



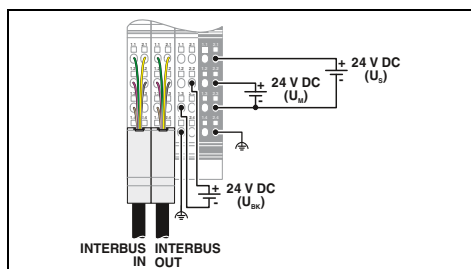
Inline shield connector connection



D-SUB connection



45° angled fiber optic connection



Technical data

INTERBUS
Inline shield connector
500 kbps

Inline data jumper
max. 63
400 m

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

1.25 A
max. 2 A DC (observe derating)
max. 0.5 A DC (observe derating)

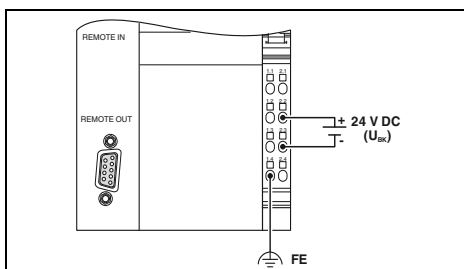
Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
48.8 mm / 135 mm / 71.5 mm
-25°C ... 55°C
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IBS IL 24 BK-T/U-PAC	2861580	1
IBS IL 24 BK-T/U-XC-PAC	2701150	1

Accessories

IB IL BK-PLSET/CP	2860374	1
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Technical data

INTERBUS
D-SUB-9 female/D-SUB-9 male
500 kbps

Inline data jumper
max. 63
400 m

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

1.25 A
max. 2 A DC (observe derating)
max. 0.5 A DC (observe derating)

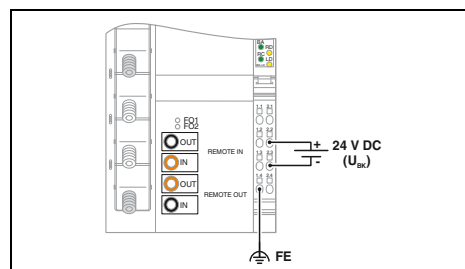
Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
85 mm / 119.8 mm / 71.5 mm
-25°C ... 55°C
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IBS IL 24 BK-DSUB-PAC	2861593	1

Accessories

IB IL SCN-8-CP	2727608	10
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Technical data

IBS IL 24 BK-LK/45-PAC IBS IL 24 BK RB-LK-PAC

INTERBUS
F-SMA connector
500 kbps

Inline data jumper
max. 63
400 m

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

1.25 A 1.3 A
max. 2 A DC (observe derating)
max. 0.5 A DC (observe derating)

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
85 mm / 119.8 mm / 71.5 mm
-25°C ... 55°C
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IBS IL 24 BK-LK/45-PAC	2862165	1
IBS IL 24 BK RB-LK-PAC	2861506	1

Accessories

IB IL SCN-8-CP	2727608	10
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Bus couplers

The Inline bus couplers are the link between the Inline I/O system and the higher-level network.

Bus coupler features:

- Up to 63 terminals (16 PCP devices) can be connected
- Address can be set via rotary coding or DIP switches

The **field multiplexer**, together with the connected I/O terminals, forms one station. A system consists of a station and remote station with complementary arrangement of the I/O terminals.

MUX features:

- Maximum of 32 terminals per station
- Up to 512 digital or 32 analog I/Os (or a mixture) can be connected

The digital and analog Inline I/O terminals which can be used on the field multiplexer are marked in this catalog with the adjacent logo.



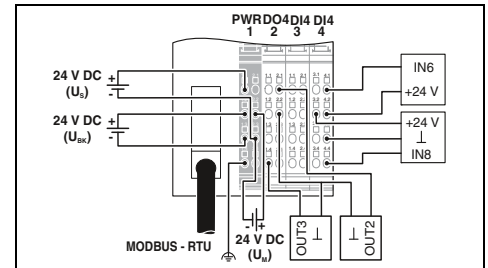
Notes:

You will find a multiplexer application on an SD card for configuring two ILC 131 ETH modular small-scale controllers as multiplexers in this catalog on page 55

Modbus/RTU



D-SUB connection, 8 digital inputs and 4 digital outputs



Technical data

Interface	Modbus/RTU
Fieldbus system	D-SUB-9 female connector
Connection method	1.2 kbps ... 115.2 kbps (can be parameterized)
Transmission speed	Inline data jumper
Local bus interface	max. 61 (on board I/Os are two devices)
Connection method	24 V DC (via Inline connector)
Number of local bus devices that can be connected	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Power supply for module electronics	0.98 A
Supply voltage	max. 0.8 A DC
Supply voltage range	max. 0.5 A DC
Max. current consumption	3-conductor
Power supply at U_L	8
Power supply at U_{ANA}	EN 61131-2 type 1
Digital inputs	approx. 500 μ s
Connection technology	Reverse polarity protection
Number of inputs	3-conductor
Description of the inputs	4
Typical response time	500 mA
Protective circuit	Short-circuit and overload protection
Digital outputs	Spring-cage connection
Connection technology	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Number of outputs	80 mm / 119.8 mm / 71.5 mm
Maximum output current per channel	-25°C ... 60°C
Protective circuit	
General data	
Connection method	
Connection data rigid / flexible / AWG	
Dimensions	W / H / D
Ambient temperature (operation)	
EMC note	

Ordering data

Type	Order No.	Pcs./Pkt.
IL MOD BK DI8 DO4-PAC	2878696	1

Accessories

IL BKDIO-PLSET	2878599	1
SUBCON-PLUS-MODBUS/IL/BK	2310808	1

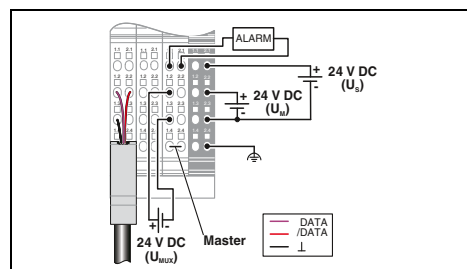
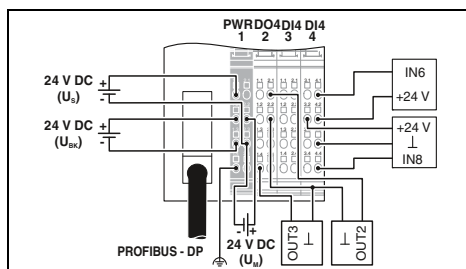
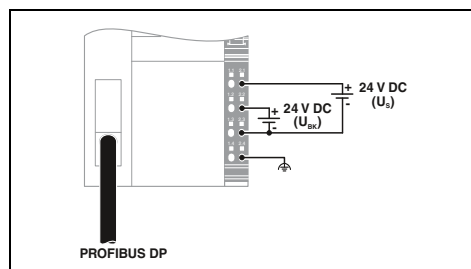
Interface	
Fieldbus system	
Connection method	
Transmission speed	
Local bus interface	
Connection method	
Number of local bus devices that can be connected	
Power supply for module electronics	
Supply voltage	
Supply voltage range	
Max. current consumption	
Power supply at U_L	
Power supply at U_{ANA}	
Digital inputs	
Connection technology	
Number of inputs	
Description of the inputs	
Typical response time	
Protective circuit	
Digital outputs	
Connection technology	
Number of outputs	
Maximum output current per channel	
Protective circuit	
General data	
Connection method	
Connection data rigid / flexible / AWG	
Dimensions	W / H / D
Ambient temperature (operation)	
EMC note	

Description
Bus coupler , complete with accessories (connector and marking field)
- For extended temperature range of -40°C ... +70°C

Connector set for bus coupler
D-SUB connector , 9-pos. with two cable entries, termination resistor can be switched on via slide switch
Adapter cable , Inline field multiplexer on PSI-MOS module



D-SUB connection

D-SUB connection,
8 digital inputs and 4 digital outputsField multiplexer,
copper connection

Technical data

PROFIBUS DP
D-SUB-9 female connector
9.6 kbps ... 12 Mbps

Inline data jumper
max. 63

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

1.25 A
max. 2 A DC
max. 0.5 A DC

-
-
-
-

-
-
-
-

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
85 mm / 119.8 mm / 71.5 mm
0°C ... 55°C
Class A product, see page 527

Technical data

PROFIBUS DP
D-SUB-9 female connector
9.6 kbps ... 12 Mbps

Inline data jumper
max. 61 (on board I/Os are two devices)

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

0.98 A
max. 0.8 A DC
max. 0.5 A DC

3-conductor
8
EN 61131-2 type 1
approx. 500 µs
Reverse polarity protection

3-conductor
4
500 mA
Short-circuit and overload protection

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
80 mm / 119.8 mm / 71.5 mm
-25°C ... 60°C

Technical data

RS-485
Inline shield connector
-

Inline data jumper
32 (without additional power terminal block, observe allowable total current consumption)

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

1.25 A
max. 2 A DC (observe derating)
max. 0.5 A DC (observe derating)

-
-
-
-

-
-
-
-

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
48.8 mm / 135 mm / 71.5 mm
-25°C ... 55°C
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IL PB BK DP/V1-PAC	2862246	1

Accessories

IL BKDIO-PLSET	2878599	1
SUBCON-PLUS-PROFIB	2744348	1

Ordering data

Type	Order No.	Pcs./Pkt.
IL PB BK DI8 DO4/EF-PAC	2692322	1
IL PB BK DI8 DO4/EF-XC-PAC	2702132	1

Accessories

IL BKDIO-PLSET	2878599	1
SUBCON-PLUS-PROFIB	2744348	1

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 MUX MA-PAC	2861205	1

Accessories

IB IL MUX-CAB PSI	2878476	1
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Power terminals

Inline power terminals are used to supply, protect, and diagnose the individual voltage routing within an Inline station.

Depending on the terminal type, various functions can be implemented.

Supply of:

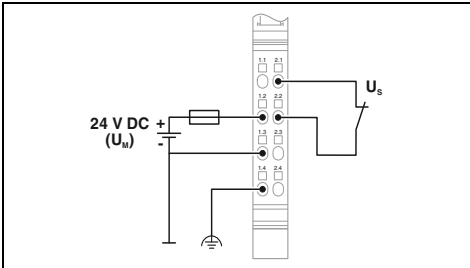
- Main circuit (U_M) up to 8 A
- Segment circuit (U_S) for the I/O supply up to 8 A

The IB IL DOR LV-SET-PAC distance terminal set creates the specified creepage distance when using AC terminals (gray housing). For example, when using IB IL 24/230 DOR 4/W-PAC relay terminals, the two end terminals interrupt all 24 V circuits as well as GND and functional earth ground.

AC power terminals for 120 V AC or 230 V AC already include distance terminals.



24 V DC supply for U_M and U_S



Technical data

Local bus interface	Inline data jumper
Connection method	
Power supply for module electronics	24 V DC (via Inline connector)
Main circuit supply U_M	19.2 V ... 30 V (including all tolerances, including ripple)
Supply voltage range U_M	max. 8 A (sum of $U_M + U_S$; 4 A, maximum, when used in potentially explosive areas.)
Power supply at U_M	
Communications power U_L	-
Current consumption from U_L	-
Segment circuit supply U_S	24 V DC (via Inline connector)
Power supply at U_S	max. 8 A (Sum of $U_M + U_S$; 4 A, maximum, when used in potentially explosive areas.)
I/O supply voltage	-
I/O supply voltage range	-
Fuse	-
General data	
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Connection method	Spring-cage connection
Protective circuit	Surge protection Suppressor diode
Weight	59 g
Dimensions	12.2 mm / 119.8 mm / 71.5 mm
Ambient temperature (operation)	-25°C ... 55°C
EMC note	

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 PWR IN-PAC	2861331	1
IB IL 24 PWR IN-XC-PAC	2701161	1

Accessories

Inline distance terminal	
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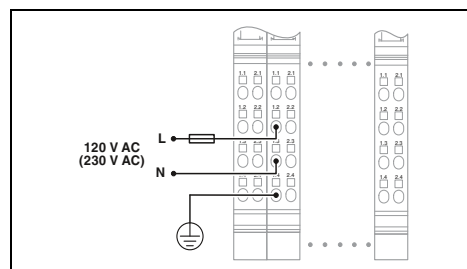
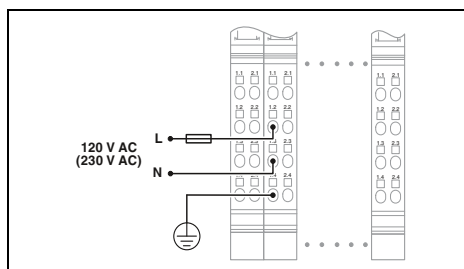
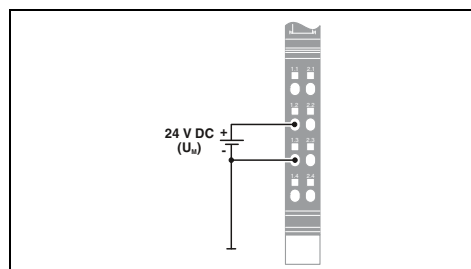
24 V DC supply for U_M and U_S ,
with fuse and diagnostics



120 V AC supply for U_L



230 V AC supply for U_L ,
with fuse and diagnostics as an option



Technical data

IB IL 24 PWR IN/2-F-PAC IB IL 24 PWR IN/2-F-D-PAC

Inline data jumper

24 V DC (via Inline connector)

19.2 V ... 30 V (including all tolerances, including ripple)

max. 6 A (sum of U_M + U_S)

max. 6.3 A (sum of U_M + U_S ;
4 A, maximum, when used in
potentially explosive areas.)

- 7.5 V DC (via voltage jumper)

max. 25 mA

24 V DC (via Inline connector)

max. 6 A (sum of U_M + U_S)

max. 6.3 A (sum of U_M + U_S ;
4 A, maximum, when used in
potentially explosive areas.)

-

SI 5 x 20 6, 300 AT (in scope of delivery)

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

Spring-cage connection

Polarity protection,
surge protection

Surge protection
Suppressor diode

59 g

12.2 mm / 119.8 mm / 71.5 mm

-25°C ... 55°C

Class A product, see page 527

Technical data

Inline data jumper

-

-

-

-

-

-

120 V AC (via Inline connector)

108 V AC ... 135 V AC

-

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

Spring-cage connection

Surge protection

80 g

36.6 mm / 119.8 mm / 71.5 mm

-25°C ... 55°C

Class A product, see page 527

Technical data

IB IL 230 PWR IN-PAC IB IL 230 PWR IN/F-D-PAC

Inline data jumper

-

-

-

- 7.5 V DC (via voltage jumper)

- max. 25 mA

-

230 V AC (via Inline connector)

207 V AC ... 253 V AC

-

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

Spring-cage connection

Surge protection

-

80 g

36.6 mm / 119.8 mm / 71.5 mm

-25°C ... 55°C

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 PWR IN/2-F-PAC	2862136	1
IB IL 24 PWR IN/2-F-XC-PAC	2701162	1
IB IL 24 PWR IN/2-F-D-PAC	2862152	1
IB IL 24 PWR IN/2-F-DF-PAC	2863779	1

Accessories

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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 120 PWR IN-PAC	2861454	1

Accessories

IB IL DOR LV-SET-PAC	2861645	1
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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 230 PWR IN-PAC	2861535	1
IB IL 230 PWR IN/F-D-PAC	2878971	1

Accessories

IB IL DOR LV-SET-PAC	2861645	1
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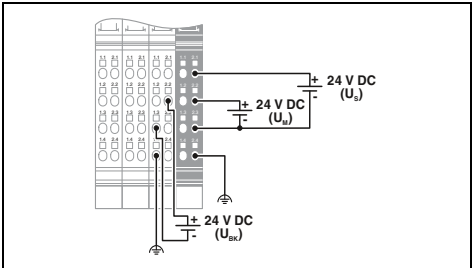
Boost terminal

The IB IL 24 PWR IN/R-PAC Inline boost terminal is used to boost the following voltages:

- Main circuit (U_M) up to 8 A
- Segment circuit (U_S) for the I/O supply up to 8 A
- Analog supply (U_{ANA}) up to 0.5 A
- Communications power (U_L) up to 2 A



Boost for U_M , U_S , U_L , U_{ANA}



Local bus interface	
Connection method	
Power supply for module electronics	
Main circuit supply U_M	
Supply voltage range U_M	
Power supply at U_M	
Communications power U_L	
Power supply at U_L	
I/O supply voltage U_{ANA}	
Power supply at U_{ANA}	
Segment circuit supply U_S	
Supply voltage range U_S	
Power supply at U_S	
Fuse	
General data	
Connection data rigid / flexible / AWG	
Connection method	
Protective circuit	
Weight	192 g
Dimensions	W / H / D
Description	
Inline power terminal or boost terminal, complete with accessories (connector and marking field)	
- For extended temperature range of -40°C ... +70°C	
Connector set, for power terminal, color-coded	

Technical data		
Inline data jumper		
24 V DC (via Inline connector)		
19.2 V DC ... 30 V DC (including all tolerances, including ripple)		
max. 8 A (sum of U_M + U_S ; 4 A, maximum, when used in potentially explosive areas.)		
7.5 V DC (via voltage jumper)		
max. 2 A DC		
24 V DC		
max. 0.5 A DC		
24 V DC (via Inline connector)		
19.2 V DC ... 30 V DC (including all tolerances, including ripple)		
max. 8 A DC (sum of U_M + U_S ; 4 A, maximum, when used in potentially explosive areas.)		
electrical/thermal overload protection, included in scope of delivery		
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16		
Spring-cage connection		
Surge protection (segment supply, main supply, 24 V supply)		
Input protective diodes (can be destroyed by permanent overload)		
Pulse loads up to 1500 W are short circuited by the input protective diode.		
Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL 24 PWR IN/R-PAC	2861674	1
IB IL 24 PWR IN/R-XC-PAC	2701298	1
Accessories		
IB IL PWR IN/R-PLSET	2860620	1

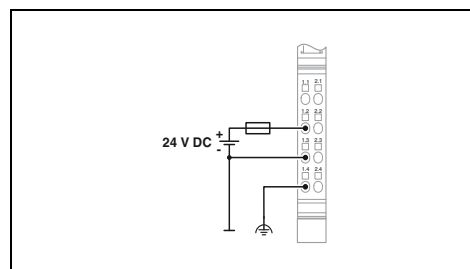
Boost terminal

The IB IL 24 PWR IN/R/L-0.8A-PAC Inline boost terminal is used to boost the following voltage:

- Communications power (U_L) up to 0.8 A



Boost for U_L



Technical data

Local bus interface	
Connection method	Inline data jumper
Power supply for module electronics	
Communications power U_L	7.5 V DC (via voltage jumper)
Power supply at U_L	max. 0.8 A DC
Fuse	electrical/thermal overload protection, included in scope of delivery
General data	
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Connection method	Spring-cage connection
Protective circuit	Surge protection Input protective diodes (can be destroyed by permanent overload) Pulse loads up to 1500 W are short circuited by the input protective diode.
Weight	65 g
Dimensions	12.2 mm / 119.8 mm / 71.5 mm

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 PWR IN/R/L-0.8A-PAC	2693020	1

Accessories

IB IL SCN-PWR IN-CP	2727637	10
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Connector

Segment terminals

Inline segment terminals can be used to create several segment circuits (U_S) within the main circuit (U_M). The signal and initiator voltages for digital I/Os are always tapped from the segment circuit U_S .

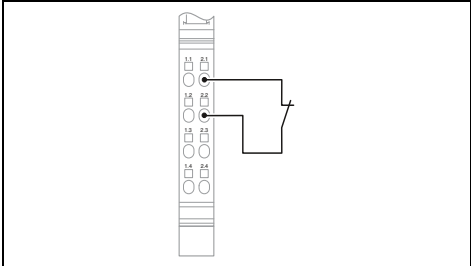
Depending on the terminal type, various functions can be implemented:

- Segmentation without fuse
- Segmentation with fine fuse
- Segmentation with fine fuse and diagnostics
- Segmentation with electronic fuse and diagnostics

When combined with the IB IL PD 24V-PAC potential distributor terminal, 24 V supplies with electronic fuse protection and remote diagnostics can be provided in the field, for example. However, the potential distributor terminals are also suitable for the economical return wiring of sensor and actuator cables when using digital Inline terminals with 1-conductor connection technology.



24 V DC segment circuit supply U_S



Technical data

Local bus interface	Inline data jumper
Connection method	-
Power supply for module electronics	-
Communications power U_L	24 V DC
Current consumption from U_L	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Segment circuit supply U_S	max. 8 A (nominal value)
Supply voltage range U_S	-
Power supply at U_S	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Fuse	Spring-cage connection
General data	Overload protection Fuse
Connection data rigid / flexible / AWG	42 g
Connection method	12.2 mm / 119.8 mm / 71.5 mm
Protective circuit	Class A product, see page 527
Weight	
Dimensions	W / H / D
EMC note	

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Inline segment terminal , complete with accessories (connector and marking field)	IB IL 24 SEG-PAC	2861344	1
- With fuse			
- With fuse and diagnostics			
- For extended temperature range of -40°C ... +70°C			
Inline potential distributor terminal , complete with accessories (connector and marking field)			
- 24 V			
- GND			



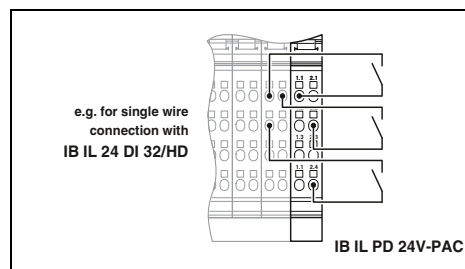
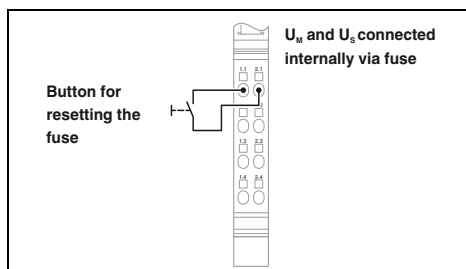
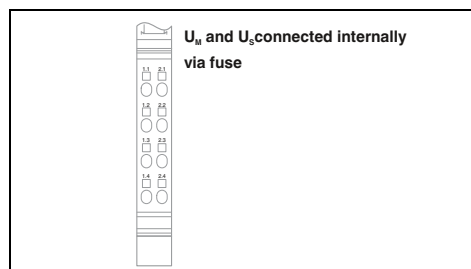
24 V DC segment circuit supply U_S ,
with fuse and diagnostics



24 V DC segment circuit supply U_S ,
with electronic fuse



Potential distributor



Technical data

Inline data jumper
-
24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)
max. 6 A (nominal value)
SI 5 x 20 6, 300 AT (in scope of delivery)
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Spring-cage connection
Overload protection Fuse
59 g
12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Technical data

Inline data jumper
7.5 V DC (via voltage jumper)
max. 30 mA
24 V DC
19.2 V DC ... 30 V DC (including all tolerances, including ripple)
max. 2.5 A (nominal value)
2.5 A (electronic)
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Spring-cage connection
Overload protection
44 g
12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Technical data

IB IL PD 24V-PAC	IB IL PD GND-PAC
Inline data jumper	
-	-
24 V DC (via voltage jumper)	-
19.2 V DC ... 30 V DC (including all tolerances, including ripple)	-
-	-
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16	
Spring-cage connection	
-	
44 g	
12.2 mm / 119.8 mm / 71.5 mm	
Class A product, see page 527	

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 SEG-F-PAC	2861373	1
IB IL 24 SEG-F-D-PAC	2861904	1
IB IL 24 SEG-F-XC-PAC	2701163	1

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 SEG-ELF-PAC	2861409	1

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL PD 24V-PAC	2862987	1
IB IL PD GND-PAC	2862990	1



The Inline ECO terminals allow you to perform automation tasks easily and cost-effectively.

Following the principle of “one terminal, one function”, you will always find the right function for your automation application in the range of Inline ECO terminals. No special terminal parameterization is required.

Inline ECO terminals are approved for the temperature range from 0°C to +55°C. The electronics base and Inline connector are supplied as standard.

Find out more with the web code

Detailed information on these products can be found on our website. Simply enter # and numbers in the search field.

i Your web code: **#1242**

Can be freely combined

The Inline ECO terminals can be combined with all Inline terminals and Inline components.

No parameterization required

Every Inline ECO terminal is particularly easy to handle. You don't need to preset any parameters.

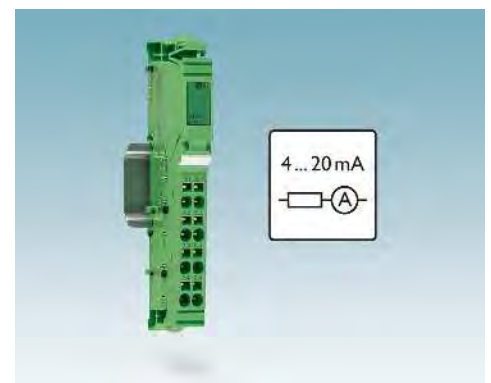
Functional safety in compact machines

Integrate the safe I/O terminal by simply plugging it into your Inline I/O station. Digital output terminals with approval for the safety-related segment circuit are then installed to the right of the safe I/O terminal.

When a sensor is activated, e.g., emergency stop, the actuator voltage supply for the connected output modules is shut down for safety reasons. Two dual-channel sensor circuits can be connected to one safe I/O terminal. All status and error messages are forwarded to the standard controller.



Can be freely combined



No parameterization required



Easy integration of network safety solutions

Inline ECO – Digital input and output terminals

The ECO digital input and output terminals are designed for use within an Inline station. They are used to acquire and output digital signals.

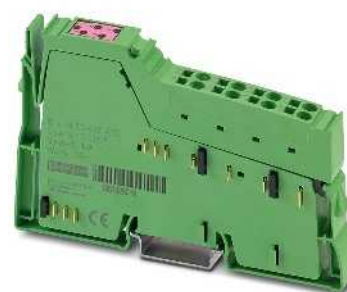
The IB IL 24 DO4/EF-ECO output terminal is approved for applications with a safety-related segment circuit.

Notes:

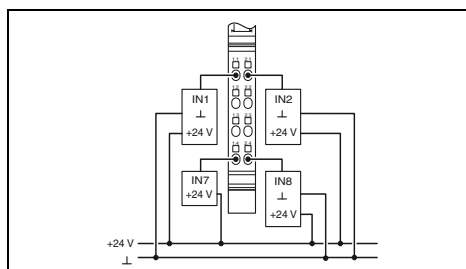
You can find an overview of the standard versions of all digital input and output terminals from page 122



8 digital inputs



4/8 digital outputs



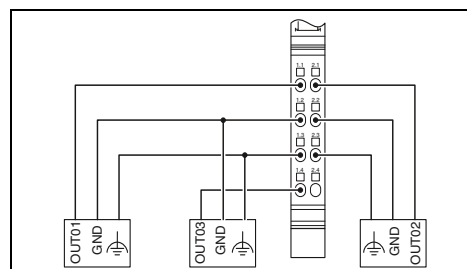
Technical data

Local bus interface	
Connection method	Inline data jumper
Power supply for module electronics	
Communications power U_L	7.5 V DC (via voltage jumper)
Current consumption from U_L	max. 30 mA
Digital inputs	
Connection technology	1-conductor
Number of inputs	8
Description of the inputs	EN 61131-2 types 1 and 3
Typical response time	1 ms
Digital outputs	
Connection technology	-
Number of outputs	-
Maximum output current per channel	-
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	60 g
Dimensions	12.2 mm / 119.8 mm / 71.5 mm
Ambient temperature (operation)	0°C ... 55°C
EMC note	Class A product, see page 527

Ordering data

Description
Inline ECO digital input terminal (with connector)
- 1-conductor connection technology
Inline ECO digital output terminal (with connector)
- For the safety-related segment circuit
- 1-conductor connection technology

Type	Order No.	Pcs./Pkt.
IB IL 24 DI 8/HD-ECO	2702792	1



Technical data

IB IL 24 DO 4/EF-ECO	IB IL 24 DO 8/HD-ECO
	Inline data jumper
	7.5 V DC (via voltage jumper)
max. 44 mA	max. 45 mA
3-conductor	1-conductor
4	8
	500 mA
	Spring-cage connection
	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
	60 g
	12.2 mm / 119.8 mm / 71.5 mm
	0°C ... 55°C
	Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DO 4/EF-ECO	2702825	1
IB IL 24 DO 8/HD-ECO	2702793	1

Inline ECO – Analog input and output terminals

The ECO analog input and output terminals are designed for use within an Inline station. They are used to acquire and output analog current and voltage signals.

Notes:

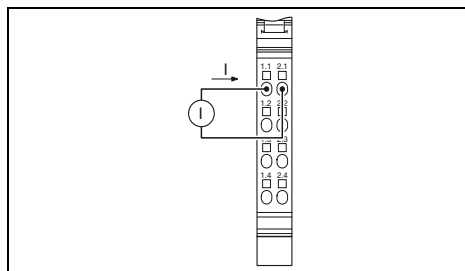
You can find an overview of the standard versions of all analog input and output terminals from page 134



4 analog inputs

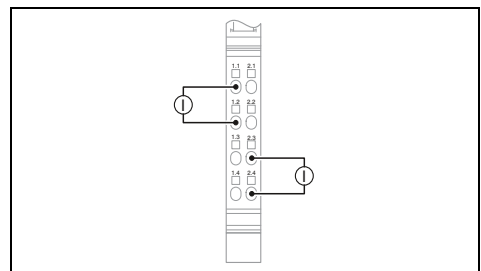


4 analog outputs



Technical data

IB IL AI 4/I/4-20-ECO	IB IL AI 4/U/0-10-ECO
Inline data jumper	
24 V DC	
max. 20 mA	
7.5 V DC	
max. 70 mA	
2-conductor	
4	
-	0 V ... 10 V
4 mA ... 20 mA	-
16 bits	
< 10 ms	
Standardized representation	
Spring-cage connection	
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16	
60 g	
12.2 mm / 119.8 mm / 71.5 mm	
0°C ... 55°C	



Technical data

IB IL AO 4/I/4-20-ECO	IB IL AO 4/U/0-10-ECO
Inline data jumper	
24 V DC	
max. 85 mA	max. 45 mA
7.5 V DC	
max. 50 mA	max. 70 mA
2-conductor	
4	
-	0 V ... 10 V
-	> 2 kΩ
4 mA ... 20 mA	-
< 300 Ω	-
Short-circuit and overload protection	
Transient protection	
16 bits	
< 10 ms	
Standardized representation	
Spring-cage connection	
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16	
60 g	
12.2 mm / 119.8 mm / 71.5 mm	
0°C ... 55°C (see "Derating" table in the data sheet)	

Local bus interface
Connection method
Power supply for module electronics
I/O supply voltage U _{ANA}
Current consumption from U _{ANA}
Communications power U _L
Current consumption from U _L
Analog inputs
Connection technology
Number of inputs
Voltage input signal
Current input signal
Measured value representation
Process data update
Data formats
Analog outputs
Connection technology
Number of outputs
Voltage output signal
Load/output load voltage output
Current output signal
Load/output load current output
Protective circuit
Representation of output values
Process data update
Data formats
General data
Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions
Ambient temperature (operation)

EMC note

Class A product, see page 527

Class A product, see page 527

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Inline ECO analog input terminal (with connector)			
- 4 mA ... 20 mA input signal	IB IL AI 4/I/4-20-ECO	2702495	1
- 0 V ... 10 V input signal	IB IL AI 4/U/0-10-ECO	2702496	1
Inline ECO analog output terminal (with connector)			
- 4 mA ... 20 mA output signal			
- 0 V ... 10 V output signal			

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Inline ECO analog output terminal (with connector)			
- 4 mA ... 20 mA output signal	IB IL AO 4/I/4-20-ECO	2702497	1
- 0 V ... 10 V output signal	IB IL AO 4/U/0-10-ECO	2702498	1

Inline ECO – Temperature measurement terminals

The ECO temperature measurement terminals are designed for use within an Inline station. They are used to connect resistive temperature sensors (Pt 100 and Pt 1000) or thermocouples (types J, K, L).

Notes:

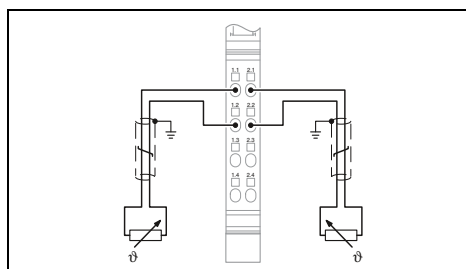
You can find an overview of the standard versions of all temperature measurement terminals from page 140



4 RTD inputs



4 UTH inputs



Technical data

IB IL RTD 4/PT100-ECO IB IL RTD 4/PT1000-ECO

Inline data jumper

24 V DC

typ. 7.3 mA

7.5 V DC

typ. 56 mA

2-conductor

4 (Pt 100)

4 (Pt 1000)

Input for resistive temperature sensors

Pt 100 (IEC 60751/EN 60751) Pt 1000 (IEC 60751/EN 60751)

-

< 10 ms

Local bus interface
Connection method
Power supply for module electronics
I/O supply voltage U_{ANA}
Current consumption from U_{ANA}
Communications power U_L
Current consumption from U_L
Analog inputs
Connection technology
Number of inputs
Precision
Description of the input
Sensor types that can be used (RTD)
Measuring principle
Process data update

General data
Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions
EMC note

W / H / D

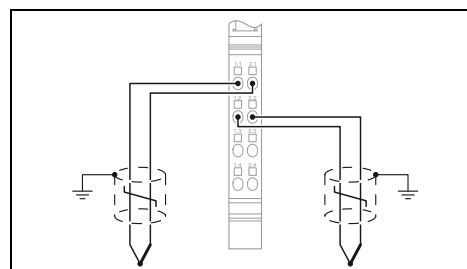
Description

Inline ECO analog input terminal (with connector)

- For Pt 100 resistance temperature detectors
- For Pt 1000 resistance temperature detectors

Inline ECO analog input terminal (with connector)

- For thermocouple type J in accordance with DIN EN 60584-1
- For thermocouple type K in accordance with DIN EN 60584-1
- For thermocouple type L in accordance with DIN 43710



Technical data

Inline data jumper

24 V DC

typ. 32 mA

7.5 V DC

typ. 38 mA

2-conductor

4 (type J)

typ. ± 1.9 K (reference junction)

Differential inputs

-

Sigma/Delta process

< 10 ms

Spring-cage connection
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
65 g
12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL RTD 4/PT100-ECO	2702499	1
IB IL RTD 4/PT1000-ECO	2702501	1

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL UTH 4/J-ECO	2702502	1
IB IL UTH 4/K-ECO	2702503	1
IB IL UTH 4/L-ECO	2702504	1

Inline ECO –
Serial communication terminals

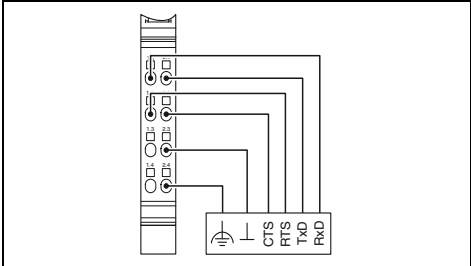
The ECO serial communication terminals are designed for use within an Inline station.
The IB IL RS 232-ECO terminal is used to operate standard I/O devices with serial RS-232 interfaces on a bus system.

Notes:

You can find an overview of the standard versions of all serial communication terminals from page 148



1 serial RS-232 interface



Local bus interface
Connection method
Serial port
Interface
Connection method
Power supply for module electronics
Communications power U _L
Current consumption from U _L
Serial input/output channel
Input buffer
Output buffer
Transmission speed
Data bits
Stop bits
Parity
Transmission type
General data
Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions
Ambient temperature (operation)

Technical data
Inline data jumper
RS-232
Spring-cage connection
7.5 V
typ. 70 mA
4 kByte
1 kByte
110 bps ... 38400 bps (configurable)
6 ... 8
1 or 2
Even, odd or no parity
Transparent mode
Spring-cage connection
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
60 g
12.2 mm / 119.8 mm / 71.5 mm
0°C ... 55°C

Description
Inline ECO communication terminal (with connector)

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL RS 232-ECO	2702795	1

Inline ECO – Serial communication terminals

The ECO serial communication terminals are designed for use within an Inline station.

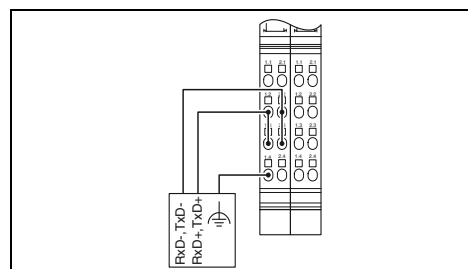
The IB IL RS 485-ECO terminal is used to operate standard I/O devices with serial RS-485 interfaces on a bus system.

Notes:

You can find an overview of the standard versions of all serial communication terminals from page 148



1 serial RS-485 interface



Technical data

Local bus interface	
Connection method	Inline data jumper
Serial port	
Interface	RS-485
Connection method	Spring-cage connection
Power supply for module electronics	
Communications power U_L	7.5 V
Current consumption from U_L	typ. 70 mA
Serial input/output channel	
Input buffer	4 kByte
Output buffer	1 kByte
Transmission speed	110 bps ... 38400 bps (configurable)
Data bits	6 ... 8
Stop bits	1 or 2
Parity	Even, odd or no parity
Transmission type	Transparent mode
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	62 g
Dimensions	12.2 mm / 119.8 mm / 71.5 mm
Ambient temperature (operation)	0°C ... 55°C

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Inline ECO communication terminal (with connector)			
	IB IL RS 485-ECO	2702141	1

Digital input terminals

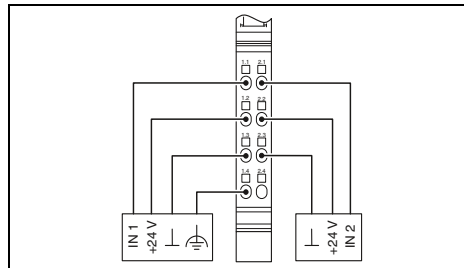
Digital Inline input terminals are designed to connect digital signals, such as those supplied by buttons, limit switches or proximity switches.

Features, depending on the selected device:

- 2 to 32-channel
- In acc. with EN 61131-2 Type 1 or 3
- 1-, 2-, 3- or 4-conductor connection technology
- Maximum permissible load current per sensor: 250 mA



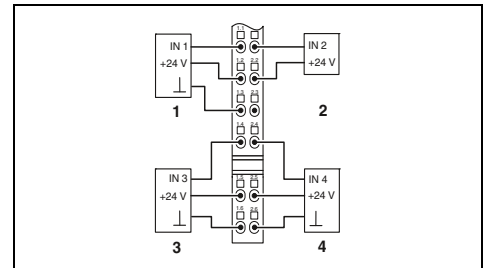
2 inputs



Technical data



4 inputs



Technical data

Local bus interface	
Connection method	Inline data jumper
Power supply for module electronics	
Communications power U_L	7.5 V DC (via voltage jumper)
Current consumption from U_L	max. 35 mA
Segment circuit supply U_S	24 V DC (via voltage jumper)
Current consumption from U_S	max. 0.5 A
Digital inputs	
Connection technology	4-conductor
Number of inputs	2
Description of the inputs	EN 61131-2 type 1
Typical response time	< 1 ms
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	53 g
Dimensions	12.2 mm / 119.8 mm / 71.5 mm
EMC note	Class A product, see page 527

IB IL 24 DI 2-PAC	
Inline data jumper	
7.5 V DC (via voltage jumper)	
max. 35 mA	
24 V DC (via voltage jumper)	
max. 0.5 A	
4-conductor	
2	
EN 61131-2 type 1	
< 1 ms	
Spring-cage connection	
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16	
53 g	
12.2 mm / 119.8 mm / 71.5 mm	
Class A product, see page 527	

IB IL 24 DI 4-PAC	IB IL 24 DI 4-ME
Inline data jumper	
7.5 V DC (via voltage jumper)	
max. 40 mA	
24 V DC (via voltage jumper)	
max. 1 A	
3-conductor	
4	
EN 61131-2 type 1	
< 1 ms	
Spring-cage connection	
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16	
66 g	59 g
12.2 mm / 140.5 mm / 71.5 mm	12.2 mm / 119.8 mm / 71.5 mm

Description
Inline digital input terminal , complete with accessories (connector and marking field)
- 1-conductor connection technology
- Machine Edition (ME version)
- For extended temperature range of -40°C ... +70°C

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL 24 DI 2-PAC	2861221	1

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL 24 DI 4-PAC	2861234	1
IB IL 24 DI 4-ME	2863928	4
IB IL 24 DI 4-XC-PAC	2701152	1

Accessories	
Connector set	
Connector set for IB IL DI 16, color-coded	
Inline connector	

Accessories		
IB IL SCN-8-CP	2727608	10

Accessories		
IB IL SCN-12-ICP	2727611	10



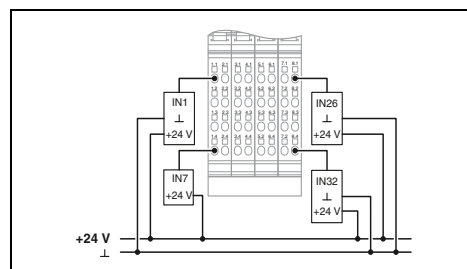
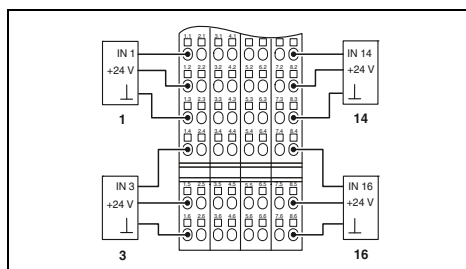
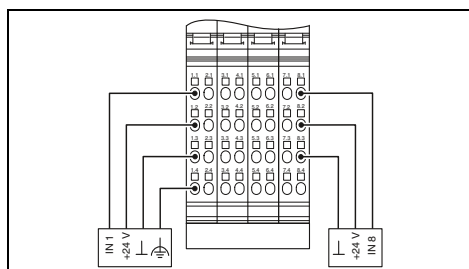
8 inputs



16 inputs



32 inputs



Technical data

IB IL 24 DI 8-PAC IB IL 24 DI8/HD-PAC

Inline data jumper

7.5 V DC (via voltage jumper)

max. 50 mA max. 30 mA
 24 V DC (via voltage jumper)
 max. 2 A max. 5.5 mA

4-conductor 1-conductor

8

EN 61131-2 type 1 EN 61131-2 types 1 and 3
 < 1 ms 1 ms

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

118 g 60 g

48.8 mm / 119.8 mm / 71.5 mm 12.2 mm / 119.8 mm / 71.5 mm

Class A product, see page 527

Technical data

IB IL 24 DI 16-PAC IB IL 24 DI 16-ME

Inline data jumper

7.5 V DC (via voltage jumper) 7.5 V DC

max. 60 mA
 24 V DC (via voltage jumper)
 max. 4 A

3-conductor

16

EN 61131-2 type 1
 < 1 ms

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

210 g 122 g

48.8 mm / 140.5 mm / 71.5 mm 48.8 mm / 119.8 mm / 71.5 mm

Class A product, see page 527

Technical data

Inline data jumper

7.5 V DC (via voltage jumper)

max. 90 mA
 24 V DC (via voltage jumper)
 max. 50 mA

1-conductor

32

EN 61131-2 type 1
 2 ms

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

185 g

48.8 mm / 119.8 mm / 71.5 mm

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DI 8-PAC	2861247	1
IB IL 24 DI8/HD-PAC	2700173	1
IB IL 24 DI8/HD-XC-PAC	2701212	1

Accessories

IB IL SCN-8	2726337	10
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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DI 16-PAC	2861250	1
IB IL 24 DI 16-ME	2897156	4
IB IL 24 DI 16-XC-PAC	2701154	1

Accessories

IB IL DI16-PLSET/ICP	2860989	1
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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DI 32/HD-PAC	2862835	1

Accessories

IB IL DI/DO 8-PLSET	2860950	1
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Digital input terminals

The digital Inline input terminals are used to acquire digital input signals. They are designed for use within an Inline station.

NPN terminal features:

- 2 to 32-channel

T2 terminal features:

- In accordance with EN 61131-2 Type 2

S0 terminal features:

- Connection of S0 pulse encoders
- 32-bit counter range

Pulse counter:

- Maximum counting frequency of up to 150 Hz

Operating hours counter:

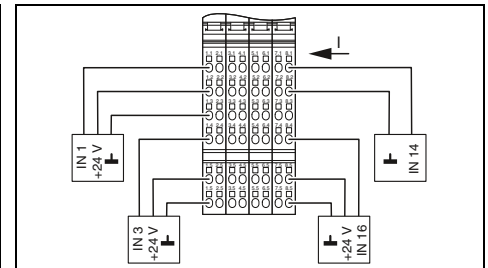
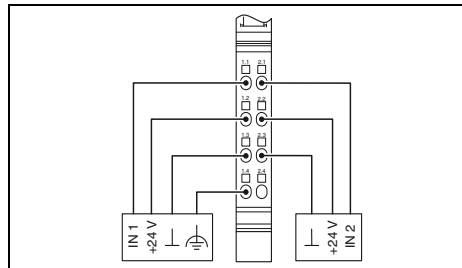
- 1 s resolution
- Counter enabled on active or inactive input (configurable)



2 inputs, NPN-wired



16 inputs, NPN-wired



Local bus interface
Connection method
Power supply for module electronics
Communications power U_L
Current consumption from U_L
Segment circuit supply U_S
Current consumption from U_S
Digital inputs
Connection technology
Number of inputs
Description of the inputs
Typical response time
General data
Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions
EMC note

Technical data
Inline data jumper
7.5 V DC (via voltage jumper) max. 35 mA
24 V DC (via voltage jumper) max. 0.5 A
4-conductor
2 (NPN)
EN 61131-2 type 1
< 1 ms
Spring-cage connection
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
53 g
12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Technical data
Inline data jumper
7.5 V DC (via voltage jumper) max. 60 mA
24 V DC (via voltage jumper) max. 4 A
3-conductor
16 (NPN)
EN 61131-2 type 1
< 1 ms
Spring-cage connection
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
210 g
48.8 mm / 140.5 mm / 71.5 mm
Class A product, see page 527

Description
Inline digital input terminal , complete with accessories (connector and marking field)
- NPN-wired
- Input in acc. with EN 61131-2/Type 2
- S0 counter

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL 24 DI 2-NPN-PAC	2861483	1

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL 24 DI 16-NPN-PAC	2863520	1

Connector set
Inline connector

Accessories		
IB IL SCN-8-CP	2727608	10

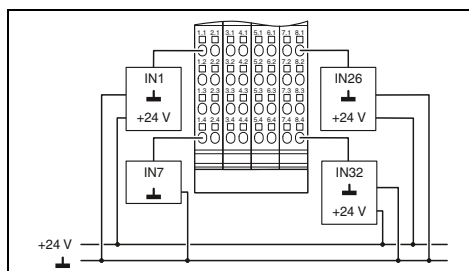
Accessories		
IB IL SCN-12-ICP	2727611	10



32 inputs, NPN-wired



8 inputs, EN 61131-2/Type 2

8 S₀ counter inputs

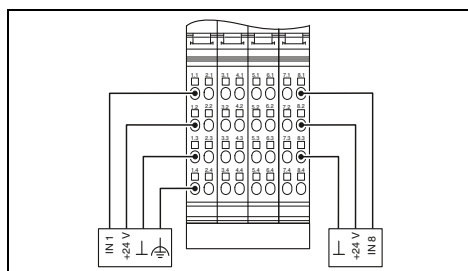
Technical data

Inline data jumper

7.5 V DC (via voltage jumper)
max. 90 mA
24 V DC (via voltage jumper)
max. 100 mA

1-conductor
32 (NPN)
EN 61131-2 type 1
< 1 ms

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
185 g
48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527



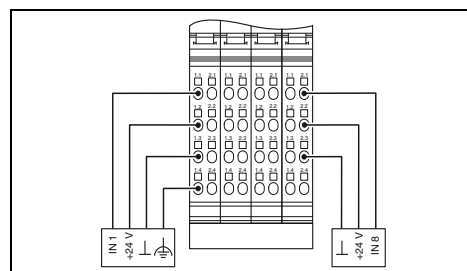
Technical data

Inline data jumper

7.5 V DC (via voltage jumper)
max. 50 mA
24 V DC (via voltage jumper)
max. 2 A

4-conductor
8
IEC 61131-2 Type 2
< 1 ms

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
118 g
48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527



Technical data

Inline data jumper

7.5 V DC (via voltage jumper)
max. 55 mA
24 V DC (via voltage jumper)
max. 2 A (incl. sensor supply)

4-conductor
8 (S₀ counter inputs)
IEC 62053-31 and DIN 43864
-

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
183 g
48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DI 32/HD-NPN-PAC	2878243	1

Accessories

IB IL DI/DO 8-PLSET	2860950	1
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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DI 8/T2-PAC	2862204	1

Accessories

IB IL SCN-8-CP	2727608	10
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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL DI 8/S0-PAC	2897020	1

Accessories

IB IL SCN-8-CP	2727608	10
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Digital input terminals

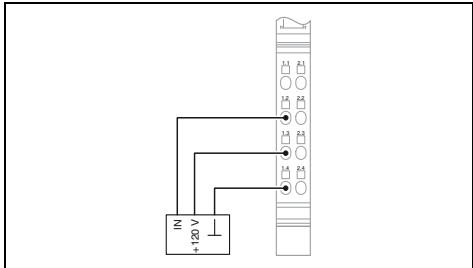
The terminals are designed for use within an Inline station. They are used to acquire digital input signals in the 120 V AC or 230 V AC voltage range.

- Features:**
- Connections for one digital sensor
 - Maximum permissible load current: 500 mA



1 input, 120 V

ERC



Local bus interface
Connection method
Power supply for module electronics
Communications power U _L
Current consumption from U _L
I/O supply voltage
Digital inputs
Connection technology
Number of inputs
Description of the inputs
General data
Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions
EMC note

Technical data
Inline data jumper
7.5 V DC (via voltage jumper) max. 30 mA 120 V AC (via voltage jumper)
3-conductor 1 IEC 61131-2 type 1
Spring-cage connection 0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16 39 g 12.2 mm / 119.8 mm / 71.5 mm Class A product, see page 527

Description
Inline digital input terminal, complete with accessories (connector and marking field)
- 120 V AC - 230 V AC

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL 120 DI 1-PAC	2861917	1

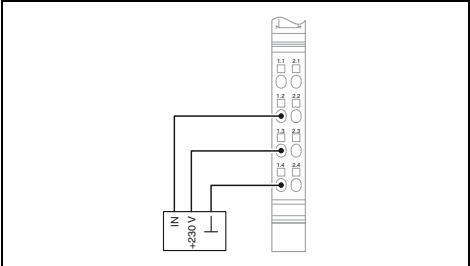
Inline distance terminal

Accessories		
IB IL DOR LV-SET-PAC	2861645	1



1 input, 230 V

ERC 91



Technical data

Inline data jumper

7.5 V DC (via voltage jumper)
max. 30 mA
230 V AC (via voltage jumper)

3-conductor
1
IEC 61131-2 type 1

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
39 g
12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 230 DI 1-PAC	2861548	1

Accessories

IB IL DOR LV-SET-PAC	2861645	1
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Digital output terminals

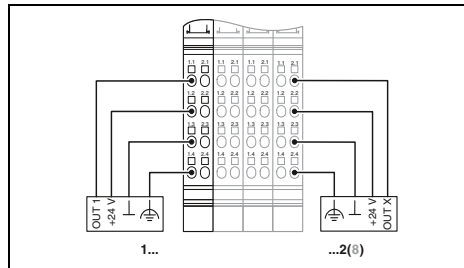
The digital Inline output terminals are designed for the connection of digital actuators, such as electromagnetic valves, contactors or visual indicators.

Features, depending on the selected device:

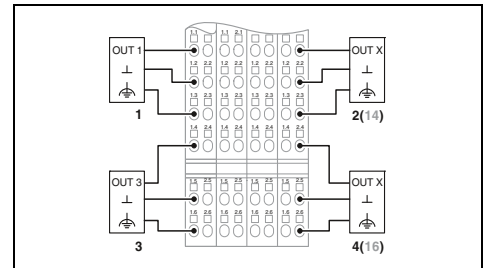
- 2 to 32-channel
- Connection of actuators in 1-, 2-, 3-, and 4-conductor technology
- Nominal current per output: 500 mA
- Short-circuit and overload protected outputs



2 outputs



4 outputs



Technical data

Local bus interface	
Connection method	
Power supply for module electronics	
Communications power U_L	
Current consumption from U_L	
Segment circuit supply U_S	
Current consumption from U_S	
Digital outputs	
Connection technology	
Number of outputs	
Maximum output current per channel	
Protective circuit	
General data	
Connection method	
Connection data rigid / flexible / AWG	
Weight	
Dimensions	W / H / D
EMC note	

Inline data jumper
7.5 V DC (via voltage jumper)
max. 33 mA
24 V DC (via voltage jumper)
max. 1 A
4-conductor
2
500 mA
Overload protection, short-circuit protection of outputs

Technical data

IB IL 24 DO 4-PAC	IB IL 24 DO 4-ME
Inline data jumper	
7.5 V DC (via voltage jumper)	
max. 44 mA	
24 V DC (via voltage jumper)	
max. 2 A	
3-conductor	
4	
500 mA	
Overload protection, short-circuit protection of outputs	
Spring-cage connection	
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16	
66 g	59 g
12.2 mm / 140.5 mm / 71.5 mm	12.2 mm / 119.8 mm / 71.5 mm

Ordering data

Description
Inline digital output terminal, complete with accessories (connector and marking field)
- 1-conductor connection technology
- Machine Edition (ME version)
- For extended temperature range of -40°C ... +70°C

Type	Order No.	Pcs./Pkt.
IB IL 24 DO 2-PAC	2861470	1

Accessories

Connector set
Inline connector

IB IL SCN-8-CP	2727608	10
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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DO 4-PAC	2861276	1
IB IL 24 DO 4-ME	2863931	4
IB IL 24 DO 4-XC-PAC	2701155	1

Accessories

IB IL SCN-12-OCF	2727624	10
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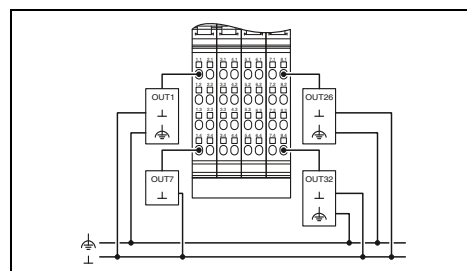
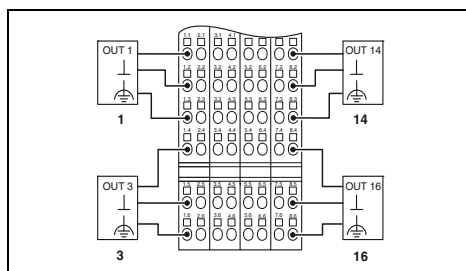
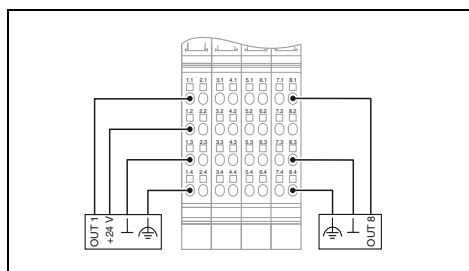
8 outputs



16 outputs



32 outputs



Technical data

IB IL 24 DO 8-PAC IB IL 24 DO8/HD-PAC

Inline data jumper

7.5 V DC (via voltage jumper)
max. 60 mA max. 45 mA
24 V DC (via voltage jumper)
max. 4 A

4-conductor 8 1-conductor
500 mA

Overload protection, short-circuit protection of outputs

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
130 g 60 g
48.8 mm / 119.8 mm / 71.5 mm 12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DO 8-PAC	2861289	1
IB IL 24 DO8/HD-PAC	2700172	1
IB IL 24 DO8/HD-XC-PAC	2701213	1

Accessories

IB IL SCN-8	2726337	10
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Technical data

IB IL 24 DO 16-PAC IB IL 24 DO 16-ME

Inline data jumper

7.5 V DC (via voltage jumper)
max. 90 mA
24 V DC (via voltage jumper)
max. 8 A

3-conductor 16
500 mA

Overload protection, short-circuit protection of outputs

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
218 g 190 g
48.8 mm / 140.5 mm / 71.5 mm 48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DO 16-PAC	2861292	1
IB IL 24 DO 16-ME	2897253	4
IB IL 24 DO 16-XC-PAC	2701156	1

Accessories

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Technical data

Inline data jumper

7.5 V DC (via voltage jumper)
max. 140 mA
24 V DC (via voltage jumper)
max. 8 A

1-conductor 32
500 mA

Overload protection, short-circuit protection of outputs

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
195 g
48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DO 32/HD-PAC	2862822	1

Accessories

IB IL DI/DO 8-PLSET	2860950	1
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Digital output terminals

The terminals are designed for use within an Inline station. They are used to output digital signals.

NPN terminal features:

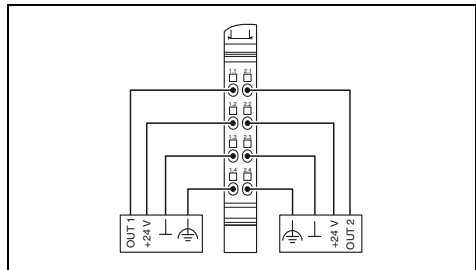
- NPN-wired
- 2 to 32-channel
- Connection of sensors in 1-, 2-, 3-, and 4-conductor technology
- Maximum permissible load current per actuator: 500 mA
- Short-circuit and overload protected outputs

2 A module features:

- 2 to 8-channel
- Connection of sensors in 2-, 3-, and 4-conductor technology
- Maximum permissible load current per actuator: 2 A
- Short-circuit and overload protected outputs



2 outputs, NPN-wired



Technical data

Local bus interface	
Connection method	Inline data jumper
Power supply for module electronics	
Communications power U_L	7.5 V DC (via voltage jumper)
Current consumption from U_L	max. 32 mA
Segment circuit supply U_S	24 V DC (via voltage jumper)
Current consumption from U_S	max. 1 A
Digital outputs	
Connection technology	4-conductor
Number of outputs	2 (NPN)
Maximum output current per channel	500 mA
Protective circuit	Overload protection, short-circuit protection of outputs
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	42 g
Dimensions	12.2 mm / 119.8 mm / 71.5 mm
EMC note	Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DO 2-NPN-PAC	2861496	1

Accessories

IB IL SCN-8-CP	2727608	10
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Description
Inline digital output terminal, complete with accessories (connector and marking field)
- NPN-wired
- Outputs 2 A
- For extended temperature range of -40°C ... +70°C
Connector set
Inline connector



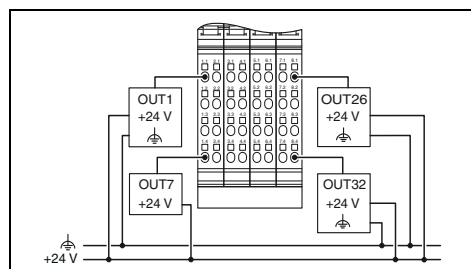
32 outputs, NPN-wired



2 outputs, 2 A



8 outputs, 2 A



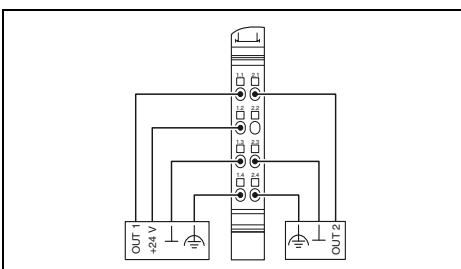
Technical data

Inline data jumper

7.5 V DC (via voltage jumper)
max. 140 mA
24 V DC (via voltage jumper)
max. 8 A

1-conductor
32 (NPN)
500 mA
Overload protection, short-circuit protection of outputs

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
195 g
48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527



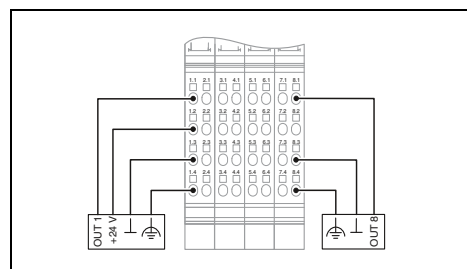
Technical data

Inline data jumper

7.5 V DC (via voltage jumper)
max. 35 mA
24 V DC (via voltage jumper)
max. 4 A

4-conductor
2
2 A
Overload protection, short-circuit protection of outputs

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
61 g
12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527



Technical data

Inline data jumper

7.5 V DC (via voltage jumper)
max. 60 mA
24 V DC (via voltage jumper)
max. 8 A

4-conductor
8
2 A
Overload protection, short-circuit protection of outputs

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
130 g
48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DO 32/HD-NPN-PAC	2878340	1

Accessories

IB IL DI/DO 8-PLSET	2860950	1
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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DO 2-2A-PAC	2861263	1
IB IL 24 DO 2-2A-XC-PAC	2702133	1

Accessories

IB IL SCN-8-CP	2727608	10
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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 DO 8-2A-PAC	2861603	1

Accessories

IB IL SCN-8-CP	2727608	10
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Digital output terminals

Digital Inline output terminals are designed for the connection of digital actuators, such as electromagnetic valves, contactors or visual indicators.

Inline relay terminals make it possible to switch any I/O voltage up to a maximum of 230 V AC.

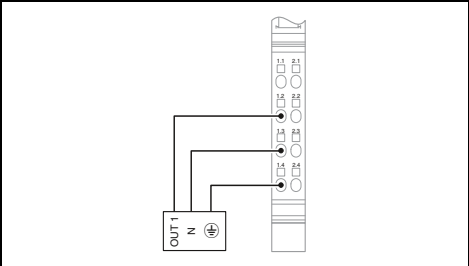
Differing relay contact materials ensure low contact resistance for small loads and lamp loads in the ...W versions, while the ...W/PC versions are designed for capacitive loads.

The IB IL 24/48 DOR 2/W-PAC module is a relay module for small signals.



1/4 outputs,
12 - 253 V AC

ERC



Local bus interface
Connection method
Power supply for module electronics
Communications power U _L
Current consumption from U _L
Digital outputs
Connection technology
Number of outputs
Maximum output current per channel
General data
Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions
EMC note

Technical data	
IB IL DO 1 AC-PAC	IB IL DO 4 AC-1A-PAC
Inline data jumper	
7.5 V DC (via voltage jumper)	
max. 35 mA	max. 45 mA
3-conductor	
1	4
500 mA	1 A
Spring-cage connection	
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16	
45 g	
130 g	
12.2 mm / 119.8 mm / 71.5 mm	48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527	

Description
Inline digital output terminal, complete with accessories (connector and marking field)
- 1 output
- 4 outputs 1 A
- 1 SPDT relay contact
- 2 SPDT relay contacts
- 4 SPDT relay contacts
- 4 SPDT relay contacts, 10 A, high inrush current
- For extended temperature range of -40°C ... +70°C

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL DO 1 AC-PAC	2861920	1
IB IL DO 4 AC-1A-PAC	2861658	1

Inline distance terminal Connector for digital Inline terminals with AC voltage
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Accessories		
IB IL DOR LV-SET-PAC	2861645	1



1/4 relay outputs,
5 - 253 V AC, gold contacts



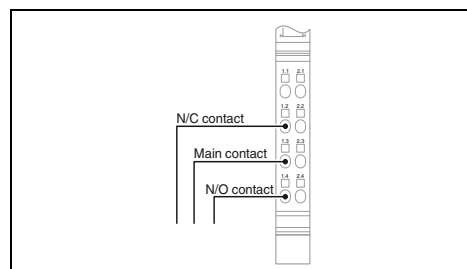
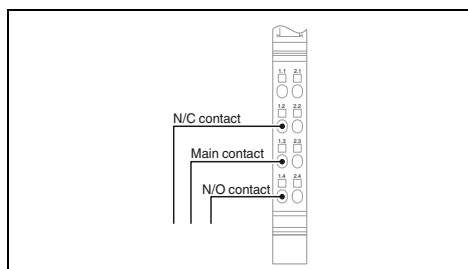
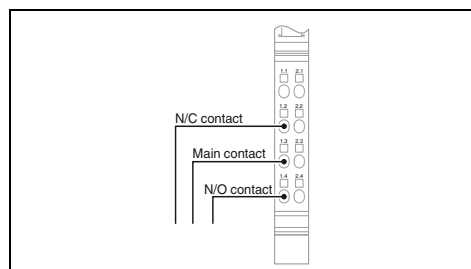
1/4 relay outputs,
5 - 253 V AC



2 relay outputs,
5 - 50 V AC, 5 - 120 V DC

ERC
Ex:

ERC



Technical data

IB IL 24/230 DOR1/W-PAC IB IL 24/230 DOR4/W-PAC

Inline data jumper

7.5 V DC (via voltage jumper)
max. 60 mA max. 187 mA

1 (floating contacts) 4 (floating contacts)
3 A

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
46 g 138 g

12.2 mm / 119.8 mm / 71.5 mm 48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Technical data

IB IL 24/230 DOR1/W-PC-PAC IB IL 24/230 DOR4/W-PC-PAC

Inline data jumper

7.5 V DC (via voltage jumper)
max. 60 mA max. 187 mA

1 (floating contacts) 4 (floating contacts)
2.6 A 3 A

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
61 g 138 g

12.2 mm / 119.8 mm / 71.5 mm 48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Technical data

Inline data jumper

7.5 V DC (via voltage jumper)
max. 30 mA

2 (floating contacts)
2 A

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
63 g

12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24/230 DOR1/W-PAC	2861881	1
IB IL 24/230 DOR4/W-PAC	2861878	1
IB IL 24/230 DOR4/HC-PAC	2897716	1

Accessories

IB IL DOR LV-SET-PAC	2861645	1
IB IL SCN-8-AC-REL	2740290	10

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24/230 DOR1/W-PC-PAC	2862178	1
IB IL 24/230 DOR4/W-PC-PAC	2862181	1

Accessories

IB IL DOR LV-SET-PAC	2861645	1
IB IL SCN-8-AC-REL	2740290	10

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24/48 DOR 2/W-PAC	2863119	1
IB IL 24/48 DOR 2/W-XC-PAC	2701214	1

Accessories

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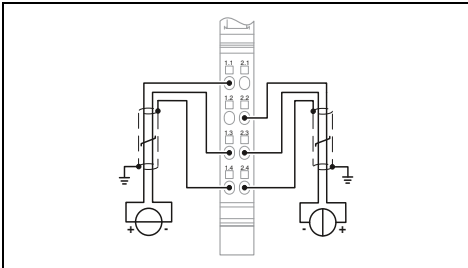
Analog input terminals

Inline analog input terminals are suitable for connecting standard sensors for acquiring current and voltage signals. Terminals with 2, 4 or 8 channels are available.

- Features:**
- Single-ended and differential inputs
 - Connection of sensors in 2- or 3-conductor technology
 - Measured value acquisition with 13 or 16-bit resolution
 - High level of measuring accuracy
 - Excellent interference and common mode suppression
 - Overload-protected current inputs
 - Integrated short-circuit-proof sensor supply



2 inputs



Local bus interface
Connection method
Power supply for module electronics
I/O supply voltage U_{ANA}
Current consumption from U_{ANA}
Communications power U_L
Current consumption from U_L
Analog inputs
Connection technology
Number of inputs
Voltage input signal
Current input signal
Process data
Measured value resolution
Process data update
Data formats
General data
Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions
EMC note

Technical data	
IB IL AI 2/SF-PAC	IB IL AI 2/SF-ME
Inline data jumper	
24 V DC	
max. 18 mA	
7.5 V DC	
max. 60 mA	
2-conductor	
2	
0 V ... 10 V / -10 V ... 10 V	
0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA	
16 bits (15 bits + sign bit) 13 bits (12 bits + sign bit)	
< 1.5 ms (the time includes the internal firmware runtime and the time for the analog-to-digital conversion. For system considerations (e.g., for the step response determination of sensors), please take into account additional times for latching and bus transmission as well as the status of mean-value generation.)	
IB IL, IB ST, IB RT, standardized representation	
Spring-cage connection	
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16	
69 g 52 g	
12.2 mm / 136.8 mm / 71.5 mm 12.2 mm / 119.8 mm / 71.5 mm	
Class A product, see page 527	

Description
Inline analog input terminal, complete with accessories (connector and marking field)
- Machine Edition (ME version)
- 8 inputs, initiator with supply outputs
- For extended temperature range of -40°C ... +70°C

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL AI 2/SF-PAC	2861302	1
IB IL AI 2/SF-ME	2863944	1
IB IL AI 2/SF-XC-PAC	2701157	1

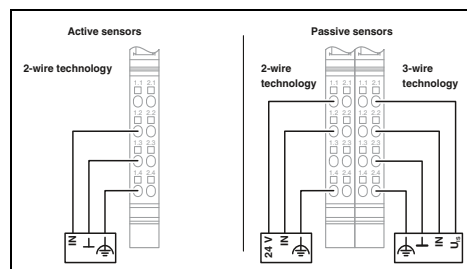
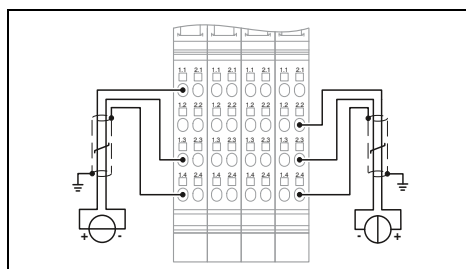
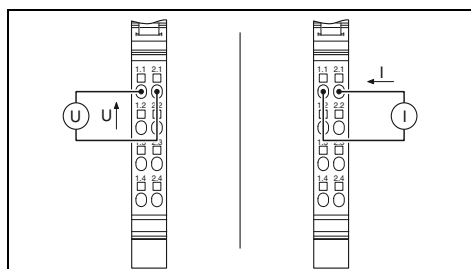
Accessories		
Shield connector	IB IL SCN 6-SHIELD-TWIN	2740245 5



4 inputs



8 inputs

8 inputs,
with initiator supply

Technical data

IB IL AI 4/U-PAC

IB IL AI 4/I-PAC

Inline data jumper

24 V DC
max. 35 mA
7.5 V DC
max. 60 mA

2-conductor
4

0 V ... 10 V / -10 V ... 10 V

0 mA ... 20 mA / 4 mA ... 20 mA

12 bits (11 bits + sign bit)
typ. 250 µs (all channels)

13 bits (12 bits + sign bit)
typ. 250 µs (all channels)

IB IL, S7-compatible

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
66 g
12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL AI 4/U-PAC	2700459	1
IB IL AI 4/I-PAC	2700458	1

Accessories

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Technical data

Inline data jumper

24 V DC
max. 35 mA
7.5 V DC
max. 55 mA

2-conductor
8

0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA

16 bits (15 bits + sign bit)
bus-synchronous

IB IL, IB ST, IB RT, standardized representation, PIO format

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
213 g
48.8 mm / 136.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL AI 8/SF-PAC	2861412	1
IB IL AI 8/SF-XC-PAC	2701159	1

Accessories

IB IL SCN 6-SHIELD-TWIN	2740245	5
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Technical data

Inline data jumper

24 V DC
max. 40 mA
7.5 V DC
max. 65 mA

2-, 3-conductor
8

0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA

16 bits (15 bits + sign bit)
bus-synchronous

IBS IL, IBS ST, IBS RT, standardized representation, PIO format

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
125 g
48.8 mm / 136.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL AI 8/IS-PAC	2861661	1

Accessories

IB IL SCN 6-SHIELD-TWIN	2740245	5
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Analog input terminals

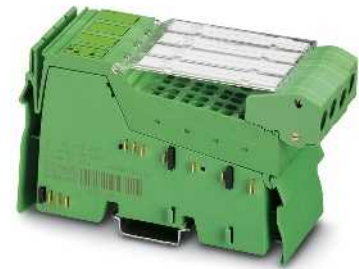
The IB IL AI 4/EF (EF...Extended Functions) analog Inline terminal is suitable for connecting standard sensors for acquiring current and voltage signals.

Features:

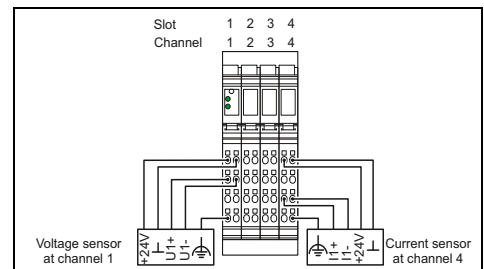
- 4 differential signal inputs
- Connection of sensors in 2-, 3-, and 4-conductor technology
- Measured value acquisition with 16-bit resolution
- Sensor supply with channel-specific integrated short-circuit and overload protection
- Short update time of < 1 ms, maximum for all channels
- Bus-synchronous provision of input values with very low jitter (< 10 µs)

Notes:

The driver function blocks can be obtained free of charge on the Internet at phoenixcontact.net/products under Download on the product page of the corresponding module.



4 inputs, with extended functions



Technical data

Local bus interface	
Connection method	Inline data jumper
Power supply for module electronics	
I/O supply voltage U_{ANA}	24 V DC
Current consumption from U_{ANA}	max. 20 mA
Communications power U_L	7.5 V DC
Current consumption from U_L	max. 100 mA
Analog inputs	
Connection technology	2-, 3-, 4-conductor
Number of inputs	4
Description of the input	Differential input, including sensor supply (24 V DC)
Voltage input signal	0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
Current input signal	0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA
Process data	
Measured value resolution	16 bits (15 bits + sign bit)
Process data update	< 1 ms (bus-synchronous)
Data formats	IB IL, IB ST, standardized representation, S7 compatible
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	210 g
Dimensions	48.8 mm / 135 mm / 71.5 mm
	W / H / D

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL AI 4/EF-PAC	2878447	1
IB IL AI 4/EF-XC-PAC	2701215	1

Accessories		
IB IL SCN 6-SHIELD-TWIN	2740245	5

Shield connector	
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Inline data jumper

24 V DC

max. 20 mA

7.5 V DC

max. 100 mA

2-, 3-, 4-conductor

4

Differential input, including sensor supply (24 V DC)

0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V

0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA

16 bits (15 bits + sign bit)

< 1 ms (bus-synchronous)

IB IL, IB ST, standardized representation, S7 compatible

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

210 g

48.8 mm / 135 mm / 71.5 mm

W / H / D

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL AI 4/EF-PAC	2878447	1
IB IL AI 4/EF-XC-PAC	2701215	1

Accessories

IB IL SCN 6-SHIELD-TWIN	2740245	5
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Analog input terminal with HART functionality

The Inline terminal offers the option of communicating with intelligent field devices using the standardized HART communication protocol.

It enables both analog and digital communication. The analog signal transmits the process information; the digital modulated signal also permits bidirectional communication with the HART-compatible sensor.

Features:

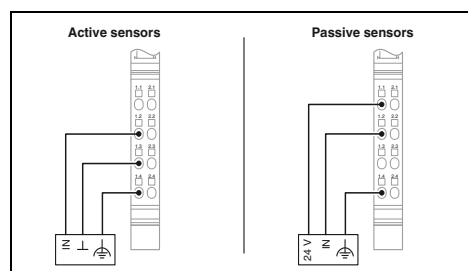
- Two differential signal inputs for current sensors
- Sensor connection with 2-conductor connection technology
- Measured value acquisition with 16-bit resolution
- Point-to-point and multi-drop connections possible
- Polling and burst modes
- A maximum of 5 HART devices can be connected per channel
- A hand-held operator panel can be connected
- FDT/DTM support

Notes:

The driver function blocks can be obtained free of charge on the Internet at phoenixcontact.net/products under Download on the product page of the corresponding module.



2 HART inputs



Technical data

Local bus interface	
Connection method	
Power supply for module electronics	
I/O supply voltage U_{ANA}	24 V DC
Current consumption from U_{ANA}	max. 150 mA
Communications power U_L	7.5 V DC
Current consumption from U_L	max. 110 mA
Analog inputs	
Connection technology	2-conductor
Number of inputs	2
Current input signal	4 mA ... 20 mA / 0 mA ... 25 mA
Process data	
Measured value resolution	16 bits (15 bits + sign bit)
Process data update	typ. 1 ms (bus-synchronous)
Data formats	IB IL, standardized representation, PIO
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	134 g
Dimensions	48.8 mm / 135 mm / 71.5 mm
EMC note	Class A product, see page 527

Description

Inline analog input terminal, complete with accessories (connector and marking field)
- HART functionality

Shield connector

Ordering data

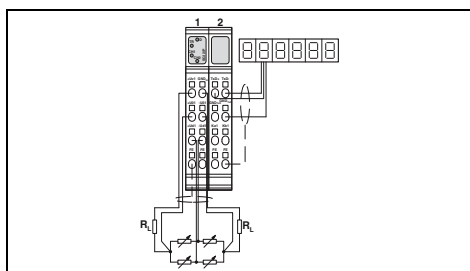
Type	Order No.	Pcs./Pkt.
IB IL AI 2-HART-PAC	2862149	1

Accessories

IB IL SCN 6-SHIELD-TWIN	2740245	5
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2 fast and precise inputs



Technical data

Inline data jumper

24 V DC
32 mA (in case of typical load of 350 Ohm per channel)

7.5 V DC
max. 95 mA

6- or 4-wire, twisted pair shielded cable

2
Input channels for strain gauge
Measuring range specified by selecting the characteristic

5 V
Jumper supply
2
> 43 Ω (per channel)
max. 115 mA (per channel)

-
 ± 1 mV/V, ± 2 mV/V, ± 3 mV/V, ± 3.33 mV/V, ± 4 mV/V, ± 5 mV/V,
 ± 6 mV/V, manual characteristic value specification
16 bit, 20 bit, ASCII data record
can be parameterized: 200 μ s, 500 μ s, 1 ms, 2 ms, 5 ms, 10 ms,
12.5 ms, 20 ms, 50 ms, 100 ms

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
220 g
48.8 mm / 136 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL SGI 2/P/EF-PAC	2702373	1

Accessories

IB IL SCN 6-SHIELD-TWIN	2740245	5
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Temperature measurement terminals

These Inline terminals can be used to connect thermocouples (UTH) and resistive temperature sensors (RTD).

Features of UTH inputs:

- Connection of thermocouples in accordance with DIN EN 60584-1 and DIN 43710
- Absolute and differential temperature measurement
- Internal and external cold junction

Features of RTD inputs:

- Pt, Ni, Cu, KTY sensor types in accordance with DIN and SAMA

The IB IL 24 TC Inline thermistor terminal is used for the evaluation of PTC thermistors. It makes it possible to monitor the temperature of motors and can be used in conjunction with Inline motor starters.

Notes:

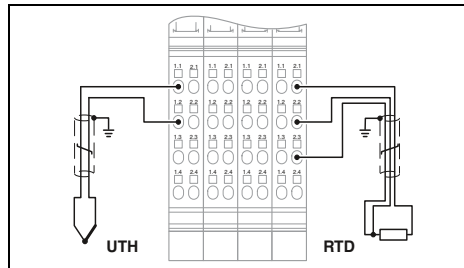
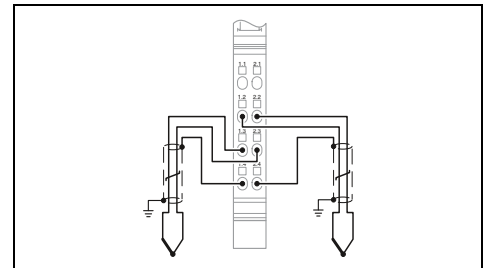
The driver function blocks can be obtained free of charge on the Internet at phoenixcontact.net/products under Download on the product page of the corresponding module.



8 inputs,
UTH and RTD



2 UTH inputs

**Technical data****Technical data**

Local bus interface	Inline data jumper	Inline data jumper
Connection method		
Power supply for module electronics		
I/O supply voltage U_{ANA}	24 V DC	24 V DC
Current consumption from U_{ANA}	typ. 24 mA	typ. 11 mA
Communications power U_L	7.5 V DC	7.5 V DC
Current consumption from U_L	typ. 90 mA	typ. 43 mA
Analog inputs		
Connection technology	2-, 3-conductor	2-conductor
Number of inputs	8	2 (thermocouples or linear voltage)
Precision	typ. ± 0.3 K (Pt 100 with 3-conductor connection)	typ. ± 0.6 K (sensor type K)
Description of the input	Temperature sensor inputs	Inputs for thermocouples or linear voltage
Linear resistance measuring range	-	-
Sensor types that can be used (RTD)	Pt, Ni sensors, linear resistors	-
Sensor types that can be used (TC)	B, C, E, J, K, L, N, R, S, T, U, mV input	U, T, L, J, E, K, N, S, R, B, C, W, HK
Measuring principle	Successive approximation	Successive approximation
Measured value representation	16 bits (15 bits + sign bit)	16 bits (15 bits + sign bit)
Process data update	20 ms (with filter time of 20 ms or 100 ms) 100 ms (with filter time of 400 ms or 1600 ms)	max. 30 ms (for both channels)
General data		
Connection method	Spring-cage connection	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	188 g	67 g
Dimensions	48.8 mm / 119.8 mm / 71.5 mm	12.2 mm / 136.8 mm / 71.5 mm
EMC note		Class A product, see page 527

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Inline analog input terminal , complete with accessories (connector and marking field)			
- With extended functions			
- For extended temperature range of -40°C ... +70°C			
	IB IL TEMP 8 UTH/RTD-PAC	2701000	1

Accessories

Shield connector	IB IL SCN 6-SHIELD-TWIN	2740245	5
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Ordering data

Description	Type	Order No.	Pcs./Pkt.
Inline analog input terminal , complete with accessories (connector and marking field)			
- With extended functions			
- For extended temperature range of -40°C ... +70°C			
	IB IL TEMP 2 UTH-PAC	2861386	1
	IB IL TEMP 2 UTH-XC-PAC	2701216	1

Accessories

Shield connector	IB IL SCN 6-SHIELD-TWIN	2740245	5
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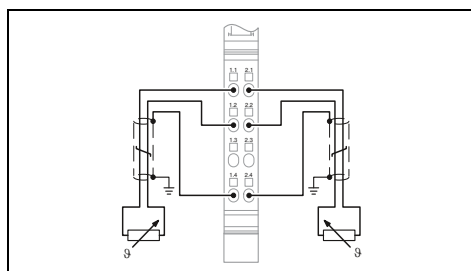
2 RTD inputs



4 or 8 RTD inputs



1 thermistor input



Technical data

Inline data jumper

24 V DC
max. 18 mA
7.5 V DC
typ. 43 mA

2-, 3-, 4-conductor
2

typ. ± 0.26 K (Pt 100 with 3-conductor connection)

Input for resistive temperature sensors

0 Ω ... 400 Ω / 0 Ω ... 4 k Ω

Pt, Ni, KTY, Cu sensors, linear resistors

Successive approximation

16 bit two's complement
32 ms (both channels in 3-conductor technology)
20 ms (one channel in 2-conductor technology and one channel in 4-conductor technology)
20 ms (both channels in 2-conductor technology)

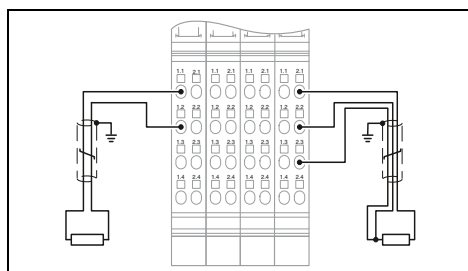
Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
67 g
12.2 mm / 136.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL TEMP 2 RTD-PAC	2861328	1
IB IL TEMP 2 RTD-XC-PAC	2701217	1

Accessories

IB IL SCN 6-SHIELD-TWIN	2740245	5
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Technical data

IB IL TEMP 4/8 RTD-PAC IB IL TEMP 4/8 RTD/EF-PAC

Inline data jumper

24 V DC
typ. 28 mA
7.5 V DC
typ. 75 mA

2, 3-conductor
8

typ. ± 0.5 K (Pt 100 with 3-conductor connection)

Input for resistive temperature sensors

0 Ω ... 400 Ω / 0 Ω ... 20 k Ω

Pt, Ni, KTY, Cu sensors, linear resistors

Successive approximation

16 bits (15 bits + sign bit)
6 ms (up to 230 ms possible depending on operating mode)

4-conductor
8 (for resistance temperature detectors)
typ. ± 0.05 K (Pt 100 with 4-conductor connection)

Input for resistive temperature sensors

0 Ω ... 500 Ω / 0 Ω ... 5 k Ω

Pt, Ni, KTY, Cu sensors, linear resistors

Sigma/Delta process

1.8 s (up to 3.3 s possible depending on operating mode)

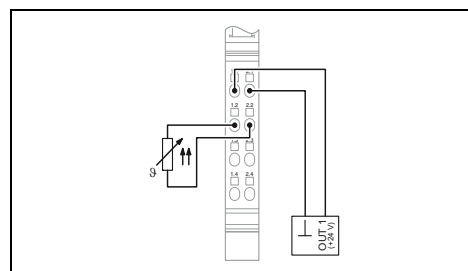
Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
190 g
48.8 mm / 136.8 mm / 71.5 mm 48.8 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL TEMP 4/8 RTD-PAC	2863915	1
IB IL TEMP 4/8 RTD/EF-PAC	2897402	1
IB IL TEMP 4/8 RTD-EF-XC-PAC	2701218	1

Accessories

IB IL SCN 6-SHIELD-TWIN	2740245	5
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Technical data

Inline data jumper

24 V DC
0 A DC
7.5 V DC
max. 60 mA

2-conductor
1

Input for PTC thermistor

2.7 k Ω ... 3.5 k Ω (shutdown range, total resistance) /
50 Ω ... 2.25 k Ω (operating range, total resistance)

PTC thermistor in accordance with DIN 44081 or DIN 44082

-

-

-

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
50 g
12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 TC-PAC	2861360	1

Accessories

IB IL SCN-6 SHIELD	2726353	5
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Analog output terminals

These Inline terminals are used in applications in which analog actuators are to be controlled.

With these terminals, common current and voltage output ranges can be configured individually and channel-specifically.

Features:

- Connection of sensors in 2-conductor technology
- Measured value output with 16-bit resolution
- Load of up to 500 Ω
- Bipolar outputs
- Short-circuit-proof current outputs
- Short update time of < 1 ms

Notes:

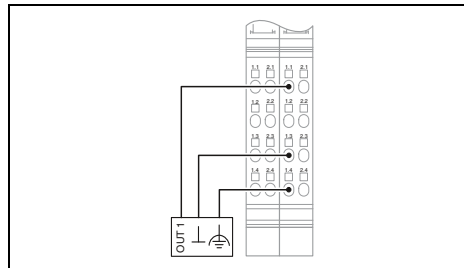
The driver function blocks can be obtained free of charge on the Internet at phoenixcontact.net/products under Download on the product page of the corresponding module.



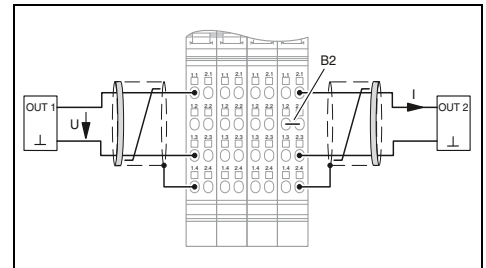
1 output



2 outputs



Technical data



Technical data

Local bus interface	
Connection method	Inline data jumper
Power supply for module electronics	
I/O supply voltage U_{ANA}	24 V DC
Current consumption from U_{ANA}	typ. 50 mA
Communications power U_L	7.5 V DC
Current consumption from U_L	typ. 30 mA
Analog outputs	
Connection technology	2-conductor
Number of outputs	1
Voltage output signal	0 V ... 10 V
Load/output load voltage output	> 2 k Ω
Current output signal	0 mA ... 20 mA / 4 mA ... 20 mA
Load/output load current output	< 500 Ω
Protective circuit	Transient protection of outputs
Characteristics	
Representation of output values	16-bit straight binary
Process data update	< 1 ms
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	126 g
Dimensions	24.4 mm / 135 mm / 71.5 mm
EMC note	Class A product, see page 527

Local bus interface	
Connection method	Inline data jumper
Power supply for module electronics	
I/O supply voltage U_{ANA}	24 V DC
Current consumption from U_{ANA}	typ. 95 mA
Communications power U_L	7.5 V DC
Current consumption from U_L	max. 45 mA
Analog outputs	
Connection technology	2-conductor
Number of outputs	2
Voltage output signal	0 V ... 10 V
Load/output load voltage output	> 2 k Ω 0.03%
Current output signal	0 mA ... 20 mA / 4 mA ... 20 mA
Load/output load current output	< 500 Ω
Protective circuit	Short-circuit protection of outputs
Characteristics	
Representation of output values	16 bits (15 bits + sign bit)
Process data update	< 1 ms
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	125 g
Dimensions	48.8 mm / 135 mm / 71.5 mm
EMC note	Class A product, see page 527

Description
Inline analog output terminal , complete with accessories (connector and marking field)
- Machine Edition (ME version)
- For extended temperature range of -40°C ... +70°C

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL AO 1/SF-PAC	2861315	1
IB IL AO 1/SF-XC-PAC	2701219	1

Accessories	
Connector set	
Shield connector for analog Inline terminals	
Connector	

Accessories		
IB IL AO/CNT-PLSET	2732664	1

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL AO 2/SF-PAC	2863083	1

Accessories		
IB IL SCN-6 SHIELD	2726353	5

← MUX



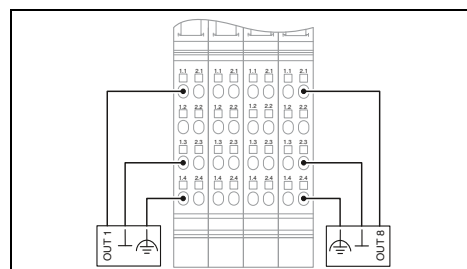
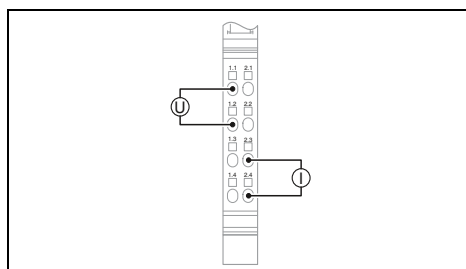
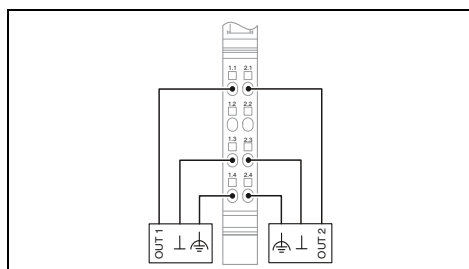
2 outputs, bipolar

2 outputs,
multifunctional4/8 outputs,
bipolar

ERC
Ex:

ERC

ERC



Technical data

IB IL AO 2/U/BP-PAC IB IL AO 2/U/BI-PAC

Inline data jumper

24 V DC
typ. 18 mA (no-load) max. 35 mA
7.5 V DC
max. 40 mA

2-conductor
2

0 V ... 10 V / -10 V ... 10 V
> 2 kΩ > 2 kΩ 0.02%

Transient protection of outputs

16 bits (15 bits + sign bit) 13 bits (12 bits + sign bit)
< 1 ms

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
70 g 48 g

12.2 mm / 136.8 mm / 71.5 mm 12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Technical data

Inline data jumper

24 V DC
typ. 24 mA (no-load)
7.5 V DC
typ. 55 mA

2-conductor
2

0 V ... 10 V / -10 V ... 10 V
> 1 kΩ
0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA
≤ 450 Ω
Short-circuit and overload protection
Transient protection

12 bits (11 bits + sign bit)
bus-synchronous

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
66 g

12.2 mm / 119.8 mm / 71.5 mm
Class A product, see page 527

Technical data

Inline data jumper

24 V DC
typ. 72 mA
7.5 V DC
typ. 80 mA

2-conductor
8

0 V ... 10 V / -10 V ... 10 V / 0 V ... 5 V / -5 V ... 5 V
> 2 kΩ 0.05%
-
Transient protection of outputs

16 bits (15 bits + sign bit)
< 2 ms (depends on operating mode)

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
215 g

48.8 mm / 136.8 mm / 71.5 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL AO 2/U/BP-PAC	2861467	1
IB IL AO 2/U/BI-PAC	2863957	1

Accessories

IB IL SCN 6-SHIELD-TWIN	2740245	5
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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL AO 2/U/BI-PAC	2700775	1

Accessories

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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL AO 4/8/U/BP-PAC	2878036	1
IB IL AO 4/8/U/BP-XC-PAC	2701164	1

Accessories

IB IL SCN-8	2726337	10
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Intrinsically safe I/Os for the Ex area

Connect intrinsically safe signals to the modular Inline I/O system.

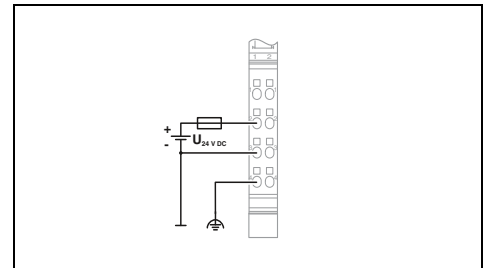
Features:

- Disconnect terminal block for installation between non-intrinsically-safe I/O terminals and an intrinsically safe power supply
- Power supply to the intrinsically safe blue I/O terminals with safe electrical isolation
- I/O terminals for connecting intrinsically safe sensors or actuators in zone 1 and zone 0 of the Ex area
- Four configurable channels with diagnostic LEDs per I/O terminal
- Partition plate for installation between intrinsically safe I/O terminals and another intrinsically safe power supply
- Fieldbus-independent diagnostics using FDT/DTM technology



**Power terminal
for intrinsically safe terminals**

Ex:



Technical data

Local bus interface	
Connection method	Inline data jumper
Power supply for module electronics	
Supply for main circuit U_{Ex}	28 V DC $\pm 5\%$
Power supply at U_{Ex}	max. 1000 mA
Current consumption from U_{Ex}	-
Communications power U_L	5 V DC (via voltage jumper)
Power supply at U_L	1000 mA (max.)
Current consumption from U_L	-
Digital inputs	
Connection technology	-
Input circuit	-
Protective circuit	-
Digital outputs	
Connection technology	-
Description of the outputs	-
Analog inputs	
Connection technology	-
Voltage input signal	-
Current input signal	-
Analog outputs	
Connection technology	-
Current output signal	-
Protective circuit	-
Temperature input	
Sensor types that can be used (RTD)	-
Sensor types that can be used (TC)	-
Linear resistance measuring range	-
Measured value resolution	-
Data formats	-
Protective circuit	-
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Dimensions	48.8 mm / 119.9 mm / 70.4 mm
Ambient temperature (operation)	-25°C ... 60°C
EMC note	Class A product, see page 527

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Inline terminal, Ex i , complete with accessories (connector and marking field)	IB IL EX-IS PWR IN-PAC	2869910	1

Accessories

Inline isolator terminal	IB IL EX PWR-ISO-PAC	2869909	1
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4 selectable digital channels,
input (also NAMUR) or output

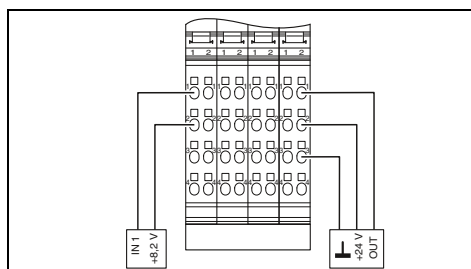


4 selectable analog channels,
input or output



4 selectable temperature inputs,
RTD or TC

Ex:



Technical data

Inline data jumper

28 V DC

-

max. 190 mA

5 V DC (via voltage jumper)

-

max. 50 mA

2-conductor

Floating contacts and 2-wire NAMUR proximity sensor
(EN 60947-5-6)

Polarity protection, surge protection

3-conductor

Digital passive output

-

-

-

-

-

-

-

-

-

-

-

-

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

48.8 mm / 119.8 mm / 71.5 mm

-25°C ... 60°C

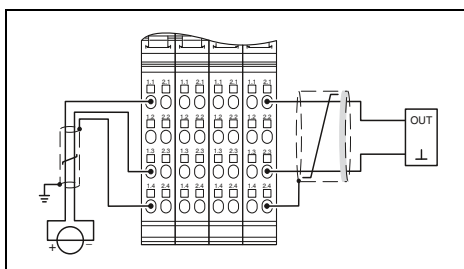
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL EX-IS DIO 4/NAM-PAC	2869911	1

Accessories

Ex:



Technical data

Inline data jumper

28 V DC

-

max. 187 mA

5 V DC (via voltage jumper)

-

max. 50 mA

-

-

-

-

-

2-, 3-conductor

0 V ... 10 V

0 mA ... 20 mA / 4 mA ... 20 mA

2-conductor

0 mA ... 20 mA / 4 mA ... 20 mA

Polarity protection, surge protection

-

-

-

-

-

-

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

48.8 mm / 136.8 mm / 71.5 mm

-25°C ... 60°C

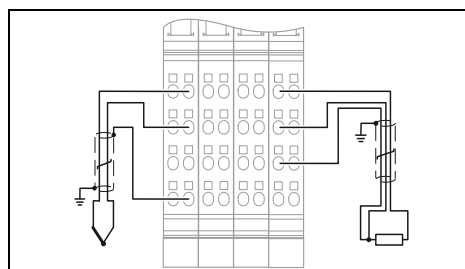
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL EX-IS AIO 4/EF-PAC	2869912	1

Accessories

Ex:



Technical data

Inline data jumper

28 V DC

-

max. 80 mA

5 V DC (via voltage jumper)

-

max. 50 mA

-

-

-

-

-

-

-

-

-

-

-

2- and 3-conductor, Pt, Ni (DIN 100, 200, 500, 1000)

J, K, E, R, S, T

0 Ω ... 800 Ω / 0 Ω ... 5000 Ω

16 bits (15 bits + sign bit)

IB IL, S7-compatible

Polarity protection, surge protection

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

48.8 mm / 136.8 mm / 71.5 mm

-25°C ... 60°C

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL EX-IS TEMP 4 RTD/TC-PAC	2869913	1

Accessories

Branch terminals

The IBS IL 24 RB-T-PAC and IBS IL 24 RB-LK-PAC INTERBUS branch terminals make it possible to add more system levels to an INTERBUS network. To do so, you can choose between copper cable or fiber optics as the transmission medium. You can operate up to 15 levels in total in the network.

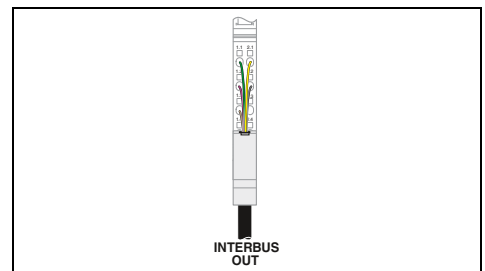
The IB IL 24 FLM-PAC Inline branch terminal enables the direct connection of Fieldline Modular M8 and M12 local bus devices to an Inline station.

The IB IL 24 FLM MUL-TI-PAC branch terminal enables the integration of several Fieldline Modular M8 local buses in an Inline station.

It is possible to skip a row within an Inline station by using the IB IL 24 FLM-PAC Inline branch terminal in combination with the IB IL 24 LSKIP-PAC coupler terminal. This means that you can extend the Inline station onto another DIN rail without having to use a new bus coupler.



Remote bus branch via copper cable



Technical data

Interface	
Connection method	Inline data jumper Inline shield connector
Local bus interface	
Connection method	Inline data jumper
Power supply for module electronics	
Supply voltage	-
Supply voltage range	-
Max. current consumption	-
Communications power U_L	-
Power supply at U_L	-
Current consumption from U_L	-
I/O supply voltage U_{ANA}	24 V DC (via voltage jumper) typ. 29 mA
Current consumption from U_{ANA}	-
Power supply at U_{ANA}	-
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	67 g
Dimensions	12.2 mm / 135 mm / 71.5 mm
EMC note	Class A product, see page 527

Description
Inline branch terminal , complete with accessories (connector and marking field)
- For extended temperature range of -40°C ... +70°C

Inline segment terminal , complete with accessories (connector and marking field)
Shield connector for analog Inline terminals

Ordering data

Type	Order No.	Pcs./Pkt.
IBS IL 24 RB-T-PAC	2861441	1
IBS IL 24 RB-T-XC-PAC	2701151	1

Accessories

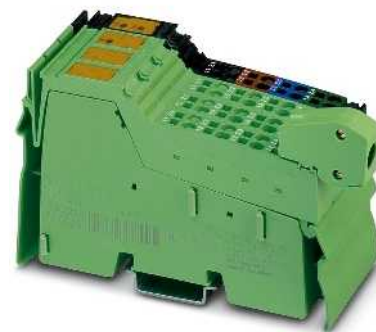
IB IL SCN-6 SHIELD	2726353	5
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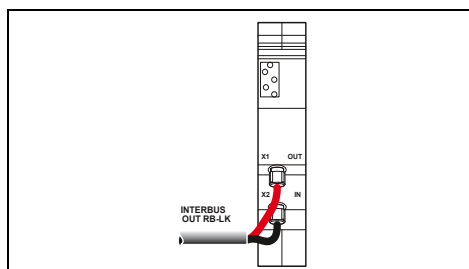
Remote bus branch via fiber optics



Fieldline Modular extension



Coupler terminal



Technical data

FSMA connector

Inline data jumper

-

-

-

-

-

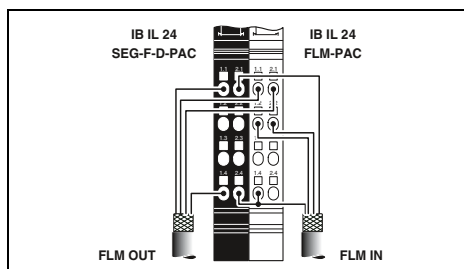
24 V DC (via voltage jumper)
typ. 42 mA
max. 51 mA

FSMA connector

89 g

24.4 mm / 119.8 mm / 71.5 mm

Class A product, see page 527



Technical data

IB IL 24 FLM-PAC

IB IL 24 FLM MULTI-PAC

Inline shield connector

Inline data jumper
Inline shield connector

Inline data jumper

-

-

-

7.5 V DC (via voltage jumper)

110 mA

50 mA

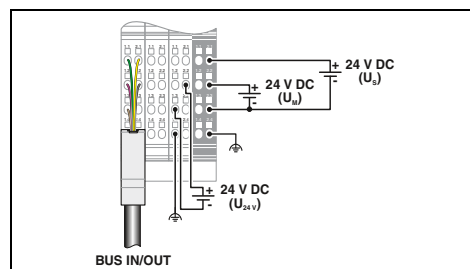
Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

43 g

12.2 mm / 136.8 mm / 71.5 mm

Class A product, see page 527



Technical data

-

Inline shield connector
Inline data jumper

24 V DC (via Inline connector)
19.2 V DC ... 30 V DC (including all tolerances, including ripple)

max. 1.25 A (at nominal voltage; consisting of: 0.75 A DC for the communications power and 0.5 A DC for the analog voltage supply)

7.5 V DC (via voltage jumper)
max. 2 A DC (observe derating)

24 V DC (via voltage jumper)

-

max. 0.5 A DC (observe derating)

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

207 g

48.8 mm / 135 mm / 71.5 mm

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IBS IL 24 RB-LK	2878117	1

Accessories

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Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 FLM-PAC	2736903	1
IB IL 24 FLM MULTI-PAC	2737009	1

Accessories

IB IL 24 SEG/F-PAC	2861373	1
IB IL SCN-6 SHIELD	2726353	5

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 LSKIP-PAC	2897457	1

Accessories

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Serial communication terminals

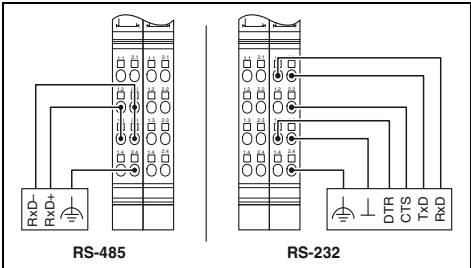
The serial Inline communication terminal can be used to connect devices with a serial interface, (e.g., bar code scanners).

Features:

- RS-232 or RS-485/RS-422 communication
- Baud rates of up to 250 kbaud
- Number of data bits, stop bits, and parity can be set
- Communication via process data
- Process data width can be set using DIP switches



1 serial RS-485/RS-422 or RS-232 interface, process data communication



Local bus interface	
Connection method	
Serial port	
Interface	
Power supply for module electronics	
Communications power U _L	
Current consumption from U _L	
Serial input/output channel	
Input buffer	
Output buffer	
Transmission speed	
Data bits	
Stop bits	
Parity	
Transmission type	
General data	
Connection method	
Connection data rigid / flexible / AWG	
Weight	
Dimensions	W / H / D

Technical data		
Inline data jumper		
RS-232, RS-485, RS-422		
7.5 V		
typ. 78 mA		
4 kByte		
1 kByte		
110 bps ... 250000 bps (configurable)		
5 ... 8		
1 or 2		
Even, odd or no parity		
Transparent mode, end-to-end mode, XON/XOFF		
Spring-cage connection		
0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16		
135 g		
24.4 mm / 135 mm / 71.5 mm		

Description
Inline communication terminal , complete with accessories (connector and marking field)
- 1 serial input and output channel as RS-485/RS-422 or RS-232 version

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL RS UNI-PAC	2700893	1

Connector set

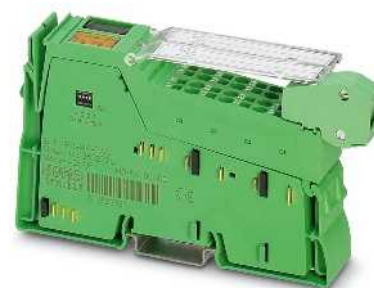
Accessories		
IB IL AO/CNT-PLSET	2732664	1

INTERFACE system bus master terminal

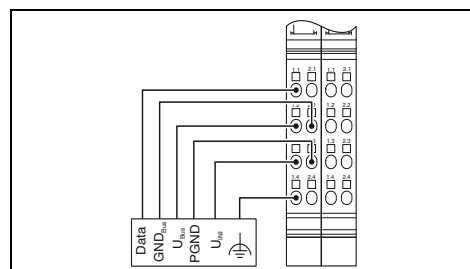
The Inline terminal can be used to connect INTERFACE modules to the Inline station and thus the higher-level bus system via the INTERFACE system bus.

Features:

- Easy integration of up to 8 INTERFACE EMM and EEM modules with firmware 1.03 or later
- User-friendly parameterization, configuration, and diagnostics using DTM's (Device Type Managers)
- Serial interface (S port) including a memory stick for saving the configuration
- Acquisition and output of up to 31 measured values and 16 manipulated variables
- Application: motor and energy data management



INTERFACE system bus master



Technical data

Local bus interface
Connection method
Communication interface
Interface
Connection method
Programming interface
Interface
Connection method
Power supply for module electronics
Communications power U_L
Current consumption from U_L
Supply of the connected INTERFACE modules

9 V supply

Voltage range
Type of protection
Max. current carrying capacity

24 V supply (EEM, EMM)

Voltage range
Type of protection
Max. current carrying capacity

General data

Connection method
Connection data rigid / flexible / AWG
Weight
Width

Bus base module

INTERFACE system bus
Inline shield connector

Programming interface (S port)
IFS-USB-PROG-ADAPTER

7.5 V
typ. 66 mA

8.1 V ... 9.9 V
Short-circuit protection, electronic
300 mA

19.2 V ... 30 V (including ripple)
Short-circuit protection, electronic and thermal
4 A

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

24.4 mm

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL IFS-MA-PAC	2692720	1

Accessories

Connector set
Programming adapter with USB interface
Multi-functional memory module for the Interface system
Assembled connecting cable, IL-IFS, 2 m in length

IB IL AO/CNT-PLSET	2732664	1
IFS-USB-PROG-ADAPTER	2811271	1
IFS-CONFSTICK	2986122	1
IMC 1,5/ 5-ST-3,81SET IL IFS 2M	1784729	1

DALI master terminals

In addition to DALI communication, the DALI master also provides the DALI bus supply. You do not need an external DALI power supply unit. This terminal can be extended with up to three IB IL DALI-PAC devices, each of which represents another DALI master.

Features:

- Up to 64 DALI devices per master terminal
- Safe electrical isolation of the DALI bus
- Protection of the DALI bus against accidental connection of the mains voltage (up to 250 V AC)
- Indication of diagnostics, transmission, and receipt
- Function blocks for PC Worx are available

The DALI multimaster is used to communicate with both DALI ballasts and DALI sensors. The DALI multimaster contains the DALI bus supply.

IB IL DALI/MM-PAC features:

- Up to 64 DALI devices
- DALI supply can be switched off
- Suitable for single and multimaster operation
- Protection of the DALI bus against accidental connection of the mains voltage (up to 250 V AC)

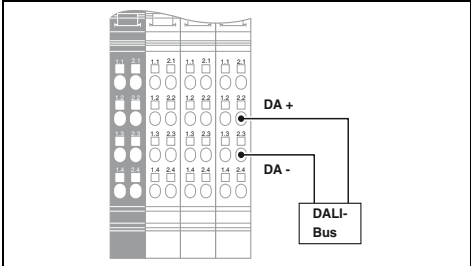
Local bus interface	
Connection method	
Power supply for module electronics	
Communications power U_L	
Current consumption from U_L	
Main circuit supply U_M	
Current consumption from U_M	
General data	
Connection method	
Connection data rigid / flexible / AWG	
Weight	
Dimensions	W / H / D

Description
1-channel DALI master , complete with accessories (connector and marking field)
- Integrated DALI power supply unit
- Extension for IB IL DALI/PWR-PAC
DALI master , with integrated DALI bus supply, suitable for single and multi-master operation, complete with accessories (connector and marking field)



DALI master, multi-master-capable as an option

ERC



Technical data	
IB IL DALI/PWR-PAC	IB IL DALI/MM-PAC
Inline data jumper	
7.5 V DC (via voltage jumper)	
max. 38 mA	max. 75 mA
24 V DC (via voltage jumper)	
max. 441 mA	max. 230 mA
Spring-cage connection	
0.2 ... 1.5 mm ² / 0.2 ... 1.5 mm ² / 24 - 16	0.2 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 24 - 16
194 g	180 g
48.8 mm / 119.8 mm / 71.5 mm	

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL DALI/PWR-PAC	2897813	1
IB IL DALI-PAC	2897910	1
IB IL DALI/MM-PAC	2700605	1

CAN master terminal

Notes:

The driver function blocks can be obtained free of charge on the Internet at phoenixcontact.net/products under Download on the product page of the corresponding module.

The Inline terminal can be used to connect a lower-level CAN network. Within the Inline station, the terminal acts as a CAN master for the CAN system.

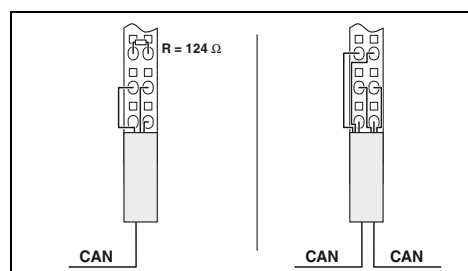
Any CAN frames with 11-bit or 29-bit identifier can be transmitted via the terminal by the PLC to all types of CAN devices, regardless of the CAN protocol present there.

Features:

- Transparent mode
- CAN 2.0A (11-bit identifier; standard frame)
- CAN 2.0B (29-bit identifier; extended frame)
- Transmission speed of 10 kbps to 1 Mbps
- Maximum data width: 126 bytes + 2-byte command/status word
- User-friendly controller-independent software tool for configuring the CAN network
- Serial interface (S port) including a memory stick for saving the configuration



CAN master



Technical data

Local bus interface	
Connection method	Bus base module
Communication interface	
Interface	CAN bus
Connection method	Inline shield connector
Programming interface	
Interface	CAN bus
Connection method	Inline shield connector
Power supply for module electronics	
Communications power U_L	7.5 V
Current consumption from U_L	typ. 110 mA
Main circuit supply U_M	24 V DC (via voltage jumper)
Current consumption from U_M	max. 12 mA
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	
Dimensions	W / H / D 12.2 mm / 136.8 mm / 71.5 mm

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL CAN-MA-PAC	2700196	1
IB IL CAN-MA-XC-PAC	2701160	1

Accessories

Shield connector	IB IL SCN 6-SHIELD-TWIN	2740245	5
Multi-functional memory module for the Interface system	IFS-CONFSTICK	2986122	1
Configuration cable for IB IL CAN-MA-PAC	IB IL CAN-MA CONF-CAB	2700620	1

PROFIBUS terminal

The PROFIBUS terminal enables the connection of PROFIBUS modules to a PC Worx controller via INTERBUS or PROFINET.

Likewise, a PC Worx controller can be integrated into an existing PROFIBUS system.

The terminal supports both the master and slave functions.

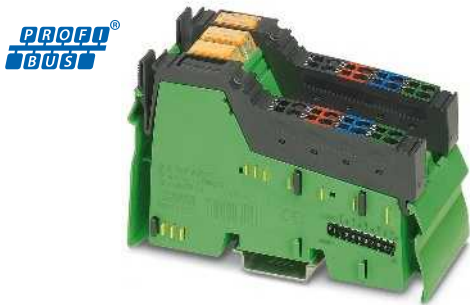
Features:

- PROFIBUS DP V0 master for a maximum of ten PROFIBUS slaves with up to 48 data words of input and output data
- PROFIBUS DP V0 master for a maximum of three PROFIBUS slaves with up to 56 data words of input and output data
- PROFIBUS DP slave with a maximum of 56 data words
- User-friendly parameterization via PC Worx
- Local plug-in memory for backing up the configuration

Local bus interface	
Connection method	
Communication interface	
Interface	
Connection method	
Power supply for module electronics	
Communications power U_L	
Current consumption from U_L	
General data	
Connection method	
Weight	
Dimensions	W / H / D

Description
Inline PROFIBUS master, complete with accessories (connector and marking field)

D-SUB connector, 9-pos. with two cable entries, termination resistor can be switched on via slide switch
--



PROFIBUS master/slave

Technical data		
Bus base module		
PROFIBUS DP V0 master/slave		
9-pos. D-SUB socket		
7.5 V		
typ. 98 mA		
9-pos. D-SUB socket		
48.8 mm / 119.8 mm / 71.5 mm		

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL PB MA-PAC	2700630	1

Accessories		
SUBCON-PLUS-PROFIB	2744348	1

Counter terminal

The Inline counter terminal detects and processes fast pulse sequences from sensors.

Possible operating modes:

- Event counting
- Frequency measurement (time- or state-controlled)
- Time measurement (period or pulse length)
- Pulse generator

Features:

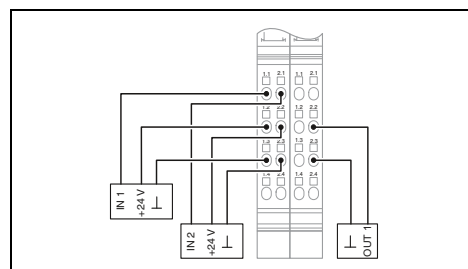
- 1 counter
- 24 V sensor supply including monitoring
- Processing of 5 V or 24 V signals
- Input frequency of up to 100 kHz
- Gate input
- 24-bit counter value for event counting and frequency measurement
- Frequency measurement resolution of up to 0.1 Hz
- 16-bit counter value for time measurement
- Time measurement resolutions: 2 µs, 1 ms, and 10 ms
- 24 V onboard output switches when relation condition is met
- Start and final value can be modified during counting

Notes:

The driver function blocks can be obtained free of charge on the Internet at phoenixcontact.net/products under Download on the product page of the corresponding module.



1 counter input



Technical data

Local bus interface	
Connection method	
Power supply for module electronics	Inline data jumper
Segment circuit supply U_S	24 V DC (via voltage jumper)
Current consumption from U_S	max. 1 A
Communications power U_L	7.5 V DC
Current consumption from U_L	typ. 40 mA
Counter input	
Operating modes	Event counting, frequency/time measurement
Input frequency	max. 100 kHz
Input voltage	24 V DC (nominal voltage) / 30 V DC (maximum)
Input current	typ. 5 mA
Control input	
Connection technology	2-, 3-conductor
Input voltage	24 V DC (nominal voltage) / 30 V DC (maximum)
Input current	typ. 5 mA
Digital outputs	
Number of outputs	1
Connection technology	2-conductor
Output voltage	24 V DC (nominal voltage)
Output current	max. 0.5 A (nominal current)
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	130 g
Dimensions	24.4 mm / 135 mm / 71.5 mm

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL CNT-PAC	2861852	1
IB IL CNT-XC-PAC	2702134	1
Accessories		
IB IL AO/CNT-PLSET	2732664	1

Connector set

Description

Inline counter terminal, complete with accessories (connector and marking field)

- For extended temperature range of -40°C ... +70°C

Pulse width terminal

The Inline PWM terminal outputs signals; depending on the operating mode, either the pulse length, period length or frequency can be set.

Features:

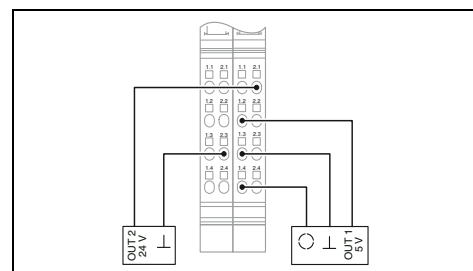
- 2 independent channels
- Output of 5 V or 24 V signals
- Maximum frequency of 50 kHz
- Pulse width modulation:
 - Period length can be set in increments from 100 µs to 10 s, duty factor in 0.39% increments
- Frequency output: can be set between 0 Hz and 50 kHz
- Single pulse output: pulse length can be set between 10 µs and 25.5 s
- Pulse/direction signal output without integrated ramp function to control step motor power sections

Notes:

The driver function blocks can be obtained free of charge on the Internet at phoenixcontact.net/products under Download on the product page of the corresponding module.



Pulse width modulation, frequency generator or pulse/direction signal output



Technical data

Inline data jumper

24 V DC (via voltage jumper)
max. 1 A
7.5 V
max. 130 mA

2
2-conductor (shielded)
24 V

Spring-cage connection
0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16
130 g
24.4 mm / 136.8 mm / 71.5 mm

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL PWM/2-PAC	2861632	1

Accessories

IB IL SCN-8	2726337	10
IB IL SCN 6-SHIELD-TWIN	2740245	5

Local bus interface	
Connection method	
Power supply for module electronics	
Segment circuit supply U _S	
Current consumption from U _S	
Communications power U _L	
Current consumption from U _L	
Digital outputs	
Number of outputs	
Connection technology	
Output voltage	
General data	
Connection method	
Connection data rigid / flexible / AWG	
Weight	
Dimensions	W / H / D

Description
Inline function terminal, complete with accessories (connector and marking field)

Connector
Shield connector

Power measurement terminal

This module is designed for use within an Inline station.

The power measurement terminal enables you to analyze AC networks and is used in applications where conventional analog meters in distribution systems no longer meet growing requirements. This is particularly true in cases where it is important to analyze distortions and harmonics as well as measuring current, voltage, and power.

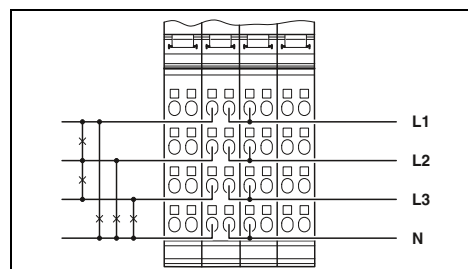
Features:

- 3 phases plus neutral conductor, connectable
- Direct current detection, 1 A or 5 A
- Line-to-line voltage up to 690 V AC (L-L)
- Specification in accordance with EN 61010-1:2001:
 - Measurement category 3 (300 V AC (L-N))
 - Measurement category 2 (400 V AC (L-N))
- Network variables:
 - Phase currents and neutral conductor current
 - Phase and phase conductor voltages
 - Real, reactive, and apparent power
 - Power flow directions
 - Frequency
- Operating modes:
 - Basic measured values
 - Scanning measured values (64 scans/full wave)
- Synchronization
- Triggers for measurement intervals can be freely defined
- Harmonic analysis up to 31st harmonic
- Determination of maximum value
- Operating hours counter
- Power meter
- Bimetal filtering



Analysis of AC networks

ERC



Technical data

Local bus interface

Designation

Connection method

Power supply for module electronics

Communications power U_L

Current consumption from U_L

Current measuring input

Nominal current I_N

Overload

Precision

Scanning rate

Voltage measuring input

Nominal voltage U_N

Nominal voltage range

Overload

Precision

Scanning rate

General data

Connection method

Connection data rigid / flexible / AWG

Weight

Width

Ambient temperature (operation)

Inline local bus

Inline data jumper

7.5 V

typ. 130 mA

5 A AC (1 A AC, depending on parameterization)

1.4 times continuous; 150 A for 10 ms

0.25% (of the nominal value)

22.4 k samples/50 Hz

400 V AC (nominal phase voltage)

0 V AC ... 690 V AC (conductor-conductor, chained)

1.2 times the nominal value

0.25% (of the nominal value)

22.4 k samples/50 Hz

Spring-cage connection

0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16

200 g

48.8 mm

-25°C ... 55°C

Ordering data

Description

Inline power measurement terminal, complete with accessories (connector and marking field)

Type

Order No.

Pcs./Pkt.

IB IL PM 3P/N/EF-PAC

2700965

1

Accessories

Marking field, width: 12.2 mm

Marking field, width: 48.8 mm

IB IL FIELD 2

2727501

10

IB IL FIELD 8

2727515

10

Position measurement terminals

The Inline position detection terminals allow you to record positions via incremental encoders, absolute encoders with SSI interface or magnetostrictive encoders with start/stop interface.

IB IL INC-IN-PAC features:

- Symmetrical and asymmetrical incremental encoders with or without Z trace can be connected
- Shield connection
- Maximum input frequency of 300 kHz
- Single, double or quadruple evaluation
- 25-bit actual position value
- 5 V and 24 V encoder supply including monitoring
- 3 digital inputs to connect two limit switches and one home position switch
- 5 homing functions
- Direction of rotation indicator via LED
- Open circuit detection

IB IL SSI-IN-PAC features:

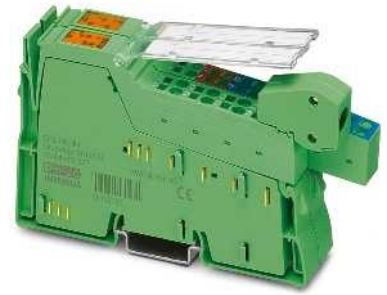
- 1 single or multi-turn encoder with up to 25-bit resolution can be connected
- Transmission frequency of up to 1 MHz
- 5 V encoder supply including monitoring
- Gray or binary code
- Parity monitoring
- Reversal of direction of rotation
- Shield connection

IB IL IMPULSE-IN-PAC features:

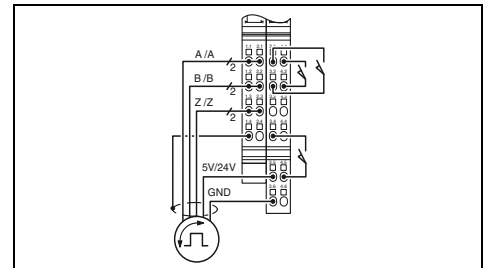
- 1 magnetostrictive encoder can be connected
- Evaluation of the position of a magnet
- Length measuring range of up to 3.85 m
- Position resolution of 5 μ m
- Ultrasonic encoder speed of 2500 m/s to 2999.99 m/s
- 24 V encoder supply including monitoring
- Shield connection

Notes:

The driver function blocks can be obtained free of charge on the Internet at phoenixcontact.net/products under Download on the product page of the corresponding module.



Input for incremental encoder with square-wave signal (symmetrical or asymmetrical)



Technical data

Local bus interface	
Connection method	
Power supply for module electronics	
Main circuit supply U_M	24 V DC (via voltage jumper)
Current consumption from U_M	max. 1 A
Communications power U_L	7.5 V DC
Current consumption from U_L	max. 70 mA
Encoder supply voltage	5 V DC / 24 V DC
Encoder supply current	max. 250 mA
Drawing encoder supply voltage	Main circuit U_M
Drawing initiator supply	Main circuit U_M
Incremental encoder input	
Number of inputs	1
Description of the input	Symmetrical (RS-422) or asymmetrical (3.5 V to -27 V)
Input frequency (24 V)	0 Hz ... 300 kHz
Absolute position encoder input	
Number of inputs	-
Transmission frequency	-
Adjustable resolution	-
Input for magnetostrictive encoders	
Length measuring range	-
Resolution (measuring length)	-
Ultrasonic speed (gradient)	-
Digital inputs	
Number of inputs	3
Input voltage range "0" signal	-30 V DC ... 5 V DC
Input voltage range "1" signal	15 V DC ... 30 V DC
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	143 g
Dimensions	24.4 mm / 140.5 mm / 71.5 mm

Inline position measurement terminal, complete with accessories (connector and marking field)

Connector

Shield connector for analog Inline terminals

Ordering data

IB IL INC-IN-PAC	2861755	1
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Accessories

IB IL SCN-12-ICP	2727611	10
IB IL SCN-6 SHIELD	2726353	5



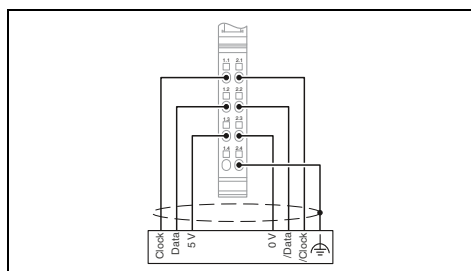
Input for absolute rotation or
travel measuring systems with SSI interface



Input for magnetostriuctive encoder
with start/stop interface

EAC
Ex:

EAC



Technical data

Inline data jumper

24 V DC (via voltage jumper)

max. 66 mA

7.5 V DC

max. 28 mA

5 V DC

max. 250 mA

Main circuit U_M

-

-

-

-

1

100 kHz / 200 kHz / 400 kHz / 800 kHz / 1 MHz

25 bit (maximum)

-

-

-

Spring-cage connection

0.08 ... 1.5 mm² / 0.08 ... 1.5 mm² / 28 - 16

71 g

12.2 mm / 135 mm / 71.5 mm

Ordering data

IB IL SSI-IN-PAC

2819574

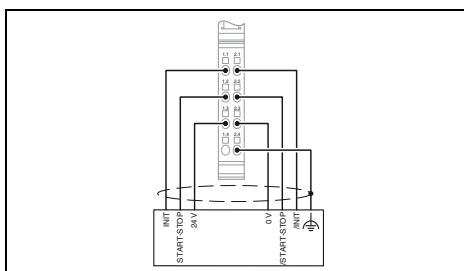
1

Accessories

IB IL SCN-6 SHIELD

2726353

5



Technical data

24 V DC (via voltage jumper)

max. 250 mA (short-circuit and overload protection)

7.5 V

max. 70 mA

-

-

-

-

-

-

-

-

-

0 mm ... 3850 mm

5 µm

2500 m/s ... 2999.99 m/s

Positioning control terminals

The Inline positioning control system is suitable for point-to-point positioning of binary-controlled drives, e.g., pole-changing AC motors, in accordance with the rapid motion/creeping motion principle and supports the positioning of rotary and linear axes.

It can be used to perform simple positioning tasks, such as positioning:

- Transportation equipment
- Format adjustments (adjustable axes)
- Tools

It is not necessary to set control parameters here. After specifying a target position, the terminal automatically, and therefore independently of the bus, assumes control of the drive by specifying both the traversing rate (rapid motion/creeping motion) and the traversing direction via four binary outputs and signaling when the target point has been reached.

Features:

- Position detection using absolute encoders with SSI interface
- 5 V and 24 V encoder supply including monitoring
- 24 V sensor supply including monitoring
- 3 digital inputs
- 4 digital outputs
- Software limit switch
- Integrated monitoring functions
- Gear ratio can be parameterized
- Backlash and friction compensation
- Startup using hand-held operator panel mode

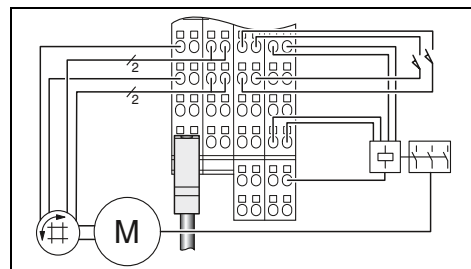
Notes:

The driver function blocks can be obtained free of charge on the Internet at phoenixcontact.net/products under Download on the product page of the corresponding module.



SSI interface for absolute encoders

ERC 9A



Technical data

Local bus interface	
Connection method	
Power supply for module electronics	
Main circuit supply U_M	24 V DC (via voltage jumper)
Current consumption from U_M	max. 1 A
Segment circuit supply U_S	24 V DC (via voltage jumper)
Current consumption from U_S	max. 2 A
Communications power U_L	7.5 V DC
Current consumption from U_L	max. 60 mA
Encoder supply voltage	5 V DC / 24 V DC
Encoder supply current	500 mA
Drawing encoder supply voltage	Main circuit U_M
Drawing initiator supply	Main circuit U_M
Absolute position encoder input	
Number of inputs	1
Transmission frequency	400 kHz
Adjustable resolution	26 bit (maximum)
Digital inputs	
Number of inputs	3
Input voltage range "0" signal	-30 V DC ... 5 V DC
Input voltage range "1" signal	13 V DC ... 30 V DC
Digital outputs	
Number of outputs	4
Output voltage	24 V DC
Output current	2 A
General data	
Connection method	Spring-cage connection
Connection data rigid / flexible / AWG	0.08 ... 1.5 mm ² / 0.08 ... 1.5 mm ² / 28 - 16
Weight	210 g
Dimensions	48.8 mm / 140.5 mm / 71.5 mm

Inline positioning terminal, complete with accessories
(connector and marking field)
- Absolute encoder input

Connector
Shield connector for analog Inline terminals

Ordering data

IB IL SSI-PAC	2861865	1
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Accessories

IB IL SCN-12-ICP	2727611	10
IB IL SCN-6 SHIELD	2726353	5

Servo controller for EC motors

The IB IL EC AR 48/10A Inline servo controller is a universal power output module with a 4 quadrant function for permanently excited DC motors with brushgears or electronically commutated DC motors (EC motors) with up to 450 W power output.

Features:

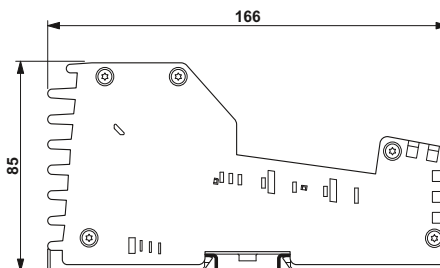
- Variable frequency drive with positioning function
- Electronic commutation with Hall sensors
- Point-to-point positioning function
- Speed profile: trapezoid or S curve
- Position, speed, and torque control
- Position detection with incremental encoder
- Homing
- Max. 48 V/10 A
- Overall width of 97.6 mm
- Software tool for operation and startup including oscilloscope function
- Cycle time of the position controller: 1 ms
- For single- and multi-axis applications

Applications:

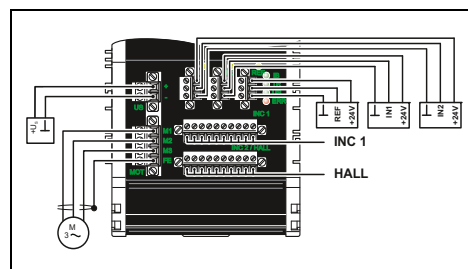
- Handling machines in the semiconductor industry, in small parts protection, in the electronics industry, and in test engineering
- Assembly machines in small appliance production
- Bearing and conveying technology for small loads
- Format adjustment in processing machines and packaging machines
- Laboratory technology

Notes:

The driver function blocks can be obtained free of charge on the Internet at phoenixcontact.net/products under Download on the product page of the corresponding module.



Servo controller for 24 V motors with positioning and homing function



Technical data

Interface	Inline data jumper RS-232
Power supply for module electronics	24 V DC (via voltage jumper) max. 150 mA 7.5 V DC typ. 30 mA
Main circuit supply U_M Current consumption from U_M Communications power U_L Current consumption from U_L	2-pos. COMBICON connector 12 V DC ... 48 V DC $\pm 15\%$ (surge voltage shutdown $U_S > 60$ V DC)
Power supply	1 permanently excited DC motor with or without brushgear
Connection method Supply voltage range	4-pos. COMBICON connector with shield clip max. 10 A (starting/continuous current) 450 W (power consumption) 4 quadrant servo controller
Motor output	Symmetrical incremental encoders max. 1 MHz Asymmetrical incremental encoders max. 500 kHz (at 4 V voltage level) max. 100 kHz (at 20 V voltage level)
Output name	3 MINI COMBICON 3-conductor (signal, Us, GND)
Connection method Nominal current range Nominal motor power Function	Screw connection 0.2 ... 2.5 mm ² / 0.2 ... 2.5 mm ² / 24 - 12 0.14 ... 2.5 mm ² / 0.2 ... 2.5 mm ² / 28 - 16
Incremental encoder input	880 g 97.6 mm Class A product, see page 527
Description of the input Input frequency (5 V) Description of the input Input frequency (5 V) Input frequency (24 V)	
Digital inputs	
Number of inputs Connection method Connection technology	
General data	
Connection method Connection data rigid / flexible / AWG front MSTB	
Connection data rigid / flexible / AWG front MC	
Weight Width EMC note	

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL EC AR 48/10A-PAC	2819587	1

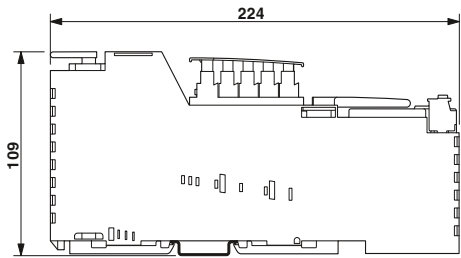
Power-level terminals

The single-channel power-level terminals for direct and reversing starters and the electromechanical version with electronic motor protection enable a three-phase asynchronous motor to be switched, protected, and monitored via a bus system.

The power-level terminals are designed for use within the 24 V area of an Inline station.

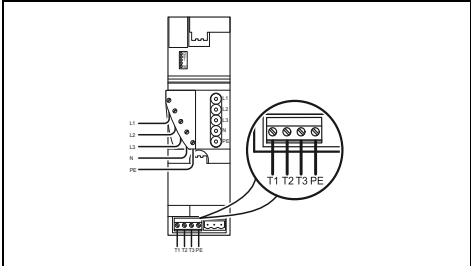
Features:

- Integrated electronic motor protection in accordance with IEC 60947-4
- Connection option for an external passive brake module
- Manual local operation
- Safe isolation between mains voltage and 24 V supply voltage in accordance with EN 50178
- Diagnostic and status indicators
- Motor current monitoring
- Motor control via OUT process data



Electronic direct or reversing load starter, up to 1.5 kW / 400 V AC

ERC



Interface
Inline local bus
Power supply for module electronics
Segment circuit supply U_S
Current consumption from U_S
Communications power U_L
Current consumption from U_L
Motor starter, output
Connection method
Output voltage range
Nominal current range
Power factor
Switching rate
Motor monitoring
Tripping class
Overspeed tripping
Output
Maximum switching voltage
Max. switching current
Switch-off delay
Switch-on delay
General data
Width
EMC note

Technical data
Inline data jumper
24 V DC (via voltage jumper)
max. 50 mA
7.5 V
max. 45 mA
COMBICON
200 V AC ... 400 V AC
0.2 A ... 3.6 A
0.3
Max. 30 per minute (observe derating)
Based on class 10 A of IEC 60947-4: 1990
≥ 20 A (after 0.3 seconds)
-
-
-
-
63 mm
Class A product, see page 527

Description
Inline power-level terminals, incl. motor circuit connector
- Electronic direct starter
- Electronic reversing load starter
- Electromechanical direct starter
Inline brake module, for brake control in conjunction with Inline power-level terminals
- For 440 V AC/DC brakes

Ordering data		
Type	Order No.	Pcs./Pkt.
IB IL 400 ELR 1-3A	2727352	1
IB IL 400 ELR R-3A	2727378	1

Inline thermistor terminal, complete with accessories (connector and marking field)
Power connector for Inline power-level terminals
Power bridge for Inline power-level terminals
Motor-circuit connector for Inline power-level terminals

Accessories		
IB IL 24 TC-PAC	2861360	1
IB IL 400 CN-PWR-IN	2836078	1
IB IL 400 CN-BRG	2836081	1
GMVSTBW 2,5 HV/ 4-ST-7,62 NZIL	1893957	10

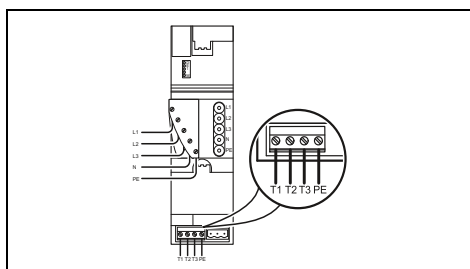


Electromechanical direct starter,
up to 3.7 kW / 400 V AC



Extension module, for brake control
of power-level terminals

ERC



Technical data

Inline data jumper

24 V DC (via voltage jumper)
max. 160 mA
7.5 V
max. 50 mA

COMBICON
200 V AC ... 600 V AC
0.2 A ... 8 A
0.3
max. 5 cycles per minute

Based on class 10 A of IEC 60947-4: 1990

≥ 40 A (after 0.3 seconds)

-
-
-
-

63 mm
Class A product, see page 527

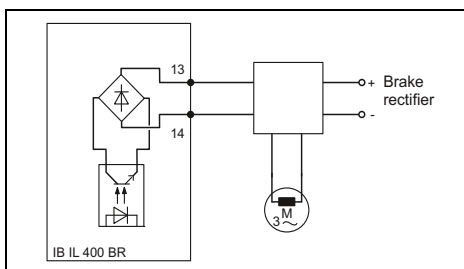
Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 400 MLR 1-8A	2727365	1

Accessories

IB IL 24 TC-PAC	2861360	1
IB IL 400 CN-PWR-IN	2836078	1
IB IL 400 CN-BRG	2836081	1
GMVSTBW 2,5 HV/ 4-ST-7,62 NZIL	1893957	10

ERC



Technical data

-

-
-
-
-

-
-
-
-
-

-

-

440 V AC/DC
300 mA AC/DC
< 1 ms
< 4 ms

55 mm
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 400 BR	2727394	1

Accessories

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The IOL MA8 PN DI8 and IOL MA8 EIP DI8 IO-Link masters enable the connection of up to eight IO-Link devices in the control cabinet. Eight additional digital inputs for connecting standard sensors extend the possible applications of the devices.

Parameterization and diagnostics of the connected IO-Link devices can be easily performed using the integrated web server. The IO-Link description files (IODD) of the IO-Link devices can be read in via the graphical user interface with cross-manufacturer compatibility.

All terminal points of the device feature Push-in connection technology. This ensures quick and easy installation of the device.

For future-proof communication, the IO-Link masters support the PROFINET, EtherNet/IP™, and Modbus/TCP network protocols.

The IO-Link masters support the connection of IO-Link devices in accordance with IO-Link specification V1.1.

Find out more with the web code

Detailed information regarding our IO-Link products can be found on our website. Simply enter # and numbers in the search field.

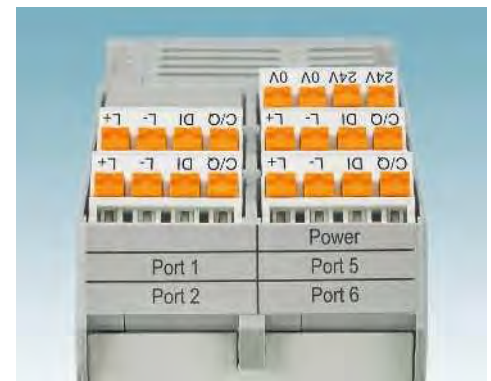
i Your web code: #2074



Convenient configuration and diagnostics of the connected IO-Link devices



Future-proof communication



Fast installation, thanks to Push-in connection technology

IO-Link master

The stand-alone IO-Link master is used to connect IO-Link devices. In addition, up to eight standard sensors can be connected to the IO-Link master via digital inputs.

Features:

- Convenient web server for the parameterization and diagnostics of IO-Link devices
- Quick installation, thanks to Push-in connection technology
- Future-proof communication, thanks to PROFINET, EtherNet/IP™, and Modbus/TCP
- Compatible with IO-Link specification V1.1



8 IO-Link ports, 8 digital inputs



new



8 IO-Link ports, 8 digital inputs



new

Technical data

Interface	
Fieldbus system	PROFINET
Connection method	RJ45 socket
Transmission speed	10/100 Mbps (with auto negotiation)
Power supply for module electronics	
Supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC
Current consumption	3.7 A
Digital inputs	
Connection technology	3-conductor
Number of inputs	8
IO-Link ports	
Connection technology	3-conductor
Number of ports	8
IO-Link port supply L+	
Nominal voltage for I/O supply	24 V DC
Nominal current per IO-Link port	max. 200 mA (at C/Q) max. 200 mA (at L+/L-) Overload protection yes
Protective circuit	
General data	
Connection method	Push-in technology
Connection data rigid / flexible / AWG	0.2 ... 2.5 mm ² / 0.2 ... 2.5 mm ² / 24 - 14
Weight	225 g
Dimensions	45 mm / 114.5 mm / 99 mm
EMC note	Class A product, see page 527

W / H / D

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Stand-alone IO-Link master - For PROFINET - For EtherNet/IP™	IOL MA8 PN DI8	1072838	1

Technical data

Interface	
Fieldbus system	EtherNet/IP™
Connection method	RJ45 socket
Transmission speed	10/100 Mbps (with auto negotiation)
Power supply for module electronics	
Supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC
Current consumption	3.7 A
Digital inputs	
Connection technology	3-conductor
Number of inputs	8
IO-Link ports	
Connection technology	3-conductor
Number of ports	8
IO-Link port supply L+	
Nominal voltage for I/O supply	24 V DC
Nominal current per IO-Link port	max. 200 mA (at C/Q) max. 200 mA (at L+/L-) Overload protection yes
Protective circuit	
General data	
Connection method	Push-in technology
Connection data rigid / flexible / AWG	0.2 ... 2.5 mm ² / 0.2 ... 2.5 mm ² / 24 - 14
Weight	225 g
Dimensions	45 mm / 114.5 mm / 99 mm
EMC note	Class A product, see page 527

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Stand-alone IO-Link master - For PROFINET - For EtherNet/IP™	IOL MA8 EIP DI8	1072839	1

Inline Block IO



The space-saving extension to the modular Inline I/O system: compact and flat Inline Block IO modules.

Pre-assembled devices with a block design can be used to integrate a fixed number of I/Os into your network or bus system. Significant benefits can be achieved in terms of handling and costs for low numbers of I/Os in particular, as I/O modules and bus couplers are combined in a single device.

Your advantages:

- Particularly space saving: just 55 mm tall and 95 or 156 mm wide
- Manage low numbers of I/Os cost-effectively
- Time savings as no configuration is required and installation is easy
- Separate module, sensor, and actuator supply increases system availability



Distributed I/O system with a block design

Description
Inline Block IO digital I/O module for Modbus/TCP
- 16 fixed inputs, 16 freely selectable inputs/outputs
Inline Block IO digital I/O module for PROFINET
- 16 fixed inputs, 16 freely selectable inputs/outputs
Inline Block IO analog and digital I/O modules for INTERBUS
- 32 inputs
- 16 outputs
- 32 outputs
- 16 inputs, 16 outputs
- 16 inputs, 16 outputs, D-SUB bus connection
Inline Block IO analog and digital I/O modules for PROFIBUS
- 8 inputs, 8 inputs or outputs
- 16 inputs, 16 outputs
- 32 inputs

Ordering data		
Type	Order No.	Pcs./Pkt.
ILB ETH 24 DI16 DIO16-2TX	2832962	1
ILB PN 24 DI16 DIO16-EF	2702289	1
ILB IB 24 DI32	2862343	1
ILB IB 24 DO16	2862356	1
ILB IB 24 DO32	2862369	1
ILB IB 24 DI16 DO16	2862385	1
ILB IB 24 DI16 DO16-DSUB	2878625	1
ILB PB 24 DI 8 DIO8	2863562	1
ILB PB 24 DI16 DO16	2862411	1
ILB PB 24 DI32	2862398	1

INTERBUS ST



INTERBUS ST (Smart Terminal) modules are used for medium to high numbers of I/Os – they connect sensors and actuators to INTERBUS, either distributed in the terminal box or centrally in the control cabinet.

Your advantages:

- Different connection methods increase flexibility when selecting the transmission medium
- Replaceable module electronics ensure reliable operation
- Adaptation to your individual needs, thanks to the modular design and connecting the modules as desired



Distributed I/O system with a modular design

Ordering data			
Description	Type	Order No.	Pcs./Pkt.
INTERBUS ST BK modules - D-SUB connector, 9-pos. - MINI COMBICON connector, 8-pos. - Fiber optic F-SMA connector, optical path diagnostics - Additional remote bus branch, D-SUB connector - Additional local bus branch - D-SUB connector, 9-pos., 8 digital input and outputs each	IBS ST 24 BK-T	2754341	1
	IBS ST 24 BKM-T	2750154	1
	IBS ST 24 BKM-LK-OPC	2728665	1
	IBS ST 24 BK RB-T	2753504	1
	IBS ST 24 BK LB-T	2753232	1
INTERBUS ST digital modules - 16 inputs - 32 inputs - 32 outputs - 16 relay N/O contact outputs - 8 inputs, 8 outputs, 2 A	IB ST 24 DI 16/4	2754338	1
	IB ST 24 DI32/2	2754927	1
	IB ST 24 DO32/2	2754325	1
	IB ST 24 DO16R/S	2721112	1
	IB ST 24 DIO 8/8/3-2A	2753708	1
INTERBUS ST analog modules - 4 inputs, 0 - 20 mA, 4 - 20 mA, 0 - 10 V, ± 10 V - 8 inputs, 0 - 20 mA, 4 - 20 mA, 0 - 10 V, etc. - 4 inputs, RTD, Pt 100, Pt 1000, etc. - 4 outputs, 0 - 20 mA, 4 - 20 mA, 0 - 10 V	IB ST 24 AI 4/EF	2700838	1
	IB ST 24 BAI 8/EF	2700842	1
	IB ST 24 TEMP 4 RTD	2700843	1
	IB ST 24 AO 4/EF	2700839	1

Product overview

Axioline E I/O modules, M12



EtherCAT

EtherNet/IP

Modbus/TCP
(UDP)

PROFINET

SERCOS
the automation bus

PROFIBUS

Robust metal housing

Digital input	Digital input/output			IO-Link Digital input
	16 channels	16 freely configurable channels	8 / 8 channels	8 IO-Link ports 4 channels
	Page 168		Page 169	
	Page 170		Page 171	
	Page 172		Page 173	
	Page 174		Page 175	
	Page 176		Page 177	
	Page 178		Page 179	

Axioline E I/O modules, M12



EtherCAT

EtherNet/IP

Modbus/TCP
(UDP)

PROFINET

SERCOS
the automation bus

PROFIBUS

Plastic housing

Digital input	Digital input/output			IO-Link Digital input
	16 channels	16 freely configurable channels	8 / 8 channels	8 IO-Link ports 4 channels
	Page 168		Page 169	
	Page 170		Page 171	
	Page 172		Page 173	
	Page 174		Page 175	
	Page 176		Page 177	
	Page 178		Page 179	

IO-Link master for the control cabinet (IP20)



Axioline F

IO-Link

8 IO-Link A ports

Page 89



Stand-alone

IO-Link

8 IO-Link A ports

Page 162

Axioline E IO-Link devices, M12

	I/O boxes			IO-Link/analog converters	
	Digital input	Digital output		Temperature measurement	
	1 IO-Link A port 8 / 16 channels	1 IO-Link B port 8 channels		1 IO-Link A port 4 channels TC, type K	
	Page 180	Page 180		Page 181	
IO-Link					

IO-Link/analog converters in straight or angled format					
	Analog input		Analog output		Temperature measurement
	1 channel Current input	1 channel Voltage input	1 channel Current output	1 channel Voltage output	1 channel RTD
	Page 182		Page 183		
	IO-Link				

General accessories

				
UCT-EM (7X10)	SACB-4/T-L-8FUSE DIAG CT AXL	SACC-M12...	SAC-4P...	PROT-M12 SH
Snap-in markers, unmarked	M12 distributor for power connectors	M12 POWER connectors	M12 SPEEDCON power cable	M12 locking screws
phoenixcontact.net/products		Page 184	Page 185	phoenixcontact.net/products

General technical data

Ambient conditions

Temperature range (operation)	-25°C ... +60°C
Permissible humidity (storage/transport)	95%
Vibration	5g in accordance with EN 60068-2-6 / IEC 60068-2-6
Shock	30g in accordance with EN 60068-2-27 / IEC 60068-2-27
Continuous shock	10g in accordance with EN 60068-2-27 / IEC 60068-2-27
Degree of protection	IP65/IP67 in accordance with IEC 60529

Electromagnetic compatibility

Noise emission	Class A in accordance with EN 61000-6-4
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EtherCAT®

Digital I/O devices – Stand-Alone

The I/O devices with a block design are used to acquire and output various signals.

Features:

- Robust metal or plastic housing
- Seamless connection via M12 connectors
- SPEEDCON fast locking system
- Maximum current carrying capacity of the supply: 12 A
- Diagnostic and status indicators
- Short-circuit and overload protection

Additional features

IO-Link master:

- In accordance with specification 1.1
- 4 digital inputs,
- 4 IO-Link ports Class A,
- 4 IO-Link ports Class B on one device

EtherCAT®



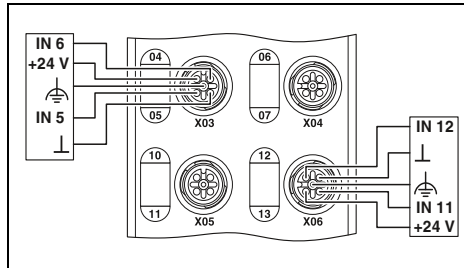
16 digital inputs

EtherCAT®

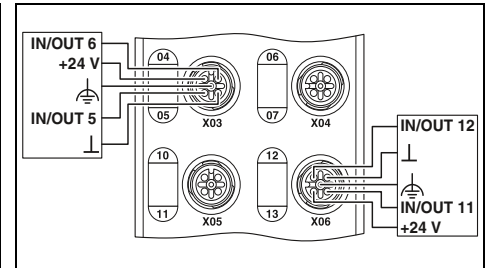


16 freely configurable inputs or outputs

EtherCAT
Ex:



EtherCAT
Ex:



Technical data

AXL E EC DI16 M12 6M AXL E EC DI16 M12 6P

EtherCAT®

M12 fast connection technology
100 Mbps (with auto negotiation)

24 V DC

18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

16

< 1000 µs

Overload protection, short-circuit protection of sensor supply

Technical data

AXL E EC DIO16 M12 6M AXL E EC DIO16 M12 6P

EtherCAT®

M12 fast connection technology
100 Mbps (with auto negotiation)

24 V DC

18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

16

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, double occupancy

3-conductor

16

500 mA

Overload protection, short-circuit protection of outputs

Interface	
Fieldbus system	
Connection method	
Transmission speed	
Power supply for module electronics	
Supply voltage	
Supply voltage range	
Connection method	
Digital inputs	
Connection method	
Connection technology	
Number of inputs	
Input filter time	
Protective circuit	
Digital outputs	
Connection method	-
Connection technology	-
Number of outputs	-
Maximum output current per channel	-
Protective circuit	-
IO-Link ports	
Connection method	-
Connection technology	-
Number of ports	-
IO-Link port supply L+	
Nominal voltage for I/O supply	-
Nominal current per IO-Link port	-
Protective circuit	-
General data	
Weight	750 g 480 g
Dimensions	60 mm / 185 mm / 38 mm 60 mm / 185 mm / 30.5 mm
Degree of protection	IP65/IP67

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Axioline E I/O device			
- Robust metal housing	AXL E EC DI16 M12 6M	2701526	1
- Plastic housing	AXL E EC DI16 M12 6P	2701521	1

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E EC DIO16 M12 6M	2701528	1
AXL E EC DIO16 M12 6P	2701522	1

EtherCAT



8 digital inputs and 8 digital outputs

EtherCAT



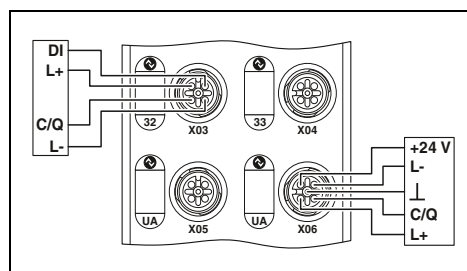
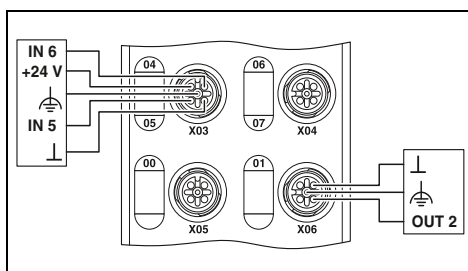
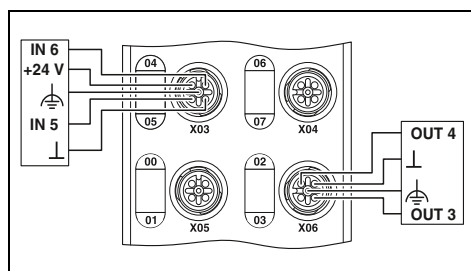
8 digital inputs and 4 digital outputs

EtherCAT

IO-Link



8 IO-Link ports, 4 digital inputs

EtherCAT
Ex: EtherCAT
Ex: EtherCAT
Ex: 

Technical data

AXL E EC DI8 DO8 M12 6M AXL E EC DI8 DO8 M12 6P

EtherCAT®
M12 fast connection technology
100 Mbps (with auto negotiation)24 V DC
18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

8

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, double occupancy

3-conductor

8

500 mA

Overload protection, short-circuit protection of outputs

-

-

-

-

-

-

-

750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

IP65/IP67

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E EC DI8 DO8 M12 6M	2701525	1
AXL E EC DI8 DO8 M12 6P	2701520	1

Technical data

AXL E EC DI8 DO4 2A M12 6M AXL E EC DI8 DO4 2A M12 6P

EtherCAT®
M12 fast connection technology
100 Mbps (with auto negotiation)24 V DC
18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

8

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, (A-coded)

3-conductor

4

2 A

Overload protection, short-circuit protection of outputs

-

-

-

-

-

-

-

750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

IP65/IP67

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E EC DI8 DO4 2A M12 6M	2701529	1
AXL E EC DI8 DO4 2A M12 6P	2701523	1

Technical data

AXL E EC IOL8 DI4 M12 6M AXL E EC IOL8 DI4 M12 6P

EtherCAT®
M12 fast connection technology
100 Mbps (with auto negotiation)24 V DC
19.5 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, X01 ... X04 have double occupancy

3-conductor

4

< 1000 µs

Overload protection, short-circuit protection of sensor supply

-

-

-

-

-

M12 fast connection technology

3-conductor

4 (Class A) / 4 (Class B)

24 V DC

max. 150 mA (at C/Q (pin 4),

maximum of 1.6 A over all 8 IO-Link C/Q and L+ cables)

max. 200 mA (at L+/L- (pin 1 and pin 3), during startup,

up to 1.6 A for short periods)

max. 2 A (at U_A (IO-Link B ports, pin 2 and pin 5))

Overload protection yes

750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

IP65/IP67

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E EC IOL8 DI4 M12 6M	2701531	1
AXL E EC IOL8 DI4 M12 6P	2701524	1

EtherNet/IP™



8 digital inputs and 8 digital outputs

EtherNet/IP™



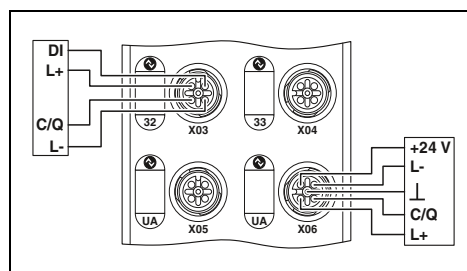
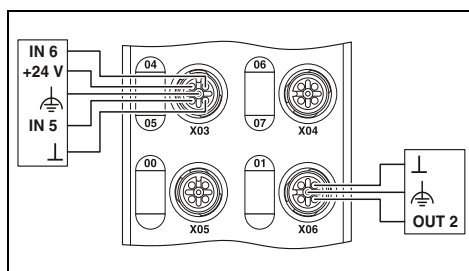
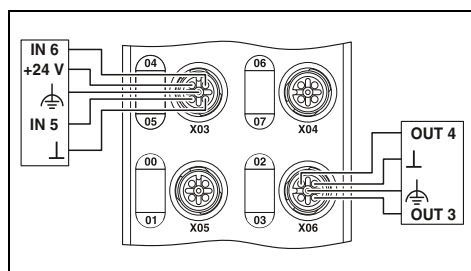
8 digital inputs and 4 digital outputs

EtherNet/IP™

IO-Link



8 IO-Link ports, 4 digital inputs



Technical data

AXL E EIP DI8 DO8 M12 6M AXL E EIP DI8 DO8 M12 6P

EtherNet/IP™
M12 fast connection technology
10/100 Mbps (with auto negotiation)24 V DC
18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

8

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, double occupancy

3-conductor

8

500 mA

Overload protection, short-circuit protection of outputs

-

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-

750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E EIP DI8 DO8 M12 6M	2701487	1
AXL E EIP DI8 DO8 M12 6P	2701492	1

Technical data

AXL E EIP DI8 DO4 2A M12 6M AXL E EIP DI8 DO4 2A M12 6P

EtherNet/IP™
M12 fast connection technology
10/100 Mbps (with auto negotiation)24 V DC
18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

8

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, (A-coded)

3-conductor

4

2 A

Overload protection, short-circuit protection of outputs

-

-

-

-

-

-

-

750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E EIP DI8 DO4 2A M12 6M	2701490	1
AXL E EIP DI8 DO4 2A M12 6P	2701495	1

Technical data

AXL E EIP IOL8 DI4 M12 6M AXL E EIP IOL8 DI4 M12 6P

EtherNet/IP™
M12 fast connection technology
10/100 Mbps (with auto negotiation)24 V DC
19.5 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, X01 ... X04 have double occupancy

3-conductor

4

< 1000 µs

Overload protection, short-circuit protection of sensor supply

-

-

-

-

-

M12 fast connection technology

3-conductor

4 (Class A) / 4 (Class B)

24 V DC

max. 150 mA (at C/Q (pin 4),

maximum of 1.6 A over all 8 IO-Link C/Q and L+ cables)

max. 200 mA (at L+/L- (pin 1 and pin 3), during startup,

up to 1.6 A for short periods)

max. 2 A (at U_A (IO-Link B ports, pin 2 and pin 5))

Overload protection Electronic

Overload protection yes

750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E EIP IOL8 DI4 M12 6M	2701491	1
AXL E EIP IOL8 DI4 M12 6P	2701496	1

Modbus/TCP (UDP)



8 digital inputs and 8 digital outputs

Modbus/TCP (UDP)



8 digital inputs and 4 digital outputs

Modbus/TCP (UDP)

IO-Link

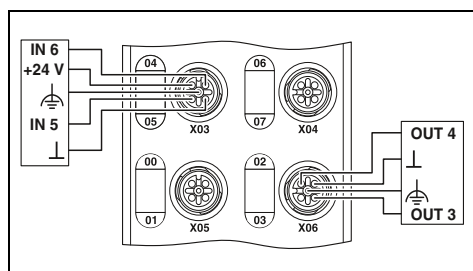


8 IO-Link ports, 4 digital inputs

Ex:

Ex:

Ex:



Technical data

AXL E ETH DI8 DO8 M12 6M AXL E ETH DI8 DO8 M12 6P

Ethernet
M12 fast connection technology
10/100 Mbps (with auto negotiation)

24 V DC
18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

8

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, double occupancy

3-conductor

8

500 mA

Overload protection, short-circuit protection of outputs

-

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750 g

480 g

60 mm / 185 mm / 38 mm

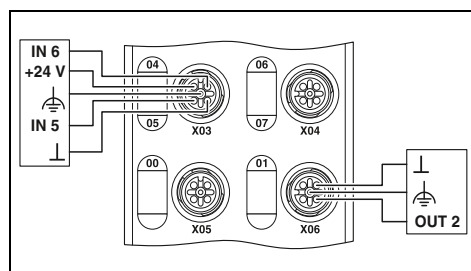
60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E ETH DI8 DO8 M12 6M	2701537	1
AXL E ETH DI8 DO8 M12 6P	2701532	1



Technical data

AXL E ETH DI8 DO4 2A M12 6M AXL E ETH DI8 DO4 2A M12 6P

Ethernet
M12 fast connection technology
10/100 Mbps (with auto negotiation)

24 V DC
18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

8

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, (A-coded)

3-conductor

4

2 A

Overload protection, short-circuit protection of outputs

-

-

-

-

-

-

-

750 g

480 g

60 mm / 185 mm / 38 mm

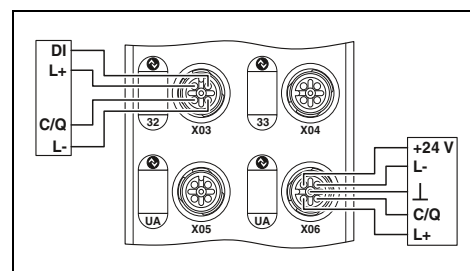
60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E ETH DI8 DO4 2A M12 6M	2701540	1
AXL E ETH DI8 DO4 2A M12 6P	2701535	1



Technical data

AXL E ETH IOL8 DI4 M12 6M AXL E ETH IOL8 DI4 M12 6P

Ethernet
M12 fast connection technology
10/100 Mbps (with auto negotiation)

24 V DC
19.5 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, X01 ... X04 have double occupancy

3-conductor

4

< 1000 µs

Overload protection, short-circuit protection of sensor supply

-

-

-

-

-

M12 fast connection technology

3-conductor

4 (Class A) / 4 (Class B)

24 V DC

max. 150 mA (at C/Q (pin 4),
maximum of 1.6 A over all 8 IO-Link C/Q and L+ cables)
max. 200 mA (at L+/L- (pin 1 and pin 3), during startup,
up to 1.6 A for short periods)
max. 2 A (at U_A (IO-Link B ports, pin 2 and pin 5))
Overload protection yes

750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E ETH IOL8 DI4 M12 6M	2701541	1
AXL E ETH IOL8 DI4 M12 6P	2701536	1

Digital I/O devices – Stand-Alone

Features:

- Robust metal or plastic housing
- Seamless connection via M12 connectors
- SPEEDCON fast locking system
- Maximum current carrying capacity of the supply: 12 A
- Diagnostic and status indicators
- Short-circuit and overload protection

IO-Link master:

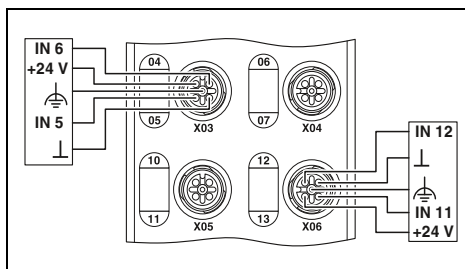
- In accordance with specification 1.1
- 4 digital inputs,
- 4 IO-Link ports Class A,
- 4 IO-Link ports Class B on one device



16 digital inputs



16 freely configurable inputs or outputs



AXL E PN DI16 M12 6M AXL E PN DI16 M12 6P

PROFINET

M12 fast connection technology
100 Mbps (with auto negotiation)

24 V DC

18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

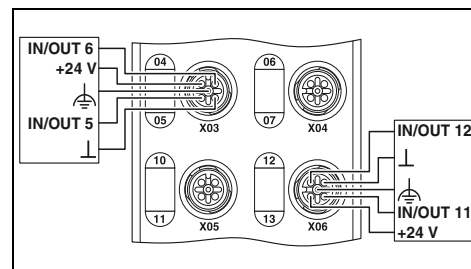
M12 connector, double occupancy

4-conductor

16

 $< 1000 \mu\text{s}$

Overload protection, short-circuit protection of sensor supply



AXL E PN DIO16 M12 6M AXL E PN DIO16 M12 6P

PROFINET

M12 fast connection technology
100 Mbps (with auto negotiation)

24 V DC

18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

16

 $< 1000 \mu\text{s}$

Overload protection, short-circuit protection of sensor supply

M12 connector, double occupancy

3-conductor

16

500 mA

Overload protection, short-circuit protection of outputs

Axioline E I/O device

- Robust metal housing
- Plastic housing

AXL E PN DI16 M12 6M
AXL E PN DI16 M12 6P

AXL E PN DIO16 M12 6M
AXL E PN DIO16 M12 6P



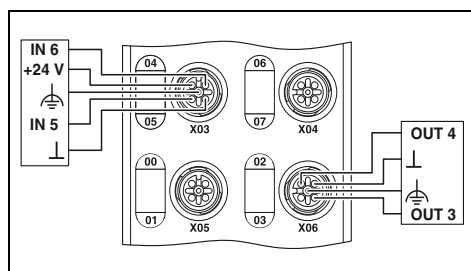
8 digital inputs and 8 digital outputs



8 digital inputs and 4 digital outputs



8 IO-Link ports, 4 digital inputs



Technical data

AXL E PN DI8 DO8 M12 6M AXL E PN DI8 DO8 M12 6P

PROFINET
M12 fast connection technology
100 Mbps (with auto negotiation)24 V DC
18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

8

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, double occupancy

3-conductor

8

500 mA

Overload protection, short-circuit protection of outputs

-

-

-

-

-

-

-

750 g

480 g

60 mm / 185 mm / 38 mm

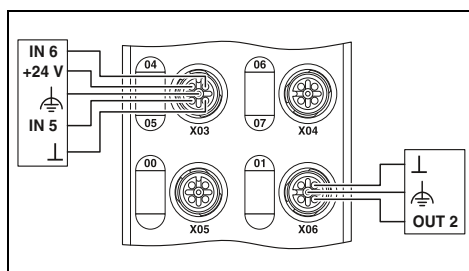
60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E PN DI8 DO8 M12 6M	2701515	1
AXL E PN DI8 DO8 M12 6P	2701509	1



Technical data

AXL E PN DI8 DO4 2A M12 6M AXL E PN DI8 DO4 2A M12 6P

PROFINET
M12 fast connection technology
100 Mbps (with auto negotiation)24 V DC
18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

8

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, (A-coded)

3-conductor

4

2 A

Overload protection, short-circuit protection of outputs

-

-

-

-

-

-

-

750 g

480 g

60 mm / 185 mm / 38 mm

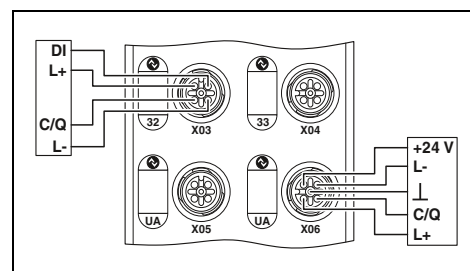
60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E PN DI8 DO4 2A M12 6M	2701518	1
AXL E PN DI8 DO4 2A M12 6P	2701512	1



Technical data

AXL E PN IOL8 DI4 M12 6M AXL E PN IOL8 DI4 M12 6P

PROFINET
M12 fast connection technology
100 Mbps (with auto negotiation)24 V DC
19.5 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, X01 ... X04 have double occupancy

3-conductor

4

< 1000 µs

Overload protection, short-circuit protection of sensor supply

-

-

-

-

-

M12 fast connection technology

3-conductor

4 (Class A) / 4 (Class B)

24 V DC

max. 150 mA (at C/Q (pin 4),

maximum of 1.6 A over all 8 IO-Link C/Q and L+ cables)

max. 200 mA (at L+/L- (pin 1 and pin 3), during startup,

up to 1.6 A for short periods)

max. 2 A (at U_A (IO-Link B ports, pin 2 and pin 5))

Overload protection yes

750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E PN IOL8 DI4 M12 6M	2701519	1
AXL E PN IOL8 DI4 M12 6P	2701513	1

The I/O devices with a block design are used to acquire and output various signals.

- Robust metal or plastic housing
- Seamless connection via M12 connectors
- SPEEDCON fast locking system
- Maximum current carrying capacity of the supply: 12 A
- Diagnostic and status indicators
- Short-circuit and overload protection

IO-Link master:

- In accordance with specification 1.1
- 4 digital inputs,
- 4 IO-Link ports Class A,
- 4 IO-Link ports Class B on one device



16 digital inputs



16 freely configurable inputs or outputs



AXL E S3 DI16 M12 6M AXL E S3 DI16 M12 6P

M12 fast connection technology
100 Mbps (with auto negotiation)

18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector, double occupancy

16

Overload protection, short-circuit protection of sensor supply



AXL E S3 DIO16 M12 6M AXL E S3 DIO16 M12 6P

M12 fast connection technology
100 Mbps (with auto negotiation)

18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector, double occupancy

16

Overload protection, short-circuit protection of sensor supply

3-conductor

500 mA

Overload protection, short-circuit protection of outputs

Description
Axioline E I/O device - Robust metal housing - Plastic housing

Type	Order No.	Pcs./Pkt
AXL E S3 DI16 M12 6M	2701549	1
AXL E S3 DI16 M12 6P	2701544	1

Type	Order No.	Pcs./Pkt
AXL E S3 DIO16 M12 6M	2701550	1
AXL E S3 DIO16 M12 6P	2701545	1

SERCOS
the automation bus



8 digital inputs and 8 digital outputs

SERCOS
the automation bus



8 digital inputs and 4 digital outputs

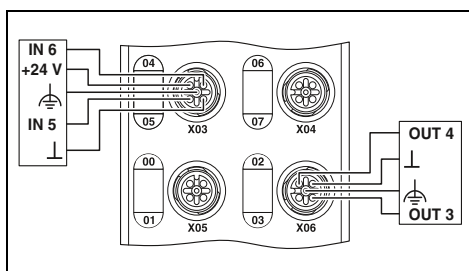
SERCOS
the automation bus

IO-Link



8 IO-Link ports, 4 digital inputs

Ex:



Technical data

AXL E S3 DI8 DO8 M12 6M AXL E S3 DI8 DO8 M12 6P

Sercos
M12 fast connection technology
100 Mbps (with auto negotiation)

24 V DC
18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor
8

< 1000 µs
Overload protection, short-circuit protection of sensor supply

M12 connector, double occupancy

3-conductor

8

500 mA

Overload protection, short-circuit protection of outputs

-

-

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-

-

750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

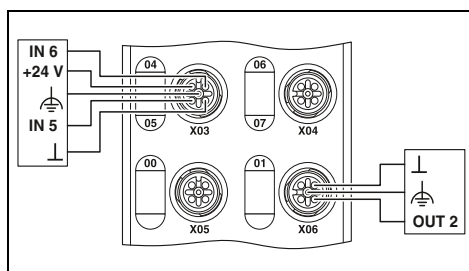
IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E S3 DI8 DO8 M12 6M	2701548	1
AXL E S3 DI8 DO8 M12 6P	2701542	1

Ex:



Technical data

AXL E S3 DI8 DO4 2A M12 6M AXL E S3 DI8 DO4 2A M12 6P

Sercos
M12 fast connection technology
100 Mbps (with auto negotiation)

24 V DC
18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor
8

< 1000 µs
Overload protection, short-circuit protection of sensor supply

M12 connector, (A-coded)

3-conductor

4

2 A

Overload protection, short-circuit protection of outputs

-

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750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

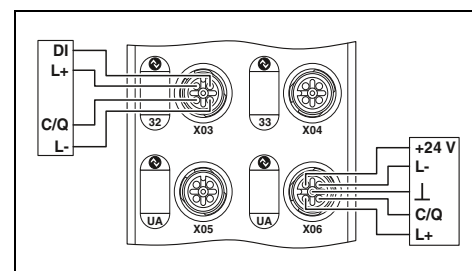
IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E S3 DI8 DO4 2A M12 6M	2701551	1
AXL E S3 DI8 DO4 2A M12 6P	2701546	1

Ex:



Technical data

AXL E S3 IOL8 DI4 M12 6M AXL E S3 IOL8 DI4 M12 6P

Sercos
M12 fast connection technology
100 Mbps (with auto negotiation)

24 V DC
19.5 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, X01 ... X04 have double occupancy

3-conductor
4

< 1000 µs
Overload protection, short-circuit protection of sensor supply

-

-

-

-

-

M12 fast connection technology

3-conductor

4 (Class A) / 4 (Class B)

24 V DC

max. 150 mA (at C/Q (pin 4),

maximum of 1.6 A over all 8 IO-Link C/Q and L+ cables)

max. 200 mA (at L+/L- (pin 1 and pin 3), during startup,

up to 1.6 A for short periods)

max. 2 A (at U_A (IO-Link B ports, pin 2 and pin 5))

Overload protection yes

750 g

480 g

60 mm / 185 mm / 38 mm

60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E S3 IOL8 DI4 M12 6M	2701552	1
AXL E S3 IOL8 DI4 M12 6P	2701547	1



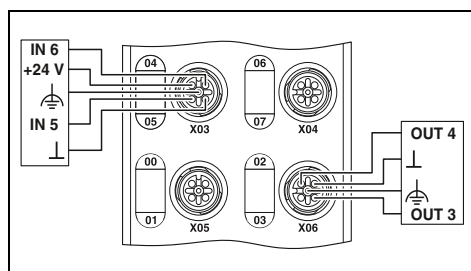
8 digital inputs and 8 digital outputs



8 digital inputs and 4 digital outputs



8 IO-Link ports, 4 digital inputs



Technical data

AXL E PB DI8 DO8 M12 6M AXL E PB DI8 DO8 M12 6P

PROFIBUS DP

M12 fast connection technology

9.6 kbps ... 12 Mbps (automatic baud rate detection)

24 V DC

18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

8

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, double occupancy

3-conductor

8

500 mA

Overload protection, short-circuit protection of outputs

-

-

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-

750 g

480 g

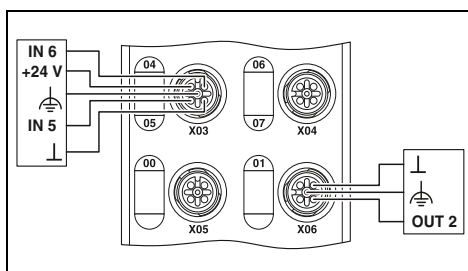
60 mm / 185 mm / 38 mm 60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E PB DI8 DO8 M12 6M	2701504	1
AXL E PB DI8 DO8 M12 6P	2701497	1



Technical data

AXL E PB DI8 DO4 2A M12 6M AXL E PB DI8 DO4 2A M12 6P

PROFIBUS DP

M12 fast connection technology

9.6 kbps ... 12 Mbps (automatic baud rate detection)

24 V DC

18 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, double occupancy

4-conductor

8

< 1000 µs

Overload protection, short-circuit protection of sensor supply

M12 connector, (A-coded)

3-conductor

4

2 A

Overload protection, short-circuit protection of outputs

-

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-

750 g

480 g

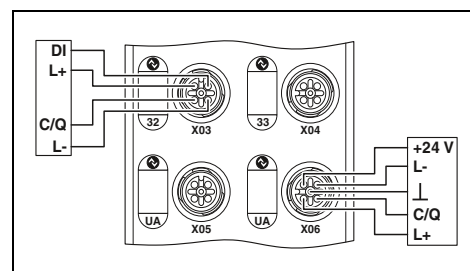
60 mm / 185 mm / 38 mm 60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E PB DI8 DO4 2A M12 6M	2701507	1
AXL E PB DI8 DO4 2A M12 6P	2701502	1



Technical data

AXL E PB IOL8 DI4 M12 6M AXL E PB IOL8 DI4 M12 6P

PROFIBUS DP

M12 fast connection technology

9.6 kbps ... 12 Mbps (automatic baud rate detection)

24 V DC

19.5 V DC ... 31.2 V DC (including all tolerances, including ripple)

M12 connector (T-coded)

M12 connector, X01 ... X04 have double occupancy

3-conductor

4

< 1000 µs

Overload protection, short-circuit protection of sensor supply

-

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-

-

M12 fast connection technology

3-conductor

4 (Class A) / 4 (Class B)

24 V DC

max. 150 mA (at C/Q (pin 4),

maximum of 1.6 A over all 8 IO-Link C/Q and L+ cables)

max. 200 mA (at L+/L- (pin 1 and pin 3), during startup,

up to 1.6 A for short periods)

max. 2 A (at U_A (IO-Link B ports, pin 2 and pin 5))

Overload protection yes

750 g

480 g

60 mm / 185 mm / 38 mm 60 mm / 185 mm / 30.5 mm

IP65/IP67

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E PB IOL8 DI4 M12 6M	2701508	1
AXL E PB IOL8 DI4 M12 6P	2701503	1

Digital IO-Link I/O boxes

new

The digital IO-Link I/O boxes are used to acquire and output digital signals. The devices are connected to an IO-Link master via their IO-Link port.

Features:

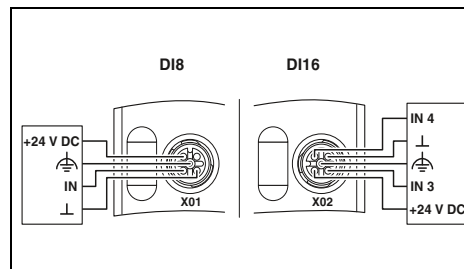
- Connection to an IO-Link master with M12 connectors (A-coded, 5-pos.)
- IO-Link B port with additional power supply
- IO-Link specification V1.1.2

 **IO-Link**


**1 IO-Link A port
8/16 digital inputs**

 **IO-Link**


**1 IO-Link B port
8 digital outputs**

**Technical data**

AXL E IOL DI8 M12 6P AXL E IOL DI16 M12 6P

M12 connector, A-coded
3-conductor
1 (Class A)

24 V DC (is provided via the IO-Link interface of the IO-Link master.)

approx. 40 mA (15 mA no load + current consumption sensors) approx. 56 mA (16 mA no load + current consumption sensors)

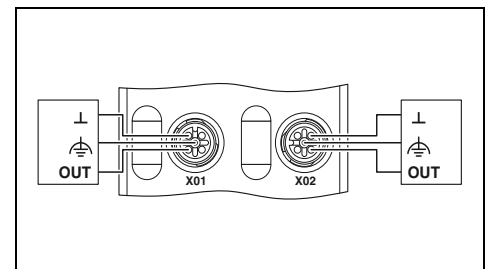
Reverse polarity protection yes

4-conductor

8 16

EN 61131-2 types 1 and 3

Overload protection, short-circuit protection of sensor supply
Polarity reversal protection of the inputs

**Technical data**

M12 connector, A-coded
5-conductor
1 (Class B)

24 V DC (is provided via the IO-Link interface of the IO-Link master.)

approx. 15 mA

Reverse polarity protection yes

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IO-Link ports
Connection method
Connection technology
Number of ports
IO-Link port supply L+
Nominal voltage for I/O supply

Nominal current per device

Protective circuit
Digital inputs
Connection technology
Number of inputs
Description of the inputs
Protective circuit

Digital outputs
Connection technology
Number of outputs
Protective circuit

General data
Connection method
Weight
Dimensions
Degree of protection
Ambient temperature (operation)
EMC note

W / H / D

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E IOL DI8 M12 6P	2702658	1
AXL E IOL DI16 M12 6P	2702660	1

Accessories

PROT-M12	1680539	5
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Ordering data

Type	Order No.	Pcs./Pkt.
AXL E IOL DO8 M12 6P	2702659	1

Accessories

PROT-M12	1680539	5
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Description
Digital IO-Link I/O box
- 8 digital inputs
- 16 digital inputs
Digital IO-Link I/O box
- 8 digital outputs

M12 screw plug

IO-Link/analog converter

new

The AXL E IOL TC4/K M12 Axioline E IO-Link/analog converter is an IO-Link device that transfers analog signals from thermocouples (TCs) via the IO-Link protocol. The device supports standard type K thermocouples in accordance with DIN EN 60584-1. The measured values are depicted in standardized representation format.

Features of IO-Link:

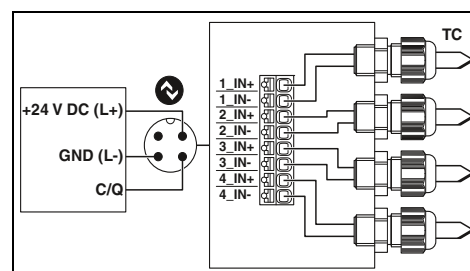
- Connection to an IO-Link master using M12 connectors (A-coded, 4-pos.)
- IO-Link A port
- IO-Link specification V1.1.2
- Status indicators

Features of TCs:

- 4 differential signal inputs
- Measuring range: -270°C ... +1372°C
- Selectable resolution: 0.1 / 0.01
- Selectable unit: °C / °F
- Connection of sensors in 2-conductor technology
- Push-in connection technology
- Diagnostic information in the process data word

 IO-Link


1 IO-Link A port
4 analog TC inputs, type K



Technical data

IO-Link ports

Connection method
Connection technology
Number of ports

IO-Link port supply L+

Nominal voltage for I/O supply

Nominal current per device
Protective circuit

M12 connector, A-coded
3-conductor
1 (Class A)

24 V DC (is provided via the IO-Link interface of the IO-Link master.)

typ. 35 mA (±15% (at 24 V DC), max. 70 mA)
Reverse polarity protection yes
Short-circuit protection yes
Overload protection yes

Temperature input

Connection method
Connection technology
Number of inputs
Sensor types that can be used (TC)
Measured value representation
Precision

Push-in technology
2-conductor
4 (type K)
K
16 bits
typ. ± 0.2% (of measuring range end value)
max. ± 0.4% (of measuring range end value)

General data

Connection method
Connection data rigid / flexible / AWG
Weight
Dimensions
Degree of protection
Ambient temperature (operation)
EMC note

W / H / D

Push-in technology
0.2 ... 1.5 mm² / 0.2 ... 1.5 mm² / 24 - 16
320 g
150 mm / 54 mm / 118 mm
IP65
-25°C ... 60°C
Class A product, see page 527

Ordering data

Description

IO-Link/analog converter

Type

AXL E IOL TC4/K M12

Order No.

2702983

Pcs./Pkt.

1

IO-Link/analog converter

IO-Link/analog converters are used to convert analog input or output signals to the IO-Link interface. You can connect the converters directly in the field.

Features:

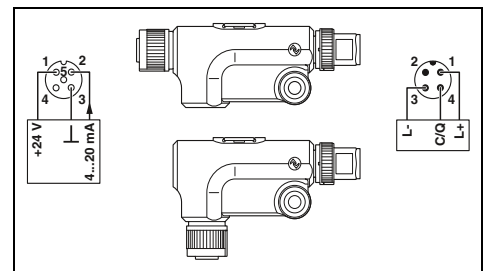
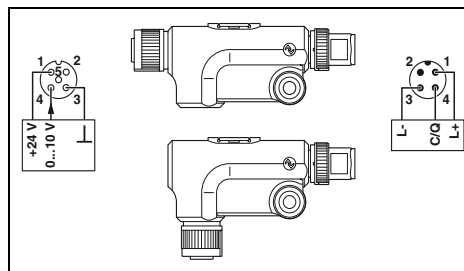
- Large variety of analog functions
- Tailored combination of analog functions
- High transmission reliability
- Reduced cabling

IO-Link

1 analog input (0 ... 10 V)

IO-Link

1 analog input (4 ... 20 mA)

**Technical data**

AXL E IOL AI1 U M12 R AXL E IOL AI1 U M12 S

M12 connector, A-coded
3-conductor
1

24 V DC (this supply voltage is provided via the IO-Link interface of the IO-Link master.)

max. 100 mA
Reverse polarity protection
Short-circuit protection
Overload protection

M12 connector, A-coded
3-conductor (optional: 4-conductor)
1 (voltage)
0 V ... 10 V

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Technical data

AXL E IOL AI1 I M12 R AXL E IOL AI1 I M12 S

M12 connector, A-coded
3-conductor
1

24 V DC (this supply voltage is provided via the IO-Link interface of the IO-Link master.)

max. 100 mA
Reverse polarity protection
Short-circuit protection
Overload protection

M12 connector, A-coded
3-conductor
1 (current)
4 mA ... 20 mA

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IO-Link ports
Connection method
Connection technology
Number of ports
IO-Link port supply L+
Nominal voltage for I/O supply

Nominal current per IO-Link port
Protective circuit

Analog inputs
Connection method
Connection technology
Number of inputs
Voltage input signal
Current input signal
Analog outputs
Connection method
Connection technology
Number of outputs
Voltage output signal
Current output signal
Temperature input
Connection method
Connection technology
Number of inputs
Sensor types that can be used (RTD)
Linear resistance measuring range

General data
Weight
Dimensions
Degree of protection
Ambient temperature (operation)
EMC note

W / H / D

34 g
16.6 mm / 42 mm / 66.5 mm 16.6 mm / 29 mm / 79.5 mm
IP65/IP67
-25°C ... 60°C
Class A product, see page 527

Ordering data

Description
IO-Link/analog converter
- Angled version
- Straight version

Type	Order No.	Pcs./Pkt.
AXL E IOL AI1 U M12 R	2700273	1
AXL E IOL AI1 U M12 S	2700336	1

Technical data

AXL E IOL AI1 I M12 R AXL E IOL AI1 I M12 S

M12 connector, A-coded
3-conductor
1

24 V DC (this supply voltage is provided via the IO-Link interface of the IO-Link master.)

max. 100 mA
Reverse polarity protection
Short-circuit protection
Overload protection

M12 connector, A-coded
3-conductor
1 (current)
4 mA ... 20 mA

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Ordering data

Type	Order No.	Pcs./Pkt.
AXL E IOL AI1 I M12 R	2700275	1
AXL E IOL AI1 I M12 S	2700338	1

IO-Link



1 analog output (0 ... 10 V)

IO-Link

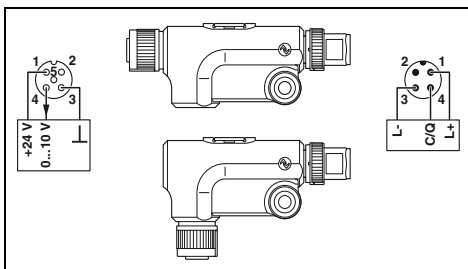


1 analog output (4 ... 20 mA)

IO-Link



1 RTD input



Technical data

AXL E IOL AO1 U M12 R

AXL E IOL AO1 U M12 S

M12 connector, A-coded
3-conductor
1

24 V DC (this supply voltage is provided via the IO-Link interface of the IO-Link master.)

max. 100 mA
Reverse polarity protection
Short-circuit protection
Overload protection

-
-
-
-

M12 connector, A-coded
3-conductor
1 (voltage)
0 V ... 10 V

-
-
-
-

34 g

16.6 mm / 42 mm / 66.5 mm 16.6 mm / 29 mm / 79.5 mm

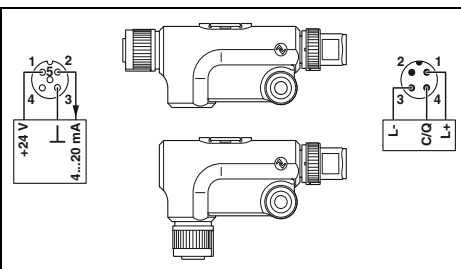
IP65/IP67

-25°C ... 60°C

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E IOL AO1 U M12 R	2700278	1
AXL E IOL AO1 U M12 S	2700350	1



Technical data

AXL E IOL AO1 I M12 R

AXL E IOL AO1 I M12 S

M12 connector, A-coded
3-conductor
1

24 V DC (this supply voltage is provided via the IO-Link interface of the IO-Link master.)

max. 100 mA
Reverse polarity protection
Short-circuit protection
Overload protection

-
-
-
-

M12 connector, A-coded
3-conductor
1 (current)
4 mA ... 20 mA

-
-
-
-

34 g

16.6 mm / 42 mm / 66.5 mm 16.6 mm / 29 mm / 79.5 mm

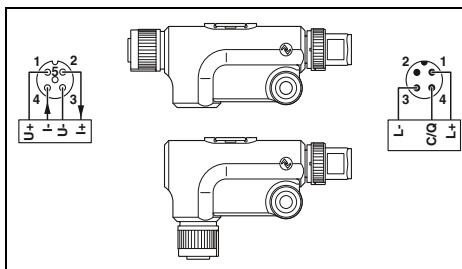
IP65/IP67

-25°C ... 60°C

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E IOL AO1 I M12 R	2700282	1
AXL E IOL AO1 I M12 S	2700351	1



Technical data

AXL E IOL RTD1 M12 R

AXL E IOL RTD1 M12 S

M12 connector, A-coded
3-conductor
1

24 V DC (this supply voltage is provided via the IO-Link interface of the IO-Link master.)

-
Reverse polarity protection
Short-circuit protection
Overload protection

-
-
-
-

M12 connector, A-coded
3-conductor (optional: 4-conductor)
1 (for resistance temperature detectors)
Pt 100, Pt 1000

0 Ω ... 500 Ω (IB IL format) / 0 Ω ... 5 kΩ (IB IL format) /
0 Ω ... 600 Ω (S7-compatible format) /
0 Ω ... 6 kΩ (S7-compatible format)

34 g

16.6 mm / 42 mm / 66.5 mm 16.6 mm / 29 mm / 79.5 mm

IP65/IP67

-25°C ... 60°C

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
AXL E IOL RTD1 M12 R	2700305	1
AXL E IOL RTD1 M12 S	2700352	1

M12 POWER connectors, screw connection

Further products related to the innovative M12 POWER cabling can be found on our website under web code:

i Your web code: **#0024**



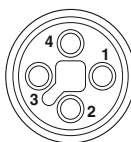
Metal knurl, 4-pos.



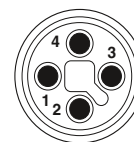
Y distributor, T-coded, 4-pos.



	Technical data	Technical data
General data		
Degree of pollution	3	3
Degree of protection	IP67	-
Connection method	Screw connection	-
Connection cross section [mm²]	0.75 mm² ... 1.5 mm²	-
Electrical data		
Rated voltage	63 V DC	63 V DC
Rated current	12 A (when using 1.5 mm² conductors)	2x 12 A (at 40°C)
Insulation resistance	> 10 GΩ	≥ 100 MΩ
Material data		
Contact / contact surface material	CuZn / Au	CuZn / Ni/Au
Contact carrier material	PA	PA
Flammability rating in accordance with UL 94	V0	HB
Temperature data		
Male / female	[-40 ... 85 °C]	[-25 ... 80 °C]
	Ordering data	Ordering data
Description	Type	Type
Connector, cable diameter: 8 mm ... 10 mm		
Female, straight	SACC-M12FST-3PECON-PG11-M	1404644
Male, straight	SACC-M12MST-3PECON-PG11-M	1404643
Female, angled	SACC-M12FRT-4CON-PG11-M	1408989
Male, angled	SACC-M12MRT-4CON-PG11-M	1408988
Y distributor, unshielded, M12 male to 2 x M12 female		
		SAC-4PY-MT/2XFT VP
		1410632
		5



Pin assignment of M12 female, 4-pos., T-coded, view of socket side



Connector pin assignment of M12 male, 4-pos., T-coded, view of pin side

**M12 POWER cables,
4-pos., T-coded,
cable type: PUR**

Free end



M12 male



Ordering data

Ordering data

Ordering data

Free end

Order No.

Order No.

Order No.



1 m

[1408812](#)

1 m

[1408816](#)

2 m

[1408813](#)

2 m

[1408819](#)

5 m

[1408814](#)

5 m

[1408820](#)

10 m

[1408815](#)

10 m

[1408822](#)

M12 female, straight



1 m

[1408823](#)

1 m

[1408808](#)

2 m

[1408824](#)

2 m

[1408809](#)

5 m

[1408825](#)

5 m

[1408810](#)

10 m

[1408826](#)

10 m

[1408811](#)

M12 female, angled



1 m

[1408827](#)

1 m

[1415196](#)

2 m

[1408828](#)

2 m

[1415197](#)

5 m

[1408829](#)

5 m

[1415198](#)

10 m

[1408830](#)

10 m

[1415199](#)

Cable description

Cable type

Color coding

Pin assignment

PUR, halogen-free – black

PUR

BN



1

WH



2

BK



4

BU



3

Technical data

M12

Rated voltage

[V]

63

Rated current

[A]

12

Material contact M12

CuSn

Material contact surface M12

Ni/Au

Material handle M12

PA

Material, knurls

Zinc die-cast, nickel-plated

Degree of protection

IP65 / IP67 / IP68

Temperature data

Male / female

[°C]

-25 ... 85

Product overview

Bus couplers – Modular



					
188	188	189	189	189	

M12 I/O devices – Modular



Digital input		Digital input/output		Digital output
8 channels	16 channels	4 / 4 channels	8 / 8 channels	8 channels
190	190	191	191	191
Analog input		Analog output		Analog input
4 channels		4 channels		4 channels (RTD)
192		192		193

M8 I/O devices – Modular



Digital input	Digital input/output	Digital output	
8 channels	8 channels	4 channels	8 channels
194	195	195	195

Accessories



FLM ADAP M12/M8
Fieldline Modular
M12 / M8 adapters



IB IL 24 FLM ...-PAC
Inline branch terminal



SAC-5P-M12MS ... TR
M12 termination resistor,
PROFIBUS



SAC-3P-M12Y/2XM12FS PE
M12 Y distributor



FLM MP...
Mounting plates



PROT-M12 / M8 ...
Sealing caps



ZBF 12 ... / ZBF 8 ...
Marking material



...
Bus and power cables
with M12 connector



SAC-4P-M ...
Bus and power cables
with M8 connector



SACC-M12... / SACC-M8...
M12 / M8 connectors for assembly

General technical data

Ambient conditions

Temperature range (operation)	-25°C ... +60°C
Permissible humidity (storage/transport)	95%
Vibration	5g in accordance with EN 60068-2-6
Shock	30g in accordance with EN 60068-2-27
Degree of protection	IP65/IP67 in accordance with IEC 60529

Electromagnetic compatibility

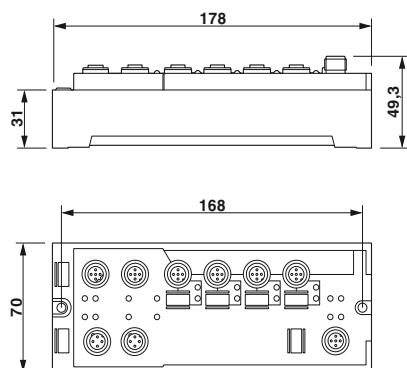
Noise emission	Class A in accordance with DIN EN 55022
----------------	---

Supply voltage

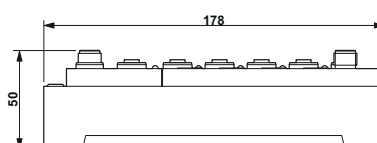
Nominal value	24 V DC
Permissible range	18.0 V DC ... 30.0 V DC, including ripple

Housing types and dimensions

Bus couplers



M12 I/O devices



M8 I/O devices



Bus couplers – Modular

The bus couplers open a high-performance local bus with up to 16 devices.

The following protocols are supported:

- INTERBUS
- PROFINET
- PROFIBUS
- EtherNet/IP™
- Modbus/TCP

Notes:

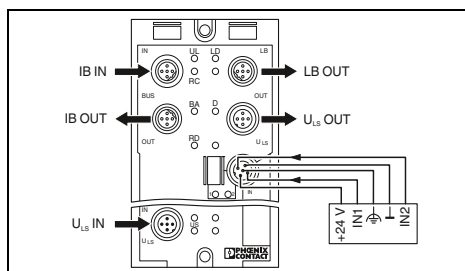
A comprehensive range of installation materials for field installation can be found on page 196



INTERBUS

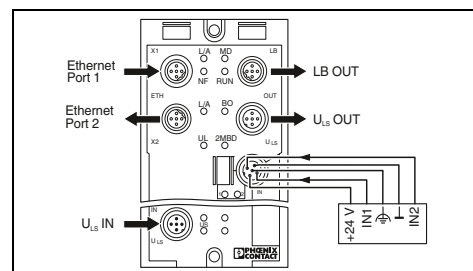


PROFINET



Technical data

Interface	
Fieldbus system	INTERBUS
Connection method	M12 connector, B-coded
Number of positions	5
Transmission speed	500 kbps / 2 Mbps (can be switched)
Power supply for module electronics	
Supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC (including ripple)
Connection method	M12 connector
Local bus gateway	
Transmission speed	500 kbaud/2 Mbaud, can be selected
Connection method	M12 connector, B-coded
Max. number of local bus devices	16
Max. length of local bus	20 m
Digital inputs	
Connection method	M12 connector
Connection technology	2-, 3-, 4-conductor
Number of inputs	8 (double occupancy)
Description of the inputs	IEC 61131-2 type 1
Filter time	3 ms
Protective circuit	Reverse polarity protection
General data	
Weight	280 g
Drill hole spacing	168 mm
Dimensions	70 mm / 178 mm / 50 mm
Degree of protection	IP65/IP67
Ambient temperature (operation)	-25°C ... 60°C
EMC note	Class A product, see page 527



Technical data

Interface	
Fieldbus system	PROFINET
Connection method	M12 connector, D-coded
Number of positions	4
Transmission speed	100 Mbps (auto negotiation)
Power supply for module electronics	
Supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC (including ripple)
Connection method	M12 connector
Local bus gateway	
Transmission speed	500 kbaud/2 Mbaud, can be selected
Connection method	M12 connector, B-coded
Max. number of local bus devices	16
Max. length of local bus	20 m
Digital inputs	
Connection method	M12 connector
Connection technology	2-, 3-, 4-conductor
Number of inputs	8 (EN 61131-2 type 1)
Description of the inputs	IEC 61131-2 type 1
Filter time	3 ms
Protective circuit	Reverse polarity protection
General data	
Weight	280 g
Drill hole spacing	168 mm
Dimensions	70 mm / 178 mm / 50 mm
Degree of protection	IP65/IP67
Ambient temperature (operation)	-25°C ... 55°C
EMC note	Class A product, see page 527

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Fieldline Modular M12 bus coupler	FLM BK IB M12 DI 8 M12	2736301	1

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Fieldline Modular M12 bus coupler	FLM BK PN M12 DI 8 M12-2TX	2736741	1



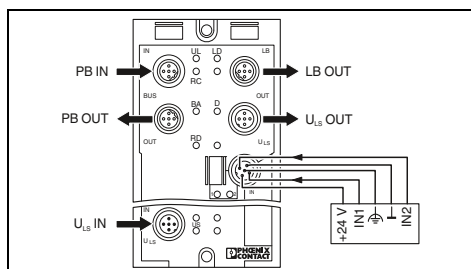

PROFIBUS




EtherNet/IP™




Modbus/TCP

Technical data

PROFIBUS DP

M12 connector, B-coded

5

9.6 kbps ... 12 Mbps

24 V DC

18 V DC ... 30 V DC (including ripple)

M12 connector

500 kbaud/2 Mbaud, can be selected

M12 connector, B-coded

16

20 m

M12 connector

2-, 3-, 4-conductor

8 (double occupancy)

IEC 61131-2 type 1

3 ms

Reverse polarity protection

280 g

168 mm

70 mm / 178 mm / 50 mm

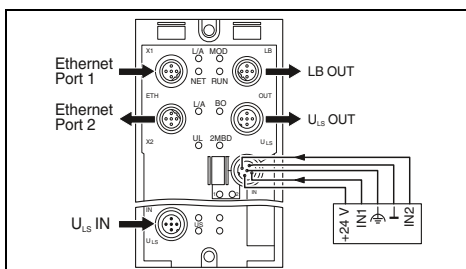
IP65/IP67

-25°C ... 60°C

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
FLM BK PB M12 DI 8 M12-EF	2773377	1

Technical data

EtherNet/IP™

M12 connector, D-coded

4

10/100 Mbps (auto negotiation)

24 V DC

18 V DC ... 30 V DC (including ripple)

M12 connector

500 kbaud/2 Mbaud, can be selected

M12 connector, B-coded

16

20 m

M12 connector

2-, 3-, 4-conductor

8

IEC 61131-2 type 1

3 ms

Reverse polarity protection

280 g

178 mm

70 mm / 178 mm / 50 mm

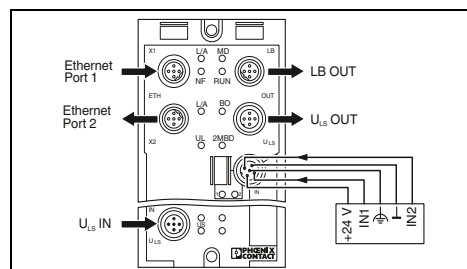
IP65/IP67

-25°C ... 60°C

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
FLM BK EIP M12 DI 8 M12-2TX	2773322	1

Technical data

Ethernet

M12 connector, D-coded

4

10/100 Mbps (auto negotiation)

24 V DC

18 V DC ... 30 V DC (including ripple)

M12 connector

500 kbaud/2 Mbaud, can be selected

M12 connector, B-coded

16

20 m

M12 connector

2-, 3-, 4-conductor

8 (EN 61131-2 type 1)

IEC 61131-2 type 1

3 ms

Reverse polarity protection

280 g

178 mm

70 mm / 178 mm / 50 mm

IP65/IP67

-25°C ... 60°C

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
FLM BK ETH M12 DI 8 M12-2TX	2736916	1

M12 digital I/O devices – Modular

The local bus devices are used to acquire and output digital signals in a Fieldline Modular station.

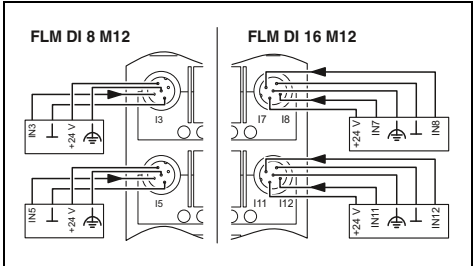
Features:

- Seamless connection via M12 connectors
- SPEEDCON fast locking system
- Flexible power supply concept
- Diagnostic and status indicators
- Short-circuit and overload protection

Notes:
A comprehensive range of installation materials for field installation can be found on page 196



8/16 digital inputs



Interface
Designation
Connection method
Transmission speed
Power supply for module electronics
Supply voltage
Supply voltage range
Connection method
Digital inputs
Connection method
Connection technology
Number of inputs
Description of the inputs
Filter time
Protective circuit
Digital outputs
Connection method
Connection technology
Number of outputs
Maximum output current per channel
Protective circuit
General data
Weight
Drill hole spacing
Dimensions
Degree of protection
Ambient temperature (operation)
EMC note

Technical data		
FLM DI 8 M12	FLM DI 16 M12	
Fieldline local bus		
M12 connector, B-coded		
500 kbps / 2 Mbps (can be switched)	500 kbps / 2 Mbps	
24 V DC		
18 V DC ... 30 V DC (including ripple)		
M12 connector		
M12 connector		
2-, 3-, 4-conductor		
8	16	
IEC 61131-2 type 1		
3 ms		
Reverse polarity protection		
-		
-		
-		
-		
-		
290 g	310 g	
168 mm		
70 mm / 178.5 mm / 50 mm	70 mm / 178 mm / 50 mm	
IP65/IP67		
-25°C ... 60°C		
Class A product, see page 527		

Description
Fieldline Modular M12 digital input device
- 8 inputs
- 16 inputs
Fieldline Modular M12 digital I/O device
- 4 inputs, 4 outputs, 2 A
- 8 inputs, 8 outputs
Fieldline Modular M12 digital output device
- 8 outputs

Ordering data		
Type	Order No.	Pcs./Pkt.
FLM DI 8 M12	2736288	1
FLM DI 16 M12	2736835	1



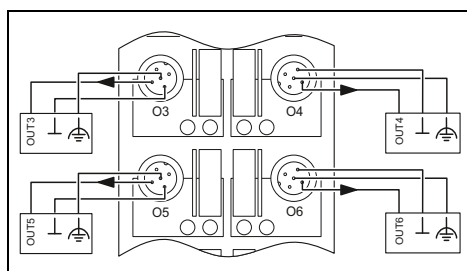
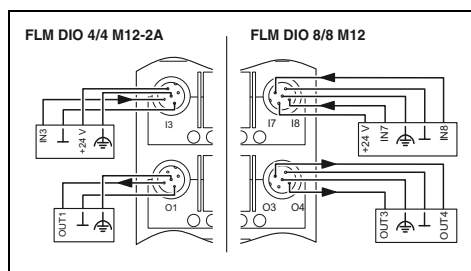
4/8 digital inputs and
4/8 digital outputs



8 digital outputs

Ex:

Ex:



Technical data

FLM DIO 4/4 M12-2A

FLM DIO 8/8 M12

Fieldline local bus

M12 connector, B-coded

500 kbps / 2 Mbps
(can be switched)

500 kbps / 2 Mbps

24 V DC

18 V DC ... 30 V DC (including ripple)

M12 connector

M12 connector
2-, 3-, 4-conductor

4

8

IEC 61131-2 type 1
3 ms

Reverse polarity protection

M12 connector
2-, 3-conductor

4

2 A

8

500 mA

Short-circuit protection

315 g

330 g

168 mm

70 mm / 178 mm / 50 mm

IP65/IP67

-25°C ... 60°C

Class A product, see page 527

Technical data

Fieldline local bus

M12 connector, B-coded

500 kbps / 2 Mbps (can be switched)

24 V DC

18 V DC ... 30 V DC (including ripple)

M12 connector

-

-

-

-

-

-

M12 connector
2-, 3-conductor

8

500 mA

Short-circuit protection

310 g

168 mm

70 mm / 178 mm / 50 mm

IP65/IP67

-25°C ... 60°C

Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
FLM DIO 4/4 M12-2A	2736369	1
FLM DIO 8/8 M12	2736848	1

Ordering data

Type	Order No.	Pcs./Pkt.
FLM DO 8 M12	2736291	1

M12 analog I/O devices – Modular

The local bus devices are used to acquire and output analog signals in a Fieldline Modular station.

Features:

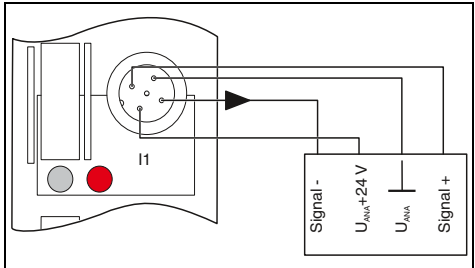
- Seamless connection via M12 connectors
- SPEEDCON fast locking system
- Flexible power supply concept
- Diagnostic and status indicators
- Short-circuit and overload protection

Notes:

A comprehensive range of installation materials for field installation can be found on page 196



4 analog inputs



Technical data

Interface	
Designation	Fieldline local bus
Connection method	M12 connector, B-coded
Transmission speed	500 kbps / 2 Mbps
Power supply for module electronics	
Supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC (including ripple)
Analog inputs	
Connection technology	2-, 4-conductor
Number of inputs	max. 4 (differential inputs, voltage or current)
Voltage input signal	0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
Current input signal	0 mA ... 20 mA / 4 mA ... 20 mA / -20 mA ... 20 mA
Sensor types that can be used (RTD)	-
Protective circuit for voltage input	Reverse polarity protection
Process data update	-
Analog outputs	
Connection technology	-
Number of outputs	-
Voltage output signal	-
Current output signal	-
Protective circuit	-
General data	
Connection method	M12 connector
Weight	280 g
Drill hole spacing	168 mm
Dimensions	70 mm / 178 mm / 50 mm
Degree of protection	IP65/IP67
Ambient temperature (operation)	-25°C ... 60°C
EMC note	Class A product, see page 527

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Fieldline Modular M12 analog input device			
- 4 inputs			
Fieldline Modular M12 analog output device			
- 4 outputs			
	FLM AI 4 SF M12	2736453	1

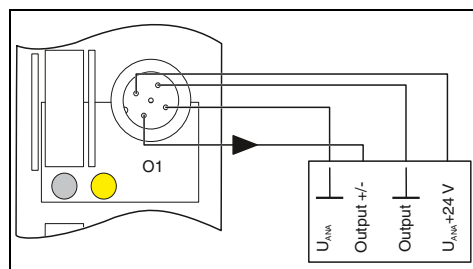


4 analog outputs



4 temperature inputs for resistive sensors

Ex:



Technical data

Fieldline local bus
M12 connector, B-coded
500 kbps / 2 Mbps

24 V DC
18 V DC ... 30 V DC (including ripple)

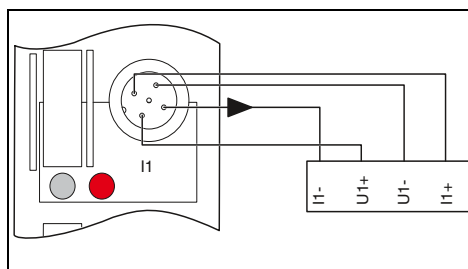
-
-
-
-
-
-

2-, 4-conductor
4
0 V ... 5 V / -5 V ... 5 V / 0 V ... 10 V / -10 V ... 10 V
0 mA ... 20 mA / 4 mA ... 20 mA
Short-circuit protection

M12 connector
280 g
168 mm
70 mm / 178 mm / 50 mm
IP65/IP67
-25°C ... 60°C
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
FLM AO 4 SF M12	2736466	1



Technical data

Fieldline local bus
M12 connector, B-coded
500 kbps / 2 Mbps

24 V DC
18 V DC ... 30 V DC (including ripple)

2-, 3-, 4-conductor (shielded)
max. 4 (for resistance temperature detectors)

-
-
Pt, Ni, KTY sensors, linear resistors
-
Dependent on the connection method

-
-
-
-
-

M12 connector
280 g
168 mm
70 mm / 178 mm / 50 mm
IP65/IP67
-25°C ... 60°C
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
FLM TEMP 4 RTD M12	2736819	1

For field installation (IP65/IP67) – Fieldline Modular

M8 digital I/O devices – Modular

The slim local bus devices are particularly suitable for use on machines close to the process.

Features:

- Seamless connection via M8 connectors
- Optimized for 30 mm mounting profile
- Can also be connected to an Inline station
- Diagnostic and status indicators
- Short-circuit and overload protection

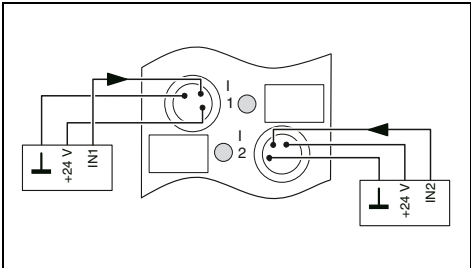
Notes:

A comprehensive range of installation materials for field installation can be found on page 196



8 digital inputs

UL
EX: UL



Technical data

Interface	
Designation	Fieldline local bus
Connection method	M8 connector
Power supply for module electronics	
Supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC (including ripple)
Connection method	M8 connector
Digital inputs	
Connection method	M8 connector
Connection technology	2-, 3-conductor
Number of inputs	8
Description of the inputs	IEC 61131-2 type 1
Filter time	3 ms
Protective circuit	Reverse polarity protection
Digital outputs	
Connection method	-
Connection technology	-
Number of outputs	-
Maximum output current per channel	-
Protective circuit	-
General data	
Weight	137 g
Drill hole spacing	133 mm
Dimensions	29.8 mm / 143 mm / 26.5 mm
Degree of protection	IP65/IP67
Ambient temperature (operation)	-25°C ... 60°C
EMC note	Class A product, see page 527

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Fieldline Modular M8 digital input device			
- 8 inputs, 500 kBD			
Fieldline Modular M8 digital I/O device			
- 4 inputs fixed, 4 inputs/outputs freely selectable, 500 kBD	FLM DI 8 M8	2773348	1
Fieldline Modular M8 digital output device			
- 4 outputs, 2 A, 500 kBD			
- 8 outputs, 500 kBD			



4 digital inputs and
4 digital inputs or outputs



4 digital outputs



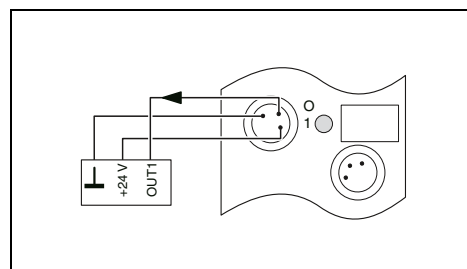
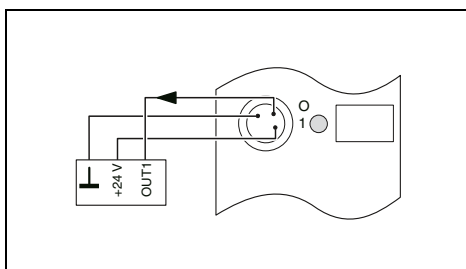
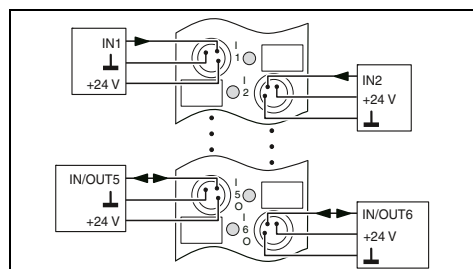
8 digital outputs



Ex: US



Ex: US



Technical data

Fieldline local bus
M8 connector

24 V DC
18 V DC ... 30 V DC (including ripple)

M8 connector

M8 connector
2-, 3-conductor
8 (4 fixed, 4 freely selectable)
IEC 61131-2 type 1
3 ms
Reverse polarity protection

M8 connector
2-, 3-conductor
4 (can also be used as an input)
500 mA
Short-circuit protection

144 g
133 mm
29.8 mm / 143 mm / 26.5 mm
IP65/IP67
-25°C ... 60°C
Class A product, see page 527

Technical data

Fieldline local bus
2 M8 connectors

24 V DC
18 V DC ... 30 V DC (including ripple)

M8 connector

-
-
-
-
-
-

M8 connector
2-, 3-conductor
4
2 A
Short-circuit protection

137 g
133 mm
29.8 mm / 143 mm / 26.5 mm
IP65/IP67
-25°C ... 60°C
Class A product, see page 527

Technical data

Fieldline local bus
M8 connector

24 V DC
18 V DC ... 30 V DC (including ripple)

M8 connector

-
-
-
-
-
-

M8 connector
2-, 3-conductor
8
500 mA
Short-circuit protection

137 g
133 mm
29.8 mm / 143 mm / 26.5 mm
IP65/IP67
-25°C ... 60°C
Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
FLM DIO 8/4 M8	2773351	1

Ordering data

Type	Order No.	Pcs./Pkt.
FLM DO 4 M8-2A	2736932	1

Ordering data

Type	Order No.	Pcs./Pkt.
FLM DO 8 M8	2736893	1

I/O systems

For field installation (IP65/IP67) – Fieldline Modular

Coupling options

Various adapters are available for connecting two systems.

- Connection of Fieldline Modular M8 to Fieldline Modular M12
- Connection of Fieldline Modular M8 or M12 to the Inline I/O system



Fieldline Modular M12/M8 adapter



Inline branch terminal

Local bus interface

Interface
Connection method
Local bus interface
Interface
Connection method

Technical data		
Fieldline Modular M12 local bus		
M12 connector, B-coded		
Fieldline Modular M8 local bus		
2 M8 connectors		

Technical data		
Inline local bus		
Inline data jumper		
Inline local bus		
Inline shield connector		

Ordering data

Description

Adapter piece for coupling Fieldline Modular M8 local bus devices to a Fieldline Modular M12 local bus

Inline branch terminal for connecting a Fieldline Modular M8 or M12 local bus at the end of an Inline station

Inline branch terminal for connecting a Fieldline Modular M8 local bus at any point in an Inline station

Type	Order No.	Pcs./Pkt.
FLM ADAP M12/M8	2736961	1

Ordering data

Type	Order No.	Pcs./Pkt.
IB IL 24 FLM-PAC	2736903	1
IB IL 24 FLM MULTI-PAC	2737009	1

Mounting plates

Up to seven Fieldline Modular M12 devices can be mounted on the mounting plates.



For 5 Fieldline Modular devices



For 7 Fieldline Modular devices

General data

Width
Depth
Height
Hole diameter
Note regarding dimensions
Assembly instructions
Material
Weight

Technical data		
360 mm		
11 mm		
185 mm		
8.5 mm		
For fastening the mounting plate		
For mounting 5 Fieldline Modular devices		
Chromated aluminum		
650 g		

Ordering data

Description

Fieldline Modular mounting plate
- For five Fieldline Modular M12 devices
- For seven Fieldline Modular M12 devices

Type	Order No.	Pcs./Pkt.
FLM MP 5	2736660	1

Technical data

502 mm
11 mm
185 mm
8.5 mm
For fastening the mounting plate
For mounting 7 Fieldline Modular devices
Chromated aluminum
900 g

Ordering data

Type	Order No.	Pcs./Pkt.
FLM MP 7	2736673	1

System components

Various system components with M12 connectors enable the easy creation of different topologies.

- Termination resistor
- Y distributor for signal connections



Termination resistor



Y distributor

Description	Ordering data			Type	Order No.	Pcs./Pkt.
	Type	Order No.	Pcs./Pkt.			
Termination resistor , M12 plug - PROFIBUS	SAC-5P-M12MS PB TR	1507803	5			
M12 Y distributor M12 plug to 2x M12 sockets				SAC-3P-M12Y/2XM12FS PE	1683455	5

Installation material

- Sealing caps with external or inner thread
- Printed marking labels or marking labels without color print



Sealing caps and marking material

Description	Ordering data			Type	Order No.	Pcs./Pkt.
	Type	Order No.	Pcs./Pkt.			
M12 screw plug for unused M12 sockets of sensor/actuator cables, boxes, and device connectors As above, with SPEEDCON fast locking system	PROT-M12	1680539	5			
	PROT-MS SCO	1553129	5			
	PROT-M12 FS	1560251	5			
for unused M12 connectors of sensor/actuator cables, device connectors, and I/O devices in the field						
M8 screw plug for unused M8 sockets of sensor/actuator cables, boxes, and device connectors	PROT-M8	1682540	5			
Zack marker strip, flat, 5-section, without color print 5-section, for 50 terminal blocks	ZBF 12:UNBEDRUCKT	0809735	10			
	ZBF 8:UNBEDRUCKT	0808781	10			
Zack marker strip, flat, marked according to customer specifications 5-section	ZBF 12 CUS	0825018	1			
	ZBF 8 CUS	0825030	1			

For field installation (IP65/IP67) – Fieldline Modular

Bus and power cables with M12 connector

Phoenix Contact offers a complete range of bus and power cables for the Fieldline system.



INTERBUS bus cable



PROFINET bus cable



PROFIBUS bus cable

Description	Length of cable	Ordering data		Ordering data		Ordering data	
		Order No.	Pcs./Pkt.	Order No.	Pcs./Pkt.	Order No.	Pcs./Pkt.
Pre-assembled bus cable M12 pin, straight, shielded, free cable end	1 m			1407495	1		
	2 m	1517877	1	1407496	1	1518025	1
	5 m	1517880	1	1407497	1	1518038	1
	10 m	1517893	1	1407498	1	1518041	1
	15 m	1517903	1	1524336	1	1518054	1
Pre-assembled bus cable M12 socket, straight, shielded, free cable end	1 m			1407528	1		
	2 m	1517916	1	1407529	1	1518067	1
	5 m	1517929	1	1407530	1	1518070	1
	10 m	1517932	1	1407531	1	1518083	1
	15 m	1517945	1			1518096	1
Pre-assembled bus cable M12 pin, straight, shielded, M12 socket, straight, shielded	0.3 m	1517958	1			1518106	1
	0.5 m	1517961	1			1518119	1
	1 m	1517974	1	1407553	1	1518122	1
	2 m	1517987	1	1407554	1	1518135	1
	5 m	1517990	1	1407555	1	1518148	1
	10 m	1518009	1	1407556	1	1518151	1
	15 m	1518012	1			1518164	1
	0.3 m			1524349	1		
	0.5 m			1524352	1		
Pre-assembled bus cable M12 pin, straight, shielded, M12 pin, straight, shielded	1 m			1407524	1		
	2 m			1407525	1		
	5 m			1407526	1		
	10 m			1407527	1		
	15 m			1524404	1		

For field installation (IP65/IP67) – Fieldline Modular



Description	Length of cable	Ordering data		Ordering data		Ordering data	
		Order No.	Pcs./Pkt.	Order No.	Pcs./Pkt.	Order No.	Pcs./Pkt.
Pre-assembled bus cable M12 pin, straight, shielded, free cable end	1 m	1407356	1				
	2 m	1407357	1	1517877	1		
	5 m	1407358	1	1517880	1		
	10 m	1407359	1	1517893	1		
	15 m	1569427	1	1517903	1		
Pre-assembled bus cable M12 socket, straight, shielded, free cable end	1 m	1407380	1				
	2 m	1407381	1	1517916	1		
	5 m	1407382	1	1517929	1		
	10 m	1407383	1	1517932	1		
	15 m			1517945	1		
Pre-assembled bus cable M12 pin, straight, shielded, M12 socket, straight, shielded	0.13 m			1518478	1		
	0.3 m			1517958	1		
	0.5 m			1517961	1		
	1 m	1407400	1	1517974	1		
	2 m	1407401	1	1517987	1		
	5 m	1407402	1	1517990	1		
	10 m	1407403	1	1518009	1		
	15 m			1518012	1		
Pre-assembled bus cable M12 pin, straight, shielded, M12 pin, straight, shielded	0.5 m	1569443	1				
	1 m	1407376	1				
	2 m	1407377	1				
	5 m	1407378	1				
	10 m	1407379	1				
Pre-assembled power cable M12 pin, straight, free cable end	2 m					1518326	1
	5 m					1518339	1
	10 m					1518342	1
	15 m					1518355	1
Pre-assembled power cable M12 socket, straight, free cable end	2 m					1518368	1
	5 m					1518371	1
	10 m					1518384	1
	15 m					1518397	1
Pre-assembled power cable M12 pin, straight, M12 socket, straight	0.13 m					1518481	1
	0.3 m					1518407	1
	0.5 m					1518410	1
	1 m					1518423	1
	2 m					1518436	1
	5 m					1518449	1
	10 m					1518452	1
	15 m					1518465	1

For field installation (IP65/IP67) – Fieldline Modular

Bus and power cables with M8 connector

The following assembled cables are available for connecting Fieldline Modular M8 devices:

- System cables for the supply voltage and bus signal
- Power cables for the actuator voltage



Straight connector



Angled connector

		Ordering data			Ordering data		
Description	Length of cable	Type	Order No.	Pcs./Pkt.	Type	Order No.	Pcs./Pkt.
Pre-assembled system cable M8 pin, shielded, free cable end	2 m	SAC-4P-M 8MS/ 2,0-950	1543249	1	SAC-4P-M 8MR/ 2,0-950	1550850	1
	5 m	SAC-4P-M 8MS/ 5,0-950	1543252	1	SAC-4P-M 8MR/ 5,0-950	1550863	1
	10 m	SAC-4P-M 8MS/10,0-950	1543265	1	SAC-4P-M 8MR/10,0-950	1550876	1
	20 m	SAC-4P-M 8MS/20,0-950	1543281	1	SAC-4P-M 8MR/20,0-950	1550892	1
Pre-assembled system cable M8 socket, shielded, free cable end	2 m	SAC-4P- 2,0-950/M 8FS	1543294	1	SAC-4P- 2,0-950/M 8FR	1550902	1
	5 m	SAC-4P- 5,0-950/M 8FS	1543304	1	SAC-4P- 5,0-950/M 8FR	1550915	1
	10 m	SAC-4P-10,0-950/M 8FS	1543317	1	SAC-4P-10,0-950/M 8FR	1550928	1
	20 m	SAC-4P-20,0-950/M 8FS	1543333	1	SAC-4P-20,0-950/M 8FR	1550944	1
Pre-assembled system cable M8 pin, straight, shielded, M8 socket, straight, shielded	0.13 m	SAC-4P-M 8MS/ 0,13-950/M 8FS	1543346	1			
	0.3 m	SAC-4P-M 8MS/ 0,3-950/M 8FS	1543511	1			
	1 m	SAC-4P-M 8MS/ 1,0-950/M 8FS	1543537	1			
	2 m	SAC-4P-M 8MS/ 2,0-950/M 8FS	1543359	1			
	5 m	SAC-4P-M 8MS/ 5,0-950/M 8FS	1543362	1			
	10 m	SAC-4P-M 8MS/10,0-950/M 8FS	1543375	1			
	20 m	SAC-4P-M 8MS/20,0-950/M 8FS	1543391	1			
Pre-assembled system cable M8 pin, angled, shielded, M8 socket, angled, shielded	0.13 m				SAC-4P-M 8MR/ 0,13-950/M 8FR	1550957	1
	0.3 m				SAC-4P-M 8MR/ 0,3-950/M 8FR	1550960	1
	0.5 m				SAC-4P-M 8MR/ 0,5-950/M 8FR	1550973	1
	1 m				SAC-4P-M 8MR/ 1,0-950/M 8FR	1550986	1
	2 m				SAC-4P-M 8MR/ 2,0-950/M 8FR	1550999	1
	5 m				SAC-4P-M 8MR/ 5,0-950/M 8FR	1551008	1
	10 m				SAC-4P-M 8MR/10,0-950/M 8FR	1551011	1
	20 m				SAC-4P-M 8MR/20,0-950/M 8FR	1551037	1
Pre-assembled power cable M8 socket, free cable end, 4 x 0.34 mm²	2 m	SAC-4P- 2,0-PUR/M 8FS 0,34	1543582	1	SAC-4P- 2,0-PUR/M 8FR 0,34	1553077	1
	5 m	SAC-4P- 5,0-PUR/M 8FS 0,34	1534818	1	SAC-4P- 5,0-PUR/M 8FR 0,34	1553080	1
	10 m	SAC-4P-10,0-PUR/M 8FS 0,34	1543595	1	SAC-4P-10,0-PUR/M 8FR 0,34	1553093	1
	20 m	SAC-4P-20,0-PUR/M 8FS 0,34	1543618	1	SAC-4P-20,0-PUR/M 8FR 0,34	1553116	1

Connectors for assembly

Connectors for assembly enable the flexible cabling of Fieldline devices.

- M12 or M8 connection technology
- Shielded or unshielded
- QUICKON, spring-cage or insulation displacement connection

Ethernet



M12 connector



M8 connector

ERC

UL 94V-0 ERC

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs./Pkt.	Type	Order No.	Pcs./Pkt.
M12 connector, shielded						
M12 pin, 5-pos., A-coded, QUICKON connection	SACC-MS-5QO-0,75 SH SCO	1413991	1			
M12 socket, 5-pos., A-coded, QUICKON connection	SACC-FS-5QO-0,75 SH SCO	1413992	1			
M12 pin, 5-pos., B-coded, spring-cage connection, INTERBUS	SACC-M12MSB-5PL SH IB	1424674	1			
M12 socket, 5-pos., B-coded, spring-cage connection, INTERBUS	SACC-M12FSB-5PL SH IB	1424676	1			
M12 pin, 2-pos., B-coded, QUICKON connection, PROFIBUS	SACC-MSB-2QO SH PB SCO	1413931	1			
M12 socket, 2-pos., B-coded, QUICKON connection, PROFIBUS	SACC-FSB-2QO SH PB SCO	1413932	1			
M12 pin, 4-pos., D-coded, QUICKON connection, Ethernet	SACC-MSD-4QO SH ETH SCO	1411066	1			
M12 socket, 4-pos., D-coded, QUICKON connection, Ethernet	SACC-FSD-4QO SH ETH SCO	1411069	1			
M12 pin, 4-pos., D-coded, QUICKON connection, PROFINET	SACC-MSD-4QO SH PN SCO	1411068	1			
M12 socket, 4-pos., D-coded, QUICKON connection, PROFINET	SACC-FSD-4QO SH PN SCO	1411071	1			
M8 connector, shielded						
M8 pin, 4-pos., screw connection				SACC-M 8MS-4CON-M-0,34-SH	1542897	1
M8 socket, 4-pos., screw connection				SACC-M 8FS-4CON-M-0,34-SH	1542910	1
M12 connector, unshielded						
M12 pin, 4-pos., A-coded, QUICKON connection technology, cross section range: 0.14 - 0.34 mm ² , SPEEDCON fast locking system	SACC-MS-4QO-0,34-M SCO	1521575	1			
M12 socket, 4-pos., A-coded, QUICKON connection technology, cross section range: 0.14 - 0.34 mm ² , SPEEDCON fast locking system	SACC-FS-4QO-0,34-M SCO	1521588	1			
M12 pin, 4-pos., A-coded, QUICKON connection technology, cross section range: 0.34 - 0.75 mm ² , SPEEDCON fast locking system	SACC-MS-4QO-0,75-M SCO	1521591	1			
M12 socket, 4-pos., A-coded, QUICKON connection technology, cross section range: 0.34 - 0.75 mm ² , SPEEDCON fast locking system	SACC-FS-4QO-0,75-M SCO	1521601	1			
M12 socket, 5-pos., A-coded, Push-in connection, cross section range: 0.14 - 0.75 mm ²	SACC-M12FS-5PL M	1424652	1			
M8 connector, unshielded						
M8 pin, 3-pos., insulation displacement connection				SACC-M 8MS-3QO-0,5-M	1441024	1
M8 socket, 4-pos., insulation displacement connection				SACC-M 8FS-4QO-0,5-M	1441079	1

AS-Interface



AS-Interface devices make contact with the AS-Interface flat cable without using tools. This minimizes the installation time and reduces costs. Various designs are available – devices with M12 or M8 connections. The latter are extremely compact and ideal for handling machines or robot applications. Furthermore, corresponding accessories are available from Phoenix Contact, including gateways, power supplies, and cabling.

Your advantages:

- Save installation time, thanks to innovative connection technology
- Everything from a single source, thanks to the comprehensive product range
- Tool-free connection using the penetration technique

Find out more with the web code

Detailed information on these products can be found on our website. Simply enter # and numbers in the search field.

i Your web code: **#0288**



I/Os and components for AS-Interface

Description
Digital I/O devices with M12 connection technology
- 4 inputs
- 4 outputs, 2 A
- 2 inputs, 2 outputs, 2 A
- 4 inputs, 3 outputs, 2 A
- 4 inputs, 4 outputs, 2 A
Digital I/O devices with M8 connection technology
- 4 inputs
- 4 inputs, 4 outputs, 1 A
Digital I/O devices with COMBICON connection technology
- 4 inputs
- 4 inputs, 3 outputs
AS Interface (AS-i) Gateway for PROFIBUS DP
with standard function, IP20 protection, in acc. with AS-i specification 3.0
AS-i Gateway for Inline, IP20 protection, color: green
Power supply, primary-switched
Manual addressing device, for AS-Interface devices
- Cinch programming cable for manual addressing device

Ordering data		
Type	Order No.	Pcs./Pkt.
FLX ASI DI 4 M12	2773429	1
FLX ASI DO 4 M12-2A	2773458	1
FLX ASI DIO 2/2 M12-2A	2773432	1
FLX ASI DIO 4/3 M12-2A	2773445	1
FLX ASI 3.0 DIO 4/4 M12-2A	2773474	1
FLX ASI DI 4 M8	2773403	1
FLX ASI DIO 4/4 M8-1A	2773416	1
ASI IO ME DI 4 AB	2741671	1
ASI IO ME DIO 4/3 AB	2741668	1
FLX ASI MA PB SF	2773597	1
ASI MA IL UNI	2736628	1
ASI QUINT 100-240/2.4 EFD	2736686	1
ASI QUINT 100-240/4.8 EFD	2736699	1
ASI CC ADR	2741338	1
ASI CC ADR CAB CINCH	2741341	1

Ruggedline



**Distributed I/O system
for the automotive body shop**

The robust I/O devices with a block design are ideal for use in harsh industrial environments. They are available for INTERBUS and PROFINET systems. The I/O system was specially developed for body shop requirements in the automotive industry.

Your advantages:

- Safe communication even in environments subject to high levels of electromagnetic interference, thanks to data transmission via fiber optics
- Snap-in mounting plate assembly without the use of tools makes installation easier
- Particularly resistant to welding splash and mechanical damage
- Developed specifically for body shop requirements in the automotive industry

Description

Ruggedline devices for PROFINET

- 16 inputs, twisted pair connection
- 8 inputs, 8 I/Os, twisted pair connection

- 8 inputs, 8 outputs, FO connection

Ruggedline devices for INTERBUS

- BK module, FO connection
- BK module, twisted pair connection
- Monitoring device, FO connection
- 16 inputs, FO connection
- 16 inputs, twisted pair connection
- 8 inputs, 8 outputs, FO connection
- 8 inputs, 8 outputs, twisted pair connection

Ordering data

Type	Order No.	Pcs./Pkt.
RL PN 24-2 DI 16 2TX	2773665	1
RL PN 24-2 DIO 16/8 2TX	2773652	1
RL PN 24-2 DIO 8/8 2SCRJ	2773513	1
IBS RL 24 BK RB-LK-LK	2725024	1
IBS RL 24 BK RB-T-T	2731063	1
IBS RL 24 OC-LK	2819972	1
IBS RL 24 DI 16/8-LK	2724850	1
IBS RL 24 DI 16/8-T	2836463	1
IBS RL 24 DIO 8/8/8-LK	2724847	1
IBS RL 24 DIO 8/8/8-T	2836476	1