

# AXL E PN IOL8 DI4 M12 6M - Communication module



2701519

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Axioline E, PROFINET, M12 connector, IO-Link ports Class A: 4, connection method: M12 connector, connection technology: 3-conductor, IO-Link ports Class B: 4, connection method: M12 connector, connection technology: 3-conductor, Digital inputs at pin 2 for class A ports: 4, 24 V DC, connection technology: 3-conductor, Metal housing, degree of protection: IP65/IP67

## Product description

The Axioline E-PROFINET-IO-Link-Master is designed for use within a PROFINET network. It enables the operation of up to eight IO-Link sensors/actuators and is also used to acquire digital signals. The IO-Link master is designed for use in systems manufacturing. It is suitable for use without a control cabinet in harsh industrial ambient conditions. The Axioline E PROFINET IO-Link master can be used on tool platforms, directly on welding robots, or in conveying technology, for example.

## Your advantages

- Connection to PROFINET network using M12 connectors (D-coded)
- Transmission speed of 100 Mbps
- Connection of four IO-Link devices with additional digital input
- Connection of four IO-Link actuators with additional power supply
- Connection of IO-Link ports using M12connectors (A-coded, 5-pos.)
- IO-Link specification V1.1.2
- Diagnostic and status indicators
- Short-circuit and overload protection of the sensor supply
- IP65/IP67 degree of protection

## Commercial data

Item number	2701519
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR04
Product key	DR17PA
GTIN	4046356763691
Weight per piece (including packing)	725.3 g
Weight per piece (excluding packing)	728.9 g
Customs tariff number	85176200
Country of origin	DE

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## Technical data

### Dimensions

Dimensional drawing	
Width	60 mm
Height	185 mm
Depth	38 mm
Drill hole spacing	198.5 mm
Note on dimensions	The height is 194.5 mm including the mounting panel. With fixing clips pulled out, the height is 212 mm. The depth is 38 mm including the mounting panel (30.5 mm without the mounting panel).

### Notes

#### Note on application

Note on application	Only for industrial use
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### Material specifications

Color (Housing)	gray (RAL 7042)
Housing material	Die-cast zinc

### Interfaces

#### PROFINET

Number of interfaces	2
Connection method	M12 connector
Note on the connection method	D-coded
Number of positions	4
Transmission speed	100 Mbps (with auto negotiation)

#### PROFINET

Equipment type	PROFINET-Device
System-specific protocols	PROFINET protocols LLDP
	PROFINET protocols MRP client
	PROFINET protocols DCP
	PROFINET protocols DCE/IPC
Protocols supported	SNMP v1
	HTTP
	TFTP
	FTP

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## Input data

### Digital:

Input name	Digital inputs at pin 2 for class A ports
Description of the input	IEC 61131-2 type 1
Number of inputs	4
Connection method	M12 connector, X01 ... X04 have double occupancy
Connection technology	3-conductor
Input voltage range "0" signal	-0.3 V DC ... 5 V DC
Input voltage range "1" signal	15 V DC ... 30 V DC
Nominal input voltage $U_{IN}$	24 V DC
Nominal input current at $U_{IN}$	typ. 3 mA
Sensor current per channel	max. 200 mA (from L+/L-)
Total sensor current	max. 1.6 A (from L+/L-)
Input frequency	0.5 kHz
Input filter time	< 1000 $\mu$ s
Protective circuit	Overload protection, short-circuit protection of sensor supply

### Digital

Description of the input	IO-Link ports in digital input (DI) mode
Number of inputs	max. 8 (IEC 61131-2 type 1)
Connection method	M12 connector, X01 ... X04 have double occupancy
Connection technology	3-conductor
Nominal input voltage $U_{IN}$	24 V DC
Input voltage range "0" signal	-0.3 V DC ... 5 V DC
Input voltage range "1" signal	15 V DC ... 30 V DC
Nominal input current	typ. 3 mA
Sensor current per channel	max. 200 mA (from L+/L-)
Total sensor current	max. 1.6 A (from L+/L-)
Input filter time	< 1000 $\mu$ s
Input frequency	0.5 kHz
Protective circuit	Overload protection; yes Short-circuit protection for the sensor supply; yes

### IO-Link

Number of ports	4
Connection method	M12 connector
Connection technology	3-conductor
Port type	Class A
Cycle Time	min. 2 ms (MasterCycleTime: PDInput* + PDOOutput* + OnReqData* <= 17 Bytes, COM3; * see "IO-Link Interface and System Specification V1.1.2")

### IO-Link

Number of ports	4
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Connection method	M12 connector
Connection technology	3-conductor
Port type	Class B
Cycle Time	min. 2 ms (MasterCycleTime: PDInput* + PDOOutput* + OnReqData* <= 17 Bytes, COM3; * see "IO-Link Interface and System Specification V1.1.2")

## Output data

### Digital

Output description	IO-Link ports in digital output (DO) mode
Connection method	M12 connector, X01 ... X04 have double occupancy
Connection technology	3-conductor
Number of outputs	max. 8
Nominal output voltage	24 V DC
Maximum output current per channel	150 mA
Maximum output current per module	1.2 A
Nominal load, ohmic	3.6 W (160 Ω, at nominal load)
Nominal load, inductive	3.6 VA (0.8 H, 160 Ω, at nominal load)
Signal delay	max. 150 μs (when switched on) max. 200 μs (when switched off)
Switching rate	1 per second, maximum (at nominal inductive load) 5500 per second, maximum (at nominal ohmic load)
Limitation of the voltage induced on circuit interruption	-15 V DC
Output voltage when switched off	max. 1 V
Output current when switched off	max. 300 μA
Protective circuit	Overload protection; yes Short-circuit protection; yes
Behavior with overload	Shutdown with automatic restart

## Product properties

Product type	I/O component
Product family	Axioline E
Type	Stand-alone
Special properties	Metal housing

## Electrical properties

### Potentials

Voltage supply $U_S$	24 V DC
Power supply at $U_S$	max. 4 A
Current consumption from $U_S$	typ. 8 mA max. 1.2 A

### Supply: IO-Link

Nominal voltage for I/O supply	24 V DC
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Nominal current for every IO-Link port	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 <sub>A</sub> (IO-Link B ports, pin 2 and pin 5))
Permissible cable length	< 20 m (to the sensor)
Protective circuit	Overload protection; yes

## Supply: Module electronics and sensors

Designation	Supply of module electronics and sensors (U <sub>S</sub> )
Connection method	M12 connector, T-coded
Number of positions	4
Supply voltage	24 V DC
Supply voltage range	19.5 V DC ... 31.2 V DC (including all tolerances, including ripple)
Current consumption	typ. 180 mA ±15 % (at 24 V DC)
	max. 12 A

## Supply: Actuators

Designation	Supply of actuators (U <sub>A</sub> )
Connection method	M12 connector, T-coded
Number of positions	4
Supply voltage	24 V DC
Supply voltage range	18 V DC ... 31.2 V DC (including all tolerances, including ripple)
Current consumption	typ. 28 mA ±15 % (at 24 V DC)
	max. 12 A

## Electrical isolation/isolation of the voltage ranges

Test voltage: 24 V supply (communications power and sensor supply, IO-Link ports)/bus connection (Ethernet 1)	500 V AC, 50 Hz, 1 min
Test voltage: 24 V supply (communications power and sensor supply, IO-Link ports)/bus connection (Ethernet 2)	500 V AC, 50 Hz, 1 min
Test voltage: 24 V supply (communications power and sensor supply, IO-Link ports)/FE	500 V AC, 50 Hz, 1 min
Test voltage: Bus connection (Ethernet 1)/FE	500 V AC, 50 Hz, 1 min
Test voltage: Bus connection (Ethernet 2)/FE	500 V AC, 50 Hz, 1 min
Test voltage: Bus connection (Ethernet 1)/bus connection (Ethernet 2)	500 V AC, 50 Hz, 1 min
Test voltage: 24 V supply (actuator supply)/24 V supply (communications power and sensor supply, IO-Link ports)	500 V AC, 50 Hz, 1 min
Test voltage: 24 V supply (actuator supply)/bus connection (Ethernet 1)	500 V AC, 50 Hz, 1 min
Test voltage: 24 V supply (actuator supply)/bus connection (Ethernet 2)	500 V AC, 50 Hz, 1 min
Test voltage: 24 V supply (actuator supply)/FE	500 V AC, 50 Hz, 1 min

## Connection data

Connection method	M12 connector
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## Environmental and real-life conditions

### Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C
Degree of protection	IP65/IP67
Air pressure (operation)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Ambient temperature (storage/transport)	-25 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 %
Permissible humidity (storage/transport)	5 % ... 95 %

### Mechanical test

Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	5g
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	30g, 11 ms period, half-sine shock pulse
Continuous shock in accordance with EN 60068-2-27/IEC 60068-2-27	10g

## Standards and regulations

Protection class	III (IEC 61140, EN 61140, VDE 0140-1)
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## Mounting

Mounting type	Screw mounting
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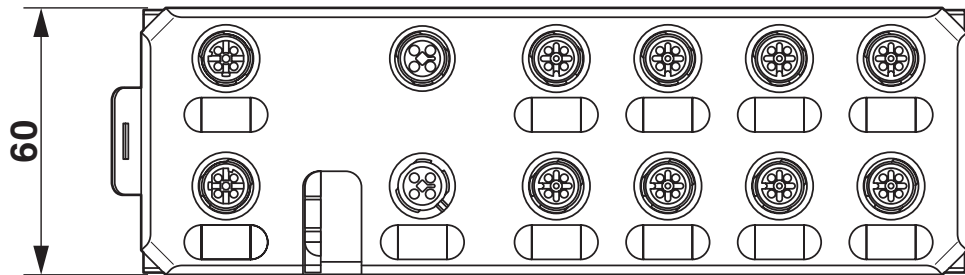
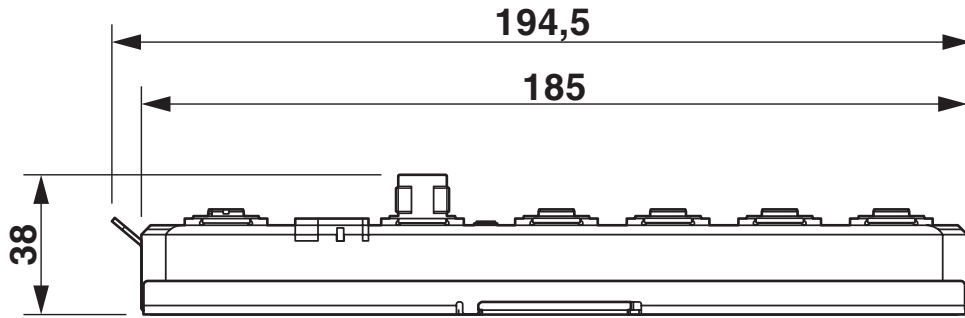


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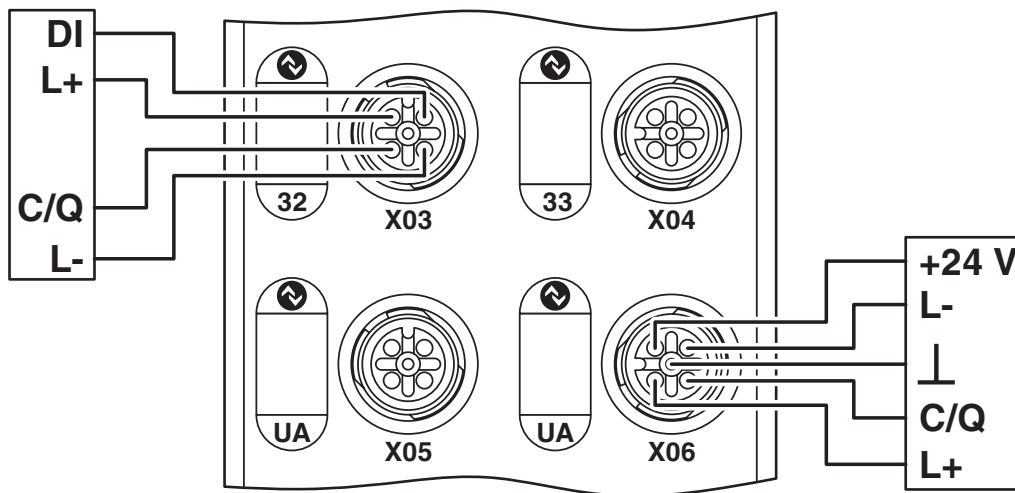
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## Drawings

Dimensional drawing



Connection diagram



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Connection diagram



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## Approvals

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### PROFINET

Approval ID: Z12265



### cULus Listed

Approval ID: E140324



### cULus Listed

Approval ID: E199827

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## Classifications

### ECLASS

ECLASS-13.0	27242604
ECLASS-15.0	27242604

### ETIM

ETIM 10.0	EC001599
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### UNSPSC

UNSPSC 21.0	32151600
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### China RoHS

Environment friendly use period (EFUP)	EFUP-25
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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