

AXL E PN IOL4/4 EF M12 6M-L - Communication module



1300926

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Axioline E, IO-Link master, PROFINET, M12 connector, D-coded, IO-Link ports Class A: 4, connection method: M12 connector, A-coded, connection technology: 3-conductor, IO-Link ports Class B: 4, connection method: M12 connector, A-coded, connection technology: 5-conductor, Digital inputs at pin 2 for class A ports: 4, 24 V DC, connection technology: 3-conductor, Digital outputs at pin 2 for class A ports: 4, 24 V DC, 2 A, connection technology: 2-conductor, degree of protection: IP65/IP67/IP69

Product description

The Axioline E device is designed for use within a PROFINET network. The device enables the operation of up to eight IO-Link sensors and actuators. In addition, you can acquire and output digital signals with the device. The device is suitable for use without a control cabinet in harsh industrial ambient conditions.

Your advantages

- Connection with M12 connectors with push-pull fast connection or screw connection
- Mapping in accordance with PROFINET specification V2.4 as PROFINET device (Conformance Class C (IRT switch))
- PROFINET system redundancy S2 supported
- PROFINET supported with min. cycle time of 1 ms
- IO-Link specification V1.1.2
- Parameterization of IO-Link devices with IODD
- 2 Ethernet ports (with integrated switch)
- Transmission speed of 100 Mbps
- Short-circuit and overload protection
- IP65/IP67/IP69 degree of protection

Commercial data

Item number	1300926
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DRI7NA
Product key	DRI7NA
GTIN	4063151546038
Weight per piece (including packing)	662.2 g
Weight per piece (excluding packing)	631 g
Country of origin	DE

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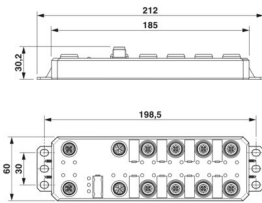


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Technical data

Dimensions

Dimensional drawing	
Width	60 mm
Height	212 mm
Depth	30.2 mm

Notes

Note on application

Note on application	Only for industrial use
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Material specifications

Housing material	Die-cast zinc
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Interfaces

PROFINET

Number of interfaces	2
Connection method	M12 connector, D-coded
Note on the connection method	Push-pull fast connection according to IEC 61076-2-010 or screw connection according to IEC 61076-2-101
Number of positions	4
Transmission speed	100 Mbps (with auto negotiation)
System-specific protocols	PROFINET protocols LLDP PROFINET protocols MRP client PROFINET protocols DCP PROFINET protocols DCE/RPC
Protocols supported	HTTP SNMP v1

System properties

PROFINET

Device function	PROFINET device
Update rate	1 ms
Conformance Class	C (IRT switch)
Supported functions	I&M functions
Device ID	0179 _{hex}

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Vendor ID	00B0 _{hex}
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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 types 1 and 3
Number of inputs	4
Connection method	M12 connector, A-coded
Note on the connection method	Push-pull fast connection according to IEC 61076-2-010 or screw connection according to IEC 61076-2-101
Connection technology	3-conductor
Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 30 V DC
Nominal input voltage U _{IN}	24 V DC
Nominal input current at U _{IN}	typ. 2.5 mA
Input filter time	< 1000 µs

Digital

Description of the input	IO-Link ports in digital input (DI) mode
Number of inputs	max. 8 (IEC 61131-2 types 1 and 3)
Connection method	M12 connector, A-coded
Note on the connection method	Push-pull fast connection according to IEC 61076-2-010 or screw connection according to IEC 61076-2-101
Connection technology	3-conductor
Nominal input voltage U _{IN}	24 V DC
Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 30 V DC
Nominal input current	typ. 2.5 mA
Input filter time	5 ms

IO-Link

Number of ports	4
Connection method	M12 connector, A-coded
Note on the connection method	Push-pull fast connection according to IEC 61076-2-010 or screw connection according to IEC 61076-2-101
Connection technology	3-conductor
Port type	Class A
Specification	V1.1.2
Cycle Time	500 µs

IO-Link

Number of ports	4
Connection method	M12 connector, A-coded
Note on the connection method	Push-pull fast connection according to IEC 61076-2-010 or screw connection according to IEC 61076-2-101
Connection technology	5-conductor

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Port type	Class B
Specification	V1.1.2
Cycle Time	500 µs

Output data

Digital:

Output name	Digital outputs at pin 2 for class A ports
Connection method	M12 connector, A-coded
Note on the connection method	Push-pull fast connection according to IEC 61076-2-010 or screw connection according to IEC 61076-2-101
Connection technology	2-conductor
Number of outputs	4
Protective circuit	Overload protection; yes Short-circuit protection; yes
Output voltage	24 V DC
Limitation of the voltage induced on circuit interruption	-29 V ... -17 V
Output current	2 A (per output)
Nominal output voltage	24 V DC (from U_S)
Output voltage range	min. $U_S - 1 \text{ V}$... max. U_S
Load min.	10 kΩ
Output voltage when switched off	max. 1 V
Output current when switched off	max. 300 µA
Nominal load, inductive	12 VA (1.2 H, 48 Ω, at nominal voltage, utilization category DC-13)
Nominal load, ohmic	48 W (12 Ω, at nominal voltage)
Switching frequency	max. 1 per second (with inductive load)
Reverse voltage resistance to short pulses	no
Behavior with overload	Shutdown with automatic restart
Behavior with inductive overload	Output can be destroyed
Signal delay	max. 100 µs (when switched on) max. 100 µs (when switched off, with at least 50 mA load current)
Overcurrent shut-down	min. 2.2 A
Output current with ground connection interrupt when switched off	< 1 mA

Digital

Output description	IO-Link ports in digital output (DO) mode
Connection method	M12 connector, A-coded
Connection technology	3-conductor
Number of outputs	max. 8
Nominal output voltage	24 V DC
Maximum output current per channel	200 mA
Protective circuit	Overload protection; yes Short-circuit protection; yes
Behavior with overload	Shutdown with automatic restart

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Product properties

Product family	Axioline E
Type	Stand-alone

Insulation characteristics

Pollution degree	2 (IEC 60664-1, EN 60664-1)
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Electrical properties

Supply: IO-Link

Designation	IO-Link port supply
Nominal voltage for I/O supply	24 V DC
Nominal current for every IO-Link port	max. 2 A (at L+/L- (pin 1 and pin 3))
	max. 4 A (at P24/N24 (IO-Link B ports, pin 2 and pin 5))
Permissible cable length	< 20 m (to the sensor)
Behavior with overload	Shutdown with automatic restart
Protective circuit	Overload protection; yes
	Short-circuit protection; yes

Supply: Sensors

Designation	Supply of the logic, sensors, and actuators (U_S)
Connection method	M12 connector, L-coded
Note on the connection method	Screw connection in accordance with IEC 61076-2-111
Number of positions	4
Supply voltage	24 V DC
Supply voltage range	18 V ... 30 V DC (including all tolerances, including ripple)
Current consumption	typ. 100 mA
	max. 16 A
Protection	max. 16 A

Supply: Actuators

Designation	Supply of actuators (U_A)
Connection method	M12 connector, L-coded
Note on the connection method	Screw connection in accordance with IEC 61076-2-111
Number of positions	4
Supply voltage	24 V DC (Nominal voltage)
Supply voltage range	18 V DC ... 30 V (including all tolerances, including ripple)
Current consumption	typ. 40 mA
	max. 16 A
Protection	max. 16 A

Electrical isolation/isolation of the voltage ranges

Test voltage: 24 V supply (logic and sensor supply U_S) / functional ground	800 V DC, 1 min
Test voltage: 24 V supply (actuator supply U_A) / 24 V supply (logic and sensor supply U_S)	800 V DC, 1 min

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Test voltage: 24 V supply (actuator supply U_A) / functional ground	800 V DC, 1 min
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Connection data

Connection method	M12 connector
Tightening torque	0.4 Nm

Environmental and real-life conditions

Ambient conditions

Ambient temperature (operation)	-25 °C ... 70 °C -40 °C ... 70 °C (Extended, see section "Use under extreme ambient conditions" in the data sheet)
Degree of protection	IP65/IP67/IP69 IK08 (Impact resistance level)
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 %

Test (noxious gas)

Test standard	IEC 60068-2-60:2015 Method 4
Temperature	25 °C $\pm$ 1 K
Humidity (relative)	75 % $\pm$ 3 %
Test duration	14 Days
Volume concentration H ₂ S (Hydrogen sulfide)	10 ppb $\pm$ 5 ppb
Volume concentration NO ₂ (Nitrogen dioxide)	200 ppb $\pm$ 20 ppb
Volume concentration Cl ₂ (Chlorine)	10 ppb $\pm$ 5 ppb
Volume concentration SO ₂ (Sulfur dioxide)	200 ppb $\pm$ 20 ppb

Test (Salt spray)

Test standard	DIN EN 60068-2-52
Number of cycles	4
Test steps per cycle	2
Test duration (Total)	168 h
Test step (Salt mist)	2 h with 5 % $\pm$ 0.5 % NaCl, pH value 6.5...7.2 for 35 °C $\pm$ 2 K
Test step (Humidity)	166 h with 93 % $\pm$ 3 % Humidity for 40 °C $\pm$ 2 K

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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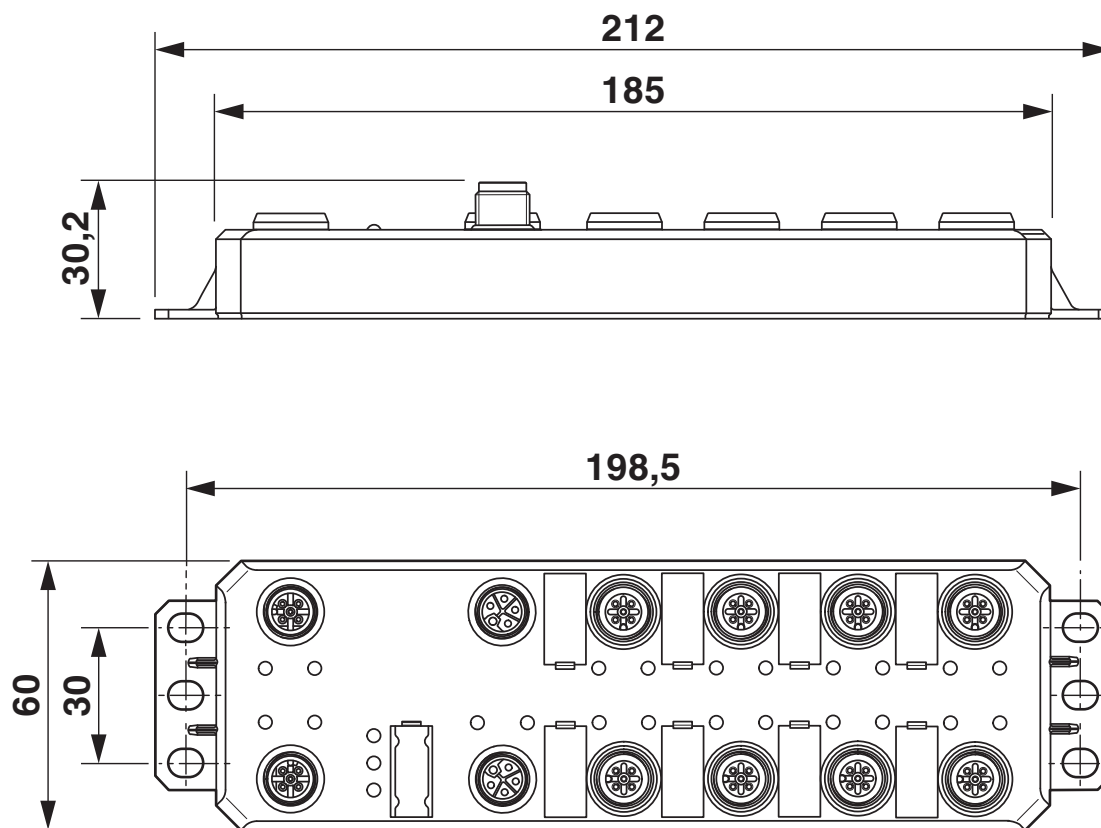
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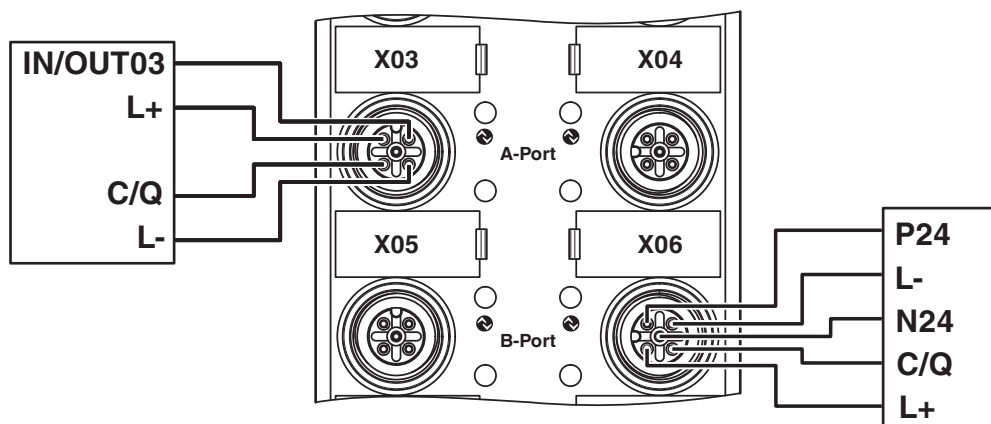
Drawings

Dimensional drawing



Dimensions (in mm)

Connection diagram



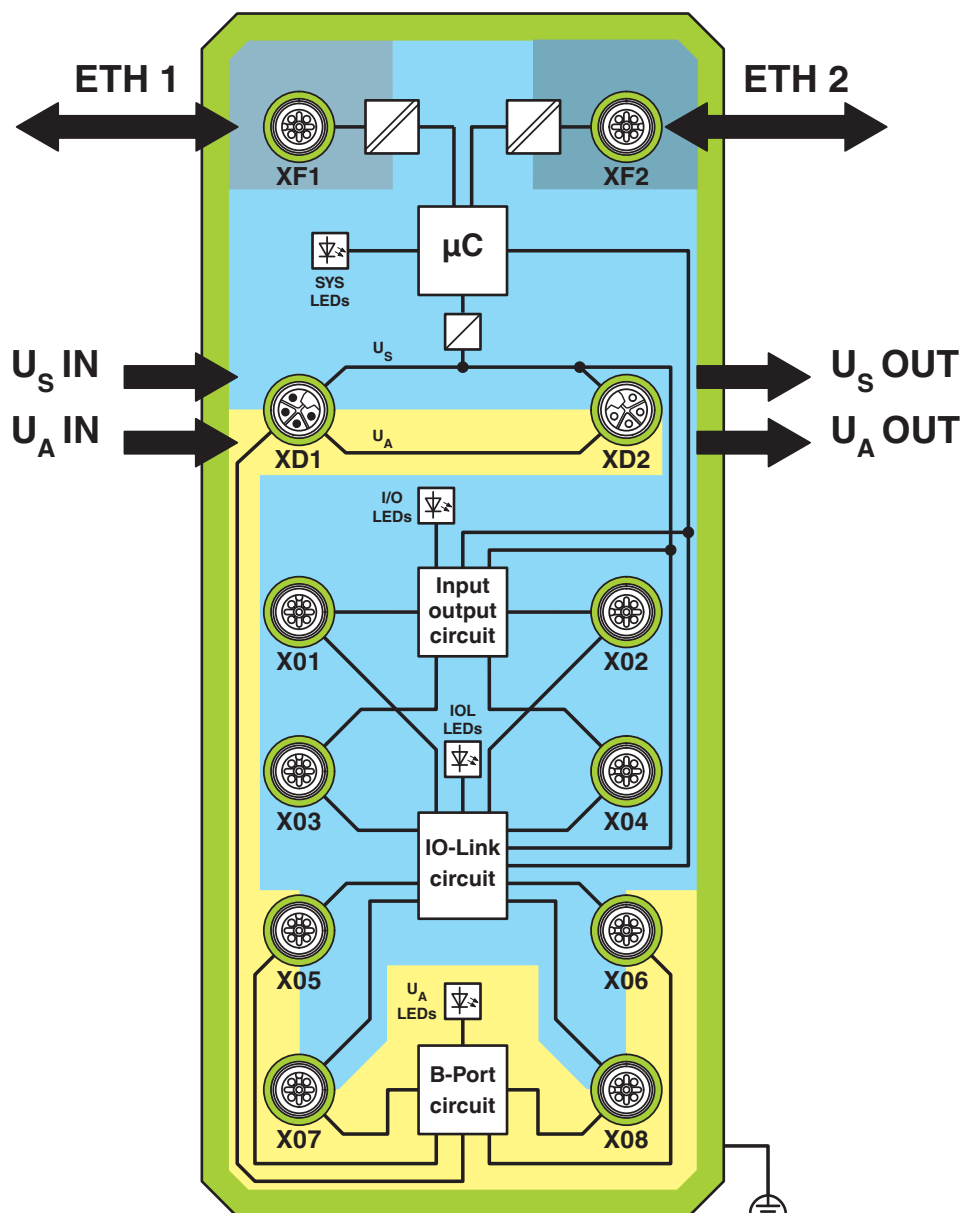
Connection example

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Block diagram



Basic circuit diagram

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Approvals

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UL Listed

Approval ID: E238705



cUL Listed

Approval ID: E238705

PROFINET

Approval ID: Z14002

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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
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	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.)	Lead(CAS: 7439-92-1)
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