

AXL E PN DIO16 M12 6M-L - Digital module



1300915

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Axioline E, Digital I/O device, PROFINET, M12 connector, D-coded, Digital inputs: 16, 24 V DC, connection technology: 4-conductor, Digital outputs: 16, 24 V DC, 500 mA, connection technology: 3-conductor, degree of protection: IP65/IP67/IP69

Product description

The Axioline E device is designed for use within a PROFINET network. It is used to acquire and output digital signals. 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 Fast Startup function supported
- PROFINET system redundancy S2 supported
- PROFINET supported with min. cycle time of 1 ms
- 2 Ethernet ports (with integrated switch)
- Transmission speed of 100 Mbps
- Short-circuit and overload protection
- IP65/IP67/IP69 degree of protection

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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	FSU < 600 ms I&M functions

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Device ID	0182 _{hex}
Vendor ID	00B0 _{hex}

Input data

Digital:

Input name	Digital inputs
Description of the input	IEC 61131-2 types 1 and 3
Number of inputs	16
Cable length	max. 30 m (to the sensor)
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	4-conductor
Input voltage range "0" signal	0 V ... 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
Sensor current per channel	max. 2 A (from U_S)
Total sensor current	max. 2 A (per device)
Input filter time	3000 μ s 1000 μ s (Default) < 100 μ s (Filter disabled)
Protective circuit	Reverse polarity protection; yes Short-circuit protection; yes Overload protection; yes

Output data

Digital:

Output name	Digital outputs
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
Number of outputs	16
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	500 mA (per output)
Nominal output voltage	24 V DC (from U_S)
Output voltage range	min. $U_S - 1$ V ... max. U_S
Load min.	10 k Ω
Output voltage when switched off	max. 1 V
Output current when switched off	max. 300 μ A

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Nominal load, inductive	12 VA (1.2 H, 48 Ω, at nominal voltage, utilization category DC-13)
Nominal load, ohmic	12 W (48 Ω, with 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. 0.7 A
Output current with ground connection interrupt when switched off	< 1 mA

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: 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	5
Supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC (including all tolerances, including ripple)
Current consumption	typ. 120 mA max. 16 A
Protection	max. 16 A

Supply: Actuators

Designation	Supply of actuators (U_A) for additional devices
Connection method	M12 connector, L-coded
Note on the connection method	Screw connection in accordance with IEC 61076-2-111
Number of positions	5
Supply voltage	24 V DC (Nominal voltage)
Supply voltage range	18 V DC ... 30 V DC (including all tolerances, including ripple)
Current consumption	typ. 4 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
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Test voltage: 24 V supply (actuator supply U_A) / 24 V supply (logic and sensor supply U_S)	800 V DC, 1 min
Test voltage: 24 V supply (actuator supply U_A) / functional ground	800 V DC, 1 min

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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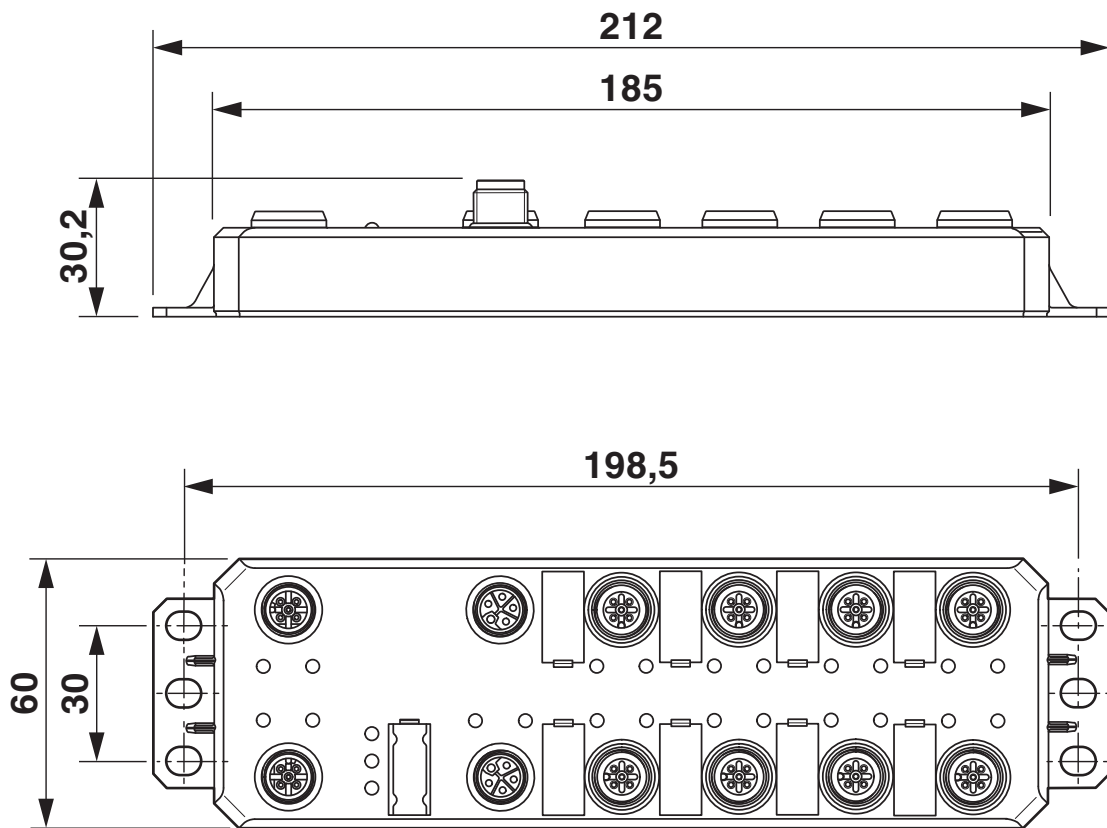
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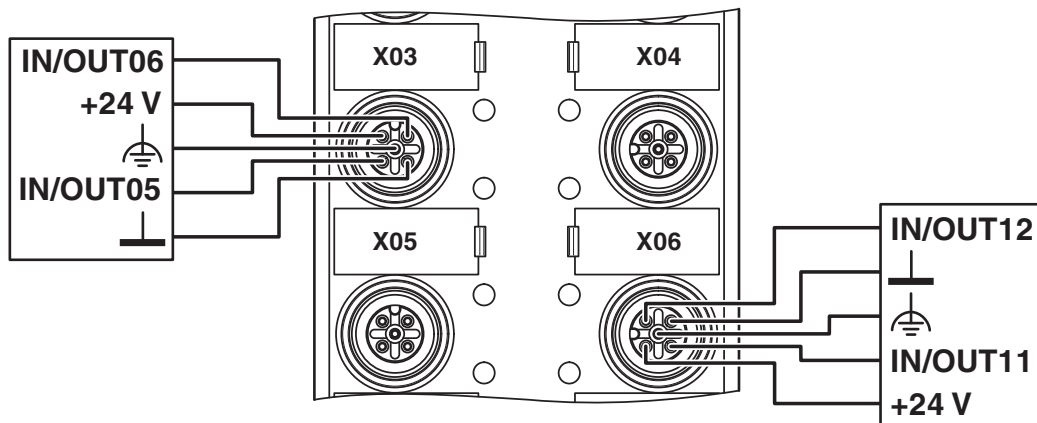
Drawings

Dimensional drawing



Dimensions (in mm)

Connection diagram



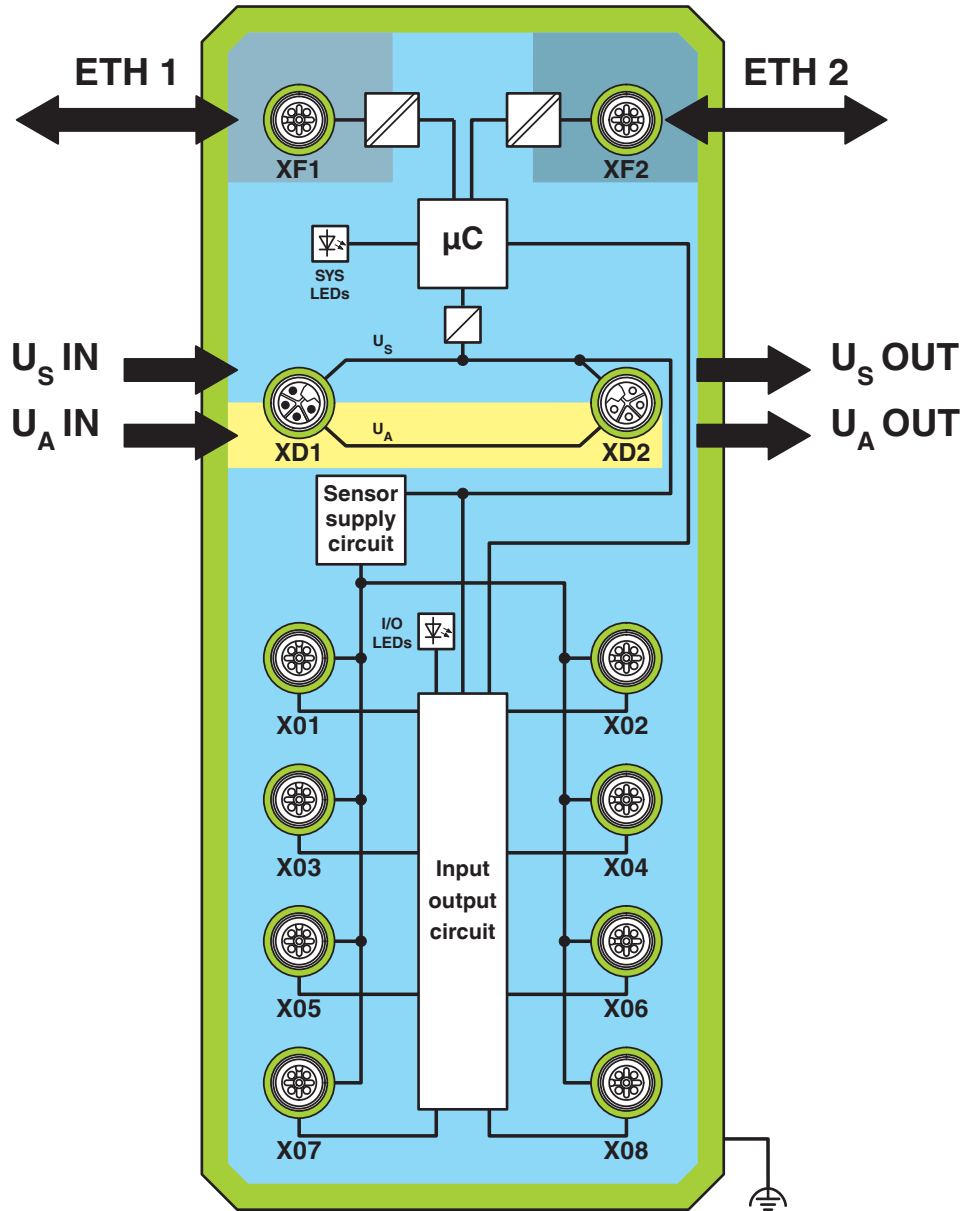
Connection example

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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: Z13743

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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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