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

1300915

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CRA-READY



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; The product is being prepared for compliance with the Cyber Resilience Act (CRA).

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

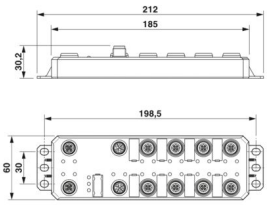
Commercial data

Item number	1300915
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DRI7NA
Product key	DRI7NA
GTIN	4063151545260
Weight per piece (including packing)	655 g
Weight per piece (excluding packing)	620 g
Customs tariff number	85176200

Country of origin	DE

Technical data

Dimensions

Dimensional drawing	
Width	60 mm
Height	212 mm
Depth	30.2 mm

Notes

Note on application	Only for industrial use
Note on application	As things stand now, we are preparing the product so that, as of December 11, 2027, it will comply with the requirements of the EU Cyber Resilience Act (CRA) based on the information currently available regarding the CRA.

Mounting

Mounting type	Screw mounting

Material specifications

Color (Housing)	zinc color
Housing material	Die-cast zinc

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
Conformance Class	C (IRT switch)
Supported functions	FSU < 600 ms
	I&M functions
Update rate	1 ms
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 µs
	1000 µs (Default)
	< 100 µs (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 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	12 W (48 Ω, with nominal voltage)
Behavior with overload	Shutdown with automatic restart
Behavior with inductive overload	Output can be destroyed
Switching frequency	max. 1 per second (with inductive load)
Reverse voltage resistance to short pulses	no
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 type	I/O component
Product family	Axioline E
Type	Stand-alone
Special properties	The product is being prepared for compliance with the Cyber Resilience Act (CRA)

Insulation characteristics

Overvoltage category	II (IEC 60664-1, EN 60664-1)
Pollution degree	2 (IEC 60664-1, EN 60664-1)

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	4
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	4
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
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 ... 108 kPa (up to 3000 m above sea level)
Air pressure (storage/transport)	66 kPa ... 108 kPa (up to 3000 m above sea level)
Ambient temperature (storage/transport)	-25 °C ... 85 °C
Permissible humidity (storage/transport)	75 % (non-condensing)

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
Continuous shock in accordance with EN 60068-2-27/IEC 60068-2-27	10g

Test (noxious gas)

Test standard	IEC 60068-2-60:2015 Method 4
Temperature	25 °C ±1 K
Humidity (relative)	75 % ±3 %
Test duration	14 Days
Volume concentration H_2S (Hydrogen sulfide)	10 ppb ±5 ppb
Volume concentration NO_2 (Nitrogen dioxide)	200 ppb ±20 ppb

Volume concentration Cl_2 (Chlorine)	10 ppb ±5 ppb
Volume concentration SO_2 (Sulfur dioxide)	200 ppb ±20 ppb

Test (Salt spray)

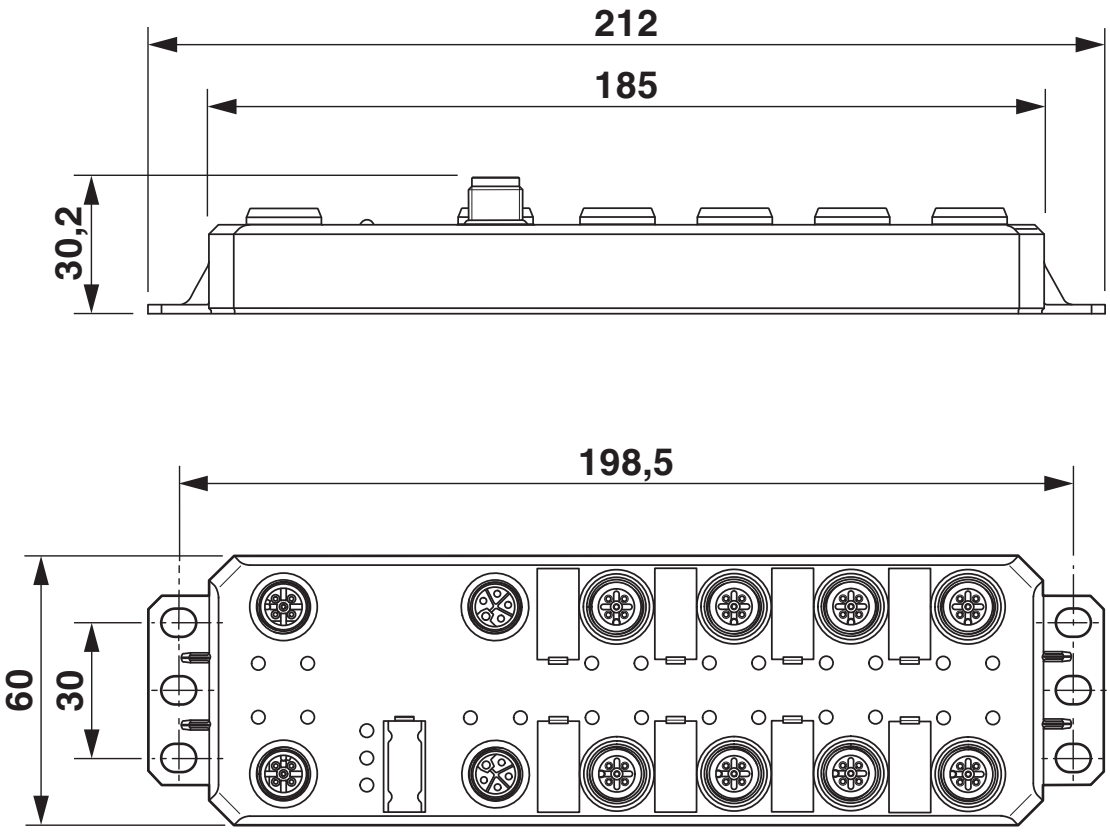
Test standard	DIN EN 60068-2-52
Number of cycles	4
Test steps per cycle	2
Test duration (Total)	168 h
Test step (Salt mist)	2 h with 5 % ±0.5 % NaCl, pH value 6.5...7.2 for 35 °C ±2 K
Test step (Humidity)	166 h with 93 % ±3 % Humidity for 40 °C ±2 K

Standards and regulations

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

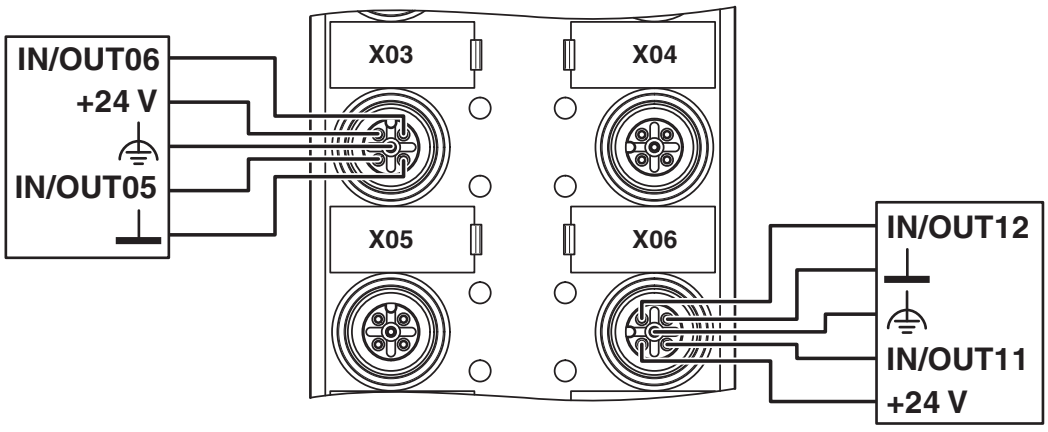
Drawings

Dimensional drawing



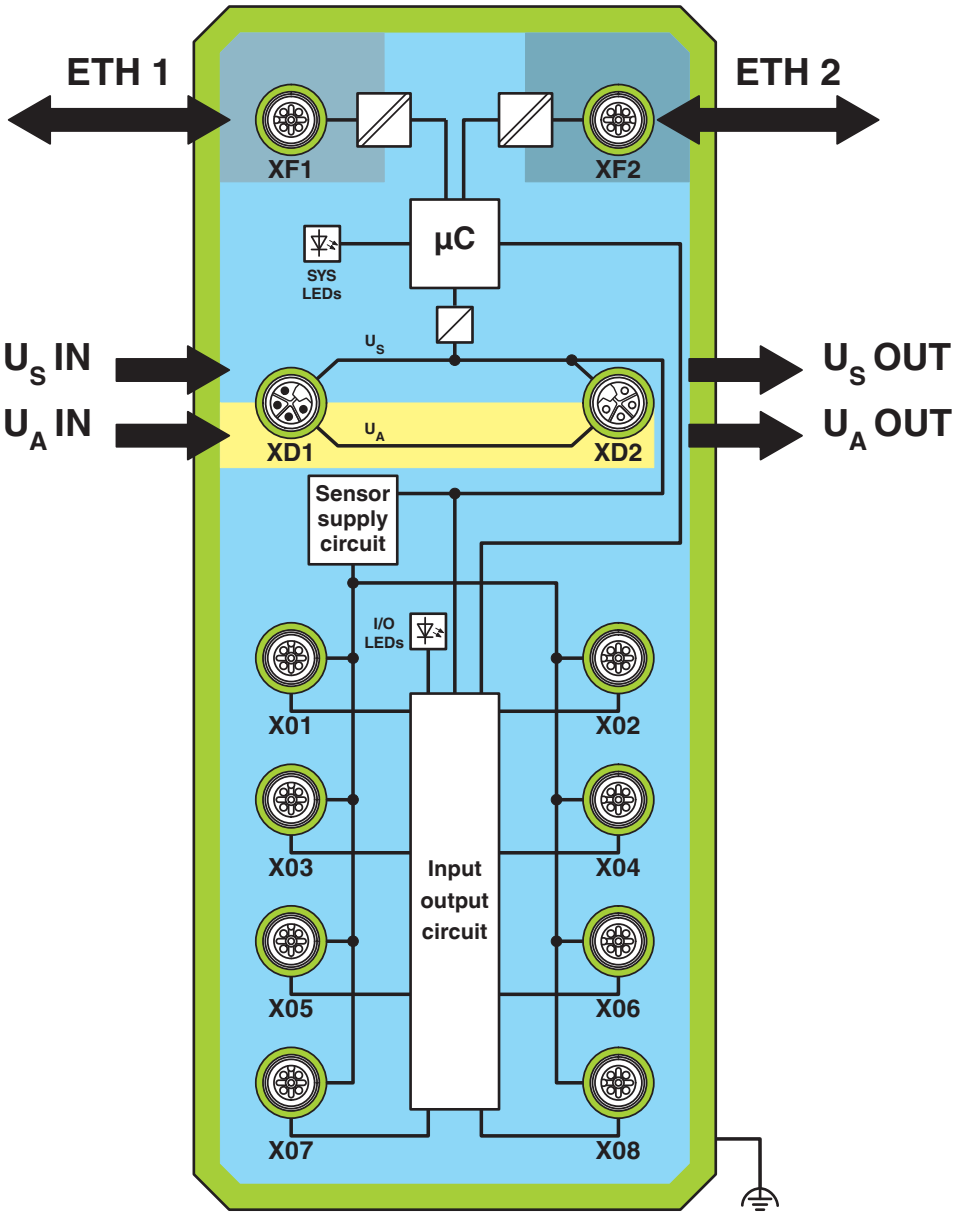
Dimensions (in mm)

Connection diagram



Connection example

Block diagram



Basic circuit diagram

Approvals

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UL Listed
Approval ID: E238705

cUL Listed
Approval ID: E238705

PROFINET
Approval ID: Z13743

cULus Listed
Approval ID: E238705

Classifications

ECLASS

ECLASS-13.0	27242604
ECLASS-15.0	27242604

ETIM

ETIM 10.0	EC001599

UNSPSC

UNSPSC 21.0	32151600

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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