

# AXL E PN DIO16 M12 6P - Digital module



2701511

<https://www.phoenixcontact.com/us/products/2701511>

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

## Product description

The Axioline E device is designed for use within a PROFINET network. It is used to acquire and output digital signals.

## Your advantages

- Connection to PROFINET network using M12 connectors (D-coded)
- Transmission speed of 100 Mbps
- Connection of digital sensors and actuators using M12connectors (A-coded)
- Diagnostic and status indicators
- Short-circuit and overload protection of the sensor supply
- IP65/IP67 degree of protection

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2701511       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | DR04          |
| Product key                          | DRI7DA        |
| GTIN                                 | 4046356763622 |
| Weight per piece (including packing) | 556.46 g      |
| Weight per piece (excluding packing) | 548.5 g       |
| Customs tariff number                | 85176200      |
| Country of origin                    | DE            |

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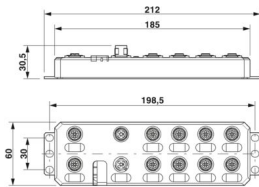


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## Technical data

### Dimensions

|                     |  |
|---------------------|--|
| Dimensional drawing |  |
| Width               | 60 mm  |
| Height              | 185 mm   |
| Depth               | 30.5 mm  |
| Drill hole spacing  | 198.5 mm   |
| Note on dimensions  | The height is 212 mm including fixing clips.                                       |

### Notes

#### Note on application

|                     |                         |
|---------------------|-------------------------|
| Note on application | Only for industrial use |
|---------------------|-------------------------|

### Material specifications

|                  |            |
|------------------|------------|
| Housing material | Pocan®     |
| Color            | anthracite |

### 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/RPC    |
| Protocols supported       | SNMP v1                       |
|                           | HTTP                          |
|                           | TFTP                          |
|                           | FTP                           |

### Input data

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## Digital:

|                                   |  |
|-----------------------------------|--|
| Input name                        | Digital inputs   |
| Description of the input          | EN 61131-2 types 1 and 3                                       |
| Number of inputs                  | 16   |
| Cable length                      | max. 30 m (to the sensor)                                      |
| Connection method                 | M12 connector double occupancy                                 |
| Connection technology             | 4-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. 3 mA  |
| Sensor current per channel        | typ. 75 mA (from $U_S$ )                                       |
| Total sensor current              | max. 1.2 A (per device)  |
| Input filter time                 | < 1000 $\mu$ s   |
| Protective circuit                | Overload protection, short-circuit protection of sensor supply |

## Output data

### Digital:

|   |  |
|---|--|
| Output name   | Digital outputs  |
| Connection method   | M12 connector double occupancy   |
| Connection technology                                     | 3-conductor  |
| Number of outputs   | 16   |
| Protective circuit  | Overload protection, short-circuit protection of outputs; yes                                      |
| Output voltage  | 24 V DC  |
| Limitation of the voltage induced on circuit interruption | -28 V ... -17 V  |
| Maximum output current per channel                        | 500 mA   |
| Nominal output voltage                                    | 24 V DC (from voltage $U_S$ )  |
| Output voltage range                                      | 18 V DC ... 31.2 V DC  |
| Output voltage when switched off                          | max. 1 V   |
| Output current when switched off                          | max. 20 $\mu$ A  |
| Nominal load, inductive                                   | 12 VA (1.2 H, 48 $\Omega$ , with nominal voltage)  |
| Nominal load, ohmic                                       | 12 W (48 $\Omega$ , with nominal voltage)  |
| Switching frequency                                       | max. 5500 per second (with at least 50 mA load current)<br>max. 1 per second (with inductive load) |
| Reverse voltage resistance to short pulses                | Reverse voltage proof  |
| Behavior with overload                                    | Auto restart   |
| Signal delay  | max. 150 $\mu$ s (when switched on)<br>max. 200 $\mu$ s (when switched off)                        |
| Overcurrent shut-down                                     | min. 0.7 A   |

## Product properties

|                |               |
|----------------|---------------|
| Product type   | I/O component |
| Product family | Axioline E    |

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|                    |                 |
|--------------------|-----------------|
| Type               | Stand-alone     |
| Special properties | Plastic 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: Module electronics, sensors, and actuators

|                      |  |
|----------------------|--|
| Designation          | Module electronics, sensors and actuators ( $U_S$ )                |
| 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. 190 mA $\pm$ 15 % (at 24 V DC)                                |
|                      | max. 12 A  |

### Supply: Actuators

|                      |  |
|----------------------|--|
| Designation          | Supply of actuators ( $U_A$ ) for additional devices               |
| 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. 3 mA $\pm$ 15 % (at 24 V DC)                                  |
|                      | max. 12 A  |

### Electrical isolation/isolation of the voltage ranges

|  |                        |
|--|------------------------|
| Test voltage: 24 V supply (communications power/sensor supply, digital inputs/outputs)/bus connection (Ethernet 1)       | 500 V AC, 50 Hz, 1 min |
| Test voltage: 24 V supply (communications power/sensor supply, digital inputs/outputs)/bus connection (Ethernet 2)       | 500 V AC, 50 Hz, 1 min |
| Test voltage: 24 V supply (communications power/sensor supply, digital inputs/outputs)/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, digital inputs/outputs) | 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 |

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## Connection data

|                   |               |
|-------------------|---------------|
| Connection method | M12 connector |
|-------------------|---------------|

## 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 %                                      |

## Standards and regulations

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

## Mounting

|               |                |
|---------------|----------------|
| Mounting type | Screw mounting |
|---------------|----------------|

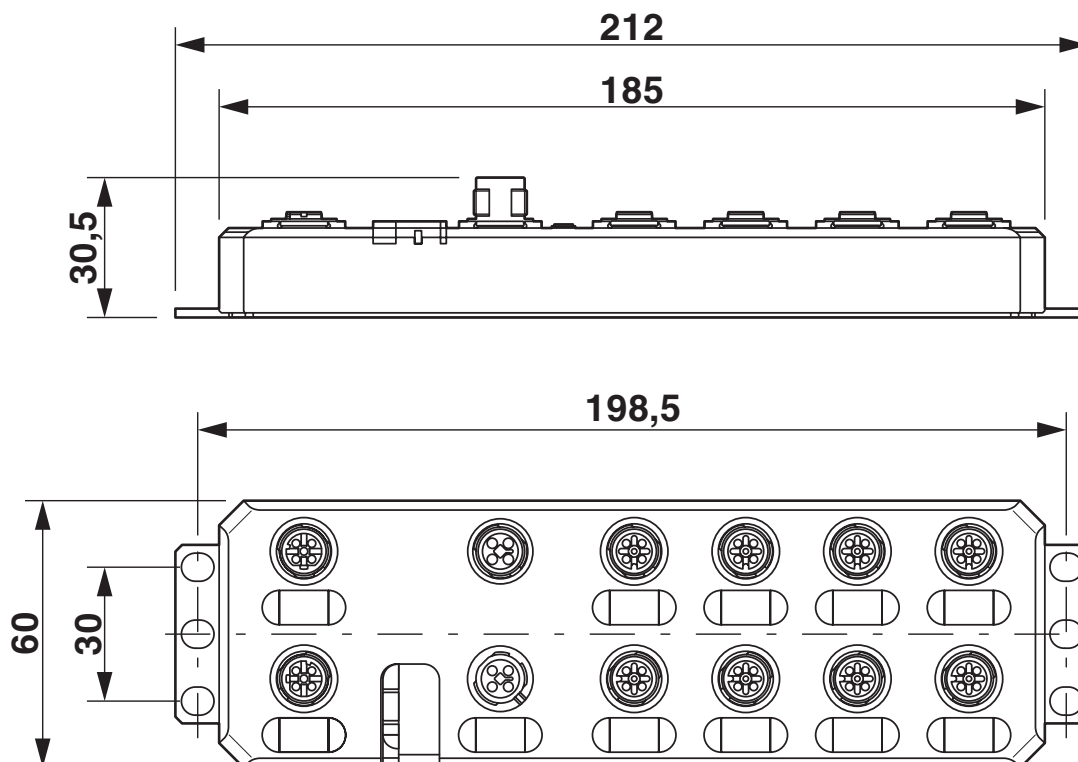
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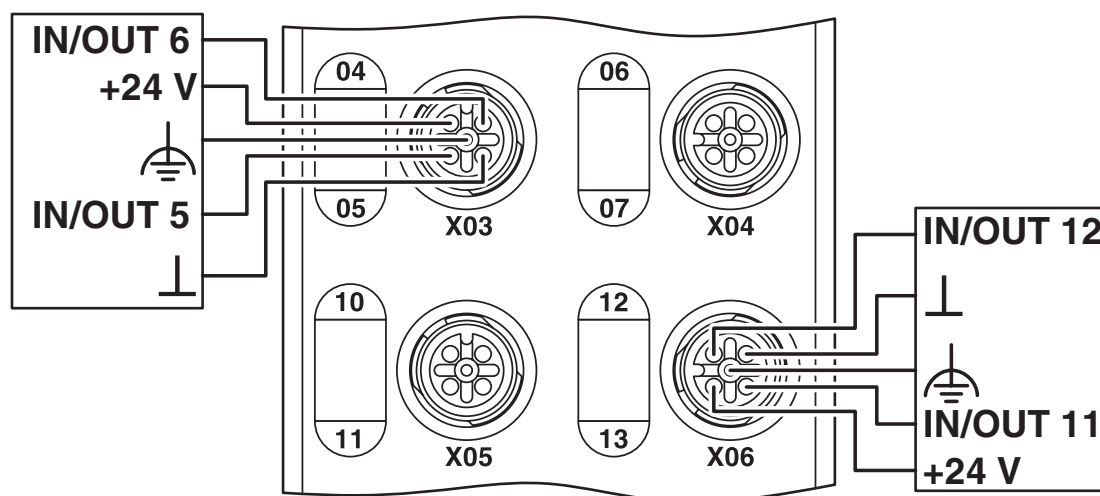
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## Drawings

Dimensional drawing



Connection diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2701511>

**PROFINET**  
Approval ID: Z12258

**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 9.0 | EC001599 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 32151600 |
|-------------|----------|



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## Environmental product compliance

### EU RoHS

|   |      |
|---|------|
| Fulfills EU RoHS substance requirements | Yes  |
| Exemption                               | 6(c) |

### 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.) | Lead(CAS: 7439-92-1)                 |
| SCIP                                | 798a4cbe-dda5-4a9f-8d72-c6be49083bc3 |

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