

# AXL F BK PN - Bus coupler



2701815

<https://www.phoenixcontact.com/us/products/2701815>

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Axioline F, Bus coupler, PROFINET, RJ45 jack, transmission speed in the local bus: 100 Mbps, degree of protection: IP20, including bus base module and Axioline F connector

## Product description

The bus coupler is intended for use within a PROFINET network. The bus coupler creates the link to the Axioline F I/O system and the industrial I/O signals connected to it. Up to 63 Axioline F devices can be connected to the bus coupler. Device descriptions for Phoenix Contact controllers are integral parts of the engineering tools PC Worx and PLCnext Engineer. Corresponding GSDML files are available for integrating the Axioline F station into other programming systems. These files can be downloaded at: [www.phoenixcontact.com/product/2701815](http://www.phoenixcontact.com/product/2701815)

## Your advantages

- 2 Ethernet ports (with integrated switch)
- Conformance with PROFINET specification V2.2
- Supports PROFI-safe
- PROFINET RT and IRT
- Minimum cycle time of PROFINET for RT and IRT is 250  $\mu$ s
- Firmware can be updated
- Runtime in bus coupler is negligible (almost 0  $\mu$ s)
- Typical cycle time of the Axioline F local bus is around 10  $\mu$ s
- Web-based management
- Supports the operation of Axioline Smart Elements
- Supports Diag+
- Safe analog value processing with SAFE AI and other components

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2701815       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | DR02          |
| Product key                          | DRI21A        |
| GTIN                                 | 4046356845601 |
| Weight per piece (including packing) | 229.4 g       |
| Weight per piece (excluding packing) | 222 g         |
| Customs tariff number                | 85176200      |
| Country of origin                    | DE            |

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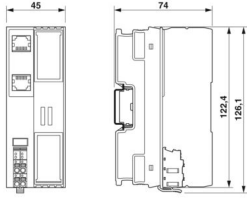
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## Technical data

### Dimensions

|                     |  |
|---------------------|--|
| Dimensional drawing |  |
| Width               | 45 mm  |
| Height              | 126.1 mm   |
| Depth               | 74 mm  |
| Note on dimensions  | The depth applies when a TH 35-7.5 DIN rail is used (in accordance with EN 60715). |

### Notes

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

### Material specifications

|                 |                 |
|-----------------|-----------------|
| Color (Housing) | gray (RAL 7042) |
|-----------------|-----------------|

### Interfaces

|                     |  |
|---------------------|--|
| Supported protocols | PROFINET                                       |
|                     | TFTP   |
|                     | PTCP   |
|                     | LLDP   |
|                     | SNMP   |
|                     | MRP  |
|                     | DCP  |
|                     | DDI  |
|                     | BootP (BootP only to perform firmware updates) |

#### PROFINET

|                               |                                   |
|-------------------------------|-----------------------------------|
| Number of interfaces          | 2                                 |
| Connection method             | RJ45 jack                         |
| Note on the connection method | Auto negotiation and autocrossing |
| Transmission speed            | 100 Mbps (full duplex)            |
| Transmission physics          | Ethernet in RJ45 twisted pair     |

#### Axioline F local bus

|                      |                 |
|----------------------|-----------------|
| Number of interfaces | 1               |
| Connection method    | Bus base module |

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|                      |                  |
|----------------------|------------------|
| Transmission speed   | 100 Mbps         |
| Service              |                  |
| Number of interfaces | 1                |
| Connection method    | Micro USB type B |

## System properties

### System limits

|   |                       |
|---|-----------------------|
| Amount of process data (Input data)               | max. 262 Byte         |
| Amount of process data (Output data)              | max. 262 Byte         |
| Number of supported devices                       | max. 63 (per station) |
| Number of local bus devices that can be connected | max. 63               |

### PROFINET

|                   |                     |
|-------------------|---------------------|
| Device function   | PROFINET device     |
| Specification     | Version 2.2         |
| Conformance Class | Conformance Class C |
| Device ID         | 1000 <sub>hex</sub> |
| Vendor ID         | 00B0 <sub>hex</sub> |

### Programming data

|                          |           |
|--------------------------|-----------|
| Register length (master) | 1484 Byte |
|--------------------------|-----------|

## Product properties

|                   |  |
|-------------------|--|
| Product type      | I/O component                                      |
| Product family    | Axioline F   |
| Type              | block modular                                      |
| Mounting position | any (observe temperature derating)                 |
| Scope of supply   | including bus base module and Axioline F connector |

### Insulation characteristics

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

## Electrical properties

|   |       |
|---|-------|
| Maximum power dissipation for nominal condition | 3.7 W |
|---|-------|

Potentials: Communications power  $U_L$  feed-in (the supply of the Axioline F local bus  $U_{BUS}$  is generated from  $U_L$ )

|                      |   |
|----------------------|---|
| Supply voltage       | 24 V DC   |
| Supply voltage range | 19.2 V DC ... 30 V DC (including all tolerances, including ripple)      |
| Current draw         | max. 570 mA (2.0 A on $U_{BUS}$ , $U_L = 24$ V)                         |
| Current consumption  | typ. 105 mA (without I/O modules, $U_L = 24$ V)                         |
| Protective circuit   | Surge protection; electronic<br>Reverse polarity protection; electronic |

Potentials: Axioline F local bus supply ( $U_{BUS}$ )

|                |                              |
|----------------|------------------------------|
| Supply voltage | 5 V DC (via bus base module) |
|----------------|------------------------------|

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|  |                         |
|--|-------------------------|
| Power supply unit  | max. 2 A                |
| Electrical isolation/isolation of the voltage ranges                               |                         |
| Test voltage: PROFINET interface 1 / PROFINET interface 2                          | 1500 V AC, 50 Hz, 1 min |
| Test voltage: PROFINET interface 1 / 24 V communications voltage ( $U_L$ ) feed-in | 1500 V AC, 50 Hz, 1 min |
| Test voltage: PROFINET interface 2 / 24 V communications voltage ( $U_L$ ) feed-in | 1500 V AC, 50 Hz, 1 min |
| Test voltage: PROFINET interface 1 / functional ground                             | 1500 V AC, 50 Hz, 1 min |
| Test voltage: PROFINET interface 2 / functional ground                             | 1500 V AC, 50 Hz, 1 min |
| Test voltage: 24 V communications voltage ( $U_L$ ) feed-in / functional ground    | 500 V AC, 50 Hz, 1 min  |

## Connection data

### Connection technology

|                               |   |
|-------------------------------|---|
| Connection name               | Axioline F connector  |
| Note on the connection method | Please observe the information provided on conductor cross-sections in the "Axioline F: system and installation" user manual. |

### Axioline F connector

|                                   |   |
|-----------------------------------|---|
| Connection method                 | Push-in connection  |
| Note on the connection method     | Please observe the information provided on conductor cross-sections in the "Axioline F: system and installation" user manual. |
| Conductor cross-section, rigid    | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>   |
| Conductor cross-section, flexible | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>   |
| Conductor cross-section AWG       | 24 ... 16   |
| Stripping length                  | 8 mm  |

## Environmental and real-life conditions

### Ambient conditions

|  |  |
|--|--|
| Ambient temperature (operation)          | -25 °C ... 60 °C (Mounting position: panel mounting on horizontal DIN rail)<br>-25 °C ... 55 °C (Mounting position: any) |
| Degree of protection                     | IP20   |
| 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)  | -40 °C ... 85 °C   |
| Permissible humidity (operation)         | 5 % ... 95 % (non-condensing)  |
| Permissible humidity (storage/transport) | 5 % ... 95 % (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 |

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## Standards and regulations

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

## Mounting

|                   |                                    |
|-------------------|------------------------------------|
| Mounting type     | DIN rail mounting                  |
| Mounting position | any (observe temperature derating) |

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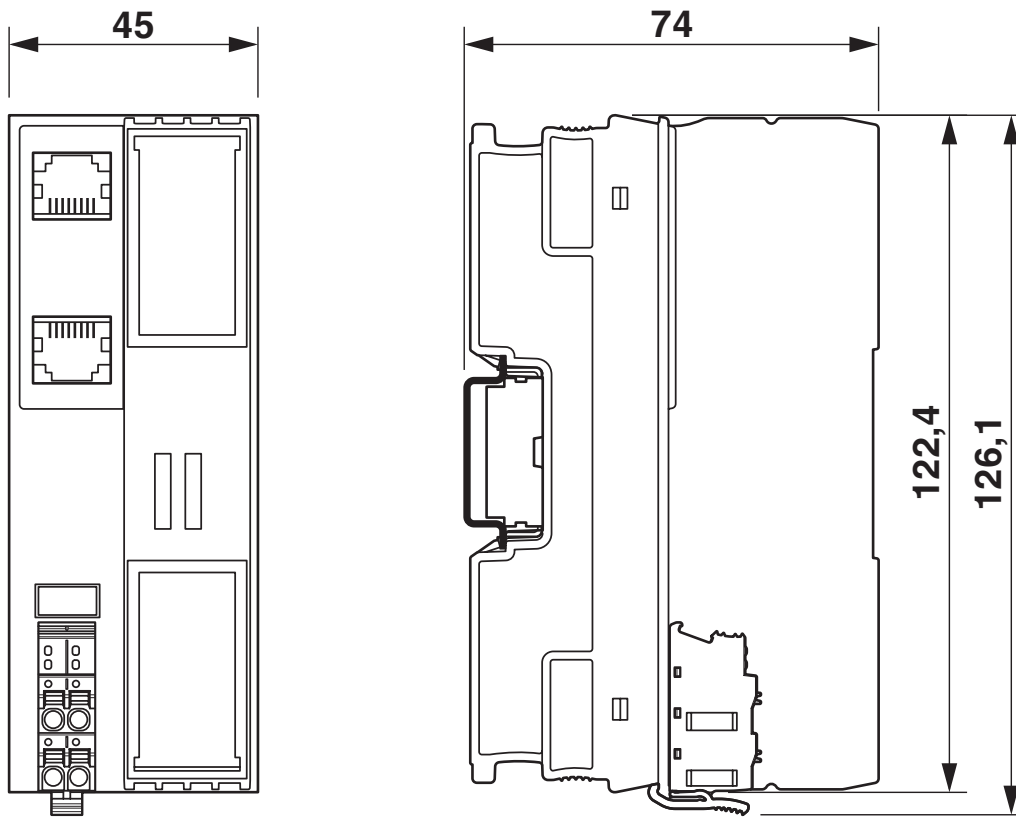
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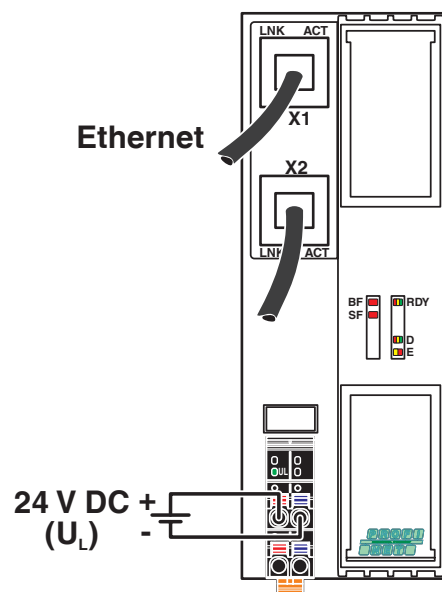


## Drawings

Dimensional drawing



Connection diagram



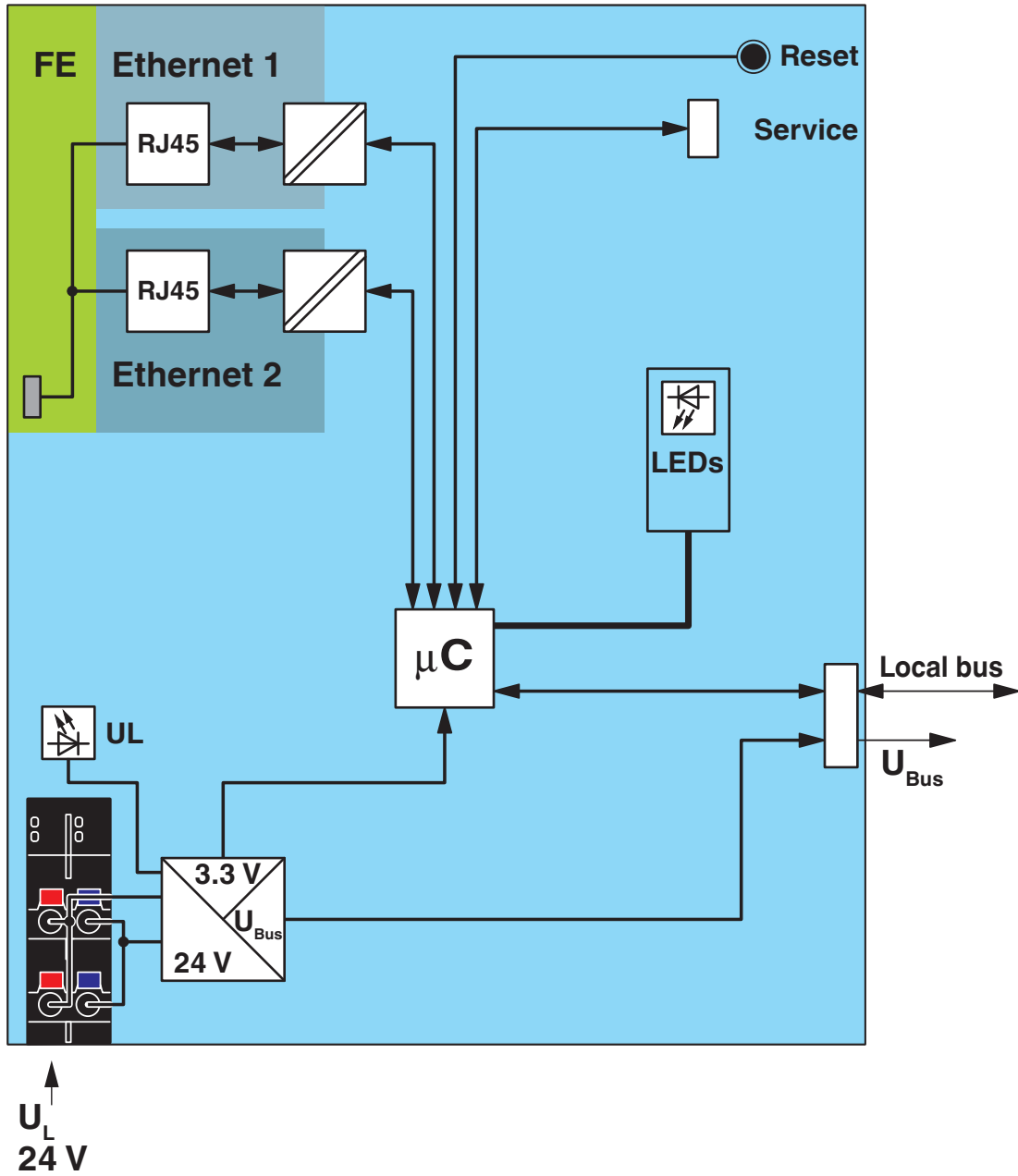
Connection of the cables

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Block diagram



Internal wiring of the terminal points

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## Classifications

### ECLASS

ECLASS-13.0

27242608

### ETIM

ETIM 9.0

EC001604

### 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.) | 4,4'-isopropylidenediphenol(CAS: 80-05-7) |
|                                     | Lead(CAS: 7439-92-1)                      |
| SCIP                                | 71362d30-0f63-4d4a-af8b-36ac330d47c3      |

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 39.87 kg CO2e |
|---------|---------------|