# AXL F BK EC - Bus coupler

2688899

https://www.phoenixcontact.com/us/products/2688899

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Axioline F, Bus coupler, EtherCAT®, 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 an EtherCAT® network and represents the link to the Axioline F I/O system. Up to 63 Axioline F devices can be connected to the bus coupler. EtherCAT® and Safety over EtherCAT® are registered trademarks and patented technologies licensed by Beckhoff Automation GmbH, Germany. A corresponding ESI file is available for integrating the Axioline F station into the programming system. This can be downloaded at: www.phoenixcontact.com/product/2688899

## Your advantages

- 2 Ethernet ports (with integrated switch)
- Rotary coding switch
- Automatic addressing
- Station mapped as a modular EtherCAT® device using a modular device profile (MDP)
- Station can be mapped as a block device
- Acyclic data communication (mailbox protocols)
- Cyclic data communication
- Firmware can be updated
- Typical cycle time of the Axioline F local bus is around 10 µs
- Runtime in bus coupler is negligible (almost 0 µs)
- Supports the operation of Axioline Smart Elements
- Supports passive Smart Elements (firmware version 1.30 or later)
- Supports IOL-CONF (firmware version 1.30 and later)
- Supports Smart Elements for use in an FSoE system (firmware version 1.31 or later)

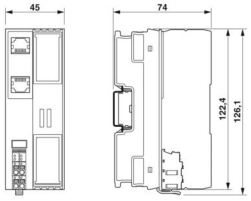
## Commercial data

| | |
|---|---|
| Item number | 2688899 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DR02 |
| Product key | DRI21E |
| GTIN | 4046356658355 |
| Weight per piece (including packing) | 211.5 g |
| Weight per piece (excluding packing) | 219.9 g |
| Customs tariff number | 85176200 |

| | |
|---|---|
| Country of origin | DE |

## 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 |

### Interfaces

EtherCAT®

| | |
|---|---|
| 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 |
| Transmission speed | 100 Mbps |

Service

| | |
|---|---|
| Number of interfaces | 1 |
| Connection method | USB type C (from HW 05) |
| | Micro USB type B (up to HW 04) |

Fieldbus: Local bus gateway

| | |
|---|---|
| Max. number of local bus devices | 63 (Consider the logic current consumed by the devices) |

EtherCAT®

| | |
|---|---|
| System-specific protocols | Mailbox protocols CAN application protocol over EtherCAT® |
| | Mailbox protocols File access over EtherCAT® |
| | Mailbox protocols Ethernet over EtherCAT® |

| | |
|---|---|
| | Mailbox protocols Safety over EtherCAT® |
| Specification | ETG.1000 V1.02 |

## System properties

System limits

| | |
|---|---|
| Number of supported devices | max. 63 (per station) |
| Number of local bus devices that can be connected | max. 63 |

## 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 |
| Diagnostics messages | Emergency messages |
| | Messages via object $10F3_{hex}$ Diagnosis history |

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 at $U_{Bus}$, $U_L$ = 24 V, up to HW 04) |
| | max. 670 mA (2.5 A at $U_{Bus}$, $U_L$ = 24 V, from HW 05) |
| Protective circuit | Surge protection; electronic |
| | Reverse polarity protection; electronic |

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

| | |
|---|---|
| Supply voltage | 5 V DC (via bus base module) |
| Power supply unit | max. 2 A (up to HW 04) |
| | max. 2.5 A (from HW 05) |

Electrical isolation/isolation of the voltage ranges

| | |
|---|---|
| Test voltage: Ethernet interface 1 / Ethernet interface 2 | 1500 V AC, 50 Hz, 1 min |
| Test voltage: Ethernet interface 1 / 24 V communications voltage ($U_L$) feed-in | 1500 V AC, 50 Hz, 1 min |
| Test voltage: Ethernet interface 2 / 24 V communications voltage ($U_L$) feed-in | 1500 V AC, 50 Hz, 1 min |
| Test voltage: Ethernet interface 1 / functional ground | 1500 V AC, 50 Hz, 1 min |
| Test voltage: Ethernet 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. |

Conductor connection

| | |
|---|---|
| Connection method | Push-in connection |
| Conductor cross-section rigid | 0.2 mm² ... 1.5 mm² |
| Conductor cross-section flexible | 0.2 mm² ... 1.5 mm² |
| Conductor cross-section AWG | 24 ... 16 |
| Stripping length | 8 mm |

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 mm² ... 1.5 mm² |
| Conductor cross-section, flexible | 0.2 mm² ... 1.5 mm² |
| 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) |
| | -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) |

## Standards and regulations

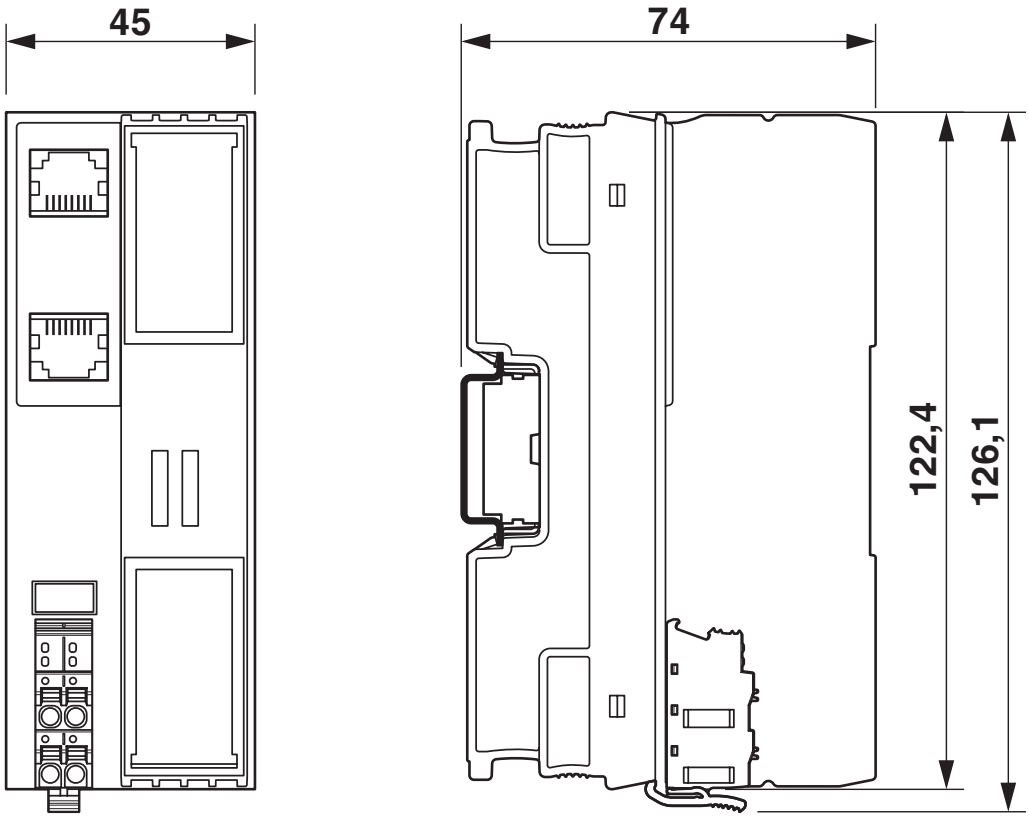
| | |
|---|---|
| Protection class | III (IEC 61140, EN 61140, VDE 0140-1) |

## Mounting

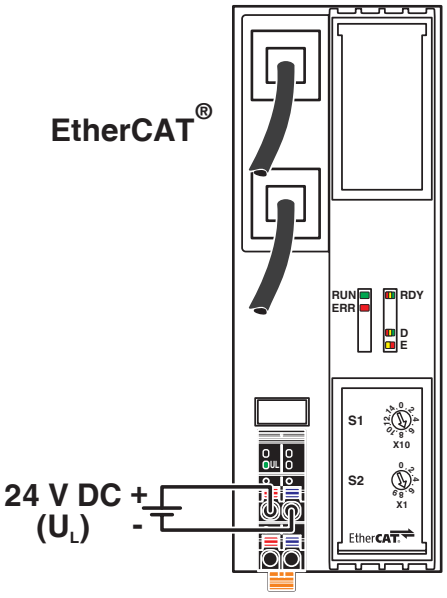
| | |
|---|---|
| Mounting type | DIN rail mounting |
| Mounting position | any (observe temperature derating) |

## Drawings

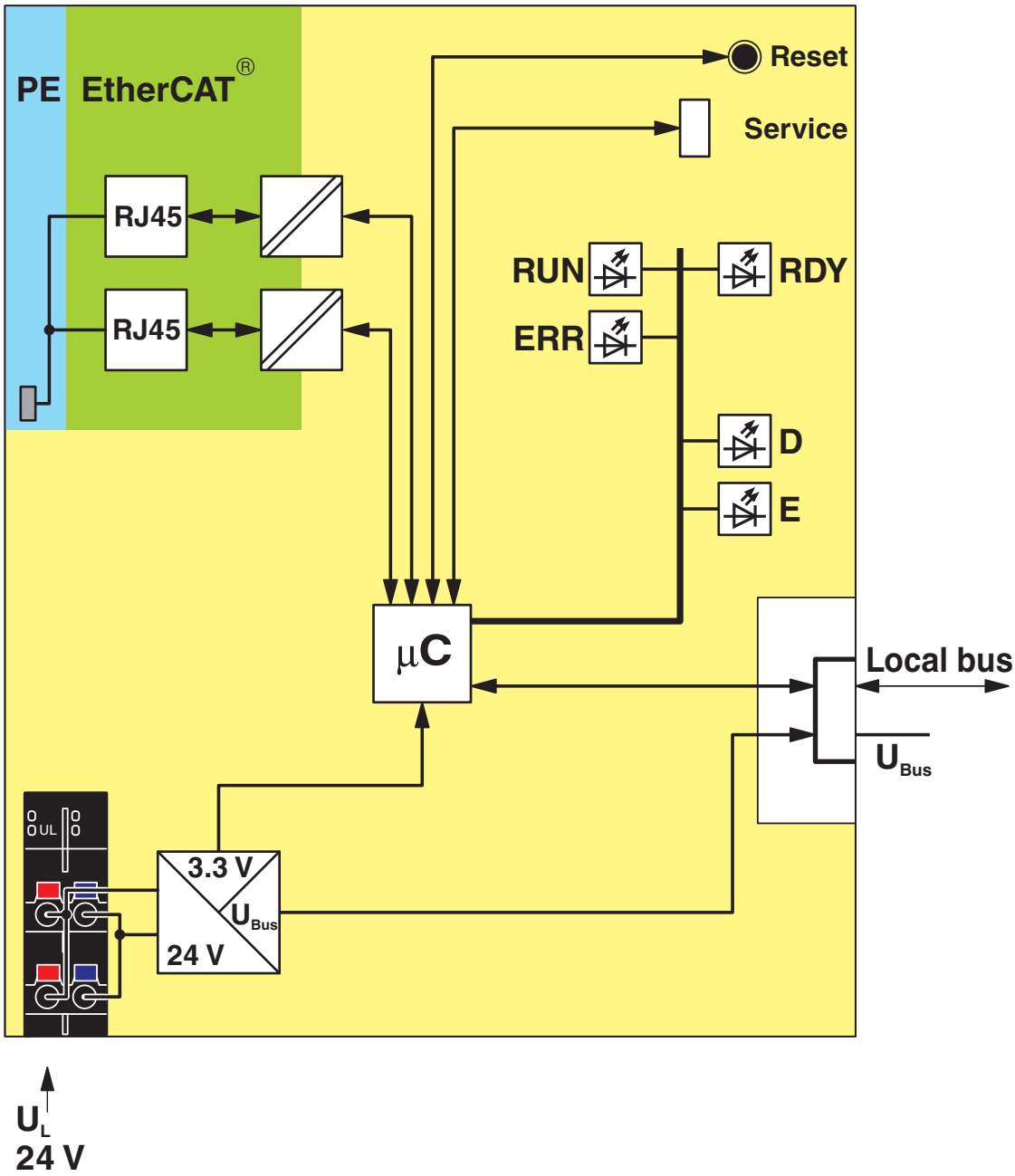
Dimensional drawing




Connection diagram



Block diagram




Internal wiring of the terminal points

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2688899

**DNV GL**
Approval ID: TAA00000DF

**LR**
Approval ID: LR2480202TA-02

**PRS**
Approval ID: TE/1020/880590/21

**BSH**
Approval ID: 840

**RINA**
Approval ID: ELE008423XG001

**ABS**
Approval ID: 20-2059154-PDA

**EtherCAT**
Approval ID: 0x290783

**cULus Listed**
Approval ID: E238705

**cULus Listed**
Approval ID: E238705

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27242608 |
| ECLASS-15.0 | 27242608 |

### ETIM

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|---|---|
| ETIM 9.0 | EC001604 |

### UNSPSC

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|---|---|
| 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: n/a) |
| | Lead(CAS: n/a) |
| SCIP | 984da136-636c-4c52-9db2-7f1da3fe7b76 |




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