

# 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](http://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)	219.9 g
Weight per piece (excluding packing)	219.9 g
Customs tariff number	85176200

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Country of origin	DE
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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)
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### 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)

#### EtherCAT®

System-specific protocols	Mailbox protocols CAN application protocol over EtherCAT® Mailbox protocols File access over EtherCAT®
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Specification	Mailbox protocols Ethernet over EtherCAT®
	Mailbox protocols Safety over EtherCAT®
	ETG.1000 V1.02

## System properties

### System limits

Amount of process data (Input data)	max. 512 Byte
Amount of process data (Output data)	max. 512 Byte
Number of supported devices	max. 63 (per station)
Number of local bus devices that can be connected	max. 63

### Programming data

Register length (master)	1484 Byte
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## 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 <sub>hex</sub> 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
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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)
Current consumption	typ. 105 mA (without I/O modules, $U_L = 24$ V, up to HW 04)
	typ. 85 mA (without I/O modules, $U_L = 24$ 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

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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 <sub>L</sub> ) feed-in	1500 V AC, 50 Hz, 1 min
Test voltage: Ethernet interface 2 / 24 V communications voltage (U <sub>L</sub> ) 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 <sub>L</sub> ) 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)
	-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

## Standards and regulations

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

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

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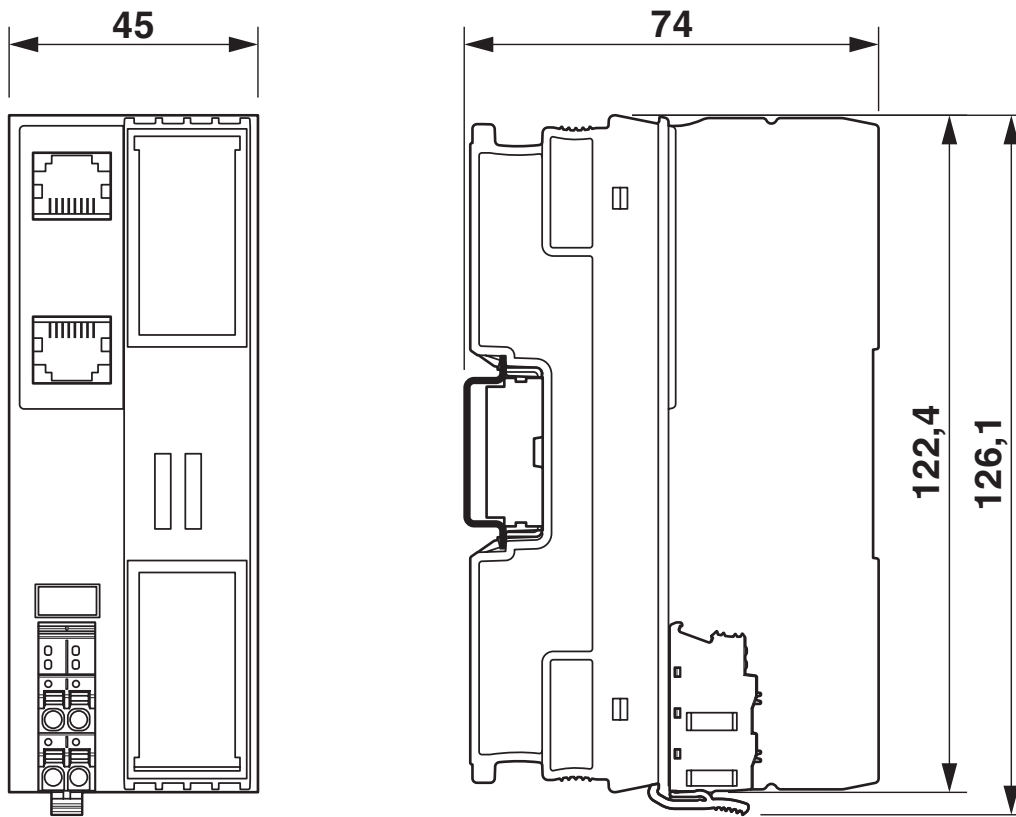
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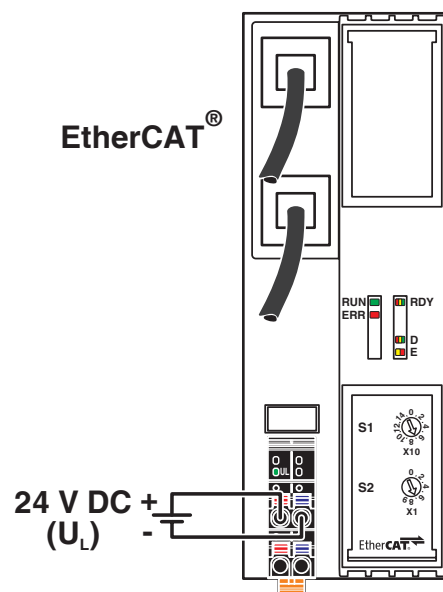


## Drawings

Dimensional drawing



Connection diagram



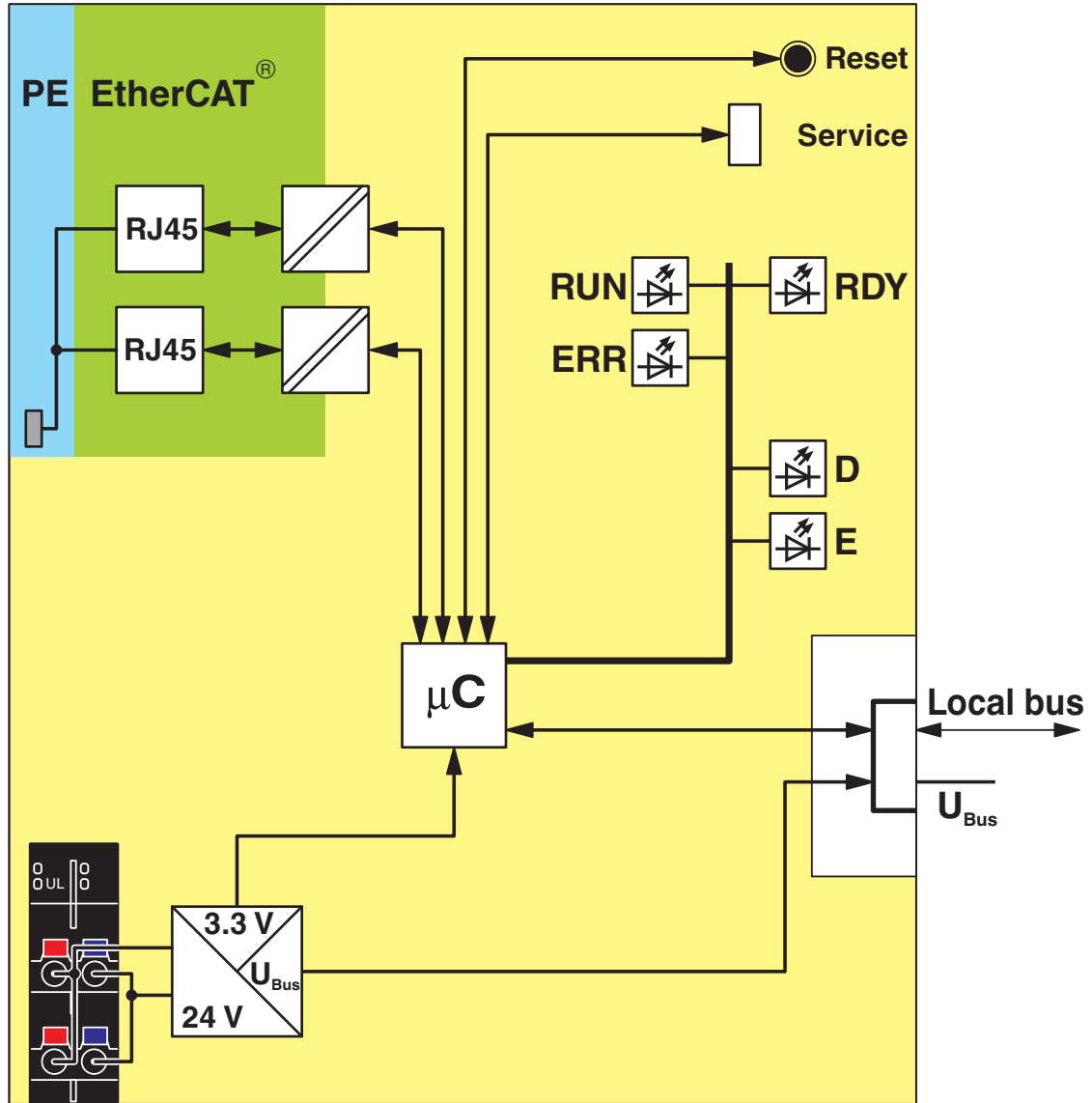
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Block diagram



$U_L$   
24 V

Internal wiring of the terminal points

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## 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



**EtherCAT**

Approval ID: 0x290783



**cULus Listed**

Approval ID: E238705



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Approval ID: E238705

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## Classifications

### ECLASS

ECLASS-13.0	27242608
ECLASS-15.0	27242608

### ETIM

ETIM 10.0	EC001604
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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.)	4,4'-isopropylidenediphenol(CAS: 80-05-7)
	Lead(CAS: 7439-92-1)
SCIP	984da136-636c-4c52-9db2-7f1da3fe7b76

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