

# AXL F BK EC - Bus coupler



2688899

<https://www.phoenixcontact.com/in/products/2688899>

Please be informed that the data shown in this PDF document is generated from our Online Catalog. Please find the complete data in the user documentation. Our General Terms of Use for Downloads are valid.



Axioline F, Bus coupler, EtherCAT<sup>®</sup>, 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<sup>®</sup> 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<sup>®</sup> is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany. A corresponding ESI file is available for integrating the Axioline F station into the programming system. It can be downloaded at: [phoenixcontact.net/product/2688899](https://www.phoenixcontact.net/product/2688899)

## Your advantages

- 2 Ethernet ports (with integrated switch)
- Rotary encoding switch
- Automatic addressing
- Station mapped as a modular EtherCAT<sup>®</sup> 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  $\mu$ s
- Runtime in bus coupler is negligible (almost 0  $\mu$ s)
- 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 Diag+

## Commercial Data

Item number	2688899
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DRI
Product Key	DRI21E
Catalog Page	Page 68 (C-6-2019)
GTIN	4046356658355
Weight per Piece (including packing)	221.5 g
Weight per Piece (excluding packing)	219.9 g

# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



Customs tariff number	85176200
Country of origin	DE

# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



## 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).

### Material specifications

Color	traffic grey A RAL 7042
-------	-------------------------

### Interfaces

#### EtherCAT<sup>®</sup>

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<sup>®</sup>

System-specific protocols	Mailbox protocols CAN application protocol over EtherCAT <sup>®</sup> Mailbox protocols File access over EtherCAT <sup>®</sup> Mailbox protocols Ethernet over EtherCAT <sup>®</sup>
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

Type	block modular
Product type	I/O component
Product family	Axioline F
Mounting position	any (observe temperature derating)
Scope of delivery	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

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, HW 05 or later)
Power consumption	max. 13.7 W (2.0 A at $U_{BUS}$ , $U_L = 24$ V, up to HW 04)
	max. 16 W (2.5 A at $U_{BUS}$ , $U_L = 24$ V, HW 05 or later)
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)

## 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 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>

# AXL F BK EC - Bus coupler



2688899

<https://www.phoenixcontact.com/in/products/2688899>

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 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: wall 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)

# AXL F BK EC - Bus coupler

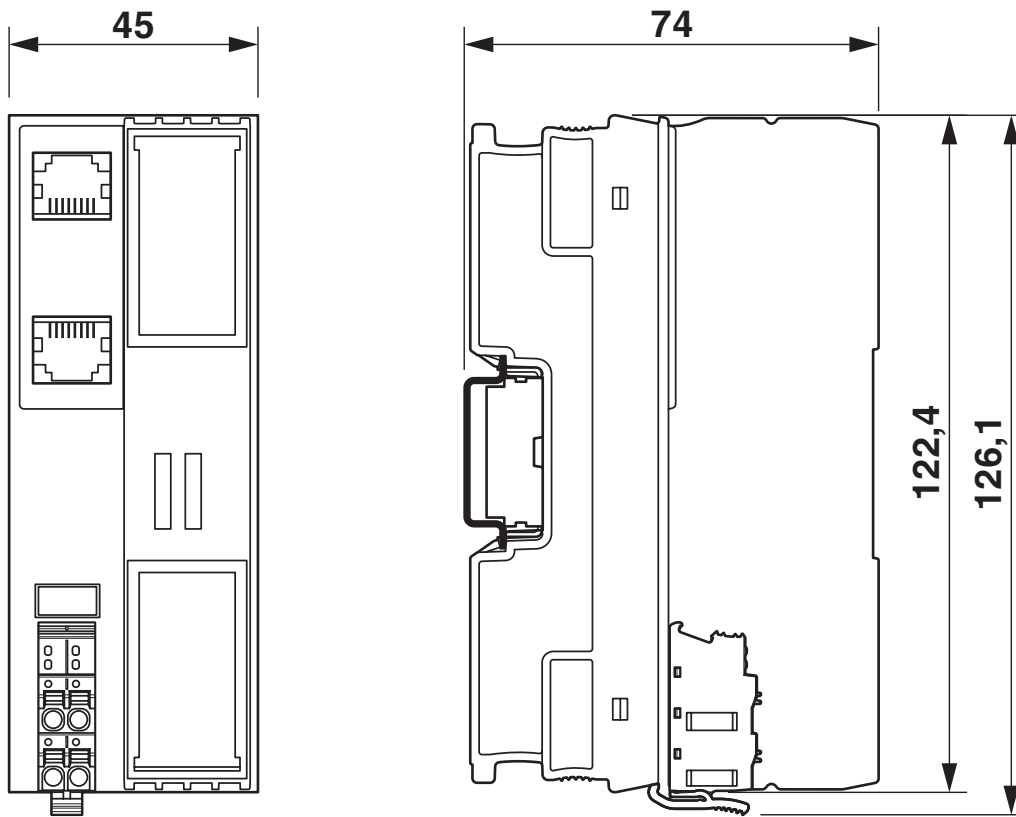
2688899

<https://www.phoenixcontact.com/in/products/2688899>



## Drawings

Dimensional drawing



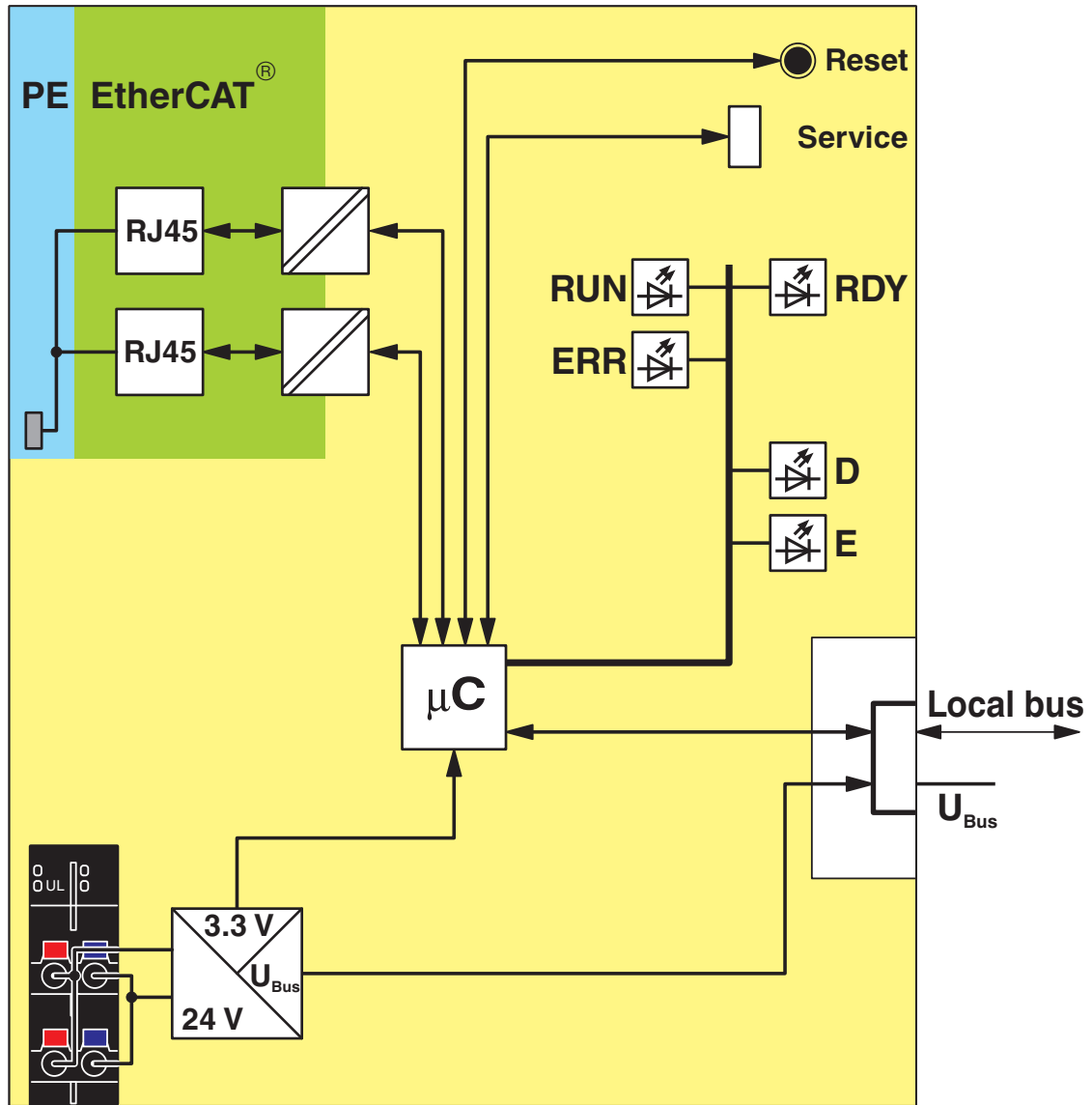
# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



Block diagram



$U_L$   
24 V

Internal wiring of the terminal points

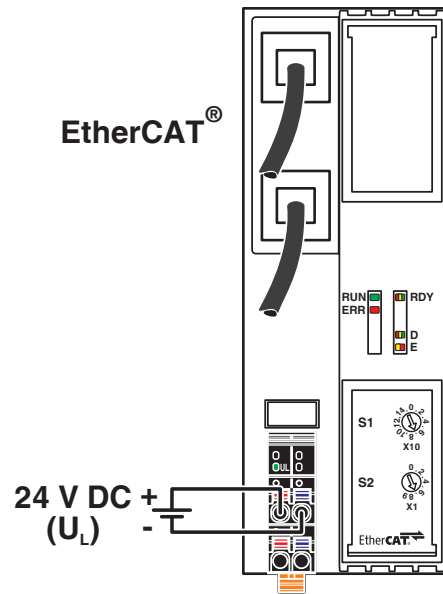
# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



Connection diagram





# AXL F BK EC - Bus coupler



2688899

<https://www.phoenixcontact.com/in/products/2688899>

## Approvals



**DNV GL**

Approval ID: TAA00000DF



**LR**

Approval ID: LR2001902TA



**NK**

Approval ID: 14A006



**BV**

Approval ID: 36433/B4 BV



**PRS**

Approval ID: TE/1020/880590/21



**UL Listed**

Approval ID: FILE E 238705



**cUL Listed**

Approval ID: FILE E 238705



**RINA**

Approval ID: ELE283021XG



**cUL Listed**

Approval ID: FILE E 238705



**UL Listed**

Approval ID: FILE E 238705



**EtherCAT**

Approval ID: 0x290783

# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



## Classifications

### ECLASS

ECLASS-11.0	27242608
ECLASS-12.0	27242608
ECLASS-13.0	27242608

### ETIM

ETIM 8.0	EC001604
----------	----------

### UNSPSC

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

# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



## Accessories

### AXL F BS BK - Bus connector

2701422

<https://www.phoenixcontact.com/in/products/2701422>

Axioline F bus base module for housing type BK



---

### FL PLUG RJ45 GR/2 - RJ45 connector

2744856

<https://www.phoenixcontact.com/in/products/2744856>

RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: Plastic, connection method: Crimp connection, cable outlet: straight, color: green, Ethernet



# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



## FL PLUG RJ45 GN/2 - RJ45 connector

2744571

<https://www.phoenixcontact.com/in/products/2744571>



RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: Plastic, connection method: Crimp connection, cable outlet: straight, color: green, Ethernet

---

## FL CAT5 HEAVY - Data cable

2744814

<https://www.phoenixcontact.com/in/products/2744814>



CAT5-SF/UTP cable (J-02YS(ST)C HP 2 x 2 x 24 AWG), heavy-duty installation cable, 2 x 2 x 0.22 mm<sup>2</sup>, solid conductor, shielded, outer sheath: 7.8 mm diameter, inner sheath: 5.75 mm ± 0.15 mm diameter

# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



## FL CAT5 FLEX - Installation cable

2744830

<https://www.phoenixcontact.com/in/products/2744830>



By the meter, Installation cable, Ethernet CAT5 (100 Mbps), shielded, PUR halogen-free, water blue RAL 5021, 4-wire (2x2xAWG26/7; SF/UTP), color single wire: white/orange-orange, white/green-green, cable length: Free entry (1.0 ... 1000.0 m)

---

## FL CRIMPTOOL - Assembly tool

2744869

<https://www.phoenixcontact.com/in/products/2744869>



Crimping pliers, for assembling the RJ45 plugs FL PLUG RJ45..., for assembly on site

# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



## ZB 20,3 AXL UNPRINTED - Zack marker strip

0829579

<https://www.phoenixcontact.com/in/products/0829579>



Zack marker strip for Axioline F (device labeling), in 2 x 20.3 mm pitch, unprinted, 25-section, for individual labeling with B-STIFT 0.8, X-PEN, or CMS-P1-PLOTTER

---

## ZBF 10/5,8 AXL UNPRINTED - Zack Marker strip, flat

0829580

<https://www.phoenixcontact.com/in/products/0829580>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 10.15 mm, lettering field size: 4 x 10, 15 x 5 mm, 1 x 5.8 x 5 mm, Number of individual labels: 50

## AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



## EMT (35X18,7)R - Insert label

0801831

<https://www.phoenixcontact.com/in/products/0801831>



Insert label, for marking Phoenix Contact Axioline modules, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMaster 300/600, THERMOMARK X1.2, mounting type: insert, lettering field size: 35 x 18.7 mm, Number of individual labels: 500

---

## CAB-USB A/MICRO USB B/2,0M - Connecting cable

2701626

<https://www.phoenixcontact.com/in/products/2701626>



Connecting cable, for connecting the controller to a PC for PC Worx and LOGIC+, USB A to micro USB B, 2 m in length.



# AXL F BK EC - Bus coupler

2688899

<https://www.phoenixcontact.com/in/products/2688899>



## CAB-USB C/ USB C/1,8M - Connecting cable

1021809

<https://www.phoenixcontact.com/in/products/1021809>

Connecting cable, for connecting the controller to a PC from USB C to USB C



---

## CAB-USB A/ USB C/1,8M - Connecting cable

2404677

<https://www.phoenixcontact.com/in/products/2404677>

Connecting cable, for connecting the controller to a PC from USB A to USB C



---

Phoenix Contact 2023 © - all rights reserved  
<https://www.phoenixcontact.com>

PHOENIX CONTACT (I) Pvt. Ltd.  
A-58/2, Okhla Industrial Area, Phase - II, New Delhi-110 020

+91.1275.71420  
[info@phoenixcontact.co.in](mailto:info@phoenixcontact.co.in)