

Bus coupler - AXL F BK EC - 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® 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

Your advantages


- ✓ 2 Ethernet ports (with integrated switch)
- ✓ Rotary encoding 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 the AXL SE SC slot cover (firmware version 1.30 and later)
- ✓ IOL-CONF supported
- ✓ Supports Diag+



Key Commercial Data

Packing unit	1 pc
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Bus coupler - AXL F BK EC - 2688899

GTIN	 4 046356 658355
GTIN	4046356658355
Weight per Piece (excluding packing)	220.000 g
Custom tariff number	85176200
Country of origin	Germany

Technical data

Dimensions

Width	45 mm
Height	126.1 mm
Depth	74 mm
Note on dimensions	The depth is valid when a TH 35-7,5 DIN rail is used (according to EN 60715).

Ambient conditions

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

Connection data

Designation	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 solid min.	0.2 mm ²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	1.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

General

Mounting type	DIN rail mounting
Color	traffic grey A RAL 7042

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Technical data

General

Net weight	219.9 g
Note on weight specifications	with connector and bus base module
Degree of pollution	2 (IEC 60664-1, EN 60664-1)
Diagnostics messages	Emergency messages
	Messages via object 10F3 _{hex} Diagnosis history
Mounting type	DIN rail mounting
Mounting position	any (observe temperature derating)

Interfaces

Designation	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
Designation	Axioline F local bus
Number of interfaces	1
Connection method	Bus base module
Transmission speed	100 Mbps
Designation	Service
Number of interfaces	1
Connection method	USB type C (as of HW 05)
	Micro USB type B (up to HW 04)

Network/bus system

Amount of process data	1024 Byte (for each data direction)
Number of supported devices	max. 63 (per station)
Number of local bus devices that can be connected	max. 63
Designation	EtherCAT®
System-specific protocols	Mailbox protocols CAN application protocol over EtherCAT®
	Mailbox protocols File access over EtherCAT®
	Mailbox protocols Ethernet over EtherCAT®
Type of addressing	Auto-increment addressing
	Fixed position addressing
	Logical addressing
	Explicit device ID
Specification	ETG.1000 V1.02
Protocol	CoE

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Technical data

Network/bus system

	FoE
	EoE

Axioline potentials

Designation	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 consumption	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)
Type of protection	Surge protection
	Reverse polarity protection
Designation	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 (as of HW 05)

Electrical isolation

Test section	Ethernet interface 1 / Ethernet interface 2 1500 V AC 50 Hz 1 min.
	Ethernet interface 1 / 24 V communications voltage (U_L) feed-in 1500 V AC 50 Hz 1 min.
	Ethernet interface 2 / 24 V communications voltage (U_L) feed-in 1500 V AC 50 Hz 1 min.
	Ethernet interface 1 / functional ground 1500 V AC 50 Hz 1 min.
	Ethernet interface 2 / functional ground 1500 V AC 50 Hz 1 min.
	24 V communications voltage (U_L) feed-in / functional ground 500 V AC 50 Hz 1 min.

Standards and Regulations

Immunity to ESD	Noise immunity test in accordance with EN 61000-6-2 Electrostatic discharge (ESD) EN 61000-4-2/IEC 61000-4-2 Criterion B, 6 kV contact discharge, 8 kV air discharge
Immunity to EF	Noise immunity test in accordance with EN 61000-6-2 Electromagnetic fields EN 61000-4-3/IEC 61000-4-3 Criterion A, Field intensity: 10 V/m
Immunity to burst	Noise immunity test in accordance with EN 61000-6-2 Fast transients (burst) EN 61000-4-4/IEC 61000-4-4 Criterion B, 2 kV
Immunity to surge	Noise immunity test in accordance with EN 61000-6-2 Transient overvoltage (surge) EN 61000-4-5/IEC 61000-4-5 Criterion B, DC supply lines: ± 0.5 kV/ ± 0.5 kV (symmetrical/asymmetrical), fieldbus cable shield: ± 1 kV

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Technical data

Standards and Regulations

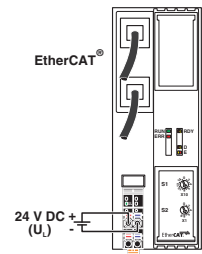
Immunity to conducted interference	Noise immunity test in accordance with EN 61000-6-2 Conducted interference EN 61000-4-6/IEC 61000-4-6 Criterion A, Test voltage 10 V
Interference emission	Noise emission test according to EN 61000-6-3 Class B
Mechanical tests	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6 5g
	Shock in acc. with EN 60068-2-27/IEC 60068-2-27 30g
	Continuous shock according to EN 60068-2-27/IEC 60068-2-27 10g
Protection class	III (IEC 61140, EN 61140, VDE 0140-1)
Overvoltage category	II (IEC 60664-1, EN 60664-1)

Environmental Product Compliance

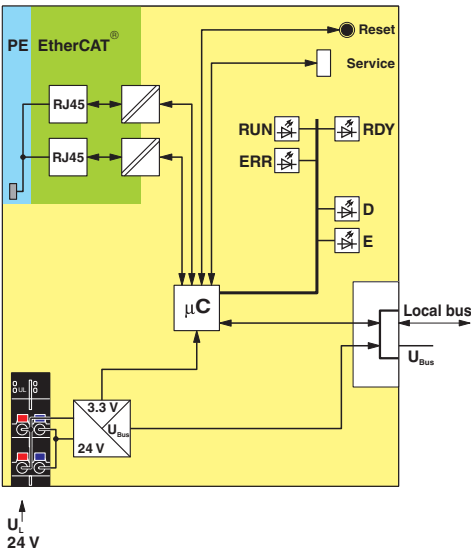
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

Connection diagram



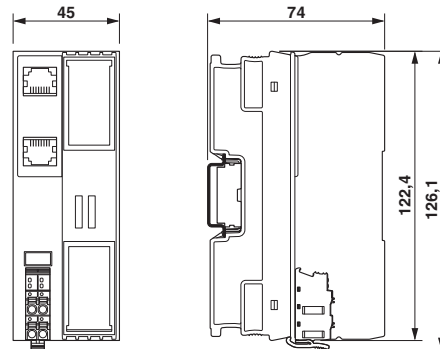
Block diagram



Internal wiring of the terminal points

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Dimensional drawing



Classifications

eCl@ss

eCl@ss 10.0.1	27242608
eCl@ss 11.0	27242608
eCl@ss 4.0	27240400
eCl@ss 4.1	27240400
eCl@ss 5.0	27242200
eCl@ss 5.1	27242600
eCl@ss 6.0	27242600
eCl@ss 7.0	27242608
eCl@ss 9.0	27242608

ETIM

ETIM 3.0	EC001604
ETIM 4.0	EC001604
ETIM 6.0	EC001604
ETIM 7.0	EC001604

UNSPSC

UNSPSC 6.01	43172015
UNSPSC 7.0901	43201404
UNSPSC 11	39121311
UNSPSC 12.01	39121311
UNSPSC 13.2	32151602
UNSPSC 18.0	32151602
UNSPSC 19.0	32151602
UNSPSC 20.0	32151602
UNSPSC 21.0	32151602

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Approvals







Approvals

Approvals

KR / NK / ABS / BSH / RINA / EtherCAT / LR / PRS / BV / DNV GL / UL Listed / cUL Listed / UL Listed / cUL Listed

Ex Approvals

Approval details

KR	 KOREAN REGISTER	http://www.krs.co.kr/eng/main/main.aspx	HMB17372-AC002
NK		http://www.classnk.or.jp/hp/en/	14A006
ABS		http://www.eagle.org/eagleExternalPortalWEB/	20-2059154-PDA
BSH			840
RINA		http://www.rina.org/en	ELE030120XG
EtherCAT	 Conformance tested		0x290783
LR		http://www.lr.org/en	LR2001902TA
PRS		http://www.prs.pl/	TE/1117/880590/20

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Approvals

BV		http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials	36433/B2 BV
DNV GL		https://approvalfinder.dnvgl.com/	TAA00000DF
UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705

Accessories

Accessories

Data cable by the meter

Network cable - FL CAT5 HEAVY - 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 mm², solid conductor, shielded, outer sheath: 7.8 mm diameter, inner sheath: 5.75 mm ± 0.15 mm diameter

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Accessories

Installation cable - FL CAT5 FLEX - 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)

Data plug

Assembly tool - FL CRIMPTOOL - 2744869



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

Device marking

Insert label - EMT (35X18,7)R - 0801831



Insert label, Roll, white, unlabeled, can be labeled with: THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, THERMOMARK ROLL X1, THERMOMARK ROLL 2.0, THERMOMARK ROLL, mounting type: snapped into marker carrier, lettering field size: 35 x 18.7 mm, Number of individual labels: 500

DIN rail connector

Bus connector - AXL BS BK - 2701422



Axioline F bus base module for housing type BK

Plug

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Accessories

RJ45 connector - FL PLUG RJ45 GR/2 - 2744856



RJ45 connector, shielded, with bend protection sleeve, 2 pieces, gray for straight cables, for assembly on site. For connections that are not crossed, it is recommended that you use the connector set with gray bend protection sleeve.

RJ45 connector - FL PLUG RJ45 GN/2 - 2744571



RJ45 connector, shielded, with bend protection sleeve, 2 pieces, green for crossed cables, for assembly on site. For connections that are crossed, it is recommended that the connector set with green bend protection sleeves is used.

Programming cable

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

Connecting cable - CAB-USB C/ USB C/1,8M - 1021809



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

Connecting cable - CAB-USB A/ USB C/1,8M - 2404677



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

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Accessories

Terminal marking

Zack marker strip - ZB 20,3 AXL UNPRINTED - 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

Zack Marker strip, flat - ZBF 10/5,8 AXL UNPRINTED - 0829580



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