

Bus coupler - AXL F BK ETH XC - 2701949

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Axioline F XC, Bus coupler, Modbus/TCP(UDP), RJ45 jack, Extreme conditions version, transmission speed in the local bus: 100 Mbps, degree of protection: IP20, including bus base module and Axioline F connector

The figure shows the standard item

Product Description

The bus coupler is intended for use within a Modbus/TCP (UDP) 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.

Your advantages


- ✓ 2 Ethernet ports (with integrated switch)
- ✓ Transmission speed of 10 Mbps and 100 Mbps
- ✓ Rotary coding switches for setting the IP address assignment and other functions
- ✓ Firmware can be updated
- ✓ Runtime in the bus coupler is negligible (almost 0 µs) (for Modbus/UDP)
- ✓ Typical cycle time of the Axioline F local bus is around 10 µs
- ✓ Web-based management
- ✓ Supports the operation of Axioline Smart Elements
- ✓ Supports the AXL SE SC slot cover (firmware version 1.30 and later)
- ✓ Supports IOL-CONF (firmware version 1.30 and later)
- ✓ Supports Diag+
- ✓ Can be used under extreme ambient conditions
- ✓ Extended temperature range of -40 °C ... +70 °C (see "Tested successfully: use under extreme ambient conditions" in the data sheet)
- ✓ Partially coated PCBs



Modbus/TCP (UDP)

COMPLETE line

Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 901239

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GTIN	4046356901239
Weight per Piece (excluding packing)	240.000 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 (Standard, applications with UL approval, use in zone 2 potentially explosive area; mounting position: wall mounting on horizontal DIN rail)
	-25 °C ... 55 °C (Standard, applications with UL approval, use in zone 2 potentially explosive area; mounting position: any)
	-40 °C ... 70 °C (Extended, see section "Tested successfully: use under extreme ambient conditions" in the data sheet.)
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
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Technical data

General

Color	traffic grey A RAL 7042
Net weight	177 g
Note on weight specifications	with connector and bus base module
Degree of pollution	2 (IEC 60664-1, EN 60664-1)
Mounting type	DIN rail mounting
Mounting position	any (observe temperature derating)

Interfaces

Designation	Modbus/TCP (UDP)
Number of interfaces	2
Connection method	RJ45 jack
Note on the connection method	Auto negotiation and autocrossing
Transmission speed	10/100 Mbps (Half or full duplex mode (automatic detection, can be adjusted manually))
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 02)
	Micro USB type B (up to HW 01)

Network/bus system

Number of supported devices	max. 63 (per station)
Number of local bus devices that can be connected	max. 63
Protocol	Modbus/TCP (UDP)
	SNMP
	HTTP
	TFTP
	FTP
	BootP
	DHCP
	DCP

Axioline potentials

Designation	Communications power U_L feed-in (the supply of the Axioline F local bus U_{BUS} is generated from U_L)
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Technical data

Axioline potentials

Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current consumption	max. 583 mA (2 A at U_{Bus} , U_L = 24 V, up to HW 01)
	max. 670 mA (2.5 A at U_{Bus} , U_L = 24 V, HW 02 or later)
	max. 583 mA (2.0 A at U_{Bus} , U_L = 24 V, applications with UL approval, use in zone 2 potentially explosive area)
Power consumption	max. 14 W (2 A at U_{Bus} , U_L = 24 V, up to HW 01)
	max. 16 W (2.5 A at U_{Bus} , U_L = 24 V, HW 02 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 01)
	max. 2.5 A (as of HW 02)
	max. 2 A (Applications with UL approval, use in zone 2 potentially explosive area)

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
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

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Technical data

Standards and Regulations

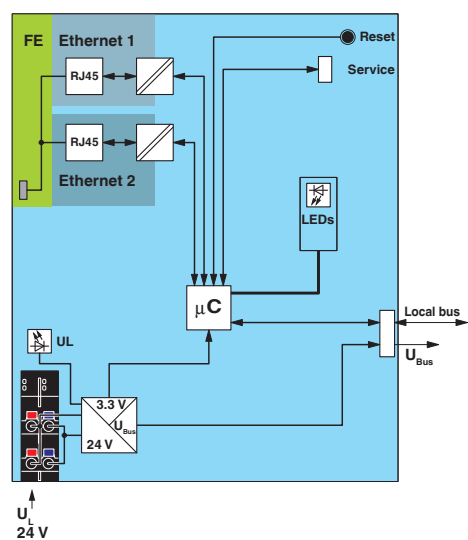
Interference emission	Noise emission test according to EN 61000-6-3 Class B
Mechanical tests	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6 5g
	Shock in acc. with EN 60068-2-27/IEC 60068-2-27 30g
	Continuous shock according to EN 60068-2-27/IEC 60068-2-27 10g
ATEX	# II 3 G Ex ec IIC T4 Gc
IECEX	Ex ec IIC T4 Gc
UL, USA/Canada	cULus
	Class I, Zone 2, AEx ec IIC T4, Ex ec IIC T4 Gc X
	Class I, Div. 2, Groups A, B, C, D T4
Protection class	III (IEC 61140, EN 61140, VDE 0140-1)
Overvoltage category	II (IEC 60664-1, EN 60664-1)

Environmental Product Compliance

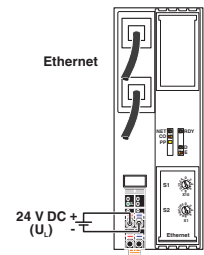
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

Block diagram



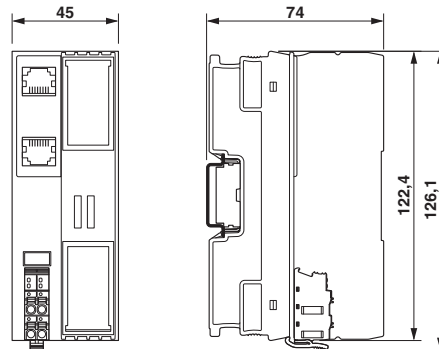
Connection diagram



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 5.1	27242600
eCl@ss 6.0	27242600
eCl@ss 7.0	27242608
eCl@ss 9.0	27242608

ETIM

ETIM 6.0	EC001604
ETIM 7.0	EC001604

UNSPSC

UNSPSC 13.2	32151602
UNSPSC 18.0	32151602
UNSPSC 19.0	32151602
UNSPSC 20.0	32151602
UNSPSC 21.0	32151602

Approvals

Approvals

Approvals

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








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Approvals

Ex Approvals




ATEX / cULus Listed / IECEx

Approval details

PRS		http://www.prs.pl/	TE/1117/880590/20
BV		http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials	36433/B2 BV
LR		http://www.lr.org/en	LR2001902TA
KR		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/	18-HG1767360-PDA
BSH			840
RINA		http://www.rina.org/en	ELE030120XG
DNV GL		https://approvalfinder.dnvgl.com/	TAA00000DF

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Approvals

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

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

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Accessories

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

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.

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Accessories

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/ USB C/1,8M - 2404677



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

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/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.

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

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Accessories

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
