AXL F BK PN TPS XC - Bus coupler

1068857

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CRA-READY



Axioline F, Bus coupler, PROFINET, 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 product is being prepared for compliance with the Cyber Resilience Act (CRA).

Product description

The bus coupler is intended for use within a PROFINET 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. Device descriptions for Phoenix Contact controllers are integral parts of the engineering tools PC Worx and PLCnext Engineer. Corresponding GSDML files are available for integrating the Axioline F station into other programming systems. These files can be downloaded at: www.phoenixcontact.com/product/1068857

Your advantages

- 2 Ethernet ports (with integrated switch)
- Conformance with PROFINET specification V2.3
- Supports PROFIsafe
- Supports PROFIenergy
- Supports PROFINET S2 system redundancy (firmware version 1.30 or later)
- PROFINET RT and IRT
- Minimum cycle time of PROFINET for RT and IRT is 250 µs
- Firmware can be updated
- Runtime in bus coupler is negligible (almost 0 µs)
- Typical cycle time of the Axioline F local bus is around 10 µs
- Web-based management
- 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+
- 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

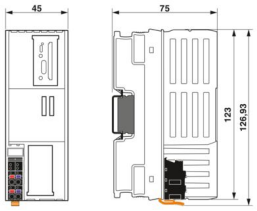


Commercial data

Item number	1068857
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DRI21A
Product key	DRI21A
GTIN	4055626743653
Weight per piece (including packing)	212 g
Weight per piece (excluding packing)	170 g
Country of origin	DE

Technical data

Dimensions

Dimensional drawing	
Width	45 mm
Height	126.93 mm
Depth	75 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	Only for industrial use
Note on application	As things stand now, we are preparing the product so that, as of December 11, 2027, it will comply with the requirements of the EU Cyber Resilience Act (CRA) based on the information currently available regarding the CRA.

Mounting

Mounting type	DIN rail mounting
Mounting position	any

Material specifications

Color (Housing)	gray (RAL 7042)

Interfaces

Supported protocols	PROFINET
	TFTP
	PTCP
	LLDP
	SNMP
	MRP
	DCP
	DDI
	BootP (BootP only to perform firmware updates)

PROFINET

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

System properties

System limits

Amount of process data (Input data)	max. 1012 Byte
Amount of process data (Output data)	max. 1012 Byte
Number of supported devices	max. 63 (per station)
Number of supported subslots	128 (Take the number of subslots per device into account for the calculation.)
Number of subslots per device (no IO-Link device in the Axioline F station)	2 (Bus coupler)
	2 (other module, per slot)
Number of subslots per device (at least one IO-Link device in the Axioline F station)	1 (Bus coupler)
	10 (AXL F IOL8 2H, bus coupler with firmware version 1.xx)
	9 (AXL F IOL8 2H, bus coupler with firmware version as of 2.00)
	10 (AXL SE IOL4, bus coupler with firmware version 1.xx)
	5 (AXL SE IOL4, bus coupler with firmware version as of 2.00)
	1 (other module, per slot)
Number of local bus devices that can be connected	max. 63

PROFINET

Device function	PROFINET device
Specification	Version 2.3
Conformance Class	Conformance Class C
Device ID	1000_{hex}
Vendor ID	$00B0_{hex}$

Programming data

Register length (master)	1484 Byte

Product properties

Product type	I/O component
Product family	Axioline F
Type	block modular
Mounting position	any
Scope of supply	including bus base module and Axioline F connector
Special properties	The product is being prepared for compliance with the Cyber Resilience Act (CRA)

	Extreme conditions version

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	6.55 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. 690 mA (2.0 A on U_{Bus}, U_L = 24 V)
Current consumption	typ. 107 mA (without I/O modules, U_L = 24 V)
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

Electrical isolation/isolation of the voltage ranges

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

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 (Standard, applications with UL approval, use in zone 2 potentially explosive area)
	-40 °C ... 70 °C (Extended, see section “Tested successfully: use under extreme ambient conditions” in the data sheet.)
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

Test (noxious gas)

Test standard	ISA-71.04-2013 G3 Harsh Group A
	IEC 60068-2-60:2015 Method 4
Temperature	25 °C ±1 K
Humidity (relative)	75 % ±3 %
Test duration	21 Days
Volume concentration H_2S (Hydrogen sulfide)	50 ppb
Volume concentration NO_2 (Nitrogen dioxide)	1250 ppb
Volume concentration Cl_2 (Chlorine)	10 ppb
Volume concentration SO_2 (Sulfur dioxide)	300 ppb

Standards and regulations

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

Approvals

ATEX

Identification	Ⓔx II 3 G Ex ec IIC T4 Gc
Certificate	UL 20 ATEX 2441X

IECEx

Identification	Ex ec IIC T4 Gc
Certificate	IECEx ULD 20.0026X

UL, USA/Canada

Identification	cULus
Certificate	E238705

UL Ex, USA / Canada

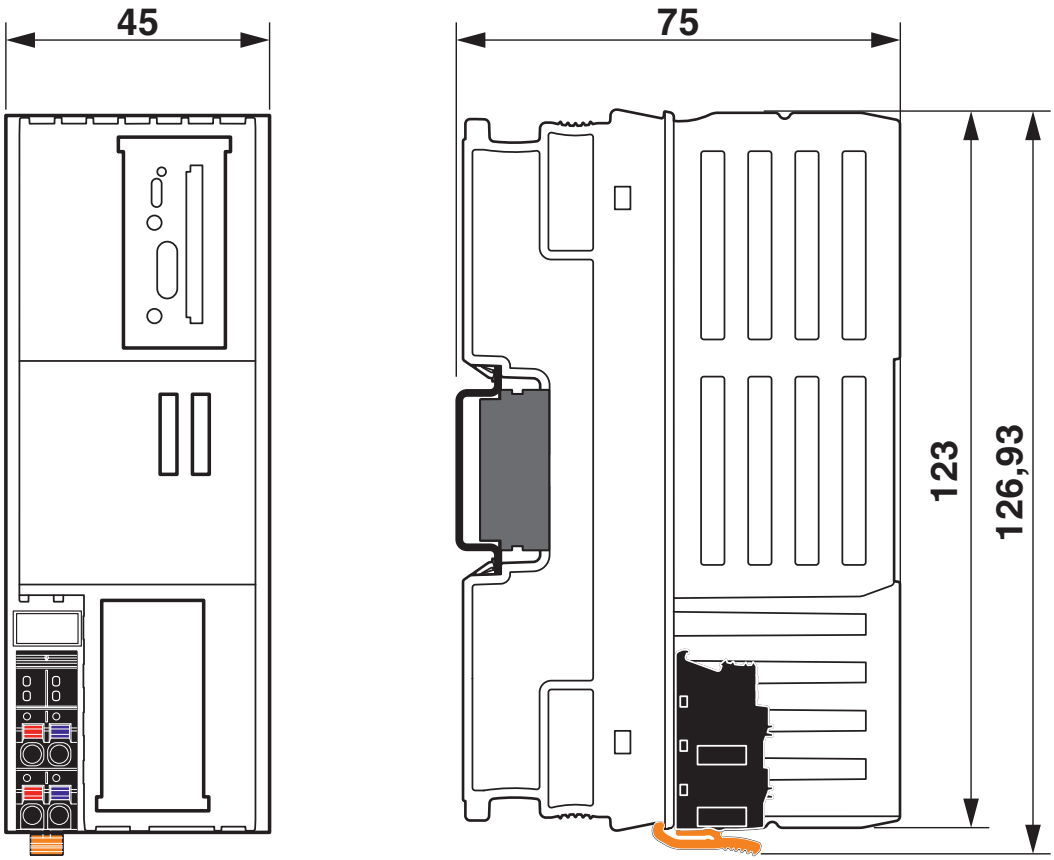
Identification	Class I, Zone 2, AEx ec IIC T4
	Class I, Division 2, Groups A, B, C, D, T4
	Ex ec IIC T4 Gc X
Certificate	E366272

CCC / China-Ex

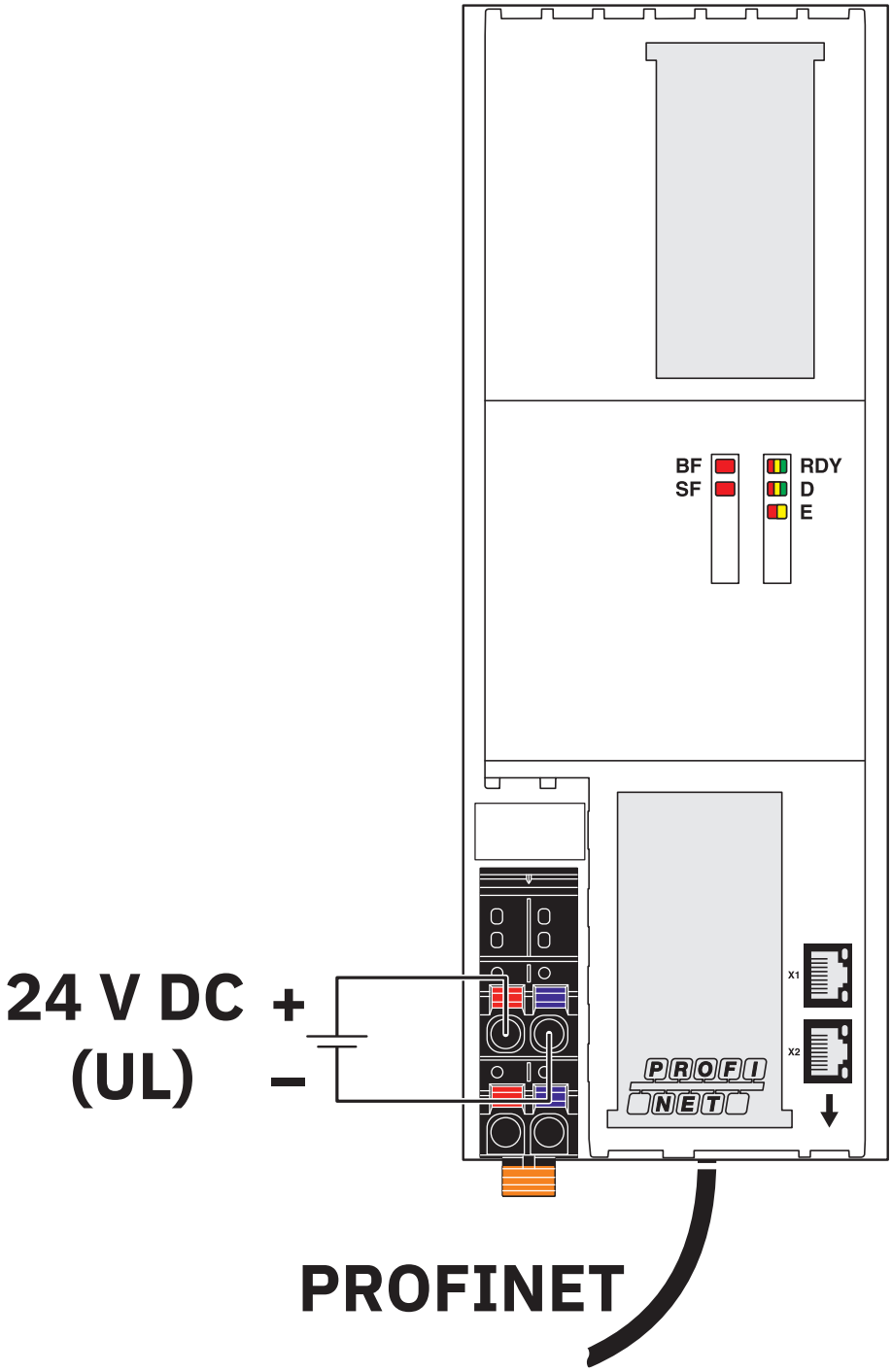
Identification	Ex ec IIC T4 Gc
Certificate	

Drawings

Dimensional drawing

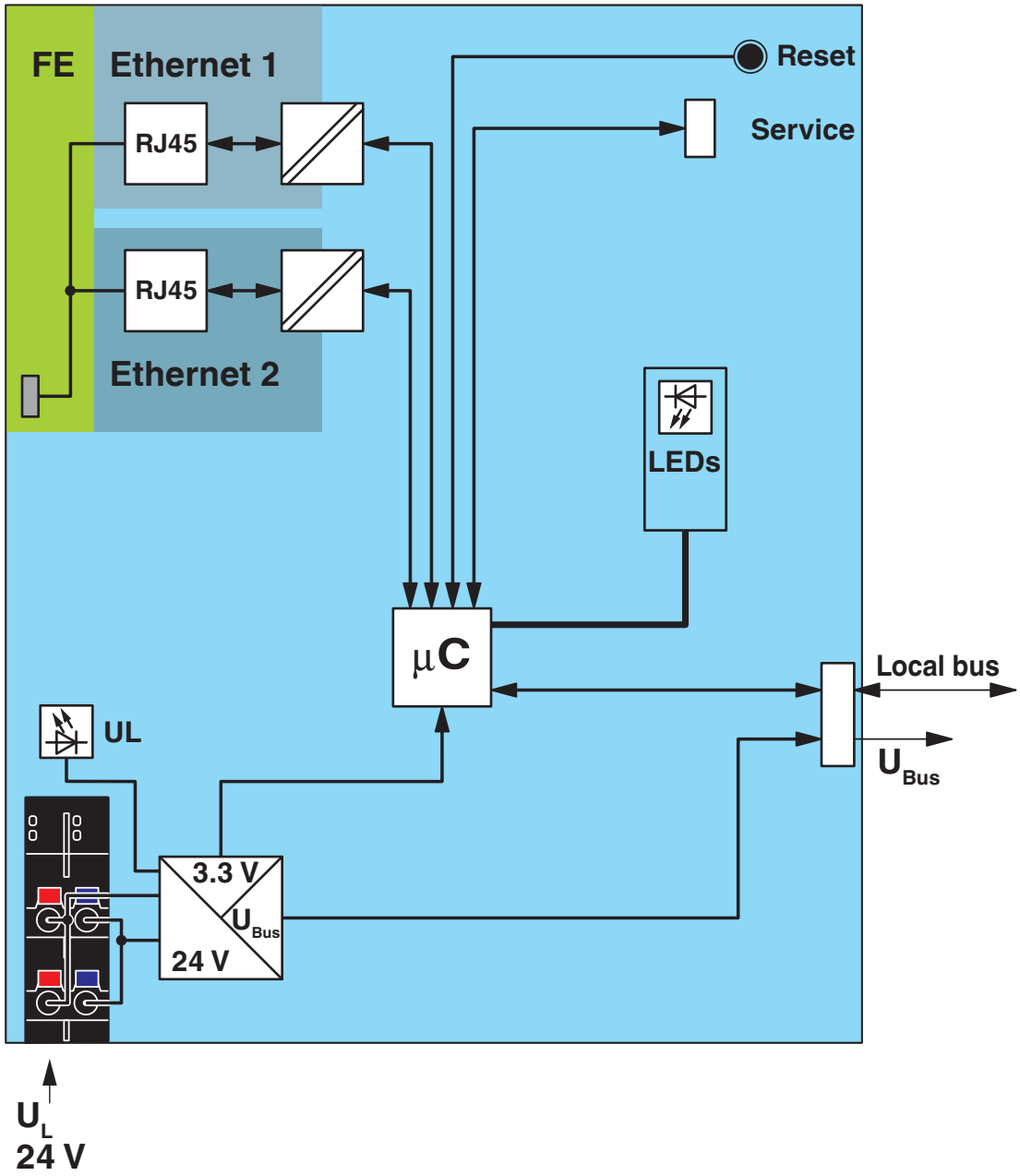


Connection diagram



Connection of the cables

Block diagram



Internal wiring of the terminal points

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/gb/products/1068857

PROFINET
Approval ID: Z12931

cULus Listed
Approval ID: E238705

FS Thermoprocess
Approval ID: 968 INS 799.01 25

IECEx
Approval ID: IECEx ULD 20.0026X

ATEX
Approval ID: UL 20 ATEX 2441X

cULus Listed
Approval ID: E366272

CCC
Approval ID: 2021122309114456

Classifications

ECLASS

ECLASS-13.0	27242608
ECLASS-15.0	27242608

ETIM

ETIM 10.0	EC001604

UNSPSC

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.)	Lead(CAS: 7439-92-1)
SCIP	87c41dff-7e00-4fb3-96db-27ccec1a455b

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