

I/O module - AXL F AI4 I XC 1H - 2702007

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Axioline F XC, Analog input module, Analog inputs: 4, 0 mA ... 20 mA, 4 mA ... 20 mA, -20 mA ... 20 mA, connection method: 2, 3, 4-wire, transmission speed in the local bus: 100 Mbps, integrated sensor supply, Extreme conditions version, degree of protection: IP20, including bus base module and Axioline F connectors

The figure shows the standard item

Product Description


The module is designed for use within an Axioline F station. It is used to acquire analog current signals. Thanks to special engineering measures and tests, the module can be used under extreme ambient conditions.

Your advantages

- 4 analog, bipolar input channels for the connection of current signals
- Connection of sensors in 2, 3, and 4-wire technology
- Current ranges: 0 mA ... 20 mA, 4 mA ... 20 mA, ± 20 mA
- Simultaneous scanning of all channels by means of simultaneous sampling
- High crosstalk attenuation between the channels, thanks to separate signal paths
- Particularly robust against electromagnetic interference
- Device rating plate stored
- 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



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 900997
GTIN	4046356900997
Weight per Piece (excluding packing)	220.000 g
Custom tariff number	85389091
Country of origin	Germany

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Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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Dimensions

Width	35 mm
Height	126.1 mm
Depth	54 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 and applications with UL approval)
	-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.
	Applications with UL approval: only use copper conductors.
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
Color	traffic grey A RAL 7042
Net weight	145 g
Note on weight specifications	with connectors and bus base module

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Technical data

General

Mounting position	any (no temperature derating)
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Interfaces

Designation	Axioline F local bus
No. of channels	2
Connection method	Bus base module
Transmission speed	100 Mbps

Axioline potentials

Designation	Axioline F local bus supply (U_{Bus})
Supply voltage	5 V DC (via bus base module)
Current consumption	typ. 120 mA
	max. 150 mA
Power consumption	typ. 0.6 W
	max. 0.75 W
Designation	Supply for analog modules (U_A)
Supply voltage	24 V DC (I/O supply and sensor supply)
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current consumption	max. 45 mA ($I_{IS} = 0$ mA)
	typ. 118 mA ($I_{IS} = 4 \times 20$ mA (nominal load))
	max. 125 mA ($I_{IS} = 4 \times 20$ mA (nominal load))
	typ. 238 mA ($I_{IS} = 4 \times 50$ mA (full load))
	max. 245 mA ($I_{IS} = 4 \times 50$ mA (full load))
Power consumption	max. 5.88 W (at full load)
Protective circuit	Surge protection of the supply voltage electronic (35 V, 0.5 s)
	Polarity reversal protection of the supply voltage up to HW 02: polarity protection diodeas of HW 03: parallel diode; with external 5 A fuse (for startup only)
	Transient protection supply voltage Suppressor diode

Analog inputs

Description of the input	Differential inputs, current
Input name	Analog inputs
Number of inputs	4
Connection method	Push-in connection
Connection technology	2, 3, 4-wire
Note regarding the connection technology	shielded
A/D conversion time	31.25 μ s
A/D converter resolution	16 bit

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Technical data

Analog inputs

Limit frequency (3 dB)	30 Hz
	12 kHz
Type of protection	Transient protection of inputs
	Overload protection of the current inputs
Data formats	IB IL, S7-compatible
Measured value representation	16 bits (15 bits + sign bit)
Current input signal	0 mA ... 20 mA
	4 mA ... 20 mA
	-20 mA ... 20 mA
Input resistance current input	104 Ω (typical)
Input filter	30 Hz, 12 kHz and mean-value generation (can be parameterized)

Electrical isolation

Test section	5 V supply of the local bus (U_{Bus}) / 24 V supply (I/Os) 500 V AC 50 Hz 1 min.
	5 V supply (logic)/analog inputs 500 V AC 50 Hz 1 min.
	5 V supply of the local bus (U_{Bus}) / functional ground 500 V AC 50 Hz 1 min.
	24 V supply (I/O)/analog inputs 500 V AC 50 Hz 1 min.
	24 V supply (I/O) / functional earth ground 500 V AC 50 Hz 1 min.
	Analog inputs/functional earth ground 500 V AC 50 Hz 1 min.

Standards and Regulations

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)

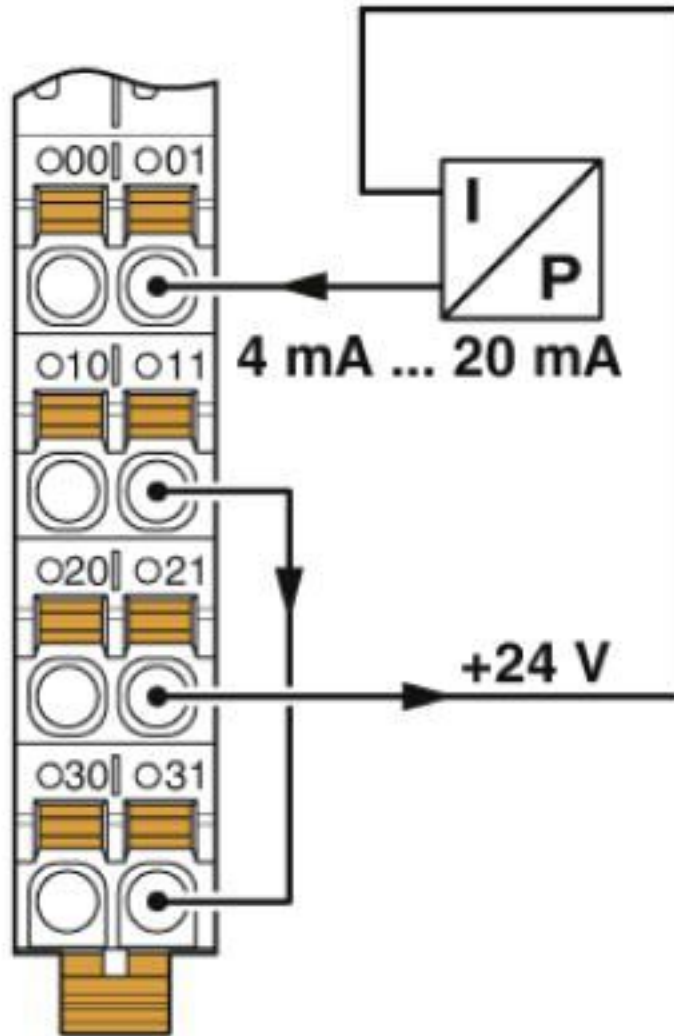
Environmental Product Compliance

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

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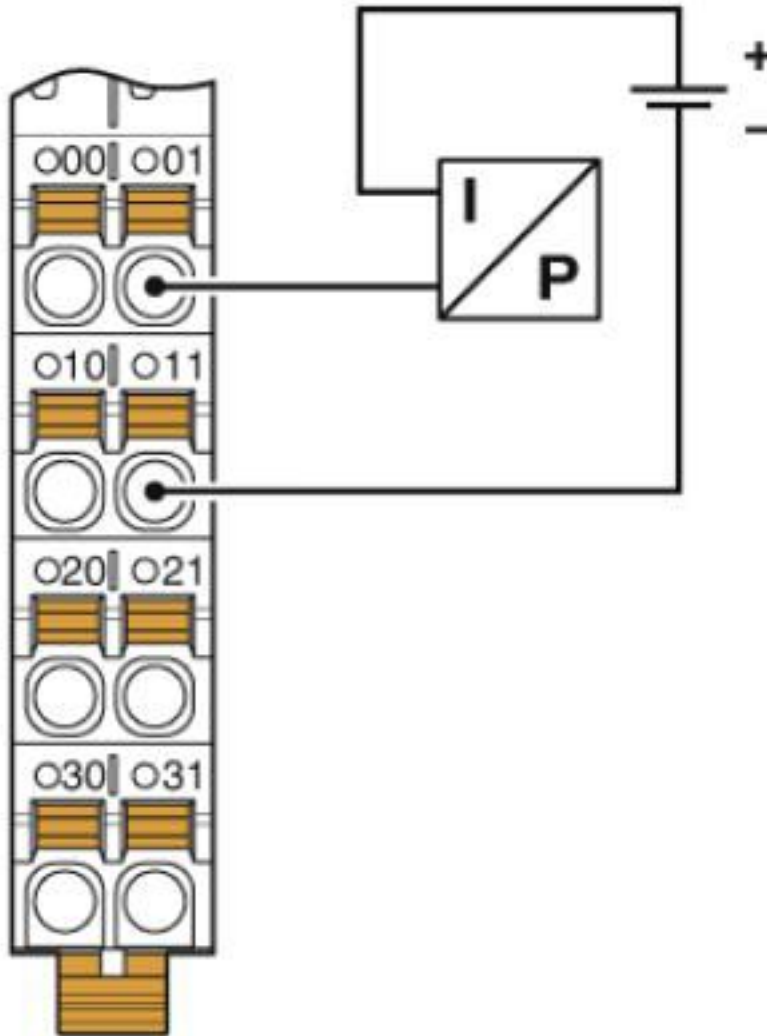
Connection diagram



Differential current input with passive 2-wire transmitter (current loop)

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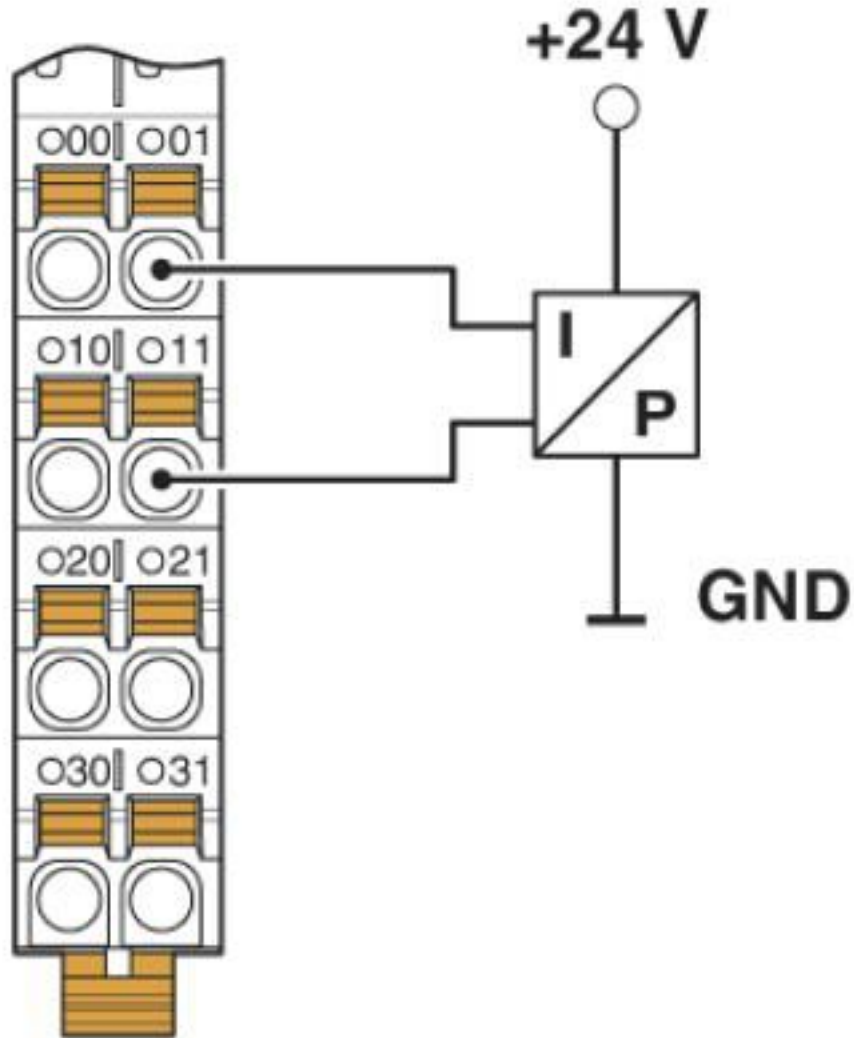
Connection diagram



Differential current input with passive 2-wire transmitter (current loop)

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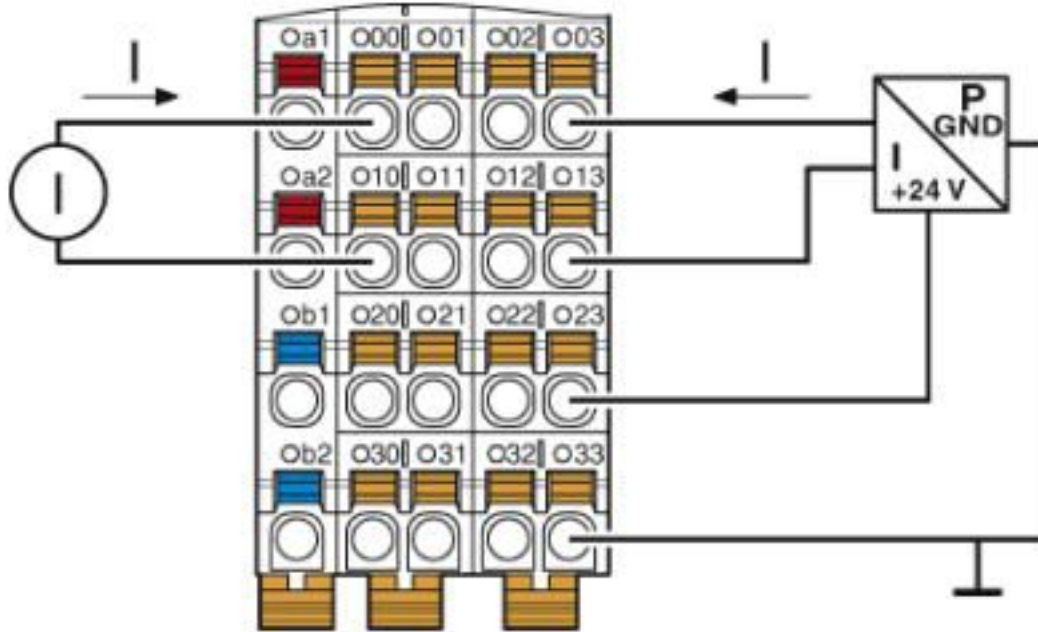
Connection diagram



Passive pressure sensor at a differential current input

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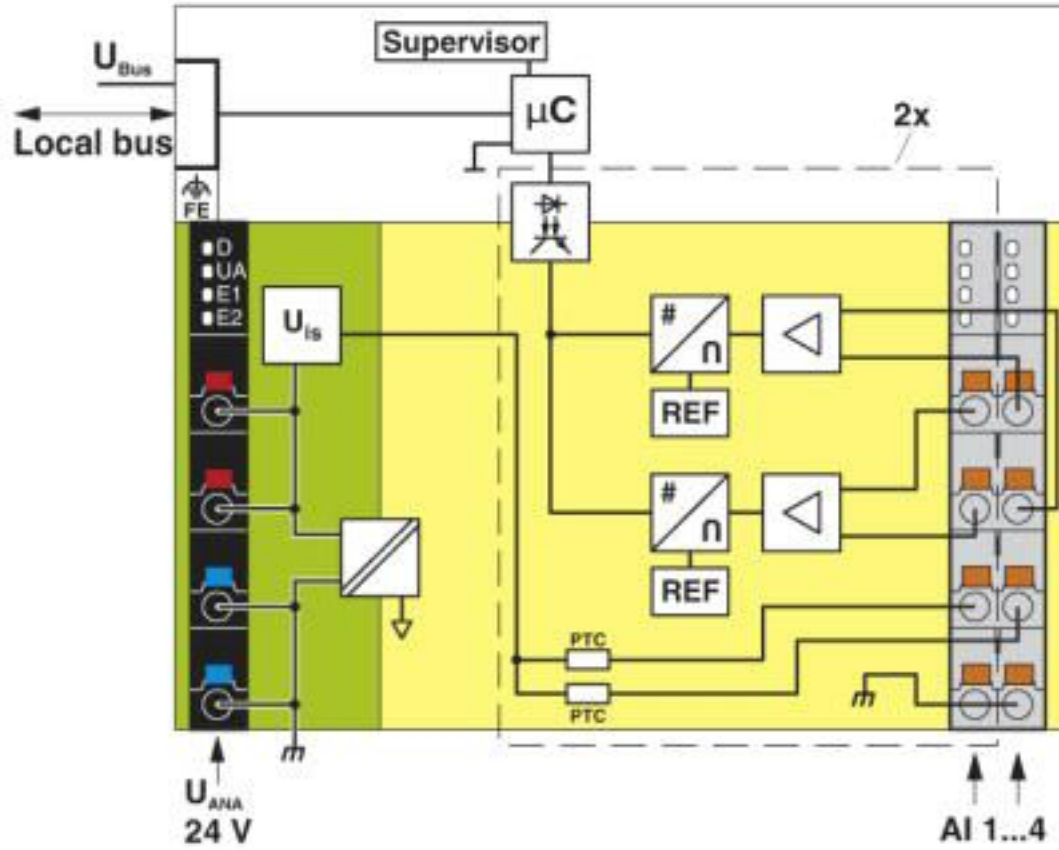
Connection diagram



Connection for current measurement

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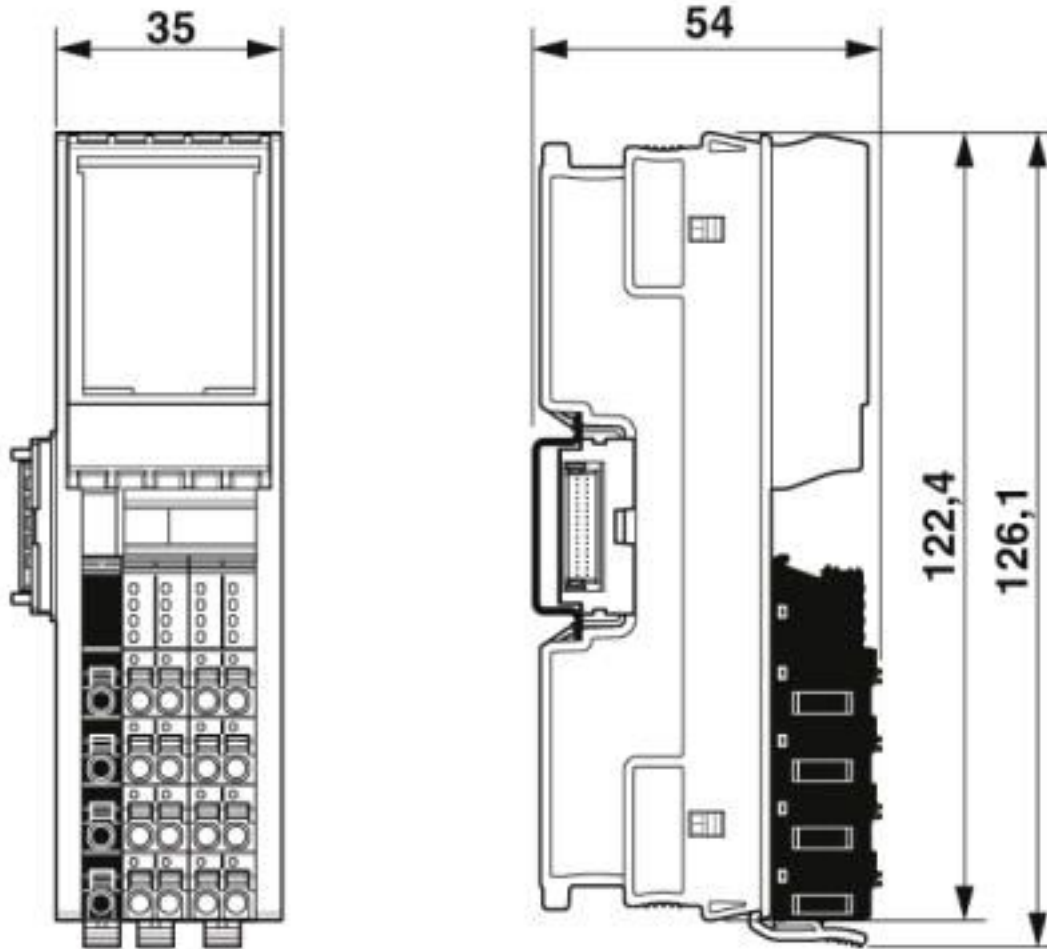
Block diagram



Internal wiring of the terminal points

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Dimensional drawing



Classifications

eCl@ss

eCl@ss 10.0.1	27242601
eCl@ss 5.1	27242600
eCl@ss 6.0	27242600
eCl@ss 7.0	27242601
eCl@ss 8.0	27242601
eCl@ss 9.0	27242601

ETIM

ETIM 5.0	EC001596
ETIM 6.0	EC001596

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Classifications

ETIM

ETIM 7.0	EC001596
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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 / cULus Listed

Ex Approvals

Approval details

PRS		http://www.prs.pl/	TE/2239/880590/19
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BV		http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials	36433/B1 BV
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LR		http://www.lr.org/en	14-20019
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KR		http://www.krs.co.kr/eng/main/main.aspx	HMB17372-AC002
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Approvals

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	ELE256518XG
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
cULus Listed			

Accessories

Accessories

Device marking

Insert label - EMT (35X28)R - 0801602



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 28 mm, Number of individual labels: 500

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Accessories

DIN rail connector

Bus connector - AXL F BS H - 2700992



Axioline F bus base module for housing type H

Shield connection

Shield connection - AXL SHIELD SET - 2700518



Axioline shield connection set (contains 2 shield bus holders and 2 SK 5 shield connection clamps)

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
