I/O module - AXL F AI4 U XC 1H - 2702008

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The figure shows the standard item

Axioline F XC, Analog input module, Analog inputs: 4, 0 V ... 5 V, -5 V ... 5 V, 0 V ... 10 V, -10 V ... 10 V, connection method: 2-, 3-, 4-conductor, 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

Product Description

The module is designed for use within an Axioline F station.
It is used to acquire analog voltage signals.

Your advantages

- 4 analog, bipolar input channels for the connection of voltage signals
- Connection of sensors in 2-, 3-, and 4-conductor technology
- Voltage ranges: 0 V ... 10 V, ±10 V, 0 V ... 5 V, ±5 V
- 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

RoHS COMPLETE line

Key Commercial Data

Packing unit	1 pc
GTIN	4 055626 008400
GTIN	4055626008400
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

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 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.)
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 mm²
Conductor cross section solid max.	1.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	1.5 mm²
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	215 g
Note on weight specifications	with connectors and bus base module

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Technical data

General

Degree of pollution	2 (IEC 60664-1, EN 60664-1)
Mounting position	any (no temperature derating)

Interfaces

Designation	Axioline F local bus
Number of interfaces	2
Connection method	Bus base module
Transmission speed	100 Mbps

Power supply for module electronics

Designation	Sensor supply U_{iS}
Supply voltage	24 V DC (from U_A)
Protective circuit	Short-circuit protection PTC resistor

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 x 20 mA (nominal load))
	max. 125 mA (I_{iS} = 4 x 20 mA (nominal load))
	typ. 238 mA (I_{iS} = 4 x 50 mA (full load))
	max. 245 mA (I_{iS} = 4 x 50 mA (full load))
Power consumption	max. 5.88 W (Full load)
Protective circuit	Surge protection electronic (35 V, 0.5 s)
	Reverse polarity protection up to HW 02: polarity protection diodeas of HW 03: parallel diode; with external 5 A fuse (for startup only)
	Transient protection Suppressor diode

Analog inputs

Description of the input	Differential inputs, voltage
Input name	Analog inputs
Number of inputs	4

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Analog inputs

Connection method	Push-in connection
Connection technology	2-, 3-, 4-conductor
Note regarding the connection technology	shielded, twisted pair
A/D conversion time	31.25 µs
A/D converter resolution	16 bit
Limit frequency (3 dB)	30 Hz
	12 kHz
Type of protection	Transient protection of inputs
	Overload protection of the voltage inputs
Data formats	IB IL, S7-compatible
Measured value representation	16 bits (15 bits + sign bit)
Voltage input signal	0 V ... 5 V
	-5 V ... 5 V
	0 V ... 10 V
	-10 V ... 10 V
Input resistance of voltage input	268 kΩ (typical)
Common mode voltage range signal - ground	-50 V DC ... 50 V DC
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 of the local bus (U_{Bus})/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 ground 500 V AC 50 Hz 1 min.
	Analog inputs/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 up to HW 02: Criterion B,DC supply lines: ±0.5 kV/±0.5 kV (symmetrical/asymmetrical), ±1 kV to shielded I/O cables

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Standards and Regulations

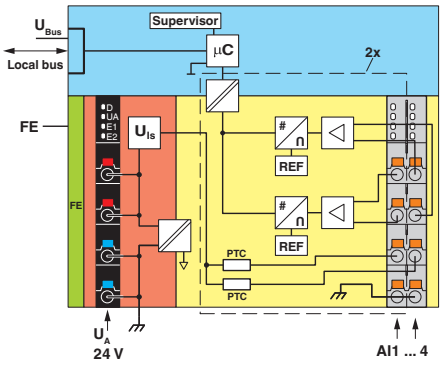
Immunity to conducted interference	Noise immunity test in accordance with EN 61000-6-2 Conducted interference EN 61000-4-6/IEC 61000-4-6 Criterion A, Test voltage 10 V
Interference emission	Noise emission test according to EN 61000-6-3 Class B
Mechanical tests	Vibration resistance in acc. with EN 60068-2-6/IEC 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
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

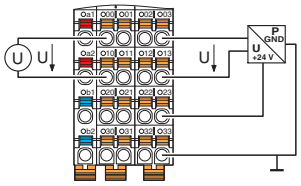
REACh SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab “Downloads”, Category “Manufacturer's declaration”

Drawings

Block diagram



Connection diagram



Connector for voltage measurement

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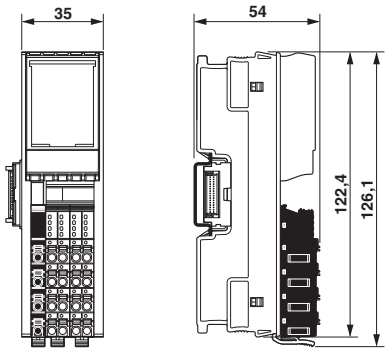
Dimensional drawing



Classifications

eCl@ss

eCl@ss 10.0.1	27242601
eCl@ss 11.0	27242601
eCl@ss 5.1	27242600
eCl@ss 6.0	27242600
eCl@ss 7.0	27242601
eCl@ss 9.0	27242601

ETIM

ETIM 6.0	EC001596
ETIM 7.0	EC001596

UNSPSC

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

Approvals

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PRS / BV / LR / KR / NK / RINA / DNV GL / UL Listed / cUL Listed / BSH / cULus 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
RINA	http://www.rina.org/en	ELE030120XG
DNV GL	https://approvalfinder.dnvgl.com/	TAA00000DF
UL Listed	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705

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Approvals

cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705

BSH	840

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

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)

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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
