

## I/O module - AXL AI 8 - 2688064

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Axioline analog input module, 8 inputs: 0 - 10 V,  $\pm 10$  V, 0 - 20 mA, 4 - 20 mA,  $\pm 20$  mA, 2-wire connection method (including bus base module and connectors)

### Product description

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

### Product Features

- 8 analog, bipolar input channels for the connection of either voltage or current signals
- Connection of sensors in 2-wire technology
- Voltage ranges: 0 V ... 10 V,  $\pm 10$  V, 0 V ... 5 V,  $\pm 5$  V
- Current ranges: 0 mA ... 20 mA, 4 mA ... 20 mA,  $\pm 20$  mA
- Device rating plate stored
- Diagnostic and status indicators



### Key commercial data

Packing unit	1 pc
Weight per Piece (excluding packing)	240.0 GRM
Custom tariff number	85389091
Country of origin	Germany

### Technical data

#### Dimensions

Width	53.6 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

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## Technical data

### Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (according to DIN EN 61131-2)
Permissible humidity (storage/transport)	5 % ... 95 % (according to DIN EN 61131-2)
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 technology
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	1.5 mm <sup>2</sup>
Conductor cross section stranded min.	0.2 mm <sup>2</sup>
Conductor cross section stranded max.	1.5 mm <sup>2</sup>
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	16
Stripping length	8 mm

### General

Weight	204 g
Note on weight specifications	with connectors and bus base module
Mounting type	DIN rail
Protection class	III, IEC 61140, EN 61140, VDE 0140-1
Test section	5 V communications power (logic), 24 V supply (I/O) 500 V AC 50 Hz 1 min
	5 V supply (logic)/functional earth ground 500 V AC 50 Hz 1 min
	24 V supply (I/O) / functional earth ground 500 V AC 50 Hz 1 min
Conformance with EMC directives	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
	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
	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
	Noise immunity test in accordance with EN 61000-6-2 Transient surge voltage (surge) EN 61000-4-5/IEC 61000-4-5 Criterion B; supply lines DC: ±0.5 kV/±0.5 kV (symmetrical/asymmetrical); ±1 kV to shielded I/O cables
	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
	Noise emission test according to EN 61000-6-3 Radio interference properties EN 55022 Class B

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### Technical data

#### General

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 25g, 11 ms period, half-sine shock pulse
	Continuous shock according to EN 60068-2-27/IEC 60068-2-27 10g

#### Interfaces

Designation	Axioline F local bus
Connection method	Bus base module
Transmission speed	100 MBit/s

#### Axioline potentials

Communications power $U_{Bus}$	5 V DC (via bus base module)
Current consumption from $U_{Bus}$	typ. 105 mA
	max. 130 mA
Supply of analog modules $U_A$	24 V DC
Current consumption from $U_A$	typ. 35 mA
	max. 45 mA

#### Analog inputs

Number of inputs	max. 8 (Differential inputs, voltage or current can be chosen separately)
Connection method	Push-in technology
	2-wire (shielded, twisted pair)
Input name	Analog inputs
A/D conversion time	2 $\mu$ s
Resolution A/D	16 bit
Limit frequency (3 dB)	30 Hz
	12 kHz (in fast mode)
Type of protection	Transient protection of inputs
Protective circuit/component	Suppressor diode
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
Voltage input signal	0 V ... 5 V
	-5 V ... 5 V
	0 V ... 10 V
	-10 V ... 10 V

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### Technical data

#### Analog inputs

Precision	0.1 % (of measuring range final value for active mean-value generation and 30 Hz filter)
Filtering	RFI filtering / passive TP 1st order
Input filter	30 Hz, 12 kHz and mean-value generation (can be parameterized)
Number of inputs	8 (differential inputs, current)
Type of protection	Overload protection
Protective circuit/component	No; $\pm 5.2$ V DC, maximum, $I_{max} = 50$ mA
Open circuit response	Going to 0 mA; open-circuit detection from 4 mA ... 20 mA
Number of inputs	8 (differential inputs, voltage)
Type of protection	Overload protection
Protective circuit/component	$\pm 30$ V DC, maximum
Open circuit response	Goes to 0 V

### Classifications

#### eCl@ss

eCl@ss 4.0	27240405
eCl@ss 4.1	27240405
eCl@ss 5.0	27242201
eCl@ss 5.1	27242601
eCl@ss 6.0	27242601
eCl@ss 7.0	27242601
eCl@ss 8.0	27242601

#### ETIM

ETIM 3.0	EC001599
ETIM 4.0	EC001596
ETIM 5.0	EC001596

#### UNSPSC

UNSPSC 6.01	43172015
UNSPSC 7.0901	43201404
UNSPSC 11	39121311
UNSPSC 12.01	39121311
UNSPSC 13.2	39121311

### Approvals

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## Approvals

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Approvals

UL Listed / cUL Listed / BSH / RINA / DNV / null / cUL Listed / NK / cULus Listed / cULus Listed / cULus Listed / null / null / null / null

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Ex Approvals


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Approvals submitted

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## Approval details


UL Listed 

cUL Listed 


BSH

RINA

DNV

cUL Listed 

NK

cULus Listed 

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## Approvals

cULus Listed 

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## Accessories

### Accessories

#### Connector set

Connector set - AXL CNS 4L-O/D/UA/E1/E2 - 2700984



Axioline F connector set (for e.g., AXL F AI8 1F, AXL F AO8 1F)

#### Device marking

Insert label - EMT (35X46)R - 0801604



Insert label, Roll, white, unlabeled, can be labeled with: THERMOMARK ROLL, THERMOMARK X, THERMOMARK S1.1, Mounting type: snapped into marker carrier, Lettering field: 35 x 46 mm

#### DIN rail connector

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### Accessories

Bus connector - AXL F BS F - 2688129



Axioline F bus base module for housing type F

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### Mounting material

Shield connection - AXL SHIELD SET - 2700518



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

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



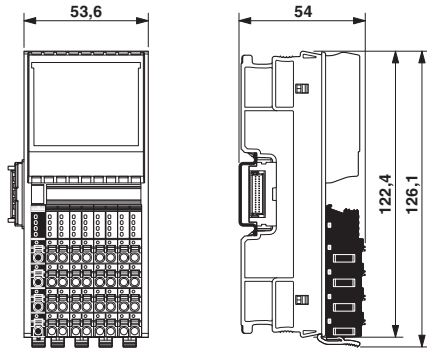
Zack marker strip, flat, in 10 mm pitch, unprinted, 10-section, for individual labeling with M-PEN 0,8, X-PEN, or CMS-P1-PLOTTER

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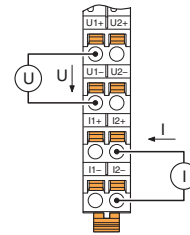
### Drawings

# I/O module - AXL AI 8 - 2688064

Dimensioned drawing

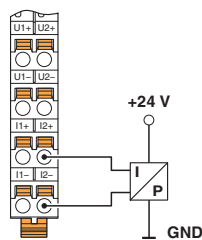


Connection diagram



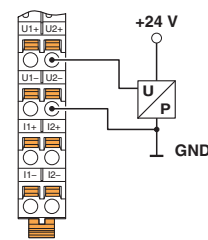
Connection for voltage and current measurement

Connection diagram



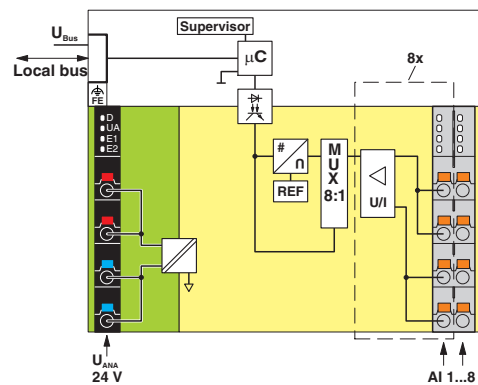
Passive pressure sensor at a differential current input

Connection diagram



Differential voltage input with active 3-wire transmitter

Block diagram



Internal wiring of the terminal points