

AXL F AI4 I 1H - Analog module

2688491

<https://www.phoenixcontact.com/gb/products/2688491>

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Axioline F, Analog input module, Analog inputs: 4, 0 mA ... 20 mA, 4 mA ... 20 mA, -20 mA ... 20 mA, connection technology: 2-, 3-, 4-conductor, transmission speed in the local bus: 100 Mbps, integrated sensor supply, 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 current signals.

Your advantages

- 4 analog, bipolar input channels for the connection of current signals
- Connection of sensors in 2-, 3-, and 4-conductor 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

Commercial data

Item number	2688491
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DRI241
Product key	DRI241
Catalog page	Page 82 (C-6-2019)
GTIN	4046356744225
Weight per piece (including packing)	195.9 g
Weight per piece (excluding packing)	195.9 g
Customs tariff number	85389091
Country of origin	DE

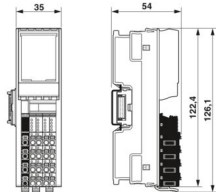
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Technical data

Dimensions

Dimensional drawing	
Width	35 mm
Height	126.1 mm
Depth	54 mm
Note on dimensions	The depth applies when a TH 35-7.5 DIN rail is used (in accordance with EN 60715).

Interfaces

Axioline F local bus

Number of interfaces	2
Connection method	Bus base module
Transmission speed	100 Mbps

System properties

Module

Input address area	8 Byte
Output address area	8 Byte
Required parameter data	7 Byte
Required configuration data	6 Byte

Input data

Analog: General

Input name	Analog inputs
Description of the input	Differential inputs, current
Number of inputs	4
A/D conversion time	31.25 μ s
A/D converter resolution	16 bit
Connection method	Push-in connection
Connection technology	2-, 3-, 4-conductor
Note regarding the connection technology	shielded
Current input signal	0 mA ... 20 mA 4 mA ... 20 mA -20 mA ... 20 mA
Input resistance current input	104 Ω (typical)

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Data formats	IB IL, S7-compatible
Input filter	30 Hz, 12 kHz and mean-value generation (can be parameterized)
Limit frequency (3 dB)	30 Hz
	12 kHz
Measured value representation	16 bits (15 bits + sign bit)
Protective circuit	Transient protection of inputs; Suppressor diode
	Overload protection of the inputs; No; ± 5.2 V DC, maximum, $I_{max} = 50$ mA

Product properties

Product type	I/O component
Product family	Axioline F
Type	block modular
Mounting position	any (no temperature derating)
Scope of delivery	including bus base module and Axioline F connectors
Special properties	integrated sensor supply

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	4.08 W
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Potentials

Power consumption	typ. 1.51 W (Device, total, plus the power consumption of the external sensors)
	max. 1.83 W (Device, total, plus the power consumption of the external sensors)

Potentials: Axioline F local bus supply (U_{Bus})

Supply voltage	5 V DC (via bus base module)
Current draw	max. 150 mA
	typ. 120 mA
Power consumption	max. 0.75 W
	typ. 0.6 W

Potentials: 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 draw	max. 245 mA ($I_{IS} = 4 \times 50$ mA (full load))
	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))
Power consumption	max. 5.88 W (Full load)

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Protective circuit	Surge protection; electronic (35 V, 0.5 s)
	Reverse polarity protection; up to HW 02: polarity protection diode from HW 03: parallel diode; with external 5 A fuse (for startup only)
	Transient protection; Suppressor diode

Supply:

Designation	Sensor supply U_{IS}
Supply voltage	24 V DC (from U_A)
Current consumption	max. 50 mA (per channel)

Electrical isolation/isolation of the voltage ranges

Test voltage: 5 V supply of the local bus (U_{BUS}) / 24 V supply (I/Os)	500 V AC, 50 Hz, 1 min.
Test voltage: 5 V supply of the local bus (U_{BUS})/analog inputs	500 V AC, 50 Hz, 1 min.
Test voltage: 5 V supply of the local bus (U_{BUS}) / functional ground	500 V AC, 50 Hz, 1 min.
Test voltage: 24 V supply (I/O)/analog inputs	500 V AC, 50 Hz, 1 min.
Test voltage: 24 V supply (I/O) / functional ground	500 V AC, 50 Hz, 1 min.
Test voltage: Analog inputs/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.

Conductor connection

Connection method	Push-in connection
Conductor cross section rigid	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross section AWG	24 ... 16
Stripping length	8 mm

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 mm ² ... 1.5 mm ²
Conductor cross section, flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross section AWG	24 ... 16
Stripping length	8 mm

Environmental and real-life conditions

Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C
Degree of protection	IP20

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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)

Standards and regulations

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

Mounting type	DIN rail mounting
Mounting position	any (no temperature derating)

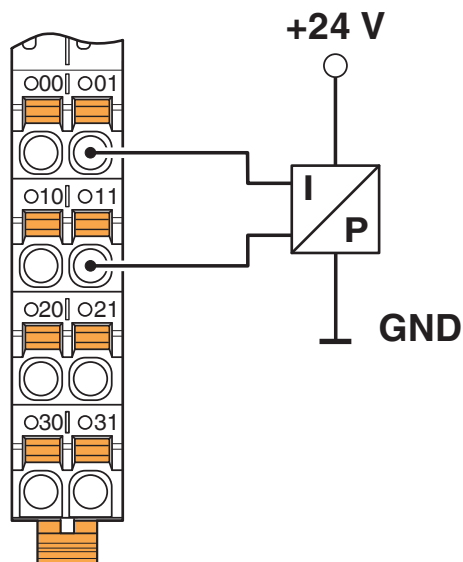
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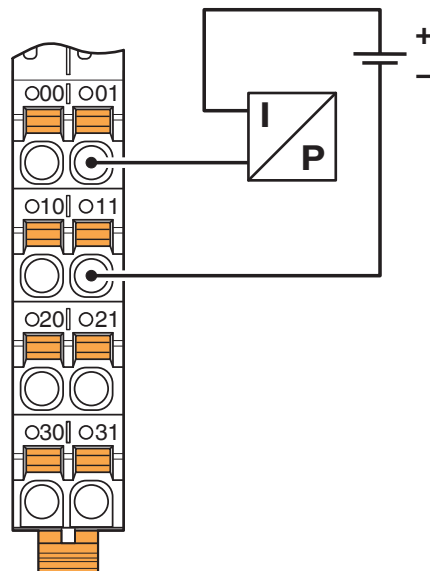
Drawings

Connection diagram



Passive pressure sensor at a differential current input

Connection diagram



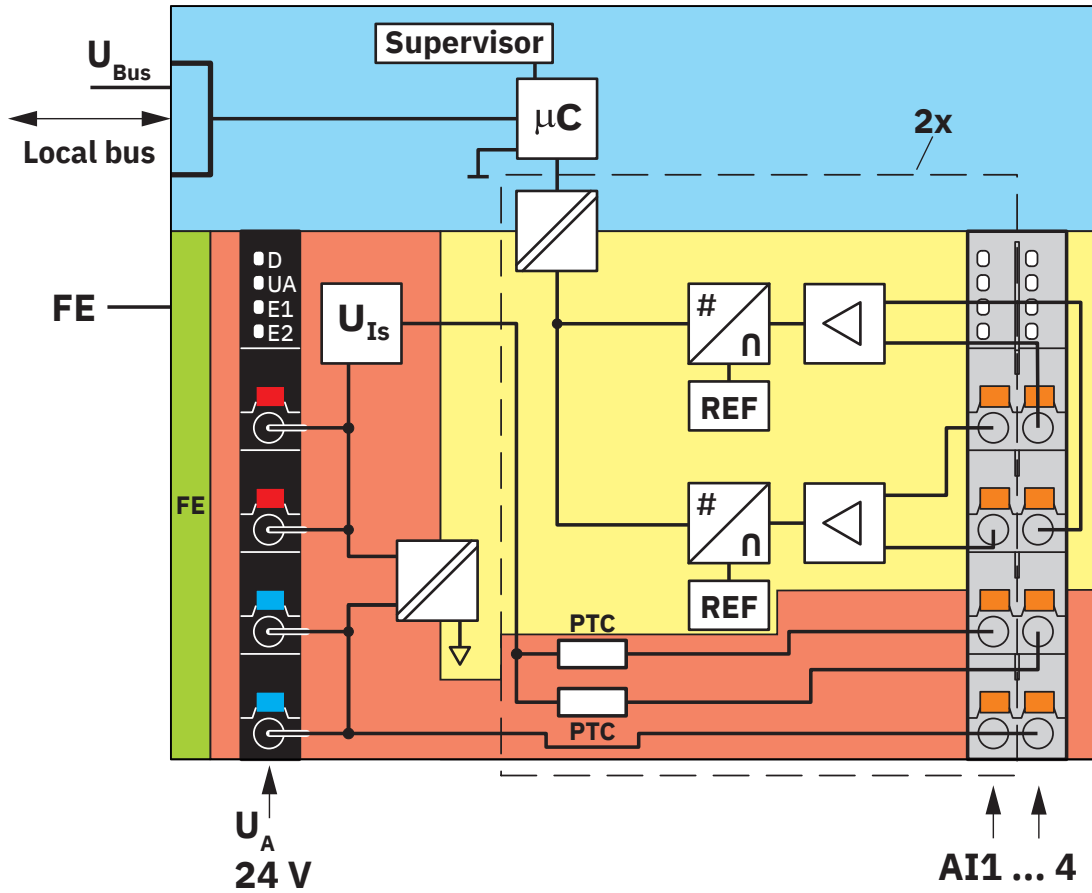
Differential current input with passive 2-conductor transmitter (current loop)

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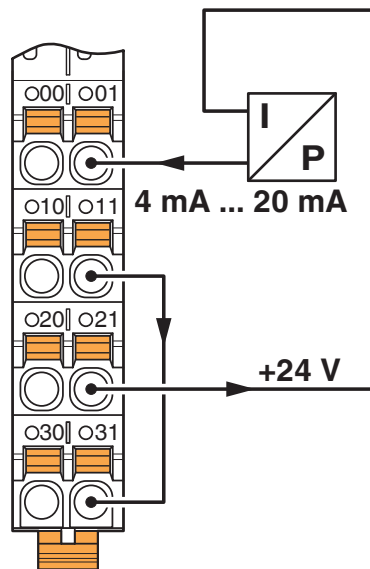
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Block diagram



Internal wiring of the terminal points

Connection diagram



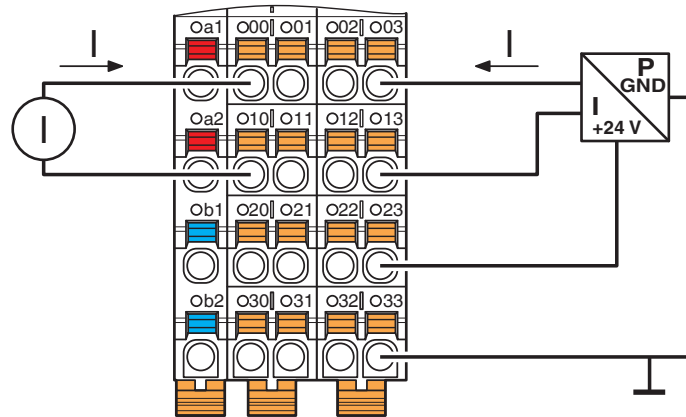
Differential current input with passive 2-conductor transmitter (current loop)

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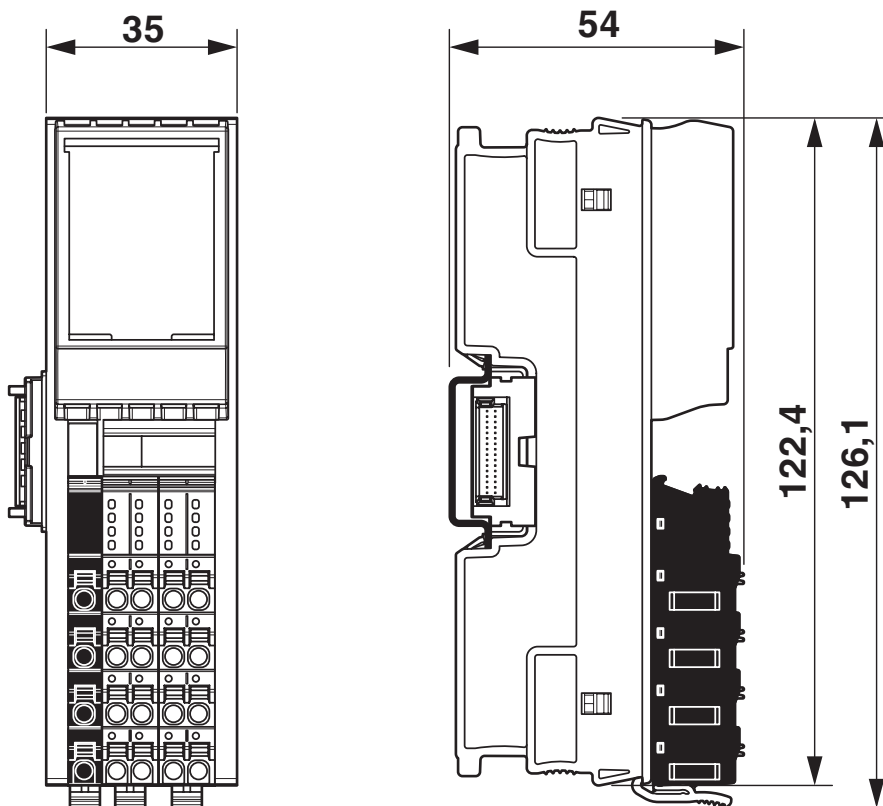
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Connection diagram



Connection for current measurement

Dimensional drawing



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Approvals

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DNV GL

Approval ID: TAA00000DF



LR

Approval ID: LR2001902TA-08



BV

Approval ID: 36433/B4 BV



PRS

Approval ID: TE/1020/880590/21



UL Listed

Approval ID: FILE E 238705



cUL Listed

Approval ID: FILE E 238705

BSH

Approval ID: 840



RINA

Approval ID: ELE008423XG

ABS

Approval ID: 23-2449604-PDA



EAC

Approval ID: TR_TS_D_01831-19

UAE-RoHS

Approval ID: 23-02-63242

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Classifications

ECLASS

ECLASS-11.0	27242601
ECLASS-12.0	27242601
ECLASS-13.0	27242601

ETIM

ETIM 9.0	EC001596
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UNSPSC

UNSPSC 21.0	32151600
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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	49653ccf-3cd3-40a4-aef6-c62d1e5617d4

EF3.0 Climate Change

CO2e kg	10.04 kg CO2e
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Accessories

AXL F BS H - Bus connector

2700992

<https://www.phoenixcontact.com/gb/products/2700992>

Axioline F bus base module for housing type H

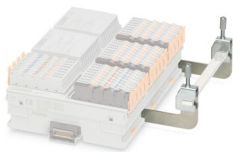


AXL SHIELD SET - Shield connection

2700518

<https://www.phoenixcontact.com/gb/products/2700518>

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



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ZB 20,3 AXL UNPRINTED - Zack marker strip

0829579

<https://www.phoenixcontact.com/gb/products/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

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

0829580

<https://www.phoenixcontact.com/gb/products/0829580>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 10.15 mm, lettering field size: 4 x 10, 15 x 5 mm, 1 x 5.8 x 5 mm, Number of individual labels: 50

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EMT (35X28)R - Insert label

0801602

<https://www.phoenixcontact.com/gb/products/0801602>



Insert label, for marking the Axioline F series from Phoenix Contact, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMaster 300/600, THERMOMARK X1.2, mounting type: insert, lettering field size: 35 x 28 mm, Number of individual labels: 500

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PHOENIX CONTACT Ltd

Halesfield 13, Telford

Shropshire, TF7 4PG

01952 681700

info@phoenixcontact.co.uk

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