

AXL F AI2 AO2 1H - Analog module



2702072

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Axioline F, Analog I/O module, Analog inputs: 2, 0 V ... 5 V, -5 V ... 5 V, 0 V ... 10 V, -10 V ... 10 V, 0 mA ... 20 mA, 4 mA ... 20 mA, -20 mA ... 20 mA, connection technology: 2-conductor, Analog outputs: 2, 0 V ... 5 V, -5 V ... 5 V, 0 V ... 10 V, -10 V ... 10 V, 0 mA ... 20 mA, 4 mA ... 20 mA, -20 mA ... 20 mA, connection technology: 2-conductor, transmission speed in the local bus: 100 Mbps, degree of protection: IP20, including bus base module and Axioline F connectors; The product is being prepared for compliance with the Cyber Resilience Act (CRA).

Product description

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

Your advantages

- 2 analog differential input channels
- Connection of sensors in 2-conductor technology
- Current ranges: 0 mA ... 20 mA, 4 mA ... 20 mA, ± 20 mA
- Voltage ranges: 0 V ... 10 V, ± 10 V, 0 V ... 5 V, ± 5 V
- 2 analog outputs
- Connection of actuators in 2-conductor technology
- Current ranges: 0 mA ... 20 mA, 4 mA ... 20 mA, ± 20 mA
- Voltage ranges: 0 V ... 10 V, ± 10 V, 0 V ... 5 V, ± 5 V
- Process data update < 150 μ s
- Device rating plate stored



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Commercial data

Item number	2702072
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR02
Product key	DRI245
GTIN	4046356933124
Weight per piece (including packing)	196 g
Weight per piece (excluding packing)	195.8 g
Customs tariff number	85389091
Country of origin	DE

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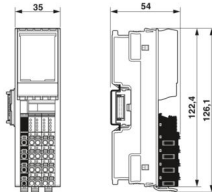
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Technical data

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).

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 (no temperature derating)

Material specifications

Color (Housing)	gray (RAL 7042)
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Interfaces

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

System properties

Programming data	
Input address area	4 Byte
Output address area	4 Byte
Fieldbus data telegram (PROFIBUS)	
Required parameter data	11 Byte
Required configuration data	7 Byte

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Input data

Analog:

Input name	Analog inputs
Description of the input	Differential inputs, voltage or current can be chosen separately
Number of inputs	2
Connection method	Push-in connection
Connection technology	2-conductor
Note regarding the connection technology	shielded, twisted pair
Process data update	150 µs
A/D conversion time	2 µs
A/D converter resolution	16 bit
Common mode voltage range signal - ground	-50 V DC ... 50 V DC
Limit frequency (3 dB)	30 Hz 12 kHz
Wire-break behavior	goes to 0 V, 0 mA; open-circuit detection for 4 mA ... 20 mA
Protective circuit	Transient protection of inputs; Suppressor diode Overload protection of the current inputs; No; ± 5.2 V DC, maximum, $I_{\max} = 50$ mA Overload protection of the voltage inputs; ± 30 V DC, maximum
Measured value representation	16 bits (15 bits + sign bit)
Data formats	IB IL, S7-compatible, standardized representation
Current input signal	0 mA ... 20 mA 4 mA ... 20 mA -20 mA ... 20 mA
Input resistance current input	104 Ω (typical)
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 k Ω (typical)
Tolerance, absolute (V)	see tables for tolerance values
Tolerance, relative	typ. 0.1 % (of upper range value for active mean value generation and 30 Hz filter) see tables for tolerance values
Input filter	30 Hz, 12 kHz and mean value generation (can be parameterized)

Output data

Analog:

Output name	Analog outputs
Connection method	Push-in connection
Connection technology	2-conductor
Note regarding the connection technology	shielded, twisted pair

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Number of outputs	2
D/A converter resolution	16 bit
Protective circuit	Short-circuit and overload protection; electronic Transient protection; Suppressor diode
Data formats	IB IL, S7-compatible, standardized representation
Representation of output values	16 bits (15 bits + sign)
Process data update	150 µs
Current output signal	0 mA ... 20 mA 4 mA ... 20 mA -20 mA ... 20 mA
Load/output load current output	≤ 500 Ω
Voltage output signal	0 V ... 5 V -5 V ... 5 V 0 V ... 10 V -10 V ... 10 V
Load/output load voltage output	≥ 2 kΩ
Tolerance, absolute (V)	see tables for tolerance values
Tolerance, relative	typ. 0.1 % (of output range final value) see tables for tolerance values

Product properties

Product type	I/O component
Product family	Axioline F
Type	block modular
Mounting position	any (no temperature derating)
Scope of supply	including bus base module and Axioline F connectors
Special properties	The product is being prepared for compliance with the Cyber Resilience Act (CRA)

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	2.75 W
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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

Potentials: Supply for analog modules (U_A)

Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current draw	max. 80 mA (2 current channels, 24 mA output, 500 Ω load) typ. 40 mA

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	max. 60 mA (2 voltage channels, 10 V output, 2 kΩ load)
Current consumption	min. 30 mA (internal current consumption, no load, 0 V output)
Protective circuit	Surge protection; electronic (35 V, 0.5 s)
	Reverse polarity protection; Polarity protection diode
	Transient protection; Suppressor diode

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 and outputs	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 and outputs	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 and outputs/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 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
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

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Continuous shock in accordance with EN 60068-2-27/IEC 60068-2-27	10g
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Standards and regulations

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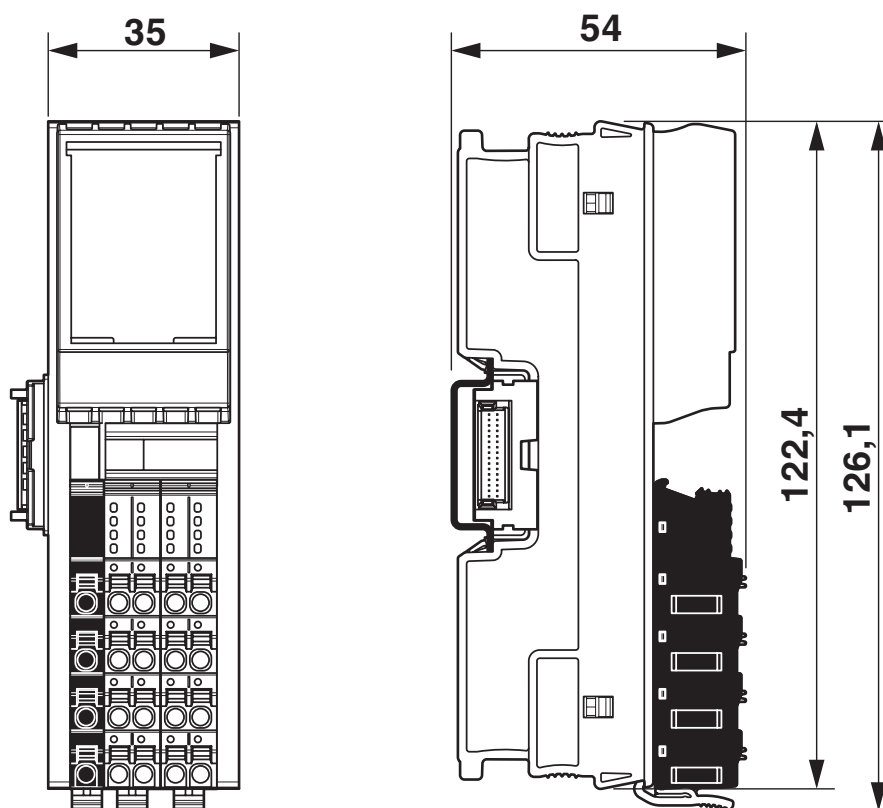
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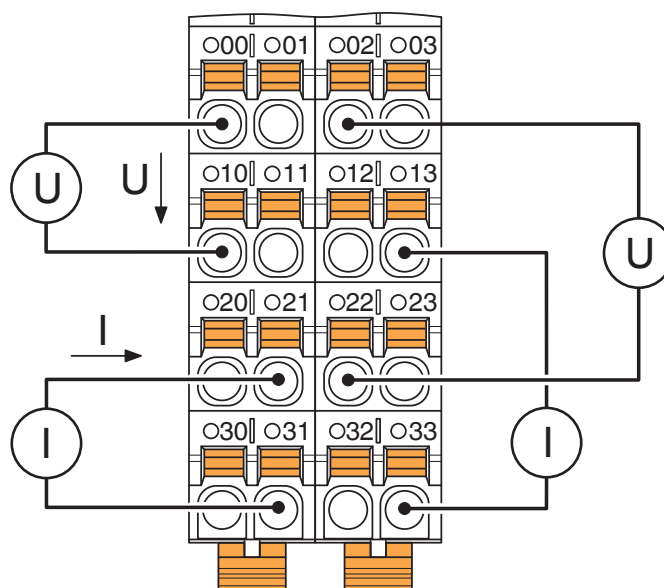
Drawings

Dimensional drawing



Dimensional drawing

Connection diagram



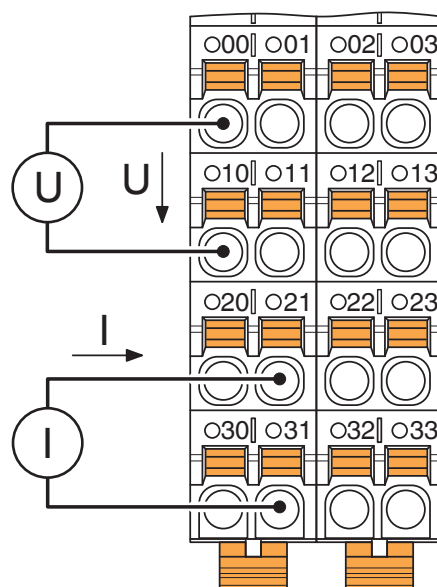
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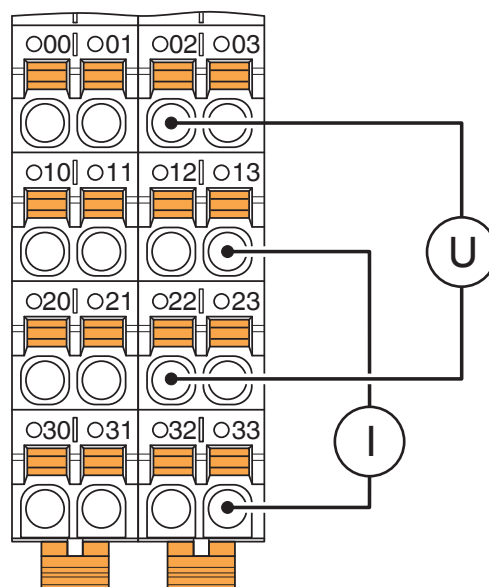


Connection diagram



Connection for voltage and current measurement

Connection diagram



Connection for voltage and current output

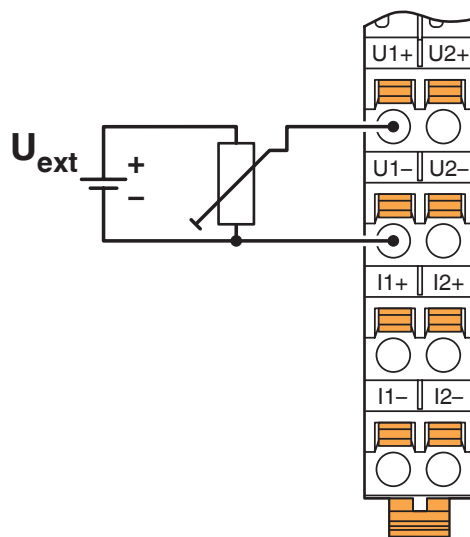
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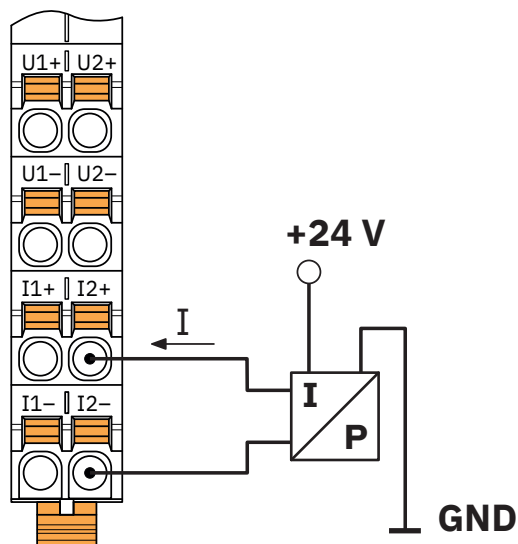


Connection diagram



Connection of potentiometric position sensors

Connection diagram



Active pressure sensor at a differential current input

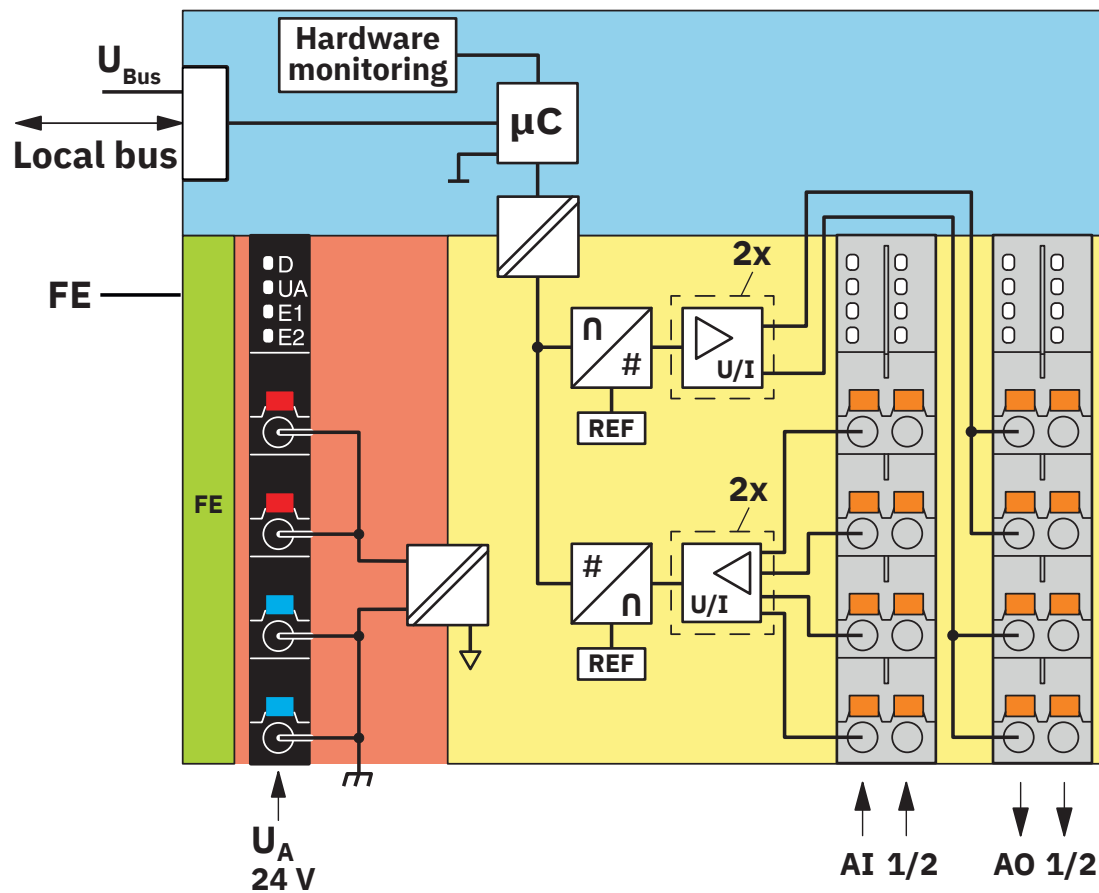
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Block diagram



Internal wiring of the terminal points

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2702072>



DNV GL

Approval ID: TAA00000DF



LR

Approval ID: LR2480202TA-02

BSH

Approval ID: 840



RINA

Approval ID: ELE008423XG001

ABS

Approval ID: 23-2449604-PDA



cULus Listed

Approval ID: E238705

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Classifications

ECLASS

ECLASS-13.0	27242601
ECLASS-15.0	27242601

ETIM

ETIM 10.0	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	bb9d699e-7c8f-40f8-83cc-8b60bd21d354

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