

# AXL F AO4 XC 1H - Analog module

2702153

<https://www.phoenixcontact.com/us/products/2702153>

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The figure shows the standard item

Axioline F, Analog output module, Analog outputs: 4, 0 V ... 5 V, -5 V ... 5 V, 0 V ... 10 V, -10 V ... 10 V, 0 mA ... 20 mA, 4 mA ... 20 mA, connection technology: 2-conductor, transmission speed in the local bus: 100 Mbps, 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 output analog voltage and current signals.

## Your advantages

- 4 analog output channels for the connection of either voltage or current signals
- Bipolar voltage outputs, unipolar current outputs
- Connection of actuators in 2-conductor 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
- Short-circuit-proof outputs
- No derating in all ranges
- Short signal rise times
- Driving of high loads
- 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

## Commercial data

Item number	2702153
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR02
Product key	DR1242
GTIN	4046356991315
Weight per piece (including packing)	228 g
Weight per piece (excluding packing)	199 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).

### Notes

#### Note on application

Note on application	Only for industrial use
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### Material specifications

Color (Housing)	gray (RAL 7042)
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### Interfaces

#### Axioline F local bus

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

### System properties

#### Programming data (LocalbusSlave)

Input address area	8 Byte
Output address area	8 Byte

#### Fieldbus data telegram

Required parameter data	14 Byte
Required configuration data	7 Byte

### Output data

#### Analog:

Output name	Analog outputs
Connection method	Push-in connection
Connection technology	2-conductor

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Note regarding the connection technology	shielded, twisted pair
Number of outputs	4
D/A converter resolution	16 bit
Protective circuit	Short-circuit and overload protection; electronic Transient protection; Suppressor diode
Data formats	IB IL, S7-compatible
Representation of output values	16 bits (15 bits + sign)
Process data update	140 $\mu$ s
Current output signal	0 mA ... 20 mA 4 mA ... 20 mA
Load/output load current output	$\leq 500 \Omega$
Voltage output signal	0 V ... 5 V -5 V ... 5 V 0 V ... 10 V -10 V ... 10 V
Load/output load voltage output	$\geq 1 \text{ k}\Omega$

## 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	Extreme conditions version

## 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	3.4 W
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### Potentials: Axioline F local bus supply ( $U_{\text{Bus}}$ )

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. 125 mA (4 current channels, 24 mA output, 500 $\Omega$ load) typ. 60 mA (4 voltage channels, 10 V output) max. 85 mA (4 voltage channels, 10 V output) max. 110 mA (4 current channels, 20 mA output, 500 $\Omega$ load) Surge protection; electronic (35 V, 0.5 s)

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Protective circuit	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 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 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 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 <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section, flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

## Environmental and real-life conditions

### 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.)
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
Continuous shock in accordance with EN 60068-2-27/IEC 60068-2-27	10g



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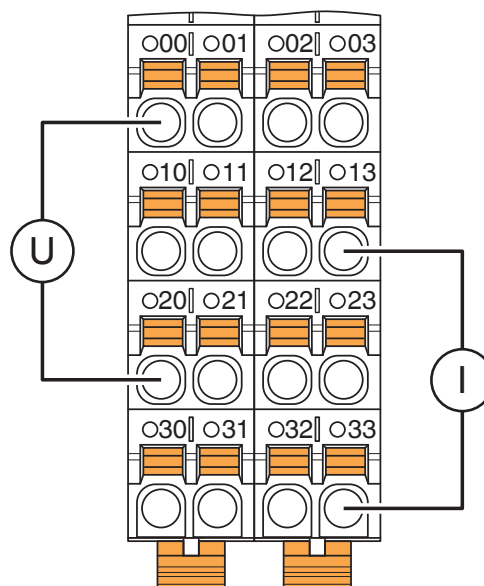
<https://www.phoenixcontact.com/us/products/2702153>

## Drawings

Dimensional drawing



Connection diagram



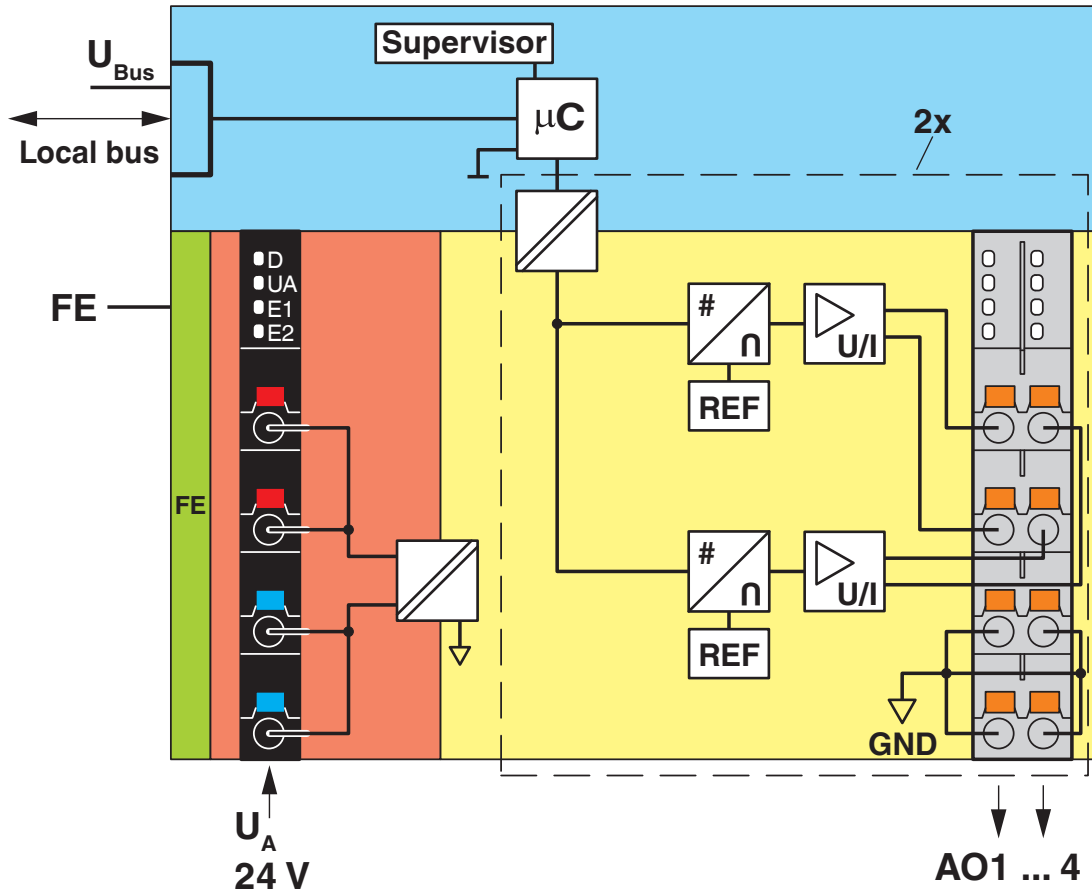
Connection for voltage and current output

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Block diagram



Internal wiring of the terminal points

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## Approvals

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**DNV GL**

Approval ID: TAA00000DF



**LR**

Approval ID: LR2480202TA-02



**PRS**

Approval ID: TE/1020/880590/21

**BSH**

Approval ID: 840



**RINA**

Approval ID: ELE008423XG001



**cULus Listed**

Approval ID: E238705



**IECEx**

Approval ID: IECEx ULD 20.0026X



**ATEX**

Approval ID: UL 20 ATEX 2441X



**cULus Listed**

Approval ID: E366272



**CCC**

Approval ID: 2021122309114456\_CN

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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	17ac71e9-107c-4d5d-9e1f-abe83ea192cf

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