

AXL F AO4 XC 1H - Analog module



2702153

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

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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, ± 10 V, 0 V ... 5 V, ± 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	DRI242
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

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	14 Byte
Required configuration data	7 Byte

Output data

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

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	Transient protection; Suppressor diode
Data formats	IB IL, S7-compatible
Representation of output values	16 bits (15 bits + sign)
Process data update	140 µs
Current output signal	0 mA ... 20 mA 4 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	≥ 1 kΩ

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_{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 Ω 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 Ω load)
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

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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.

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 (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)

Test (noxious gas)

Test standard	ISA-71.04-2013 G3 Harsh Group A
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	IEC 60068-2-60:2015 Method 4
Temperature	25 °C ±1 K
Humidity (relative)	75 % ±3 %
Test duration	21 Days
Volume concentration H ₂ S (Hydrogen sulfide)	50 ppb
Volume concentration NO ₂ (Nitrogen dioxide)	1250 ppb
Volume concentration Cl ₂ (Chlorine)	10 ppb
Volume concentration SO ₂ (Sulfur dioxide)	300 ppb

Standards and regulations

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

ATEX

Identification	Ex II 3 G Ex ec IIC T4 Gc
Certificate	UL 20 ATEX 2441X

UKEX

Identification	II 3 G Ex ec IIC T4 Gc
Certificate	PxCIMA22UKEX2701949X

IECE_x

Identification	Ex ec IIC T4 Gc
Certificate	IECEX ULD 20.0026X

UL, USA/Canada

Identification	cULus
Certificate	E238705

UL Ex, USA / Canada

Identification	Class I, Zone 2, AEx ec IIC T4
	Class I, Division 2, Groups A, B, C, D, T4
	Ex ec IIC T4 Gc X
Certificate	E366272

CCC / China-Ex

Identification	Ex ec IIC T4 Gc
Certificate	

Mounting

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

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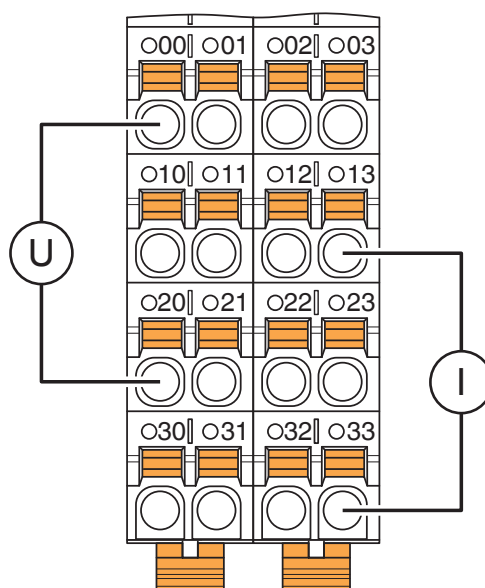


Drawings

Dimensional drawing



Connection diagram



Connection for voltage and current output

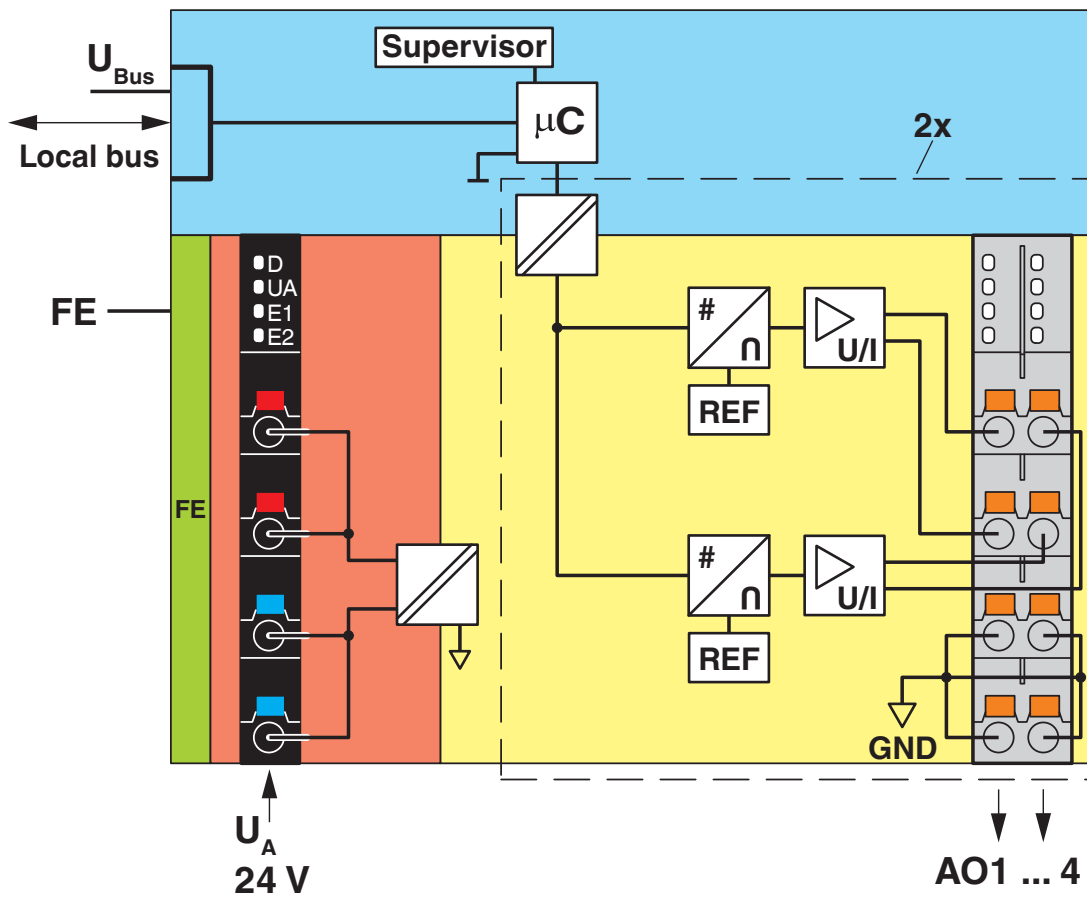
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Block diagram



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

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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com