

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
Catalog page	Page 85 (C-6-2019)
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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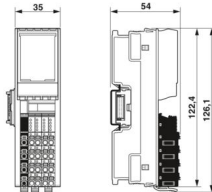
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Technical data

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	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 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

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	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 delivery	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

Potentials

Power consumption	max. 3.75 W (Device, total, full load, $R_L \leq 500 \Omega$, current output $4 \times 24 \text{ mA}$)
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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
Power consumption	max. 0.75 W
	typ. 0.6 W

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, 500Ω 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, 500Ω load)
Power consumption	max. 3 W (Full load, $R_L \leq 500 \Omega$, current output $4 \times 24 \text{ mA}$)
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)

Standards and regulations

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

ATEX

Identification	Ⓢ II 3 G Ex ec IIC T4 Gc
Certificate	UL 20 ATEX 2441X
References to standards	EN IEC 60079-0, EN IEC 60079-7

UKEX

Identification	Ⓜ II 3 G Ex ec IIC T4 Gc
Certificate	PxCIMA22UKEX2701949X
References to standards	EN IEC 60079-0, EN IEC 60079-7

IECE_x

Identification	Ex ec IIC T4 Gc
Certificate	IECEX ULD 20.0026X
References to standards	IEC 60079-0 Ed. 7, IEC 60079-7 Ed. 5.1

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
References to standards	UL 60079-0 Ed. 7 / CSA C22.2 NO. 60079-0 Ed. 4
	UL 60079-7 Ed. 5 / CSA C22.2 NO. 60079-7 Ed. 2

CCC / China-Ex

Identification	Ex ec IIC T4 Gc
Certificate	                    
References to standards	GB/T 3836.1-2021, GB/T 3836.3-2021

Mounting

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

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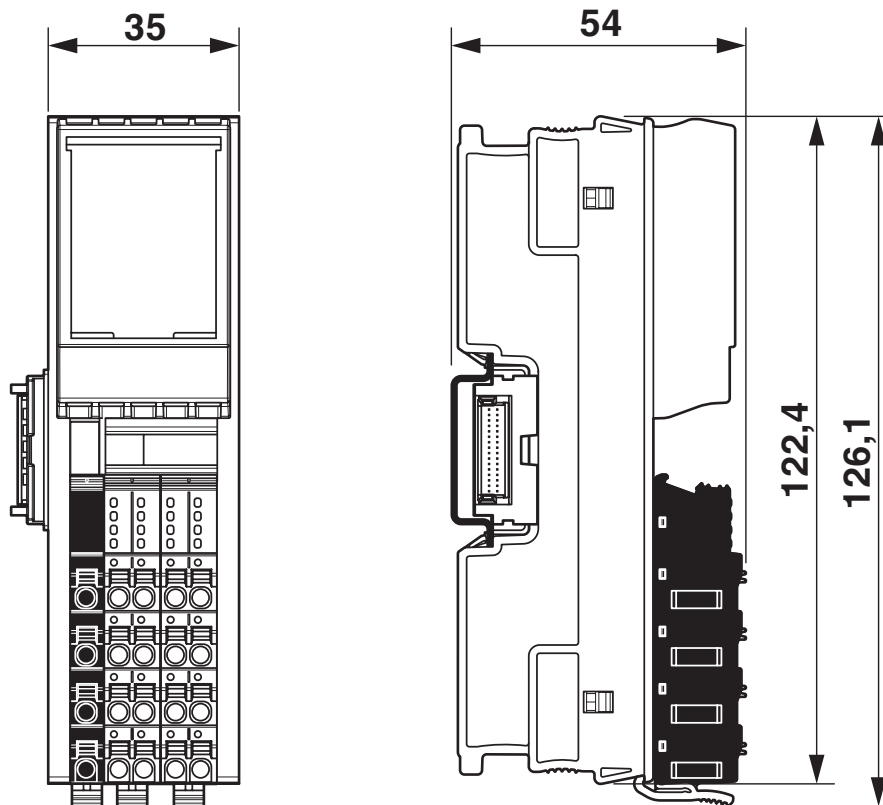
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Drawings

Dimensional drawing



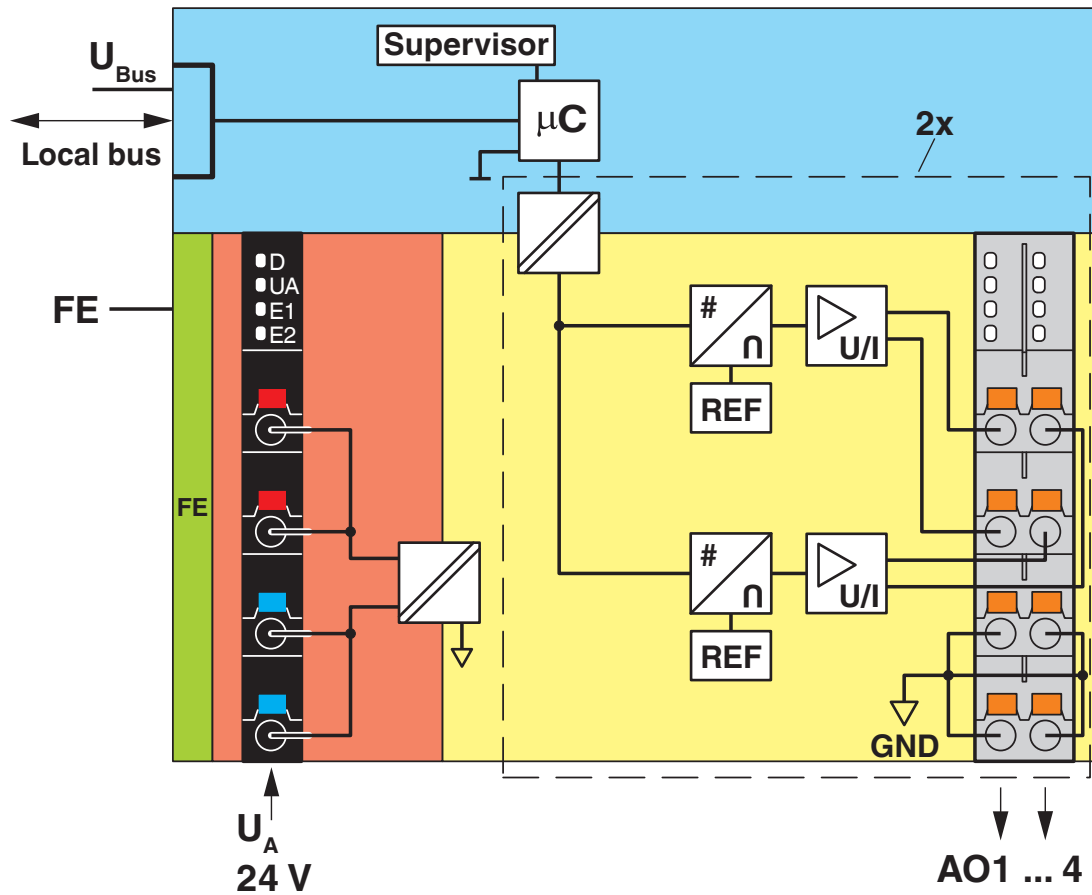
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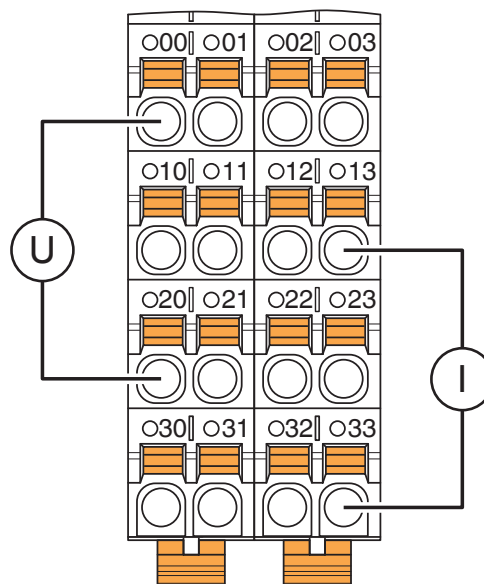


Block diagram



Internal wiring of the terminal points

Connection diagram



Connection for voltage and current output

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2702153>



DNV GL

Approval ID: TAA00000DF



LR

Approval ID: LR2001902TA-08



NK

Approval ID: 14A006



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

UAE-RoHS

Approval ID: 23-02-63243



IECEx

Approval ID: IECEx ULD 20.0026X

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ATEX
Approval ID: UL 20 ATEX 2441X



cULus Listed
Approval ID: E366272



CCC
Approval ID: 2021122309114456_CN

cULus Listed

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

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Accessories

AXL F BS H - Bus connector

2700992

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

Axioline F bus base module for housing type H

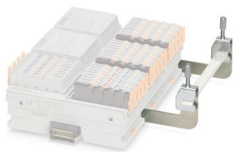


AXL SHIELD SET - Shield connection

2700518

<https://www.phoenixcontact.com/us/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/us/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/us/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

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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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