

# AXL F EX IS AO4 HART XC 1F - Analog module



1087081

<https://www.phoenixcontact.com/us/products/1087081>

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Axioline F, Analog output module, Analog outputs: 4 (HART), 0 mA ... 20 mA, 4 mA ... 20 mA, connection technology: 2-conductor, transmission speed in the local bus: 100 Mbps, Extreme conditions version, HART functionality, intrinsically safe, degree of protection: IP20, including bus base module and Axioline F connectors

## Product description

The module is an Axioline F I/O module for use in the Axioline F modular I/O system. The module is a modular I/O device that can be affixed to the Axioline F local bus, to communicate I/O data up to the Axioline F controller or bus coupler, which forms the head of the station. The module allows the connection of up to four HART devices. The analog output I/O module with HART capabilities manages analog output and HART data to and from the field I/O terminals and makes this information available to the controller / bus coupler through the Axioline F local bus. As an intrinsic safety I/O module, this device allows direct connection from intrinsically safe field I/Os to the terminals of the module.

## Your advantages

- 4 analog output-powered control signals for HART
- Current range: 4 mA ... 20 mA and 0 mA ... 20 mA
- Cyclic access to PV, SV, TV, QV, and Loop Current
- 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)
- Intrinsically safe analog inputs with connection to Zone 1, Zone 0 or Division 1



## Commercial data

Item number	1087081
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR02
Product key	DRI2E7

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GTIN	4055626882901
Weight per piece (including packing)	386.3 g
Weight per piece (excluding packing)	239 g
Customs tariff number	85176200
Country of origin	CN

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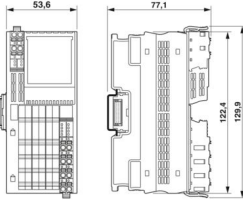


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## Technical data

### Dimensions

Dimensional drawing	
Width	53.6 mm
Height	129.9 mm
Depth	77.1 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
Utilization restriction	
EMC note	EMC: class A product, see manufacturer's declaration in the download area
Utilization restriction	
CCCex note	Use in potentially explosive areas is not permitted in China.

### Material specifications

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

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

### System properties

Programming data (LocalbusSlave)	
Input address area	32 Byte (Firmware 1.00) 40 Byte (Firmware 1.02 or later)
Output address area	8 Byte
Fieldbus data telegram (PROFIBUS)	
Required parameter data	16 Byte

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Required configuration data	7 Byte
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## 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 (HART)
D/A converter resolution	12 bit
Protective circuit	Short-circuit and overload protection; electronic
Data formats	Inline, S7-compatible, standard formatting
Representation of output values	16 bits (15 bits + sign)
Process data update	1.9 ms (Analog output latency) 400 ms (HART latency per channel)
Current output signal	0 mA ... 20 mA 4 mA ... 20 mA
Load/output load current output	≤ 620 Ω (at 20 mA) ≤ 470 Ω (at 23.5157 mA)

## 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 HART functionality intrinsically safe

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	1.98 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. 60 mA typ. 40 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)

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Current draw	max. 150 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

Test voltage: 5 V supply of the local bus ( $U_{BUS}$ ) / 24 V supply (I/Os)	500 V AC, 60 Hz, 1 min
Test voltage: 5 V supply of the local bus ( $U_{BUS}$ ) / functional ground	500 V AC, 60 Hz, 1 min
Test voltage: 5 V supply of the local bus ( $U_{BUS}$ ) / analog outputs	1500 V AC, 60 Hz, 1 min
Test voltage: 24 V supply (I/O) / functional ground	500 V AC, 60 Hz, 1 min
Test voltage: 24 V supply (I/O) / analog outputs	1500 V AC, 60 Hz, 1 min
Test voltage: Analog outputs/functional ground	500 V AC, 60 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)
	-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

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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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## Approvals

### ATEX

Identification	II 3(1) G Ex ec [ia Ga] IIC T4 Gc II (1) D [Ex ia Da] IIIC
Certificate	DEMKO 20 ATEX 2370X

### IECEX

Identification	Ex ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC
Certificate	IECEX UL 20.0044X

### UKCA Ex (UKEX)

Identification	II 3(1) G Ex ec [ia Ga] IIC T4 Gc II (1) D [Ex ia Da] IIIC
Certificate	UL22UKEX2508X

### UL, USA/Canada

Identification	cULus
Certificate	E238705

### UL Ex, USA / Canada

Identification	Class I, Division 2, Groups A, B, C, D, T4
	Intrinsically safe connections to: Class I, Groups A, B, C, D; Class II, Groups E, F, G; Class III; [Ex ia] Haz loc
	Class I, Zone 2, AEx ec [ia Ga] IIC T4 Gc
	[AEx ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
Certificate	E196811

### CCC / China-Ex

Identification	Ex ec [ia Ga] IIC T4 Gc
	[Ex ia Da] IIIC

### Ex data

UL, USA / Canada	Ind. Cont. Eq. (E238705) also Listed Ind. Cont. Eq. for haz. loc. E196811 Install in: Class I, Div. 2, Groups A, B, C, D T4 Intrinsically safe outputs for: Class I, Groups A, B, C, D; Class II, Groups E, F, G; Class III; [Ex ia] Haz loc Class I, Zone 2, AEx ec [ia Ga] IIC T4 Gc [AEx ia Da] IIIC Ex ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC
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## Mounting

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

## Ex data

### Safety data

Max. output voltage $U_o$	24.8 V
Max. output current $I_o$	86.7 mA
Max. output power $P_o$	538 mW
Safety-related maximum voltage $U_m$	250 V
A, B / IIC: Max. external inductivity $L_o$ / Max. external capacitance $C_o$	4.1 mH / 0.112 $\mu$ F
C/IIB, IIIC: Max. external inductivity $L_o$ / Max. external capacitance $C_o$	18.29 mH / 0.859 $\mu$ F
D/IIA, E, F, G, Class III: Max. external inductivity $L_o$ / Max. external capacitance $C_o$	37.21 mH / 3.049 $\mu$ F

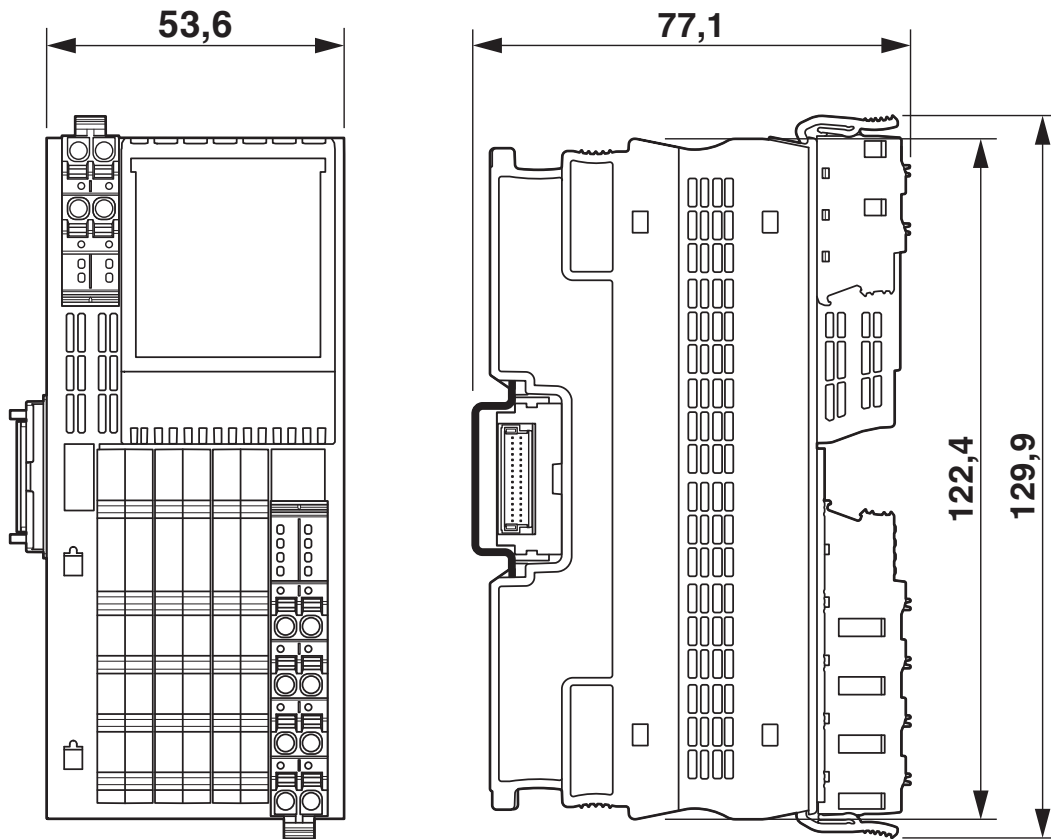
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## Drawings

Dimensional drawing



Dimensional drawing

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1087081>



**cULus Listed**

Approval ID: E238705



**IECEX**

Approval ID: IECEX UL 20.0044X



**cUL Listed**

Approval ID: FILE E196811



**UL Listed**

Approval ID: FILE E196811



**ATEX**

Approval ID: DEMKO 20 ATEX 2370X



**CCC**

Approval ID: 2021122316114727



**UKCA-EX**

Approval ID: UL22UKEX2508X

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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-25
	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)
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