

## I/O module - AXL F DI16/4 XC 2F - 2701224

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Axioline F XC, Digital input module, Digital inputs: 16, 24 V DC, connection method: 4-conductor, Extreme conditions version, transmission speed in the local bus: 100 Mbps, degree of protection: IP20, including bus base module and Axioline F connectors

The figure shows the standard item

### Product Description

The module is designed for use within an Axioline F station.

It is used to acquire digital signals.

You can adjust the filter times of the inputs to increase noise immunity.

Filter times of 100  $\mu$ s enable you to implement a counter function with a maximum input frequency of 5 kHz in the application.

### Your advantages

- ✓ 16 digital inputs according to EN 61131-2 type 1 and type 3
- ✓ 24 V DC, 2.4 mA
- ✓ Connection of sensors in 2-, 3-, and 4-conductor technology
- ✓ Filter times can be adjusted in two increments: < 100  $\mu$ s or 500  $\mu$ s
- ✓ Maximum input frequency: 5 kHz
- ✓ Maximum permissible load current per sensor: 2 A
- ✓ Maximum permissible load current of the module: 4 A (2 A for each group of a max. 8 sensors)
- ✓ Minimum update time of < 100  $\mu$ s
- ✓ 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



### Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4046356730877

## I/O module - AXL F DI16/4 XC 2F - 2701224

Weight per Piece (excluding packing)	300.000 g
Custom tariff number	85389091
Country of origin	Germany

### Technical data

#### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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#### Dimensions

Caption	Dimensions
Width	53.6 mm
Height	129.9 mm
Depth	54 mm
Note on dimensions	The depth is valid when a TH 35-7,5 DIN rail is used (according to EN 60715).

#### 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.)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	5 % ... 95 % (non-condensing)
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)
Degree of protection	IP20

#### Connection data

Designation	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 solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	1.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	1.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

#### General

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## Technical data

### General

Mounting type	DIN rail
Color	traffic grey A RAL 7042
Net weight	278 g
Note on weight specifications	with connectors and bus base module
Degree of pollution	2 (IEC 60664-1, EN 60664-1)
Mounting position	any (no temperature derating)

### Interfaces

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

### Power supply for module electronics

Designation	Sensor supply ( $U_S$ )
Supply voltage	24 V DC (from $U_I$ )
Protective circuit	Short-circuit/overload protection electronic

### Axioline potentials

Designation	Axioline F local bus supply ( $U_{Bus}$ )
Supply voltage	5 V DC (via bus base module)
Current consumption	max. 120 mA (HW 00)
	max. 60 mA (as of HW 01)
Power consumption	max. 600 mW (HW 00)
	max. 300 mW (as of HW 01)
Designation	Supply for digital input modules ( $U_I$ )
Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current consumption	max. 4 A (Sensor supply $U_S$ )
Power consumption	max. 120 W (of which 800 mW with internal losses)
Protective circuit	Surge protection electronic (35 V, 0.5 s)
	Reverse polarity protection parallel diode; with external 5 A fuse (only for commissioning)
Protection	max. 8 A (polarity reversal protection up to 5 A)

### Digital inputs

Input name	Digital inputs
Description of the input	EN 61131-2 types 1 and 3
Connection method	Push-in connection
Connection technology	4-conductor

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## Technical data

### Digital inputs

Number of inputs	16
Protective circuit	Polarity reversal protection of the inputs electronic
Nominal input voltage $U_{IN}$	24 V DC
Nominal input current at $U_{IN}$	2.4 mA
Input filter time	500 $\mu$ s (Default)
	< 100 $\mu$ s
Input voltage range "0" signal	-3 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 30 V DC

### Electrical isolation

Test section	5 V supply of the local bus ( $U_{BUS}$ ) / 24 V supply (I/Os) 500 V AC 50 Hz 1 min.
	5 V supply of the local bus ( $U_{BUS}$ ) / functional ground 500 V AC 50 Hz 1 min.
	24 V supply (I/O) / functional ground 500 V AC 50 Hz 1 min.

### Standards and Regulations

Immunity to ESD	Noise immunity test in accordance with EN 61000-6-2 Electrostatic discharge (ESD) EN 61000-4-2/IEC 61000-4-2 Criterion B, 6 kV contact discharge, 8 kV air discharge
Immunity to EF	Noise immunity test in accordance with EN 61000-6-2 Electromagnetic fields EN 61000-4-3/IEC 61000-4-3 Criterion A, Field intensity: 10 V/m
Immunity to burst	Noise immunity test in accordance with EN 61000-6-2 Fast transients (burst) EN 61000-4-4/IEC 61000-4-4 Criterion B, 2 kV
Immunity to surge	Noise immunity test in accordance with EN 61000-6-2 Transient overvoltage (surge) EN 61000-4-5/IEC 61000-4-5 Criterion B, DC supply lines: $\pm 0.5$ kV/ $\pm 0.5$ kV (symmetrical/asymmetrical)
Immunity to conducted interference	Noise immunity test in accordance with EN 61000-6-2 Conducted interference EN 61000-4-6/IEC 61000-4-6 Criterion A, Test voltage 10 V
Interference emission	Noise emission test according to EN 61000-6-3 Class B
Mechanical tests	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6 5g
	Shock in acc. with EN 60068-2-27/IEC 60068-2-27 30g
	Continuous shock according to EN 60068-2-27/IEC 60068-2-27 10g
ATEX	# II 3 G Ex ec IIC T4 Gc
IECEX	Ex ec IIC T4 Gc
UL, USA/Canada	cULus
	Class I, Zone 2, AEx ec IIC T4, Ex ec IIC T4 Gc X
	Class I, Div. 2, Groups A, B, C, D T4
Protection class	III (IEC 61140, EN 61140, VDE 0140-1)
Overvoltage category	II (IEC 60664-1, EN 60664-1)

### Environmental Product Compliance

# I/O module - AXL F DI16/4 XC 2F - 2701224

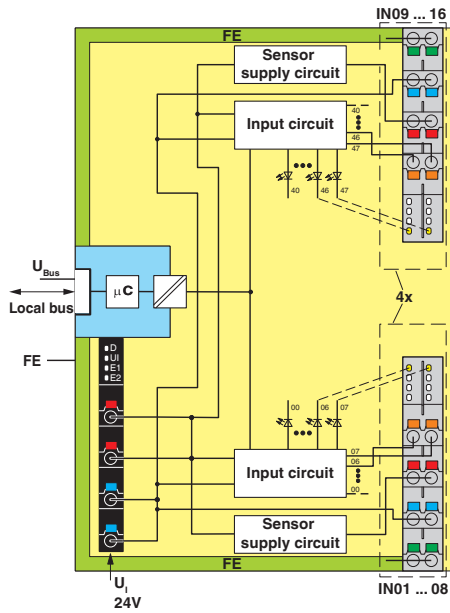
## Technical data

### Environmental Product Compliance

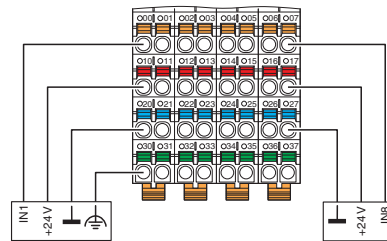
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

Block diagram



Connection diagram

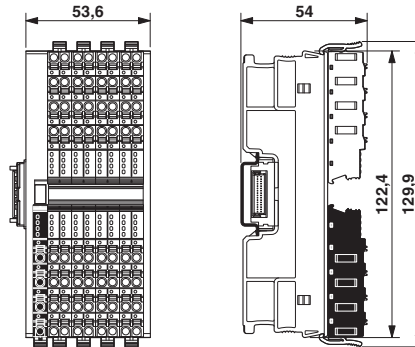


Connection example

Internal wiring of the terminal points

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Dimensional drawing



Dimensions

## Classifications

### eCl@ss

eCl@ss 10.0.1	27242604
eCl@ss 11.0	27242604
eCl@ss 4.0	27240400
eCl@ss 4.1	27240400
eCl@ss 5.0	27242200
eCl@ss 5.1	27242600
eCl@ss 6.0	27242600
eCl@ss 7.0	27242604
eCl@ss 9.0	27242604

### ETIM

ETIM 2.0	EC001433
ETIM 3.0	EC001599
ETIM 4.0	EC001599
ETIM 6.0	EC001599
ETIM 7.0	EC001599

### UNSPSC

UNSPSC 6.01	43172015
UNSPSC 7.0901	43201404
UNSPSC 11	39121311
UNSPSC 12.01	39121311
UNSPSC 13.2	32151602
UNSPSC 18.0	32151602

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## Classifications

### UNSPSC

UNSPSC 19.0	32151602
UNSPSC 20.0	32151602
UNSPSC 21.0	32151602

## Approvals

### Approvals






#### Approvals

DNV GL / PRS / BV / LR / KR / NK / ABS / BSH / RINA / UL Listed / cUL Listed / cULus Listed

#### Ex Approvals

ATEX / cULus Listed / IECEX

### Approval details

DNV GL		<a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>	TAA00000DF
PRS		<a href="http://www.prs.pl/">http://www.prs.pl/</a>	TE/1117/880590/20
BV		<a href="http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials">http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials</a>	36433/B2 BV
LR		<a href="http://www.lr.org/en">http://www.lr.org/en</a>	LR2001902TA
KR		<a href="http://www.krs.co.kr/eng/main/main.aspx">http://www.krs.co.kr/eng/main/main.aspx</a>	HMB17372-AC002

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## Approvals

NK		<a href="http://www.classnk.or.jp/hp/en/">http://www.classnk.or.jp/hp/en/</a>	14A006
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ABS		<a href="http://www.eagle.org/eagleExternalPortalWEB/">http://www.eagle.org/eagleExternalPortalWEB/</a>	20-2059154-PDA
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BSH			840
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RINA		<a href="http://www.rina.org/en">http://www.rina.org/en</a>	ELE030120XG
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UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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cULus Listed			
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## Accessories

### Accessories

DIN rail connector

Bus connector - AXL F BS F - 2688129



Axioline F bus base module for housing type F

## Terminal marking

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### Accessories

Zack marker strip - ZB 20,3 AXL UNPRINTED - 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

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Zack Marker strip, flat - ZBF 10/5,8 AXL UNPRINTED - 0829580



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snap into flat marker groove, for terminal block width: 10.15 mm, lettering field size: 4 of 10.15 x 5 mm and 1 of 5.8 x 5 mm, Number of individual labels: 50