

# AXL F DI8/1 DO8/1 1H - Digital module



2701916

<https://www.phoenixcontact.com/gb/products/2701916>

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Axioline F, Digital I/O module, Digital inputs: 8, 24 V DC, connection technology: 1-conductor, Digital outputs: 8, 24 V DC, 500 mA, connection technology: 1-conductor, transmission speed in the local bus: 100 Mbps, 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 acquire and output 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. The outputs are protected against short circuit and overload.

## Your advantages

- 8 digital inputs in accordance with EN 61131-2 type 1 and type 3
- 24 V DC, 2.4 mA
- Connection of sensors in 1-conductor technology
- Filter times can be adjusted in three increments: < 100  $\mu$ s, 1000  $\mu$ s or 3000  $\mu$ s
- Maximum input frequency: 5 kHz
- 8 digital outputs
- 24 V DC, 500 mA
- Connection of actuators in 1-conductor technology
- Minimum update time of < 100  $\mu$ s
- Device rating plate stored

## Commercial data

Item number	2701916
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DRI233
Product key	DRI233
Catalog page	Page 80 (C-6-2019)
GTIN	4046356872935
Weight per piece (including packing)	183.733 g
Weight per piece (excluding packing)	133 g
Customs tariff number	85389091
Country of origin	DE

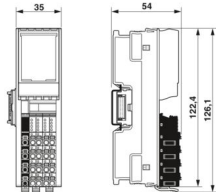
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## Technical data

### 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

#### Utilization restriction

EMC note	EMC: class A product, see manufacturer's declaration in the download area
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### Interfaces

#### Axioline F local bus

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

### System properties

#### Module

ID code (hex)	none
Input address area	1 Byte
Output address area	1 Byte
Required parameter data	3 Byte
Required configuration data	7 Byte

### Input data

#### Digital:

Input name	Digital inputs
Description of the input	EN 61131-2 types 1 and 3
Number of inputs	8
Connection method	Push-in connection
Connection technology	1-conductor

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Input voltage range "0" signal	-3 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 30 V DC
Nominal input voltage $U_{IN}$	24 V DC
Nominal input current at $U_{IN}$	2.4 mA
Input filter time	3000 $\mu$ s (Default)
	1000 $\mu$ s
	< 100 $\mu$ s
Protective circuit	Polarity reversal protection of the inputs; parallel diode (30 V, 5 s)

## Output data

Digital:

Output name	Digital outputs
Connection method	Push-in connection
Connection technology	1-conductor
Number of outputs	8
Protective circuit	Short-circuit protection, overload protection of the outputs; electronic
Output voltage	24 V DC
Limitation of the voltage induced on circuit interruption	-25.8 V ... -15 V
Maximum output current per module	4 A (provide external protection)
Nominal output voltage	24 V DC
Load min.	10 k $\Omega$
Output voltage when switched off	max. 1 V
Output current when switched off	max. 300 $\mu$ A
Nominal load, inductive	max. 12 VA (1.2 H, 48 $\Omega$ , with nominal voltage)
Nominal load, lamp	max. 12 W (at nominal voltage)
Nominal load, ohmic	max. 12 W (48 $\Omega$ , with nominal voltage)
Switching frequency	max. 10000 per second (with at least 50 mA load current)
	max. 1 per second (with inductive load)
	max. 16 per second (with nominal lamp load)
Reverse voltage resistance to short pulses	limited protection up to 0.5 A for 1 s
Behavior with overload	Shutdown with automatic restart
Behavior with inductive overload	Output can be destroyed
Signal delay	max. 100 $\mu$ s (when switched on)
	max. 100 $\mu$ s (when switched off, with at least 50 mA load current)
Overcurrent shut-down	as of 0.7 A
Output current with ground connection interrupt when switched off	< 1 mA

## Product properties

Product type	I/O component
Product family	Axioline F
Type	block modular
Mounting position	any (no temperature derating)

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Scope of delivery	including bus base module and Axioline F connectors
Insulation characteristics	
Overvoltage category	II (IEC 60664-1, EN 60664-1)
Pollution degree	2 (IEC 60664-1, EN 60664-1)

## Electrical properties

Potentials: Axioline F local bus supply ( $U_{BUS}$ )

Supply voltage	5 V DC (via bus base module)
Current draw	max. 120 mA (up to HW 01)
	max. 60 mA (from HW 02)
Power consumption	max. 600 mW (up to HW 01)
	max. 300 mW (from HW 02)

Potentials: Supply for digital input and output modules ( $U_{IO}$ )

Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current draw	max. 4 A (provide external protection)
Power consumption	max. 96 W (of which 1.35 W 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)

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 ( $U_{BUS}$ ) / functional ground	500 V AC, 50 Hz, 1 min.
Test voltage: 24 V supply (I/O) / 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 <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

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.

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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
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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## Mounting

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

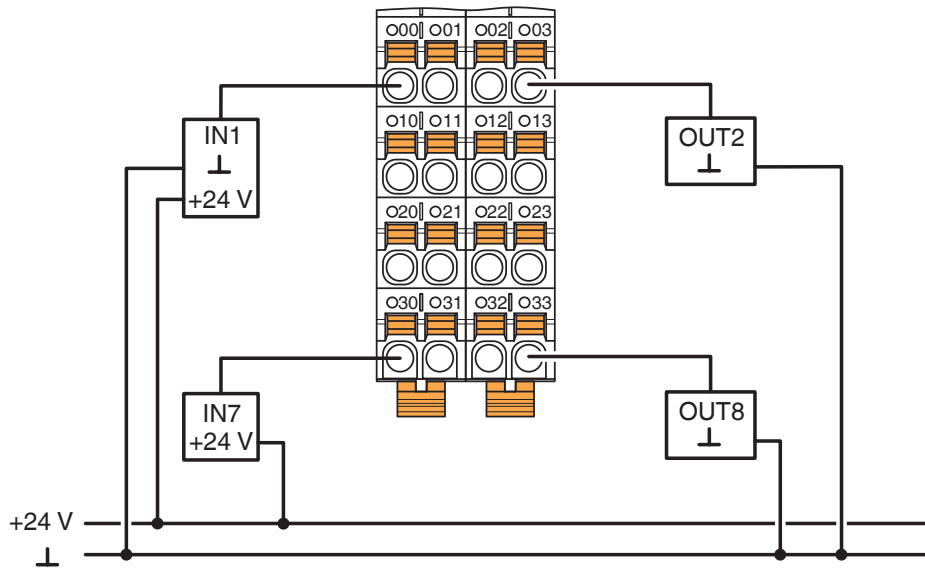
# AXL F DI8/1 DO8/1 1H - Digital module

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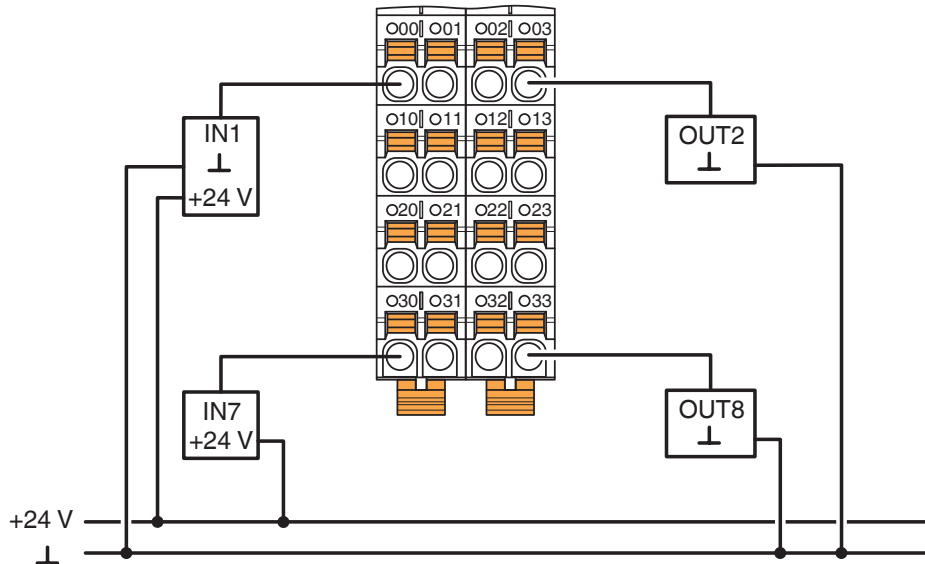
## Drawings

Connection diagram



Connection in 1-conductor technology

Connection diagram



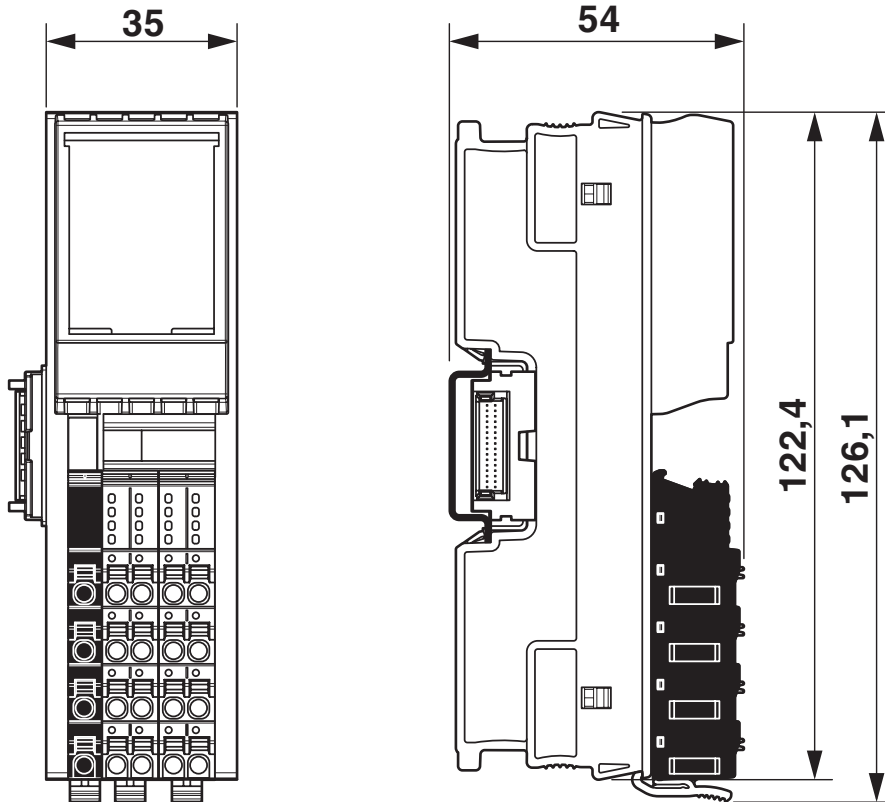
Typical connection of sensors and actuators when using external busbars

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Dimensional drawing

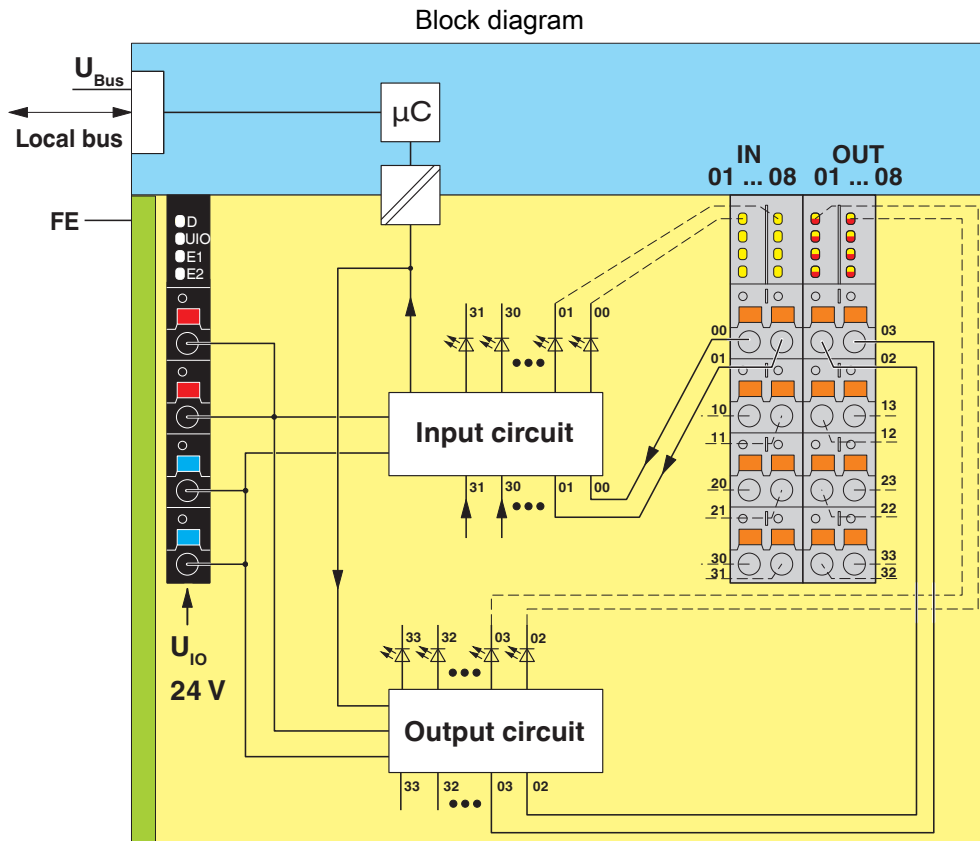


Dimensions

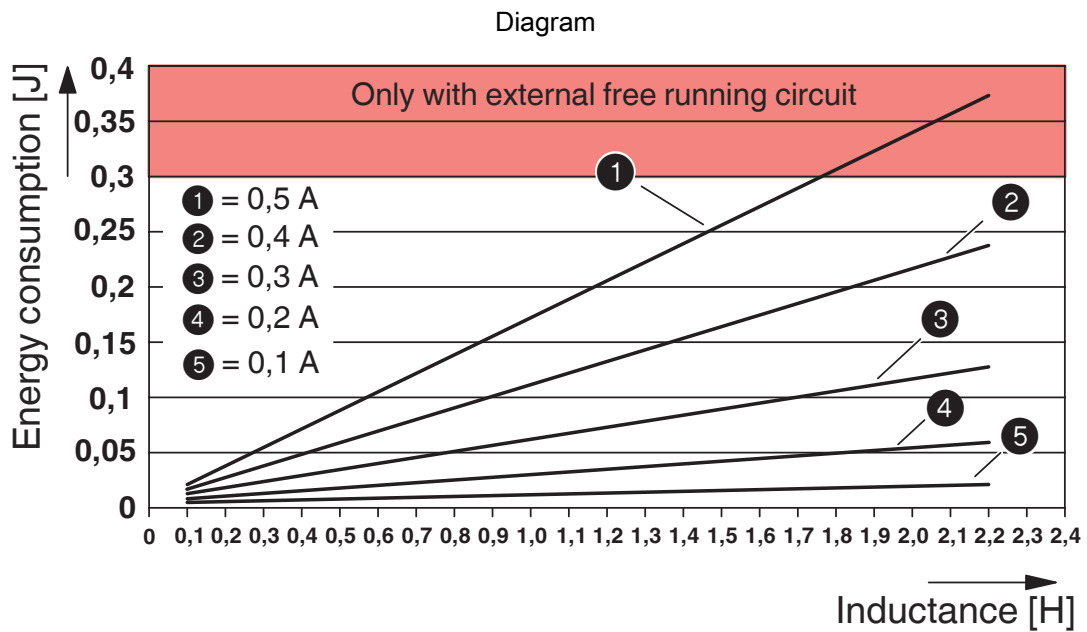
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Internal wiring of the terminal points



Maximum outputs power consumption when inductive loads are switched off



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/gb/products/2701916>



**DNV GL**

Approval ID: TAA00000DF



**LR**

Approval ID: LR2001902TA-08



**BV**

Approval ID: 36433/B4 BV



**PRS**

Approval ID: TE/1020/880590/21

**BSH**

Approval ID: 840



**RINA**

Approval ID: ELE008423XG

**ABS**

Approval ID: 20-2059154-PDA



**cULus Listed**

Approval ID: E238705



**EAC**

Approval ID: TR\_TS\_D\_01831-19



**EAC**

Approval ID: TR\_TS\_D\_01831-19

**ABS**

Approval ID: 20-2059154-PDA

# AXL F DI8/1 DO8/1 1H - Digital module



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## BSH

Approval ID: 840



## BV

Approval ID: 36433/B4 BV



## DNV GL

Approval ID: TAA00000DF



## PRS

Approval ID: TE/1020/880590/21



## RINA

Approval ID: ELE008423XG



## cULus Listed

Approval ID: E238705

## UAE-RoHS

Approval ID: 23-02-63243

## UAE-RoHS

Approval ID: 23-02-63243

# AXL F DI8/1 DO8/1 1H - Digital module



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## Classifications

### ECLASS

ECLASS-11.0	27242604
ECLASS-12.0	27242604
ECLASS-13.0	27242604

### ETIM

ETIM 9.0	EC001599
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### UNSPSC

UNSPSC 21.0	32151600
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# AXL F DI8/1 DO8/1 1H - Digital module



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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-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	2e79c782-c940-4afe-b4a5-cfeb789fbae1

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## Accessories

### AXL F BS H - Bus connector

2700992

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

Axioline F bus base module for housing type H



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### ZB 20,3 AXL UNPRINTED - Zack marker strip

0829579

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

# AXL F DI8/1 DO8/1 1H - Digital module



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

0829580

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

<https://www.phoenixcontact.com/gb/products/0801602>



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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## CABLE-FLK14/AXIO/OE/0,14/0,5M - Cable

1369888

<https://www.phoenixcontact.com/gb/products/1369888>



Round cable set; controller: Axioline Realtime I/O; connection 1: Single wires (8-position) (The wires are marked and fitted with ferrules); connection 2: IDC/FLK socket strip (1x 14-position); cable length: 0.5 m

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## CABLE-FLK14/AXIO/OE/0,14/1,0M - Cable

1369897

<https://www.phoenixcontact.com/gb/products/1369897>



Round cable set; controller: Axioline Realtime I/O; connection 1: Single wires (8-position) (The wires are marked and fitted with ferrules); connection 2: IDC/FLK socket strip (1x 14-position); cable length: 1 m

# AXL F DI8/1 DO8/1 1H - Digital module



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## CABLE-FLK14/AXIO/OE/0,14/1,5M - Cable

1369902

<https://www.phoenixcontact.com/gb/products/1369902>



Round cable set; controller: Axioline Realtime I/O; connection 1: Single wires (8-position) (The wires are marked and fitted with ferrules); connection 2: IDC/FLK socket strip (1x 14-position); cable length: 1.5 m

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## CABLE-FLK14/AXIO/OE/0,14/2,0M - Cable

1369904

<https://www.phoenixcontact.com/gb/products/1369904>



Round cable set; controller: Axioline Realtime I/O; connection 1: Single wires (8-position) (The wires are marked and fitted with ferrules); connection 2: IDC/FLK socket strip (1x 14-position); cable length: 2 m



# AXL F DI8/1 DO8/1 1H - Digital module

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## CABLE-FLK14/AXIO/OE/0,14/3,0M - Cable

1369905

<https://www.phoenixcontact.com/gb/products/1369905>



Round cable set; controller: Axioline Realtime I/O; connection 1: Single wires (8-position) (The wires are marked and fitted with ferrules); connection 2: IDC/FLK socket strip (1x 14-position); cable length: 3 m

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## CABLE-FLK14/AXIO/OE/0,14/4,0M - Cable

1369906

<https://www.phoenixcontact.com/gb/products/1369906>



Round cable set; controller: Axioline Realtime I/O; connection 1: Single wires (8-position) (The wires are marked and fitted with ferrules); connection 2: IDC/FLK socket strip (1x 14-position); cable length: 4 m

# AXL F DI8/1 DO8/1 1H - Digital module



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## CABLE-FLK14/AXIO/OE/0,14/6,0M - Cable

1369909

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Round cable set; controller: Axioline Realtime I/O; connection 1: Single wires (8-position) (The wires are marked and fitted with ferrules); connection 2: IDC/FLK socket strip (1x 14-position); cable length: 6 m

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