

# AXL SE DI16/1 - Digital module

1088127

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Axioline Smart Elements, Digital input module, Digital inputs: 16, 24 V DC, connection technology: 1-conductor, degree of protection: IP20

## Product description

You can integrate Axioline Smart Elements into systems with the Smart Element interface. This Smart Element detects digital signals.

## Your advantages

- 16 digital inputs in accordance with EN 61131-2 type 1 and type 3
- Nominal voltage: 24 V DC
- Nominal current: 2.4 mA
- Connection of sensors in 1-conductor technology
- Filter time of < 1 ms
- Device rating plate stored

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1088127       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | DRIB31        |
| Product key                          | DRIB31        |
| GTIN                                 | 4055626886374 |
| Weight per piece (including packing) | 37.5 g        |
| Weight per piece (excluding packing) | 35 g          |
| Customs tariff number                | 85389091      |
| Country of origin                    | DE            |

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## Technical data

### Dimensions

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 14.9 mm                                                                            |
| Height              | 62.2 mm                                                                            |
| Depth               | 62 mm                                                                              |

### Interfaces

|                                   |                                                |
|-----------------------------------|------------------------------------------------|
| Smart Element interface           |                                                |
| Number of interfaces              | 1                                              |
| Connection method                 | Card edge connector                            |
| Transmission speed                | See system in which you use the Smart Element. |
| Start time until ready to operate | < 500 ms                                       |

### System properties

|                             |        |
|-----------------------------|--------|
| Module                      |        |
| ID code (hex)               | none   |
| Process data channel        | 16 bit |
| Input address area          | 2 Byte |
| Output address area         | 0 Byte |
| Required parameter data     | 1 Byte |
| Required configuration data | 6 Byte |

### Input data

|                                   |                          |
|-----------------------------------|--------------------------|
| Digital:                          |                          |
| Input name                        | Digital inputs           |
| Description of the input          | EN 61131-2 types 1 and 3 |
| Number of inputs                  | 16                       |
| Connection method                 | Push-in connection       |
| Connection technology             | 1-conductor              |
| 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                 | < 1 ms                   |

|                    |                                                   |
|--------------------|---------------------------------------------------|
| Protective circuit | Polarity reversal protection of the inputs; Diode |
|--------------------|---------------------------------------------------|

## Product properties

|                   |                                                    |
|-------------------|----------------------------------------------------|
| Product type      | I/O component                                      |
| Product family    | Axioline Smart Elements                            |
| Type              | modular                                            |
| Mounting position | See the system in which the Smart Element is used. |

## 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 | 1.4 W |
|-------------------------------------------------|-------|

## Potentials: Communications power supply of the Smart Elements ( $U_{SE}$ )

|                |                            |
|----------------|----------------------------|
| Supply voltage | using card edge connectors |
|----------------|----------------------------|

## Potentials: I/O supply ( $U_P$ )

|                      |                                                                      |
|----------------------|----------------------------------------------------------------------|
| Supply voltage       | 24 V DC (using card edge connectors)                                 |
| Supply voltage range | 19.2 V DC ... 30 V DC (including all tolerances, including ripple)   |
| Current draw         | max. 17 mA                                                           |
| Current consumption  | min. 14 mA (without connected peripherals)                           |
| Power consumption    | max. 0.5 W                                                           |
|                      | min. 340 mW                                                          |
| Protective circuit   | Surge protection; See the system in which the Smart Element is used. |
|                      | Reverse polarity protection; Polarity protection diode               |

## Electrical isolation/isolation of the voltage ranges

|                                                         |                         |
|---------------------------------------------------------|-------------------------|
| Test voltage: Communications supply / 24 V supply (I/O) | 500 V AC, 50 Hz, 1 min. |
| Test voltage: Communications supply / 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               | I/O                                                                                                               |
| Note on the connection method | Please observe the information provided on conductor cross sections in the "Axioline Smart Elements" user manual. |

### Conductor connection

|                                                                       |                      |
|-----------------------------------------------------------------------|----------------------|
| Connection method                                                     | Push-in connection   |
| Conductor cross section rigid                                         | 0.25 mm² ... 1.5 mm² |
| Conductor cross section flexible                                      | 0.25 mm² ... 1.5 mm² |
| Conductor cross section AWG                                           | 24 ... 16            |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm² ... 1.5 mm² |

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|                                                                      |                                              |
|----------------------------------------------------------------------|----------------------------------------------|
| Conductor cross section, flexible, with ferrule, with plastic sleeve | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Stripping length                                                     | 8 mm                                         |

## I/O

|                                                                       |                                                                                                                   |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Connection method                                                     | Push-in connection                                                                                                |
| Note on the connection method                                         | Please observe the information provided on conductor cross sections in the "Axioline Smart Elements" user manual. |
| Conductor cross section, rigid                                        | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                                                      |
| Conductor cross section, flexible                                     | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                                                      |
| Conductor cross section AWG                                           | 24 ... 16                                                                                                         |
| Conductor cross section, flexible, with ferrule, with plastic sleeve  | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                                                      |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                                                      |
| 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) |
|------------------|---------------------------------------|

## Mounting

|                   |                                                    |
|-------------------|----------------------------------------------------|
| Mounting type     | Smart Element slot                                 |
| Mounting position | See the system in which the Smart Element is used. |

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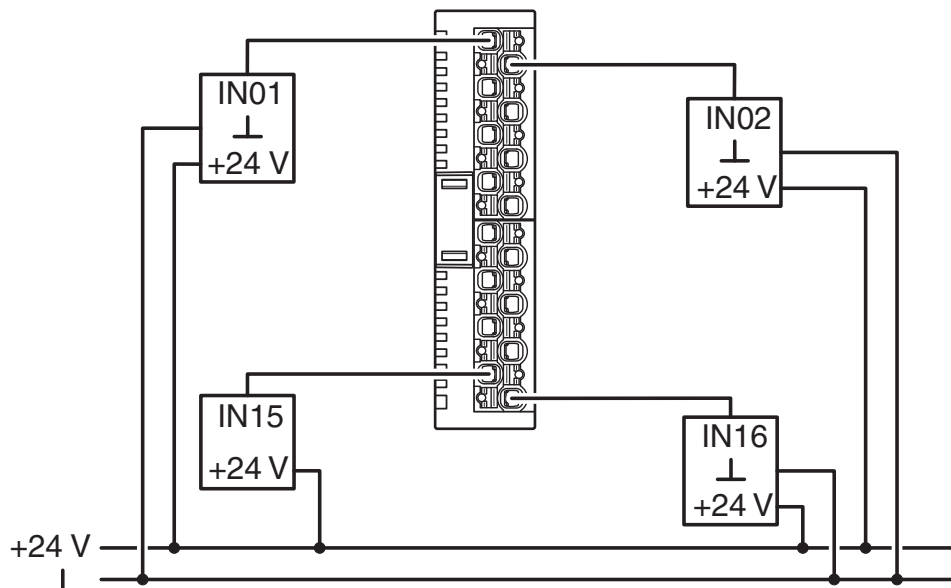
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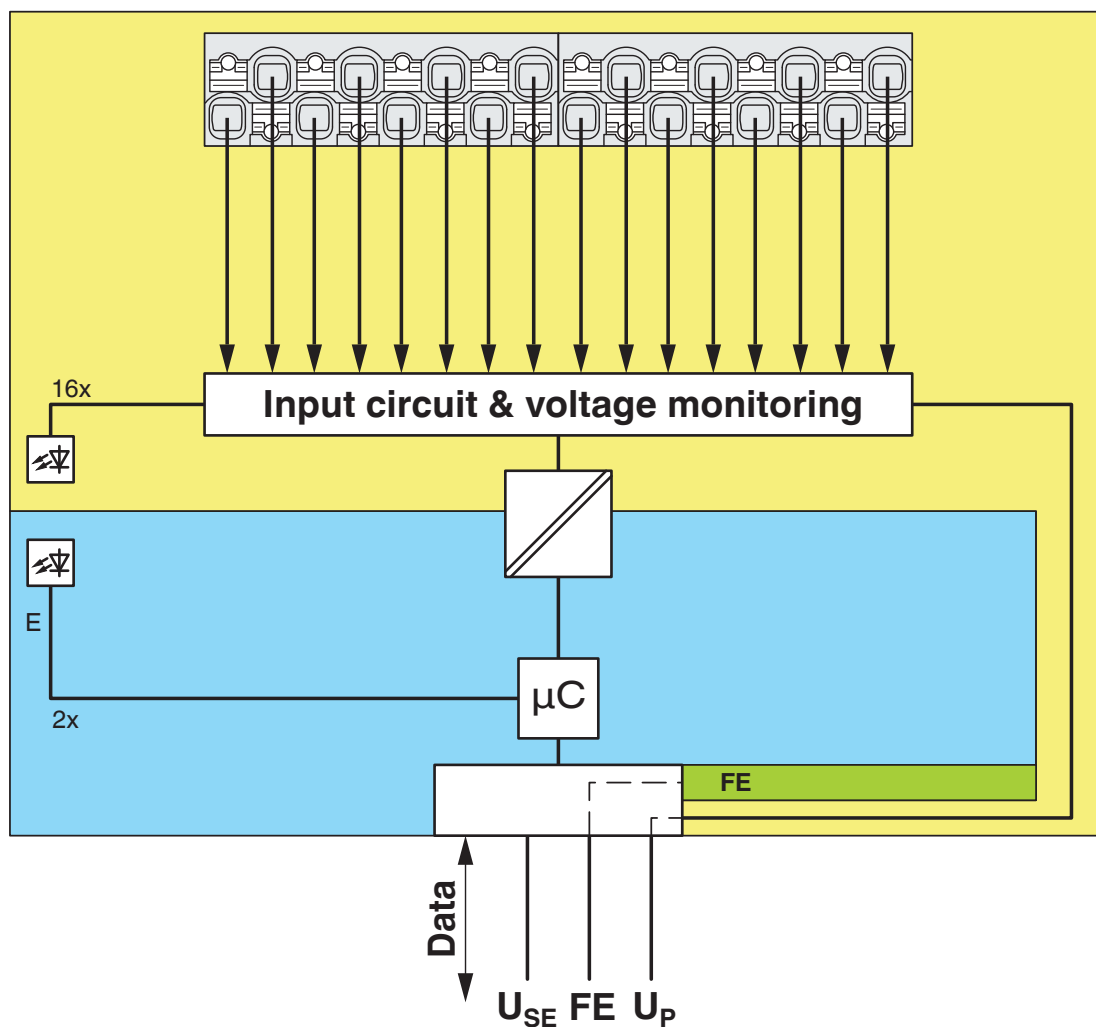
## Drawings

Connection diagram



Connection example

Block diagram



Internal wiring of the terminal points

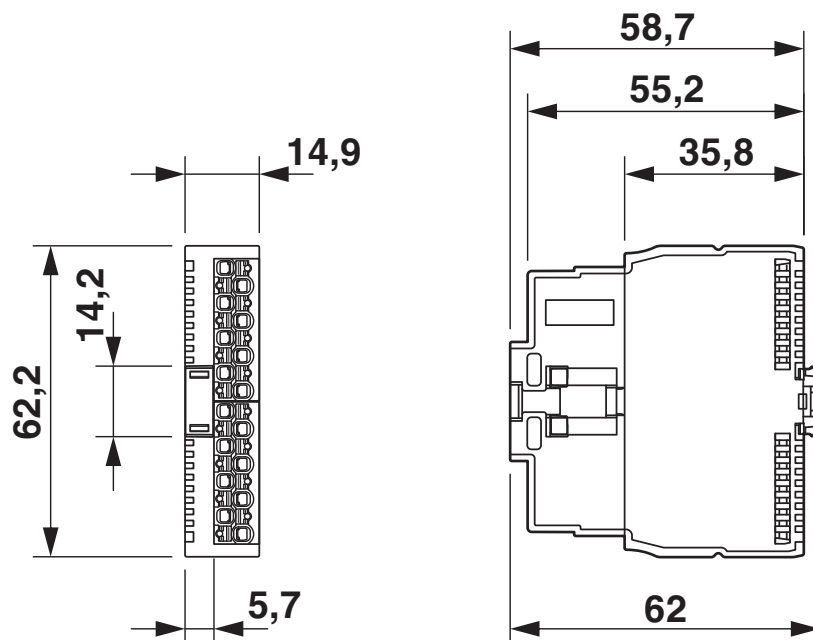
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Dimensional drawing



Dimensions

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/gb/products/1088127>

|                                                                                     |                                           |
|-------------------------------------------------------------------------------------|-------------------------------------------|
|    | <b>UL Listed</b><br>Approval ID: E238705  |
|    | <b>cUL Listed</b><br>Approval ID: E238705 |
|                                                                                     | <b>DNV</b><br>Approval ID: TAA00003B0     |
|    | <b>LR</b><br>Approval ID: LR23402057TA    |
|  | <b>RINA</b><br>Approval ID: ELE263623XG   |
|                                                                                     | <b>ABS</b><br>Approval ID: 24-2510075-PDA |
|                                                                                     | <b>cULus Listed</b>                       |

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Classifications

ECLASS

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

ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001599 |
|----------|----------|

UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 32151600 |
|-------------|----------|

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                                    | 79c16621-7b64-4b6d-8442-afffe19844d2                                                                                                                                                                                              |
| EF3.0 Climate Change                    |                                                                                                                                                                                                                                   |
| CO2e kg                                 | 1.42 kg CO2e                                                                                                                                                                                                                      |

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## Mandatory accessories

### AXL F BP SE4 - Module carrier

1088135

<https://www.phoenixcontact.com/gb/products/1088135>

Axioline F, Backplane, 4 slots for Axioline Smart Elements, transmission speed in the local bus: 100 Mbps, degree of protection: IP20



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### AXL F BP SE6 - Module carrier

1088136

<https://www.phoenixcontact.com/gb/products/1088136>

Axioline F, Backplane, 6 slots for Axioline Smart Elements, transmission speed in the local bus: 100 Mbps, degree of protection: IP20



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## Accessories

## AXL SE DI16/1 - Digital module

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## AXL SE PD16 24V - Potential distributors

1337223

<https://www.phoenixcontact.com/gb/products/1337223>



Axioline Smart Elements, Potential distribution module, 24 V DC, degree of protection: IP20

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## AXL SE PD16 GND - Potential distributors

1337224

<https://www.phoenixcontact.com/gb/products/1337224>



Axioline Smart Elements, Potential distribution module, GND, degree of protection: IP20

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## AXL SE PD8/8 24V/GND - Potential distributors

1337225

<https://www.phoenixcontact.com/gb/products/1337225>



Axioline Smart Elements, Potential distribution module, 24 V DC, GND, degree of protection: IP20

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## SZS 0,4X2,5 VDE - Screwdriver

1205037

<https://www.phoenixcontact.com/gb/products/1205037>



Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip

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<https://www.phoenixcontact.com/gb/products/1088127>



## CRIMPFOX 6 - Crimping pliers

1212034

<https://www.phoenixcontact.com/gb/products/1212034>



Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm<sup>2</sup> ... 6.0 mm<sup>2</sup>, lateral entry, trapezoidal crimp

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## CRIMPFOX DUO 10 - Crimping pliers

1031721

<https://www.phoenixcontact.com/gb/products/1031721>



Crimping pliers, contact connection type: Insulated and uninsulated ferrules, standards/specifications: DIN 46228-1, DIN 46228-4, UL 486F, form A, E, F, min. cross section: 0.14 mm<sup>2</sup>, max. cross section: 10 mm<sup>2</sup>, for TWIN ferrules up to 2 x 4 mm<sup>2</sup>, automatic cross section adjustment, rotating die, lateral and frontal insertion, compression: Trapezoidal crimp, black/green

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## CRIMPFOX 10T-F - Crimping pliers

1134913

<https://www.phoenixcontact.com/gb/products/1134913>



Crimping pliers, contact connection type: Insulated and uninsulated ferrules, standards/specifications: DIN 46228-1, DIN 46228-4, min. cross section: 0.14 mm<sup>2</sup>, max. cross section: 10 mm<sup>2</sup>, For TWIN ferrules up to 2 x 4 mm<sup>2</sup>, automatic cross section adjustment, frontal insertion, compression: Trapezoidal crimp, black

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## MM-TML (EX4,2)R C1 TR/BK - Label

0803979

<https://www.phoenixcontact.com/gb/products/0803979>



Label, Roll, transparent/black, unlabeled, can be labeled with: THERMOFOX, THERMOMARK GO, THERMOMARK GO.K, mounting type: adhesive, lettering field size: continuous x 3.2 mm, Number of individual labels: 1

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## SK 5,0 WH:REEL - Marker strip

0805221

<https://www.phoenixcontact.com/gb/products/0805221>



Marker strip, 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: adhesive, lettering field size: continuous x 5 mm, Number of individual labels: 10

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## UM6M-TM (5X12) - Marker for terminal blocks

0830928

<https://www.phoenixcontact.com/gb/products/0830928>



Marker for terminal blocks, Strip, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5 x 12 mm, Number of individual labels: 24

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## UCT6M-TM 5 - Marker for terminal blocks

0830756

<https://www.phoenixcontact.com/gb/products/0830756>



Marker for terminal blocks, for marking ABB terminal blocks from the SNK series, Sheet, white, unlabeled, can be labeled with: THERMOMARK CARD, THERMOMARK CARD 2.0, THERMOMARK PRIME, BLUEMARK ID, BLUEMARK ID COLOR, TOPMARK LASER, TOPMARK NEO, mounting type: snapped, for terminal block width: 5.2 mm, lettering field size: 4.17 x 11.3 mm

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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

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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

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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

# AXL SE DI16/1 - Digital module



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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

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

1369909

<https://www.phoenixcontact.com/gb/products/1369909>



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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