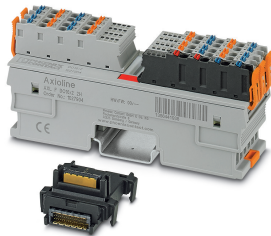


## I/O module - AXL F DO16/2 2H - 1027904

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Axioline F, Digital output module, Digital outputs: 16, 24 V DC, 500 mA, connection method: 2-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 output digital signals.  
The outputs are protected against short circuit and overload.

### Your advantages

- ✓ 16 digital outputs
- ✓ 24 V DC, 500 mA
- ✓ Connection of actuators in 2-conductor technology
- ✓ Single-channel diagnostics
- ✓ Minimum update time of < 100 µs
- ✓ Device rating plate stored



### Key Commercial Data

|                                      |                                                                                                         |
|--------------------------------------|---------------------------------------------------------------------------------------------------------|
| Packing unit                         | 1 pc                                                                                                    |
| GTIN                                 | <br>4 055626 523767 |
| GTIN                                 | 4055626523767                                                                                           |
| Weight per Piece (excluding packing) | 220.000 g                                                                                               |
| Custom tariff number                 | 85389091                                                                                                |
| Country of origin                    | Germany                                                                                                 |

### Technical data

### Dimensions

# I/O module - AXL F DO16/2 2H - 1027904

## Technical data

### Dimensions

|                    |                                                                               |
|--------------------|-------------------------------------------------------------------------------|
| Width              | 35 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                                  |
| 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

|                               |                                     |
|-------------------------------|-------------------------------------|
| Mounting type                 | DIN rail                            |
| Color                         | traffic grey A RAL 7042             |
| Net weight                    | 212.8 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            | 2                    |
| Connection method | Bus base module      |

# I/O module - AXL F DO16/2 2H - 1027904

## Technical data

### Interfaces

|                    |          |
|--------------------|----------|
| Transmission speed | 100 Mbps |
|--------------------|----------|

### Axioline potentials

|                      |                                                                                             |
|----------------------|---------------------------------------------------------------------------------------------|
| Designation          | Axioline F local bus supply ( $U_{BUS}$ )                                                   |
| Supply voltage       | 5 V DC (via bus base module)                                                                |
| Current consumption  | max. 60 mA                                                                                  |
| Power consumption    | max. 300 mW                                                                                 |
| Designation          | Supply for digital output modules ( $U_O$ )                                                 |
| Supply voltage       | 24 V DC                                                                                     |
| Supply voltage range | 19.2 V DC ... 30 V DC (including all tolerances, including ripple)                          |
| Current consumption  | max. 8 A (provide external protection)                                                      |
| Power consumption    | max. 240 W (of which 1.3 W constitute 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 outputs

|                                            |                                                                         |
|--------------------------------------------|-------------------------------------------------------------------------|
| Output name                                | Digital outputs                                                         |
| Connection method                          | Push-in connection                                                      |
| Connection technology                      | 2-conductor                                                             |
| Number of outputs                          | 16                                                                      |
| Protective circuit                         | Short-circuit protection, overload protection of the outputs electronic |
| Output voltage                             | 24 V DC                                                                 |
| Nominal output voltage                     | 24 V DC                                                                 |
| 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)                |
| Load min.                                  | 10 k $\Omega$                                                           |
| Output voltage when switched off           | max. 1 V                                                                |
| Output current when switched off           | max. 300 $\mu$ A                                                        |
| Behavior with overload                     | Shutdown with automatic restart                                         |
| Behavior with inductive overload           | Output can be destroyed                                                 |
| Reverse voltage resistance to short pulses | limited protection up to 0.5 A for 1 s                                  |

### 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. |
|--------------|--------------------------------------------------------------------------------------|

## I/O module - AXL F DO16/2 2H - 1027904

### Technical data

#### Electrical isolation

|  |                                                                                     |
|--|-------------------------------------------------------------------------------------|
|  | 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                                                                                                                                   |
| Protection class                   | III (IEC 61140, EN 61140, VDE 0140-1)                                                                                                                                                            |
| Overvoltage category               | II (IEC 60664-1, EN 60664-1)                                                                                                                                                                     |

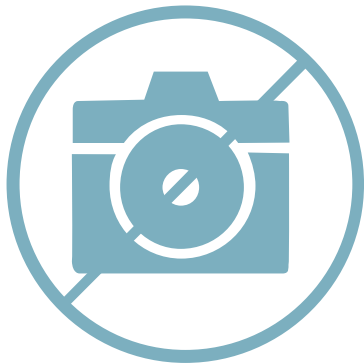
#### Environmental Product Compliance

|            |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| 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" |

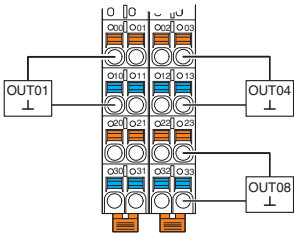
### Drawings

I/O module - AXL F DO16/2 2H - 1027904

Block diagram

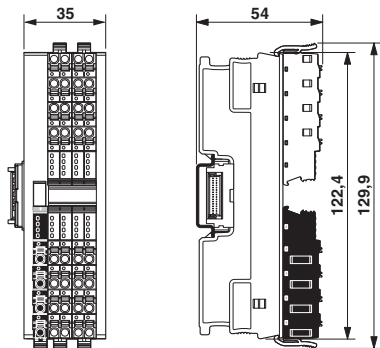


Connection diagram

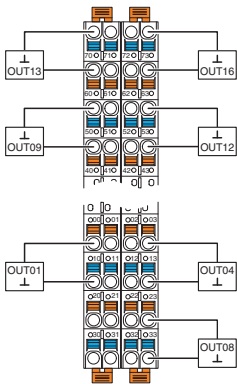


Internal wiring of the terminal points

Dimensional drawing



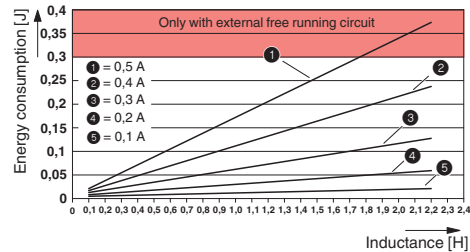
Connection diagram



Connection in 2-conductor technology

I/O module - AXL F DO16/2 2H - 1027904

Diagram



Maximum outputs power consumption when inductive loads are switched off

Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27242604 |
| eCl@ss 11.0   | 27242604 |
| eCl@ss 6.0    | 27242600 |
| eCl@ss 7.0    | 27242604 |
| eCl@ss 9.0    | 27242604 |

ETIM

|          |          |
|----------|----------|
| ETIM 6.0 | EC001599 |
| ETIM 7.0 | EC001599 |

Approvals

Approvals

Approvals

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

Ex Approvals

Approval details

|     |                                                                                                         |                  |
|-----|---------------------------------------------------------------------------------------------------------|------------------|
| ABS | <a href="http://www.eagle.org/eagleExternalPortalWEB/">http://www.eagle.org/eagleExternalPortalWEB/</a> | 18-HG1767360-PDA |
| BSH |                                                                                                         | 840              |

## I/O module - AXL F DO16/2 2H - 1027904

### Approvals

|      |                                                                                     |                                                                                                                                                                                                                               |                   |
|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| RINA |    | <a href="http://www.rina.org/en">http://www.rina.org/en</a>                                                                                                                                                                   | ELE030120XG       |
| 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       |
| NK   | <b>ClassNK</b>                                                                      | <a href="http://www.classnk.or.jp/hp/en/">http://www.classnk.or.jp/hp/en/</a>                                                                                                                                                 | 14A006            |
| KR   |  | <a href="http://www.krs.co.kr/eng/main/main.aspx">http://www.krs.co.kr/eng/main/main.aspx</a>                                                                                                                                 | HMB17372-AC002    |
| LR   |  | <a href="http://www.lr.org/en">http://www.lr.org/en</a>                                                                                                                                                                       | LR2001902TA       |
| LR   |  | <a href="http://www.lr.org/en">http://www.lr.org/en</a>                                                                                                                                                                       | LR2001902TA       |
| NK   | <b>ClassNK</b>                                                                      | <a href="http://www.classnk.or.jp/hp/en/">http://www.classnk.or.jp/hp/en/</a>                                                                                                                                                 | 14A006            |
| ABS  |                                                                                     | <a href="http://www.eagle.org/eagleExternalPortalWEB/">http://www.eagle.org/eagleExternalPortalWEB/</a>                                                                                                                       | 18-HG1767360-PDA  |
| PRS  |  | <a href="http://www.prs.pl/">http://www.prs.pl/</a>                                                                                                                                                                           | TE/1117/880590/20 |

## I/O module - AXL F DO16/2 2H - 1027904

### Approvals

|            |                                                                                     |                                                                                                                                                                                                                               |                |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 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    |
| RINA       |    | <a href="http://www.rina.org/en">http://www.rina.org/en</a>                                                                                                                                                                   | ELE030120XG    |
| BSH        |                                                                                     |                                                                                                                                                                                                                               | 840            |
| KR         |    | <a href="http://www.krs.co.kr/eng/main/main.aspx">http://www.krs.co.kr/eng/main/main.aspx</a>                                                                                                                                 | HMB17372-AC002 |
| DNV GL     |   | <a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>                                                                                                                                             | TAA00000DF     |
| 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  |
| 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  |
| 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  |
| 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  |
| DNV GL     |  | <a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>                                                                                                                                             | TAA00000DF     |

## I/O module - AXL F DO16/2 2H - 1027904

### Accessories

#### Accessories

##### DIN rail connector

Bus connector - AXL F BS H - 2700992



Axioline F bus base module for housing type H

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### Terminal marking

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