

# AXL F DO16/2 2H - Digital module



1027904

<https://www.phoenixcontact.com/gb/products/1027904>

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Axioline F, Digital output module, Digital outputs: 16, 24 V DC, 500 mA, connection technology: 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

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1027904       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | DRI232        |
| Product key                          | DRI232        |
| GTIN                                 | 4055626523767 |
| Weight per piece (including packing) | 212.8 g       |
| Weight per piece (excluding packing) | 212.8 g       |
| Customs tariff number                | 85389091      |
| Country of origin                    | DE            |

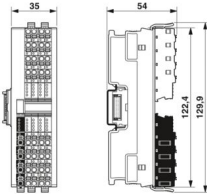
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## Technical data

### Dimensions

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 35 mm                                                                              |
| Height              | 129.9 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

|                     |                         |
|---------------------|-------------------------|
| Note on application |                         |
| Note on application | Only for industrial use |

### Interfaces

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

### System properties

|                             |        |
|-----------------------------|--------|
| Module                      |        |
| Input address area          | 0 Byte |
| Output address area         | 2 Byte |
| Required parameter data     | 3 Byte |
| Required configuration data | 6 Byte |

### Output data

|                       |                                                                          |
|-----------------------|--------------------------------------------------------------------------|
| Digital:              |                                                                          |
| 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                                                                  |

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|                                                                   |                                                                   |
|-------------------------------------------------------------------|-------------------------------------------------------------------|
| Limitation of the voltage induced on circuit interruption         | -32.8 V ... -15 V                                                 |
| Maximum output current per module                                 | 8 A (provide external protection)                                 |
| Nominal output voltage                                            | 24 V DC                                                           |
| Load min.                                                         | 10 kΩ                                                             |
| Output voltage when switched off                                  | max. 1 V                                                          |
| Output current when switched off                                  | max. 300 μA                                                       |
| Nominal load, inductive                                           | max. 12 VA (1.2 H, 48 Ω, with nominal voltage)                    |
| Nominal load, lamp                                                | max. 12 W (at nominal voltage)                                    |
| Nominal load, ohmic                                               | max. 12 W (48 Ω, 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 μs (when switched on)                                    |
|                                                                   | max. 100 μs (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)                       |
| Scope of supply   | 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

|                                                 |       |
|-------------------------------------------------|-------|
| Maximum power dissipation for nominal condition | 1.6 W |
|-------------------------------------------------|-------|

## Potentials: Axioline F local bus supply (U<sub>Bus</sub>)

|                |                              |
|----------------|------------------------------|
| Supply voltage | 5 V DC (via bus base module) |
| Current draw   | max. 60 mA                   |

## Potentials: Supply for digital output modules (U<sub>O</sub>)

|                      |                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------|
| Supply voltage       | 24 V DC                                                                                      |
| Supply voltage range | 19.2 V DC ... 30 V DC (including all tolerances, including ripple)                           |
| Current draw         | max. 8 A (provide external protection)                                                       |
| Protective circuit   | Surge protection; electronic (35 V, 0.5 s)                                                   |
|                      | Reverse polarity protection; parallel diode; with external 5 A fuse (only for commissioning) |

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

## Mounting

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

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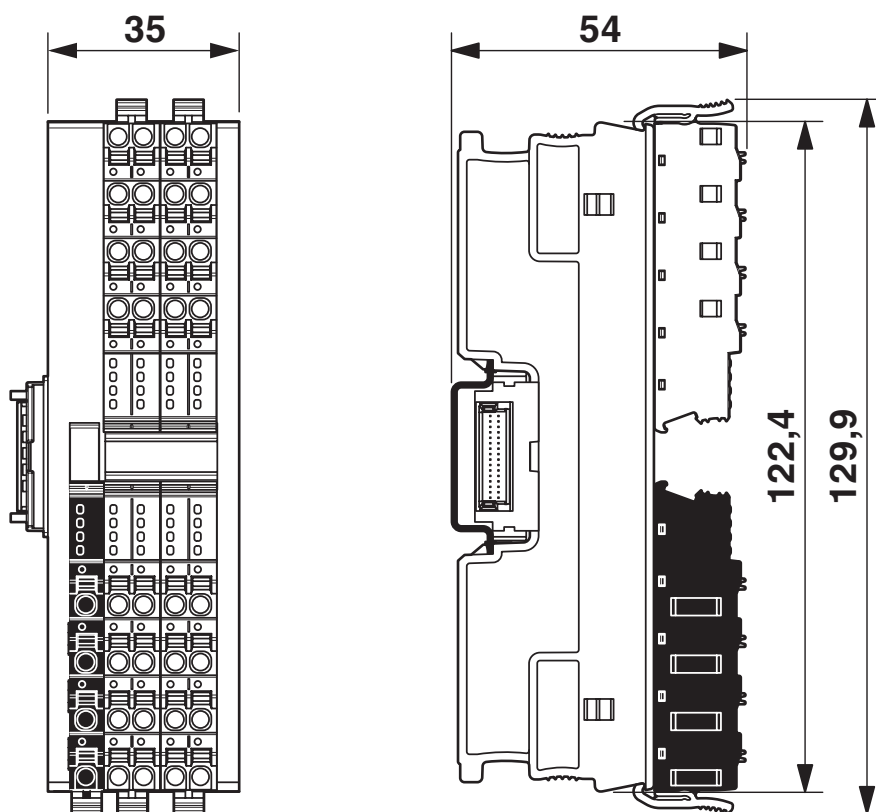
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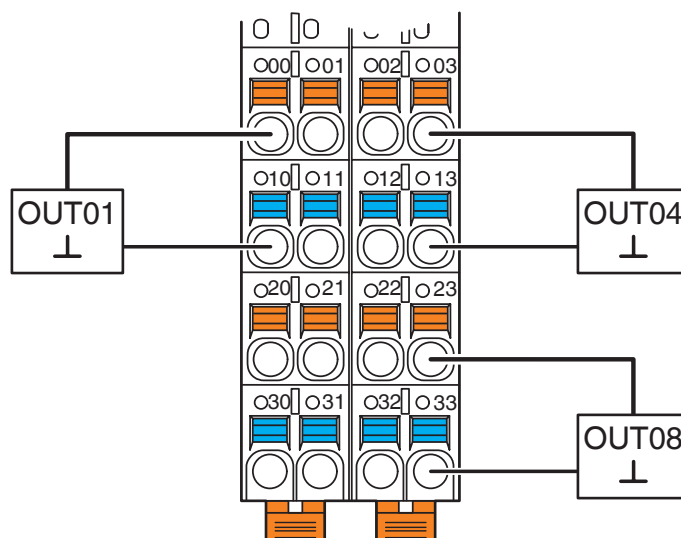


## Drawings

Dimensional drawing



Connection diagram



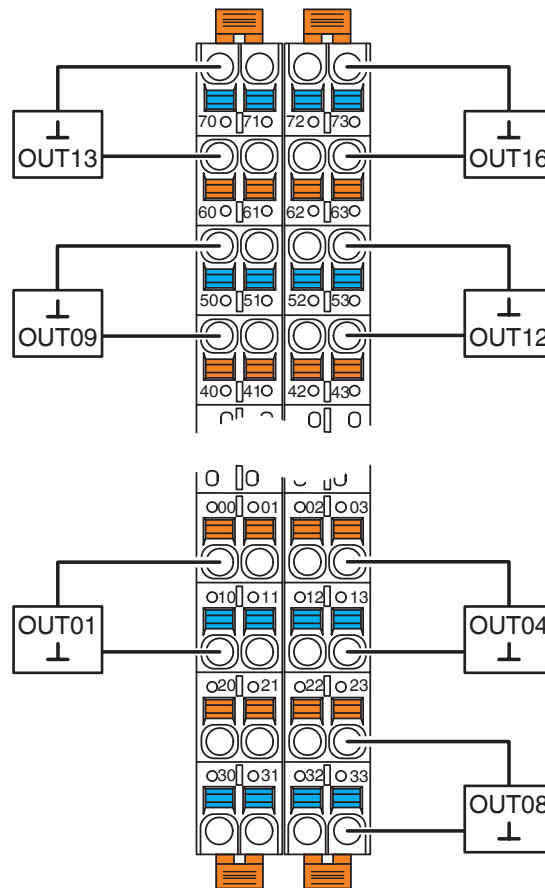
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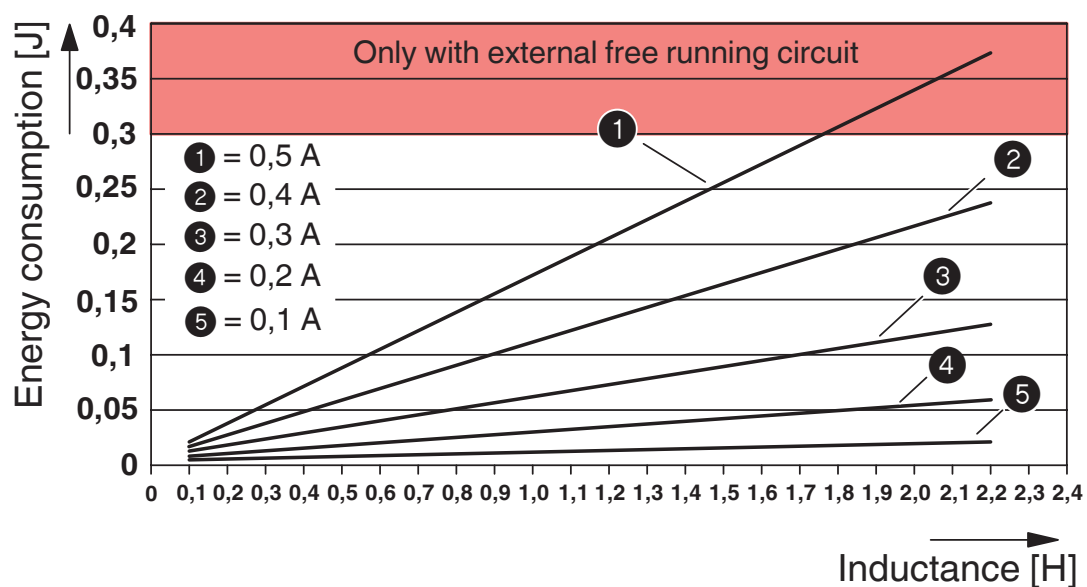


Connection diagram



Connection in 2-conductor technology

Diagram



Maximum outputs power consumption when inductive loads are switched off

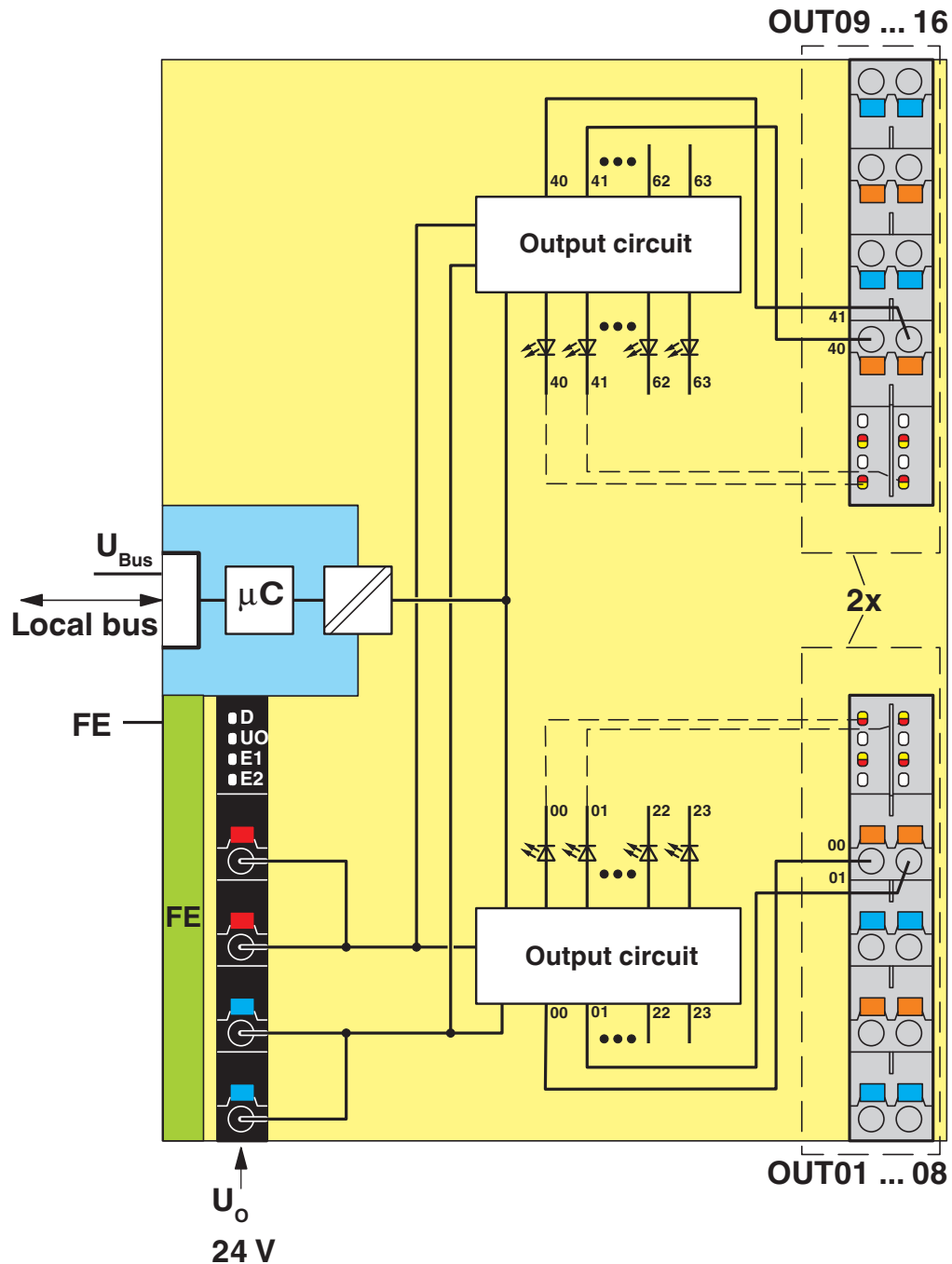
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Block diagram



Internal wiring of the terminal points

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/gb/products/1027904>



**DNV GL**

Approval ID: TAA00000DF



**LR**

Approval ID: LR2480202TA-02



**PRS**

Approval ID: TE/1020/880590/21

**BSH**

Approval ID: 840



**RINA**

Approval ID: ELE008423XG001

**ABS**

Approval ID: 23-2449604-PDA



**Functional Safety**

Approval ID: 968/EL 711.08/23



**cULus Listed**

Approval ID: E238705



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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27242604 |
|-------------|----------|

### ETIM

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

### 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-E                                   |
|                                        | No hazardous substances above the limits |

### EU REACH SVHC

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1)                 |
| SCIP                                | 9a845936-c523-45a2-8fa0-0d1344b6a2d1 |

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PHOENIX CONTACT Ltd  
Halesfield 13, Telford  
Shropshire, TF7 4PG  
01952 681700  
[info@phoenixcontact.co.uk](mailto:info@phoenixcontact.co.uk)