

# AXL E IOL TC4/K M12 - Analog module



2702983

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Axioline E IO-Link/analog converter with 4 analog TC inputs (type K/J), 2-conductor connection technology, 1 IO-Link A port, 24 V DC, IP65 degree of protection

## Product description

The Axioline E IO-Link/analog converter is an IO-Link device that transfers analog signals from thermocouples (TCs) via the IO-Link protocol. The device offers you the option of using an IO-Link master to record the analog signals of conventional type K/J thermocouples (TC). It supports type K/J thermocouples in accordance with DIN EN 60584-1. The measured values are depicted in standardized representation format. The device is connected to an IO-Link master via an IO-Link A port. Use within different networks is possible via the IO-Link master.

## Your advantages

- Connection to an IO-Link master with M12 connector (A-coded, 4-pos.)
- IO-Link A port
- IO-Link specification V1.1.2
- Status indicators
- 4 differential inputs for thermocouples
- Measuring range type K: -270°C ... +1,372°C
- Measuring range type J: -210 °C ... +1200 °C
- Selectable resolution 0.1 K/0.01 K
- Connection of sensors in 2-conductor technology
- M12 cable gland, Push-in Technology
- Diagnostic information in the process data word
- Supply of the module electronics via the IO-Link interface of the master
- Degree of protection IP65

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2702983       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | DR04          |
| Product key                          | DRI7Z5        |
| GTIN                                 | 4055626447261 |
| Weight per piece (including packing) | 384.3 g       |
| Weight per piece (excluding packing) | 384.3 g       |
| Customs tariff number                | 85176200      |
| Country of origin                    | DE            |

## Technical data

### Notes

#### Note on application

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

#### Utilization restriction

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

### Product properties

|                    |                     |
|--------------------|---------------------|
| Product type       | Interface converter |
| Product family     | Axioline E          |
| Type               | Stand-alone         |
| Special properties | Plastic housing     |

#### Insulation characteristics

|                  |                |
|------------------|----------------|
| Pollution degree | 2 (EN 60664-1) |
|------------------|----------------|

### Electrical properties

#### Supply: IO-Link

|                                |   |
|--------------------------------|---|
| Designation                    | IO-Link port supply (L+)  |
| Nominal voltage for I/O supply | 24 V DC (Provided via the IO-Link interface of the IO-Link master.) |
| Supply voltage range           | 19.2 V DC ... 30 V DC (including all tolerances, including ripple)  |
| Nominal current per device     | typ. 35 mA ( $\pm 15\%$ (at 24 V DC), max. 70 mA)                   |
| Protective circuit             | Reverse polarity protection; yes                                    |
|                                | Short-circuit protection; yes                                       |
|                                | Overload protection; yes  |

#### Electrical isolation/isolation of the voltage ranges

|  |                        |
|--|------------------------|
| Test voltage: IO-Link bus logic        | 500 V AC, 50 Hz, 1 min |
| Test voltage: Thermocouple I/O devices | 500 V AC, 50 Hz, 1 min |
| Test voltage: Functional ground        | 500 V AC, 50 Hz, 1 min |

### Input data

#### Analog:

|                          |                     |
|--------------------------|---------------------|
| Input name               | Analog TC inputs    |
| Description of the input | Differential inputs |
| Number of inputs         | 4                   |
| Connection method        | Push-in technology  |
| Connection technology    | 2-conductor         |
| A/D conversion time      | typ. 40 ms          |
| A/D converter resolution | 24 bit              |

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|                                    |   |
|------------------------------------|---|
| Sensor types that can be used (TC) | K/J   |
| Tolerance, relative                | typ. $\pm 0.2\%$ (of measuring range end value) |
|                                    | max. $\pm 0.4\%$ (of measuring range end value) |
| Measuring principle                | Sigma/Delta process                             |
| Measured value representation      | 16 bits   |
| Protective circuit                 | Transient protection of inputs                  |
|                                    | Overload protection                             |
|                                    | Wire-break detection                            |

## IO-Link

|                             |                               |
|-----------------------------|-------------------------------|
| Number of ports             | 1                             |
| Connection method           | M12 connector, A-coded        |
| Connection technology       | 3-conductor                   |
| Port type                   | Class A                       |
| Specification               | V1.1.2                        |
| Reverse polarity protection | yes                           |
| Transmission speed          | 230.4 kbps (COM3)             |
| Amount of process data      | 64 bit (4x 16-bit input data) |

## Connection data

### Thermocouples

|                                   |   |
|-----------------------------------|---|
| Connection method                 | Push-in technology                          |
| 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  |

## Dimensions

|                     |   |
|---------------------|---|
| Dimensional drawing |   |
| Width               | 150 mm  |
| Height              | 54 mm   |
| Depth               | 118 mm  |
| Note on dimensions  | When installing, note the length of the M12 connector for the IO-Link cable and the bending radii of the TC cables. |

## Material specifications

|                  |                       |
|------------------|-----------------------|
| Color (Housing)  | light gray (RAL 7035) |
| Housing material | PC                    |

## Environmental and real-life conditions

### Ambient conditions

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|  |   |
|--|---|
| Ambient temperature (operation)          | -25 °C ... 60 °C                                  |
| Degree of protection                     | IP65 (not UL-tested)                              |
| 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)  | -25 °C ... 85 °C                                  |
| Permissible humidity (operation)         | 5 % ... 95 %                                      |
| Permissible humidity (storage/transport) | 5 % ... 95 %                                      |

## Mechanical test

|  |  |
|--|--|
| Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6 | 5g                                       |
| Shock in accordance with EN 60068-2-27/IEC 60068-2-27              | 50g, 11 ms period, half-sine shock pulse |
| Continuous shock in accordance with EN 60068-2-27/IEC 60068-2-27   | 10g                                      |

## Standards and regulations

|                  |                                       |
|------------------|---------------------------------------|
| Protection class | III (IEC 61140, EN 61140, VDE 0140-1) |
|------------------|---------------------------------------|

## Mounting

|               |                |
|---------------|----------------|
| Mounting type | Screw mounting |
|---------------|----------------|

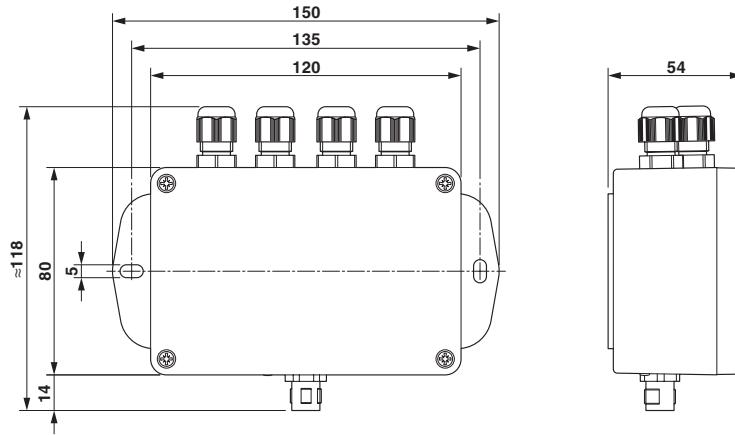
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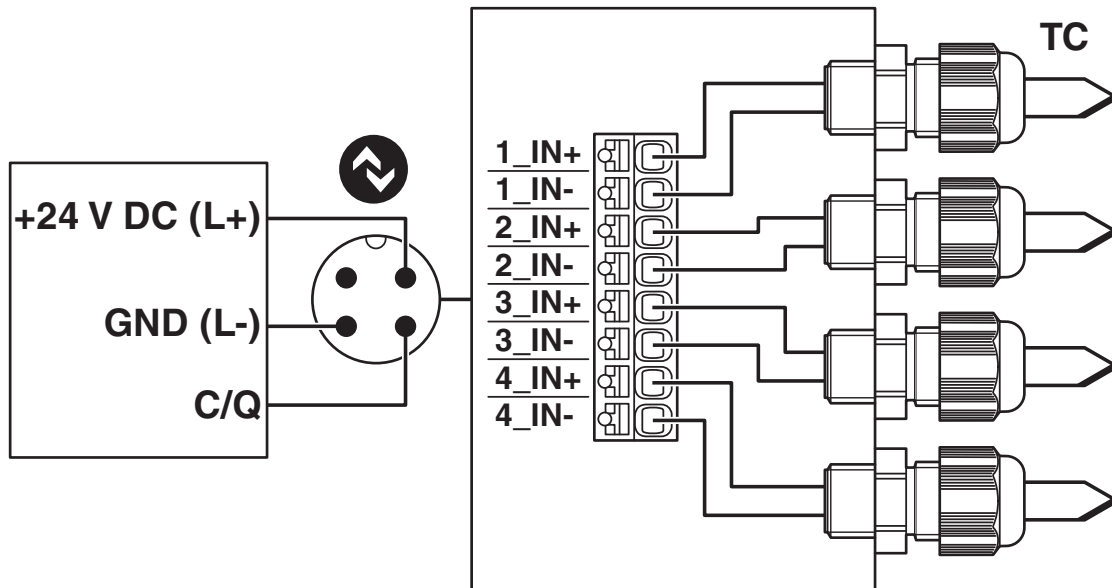
## Drawings

Dimensional drawing



Dimensions (in mm)

Connection diagram



Connection example

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## Approvals

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**cULus Listed**

Approval ID: E238705

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27242601 |
| ECLASS-15.0 | 27242601 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC001596 |
|-----------|----------|

### UNSPSC

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

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## Environmental product compliance

### EU RoHS

|   |                    |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes                |
| Exemption                               | 6(c), 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                                | 26d555e4-3514-41b0-9dde-cd8953e32142 |

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