

I/O module - AXL F RTD4 1H - 2688556

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Axioline F temperature module, 4 inputs for connecting resistance temperature detectors (including bus base module and connectors)

Product description

The module is designed for use within an Axioline F station.

It is used to acquire signals from resistive temperature sensors.

The module supports all common platinum and nickel sensors according to DIN EN 60751 and SAMA. Cu10, Cu50, Cu53 sensors as well as various KTY8x sensor types are also supported.

Product Features

- 4 analog input channels for connecting resistance temperature detectors (RTDs)
- 500 Ω and 5 k Ω linear inputs
- Connection of sensors in 2, 3, and 4-wire technology
- Integrated, digital sensor linearization
- Standardized measured value representation directly in $^{\circ}\text{C}$, $^{\circ}\text{F}$ or Ω
- Measured value display in 16-bit format or floating point format
- Programmable filters
- Short-circuit protected inputs
- Device rating plate stored
- Diagnostic and status indicators
- Temperature stability
- Very high level of noise immunity
- Low noise emission
- Installation monitoring by means of "Channel scout" function



Key commercial data

| | |
|--------------------------------------|-----------|
| Packing unit | 1 pc |
| Weight per Piece (excluding packing) | 200.0 GRM |
| Custom tariff number | 85389091 |
| Country of origin | Germany |

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Technical data

Dimensions

| | |
|--------------------|-------------------------------------------------------------------------------|
| Width | 35 mm |
| Height | 126.1 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 % (according to DIN EN 61131-2) |
| Permissible humidity (storage/transport) | 5 % ... 95 % (according to DIN EN 61131-2) |
| 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 technology |
| Conductor cross section solid min. | 0.2 mm ² |
| Conductor cross section solid max. | 1.5 mm ² |
| Conductor cross section stranded min. | 0.2 mm ² |
| Conductor cross section stranded max. | 1.5 mm ² |
| Conductor cross section AWG/kcmil min. | 24 |
| Conductor cross section AWG/kcmil max | 16 |
| Stripping length | 8 mm |

General

| | |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weight | 144 g |
| Note on weight specifications | with connectors and bus base module |
| Mounting type | DIN rail |
| Protection class | III, IEC 61140, EN 61140, VDE 0140-1 |
| Test section | 5 V communications power (logic), 24 V supply (I/O) 500 V AC 50 Hz 1 min |
| | 5 V supply (logic)/functional earth ground 500 V AC 50 Hz 1 min |
| | 24 V supply (I/O) / functional earth ground 500 V AC 50 Hz 1 min |
| Conformance with EMC directives | 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 |
| | 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 |

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General

| | |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 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 |
| | Noise immunity test in accordance with EN 61000-6-2 Transient surge voltage (surge) EN 61000-4-5/IEC 61000-4-5 Criterion B; supply lines DC: ± 0.5 kV/ ± 0.5 kV (symmetrical/asymmetrical); ± 1 kV to shielded I/O cables |
| | 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 |
| | Noise emission test according to EN 61000-6-3 Radio interference properties EN 55022 Class B |
| Mechanical tests | Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6 5 g |
| | Shock in acc. with EN 60068-2-27/IEC 60068-2-27 25 g, 11 ms period, half-sine shock pulse |
| | Continuous shock according to EN 60068-2-27/IEC 60068-2-27 10 g |

Interfaces

| | |
|--------------------|----------------------|
| Designation | Axioline F local bus |
| Connection method | Bus base module |
| Transmission speed | 100 MBit/s |

Axioline potentials

| | |
|------------------------------------|------------------------------|
| Communications power U_{Bus} | 5 V DC (via bus base module) |
| Current consumption from U_{Bus} | max. 140 mA |
| Supply of analog modules U_A | 24 V DC |
| Current consumption from U_A | max. 17 mA |

Analog inputs

| | |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Number of inputs | 4 (for resistance temperature detectors) |
| Input name | Analog inputs |
| Description of the input | Inputs for resistive temperature sensors |
| Connection method | Spring-cage connection with direct connector-in method |
| | 2, 3, 4-wire (shielded) |
| Sensor types (RTD) that can be used | Pt, Ni, KTY, Cu sensors |
| Linear resistance measuring range | 0 Ω ... 500 Ω |
| | 0 k Ω ... 5 k Ω |
| Nominal value of the current sources | 1 mA (Pt100, Ni100, R_{Lin} 500 Ω ; pulse current, the specification is valid during the sampling phase) |
| Measured value representation | 16 bits (15 bits + sign bit) |
| Resolution A/D | 24 bit |
| Protective circuit | Short-circuit protection, overload protection of the inputs |
| Data formats | IB IL, S7-compatible |
| Precision | See Tables under tolerance values |

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Technical data

Analog inputs

| | |
|-------------------|-------|
| Input filter time | 40 ms |
|-------------------|-------|

Classifications

eCl@ss

| | |
|------------|----------|
| eCl@ss 4.0 | 27240405 |
| eCl@ss 4.1 | 27240405 |
| eCl@ss 5.0 | 27242201 |
| eCl@ss 5.1 | 27242601 |
| eCl@ss 6.0 | 27242601 |
| eCl@ss 7.0 | 27242601 |
| eCl@ss 8.0 | 27242601 |

ETIM

| | |
|----------|----------|
| ETIM 3.0 | EC001599 |
| ETIM 4.0 | EC001435 |
| ETIM 5.0 | EC001596 |

UNSPSC

| | |
|---------------|----------|
| UNSPSC 6.01 | 43172015 |
| UNSPSC 7.0901 | 43201404 |
| UNSPSC 11 | 39121311 |
| UNSPSC 12.01 | 39121311 |
| UNSPSC 13.2 | 39121311 |

Approvals

Approvals

Approvals

UL Listed / cUL Listed / cULus Listed

Ex Approvals

Approvals submitted

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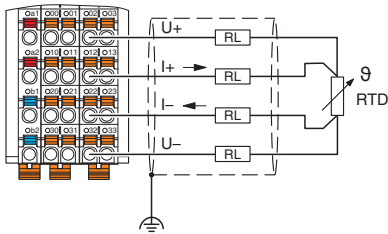
Approvals

Approval details



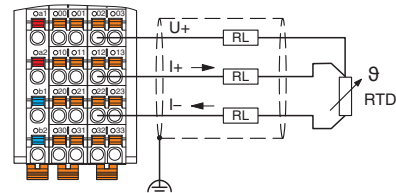
Drawings

Connection diagram



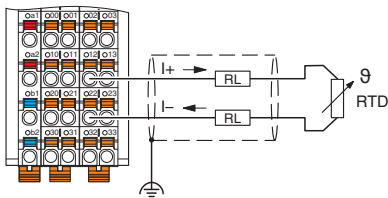
Connection example: 4-wire connection

Connection diagram



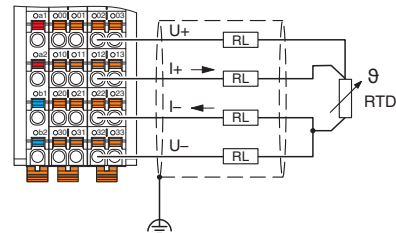
Connection example: 3-wire connection

Connection diagram



Connection example: 2-wire connection

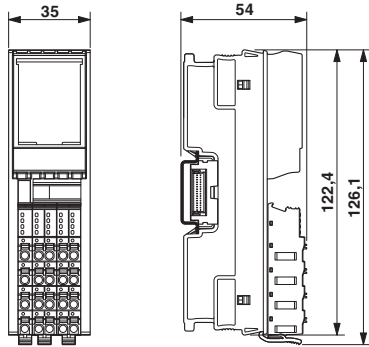
Connection diagram



Connection example: 4-wire connection for 3-wire sensor with very long supply lines (> 100 m)

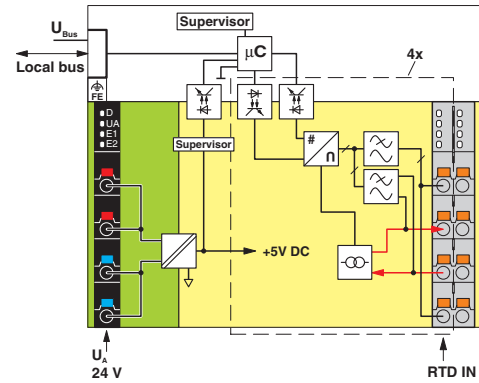
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Dimensioned drawing



Dimensional drawing

Block diagram



Internal wiring of the terminal points