

I/O module - AXL UTH 8 - 2688417

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Axioline temperature module, 8 inputs for connection of thermocouple sensors (including bus base module and connectors)

Product description

The module is designed for use within an Axioline station.

It is used to acquire signals from standard thermocouples in industrial applications.

The module supports various types of thermocouple conforming to DIN EN 60584-1 and DIN 46710 as well as linear voltages from -100 mV to +100 mV.

It also offers a voltage input from -5 V to +5 V. Heating currents can be monitored here, for example, using a measuring transducer.

The four Pt 100 inputs (CJ1 ... CJ4) can each be used as a sensor input or as an external cold junction.

Product Features

- ✓ 8 analog input channels for the connection of thermocouples or linear voltages from -100 mV to +100 mV
- ✓ 1 analog input channel for the connection of voltages from -5 V to +5 V
- ✓ Connection of sensors in 2-wire technology
- ✓ Internal detection and compensation of cold junction temperature (configurable)
- ✓ External connection of Pt 100 cold junction sensors possible
- ✓ High level of accuracy (typically ± 0.01 % sensor type K)
- ✓ High temperature stability (typically 5 ppm/K)
- ✓ High resistance to electromagnetic interference (Class A)
- ✓ "Channel Scout" function
- ✓ Device rating plate stored
- ✓ Diagnostic and status indicators
- ✓ Installation monitoring with indication via diagnostic LED for each channel

Key commercial data

| | |
|--------------------------------------|-----------|
| Packing unit | 1 pc |
| Weight per Piece (excluding packing) | 260.0 GRM |
| Custom tariff number | 85389091 |
| Country of origin | Germany |

Technical data

Dimensions

I/O module - AXL UTH 8 - 2688417

Technical data

Dimensions

| | |
|--------------------|---|
| Width | 53.6 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 % (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 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 | 203 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 |
| | Noise immunity test in accordance with EN 61000-6-2 Fast transients (burst) EN 61000-4-4/IEC 61000-4-4 Criterion A for shielded cables; 2 kV |

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Technical data

General

| | |
|------------------|---|
| | 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 30 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} | typ. 115 mA |
| | max. 180 mA |
| Supply of analog modules U_A | 24 V DC |
| Current consumption from U_A | typ. 45.3 mA |
| | max. 70 mA |

Analog inputs

| | |
|-------------------------------------|--|
| Number of inputs | 8 +1 (8 inputs for thermocouples or linear voltage, plus 1 input -5 V to +5 V) |
| Input name | Analog inputs |
| Description of the input | Inputs for thermocouples or linear voltage |
| Connection method | Spring-cage connection with direct connector-in method |
| | 2-wire (shielded, twisted pair) |
| Sensor types (RTD) that can be used | Pt 100 (4 external cold junctions, can also be used as a sensor input) |
| Sensor types that can be used (TC) | U, T, L, J, E, K, N, S, R, B, C, W, HK |
| Measuring principle | Sigma/Delta process |
| Measured value representation | 16 bits (15 bits + sign bit) |
| Resolution A/D | 24 bit |
| Protective circuit | Short-circuit protection, overload protection of the inputs |
| Precision | typ. 0.01 % (Thermocouple type K, NiCr-Ni; 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 | EC001596 |
| 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

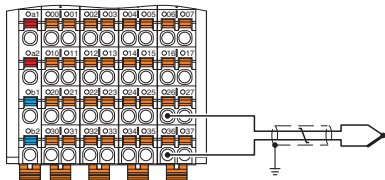
UL Listed

cUL Listed

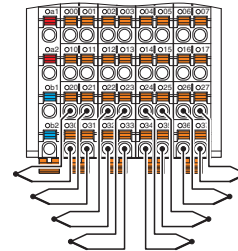
cULus Listed

Drawings

Connection diagram



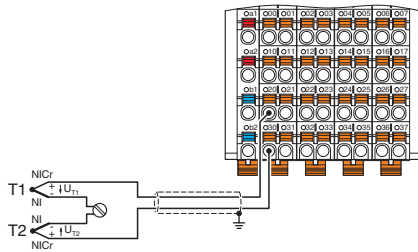
Connection diagram



Connection example: absolute temperature measurement

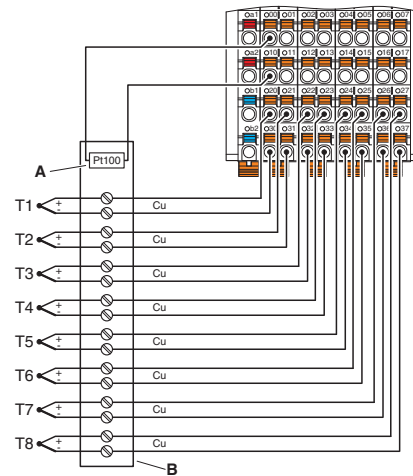
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Connection diagram



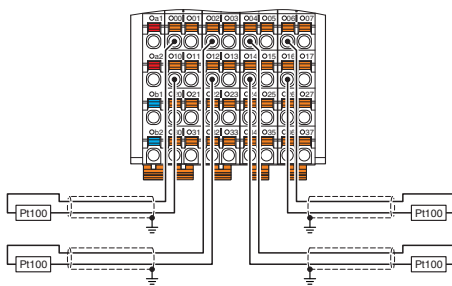
Differential temperature measurement

Connection diagram



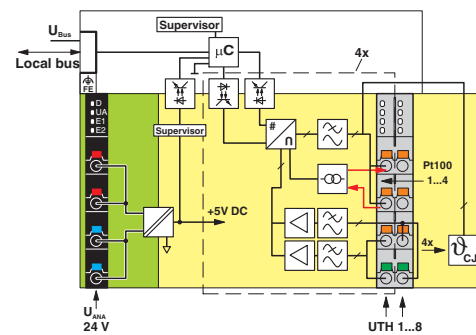
Thermocouple detection with external cold junction compensation at channel 1

Connection diagram



Pt 100 detection

Block diagram



Internal wiring of the terminal points

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Dimensioned drawing

