

Temperature measuring transducer - MACX PL-EX-T-UIREL-UP-SP - 2904912

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Programmable temperature transducer with analog output and 3 limit value relays, intrinsically safe signal inputs, resistance thermometer in 2-, 3-, or 4-wire technology, thermocouples, electrical isolation, wide-range power supply, spring-cage connection, PLd

The figure shows a version with a screw connection

Product Features



Key commercial data

| | |
|----------------------|----------|
| Packing unit | 1 pc |
| Custom tariff number | 85437090 |
| Country of origin | Germany |

Technical data

Note

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

Dimensions

| | |
|--------|----------|
| Width | 35 mm |
| Height | 99 mm |
| Depth | 114.5 mm |

Ambient conditions

| | |
|---|------------------------------------|
| Ambient temperature (operation) | -20 °C ... 65 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Maximum altitude | ≤ 2000 m |
| Permissible humidity (operation) | typ. 5 % ... 95 % (non-condensing) |

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Ambient conditions

| | |
|-----------------------|---|
| Noise immunity | EN 61000-6-2 When being exposed to interference, there may be minimal deviations. |
| Shock | 15g, according to IEC 60068-2-27 |
| Vibration (operation) | 5g, accordance to IEC 60068-2-6 |
| Degree of protection | IP20 |

Input data

| | |
|-------------------------------------|---|
| Sensor types (RTD) that can be used | Pt, Ni, Cu sensors: 2, 3, 4-wire |
| Sensor types that can be used (TC) | B, E, J, K, N, R, S, T, L, U, CA, DA, A1G, A2G, A3G, MG, LG |
| Temperature measuring range | -200 °C ... 850 °C |
| Input signal range | 0 Ω ... 50 kΩ |
| Potentiometer resistance range | 0 Ω ... 50 kΩ |
| Input signal range | -1000 mV ... 1000 mV |

Output data

| | |
|---|---|
| Current output signal | 4 mA ... 20 mA |
| Max. current output signal | 22 mA |
| Load/output load current output | ≤ 600 Ω (at 20 mA) |
| Behavior in the event of a sensor error | according to NE 43 or freely configurable |
| Output name | Relay output |
| Output description | 1 SIL/PL |
| Contact type | 2 PDT |
| Contact material | AgSnO ₂ , hard gold-plated |
| Maximum switching voltage | 250 V AC (250 V DC) |
| Maximum inrush current | 2 A (250 V AC) |
| | 2 A (28 V DC) |
| | 0.2 A (120 V DC) |
| Mechanical service life | 1 x 10 ⁵ cycles |

Power supply

| | |
|-----------------------------|--|
| Supply voltage range | 24 V ... 230 V AC/DC (-20 %/+10 %, 50/60 Hz) |
| Typical current consumption | < 100 mA (24 V DC) |
| Power consumption | < 2.4 W |

Connection data

| | |
|---------------------------------------|---------------------|
| Conductor cross section solid min. | 0.2 mm ² |
| Conductor cross section solid max. | 1.5 mm ² |
| Conductor cross section flexible min. | 0.2 mm ² |

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Connection data

| | |
|---------------------------------------|---------------------|
| Conductor cross section flexible max. | 1.5 mm ² |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 16 |
| Stripping length | 8 mm |
| Connection method | Push-in connection |

General

| | |
|---|---|
| Maximum transmission error | 0.1 % (e.g. for Pt 100, 300 K span, 4 ... 20 mA) |
| Maximum temperature coefficient | 0.01 %/K |
| Step response (0–99%) | typ. 1000 ms (With SIL) |
| | typ. 700 ms (Without SIL) |
| Status display | Green LED (supply voltage, PWR) |
| | Red LED, flashing (line, sensor error, ERR) |
| | Red LED (module error, ERR) |
| | Yellow LED (switching output) |
| Inflammability class according to UL 94 | V0 |
| Pollution degree | 2 |
| Surge voltage category | II |
| Electromagnetic compatibility | Conformance with EMC Directive 2004/108/EC |
| Housing material | PA 66-FR |
| Color | yellow |
| Designation | Input/output/power supply |
| Electrical isolation | 2.5 kV (50 Hz, 1 min., test voltage) |
| Designation | Input/output |
| Electrical isolation | 375 V (Peak value in accordance with EN 60079-11) |
| Designation | Input/power supply |
| Electrical isolation | 375 V (Peak value in accordance with EN 60079-11) |
| Designation | Input/switching output |
| Electrical isolation | 375 V (Peak value in accordance with EN 60079-11) |
| Designation | Output/supply |
| Electrical isolation | 300 V _{rms} (Rated insulation voltage (surge voltage category II; pollution degree 2, safe isolation as per EN 61010-1)) |
| Conformance | CE-compliant |
| ATEX | # II (1) G [Ex ia Ga] IIC |
| | # II (1) D [Ex ia Da] IIIC |
| | # II 3 G Ex nA nC ic IIC T4 Gc X |
| IECEX | [Ex ia Ga] IIC |

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General

| | |
|-------------------------|-------------------------|
| | [Ex ia Da] IIC |
| | Ex nA nC ic IIC T4 Gc X |
| UL, USA / Canada | UL 508 Listed |
| Functional Safety (SIL) | SIL 2 |

Safety data

| | |
|--------------------------------------|-------------|
| Max. internal inductance L_i | negligible |
| Max. internal capacitance C_i | 44 nF |
| Max. output voltage U_o | 6 V |
| Max. output current I_o | 7.4 mA |
| Max. output power P_o | 11 mW |
| Group | IIC |
| Max. external inductivity L_o | 100 mH |
| Max. external capacity C_o | 1.3 μ F |
| Group | IIC |
| Max. external inductivity L_o | 10 mH |
| Max. external capacity C_o | 1.7 μ F |
| Group | IIC |
| Max. external inductivity L_o | 1 mH |
| Max. external capacity C_o | 2.6 μ F |
| Group | IIC |
| Max. external inductivity L_o | 0 mH |
| Max. external capacity C_o | 10 μ F |
| Group | IIB |
| Max. external inductivity L_o | 100 mH |
| Max. external capacity C_o | 6.8 μ F |
| Group | IIB |
| Max. external inductivity L_o | 10 mH |
| Max. external capacity C_o | 9.2 μ F |
| Safety-related maximum voltage U_m | 253 V AC/DC |

EMC data

| | |
|--|--------------------------|
| Designation | Electromagnetic RF field |
| Standards/regulations | EN 61000-4-3 |
| Typical deviation from the measuring range final value | 2 % |
| Designation | Fast transients (burst) |

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EMC data

| | |
|--|-------------------------|
| Standards/regulations | EN 61000-4-4 |
| Typical deviation from the measuring range final value | 2 % |
| Designation | Conducted interferences |
| Standards/regulations | EN 61000-4-6 |
| Typical deviation from the measuring range final value | 2 % |

Classifications

eCl@ss

| | |
|------------|----------|
| eCl@ss 5.1 | 27200206 |
| eCl@ss 6.0 | 27200206 |

ETIM

| | |
|----------|----------|
| ETIM 4.0 | EC002653 |
| ETIM 5.0 | EC002653 |

Approvals

Approvals

Approvals


UL Listed / cUL Listed / GL / Functional Safety / cULus Listed

Ex Approvals

IECEX / ATEX / UL Listed / cUL Listed / EAC Ex / cULus Listed

Approvals submitted

Approval details

| |
|---|
| UL Listed  |
|---|

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Approvals

cUL Listed

GL

Functional Safety

cULus Listed

Drawings

Block diagram

