

# Temperature measuring transducer - MACX MCR-SL-RTD-I-NC - 2865078

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Temperature transducer, converts signals from resistance temperature detectors and resistors into 0/4 – 20 mA analog signals. Freely programmable, 3-way electrical isolation. Replacement item: 1050192 MACX MCR-RTD-I.

## Your advantages

- ✓ Power supply possible via DIN rail connector
- ✓ Installation in zone 2, protection type "n" (EN 60079-15) permitted
- ✓ Status indicator for supply voltage, cable, sensor, and module errors
- ✓ Configuration via software (FDT/DTM): sensor type, connection technology, measuring range, measuring unit, filter, alarm signal, and output range
- ✓ Programming during operation and also voltage-free using IFS-USB-PROG-ADAPTER programming adapter
- ✓ 3-way electrical isolation
- ✓ Input for resistance thermometers and resistance-type sensors
- ✓ 0 ... 20 mA or 4 ... 20 mA output



## Key Commercial Data

|              |               |
|--------------|---------------|
| Packing unit | 1 pc          |
| GTIN         |               |
| GTIN         | 4046356503891 |

## Technical data

### Dimensions

|        |          |
|--------|----------|
| Width  | 12.5 mm  |
| Height | 112.5 mm |
| Depth  | 114.5 mm |

### Ambient conditions

|   |  |
|---|--|
| Ambient temperature (operation)         | -20 °C ... 60 °C (Any mounting position) |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C                         |

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## Technical data

### Ambient conditions

|                                  |   |
|----------------------------------|---|
| Maximum altitude                 | ≤ 2000 m  |
| Permissible humidity (operation) | 5 % ... 95 % (non-condensing)   |
| Degree of protection             | IP20 (not assessed by UL)   |
| Noise immunity                   | EN 61000-6-2 When being exposed to interference, there may be minimal deviations. |

### Input data

|   |   |
|---|---|
| Sensor types (RTD) that can be used           | Pt, Ni, Cu sensors: 2, 3, 4-wire                        |
| Temperature measuring range                   | -200 °C ... 850 °C (Range depending on the sensor type) |
| Input signal range                            | 0 Ω ... 2000 Ω  |
| Max. permissible overall conductor resistance | 50 Ω (Per cable)  |
| Sensor input current                          | 200 µA ... 1 mA   |
| Measuring range span                          | > 50 K  |

### Output data

|   |                                       |
|---|---------------------------------------|
| Signal output                           | Current output                        |
| Configurable/programmable               | Yes                                   |
| Current output signal                   | 0 mA ... 20 mA<br>4 mA ... 20 mA      |
| Load/output load current output         | ≤ 500 Ω                               |
| Output ripple (current)                 | < 50 µA <sub>pp</sub>                 |
| Behavior in the event of a sensor error | As per NE 43 or can be freely defined |
| Configurable/programmable               | no                                    |

### Power supply

|                          |   |
|--------------------------|---|
| Nominal supply voltage   | 24 V DC                                     |
| Supply voltage range     | 19.2 V DC ... 30 V DC (24 V DC -20%...+25%) |
| Max. current consumption | < 40 mA (24 V DC)                           |
| Power dissipation        | < 1 W                                       |

### Connection data

|                                  |   |
|----------------------------------|---|
| Connection method                | Screw connection                            |
| Stripping length                 | 7 mm  |
| Screw thread                     | M3  |
| Conductor cross section solid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross section AWG      | 24 ... 14                                   |
| Torque                           | 0.5 Nm ... 0.6 Nm                           |

### General

|                                  |             |
|----------------------------------|-------------|
| Temperature coefficient, typical | 0.01 %/K    |
| Step response (0–99%)            | typ. 700 ms |

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## Technical data

### General

|                          |  |
|--------------------------|--|
|                          | ≤ 1100 ms  |
| Alignment zero           | ± 5 %  |
| Alignment span           | ± 5 %  |
| Status display           | Green LED (supply voltage, PWR)  |
|                          | Red LED, flashing 2.4 Hz (cable error, sensor error on input or output, ERR) |
|                          | Red LED, flashing 1.2 Hz (service operation, ERR)                            |
|                          | Red LED, permanently on (module error, ERR)                                  |
| Degree of pollution      | 2  |
| Overvoltage category     | II   |
| Interference emission    | EN 61000-6-4   |
| Housing material         | PA 6.6-FR  |
| Color                    | gray   |
| Designation              | Input/output/power supply  |
| Rated insulation voltage | 300 V <sub>rms</sub>   |
| Test voltage             | 2.5 kV AC (50 Hz, 1 min.)  |
| Insulation               | Safe isolation in accordance with IEC/EN 61010-1                             |
| Designation              | Input/output   |
| Electrical isolation     | 375 V (Peak value in accordance with IEC/EN 60079-11)                        |
| Designation              | Input/power supply   |
| Electrical isolation     | 375 V (Peak value in accordance with IEC/EN 60079-11)                        |

### EMC data

|                       |                          |
|-----------------------|--------------------------|
| Designation           | Electromagnetic RF field |
| Standards/regulations | EN 61000-4-3             |
| Designation           | Fast transients (burst)  |
| Standards/regulations | EN 61000-4-4             |
| Designation           | Conducted interferences  |
| Standards/regulations | EN 61000-4-6             |

### Standards and Regulations

|                       |                                       |
|-----------------------|---------------------------------------|
| Noise emission        | EN 61000-6-4                          |
| Designation           | Electromagnetic RF field              |
| Standards/regulations | EN 61000-4-3                          |
|                       | EN 61000-4-4                          |
| Designation           | Conducted interferences               |
| Standards/regulations | EN 61000-4-6                          |
| Conformance           | CE-compliant, additionally EN 61326-1 |
| ATEX                  | # II 3G Ex nA ic IIC T4 Gc X          |
| UL, USA/Canada        | UL 508 Listed                         |
|                       | UL 61010 Listed                       |

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## Technical data

### Standards and Regulations

|    |                                       |
|----|---------------------------------------|
|    | Class I, Div. 2, Groups A, B, C, D T4 |
|    | Class I, Zone 2, Group IIC T4         |
| GL | C, EMC1                               |

### Conformance/approvals

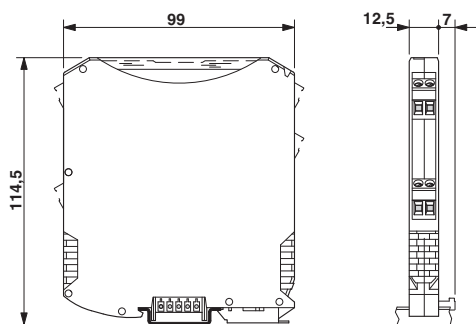
|                 |                                       |
|-----------------|---------------------------------------|
| Designation     | CE                                    |
| Identification  | CE-compliant                          |
| Additional text | and EN 61326-1                        |
| Designation     | ATEX                                  |
| Identification  | # II 3G Ex nA ic IIC T4 Gc X          |
| Designation     | UL, USA/Canada                        |
| Identification  | UL 508 Listed                         |
|                 | UL 61010 Listed                       |
|                 | Class I, Div. 2, Groups A, B, C, D T4 |
|                 | Class I, Zone 2, Group IIC T4         |
| Designation     | Shipbuilding approval                 |
| Certificate     | GL 86 644-10HH                        |
| Designation     | GL                                    |
| Identification  | C, EMC1                               |

### Environmental Product Compliance

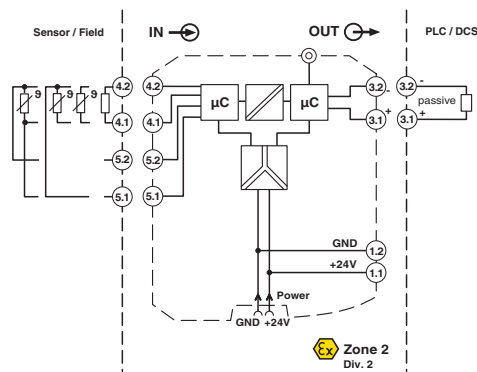
|            |   |
|------------|---|
| REACH SVHC | Lead 7439-92-1  |
| China RoHS | Environmentally Friendly Use Period = 50 years  |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

## Drawings

Dimensional drawing

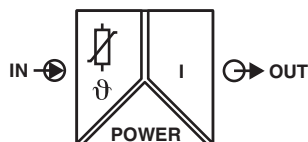


Block diagram



# Temperature measuring transducer - MACX MCR-SL-RTD-I-NC - 2865078

Pictogram



## Classifications

### eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27210129 |
| eCl@ss 4.0    | 27200200 |
| eCl@ss 4.1    | 27200200 |
| eCl@ss 5.0    | 27200200 |
| eCl@ss 5.1    | 27200200 |
| eCl@ss 6.0    | 27200200 |
| eCl@ss 7.0    | 27200206 |
| eCl@ss 9.0    | 27210129 |

### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC001446 |
| ETIM 3.0 | EC001446 |
| ETIM 4.0 | EC001446 |
| ETIM 6.0 | EC002919 |
| ETIM 7.0 | EC002919 |

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211506 |
| UNSPSC 7.0901 | 39121008 |
| UNSPSC 11     | 39121008 |
| UNSPSC 12.01  | 39121008 |
| UNSPSC 13.2   | 41112105 |
| UNSPSC 18.0   | 41112105 |
| UNSPSC 19.0   | 41112105 |
| UNSPSC 20.0   | 41112105 |
| UNSPSC 21.0   | 41112105 |

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## Accessories

### Accessories

#### Device marking

##### Plastic label - UC-EMLP (11X9) - 0819291



Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

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##### Plastic label - UC-EMLP (11X9) YE - 0822602



Plastic label, Sheet, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

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##### Plastic label - UC-EMLP (11X9) SR - 0828094



Plastic label, Sheet, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

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##### Plastic label - US-EMLP (11X9) - 0828789



Plastic label, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

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##### Plastic label - US-EMLP (11X9) YE - 0828871



Plastic label, Card, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

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## Accessories

### Plastic label - US-EMLP (11X9) SR - 0828872



Plastic label, Card, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

### Device marker - LS-EMLP (11X9) WH - 0831678



Device marker, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255

### Device marker - LS-EMLP (11X9) YE - 0831732



Device marker, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255

### Device marker - LS-EMLP (11X9) SR - 0831705



Device marker, Sheet, silver, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255

## DIN rail connector

### DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - 2695439



DIN rail connector (TBUS), 5-pos., for bridging the supply voltage, can be snapped onto NS 35/... DIN rails according to EN 60715

## Insulating sleeve

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## Accessories

Insulating sleeve - MPS-IH BK - 0201731

Insulating sleeve, color: black



Insulating sleeve - MPS-IH GY - 0201728

Insulating sleeve, color: gray



Insulating sleeve - MPS-IH GN - 0201702

Insulating sleeve, color: green



Insulating sleeve - MPS-IH YE - 0201692

Insulating sleeve, color: yellow



Insulating sleeve - MPS-IH BU - 0201689

Insulating sleeve, color: blue





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## Accessories

Insulating sleeve - MPS-IH RD - 0201676

Insulating sleeve, color: red



Insulating sleeve - MPS-IH WH - 0201663

Insulating sleeve, color: white



## Labeled device marker

Plastic label - UC-EMLP (11X9) CUS - 0824547



Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm

Plastic label - UC-EMLP (11X9) YE CUS - 0824548



Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm

Plastic label - UC-EMLP (11X9) SR CUS - 0828098



Plastic label, can be ordered: by sheet, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

## Power module

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### Accessories

Power and error message module - MACX MCR-PTB - 2865625



Power and fault signaling module with screw connection, including corresponding ME 17,5 TBUS 1,5/ 5-ST-3,81 GY DIN rail connector

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Power and error message module - MACX MCR-PTB-SP - 2924184



Power and fault signaling module with Push-in connection, including corresponding ME 17,5 TBUS 1,5/ 5-ST-3,81 GY DIN rail connector

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### Programming adapter

Programming adapter - IFS-USB-PROG-ADAPTER - 2811271



Programming adapter with USB interface, for programming with software. The USB driver is included in the software solutions for the products to be programmed, such as measuring transducers or motor managers.

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### Test plug terminal block

Test plugs - MPS-MT - 0201744



Test plugs, with solder connection up to 1 mm<sup>2</sup> conductor cross section, color: gray

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