# MACX MCR-T-UI-UP - Temperature measuring transducer

2811394

https://www.phoenixcontact.com/us/products/2811394

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.

CRA-READY



Freely programmable temperature measuring transducer with analog output and 1 limit value relay, resistance thermometer in 2-, 3-, or 4-conductor technology, thermocouples, wide-range supply. number of channels: 1, Standard configuration, 4-way isolation, Safety Integrity Level (SIL, IEC 61508): 2, Performance Level (ISO 13849-1): d, Systematic Capability: 2, Screw connection

## Your advantages

- Cold junction compensation with separate plug
- Configuration via software (FDT/DTM) or IFS-OP-UNIT operator interface and display unit
- Up to SIL 2 in accordance with EN 61508
- Installation in zone 2, protection type "n" (EN 60079-15) permitted
- Programming during operation and also voltage-free using IFS-USB-PROG-ADAPTER programming adapter
- Plug-in screw or spring-cage connection technology (Push-in technology)
- Freely programmable input and output
- Input for resistance thermometers, thermocouples, resistance-type sensors, potentiometers, and mV sources
- Measure differential temperatures
- Relay switching output
- Inverse output signal ranges as an option

## Commercial data

| | |
|---|---|
| Item number | 2811394 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C402 |
| Product key | DK1115 |
| GTIN | 4046356520294 |
| Weight per piece (including packing) | 263 g |
| Weight per piece (excluding packing) | 193.9 g |
| Customs tariff number | 85437090 |
| Country of origin | DE |

# Technical data

## Notes

Note on application

| | |
|---|---|
| Note on application | As things stand now, we are preparing the product so that, as of December 11, 2027, it will comply with the requirements of the EU Cyber Resilience Act (CRA) based on the information currently available regarding the CRA. |

## Product properties

| | |
|---|---|
| Product type | Temperature transmitter |
| Product family | MACX Analog |
| No. of channels | 1 |
| Configuration | DIP switches |
| | Software |

Insulation characteristics

| | |
|---|---|
| Overvoltage category | II |
| Pollution degree | 2 |

## System properties

Functionality

| | |
|---|---|
| Configuration | DIP switches |
| | Software |

## Electrical properties

| | |
|---|---|
| Electrical isolation | 4-way isolation |
| Electrical isolation between input and output | yes |
| Maximum power dissipation for nominal condition | 1.26 W |
| Step response (0–99%) | ≤ 1.75 s (SIL on) |
| | 1.3 s (SIL off) |
| Maximum temperature coefficient | 0.01 %/K |
| Maximum transmission error | 0.1 % (E.g., at Pt 100, 300 K min. span) |

Electrical isolation Input/output/power supply IEC/EN 61010-1

| | |
|---|---|
| Standards/regulations | IEC/EN 61010-1 |
| Rated insulation voltage | 300 $V_{rms}$ |
| Test voltage | 2.5 kV AC (50 Hz, 60 s) |
| Insulation | Safe isolation |

Electrical isolation Input/output IEC/EN 60079-11

| | |
|---|---|
| Standards/regulations | IEC/EN 60079-11 |
| Rated insulation voltage | 375 $V_P$ |

Electrical isolation Input/power supply IEC/EN 60079-11

| | |
|---|---|
| Standards/regulations | IEC/EN 60079-11 |
| Rated insulation voltage | 375 $V_P$ |

Electrical isolation Input/switching output IEC/EN 60079-11

| | |
|---|---|
| Standards/regulations | IEC/EN 60079-11 |
| Rated insulation voltage | 375 $V_P$ |

Supply

| | |
|---|---|
| Nominal supply voltage range | 24 V AC/DC ... 230 V AC/DC -20 % ... +10 % (50/60 Hz) |
| Supply voltage range | 19.2 V AC/DC ... 253 V AC/DC (50/60 Hz) |
| Typical current consumption | < 50 mA (24 V DC) |
| Power consumption | < 1.5 W |

## Input data

Signal

| | |
|---|---|
| Number of inputs | 1 |
| Input signal | Temperature |
| | Resistor |
| | Voltage |

Measurement

| | |
|---|---|
| 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 | -250 °C ... 2500 °C (Range depending on the sensor type) |
| Linear resistance measuring range | 0 Ω ... 50 kΩ |
| Potentiometer resistance range | 0 Ω ... 50 kΩ |
| Linear mV signal range | -1000 mV ... 1000 mV |

## Output data

Switching: Relay

| | |
|---|---|
| Configurable/programmable | Yes |
| Contact switching type | 1 changeover contact |
| Contact material | $AgSnO_2$, hard gold-plated |
| Maximum switching voltage | 30 V AC/DC |
| Max. switching current | 0.5 A (30 V AC) |
| | 1 A (30 V DC) |

Signal: Voltage/current

| | |
|---|---|
| Number of outputs | 1 |
| Configurable/programmable | Yes |
| Max. voltage output signal | ± 11 V |
| Current output signal | 0 mA ... 20 mA (SIL off) |
| | 4 mA ... 20 mA (SIL on) |
| Max. current output signal | 22 mA |
| Load/output load voltage output | ≥ 10 kΩ |

| | |
|---|---|
| Load/output load current output | ≤ 600 Ω (20 mA) |
| Behavior in the event of a sensor error | freely programmable |

## Connection data

| | |
|---|---|
| Connection method | Screw connection |
| Stripping length | 7 mm |
| Screw thread | M3 |
| Conductor cross-section rigid | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section flexible | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section AWG | 24 ... 14 |
| Tightening torque | 0.5 Nm ... 0.6 Nm |

Test socket

| | |
|---|---|
| Max. diameter | 2 mm |

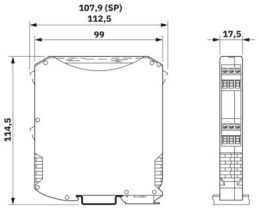
## Ex data

| | |
|---|---|
| Ex installation (EPL) | Gc |
| | Div. 2 |

## Signaling

| | |
|---|---|
| Status display | LED supply voltage, PWR (green) |
| | Red LED, flashing (line, sensor error, ERR) |
| | Red LED (module error, ERR) |
| | Yellow LED (switching output) |

## Dimensions

| | |
|---|---|
| Dimensional drawing |  |
| Width | 17.5 mm |
| Height | 112.5 mm |
| Depth | 113.7 mm |
| Depth NS 35/7,5 | 114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715) |

## Material specifications

| | |
|---|---|
| Color | gray (RAL 7042) |
| Flammability rating according to UL 94 (Housing) | V0 (Housing) |
| Housing material | PA 6.6-FR |

## Environmental and real-life conditions

Ambient conditions

| | |
|---|---|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -20 °C ... 65 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Permissible humidity (operation) | typ. 5 % ... 95 % (non-condensing) |
| Shock (operation) | 15g (IEC 60068-2-27) |
| Vibration (operation) | 5g (IEC 60068-2-6) |

Altitude range (≤ 2000 m)

| | |
|---|---|
| Altitude | ≤ 2000 m (The technical data refers to altitudes ≤2000 m above mean sea level. For altitudes >2000 m above mean sea level, refer to the data sheet.) |
| Ambient temperature (operation) | -20 °C ... 65 °C |
| Safety-related maximum voltage $U_m$ | 30 V (Installation in zone 2) |

Altitude range (≤ 3000 m)

| | |
|---|---|
| Height range | > 2000 m ... 3000 m |
| Ambient temperature (operation) | -20 °C ... 55 °C |
| Safety-related maximum voltage $U_m$ | 30 V (Installation in zone 2) |

Altitude range (≤ 4000 m)

| | |
|---|---|
| Height range | > 3000 m ... 4000 m |
| Ambient temperature (operation) | -20 °C ... 50 °C |
| Safety-related maximum voltage $U_m$ | 30 V (Installation in zone 2) |

Altitude range (≤ 5000 m)

| | |
|---|---|
| Height range | > 4000 m ... 5000 m |
| Ambient temperature (operation) | -20 °C ... 45 °C |
| Safety-related maximum voltage $U_m$ | 30 V (Installation in zone 2) |

## Approvals

CE

| | |
|---|---|
| Certificate | CE-compliant |

ATEX

| | |
|---|---|
| Identification | Ⓔx II 3 G Ex ec ic nC IIC T4 Gc |
| Certificate | IBExU 10 ATEX 1044 X |

IECEx

| | |
|---|---|
| Identification | Ex ec ic nC IIC T4 Gc |
| Certificate | IECEx IBE 10.0004 X |

INMETRO

| | |
|---|---|
| Identification | Ex ec ic nC IIC T4 Gc |
| Certificate | DNV 18.0143 X |

UL, USA/Canada

| | |
|---|---|
| Identification | UL 508 Listed |
| | Class I, Div. 2, Groups A, B, C, D T6 |
| | Class I, Zone 2, Group IIC T6 |

Shipbuilding approval

| | |
|---|---|
| Certificate | DNV GL TAA000020C |

Safety Integrity Level (SIL, IEC 61508)

| | |
|---|---|
| Identification | 2 |
| Certificate | SEBS-A.150520/17, V2.0 |

Systematic Capability

| | |
|---|---|
| Identification | 2 |

Performance Level (ISO 13849-1)

| | |
|---|---|
| Identification | d |

EAC Ex

| | |
|---|---|
| Identification | Ex ec ic IIC T4 Gc |
| Certificate | BY/112 02.01 TP012 103.01 00078 |

Shipbuilding data

| | |
|---|---|
| Temperature | B |
| Humidity | B |
| Vibration | A |
| EMC | A |
| Enclosure | Required protection according to the Rules shall be provided upon installation on board |

## EMC data

| | |
|---|---|
| Electromagnetic compatibility | Conformance with EMC directive |
| Noise immunity | EN 61000-6-2 |
| Note | When being exposed to interference, there may be minimal deviations. |

Noise emission

| | |
|---|---|
| Standards/regulations | EN 61000-6-4 |

## Standards and regulations

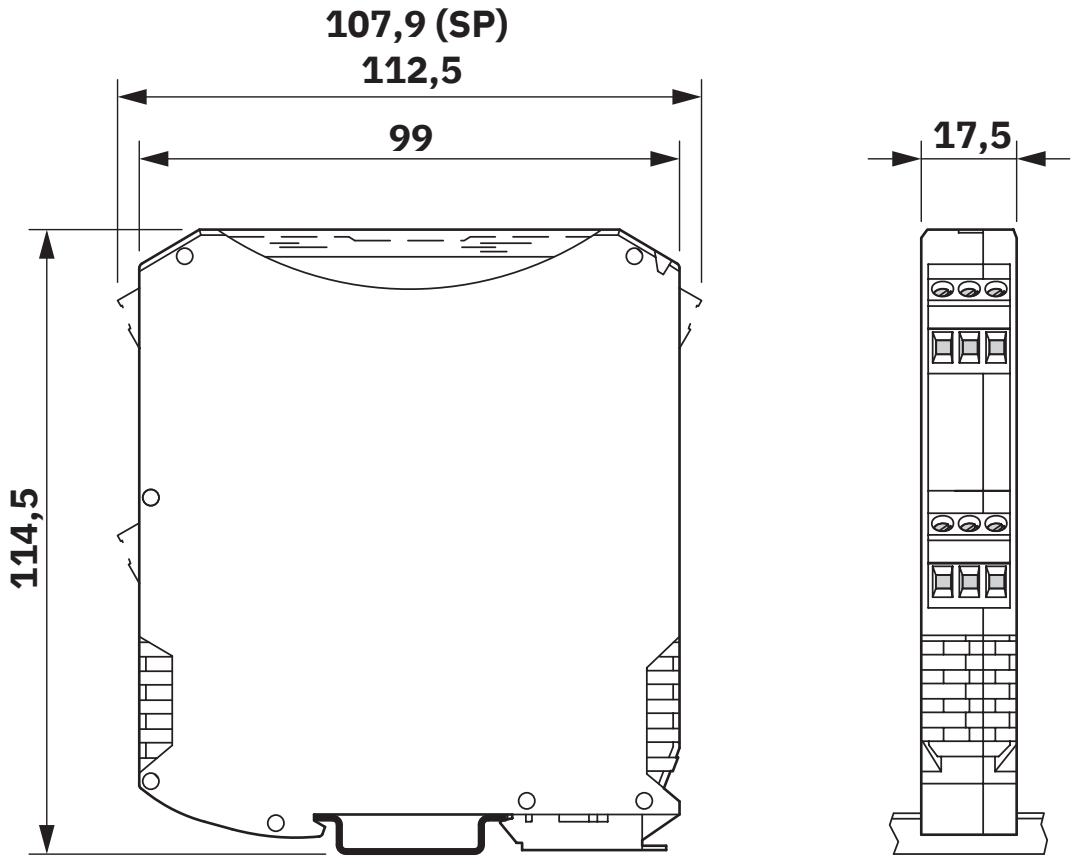
| | |
|---|---|
| Electrical isolation | 4-way isolation |

## Mounting

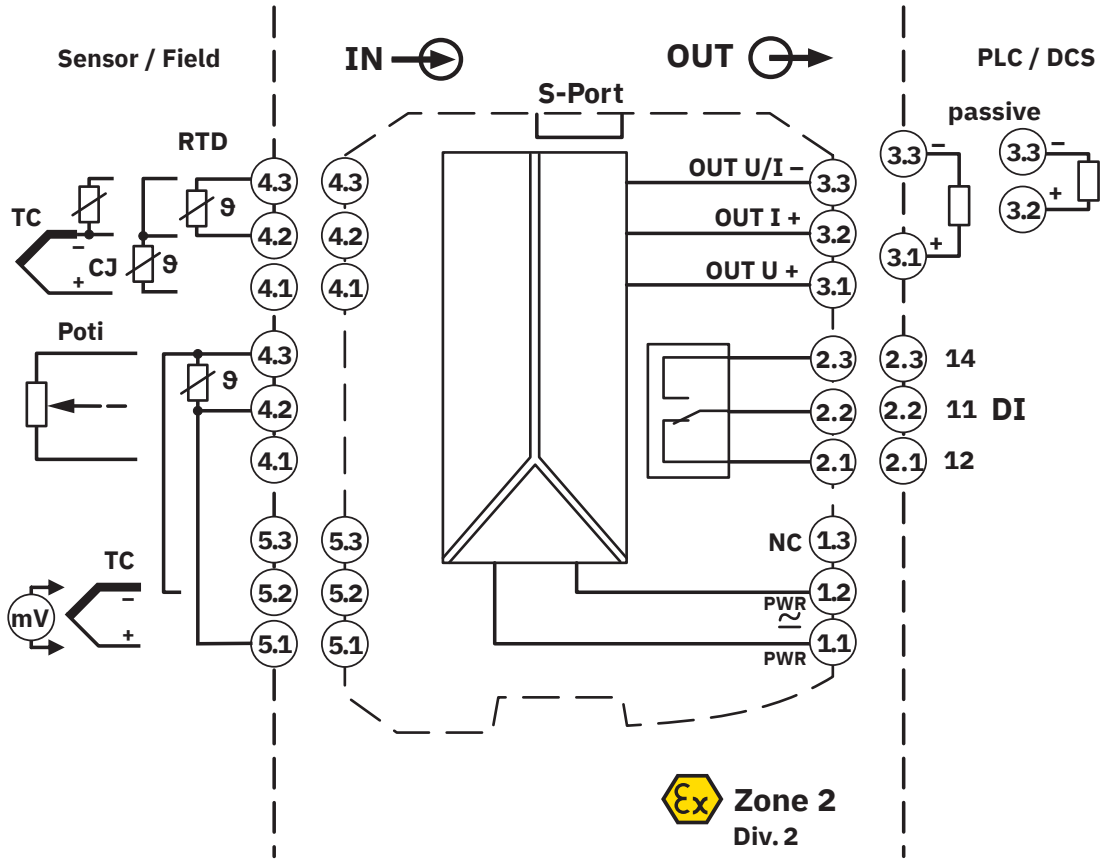
| | |
|---|---|
| Mounting type | DIN rail mounting |

## Drawings

Dimensional drawing



Block diagram



## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2811394

**UL Listed**
Approval ID: E238705

**cUL Listed**
Approval ID: E238705

**Functional Safety**
Approval ID: SEBS-A.20170608

**cULus Listed**
Approval ID: E330267

**IECEx**
Approval ID: IECEx IBE 10.0004X

**cUL Listed**
Approval ID: E199827

**UL Listed**
Approval ID: E199827

**ATEX**
Approval ID: IBExU 10 ATEX 1044

**INMETRO**
Approval ID: DNV 18.0143 X

**cULus Listed**
Approval ID: E199827

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27210129 |
| ECLASS-15.0 | 27210129 |

### ETIM

| | |
|---|---|
| ETIM 10.0 | EC002919 |

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 41112100 |

## Environmental product compliance

EU RoHS

| | |
|---|---|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 7(a), 7(a)-I, 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 | e87dd5d2-a43a-43f6-a498-d9c6724ed079 |


Phoenix Contact 2026 © - all rights reserved
https://www.phoenixcontact.com



Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com