# MACX MCR-TS-I-OLP - Temperature measuring transducer

2908662

https://www.phoenixcontact.com/us/products/2908662

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Output loop-powered temperature transducer for transmitting up to 2 sensor signals from RTD and TC sensors, as well as from resistance and voltage sensors via 4 mA ... 20 mA. HART, Signal conditioners with SIL functional safety, Standard configuration, Safety Integrity Level (SIL, IEC 61508): 2, Systematic Capability: 3, Screw connection

## Commercial data

| | |
|---|---|
| Item number | 2908662 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C401 |
| Product key | DK1243 |
| GTIN | 4055626355450 |
| Weight per piece (including packing) | 201.7 g |
| Weight per piece (excluding packing) | 171.8 g |
| Customs tariff number | 85437090 |
| Country of origin | DE |

## Technical data

### Product properties

| | |
|---|---|
| Product type | Temperature transmitter |
| Product family | Field Analog |
| No. of channels | 2 |
| Configuration | Software |
| | HART |

Insulation characteristics

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

### System properties

Functionality

| | |
|---|---|
| Configuration | Software |
| | HART |

### Electrical properties

| | |
|---|---|
| Electrical isolation between input and output | yes |
| Step response (0–99%) | 0.8 s (TC) |

Electrical isolation Input/output

| | |
|---|---|
| Test voltage | 2 kV AC (50 Hz, 60 s) |

Supply

| | |
|---|---|
| Supply voltage range | loop-powered, no external supply necessary |
| | 12 V DC ... 42 V DC (Standard) |
| | 12 V DC ... 32 V DC (SIL active) |

### Input data

Signal

| | |
|---|---|
| Input signal | Temperature |

Measurement

| | |
|---|---|
| Number of inputs | 2 |
| Input voltage range | -20 mV ... 100 mV (Minimum measuring span: 5 mV) |
| Sensor types (RTD) that can be used | Pt, Ni, Cu sensors: 2, 3, 4-wire |
| Sensor types that can be used (TC) | A, B, C, D, E, J, K, L, N, R, S, T, U |
| Temperature measuring range | -250 °C ... 2500 °C (Range depending on the sensor type) |
| | -200 °C ... 850 °C (Pt 100) |
| Temperature measuring range | > 10 K (RTD) |
| | > 50 K (TC) |
| Linear resistance measuring range | 10 Ω ... 2000 Ω (Minimum measuring span: 10 Ω) |

## Output data

Signal: Current

| | |
|---|---|
| Configurable/programmable | no |
| Current output signal | 4 mA ... 20 mA |
| | 20 mA ... 4 mA |
| Max. current output signal | 23 mA |
| Load | ($U_L$ - 11 V) / 0,023 A |
| HART coding | FSK ± 0.5 mA |
| HART version | 7 |
| Transmission speed | 1200 Baud |
| Mains frequency filter | 50/60 Hz |
| Communication resistance | ≥ 250 Ω |
| Switch-on delay | ≈ ⎍ s (HART) |
| | ≈ ⎍ s (Measured value) |

## 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 |

## Interfaces

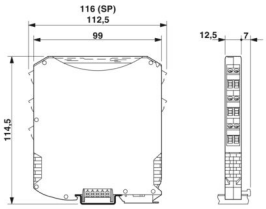
Data communication (bypass)

| | |
|---|---|
| Protocols supported | HART |

## Signaling

| | |
|---|---|
| Status display | LED (red) |

## Dimensions

| | |
|---|---|
| Dimensional drawing |   |
| Width | 12.5 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) |

## Environmental and real-life conditions

Ambient conditions

| | |
|---|---|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -40 °C ... 85 °C |
| | -40 °C ... 70 °C (SIL active) |
| Ambient temperature (storage/transport) | -40 °C ... 100 °C |
| Altitude | ≤ 4000 m (Above sea level) |
| Climatic class | B2 |
| Permissible humidity (operation) | 5 % ... 95 % (non-condensing) |

## Approvals

CE

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

ATEX

| | |
|---|---|
| Identification | Ⓔx II 3G Ex nA IIC T6...T4 Gc |

UL, USA/Canada

| | |
|---|---|
| Identification | UL 61010 Recognized |

FM

| | |
|---|---|
| Identification | NI, Class I, Div. 2, Groups A, B, C, D |

CSA

| | |
|---|---|
| Identification | NI / Class I / Div. 2 / ABCD T6/T5/T4 |

Shipbuilding approval

| | |
|---|---|
| Certificate | DNV GL TAA00002GX |

Safety Integrity Level (SIL, IEC 61508)

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

Systematic Capability

| | |
|---|---|
| Identification | 3 |

Shipbuilding data

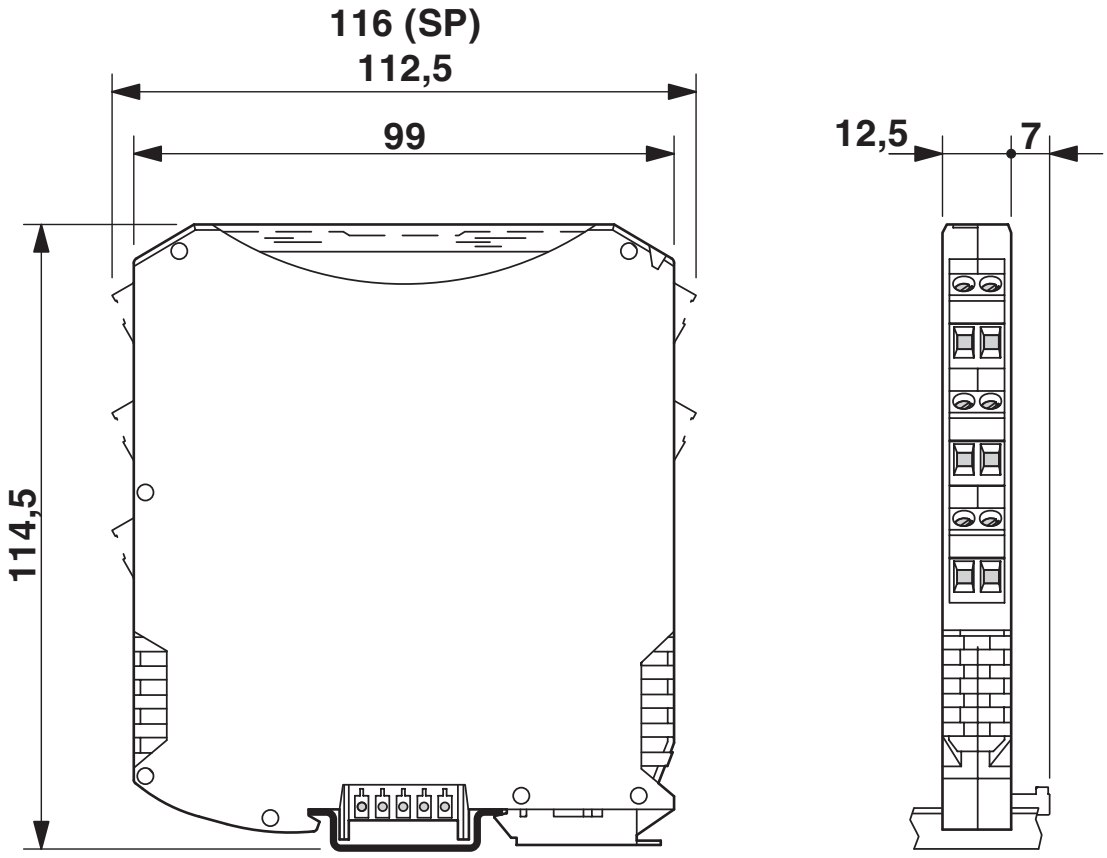
| | |
|---|---|
| Temperature | D |
| Humidity | B |
| Vibration | A |
| EMC | B |
| Enclosure | A |

## Mounting

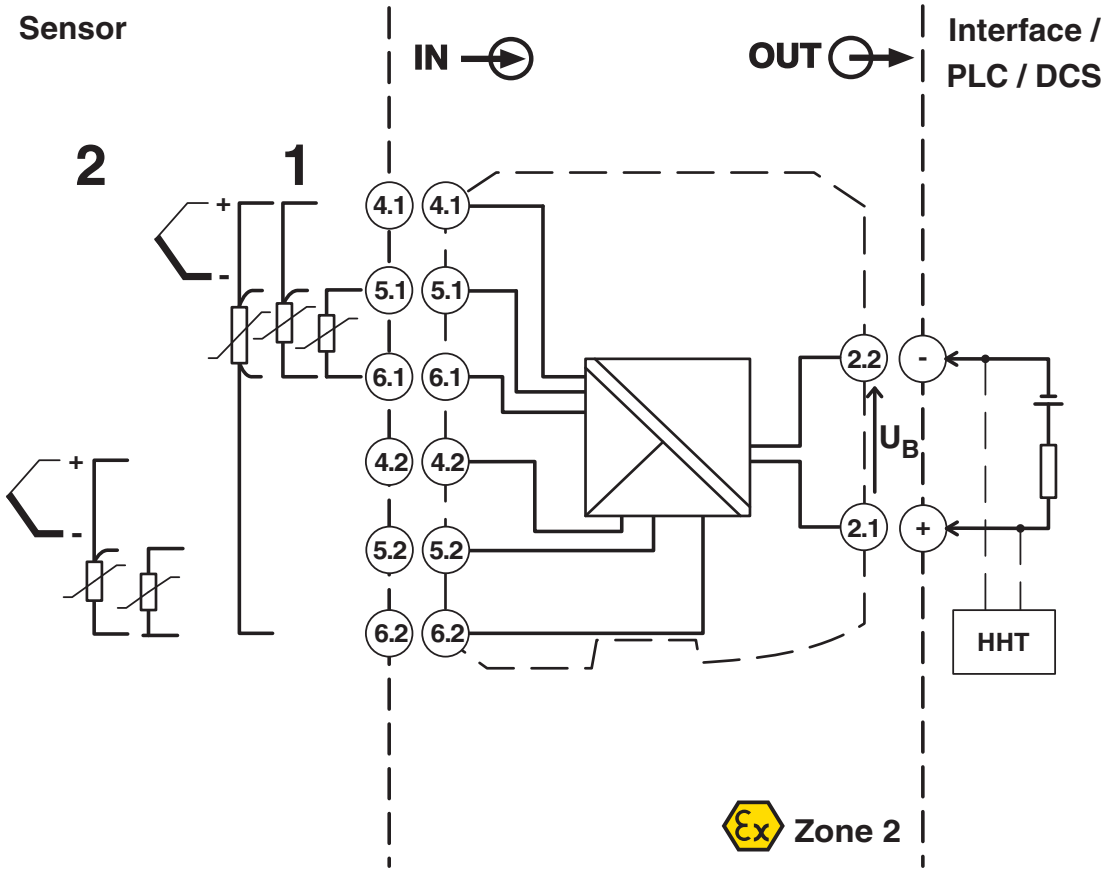
| | |
|---|---|
| Mounting type | DIN rail mounting |

## Drawings

Dimensional drawing



Block diagram



## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2908662

**cUL Recognized**
Approval ID: FILE E 198586

**UL Recognized**
Approval ID: FILE E 198586

**EAC**
Approval ID: RU*DE.*08.B.01608/19

**DNV GL**
Approval ID: TAA00002GX

**Functional Safety**
Approval ID: Z10 029429 0021

**DNV**
Approval ID: TAA00002GX

**CSA**
Approval ID: 70107976

**FM approved**
Approval ID: FM17US0110X

## 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(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 | 4382a4b0-b4e8-44e4-a92a-f8398f3d6173 |


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