

# MINI MCR-2-T-2RO-PT - Limit value switch



2906877

<https://www.phoenixcontact.com/us/products/2906877>

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Universally configurable temperature limit value switch with two transistor outputs for the connection of 2, 3, and 4-conductor resistance thermometers and thermocouples. Configurable via DIP switch or software, push-in connection technology

## Product description

Universally configurable temperature limit value switch with two transistor outputs for the connection of 2, 3, and 4-conductor resistance thermometers and thermocouples. You can configure the device using one of the free software solutions available or your smartphone. Default settings can also be made directly on the device by simply using the DIP switches (see configuration table). The temperature limit value switch supports fault monitoring and NFC communication.

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2906877       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | C404          |
| Product key                          | DK1127        |
| GTIN                                 | 4055626131566 |
| Weight per piece (including packing) | 118.2 g       |
| Weight per piece (excluding packing) | 116.7 g       |
| Customs tariff number                | 85437090      |
| Country of origin                    | DE            |

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## Technical data

### Notes

#### Utilization restriction

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

### Product properties

|                 |                    |
|-----------------|--------------------|
| Product type    | Limit value switch |
| Product family  | MINI Analog Pro    |
| No. of channels | 1                  |
| Configuration   | DIP switches       |
|                 | Software           |
|                 | App                |

### System properties

#### Functionality

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

### Electrical properties

|                                               |                 |
|-----------------------------------------------|-----------------|
| Electrical isolation                          | 3-way isolation |
| Electrical isolation between input and output | yes             |
| Switching point accuracy                      | < 0.1 %         |
| Step response (0–99%)                         | 300 ms          |
|                                               | 570 ms          |
|                                               | 380 ms          |
|                                               | 300 ms          |
|                                               | 570 ms          |
| Maximum temperature coefficient               | 0.01 %/K        |

#### Electrical isolation

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

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

|                          |                       |
|--------------------------|-----------------------|
| Standards/regulations    | IEC/EN 61010-1        |
| Rated insulation voltage | 300 V <sub>rms</sub>  |
| Test voltage             | 3 kV AC (50 Hz, 60 s) |
| Insulation               | Reinforced insulation |

#### Supply

|                        |         |
|------------------------|---------|
| Nominal supply voltage | 24 V DC |
|------------------------|---------|

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|                             |                                                                                                                                                                                                                |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply voltage range        | 9.6 V DC ... 30 V DC (The DIN rail connector (ME 6,2 TBUS-2 1,5/5-ST-3,81 GN, item no. 2869728) can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail in accordance with EN 60715) |
| Typical current consumption | 20 mA (12 V DC)                                                                                                                                                                                                |
|                             | 10 mA (24 V DC)                                                                                                                                                                                                |
| Power consumption           | 350 mW                                                                                                                                                                                                         |

## Input data

### Signal

|                  |   |
|------------------|---|
| Number of inputs | 1 |
|------------------|---|

### Measurement

|                                               |                                                        |
|-----------------------------------------------|--------------------------------------------------------|
| Number of inputs                              | 1                                                      |
| Configurable/programmable                     | Yes                                                    |
| Sensor types (RTD) that can be used           | Pt, Ni, Cu sensors                                     |
| Sensor types that can be used (TC)            | B, E, J, K, N, R, S, T, L, U, A-1, A-2, A-3, M, L      |
| Available input sources                       | Resistance thermometers                                |
|                                               | Thermocouples                                          |
| Temperature measuring range                   | -250 °C ... 2500 °C (RTD)                              |
| Temperature measuring range                   | ≥ 20 K (RTD)                                           |
| Temperature measuring range: B                | 500 °C ... 1820 °C                                     |
| Temperature measuring range: E                | -230 °C ... 1000 °C                                    |
| Temperature measuring range: J                | -210 °C ... 1200 °C                                    |
| Temperature measuring range: K                | -250 °C ... 1372 °C                                    |
| Temperature measuring range: N                | -200 °C ... 1300 °C                                    |
| Temperature measuring range: R                | -50 °C ... 1768 °C                                     |
| Temperature measuring range: S                | -50 °C ... 1768 °C                                     |
| Temperature measuring range: T                | -200 °C ... 400 °C                                     |
| Temperature measuring range: L                | -200 °C ... 900 °C                                     |
| Temperature measuring range: U                | -200 °C ... 600 °C                                     |
| Temperature measuring range: A-1              | 0 °C ... 2500 °C                                       |
| Temperature measuring range: A-2              | 0 °C ... 1800 °C                                       |
| Temperature measuring range: A-3              | 0 °C ... 1800 °C                                       |
| Temperature measuring range: M                | -200 °C ... 100 °C                                     |
| Temperature measuring range: L                | -200 °C ... 800 °C                                     |
| Sensor input current                          | ≈ 1...10 μA (RTD)                                      |
| Max. permissible overall conductor resistance | ≤ 25 Ω (Per line, RTD in 3- or 4-conductor technology) |
|                                               | ≤ 50 Ω (adjustable, RTD in 2-conductor technology)     |
| Linear resistance measuring range             | 0 Ω ... 4000 Ω (RTD)                                   |
| Linear mV signal range                        | -500 mV ... 500 mV (RTD)                               |
| Connection technology                         | 2-, 3-, 4-conductor                                    |

## Output data

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Switching: Transistor

|                           |                |
|---------------------------|----------------|
| Number of outputs         | 2              |
| Contact switching type    | 2 N/O contacts |
| Maximum switching voltage | 30 V DC        |
| Max. switching current    | 100 mA (30 V)  |

## Connection data

|                                  |                                                                                                                              |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Connection method                | Push-in connection                                                                                                           |
| Stripping length                 | 10 mm                                                                                                                        |
| Conductor cross-section rigid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (with ferrule)<br>0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (without ferrule) |
| Conductor cross-section flexible | 0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                                                                                 |
| Conductor cross-section AWG      | 24 ... 12 (flexible)                                                                                                         |

## Ex data

|                       |              |
|-----------------------|--------------|
| Ex installation (EPL) | Gc<br>Div. 2 |
|-----------------------|--------------|

## Interfaces

Data: IFS interface

|                   |                  |
|-------------------|------------------|
| Connection method | Micro USB type B |
|-------------------|------------------|

## Signaling

|                  |                                                             |
|------------------|-------------------------------------------------------------|
| Status display   | Green LED (supply voltage)<br>Yellow LED (switching output) |
| Error indication | Red LED                                                     |

## Dimensions

|        |           |
|--------|-----------|
| Width  | 6.2 mm    |
| Height | 109.81 mm |
| Depth  | 119.2 mm  |

## Material specifications

|                                                        |                 |
|--------------------------------------------------------|-----------------|
| Color                                                  | gray (RAL 7042) |
| Housing material                                       | PBT             |
| Fire protection for rail vehicles (DIN EN 45545-2) R22 | HL 1 - HL 2     |
| Fire protection for rail vehicles (DIN EN 45545-2) R23 | HL 1 - HL 2     |
| Fire protection for rail vehicles (DIN EN 45545-2) R24 | HL 1 - HL 2     |

## Environmental and real-life conditions

Ambient conditions

|                                 |                           |
|---------------------------------|---------------------------|
| Degree of protection            | IP20 (not assessed by UL) |
| Ambient temperature (operation) | -40 °C ... 70 °C          |

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

## Approvals

### CE

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

### ATEX

|                |                          |
|----------------|--------------------------|
| Identification | ⊕ II 3 G Ex ec IIC T4 Gc |
| Certificate    | BVS 20 ATEX E 024 X      |

### IECEX

|                |                    |
|----------------|--------------------|
| Identification | Ex ec IIC T4 Gc    |
| Certificate    | IECEX BVS 20.0017X |

### CCC / China-Ex

|                |                   |
|----------------|-------------------|
| Identification | Ex nA IIC T4 Gc   |
| Certificate    | NEPSI GYJ21.1041X |

### 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 TAA000021E Rev. 1 |
|-------------|--------------------------|

### EAC Ex

|                |                                 |
|----------------|---------------------------------|
| Identification | Ex ec IIC T4 Gc                 |
| Certificate    | BY/112 02.01 TP012 103.01 00081 |

### 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 |
|-----------------------|--------------|

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## Standards and regulations

|                      |                 |
|----------------------|-----------------|
| Electrical isolation | 3-way isolation |
|----------------------|-----------------|

### GB Standard

|                       |           |
|-----------------------|-----------|
| Standards/regulations | GB 3836.1 |
|                       | GB 3836.8 |

## Mounting

|                   |                                                                                                                       |
|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| Mounting type     | DIN rail mounting                                                                                                     |
| Assembly note     | The DIN rail connector can be used for bridging the supply voltage. It can be snapped onto a 35 mm EN 60715 DIN rail. |
| Mounting position | any                                                                                                                   |

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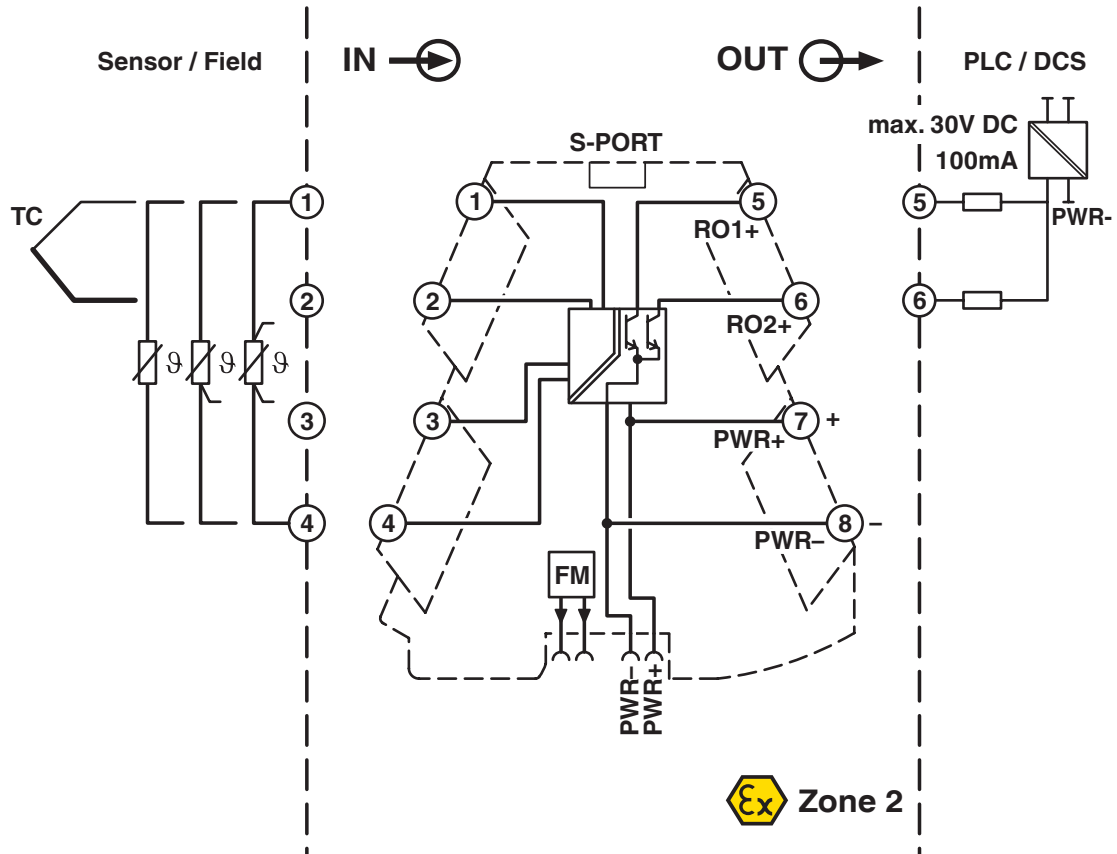


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## Drawings

Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2906877>



**EAC**

Approval ID: RU\*DE.\*08.B.01536/19



**UL Listed**

Approval ID: FILE E 238705



**cUL Listed**

Approval ID: FILE E 238705

**DNV**

Approval ID: TAA000021E



**IECEx**

Approval ID: IECEx\_BVS\_20.0017X



**cUL Listed**

Approval ID: E196811



**UL Listed**

Approval ID: E196811



**ATEX**

Approval ID: BVS 20 ATEX E 024 X



**EAC Ex**

Approval ID: TR TS\_S\_103.01.00081



**CCC**

Approval ID: 2022122304115970

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27210120 |
| ECLASS-15.0 | 27210120 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002653 |
|-----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121000 |
|-------------|----------|

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## 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)                                           |
|                                     | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7) |
| SCIP                                | 58730bfc-bb49-41d4-ac8b-a46104fbacbb                           |

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