

MINI MCR-2-I0-U - Signal conditioner



2902000

<https://www.phoenixcontact.com/us/products/2902000>

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3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0 mA ... 20 mA, output signal: 0 V ... 10 V, screw connection technology

Product description

Standard signal 3-way signal conditioner with plug-in connection technology for the electrical isolation, conversion, amplification, and filtering of standard signals. The measuring transducer supports fault monitoring and NFC communication.

Commercial data

| | |
|--------------------------------------|--------------------|
| Item number | 2902000 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C404 |
| Product key | CK1411 |
| Catalog page | Page 76 (C-5-2019) |
| GTIN | 4046356651820 |
| Weight per piece (including packing) | 114.2 g |
| Weight per piece (excluding packing) | 104 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 | Signal conditioner |
| Product family | MINI Analog Pro |
| No. of channels | 1 |
| Type | Signal conditioner |

Insulation characteristics: GB Standard

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

Electrical properties

| | |
|---|--|
| Electrical isolation | 3-way isolation |
| Electrical isolation between input and output | yes |
| Limit frequency (3 dB) | ≈  Hz |
| Protective circuit | Transient protection |
| Step response (10-90%) | ≈  ms |
| Maximum temperature coefficient | 0.01 %/K |
| Temperature coefficient, typical | 0.01 %/K |
| Maximum transmission error | 0.1 % (of final value) |

Electrical isolation Input/output/power supply

| | |
|--------------------------|---|
| Rated insulation voltage | 300 V _{rms} |
| Test voltage | 3 kV AC (50 Hz, 60 s) |
| Insulation | Reinforced insulation according to IEC/EN 61010-1 |

Supply

| | |
|-----------------------------|--|
| Nominal supply voltage | 24 V DC |
| 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 | 25 mA (24 V DC) 54 mA (12 V DC) |
| Power consumption | ≤ 200 mW (9.6 V DC) |

Input data

Signal: Current

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

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| | |
|--------------------------------|---|
| Configurable/programmable | no |
| Current input signal | 0 mA ... 20 mA |
| Input resistance current input | approx. 63 Ω (+0.7 V for test diode) |

Output data

Signal: Voltage

| | |
|---------------------------------|--|
| Number of outputs | 1 |
| Configurable/programmable | no |
| Voltage output signal | 0 V ... 10 V |
| Max. voltage output signal | 11 V |
| Short-circuit current | < 15 mA |
| Load/output load voltage output | ≥ 10 k Ω |
| Ripple | < 20 mV _{PP} (10 k Ω) |

Connection data

| | |
|----------------------------------|--|
| Connection method | Screw connection |
| Stripping length | 10 mm |
| Screw thread | M3 |
| Conductor cross section rigid | 0.2 mm ² ... 1.5 mm ² (with ferrule) 0.14 mm ² ... 2.5 mm ² (without ferrule) |
| Conductor cross section flexible | 0.14 mm ² ... 2.5 mm ² |
| Conductor cross section AWG | 24 ... 12 (flexible) |
| Tightening torque | 0.5 Nm ... 0.6 Nm |

Ex data

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

Signaling

| | |
|----------------|----------------------------|
| Status display | Green LED (supply voltage) |
|----------------|----------------------------|

Dimensions

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

Material specifications

| | |
|--|-----------------|
| Color | gray (RAL 7042) |
| 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 |
| Housing material | PBT |

Environmental and real-life conditions

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Ambient conditions

| | |
|---|-------------------------------|
| Degree of protection | IP20 (not assessed by UL) |
| Ambient temperature (operation) | -40 °C ... 70 °C |
| 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 19 ATEX E 047 X |

UKCA Ex (UKEX)

| | |
|----------------|--------------------------|
| Identification | Ⓜ II 3 G Ex ec IIC T4 Gc |
| Certificate | PxCIF21UKEX2902000X |

IECEX

| | |
|----------------|--------------------|
| Identification | Ex ec IIC T4 Gc |
| Certificate | IECEX BVS 19.0041X |

CCC / China-Ex

| | |
|----------------|-----------------|
| Identification | Ex nA IIC T4 Gc |
|----------------|-----------------|

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 TAA00002UA |
|-------------|-------------------|

EAC Ex

| | |
|----------------|---------------------------------|
| Identification | Ⓜ Ex ec IIC T4 Gc |
| Certificate | BY/112 02.01 TP012 103.01 00079 |

DNV GL 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

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| | |
|-------------------------------|--|
| Noise immunity | EN 61000-6-2 |
| Note | When being exposed to interference, there may be minimal deviations. |
| Electromagnetic compatibility | Conformance with EMC directive |
| Noise emission | EN 61000-6-4 |

Electrostatic discharge

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-2 |
|-----------------------|--------------|

Electrostatic discharge

| | |
|----------|---|
| Comments | Safety measures must be taken to prevent electrostatic discharge. |
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Electromagnetic HF field

| | |
|-----------------------|--------------------------|
| Designation | Electromagnetic RF field |
| Standards/regulations | EN 61000-4-3 |

Fast transients (burst)

| | |
|-----------------------|-------------------------|
| Designation | Fast transients (burst) |
| Standards/regulations | EN 61000-4-4 |

Surge current load (surge)

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-5 |
|-----------------------|--------------|

Conducted interference

| | |
|-----------------------|-------------------------|
| Designation | Conducted interferences |
| Standards/regulations | EN 61000-4-6 |

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 instructions | 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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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-11.0 | 27210120 |
| ECLASS-12.0 | 27210120 |
| ECLASS-13.0 | 27210120 |

ETIM

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| ETIM 9.0 | EC002653 |
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UNSPSC

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

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Environmental product compliance

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|------------|--|
| REACH SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally Friendly Use Period = 50 years |
| | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

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