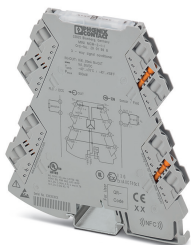


## Signal conditioner - MINI MCR-2-I-I - 2901998

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3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0(4) mA ... 20 mA, output signal: 0(4) mA ... 20 mA, 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 current signals. The measuring transducer supports fault monitoring and NFC communication.



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 046356 649490 |
| GTIN                                 | 4046356649490   |
| Weight per Piece (excluding packing) | 94.700 g  |
| Custom tariff number                 | 85437090  |
| Country of origin                    | Germany   |
| Sales Key                            | CK1411  |

### Technical data

#### Note

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

#### Dimensions

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

#### Ambient conditions

|   |                  |
|---|------------------|
| Ambient temperature (operation)         | -40 °C ... 70 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Maximum altitude                        | ≤ 2000 m         |

# Signal conditioner - MINI MCR-2-I-I - 2901998

## Technical data

### Ambient conditions

|                                  |   |
|----------------------------------|---|
| 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

|                                |                                      |
|--------------------------------|--------------------------------------|
| Designation                    | Current input                        |
| Number of inputs               | 1                                    |
| Configurable/programmable      | no                                   |
| Current input signal           | 0 mA ... 20 mA                       |
|                                | 4 mA ... 20 mA                       |
| Input resistance current input | approx. 63 Ω (+0.7 V for test diode) |

### Output data

|                                 |                                  |
|---------------------------------|----------------------------------|
| Number of outputs               | 1                                |
| Configurable/programmable       | no                               |
| Current output signal           | 0 mA ... 20 mA                   |
|                                 | 4 mA ... 20 mA                   |
| Max. output current             | 22 mA                            |
| Load/output load current output | ≤ 600 Ω (at 20 mA)               |
| Ripple                          | < 20 mV <sub>PP</sub> (at 600 Ω) |
| Transmission Behavior           | 1:1 to input signal              |

### Power supply

|                             |   |
|-----------------------------|---|
| Nominal supply voltage      | 24 V DC   |
| Supply voltage range        | 9.6 V DC ... 30 V DC (The DIN rail bus 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 according to EN 60715)) |
| Typical current consumption | 25 mA (24 V DC)   |
|                             | 54 mA (12 V DC)   |
| Power consumption           | ≤ 800 mW (at 9.6 V DC)  |

### Connection data

|                                  |  |
|----------------------------------|--|
| Connection method                | Screw connection   |
| Stripping length                 | 10 mm  |
| Screw thread                     | M3   |
| Conductor cross section solid    | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (with ferrule)     |
|                                  | 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)   |
| Torque                           | 0.5 Nm ... 0.6 Nm  |

### General

|                 |   |
|-----------------|---|
| No. of channels | 1 |
|-----------------|---|

# Signal conditioner - MINI MCR-2-I-I - 2901998

## Technical data

### General

|  |  |
|--|--|
| Maximum transmission error                             | 0.1 % (of final value)   |
| Maximum temperature coefficient                        | 0.01 %/K   |
| Temperature coefficient, typical                       | 0.01 %/K   |
| Limit frequency (3 dB)                                 | approx. 30 Hz  |
| Step response (10-90%)                                 | approx. 10 ms  |
| Protective circuit                                     | Transient protection   |
| Electrical isolation                                   | Reinforced insulation in accordance with IEC 61010-1   |
| Overvoltage category                                   | II   |
| Degree of pollution                                    | 2  |
| Rated insulation voltage                               | 300 V (effective)  |
| Test voltage, input/output/supply                      | 3 kV (50 Hz, 1 min.)   |
| Electromagnetic compatibility                          | Conformance with EMC directive   |
| Noise emission   | EN 61000-6-4   |
| Noise immunity   | EN 61000-6-2 When being exposed to interference, there may be minimal deviations.  |
| Housing material                                       | PBT  |
| Mounting position                                      | any  |
| Assembly instructions                                  | The T connector can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715. |
| 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  |

### 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

|                               |                                |
|-------------------------------|--------------------------------|
| Electromagnetic compatibility | Conformance with EMC directive |
| Noise emission                | EN 61000-6-4                   |
| Standards/regulations         | EN 61000-4-2                   |
| Designation                   | Electromagnetic RF field       |
| Standards/regulations         | EN 61000-4-3                   |
|                               | EN 61000-4-4                   |
|                               | EN 61000-4-5                   |
| Designation                   | Conducted interferences        |
| Standards/regulations         | EN 61000-4-6                   |
| Designation                   | GB Standard                    |

# Signal conditioner - MINI MCR-2-I-I - 2901998

## Technical data

### Standards and Regulations

|                       |  |
|-----------------------|--|
| Standards/regulations | GB 3836.1  |
|                       | GB 3836.8  |
| Electrical isolation  | Reinforced insulation in accordance with IEC 61010-1 |

### Conformance/approvals

|                |   |
|----------------|---|
| Designation    | CE  |
| Certificate    | CE-compliant  |
| Designation    | ATEX  |
| Identification | # II 3 G Ex ec IIC T4 Gc  |
| Certificate    | BVS 19 ATEX E 047 X   |
| Designation    | UKCA Ex (UKEX)  |
| Identification | # II 3 G Ex ec IIC T4 Gc  |
| Certificate    | PxCIF21UKEX2902000X   |
| Designation    | IECEX   |
| Identification | Ex ec IIC T4 Gc   |
| Certificate    | IECEX BVS 19.0041X  |
| Designation    | CCC / China-Ex  |
| Identification | Ex nA IIC T4 Gc   |
| Designation    | UL, USA / Canada  |
| Identification | UL 508 Listed   |
|                | Class I, Div. 2, Groups A, B, C, D T6   |
|                | Class I, Zone 2, Group IIC T6   |
| Designation    | Shipbuilding approval   |
| Certificate    | DNV GL TAA00002UA   |
| Temperature    | B   |
| Humidity       | B   |
| Vibration      | A   |
| EMC            | A   |
| Enclosure      | Required protection according to the Rules shall be provided upon installation on board |

### 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" |

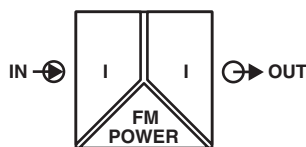
## Drawings

# Signal conditioner - MINI MCR-2-I-I - 2901998

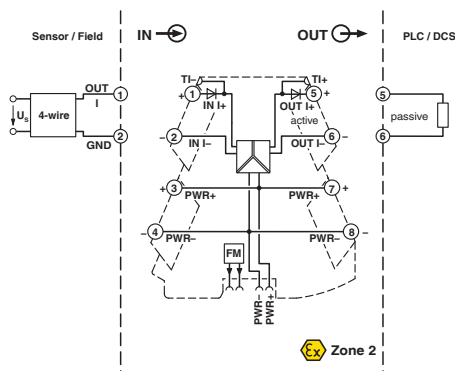
Pictogram



Pictogram



Block diagram



## Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27210120 |
| eCl@ss 11.0   | 27210120 |
| eCl@ss 4.0    | 27210100 |
| eCl@ss 4.1    | 27210100 |
| eCl@ss 5.0    | 27210100 |
| eCl@ss 5.1    | 27210100 |
| eCl@ss 6.0    | 27210100 |
| eCl@ss 7.0    | 27210120 |
| eCl@ss 9.0    | 27210120 |

ETIM

|          |          |
|----------|----------|
| ETIM 4.0 | EC002653 |
| ETIM 6.0 | EC002653 |
| ETIM 7.0 | EC002653 |

# Signal conditioner - MINI MCR-2-I-I - 2901998

## Classifications

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211502 |
| UNSPSC 7.0901 | 39121004 |
| UNSPSC 11     | 39121004 |
| UNSPSC 12.01  | 39121004 |
| UNSPSC 13.2   | 39121008 |
| UNSPSC 18.0   | 39121008 |
| UNSPSC 19.0   | 39121008 |
| UNSPSC 20.0   | 39121008 |
| UNSPSC 21.0   | 39121008 |

## Approvals

### Approvals

#### Approvals

UL Listed / cUL Listed / DNV GL / CCC / cULus Listed

#### Ex Approvals

UL Listed / cUL Listed / EAC Ex / IECEx / ATEX / ATEX / cULus Listed

### Approval details

|           |  |   |               |
|-----------|--|---|---------------|
| UL Listed |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 238705 |
|-----------|--|---|---------------|

|            |  |   |               |
|------------|--|---|---------------|
| cUL Listed |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 238705 |
|------------|--|---|---------------|

|        |  |   |            |
|--------|--|---|------------|
| DNV GL |  | <a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a> | TAA00002UA |
|--------|--|---|------------|

|     |  |  |                  |
|-----|--|--|------------------|
| CCC |  |  | 2021322310003859 |
|-----|--|--|------------------|

# Signal conditioner - MINI MCR-2-I-I - 2901998

## Approvals

cULus Listed



## Accessories

### Accessories

#### Communication module

Communication module - MINI MCR-2-V8-MOD-RTU - 2905634



Eight MINI Analog Pro signal conditioners and measuring transducers can be quickly and easily integrated into a Modbus/RTU network via a communication adapter.

Communication module - MINI MCR-2-V8-MOD-TCP - 2905635



Eight MINI Analog Pro signal conditioners and measuring transducers can be quickly and easily integrated into a Modbus/TCP network via a communication adapter.

Communication module - MINI MCR-2-V8-PB-DP - 2905636



Eight MINI Analog Pro signal conditioners and measuring transducers can be quickly and easily integrated into a PROFIBUS DP network via a communication adapter.

### Controller board

System adapter - MINI MCR-2-V8-FLK 16 - 2901993



Eight MINI Analog Pro signal conditioners and measuring transducers can be connected to a controller with minimal cabling effort and without any errors using system adapters and system cabling.

## Device marking

## Signal conditioner - MINI MCR-2-I-I - 2901998

### Accessories

#### Marker for end clamp - UCT-EM (30X5) - 0801505



Marker for end clamp, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snapped into marker carrier, lettering field size: 30 x 5 mm, Number of individual labels: 24

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#### Plastic label - UC-EMLP (15X5) - 0819301



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: 15 x 5 mm, Number of individual labels: 10

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#### Plastic label - UC-EMLP (15X5) YE - 0822615



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: 15 x 5 mm, Number of individual labels: 10

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#### Plastic label - UC-EMLP (15X5) SR - 0828095



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: 15 x 5 mm, Number of individual labels: 10

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#### Plastic label - US-EMLP (15X5) - 0828790



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: 15 x 5 mm, Number of individual labels: 189



## Signal conditioner - MINI MCR-2-I-I - 2901998

### Accessories

#### Plastic label - US-EMLP (15X5) YE - 0828873



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: 15 x 5 mm, Number of individual labels: 189

#### Plastic label - US-EMLP (15X5) SR - 0828874



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: 15 x 5 mm, Number of individual labels: 189

#### Marker for end clamp - UCT-EM (30X5) YE - 0830340



Marker for end clamp, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snapped into marker carrier, lettering field size: 30 x 5 mm, Number of individual labels: 24

### 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

#### DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - 2869728



DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

### Evaluation unit

## Signal conditioner - MINI MCR-2-I-I - 2901998

### Accessories

#### Monitoring module - MINI MCR-2-FM-RC - 2904504



Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error message via N/C contact. Screw connection technology, standard configuration

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#### Monitoring module - MINI MCR-2-FM-RC-PT - 2904508



Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error message via N/C contact. Push-in connection technology, standard configuration

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### Labeled device marker

#### Marker for end clamp - UCT-EM (30X5) CUS - 0801589



Marker for end clamp, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: snapped into marker carrier, lettering field size: 30 x 5 mm, Number of individual labels: 24

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#### Plastic label - UC-EMLP (15X5) CUS - 0824550



Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm

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#### Plastic label - UC-EMLP (15X5) YE CUS - 0824551



Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm

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## Signal conditioner - MINI MCR-2-I-I - 2901998

### Accessories

Plastic label - UC-EMLP (15X5) SR CUS - 0828099



Plastic label, can be ordered: by sheet, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

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Plastic label - US-EMLP (15X5) CUS - 0830076



Plastic label, can be ordered: by card, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

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Plastic label - US-EMLP (15X5) YE CUS - 0830077



Plastic label, can be ordered: by card, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

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Plastic label - US-EMLP (15X5) SR CUS - 0830078



Plastic label, can be ordered: by card, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

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Marker for end clamp - UCT-EM (30X5) YE CUS - 0830348



Marker for end clamp, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: snapped into marker carrier, lettering field size: 30 x 5 mm, Number of individual labels: 24

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### Power module

## Signal conditioner - MINI MCR-2-I-I - 2901998

### Accessories

Power terminal block - MINI MCR-2-PTB - 2902066



Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Screw connection technology

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Power terminal block - MINI MCR-2-PTB-PT - 2902067



Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Push-in connection technology

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### Power supply

Power supply unit - QUINT4-SYS-PS/1AC/24DC/2.5/SC - 2904614



Primary-switched power supply unit, QUINT POWER, Screw connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 2.5 A

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### Terminal marking

Marker strip - SK 5,0 WH:REEL - 0805221



Marker strip, Roll, white, unlabeled, can be labeled with: THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: adhesive, for terminal block width: 5 mm, lettering field size: continuous x 5 mm, Number of individual labels: 90000

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