

# MINI MCR-SL-I-I - Signal conditioner



2864406

<https://www.phoenixcontact.com/us/products/2864406>

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3-way signal conditioner, for electrical isolation of analog signals, with screw connection, input signal: 0(4) mA ... 20 mA, output signal: 0(4) mA ... 20 mA

## Product description

The 6.2 mm wide standard signal 3-way isolating amplifier MINI MCR-SL-I-I(-SP) is used for electrical isolation, amplification and filtering of standard signals.

On the input and output side, the analog standard signals 0...20 mA or 4...20 mA are available, electrically isolated.

Power (19.2 V DC to 30 V DC) can be supplied through connection terminal blocks on the modules or in conjunction with the DIN rail connector.

## Your advantages

- Power supply possible via the foot element (TBUS)
- Entry-level alternative to configurable signal conditioners
- Low power consumption
- 3-way isolation
- Highly-compact isolating amplifier for electrical isolation, conversion, amplification, and filtering of standard analog signals
- Fixed signal combinations

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2864406       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | C403          |
| Product key                          | DK1131        |
| GTIN                                 | 4017918956158 |
| Weight per piece (including packing) | 86.9 g        |
| Weight per piece (excluding packing) | 71.1 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        |
| No. of channels | 1                  |

#### Insulation characteristics

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

### Electrical properties

|                                                 |                                                                                                  |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Rated insulation voltage                        | 50 V AC/DC                                                                                       |
| Electrical isolation                            | Basic insulation in accordance with EN 61010                                                     |
| Electrical isolation between input and output   | yes                                                                                              |
| Limit frequency (3 dB)                          | approx. 100 Hz                                                                                   |
| Maximum power dissipation for nominal condition | 250 mW                                                                                           |
| Test voltage (Input/output/supply)              | 1.5 kV AC (50 Hz, 60 s)                                                                          |
| Protective circuit                              | Transient protection                                                                             |
| Signal transmission behavior                    | In = Out                                                                                         |
| Step response (10-90%)                          | $\approx$  ms |
| Maximum temperature coefficient                 | < 0.01 %/K                                                                                       |
| Temperature coefficient, typical                | < 0.002 %/K                                                                                      |
| Maximum transmission error                      | $\leq$ 0.1 % (of final value)                                                                    |

#### Supply

|                          |                                                                                                                                                                                                                 |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal supply voltage   | 24 V DC                                                                                                                                                                                                         |
| Supply voltage range     | 19.2 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) |
| Max. current consumption | < 20 mA                                                                                                                                                                                                         |
| Power consumption        | < 450 mW                                                                                                                                                                                                        |

### Input data

#### Signal: Current

|                           |                                  |
|---------------------------|----------------------------------|
| Number of inputs          | 1                                |
| Configurable/programmable | no                               |
| Current input signal      | 0 mA ... 20 mA<br>4 mA ... 20 mA |

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|                                |                     |
|--------------------------------|---------------------|
| Max. current input signal      | 50 mA               |
| Input resistance current input | approx. 50 $\Omega$ |

## Output data

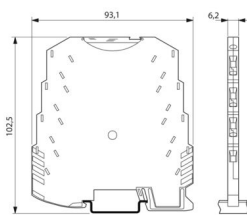
### Signal

|                                 |                                          |
|---------------------------------|------------------------------------------|
| Number of outputs               | 1                                        |
| Configurable/programmable       | no                                       |
| Open-circuit voltage            | approx. 12.5 V                           |
| Current output signal           | 0 mA ... 20 mA<br>4 mA ... 20 mA         |
| Max. current output signal      | 28 mA                                    |
| Load/output load current output | < 500 $\Omega$ (at 20 mA)                |
| Ripple                          | < 20 mV <sub>PP</sub> (at 500 $\Omega$ ) |

## Connection data

|                                  |                                             |
|----------------------------------|---------------------------------------------|
| Connection method                | Screw connection                            |
| Stripping length                 | 12 mm                                       |
| Screw thread                     | M3                                          |
| Conductor cross-section rigid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross-section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross-section AWG      | 26 ... 12                                   |

## Dimensions

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 6.2 mm                                                                               |
| Height              | 93.1 mm                                                                              |
| Depth               | 101.2 mm                                                                             |

## Material specifications

|                                                        |                  |
|--------------------------------------------------------|------------------|
| Color                                                  | green (RAL 6021) |
| 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 |
|----------------------|------|

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|                                         |                               |
|-----------------------------------------|-------------------------------|
| Ambient temperature (operation)         | -20 °C ... 65 °C              |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C              |
| Altitude                                | ≤ 2000 m                      |
| Permissible humidity (operation)        | 5 % ... 95 % (non-condensing) |

## Approvals

### CE

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

### UKCA

|             |                |
|-------------|----------------|
| Certificate | UKCA-compliant |
|-------------|----------------|

### UL, USA/Canada

|                |                                                            |
|----------------|------------------------------------------------------------|
| Identification | UL 508 Recognized<br>Class I, Div. 2, Groups A, B, C, D T5 |
|----------------|------------------------------------------------------------|

### Shipbuilding approval

|             |                   |
|-------------|-------------------|
| Certificate | DNV GL TAA000020N |
|-------------|-------------------|

### Shipbuilding data

|             |                                                                                         |
|-------------|-----------------------------------------------------------------------------------------|
| Temperature | B                                                                                       |
| Humidity    | B                                                                                       |
| Vibration   | B                                                                                       |
| 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 |
|-----------------------|--------------|

### Electrostatic discharge

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

### Electromagnetic HF field

|                                                        |                          |
|--------------------------------------------------------|--------------------------|
| Designation                                            | Electromagnetic RF field |
| Standards/regulations                                  | EN 61000-4-3             |
| Typical deviation from the measuring range final value | 10 %                     |

### Fast transients (burst)

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

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|                                                        |      |
|--------------------------------------------------------|------|
| Typical deviation from the measuring range final value | 10 % |
|--------------------------------------------------------|------|

## Conducted interference

|                                                        |                         |
|--------------------------------------------------------|-------------------------|
| Designation                                            | Conducted interferences |
| Standards/regulations                                  | EN 61000-4-6            |
| Typical deviation from the measuring range final value | 10 %                    |

## Standards and regulations

|                      |                                              |
|----------------------|----------------------------------------------|
| Electrical isolation | Basic insulation in accordance with EN 61010 |
|----------------------|----------------------------------------------|

## 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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## Drawings



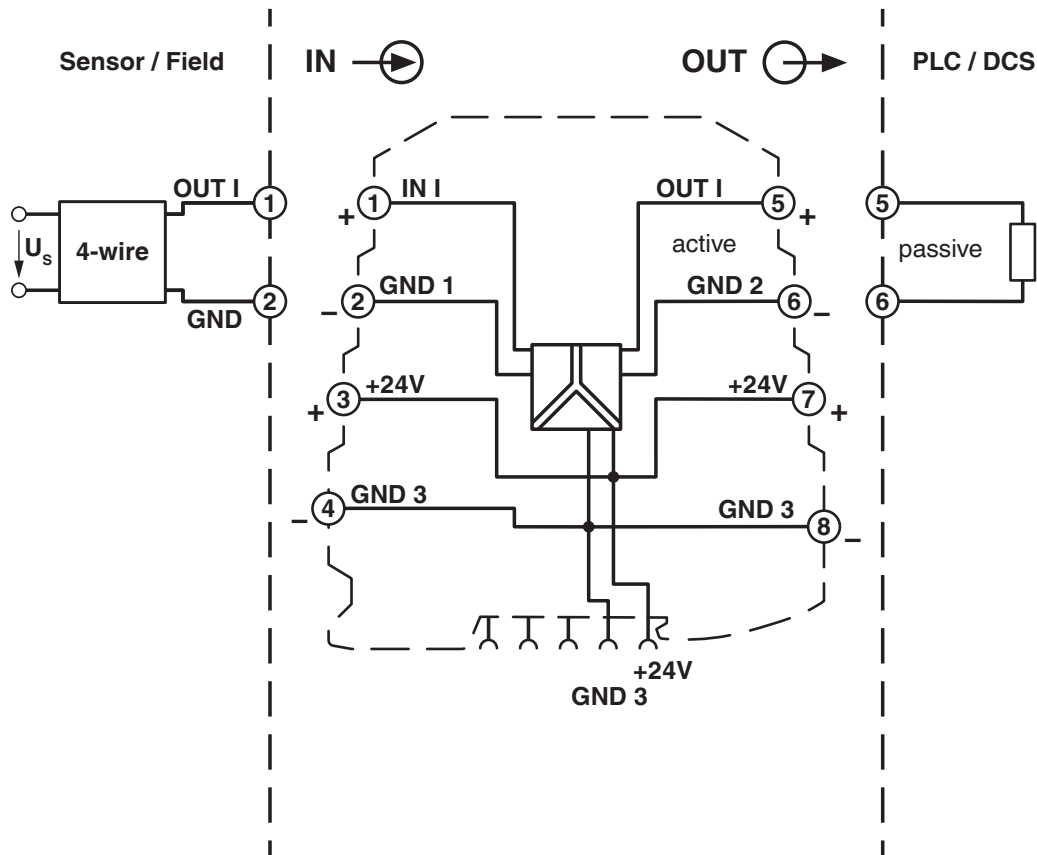
# MINI MCR-SL-I-I - Signal conditioner

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Block diagram



# MINI MCR-SL-I-I - Signal conditioner



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2864406>



**cUL Recognized**

Approval ID: E238705



**UL Recognized**

Approval ID: E238705



**BV**

Approval ID: 39933/B0\_BV

**DNV**

Approval ID: TAA000020N



**cUL Listed**

Approval ID: E199827



**UL Listed**

Approval ID: E199827

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## Classifications

### ECLASS

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

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC002653 |
|----------|----------|

### UNSPSC

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

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## Environmental product compliance

### EU RoHS

|                                         |                    |
|-----------------------------------------|--------------------|
| Fulfills EU RoHS substance requirements | Yes                |
| Exemption                               | 6(c), 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                                | adc772d5-f5fa-42bc-b60a-4e2aa57a4e7c |

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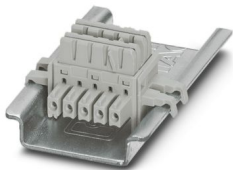


## Accessories

ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - DIN rail bus connector

2695439

<https://www.phoenixcontact.com/us/products/2695439>



DIN rail bus connector (TBUS), 5-pos., for bridging the supply voltage, can be snapped onto NS 35/... DIN rail in accordance with EN 60715

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

2869728

<https://www.phoenixcontact.com/us/products/2869728>



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

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## TC-D37SUB-AIO16-M-PS-UNI - Module carrier

2902934

<https://www.phoenixcontact.com/us/products/2902934>



Universal termination carrier for connecting 16 MINI Analog signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection), with HART multiplexer connection

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## TC-D37SUB-ADIO16-M-P-UNI - Module carrier

2902933

<https://www.phoenixcontact.com/us/products/2902933>



Universal termination carrier for connecting 16 MINI Analog signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection)

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## MINI MCR DKL - Transparent cover

2308111

<https://www.phoenixcontact.com/us/products/2308111>



Fold up transparent cover for MINI MCR modules with additional labeling option using insert strips and flat Zack marker strip 6.2 mm

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## MINI MCR-DKL-LABEL - Marking label

2810272

<https://www.phoenixcontact.com/us/products/2810272>



Label for extended marking of MINI MCR modules in connection with the MINI MCR-DKL

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## MINI MCR-SL-PTB - Power terminal block

2864134

<https://www.phoenixcontact.com/us/products/2864134>



MCR power terminal block for supplying several MINI Analog modules via the DIN rail connector, with screw connection, maximum current consumption of up to 2 A

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

2904614

<https://www.phoenixcontact.com/us/products/2904614>



Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

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## SZS 0,6X3,5 - Screwdriver

1205053

<https://www.phoenixcontact.com/us/products/1205053>



Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

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