

# MINI MCR-SL-I-U-0 - Input signal conditioner



2813541

<https://www.phoenixcontact.com/us/products/2813541>

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MCR 3-way isolating amplifier, for electrical isolation of analog signals, with screw connection, input signal: 0 mA ... 20 mA, output signal: 0 V ... 10 V

## Product description

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

On the input side, 0...20 V mA or 4...20 mA are measured and made available at the module output as a galvanically isolated 0...10 V signal. 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)
- Low power consumption
- Entry-level alternative to configurable signal conditioners
- Highly-compact isolating amplifier for electrical isolation, conversion, amplification, and filtering of standard analog signals
- 3-way isolation
- Fixed signal combinations

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2813541       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | C403          |
| Product key                          | DK1131        |
| GTIN                                 | 4046356100601 |
| Weight per piece (including packing) | 86.2 g        |
| Weight per piece (excluding packing) | 64.6 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    | Input signal conditioner |
| Product family  | MINI Analog              |
| No. of channels | 1                        |

### Electrical properties

|   |  |
|---|--|
| Electrical isolation                          | 3-way isolation  |
| Electrical isolation between input and output | yes  |
| Limit frequency (3 dB)                        | approx. 100 Hz   |
| Step response (10-90%)                        | ≈  ms |
| Maximum temperature coefficient               | < 0.01 %/K   |
| Temperature coefficient, typical              | < 0.002 %/K  |
| Maximum transmission error                    | ≤ 0.1 % (of final value)   |

#### Electrical isolation

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

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

|                          |                         |
|--------------------------|-------------------------|
| Standards/regulations    | IEC/EN 61010            |
| Rated insulation voltage | 30 V AC                 |
|                          | 50 V DC                 |
| Test voltage             | 1.5 kV AC (50 Hz, 60 s) |
| Insulation               | Basic insulation        |

#### 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 | < 9 mA  |
| Power consumption        | < 200 mW  |

### Input data

#### Signal: Current

|                           |    |
|---------------------------|----|
| Number of inputs          | 1  |
| Configurable/programmable | no |

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|                                |                     |
|--------------------------------|---------------------|
| Current input signal           | 0 mA ... 20 mA      |
| Max. current input signal      | 50 mA               |
| Input resistance current input | approx. 50 $\Omega$ |

## Output data

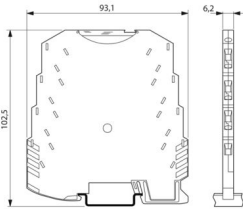
Signal: Voltage

|                                 |   |
|---------------------------------|---|
| Number of outputs               | 1   |
| Configurable/programmable       | no  |
| Voltage output signal           | 0 V ... 10 V                              |
| Max. voltage output signal      | 12.5 V                                    |
| Short-circuit current           | approx. 2 mA                              |
| Load/output load voltage output | $\geq 10$ k $\Omega$                      |
| Ripple                          | < 20 mV <sub>PP</sub> (at 10 k $\Omega$ ) |

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

### UL, USA/Canada

|                |  |
|----------------|--|
| Identification | UL 508 Recognized<br>Class I, Div. 2, Groups A, B, C, D T4 |
|----------------|--|

## 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

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

### 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 | 5 %                      |

### Fast transients (burst)

|  |                         |
|--|-------------------------|
| Designation  | Fast transients (burst) |
| Standards/regulations                                  | EN 61000-4-4            |
| Typical deviation from the measuring range final value | 5 %                     |

### Surge current load (surge)

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

### Surge current load (surge)

|          |             |
|----------|-------------|
| Comments | Criterion B |
|----------|-------------|

### Conducted interference

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

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|  |     |
|--|-----|
| Typical deviation from the measuring range final value | 5 % |
|--|-----|

## Standards and regulations

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

## 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

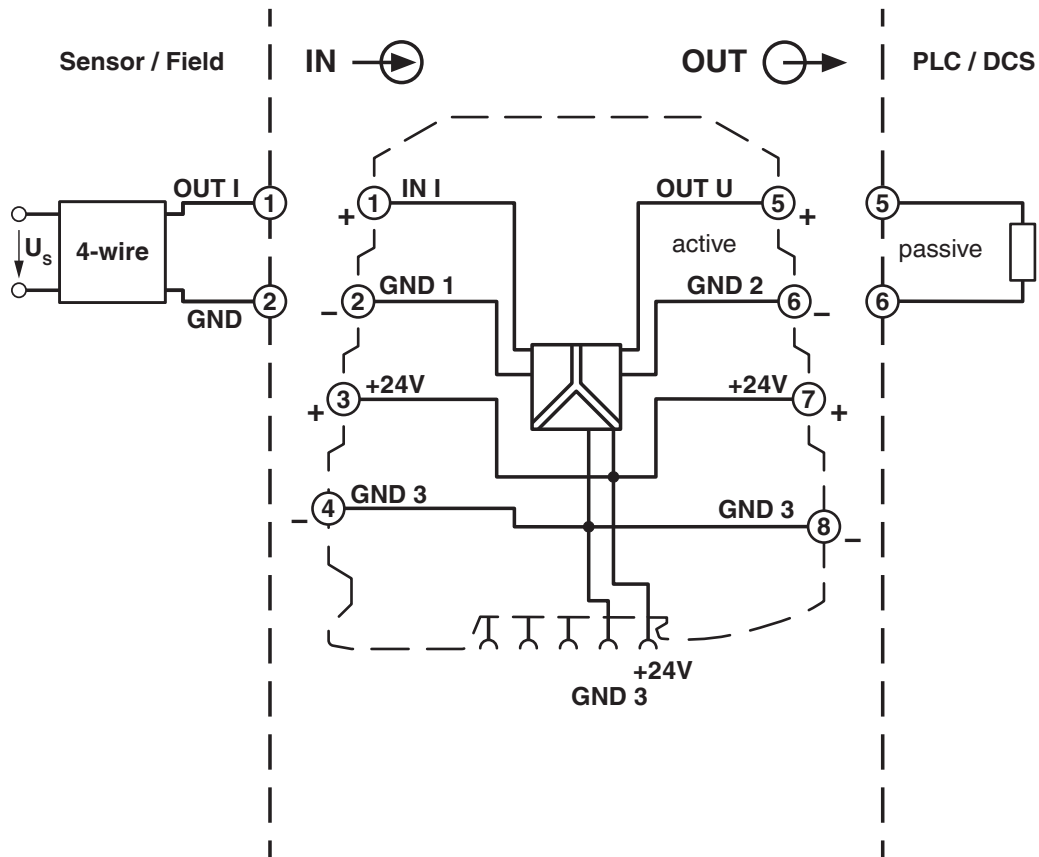


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Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2813541>



**cUL Recognized**  
Approval ID: E238705



**UL Recognized**  
Approval ID: E238705

**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 10.0 | 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)   |
|                                     | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7) |
| SCIP                                | d708aef2-9dce-4d0e-af21-f02a6c6eb899                           |

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 1.946 kg CO2e |
|---------|---------------|

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