

# MINI MCR-SL-U-I-4 - Signal conditioner



2813525

<https://www.phoenixcontact.com/ca/products/2813525>

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MCR 3-way isolating amplifier, for electrical isolation of analog signals, with screw connection, input signal: 0 V ... 10 V, output signal: 4 mA ... 20 mA

## Your advantages

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

## Commercial data

|                                      |                    |
|--------------------------------------|--------------------|
| Item number                          | 2813525            |
| Packing unit                         | 1 pc               |
| Minimum order quantity               | 1 pc               |
| Sales key                            | CK01               |
| Product key                          | CK1211             |
| Catalog page                         | Page 97 (C-7-2015) |
| GTIN                                 | 4046356100618      |
| Weight per piece (including packing) | 87.2 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

|                                                 |                                                                                                  |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 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 | 88 mW                                                                                            |
| 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)                                                                    |

#### Electrical isolation Input/output/power supply

|                          |                         |
|--------------------------|-------------------------|
| Rated insulation voltage | 30 V AC                 |
|                          | 50 V DC                 |
| Test voltage             | 1.5 kV AC (50 Hz, 60 s) |

#### 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: Voltage

|                           |              |
|---------------------------|--------------|
| Number of inputs          | 1            |
| Configurable/programmable | no           |
| Voltage input signal      | 0 V ... 10 V |

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|                                   |                        |
|-----------------------------------|------------------------|
| Max. voltage input signal         | 30 V                   |
| Input resistance of voltage input | approx. 100 k $\Omega$ |

## Output data

### Signal

|                                 |                                           |
|---------------------------------|-------------------------------------------|
| Number of outputs               | 1                                         |
| Configurable/programmable       | no                                        |
| Non-load voltage                | approx. 12.5 V                            |
| Current output signal           | 4 mA ... 20 mA                            |
| Max. current output signal      | 28 mA                                     |
| Load/output load current output | $\leq 500 \Omega$                         |
| Ripple                          | $< 20 \text{ mV}_{PP}$ (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             |
| Ambient temperature (operation) | -20 °C ... 65 °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 |
|-------------|--------------|

### UKCA

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

### UL, USA/Canada

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

### Shipbuilding approval

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

### DNV GL 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

|                               |                                                                      |
|-------------------------------|----------------------------------------------------------------------|
| 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. |
|----------|-------------------------------------------------------------------|

### 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            |

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

## Standards and regulations

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

## 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                                                                                                                   |

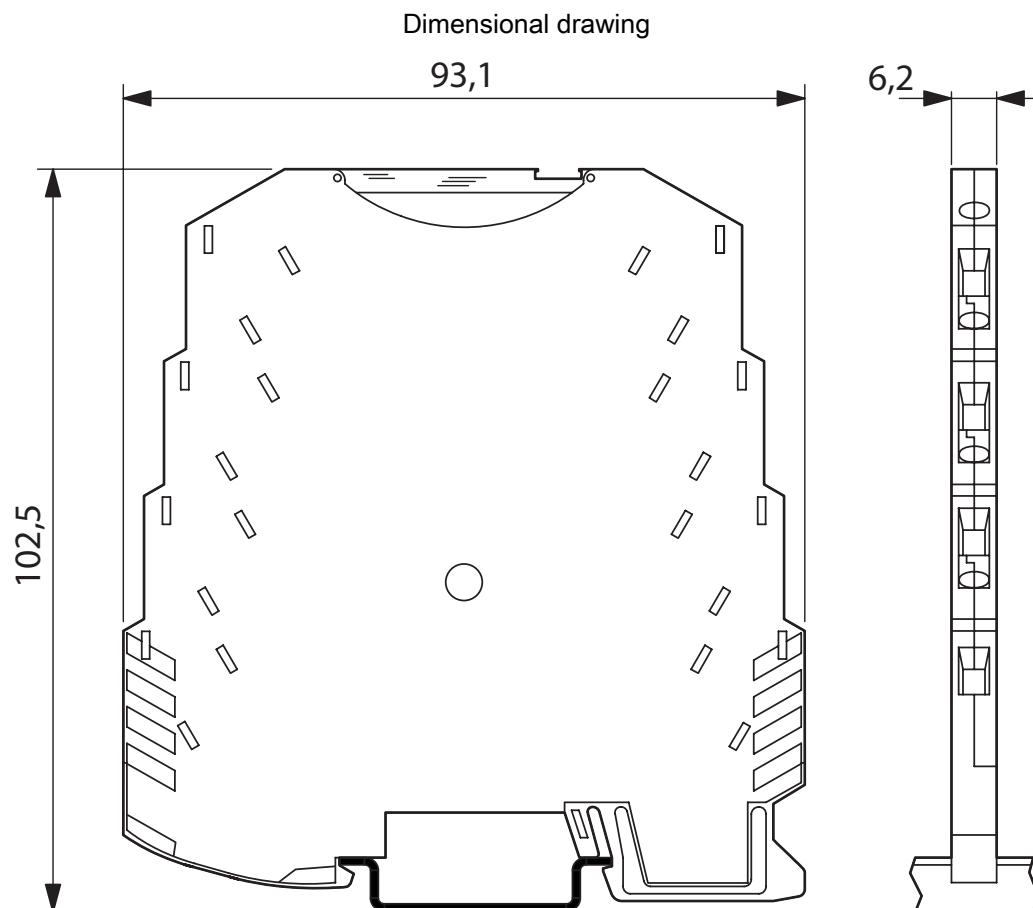
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## Drawings



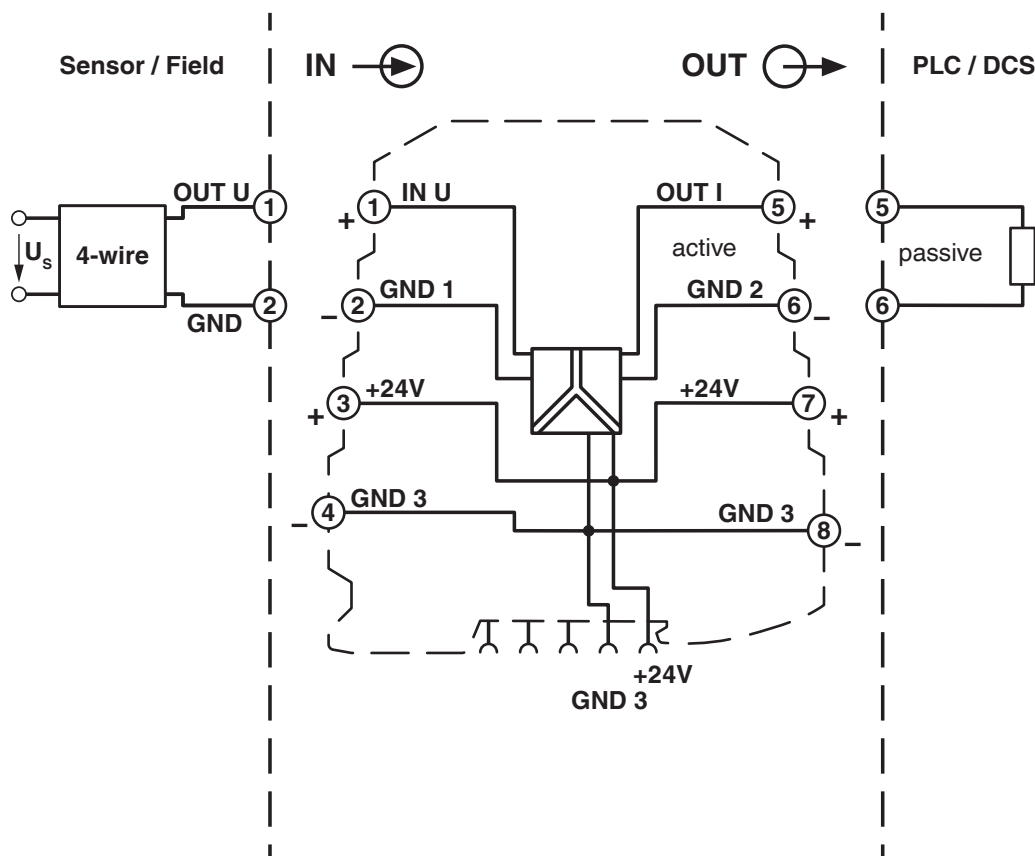
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Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/ca/products/2813525>



**cUL Recognized**  
Approval ID: FILE E 238705



**UL Recognized**  
Approval ID: FILE E 238705

**DNV**  
Approval ID: TAA000020N



**cUL Listed**  
Approval ID: FILE E 199827



**UL Listed**  
Approval ID: FILE E 199827

**cULus Recognized**

**cULus Listed**

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27210120 |
| ECLASS-12.0 | 27210120 |
| ECLASS-13.0 | 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                                    | 839007c8-d78e-49d6-8f32-ec02754c8d3f                                                                                                                                                                                              |

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