

# MCR-SL-CUC-...-...

## Universal current transducer



Data sheet  
104059\_en\_05

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### 1 Description

**MCR-SL-CUC-...-I** and **MCR-SL-CUC-...-U** active current transducers convert DC, AC, and distorted currents into standard analog signals.

**Output signal: 4 ... 20 mA.**

| Designation      | Input current | Order No. |
|------------------|---------------|-----------|
| MCR-SL-CUC-100-I | 0 ... 100 A   | 2308027   |
| MCR-SL-CUC-200-I | 0 ... 200 A   | 2308030   |
| MCR-SL-CUC-300-I | 0 ... 300 A   | 2308043   |
| MCR-SL-CUC-400-I | 0 ... 400 A   | 2308072   |
| MCR-SL-CUC-500-I | 0 ... 500 A   | 2308085   |
| MCR-SL-CUC-600-I | 0 ... 600 A   | 2308098   |

**Output signal: 0 ... 10 V**

| Designation      | Input current | Order No. |
|------------------|---------------|-----------|
| MCR-SL-CUC-100-U | 0 ... 100 A   | 2308108   |
| MCR-SL-CUC-200-U | 0 ... 200 A   | 2308205   |
| MCR-SL-CUC-300-U | 0 ... 300 A   | 2308302   |

### Features

- Electrical isolation of input and output signals
- Contact-free measurement of live conductors
- Large input signal opening



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This data sheet is valid for all products listed on the following page:

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### 3 Ordering data

#### Products

| Description  | Type             | Order No. | Pcs./Pkt. |
|--|------------------|-----------|-----------|
| Universal current transducer for measuring DC, AC, and distorted currents, 0 ... 100 A input current, 4 ... 20 mA output current | MCR-SL-CUC-100-I | 2308027   | 1         |
| Universal current transducer for measuring DC, AC, and distorted currents, 0 ... 200 A input current, 4 ... 20 mA output current | MCR-SL-CUC-200-I | 2308030   | 1         |
| Universal current transducer for measuring DC, AC, and distorted currents, 0 ... 300 A input current, 4 ... 20 mA output current | MCR-SL-CUC-300-I | 2308043   | 1         |
| Universal current transducer for measuring DC, AC, and distorted currents, 0 ... 400 A input current, 4 ... 20 mA output current | MCR-SL-CUC-400-I | 2308072   | 1         |
| Universal current transducer for measuring DC, AC, and distorted currents, 0 ... 500 A input current, 4 ... 20 mA output current | MCR-SL-CUC-500-I | 2308085   | 1         |
| Universal current transducer for measuring DC, AC, and distorted currents, 0 ... 600 A input current, 4 ... 20 mA output current | MCR-SL-CUC-600-I | 2308098   | 1         |
| Universal current transducer for measuring DC, AC, and distorted currents, 0 ... 100 A input current, 0 ... 10 V output voltage  | MCR-SL-CUC-100-U | 2308108   | 1         |
| Universal current transducer for measuring DC, AC, and distorted currents, 0 ... 200 A input current, 0 ... 10 V output voltage  | MCR-SL-CUC-200-U | 2308205   | 1         |
| Universal current transducer for measuring DC, AC, and distorted currents, 0 ... 300 A input current, 0 ... 10 V output voltage  | MCR-SL-CUC-300-U | 2308302   | 1         |

#### Accessories

| Description  | Type             | Order No. | Pcs./Pkt. |
|--|------------------|-----------|-----------|
| Flat zack marker strip marking material (without color print, white) | ZBF10:UNBEDRUCKT | 0044187   | 1         |
| DIN rail adapter for mounting the universal current transducer       | PACT MCR-RA      | 2277598   | 12        |

### 4 Technical data

| Input                          | MCR-SL-CUC-100-I                          | MCR-SL-CUC-200-I         | MCR-SL-CUC-300-I          |
|--------------------------------|---|--------------------------|---------------------------|
| Nominal input current $I_{IN}$ | 0 ... 100 A                               | 0 ... 200 A              | 0 ... 300 A               |
| Overload capacity              | 6 x $I_{IN}$ , maximum                    | 3 x $I_{IN}$ , maximum   | 3.33 x $I_{IN}$ , maximum |
|                                | MCR-SL-CUC-400-I                          | MCR-SL-CUC-500-I         | MCR-SL-CUC-600-I          |
| Nominal input current $I_{IN}$ | 0 ... 400 A                               | 0 ... 500 A              | 0 ... 600 A               |
| Overload capacity              | 2.5 x $I_{IN}$ , maximum                  | 3.6 x $I_{IN}$ , maximum | 3 x $I_{IN}$ , maximum    |
|                                | MCR-SL-CUC-100-U                          | MCR-SL-CUC-200-U         | MCR-SL-CUC-300-U          |
| Nominal input current $I_{IN}$ | 0 ... 100 A                               | 0 ... 200 A              | 0 ... 300 A               |
| Overload capacity              | 6 x $I_{IN}$ , maximum                    | 3 x $I_{IN}$ , maximum   | 3.33 x $I_{IN}$ , maximum |
| Frequency range                | DC, 20 ... 6000 Hz                        |                          |                           |
| Signal form                    | Any                                       |                          |                           |
| Connection method              | Through connection of 32 mm $\varnothing$ |                          |                           |
| Output                         | MCR-SL-CUC-...-I                          | MCR-SL-CUC-...-U         |                           |
| Output signal $I_{OUT}$        | 4 ... 20 mA                               | 0 ... 10 V               |                           |
| Maximum output signal          | < 25 mA                                   | < 14 V                   |                           |
| Load                           | < 300 $\Omega$                            | $\geq 10$ k $\Omega$     |                           |
| Connection method              | FKCN 2.5/ 4-ST COMBICON connector         |                          |                           |

**Connection data**

|  |                              |
|--|------------------------------|
| Outside diameter of input                                      | 32 mm Ø                      |
| Power supply/output conductor cross-section                    |                              |
| Solid (minimum/maximum)  | 0.2 ... 2.5 mm <sup>2</sup>  |
| Stranded (minimum/maximum)                                     | 0.2 ... 2.5 mm <sup>2</sup>  |
| Stranded with ferrule without plastic sleeve (minimum/maximum) | 0.25 ... 2.5 mm <sup>2</sup> |
| Stranded with ferrule with plastic sleeve (minimum/maximum)    | 0.25 ... 1.5 mm <sup>2</sup> |
| AWG/kcmil (minimum/maximum)                                    | 24 ... 14                    |
| Stripping length (power supply/output)                         | 10 mm                        |

**General data**

|   |                                      |
|---|--------------------------------------|
| Supply voltage  | 24 V DC                              |
| Supply voltage range $U_B$  | 20 ... 30 V DC                       |
| Current consumption   |                                      |
| MCR-SL-CUC-...-I  | 30 mA + $I_{OUT}$                    |
| MCR-SL-CUC-...-U  | 30 mA                                |
| Power consumption   |                                      |
| At $U_{Bmax} = 30$ V and $I_{OUT} = 25$ mA                          | 1.65 W                               |
| Transmission error  |                                      |
| Under nominal conditions (25°C)                                     | < ±1% of range final value ( $I_N$ ) |
| Linearity error   | < ±1% of range final value ( $I_N$ ) |
| Temperature coefficient   |                                      |
| 0 ... 60°C  | ±3.2 µA/K                            |
| -40 ... 65°C  | ±6.4 µA/K                            |
| Step response (90% of $I_N$ )                                       | 150 ms                               |
| Ambient temperature range   |                                      |
| Operation   | -40°C ... +65°C                      |
| Storage   | -40°C ... +85°C                      |
| Safe isolation according to EN 61010                                |                                      |
| Rated insulation voltage  | 300 V AC                             |
| Test voltage  |                                      |
| Input/output  | 3.5 kV, 50 Hz, 1 min.                |
| Input/power supply  | 3.5 kV, 50 Hz, 1 min.                |
| Surge voltage category (measurement category according to EN 61010) | III                                  |
| Pollution degree  | 2                                    |
| Degree of protection  | IP20                                 |
| Dimensions (W x H x D)  | 90 mm x 70 mm x 33.8 mm              |
| Housing version   | Frianyl B63 V0 GV30                  |



The current transducer housing meets the requirements of UL94-V0 regarding inflammability characteristics.

**Approvals**

UL, USA / Canada



(does not apply to 2308085, 2308098)

**Conformance with EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC**

|  |                 |
|--|-----------------|
| EMC requirements regarding noise immunity and noise emission | EN 61326-1:2006 |
| General requirements regarding electrical safety             | EN 61010-1:2001 |

### Dimensions (nominal sizes in mm)



## 5 Safety notes and warning instructions



Installation and startup must only be carried out by qualified electricians. When installing and operating the device, the applicable safety directives (including national safety directives), accident prevention regulations, as well as general technical regulations, must be observed. In terms of these operating instructions, qualified personnel are electricians or persons with electrotechnical training as defined in VDE 0105 Part 1/DIN EN 50110-1.



### WARNING:

Disregarding this warning may result in damage to equipment and/or serious personal injury.



### NOTE:

Safe and error-free operation of this device can only be ensured if transport, storage, and assembly are carried out correctly and operation and maintenance are carried out with care.

## 6 Block diagram



Figure 1 Block diagram for current output



Figure 2 Block diagram for voltage output

## 7 Structure

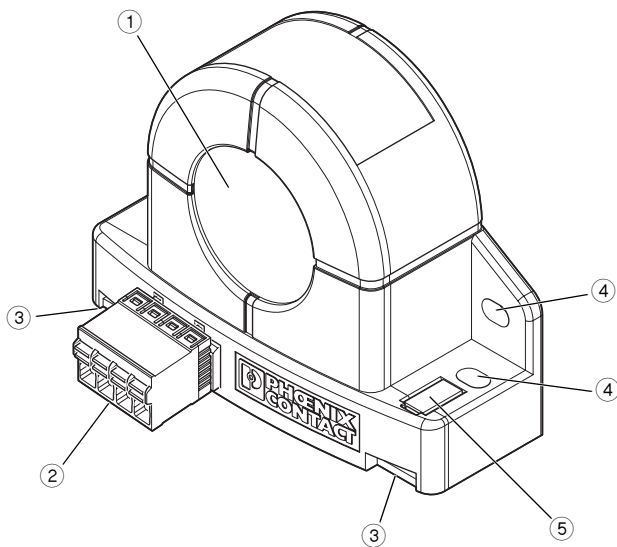


Figure 3 Structure

1. Input cable feed-through for the primary live conductor
2. Standard output signal and supply voltage (FKCN 2,5/ 4-ST COMBICON connector)
3. Connection option for DIN rail adapter
4. Fixing holes for wall mounting,  $\varnothing$  4.5 mm
5. Marking option with flat zack marker strips

## 8 Mounting



Figure 4 Mounting

The current transducers can be snapped onto all 35 mm DIN rails according to EN 60715 using the two PACT MCR-RA DIN rail adapters provided.

Alternatively, the current transducers can also be wall-mounted using the fixing holes (see Figure 3, "Structure").

Please use appropriate mounting material for this (e.g., M4 x 20 cylinder head screw).



Mounting material for wall mounting is not supplied as standard.



The requirements for the protection class must be met by means of installation in suitable housing.

## 9 Installation

### 9.1 Power supply



**WARNING: Danger**

Never carry out work when mains voltage is present.

#### Power supply via the connection terminal blocks

Power is supplied to the current transducers via connection terminal blocks 1.1 and 1.4 (see Section 6 "Block diagram", Figure 1).

### 9.2 Connecting the cables

#### Spring-cage connection

The supply voltage and standard output signal are connected using the spring-cage connection method.

:



Figure 5 Spring-cage connection

- Insert a screwdriver into the opening above the connection terminal block.
- Insert the wire into the corresponding connection terminal block.

## 10 Current monitoring



Figure 6 Current monitoring

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