

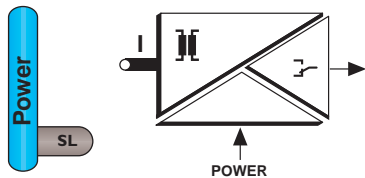
# Current Monitor for Sinusoidal Alternate Currents

## 0...16 A AC

### MCR-SL-S-16-SP-24

#### 1. Short Description

- Freely selectable switching point in measuring range from 0...16 A AC
- Relay changeover output
- Electrical isolation
- Selectable switching hysteresis
- Adjustable operating current and zero signal current mode

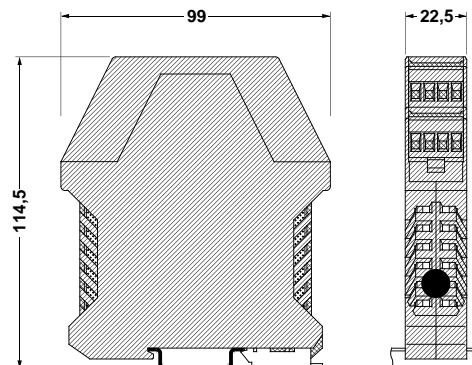


The **MCR-SL-S-16-SP-24 current monitor** converts sinusoidal 50 Hz/60 Hz alternate currents into binary switching signals.

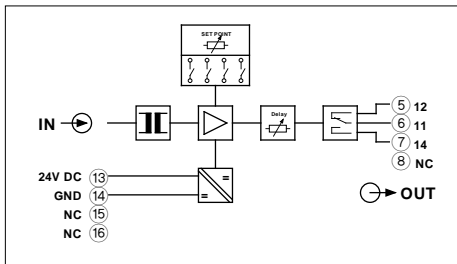
The current is detected inductively via the cable lead through the module. The switching threshold is roughly preset internally using DIP switches and then finely adjusted using a potentiometer on the front plate.

A high-quality changeover relay with gold coating is provided on the output side, which can be operated in operating current and zero signal current mode.

Dimensional drawing for MCR-SL-S-16-SP-24

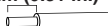


## 2. Technical Data



M 3

8 mm (0.31 in.)



	solid [mm <sup>2</sup> ]	flexible [mm <sup>2</sup> ]	AWG	I [A]	U [V]
Connection data	0.2 - 2.5	0.2 - 2.5	25 - 14	*	*

\* The electrical data is determined by the module.

### MCR-SL-S-16-SP-24

Programmable loop-powered temperature measuring transducer



#### Description

**MCR current monitor**  
for sinusoidal alternate currents 0...16 A AC

#### Technical Data

##### Input

Input current  
Nominal frequency  
Frequency range  
Waveform  
Overcurrent capacity  
Connection type

##### Switching output

Relay output  
Contact material  
Maximum switching voltage  
Maximum switching current  
Switching hysteresis  
Delay time  
Operating current and zero signal current mode  
Relay status indicator

##### General Data

Supply voltage  
Maximum current consumption  
Setting precision  
Temperature coefficient  
Signal detection time  
Safe isolation

##### Test voltage

Ambient operating temperature range  
Degree of protection  
Mounting position  
Connection type                      Supply/relay

Dimensions (W x H x D)  
Cable cross section  
Housing material

#### Type

**MCR-SL-S-16-SP-24**

Order No.	Pcs. Pkt.
28 64 46 4	1

0...16 A AC  
50 Hz/60 Hz  
45...50...65 Hz  
Sine  
2 x I<sub>N</sub> continuous  
Push-through connection Ø 4.2 mm (0.165 in.)

1 Form C contact  
AgSnO<sub>2</sub>, hard gold-plated  
30 V AC/36 V DC<sup>1)</sup> (250 V AC/DC)  
50 mA<sup>1)</sup> (2A)  
Can be set using DIP switches  
0.1...10 s, typical; can be set using potentiometer  
Can be set using DIP switches  
Yellow LED (relay active)

20...30 V DC  
< 30 mA  
< 0.5%, typical  
< 0.02%/K  
40 ms  
According to EN 61010/EN 50178  
300 V AC to ground  
4 kV, 50 Hz, 1 minute  
-20°C to +65°C (-4°F to +149°F)  
IP20  
Any  
Screw terminal block 2.5 mm<sup>2</sup> (14 AWG)  
22.5 x 99 x 114.5 mm (0.886 x 3.898 x 4.508 in.)  
0.2 - 2.5 mm<sup>2</sup> (25 - 14 AWG)  
Polyamide PA, not reinforced

<sup>1)</sup> If the specified maximum values are exceeded, the gold coating will be damaged. In subsequent operation, the maximum values given in brackets will apply.



Conforms to the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC

**EMC (Electromagnetic Compatibility)**

Noise immunity according to EN 50082-2

- Electrostatic discharge (ESD)

- Electromagnetic HF field
  - Amplitude modulation
  - Pulse modulation

- Fast transients (burst)

- Surge current loads (surge)

- Conducted interference

Noise emission according to EN 50081-2

EN 61000-4-2	8 kV air discharge <sup>2)</sup>
EN 61000-4-3	10 V/m <sup>1)</sup> 10 V/m <sup>1)</sup>
EN 61000-4-4	Input/output/supply 2 kV/5 kHz <sup>2)</sup>
EN 61000-4-5	Input/output: 2 kV/42 Ω <sup>2)</sup> Supply: 0.5 kV/2 Ω /12 Ω <sup>2)</sup>
EN 61000-4-6	Input/output/supply 10 V <sup>1)</sup>
EN 55011	Class A

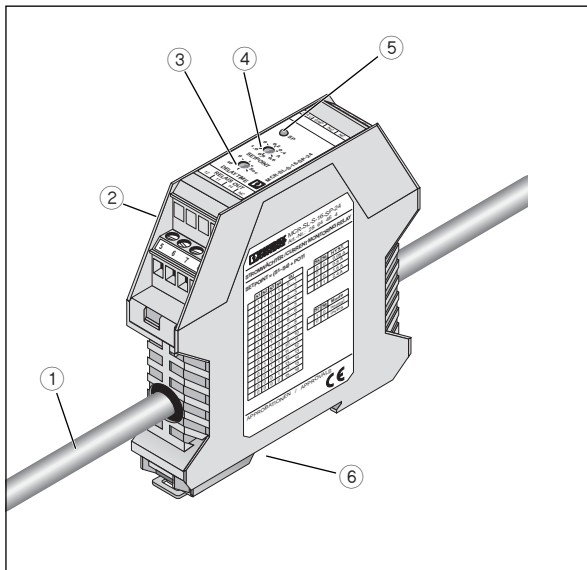
EN 61000 corresponds to IEC 1000/  
EN 55011 corresponds to CISPR11

- <sup>1)</sup> Criterion A: Normal operating characteristics within the specified limits.
- <sup>2)</sup> Criterion B: Temporary adverse effects on the operating characteristics that the device corrects independently.

Class A: Industrial application, without special installation measures

**MCR-SL-S-16-SP-24 – Current Monitor**

- ① Conductive cable
- ② Housing cover, can be removed to set the DIP switches
- ③ Potentiometer for fine adjustment: Delay time
- ④ Potentiometer for fine adjustment: Current
- ⑤ Yellow LED: Status indicator for the relay
- ⑥ Metal lock for fastening on the DIN rail



### 3. Configuration

#### 3.1. Opening the Device

The locked housing cover is released on both sides using a screwdriver ①.

The housing cover and electronics can now be pulled out about 3 cm (1.181 in.) ②.



**Ensure you take sufficient measures against electrostatic discharge**

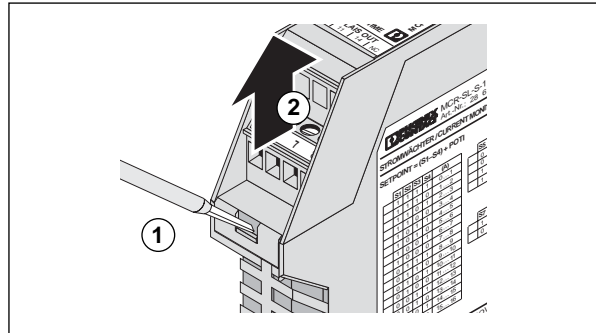
#### 3.2. Setting

The current monitor module is configured using eight internal DIP switches and a potentiometer mounted on the front plate of the housing.

The fields in the left column of the following table can be used to identify the selected current range, the switching hysteresis, and the operating mode. The label on the side of the module can also be used for this.

First of all, the switching is preset roughly using DIP switches S1 to S4. They are used to define the switching point within the specified current ranges:

Current Range	DIP Switch			
	S1	S2	S3	S4
0... 1 A	ON	ON	ON	ON
1... 2 A	ON	ON	ON	OFF
2... 3 A	ON	ON	OFF	ON
3... 4 A	ON	ON	OFF	OFF
4... 5 A	ON	OFF	ON	ON
5... 6 A	ON	OFF	ON	OFF
6... 7 A	ON	OFF	OFF	ON
7... 8 A	ON	OFF	OFF	OFF
8... 9 A	OFF	ON	ON	ON
9...10 A	OFF	ON	ON	OFF
10...11 A	OFF	ON	OFF	ON
11...12 A	OFF	ON	OFF	OFF
12...13 A	OFF	OFF	ON	ON
13...14 A	OFF	OFF	ON	OFF
14...15 A	OFF	OFF	OFF	ON
15...16 A	OFF	OFF	OFF	OFF



To avoid the frequent switching of the relay output during minimum current fluctuations, a hysteresis can be specified for the desired switching point using DIP switches S5 and S6:

Hysteresis		DIP Switch	
		S5	S6
0.08 A	(0.5%)	OFF	OFF
0.80 A	(5%)	OFF	ON
1.60 A	(10%)	ON	OFF
2.40 A	(15%)	ON	ON

DIP switches S7 and S8 are used to select the operating current and zero signal current mode:

Operating Mode		DIP Switch	
		S7	S8
Operating current mode (normal)		ON	OFF
Zero signal current mode (inverse)		OFF	ON

Once the housing has been closed and the conductive cable has been fed through the housing, the settings can be finely adjusted using the potentiometer on the front plate.

