

Residual current monitor RCM460Y

for TN and TT systems (AC and pulsed DC currents)



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RCM460Y

Device features

- External measuring current transformer
- Response values, adjustable
30 mA...300 mA (40...400 Hz)
- Response delay, adjustable 0...1 s
- Alarm relay with one potential-free
changeover contact
- N/O operation
- TEST button
- Sealable transparent cover
- Separate supply voltage
- Type A according to IEC 60755

Approvals



Product description

The residual current monitor RCM460Y is designed for fault current respectively residual current monitoring in small earthed systems (TN and TT systems) or for single loads. In addition, the device can be used to monitor single conductors, such as PE conductors, N-PE connections and PE-PAS connections.

Since the values are measured with measuring current transformers, the device is nearly independent of the load current and the nominal voltage of the system. The device can also be used for busbar systems.

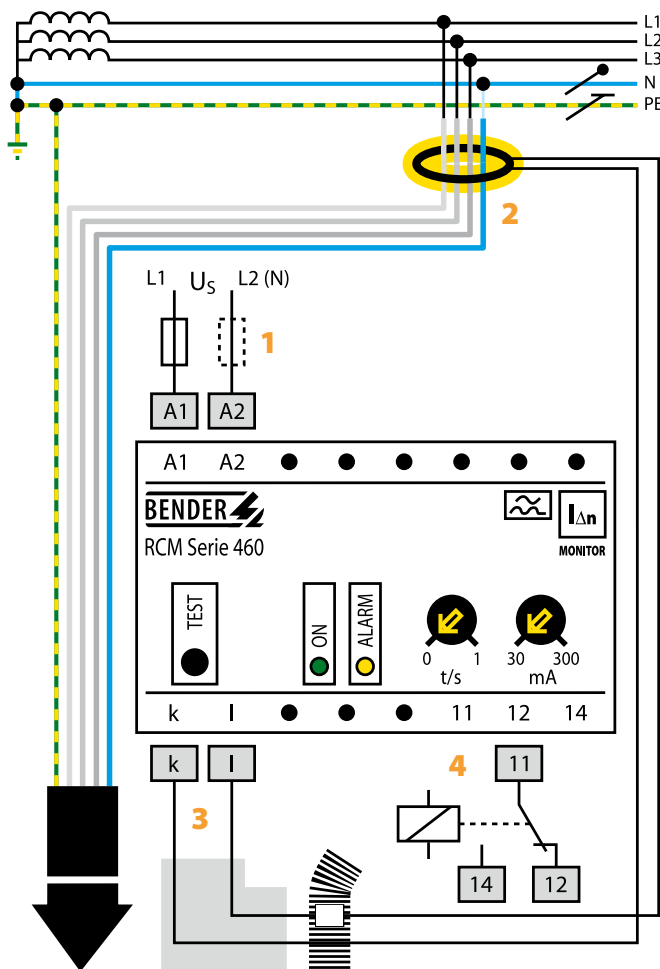
Application

- Residual current monitoring in earthed two, three or four conductor systems.
- Current monitoring of single conductors de-energized under normal conditions.
- Monitoring of smaller socket outlet circuits.
- Monitoring of individual loads.

Function

Residual current monitoring takes place via an external measuring current transformer. When the residual current respectively the current exceeds the set response value, the alarm LED lights and the alarm relay switches after the expiry of the set response delay. The device function can be tested using the TEST button.

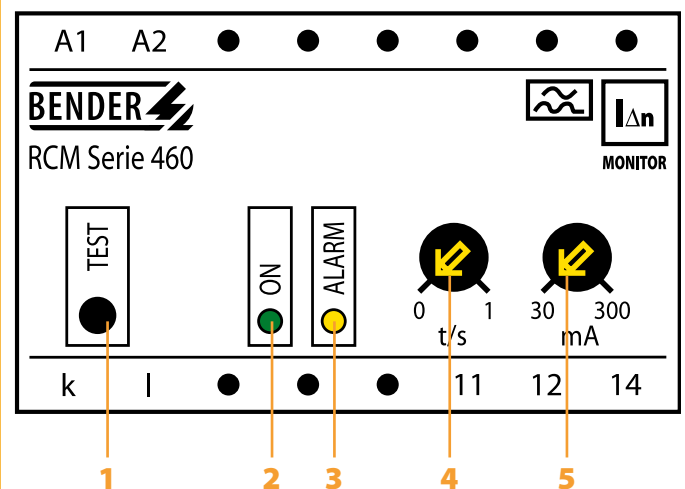
Wiring diagram – system connection, external connections



- 1 - Supply voltage U_S (see ordering information), a 6 A fuse recommended for line protection.
- 2 - External measuring current transformer (refer to table "External measuring current transformers").
- 3 - The CT connecting leads k and L must be led through the EMI absorber. The EMI absorber has to be fixed directly at the RCM in front of the terminals k and I using the accompanying cable ties.
- 4 - Alarm relay: switches when the preset response value is reached and in case of interruption of the CT connection.

Note! Do not route the PE conductor through the measuring current transformer!

Wiring diagram – front plate



- 1 - TEST button
- 2 - Power On LED
- 3 - Alarm LED: lights when the fault current exceeds the response value and in case of interruption of the CT connection.
- 4 - Potentiometer for setting the response delay (0...1 s).
- 5 - Potentiometer for setting the response value (30...300 mA).

Technical data

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 250 V
Rated impulse voltage/pollution degree	4 kV/3

Voltage ranges

Supply voltage U_S	see ordering information
Operating range of U_S	0.85...1.1 x U_S
Frequency range of U_S	50...400 Hz
Power consumption	≤ 2.6 VA

Measuring circuit

External measuring current transformers	W..., WR..., WS... series
Load	220 Ω
Operating characteristic acc. to IEC 60755	Type A
Rated residual operating current $I_{\Delta n}$	30...300 mA
Response delay t_V , adjustable	0...1 s
Accuracy of response delay	± 20%
Rated frequency	40...400 Hz
Relative percentage error	0...-25% of the response value
Hysteresis	approx. 25% of the response value
Response time $t_{\Delta n}$ at $I_{\Delta n} = 1 \times I_{\Delta n}$ ($t_V = 0$ s)	< 300 ms
Response time $t_{\Delta n}$ at $I_{\Delta n} = 5 \times I_{\Delta n}$ ($t_V = 0$ s)	≤ 40 ms
Number of measuring channels	1

Displays

LEDs	Power On, Alarm
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Inputs/outputs

TEST button	internal
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Cable lengths for measuring current transformers

Single wire ≥ 0.75 mm ²	0...1 m
Single wire, twisted ≥ 0.75 mm ²	0...10 m
Shielded cable ≥ 0.5 mm ²	0...40 m
Recommended cable (shielded, shield on one side connected to PE)	J-Y(ST)Y min. 2x0.8

Switching elements

Number of switching elements	1 x 1 changeover contact
Operating principle	N/O operation
Electrical endurance, number of cycles	12000
Rated contact voltage	AC 250 V/DC 300 V
Limited making capacity	AC/DC 5 A
Limited breaking capacity	2 A, AC 230 V, cos phi = 0.4 0.2 A, DC 220 V, L/R = 0.04 s

Environment/EMC

EMC immunity	acc. to EN 61543
EMC emission	acc. to EN 61000-6-4
Shock resistance IEC 60068-2-27 (during operation)	15 g/11 ms
Bumping IEC 60068-2-29 (during transport)	40 g/6 ms
Vibration resistance IEC 60068-2-6 (during operation)	1 g/10...150 Hz
Vibration resistance IEC 60068-2-6 (during transport)	2 g/10...150 Hz
Ambient temperature, during operation	-10...+55 °C
Ambient temperature, when stored	-40...+70 °C
Climatic category IEC 60721-3-3	3K5

Connection

Connection	screw terminals
Connection properties	
rigid/flexible	0.2...4 mm ² /0.2...2.5 mm ²
flexible with ferrules, without/with plastic collar	0.25...2.5 mm ²
Conductor sizes (AWG)	24...12

Other

Operating mode	continuous operation
Mounting	any position
Degree of protection, internal components (IEC 60529)	IP30
Degree of protection, terminals (IEC 60529)	IP20
Type of enclosure	X460
Enclosure material	polycarbonate
Screw mounting	2 x M4
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94V-0
Standards	IEC 62020
Instruction leaflet	BP401001
Weight	≤ 180 g

Ordering information

Response range $I_{\Delta n}$	Rated frequency	Response delay	Measuring current transformers	Supply voltage U_s	Type	Art. No.
				AC		
30...300 mA	40...400 Hz	0...1 s	W..., WR..., WS...	AC 230 V	RCM460Y	B 9401 2022
30...300 mA	40...400 Hz	0...1 s	W..., WR..., WS...	AC 90...132 V*	RCM460Y-13	B 9401 2031

Other supply voltages on request * Absolute values of the operating range

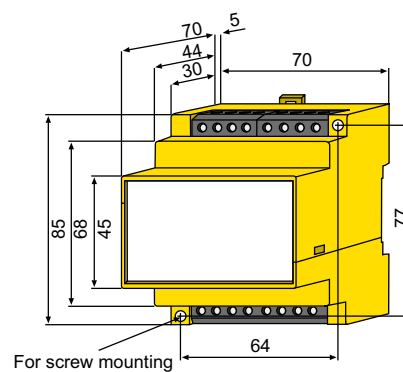
Accessories

External measuring current transformers		
Inside diameter (mm)	Type	Art. No.
ø 20	W20	B 9808 0003
ø 35	W35	B 9808 0010
ø 60	W60	B 9808 0018
ø 120	W120	B 9808 0028
ø 210	W210	B 9808 0034
70 x 175	WR70x175	B 9808 0609
115 x 305	WR115x305	B 9808 0610
20 x 30	WS20x30	B 9808 0601
50 x 80	WS50x80	B 9808 0603
80 x 120	WS80x120	B 9808 0606

Other measuring current transformer types on request.

Dimension diagram X460

Dimensions in mm





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