

Ground fault monitor RCM465Y

Ground Fault Monitor / Ground Fault Relay
for Grounded AC Systems



RCM465Y

Device features

- Internal measuring current transformer
ø 26 mm (1")
- Response values, adjustable
30 mA...300 mA (40...400 Hz)
- Response delay, adjustable 0...1 s
- Voltage-free SPDT contact
- Normally de-energized operation
- TEST button
- Compact size
- Sealable transparent cover
- Separate supply voltage
- Type A according to IEC 60755

Approvals



Product description

The RCM465Y monitors for ground faults in grounded and high-resistance grounded AC systems, both single- and three-phase. The RCM465Y is specially designed to provide advanced warning of developing ground faults without the problems associated with high sensitivity nuisance tripping.

A steplessly adjustable setpoint range allows for flexibility in a variety of systems. A voltage-free SPDT contact allows for either information transmission (such as to a PLC) or power interruption (such as through a contactor or shunt trip breaker). Its compact size allows for easy placement in control panels.

The device utilizes a built-in current transformer, making it nearly independent of the load current and nominal voltage of the system.

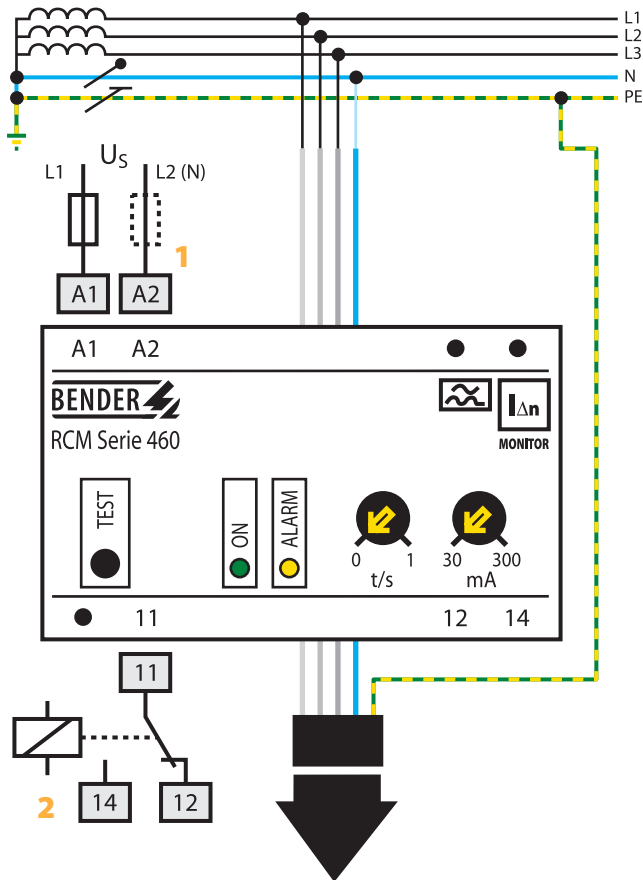
Application

- Ground fault detection in single- or three-phase AC systems
- Motors and motor control systems
- Generators, portable and fixed
- Industrial controls
- Individual loads

Function

Measurements of the system's ground fault leakage current are taken via external current transformers. All phases (including the neutral if one exists) are placed through the current transformer. If the measured value exceeds the response value, the contact switches over and the alarm LED activates after the time delay. After the ground fault clears, the contacts will switch back over and the LED will dim.

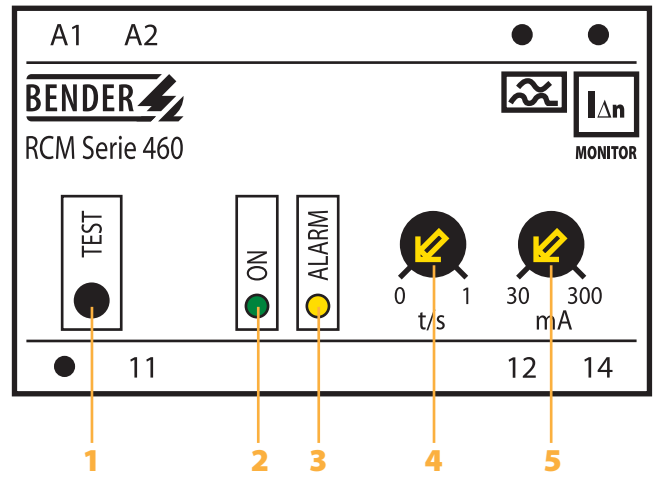
Wiring diagram – system connection, external connections



- 1 - Supply voltage U_s (see ordering details), a 6 A fuse is recommended.
- 2 - Alarm relay: switches when the response value is reached.

Note! Do not route the ground conductor through the measuring current transformer when also routing the power conductors!

Wiring diagram – front plate



- 1 - TEST button
- 2 - Power On LED
- 3 - Alarm LED: Illuminates when the response value has been exceeded.
- 4 - Potentiometer for setting the response delay (0...1 s).
- 5 - Potentiometer for setting the response value (30...300 mA).

Technical data: Ground fault monitor RCM465Y

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	≤ 1.5 VA

Measuring circuit / response values

Internal measuring current transformer	∅ 26 mm
Load	220 Ω
Operating characteristic acc. to IEC 60755	Type A
Rated residual operating current $I_{\Delta n1}$ (Alarm1)	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_{an} at $I_{\Delta n} = 1 \times I_{\Delta n}$ ($t_v = 0$ s)	< 300 ms
Response time t_{an} 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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Switching elements

Switching elements, alarm relays	1 SPDT contact
Operating principle	normally de-energized 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, PF = 0.4 – 0.2 A, DC 220 V, L / R = 0.04 s

General data

EMC immunity / emission	acc. to EN 61543 / 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 / when stored	- 10 °C...+ 55 °C / - 40 °C...+ 70 °C
Climatic category IEC 60721-3-3	3K5
Operating mode	continuous operation
Mounting	any position
Connection	screw terminals
Connection properties rigid / flexible	AWG 24...12 / 24...14
	flexible with ferrules, without / with plastic collar AWG 24...14 mm ²
Conductor sizes (AWG)	24...12
Degree of protection, internal components / terminals (IEC 60529)	IP30 / IP20 (NEMA 1)
Type of enclosure	X465
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	≤ 190 g

Ordering information

Type	Response range $I_{\Delta n}$	Rated frequency	Response delay	Measuring current transformer, inside diameter	Supply voltage U_S	Art. No.
RCM465Y	30...300 mA	40...400 Hz	0...1 s	∅ 26 mm (1")	AC 230 V	B 9401 2023
RCM465Y-13	30...300 mA	40...400 Hz	0...1 s	∅ 26 mm (1")	AC 90...132 V*	B 9401 2033
RCM465Y-71	10...100 mA	40...400 Hz	0...1 s	∅ 26 mm (1")	AC 230 V	B 9401 2049
RCM465Y-7113	10...100 mA	40...400 Hz	0...1 s	∅ 26 mm (1")	AC 90...132 V*	B 9401 2045

Other supply voltages on request

* Absolute values of the operating range

Dimension diagram X465

Dimensions in mm

