# **RP** - Series **RCCB Earth Leakage Circuit Breakers**

RCCB Series compact Earth Leakage Circuit Breakers detect and interrupt earth (ground) faults. They are VDE approved for the European system of protecting people, animals, equipment and property from dangerous line-to-ground and shock hazard currents.

US applications include groundfault protection of equipment (GFPE) using the 10mA and 30mA fault current ratings, especially when high distributed capacitance or other leakages cause excessive nuisance trips at lower fault currents. Applications for the 300mA and 500mA ratings are equipment protection and fire prevention, limiting the energy of a fault to less than the minimum ignition energy for many materials.

### na Dasianation

type Designation								
RF	•	(a)	(b)	(c)				
(a)	=	2-2 pole	; 4-4 po	le				
(b)	=	1-16A; 2	2-25A; 3	-40A; 4-0	63A;			
		5-80A; 6	6-100A;	7-125A				
(c)	=	01 - 10n	nA					
	=	03 - 30n	nΑ					
	=	30 - 300	mA					









Maximum Rated Line Current	Fault Trip Current	Cat. No.	Fault Trip Current	Cat. No.
16A	10mA	RP2101		
25A 25A 25A	30mA 300mA	RP2203 RP2230	30mA 300mA 500mA	<b>RP4203</b> <b>RP4230</b> RP4250
40A 40A 40A	30mA 300mA	RP2303 RP2330	30mA 300mA 500mA	<b>RP4303</b> <b>RP4330</b> RP4350
63A 63A 63A	30mA 300mA 500mA	RP2403 RP2430 RP2450	30mA 300mA 500mA	<b>RP4403</b> <b>RP4430</b> RP4450
80A 80A 80A			30mA 300mA 500mA	RP4503 RP4530 RP4550
100A 100A 100A			30mA 300mA 500mA	RP4603 RP4630 RP4650
125A 125A 125A			30mA 300mA 500mA	RP4703 RP4730 RP4750

#### Voltage Rating (maximum)

= 50 - 500 mA

#### **Short Circuit Withstand Rating**

No back-up fuse: Rated current (RC) 16/25/40A: 500A; RC 63/80A: 800A; RC 100A: 1000A; RC 125A-1250A. With back-up fuse: 10kA; Size of fuse: (2 pole version): RC 25/40/63: 100A; (4 pole version): RC 25/40/63A: 100A; RC 80/100/125A: 125A

Fully functional after 5,000 operations to DIN/VDE 0664T10, IEC 61008-1 and 2000 additional fault current trips.

FI trips are calibrated at less than fault trip current for ensured safety (Typical trip range between

66.6-83.3% fault trip current, e.g., typical trip at 20-25mA for fault RC of 30mA)

#### **Fault Trip Current Calibration**

Typical Life Standard Pack and Weight Terminal Size Acceptability

#### **Terminal Torque**

- a For 2-Phase applications, terminal 5 and 6 (next to Neutral terminals) must be connected to one phase for the test
- or "3" to top "N" terminal. This will assure proper functioning of the "test"

circuit to be operable.

b For voltage systems without a neutral conductor. Please use jumper from "1" circuit.





1.5-50mm<sup>2</sup> (16-1 AWG)

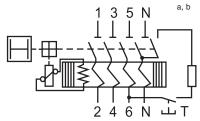
230V AC, 50Hz

1/230g (0.6 lb.)

3Nm (26.5 lb.in.)

Stock items are shown in BOLD.

3/N



400Y/230V AC, 50Hz

1/420-460g (0.9 lb.-1.0 lb.)

1.5-50mm2 (16-1 AWG)

3Nm (26.5 lb.in.)

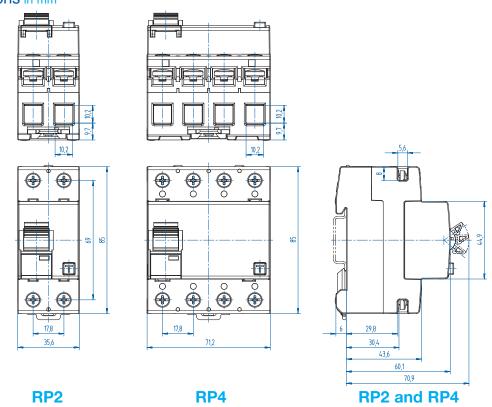
RH11 - Auxiliary Contact and Signal Switch (switchable) (C.O./N.C.)

Contact Rating	Wire Size	Torque	Cat. No.	Circuit Diagram
6A / 230V AC 1A / 110V DC Std. Pk.: 1 Unit Weight: 45 Width: 9mm (.38	• ,	max. 0.8Nm (7lb.in.)	RH11	12 21 11 22

Note: If the power system has a marked conductor, it must connect through the FI and not be grounded at any point downstream.

Altech Corp.º

## Dimensions in mm



Temperature Range

Environmental Information marked with "Snowflake" approval for -25°C to 40°C (-13°F to 104°F) ambient temperature. (Temperature effect on RC: for every 10°C temperature rise above 40°C decrease RC by 7%.)

**Fluctuating Climate Conditions** 

According to IEC 60068-2-30: heat (25°C~55°C), relative humidity (93%~95%)

**Electrical Shock Protection** 

Uninsulated electrically live parts within 30mm of the operating handle are "finger safe" (terminal screw heads) and uninsulated live parts within 100mm of the operating handle are "back-of-hand safe" (terminals).

Impact/Shock Protection

20g with impact force half-cycle sinusoidal and 20ms duration, 18 impacts total with 6 on each principal axis (3 impacts each face). FI is DIN Rail mounted during the test, and electrically loaded with 25% of Fault RC. Successful testing required no trip during the test, no damage and no loosened parts.

Vibration/Seismic Resistance

5g, at frequency of ≤80Hz, applied for 30 minutes along each of the three principal axes, plus 5 minutes of application at every established critical resonant frequency. FI is DIN Rail mounted during the test, and loaded with 25% Fault RC. To pass, the FI did not trip at 25% Fault RC, but did trip between each of the principal axis tests when the fault current was raised to 125% Fault RC, and there was no damage and no loosened parts. Suitable for machinery and mobile vehicle applications.

**Protection Class** 

IP20; higher protection Class is dependent on housing.

Non-Sinusoidal Fault

The FI is tested and approval stamped for tripping sensitivity to non-sinusoidal fault currents, which become zero or almost zero within one cycle of the line frequency. Waveforms and allowed trip-current ranges are as follows:

- 1. AC Sinusoidal Fault 0.5-1.0 times Fault RC
- 2a. Pulsating DC Fault;
- Positive and Negative Half-Waves 0.35-1.4 times Fault RC 2b. Phased Half-Wave, 90° 0.25-1.4 times Fault RC
- Phased Half-Wave, 135° 0.11-1.4 times Fault RC
- Pulsating DC on 6mA
  DC (continuous) Base Max. 1.4 times Fault RC + 6mA

### **Insulation Category**

At VDE rated voltage, suitable for Class C environments with relatively high dust and moisture levels and little HVAC control, e.g., industrial, commercial, agricultural; on machine tools, hoists, warehouse equipment, etc.; in boiler rooms, unheated storage, covered shipping/receiving, open workshops, etc.