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Residual Current operated Circuit Breakers (RCCBs)

Installation and operation Instruction

K 30 105 259 EDITION 02

RCCB is sensitive to residual sinusoidal alternating and residual pulsating direct currents (A type in compliance with EN 61008).

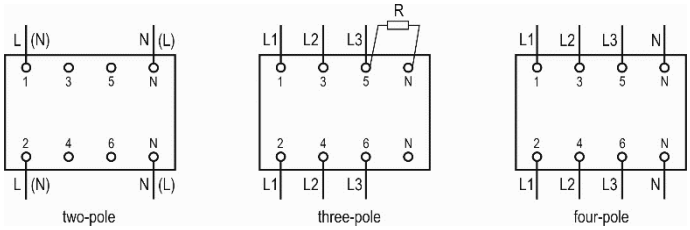
Operating position: optional

Fixing

RCCBs are adapted for fixing to a 35 mm wide mounting rail in compliance with EN 60715. Terminal connections should be tightened to a torque of 2.3 Nm. DO NOT connect using power driven screwdrivers.

Connection

Supply and load sides of the RCCB are optional (above or below). The operation of two-pole RCCB does not depend on mutual interchange of line and neutral conductor. Four-pole RCCB can be connected as a two-, three- or four-pole RCCB according to the following connection diagram:



The RCCB in a three-phase system without a neutral conductor:

The N terminal should be connected to terminal 5 or 6 via the *R* resistor, depending on the supply side, in order to keep 230 V power supply voltage of the test circuit. Test current is wrong if the value of the *R* resistor is incorrect or if only a wire connection is used instead.

The *R* resistor values are:

$I_{\Delta n}$ (A)	R (Ω)	P_{min} (W)
0,03	2700	2
0,1 / 0,3 / 0,5	1200	2

Overload and short-circuit

Neither overload nor short-circuit protection is built in the RCCB, which should be considered when designing an installation.

The maximal permitted back-up fuses for the protection of the RCCB against short-circuit currents:

Rated current I_n (A):	16	25	40	63	80	100
Back-up fuse (gG, aM) (A):	63	63	63	80	80	100

Earthing

Exposed conductive parts of the appliances being protected and protective contacts of supply socket outlets should be earthed. The maximum permitted earthing resistances R_A with regard to the permitted touch voltage U_L and rated residual current $I_{\Delta n}$ are the following:

$I_{\Delta n}$ (A)	0,01	0,03	0,1	0,3	0,5
U_L (V)	R_A (Ω)				
50	5000	1666	500	166	100
25	2500	833	250	83	50

Functional test

The tripping operation is tested by pressing the T push-button. RCCB connected to line voltage and in ON position should break immediately. It is recommended to repeat the test every 6 months.

Conditions for correct RCCB operation

1. Installation should comply with valid regulations for electrical installation.
2. All conductors (also neutral if it is available) which are necessary for the operation of the device being protected should be fed through RCCB.
3. The neutral conductor on the load side of the RCCB should not be earthed or in contact with a protective conductor anywhere.
4. When more than one RCCBs are to be used in protective equipment, the neutral conductors on the load side of RCCBs should not be interconnected.
5. Only a limited number of consumers should be protected with particular RCCB for the following reasons:
   - due to selectivity of protection, as only the failed consumers are to be switched off;
   - in every appliance, although faultless, certain insulation leakage currents exist. They are detected by RCCB as residual current. At larger number of appliances summary leakage current could cause undesirable breaks.

Warning

The switch protection level is IP20. After an installation in a distribution board, protection level increases to IP40. Without any additional protective housing, the RCCB may be stored and operated only in dry, dust-free environment. Corrosive atmosphere is to be avoided as well.

Our products and packing are made of environment-friendly materials which can be recycled and reused. Neither packing nor a product should be discarded as municipal waste after the end of the life cycle.