Overview

RCCBs are used in all systems up to 240/415 V AC. Devices of type AC trip in the event of sinusoidal AC residual currents, type A also trips in the event of pulsating DC residual currents.

In addition, RCCBs type F also detect residual currents with mixed frequencies up to 1 kHz.

RCCBs with a rated residual current of maximum 30 mA are used for personnel, material and fire protection, as well as for protection against direct contact. RCCBs with a rated residual current of 10 mA are primarily used in areas that represent an increased risk for personnel.

Since the introduction of DIN VDE 0100-410, all socket outlet current circuits up to 20 A must also be fitted with residual current protective devices with a rated residual current of max. 30 mA. This also applies to outdoor electrical circuits up to 32 A for the connection of portable equipment.

Devices with a rated residual current of maximum 300 mA are used as preventive fire protection in case of insulation faults. RCCBs with a rated residual current of 100 mA are primarily used outside Europe.

Benefits

- Instantaneous RCCBs with the N connection on the left-hand side enable simple bus mounting with standard pin busbars with miniature circuit breakers installed on the right-hand side
- Instantaneous RCCBs with the N connection on the right-hand side can be bus-mounted with miniature circuit breakers using a special pin busbar
- Instantaneous type A devices have a surge current withstand capability with current waveform 8/20 µs of more than 1 kA, super resistant of more than 3 kA and selective of more than 5 kA. This ensures safe operation
- Super resistant devices increase system availability, as unnecessary tripping is prevented in power supply systems with short-time glitches
- Selective RCCBs increase system availability as a staggered tripping time enables the selective tripping of RCCBs connected in series in the event of a fault

Technical specifications

			Instantaneous	Selective
Standards			IEC/EN 61008-1 (VDE 0664-10); IEC/EN 61008-2-1 (VDE 0664-11); IEC/EN 61543 (VDE 0664-30); IEC/EN 62423 (VDE 0664-40)	
Surge current withstand capability				
• Type A with current waveform 8/20 µs	Acc. to EN 60060-2 (VDE 0432-2)	kA	> 1	> 5
Minimum operational voltage for test function operation		V AC	195	
Test cycles			1/2 year	
Insulation coordination				
• Overvoltage category			III	
Pollution degree			2	
Terminal conductor cross-sections				
• 2 MW	I_n = 100 A, 125 A	mm^2	1.5 ... 50	
• 4 MW	I_n = 100 A, 125 A	mm^2	2.5 ... 50	
Terminal tightening torque				
• I_n = 100 A, 125 A		Nm	3.0 ... 3.5	
Mains connection			Top or bottom	
Mounting position (on a standard mounting rail)			Any	
Degree of protection	Acc. to EN 60529 (VDE 0470-1)		IP20, if the distribution board is installed, with connected conductors	
Touch protection	Acc. to EN 50274 (VDE 0660-514)		Finger and back-of-hand safe	
Service life	Average number of switching cycles		> 10000	
Storage temperature		°C	-40 ... +75	
Ambient temperature		°C	-25 ... +45, marked with -25	
Resistance to climate	Acc. to IEC 60068-2-30		28 cycles (55 °C; 95 % rel. air humidity)	
CFC and silicone-free			Yes	