

5SU1 RCBOs, type AC and type A

Overview

RCBOs are a combination of an RCCB and a miniature circuit breaker in a compact design for personnel, fire and line protection. For personnel and fire protection, the residual current part of the type A trips in the event of sinusoidal AC residual currents and pulsating DC residual currents.

RCBOs 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. RCBOs with a rated residual current of 10 mA are primarily used in areas that represent an increased risk for personnel and the outdoor installations of residential buildings.

Devices with a rated residual current of maximum 300 mA are used as preventative fire protection in case of insulation faults.

The MCB part of the RCBO protects lines against overload and short circuits and is available in characteristics B and C.

Since DIN VDE 0100-410 came into effect in June 2007, all socket outlet current circuits up to 20 A must now 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.

In order to implement this protection, we recommend the national use of RCBOs with 30 mA.

Assignment to each individual branch circuit helps prevent the unwanted tripping of fault-free circuits induced by the accumulation of operation-related leakage currents or by transient current pulses during switching operations.

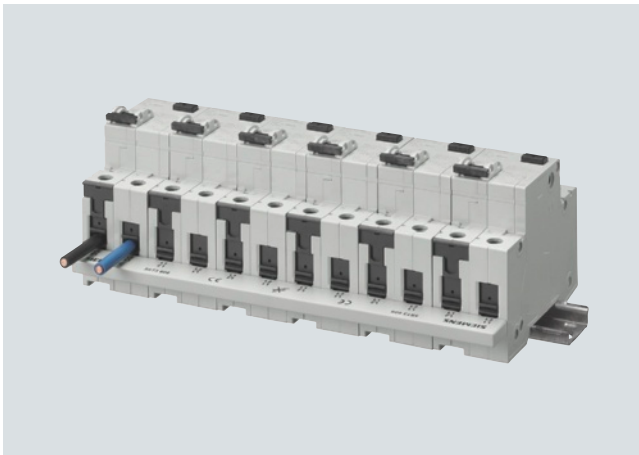
Additional components of the 5SY miniature circuit breakers can be mounted at the side and carry out additional functions.

[For further details on additional components, please refer to the chapter "Miniature Circuit Breakers".](#)

RCBOs comprise one part for fault-current detection and one part for overcurrent detection. They are equipped with a delayed overload/time-dependent thermal release (thermal bimetal) for low overcurrents and with an instantaneous electromagnetic release for higher overload and short-circuit currents.

The special contact materials used guarantee a long service life and offer a high degree of protection against contact welding.

Benefits



For all versions

- Clear and visible conductor connection in front of the busbar facilitates controls
- Large and easily accessible wiring space enables easy insertion of conductor in the terminals.
- The surge current withstand capability of > 1 kA ensures safe and reliable operation.
- All additional components for miniature circuit breakers can be retrofitted on the right-hand side.

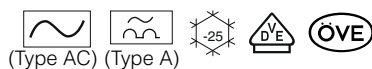
For all 10 kA versions up to 40 A

- Integrated movable terminal covers located at the cable entries ensure the terminals are fully insulated when the screws are tightened. The effective touch protection when grasping the device considerably exceeds the requirements of BGV A3.
- The RCBOs can be quickly and easily removed from the assembly by hand if connections need to be changed. This saves time if parts need to be replaced because the busbars no longer need to be freed from the adjacent miniature circuit breakers.



For all 125 A versions

- The RCBOs offer external remote tripping over terminals Y1/Y2. This supports implementation of central OFF circuits.



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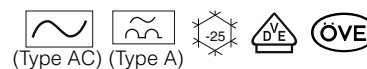
Technical specifications

		Up to 40 A	125 A
Standards		IEC/EN 61009-1 (VDE 0664-20), IEC/EN 61009-2-1 (VDE 0664-21) IEC/EN 61543; VDE 0664-30	
Approvals		IEC 61009-1, IEC 61009-2-1; EN 61009-1, EN 61009-2-1	
Rated voltages U_n	V AC	125 ... 230	400
Rated frequency f_n	Hz	50 ... 60	
Rated currents I_n	A	6, 8, 10, 13, 16, 20, 25, 32, 40	125
Rated residual currents $I_{\Delta n}$	mA	10, 30, 300	30, 300, 1000
Rated switching capacity	kA	6, 10	10
Energy limitation class		3	--
Surge current withstand capability			
With current waveform 8/20 μ s Acc. to DIN VDE 0432-2			
• Instantaneous	kA	> 1	
• Super resistant	kA	> 3	
• Selective	kA	> 5	
Minimum voltage for operation of the test equipment	V AC	100	
Insulation coordination			
• Overvoltage category		III	
Terminal conductor cross-sections			
• Solid and stranded	mm ²	0.75 ... 35	6 ... 50
• Finely stranded with end sleeve	mm ²	0.75 ... 25	6 ... 35
Terminal tightening torque	Nm	2.5 ... 3.0	3.0 ... 3.5
Mains connection		Top or bottom	
Mounting position		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	Test cycle acc. to IEC/EN 61009	Switching cycles	> 10000
Storage temperature	°C	-40 ... +75	
Ambient temperature	°C	-25 ... +45, marked with	
Resistance to climate	Acc. to IEC 60068-2-30	28 cycles (55 °C; 95 % rel. air humidity)	
CFC and silicone-free		Yes	

Selection and ordering data

	Rated residual current	Rated current	Mounting width	DT	Tripping characteristic B			Tripping characteristic C			PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$ mA	I_n A	MW		Order No.	Price per PU	PG DT	Order No.	Price per PU					
RCBOs, type AC														
	RCBOs, type AC													
	Instantaneous													
	1P+N; 230 V AC; 50 ... 60 Hz													
	6 000													
	3													
	30	6	2	X	5SU1 356-0KK06	010	X	5SU1 356-1KK06	1	1 unit	010	0.279		
		8			--		X	5SU1 356-1KK08	1	1 unit	010	0.278		
		10		X	5SU1 356-0KK10	010	X	5SU1 356-1KK10	1	1 unit	010	0.279		
		13		X	5SU1 356-0KK13	010	X	5SU1 356-1KK13	1	1 unit	010	0.283		
		16		X	5SU1 356-0KK16	010	X	5SU1 356-1KK16	1	1 unit	010	0.279		
		20		X	5SU1 356-0KK20	010	X	5SU1 356-1KK20	1	1 unit	010	0.289		
		25		X	5SU1 356-0KK25	010	X	5SU1 356-1KK25	1	1 unit	010	0.293		
		32		X	5SU1 356-0KK32	010	X	5SU1 356-1KK32	1	1 unit	010	0.296		
		40		X	5SU1 356-0KK40	010	X	5SU1 356-1KK40	1	1 unit	010	0.295		
	300	6	2	X	5SU1 656-0KK06	010	X	5SU1 656-1KK06	1	1 unit	010	0.279		
		10		X	5SU1 656-0KK10	010	X	5SU1 656-1KK10	1	1 unit	010	0.278		
		13		X	5SU1 656-0KK13	010	X	5SU1 656-1KK13	1	1 unit	010	0.283		
16			X	5SU1 656-0KK16	010	X	5SU1 656-1KK16	1	1 unit	010	0.280			
20			X	5SU1 656-0KK20	010	X	5SU1 656-1KK20	1	1 unit	010	0.293			
25			X	5SU1 656-0KK25	010	X	5SU1 656-1KK25	1	1 unit	010	0.294			
32			X	5SU1 656-0KK32	010	X	5SU1 656-1KK32	1	1 unit	010	0.292			
40			X	5SU1 656-0KK40	010	X	5SU1 656-1KK40	1	1 unit	010	0.290			

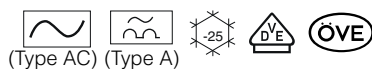
Residual Current Protective Devices



5SU1 RCBOs, type AC and type A

4

					Tripping characteristic B		PG	DT	Tripping characteristic C		PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mount- ing width MW	DT	Order No.	Price per PU			Order No.	Price per PU				
	RCBOs, type AC													
	Instantaneous													
	1P+N; 230 V AC; 50 ... 60 Hz													
	10 000													
	3													
	30	6	2	X	5SU1 354-0KK06		010	X	5SU1 354-1KK06		1	1 unit	010	0.260
		8			--			X	5SU1 354-1KK08		1	1 unit	010	0.260
		10		X	5SU1 354-0KK10		010	X	5SU1 354-1KK10		1	1 unit	010	0.260
		13		X	5SU1 354-0KK13		010	X	5SU1 354-1KK13		1	1 unit	010	0.260
		16		X	5SU1 354-0KK16		010	X	5SU1 354-1KK16		1	1 unit	010	0.260
		20		X	5SU1 354-0KK20		010	X	5SU1 354-1KK20		1	1 unit	010	0.260
		25		X	5SU1 354-0KK25		010	X	5SU1 354-1KK25		1	1 unit	010	0.260
		32		X	5SU1 354-0KK32		010	X	5SU1 354-1KK32		1	1 unit	010	0.260
		40		X	5SU1 354-0KK40		010	X	5SU1 354-1KK40		1	1 unit	010	0.260
	100	6	2		--			X	5SU1 454-1KK06		1	1 unit	010	0.260
		10			--			X	5SU1 454-1KK10		1	1 unit	010	0.260
		13			--			X	5SU1 454-1KK13		1	1 unit	010	0.260
		16			--			X	5SU1 454-1KK16		1	1 unit	010	0.260
		20			--			X	5SU1 454-1KK20		1	1 unit	010	0.260
		25			--			X	5SU1 454-1KK25		1	1 unit	010	0.260
	32			--			X	5SU1 454-1KK32		1	1 unit	010	0.260	
	40			--			X	5SU1 454-1KK40		1	1 unit	010	0.260	
300	6	2	X	5SU1 654-0KK06		010	X	5SU1 654-1KK06		1	1 unit	010	0.260	
	10		X	5SU1 654-0KK10		010	X	5SU1 654-1KK10		1	1 unit	010	0.260	
	13		X	5SU1 654-0KK13		010	X	5SU1 654-1KK13		1	1 unit	010	0.260	
	16		X	5SU1 654-0KK16		010	X	5SU1 654-1KK16		1	1 unit	010	0.260	
	20		X	5SU1 654-0KK20		010	X	5SU1 654-1KK20		1	1 unit	010	0.260	
	25		X	5SU1 654-0KK25		010	X	5SU1 654-1KK25		1	1 unit	010	0.260	
	32		X	5SU1 654-0KK32		010	X	5SU1 654-1KK32		1	1 unit	010	0.260	
	40		X	5SU1 654-0KK40		010	X	5SU1 654-1KK40		1	1 unit	010	0.260	
RCBOs, type AC														
short-time delayed 														
2P (1P+N); AC 230 V; 50 ... 60 Hz														
10 000														
3														
30	10	2	X	5SU1 354-0LB10		010	X	5SU1 354-1LB10		1	1 unit	010	0.260	
	13		X	5SU1 354-0LB13		010	X	5SU1 354-1LB13		1	1 unit	010	0.260	
	16		X	5SU1 354-0LB16		010	X	5SU1 354-1LB16		1	1 unit	010	0.260	
	20		X	5SU1 354-0LB20		010	X	5SU1 354-1LB20		1	1 unit	010	0.260	
	25		X	5SU1 354-0LB25		010	X	5SU1 354-1LB25		1	1 unit	010	0.260	
	32		X	5SU1 354-0LB32		010	X	5SU1 354-1LB32		1	1 unit	010	0.260	
	40		X	5SU1 354-0LB40		010	X	5SU1 354-1LB40		1	1 unit	010	0.260	
RCBOs, type A														
RCBOs, type A														
Instantaneous														
1P+N; 230 V AC; 50 ... 60 Hz														
6 000														
3														
30	6	2	A	5SU1 356-6KK06		011	A	5SU1 356-7KK06		1	1 unit	011	0.279	
	8			--			B	5SU1 356-7KK08		1	1 unit	011	0.278	
	10		A	5SU1 356-6KK10		011	►	5SU1 356-7KK10		1	1 unit	011	0.279	
	13		B	5SU1 356-6KK13		011	A	5SU1 356-7KK13		1	1 unit	011	0.283	
	16		►	5SU1 356-6KK16		011	►	5SU1 356-7KK16		1	1 unit	011	0.279	
	20		B	5SU1 356-6KK20		011	B	5SU1 356-7KK20		1	1 unit	011	0.289	
	25		B	5SU1 356-6KK25		011	A	5SU1 356-7KK25		1	1 unit	011	0.293	
	32		B	5SU1 356-6KK32		011	B	5SU1 356-7KK32		1	1 unit	011	0.296	
	40		B	5SU1 356-6KK40		011	B	5SU1 356-7KK40		1	1 unit	011	0.295	
300	6	2	B	5SU1 656-6KK06		011	B	5SU1 656-7KK06		1	1 unit	011	0.279	
	10		B	5SU1 656-6KK10		011	A	5SU1 656-7KK10		1	1 unit	011	0.278	
	13		B	5SU1 656-6KK13		011	B	5SU1 656-7KK13		1	1 unit	011	0.283	
	16		B	5SU1 656-6KK16		011	A	5SU1 656-7KK16		1	1 unit	011	0.280	
	20		B	5SU1 656-6KK20		011	B	5SU1 656-7KK20		1	1 unit	011	0.293	
	25		B	5SU1 656-6KK25		011	B	5SU1 656-7KK25		1	1 unit	011	0.294	
	32		B	5SU1 656-6KK32		011	B	5SU1 656-7KK32		1	1 unit	011	0.292	
	40		B	5SU1 656-6KK40		011	B	5SU1 656-7KK40		1	1 unit	011	0.290	



5SU1 RCBOs, type AC and type A

	Rated residual current	Rated current	Mounting width	DT	Tripping characteristic B			PG	DT	Tripping characteristic C			PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	
	$I_{\Delta n}$ mA	I_n A			Order No.	Price per PU				Order No.	Price per PU						
			MW													kg	
	RCBOs, type A																
	Instantaneous																
	1P+N; 230 V AC; 50 ... 60 Hz																
	10 000 3																
	10	6	2	B	5SU1 154-6KK06		011	B	5SU1 154-7KK06		1	1 unit	011	0.288			
		10		B	5SU1 154-6KK10		011	B	5SU1 154-7KK10		1	1 unit	011	0.287			
		13		B	5SU1 154-6KK13		011	B	5SU1 154-7KK13		1	1 unit	011	0.290			
		16		B	5SU1 154-6KK16		011	►	5SU1 154-7KK16		1	1 unit	011	0.284			
	30	6	2	B	5SU1 354-6KK06		011	►	5SU1 354-7KK06		1	1 unit	011	0.283			
		8				B	5SU1 354-7KK08		1	1 unit	011	0.260					
		10		B	5SU1 354-6KK10		011	►	5SU1 354-7KK10		1	1 unit	011	0.283			
		13		B	5SU1 354-6KK13		011	B	5SU1 354-7KK13		1	1 unit	011	0.288			
		16		►	5SU1 354-6KK16		011	►	5SU1 354-7KK16		1	1 unit	011	0.282			
		20		B	5SU1 354-6KK20		011	B	5SU1 354-7KK20		1	1 unit	011	0.289			
		25		B	5SU1 354-6KK25		011	B	5SU1 354-7KK25		1	1 unit	011	0.288			
		32		B	5SU1 354-6KK32		011	B	5SU1 354-7KK32		1	1 unit	011	0.292			
		40		B	5SU1 354-6KK40		011	B	5SU1 354-7KK40		1	1 unit	011	0.286			
	300	6	2	B	5SU1 654-6KK06		011	B	5SU1 654-7KK06		1	1 unit	011	0.284			
		10		B	5SU1 654-6KK10		011	B	5SU1 654-7KK10		1	1 unit	011	0.282			
		13		B	5SU1 654-6KK13		011	B	5SU1 654-7KK13		1	1 unit	011	0.288			
		16		B	5SU1 654-6KK16		011	B	5SU1 654-7KK16		1	1 unit	011	0.281			
		20		B	5SU1 654-6KK20		011	B	5SU1 654-7KK20		1	1 unit	011	0.285			
25		B		5SU1 654-6KK25		011	B	5SU1 654-7KK25		1	1 unit	011	0.285				
32		B		5SU1 654-6KK32		011	B	5SU1 654-7KK32		1	1 unit	011	0.287				
40		B		5SU1 654-6KK40		011	B	5SU1 654-7KK40		1	1 unit	011	0.289				
	2P; 230 V AC; 50 ... 60 Hz																
	10 000 3																
	30	6	3	B	5SU1 324-6FA06		011	B	5SU1 324-7FA06		1	1 unit	011	0.421			
		10		►	5SU1 324-6FA10		011	►	5SU1 324-7FA10		1	1 unit	011	0.414			
		13		B	5SU1 324-6FA13		011	B	5SU1 324-7FA13		1	1 unit	011	0.423			
		16		►	5SU1 324-6FA16		011	►	5SU1 324-7FA16		1	1 unit	011	0.414			
		20		B	5SU1 324-6FA20		011	B	5SU1 324-7FA20		1	1 unit	011	0.427			
		25		B	5SU1 324-6FA25		011	B	5SU1 324-7FA25		1	1 unit	011	0.432			
		32		B	5SU1 324-6FA32		011	B	5SU1 324-7FA32		1	1 unit	011	0.427			
		40		B	5SU1 324-6FA40		011	B	5SU1 324-7FA40		1	1 unit	011	0.427			
		2P; 400 V AC; 50 ... 60 Hz															
		10 000															
30		125	6.5	B	5SU1 324-6KK82		011	B	5SU1 324-7KK82		1	1 unit	011	1.212			
300		125		B	5SU1 624-6KK82		011	B	5SU1 624-7KK82		1	1 unit	011	0.930			
		4P; 400 V AC; 50 ... 60 Hz															
		10 000															
30		125	11	B	5SU1 344-6KK82		011	B	5SU1 344-7KK82		1	1 unit	011	2.024			
300		125		C	5SU1 644-6KK82		011	B	5SU1 644-7KK82		1	1 unit	011	2.025			