

Residual Current Protective Devices



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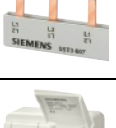
Technical Information
can be found at
www.siemens.com/lowvoltage/support
under Product List:
- Technical specifications
under Entry List:
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- Manuals
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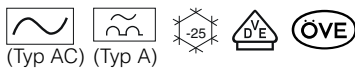
Residual Current Protective Devices

Introduction

Overview

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Devices	Page	Field of application	Standards	Used in			
				Non-residential buildings	Residential buildings	Industry	
	5SM3 RCCBs, type A	4/3	Personnel, material and fire protection, as well as protection against direct contact. SIGRES with active condensation protection for use in harsh environments. Super resistant and selective versions	IEC/EN 61008	✓	✓	✓
	SIQUENCE 5SM3 and 5SU1 universal current-sensitive RCCBs, type B and type B+	4/9	SIQUENCE, the technology of universal current-sensitive residual current protective devices	VDE 0664-100 VDE 0664-200 VDE V 0664-110	✓	--	✓
	Additional components	4/13	Remote controlled mechanisms, auxiliary switches for all residual current operated circuit breakers. Leakage current measurement device for fault locating and the optimum selection of RCCBs	IEC/EN 62019	✓	--	✓
	5SM2 RC units, type A	4/15	The freely selectable combination of RC units with miniature circuit breakers permits the flexible configuration of RCBO combinations	IEC/EN 61009	✓	--	✓
	5SU1 RCBOs, type A	4/18	The ideal protection combination for all electrical circuits due to the compact device versions of RCCBs and miniature circuit breakers in a single device	IEC/EN 61009	✓	✓	✓
	Busbars	4/23	Busbars in 10 mm ² and 16 mm ² save space in the distribution board and time during mounting.	--	✓	✓	✓
	5SM1 and 5SZ9 RCCB socket outlets	4/26	For retrofitting in existing installations	VDE 0664	✓	✓	✓
	Accessories	4/27	Locking devices, covers - everything you need for mounting	--	✓	✓	✓
	5SV8 residual current monitors	Ch. 12	Monitoring of residual currents in electrical plants with indication if a specified limit value is exceeded. see chapter: "Monitoring Devices —> Monitoring Devices for Electrical Values —> Residual current monitors"	IEC 62020 EN 62020	✓	--	✓



Residual Current Protective Devices

5SM3 RCCBs, type AC and type A

Overview

RCCBs of type A are used in all systems up to 240/415 V AC. They trip in the event of both sinusoidal AC residual currents and pulsating DC residual currents.

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 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.

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

SIGRES

SIGRES RCCBs were developed for use in harsh ambient conditions, such as swimming baths as protection against chlorine and ozone, in the agricultural sector (ammonia), on building sites and in the chemical industry (nitrogen oxide, sulfur dioxide, solvents), in the food processing industry (hydrogen sulfide) and in unheated rooms (dampness). The patented active condensation protection requires a continuous power supply and bottom infeed if the RCCB is switched off.

By use in ambient conditions in acc. with product standard EN 61008-1, the operation interval for pressing the test button can be extended to 1x a year.

Super resistant

Super resistant (short-time delayed) RCCBs meet the maximum permissible break times for instantaneous devices. However, by implementing a short-time delay they prevent unnecessary trippings, and thus plant faults, when pulse-shaped leakage currents occur - as is the case when capacitors are switched on.

Selective

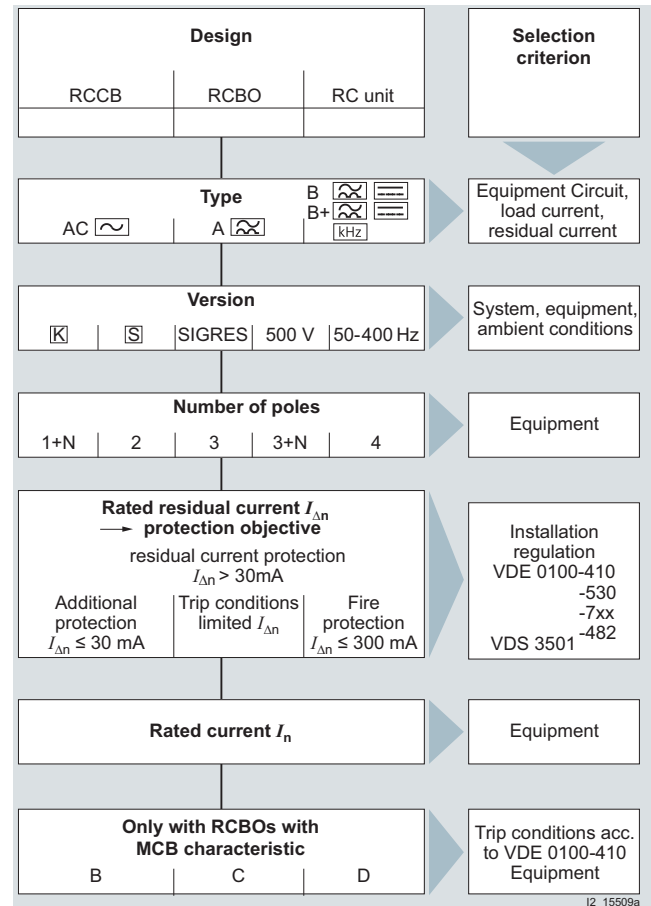
Can be used as upstream group switch for selective tripping contrary to a downstream, instantaneous or super resistant RCCB.

Note:

You will find further information on the subject of residual current protective devices in the technology primer "Residual current protective devices", Order No.: E10003-E38-9T-B3011 and in the Technology Manual under: www.siemens.com/lowvoltage/manuals.

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 devices have a surge current withstand capability with current waveform 8/20 μ s of > 1 kA, super resistant of > 3 kA and selective of > 5 kA. This ensures safe operation
- SIGRES has an extremely long service life due to patented active condensation protection and the same dimensions for the quick and easy replacement of instantaneous RCCBs already installed
- Super resistant devices increase plant availability, as unnecessary tripping is prevented in systems with short-time glitches
- Selective RCCBs increase plant availability, as in the event of a fault, a staggered tripping time enables the selective tripping of RCCBs connected in series
- Auxiliary switches or remote controlled mechanisms are also available as additional components
- The operating handle and the test button can be locked by means of a handle locking device.

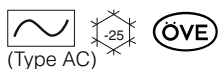


Selection aid for finding the suitable residual current protective device

5SM3 RCCBs, type AC and type A

Technical specifications

				Instantaneous	SIGRES	Super resistant	Selective
Standards				IEC/EN 61008-1 (VDE 0664-10), IEC/EN 61008-2-1 (VDE 0664-11); IEC/EN 61543 (VDE 0664-30)			
Approvals				IEC 61008-1, IEC 61008-2-1; EN 61008-1, EN 61008-2-1			
Surge current withstand capability with current waveform 8/20 μ s Acc. to DIN VDE 0432-2 kA				> 1		> 3	> 5
Minimum operational voltage for test function operation V AC				100			
Insulation coordination • Overvoltage category				III			
Terminal conductor cross-sections							
• For 2 MW	At $I_n = 16$ A, 25 A, 40 A	mm ²	1.0 ... 16				
	At $I_n = 100$ A, 125 A	mm ²	1.5 ... 50	--	--	--	--
• For 2.5 MW	At $I_n = 63$ A, 80 A	mm ²	1.5 ... 25				
• For 4 MW	At $I_n = 25$ A, 40 A, 63 A, 80 A	mm ²	1.5 ... 25				
	At $I_n = 125$ A	mm ²	2.5 ... 50	--	--	--	2.5 ... 50
Terminal tightening torque							
• Up to I_n 80 A		Nm	2.5 ... 3.0				
	• At $I_n = 100$ A, 125 A	Nm	3.0 ... 3.5	--	--	--	3.0 ... 3.5
Mains connection				Top or bottom	Bottom	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 61008 Switching cycles				> 10000			
Storage temperature				-40 ... +75			
Ambient temperature				-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			



Residual Current Protective Devices

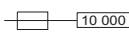
5SM3 RCCBs, type AC

Applications

- Personnel and fire protection
 - $I_{\Delta n} \leq 30$ mA: additional protection in case of direct contact
 - $I_{\Delta n} \leq 300$ mA: preventative fire protection in the case of ground fault currents
- Product standards: ÖVE/ÖNORM EN 61008; ÖVE/ÖNORM E 8601
- U_n 230/400 V; 50 to 60 Hz; can be used in systems up to: 240/415 V AC
- G** type: at least 10 ms trip delayed.
High surge current withstand capability: > 3 kA.

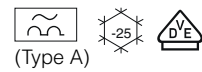
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Selection and ordering data

	Rated residual current	Rated current	Max. permissible short-circuit series fuse	Width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$ mA	I_n A	 10 000 A		MW						kg
RCCBs, type AC instantaneous											
	2P; 125 ... 230 V AC, 50 ... 60 Hz										
	30	25 40 40 ¹⁾	63	2	X X X	5SM3 312-0LB 5SM3 314-0LB 5SM3 314-0LA		1 1 1	1 unit 1 unit 1 unit	006 006 006	0.230 0.230 0.280
	100	25 40			X X	5SM3 412-0LB 5SM3 414-0LB		1 1	1 unit 1 unit	006 006	0.230 0.230
	4P; 230 ... 400 V AC, 50 ... 60 Hz										
	30	25 40 40 ¹⁾	63	4	X X X	5SM3 342-0LB 5SM3 344-0LB 5SM3 344-0LA		1 1 1	1 unit 1 unit 1 unit	006 006 006	0.515 0.515 0.515
	100	63 63 ¹⁾ 25 40 40 ¹⁾			X X X X X	5SM3 346-0LB 5SM3 346-0LA 5SM3 442-0LB 5SM3 444-0LB 5SM3 444-0LA		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	006 006 006 006 006	0.515 0.522 0.515 0.515 0.515
	300	63 63 ¹⁾ 25 40 63			X X X X X	5SM3 446-0LB 5SM3 446-0LA 5SM3 642-0LB 5SM3 644-0LB 5SM3 646-0LB		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	006 006 006 006 006	0.515 0.522 0.515 0.515 0.515
	4P; 230 ... 400 V AC, 50 ... 60 Hz										
	30	125	125	4	X	5SM3 345-0		1	1 unit	006	0.300
	100	125			X	5SM3 445-0		1	1 unit	006	0.533
	300	125			X	5SM3 645-0		1	1 unit	006	0.300
	500	125			X	5SM3 745-0		1	1 unit	006	0.522
RCCBs, type AC short-time delayed G											
	2P; 125 ... 230 V AC, 50 ... 60 Hz										
	30	40 ¹⁾	63	2	X	5SM3 314-0LA01		1	1 unit	006	0.280
	4P; 230 ... 400 V AC, 50 ... 60 Hz										
	30	40 40 ¹⁾ 63 63 ¹⁾	100	4	X X X X	5SM3 344-0LB01 5SM3 344-0LA01 5SM3 346-0LB01 5SM3 346-0LA01		1 1 1 1	1 unit 1 unit 1 unit 1 unit	006 006 006 006	0.515 0.515 0.515 0.522
	100	40 40 ¹⁾ 63 63 ¹⁾			X X X X	5SM3 444-0LB01 5SM3 444-0LA01 5SM3 446-0LB01 5SM3 446-0LA01		1 1 1 1	1 unit 1 unit 1 unit 1 unit	006 006 006 006	0.515 0.515 0.515 0.522

¹⁾ Thermal overload protection according to ÖVE/ÖNORM E 8001 possible up to rated current of the RCCB.

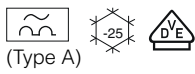
Residual Current Protective Devices



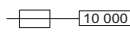
5SM3 RCCBs, type A

Selection and ordering data

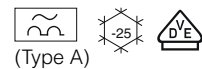
	Rated residual current	Rated current	Max. permissible short-circuit series fuse	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$	I_n									kg
	mA	A	A	MW							
RCCBs, type A											
Instantaneous											
1P+N; 125 ... 230 V AC; 50 ... 60 Hz											
N connection, right											
 Up to 40 A	10	16	63	2	A	5SM3 111-6		1	1 unit	007	0.251
	30	16	63	2	A	5SM3 311-6		1	1 unit	007	0.248
		25				5SM3 312-6		1	1 unit	007	0.248
		40				5SM3 314-6		1	1 unit	007	0.247
		63	100	2.5	A	5SM3 316-6		1	1 unit	007	0.328
 63 A and 80 A		80			B	5SM3 317-6		1	1 unit	007	0.330
		100		2	B	5SM3 318-6KK		1	1 unit	007	0.272
		125			B	5SM3 315-6KK		1	1 unit	007	0.269
	100	25	63	2	B	5SM3 412-6		1	1 unit	007	0.240
		40			B	5SM3 414-6		1	1 unit	007	0.240
 100 A and 125 A		63	100	2.5	B	5SM3 416-6		1	1 unit	007	0.315
		80			B	5SM3 417-6		1	1 unit	007	0.324
		100	125	2	B	5SM3 418-6KK		1	1 unit	007	0.272
		125			B	5SM3 415-6KK		1	1 unit	007	0.273
	300	25	63	2	A	5SM3 612-6		1	1 unit	007	0.231
 100 A and 125 A		40			A	5SM3 614-6		1	1 unit	007	0.233
		63	100	2.5	B	5SM3 616-6		1	1 unit	007	0.299
		80			B	5SM3 617-6		1	1 unit	007	0.320
		100	125	2	B	5SM3 618-6KK		1	1 unit	007	0.256
		125			B	5SM3 615-6KK		1	1 unit	007	0.255
N connection, left											
 Up to 40 A	10	16	63	2	B	5SM3 111-6KL		1	1 unit	007	0.280
	30	16	63	2	C	5SM3 311-6KL		1	1 unit	007	0.280
		25			B	5SM3 312-6KL		1	1 unit	007	0.251
		40			B	5SM3 314-6KL		1	1 unit	007	0.249
		63	100	2.5	C	5SM3 316-6KL		1	1 unit	007	0.327
 63 A and 80 A		80			C	5SM3 414-6KL		1	1 unit	007	0.280
		100		2	C	5SM3 416-6KL		1	1 unit	007	0.310
		125		2.5	C	5SM3 416-6KL		1	1 unit	007	0.310
	300	25	63	2	B	5SM3 612-6KL		1	1 unit	007	0.234
		40			B	5SM3 614-6KL		1	1 unit	007	0.235
 100 A and 125 A		63	100	2.5	B	5SM3 616-6KL		1	1 unit	007	0.313
		80			B	5SM3 617-6		1	1 unit	007	0.320
		100	125	2	B	5SM3 618-6KK		1	1 unit	007	0.256
		125			B	5SM3 615-6KK		1	1 unit	007	0.255
3P+N; 230 ... 400 V AC; 50 ... 60 Hz											
N connection, right											
 Up to 80 A	30	25	100	4	▶	5SM3 342-6		1	1 unit	007	0.494
		40			▶	5SM3 344-6		1	1 unit	007	0.495
		63			▶	5SM3 346-6		1	1 unit	007	0.530
		80			A	5SM3 347-6		1	1 unit	007	0.535
		100			▶	5SM3 348-6		1	1 unit	007	0.538
 63 A and 80 A		125	125		A	5SM3 345-6		1	1 unit	007	0.564
	100	40	100	4	A	5SM3 444-6		1	1 unit	007	0.474
		63			A	5SM3 446-6		1	1 unit	007	0.488
		100			▶	5SM3 448-6		1	1 unit	007	0.538
		125	125		B	5SM3 445-6		1	1 unit	007	0.538
 100 A and 125 A	300	25	100	4	A	5SM3 642-6		1	1 unit	007	0.457
		40			A	5SM3 644-6		1	1 unit	007	0.460
		63			A	5SM3 646-6		1	1 unit	007	0.460
		80			A	5SM3 647-6		1	1 unit	007	0.462
		100			▶	5SM3 648-6		1	1 unit	007	0.538
 100 A and 125 A		125	125		A	5SM3 645-6		1	1 unit	007	0.540
	500	25	100	4	B	5SM3 742-6		1	1 unit	007	0.462
		40			A	5SM3 744-6		1	1 unit	007	0.463
		63			A	5SM3 746-6		1	1 unit	007	0.460
		100			▶	5SM3 748-6		1	1 unit	007	0.538
		125	125		A	5SM3 745-6		1	1 unit	007	0.527



5SM3 RCCBs, type A

	Rated residual current	Rated current	Max. permissible short-circuit series fuse	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	
	$I_{\Delta n}$ mA	I_n A	 10 000 A	MW							kg	
	RCCBs, type A Instantaneous 3P+N; 230 ... 400 V AC; 50 ... 60 Hz N connection, left											
	30	25	100	4	B	5SM3 342-6KL		1	1 unit	007	0.494	
		40			B	5SM3 344-6KL		1	1 unit	007	0.495	
		63			B	5SM3 346-6KL		1	1 unit	007	0.527	
		80			B	5SM3 347-6KL		1	1 unit	007	0.532	
	300	25	100	4	B	5SM3 642-6KL		1	1 unit	007	0.458	
		40			B	5SM3 644-6KL		1	1 unit	007	0.463	
		63			B	5SM3 646-6KL		1	1 unit	007	0.464	
		80			B	5SM3 647-6KL		1	1 unit	007	0.454	
	500	63	100	4	A	5SM3 746-6KL		1	1 unit	007	0.460	
	RCCBs, type A Instantaneous, special versions 1P+N; 24 ... 125 V AC; 50 ... 60 Hz											
	30	16	63	2	B	5SM3 311-6KK13		1	1 unit	007	0.248	
	3P+N; 500 V AC; 50 ... 60 Hz											
	30	25	63	4	B	5SM3 352-6		1	1 unit	007	0.493	
		40			B	5SM3 354-6		1	1 unit	007	0.497	
		63			B	5SM3 356-6		1	1 unit	007	0.531	
	300	25	63	4	B	5SM3 652-6		1	1 unit	007	0.459	
		40			B	5SM3 654-6		1	1 unit	007	0.461	
		63			B	5SM3 656-6		1	1 unit	007	0.464	
	3P+N; 230 ... 400 V AC; 50 ... 400 Hz											
	30	25	80	4	B	5SM3 342-6KK03		1	1 unit	007	0.515	
		40			B	5SM3 344-6KK03		1	1 unit	007	0.510	
		RCCBs, type A SIGRES instantaneous 1P+N; 125 ... 230 V AC; 50 ... 60 Hz										
		30	25	63	2	B	5SM3 312-6KK12		1	1 unit	007	0.248
			40			C	5SM3 314-6KK12		1	1 unit	007	0.251
			63	100	2.5	B	5SM3 316-6KK12		1	1 unit	007	0.330
			80			B	5SM3 317-6KK12		1	1 unit	007	0.331
		3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
		30	25	100	4	B	5SM3 342-6KK12		1	1 unit	007	0.495
			40			B	5SM3 344-6KK12		1	1 unit	007	0.499
			63			B	5SM3 346-6KK12		1	1 unit	007	0.529
	80		B			5SM3 347-6KK12		1	1 unit	007	0.530	
	300	40	100	4	B	5SM3 644-6KK12		1	1 unit	007	0.457	
		63			B	5SM3 646-6KK12		1	1 unit	007	0.458	

Residual Current Protective Devices



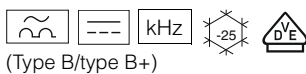
5SM3 RCCBs, type A

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	Rated residual current	Rated current	Max. permissible short-circuit series fuse	Mount- ing width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$ mA	I_n A	 10 000 A	MW							kg
	RCCBs, type A SIGRES, selective S 3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
	300	63	100	4	B	5SM3 646-8KK12		1	1 unit	007	0.506
	RCCBs, type A Super resistant K 1P+N; 125 ... 230 V AC; 50 ... 60 Hz										
	30	25	63	2	B	5SM3 312-6KK01		1	1 unit	007	0.250
		40			B	5SM3 314-6KK01		1	1 unit	007	0.247
		63	100	2.5	B	5SM3 316-6KK01		1	1 unit	007	0.329
	300	63	100	2.5	B	5SM3 616-6KK01		1	1 unit	007	0.314
	3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
	30	25	100	4	B	5SM3 342-6KK01		1	1 unit	007	0.515
		40			B	5SM3 344-6KK01		1	1 unit	007	0.520
		63			B	5SM3 346-6KK01		1	1 unit	007	0.519
	300	40	100	4	B	5SM3 644-6KK01		1	1 unit	007	0.492
		63			B	5SM3 646-6KK01		1	1 unit	007	0.490
		80		B	5SM3 647-6KK01		1	1 unit	007	0.498	
	RCCBs, type A Selective S 1P+N; 125 ... 230 V AC; 50 ... 60 Hz										
	100	63	100	2.5	B	5SM3 416-8		1	1 unit	007	0.325
	300	40	63	2	B	5SM3 614-8		1	1 unit	007	0.248
		63	100	2.5	A	5SM3 616-8		1	1 unit	007	0.314
		80	100		B	5SM3 617-8		1	1 unit	007	0.314
	3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
	N connection, right										
	100	40	100	4	B	5SM3 444-8		1	1 unit	007	0.513
		63			B	5SM3 446-8		1	1 unit	007	0.531
	300	40	100	4	A	5SM3 644-8		1	1 unit	007	0.507
		63			A	5SM3 646-8		1	1 unit	007	0.505
		100			B	5SM3 648-8		1	1 unit	007	0.538
		125	125		C	5SM3 645-8		1	1 unit	007	0.546
	500	125	125	4	B	5SM3 745-8		1	1 unit	007	0.531
	1000	63	100	4	A	5SM3 846-8		1	1 unit	007	0.470
N connection, left											
300	63	100	4	B	5SM3 646-8KL		1	1 unit	007	0.513	

Up to 80 A

Up to 80 A



Residual Current Protective Devices

SIQUENCE 5SM3 and 5SU1 universal current-sensitive RCCBs, type B and type B+

Overview

Frequency converters, medical devices and UPS systems are seeing increasing use in industry. Smooth DC residual currents or currents with low residual ripple may occur in the event of faults on these devices.

Type A residual current protective devices are unable to detect these smooth DC residual currents. Furthermore, such smooth DC residual currents make Type A devices increasingly insensitive to AC residual currents and pulsating DC residual currents. If a fault occurs, there is therefore no tripping and the desired protective function is no longer assured.

UC-sensitive residual current protective devices of Types B and B+ have an additional transformer which is supplied with a control signal. This enables an evaluation of the change of the transformer's operating range caused by smooth DC residual currents, thus ensuring the desired protective function.

The residual current protective devices of type B are suitable for use in three-phase current systems before input circuits with rectifiers. They are not intended for use in DC systems and in networks with operating frequencies other than 50 Hz or 60 Hz.

The devices in this series are designed as residual current operated circuit breakers (RCCBs) up to 80 A and as residual current circuit breakers with integral overcurrent protection (RCBOs) for 100 A or 125 A in Characteristics C or D.

Type B+ residual current protective devices also offer enhanced, preventative fire protection. In these versions, the tripping value is limited to a maximum of 420 mA up to 20 kHz.

Benefits

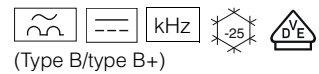
- Universal current-sensitive residual current protective devices detect not only AC residual currents and pulsating DC residual currents, but also smooth DC residual currents, thus ensuring the desired protective function with all types of residual current.
- With Type B, the tripping characteristic is adapted to the increase of leakage currents at higher frequencies in systems with capacitive impedances and results in increased operating safety
- Type B+ versions offer enhanced preventative fire protection and correspond to the prestandards DIN V VDE V 0664-110 and/or DIN V VDE V 0664-210 and VdS Directive 3501
- The RCBO is a compact device for up to 125 A. It provides not only personnel, property and fire protection but also overload and short-circuit protection for cables. Wiring and mounting outlay is reduced as a result
- The RCBOs offer external remote tripping over terminals Y1/Y2. This supports implementation of central OFF circuits.

4

Technical specifications

		SIQUENCE, RCCBs Type B and type B+ 5SM3		SIQUENCE RCBOs Type B and type B+ 5SU1
Standards		IEC/EN 61008-1 (VDE 0664-10); VDE 0664-100; IEC/EN 61543 (VDE 0664-30); IEC 62423 And in addition for type B+: DIN V VDE V 0664-110		IEC/EN 61009-1 (VDE 0664-20); VDE 0664-200; IEC/EN 61543 (VDE 0664-30); IEC 62423
Versions		1P+N	3P+N	4P
Tripping characteristic		--	--	C, D
Surge current withstand capability with current waveform 8/20 µs acc. to DIN VDE 0432-2				
• Super resistant	kA	> 3	> 3	> 3
• Selective	kA	--	> 5	> 5
Minimum operational voltage for test function operation	V AC	150	150	150
Rated voltages U_n	V AC	230	400	400, 480
Rated frequency f_n	Hz	50 ... 60		
Rated currents I_n	A	16, 25, 40, 63	25, 40, 63, 80	100, 125
Rated residual currents $I_{\Delta n}$	mA	30, 300	30, 300, 500	30, 300
Rated switching capacity				
• I_m	A	800		--
• I_{cn}	kA	--		10
Insulation coordination				
• Overvoltage category		III		
Conductor cross-sections				
• Solid and stranded	mm ²	1.5 ... 25		6 ... 50
• Finely stranded, with end sleeve	mm ²	1.5 ... 16		6 ... 35
Terminal tightening torques for all devices	Nm	2.5 ... 3.0		3.0 ... 3.5
Mains connection		Either 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		

Residual Current Protective Devices



(Type B/type B+)

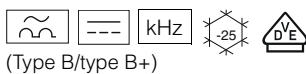
SIQUENCE 5SM3 and 5SU1 universal current-sensitive RCCBs, type B and type B+

	SIQUENCE, RCCBs Type B and type B+ 5SM3	SIQUENCE RCBOs Type B and type B+ 5SU1
Service life, electrical and mechanical; (test cycle according to regulations)	> 10 000 switching cycles	
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	

I^2t characteristic curves, see Technology Manual under:
www.siemens.com/lowvoltage/manuals.

Selection and ordering data

	Rated residual current	Rated current	Max. permissible short-circuit series fuse	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	
	$I_{\Delta n}$ mA	I_n A	 10 000								kg	
	SIQUENCE RCCBs, type B											
	Super resistant 											
	1P+N; 230 V AC; 50 ... 60 Hz											
	30	16	100	4	A	5SM3 321-4		1	1 unit	015	0.590	
		25			A	5SM3 322-4	1	1 unit	015	0.590		
		40			A	5SM3 324-4	1	1 unit	015	0.588		
		63			A	5SM3 326-4	1	1 unit	015	0.591		
	300	16	100	4	A	5SM3 621-4		1	1 unit	015	0.600	
		25			A	5SM3 622-4	1	1 unit	015	0.600		
		40			A	5SM3 624-4	1	1 unit	015	0.591		
		63			A	5SM3 626-4	1	1 unit	015	0.586		
	30	25	100	4	D	5SM3 342-4		1	1 unit	015	0.582	
		40			D	5SM3 344-4	1	1 unit	015	0.578		
		63			D	5SM3 346-4	1	1 unit	015	0.581		
		80			B	5SM3 347-4	1	1 unit	015	0.587		
	300	25	100	4	D	5SM3 642-4		1	1 unit	015	0.592	
		40			D	5SM3 644-4	1	1 unit	015	0.581		
		63			A	5SM3 646-4	1	1 unit	015	0.576		
		80			B	5SM3 647-4	1	1 unit	015	0.585		
	500	63	100	4	B	5SM3 746-4		1	1 unit	015	0.575	
		80			B	5SM3 747-4	1	1 unit	015	0.575		
		SIQUENCE RCCBs, type B										
		Selective 										
		3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
		300	63	100	4	B	5SM3 646-5		1	1 unit	015	0.578
			80			B	5SM3 647-5	1	1 unit	015	0.587	
500		63	100	4	B	5SM3 746-5		1	1 unit	015	0.520	
		80			D	5SM3 747-5	1	1 unit	015	0.520		
	SIQUENCE RCCBs, type B+											
	Super resistant 											
	1P+N; 230 V AC; 50 ... 60 Hz											
	30	16	100	4	C	5SM3 321-4KK14		1	1 unit	015	0.587	
		25			C	5SM3 322-4KK14	1	1 unit	015	0.600		
		40			C	5SM3 324-4KK14	1	1 unit	015	0.600		
		63			C	5SM3 326-4KK14	1	1 unit	015	0.600		
	300	16	100	4	C	5SM3 621-4KK14		1	1 unit	015	0.600	
		25			C	5SM3 622-4KK14	1	1 unit	015	0.600		
		40			C	5SM3 624-4KK14	1	1 unit	015	0.600		
		63			C	5SM3 626-4KK14	1	1 unit	015	0.600		



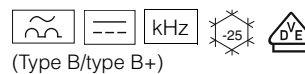
(Type B/type B+)

SIQUENCE 5SM3 and 5SU1 universal current-sensitive RCCBs, type B and type B+

	Rated residual current	Rated current	Max. permissible short-circuit series fuse	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$ mA	I_n A	 10 000 A		MW						kg
	SIQUENCE RCCBs, type B+ Super resistant [K] 3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
	30	25	100	4	C	5SM3 342-4KK14		1	1 unit	015	0.600
		40			C	5SM3 344-4KK14		1	1 unit	015	0.600
		63			C	5SM3 346-4KK14		1	1 unit	015	0.600
		80			C	5SM3 347-4KK14		1	1 unit	015	0.600
	300	25	100	4	C	5SM3 642-4KK14		1	1 unit	015	0.600
		40			C	5SM3 644-4KK14		1	1 unit	015	0.600
		63			C	5SM3 646-4KK14		1	1 unit	015	0.600
		80			C	5SM3 647-4KK14		1	1 unit	015	0.600
	SIQUENCE RCCBs, type B+ Selective [S] 3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
	300	63	100	4	C	5SM3 646-5KK14		1	1 unit	015	0.600
		80			C	5SM3 647-5KK14		1	1 unit	015	0.600
	SIQUENCE RCBOs, Type B Super resistant [K], rated switching capacity 10 kA 4P; 400 V AC; 50 ... 60 Hz										
	Characteristic C										
	30	100		11	B	5SU1 374-7AK81		1	1 unit	017	2.067
		125			B	5SU1 374-7AK82		1	1 unit	017	2.053
	300	100		11	B	5SU1 674-7AK81		1	1 unit	017	2.069
		125			B	5SU1 674-7AK82		1	1 unit	017	2.088
	Characteristic D										
	30	100		11	B	5SU1 374-8AK81		1	1 unit	017	2.084
	300	100		11	B	5SU1 674-8AK81		1	1 unit	017	2.082
	4P; 480 V AC; 50 ... 60 Hz										
	Characteristic C										
	300	100		11	C	5SU1 674-7CK81		1	1 unit	017	2.050
		125			B	5SU1 674-7CK82		1	1 unit	017	2.050
	SIQUENCE RCBOs, Type B Selective [S], rated switching capacity 10 kA 4P; 400 V AC; 50 ... 60 Hz										
	Characteristic C										
	300	125		11	B	5SU1 674-7BK82		1	1 unit	017	2.082
	Characteristic D										
	300	100		11	C	5SU1 674-8BK81		1	1 unit	017	2.078
	SIQUENCE RCBOs, Type B+ Super resistant [K], rated switching capacity 10 kA 4P; 400 V AC; 50 ... 60 Hz										
	Characteristic C										
	30	100		11	C	5SU1 374-7DK81		1	1 unit	017	2.067
		125			C	5SU1 374-7DK82		1	1 unit	017	2.053
	300	100		11	C	5SU1 674-7DK81		1	1 unit	017	2.069
		125			D	5SU1 674-7DK82		1	1 unit	017	2.088
	Characteristic D										
	30	100		11	C	5SU1 374-8DK81		1	1 unit	017	2.084
	300	100		11	C	5SU1 674-8DK81		1	1 unit	017	2.082
	4P; 480 V AC; 50 ... 60 Hz										
	Characteristic C										
	300	100		11	C	5SU1 674-7FK81		1	1 unit	017	2.050
		125			C	5SU1 674-7FK82		1	1 unit	017	2.050

* You can order this quantity or a multiple thereof.

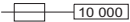
Residual Current Protective Devices



(Type B/type B+)

SIQUENCE 5SM3 and 5SU1 universal current-sensitive RCCBs, type B and type B+

4

	Rated residual current	Rated current	Max. permissible short-circuit series fuse	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$ mA	I_n A	 10 000 A		MW						kg
	SIQUENCE RCBOs, Type B+ Selective [S], rated switching capacity 10 kA										
	4P; 400 V AC; 50 ... 60 Hz										
	Characteristic C										
	300	125		11	C	5SU1 674-7EK82		1	1 unit	017	2.082
	Characteristic D										
	300	100		11	C	5SU1 674-8EK81		1	1 unit	017	2.078



Overview

Auxiliary switches (AS) signal the contact position of the RCCB.

Remote controlled mechanisms are used for the remote ON/OFF switching of RCCBs. They also enable local manual switching. A blocking function permits maintenance work. A tripped RCCB must be acknowledged prior to switching back on.

The leakage current measurement device detects the leakage currents - like the circuit breaker - thus providing a direct statement as to the current loading of the RCCB. It is used to measure leakage currents up to 300 mA. This requires a voltmeter with an internal resistance $> 1 \text{ M}\Omega/\text{V}$ and a measuring range for AC voltages of $U_{\text{eff}} = 1 \text{ mV}$ to 2 V . For the fault-free operation of an RCCB, the measured leakage current should be no greater than 1/3 of the rated residual current.

Benefits

- Using captive brackets, the remote-controlled operating mechanism can be attached (or retrofitted) to the right-hand side of the basic device without the need for tools
- Bus systems, such as *instabus* KNX, AS-Interface bus or PROFIBUS, can be integrated in the communication over binary inputs
- The leakage current measurement device enables the systematic selection of the rated residual current, thus preventing the inadvertent tripping of RCCBs.

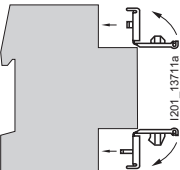
Technical specifications

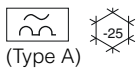
		Auxiliary switches (AS) 5SW3 30.	Auxiliary switches (AS) 5SW3 330
Standards		IEC/EN 60947-5-1	
Approvals		DIN VDE 0660-200	
Terminals			
• Conductor cross-section	mm ²	0.75 ... 2.5	
• Tightening torques	Nm	0.6 ... 0.8	
Short-circuit protection		B6 or C6 or gL/gG 6 A fuse	
Min. contact load		50 mA/24 V	
Max. contact load			
• 230 V AC, AC-12	A	6	5
• 230 V AC, AC-14	A	3.6	--
• 220 V DC, DC-12	A	1	0.5

Residual Current Protective Devices

Additional components

Selection and ordering data

Version	Mount- ing width MW	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	Auxiliary switches (AS) for 5SM3 RCCBs up to 80 A							
	1 NO + 1 NC	0.5	▶	5SW3 300	1	1/10 units	008	0.050
	2 NC	0.5	C	5SW3 301	1	1/10 units	008	0.049
	2 NO	0.5	A	5SW3 302	1	1/10 units	008	0.050
	Auxiliary switches (AS) for 5SM3 RCCBs up to 100 ... 125 A, 3P+N							
	1 NO + 1 NC	0.5	B	5SW3 330	1	1 unit	008	0.041
	Remote controlled mechanisms (RC) for 5SM3 RCCBs up to 80 A							
	Rated voltage $U_n = 230$ V AC	3.5	D	5ST3 051	1	1 unit	027	0.449
	Leakage current measurement devices							
	Rated voltage $U_n = 500$ V AC; 50 ... 60 Hz; 4P Rated residual current $I_{\Delta n} = 0 \dots 300$ mA Rated current $I_n = 63$ A.	4	B	5SM1 930-0	1	1 unit	008	0.489
	Covers for connection terminals							
	For residual current operated circuit breakers up to 80 A, sealable (2 units in plastic bag)							
		2	A	5SW3 010	1	1/50 units	008	0.008
		2.5	A	5SW3 011	1	1/50 units	008	0.008
	Locking devices							
	For RCCBs up to 80 A, sealable and lockable 4.5 mm lock hasp diameter		B	5SW3 303	1	10 units	008	0.009
	Padlocks							
	For 5SW3 303 locking device		▶	5ST3 802	1	1 unit	027	0.031
Locking devices with padlock								
Comprising 5SW3 303 locking device and 5ST3 802 padlock		B		5SW3 312	1	1 set	008	0.028



Residual Current Protective Devices

5SM2 RC units, type A

Overview

RC units of type A can be used in all systems up to 240/415 V AC. They trip in the event of both sinusoidal AC fault currents and pulsating residual currents.

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.

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

RC units are combined with miniature circuit breakers with characteristics A, B, C and D, provided that these are available in the MCB range. The two components are simply plugged together without the need for any tools.

They then form a combination of RCCB and MCB for personnel, fire and line protection.

Super resistant

Super resistant (short-time delayed) RC units satisfy the maximum permissible break times for instantaneous devices. However, by implementing a short-time delay they prevent unnecessary trippings, and thus plant faults, when pulse-shaped leakage currents occur - as is the case when capacitors are switched on.

Selective

Can be used as upstream group switch for selective tripping contrary to a downstream, instantaneous or super resistant RCCB.

The dimensioning of the rated residual current depends on the size of the plant.

Benefits

- Our wide variety of RC unit types and comprehensive range of miniature circuit breakers offer a huge spectrum of combinations for all applications
- All devices have surge current withstand capability of more than 1 kA, thus ensuring safe and reliable operation
- All additional components for miniature circuit breakers can be retrofitted on the right-hand side
- All 100 A and 125 A RC units offer external remote tripping over terminals Y1/Y2. This supports implementation of central OFF circuits.
- Both components can be simply plugged into each other and secured with captive metal brackets - no tools required. This saves considerable time when mounting.



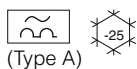
Technical specifications

		5SM2
Standards		IEC/EN 61009-1 (VDE 0664-20), IEC/EN 61009-2-1 (VDE 0664-21), IEC/EN 61543 (VDE 0664-30)
Approvals		EN 61009-1, EN 61009-2-1; IEC 61009-1, IEC 61009-2-1
Surge current withstand capability With current waveform 8/20 µs	Acc. to DIN VDE 0432-2	
• Instantaneous	kA	> 1
• Super resistant	kA	> 3
• Selective	kA	> 5
Minimum operational voltage for test function operation		
• Up to $I_n = 63$ A, 2 and 3-pole	V AC	195
• Up to $I_n = 63$ A, 4-pole	V AC	100
• At $I_n = 80 \dots 100$ A	V AC	100
Rated voltage U_n	V AC	230 ... 400
Rated frequency f_n	Hz	50 ... 60
Rated currents I_n	A	0.3 ... 16; 0.3 ... 40; 0.3 ... 63; 80 ... 100
Rated residual currents $I_{\Delta n}$	mA	10, 30, 100, 300, 500, 1000
Insulation coordination • Overvoltage category		III
Terminal conductor cross-sections • Up to $I_n = 63$ A • At $I_n = 80 \dots 100$ A	mm ² mm ²	1.5 ... 25 6.0 ... 50
Terminal tightening torque	Nm	2.5 ... 3.0
Mains connection		Either 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 DIN/EN 61009	> 10 000 switching cycles
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

5SM2 RC units, type A

Selection and ordering data

	Rated residual current	Rated current	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$ mA	I_n A	MW							kg
	RC units, type A									
	Instantaneous									
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 2P, 230 ... 400 V AC, 50 ... 60 Hz									
	10	0.3 ... 16	2	B	5SM2 121-6		1	1 unit	007	0.207
	30	0.3 ... 40		▶	5SM2 322-6		1	1 unit	007	0.209
	300			A	5SM2 622-6		1	1 unit	007	0.199
	30	0.3 ... 63		A	5SM2 325-6		1	1 unit	007	0.215
	100			B	5SM2 425-6		1	1 unit	007	0.211
	300			B	5SM2 625-6		1	1 unit	007	0.203
	500			B	5SM2 725-6		1	1 unit	007	0.198
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 3P; 230 ... 400 V AC, 50 ... 60 Hz									
	30	0.3 ... 40	3	A	5SM2 332-6		1	1 unit	007	0.314
	300			A	5SM2 632-6		1	1 unit	007	0.295
	30	0.3 ... 63		B	5SM2 335-6		1	1 unit	007	0.359
	100			B	5SM2 435-6		1	1 unit	007	0.327
	300			B	5SM2 635-6		1	1 unit	007	0.298
	500			B	5SM2 735-6		1	1 unit	007	0.322
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 4P, 230 ... 400 V AC, 50 ... 60 Hz									
	30	0.3 ... 40	3	▶	5SM2 342-6		1	1 unit	007	0.337
	300			▶	5SM2 642-6		1	1 unit	007	0.326
	30	0.3 ... 63		A	5SM2 345-6		1	1 unit	007	0.397
	100			B	5SM2 445-6		1	1 unit	007	0.357
	300			A	5SM2 645-6		1	1 unit	007	0.328
	500			A	5SM2 745-6		1	1 unit	007	0.326
	For 5SP4 miniature circuit breakers (characteristics B and C) 2P, 125 ... 230 V AC, 50 ... 60 Hz									
	30	80 ... 100	3.5	B	5SM2 327-6		1	1 unit	007	0.529
	300			B	5SM2 627-6		1	1 unit	007	0.458
	For 5SP4 miniature circuit breakers (characteristics B and C) 4P, 230 ... 400 V AC, 50 ... 60 Hz									
	30	80 ... 100	5	B	5SM2 347-6		1	1 unit	007	0.934
	300			A	5SM2 647-6		1	1 unit	007	0.682



Residual Current Protective Devices

5SM2 RC units, type A

	Rated residual current	Rated current	Mounting width	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$ mA	I_n A	MW							kg
	RC units, type A Super resistant [K]									
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 2P, 230 ... 400 V AC, 50 ... 60 Hz									
	30	0.3 ... 40	2	B	5SM2 322-6KK01		1	1 unit	007	0.215
	30	0.3 ... 63		B	5SM2 325-6KK01		1	1 unit	007	0.214
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 3P; 230 ... 400 V AC; 50 ... 60 Hz									
	30	0.3 ... 40	3	B	5SM2 332-6KK01		1	1 unit	007	0.365
	30	0.3 ... 63		C	5SM2 335-6KK01		1	1 unit	007	0.365
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 4P, 230 ... 400 V AC, 50 ... 60 Hz									
	30	0.3 ... 40	3	B	5SM2 342-6KK01		1	1 unit	007	0.390
	30	0.3 ... 63		B	5SM2 345-6KK01		1	1 unit	007	0.388
	RC units, type A Selective [S]									
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 2P, 230 ... 400 V AC, 50 ... 60 Hz									
	300	0.3 ... 40	2	A	5SM2 622-8		1	1 unit	007	0.210
	300	0.3 ... 63		B	5SM2 625-8		1	1 unit	007	0.210
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 3P; 230 ... 400 V AC; 50 ... 60 Hz									
	1000	0.3 ... 40	3	D	5SM2 832-8		1	1 unit	007	0.301
	300	0.3 ... 63	3	B	5SM2 635-8		1	1 unit	007	0.341
	500			B	5SM2 735-8		1	1 unit	007	0.323
	1000			D	5SM2 835-8		1	1 unit	007	0.304
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 4P, 230 ... 400 V AC, 50 ... 60 Hz									
	300	0.3 ... 63	3	A	5SM2 645-8		1	1 unit	007	0.373
	500			A	5SM2 745-8		1	1 unit	007	0.333
	1000			A	5SM2 845-8		1	1 unit	007	0.333
	For 5SP4 miniature circuit breakers (characteristics B and C) 2P, 125 ... 230 V AC, 50 ... 60 Hz									
	300	80 ... 100	3.5	B	5SM2 627-8		1	1 unit	007	0.519
	For 5SP4 miniature circuit breakers (characteristics B and C) 4P, 230 ... 400 V AC, 50 ... 60 Hz									
	300	80 ... 100	5	A	5SM2 647-8		1	1 unit	007	0.838
	1000			A	5SM2 847-8		1	1 unit	007	0.706

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.

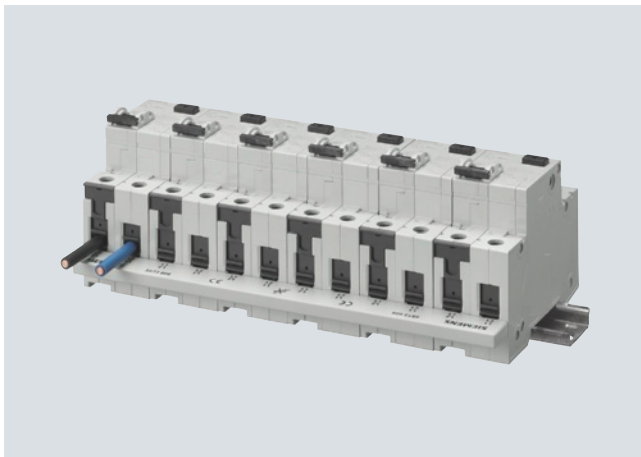
Additional components of the 5SY miniature circuit breakers can be mounted at the side and carry out additional functions.

[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.

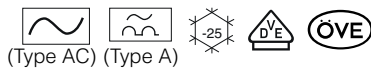
For all 10 kA versions up to 40 A

- 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.



5SU1 RCBOs, type AC and type A

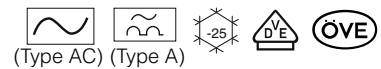
Technical specifications

		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	
					--		X	5SU1 356-1KK08		1	1 unit	010	0.278	
				X	5SU1 356-0KK10		010 X	5SU1 356-1KK10		1	1 unit	010	0.279	
				X	5SU1 356-0KK13		010 X	5SU1 356-1KK13		1	1 unit	010	0.283	
				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	
				X	5SU1 356-0KK25		010 X	5SU1 356-1KK25		1	1 unit	010	0.293	
				X	5SU1 356-0KK32		010 X	5SU1 356-1KK32		1	1 unit	010	0.296	
				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	
				X	5SU1 656-0KK10		010 X	5SU1 656-1KK10		1	1 unit	010	0.278	
				X	5SU1 656-0KK13		010 X	5SU1 656-1KK13		1	1 unit	010	0.283	
				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	
				X	5SU1 656-0KK25		010 X	5SU1 656-1KK25		1	1 unit	010	0.294	
				X	5SU1 656-0KK32		010 X	5SU1 656-1KK32		1	1 unit	010	0.292	
				X	5SU1 656-0KK40		010 X	5SU1 656-1KK40		1	1 unit	010	0.290	

Residual Current Protective Devices

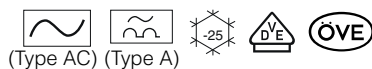


5SU1 RCBOs, type AC and type A

4

	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	MW		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	

* You can order this quantity or a multiple thereof.



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	

5SU1 RCBs, type AC and type A

4

	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 A Super resistant K													
	1P+N; 230 V AC; 50 ... 60 Hz													
	10 000													
	3													
	30	10	2	--		B	5SU1 354-7VK10	1	1 unit	011	0.293			
		16	--		B	5SU1 354-7VK16	1	1 unit	011	0.292				
		20	--		C	5SU1 354-7VK20	1	1 unit	011	0.296				
		25	--		C	5SU1 354-7VK25	1	1 unit	011	0.296				
	RCBOs, type A Selective S													
	2P; 400 V AC; 50 ... 60 Hz													
	10 000													
	300	125	6.5	B	5SU1 624-6WK82		011	B	5SU1 624-7WK82		1	1 unit	011	0.930
	4P; 400 V AC; 50 ... 60 Hz													
	10 000													
	300	125	11	B	5SU1 644-6WK82		011	B	5SU1 644-7WK82		1	1 unit	011	2.018
Version								DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
														kg
Handle couplers for additional components														
For mounting the additional components auxiliary switches, fault signal contacts, shunt trips and undervoltage releases onto 5SU1 RCBs, you require a handle coupler (1 set = 5 units).					▶			5ST3 805-1			1	1 set	027	0.006
														

Overview

4-pole 5SM3 RCCBs are bus-mounted either together or in combination with miniature circuit breakers. RCCBs with an N wire connection on the left-hand side facilitate installation because standard busbars are used, as those used for mounting miniature circuit breakers.

Busbars in 10 mm² and 16 mm² versions are available.

The extremely flexible 5ST3 6 busbar system with fixed lengths enables installation in any length as the busbars can be overlapped.

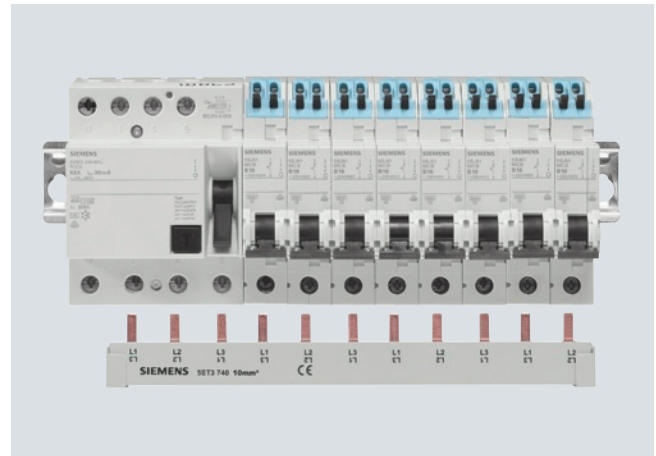
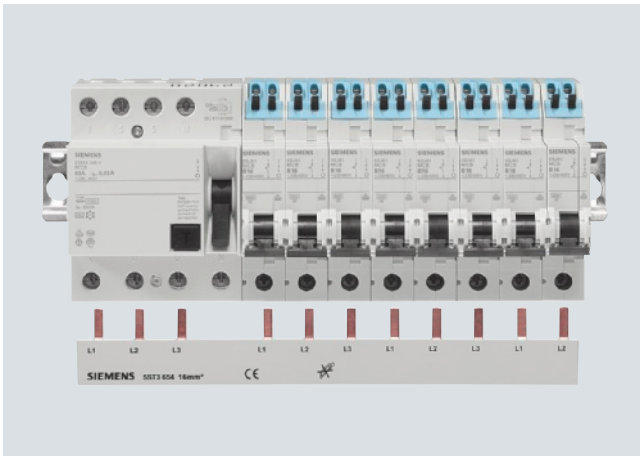
No further need for time-consuming tasks, such as cutting, cutting to length, deburring, cleaning of cut surfaces and mounting of end caps.

Any free pins on the busbars can be made safe by covering with touch protection.

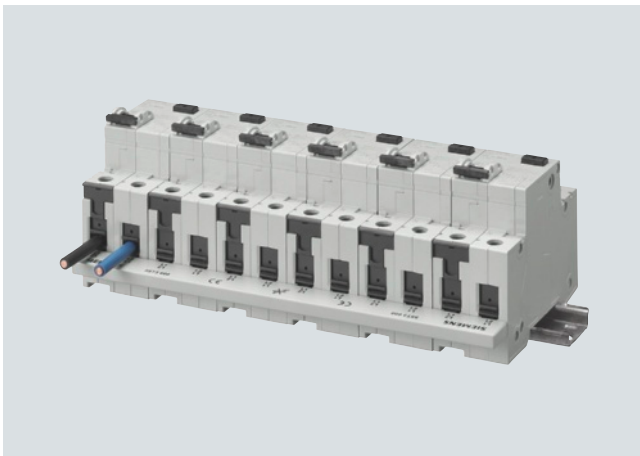
If several RCBOs are bus-mounted together, this is implemented with two-phase busbars, which are used as 1+N busbars.

Benefits

- Connection of miniature circuit breakers to 4-pole RCCBs with N connection right and three-phase busbar, using busbar specially designed for this application. No cutting or end caps required.
- Connection of miniature circuit breakers to 4-pole RCCBs with N connection left, with three-phase busbar that can be cut. No additional items to be stored and busbars that are always available.



- Connection of 1P+N RCBOs with two-phase busbar. No cutting or end caps required.
- Bus-mounting of RCCBs on busbar (3-phase +N) that can be cut. A proven and frequently used application.



Residual Current Protective Devices

Busbars

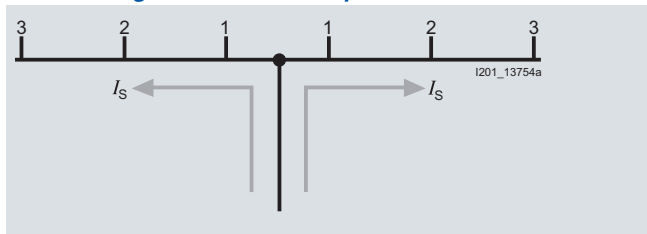
Technical specifications

5ST3, 5ST2		
Standards	EN 60439-1 (VDE 0660-500): 2005-01	
Busbar material	SF-Cu F 24	
Partition material	Plastic, Cycloy 3600 Heat-resistant over 90 °C flame-retardant and self-extinguishing, dioxin and halogen-free	
Rated operational voltage U_e	V AC	400
Rated current I_n		
• Cross-section 10 mm ²	A	63
• Cross-section 16 mm ²	A	80
Rated impulse withstand voltage U_{imp}	kV	4
Test pulse voltage (1.2/50)	kV	6.2
Rated conditional short-circuit current I_{cc}	kA	25
Resistance to climate		
• Constant atmosphere	Acc. to DIN 50015	23/83; 40/92; 55/20
• Humid heat	Acc. to IEC 68-2-30	28 cycles
Insulation coordination	Acc. to IEC 664 (VDE 0110-1)	
• Overvoltage category	III	
• Pollution degree	2	
Maximum busbar current I_S/phase		
• Infeed at the start of the busbar		
- Cross-section 10 mm ²	A	63
- Cross-section 16 mm ²	A	80
• Infeed at the center of the busbar		
- Cross-section 10 mm ²	A	100
- Cross-section 16 mm ²	A	130

Infeed at the start or end of the busbar



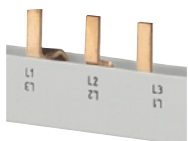
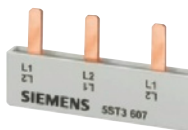
Infeed along the busbar or midpoint infeed



The sum of the output current per branch (1, 2, 3 ... n) must not be greater than the max. busbar current I_S /phase.

Selection and ordering data

Version	Pin spacing	Length	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	MW	mm							kg
5ST3 6 busbar systems, fixed lengths, cannot be cut, fully insulated									
For 1 FI 4P, N connection right, and 8 LS 1P									
• 3-phase 10 mm ²	1	210	A	5ST3 624		1	10 units	027	0.077
• 3-phase 16 mm ²	1	210	A	5ST3 654		1	10 units	027	0.108
For 6 RCBOs 1P+N together									
• 2-phase 10 mm ²		210	A	5ST3 608		1	10 units	027	0.063
• 2-phase 16 mm ²		210	A	5ST3 638		1	10 units	027	0.089
5ST3 7 busbar systems, 12 MW, can be cut to length, with end caps									
For 1 FI 4P, N connection right, and 8 LS 1P									
• 3-phase 16 mm ²			A	5ST3 717		1	25 units	027	0.115
For 6 RCBOs 1P+N									
• 2-phase 10 mm ²	1	216	A	5ST3 734		1	1 unit	027	0.070
• 2-phase 16 mm ²	1	216	▶	5ST3 704		1	1 unit	027	0.092



Residual Current Protective Devices

Busbars

Version	Pin spacing	Length	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	MW	mm							kg
5ST3 7 busbar systems, with end caps, can be cut to length, with touch protection									
For RCBO 1P+N and MCB 2P									
• 4-phase 10 mm ²	1	1008	A	5ST3 770-2		1	10 units	027	0.400
• 4-phase 16 mm ²	1	1008	A	5ST3 770-3		1	10 units	027	0.550
For RCCB 4P, N right and 6 MCB 1P+N									
• 4-phase 10 mm ²	1	288	A	5ST3 770-4		1	10 units	027	0.100
• 4-phase 16 mm ²	1	288	A	5ST3 770-5		1	10 units	027	0.160
End caps for 5ST3 7, can be cut									
• For two-phase and three-phase busbars			►	5ST3 750		1	10 units	027	0.001
• For 4-phase busbars			A	5ST3 718		1	10 units	027	0.001
Touch protection									
For free connections, yellow (RAL 1004) 5 x 1 pin									
			A	5ST3 655		1	10 units	027	0.003
Busbars, 12 MW, with fork-type connections, can be cut to length, with end caps									
For bus mounting RCCBs together									
• Three-phase + N, 16 mm ²	1	216	A	5ST2 145		1	1 unit	027	0.145
									
End caps for 5ST2 145 busbars, can be cut to length									
For three-phase busbars									
			►	5ST2 156		1	10 units	027	0.001
Terminals up to 35 mm² (stranded), for direct infeed of 5ST2 145 busbar									
Side-by-side mounting possible									
			A	5ST2 157		1	5 units	027	0.028

Residual Current Protective Devices

5SM1 and 5SZ9 RCCB socket outlets

Overview

	Number of poles	Rated current I_n A	Rated residual current $I_{\Delta n}$ mA	 (Type A)
RCCB protective socket outlets				
• For mounting onto device box, equipped with RCCB and 2 SCHUKO® socket outlets	2	16	10, 30	✓
• Molded-plastic enclosures, equipped with RCCB and SCHUKO® socket outlet	2	16	10	✓

 = Type A for AC and pulsating DC residual currents

Application

RCCB protective socket outlets

- Molded-plastic enclosure equipped with RCCB and flush-type SCHUKO® socket outlet or flush-type SCHUKO® double socket outlet
- For electric devices where there is a risk of accidental contact with live parts in the event of damage
- Rated voltage: 230 V AC, 50 Hz to 60 Hz
- For outdoor connection of gardening equipment and socket outlets in workshops or for agricultural purposes
- Degree of protection IP21 (5SM1 920-), degree of protection IP54 (5SZ9 2.6).

Selection and ordering data

	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
RCCB protective socket outlets									
	• RCCB protective socket outlets according to VDE 0664, for mounting on device boxes, equipped with residual current operated circuit breaker and 2 childproof SCHUKO® socket outlets, degree of protection IP21								
	10	16	B	5SM1 920-5		1	1 unit	008	0.513
	30		B	5SM1 920-8		1	1 unit	008	0.533
	• RCCB protective socket outlet according to VDE 0664 in molded-plastic enclosure, equipped with residual current operated circuit breaker and flush-mounted SCHUKO® socket outlet, degree of protection IP54								
	10	16	C	5SZ9 206		1	1 unit	008	0.761
	30		C	5SZ9 216		1	1 unit	008	0.763

Accessories

	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	Terminal covers, gray For surface mounting, degree of protection IP40, sealable, with 35 mm standard mounting rail • Up to 2.5 MW • Up to 4.5 MW	B	5SW3 004		1	1 unit	008	0.091
		B	5SW3 005		1	1 unit	008	0.171
	Wall enclosures, gray For flush mounting, degree of protection IP40, with 35 mm standard mounting rail • Up to 2.5 MW • Up to 4.5 MW	B	5SW3 006		1	1/4 units	008	0.133
		B	5SW3 007		1	1 unit	008	0.162
	Molded-plastic enclosures, gray for surface mounting, degree of protection IP54, sealable, with 35 mm standard mounting rail, with transparent hinged lid For 4.5 MW	A	5SW1 200		1	1 unit	008	0.447
	Covers Can be assembled as mini distribution board, suitable for all devices, cover parts prepared for rail mounting of conventional label caps, comprising: • End plates (for snapping onto standard mounting rail) ▶ • Angled profile (approx. 1 m long) • Alternative flat profiles (as a cover between the rows of devices length approx. 1 m)	A	5ST2 134		1	10 units	027	0.021
		A	5ST2 135		1	5 units	027	0.288
		B	5ST2 136		1	5 units	027	0.239
	Touch protection For RCCBs up to 80 A 1 set contains 12 units	A	5SW3 313		1	1 set	008	0.012
	Fixing parts Plastic 4 MW	B	5ST2 201		1	1 unit	027	0.013
	Inscription labels (white) 15 mm × 9 mm, 3 frames with 44 labels each Any attachment and inscription, self-adhesive	B	5ST2 173		1	1 set	027	0.049

Labeling systems

Inscription on self-adhesive labels for a uniform and tidy appearance in electrical power distribution.
The labeling program can be downloaded to your PC free of charge at:

www.siemens.com/beta

Recommended ELAT-3-747 labels for printing
out on normal printers can be ordered at:

Brady GmbH
Otto-Hahn-Str. 5-7
D-63222 Langen
Tel.: +49 (0) 61 03/75 98-660

Residual Current Protective Devices

Residual-current operated circuit breakers

Application

4

Standards ¹⁾	Field of application	Required $I_{\Delta n}$ [mA]	Recommended Siemens residual current protective devices		
			5SM. (Type A)	5SM3 SIQUENCE (Type B/type B+)	5SM3 ...-6KK12 SIGRES
DIN VDE 0100-410	Sockets ≤ 20 A and end current circuits in the outdoor area ≤ 32 A	≤ 30	✓	--	--
DIN VDE 0100-482	Fire protection for particular risks or safety hazard	30, 300	✓	✓	--
DIN VDE 0100-551	Low-voltage generating sets	≤ 30	✓	--	--
DIN VDE 0100-559	Luminaires and lighting installations, display stands for lights	≤ 30	✓	--	--
DIN VDE 0100-701	Rooms with baths or showers, socket outlets in zone 3	≤ 30	✓	--	--
DIN VDE 0100-702	Swimming pools, zone 1 and 2	≤ 30	✓	--	✓
DIN VDE 0100-704	Construction and demolition site installations, socket outlet current circuits (single-phase operation) up to 32 A and for hand-held equipment	≤ 30	✓	--	✓
DIN VDE 0100-705	Agricultural and general horticultural premises	≤ 500	✓	--	✓
	Socket outlet current circuits	≤ 30	✓	--	✓
DIN VDE 0100-706	Conductive areas with limited freedom of movement	≤ 30	✓	--	--
DIN VDE 0100-708	Feeding points for caravan parking spaces, camping sites	≤ 30	✓	--	--
DIN VDE 0100-710	Medical premises, depending on application group 1 or 2 and equipment	≤ 30 or ≤ 300	✓ ✓	✓ ✓	-- --
DIN VDE 0100-722	Portable buildings, vehicles, mobile homes for fairgrounds	≤ 500	--	--	✓
DIN VDE 0100-723	Classrooms with experiment equipment	≤ 30	--	✓	--
DIN VDE 0100-738	Fountains zone 2, general	≤ 500	✓	--	✓
	Socket outlets in zone 2	≤ 30	✓	--	✓
	Zones 0 and 1	≤ 30	✓	--	✓
DIN VDE 0100-739	Additional protection against direct contact in homes	≤ 30	✓	--	--
DIN VDE 0118-100	Mining plants	≤ 500	✓	--	✓
DIN EN 50178 (VDE 0160)	Fitting of power installations with electronic equipment	General requirements for correct selection when using res. current protection	✓	✓	--
DIN VDE 0832-100	Traffic signals				
	• Class T1	≤ 300	✓	--	✓
	• Class U1	≤ 30	✓	--	✓
BG FE BGI 608	Selection and operation of electrical equipment on worksites				
	General:				
	• Socket circuits ≤ 32 A	≤ 30	✓	✓	✓
	• Socket circuits > 32 A	≤ 500	✓	✓	✓
	Frequency-controlled equipment:				
	• With plug-and-socket device ≤ 32 A	≤ 30	--	✓	--
	• With plug-and-socket device > 32 A	≤ 500	--	✓	--
	Chemical industry and food processing industries	30 (recommended)	✓	✓	✓

¹⁾ The standards of the range DIN VDE 0100-4.., -5.., -7.. essentially correspond to the IEC standards of the range IEC 60364-4, -5, -7; they have, however, been modified.

Note:

For reasons of basic fire protection, we recommend a maximum rated residual current of 300 mA for residual current protective devices.