NEW

Direct reference to the products in the Industry Mall from the selection and ordering data tables:

Article No.
www.siemens.com/product?Article No.
3VA2025-5HL36-0AA0

Paper catalog:
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For further technical product information:

Configuration Manual

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)
Article No.: 3ZW1012-5SM33-0AC1

Siemens Industry Online Support:

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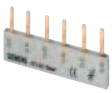
Overview

Devices		Page	Application	Standards	Used in		
					Non-residential buildings	Residential buildings	Industry
	**5SV RCCBs**	4/4	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 IEC/EN 62423	✓	✓	✓
	**5SM3 RCCBs**	4/10	Personnel, material and fire protection, as well as protection against direct contact	IEC/EN 61008 IEC/EN 62423	✓	✓	✓
	**SIQUENCE 5SM3/5SU1 universal current-sensitive RCCBs, type B and type B+**	4/13	SIQUENCE, the technology of universal current-sensitive residual current protective devices	VDE 0664-100 VDE 0664-200 VDE V 0664-110	✓	--	✓
	**Additional components**	4/18	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**	4/22	The freely selectable combination of RC units with miniature circuit breakers permits the flexible configuration of RCBO combinations	IEC/EN 61009	✓	--	✓
	**5SU1 RCBOs**	4/30	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	✓	✓	✓
	**5SM6 AFD units**	4/38	Enhanced fire protection through the detection and isolation of arcing faults	IEC/EN 62606	✓	✓	--
	**5ST busbars for modular installation devices**	4/42	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**	4/45	For retrofitting in existing installations	VDE 0664	✓	✓	✓
	**Accessories**	4/46	Locking devices, covers – everything you need for mounting	--	✓	✓	✓
	**5SV8 residual current monitors**	Ch. 12	For 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	✓	--	✓

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.

When used in ambient conditions as defined in product standard EN 61008-1, the operation interval for pressing the test button can be extended to once a year.

Super resistant K

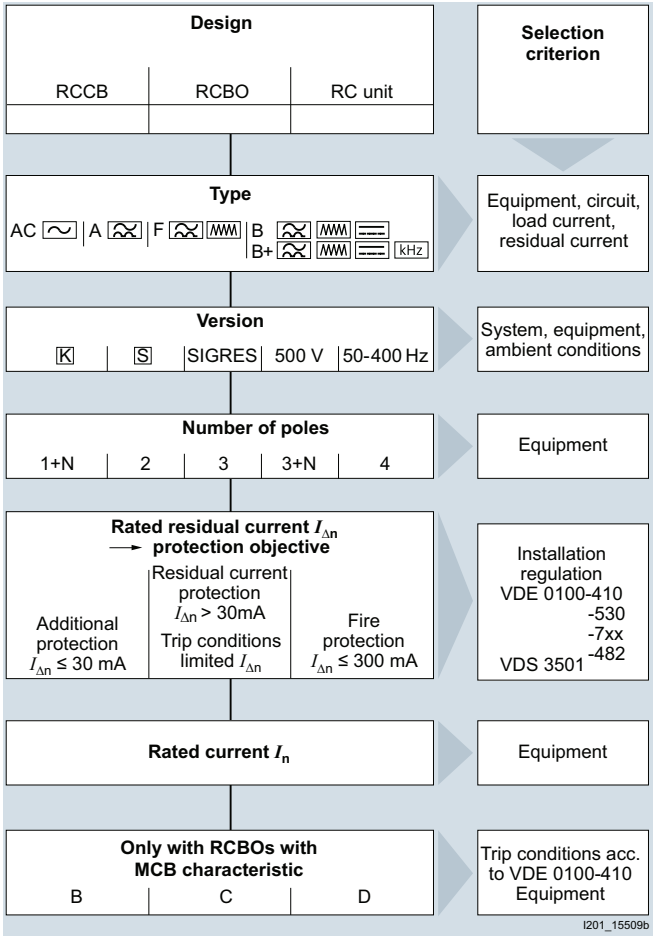
Super resistant (short-time delayed) RCCBs meet the maximum permissible break times for instantaneous devices. However, by implementing a short-time delay they prevent unnecessary tripping operations, and thus plant faults, when pulse-shaped leakage currents occur – as is the case when capacitors are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

Selective S

Can be used as upstream group switch for selective tripping contrary to downstream, instantaneous or short-time delayed RCCBs.

Note:

You will find further information on the subject of residual current protective devices in the technology primer "Residual Current Protective Devices", Article No.: E10003-E38-2B-G0090-7600 and in the Configuration Manual "Residual Current Protective Devices/Arc Fault Detection Devices (AFDDs)" at: www.siemens.com/lowvoltage/manuals.



Selection aid for finding the appropriate residual current protective device

5SV RCCBs

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 residual current operated circuit breakers with the N connection on the left or right-hand side enable simple bus mounting with standard pin busbars with miniature circuit breakers installed on the right-hand side.
- 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.
- SIGRES has an extremely long service life due to a patented active condensation protection and identical dimensions enable the quick and easy replacement of existing instantaneous RCCBs.
- 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.
- Auxiliary switches, fault signal contacts, undervoltage releases or shunt trips are also available as additional components.
- By means of internal contacts, effective touch protection is provided when grasping and manually operating the latching slide.
- To facilitate entry of pin busbars with connection cables up to 35 mm^2, the devices are equipped with rectangular terminals for the accommodation of funnel-shaped cable entries.
- By means of standardized clearances of the terminals in modular width dimensions, the RCCBs and MCBs can be optionally connected to busbars on the top or on the bottom.

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); 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		> 3	> 5
• Type F with current waveform 8/20 µs	Acc. to EN 60060-2 (VDE 0432-2)	kA	--	--	> 3	--
Minimum operational voltage for test function operation						
• 30-mA devices		V AC	195			
• Non-30-mA devices		V AC	100			
• 24 V devices		V AC	20			
Test cycles			1/2 year	1 year	1/2 year	
Insulation coordination						
• Overvoltage category			III			
Pollution degree			2			
Terminal conductor cross-sections						
• 1-wire						
- Solid (≤ 10 mm^2) / stranded (≥ 16 mm^2)		mm^2	0.75 ... 35			
- Finely stranded with non-insulated end sleeve		mm^2	0.75 ... 25			
- Finely stranded with insulated end sleeve		mm^2	0.75 ... 25			
- Finely stranded without end sleeve		mm^2	1 ... 35			
• 2-wire, same cross-section, same conductor type						
- Solid (≤ 10 mm^2) / stranded (≥ 16 mm^2)		mm^2	0.75 ... 10			
- Finely stranded with non-insulated end sleeve		mm^2	0.75 ... 4			
- Finely stranded with insulated end sleeve		mm^2	0.75 ... 4			
- Finely stranded without end sleeve		mm^2	1 ... 4			
• 1-wire + busbar (pin thickness 1.5 mm)						
- Solid (≤ 10 mm^2) / stranded (≥ 16 mm^2)		mm^2	10 ... 25			
- Finely stranded with non-insulated end sleeve		mm^2	6 ... 25			
- Finely stranded with insulated end sleeve		mm^2	6 ... 16			
Terminal tightening torque						
• Up to I_n 80 A		Nm	2.5			
• At I_n = 100 A, 125 A		Nm	3.0 ... 3.5			
Mains connection			Top or bottom	Bottom	Top or bottom	
Rated frequency		Hz	50/60[1)]			
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 operating cycles Test cycle acc. to IEC/EN 61008		> 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			

1) 5SV residual current operated circuit breakers have been developed for 50 Hz systems and can reliably detect and shut down ground fault currents of this frequency, but in the case of residual currents that deviate markedly from this frequency, or that have a higher proportion of harmonics, the trip values increase slightly.

Selection and ordering data

(Type AC)	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$	I_n	10000								
	mA	A	A	MW							kg
RCCBs, type AC, instantaneous											
	1P+N; 230 V AC										
	N connection, right										
	10	16	63	2		5SV4111-0		1	1 unit	1Al	0.215
	30	16	63	2		5SV4311-0		1	1 unit	1Al	0.202
		25				5SV4312-0		1	1 unit	1Al	0.207
			Bulk packaging 36 units			5SV4312-0GV01 NEW		1	36 units	1Al	0.212
		40	63			5SV4314-0		1	1 unit	1Al	0.204
			Bulk packaging 36 units			5SV4314-0GV01 NEW		1	36 units	1Al	0.212
		63	80			5SV4316-0		1	1 unit	1Al	0.220
		80				5SV4317-0		1	1 unit	1Al	0.221
	100	25	63	2		5SV4412-0		1	1 unit	1Al	0.195
		40				5SV4414-0		1	1 unit	1Al	0.197
		63	80			5SV4416-0		1	1 unit	1Al	0.200
		80				5SV4417-0		1	1 unit	1Al	0.207
	300	25	63	2		5SV4612-0		1	1 unit	1Al	0.196
		40				5SV4614-0		1	1 unit	1Al	0.194
		63	80			5SV4616-0		1	1 unit	1Al	0.200
		80				5SV4617-0		1	1 unit	1Al	0.204
	3P+N; 400 V AC										
	N connection, right										
	30	25	80	4		5SV4342-0		1	1 unit	1Al	0.362
			Bulk packaging 18 units			5SV4342-0GV01 NEW		1	18 units	1Al	0.381
		40	80			5SV4344-0		1	1 unit	1Al	0.360
			Bulk packaging 18 units			5SV4344-0GV01 NEW		1	18 units	1Al	0.383
		63	100			5SV4346-0		1	1 unit	1Al	0.400
		80				5SV4347-0		1	1 unit	1Al	0.399
	100	25	80	4		5SV4442-0		1	1 unit	1Al	0.335
		40				5SV4444-0		1	1 unit	1Al	0.335
		63	100			5SV4446-0		1	1 unit	1Al	0.367
		80				5SV4447-0		1	1 unit	1Al	0.350
	300	25	80	4		5SV4642-0		1	1 unit	1Al	0.334
		40				5SV4644-0		1	1 unit	1Al	0.335
		63	100			5SV4646-0		1	1 unit	1Al	0.361
		80				5SV4647-0		1	1 unit	1Al	0.361
	500	25	80	4		5SV4742-0		1	1 unit	1Al	0.350
		40				5SV4744-0		1	1 unit	1Al	0.362
		63	100			5SV4746-0		1	1 unit	1Al	0.362
		80				5SV4747-0		1	1 unit	1Al	0.356
	1P+N; 230 V AC										
	N connection, left										
	10	16	63	2		5SV4111-0KL		1	1 unit	1Al	0.214
	30	16	63	2		5SV4311-0KL		1	1 unit	1Al	0.205
		25				5SV4312-0KL		1	1 unit	1Al	0.201
		40				5SV4314-0KL		1	1 unit	1Al	0.222
			Bulk packaging 36 units			5SV4314-0GV02 NEW		1	36 units	1Al	0.211
		63	80			5SV4316-0KL		1	1 unit	1Al	0.200
		80				5SV4317-0KL		1	1 unit	1Al	0.221
	100	40	63	2		5SV4414-0KL		1	1 unit	1Al	0.197
		63	80			5SV4416-0KL		1	1 unit	1Al	0.200
	300	25	63	2		5SV4612-0KL		1	1 unit	1Al	0.190
		40				5SV4614-0KL		1	1 unit	1Al	0.195
		63	80			5SV4616-0KL		1	1 unit	1Al	0.200
		80				5SV4617-0KL		1	1 unit	1Al	0.200
	3P+N; 400 V AC										
	N connection, left										
	30	25	80	4		5SV4342-0KL		1	1 unit	1Al	0.364
		40				5SV4344-0KL		1	1 unit	1Al	0.350
		63				5SV4346-0KL		1	1 unit	1Al	0.400
		80				5SV4347-0KL		1	1 unit	1Al	0.399
	300	25	80	4		5SV4642-0KL		1	1 unit	1Al	0.350
		40				5SV4644-0KL		1	1 unit	1Al	0.334
		63				5SV4646-0KL		1	1 unit	1Al	0.362
		80				5SV4647-0KL		1	1 unit	1Al	0.385

* You can order this quantity or a multiple thereof.

(Type A)	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Max. permissible short-circuit back-up fuse 10000 A	Mounting width MW	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
RCCBs, type A, instantaneous											
	1P+N; 230 V AC										
	N connection, right										
	10	16	63	2		5SV3111-6		1	1 unit	1AH	0.217
	30	16	63	2		5SV3311-6		1	1 unit	1AH	0.204
			Bulk packaging 36 units			5SV3311-6GV01 NEW		1	36 units	1AH	0.207
		25	63			5SV3312-6		1	1 unit	1AH	0.203
			Bulk packaging 36 units			5SV3312-6GV01 NEW		1	36 units	1AH	0.207
		40	63			5SV3314-6		1	1 unit	1AH	0.204
			Bulk packaging 36 units			5SV3314-6GV01 NEW		1	36 units	1AH	0.209
		63	80			5SV3316-6		1	1 unit	1AH	0.200
		80				5SV3317-6		1	1 unit	1AH	0.200
	100	25	63	2		5SV3412-6		1	1 unit	1AH	0.197
		40				5SV3414-6		1	1 unit	1AH	0.202
		63	80			5SV3416-6		1	1 unit	1AH	0.200
		80				5SV3417-6		1	1 unit	1AH	0.208
	300	25	63	2		5SV3612-6		1	1 unit	1AH	0.196
		40				5SV3614-6		1	1 unit	1AH	0.195
		63	80			5SV3616-6		1	1 unit	1AH	0.209
		80				5SV3617-6		1	1 unit	1AH	0.204
	3P+N; 400 V AC										
	N connection, right										
	30	25	80	4		5SV3342-6		1	1 unit	1AH	0.361
			Bulk packaging 18 units			5SV3342-6GV01 NEW		1	18 units	1AH	0.363
		40	80			5SV3344-6		1	1 unit	1AH	0.361
			Bulk packaging 18 units			5SV3344-6GV01 NEW		1	18 units	1AH	0.382
		63	100			5SV3346-6		1	1 unit	1AH	0.398
			Bulk packaging 18 units			5SV3346-6GV01 NEW		1	18 units	1AH	0.421
		80	100			5SV3347-6		1	1 unit	1AH	0.399
	100	25	80	4		5SV3442-6		1	1 unit	1AH	0.350
		40				5SV3444-6		1	1 unit	1AH	0.367
		63	100			5SV3446-6		1	1 unit	1AH	0.372
		80				5SV3447-6		1	1 unit	1AH	0.367
	300	25	80	4		5SV3642-6		1	1 unit	1AH	0.336
		40				5SV3644-6		1	1 unit	1AH	0.339
		63	100			5SV3646-6		1	1 unit	1AH	0.358
		80				5SV3647-6		1	1 unit	1AH	0.358
	500	25	80	4		5SV3742-6		1	1 unit	1AH	0.363
		40				5SV3744-6		1	1 unit	1AH	0.350
		63	100			5SV3746-6		1	1 unit	1AH	0.364
			Bulk packaging 18 units			5SV3746-6GV01 NEW		1	18 units	1AH	0.386
		80				5SV3747-6		1	1 unit	1AH	0.364
	1P+N; 230 V AC										
	N connection, left										
	10	16	63	2		5SV3111-6KL		1	1 unit	1AH	0.217
	30	16	63	2		5SV3311-6KL		1	1 unit	1AH	0.204
		25				5SV3312-6KL		1	1 unit	1AH	0.203
		40				5SV3314-6KL		1	1 unit	1AH	0.208
		63	80			5SV3316-6KL		1	1 unit	1AH	0.200
		80				5SV3317-6KL		1	1 unit	1AH	0.200
	100	25	63	2		5SV3412-6KL		1	1 unit	1AH	0.203
		40				5SV3414-6KL		1	1 unit	1AH	0.202
		63	80			5SV3416-6KL		1	1 unit	1AH	0.200
		80				5SV3417-6KL		1	1 unit	1AH	0.200
	300	25	63	2		5SV3612-6KL		1	1 unit	1AH	0.196
		40				5SV3614-6KL		1	1 unit	1AH	0.195
		63	80			5SV3616-6KL		1	1 unit	1AH	0.204
		80				5SV3617-6KL		1	1 unit	1AH	0.200
	3P+N; 400 V AC										
	N connection, left										
	30	25	80	4		5SV3342-6KL		1	1 unit	1AH	0.366
		40				5SV3344-6KL		1	1 unit	1AH	0.361
			Bulk packaging 18 units			5SV3344-6GV02 NEW		1	18 units	1AH	0.384
		63	80			5SV3346-6KL		1	1 unit	1AH	0.407
		80				5SV3347-6KL		1	1 unit	1AH	0.399
	300	25	80	4		5SV3642-6KL		1	1 unit	1AH	0.350
		40				5SV3644-6KL		1	1 unit	1AH	0.350
		63				5SV3646-6KL		1	1 unit	1AH	0.358
		80				5SV3647-6KL		1	1 unit	1AH	0.364
	500	63	80	4		5SV3746-6KL		1	1 unit	1AH	0.364

*** You can order this quantity or a multiple thereof.**

5SV RCCBs

(Type A)	Rated residual current $I_{\Delta n}$	Rated current I_n	Max. permissible short-circuit back-up fuse 10000	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	mA	A	A	MW							kg
RCCBs, type A, super resistant K NEW											
	**1P+N; 230 V AC**										
	N connection, right										
	30	25	63	2		5SV3312-6KK01		1	1 unit	1AH	0.205
		40				5SV3314-6KK01		1	1 unit	1AH	0.205
		63	80			5SV3316-6KK01		1	1 unit	1AH	0.205
		80				5SV3317-6KK01		1	1 unit	1AH	0.205
	300	25	63	2		5SV3612-6KK01		1	1 unit	1AH	0.205
		40				5SV3614-6KK01		1	1 unit	1AH	0.205
		63	80			5SV3616-6KK01		1	1 unit	1AH	0.205
		80				5SV3617-6KK01		1	1 unit	1AH	0.205
	**3P+N; 400 V AC**										
	N connection, right										
	30	25	100	4		5SV3342-6KK01		1	1 unit	1AH	0.409
		40				5SV3344-6KK01		1	1 unit	1AH	0.409
		63				5SV3346-6KK01		1	1 unit	1AH	0.409
		80				5SV3347-6KK01		1	1 unit	1AH	0.409
	300	25	100	4		5SV3642-6KK01		1	1 unit	1AH	0.409
		40				5SV3644-6KK01		1	1 unit	1AH	0.409
		63				5SV3646-6KK01		1	1 unit	1AH	0.409
		80				5SV3647-6KK01		1	1 unit	1AH	0.409
RCCBs, type A, selective S NEW											
	**1P+N; 230 V AC**										
	N connection, right										
	100	63	80	2		5SV3416-8		1	1 unit	1AH	0.205
	300	25	63	2		5SV3612-8		1	1 unit	1AH	0.205
		40				5SV3614-8		1	1 unit	1AH	0.205
		63	80			5SV3616-8		1	1 unit	1AH	0.205
		80				5SV3617-8		1	1 unit	1AH	0.205
	**3P+N; 400 V AC**										
	N connection, right										
	100	40	100	4		5SV3444-8		1	1 unit	1AH	0.409
		63				5SV3446-8		1	1 unit	1AH	0.409
	300	25	100	4		5SV3642-8		1	1 unit	1AH	0.409
		40				5SV3644-8		1	1 unit	1AH	0.409
		63				5SV3646-8		1	1 unit	1AH	0.409
		80				5SV3647-8		1	1 unit	1AH	0.409
	1000	63	100	4		5SV3846-8		1	1 unit	1AH	0.409
	1P+N; 230 V AC										
	N connection, left										
	300	40	63	2		5SV3614-8KL		1	1 unit	1AH	0.201
		63	80			5SV3616-8KL		1	1 unit	1AH	0.201
	3P+N; 400 V AC										
	N connection, left										
	300	63	80	4		5SV3646-8KL		1	1 unit	1AH	0.409
RCCBs, type A, SIGRES, instantaneous NEW											
	**1P+N; 230 V AC**										
	N connection, right										
	30	16	63	2		5SV3311-6KK12		1	1 unit	1AH	0.204
		25				5SV3312-6KK12		1	1 unit	1AH	0.222
		40				5SV3314-6KK12		1	1 unit	1AH	0.204
		63	80			5SV3316-6KK12		1	1 unit	1AH	0.202
	**3P+N; 400 V AC**										
	N connection, right										
	30	25	100	4		5SV3342-6KK12		1	1 unit	1AH	0.399
		40				5SV3344-6KK12		1	1 unit	1AH	0.400
		63				5SV3346-6KK12		1	1 unit	1AH	0.399
		80				5SV3347-6KK12		1	1 unit	1AH	0.409
	300	25	100	4		5SV3642-6KK12		1	1 unit	1AH	0.386
		40				5SV3644-6KK12		1	1 unit	1AH	0.364
		63				5SV3646-6KK12		1	1 unit	1AH	0.364
		80				5SV3647-6KK12		1	1 unit	1AH	0.386

* You can order this quantity or a multiple thereof.

	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
(Type F)	$I_{\Delta n}$	I_n	10000								
	mA	A	A	MW							kg
RCCBs, type F, super resistant NEW											
	**1P + N; 230 V AC**										
	N connection, right										
	30	25	63	2		5SV3312-3		1	1 unit	1AH	0.205
		40				5SV3314-3		1	1 unit	1AH	0.205
		63	80			5SV3316-3		1	1 unit	1AH	0.205
		80				5SV3317-3		1	1 unit	1AH	0.205
	300	25	63	2		5SV3612-3		1	1 unit	1AH	0.205
		40				5SV3614-3		1	1 unit	1AH	0.205
		63	80			5SV3616-3		1	1 unit	1AH	0.205
		80				5SV3617-3		1	1 unit	1AH	0.205
	**3P + N; 400 V AC**										
	N connection, right										
	30	25	100	4		5SV3342-3		1	1 unit	1AH	0.409
		40				5SV3344-3		1	1 unit	1AH	0.409
		63				5SV3346-3		1	1 unit	1AH	0.409
		80				5SV3347-3		1	1 unit	1AH	0.409
	300	25	100	4		5SV3642-3		1	1 unit	1AH	0.409
		40				5SV3644-3		1	1 unit	1AH	0.409
		63				5SV3646-3		1	1 unit	1AH	0.409
		80				5SV3647-3		1	1 unit	1AH	0.409
RCCBs, type F, selective S NEW											
	**1P + N; 230 V AC**										
	N connection, right										
	300	40	63	2		5SV3614-7		1	1 unit	1AH	0.205
		80	80			5SV3617-7		1	1 unit	1AH	0.205
	**3P + N; 400 V AC**										
	N connection, right										
	300	40	100	4		5SV3644-7		1	1 unit	1AH	0.409
		80				5SV3647-7		1	1 unit	1AH	0.409

4

* You can order this quantity or a multiple thereof.

5SM3 RCCBs

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	

Selection and ordering data

(Type AC)	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$	I_n	10000								
	mA	A	A	MW							kg
RCCBs, type AC, instantaneous											
	1P+N; 230 V AC; 50 Hz										
	N connection, right										
	30	100	125	2		5SM3318-0KK		1	1 unit	1AI	0.259
		125				5SM3315-0KK		1	1 unit	1AI	0.248
	100	100	125			5SM3418-0KK		1	1 unit	1AI	0.258
		125				5SM3415-0KK		1	1 unit	1AI	0.255
	300	100	125			5SM3618-0KK		1	1 unit	1AI	0.230
		125				5SM3615-0KK		1	1 unit	1AI	0.245
	**3P+N; 400 V AC; 50 Hz**										
	N connection, right										
	30	100	100	4		5SM3348-0		1	1 unit	1AI	0.554
		125	125			5SM3345-0		1	1 unit	1AI	0.555
	30	100	100		►	5SM3448-0		1	1 unit	1AI	0.522
		125	125			5SM3445-0		1	1 unit	1AI	0.517
	300	100	100			5SM3648-0		1	1 unit	1AI	0.530
		125	125			5SM3645-0		1	1 unit	1AI	0.530
	500	100	100		►	5SM3748-0		1	1 unit	1AI	0.516
		125	125			5SM3745-0		1	1 unit	1AI	0.533
RCCBs, type AC, selective											
	**3P+N, 400 V AC, 50 Hz**										
	N connection, right										
	300	100	100	4		5SM3648-2		1	1 unit	1AI	0.548

4

* You can order this quantity or a multiple thereof.

5SM3 RCCBs

(Type A)	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$	I_n	10000								
	mA	A	A	MW							kg
RCCBs, type A, instantaneous											
	**1P+N; 230 V AC; 50 Hz**										
	N connection, right										
	30	100	125			5SM3318-6KK		1	1 unit	1AH	0.268
		125				5SM3315-6KK		1	1 unit	1AH	0.265
	100	100	125			5SM3418-6KK		1	1 unit	1AH	0.272
		125				5SM3415-6KK		1	1 unit	1AH	0.274
	300	100	125			5SM3618-6KK		1	1 unit	1AH	0.248
		125				5SM3615-6KK		1	1 unit	1AH	0.245
	**3P+N; 400 V AC; 50 Hz**										
	N connection, right										
	30	100	100		▶	5SM3348-6		1	1 unit	1AH	0.554
		125	125			5SM3345-6		1	1 unit	1AH	0.556
	100	100	100		▶	5SM3448-6		1	1 unit	1AH	0.518
		125	125			5SM3445-6		1	1 unit	1AH	0.531
	300	100	100		▶	5SM3648-6		1	1 unit	1AH	0.532
		125	125			5SM3645-6		1	1 unit	1AH	0.536
	500	100	100		▶	5SM3748-6		1	1 unit	1AH	0.519
		125	125			5SM3745-6		1	1 unit	1AH	0.523
RCCBs, type A, selective S											
	**3P+N; 400 V AC; 50 Hz**										
	N connection, right										
	300	100	100	4		5SM3648-8		1	1 unit	1AH	0.519
		125	125			5SM3645-8		1	1 unit	1AH	0.538
	500	125	125	4		5SM3745-8		1	1 unit	1AH	0.517

* You can order this quantity or a multiple thereof.

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.

All universal current-sensitive RCCBs, type B or B+ are now also available in a SIGRES version, meaning they are also ideal for use in harsh ambient conditions.

When used in ambient conditions as defined in product standard EN 61008-1, the operation interval for pressing the test button can be extended to once a year.

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 suit the increase of leakage currents at higher frequencies in systems with capacitive impedances, thus ensuring greater 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, material and fire protection but also overload and short-circuit protection for cables. This reduces wiring and mounting outlay
- The RCBOs offer external remote tripping over terminals Y1/Y2. This supports implementation of central OFF circuits.

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

Technical specifications

		SIQUENCE, 5SM3 RCCBs, type B and type B+		SIQUENCE, 5SU1 RCBOs type B and type B+
Standards		IEC/EN 62423 (VDE 0664-40); IEC/EN 61543 (VDE 0664-30); additionally applicable for type B+; DIN VDE 0664-400		IEC/EN 62423 (VDE 0664-40); IEC/EN 61543 (VDE 0664-30); additionally applicable for type B+ DIN VDE 0664-401
Versions		1P+N	3P+N	4P
Tripping characteristic		--	--	C, D
Surge current withstand capability With current waveform 8/20 µs acc. to EN 60060-2 (VDE 0432-2)				
• Super resistant	kA	> 3	> 3	> 3
• Selective	kA	--	> 5	> 5
Minimum operational voltage for test function operation	V AC	195	195	195
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 breaking 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 torque For all devices	Nm	2.5 ... 3.0		3.0 ... 3.5
Mains connection		Optionally top or bottom (bottom for the SIGRES function to also be effective in the deactivated state)		
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 switching cycles		
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		

For details of I^2t characteristics, see Configuration Manual "Residual Current Protective Devices/Arc Fault Detection Devices (AFDDs)" at: www.siemens.com/lowvoltage/manuals.

Power losses per conducting path under rated current load

Note:
0.4 W per unit must be added for SIGRES versions.

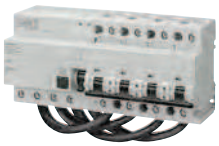
Number of poles	Rated current	Rated residual current $I_{\Delta n}$ [mA]	Power loss per conducting path P_v [W]
2/4	16	30/300	0.17
	25	30/300	0.42
	40	30/300	1.09
	63	30/300/500	2.7
	80	30/300/500	4.35

Selection and ordering data

(Type B/type B+)	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$	I_n	10000								
	mA	A	A	MW							kg
SIQUENCE RCCBs, type B, super resistant K											
	1P+N; 230 V AC; 50 ... 60 Hz										
	30	16	100	4		5SM3321-4		1	1 unit	1AJ	0.459
		25				5SM3322-4		1	1 unit	1AJ	0.566
		40				5SM3324-4		1	1 unit	1AJ	0.563
		63				5SM3326-4		1	1 unit	1AJ	0.567
	300	16	100	4		5SM3621-4		1	1 unit	1AJ	0.564
		25				5SM3622-4		1	1 unit	1AJ	0.570
		40				5SM3624-4		1	1 unit	1AJ	0.573
		63				5SM3626-4		1	1 unit	1AJ	0.579
	**3P+N; 230 ... 400 V AC; 50 ... 60 Hz**										
	30	25	100	4		5SM3342-4		1	1 unit	1AJ	0.571
		40				5SM3344-4		1	1 unit	1AJ	0.555
		63				5SM3346-4		1	1 unit	1AJ	0.566
		80				5SM3347-4		1	1 unit	1AJ	0.554
	300	25	100	4		5SM3642-4		1	1 unit	1AJ	0.564
		40				5SM3644-4		1	1 unit	1AJ	0.565
		63				5SM3646-4		1	1 unit	1AJ	0.565
		80				5SM3647-4		1	1 unit	1AJ	0.564
	500	63	100	4		5SM3746-4		1	1 unit	1AJ	0.557
		80				5SM3747-4		1	1 unit	1AJ	0.575
SIQUENCE RCCBs, type B, selective S											
	3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
	300	63	100	4		5SM3646-5		1	1 unit	1AJ	0.555
		80				5SM3647-5		1	1 unit	1AJ	0.564
	500	63	100	4		5SM3746-5		1	1 unit	1AJ	0.555
		80				5SM3747-5		1	1 unit	1AJ	0.587
SIQUENCE RCCBs, type B+, super resistant K											
	1P+N; 230 V AC; 50 ... 60 Hz										
	30	16	100	4		5SM3321-4KK14		1	1 unit	1AJ	0.583
		25				5SM3322-4KK14		1	1 unit	1AJ	0.550
		40				5SM3324-4KK14		1	1 unit	1AJ	0.560
		63				5SM3326-4KK14		1	1 unit	1AJ	0.568
	300	16	100	4		5SM3621-4KK14		1	1 unit	1AJ	0.570
		25				5SM3622-4KK14		1	1 unit	1AJ	0.566
		40				5SM3624-4KK14		1	1 unit	1AJ	0.560
		63				5SM3626-4KK14		1	1 unit	1AJ	0.600
	**3P+N; 230 ... 400 V AC; 50 ... 60 Hz**										
	30	25	100	4		5SM3342-4KK14		1	1 unit	1AJ	0.571
		40				5SM3344-4KK14		1	1 unit	1AJ	0.568
		63				5SM3346-4KK14		1	1 unit	1AJ	0.561
		80				5SM3347-4KK14		1	1 unit	1AJ	0.575
	300	25	100	4		5SM3642-4KK14		1	1 unit	1AJ	0.557
		40				5SM3644-4KK14		1	1 unit	1AJ	0.565
		63				5SM3646-4KK14		1	1 unit	1AJ	0.551
		80				5SM3647-4KK14		1	1 unit	1AJ	0.570
SIQUENCE RCCBs, type B+, selective S											
	3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
	300	63	100	4		5SM3646-5KK14		1	1 unit	1AJ	0.564
		80				5SM3647-5KK14		1	1 unit	1AJ	0.572

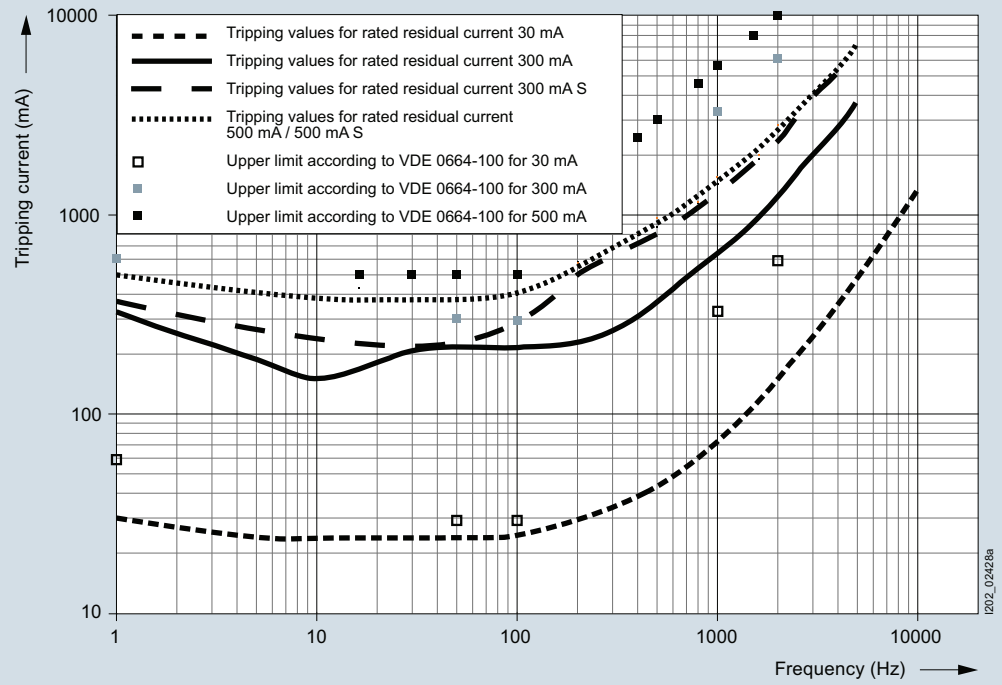
* You can order this quantity or a multiple thereof.

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

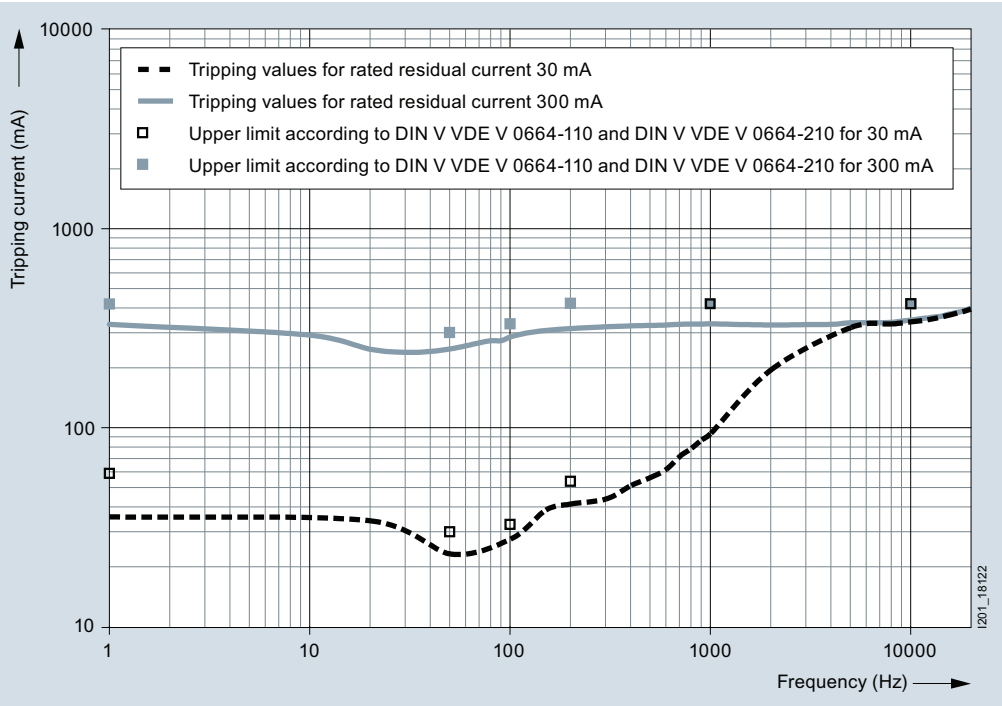
(Type B/type B+)	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$	I_n	10000								
	mA	A	A	MW							kg
SIQUENCE RCBOs, type B, super resistant K, rated breaking capacity 10 kA											
	**4P; 400 V AC; 50 ... 60 Hz**										
	Characteristic C										
	30	100	--	11		5SU1374-7AK81		1	1 unit	1BD	2.038
		125				5SU1374-7AK82		1	1 unit	1BD	2.071
	300	100	--	11		5SU1674-7AK81		1	1 unit	1BD	2.071
		125				5SU1674-7AK82		1	1 unit	1BD	2.066
	Characteristic D										
	30	100	--	11		5SU1374-8AK81		1	1 unit	1BD	2.082
	300	100	--	11		5SU1674-8AK81		1	1 unit	1BD	2.050
	4P; 480 V AC; 50 ... 60 Hz										
	Characteristic C										
	300	100	--	11		5SU1674-7CK81		1	1 unit	1BD	2.028
		125				5SU1674-7CK82		1	1 unit	1BD	2.074
SIQUENCE RCBOs, type B, selective S, rated breaking capacity 10 kA											
	**4P; 400 V AC; 50 ... 60 Hz**										
	Characteristic C										
	300	125	--	11		5SU1674-7BK82		1	1 unit	1BD	2.083
	Characteristic D										
	300	100	--	11		5SU1674-8BK81		1	1 unit	1BD	2.081
SIQUENCE RCBOs, type B+, super resistant K, rated breaking capacity 10 kA											
	**4P; 400 V AC; 50 ... 60 Hz**										
	Characteristic C										
	30	100	--	11		5SU1374-7DK81		1	1 unit	1BD	2.045
		125				5SU1374-7DK82		1	1 unit	1BD	2.081
	300	100	--	11		5SU1674-7DK81		1	1 unit	1BD	2.061
		125				5SU1674-7DK82		1	1 unit	1BD	2.062
	Characteristic D										
	30	100	--	11		5SU1374-8DK81		1	1 unit	1BD	2.084
	300	100	--	11		5SU1674-8DK81		1	1 unit	1BD	2.082
	4P; 480 V AC; 50 ... 60 Hz										
	Characteristic C										
	300	100	--	11		5SU1674-7FK81		1	1 unit	1BD	2.050
		125				5SU1674-7FK82		1	1 unit	1BD	2.050
SIQUENCE RCBOs, type B+, selective S, rated breaking capacity 10 kA											
	**4P; 400 V AC; 50 ... 60 Hz**										
	Characteristic C										
	300	125	--	11		5SU1674-7EK82		1	1 unit	1BD	2.053
	Characteristic D										
	300	100	--	11		5SU1674-8EK81		1	1 unit	1BD	2.078

* You can order this quantity or a multiple thereof.

Characteristic curves



Tripping current as a function of frequency for type B



Tripping current as a function of frequency for type B+

Additional components

Overview

Auxiliary switches (AS)

The auxiliary switch (AS) always signals the contact position, regardless of whether the RCCB was tripped manually or as the result of a fault. An additional version is also available for the switching of small currents and voltages for the control of programmable control systems (PLCs) acc. to EN 61131-2. The auxiliary switch with test button enables the testing of control circuits without the need to switch the RCCB.

Fault signal contacts (FC)

The fault signal contact (FC) signals automatic breaking in the event of a fault. If the fault signal contact is activated, the contact position does not change if the RCCB is tripped manually. Fault signal contacts with TEST and RESET buttons enable testing of control circuits without the need to trip the RCCB. The red RESET button integrated in the handle also indicates automatic tripping of the RCCB. The signal can be acknowledged manually using the RESET button.

Shunt trips (ST)

Shunt trips are used for the remote tripping of RCCBs.

Undervoltage releases (UR)

Undervoltage releases are integrated (e.g. in EMERGENCY-STOP loops), thus ensuring tripping in the event of an emergency, which, in turn, ensures disconnection of the control circuit according to EN 60204. In the event that the voltage is interrupted or too low, it also trips, i.e. prevents activation 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 over 1 MΩ/V and a measuring range for AC voltages of U_{rms} = 1 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

Can be universally retrofitted with all additional components

- Captive metal brackets on the additional components ensure the quick and easy mounting of devices without the need for tools.
- Fault signal contacts with TEST and RESET button enable simple testing of auxiliary circuits and, in the event of a fault, acknowledgement of the fault over the RESET button, without the need to switch the RCCBs.
- The auxiliary switches with TEST button enable simple manual testing of control circuits during operation of the entire installation without the need to switch the RCCBs.
- 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 inadvertent tripping of an RCCB.

Technical specifications

		Auxiliary switches (AS) 5SW330.	Auxiliary switches (AS) 5SW3330
Standards		EN 62019	
Terminals			
• Conductor cross-section	mm^2	0,75 ... 2.5	
• Tightening torque	Nm	0.5	
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

			Auxiliary switches (AS)		Fault signal contacts (FC)
			5ST3010, 5ST3010-2 5ST3011, 5ST3011-2 5ST3012, 5ST3012-2	5ST3013, 5ST3013-2 5ST3014, 5ST3014-2 5ST3015, 5ST3015-2	5ST3020, 5ST3020-2 5ST3021, 5ST3021-2 5ST3022, 5ST3022-2
Standards			EN 62019; IEC/EN 60947-5-1; UL 1077; CSA C22.2 No. 235		
Approvals			see chapter "Appendix"		
Short-circuit protection			Miniature circuit breaker or gG 6 A fuse		
Contact load					
• Min. • Max.			50 mA, 24 V --	1 mA/5 V DC 50 mA/30 V DC	50 mA, 24 V --
• 400 V AC, AC-14, NO • 230 V AC, AC-14, NO • 400 V AC, AC-13, NC • 230 V AC, AC-13, NC		A A A A	2 6 2 6	-- -- -- --	2 6 2 6
• 220 V DC, DC-13, NO+NC • 110 V DC, DC-13, NO+NC • 60 V DC, DC-13, NO+NC • 24 V DC, DC-13, NO+NC		A A A A	1 1 3 6	-- -- -- --	1 1 3 6
Service life, on average, with rated load			20000 actuations	20000 actuations	20000 actuations
Conductor cross-sections		mm^2 AWG	0.5 ... 2.5 22 ... 14	0.5 ... 2.5 22 ... 14	0.5 ... 2.5 22 ... 14
Terminals					
• Terminal tightening torque		Nm lbs/in.	0.5 4.5	0.5 4.5	0.5 4.5
Mounting position			Any	Any	Any
Ambient temperature		°C	-25 ... +55	-25 ... +55	-25 ... +55
Storage temperature		°C	-40 ... +75	-40 ... +75	-40 ... +75
Resistance to climate	Acc. to IEC 60068-2-30	Cycles	28		
Shock	Acc. to IEC 60068-2-27	m/s	50 at 11 ms half-sine		
Resistance to vibrations	Acc. to IEC 60068-2-6	m/s^2	50 at 10 ... 150 Hz		

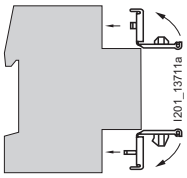
			Undervoltage releases (UR)	Shunt trips (ST)	
			5ST304.	5ST3030	5ST3031
Standards			EN 60947-1		
Rated voltages U_n		V AC	230	110 ... 415	24 ... 48
		V DC	24, 110	110	24 ... 48
• Operating range U_n			0.85 ... 1.1 x U_n	0.7 ... 1.1 x U_n	
• Rated frequency f_n		Hz	--	50 ... 60	
Response limits					
• Tripping			< 0.35 ... 0.7 × U_n	--	
Short-circuit protection			Miniature circuit breakers B/C 6 A or fuse gG 6 A		
Minimum contact load			50 mA, 24 V	50 mA, 24 V	
Tripping operations			max. 2000	max. 2000	
Service life, on average, with rated load			20000 actuations	20000 actuations	
Conductor cross-sections		mm^2 AWG	0.5 ... 2.5 22 ... 14	0.5 ... 2.5 22 ... 14	
Terminals					
• Terminal tightening torque		Nm lbs/in.	0.8 6.8	0.8 6.8	
Mounting position			Any	Any	
Ambient temperature		°C	-25 ... +55	-25 ... +55	
Storage temperature		°C	-40 ... +75	-40 ... +75	
Resistance to climate	Acc. to IEC 60068-2-30	Cycles	28		
Shock	Acc. to IEC 60068-2-27	m/s	50 at 11 ms half-sine		
Resistance to vibrations	Acc. to IEC 60068-2-6	m/s^2	50 at 10 ... 150 Hz		
Switching frequency			--		
Switching duration		s	--		
Minimum command duration		s	--		
Rated power dissipation		VA	--		
Behavior in the event of control voltage failure			--		

4

Selection and ordering data

	Rated voltage	Mounting width MW	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	**Auxiliary switches (AS)**								
	For 5SM3 residual current protective devices up to 80 A								
	1 NO + 1 NC	0.5	►	**5SW3300**		1	1/10 units	1BE	0.053
	2 NC	0.5		**5SW3301**		1	1/10 units	1BE	0.052
	2 NO	0.5		**5SW3302**		1	1/10 units	1BE	0.055
	**Auxiliary switches (AS)**								
	For 5SM3 residual current protective devices, 100 ... 125 A, 3P+N								
	1 NO + 1 NC	0.5		**5SW3330**		1	1 unit	1BE	0.064
	**Auxiliary switches (AS)**								
	For 5SL, 5SY, 5SP miniature circuit breakers, 5SU1 RCBOs, for 5SV residual current protective devices and 5TE8 switches								
	1 NO + 1 NC	0.5	►	**5ST3010**		1	1 unit	1AD	0.055
	For low power		►	**5ST3013**		1	1 unit	1AD	0.064
	2 NO			**5ST3011**		1	1 unit	1AD	0.066
	For low power			**5ST3014**		1	1 unit	1AD	0.067
	2 NC			**5ST3012**		1	1 unit	1AD	0.067
	For low power			**5ST3015**		1	1 unit	1AD	0.064
	**Auxiliary switches (AS) with TEST button**								
	For 5SL, 5SY, 5SP miniature circuit breakers, 5SU1 RCBOs, for 5SV residual current protective devices and 5TE8 switches								
	1 NO + 1 NC	0.5		**5ST3010-2**		1	1 unit	1AD	0.071
	For low power			**5ST3013-2**		1	1 unit	1AD	0.067
	2 NO			**5ST3011-2**		1	1 unit	1AD	0.068
	For low power			**5ST3014-2**		1	1 unit	1AD	0.045
	2 NC			**5ST3012-2**		1	1 unit	1AD	0.071
	For low power			**5ST3015-2**		1	1 unit	1AD	0.063
	**Fault signal contacts (FC)**								
	For 5SL, 5SY, 5SP miniature circuit breakers, 5SU1 RCBOs and 5SV residual current protective devices								
	1 NO + 1 NC	0.5	►	**5ST3020**		1	1 unit	1AD	0.066
	2 NO			**5ST3021**		1	1 unit	1AD	0.068
	2 NC			**5ST3022**		1	1 unit	1AD	0.069
	**Fault signal contacts (FC) with TEST and ACKNOWLEDGE button**								
	For 5SL, 5SY, 5SP miniature circuit breakers, 5SU1 RCBOs and 5SV residual current protective devices								
	1 NO + 1 NC	0.5	►	**5ST3020-2**		1	1 unit	1AD	0.072
	2 NO			**5ST3021-2**		1	1 unit	1AD	0.048
	2 NC			**5ST3022-2**		1	1 unit	1AD	0.048
	**Undervoltage releases (UR)**								
	For 5SY, 5SP miniature circuit breakers, 5SV residual current protective devices and 5SU1 RCBOs								
	With integrated auxiliary switch								
	230 AC	1	►	**5ST3040**		1	1 unit	1AD	0.114
	110 DC			**5ST3041**		1	1 unit	1AD	0.112
	24 DC			**5ST3042**		1	1 unit	1AD	0.111
	Without integrated auxiliary switch								
	230 AC	1	►	**5ST3043**		1	1 unit	1AD	0.102
	110 DC			**5ST3044**		1	1 unit	1AD	0.089
	24 DC			**5ST3045**		1	1 unit	1AD	0.097

*** You can order this quantity or a multiple thereof.**

	Rated voltage	Mounting width MW	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	**Shunt trips (ST)** For 5SY, 5SP miniature circuit breakers, 5SV residual current protective devices and 5SU1 RCBOs								
	110 ... 415 V AC	1	▶	**5ST3030**		1	1 unit	1AD	0.102
	24 ... 48 V AC/DC	1	▶	**5ST3031**		1	1 unit	1AD	0.102
	**Remote controlled mechanisms (RC) For 5SM3 RCCBs up to 80 A**								
	Rated voltage U_n = 230 V AC	3.5	▶	**5ST3051**		1	1 unit	1AD	0.448
	**Leakage current measurement devices**								
	Rated voltage U_n = 500 V AC; 50 ... 60 Hz; 4P Rated residual current $I_{\Delta n}$ = 0 ... 300 mA Rated current I_n = 63 A.	4		**5SM1930-0**		1	1 unit	1BE	0.456
	**Covers for connection terminals** For 5SM3 RCCBs up to 80 A, sealable (2 units in plastic bag)								
		2		**5SW3010**		1	1/50 units	1BE	0.012
		2.5		**5SW3011**		1	1/50 units	1BE	0.013
		4		**5SW3008**		1	1/50 units	1BE	0.005
	**Locking devices** For 5SM3 RCCBs up to 80 A, sealable and lockable 4.5 mm lock hasp diameter			**5SW3303**		1	10 units	1BE	0.011
	**Handle locking devices** • For 5SV RCCBs • Sealable • For padlock with 3 ... 6 mm shackle			**5ST3806**		1	5 units	1AD	0.003
	**Padlocks** For 5SW3303 locking device			**5ST3802**		1	1 unit	1AD	0.033
	Locking devices with padlock Comprising 5SW3303 locking device and 5ST3802 padlock			**5SW3312**		1	1 set	1BE	0.043
	**Gland for N conductor** For easier wiring in various circuit versions and bus mountings or as a support terminal for N conductors from 2.5 mm² to 50 mm² with blue color marking 1P Rated operational current I_e 125 A Rated operational voltage U_e 230 V AC Conductor cross-sections up to 50 mm²	1		**5TE9113**		1	1 unit	1BK	0.114

* You can order this quantity or a multiple thereof.

5SM2 RC units

Overview

RC units are used in all supply 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, RC units, 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.

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 A, B, C and D characteristics, 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 miniature circuit breakers for personnel, fire and line protection.

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
- 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
- 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

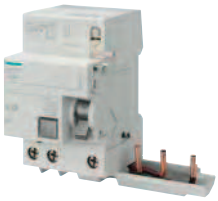
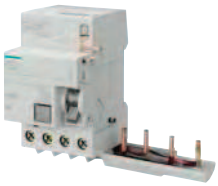
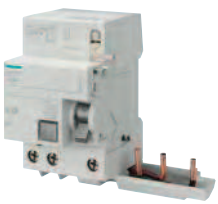
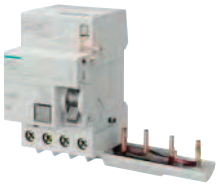
			5SM2
Standards			IEC/EN 61009-1 (VDE 0664-20), IEC/EN 61009-2-1 (VDE 0664-21), IEC/EN 61543 (VDE 0664-30), IEC/EN 62423 (VDE 0664-40)
Surge current withstand capability			
• Type A with current waveform 8/20 µs	Acc. to EN 60060-2 (VDE 0432-2)		
- Instantaneous		kA	> 1
- Super resistant		kA	> 3
- Selective		kA	> 5
• Type F with current waveform 8/20 µs	Acc. to EN 60060-2 (VDE 0432-2)	kA	> 3
Minimum operational voltage for test function operation		V AC	195
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
Pollution degree			2
Terminal conductor cross-sections			
• Up to I_n 63 A		mm^2	1.5 ... 25
• At I_n = 80 ... 100 A		mm^2	6.0 ... 50
Terminal tightening torque		Nm	2.5 ... 3.0
Mains connection			Either 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 switching cycles
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

Power losses per conducting path under rated current load

Number of poles	Rated current	Rated residual current $I_{\Delta n}$ [A]	Power loss per conducting path P_v [W]
2	16	0.01	2.5
2/3/4	40	0.03	3.6
	63	0.03	4.6
	40	0.3/0.5/1	1.9
	63	0.1/0.3/0.5/1	3.0
2/4	80	0.3	4.8
	80	0.3/1	4.0
	100	0.3	6.0
	100	0.3/1	5.0

5SM2 RC units

Selection and ordering data

(Type AC)	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mounting width MW	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
RC units, type AC, instantaneous										
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY30 and 5SY60									
	**2P, 230 ... 400 V AC, 50 ... 60 Hz**									
	10[1)]	0.3 ... 40	2		5SM2121-0		1	1 unit	1AI	0.193
	30				5SM2322-0		1	1 unit	1AI	0.206
	300				5SM2622-0		1	1 unit	1AI	0.192
	30	0.3 ... 63			5SM2325-0		1	1 unit	1AI	0.209
	300				5SM2625-0		1	1 unit	1AI	0.193
	500				5SM2725-0		1	1 unit	1AI	0.193
	1000				5SM2825-0		1	1 unit	1AI	0.218
	**3P; 230 ... 400 V AC; 50 ... 60 Hz**									
	30	0.3 ... 40	3		5SM2332-0		1	1 unit	1AI	0.283
	300				5SM2632-0		1	1 unit	1AI	0.286
	30	0.3 ... 63			5SM2335-0		1	1 unit	1AI	0.337
	300				5SM2635-0		1	1 unit	1AI	0.287
	500				5SM2735-0		1	1 unit	1AI	0.290
	**4P, 230 ... 400 V AC, 50 ... 60 Hz**									
	30	0.3 ... 40	3	►	5SM2342-0		1	1 unit	1AI	0.310
	300			►	5SM2642-0		1	1 unit	1AI	0.316
	30	0.3 ... 63			5SM2345-0		1	1 unit	1AI	0.375
	300				5SM2645-0		1	1 unit	1AI	0.318
	500				5SM2745-0		1	1 unit	1AI	0.324
	For 5SL4 miniature circuit breakers									
	**2P, 230 ... 400 V AC, 50 ... 60 Hz**									
	30	0.3 ... 40	2		5SM2323-0		1	1 unit	1AI	0.205
	300				5SM2623-0		1	1 unit	1AI	0.191
	30	0.3 ... 63			5SM2326-0		1	1 unit	1AI	0.215
	300				5SM2626-0		1	1 unit	1AI	0.195
	**3P; 230 ... 400 V AC; 50 ... 60 Hz**									
	30	0.3 ... 40	3		5SM2333-0		1	1 unit	1AI	0.282
	300				5SM2633-0		1	1 unit	1AI	0.268
	30	0.3 ... 63			5SM2336-0		1	1 unit	1AI	0.359
	300				5SM2636-0		1	1 unit	1AI	0.300
	**4P, 230 ... 400 V AC, 50 ... 60 Hz**									
	30	0.3 ... 40	3		5SM2343-0		1	1 unit	1AI	0.310
	300				5SM2643-0		1	1 unit	1AI	0.303
	30	0.3 ... 63			5SM2346-0		1	1 unit	1AI	0.390
	300				5SM2646-0		1	1 unit	1AI	0.320

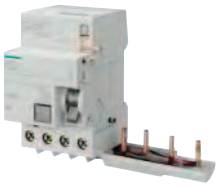
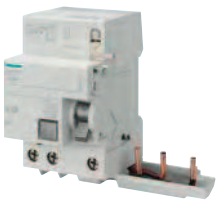
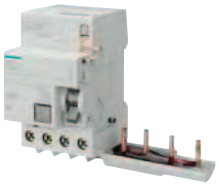
* You can order this quantity or a multiple thereof.

(Type AC)	Rated residual current	Rated current	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$	I_n								
	mA	A	MW							kg
RC units, type AC, selective S										
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY30 and 5SY60									
	2P, 230 ... 400 V AC, 50 ... 60 Hz									
	300	0.3 ... 40	2		**5SM2622-2**		1	1 unit	1AI	0.211
	300	0.3 ... 63			**5SM2625-2**		1	1 unit	1AI	0.209
	4P, 230 ... 400 V AC, 50 ... 60 Hz									
	300	0.3 ... 63	3		**5SM2645-2**		1	1 unit	1AI	0.366
	1000				**5SM2845-2**		1	1 unit	1AI	0.328
	For 5SL4 miniature circuit breakers									
	2P, 230 ... 400 V AC, 50 ... 60 Hz									
	300	0.3 ... 40	2		**5SM2623-2**		1	1 unit	1AI	0.211
		0.3 ... 63			**5SM2626-2**		1	1 unit	1AI	0.213
	4P, 230 ... 400 V AC, 50 ... 60 Hz									
	300	0.3 ... 63	4		**5SM2646-2**		1	1 unit	1AI	0.368
RC units, type AC, instantaneous										
	For 5SP4 miniature circuit breakers (B and C characteristics)									
	2P, 230 ... 400 V AC, 50 ... 60 Hz									
	30	80 ... 100	3.5		**5SM2327-0**		1	1 unit	1AI	0.508
	300				**5SM2627-0**		1	1 unit	1AI	0.470
	4P, 230 ... 400 V AC, 50 ... 60 Hz									
	30	80 ... 100	5		**5SM2347-0**		1	1 unit	1AI	0.897
	300				**5SM2647-0**		1	1 unit	1AI	0.697

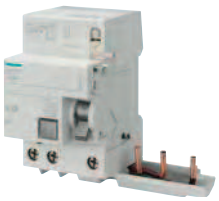
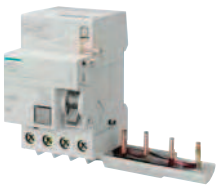
[1] 2SM2 RC units with $I_{\Delta n}$ = 10 mA can be combined with switches I_n = 16 A

*** You can order this quantity or a multiple thereof.**

5SM2 RC units

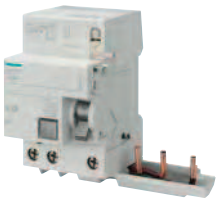
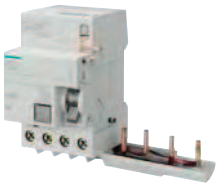
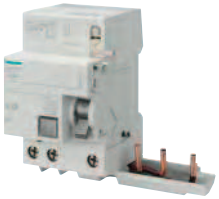
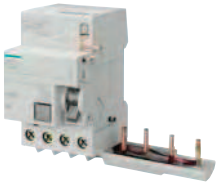
(Type A)	Rated residual current	Rated current	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	$I_{\Delta n}$	I_n								
	mA	A	MW							kg
RC units, type A, instantaneous										
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY60. .									
	**2P, 230 ... 400 V AC, 50 ... 60 Hz**									
	10	0.3 ... 16	2		**5SM2121-6**		1	1 unit	1AH	0.203
	30	0.3 ... 40		▶	**5SM2322-6**		1	1 unit	1AH	0.201
	300				**5SM2622-6**		1	1 unit	1AH	0.194
	30	0.3 ... 63			**5SM2325-6**		1	1 unit	1AH	0.212
	100				**5SM2425-6**		1	1 unit	1AH	0.207
	300				**5SM2625-6**		1	1 unit	1AH	0.194
	500				**5SM2725-6**		1	1 unit	1AH	0.197
	**3P; 230 ... 400 V AC; 50 ... 60 Hz**									
	30	0.3 ... 40	3		**5SM2332-6**		1	1 unit	1AH	0.300
	300				**5SM2632-6**		1	1 unit	1AH	0.288
	30	0.3 ... 63			**5SM2335-6**		1	1 unit	1AH	0.338
	100				**5SM2435-6**		1	1 unit	1AH	0.312
	300				**5SM2635-6**		1	1 unit	1AH	0.289
	500				**5SM2735-6**		1	1 unit	1AH	0.294
	**4P, 230 ... 400 V AC, 50 ... 60 Hz**									
	30	0.3 ... 40	3	▶	**5SM2342-6**		1	1 unit	1AH	0.327
	300			▶	**5SM2642-6**		1	1 unit	1AH	0.322
	30	0.3 ... 63			**5SM2345-6**		1	1 unit	1AH	0.375
	100				**5SM2445-6**		1	1 unit	1AH	0.338
	300				**5SM2645-6**		1	1 unit	1AH	0.319
	500				**5SM2745-6**		1	1 unit	1AH	0.319
	For 5SL4 miniature circuit breakers									
	**2P, 230 ... 400 V AC, 50 ... 60 Hz**									
	30	0.3 ... 40			**5SM2323-6**		1	1 unit	1AH	0.198
	300				**5SM2623-6**		1	1 unit	1AH	0.190
	30	0.3 ... 63			**5SM2326-6**		1	1 unit	1AH	0.215
	300				**5SM2626-6**		1	1 unit	1AH	0.203
	**3P; 230 ... 400 V AC; 50 ... 60 Hz**									
	30	0.3 ... 40	3		**5SM2333-6**		1	1 unit	1AH	0.300
	300				**5SM2633-6**		1	1 unit	1AH	0.303
	30	0.3 ... 63			**5SM2336-6**		1	1 unit	1AH	0.359
	300				**5SM2636-6**		1	1 unit	1AH	0.300
	**4P, 230 ... 400 V AC, 50 ... 60 Hz**									
	30	0.3 ... 40	3		**5SM2343-6**		1	1 unit	1AH	0.327
	300				**5SM2643-6**		1	1 unit	1AH	0.322
	30	0.3 ... 63			**5SM2346-6**		1	1 unit	1AH	0.390
	300				**5SM2646-6**		1	1 unit	1AH	0.320

* You can order this quantity or a multiple thereof.

(Type A)	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mounting width MW	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	For 5SP4 miniature circuit breakers (B and C characteristics)									
	**2P, 125 ... 230 V AC, 50 ... 60 Hz**									
	30	80 ... 100	3.5		**5SM2327-6**		1	1 unit	1AH	0.516
	300				**5SM2627-6**		1	1 unit	1AH	0.467
	**4P, 230 ... 400 V AC, 50 ... 60 Hz**									
	30	80 ... 100	5		**5SM2347-6**		1	1 unit	1AH	0.899
	300				**5SM2647-6**		1	1 unit	1AH	0.682
RC units, type A, super resistant K										
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY60. .									
	**2P, 230 ... 400 V AC, 50 ... 60 Hz**									
	30	0.3 ... 40	2		**5SM2322-6KK01**		1	1 unit	1AH	0.211
	30	0.3 ... 63			**5SM2325-6KK01**		1	1 unit	1AH	0.215
	**3P; 230 ... 400 V AC; 50 ... 60 Hz**									
	30	0.3 ... 40	3		**5SM2332-6KK01**		1	1 unit	1AH	0.351
	30	0.3 ... 63			**5SM2335-6KK01**		1	1 unit	1AH	0.338
	**4P, 230 ... 400 V AC, 50 ... 60 Hz**									
	30	0.3 ... 40	3		**5SM2342-6KK01**		1	1 unit	1AH	0.381
	30	0.3 ... 63			**5SM2345-6KK01**		1	1 unit	1AH	0.386

*** You can order this quantity or a multiple thereof.**

5SM2 RC units

(Type A)	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mounting width MW	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
RC units, type A, selective S										
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY60..									
	**2P, 230 ... 400 V AC, 50 ... 60 Hz**									
	300	0.3 ... 40	2		**5SM2622-8**		1	1 unit	1AH	0.207
	1000				**5SM2822-8**		1	1 unit	1AH	0.205
	300	0.3 ... 63			**5SM2625-8**		1	1 unit	1AH	0.205
	1000				**5SM2825-8**		1	1 unit	1AH	0.182
	**3P; 230 ... 400 V AC; 50 ... 60 Hz**									
	1000	0.3 ... 40	3		**5SM2832-8**		1	1 unit	1AH	0.286
	300	0.3 ... 63	3		**5SM2635-8**		1	1 unit	1AH	0.338
	500				**5SM2735-8**		1	1 unit	1AH	0.301
	1000				**5SM2835-8**		1	1 unit	1AH	0.295
	**4P, 230 ... 400 V AC, 50 ... 60 Hz**									
	1000	0.3 ... 40	3		**5SM2842-8**		1	1 unit	1AH	0.324
	300	0.3 ... 63			**5SM2645-8**		1	1 unit	1AH	0.366
	500				**5SM2745-8**		1	1 unit	1AH	0.333
	1000				**5SM2845-8**		1	1 unit	1AH	0.327
	For 5SL4 miniature circuit breakers									
	**2P, 230 ... 400 V AC, 50 ... 60 Hz**									
	300	0.3 ... 40	2		**5SM2623-8**		1	1 unit	1AH	0.207
	300	0.3 ... 63			**5SM2626-8**		1	1 unit	1AH	0.210
	**3P; 230 ... 400 V AC; 50 ... 60 Hz**									
	300	0.3 ... 63	3		**5SM2636-8**		1	1 unit	1AH	0.340
	**4P, 230 ... 400 V AC, 50 ... 60 Hz**									
	300	0.3 ... 63	3		**5SM2646-8**		1	1 unit	1AH	0.368

* You can order this quantity or a multiple thereof.

(Type A)	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mounting width MW	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	For 5SP4 miniature circuit breakers (B and C characteristics)									
	2P, 125 ... 230 V AC, 50 ... 60 Hz									
	300	80 ... 100	3.5		**5SM2627-8**		1	1 unit	1AH	0.514
	1000	80 ... 100	3.5		**5SM2827-8**		1	1 unit	1AH	0.478
	4P, 230 ... 400 V AC, 50 ... 60 Hz									
	300	80 ... 100	5		**5SM2647-8**		1	1 unit	1AH	0.798
	1000				**5SM2847-8**		1	1 unit	1AH	0.703
RC units, type F, super resistant										
	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY60..									
	2P, 230 ... 400 V AC, 50 ... 60 Hz									
	30	0.3 ... 40	2		**5SM2322-3**		1	1 unit	1AH	0.214
	30	0.3 ... 63	2		**5SM2325-3**		1	1 unit	1AH	0.214

*** You can order this quantity or a multiple thereof.**

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 protection and fire protection, the residual current part of the type AC trips in the event of sinusoidal AC residual currents, type A also trips in the event of pulsating DC residual currents.

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

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 in 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 use of RCBOs with 30 mA on a country-specific basis.

Assignment to each individual branch circuit helps prevent the undesired 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 see 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 rear busbar facilitates controls
- Large and easily accessible wiring space enables easy insertion of conductor in the terminals
- The surge current withstand capability of over 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. Time-saving replacement of parts as busbars no longer need to be freed from 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.

4

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); IEC/EN 62423 (VDE 0664-40)	
Rated voltages U_n		V AC	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, 100, 300	30, 300, 1000
Rated breaking capacity		kA	6 / 10	10
Energy limitation class			3	--
Surge current withstand capability				
• Type A with current waveform 8/20 µs	Acc. to EN 60060-2 (VDE 0432-2)			
- Instantaneous		kA	> 1	
- Super resistant		kA	> 3	--
- Selective		kA	> 5	
• Type F with current waveform 8/20 µs		kA	> 3	--
Minimum voltage for operation of the test equipment		V AC	195	
Insulation coordination				
• Overvoltage category			III	
Pollution degree			2	
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 (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	

Power losses

Note:

All data under loading with rated current I_n.

Rated current I_n [A]	Rated residual current $I_{\Delta n}$ [mA]	Power loss of complete device P_v [W]	
		Characteristic B	Characteristic C
6	10	2.8	2.2
	30 ... 300	2.7	1.9
8	30 ... 300	--	1.2
10	10	2.4	2.2
	30 ... 300	1.8	1.6
13	10	3.5	3.3
	30 ... 300	2.4	2.2
16	10	4.7	4.5
	30 ... 300	3.0	2.8
20	30 ... 300	3.7	3.3
25	30 ... 300	5.1	5.1
32	30 ... 300	5.7	5.7
40	30 ... 300	7.8	7.8

Selection and ordering data

(Type AC)	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mounting width MW	DT	Tripping characteristic B Article No. www.siemens.com/product?Article No.	Price per PU	PG	DT	Tripping characteristic C Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
RCBOs, type AC, instantaneous														
	1P + N, 230 V AC, 50 ... 60 Hz													
	4 500 / 3													
	N connection, right													
	30	6	2		--				5SU1353-1KK06		1	1 unit	1BB	0.270
		8			--				5SU1353-1KK08		1	1 unit	1BB	0.268
		10			--				5SU1353-1KK10		1	1 unit	1BB	0.269
		13			--				5SU1353-1KK13		1	1 unit	1BB	0.274
		16			--				5SU1353-1KK16		1	1 unit	1BB	0.269
		20			--				5SU1353-1KK20		1	1 unit	1BB	0.281
		25			--				5SU1353-1KK25		1	1 unit	1BB	0.279
		32			--				5SU1353-1KK32		1	1 unit	1BB	0.284
		40			--				5SU1353-1KK40		1	1 unit	1BB	0.285
	300	6	2		--				5SU1653-1KK06		1	1 unit	1BB	0.267
		10			--				5SU1653-1KK10		1	1 unit	1BB	0.268
		13			--				5SU1653-1KK13		1	1 unit	1BB	0.290
		16			--				5SU1653-1KK16		1	1 unit	1BB	0.267
		20			--				5SU1653-1KK20		1	1 unit	1BB	0.278
		25			--				5SU1653-1KK25		1	1 unit	1BB	0.274
		32			--				5SU1653-1KK32		1	1 unit	1BB	0.279
		40			--				5SU1653-1KK40		1	1 unit	1BB	0.275
	N connection, left													
	30	6	2		--				5SU1353-1KL06		1	1 unit	1BB	0.287
		10			--				5SU1353-1KL10		1	1 unit	1BB	0.282
		13			--				5SU1353-1KL13		1	1 unit	1BB	0.303
		16			--				5SU1353-1KL16		1	1 unit	1BB	0.286
		20			--				5SU1353-1KL20		1	1 unit	1BB	0.295
		25			--				5SU1353-1KL25		1	1 unit	1BB	0.298
		32			--				5SU1353-1KL32		1	1 unit	1BB	0.296
		40			--				5SU1353-1KL40		1	1 unit	1BB	0.296
	300	6			--				5SU1653-1KL06		1	1 unit	1BB	0.280
		10			--				5SU1653-1KL10		1	1 unit	1BB	0.290
		16			--				5SU1653-1KL16		1	1 unit	1BB	0.274
		20			--				5SU1653-1KL20		1	1 unit	1BB	0.298
		25			--				5SU1653-1KL25		1	1 unit	1BB	0.289
		32			--				5SU1653-1KL32		1	1 unit	1BB	0.288
		40			--				5SU1653-1KL40		1	1 unit	1BB	0.285
	6 000 / 3													
	N connection, right													
	30	6	2		5SU1356-0KK06		1BB		5SU1356-1KK06		1	1 unit	1BB	0.272
		8			--				5SU1356-1KK08		1	1 unit	1BB	0.269
		10			5SU1356-0KK10		1BB		5SU1356-1KK10		1	1 unit	1BB	0.268
		13			5SU1356-0KK13		1BB		5SU1356-1KK13		1	1 unit	1BB	0.271
		16			5SU1356-0KK16		1BB		5SU1356-1KK16		1	1 unit	1BB	0.269
		20			5SU1356-0KK20		1BB		5SU1356-1KK20		1	1 unit	1BB	0.278
		25			5SU1356-0KK25		1BB		5SU1356-1KK25		1	1 unit	1BB	0.280
		32			5SU1356-0KK32		1BB		5SU1356-1KK32		1	1 unit	1BB	0.286
		40			5SU1356-0KK40		1BB		5SU1356-1KK40		1	1 unit	1BB	0.285
	300	6	2		5SU1656-0KK06		1BB		5SU1656-1KK06		1	1 unit	1BB	0.276
		10			5SU1656-0KK10		1BB		5SU1656-1KK10		1	1 unit	1BB	0.268
		13			5SU1656-0KK13		1BB		5SU1656-1KK13		1	1 unit	1BB	0.274
		16			5SU1656-0KK16		1BB		5SU1656-1KK16		1	1 unit	1BB	0.267
		20			5SU1656-0KK20		1BB		5SU1656-1KK20		1	1 unit	1BB	0.278
		25			5SU1656-0KK25		1BB		5SU1656-1KK25		1	1 unit	1BB	0.280
		32			5SU1656-0KK32		1BB		5SU1656-1KK32		1	1 unit	1BB	0.275
		40			5SU1656-0KK40		1BB		5SU1656-1KK40		1	1 unit	1BB	0.288

* You can order this quantity or a multiple thereof.

(Type AC)	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mounting width MW	DT	Tripping characteristic B Article No. www.siemens.com/product?Article No.	Price per PU	PG	DT	Tripping characteristic C Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
RCBOs, type AC, instantaneous														
	**1P + N, 230 V AC, 50 ... 60 Hz**													
	10 000													
	3													
	30	6	2		5SU1354-0KK06		1BB		5SU1354-1KK06		1	1 unit	1BB	0.275
		8			--				5SU1354-1KK08		1	1 unit	1BB	0.279
		10			5SU1354-0KK10		1BB		5SU1354-1KK10		1	1 unit	1BB	0.276
		13			5SU1354-0KK13		1BB		5SU1354-1KK13		1	1 unit	1BB	0.280
		16			5SU1354-0KK16		1BB		5SU1354-1KK16		1	1 unit	1BB	0.272
		20			5SU1354-0KK20		1BB		5SU1354-1KK20		1	1 unit	1BB	0.278
		25			5SU1354-0KK25		1BB		5SU1354-1KK25		1	1 unit	1BB	0.277
		32			5SU1354-0KK32		1BB		5SU1354-1KK32		1	1 unit	1BB	0.275
		40			5SU1354-0KK40		1BB		5SU1354-1KK40		1	1 unit	1BB	0.284
	100	6	2		--				5SU1454-1KK06		1	1 unit	1BB	0.275
		10			--				5SU1454-1KK10		1	1 unit	1BB	0.280
		13			--				5SU1454-1KK13		1	1 unit	1BB	0.282
		16			--				5SU1454-1KK16		1	1 unit	1BB	0.274
		20			--				5SU1454-1KK20		1	1 unit	1BB	0.279
		25			--				5SU1454-1KK25		1	1 unit	1BB	0.279
		32			--				5SU1454-1KK32		1	1 unit	1BB	0.287
		40			--				5SU1454-1KK40		1	1 unit	1BB	0.286
	300	6	2		5SU1654-0KK06		1BB		5SU1654-1KK06		1	1 unit	1BB	0.251
		10			5SU1654-0KK10		1BB		5SU1654-1KK10		1	1 unit	1BB	0.272
		13			5SU1654-0KK13		1BB		5SU1654-1KK13		1	1 unit	1BB	0.270
		16			5SU1654-0KK16		1BB		5SU1654-1KK16		1	1 unit	1BB	0.270
		20			5SU1654-0KK20		1BB		5SU1654-1KK20		1	1 unit	1BB	0.275
		25			5SU1654-0KK25		1BB		5SU1654-1KK25		1	1 unit	1BB	0.278
		32			5SU1654-0KK32		1BB		5SU1654-1KK32		1	1 unit	1BB	0.275
		40			5SU1654-0KK40		1BB		5SU1654-1KK40		1	1 unit	1BB	0.277
RCBOs, type AC, short-time delayed G														
	**1P+N; 230 V AC; 50 ... 60 Hz**													
	10 000													
	3													
	30	10	2		5SU1354-0LB10		1BB		5SU1354-1LB10		1	1 unit	1BB	0.284
		13			5SU1354-0LB13		1BB		5SU1354-1LB13		1	1 unit	1BB	0.286
		16			5SU1354-0LB16		1BB		5SU1354-1LB16		1	1 unit	1BB	0.282
		20			5SU1354-0LB20		1BB		5SU1354-1LB20		1	1 unit	1BB	0.283
		25			5SU1354-0LB25		1BB		5SU1354-1LB25		1	1 unit	1BB	0.289
		32			5SU1354-0LB32		1BB		5SU1354-1LB32		1	1 unit	1BB	0.286
		40			5SU1354-0LB40		1BB		5SU1354-1LB40		1	1 unit	1BB	0.265
RCBOs, type AC, instantaneous														
	**2P, 400 V AC, 50 ... 60 Hz**													
	10 000													
	30	125	6.5		5SU1324-0KK82		1BB		5SU1324-1KK82		1	1 unit	1BB	1.151
	300	125			5SU1624-0KK82		1BB		5SU1624-1KK82		1	1 unit	1BB	1.108
	**4P, 400 V AC, 50 ... 60 Hz**													
	10 000													
	30	125	11		5SU1344-0KK82		1BB		5SU1344-1KK82		1	1 unit	1BB	2.032
	300	125			5SU1644-0KK82		1BB		5SU1644-1KK82		1	1 unit	1BB	2.027

* You can order this quantity or a multiple thereof.

5SU1 RCBOs

RCBOs, type A, instantaneous

(Type A)	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mounting width MW	DT	Tripping characteristic B Article No. www.siemens.com/product?Article No.	Price per PU	PG	DT	Tripping characteristic C Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
1P+N, 230 V AC, 50 ... 60 Hz														
4 500 / 3														
N connection, right														
	30	6	2		--				5SU1353-7KK06		1	1 unit	1BC	0.286
		8			--				5SU1353-7KK08		1	1 unit	1BC	0.288
		10			--				5SU1353-7KK10		1	1 unit	1BC	0.269
		13			--				5SU1353-7KK13		1	1 unit	1BC	0.270
		16			--				5SU1353-7KK16		1	1 unit	1BC	0.268
		20			--				5SU1353-7KK20		1	1 unit	1BC	0.276
		25			--				5SU1353-7KK25		1	1 unit	1BC	0.278
		32			--				5SU1353-7KK32		1	1 unit	1BC	0.285
		40			--				5SU1353-7KK40		1	1 unit	1BC	0.289
	300	6	2		--				5SU1653-7KK06		1	1 unit	1BC	0.263
		10			--				5SU1653-7KK10		1	1 unit	1BC	0.267
		13			--				5SU1653-7KK13		1	1 unit	1BC	0.292
		16			--				5SU1653-7KK16		1	1 unit	1BC	0.266
		20			--				5SU1653-7KK20		1	1 unit	1BC	0.284
		25			--				5SU1653-7KK25		1	1 unit	1BC	0.274
		32			--				5SU1653-7KK32		1	1 unit	1BC	0.281
		40			--				5SU1653-7KK40		1	1 unit	1BC	0.280
N connection, left														
	30	6	2		--				5SU1353-7KL06		1	1 unit	1BC	0.285
		10			--				5SU1353-7KL10		1	1 unit	1BC	0.284
		16			--				5SU1353-7KL16		1	1 unit	1BC	0.286
		20			--				5SU1353-7KL20		1	1 unit	1BC	0.298
		25			--				5SU1353-7KL25		1	1 unit	1BC	0.293
		32			--				5SU1353-7KL32		1	1 unit	1BC	0.296
		40			--				5SU1353-7KL40		1	1 unit	1BC	0.294
1P+N, 230 V AC, 50 ... 60 Hz														
6 000 / 3														
N connection, right														
	30	6	2		5SU1356-6KK06		1BC		5SU1356-6KK06		1	1 unit	1BC	0.268
		8			--				5SU1356-6KK08		1	1 unit	1BC	0.271
		10			5SU1356-6KK10		1BC	►	5SU1356-6KK10		1	1 unit	1BC	0.268
		13			5SU1356-6KK13		1BC		5SU1356-6KK13		1	1 unit	1BC	0.272
		16		►	5SU1356-6KK16		1BC	►	5SU1356-6KK16		1	1 unit	1BC	0.269
		20			5SU1356-6KK20		1BC		5SU1356-6KK20		1	1 unit	1BC	0.280
		25			5SU1356-6KK25		1BC		5SU1356-6KK25		1	1 unit	1BC	0.278
		32			5SU1356-6KK32		1BC		5SU1356-6KK32		1	1 unit	1BC	0.284
		40			5SU1356-6KK40		1BC		5SU1356-6KK40		1	1 unit	1BC	0.284
	300	6	2		5SU1656-6KK06		1BC		5SU1656-6KK06		1	1 unit	1BC	0.267
		10			5SU1656-6KK10		1BC		5SU1656-6KK10		1	1 unit	1BC	0.264
		13			5SU1656-6KK13		1BC		5SU1656-6KK13		1	1 unit	1BC	0.268
		16			5SU1656-6KK16		1BC		5SU1656-6KK16		1	1 unit	1BC	0.264
		20			5SU1656-6KK20		1BC		5SU1656-6KK20		1	1 unit	1BC	0.276
		25			5SU1656-6KK25		1BC		5SU1656-6KK25		1	1 unit	1BC	0.278
		32			5SU1656-6KK32		1BC		5SU1656-6KK32		1	1 unit	1BC	0.277
		40			5SU1656-6KK40		1BC		5SU1656-6KK40		1	1 unit	1BC	0.277

* You can order this quantity or a multiple thereof.

(Type A)	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mounting width MW	DT	Tripping characteristic B Article No. www.siemens.com/product?Article No.	Price per PU	PG	DT	Tripping characteristic C Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	**1P+N; 230 V AC; 50 ... 60 Hz** 10 000 / 3													
	10	6	2		5SU1154-6KK06		1BC		5SU1154-7KK06		1	1 unit	1BC	0.275
		10			5SU1154-6KK10		1BC		5SU1154-7KK10		1	1 unit	1BC	0.274
		13			5SU1154-6KK13		1BC		5SU1154-7KK13		1	1 unit	1BC	0.282
		16			5SU1154-6KK16		1BC	►	5SU1154-7KK16		1	1 unit	1BC	0.275
	30	6	2		5SU1354-6KK06		1BC	►	5SU1354-7KK06		1	1 unit	1BC	0.274
		8			--				5SU1354-7KK08		1	1 unit	1BC	0.273
		10			5SU1354-6KK10		1BC	►	5SU1354-7KK10		1	1 unit	1BC	0.274
		13			5SU1354-6KK13		1BC		5SU1354-7KK13		1	1 unit	1BC	0.276
		16		►	5SU1354-6KK16		1BC	►	5SU1354-7KK16		1	1 unit	1BC	0.274
		20			5SU1354-6KK20		1BC		5SU1354-7KK20		1	1 unit	1BC	0.280
		25			5SU1354-6KK25		1BC		5SU1354-7KK25		1	1 unit	1BC	0.275
		32			5SU1354-6KK32		1BC		5SU1354-7KK32		1	1 unit	1BC	0.282
		40			5SU1354-6KK40		1BC		5SU1354-7KK40		1	1 unit	1BC	0.282
	300	6	2		5SU1654-6KK06		1BC		5SU1654-7KK06		1	1 unit	1BC	0.272
		10			5SU1654-6KK10		1BC		5SU1654-7KK10		1	1 unit	1BC	0.270
		13			5SU1654-6KK13		1BC		5SU1654-7KK13		1	1 unit	1BC	0.281
		16			5SU1654-6KK16		1BC		5SU1654-7KK16		1	1 unit	1BC	0.271
		20			5SU1654-6KK20		1BC		5SU1654-7KK20		1	1 unit	1BC	0.273
		25			5SU1654-6KK25		1BC		5SU1654-7KK25		1	1 unit	1BC	0.266
		32			5SU1654-6KK32		1BC		5SU1654-7KK32		1	1 unit	1BC	0.273
		40			5SU1654-6KK40		1BC		5SU1654-7KK40		1	1 unit	1BC	0.281
	**2P; 230 V AC; 50 ... 60 Hz** 10 000 / 3													
	30	6	3		5SU1324-6FA06		1BC		5SU1324-7FA06		1	1 unit	1BC	0.403
		10		►	5SU1324-6FA10		1BC	►	5SU1324-7FA10		1	1 unit	1BC	0.404
		13			5SU1324-6FA13		1BC		5SU1324-7FA13		1	1 unit	1BC	0.413
		16		►	5SU1324-6FA16		1BC	►	5SU1324-7FA16		1	1 unit	1BC	0.404
		20			5SU1324-6FA20		1BC		5SU1324-7FA20		1	1 unit	1BC	0.412
		25			5SU1324-6FA25		1BC		5SU1324-7FA25		1	1 unit	1BC	0.412
		32			5SU1324-6FA32		1BC		5SU1324-7FA32		1	1 unit	1BC	0.417
		40			5SU1324-6FA40		1BC		5SU1324-7FA40		1	1 unit	1BC	0.420
	**2P; 400 V AC; 50 ... 60 Hz** 10 000													
	30	125	6.5		5SU1324-6KK82		1BC		5SU1324-7KK82		1	1 unit	1BC	1.212
	300	125			5SU1624-6KK82		1BC		5SU1624-7KK82		1	1 unit	1BC	0.930
	**4P; 400 V AC; 50 ... 60 Hz** 10 000													
	30	125	11		5SU1344-6KK82		1BC		5SU1344-7KK82		1	1 unit	1BC	2.022
	300	125			5SU1644-6KK82		1BC		5SU1644-7KK82		1	1 unit	1BC	2.029

* You can order this quantity or a multiple thereof.

5SU1 RCBOs

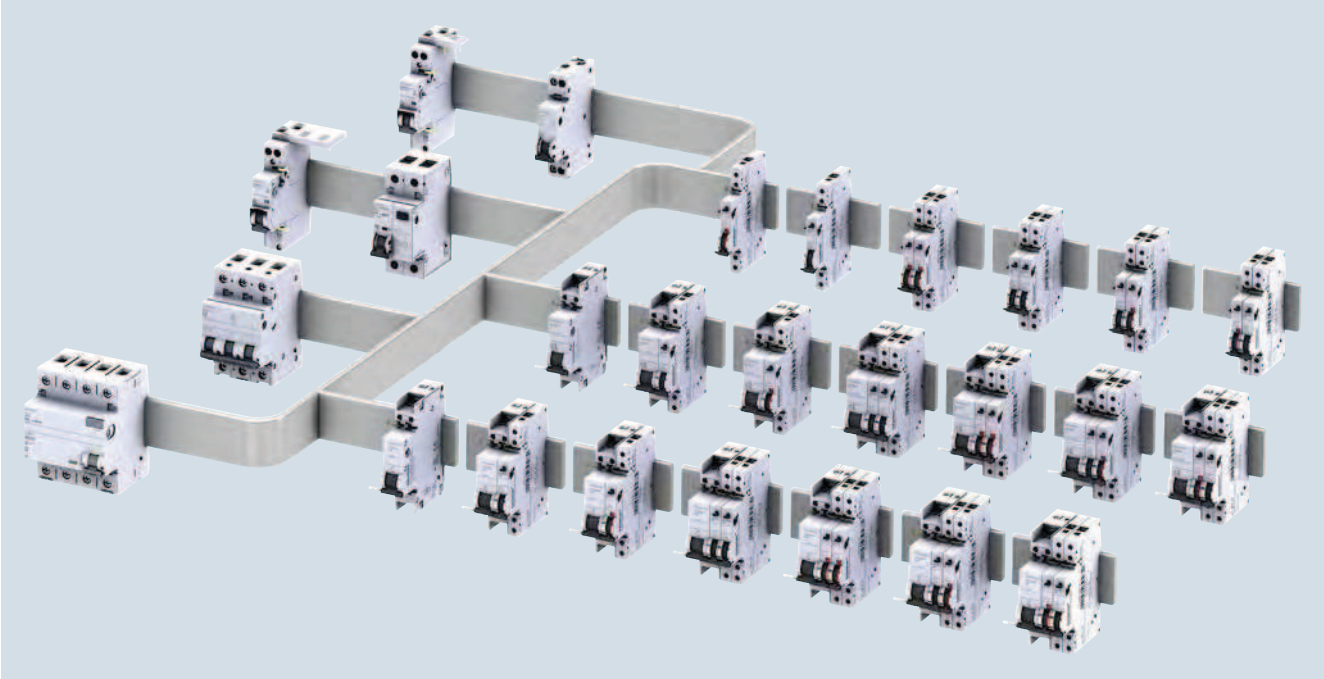
(Type A)	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mounting width MW	DT	Tripping characteristic B Article No. www.siemens.com/product?Article No.	Price per PU	PG	DT	Tripping characteristic C Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
RCBOs, type A, super resistant K														
	**1P+N; 230 V AC; 50 ... 60 Hz** 10 000 / 3													
	30	10	2		--				5SU1354-7VK10		1	1 unit	1BC	0.282
		16			--				5SU1354-7VK16		1	1 unit	1BC	0.286
		20			--				5SU1354-7VK20		1	1 unit	1BC	0.286
		25			--				5SU1354-7VK25		1	1 unit	1BC	0.288
		32			--				5SU1354-7VK32		1	1 unit	1BC	0.289
		40			--				5SU1354-7VK40		1	1 unit	1BC	0.293
RCBOs, type A, selective S														
	**2P; 400 V AC; 50 ... 60 Hz** 10 000													
	300	125	6.5		5SU1624-6WK82		1BC		5SU1624-7WK82		1	1 unit	1BC	1.156
	**4P; 400 V AC; 50 ... 60 Hz** 10 000													
	300	125	11		5SU1644-6WK82		1BC		5SU1644-7WK82		1	1 unit	1BC	2.031
	1000	125			5SU1844-6WK82		1BC		5SU1844-7WK82		1	1 unit	1BC	2.010
RCBOs, type F, super resistant														
	**1P+N, 230 V AC, 50 ... 60 Hz** 10 000 / 3													
	30	6	2		5SU1354-3KK06		1BC		5SU1354-4KK06		1	1 unit	1BC	0.282
		10			5SU1354-3KK10		1BC		5SU1354-4KK10		1	1 unit	1BC	0.286
		13			5SU1354-3KK13		1BC		5SU1354-4KK13		1	1 unit	1BC	0.287
		16			5SU1354-3KK16		1BC		5SU1354-4KK16		1	1 unit	1BC	0.283
		20			5SU1354-3KK20		1BC		5SU1354-4KK20		1	1 unit	1BC	0.285
		25			5SU1354-3KK25		1BC		5SU1354-4KK25		1	1 unit	1BC	0.267
		32			5SU1354-3KK32		1BC		5SU1354-4KK32		1	1 unit	1BC	0.288
		40			5SU1354-3KK40		1BC		5SU1354-4KK40		1	1 unit	1BC	0.293

* You can order this quantity or a multiple thereof.

	Version	DT	Article No. www.siemens.com/product?Article 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 RCBOs, you require a handle coupler (1 set - 5 units).	►	5ST3805-1		1	1 set	1AD	0.006
	**Locking devices** For RCBOs, sealable and lockable		5ST3801-1		1	1 unit	1AD	0.013

Note:

The same additional components are used for RCBOs as for miniature circuit breakers, see chapter "Miniature Circuit Breakers".



4

* You can order this quantity or a multiple thereof.

5SM6 AFD units

Overview

Characteristics

The Siemens portfolio of protective devices has been proving itself in the field for many years. This range of fuses, miniature circuit breakers and residual current protective devices has been expanded to include AFDDs (arc fault detection devices). These AFDDs detect arcing faults caused by serial faults or loose contacts or as a result of insulation faults that enable contact between phase conductors or between phase and protective conductors. They therefore offer extremely effective protection against fires started by electrical faults.

Generally speaking, arcing faults in the circuit can result from damage to cables and other insulations and from contamination. Insulation faults result, for example, from vibrations, thermal expansion and contraction, mechanical loads and aging.

A distinction is made between 3 types of arcing faults:

Serial arcing faults

These are caused by breaks in the conductor or when a loose contact is in the circuit in series with the load. As the current flow in such cases is always lower than the operational load current, miniature circuit breakers and residual current protective devices are unable to detect such faults and initiate tripping.

The AFDD is specially designed to detect the specific characteristics of these arcing faults, and it reliably disconnects the affected circuit as soon as the limit values are exceeded.

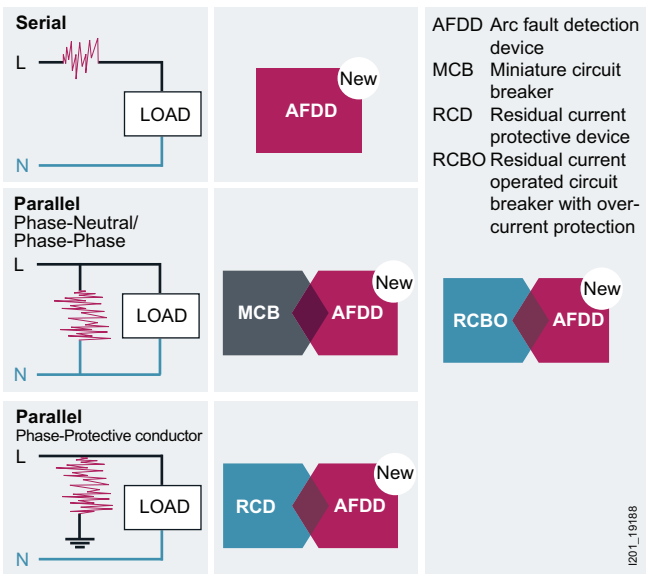
Parallel arcing faults between phase conductor/neutral conductor or phase conductor/phase conductor

These are caused by electric arcs resulting from damage to the insulation that permits contact between the two conductors. In this case, the level of current is determined by the impedances in the circuit. Depending on the rated current of the overcurrent protection device (for instance a miniature circuit breaker), this can be disconnected. However, if the impedance in the circuit is too high to reach the trip current of the overcurrent protection device, no tripping takes place. AFDDs disconnect the currents of arcing faults upwards of 2.5 A, thus providing reliable protection in the case of such faults.

Parallel arcing faults between phase conductor/protective conductor

Arcing faults against the protective conductor are reliably detected and shut down by residual current protective devices. Residual current protective device with rated residual currents up to max. 300 mA have already been providing effective fire protection in such cases for many years. AFDDs also detect these arcing faults and provide adequate fire protection where no residual current protective device is implemented.

Closing of the safety gap on the IEC market



Preventing undesired tripping operations

Electric arcs and high-frequency signals occur during normal operation in networks with multiple electrical loads (e.g. electric motors, light switches, dimmers). The AFDD must not break the circuit in such cases.

Thanks to the sophisticated detection logic of our AFDDs, they are able to clearly distinguish between normal operational interference signals and hazardous arcing faults.

Product versions and application

Siemens offers two product versions, which can be used in various combinations with a range of 1MW/2MW wide miniature circuit breakers and/or RCBOs up to 16 A rated current.

This simplifies product selection and reduces inventory, while enabling coverage of every conceivable application. It also means that our tried and tested protective devices (MCBs, RCBOs) can be combined with the new functionality provided by arc fault protection. In particular, the version with RCBOs offers a protective device that provides comprehensive personnel, short-circuit, overload and fire protection in a single device.

The version combined with a compact miniature circuit breaker in 1 MW is a space-saving alternative that is ideal for retrofitting.

Whether auxiliary switch or fault signal contact – the 5SM6 AFD units can be combined at random with the versatile range of additional components from the familiar portfolio of 5SY miniature circuit breakers and 5SU1 RCBOs.

This also enables connection to a higher-level I&C system.

The 5SM6 AFD units can be connected easily and quickly. The miniature circuit breakers or RCBOs can be mounted quickly and simply by just snapping them onto the mounting rail without the need for tools. For a fast and reliable power supply, the infeed can be implemented via a busbar assembly.

The AFDDs are primarily intended for protection of final circuits in cases where

- There is an increased risk of fire due to flammable materials being stored or processed (e.g. wood processing)
- Flammable building materials are in use (e.g. wood paneling)
- Valuable goods need to be protected (e.g. museums)
- There are rooms in which a fire might not be noticed immediately (e.g. bedrooms, children's bedrooms).

Status displays and self tests

In order to facilitate fault locating in the event of tripping, AFDDs have a display with 5 LEDs that provide information on the cause of tripping (serial/parallel arcing faults, overvoltage). The sophisticated detection electronics system also automatically checks the functionality of the AFDD. If the self-monitoring process detects a fault, the AFDD switches off and displays the corresponding indication.

	Arc fault detection device (5SM6) fault indication
	Device functional
	Restricted device function (background noise marginal)
	Serial or parallel arcing faults detected
	Overvoltage (> 275 V)
	Self-test failed
	No power supply

Integrated overvoltage protection

Depending on the load distribution in the three-phase current system, an interruption on the infeed side of the neutral conductor may cause a shift of the neutral point and thus an increase in voltage between the phase conductor and the neutral conductor. This increase in voltage can damage the loads or present a fire risk due to overloaded components.

In order to ensure all-round protection, the AFDDs are fitted with an overvoltage release that disconnects when the voltage between phase conductor and neutral conductor exceeds 275 V, thus isolating downstream loads from the hazardous line voltage.

Technical specifications

Standards			Future standard – IEC/EN 62606
Versions			2-pole
Rated voltage U_n		V	230
Rated current I_n		A	Up to 16
Rated frequency		Hz	50
Mains connection			Bottom
Tripping in the event of overvoltage		V	> 275
Degree of protection	Acc. to EN 60529 (VDE 0470-1)		IP20, with connected conductors
Surge current withstand capability With current waveform 8/20 µs		kA	3
Touch protection	Acc. to EN 50274 (VDE 0660-514)		Finger and back-of-hand safe
Terminal tightening torque		Nm	2,0 ... 2.5
Terminal/conductor cross-sections • Solid and stranded • Finely stranded with end sleeve		 mm^2 mm^2	 0.75 ... 16 0.75 ... 10
Overvoltage category			III
Mounting position			Any
Service life, average number of switching cycles			> 10000
Ambient temperature		°C	-25 ... +40, marked with 
Storage temperature		°C	-40 ... +75
Resistance to climate	Acc. to IEC 60068-2-30		28 cycles (55 °C; 95 % rel. air humidity)
Pollution degree			2
CFC and silicone-free			Yes
Power loss		W	0.6

5SM6 AFD units

Selection and ordering data

	Version	Rated current I_n	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		A	MW							kg
	AFD units									
	For 5SY60 miniature circuit breakers (1 MW) 2-pole, 230 V AC; 50 Hz	Up to 16	1		5SM6011-1		1	1 unit	1BA	0.111
	For 5SU1.5 (2 MW) RCBOs, 5SU1 ... FA (3 MW) RCBOs, and 5SY/5SL4 miniature circuit breakers (2 MW), but not suitable for 5SY5, 5SY8, 5SY60 2-pole; 230 V AC; 50 Hz	Up to 16	1		5SM6021-1		1	1 unit	1BA	0.118

	Version	Pin spacing	Length	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		MW	mm							kg
	Pin busbars for AFDDs (1+N)									
	10 mm², can be cut									
	Single-phase, for 5SM6011-1									
	Insulation, gray	2	962		5ST3764-1		1	10 units	1AD	0.145
	Insulation, blue	2	962		5ST3765-1		1	10 units	1AD	0.145
	3-phase, for 5SM6011-1									
	Insulation, gray	2	1032		5ST3740-1		1	1 unit	1AD	0.420
	2-phase (1+N), for 5SM6021-1									
	Insulation, gray	1+2	996		5ST3735-1		1	1 unit	1AD	0.350
	4-phase (3+N), for 5SM6021-1									
	Insulation, gray	1+2	926		5ST3746-1		1	1 unit	1AD	0.505

* You can order this quantity or a multiple thereof.

NEW 5SM6 AFD units for PV applications

Overview

The Siemens portfolio of protective devices has been proving itself in the field for many years. This range of fuses, miniature circuit breakers and residual current protective devices has now been expanded to include the 5SM6 AFD units. These AFD units detect arcing faults that may be caused, for example, by serial faults or loose contacts.

Benefits

- Easy to install and retrofit
- Visual and acoustic indication of arcing faults when a fault is detected
- Resetting of the arcing fault indication
- Developed according to UL 1699B
- Cost savings thanks to easy installation
- Integration into an external safety system for safe system disconnection

Technical specifications

			5SM6094-1
Standards			IEC 60364-7-712, UL1699B
Category			PV AFD Type 1 (UL 1699B)
Rated current I_n		A	40
Rated voltage DC		V	1000
Tripping current for serial arcs		A	1 … 40
Tripping voltage DC		V	Min. 100
Supply voltage DC		V	24
Terminal conductor cross-sections			
• String connection		mm^2	2.5 ... 10
• Supply voltage connection		mm^2	2.5
• Signal connection		mm^2	2.5
Terminal tightening torque			
• String connection		Nm	max. 3.5
• Supply voltage connection		Nm	max. 1.5
• Signal connection		Nm	max. 1.5
Current consumption			
• Active		mA	120
• Passive		mA	60
Operational current (load) alarm relay (125 V AC)		A	0.3
Operational current (load) alarm relay (30 V DC)		A	1
Overvoltage category			III
Supply voltage connection			Bottom
Mounting position			Any
Number of poles			1
Degree of protection			
• Acc. to EN 60529 (VDE 0470-1)			IP20, with connected conductors
• Acc. to EN 50274 (VDE 0660-514)			Finger and back-of-hand safe
CFC and silicone-free			Yes
Pollution degree			2
Storage temperature		°C	-40 … +75
Ambient temperature		°C	-20 … +50
Resistance to climate	Acc. to IEC 60068-2-30		28 cycles (55 °C; 95 % rel. air humidity)

Selection and ordering data

	Version	Rated current I_n	Mounting width	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		A	MW							kg
	**AFD units**									
	1P; 1000 V DC	Up to 40	2		5SM6094-1		1	1 unit	1BA	0.131

* You can order this quantity or a multiple thereof.

5ST busbars for modular installation devices

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 bus mounting miniature circuit breakers.

Busbars in 10 mm^2 and 16 mm^2 versions are available.

The extremely flexible 5ST36 busbar system with fixed lengths enables installation in any length as the busbars can be overlapped.

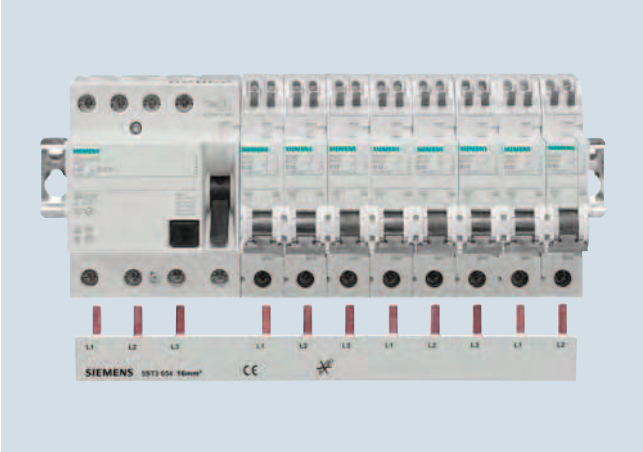
No further need for time-consuming tasks, such as cutting, cutting to length, deburring, cleaning of cut surfaces and mounting of end caps.

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

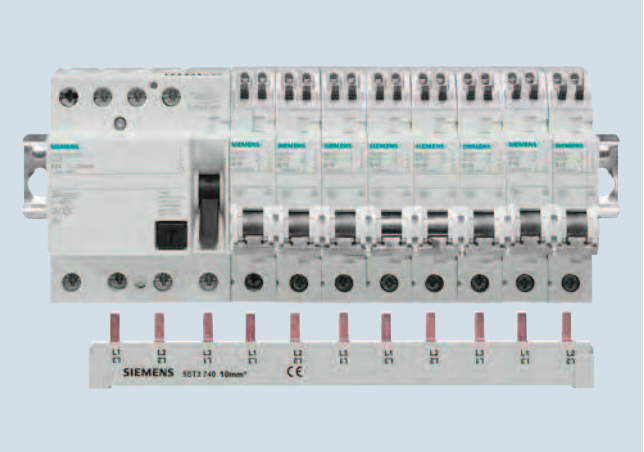
If several RCBOs are bus-mounted together, this is implemented with two-phase busbars, which are used as 1+N busbars.

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.



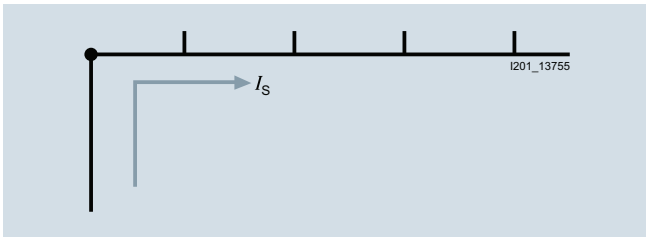
- Connection of 1P+N RCBOs with two-phase busbar. No cutting or end caps required.

- Bus-mounting of residual current protective devices on busbar (3-phase +N) that can be cut. A proven and frequently used application.

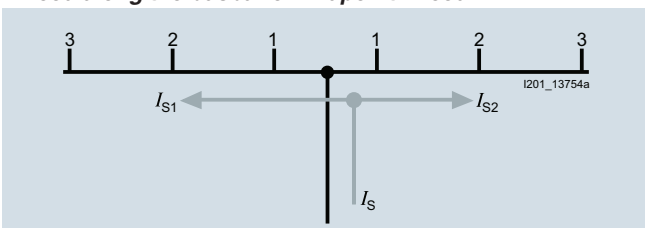
Technical specifications

			5ST3, 5ST2
Standards			EN 60439-1 (VDE 0660-500): 2005-01
Busbar material			SF-Cu F 24
Partition material			Plastic, Cycoloy 3600 Heat-resistant over 90 °C flame-retardant self-extinguishing dioxin and halogen-free
Rated operational voltage U_e		V AC	400
Rated current I_n			
• Cross-section 10 mm²		A	63
• Cross-section 16 mm²		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	Corresponds to IEC 68-2-30		28 cycles
Insulation coordination	Acc. to IEC 60664-1 (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 mm²		A	63
- Cross-section 16 mm²		A	80
• Infeed at the center of the busbar			
- Cross-section 10 mm²		A	100
- Cross-section 16 mm²		A	130

Infeed at the start or end of the busbar

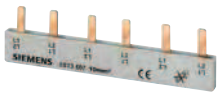
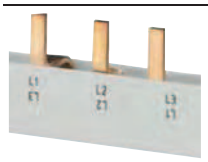


Infeed along the busbar or midpoint infeed



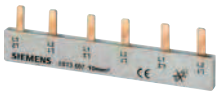
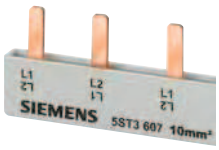
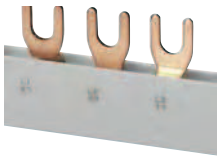
The sum of the outgoing current per branch (1, 2, 3 ... n) must not be greater than the max. busbar current I_S/phase.

Selection and ordering data

	Version	Pin spacing	Length	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		MW	mm							kg
	**5ST36 busbars, fixed lengths, cannot be cut, fully insulated**									
	For 1 FI 4P, N connection right, and 8 MCB 1P									
	• 3-phase 10 mm²	1	210		5ST3624		1	10 units	1AD	0.078
	• 3-phase 16 mm²	1	210		5ST3654		1	10 units	1AD	0.113
	For 6 RCBOs 1P+N together									
	• 2-phase 10 mm²	1	210		5ST3608		1	10 units	1AD	0.063
	• 2-phase 16 mm²	1	210		5ST3638		1	10 units	1AD	0.089
	**5ST37 busbars, 12 MW, can be cut to length, with end caps**									
	For 6 RCBOs 1P+N									
	• 2-phase 10 mm²	1	216		5ST3734		1	1 unit	1AD	0.072
	• 2-phase 16 mm²	1	216	▶	5ST3704		1	1 unit	1AD	0.097

* You can order this quantity or a multiple thereof.

5ST busbars for modular installation devices

	Version	Pin spacing	Length	DT	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		MW	mm							kg
	**5ST36 busbars, 10 mm², 4-phase fixed lengths, cannot be cut, fully insulated** For 6 RCBOs 1P+N	1	215		**5ST3623**		1	10 units	1AD	0.087
	**5ST36 busbars, 16 mm², 4-phase fixed lengths, cannot be cut, fully insulated** For 6 RCBOs 1P+N	1	215		**5ST3653**		1	10 units	1AD	0.126
	**5ST37 busbars, with end caps, can be cut, with touch protection** For RCBO 1P+N and MCB 2P									
	• 4-phase 10 mm²	1	1008		**5ST3770-2**		1	10 units	1AD	0.578
	• 4-phase 16 mm²	1	1008		**5ST3770-3**		1	10 units	1AD	0.779
	For RCCBs 4P, N right and 6 MCBs 1P+N									
	• 4-phase 10 mm²	1	288		**5ST3770-4**		1	10 units	1AD	0.153
	• 4-phase 16 mm²	1	288		**5ST3770-5**		1	10 units	1AD	0.203
	**End caps for 5ST37, can be cut**									
	• For two-phase and three-phase busbars			▶	**5ST3750**		1	10 units	1AD	0.002
	• For four-phase busbars			▶	**5ST3718**		1	10 units	1AD	0.001
	**Touch protection** For free connections, yellow (RAL 1004) 5 x 1 pin			▶	**5ST3655**		1	10 units	1AD	0.008
	**Busbar, 12 MW, with fork-type connections, can be cut to length, with end caps** For bus mounting 5SM3 RCCBs together Three-phase + N, 16 mm²	1	216		**5ST2145**		1	1 unit	1AD	0.151
	**End caps for 5ST2145 busbars, can be cut** For three-phase busbars			▶	**5ST2156**		1	10 units	1AD	0.001
	**Terminals up to 35 mm² (stranded), for direct infeed of 5ST2145 busbar** Side-by-side mounting possible				**5ST2157**		1	5 units	1AD	0.030

* You can order this quantity or a multiple thereof.

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-mounted SCHUKO® socket outlet or flush-mounted SCHUKO® double socket outlet
- For electrical 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 (5SM1920-.), degree of protection IP54 (5SZ92.6)

Selection and ordering data

	Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	DT	Article No. www.siemens.com/product?Article 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		5SM1920-5		1	1 unit	1BE	0.538
	30			5SM1920-8		1	1 unit	1BE	0.530
• 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		5SZ9206		1	1 unit	1BE	0.765
	30			5SZ9216		1	1 unit	1BE	0.765

* You can order this quantity or a multiple thereof.

4

Accessories

	Version	DT	Article No. www.siemens.com/product?Article 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		5SW3004		1	1 unit	1BE	0.089
	• Up to 4.5 MW		5SW3005		1	1 unit	1BE	0.185
	**Wall enclosures, gray** For flush mounting, degree of protection IP40 with 35 mm standard mounting rail							
	• Up to 2.5 MW		5SW3006		1	1/4 units	1BE	0.131
	• Up to 4.5 MW		5SW3007		1	1 unit	1BE	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		5SW1200		1	1 unit	1BE	0.476
	**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) ►		5ST2134		1	10 units	1AD	0.026
	• Angled profile (approx. 1 m long)		5ST2135		1	5 units	1AD	0.288
	• Alternative flat profiles (as a cover between the rows of devices length approx. 1 m)		5ST2136		1	5 units	1AD	0.239
	**Touch protection** For RCCBs up to 80 A 1 set contains 12 units		5SW3313		1	1 set	1BE	0.012
	**Fixing parts** Plastic 4 MW		5ST2201		1	1 unit	1AD	0.012
	**Inscription labels (white)** 15 × 9 mm, 3 frames with 44 labels each any attachment and inscription, self-adhesive		5ST2173		1	1 set	1AD	0.048

Labeling system

Available from:

Murrplastik Systemtechnik GmbH
Postfach 1143
71570 Oppenweiler, Germany

Telephone: +49 7191-482-0
e-mail: info@murrplastik.de

*** You can order this quantity or a multiple thereof.**

Application

Standards	Application	Required $I_{\Delta n}$ [mA]	Recommended Siemens residual current protective devices			
			Type A	Type F	SIQUENCE type B/type B+	SIGRES
DIN VDE 0100-410	Protection against electric shock	30 ... 500	✓	✓	✓	✓
	Socket outlets up to 20 A, outdoor plants	10 ... 30	✓	✓	--	--
DIN VDE 0100-482	Fire protection for particular risks or safety hazards	30, 300	✓	✓	✓	--
DIN VDE 0100-701	Rooms WITH baths or showers, socket outlets in zone 3	10 ... 30	✓	✓	--	--
DIN VDE 0100-702	Basins for swimming pools and other basins	10 ... 30	✓	--	--	✓
DIN VDE 0100-703	Rooms and cabins with sauna heating	10 ... 30	✓	--	--	✓
DIN VDE 0100-704 BGI 608	Building sites, socket outlet current circuits up to 32 A and for handheld equipment, plug-and-socket devices I_n > 32 A	≤ 30	✓	✓	✓	✓
		≤ 500	✓	✓	✓	✓
DIN VDE 0100-705	Agricultural and general horticultural premises, socket outlet current circuits	≤ 500	✓	✓	--	✓
		≤ 30	✓	✓	--	✓
DIN VDE 0100-706	Conductive areas with limited freedom of movement, permanently mounted equipment	10 ... 30	✓	--	--	--
DIN VDE 0100-708	Electrical installations on camping sites, fixed feeding points for every socket outlet and every final circuit	10 ... 30	✓	--	--	✓
DIN VDE 0100-710	Medical premises in TN-S system, depending on application group 1 or 2 and equipment	10 ... 30	✓	--	✓	--
		≤ 300	✓	--	✓	--
DIN VDE 0100-712	Solar PV power supply systems (without simple separation)	≤ 300	--	--	✓	--
DIN VDE 0100-723	Classrooms with experiment equipment	10 ... 30	--	--	✓	--
DIN VDE 0100-739	Additional protection against direct contact in homes	10 ... 30	✓	--	--	--
EN 50178 (VDE 0160)	Fitting of power installations with electronic equipment	General requirements for correct selection when using residual current protection	✓	✓	✓	--
EN 50293 (VDE 0832-100)	Traffic signal systems • Class T1 • Class U1	 ≤ 300 ≤ 30	 ✓ ✓	 -- --	 -- --	 ✓ ✓
	Food processing and chemical industry	≤ 30 (recommended)	✓	--	--	✓

Note:

For reasons of basic fire protection, we recommend the use of residual current protective devices with maximum 300 mA rated residual current.