

SIEMENS

SETRON • SIVACON • ALPHA

Low-Voltage Power Distribution and Electrical Installation Technology

Residual Current Protective Devices /
Arc Fault Detection Devices (AFDDs)

Catalog
Extract
LV 10

Edition
04/2019

[siemens.com/lowvoltage](https://www.siemens.com/lowvoltage)

Related catalogs

Low-Voltage Power Distribution and Electrical Installation Technology LV 10
 SENTRON • SIVACON • ALPHA
 Protection, Switching, Measuring and Monitoring
 Devices, Switchboards and Distribution Systems

PDF (E86060-K8280-A101-A9-7600)
 Print (E86060-K8280-A101-A6-7600)



Air Circuit Breakers and Molded Case Circuit Breakers with UL Certification LV 18
 SENTRON

PDF (E86060-K8280-E347-A2-7600)



Industrial Controls IC 10
 SIRIUS

PDF (E86060-K1010-A101-A9-7600)



Industrial Communication IK PI
 SIMATIC NET

E86060-K6710-A101-B8-7600



DELTA ET D1
 Switches and Socket Outlets

PDF



SITRAIN
 Training for Industry

www.siemens.com/sitrain



Catalog PDF / Contact

Catalog PDF

Digital versions of the catalogs are available in the Siemens Industry Online Support.

www.siemens.com/lowvoltage/catalogs



Contact

Your personal contact can be found in our Contacts Database at:

www.siemens.com/automation-contact



Industry Mall / TIA ST / CA 01

Industry Mall

Information and Ordering Platform on the Internet:

www.siemens.com/industrymall



Siemens TIA Selection Tool

for the selection, configuration and ordering of TIA products and devices

www.siemens.com/tst



Products for Automation and Drives CA 01
 Interactive Catalog
 Download

www.siemens.com/ca01download

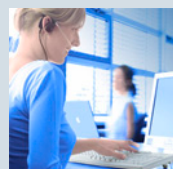


Trademarks

All product designations may be registered trademarks or product names of Siemens AG or other supplying companies. Third parties using these trademarks or product names for their own purposes may infringe upon the rights of the trademark owners. Further information about low-voltage power distribution and electrical installation technology is available on the Internet at:

www.siemens.com/lowvoltage

Technical Support



Expert advice on technical questions with a wide range of demand-optimized services for all our products and systems.

www.siemens.com/lowvoltage/support-request

Low-Voltage Power Distribution and Electrical Installation Technology

Protection, Switching, Measuring and Monitoring Devices, Switchboards and Distribution Systems

SENTRON · SIVACON · ALPHA



Catalog LV 10 · 04/2019

You can find the updated catalog valid from October 2019 in the Siemens Industry Online Support under www.siemens.com/lowvoltage/catalogs

Supersedes:
Catalog LV 10 · 10/2018

Refer to the Industry Mall for current prices:
www.siemens.com/industrymall

The products in this catalog can also be found in the Interactive Catalog CA 01:
www.siemens.com/ca01download

Please contact your local Siemens branch.

© Siemens AG 2019

The products and systems listed in this catalog are developed and manufactured using a certified quality management system in accordance with EN ISO 9001:2008.

Protection, Switching, Measuring and Monitoring Devices	Air Circuit Breakers	1
	Molded Case Circuit Breakers	2
	Miniature Circuit Breakers	3
	Residual Current Protective Devices / Arc-Fault Detection Devices (AFDDs)	4
	Fuse Systems	5
	Overvoltage Protection Devices	6
	Switch Disconnectors	7
	Transfer Switching Equipment and Load Transfer Switches	8
	Switching Devices	9
	Transformers, Power Supply Units and Socket Outlets	10
	Busbar Systems	11
	Measuring Devices and Power Monitoring	12
	Monitoring Devices	13
	Terminal Blocks	14
	Software	15
Switchboards and Distribution Systems	Switchboards	16
	Busbar Trunking Systems	17
	System Cubicles, System Lighting and System Air-Conditioning	18
	Power Distribution Boards / Distribution Boards	19
	Appendix	20

Opening Information

Ordering notes

Overview

Ordering special versions

When ordering products that differ from the standard versions listed in the catalog, "-Z" must be added to the Article No. indicated and the required features must be specified using alphanumeric order codes or plain text.

Ordering very small quantities

When very small orders are placed, the costs associated with order processing are greater than the order value. We therefore recommend that you combine several small orders. Where this is not possible, we regret that we are obliged to make a small processing charge: for orders with a net goods value of less than € 250 we charge a € 20 supplement to cover our order processing and invoicing costs.

Explanations of Selection and ordering data

Standard delivery time (SD)

- Preferred type Preferred types are device types that can be delivered immediately ex works, i.e. they are dispatched within 24 hours.

Price units (PU)

The price unit defines the number of units, sets or meters to which the specified price applies.

Packaging size (PS)

The packaging size defines the number of units, sets or meters, for example, for outer packaging.
Only the quantity defined by the packaging size or a multiple thereof can be ordered.

Price group (PG)

Each product is allocated to a price group.

Example

5TT3400
SD: Preferred type
PG: 13C
Ordering quantity 1 unit or a multiple thereof

8US1923-5CA02
PG: 14O
Ordering quantity 10 units or a multiple thereof

8WH9000-1GA00
PG: 12X
Ordering quantity 50 units or a multiple thereof

SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
d					
►	5TT3400		1	1 unit	1BK
	8US1923-5CA02		1	10 units	1CU
	8WH9000-1GA00		100	50 units	1BT

Note:

The article numbers shown here and the specifications regarding selection and ordering data are examples only. When ordering, always use the selection and ordering data in the product chapters.

Metal surcharges/export markings

To compensate fluctuating prices of raw materials (for example silver, copper, aluminum, lead, gold, dysprosium and neodymium), surcharges are calculated on a daily basis for products containing these raw materials using the metal factor. A surcharge for the particular raw material is added to the price of a product if the basic quotations for this raw material are exceeded.

Each product's metal factor dictates for which raw materials the metal surcharges are calculated, from which quotation and with which calculation method (weight or percentage method).

An exact explanation of the metal factor can be found at: www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

A product's export markings/metal surcharges are updated daily at www.siemens.com/industrymall.

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)



4/2	Introduction
4/4	5SV RCCBs
4/19	5SM3 RCCBs
4/20	SIQUENCE 5SV3, universal current-sensitive RCCBs, type B and type B+ NEW
4/24	5SM2 RC units
4/32	5SU1 RCBOs
4/41	5SV1 compact RCBOs NEW
4/45	Additional components NEW
4/56	5SM6 / 5SV6 arc fault detection devices (AFDDs) NEW
4/60	Pin busbars for 5SV1 / 5SV6 / 5S..0 compact devices NEW
4/63	Busbars
4/66	5SZ9 RCCB socket outlets
4/67	Accessories
4/68	Configuration

For further technical product information:

[Configuration Manual](#)

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

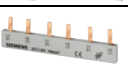
Siemens Industry Online Support:
www.siemens.com/lowvoltage/product-support

→ Entry type:
Application example
Certificate
Characteristic
Download
FAQ
Manual
Product note
Software archive
Technical data

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Introduction

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 ÖVE EN 61008 ÖVE/ÖNORM E 8601 IEC/EN 62423	✓	✓	✓
 5SM3 RCCBs	4/19	Personnel, material and fire protection, as well as protection against direct contact	IEC/EN 61008 ÖVE EN 61008 ÖVE/ÖNORM E 8601 IEC/EN 62423	✓	✓	✓
 SIQUENCE 5SV3 universal current-sensitive RCCBs, type B and type B+	4/20	SIQUENCE, the technology of universal current-sensitive residual current protective devices	VDE 0664-100 VDE 0664-200 VDE V 0664-110	✓	--	✓
 Additional components	4/45	Remote controlled mechanisms, auxiliary switches for all residual current operated circuit breakers Leakage current measurement device for fault locating and optimum selection of RCCBs	IEC/EN 62019	✓	--	✓
 5SM2 RC units	4/24	The freely selectable combination of RC units with miniature circuit breakers permits the flexible configuration of RCBO combinations	IEC/EN 61009	✓	--	✓
 5SU1 RCBOs 5SV1 compact RCBOs NEW	4/32	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	✓	✓	✓
	4/41					
 5SM6 / 5SV6 arc fault detection devices (AFDDs) NEW	4/56	Enhanced fire protection through the detection and isolation of arcing faults	IEC/EN 62606	✓	✓	--
 Busbars	4/63	Busbars in 10 mm ² and 16 mm ² save space in the distribution board and time during mounting	--	✓	✓	✓
 Compact busbars NEW	4/60					
 5SZ9 RCCB socket outlets	4/66	For retrofitting in existing installations	VDE 0664	✓	✓	✓
 Accessories	4/67	Locking devices, covers – everything you need for mounting	--	✓	✓	✓
 5SV8 residual current monitors	Ch. 13	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	✓	--	✓

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Introduction

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 two years.

Super resistant **K** **G**

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**

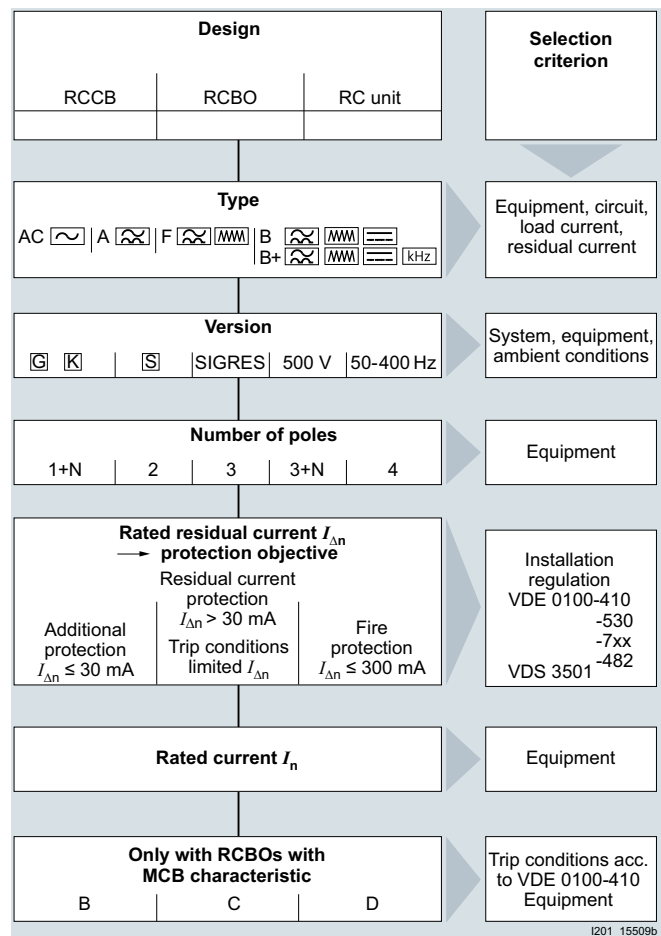
Can be used as upstream group switch for selective tripping contrary to downstream, instantaneous or short-time delayed RCCBs.

Short-time delayed **G**

If installations/equipment whose inadvertent tripping could lead to personal injury or material damage (such as freezers, computers) are protected by residual current protective devices, the tripping time of these devices must be at least 10 ms as defined according to ÖVE/ÖNORM E 8001-1.

Note:

You will find further information on the subject of residual current protective devices in the technology primer "Residual Current Protective Devices", Article No.: EMLP-T10158-00-7600 and in the Configuration Manual Residual Current Protective Devices/ Arc Fault Detection Devices (AFDDs) (www.siemens.com/lowvoltage/manuals).



Selection aid for finding the appropriate residual current protective device

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

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 in European countries outside Germany.

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 μ s of more than 1 kA, super resistant devices of more than 3 kA and selective devices of more than 5 kA. This ensures safe operation.
- SIGRES has an extremely long service life due to 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 and 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 mm², 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.

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

Technical specifications

		Instantaneous	SIGRES	Super resistant / G types	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 ($\leq 10 \text{ mm}^2$) / stranded ($\geq 16 \text{ mm}^2$)	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 ($\leq 10 \text{ mm}^2$) / stranded ($\geq 16 \text{ mm}^2$)	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 ($\leq 10 \text{ mm}^2$) / stranded ($\geq 16 \text{ mm}^2$)	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 $I_n = 80 \text{ A}$	Nm	2.5			
• At $I_n = 100 \text{ A}, 125 \text{ A}$	Nm	3.0 ... 3.5			
Mains connection		Optionally top or bottom (top for the SIGRES function to also be effective in the deactivated state)			
Rated frequency	Hz	50/50 ... 400			
Operating frequency	Hz	50/50 ... 400	50	50/60	50/60
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 			
Resistance to climate	Acc. to IEC 60068-2-30	28 cycles (55 °C; 95% rel. air humidity)			
CFC and silicone-free		Yes			

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

Thermal overload protection

According to ÖVE/ÖNORM E 8001-1 § 12.1.4, RCCBs must be protected against thermal overload.

Rated current I_n of residual current protective device	Minimum wiring cross-section	Maximum rated current I_n of back-up fuse for overload protection	
		Miniature circuit breakers	Melting fuses
A	mm ²	A	A
5SV standard types			
16	1.5	10	10
	2.5	16	16
25	2.5	16	16
	4.0	25	25
40	6.0	25	25
	10.0	32	35
63	10.0	40	40
	16.0	50	50
80	16.0	63	63
	25.0	63	63
5SV.....LA special types, can be protected against overload with rated current			
40	6.0	32	35
	10.0	40	40
63	10.0	50	50
	16.0	63	63

System dimensioning (e.g. taking into account rated load factors) must be such that the rated current of the RCCB is not exceeded by a continuous load.

The specified protective devices for thermal overload protection are designed to protect the RCCB against damage in unforeseen and non-permissible plant states.

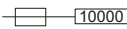
Application

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

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

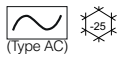
5SV RCCBs

Selection and ordering data

 (Type AC)	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
	$I_{\Delta n}$ mA	I_n A	 A	MW	d					
RCCBs, type AC, instantaneous										
	1P+N; 230 V AC									
	N connection, right									
	10	16	63	2		5SV4111-0		1	1 unit	1AI
	30	16	63	2		5SV4311-0		1	1 unit	1AI
		25				5SV4312-0		1	1 unit	1AI
			Bulk packaging 36 units			5SV4312-0GV01		1	36 units	1AI
		40	63			5SV4314-0		1	1 unit	1AI
			Bulk packaging 36 units			5SV4314-0GV01		1	36 units	1AI
		63	80			5SV4316-0		1	1 unit	1AI
		80				5SV4317-0		1	1 unit	1AI
	100	25	63	2		5SV4412-0		1	1 unit	1AI
		40				5SV4414-0		1	1 unit	1AI
		63	80			5SV4416-0		1	1 unit	1AI
		80				5SV4417-0		1	1 unit	1AI
	300	25	63	2		5SV4612-0		1	1 unit	1AI
		40				5SV4614-0		1	1 unit	1AI
		63	80			5SV4616-0		1	1 unit	1AI
		80				5SV4617-0		1	1 unit	1AI
	3P+N; 400 V AC									
	N connection, right									
	30	25	80	4		5SV4342-0		1	1 unit	1AI
			Bulk packaging 18 units			5SV4342-0GV01		1	18 units	1AI
		40	80			5SV4344-0		1	1 unit	1AI
			Bulk packaging 18 units			5SV4344-0GV01		1	18 units	1AI
		63	100			5SV4346-0		1	1 unit	1AI
		80				5SV4347-0		1	1 unit	1AI
	100	25	80	4		5SV4442-0		1	1 unit	1AI
		40				5SV4444-0		1	1 unit	1AI
		63	100			5SV4446-0		1	1 unit	1AI
		80				5SV4447-0		1	1 unit	1AI
	300	25	80	4		5SV4642-0		1	1 unit	1AI
		40				5SV4644-0		1	1 unit	1AI
		63	100			5SV4646-0		1	1 unit	1AI
		80				5SV4647-0		1	1 unit	1AI
	500	25	80	4		5SV4742-0		1	1 unit	1AI
		40				5SV4744-0		1	1 unit	1AI
		63	100			5SV4746-0		1	1 unit	1AI
		80				5SV4747-0		1	1 unit	1AI
	1P+N; 230 V AC									
	N connection, left									
	10	16	63	2		5SV4111-0KL		1	1 unit	1AI
	30	16	63	2		5SV4311-0KL		1	1 unit	1AI
		25				5SV4312-0KL		1	1 unit	1AI
		40				5SV4314-0KL		1	1 unit	1AI
			Bulk packaging 36 units			5SV4314-0GV02		1	36 units	1AI
		63	80			5SV4316-0KL		1	1 unit	1AI
		80				5SV4317-0KL		1	1 unit	1AI
	100	40	63	2		5SV4414-0KL		1	1 unit	1AI
		63	80			5SV4416-0KL		1	1 unit	1AI
	300	25	63	2		5SV4612-0KL		1	1 unit	1AI
		40				5SV4614-0KL		1	1 unit	1AI
		63	80			5SV4616-0KL		1	1 unit	1AI
		80				5SV4617-0KL		1	1 unit	1AI
	3P+N; 400 V AC									
	N connection, left									
	30	25	80	4		5SV4342-0KL		1	1 unit	1AI
		40				5SV4344-0KL		1	1 unit	1AI
		63				5SV4346-0KL		1	1 unit	1AI
		80				5SV4347-0KL		1	1 unit	1AI
	300	25	80	4		5SV4642-0KL		1	1 unit	1AI
		40				5SV4644-0KL		1	1 unit	1AI
		63				5SV4646-0KL		1	1 unit	1AI
		80				5SV4647-0KL		1	1 unit	1AI

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

Rated residual
current

Rated current

Max. permissible
short-circuit
back-up fuseMounting
width

SD

Article No.
[www.siemens.com/
product?Article No.](http://www.siemens.com/product?Article No.)Price
per PUPU
(UNIT,
SET, M)

PS

PG

 $I_{\Delta n}$ I_n

MW

d

1P+N; 24 ... 125 V AC

N wire connection, right

30

16

25

40

63

63

80

2

5SV4311-0KK13**5SV4312-0KK13****5SV4314-0KK13****5SV4316-0KK13**

1

1 unit

1AI

1

1 unit

1AI

1

1 unit

1AI

1

1 unit

1AI



Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

Selection and ordering data

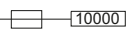
 (Type AC)			Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$ mA	I_n A	 10000 A	MW	d					
RCCBs, type AC, instantaneous Surge current withstand capability > 1 kA ¹⁾												
1P+N; 230 V AC												
N connection, right												
												
30	40	63	2	5SV4314-0LA				1	1 unit	1Al		
3P+N; 400 V AC												
N connection, right												
												
30	40	80	4	5SV4344-0LA				1	1 unit	1Al		
	63	100		5SV4346-0LA				1	1 unit	1Al		
100	40	80		5SV4444-0LA				1	1 unit	1Al		
	63	100		5SV4446-0LA				1	1 unit	1Al		
RCCBs, type AC, short-time delayed 												
1P+N; 230 V AC												
N connection, right												
												
30	40	63	2	5SV4314-0LA01				1	1 unit	1Al		
3P+N; 400 V AC												
N connection, right												
												
30	40	100	4	5SV4344-0LA01				1	1 unit	1Al		
	63			5SV4346-0LA01				1	1 unit	1Al		
100	40			5SV4444-0LA01				1	1 unit	1Al		
	63			5SV4446-0LA01				1	1 unit	1Al		

¹⁾ Thermal overload protection according to ÖVE/ÖNORM E 8001 possible up to rated current of the RCCB (40 A, 63 A).

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

Selection and ordering data

 (Type A)	 	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		$I_{\Delta n}$ mA	I_n A	 10000	MW	d					
RCCBs, type A, instantaneous											
1P+N; 230 V AC											
	N connection, right										
	10	16	63	2	5SV3111-6	1	1 unit	1AH			
	30	16	63	2	5SV3311-6	1	1 unit	1AH			
			Bulk packaging 36 units		5SV3311-6GV01	1	36 units	1AH			
		25	63		5SV3312-6	1	1 unit	1AH			
			Bulk packaging 36 units		5SV3312-6GV01	1	36 units	1AH			
		40	63		5SV3314-6	1	1 unit	1AH			
			Bulk packaging 36 units		5SV3314-6GV01	1	36 units	1AH			
		40 ¹⁾	63		5SV3314-6LA	1	1 unit	1AH			
		63	80		5SV3316-6	1	1 unit	1AH			
		80			5SV3317-6	1	1 unit	1AH			
	100	25	63	2	5SV3412-6	1	1 unit	1AH			
		40			5SV3414-6	1	1 unit	1AH			
		63	80		5SV3416-6	1	1 unit	1AH			
		80			5SV3417-6	1	1 unit	1AH			
	300	25	63	2	5SV3612-6	1	1 unit	1AH			
	40			5SV3614-6	1	1 unit	1AH				
	63	80		5SV3616-6	1	1 unit	1AH				
	80			5SV3617-6	1	1 unit	1AH				
3P+N; 400 V AC											
	N connection, right										
	30	25	80	4	5SV3342-6	1	1 unit	1AH			
			Bulk packaging 18 units		5SV3342-6GV01	1	18 units	1AH			
		40	80		5SV3344-6	1	1 unit	1AH			
			Bulk packaging 18 units		5SV3344-6GV01	1	18 units	1AH			
		40 ¹⁾	80		5SV3344-6LA	1	1 unit	1AH			
		63	100		5SV3346-6	1	1 unit	1AH			
			Bulk packaging 18 units		5SV3346-6GV01	1	18 units	1AH			
		63 ¹⁾	80		5SV3346-6LA	1	1 unit	1AH			
		80	100		5SV3347-6	1	1 unit	1AH			
	100	25	80	4	5SV3442-6	1	1 unit	1AH			
		40			5SV3444-6	1	1 unit	1AH			
		40 ¹⁾	80		5SV3444-6LA	1	1 unit	1AH			
		63	100		5SV3446-6	1	1 unit	1AH			
		63 ¹⁾	100		5SV3446-6LA	1	1 unit	1AH			
		80			5SV3447-6	1	1 unit	1AH			
	300	25	80	4	5SV3642-6	1	1 unit	1AH			
		40			5SV3644-6	1	1 unit	1AH			
		63	100		5SV3646-6	1	1 unit	1AH			
		80			5SV3647-6	1	1 unit	1AH			
	500	25	80	4	5SV3742-6	1	1 unit	1AH			
		40			5SV3744-6	1	1 unit	1AH			
		63	100		5SV3746-6	1	1 unit	1AH			
			Bulk packaging 18 units		5SV3746-6GV01	1	18 units	1AH			
	80			5SV3747-6	1	1 unit	1AH				
1P+N; 230 V AC											
	N connection, left										
	10	16	63	2	5SV3111-6KL	1	1 unit	1AH			
	30	16	63	2	5SV3311-6KL	1	1 unit	1AH			
		25			5SV3312-6KL	1	1 unit	1AH			
		40			5SV3314-6KL	1	1 unit	1AH			
		63	80		5SV3316-6KL	1	1 unit	1AH			
		80			5SV3317-6KL	1	1 unit	1AH			
	100	25	63	2	5SV3412-6KL	1	1 unit	1AH			
		40			5SV3414-6KL	1	1 unit	1AH			
		63	80		5SV3416-6KL	1	1 unit	1AH			
		80			5SV3417-6KL	1	1 unit	1AH			
	300	25	63	2	5SV3612-6KL	1	1 unit	1AH			
		40			5SV3614-6KL	1	1 unit	1AH			
		63	80		5SV3616-6KL	1	1 unit	1AH			
		80			5SV3617-6KL	1	1 unit	1AH			

¹⁾ Thermal overload protection according to ÖVE/ÖNORM E 8001 possible up to rated current of the RCCB (40 A, 63 A).

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

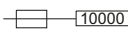
 (Type A)			Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$ mA	I_n A	 10000	MW	d					
	3P+N; 400 V AC											
	N connection, left											
	30	25	80	4		5SV3342-6KL		1	1 unit	1AH		
		40				5SV3344-6KL		1	1 unit	1AH		
		Bulk packaging 18 units				5SV3344-6GV02		1	18 units	1AH		
	300	63		4		5SV3346-6KL		1	1 unit	1AH		
		80				5SV3347-6KL		1	1 unit	1AH		
		Bulk packaging 18 units				5SV3347-6KL		1	1 unit	1AH		
	500	25	80	4		5SV3642-6KL		1	1 unit	1AH		
		40				5SV3644-6KL		1	1 unit	1AH		
		63				5SV3646-6KL		1	1 unit	1AH		
		80				5SV3647-6KL		1	1 unit	1AH		
		63	80	4		5SV3746-6KL		1	1 unit	1AH		

¹⁾ Thermal overload protection according to ÖVE/ÖNORM E 8001 possible up to rated current of the RCCB (40 A, 63 A).

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

Selection and ordering data

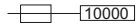
 (Type A)			Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG	
			$I_{\Delta n}$ mA	I_n A		MW	d						
RCCBs, type A, instantaneous (only available in Belgium) ¹⁾													
	1P+N; 230 V AC												
	N connection, right												
	30	25	63	2	5SV3312-6BA	1	1 unit	1AH					
		40			5SV3314-6BA	1	1 unit	1AH					
		63	80		5SV3316-6BA	1	1 unit	1AH					
	300	25	63	2	5SV3612-6BA	1	1 unit	1AH					
		40			5SV3614-6BA	1	1 unit	1AH					
		63	80		5SV3616-6BA	1	1 unit	1AH					
		3P+N, 400 V AC											
		N connection, right											
		30	25	80	4	5SV3342-6BA	1	1 unit	1AH				
40					5SV3344-6BA	1	1 unit	1AH					
63			100		5SV3346-6BA	1	1 unit	1AH					
300		25	80	4	5SV3642-6BA	1	1 unit	1AH					
		40			5SV3644-6BA	1	1 unit	1AH					
		63	100		5SV3646-6BA	1	1 unit	1AH					

¹⁾ These products cannot be used in France according to NF C 15-100. Product complies with the specifications of the Belgian market only. (Simultaneous tripping of the 3 poles and the N conductor.) Available for the export market only.

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

Selection and ordering data

 (Type A)	 25kV		Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$	I_n								
			mA	A	A	MW	d					

RCCBs, type A, short-time delayed

	1+N; 230 V											
	N connection, right											
	30	40 ¹⁾	63	2			5SV3314-6LA01			1	1 unit	1AH
	3P+N; 400 V AC											
	N connection, right											
	30	40 ¹⁾	100	4			5SV3344-6LB01			1	1 unit	1AH
		63					5SV3344-6LA01			1	1 unit	1AH
		63 ¹⁾					5SV3346-6LB01			1	1 unit	1AH
		80					5SV3346-6LA01			1	1 unit	1AH
	100	40 ¹⁾	100	4			5SV3347-6LB01			1	1 unit	1AH
		63					5SV3444-6LB01			1	1 unit	1AH
		63 ¹⁾					5SV3444-6LA01			1	1 unit	1AH
		80					5SV3446-6LB01			1	1 unit	1AH
		80					5SV3446-6LA01			1	1 unit	1AH

RCCBs, type A, super resistant

	1P+N; 230 V AC											
	N connection, right											
	30	25	63	2			5SV3312-6KK01			1	1 unit	1AH
		40					5SV3314-6KK01			1	1 unit	1AH
		63	80				5SV3316-6KK01			1	1 unit	1AH
		80					5SV3317-6KK01			1	1 unit	1AH
	300	25	63	2			5SV3612-6KK01			1	1 unit	1AH
		40	80				5SV3614-6KK01			1	1 unit	1AH
	3P+N; 400 V AC											
	N connection, right											
	30	25	100	4			5SV3342-6KK01			1	1 unit	1AH
		40					5SV3344-6KK01			1	1 unit	1AH
		63					5SV3346-6KK01			1	1 unit	1AH
		80					5SV3347-6KK01			1	1 unit	1AH
	300	25	100	4			5SV3642-6KK01			1	1 unit	1AH
		40					5SV3644-6KK01			1	1 unit	1AH
		63					5SV3646-6KK01			1	1 unit	1AH
		80					5SV3647-6KK01			1	1 unit	1AH

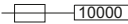
RCCBs, type A, selective

	1P+N; 230 V AC											
	N connection, right											
	100	63	80	2			5SV3416-8			1	1 unit	1AH
	300	25	63	2			5SV3612-8			1	1 unit	1AH
		40					5SV3614-8			1	1 unit	1AH
		63	80				5SV3616-8			1	1 unit	1AH
		80					5SV3617-8			1	1 unit	1AH

¹⁾ Thermal overload protection according to ÖVE/ÖNORM E 8001 possible up to rated current of the RCCB (40 A, 63 A).

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

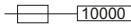
 (Type A)			Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$ mA	I_n A	 10000	MW	d					
	3P+N; 400 V AC											
	N connection, right											
	100	40 40 ¹⁾ 63 63 ¹⁾	100	4	5SV3444-8 5SV3444-8LA 5SV3446-8 5SV3446-8LA	1	1 unit	1AH				
	300	25 40 40 ¹⁾ 63 63 ¹⁾ 80	100	4	5SV3642-8 5SV3644-8 5SV3644-8LA 5SV3646-8 5SV3646-8LA 5SV3647-8	1	1 unit	1AH				
	1000	63	100	4	5SV3846-8	1	1 unit	1AH				
	1P+N; 230 V AC											
	N connection, left											
	300	40 63	63 80	2	5SV3614-8KL 5SV3616-8KL	1	1 unit	1AH				
	3P+N; 400 V AC											
	N connection, left											
	300	63	80	4	5SV3646-8KL	1	1 unit	1AH				
RCCBs, type A, SIGRES, instantaneous												
	1P+N; 230 V AC											
	N connection, right											
	30	16 25 40 63	63 80	2	5SV3311-6KK12 5SV3312-6KK12 5SV3314-6KK12 5SV3316-6KK12	1	1 unit	1AH				
						1	1 unit	1AH				
	3P+N; 400 V AC											
	N connection, right											
	30	25 40 63 80	100	4	5SV3342-6KK12 5SV3344-6KK12 5SV3346-6KK12 5SV3347-6KK12	1	1 unit	1AH				
	300	25 40 63 80	100	4	5SV3642-6KK12 5SV3644-6KK12 5SV3646-6KK12 5SV3647-6KK12	1	1 unit	1AH				
					1	1 unit	1AH					
					1	1 unit	1AH					
					1	1 unit	1AH					
					1	1 unit	1AH					
					1	1 unit	1AH					
					1	1 unit	1AH					
RCCBs, type A, SIGRES, selective [S]												
	3P+N; 400 V AC											
	N connection, right											
	300	63	100	4	5SV3646-8KK12	1	1 unit	1AH				

¹⁾ Thermal overload protection according to ÖVE/ÖNORM E 8001 possible up to rated current of the RCCB (40 A, 63 A).

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

Selection and ordering data

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

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV RCCBs

 (Type A)	 25kV	 D/E	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$ mA	I_n A	 10000	MW	d					
RCCBs, type A, instantaneous												
	1P+N; 24 ... 125 V AC											
	N connection, right											
	30	16	63	2	5SV3311-6KK13	1	1 unit	1AH				
	30	25			5SV3312-6KK13	1	1 unit	1AH				
	30	40			5SV3314-6KK13	1	1 unit	1AH				
	30	63	80		5SV3316-6KK13	1	1 unit	1AH				
	3P+N; 500 V AC											
	N connection, right											
	30	25	63	4	5SV3352-6	1	1 unit	1AH				
	30	40			5SV3354-6	1	1 unit	1AH				
	30	63			5SV3356-6	1	1 unit	1AH				
	30	80	80		5SV3357-6	1	1 unit	1AH				
	300	25	63		5SV3652-6	1	1 unit	1AH				
	300	40			5SV3654-6	1	1 unit	1AH				
	300	63			5SV3656-6	1	1 unit	1AH				
	300	80	80		5SV3657-6	1	1 unit	1AH				
	3P+N; 400 V AC; 400 Hz											
	N connection, right											
	30	25	80	4	5SV3342-6KK03	1	1 unit	1AH				
	30	40			5SV3344-6KK03	1	1 unit	1AH				

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

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 in European countries outside Germany.

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 μ s of more than 1 kA, super resistant devices of more than 3 kA and selective devices 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.

4

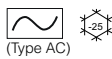
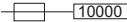
Technical specifications

		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 μ s	Acc. to EN 60060-2 (VDE 0432-2)	kA	> 1
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	$I_n = 100 \text{ A}, 125 \text{ A}$	mm ²	1.5 ... 50
• 4 MW	$I_n = 100 \text{ A}, 125 \text{ A}$	mm ²	2.5 ... 50
Terminal tightening torque			
• $I_n = 100 \text{ A}, 125 \text{ A}$		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 
Resistance to climate		Acc. to IEC 60068-2-30	28 cycles (55 °C; 95% rel. air humidity)
CFC and silicone-free			Yes

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM3 RCCBs

Selection and ordering data

 (Type AC)	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG				
	$I_{\Delta n}$ mA	I_n A	 10000	MW	d									
RCCBs, type AC, instantaneous														
	1P+N; 230 V AC													
	N connection, right													
	30	100	125	2										
		125												
	100	100	125											
		125												
	300	100	125											
		125												
					5SM3318-0KK							1	1 unit	1Al
					5SM3315-0KK							1	1 unit	1Al
					5SM3418-0KK							1	1 unit	1Al
					5SM3415-0KK							1	1 unit	1Al
					5SM3618-0KK							1	1 unit	1Al
					5SM3615-0KK							1	1 unit	1Al
	3P+N; 400 V AC													
	N connection, right													
	30	100	100	4										
		125	125											
		125												
	100	100	100											
		125	125											
		125												
	300	100	100											
		125	125											
		125												
	500	100	100											
		125	125											
					5SM3348-0							1	1 unit	1Al
					5SM3345-0							1	1 unit	1Al
					5SM3448-0							1	1 unit	1Al
					5SM3445-0							1	1 unit	1Al
					5SM3648-0							1	1 unit	1Al
					5SM3645-0							1	1 unit	1Al
					5SM3748-0							1	1 unit	1Al
					5SM3745-0							1	1 unit	1Al
RCCBs, type AC, selective S														
	3P+N, 400 V AC													
	N connection, right													
	300	100	100	4										
					5SM3648-2							1	1 unit	1Al

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM3 RCCBs

Selection and ordering data

 (Type A)	 25kV	 0.5s	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$ mA	I_n A	 10000 A	MW	d					
RCCBs, type A, instantaneous												
	1P+N; 230 V AC; 50 Hz											
	N connection, right											
	30	100	125	125	2		5SM3318-6KK		1	1 unit	1AH	
		125					5SM3315-6KK		1	1 unit	1AH	
	100	100	125	125	2		5SM3418-6KK		1	1 unit	1AH	
	3P+N; 400 V AC; 50 Hz											
	N connection, right											
	30	100	125	100	4	▶	5SM3348-6		1	1 unit	1AH	
		125		125			5SM3345-6		1	1 unit	1AH	
	100	100	125	100	4	▶	5SM3448-6		1	1 unit	1AH	
	RCCBs, type A, selective S											
	3P+N; 400 V AC; 50 Hz											
	N connection, right											
	300	100	125	100	4		5SM3648-8		1	1 unit	1AH	
		125		125			5SM3645-8		1	1 unit	1AH	
	3P+N; 400 V AC; 50 Hz											
	N connection, right											
	300	100	125	100	4		5SM3648-8		1	1 unit	1AH	
		125		125			5SM3645-8		1	1 unit	1AH	
	500	125	125	125	4		5SM3745-8		1	1 unit	1AH	

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

SEQUENCE 5SV3 universal current-sensitive RCCBs, type B and type B+

Overview

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

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

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

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

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

Type B+ residual current protective devices also offer enhanced, preventive 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 two years.

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

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

SIQUENCE 5SV3 universal current-sensitive RCCBs, type B and type B+

Technical specifications

		SIQUENCE, RCCBs, type B/B+ 5SV3	
Standards		IEC/EN 62423 (VDE 0664-40); IEC/EN 61543 (VDE 0664-30); additionally applicable for type B+ DIN VDE 0664-400	
Versions		1P+N/3P+N	
Tripping characteristic		--	
Surge current withstand capability With current waveform 8/20 µs acc. to EN 60060-2 (VDE 0432-2)			
• Super resistant		kA	> 3
• Selective		kA	> 5
Minimum operational voltage for test function operation		V AC	195
Rated voltages U_n		V AC	230/400
Rated frequency f_n		Hz	50 ... 60
Rated currents I_n		A	16, 25, 40, 63, 80
Rated residual currents $I_{\Delta n}$		mA	30, 300, 500
Rated breaking capacity			
• I_m		A	800
• I_{cn}		kA	--
Insulation coordination			
• Overvoltage category			
Conductor cross-sections			
• Solid and stranded		mm ²	0.75 ... 35
• Finely stranded, with end sleeve		mm ²	0.75 ... 25
Terminal tightening torque For all devices		Nm	2.5 ... 3.0
Mains connection			
For the effectiveness of the SIGRES function even when switched off			
Mounting position (on a standard mounting rail)			
Degree of protection according to EN 60529 (VDE 0470-1)			
Touch protection Acc. to EN 50274 (VDE 0660-514)			
Service life Average number of switching cycles			
Storage temperature		°C	-40 ... +75
Ambient temperature		°C	-25 ... +45, marked with 
Resistance to climate acc. to IEC 60068-2-30			
CFC and silicone-free			

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

Thermal protection

Rated current	Rated breaking capacity I_m	Maximum short-circuit back-up fuse SCPD	Maximum thermal back-up fuse – rated current	With minimum conductor cross-section mm ²
A	A	A	A	
25	800	100	25	4
40	800	100	40	10
63	800	100	63	16
80	800	100	80	25

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

SIQUENCE 5SV3 universal current-sensitive RCCBs, type B and type B+

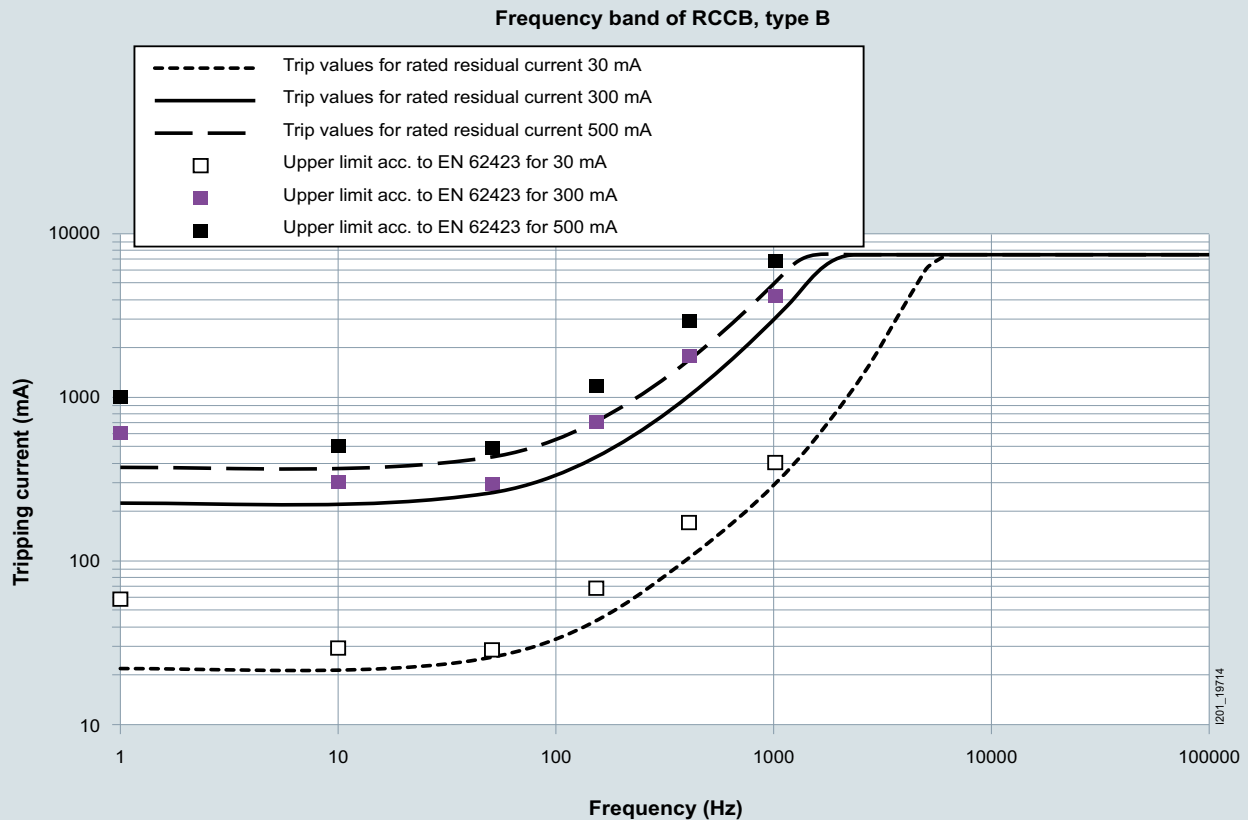
Selection and ordering data

   (Type B/type B+)	Rated residual current	Rated current	Max. permissible short-circuit back-up fuse	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG	
 	$I_{\Delta n}$ mA	I_n A	 10000	MW	d						
SIQUENCE RCCBs, type B super resistant K NEW											
	1P+N; 230 V AC; 50 ... 60 Hz										
	30	16	100	4		5SV3321-4		1	1 unit	1AJ	
		25				5SV3322-4		1	1 unit	1AJ	
		40				5SV3324-4		1	1 unit	1AJ	
		63				5SV3326-4		1	1 unit	1AJ	
	300	16	100	4		5SV3621-4		1	1 unit	1AJ	
		25				5SV3622-4		1	1 unit	1AJ	
		40				5SV3624-4		1	1 unit	1AJ	
		63				5SV3626-4		1	1 unit	1AJ	
	3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
	30	25	100	4		5SV3342-4		1	1 unit	1AJ	
		40				5SV3344-4		1	1 unit	1AJ	
		63				5SV3346-4		1	1 unit	1AJ	
		80				5SV3347-4		1	1 unit	1AJ	
	300	25	100	4		5SV3642-4		1	1 unit	1AJ	
		40				5SV3644-4		1	1 unit	1AJ	
		63				5SV3646-4		1	1 unit	1AJ	
		80				5SV3647-4		1	1 unit	1AJ	
	500	25	100	4		5SV3742-4		1	1 unit	1AJ	
		40				5SV3744-4		1	1 unit	1AJ	
		63				5SV3746-4		1	1 unit	1AJ	
		80				5SV3747-4		1	1 unit	1AJ	
	SIQUENCE RCCBs, type B, selective S NEW										
		3P+N; 230 ... 400 V AC; 50 ... 60 Hz									
300		63	100	4		5SV3646-5		1	1 unit	1AJ	
		80				5SV3647-5		1	1 unit	1AJ	
500		63	100	4		5SV3746-5		1	1 unit	1AJ	
		80				5SV3747-5		1	1 unit	1AJ	
SIQUENCE RCCBs, type B+, super resistant K NEW											
	3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
	30	25	100	4		5SV3342-4KK14		1	1 unit	1AJ	
		40				5SV3344-4KK14		1	1 unit	1AJ	
		63				5SV3346-4KK14		1	1 unit	1AJ	
		80				5SV3347-4KK14		1	1 unit	1AJ	
	300	25	100	4		5SV3642-4KK14		1	1 unit	1AJ	
		40				5SV3644-4KK14		1	1 unit	1AJ	
		63				5SV3646-4KK14		1	1 unit	1AJ	
		80				5SV3647-4KK14		1	1 unit	1AJ	
	SIQUENCE RCCBs, type B+, selective S NEW										
	3P+N; 230 ... 400 V AC; 50 ... 60 Hz										
	300	63	100	4		5SV3646-5KK14		1	1 unit	1AJ	
		80				5SV3647-5KK14		1	1 unit	1AJ	

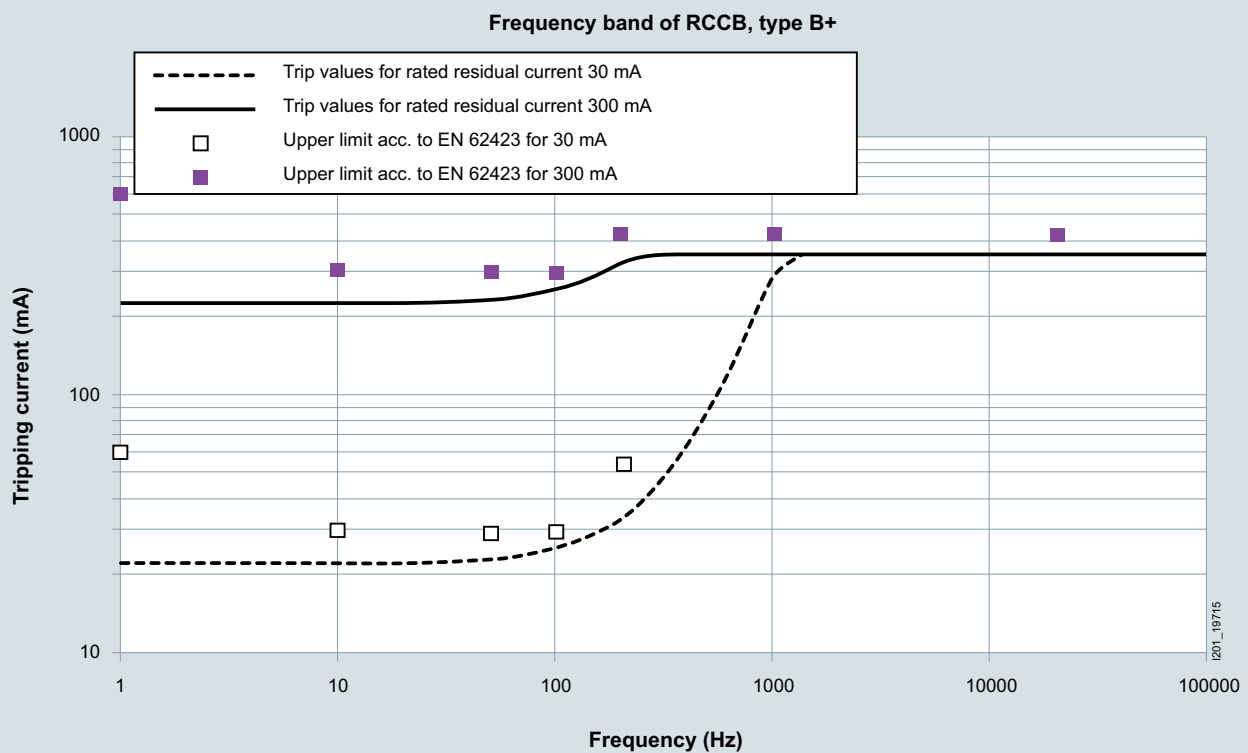
Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

SIQUENCE 5SV3 universal current-sensitive RCCBs, type B and type B+

Characteristic curves



Tripping current as a function of frequency for type B



Tripping current as a function of frequency for type B+

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

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.

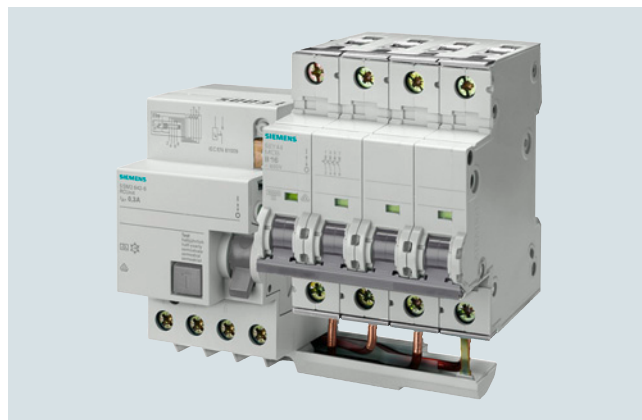
RC units are combined with miniature circuit breakers with A, B, C and D characteristics, provided that these are available in the MCB range. The two components are simply plugged together without the need for any tools.

They then form a combination of RCCB and miniature circuit breaker 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 μ s of more than 1 kA, super resistant devices of more than 3 kA and selective devices 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.



Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM2 RC units

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 Acc. to EN 60060-2 (VDE 0432-2)		
- Type A with current waveform 8/20 μs - 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 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 1.0 ... 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 
Resistance to climate Acc. to IEC 60068-2-30		28 cycles (55 °C; 95% rel. air humidity)
CFC and silicone-free		Yes

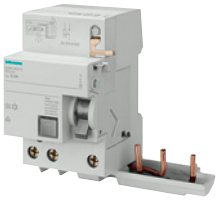
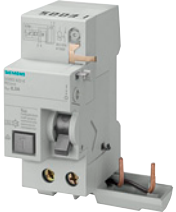
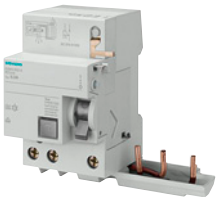
Power losses per conducting path under rated current load

Number of poles	Rated current	Rated residual current $I_{\Delta n}$ [A]	Power losses 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

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM2 RC units

Selection and ordering data

 (Type AC)	Rated residual current	Rated current	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
	$I_{\Delta n}$ mA	I_n A	MW	d					
RC units, type AC, instantaneous									
For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SL30 and 5SY60..									
	2P; 230 ... 400 V AC								
	10 ¹⁾	0.3 ... 40	2		5SM2121-0		1	1 unit	1Al
	30				5SM2322-0		1	1 unit	1Al
	300				5SM2622-0		1	1 unit	1Al
	30	0.3 ... 63			5SM2325-0		1	1 unit	1Al
	300				5SM2625-0		1	1 unit	1Al
	3P; 230 ... 400 V AC								
	30	0.3 ... 40	3		5SM2332-0		1	1 unit	1Al
	300				5SM2632-0		1	1 unit	1Al
	30	0.3 ... 63			5SM2335-0		1	1 unit	1Al
	300				5SM2635-0		1	1 unit	1Al
	500				5SM2735-0		1	1 unit	1Al
	4P; 230 ... 400 V AC								
	30	0.3 ... 40	3	▶	5SM2342-0		1	1 unit	1Al
	300			▶	5SM2642-0		1	1 unit	1Al
	30	0.3 ... 63			5SM2345-0		1	1 unit	1Al
	300				5SM2645-0		1	1 unit	1Al
	500				5SM2745-0		1	1 unit	1Al
For 5SL4 miniature circuit breakers									
	2P; 230 ... 400 V AC								
	30	0.3 ... 40	2		5SM2323-0		1	1 unit	1Al
	300				5SM2623-0		1	1 unit	1Al
	30	0.3 ... 63			5SM2326-0		1	1 unit	1Al
	300				5SM2626-0		1	1 unit	1Al
	3P; 230 ... 400 V AC								
	30	0.3 ... 40	3		5SM2333-0		1	1 unit	1Al
	300				5SM2633-0		1	1 unit	1Al
	30	0.3 ... 63			5SM2336-0		1	1 unit	1Al
	300				5SM2636-0		1	1 unit	1Al
	4P; 230 ... 400 V AC								
	30	0.3 ... 40	3		5SM2343-0		1	1 unit	1Al
	300				5SM2643-0		1	1 unit	1Al
	30	0.3 ... 63			5SM2346-0		1	1 unit	1Al
	300				5SM2646-0		1	1 unit	1Al

¹⁾ 5SM2 RC units with $I_{\Delta n} = 10 \text{ mA}$ can be combined with switches $I_n = 16 \text{ A}$

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM2 RC units

 (Type AC)	Rated residual current	Rated current	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
	$I_{\Delta n}$ mA	I_n A	MW	d					

RC units, type AC, selective 

For 5SY miniature circuit breakers,
not suitable for use with 5SY5, 5SL30 and 5SY60..

2P; 230 ... 400 V AC

300	0.3 ... 40	2	5SM2622-2	1	1 unit	1Al
300	0.3 ... 63		5SM2625-2	1	1 unit	1Al

**4P; 230 ... 400 V AC**

300	0.3 ... 63	3	5SM2645-2	1	1 unit	1Al
1000			5SM2845-2	1	1 unit	1Al



For 5SL4 miniature circuit breakers

2P; 230 ... 400 V AC

300	0.3 ... 40	2	5SM2623-2	1	1 unit	1Al
	0.3 ... 63		5SM2626-2	1	1 unit	1Al

**4P; 230 ... 400 V AC**

300	0.3 ... 63	4	5SM2646-2	1	1 unit	1Al
-----	------------	---	------------------	---	--------	-----

RC units, type AC, instantaneous



For 5SP4 miniature circuit breakers
(B and C characteristics)

2P; 230 ... 400 V AC

30	80 ... 100	3.5	5SM2327-0	1	1 unit	1Al
300			5SM2627-0	1	1 unit	1Al

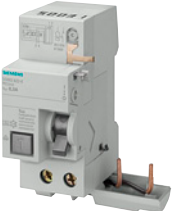
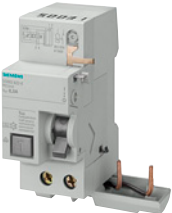
**4P; 230 ... 400 V AC**

30	80 ... 100	5	5SM2347-0	1	1 unit	1Al
300			5SM2647-0	1	1 unit	1Al

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM2 RC units

Selection and ordering data

 (Type A)			Rated residual current	Rated current	Mounting width	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$ mA	I_n A	MW	d					
RC units, type A, instantaneous											
For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY60...											
2P; 230 V AC											
	10		0.3 ... 16		2		5SM2121-6		1	1 unit	1AH
	30		0.3 ... 40				5SM2322-6		1	1 unit	1AH
	300						5SM2622-6		1	1 unit	1AH
	30		0.3 ... 63				5SM2325-6		1	1 unit	1AH
	100						5SM2425-6		1	1 unit	1AH
	300						5SM2625-6		1	1 unit	1AH
500						5SM2725-6		1	1 unit	1AH	
3P, 400 V AC											
	30		0.3 ... 40		3		5SM2332-6		1	1 unit	1AH
	300						5SM2632-6		1	1 unit	1AH
	30		0.3 ... 63				5SM2335-6		1	1 unit	1AH
	100						5SM2435-6		1	1 unit	1AH
	300						5SM2635-6		1	1 unit	1AH
	500						5SM2735-6		1	1 unit	1AH
4P; 400 V AC											
	30		0.3 ... 40		3		5SM2342-6		1	1 unit	1AH
	300						5SM2642-6		1	1 unit	1AH
	30		0.3 ... 63				5SM2345-6		1	1 unit	1AH
	100						5SM2445-6		1	1 unit	1AH
	300						5SM2645-6		1	1 unit	1AH
	500						5SM2745-6		1	1 unit	1AH
For 5SL4 miniature circuit breakers											
2P; 230 V AC											
	30		0.3 ... 40		2		5SM2323-6		1	1 unit	1AH
	300						5SM2623-6		1	1 unit	1AH
	30		0.3 ... 63				5SM2326-6		1	1 unit	1AH
	300						5SM2626-6		1	1 unit	1AH
3P, 400 V AC											
	30		0.3 ... 40		3		5SM2333-6		1	1 unit	1AH
	300						5SM2633-6		1	1 unit	1AH
	30		0.3 ... 63				5SM2336-6		1	1 unit	1AH
	300						5SM2636-6		1	1 unit	1AH
4P; 400 V AC											
	30		0.3 ... 40		3		5SM2343-6		1	1 unit	1AH
	300						5SM2643-6		1	1 unit	1AH
	30		0.3 ... 63				5SM2346-6		1	1 unit	1AH
	300						5SM2646-6		1	1 unit	1AH

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

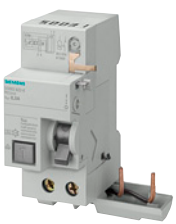
5SM2 RC units

 (Type A)			Rated residual current	Rated current	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$ mA	I_n A	MW	d					
For 5SP4 miniature circuit breakers (B and C characteristics)											
2P; 230 V AC											
			30	80 ... 100	3.5		5SM2327-6		1	1 unit	1AH
			300				5SM2627-6		1	1 unit	1AH
4P; 400 V AC											
			30	80 ... 100	5		5SM2347-6		1	1 unit	1AH
			300				5SM2647-6		1	1 unit	1AH

RC units, type A, super resistant **[K]**

For 5SY miniature circuit breakers,
not suitable for use with 5SY5, 5SY8 and 5SY60...

2P; 230 V AC

	30	0.3 ... 40	2	5SM2322-6KK01	1	1 unit	1AH
	30	0.3 ... 63		5SM2325-6KK01	1	1 unit	1AH

3P, 400 V AC

	30	0.3 ... 40	3	5SM2332-6KK01	1	1 unit	1AH
	30	0.3 ... 63		5SM2335-6KK01	1	1 unit	1AH

4P; 400 V AC

	30	0.3 ... 40	3	5SM2342-6KK01	1	1 unit	1AH
	30	0.3 ... 63		5SM2345-6KK01	1	1 unit	1AH

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM2 RC units

 (Type A)			Rated residual current	Rated current	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$ mA	I_n A	MW	d					

RC units, type A, selective

For 5SY miniature circuit breakers,
not suitable for use with 5SY5, 5SY8 and 5SY60...

2P; 230 ... 400 V AC

300 0.3 ... 40

1000 0.3 ... 63

300 0.3 ... 63

1000 0.3 ... 63

3P, 230 ... 400 V AC

1000 0.3 ... 40

300 0.3 ... 63

500 0.3 ... 63

1000 0.3 ... 63

4P; 230 ... 400 V AC

1000 0.3 ... 40

300 0.3 ... 63

500 0.3 ... 63

1000 0.3 ... 63

For 5SL4 miniature circuit breakers**2P; 230 ... 400 V AC**

300 0.3 ... 40

300 0.3 ... 63

3P, 230 ... 400 V AC

300 0.3 ... 63

4P; 230 ... 400 V AC

300 0.3 ... 63

5SM2622-8**5SM2822-8****5SM2625-8****5SM2825-8****5SM2832-8****5SM2635-8****5SM2735-8****5SM2835-8****5SM2842-8****5SM2645-8****5SM2745-8****5SM2845-8****5SM2623-8****5SM2626-8****5SM2636-8****5SM2646-8**

1

1

1

1

1

1

1

1

1

1

1

1

1 unit

1 unit

1 unit

1 unit

1 unit

1 unit

1 unit

1 unit

1 unit

1 unit

1 unit

1 unit

1AH

1AH

1AH

1AH

1AH

1AH

1AH

1AH

1AH

1AH

1AH

1AH

1AH

1AH

1AH

1AH



Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM2 RC units

 (Type A)			Rated residual current	Rated current	Mounting width	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$ mA	I_n A	MW	d					
For 5SP4 miniature circuit breakers (B and C characteristics)											
2P; 125 ... 230 V AC											
			300	80 ... 100	3.5		5SM2627-8		1	1 unit	1AH
			1000	80 ... 100	3.5		5SM2827-8		1	1 unit	1AH
4P; 230 ... 400 V AC											
			300	80 ... 100	5		5SM2647-8		1	1 unit	1AH
			1000				5SM2847-8		1	1 unit	1AH

RC units, type F, super resistant

	For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY60...										
	2P; 230 V AC										
			30	0.3 ... 40	2		5SM2322-3		1	1 unit	1AH
			30	0.3 ... 63	2		5SM2325-3		1	1 unit	1AH

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SU1 RCBOs

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, 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 conductors 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.

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SU1 RCBOs

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 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	4.5 / 6 / 10	10
Energy limitation class		3	--
Surge current withstand capability type A			
• With current waveform 8/20 μ s 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 μ s		kA	> 3
Minimum voltage for operation of the test equipment		V AC	195
Insulation coordination			
• Overvoltage category			
Pollution degree			
Terminal conductor cross-sections			
• Solid and stranded		mm ²	0.75 ... 35
• Finely stranded with end sleeve		mm ²	0.75 ... 25
Terminal tightening torque		Nm	2.5 ... 3.0
Mains connection			
Mounting position (on a standard mounting rail)			
Degree of protection			
Acc. to EN 60529 (VDE 0470-1)			
Touch protection			
Acc. to EN 50274 (VDE 0660-514)			
Service life			
Average number of switching cycles			
Storage temperature			
°C			
Ambient temperature			
°C			
Resistance to climate			
Acc. to IEC 60068-2-30			
CFC and silicone-free			

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 losses per conducting path P_v [W]	
		Characteristic B	Characteristic C
6	10	2.8	2.2
	30 ... 300	2.7	1.9
8	10	--	1.2
	30 ... 300	2.4	2.2
10	10	1.8	1.6
	30 ... 300	3.5	3.3
13	10	2.4	2.2
	30 ... 300	4.7	4.5
16	10	3.0	2.8
	30 ... 300	3.7	3.3
20	10	5.1	5.1
	30 ... 300	5.7	5.7
25	10	7.8	7.8
	30 ... 300		
32	10		
	30 ... 300		
40	10		
	30 ... 300		

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SU1 RCBOs

Selection and ordering data

			Rated residual current	Rated current	Mounting width	SD	Tripping characteristic B		PU (UNIT, SET, M)	PS	PG	SD	Tripping characteristic C		PU (UNIT, SET, M)	PS	PG
(Type AC)			$I_{\Delta n}$	I_n		d	Article No.	Price per PU				d	Article No.	Price per PU			
			mA	A	MW		www.siemens.com/product?Article No.						www.siemens.com/product?Article No.				

RCBOs, type AC, instantaneous

1P + N; 230 V AC

6 000
3

N connection, right

30	6	2	5SU1356-0KK06	1	1 unit	1BB	5SU1356-1KK06	1	1 unit	1BB
	8		—				5SU1356-1KK08	1	1 unit	1BB
	10		5SU1356-0KK10	1	1 unit	1BB	5SU1356-1KK10	1	1 unit	1BB
	13		5SU1356-0KK13	1	1 unit	1BB	5SU1356-1KK13	1	1 unit	1BB
	16		5SU1356-0KK16	1	1 unit	1BB	5SU1356-1KK16	1	1 unit	1BB
Bulk packaging 36 units			—				5SU1356-1GV16	1	36 units	1BB
	20		5SU1356-0KK20	1	1 unit	1BB	5SU1356-1KK20	1	1 unit	1BB
	25		5SU1356-0KK25	1	1 unit	1BB	5SU1356-1KK25	1	1 unit	1BB
	32		5SU1356-0KK32	1	1 unit	1BB	5SU1356-1KK32	1	1 unit	1BB
	40		5SU1356-0KK40	1	1 unit	1BB	5SU1356-1KK40	1	1 unit	1BB
300	6	2	5SU1656-0KK06	1	1 unit	1BB	5SU1656-1KK06	1	1 unit	1BB
	10		5SU1656-0KK10	1	1 unit	1BB	5SU1656-1KK10	1	1 unit	1BB
	13		5SU1656-0KK13	1	1 unit	1BB	5SU1656-1KK13	1	1 unit	1BB
	16		5SU1656-0KK16	1	1 unit	1BB	5SU1656-1KK16	1	1 unit	1BB
	20		5SU1656-0KK20	1	1 unit	1BB	5SU1656-1KK20	1	1 unit	1BB
	25		5SU1656-0KK25	1	1 unit	1BB	5SU1656-1KK25	1	1 unit	1BB
	32		5SU1656-0KK32	1	1 unit	1BB	5SU1656-1KK32	1	1 unit	1BB
	40		5SU1656-0KK40	1	1 unit	1BB	5SU1656-1KK40	1	1 unit	1BB

1P + N; 230 V AC

10 000
3

30	6	2	5SU1354-0KK06	1	1 unit	1BB	5SU1354-1KK06	1	1 unit	1BB
	8		—				5SU1354-1KK08	1	1 unit	1BB
	10		5SU1354-0KK10	1	1 unit	1BB	5SU1354-1KK10	1	1 unit	1BB
	13		5SU1354-0KK13	1	1 unit	1BB	5SU1354-1KK13	1	1 unit	1BB
	16		5SU1354-0KK16	1	1 unit	1BB	5SU1354-1KK16	1	1 unit	1BB
	20		5SU1354-0KK20	1	1 unit	1BB	5SU1354-1KK20	1	1 unit	1BB
	25		5SU1354-0KK25	1	1 unit	1BB	5SU1354-1KK25	1	1 unit	1BB
	32		5SU1354-0KK32	1	1 unit	1BB	5SU1354-1KK32	1	1 unit	1BB
	40		5SU1354-0KK40	1	1 unit	1BB	5SU1354-1KK40	1	1 unit	1BB
100	6	2	—				5SU1454-1KK06	1	1 unit	1BB
	10		—				5SU1454-1KK10	1	1 unit	1BB
	13		—				5SU1454-1KK13	1	1 unit	1BB
	16		—				5SU1454-1KK16	1	1 unit	1BB
	20		—				5SU1454-1KK20	1	1 unit	1BB
	25		—				5SU1454-1KK25	1	1 unit	1BB
	32		—				5SU1454-1KK32	1	1 unit	1BB
	40		—				5SU1454-1KK40	1	1 unit	1BB
300	6	2	5SU1654-0KK06	1	1 unit	1BB	5SU1654-1KK06	1	1 unit	1BB
	10		5SU1654-0KK10	1	1 unit	1BB	5SU1654-1KK10	1	1 unit	1BB
	13		5SU1654-0KK13	1	1 unit	1BB	5SU1654-1KK13	1	1 unit	1BB
	16		5SU1654-0KK16	1	1 unit	1BB	5SU1654-1KK16	1	1 unit	1BB
	20		5SU1654-0KK20	1	1 unit	1BB	5SU1654-1KK20	1	1 unit	1BB
	25		5SU1654-0KK25	1	1 unit	1BB	5SU1654-1KK25	1	1 unit	1BB
	32		5SU1654-0KK32	1	1 unit	1BB	5SU1654-1KK32	1	1 unit	1BB
	40		5SU1654-0KK40	1	1 unit	1BB	5SU1654-1KK40	1	1 unit	1BB

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SU1 RCBOs

 (Type AC)			Rated residual current $I_{\Delta n}$ mA	Rated current I_n A	Mounting width MW	SD d	Tripping characteristic B Article No. www.siemens.com/product?Article No. Price per PU	PU (UNIT, SET, M)	PS	PG	SD d	Tripping characteristic C Article No. www.siemens.com/product?Article No. Price per PU	PU (UNIT, SET, M)	PS	PG
---	---	---	--	-----------------------------	----------------------	---------	---	----------------------	----	----	---------	---	----------------------	----	----

RCBOs, type AC, short-time delayed 

1P+N; 230 V AC

10 000

3

30	10	2	5SU1354-0LB10	1	1 unit	1BB	5SU1354-1LB10	1	1 unit	1BB
	13		5SU1354-0LB13	1	1 unit	1BB	5SU1354-1LB13	1	1 unit	1BB
	16		5SU1354-0LB16	1	1 unit	1BB	5SU1354-1LB16	1	1 unit	1BB
	20		5SU1354-0LB20	1	1 unit	1BB	5SU1354-1LB20	1	1 unit	1BB
	25		5SU1354-0LB25	1	1 unit	1BB	5SU1354-1LB25	1	1 unit	1BB
	32		5SU1354-0LB32	1	1 unit	1BB	5SU1354-1LB32	1	1 unit	1BB
	40		5SU1354-0LB40	1	1 unit	1BB	5SU1354-1LB40	1	1 unit	1BB

RCBOs, type AC, instantaneous



2P; 400 V AC

10 000

30	125	6.5	5SU1324-0KK82	1	1 unit	1BB	5SU1324-1KK82	1	1 unit	1BB
300	125		5SU1624-0KK82	1	1 unit	1BB	5SU1624-1KK82	1	1 unit	1BB



4P; 400 V AC

10 000

30	125	11	5SU1344-0KK82	1	1 unit	1BB	5SU1344-1KK82	1	1 unit	1BB
300	125		5SU1644-0KK82	1	1 unit	1BB	5SU1644-1KK82	1	1 unit	1BB

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SU1 RCBOs

Selection and ordering data

 (Type A)		Rated residual current	Rated current	Mounting width	SD	Tripping characteristic B					SD	Tripping characteristic C				
						Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG		Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		$I_{\Delta n}$ mA	I_n A	MW	d						d					

RCBOs, type A, instantaneous

1P+N; 230 V AC



4 500
3

N connection, right

30	6	2	--
	8		--
	10		--
	13		--
	16		--
	20		--
	25		--
	32		--
	40		--
300	6	2	--
	10		--
	13		--
	16		--
	20		--
	25		--
	32		--
	40		--
N connection, left			
30	6	2	--
	10		--
	16		--
	20		--
	25		--
	32		--
	40		--

5SU1353-7KK06	1	1 unit	1BC
5SU1353-7KK08	1	1 unit	1BC
5SU1353-7KK10	1	1 unit	1BC
5SU1353-7KK13	1	1 unit	1BC
5SU1353-7KK16	1	1 unit	1BC
5SU1353-7KK20	1	1 unit	1BC
5SU1353-7KK25	1	1 unit	1BC
5SU1353-7KK32	1	1 unit	1BC
5SU1353-7KK40	1	1 unit	1BC
5SU1653-7KK06	1	1 unit	1BC
5SU1653-7KK10	1	1 unit	1BC
5SU1653-7KK13	1	1 unit	1BC
5SU1653-7KK16	1	1 unit	1BC
5SU1653-7KK20	1	1 unit	1BC
5SU1653-7KK25	1	1 unit	1BC
5SU1653-7KK32	1	1 unit	1BC
5SU1653-7KK40	1	1 unit	1BC
5SU1353-7KL06	1	1 unit	1BC
5SU1353-7KL10	1	1 unit	1BC
5SU1353-7KL16	1	1 unit	1BC
5SU1353-7KL20	1	1 unit	1BC
5SU1353-7KL25	1	1 unit	1BC
5SU1353-7KL32	1	1 unit	1BC
5SU1353-7KL40	1	1 unit	1BC

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SU1 RCBOs

Selection and ordering data

 (Type A)			Rated residual current	Rated current	Mounting width	SD	Tripping characteristic B				SD	Tripping characteristic C					
			$I_{\Delta n}$ mA	I_n A			Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG		Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
RCBOs, type A, instantaneous																	
1P+N; 230 V AC																	
																	
6 000																	
3																	
N connection, right																	
30 6 2																	
Bulk packaging 36 units 																	
8																	
10																	
Bulk packaging 36 units																	
13																	
16																	
Bulk packaging 36 units																	
20																	
25																	
32																	
40																	
300 6 2																	
10																	
13																	
16																	
20																	
25																	
32																	
40																	
1P+N; 230 V AC																	
																	
10 000																	
3																	
10 6 2																	
10																	
13																	
16																	
Bulk packaging 36 units 																	
8																	
Bulk packaging 36 units																	
13																	
16																	
Bulk packaging 36 units																	
20																	
25																	
32																	
40																	
300 6 2																	
10																	
13																	
16																	
20																	
25																	
32																	
40																	
2P; 230 V AC																	
																	
10 000																	
3																	
30 6 3																	
10																	
13																	
16																	
Bulk packaging 36 units																	
20																	
25																	
32																	
40																	

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SU1 RCBOs

 (Type A)			Rated residual current	Rated current	Mounting width	SD	Tripping characteristic B				SD	Tripping characteristic C					
							Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS		PG	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
			$I_{\Delta n}$ mA	I_n A	MW	d					d						
	2P; 110 V AC																
	10 000 3																
	30	6	3	5SU1324-6KX06	1	1 unit	1BC	5SU1324-7KX06	1	1 unit	1BC						
		10		5SU1324-6KX10	1	1 unit	1BC	5SU1324-7KX10	1	1 unit	1BC						
		13		5SU1324-6KX13	1	1 unit	1BC	5SU1324-7KX13	1	1 unit	1BC						
		16		5SU1324-6KX16	1	1 unit	1BC	5SU1324-7KX16	1	1 unit	1BC						
		20		5SU1324-6KX20	1	1 unit	1BC	5SU1324-7KX20	1	1 unit	1BC						
		25		5SU1324-6KX25	1	1 unit	1BC	5SU1324-7KX25	1	1 unit	1BC						
		32		5SU1324-6KX32	1	1 unit	1BC	5SU1324-7KX32	1	1 unit	1BC						
		40		5SU1324-6KX40	1	1 unit	1BC	5SU1324-7KX40	1	1 unit	1BC						
	2P; 400 V AC																
	10 000																
	30	125	6.5	5SU1324-6KK82	1	1 unit	1BC	5SU1324-7KK82	1	1 unit	1BC						
	300	125	5SU1624-6KK82	1	1 unit	1BC	5SU1624-7KK82	1	1 unit	1BC							
	4P; 400 V AC																
	10 000																
	30	125	11	5SU1344-6KK82	1	1 unit	1BC	5SU1344-7KK82	1	1 unit	1BC						
	300	125	5SU1644-6KK82	1	1 unit	1BC	5SU1644-7KK82	1	1 unit	1BC							
RCBOs, type A, short-time delayed  , super resistant 																	
	1P+N; 230 V AC																
	10 000 3																
	30	10	2	5SU1354-6LB10	1	1 unit	1BC	5SU1354-7LB10	1	1 unit	1BC						
		13		5SU1354-6LB13	1	1 unit	1BC	5SU1354-7LB13	1	1 unit	1BC						
		16		5SU1354-6LB16	1	1 unit	1BC	5SU1354-7LB16	1	1 unit	1BC						
		20		5SU1354-6LB20	1	1 unit	1BC	5SU1354-7LB20	1	1 unit	1BC						
		25		5SU1354-6LB25	1	1 unit	1BC	5SU1354-7LB25	1	1 unit	1BC						
		32		5SU1354-6LB32	1	1 unit	1BC	5SU1354-7LB32	1	1 unit	1BC						
		40		5SU1354-6LB40	1	1 unit	1BC	5SU1354-7LB40	1	1 unit	1BC						
	RCBOs, type A, selective 																
	2P; 400 V AC																
	10 000																
	300	125	6.5	5SU1624-6WK82	1	1 unit	1BC	5SU1624-7WK82	1	1 unit	1BC						
	4P; 400 V AC																
	10 000																
	300	125	11	5SU1644-6WK82	1	1 unit	1BC	5SU1644-7WK82	1	1 unit	1BC						
	1000	125		5SU1844-6WK82	1	1 unit	1BC	5SU1844-7WK82	1	1 unit	1BC						

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SU1 RCBOs

 (Type A)			Rated residual current	Rated current	Mounting width	SD	Tripping characteristic B		PU	PS	PG	SD	Tripping characteristic C		PU	PS	PG
			$I_{\Delta n}$ mA	I_n A	MW	d	Article No. www.siemens.com/product?Article No.	Price per PU	(UNIT, SET, M)			d	Article No. www.siemens.com/product?Article No.	Price per PU	(UNIT, SET, M)		

RCBOs, type F, super resistant



1P+N; 230 V AC

10 000
3

30	6	2
	10	
	13	
	16	
	20	
	25	
	32	
	40	

5SU1354-3KK06	1	1 unit	1BC
5SU1354-3KK10	1	1 unit	1BC
5SU1354-3KK13	1	1 unit	1BC
5SU1354-3KK16	1	1 unit	1BC
5SU1354-3KK20	1	1 unit	1BC
5SU1354-3KK25	1	1 unit	1BC
5SU1354-3KK32	1	1 unit	1BC
5SU1354-3KK40	1	1 unit	1BC

5SU1354-4KK06	1	1 unit	1BC
5SU1354-4KK10	1	1 unit	1BC
5SU1354-4KK13	1	1 unit	1BC
5SU1354-4KK16	1	1 unit	1BC
5SU1354-4KK20	1	1 unit	1BC
5SU1354-4KK25	1	1 unit	1BC
5SU1354-4KK32	1	1 unit	1BC
5SU1354-4KK40	1	1 unit	1BC

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

NEW 5SV1 compact RCBOs

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.

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.

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

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.

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.

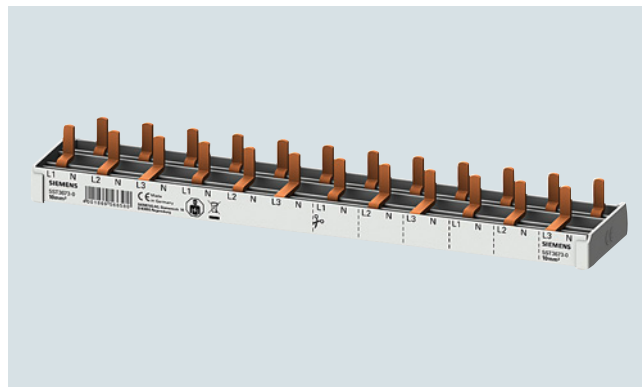
Benefits



5SV1 RCBO, only 1 MW

World's smallest electromechanical RCBO, only 1 MW:

- The narrow design only 18 mm in width makes the RCBO ideally suited for new builds as well as the retrofit market, e.g. in old installations.
- In new builds, the space saving of 50% compared to the version 2 MW in width means that more compact sub-circuit distribution boards can be implemented, and these are frequently more cost-effective as a result.
- This is particularly useful for projects in which many circuits need to be equipped with separate residual current protection, as smaller sub-circuit distribution boards can be installed, resulting in significant cost savings.
- In old installations, it is very easy to replace the existing 1-pole miniature circuit breakers with a 5SV1 RCBO which is only 1 MW wide (without needing any additional space in the sub-circuit distribution board).
- This replacement increases the protection level in the circuits by affording additional personnel safety.
- The devices can even be conveniently bus-mounted and connected in small distribution boards thanks to the new compact 5ST pin busbars.
- A wide range of accessories, such as auxiliary switches, fault signal contacts, arc fault detection devices and pin busbars, are available for the new compact 5SV1 RCBOs.
- Combining the RCBO with a 5SM6 arc fault detection device gives you a system only 2 MW in width which comprises protection against residual currents, overload/short circuit and arcing faults. This combination offers optimum protection for personnel and assets.



Pin busbar for 5SV1 / 5SV6 / 5S..0 compact devices

- Compact pin busbar system for quick connection of compact devices 1P+N in 1 MW.
- The narrow design of the busbars makes it very easy to connect up the devices, even in small distribution boards.
- The new and innovative design of the compact pin busbar system makes infeed possible at any point in the busbar assembly, even without the use of additional feeder terminals.
- The lengths can be flexibly adapted to requirements, as the 5ST37 pin busbars can be cut.

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV1 compact RCBOs **NEW**

Technical specifications

5SV1		
Standards	IEC/EN 61009-1 (VDE 0664-20); IEC/EN 61009-2-1 (VDE 0664-21)	
RCD working principle	Electromechanical (independent of voltage)	
Rated voltages U_n	V AC	230
Rated currents I_n	A	2, 4, 6, 10, 13, 16
Rated residual currents $I_{\Delta n}$	mA	30
Rated breaking capacity	kA	6
Energy limitation class	3	
Surge current withstand capability type A		
• With current waveform 8/20 μ s	Acc. to EN 60060-2 (VDE 0432-2)	kA
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 ... 16
• Finely stranded with end sleeve	mm ²	0.75 ... 10
Terminal tightening torque	Nm	1.2 ... 2
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
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
Resistance to climate	Acc. to IEC 60068-2-30	28 cycles (55 °C; 95% rel. air humidity)
CFC and silicone-free	Yes	

Selection and ordering data

	Rated residual current	Rated current	Mounting width	SD	Tripping characteristic B		PU (UNIT, SET, M)	PS	PG	SD	Tripping characteristic C		PU (UNIT, SET, M)	PS	PG
	$I_{\Delta n}$ mA	I_n A	MW	d	Article No. www.siemens.com/ product?Article No.	Price per PU				d	Article No. www.siemens.com/ product?Article No.	Price per PU			

Compact RCBOs, type AC, instantaneous

1P+N; 230 V AC, 50 Hz



6 000

3

N connection, right
30

2	1
4	1
6	1
10	1
13	1
16	1

--
--
5SV1316-0KK06
5SV1316-0KK10
5SV1316-0KK13
5SV1316-0KK16

1	1 unit	1BB
1	1 unit	1BB
1	1 unit	1BB
1	1 unit	1BB
1	1 unit	1BB

5SV1316-1KK02
5SV1316-1KK04
5SV1316-1KK06
5SV1316-1KK10
5SV1316-1KK13
5SV1316-1KK16

1	1 unit	1BB
1	1 unit	1BB
1	1 unit	1BB
1	1 unit	1BB
1	1 unit	1BB

Compact RCBOs, type A, instantaneous

1P+N; 230 V AC, 50 Hz



6 000

3

N connection, right
30

2	1
4	1
6	1
10	1
13	1
16	1

--
--
5SV1316-6KK06
5SV1316-6KK10
5SV1316-6KK13
5SV1316-6KK16

1	1 unit	1BC
1	1 unit	1BC
1	1 unit	1BC
1	1 unit	1BC
1	1 unit	1BC

5SV1316-7KK02
5SV1316-7KK04
5SV1316-7KK06
5SV1316-7KK10
5SV1316-7KK13
5SV1316-7KK16

1	1 unit	1BC
1	1 unit	1BC
1	1 unit	1BC
1	1 unit	1BC
1	1 unit	1BC

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SV1 compact RCBOs

Selection and ordering data

	Rated residual current	Rated current	Mounting width	SD	Tripping characteristic B		PU (UNIT, SET, M)	PS	PG	Tripping characteristic C		PU (UNIT, SET, M)	PS	PG
	$I_{\Delta n}$	I_n			Article No.	Price € per PU				Article No.	Price € per PU			
	mA	A	MW	d	www.siemens.com/product?ArticleNo.					www.siemens.com/product?ArticleNo.				

Compact RCBOs, type AC, instantaneous

1P + N, 230 V AC, 50 Hz



4 500

3

N connection on the right

30	2	1	--
	4	1	--
	6	1	--
	10	1	--
	13	1	--
	16	1	--

5SV1313-1KK02	1	1 unit	1BB
5SV1313-1KK04	1	1 unit	1BB
5SV1313-1KK06	1	1 unit	1BB
5SV1313-1KK10	1	1 unit	1BB
5SV1313-1KK13	1	1 unit	1BB
5SV1313-1KK16	1	1 unit	1BB

Compact RCBOs, type A, instantaneous

1P + N, 230 V AC, 50 Hz



4 500

3

N connection on the right

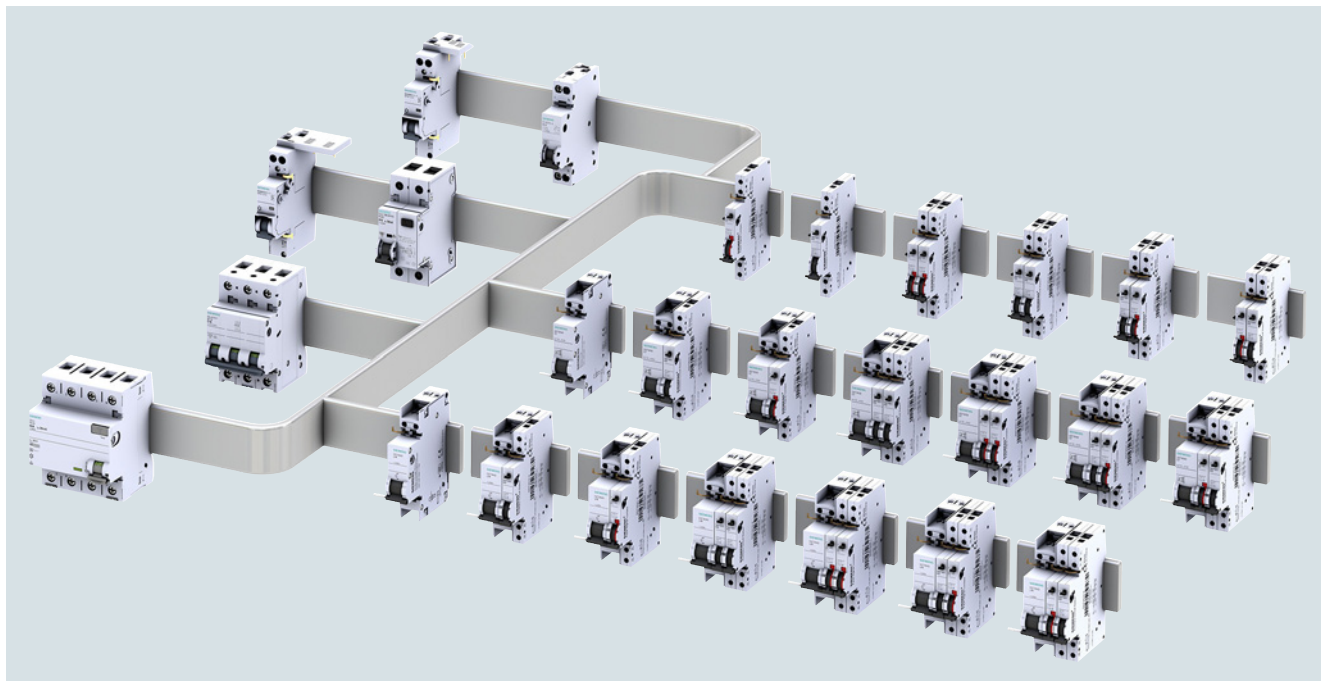
30	2	1	--
	4	1	--
	6	1	5SV1313-6KK06
	10	1	5SV1313-6KK10
	13	1	5SV1313-6KK13
	16	1	5SV1313-6KK16

1	1 unit	1BC
1	1 unit	1BC
1	1 unit	1BC
1	1 unit	1BC

5SV1313-7KK02	1	1 unit	1BC
5SV1313-7KK04	1	1 unit	1BC
5SV1313-7KK06	1	1 unit	1BC
5SV1313-7KK10	1	1 unit	1BC
5SV1313-7KK13	1	1 unit	1BC
5SV1313-7KK16	1	1 unit	1BC

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

4



Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

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) according 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.

Combined auxiliary switch (AS) and fault signal contact (FC)

The combined auxiliary switch and fault signal contact unites the properties of both switches in a width of only 0.5 MW (9 mm). The mode of operation of each function is described above.

Remote controlled mechanisms (RC)

Remote controlled mechanisms are used for the remote ON/OFF switching of miniature circuit breakers with or without RC unit, residual current operated circuit breakers, RCBOs or distribution board flush-mounting circuit breakers and also enable local manual switching of these devices.

The device combination with the automatic reclosing device (ARD) types tries up to three times to switch on again in the event of a fault. If a fault continues to exist, the combination remains switched off. The remote controlled mechanism has a mode selector switch with the functions: "OFF", "RC OFF" and "RC ON".

Explanation of selector switch positions:

- OFF (for the 177 - 270 V devices): The remote controlled mechanism Power is switched off, blocked mechanically and can be sealed and/or locked.
- RC OFF: Only manual operation is possible.
- RC ON: Both manual and remote operation are possible (except for in the case of the basic 12 - 48 V devices).

In the event that a device is tripped by a fault, the handle of the basic device and remote controlled mechanism switches to the OFF position. If, depending on the device version, the combination has switched off, an attempt can be made either via ARD or remotely to switch on again. If a fault continues to exist, the combination is switched off and can only be switched on again locally manually.

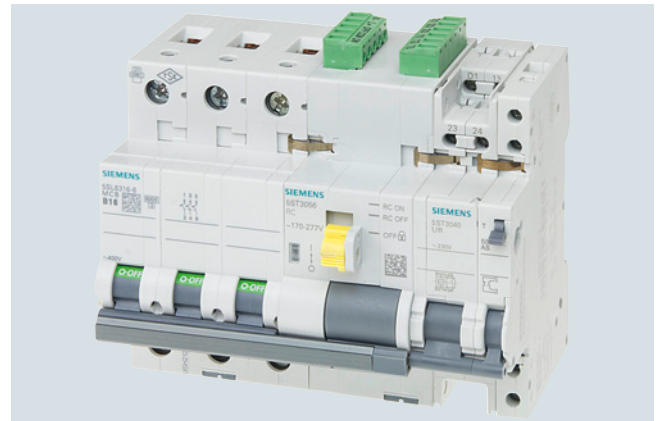
Matching adapters have to be ordered additionally to enable the remote controlled mechanisms to be combined with the residual current operated circuit breakers, miniature circuit breakers, RCBOs and ON/OFF switches.

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.

Remote controlled mechanisms

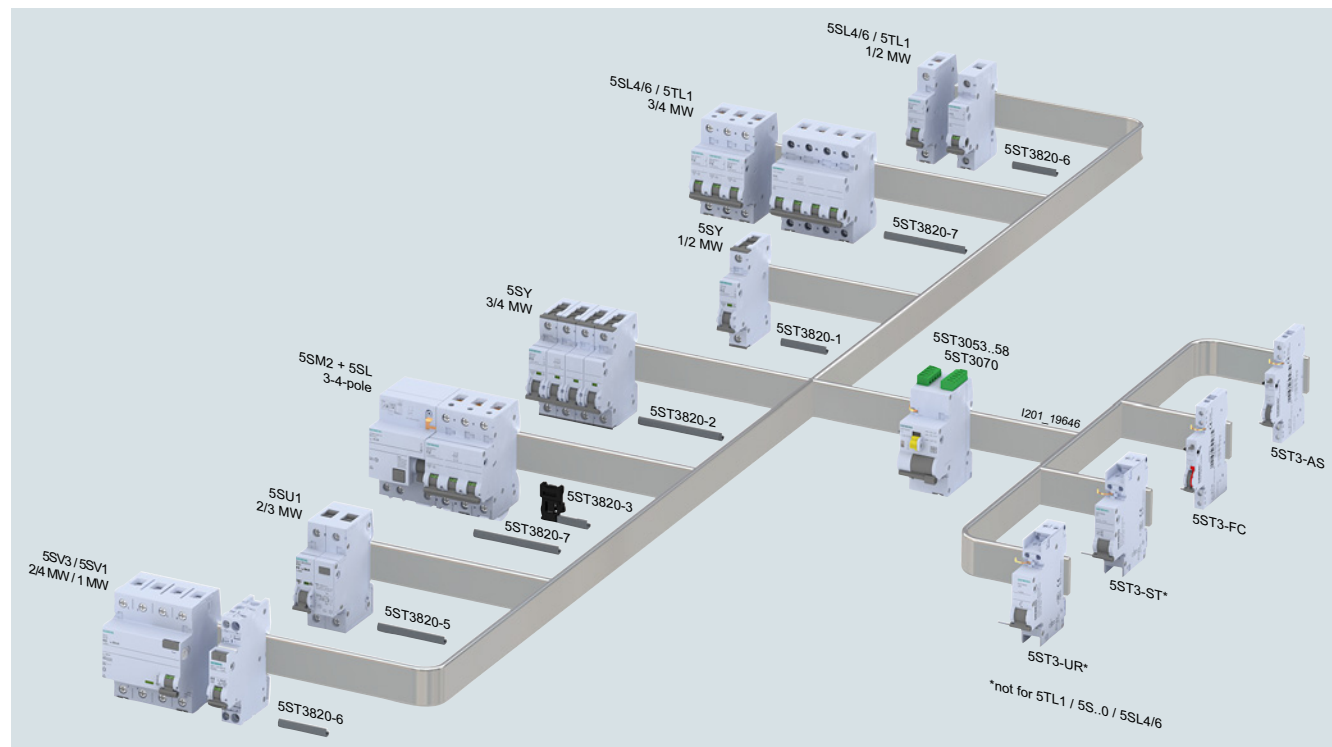


- Remote controlled mechanisms with ARD and Power have integrated auxiliary switches and fault signal contacts.
- More 5ST3... additional components, such as AS, FC, ST and UR, can be added to the right-hand side of the remote controlled mechanism in line with the Siemens mounting concept.
- The remote controlled mechanisms with ARD and Power have an LED display on the front of the device to show the switching state and for diagnostics.
- The 5ST3070 remote controlled mechanism has an extended temperature range from -40°C to +70°C

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Additional components

Portfolio overview



Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Additional components

**Combination options remote controlled mechanism –
adapter – mount-on device**

		5SL4/6	5TL1	5SV1	5SL4/6	5TL1	5SY4/5/6/7/8	5SY60	5SY4/5/6/7/8
		1-2 MW			3-4 MW		1-2 MW		3-4 MW
									
	RC mech. Basic (1.5 MW) – 5ST3053 12 V - 30 V AC 12 V - 48 V DC								
		Adapter 5ST3820-6			Adapter 5ST3820-7		Adapter 5ST3820-1		Adapter 5ST3820-2
	RC mech. Basic (2 MW) – 5ST3054 230 V AC								
		Adapter 5ST3820-6			Adapter 5ST3820-7		Adapter 5ST3820-1		Adapter 5ST3820-2
	RC mech. Power (2 MW) – 5ST3055 12 V - 30 V AC 12 V - 48 V DC								
		Adapter 5ST3820-6			Adapter 5ST3820-7		Adapter 5ST3820-1		Adapter 5ST3820-2
	RC mech. Power (2 MW) – 5ST3056 230 V AC								
		Adapter 5ST3820-6			Adapter 5ST3820-7		Adapter 5ST3820-1		Adapter 5ST3820-2
	RC mech. ARD* (2 MW) – 5ST3057 12 V - 30 V AC 12 V - 48 V DC								
		Adapter 5ST3820-6			Adapter 5ST3820-7		Adapter 5ST3820-1		Adapter 5ST3820-2
	RC mech. ARD* (2 MW) – 5ST3058 230 V AC								
		Adapter 5ST3820-6			Adapter 5ST3820-7		Adapter 5ST3820-1		Adapter 5ST3820-2
	RC mech. Power (2 MW) – 5ST3070 12 V - 30 V AC 12 V - 48 V DC								
		Adapter 5ST3820-6			Adapter 5ST3820-7		Adapter 5ST3820-1		Adapter 5ST3820-2

* ARD = Auto Reclose Device

I201_19717

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Additional components

Combination options remote controlled mechanism – adapter – mount-on device (continued)

	5SU1 2 MW, 3MW	5SV3	5SM2 + 5SL 2-pole	5SM2 + 5SL 3-4-pole	5SM2 + 5SY 2-pole	5SM2 + 5SY 3-4-pole
						
RC mech. Basic (1.5 MW) – 5ST3053 12 V - 30 V AC 12 V - 48 V DC	 Adapter 5ST3820-5	not compatible	not compatible	not compatible	not compatible	not compatible
RC mech. Basic (2 MW) – 5ST3054 230 V AC	 Adapter 5ST3820-5	not compatible	not compatible	not compatible	not compatible	not compatible
RC mech. Power (2 MW) – 5ST3055 12 V - 30 V AC 12 V - 48 V DC	 Adapter 5ST3820-5	 Adapter 5ST3820-6	 Adapter 5ST3820-3 add. 5ST3820-6	 Adapter 5ST3820-3 add. 5ST3820-7	 Adapter 5ST3820-3 add. 5ST3820-1	 Adapter 5ST3820-3 add. 5ST3820-2
RC mech. Power (2 MW) – 5ST3056 230 V AC	 Adapter 5ST3820-5	 Adapter 5ST3820-6	 Adapter 5ST3820-3 add. 5ST3820-6	 Adapter 5ST3820-3 add. 5ST3820-7	 Adapter 5ST3820-3 add. 5ST3820-1	 Adapter 5ST3820-3 add. 5ST3820-2
RC mech. ARD* (2 MW) – 5ST3057 12 V - 30 V AC 12 V - 48 V DC	 Adapter 5ST3820-5	 Adapter 5ST3820-6	 Adapter 5ST3820-3 add. 5ST3820-6	 Adapter 5ST3820-3 add. 5ST3820-7	 Adapter 5ST3820-3 add. 5ST3820-1	 Adapter 5ST3820-3 add. 5ST3820-2
RC mech. ARD* (2 MW) – 5ST3058 230 V AC	 Adapter 5ST3820-5	 Adapter 5ST3820-6	 Adapter 5ST3820-3 add. 5ST3820-6	 Adapter 5ST3820-3 add. 5ST3820-7	 Adapter 5ST3820-3 add. 5ST3820-1	 Adapter 5ST3820-3 add. 5ST3820-2
RC mech. Power (2 MW) – 5ST3070 12 V - 30 V AC 12 V - 48 V DC	 Adapter 5ST3820-5	 Adapter 5ST3820-6	 Adapter 5ST3820-3 add. 5ST3820-6	 Adapter 5ST3820-3 add. 5ST3820-7	 Adapter 5ST3820-3 add. 5ST3820-1	 Adapter 5ST3820-3 add. 5ST3820-2

* ARD = Auto Reclose Device

I201_19717

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Additional components

Technical specifications

		Remote controlled mechanisms							
		Basic		Power		ARD (with automatic restart)		Power	
									
		5ST3053	5ST3054	5ST3055	5ST3056	5ST3057	5ST3058	5ST3070	
Standards		EN 50557 (VDE 0640-20)							
Rated voltages U_n	V AC	12 ... 30	177 ... 270	12 ... 30	177 ... 270	12 ... 30	177 ... 270	12 ... 30	
	V DC	12 ... 48		12 ... 48		12 ... 48		12 ... 48	
• Rated frequency f_n	Hz	50 ... 60							
Rated power dissipation	VA	≤ 1 in standby							
Module width	mm	27 (1.5 MW)	36 (2 MW)						
Ambient temperature	°C	-25 ... +45						-40 ... +70	
Storage temperature	°C	-40 ... +55						-40 ... +70	
Degree of protection		IP20							
Pollution degree for overvoltage category		3/II	3/III	3/II	3/III	3/II	3/III	3/II	
Service life, on average, with rated load		10 000 actuations							
Conductor cross-sections	mm ²	0.5 ... 1.5							
	AWG	14 ... 30							
Terminal tightening torque	Nm lb-in	0.2 ... 0.25 2.0							
Cable length in the control circuit	m	≤ 1500							
Number of remote switching operations/min.		2							
Number of automatic reclose attempts		--				✓		--	
Sliding selector with locking device		--	✓	✓	✓	✓	✓	✓	
Integrated auxiliary switches		--			1W (1CO); 2 A; 250 V				
Integrated fault signal contact		--			1W (1CO); 2 A; 250 V				
Possible device combinations		MCBs up to 4 MW, RCBOs up to 3 MW			MCBs, RCCBs up to 4P, RCBOs up to 3 MW, RC unit + MCB, ON/OFF switches: 5TL1, 5TE2				
Shock and vibration requirements acc. to EN 61373 / EN 50155 "1B"		--							✓

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Additional components

Selection and ordering data

	Rated voltage	Mounting width	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		MW	d					
	Remote controlled mechanisms (RC mech.)							
	• Basic	12 ... 30 V AC 12 ... 48 V DC	1.5	5ST3053		1	1 unit	1AD
		177 ... 270 V AC	2	5ST3054		1	1 unit	1AD
	• Power	12 ... 30 V AC 12 ... 48 V DC	2	5ST3055		1	1 unit	1AD
		177 ... 270 V AC		5ST3056		1	1 unit	1AD
	• Power with automatic reclose function	12 ... 30 V AC 12 ... 48 V DC	2	5ST3057		1	1 unit	1AD
		177 ... 270 V AC		5ST3058		1	1 unit	1AD
	• With extended function NEW	12 ... 30 V AC 12 ... 48 V DC	2	5ST3070		1	1 unit	1AD
	Note Matching adapters must be ordered separately.							
	Accessories for remote controlled mechanisms							
	• Adapters for:			5ST3820-1		1	1 unit	1AD
	- 5SY MCBs 1-2-pole							
	- 5SM2 RC units, with 5SY, 2-pole							
	• Adapters for:			5ST3820-2		1	1 unit	1AD
	- 5SY MCBs 3-4 pole							
	- 5SM2 RC units, with 5SY, 3-4-pole							
	• Adapters for:			5ST3820-3		1	1 unit	1AD
	- 5SM2 RC units							
	• Adapters for:			5ST3820-5		1	1 unit	1AD
	- 5SU1 RCBOs							
	• Adapters for:			5ST3820-6		1	1 unit	1AD
	- 5SL MCBs 1-2-pole							
	- 5TL1 1-2-pole							
	- 5SV3 residual current switches 2-4-pole							
	- 5SM2 RC units, with 5SL, 2-pole							
	- 5SV1 RCBOs							
	• Adapters for:			5ST3820-7		1	1 unit	1AD
	- 5SL MCBs 3-4-pole							
	- 5TL1 3-4-pole							
	- 5SM2 RC units, with 5SL 3-4-pole							

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Additional components

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)	Auxiliary switches (AS) and fault signal contacts (FC)
		5ST3010, 5ST3010-2 5ST3011, 5ST3011-2 5ST3012, 5ST3012-2	5ST3013 ¹⁾ , 5ST3013-2 ²⁾ 5ST3014 ¹⁾ , 5ST3014-2 ²⁾ 5ST3015 ¹⁾ , 5ST3015-2 ²⁾ 5ST3016 ¹⁾	5ST3020, 5ST3020-2 5ST3021, 5ST3021-2 5ST3022, 5ST3022-2	5ST3062
Standards		EN 62019; IEC/EN 60947-5-1; UL 1077; CSA C22.2 No. 235			
Approvals		see chapter "Appendix"			
Short-circuit protection		Miniature circuit breakers or gG 6 A fuse			
Contact load					
• Min.		50 mA, 24 V	1) = 1 mA/5 V DC 2) = 5 mA/5 V DC	50 mA, 24 V	50 mA, 24 V
• Max.		--	1) = 100 mA/30 V DC 2) = 30 mA/30 V DC	--	--
• Acc. to IEC/EN 62019 and 60947-5-1:					
400 V AC, AC-14, NO	A	2	--	2	2
230 V AC, AC-13, NO	A	6	--	6	6
400 V AC, AC-14, NC	A	2	--	2	2
230 V AC, AC-13, NC	A	6	--	6	6
• Acc. to IEC/EN 62019 (acc. to IEC/EN 60947-5-1):					
220 V DC, DC-13, NO + NC	A	1	--	1	0.5 (0.3)
110 V DC, DC-13, NO + NC	A	1	--	1	0.5 (0.5)
60 V DC, DC-13, NO + NC	A	3	--	3	3 (1)
24 V DC, DC-13, NO + NC	A	6	--	6	3 (3)
Service life, on average, with rated load		20000 actuations			
Conductor cross-sections		mm ² AWG	0.5 ... 2.5 22 ... 14		
Terminals					
• Terminal tightening torque	Nm lb-in	0.5 4.5			
Mounting position		Any			
Ambient temperature		°C	-25 ... +55		
Storage temperature		°C	-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		

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Additional components

			Undervoltage releases (UR) 5ST304.	Shunt trips (ST) 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 × U_n	0.7 ... 1.1 × 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		
Tripping operations			max. 2000		
Service life, on average, with rated load			20000 actuations		
Conductor cross-sections	mm ²		0.5 ... 2.5		
	AWG		22 ... 14		
Terminals					
• Terminal tightening torque	Nm lb-in		0.8 6.8		
Mounting position			Any		
Ambient temperature			°C -25 ... +55		
Storage temperature			°C -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			--		

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Additional components

Selection and ordering data

	Rated voltage	Mounting width	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		MW	d					
	Auxiliary switches (AS) For 5SM3 residual current protective devices up to 80 A							
	1 NO + 1 NC	0.5	▶	5SW3300		1	1 unit	1BE
	2 NC	0.5		5SW3301		1	1 unit	1BE
	2 NO	0.5		5SW3302		1	1 unit	1BE
	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
	Auxiliary switches (AS) For 5SL, 5SY, 5SP miniature circuit breakers, 5SV1, 5SU1 RCBOs, 5SV RCCBs and 5TE8 switches (the 5ST3805-1 handle coupler is required for 5SU1)							
	1 NO + 1 NC For low power	0.5	▶	5ST3010		1	1 unit	1AD
	For low power (with diode) NEW		▶	5ST3013		1	1 unit	1AD
	2 NO For low power		▶	5ST3013-0XX01		1	1 unit	1AD
	2 NO For low power			5ST3011		1	1 unit	1AD
	2 NC For low power			5ST3014		1	1 unit	1AD
	2 NC For low power			5ST3012		1	1 unit	1AD
	1 W NEW			5ST3015		1	1 unit	1AD
				5ST3016		1	1 unit	1AD
	Auxiliary switches (AS) with TEST button For 5SL, 5SY, 5SP miniature circuit breakers, 5SV1, 5SU1 RCBOs, 5SV RCCBs and 5TE8 switches (the 5ST3805-1 handle coupler is required for 5SU1)							
	1 NO + 1 NC For low power	0.5		5ST3010-2		1	1 unit	1AD
	2 NO For low power			5ST3013-2		1	1 unit	1AD
	2 NO For low power			5ST3011-2		1	1 unit	1AD
	2 NC For low power			5ST3014-2		1	1 unit	1AD
	2 NC For low power			5ST3012-2		1	1 unit	1AD
	Fault signal contacts (FC) For 5SL, 5SY, 5SP miniature circuit breakers, 5SV1, 5SU1 RCBOs, and for 5SV RCCBs (the 5ST3805-1 handle coupler is required for 5SU1)							
	1 NO + 1 NC	0.5	▶	5ST3020		1	1 unit	1AD
	2 NO			5ST3021		1	1 unit	1AD
	2 NC			5ST3022		1	1 unit	1AD
	Fault signal contacts (FC) with TEST and ACKNOWLEDGE button For 5SL, 5SY, 5SP miniature circuit breakers, 5SV1, 5SU1 RCBOs, and for 5SV RCCBs (the 5ST3805-1 handle coupler is required for 5SU1)							
	1 NO + 1 NC	0.5	▶	5ST3020-2		1	1 unit	1AD
	2 NO			5ST3021-2		1	1 unit	1AD
	2 NC			5ST3022-2		1	1 unit	1AD

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

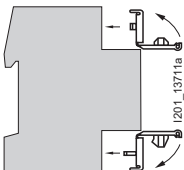
Additional components

	Rated voltage	Mounting width	SD	Article No. www.siemens.com/product?Article.No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		MW	d					
	Auxiliary switches (AS) and fault signal contacts (FC) NEW							
	For 5SL, 5SY, 5SP miniature circuit breakers, 5SV1, 5SU1 RCBs, 5SV RCCBs and 5TE8 switches (the 5ST3805-1 handle coupler is required for 5SU1)							
	1 CO (of which 1 x FC)							
		0.5		5ST3062		1	1 unit	1AD
	Undervoltage releases (UR)							
	For 5SY, 5SP miniature circuit breakers, 5SV residual current protective devices and 5SU1 RCBs (for 5SU1 the 5ST3805-1 handle coupler is required)							
	With integrated auxiliary switch							
	230 AC	1	▶	5ST3040		1	1 unit	1AD
	110 DC			5ST3041		1	1 unit	1AD
	24 DC			5ST3042		1	1 unit	1AD
	Shunt trips (ST)							
	For 5SY, 5SP miniature circuit breakers, 5SV residual current protective devices and 5SU1 RCBs (for 5SU1 the 5ST3805-1 handle coupler is required)							
	110 ... 415 V AC	1	▶	5ST3030		1	1 unit	1AD
	24 ... 48 V AC/DC	1	▶	5ST3031		1	1 unit	1AD
	AC/DC 12 V NEW	1		5ST3031-0XX01		1	1 unit	1AD
	Locking device							
	For 5SM3 RCCBs up to 80 A, sealable and lockable 4.5 mm lock hasp diameter			5SW3303		1	10 units	1BE
	Locking device							
	For 5SU1 RCBs, sealable and lockable			5ST3801-1		1	1 unit	1AD
	Handle locking devices							
	- For 5SV RCCBs, 5SV1 RCBs, 5SL MCBs - For padlock with 3 ... 6 mm shackle			5ST3806		1	5 units	1AD
	Padlocks							
	For 5ST3806 locking device, 5ST30 remote controlled mechanism (excluding 5ST3053)			5ST3802		1	1 unit	1AD
	Locking devices with padlock							
	Comprising 5SW3303 locking device and 5ST3802 padlock			5SW3312		1	1 set	1BE

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SU1 RCBOs

Accessories

Version	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
	d	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
		Covers for connection terminals For 5SM3 RCCBs up to 80 A, sealable (2 units in plastic bag)				
		2	5SW3010	1	1 unit	1BE
		2.5	5SW3011	1	1 unit	1BE
		4	5SW3008	1	1 unit	1BE

Note:

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

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM6 / 5SV6 arc fault detection devices (AFDDs)

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 now 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 devices 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.

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

5SV6 arc fault detection devices with integrated MCB **NEW**

These devices combine line protection and arc fault detection in a single unit with a width of only 1 MW.

This version offers a space-saving alternative for retrofitting.

As it has the same width as the MCB, the AFDD with an integrated 5SV6 MCB can not only be installed in new units, but can also be easily retrofitted in existing buildings. This provides an extended protection function with requiring additional space. Standard-compliant expansion of the electrical installation to protect against electrical fires can thus be implemented easily at any time.

5SM6 arc fault detection devices, AFDDs

Siemens offers four 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 or 40 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 5SM6 AFDDs 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 version with a compact RCBO (5SV1) in 1 MW is a space-saving alternative that is ideal for retrofitting.

Whether auxiliary switch or fault signal contact – the AFDDs 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.

Status displays and self tests

In order to facilitate fault locating in the event of tripping, the AFDD is equipped with a display that provides 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.

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.

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM6 / 5SV6 arc fault detection devices (AFDDs)

Technical specifications

		5SM6	5SV6
Standards		IEC/EN 62606	
Versions		2-pole	1P + N
Rated voltage U_n	V	230	
Rated current I_n	A	Up to 16/40	6 ... 32
Rated frequency	Hz	50	
Mains connection		Bottom	Either top or bottom
Tripping in the event of overvoltage	V	> 275	> 285
Degree of protection	Acc. to EN 60529 (VDE 0470-1)	IP20, with connected conductors	
Touch protection	Acc. to EN 50274 (VDE 0660-514)	Finger and back-of-hand safe	
Terminal tightening torque	Nm	2.0 ... 2.5	1.2 ... 2.0
Terminal/conductor cross-sections			
• Solid and stranded	mm ²	0.75 ... 16	
• Finely stranded with end sleeve	mm ²	0.75 ... 10	
Overvoltage category		III	
Mounting position		Any	
Service life	Average number of switching cycles	> 10000	
Ambient temperature	°C	-25 ... +40	
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	

Selection and ordering data

I_n	Mounting width	SD	Characteristic B					Characteristic C					
			Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
A	MW	d						d					

Arc fault detection device with integrated MCB **NEW**

1P+N; 230 V AC, 50 Hz

6	1	5SV6016-6KK06	1	1 unit	1BA	5SV6016-7KK06	1	1 unit	1BA
10		5SV6016-6KK10	1	1 unit	1BA	5SV6016-7KK10	1	1 unit	1BA
13		5SV6016-6KK13	1	1 unit	1BA	5SV6016-7KK13	1	1 unit	1BA
16		5SV6016-6KK16	1	1 unit	1BA	5SV6016-7KK16	1	1 unit	1BA
20		5SV6016-6KK20	1	1 unit	1BA	5SV6016-7KK20	1	1 unit	1BA
25		5SV6016-6KK25	1	1 unit	1BA	5SV6016-7KK25	1	1 unit	1BA
32		5SV6016-6KK32	1	1 unit	1BA	5SV6016-7KK32	1	1 unit	1BA

Version	Rated current I_n	Mounting width	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
	A	MW	d	www.siemens.com/product?Article No.				

Arc fault detection devices, AFDDs



For 5SY60... MCBs (1 MW);
5SV1 RCBOs (1 MW)
2-pole, 230 V AC; 50 Hz

Up to 16
Up to 40

1

5SM6011-2
5SM6014-2

1 1 unit 1BA
1 1 unit 1BA



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
Up to 40

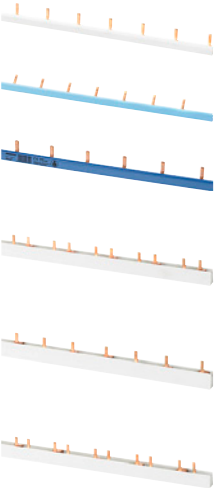
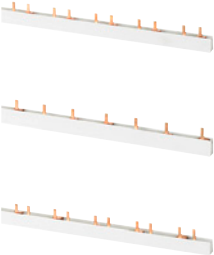
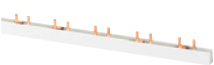
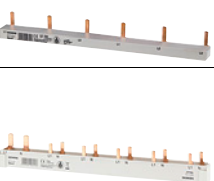
1

5SM6021-2
5SM6024-2

1 1 unit 1BA
1 1 unit 1BA

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM6 / 5SV6 arc fault detection devices (AFDDs)

	Version	Pin spacing	Length	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		MW	mm	d					
Pin busbars for 5SM6 AFDDs (1+N)									
	5ST3 busbars – 10 mm², can be cut								
	Single-phase, for 5SM601.-.								
	Insulation, gray, not angled	2	962		5ST3764-1		1 10 units	1AD	
	Insulation, blue, angled	2	962		5ST3765-1		1 10 units	1AD	
	Insulation blue, not angled	2	962		5ST3765-2		1 10 units	1AD	
	Two-phase (1+N), for 5SM602.-.								
	Insulation, gray	1+2	996		5ST3735-1		1 1 unit	1AD	
	Three-phase, for 5SM601.-.								
	Insulation, gray	2	1032		5ST3740-1		1 1 unit	1AD	
	Four-phase (3+N), for 5SM602.-.								
	Insulation, gray	1+2	926		5ST3746-1		1 1 unit	1AD	
	5ST3 busbars – 10 mm², cannot be cut								
	Three-phase, for 5SM601.-.								
	Insulation, gray	2	216		5ST3615-1		1 10 units	1AD	
	5ST3 busbars with RCCB – 16 mm², can be cut NEW								
	Two-phase, for 5SV3 (1P+N) and 5SM601.-.								
	Insulation, gray	2	216		5ST3772		1 10 units	1AD	

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SM6 / 5SV6 arc fault detection devices (AFDDs)

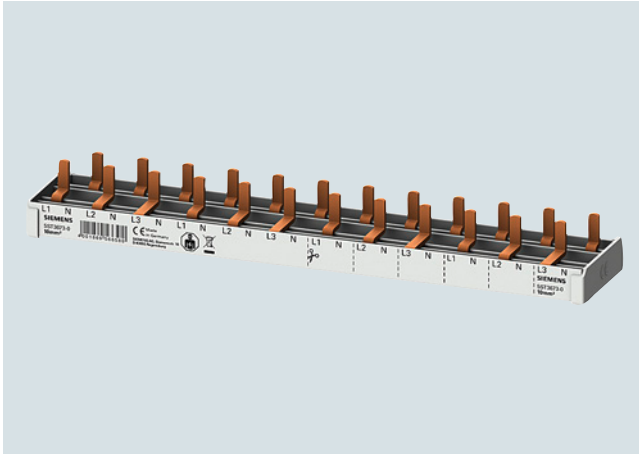
Version		SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
Terminals		d					
	Terminals, long		5ST3771-1		1	25 units	1AD
	- For conductors up to 25 mm² - Infeed on side - Specially for two-, three-, four-phase busbars						
	Terminals, short	▶	5ST3768		1	25 units	1AD
	- For conductors up to 25 mm² - Infeed on side - Specially for single-phase busbars and for 5ST3615-1 three-phase busbars						
	Terminals, short, IP20		5ST3771-2		1	10 units	1AD
	- For conductors up to 25 mm² - Infeed on side - Specially for single-phase busbars and for 5ST3615-1 three-phase busbars						
	End caps for 5ST37, can be cut						
	- For 2-phase and 3-phase busbars - For 4-phase busbars	▶	5ST3750 5ST3718		1 1	10 units 10 units	1AD 1AD

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Pin busbars for 5SV1 / 5SV6 / 5S..0 compact devices

NEW

Overview



Busbars for bus mounting 2-/4-pole 5SV3/4 RCCBs and compact devices 1P+N in 1 MW.

These compact pin busbars allow devices such as 5SV1, 5SV6 and compact miniature circuit breakers 1+N in 1 MW, or combinations of these, to be bus-mounted easily and safely in 2 or 4 phases.

- The compact busbars are also available for device combinations equipped with 5SM6 arc fault detection devices.
- RCCB N left devices can be wired with 5ST37...OKL busbars, which increases wiring flexibility.
- Infeeds or outgoing feeders on the busbars are created by means of a bushing immediately through the compact busbar.
- The compact busbars are also available with additional space for auxiliary components. Wiring into the busbar is from below.
- Busbars are available in 10 mm² versions.

Benefits

Compact busbars:

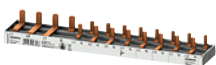
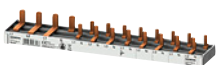
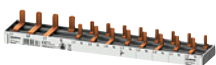
- RCCB compact busbars can now also be cut to 12 MW
- RCCB N left can now also be bus-mounted
- The end caps can be used again after the busbar has been cut to length.
- Simple wiring of all phases/conductors with one busbar
- Auxiliary switches can also be connected when a busbar is installed
- Infeeds possible via mounted busbar
- Infeed possible without additional terminal (up to 16 mm² rigid / 10 mm² flexible with end sleeve)

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

NEW

Pin busbars for 5SV1 / 5SV6 / 5S..0 compact devices

Selection and ordering data

	Version	Busbar length/MW	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		mm/MW	d					
	5ST3 busbars for infeed via RCCB							
	For 1 x RCCB 1P+N and 5 x compact devices equipped with 5SM6 arc fault detection device							
	• 2-phase, 10 mm ²	12 MW		5ST3685-0		1	1 unit	1AD
	For 1 x RCCB 3P+N and 8 x compact devices							
	• 4-phase, 10 mm ² , can be cut	12 MW		5ST3783-0		1	1 unit	1AD
	• 4-phase, 10 mm ² (only RCCB N left), can be cut	12 MW		5ST3783-OKL		1	1 unit	1AD
	For 1 x RCCB 1P+N and 10 x compact devices							
	• 2-phase, 10 mm ² , can be cut	12 MW		5ST3784-0		1	1 unit	1AD
	• 2-phase, 10 mm ² (only RCCB N left), can be cut	12 MW		5ST3784-OKL		1	1 unit	1AD
	5ST3 busbars							
	For 12 compact devices							
	• 4-phase, 10 mm ²	12 MW		5ST3673-0		1	1 unit	1AD
	For compact devices							
	• 4-phase, 10 mm ² , can be cut	1000 mm		5ST3773-0		1	1 unit	1AD
	For 12 compact devices							
	• 2-phase, 10 mm ²	12 MW		5ST3674-0		1	1 unit	1AD
	For compact devices							
	• 2-phase, 10 mm ² , can be cut	1000 mm		5ST3774-0		1	1 unit	1AD
	For 6 compact devices equipped with 5SM6 arc fault detection device							
	• 4-phase, 10 mm ²	12 MW		5ST3675-0		1	1 unit	1AD
	For compact devices equipped with 5SM6 arc fault detection device							
	• 4-phase, 10 mm ² , can be cut	1000 mm		5ST3775-0		1	1 unit	1AD
	For 6 compact devices equipped with 5SM6 arc fault detection device							
	• 2-phase, 10 mm ²	12 MW		5ST3676-0		1	1 unit	1AD
	For compact devices equipped with 5SM6 arc fault detection device							
	• 2-phase, 10 mm ² , can be cut	1000 mm		5ST3776-0		1	1 unit	1AD
	For compact devices equipped with auxiliary switch							
	• 4-phase, 10 mm ² , can be cut	1000 mm		5ST3777-0		1	1 unit	1AD
	For compact devices equipped with auxiliary switch							
	• 2-phase, 10 mm ² , can be cut	1000 mm		5ST3778-0		1	1 unit	1AD
	For compact devices equipped with 5SM6 arc fault detection device and auxiliary switch							
	• 2-phase, 10 mm ² , can be cut	1000 mm		5ST3780-0		1	1 unit	1AD
	End caps for 5ST37							
	• For 2-phase and 4-phase busbars			5ST3788-0		1	10 units	1AD
	Touch protection							
	• For free connections, for pins L1, N, yellow		►	5ST3655		1	10 units	1AD
	• For pins L2 / L3, yellow			5ST3655-0HG		1	10 units	1AE

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

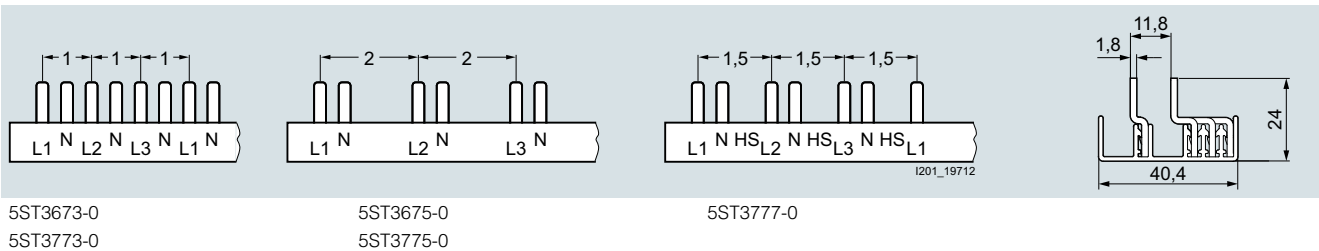
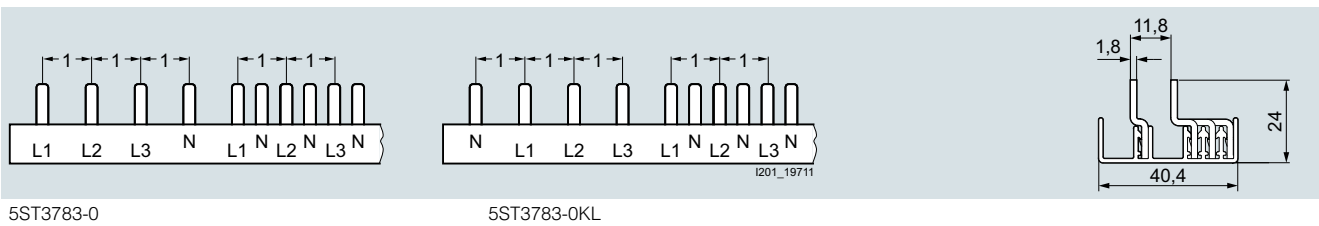
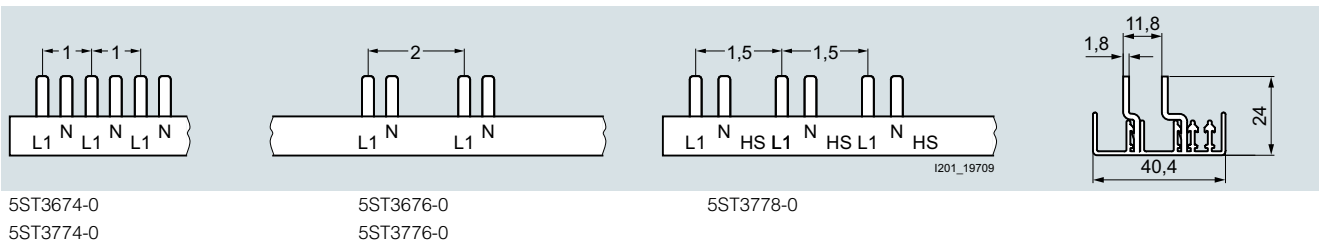
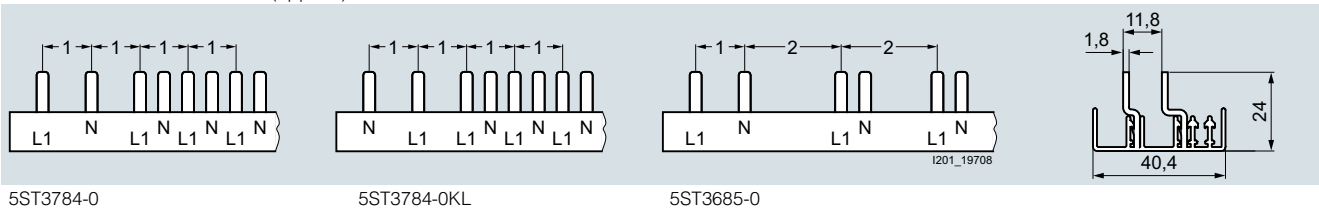
Pin busbars for 5SV1 / 5SV6 / 5S..0 compact devices

NEW

5ST36 / 5ST37

Pin spacing in MW (modular width; 1 MW = 18 mm)

Dimensions of side view in mm (approx.)



Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Busbars

Overview

4-pole 5SV 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 the same type of standard busbars is used as for bus mounting miniature circuit breakers.

Busbars in 10 mm² and 16 mm² versions are available.

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

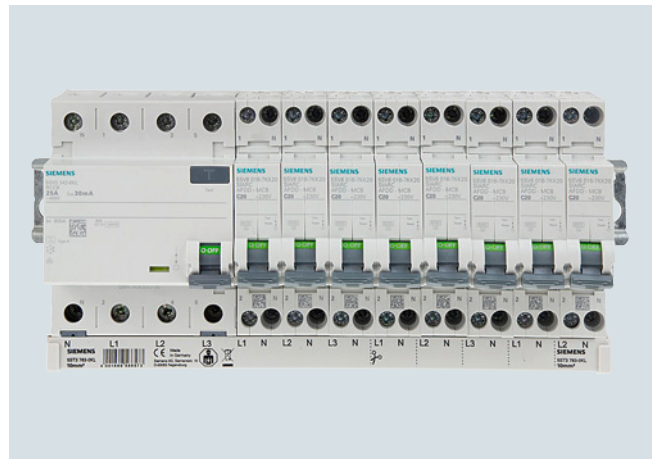
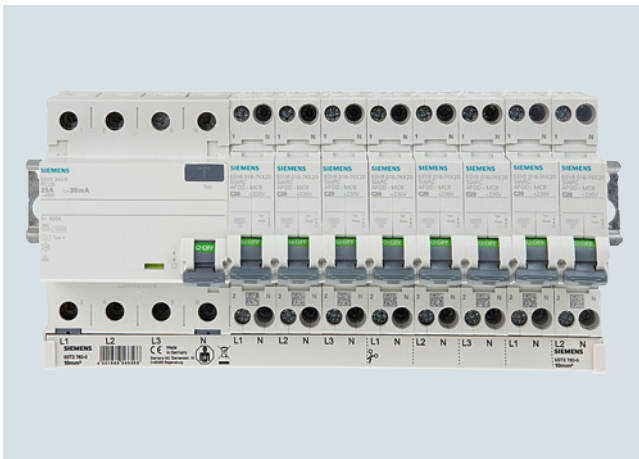
No further need for time-consuming tasks, such as cutting, cutting to length, deburring, cleaning of cut surfaces and mounting of end caps.

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.
- 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.



- For bus mounting 5SV RCCBs with compact devices. It is now also possible to cut the busbar, thus permitting the RCCB busbar to be used for less frequently needed outgoing feeders. This saves wiring costs.
- Bus-mounting of residual current protective devices on busbar (three-phase +N) that can be cut. A proven and frequently used application.

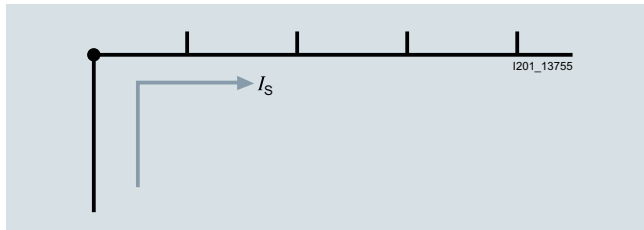
Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Busbars

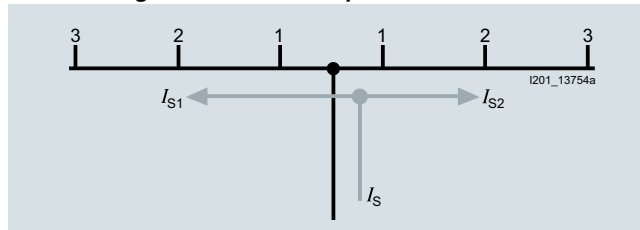
Technical specifications

5ST3, 5ST2		
Standards	EN 60439-1 (VDE 0660-500): 2005-01	
Busbar material	SF-Cu F 24	
Partition material	Plastic, Cylcoloy 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 mm ²	A	63
• Cross-section 16 mm ²	A	80
Rated impulse withstand voltage U_{imp}	kV	4
Test pulse voltage (1.2/50)	kV	6.2
Rated conditional short-circuit current I_{cc}	kA	25
Resistance to climate		
• Constant atmosphere	Acc. to DIN 50015	23/83; 40/92; 55/20
• Humid heat	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 per phase		
• Infeed at the start of the busbar		
- Cross-section 10 mm ²	A	63
- Cross-section 16 mm ²	A	80
• Infeed at the center of the busbar		
- Cross-section 10 mm ²	A	100
- Cross-section 16 mm ²	A	130

Infeed at the start or end of the busbar

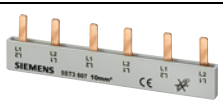
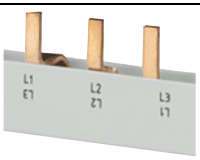
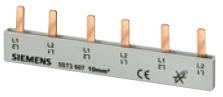


Infeed along the busbar or midpoint infeed



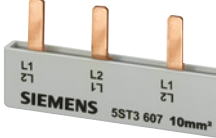
The sum of the outgoing current per branch (1, 2, 3 ... n) must not be greater than the max. busbar current I_S /phase.

Selection and ordering data

Version	Pin spacing	Length	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
	MW	mm	d					
 5ST36 busbars, fixed lengths, cannot be cut, fully insulated For 1 RCCB 4P, N connection right, and 8 MCB 1P • 3-phase, 10 mm ² • 3-phase, 16 mm ² For 6 RCBOs 1P+N together • 2-phase, 10 mm ² • 2-phase, 16 mm ²	1	210		5ST3624		1	10 units	1AD
	1	210		5ST3654		1	10 units	1AD
	1	210		5ST3608		1	10 units	1AD
	1	210		5ST3638		1	10 units	1AD
 5ST37 busbars, 12 MW, can be cut, with end caps For 6 RCBOs 1P+N • 2-phase, 10 mm ² • 2-phase, 16 mm ²	1	216		5ST3734		1	1 unit	1AD
	1	216		5ST3704		1	1 unit	1AD
 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

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Busbars

	Version	Pin spacing	Length	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		MW	mm	d					
	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
	5ST37 busbars, with end caps, can be cut, with touch protection For RCBOs 1P+N and MCB 2P								
	• 4-phase, 10 mm ²	1	1008		5ST3770-2		1	10 units	1AD
	• 4-phase, 16 mm ²	1	1008		5ST3770-3		1	10 units	1AD
	For RCCBs 4P, N connection right and 6 MCBs 1P+N								
	• 4-phase, 10 mm ²	1	288		5ST3770-4		1	10 units	1AD
	• 4-phase, 16 mm ²	1	288		5ST3770-5		1	10 units	1AD
	End caps for 5ST37, can be cut • For 2-phase and 3-phase busbars • For 4-phase busbars				5ST3750 5ST3718		1 1	10 units 10 units	1AD 1AD
	Touch protection For free connections, yellow (RAL 1004) 5 x 1 pin				5ST3655		1	10 units	1AD
	Terminals up to 35 mm² (stranded), for direct infeed of 5ST2145 busbar Side-by-side mounting possible				5ST2157		1	5 units	1AD

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

5SZ9 RCCB socket outlets

Application

RCCB protective socket outlets

- Molded-plastic enclosure equipped with RCCB and flush-mounted SCHUKO® 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
- For outdoor connection of gardening equipment and socket outlets in workshops or for agricultural purposes
- Degree of protection IP54 (5SZ92.6)

4

Selection and ordering data

 Type A	Rated residual current	Rated current	SD	Article No. www.siemens.com/product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
	$I_{\Delta n}$ mA	I_n A	d					
	RCCB protective socket outlets							
	• 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
	30			5SZ9216		1	1 unit	1BE

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Accessories

Accessories

	Version	SD	Article No. www.siemens.com/ product?Article No.	Price per PU	PU (UNIT, SET, M)	PS	PG
		d					
	Terminal covers, gray For surface mounting, degree of protection IP40, sealable, with 35 mm standard mounting rail • Up to 2.5 MW • Up to 4.5 MW		5SW3004		1	1 unit	1BE
			5SW3005		1	1 unit	1BE
	Wall enclosures, gray For flush mounting, degree of protection IP40, with 35 mm standard mounting rail • Up to 2.5 MW • Up to 4.5 MW		5SW3006		1	1 unit	1BE
			5SW3007		1	1 unit	1BE
	Covers Can be assembled as mini distribution board, suitable for all devices, cover parts prepared for rail mounting of conventional label caps, comprising: • End plates (for snapping onto standard mounting rail) • Angled profile (approx. 1 m long) • Alternative flat profiles (as a cover between the rows of devices, length approx. 1 m)		5ST2134		1	10 units	1AD
			5ST2135		1	5 units	1AD
			5ST2136		1	5 units	1AD
	Device labels Adhesive, for modular installation devices, e.g. 5SY, 5SL, 5TL1, etc.	Versions • 15 mm x 6 mm, white (WIN 098) • 15 mm x 6 mm, yellow (WIN 099)	8WH8210-0AA35		100	3740 units	1BT
			8WH8210-0AA36		100	3740 units	1BT

Labeling system

Available from:

Murrplastik Systemtechnik GmbH
 Postfach 1143
 71570 Oppenweiler, Germany
 Telephone: +49 7191-482-0
 Email: info@murrplastik.de

Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)

Configuration

Application

Standards	Application	Required $I_{\Delta n}$ [mA]	Recommended Siemens residual current protective devices			
			Type A	Type F	SEQUENCE 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.

1. General standards

By using this catalog you can acquire hardware and software products described therein from Siemens AG subject to these conditions of sale and delivery (hereinafter: CSD). Please note: the scope, the quality and the conditions for supplies and services, including software products, by any Siemens group or Regional Company having a registered office outside of Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. These CSD apply exclusively for orders placed with Siemens AG, Germany.

1.1 For customers with a seat or registered office in Germany

For customers with a seat or registered office in Germany, the following shall be subordinate to these CSD

- for installation, the "Standard Terms and Conditions for Installation –Germany" and
- for Plant Analytics Services the "Standard Terms and Conditions for Plant Analytics Services – for Customers in Germany"¹⁾ and
- for standalone software products and software products that are part of another product or project, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office in Germany"¹⁾ and
- for other supplies and services, the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"¹⁾.
In the event that such other supplies and services include open-source software, the conditions of which override the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"¹⁾, the product will be supplied with a notice detailing the special conditions that apply for the relevant open-source software. This applies accordingly in the case of a reference to other third-party software components.

1.2 For customers with a seat or registered office outside of Germany

For customers with a seat or registered office outside of Germany, the following shall be subordinate to these CSD

- for Plant Analytics Services the "Standard Terms and Conditions for Plant Analytics Services"¹⁾ (only available in English) and
- for services, the "International Terms & Conditions for Services"¹⁾ supplemented by the "Software Licensing Conditions"¹⁾ and
- for the supply of other hardware and software the "International Terms & Conditions for Products"¹⁾ supplemented by the "Software Licensing Conditions"¹⁾.

1.3 For customers with framework agreements

To the extent that our products and services are covered by an existing framework agreement, the conditions there apply instead of this CSD.

2. Prices

The prices are in € (euros) ex works, excluding packaging.

The sales tax (value added tax) is not included in the prices. It shall be debited separately at the respective rate according to the applicable legal regulations.

Prices are subject to change without prior notice. We will debit the prices valid at the time of delivery.

To compensate fluctuating prices of raw materials (for example silver, copper, aluminum, lead, gold, dysprosium and neodymium), surcharges are calculated on a daily basis for products containing these raw materials using the metal factor. A surcharge for the particular raw material is added to the price of a product if the basic quotations for this raw material are exceeded.

Each product's metal factor dictates for which raw materials the metal surcharges are calculated, from which quotation and with which calculation method (weight or percentage method).

An exact explanation of the metal factor can be found at:
www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

The surcharge will be calculated (except in the case of dysprosium and neodymium) on the basis of the official price on the day prior to receipt of the order or prior to the release order for calculation of the surcharge.

In the event of placement of an order, the relevant three-month average price from the quarter prior to order receipt or the release order shall be used with a one-month buffer to calculate the dysprosium and neodymium surcharge ("rare earths") (you will find details in the aforementioned explanation of the metal factor).

3. Additional terms and conditions

All dimensions are in mm. In Germany, according to the German law on units in metrology, data in inches only apply to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the corresponding pages of this catalog - especially with regard to data, dimensions and weights given - these are subject to change without prior notice.

¹⁾ You can download the text of the Siemens AG terms and conditions of trade at
www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

Appendix

Conditions of sale and delivery

4. Export regulations

We shall not be obligated to fulfill this agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes or other sanctions.

Exporting may be subject to authorization. In delivery information, we label authorization obligations according to German, European and US export lists.

Our products are controlled by the U.S. authorities (goods labeled with "ECCN" not equal to "N") and may only be supplied to the stated country of the end user for sole use by the end user. Without U.S. government approval or other approval under U.S. law, the products may not be sold, transferred or otherwise forwarded to other countries or to other persons other than the specified end user, either in their original form or after further processing into other goods. Goods labeled with an "AL" not equal to "N" are subject European/national export authorization requirements.

Please note that you can also preview the export designations in the respective product description via our "Industry Mall" online catalog system. The deciding factors, however, are the AL or ECCN export designations indicated on order confirmations, delivery notes and invoices.

Unmarked items or items marked "AL:N" / "ECCN:N" or "AL:9X9999" / "ECCN: 9X9999" may require authorization based on their intended use or ultimate destination.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you shall comply with all applicable national and international (re-) export control regulations.

If required to conduct export control checks, you, at our request, shall promptly provide us with all information pertaining to particular end customers, destination and intended use of goods, works and services provided by us, as well as any relevant export control restrictions.

The products listed in this catalog may be subject to European/German and/or US export regulations. Therefore, any export requiring a license is subject to approval by the competent authorities.

Errors excepted and subject to change without prior notice.

Further information can be obtained from our branch offices listed at www.siemens.com/lowvoltage/contact

Interactive Catalog		<i>Catalog</i>
Products for Automation and Drives	CA 01	
Building Control		
GAMMA Building Control	ET G1	
Drive Systems		
SINAMICS G130 Drive Converter Chassis Units	D 11	
SINAMICS G150 Drive Converter Cabinet Units		
<i>Digital: SINAMICS PERFECT HARMONY GH180</i>	<i>D 15.1</i>	
<i>Medium-Voltage Air-Cooled Drives</i>		
<i>(Germany Edition)</i>		
SINAMICS G180 Converters – Compact Units, Cabinet Systems, Cabinet Units Air-Cooled and Liquid-Cooled	D 18.1	
SINAMICS S120 Chassis Format Converter Units	D 21.3	
SINAMICS S120 Cabinet Modules		
SINAMICS S150 Converter Cabinet Units		
SINAMICS S120 and SIMOTICS	D 21.4	
SINAMICS DCM DC Converter, Control Module	D 23.1	
SINAMICS Inverters for Single-Axis Drives · Built-In Units	D 31.1	
SINAMICS Inverters for Single-Axis Drives · Distributed Inverters	D 31.2	
<i>Digital: SINAMICS Converters for Single-Axis Drives · SINAMICS G120X</i>	<i>D 31.5</i>	
<i>Digital: SINAMICS S210 Servo Drive System</i>	<i>D 32</i>	
<i>Digital: SINAMICS V90 Basic Servo Drive System</i>	<i>D 33</i>	
<i>Digital: SINAMICS G120P and SINAMICS G120P Cabinet pump, fan, compressor converters</i>	<i>D 35</i>	
LOHER VARIO High Voltage Motors	D 83.2	
Flameproof, Type Series 1PS4, 1PS5, 1MV4 and 1MV5		
Frame Size 355 to 1000, Power Range 80 to 7100 kW		
<i>Digital: Three-Phase Induction Motors</i>	<i>D 84.1</i>	
<i>SIMOTICS HV, SIMOTICS TN</i>		
<i>Digital: Three-Phase Induction Motors SIMOTICS HV</i>	<i>D 84.3</i>	
High Voltage Three-phase Induction Motors	D 84.9	
SIMOTICS HV Series A-compact PLUS		
<i>Digital: Modular Industrial Generators SIGENTICS M</i>	<i>D 85.1</i>	
Synchronous Motors with Permanent-Magnet Technology, HT-direct	D 86.2	
DC Motors	DA 12	
SIMOVERT PM Modular Converter Systems	DA 45	
MICROMASTER 420/430/440 Inverters	DA 51.2	
MICROMASTER 411/COMBIMASTER 411	DA 51.3	
<u>Low-Voltage Three-Phase-Motors</u>		
SIMOTOCS S-1FG1 Servo geared motors	D 41	
SIMOTICS Low-Voltage Motors	D 81.1	
SIMOTICS FD Low-Voltage Motors	D 81.8	
LOHER Low-Voltage Motors	D 83.1	
<i>Digital: MOTOX Geared Motors</i>	<i>D 87.1</i>	
SIMOGEAR Geared Motors	MD 50.1	
SIMOGEAR Electric-monorail geared motors	MD 50.8	
Light-load and heavy-load applications		
SIMOGEAR Gearboxes with adapter	MD 50.11	
<u>Mechanical Driving Machines</u>		
FLENDER Standard Couplings	MD 10.1	
FLENDER High Performance Couplings	MD 10.2	
FLENDER Backlash-free Couplings	MD 10.3	
FLENDER SIP Standard industrial planetary gear units	MD 31.1	
Motion Control		
SINUMERIK 840 Equipment for Machine Tools	NC 62	
SINUMERIK 808 Equipment for Machine Tools	NC 81.1	
SINUMERIK 828 Equipment for Machine Tools	NC 82	
SIMOTION Equipment for Production Machines	PM 21	
<i>Digital: Drive and Control Components for Cranes</i>	<i>CR 1</i>	
Process Instrumentation and Analytics		<i>Catalog</i>
<i>Digital: Field Instruments for Process Automation</i>	<i>FI 01</i>	
<i>Digital: Display Recorders SIREC D</i>	<i>MP 20</i>	
<i>Digital: SIPART Controllers and Software</i>	<i>MP 31</i>	
Products for Weighing Technology	WT 10	
<i>Digital: Process Analytical Instruments</i>	<i>AP 01</i>	
<i>Digital: Process Analytics, Components for Continuous Emission Monitoring</i>	<i>AP 11</i>	
Low-Voltage Power Distribution and Electrical Installation Technology		
SENTRON · SIVACON · ALPHA	LV 10	
Protection, Switching, Measuring and Monitoring Devices, Switchboards and Distribution Systems		
Electrical Components for the Railway Industry	LV 12	
Power Monitoring Made Simple	LV 14	
Components for Industrial Control Panels according to UL Standards	LV 16	
<i>Digital: Air circuit breakers and molded case circuit breakers with UL certification</i>	<i>LV 18</i>	
3WT Air Circuit Breakers up to 4000 A	LV 35	
3VT Molded Case Circuit Breakers up to 1600 A	LV 36	
<i>Digital: SIVACON System Cubicles, System Lighting and System Air-Conditioning</i>	<i>LV 50</i>	
<i>Digital: ALPHA Distribution Systems</i>	<i>LV 51</i>	
ALPHA FIX Terminal Blocks	LV 52	
SIVACON S4 Power Distribution Boards	LV 56	
SIVACON 8PS Busbar Trunking Systems	LV 70	
<i>Digital: DELTA Switches and Socket Outlets</i>	<i>ET D1</i>	
Vacuum Switching Technology and Components for Medium Voltage	HG 11.01	
Power Supply		
SITOP Power supply	KT 10.1	
Safety Integrated		
Safety Technology for Factory Automation	SI 10	
SIMATIC HMI / PC-based Automation		
Human Machine Interface Systems/PC-based Automation	ST 80/ ST PC	
SIMATIC Ident		
Industrial Identification Systems	ID 10	
SIMATIC Industrial Automation Systems		
Products for Totally Integrated Automation	ST 70	
SIMATIC PCS 7 Process Control System	ST PCS 7	
System components		
SIMATIC PCS 7 Process Control System	ST PCS 7 T	
Technology components		
Add-ons for the SIMATIC PCS 7	ST PCS 7 AO	
Process Control System		
SIMATIC S7-400 advanced controller	ST 400	
SIMATIC NET		
Industrial Communication	IK PI	
SIRIUS Industrial Controls		
<i>Digital: SIRIUS Industrial Controls</i>	<i>IC 10</i>	

*Digital: These catalogs are only available as a PDF.***Siemens Industry Online Support**Digital versions of the catalogs are available on the Internet at:
www.siemens.com/lowvoltage/catalogs

Get more information

www.siemens.com/lowvoltage

Siemens AG
Energy Management
Low Voltage & Products
Postfach 10 09 53
93009 Regensburg
Germany

© Siemens AG 2019
Subject to change without prior notice
PDF (Extract from E86060-K8280-A101-A9-7600)
KG 0619 1802 En
Produced in Germany

The information provided in this catalog contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract. Availability and technical specifications are subject to change without notice.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.

Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit
<http://www.siemens.com/industrialsecurity>.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under
<http://www.siemens.com/industrialsecurity>.