

# Residual Current Protective Devices



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## Technical information

can be found at  
[www.siemens.com/lowvoltage/support](http://www.siemens.com/lowvoltage/support)

under Product List:  
 - Technical specifications

under Entry List:  
 - Updates  
 - Downloads  
 - FAQ  
 - Manuals  
 - Characteristic curves  
 - Certificates

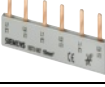
and at  
[www.siemens.com/lowvoltage/configurators](http://www.siemens.com/lowvoltage/configurators)  
 - Configurators

# Residual Current Protective Devices

## Introduction

### Overview

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| Devices                                                                             | Page                   | Application                                                                                                                                                                                                                                     | Standards                                      | Used in                   |                       |          |
|-------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------|-----------------------|----------|
|                                                                                     |                        |                                                                                                                                                                                                                                                 |                                                | Non-residential buildings | Residential buildings | Industry |
|    | <a href="#">4/4</a>    | 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                                   | ✓                         | ✓                     | ✓        |
|    | <a href="#">4/9</a>    | SIQUENCE, the technology of universal current-sensitive residual current protective devices                                                                                                                                                     | VDE 0664-100<br>VDE 0664-200<br>VDE V 0664-110 | ✓                         | --                    | ✓        |
|    | <a href="#">4/12</a>   | Remote controlled mechanisms, auxiliary switches for all residual current operated circuit breakers.<br>Leakage current measurement device for fault locating and the optimum selection of RCCBs                                                | IEC/EN 62019                                   | ✓                         | --                    | ✓        |
|   | <a href="#">4/14</a>   | The freely selectable combination of RC units with miniature circuit breakers permits the flexible configuration of RCBO combinations                                                                                                           | IEC/EN 61009                                   | ✓                         | --                    | ✓        |
|  | <a href="#">4/18</a>   | 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                                   | ✓                         | ✓                     | ✓        |
|  | <a href="#">4/25</a>   | Busbars in 10 mm <sup>2</sup> and 16 mm <sup>2</sup> save space in the distribution board and time during mounting                                                                                                                              | --                                             | ✓                         | ✓                     | ✓        |
|  | <a href="#">4/28</a>   | For retrofitting in existing installations                                                                                                                                                                                                      | VDE 0664                                       | ✓                         | ✓                     | ✓        |
|  | <a href="#">4/29</a>   | Locking devices, covers - everything you need for mounting                                                                                                                                                                                      | --                                             | ✓                         | ✓                     | ✓        |
|  | <a href="#">Ch. 13</a> | Monitoring of residual currents in electrical plants with indication if a specified limit value is exceeded.<br><a href="#">see chapter: "Monitoring devices —&gt; Monitoring devices for electrical values —&gt; Residual current monitor"</a> | IEC 62020<br>EN 62020                          | ✓                         | --                    | ✓        |

## 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 in accordance with product standard EN 61008-1, the operation interval for pressing the test button can be extended to 1x a year.

**Super resistant** **K**

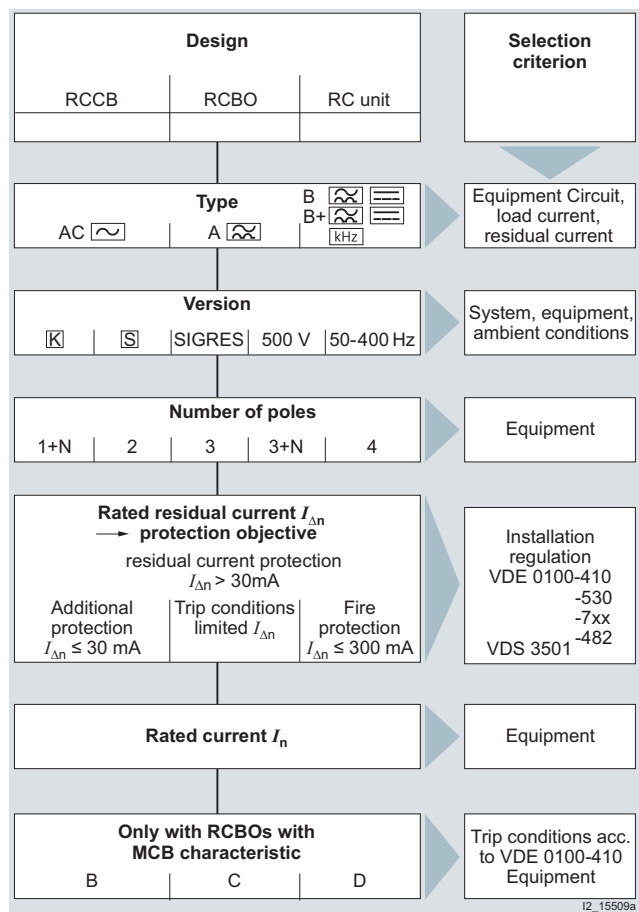
Super resistant (short-time delayed) RCCBs meet the maximum permissible break times for instantaneous devices. However, by implementing a short-time delay they prevent unnecessary tripping, and thus plant faults, when pulse-shaped leakage currents occur - as is the case when capacitors are switched on.

**Selective** **S**

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

Note:

You will find further information on the subject of residual current protective devices in the technology primer "Residual Current Protective Devices", Order No.: E10003-E38-9T-B3011 and in the Technology Manual at: [www.siemens.com/lowvoltage/manuals](http://www.siemens.com/lowvoltage/manuals)



Selection aid for finding the suitable residual current protective device

# Residual Current Protective Devices

## 5SM3 RCCBs

### Overview

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

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

Since 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 preventative fire protection in case of insulation faults. RCCBs with a rated residual current of 100 mA are primarily used inside Europe.

### Benefits

- Instantaneous RCCBs with the N connection on the left-hand side enable simple bus mounting with standard pin busbars with miniature circuit breakers installed on the right-hand side
- Instantaneous RCCBs with the N connection on the right-hand side can be bus-mounted with miniature circuit breakers using a special pin busbar
- Instantaneous devices have a surge current withstand capability with current waveform 8/20  $\mu$ s of over 1 kA, super resistant of over 3 kA and selective of over 5 kA. This ensures safe operation
- SIGRES has an extremely long service life due to patented active condensation protection and the same dimensions for the quick and easy replacement of instantaneous RCCBs already installed
- Super resistant devices increase plant availability, as unnecessary tripping is prevented in systems with short-time glitches
- Selective RCCBs increase plant availability, as in the event of a fault, a staggered tripping time enables the selective tripping of RCCBs connected in series
- Auxiliary switches or remote controlled mechanisms are also available as additional components
- The operating handle and the test button can be locked by means of a handle locking device.

### Technical specifications

|                                                                     |                                   |                                 | Instantaneous                                                                            | SIGRES                                                                                                       | Super resistant | Selective   |
|---------------------------------------------------------------------|-----------------------------------|---------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------|-------------|
| Standards                                                           |                                   |                                 | IEC/EN 61008-1 (VDE 0664-10), IEC/EN 61008-2-1 (VDE 0664-11); IEC/EN 61543 (VDE 0664-30) |                                                                                                              |                 |             |
| Approvals                                                           |                                   |                                 | IEC 61008-1, IEC 61008-2-1; EN 61008-1, EN 61008-2-1                                     |                                                                                                              |                 |             |
| Surge current withstand capability<br>with current waveform 8/20 μs |                                   | Acc. to DIN VDE 0432-2          | kA                                                                                       | > 1 (type A)                                                                                                 | > 3             | > 5         |
| Minimum operational voltage for test function operation             |                                   | V AC                            | 100                                                                                      |                                                                                                              |                 |             |
| Insulation coordination<br>• Overvoltage category                   |                                   |                                 | III                                                                                      |                                                                                                              |                 |             |
| Pollution degree                                                    |                                   |                                 | 2                                                                                        |                                                                                                              |                 |             |
| Terminal conductor cross-sections                                   |                                   |                                 |                                                                                          |                                                                                                              |                 |             |
| • For 2 MW                                                          | At $I_n = 16$ A, 25 A, 40 A       | mm <sup>2</sup>                 | 1.0 ... 16                                                                               | --                                                                                                           | --              | --          |
|                                                                     | At $I_n = 100$ A, 125 A           | mm <sup>2</sup>                 | 1.5 ... 50                                                                               |                                                                                                              |                 |             |
| • For 2.5 MW                                                        | At $I_n = 63$ A, 80 A             | mm <sup>2</sup>                 | 1.5 ... 25                                                                               | --                                                                                                           | --              | 2.5 ... 50  |
| • For 4 MW                                                          | At $I_n = 25$ A, 40 A, 63 A, 80 A | mm <sup>2</sup>                 | 1.5 ... 25                                                                               |                                                                                                              |                 |             |
|                                                                     | At $I_n = 125$ A                  | mm <sup>2</sup>                 | 2.5 ... 50                                                                               |                                                                                                              |                 |             |
| Terminal tightening torque                                          |                                   |                                 |                                                                                          |                                                                                                              |                 |             |
| • Up to $I_n$ 80 A                                                  |                                   | Nm                              | 2.5 ... 3.0                                                                              | --                                                                                                           | --              | 3.0 ... 3.5 |
| • at $I_n = 100$ A, 125 A                                           |                                   | Nm                              | 3.0 ... 3.5                                                                              |                                                                                                              |                 |             |
| Mains connection                                                    |                                   |                                 | Top or bottom                                                                            | Bottom                                                                                                       | Top or bottom   |             |
| Mounting position                                                   |                                   |                                 | Any                                                                                      |                                                                                                              |                 |             |
| Degree of protection                                                |                                   | Acc. to EN 60529 (VDE 0470-1)   | IP20, if the distribution board is installed, with connected conductors                  |                                                                                                              |                 |             |
| Touch protection                                                    |                                   | Acc. to EN 50274 (VDE 0660-514) | Finger and back-of-hand safe                                                             |                                                                                                              |                 |             |
| Service life                                                        |                                   | Test cycle acc. to IEC/EN 61008 | Switching cycles                                                                         | > 10000                                                                                                      |                 |             |
| Storage temperature                                                 |                                   | °C                              |                                                                                          | -40 ... +75                                                                                                  |                 |             |
| Ambient temperature                                                 |                                   | °C                              |                                                                                          | -25 ... +45, marked with  |                 |             |
| Resistance to climate                                               |                                   | Acc. to IEC 60068-2-30          |                                                                                          | 28 cycles (55 °C; 95 % rel. air humidity)                                                                    |                 |             |
| CFC and silicone-free                                               |                                   |                                 | Yes                                                                                      |                                                                                                              |                 |             |

## Selection and ordering data

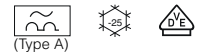


|                                                                                    | Rated residual current                 | Rated current | Max. permissible short-circuit series fuse | Mounting width | DT  | Order No.           | Price per PU | PU (UNIT, SET, M) | PS*/P. unit | PG  | Weight per PU approx. |
|------------------------------------------------------------------------------------|----------------------------------------|---------------|--------------------------------------------|----------------|-----|---------------------|--------------|-------------------|-------------|-----|-----------------------|
|                                                                                    | $I_{\Delta n}$                         | $I_n$         |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | mA                                     | A             | A                                          | MW             |     |                     |              |                   | Unit(s)     |     | kg                    |
| <b>RCCBs, type AC, instantaneous, surge current withstand capability &gt; 1 kA</b> |                                        |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | 1P+N; 125 V ... 230 V AC, 50 ... 60 Hz |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | 30                                     | 25            | 63                                         | 2              | B   | <b>5SM3 312-0LB</b> |              | 1                 | 1 unit      | 006 | 0.246                 |
|                                                                                    |                                        | 40            |                                            |                | B   | <b>5SM3 314-0LB</b> |              | 1                 | 1 unit      | 006 | 0.250                 |
|                                                                                    | 100                                    | 25            |                                            |                | B   | <b>5SM3 412-0LB</b> |              | 1                 | 1 unit      | 006 | 0.239                 |
|                                                                                    |                                        | 40            |                                            |                | B   | <b>5SM3 414-0LB</b> |              | 1                 | 1 unit      | 006 | 0.242                 |
|                                                                                    |                                        |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | 4P; 230 ... 400 V AC, 50 ... 60 Hz     |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | 30                                     | 25            | 63                                         | 4              | B   | <b>5SM3 342-0LB</b> |              | 1                 | 1 unit      | 006 | 0.494                 |
|                                                                                    |                                        | 40            |                                            |                | A   | <b>5SM3 344-0LB</b> |              | 1                 | 1 unit      | 006 | 0.494                 |
|                                                                                    |                                        | 63            |                                            |                | B   | <b>5SM3 346-0LB</b> |              | 1                 | 1 unit      | 006 | 0.501                 |
|                                                                                    | 100                                    | 25            |                                            |                | B   | <b>5SM3 442-0LB</b> |              | 1                 | 1 unit      | 006 | 0.475                 |
|                                                                                    |                                        | 40            |                                            |                | B   | <b>5SM3 444-0LB</b> |              | 1                 | 1 unit      | 006 | 0.474                 |
|                                                                                    |                                        | 63            |                                            |                | B   | <b>5SM3 446-0LB</b> |              | 1                 | 1 unit      | 006 | 0.488                 |
|                                                                                    | 300                                    | 25            |                                            |                | C   | <b>5SM3 642-0LB</b> |              | 1                 | 1 unit      | 006 | 0.459                 |
|                                                                                    |                                        | 40            |                                            |                | B   | <b>5SM3 644-0LB</b> |              | 1                 | 1 unit      | 006 | 0.466                 |
|                                                                                    |                                        | 63            |                                            |                | B   | <b>5SM3 646-0LB</b> |              | 1                 | 1 unit      | 006 | 0.465                 |
|                                                                                    |                                        |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    |                                        |               |                                            |                |     |                     |              |                   |             |     |                       |
| <b>RCCBs, type AC instantaneous</b>                                                |                                        |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | 1P+N; 125 V ... 230 V AC, 50 ... 60 Hz |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | 30                                     | 25            | 63                                         | 2              | ▶ A | <b>5SM3 312-0</b>   |              | 1                 | 1 unit      | 006 | 0.243                 |
|                                                                                    |                                        | 40            |                                            |                | A   | <b>5SM3 314-0</b>   |              | 1                 | 1 unit      | 006 | 0.244                 |
|                                                                                    | 100                                    | 25            |                                            |                | B   | <b>5SM3 412-0</b>   |              | 1                 | 1 unit      | 006 | 0.234                 |
|                                                                                    |                                        | 40            |                                            |                | B   | <b>5SM3 414-0</b>   |              | 1                 | 1 unit      | 006 | 0.236                 |
|                                                                                    |                                        |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | 3P+N; 230 ... 400 V AC; 50 ... 60 Hz   |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | 30                                     | 25            | 63                                         | 4              | A   | <b>5SM3 342-0</b>   |              | 1                 | 1 unit      | 006 | 0.469                 |
|                                                                                    |                                        | 40            |                                            |                | A   | <b>5SM3 344-0</b>   |              | 1                 | 1 unit      | 006 | 0.485                 |
|                                                                                    |                                        | 63            |                                            |                | A   | <b>5SM3 346-0</b>   |              | 1                 | 1 unit      | 006 | 0.500                 |
|                                                                                    | 100                                    | 25            |                                            |                | B   | <b>5SM3 442-0</b>   |              | 1                 | 1 unit      | 006 | 0.466                 |
|                                                                                    |                                        | 40            |                                            |                | B   | <b>5SM3 444-0</b>   |              | 1                 | 1 unit      | 006 | 0.467                 |
|                                                                                    |                                        | 63            |                                            |                | B   | <b>5SM3 446-0</b>   |              | 1                 | 1 unit      | 006 | 0.479                 |
|                                                                                    | 300                                    | 25            |                                            |                | A   | <b>5SM3 642-0</b>   |              | 1                 | 1 unit      | 006 | 0.454                 |
|                                                                                    |                                        | 40            |                                            |                | C   | <b>5SM3 644-0</b>   |              | 1                 | 1 unit      | 006 | 0.456                 |
|                                                                                    |                                        | 63            |                                            |                | A   | <b>5SM3 646-0</b>   |              | 1                 | 1 unit      | 006 | 0.457                 |
|                                                                                    |                                        |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    |                                        |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | 3P+N; 230 ... 400 V AC; 50 ... 60 Hz   |               |                                            |                |     |                     |              |                   |             |     |                       |
|                                                                                    | 30                                     | 125           | 125                                        | 4              | C   | <b>5SM3 345-0</b>   |              | 1                 | 1 unit      | 006 | 0.566                 |
|                                                                                    | 100                                    | 125           |                                            |                | B   | <b>5SM3 445-0</b>   |              | 1                 | 1 unit      | 006 | 0.541                 |
|                                                                                    | 300                                    | 125           |                                            |                | C   | <b>5SM3 645-0</b>   |              | 1                 | 1 unit      | 006 | 0.548                 |
|                                                                                    | 500                                    | 125           |                                            |                | B   | <b>5SM3 745-0</b>   |              | 1                 | 1 unit      | 006 | 0.525                 |

# Residual Current Protective Devices

## 5SM3 RCCBs

### Selection and ordering data



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|                                      | Rated residual current<br>$I_{\Delta n}$<br>mA | Rated current<br>$I_n$<br>A | Max. permissible short-circuit series fuse<br>10 000<br>A | Mounting width<br>MW | DT | Order No.           | Price per PU | PU (UNIT, SET, M) | PS*/P. unit | PG  | Weight per PU approx.<br>kg |
|--------------------------------------|------------------------------------------------|-----------------------------|-----------------------------------------------------------|----------------------|----|---------------------|--------------|-------------------|-------------|-----|-----------------------------|
| <b>RCCBs, type A, instantaneous</b>  |                                                |                             |                                                           |                      |    |                     |              |                   |             |     |                             |
| 1P+N; 125 ... 230 V AC; 50 ... 60 Hz |                                                |                             |                                                           |                      |    |                     |              |                   |             |     |                             |
| N connection, right                  |                                                |                             |                                                           |                      |    |                     |              |                   |             |     |                             |
|                                      | 10                                             | 16                          | 63                                                        | 2                    | A  | <b>5SM3 111-6</b>   |              | 1                 | 1 unit      | 007 | 0.251                       |
|                                      | 30                                             | 16                          | 63                                                        | 2                    | A  | <b>5SM3 311-6</b>   |              | 1                 | 1 unit      | 007 | 0.248                       |
|                                      |                                                | 25                          |                                                           |                      | ▶  | <b>5SM3 312-6</b>   |              | 1                 | 1 unit      | 007 | 0.248                       |
|                                      |                                                | 40                          |                                                           |                      | D  | <b>5SM3 314-6</b>   |              | 1                 | 1 unit      | 007 | 0.247                       |
|                                      |                                                | 63                          | 100                                                       | 2.5                  | A  | <b>5SM3 316-6</b>   |              | 1                 | 1 unit      | 007 | 0.328                       |
| Up to 40 A                           |                                                | 80                          |                                                           |                      | B  | <b>5SM3 317-6</b>   |              | 1                 | 1 unit      | 007 | 0.330                       |
|                                      |                                                | 100                         |                                                           | 2                    | B  | <b>5SM3 318-6KK</b> |              | 1                 | 1 unit      | 007 | 0.272                       |
|                                      |                                                | 125                         |                                                           |                      | B  | <b>5SM3 315-6KK</b> |              | 1                 | 1 unit      | 007 | 0.269                       |
|                                      | 100                                            | 25                          | 63                                                        | 2                    | B  | <b>5SM3 412-6</b>   |              | 1                 | 1 unit      | 007 | 0.240                       |
|                                      |                                                | 40                          |                                                           |                      | B  | <b>5SM3 414-6</b>   |              | 1                 | 1 unit      | 007 | 0.240                       |
|                                      |                                                | 63                          | 100                                                       | 2.5                  | B  | <b>5SM3 416-6</b>   |              | 1                 | 1 unit      | 007 | 0.315                       |
|                                      |                                                | 80                          |                                                           |                      | B  | <b>5SM3 417-6</b>   |              | 1                 | 1 unit      | 007 | 0.324                       |
|                                      |                                                | 100                         | 125                                                       | 2                    | B  | <b>5SM3 418-6KK</b> |              | 1                 | 1 unit      | 007 | 0.272                       |
|                                      |                                                | 125                         |                                                           |                      | B  | <b>5SM3 415-6KK</b> |              | 1                 | 1 unit      | 007 | 0.273                       |
|                                      | 300                                            | 25                          | 63                                                        | 2                    | A  | <b>5SM3 612-6</b>   |              | 1                 | 1 unit      | 007 | 0.231                       |
| 63 A and 80 A                        |                                                | 40                          |                                                           |                      | A  | <b>5SM3 614-6</b>   |              | 1                 | 1 unit      | 007 | 0.233                       |
|                                      |                                                | 63                          | 100                                                       | 2.5                  | B  | <b>5SM3 616-6</b>   |              | 1                 | 1 unit      | 007 | 0.299                       |
|                                      |                                                | 80                          |                                                           |                      | B  | <b>5SM3 617-6</b>   |              | 1                 | 1 unit      | 007 | 0.320                       |
|                                      |                                                | 100                         | 125                                                       | 2                    | B  | <b>5SM3 618-6KK</b> |              | 1                 | 1 unit      | 007 | 0.256                       |
|                                      |                                                | 125                         |                                                           |                      | B  | <b>5SM3 615-6KK</b> |              | 1                 | 1 unit      | 007 | 0.255                       |
| N connection, left                   |                                                |                             |                                                           |                      |    |                     |              |                   |             |     |                             |
|                                      | 10                                             | 16                          | 63                                                        | 2                    | B  | <b>5SM3 111-6KL</b> |              | 1                 | 1 unit      | 007 | 0.280                       |
|                                      | 30                                             | 16                          | 63                                                        | 2                    | C  | <b>5SM3 311-6KL</b> |              | 1                 | 1 unit      | 007 | 0.280                       |
|                                      |                                                | 25                          |                                                           |                      | B  | <b>5SM3 312-6KL</b> |              | 1                 | 1 unit      | 007 | 0.251                       |
|                                      |                                                | 40                          |                                                           |                      | B  | <b>5SM3 314-6KL</b> |              | 1                 | 1 unit      | 007 | 0.249                       |
|                                      |                                                | 63                          | 100                                                       | 2.5                  | C  | <b>5SM3 316-6KL</b> |              | 1                 | 1 unit      | 007 | 0.327                       |
| 100 A and 125 A                      |                                                | 80                          |                                                           |                      | C  | <b>5SM3 317-6KL</b> |              | 1                 | 1 unit      | 007 | 0.330                       |
|                                      | 100                                            | 40                          | 63                                                        | 2                    | C  | <b>5SM3 414-6KL</b> |              | 1                 | 1 unit      | 007 | 0.280                       |
|                                      |                                                | 63                          | 100                                                       | 2.5                  | C  | <b>5SM3 416-6KL</b> |              | 1                 | 1 unit      | 007 | 0.310                       |
|                                      | 300                                            | 25                          | 63                                                        | 2                    | B  | <b>5SM3 612-6KL</b> |              | 1                 | 1 unit      | 007 | 0.234                       |
|                                      |                                                | 40                          |                                                           |                      | B  | <b>5SM3 614-6KL</b> |              | 1                 | 1 unit      | 007 | 0.235                       |
|                                      |                                                | 63                          | 100                                                       | 2.5                  | B  | <b>5SM3 616-6KL</b> |              | 1                 | 1 unit      | 007 | 0.313                       |
| 3P+N; 230 ... 400 V AC; 50 ... 60 Hz |                                                |                             |                                                           |                      |    |                     |              |                   |             |     |                             |
| N connection, right                  |                                                |                             |                                                           |                      |    |                     |              |                   |             |     |                             |
|                                      | 30                                             | 25                          | 100                                                       | 4                    | D  | <b>5SM3 342-6</b>   |              | 1                 | 1 unit      | 007 | 0.494                       |
|                                      |                                                | 40                          |                                                           |                      | ▶  | <b>5SM3 344-6</b>   |              | 1                 | 1 unit      | 007 | 0.495                       |
|                                      |                                                | 63                          |                                                           |                      | ▶  | <b>5SM3 346-6</b>   |              | 1                 | 1 unit      | 007 | 0.530                       |
|                                      |                                                | 80                          |                                                           |                      | A  | <b>5SM3 347-6</b>   |              | 1                 | 1 unit      | 007 | 0.535                       |
|                                      |                                                | 100                         |                                                           |                      | ▶  | <b>5SM3 348-6</b>   |              | 1                 | 1 unit      | 007 | 0.538                       |
| Up to 80 A                           |                                                | 125                         | 125                                                       |                      | A  | <b>5SM3 345-6</b>   |              | 1                 | 1 unit      | 007 | 0.564                       |
|                                      | 100                                            | 40                          | 100                                                       | 4                    | A  | <b>5SM3 444-6</b>   |              | 1                 | 1 unit      | 007 | 0.474                       |
|                                      |                                                | 63                          |                                                           |                      | A  | <b>5SM3 446-6</b>   |              | 1                 | 1 unit      | 007 | 0.488                       |
|                                      |                                                | 100                         |                                                           |                      | ▶  | <b>5SM3 448-6</b>   |              | 1                 | 1 unit      | 007 | 0.538                       |
|                                      |                                                | 125                         | 125                                                       |                      | B  | <b>5SM3 445-6</b>   |              | 1                 | 1 unit      | 007 | 0.538                       |
|                                      | 300                                            | 25                          | 100                                                       | 4                    | A  | <b>5SM3 642-6</b>   |              | 1                 | 1 unit      | 007 | 0.457                       |
|                                      |                                                | 40                          |                                                           |                      | ▶  | <b>5SM3 644-6</b>   |              | 1                 | 1 unit      | 007 | 0.460                       |
|                                      |                                                | 63                          |                                                           |                      | ▶  | <b>5SM3 646-6</b>   |              | 1                 | 1 unit      | 007 | 0.460                       |
|                                      |                                                | 80                          |                                                           |                      | A  | <b>5SM3 647-6</b>   |              | 1                 | 1 unit      | 007 | 0.462                       |
|                                      |                                                | 100                         |                                                           |                      | ▶  | <b>5SM3 648-6</b>   |              | 1                 | 1 unit      | 007 | 0.538                       |
| 100 A and 125 A                      |                                                | 125                         | 125                                                       |                      | A  | <b>5SM3 645-6</b>   |              | 1                 | 1 unit      | 007 | 0.540                       |
|                                      | 500                                            | 25                          | 100                                                       | 4                    | B  | <b>5SM3 742-6</b>   |              | 1                 | 1 unit      | 007 | 0.462                       |
|                                      |                                                | 40                          |                                                           |                      | A  | <b>5SM3 744-6</b>   |              | 1                 | 1 unit      | 007 | 0.463                       |
|                                      |                                                | 63                          |                                                           |                      | A  | <b>5SM3 746-6</b>   |              | 1                 | 1 unit      | 007 | 0.460                       |
|                                      |                                                | 100                         |                                                           |                      | ▶  | <b>5SM3 748-6</b>   |              | 1                 | 1 unit      | 007 | 0.538                       |
|                                      |                                                | 125                         | 125                                                       |                      | A  | <b>5SM3 745-6</b>   |              | 1                 | 1 unit      | 007 | 0.527                       |

## 5SM3 RCCBs

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

# Residual Current Protective Devices

## 5SM3 RCCBs

4

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

Up to 80 A



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

#### Overview

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

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

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

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

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

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

#### Benefits

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

#### Technical specifications

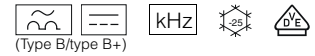
|                                                                                                |                 | SIQUENCE, RCCBs<br>type B and type B+<br>5SM3                                                                                             |                | SIQUENCE RCBOs<br>type B and type B+<br>5SU1                                         |
|------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------|
| <b>Standards</b>                                                                               |                 | IEC/EN 61008-1 (VDE 0664-10); VDE 0664-100;<br>IEC/EN 61543 (VDE 0664-30); IEC 62423<br>And in addition for type B+: DIN V VDE V 0664-110 |                | IEC/EN 61009-1 (VDE 0664-20); VDE 0664-200;<br>IEC/EN 61543 (VDE 0664-30); IEC 62423 |
| <b>Versions</b>                                                                                |                 | 1P+N                                                                                                                                      | 3P+N           | 4P                                                                                   |
| <b>Tripping characteristic</b>                                                                 |                 | --                                                                                                                                        | --             | C, D                                                                                 |
| <b>Surge current withstand capability with current waveform 8/20 µs acc. to DIN VDE 0432-2</b> |                 |                                                                                                                                           |                |                                                                                      |
| • Super resistant                                                                              | kA              | > 3                                                                                                                                       | > 3            | > 3                                                                                  |
| • Selective                                                                                    | kA              | --                                                                                                                                        | > 5            | > 5                                                                                  |
| <b>Minimum operational voltage for test function operation</b>                                 | V AC            | 195                                                                                                                                       | 195            | 195                                                                                  |
| <b>Rated voltages <math>U_n</math></b>                                                         | V AC            | 230                                                                                                                                       | 400            | 400, 480                                                                             |
| <b>Rated frequency <math>f_n</math></b>                                                        | Hz              | 50 ... 60                                                                                                                                 |                |                                                                                      |
| <b>Rated currents <math>I_n</math></b>                                                         | A               | 16, 25, 40, 63                                                                                                                            | 25, 40, 63, 80 | 100, 125                                                                             |
| <b>Rated residual currents <math>I_{\Delta n}</math></b>                                       | mA              | 30, 300                                                                                                                                   | 30, 300, 500   | 30, 300                                                                              |
| <b>Rated breaking capacity</b>                                                                 |                 |                                                                                                                                           |                |                                                                                      |
| • $I_m$                                                                                        | A               | 800                                                                                                                                       |                | --                                                                                   |
| • $I_{cn}$                                                                                     | kA              | --                                                                                                                                        |                | 10                                                                                   |
| <b>Insulation coordination</b>                                                                 |                 |                                                                                                                                           |                |                                                                                      |
| • Overvoltage category                                                                         |                 | III                                                                                                                                       |                |                                                                                      |
| <b>Conductor cross-sections</b>                                                                |                 |                                                                                                                                           |                |                                                                                      |
| • Solid and stranded                                                                           | mm <sup>2</sup> | 1.5 ... 25                                                                                                                                |                | 6 ... 50                                                                             |
| • Finely stranded, with end sleeve                                                             | mm <sup>2</sup> | 1.5 ... 16                                                                                                                                |                | 6 ... 35                                                                             |
| <b>Terminal tightening torques for all devices</b>                                             | Nm              | 2.5 ... 3.0                                                                                                                               |                | 3.0 ... 3.5                                                                          |
| <b>Mains connection</b>                                                                        |                 | Either top or bottom                                                                                                                      |                |                                                                                      |
| <b>Mounting position</b>                                                                       |                 | any                                                                                                                                       |                |                                                                                      |
| <b>Degree of protection according to EN 60529 (VDE 0470-1)</b>                                 |                 | IP20, if the distribution board is installed, with connected conductors                                                                   |                |                                                                                      |
| <b>Touch protection according to EN 50274 (VDE 0660-514)</b>                                   |                 | Finger and back-of-hand safe                                                                                                              |                |                                                                                      |
| <b>Service life, electrical and mechanical; (test cycle according to regulations)</b>          |                 | > 10 000 switching cycles                                                                                                                 |                |                                                                                      |
| <b>Storage temperature</b>                                                                     | °C              | -40 ... +75                                                                                                                               |                |                                                                                      |
| <b>Ambient temperature</b>                                                                     | °C              | -25 ... +45, marked with                               |                |                                                                                      |
| <b>Resistance to climate acc. to IEC 60068-2-30</b>                                            |                 | 28 cycles (55 °C; 95 % rel. air humidity)                                                                                                 |                |                                                                                      |
| <b>CFC and silicone-free</b>                                                                   |                 | Yes                                                                                                                                       |                |                                                                                      |

$I^2t$  characteristic curves, see Technology Manual at: [www.siemens.com/lowvoltage/manuals](http://www.siemens.com/lowvoltage/manuals).

# Residual Current Protective Devices

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

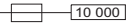
### Selection and ordering data



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

## Residual Current Protective Devices

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

|                                                                                     | Rated residual current                                                            | Rated current | Max. permissible short-circuit series fuse                                                    | Mounting width | DT     | Order No.                                      | Price per PU | PU (UNIT, SET, M) | PS*/P. unit      | PG         | Weight per PU approx. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------|----------------|--------|------------------------------------------------|--------------|-------------------|------------------|------------|-----------------------|
|                                                                                     | $I_{\Delta n}$<br>mA                                                              | $I_n$<br>A    |  10 000<br>A | MW             |        |                                                |              |                   |                  |            | kg                    |
|    | <b>SIQUENCE RCCBs, type B+ selective [S]</b>                                      |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 3P+N; 230 ... 400 V AC; 50 ... 60 Hz                                              |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 300                                                                               | 63<br>80      | 100                                                                                           | 4              | X<br>X | <b>5SM3 646-5KK14</b><br><b>5SM3 647-5KK14</b> |              | 1<br>1            | 1 unit<br>1 unit | 015<br>015 | 0.600<br>0.600        |
|    | <b>SIQUENCE RCBOs, type B super resistant [K], rated breaking capacity 10 kA</b>  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 4P; 400 V AC; 50 ... 60 Hz                                                        |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | Characteristic C                                                                  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 30                                                                                | 100<br>125    |                                                                                               | 11             | B<br>B | <b>5SU1 374-7AK81</b><br><b>5SU1 374-7AK82</b> |              | 1<br>1            | 1 unit<br>1 unit | 017<br>017 | 2.067<br>2.053        |
|                                                                                     | 300                                                                               | 100<br>125    |                                                                                               | 11             | B<br>B | <b>5SU1 674-7AK81</b><br><b>5SU1 674-7AK82</b> |              | 1<br>1            | 1 unit<br>1 unit | 017<br>017 | 2.069<br>2.088        |
|                                                                                     | Characteristic D                                                                  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 30                                                                                | 100           |                                                                                               | 11             | B      | <b>5SU1 374-8AK81</b>                          |              | 1                 | 1 unit           | 017        | 2.084                 |
|                                                                                     | 300                                                                               | 100           |                                                                                               | 11             | B      | <b>5SU1 674-8AK81</b>                          |              | 1                 | 1 unit           | 017        | 2.082                 |
|                                                                                     | 4P; 480 V AC; 50 ... 60 Hz                                                        |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | Characteristic C                                                                  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 300                                                                               | 100<br>125    |                                                                                               | 11             | C<br>B | <b>5SU1 674-7CK81</b><br><b>5SU1 674-7CK82</b> |              | 1<br>1            | 1 unit<br>1 unit | 017<br>017 | 2.050<br>2.050        |
|  | <b>SIQUENCE RCBOs, type B selective [S], rated breaking capacity 10 kA</b>        |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 4P; 400 V AC; 50 ... 60 Hz                                                        |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | Characteristic C                                                                  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 300                                                                               | 125           |                                                                                               | 11             | B      | <b>5SU1 674-7BK82</b>                          |              | 1                 | 1 unit           | 017        | 2.082                 |
|                                                                                     | Characteristic D                                                                  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 300                                                                               | 100           |                                                                                               | 11             | C      | <b>5SU1 674-8BK81</b>                          |              | 1                 | 1 unit           | 017        | 2.078                 |
|  | <b>SIQUENCE RCBOs, type B+ super resistant [K], rated breaking capacity 10 kA</b> |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 4P; 400 V AC; 50 ... 60 Hz                                                        |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | Characteristic C                                                                  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 30                                                                                | 100<br>125    |                                                                                               | 11             | C<br>C | <b>5SU1 374-7DK81</b><br><b>5SU1 374-7DK82</b> |              | 1<br>1            | 1 unit<br>1 unit | 017<br>017 | 2.067<br>2.053        |
|                                                                                     | 300                                                                               | 100<br>125    |                                                                                               | 11             | C<br>D | <b>5SU1 674-7DK81</b><br><b>5SU1 674-7DK82</b> |              | 1<br>1            | 1 unit<br>1 unit | 017<br>017 | 2.069<br>2.088        |
|                                                                                     | Characteristic D                                                                  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 30                                                                                | 100           |                                                                                               | 11             | C      | <b>5SU1 374-8DK81</b>                          |              | 1                 | 1 unit           | 017        | 2.084                 |
|                                                                                     | 300                                                                               | 100           |                                                                                               | 11             | C      | <b>5SU1 674-8DK81</b>                          |              | 1                 | 1 unit           | 017        | 2.082                 |
|                                                                                     | 4P; 480 V AC; 50 ... 60 Hz                                                        |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | Characteristic C                                                                  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 300                                                                               | 100<br>125    |                                                                                               | 11             | C<br>C | <b>5SU1 674-7FK81</b><br><b>5SU1 674-7FK82</b> |              | 1<br>1            | 1 unit<br>1 unit | 017<br>017 | 2.050<br>2.050        |
|  | <b>SIQUENCE RCBOs, type B+ selective [S], rated breaking capacity 10 kA</b>       |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 4P; 400 V AC; 50 ... 60 Hz                                                        |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | Characteristic C                                                                  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 300                                                                               | 125           |                                                                                               | 11             | C      | <b>5SU1 674-7EK82</b>                          |              | 1                 | 1 unit           | 017        | 2.082                 |
|                                                                                     | Characteristic D                                                                  |               |                                                                                               |                |        |                                                |              |                   |                  |            |                       |
|                                                                                     | 300                                                                               | 100           |                                                                                               | 11             | C      | <b>5SU1 674-8EK81</b>                          |              | 1                 | 1 unit           | 017        | 2.078                 |

# Residual Current Protective Devices

## Additional components

### Overview

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

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

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

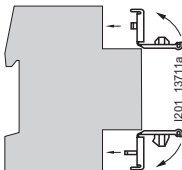
### Benefits

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

### Technical specifications

|                                 |                 | Auxiliary switches (AS)<br>5SW3 30. | Auxiliary switches (AS)<br>5SW3 330 |
|---------------------------------|-----------------|-------------------------------------|-------------------------------------|
| <b>Standards</b>                |                 | IEC/EN 60947-5-1                    |                                     |
| <b>Approvals</b>                |                 | DIN VDE 0660-200                    |                                     |
| <b>Terminals</b>                |                 |                                     |                                     |
| • Conductor cross-section       | mm <sup>2</sup> | 0.75 ... 2.5                        |                                     |
| • Tightening torques            | Nm              | 0.6 ... 0.8                         |                                     |
| <b>Short-circuit protection</b> |                 | B6 or C6 or gL/gG 6 A fuse          |                                     |
| <b>Min. contact load</b>        |                 | 50 mA/24 V                          |                                     |
| <b>Max. contact load</b>        |                 |                                     |                                     |
| • 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                                 |

## Selection and ordering data

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

# Residual Current Protective Devices

## 5SM2 RC units

### Overview

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

RCCBs with a rated residual current of maximum 30 mA are used for personnel, material and fire protection, as well as for protection against direct contact.

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

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

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

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

### Benefits

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

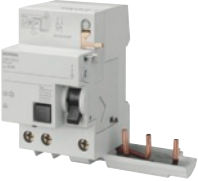
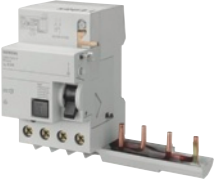
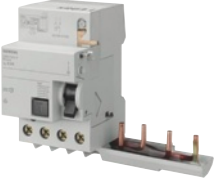


### Technical specifications

|                                                                                                             |                                 | 5SM2                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standards</b>                                                                                            |                                 | IEC/EN 61009-1 (VDE 0664-20), IEC/EN 61009-2-1 (VDE 0664-21), IEC/EN 61543 (VDE 0664-30)                                                                                                           |
| <b>Approvals</b>                                                                                            |                                 | EN 61009-1, EN 61009-2-1; IEC 61009-1, IEC 61009-2-1                                                                                                                                               |
| <b>Surge current withstand capability</b><br>With current waveform 8/20 $\mu$ s      Acc. to DIN VDE 0432-2 |                                 |                                                                                                                                                                                                    |
| • Instantaneous                                                                                             | kA                              | > 1 (type A)                                                                                                                                                                                       |
| • Super resistant                                                                                           | kA                              | > 3                                                                                                                                                                                                |
| • Selective                                                                                                 | kA                              | > 5                                                                                                                                                                                                |
| <b>Minimum operational voltage for test function operation</b>                                              |                                 |                                                                                                                                                                                                    |
| • Up to $I_n = 63$ A, 2 and 3-pole                                                                          | V AC                            | 195                                                                                                                                                                                                |
| • Up to $I_n = 63$ A, 4-pole                                                                                | V AC                            | 100                                                                                                                                                                                                |
| • At $I_n = 80 \dots 100$ A                                                                                 | V AC                            | 100                                                                                                                                                                                                |
| <b>Rated voltage <math>U_n</math></b>                                                                       | V AC                            | 230 ... 400                                                                                                                                                                                        |
| <b>Rated frequency <math>f_n</math></b>                                                                     | Hz                              | 50 ... 60                                                                                                                                                                                          |
| <b>Rated currents <math>I_n</math></b>                                                                      | A                               | 0.3 ... 16; 0.3 ... 40; 0.3 ... 63; 80 ... 100                                                                                                                                                     |
| <b>Rated residual currents <math>I_{\Delta n}</math></b>                                                    | mA                              | 10, 30, 100, 300, 500, 1000                                                                                                                                                                        |
| <b>Insulation coordination</b><br>• Overvoltage category                                                    |                                 | III                                                                                                                                                                                                |
| <b>Pollution degree</b>                                                                                     |                                 | 2                                                                                                                                                                                                  |
| <b>Terminal conduct. cross-sections</b><br>• Up to $I_n$ 63 A<br>• At $I_n = 80 \dots 100$ A                |                                 | mm <sup>2</sup><br>mm <sup>2</sup><br>1.5 ... 25<br>6.0 ... 50                                                                                                                                     |
| <b>Terminal tightening torque</b>                                                                           | Nm                              | 2.5 ... 3.0                                                                                                                                                                                        |
| <b>Mains connection</b>                                                                                     |                                 | Either top or bottom                                                                                                                                                                               |
| <b>Mounting position</b>                                                                                    |                                 | any                                                                                                                                                                                                |
| <b>Degree of protection</b>                                                                                 | Acc. to EN 60529 (VDE 0470-1)   | IP20, if the distribution board is installed, with connected conductors                                                                                                                            |
| <b>Touch protection</b>                                                                                     | Acc. to EN 50274 (VDE 0660-514) | Finger and back-of-hand safe                                                                                                                                                                       |
| <b>Service life</b>                                                                                         | Test cycle acc. to DIN/EN 61009 | > 10 000 switching cycles                                                                                                                                                                          |
| <b>Storage temperature</b>                                                                                  | °C                              | -40 ... +75                                                                                                                                                                                        |
| <b>Ambient temperature</b>                                                                                  | °C                              | -25 ... +45,  marked with  |
| <b>Resistance to climate</b>                                                                                | Acc. to IEC 60068-2-30          | 28 cycles (55 °C; 95 % rel. air humidity)                                                                                                                                                          |
| <b>CFC and silicone-free</b>                                                                                |                                 | Yes                                                                                                                                                                                                |

## Selection and ordering data



|                                                                                                                                                                                               | Rated residual current             | Rated current | Mounting width | DT | Order No.         | Price per PU | PS*/P. unit | Weight per PU approx. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------|----------------|----|-------------------|--------------|-------------|-----------------------|
|                                                                                                                                                                                               | $I_{\Delta n}$<br>mA               | $I_n$<br>A    | MW             |    |                   |              |             | kg                    |
| <b>RC units, type AC, instantaneous</b><br>For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY3 0-7WM and 5SY6 0                                                          |                                    |               |                |    |                   |              |             |                       |
|                                                                                                              | 2P, 230 ... 400 V AC, 50 ... 60 Hz |               |                |    |                   |              |             |                       |
|                                                                                                                                                                                               | 10 <sup>1)</sup>                   | 0.3 ... 40    | 2              | B  | <b>5SM2 121-0</b> |              | 1 unit      | 0.198                 |
|                                                                                                                                                                                               | 30                                 |               |                | A  | <b>5SM2 322-0</b> |              | 1 unit      | 0.205                 |
|                                                                                                                                                                                               | 300                                |               |                | A  | <b>5SM2 622-0</b> |              | 1 unit      | 0.193                 |
|                                                                                                                                                                                               | 30                                 | 0.3 ... 63    |                | A  | <b>5SM2 325-0</b> |              | 1 unit      | 0.215                 |
|                                                                                                                                                                                               | 300                                |               |                | B  | <b>5SM2 625-0</b> |              | 1 unit      | 0.195                 |
|                                                                                                              | 3P, 230 ... 400 V AC; 50 ... 60 Hz |               |                |    |                   |              |             |                       |
|                                                                                                                                                                                               | 30                                 | 0.3 ... 40    | 3              | A  | <b>5SM2 332-0</b> |              | 1 unit      | 0.304                 |
|                                                                                                                                                                                               | 300                                |               |                | A  | <b>5SM2 632-0</b> |              | 1 unit      | 0.290                 |
|                                                                                                                                                                                               | 30                                 | 0.3 ... 63    |                | A  | <b>5SM2 335-0</b> |              | 1 unit      | 0.358                 |
|                                                                                                                                                                                               | 300                                |               |                | A  | <b>5SM2 635-0</b> |              | 1 unit      | 0.290                 |
|                                                                                                                                                                                               | 500                                |               |                | B  | <b>5SM2 735-0</b> |              | 1 unit      | 0.290                 |
|                                                                                                             | 4P, 230 ... 400 V AC, 50 ... 60 Hz |               |                |    |                   |              |             |                       |
|                                                                                                                                                                                               | 30                                 | 0.3 ... 40    | 3              | A  | <b>5SM2 342-0</b> |              | 1 unit      | 0.328                 |
|                                                                                                                                                                                               | 300                                |               |                | A  | <b>5SM2 642-0</b> |              | 1 unit      | 0.321                 |
|                                                                                                                                                                                               | 30                                 | 0.3 ... 63    |                | A  | <b>5SM2 345-0</b> |              | 1 unit      | 0.395                 |
|                                                                                                                                                                                               | 300                                |               |                | A  | <b>5SM2 645-0</b> |              | 1 unit      | 0.320                 |
|                                                                                                                                                                                               | 500                                |               |                | A  | <b>5SM2 745-0</b> |              | 1 unit      | 0.321                 |
| <b>RC units, type AC, selective </b><br>For 5SY MCB, not suitable for use with 5SY5, 5SY3 0-7WM and 5SY6 0 |                                    |               |                |    |                   |              |             |                       |
|                                                                                                            | 2P, 230 ... 400 V AC, 50 ... 60 Hz |               |                |    |                   |              |             |                       |
|                                                                                                                                                                                               | 300                                | 0.3 ... 40    | 2              | A  | <b>5SM2 622-2</b> |              | 1 unit      | 0.210                 |
|                                                                                                                                                                                               | 300                                | 0.3 ... 63    |                | B  | <b>5SM2 625-2</b> |              | 1 unit      | 0.213                 |
|                                                                                                            | 4P, 230 ... 400 V AC, 50 ... 60 Hz |               |                |    |                   |              |             |                       |
|                                                                                                                                                                                               | 300                                | 0.3 ... 63    | 3              | A  | <b>5SM2 645-2</b> |              | 1 unit      | 0.373                 |
|                                                                                                                                                                                               | 1000                               |               |                | A  | <b>5SM2 845-2</b> |              | 1 unit      | 0.330                 |
| <b>RC units, type AC, instantaneous</b><br>For 5SP4 miniature circuit breakers (characteristics B and C)                                                                                      |                                    |               |                |    |                   |              |             |                       |
|                                                                                                            | 2P, 230 ... 400 V AC, 50 ... 60 Hz |               |                |    |                   |              |             |                       |
|                                                                                                                                                                                               | 30                                 | 80 ... 100    | 3.5            | B  | <b>5SM2 327-0</b> |              | 1 unit      | 0.532                 |
|                                                                                                                                                                                               | 300                                |               |                | B  | <b>5SM2 627-0</b> |              | 1 unit      | 0.446                 |
|                                                                                                            | 4P, 230 ... 400 V AC, 50 ... 60 Hz |               |                |    |                   |              |             |                       |
|                                                                                                                                                                                               | 30                                 | 80 ... 100    | 5              | A  | <b>5SM2 347-0</b> |              | 1 unit      | 0.935                 |
|                                                                                                                                                                                               | 300                                |               |                | A  | <b>5SM2 647-0</b> |              | 1 unit      | 0.678                 |

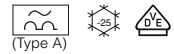
<sup>1)</sup> 2SM2 RC units with  $I_{\Delta n} = 10$  mA can be combined with switches  $I_n = 16$  A

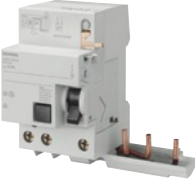


# Residual Current Protective Devices

## 5SM2 RC units

### Selection and ordering data

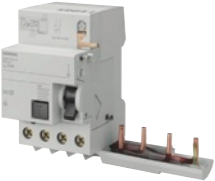


|                                                                                     | Rated residual current                                                                                                                                                       | Rated current | Mounting width | DT |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



## Residual Current Protective Devices

## 5SM2 RC units

|                                                                                     | Rated residual current                                                                                                      | Rated current | Mounting width | DT | Order No.             | Price per PU | PU (UNIT, SET, M) | PS*/P. unit | PG  | Weight per PU approx. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------|----------------|----|-----------------------|--------------|-------------------|-------------|-----|-----------------------|
|                                                                                     | $I_{\Delta n}$<br>mA                                                                                                        | $I_n$<br>A    | MW             |    |                       |              |                   |             |     | kg                    |
|    | <b>RC units, type A, super resistant [K]</b>                                                                                |               |                |    |                       |              |                   |             |     |                       |
|                                                                                     | For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 2P, 230 ... 400 V AC, 50 ... 60 Hz |               |                |    |                       |              |                   |             |     |                       |
|                                                                                     | 30                                                                                                                          | 0.3 ... 40    | 2              | B  | <b>5SM2 322-6KK01</b> |              | 1                 | 1 unit      | 007 | 0.215                 |
|                                                                                     | 30                                                                                                                          | 0.3 ... 63    |                | B  | <b>5SM2 325-6KK01</b> |              | 1                 | 1 unit      | 007 | 0.214                 |
|                                                                                     | For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 3P; 230 ... 400 V AC; 50 ... 60 Hz |               |                |    |                       |              |                   |             |     |                       |
|                                                                                     | 30                                                                                                                          | 0.3 ... 40    | 3              | B  | <b>5SM2 332-6KK01</b> |              | 1                 | 1 unit      | 007 | 0.365                 |
|                                                                                     | 30                                                                                                                          | 0.3 ... 63    |                | C  | <b>5SM2 335-6KK01</b> |              | 1                 | 1 unit      | 007 | 0.365                 |
|                                                                                     | For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 4P, 230 ... 400 V AC, 50 ... 60 Hz |               |                |    |                       |              |                   |             |     |                       |
|                                                                                     | 30                                                                                                                          | 0.3 ... 40    | 3              | B  | <b>5SM2 342-6KK01</b> |              | 1                 | 1 unit      | 007 | 0.390                 |
|                                                                                     | 30                                                                                                                          | 0.3 ... 63    |                | B  | <b>5SM2 345-6KK01</b> |              | 1                 | 1 unit      | 007 | 0.388                 |
|   | <b>RC units, type A, selective [S]</b>                                                                                      |               |                |    |                       |              |                   |             |     |                       |
|                                                                                     | For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 2P, 230 ... 400 V AC, 50 ... 60 Hz |               |                |    |                       |              |                   |             |     |                       |
|                                                                                     | 300                                                                                                                         | 0.3 ... 40    | 2              | A  | <b>5SM2 622-8</b>     |              | 1                 | 1 unit      | 007 | 0.210                 |
|                                                                                     | 300                                                                                                                         | 0.3 ... 63    |                | B  | <b>5SM2 625-8</b>     |              | 1                 | 1 unit      | 007 | 0.210                 |
|                                                                                     | For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 3P; 230 ... 400 V AC; 50 ... 60 Hz |               |                |    |                       |              |                   |             |     |                       |
|                                                                                     | 1000                                                                                                                        | 0.3 ... 40    | 3              | D  | <b>5SM2 832-8</b>     |              | 1                 | 1 unit      | 007 | 0.301                 |
|                                                                                     | 300                                                                                                                         | 0.3 ... 63    | 3              | B  | <b>5SM2 635-8</b>     |              | 1                 | 1 unit      | 007 | 0.341                 |
|                                                                                     | 500                                                                                                                         |               |                | B  | <b>5SM2 735-8</b>     |              | 1                 | 1 unit      | 007 | 0.323                 |
|                                                                                     | 1000                                                                                                                        |               |                | D  | <b>5SM2 835-8</b>     |              | 1                 | 1 unit      | 007 | 0.304                 |
|                                                                                     | For 5SY miniature circuit breakers, not suitable for use with 5SY5, 5SY8 and 5SY6 0... , 4P, 230 ... 400 V AC, 50 ... 60 Hz |               |                |    |                       |              |                   |             |     |                       |
|  | 300                                                                                                                         | 0.3 ... 63    | 3              | A  | <b>5SM2 645-8</b>     |              | 1                 | 1 unit      | 007 | 0.373                 |
|                                                                                     | 500                                                                                                                         |               |                | A  | <b>5SM2 745-8</b>     |              | 1                 | 1 unit      | 007 | 0.333                 |
|                                                                                     | 1000                                                                                                                        |               |                | A  | <b>5SM2 845-8</b>     |              | 1                 | 1 unit      | 007 | 0.333                 |
|                                                                                     |                                                                                                                             |               |                |    |                       |              |                   |             |     |                       |
|  | For 5SP4 miniature circuit breakers (characteristics B and C) 2P, 125 ... 230 V AC, 50 ... 60 Hz                            |               |                |    |                       |              |                   |             |     |                       |
|                                                                                     | 300                                                                                                                         | 80 ... 100    | 3.5            | B  | <b>5SM2 627-8</b>     |              | 1                 | 1 unit      | 007 | 0.519                 |
|                                                                                     | 1000                                                                                                                        | 80 ... 100    | 3.5            | A  | <b>5SM2 827-8</b>     |              | 1                 | 1 unit      | 011 | 0.464                 |
|  | For 5SP4 miniature circuit breakers (characteristics B and C) 4P, 230 ... 400 V AC, 50 ... 60 Hz                            |               |                |    |                       |              |                   |             |     |                       |
|                                                                                     | 300                                                                                                                         | 80 ... 100    | 5              | A  | <b>5SM2 647-8</b>     |              | 1                 | 1 unit      | 007 | 0.838                 |
|                                                                                     | 1000                                                                                                                        |               |                | A  | <b>5SM2 847-8</b>     |              | 1                 | 1 unit      | 007 | 0.706                 |

# Residual Current Protective Devices

## 5SU1 RCBOs

### Overview

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

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

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

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

Since DIN VDE 0100-410 came into effect in June 2007, all socket outlet current circuits up to 20 A must now also be fitted with residual current protective devices with a rated residual current of max. 30 mA. This also applies to outdoor electrical circuits up to 32 A for the connection of portable equipment.

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

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

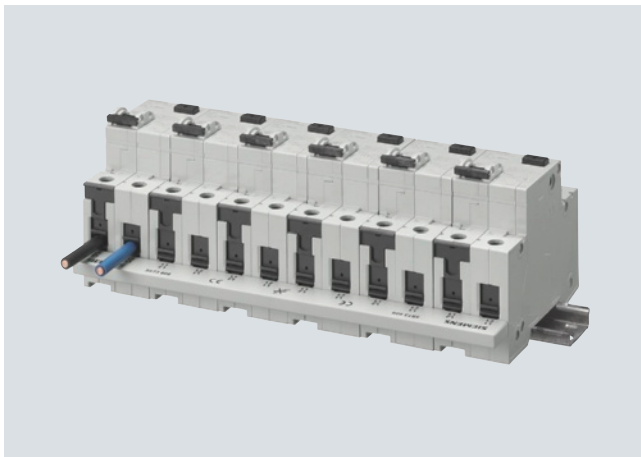
Additional components of the 5SY miniature circuit breakers can be mounted at the side and carry out additional functions.

For further details on additional components, please refer to the chapter "Miniature circuit breakers".

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

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

### Benefits



#### For all versions

- Clear and visible conductor connection in front of the busbar facilitates controls
- Large and easily accessible wiring space enables easy insertion of conductor in the terminals
- The surge current withstand capability of 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 that the terminals are fully insulated when the screws are tightened. The effective touch protection when grasping the device considerably exceeds the requirements of BGV A3.
- The RCBOs can be quickly and easily removed from the assembly by hand if connections need to be changed. This saves time if parts need to be replaced because the busbars no longer need to be freed from the adjacent miniature circuit breakers.



#### For all 125 A versions

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

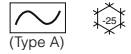
## Technical specifications

|                                                            |                                 | Up to 40 A                                                                                                   | 125 A         |
|------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------|---------------|
| <b>Standards</b>                                           |                                 | IEC/EN 61009-1 (VDE 0664-20), IEC/EN 61009-2-1 (VDE 0664-21)<br>IEC/EN 61543; VDE 0664-30                    |               |
| <b>Approvals</b>                                           |                                 | IEC 61009-1, IEC 61009-2-1; EN 61009-1, EN 61009-2-1                                                         |               |
| <b>Rated voltages <math>U_n</math></b>                     | V AC                            | 125 ... 230                                                                                                  | 400           |
| <b>Rated frequency <math>f_n</math></b>                    | Hz                              | 50 ... 60                                                                                                    |               |
| <b>Rated currents <math>I_n</math></b>                     | A                               | 6, 8, 10, 13, 16, 20, 25, 32, 40                                                                             | 125           |
| <b>Rated residual currents <math>I_{\Delta n}</math></b>   | mA                              | 10, 30, 300                                                                                                  | 30, 300, 1000 |
| <b>Rated breaking capacity</b>                             | kA                              | 4.5 / 6 / 10                                                                                                 | 10            |
| <b>Energy limitation class</b>                             |                                 | 3                                                                                                            | --            |
| <b>Surge current withstand capability</b>                  |                                 |                                                                                                              |               |
| With current waveform 8/20 $\mu$ s Acc. to DIN VDE 0432-2  |                                 |                                                                                                              |               |
| • Instantaneous                                            | kA                              | > 1 (type A)                                                                                                 |               |
| • Super resistant                                          | kA                              | > 3                                                                                                          | --            |
| • Selective                                                | kA                              | > 5                                                                                                          |               |
| <b>Minimum voltage for operation of the test equipment</b> | V AC                            | 100                                                                                                          |               |
| <b>Insulation coordination</b>                             |                                 |                                                                                                              |               |
| • Overvoltage category                                     |                                 | III                                                                                                          |               |
| <b>Pollution degree</b>                                    |                                 | 2                                                                                                            |               |
| <b>Terminal conductor cross-sections</b>                   |                                 |                                                                                                              |               |
| • Solid and stranded                                       | mm <sup>2</sup>                 | 0.75 ... 35                                                                                                  | 6 ... 50      |
| • Finely stranded with end sleeve                          | mm <sup>2</sup>                 | 0.75 ... 25                                                                                                  | 6 ... 35      |
| <b>Terminal tightening torque</b>                          | Nm                              | 2.5 ... 3.0                                                                                                  | 3.0 ... 3.5   |
| <b>Mains connection</b>                                    |                                 | Top or bottom                                                                                                |               |
| <b>Mounting position</b>                                   |                                 | Any                                                                                                          |               |
| <b>Degree of protection</b>                                | Acc. to EN 60529 (VDE 0470-1)   | IP20, if the distribution board is installed, with connected conductors                                      |               |
| <b>Touch protection</b>                                    | Acc. to EN 50274 (VDE 0660-514) | Finger and back-of-hand safe                                                                                 |               |
| <b>Service life</b>                                        | Test cycle acc. to IEC/EN 61009 | Switching cycles                                                                                             | > 10000       |
| <b>Storage temperature</b>                                 | °C                              | -40 ... +75                                                                                                  |               |
| <b>Ambient temperature</b>                                 | °C                              | -25 ... +45, marked with  |               |
| <b>Resistance to climate</b>                               | Acc. to IEC 60068-2-30          | 28 cycles (55 °C; 95 % rel. air humidity)                                                                    |               |
| <b>CFC and silicone-free</b>                               |                                 | Yes                                                                                                          |               |

# Residual Current Protective Devices

## 5SU1 RCBOS

### Selection and ordering data



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|                                                                                     | Rated residual current<br>$I_{\Delta n}$<br>mA                                                   | Rated current<br>$I_n$<br>A | Mounting width<br>MW | DT | Tripping characteristic B<br>Order No. | Price per PU | PG  | DT | Tripping characteristic C<br>Order No. | Price per PU | PU (UNIT, SET, M) | PS*/P. unit | PG  | Weight per PU approx. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------|----------------------|----|----------------------------------------|--------------|-----|----|----------------------------------------|--------------|-------------------|-------------|-----|-----------------------|
|    | <b>RCBOs, type AC, instantaneous</b><br>1P + N, 230 V AC,<br>50 ... 60 Hz<br>N connection, right |                             |                      |    |                                        |              |     |    |                                        |              |                   |             |     |                       |
|                                                                                     | <div>4 500</div> <div>3</div>                                                                    |                             |                      |    |                                        |              |     |    |                                        |              |                   |             |     |                       |
|                                                                                     | 30                                                                                               | 6                           | 2                    |    | --                                     |              | A   |    | <b>5SU1 353-1KK06</b>                  |              | 1                 | 1 unit      | 010 | 0.284                 |
|                                                                                     |                                                                                                  | 8                           |                      |    | --                                     |              | B   |    | <b>5SU1 353-1KK08</b>                  |              | 1                 | 1 unit      | 010 | 0.292                 |
|                                                                                     |                                                                                                  | 10                          |                      |    | --                                     |              | A   |    | <b>5SU1 353-1KK10</b>                  |              | 1                 | 1 unit      | 010 | 0.284                 |
|                                                                                     |                                                                                                  | 13                          |                      |    | --                                     |              | B   |    | <b>5SU1 353-1KK13</b>                  |              | 1                 | 1 unit      | 010 | 0.309                 |
|                                                                                     |                                                                                                  | 16                          |                      |    | --                                     |              | A   |    | <b>5SU1 353-1KK16</b>                  |              | 1                 | 1 unit      | 010 | 0.284                 |
|                                                                                     |                                                                                                  | 20                          |                      |    | --                                     |              | A   |    | <b>5SU1 353-1KK20</b>                  |              | 1                 | 1 unit      | 010 | 0.294                 |
|                                                                                     |                                                                                                  | 25                          |                      |    | --                                     |              | A   |    | <b>5SU1 353-1KK25</b>                  |              | 1                 | 1 unit      | 010 | 0.293                 |
|                                                                                     |                                                                                                  | 32                          |                      |    | --                                     |              | A   |    | <b>5SU1 353-1KK32</b>                  |              | 1                 | 1 unit      | 010 | 0.298                 |
|                                                                                     |                                                                                                  | 40                          |                      |    | --                                     |              | A   |    | <b>5SU1 353-1KK40</b>                  |              | 1                 | 1 unit      | 010 | 0.295                 |
|                                                                                     | 1P + N, 230 V AC,<br>50 ... 60 Hz<br>N connection, left                                          |                             |                      |    |                                        |              |     |    |                                        |              |                   |             |     |                       |
|                                                                                     | <div>4 500</div> <div>3</div>                                                                    |                             |                      |    |                                        |              |     |    |                                        |              |                   |             |     |                       |
|                                                                                     | 30                                                                                               | 6                           | 2                    |    | --                                     |              | B   |    | <b>5SU1 353-1KL06</b>                  |              | 1                 | 1 unit      | 010 | 0.292                 |
|                                                                                     |                                                                                                  | 8                           |                      |    | --                                     |              |     |    | <b>5SU1 353-1KL08</b>                  |              |                   |             |     |                       |
|                                                                                     |                                                                                                  | 10                          |                      |    | --                                     |              | B   |    | <b>5SU1 353-1KL10</b>                  |              | 1                 | 1 unit      | 010 | 0.292                 |
|                                                                                     |                                                                                                  | 13                          |                      |    | --                                     |              | B   |    | <b>5SU1 353-1KL13</b>                  |              | 1                 | 1 unit      | 010 | 0.296                 |
|                                                                                     |                                                                                                  | 16                          |                      |    | --                                     |              | B   |    | <b>5SU1 353-1KL16</b>                  |              | 1                 | 1 unit      | 010 | 0.294                 |
|                                                                                     |                                                                                                  | 20                          |                      |    | --                                     |              | B   |    | <b>5SU1 353-1KL20</b>                  |              | 1                 | 1 unit      | 010 | 0.303                 |
|                                                                                     |                                                                                                  | 25                          |                      |    | --                                     |              | B   |    | <b>5SU1 353-1KL25</b>                  |              | 1                 | 1 unit      | 010 | 0.302                 |
|                                                                                     |                                                                                                  | 32                          |                      |    | --                                     |              | B   |    | <b>5SU1 353-1KL32</b>                  |              | 1                 | 1 unit      | 010 | 0.304                 |
|                                                                                     |                                                                                                  | 40                          |                      |    | --                                     |              | B   |    | <b>5SU1 353-1KL40</b>                  |              | 1                 | 1 unit      | 010 | 0.305                 |
|  | <b>RCBOs, type AC, instantaneous</b><br>1P + N, 230 V AC,<br>50 ... 60 Hz                        |                             |                      |    |                                        |              |     |    |                                        |              |                   |             |     |                       |
|                                                                                     | <div>6 000</div> <div>3</div>                                                                    |                             |                      |    |                                        |              |     |    |                                        |              |                   |             |     |                       |
|                                                                                     | 30                                                                                               | 6                           | 2                    | B  | <b>5SU1 356-0KK06</b>                  |              | 010 | A  | <b>5SU1 356-1KK06</b>                  |              | 1                 | 1 unit      | 010 | 0.284                 |
|                                                                                     |                                                                                                  | 8                           |                      |    | --                                     |              | B   |    | <b>5SU1 356-1KK08</b>                  |              | 1                 | 1 unit      | 010 | 0.289                 |
|                                                                                     |                                                                                                  | 10                          |                      | A  | <b>5SU1 356-0KK10</b>                  |              | 010 | A  | <b>5SU1 356-1KK10</b>                  |              | 1                 | 1 unit      | 010 | 0.285                 |
|                                                                                     |                                                                                                  | 13                          |                      | B  | <b>5SU1 356-0KK13</b>                  |              | 010 | A  | <b>5SU1 356-1KK13</b>                  |              | 1                 | 1 unit      | 010 | 0.289                 |
|                                                                                     |                                                                                                  | 16                          |                      | A  | <b>5SU1 356-0KK16</b>                  |              | 010 | A  | <b>5SU1 356-1KK16</b>                  |              | 1                 | 1 unit      | 010 | 0.281                 |
|                                                                                     |                                                                                                  | 20                          |                      | B  | <b>5SU1 356-0KK20</b>                  |              | 010 | A  | <b>5SU1 356-1KK20</b>                  |              | 1                 | 1 unit      | 010 | 0.294                 |
|                                                                                     |                                                                                                  | 25                          |                      | B  | <b>5SU1 356-0KK25</b>                  |              | 010 | A  | <b>5SU1 356-1KK25</b>                  |              | 1                 | 1 unit      | 010 | 0.295                 |
|                                                                                     |                                                                                                  | 32                          |                      | B  | <b>5SU1 356-0KK32</b>                  |              | 010 | A  | <b>5SU1 356-1KK32</b>                  |              | 1                 | 1 unit      | 010 | 0.300                 |
|                                                                                     |                                                                                                  | 40                          |                      | B  | <b>5SU1 356-0KK40</b>                  |              | 010 | B  | <b>5SU1 356-1KK40</b>                  |              | 1                 | 1 unit      | 010 | 0.302                 |
|                                                                                     | 300                                                                                              | 6                           | 2                    | B  | <b>5SU1 656-0KK06</b>                  |              | 010 | A  | <b>5SU1 656-1KK06</b>                  |              | 1                 | 1 unit      | 010 | 0.280                 |
|                                                                                     |                                                                                                  | 10                          |                      | B  | <b>5SU1 656-0KK10</b>                  |              | 010 | A  | <b>5SU1 656-1KK10</b>                  |              | 1                 | 1 unit      | 010 | 0.278                 |
|                                                                                     |                                                                                                  | 13                          |                      | B  | <b>5SU1 656-0KK13</b>                  |              | 010 | B  | <b>5SU1 656-1KK13</b>                  |              | 1                 | 1 unit      | 010 | 0.280                 |
|                                                                                     |                                                                                                  | 16                          |                      | B  | <b>5SU1 656-0KK16</b>                  |              | 010 | A  | <b>5SU1 656-1KK16</b>                  |              | 1                 | 1 unit      | 010 | 0.276                 |
|                                                                                     |                                                                                                  | 20                          |                      | B  | <b>5SU1 656-0KK20</b>                  |              | 010 | B  | <b>5SU1 656-1KK20</b>                  |              | 1                 | 1 unit      | 010 | 0.293                 |
|                                                                                     |                                                                                                  | 25                          |                      | B  | <b>5SU1 656-0KK25</b>                  |              | 010 | B  | <b>5SU1 656-1KK25</b>                  |              | 1                 | 1 unit      | 010 | 0.292                 |
|                                                                                     |                                                                                                  | 32                          |                      | B  | <b>5SU1 656-0KK32</b>                  |              | 010 | B  | <b>5SU1 656-1KK32</b>                  |              | 1                 | 1 unit      | 010 | 0.288                 |
|                                                                                     |                                                                                                  | 40                          |                      | B  | <b>5SU1 656-0KK40</b>                  |              | 010 | B  | <b>5SU1 656-1KK40</b>                  |              | 1                 | 1 unit      | 010 | 0.284                 |

## Residual Current Protective Devices

## 5SU1 RCBOS

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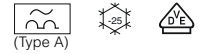
|                                                                                   | Rated residual current<br>$I_{\Delta n}$<br>mA | Rated current<br>$I_n$<br>A | Mounting width<br>MW | DT | Tripping characteristic B<br>Order No. | Price per PU | PG DT | Tripping characteristic C<br>Order No. | Price per PU | PU (UNIT, SET, M) | PS*/P. unit | PG  | Weight per PU approx. |
|-----------------------------------------------------------------------------------|------------------------------------------------|-----------------------------|----------------------|----|----------------------------------------|--------------|-------|----------------------------------------|--------------|-------------------|-------------|-----|-----------------------|
| <b>RCBOs, type AC, instantaneous</b><br>1P + N, 230 V AC, 50 ... 60 Hz            |                                                |                             |                      |    |                                        |              |       |                                        |              |                   |             |     |                       |
|  | 10 000                                         |                             |                      |    |                                        |              |       |                                        |              |                   |             |     |                       |
|                                                                                   | 3                                              |                             |                      |    |                                        |              |       |                                        |              |                   |             |     |                       |
|                                                                                   | 30                                             | 6                           | 2                    | B  | 5SU1 354-0KK06                         |              | 010 A | 5SU1 354-1KK06                         |              | 1                 | 1 unit      | 010 | 0.288                 |
|                                                                                   |                                                | 8                           |                      |    | --                                     |              | B     | 5SU1 354-1KK08                         |              | 1                 | 1 unit      | 010 | 0.260                 |
|                                                                                   |                                                | 10                          |                      | B  | 5SU1 354-0KK10                         |              | 010 A | 5SU1 354-1KK10                         |              | 1                 | 1 unit      | 010 | 0.288                 |
|                                                                                   |                                                | 13                          |                      | B  | 5SU1 354-0KK13                         |              | 010 A | 5SU1 354-1KK13                         |              | 1                 | 1 unit      | 010 | 0.292                 |
|                                                                                   |                                                | 16                          |                      | B  | 5SU1 354-0KK16                         |              | 010 A | 5SU1 354-1KK16                         |              | 1                 | 1 unit      | 010 | 0.288                 |
|                                                                                   |                                                | 20                          |                      | B  | 5SU1 354-0KK20                         |              | 010 B | 5SU1 354-1KK20                         |              | 1                 | 1 unit      | 010 | 0.292                 |
|                                                                                   |                                                | 25                          |                      | B  | 5SU1 354-0KK25                         |              | 010 B | 5SU1 354-1KK25                         |              | 1                 | 1 unit      | 010 | 0.293                 |
|                                                                                   |                                                | 32                          |                      | B  | 5SU1 354-0KK32                         |              | 010 B | 5SU1 354-1KK32                         |              | 1                 | 1 unit      | 010 | 0.297                 |
|                                                                                   |                                                | 40                          |                      | C  | 5SU1 354-0KK40                         |              | 010 B | 5SU1 354-1KK40                         |              | 1                 | 1 unit      | 010 | 0.296                 |
|                                                                                   | 100                                            | 6                           | 2                    |    | --                                     |              | B     | 5SU1 454-1KK06                         |              | 1                 | 1 unit      | 010 | 0.283                 |
|                                                                                   |                                                | 10                          |                      |    | --                                     |              | B     | 5SU1 454-1KK10                         |              | 1                 | 1 unit      | 010 | 0.284                 |
|                                                                                   |                                                | 13                          |                      |    | --                                     |              | B     | 5SU1 454-1KK13                         |              | 1                 | 1 unit      | 010 | 0.290                 |
|                                                                                   |                                                | 16                          |                      |    | --                                     |              | B     | 5SU1 454-1KK16                         |              | 1                 | 1 unit      | 010 | 0.286                 |
|                                                                                   |                                                | 20                          |                      |    | --                                     |              | B     | 5SU1 454-1KK20                         |              | 1                 | 1 unit      | 010 | 0.289                 |
|                                                                                   |                                                | 25                          |                      |    | --                                     |              | B     | 5SU1 454-1KK25                         |              | 1                 | 1 unit      | 010 | 0.289                 |
|                                                                                   |                                                | 32                          |                      |    | --                                     |              | B     | 5SU1 454-1KK32                         |              | 1                 | 1 unit      | 010 | 0.288                 |
|                                                                                   |                                                | 40                          |                      |    | --                                     |              | B     | 5SU1 454-1KK40                         |              | 1                 | 1 unit      | 010 | 0.293                 |
|                                                                                   | 300                                            | 6                           | 2                    | B  | 5SU1 654-0KK06                         |              | 010 B | 5SU1 654-1KK06                         |              | 1                 | 1 unit      | 010 | 0.280                 |
|                                                                                   |                                                | 10                          |                      | B  | 5SU1 654-0KK10                         |              | 010 B | 5SU1 654-1KK10                         |              | 1                 | 1 unit      | 010 | 0.282                 |
|                                                                                   |                                                | 13                          |                      | B  | 5SU1 654-0KK13                         |              | 010 B | 5SU1 654-1KK13                         |              | 1                 | 1 unit      | 010 | 0.280                 |
|                                                                                   |                                                | 16                          |                      | B  | 5SU1 654-0KK16                         |              | 010 B | 5SU1 654-1KK16                         |              | 1                 | 1 unit      | 010 | 0.282                 |
|                                                                                   |                                                | 20                          |                      | B  | 5SU1 654-0KK20                         |              | 010 B | 5SU1 654-1KK20                         |              | 1                 | 1 unit      | 010 | 0.287                 |
|                                                                                   |                                                | 25                          |                      | B  | 5SU1 654-0KK25                         |              | 010 B | 5SU1 654-1KK25                         |              | 1                 | 1 unit      | 010 | 0.284                 |
|                                                                                   |                                                | 32                          |                      | B  | 5SU1 654-0KK32                         |              | 010 B | 5SU1 654-1KK32                         |              | 1                 | 1 unit      | 010 | 0.287                 |
|                                                                                   |                                                | 40                          |                      | B  | 5SU1 654-0KK40                         |              | 010 B | 5SU1 654-1KK40                         |              | 1                 | 1 unit      | 010 | 0.286                 |

|                                                                                     |        |     |     |   |                |  |       |                |  |   |        |     |       |
|-------------------------------------------------------------------------------------|--------|-----|-----|---|----------------|--|-------|----------------|--|---|--------|-----|-------|
| <b>RCBOs, type AC, instantaneous</b><br>2P, 400 V AC, 50 ... 60 Hz                  |        |     |     |   |                |  |       |                |  |   |        |     |       |
|  | 10 000 |     |     |   |                |  |       |                |  |   |        |     |       |
|                                                                                     |        |     |     |   |                |  |       |                |  |   |        |     |       |
|                                                                                     | 30     | 125 | 6.5 | B | 5SU1 324-0KK82 |  | 010 B | 5SU1 324-1KK82 |  | 1 | 1 unit | 010 | 1.224 |
|                                                                                     | 300    | 125 |     | B | 5SU1 624-0KK82 |  | 010 B | 5SU1 624-1KK82 |  | 1 | 1 unit | 010 | 0.930 |
| <b>RCBOs, type AC, instantaneous</b><br>4P, 400 V AC, 50 ... 60 Hz                  |        |     |     |   |                |  |       |                |  |   |        |     |       |
|  | 10 000 |     |     |   |                |  |       |                |  |   |        |     |       |
|                                                                                     |        |     |     |   |                |  |       |                |  |   |        |     |       |
|                                                                                     | 30     | 125 | 11  | C | 5SU1 344-0KK82 |  | 010 B | 5SU1 344-1KK82 |  | 1 | 1 unit | 010 | 2.017 |
|                                                                                     | 300    | 125 |     | C | 5SU1 644-0KK82 |  | 010 B | 5SU1 644-1KK82 |  | 1 | 1 unit | 010 | 2.026 |

# Residual Current Protective Devices

## 5SU1 RCBOs

### Selection and ordering data



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|                                                                                   | Rated residual current                              | Rated current | Mounting width | DT | Tripping characteristic B |              |    |    |           | Tripping characteristic C |                   |              |    |                       |  |  |
|-----------------------------------------------------------------------------------|-----------------------------------------------------|---------------|----------------|----|---------------------------|--------------|----|----|-----------|---------------------------|-------------------|--------------|----|-----------------------|--|--|
|                                                                                   | $I_{\Delta n}$<br>mA                                | $I_n$<br>A    | MW             |    | Order No.                 | Price per PU | PG | DT | Order No. | Price per PU              | PU (UNIT, SET, M) | PS*/ P. unit | PG | Weight per PU approx. |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    | kg                    |  |  |
|  | <b>RCBOs, type A, instantaneous</b>                 |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   | 1P+N, 230 V AC, 50 ... 60 Hz<br>N connection, right |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |
|                                                                                   |                                                     |               |                |    |                           |              |    |    |           |                           |                   |              |    |                       |  |  |

## Residual Current Protective Devices

## 5SU1 RCBOs

|                                                                                     | Rated residual current       | Rated current | Mounting width | DT             | Tripping characteristic B |                | PG             | DT             | Tripping characteristic C |              | PU (UNIT, SET, M) | PS*/P. unit | PG | Weight per PU approx. |  |
|-------------------------------------------------------------------------------------|------------------------------|---------------|----------------|----------------|---------------------------|----------------|----------------|----------------|---------------------------|--------------|-------------------|-------------|----|-----------------------|--|
|                                                                                     | $I_{\Delta n}$<br>mA         | $I_n$<br>A    | MW             |                | Order No.                 | Price per PU   |                |                | Order No.                 | Price per PU |                   |             |    | kg                    |  |
| RCBOs, type A, instantaneous                                                        |                              |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|    | 1P+N; 230 V AC; 50 ... 60 Hz |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 10 000                       |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 3                            |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 10                           | 6             | 2              | B              | 5SU1 154-6KK06            | 011            | B              | 5SU1 154-7KK06 | 1                         | 1 unit       | 011               | 0.288       |    |                       |  |
|                                                                                     |                              | 10            |                | B              | 5SU1 154-6KK10            | 011            | B              | 5SU1 154-7KK10 | 1                         | 1 unit       | 011               | 0.287       |    |                       |  |
|                                                                                     |                              | 13            |                | B              | 5SU1 154-6KK13            | 011            | B              | 5SU1 154-7KK13 | 1                         | 1 unit       | 011               | 0.290       |    |                       |  |
|                                                                                     |                              | 16            |                | B              | 5SU1 154-6KK16            | 011            | ►              | 5SU1 154-7KK16 | 1                         | 1 unit       | 011               | 0.284       |    |                       |  |
|                                                                                     | 30                           | 6             | 2              | B              | 5SU1 354-6KK06            | 011            | ►              | 5SU1 354-7KK06 | 1                         | 1 unit       | 011               | 0.283       |    |                       |  |
|                                                                                     |                              | 8             |                |                | B                         | 5SU1 354-7KK08 | 1              | 1 unit         | 011                       | 0.260        |                   |             |    |                       |  |
|                                                                                     |                              | 10            |                | B              | 5SU1 354-6KK10            | 011            | ►              | 5SU1 354-7KK10 | 1                         | 1 unit       | 011               | 0.283       |    |                       |  |
|                                                                                     |                              | 13            |                | B              | 5SU1 354-6KK13            | 011            | B              | 5SU1 354-7KK13 | 1                         | 1 unit       | 011               | 0.288       |    |                       |  |
|                                                                                     |                              | 16            |                | ►              | 5SU1 354-6KK16            | 011            | ►              | 5SU1 354-7KK16 | 1                         | 1 unit       | 011               | 0.282       |    |                       |  |
|                                                                                     |                              | 20            |                | B              | 5SU1 354-6KK20            | 011            | B              | 5SU1 354-7KK20 | 1                         | 1 unit       | 011               | 0.289       |    |                       |  |
|                                                                                     |                              | 25            |                | B              | 5SU1 354-6KK25            | 011            | B              | 5SU1 354-7KK25 | 1                         | 1 unit       | 011               | 0.288       |    |                       |  |
|                                                                                     |                              | 32            |                | B              | 5SU1 354-6KK32            | 011            | B              | 5SU1 354-7KK32 | 1                         | 1 unit       | 011               | 0.292       |    |                       |  |
|                                                                                     |                              | 40            |                | B              | 5SU1 354-6KK40            | 011            | B              | 5SU1 354-7KK40 | 1                         | 1 unit       | 011               | 0.286       |    |                       |  |
|                                                                                     | 300                          | 6             | 2              | B              | 5SU1 654-6KK06            | 011            | B              | 5SU1 654-7KK06 | 1                         | 1 unit       | 011               | 0.284       |    |                       |  |
|                                                                                     |                              | 10            |                | B              | 5SU1 654-6KK10            | 011            | B              | 5SU1 654-7KK10 | 1                         | 1 unit       | 011               | 0.282       |    |                       |  |
|                                                                                     |                              | 13            |                | B              | 5SU1 654-6KK13            | 011            | B              | 5SU1 654-7KK13 | 1                         | 1 unit       | 011               | 0.288       |    |                       |  |
|                                                                                     |                              | 16            |                | B              | 5SU1 654-6KK16            | 011            | B              | 5SU1 654-7KK16 | 1                         | 1 unit       | 011               | 0.281       |    |                       |  |
|                                                                                     |                              | 20            |                | B              | 5SU1 654-6KK20            | 011            | B              | 5SU1 654-7KK20 | 1                         | 1 unit       | 011               | 0.285       |    |                       |  |
|                                                                                     |                              | 25            |                | B              | 5SU1 654-6KK25            | 011            | B              | 5SU1 654-7KK25 | 1                         | 1 unit       | 011               | 0.285       |    |                       |  |
|                                                                                     |                              | 32            |                | B              | 5SU1 654-6KK32            | 011            | B              | 5SU1 654-7KK32 | 1                         | 1 unit       | 011               | 0.287       |    |                       |  |
|                                                                                     |                              | 40            |                | B              | 5SU1 654-6KK40            | 011            | B              | 5SU1 654-7KK40 | 1                         | 1 unit       | 011               | 0.289       |    |                       |  |
|  | 2P; 230 V AC; 50 ... 60 Hz   |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 10 000                       |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 3                            |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 30                           | 6             | 3              | B              | 5SU1 324-6FA06            | 011            | B              | 5SU1 324-7FA06 | 1                         | 1 unit       | 011               | 0.421       |    |                       |  |
|                                                                                     |                              | 10            |                | ►              | 5SU1 324-6FA10            | 011            | ►              | 5SU1 324-7FA10 | 1                         | 1 unit       | 011               | 0.414       |    |                       |  |
|                                                                                     |                              | 13            |                | B              | 5SU1 324-6FA13            | 011            | B              | 5SU1 324-7FA13 | 1                         | 1 unit       | 011               | 0.423       |    |                       |  |
|                                                                                     |                              | 16            |                | ►              | 5SU1 324-6FA16            | 011            | ►              | 5SU1 324-7FA16 | 1                         | 1 unit       | 011               | 0.414       |    |                       |  |
|                                                                                     |                              | 20            |                | B              | 5SU1 324-6FA20            | 011            | B              | 5SU1 324-7FA20 | 1                         | 1 unit       | 011               | 0.427       |    |                       |  |
|                                                                                     |                              | 25            |                | B              | 5SU1 324-6FA25            | 011            | B              | 5SU1 324-7FA25 | 1                         | 1 unit       | 011               | 0.432       |    |                       |  |
|                                                                                     |                              | 32            |                | B              | 5SU1 324-6FA32            | 011            | B              | 5SU1 324-7FA32 | 1                         | 1 unit       | 011               | 0.427       |    |                       |  |
|                                                                                     |                              | 40            |                | B              | 5SU1 324-6FA40            | 011            | B              | 5SU1 324-7FA40 | 1                         | 1 unit       | 011               | 0.427       |    |                       |  |
|  | 2P; 400 V AC; 50 ... 60 Hz   |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 10 000                       |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 30                           | 125           | 6.5            | B              | 5SU1 324-6KK82            | 011            | B              | 5SU1 324-7KK82 | 1                         | 1 unit       | 011               | 1.212       |    |                       |  |
| 300                                                                                 | 125                          | B             |                | 5SU1 624-6KK82 | 011                       | B              | 5SU1 624-7KK82 | 1              | 1 unit                    | 011          | 0.930             |             |    |                       |  |
|  | 4P; 400 V AC; 50 ... 60 Hz   |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 10 000                       |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 30                           | 125           | 11             | B              | 5SU1 344-6KK82            | 011            | B              | 5SU1 344-7KK82 | 1                         | 1 unit       | 011               | 2.024       |    |                       |  |
| 300                                                                                 | 125                          | C             |                | 5SU1 644-6KK82 | 011                       | B              | 5SU1 644-7KK82 | 1              | 1 unit                    | 011          | 2.025             |             |    |                       |  |
| RCBOs, type A, super resistant <sup>K</sup>                                         |                              |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|  | 1P+N; 230 V AC; 50 ... 60 Hz |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 10 000                       |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 3                            |               |                |                |                           |                |                |                |                           |              |                   |             |    |                       |  |
|                                                                                     | 30                           | 10            | 2              | --             |                           |                | B              | 5SU1 354-7VK10 | 1                         | 1 unit       | 011               | 0.293       |    |                       |  |
|                                                                                     |                              | 16            |                | --             |                           |                | B              | 5SU1 354-7VK16 | 1                         | 1 unit       | 011               | 0.292       |    |                       |  |
|                                                                                     |                              | 20            |                | --             |                           |                | C              | 5SU1 354-7VK20 | 1                         | 1 unit       | 011               | 0.296       |    |                       |  |
|                                                                                     |                              | 25            |                | --             |                           |                | C              | 5SU1 354-7VK25 | 1                         | 1 unit       | 011               | 0.296       |    |                       |  |



# Residual Current Protective Devices

## 5SU1 RCBs

4

|                                                                                     | Rated residual current                                                                                                                                                               | Rated current | Mounting width | DT        | Tripping characteristic B |           | PG  | DT | Tripping characteristic C |    | PU (UNIT, SET, M) | PS*/ P. unit      | PG           | Weight per PU approx. |                       |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|-----------|---------------------------|-----------|-----|----|---------------------------|----|-------------------|-------------------|--------------|-----------------------|-----------------------|
|                                                                                     | $I_{\Delta n}$<br>mA                                                                                                                                                                 | $I_n$<br>A    | MW             | Order No. | Price per PU              | Order No. |     |    | Price per PU              | kg |                   |                   |              |                       |                       |
| <b>RCBOs, type A, selective [S]</b>                                                 |                                                                                                                                                                                      |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |
|    | 2P; 400 V AC; 50 ... 60 Hz                                                                                                                                                           |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |
|                                                                                     | 10 000                                                                                                                                                                               |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |
|                                                                                     | 300                                                                                                                                                                                  | 125           | 6.5            | B         | 5SU1 624-6WK82            |           | 011 | B  | 5SU1 624-7WK82            |    | 1                 | 1 unit            | 011          | 0.930                 |                       |
|    | 4P; 400 V AC; 50 ... 60 Hz                                                                                                                                                           |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |
|                                                                                     | 10 000                                                                                                                                                                               |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |
|                                                                                     | 300                                                                                                                                                                                  | 125           | 11             | B         | 5SU1 644-6WK82            |           | 011 | B  | 5SU1 644-7WK82            |    | 1                 | 1 unit            | 011          | 2.018                 |                       |
|                                                                                     |                                                                                                                                                                                      |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |
|                                                                                     | Version                                                                                                                                                                              |               |                |           |                           |           | DT  |    | Order No.                 |    | Price per PU      | PU (UNIT, SET, M) | PS*/ P. unit | PG                    | Weight per PU approx. |
|                                                                                     |                                                                                                                                                                                      |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |
| <b>Handle couplers for additional components</b>                                    |                                                                                                                                                                                      |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |
|   | For mounting additional components auxiliary switches, fault signal contacts, shunt trips and undervoltage releases onto 5SU1 RCBOs, you require a handle coupler (1 set = 5 units). |               |                |           |                           |           |     | ►  | 5ST3 805-1                |    |                   | 1                 | 1 set        | 027                   | 0.006                 |
|                                                                                     |                                                                                                                                                                                      |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |
| <b>Locking devices</b>                                                              |                                                                                                                                                                                      |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |
|  | For RCBOs, sealable and lockable                                                                                                                                                     |               |                |           |                           |           |     | B  | 5ST3 801-1                |    |                   | 1                 | 1 unit       | 027                   | 0.013                 |
|                                                                                     |                                                                                                                                                                                      |               |                |           |                           |           |     |    |                           |    |                   |                   |              |                       |                       |

## Overview

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

Busbars in 10 mm<sup>2</sup> and 16 mm<sup>2</sup> versions are available.

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

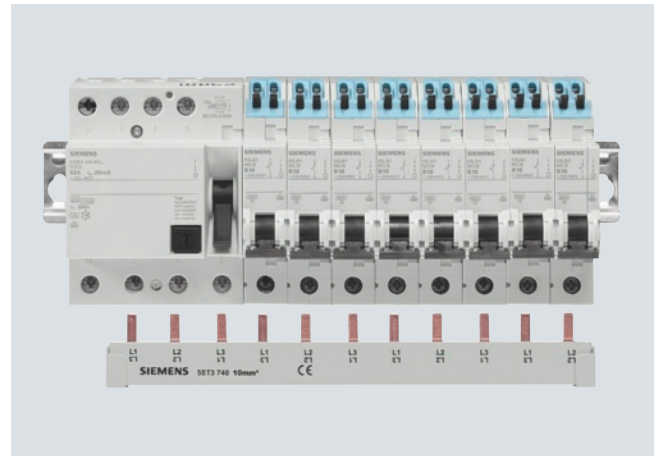
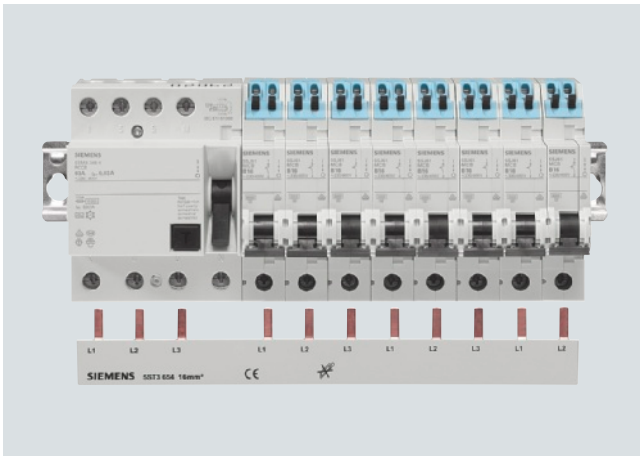
No further need for time-consuming tasks, such as cutting, cutting to length, deburring, cleaning of cut surfaces and mounting of end caps.

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

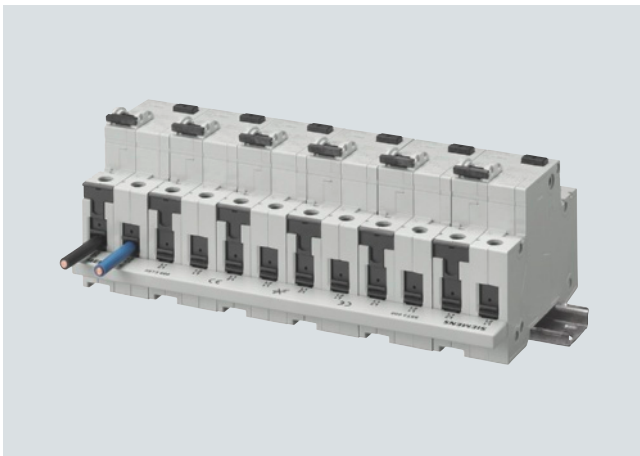
If several RCBOs are bus-mounted together, this is implemented with two-phase busbars, which are used as 1+N busbars.

## Benefits

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



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



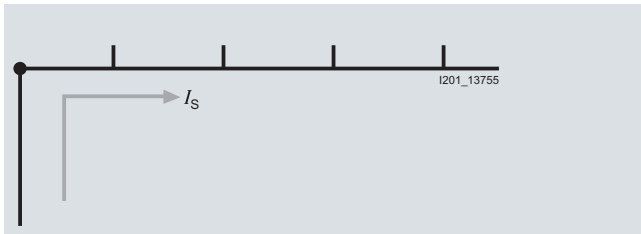
# Residual Current Protective Devices

## Busbars

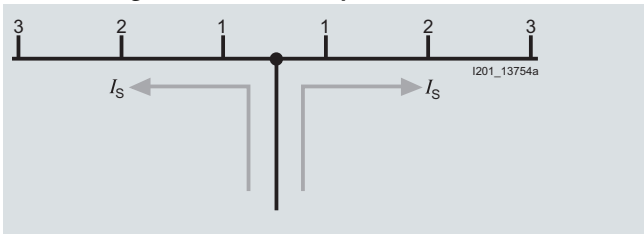
### Technical specifications

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

#### Infeed at the start or end of the busbar



#### Infeed along the busbar or midpoint infeed



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

### Selection and ordering data

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

## Residual Current Protective Devices

## Busbars

| Version                                                                                   | Pin spacing | Length | DT | Order No.         | Price per PU | PU (UNIT, SET, M) | PS*/P. unit | PG  | Weight per PU approx. |
|-------------------------------------------------------------------------------------------|-------------|--------|----|-------------------|--------------|-------------------|-------------|-----|-----------------------|
|                                                                                           | MW          | mm     |    |                   |              |                   |             |     | kg                    |
| <b>5ST3 7 busbar systems, with end caps, can be cut to length, with touch protection</b>  |             |        |    |                   |              |                   |             |     |                       |
| For RCBO 1P+N and MCB 2P                                                                  |             |        |    |                   |              |                   |             |     |                       |
| • 4-phase 10 mm <sup>2</sup>                                                              | 1           | 1008   | A  | <b>5ST3 770-2</b> |              | 1                 | 10 units    | 027 | 0.400                 |
| • 4-phase 16 mm <sup>2</sup>                                                              | 1           | 1008   | A  | <b>5ST3 770-3</b> |              | 1                 | 10 units    | 027 | 0.550                 |
| For RCCB 4P, N right and 6 MCB 1P+N                                                       |             |        |    |                   |              |                   |             |     |                       |
| • 4-phase 10 mm <sup>2</sup>                                                              | 1           | 288    | A  | <b>5ST3 770-4</b> |              | 1                 | 10 units    | 027 | 0.100                 |
| • 4-phase 16 mm <sup>2</sup>                                                              | 1           | 288    | A  | <b>5ST3 770-5</b> |              | 1                 | 10 units    | 027 | 0.160                 |
| <b>End caps for 5ST3 7, can be cut</b>                                                    |             |        |    |                   |              |                   |             |     |                       |
| • For two-phase and three-phase busbars                                                   |             |        | ►  | <b>5ST3 750</b>   |              | 1                 | 10 units    | 027 | 0.001                 |
| • For 4-phase busbars                                                                     |             |        | A  | <b>5ST3 718</b>   |              | 1                 | 10 units    | 027 | 0.002                 |
| <b>Touch protection</b>                                                                   |             |        |    |                   |              |                   |             |     |                       |
| For free connections, yellow (RAL 1004)<br>5 x 1 pin                                      |             |        |    |                   |              |                   |             |     |                       |
|          |             |        |    |                   |              |                   |             |     |                       |
|                                                                                           |             |        | A  | <b>5ST3 655</b>   |              | 1                 | 10 units    | 027 | 0.003                 |
| <b>Busbar, 12 MW, with fork-type connections, can be cut to length, with end caps</b>     |             |        |    |                   |              |                   |             |     |                       |
| For bus mounting RCCBs together<br>Three-phase + N, 16 mm <sup>2</sup>                    |             |        |    |                   |              |                   |             |     |                       |
|          |             |        |    |                   |              |                   |             |     |                       |
|                                                                                           | 1           | 216    | A  | <b>5ST2 145</b>   |              | 1                 | 1 unit      | 027 | 0.145                 |
| <b>End caps for 5ST2 145 busbars, can be cut to length</b>                                |             |        |    |                   |              |                   |             |     |                       |
| For three-phase busbars                                                                   |             |        |    |                   |              |                   |             |     |                       |
|         |             |        |    |                   |              |                   |             |     |                       |
|                                                                                           |             |        | ►  | <b>5ST2 156</b>   |              | 1                 | 10 units    | 027 | 0.002                 |
| <b>Terminals up to 35 mm<sup>2</sup> (stranded), for direct infeed of 5ST2 145 busbar</b> |             |        |    |                   |              |                   |             |     |                       |
| Side-by-side mounting possible                                                            |             |        |    |                   |              |                   |             |     |                       |
|        |             |        |    |                   |              |                   |             |     |                       |
|                                                                                           |             |        | A  | <b>5ST2 157</b>   |              | 1                 | 5 units     | 027 | 0.028                 |

# Residual Current Protective Devices

## 5SM1 and 5SZ9 RCCB socket outlets

### Overview

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

 = type A for AC and pulsating DC residual currents.

### Application

#### RCCB protective socket outlets

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

### Selection and ordering data

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

## Accessories

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

## Labeling systems

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

[www.siemens.com/beta](http://www.siemens.com/beta)

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

Brady GmbH  
Otto-Hahn-Str. 5-7  
D-63222 Langen, Germany  
Tel.: +49 (06103) 7598-660

# Residual Current Protective Devices

## Residual current operated circuit breakers

### Application

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

#### Note:

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