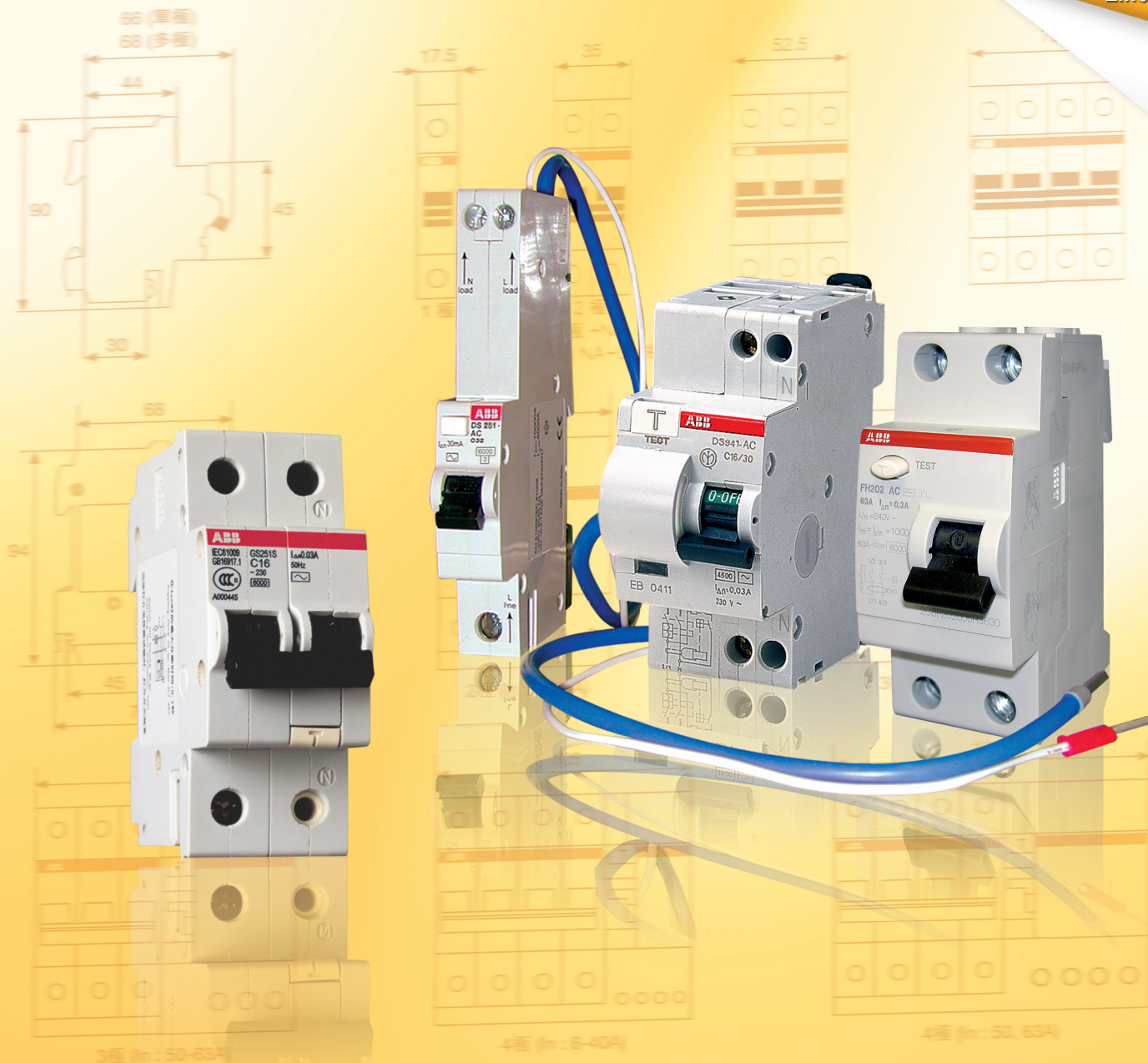


# Residual Current Devices (RCD)

- GS250S
- DS251
- DS271
- DS9
- FH200
- F200

1SXE401001L0201 05-2008

Line Protection



# Residual Current Devices (RCD)

## Product Overview

The “Earthed Fault Current” is the flow of electricity from the power supply leaking towards the earth, under faulty electrical condition. Its degree of danger depends on the amount of leakage and the surrounding conditions.

Users of leaking equipment may get electrical shock. If this current persists for a long time, fire hazard may be caused. A residual current operated circuit breaker can be installed on the distribution system in order to detect the leakage and cut off the circuit before any damaged occurs.

ABB’s offer both residual current operated breaker with (the RCBO) and without (the RCCB) integral over-current protection. Both breakers employ zero current transformer (ZCT) and permanent electro-magnet or electronic tripping mechanism, giving a high sensitivity for detecting and cutting off faulty current.

### GS250S - electronic RCBO

The earthed protection devices GS250S series protects users against leakage current. The rated leakage current to activate these devices can be chosen from 10mA, 30mA or 300mA.

The series adopts a specially designed residual current detection CMOS chips with anti-jamming capability. The device conforms to the IEC61000-4 electromagnetic compatibility (EMC) requirements.

### DS251 & DS271 - electronic RCBO

Besides protection against earthed faults, the DS251 & DS271 series electronic RCBO also protect the single-phase circuits from overloading or short circuit.

### DS9 - electromagnetic RCBO

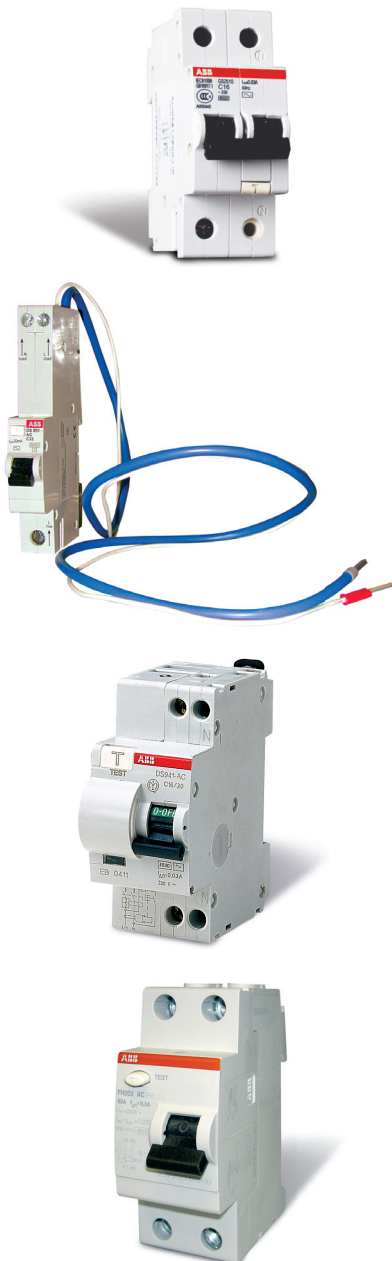
The electromagnetic RCBO series DS9 offers a complete protection for single-phase circuit. The series has innovative two-colour operation lever (red and green), which enables users to check the status of the device in a distance. Also the tripping status can be observed on the front indicator window of the device.

The rated leakage current to activate these devices can be chosen from 30mA. The breaking current capacities according to IEC 61009 are 4.5kA (DS941 type), 6kA (DS951 type) and 10kA (DS971 type).

### FH200 and F200 - RCCB

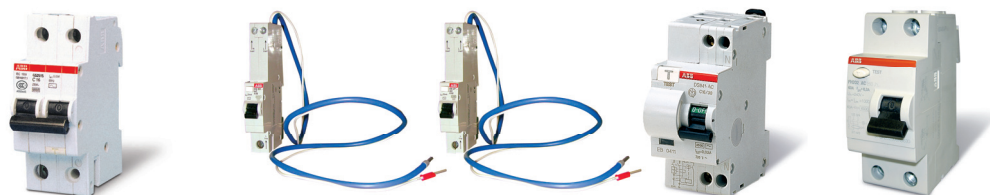
RCCBs are only sensitive to current leakage to earth. They must be used in series with an MCB or fuse which protects them from the potentially damaging thermal and dynamic stresses of any overcurrents.

These devices are used in systems already equipped with MCBs which preferably limit the specific energy passing through, also acting as the main disconnecting switches upstream of any derived MCBs (e.g. domestic consumer unit).



# Residual Current Devices (RCD)

## Technical Data



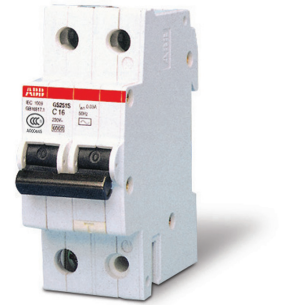
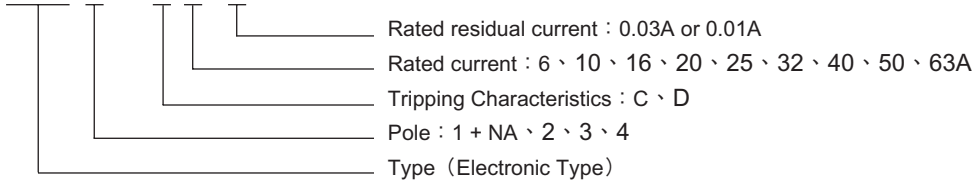
| Type                                | GS250S              |                                | DS251                                    | DS271           | DS9                                          | FH200 / F200                         |
|-------------------------------------|---------------------|--------------------------------|------------------------------------------|-----------------|----------------------------------------------|--------------------------------------|
| Standards                           | IEC61009            |                                | IEC61009, BSEN 61009-2-2                 |                 | IEC61009                                     | IEC61008                             |
| Pole                                | 1 + NA              | 2, 3, 4                        | 1 + NA                                   | 1 + NA          | 1 + NA                                       | 2, 4                                 |
| Tripping Characteristics            | C                   | C、D                            | C                                        | B、C             | C                                            | -                                    |
| Tripping Type                       | Electronic Type     |                                |                                          |                 | Electro-Magnetic Type                        |                                      |
| Rated breaking capacity Icu         | 6kA                 | 6kA (6-40A)<br>4.5kA (50, 63A) | 6kA                                      | 10kA            | 10kA (DS971)<br>6kA (DS951)<br>4.5kA (DS941) | -                                    |
| Rated current In                    | 6 - 40A             | 6 - 63A                        | 6 - 32A                                  | 6 - 32A         | 6 - 40A                                      | 25 - 63A (FH200)<br>80 - 100A (F200) |
| Rated voltage Un / AC               | 230V                | 230 / 400V                     | 230 / 240V                               | 230 / 240V      | 230V                                         | 230 / 400V                           |
| Type                                | AC                  | AC, A                          | AC                                       | AC              | AC                                           | AC                                   |
| Rated sensitivity                   | 0.01, 0.03          | 0.01, 0.03, 0.3                | 0.03                                     | 0.01, 0.03, 0.1 | 0.03                                         | 0.03, 0.1, 0.3                       |
| Frequency Hz                        | 50 - 60             |                                |                                          |                 |                                              |                                      |
| Mechanical Life no. of operation    | 20,000              |                                |                                          |                 |                                              |                                      |
| Protection degree                   |                     |                                |                                          |                 |                                              |                                      |
| Terminals                           | IP20                |                                |                                          |                 |                                              |                                      |
| Housing                             | IP40                |                                |                                          |                 |                                              |                                      |
| Ambient temperature                 |                     |                                |                                          |                 |                                              |                                      |
| Operating Temperature °C            | -25...+55           |                                | -25...+55                                |                 | -25...+55                                    |                                      |
| Storage Temperature °C              | -40...+70           |                                | -25...+70                                |                 | -35...+70                                    |                                      |
| Tropicalization (IEC 60068-2)       |                     |                                |                                          |                 |                                              |                                      |
| constant climate conditions [°C/RH] | 23/83, 40/93, 55/20 |                                |                                          |                 |                                              |                                      |
| variable climate conditions [°C/RH] | 25/95, 40/93        |                                |                                          |                 |                                              |                                      |
| Terminal Size mm²                   | 0.75 - 16           |                                | 1 - 25 (Line side)<br>1 - 10 (Load side) |                 | 1 - 16                                       | 1 - 25                               |
| Tightening Torque Nm                | 2                   |                                | 2 (Line side)<br>1.2 (Load side)         |                 | 2                                            |                                      |

# Residual Current Devices (RCD)

## Order Information

### Type Designation

GS2□ □ S - □ □ / □



### GS250S (RCBO)

#### C Characteristic

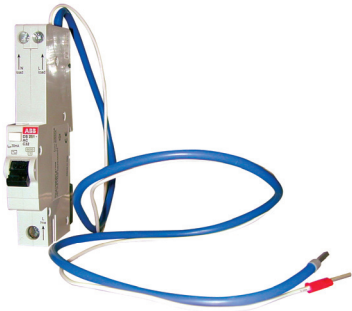
| Rated current (A) | Rated residual current (mA) | AC (Tripping time : Instantaneous) |                   |                   |                   |
|-------------------|-----------------------------|------------------------------------|-------------------|-------------------|-------------------|
|                   |                             | 1 Pole + NA                        | 2 Poles           | 3 Poles           | 4 Poles           |
| 6                 | 10                          | -                                  | GS252S-C6 / 0.01  | GS253S-C6 / 0.01  | GS254S-C6 / 0.01  |
| 10                |                             | -                                  | GS252S-C10 / 0.01 | GS253S-C10 / 0.01 | GS254S-C10 / 0.01 |
| 16                |                             | -                                  | GS252S-C16 / 0.01 | GS253S-C16 / 0.01 | GS254S-C16 / 0.01 |
| 20                |                             | -                                  | GS252S-C20 / 0.01 | GS253S-C20 / 0.01 | GS254S-C20 / 0.01 |
| 25                |                             | -                                  | GS252S-C25 / 0.01 | GS253S-C25 / 0.01 | GS254S-C25 / 0.01 |
| 32                |                             | -                                  | GS252S-C32 / 0.01 | GS253S-C32 / 0.01 | GS254S-C32 / 0.01 |
| 40                |                             | -                                  | GS252S-C40 / 0.01 | GS253S-C40 / 0.01 | GS254S-C40 / 0.01 |
| 50                |                             | -                                  | GS252S-C50 / 0.01 | GS253S-C50 / 0.01 | GS254S-C50 / 0.01 |
| 63                |                             | -                                  | GS252S-C63 / 0.01 | GS253S-C63 / 0.01 | GS254S-C63 / 0.01 |
| 6                 | 30                          | GS251S-C6 / 0.03                   | GS252S-C6 / 0.03  | GS253S-C6 / 0.03  | GS254S-C6 / 0.03  |
| 10                |                             | GS251S-C10 / 0.03                  | GS252S-C10 / 0.03 | GS253S-C10 / 0.03 | GS254S-C10 / 0.03 |
| 16                |                             | GS251S-C16 / 0.03                  | GS252S-C16 / 0.03 | GS253S-C16 / 0.03 | GS254S-C16 / 0.03 |
| 20                |                             | GS251S-C20 / 0.03                  | GS252S-C20 / 0.03 | GS253S-C20 / 0.03 | GS254S-C20 / 0.03 |
| 25                |                             | GS251S-C25 / 0.03                  | GS252S-C25 / 0.03 | GS253S-C25 / 0.03 | GS254S-C25 / 0.03 |
| 32                |                             | GS251S-C32 / 0.03                  | GS252S-C32 / 0.03 | GS253S-C32 / 0.03 | GS254S-C32 / 0.03 |
| 40                |                             | GS251S-C40 / 0.03                  | GS252S-C40 / 0.03 | GS253S-C40 / 0.03 | GS254S-C40 / 0.03 |
| 50                |                             | -                                  | GS252S-C50 / 0.03 | GS253S-C50 / 0.03 | GS254S-C50 / 0.03 |
| 63                |                             | -                                  | GS252S-C63 / 0.03 | GS253S-C63 / 0.03 | GS254S-C63 / 0.03 |

#### D Characteristic

| Rated current (A) | Rated residual current (mA) | AC (Tripping time : Instantaneous) |                   |                   |
|-------------------|-----------------------------|------------------------------------|-------------------|-------------------|
|                   |                             | 2 Poles                            | 3 Poles           | 4 Poles           |
| 6                 | 10                          | GS252S-D6 / 0.01                   | GS253S-D6 / 0.01  | GS254S-D6 / 0.01  |
| 10                |                             | GS252S-D10 / 0.01                  | GS253S-D10 / 0.01 | GS254S-D10 / 0.01 |
| 16                |                             | GS252S-D16 / 0.01                  | GS253S-D16 / 0.01 | GS254S-D16 / 0.01 |
| 20                |                             | GS252S-D20 / 0.01                  | GS253S-D20 / 0.01 | GS254S-D20 / 0.01 |
| 25                |                             | GS252S-D25 / 0.01                  | GS253S-D25 / 0.01 | GS254S-D25 / 0.01 |
| 32                |                             | GS252S-D32 / 0.01                  | GS253S-D32 / 0.01 | GS254S-D32 / 0.01 |
| 40                |                             | GS252S-D40 / 0.01                  | GS253S-D40 / 0.01 | GS254S-D40 / 0.01 |
| 50                |                             | GS252S-D50 / 0.01                  | GS253S-D50 / 0.01 | GS254S-D50 / 0.01 |
| 63                |                             | GS252S-D63 / 0.01                  | GS253S-D63 / 0.01 | GS254S-D63 / 0.01 |
| 6                 | 30                          | GS252S-D6 / 0.03                   | GS253S-D6 / 0.03  | GS254S-D6 / 0.03  |
| 10                |                             | GS252S-D10 / 0.03                  | GS253S-D10 / 0.03 | GS254S-D10 / 0.03 |
| 16                |                             | GS252S-D16 / 0.03                  | GS253S-D16 / 0.03 | GS254S-D16 / 0.03 |
| 20                |                             | GS252S-D20 / 0.03                  | GS253S-D20 / 0.03 | GS254S-D20 / 0.03 |
| 25                |                             | GS252S-D25 / 0.03                  | GS253S-D25 / 0.03 | GS254S-D25 / 0.03 |
| 32                |                             | GS252S-D32 / 0.03                  | GS253S-D32 / 0.03 | GS254S-D32 / 0.03 |
| 40                |                             | GS252S-D40 / 0.03                  | GS253S-D40 / 0.03 | GS254S-D40 / 0.03 |
| 50                |                             | GS252S-D50 / 0.03                  | GS253S-D50 / 0.03 | GS254S-D50 / 0.03 |
| 63                |                             | GS252S-D63 / 0.03                  | GS253S-D63 / 0.03 | GS254S-D63 / 0.03 |

# Residual Current Devices (RCD)

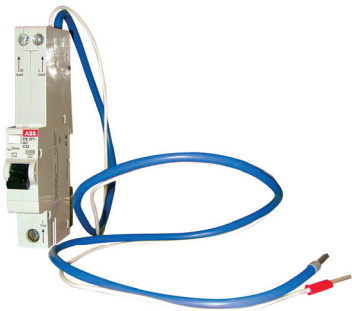
## Order Information



### DS251 (RCBO) AC Type

#### C Characteristic

| Rated current (A) | Breaking Capacity (kA) | Rated residual current (mA) | 1 Pole              |
|-------------------|------------------------|-----------------------------|---------------------|
| 6                 | 6                      | 30                          | DS251 AC-C6 / 0.03  |
| 10                |                        |                             | DS251 AC-C10 / 0.03 |
| 16                |                        |                             | DS251 AC-C16 / 0.03 |
| 20                |                        |                             | DS251 AC-C20 / 0.03 |
| 25                |                        |                             | DS251 AC-C25 / 0.03 |
| 32                |                        |                             | DS251 AC-C32 / 0.03 |



### DS271 (RCBO) AC Type

#### B Characteristic

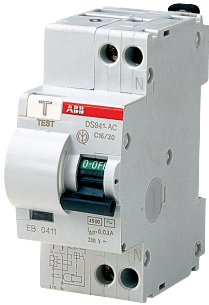
| Rated current (A) | Breaking Capacity (kA) | Rated residual current (mA) | 1 Pole              |
|-------------------|------------------------|-----------------------------|---------------------|
| 6                 |                        | 10                          | DS271 AC-B6 / 0.01  |
| 10                |                        |                             | DS271 AC-B10 / 0.01 |
| 16                |                        |                             | DS271 AC-B16 / 0.01 |
| 20                |                        |                             | DS271 AC-B20 / 0.01 |
| 25                |                        |                             | DS271 AC-B25 / 0.01 |
| 32                |                        |                             | DS271 AC-B32 / 0.01 |
| 6                 | 10                     | 30                          | DS271 AC-B6 / 0.03  |
| 10                |                        |                             | DS271 AC-B10 / 0.03 |
| 16                |                        |                             | DS271 AC-B16 / 0.03 |
| 20                |                        |                             | DS271 AC-B20 / 0.03 |
| 25                |                        |                             | DS271 AC-B25 / 0.03 |
| 32                |                        |                             | DS271 AC-B32 / 0.03 |
| 6                 |                        | 100                         | DS271 AC-B6 / 0.1   |
| 10                |                        |                             | DS271 AC-B10 / 0.1  |
| 16                |                        |                             | DS271 AC-B16 / 0.1  |
| 20                |                        |                             | DS271 AC-B20 / 0.1  |
| 25                |                        |                             | DS271 AC-B25 / 0.1  |
| 32                |                        |                             | DS271 AC-B32 / 0.1  |

#### C Characteristic

| Rated current (A) | Breaking Capacity (kA) | Rated residual current (mA) | 1 Pole              |
|-------------------|------------------------|-----------------------------|---------------------|
| 6                 |                        | 10                          | DS271 AC-C6 / 0.01  |
| 10                |                        |                             | DS271 AC-C10 / 0.01 |
| 16                |                        |                             | DS271 AC-C16 / 0.01 |
| 20                |                        |                             | DS271 AC-C20 / 0.01 |
| 25                |                        |                             | DS271 AC-C25 / 0.01 |
| 32                |                        |                             | DS271 AC-C32 / 0.01 |
| 6                 | 10                     | 30                          | DS271 AC-C6 / 0.03  |
| 10                |                        |                             | DS271 AC-C10 / 0.03 |
| 16                |                        |                             | DS271 AC-C16 / 0.03 |
| 20                |                        |                             | DS271 AC-C20 / 0.03 |
| 25                |                        |                             | DS271 AC-C25 / 0.03 |
| 32                |                        |                             | DS271 AC-C32 / 0.03 |
| 6                 |                        | 100                         | DS271 AC-C6 / 0.1   |
| 10                |                        |                             | DS271 AC-C10 / 0.1  |
| 16                |                        |                             | DS271 AC-C16 / 0.1  |
| 20                |                        |                             | DS271 AC-C20 / 0.1  |
| 25                |                        |                             | DS271 AC-C25 / 0.1  |
| 32                |                        |                             | DS271 AC-C32 / 0.1  |
| 6                 | 300                    | 300                         | DS271 AC-C6 / 0.3   |
| 10                |                        |                             | DS271 AC-C10 / 0.3  |
| 16                |                        |                             | DS271 AC-C16 / 0.3  |
| 20                |                        |                             | DS271 AC-C20 / 0.3  |
| 25                |                        |                             | DS271 AC-C25 / 0.3  |
| 32                |                        |                             | DS271 AC-C32 / 0.3  |

# Residual Current Devices (RCD)

## Order Information



### DS9 (RCBO)

#### C Characteristic

| Rated current<br>(A) | Rated residual<br>current (mA) | AC (1 pole + NA) |                  |                  |
|----------------------|--------------------------------|------------------|------------------|------------------|
|                      |                                | 4.5 kA           | 6 kA             | 10 kA            |
| 6                    | 30                             | DS941-C6 / 0.03  | DS951-C6 / 0.03  | DS971-C6 / 0.03  |
| 10                   |                                | DS941-C10 / 0.03 | DS951-C10 / 0.03 | DS971-C10 / 0.03 |
| 16                   |                                | DS941-C16 / 0.03 | DS951-C16 / 0.03 | DS971-C16 / 0.03 |
| 20                   |                                | DS941-C20 / 0.03 | DS951-C20 / 0.03 | DS971-C20 / 0.03 |
| 25                   |                                | DS941-C25 / 0.03 | DS951-C25 / 0.03 | DS971-C25 / 0.03 |
| 32                   |                                | DS941-C32 / 0.03 | DS951-C32 / 0.03 | DS971-C32 / 0.03 |
| 40                   |                                | DS941-C40 / 0.03 | DS951-C40 / 0.03 | DS971-C40 / 0.03 |

### FH200 (RCCB)

| Rated current<br>(A) | Rated residual<br>current (mA) | AC Type            |                    |
|----------------------|--------------------------------|--------------------|--------------------|
|                      |                                | 2 Poles            | 4 Poles            |
| 25                   | 30                             | FH202 AC-25 / 0.03 | FH204 AC-25 / 0.03 |
| 40                   |                                | FH202 AC-40 / 0.03 | FH204 AC-40 / 0.03 |
| 63                   |                                | FH202 AC-63 / 0.03 | FH204 AC-63 / 0.03 |
| 25                   | 100                            | FH202 AC-25 / 0.1  | FH204 AC-25 / 0.1  |
| 40                   |                                | FH202 AC-40 / 0.1  | FH204 AC-40 / 0.1  |
| 63                   |                                | FH202 AC-63 / 0.1  | FH204 AC-63 / 0.1  |
| 25                   | 300                            | FH202 AC-25 / 0.3  | FH204 AC-25 / 0.3  |
| 40                   |                                | FH202 AC-40 / 0.3  | FH204 AC-40 / 0.3  |
| 63                   |                                | FH202 AC-63 / 0.3  | FH204 AC-63 / 0.3  |

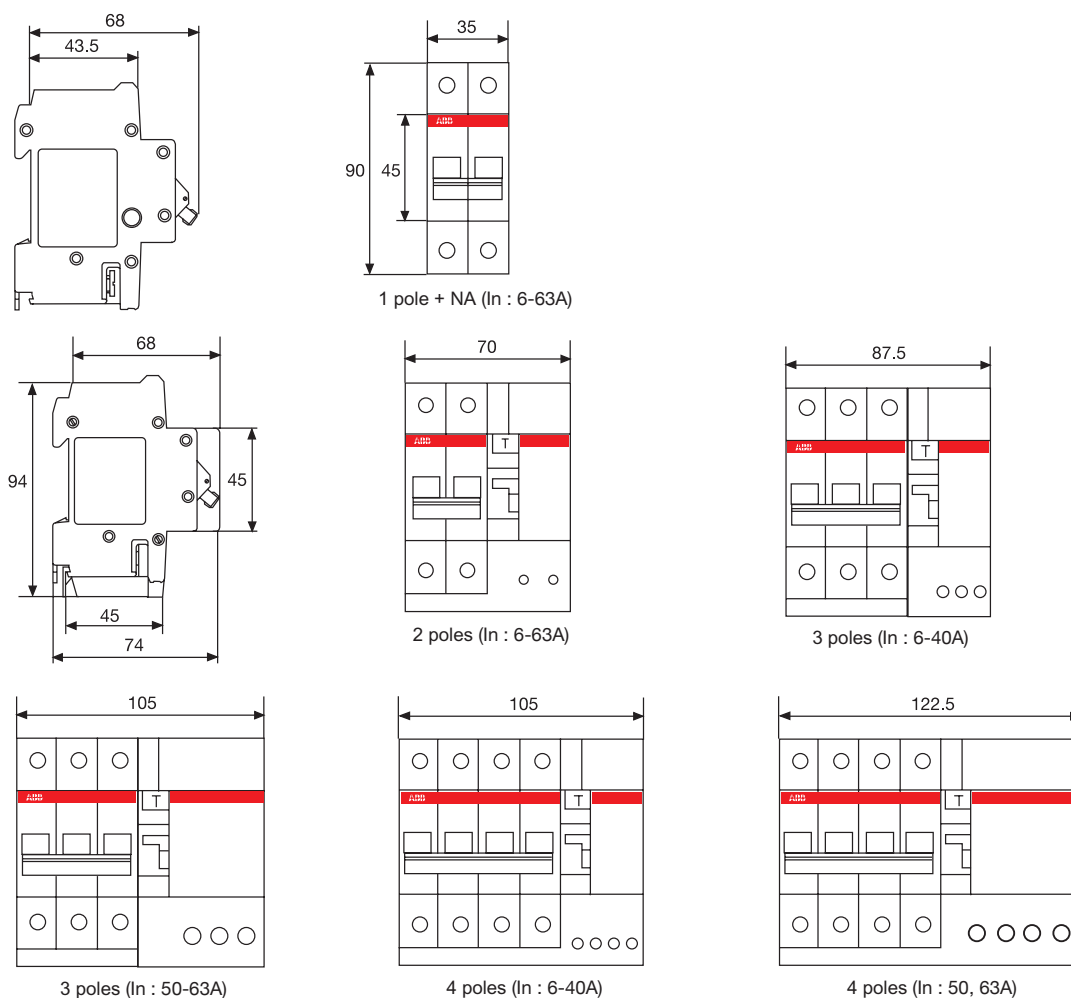
### F200 (RCCB)

| Rated current<br>(A) | Rated residual<br>current (mA) | AC Type            |                    |
|----------------------|--------------------------------|--------------------|--------------------|
|                      |                                | 2 Poles            | 4 Poles            |
| 80                   | 30                             | F202 AC-80 / 0.03  | F204 AC-80 / 0.03  |
| 100                  |                                | F202 AC-100 / 0.03 | F204 AC-100 / 0.03 |
| 80                   | 100                            | F202 AC-80 / 0.1   | F204 AC-80 / 0.1   |
| 100                  |                                | F202 AC-100 / 0.1  | F204 AC-100 / 0.1  |
| 80                   | 300                            | F202 AC-80 / 0.3   | F204 AC-80 / 0.3   |
| 100                  |                                | F202 AC-100 / 0.3  | F204 AC-100 / 0.3  |

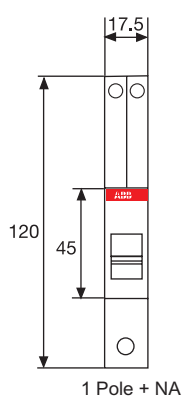
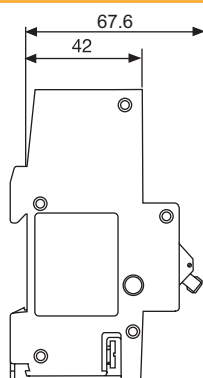
# Residual Current Devices (RCD)

Dimensions (mm)

## GS250S

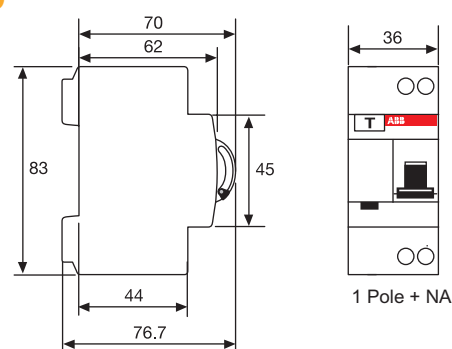


## DS251 / DS271

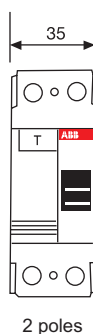
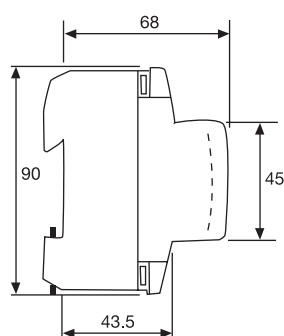


1 Pole + NA

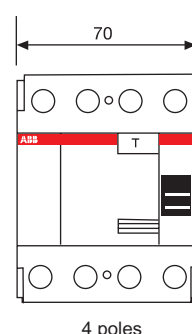
## DS9



## FH200 / F200



2 poles



4 poles



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