



DATA SHEET

residual current circuit-breaker  
DFS 4 040-4/0,30-A Hz60 HD  
sensitive to pulsating and alternating currents Type A, for frequencies  
≠ 50 Hz, for harsh environments  
Article number 09136923HD



Function

Residual current circuit-breakers (RCCBs) are components for implementing protective measure "Automatic disconnection of the power supply" as per VDE 0100 part 410 or corresponding international installation regulations. Series DFS 4 devices are compact two or four-pole residual current circuit-breakers. In the standard design, they only take up four module width units of space. Although DFS 4 devices for AC and pulsating DC residual currents are actually designed for three-phase networks, they can also be used in single-phase networks. However, in addition to these, special variants are also available for single or three-phase operation in the form of the AC/DC sensitive designs (type B, type B+). In spite of the compact dimensions, a number of different tripping currents and characteristics are available at rated currents, depending on the design, up to 125 A. They also have large two-tier terminals for large conductor cross-sections, a practical multi-functional switch toggle and can be provided with labels using free-of-charge software. Type A residual current circuit-breakers are sensitive to pulsating and alternating currents. This function is independent of the mains voltage. Devices in the Hz design are intended for rated mains frequencies other than 50Hz. Common frequencies are 60 or 400 Hz; devices for other frequencies can be manufactured upon request. The frequency range for tripping current detection remains unaffected by this. Devices in the standard design are intended for monitoring circuits with a rated voltage of 230 V or 400 V. With an airtight, encapsulated tripping mechanism from a special alloy and the stainless steel latch, residual current circuit-breakers in HD design are protected, in particular from corrosion, corrosive gases, moisture and extreme temperature fluctuations.

Features

tripping not dependent on mains and auxiliary voltage, sensitive to AC residual currents and pulsating DC residual currents (type A) , compact design for all rated currents, high short-circuit resistance, double-sided two-tier terminals for large conductor cross-section and busbar, switch position indicator, viewing window for labels, multifunction switch toggle with three positions: "on", "off" and "tripped", Neutral conductor position left

Mounting

quick fastening to mounting rail, any installation position, supply from any direction

Applications

Power supplies to TT, TN-S and TN-C-S networks with mains frequencies > 50 Hz, Not permitted for use in TN-C networks and for protecting systems in which electronic equipment may cause smooth DC residual currents or residual currents with frequencies not equal to 50 Hz. Comprehensive protection is not provided with an RCCB Type A. For these applications we recommend our residual current circuit-breakers Type F or our AC/DC sensitive residual current circuit-breakers Type B/B+.

Accessories

automatic reclosing devices DFA, terminal caps KA, information stickers HAS, auxiliary switches DHi, restart locks DFS WES, software DBS

Technical Data

| Technical Data             | DFS 4 040-4/0,30-A Hz60 HD |
|----------------------------|----------------------------|
| Series                     | DFS 4 A Hz HD              |
| Number of poles            | 4                          |
| Residual current type      | A                          |
| Rated current (AC)         | 40 A                       |
| Rated residual current IΔn | 0.3 A                      |
| Short-time delayed         | false                      |
| Selective                  | false                      |

| Technical Data  |  | DFS 4 040-4/0,30-A Hz60 HD   |
|---|--|--|
| min. Operating voltage range of test circuit            |  | 200 V  |
| max. Operating voltage range of test circuit            |  | 440 V  |
| Maximum disconnection times                             |  | 1 · IΔn: ≤ 300 ms; 5 · IΔn: ≤ 40 ms  |
|   |  | <b>load circuit</b>  |
| Specification   |  | load disconnect contact  |
| min. Contact opening                                    |  | 4 mm   |
| Rated voltage (AC)                                      |  | 230 V, 400 V   |
| Rated current (AC)                                      |  | 40 A   |
| Rated short-circuit current                             |  | 10 kA  |
| Surge current strength                                  |  | 0.25 kA  |
| max. Total rated switching capacity                     |  | 500 A  |
| Rated insulation voltage                                |  | 400 V  |
| Rated impulse withstand voltage                         |  | 4 kV   |
| Rated frequency   |  | 60 Hz  |
| Current heat loss per current path                      |  | 1.3 W  |
| Thermal Backup-fuse OCPD                                |  | 40 A   |
| Short-circuit backup-fuse SCPD                          |  | 100 A  |
| Back-up fuse type                                       |  | gG   |
|   |  | <b>screw-type terminal top and bottom (load circuit)</b>                         |
| Neutral conductor position                              |  | left   |
| Protection against direct contact                       |  | DGUV V3, VDE 0660-514, finger and back-of-hand proof                             |
| Connection C1 Maximum number of conductors per terminal |  | 2 (conductors of same type and cross-section)                                    |
| Cross section solid                                     |  | 1-wire: 1.5 mm² ... 50 mm²; 2-wire: 1.5 mm² ... 16 mm²                           |
| Connecting capacity flexible                            |  | 1-wire: 1.5 mm² ... 50 mm²; 2-wire: 1.5 mm² ... 16 mm²                           |
| Cross section stranded                                  |  | 1-wire: 1.5 mm² ... 50 mm²; 2-wire: 1.5 mm² ... 16 mm²                           |
| Cross section AWG, solid                                |  | 15 ... 1   |
| Cross section AWG, stranded                             |  | 15 ... 1   |
| Cross section AWG, flexible                             |  | 15 ... 1   |
| Cross section AWG, flexible with ferrule                |  | 15 ... 1   |
| Tightening torque                                       |  | 2.5 Nm ... 3 Nm  |
|   |  | <b>General data</b>  |
| Operating position                                      |  | optional   |
| max. Operating altitude above MSL                       |  | 2000 m   |
| Mechanical endurance                                    |  | min. 5000 cycles   |
| Electrical endurance                                    |  | min. 2000 cycles   |
| Surrounding atmosphere                                  |  | normal environmental conditions  |
| Storage temperature                                     |  | -35 °C ... 75 °C   |
| Ambient temperature                                     |  | -25 °C ... 60 °C   |
| Climate resistance                                      |  | according to IEC 60068-2-30: humid heat / cyclic (25 °C / 55 °C; 93 % / 97 % RH) |
| Shock resistance  |  | 20 g / 20 ms Duration  |
| Fatigue limit   |  | > 5 g (f ≤ 80 Hz, duration > 30 min.)  |
| Housing type  |  | distribution board housing   |
| Installation type                                       |  | Mounting rail (35 mm)  |
| Housing material  |  | thermoplastic  |

Subject to technical changes

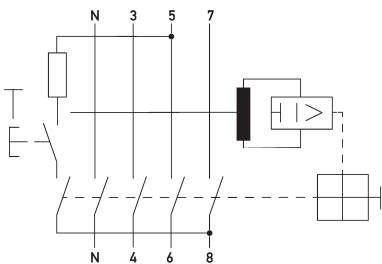
| Technical Data                |  | DFS 4 040-4/0,30-A Hz60 HD  |
|-------------------------------|--|-----------------------------|
| Protection class              |  | IP20 (installed: IP40)      |
| sealable                      |  | true                        |
| Width                         |  | 72 mm                       |
| Height                        |  | 85 mm                       |
| Depth                         |  | 75 mm                       |
| Installation depth            |  | 69 mm                       |
| Module widths                 |  | 4                           |
| Weight                        |  | 0.428 kg                    |
| Design requirements/Standards |  | VDE 0664-10, DIN EN 61008-1 |
| Degree of pollution           |  | 2                           |

Dimensions



Dimensional drawing Group view

Wiring example



Wiring diagram