*DATA SHEET*

***Article number: 09145804HD***

# *Residual current circuit-breakers*

# *DFS 4 063-4/0,10-PV HD*

***AC/DC sensitive, fire protection according to VDE 0100-420, for PV installations, for harsh environments***

## *Function*

Residual current circuit-breakers (RCCBs) are components for implementing protective measure "Automatic disconnection of the power supply" as per IEC 60364-4-41 or corresponding national installation regulations. Devices in the DFS 4 series are compact four-pole residual current circuit-breakers for single-phase or three-phase networks. In the standard version, they only occupy four division units. The AC/DC-sensitive switches detect smooth DC residual currents and all other residual currents in accordance with DIN VDE 0664-400. Switches of the PV series have been specially developed for use in photovoltaic systems and offer the highest possible protection level for this purpose. With a PV-optimised short-time delay, the AC/DC sensitive residual current circuit breaker is resistant to surge currents. It thus offers higher system availability due to fewer false trippings. Devices in the standard design are intended for monitoring circuits with a rated voltage of 230 V, 400 V and a rated frequency of 50 Hz. 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*

AC/DC sensitive for residual currents with frequencies and mixed frequencies from 0 Hz to 20 kHz, fire protection according to VDE 0100-420, complete functionality with mains voltages from at least 50 V AC on any two active conductors, high short-circuit resistance, ouble-sided double-decker terminals for large conductor cross-section and busbar connection, switching position indicator, multifunction control toggle with three positions: "on", "off", "triggered", any neutral conductor position

## *Mounting*

quick fastening to mounting rail, any installation position, supply preferably from above

## *Applications*

RCCBs of the PV series are suitable for private, commercial and industrial installations with TN-S, TT and TN-C-S systems in which photovoltaic systems are installed.

## *Notes*

suitable for use in 50 Hz AC networks, not intended for use on the output side of controlled electrical equipment such as frequency converters

## *Accessories*

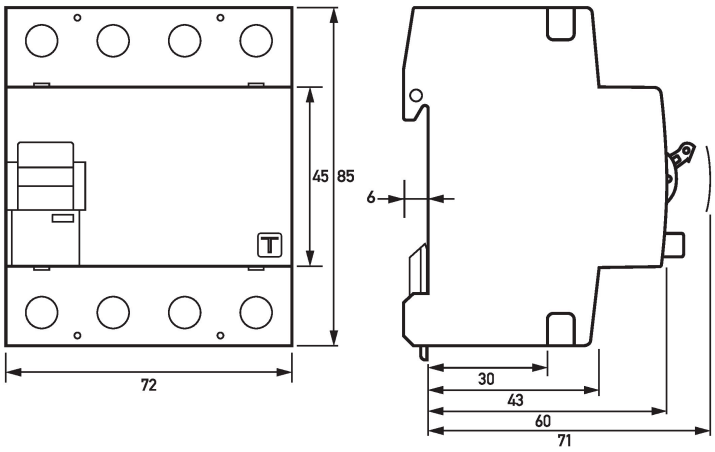
automatic reclosing devices DFA, terminal caps KA, information stickers HAS, auxiliary switches DHi, restart locks DFS WES, software DBS

## *Technical Data*

| | |
|---|---|
| Series | DFS 4 PV HD |
| Number of poles | 4 |
| Residual current type | B+ |
| Rated current (AC) | 63 A |
| Rated residual current IΔn | 0.1 A |
| Short-time delayed | true |
| Selective | false |
| min. Operating voltage range of test circuit | 200 V |
| max. Operating voltage range of test circuit | 440 V |
| Minimum rated operating voltage (Type A/AC operation) | 0 V AC |
| Minimum rated operating voltage (Type B operation) | 50 V AC |
| Non-trip time | 13 ms |
| Tripping frequency | 0 Hz ... 20 kHz |

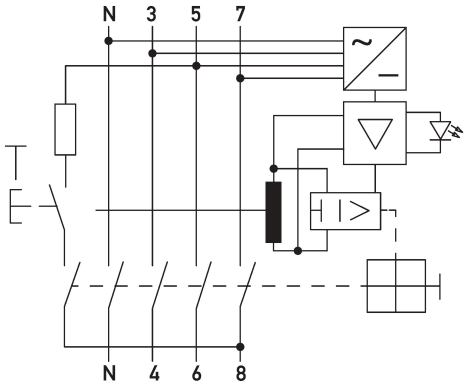
| | |
|---|---|
| Maximum disconnection times | 1 · IΔn: ≤ 300 ms; 5 · IΔn: ≤ 40 ms |
| Internal consumption | max. 1.3 W |
| | **load circuit** |
| Specification | load disconnect contact |
| min. Contact opening | 4 mm |
| Rated voltage (AC) | 230 V, 400 V |
| Rated current (AC) | 63 A |
| Rated short-circuit current | 6 kA |
| Surge current strength | 3 kA |
| max. Total rated switching capacity | 630 A |
| Rated insulation voltage | 400 V |
| Rated impulse withstand voltage | 4 kV |
| Rated frequency | 50 Hz |
| Current heat loss per current path | 3.1 W |
| Thermal Backup-fuse OCPD | 63 A |
| Short-circuit backup-fuse SCPD | 100 A |
| Back-up fuse type | gG |
| $I^2t$ strength | 48 $kA^2s$ |
| Dynamic current strength $I_p$ | 6 kA |
| | **Screw-type terminal top and bottom (load circuit)** |
| Neutral conductor position | left |
| Protection against direct contact | DGUV V3, VDE 0660-514, finger and back-of-hand proof |
| max. Connection C1 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 |
| | **General data** |
| Operating position | optional |
| max. operating altitude above MSL | 2000 m |
| mechanical endurance | min. 4000 cycles |
| electrical endurance | min. 2000 cycles |
| Surrounding atmosphere | harsh 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) |
| Housing type | distribution board housing |
| Installation type | Mounting rail (35 mm) |
| Housing material | thermoplastic |
| Protection class | IP20 (installed: IP40) |
| sealable | true |
| Width | 72 mm |
| Height | 85 mm |
| Depth | 75 mm |
| Installation depth | 69 mm |
| Module widths | 4 |
| Weight | 0.495 kg |
| Design requirements/Standards | VDE 0664-10, VDE 0664-400, ÖVE/ÖNORM E 8601, EN 61008-1, EN 62423 |
| Degree of pollution | 2 |
| Certifications | VDE |

### *Dimensions*




Dimensional drawing DFS 4 PV HD, 4-pole (Group view)

### *Wiring example*




Wiring diagram DFS 4 PV HD, 4-pole