DATA SHEET

residual current circuit-breaker
DFS 4 025-4/0,03-F EV HD

sensitive to residual currents Type F, for electromobility with DC detection, for harsh environments

Article number 09124814HD

10000 KV G

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. Switches for residual current type F are mains voltage-independent and record type A sinusoidal alternating and pulsating DC residual currents as well as residual currents with mixed frequencies that differ from 50 Hz. For example, these can arise when using single-phase frequency converters. RCCB of series EV are also fitted with an active mains-voltage-dependent function for detecting smooth DC residual currents and a tripping threshold of 6 mA. This prevents possible pre-magnetisation of an upstream type A or F residual current circuit-breaker due to a smooth DC residual current, so that this circuit-breaker can continue fulfilling its protective function. They are only designed for use in charging columns or wall boxes for charging electric vehicles as per DIN VDE 0100-722. RCCBs in design EV must not be used in place of a type B or B+ residual current circuit-breaker. 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

sensitive to AC residual currents and pulsating DC residual currents at the mains frequency (type A) as well as AC residual currents with multiple frequency components not equal to 50 Hz, additional mains-voltage-dependent function for detecting smooth DC residual currents, Tripping threshold of 6 mA for smooth DC residual currents , high immunity against surge currents and mains-voltage-operated secondary current impulses, 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

These RCCBs are only designed for use in charging stations for electric vehicles.

Accessories

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

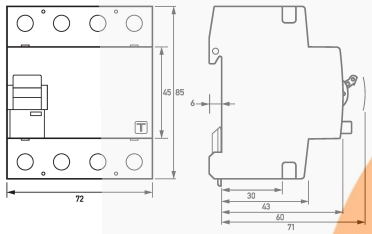
Technical Data

Technical Data	DFS 4 025-4/0,03-F EV HD
Series	DFS 4 F EV HD
Number of poles	4
Residual current type	F
Rated current (AC)	25 A
Rated residual current IΔn	0.03 A
DC tripping threshold	6 mA

Technical Data	DFS 4 025-4/0,03-F EV HD
Short-time delayed	true
Selective	false
min. Operating voltage range of test circuit	250 V
max. Operating voltage range of test circuit	440 V
Non-trip time	10 ms
	auxiliary device (6-mA-DC detection)
	load circuit
Specification	load disconnect contact
min. Contact opening	4 mm
Rated voltage (AC)	230 V, 400 V
Rated current (AC)	25 A
Rated short-circuit current	10 kA
Surge current strength	3 kA
max. total rated switching capacity	500 A
Rated insulation voltage	400 V
Rated impulse withstand voltage	4 kV
Rated frequency	50 Hz
Current heat loss per current path	0.5 W
thermal Backup-fuse OCPD	25 A
short-circuit backup-fuse SCPD	100 A
Back-up fuse type	gG
	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
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
	General data
Operating position	optional
max. Operating altitude above MSL	2000 m
Mechanical endurance	min. 5000 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)
Shock resistance	20 g / 20 ms Duration
Fatigue limit	> 5 g (f ≤ 80 Hz, duration > 30 min.)

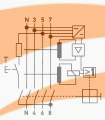
Technical Data	DFS 4 025-4/0,03-F EV HD
Housing type	distribution board housing
Installation type	Mounting rail (35 mm)
Housing material	thermoplastic
Protection class	IP20 (installed: IP40)
sealable	true
Width	72 mm
Height	85 mm
Depth	75 mm
Installation depth	69 mm
Module widths	4
Design requirements/Standards	VDE 0664-10, DIN EN 61008-1, EN 62423, ÖVE/ÖNORM E 8601, VDE V 0664-120
Degree of pollution	2

Dimensions



Dimensional drawing Group view

Wiring example



Wiring diagram