

UK Technical Data 12

DFS 4 ***-4/0,03-A EV 400V 50Hz

sensitive to residual currents Type A + 6 mA DC detection for EV applications

Incorporates RDC-DD function to IEC 62955 (18th Edition Amendment 1)



symbolic image



Function

Residual current circuit-breakers (Type EV RCCBs) for implementing the protective measure "Automatic disconnection of the power supply" as per 722.531.3.101. (ii). Series DFS 4 AEV RCCBs are four module devices with 30 mA residual current characteristics plus an RDC-DD function. Available in 2 or 4 -pole versions for single-phase 230V or three-phase 400V networks at rated currents up to 80A. They also have large two-tier terminals for large conductor cross-sections, practical multi-functional switch toggle. EV switches with residual current characteristic A, allow the mains voltage independent detection of sinusoidal AC currents and pulsating DC residual currents, plus smooth DC residual currents (6 mA), via an active mains-voltage-dependent function. This prevents possible magnetic saturation (blinding) of upstream type A or F RCDs and a loss of protection, due to the effects of smooth DC residual current.

Type DFS₄ AEV devices are designed specifically for use in EV charging applications, requiring protection against DC fault currents via an RDC-DD see BS7671 - 722. They also provide 30 mA RCD fault protection.

Features

Sensitive to AC residual currents and pulsating DC residual currents at the mains frequency (type A), as well as smooth DC fault currents. Immunity against surge currents and mains-voltage-transients pulses < 3 kA. 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", also available in the "HD" design.

Mounting

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

Applications

Type AEV RCCBs are designed for use in Mode 2 or 3 electric vehicle battery charging at 50Hz. They are not designed for use in any other applications. For EV battery chargers that produce leakage / residual currents with frequencies not equal to 50 Hz - see Type FEV. For Mode 4 charging circuits use Type B RCDs, unless the Manufacturer of the Mode 4 charging equipment states another type of RCD protection.

Accessories

Automatic re-closing devices DFA, Clamp covers KA, Auxiliary Switches DHi,

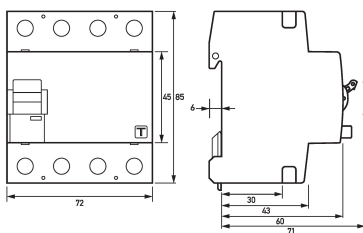
Technical Data

Technical Data	DFS 4 ***-4/0,03-A EV
Series	DFS 4 A EV
Number of poles	4
Residual current type	A
Rated current (AC)	Refer to the individual product reference, data sheet available on request
Rated residual current I Δ n	0.03 A
DC tripping threshold	6 mA
Short-time delayed	false

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Selective	false
min. Operating voltage range of test circuit	250 V
max. Operating voltage range of test circuit	440 V
	RDC-DD Function for 6 mA DC detection
RDC-DD operating voltage (Incorporated in the RCCB)	85 V ... 265 V
Internal consumption of auxiliary device	1.7 W
	Load circuit
Specification	Load switch contact
min. Contact opening	4 mm
Rated voltage (AC)	400 V
Rated current (AC)	Refer to the individual product reference, data sheet available on request
Rated short-circuit current	10 kA
Surge current strength	3 kA
max. total rated switching capacity	Refer to the individual product reference, data sheet available on request
Rated insulation voltage	400 V
Rated impulse withstand voltage	4 kV
Rated frequency	50 Hz
Current heat loss per current path	Refer to the individual product reference, data sheet available on request
thermal Backup-fuse OCPD	Refer to the individual product reference, data sheet available on request
short-circuit backup-fuse SCPD	Refer to the individual product reference, data sheet available on request
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-safe and safe for back-of-hand
Connection C1 Maximum number of conductors per terminal	2 (conductors of same type and cross-section)
Cross section solid	1-wire: 1.5 mm ² ... 50 mm ² ; 2-wire: 1.5 mm ² ... 16 mm ²
Connecting capacity flexible	1-wire: 1.5 mm ² ... 50 mm ² ; 2-wire: 1.5 mm ² ... 16 mm ²
Cross section stranded	1-wire: 1.5 mm ² ... 50 mm ² ; 2-wire: 1.5 mm ² ... 16 mm ²
Tightening torque	2.5 Nm ... 3 Nm
	General data
Operating position	any
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 ... 40 °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	Distributor housing
Mounting type	Mounting rail (35 mm)
Housing material	Thermoplastic resin

Technical Data	DFS 4 ***-4/0,03-A EV
Protection class	IP20 (installed: IP40)
sealable	true
Width	72 mm
Height	85 mm
Depth	75 mm
Installation depth	69 mm
Width (modules)	4
Design requirements/Standards	VDE 0664-10, EN 61008-1, VDE V 0664-120, IEC 62955
Degree of pollution according to EN 60664	2

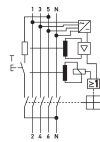
Dimensions



Dimensional drawing Group view

Wiring example -

For three phase: N must be connected on the left



Wiring diagram