



DATA SHEET

residual current circuit-breaker

DFS 2 040-2/0,03-A KV HD

sensitive to pulsating and alternating currents Type A, increased surge-current resistant, short-time delayed, lightning resistant, for harsh environments

Article number 09134609HD



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 2 devices are compact two-pole residual current circuit-breakers for single-phase networks. In the standard design, they only take up two module-width units of space. 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. Because they feature a response delay, residual current circuit-breakers in the KV design only respond to residual currents that last longer than a half-period of the power frequency. In contrast to instantaneous breakers, they are significantly less sensitive to brief impulse-like residual currents and facilitate problem-free operation, even when lightning or switching overvoltage in the system causes capacitive surge residual currents or insulation flashovers with a secondary current up to the zero point of the mains voltage. They therefore meet the requirements for lightning-resistant RCCBs as per Austrian standard ÖVE E 8601. The tripping times set out in national and international design regulations for instantaneous RCCBs are also observed by the KV design devices. In principle, therefore, they may be used instead of a standard breaker. Devices in the standard design are intended for monitoring circuits with a rated voltage of 230 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

high immunity against surge currents and mains-voltage-operated secondary current impulses , 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 or right

Mounting

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

Applications

Power supplies to residential and purpose-built building as well as industrial facilities with TN-S, TT and TN-C-S networks, in which conventional RCCBs trip following transient leakage currents and this is not desired, such as in systems with long cable lengths behind the RCCB, lighting systems with lots of fluorescent lamps (> 20 lamps), computer systems and solar power systems, Excluded is the application in TN-C systems and for the protection of installations in which electronic equipment could generate smooth DC currents or residual currents with frequencies other than 50 Hz. Comprehensive protection is not provided in this case. For these applications we recommend our AC/DC sensitive residual current circuit-breakers (Type B or B+).

Accessories

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

Technical Data

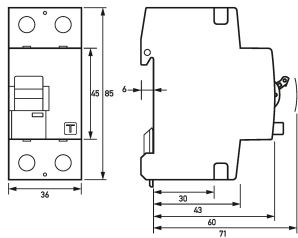
Technical Data	DFS 2 040-2/0,03-A KV HD
Series	DFS 2 A KV
Number of poles	2
Residual current type	A
Rated current (AC)	40 A

Technical Data		DFS 2 040-2/0,03-A KV HD
Rated residual current I Δ n		0.03 A
Short-time delayed		true
Selective		false
min. Operating voltage range of test circuit		150 V
max. Operating voltage range of test circuit		250 V
Non-trip time		10 ms
		load circuit
Specification		load disconnect contact
min. Contact opening		4 mm
Rated voltage (AC)		230 V
Rated current (AC)		40 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		1.1 W
Thermal Backup-fuse OCPD		40 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 or right
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 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
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.)

Subject to technical changes

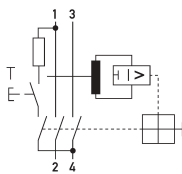
Technical Data	DFS 2 040-2/0,03-A KV HD
Housing type	distribution board housing
Installation type	Mounting rail (35 mm)
Housing material	thermoplastic
Protection class	IP20 (installed: IP40)
sealable	true
Width	36 mm
Height	85 mm
Depth	75 mm
Installation depth	69 mm
Module widths	2
Weight	0.263 kg
Design requirements/Standards	VDE 0664-10, DIN EN 61008-1, ÖVE/ÖNORM E 8601
Degree of pollution	2
Certifications	VDE

Dimensions



Dimensional drawing Group view

Wiring example



Wiring diagram