

DATA SHEET

residual current circuit-breaker
DFS 4 125-4/1,00-AC S
sensitive to residual currents Type AC, selective
Article number 09178906





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 with residual current characteristic AC only detect AC residual currents. They cannot detect pulsating DC residual currents so are not permitted for use as residual current operated protective devices in Germany. They are therefore only available as export models. In order to trip, selective residual current circuit-breakers need the residual current to flow for longer than in the case of instantaneous breakers. Selective switch-off is therefore possible in systems with stacked distribution boards, i.e. when RCCBs are connected in series, only the RCCB responsible for the system section of the earth fault immediately downstream of it trips if a fault occurs. Due to their long switch-off times and high rated residual currents, selective residual current circuit-breakers only provide fire protection and fault protection (protection in the case of indirect contact). Additional protection (in the case of direct contact, personal protection) is therefore not provided.

Features

response delay for selective design, 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 (type AC), 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

Main distribution boards in extended power supplies with TN-S, TT and TN-C-S systems, such as campsites, marinas, allotment gardens and showrooms. Selective residual current circuit-breakers in most cases protect the cables from the main distribution board to the sub-distribution boards, Not permitted for use in TN-C networks; not permitted for protecting systems in which electronic equipment may cause pulsating or smooth DC residual currents or residual currents with frequencies not equal to 50 Hz. Comprehensive protection is not provided with an RCCB type AC. For these applications we recommend our residual current circuit-breaker type A or our AC/DC sensitive residual current circuit-breaker type B/B+.

Notes

To ensure the selectivity of the RCCB, the rated residual current of the selective RCCB must be set at least one level higher than the downstream instantaneous switch.

Accessories

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

Technical Data

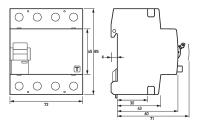
Technical Data	DFS 4 125-4/1,00-AC S
Series	DFS 4 AC S
Number of poles	4

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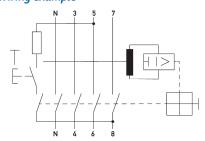
Residual current type AC Rated current (AC) 125 A Rated residual current IΔn 1 A Short-time delayed false Selective true min. Operating voltage range of test circuit 200 V max. Operating voltage range of test circuit 50 ms Non-trip time 50 ms Maximum disconnection times 1 · IΔn: ≤ 500 ms; 5 · IΔn: ≤ 150 ms Response delay 1 · IΔn: 30 ms < T ≤ 500 ms; 5 · IΔn: 50 ms < T ≤ 150 ms Specification Ioad disconnect contact min. Contact opening 4 mm Rated voltage (AC) 230 V, 400 V Rated current (AC) 125 A Rated short-circuit current 10 kA Surge current strength 5 kA max. Total rated switching 1250 A capacity 4 kV Rated insulation voltage 4 kV Rated insulation voltage 4 kV Rated frequency 50 Hz Current heat loss per current 11.2 W path 11.2 W Phermal Backup-fuse OCPD 80 A Short-circuit backup-fuse SCPD <th>125 A 1 A false true 200 V</th> <th>Residual current type</th>	125 A 1 A false true 200 V	Residual current type
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Specification load disconnect contact min. Contact opening 4 mm Rated voltage (AC) 230 V, 400 V Rated current (AC) 125 A Rated short-circuit current 10 kA Surge current strength 5 kA max. Total rated switching capacity Rated insulation voltage 400 V Rated impulse withstand voltage 4 kV Rated frequency 50 Hz Current heat loss per current path Thermal Backup-fuse OCPD 80 A Short-circuit backup-fuse SCPD 125 A Back-up fuse type	· IΔn: 130 ms < T ≤ 500 ms; 5 · IΔn: 50 ms < T ≤ 150 ms	Response delay
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Surge current strength max. Total rated switching capacity Rated insulation voltage Rated impulse withstand voltage Rated frequency Current heat loss per current path Thermal Backup-fuse OCPD 80 A Short-circuit backup-fuse SCPD Back-up fuse type gG	125 A	Rated current (AC)
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capacity Rated insulation voltage Rated impulse withstand voltage 4 kV Rated frequency 50 Hz Current heat loss per current path Thermal Backup-fuse OCPD 80 A Short-circuit backup-fuse SCPD 125 A Back-up fuse type	5 kA	Surge current strength
Rated insulation voltage Rated impulse withstand voltage Rated frequency Current heat loss per current path Thermal Backup-fuse OCPD Short-circuit backup-fuse SCPD Back-up fuse type 4 kV 50 Hz 11.2 W 11.2 W 125 A Back-up fuse type	1250 A	3
Rated frequency 50 Hz Current heat loss per current path Thermal Backup-fuse OCPD 80 A Short-circuit backup-fuse SCPD 125 A Back-up fuse type gG	400 V	Rated insulation voltage
Current heat loss per current path Thermal Backup-fuse OCPD Short-circuit backup-fuse SCPD Back-up fuse type 11.2 W 80 A 125 A Back-up fuse type	4 kV	Rated impulse withstand voltage
Thermal Backup-fuse OCPD 80 A Short-circuit backup-fuse SCPD 125 A Back-up fuse type gG	50 Hz	
Short-circuit backup-fuse SCPD 125 A Back-up fuse type gG	11.2 W	
Back-up fuse type gG	80 A	Thermal Backup-fuse OCPD
	125 A	Short-circuit backup-fuse SCPD
screw-type terminal top and bottom (load circuit)	gG	Back-up fuse type
	screw-type terminal top and bottom (load circuit)	
Neutral conductor position left	left	Neutral conductor position
Protection against direct contact DGUV V ₃ , VDE o660-514, finger and back-of-hand proof	GUV V3, VDE o66o-514, finger and back-of-hand proof	Protection against direct contact
Connection C1 Maximum 2 (conductors of same type and cross-section) number of conductors per terminal	2 (conductors of same type and cross-section)	number of conductors per
Cross section solid 1-wire: 1.5 mm ² 50 mm ² ; 2-wire: 1.5 mm ² 16 mm ²	1-wire: 1.5 mm ² 50 mm ² ; 2-wire: 1.5 mm ² 16 mm ²	Cross section solid
Connecting capacity flexible 1-wire: 1.5 mm ² 50 mm ² ; 2-wire: 1.5 mm ² 16 mm ²	L-wire: 1.5 mm ² 50 mm ² ; 2-wire: 1.5 mm ² 16 mm ²	Connecting capacity flexible
Cross section stranded 1-wire: 1.5 mm ² 50 mm ² ; 2-wire: 1.5 mm ² 16 mm ²	L-wire: 1.5 mm ² 50 mm ² ; 2-wire: 1.5 mm ² 16 mm ²	Cross section stranded
Cross section AWG, solid 15 1	151	Cross section AWG, solid
Cross section AWG, stranded 15 1	151	Cross section AWG, stranded
Cross section AWG, flexible 15 1	151	Cross section AWG, flexible
Cross section AWG, flexible with ferrule	15 1	•
Tightening torque 2.5 Nm 3 Nm	2.5 Nm 3 Nm	Tightening torque
General data	General data	
Operating position optional	optional	Operating position
max. Operating altitude above 2000 m MSL	2000 M	
Mechanical endurance min. 5000 cycles	min. 5000 cycles	Mechanical endurance
Electrical endurance min. 2000 cycles	min. 2000 cycles	Electrical endurance
Surrounding atmosphere normal environmental conditions	normal environmental conditions	Surrounding atmosphere
Storage temperature -35 °C 75 °C	-35 °C 75 °C	Storage temperature

Technical Data	DFS 4 125-4/1,00-AC S
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 ≤ 8o Hz, duration > 30 min.)
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	8 ₅ mm
Depth	75 mm
Installation depth	69 mm
Module widths	4
Weight	o.438 kg
Design requirements/Standards	VDE 0664-10, DIN EN 61008-1
Degree of pollution	2

Dimensions



Wiring example



Dimensional drawing Group view

Wiring diagram