

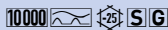
## DATA SHEET

### residual current circuit-breaker

#### DFS 2 040-2/0,50-A S Twin

puls- und wechselstromsensitiv Typ A, selektiv, unterbrechungsfreie Prüfung

Article number 09137015



#### 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. The twin design is a combination of two complete RCCBs, which allows for a function test to be performed on every single sub-RCCB without switching off the load circuit. It provides complete residual current protection during the function test, in which each of the RCCBs working in parallel can carry the full rated short-circuit current. The continual flow of current during the test procedure is achieved through parallel switching of the switching contacts of both sub-RCCBs, i.e. when both RCCBs are switched on, one of the two sub-switches can be tripped using its test key, while the second switch takes on the power supply. If the function test shows that a faulty RCCB does not trip, the effectiveness of the protection can be restored by switching on the intact RCCB. A faulty device can be secured against switching on again in this case with the restart interlock WES 2 mounted at the factory. Type A residual current circuit-breakers are sensitive to pulsating and alternating currents. This function is independent of the mains voltage. 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

function test for residual current circuit-breaker without interrupting power, residual current protection complies with standard even during testing procedure, no costs during system downtime, high system availability, 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 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"

#### 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, The twin design allows regularly prescribed function tests to be performed without disconnecting the power, 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.

#### Notes

WES 2 restart interlock mounted at factory, 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

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

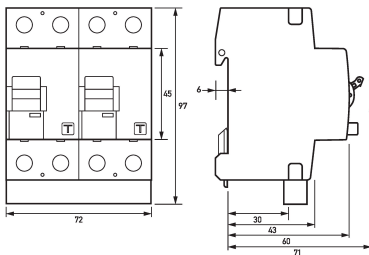
Technical Data

Technical Data	DFS 2 040-2/0,50-A S Twin
Series	DFS 2 A S Twin
Number of poles	2
Residual current type	A
Rated current (AC)	40 A
Rated residual current $I_{\Delta n}$	0.5 A
Short-time delayed	false
Selective	true
min. Operating voltage range of test circuit	100 V
max. Operating voltage range of test circuit	250 V
Non-trip time	50 ms
Maximum disconnection times	$1 \cdot I_{\Delta n}: \leq 500 \text{ ms}; 5 \cdot I_{\Delta n}: \leq 150 \text{ ms}$
Response delay	$1 \cdot I_{\Delta n}: 130 \text{ ms} < T \leq 500 \text{ ms}; 5 \cdot I_{\Delta n}: 50 \text{ ms} < T \leq 150 \text{ ms}$
	<b>load circuit</b>
Specification	load disconnect contact
Number	2
min. Contact opening	4 mm
Rated voltage (AC)	230 V
Rated current (AC)	40 A
Rated short-circuit current	10 kA
Surge current strength	5 kA
max. Total rated switching capacity	500 A
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
	<b>screw-type terminal top and bottom (load circuit)</b>
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 <sup>2</sup> ... 50 mm <sup>2</sup> ; 2-wire: 1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>
Connecting capacity flexible	1-wire: 1.5 mm <sup>2</sup> ... 50 mm <sup>2</sup> ; 2-wire: 1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>
Cross section stranded	1-wire: 1.5 mm <sup>2</sup> ... 50 mm <sup>2</sup> ; 2-wire: 1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>
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
	<b>General data</b>
Operating position	optional
max. Operating altitude above MSL	2000 m

Subject to technical changes

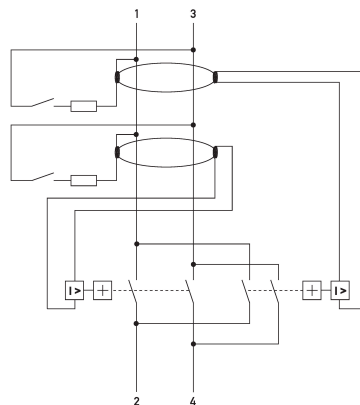
Technical Data	DFS 2 040-2/0,50-A S Twin
Mechanical endurance	min. 5000 cycles
Electrical endurance	min. 2000 cycles
Storage temperature	-35 °C ... 75 °C
Ambient temperature	-25 °C ... 40 °C
Climate resistance	according to IEC 60068-2-30: humid heat / cyclic (25 °C / 55 °C; 93 % / 97 % RH)
Shock resistance	20 g / 20 ms Duration
Fatigue limit	> 5 g (f ≤ 80 Hz, duration > 30 min.)
Housing type	distribution board housing
Installation type	Mounting rail (35 mm)
Housing material	thermoplastic
Protection class	IP20 (installed: IP40)
sealable	true
Width	72 mm
Height	97 mm
Depth	77 mm
Installation depth	69 mm
Module widths	4
Weight	0.542 kg
Design requirements/Standards	VDE 0664-10, DIN EN 61008-1
Degree of pollution	2

**Dimensions**



Dimensional drawing Group view

**Wiring example**



Wiring diagram