

## DATA SHEET

Article number: 09134805

# residual current circuit-breaker DFS 4 040-4/0,03-HP

AC/DC sensitive, fire protection according to VDE 0100-420, for heat pumps





#### **Function**

Residual current circuit-breakers (RCCBs) are components for implementing protective measure "Automatic disconnection of the power supply" as per IEC 60364-4-41 or corresponding national 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. The AC/DC-sensitive switches detect smooth DC residual currents and all other residual currents in accordance with DIN VDE 0664-400. Switches of the HP (Heat Pump) series have been specially developed for the protection of heat pumps. The protection level of the AC/DC sensitive residual current circuit breaker meets all requirements of heat pump manufacturers. In addition, the HP-optimised short-time delay ensures increased system availability. 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.

#### **Features**

AC/DC sensitive for residual currents with frequencies and mixed frequencies from o Hz to 20 kHz, fire protection according to VDE 0100-420, complete functionality with mains voltages from at least 50 V AC on any two active conductors, high short-circuit resistance, ouble-sided double-decker terminals for large conductor cross-section and busbar connection, switching position indicator, multifunction control toggle with three positions: "on", "off", "triggered", any neutral conductor position

## Mounting

quick fastening to mounting rail, any installation position, supply preferably from above

#### **Applications**

RCCBs of the variant HP are suitable for private, commercial and industrial installations with TN-S-, TT- and TN-C-S systems which use heat pumps.

### Notes

suitable for use in 50 Hz AC networks, not intended for use on the output side of controlled electrical equipment such as frequency converters

#### Accessories

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

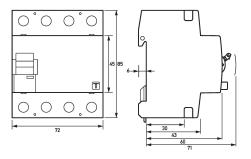
#### Technical data

Series	DFS <sub>4</sub> HP
Number of poles	4
Residual current type	B+
Rated current (AC)	40 A
Rated residual current I∆n	o.o3 A
Short-time delayed	true
Selective	false
min. Operating voltage range of test circuit	250 V
max. Operating voltage range of test circuit	440 V
Minimum rated operating voltage (Type A/AC	o V AC
operation)	

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Minimum rated operating voltage (Type B	50 V AC
operation)	J
Non-trip time	13 ms
Tripping frequency	o Hz 20 kHz
Maximum disconnection times	1 · I∆n: ≤ 300 ms; 5 · I∆n: ≤ 40 ms
Internal consumption	max. 1.3 W
internal consomption	load circuit
Specification	load disconnect contact
min. Contact opening	4 mm
Rated voltage (AC)	230 V, 400 V
Rated current (AC)	
Rated short-circuit current	40 A 6 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	1.3 W
Thermal Backup-fuse OCPD	40 A
Short-circuit backup-fuse SCPD	100 Å
Back-up fuse type	gG
I <sup>2</sup> t strength	48 kA²s
Dynamic current strength I <sub>p</sub>	6 kA
	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	2 (conductors of same type and cross-section)
conductors per terminal	
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	151
Cross section AWG, flexible	151
Cross section AWG, flexible with ferrule	15 1
Tightening torque	2.5 Nm 3 Nm
rightening to que	General data
Operating position	optional
max. Operating altitude above MSL	2000 M
Mechanical endurance	min. 4000 cycles
Surrounding atmosphere	normal environmental conditions
Storage temperature	-40 °C 70 °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)
Housing type	distribution board housing
Installation type Housing material	Mounting rail (35 mm) thermoplastic
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Protection class	IP20 (installed: IP40)
sealable	true
Width	72 mm
Height	85 mm
Depth	75 mm
Installation depth	69 mm
Module widths	4
Weight	0.451 kg
Design requirements/Standards	VDE 0664-10, VDE 0664-400, ÖVE/ÖNORM E 8601, EN 61008-1, EN 62423
Degree of pollution	2

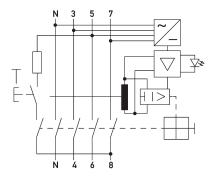
# **Dimensions**



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# Wiring example



Wiring example residual current circuit-breaker DFS 4 040-4/0,03-HP