



symbolic image

## UK Technical Data 05

### DFL 8 \*\*\*-4/0,03-B NK

AC/DC sensitive type B, with fire protection for frequencies < 150kHz



#### Function

Circuit-breakers with adjustable thermal and magnetic trips + integral residual current protection(CBR) with 30 mA fixed characteristic. For implementing the protective measure "Automatic disconnection of the power supply" as per BS 7671 - 411 and overcurrent protection as per 431, in circuits maintained by electrically instructed persons - see 531.3.4.2.

Available in ratings from 100A < 250A, for use in 3 phase + N circuits 400v 50Hz.

The 30 mA version has a fixed characteristic as per EN 60947-2 Appendix B, to provide additional protection in accordance with 415.1.

AC/DC sensitive type B CBRs detect smooth DC residual currents as well as all other type B residual currents as per IEC 60755. The operating voltage required for this is taken from the mains supply  $\geq 50$  V. Type A residual currents are detected regardless of the mains voltage. BSK and BNK CBRs detect residual currents up to 150kHz. This wide frequency range for residual current detection meets and provides additional levels of protection based on the design standards for type B residual currents. Type BNK 30 mA provides fire protection over the entire tripping frequency range up to 150 kHz, this may not be suitable for some inverter applications. The BSK tripping current frequency response characteristic is designed so that leakage currents with high frequencies, such as in the clock frequency range for inverters, as opposed to the rated supply frequency are detected at a higher level. Undesired trips due to leakage currents at higher frequencies can therefore be avoided with the correct association of the inverter equipment. Type BSK 30 mA offers fire protection for residual currents with frequencies up to 1 kHz.

#### Features

Fixed rated residual current of 30 mA, detection of smooth DC residual currents as well as all other type B residual currents.

Rated currents from 100 A to 250 A, four-pole.

Rated voltage 400v 50Hz.

High short-circuit switching capacity- refer to the data sheet.

Terminal capacity < 185 mm<sup>2</sup>.

Transient resistant feature.

#### Mounting

Screw directly to a mounting plate, supply-in connected to the bottom of the device.

#### Applications

Power supplies to purpose-built buildings as well as industrial facilities with TN-S, TT and TN-C-S networks with high short-circuit power , In IT networks, the residual current trip of the CBR can be set to switch off in the event of a second earth fault.

Not suitable for use in TN-C networks.

Type B CBRs are suitable for protecting systems with electronic equipment that is not galvanically isolated from the mains at its inputs: Refer to BS 7671 - 531.3.3 Types of RCD.

#### Accessories

Housings N-7 / DFL8 Enclosure - Insulated IP54

#### Technical Data

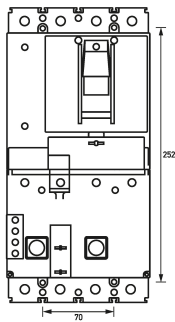
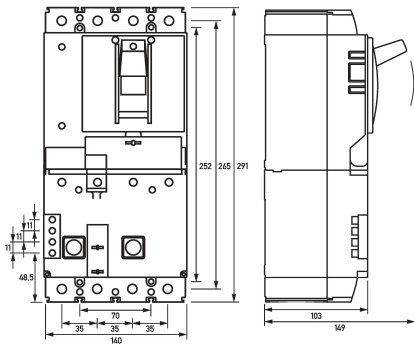
Technical Data	DFL 8 ***-4/0,03-B NK
Series	DFL 8 B NK
Number of poles	4
Residual current type	B

Technical Data	DFL 8 ***-4/0,03-B NK
Tripping characteristic curve	NK
Rated current (AC)	Refer to the individual product reference, data sheet available on request
Rated residual current I $\Delta$ n	0.03 A
Short-time delayed	true
Selective	false
min. Operating voltage range of test circuit	50 V
max. Operating voltage range of test circuit	440 V
Minimum rated operating voltage (Type B operation)	50 V AC
Selectivity adjustable	false
Tripping frequency	0 Hz ... 150 kHz
Response delay	1 · I $\Delta$ n: 0 ms < T ≤ 300 ms; 5 · I $\Delta$ n: 0 ms < T ≤ 40 ms
Adjustment range of overload tripping	0.8 ... 1
Adjustment range of short-circuit tripping	6 ... 10
Power dissipation P <sub>v</sub> release	Refer to the individual product reference, data sheet available on request
Rated operation short-circuit disconnecting capacity I <sub>cs</sub>	85 kA at Rated operation short-circuit disconnecting capacity I <sub>cs</sub> (240 V AC); 50 kA at Rated operation short-circuit disconnecting capacity I <sub>cs</sub> (400/415 V AC) 35 kA at Rated operation short-circuit disconnecting capacity I <sub>cs</sub> (440 V AC)
Rated short-circuit disconnecting capacity limit I <sub>cu</sub>	85 kA at Rated short-circuit disconnecting capacity limit I <sub>cu</sub> (240 V AC); 50 kA at Rated short-circuit disconnecting capacity limit I <sub>cu</sub> (400/415 V AC) 35 kA at Rated short-circuit disconnecting capacity limit I <sub>cu</sub> (440 V AC)
Rated short-circuit connection and disconnection capacity I $\Delta$ m	85 kA at Rated short-circuit connection and disconnection capacity I $\Delta$ m (240 V AC); 50 kA at Rated short-circuit connection and disconnection capacity I $\Delta$ m (400/415 V AC) 35 kA at Rated short-circuit connection and disconnection capacity I $\Delta$ m (440 V AC)
Operating voltage (AC)	400 V (max. 440 V)
Operating frequency	50 Hz
Internal consumption	2.5 W ... 3 W
Type	Display Output state Operating lever (black) Load circuit
Specification	Load switch contact
Rated voltage (AC)	230 V, 400 V
Tolerance of rated voltage	max. 10 %
Rated current (AC)	Refer to the individual product reference, data sheet available on request
Surge current strength	5 kA
Rated impulse withstand voltage	4 kV
Rated frequency	50 Hz
Electrical endurance AC-1	10000 Schaltspiele
short-circuit backup-fuse SCPD	Refer to the individual product reference, data sheet available on request
Back-up fuse type	gG
Back-up fuse (textual)	only required if the short-circuit current to be expected at the installation location exceeds the switching capacity of the circuit-breaker
Overvoltage class	III
Specification	Auxiliary switch Switching contact
Rated insulation voltage	500 V
rated impulse withstand voltage	6 kV
Allowed utilization category	AC-15, DC-13

Technical Data	DFL 8 ***-4/0,03-B NK
Rated current (AC-15)	6 A (230 V); 4 A (400 V) 2 A (500 V)
Rated current (DC-13)	3 A (24 V); 0.8 A (110 V) 0.3 A (220 V)
Rated short-circuit disconnecting capacity limit I <sub>cu</sub>	85 kA at Rated short-circuit disconnecting capacity limit I <sub>cu</sub> (240 V AC); 50 kA at Rated short-circuit disconnecting capacity limit I <sub>cu</sub> (400/415 V AC) 35 kA at Rated short-circuit disconnecting capacity limit I <sub>cu</sub> (440 V AC)
Rated operation short-circuit disconnecting capacity I <sub>cs</sub>	85 kA at Rated operation short-circuit disconnecting capacity I <sub>cs</sub> (240 V AC); 50 kA at Rated operation short-circuit disconnecting capacity I <sub>cs</sub> (400/415 V AC) 35 kA at Rated operation short-circuit disconnecting capacity I <sub>cs</sub> (440 V AC)
Rated short-circuit connection and disconnection capacity I <sub>dm</sub>	85 kA at Rated short-circuit connection and disconnection capacity I <sub>dm</sub> (240 V AC); 50 kA at Rated short-circuit connection and disconnection capacity I <sub>dm</sub> (400/415 V AC) 35 kA at Rated short-circuit connection and disconnection capacity I <sub>dm</sub> (440 V AC)
	Box terminal top and bottom (Load circuit)
Neutral conductor position	left
Protection against direct contact	finger-safe and safe for back-of-hand
Allowed types of wires	Aluminium conductors, Copper conductors, massive conductors, flexible conductors, stranded conductors
Clamping area	4 mm <sup>2</sup> ... 185 mm <sup>2</sup>
Connection C1 Maximum number of conductors per terminal	2
Cross section solid	1-wire: 4 mm <sup>2</sup> ... 16 mm <sup>2</sup> ; 2-wire: 4 mm <sup>2</sup> ... 16 mm <sup>2</sup>
Cross section stranded	1-wire: 25 mm <sup>2</sup> ... 185 mm <sup>2</sup> ; 2-wire: 25 mm <sup>2</sup> ... 70 mm <sup>2</sup>
Tightening torque	max. 14 Nm
	Screw-type terminal left (Auxiliary switch)
Protection against direct contact	finger-safe and safe for back-of-hand
Clamping area	0.75 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Connection C2 Maximum number of conductors per terminal	2
Cross section solid	1-wire: 0.75 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> ; 2-wire: 0.75 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Connecting capacity flexible	2-wire: 0.75 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Cross section flexible with ferrule	0.75 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Cross section stranded	1-wire: 0.75 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> ; 2-wire: 0.75 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Tightening torque	max. 0.8 Nm
	General data
Operating position	tilted 90°, vertical
max. Operating altitude above MSL	2000 m
Mechanical endurance	min. 2000 switching cycles
Electrical endurance	min. 2000 switching cycles
Surrounding atmosphere	normal environmental conditions
Storage temperature	-25 °C ... 70 °C
Ambient temperature	-25 °C ... 70 °C
Climate resistance	constant as per IEC 60068-2-78, cyclical as per IEC 60068-2-30
Shock resistance	20 g / 20 ms Duration
Fatigue limit	1,0 g (f = 2 - 100 Hz) (IEC 60068-2-6)
Housing type	wall-mounted housing
Mounting type	Wall mounting
Protection class	IP20 (installed: IP40)
sealable	true
Width	140 mm
Height	291 mm

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Depth	103 mm
Installation depth	149 mm
Design requirements/Standards	DIN IEC 60755, EN 60947-2, EN 60947-2 Appendix B, VDE 0660-101
Degree of pollution according to EN 60664	3

**Dimensions**

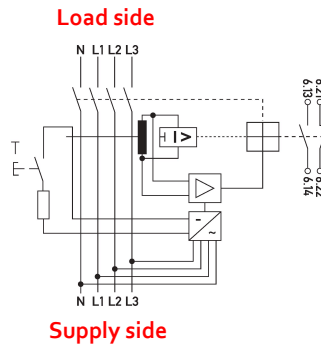


Dimensional drawing Group view

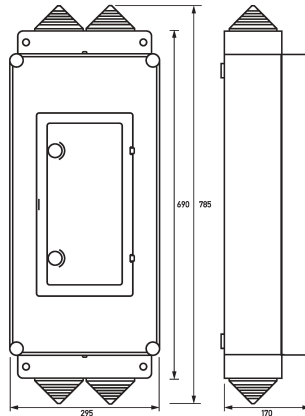
STEP file

Dimensional drawing Drilling template

**Wiring example**

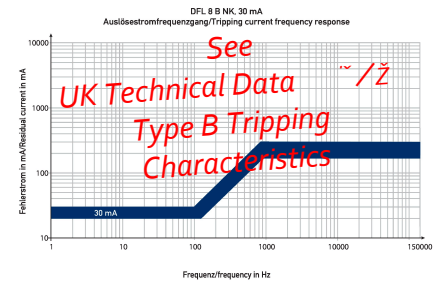


Wiring diagram



DFL8 Enclosure

**Diagrams**



Characteristic B NK 30 mA