



DATA SHEET

circuit-breakers with residual current trip

DFL 8 160-4/X-A

sensitive to pulsating and alternating currents Type A, adjustable residual current

Article number 09189781



[Internetlink](#)



Function

CBRs (circuit-breakers with integral residual current protection) are circuit-breakers with a magnetic and thermal overcurrent trip and a residual current trip. The circuit-breaker with residual current trip is used for overcurrent protection of equipment, cables and lines in accordance with DIN VDE 0100-430 and for protection against electrical shock by automatic switch-off of the power supply as per DIN VDE 0100-410. This series contains compact devices for rated currents up to 250 A with integrated auxiliary switch and terminals for large cable cross-sections. The devices are preferably mounted on a mounting plate. Type A residual current circuit-breakers are sensitive to pulsating and alternating currents. This function is independent of the mains voltage. For switches of this variant, the residual response current can be individually set in levels for the application in question (0.30 A, 0.50 A, 1.00 A, 3.00 A). The non-response lag time can also be adjusted in levels accordingly. Selective residual current circuit-breakers are therefore possible in systems with stacked distribution boards. Devices in these special versions are designed for monitoring electric circuits with a rated voltage that differs from 400 V/ 690 V and/or a rated frequency that differs from 50 Hz.

Features

adjustable rated residual current , type range with rated currents from 100 A to 250 A, four-pole, rated voltage 400/690 V AC, detection of AC residual currents and pulsating DC residual currents, function range of the residual current trip 0-690 V, function range of the residual current operated protective device 280-690 V, trip independent of the mains voltage and auxiliary voltage when overcurrent and residual currents occur , high short-circuit switching capacity, terminals up to 185 mm² , thresholds adjustable for instantaneous and slow-blow overcurrent trip , integrated auxiliary switches

Mounting

mounting on mounting plate, any installation position , supply from any direction

Applications

stacked power supply systems with TN-S, TT, and TN-C-S networks with high short-circuit performance in purpose-built buildings and industrial facilities , In IT networks, the residual current trip of the CBR can be set to switch off in the event of a second earth fault. , use for residual current protection in TN-C networks is excluded

Notes

The type A CBR does not provide comprehensive protection in systems containing electronic equipment can cause smooth DC residual currents or residual currents with frequencies not equal to 50 Hz. For these applications we recommend our AC/DC sensitive CBR type B.

Accessories

housing N-7

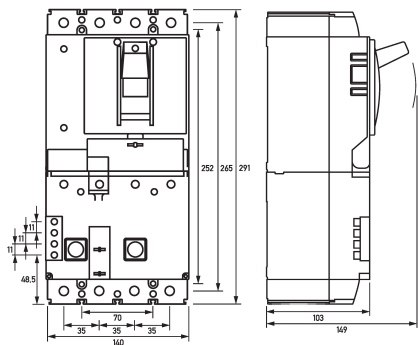
Technical Data

Technical Data	DFL 8 160-4/X-A
Series	DFL 8 A X
Number of poles	4
Residual current type	A
Rated current (AC)	160 A
Rated residual current I Δ n	0.30 A, 0.50 A, 1.00 A, 3.00 A
Short-time delayed	true
Selective	true
min. Operating voltage range of test circuit	280 V

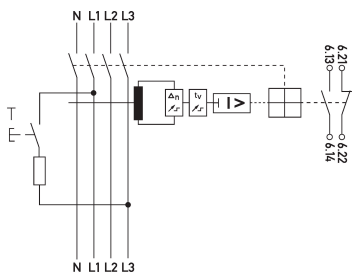
Technical Data	DFL 8 160-4/X-A
max. Operating voltage range of test circuit	759 V
Selectivity adjustable	true
Response delays at $2 \cdot I_{\Delta n}$	Adjustment range I: 60 ms ... 120 ms, Adjustment range II: 150 ms ... 250 ms, Adjustment range III: 300 ms ... 420 ms, Adjustment range IV: 450 ms ... 600 ms
Adjustment range of overload tripping	0.8 ... 1
Adjustment range of short-circuit tripping	6 ... 10
Power dissipation P_v release	55 W
Rated operation short-circuit disconnecting capacity I_{cs}	85 kA at Rated operation short-circuit disconnecting capacity I_{cs} (240 V AC); 50 kA at Rated operation short-circuit disconnecting capacity I_{cs} (400/415 V AC); 35 kA at Rated operation short-circuit disconnecting capacity I_{cs} (440 V AC); 25 kA at Rated operation short-circuit disconnecting capacity I_{cs} (525 V AC) 5 kA at Rated operation short-circuit disconnecting capacity I_{cs} (690 V AC)
Rated short-circuit disconnecting capacity limit I_{cu}	85 kA at Rated short-circuit disconnecting capacity limit I_{cu} (240 V AC); 50 kA at Rated short-circuit disconnecting capacity limit I_{cu} (400/415 V AC); 35 kA at Rated short-circuit disconnecting capacity limit I_{cu} (440 V AC); 25 kA at Rated short-circuit disconnecting capacity limit I_{cu} (525 V AC) 20 kA at Rated short-circuit disconnecting capacity limit I_{cu} (690 V AC)
Rated short-circuit connection and disconnection capacity I_{dm}	85 kA at Rated short-circuit connection and disconnection capacity I_{dm} (240 V AC); 50 kA at Rated short-circuit connection and disconnection capacity I_{dm} (400/415 V AC); 35 kA at Rated short-circuit connection and disconnection capacity I_{dm} (440 V AC); 25 kA at Rated short-circuit connection and disconnection capacity I_{dm} (525 V AC) 20 kA at Rated short-circuit connection and disconnection capacity I_{dm} (690 V AC)
Operating voltage (AC)	690 V (max. 759 V)
Operating frequency	50 Hz
Type	Display status output operating lever (black) load circuit
Specification	load disconnect contact
Rated voltage (AC)	400 V, 690 V
Tolerance of rated voltage	max. 10 %
Rated current (AC)	160 A
Surge current strength	5 kA
Rated impulse withstand voltage	8 kV
Rated frequency	50 Hz
Electrical endurance AC-1	7500 Schaltspiele
short-circuit backup-fuse SCPD	250 A
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 auxiliary switches
Specification	switching contact
Rated insulation voltage	500 V
rated impulse withstand voltage	6 kV
Allowed utilization category	AC-15, DC-13
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_{cu}	85 kA at Rated short-circuit disconnecting capacity limit I_{cu} (240 V AC); 50 kA at Rated short-circuit disconnecting capacity limit I_{cu} (400/415 V AC); 35 kA at Rated short-circuit disconnecting capacity limit I_{cu} (440 V AC); 25 kA at Rated short-circuit disconnecting capacity limit I_{cu} (525 V AC) 20 kA at Rated short-circuit disconnecting capacity limit I_{cu} (690 V AC)
Rated operation short-circuit disconnecting capacity I_{cs}	85 kA at Rated operation short-circuit disconnecting capacity I_{cs} (240 V AC); 50 kA at Rated operation short-circuit disconnecting capacity I_{cs} (400/415 V AC); 35 kA at Rated operation short-

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	circuit disconnecting capacity Ics (440 V AC); 25 kA at Rated operation short-circuit disconnecting capacity Ics (525 V AC) 5 kA at Rated operation short-circuit disconnecting capacity Ics (690 V AC)
Rated short-circuit connection and disconnection capacity IΔm	85 kA at Rated short-circuit connection and disconnection capacity IΔm (240 V AC); 50 kA at Rated short-circuit connection and disconnection capacity IΔm (400/415 V AC); 35 kA at Rated short-circuit connection and disconnection capacity IΔm (440 V AC); 25 kA at Rated short-circuit connection and disconnection capacity IΔm (525 V AC) 20 kA at Rated short-circuit connection and disconnection capacity IΔm (690 V AC)
	box terminal top and bottom (load circuit)
Neutral conductor position	left
Protection against direct contact	finger and back-of-hand proof
Allowed types of wires	aluminium conductor, copper conductor, solid conductor, flexible conductor, multiple wire conductor
Clamping area	4 mm ² ... 185 mm ²
Connection C1 Maximum number of conductors per terminal	2
Cross section solid	1-wire: 4 mm ² ... 16 mm ² ; 2-wire: 4 mm ² ... 16 mm ²
Cross section stranded	1-wire: 25 mm ² ... 185 mm ² ; 2-wire: 25 mm ² ... 70 mm ²
Tightening torque	max. 14 Nm
	screw-type terminal left (auxiliary switches)
Protection against direct contact	finger and back-of-hand proof
Clamping area	0.75 mm ² ... 2.5 mm ²
Connection C2 Maximum number of conductors per terminal	2
Cross section solid	1-wire: 0.75 mm ² ... 2.5 mm ² ; 2-wire: 0.75 mm ² ... 1.5 mm ²
Connecting capacity flexible	2-wire: 0.75 mm ² ... 1.5 mm ²
Cross section flexible with ferrule	0.75 mm ² ... 2.5 mm ²
Cross section stranded	1-wire: 0.75 mm ² ... 2.5 mm ² ; 2-wire: 0.75 mm ² ... 1.5 mm ²
Tightening torque	max. 0.8 Nm
	General data
Operating position	90° tilted, 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
Depth	103 mm
Installation depth	149 mm
Design requirements/Standards	DIN IEC 60755, EN 60947-2, EN 60947-2 Annex B, VDE 0660-101
Degree of pollution according to EN 60664	3

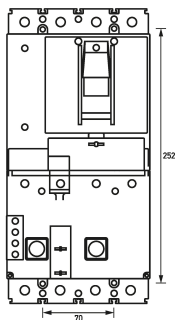
Dimensions



Wiring example



Wiring diagram



Dimensional drawing Group view

STEP file

Dimensional drawing Drilling template