DATA SHEET

miniature circuit-breakers
DLS 6i C50-1+N

for industrial facilities, C characteristics, 10 kA

Article number 09916238

Function

The task of miniature circuit breakers is to automatically disconnect circuits in order to protect lines and connected devices. After disconnection, they can be manually reactivated without the fuse sets having to be replaced, for example. Each of our miniature circuit breakers is equipped with a trip-free mechanism, which guarantees safe deactivation even if, for example, a switching knob is mechanically blocked. A key requirement in DIN VDE 0100 is to protect cables, lines and installation devices from overload and short-circuit. This can be achieved using miniature circuit-breaker (MCBs). In industrial installations and also in commercial buildings, they often take on additional protection of equipment and devices where there are usually stricter requirements than when used in residential buildings. Miniature circuit-breakers utilise both the magnetic and heat effect of the electrical current. If the current jumps to a value that is too high when a short-circuit occurs, the MCB interrupts the circuit using the magnetic field of an energised coil. The heat that develops when there is continuous overload causes the bimetal to warp, which trips the breaker. The DLS 6 family of miniature circuit-breakers, characterised by a large selection of different types for broad application fields, are available for residential and purpose-built facilities, as well as for industrial applications. The compact design provides lots of space for wiring and large clamping area, as well as the option of using conventional wiring rails for easy processing. The variants also have a large, folding label window and a clearly labelled display for the operating status. A number of additional devices such as under-voltage and operating current trip, and auxiliary/fault sensor switches, render possible general-purpose use of the miniature circuit-breakers. Its high rated switching capacity of 10 kA means the DLS 6i variant is particularly suited to usage in industrial systems for example. Also, the large selection of rated currents and tripping characteristics enable the miniature circuit-breaker to be used in a diverse range of applications. Switches with tripping characteristic C are optimised for power circuits with high inrush or peak currents.

Features

rated switching capacity 10 kA, screw terminals with strain-relief clamps with wide terminal cross-section range for rail and line wiring on both connection sides , special quick fastening for removal of multiple miniature circuit-breakers from the bottom or top interconnection, large, folding label window for a secure hold and protection of the label, use of conventional wiring rails, ON/OFF switch position indicator on the switch toggle, accessories retro-fittable on the right, labelling software free of charge

Mounting

quick fastening to mounting rail, any installation position

Applications

suitable for use in power supplies for industrial facilities and purpose-built buildings or buildings for commercial use

Accessories

terminal caps KA, software DBS, restart locks DEASS, auxiliary switches DHi, trip-indicating auxiliary contact DHi-S, operating current trip DASA, documentation

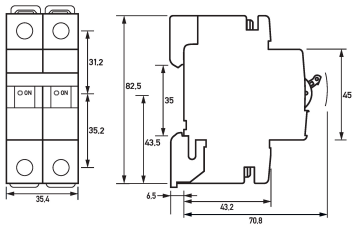
Technical Data

Technical Data	DLS 6i C50-1+N
Series	DLS 6i
Number of poles	1+N
Tripping characteristic	C
Supply side	left or right
Adjustment range of overload tripping	1.13 ... 1.45
Adjustment range of short-circuit tripping	5 ... 10

Technical Data	DLS 6i C50-1+N
Tripping factor over frequency band	1.5 at DC; 1.1 at 100 Hz; 1.2 at 200 Hz; 1.3 at 300 Hz; 1.4 at 400 Hz
Test current factor tripping electromagnetic	10
Test current multiplier, trip, thermal	1.45
Test current factor retaining electromagnetic	5
Test current factor retaining thermal	1.13
Reference temperature thermal release	30 °C
Isolation class	C at 250 V AC;
Number	2
	load circuit
Specification	load disconnect contact
Rated voltage (AC)	230 V, 400 V
Rated current (AC)	50 A
Rated short-circuit current	10 kA
Rated insulation voltage	2 kV
Rated impulse withstand voltage	4 kV
Rated frequency	50 Hz (16.67 Hz ... 60 Hz)
Current heat loss per current path	4.8 W
Short-circuit backup-fuse SCPD	125 A
Back-up fuse type	gL, gG
Back-up fuse (textual)	Safety fuse as per DIN EN 0636
Overvoltage class	III
	screw terminals with strain-relief clamp top (load circuit)
Protection against direct contact	DGUV V2, 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: 0.5 mm² ... 25 mm²
Connecting capacity flexible	1-wire: 1 mm² ... 16 mm²
Cross section flexible with ferrule	0.5 mm² ... 16 mm²
Cross section stranded	1-wire: 1.5 mm² ... 25 mm²
Tightening torque	max. 2.5 Nm
Thickness busbar	max. 3 mm
Thickness busbar cable lug (combined conductors, max)	2 mm
Cross section (busbar / busbar fork combined, max)	25 mm²
	screw terminals with strain-relief clamp bottom (load circuit)
Protection against direct contact	DGUV V2, VDE 0660-514, finger and back-of-hand proof
Connection C2 Maximum number of conductors per terminal	2 (conductors of same type and cross-section)
Cross section solid	1-wire: 0.5 mm² ... 35 mm²
Connecting capacity flexible	1-wire: 1 mm² ... 25 mm²
Cross section flexible with ferrule	0.5 mm² ... 16 mm²
Cross section stranded	1-wire: 1.5 mm² ... 35 mm²
Tightening torque	max. 2.5 Nm

Technical Data	DLS 6i C50-1+N
Thickness busbar cable lug (combined conductors, max)	2 mm
Cross section (busbar / busbar fork combined, max)	35 mm²
Thickness busbar	max. 3 mm
	General data
Operating position	optional
Mechanical endurance	min. 20000 switching cycles
Storage temperature	-40 °C ... 70 °C
Ambient temperature	-25 °C ... 55 °C
Climate resistance	damp/heat: constant as per DIN EN 60068-2-78, cyclical as per DIN EN 60068-2-30
Shock resistance	25 g / 11 ms Duration
Vibration resistance	> 15 g acc. to DIN EN 60068-2-59 during a load with I1
Housing type	distribution board housing
Installation type	Mounting rail (35 mm)
Housing material	thermoplastic
Protection class	IP20
sealable	true
Width	35.4 mm
Height	82.5 mm
Depth	74 mm
Installation depth	68 mm
Module widths	2
Weight	0.279 kg
Design requirements/Standards	IEC 60898-1, DIN EN 60898-1, VDE 0641-11
Power limitation category	3
Degree of pollution	2
Certifications	VDE

Dimensions

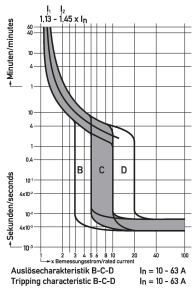


Dimensional drawing Group view

Wiring example

Wiring diagram

Diagrams



Characteristic Char. B, C, D