



## DATA SHEET

Article number : 09916712

### miniature circuit-breakers

### DLS 6i K13-4

for industrial facilities, K characteristics, 10 kA



#### 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 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 characteristic K are optimised for fuse-protecting power circuits (motor and transformer load circuits) with high switch-on 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, 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

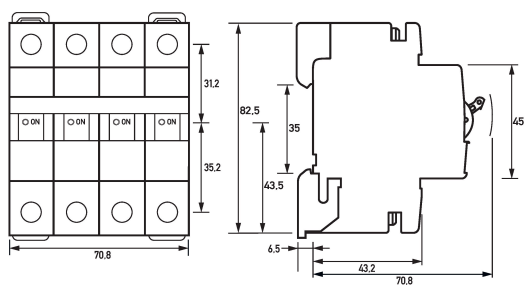
terminal caps KA, software DBS, restart locks DEASS, auxiliary switches DHi, trip-indicating auxiliary contact DHi-S, operating current trip DASA, documentation

#### Technical data

|                                               |                                                                       |
|-----------------------------------------------|-----------------------------------------------------------------------|
| Series                                        | DLS 6i                                                                |
| Number of poles                               | 4                                                                     |
| Tripping characteristic                       | K                                                                     |
| Supply side                                   | left or right                                                         |
| Adjustment range of overload tripping         | 1.05 ... 1.2                                                          |
| Adjustment range of short-circuit tripping    | 8 ... 12                                                              |
| 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  | 12                                                                    |
| Test current multiplier, trip, thermal        | 1.2                                                                   |
| Test current factor retaining electromagnetic | 8                                                                     |
| Test current factor retaining thermal         | 1.05                                                                  |
| Reference temperature thermal release         | 20 °C                                                                 |
| Isolation class                               | C at 250 V AC; B at 400 V AC                                          |

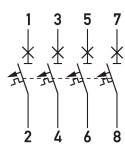
|                                                         |                                                                                 |
|---------------------------------------------------------|---------------------------------------------------------------------------------|
| Number                                                  | 4                                                                               |
|                                                         | <b>load circuit</b>                                                             |
| Specification                                           | load disconnect contact                                                         |
| Rated voltage (AC)                                      | 230 V, 400 V                                                                    |
| Rated current (AC)                                      | 13 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                      | 1.5 W                                                                           |
| Short-circuit backup-fuse SCPD                          | 125 A                                                                           |
| Back-up fuse type                                       | gL, gG                                                                          |
| Back-up fuse (textual)                                  | Safety fuse as per DIN EN 6036                                                  |
| Overvoltage class                                       | III                                                                             |
|                                                         | <b>screw terminals with strain-relief clamp top (load circuit)</b>              |
| Protection against direct contact                       | DGUV V2, VDE 0660-514, finger and back-of-hand proof                            |
| Allowed types of wires                                  | copper conductor                                                                |
| Connection C1 Maximum number of conductors per terminal | 2 (conductors of same type and cross-section)                                   |
| Cross section solid                                     | 1-wire: 0.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>                              |
| Connecting capacity flexible                            | 1-wire: 1 mm <sup>2</sup> ... 16 mm <sup>2</sup>                                |
| Cross section flexible with ferrule                     | 0.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>                                      |
| Cross section stranded                                  | 1-wire: 1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>                              |
| 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 mm <sup>2</sup>                                                              |
|                                                         | <b>screw terminals with strain-relief clamp bottom (load circuit)</b>           |
| 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 mm <sup>2</sup> ... 35 mm <sup>2</sup>                              |
| Connecting capacity flexible                            | 1-wire: 1 mm <sup>2</sup> ... 25 mm <sup>2</sup>                                |
| Cross section flexible with ferrule                     | 0.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>                                      |
| Cross section stranded                                  | 1-wire: 1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>                              |
| Tightening torque                                       | max. 2.5 Nm                                                                     |
| Thickness busbar cable lug (combined conductors, max)   | 2 mm                                                                            |
| Cross section (busbar / busbar fork combined, max)      | 35 mm <sup>2</sup>                                                              |
| Thickness busbar                                        | max. 3 mm                                                                       |
|                                                         | <b>General data</b>                                                             |
| Operating position                                      | optional                                                                        |
| Mechanical endurance                                    | min. 20000 switching cycles                                                     |
| Storage temperature                                     | -40 °C ... 70 °C                                                                |
| Ambient temperature                                     | -25 °C ... 70 °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                                                   | 70.8 mm                                                                         |
| Height                                                  | 82.5 mm                                                                         |
| Depth                                                   | 74 mm                                                                           |
| Installation depth                                      | 68 mm                                                                           |
| Module widths                                           | 4                                                                               |
| Weight                                                  | 0.48 kg                                                                         |
| Design requirements/Standards                           | IEC 60947-2, DIN EN 60947-2, VDE 0660-101                                       |
| Power limitation category                               | 3                                                                               |

## Dimensions



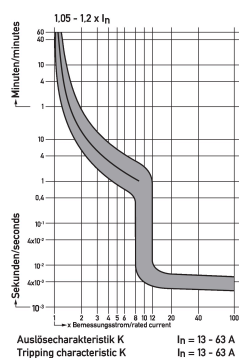
Dimensioned drawing miniature circuit-breakers DLS 6i K13-4

## Wiring example



Wiring example miniature circuit-breakers DLS 6i K13-4

## Diagrams



Diagrams miniature circuit-breakers DLS 6i K13-4