

# EARTH-FAULT AND SHORT-CIRCUIT INDICATOR TYPE **EKL3.2**

surface mounted

## General description

The earth-fault and short-circuit indicator type EKL3.2 can be used in radial networks with one input and open-ring networks which are solidly earthed or low resistance earthed. The potential-free connection between the short-circuit sensors and the display unit is done by fibre optic cables. Therefore the sensors can be mounted on screened and unscreened cables. The connection between the earth-fault sensor and the display unit is done by cable. The sensor must be mounted on screened cables. All sensors are divisible and can be retrofitted on the cable.

## Features and Options

- Permanent earth-faults: Indication of permanent earth-faults by double blinking of the earth-fault LED.
- 2nd short-circuit: Indication of a second short-circuit passing through by double blinking of the respective short-circuit LED.
- Separate response delays: The response delay for short-circuits and earth-faults can be adjusted individually.
- Two relays: Configurable two relays. Options for configuration:
  - permanent contact or wipe contact
  - combined or separate remote indication of faults
  - NO or NC contacts
 At site configuration by DIP switch.
- Optional three relays: The third relay can be used for the remote indication of an empty battery
- Optional reset input: For reset by recovering auxiliary voltage supply (V DC or V AC)
- Optional sensor reset: Sensor reset on recovering net current (unbalanced load of approx. 4 A required)
- Optional power supplies: 10-110 V DC or 110 / 230 V AC power supply with optional lithium backup battery



## External connectors

- Connector 1 - 2: optional external power supply
- Connector 3 - 4: remote test input
- Connector 4 - 5: remote reset input
- Optical terminal L1 - L3: short-circuit sensors L1, L2 and L3
- Connector 12 - 13: earth-fault sensor
- Connector 14 - 15: external blinking lamp (Type BL4.1+BL6)
- Connector 16 - 17: SCADA relay contact 1 (configurable as NO or NC contact)
- Connector 18 - 19: SCADA relay contact 2 (configurable as NO or NC contact)
- Connector 19 - 20: optional SCADA relay contact for low battery remote indication (configurable as NO or NC contact)

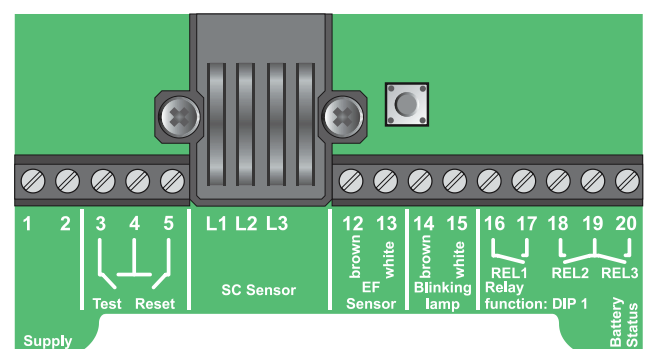
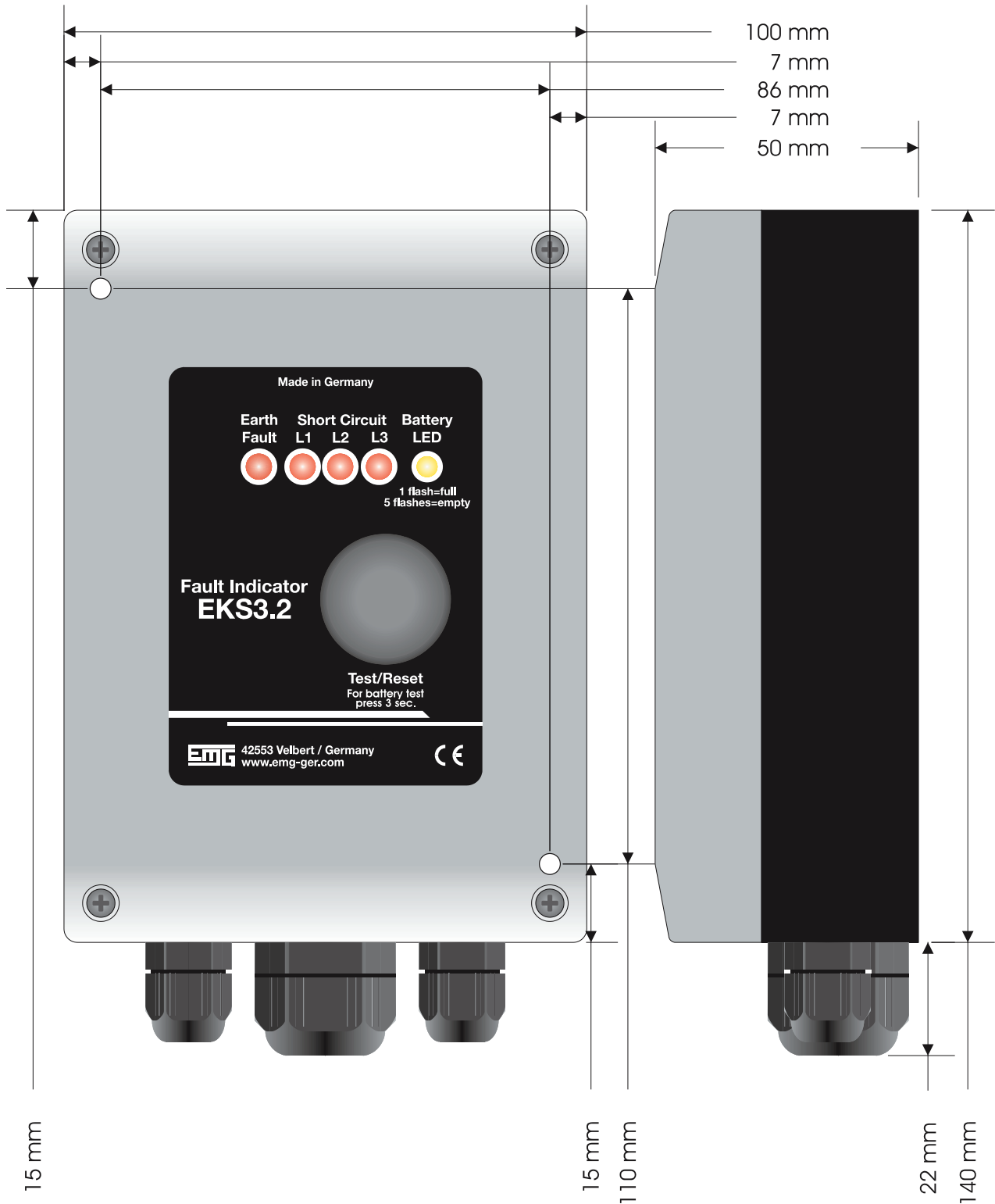


figure 1 - connectors

## General Data

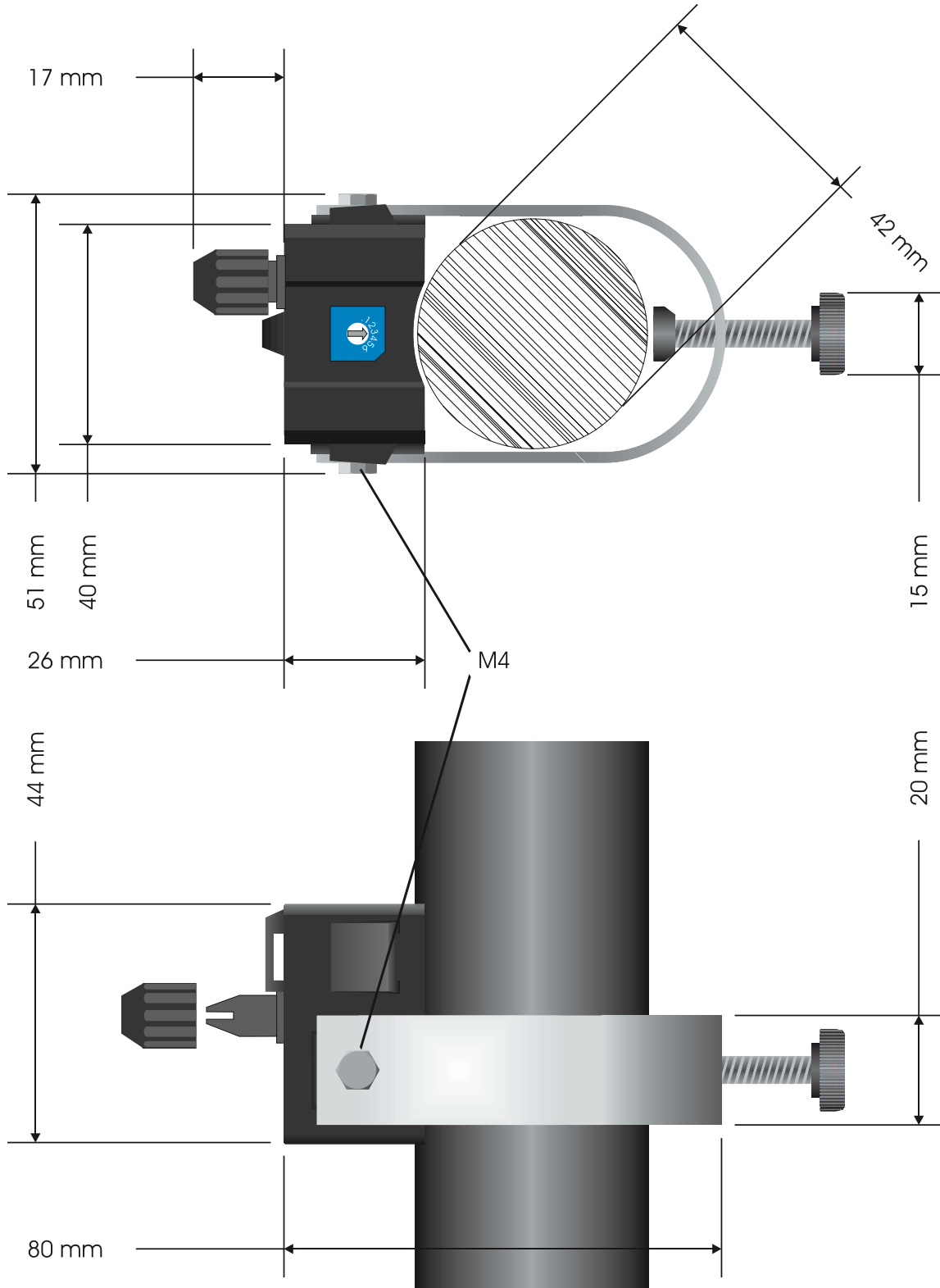
Subject	Value
short-circuit trip current (phase to phase)	adjustable: 200 / 300 / 400 / 500 / 600 / 800 / 1000 * A (±10 %)
earth-fault trip current (phase to ground)	adjustable: 20 / 40 / 60 / 80 / 100 * A (±10 %)
response delay short-circuit	adjustable: 40 / 60 / 80 / 160 * ms
response delay earth-fault	adjustable: 40 / 60 / 80 / 160 * ms
indication unit	suitable for surface installation
indication of a) short-circuit b) earth-fault c) battery	a) one red LED for each phase b) one red LED for earth-fault c) one yellow LED
reset of the indicator	a) manual by push-button b) connection for a potential-free remote reset c) time*: 1 / 2 / 4 / 8 (+/-1%) hours after fault d) sensor reset after recovering net current (on/off) Optional: e) self-acting after recovering of 230 V AC (on/off)
on site function test a) function test b) battery test c) remote function test	by push-button a) the button has to be pressed for 1 second b) the button has to be pressed for 3 seconds c) connection for a potential-free remote test
dimensions: indication unit	(WxHxD) 100 mm x 162 mm x 50 mm
Protection class: indication unit	IP65
Protection class: sensors	IP67
internal type test	according to IEEE 495-2007
operation temperature range	-25°C to +70°C
power supply	lithium battery (LiSOC <sub>2</sub> ) type AA / 3.6V / 2600 mAh Optional: 10-110 V DC with lithium backup battery type AA / 3.6V / 2600 mAh Optional: 110 / 230 V AC with lithium backup battery type AA / 3.6V / 2600 mAh
SCADA contact	2x NO/NC contacts Optional: 1x additional relay for empty battery remote indication Configurable at site by DIP switch: - contact type (NO or NC) - combined or separate earth-fault and short-circuit indication - permanent / wipe contact (100ms* ) max. 230 V AC / max. 2 A / max. 30 W
short-circuit sensor (CT)	three short circuit sensors type LK (for single-core cable) diameter: 22-42* mm connection cable length: 3* m (fibre optic cable)
earth-fault sensor (CT)	one earth-fault sensor type SE (sum current sensor for a three-core cable) diameter: 80-100* mm connection cable length: 3* m (copper cable)

\*PLEASE NOTE: other values can be ordered



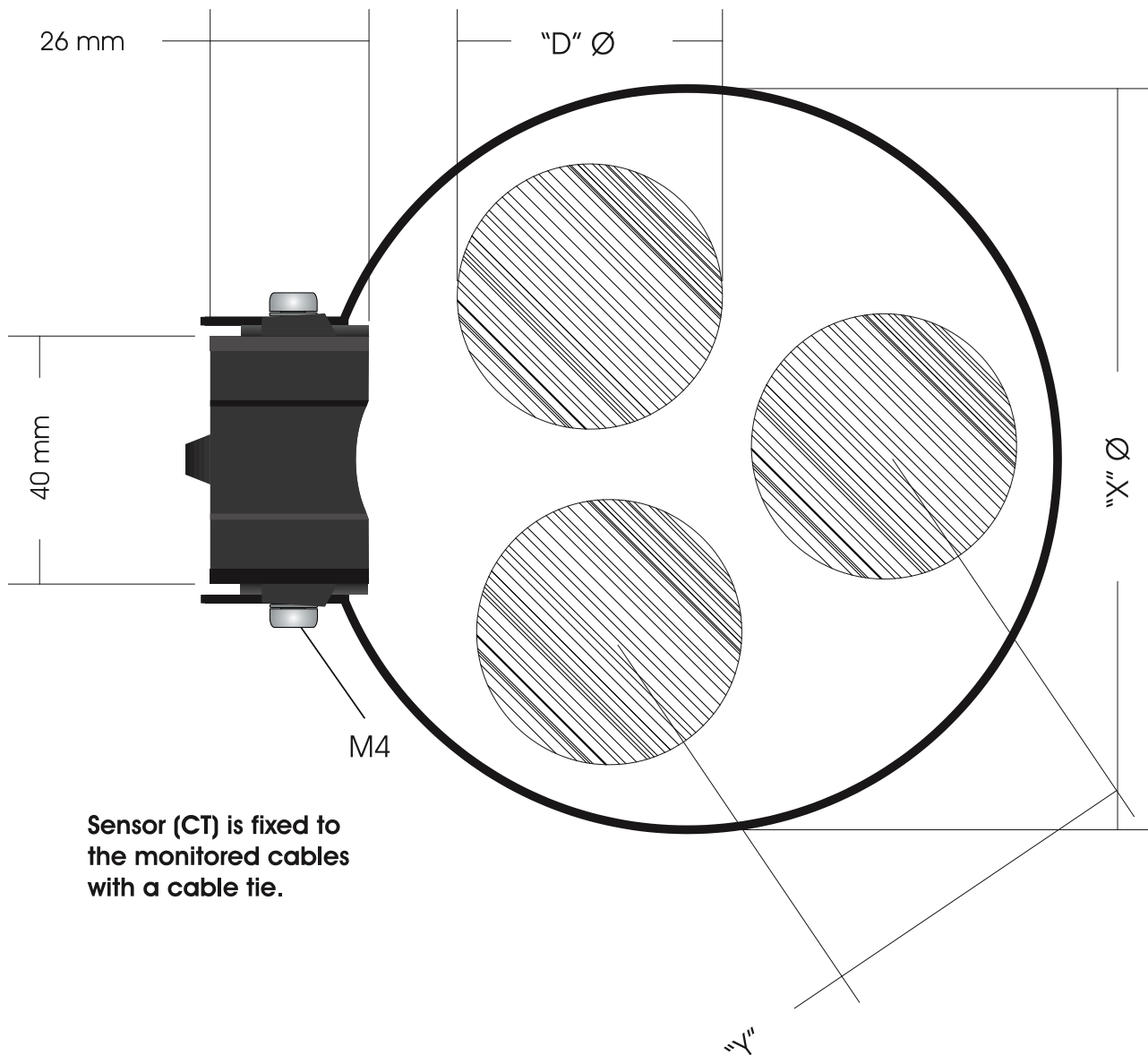
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Short-circuit sensor type LK



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## Earth-fault sensor type SE



Sensor (CT) is fixed to the monitored cables with a cable tie.

**Verbindungskabel/connection cable:**

- LIYY 2 x 0,5 mm<sup>2</sup>
- PB-free
- Ø = 5 mm
- length customer specific

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