

# EARTH-FAULT AND SHORT-CIRCUIT INDICATOR

## TYPE **EKL3.2**

panel mounted

### General description

The earth-fault and short-circuit indicator 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. 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 pass-through:	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.
Optional two relays:	The indicator can be equipped with two remote contact relays to indicate earth-faults and short-circuits separately.
Optional reset input:	For reset by recovering auxiliary voltage supply (V DC or V AC)
Optional sensor reset:	Sensor reset on recovering net current
Optional power supplies:	10-110 V DC or 110 / 230 V AC power supply with optional lithium backup battery

### External connectors

- Optical terminal: short-circuit sensors L1, L2 and L3
- Connector 7 - 8: earth-fault sensor
- Connector 9 - 10: external blinking lamp (Type BL4.1+BL6)
- Connector 10 - 11: Remote reset input
- Connector 13 - 15: SCADA change-over contact (figure 1)
- Connector 16 - 17: external power supply

#### Optional two relays (figure 2):

- Connector 12 - 13: SCADA remote contact for short-circuit
- Connector 14 - 15: SCADA remote contact for earth-fault

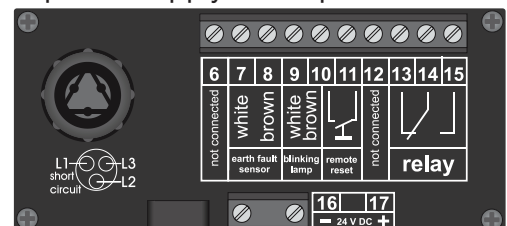


figure 1 - Connectors one relay version

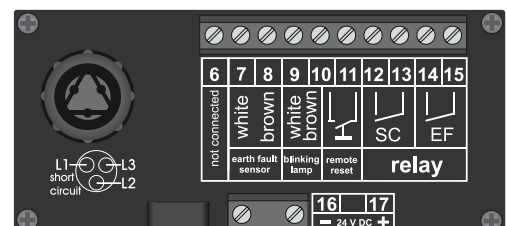
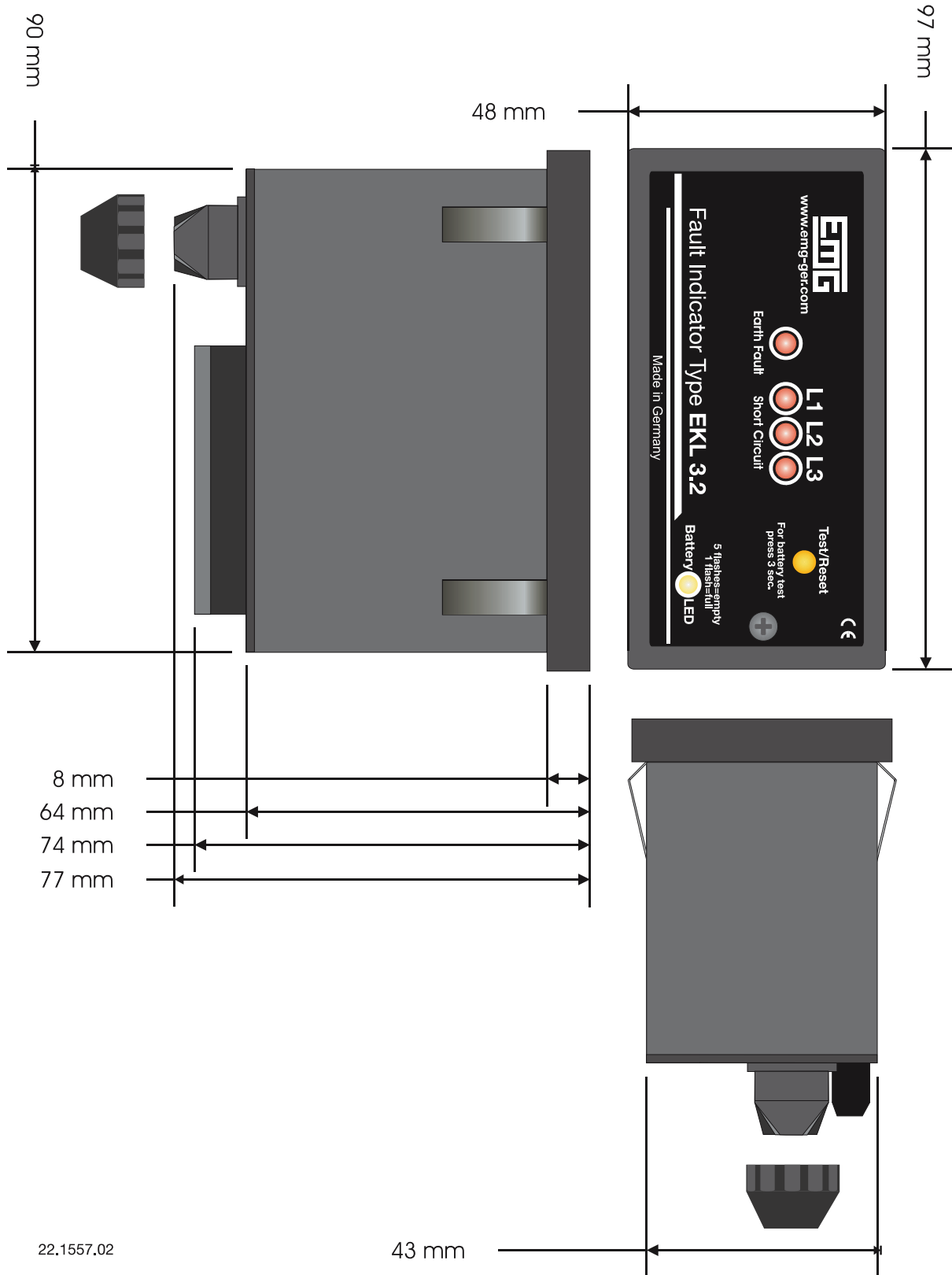


figure 2 - Connectors two relay version

## General Data

Subject	Value
short-circuit trip current (phase to phase)	adjustable: 200 / 300 / 400 / 500 / 600 / 800 / 1000 * A ( $\pm 10\%$ )
earth-fault trip current (phase to ground)	adjustable: 10 / 20 / 40 / 60 / 80 / 100 * A ( $\pm 10\%$ )
response delay short-circuit	adjustable: 40 / 60 / 80 / 160 * ms
response delay earth-fault	adjustable: 40 / 60 / 80 / 160 * ms
indication unit	suitable for panel 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 Optional: d) self-acting after recovering of 230 V AC Optional: e) sensor reset after recovering net current
on site function test a) function test b) battery test	by push-button a) the button has to be pressed for 1 second b) the button has to be pressed for 3 seconds
dimensions: indication unit	(WxHxD) 97 mm x 48 mm x 77 mm (dimensions of the cut out: 92+0.8 x 45+0.6 mm / IEC 61554 / DIN43700)
Protection class: indication unit	IP40
Protection class: sensors	IP67
internal type test	according to IEEE 495-2007
operation temperature range	-25°C to +70°C
power supply	lithium battery (LiSOCl <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	1x change-over contact Optional: 2x NO (separate earth-fault and short-circuit indication) permanent / wipe contact (100ms) (can be selected on site by a dip switch) max. 230 V AC / max. 2 A / max. 30 W
short-circuit sensor (CT)	three short circuit sensors type LK (current transformers 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 (current transformers for a three-core cable) diameter: 80-100* mm connection cable length: 3* m (copper cable)

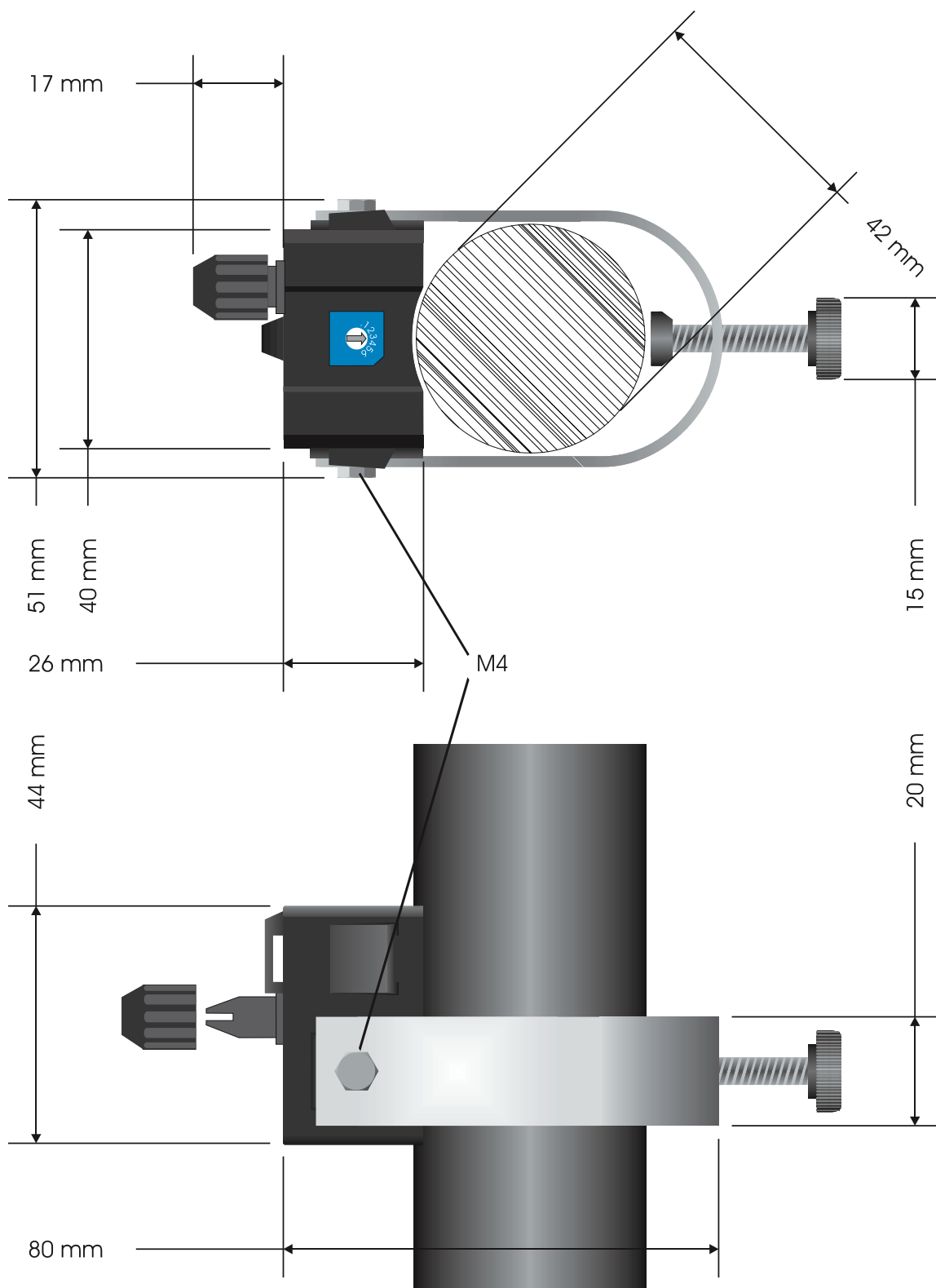
\*PLEASE NOTE: other values can be ordered



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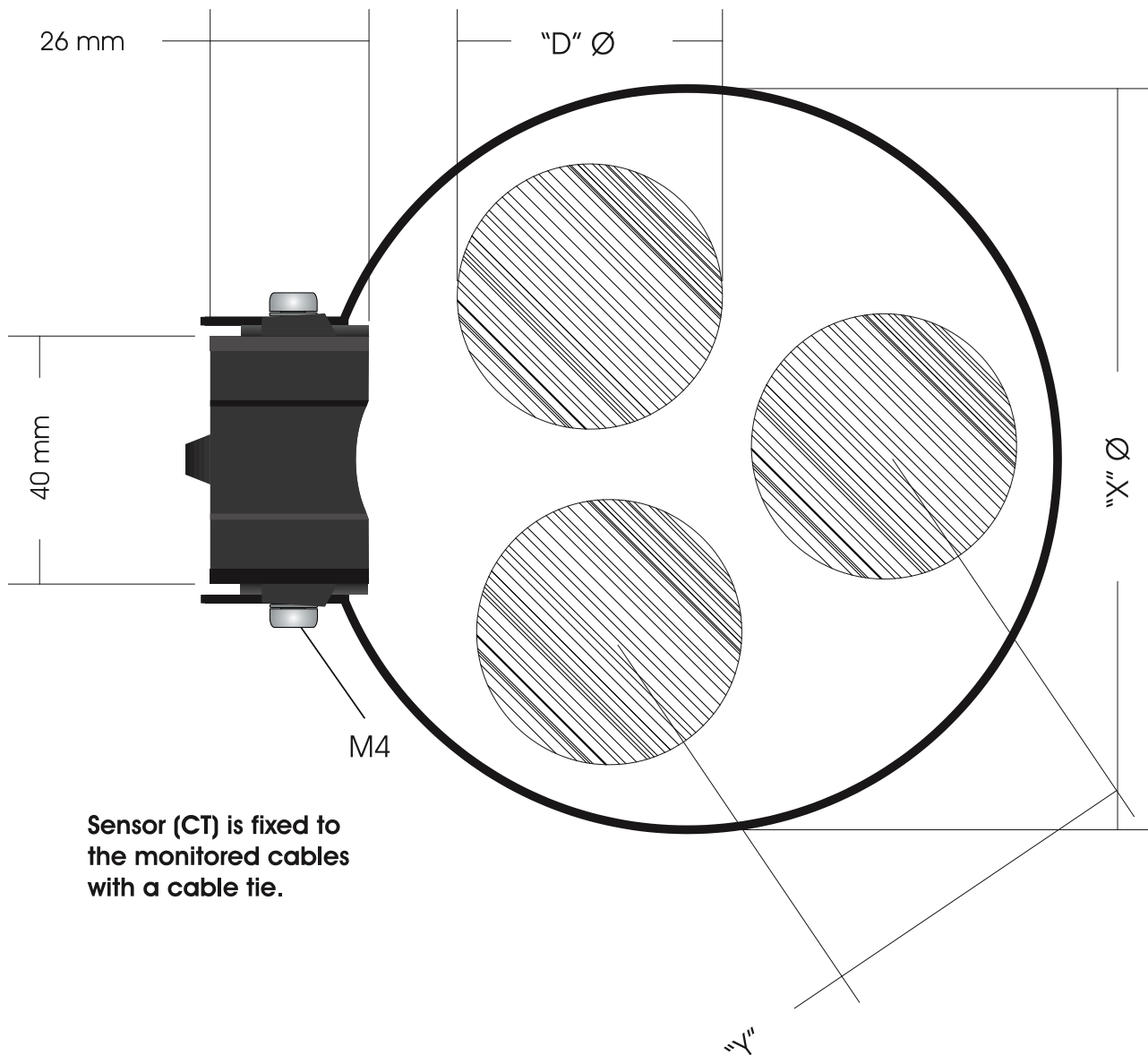
43 mm

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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