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)

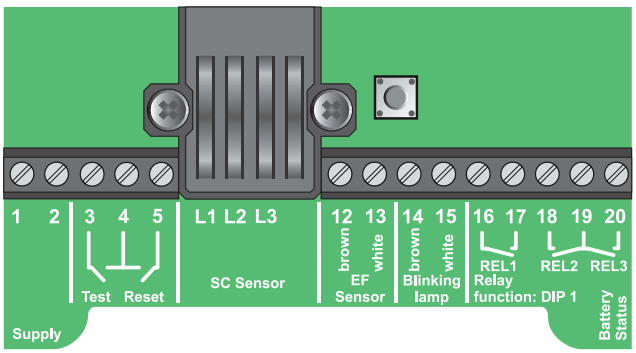
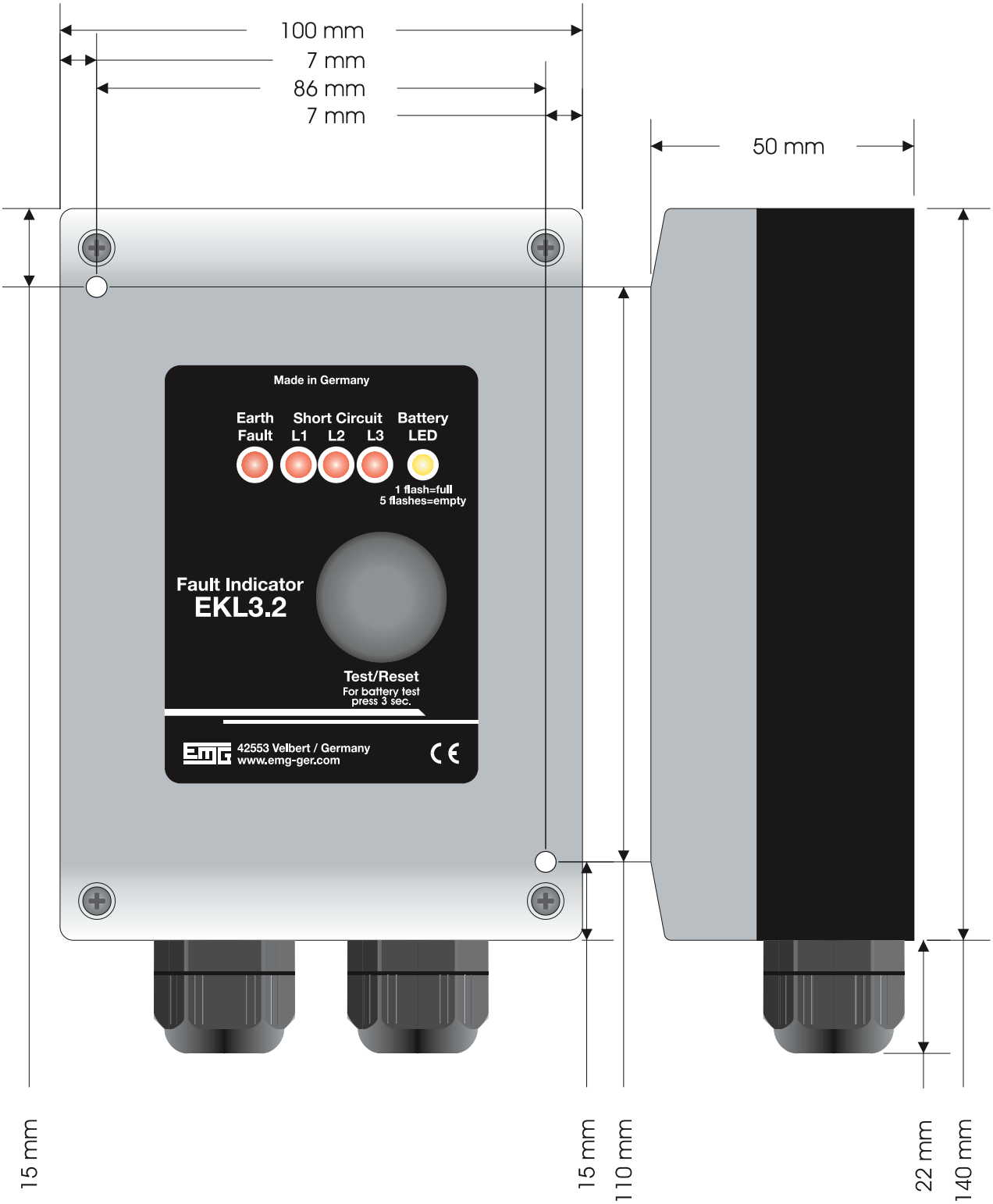


figure 1 - connectors

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 ($LiSOCl_2$) 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


100 mm
7 mm
86 mm
7 mm
50 mm
Made in Germany
Earth Fault
Short Circuit L1 L2 L3
Battery LED
1 flash=full
5 flashes=empty
Fault Indicator
EKL3.2
Test/Reset
For battery test press 3 sec.
42553 Velbert / Germany
www.emg-ger.com
15 mm
15 mm
110 mm
22 mm
140 mm

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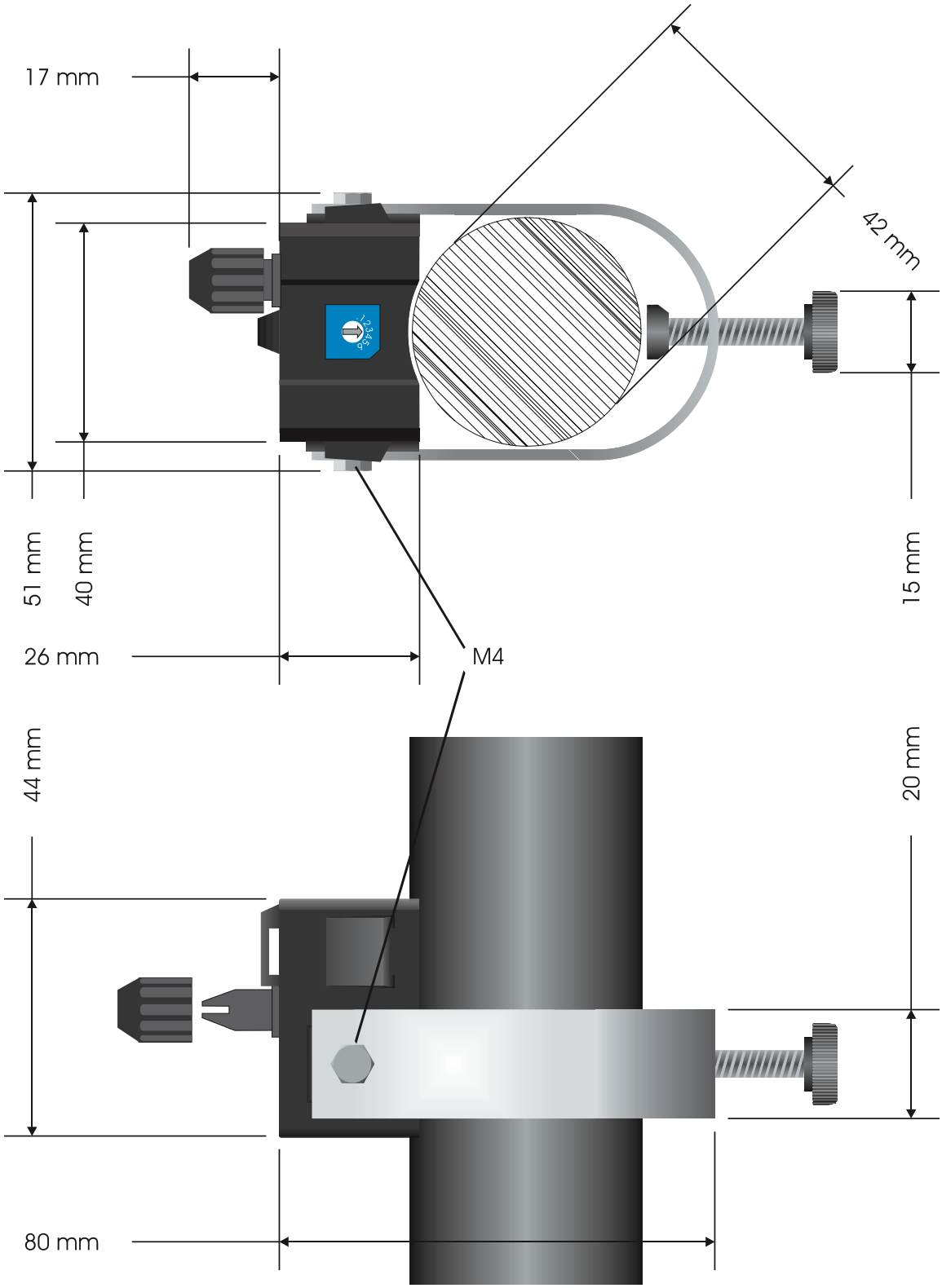
Short-circuit sensor type LK



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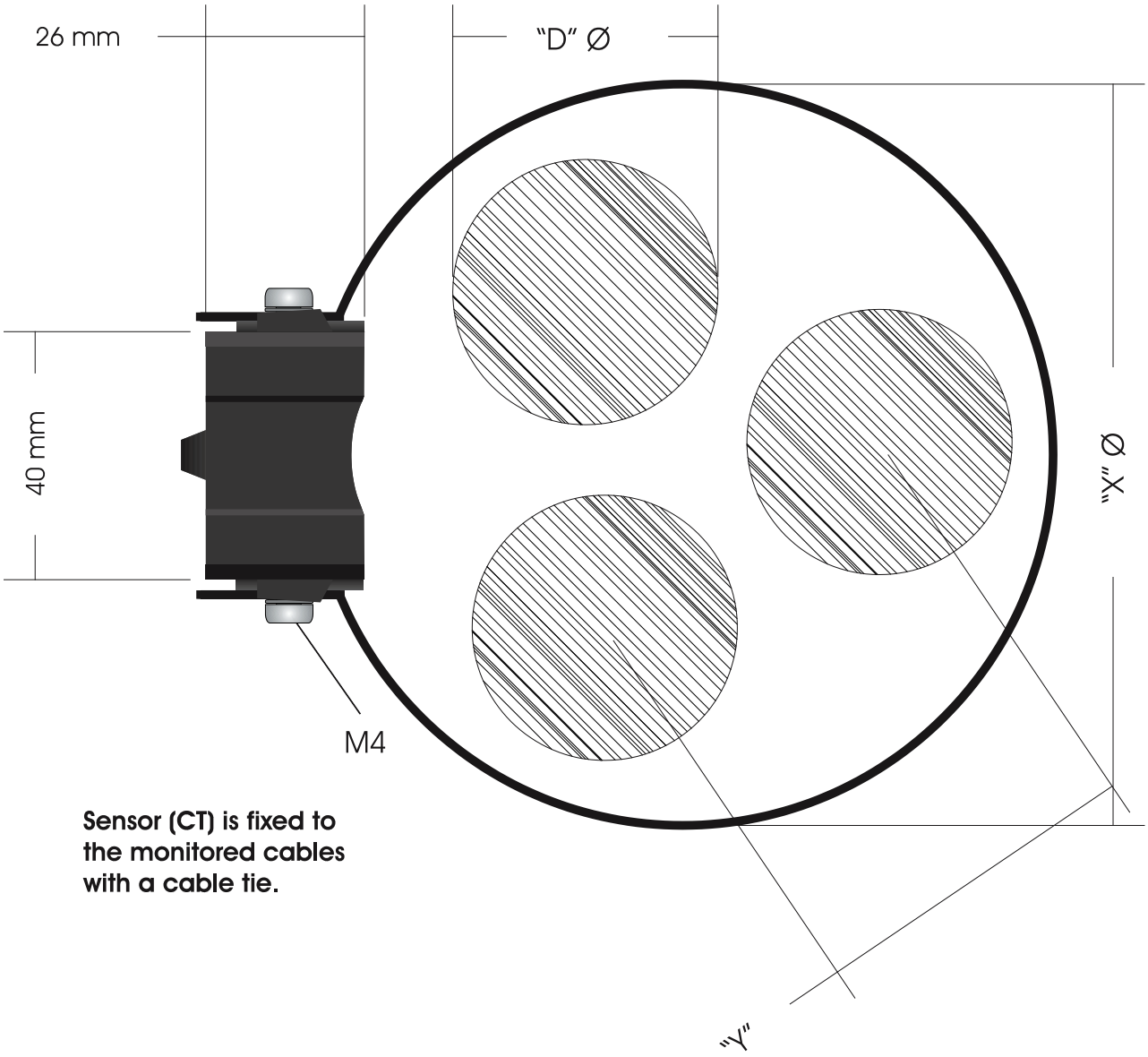
Earth-fault sensor type SE



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

Verbindungskabel/connection cable:
- LIYY 2 x 0,5 mm²
- PB-free
- Ø = 5 mm
- length customer specific

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