SHORT-CIRCUIT INDICATOR TYPE **MF**

panel-mounted

General description

The short-circuit indicator can be used in radial networks with one input and open-ring networks. The sensors are divisible and can be retrofitted on the cable.

The type MF is available in two versions:

Version MF-L: The potential-free connection between the sensors and the display unit is done by fibre optic cables. The sensor can be mounted on screened and unscreened cables.

Version MF-S: The connection between the sensors and the display unit is done by cable. The sensors must be mounted on screened cables only.

Features and Options

2nd short-circuit pass-through:	Indication of a second short-circuit passing through by double blinking of the respective short-circuit LED.
Optional reset input:	For reset by recovering 230 V AC
Optional sensor reset:	Sensor reset on recovering net current (only for MF-S and net current of 20A upwards)
Optional power supplies:	10-110 V DC or 110 / 230 V AC power supply with optional lithium backup battery

External connectors

MF-L External connectors (refer to figure 1)

Optical terminal:	connectors to short-circuit sensors L1, L2 and L3
Connector 9 - 10:	external blinking lamp (Type BL4.1+BL6)
Connector 10 - 11:	remote reset input
Connector 13- 15:	SCADA change-over contact

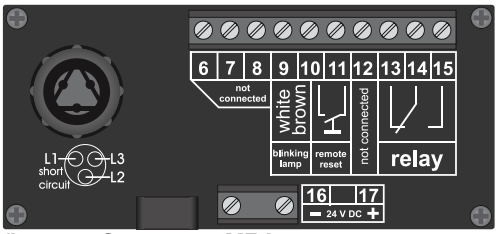

figure 1 - Connectors MF-L

MF-S External connectors (refer to figure 2)

Connector 1 - 2:	short-circuit sensor L1
Connector 3 - 4:	short-circuit sensor L2
Connector 5 - 6:	short-circuit sensor L3
Connector 9 - 10:	external blinking lamp (Type BL4.1+BL6)
Connector 10 - 11:	remote reset input
Connector 13- 15:	SCADA change-over contact

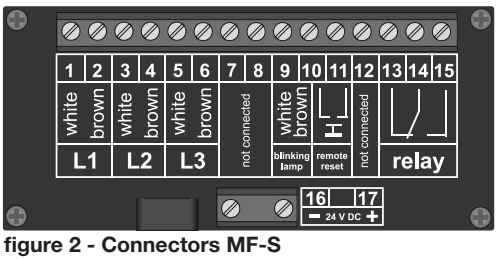

figure 2 - Connectors MF-S

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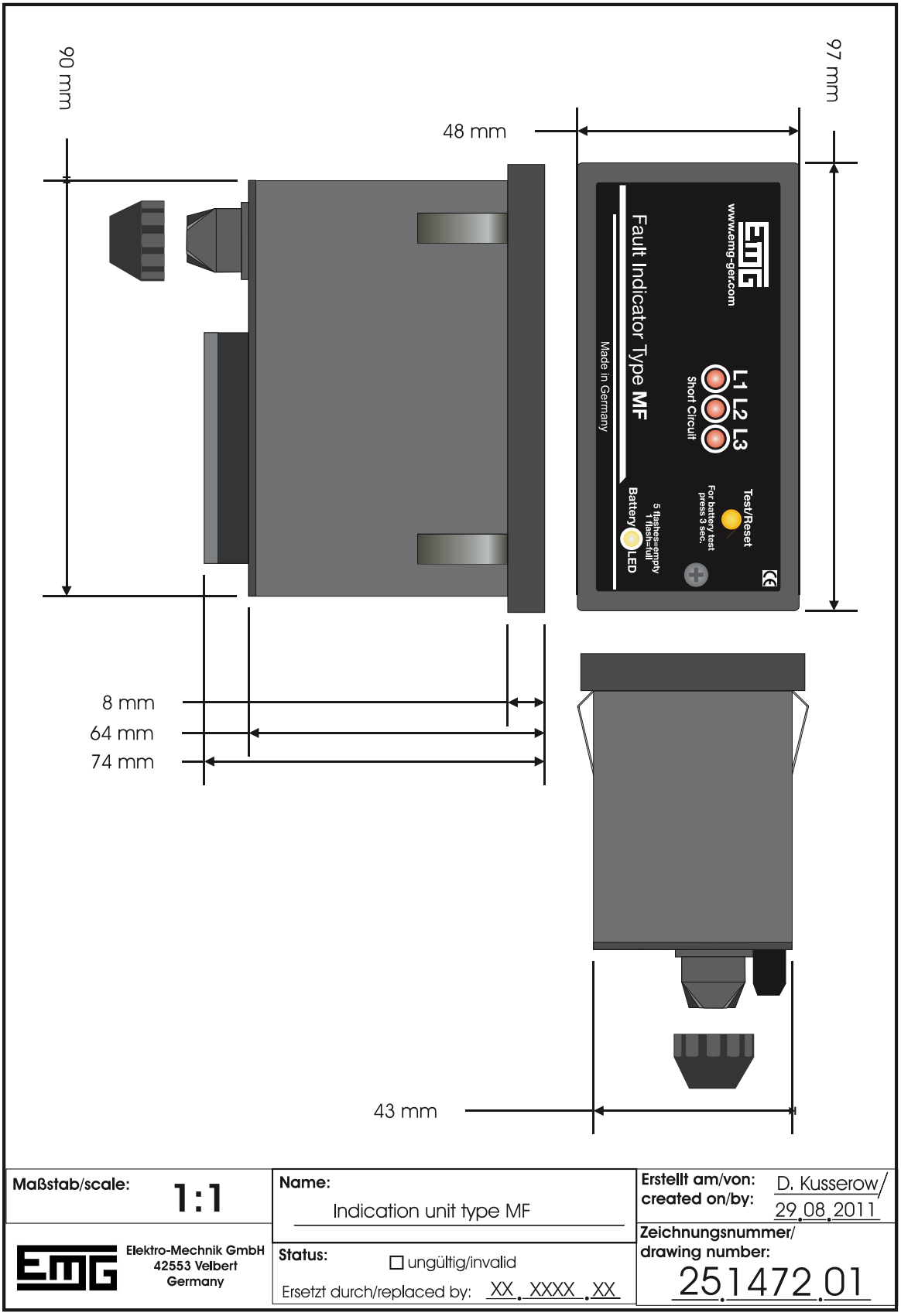
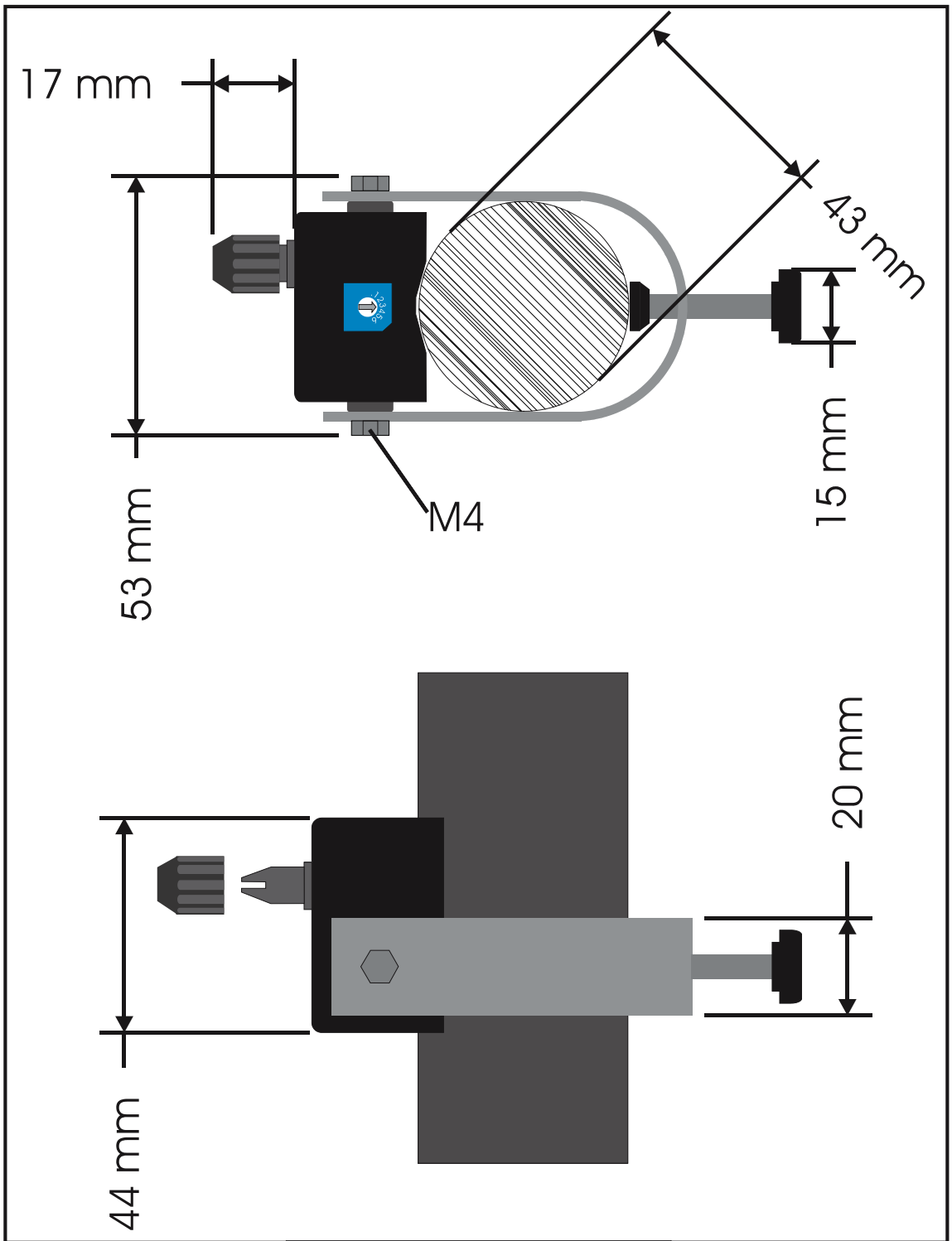
Subject	Value
MF-L short-circuit current (phase to phase)	adjustable: 200 / 300/ 400 / 500 / 600 / 800 / 1000 * A (±10 %)
MF-S short-circuit current (phase to phase)	adjustable: 200 / 400 / 600 / 800 / 1000 * A (±10 %)
response delay	adjustable: 40 / 60 / 80 / 160 * ms
indication unit	suitable for panel installation
indication of a) short-circuit b) battery	 a) one red LED for each phase b) 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) Optional: self-acting after recovering of 110 - 230 VAC e) Optional: self-acting after recovering net current (Only for MF-S and net current of 20A upwards)
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	97 mm x 48 mm x 47 mm (WxHxD) (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
EMI	according to IEC 1000-4-2, IEC 1000-4-3
internal type test	according to IEEE 495-2007
operation temperature range	-25°C to +70°C
power supply	lithium battery (LiSOCl2) 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	1 x change-over contact permanent / wipe contact (100 * ms) max. 230 V AC / max. 2 A / max. 30 W
short-circuit sensor (CT)	**MF-L** three short circuit sensors type LK (fibre optic cable) **MF-S** three short circuit sensors type SK (copper cable) (three current transformers for single-core cable) diameter: 22-42* mm connection cable length: 3* m

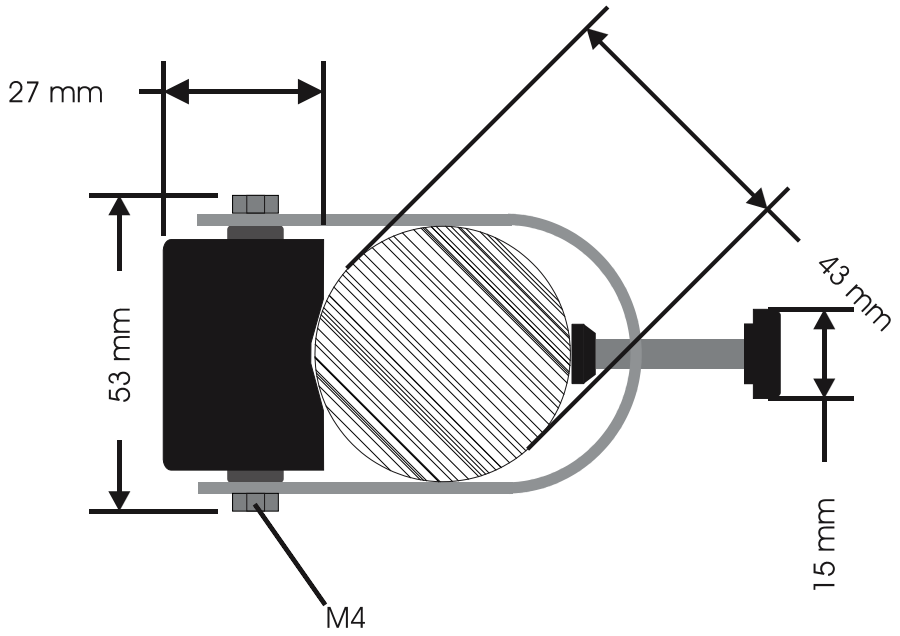
*PLEASE NOTE: other values can be ordered

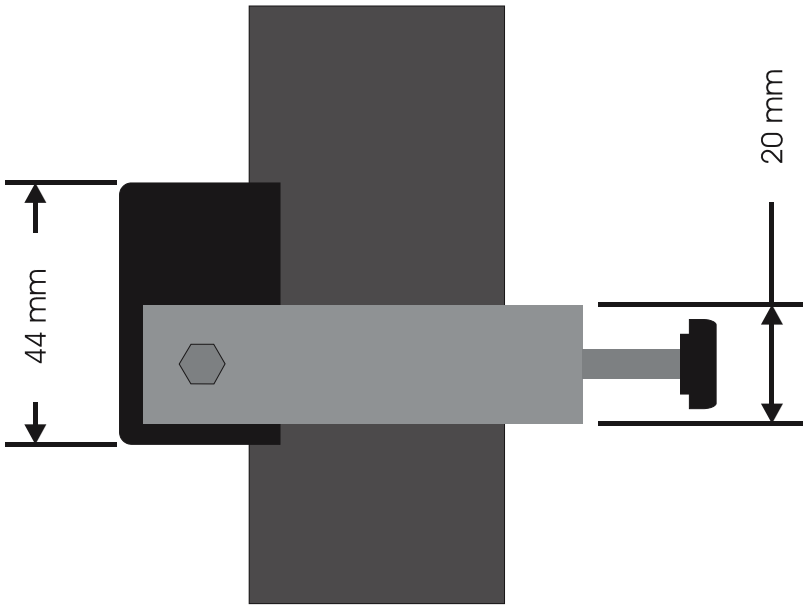


Maßstab/scale: 1:1	Name: Indication unit type MF	Erstellt am/von: created on/by: D. Kusserow / 29.08.2011
Elektro-Mechnik GmbH 42553 Velbert Germany	Status: ☐ ungültig/invalid Ersetzt durch/replaced by: XX.XXXX.XX	Zeichnungsnummer/ drawing number: 251472.01



Maßstab/scale: 1:1	Name: Short-circuit sensor type LK	Erstellt am/von: created on/by: W. Kusserow/ 11.05.2010
Elektro-Mechnik GmbH 42553 Velbert Germany	Status: ☐ ungültig/invalid Ersetzt durch/replaced by: XX.XXXX.XX	Zeichnungsnummer/ drawing number: 121424.05





Maßstab/scale: 1:1	Name: Short-circuit sensor type SK	Erstellt am/von: created on/by: W. Kusserow/ 16.11.2010
Elektro-Mechnik GmbH 42553 Velbert Germany	Status: ☐ ungültig/invalid Ersetzt durch/replaced by: XX.XXXX.XX	Zeichnungsnummer/ drawing number: 121469.01