

DATA SHEET

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METRALINE MF

INSTALLATION TESTER FOR TESTING THE EFFECTIVENESS OF PROTECTIVE MEASUREMENTS IN ELECTRICAL INSTALLATIONS PER IEC 60364-6, EN 61557 AND EN 50110-1 (DIN VDE 0100-600, DIN VDE 0105-100, VDE 0413)



- Installation tester for testing the electrical safety of installations per DIN VDE 0100 and EN 61557
- All-in-one instrument for all required measurements
- Easy-to-read 3½" color TFT display
- Memory for 1000 measurements
- PC software for generating test reports (Excel)
- Battery charging inside the instrument
- Automatic polarity reversal
- Convenient service functions (calibration reminder, firmware update via USB)

APPLICATIONS

The METRALINE MF installation tester is a rugged, portable measuring instrument for testing electrical safety in residential buildings and in industrial applications, and for measurements at AC charging points. The device and all necessary accessories can be securely stowed away in the included carrying pouch and easily transported to various locations.

All measurements required for testing the electrical safety of installations in buildings can be performed with the multifunctional instrument.

INCLUDED FEATURES

Measurement of:

- Loop resistance L-PE with calculation of short-circuit current
- Loop resistance L-N
- Low-resistance protective conductor continuity
- Insulation resistance
- Testing of type A, AC, B, B+ and F RCDs, as well as 6 mA DC (RDC-DD) for e-charging stations
- Voltage (TRMS)
- Phase sequence and frequency
- Earth resistance
- EVSE measurements

DESCRIPTION OF FEATURES

ALL-IN-ONE

A single instrument for all required measurements.

FLEXIBLE USE

Portable, battery-operated, hand-held measuring instrument with carrying pouch for flexible use in various test environments.

EASY OPERATION

Large color TFT display with background illumination for quick reading of displays and measurement results.
Simple, straightforward operation.

EXTENSIVE ACCESSORIES

Includes a comprehensive range of accessories for conveniently performing all measurements required for testing the electrical safety of installations in buildings.

CONVENIENT DATA EVALUATION

Internal memory for 1000 measurements and PC software for generating external test reports.

TECHNICAL DATA

Power Supply		9 V DC (six 1.5 V AA batteries or rechargeable batteries)
Ambient Conditions	Operating temperature:	0 ... +40 °C
	Storage temperature:	-10 ... +70 °C
	Relative atmospheric humidity:	Max. 95%, no condensation allowed
	Elevation:	Max. 2000 m
Electrical Safety	Pollution degree:	2
	Protection category:	II
	Surge protection:	600 V CAT III 300 V CAT IV
Electromagnetic Compatibility (EMC)	Interference emission:	EN 61326-1, class B
	Interference immunity:	DIN EN 61326-1 / IEC 61326-1 DIN EN 61326-2-33 / IEC 61326-2-33 EN 55011:2016 + A1:2017
Mechanical Design	Protection:	Housing: IP42 per DIN EN 60529 / IEC 60529 (protection against ingress of solid foreign objects: ≥ 1.0 mm diameter, protection against water ingress: protection against falling dripping water, when the housing is inclined up to 15°)
	Housing (W x H x D):	Approx. 25 x 10.7 x 13.5 cm
	Weight:	Approx. 1.30 kg (without batteries)
	Display:	480 x 320 TFT LCD
Data Interfaces	COM port:	USB
Internal Memory		1000 measurements

RELEVANT STANDARDS

The instrument has been manufactured and tested in accordance with the following safety regulations:

DIN EN 60529 IEC 60529	Test instruments and test procedures Degrees of protection provided by enclosures (IP code)
DIN EN 61010-1 IEC 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements
DIN EN 61010-031	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement
DIN EN IEC 61326-1	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements
DIN EN IEC 61557-1	Electrical safety in low voltage distribution systems up to 1000 V AC and 1500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 1: General requirements (IEC 61557-1:2019)
IEC 62955	Residual direct current detecting device (RDC-DD) to be used for mode 3 charging of electric vehicles

CHARACTERISTIC VALUES

Function	Measured Quantity	Measuring Range
Continuity (R_{LO})	Test current: 7 mA (2-wire method)	0.0 Ω ... 1999 Ω
	Test current: 200 mA (2-wire method)	0.00 Ω ... 1999 Ω
Insulation resistance (R_{INS})	Test voltages: 50, 100 and 250 V	0.000 M Ω ... 199.9 M Ω
	Test voltages: 500 and 1000 V	0.000 M Ω ... 999 M Ω
RCD	U_c	0.0 V ... 99.9 V
	t	0.0 ms ... 500.0 ms
	I (ramp)	$0.2 \times I_{\Delta N} \dots 1.1 \times I_{\Delta N}$ (AC)
		$0.2 \times I_{\Delta N} \dots 1.5 \times I_{\Delta N}$ (A), ($I_{\Delta N} \geq 30$ mA)
$0.2 \times I_{\Delta N} \dots 2.2 \times I_{\Delta N}$ (A), ($I_{\Delta N} < 30$ mA)		
$0.2 \times I_{\Delta N} \dots 2.2 \times I_{\Delta N}$ (B)		
Impedance (ZL)	Z_{line} L-L, L-N, Ipfc	0.0 Ω ... 9999 Ω
	Z_{loop} L-PE, Ipfc	0.0 Ω ... 9999 Ω
	Z_{loop} L-PE, Ipfc, non-trip	0.0 Ω ... 9999 Ω
Voltage (V)	TRMS	0 V ... 550 V
	Frequency	10.0 Hz ... 499.9 Hz
Rotary field	TRMS	50 V AC ... 550 V AC
		45 Hz ... 400 Hz
Earthing resistance (R_E)	3-wire method, 4-wire method	0.00 Ω ... 9999 Ω
	Soil resistivity	0.0 Ω ... 9999 Ω

SCOPE OF DELIVERY

Standard Scope of Delivery:

1	METRALINE MF (M520F)	
1	Carrying pouch	
3	Measurement cables, 1 m ea.	
1	Measurement cable with earthing contact plug	
3	Test probes	
3	Alligator clips	
1	USB cable, type A to type B	
6	1.5 V rechargeable batteries	
1	Power pack	
1	Measurement cable with test button for triggering measurements	
1	Condensed operating instructions	
1	Operating instructions (download)	https://www.gmc-instruments.de/en/services/download-center/
1	METRAreport software (download)	https://www.gossenmetrawatt.de/en/services/mygmc/

Available accessories ⇒ "Order Information" .

Instrument sets with additional accessories ⇒ "Scope of Delivery" .

ORDER INFORMATION

INSTRUMENT

Type	Description	Article Number
METRALINE MF	Installation tester for testing the effectiveness of protective measurements in electrical installations in accordance with IEC 60364-6, EN 61557 and EN 50110-1 (DIN VDE 0100-600, DIN VDE 0105-100, VDE 0413)	M520F

ACCESSORIES

Description	Article Number
MF remote probe	Z520A
MF measurement cable set	Z520B
MF charger	Z520C
MF rechargeable battery	Z520D
SCHUKO adapter	Z520E

Description	Article Number
UK adapter	Z520F
CH adapter	Z520G
Carrying pouch	Z520T
E set	Z590R

Further information is available:

- in our Measuring Instruments and Testers catalog
- on the Internet at www.gossenmetrawatt.com



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