



# METRISO G1000A

## Analog Insulation, Low Resistance and Voltage Measurement Instrument

### Characteristic Values

Meas. Qty.	Scale / Standard	Measuring Range	Nominal range of use	Nominal / Open-Circuit Voltage	Nominal Current $I_N$	Short-Circuit Current $I_K$	Intrinsic Uncertainty under Reference Conditions <sup>2</sup>	Measuring Uncertainty <sup>3</sup>	Overload Capacity
$R_{INS}$	② VDE 0413	100 k $\Omega$ ... 100 M $\Omega$	100 k $\Omega$ ... 10 M $\Omega$	50 V 100 V 250 V 500 V 1000 V	1 mA	$\leq 5$ mA	$\pm 2.5\%$	$\pm 30\%$ of the measured value	1000 V AC/DC TRMS
	①	10 k $\Omega$ ... 1 T $\Omega$	100 k $\Omega$ ... 100 G $\Omega$	$\pm 2.5\%$ <sup>1</sup>					
$R_{LO}$	③	0 to 5 $\Omega$	0.17 to 4 $\Omega$ <sup>4</sup>	—	Test current $I_N \geq 200$ mA		$\pm 2.5\%$	$\pm 10\%$ <sup>5</sup> of the measured value	1000 V AC/DC TRMS
$U_{AC/DC}$	④	0 ... 1000 V	10 ... 1000 V	—	—	—	$\pm 2.5\%$	—	1000 V AC/DC TRMS
$U_{BAT}$	⑤	8 ... 12 V	8.5 ... 12 V	—	—	—	—	—	—

<sup>1</sup> Accuracy specified here is only achieved with the following optional accessory: "shielded high-resistance measurement cable KS-C (article number Z541F)".

<sup>2</sup> Relative to scale length:

Scale 1: 83.13 mm

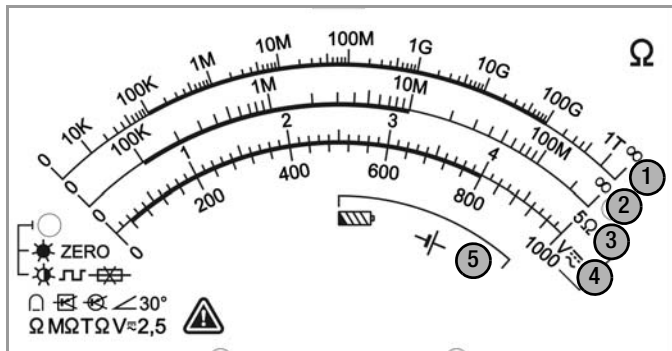
Scale 2: 75.05 mm

Scales 3 and 4: 67.02 mm

<sup>3</sup> Within the identified range on the respective scale (nominal range of use)

<sup>4</sup> with ZERO balancing

<sup>5</sup> 0.17 ... 2  $\Omega$  :  $\pm 20\%$



### Displays

Analog Display

Measuring movement Moving-coil mechanism with core magnet

Scale length 83.13 mm (longest scale)

Limit LED

LED lights up red to indicate an exceeded limit value  
LED lights up green to indicate adherence to the limit value



LED

LED lights up red to indicate the presence of interference voltage (when instrument is switched off), test voltage during insulation measurement or residual voltage after insulation testing ( $U > 50$  V),

### Reference Conditions

Reference temperature + 23 °C  $\pm 3$  K

Relative atmospheric humidity 40 ... 75%

Measured quantity frequency 45 Hz ... 65 Hz

Measured quantity waveform Sine, deviation between TRMS and rectified value  $< 1\%$

Battery voltage 9.5 V  $\pm 0.1$  V

Test resistance 10 M $\Omega$   $\pm 1\%$

Normal position of use 30°

### Power Supply

Batteries

8 ea. 1.5 V mignon cell (8 ea. size AA) (alkaline manganese per IEC LR14) or 8 rechargeable NiMH batteries (must be recharged externally)

Nominal range of use 8.5 ... 12 V

Battery test Battery capacity display via the Bat. TEST key

Battery saver circuit Standby function

Service life For  $R_{INS}$  (1000 V / 1 M $\Omega$ ) and  $R_{LO}$  with 20 s on-time and 1 measurement each for a duration of 5 s

– With batteries (alkaline manganese): 900 measurements

– With rechargeable batteries (2000 mAh): 850 measurements

Safety shutdown

If supply voltage is too low, the instrument is switched off, or cannot be switched on.

When the rotary switch is set to the OFF position, the instrument is completely disconnected from the batteries (after approximately 10 seconds).

## Analog Insulation, Low Resistance and Voltage Measurement Instrument

### Electrical Safety

Standard	
VDE regulation	VDE 0411, part 1, 1994-03
Protection class	II
Pollution degree	2
Measuring category	CAT II 1000 V / CAT III 600 V / CAT IV 300
Fuses	
Fuse link	FF315mA/1000V, effective in all resistance measuring ranges, 1 additional replacement fuse in the battery compartment
Electronic fuse	protects low-resistance measurement $R_{LO}$

### Electromagnetic Compatibility (EMC)

Interference emission	EN 61326-1:2006 class B
Interference immunity	EN 61326-1:2006

### Ambient Conditions

Accuracy temp. range	0 ... +40 °C
Operating temperature	-10 ... +50 °C
Storage temp. range	-25 ... +70 °C (without batteries)
Relative humidity	Up to 75% (max. 85% during storage/transport), no condensation allowed
Elevation	Max. 2000 m
Calibration interval	1 year (recommended)

### Mechanical Design

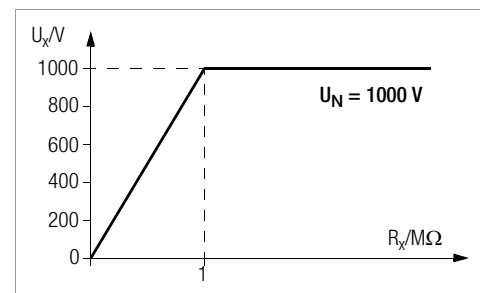
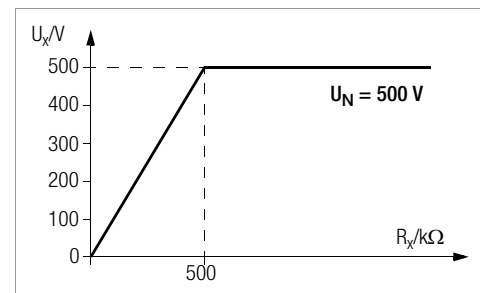
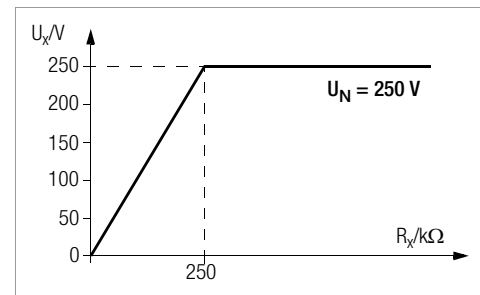
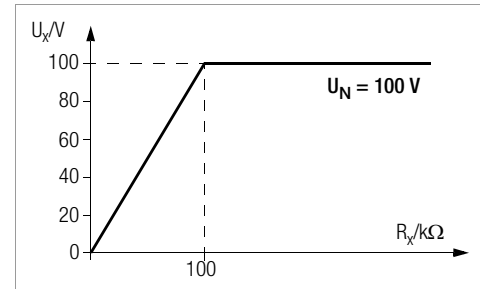
Dimensions	225 x 130 x 140 mm
Weight	Approx. 1.5 kg with batteries
Protection	Housing: IP 52, measurement cables and connectors: IP 40 per DIN VDE 0470, part 1 / EN 60529, housing category 2

### Excerpt from Table on the Meaning of IP Codes

IP XY (1 <sup>st</sup> digit X)	Protection Against Foreign Object Entry	IP XY (2 <sup>nd</sup> digit Y)	Protection Against Penetration by Water
2	≥ 12.5 mm dia.	2	Dripping (at 15° angle)
3	≥ 2.5 mm dia.	3	Spraying water
4	≥ 1.0 mm dia.	4	Splashing water
5	Dust protected	5	Jet-water
6	Dust-proof	6	Powerful water jets

### Voltage at Device Under Test During Insulation Resistance Measurement

Measuring voltage  $U_x$  at the device under test depending upon its resistance  $R_x$  at nominal voltage  $U_N = 50\text{ V}$ ,  $100\text{ V}$ ,  $250\text{ V}$ ,  $500\text{ V}$  and  $1000\text{ V}$ :



# METRISO G1000A

## Analog Insulation, Low Resistance and Voltage Measurement Instrument

### Applicable Regulations and Standards

<b>IEC 61010-1/ EN 61010-1 VDE 0411-1</b>	Safety requirements for electrical equipment for measurement, control and laboratory use Part 1: General requirements (IEC 61010-1:2010 + Cor.:2011); German version of EN 61010-1:2010 Part 31: Safety requirements for hand-held probe assemblies for electrical measurement and test (IEC 61010-031:2002 + A1:2008); German version of EN 61010-031:2002 + A1:2008
<b>IEC 61557/ EN 61557/ VDE 0413</b>	Part 1: General requirements (IEC 61557-1:2007); German version of EN 61557-1:2007 Part 2: Insulation resistance (IEC 61557-2:2007); German version of EN 61557-2:2007 Part 4: Resistance of earth connection and equipotential bonding (IEC 61557-4:2007); German version of EN 61557-4:2007 Part 10: 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 (IEC 61557-10:2000); German version of EN 61557-10:2001
<b>EN 1081</b>	Testing of electrostatic discharge capacity for floor coverings in potentially explosive atmospheres
<b>EN 60529 VDE 0470-1</b>	Test instruments and test procedures Degrees of protection provided by enclosures (IP code)
<b>DIN EN 61326-1 VDE 0843-20-1</b>	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements

### Scope of Delivery

- 1 Insulation and resistance measuring instrument
- 1 Factory calibration certificate
- 1 Set of batteries
- 1 Carrying strap
- 1 Alligator clip
- 1 KS17-4 cable set
- 1 Condensed operating instructions
- 1 CD ROM with the following content:
  - Complete operating instructions
  - Data sheet

## Analog Insulation, Low Resistance and Voltage Measurement Instrument

### Accessories (not included)



#### ISO-Calibrator 1

Calibration adapter for rapid, efficient testing of the accuracy of measuring instruments for insulation resistance and low-value resistors

#### TR25 Reel



#### KS-C Cable Set

Cable set consisting of measurement cable and high-resistance measurement cable for measurements in the GΩ range

#### TR50 Drum with 50m Measurement Cable



50 m measurement cable coiled onto a metal drum. Connection to the inside end of the cable is made possible with a socket integrated into the drum. The other end is equipped with a banana plug. The drum axle with handle can be removed for space saving storage. Cable resistance can be compensated for with the rotary selector switch in the  $R_{LO}$  position.



#### KS24 Cable Set

The KS24 cable set includes a 4 m long extension cable with a permanently attached test probe at one end and a contact protected socket at the other end, as well as an alligator clip which can be plugged onto the test probe.



#### Floor Probe

The 1081 floor probe makes it possible to measure the resistance of insulating floors in accordance with DIN VDE 0100, part 610, and EN 1081.

#### Telearm 1



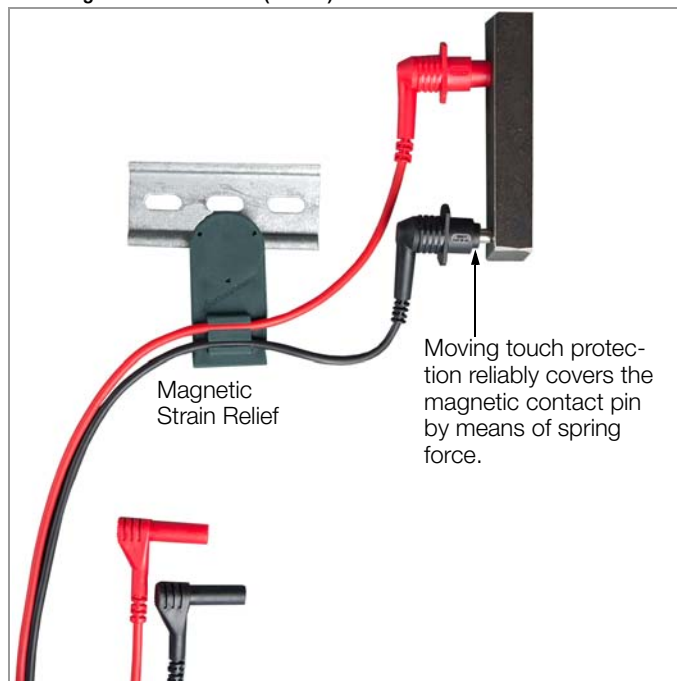
#### Z550A Test Probe for Remote Triggering



# METRISO G1000A

## Analog Insulation, Low Resistance and Voltage Measurement Instrument

### Magnetic Test Probes (patented) with Magnetic Strain Relief (Z502U)



### METRISO G Z550C Ever-Ready Case



### Order Information

Description	Type	Article number
Insulation measuring instrument for DIN VDE 0100, ÖVE-EN 1 (Austria), NIV/NIN SEV 1000 (Switzerland), complies with IEC/EN 61 557/VDE 0413, parts 1, 2, 4 and 10		
Test voltages to 1000 V, voltage measurement to 1000 V, low-resistance measurement	METRISO G1000A	M542A
METRISO G1000A (M542A) with test probe for remote triggering (Z550A) and ever-ready case (Z550C)	METRISO G1000A-Set	M542B
<b>Accessories (not included)</b>		
Calibration adapter for testing the accuracy of instruments used for measuring insulation resistance and low-resistance for test voltages of up to 1000 V (per VDE 0413, parts 1, 2 and 4).	ISO calibrator 1	M662A
Cable set consisting of measurement cable and high-resistance measurement cable for measurements in the GΩ range	KS-C	Z541F
Cable set consisting of a 4 m long extension cable with a permanently attached test probe at one end and a contact protected socket at the other end, and 2 alligator clips which can be plugged onto the test probe	KS24	GTZ3201000R0001
Triangular probe for floor measurements per EN 1081, DIN VDE 0100	1081 probe	GTZ3196000R0001
Test probe with START/STOP key and an additional key for illuminating the measuring point, including shielded connector cable and test probe holder for the carrying strap	Test probe for remote triggering METRISO G	Z550A
1 Guard cable and 1 alligator clip	Guard 5000A	Z580C
Telescoping rod for PE measurement	Telearm 1	GTZ3232000R0001
Reel with 25 m measurement cable	TR25 Reel	GTZ3303000R0001
Drum with 50 m measurement cable	TR50 drum	GTY1040014E34
Magnetic test probes with touch protection – set including magnetic holder Contact diameter: 5.5 mm, insulated, CAT III 1000 V / 4 A, temperatures from -10 to 60 °C, holding power under standard conditions with flat head screws: 1200 g perpendicular to the contact surface; instrument connection: angled multi-lam plug for instruments from the METRISO G series	Set 1 – magnetic test probes	Z502U
Ever-ready case for METRISO G500(MM)/G1000(+)/(A) with external pocket for measurement cable	METRISO G ever-ready case	Z550C

For additional information regarding accessories please refer to:

- [www.gossenmetrawatt.com](http://www.gossenmetrawatt.com)

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