

METRISO[®] 5000 A/K High-Voltage Insulation Tester

3-348-858-03
6/11.01

- Broad measuring range from 10 kΩ to 1 TΩ
- Easy to read logarithmic display
- Test voltages:
100 V, 250 V, 500 V, 1000 V, 1500 V, 2000 V, 2500 V,
5000 V
- Measurement to 2000 V in accordance with DIN VDE 0413
- Measuring range: 100 kΩ to 100 MΩ (1000 V)
- Voltage measurement to 2000 V $\bar{=}$, \sim
- Guard terminal eliminates surface current
- 5 m extension cable as accessory equipment
- Power supply with batteries or hand crank generator (optional)



Applications

Insulation measurement for cables, motors etc.

Features

Test Voltages to 5000 V

This instrument is suited for the non-destructive measurement of insulation resistance in electrical systems, at machines and transformers and in cables, as well as within the electrical equipment of, for example, locomotives, tram systems and ocean going vessels, with eight selectable test voltages up to 5 kV.

Voltage Measurement to 2000 V

With the voltage measuring ranges, test objects can be checked for the absence of voltage in networks of up to 2 kV. This is important for insulation resistance measurement, because extraneous voltages distort measurement results.

Discharge of Capacitive Devices Under Test

Capacitive devices under test such as cables and coils, which might be discharged to test voltage, are discharged by the measuring instrument. The drop in voltage can be observed at the needle gauge.

Measurements in accordance with EN 61557 part 1 and 2 (VDE 0413)

Measuring current is equal to 1 mA at a test voltage of 100 V, 250 V, 500 V and 1000 V.

Measurement Cables with Heavy-Duty Insulation

The measurement cables with heavy-duty insulation are permanently connected for safety and technical reasons. Possible danger caused by the unintentional removal of cables is thus avoided, for example when charging occurs due to capacitive test objects.

Needle Gauge with LEDs

Three LEDs arranged within the needle gauge make reading easier. The lamp lights up which is located next to the scale, which is assigned to the selected measuring range. During the measurement sequence, the green LED indicates whether or not the battery charge is sufficient for the measurement.

Applicable Regulations and Standards

IEC 61010-1 EN 61010-1 VDE 0411-1	Safety regulations for electrical measurement, control, regulation and lab devices
DIN VDE 0413 part 1	Devices for the testing of safety requirements for electrical systems Insulation measuring devices
IEC 61557 EN 61557 VDE 0413 Part 1 Part 2	Measuring and monitoring facilities for testing the electrical safety in lines with nominal voltages up to AC 1000 V and DC 1500 V – General – Insulation resistance measuring devices
IEC/EN 61326-1	Generic Emission Standard; Electrical equipment for measurement, control and laboratory use
IEC/EN 61326/A1	Generic Immunity Standard; Electrical equipment for measurement, control and laboratory use
DIN EN 60529 DIN VDE 0470 part 1	Test instruments and test procedures – degree of protection provided by enclosures (IP code)
DIN EN 60051	Direct-acting and direct-display electrical measurement devices and their accessories

METRISO[®] 5000 A/AK

High-Voltage Insulation Tester

Measuring Ranges

Insulation Resistance

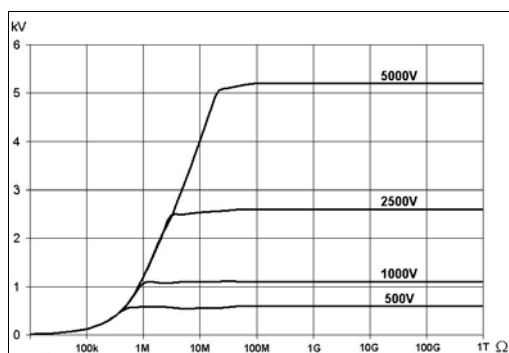
Scale/Standard	Nominal/Open-Circuit Voltage U_N/U_0	Meas. range	Nom. current I_N	S-C current I_K	Intrinsic error ¹⁾	Deviation
① VDE0413	100 V / 250 V 500 V / 1000 V	100 kΩ ... 100 MΩ	1 mA	1.3 mA	±2.5%	±30% of rdg.
②	100 V / 250 V 500 V / 1000 V	10 kΩ ... 1 TΩ	1 mA	1.3 mA	±5%	
②	1500 V 2000 V 2500 V 5000 V	10 kΩ ... 1 TΩ	0.7 mA 0.5 mA 0.4 mA 0.1 mA	1,3 mA	±5%	

Direct and Alternating Voltage

Measuring range	Frequency	Internal resistance	Max. allowable voltage	Intrinsic error ¹⁾
0 ... 2000 V AC/DC	15 ... 500 Hz	5 MΩ	2200 V AC/DC max. 10 s	±5%

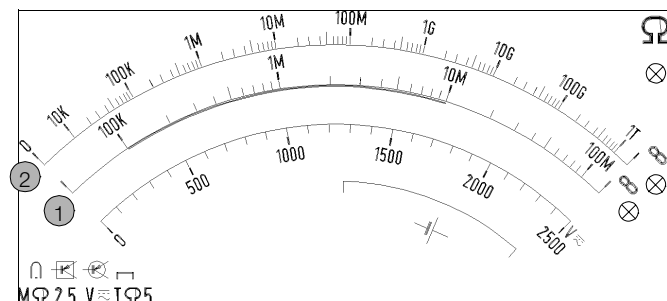
¹⁾ referring to scale length

U-R Diagram for Metriso 5000A



Display

Movement Core-magnet moving-coil mechanism
Scale length 111.5 mm (longest scale)



Reference Conditions

Ambient Temperature +23 °C ±2 K
Relative Humidity 45 ... 55%

Meas. Quantity Frequency

50 Hz ±10 Hz
(for voltage measurements)

Line Voltage Waveform

Sine, deviation between effective and rectified value < 1%

Battery voltage Operating position

8 V ±1%
Horizontal

Power Supply

Standard or Storage Battery

6 ea. 1.5 V single cell per IEC R20
(6 x D-Size)

Working Range

6 V ... 10 V

Battery Service Life

7500 measurements for test voltage of 1000 V with meas. resistance of 1 MΩ,
15000 measurements for test voltage of 500 V with meas. resist. of 500 kΩ,
measurement of 5 s – pause 25 s

Crank Generator (optional)

2 to 3 r.p.s. with moderate strength, the LED Ω signals sufficient crank frequency and consequently the validity of measuring values

Nominal Voltage

7.5 V (at approx. 2.5 r.p.s.)

Nominal Power

4 W (at approx. 2.5 r.p.s.)

Ambient Conditions

Operating Temperature

0 °C ... + 40 °C

Storage Temperature

-20 °C ... + 60 °C (without batteries)

Relative Humidity

max. 75%,
condensation must be avoided

Elevation

up to 2000 m

Electrical Safety

Protection Class

II

Test Voltage

8.5 kV~

Overvoltage Category

2000 V CAT II
or 5000 V CAT I

Fouling Factor

2

Protection

IP 52

Electromagnetic Compatibility (EMC)

Interference emission

IEC/EN 61326-1

Interference immunity

IEC/EN 61326/A1

Mechanical Design

Dimensions

W x D x H:
290 mm x 250 mm x 140 mm

Weight

3.4 kg with batteries

METRISO[®] 5000 A/AK

High-Voltage Insulation Tester

Equipment METRISO[®] 5000 A

- 1 high-voltage insulation tester with permanently connected measurement cables and test prods,
- 2 crocodile clips (5 kV version)
- and plug-in battery module including batteries**
- 1 carrying strap
- 1 operating instructions

Equipment METRISO[®] 5000 AK

- 1 high-voltage insulation tester with permanently connected measurement cables and test prods,
- 2 crocodile clips (5 kV version)
- and hand crank generator**
- 1 carrying strap
- 1 operating instructions

Accessories

Hand Crank Generator for retrofit



Carrying Bag F2000

The test instrument, the PSI module, plug inserts, measuring adapter, replacement batteries, recording chart paper, etc., can all be conveniently stored and transported with the F2000 carrying bag.



ISO-Kalibrator 1

Calibration adapter for testing the accuracy of measurement instruments for insulation resistances and low impedance resistances for test voltages up to 1000 V.



Order Information

Designation	Type	Article Number
High-voltage insulation tester, for battery operation	METRISO [®] 5000A	M580A
High-voltage insulation tester, for hand crank generator operation	METRISO [®] 5000 AK	M580C
Universal carrying bag for METRISO [®] 5000 A/AK, PROFITEST [®] 0100S-II or PROFITEST 204	F2000 D)	Z700D
1 set (2 ea.) crocodile clip (5 kV version)	KY 5000A	Z580B
Guard cable with plug, test prod and crocodile clip	Guard 5000A	Z580C
5 m extension cable	Leadex 5000	Z580D
Hand crank generator for retrofitting METRISO [®] 5000A to hand crank generator operation	Z580A	Z580A
Set consisting of: METRISO [®] 5000A, F2000, KY 5000A and 5000A guard	METRISO [®] 5000A-Set	M580S
Set consisting of: METRISO [®] 5000AK, F2000, KY 5000A and 5000A guard	METRISO [®] 5000AK-Set	M580T
Calibration adapter for test voltages up to 1000 V	ISO-Kalibrator 1	M662A

D) Data sheet available

For further accessories see our Catalog „Measuring Instruments and Testers“.

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High-Voltage Insulation Tester

Printed in Germany • Subject to change without notice

GOSSEN-METRAWATT GMBH
Thomas-Mann-Str. 16-20
D-90471 Nürnberg, Germany
Telephone +49 911 8602-0
Telefax +49 911 8602-669
e-mail: info@gmc-instruments.com
<http://www.gmc-instruments.com>

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