

# METRISO® 5000A High-Voltage Insulation Tester

3-348-858-03  
4/7.98

- 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
- Power supply with batteries or 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 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
DIN EN 50081 part 1	Generic Emission Standard; residential, commercial and light industry
DIN EN 50082 part 1	Generic Immunity Standard; residential, commercial and light industry
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<sup>®</sup> 5000A

## 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 <sup>1)</sup>	Deviation
① VDE0413	100 V / 250 V 500 V / 1000 V	100 k $\Omega$ ... 100 M $\Omega$	1 mA	1.3 mA	$\pm 2.5\%$	$\pm 30\%$ of rdg.
②	100 V / 250 V 500 V / 1000 V	10 k $\Omega$ ... 1 T $\Omega$	1 mA	1.3 mA	$\pm 5\%$	
②	1500 V 2000 V 2500 V 5000 V	10 k $\Omega$ ... 1 T $\Omega$	0.7 mA 0.5 mA 0.4 mA 0.1 mA	1.3 mA	$\pm 5\%$	

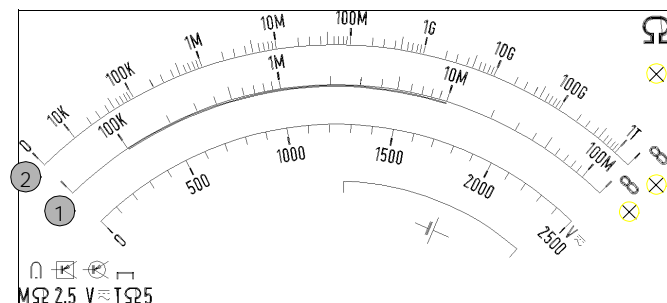
#### Direct and Alternating Voltage

Measuring range	Frequency	Internal resistance	Max. allowable voltage	Intrinsic error <sup>1)</sup>
0 ... 2000 V AC/DC	15 ... 500 Hz	5 M $\Omega$	2200 V AC/DC max. 10 s	$\pm 5\%$

<sup>1)</sup> referring to scale length

### Display

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



### Reference Conditions

Ambient Temperature	+23 °C $\pm 2$ K
Relative Humidity	45 ... 55%
Meas. Quantity	
Frequency	50 Hz $\pm 10$ Hz (for voltage measurements)
Line Voltage	
Waveform	Sine, deviation between effective and rectified value < 1%
Battery voltage	8 V $\pm 1\%$
Operating position	Horizontal

### Power Supply

Standard or Storage Battery	6 ea. 1.5 V single cell per IEC R20
Working Range	6 V ... 10 V
Battery Service Life	100 hours for no-load and intermittent operation 7500 measurements for test voltage of 1000 V with meas. resistance of 1 M $\Omega$ , 15000 measurements for test voltage of 500 V with meas. resist. of 500 k $\Omega$ , measurement of 5 s – pause 25 s

### Crank Generator (optional)

	2 to 3 r.p.s. with moderate strength
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)
Climate Classification	2z/0/40/-20/75% in accordance with VDI/VDE 3540
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	EN 50081-1: 1992
Interference immunity	EN 50082-1: 1992

### Mechanical Design

Dimensions	W x D x H: 290 mm x 250 mm x 140 mm
Weight	3.4 kg with batteries

# METRISO® 5000A High-Voltage Insulation Tester

## Standard Equipment

- 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

## Accessories

Carrying Bag F204



*For further Accessories see Order Information*

## Order Information

Designation	Type	ID Number
High-voltage insulation tester, for battery operation	METRISO®5000A	M580A
High-voltage insulation tester, for crank generator operation	METRISO®5000A-K	M580C
Carrying bag	F204	Z504B
1 set (2 ea.) crocodile clip (5 kV version)	KY 5000A	Z580B
Guard cable with plug, test prod and crocodile clip	Guard 5000A	Z580C
Crank generator for retrofitting METRISO®5000A to crank generator operation	Z580A	Z580A
Set consisting of: METRISO,5000A, F204, KY 5000A and 5000A guard	METRISO®5000A-Set	M580S
Calibration adapter for testing the accuracy of measurement instruments for insulation resistances and low impedance resistance for meas. voltages up to 1000 V	ISO-Kalibrator 1	M662A

# METRISO<sup>®</sup> 5000A

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