

# METRISO 5024

## Insulation and Resistance Measuring Instrument with Voltage Measuring Range

3-349-347-03  
4/3.11

- Insulation resistance measurement: 0.1 ... 400 M $\Omega$
- Low-resistance measurement: 0 ... 4  $\Omega$
- Voltage measurement: 0 ... 500 V
- LED and beeper
  - as function control
  - for GO/NO GO decisions
- Scale illuminated by LED for insulation and low-resistance measurement
- Compact and rugged For service calls under harsh conditions and laboratory use



### Features

#### Nominal Voltages: 100 V, 250 V and 500 V

The instrument is suitable for the measurement of insulation resistance at voltage-free devices and equipment with nominal voltages of up to 500 V.

#### Low-Resistance Measurement: 0 ... 4 $\Omega$

Low-resistance measurement is performed in accordance with VDE 0413, part 4. It is used for testing resistance at ground cables, protective conductors and equipotential bonding conductors, including related connections and terminals.

#### Voltage Measurement to 500 V

The instrument is also equipped with a 500 V measuring range for direct and alternating voltages. This provides users with the advantage of checking devices under test for the absence of voltage, and discharging capacitive devices under test.

#### Minimal Battery Depletion

Measurement is only performed in the resistance measuring ranges when the M $\Omega$  or  $\Omega$  key is pressed. Battery service life is maximized in this way.

Voltage measurement can be performed without using the battery.

### Characteristic Values

#### Insulation Resistance Measurement, Measuring Voltages: 100/250/500 V

Measuring Range	Intrinsic Uncertainty	Overload	Measuring Current	Short-Circuit Current
0.1 ... 400 M $\Omega$	2.5%	600 V AC	> 1 mA	< 10 mA

\* Measuring error under reference conditions relative to scale length (l = 84.6 mm)

#### Low-Resistance Measurement, Measuring Voltage: 4.5 V

Measuring Range	Intrinsic Uncertainty	Overload	Measuring Current	
0 ... 4 $\Omega$	2.5%	250 V DC	>200 mA	

\* Measuring error under ref. conditions relative to upper range value (l = 74.9 mm)

#### Voltage Measurement, DC / AC (40 ... 200 Hz)

Measuring Range	Intrinsic Uncertainty	Overload	Internal Resistance
0 ... 500 V	2.5%	600 V AC	450 k $\Omega$

\* Measuring error under reference conditions relative to scale length (l = 73.3 mm)

### Applicable Regulations and Standards

IEC 61010-1/EN 61010-1/ VDE 0411-1	Safety requirements for electrical equipment for measurement, control and laboratory use
IEC 61557 EN 61557 VDE 0413	Part 1: General requirements Part 2: Insulation resistance measuring instruments Part 4: Instruments for measuring resistance at ground cables, protective conductors and equipotential bonding conductors
EN 60529 VDE 0470, Part 1	Test instruments and test procedures Protection provided by enclosures (IP code)
IEC 61326/EN 61326	Electromagnetic compatibility (EMC)

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### Reference Conditions

Normal position of use	horizontal
Ambient temperature	+23 °C ±2 K
Relative humidity	40 ... 60%
Measured quantity frequency	45 ... 65 Hz (during voltage measurement)
Line voltage waveshape	sinusoidal (RMS value)
Battery voltage	5.5 V ±0.5 V

### Influence Error under Nominal Conditions of Use

Total error caused by battery, temperature and normal position of use = 10%

### Nominal Conditions of Use

Temperature	0 ... 40 °C
Normal position of use	any
Battery voltage	4.4 ... 6.5 V

### Ambient Conditions

Storage temperature	-25 °C ... + 60 °C (without batteries)
Relative humidity	max. 75%, no condensation allowed
Elevation	to 2000 m

### Power Supply

Batteries	4 ea. 1.5 V mignon-cell per IEC LR6 (size AA)
Working range	4.4 ... 6.5 V
Battery test	by means of LED

### Electrical Safety

Safety class	II
Test voltage	3.7 kV
Measuring category	II / 600 V
Fouling factor	2
Fuse	F0.25A/500V, 6.3x32

### EMC

	EN 61326
Interference emission	EN 55022 class B
Interference immunity	EN 61000 -4-2 power feature A -4-3 power feature B

### Mechanical Design

Protection	IP 40 per DIN VDE 0470 part 1/EN 60529
Dimensions	98 mm x 310 mm x 40 mm
Weight	approx. 0.5 kg with batteries

### Standard Equipment

- 1 insulation and resistance measuring instrument
- 1 carrying pouch
- 1 replacement fuse
- 1 operating instructions

### Accessories

#### KS24 cable set

4 m single strand extension cable with permanently connected test probe and a contact-protected socket on the other end, as well as one alligator clip which can be plugged onto the test probe.

#### ISO calibrator 1



Calibration adapter for testing the accuracy of instruments used for measuring insulation resistance and low-resistance (per VDE 0413, parts 1, 2 and 4).

### Order Information

Description	Type	Article Number
Insulation and resistance measuring instrument with carrying pouch	METRISO 5024	M540E
Cable set for insulation measuring instruments	KS24	GTZ 3201 000 R0001
Calibration adapter	ISO calibrator	M662A

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