

EUROPE'S LARGEST SELECTION OF TEST & MEASUREMENT EQUIPMENT FOR HIRE

INLEC.COM

DATA-SHEET



Nationwide Low Call
0333 6000 600

WHY BUY
WHEN YOU CAN HIRE

METRISO® 500D/1000D/1000IR Insulation Tester with Digital Display

3-349-115-03
3/3.00

Features

- Digital and analog display
- Warning in event of dangerous contact voltage
- Quick test with signal lamp in the test probe
- Low-resistance measurement per VDE 0413 Part 4/EN 61557-4
- Voltage measurement to 500 V (500D) or 1000 V (1000D)

Applications

The insulation testers are suitable for the following tasks:

- Measurement of insulation resistance at voltage-free devices and systems, up to 1000 V depending upon model
- Resistance testing at earthing, protective and equipotential bonding conductors
- Testing of devices for absence of voltage
- Testing of discharge capacity for floor coverings in explosive atmospheres with reference to electrostatic charging (METRISO®1000D)



Insulation Resistance Measurement

Insulation resistance can be measured within 7 measuring ranges, depending upon model up to 3 GΩ.

Quick Test for Insulation Resistance

As long as the signal lamp at the test probe is illuminated, insulation resistance is in compliance with values set forth in DIN VDE 0100. At the same time, the lamp serves to illuminate the measuring point or the display.

Low-Resistance Measurement

Low-value resistance at earthing, protective and equipotential bonding conductors, as well as their connections and terminals, can be measured within a range of 0 to 30 Ω. Interference voltages are detected by means of test voltage polarity reversal as required by the standards. Polarity reversal can be performed automatically or manually.

Quick Low-Resistance Testing

The signal lamp in the test probe lights up to indicate measured values of less than 0.3 Ω.

Voltage Measurement to 500 V or 1000 V

Devices under test can be tested for the absence of voltage with the voltage measuring range. This is important for resistance measurement, because interference voltages distort measurement results.

Discharging Capacitive Devices Under Test

Capacitive devices under test such as cables and coils, which may become charged with open-circuit voltage, are discharged by the measuring instrument. The falling voltage level is indicated by the pointer at the quasi-analog display.

Display

The measured value is displayed both digitally and in analog format. The entire scale range (6 decades) is displayed logarithmically at the analog display for automatic measuring range selection, and the selected range is displayed in linear fashion for manual measuring range selection.

Save Display Value

The displayed measurement value can be saved to temporary memory, and can thus be frozen at the display (HOLD function) for easy reading.

Automatic / Manual Measuring Range Selection

The measuring range is automatically adapted to the measured value for insulation resistance measurements. If desired, the measuring range can also be selected manually.

Warning in the Event of Dangerous Contact Voltage

As soon as a dangerous contact voltage is applied to the measurement cables, a warning symbol appears at the display – even if the instrument is switched off.

METRISO[®] 500D/1000D/1000IR

Insulation Tester with Digital Display

Measurement in Accordance with the Standards

The instrument allows for measurement in accordance with DIN VDE 0100, 0105, 0190, 0701, 0702 and DIN 51953 (METRISO[®]1000D).

Applicable Regulations and Standards

IEC/EN 61 010-1 VDE 0411-1	Safety requirements for electrical equipment for measurement, control and laboratory use
IEC 61 557 EN 61 557 VDE 0413 Part 1 Part 2 Part 4	Devices for testing, measuring and monitoring protective safety measures in systems with voltages of up to 1000 VAC and 1500 VDC – General requirements – Insulation resistance measuring instruments – Low-resistance measuring instruments
DIN EN 50 081 Part 1	Generic standard for interference emission: residential, business and light industry
DIN EN 50 082 Part 1	Generic standard for interference immunity: residential, business and light industry
EN 60529 DIN VDE 0470 Part 1	Test instruments and test procedures, protection provided by enclosures (IP code)
DIN EN 60051	Direct acting and indicating electrical measuring instruments and their accessories

Characteristic Values

Insulation Resistance

Measuring Range	Resolution	Intrinsic Error ± (... % of reading + ... digits)		
		U _N = 100 V	U _N = 250 V	U _N = 500 V / 1000 V
30 kΩ	10 Ω	1.5 + 2	1.5 + 2	1.5 + 2
300 kΩ	100 Ω	1.5 + 2	1.5 + 2	1.5 + 2
3 MΩ	1 kΩ	1.5 + 2	1.5 + 2	1.5 + 2
30 MΩ	10 kΩ	1.5 + 2	1.5 + 2	1.5 + 2
300 MΩ	100 kΩ	3.0 + 2	1.5 + 2	1.5 + 2
3 GΩ	10 MΩ	20.0 + 2	3.0 + 2	3.0 + 2
30 GΩ *	100 MΩ	—	—	20.0 + 2

* METRISO[®]1000D(IR) only

Nominal Voltage, U _N	100 V	250 V	500 V	1000 V
500D	—	—	•	—
1000D	•	—	•	•
1000IR	—	•	•	•
Nominal Current, I _N	1.0 mA	1.0 mA	1.0 mA	1.0 mA
Open-Circuit Voltage, U ₀	≤ 110 V	≤ 225 V	≤ 550 V	≤ 1100 V
Short-Circuit Current, I _K	≤ 2 mA	≤ 2 mA	≤ 2 mA	≤ 2 mA
Lamp ON for R _X	> 220 kΩ	> 550 kΩ	> 1.1 MΩ	> 2.2 MΩ
Measuring Error (100 kΩ ... 100 MΩ)	± 5%	± 5%	± 3%	± 4%

Low-Resistance Measurement (e.g. cable resistance)

Measuring Range Upper Limit	Resolution	Intrinsic Error ± (... % of reading + ... digits)
Digital: 30 Ω	0.01 Ω	1.5 + 5
Analog: 3 Ω	0.05 Ω	
Open-Circuit Voltage, U ₀	4.5 V	
Short-Circuit Current, I _K	250 mA	
Lamp ON for R _X	< 0.3 Ω	
Measuring Error ± 10% (0.3 Ω ... 30 Ω)		

Direct and Alternating Voltage

Measuring Range Upper Limit	Resolution		Intrinsic Error ± (... % of reading + ... digits)	
	500D	1000D(IR)	500D	1000D(IR)
500 V	1 V	—	1,5 + 2	—
1000 V	—	1 V	—	2,0 + 2
Internal Resistance, R _i / Measuring Error				
		500D	1000D(IR)	
		480 kΩ ± 25 kΩ ± 3% (50 V ... 500 V)	880 kΩ ± 50 kΩ ± 3.5% (50 V ... 1000 V)	

Overload Capacity

	500D	1000D(IR)
Insulation Resistance	AC / DC 600 V	AC / DC 1200 V
Cable Resistance	315 mA	315 mA
Voltage	AC / DC 600 V	AC / DC 1200 V

Display

Analog

Display	LCD scale with pointer
Scale Length	78 mm
Scaling	61 graduations – logarithmic for automatic measuring range selection, – linear for manual measuring range selection
Overrange Display	triangle symbol

Digital

Display	7 segment characters
Character Height	14 mm
Number of Places	3¾ ± 0 to 3000 steps
Overrange Display	“OL” appears

Cable Resistance

If the measurement results in both directions (polarity reversal) deviate from one another by more than 10% (max. allowable measuring error) both measurement values are displayed next to each other with reduced resolution.

Reference Conditions

Ambient Temperature	+ 23 °C ± 2 K
Relative Humidity	45% ... 55%
Measured Quantity	
Frequency	45 Hz ... 65 Hz
Measured Quantity	
Waveshape	≤ 0.5% deviation between effective and rectified value
Battery Voltage	9 V ± 0.5 V

METRISO[®] 500D/1000D/1000IR

Insulation Tester with Digital Display

Influence Quantities and Influence Error

Influence Quantity / Sphere of Influence	Measured Quantity		Influence Error ± (... % of reading + ... digits)	
	500D	1000D (IR)	500D	1000D (IR)
Temperature	Indicated influence error valid per 10 K temperature change			
0 °C ... 21 °C and 25 °C ... 40 °C	3 GΩ	3 GΩ	2.0 + 2	2.0 + 2
	—	30 GΩ	—	5.0 + 2
	All other measuring ranges		0.5 + 2	0.5 + 2
Auxiliary Voltage				
6 V ... < 8.5 V	—	30 kΩ ... 300 MΩ	—	0.5 + 2 where U _N =100 V /500 V 1.0 + 2 where U _N =1000 V
	3 GΩ	3 GΩ	2.0 + 2 where U _N =500 V	2.0 + 2 where U _N =100 V /500 V 5.0 + 2 where U _N =1000 V
	—	30 GΩ	—	10.0 + 2
	All other measuring ranges		0.5 + 2	0.5 + 2
Frequency				
25 Hz ... < 45 Hz and > 65 Hz ... 1 kHz	Alternating voltage		0.5 + 2	1.0 + 2

Power Supply

Batteries

6 ea. 1.5 V single-cell battery,
alkaline-manganese per IEC LR20,
zinc-carbon per IEC R20

Service Life

for insulation resistance measurement
where U_N = 500 V:

METRISO[®]500D:
18,000 measurements
with alkaline-manganese batteries
9000 measurements with zinc-carbon

METRISO[®]1000D:
10,000 measurements
with alkaline-manganese batteries
5000 measurements with zinc-carbon

METRISO[®]1000IR:
10,000 measurements
with alkaline-manganese batteries
5000 measurements with zinc-carbon

Battery Test

Battery voltage can be displayed under
operating conditions.

Battery Saving Circuit

The instrument is automatically switched
to stand-by three minutes after the last key
or rotary switch operation.

Fuses

Cable Resistance
Measuring Range

METRISO[®]500D: FF 0.315/500 V
METRISO[®]1000D: FF 0.315/1000 V
METRISO[®]1000IR: FF 0.315/1000 V

Electrical Safety

Test Voltage 4 kV

Nominal Insulation
Voltage

METRISO[®]500D: 600 V
METRISO[®]1000D: 1000 V
METRISO[®]1000IR: 1000 V

Safety Class II

Electromagnetic Compatibility (EMC)

Interference Emission EN 50081-1: 1992

Interference Immunity EN 50082-1: 1997

Mechanical Design

Protection housing: IP 52
test probes: IP 20

Dimensions 165 mm x 125 mm x 110 mm
(without measurement cables)

Weight 1.85 kg (with batteries)

Ambient Conditions

Working Temperature 0 °C ... + 40 °C

Operating Temp. - 10 °C ... + 55 °C

Storage Temperature - 25 °C ... + 70 °C (without batteries)

Relative Humidity max. 75%, no condensation allowed

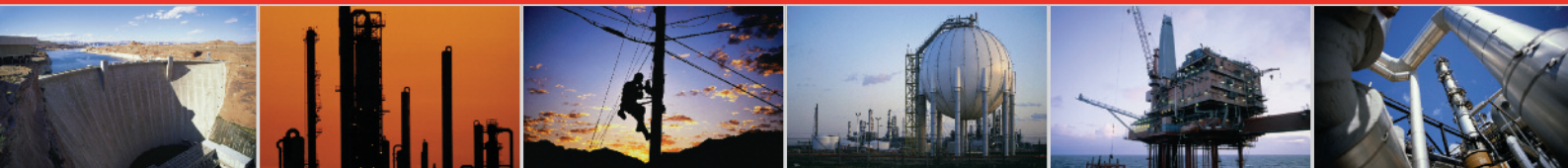
Elevation to 2000 m

Standard Equipment

- 1 insulation tester (with permanently connected measurement cables)
- 2 plug-on alligator clips
- 1 carrying strap with 2 test probe holsters
- 1 set of batteries (6 single-cell batteries)
- 1 operating instructions
- 1 replacement fuse



INLEC, supporting you to deliver a world class service, every day, in every sector ...



OUR COMMITMENT TO YOU

A wealth of knowledge and experience.

You can take advantage of expert advice to ensure you get the best, most appropriate and cost effective equipment for the job. We supply a wide variety of industries, so if there is another way to do the job or save you time and money we'll pass on the benefit of our experience for free.

Honest advice, just a phone call away.

If we don't have a particular item, rather than hiring you something that won't do the job, we would rather direct you to an alternative supplier. You will always be provided with full instructions and if you still need help, call our technical team on Nationwide Low Call 0333 6000 600. Our aim is to save you time, frustration and money.

Top quality equipment from major manufacturers.

With Inlec you'll get the most accurate, reliable and well-maintained equipment available. Prices are regularly reviewed to ensure you always enjoy the best value for money. We have made a significant investment in test equipment so we ensure that it's well packed to minimise damage and delay.

We really do listen to you.

You won't waste your time contacting Inlec. Every request for equipment is logged and carefully considered. Listening to our customers helps keep our product range up to date and relevant. If you are unhappy about any aspect of our service please let us know so we can put it right.

YOUR 5 WAY GUARANTEE

1 GUARANTEE SAME DAY DESPATCH

We understand why prompt delivery is important to you. So, if we confirm your order before 3pm, you are guaranteed same day despatch.

2 OUR PRICE GUARANTEE

Inlec guarantee you real value for money. Our price match policy is simple - if you can hire the same product for less elsewhere, we guarantee to match that price and reduce it by a further 10% of the difference - and still deliver our industry leading technical and customer support.

For full details check our price-match guarantee online

3 TOP QUALITY GUARANTEED

All equipment is thoroughly checked prior to dispatch to ensure you receive it in full, safe working order. Your shipment will be securely packed and include manufacturer's instructions, accessories or consumables and a valid calibration certificate where appropriate. In addition, Inlec offer a 24 hour replacement service if you decide the equipment is not suitable for your application*.

4 FRIENDLY, KNOWLEDGEABLE ADVICE GUARANTEED

Inlec are happy to provide you with free advice, from an unbeatable team of experienced, knowledgeable and friendly engineers and hire experts.

5 YOUR GUARANTEE OF THE BEST CUSTOMER SERVICE

Throughout your hire we will work hard to ensure you enjoy the very best in support and service from Inlec. We guarantee you won't find better service anywhere in the industry.

*subject to availability and conditions

Europe's leading Test Equipment Hire Specialist



LAB NO. 0535



Nationwide Low Call **0333 6000 600**
Online: **www.inlec.com**

Inlec UK Ellerbeck Way, Stokesley Business Park, Stokesley N Yorkshire TS9 5JZ United Kingdom



CERT. NO. GB93/1773



Accredited Contractor