

# RISH Insu 10

## Analog - Digital Insulation and continuity Tester

### Applications

Rish Insu 10 Analog-Digital Insulation and Continuity Tester is suitable for followings :

- \* Measurement of the insulation resistance on electrically dead equipment and systems with test voltages up to 1000V.
- \* For Testing Motors, Transformers, generators, switchgear.
- \* For testing of House hold appliances
- \* Measurement of the insulation resistance of Cables.
- \* Very useful for on-site maintenance and service departments.

### Features

\* **Test Voltages 50V/ 100V/ 250V/ 500V/ 1000V :**

Test voltages from 50V to 1000V can be selected for Insulation Resistance measurement. It covers all insulation tests up to 1000V

\* **Insulation Resistance Measurement :**

The instrument is capable of measuring insulation resistance from 10 k $\Omega$ ...999 M $\Omega$

\* **Low Resistance Measurement :** 0.01 $\Omega$ ... 99.9 $\Omega$

Low Resistance can be measured up to 99.9 $\Omega$ . There are two measuring ranges for Low  $\Omega$  : 9.99 $\Omega$  and 99.9 $\Omega$

\* **Hands-free continuity testing :**

Continuity testing (0-10  $\Omega$  with acoustic signal) can be done without pressing the test button. In addition to the display function, an acoustic signal can be activated which sounds if the adjustable limit value is violated.

\* **Voltmeter :** Instrument measures voltages > 25V.. 600 V AC/DC

\* **Automatic discharge for capacitive circuits after test measurement :**

Capacitive devices under test, such as cables and windings, that get charged during the test, are discharged by the tester.

\* **Live circuit detection :**

Displays presence of voltages > 25V irrespective of function selected.

\* **Pre-selectable measurement time for Insulation Resistance Measurement :**

In normal course, the insulation test terminates and the measured Insulation resistance value remains on display for 2 sec after the test key is released. With the **Pre-selectable measurement time** feature, the Insulation test continues and the measured value remains on the display for the pre-determined time. Pre-selectable time : 10 sec - 5 min.

\* **Pre-selectable limit checks (Go / No-go option) for M $\Omega$  :**

An acoustic signal can be generated when the measured value of insulation resistance falls below an adjustable limit value.

\* **Lead resistance null facility :**

The instrument provides a facility to compensate the resistance of the leads for an accurate measurement of low resistance.



\* **Storage of MIN / MAX values :**

In addition to the display of the actual measured value, the minimum or maximum value can constantly be updated or stored.

\* **Storage Memory for last 50 readings :**

The instrument provides a facility to store and recall 10 values in each of the 5 ranges of insulation resistance measurement.

\* **Blown fuse indication :**

The display FUSE points to a blown fuse.

\* **Low battery indication :**

Automatic display of the Symbol "—|—" when battery cells are exhausted.

\* **Stop Watch :** This function allows you to measure elapsed time up to 1 hour.



\* **Auto-power off function :**

The instrument turns off automatically, if any of the keys or the selector switch have not been activated for about 10 minutes in insulation range and 5 minutes in other ranges or can be switched to continuous operation.

\* **Protective holster for rough duty :**

A holster of soft rubber with tilt stand protects the meter against damage in the case of shock and drop.

# Specifications

Meas. Function	Range	Resolution	Accuracy ±(..% of rdg +.. Digit)	Overload value and duration
Insulation <sup>1)</sup> Resistance MΩ <sup>1)</sup> U <sub>N</sub> =50V, 100V	0.01 MΩ to 0.99 MΩ	10 KΩ (0.01 MΩ)	± 3% ± 2	1200 Vrms, 10 sec
	>1.0 MΩ to 9.9 MΩ	100 KΩ (0.1 MΩ)	± 5% ± 2	
	>10 MΩ to 99 MΩ	1 MΩ	± 30%	
Insulation <sup>1)</sup> Resistance MΩ <sup>1)</sup> U <sub>N</sub> =250V, 500V,1000V	0.01 MΩ to 9.99 MΩ	10 KΩ (0.01 MΩ)	± 3% ± 2	1200 Vrms, 10 sec
	>10.0 MΩ to 99.9 MΩ	100 KΩ (0.1 MΩ)	± 5% ± 2	
	>100 MΩ to 999 MΩ	1 MΩ	± 30% service error	
Low Ohms <sup>2)</sup> Ω	0 - 9.99 Ω	0.01Ω at 210 mA	± 3% ± 2	1200 Vrms, 10 sec
	≥10Ω - 99.9Ω	0.1Ω at 21 mA	± 5% ± 2	
Continuity <sup>2)</sup> 	0 - 9.99 Ω	0.01Ω at 210 mA	± 3% ± 2	1200 Vrms, 10 sec
V AC/DC 	25V - 450V	1 V	± 2% ± 3	1200 Vrms, 10 sec
	450V - 600V	1 V	± 3%	

## Reference Conditions

Ambient Temp.	+23 °C ± 2 K
Relative Humidity	45 % ... 55 %
Battery Voltage	8V ± 0.1V
Voltage Measurement	AC (Sine), 50/60 Hz

## Display

LCD display field (65 mm x 30mm) with analog indication and Digital display and with display of unit of measured quantity and functions.

## Analog

Display	LCD scale with bar graph pointer
Scale Length	47 mm
Scaling	0...30 with 30 graduations
Overflow Display	Bar with triangle

## Digital

Display/Char.Height	7 segment digits/ 12mm
Number of Digits	3 digit for MΩ and Ω 4 digit for Stop watch
Overflow Display	OL

## Power Supply

Battery	6 x 1.5 V cells IEC LR6 (Nickel cadmium rechargeable cells may be used)
Service Life	Typically 3000 x 5 sec. Operations
Battery Test	Automatic display of the Symbol "— —" when battery cells are exhausted.

**Note :** Battery cells should not be left in the instrument which may remain unused for extended period of time.

Auto turn OFF : Meter turns off automatically, if any of the keys or the selector switch have not been activated for about 10 minutes in insulation range and 5 minutes in other ranges.

Fuse	500 mA(F)/ 440V H.B.C. 10kA min (32mm x 6mm)
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- For insulation resistance range,
  - Terminal voltage on open circuit (DC) -0% + 30 % of rated voltage
  - Short circuit current < 2 mA
  - Test current on load 1 mA at minimum pass values of Insulation as specified in VDE 0413 Part 1.

## 2) For Low Ohms/Continuity Ranges:

- Open circuit voltage 5V ± 1V D.C.
- Lead Resistance Compensation: 0 - 9.99Ω

## Electrical Safety

Protection class	II per IEC 61010-1/EN61010-1/VDE0411-1	
Overvoltage		
Category	II	III
Nominal Voltage	600V	300V
Contamination degree	2	2
Test Voltage	3.7KV~per IEC 61010-1/EN61010-1	

## EMC

IEC/EN61326	Electromagnetic Compatibility (EMC)
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## Environmental conditions

Temperature Coefficient	<0.1% per °C
Operating Temp.	-20°C...+ 40°C (full range) -20°C... + 60°C(upto 100 MΩ)
Storage Temp.	-25°C... + 65°C
Relative Humidity	90% RH at 40°C max.

## Mechanical Design

Protection	Instrument : IP 50 For terminal socket : IP 20 according to DIN VDE 0470 part 1 / EN60529.
Dimensions	W x H x D 84 mm x 195 mm x 35 mm
Weight	500 g including battery

## Applicable regulations and standards

IEC/EN 61010-1 VDE 0411 - 1	Safety regulations for electrical measuring, control, regulation and laboratory devices
IEC/EN 61557 VDE 0413	Devices for testing, measuring and monitoring protective safety measures in system with voltages of upto 1000 V A.C. and 1500 V D.C.
Part 1 Part 2 Part 4	- General requirements - Insulation resistance measuring instruments - Low-resistance measuring instruments
DIN 43751	Digital measuring instruments
IEC/EN 61 326	Electromagnetic Compatibility (EMC)
EN 60529 VDE 0470-Part1	Test Instruments and test procedures Degree of protection provided by enclosures (IP code)

\* Subject to change without notice  
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