Data Sheet

Analog - Digital Insulation and Continuity Tester







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Application

RISH www 20 digital insulation and continuity tester is suitable for following:

- · Measurement of the insulation resistance on electrically dead equipment and systems with test voltages up to 1000V.
- For testing motors, transformers, generators, switchgears.
- · For testing of house hold appliances.
- · Measurement of the insulation resistance of cables.
- · Very useful for on-site maintenance and service departments.

Features

Analog + Digital Display (Log scale for Insulation Measurement):

The Analog scale for insulation resistance measurement is logarithmic in nature which gives the dynamic performance of an analog insulation tester. The Analog scale is linear for low ohm and voltage measurement.

• User Selectable Backlit Display:

The instrument is provided with user selectable backlit for taking measurements in dark areas/poor lighting conditions.

• Connector jack for External Mains Adapter (Optional):

The instrument can be operated from mains supply(230V AC) instead of batteries using an external mains adapter (230V AC/9V DC,500mA (4.5VA) isolated)

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 10KO ... 2GO

• Low Resistances Measurement: $(0.01 \Omega ... 99.9 \Omega)$

Low resistances can be measured up to 99.9 Ω . There are two measuring ranges for Low Ω .: 9.99 Ω and 99.9 Ω .

· Hands-free continuity testing:

Continuity testing (0-10 Ω 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 ... 600V 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.

Blown fuse indication:

Rishabh Instruments

The display FUSE points to a blown fuse.

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 $M\Omega/G\Omega$:

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 resistances.

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

Storage Memory for last 10 readings:

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

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 case of shock and drop.

Applicable Standards

IEC/EN 61010 - 1 VDE 0411 - 1	Safety regulations for electrical measuring, control, regulation and laboratory devices		
IEC/EN 61557 VDE 0413 Part 1	Devices for testing, measuring and monitoring protective safety measures in system with voltage of upto 1000 V AC and 1500 V DC - General requirements		
Part 2 Part 3	Insulation resistance measuring instruments Low-resistance measuring instruments		
DIN 43751	Digital measuring instruments		
IEC/EN 61326	Electromagnetic Compatibility (EMC)		
EN 60529 VDE 0470 - Part 1	Test Instruments and test procedures - Degree of protection provided by enclosures (IP code)		

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Specification

Meas. Function	Range	Resolution	Accuracy ±(% of reading ±Digit)	Overload value and duration
Insulation 1) Resistance $M\Omega$ $U_N=50V$, $100V$	$0.01~\text{M}\Omega$ to $0.99~\text{M}\Omega$	10 KΩ (0.01 MΩ)	± 3% ± 2D	1200 Vrms 10 sec
	≥1.0 MΩ to 9.9 MΩ	100 KΩ (0.1 MΩ)	± 5% ± 2D	
	≥10 MΩ to 99 MΩ	1 ΜΩ	<u>+</u> 30%	
Insulation ¹⁾ Resistance $M\Omega$ U _N =250V, 500V,1000V	$0.01~\text{M}\Omega$ to $9.99~\text{M}\Omega$	10 KΩ (0.01 MΩ)	± 5% ± 2D	1200 Vrms 10 sec
	≥10.0 MΩ to 99.9 MΩ	100 KΩ (0.1 MΩ)	± 5% ± 2D	
	≥100 MΩ to 999MΩ	1 ΜΩ	± 30% service error	
	1G Ω to 2G Ω	10 MΩ	± 30% service error	
Low Ohms Ω	0 to 9.99Ω	0.01Ω at 210 mA	± 3% ± 2D	1200 Vrms 10 sec
	≥10Ω to 99.9Ω	0.1Ω at 21 mA	± 5% ± 2D	
Continuity ²⁾	0 to 9.99Ω	0.01Ω at 210 mA	± 3% ± 2D	1200 Vrms 10 sec
	≥10Ω to 99.9Ω	0.1Ω at 21 mA	± 5% ± 2D	
V AC/DC	≥ 25V to 450V	1V	± 2% ± 3D	1200 Vrms 10 sec
	≥ 450V to 600V	1V	<u>+</u> 3%	

1) 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 DC
- · Lead Resistance Compensation: 0 9.99 Ω

Reference Conditions

+23 °C + 2 K Ambient Temp. Relative Humidity 45% ... 55% **Battery Voltage** 8V + 0.1V

AC (Sine), 50/60 Hz Voltage Measurement

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 Logarithmic Scale

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 no keys or the selector switch have been activated for about 10 minutes in insulation range and 5 minutes in other ranges.

Digital

Display/Char.Height 7 segment digits/ 12mm Number of Digits 3 digit for Ω , $M\Omega$, $G\Omega$ and V

4 digit for Stop watch

Overflow Display

Power Supply

6 x 1.5 V cells IEC LR6 (Nickel Battery cadmium rechargeable cells may

used)

Service Life

Without Backlit ON Typically 2500 x 5 sec. operations With Backlit ON Typically 1250 x 5 sec. operations

Automatic display of the Symbol · Battery Test

⊣⊢ " when battery cells are

exhausted.

500 mA(F) / 440V H.B.C. 10kA min Fuse

(32mm x 6mm)

Mains Adapter (Optional)

230V AC / DC 9V, 500mA (4.5VA) (isolated)

Electrical Safety

Protection class II per IEC 61010-1/EN61010-1/

VDE0411-1

Overvoltage

Category Ш Ш Nominal Voltage 600V 300V Contamination degree 2 2

Test Voltage 3.7KV~per IEC 61010-1 /EN61010-1

EMC

IEC/EN 61326 Electromagnetic Compatibility (EMC)

Environmental conditions

Temperature Coefficient <0.1% per °C

-20°C...+40°C (full range) Operating Temp. -20°C...+60°C (upto 100MΩ)

-25°C...+65°C Storage Temp.

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 WxHxD

84 mm x 195 mm x 35 mm

Weight 500 g including battery

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