

### Applications

RISH Insu 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, switchgear
- 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 Back lit for taking measurements in dark areas/poor lighting conditions.

• **Connector jack for External Mains Adapter (Optional) :** The instrument can be operated from Mains Supply(230VAC) instead of Batteries using an external Mains Adapter (230VAC /9VDC,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 10 kΩ..2 GΩ

• **Low Resistances measurement:** 0.01 Ω ... 99.9 Ω  
Low resistances can be measured up to 99.9Ω. There are two measuring ranges for LowΩ.: 9.99Ω and 99.9Ω

• **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.

• **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 MW/GW**  
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 stored

• **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

• **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

### Applicable regulations and standards

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

# RISH Insu 20

## Analog-Digital Insulation and Continuity Tester



### Specifications

| Meas. function  | Range               | Resolution       | Accuracy<br>± (.%of reading + .. digit) | Overload capacity |                   |
|---|---------------------|------------------|---|-------------------|-------------------|
|   |                     |                  |   | Overload value    | Overload duration |
| Insulation <sup>1)</sup><br>Resistance<br>MΩ<br>U <sub>N</sub> =50V, 100V             | 0.01 MΩ - 0.99 MΩ   | 10 KΩ (0.01 MΩ)  | ± 3 % ± 2 digits                        | 1200 V rms        | 10 seconds        |
|   | = 1.0 MΩ - 9.9 MΩ   | 100 KΩ (0.1 MΩ)  | ± 5 % ± 2 digits                        |                   |                   |
|   | = 10 MΩ - 99 MΩ     | 1MΩ              | ± 30 %                                  |                   |                   |
| Insulation <sup>1)</sup><br>Resistance<br>MΩ<br>U <sub>N</sub> = 250V,<br>500V, 1000V | 0.01 MΩ - 9.99 MΩ   | 10 KΩ (0.01 MΩ)  | ± 3 % ± 2 digits                        |                   |                   |
|   | = 10.0 MΩ - 99.9 MΩ | 100 KΩ (0.1 MΩ)  | ± 5 % ± 2 digits                        |                   |                   |
|   | = 100 MΩ - 999 MΩ   | 1MΩ              | ± 30 %                                  |                   |                   |
| Low Ohms <sup>2)</sup><br>Ω   | 0 - 9.99 Ω          | 0.01 Ω at 210 mA | ± 3 % ± 2 digits                        | 1200 V rms        | 10 seconds        |
|   | = 10 Ω - 99.9 Ω     | 0.1Ω at 21 mA    | ± 5 % ± 2 digits                        |                   |                   |
| Continuity <sup>2)</sup><br>  | 0 - 9.99 Ω          | 0.01 Ω at 210 mA | ± 3 % ± 2 digits                        | 1200 V rms        | 10 seconds        |
|   | = 10 Ω - 99.9 Ω     | 0.1Ω at 21 mA    | ± 5 % ± 2 digits                        |                   |                   |
| V AC/DC<br>   | = 25 V - 450 V      | 1 V              | ± 2 % ± 3 digits                        | 1200 V rms        | 10 seconds        |
|   | = 450 V - 600 V     | 1 V              | ± 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 d.c.
- Lead Resistance Compensation: 0 – 9.99 Ω

#### 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 Logarithmic scale

#### Digital

Display/Char.Height 7 segment digits/ 12mm  
 Number of Digits 3 digit for O, MO, G O and V  
 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

Without Backlit ON Typically 2500 x 5 second operations  
 With Backlit ON Typically 1250 x 5 second 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 no keys or the selector switch have been activated for about 10 minutes in insulation range and 5 minutes in other ranges.

#### Mains Adapter (Optional)

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

Fuse 500 mA(F)/ 440V H.B.C. 10kA min (32mm x 6mm)

#### 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/EN 61326 Electromagnetic Compatibility (EMC)

#### Environmental Conditions

|                         |  |
|-------------------------|--|
| Temperature Coefficient | < 0.1% per °C  |
| Operating Temp.         | -20°C...+40°C (full range)<br>-20°C...+60°C (up to 100 MO) |
| Storage Temp.           | -25°C...+65°C  |
| Relative Humidity       | 90% RH at 40°C max.  |

#### Mechanical Design

|            |  |
|------------|--|
| Protection | Instrument: IP 50<br>For terminal socket: IP 20 according to DIN VDE 0470 Part 1 / EN60529 |
| Dimensions | W x H x D<br>84 mm x 195 mm x 35 mm  |
| Weight     | 500 g including battery  |

- Subject to change without notice

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