

## RI10

Analog - Digital Insulation and Continuity Tester



© Ziegler Instruments Order No. RI10 Data sheet-E1.R0-921018-2-2014-EN

## Applications

**Insu10** Analog-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

**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 ... 999 MΩ.

**Hands-free continuity testing**  
 Continuity testing (0-10 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**  
 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.

**Low Resistances Measurement**  
 (0.01 ... 99.9 )  
 Low resistances can be measured up to 99.9 . There are two measuring ranges for Low : 9.99 and 99.9

## Specification

Meas. Function	Range	Resolution	Accuracy ±(...% of rdg ±...Digit)	Overload value & 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% ± 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 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% ± 2D	1200 Vrms 10 sec
	>10.0 MΩ to 99.9 MΩ	100 KΩ (0.1 MΩ)	± 5% ± 2D	
	>100 MΩ to 999MΩ	1 MΩ	± 30% service error	
Low Ohms <sup>2)</sup> Ω	0 to 9.99Ω	0.01Ω at 210 mA	± 3% ± 2D	1200 Vrms 10 sec
	≥10 Ω to 99.9Ω	0.1Ω at 21 mA	± 5% ± 2D	
Continuity <sup>2)</sup> 	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	± 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:
- Lead Resistance Compensation: 0 - 9.99W.
  - Open circuit voltage 5V + 1V D.C.

### Power Supply

**Battery** 6 x 1.5 V cells IEC LR6 (Nickel cadmium rechargeable cells may be used)

**Service Life** Typically 2500 x 5 sec. operations

**Battery Test** Automatic display of the Symbol "⎓" when battery voltage < 5.4V.

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

### Environmental conditions

**Temperature Coefficient** <0.1% per C

**Operating Temp.** -20 C...+40 C (full range)  
 -20 C...+60 C (upto 100M)

**Storage Temp.** -25 C...+65 C

**Relative Humidity** 90% RH at 40 C max.

## 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  
 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 M and  
 4 digit for Stop watch  
 Overflow Display OL

## Reference Conditions

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

## Auto turn OFF

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

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

## 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 Part 2 Part 3	Devices for testing, measuring and monitoring protective safety measures in system with voltages of upto 1000 V A.C. and 1500 V D.C. - 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 protection provided by enclosures (IP code)

## EMC

IEC/EN61326 Electromagnetic Compatibility (EMC)

## 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

## 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

## ZIEGLER INSTRUMENTS

Schnepfenreuther Weg 6, D-90425 Nürnberg, Germany.

TEL. | (+49)(911) 38 492 45 | E-MAIL | info@ziegler-instruments.com  
 FAX. | (+49)(911) 32 26 212 | WEBSITE | www.ziegler-instruments.com



**Ziegler**  
 Redefine Innovative Metering