



Data Sheet

RISH Insu 10Dx⁺

10 kV Insulation Tester



Measure



Control



Record



Analyze



Optimize

Application

Digital Insulation tester Rish INSU 10Dx+ is designed to perform at power utilities where induction field is very high. Its high noise immunity and user selectable digital filters makes it most robust and reliable instrument with user selectable test voltages.

Also it is used for testing the electrical insulation of cables, motors, generators, transformers, etc. at power generation plants, utilities, distribution.

Its advance features like Bluetooth connectivity, audio read out, touch screen TFT color display makes it never before user friendly. It can store the data on its inbuilt memory with real time stamp. Data can be transferred to computer or mobile phone memory for future analysis purpose.

It performs tests like Polarization Index, Dielectric Absorption Ratio, Dielectric Discharge, Ramp Diagnostic Test, Step voltage test.

Selectable Test Voltage up to 10000 V

Test voltages can be set to any desired value from 100V to 10000V

High Insulation resistance measurement

Insulation resistance measurement from 50kΩ to 20TΩ for 10kV test voltage

Noise rejection - 8mA

High Noise immunity allows accurate measurement under HT lines

Polarization Index

Polarization index (PI) testing is an extension of the insulation resistance test and is designed to check specific issues in a motor such as moisture and insulation deterioration

Dielectric Absorption Ratio

DAR measurement is a diagnostic test similar to the Polarization Index (PI), but DAR takes the ratio of the Insulation Resistance usually measured at 30 sec and 1 min (other time settings are possible)

Dielectric Discharge

Dielectric Discharge (DD) Test is a diagnostic insulation test that allows aging and deterioration of insulation to be assessed

Step Voltage Test

Step Voltage Test is designed as a controlled over-voltage or proof test to provide an additional evaluation of the insulation system integrity

Ramp Diagnostic Test

The Ramp Test is performed with a slowly rising voltage

Software Selectable Filter

User selectable software filter can be used depending on noise levels. This help in accurate reading in noisy environment

Capacitance Measurement

During Di-electric Discharge Test, Capacitance can be measured from 1nF to 50uF

Go- NoGo Function

Depending on insulation resistance limit the user can be alarmed about the quality of insulation

Insulation Graph Display

Insulation Resistance can be displayed over the time in graphical form

Communication Interface

Bluetooth 2.0 & 4.0 Class II and electrically isolated USB 2.0 communication

Software and Mobile Application

It has data logging and monitoring software for window system and an interactive mobile application for android and iOS

Burn & Breakdown Mode

Burn Mode for uninterrupted insulation testing to find the breakdown region and Breakdown mode will stop generation of voltage on detection of high current

Internal Datalogging

It has internal datalogging feature. It can log upto 2000 reading with customer information and time stamp

File Explorer

It has file explorer to view the datalog file on TFT display

Audio Read-Out

Audible test result on completion of test for awkward locations

Rechargeable Battery

Li-Ion 3 Cell Battery with charging current of 1A

Selectable test time

We can set the test time to any desired test time from 15sec to 99 min 59 sec

- Selectable short circuit current 1.2mA, 3mA and 6mA
- User selectable digital filters
- Noise Rejection 8 mA
- Operates on rechargeable Li-ion battery and Mains as well
- Bluetooth connectivity for data logging
- Touch screen TFT colour display
- Audio Read-out
- Test voltage can be selected in steps of 10V from 100V to 1000V & in steps of 25V from 1000V to 10000V
- Measurement of DC and AC voltages from 20V ~ 600V
- Three programmable timers
- Insulation leakage current measurement
- PI, DAR, DD, Step voltage & Ramp Test



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Specification

Nominal Voltage	Maximum Resistance	Intrinsic Error
250V	50GΩ	5% ± 10D
	500GΩ	20% ± 10D
500V	100GΩ	5% ± 10D
	1TΩ	20% ± 10D
1000V	200GΩ	5% ± 10D
	2TΩ	20% ± 10D
2500V	500GΩ	5% ± 10D
	5TΩ	20% ± 10D
5000V	1TΩ	5% ± 10D
	10TΩ	20% ± 10D
10000V	2TΩ	5% ± 10D
	20TΩ	20% ± 10D

Test voltage accuracy
+7% ± 10V

Direct and Alternating Voltage Measurement

Measuring range	Frequency	Intrinsic error
20V-600V AC DC	45 Hz-500Hz	3%+10D

Capacitance Measurement

1nF to 50uF; Accuracy ±10% ± 5 nF (upto 5kV)
1nF to 25uF; Accuracy ±10% ± 5 nF (above 5kV)

Insulation Leakage Current Measurement

0.01nA to 6mA; Accuracy ±5% ±0.2 nA

Guard terminal

2% error guarding 500 kΩ leakage, 100 MΩ load

Timer Range for IR test

Time: 15s - 99 min 59 sec with three programmable timers
Tests: IR(t),DAR,DD,PI,Step Voltage, Ramp voltage

Ambient Conditions

Operating Temperature -20 °C ... +50 °C
Storage Temperature -20 °C ... +70 °C
Relative Humidity max. 90%
(condensation must be avoided)
Elevation up to 2000m
Protection IP 67 with closed case
IP 40 with open case

Applicable Standards

Standard	Norms
IEC 61010-1	Safety regulations for electrical measurement, control, regulation and lab devices
IEC 61557	Measuring and monitoring facilities for testing the electrical safety in lines with nominal voltages up to AC1000V and DC1500V
PART-1	General
PART-2	Insulation resistance measuring devices

Reference Conditions

Ambient Temperature + 23 °C + 2K
Relative Humidity 45 ... 55%
Measured Quantity 50Hz ± 10Hz
Frequency (for voltage measurements)
Line Voltage Waveform Sine wave
Battery Voltage 14.8V ± 1%
Operating position Horizontal
Power Supply Voltage 230V ± 15%, 50/60 Hz (Mains)

Additional Error

Influence of EMC IR: ±40D
(IEC 61326-1)

Power Supply (Battery)

Battery 14.8V ,7.8Ah Li-ion Battery
Battery service life 5.5 Hrs continuous testing at 100MΩ
Battery charging time 7 Hrs

Power Supply (Mains)

Nominal Power (Mains) 230V AC ± 15%, 50/60 Hz

Electromagnetic Compatibility (EMC)

IEC61326-1

Immunity

IEC 61000-4-2 : 8 KV atmosphere discharge
4 KV contact discharge
IEC 61000-4-3 : 3 V/m

Electrical Safety

Overvoltage Category 600V CAT IV
Test Voltage 7.4kV~
Pollution degree 2



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Mechanical Design

Dimensions (L x W x H) 360mm x 310mm x 195mm
Weight approx 5kg

Standard Scope of Supply

- 1 In built Li-ion rechargeable battery
- 1 Operating instructions
- 1 Power cord
- 1 USB cable for communication and software(with USB and bluetooth communication interface)

Test lead options(one to be selected)

- Test lead set with 3m test leads(+ve, -ve & Guard lead) with 3 clamps with large jaw opening
- Test lead set with 10m test leads(+ve, -ve & Guard lead) with 3 clamps with large jaw opening
- Test lead set with 15m test leads(+ve, -ve & Guard lead) with 3 clamps with large jaw opening

Ordering Information

DT28-2N00000000000 : Rish Insu 10Dx+ 10kV Digital Insulation Tester (standard set w/o leads)



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** Subject to change without notice



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