

RISH^{Insu} 5000 A/AK

High-Voltage Insulation Tester



- Broad measuring range from 10k to 1 T
- Easy to read logarithmic display
- Test voltages :
100V, 250V, 500V, 1000V, 1500V, 2000V, 2500V, 5000V
- Measurement to 2000V in accordance with DIN VDE 0413
- Measuring range : 100k to 100 M (1000V)
- Voltage measurement to 2000V $\overline{\sim}$, \sim
- Guard Terminal eliminates surface current
- Power supply with batteries or Crank Generator (optional)



Application

Insulation measurement for cables, motors etc.

Features

Test Voltages to 5000 V

This instrument is suited for the non-destructive measurement of insulation resistance in electrical systems, at machines and transformers and in cables, as well as within the electrical equipment of, for example, locomotives, tram systems and ocean going vessels, with eight selectable test voltages up to 5kV.

Voltage measurement to 2000 V

With the voltage measuring ranges, test objects can be checked for the absence of voltage in networks of up to 2kV. This is important for insulation resistance measurement, because extraneous voltages distort measurement results.

Discharge of Capacitive Devices Under Test

Capacitive devices under test such as cables and coils, which might be discharged to test voltage, are discharged by the measuring instrument. The drop in voltage can be observed at the needle gauge.

Measurement in accordance with EN61557 part 1 and 2/ IS 2992 (VDE 0413)

Measuring current is equal to 1mA at a test voltage of 100V, 250V, 500V and 1000V.

Measurement Cables with Heavy-Duty Insulation

The measurement cables with heavy-duty insulation are permanently connected for safety and technical reasons. Possible danger caused by the unintentional removal of cables is thus avoided, for example when charging occurs due to capacitive test objects.

Needle Gauge with LEDs

Three LEDs arranged within the needle gauge make reading easier. The lamp lights up which is located next to the scale, which is assigned to the selected measuring range. During the measurement sequence, the green LED indicates whether or not the battery charge is sufficient for the measurement.

Applicable Regulations and Standards

IEC 61 010-1 EN 61010-1 VDE 0411-1	Safety regulations for electrical measurement, control, regulation and lab devices
DIN VDE 0413 part 1	Devices for the testing of safety requirements for electrical systems Insulation measuring devices
IEC 61 557/ IS 2992 EN 61 557 VDE 0413 Part 1 Part 2	Measuring and monitoring facilities for testing the electrical safety in lines with nominal voltages up to AC 1000 V and DC 1500 V – General – Insulation resistance measuring devices
IEC/EN 61 326-1	Generic Emission Standard; Electrical equipment for measurement, control and laboratory use
IEC/EN 61 326/A1	Generic Immunity Standard; Electrical equipment for measurement, control and laboratory use
DIN EN 60 529 DIN VDE 0470 part 1	Test instruments and test procedures – degree of protection provided by enclosures (IP code)
DIN EN 60 051	Direct-acting and direct-display electrical measurement devices and their accessories

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Measuring Ranges

Insulation Resistance

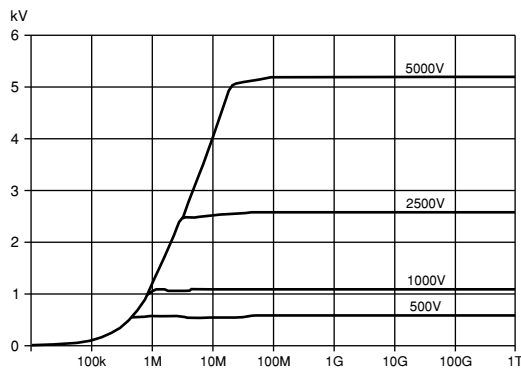
Scale/Standard	Nominal/Open-Circuit Voltage U_N/U_0	Meas. range	Nom. current I_N	S-C current I_K	Intrinsic error ¹⁾	Deviation
① VDE0413	100 V / 250 V 500 V / 1000 V	100 k ... 100 M	1 mA	1.3 mA	$\pm 2.5\%$	$\pm 30\%$ of rdg.
②	100 V / 250 V 500 V / 1000 V	10 k ... 1 T	1 mA	1.3 mA	$\pm 5\%$	
②	1500 V 2000 V 2500 V 5000 V	10 k ... 1 T	0.7 mA 0.5 mA 0.4 mA 0.1 mA	1.3 mA	$\pm 5\%$	

Direct and Alternating Voltage

Measuring range	Frequency	Internal resistance	Max. allowable voltage	Intrinsic error ¹⁾
0 ... 2000 V AC/DC	15 ... 500 Hz	5 M	2200 V AC/DC max. 10 s	$\pm 5\%$

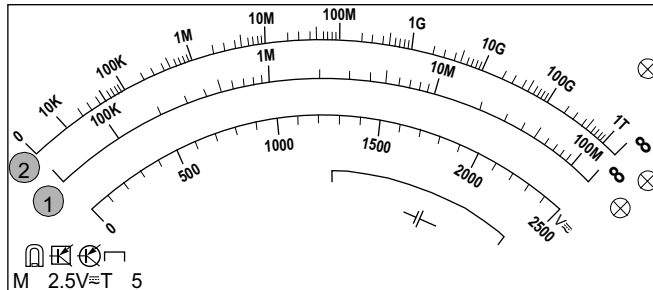
¹⁾ referring to scale length

U-R Diagram for Rish *Insu* 5000A



Display

Movement Core-magnet moving-coil mechanism
Scale length 111.5 mm (longest scale)



Reference Conditions

Ambient Temperature $+23^\circ\text{C} \pm 2\text{K}$
Relative Humidity 45 ... 55%
Meas. Quantity
Frequency 50 Hz $\pm 10\text{Hz}$
(for voltage measurements)

Line Voltage
Waveform

Sine, deviation between effective and rectified value $< 1\%$

Battery voltage
Operating position

8 V $\pm 1\%$
Horizontal

Power Supply

Standard or
Storage Battery
Working range
Battery service life

6 nos. 1.5V single cell per IEC R20
6 V ... 10 V
100 hours for no-load and
Intermittent operation
7500 measurements for test voltage of
1000 V with meas. Resistance of 1 M
15000 measurements for test voltage
of 500V with meas. resist. of 500 k
measurement of 5 s - pause 25 s

Crank generator (Optional)

2 to 3 r.p.s. With moderate strength
The LED ON signals sufficient Crank
Frequency and consequently the
Validity of measuring values
7.5 V (at approx. 2.5 r.p.s.)
4 W (at approx. 2.5 r.p.s.)

Nominal Voltage
Nominal Power

Ambient Conditions

Operating Temperature $0^\circ\text{C} \dots + 40^\circ\text{C}$
Storage Temperature $-20^\circ\text{C} \dots + 60^\circ\text{C}$ (without batteries)
Relative Humidity max. 75%,
condensation must be avoided
Elevation up to 2000 m

Electrical Safety

Protection Class II
Test Voltage 8.5 kV~
Overvoltage Category 2000 V CAT II
or 5000 V CAT I
Fouling Factor 2
Protection IP 52

Electromagnetic Compatibility (EMC)

Interference emission IEC/EN 61326-1
Interference immunity IEC/EN 61326/A1

Mechanical Design

Dimensions W x D x H:
290 mm x 250 mm x 140 mm
Weight 3.4 kg with batteries

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Standard scope of supply

- 1 High-voltage insulation tester with permanently connected measurement cables and test probes, 2 crocodile clips (5 kV version) and plug-in battery module including batteries
- 1 Carrying strap
- 1 Operating instructions.
- 1 Test certificate

Accessories

- 1) Crank Generator



- 2) Carrying Case



Order Information

Designation	Type	Product Code
High-voltage insulation tester, for battery operation	RISH ^{Insu} 5000 A	73001
High-voltage insulation tester, for hand crank generator operation	RISH ^{Insu} 5000 AK	73002
Carrying bag	F204	
1 set (2 nos.) crocodile clip (5 kV version)	KY 5000A	
Guard cable with plug, test probe and crocodile clip	Guard 5000A	
Crank generator for retrofitting Rish ^{Insu} 5000A to hand crank generator operation	Z580A	
Set consisting of: Rish ^{Insu} 5000A, F204 KY 5000A and guard 5000A	Rish ^{Insu} 5000A-Set	

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RISHABH INSTRUMENTS PVT. LTD.

F-31, MIDC, Satpur, Nasik - 422 007, India.

Tel : +91 253 2202 160, 2202 202

Fax : +91 253 2351064, 2202302

E-mail : service@rishabh-instruments.com

www.rishabh-instruments.com

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