

Ziegler

Redefine Innovative Metering

Technical Datasheet

ZIT 51 A | AK | AKM | AKMR

5KV INSULATION TESTER

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Ziegler ZIT 51 Insulation tester is a 5kV Analog Insulation Tester. This instrument is suitable for testing insulation resistance of HT devices like motors, cables, transformers and household appliances. It is very useful for testing at OEMs.

Product Features

- Insulation Resistance measurement from 10kΩ to 1TΩ
- Selectable Test Voltages
100V/250V/500V/1000V/1500V/2000V/2500V/5000V
- Voltage Measurement upto 2000V AC/DC
- Easy to read logarithmic scale with dual range
- Guard Terminal for elimination of surface leakage current
- Comes with facility of operation with
Re-chargeable Battery/Hand Crank Operation/Mains
- IP 52 protection, CAT II 2000 V protection
- Automatic Discharge of Capacitive circuits after
Test performed
- Needle Gauge with LEDs to indicate measuring range and battery status
- Measurement in accordance with EN61557 part 1 and 2



Fact Sheet

Display	
Movement	Core – magnet moving coil mechanism
Scale length	111.5 mm(longest scale)
Applicable Standards	
IEC61010-1 EN61010-1 VDE0411-1	Safety regulations for electrical measurement, control, regulation and lab devices
DIN VDE0413 Part 1	Devices for the testing of safety requirements for electrical systems Insulation measuring devices
IEC61557 / IS 2992 EN61557 VDE0413 Part 1 Part 2	Measuring and monitoring facilities for testing the electrical safety in lines with nominal voltages up to AC1000V and DC1500V - General - Insulation resistance measuring devices
IEC/EN61326-1	Generic Emission Standard; Electrical equipment for measurement, control and laboratory use
IEC/EN61326/A1	Generic Immunity Standard; Electrical equipment for measurement, control and laboratory use
DIN EN60529 DIN VDE0470 part 1	Test instruments and test procedures - degree of protection provided by enclosures (IP code)
DIN EN60051	Direct-acting and direct-display electrical measurement devices and their accessories

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Mechanical design	
Dimensions	290 mm x 250 mm x 140 mm
Weight	3.4 kg with batteries 4.5 kg (Mains operated + batteries)
Ambient conditions	
Operating temperature range	0°C ... +40° C
Storage temperature range	-20°C ... +60° C (without batteries)
Relative humidity	Max. 75 % condensation must be avoided
Elevation	up to 2000 m
Reference conditions for accuracy	
Reference Temperature	23°C ± 2K
Relative Humidity	45%...55% RH
Measured Quantity Frequency	50 Hz ± 10 Hz (for voltage measurements)
Line Voltage Waveform	Sine, deviation between effective and rectified
Operating position	Horizontal
Battery Voltage	8 V ± 1 %
Power supply voltage(Mains)	9 V
Electrical Safety	
Test voltage	8.5kV~
Overvoltage category	2000V CAT II or 5000V CAT I
Protection Class	II
Fouling factor	2
Protection	IP52
EMC	
Interference emission	IEC/EN 61326-1
Interference immunity	IEC/EN 61326/A1
Power Supply (Battery)	
Standard or Storage Battery	6 nos. 1.5V single cell per IEC R20
Working range	6V ... 10V
Battery service life	100 hours for no-load and Intermittent operation 7500 measurements for test voltage of 1000V with meas. Resistance of 1MΩ 15000 measurements for test voltage of 500V with meas. resistance of 500KΩ measurement of 5s-pause 25s
Battery charging time Crank generator (Optional)	8 – 15 hr. 2-3 rps with moderate strength. The W LED ON signals sufficient Crank frequency and consequently the validity of measuring values
Nominal Voltage	7.5V (at approx. 2.5 r.p.s)
Nominal Power	4W (at approx. 2.5 r.p.s)
Power Supply (Mains)	
Nominal Power (Mains)	230V AC, ± 15%, 50Hz
Nominal Voltage	9V

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Measuring Ranges: Insulation Resistance (For Battery + Crank Generator)

Scale/ Standard	Nominal/Open- Circuit Voltage U_N/U_O	Meas. range	Nom. current I_N	S.C. current I_K	Intrinsic error ¹⁾	Deviation
1 VDE0413	100V / 250V 500V / 1000V	100K ... 100MΩ	1mA	1.3mA	± 2.5%	± 30% of rdg.
2	100V / 250V 500V / 1000V	10KΩ 1TΩ	1mA	1.3mA	± 5%	
2	1500V/2000V 2500V/5000V	10KΩ 1TΩ	0.7mA 0.5mA 0.4mA 0.1mA	1.3mA	± 5%	

Insulation Resistance (For Mains)

Scale/ Standard	Nominal/Open- Circuit Voltage U_N/U_O	Meas. range	Nom. current I_N	S.C. current I_K	Intrinsic error ¹⁾	Deviation
1 VDE0413	100V / 250V / 500V / 1000V	100 kΩ 100MΩ	1 mA	1.3mA	± 2.5%	± 30% of rdg.
2	100V / 250V / 500V / 1000V	10KΩ to 1TΩ (except 10MΩ)	1mA	1.3mA	± 5%	
2	1500V 2000V 2500V 5000V	10KΩ to 1TΩ (except 10MΩ)	0.7mA 0.5mA 0.4mA 0.1mA	1.3mA	± 5%	
2	100V / 250V 500V / 1000V 1500V 2000V 2500V 5000V	10MΩ	1mA 1mA 0.7mA 0.5mA 0.4mA 0.1mA	1.3mA	± 6.5%	

Direct and Alternating Voltages

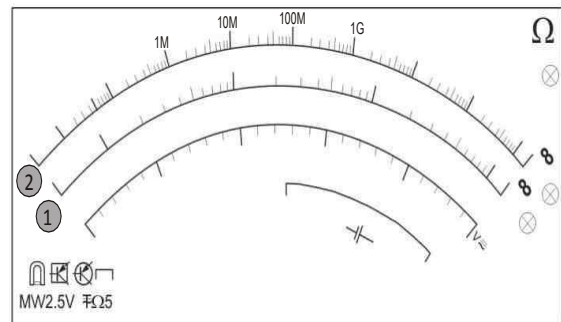
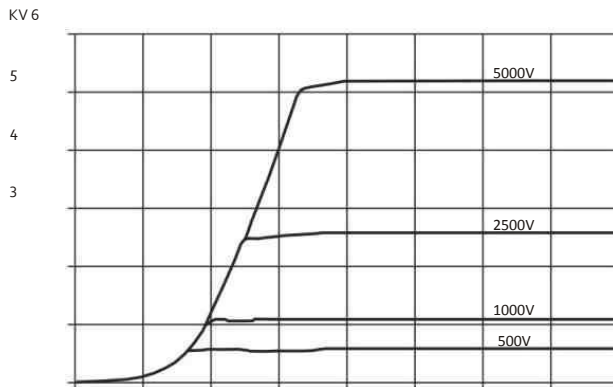
Measuring range	Frequency	Internal resistance	Max. allowable voltage	Intrinsic error ¹⁾
0...2000V AC/DC	15...500Hz	5MΩ	2200VAC/DC max. 10s	± 5%

1) Referring to scale length

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U-R Diagram for ZIT 51



Scale Diagram

Available Models

Designation	Type
High-voltage insulation tester for battery operation	ZIT 51A
High-voltage insulation tester for hand crank generator and battery operation	ZIT 51AK
High-voltage insulation tester for mains, battery & Hand crank operation	ZIT 51AKM
High-voltage insulation tester for mains, rechargeable battery & Hand crank operation	ZIT 51AKMR

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 Note
- 3 Pin Mains Power Cable is Provided with Instrument. Earth is Mandatory for Mains Operated Instrument
- 1 Carrying Case

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Accessories as per model selection:

1) Crank Generator



2) Carrying Case (default)



3) 3 pin Power Supply Cable



4) Rechargeable Battery (Additional)



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Ziegler Instrumentation UK Ltd.

Central Buildings, Woodland close old woods Trading Estate, Torquay Devon, TQ2 7BB, United Kingdom
+441803 616 800 | info@ziegler-instrument.com | ziegler-instrument.com