Technical Data Sheet

Zeta 50 / 50K

Zeta 50 / 50K Is used for the non-destructive measurement of insulation resistance in electrical systems, at machines, transformers and cables.

Special Features

- Test voltages up to 5000V
- Discharge of capacitive devices under taste
- Measurement cables with heavy duty insulation and needle gauge with LEDs

Application

Zeta 50 / 50K Insulation measurement for cables, motors etc.

Product 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.

- Broad measuring range from 10KW to 1TW
- 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 : 100kW to 100MW (1000V)
- Voltage measurement to 2000V @
- Guard Terminal eliminates surface current
- Power supply with batteries or Crank Generator (Optional) or mains operated (Optional)

Technical Specifications

Reference Conditions

Ambient Temperature	+ 23°C ± 2K
Relative Humidity	45 ... 55%
Measured Quantity Frequency	50Hz ± 10Hz (for voltage measurements)
Line Voltage Waveform	Sine, deviation between effective and rectified
value < 1% Battery Voltage	8V ± 1%
Operating position	Horizontal
Power Supply Voltage (Mains)	9V

Electrical Safety

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

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.

Ambient Conditions

Operating Temperature	0 °C ... +40 °C
Storage Temperature	-20°C... +60°C (without batteries)
Relative Humidity	max. 75% condensation must be avoided
Elevation	up to 2000m

Power Supply (Mains)

Nominal Power (Mains)	230V AC, ± 15%, 50Hz
Nominal Voltage	9V

Technical Specifications

Applicable Regulations and 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

Mechanical Design

Dimensions	W x D x H 290mm x 250mm x 140mm
Weight	3.4Kg with batteries 4.5Kg (Mains operated + Batteries)

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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 1MW 15000 measurements for test voltage of 500V with meas. resistance of 500KW measurement of 5s-pause 25s
Battery charging time	8 -15 Hrs
Crank generator (Optional)	2 to 3 r.p.s 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)

Electromagnetic Compatibility (EMC)

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

Accessories

1) Crank Generator	
2) Carrying Case	
3) 3 pin Power Supply Cable	
4) Rechargable Battery (Additional)	

Technical Specifications

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	100KΩ ... 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	1.3KΩ... 1TΩ	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	100KΩ ... 100MΩ	1mA	1.3mA	± 2.5%	± 30% of rdg.
②	100V / 250V/ 500V / 1000V	10KΩ... 1TΩ (except 10KΩ)	1mA	1.3mA	± 5%	
②	1500V 2000V 2500V 5000V	10KΩ... 1TΩ (except 10KΩ)	0.7mA 0.5mA 0.4mA 0.1mA	1.3mA	± 5%	
②	100V / 250V/ 500V / 1000V 1500V 2000V 2500V 5000V	10KΩ...	1mA 1mA 0.7mA 0.5mA 0.4mA 0.1mA	1.3mA	± 6.5%	

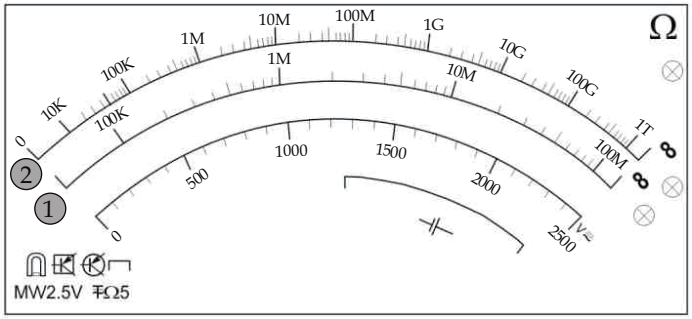
Direct and Alternating Voltage

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

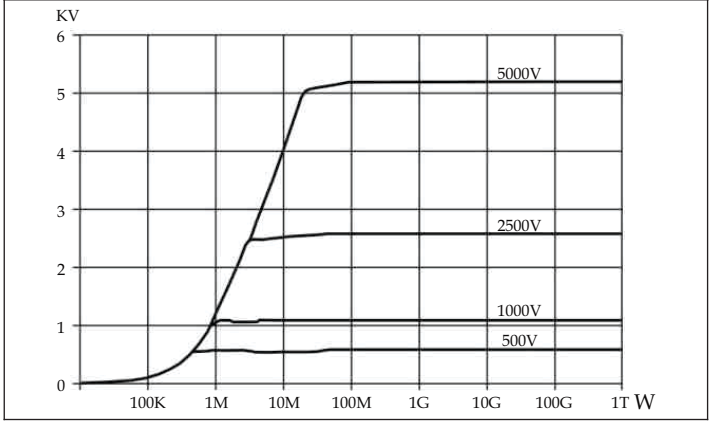
[1] referring to scale length

Technical Specifications

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



U-R Diagram for Zeta Insu 5000A



Ordering Information

Product Code	ZT 50-	X	X	X	0000000000
Type	Zeta 50A	1			
	Zeta 50AK	2			
	Zeta 50AKM	3			
	Zeta 50AKMR	4			
Cable Set	Normal NT		N		
	Bull Dog Clip BDC		B		
Cable Length	STD			S	
	1.5M			C	
	2.0M			D	
	2.5M			E	
	3.0M			F	
	3.5M			G	
	4.0M			H	
	5.0M			I	
	6.0M			J	
	6.5M			K	
	8.0M			L	
	8.5M			M	
	10M			N	
	15M			P	

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