



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. | 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. |
| 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. | 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. |
| 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. | | <ul style="list-style-type: none"> • 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 | | Standard Scope of Supply | |
|------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Ambient Temperature | + 23°C ± 2K | 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 | |
| Relative Humidity | 45 ... 55% | 1 Carrying strap | |
| Measured Quantity Frequency | 50Hz ± 10Hz (for voltage measurements) | 1 Operating instructions | |
| Line Voltage Waveform | Sine, deviation between effective and rectified | 1 Test certificate | |
| value < 1% Battery Voltage | 8V ± 1% | Note : 3 Pin Mains Power Cable is Provided with Instrument. Earth is Mandatory for Mains Operated Instrument. | |
| Operating position | Horizontal | Ambient Conditions | |
| Power Supply Voltage (Mains) | 9V | 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 |
| Electrical Safety | | Power Supply (Mains) | |
| Protection Class | II | Nominal Power (Mains) | 230V AC, ± 15%, 50Hz |
| Test Voltage | 8.5kV~ | Nominal Voltage | 9V |
| Oversvoltage Category | 2000V CAT II or 5000V CAT I | | |
| Fouling Factor | 2 | | |
| Protection | IP 52 | | |

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) |

Mechanical Design

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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) Rechargeable 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 | 100K Ω ... 100M Ω | 1mA | 1.3mA | $\pm 2.5\%$ | $\pm 30\%$ of rdg. |
| ② | 100V / 250V / 500V / 1000V | 10K Ω ... 1T Ω | 1mA | 1.3mA | $\pm 5\%$ | |
| ② | 1500V 2000V 2500V 5000V | 10K Ω ... 1T Ω | 1.3K Ω ... 1T Ω | 1.3mA | $\pm 5\%$ | |

Insulation Resistance (For Mains)

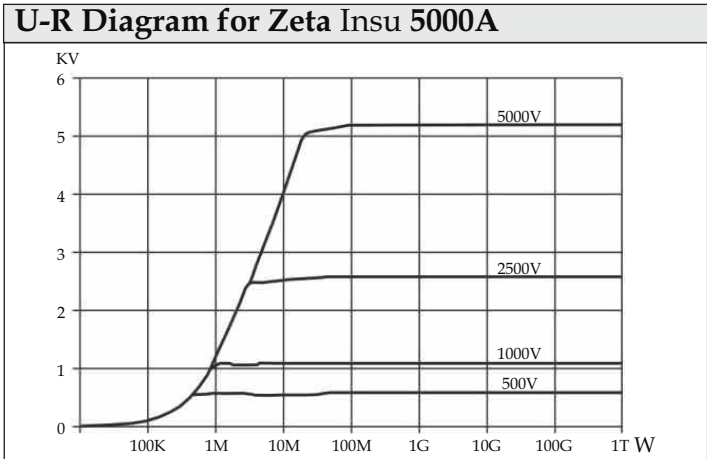
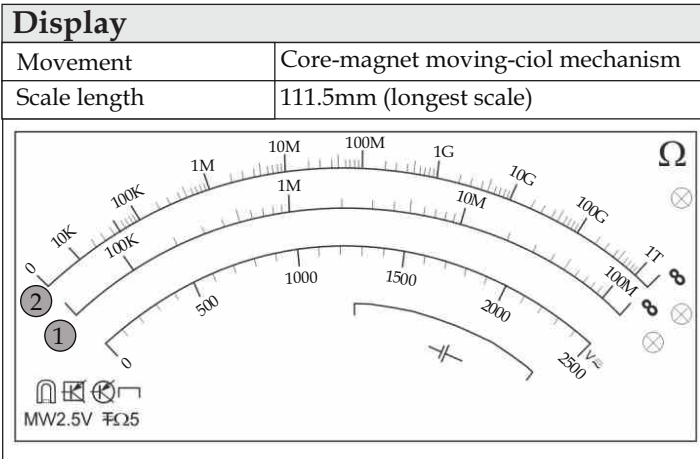
| Scale / Standard | Nominal / Open-Circuit Voltage U_N / U_O | Meas. Range | Nom. Current I_N | S. C. Current I_k | Intrinsic Error ¹⁾ | Deviation |
|------------------|-------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------|---------------------|-------------------------------|-----------------------|
| ① VDE0413 | 100V / 250V / 500V / 1000V | 100K Ω ... 100M Ω | 1mA | 1.3mA | $\pm 2.5\%$ | $\pm 30\%$ of rdg. |
| ② | 100V / 250V / 500V / 1000V | 10K Ω ... 1T Ω (except 10K Ω) | 1mA | 1.3mA | $\pm 5\%$ | |
| ② | 1500V 2000V 2500V 5000V | 10K Ω ... 1T Ω (except 10K Ω) | 0.7mA 0.5mA 0.4mA 0.1mA | 1.3mA | $\pm 5\%$ | |
| ② | 100V / 250V / 500V / 1000V 1500V 2000V 2500V 5000V | 10K Ω ... | 1mA 1mA 0.7mA 0.5mA 0.4mA 0.1mA | 1.3mA | $\pm 6.5\%$ | |

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 | $\pm 5\%$ |

¹⁾referring to scale length

Technical Specifications



Ordering Information

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|----------------------|----------|-------------------------------------------------------------------------------------------------------|
| ZT50 - 1NS0000000000 | Zeta 50 | Zeta 50, 5000A STD High - voltage insulation tester for battery operation |
| ZT50 - 1BS0000000000 | | Zeta 50, 5000A Bull Dog clip STD |
| ZT50 - 2NS0000000000 | Zeta 50K | Zeta 50K, 5000AK STD High -voltage insulation tester for hand crank generator operation |
| ZT50 - 2BS0000000000 | | Zeta 50K, 5000AK Bull Dog clip STD High -voltage insulation tester for hand crank generator operation |



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