



Müzitester

Test apparatus for test according to
DIN VDE 0413 / EN 61 557



Application

The Müzitester is a testing device for testing the protective measures in electrical installations according to DIN VDE 0413 / EN 61557. It may be used for the insulation measurement with rated voltages of 250 V / 500 V and 1000 V as well as for the testing of protective conductor connections by low-impedance measurements.

Type and function

The electronics of the Müzitester is mounted in an impact-proof plastic housing from ABS. The operation is highly rational and safe due to the largely automatic measuring sequence. The display of the measured values is done through a moving coil measuring system. The insulation value, measured with test voltages 1000 V, 500 V or 250 V, may be indicated on a common scale. The test handle with power ON switch as well as the shoulder strap with wide neck part is especially suited for series measurements. The rechargeable battery used is environmentally friendly and completely free from mercury and cadmium. The high capacity of the battery as well as a sequence control allow for a large number of measurements per battery charge. Thanks to the mounted charging unit, the battery may be recharged at any time.



Types and variants

Müzitester	
Accessory	Shoulder bag from nylon
	Test report
Scope of delivery	Müzitester with test handle, shoulder strap, clip terminal, loading cable, screwdriver for changing the probe, spare probe

Functional description

Insulation and low-impedance measurement with automatic measuring range switchover

The measuring function selector switch is set to „M Ω / Ω 1000 V Iso“, „500 V Iso“ or „250 V Iso“. By pressing the button on the test handle, the automatic test sequence is started. Testing for zero potential: If the input voltage lies below 50 V, the insulation measurement is started. A DC/AC converter converts a stabilized direct voltage into a test voltage of 250 V, 500 V or 1000 V DC. The current resulting from the test voltage and insulation resistance is recorded as voltage via a resistor and displayed as ohmic value on the insulation scale. If the measured resistance is smaller than approx. 200 Ω and if the input voltage (separate source voltage) lies below 5 V, the switchover to the low-impedance measurement is started which changes into a stable state at approx. 20 Ω . The DC/AC converter is separated from the direct voltage and a constant current of >200 mA flows through the measuring resistance. The voltage dropping via the measuring resistance is registered and displayed as resistance (ohmic value) on the low-ohm scale.

Returning to the insulation range starts at resistance values of above 20 Ω and changes over to a stable state at approx. 200 Ω . An acoustic signal is output during the measurement in case of resistance values >1 M Ω in the insulation range and of <1 Ω in the low-impedance range.

Low-impedance measurement

The measuring function selector switch is set to „+ Ω “ or „- Ω “. By pressing the button on the test handle, the automatic test sequence is started. Testing for zero potential: If the input voltage (separate source voltage) lies below 5 V, the low-impedance measurement is started. A constant current of >200 mA flows through the measuring resistance. The voltage dropping via the measuring resistance is registered and displayed as resistance (ohmic value) on the low-ohm scale. An acoustic signal is output during the measurement in case of resistance values of <1 Ω . Using the measuring function selector switch, switch position „+ Ω “ and „- Ω “, the measuring voltage may be reversed. The connecting socket for the test cable is positive for switch position „+ Ω “ and negative for switch position „- Ω “.

Voltage measurement

The measuring function selector switch is set to an arbitrary position. By pressing the button at the test handle, the measurement voltage is applied. The measuring voltage is registered via a resistor by an rms value rectifier. This rectifier is able to measure direct and alternating voltage of arbitrary waveform and frequency. The voltage value may be read from the voltage scale.

Phase testing

This test only functions in combination with the rechargeable battery installed in the device. By bringing the probe into contact with a phase conductor and simultaneously touching the contact face at the test handle, current flows. This current activates the LED via a transistor which signals the present voltage to ground.

Rechargeable battery capacity

The measuring function selector switch is set to „battery capacity“. By pressing the button on the test handle, the actual state of a counter is converted into a voltage and indicated as percentage value on the rechargeable battery scale. For determining the energy content of the rechargeable battery, the charging/discharge current as well as the self discharge are taken into account. After the energy content has dropped to <10 %, the battery status indicator signals "empty".

Charging the battery

The integrated charger allows for charging the battery at a voltage of 230 V, 50 Hz. Only the missing energy amount is recharged. After the energy content has been recharged to 100%, the charging current drops to the conservation charging current.



Technical data

General data	Test apparatus acc. to DIN VDE 0413 / EN 61557 with largely automatic measuring sequence	
Functions	Insulation measurement with 250 V, 500 V oder 1000 V, low-impedance measurement, voltage measurement and phase testing	
Display	Moving-coil measuring system with four scale graduations	
Scale length	max. 95 mm	
Error in actual measurement	DIN VDE 0413 part 2+4, DIN EN 60 051	
Temperature range	0 °C to 40 °C	
EMC	DIN EN 61 326	
Test voltage	DIN EN 61 010 – 1, 3,7 kV 50 Hz 10 s	
Air and creep distances	DIN EN 61 010 – 1	
IP code	DIN EN 60 529, IP 50	
Electrical safety	DIN EN 61 010 – 1, housing insulated, protection class II, pollution degree 2, Measuring category CAT III for working voltages up to 300 V (phase to neutral), Measuring category CAT II for working voltages from 300 – 600 V (phase to neutral)	
External magnetic field influence	no (bis 4 kA/m)	
Power supply	NiMH rechargeable battery pack (6 x AA), 7,2 V, 1500 mAh	
Battery charge	230 V, 50 Hz, approx. 18 mA, 14 hrs.	
Dimensions	190 mm (L) x 180 mm (W) x 60 mm (H)	
Weight	900 g (incl. battery kit)	
Insulation measurement DIN VDE 0413–2 / EN 61557–2	with 1000 V	
	Display range	0-50 MΩ
	Measuring range	10 kΩ-5 MΩ
	Rated voltage	1000 V
	Open circuit voltage	max. 1200 V
	Short circuit current	3 mA
	Measuring time	arbitrary
Insulation measurement	with 500 V	
	Display range	0-50 MΩ
	Measuring range	10 kΩ-5 MΩ
	Rated voltage	500 V
	Open circuit voltage	max. 600 V
	Short circuit current	3 mA
	Measuring time	arbitrary
Insulation measurement	with 250 V	
	Display range	0-50 MΩ
	Measuring range	10 kΩ-5 MΩ
	Rated voltage	250 V
	Open circuit voltage	max. 300 V
	Short circuit current	3 mA
	Measuring time	arbitrary
Low-impedance measurement DIN VDE 0413–4 / EN 61557–4	Display range	0-10 MΩ
	Measuring range	0,1 Ω-10 Ω
	Rated current	> 200 mA
	Open circuit voltage	ca. 5 V
	Pole reversal	manual
	Measuring line compensation	0 - 1 Ω, manual
	Measuring time	arbitrary
Voltage measurement	Measuring range	0-600 V
	Frequency range	DC/40-1000 Hz
	Internal resistance	approx. 250 kΩ
	Crest factor	4
	Accuracy	1,5 % from final value
	Measuring time	arbitrary
Phase testing DIN VDE 0680 - 6	Voltage range	30-250 V
	Frequency range	50-500 Hz
	Internal resistance	6 MΩ
	Temperature range	-10 °C to +50 °C
Rechargeable battery capacity DIN VDE 0413 / EN 61 557	per battery charge	30-250 V
		approx. 2000 measurements