

Insulation Tester

Type 5493

Battery-operated service instrument for measuring very high insulation resistances up to $4 \cdot 10^{13} \Omega$. Low measuring voltage and quick-charging circuit for measurements involving high parallel capacitances. Logarithmic indication. Very simple operation. Automatic switchoff when not in operation.

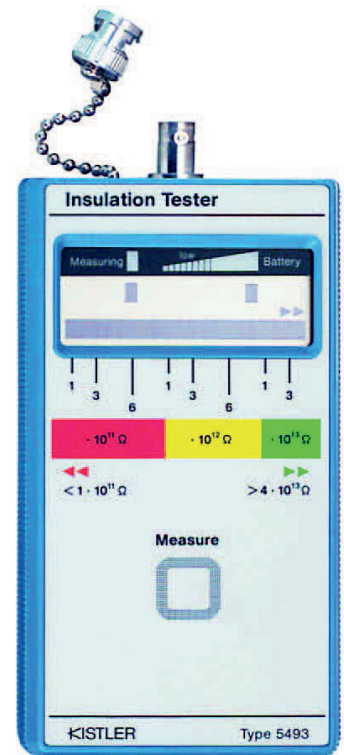
- Insulation Tester: small, robust, also for measurements on the spot
- The low measuring voltage of 5 V preserves the test object
- Rapid charging reduces the measuring time if parallel capacitances are involved
- Logarithmic indication avoids the need for range switching
- Automatic switchoff extends battery life
- Conforming to CE

Technical data

Measuring range	Ω	$10^9 \dots 4 \cdot 10^{11}$
Measuring voltage	V	5
Automatic switchoff (time after last key operation)	s	≈ 60
Max. admissible voltage at input	V	700
Max. parallel capacitance (= max. cable length)	nF (m)	10 (100)
Battery	Type IEC 6LR61 (IEC 6LF22)	
Number of measurements, 60 s each, with one battery	≈ 5000	
Dimensions (H x W x D) without plug	mm	150 x 80 x 35
Weight	g	≈ 300
Connector	Type BNC neg.	
Conformity to EC Directive		
EMC Emission	EN 50081-1	
EMC Immunity	EN 50082-1	

Application

Where high insulation resistance is critical for the function of equipment, it is usual to check it periodically or before use. For this duty the insulation tester Type 5493 has been developed. It is designed as a battery-powered service instrument, making it particularly suited for both routine and field checks of piezoelectric sensors, charge amplifiers, electrometer amplifiers, cables and also components such as capacitors etc.



Description

The instrument is switched on by pressing the "Measure" key. The Power-On-Timer T2 switches the insulation tester on for about 60 s. During the first 6 seconds of the measurement the $10^{11} \Omega$ resistor is paralleled by a 10 k Ω resistor to charge any existing parallel capacitance more rapidly. As soon as the capacitance is charged, the output of the input amplifier yields a voltage U_x . This voltage is a measure for the insulation resistance R_x . It is filtered, logarithmized and indicated as insulation resistance on the display.

Operation

The operation of the instrument is easy:

1. Connect measuring object
2. Briefly press the "Measuring" key
3. Read value

Remark to "Read value":

Read when the value displayed is constant and the "Measuring" display is active. Stabilization of the indicated value can last several seconds with large R_x and C_x values. The instrument switches off automatically after about 60 s. If after this time the indicated measured value is not yet constant, the key must be pressed once more.

003-354e-04.19 (DB15.5493e)

Test devices which generate charges (e.g. piezosensors, cables) must not be subjected to movements or temperature changes during the measurement, otherwise the resulting charge shifts will be superposed as an error current on the insulation current being measured, interfering with the measurement by causing the reading to fluctuate.

After using the instrument, replace the protective cover on the input plug.

Maintenance

The battery must be replaced as soon as the "Battery" display remains in the "Low" range during the operation. The battery should be removed if the instrument is dispatched or not used for a longer time.

