



MEGGER® Major Megger® Testers

- Multiple Test Voltages
- Guard terminal to eliminate surface leakage current
- Voltage indicating range

Extended Range Insulation Resistance Testers

DESCRIPTION

These Major Megger® Extended Range Insulation Resistance Testers are the ideal instruments when high ranges are needed for measuring insulation resistance. Both provide excellent test voltage regulation and an external guard terminal to eliminate surface leakage current from the measurement.

The instruments are all electronic; they generate a regulated dc high voltage and use low-zero-drift, high-accuracy circuits, with high current sensitivity. Designed for portability, each is enclosed in a molded, impact-resistance, flame-retardant case.

Cat. No. 210170

This unit provides high-resistance readings up to 20 GΩ. It features an analog meter movement calibrated directly in megohms, ohms, and ac volts. Test voltages of 100, 250, 500 and 1000 volts dc are selected by a rotary switch. Insulation resistance measurements up to 20 GΩ can be made on all voltage ranges.

The unit is also equipped with a 0- to 5000-ohm low-resistance range and a 0- to 600-volt ac default voltmeter. Power is supplied by an ac generator, driven by a hand crank, through a gear train.

Cat. No. 210600

This digital, autoranging model provides insulation resistance readings up to 1999 MΩ. It has a 0- to 600-volt ac default voltmeter. Test voltages of 100, 250, 500 and 1000 volts dc are selected by a rotary switch, and insulation resistance to 1999 MΩ autoranging can be made on the 500 and 1000 V ranges. It incorporates a 3½ digit LCD calibrated directly in megohms, ohms and ac/dc volts.

APPLICATIONS

Major Megger testers measure the insulation resistance of wires, power cables, motors, generators, transformers, switchboards and electrical controls. Both models offer multiple test voltages for performing spot and step-voltage tests. Typical applications include:

- Acceptance testing at time of installation to check conformance to specifications.
- Routine preventive maintenance testing after installation.
- Quality assurance testing by the manufacturer.
- Diagnostic testing to isolate faulty components for repair.

Major Megger insulation testers can be used for detecting high- or low-resistance grounds as well as short

circuits in apparatus, cables, wiring, etc., whether caused by moisture, oil, dirt, corrosion, damage to insulation or natural deterioration. They can also be used to determine the presence of moisture, solvents and semiconducting foreign materials in wires, cables and other conductors, and in built-up insulation systems such as those found in motor windings.

Typically, these testers are used to take a series of measurements over a period of time which will show the gradual decline that takes place in the insulation during its operational life. Such monitoring enables the maintenance engineer or technician to anticipate future performance and to plan ahead for repairs. It is also used to show improvements in the insulation of motor, transformer and generator windings that result from drying-out procedures used after exposure to excessive humidity or water.

FEATURES AND BENEFITS

- Large easy-to read scale
- Guard terminal to eliminate surface leakage current from the measurement
- High-resistance readings up to 20 GΩ (analog model)
- Digital autoranging with readings up to 1999 MΩ (digital model)
- Multiple test voltages

SPECIFICATIONS

Overload Rating

Both instruments are protected for connection to power distribution systems up to 300 V Line-Ground and 500 V Line-Line for Installation Category III. This relates to transient overvoltage likely to be found in fixed installation wiring.

Cat. No. 210170**Insulation Range**

Accuracy: $\pm 3\%$ of scale length

Open Circuit Test Voltage: $\pm 5\%$

Short-circuit Current: 220 μ A nominal on all ranges

Scale Length: 3.08 in. (78 mm)

Low Resistance Range

Accuracy: $\pm 3\%$ of scale length

Test Voltage: 3 V $\pm 5\%$

Short-circuit Current: 30 mA $\pm 10\%$

Scale Length: 3.08 in. (78 mm)

Default Voltage Range

0 to 600 V ac accuracy $\pm 2.5\%$ of scale length

Discharge

Capacitive circuits are automatically discharged when the "TEST" button is released following an insulation test.

Cat. No. 210600**Insulation Range**

Accuracy (73.4° F ± 3.6 ° F):

<500 M Ω : $\pm 3\% \pm 2$ digits

500 to 1999 M Ω : $\pm 5\% \pm 2$ digits

Temperature Coefficient:

<500 M Ω : ≤ 86 ° F, $\pm 0.06\%$ per °F;
>86° F $\pm 0.14\%$ per °F

500 to 1999 M Ω : ≤ 86 ° F $\pm 0.11\%$ per °F;
>86° F $\pm 0.28\%$ per °F

Test Voltage: $\pm 5\%$ at open circuit

Short-circuit Current: 1.2 mA nominal

Hum Resistance

Within twice the normal accuracy if the noise current does not exceed 1 mA for the 1-kV range, or 0.5 mA for the other ranges, and is within 45 to 65 Hz.

Low Resistance Range

Accuracy: $\pm 2\%$ of reading ± 1 digit

Temperature Coefficient: $\pm 0.06\%$ per °F

Open Circuit Test Voltage: 4.3 V nominal

Short-circuit Current: 2.75 mA nominal

Default Voltage Range

0 to 600 V ac/dc

Accuracy: $\pm 2\%$ of reading ± 1 digit at 45 to 65 Hz

Temperature Coefficient: $\pm 0.06\%$ per °F

Input Impedance: 300 k Ω to 1 M Ω depending on input voltage

Display

3½ digit LCD. Maximum reading 1999.

Battery Life

Typically 2100 x5 second operations

Automatic Discharge

Capacitive Circuits are automatically discharged when the "TEST" button is released following an insulation test.

Cat. No.	O/C Test Voltage (V dc)	Insulation Resistance Range (M Ω)	Resistance Range	Power Source	Voltage Range	Dimensions	Weight
210170		0 to 20,000	0 to 5000 Ω (at 3 V dc)	Hand cranked		8.25 H x 5 W x 5 D in. 210 H x 125 W x 125 D mm	
210600	100 250 500 1000	0 to 199.9 at all test voltages 0 to 1999 at 500 and 1 kV	0.01 to 1.999 k Ω 2.00 to 19.99 k Ω (at 4.3 V Open Circuit)	6 AA cells (1.5 V)	0 to 600 V ac or presence of dc	7 H x 5 W x 5 D in. 180 H x 125 W x 125 D mm	2.2 lb (.98 kg)

ORDERING INFORMATION

Item (Qty)	Cat. No.
Major Megger® Insulation Tester, Analog	210170
Major Megger® Insulation Tester, Digital	210600

Included Accessories

Test lead set, 6 ft (1.8 m) [1 pr]	210971
Carrying case	217720
Test record cards, universal	210949
Instruction manual for 210170	EV6172-382
Instruction manual for 210600	EV6172-373

Item (Qty)	Cat. No.
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Optional Accessories

Carrying case	217740
Fuses 500 mA, 500 V (F) H.B.C. (pack of 5)	EV6121-289
Fused probe kit FPK5	EV6111-288
Black test lead with large alligator clip	EV6220-295
Red test lead with large alligator clip	EV6220-586
Green test lead with large alligator clip	EV6220-587
Test record cards (pack of 20)	EV6111-216
"A Stitch in Time" manual	AVTM21-P8B