

5/10-KV INSULATION TEST EQUIPMENT

Equipment with operating voltages above 1 kV requires commensurately higher test voltages. Therefore, to be fully in conformance with the most modern testing requirements, Megger offers a family of high-quality insulation testers at voltages above 1 kV. At the core of high-voltage testing — 5 kV — the MIT510/2 and MIT520/2 afford the highest level of quality testing along with prime safety, convenience and portability.

For complete insulation testing capability of all high-capital equipment, Megger goes one step further! The universal testing standard for rotational equipment, IEEE 43-2000, increased the test voltage recommendation to 10 kV for equipment rated 12 kV and above. Full compliance with this standard can be attained with just one tester, the MIT1020/2.

PowerDB Lite, a unique software program, is included with the Megger MIT520/2 and MIT1020/2 units. PowerDB Lite offers an easy-to-use interface for products to document results. You can easily run tests, retrieve data, annotate results and print complete test forms.

See Page 35 for more information on this powerful software!



Megger 5- and 10-kV insulation testers are used in a number of markets such as:

- Airports
- Electric Utility
- Industrial Substations
- Government/Military
- Manufacturing
- Mining
- Petrochemical
- Ports
- Railroads/Rapid Transit
- Universities
- Wind/Renewable Energy

CATIV 600 V
Safety Rating —
an Industry Best!



MIT510/2 and MIT520/2

The MIT510/2 and MIT520/2 are advanced 5-kV diagnostic insulation testers with an expanded measurement range.

The MIT510/2 is a basic function 5-kV model with enhanced capabilities:

- Dual operation from both rechargeable batteries and line supply affords maximum reliability and insurance against human error when recharging is overlooked.
- Measurement range has been expanded to 15 Tera-ohm, replacing the ambiguous “infinity” reading with an actual number that can be used for predictive/preventive trending on the highest quality insulation.
- Test voltages are 250, 500, 1000, 2500 and 5 kV
- Capacitance is measured from 10 nF to 50 μ F, contributing an additional valuable piece of analytical information.
- Testing is inhibited above 50 V of external voltage for redundant safety.



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MIT1020/2

Insulation testing as part of a predictive/preventive electrical maintenance program is becoming increasingly rigorous and demanding. In recognition of the critical significance of such demands, the IEEE revised their motor testing standard to incorporate new considerations that meet the challenges of modern equipment and operations.

In response, Megger expanded our line of insulation testers to offer the MIT1020/2, a 10 kV model dedicated to the provisions of the revised standard. With this one tester, 100% IEEE compliance can be attained for every applicable motor in existence.

Added to the familiar features and functions, the new MIT1020/2 offers:

- Increased measurement range to 35 Tera-ohms, in order to provide trending values for the best of insulating materials and highest capital equipment.
- Expanded test voltage range from 50 V to 10 kV, in 10 V increments to 1 kV and 25 V increments above 1 kV.
- Additional automated standardized tests to include Step Voltage, PI, Dielectric Absorption Ratio and Dielectric Discharge tests.
- Capability to measure capacitance of test item from 10 nF to 50 μ F, providing the operator with an additional valuable diagnostic tool.
- RS232 and USB download of results. (Cables included.)
- 250, 500, 1000, 2500, 5 kV and 10 kV preprogrammed test voltages.



Improved Diagnostic Measurement — All 3 units feature an industry best guard terminal performance

The MIT1020/2, shown above, and the MIT520/2, shown below, come with PowerDB Lite

The MIT520/2 adds expanded capabilities to the MIT510/2 to afford the skilled and experienced operator more flexibility in analyzing the condition of capital equipment.

- Test voltage can be set in any 10 V increment from 50 V to 1 kV, and above 1 kV in 25 V increments to 5 kV.
- Capable of downloading test results from its RS232 or USB ports. (Cables included.)
- Five different industry-standard tests can be programmed and run automatically.



5/10-KV INSULATION TEST EQUIPMENT

Selection Guide for MIT510/2, MIT520/2 and MIT1020/2

		Model Number	MIT510/2	MIT520/2	MIT1020/2
		Cat. Number	1000-372	1000-376	1000-380
Display	Analog/Digital		■	■	■
Power Supply	Line power		■	■	■
	Rechargeable		■	■	■
Test Voltage	10.0 kV				■
	5.0 kV		■	■	■
	2.5 kV		■	■	■
	1.0 kV		■	■	■
	500 V		■	■	■
	250 V		■	■	■
	10 V steps 50 V to 1 kV, 25 V steps 1 kV to max test voltage			■	■
Measurements	Max reading		15 TΩ	15 TΩ	35 TΩ
	Min reading		10 kΩ	10 kΩ	10 kΩ
	Voltage		■	■	■
	Capacitance and time constant		■	■	■
	Leakage current		■	■	■
Test Types	Auto IR		■	■	■
	Polarization index			■	■
	Step voltage			■	■
	Dielectric discharge			■	■
	Dielectric absorption ratio			■	■
Other Features	CAT IV 600 V safety rating		■	■	■
	Timer control			■	■
	Timer display		■	■	■
	3mA test currents		■	■	■
	USB output (cable included)			■	■
	RS232 output (cable included)			■	■
	Calibration certificate included		■	■	■
	IP65 rating		■	■	■
	Alarm limit mode			■	
Compatible with Megger download software			■	■	
Guard terminal performance		2% error guarding 500 kΩ leakage with a 100 MΩ load			
List Price USD		\$3,330.00	\$4,335.00	\$5,240.00	

What is the IEEE 43-2000?

Following is a brief summary of the highlights of Standard 43-2000, the "IEEE Recommended Practice for Testing Insulation Resistance of Rotating Machinery."

- Test voltages up to 10 kV are recommended for windings rated greater than 12 kV.
- Both the insulation resistance and the polarization index test are recommended.
- Test results should be compared to historical values to identify changes.
- In lieu of historical records, minimum acceptable values (based on the type of equipment) for both tests are indicated.
- Depending on the machine rating, the readings for one or both tests should exceed the minimum acceptable values.
- If the readings are below the minimum acceptable values, the winding is not recommended for an over-voltage test or for operation.

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5-kV and 10-kV Test Leads

Megger offers a range of lead sets and clips of various sizes and electrical characteristics for use with MIT510/2, MIT520/2 and MIT1020/2 insulation resistance testers, enabling the user to choose the most applicable lead set for the work in hand. In all cases it is the responsibility of the operator to use safe working practices and verify that the system is safe before connection. Even isolated systems may exhibit significant capacitance which will become highly charged during the application of the insulation test. This charge can be lethal and connections, including the leads and clips, should never be touched during the test.

Please note the Compact Test Clips (210968, 8101-182 and 8101-183) can be used with MJ15 and BM15 as well as the MIT510/2, MIT520/2 and MIT1020/2.

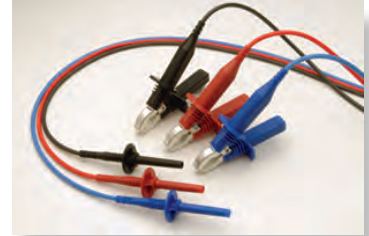
Large Test Clips

These clips are designed for clamping on larger diameter test pieces. The insulation is designed only to protect the user from the output of Megger 5-kV and 10-kV insulation resistance testers and systems below 1 kV to the category rating of 1000 V ac. The clips **cannot** in any circumstance be relied on to protect the user from live systems above 1 kV ac.



Medium Test Clips

These clips are designed for clamping on larger diameter test pieces but where space is at a premium. The insulation is designed only to protect the user from the output of Megger 5-kV and 10-kV (set below 6 kV) insulation resistance testers. The clips **cannot** in any circumstance be relied on to protect the user from live ac systems.



Compact Test Clips

These clips are designed for clamping on test pieces where access is limited. There is no insulation on these clips. Extreme care **must** be taken to avoid electric shock when connecting or disconnecting due to the bare metallic clips.



Control Circuit Test Set

These clips are designed for testing low voltage circuits with test voltages up to 1 kV. The insulation is designed only to protect the user from the output of Megger 5-kV and 10-kV insulation resistance testers set to a maximum output voltage of 1 kV. **Do not** use this lead set at voltages above 1 kV.



Selection Guide for 5/10-kV Test Leads

Cat. No.	Description	Dimensions (Closed)	Length	Jaw Opening	Number in Set	Insulation Rating		CAT Rating	List Price USD
						Basic	Double		
6220-811	Large Test Clip	8.7 x 5.2 in. (220 x 134 mm)	10 ft (3 m)	1.3 in. (34 mm)	3	10 kV dc	5 kV dc	1000 V ac CAT IV	\$163.00
6220-820	Medium Test Clip	5.4 x 2.9 in. (139 x 73 mm)	10 ft (3 m)	1.3 in. (34 mm)	3	6 kV dc	3 kV dc	1000 V ac CAT V	\$158.00
8101-181	Compact Test Clip	2.2 x 1 in. (58 x 25 mm)	10 ft (3 m)	0.7 in. (18 mm)	3	None	None	N/A	\$230.00
8101-182	Compact Test Clip	2.2 x 1 in. (58 x 25 mm)	25 ft (8 m)	0.7 in. (18 mm)	3	None	None	N/A	\$325.00
8101-183	Compact Test Clip	2.2 x 1 in. (58 x 25 mm)	50 ft (15 m)	0.7 in. (18 mm)	3	None	None	N/A	\$375.00
6220-822	Control Circuit Test Set	2.2 x 1 in. (58 x 25 mm)	10 ft (3 m)	0.8 in. (20 mm)	2	N/A	1 kV dc Clip or Prod	N/A	\$128.00

1-KV INSULATION TEST EQUIPMENT

Megger is the originator of insulation resistance testing and the world recognized leader in this area. The first instrument to perform such testing was introduced over 100 years ago. Based on valuable customer feedback and our many years of experience, we offer a complete range of 1-kV insulation testers — the MIT200 Series, MIT300 Series and the MIT400 Series — designed to meet the varying needs and budgets of all types of customers.

Megger 1-kV insulation testers are very useful in the following markets:

- Airports
- CATV
- Commercial Building
- Electric Utility/
Industrial Substations
- ESD Testing
- Government/Military
- Manufacturing
- Mining
- Petrochemical
- Ports
- Railroads/Rapid Transit
- Telecommunications
(Cellular, POTs, etc.)
- Universities
- Water/Waste Treatment
- Wind/Renewable Energy

MIT400 Series

- Conform to IEC1010-1, CAT IV 600 V rating.
- Choice of 4 models for commercial and plant applications: MIT Models 400, 410, 420 and 430.
- Choice of 5 models for telecom/CATV applications: MIT Models 410-TC, 430-TC, 480, 481 and 485.
- A “Special Applications” model, MIT40X, offers a variable insulation test voltage from 10 V to 100 V applications in 1 V steps.
- The MIT410-TC and MIT430-TC are designed specifically for use within the telecommunications industry. Unique features include a soft canvas carrying bag with shoulder strap and rugged snap hook to attach to a tool belt, and a “bed of nails” test lead set.
- The MIT430, MIT430-TC and MIT485 are compatible with Megger Download Software (included) allowing further analysis and storage data.
- The MIT415 is the ideal instrument for ESD testing and maintenance.

The MIT400 Series of insulation testers meet the most stringent requirements for installation, maintenance, service and repair in the electrical, power and telecommunications industries. The instruments feature Megger’s patented dual digital and analog arc displays showing both measurement result and the actual test voltage being delivered simultaneously.

The units include an exceptional insulation resistance measurement range that extends from 20 Gigohms to 200 Gigohms, with the option to display the insulation test voltage or leakage current on the secondary display. Measurement of cable distance by capacitance is featured on two of the units, providing a convenient cable length test.

A 200 mA continuity measurement is available with a 0.01-ohm resolution for fast accurate cable/wire resistance measurement. This can be set to 20 mA where conformity to electrical testing regulations is not required, extending battery life.

TRMS voltage measurement allows accurate measurement on noisy lines providing a wide range of measurement applications.



1-KV INSULATION TEST EQUIPMENT

The MIT410-TC shown with its soft canvas carrying bag and bed of nails lead set



“-TC” Models

The MIT410-TC and MIT430-TC are designed specifically for use within the telecommunications industry. Unique features include a soft canvas carrying bag with shoulder strap and snap hook to attach to a tool belt, and a “bed of nails” test lead set.

The model MIT430-TC offers extensive results storage capability for later recall and Bluetooth download capability for wireless transfer of stored results to a PC.

The MIT410-TC and MIT430-TC allow the user to determine the condition of the insulation of twisted copper cable pairs, which could cause problems for services such as voice, video, and data or VOIP. When the insulation becomes weak or brittle, causing cracks or exposing copper within the cable, or water ingresses into the cable, the insulation resistance test will identify these situations immediately.



The MIT430 offers result storage, recall and Bluetooth downloading



Convenient probe storage on back of instrument



Rugged rubber boot with built-in stand



SP5 remote switch probes included with most units



Safe storage for probe caps

1-KV INSULATION TEST EQUIPMENT

Selection Guide for MIT400 Series

Applications	Industrial					Telecom/CATV					Special
	MIT400-EN	MIT410-EN	MIT415-EN (1000-351)	MIT420-EN	MIT430-EN	MIT410-TC (1000-368)	MIT430-TC (1000-369)	MIT480-EN	MIT481-EN	MIT485-EN	MIT40X-EN
Insulation Voltage Range											
50 V, 100 V		■		■	■	■	■	■	■	■	
250 V, 500 V	■	■		■	■	■	■		■	■	
1000 V	■	■		■	■		■		■	■	
10 to 100 V variable											■
Insulation range (GΩ)	20	100		200	200	100	200	10	200	200	2-20
Continuity Measurement											
KΩ range to 999 KΩ	■	■		■	■	■	■		■	■	
0.01 to 100 Ω	■	■	■	■	■	■	■	■	■	■	■
Variable current limit, 200 mA/20 mA	■	■		■	■	■	■	■	■	■	■
Additional Functions											
ac and dc voltage measurement (TRMS)	■	■	■	■	■	■	■	■	■	■	■
Frequency: 40 Hz to 400 Hz		■		■	■	■	■		■	■	■
Capacitance (0.1 nF to 10 μF)				■	■		■		■	■	
Insulation timed, PI, DAR tests		■		■	■	■	■		■	■	
Additional Features											
Result storage				■	■		■		■	■	
Compatible with Megger download software					■		■			■	
Bluetooth downloading					■		■			■	
Included Accessories											
Remote switch probe		■		■	■			■	■	■	
Silicone test leads	■	■	■	■	■			■	■	■	■
Bed of nails test leads						■	■				
Calibration certificate	■	■	■	■	■	■	■	■	■	■	
Carry case:											
Blow molded	■	■	■	■	■			■	■	■	■
Soft canvas (shown in picture on previous page)						■	■				
Three-year warranty	■	■	■	■	■	■	■	■	■	■	■
List Price USD	\$565.00	\$635.00	\$585.00	\$700.00	\$795.00	\$635.00	\$825.00	\$625.00	\$845.00	\$950.00	\$670.00

MIT300 Series

The MIT300 Series of insulation testers includes five models to meet the needs of electrical contractors. They incorporate features such as automatic discharge, audio-visual warnings, and test inhibition to ensure operator safety and protection from accidental misuse.

The MIT310 adds a voltmeter function. The MIT320 has a backlight, illuminated panel, kΩ range, limit alarm and adjustable continuity buzzer. The MIT330 can store up to 1000 test results. The MIT310A features a genuine mechanical analog display.

The MIT300, MIT310, MIT320 and MIT330 feature an exclusive analog/digital display that clearly shows measurement results.

MIT200 Series

The MIT200 is one of the smallest insulation testers available on the market today. With four product options available, all the MIT200 instruments offer a range of safety and operation features expected from a Megger tester. The combined analog pointer and digital readout provide both accuracy and charge/discharge characteristics.

Voltage warning and display, plus voltage lockout protect both the user and the instrument, if accidentally connected to a live circuit. The MIT200 Series meet a wide range of international testing standards as well as BSEN 61557 and IEC61010.

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Selection Guide for MIT300 Series

Cat. No.	MIT300-EN	MIT310-EN	MIT320-EN	MIT330-EN	MIT310A-EN Analog
Insulation testing					
250 V	■	■	■	■	■
500 V	■	■	■	■	■
1000 V		■	■	■	■
Range to 999 MΩ	■	■	■	■	■
Insulation limit alarm (0.01 MΩ to 999 MΩ)			■	■	
Continuity testing					
Continuity to 100Ω	■	■	■	■	■
Continuity buzzer	■	■	■	■	■
Lead null to 9 Ω	■	■	■	■	0.5Ω
Adjustable buzzer 1 to 20 Ω			■	■	
Audible buzzer disable			■	■	
Resistance measurement					
10 Ω to 1 MΩ range			■	■	
10 Ω to 2 KΩ range					■
General					
Voltage warning	■				
Default voltmeter		■	■	■	■
Backlit display			■	■	
Backlight selector ranges			■	■	
Locking test button	■	■	■	■	■
Auto power-down	■	■	■	■	
Switched test probe			■	■	
IP54 weatherproof	■	■	■	■	■
1000 test result storage				■	
Downloading				■	
Calibration certificate	■	■	■	■	
Three-year warranty	■	■	■	■	
List Price USD	\$435.00	\$495.00	\$585.00	\$645.00	\$500.00

Selection Guide for MIT200 Series

Cat. No.	MIT200-EN	MIT210-EN	MIT220-EN	MIT230-EN
Insulation testing				
250 V			■	■
500 V	■		■	■
1000 V		■		■
1000 MΩ range	■	■	■	■
Auto-ranging	■	■	■	■
Auto discharge	■	■	■	■
Test inhibit	■	■	■	■
Live circuit voltage display	■	■	■	■
Continuity testing				
Continuity @ >200 mA	■	■	■	■
Continuity to 0.01 Ω	■	■	■	■
Test lead null (9.99 Ω)	■	■	■	■
Automatic continuity test	■	■	■	■
Continuity buzzer with 5 Ω threshold	■	■	■	■
Default volts warning	■	■	■	■
General				
Digital display + arc	■	■	■	■
Battery condition	■	■	■	■
Auto power down	■	■	■	■
Tough carry case	■	■	■	■
Test leads	■	■	■	■
CATIII 600 V	■	■	■	■
List Price USD	\$345.00	\$370.00	\$425.00	\$485.00

Model MIT310-EN



Model MIT230-EN



1-KV INSULATION TEST EQUIPMENT

Major Megger Insulation Resistance Testers

This specialty line of instruments has become synonymous over the years for fine craftsmanship, something you have come to expect from Megger. These instruments continue to be very popular today with a choice of six outstanding models.

General Purpose Model



Digital Autoranging Model



High Resistance Model



Model	Cat. No.	Test Voltage (V dc)	Insulation Resistance	Resistance Range	Power Source	List Price USD
General Purpose	212159	100, 250, 500, 1000	0 to 2000 MΩ	0 to 5000 Ω	Hand-cranked	\$1,000.00
	212359	100, 250, 500, 1000	0 to 2000 MΩ	0 to 5000 Ω	Line/Hand-cranked	\$1,075.00
	212459	100, 250, 500, 1000	0 to 2000 MΩ	0 to 5000 Ω	6 "AA" cells	\$1,000.00
	212559	100, 250, 500, 1000	0 to 2000 MΩ	0 to 5000 Ω	Line/Recharg. Battery with internal charger	\$1,075.00
Digital Autoranging	210600	100, 250, 500, 1000	0.10 to 1999 MΩ	0.01 to 19.99 kΩ	6 "AA" cells	\$1,040.00
High Resistance	210170	100 250 500 1000	0 to 20,000 MΩ	0 to 5000 Ω	Hand-cranked	\$1,190.00

Request your particular instrument using the appropriate catalog number.
 Need help determining an instrument for your particular needs?
 Call your local Megger authorized distributor or dial 866-254-0962

Other Specialty 1-kV Insulation Testers

Cat. No.	Test Voltage	Features	List Price USD
WM6 (21805-3)	500	<ul style="list-style-type: none"> ■ Tests up to 200 MΩ at 500 V dc ■ Easy-to-read high contrast analog scale ■ Comes complete with case and leads ■ Hand-cranked, "Midget Megger" ■ 0 to 100 Ω continuity range 	\$895.00

