

# MIT520/2 and MIT1020/2

## 5 kV and 10 kV Insulation Resistance Testers



- **CAT IV 600 V**
- **Mains or battery powered**
- **Variable test voltage from 50 to 5000 or 10,000 V**
- **Automatic IR, PI, DAR, SV and DD tests**
- **Measures to 15 T $\Omega$  (5 kV) and 35 T $\Omega$  (10 kV)**
- **RS232 and USB download of results to Megger Download Manager**
- **On board memory for results storage**

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### DESCRIPTION

The new 5 and 10 kV insulation resistance testers from Megger are designed specifically to assist you with the testing and maintenance of high voltage electrical equipment. IEEE 43-2000 recommends the use of 10 kV for motor windings rated above 12 kV and the Megger MIT1020/2 facilitates this. The case is incredibly rugged and easy to carry, being made of tough polypropylene and achieving an ingress protection rating of IP65. In addition, the model number is marked on both sides of the case for ease of identification in stores or vehicles.

The instruments have a large easy to read backlit LCD display making it equally suitable for use in both bright sunlight and poorly lit environments. Information displayed includes resistance, voltage, leakage current, capacitance, battery status and time constant. In addition, the elapsed time of the test is displayed constantly, removing the need for separate timers. Adjustable timers and limit alarms are included.

The instrument can test when being powered by the mains or its internal rechargeable battery, a great benefit when site conditions are unknown or long term testing is required.

The controls of the instrument are clear and unambiguous and a "quick start" guide is included in the lid of the instrument removing the need to carry bulky manuals under site conditions.

The instrument is fitted with a guard terminal to enhance accuracy. The guard test lead is included as standard with the instrument.

To further enhance the flexibility of the instruments both have the facility to set the test voltage in steps from 50 V to the maximum output voltage avoiding the expense of several insulation resistance testers to meet your application needs.

These IR instruments are designed to meet the highest safety standards and meet the requirements of EN61010. In addition, the instrument measures the voltage at the terminals and if this is above 50 V then the instrument will display the high voltage warning and inhibit testing. At the end of the test the instrument will automatically discharge the energy transferred to the equipment during the test phase.

The MIT520/2 and MIT1020/2 are equally suited to routine testing and diagnostic regimes being pre-programmed with IR, PI, DAR, SV and DD profiles.

**SPECIFICATION**

**Voltage input range**

85-265 V rms, 50/60 Hz, 60 VA

**MIT520/2 battery life**

Typical capacity is 6 hours continuous testing at 5 kV with a 100 MΩ load

**MIT1020/2 battery life**

Typical capacity is 4 hours continuous testing at 10 kV with a 100 MΩ load

**MIT520/2 test voltages**

50 V to 1 kV in 10 V steps, 1 kV to 5 kV in 25 V steps

**MIT1020/2 test voltages**

50 V to 1 kV in 10 V steps, 1 kV to 10 kV in 25 V steps

**Accuracy from 1 MΩ to:**

**MIT520/2 accuracy (23 °C, 5 kV)**

	5000 V	2500 V	1000 V	500 V	250 V
±5% to	1 TΩ	500 GΩ	200 GΩ	100 GΩ	50 GΩ
±20% to	10 TΩ	5 TΩ	2 TΩ	1 TΩ	500 GΩ

**Accuracy from 1 MΩ to:**

**MIT1020/2 accuracy (23 °C, 10 kV)**

	10 kV	5000 V	2500 V	1000 V	500 V
±5% to	2 TΩ	1 TΩ	500 GΩ	200 GΩ	100 GΩ
±20% to	20 TΩ	10 TΩ	5 TΩ	2 TΩ	1 TΩ

**Guard**

2% error guarding 500 kΩ leakage with 100 MΩ load

**Display range**

Digital display (3 digits) 10 kΩ to 15 TΩ (MIT520/2) to 35 TΩ (MIT1020/2)  
Analogue display 100 kΩ to 1 TΩ

**Short circuit/charge current**

3 mA @ 5 kV (MIT520/2) or 10 kV (MIT1020/2)

**Capacitor charge time**

<3 seconds per μF at 3mA to 5 kV (MIT520/2)  
<5 seconds per μF at 3mA to 10 kV (MIT1020/2)

**Capacitor discharge time**

<120ms per μF to discharge from 5000 V to 50 V (MIT520/2)  
<250ms per μF to discharge from 10000 V to 50 V (MIT1020/2)

**Capacitance measurement (above 500 V)**

10 nF to 50 μF (dependent on measurement voltage)

**Capacitance measurement accuracy (23 °C)**

±5% ±5 nF

**Voltage output accuracy (0 °C to 30 °C)**

+4%, -0%, ±10 V of nominal test voltage at 1 GΩ load

**Current measurement range**

0.01 nA to 5 mA

**Current measurement accuracy (23 °C)**

±5% ±0.2 nA at all voltages

**Default voltmeter range:**

50-600 V a.c. or d.c. Accuracy (23 °C) + or -2% + or -1 V

**Interference rejection**

**MIT520/2** 1 mA per 250 V up to a maximum of 2 mA

**MIT1020/2** 1 mA per 600 V up to a maximum of 2 mA

**Timer range**

Up to 99 minutes and 59 seconds from start of test  
15 second minimum setting for test voltage ≥1000 V  
30 second minimum setting for test voltage <1000 V

**Memory capacity**

32 kB

**Test regimes**

Auto IR, PI, DAR, SV and DD.

**Interface**

RS232 and USB

**Data store**

Voltage, test time, leakage current, resistance, PI, DAR, DD, capacitance and time constant

**Real time output**

Serial, once per second of test voltage, current and resistance

**Operating temperature**

-20 °C to 50 °C

**Storage temperature**

-25 °C to 65 °C

**Ingress protection (lid closed)**

IP65

**Humidity**

90% RH non-condensing at 40 °C

**Safety**

Meets the requirements of IEC61010-1 CATIV 600 V

**EMC**

Meets the requirements of IEC61326-1

**Dimensions**

305 x 194 x 360 mm (12.7 x 6 x 14.2 inches)

**Weight**

7.1 kg (16lb) approx.

**ORDERING INFORMATION**

<b>Item (Qty)</b>	<b>Order Code</b>	<b>Item (Qty)</b>	<b>Order Code</b>
5 kV insulation resistance tester	MIT520/2	3 x 8 with large insulated clips	1002-646
10 kV insulation resistance tester	MIT1020/2	3 x 10 m with large insulated clips	1002-647
		3 x 15 m with large insulated clips	1002-648
<b>Included Accessories</b>			
3 m lead set insulated clips	1002-531	<b>Control circuit test lead sets</b>	
User guide on CD-ROM	2000-213	2 x 3 m control circuit, small insulated clips	6220-822
RS232 cable	25955-025	<b>Screened HV test leads</b>	
USB cable	25970-041	1 x 3 m, 5 kV screened un-insulated small clips	6220-835
3 x 3 m lead set insulated clips (MIT1020/2 only)	1002-534	1 x 15 m, 5 kV screened un-insulated small clips	6311-080
<b>Optional Accessories</b>			
<b>HV test lead sets</b>			
3 x 3 m with un-insulated small clips	8101-181	1 x 3 m, 10 kV screened un-insulated small clips	6220-834
3 x 8 m with un-insulated small clips	8101-182	1 x 10 m, 10 kV screened un-insulated small clips	6220-861
3 x 15 m with un-insulated small clips	8101-183	1 x 15 m, 10 kV screened un-insulated small clips	6220-833
3 x 5 m with medium insulated clips	1002-641		
3 x 8 m with medium insulated clips	1002-642		
3 x 10 m with medium insulated clips	1002-643		
3 x 15 m with medium insulated clips	1002-644		
3 x 5 m with large insulated clips	1002-645		

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**ISO STATEMENT**  
Registered to ISO 9001:2008 Cert. no. Q 09250  
Registered to ISO 14001-2004 Cert. no. EMS 61597  
**MIT520-2\_MIT1020-2\_DS\_en\_V09**  
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