Megger.

MIT200 Series
Insulation and Continuity Testers
User guide

⚠ Safety Warnings and Precautions

These must be read and understood before the instrument is used. They must be observed during use.

- The circuit under test must be switched off, de-energised and isolated before test connections are made when carrying out insulation and continuity tests.
- Circuit connections and exposed metalwork of an installation or equipment under test must not be touched. Remember remote conductors may be charged to the test voltage.
- The live circuit warning and automatic discharge are additional safety features which may fail and therefore **safe working procedures/practices must be observed.**
- The voltage function will only work if the instrument is functional and switched on.
- After insulation tests, capacitive circuits must be allowed to discharge **before** disconnecting test leads.
- The instrument, test-leads, probes and crocodile clips must be in good order, clean and with no broken or cracked insulation.
- Ensure that hands remain behind guards of probes/clips when testing.
- National Safety Authorities may recommend the use of fused test leads when measuring voltage on high-energy systems.
- Replacement fuses **must** be of the correct type and rating. to observe this will result in a safety hazard.
- The rear cover **must** be in place whilst conducting tests.

NOTE

THE INSTRUMENT MUST ONLY BE USED BY SUITABLY TRAINED AND COMPETENT PERSONS.

Users of this equipment and/or their employers are reminded that National Health and Safety Legislation requires them to carry out valid risk assessments of all electrical work so as to identify potential sources of electrical danger and risk of electrical injury such as inadvertent short circuits. Where the assessments show that the risk is significant then the use of fused test leads may be appropriate.

Symbols used on the instrument:

⚠ Caution: refer to accompanying notes

⧈ Equipment protected throughout by Double Insulation (Class II)

CE Equipment complies with relevant EU Directives

N13117 ✓ Equipment complies with 'C tick' requirements

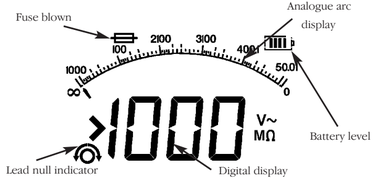
Do not dispose of in the normal waste stream

⚠ 600V Maximum input voltage 600 V rms

Application

BS EN 61010 defines measurement categories from I to IV relating transient over voltages and the location within the electrical installation. This instrument is designed for use at Category III (Building installation/distribution board level) up to 600 V (maximum) rms to earth and 600 V (maximum) rms between terminals. It may also be used at Category IV (Primary supply level) on 300 V rms phase to earth systems.

Display layout



Operation

All circuits must be isolated before an insulation or continuity test.

Automatic Voltage detection

The instrument will automatically display voltage between 25 V and 600 Vac or dc when connected to the circuit under test.

Remove the source of any voltage before continuing to test.

Test lead check

1. Before each use of the instrument, inspect the test leads, prods and crocodile clips to confirm that their condition is good, with no damaged or broken insulation.
2. Check continuity of the test leads by firmly shorting the leads together and read the test lead resistance measurement directly from the display.

Backlight operation

1. Turn the instrument backlight on by selecting the ☼ position. Backlight stays on for 1 minute.
2. When the backlight is activated, select the desired test position.
3. Change range or press [TEST] to re-initialise backlight for another minute.

Test lead null

To remove test lead resistance before continuity tests:

1. Switch the instrument to [Ω]
2. Short test leads together, wait for a stable reading and press the test button on the instrument. The display should read 0.00 Ω and display the [ ] symbol.

Lead null value is automatically stored until reset.

To remove, press the TEST button again with leads open circuit.

Continuity Measurement [Ω]

1. Set range switch to [Ω].
2. Connect the red and black test leads to the circuit to be tested. The instrument will automatically display continuity resistance when connected (up to 99.9 Ω).

NOTE: If ">100.0 Ω " is displayed the resistance of the circuit is over-range.

Continuity Buzzer [ ]

1. Set the instrument to [ ] range.
2. Connect the test leads to the circuit to be tested.
3. The buzzer will sound automatically when a circuit is made (<5Ω)
4. If a circuit voltage >2 V is detected the test will be inhibited.

Insulation testing [MΩ] all instruments

1. Set range switch to [250 V], [500 V] or [1 kV] as available.
2. Press and hold down the TEST button to start test. The display will settle, and show the insulation test resistance in MΩ.
3. If a circuit voltage of >25 V is detected the instrument will give a warning Beep but allow testing to continue.

If a circuit voltage >50 V is detected, further testing will be prevented.

Warning:

After testing ensure the display returns to Zero (circuit is discharged) before removing test leads.

Error messages:

>100.0 Ω	Continuity over-range
<0.01 M Ω	Insulation test result is under-range
>1000 M Ω	Insulation test result is over-range
UNC	Uncalibrated
E17	Instrument not configured to a specific type.

Battery replacement

Low battery voltage is indicated by the ▭ symbol in the display. To maintain performance the batteries should be replaced at this point.

Uses 6 x 1.5 V AA (LR6) alkaline dry cells or NiMH rechargeable batteries.

To replace batteries switch off instrument and disconnect test leads from the circuit under test.

Remove the rear battery cover and replace the batteries. Do not mix old and new batteries.

Warning: OBSERVE CORRECT POLARITY. Incorrect battery polarity could cause batteries to leak and damage the instrument.

Fuse replacement

A blown fuse is indicated by the symbol ▭ in the display.

To replace the fuse remove battery cover and replace fuse with type: 500 mA (F) HBC 50 kA 600 V.

Cleaning: Wipe disconnected instrument with a clean cloth dampened with soapy water or Isopropyl Alcohol (IPA).

Specification

Insulation ranges

Test voltage accuracy:	-0% +25% over full operating temperature
Nominal Test Voltage:	1000 V, 500 V, 250 V (d.c.)
Measuring Range:	10 kΩ - 999 MΩ on all ranges
Short Circuit Current:	2 mA -1 mA +0 mA
Test Current on Load:	1 mA at min. pass values of insulation (as specified in BS 7671, EN61557, HD 384 and IEC 364)
Accuracy (at 20° C)	±3%, ±2 digits (or 30% of reading 200 kΩ to 10 MΩ)

Continuity ranges

Measuring Range:	0,01 Ω - 100 Ω (0 -50 Ω on analogue scale)
Open Circuit Voltage:	5 V ± 1 V
Short Circuit Current:	205 mA, ± 5 mA (0 to 10 Ω) (>20 mA up to 100 Ω)
Accuracy (at 20° C):	±3% ±2 digits
Null Offset Adjust:	0 – 9 Ω
Continuity Buzzer:	Operates at < 5 Ω Response time <20 ms
Default voltmeter:	all test modes except off
Test inhibit:	>50 V
AutoPower Down:	Operates after 10 minutes if left in standby mode.

Environmental

Operating Range:	-10°C to +55°C
Operating Humidity:	93% R.H. at +40°C max.
Storage Range:	-25°C to +65°C
Dimensions:	195 mm x 98 mm x 40 mm
Weight:	550 gms
Battery:	6 x 1,5 V cells IEC LR6 type (AA alkaine) or NiMH rechargeable
Battery life:	3000 consecutive tests (5 sec/test) on any test using 2Ah batteries

Fuses

Terminals:	500 mA (F) 600 V, 32 x 6 ceramic HBC 50 kA minimum

Safety

Meets the requirements of BS EN61010-1, Cat III 600 V phase to earth. Refer to safety warnings supplied.

Automatic discharge

After an insulation test, the circuit under test will be discharged automatically. Any voltage present will be indicated on the display so that the discharge can be monitored.

EMC

In accordance with IEC 61326 including amendment No.1

Included accessories

Test lead set (red and black) with crocodile clips	6220-779
Hard carry case	5410-346

Optional accessories

2 wire fused probe and clip set	6220-787
Rubber holster (Boot)	5410-346

Repair and Warranty

The instrument contains static sensitive devices, and care must be taken in handling the printed circuit board. If an instrument's protection has been impaired it should not be used, but sent for repair by suitably trained and qualified personnel. The protection is likely to be impaired if for example, it shows visible damage, fails to perform the intended measurements, has been subjected to prolonged storage under unfavourable conditions, or has been subjected to severe transport stresses.

NEW INSTRUMENTS ARE GUARANTEED FOR 3 YEARS FROM THE DATE OF PURCHASE BY THE USER.

Note: Any unauthorized prior repair or adjustment will automatically invalidate the Warranty.

CALIBRATION, REPAIR AND SPARE PARTS

For service requirements for Megger Instruments **contact**:

Megger Limited	or	Megger
Archcliffe Road		Valley Forge Corporate Centre
Dover		2621 Van Buren Avenue
Kent CT17 9EN		Norristown PA 19403
England.		U.S.A.
Tel: +44 (0) 1304 502 243		Tel: +1 610 676 8579
Fax: +44 (0) 1304 207 342		Fax: +1 610 676 8625

Megger operate fully traceable calibration and repair facilities, ensuring your instrument continues to provide the high standard of performance and workmanship you expect. These facilities are complemented by a worldwide network of approved repair and calibration companies to offer excellent in-service care for your Megger products.

Returning your product to Megger - UK and USA service centres

1. When an instrument requires recalibration, or in the event of a repair being necessary, a Returns Authorisation (RA) number must first be obtained from one of the addresses shown above. You will be asked to provide the following information to enable the Service Department to prepare in advance for receipt of your instrument, and to provide the best possible service to you.
   - Model, e.g. MIT200.
   - Serial number, to be found on the underside of the case or on the calibration certificate (e.g. 6111-357/050305/1234)
   - Reason for return, e.g. calibration required, or repair.
   - Details of the fault if the instrument is to be repaired.
2. Make a note of the RA number. A returns label can be emailed or faxed to you if you wish.

3. Pack the instrument carefully to prevent damage in transit.
4. Ensure the returns label is attached, or that the RA number is clearly marked on the outside of the package and on any correspondence, before sending the instrument, freight paid, to Megger. Copies of the original purchase invoice and packing note should be sent simultaneously by airmail to expedite clearance through customs. In the case of instruments requiring repair outside the warranty period, an immediate quotation can be provided when obtaining the RA number.
5. You may track the progress of your return on line at www.megger.com

Approved Service Centres

A list of Approved Service Centres may be obtained from the UK address above, or from Megger's website at www.megger.com

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Megger Limited
Archcliffe Road, Dover
Kent CT17 9EN England
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This instrument is manufactured in the United Kingdom.

The company reserves the right to change the specification or design without prior notice.

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