BMM80
Premium Insulation Multimeters

- **Insulation measurement to 200 GΩ**
- **200 mA Short Circuit Current output**
- **mV Transducer inputs**
- **Test lead/transducer null facility**
- **Backlight**
- **Remote control switched probe included**
- **Capacitance Measurement to 10 µF**
- **AC/DC voltage measurement to 500 V**
- **Waterproof and Dustproof to IP54**

DESCRIPTION

The Megger® BMM80 Insulation Multimeter builds on the renowned features of the BM80. Advanced microprocessor technology provides a host of new features not normally associated with standard insulation and continuity testers.

The instrument utilises a large backlit LCD display incorporating a patented analogue arc which incorporates the benefits of electronic analogue indication and unambiguous digital readings. The analogue scale provides rapid identification of insulation condition highlighting any variable readings and is complemented by the precision and simplicity of the digital display.

The BMM80 provides the ideal mix of features for Telecom usage or for the electrical contractor requiring the top performance and functionality but without the need for data storage and download.

The instrument features five insulation test voltage ranges, (50 V, 100 V, 250 V, 500 V and 1000 V), In compliance with BS7671, IEC364, HD38 and VDE0413 Parts 1 and 4, the 250 V, 500 V and 1000 V ranges have a 1 mA test current at the minimum pass levels specified. Insulation measurements extending up to 200 GΩ may be made

A live circuit warning is included to guard against inadvertent connection of the instrument to a live supply. Voltage in excess of 25 V will trigger the warning indicator.

A hands free 200 mA continuity test range meeting the requirements of European legislation is also included to ensure the accurate measurement of ring circuit final conductors and primary and supplementary bonding. The range has a facility to null the resistance of the test leads ensuring that the measurement displayed is due entirely to the conductors under test. A continuity buzzer is incorporated and sounds when resistance's below approximately 5 Ω are encountered.

The insulation and continuity ranges are augmented by a number of features only to be found on a dedicated multimeter. The BMM80 series includes autoranging voltage measurement up to 500 V a.c./d.c., resistance measurement from as low as 10 mΩ up to 10 M and a capacitance range extending to 10 µF.

By incorporating all the above features into a single unit the BMM80 can in many cases remove the need to carry a separate multimeter. In addition, for assistance in awkward situations a remote control switched probe, (Megger SP1), is also included enabling the instrument to be controlled from a probe mounted test button.

The BMM80 has been designed to withstand the day to day handling and storage of a toolbag environment and comes complete with a durable test and carry case with strap, removable lead storage compartment and instrument hanging facilities. The BMM80 is backed by a three year manufacturers warranty.

The BMM80 features special mV ranges with an offset null facility, enabling connection of any transducer with a mV output. Such devices extend the range of possible measurements almost endlessly including such items as temperature probes, airspeed indicators and high current clampmeters thus extending the scope of the BMM80 into

key industries such as Heating and ventilation (HVAC), and Servicing.

ELECTRICAL CONTRACTORS

The BMM80 Insulation Multimeter has a wide variety of applications and is ideal for testing electrical installations to both the British and the International Wiring Regulations. Each instrument conforms to the requirements of Table 71A in BS7671 and to VDE 0413 parts 1 and 4, HD 384, IEC 364 and EN 5117. In addition the range meets the requirements of BSEN 61010-1 for safe connection to a 440V Installation Category III supply.

The BMM80 Insulation Multimeter is designed to provide the electrical contractor with a highly functional tool for testing/commissioning fixed installations and telecom systems. The inclusion of a power saving backlight ensures that the display can be clearly seen even where the distribution board is located in a dark cupboard but without ruining battery life.

Where certificates of test are required data may be manually entered onto the forms or manually entered into certification software such as PowerSuite for Windows or NICEone to create a professional certificates with the traceability necessary for safety critical applications.

Of the five insulation test voltages provided on the BMM80 the 250 V, 500 V and 1000 V voltages ensure that the correct test voltage for fixed installations under test is always available. The 500 V range is suitable for the majority of testing on circuits with a nominal voltage up to 500 V. The 250 V insulation range is necessary where low voltage circuits supplied by an isolating transformer are tested whilst the 1000 V range is used for circuits with a nominal voltage exceeding 500 V and below 1000 V.

The instrument has a 200 mA continuity range which is ideal for testing the continuity of ring final circuit conductors, primary bonding of services and of supplementary bonding conductors. The zero offset adjustment allows the resistance of the test leads to be ignored so the measurement shown is due to the conductors under test only.

To aid operation in awkward situations where the instrument cannot be held in one hand the Megger SP1 switched probe is included to facilitate control of the instrument test button directly from the probe.

In addition to the electrical features above the rugged design of the BMM80 ensures that it can withstand the everyday handling, transportation and storage with other tools in the contractors toolbag and is supplied with a three year manufacturer's warranty.

SERVICING AND HVAC

The BMM80 Insulation Multimeter is well suited to applications within the service industry since it offers a comprehensive range of features addressing many of the requirements of the service engineer in a single unit.

The insulation ranges are useful for establishing the integrity of the internal parts such as motors, timers and transformers. The 50 V and 100 V test voltages enable testing of circuits and components where higher voltages can not be tolerated whilst the capacitance range can be used on PCB components. The 200 mA continuity range can easily be used to verify the correct earth bonding of the case metalwork and checking the operation of switches etc.

The multimeter functions of Voltage, Resistance and Capacitance find a multitude of uses in the measurement of component parts within consumer appliances such as the verification of correct mains supplies timer switching characteristics and component level measurements on control PCB's.

The unique mV transducer input ranges enable the BMM80 to interface to a vast range of transducers for measurement of the various parameters necessary during servicing and in the commissioning and verification of HVAC systems. Temperature measurement is one of the most important additions for the service industry enabling the correct operation of items such as oven thermostats or the measurement of heated air temperature and humidity to be made.

To further assist in servicing situations currents, (up to 10 A a.c.), may be measured by connecting the optional Megger MCC10 current clamp. This enables measurements of appliance element/motor currents etc to be made quickly and safety without interrupting the conductors.

TELECOMMUNICATIONS

In addition to the standard installation testing functions the BMM80 includes additional 50 V and 100 V insulation testing facilities and a 10 uF capacitance range. The low voltage insulation tests are necessary for the testing of delicate components and equipment found in telecom systems which would be damaged by higher voltages.

The instruments are designed to perform tests on systems with up to 25 V of electrical interference or crosstalk without the accuracy or reliability of results being effected and with no damage to the instrument.

A wide resistance measuring capability enables a degree of cable fault pre-location to be performed by using resistance to fault methods. Additionally the wide voltage ranges allow accurate measurement of line and battery voltages.

SPECIFICATIONS

INSULATION RANGES

Nominal Test Voltage (d.c.):

50 V, 100 V, 250 V, 500 V and 1000 V

(1000 V not available on BM81/2.)

Measuring Range BMM80 0,01 MΩ to 200 GΩ
(0 - 100 GΩ on analogue scale)

EN61157 Operating range: 0,10 Ω to 99,9 MΩ

Test voltage accuracy: +20% maximum on open circuit

Short circuit current: < 2 mA

Test Current on load:

1 mA at min. pass value of insulation specified in BS7671, HD384 and IEC364, 2 mA max.

Accuracy: ±2% ±2 digits ±0.2% per GΩ

Auto-Discharge facility safely discharges the connected circuit after a test

Live Circuit Warning

Provides automatic warning when connected to live circuits. Threshold 25 V

Continuity

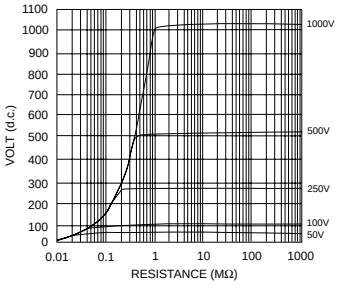
Measuring Range: 0,01 Ω to 99,9 Ω
(0 to 10 Ω on analogue scale)

EN61577 Operating Range: 0,10 Ω to 99,9 Ω

Accuracy: ±2% ±2 digits

Open circuit voltage: 5 V ±1 V

Test current: 210 mA ±10 mA (0 - 2 Ω)



Zero offset at probe tips: 0,10 Ω typical

Lead resistance zeroing: Up to 9,99 Ω

Buzzer: Operates continuously at less than 5 Ω

Resistance

Measuring Range: 0,01 kΩ to 9,99 MΩ
(0 to 100 MΩ on analogue scale) with Auto Ranging or Range Lock Facility.

Accuracy: ±3% ±2 digits

Open circuit voltage: 5 V ±1 V

Short circuit current: 25 μA ± 5 μA

Voltage

Measuring Range: ±1 V to ±500 V
(0 to 1000 V on analogue scale)

Accuracy: 0 to 500 V d.c. or a.c. (50/60 Hz)
±2% ±3 digit

0 to 500 V 400 Hz a.c.
± 5% ±3 digits

Millivolts

Measuring Range: ±0,1 mV to 1 ±999 mV
(0 to 1000 mV on analogue scale)

Accuracy: 10 mV to 1999 mV d.c. or a.c.
(50/60 Hz) ±2% ±3 digit

0,1mV to 10 mV d.c. or a.c.
(50/60 Hz) ±2% ±5 digits

10 mV to 1999 mV a.c.
(16-460 Hz) ±5% ±3 digit

0,1 mV to 10 mV a.c.
(16-460 Hz) ±5% ±5 digits

d.c. millivolts zeroing: Up to 9,9 mV

Transducer Compatibility

Virtually any mV output transducer may be connected to facilitate measurements of other parameters such as temperature, humidity etc. A unique transducer offset adjustment ensures is included.

Capacitance (BMM2580)

Measuring Range: 0,1 nF to 9,99 μF

Accuracy: ±3% ±0,2 nF ±2 digits

uF zeroing: Up to 10 nF

Power Supply

Battery Type: 6 x 1,5V Alkaline cells
IEC LR6 type

Battery Life: Typically 3000, 5 second 1 kV tests

Auto Shut Off

The BMM80 feature an auto shut off facility which turns the instrument off after approximately 5 minutes, (12 minutes on insulation ranges), to conserve battery life

Safety

The BMM80 complies with the latest international directives concerning safety and electromagnetic compatibility

The instruments meet the requirements for double insulation to IEC 61010-1 (1995), EN 61010-1 (1995) Safety Requirements for electrical equipment for measurement, control, and laboratory use. Category III**, 300 Volts phase to earth (ground) and 440 Volts phase to phase, without the need for separately fused test leads. If required, fused test leads are available as an optional accessory.

** Relates to the transient over-voltages likely to be met in fixed wiring installations.

Complies with the following parts of EN 61557, Electrical safety in low voltage systems up to 1000 V a.c. and 1500 V d.c. - Equipment for testing, measuring or monitoring of protective measures:-

Part 1 - General requirements

Part 2 - Insulation resistance

Part 4 - Resistance of earth connection and equi-potential bonding

Part 10 - Combined Measuring Equipment

Fuse

500 mA (F) 500 V , 32 x 6mm Ceramic HBC 10 kA minimum.

Electromagnetic Compatibility

RF Susceptibility
The BMM 800 series comply with IEC 61326

RF Emission
The BMM 80 series comply with IEC 61326
FCC Part 15 Class B

Environmental Conditions

Operating range: -5 to +40ºC

Operating humidity: 90% RH at 40ºC max.

Storage temperature range: -25 to +65ºC

Calibration Temperature: +20ºC

Maximum altitude: 2000 m

Dust and water protection: IP54

Temperature coefficient: <0,1% per ºC

Physical Specifications

Dimensions

Length: 220 mm (8.66 inches)

Depth: 110 mm (4.33 inches)

Height: 45 mm (1.77 inches)

Weight: 742 g (1.63 lbs)
(including batteries)

Cleaning

Wipe with a clean cloth damped with soapy water or Isopropyl Alcohol (IPA).

ORDERING INFORMATION

Item (Qty)	Order Code
50/100/250/500/1000 V Insulation Multimeter	BMM80
Included Accessories	
User Guide	Depends on language
Test lead set	6220-437
Test-&-carry case	6420-123
Switched probe SP1	6220-606
Optional Accessories	
Fused lead set, FPK8	6111-218
Zip-up carrying case	6420-124
Test Record Cards (Pack of 20)	6111-216
MCC10 10A Current Clamp	6111-290
Printer Serial Lead	25955-026
Optional Software	
PowerSuite for Windows	See supplier
(Comprehensive Electrical Testing Software)	
NICEone	6111-403
(Certification software for producing NICEIC certificates)	
Publications	
'A Stitch in Time' (Video)	AVTM21-P8
Testing Electrical Installations (Book)	6231-605

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