

# BMM2500 and BMM2580

## Premium Insulation Multimeters



- **Insulation measurement up to 200 Gohm (BMM2580)**
- **200 mA Continuity Range**
- **Voltage, current and kΩ resistance measurement**
- **mV Transducer inputs**
- **Result storage and Data Logging**
- **PowerSuite Compatible RS232 output**
- **Download Manager Software included**
- **Direct Printer Output**
- **Electronic Locking Test Button**
- **Remote control switched probe**

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### DESCRIPTION

The Megger® BMM2500 series of Insulation Multimeters utilise advanced microprocessor technology to provide a host of new features not normally associated with standard insulation and continuity testers.

The instruments utilise 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 BMM2500 series provide the ideal mix of features for the busy electrical contractor requiring the ultimate in performance and functionality combined with speed of operation and efficiency provided by the downloading of data. When combined with software certification the system provides a highly professional image for the contractor combined with the ever increasing need for tracability of test results.

The BMM2580 offers all the features of the 2500 but with the addition of 100 V and 50 V insulation ranges and a 10 uF capacitance range. These additional features make the instrument ideally suited for applications in the telecom industry.

Both instruments offer comprehensive data storage options with individual test results being stored against user selectable distribution board and circuit references.

Alternatively data logging may be selected and up to 300 consecutive measurements of any chosen parameter may be made at a selectable time interval. Data storage is contained within non-volatile memory, (NVM), ensuring that test results are not lost in the event of battery failure or removal.

Once stored, results may be recalled to the display, printed to an external serial printer or downloaded to suitable software. Download Manager™ for Windows is included enabling language changes to be performed, along with the simple download of stored data from the instrument into comma separated variable files. These files can be maintained as a record, used for manually completing certificates or exported to other applications such as spreadsheets and word processor documents. Where creation of certificates of test is required both instruments are fully compatible with PowerSuite for Windows and NICEone. (for N.I.C.E.I.C. Certification alone)

Both instruments feature special mV ranges enabling connection of a wide variety of mV output transducers. 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 BMM2500 series into key industries such as heating and ventilation (HVAC), and servicing.

## **ELECTRICAL CONTRACTORS**

The BMM2500 series insulation multimeters 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 440 V Installation Category III supply.

The BMM2500 series Insulation Multimeters are designed to provide the electrical contractor with the ultimate tool for testing/commissioning fixed installations. The on-board storage facilities enable each test result to be assigned to particular distribution board and circuit references. Data may be later recalled to the display for manual completion of certificates of test or for maximum performance downloaded to certification software such as PowerSuite for Windows or NICEone to create a seamless recording system with the traceability necessary for safety critical applications. The inclusion of an intelligent 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.

Three insulation test voltages of 250, 500 and 1000 V are provided to ensure that the correct test voltage for the installation 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. An additional leakage facility allows any insulation measurement to be displayed in terms of microampere leakage currents.

The instruments have 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.

The feature set of the BMM2500 series extends to include measurement ranges for voltage, current, resistance enabling one instrument to be used where normally a separate multimeter would be called for.

To aid operation in awkward situations where the instrument cannot be held in one hand the Megger SP1 switched probe, (supplied as standard), may be connected enabling control of the instrument test button directly from the probe.

In addition to the electrical features above the rugged design of the BMM2500 range ensures that they 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 BMM2500 series are ideal tools for the service industry since they offer a comprehensive range of features addressing 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 whilst the continuity range can verify the correct earth bonding of the case metalwork and checking the operation of switches etc.

The multimeter functions of Voltage, Current and Resistance 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 BMM2500 series 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 higher 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 safely without interrupting the conductors.

## **TELECOMMUNICATIONS**

The advanced data logging facilities of the BMM2500 series enable a log of measured value at regular presettable intervals for any of the measured parameters e.g., voltage, capacitance, insulation, resistance etc. In the case of insulation resistance the logging facility enables calculations of Dielectric Absorption Ratios and polarisation Index. The polarisation index is defined as the ratio between the insulation resistance values after 1 minute and 10 minutes. This calculation is often useful for determining insulation quality without the need for temperature compensation or necessary referral to historic test data.

## SPECIFICATIONS

(All quoted accuracy's are at +20°C)

### Insulation Ranges

#### Measuring Range:

|          |                                                      |
|----------|------------------------------------------------------|
| BMM 2500 | 0,01 MΩ to 20 GΩ                                     |
| BMM 2580 | 0,01 MΩ to 200 GΩ<br>(0 - 100 GΩ on analogue scale). |

#### EN61157 Operating range:

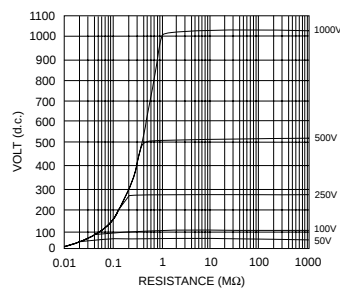
0,10 Ω to 99,9 MΩ

**Test voltage accuracy:** +15% 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 IEC 364, 2mA 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:** ±1V 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

0,1 mV 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

### Milli-amps

**Measuring Range:** 0,1 mA to 500 mA (0 to 1000 mA on analogue scale)

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

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

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

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

### Frequency

**Measuring range:** 16 Hz to 460 Hz

**Accuracy:** ±1% ±1 digit

### Backlight

User selectable LED backlight with auto turn off to save battery life

### Test Result Storage

Up to 99 Distribution Board References each with up to 99 Circuit References may be specified. Test Results may be stored against any circuit and distribution board combination.

Data may be recalled to the display, printed or downloaded to PowerSuite for Windows or NICEone software

### Communications

RS232 9 pin male D connector

Baud rate 9600

### Printer Output

Prints test results, distribution board and circuit details to external serial printer.

### Two selectable language options

Language 2 may be changed using Download Manager Software supplied as standard.

### Data Logging

The instruments may be set to continuously record any one of the measurable parameters e.g. voltage, insulation resistance etc. The logging interval may also be adjusted to suit the application.

### Logging Interval

10s to 1990s in 10s increments

### Number of samples

Approximately 300

### Accuracy

As above for each parameter

### Power Supply

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

**Battery Life:** Typically 3000, 5 second 1 kV tests

### Auto Shut Off

The BMM2500 series 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 BMM2500 series 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 6 mm Ceramic HBC 10 kA minimum.

Electromagnetic Compatibility

RF Susceptibility

The BMM 2000 series comply with IEC 61326

RF Emission

The BMM 2000 series comply with IEC 61326

FCC Part 15 Class B

### Environmental Conditions

**Operating range:** -5 to +40°C

**Operating humidity:** 90% RH at 40°C max.

**Storage temperature range:** -25 to +65°C

**Calibration Temperature:** +20°C

**Maximum altitude:** 2000 m

**Dust and water protection:** IP54

**Temperature coefficient:** <0,1% per °C

### Physical Specifications

#### Dimensions

**Length:** 220 mm (8.66 inches)

**Depth:** 110 mm (4.33 inches)

**Height:** 45 mm (1.77 inches)

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

#### Cleaning

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

### ORDERING INFORMATION

| Item (Qty)                                                 | Order Code          |
|------------------------------------------------------------|---------------------|
| 250/500V/1000 V Insulation Multimeter                      | BMM2500             |
| 50/100/250/500/1000 V Insulation Multimeter                | BMM2580             |
| <b>Included Accessories</b>                                |                     |
| User Guide                                                 | Depends on language |
| Test lead set                                              | 6220-437            |
| Test-&-carry case                                          | 6420-123            |
| Switched probe SP1                                         | 6220-606            |
| Download Manager Software on CD                            | 6111-442            |
| <b>Optional Accessories</b>                                |                     |
| Fused lead set, FPK8 (Not BMM2580)                         | 6111-218            |
| Zip-up carrying case                                       | 6420-188            |
| Test Record Cards (Pack of 20)                             | 6111-216            |
| MCC10 10A Current Clamp                                    | 6111-290            |
| Computer Serial Lead                                       | 25955-025           |
| Printer Serial Lead                                        | 25955-026           |
| <b>Optional Software</b>                                   |                     |
| PowerSuite for Windows                                     | 6111-237            |
| (Comprehensive Electrical Testing Software)                |                     |
| PowerSuite Xpress                                          | 6111-519            |
| (Certification software)                                   |                     |
| NICEone                                                    | 6111-403            |
| (Certification software for producing NICEIC certificates) |                     |
| <b>Publications</b>                                        |                     |
| 'A Stitch in Time' (Video)                                 | AVTM21-P8           |
| Testing Electrical Installations (Book)                    | 6231-605            |

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Registered to ISO 14001 Reg no. EMS 61597

**BMM2500\_BMM2580\_DS\_en\_V10**

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