

BM220 Series

Analogue Arc/Digital Insulation Continuity Testers



- **Combined analogue arc/digital display**
- **Backlit LCD for reading in restricted light**
- **Test lead null facility**
- **Hands-free continuity testing**
- **Automatic voltage warning and discharge of circuit under test**

DESCRIPTION

The Megger® BM220 series of Analogue Arc/Digital Insulation and Continuity Testers comprises a range of instruments which offers comprehensive test features in a cost effective package.

Combining an analogue arc with a clear 3 digit LCD, the instruments offer a choice of insulation test voltages, with the option of single, dual or triple test voltage instruments. A selectable backlit display is incorporated to ensure readings may be taken in low light areas such as distribution boards or enclosures.

All instruments detect inadvertent connection to a live system which is energised to greater than 25 V. Dependent on model, the instruments either switch to the default voltmeter or indicate the presence of voltage by beeping and flashing the display.

Under this condition an insulation or continuity test cannot be carried out and the instrument will therefore automatically inhibit any further action until the source of voltage has been removed. Although insulation tests should only be carried out on de-energised systems, the instruments are protected on all ranges against accidental connection to phase to earth voltages up to 300 V a.c. and phase to phase voltages of 400 V a.c., Installation Category III.

Further indicators illuminate to show a low battery state and if the protective fuse has ruptured. To avoid accidental use of the 1000 V range, an indicator flashes for 3 seconds

when the range is selected giving a visual warning.

The instruments will automatically shut down after 5 minutes of non use to conserve battery life.

APPLICATION

The BM220 Series will find applications in electrical contracting, both on domestic and industrial systems, and in site maintenance and service departments.

A choice of instruments allows testing to be carried out on circuits with rated voltages up to 1000 V and all instruments may be used on capacitive circuits since, at the end of an insulation test, the circuit under test will be automatically discharged.

The BM220 Series of Insulation and Continuity Testers are ideal for testing transformers, motors, generators, switchgear, domestic appliances, power tools etc., as well as fixed wiring systems. All instruments meet the requirements of most International Standards including VDE0413 Part 1 and BS7671 (the 16th Edition of the IEE Wiring Regulations).

FEATURES AND BENEFITS

- Insulation test ranges produce the rated test voltage into a 1 mA load. Testing can be carried out to International Standard requirements.
- Digital display of insulation measurement up to 999 MΩ

on either linear or logarithmic backlit analogue arc digital display.

- Continuity range has 0,01 Ω resolution and a short circuit current in excess of 200 mA to meet the requirements of International Standards.
- No need to press the test button when continuity testing, leaving both hands free.
- Automatic switch-off after 5 minutes' inactivity conserves battery life.
- Microprocessor control of the solid state digital/ analogue display ensures that only the correct scale for the range selected is visible, avoiding taking readings from the wrong scale.
- Automatic voltage detection avoids accidental contact with dangerously live circuits.
- Auto zero allows automatic compensation for test lead resistance.
- Buzzer range operates at <5 Ω.

SPECIFICATION

Insulation Ranges

Nominal Test Voltage (d.c.)

BM221	BM222	BM223	BM227
500 V	500 V	250 V	250 V
	1000 V	500 V	500 V
		1000V	

Measuring Range

Digital:

0,01 MΩ to 999 MΩ

Analogue:

0,1 MΩ to 1 GΩ

Terminal Voltage on Open Circuit (d.c.):

-0% +30% of rated voltage

Short Circuit Current:

2 mA

Test Current on load:

1 mA at minimum pass values of insulation as specified in BS7671, HD384, IEC364 and VDE0413 part 1.

Accuracy (at 20°C):

±3% of reading ±2 digits up to 10 MΩ

±5% of reading ±2 digits up to 100 MΩ

±30% of reading up to 999 MΩ

Continuity Range

Measuring Range (Auto-ranging):

0,01 Ω to 99,9 Ω

Open Circuit Voltage

5 V ±1 V d.c.

Short Circuit Current:

0,01 Ω to 9,99 Ω 210 mA

10,0 Ω to 99,9 Ω 21 mA

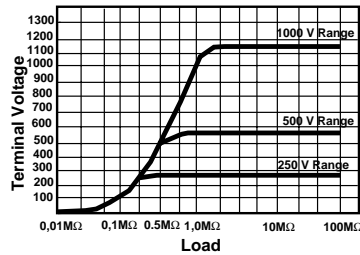
Accuracy (at 20°C):

0,01 Ω to 9,99 Ω ±3% ±2 digits

10,0 Ω to 99,9 Ω ±5% ±2 digits

Lead Resistance Compensation:

0 to 9,99 Ω



Terminal Characteristics

Automatic Discharge

When the test button is released after an insulation test the item under test will be automatically discharged.

Voltage Range

BM221, BM222, BM223, BM227 only.

Default Voltmeter

Operates automatically with any range selected in the presence of an a.c. or d.c. voltage in excess of 25 V.

Range:

25 V to 600 V to 50/60 Hz and d.c.

Accuracy:

25 V to 450 V a.c. to ±1% ±1 digit

450 V to 600 V a.c. to ±2% d.c. accuracy unspecified.

Voltage Warning

BM224 only

Symbol flashes on the display and the buzzer sounds intermittently in the presence of more than 25 V a.c. or d.c.

Battery Condition

If the battery condition becomes low, a symbol will illuminate on the display.

Battery Life

Typically more than 3000 tests each of 5 second duration.

Auto Shut-Off

The instrument will automatically switch off after 5 minutes' inactivity. If the instrument is not to be used for several months, it is recommended that the batteries be removed from the instrument.

Fuse

The instrument is fitted with a 500 mA(F) 440 V ceramic 32 x 6 mm. HBC 10 kA fuse.

Safety

The instrument(s) meet the requirements for double insulation to IEC 1010-1 (1992), EN 61010-1 (1993) to Category III, 300 V phase to earth and 400 V phase to phase.

EMC

In accordance with IEC61326 including Amendment No.1

Overload Ratings

The instrument may be continuously connected to a 300 V phase to earth, 440 V phase to phase category III supply without damage.

An overload of 720 V rms. for 10 seconds will not cause damage to the instrument.

Installation Category

Category III: Fixed Wiring and installations within a building.

Temperature Range

Operation:

-20°C to +60°C up to 100 MΩ

-20°C to +40°C over full range

Storage:

-25°C to +65°C

Operating Humidity

90% RH at 40°C maximum

Power Supply

6 x 1,5 V cells IEC LR6 type.

Nickel Cadmium rechargeable cells may be used.

Weight

530 gm.

Dimensions

195 X 98 X 40 mm.

Item	Order Code
500 V Test Voltage with Voltmeter	BM221
500 V/1000 V Test Voltage with Voltmeter	BM222
250 V/500 V/1000 V Test Voltage with Voltmeter	BM223
500 V Test Voltage without Voltmeter	BM224
250 V/500 V Test Voltage with Voltmeter	BM227
Included Accessories	
Test Lead Set	6220-437
Optional Accessories	
FPK8 Fused Probe Kit	6111-218
Fuses (500 mA) x 5	6121-289
Standard test lead set	6220-437