

B	Title	Part No.
	TECHNICAL SPECIFICATION	6171-978
	1st Used On: BM400 Series & BM80 Series	Sheet 1 of 3

INSULATION TESTS

Insulation tests are only performed when the 'TEST' button is held down. Locking button can be fitted.

The technique used for insulation testing involves voltage and current measurement followed by a calculation to display the result in Megohms.

CONTINUITY TESTS

Continuity tests are initiated automatically when the probes make contact. Range-up occurs at 11Ω and range-down at 10Ω. A range change error of 2 or 3 digits is expected and this is reflected in the specification as an accuracy of – 3% above 10Ω.

GENERAL

OFF is a battery disconnect position, display goes out and nothing operates. When an active switch position is selected but a test is not being performed, the instrument is in stand-by mode, taking minimal battery current but keeping the display on.

RANGES and ACCURACY

SPECIFICATION Calibration temperature: 25° C

Insulation

Range	Full Scale	Accuracy	Accuracy (BM80/A)
1000 V	200 GΩ	– 2% – 2 digits – 0.2% per GΩ	– 0.5% per GΩ
500 V	100 GΩ	– 2% – 2 digits – 0.4% per GΩ	– 1.0% per GΩ
250 V	50 GΩ	– 2% – 2 digits – 0.8% per GΩ	– 2.0% per GΩ
100 V	20 GΩ	– 2% – 2 digits – 2% per GΩ	– 5.0% per GΩ
50 V	10 GΩ	– 2% – 2 digits – 4% per GΩ	– 10 % per GΩ

Notes:

1. All insulation ranges measure from 0.00 MΩ upwards.
2. Full scale is limited to 1 GΩ (digital) on the BM400.
3. All instruments have an analogue full scale of 10 GΩ.
4. Infinity is indicated as a '>' sign followed by the full scale value. e.g. (for BM80 on 500 V range) '>100 GΩ'.
5. The BM400 series do not have the 100 V or 50 V ranges.

Test Voltage accuracy: +15% maximum on open circuit
 - 0% minimum on 1 mA load

Short Circuit current: 1.5 mA – 0.5 mA

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Voltmeter

0 to 450 V dc or ac (50/60 Hz) – 1% – 2 digits
 (BM80 is – 1% – 1 digit)

450 to 600 V dc or ac (50/60 Hz) – 2%

0 to 450 V 400 Hz ac – 5% – 2 digits

Continuity

0.01Ω to 9.99Ω – 2% – 2 digits
 10.0Ω to 100Ω – 3% – 2 digits
 (BM80 Series is – 2% – 2 digits)

Open circuit voltage 5 V – 1 V
 Test current 205 mA – 5 mA (0Ω - 10Ω)
 20 mA – 1 mA (11Ω - 100Ω)

Zero offset at probe tips 0.15Ω maximum
 Lead resistance comp. adjustment range 0 to 9.99Ω

Buzzer The buzzer operates at less than 5 ohms, approximately.

Resistance

0.1 kΩ to 100 kΩ – 5% – 2 digits
 (BM80 Series is – 3% – 2 digits) (BM80/A – 5% – 2 digits)

(Extending to 10 MΩ analogue at reduced accuracy)

Open circuit voltage 4.5 V – 0.5 V
 Short circuit current 18 μA

Default Voltmeter

Operates at >25 volts ac or dc on any range except OFF.
 Reverse polarity dc causes '-dc' to appear in the display.

Battery Test

Measures battery voltage on a simulated load and displays the result both in terms of voltage and as an analogue indication of remaining battery power.

Automatic Discharge

250 kΩ (approx) is connected automatically at end of test.

Overload rating

May be connected to a 440 volt category III supply, or 600 volts category II continuously.
 A 20% overload (720 volts rms) for 10 seconds will not cause damage to the instrument.

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INTERFERENCE

Additional error caused by 50/60 Hz hum:

Insulation ranges (100 kΩ to) <10% error with 100 μA rms. (<10% error with 400 μA rms BM80/A)
 Continuity range (0.2Ω to 50Ω) <3% error with 1 V rms.

SAFETY

Meets the safety requirements of IEC 1010 as Safety Class II for use on 300 volt (phase to earth) Category III systems.

The terminal fuse is 500 mA 440 V 32 x 6 mm Ceramic HBC 10 kA minimum.

All instruments incorporate automatic discharge at the end of a test and a voltage indicator (either a voltmeter or a flashing symbol) to show the presence of >25 volts. This voltage indicator will not work if the instrument is switched off or the battery is flat!

Calibration temperature +20° C
 Operating temperature range -20° C to +60° C
 Temperature coefficient <0.1% /° C
 on all ranges for measurements up to 100MΩ

The above specification applies to measurements up to 1GΩ over the reduced temperature range -20° C to +40° C.

Operating humidity maximum 90% RH @ 40° C max
 Storage temperature range -25 to +65° C

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