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 11Sand range-down at 10S a range change error of 2 or 3 digits is expected and this is reflected in the specification as an accuracy of ±3% above 10S .

GENERAL

REMOTE TEST BUTTON: A third connector is provided on the instrument for the insertion of the optional remote test button lead. This enables the user to probe with both leads and press the button on the lead to initiate a test.

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.

AUTO -OFF :The instrument will auto power off after a period of no less than 12 minutes on insulation ranges , this enables Polarisation Index (P.I.) tests to be carried out to a reasonable resolution.

RANGES and ACCURACY

SPECIFICATION Calibration temperature: 25C

Insulation

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

Notes:

1. All insulation ranges measure from 0.00 MS upwards.
2. Full scale is limited to 1 GS (digital) on the BM400/2.
3. All instruments have an analogue full scale of 10 GS.
4. Infinity is indicated as a '>' sign followed by the full scale value. e.g. (for BM80/2 on 500 V range) '>100 GS'.
5. The BM400/2 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

Voltmeter

0 to 450 V		dc or ac (50/60 Hz)±1% ±2digits (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

Note: the voltmeter can be toggled to a higher resolution by pressing the test button in this range.This gives a 0-50.0 volt range with 0.1 volt resolution.

0 to 50.0 V		dc or ac (50/60 Hz) ±2% ±3digits

Continuity

0.01Ω to 9.99Ω	±2% ± 2 digits
10.0Ω to 100Ω	±3% ± 2 digits
(BM80/2 Series is ±2%± 2 digits)	
Open circuit voltage	5 V ±1 V
Test current	205 mA ± 5 mA (0Ω- 10Ω) 20 mA ±1mA (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	
(BM80/2 Series is ±2% ±2 digits)		(BM80A/2 ±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 all ranges except OFF.
Reverse polarity dc causes '-dc' to appear in the display.
Testing on Insulation ranges above 50v will be inhibited if >55v is detected, 50v range is inhibited at >25v.

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.

INTERFERENCE

Insulation tests (except the 50v range) can be performed upto an interference voltage of 55 v ac or +dc, all tests are disabled above this voltage.

Additional error caused by 50/60 Hz hum:

Insulation ranges (100 kΩ to 4) <10% error with 100 µA rms. (<10% error with 400 µA rms BM80A/2)
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	+20C
Operating temperature range	-20C to +60C
Temperature coefficient on all ranges for measurements up to 100MΩ	<0.1% /C

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

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