

1kV Insulation + Hi-Performance DMM with 10A Input!

- Insulation with 5 Selectable Test Voltages! Reading Smooth mode! Test-Inhibit & Lock-Test Feature!
- 20kHz ACV Bandwidth! 10A + 60.00mV & 60.00Ω Hi-Res Ranges! AC+Hz Dual Display! VFD V & Hz!
- Convenient Remote Probe! Records Min/Max Readings! Relative Zero! BeepJack™ Input Warning!



BM880 Series
Insulation Multimeters

BRYMEN®
BRIGHT PEOPLE'S CHOICE



● **BM887**



● **BM885**

887	885	FUNCTIONS & FEATURES
●	●	3-5/6 Digits 6,000 Counts Large Easy-To-Read LCD Display
●	●	Nominal 5/Sec Fast Measurements; Fully Auto-Ranging
●	●	61 Segment Analog Bar-graph Updates 60/Sec
●	●	Paper-White Back-Lighted LCD Display
●	●	Dual Digital Display AC + Hz Readings
●	●	AC True RMS Conversion
●	●	Intelligent Auto Power Off
●	●	Data Hold
●	●	Relative Zero Mode
●	●	Records Standard Measurement Max/Min Readings
●	●	BeepJack™ Input Warning Against Improper Plug In To μ AmA/A Terminals
●	●	VFD-V & VFD-Hz Measures Fundamental V & Hz Of Most Variable Frequency Drives
●	●	AC/DC Voltage Ranges 60.00mV To 1000V
●	5kHz	ACV Bandwidth Up To 20kHz
●	●	Ohms Ranges 60.00 Ω To 60.00M Ω
●	●	Fast Audible Continuity Tester
●	●	Diode Tester
●	●	Frequency Ranges 9.999Hz To 100.0kHz
●	●	AC/DC μ A, mA & A Ranges 600.0 μ A To 10.00A
●		Capacitance Ranges 2.000 μ F To 20.00mF
●		Type-K Temperature -40.0°C To 537.0°C; Selectable °F Readings
●	●	Insulation Resistance; Selectable Test Voltage Of 50V, 100V, 250V, 500V & 1000V
●	●	Shows Insulation Results & Actual Test Voltages In Dual Display
●	●	Insulation TEST Activation Inhibits When Live Circuit Is Detected
●	●	Lock-Test Mode For Continuous Insulation Resistance Measurements
●	●	Smooth Mode To Smooth Out Insulation Result Readings
●	●	Convenient Remote Probe (For Insulation Resistance Test)
●	●	Optional Purchase Magnetic Hanger
●	●	Rugged Fire Retarded Casing With Battery/Fuse Access Door
●	●	Replaceable Protective Holster With Probe-Holders & Tilt-Stand
●	●	HBC 1kV Fuses Protected On μ AmA/A Terminals
●	●	Transient Protection Up To 8kV 1.2/50 μ s Lightning Surge
●	●	LVD Meets EN61010-1/-2-030/-2-033 to Measurement CAT III 1000V & CAT IV 600V
●	●	LVD Also Meets EN61557-1/-2 (Insulation Resistance)
●	●	EMC EN61326-1:2013

1kV Insulation + 20kHz True RMS ACV + 10A Input!

**20kHz Bandwidth! 10A Input! 60.00mV & 60.00Ω Ranges! VFD V & Hz Dual Display!
5 Insulation Test Voltages! Smooth mode! Test-Inhibit & Lock-Test Feature!
Remote Probe! Min/Max Readings! Relative Zero! BeepJack™ Warning!**



GENERAL SPECIFICATION

Display: 3-5/6 digits 6,000 counts

Polarity: Automatic

Update Rate: 5 per second nominal

61 Segments Bar graph: 40 per second max

Operating Temperature: -10°C to 50°C

Relative Humidity: Maximum relative humidity 90% for temperature up to 28°C decreasing linearly to 50% relative humidity at 50°C

Pollution Degree: 2

IP Rating: IP40

Storage Temperature: -20°C to 60°C, < 80% R.H. (with battery removed)

Altitude: Operating below 2000m

Temperature Coefficient: nominal 0.1 x (specified accuracy)/ °C

@(-10°C ~ 18°C or 28°C ~ 50°C), or otherwise specified

Sensing: AC, True RMS

Safety: Double insulation per IEC/UL/EN61010-1 Ed. 3.0, IEC/UL/EN61010-2-030 Ed. 1.0, IEC/UL/EN61010-2-033 Ed. 1.0, IEC/UL/EN61010-031 Ed. 1.1 and the corresponding CAN/CSA-C22.2 regulations to Measurement CAT III 1000 V AC & DC and Category IV 600V AC & DC

Electrical Specifications

Accuracy is $\pm$ (% reading digits + number of digits) or otherwise specified, at 23°C $\pm$ 5°C & less than 80% relative humidity.

True RMS voltage & current accuracies are specified from 1 % to 100 % of range or otherwise specified. Maximum Crest Factor < 1.8:1 at full scale & < 3.6:1 at half scale, and with frequency components fall within the specified frequency bandwidth for non-sinusoidal waveforms.

AC Voltage

RANGE	Accuracy	
	BM887	BM885
50Hz ~ 60Hz		
60.00mV, 600.0mV, 6.000V, 60.00V, 600.0V, 1000V	0.7% + 4d	0.7% + 4d
40Hz ~ 1kHz		
60.00mV, 600.0mV, 6.000V, 60.00V, 600.0V	1.3% + 4d	1.3% + 4d
1000V	2% + 4d	2% + 4d
1kHz ~ 5kHz		
60.00mV, 600.0mV, 6.000V, 60.00V, 600.0V	2% + 4d ¹⁾	3% + 5d
1000V	Unspecified	
5kHz ~ 20kHz ²⁾		
60.00mV	Unspecified	
600.0mV, 6.000V, 60.00V	2% + 20d	Unspecified
600.0V, 1000V	Unspecified	

Input impedance: 10M Ω , 110pF nominal

¹⁾Add 20d @ >80% of range

²⁾Unspecified @ <5% of range

VFD AC Voltage

RANGE	Accuracy ¹⁾
10Hz ~ 45Hz	
600.0V	4.0% + 5d
45Hz ~ 200Hz	
600.0V	2.5% + 5d
200Hz ~ 440Hz	
600.0V	9.0% + 5d ²⁾

Input impedance: 10M Ω , 110pF nominal

¹⁾Unspecified for fundamental frequency > 440Hz

²⁾Accuracy linearly decreases from 2.5% + 5d @200Hz to 9.0% + 5d @440Hz

DC Voltage

RANGE	Accuracy	
	BM887	BM885
60.00mV	0.2% + 3d	0.3% + 3d
600.0mV, 6.000V, 60.00V	0.1% + 2d	0.2% + 2d
600.0mV, 600.0V, 1000V	0.2% + 3d	0.3% + 3d

Input impedance: 10M Ω , 110pF nominal

Ohms

RANGE ¹⁾	Accuracy	
	BM887	BM885
60.00 Ω ²⁾	0.5% + 5d	0.6% + 5d
600.0 Ω	0.2% + 3d	0.3% + 3d
6.000k Ω , 60.00k Ω	0.2% + 2d	0.3% + 2d
600.0k Ω	0.3% + 2d	0.4% + 2d
6.000M Ω ³⁾	1% + 3d	1.5% + 3d
60.00M Ω ⁴⁾	1.5% + 6d ^{5) 6)}	2% + 6d ^{5) 6)}

¹⁾Open Circuit Voltage: 1.7VDC typical

²⁾Specified assumes input lead resistance been offset by REL $\blacktriangle$ or Shrt (short) feature

³⁾Constant Test Current: 0.2 μ A Typical

⁴⁾Constant Test Current: 0.02 μ A Typical

⁵⁾Add 1% @ >20M Ω

⁶⁾Add 2% @ operation temperature >35°C

Audible Continuity Tester

Audible threshold: between 20 Ω and 350 Ω

Response time: < 30ms

Compliance to IEC/EN61557:2007 (Per CE requirements, not certified by UL or ETL): IEC/EN61557-1 & IEC/EN61557-2

Overload Protections:

Insulation Resistance, μ A & mA: 0.4A/1KV, IR 30kA, F Fuse; or better

A: 11A/1KV, IR 20kA, F Fuse; or better

V: 1100Vrms

mV, Ω & Others: 1000 Vrms

Transient Protection: 8kV (1.2/50 μ s surge)

E.M.C.: Meets EN61326-1:2013

In an RF field of 3V/m:

Total Accuracy = Specified Accuracy + 25 digits

Performance above 3V/m is not specified

Power Supply: Four Alkaline AA batteries (IEC LR6)

Power Consumption: 6.5mA typical except the followings:

VFD ACV ^{Hz}: 8mA

Insulation Resistance @1mA test current:

50V output voltage: 25mA

100V output voltage: 45mA

250V output voltage: 85mA

500V output voltage: 170mA

Diode Tester

Range	Accuracy	Test Current (Typical)	Open Circuit Voltage
2.700V	1.5% + 4d	0.4mA	< 2.8 VDC

Capacitance (BM887 only)

RANGE	Accuracy ¹⁾
2.000 μ F ²⁾ , 20.00 μ F, 200.0 μ F, 2000 μ F	1.5% + 5d
20.00mF	5% + 5d

¹⁾Accuracies with film capacitor or better

²⁾Specified from 0.200 μ F

DC current

RANGE	Accuracy		Burden Voltage
	BM887	BM885	
600.0 μ A ¹⁾	0.2% + 4d	0.4% + 4d	0.2mV/ μ A
6000 μ A ¹⁾	0.2% + 2d	0.4% + 2d	0.2mV/ μ A
60.00mA ¹⁾	0.2% + 4d	0.4% + 4d	3mV/mA
600.0mA ^{1) 2)}	0.3% + 3d	0.5% + 3d	3mV/mA
6.000A	0.5% + 4d	0.6% + 4d	30mV/A
10.00A ³⁾	0.7% + 2d	0.8% + 2d	30mV/A

¹⁾ μ A/mA DC accuracies will be affected by extreme interior temperatures of the meter. For rated accuracies, allow 6 to 20 minutes cool down interval after measuring A-currents of 3 to 10A continuously.

²⁾ $\leq$ 400mA continuous; >400mA for <1.1 hours on per >20 minutes off

³⁾10A continuous up to ambient 35°C; <15 mins on per >5 mins off @ 35°C ~ 50°C. >10A to 20A for <30 seconds on per >5 mins off

AC current

RANGE		Accuracy		Burden Voltage
		BM887	BM885	
50Hz ~ 60Hz				
600.0μA, 6000μA	1% + 3d			0.2mV/μA
60.00mA, 600.0mA ¹⁾				3mV/mA
6.000A, 10.00A ²⁾				30mV/A
40Hz ~ 3kHz				
600.0μA, 6000μA	2% + 3d			0.2mV/μA
60.00mA, 600.0mA ¹⁾				3mV/mA
6.000A, 10.00A ²⁾				30mV/A
3kHz ~ 5kHz				
600.0μA, 6000μA	2% + 5d	Unspecific d	0.2mV/μA	
60.00mA, 600.0mA ¹⁾	Unspecific d		3mV/mA	
6.000A, 10.00A ²⁾			30mV/A	

¹⁾ $\leq$ 400mA continuous; >400mA for <1.1 hours on per >20 minutes off

²⁾10A continuous up to ambient 35°C; <15 mins on per >5 mins off @ 35°C ~ 50°C. >10A to 20A for <30 seconds on per >5 mins off

Temperature (BM887 only)

RANGE	Accuracy ^{1) 2)}
-40.0°C ~ 0.0°C	1% + 2°C
0.0°C ~ 50.0°C	2.2°C
50.0°C ~ 537.0°C	1% + 2°C
-40.0°F ~ 32.0°F	1% + 3.6°F
32.0°F ~ 122.0°F	4°F
122.0°F ~ 999.0°F	1% + 3.6°F

¹⁾Accuracies assume meter interior has the same temperature of

1000V output voltage: 440mA

Tester can perform at least 950 insulation tests with new alkaline batteries at room temperature. These are standard tests of 1000 V into 1 M Ω with a duty cycle of 5 seconds on and 25 seconds off.

Low Battery: approx. 4.6V

APO Timing: Idle for 20 minutes

APO Consumption: 20 μ A typical

Dimension: L208mm X W103mm X H64.5mm with holster

Weight: 635 gm with holster

Accessories: Test probe pair, Alligator clip pair, BRP21S2-C

Remote probe, Holster, User's manual, Bkp60 banana plug type-K thermocouple (Model 887 only)

Optional Accessories: BKB32 banana plug to type-K socket plug adaptor (Model 887 only), BMH-01 magnetic hanger; BMP-86x soft carrying pouch

Special Features: Record MAX/MIN regular readings; Relative Zero; Display Hold; LCD Backlight; VFD V & Hz readings; Dual display +Hz Readings; High resolution 60.00mV & 60.00 Ω ranges, Lock-Test mode for Insulation resistance; BeepJack™ audible & visible input warning

the ambient (isothermal stage) for a correct junction voltage compensation. Allow enough time to reach the isothermal stage for a significant change of ambient temperature. It can take up to an hour for changes > 5°C.

²⁾Type-K thermocouple range & accuracy not included

~ Hz Line Level Frequency

Function RANGE	Sensitivity (Sine RMS)	Range
60mV	4mV	6Hz ~ 50kHz
600mV	40mV	10Hz ~ 100kHz
6V	0.4V	10Hz ~ 50kHz
60V	4V	
600V	40V	10Hz ~ 30kHz
1000V	400V	10Hz ~ 5kHz
VFD 600V	40V	10Hz ~ 440Hz
600 μ A	40 μ A	10Hz ~ 5kHz
6000 μ A	400 μ A	
60mA	4mA	
600mA	40mA	
6A	0.6A	10Hz ~ 3kHz
10A	6A	

Accuracy: 0.02%+4d

Record mode

This mode records standard measurement Max and Min readings on most functions, Manual or Auto-ranging where available.

Nominal response and accuracy: Same as standard measurements

Insulation Resistance

Test Voltage ¹⁾	Range	Test Current	Accuracy
50V	3.000MΩ, 30.00MΩ, 55.0MΩ	1mA @50kΩ	1.5%+5d
100V	3.000MΩ, 30.00MΩ, 110.0MΩ	1mA @100kΩ	
250V	3.000MΩ, 30.00MΩ, 275.0MΩ	1mA @250kΩ	
500V	3.000MΩ, 30.00MΩ, 300.0MΩ, 550.0MΩ	1mA @500kΩ	
1000V	3.000MΩ, 30.00MΩ, 300.0MΩ	1mA @1MΩ	1.5%+5d
	3000MΩ		2.0%+5d
	25.0GΩ		10%+5d

¹⁾Actual output voltage: 100% ~ 120% of Test Voltage

Live Circuit Detector: Inhibit test and display voltage reading instead if terminal voltage > 30V prior to initialization of test.

Display voltage accuracies:

DCV: 1.5% + 5d

ACV: 3.0% + 5d @50Hz ~ 60Hz

Specified measuring range is 0.020M Ω ... 25.0G Ω for percentage operating uncertainty B[%] $\leq$ 30% per IEC/EN61557-2 requirements

