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

 Insulation with 5 Selectable Test Voltages! Reading Smooth model Test Inhibit & Lock-Test Feature!

• 20kHz ACV Bandwidth! 10A + 60.00mV & 60.000 Hi-Res Ranges! AC+Hz Dual Display! VFD V & Hzl

Convenient Remote Probel Records Min/Max Readings Relative Zerol BeepJack Input Warning!



BM880 Series
Insulation Multimeters





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 μAmA/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 60.00Ω To $60.00M\Omega$
•	•	Fast Audible Continuity Tester
•	•	Diode Tester
•	•	Frequency Ranges 9.999Hz To 100.0kHz
•	•	AC/DC μA, mA & A Ranges 600.0μA To 10.00A
•		Capacitance Ranges 2.000µF 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 μAmA/A Terminals
•	•	Transient Protection Up To 8kV 1.2/50µs 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 AMS AGV + 100 Input

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

Analog Bar-graph

Fast Update Rate 60/sec

6,000 Counts Wide-view LCD Display 5/sec Fast Nominal Update Rate

Dual Digital DisplaySimultaneously View Relevant Parameters In Complementary Display

Asic Technology

Allows More Functions & Features At Affordable Prices

Auto & Manual-ranging

Auto-ranging With Manual-ranging Override

Smooth Mode

Smooth Out Unstable Insulation Resistance Readings

Function Selection

Toggle Conveniently Between Primary & Secondary Functions

Paper-white Display Backlight

For Easy Viewing In The Dark

60.00mV AC/DC Ranges

0.01mV High Resolution To Test Small Signal Changes

For Checking Diodes And Rectifiers

Fast Audible Continuity

For Quick Open-short Tests On Switches, Fuses And Wires

High Impedance Voltages

1000VAC/DC Measuring Capabilities; High Input Impedance For Load Sensitive Circuits

Hz Of Line Level Voltage

Measures Noisy High Voltage ACV Frequencies In Dual Display

VFD V & Hz Feature

Measures Fundamental Voltage & Frequency Of Most Variable Frequency Drives In Dual Display

Beep-jack[™] Audible & Visible Warning

Guards Against Improper "- INS, uAmA" & "A" Terminals Plug In. Decreases Risks Of Damage

Accepts Remote Probe

Convenient Activation For Insulation Resistance Tests. Full Silicone Leads To Minimize Insulation Test Error

Intelligent Auto-power-off

To Extend Battery Life; Awake Resets On Significant Operation & Measurements

ACV True RMS 20kHz Bandwidth

For Non-sinusoidal Waveforms Of Complex Voltage Or Current Signals

Protective Holster

With Holders For Probe Storage And "third Hand" Feature, Replaceable & Washable

Ergonomic Streamline Design

Fits Comfortably In One's Hand

Relative Zero Mode

For Convenient Readings Comparison And Offset

LOCK Feature

For Two Handed Continuous Testing Without The Need To Press The TEST Button

Data Hold

Freezes The Displaying Reading For Later View

Max Min Record

Record Measurement Max & Min Readings

mA & Hz

Measures Currents & Frequencies In Dual Display

Insulation Resistance Test

5 Test Voltages: 50V, 100V, 250V, 500V & 1000V. It Is Useful For Determining The State Of Insulation Material.

Type-k Temperature

Measurements -40.0°C To 537.0°C. Selectable °C & °F Readings

Capacitance

Autoranging 2.000µF To 20.00mF

Resistance Function

0.01Ω High Resolution, Autoranging 60.00Ω To $60.00M\Omega$

Transient Protection

Up To 8kV 1.2/50µs Lightning Surge; Superb Protection For Serious Users

LVD Safety

Meets EN61557-1/-2. & EN61010-1/-2-030/-2-033 CAT III 1kV & CAT IV 600V

Meets EN61326-1:2013



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

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

Overload Protections:

Insulation Resistance, u.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 (1.2/50µs 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 ++tz: 8mA

Insulation Resistance @1mA test current:

50V output voltage: 25mA 100V output voltage: 45mA 250V output voltage: 85mA 500V output voltage: 170mA 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: 20μA 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 & 60.00Ω ranges, Lock-Test mode for Insulation resistance; BeepJack™ audible &

visible input warning

Electrical Specifications

Accuracy is ±(% reading digits + number of digits) or otherwise specified, at 23°C ± 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 Voltago

	AC voltage			
RANGE	Accuracy			
	BM887	BM885		
50Hz ~ 60H	- Hz	-		
60.00mV, 600.0mV, 6.000V, 60.00V, 600.0V, 1000V	0.7% + 4d	0.7% + 4d		
	<u> </u>			
40Hz ~ 1kl	1Z			
60.00mV, 600.0mV, 6.000V, 60.00V, 600.0V	1.3% + 4d	1.3% + 4d		
1000V	2% + 4d	2% + 4d		
1kHz ~ 5kł	- Hz	-		
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 Unspecific		ecified		
Input impedance: 10MΩ, 110pF nominal				

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: 10MΩ, 110pF nominal

1)Unspecified for fundamental frequency > 440Hz

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

DC Voltage

20 10:11.90				
RANGE	Accuracy			
	BM887	BM885		
60.00mV	0.2% + 3d	0.3% + 3d		
600.0mV, 6.000V, 60.00V	0.1% + 2d	0.2% + 2d		
60.00mV, 600.0V, 1000V	0.2% + 3d	0.3% + 3d		

Input impedance: 10MΩ, 110pF nominal

Ohms

RANGE 1)	Accuracy	
	BM887	BM885
60.00Ω ²⁾	0.5% + 5d	0.6% + 5d
600.0Ω	0.2% + 3d	0.3% + 3d
6.000kΩ, 60.00kΩ	0.2% + 2d	0.3% + 2d
600.0kΩ	0.3% + 2d	0.4% + 2d
6.000MΩ ³⁾	1% + 3d	1.5% + 3d
60.00MΩ 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 .

or Shrt (short) feature

3)Constant Test Current: 0.2μA Typical 4)Constant Test Current: 0.02μA Typical

5)Add 1% @ >20MΩ 6)Add 2% @ operation temperature >35°C

Audible Continuity Tester

Audible threshold: between 20Ω and 350Ω

Response time: < 30ms

Diode Tester

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

Capacitance (BM887 only)

Supuditation (Billion Strift)			
RANGE	Accuracy 1)		
2.000μF ²⁾ , 20.00μF, 200.0μF, 2000μF	1.5% + 5d		
20.00mF	5% + 5d		

¹⁾Accuracies with film capacitor or better ²⁾Specified from 0.200µF

DC current

RANGE	Accuracy		Burden Voltage
	BM887	BM885	
600.0μA ¹⁾	0.2% + 4d	0.4% + 4d	0.2mV/μA
6000μA ¹⁾	0.2% + 2d	0.4% + 2d	0.2mV/μA
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)μA/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) ≤ 400mA continuous; > 400mA for < 1.1 hours on per > 20 minutes

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 ~ 60H	łz		
600.0μΑ, 6000μΑ			0.2mV/μA	
60.00mA, 600.0mA 1)	1%	+ 3d	3mV/mA	
6.000A, 10.00A ²⁾	1		30mV/A	
40Hz ~ 3kHz				
600.0μΑ, 6000μΑ			0.2mV/μA	
60.00mA, 600.0mA 1)	2% + 3d		3mV/mA	
6.000A, 10.00A ²⁾			30mV/A	
3kHz ~ 5kHz				
600.0μΑ, 6000μΑ	2% + 5d	Unspecifie	0.2mV/μA	
60.00mA, 600.0mA 1)	270 1 Ju		3mV/mA	
6.000A, 10.00A ²⁾	Unspecifie d	d	30mV/A	

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

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

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	TOTIZ
600V	40V	10Hz ~ 30kHz
1000V	400V	10Hz ~ 5kHz
VFD 600V	40V	10Hz ~ 440Hz
600μΑ	40μΑ	
6000μΑ	400μΑ	10Hz ~ 5kHz
60mA	4mA	TOTIZ SKITZ
600mA	40mA	
6A	0.6A	10Hz ~ 3kHz
10A	6A	TOTIZ ~ SKITZ

Accuracy: 0.02%+4d

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

Inculation Posistance

Insulation Resistance				
Test Voltage 1)	Range	Test Current	Accuracy	
50V	3.000 Μ Ω , 30.00 Μ Ω , 55.0 Μ Ω	1mA @50kΩ		
100V	3.000 Μ Ω , 30.00 Μ Ω , 110.0 Μ Ω	1mA @100kΩ	1.5%+5d	
250V	3.000 Μ Ω , 30.00 Μ Ω , 275.0 Μ Ω	1mA @250kΩ	1.576+30	
500V	3.000MΩ, 30.00 MΩ, 300.0 MΩ, 550.0 MΩ	1mA @500kΩ		
1000V	3.000 Μ Ω , 30.00 Μ Ω , 300.0 Μ Ω	1mA @1MΩ	1.5%+5d	
1000 V	3000MΩ	1111/4 (@ 114152	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 $0.020 \text{M}\Omega$... 25.0G Ω for percentage operating uncertainty B[%] \leq \pm 30% per IEC/EN61557-2 requirements





¹⁾Add 20d @ >80% of range 2)Unspecified @ <5% of range