

Enhanced 2nd Gen Functions, Improved Industrial Reliability, & UL Listed Safety!

VFD V/Hz, Logic/Line-level Hz, Speeded μ F & M Ω , Hi-res 60.00mV, °C/°F,
 CAT III 1kV & CAT IV 600V, & All Models True-RMS plus Double-sided EMI Shielding!

BM2800 SERIES

Enhanced
 Practical
 Multimeters



www.brymen.com

CE

UK
 CA

UL US



BM2807CSE



BM2805CSE



BM2803CSE

2807 CSE	2805 CSE	2803 CSE	FUNCTIONS & FEATURES
•			Single-pole Contact EF-Detection for Precise Indications of Live Conductors
•			Non-Contact EF-Detection (NCV); Features Hi/Lo Selectable Sensitivities
•			Type-K Temperature from -40.0°C to 400°C; Selectable °F Readings
•	•		Line Frequency from 10.00Hz to 50.00kHz
•	•		Logic Frequency from 5.00Hz to 300.0kHz
•	•		Speeded Capacitance: nF Ranges 20.00 to 2000, μ F Ranges 20.00 to 2000
•	•		VFD-V & VFD-Hz Measures Fundamental V & Hz of Most Variable Frequency Drives
•	•	•	3-5/6 Digits 6,000 Counts Nominal; 26mm Large digit LCD Display
•	•	•	Nominal 5/Sec Fast Measurements; Fast Auto-Ranging
•	•	•	Best Basic DCV Accuracy 0.2%+2d
•	•	•	AC True RMS Conversions
•	•	•	Relative Zero Mode
•	•	•	Intelligent Auto Power Off
•	•	•	Amber LED Warm Backlight LCD Display
•	•	•	Data-hold; Features Hold-alert™ to Warn Against On-hold Readings
•	•	•	MAX-hold; Captures Max Readings as High as 40 Conversions per Second
•	•	•	BeepLit™ Continuity Tester; Features Audible Beep & Visible Backlight Effects
•	•	•	BeepLit™ Diode Tester; Features BeepPass™ (Short-beep) & BeepLit™ (Continuity)
•	•	•	Double-sided EMI Shielding for Harsh Electromagnetic Interfering Environments
•	•	•	BeepJack™ Input Warning Against Improper Plug into μ AmA/A Terminals
•	•	•	High Resolution DC/AC mV Ranges 60.00mV to 600.0mV
•	•	•	DC/AC Voltage Ranges 6.000V to 1000.0V
•	•	•	Speeded Ohms Ranges 600.0 Ω to 60.00M Ω
•	•	•	DC/AC μ A, mA, & A Ranges 600.0 μ A to 10.00A
•	•	•	HBC 1kV Fuses Protected on μ AmA & A Terminals
•	•	•	Detachable Protective Holster with Probe-Holders & Tilt-Stand
•	•	•	Rugged Fire Retarded Housing™ with Battery Compartment Door
•	•	•	Transient Protection up to 8kV 1.2/50 μ s + 8/20 μ s Combo Surges
•	•	•	LVD Certified to EN61010-2-033 CAT III 1000V & CAT IV 600V
•	•	•	EMC Certified to EN61326-1

Enhanced 2nd Gen Popular Meters with Most Up-to-date Bright People's Features!

Hi/Lo EF-Detection, Diode BeepPass™ + BeepLit™, Data Hold-alert™, BeepJack™ InEr, Intelligent-APO, 40/s Max-hold, Relative Zero, & All Models Backlighted Display!

26mm Large digit LCD
3-5/6 Digits 6,000 Counts Nominal

Fast Auto-Ranging
Nominal 5/Sec Fast Measurements

Relative Zero
To Offset Measurement Readings

BeepLit™ Continuity Tester
Features Audible Beep & Visible Backlight Effects

Warm LED Backlight
LCD Display

BeepLit™ Diode Tester
Features BeepPass™ (Short-beep) & BeepLit™ (Continuity)

Logic Frequency
From 5.00Hz to 300.0kHz

Type-K Temperature
From -40.0°C to 400°C;
Selectable °F Readings

VFD-V & VFD-Hz
Measures Fundamental V & Hz of Most Variable Frequency Drives

Non-Contact EF-Detection (NCV)
Features Hi/Lo Selectable Sensitivities

Single-pole Contact EF-Detection
For Precise Indications of Live Conductors

Line Frequency
From 10.00Hz to 50.00kHz

BeepJack™ InEr
Input Warning Against Improper Plug into μ A/mA Terminals

Detachable Protective Holster
Features Probe-Holders & Tilt-Stand

HBC 1kV Fuses
Protected on μ A & A Terminals

MAX-hold
Captures Max Readings as High as 40 Conversions per Second

Data-hold with Hold-alert™
To Warn Against On-hold Readings

Speeded Capacitance
nF Ranges 20.00 to 2000,
 μ F Ranges 20.00 to 2000

True RMS
AC Conversions

iAPO
Intelligent Auto Power Off

Fire Retarded Housing
Rugged with Battery Compartment Door

Double-sided EMI Shielding
For Harsh Electromagnetic Interfering Environments

EMC Certified
To EN61326-1

DC/AC μ A, mA, & A
Ranges 600.0 μ A to 10.00A

Speeded Resistance
Ranges 600.0 Ω to 60.00M Ω

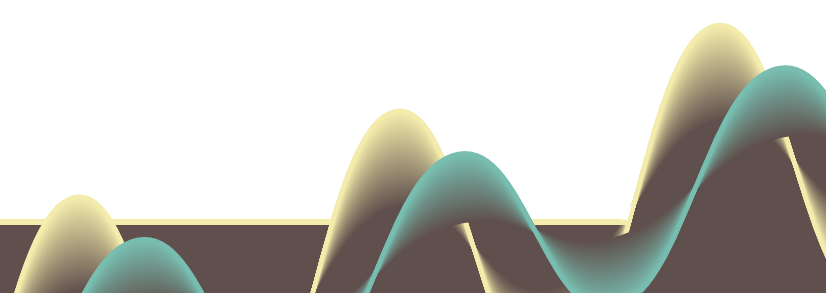
High Resolution DC/AC mV
Ranges 60.00mV to 600.0mV

DC Voltage
Ranges 6.000V to 1000.0V

AC Voltage
Ranges 6.000V to 1000.0V

8kV Transient Protection
Against 1.2/50 μ s + 8/20 μ s Combo Surges

UL Listed & LVD Certified
To EN61010-2-033 CAT III 1000V & CAT IV 600V



GENERAL SPECIFICATIONS

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

Update Rate: 5 per second nominal

Operating Temperature: -10°C to 50°C

Relative Humidity: Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 50°C

Altitude: Operating below 2000m

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

Temperature Coefficient: Nominal 0.15 x (specified accuracy) °C @ (-10°C ~ 18°C or 28°C ~ 50°C), or otherwise specified

Sensing: True RMS sensing

Pollution Degree: 2

Safety: Certified per IEC/UL/EN61010-1 Ed. 3.1, IEC/UL/EN61010-2-033 Ed.

2.0, IEC/UL/EN61010-031 Ed. 2.0 and the corresponding CAN/CSA-C22.2 regulations to Measurement Categories: CAT III 1000V and CAT IV 600V

Transient Protection: 8.0kV (1.2/50µs surge)

E.M.C.: Meets EN61326-1

mV, Diode, Ohm, & Temperature; in an RF field of 1V/m:

Total Accuracy = Specified Accuracy + 100 digits

Other functions; in an RF field of 3V/m:

Total Accuracy = Specified Accuracy + 100 digits

Overload Protection:

µA & mA: 0.63A/1000V DC/AC rms, IR 10kA, F fuse; or better

A: 11A/1000V DC/AC rms, IR 20kA, F fuse; or better

V: 1100V DC/AC rms

mV, Ohm, & others: 1000V DC/AC rms

Low Battery: Below approx. 2.5V

Power Supply: 1.5V AAA Size battery X 2

Power Consumption (typical): 3.2mA

iAPO Consumption (typical): 10µA

iAPO Timing: Idle for approx. 32 minutes

Accessories: Test lead set, User's manual, Banana-plug type-K thermocouple (Model 2807 only)

Optional purchase accessories: BKB32 banana-plug to type-K socket plug adaptor (Model 2807 only)

Special Features: VFD-ACV & VFD-Hz; Hi/Lo EF-Detection (NCV & Single pole); Display Hold w/Hold-alert™ warning; MAX Hold; BeepLit™ Diode w/BeepPass™ indication; BeepLit™ Continuity; Relative-Zero mode;

Backlighted LCD display; BeepJack™ audible & visible input warning

ELECTRICAL SPECIFICATIONS

Accuracy is given as ± (% of reading digits + number of digits) or otherwise specified @ 23°C ± 5°C
AC Voltage & Current accuracies are specified from 1% to 100% of range or otherwise specified. Maximum Crest Factor <2.1 at full scale & <4:1 at half scale, and with signal component frequencies limited to the specified bandwidth of the AC functions for non-sinusoidal waveforms

AC Voltage

RANGE	Accuracy
50Hz ~ 60Hz	
60.00mV ¹⁾ , 600.0mV ²⁾	1.0% + 3d
6.000V, 60.00V, 600.0V, 1000V	0.7% + 3d
45Hz ~ 500Hz	
60.00mV ¹⁾ , 600.0mV ²⁾	2.0% + 3d
6.000V, 60.00V, 600.0V, 1000V	2.0% + 3d
500Hz ~ 1kHz	
60.00mV ¹⁾ , 600.0mV ²⁾	2.0% + 3d
6.000V, 60.00V, 600.0V, 1000V	Unspecified

Input Impedance: 10MΩ, 20pF nominal

¹⁾Signal peak absolute values, including DC bias, less than 130mV_{peak}

²⁾Signal peak absolute values, including DC bias, less than 1300mV_{peak}

VFD-ACV (with Low Pass Filter)

RANGE	Accuracy ¹⁾
10 ~ 100Hz	
600.0V, 1000V	1.0% + 3d
100 ~ 400Hz	
600.0V, 1000V	10.0% + 3d ²⁾

¹⁾Not specified for fundamental frequency > 400Hz

²⁾Accuracy linearly decreases from 1% + 3d @100Hz to 10% + 3d @400Hz

DC Voltage

RANGE	Accuracy
60.00mV, 600.0mV, 6.000V	0.3% + 2d
60.00V	0.4% + 2d
600.0V	0.2% + 2d
1000V	0.4% + 2d

Input Impedance: 10MΩ, 20pF nominal

Ohms

RANGE ¹⁾	Accuracy
600.0Ω, 6.000kΩ	0.3% + 3d
60.00kΩ, 600.0kΩ	0.5% + 3d
6.000MΩ ²⁾ , 60.00MΩ ³⁾	0.9% + 2d ⁴⁾

¹⁾Open Circuit Voltage: 1.6VDC typical

²⁾Constant Test Current: 0.2µA Typical

³⁾Constant Test Current: 0.02µA Typical

⁴⁾5%+20d @ >30MΩ

BeepLit™ Continuity Tester

Continuity Threshold: Between 30Ω and 480Ω

Continuity ON Response Time: <15ms

Audible Indication: Beep sound

Visible Indication: LCD Backlight

Capacitance (Models 2805 & 2807 only)

RANGE	Accuracy
20.00nF, 200.0nF	1.5% + 8d
2000nF	
20.00µF, 200.0µF, 2000µF	1.5% + 3d

Accuracies with film capacitor or better

BeepLit™ Diode Tester

RANGE	Accuracy	Test Current (Typical)	Open Circuit Voltage
3.0000V	0.9% + 2d	0.3mA	< 3.2 VDC

BeepPass™ Indication (Short-beep): Drop Across 0.850V

BeepLit™ Indication (Continuity) Threshold: < 0.100V

Audible Indication: Beep Sound

Visible Indication: LCD Backlight

DC Current

RANGE	Accuracy	Burden Voltage
600.0µA, 6000µA	1.0% + 3d	0.1mV/µA
60.00mA, 600.0mA		3.0mV/mA
6.000A, 10.00A ¹⁾	0.7% + 3d	25mV/A

¹⁾10A continuous, >10A to 20A for 30 seconds max with 5 minutes cool down interval

AC Current

RANGE	Accuracy	Burden Voltage
50Hz ~ 500Hz		
600.0µA, 6000µA	1.5% + 3d	0.1mV/µA
60.00mA, 600.0mA		3.0mV/mA
6.000A, 10.00A ¹⁾	1.0% + 5d	25mV/A

¹⁾10A continuous, >10A to 20A for 30 seconds max with 5 minutes cool down interval

Logic Frequency (Models 2805 & 2807 only)

Range	Sensitivity (Square wave)
5.00Hz ~ 300.0kHz	3V _{peak}

Accuracy: 0.03% + 4d

Temperature (Model 2807 only)

RANGE	Accuracy ¹⁾²⁾
-40.0°C ~ 0.0°C	1% + 2°C
0.0°C ~ 99.9°C	
100°C ~ 400°C	1% + 1°C
-40.0°F ~ 32.0°F	1% + 4°F
32.0°F ~ 99.9°F	
100°F ~ 752°F	1% + 2°F

*F selection can be left out as factory calibration default for countries that only accept metric units

¹⁾Accuracies assume the meter interior and the ambient have reached the same temperature (isothermal stage) for a correct junction voltage compensation. Allow enough settling time for a significant change in ambient temperature. It can take up to an hour for changes > 5°C

²⁾Type-K thermocouple range & accuracy not included

Line Frequency (Models 2805 & 2807 only)

Function	Sensitivity (Sine RMS)	Range
6V	5V	10Hz - 50kHz
60V	10V	10Hz - 50kHz
600V	50V	10Hz - 1kHz
1000V	500V	50Hz - 1kHz
VFD 600V	50V	10Hz - 1kHz
VFD 1000V	500V	50Hz - 1kHz
600µA, 6000µA	500µA	10Hz - 5kHz
60mA, 600mA	50mA	10Hz - 5kHz
6A, 10A	8A	50Hz - 1kHz

Accuracy: 0.03% + 4d

Non-Contact EF-Detection (Models 2807 only)

Bar-segment Indication	EF-H (Hi Sensitivity)	EF-L (Lo Sensitivity)
	Typical Voltage (Tolerance)	
-	15V (3V ~ 30V)	70V (30V ~ 120V)
--	30V (10V ~ 60V)	140V (60V ~ 240V)
---	60V (20V ~ 120V)	280V (120V ~ 480V)
----	120V (40V ~ 240V)	560V (240V ~ 960V)
-----	240V (>80V)	1000V (>900V)

Indication: Display bar-segments, backlight flashing, & beep tones in proportion to the field strength

Detection Frequency: 50/60Hz

Detection Antenna: Top end center of the meter

Probe-Contact EF-Detection: For more precise indications of live wires, such as distinguishing between live and ground connections, use direct contact testing with one single test-probe via the input terminal COM or V. The COM terminal (Black) has the best sensitivity.



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