

The Return Of The Professional Flag-Ship BM850"s" Series

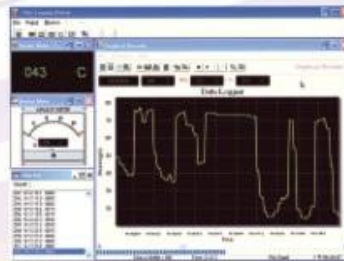
100kHz DC+AC TRMS...500,000 Counts DCV...Yet Only Accept The Best!



BM850s Series
Professional Multimeter



BRIGHT PEOPLE'S CHOICE
<http://www.brymen.com>



● **BM859s**

● **BM857s**

BRUA-85Xa Interface Kit
(optional purchase)

859s	857s	Functions & Features
●	●	6 Digits 999,999 Counts Mode For Hz With 0.002% Accuracy
●	●	5-4/5 Digits 500,000 Counts For DC Voltage Stable Mode
●	●	4-4/5 Digits 50,000 Counts For DC/AC Voltage/Current & OHM
●		T1-T2 Dual Channels Type-K Temperature -50°C To 1000°C
100kHz	20kHz	AC, AC+DC True RMS High Bandwidth Voltage Functions
●	●	Optically Isolated PC-COMM Interface Capability
●	●	BRUA-85Xa Interface Kit For Win 98/ME/NT4/2K/XP/Vista/7/8 (Optional Purchase)
●	●	Audible & Visible BeepJack™ Input Warning Against Improper Plug In
●	●	RECORD Max, Min, Max-Min Readings, Auto-Ranging
●	●	CREST (Peak Hold) Max, Min, Max-Min Readings
●	●	Back-Lighted Large Easy To Read LCD Display
●	●	High Speed Analog Bar-Graph Updates 60/Sec
●	●	Intelligent Auto Power Off (APO)
●	●	Fast Data Measurement 5/Sec
●	●	1000V General (Ohm, Capacitance ... etc.) Input Protection
0.02%	0.03%	High Basic DCV Accuracies
●	●	Fire Retarded Case
●	●	Relative Zero Mode
●	●	Data Hold
●	●	Diode Test
●	●	DC/AC Current 0.01μA To 10A (20A for 30 sec. max with 5 minutes cool down interval)
●	●	DC/AC Voltage 0.01mV To 1000V
●	●	Ohms 0.01Ω To 50MΩ
●	●	Capacitance 10pF To 9999μF
●	●	Fast Audible Continuity < 100μS
●	●	Duty-Cycle % Reading
●	●	Logic Level FREQUENCY 5Hz TO 2MHz
●	●	Line Level FREQUENCY With 4 Trigger Levels
●	●	%4-20mA Process Control Loop Current Reading
●	●	dBm Readings, 20 Selectable Impedance Values
●	●	High Energy HBC Fuses Protected 1000V DC/AC
●	●	Replaceable And Washable Protective Rubber Holster
●	●	Transient Protection Up To 8kV 1.2/50μS Lightning Surge
●	●	LVD Meets EN61010-1 CAT III 1000V & CAT IV 600V
●	●	EMC EN61326-1:2013

Proven Accuracy...Certified Safety... Superb Performance

Superb 0.02% Accuracy, Swift 60/Sec Bargraph + Swift Large-Cx Measurements

FULLY AUTORANGING

SHORTENS THE TIME TO MEASURE AND INCREASES THE EASE OF USE

CREST (PEAK HOLD)

CAPTURES INSTANTANEOUS PEAK READINGS AS SHORT AS 0.8ms IN DURATION

MAX-MIN RECORD

RECORD MAX, MIN, MAX-MIN READINGS, AUTORANGING

BACKLIGHTED LCD DISPLAY

FOR EASY VIEWING IN THE DARK

LAST SET FUNCTION DEFAULT

LAST SET FUNCTION WILL BE SAVED AS POWER-UP DEFAULT FOR EASE OF USE

RANGE

AUTORANGING WITH MANUAL-RANGING OVERRIDE

T1-T2 TEMPERATURE

2 CHANNELS K-TYPE TEMPERATURE, SELECTABLE °C OR °F MEASUREMENTS

DIGITAL SIGNAL Hz

FOR LOGIC LEVEL SIGNAL HIGH FREQUENCY MEASUREMENTS

dBm FUNCTION

WITH 20 SELECTABLE IMPEDANCE VALUES

1kV AC VOLTAGE MEASUREMENT

IMPROVED MEASURING CAPABILITIES

INPUT WARNING

AUDIBLE AND VISIBLE WARNING AGAINST IMPROPER PLUG IN

FIRE RETARDED CASE

FOR REINFORCED SAFETY

HBC FUSE PROTECTED

HIGH BREAKING CAPACITY
1000V (600V FOR BM857)
CERAMIC FUSE PROTECTED

PROTECTIVE HOLSTER

INCREASES PRODUCT DURABILITY.
REPLACEABLE & WASHABLE

DC+AC TRUE RMS

100kHz VOLTAGE BANDWIDTH TO MEASURES SIGNAL TRUE VALUE REGARDLESS OF WAVEFORMS (20kHz FOR BM857)

PC INTERFACE CAPABILITY

OPTIONAL PURCHASE RS232C+USB CABLES WITH DATA RECORDING PC SOFTWARE FOR WIN98/NT4/2K/XP/VISTA

0.02% HIGH BASIC ACCURACY

WITH LARGE EASY TO READ DISPLAY

INTELLIGENT AUTO POWER OFF

TO EXTEND BATTERY LIFE

FAST MEASUREMENTS

DATA 5 TIMES / SEC
BAR-GRAPH 60 TIMES / SEC

RELATIVE ZERO MODE

FOR CONVENIENT READINGS COMPARISON & OFFSET

HIGH RESOLUTION MODE

999,999 COUNTS IN Hz
500,000 COUNTS IN DCV

HIGH VOLTAGE Hz

FOR NOISY ELECTRICAL SIGNALS

DATA HOLD

FREEZES THE DISPLAYING READING FOR LATER VIEW

%4-20mA LOOP CURRENT

FOR PROCESS CONTROL

DIODE TEST

FOR TESTING DIODES AND RECTIFIERS

CAPACITANCE

AUTO-RANGING UP TO 9999µF WITH 1000V (600V FOR BM857) PROTECTION

AUDIBLE CONTINUITY

FOR QUICK OPEN-SHORT TESTS ON SWITCHES, FUSES, AND WIRES

EMC

MEETS EN61326-1:2013

TRANSIENT PROTECTION

UP TO 8kV 1.2/50µs LIGHTNING SURGE, MORE CONFIDENCE FOR SERIOUS USERS

LVD

MEETS EN61010-1/2-030/2-033
CAT III 1kV & CAT IV 600V



GENERAL SPECIFICATIONS

Display: 4-4/5 digits 50,000 counts.
Selectable stable mode: 5-4/5 digits 500,000 counts for DC Voltage, & 6 digits 999,999 counts for Hz
Polarity: Automatic
Update Rate:
 4-4/5 digits fast mode: 5 per second nominal
 5-4/5 digits stable mode: 1.25 per second nominal
42 Segments Bar graph: 60 per second max
Operating Temperature: 0°C to 45°C
Relative Humidity: Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 45°C
Pollution degree: 2
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 @ (0°C - 18°C or 28°C - 40°C), or otherwise specified
Sensing: AC, AC+DC 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 CAN/CSA-C22.2 No. 61010-1-12 Ed. 3.0 to Category III 1000V AC & DC and Category IV 600V AC & DC
Terminals (to COM) Measurement Category:
 V / A / mA: Category III 1000V AC & DC and Category IV 600V AC & DC

Overload Protections:

µA & mA : 0.44A/1000V DC/AC rms, IR 10kA, F fuse
 A : 11A/1000V DC/AC rms, IR 20kA, F fuse
 V : 1100V DC/AC rms
 mV, Ω, & Others : 1000V DC/AC rms
Transient protection: 8kV (1.2/50µs surge)
E.M.C.: Meets EN61326-1:2013
 In an RF field of 3V/m:
 Capacitance function is not specified
 Other function ranges:
 Total Accuracy = Specified Accuracy + 100 digits
 Performance above 3V/m is not specified
Power Supply: Single Alkaline 9V battery; NEDA1604A, JIS6AM6 or IEC6LF22
Power Consumption: 6mA typical
Low Battery: Below approx. 7V

APO Timing: Idle for 17 minutes

APO Consumption: 55µA typical for BM857s; 30µA typical for BM859s

Dimension: L186mm X W87mm X H35.5mm; L198mm X W97mm X H56mm with holster

Weight: 390 gm; 500 gm with holster

Accessories: Test leads (pair); Holster; Battery installed; User's manual; Bkp80 banana plug K-type thermocouple x 1 (BM859s only)

Optional Accessories: BRUA-85Xa PC Interface kit (BC-85Xa RS232 optical adapter cable + Bs85x software CD + BUA-2303 USB-to-Serial adaptor); Bkb32 banana pins to K-type socket plug adapter (BM859s only)

Special Features: Record MAX, MIN, MAX-MIN readings; Crest (Instantaneous Peak hold) MAX, MIN, MAX-MIN readings; Relative zero mode; 500,000 counts high resolution stable reading mode; Backlighted display; dBm readings; T1-T2 differential temperature readings (BM859s only); %4-20mA loop current readings; High noise rejection filtered Line Level Frequency mode; Data Hold; Audible & Visible Input Warning

ELECTRICAL SPECIFICATIONS

Accuracy is ±(% reading digits + number of digits) or otherwise specified, at 23°C ± 5°C & less than 75% relative humidity.
 True RMS voltage & current accuracies are specified from 5% to 100% of range or otherwise specified. Maximum Crest Factor < 5:1 at full scale & < 10:1 at half scale, and with frequency components within the specified frequency bandwidth for non-sinusoidal waveforms.

DC Voltage

RANGE	Accuracy	
	859s	857s
500.00 mV, 5.0000V, 50.000V	0.02%+2d	0.03%+2d
500.00V	0.04%+2d	0.05%+2d
1000.0V	0.05%+2d	0.1%+2d

Input Impedance: 10MΩ, 30pF nominal (80pF nominal for 500mV range)

Audible Continuity Tester

Audible threshold: between 20Ω and 200Ω Response time < 100µs

Crest mode (Instantaneous Peak Hold)

Accuracy: Specified accuracy ± 100 digits for changes > 0.8ms in duration

Capacitance

RANGE	Accuracy*
50.00nF	0.8% + 3d
500.0nF	0.8% + 3d
5.000µF	1.5% + 3d
50.00µF	2.5% + 3d
500.0µF**	3.5% + 5d
9999µF**	5.0% + 5d

*Accuracies with film capacitor or better

**In manual-ranging mode, measurements not specified below 45.0µF and 450µF for 500.0µF and 9999µF ranges respectively

T1-T2 Dual Temperature (BM859s only)

RANGE	Accuracy
-50.0°C to 1000.0°C	0.3%+1°C
-58.0°F to 1832.0°F	0.3%+2°F

Thermocouple range & accuracy not included

AC & AC+DC Voltage

RANGE	Accuracy*	
	859s	857s
20Hz - 45Hz		
500.00mV, 5.0000V, 50.000V	1.5%+60d	Unspec'd
500.00V, 1000.0V	Unspec'd	
45Hz - 300Hz		
500.00mV	0.3%+20d	0.8%+60d
5.0000V, 50.000V	0.8%+20d	
500.00V, 1000.0V	0.4%+40d	
300Hz - 5kHz		300Hz - 1kHz
500.00mV	0.3%+10d	
5.0000V, 50.000V, 500.00V	0.4%+40d	2.0%+80d
1000.0V	0.8%+40d (300Hz-1kHz)	
5kHz - 20kHz		1kHz - 20kHz
500.00mV	0.5%+20d	
5.0000V, 50.000V	0.8%+20d	2dB**
500.00V	0.5%+20d	
1000.0V	Unspec'd	3dB**
20kHz - 100kHz		
500.00mV	2.5%+40d	Unspec'd
5.0000V, 50.000V	4.0%+40d**	
500.00V, 1000.0V	Unspec'd	

*From 5% to 10% of range:

accuracy % of reading (or in dB) + 80d

**From 5% to 10% of range:

accuracy % of reading (or in dB) + 180d

**From 10% to 15% of range:

accuracy % of reading (or in dB) + 100d

Input Impedance: 10MΩ, 30pF nominal

(80pF nominal for 500mV range)

Residual reading less than 50 digits with test leads shorted.

Ohms

RANGE	Accuracy	
	859s	857s
500.00Ω	0.07%+10d	0.1%+6d
5.0000kΩ, 50.000kΩ, 500.00kΩ	0.07%+2d	0.1%+6d
5.0000MΩ	0.2%+8d	0.4%+6d
50.000MΩ	2.0%+8d	2.0%+8d

Open Circuit Voltage: < 1.3VDC (< 3VDC for 500Ω range)

AC & AC+DC Current

RANGE	Accuracy		Burden Voltage
	859s	857s	
50Hz - 60Hz			
500.00µA, 5000.0µA	0.5%+50d	1.0%+40d	0.15mV/µA
50.000mA, 500.00mA			3.3mV/mA
5.0000A, 10.000A*			45mV/A
40Hz - 1kHz			
500.00µA, 5000.0µA	0.7%+50d	1.0%+40d	0.15mV/µA
50.000mA, 500.00mA			3.3mV/mA
5.0000A, 10.000A*			45mV/A
1kHz - 10kHz			
500.00µA, 5000.0µA	2.0%+50d	Unspec'd	0.15mV/µA
50.000mA, 500.00mA			3.3mV/mA
5.0000A, 10.000A*	Unspec'd	Unspec'd	45mV/A

*10A continuous, >10A to 20A for 30 second max with 5 minutes cool down interval

DC Current

RANGE	Accuracy	Burden Voltage
500.00µA	0.15%+20d	0.15mV/µA
5000.0µA	0.1%+20d	0.15mV/µA
50.000mA	0.15%+20d	3.3mV/mA
500.00mA	0.1%+30d	3.3mV/mA
5.0000A	0.5%+20d	45mV/A
10.000A*	0.5%+20d	45mV/A

*10A continuous, >10A to 20A for 30 second max with 5 minutes cool down interval

DC Loop Current %4-20mA

4mA = 0% (zero)
 20mA = 100% (span)
 Resolution: 0.01%
 Accuracy: ± 25d

dBm

At 600Ω, -11.76dBm to 54.25dBm,
 Accuracy: ± 0.25dB + 2d (@40Hz - 20kHz)
 Input Impedance: 10MΩ, 30pF nominal
 Selectable reference impedance of 4, 8, 16, 32, 50, 75, 93, 110, 125, 135, 150, 200, 250, 300, 500, 600, 800, 900, 1000, 1200Ω

Diode Tester

Range	Accuracy	Test Current (Typical)	Open Circuit Voltage
2.0000V	1%+1d	0.4mA	< 3.5 VDC

Hz Line Level Frequency

Function RANGE	Sensitivity (Sine RMS)	Range
500mV	100mV	10Hz ~ 200kHz
5V	1V	10Hz ~ 200kHz
50V	10V	10Hz ~ 100kHz
500V	100V	10Hz ~ 100kHz
1000V	900V	10Hz ~ 10kHz

Accuracy: 0.02%+4d

Hz Logic Level Frequency

RANGE	Accuracy
5.0000Hz - 2.00000MHz	0.002%+4d

Sensitivity: 2.5Vp square wave

%Duty Cycle

RANGE	Accuracy
0.1% - 99.99%	3d/kHz+2d

Input Frequency:

5Hz - 500 kHz, 5V Logic Family



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