

The Return Of The Professional Flag-Ship

BM850"a" Series

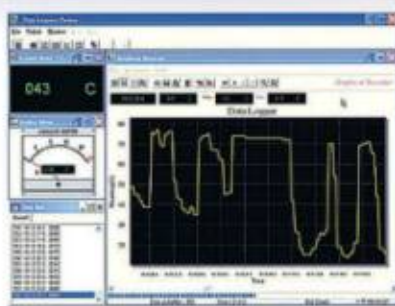
100kHz DC+AC TRMS...500,000 Counts DCV...Yet Only Accept The Best!



BRYMEN[®]
BRIGHT PEOPLE'S CHOICE
<http://www.brymen.com>



**BM850a Professional
DMM Series**



BRUA-85Xa Interface Kit
(optional purchase)

● **BM859CFa** ● **BM857a**

BM859CFa	BM857a	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 95/98/ME/NT4/2K/XP/Vista (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
●	●	High General Input Protection 600V for a-version (1kV for CFa-version)
0.02%	0.03%	High Basic DCV Accuracies
●	●	Fire Retarded Case
●	●	Relative Zero Mode
●	●	Data Hold
●	●	Diode Test
●	●	DC/AC Current 0.01μA To 15A
●	●	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 600V for a-version (1kV for CFa-version)
●	●	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 EN61326-1:2006 (EN55022, EN61000-3-2/-3 & EN61000-4-2/-3/-4/-5/-6/-8/-11)

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

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



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

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)

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(1997, 1998/A1),
EN61000-4-2(1995), & EN61000-4-3(1996)

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

LVD
MEETS EN61010-1 2nd Ed.
CAT III 1kV & CAT IV 600V

BRYMEN® BM859CFa
DC+AC 100kHz TRMS DMM

BM859CFa & BM857a GENERAL SPECIFICATION

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 ~ 45°C), or otherwise specified

Sensing: AC, AC+DC True RMS

Safety: Double insulation per IEC61010-1 2nd Ed., EN61010-1 2nd Ed., UL61010-1 2nd Ed. & CAN/CSA C22.2 No.

61010.1-0.92 to Category III 1000V AC & DC and Category IV 600V AC & DC

BM857a Terminals (to COM) Measurement Category:

V : Category III 1000 Vac & Vdc and Category IV 600 Vac & Vdc.

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	BM859CFa	BM857a
Accuracy		
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

NMR: >60dB @ 50/60Hz

CMRR: >120dB @ DC, 50/60Hz, Rs=1kΩ

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

AC & AC+DC Voltage

RANGE	BM859CFa	BM857a
Accuracy*		
20Hz - 45Hz		
500.00mV, 5.0000V, 50.000V	1.5% + 60d	Unspec'd
500.00V, 1000.0V	Unspec'd	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		
500.00mV	0.3% + 10d	0.8% + 40d
5.0000V, 50.000V, 500.00V	0.4% + 40d	2.0% + 60d
1000.0V	0.8% + 40d (300Hz-1kHz)	1.0% + 40d
5kHz - 20kHz		1kHz - 20kHz
500.00mV	0.5% + 20d	1dB**
5.0000V, 50.000V	0.8% + 20d	2dB**
500.00V	0.5% + 20d	3dB**
1000.0V	Unspec'd	Unspec'd
20kHz - 100kHz		
500.00mV	2.5% + 40d	Unspec'd
5.0000V, 50.000V	4.0% + 40d**	
500.00V	Unspec'd	
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

CMRR: >80dB @ DC to 60Hz, Rs=1kΩ

Input Impedance: 10MΩ, 30pF nominal

(80pF nominal for 500mV range)

Residual reading less than 50 digits with test leads shorted.

A / mAμA : Category III and Category IV 600 Vac and 300 Vdc.

BM859CFa Terminals (to COM) Measurement Category:

V / A / mAμA : Category III 1000 Vac & Vdc and Category IV 600 Vac & Vdc.

Overload Protections:

BM857a:

μA & mA: 1A/600V, IR 10kA or better, F fuse

A: 10A/600V, IR 100kA or better, F fuse

V: 1050Vrms, 1450Vpeak

mV, Ω, & Others: 600 Vdc & Vac rms

BM859CFa

μA & mA: 0.44A/1000V, IR 10kA or better, F fuse

A: 11A/1000V, IR 20kA or better, F fuse

V, mV, Ω, & Others: 1050Vrms, 1450Vpeak

Transient protection: 8kV (1.2/50μs surge)

E.M.C.: Meets EN61326-1:2006 (EN55022, EN61000-3-2,

EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, ,

EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11)

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,

dBm

At 600Ω, -11.76dBm to 54.25dBm

Accuracy: ± 0.25dB + 2d (@40Hz - 20kHz)

Input Impedance: 10kΩ, 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

Ohms

RANGE	BM859CFa	BM857a
Accuracy		
500.00Ω	0.07% + 10d	0.1% + 6d
5.0000kΩ	0.07% + 2d	
50.000kΩ		
500.00kΩ		
5.0000MΩ	0.2% + 6d	0.4% + 6d
50.000MΩ	2.0% + 6d	2.0% + 6d

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

⊘ Audible Continuity Tester

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

⚡ Diode Tester

Range	Accuracy	Test Current (Typical)	Open Circuit Voltage
5.0000V	1% + 1d	0.4mA	< 3.5 VDC

⊖ 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 50.0μF and 540μF for 500.0μF and 9999μF ranges respectively

DC Loop Current %4-20mA

4mA = 0% (zero)

20mA = 100% (span)

Resolution: 0.01%

Accuracy: ± 25d

Crest mode (Instantaneous Peak Hold)

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

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 15A (to 20A for BM859CFa) for 30 second max with 5 minutes cool down interval

JIS6AM6 or IEC6LF22

Power Consumption: 6mA typical

Low Battery: Below approx. 7V

APO Timing: Idle for 17 minutes

APO Consumption: 55μA typical for BM857a; 30μA typical for BM859CFa

Dimension: L166mm X W87mm X H35.5mm; L198mm X W97mm X H55mm with holster

Weight: 390 gm; 500 gm with holster

Accessories: Test leads (pair), holster, battery installed, user's manual, Bkp60 banana plug K-type thermocouple x 1 (BM859a 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

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 (BM859CFa only). %4-20mA loop current readings. High noise rejection filtered Line Level Frequency mode. Data Hold. Audible & visible input warning.

AC & AC+DC Current

RANGE	BM859CFa	BM857a	Burden Voltage
Accuracy			
50Hz - 60Hz			
500.00μA	0.5% + 50d	1.0% + 40d	0.15mV/μA
5000.0μA			0.15mV/μA
50.000mA			3.3mV/mA
500.00mA			3.3mV/mA
5.0000A			45mV/A
10.000A*			45mV/A
40Hz - 1kHz			
500.00μA	0.7% + 50d	1.0% + 40d	0.15mV/μA
5000.0μA			0.15mV/μA
50.000mA			3.3mV/mA
500.00mA			3.3mV/mA
5.0000A			45mV/A
10.000A*			45mV/A
1kHz - 10kHz			
500.00μA	2.0% + 50d	Unspec'd	0.15mV/μA
5000.0μA			0.15mV/μA
50.000mA			3.3mV/mA
500.00mA			3.3mV/mA
5.0000A			45mV/A
10.000A*			45mV/A

*10A continuous, >10A to 15A (to 20A for BM859CFa) for 30 second max with 5 minutes cool down interval

T1-T2 Dual Temperature (BM859CFa 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

~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 - 2.0000MHz	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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