

GENERAL SPECIFICATIONS

Display: 4.45 digits 50,000 counts.
 Selectable stable mode 5-45 digits 500,000 counts for DC Voltage, 4-8 digits 999,999 counts for Hz.
 Polarity: Automatic.
 Update Rate:
 4.45 digits fast mode: 5 per second nominal
 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% RH. (with battery removed)
 Altitude: Operating below 2000m
 Temperature Coefficient: nominal ±0.1% (specified accuracy) / 0°C @ 0°C - 18°C or 28°C - 40°C, or otherwise specified.
 Wiring: 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

ELECTRICAL SPECIFICATIONS

Accuracy is ±1% reading digits + number of digits) or otherwise specified, at 23°C ±5°C and 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	85%	Accuracy	85%
500.00 mV, 5.0000V, 50.000V	85%	±0.02%±2d	±0.03%±2d
500.00V	0.05%±2d	±0.05%±2d	±0.05%±2d
1.0000kV	0.05%±2d	±0.1%±2d	±0.1%±2d

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

AC & AC+DC Voltage

RANGE	Accuracy	
	85%	85%
500.00mV, 5.0000V, 50.000V	1.5%±60d	Unspec'd
500.00V, 1000.0V	Unspec'd	Unspec'd
500.00mV	0.3%±20d	0.8%±60d
5.0000V, 50.000V	0.8%±20d	0.8%±60d
500.0V, 1000.0V	0.4%±40d	0.8%±60d
500.00mV	0.3%±10d	0.8%±60d
5.0000V, 50.000V	0.4%±40d	2.0%±60d
1000.0V	0.8%±40d	1.0%±40d
500.00mV	0.3%±10d	0.8%±60d
5.0000V, 50.000V	0.8%±20d	2.0%±60d
500.00V	0.8%±20d	2.0%±60d
1000.0V	Unspec'd	Unspec'd
500.00mV	0.3%±10d	0.8%±60d
5.0000V, 50.000V	0.8%±20d	2.0%±60d
1000.0V	Unspec'd	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 (30pF nominal for 500mV range)
 Residual reading less than 50 digits with test leads shorted.

Ohms

RANGE	85%	Accuracy	85%
500.00Ω	0.07%±10d	0.1%±8d	0.1%±8d
5.0000Ω, 50.000kΩ, 500.00kΩ	0.07%±2d	0.1%±8d	0.1%±8d
5.0000MΩ	0.2%±8d	0.4%±8d	0.4%±8d
50.000kΩ	2.0%±8d	2.0%±8d	2.0%±8d

Open Circuit Voltage: < 3.0VDC (< 30VDC for 500Ω range)

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 I A mA: Category III 1000V AC & DC and Category IV 600V AC & DC

Overload Protection:
 μA & mA: 1.0MΩ/100V DCAIC rms, IR 10kA, F fuse I: 1A/100V DCAIC rms, IR 20kA, F fuse V: 100V/100V DCAIC rms.
 mV, Ω, & Ohms: 1000V DCAIC rms
Transient protection: 8kV (1.2/50μs surge) E.M.C.: Meets EN55125-1/2/3
 Is an RF field of 3V/m.
 Capacitance function is not specified
 Other function ranges:
 Performance above 3V/m is not specified
Power Supply: Single Alkaline 9V battery; NEDA1604A, JS684AA/IEC625
Power Consumption: 6mA typical
Low Battery: Below approx. 7V

Autobit Continuity Tester

Autobit threshold between 200Ω and 200Ω Response time < 100μs

Crest mode (Instantaneous Peak Hold)

Accuracy: Specified accuracy + 100 digits for changes > 0.8ms in duration
 0.1%±2d

AG & AG+DC Current

RANGE	Accuracy		Burden Voltage
	85%	85%	
50Hz - 60Hz			
500.00μA, 5000.0μA	0.5%±50d	1.0%±40d	0.15mV/μA
50.000mA, 500.00mA	0.5%±50d	1.0%±40d	45mV/μA
40Hz - 1kHz			
500.00μA, 5000.0μA	0.7%±50d	1.0%±40d	0.15mV/μA
50.000mA, 500.00mA	0.7%±50d	1.0%±40d	45mV/μA
1kHz - 10kHz			
500.00μA, 5000.0μA	2.0%±50d	Unspec'd	0.15mV/μA
50.000mA, 500.00mA	2.0%±50d	Unspec'd	45mV/μA
5.0000A, 10.0000A	Unspec'd	Unspec'd	45mV/μA

*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	0.1%±20d	3.3mV/μA
500.00mA	0.1%±20d	3.3mV/μA
5.0000A	0.5%±20d	45mV/μA
10.0000A	0.5%±20d	45mV/μA

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

DC Loop Current 1%~20mA

4mA ± 0% (open)
 20mA ± 100% (open)
 Resolution: 0.01%
 Accuracy: ± 2%

dBm

At: 800Ω, -11.76dBm to 24.25dBm
 Accuracy: ± 0.25dB ± 2d (@40Hz - 20kHz)
 Input Impedance: 10MΩ, 30pF nominal
 Selectable reference impedance of 4, 8, 16, 32, 50, 75, 82, 110, 125, 150, 200, 250, 300, 300, 600, 800, 900, 1000, 1500Ω.

Diode Tester

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

APC Timing: Idle for 14 minutes

APC Consumption: 55μA typical for BM857s; 30μA typical for BM856s
 Dimension: L186mm X W87mm X H35.5mm; L186mm X W87mm X H35.5mm with holder
 Weight: 59g net; 500 gm with holder
 Accessories: Test leads (pair), Holder, Battery installed, User's manual, Bui60 banana plug K-type thermocouple x 1 (BM856s only)

Optional Accessories: BRUA-850a PC interface kit (DC-850a RS232 optical adapter cable + Bafix software CD + BUA-2003 USB-to-Serial adapter); Bui32 banana pins to K-type socket plug adapter (BM856s 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; Background display; dBm readings; 17-12 differential temperature readings (BM856s only); 54-20mA loop current readings; High noise rejection filtered Line Level Frequency mode; Data Hold; Audible & Visible Input Warning

Capacitance

RANGE	Accuracy
50.00pF	0.3% ± 3d
500.00pF	0.8% ± 3d
5.000μF	1.5% ± 3d
50.00μF	2.5% ± 3d
500.0μF	3.5% ± 3d
5000.0μF	5.0% ± 5d

Accuracies with film capacitor or better
 **In manual-ranging mode, measurements not specified below 450pF and 450μF for 500.0μF and 9999.9μF ranges respectively

17-12 Dual Temperature (BM856s only)

RANGE	Accuracy
-50.0°C to 1000.0°C	0.3%±1°C
-26.0°F to 1832.0°F	0.3%±2°F

Thermocouple range & accuracy not included

Hz Line Level Frequency

Function	Sensitivity (RMS)	Range
500mV	100mV	10Hz - 200kHz
10V	10V	10Hz - 200kHz
100V	10V	10Hz - 100kHz
1000V	300V	10Hz - 10kHz

Accuracy: 0.02%±4d

Hz Logic Level Frequency

RANGE	Accuracy
0.0000Hz - 2.0000MHz	0.02%±4d

Sensitivity: 2.8Vp square wave

μA Duty Cycle

RANGE	Accuracy
0.1% - 99.9%	3.0%±2d

Input Frequency:
 0Hz - 500 kHz, 5V Logic Family

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● **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

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 EN61010-1/2-230V-2-033
 CAT III 1kV & CAT IV 600V

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

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