

Choice Of Dual Display Performance & Cat IV 1kV Safety!

12kV Transient Protection, DC+AC True RMS, dBm, Duty %, 4 Digit Resolution, nS Conductance... And More!
Ergonomic, Magnetic Hanger, Probe Holders, Tilt stand & Hanger, Battery Access Cover... User-Oriented!
PC-Comm, Bar-graph, BeepJack, Crest (Peak), Rec (Min Max Avg), Relative, Backlit... Full-Features!
AutoCheck+LoZ, EF-Detection, Capacitance, Line Level Hz, T1-T2 Temperature... Full-Functions!



CE

BM820 Series Professional Multimeter

勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

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● **BM829**



● **BM827**



● **BM822**



● **BM821**

829	827	822	821	FUNCTIONS & FEATURES
●	●	●	●	4 Digits 10,000 Counts Large Easy To Read LCD Display
●	●	●	●	Fast Measurements, 5/Sec; Fully Auto-Ranging
●	●	●	●	Dual Digital Display
●	●	●	●	41 Segment Analog Bar-graph Updates 60/Sec
●	●	●	●	0.08% High Basic DCV Accuracy
●	●	●	●	Optional Purchase USB Cable & Software For Win98/2k/xp/Vista
●	●	●	●	Intelligent Auto Power Off
●	●	●	●	Data Hold
●	●	●	●	Relative Zero Mode
●	●	●	●	Audible & Visible BeepJack™ Input Warning Against Improper Plug In
●	(AC)	(AC)		AC, AC+DC True RMS Conversion
●	●			Record Max/Min/MAX-MIN/AVG Readings, Auto-Ranging
●	●			Crest (Peak Hold) Max/Min/MAX-MIN Readings, Auto-Ranging
●	●			Non-Contact EF-Detection (NCV)
●	●			Probe-Contact EF-Detection For More Precise Indication Of Live
●				AutoCheck™ Feature (Automatic DCV, ACV & Ohms Selection)
●				Lo-Z Volts To Drain Ghost Voltages (AutoCheck™ Feature)
●				Back-Lighted Large Easy To Read LCD Display
●				dBm Readings, 20 Selectable Impedance Values
●	●	●	●	DCV 0.01mV To 1000V
●	●	●	●	ACV 0.01mV To 1000V
●				AC+DCV 0.01mV To 1000V
●	●	●	●	DCA 0.1μA To 10A; 20A For 30 Seconds Per 5 Minutes Cooling
●	●	●	●	ACA 0.1μA To 10A; 20A For 30 Seconds Per 5 Minutes Cooling
●				AC+DCA 0.1μA To 10A; 20A For 30 Seconds Per 5 Minutes Cooling
●	●	●	●	Ohms 0.1Ω To 60MΩ
●	●		●	Conductance 0.01nS To 100nS
●	●	●	●	Capacitance 0.01nF To 25mF
●	●			T1 Type-K Temperature Readings -50°C To 1000°C
●				T2 Dual Type-K Temperature Readings -50°C To 1000°C
●	●	●	●	Line Level Frequency 15.00 Hz To 1.000 kHz
●	●	●	●	Logic Level Frequency 5.00 Hz To 1.000 MHz
●	●	●	●	Logic Level Duty Cycle Readings 0.01% To 100.0%
●	●	●	●	Diode Tester
●	●	●	●	Rugged Fire Retarded Casing With Battery Access Door
●	●	●	●	Replaceable Protective Holster With Probe-Holders & Tilt-Stand
●	●	●	●	Optional Purchase Magnetic Hanger
●	●	●	●	600V General (Ohm, Capacitance ... etc.) Input Protection
●	●	●	●	600V High Breaking Capacity Fuses Protected On Current Inputs
●	●	●	●	Transient Protection Up To 12kV 1.2/50μs Lightning Surge
●	●	●	●	LVD Meets EN61010-1 CAT IV 1kV
●	●	●	●	EMC EN61326-1:2006 (EN55022, EN61000-3-2/-3 & EN61000-4-2/-3/-4/-5/-6/-8/-11)

For Those Who Only Accept The Best: Cat IV 1kV!

**4 digit High Resolution, High Speed & Dual Display Multi-Features!
Includes NCV EF-Detection, AutoCheck™ & Ghost-Voltage-Buster™!**

HIGH ACCURACY
0.08% BASIC DCV ACCURACY;
FAST AUTO-RANGING

ANALOG BAR-GRAPH
FAST UPDATE RATE 60/SEC

LARGE 10000 COUNTS LCD DISPLAY
5/SEC FAST NOMINAL UPDATE RATE

AUTO & MANUAL-RANGING
AUTO-RANGING WITH
MANUAL-RANGING OVERRIDE

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ASIC TECHNOLOGY
MORE FUNCTIONS & FEATURES
AT AFFORDABLE PRICES

DUAL DIGITAL DISPLAY
SIMULTANEOUSLY VIEW RELEVANT
PARAMETERS IN COMPLEMENTARY DISPLAY

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

EF-DETECTION
BOTH NON-CONTACT (NCV)
& SINGLE-PROBE VOLTAGE
DETECTION FOR IDENTIFYING
LIVE LINES

DATA HOLD
FREEZES THE DISPLAYING
READING FOR LATER VIEW

MAX MIN AVG RECORD
RECORD MAX/MIN/MAX-MIN/AVG
READINGS; AUTO-RANGING

T1-T2 TYPE-K TEMPERATURE
2 CHANNEL MEASUREMENTS,
SELECTABLE °C & °F READINGS

DIODE TEST
FOR CHECKING DIODES
AND RECTIFIERS

CAPACITANCE
UP TO 27mF WITH 1000V PROTECTION;
AUTO-RANGING

CURRENT & Hz
MEASURES CURRENT & FREQUENCIES
IN DUAL DISPLAY

ERGONOMIC STREAMLINE DESIGN
FITS COMFORTABLY IN ONE'S HAND

INTELLIGENT AUTO-POWER-OFF
TO EXTEND BATTERY LIFE

TRANSIENT PROTECTION
UP TO 12kV 1.2/50µs LIGHTNING SURGE;
SUPERB PROTECTION FOR SERIOUS USERS

EMC
MEETS EN61326-1:2006 (EN55022,
EN61000-3-2/-3 & EN61000-4-2/-3/-4/-5/-6/-8/-11)

LVD SAFETY
MEETS EN61010-1
2ND EDITION CAT IV 1KV

FUNCTION SELECTION
TOGGLE CONVENIENTLY BETWEEN
PRIMARY & SECONDARY FUNCTIONS

nS CONDUCTANCE
nS=1/GΩ VIRTUALLY EXTENDS RESISTANCE
MEASUREMENT TO THE ORDER OF GΩ.
IT IS USEFUL FOR LEAKAGE MEASUREMENTS

CREST (PEAK HOLD)
CAPTURES INSTANTANEOUS
+PEAK & -PEAK, AUTO-RANGING

LOGIC LEVEL DUTY%
MEASURES DIGITAL LOGIC LEVEL
DUTY CYCLE % READINGS

LOGIC LEVEL Hz
MEASURES DIGITAL LOGIC LEVEL
FREQUENCIES UP TO 2MHz

HIGH IMPEDANCE VOLTAGE
1000VAC/DC MEASURING CAPABILITIES;
HIGH INPUT IMPEDANCE FOR
LOAD SENSITIVE CIRCUITS

Hz OF LINE LEVEL VOLTAGE
MEASURES NOISY HIGH VOLTAGE
ACV FREQUENCIES UP TO 200kHz
IN DUAL DISPLAY

dBm FUNCTION
WITH 20 SELECTABLE
IMPEDANCE VALUES

AUTOCHECK™ FEATURE
AUTOMATIC SELECTION OF
LoZ DCV, LoZ ACV & OHMS

GHOST-VOLTAGE-BUSTER
LoZ DRAINS GHOST/ STRAY VOLTAGES
LEAVING ONLY HARD SIGNALS
ON METER READINGS

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

BEEP-JACK™ AUDIBLE & VISIBLE WARNING
GUARDS AGAINST IMPROPER A-TERMINAL
PLUG IN. DECREASES RISKS OF DAMAGE

AC, AC+DC TRUE RMS MEASUREMENTS
FOR NON-SINUSOIDAL WAVEFORMS
OF COMPLEX VOLTAGE OR CURRENT SIGNALS

PROTECTIVE HOLSTER
WITH HOLDERS FOR PROBE STORAGE
AND "THIRD HAND" FEATURE,
REPLACEABLE & WASHABLE



BM829, BM827, BM822 & BM821 GENERAL SPECIFICATIONS

Display:
9999 counts: ACV, DCV, Hz & nS
6000 counts: mV, μ A, mA, A, Ohm & Capacitance
Update Rate:
Digital Display: 5 per second nominal;
41 Segments Bar-graph: 60 per second max
Low Battery: Below approx. 7V
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 0.15 x (specified accuracy)/°C @ (0°C ~ 18°C or 28°C ~ 45°C), or otherwise specified
Sensing:
BM829: AC, AC+DC True RMS
BM827 & BM822: AC True RMS
BM821: Average Sensing
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 IV 1000Vac & Vdc.
Transient protection: 12kV (1.2/50 μ s surge)
Terminals (to COM) Measurement Category:
V: Category IV 1000Vac & Vdc
mA/ μ A: Category IV 600Vac and 300Vdc
A: Category IV 600Vac and 300Vdc
Overload Protections:
 μ A & mA: 1A/600Vac, IR 100kA, F fuse
A: 15A/600Vac, IR 100kA, F fuse
V: 1050Vrms, 1450Vpeak
mV, Ω , & Others: 600Vdc and Vac rms
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 9V battery; NEDA1604G, JIS006P

IEC6F22, NEDA1604A, JIS6AM6 or IEC6LF22
Power Consumption: 5 mA typical
APO Timing: Idle for 30 minutes
APO Consumption: 50 μ A typical
Dimension: L208mm X W103mm X H64.5mm with holster
Weight: 635 gm with holster
Special Features: Dual displays; Data Hold; Audible & Visible Input Warning; Auto-Ranging Relative Zero; USB Interface capability (Optional purchase interface kit BU-82X); AutoCheck™ V- Ω (BM829 only); Auto-Ranging 50ms Record (BM829 & BM827 only); Auto-Ranging Crest (Instantaneous Peak Hold, BM829 & BM827 only); Backlight display (BM829 only); dBm readings (BM829 only); T1-T2 differential temperature readings (BM829 only); Non-Contact Voltage (EF) Detection (BM829 & BM827 only); nS conductance (BM829 & BM827 only)
Accessories: Test lead pair; Battery installed; User's manual; One BKP60 banana plug type-K thermocouple (BM829 & BM827 only)
Optional purchase accessories:
USB interface kit BU-82X; BMH-01 Magnetic hanger; BKB32 banana plug to type-K socket plug adaptor

Electrical Specifications

Accuracy is \pm (% reading digits + number of digits) or otherwise specified, at 23°C \pm 5°C & less than 75% relative humidity.
True RMS voltage & current accuracies are specified from 10% to 100% of range or otherwise specified. Maximum Crest Factor < 3:1 at full scale & < 6:1 at half scale, and with frequency components within the specified frequency bandwidth for non-sinusoidal waveforms.

AC & AC+DC Voltage

Function	RANGE	Accuracy
50Hz ~ 60Hz		
mV	60.00mV, 600.0mV	0.5% + 3d
V	999.9mV, 9.999V, 99.99V, 999.9V	
40Hz ~ 500Hz		
mV	60.00mV, 600.0mV	0.8% + 4d
V	999.9mV	5.0% + 4d
	9.999V, 99.99V	1.0% + 4d
	999.9V	2.0% + 4d
500Hz ~ 1kHz		
mV	60.00mV, 600.0mV	2.0% + 3d
V	999.9mV	3dB
	9.999V, 99.99V	1.0% + 4d
	999.9V	2.0% + 4d
1kHz ~ 3kHz		
mV	60.00mV, 600.0mV	2.0% + 3d
V	999.9mV	Unspec d
	9.999V, 99.99V, 999.9V	3.0% + 4d
3kHz ~ 20kHz		
mV	60.00mV ¹⁾ , 600.0mV ¹⁾	2.0% + 3d
V	999.9 mV	Unspec d
	9.999V, 99.99V	3dB
	999.9V	Unspec d

¹⁾Specified from 30% to 100% of range.

CMRR: >60dB @ DC to 60Hz, R_s=1k Ω

Input Impedance: 10M Ω , 50pF nominal (80pF nominal for 600mV range)

Non-zero residual reading does not affect measurement accuracy. It shows less than 5 digits with test leads shorted over time.

AutoCheck™ (ACV)

RANGE ¹⁾	Accuracy
50Hz ~ 60Hz	1.0% + 4d
999.9mV, 9.999V, 99.99V, 999.9V	

Lo-Z ACV Threshold:

> 2VAC (50/60Hz) nominal

Lo-Z ACV Input Impedance:

Initially approx. 3.0k Ω , 150pF nominal; Impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical). Ended up impedances vs display voltages typically are:

18k Ω @ 100V
125k Ω @ 300V
320k Ω @ 600V
460k Ω @ 1000V

dBm

At 600 Ω , -11.76dBm to 54.25dBm,
Accuracy: \pm 0.25dB + 2d (@40Hz ~ 20kHz)

Input Impedance: 10M Ω , 50pF nominal

Selectable reference impedance of 4, 8, 16, 32, 50, 75, 93, 110, 125, 135, 150, 200, 250, 300, 500, 600, 800, 900, 1000, 1200 Ω

DC Voltage

Function	RANGE	Accuracy
mV	60.00mV	0.12% + 2d
	600.0mV	0.06% + 2d
V	999.9mV, 9.999V, 99.99V, 999.9V	0.08% + 2d

NMR: >60dB @ 50/60Hz

CMRR: >110dB @ DC, 50/60Hz, R_s=1k Ω

Input Impedance: 10M Ω , 50pF nominal (80pF nominal for 600mV range)

AutoCheck™ (DCV)

RANGE	Accuracy
999.9mV, 9.999V, 99.99V, 999.9V	0.5% + 3d

Lo-Z DCV Threshold:

> +1.5VDC or < -1.0VDC nominal

Lo-Z DCV Input Impedance:

Initially approx. 3.0k Ω , 165pF nominal; Impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical). Ended up impedances vs display voltages typically are:

18k Ω @ 100V
125k Ω @ 300V
320k Ω @ 600V
500k Ω @ 1000V

Crest mode (Instantaneous Peak Hold)

Accuracy: Specified accuracy adds 250 digits for changes > 1.0 ms in duration

Record mode

Accuracy: Specified accuracy adds 10 digits for changes > 100 ms in duration

Ohms

RANGE	Accuracy
600.0 Ω , 6.000k Ω , 60.00k Ω , 600.0k Ω	0.1% + 3d
6.000M Ω	0.4% + 3d
60.00M Ω	1.5% + 5d
99.99nS	0.8% + 10d

Open Circuit Voltage: < 1.2VDC (< 1.0VDC for 60M Ω range)

AutoCheck™ (Ohms)

RANGE	Accuracy
600.0 Ω , 6.000k Ω , 60.00k Ω , 600.0k Ω	0.5% + 4d
6.000M Ω	0.8% + 3d
60.00M Ω	2.0% + 5d

Open Circuit Voltage: < 1.2VDC (< 1.0VDC for 60M Ω range)

•• Audible Continuity Tester

Audible threshold: between 20 Ω and 300 Ω ; Response time < 100 μ s

• Diode Tester

RANGE	Accuracy
2.000V	1.0% + 1d

Test Current (Typically): 0.4mA

Open Circuit Voltage: < 3.5 VDC

• Capacitance

RANGE	Accuracy ¹⁾
60.00nF, 600.0nF	0.8% + 3d
6.000 μ F	1.0% + 3d
60.00 μ F	2.0% + 3d
600.0 μ F ²⁾	3.5% + 5d
6.000mF ²⁾	5.0% + 5d
25.00mF ²⁾	6.5% + 5d

¹⁾Accuracies with film capacitor or better

²⁾In manual-ranging mode, measurements not specified below 50.0 μ F, 0.54mF and 5.4mF for ranges 600.0 μ F, 6.000mF and 25.00mF respectively

Logic Level Frequency (II)Hz & Duty Cycle (D%)

@ DCmV Function	Range	Accuracy ¹⁾
Frequency	5.00Hz ~ 1.000MHz	0.004% + 4d
Duty Cycle	0.00% ~ 100.0%	3d/kHz + 2d ²⁾

¹⁾Sensitivity: 2.5Vp (Square wave) for 3V & 5V Logic Family

²⁾Specified Frequency: 5Hz ~ 10kHz

Line Level Frequency (Hz)

Function Range	Frequency	Sensitivity (Sine RMS)
AC 60.00mV	15.00 ~ 50.00kHz	40mV
AC 600.0mV		60mV
AC 999.9mV	15.00 ~ 1.000kHz	0.5V
AC 9.999V		2.5V
AC 99.99V	15.00 ~ 10.00kHz	25V
AC 999.9V		100V
AC 600.0 μ A	15.00 ~ 3.000kHz	45 μ A
AC 6000 μ A		600 μ A
AC 60.00mA		40mA
AC 600.0mA		60mA
AC 6.000A		4A
AC 10.00A		6A

Accuracy: 0.04% + 4d

Temperature

RANGE	Accuracy
-50°C to 1000°C	0.3% + 2°C
-58°F to 1832°F	0.3% + 5°F

Type-K thermocouple range & accuracy not included

DC Current

RANGE	Accuracy	Burden voltage
600.0 μ A, 6000 μ A	0.2% + 4d	0.08mV/ μ A
60.00mA, 600.0mA		1.50mV/mA
6.000A, 10.00A ¹⁾		0.02V/A

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

AC & AC+DC Current

RANGE	Accuracy	Burden voltage
50Hz ~ 60Hz		
600.0 μ A, 6000 μ A	0.6% + 3d	0.08mV/ μ A
60.00mA		1.50mV/mA
600.0mA	1.0% + 3d	1.50mV/mA
6.000A, 10.00A ¹⁾	0.8% + 6d	
40Hz ~ 1kHz		
600.0 μ A, 6000 μ A	0.8% + 4d	0.08mV/ μ A
60.00mA		1.50mV/mA
600.0mA	1.0% + 4d	1.50mV/mA
6.000A, 10.00A ¹⁾	0.8% + 6d	

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

Non-Contact EF-Detection

Typical Voltage	Bar Graph Indication
20V (tolerance: 10V ~ 36V)	-
55V (tolerance: 23V ~ 83V)	-
110V (tolerance: 59V ~ 165V)	---
220V (tolerance: 124V ~ 330V)	---
440V (tolerance: > 250V)	---

Indication: Bar graph segments & audible beep tones proportional to the field strength

Detection Frequency: 50/60Hz

Detection Antenna: Top end of the meter

Probe-Contact EF-Detection:

For more precise indication of live wires, such as distinguishing between live and ground connections, use the Red (+) test probe for direct contact measurements.

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