

Welectron. Popular Models Gains Access To Tighter Places Thru New Slim Jaws!

**'C/'F & μ A For HVAC, Cx For Motor Capacitors, & Captures 30ms In-Rush Current!
Plus Improved Display Digits & Cat III 600V Safety On Single Display Models!**



CE

**BM110M / BM120M Series
Versatile Clamp-on Multimeters**



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

Enjoy The Benefits Of Small Body, Light Weight & Ultra-Slim Jaws!

Yet Outperforms Large Boxy Products In Functions & Safety With This Upgraded M-Series!



LVD CAT III 600V SAFETY
MEETS BOTH EN61010-2-032 CAT III 600V
& UL61010B-2-032 CAT III 600V ON ALL MODELS

RUGGED & DURABLE
HIGH-IMPACT FIRE-RETARDED ENCLOSURE
FOR REINFORCED SAFETY & RELIABILITY

RELATIVE ZERO
(BM110M, BM111M & BM112M ONLY)
FOR CONVENIENT READINGS
COMPARISON & ZERO OFFSET

FULLY AUTO-RANGING DMM
SHORTENS THE TIME TO MEASURE
AND INCREASES THE EASE OF USE

TRUE RMS MEASUREMENTS
(BM112M & BM128M ONLY)
FOR NON-SINUSOIDAL WAVEFORMS
OF AC VOLTAGES & AC CURRENTS

TWIN DISPLAYS
(BM127M & BM128M ONLY)
SIMULTANEOUS MEASUREMENTS OF
A+V, A+OHMS, ... ETC

ENLARGED SINGLE DISPLAY
(BM110M, BM111M & BM112M ONLY)
ENLARGED DISPLAY DIGITS
FOR SINGLE DISPLAY MODELS

0.5% DCV & ACV BASIC ACCURACY
DCV 5 AUTO-RANGES TO 600V;
ACV 4 AUTO-RANGES TO 600V

TYPE-K TEMPERATURE
(BM127M & BM128M ONLY)
SELECTABLE °C AND °F READINGS;
COMES WITH BKP60 BEAD PROBE

µA FUNCTION
(BM127M & BM128M ONLY)
FOR HVAC FLAME SENSORS TESTING
VIA TEST LEADS WITH 600V PROTECTION

EMC
MEETS EN61326(1997, 1998/A1),
EN61000-4-2(1995, 2000/A2), & EN61000-4-3(2002)

TRANSIENT PROTECTION
UP TO 6kV 1.2/50µs LIGHTNING SURGE;
MORE CONFIDENCE FOR SERIOUS USERS

SMALL & ULTRA-SLIM CLAMP JAWS
FOR EASY ACCESS TO TIGHT PLACES
WITH AC 600A CAPABILITY

30ms MAX HOLD
(EXCEPT MODEL BM110M)
CAPTURES IN-RUSH RMS VALUES OF ACA
OR ACV AS SHORT AS 30ms IN DURATION

DATA HOLD
FREEZES THE DISPLAYING
READING FOR LATER VIEW

LIGHT WEIGHT & SMALL BODY
ALSO COMES WITH A SOFT POUCH
FOR EASY CARRYING & PROTECTION

HIGH CURRENT (ACA) Hz
(BM111M & BM112M ONLY)
MEASURES NON-INVASIVE
ACA FREQUENCY VIA CLAMP JAWS

HIGH VOLTAGE (ACV) Hz
MEASURES NOISY HIGH VOLTAGE
ACV FREQUENCY VIA TEST LEADS

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

CAPACITANCE
(EXCEPT MODEL BM110M)
6 AUTO-RANGES UP TO 3000µF
TO MEASURE MOTOR CAPACITORS

DIODE TEST
FOR TESTING DIODES & RECTIFIERS

RESISTANCE
6 AUTO-RANGES UP TO 40MΩ
WITH 600V PROTECTION



BM128M



BM127M



BM112M



BM111M



BM110M

128M	127M	112M	111M	110M	FUNCTIONS & FEATURES
●	●	●	●	●	Ultra-slim jaws to access tight places; 26mm conductor size
●	●	●	●	●	Light weight < 140gm & small body to fit your hand
●	●	●	●	●	Fully auto-ranging for ease of use; Fast measurements
●	●	●	●	●	600A AC Clamp-on + Multimeter ranges
●	●	●	●	●	3-3/4 digits 4,000 counts high resolution
●	●	●	●	●	600VAC/DC input protection on all functions
●	●	●	●	●	High 0.5% DCV accuracy
●	●	●	●	●	Data HOLD
●	●	●	●		Fast 30ms MAX HOLD to capture In-rush currents
●		●			AC True RMS voltage and current functions
●	●				Simultaneous Twin Displays A+V, A+Ohm, A+°C...etc
●	●				Type-k temperature -20°C to 300°C
●	●				0.1μA resolution (via test leads) for HVAC flame sensors
		●	●	●	Relative Zero mode
		●	●		Measures non-invasive ACA Frequency via clamp jaws
●	●	●	●	●	Line-level ACV Frequency measurements
●	●	●	●	●	DCV 0.1mV to 600V; ACV 1mV to 600V
●	●	●	●	(0.1A~)	ACA 0.01A (0.1A for model 110M) to 600A
●	●	●	●	●	Ohm 0.1Ω to 40MΩ
●	●	●	●		Cx 100pf to 3000μF for start & run motor capacitors
●	●	●	●	●	Diode Test; Fast Audible Continuity
●	●	●	●	●	Rugged Fire-retarded casing; Soft carrying pouch
●	●	●	●	●	Transient protection 6kV 1.2/50μs lightning surge
●	●	●	●	●	LVD EN61010-2-032 CAT III 600V
●	●	●	●	●	EMC EN61326(97/98A1)/EN61000-4-2(95/00A2)/EN61000-4-3(02)

BM110M, BM111M, BM112M, BM127M & BM128M GENERAL SPECIFICATION

Display : 3-3/4 digits 4000 counts LCD display(s)

Update Rate : 3 per second nominal

Polarity : Automatic

Low Battery : Below approx. 2.4V

Operating Temperature : 0°C to 40°C

Relative Humidity : Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 40°C

Altitude : Operating below 2000m

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

Temperature Coefficient : nominal 0.15 x (specified accuracy)/°C @ (0°C ~ 18°C or 28°C ~ 40°C), or otherwise specified

Sensing : Average sensing for BM110M, BM111M & BM127M; True RMS for BM112M & BM128M

Overload Protections :

ACA Clamp-on jaws : AC 600A rms continuous

+/-µA & COM terminals: 600VDC/VAC rms

Transient protection :

6.5kV (1.2/50µs surge) for all models

Safety : Meets IEC61010-2-032 (2002), EN61010-2-032 (2002), UL61010B-2-032 (2003)

Measurement Category : III 600 Volts ac & dc

Pollution degree : 2

E.M.C. : Meets EN61326 (1997, 1998/A1), EN61000-4-2 (1995, 2000/A2), and EN61000-4-3 (2002)

In an RF field of 3V/m:

Capacitance function is not specified

µA function (BM127M, BM128M only) :

Total Accuracy = Specified Accuracy + 65 digits

Other function ranges:

Total Accuracy = Specified Accuracy + 45 digits

Performance above 3V/m is not specified

Power Supply : 3V coin battery IEC-CR2032;

One battery for BM110M, BM111M & BM112M;

Two batteries for BM127M & BM128M

Power Consumption : 2.8mA typical except that 3.3mA typical for current function

APO Timing : Idle for 30 minutes

APO Consumption : 5µA typical on all model functions except that 40µA typical on BM127M & BM128M voltage & current functions

Dimension : L190mm X W63mm X H32mm

Weight : 139 gm approx

Jaw opening & Conductor diameter : 26mm max

Accessories : Test leads (pair), battery(ies) installed, user's manual, & soft carrying pouch;

Banana plug type-K bead probe Bkp60 x 1 (BM127M & BM128M only)

Optional Accessories : Banana pins to type-K socket plug adapter Bkb32 (for BM127M & BM128M only)

Special Features : 30ms Max Hold (except model BM110M), Data Hold, Relative Zero mode, Twin Displays (BM127M & BM128M only)

ELECTRICAL SPECIFICATION

Accuracy is ± (% reading digits + number of digits) or otherwise specified, at 23°C ± 5°C & less than 75% R.H.

Model BM112M & BM128M True RMS accuracy of ACV is specified from 5 % to 100 % of range, and ACA is specified from 10 % to 100 % of range, or otherwise specified. Maximum Crest Factor < 1.75 : 1 at full scale & < 3.5 : 1 at half scale, and with frequency spectrums, besides fundamentals, fall within the meter specified AC bandwidth for non-sinusoidal waveforms

DC Voltage

RANGE	Accuracy
400.0 mV	0.3% + 4d
4.000V, 40.00V, 400.0V	0.5% + 3d
600V	1.0% + 4d

NMRR : >50dB @ 50/60Hz

CMRR : >120dB @ DC, 50/60Hz, Rs=1kΩ

Input Impedance : 10MΩ, 30pF nominal (1000MΩ for 400.0mV range)

AC Voltage

RANGE	Accuracy
50Hz ~ 500Hz	
4.000V, 40.00V, 400.0V	1.5% + 5d
600V	2.0% + 5d

CMRR : >60dB @ DC to 60Hz, Rs=1kΩ

Input Impedance: 10MΩ, 30pF nominal

ACA Current (Clamp-on)

RANGE	Accuracy ^{1) 2) 3)}
50Hz / 60Hz	
40.00A*	1.5% + 8d
400.0A	1.5% + 8d
600A	1.5% + 8d

*Not available to Model BM110M

¹⁾Induced error from adjacent current-carrying conductor: 0.05/A

²⁾Specified accuracy is from 1% to 100% of range and for measurements made at the jaw center. When the conductor is not positioned at the jaw center, position errors introduced are:

Add 2% to specified accuracy for measurements made BEYOND jaw marking lines (toward jaw opening)

³⁾Add 8d to specified accuracy @ reading < 10% of range

Max Hold* (where applicable)

Specified accuracy ± 50 digits for changes > 25ms in duration

*Not available to Model BM110M

Ohms

RANGE	Accuracy
400.0Ω	0.8% + 6d
4.000kΩ, 40.00kΩ, 400.0kΩ	0.6% + 4d
4.000MΩ	1.0% + 4d
40.00MΩ	2.0% + 4d

Open Circuit Voltage : 0.4VDC typical

Capacitance*

RANGE ¹⁾	Accuracy ^{2) 3)}
500.0nF, 5.000µF, 50.00µF, 500.0µF, 3000µF	3.5% + 6d

*Not available to Model BM110M

¹⁾Additional 50.00nF range accuracy is not specified

²⁾Accuracies with film capacitor or better

³⁾Specified with battery voltage above 2.8V (approximately half full battery). Accuracy decreases gradually to 12% at low battery warning voltage of approximately 2.4V

Hz Frequency

Function	Sensitivity (Sine RMS)	Range
400.0mV	350mV	10Hz ~ 2kHz
4.000V	4V	5Hz ~ 40kHz
40.00V	32V	5Hz ~ 100kHz
400.0V	200V	5Hz ~ 100kHz
600V	500V	5Hz ~ 5kHz
400.0µA ¹⁾	500µA	10Hz ~ 30kHz
2000µA ¹⁾	500µA	10Hz ~ 30kHz
400.0A ^{2) 3)}	60A	40Hz ~ 400Hz

Display counts: 5000

Best resolution: 0.001Hz

Accuracy: 0.5%+4d

¹⁾Available to BM127M & BM128M only

²⁾Available to BM111M & BM112M only

³⁾Unspecified for BM110M

Diode Tester

Open Circuit Voltage	Test Current (Typical)
< 1.6 VDC	0.25mA

Audible Continuity Tester

Audible threshold : between 20Ω and 120Ω.

DC µA (BM127M & BM128M only)

RANGE	Accuracy	Burden Voltage
400.0µA	1.5% + 4d	2.8mV/µA
2000µA	1.2% + 3d	2.8mV/µA

AC µA (BM127M & BM128M only)

RANGE	Accuracy	Burden Voltage
50Hz ~ 500Hz		
400.0µA	2.0% + 5d	2.8mV/µA
2000µA	1.5% + 5d	2.8mV/µA

Type-K Temperature (BM127M & BM128M only)

RANGE	Accuracy
-20°C ~ 300°C	2% + 3°C
-4°F ~ 572°F	2% + 6°F

Type-K thermocouple range & accuracy not included

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