

Smart And Performance Oriented 600Amps & 2000Amps Series

Plus Powerful AutoCheck™ & EF-Detection Features!



CE

BM117/118 AutoCheck™ Clamp-On Series
BM115/116 Performance Clamp-On Series

BRYMEN®

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

BM115, BM116, BM117 & BM118 GENERAL SPECIFICATION

Display:
BM115 & BM116: 3-3/4 digits 4000 counts
BM117 & BM118: 3-5/6 digits 6000 counts

Update Rate:
BM115 & BM116: 3 per second nominal
BM117 & BM118: 5 per second nominal

Polarity: Automatic

Operating Temperature: 0°C ~ 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 ~ 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 BM115 & BM117 True RMS sensing for BM116 & BM118

Transient Protection:
6kV lightning surge (1.2/50µs)

Safety: Meets IEC61010-2-032 2nd Ed. (2002), UL3111-2-032 (1999)
Measurement Category: CAT III 600VAC & VDC
Pollution Degree: 2

E.M.C.:
Meets EN61326 (1997, 1998/A1), EN61000-4-2 (1995), & EN61000-4-3 (1996)
In an RF Field of 3V/m:
Capacitance function is not specified.
Other function ranges:
Total accuracy = Specified accuracy + 45 digits
Performance above 3V/m is not specified

Overload Protection:
ACA Clamp-on jaws:
BM115 & BM116: AC 600A rms continuous
BM117 & BM118: AC 2000A rms continuous
Other functions:
600VDC & VAC rms for all models

Low Battery: Below approx. 2.4V

Power Supply: 2 x 1.5V AAA batteries (ANSI- 24D, IEC-R03)

Power Consumption:
BM115 & BM117: 2.2mA typical
BM116 & BM118: 2.8mA typical

APO Consumption:
BM115 & BM117: 40µA typical
BM116: 190µA typical
BM118: 230µA typical

APO Timing:
BM115 & BM116: Idle for 30 minutes
BM117 & BM118: Idle for 3 minutes

Dimension: L224mm x W78mm x H40mm

Weight: approx. 220 gm

Jaws opening & Conductor Diameter:
45mm max

Special Features:
BM115 & BM116: Data Hold; Relative zero mode
BM117 & BM118: AutoCheck™ (Automatic V & Ω Selection); Lo-Z voltage measurements (can eliminate ghost voltage); EF-Detection

Accessories: Test leads (pair), batteries installed, user's manual, soft carrying pouch

BM115, BM116, BM117 & BM118 Electrical Specification

Accuracy is ± (% of reading digits + number of digits) or otherwise specified, at 23°C ± -5°C and less than 75% R. H.
True RMS models BM116 & BM118 ACV & ACA clamp-on accuracies are specified from 5% to 100% of range or otherwise specified. Maximum Crest Factor are as specified below, and with frequency spectrums, besides fundamentals, fall within the meter specified AC bandwidth for non-sinusoidal waveform.

DC Voltage (BM115 & BM116)

RANGE	Accuracy
400.0mV	1.0%+ 3d
4.000V, 40.00V, 400.0V	1.7%+ 3d
600V	2.0%+ 4d

NMR: > 50dB @ 50Hz/60Hz
CMRR: > 120dB @ DC, 50Hz/60Hz; Rs=1kΩ
Input Impedance: 10MΩ, 30pF nominal;
(1000MΩ for 400.0mV range)

DC Voltage (BM117 & BM118)

RANGE	Accuracy
6.000V	0.5%+ 3d
60.00V	1.0%+ 5d
600.0V	2.0%+ 5d

NMR: > 30dB @ 50Hz/60Hz
CMRR: > 100dB @ DC, 50Hz/60Hz; Rs=1kΩ
Hi-Z DCV Input Impedance: 5MΩ, 90pF nominal
AutoCheck™ Lo-Z DCV Input Impedance:

Initially 4.2kΩ, 90pF nominal;
Impedance increases significantly as display voltage increases from 50V (typical). Typical impedances vs display voltages for reference are:

15kΩ @ 100V
100kΩ @ 300V
210kΩ @ 600V
AutoCheck™ DCV Threshold:
> +1.5VDC or < -1.0VDC nominal

Ohms (BM115 & BM116)

RANGE	Accuracy
400.0Ω	1.5%+6d
4.000kΩ, 40.00kΩ, 400.0kΩ	1.0%+4d
4.000MΩ	1.5%+4d
40.00MΩ	2.5%+4d

Open Circuit Voltage: 0.4VDC typical

Ohms (BM117 & BM118)

RANGE	Accuracy ¹⁾
6.000kΩ	0.9%+6d ²⁾
60.00kΩ, 600.0kΩ	0.9%+4d
6.000MΩ	1.2%+4d

Open Circuit Voltage: 0.4VDC typical
¹⁾Cool down interval 2 minutes after over 50V measurements in Auto-VΩ position

²⁾Specified accuracy plus 20d while reading is below 20% of range

Diode Tester

Open Circuit Voltage	Test Current
< 1.6VDC	0.3mA typical

AC Voltage (BM115 & BM116 ¹⁾)

RANGE	Accuracy
50Hz -- 60Hz	
4.000V, 40.00V, 400.0V	2.0%+5d
60Hz -- 500Hz	
4.000V, 40.00V, 400.0V	2.5%+5d
50Hz -- 500Hz	
600V	3.0%+5d

CMRR: > 60dB @ DC to 60Hz, Rs=1kΩ
Input Impedance: 10MΩ, 30pF nominal
¹⁾True RMS model Crest Factor:
< 2.5 : 1 at full scale & < 5 : 1 at half scale

AC Voltage (BM117 & BM118 ¹⁾)

RANGE	Accuracy
50Hz / 60Hz	
6.000V, 60.00V, 600.0V	1.5%+5d

CMRR: > 60dB @ DC to 60Hz, Rs=1kΩ
Hi-Z ACV Input Impedance: 5MΩ, 90pF nominal
AutoCheck™ Lo-Z ACV Input Impedance:
Initially 4.2kΩ, 90pF nominal;
Impedance increases significantly as display voltage increases from 50V (typical). Typical impedances vs display voltages for reference are:

15kΩ @ 100V
100kΩ @ 300V
210kΩ @ 600V

AutoCheck™ ACV Threshold:
> 2.0VAC (50/60Hz) nominal
¹⁾True RMS model Crest Factor:
< 1.6 : 1 at full scale & < 3.3 : 1 at half scale

Electric Field EF-Detection (BM117 & BM118)

Typical Voltage	Bar Graph Indication
15V to 55V	-
30V to 80V	--
55V to 130V	---
80V to 190V	----
above 110V	-----

Indication: Bar graph segments & audible beeper tone proportional to the field strength
Detection Frequency: 50/60Hz
Detection Antenna: Top side of the stationary jaw (Measurement can also be made through single test lead (+) for live line detection)

Continuity Tester (BM117 & BM118)

Open Circuit Voltage: 0.4VDC typical
RANGE: 600.0Ω; Accuracy: 2.0%+8d
Specified accuracy plus 30d while reading is below 20% of range
Audible Threshold: between 10Ω and 250Ω

Continuity Tester (BM115 & BM116)

Open Circuit Voltage: 0.4VDC typical
RANGE: 400.0Ω; Accuracy: 1.5%+6d
Audible Threshold: between 10Ω and 120Ω

Capacitance (BM117 & BM118 only)

RANGE	Accuracy ¹⁾
100.0nF ²⁾ , 1000nF, 10.00µF, 100.0µF, 2000µF	3.5%+5d ³⁾

¹⁾Accuracies with film capacitor or better.
²⁾Accuracy below 50nF is not specified
³⁾Specified with battery voltage above 2.8V (half full battery). Accuracy decreases gradually to 12% at low battery warning voltage of approx 2.4V

Frequency (BM117 & BM118 only)

Voltage Range	Sensitivity (Sine RMS)	Range
6.000V	4V	10Hz ~ 30kHz
60.00V	30V	10Hz ~ 50kHz
600.0V	60V	10Hz ~ 50kHz

Accuracy: 0.5%+4d; Max display: 9999 counts

ACA Clamp-on Current

RANGE	Accuracy ¹⁾ , ²⁾
50Hz / 60Hz	
400.0A	1.5%+5d
600A (BM115 & BM116 only)	1.5%+5d
2000A (BM117 & BM118 only)	1.5%+5d

True RMS model BM116 Crest Factor:
< 2.6 : 1 at full scale & < 5.2 : 1 at half scale
True RMS model BM118 Crest Factor:
< 2.0 : 1 at full scale & < 4.0 : 1 at half scale

¹⁾Specified accuracy is for measurements at the center of jaws

Position Error 1: Additional 1% for measurements below jaws marking lines (away from jaws opening)

Position Error 2: Additional 4% for measurements beyond jaws marking lines (towards jaws opening)

²⁾Specified accuracy plus 8d while reading is below 5% of range



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