

# A Smart & Versatile Tool For Electricians !

**AutoCheck™, Ghost-Voltage-Buster & EF-Detection Features !**



CE

**BM117/BM118**  
AutoCheck™ Clamp-On Series

**BRYMEN**®

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





**BM118**



**BM117**

118	117	FUNCTIONS & FEATURES
●	●	Versatile & Stylish
●	●	2000A AC Clamp-on + Full Multimeter ranges
●	●	45mm Large jaws opening
●	●	Fully auto-ranging on all functions for ease of use
●	●	6000 counts high resolution; Fast measurements
●	●	600VAC/DC input protection on all functions
●		AC True RMS voltage and current functions
●		Back lighted display
●	●	Data HOLD
●	●	AutoCheck™ Feature (Automatic DCV, ACV & Ohms Selection)
●	●	Lo-Z Volts To Drain Ghost Voltages (Auto-V $\Omega$ Position)
●	●	Non-Contact EF-Detection (NCV)
●	●	Probe-Contact EF-Detection For More Precise Indication Of Live
●	●	High voltage Frequency with auto-ranging trigger levels
●	●	Overload-Alert On > 600VAC/DC (Beeps & OL Indication)
●	●	DCV & ACV 0.001V to 600.0V
●	●	ACA 0.1A to 2000A non-invasive current measurements
●	●	Capacitance 50nF to 2000 $\mu$ F
●	●	Ohm 0.1 $\Omega$ to 6.000M $\Omega$
●	●	Diode Test
●	●	Fast Audible Continuity
●	●	Battery cover with Probe holders
●	●	Rugged Fire retarded casing; Soft carrying pouch
●	●	Transient protection 6.5kV 1.2/50 $\mu$ s lightning surge
●	●	LVD EN61010-2-032 CAT III 600V
●	●	EMC EN61326(97/98A1)/EN61000-4-2(95)/EN61000-4-3(96)



# Features Oriented 2000 Amps AutoCheck-Clamps!

**6000 Counts, AutoCheck™, Ghost-Voltage-Buster & EF-Detection !**

**LARGE U-SHAPE CLAMP JAWS**  
MEASURE ACA OF LARGE SINGLE CONDUCTOR  
OR DIFFERENTIAL ACA OF MULTIPLE CONDUCTORS

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

**LVD CAT III 600V SAFETY**  
MEETS EN61010-2-032 CAT III 600V

**0.5% DCV BASIC ACCURACY**  
3 RANGES; AUTO-RANGING  
UP TO 600 VOLTS, 0.1V RESOLUTION

**TRUE RMS MEASUREMENTS (BM118 ONLY)**  
FOR NON-SINUSOIDAL WAVEFORMS  
OF AC VOLTAGES & AC CURRENTS

**DISPLAY BACKLIGHT (BM118 ONLY)**  
FOR EASY VIEWING IN THE DARK

**HIGH IMPEDANCE VOLTAGE**  
600VAC/DC MEASURING CAPABILITIES;  
HIGH INPUT IMPEDANCE FOR  
LOAD SENSITIVE CIRCUITS

**HIGH VOLTAGE Hz**  
MEASURES NOISY HIGH VOLTAGE  
ACV FREQUENCIES VIA TEST LEADS

**UP TO AC 2000 AMPS MEASUREMENTS**  
2 NON-INVASIVE AC CURRENT AUTO-RANGES  
VIA CLAMP JAWS; BEST RESOLUTION 0.1A

**EMC**  
MEETS EN61326(1997, 1998/A1),  
EN61000-4-2(1995), & EN61000-4-3(1996)



**EF ANTENNA**  
CONVENIENTLY LOCATED AT THE JAW TIP  
FOR NON-CONTACT EF-DETECTION (NCV)

**STYLISH & HANDY**  
ALSO COMES WITH A SOFT POUCH  
FOR EASY CARRYING & PROTECTION

**DATA HOLD**  
FREEZES THE DISPLAYING  
READING FOR LATER VIEWING

**BATTERY COMPARTMENT**  
WITH ACCESS DOOR FOR  
EASY BATTERY REPLACEMENT

**PROBE HOLDERS**  
BUILT-IN PROBE STORAGE HOLDERS

**ELECTRIC FIELD EF-DETECTION**  
FEATURES BOTH NON-CONTACT &  
PROBE CONTACT EF-DETECTION  
FOR TRACING LIVE WIRING

**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

**AUTOCHECK™ - RESISTANCE**  
4 RANGES; AUTO-RANGING UP TO 6 MΩ

**CAPACITANCE**  
5 RANGES; AUTO-RANGING  
UP TO 2000μF WITH 600V PROTECTION

**DIODE TEST**  
FOR TESTING DIODES AND RECTIFIERS

**600 OHMS RANGE WITH AUDIBLE CONTINUITY**  
FOR LOW RESISTANCE & QUICK OPEN-SHORT  
TESTS ON SWITCHES, FUSES, AND WIRES

**TRANSIENT PROTECTION**  
UP TO 6.5kV 1.2/50μs LIGHTNING SURGE;  
MORE CONFIDENCE FOR SERIOUS USERS



## BM117 & BM118 GENERAL SPECIFICATION

**Display:** 3-5/6 digits 6000 counts

**Update Rate:** 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 BM117

True RMS sensing for BM118

**Pollution Degree:** 2

**Safety:** Meets IEC61010-2-032 (1994),

EN61010-2-031 (1995), UL3111-2-032 (1999)

**Measurement Category:** CAT III 600VAC & VDC

**Transient Protection:**

6.5kV (1.2/50µs surge) for both models

**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: AC 2000A rms continuous

+ & COM terminals (all functions):

600VDC & VAC rms

**Low Battery:** Below approx. 2.4V

**Power Supply:** standard 1.5V size (NEDA 24A or IEC LR03) battery x 2

**Power Consumption:**

BM117: 2.2mA typical

BM118: 2.8mA typical

**APO Consumption:** 40µA typical on all model functions except that 230µA typical on BM118 voltage & current functions

**APO Timing:** Idle for 3 minutes

**Dimension:** L224mm x W78mm x H40mm

**Weight:** approx. 220 gm

**Jaws opening & Conductor Diameter:**

45mm max

**Special Features:** AutoCheck™ (Automatic V & Ω Selection); EF-Detection

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

## 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 Model BM118 ACV & ACA clamp-on accuracies are specified from 5% to 100% of range or otherwise specified. Maximum Crest Factors are as specified below, and with frequency spectrums, besides fundamentals, fall within the meter specified AC bandwidth for non-sinusoidal waveform.

### DC Voltage

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

NMRR: > 30dB @ 50Hz/60Hz

CMRR: > 100dB @ DC, 50Hz/60Hz; Rs=1kΩ

Hi-Z DCV Input Impedance: 5.0MΩ, 90pF nominal

AutoCheck™ Lo-Z DCV Input Impedance:

Initially 1.6kΩ, 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

RANGE	Accuracy <sup>1)</sup>
6.000kΩ <sup>2)</sup>	1.2%+6d <sup>3)</sup>
60.00kΩ, 600.0kΩ	1.0%+4d
6.000MΩ	2.0%+4d

Open Circuit Voltage: 0.4VDC typical

<sup>1)</sup>Cool down interval 2 minutes after over 50V measurements in Auto-VΩ position

<sup>2)</sup>Beeper on while reading < 0.025kΩ

<sup>3)</sup>Add 40d to specified accuracy while reading is below 20% of range

### 600Ω with Continuity Beeper

RANGE	Accuracy
6.000kΩ	2.0%+8d <sup>1)</sup>

Continuity Beeper Response: < 100µs

Open Circuit Voltage: 0.4VDC typical

Audible Threshold: between 10Ω and 300Ω

<sup>1)</sup>Add 40d to specified accuracy while reading is below 20% of range

### Diode Tester

Open Circuit Voltage	Test Current
< 1.6VDC	0.4mA typical

Audible Threshold: between 0.015V and 0.080V

### AC Voltage

RANGE	Accuracy
<b>50Hz / 60Hz</b>	
6.000V, 60.00V	1.5%+5d
600.0V	2.0%+5d
<b>50Hz ~ 500Hz</b>	
6.000V, 60.00V	2.0%+5d
600.0V	2.5%+5d

CMRR: > 60dB @ DC to 60Hz, Rs=1kΩ

Hi-Z ACV Input Impedance: 5.0MΩ, 90pF nominal

AutoCheck™ Lo-Z ACV Input Impedance:

Initially 1.6kΩ, 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:

> 2VAC (50/60Hz) nominal

True RMS model BM118 Crest Factor:

< 1.6 : 1 at full scale & < 3.3 : 1 at half scale

### ACA Current (Clamp-on)

RANGE	Accuracy <sup>1) 2) 3)</sup>
<b>50Hz / 60Hz</b>	
400.0A, 2000A	1.5%+5d

True RMS model BM118 Crest Factor:

< 2 at full scale & < 4 at half scale

<sup>1)</sup>Add 8d to specified accuracy while reading is below 10% of range

<sup>2)</sup>Induced error from adjacent current-carrying conductor: < 0.06A/A

<sup>3)</sup>Specified accuracy is for measurements made at the jaw center. When the conductor is not positioned at the jaw center, position errors introduced are:

Add 1% to specified accuracy for measurements made WITHIN jaws marking lines (away from jaws opening)

Add 4% to specified accuracy for measurements made BEYOND jaws marking lines (toward jaws opening)

### Frequency

Voltage Range	Sensitivity (Sine RMS)	Range
6.000V	4V	10Hz ~ 30kHz
60.00V	30V	10Hz ~ 1kHz
600.0V	60V	10Hz ~ 1kHz

Accuracy: 0.5%+4d

Max display: 9999 counts

### Capacitance

Range	Accuracy <sup>1)</sup>
100.0nF <sup>2)</sup> , 1000nF, 10.00µF, 100.0µF, 2000µF	3.5%+5d <sup>3)</sup>

<sup>1)</sup>Accuracies with film capacitor or better

<sup>2)</sup>Accuracy below 50nF is not specified

<sup>3)</sup>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

### Non-Contact EF-Detection

Typical Voltage	Bar Graph Indication
15V to 85V	-
40V to 130V	--
60V to 210V	---
90V to 300V	----
Above 120V	-----

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

Detection Frequency: 50/60Hz

Detection Antenna: Top side of the stationary jaw

Probe-Contact EF-Detection: For more precise indication of live wires, use the Red (+) probe for direct contact measurement

Importa y distribuye

 **BAW electric S.A.**

 bawelectric.com