2000A for CAT III 1500Vdc Photovoltaics & More… Comes UL Listed Safety!

Dual Listed CAT IV 1kV Utility Safety, DC+AC True-RMS, VFD V+Hz, and PC-Comm for Advanced Users!

BM198PV

Versatile Clamp-on Multimeter

www.brymen.com

BRYMEN®

Bright People's Choice

BM198PV

BM197

BM195

BRUA-19X PC Interface Kit (Optional Purchase)

198PV	197	195	FUNCTIONS & FEATURES
●			CAT III 1500Vdc for photovoltaics, battery banks, and other DC applications
●			Dual rated test lead set to CAT III 1500Vdc and CAT IV 1kV AC/DC
	●	●	AutoCheck™ feature (Automatic DCV, ACV & Ohms selection)
	●	●	Lo-Z volts to drain ghost voltages (AutoCheck™ feature)
●	●		AC, AC+DC True RMS voltage and current functions
●	●		Back-lighted easy-to-read LCD display
●	●		Type-K temperature -50°C to 1000°C or -58°F to 1832°F selectable
●			1.5kVdc/1kVac General input protection on all functions
	●	●	1kVdc/1kVac General input protection on all functions
●	●	●	CAT IV 1kV AC/DC for utility applications
●	●	●	Fully auto-ranging for ease of use; fast measurement updates 5/sec
●	●	●	VFD-V & Hz measures fundamental V/Hz of most Variable-Frequency-Drives
●	●	●	Large 55mm AC/DC jaws for directly apply around live conductors
●	●	●	3-5/6 digits 6000 counts + 2000 counts dual display
●	●	●	2000A DC/AC Clamp-on + Multimeter functions
●	●	●	Dual Display ACA+Hz or ACV+Hz readings
●	●	●	High 0.5% DCV accuracy
●	●	●	Soft carrying pouch
●	●	●	Auto Power Off
●	●	●	Data HOLD
●	●	●	Relative Zero mode
●	●	●	Non-Contact EF-Detection (NCV)
●	●	●	Probe-Contact EF-Detection for more precise indication of live
●	●	●	Fast 5ms Crest-MAX to capture in-rush currents or voltage spikes
to 1.5kV	●	●	DCV 4 ranges 6.000V to 1000V
●	●	●	ACV 4 ranges 6.000V to 1000V
●	●	●	DCA 2 ranges 200.0A to 2000A
●	●	●	ACA 2 ranges 200.0A to 2000A
●	●	●	Ohm 6 ranges 600.0Ω to 40.00MΩ
●	●	●	Diode test; Fast audible Continuity
●	●	●	Line-level ACV Frequency 10Hz to 1999Hz
●	●	●	Non-invasive ACA Frequency via clamp jaws 20Hz to 400Hz
●	●	●	Cx 6 ranges 60.00nF to 2000μF for start & run motor capacitors
●	●	●	Rugged fire retarded housing with battery access door
●	●	●	Optional purchase USB cable set & software for Win10
●	●	●	UL, UKCA, and CE compliance

55mm Large Jaw Size! 2000A DC+AC TRMS! Dual-Display VFD-Hz Convenience!

Photovoltaics 1500Vdc, In-rush Crest, °C/°F, Start & Run Motor Cx, and EF-Detection NCV Features!

Direct Use on Lives
Apply to and Removal from Hazardous Live Uninsulated Conductors Permitted

Fast Audible Continuity
Quick Open-short Tests on Switches, Fuses, and Wires

Clamp-on Hz
Measures Non-Invasive Current Frequency Via Clamp Jaws; 20Hz to 400Hz

DCA, ACA, DC+ACA
Each 2 Ranges: 200.0A and 2000A

DCV, DC+ACV
Each 4 Ranges: DCV 6.000V to 1500V; DC+ACV 6.000V to 1000V

UL Listed CAT IV 1kV
Utility Applications for CAT IV Areas

Dual UL Listed CAT III 1500Vdc
For Photovoltaics, Battery Banks, Metros, and Other DC Systems Applications

AC-Coupled ACV
4 Ranges: 6.000V to 1000V

AC Line-Level Hz
Measures Noisy High Voltage Frequency via Test leads; 10Hz to 1999Hz

VFD-ACV + VFD-Hz
VFD-ACV 4 Ranges: 6.000V to 1000V; VFD-Hz 10 to 400Hz

PC-Comm Interface Capability
Optional Purchase USB Cable & PC Software Set

VFD (Low Pass Filter)
Measures Fundamental V and Hz of Most Variable-Frequency-Drives

EMC EN61326-1 Compliance
Superior Immunity to Interferences with Reliable Operations and Readings

Fast Auto-Ranging
Shortens the Time to Measure and Increases the Ease of Use

Back-Lighted LCD
Easy Display Viewing in the Dark

Manual-ranging Override
Auto-ranging with User Selectable Manual-ranging Override

Rugged & Durable
High-impact Fire-retarded Housing with Battery Access Door

Large 55mm DC/AC Jaws
Measure both DC and AC Non-invasive Currents up to 2000A

Wide-Range Resistance
6 Full Ranges 600.0Ω To 40.00MΩ

Relative Zero Mode
Convenient Readings Comparison & Offset

AC, AC+DC True RMS
Ideal for Non-sinusoidal & Complex Waveforms of Voltages and Currents

Diode Test
Quick Checks on Diodes and Rectifiers

Wide-Range Capacitance
6 Full Ranges 60.00nf to 2000µF; Measures Start & Run Motor Capacitors

Data HOLD
Freezes the Displaying Reading for Later View

Type-K Temperature
Selectable °C or °F Readings; Comes with a Bkp60 Bead Probe

5ms Crest-MAX
Fast Capture of In-Rush Current or Voltage Spikes; Automatic APO Disable Feature

Ergonomic & Streamlined Body
Fits Nicely with Single-Handed Rotary Switch Operation

Auto Power Off
Intelligently Turns Off Automatically to Extend Battery Life

Convenient Dual Display
ACA+Hz or ACV+Hz Readings; 6000 Counts + 2000 Counts

Transient Protection
12kV 1.2/50µS Lightning or Switching Surge Protection for Serious Users

EF-Detection
Both Non-Contact (NCV) & Single-Probe Voltage Detection for Identifying Live Lines

1500Vdc Input Protection
Superb Protection for Misinput on All Functions and Ranges

ELECTRICAL SPECIFICATIONS

Accuracy is ±(% reading digits + number of digits) or otherwise specified, at 23°C ± 5°C.
BM198PV True RMS model ACV, DC+ACV, ACA & DC +ACA accuracies are specified from 5 % to 100 % of range or otherwise specified. Maximum Crest Factor < 1.4 : 1 at full scale & < 2.8 : 1 at half scale, and with frequency components fall within the specified frequency bandwidth for non-sinusoidal waveforms.

Diode Tester

RANGE	Accuracy
1.000V	1.0% + 3d

Test Current: 0.56mA typically
Open Circuit Voltage: < 1.8VDC typically

GENERAL SPECIFICATIONS

Display: 3-5/6 digits 6000 counts & 3-1/2 digits 1,999 counts for Hz
Polarity: Automatic
Update Rate: 5 per second nominal
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
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 -- 40°C), or otherwise specified
Sensing: True RMS
Safety: Meets IEC/EN/BSEN/CSA_C22.2_No./UL standards of 61010-1 Ed. 3.1 & 61010-2-032 Ed. 4.0 to Measurement Categories CAT IV 1000V ac & dc and CAT III 1500Vdc
Transient Protection: 12kV (1.2/50μs surge)
Overload Protections:
Clamp-on jaws: 2000A DC/AC rms continuous
Voltage via terminals: 1650Vdc / 1100Vac rms
Other functions via terminals: 1500Vdc / 1000Vac rms
E.M.C.: Meets EN61326-1:2013
In an RF field of 3V/m:
Capacitance function is not specified
Other function ranges: Total Accuracy = Specified Accuracy + 200 digits
Performance above 3V/m is not specified
Power Supply: 1.5V AA Size (IEC LR6) battery X 2
Power Consumption: Typical 14mA for Current functions and 5.2mA for others
Low Battery: Appears at approx. <2.4V where the meter accuracy cannot be guaranteed. The meter shuts off accordingly.
APO Timing: Idle for 34 minutes
APO Consumption: 10μA typical
Dimension: L264mm X W97mm X H43mm
Weight: 608 gm
Jaw opening & Conductor diameter: 55mm max
Accessories: Test leads (pair), user's manual, Bkp60 banana plug K-type thermocouple x 1, Soft carrying pouch
Optional purchase accessories: USB interface kit BRUA-19X; BKB32 banana plug to type-K socket plug adaptor
Special Features: VFD-V & VFD-Hz; Backlighted LCD; 5ms CREST-MAX Capture mode (Peak Hold); Auto-ranging Relative-Zero mode; Display Hold; EF-Detection (NCV); Optional Interface capabilities with PC computers

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DC Voltage

RANGE	Accuracy
6.000V, 60.00V, 600.0V & 1500V	0.5%+5d

Input Impedance: 10MΩ, 50 pF nominal

AC Voltage

RANGE	Accuracy
50Hz ~ 400Hz	
6.000V, 60.00V, 600.0V & 1000V	1.2% + 5d

Input Impedance: 10MΩ, 50 pF nominal

AC+DC Voltage

RANGE	Accuracy
DC, 50Hz ~ 400Hz	
6.000V, 60.00V, 600.0V & 1000V	1.4% + 7d

Input Impedance: 10MΩ, 50 pF nominal

VFD_ACV (with Low Pass Filter)

RANGE	Accuracy [1]
10Hz ~ 20Hz	
6.000V, 60.00V, 600.0V & 1000V	4%+80d
20Hz ~ 200Hz	
6.000V, 60.00V, 600.0V & 1000V	2%+60d
200Hz - 400Hz [2]	
6.000V, 60.00V, 600.0V & 1000V	7%+80d

[1] Not specified for fundamental frequency > 400Hz
[2] Accuracy linearly decreases from 2% + 60d @ 200Hz to 7% + 80d @ 400Hz

CREST-MAX Capture Mode

Accuracy: Specified accuracy plus 250 digits for changes > 5ms in duration

Ohm

RANGE	Accuracy
600.0Ω, 6.000KΩ, 60.00KΩ	0.5%+5d
600.0KΩ	0.8%+5d
6.000MΩ	1.2%+5d
40.00MΩ	2.3%+5d

Open Circuit Voltage: 0.45VDC typical

Audible Continuity Tester

Audible Threshold: Between 10Ω and 200Ω
Response time: 32ms approx.

Capacitance

RANGE	Accuracy [1]
60.00nF, 600.0nF, 6.000μF	2.0%+5d
60.00μF,600.0uF	3.5%+5d [2]
2000μF	4.0%+5d [2]

[1] Accuracies with film capacitor or better
[2] Temperature Coefficient: 0.25 x (specified accuracy)/ °C @(0°C -- 18°C or 28°C -- 40°C)

DCA Current (Clamp on)

RANGE	Accuracy [1] [2]
200.0A	2.0%+5d
0~500A	2.0%+5d
500~2000A	3.0%+5d

[1] Induced error from adjacent current-carrying conductor: <0.1A/A
[2] Specified with Relative Zero Δ mode applied to offset the non-zero residual readings, if any

Temperature

RANGE	Accuracy
-50 °C ~ 1000 °C	0.3% +4d
-58 °F ~ 1832 °F	0.3% + 6d

K-type thermocouple range & accuracy not included

ACA Current (Clamp on)

RANGE	Accuracy [1]
50Hz ~ 60Hz	
200.0A	2.0%+5d
0~500A	2.5%+5d
500~2000A	3.0%+5d
40Hz ~ 50Hz & 60Hz ~ 400Hz	
200.0A	2.5%+5d
0~500A	3.0%+5d
500~1000A	3.5%+5d
1000~2000A	unspecified

True RMS Crest Factor:
< 1.4 : 1 at full scale & < 2.8: 1 at half scale
[1] Induced error from adjacent current-carrying conductor:
< 0.1A/A

DC+ACA Current (Clamp on)

RANGE	Accuracy [1] [2]
DC, 50Hz ~ 60Hz	
200.0A, 2000A	3.0%+8d
40Hz ~ 50Hz & 60Hz ~ 400Hz	
200.0A	3.5%+8d
0~1000A	3.5%+8d
1000~2000A	unspecified

True RMS Crest Factor:
< 1.4 : 1 at full scale & < 2.8 : 1 at half scale
[1] Induced error from adjacent current-carrying conductor: < 0.1A/A
[2] Specified with Relative Zero Δ mode applied to offset the non-zero residual readings if any

Hz Line Level Frequency

Function	Sensitivity (Sine RMS)	Range
6V	2V [2]	40Hz ~ 1999Hz
60V	20V [2]	40Hz ~ 1999Hz
600V	100V [2]	40Hz ~ 1999Hz
1000V	600V [3]	40Hz ~ 1999Hz
200A	10A [2]	20Hz ~ 400Hz
2000A	100A [2]	20Hz ~ 400Hz
VFD 6V [1]	0.6V~2.4V [2]	10Hz ~ 400Hz
VFD 60V [1]	6~24V [2]	10Hz ~ 400Hz
VFD 600V [1]	60V~240V [2]	10Hz ~ 400Hz

Accuracy: 0.1%+4d
[1] VFD sensitivity linearly decreases from 10% F.S. @ 200Hz to 40% F.S. @ 400Hz
[2] DC-bias, if any, not more than 50% of Sine RMS
[3] DC-bias, if any, not more than 100V

Non-Contact EF-Detection

Typical Voltage	Bar-Graph Indication
89V (tolerance: 12V ~ 165V)	-
177V (tolerance: 81V ~ 272V)	- - -
589V (tolerance: 178V ~ 1000V)	- - - - -

Indication: Bar-graph segments & audible beep tones proportional to the field strength
Detection Frequency: 50/60Hz
Detection Antenna: Top side of the stationary jaw
Probe-Contact EF-Detection: For more precise indications of live wires, such as distinguishing between live and ground connections, use the Red (+) test probe for direct contact measurement