kWHr Recording & 3~ Unbalanced-Load Power Made Handy!

Lower Cost Of Ownership And Better Portability Thru Only One Pair Of Jaws!

Easy Display-Guide On Both 3-Wire and 4-Wire Unbalanced-Load Measurements!

CE

BM157
PowerClamp™ Series

BRYMEN®

BRIGHT PEOPLE'S CHOICE

http://www.brymen.com

See How BM157 Complements His Brothers Perfectly!

BM157

BM155

BM152

BM151

BR1XX PC Interface Kit
(Optional Purchase)

157	155	152	151	FUNCTIONS & FEATURES
●	●	●	●	Light Weight & Stylish; 45mm Large jaws opening
●	●	●	●	1000A AC Clamp-on + Multimeter ranges
●	●	●	●	600VAC/DC input protection on all functions
●	●	●	●	AC True RMS voltage and current functions
●	●	●	●	Balanced-Load 3-phase /1-phase Power W, VA & VAR measurements
●	●	●	●	+ Dual display Power Factor (PF) & A-Lags-V Phase-Shift indication
●				Unbalanced-Load 3-phase 3-wire/4-wire Power W (with memory recall)
●				kWHr Kilo-Watt-Hour Recording function (with memory recall)
●	●			ACV or ACA + Dual display Total Harmonic Distortion-Fundamental THD%-F
	●	●		K-Type Temperature -50°C to 300°C (-58°F to 572°F)
●	●	●		Back lighted LCD display
●	●	●	●	Automatic selection of DCV, ACV & ACA measurements (Auto V.A)
●	●	●	●	Fast PEAK-rms Hold (65ms to 90%) for In-rush ACA & ACV readings
●	●	●	●	PC-Comm (Optical isolated PC interface capability)
●	●	●	●	Software kit for Win 95/98/ME/2000/XP (Optional purchase)
●	●	●	●	Data HOLD
●	●	●	●	5Hz ~ 500Hz line Frequency measurements
●	●	●	●	DCV & ACV 0.1V to 600.0V
●	●	●	●	ACA 0.01A to 1000A non-invasive current measurements
●	●	●	●	Ohm 0.1Ω to 999.9Ω
●	●	●	●	Fast Audible Continuity
●	●	●	●	Battery cover with Probe holders
●	●	●	●	Rugged Fire-retarded casing; Soft carrying pouch
●	●	●	●	Transient protection 6kV 1.2/50μs lightning surge
●	●	●	●	LVD EN61010-2-032 CAT III 600V
●	●	●	●	EMC EN61326(1997/1998A1)/EN61000-4-2(1995/2000A2)/EN61000-4-3(2002)

BM157 Includes kWHr Recording & 3~ Unbalanced-Load Power!

We Keep Product Improvements Thru Superior ASIC Technology !

AC 1000 AMPS 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

PC-COMM INTERFACE CABABILITIES
BUILT-IN OPTICAL ISOLATED DATA
OUTPUT PORT. OPTIONAL PURCHASE
INTERFACE KIT FOR PC CONNECTION

TRUE RMS MEASUREMENTS
FOR NON-SINUSOIDAL WAVEFORMS
OF AC VOLTAGES & AC CURRENTS

0.5% DCV & ACV BASIC ACCURACY
UP TO 600 VOLTS, 0.1V RESOLUTION

DISPLAY BACKLIGHT
FOR EASY VIEWING IN THE DARK

AutoVA™ FEATURE
SOPHISTICATED MCU CONTROLLED
AUTO-SELECTION OF ACA, ACV OR DCV
SHORTENS THE TIME TO MEASURE
AND INCREASES THE EASE OF USE

FULL POWER PARAMETERS
DUAL DISPLAY MEASUREMENTS OF
"W + PF", "VA + PF", OR "VAR + PF" ON
3~ BALANCED-LOAD & 1~ POWER

TOTAL POWER FACTOR
PF = W / VA IS USED FOR NOWADAYS
POWER-SYSTEMS WITH HARMONICS

3~ UNBALANCED-LOAD POWER W
MEASURES UNBALANCED-LOAD POWER
THRU DISCRETE MEASUREMENTS BY ONLY
ONE SINGLE PAIR OF JAWS FOR LOWER COST
OF OWNERSHIP & BETTER PORTABILITY

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

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

65ms PEAK-RMS HOLD
CAPTURES IN-RUSH RMS VALUES
OF ACA OR ACV AS SHORT AS
65ms IN DURATION

DATA HOLD
FREEZES THE DISPLAYING
READING FOR LATER VIEW

BATTERY COMPARTMENT
WITH ACCESS DOOR FOR
EASY BATTERY REPLACEMENT

PROBE HOLDERS
BUILT-IN PROBE STORAGE HOLDERS

THD%-F
TOTAL HARMONIC DISTORTION-FUNDAMENTAL.
DUAL DISPLAY MEASUREMENTS OF
"ACV + THD%-F" OR "ACA + THD%-F"

kWHr RECORDING
RECORDS BOTH 3~ BALANCED-LOAD
& 1~ KILO-WATT-HOUR READINGS
WITH LAST MEMORY RECALL

A-lags-V INDICATION
UNAMBIGUOUS INDICATIONS OF CURRENT
LAGS VOLTAGE IN INDUCTIVE CIRCUITS

HIGH CURRENT Hz
MEASURES NON-INVASIVE
ACA FREQUENCY VIA CLAMP JAWS

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

250µs FAST AUDIBLE CONTINUITY
FOR QUICK OPEN-SHORT TESTS
ON SWITCHES, FUSES, AND WIRES

RESISTANCE
UP TO 999.9 OHMS, 0.1 OHM
RESOLUTION WITH 600V PROTECTION

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

GENERAL SPECIFICATION

Display :
Voltage functions: 6000 counts LCD display
Power, Ohm & Hz functions: 9999 counts LCD display
ACA clamp-on function: 4000 counts LCD display
Update Rate :
Power function: 2 per second nominal
Voltage, ACA clamp-on & Ohm functions: 2 per second nominal
Hz function: 1 per second nominal
Polarity : Automatic
Low Battery : Below approx. 2.4V
Operating Temperature : 0ºC to 40ºC
Relative Humidity : Maximum relative humidity 80% for temperature up to 31ºC decreasing linearly to 50% relative humidity at 40ºC
Altitude : Operating below 2000m
Storage Temperature : -20ºC to 60ºC, < 80% R.H. (with battery removed)

Temperature Coefficient : nominal 0.15 x (specified accuracy)/ ºC @(0ºC -18ºC or 28ºC -40ºC), or otherwise specified
Sensing : True RMS sensing
Safety : Meets IEC61010-2-032(2002), EN61010-2-032(2002), UL61010B-2-032(2003)
Measurement Category : III 600 Volts ac & dc
Transient protection : 6.5kV (1.2/50µs surge)
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:
Total Accuracy = Specified Accuracy + 50 digits
Performance above 3V/m is not specified
Overload Protections :
ACA Clamp-on jaws : AC 1000A rms continuous
+ & COM terminals (all functions) : 600VDC/VAC rms
Power Supply : standard 1.5V AAA Size (NEDA 24A or IEC LR03) battery X 2

Power Consumption :
Voltage, ACA, Hz & Power functions: 11mA typical
Ohm function: 5.5mA typical
APO Timing : Idle for 30 minutes
APO Consumption : 4µA typical
Dimension : L224mm X W78mm X H40mm
Weight : 224 gm approx
Jaw opening & Conductor diameter : 45mm max
Special features : Backlighted display; AutoVA™ (Auto Selection on ACV, DCV or ACA functions); selectable Power parameters of W, VAR & VA with Total Power Factor in dual-display; Total harmonic distortion THD%-F in dual-display; kWHr Recording; Display Hold; PEAK-rms HOLD; PC-Comm computer interface capabilities
Accessories : Test leads (pair), batteries installed, user's manual & soft carrying pouch
Optional accessories : BR157 PC interface kit (including BA-1XX optical adapter back, BC-100R cable & Bs157 software CD)

ELECTRICAL SPECIFICATION

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

True RMS ACV & ACA clamp-on accuracies are specified from 0% 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 waveforms. Fundamentals are specified at 50Hz and 60Hz.

AC Voltage

RANGE	Accuracy
50Hz / 60Hz	
600.0V	0.5% + 5d
45Hz ~ 500Hz	
600.0V	1.5% + 5d
500Hz ~ 3.1kHz	
600.0V	2.5% + 5d

CMRR : >60dB @ DC to 60Hz, Rs=1kΩ
Input Impedance: 2MΩ, 30pF nominal
Crest Factor: < 2.3 : 1 at full scale & < 4.6 : 1 at half scale
ACV AutoVA™ Threshold: 30VAC (40Hz ~ 500Hz only) nominal

ACA Current (Clamp-on)

RANGE	Accuracy [1] [2]
50Hz / 60Hz	
40.00A, 400.0A, 1000A	1.0% + 5d
45Hz ~500Hz	
40.00A, 400.0A	2.0% + 5d
1000A	2.5% + 5d
500Hz ~ 3.1kHz	
40.00A, 400.0A	2.5% + 5d
1000A	3.0% + 5d

ACA AutoVA™ Threshold: 1A AC (40Hz ~ 500Hz only) nominal
Crest Factor:
< 2.5 : 1 at full scale & < 5.0 : 1 at half scale for 40.00A & 400.0A ranges
< 1.4 : 1 at full scale & < 2.8 : 1 at half scale for 1000A range
[1]Induced error from adjacent current-carrying conductor: < 0.06A/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 1% to specified accuracy for measurements made WITHIN jaw marking lines (away from jaw opening)
Add 4% to specified accuracy for measurements made BEYOND jaw marking lines (toward jaws opening)

THD%-F

RANGE	Harmonic order	Accuracy [1]
0.0% ~50.0%	Fundamental	1.5% + 6d
	2nd ~ 3rd	7% + 6d
	4th ~ 21st	2.5% + 6d [2] [3]
	22nd ~ 51st	10% + 10d [4]
50.0% ~100%	2nd ~ 3rd	Unspecified
	4th ~ 21st	2.5% + 6d [5] [6]
	22nd ~ 51st	10% + 10d [4]
100% ~450% [7]	2nd ~ 3rd	Unspecified
	4th ~ 21st	7% + 6d [2] [4]
	22nd ~ 51st	Unspecified

THD%-F is defined as: (Total Harmonic RMS / Fundamental RMS) x 100%
[1]Accuracy specified @ fundamental ≥ 70V & Total RMS ≤ 600V for ACV THD%-F, fundamental ≥ 6A & Total RMS ≤ 1000A for ACA THD%-F, and Crest Factors @ :
< 2.5 for 600V Range
< 2.5 for 40A Range
< 3.0 for 400A Range
< 1.6 for 1000A Range
[2]Add 4d to specified accuracy @ 40A Range
[3]Add 4.5% to specified accuracy @ 1000A range
[4]Unspecified @ 1000A range
[5]Add 1% + 4d to specified accuracy @ 40A Range
[6]Add 4.5% to specified accuracy @ 400A ~ 750A; unspecified @ > 750A
[7]~150% for 600V Range

PEAK-rms HOLD (ACA & ACV only)

Response: 65ms to >90%

Frequency

RANGE	Accuracy
5Hz ~ 500Hz	0.5%+4d

Sensitivity (Sine RMS)
40A range: > 4A
400A range: > 40A
1000A range: > 400A
600V range: > 30V

DC Voltage

RANGE	Accuracy
600.0V	0.5% + 5d

NMRR : >50dB @ 50/60Hz
CMRR : >120dB @ DC, 50/60Hz, Rs=1kΩ
Input Impedance: 2MΩ, 30pF nominal
DCV AutoVA™ Threshold: 2.4VDC nominal

Ohms

RANGE	Accuracy
999.9Ω	1.0% + 6d

Open Circuit Voltage : 0.4VDC typical

Audible Continuity Tester

Audible threshold: between 10Ω and 300Ω.
Response time: 250µs

Single-Phase & 3-Phase Balanced-Load Power

RANGE	Accuracy [1] [2] [3]			
0 ~ 600.0kVA	F ~ 10th	11th ~ 45th		46th ~ 51st
@ PF = 0.99 ~ 0.1	2.0%+6d	3.5%+6d		5.5%+6d
RANGE	**Accuracy [1] [2] [4]**			
0 ~ 600.0kW / kVAR	F ~ 10th	11th ~ 25th	26th ~ 45th	46th ~ 51st
@ PF = 0.98 ~ 0.70	2.0%+6d	3.5%+6d	4.5%+6d	10%+6d
@ PF = 0.70 ~ 0.50	3.0%+6d			
@ PF = 0.50 ~ 0.30	4.5%+6d			
@ PF = 0.30 ~ 0.20	10%+6d			15%+6d

[1]Specified accuracy is for ACA clamp measurement at the center of jaws. When the conductor is not positioned at the jaw center, position errors introduced are:
Add 1% to specified accuracy for ACA measurements made WITHIN jaw marking lines (away from jaw opening)
Accuracy is not specified for ACA measurement made BEYOND jaw marking lines (toward jaws opening)
[2]Add 4d to specified accuracy for 3-Phase Balanced-Load Power measurements.
[3]Add 1% to specified accuracy @ ACA fundamental < 6A or ACV fundamental < 90V. Accuracy is not specified @ ACA fundamental < 1A or ACV fundamental < 30V
[4]Add 1% to specified accuracy @ ACA fundamental < 6A or ACV fundamental < 90V. Accuracy is not specified @ ACA fundamental < 2A or ACV fundamental < 50V

Total Power Factor (PF)

RANGE	Accuracy [1]	
0.10 ~ 0.99	F ~ 21st	22nd ~ 51st
	3d	5d

[1]Specified accuracy @ ACA fundamental > 2A ; ACV fundamental > 50V

A-lags-V Indication:

LCD annunciator A-lags-V turns on to indicate an inductive circuit, or Current A lags Voltage V (i.e., phase-shift angle θ is +).
A-lags-V Indication is specified at 50/60Hz fundamental without the presence of harmonics, and at ACV > 90V, ACA > 9A and PF < 0.95

kWHr (kilo-Watt-Hour Energy)

Time base accuracy: < 30ppm
Non-volatile memory: Separately stores one 3-Phase-Balanced-Load and one Single-Phase result

3-Phase Unbalanced-Load Power

This 3-Phase Unbalanced-Load Power measurement is achieved thru the calculation of discrete single-phase measurements that are taken one at a time manually. Since it is not real-time on all 3 phases simultaneously, it is intended only for stable power conditions without significant power fluctuations over the time of measurements. Result accuracy is hence the accumulated accuracy of the discrete single-phase measurements plus the associated fluctuations.

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