

Full Power Parameters & Total-PF For Distorted Waveforms

Plus THD%-Fundamental Feature &
Much Lower Battery Consumption



CE

BM150
PowerClamp™ Series

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



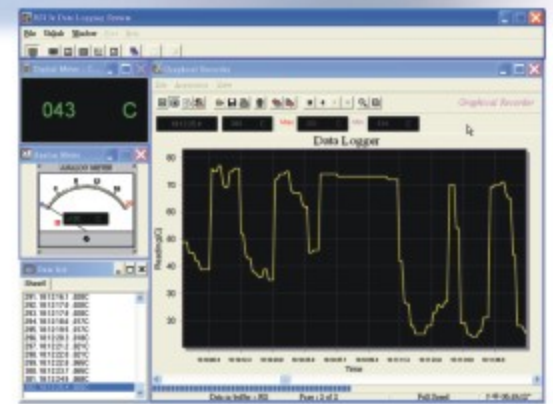
BM155



BM152



BM151



**BR15XPC Interface Kit
(Optional Purchase)**

155	152	151	FUNCTIONS & FEATURES
●	●	●	Stylish & Versatile
●	●	●	45mm Large jaws opening; 1000A AC Clamp-on + Multimeter ranges
●	●	●	600VAC/DC input protection on all functions
●	●	●	AC True RMS voltage and current functions
●	●	●	W, VA or VAR (Power) + Dual display PF (Power Factor) measurements
●	●	●	Automatic selection of DCV, ACV & ACA measurements (Auto V.A)
●	●	●	Fast PEAK-rms Hold (65ms to 90%) for ACA & ACV
●	●	●	PC-Comm (Optical isolated PC interface capability)
●	●	●	Software for Win 95/98/ME/2000/XP (Optional purchase)
●	●	●	Data HOLD
●			Total Harmonic Distortion THD%-F (% of Total Harmonics / Fundamental)
●			ACV or ACA + Dual display THD%-F
●	●		K-Type Temperature -50°C to 300°C (-58°F to 572°F)
●	●		Back lighted LCD display
●	●	●	5.00Hz ~ 500.0Hz 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 6.5kV 1.2/50μs lightning surge
●	●	●	LVD EN61010-2-032 CAT III 600V
●	●	●	EMC EN61326(97/98A1)/EN61000-4-2(95)/EN61000-4-3(96)

Powerful PowerClamp™ Powered by New ASIC Power!

Superior Technology That Saves Costs, Weight And Battery Power!

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 CAPABILITIES

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 (BM152 & BM155)

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

TEMPERATURE (BM152 & BM155)

TYPE-K MEASUREMENT;
SELECTABLE °C OR °F READINGS;
COMES WITH BKP60 BEAD PROBE

FULL POWER PARAMETERS

DUAL DISPLAY MEASUREMENTS OF
"W + PF", "VA + PF", OR "VAR + PF"

TOTAL POWER FACTOR

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

EMC

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

TRANSIENT PROTECTION

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

STYLISH & HANDY

ALSO COMES WITH A SOFT POUCH
FOR EASY CARRYING & PROTECTION

65ms PEAK-RMS HOLD

CAPTURES MAXIMUM RMS VALUES
OF ACA OR ACV AS SHORT AS
65ms IN DURATION

DATA HOLD

FREEZES THE DISPLAYING
READING FOR LATER VIEW

PROBE HOLDERS

BUILT-IN PROBE STORAGE HOLDERS

BATTERY COMPARTMENT

WITH ACCESS DOOR FOR
EASY BATTERY REPLACEMENT

THD%-F (BM155 ONLY)

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

A-lags 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 FREQUENCIES 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



BM151, BM152 & BM155 GENERAL SPECIFICATION

Display:
Voltage functions: 6000 counts
Power, Ohm & Hz functions: 9999 counts
ACA clamp-on function: 4000 counts
Update Rate:
Voltage, ACA clamp-on, Ohm, Hz & Temperature functions:
4 per second nominal
Power function: 1 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: True RMS sensing for all models

Pollution Degree: 2
Safety: Meets IEC61010-2-032 (1994), EN61010-2-032 (1995), UL3111-2-032 (1999)
Measurement Category: CAT III 600V ac & dc
Transient Protection:
6.5kV (1.2/50µs surge) for all models
E.M.C.:
Meets EN61326 (1997, 1998/A1), EN61000-4-2 (1995), & EN61000-4-3 (1996)
In an RF Field of 3V/m:
Total accuracy = Specified accuracy + 45 digits
Performance above 3V/m is not specified
Overload Protection:
ACA Clamp-on jaws: AC 1000A rms continuous
& COM terminals (all functions): 600VDC/VAC rms
Jaws Opening & Conductor Diameter:
45mm max
Power Supply: standard 1.5V AAA Size (NEDA 24A or IEC LR03) battery x 2
Low Battery: Below approx. 2.4V

APO Timing: Idle for 17 minutes
APO Consumption: 10µA typical
Power Consumption (typical):
Voltage, ACA, Hz & Power functions: 10mA typical
Ohm & Temperature functions: 4mA typical
Dimension: L224mm x W78mm x H40mm
Weight: approx. 224 gm
Special Features: Backlight display (BM152 & BM155 only); AutoVA™ (Auto Selection on ACA, ACV or DCV functions); Power measurement of selectable W, VAR & VA with dual-display Total Power Factor features; Total harmonic distortion THD%-F (BM155 only); PEAK-rms HOLD
Accessories: Test leads (pair), batteries installed, user's manual, soft carrying pouch, & BKP60 banana plug type-K thermocouple (BM152 & BM155 only)
Optional Accessories: BR15X PC interface kit (including BA-1XX optical adaptor back, BC-100R cable + Bs15x RS232 software CD), BKB32 banana plug to type-K socket plug adaptor (BM152 & BM155 only)

BM151, BM152 & BM155 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 (all models) ACV & ACA clamp-on accuracies are specified from 0% 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 waveforms. Fundamentals are specified at 50Hz or 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: 30 VAC (40Hz ~ 500Hz only) nominal

DC Voltage

RANGE	Accuracy
600.0V	0.5%+5d

NMRR: > 50dB @ 50Hz/60Hz;
CMRR: > 120dB @ DC, 50Hz/60Hz; Rs=1kΩ
Input Impedance: 2MΩ, 30pF nominal
DCV AutoVA™ Threshold: 2.4 VDC 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 jaws marking lines (away from jaws opening)
Add 4% to specified accuracy for measurements made BEYOND jaws marking lines (toward jaws opening)

PEAK-rms HOLD (ACA & ACV only)

Response: 65ms to 90%

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

Temperature (BM152 & BM155 only)

RANGE	Accuracy
-50°C ~ 300°C	2.0%+3°C
-58°F ~ 572°F	2.0%+6°F

Type-K thermocouple range & accuracy not included
Add 3°C (6°F) to specified accuracy @ -20°C ~ -50°C (or @ -4°F ~ -58°F)

FREQUENCY

RANGE	Accuracy
5.00Hz ~ 500.0Hz	0.5%+4d

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

Power

RANGE	Accuracy ¹⁾²⁾		
	F ~ 10th	11th ~ 46th	47th ~ 51st
0 ~ 600.0kVA			
@ PF = 0.99 ~ 0.1	2.0%+6d	3.5%+6d	5.5%+6d

RANGE	Accuracy ¹⁾²⁾			
	F ~ 10th	11th ~ 25th	26th ~ 46th	47th ~ 51st
0 ~ 600.0kW / kVAR				
@ PF = 0.99 ~ 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 the 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 jaws marking lines (away from jaws opening)
Accuracy is not specified for ACA measurements made BEYOND jaws marking lines (toward jaws opening)

²⁾Add 1% to specified accuracy @ ACA Fundamental < 5A or ACV Fundamental < 90V;
Accuracy is not specified @ ACA Fundamental < 1A or ACV Fundamental < 30V

³⁾Add 1% to specified accuracy @ ACA Fundamental < 5A or ACV Fundamental < 90V;
Accuracy is not specified @ ACA Fundamental < 2A or ACV Fundamental < 50V

THD%-F ¹⁾ (BM155 only)

RANGE	Harmonic order	Accuracy ²⁾
0.0%~999.9% ³⁾	Fundamental	1.5% of Reading + 6d
	2nd ~ 3rd	5.0% of Reading + 6d
	4th ~ 16th	2.5% of Reading + 6d
	17th ~ 46th	3.0% of Reading + 6d
	47th ~ 51st	4.5% of Reading + 6d

¹⁾THD%-F is defined as: (Total Harmonic RMS / Fundamental RMS) x 100%

²⁾Range for Dual Display mode: 0% ~ 99%

³⁾Specified accuracy @ ACA Fundamental > 5A; ACV Fundamental > 50V

Total Power Factor (PF)

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

¹⁾Specified accuracy @ ACA Fundamental > 2A; ACV Fundamental > 50V

A-lags ¹⁾ indication:

"A-lags" LCD annunciator turns on to indicate an inductive circuit, or Current A lags Voltage V (i.e., phase-shift angle θ is "+").

¹⁾A-lags indication is specified at 50/60Hz fundamental without harmonics, and at ACV > 90V, ACA > 9A, & PF < 0.95

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