A Handy Yet Most Complete Slim-Jaws PowerClamp™!

Full Power Functions Plus kWHr Recording & 3~Unbalanced-Load Power For Advanced Applications!

CE

BM350 Series

Compact PowerClamp™

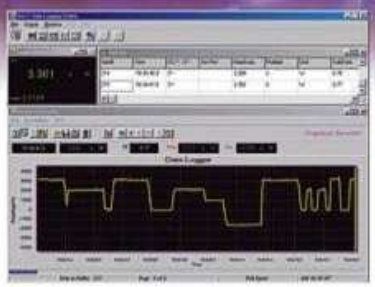
BRYMEN®

BRIGHT PEOPLE'S CHOICE

http://www.brymen.com

BM357

BM351



BRUA-13X PC Interface Kit
(Optional Purchase)

357	351	FUNCTIONS & FEATURES
●	●	Ultra-slim jaws to access tight places; 26mm conductor size
●	●	600A 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)
●		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/VISTA (Optional purchase)
●	●	Data HOLD
●	●	Measure line-level ACV Frequency via test leads
●	●	Measure non-invasive ACA Frequency via clamp jaws
●	●	DCV & ACV 0.1V to 600.0V
●	●	ACA 0.01A to 600A 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 EN61010-1 & EN61010-2-032 CAT III 600V
●	●	EMC EN61326-1:2006 (EN55011, EN61000-3-2/-3 & EN61000-4-2/-3/-4/-5/-6/-8/-11)

Small Power Jaws For Better Portability & Access To Tighter Places!

Superior Technology That Saves Costs, Size And Weight!

SMALL & ULTRA-SLIM CLAMP JAWS
FOR EASY ACCESS TO TIGHT PLACES
WITH AC 600A CAPABILITY

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

LVD CAT III 600V SAFETY
MEETS EN61010-1 & EN61010-2-032
2ND EDITION 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 EN61326-1:2006
(EN55011, EN61000-3-2/-3 &
EN61000-4-2/-3/-4/-5/-6/-8/-11)

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

PROBE HOLDERS
BUILT-IN PROBE STORAGE HOLDERS

BATTERY COMPARTMENT
WITH ACCESS DOOR FOR
EASY BATTERY REPLACEMENT

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 ACA Hz
MEASURES NON-INVASIVE
ACA FREQUENCY VIA CLAMP JAWS

HIGH VOLTAGE ACV 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

BM351 & BM357 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 : 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
Altitude : Operating below 2000m
Storage Temperature : -20°C to 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
Safety : Meets IEC61010-1 2nd Ed., EN61010-1 2nd Ed., UL61010-1 2nd Ed., IEC61010-2-032, EN61010-2-032, UL61010B-2-032
Measurement Category : III 600 Volts ac & dc
Transient protection : 6.5kV (1.2/50μs surge)
Pollution degree : 2
E.M.C. : Meets Meets EN61326-1:2006 (EN55022, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, , EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11)
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 600A 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 : L189 X W78 X H40 mm
Weight : 192 gm approx
Jaw opening & Conductor diameter : 26 mm max
Special features : Backlighted display (BM357 only); AutoVA™ (Auto Selection on ACV, DCV or ACA functions); selectable Power parameters of W, VAR & VA with Total Power Factor in dual-display; kWHr Recording (BM357 only); Display Hold; PEAK-rms HOLD; PC-Comm computer interface capabilities
Accessories : Test leads (pair), batteries installed, user's manual & soft carrying pouch
Optional accessories : BRUA13X PC interface kit (including BUA-2303 USB-to-Serial adaptor, BA-1XX optical adapter back, BC-100R cable & Bs software CD)

ELECTRICAL SPECIFICATION

Accuracy is ± (% reading digits + number of digits) or otherwise specified, at 23 °C ± 5 °C & 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.

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

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 : 1 at full scale & < 4 : 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, 600A	1.0% + 5d
45Hz ~500Hz	
40.00A, 400.0A	2.0% + 5d
600A	2.5% + 5d
500Hz ~ 3.1kHz	
40.00A, 400.0A	2.5% + 5d
600A	3.0% + 5d

ACA AutoVA™ Threshold: 1A AC (40Hz ~ 500Hz only) nominal
Crest Factor:
< 3 : 1 at full scale & < 6 : 1 at half scale
[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)

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
600A range: > 400A
600V range: > 30V

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 ~ 360.0kVA	**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 ~ 360.0kW / 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]	
	F ~ 21st	**22nd ~ 51st**
0.10 ~ 0.99	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) (BM357 only)

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

3-Phase Unbalanced-Load Power (BM357 only)

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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