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

RANGE	Accuracy [1] [3]			
0 ~ 600.0kW / kVAR	F ~ 10th	11th ~ 25th	26th ~ 46th	47th ~ 51st
@ 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 [3]
0.0%~999.9% [2]	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]	
0.10 ~ 0.99	F ~ 21st	22nd ~ 51st
	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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