

## BM257, BM255, BM252 & BM251 GENERAL SPECIFICATION

**Display:** 3-5/6 digits 6,000 counts  
**Update Rate:** 5 per second nominal  
**24 Segments Bar graph:** 40 per second max  
**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 ~ 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:**  
 BM251, BM252, & BM255: Average sensing  
 BM257: True RMS sensing  
**Pollution Degree:** 2  
**Safety:** Double insulation per IEC61010-1 2nd Ed., EN61010-1 2nd Ed., UL61010-1 2nd Ed. & CAN/CSA C22.2 No. 61010.1-0.92 to Category II 1000V, CAT III 600V and CAT IV 300V AC & DC

**Transient Protection:** 6.5kV (1.2/50µs surge)  
**Terminals (to COM) Measurement Category:**  
 V: Category II 1000V, CAT III 600V and CAT IV 300V AC & DC.  
 mAµA: Category III 500Vac and 300Vdc.  
 A: Category III 600Vac and 300Vdc.  
**E.M.C.:** 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:  
 Capacitance function is not specified  
 Other function ranges:  
 Total Accuracy = Specified Accuracy + 100 digits  
 Performance above 3V/m is not specified  
**Overload Protection:**  
**µA & mA:** 0.63A/500Vac, IR 150kA @500Vac  
**A:** 10A/600Vac or 15A/600Vac, IR 100kA @600Vac  
**V:** 1050 Vrms, 1450 Vpeak  
**AutoCheck™, mV, OHM & others:** 600 Vrms  
**Low Battery:** Below approx. 2.3V

**Power Supply:** 1.5V AAA Size battery X 2  
**Power Consumption (typical):** 3.5mA  
**APO Consumption (typical):** 10µA  
**APO Timing:** Idle for 34 minutes  
**Dimension:** 161\*80\*50mm L\*W\*H (With Holster)  
**Weight:** Approx. 340 gm (With Holster)  
**Special Features:** AutoCheck™ V & Ω (BM255 & BM257 only); Auto-ranging MAX/MIN Record (BM255 & BM257 only); Crest mode (Peak Hold; BM255 & BM257 only), Backlight display (BM255 & BM257 only); Auto-ranging Zero Relative mode; Display Hold; EF-Detection (NCV); Interface capabilities with PC computer; Input warning detection  
**Accessories:** Test lead pair; Batteries installed; User's manual; BKP60 banana plug type-K thermocouple (BM252, BM255 & BM257 only)  
**Optional purchase accessories:** BRUA-20X USB interface kit; BMH-01 Magnetic hanger; BKB32 banana plug to type-K socket plug adaptor

## Electrical Specification

Accuracy is given as +/- (% of reading digits + number of digits) or otherwise specified @ 23°C +/- 5°C and less than 75% R.H.

True RMS model BM257 ACV & ACA accuracies are specified from 5% to 100% of range or otherwise specified. Maximum Crest Factor <3:1 at full scale & <6:1 at half scale, and with frequency components fall within the meter specified frequency bandwidth for non-sinusoidal waveforms

### AC Voltage

RANGE	Accuracy
50Hz ~ 400Hz	1.0% + 5d
60.00mV, 600.0mV	
6.000V, 60.00V, 600.0V, 1000V	

CMRR: >60dB @ DC to 60Hz, Rs=1kΩ  
 Input Impedance: 10MΩ, 50 pF nominal

### AutoCheck™ ACV (BM255 & BM257 only)

RANGE	Accuracy
50Hz/60Hz	1.4% + 5d
1.000V ~ 1000V	

AutoCheck™ Lo-Z ACV Threshold: > 1V nominal  
 AutoCheck™ Lo-Z ACV Input Impedance:  
 Initially approx. 2.5kΩ, 120pF nominal; Impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical). Ended up impedances vs display voltages typically are:  
 15kΩ @100V  
 100kΩ @300V  
 250kΩ @600V  
 375kΩ @1000V

### DC Voltage

RANGE	Accuracy
60.00mV, 600.0mV	0.2%+3d
6.000V, 60.00V, 600.0V, 1000V	

NMR: > 60dB @ 50Hz/60Hz  
 CMRR: > 100dB @ DC, 50Hz/60Hz; Rs=1kΩ  
 Input Impedance: 10MΩ, 50 pF nominal

### AutoCheck™ DCV (BM255 & BM257 only)

RANGE	Accuracy
1.000V ~ 1000V	1.3% + 3d

AutoCheck™ Lo-Z DCV Threshold: > +1.0VDC & < -1.0VDC nominal  
 AutoCheck™ Lo-Z DCV Input Impedance:  
 Initially approx. 2.5kΩ, 120pF nominal; Impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical). Ended up impedances vs display voltages typically are:  
 15kΩ @100V  
 100kΩ @300V  
 250kΩ @600V  
 375kΩ @1000V

### OHM

RANGE	Accuracy
600.0Ω, 6.000KΩ, 60.00KΩ, 600.0KΩ	0.5%+4d
6.000MΩ	0.7%+4d
60.00MΩ	1.2%+4d

Open Circuit Voltage: 0.45VDC typical

### AutoCheck™ OHM (BM255 & BM257 only)

RANGE <sup>1)</sup>	Accuracy
00.00Ω ~ 60.00MΩ	1.2% + 10d

Open Circuit Voltage: 0.45VDC typical  
<sup>1)</sup>AutoCheck™ OHM Threshold: < 10MΩ nominal

### Ⓜ Audible Continuity Tester

Audible Threshold: Between 10Ω and 80Ω  
 Response time: 32ms

### ➔ Diode Tester

RANGE	Accuracy
1.000V	1.0% + 3d

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

### ⊖ Capacitance (BM252, BM255 & BM257 only)

RANGE	Accuracy
60.00nF, 600.0nF	2.0%+5d
6.000µF, 60.00µF, 600.0µF	1.5%+5d
3000µF	2.0%+5d

Accuracies with film capacitor or better

### Temperature (BM252, BM255 & BM257 only)

RANGE	Accuracy
-50 °C ~ 1000 °C	0.3% + 3d
-58 °F ~ 1832 °F	0.3% + 6d

K type thermocouple range & accuracy not included

### DC Current

RANGE	Accuracy	Burden Voltage
600.0µA, 6000µA	0.5%+3d	0.10 mV/µA
60.00mA, 600.0mA		1.7 mV/mA
6.000A, 08.00A <sup>1)</sup>		0.02V/A

<sup>1)</sup>8A continuous, >8A to 15A for 30 sec. max with 5 minutes cool down interval

### AC Current

RANGE	Accuracy	Burden Voltage
50Hz ~ 400Hz	1.0%+3d	0.10 mV/µA
600.0µA, 6000µA		
60.00mA, 600.0mA		
6.000A, 08.00A <sup>1)</sup>		

<sup>1)</sup>8A continuous, >8A to 15A for 30 sec. max with 5 minutes cool down interval

### CREST Mode (BM255 & BM257 only)

Accuracy: Specified accuracy plus 150 digits for changes > 5ms in duration.

### RECORD Mode (BM255 & BM257 only)

Accuracy: Specified accuracy plus 100 digits for changes > 100ms in duration.

### Logic Level Hz (@ mV function)

RANGE	Sensitivity (square wave)
5.00 Hz ~ 500.0 kHz	3 Vpeak
5.00 Hz ~ 1.000 MHz	5 Vpeak

Accuracy: 0.03%+2d

### Hz (Line) @ ACV, DCV, Current & AutoCheck™

Function	Sensitivity (Sine RMS)	Range
6V	0.4V	10Hz - 10kHz
60V	4V	10Hz - 50kHz
600V	40V	10Hz - 50kHz
1000V	400V	45Hz - 1kHz
600µA	40µA	10Hz - 10kHz
6000µA	400µA	10Hz - 10kHz
60mA	4mA	10Hz - 10kHz
600mA	40mA	10Hz - 10kHz
6A	1A	10Hz - 1kHz
10A	6A	10Hz - 1kHz

Accuracy: 0.03%+3d

### Non-Contact EF-Detection

Typical Voltage	Bar Graph Indication
20V (tolerance: 10V ~ 36V)	-
55V (tolerance: 23V ~ 83V)	--
110V (tolerance: 59V ~ 165V)	---
220V (tolerance: 124V ~ 330V)	----
440V (tolerance: 250V & 1000V)	-----

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



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