

CAT III Card-Sized Meter That Fits Your Pockets

Plus Powerful AutoCheck™
& EF-Detection Features!



CE

BM20 AutoCheck™
DMM Series

BRYMEN®

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



BM27



BM25



BM22



BM27	BM25	BM22	Functions & Features
6,000 Counts	6,000 Counts	4,000 Counts	Large Easy To Read LCD Display
5/Sec	5/Sec	3/Sec	Fast Data Measurement
600V	450V	600V	Input Protection On All Functions
•	•	•	Fully Auto-Ranging
•	•		AutoCheck™ Feature (Automatic DCV, ACV & Ohms Selection)
•	•		Electric Field EF-Detection (Non-Contact Voltage Detection)
•	•		Intelligent Auto Power Off -- Operation & Measurement Reset
		•	Standard Auto Power Off -- Operation Reset
		•	Data Hold
		•	30ms High Speed Max Hold
600V	450V		AutoCheck™ Lo-Z DCV & ACV Measurements (Auto-V Ω Position)
600V		600V	Standard Hi-Z DCV & ACV Measurements (V Position)
•	•		AutoCheck™ Ohms 6k Ω To 6M Ω , 4 Ranges (Auto-V Ω Position)
•			Ohms 600 Ω Range
•		•	Ohms 400 Ω To 40M Ω , 6 Ranges
			Capacitance 100nF To 2000 μ F, 5 Ranges
	•		Capacitance 100nF To 100 μ F, 4 Ranges
		•	Capacitance 500nF To 3000 μ F, 5 Ranges
•	•	•	Audible Continuity
•		•	Diode Test
•			Micro-Amps AC/DC 400.0 μ A To 2000 μ A For Flame Sensors
•			Line-Voltage FREQUENCY With 3 Trigger Levels (V Position)
•	•		FREQUENCY 10Hz TO 30kHz (Auto-V Ω Position)
		•	FREQUENCY 5Hz TO 1MHz
•	•	•	Fire-Retarded Material Thick Wall Housing
•	•	•	Optional Purchase Protective Silicon Holster
•	•	•	EMC Meets EN61326, EN61000-4-2 & EN61000-4-3
•	•	•	Transient Protection Up To 4kV 1.2/50 μ S Lightning Surge
•		•	UL Listed To UL61010B-1 CAT III 300V & CAT II 600V AC/DC
	•		UL Listed To UL61010B-1 CAT III 300V & CAT II 450V AC/DC

A Really Smart & Handy Tool

Having Patented Functions & Features To Meet Your Daily Application Need



Optional Purchase Protective Silicon Holster



BM22, BM25 & BM27 GENERAL SPECIFICATIONS

Display:
BM22: 3-3/4 digits 4000 counts
BM25 & BM27: 3-5/6 digits 6000 counts

Update Rate:
BM22: 3 per second nominal
BM25 & BM27: 5 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

AHUE: 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: Average sensing on all models

Pollution Degree: 2

Safety: Meets IEC61010-1 (First Edition with Amendment 1 & 2), UL61010B-1 (First Edition), CAN/CSA-C22.2 No. 1010.1-92

Measurement Category:
BM22 & BM27: CAT II 600V, CAT III 300V
BM25: CAT II 450V, CAT III 300V

Transient Protection:
4kV lightning surge (1.2/50µs)

E.M.C.:
Meets EN61326 (1997, 1998/A1), EN61000-4-2 (1995), EN61000-4-3 (1996)

In an RF Field of 3V/m:
Capacitance function is not specified
Other function ranges:
Total accuracy = Specified accuracy + 45d
Performance above 3V/m is not specified

Overload Protection:
600VDC & VAC rms for BM22 & BM27
450VDC & VAC rms for BM25

Low Battery: Below approx. 2.4V

Power Supply: 3V standard button battery x 1 (IEC-CR2032; SAMSUNG-NEDA-5004LC)

Power Consumption (typical):
BM22 & BM25: 2mA
BM27: 6mA for Voltage functions on Auto-V_Ω position; 2mA for other functions

APD Consumption: 1µA typical

APD Timing:
BM22: Idle for 30 minutes
BM25 & BM27: Idle for 3 minutes

Dimension: L113mm x W53mm x H10.2mm

Weight: approx. 78 gm

Special Features:
BM22: Data Hold; 30ms MAX Hold
BM25 & BM27: AutoCheck™ (Automatic V & Ω Selection); EF-Detection

Accessories: battery installed, user's manual

Optional Accessories: protective holder, soft carrying pouch

BM22, BM25 & BM27 ELECTRICAL SPECIFICATIONS

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

DC Voltage (BM22)

RANGE	Accuracy
400.0mV	1.0%+2d
4.000V, 40.00V, 400.0V	2.0%+2d
600V	2.5%+4d

NMR: > 50dB @ 50Hz/60Hz
CMRR: > 120dB @ DC, 50Hz/60Hz; R_s=1kΩ
Input Impedance: 10 MΩ, 30pF nominal;
(1000MΩ for 400.0mV range)

DC Voltage (BM25 & BM27)

RANGE	Accuracy
6.000V	0.5%+3d
60.00V	1.0%+5d
450.0V ¹⁾	1.2%+5d
600.0V ²⁾	2.0%+5d
600.0V ³⁾	1.5%+5d

NMR: > 30dB @ 50Hz/60Hz
CMRR: > 100dB @ DC, 50Hz/60Hz; R_s=1kΩ
BM25 Input Impedance:
AutoCheck™ Lo-Z DCV:
160kΩ, 160pF nominal
BM27 Input Impedance:
AutoCheck™ Lo-Z DCV:
833kΩ (4.2kΩ when displaying Auto),
90pF nominal
Hi-Z DCV:
5MΩ, 90pF nominal
DCV AutoCheck™ Threshold:
> ±1.2VDC or < -0.6VDC nominal
¹⁾BM25 AutoCheck™ DCV only
²⁾BM27 AutoCheck™ DCV only
³⁾BM27 Hi-Z DCV only

Ohms (BM22)

RANGE	Accuracy
400.0Ω	1.5%+6d
4.000kΩ, 40.00kΩ, 400.0kΩ	1.0%+4d
4.000MΩ	1.5%+4d
40.00MΩ	2.5%+4d

Open Circuit Voltage: 0.4VDC typical

Ohms (BM25 & BM27)

RANGE ¹⁾	Accuracy
600.0Ω	2.0%+6d ²⁾
6.000kΩ	1.2%+6d ³⁾
60.00kΩ, 600.0kΩ	1.0%+4d
6.000MΩ	2.0%+4d

Open Circuit Voltage: 0.4VDC typical

¹⁾AutoCheck™ is for 6.000kΩ ~ 6.000MΩ ranges;
600.0Ω is an independent range for BM27 only
²⁾Specified accuracy plus 40d while reading is below 20% of range

Diode Tester (BM22 & BM27 only)

Test Current (Typical)	Open Circuit Voltage
0.25mA for BM22	< 1.6VDC
0.48mA for BM27	

AC Voltage (BM22)

RANGE	Accuracy
50Hz ~ 60Hz	
4.000V, 40.00V, 400.0V	2.0%+5d
60Hz ~ 500Hz	
4.000V, 40.00V, 400.0V	3.0%+5d
50Hz ~ 500Hz	
600V	3.5%+5d

Input Impedance: 10 MΩ, 30pF nominal
CMRR: > 60dB @ DC to 60Hz, R_s=1kΩ

AC Voltage (BM25 & BM27)

RANGE	Accuracy
50Hz ~ 60Hz	
6.000V, 60.00V, 450.0V ¹⁾ , 600.0V ²⁾	1.5%+5d

CMRR: > 60dB @ DC to 60Hz, R_s=1kΩ

BM25 Input Impedance:

AutoCheck™ Lo-Z ACV:
160kΩ, 160pF nominal

BM27 Input Impedance:

AutoCheck™ Lo-Z ACV:
833kΩ (4.2kΩ when displaying Auto),
90pF nominal

Hi-Z ACV:
5MΩ, 90pF nominal

ACV AutoCheck™ Threshold:
> 1.5VAC (50/60Hz) nominal

¹⁾Range for BM25 only

²⁾Range for BM27 only

Capacitance (BM22)

RANGE ¹⁾	Accuracy ²⁾
500.0nF, 5.000µF, 50.00µF, 500.0µF, 3000µF	3.5%+6d ³⁾

¹⁾Additional 500.0nF range accuracy is not specified.

²⁾Accuracies with film capacitor or better.

³⁾Specified with battery voltage above 2.8V (half full battery). Accuracy decreases gradually to 12% at low battery warning voltage of approx 2.4V

Capacitance (BM25 & BM27)

RANGE ¹⁾	Accuracy ²⁾
100.0nF, 1000nF, 10.00µF, 100.0µF, 2000µF ³⁾	3.5%+6d ⁴⁾

¹⁾Accuracy below 50nF is not specified

²⁾Accuracies with film capacitor or better.

³⁾BM27 only

⁴⁾Specified with battery voltage above 2.8V (half full battery). Accuracy decreases gradually to 12% at low battery warning voltage of approx 2.4V

DC µA Current (BM22 only)

RANGE	Accuracy	Burden Voltage
400.0µA	1.5%+3d	3mV/µA
2000µA	1.2%+3d	3mV/µA

AC µA Current (BM27 only)

RANGE	Accuracy	Burden Voltage
50Hz ~ 60Hz		
400.0µA	2.0%+3d	3mV/µA
2000µA	1.5%+3d	3mV/µA

Audible Continuity Tester

Open Circuit Voltage: 0.4VDC typical

BM22:

Audible Threshold: between 10Ω and 120Ω

BM25 & BM27:

Audible Threshold: between 50Ω and 150Ω

Hz Frequency (BM22)

RANGE	Accuracy
5.000Hz ~ 1.000MHz	0.5%+4d

Operating Input Voltage: < 20VAC rms

Input Signal: Sine Wave, or square wave with

duty cycle > 40% & < 70%

Sensitivity:

5Hz ~ 100kHz: > 1.3Vp

100kHz ~ 500kHz: > 2.2Vp

500kHz ~ 1MHz: > 4.2Vp

Hz Frequency (BM25 & BM27¹⁾)

RANGE	Accuracy
10.00Hz ~ 30.00kHz	0.5%+4d

Sensitivity (Sine RMS):

Hz (Auto-V_Ω position): > 3V

¹⁾6.00VAC range (V position): > 4V

²⁾60.00VAC range (V position): > 30V

³⁾600.0VAC range (V position): > 60V

Electric Field EF-Detection (BM25 & BM27)

Typical Voltage	Bar Graph Indication
15V to 55V	--
30V to 85V	-
55V to 145V	---
85V to 190V	----
above 120V	-----

Indication: Bar graph segments & audible beeper

tone proportional to the field strength

Detection Frequency: 50/60Hz

Detection Antenna: Top left corner of the meter

(Measurement can also be made through single

test lead (+) for live line detection)



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