

MULTI-EXCITEMENTS BEYOND CLASSICAL DMMS



BRYMEN[®]
BRIGHT PEOPLE'S CHOICE

BM720 SERIES
PROFESSIONAL MULTIMETERS

4,000/40,000 counts + 9,999 counts dual display

Fast 3-3/4 digit 4,000 count digital display updates 5 times per second nominal. The 10 times high resolution mode 4-3/4 digit 40,000 count digital display updates 1.25 times per second nominal, and is available in most functions. In dual display mode, you can simultaneously view ACV+Hz, ACA+Hz, AC ADP+Hz, or nS+G Ω in a 4 digit 9,999 count complementary digital display.

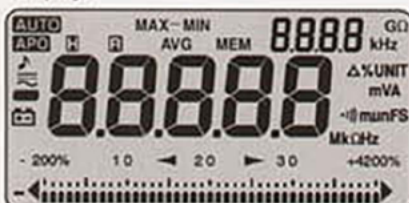


Fig 1: LCD Full Display, Shown Actual Size

8 Capacitance measurement ranges with 600V protections

You can practically use test leads to check small electronic capacitor values in the order of pF, as well as large motor run and start capacitor values in the order of mF. The new measuring technology employed provides superb accuracy, resolution, and fully autoranging capabilities.

99.999Hz low frequency range

With 0.001Hz resolution, you can effectively test variable frequency motor drives, motor controllers, and other equipment that operates at very low frequencies. The frequency counter is capable of measuring 05.000Hz up to 250.00kHz in 5 ranges with full 5 digits 99,999 count resolutions.

AC/DC Adaptor (ADP) ranges

The ACV, or DCV adaptor ranges feature 1000M Ω high input impedance to cope with most transducers at the highest sensitivity and the least current drain. In conjunction with the RECORD feature, the DMM practically serves as a superior recording instrument.



Fig 2: ADP + Hz in 40,000 Counts Display

Diode test

Diode test is a simple way to check the condition of diodes by measuring the diode forward and reverse voltage.

Relative zero (Δ) with autoranging capability

Relative zero allows the user to offset the meter measurements with a relative reference value. Practically all measured readings can be set as relative reference value including MAX, MIN, MAX-MIN, and AVG readings of RECORD function.

Relative percentage change (%) with center zero auto zoom bar graph

In this mode, the readings show relative percentage changes, and the bar graph automatically indicates +/- 200%, or +/- 20% full scale changes with respect to the relative reference value as center zero point. It simplifies zero, peaking, nulling measurements, and is excellent for fine adjustments.



Fig 3: RELATIVE % CHANGE Display

Relative per unit (U)

A unique feature to show the ratio of measuring values to the relative base value. The relative base value is considered to be one unit, and the consecutive measurements will be displayed in terms of units. Measuring the parallel capacitance of co-axial cable or parallel wire in conjunction with the relative per unit mode, for example, helps estimating the total cable length or locating cable breakage locations.

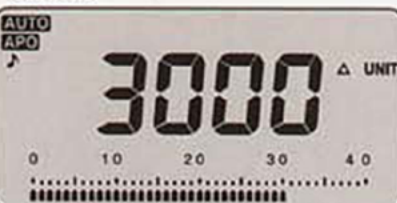


Fig 4: RELATIVE PER UNIT Display

Conductance with G Ω in dual display

Conductance is the inverse of resistance, that is $S=1/\Omega$. The series features 400.0nS range with G Ω in dual display, which virtually extends the resistance measuring capability up to the order of Giga Ohms. It is useful for leakage measurements in diodes, transistors, connectors, printed circuit boards, capacitors, and transformer insulation.



Fig 5: nS + G Ω Display

50ms RECORD MAX, MIN, MAX-MIN, AVG with autoranging capability

You can easily track intermittent signals, capture turn-on/turn-off surges, and monitor line voltage changes over a much wider dynamic range with the best resolution. It largely surpasses single range recording which is easily over-flowed, or with insufficient resolution. The BM720 series features a fast single range sampling speed of 50ms for MAX, MIN, MAX-MIN and AVG readings. The faster the sampling speed, the more accurate the measurement of surges, spikes and sags will be. The true average AVG feature calculates all readings taken over time continually.



Fig 6: RECORD Function Display

HOLD function

When in normal measuring modes, the hold feature freezes the display for later view. When in RECORD mode, however, the hold function stops updating the measurements, and you can read throughout the locked MAX, MIN, MAX-MIN, and AVG readings. Release the hold function to continue RECORD.

Data store & recall (MEM)

This feature stores the whole display data in memory for later recall. The memory will remain even in auto-power-off mode until the meter is manually turned off, and can also be recalled while you are in another meter function.

Fast audible continuity test with 150us response time

Audible continuity test is a quick go/no-go test that distinguishes between an open and a closed circuit. The meter will give a continuous beep tone when the input resistance drops below 10 Ω for at least 150us (micro-second). This is useful for checking wiring connections and operation of switches. The faster the response time, the more practical the function will be.

128 times/sec extra high speed 43 segments analog bar graph

With the 43 segment analog bar graph updates 128 times/sec in DC Voltage & Resistance functions, you can easily detect faulty contacts, identify potentiometer clicks, and indicate signal spikes during adjustments. In other modes & functions, the bar graph updates 20 times/sec showing excellent trending to cope with the signal characteristic.

EFFICIENT & VERSATILE



ACCURATE & SAFE

NMRR (Normal Mode Rejection Ratio)

NMRR is the DMM's ability to reject unwanted AC noise effect which can cause inaccurate DC measurements. NMRR is typically specified in terms of dB (decibel). BM720 series has a NMRR specification of >60dB at 50 and 60Hz, which means the effect of AC noise is reduced more than 1000 times in DC measurements.

CMRR (Common Mode Rejection Ratio)

CMRR is the DMM's ability to reject common mode voltage effect which can cause digit rattle or offset in voltage measurements. BM720 series has a CMRR specifications of >60dB at DC to 60Hz in ACV function; and >120dB at DC, 50 and 60Hz in DCV function. If neither NMRR nor CMRR specification is specified, the DMM's performance will be uncertain.

Rugged, individual battery compartment, sealed construction

An individual battery compartment sealed against battery leakage contaminant which easily cause fatal printed circuit board shortage and also degradation of accuracy. A splash proof case sealed against dust, dirt and moisture even under harsh operating environments.

Safety

Designed to meet UL3111-1, CSA C22.2 No.1010-1-92, and IEC 1010-1 installation category III.

PRODUCT SUMMARY

FUNCTION/FEATURE	BM727	BM729
DCV BASIC ACCURACY	0.3%	0.2%
ACV BASIC ACCURACY	1.0%	0.7%
DCA BASIC ACCURACY	1.0%	0.4%
ACA BASIC ACCURACY	1.3%	1.0%
Ω BASIC ACCURACY	0.4%	0.3%
nS BASIC ACCURACY	1.0%	0.7%
FREQUENCY, 5 RANGES	●	●
CAPACITANCE, 8 RANGES	●	●
DC ADAPTOR, 1 RANGE	●	●
AC ADAPTOR, 1 RANGE	●	●
DIODE TEST, 1 RANGE	●	●
CONTINUITY, 1 RANGE	●	●
4 000 COUNTS (FAST)	●	●
40 000 COUNTS (SLOW)	●	●
ANALOG BARGRAPH	●	●
DUAL DISPLAY	●	●
50ms RECORD	●	●
DATA HOLD	●	●
STORE & RECALL	●	●
RELATIVE ZERO	●	●
RELATIVE % CHANGE	●	●
RELATIVE PER UNIT	●	●
SPLASH PROOF CASE	●	●
PROTECTIVE HOLSTER	●	●
FUNCTION RANGES	40	40

GENERAL SPECIFICATIONS

Display: 3-3/4 digits 4000 counts or 4-3/4 digits 40000 counts selectable (5 digits 99999 counts for Hz), and 4 digits 9999 counts dual display LCD

Polarity: Automatic

Update Rate:

3-3/4D Data: 5 per second nominal;

4-3/4D Data: 1.25 per second nominal;

43 Segments Bar graph: 128 per second max

Low Battery: The indicator appears when the battery voltage drops below approx. 7.2V

Operating Temperature: 0°C to 35°C, 0-80% R.H.; 35°C to 40°C, 0-70% R.H.

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

Power Supply: Single Alkaline 9V battery; NEDA1604, JIS06P or IEC6F22

APO Timing: Idle for 4.5 minutes

APO Consumption: 20 μ A

Dimension: L186mm X W87mm X H35.5mm (without holster)

Safety: Designed to CSA C22.2 NO.1010-1-92, UL3111-1, and IEC1010-1 installation category III

Overload Protections:

μ A & mA: 0.63A/500V Fuse, IR 200KA;

A: 15A/600V Fuse, IR 100KA;

V: 780Vrms, 1000Vpeak;

mV: 600VDC/VAC rms;

Others: 600VDC/VAC rms

Sensing: Average responding

Power Consumption: 9 mA

Weight: 390 gm (without holster)

Accessories: Test leads (pair), holster, battery installed and user's manual

ELECTRICAL SPECIFICATIONS

ACCURACY IS \pm (% READING DIGITS + NUMBER OF DIGITS) OR OTHERWISE SPECIFIED, AT 23°C \pm 5°C & LESS THAN 75% R.H.

DC Voltage

RANGE	BM727	BM729
Accuracy		
400.0mV, 4.000V, 40.00V, 400.0V	0.3% + 1d	0.2% + 1d
1000V	0.3% + 2d	0.2% + 2d

NMRR: >60dB @ 50/60Hz

CMRR: >120dB @ DC, 50/60Hz, $R_s=1k\Omega$

Input Impedance: 10M Ω , 30pF nominal (100pF nominal for 400mV range)

AC Voltage

RANGE	BM727	BM729
Accuracy		
50Hz - 60Hz		
400.0mV, 4.000V, 40.00V, 400.0V, 750V	1.0% + 3d	0.7% + 3d
40Hz - 500Hz		
400.0mV, 4.000V, 40.00V, 400.0V, 750V	1.5% + 4d	1.0% + 4d
500Hz - 1kHz		
400.0mV	1.8% + 4d	1.3% + 4d
4.000V	2.5% + 4d	2.5% + 4d
40.00V, 400.0V, 750V	1.8% + 4d	1.3% + 4d
to 30kHz		
400.0mV	Unspec'd	1.5dB typical
4.000V	Unspec'd	Unspec'd
40.00V	Unspec'd	3dB typical
400.0V	Unspec'd	1.5dB typical
750V	Unspec'd	1.5dB typical

CMRR: >60dB @ DC to 60Hz, $R_s=1k\Omega$

Input Impedance: 10M Ω , 30pF nominal (100pF nominal for 400mV range)

Ohms

RANGE	BM727	BM729
Accuracy		
400.0 Ω , 4.000k Ω , 40.00k Ω , 400.0k Ω	0.4% + 2d	0.3% + 2d
4.000M Ω	0.6% + 2d	0.5% + 2d
40.00M Ω	3% + 5d	2% + 5d
400.0nS	1.0% + 5d	0.7% + 5d

Open Circuit Voltage: < 1.3VDC

Diode Tester

Range	Accuracy	Test Current (Typical)	Open Circuit Voltage
4.000V	2%+1d	0.8mA	< 3.5 VDC

DC Current

RANGE	BM727	BM729	Burden Voltage
Accuracy			
4000 μ A	1.0% + 2d	0.4% + 2d	0.15mV/ μ A
400.0mA	1.0% + 2d	0.4% + 3d	3.3mV/mA
10.00A	1.0% + 2d	0.4% + 4d	0.03V/A

AC Current

RANGE	BM727	BM729	Burden Voltage
Accuracy			
50Hz - 60Hz			
4000 μ A	1.3% + 3d	1.0% + 3d	0.15mV/ μ A
400.0mA	1.3% + 3d	1.0% + 3d	3.3mV/mA
10.00A	1.3% + 3d	1.0% + 3d	0.03V/A
40Hz - 300Hz			
4000 μ A	1.5% + 3d	1.2% + 3d	0.15mV/ μ A
400.0mA	1.5% + 3d	1.2% + 3d	3.3mV/mA
10.00A	1.5% + 3d	1.2% + 3d	0.03V/A
300Hz - 1kHz			
4000 μ A	1.8% + 3d	1.5% + 3d	0.15mV/ μ A
400.0mA	1.8% + 3d	1.5% + 3d	3.3mV/mA
10.00A	1.8% + 3d	1.5% + 3d	0.03V/A

Frequency

RANGE	BM727	BM729
Accuracy		
99.999Hz, 999.99Hz, 9.9999kHz, 99.999kHz, 250.00kHz		0.02% + 1d

Sensitivity: 5Hz - 100kHz, > 200 mVrms;

100kHz - 250kHz, > 400 mVrms

*Pulse Width > 3 μ s

Frequency & ACV or AC ADP in Dual Display

RANGE	BM727	BM729
Accuracy		
99.99Hz, 999.9Hz, 9.999kHz, 20.00kHz		0.02% + 1d

Sensitivity*: 5Hz - 100 Hz, > 15% F.S. of AC range;

100Hz - 1kHz, > 20% F.S. of AC range;

1kHz - 10kHz, > 10% F.S. of AC range;

10kHz - 20kHz, > 60% F.S. of AC range

*ACV 750V range: 5Hz - 100Hz, > 420VAC;

100Hz - 1kHz, > 550VAC

Capacitance

RANGE	BM727	BM729
Accuracy*		
4.000nF**		4.0% + 10d
40.00nF		3.0% + 5d
400.0nF		0.8% + 5d
4.000 μ F		0.8% + 3d
40.00 μ F***		4.0% + 5d
400.0 μ F****		4.0% + 5d
4.000mF		3.5% + 5d
40.00mF		4.0% + 5d

*Accuracies with film capacitor or better

**Specified from 10% to 100% of range

***Add 30 counts below 25% of range

****Add 50 counts below 25% of range

Audible Continuity Tester

Audible threshold: the beeper sounds if the measured resistance is lower than 10 Ω , and turns off when greater than 60 Ω . Response time < 150 μ s

DC Adaptor

10 counts per 1 mVDC

Accuracy: Same as DC 400.0mV range

Input Impedance: 1000M Ω , 70pF nominal

AC Adaptor

10 counts per 1 mVAC

Accuracy: Same as AC 400.0mV range

Input Impedance: 1000M Ω , 70pF nominal



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