

BS703**4 4/5 Digits Professional Auto Range TRMS DMM with RS232**

BS703 measures volts (dc to 1uV), ohms, amps, conductance, and capacitance, and capacitance (up to 5mF) as well as temperature in °C and °F. Other features include continuity and diode test. The user friendly case design houses a dual reading display with bar graph for simultaneous readouts such as true-rms ac+dc and Hz, dB, mV dc and more. Besides relative mode and Min/Max Average, you get a 1mS Fast Min Max for capturing peak transients. In addition, BS703 can store up to 20 measurements in stand-alone operation. Overmoulding technology in the case disperses various shock over more of the case than a dust-proof and splash-proof environmental rating.

Features:

- 4 4/5 digit, 50000 count with bar graph.
- Dual displays.
- Closed case calibration through the phototropic serial port.
- Auto hold.
- Auto fuse detector.
- Continuity check/beeper.
- dBm / dBV readings with selectable reference impedance.
- Relative mode.
- Diode test.
- 1ms fast min max.
- Duty cycle/pulse width.
- 50 mV low voltage and 50 Ω low ohms ranges.
- Memory store and recall.
- Min/Max/Average.
- True RMS (AC, AC+DC).
- 1000 V high energy fuses.
- Back-lighted display.
- Auto-power-off.
- RS-232C phototropic serial port.
- On screen menu selection.
- Over-molded case.

Accessories

- Battery, 9V
- Silicone Test Lead Set
- Alligator Clips
- RS-232C Interface Cable
- PC Software
- User's manual

Standards

UL 3111-1

CSA C22.2 No. 1010.11-92





IEC 1010-1 CATIII 1000V & CATIV 600V



General Specifications

Display	: 4 4/5 digits LCD with max. reading of 5000. with 25 segment bar graph, updates 5 times/sec.
Polarity	: Automatic, (-) negative polarity indication.
Zero adjustment	: Automatic.
Over range indication	: Only the MSD "OL" is displayed.
Temperature	: Nominal 0.15x (Specified accuracy)/ °C (<18°C or > 28°C)
Coefficient	
Operating Temperature	: 0°C to 50°C
Operating Humidity	: <80% RH
Storage Temperature	: -20°C to 60°C
Altitude	: 2000m
Pollution Degree	: 2
Shock & Vibration	: Per MIL-T28800 for a class 2 instrument
Power	: Single, Alkaline 9 volt battery NEDA 1604, JIS 006P, IEC6F22.
Dimension	: 103 (W) x 208 (H) x 54 (D) mm.
Weight	: Approx. 655 g

Electrical Specification

Accuracy is given as \pm ([% of reading] + [number of least significant digits]) at 18°C to 28°C with relative humidity up to 80%, for a period of one year after calibration.

True RMS responding accuracies are specified from 5% to 100% of range or otherwise specified; Crest Factor < 3:1 at full scale and <6:1 at half scale.

DC Voltage Measurement

Range	Resolution	Accuracy	Input Impedance
50mV	1 μ V	\pm (0.05% Read. + 10dgt)	10 M Ω , 30pF nominal (50 M Ω , 100pF nominal for 50mV & 500mV ranges)
500mV	10 μ V	\pm (0.05% Read. + 2dgt)	
5V	100 μ V		
50V	1mV		
500V	10mV		
1000V	100mV	\pm (0.1% Read. + 2dgt)	

NMRR: > 60dB @ 50/60 Hz

CMRR: > 120dB @ DC, 50/60 Hz, Rs=1k

AC Voltage Measurement

Range	Resolution	Accuracy				Input Impedance
		40Hz - 1kHz	1kHz - 5kHz	5kHz - 20 kHz	20kHz - 50kHz	
500mV	10 μ V	\pm (0.3% Read. + 10dgt)	\pm (1.0% Read. + 10dgt)	\pm (2.0% Read. + 20dgt)	Unspecified	10 M Ω , 30pF nominal (50 M Ω , 100pF nominal for 500mV range)
5V	100 μ V		\pm (0.5% Read. + 10dgt)		\pm (0.8% Read. + 20dgt)	
50V	1mV					
500V	10mV					
1000V	100mV	\pm (0.4% Read. + 10dgt)	\pm (0.5% Read. + 20dgt)	Unspecified	Unspecified	

CMRR: > 60dB @ DC to 60 Hz, Rs = 1 K

DC Current Measurement

Range	Resolution	Accuracy
500 μ A	10nA	\pm (0.1% Read. + 5dgt)
5mA	100nA	
50mA	1 μ A	
5400mA	10 μ A	
5A	100 μ A	\pm (0.3% Read. + 10dgt)
10A	1mA	\pm (0.3% Read. + 20dgt)

AC Current Measurement

Range	Resolution	Accuracy	
		40Hz - 1kHz	1kHz - 10 kHz

500µA	10nA	±(0.3% Read. + 5dgt)	±(0.8% Read. + 10dgt)
5mA	100nA		
50mA	1µA		
500mA	10µA		
5A	100µA	±(0.4% Read. +10dgt)	Unspecified
10A	1mA	±(0.4% Read. +20dgt)	

(AC+DC) Voltage and (AC+DC) Current

Function	Range	Resolution	Accuracy	
			40Hz – 1kHz	1kHz – 10 kHz
DC mV	500mV	100µV	±(0.5% Read. + 5dgt)	±(0.8% Read. + 5dgt)
DC V	5V	1mV	±(0.5% Read. + 3dgt)	±(0.8% Read. + 3dgt)
	50V	10mV		
	500V	100mA		
	1000V	1V	±(0.8% Read. + 5dgt)	
DC µA	500µA	100nA	±(0.5% Read. + 3dgt)	±(1.0% Read. + 5dgt)
	5mA	1µA		
DC mA	50mA	10µA		
	500mA	100µA		
DC A	5A	1mA	±(0.8% Read. + 10dgt)	Unspecified
	10A	10mA		

Resistance Measurement

Range	Resolution	Accuracy	Open Circuit Voltage
50	0.001	±(0.5% Read. + 20dgt) *	< 1.3 V DC
500	0.01	±(0.1% Read. + 5dgt) *	
5 k	0.1	±(0.1% Read. + 2dgt)	
50 k	1		
500 k	10		
5 M	100	±(0.3% Read. + 5dgt)	
50 M	1k	±(0.5% Read. + 20dgt)	

* Using Relative (Δ) mode

Conductance (5.000 counts only)

Range	Resolution	Accuracy
50nS	0.01nS	0.1% + 10

Diode Test

Range	Accuracy	Test Current (Typical)	Open circuit voltage
4.0V	2 %+1	1mA	<3.0 V DC



Capacitance Measurement (5.000 counts only)

Range	Resolution	Accuracy *
5nF	1pF	±(1.0% Read. + 5dgt)^
50nF	10pF	±(1.0% Read. + 3dgt)^
500nF	100pF	
5µF	1nF	±(2.0% Read. + 3dgt)
50µF	10nF	±(3.0% Read. + 3dgt)
500µF	100nF	
5000µF	1µF	±(3.5% Read. + 5dgt)

* Accuracy with film capacitor or better

^ Using Relative (Δ) mode

Continuity Measurement

Audible Threshold	Response Time
The beeper sounds if the measured resistance is lower than 10 Ω and turns off when greater than about 70 Ω.	< 1 msec.

Frequency and Duty Cycle

Range	Resolution	Accuracy
50Hz	0.001Hz	±(0.002% Read. + 3dgt)
500Hz	0.01Hz	
5kHz	0.1Hz	
50kHz	1Hz	
500kHz	10 Hz	
5MHz	100 kHz	
0.1% to 99.9%	0.1%	0.5 Hz to 300 kHz (pulse width > 3 µsec.) (0.1% + 0.05% per kHz + 1 count) for 5 V input (Logic signals only)

Pulse Width

Range	Accuracy
Input Frequency 0.5Hz to 300 kHz	Pulse width >3µs

Temperature Measurement

Range	Resolution	Accuracy
-58°F to 2,372°F (-50°C to 1,300°C)	0.1°F (0.1°C)	With k-type Thermocouple ±5.4°F (±3.0°C) typical



dBm and 1 ms PEAK Hold (5.000 counts only)

Function	Characteristics	Accuracy
dBm	Selectable reference impedance of 1 to 1.999 At 600 : -11.76 dBm to 54.25 dBm Input impedance : 10M , 30pF nominal	$\pm 0.25\text{dB} + 2\text{dgt}$ (@4Hz to 20 kHz)
1ms PEAK	Specified voltage or current measurement accuracy ± 30 counts of the peak value of a single 1 ms pulse.	

Burden Voltage (A, mA, μ A)

Function	Range	Burden Voltage (typical)
mA / μ A	500 μ A	150 μ V / μ A
	5000 μ A	150 μ V / μ A
	50 mA	3.3mV / mA
	500 mA	3.3mV / mA
A	5 A	0.03 V / A
	10 A	0.03 V / A

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