

# 4<sup>1</sup>/<sub>2</sub> DIGIT DIGITAL MULTIMETER



Model 856

The Model 856 is an auto-ranging 4.5 digit digital multimeter. This portable DMM has all of the conventional voltage, current, resistance, continuity and

- True rms AC Voltage and Current
- dBm Direct Reading and dB Relative
- Frequency Counter to 300 kHz
- Diode and Continuity Test Modes
- Auto-Ranging or Manual
- Three Level Comparator Function
- Data Hold, Key Lock and Last Memory
- Large Green LED and Bargraph Display

diode measurement functions. Some of the additional standard features are comparison of measured results, frequency measurement and bargraph display and calculated functions for deviation, relative and decibel measurements. AC voltage and current measurements are made via a true rms measurement technique. The 3-level comparator allows measured results to be displayed as high, go or low with respect to preset upper and lower limits. AC voltage readings can be displayed in dBm or dB relative to an arbitrary level. The large green LED display is easy to read and gentle on the eyes.

- 1 Comparator function results (HI, GO, LO) as well as dBm, dB indicator.
- 2 4.5 digit 7-segment LED readout.
- 3 AUTO RANGE and up-down, manual range selectors.
- 4 Bargraph display gives a visual indication of the range selected.
- 5 Recessed and protected input jacks.
- 6 Operation selectors: START/STOP for use with the comparator function; COMPARE sets up the comparison function; SELECT selects either the results or value of the deviation measurement function. It is also used to select dBm or dB in the dB function; GPIB (option) selects local or GPIB control; KEYLOCK locks the selected operation; RELATIVE sets up deviation measurements; HOLD holds the reading when pressed.
- 7 FUNCTION keys select DC A or V, AC A or V,  $\Omega$ , diode test, audible continuity or FREQUENCY.

## KEY SPECIFICATIONS

### Measuring Functions

AC/DC voltage, AC/DC current, resistance, frequency, diode and continuity checks

### Additional Functions

Deviation measurement, dBm measurement, dB measurement, comparator, range control, data hold, key lock, last memory and range display functions

### Input Characteristics

Accuracy:  $\pm$  % of reading  $\pm$  digit

### DC Voltage

Range	Full Scale	Resolution	Measuring Accuracy	Input Resistance
300mV	299.99mV	10 $\mu$ V	$\pm 0.03 \pm 2$	>1000 M $\Omega$
3V	2.9999V	100 $\mu$ V	$\pm 0.05 \pm 2$	11 M $\Omega \pm 5\%$
30V	29.999V	1mV	$\pm 0.05 \pm 2$	10 M $\Omega \pm 5\%$
300V	299.99V	10mV	$\pm 0.05 \pm 2$	10 M $\Omega \pm 5\%$
1000V	1000.0V	100mV	$\pm 0.05 \pm 2$	10 M $\Omega \pm 5\%$

### AC Voltage (True rms)

Range	Full Scale	Resolution	Measuring Accuracy			Input Resistance
			40 Hz to 10 kHz	10 kHz to 20 kHz	20 kHz to 100 kHz	
3V	2.9999V	100 $\mu$ V	$\pm 0.4 \pm 30$	$\pm 1 \pm 40$	$\pm 5 \pm 100$	11 M $\Omega \pm 5\%$
30V	29.999V	1mV	$\pm 0.4 \pm 30$	$\pm 1 \pm 40$	$\pm 5 \pm 100$	10 M $\Omega \pm 5\%$
300V	299.99V	10mV	$\pm 0.4 \pm 30$	$\pm 1 \pm 40$	$\pm 5 \pm 100$	10 M $\Omega \pm 5\%$
750V	750.0V	100mV	$\pm 0.1 \pm 30$ (40Hz to 1kHz)			10 M $\Omega \pm 5\%$

### DC Current

Range	Full Scale	Resolution	Measuring Accuracy	Input Resistance
300mA	299.99mA	10 $\mu$ A	$\pm 0.5 \pm 2$	About 1.0 $\Omega$
3000 mA	2999.9mA	100 $\mu$ A	$\pm 0.7 \pm 2$	About 0.1 $\Omega$

### AC Current (True rms)

Range	Full Scale	Resolution	Measuring Accuracy (40 Hz to 1 kHz)	Input Resistance
300mA	299.99mA	10 $\mu$ A	$\pm 1.5 \pm 40$	About 1.0 $\Omega$
3000 mA	2999.9mA	100 $\mu$ A	$\pm 1.7 \pm 40$	About 0.1 $\Omega$

### Resistance

Range	Full Scale	Resolution	Measuring Accuracy	Open Voltage
300 $\Omega$	299.99 $\Omega$	0.01 $\Omega$	$\pm 0.1 \pm 5$	About 3.0V
3k $\Omega$	2.9999k $\Omega$	0.1 $\Omega$	$\pm 0.07 \pm 2$	About 1.2V
30k $\Omega$	29.999k $\Omega$	1 $\Omega$	$\pm 0.07 \pm 2$	About 1.2V
300k $\Omega$	299.99k $\Omega$	10 $\Omega$	$\pm 0.07 \pm 2$	About 1.2V
3M $\Omega$	2.9999M $\Omega$	100 $\Omega$	$\pm 0.1 \pm 2$	About 1.2V
30M $\Omega$	29.999M $\Omega$	1000 $\Omega$	$\pm 0.3 \pm 5$	About 1.2V

### Frequency

Range	Full Scale	Resolution	Measuring Accuracy
5Hz-1kHz	999.99Hz	0.01Hz	$\pm 0.02 \pm 2$
10kHz	9.9999kHz	0.1Hz	$\pm 0.02 \pm 2$
100kHz	99.999kHz	1Hz	$\pm 0.02 \pm 2$
300kHz	300.00kHz	10Hz	$\pm 0.02 \pm 2$

### Diode Check

Range	Full Scale	Measuring Accuracy	Measuring Current	Open Voltage	Display Value
3V	2.9999V	$\pm 1.5 \pm 2$	0.5 to 1 mA	About 3V	Forward Voltage

### Continuity Check

Continuity Range	Reaction Speed	Continuity Check
0 to 100 $\pm 50 \Omega$	About 1 ms	Electronic Beeper

### ENVIRONMENTAL

Operating Temperature

0°C to 40°C

23°C  $\pm$  5°C guaranteed accuracy

Humidity

Less than 80%

### POWER REQUIREMENTS

100 to 240 V ac (manual switching)

50/60 Hz

### PHYSICAL

Size (W x H x D)

7<sup>7</sup>/<sub>8</sub> x 3<sup>3</sup>/<sub>16</sub> x 10<sup>1</sup>/<sub>4</sub> in.

200 x 80 x 260 mm

Weight

5.9 lbs., 2.7 kg

### SUPPLIED ACCESSORIES

Test Leads

Fuse (250 V, 0.5 A, Time Lag)

Fuse (250 V, 3 A, Time Lag)