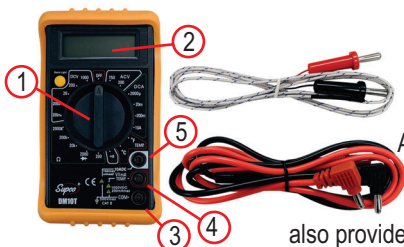


DM10T



GENERAL

This instrument is one of the series of pocket-sized 3-1/2 digit multimeters for measuring DC and AC voltage, DC current, resistance, and diodes. Some of those

also provide temperature transistor measurement and audible continuity test function of can be used as a signal generator or battery tester, Full range overload protection and low voltage battery indication are provided, They are ideal instruments for use in fields. Such as laboratory workshop, hobby and home applications.

FRONT PANEL DESCRIPTION

1. FUNCTION AND RANGE SWITCH

This switch is used to select the function and desired range and to turn on the instrument.

To extend the life of this battery, the switch should be in the OFF position when the instrument is not in use.

2. DISPLAY: 3-1/2 digit 7 segment, 0.5" high LCD.

3. "Common" JACK: Plug in connector-negative lead. (Black)

4. "V-Ω-mA" JACK: Plug in connector-positive lead. (Red) for voltage, resistance & current (not 10A) measurements.

5. "10A" JACK: Plug in connector-positive lead for 10A. (Red) measurement.

SPECIFICATIONS

Accuracies are guaranteed for 1 year. 23°C ±5°C less than 75% RH.

DC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200mV	100μV	±1.0% of rdg ±2D
2000mV	1mV	±1.2% of rdg ±2D
20V	10mV	±1.2% of rdg ±2D
200V	100mV	±1.2% of rdg ±2D
1000V	1V	±1.2% of rdg ±2D

Overload Protection: 250V rms AC for 200mV range and 1000V DC or 750Vrms AC for other ranges.

RESPONSE: Average response calibrated in rms of sine wave.

FREQUENCY RANGE: 40Hz - 400Hz

DC CURRENT

RANGE	RESOLUTION	ACCURACY
200μA	100nA	±1.5% of rdg ±2D
2000μA	1μA	±1.5% of rdg ±2D
20mA	10μA	±1.5% of rdg ±2D
200mA	100μA	±2.0% of rdg ±2D
10A	10mA	±3.0% of rdg ±2D

Overload Protection: 500mA 250V fuse (10A range unfused)
Measuring Voltage Drop: 200 mV.

Resistance:

RANGE	RESOLUTION	ACCURACY
200 Ω	100 mΩ	±1.2% of rdg ±2D
2000 Ω	1 Ω	±1.2% of rdg ±2D
20K Ω	10 Ω	±1.2% of rdg ±2D
200K Ω	100 Ω	±1.2% of rdg ±2D
2000K Ω	1K Ω	±1.5% of rdg ±2D

Maximum Open Circuit Voltage: 2.8V.

Overload Protection: 15 seconds maximum 250Vrms AC or DC 250V all other ranges.

AUDIBLE CONTINUITY RANGE

Built in buzzer sounds if resistance is less than 100 Ω.

Overload Protection: 15 seconds maximum 250Vrms.

AC Sounds Alarm.

Temperature (K Type Probe):

RANGE	RESOLUTION	ACCURACY
.20°C to	1°C	±3% ±2D (up to 150°C)
1370°C		±5% of rdg (over 150°C)
-4°F to	1°F	±3% ±2D (up to 302°F)
1999°F		±5% of rdg (over 302°F)

Overload Protection: 250Vrms AC

BATTERY TEST

Range	Resolution	Accuracy	Test Current
1.5V	1mV	±1.5% of rdg ±2D	100mA
9V	10mV	±1.5% of rdg ±2D	6mA

OPERATING INSTRUCTIONS - WARNING

1. To avoid electrical shock hazard and/or damage of the instrument, do not measure voltages that might exceed 500V above earth ground.

2. Before using instrument, inspect test leads, connectors and probes for cracks or breaks in the insulation. Do not measure voltage with faulty test probes,

DC VOLTAGE MEASUREMENT

1. Insert red test lead into "V Ω mA" jack. Insert black lead into "COM" jack.

2. Set RANGE switch to desired DCV position. If the voltage is not known before hand, set switch to the highest range and reduce it until a satisfactory reading is obtained.

3. Connect leads to device or circuit to be tested.

4. Turn on power to device being tested. Voltage value will appear on digital display along with the voltage polarity.

AC VOLTAGE MEASUREMENT

1. Insert red test lead into "V Ω mA" jack. Insert black lead into "COM" jack.

2. Set RANGE switch to desired ACV position.

3. Connect leads to device or circuit to be tested.

4. Turn on power to device being tested. Voltage value will appear on digital display.

DC CURRENT MEASUREMENT

1. Insert red test lead into "V Ω mA" jack. Insert black lead into "COM" jack.

(For measurements between 200mA an 10A, connect red lead to "10A" jack.

2. Set RANGE switch to desired DCA position.

3. Open the circuit to be measured and connect leads in series with the load in which current is to be measured.

4. Turn on power to device. Current value will appear on digital display.

RESISTANCE MEASUREMENT

1. Insert red lead "V Ω mA" jack. Insert black lead "COM" jack.

2. Make sure power is off. Set RANGE switch to desired Ω position.

3. If resistance is connected to a circuit, discharge capacitors.

4. Connect leads to circuit. Read resistance value on digital display.

DIODE MEASUREMENT

1. Insert red lead "V Ω mA" jack. Insert black lead "COM" jack.

2. Set RANGE switch to $\rightarrow$ position.

3. Connect red lead to the anode and black lead to the cathode.

4. The forward voltage drop in mV is displayed. If the diode is reversed, the value on digital display is "1".

TRANSISTOR hFE MEASUREMENT

1. Set RANGE switch to hFE position.

2. Determine if transistor is NPN or PNP and locate emitter, base and collector leads. Insert leads into proper hFE socket holes on meter.

3. Digital display will show the approximate hFE value at the condition of base current 10μA and Vce 2.8V.

TEMPERATURE MEASUREMENT

1. Set RANGE switch to TEMP position, current room temp. in °C appears.

2. Connect the "K" type leads to "V Ω mA" jack and "COM" jack.

3. Carefully place the thermocouple against the object to measure.

4. Read the temperature in °C on the digital display.

BATTERY TEST

1. Insert red lead "V Ω mA" jack. Insert black lead "COM" jack.

2. Set RANGE switch to BATT position.

3. Connect leads to battery terminals and read digital display.

AUDIBLE CONTINUITY TEST

1. Insert red lead "V Ω mA" jack. Insert black lead "COM" jack.

2. Set RANGE switch to $\rightarrow$ position.

3. Make sure power is off. Connect leads to two points on circuit. If resistance is lower than 50Ω, buzzer will sound.

TEST SINGLE USE

1. Set RANGE switch to $\rightarrow$ position.

2. A test signal (50Hz or 1000Hz depending on the multimeter model) appears between "V Ω mA" and "COM" jacks. The output voltage is approximately 5Vpp with a DC component, so an additional insulating capacitor is needed.

BATTERY AND FUSE REPLACEMENT

If "BAT" appears on the display, replace battery. (9V) To replace battery or fuse (500mA/250V), remove the two screws from case bottom. Remove cover and replace fuse or battery as needed. Re-attach cover with screws.

CAUTION

Before opening case, disconnect leads from circuit to avoid electrical shock.

WARNING - Read and understand this manual before using the meter. Failure to understand and comply with the WARNINGS and operating instructions can result in serious or fatal injuries and/or property damage!!