

3.1.1 DATA HOLD mode

Data Hold mode makes the meter stop updating the display. Data Hold function can be cancelled by changing the measurement mode, or push **HOLD** key again.

To enter and exit the Data Hold mode:

1. Press **HOLD** key. Fixes the display on the current value, **H** is displayed.
2. A second short press returns the meter to normal mode.

3.1.2 Battery Saver

Turn on the meter. And then The Meter will be turned off automatic after approx. 15 minutes. the buzzer will sound five times before the Meter turn off.

3.1.3 Non Contact AC Voltage detection

Set rotary switch to the **NCV** position and hold the Meter so that the Meter's top is vertically and horizontally centered and contacting the conductor, when the live voltage > 110V(RMS), the sensing indicator will be on and the buzzer will keep sounding as warning.

Note:

1. Even without LED indication, the voltage may still exist. Do not rely on non-contact voltage detector to determine the presence of voltage wire, Detection operation may be subject to socket design, insulation thickness and different type and other factors
2. When the meter input terminals presence voltage, due to the influence of presenced voltage, voltage sensing indicator may also be bright
3. Keep the meter away from electrical noise sources during the tests, i.e., fluorescent lights, dimmable lights, motors, etc.. These sources can trigger NON-Contact AC Voltage Detection Function and invalidate the test.

3.2 Measurement Functions

3.2.1 AC and DC Voltage measurement

⚠ To avoid electrical shock and/or damage to the instrument, do not attempt to take any voltage measurement that might exceeds 1000Vdc or 750Vac rms.
To avoid electrical shock and/or damage to the instrument, do not apply more than 1000Vdc or 750Vac rms between the common terminal and the earth ground.

Voltage is the difference in electrical potential between two points.

The polarity of ac (alternating current) voltage varies over time; the polarity of dc (direct current) voltage is constant.

The Meter's DC voltage ranges are 400.0mV, 4.000V, 40.00V, 400.0V and 1000V; AC voltage ranges are 400.0mV(only in range mode), 4.000V, 40.00V, 400.0V and 750V.

To measure ac or dc voltage:

1. Set rotary switch to the **V** position.
2. Connect the black test leader and red test leader to the COM and V terminals respectively.
3. Connect the test leader to the circuit being measured
4. Read the displayed value. The polarity of red test lead connection will be indicated when making a DCV measurement.

NOTE:

- Unstable display may occur especially at DC400mV and AC400mV ranges, even though you do not put test leads into input terminals, in this case, if an erroneous reading is suspected, short the V terminal and the COM terminal, and make sure the zero display.

3.2.2 Resistance measurement

⚠ To avoid electrical shock and/or damage to the instrument, disconnect circuit power and discharge all high-voltage capacitors before measuring resistance.

Resistance is an opposition to current flow.

The Meter's resistance ranges are 400.0Ω, 4.000kΩ, 40.00kΩ, 400.0kΩ, 4.000MΩ and 40.00MΩ.

To measure resistance:

1. Set the rotary switch to the **Ω** position.
2. Connect the black and red test leads to the COM and Ω terminals respectively.
3. Connect the test leads to the circuit being measured and read the displayed value.

Some tips for measuring resistance:

- The measured value of a resistor in a circuit is often different from the resistor's rated value. This is because the Meter's test current flows through all possible paths between the probe tips.
- In order to ensure the best accuracy in measurement of low resistance, short the test leads before measurement and memory the test probe resistance in mind. This necessary to subtract for the resistance of the test leads.
- On 40MΩ range, the meter may take a few seconds to stabilize reading. This is normal for high resistance measuring.
- When the input is not connected, i.e. at open circuit the figure "OL" will be displayed for the overrange condition.

3.2.3 Diode Test

⚠ To avoid electrical shock and/or damage to the instrument, disconnect circuit power and discharge all high-voltage capacitors before testing diodes.

Use the diode test to check diodes, and other semi-conductor devices. The diode test sends a current through the semiconductor junction, and then measures the voltage drop across the junction; a good silicon junction drops between 0.5V and 0.8V.

To test a diode out of a circuit:

1. Set the rotary switch to the **diode** position.
2. Press the FUNC key one time to activate Diode Test.
3. Connect the black and red test leads to the COM and **+** terminals respectively.
4. For forward-bias readings on any semiconductor component, place the red test lead on the component's anode and place the black test lead on the component's cathode.
5. The meter will show the approx. forward voltage of the diode. If the test lead connection is reversed, only figure "OL" displayed.

In a circuit, a good diode should still produce a forward bias reading of 0.5V to 0.8V; however, the reverse-bias reading can vary depending on the resistance of other pathways between the probe tips.

3.2.4 Continuity Check

⚠ To avoid electrical shock and/or damage to the instrument, disconnect circuit power and discharge all high-voltage capacitors before testing for Continuity.

Continuity is a complete path for current flow.

The beeper sounds if a circuit is complete. These brief contacts cause the Meter to emit a short beep.

To test for continuity:

1. Set the rotary switch to the **Ω** position.
2. Press the FUNC key twice to activate Continuity Check.
3. Connect the black and red test leads to the COM and Ω terminals respectively.
4. Connect the test leads to the resistance in the circuit being measured.
5. When the test lead to the circuit is below approx. 60Ω, a continuous beeping will indicate it.

Note:

- Continuity test is available to check open/short of the circuit.

3.2.5 Capacitance measurement

⚠ To avoid electrical shock and/or damage to the instrument, disconnect circuit power and discharge all high-voltage capacitors before measuring capacitance. Use the dc voltage function to confirm that the capacitor is discharged.

Capacitance is the ability of a component to store an electrical charge.

The unit of capacitance is the farad (F). Most capacitors are in the nanofarad to microfarad range.

The Meter's capacitance ranges are 40.00nF, 400.0nF, 4.000μF, 40.00μF, 400.0μF and 4000μF.

To measure capacitance:

1. Set the rotary switch to the **capacitance** position. Press the FUNC key three times to activate Capacitance Test.
2. Connect the black and red test leads to the COM and **+** terminals respectively (or you can measure the capacitance by using the special Multi-Function Socket).
3. Connect the test leads to the capacitor being measured and read the displayed value.

Some tips for measuring capacitance:

- The meter may take a few seconds to stabilize reading. This is normal for high capacitance measuring.
- To improve the accuracy of measurements less than 40nF, subtract the residual capacitance of the Meter and leads.

3.2.6 Transistor measurement

⚠ To avoid electrical shock and/or damage to the instrument, do not apply more than 250Vdc or 250Vac rms between the hFE terminal and the COM terminal.

1. Set the rotary switch to **hFE** position.
2. Connect the "com" plug and "+" plug of the special multi-function socket to the COM and hFE terminals.
3. Determine whether the transistor to be tested is NPN or PNP type and locate the Emitter, Base and Collector leads.
4. Insert leads of the transistor into proper holes of the special multi-function socket.
5. The meter will show the approx. hFE value at test condition of base current 10μA and Vce 2.8V.

3.2.7 Frequency measurement