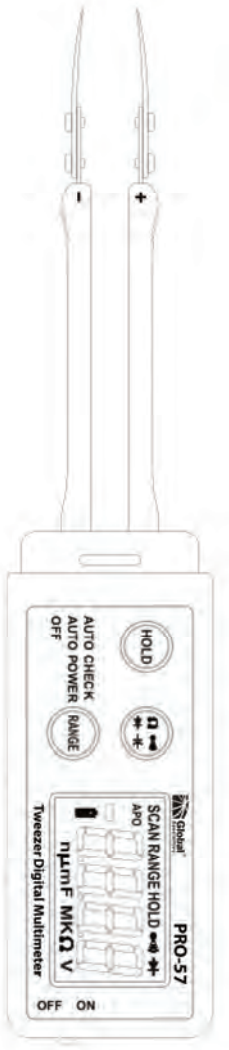
PRO-57

Tweezer Digital Multimeter

OPERATING INSTRUCTIONS



SAFETY INFORMATION

CE EMC: Conforms to EN61326-1.

The following safety information must be observed to insure maximum personal safety during the operation of this meter:

Use the meter only as specified in this manual or the protection provided by the meter might be impaired.

Do not use the meter if the meter or test leads look damaged, or if you suspect that the meter is not operating properly.

Never ground yourself when taking electrical measurements. Do not touch exposed metal pipes, outlets, fixtures, etc., which might be at ground potential. Keep your body isolated from ground by using dry clothing, rubber shoes, rubber mats, or any approved insulating material.

Turn off power to the circuit under test before cutting, unsoldering, or breaking the circuit. Small amounts of current can be dangerous.

When using the probes, keep your fingers behind the finger guards on the probes.

Measuring voltage which exceeds the limits of the multimeter may damage the meter and expose the operator to a shock hazard. Always recognize the meter voltage limits as stated on the front of the meter.

SPECIFICATIONS

Display: 3000 counts.

Polarity: Automatic, (-) negative polarity indication.

Overrange: " OL " mark indication.

Low battery indication:

The "  " is displayed when the battery voltage drops below the operating level.

Measurement rate: 4 times per second, nominal.

Auto power off: approx. 10 minutes.

Operating environment:

0℃ to 40℃ (32℉ 104℉) at < 70% R.H.

Storage temperature:

-20℃ to 60℃ (-4℉ to 140℉) at < 80% R.H. with battery removed from meter.

Temperature Coefficient:

0.1 x (specified accuracy) per ℃. (0℃ to 18℃, 28℃ to 40℃).

Power: 3.0V button-type lithium battery x1, CR2032.

Battery life: 100 hours continuous operation.

Dimensions:

205mm (H) X 40mm (W) X 24.5mm (D).

Weight: Approx. 3.5 oz. (100g) including battery .

(Accuracy at 23℃±5 ℃, <70% R.H.)

RESISTANCE

Ranges:
300Ω, 3kΩ, 30kΩ, 300kΩ, 3MΩ, 30MΩ
Resolution: 0.1Ω
Accuracy:
± (1.0% rdg + 5 dgts) on 300Ω range
± (1.0% rdg + 4 dgts) on 3kΩ to 300kΩ ranges
± (2.0% rdg + 4 dgts) on 3MΩ range
± (5.0% rdg + 5 dgts) on 30MΩ range
Auto check ranges: 300Ω to 3MΩ ranges
Auto check threshold: >300Ω
Open circuit volts:
-0.45V dc typical, (-1.2Vdc on 300Ω range)
Overload protection: 30VDC or 30AC RMS

CAPACITANCE

Ranges:
3nF, 30nF, 300nF, 3µF, 30µF, 300µF, 3mF,30mF
Resolution: 1pF
Accuracy:
± (3.0% rdg + 10 dgts) on 3nF to 300µF ranges
± (5.0% rdg + 20 dgts) on 3mF to 30mF ranges
Auto check ranges: 3nF to 300µF ranges
Auto check threshold: >500pF
Overload protection: 30VDC or 30AC RMS
When the capacitor to be tested is connected and the "DIS.C" symbol shows on the LCD, it means there is voltage existing in the tested capacitor and needs to be discharged before testing.

CONTINUITY
Range: 300Ω
Resolution: 0.1Ω
Audible indication: Less than 30Ω
Response time: 500ms
Overload protection: 30VDC or 30AC RMS

DIODE TEST

Test current: 1.0mA (approximate)

Accuracy: ± (3.0% rdg + 3 dgts)

Resolution: 1mV

Open circuit volts: 3.0 dc typical

Auto check threshold: forward voltage drop <0.8V

Audible warning: < 0.03V

Overload protection: 30VDC or 30AC RMS

OPERATION

Before taking any measurements, read the Safety Information section. Always examine the instrument for damage, contamination (excessive dirt, grease, etc.) and defects. Examine the test leads for cracked or frayed insulation. If any abnormal conditions exist do not attempt to make any measurements.

ON/OFF Switch: Power

Autoranging: The meter defaults to autorange when you turn it on. In autorange, the meter selects the range automatically.

Auto check mode:

1. In the Auto Check mode, " SCAN/ ---- " appears in the display. The meter automatically senses the resistance, continuity, diode test, or capacitance.
2. In the Auto Check mode, the RANGE button and HOLD button are disabled.

Ω/•))/→|/⊣⊢ Button:

1. Use the Ω/•))/→|/⊣⊢ button to select resistance, continuity, diode test or capacitance.
2. The Ω/•))/→|/⊣⊢ button also works as an on/off button. Depress the Ω/•))/→|/⊣⊢ button for more than 2 seconds to shut down the meter. Depress the Ω/•))/→|/⊣⊢ button again for more than 1 second to wake up the meter. If the meter is turned off with the Ω/•))/→|/⊣⊢ button, it can only be turned on with this button.

Data Hold Feature

Press [HOLD] button to toggle in and out of the Data Hold mode.

In the data hold mode, the "HOLD" indicator is displayed and the last reading is held on the display.

Press the [HOLD] button again to release the hold and current readings are once again displayed.

Manually Selecting Range

The meter also has a manual range mode. In manual range, you select and lock the meter in a range. To manually select a range: Press [RANGE] button to hold the selected range. Subsequently pressing the [RANGE] button will select each range in sequence from the lowest to highest range. Hold the button for 2 seconds to return to the Autorange Mode.

Measuring Resistance and Testing Continuity

1. Set the function to "Ω" or "•))" position.
2. Turn off power to the circuit under test. External voltage across the components causes invalid readings.
3. To toggle between the ohms / continuity / diode modes, press Mode Switch.
4. Touch the probes to the test points. In ohms, the value indicated in the display is the measured value of resistance with proper decimal point and annunciator indication. In continuity test, the beeper sounds continuously, if the resistance is less than approximately 30Ω.

Testing Diodes

1. Set the Function to " ⊣◀ " position.
2. Turn off power to the circuit under test. External voltage across the components

causes invalid readings.

3. To toggle between the ohms / continuity / diode modes. press Mode Switch.
4. Touch probes to the diode. A forward-voltage drop is about 0.6V (typical for a silicon diode).
5. Reverse probes. If the diode is good, "OL" is displayed. If the diode is shorted, a value near 0mV will be displayed.
6. If the diode is open, "OL" is displayed in both directions.
7. Audible Indication: Less than 0.03V.

Capacitance Measurements

1. Set the Function to " ⊣⊢ " position.
2. Touch the probes to the capacitor. Observe polarity when measuring polarized capacitors.
3. Read the capacitance directly from the display.
4. Discharge the capacitor before taking capacitance measurements.
5. When the capacitor to be tested is connected, if "DIS.C" symbol indicates on LCD, it means there is voltage existing in the tested capacitor and need to be discharged before testing.
6. On the 3nF and 30nF ranges, before making measurements, note the value on the display, which is the residual capacitance of test leads. Subtract the residual value from the reading to obtain the correct value of the capacitance measurement.

Auto Power off

1. Auto power off: approx. 10 minutes.
2. After auto power off, press (RANGE) button to restart the meter, and the last reading of measurement will appear in the display.

Cancellation Of Auto Power Off Feature:

Press and hold the (RANGE) button while moving slide switch from off to any position to turn on the meter . The auto power off feature is disabled. Note “APO” indicator is missing from the LCD.

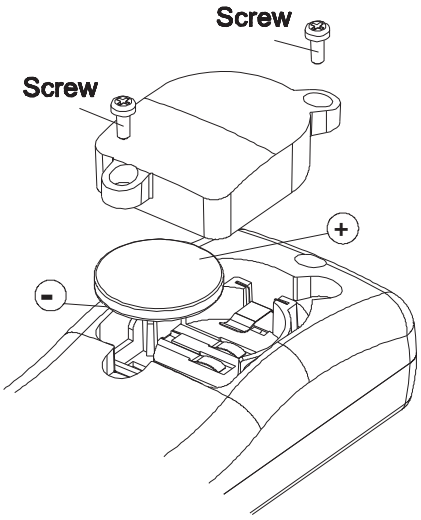
Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Dirt or moisture in the terminals can affect readings.

BATTERY REPLACEMENT

Remove the batteries if the meter not be used for an extended period of time. Power is supplied by a 3 volt button-type lithium battery x1, CR2032. " + " appears on the LCD display when replacement is needed.

1. Set the Function Switch to OFF.
2. Remove battery cover screw.
3. Slide off battery cover and change battery.
4. Replace battery cover and screw.



Battery Compartment Cover

Battery Replacement