

OPERATING INSTRUCTIONS MODEL 125C AUTORANGING MULTIMETER

SAFETY INFORMATION

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

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.

Use caution when working above 60V dc or 30V ac rms. Such voltages pose a shock hazard.

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: 3 1/2 digit liquid crystal display (LCD) with a maximum reading of 3200.

Analog bar graph: 34 segments with measurements 12 times per second.

Polarity: Automatic, (-) negative polarity indication.

Overrange: "OL" mark indication.

Low battery indication: The "BAT" is displayed when the battery voltage drops below the operating level.

Measurement rate: 2 times per second, nominal.

Auto power off: Meter automatically shuts down after approx. 10 minutes of inactivity.

Operating environment: 0°C to 50°C at < 70% relative humidity.

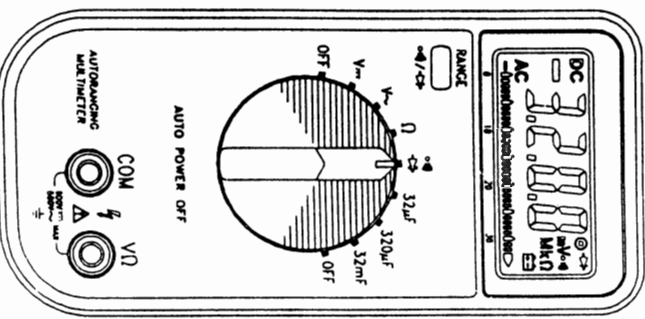
Storage temperature: -20°C to 60°C at < 80% relative humidity.

Power: Single standard 9-volt battery, NEDA 1604, JIS 006P, IEC 6F22.

Battery life: 200 hours typical with carbon-zinc.

Dimensions: 147mm (H) x 70mm (W) x 39mm (D).

Weight: Approx. 327g including holster.



	Range	DC Accuracy	AC Accuracy	Input impedance	Maximum input
	Voltage (50/60Hz)	320mV	± 1.2% rdg + 1d	N / A	> 1000MΩ
3.2V		± 0.8% rdg + 1d	± 2.0% rdg + 4d	11MΩ	
32V		± 1.2% rdg + 1d		10MΩ	
320V					
Capacitance	Range	Resolution	Accuracy	Test condition	Input protection
	32μF	10nF	± 5.0% rdg + 10d	3.0Vdc 10.7Hz	0.1A/250V fuse
	320μF	100nF			
32mF	10μF				
OHM	Range	Resolution	Accuracy	Test current	Input protection
	320Ω	100mΩ	± 2.0% rdg + 3d	< 0.7mA	500VDC or 500VAC rms
	3.2kΩ	1Ω	± 1.5% rdg + 3d	< 0.13mA	
	32kΩ	10Ω		< 13μA	
	320kΩ	100Ω		< 1.3μA	
	3.2MΩ	1kΩ	± 2.5% rdg + 3d	< 0.13μA	
32MΩ	10kΩ	± 5.0% rdg + 5d			
Diode Test	0-2000	1mV	± 10% rdg + 2d	0.5mA (Vf = 0.6V)	500V DC or AC rms
Continuity Check	Range	Resolution	Audible Indication	Test current	Input protection
	320Ω	100mΩ	< approx. 20Ω	< 0.7mA	500V DC or AC 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.

Mode Switch (RANGE) / (\rightarrow / \leftarrow)

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 Mode Switch to hold the selected range. Subsequently pressing the Mode Switch will select each range in sequence from the lowest to highest range. Hold the switch for 2 seconds to return to the Autorange Mode. Press Mode Switch to toggle between the continuity/diode modes, if the function switch is set to \rightarrow / \leftarrow position.

Voltage Measurements

1. Connect the red test lead to the "V Ω " jack and the black test lead to the "COM" jack.

2. Set the Function switch to the desired voltage type (DCV) or (ACV) position.

3. Touch the probes to the test points, the range will change automatically to the level that will display the input voltage with best resolution.

4. For dc, a (-) sign is displayed for negative polarity; positive polarity is implied.

Resistance Measurements

1. Set the Function switch to the " Ω " position.

2. Turn off power to the circuit under test. External voltage across the components causes invalid readings.

3. Connect the red test lead to the "V Ω " jack and the black test lead to the "COM" jack.

4. Connect the test leads to the point of measurements and read the value from the display.

Testing Diodes

1. Set the Function switch to \rightarrow / \leftarrow position.

2. Turn off power to the circuit under test. External voltage across the components causes invalid readings.

3. To toggle between the 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.

Continuity Measurements

1. Set the Function switch to \rightarrow / \leftarrow position.

2. Turn off power to the circuit under test. External voltage across the components causes invalid readings.

3. To toggle between the continuity/diode modes, press Mode Switch.

4. Connect the test leads to the two points at which continuity is to be tested. The buzzer will sound if the resistance is less than approximately 20 Ω .

Capacitance Measurements

1. Turn off power to the device under test and discharge all capacitors.

2. Discharge all voltage from the capacitor before measuring its capacitance value.

NOTE

A safe way to discharge a capacitor is to connect a 100k Ω resistor across the two capacitor leads.

3. Plug the black test lead into the COM input jack on the DMM and connect the test lead tip to one end of the discharged capacitor. When measuring electrolytic capacitors, observe correct polarity. Connect the COM test lead to the negative capacitor lead.

4. Set the Function/Range switch to the capacitance range that gives the most accurate measurement reading.

5. Plug the red test lead into the V Ω input jack on the DMM and connect the test lead tip to the other end of the discharged capacitor. Read the capacitance value in the display.

6. After completing the measurement, disconnect the DMM test leads.

MAINTENANCE

WARNING

To prevent electrical shock hazard, turn off the multimeter and any device or circuit under test and disconnect the test leads before changing battery or fuse or performing any servicing.

Battery Replacement

Power is supplied by a 9 volt "transistor" battery. (NEDA 1604, IEC 6F22). The "E" appears on the LCD display when replacement is needed.

To replace the battery, remove the three screws from the back of the meter and lift off the front case. Remove the battery from case bottom.

Fuse Replacement

If no capacitance measurements are possible, check for a blown overload protection fuse. For access to fuses, remove the three screws from the back of the meter and lift off the front case. Replace F1 only with the original type 0.1A/250V, fast acting fuse.