

LIMIT

Palm Size Digital Multimeter

300



Operating manual

Illustrations

**Fig 1. Voltage measurement
DC and AC**

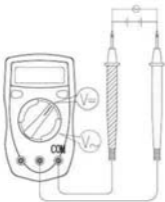
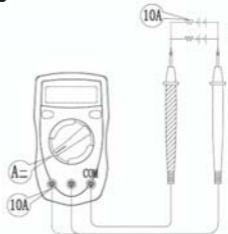


Fig 2. DC Current Measurement



**Fig 3. Diode test
Continuity test**

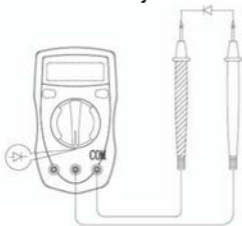
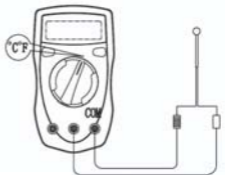


Fig 4. Temperature measurement



**Fig 5. Replacing the Battery
Replace the fuse**



DC Voltage

Range	Resolution	Accuracy	Overload Protection
		$\pm(0,5\%+2)$	200mV
2000mV	1mV		500V DC or AC
20mV	10mV		
200V	100mV		
500V	1V	$\pm(0,8\%+2)$	

AC Voltage

Range	Resolution	Accuracy	Overload Protection
		$\pm(1.2\%+10)$	200V
800V	1V		



DC Current

Range	Resolution	Accuracy	Overload Protection
200 μ A	1 μ A	$\pm(1\%+2)$	315mA, 250V fast type fuse: o 5x20 mm
20mA	10 μ A		
200mA	100 μ A	$\pm(1.2\%+2)$	
10A	100mA	$\pm(2\%+2)$	Un-Fused

Resistance

Range	Resolution	Accuracy	Overload Protection
200Ω	0.1Ω	±(0.8%+5)	250V DC or AC
2000Ω	1Ω		
20kΩ	10Ω	±(0.8%+2)	
200kΩ	100Ω		
20MΩ	10MΩ	±(1%+5)	

Diodes and Continuity

Range	Resolution	Remark	Overload Protection
	1mV	Displays approximate forward voltage drop: 0.5~0.8V.	250V DC or AC
	1Ω	Buzzer beeps at <70Ω	

Temperature

Range	Resolution	Accuracy	Overload Protection
-40°C~150°C	1°C	±(18%+3)	250V DC or AC
150°C~1000°C		±(1.5%+15)	
-40°F~302°F	1°F	±(1%+4)	
302°F~1832°F		±(1.5%+15)	

Language Contents

Language	page
English	5-11
Svenska	12-17
Norsk	18-23
Dansk	24-30
Suomi	31-36
Deutsch	37-44
Nederlands	45-51
Français	52-58
Italiano	59-65
Español	66-72
Português	73-79
Polska	80-86
Eesti	87-92
Latviski	93-100
Lietuviškai	101-108
Русский	109-115


Overview

This Operating Manual covers information on safety and cautions. Please read the relevant information carefully and observe all the Warnings and Notes strictly.

Limit 300 are 3 1/2 digits with steady operations, fashionable design and highly reliable hand-held measuring instrument.

General Specifications

Measuring range and accuracy see page 2-3.

- Maximum Voltage (including transient overvoltage) between any Terminals and Grounding: 500V rms.
- Fused Protection for V Ω mA Input Terminal: 315mA, 250V fast type, 0.5x20 mm
- 10A Terminal: Un-fused.
- Range: Manual ranging
- Maximum Display: Display: 1999 or 31/2 digits.
- Measurement Speed: Updates 2~3 times /second.
- Temperature: Operating: 0°C~40°C (32°F~104°F).
 Storage: -10°C~50°C (14°F~122°F).
- Battery Type: One piece of 9V Battery NEDA 1604 or 6F22 or 006P.
- Safety/Compliances: IEC61010 CAT.I 600V overvoltage and double insulation standard.
- Certification: 

Safety Information

This Meter complies with the standards IEC61010: in pollution degree 2, overvoltage category (CAT I 600V, CAT II 300V) and double insulation.

Warning

To avoid possible electric shock or personal injury, and to avoid possible damage to the Meter or to the equipment under test, adhere to the following rules:

- Before using the Meter inspect the case. Do not use the Meter if it is damaged or the case (or part of the case) is removed. Look for cracks or missing plastics. Pay attention to the insulation around the connectors.
- Inspect the test leads for damages insulation or exposed metal. Check the test leads for continuity.
- Do not apply more than the rated voltage, as marked on the Meter, between the terminals or between any terminal and the grounding.
- The rotary switch should be placed in the right position and no any changeover of range shall be made during measurement is conducted to prevent damage of the Meter.
- When the Meter working at an effective voltage over 60V in DC or 42V rms in AC, special care should be taken for there is danger of electric shock.
- Do not use or store the Meter in an environment of high temperature; humidity, explosive, inflammable and strong magnetic fields. The performance of the Meter may deteriorate after dampened.
- When using the test leads, keep your fingers behind the finger guards.
- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes and current.
- Before measuring current, check the Meter's fuses and turn off power to circuit before connecting the Meter to the circuit.
- Replace the battery as soon as the battery indicator appears. When low battery, the Meter might produce false readings that can lead to electric shock and personal injury.

Functional Buttons

Hold

- **ON/OFF** for hold function.
- H shows on the display when value is hold.

Blue

- **ON/OFF** for display back light.

Voltage measurement DC and AC (see fig 1)

1. Insert the red test lead into the $V\Omega mA$ terminal and the black test lead into the COM terminal.
2. Set the rotary switch to an appropriate measurement position in V--range for DC or V~ for AC. When the value is unknown always start from the max range 500 V.
3. Connect the test leads across with the object being measure. The measured value shows on the display.

Note

- Displays 1 selected range is overload; it is required to select a higher range in order to obtain a correct reading.
- In each range, the Meter has an input impedance of approx. $10M\Omega$. This loading effect can cause measurement errors in high impedance circuits. If the circuit impedance is less than or equal to $10k\Omega$, the error is negligible (0.1% or less).

DC Current Measurement (see fig 2).

Warning

Never attempt an in-circuit current measurement where the voltage between terminals and ground is greater than 60V.

If the fuse burns out during measurement, the Meter may be damaged or the operator himself may be hurt. Use proper terminals, function, and range for the measurement.

When the testing leads are connect-ed to the current terminals, do not parallel them across any circuit.

To measure current, connect as follows:

1. Turn off power to the circuit. Discharge all high-voltage capacitors.
2. Insert the red test lead into the 10A or $V\Omega mA$ terminal and the black test lead into the COM terminal.
3. Set the rotary switch to an appropriate measurement position in A $\overline{\text{---}}$ range. When the value is unknown always start from the max range 10 A.

4. Break the current path to be tested. Connect the red test lead to the more positive side of the break and the black test lead to the more negative side of the break.
5. Turn on power to the circuit. The measured value shows on the display.

Resistance measurement

1. Insert the red test lead into the $V\Omega mA$ terminal and the black test lead into the COM terminal.
2. Set the rotary switch to an appropriate measurement position in Ω range.
3. Connect the test leads across with the object being measured. The measured value shows on the display.

Note

- The test leads can add 0.1Ω to 0.3Ω of error to resistance measurement. To obtain precision readings in low-resistance measurement, that is the range of 200Ω , short-circuit the input terminals beforehand and record the reading obtained. This is the additional resistance from the test lead. When 1 displays the resistance are higher than selected range.

Diode test (see fig 3)

Use the diode test to check diodes, transistors, and other semiconductor 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, connect the as follows:

1. Insert the red test lead into the $V\Omega mA$ terminal and the black test lead into the COM terminal.

2. Set the rotary switch to diode position.
3. For forward voltage drop 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. The measured value shows on the display.

Continuity test (see fig 3)

To test for continuity, connect as follows:

1. Insert the red test lead into the $V\Omega mA$ terminal and the black test lead into the COM terminal.
2. Set the rotary switch to continuity position.
3. Connect the test leads across with the object being measured. The buzzer sounds if the resistance of a circuit under test is less than 70Ω .

Temperature measurement (see fig 4)

1. Insert the red temperature probe into the $V\Omega mA^{\circ}C^{\circ}F$ terminal and the black temperature probe into the COM temperature.
2. Set the rotary switch to $^{\circ}C$ or $^{\circ}F$ position.
3. Place the temperature probe to the object being measured. The measured value shows on the display.

Note

- The Meter automatically displays the temperature value inside the Meter when there is no temperature probe connected.
- The included point contact temperature probe can only be used up to $250^{\circ}C(482^{\circ}F)$.
- The temperature function is type K. For measuring higher temperatures other probes of type K can be used together with a multi socket.

Replacing the Battery (see fig 5)

1. Disconnect the connection between the testing leads and the circuit under test when battery indicator appears on the display.
2. Turn the Meter to OFF position.
3. Remove the screw, and separate the case bottom from the case top.
4. Replace the battery with a new 9V battery (NEDA 1604 or 6F22 or 006P).
5. Rejoin the case bottom and case top, and reinstall the screw.

Replace the fuse (see fig 5)

1. Disconnect the connection between the testing leads and the circuit under test.
2. Turn the Meter to OFF position.
3. Remove the screw and separate the case bottom from the case top.
4. Remove the fuse by gently prying one end loose, and then take out the fuse from its bracket.
5. Replace only fuses with the identical type and specification as follows. 315mA, 250V, fast type, 5x20mm.
6. Rejoin the case bottom and case top, and reinstall the screw.
Replacement of the fuses is seldom required. Burning of a fuse always results from improper operation.