OPERATING MANUAL

This kind of mini digital multimeter with test leads attached to its cover will give you years of satisfactory service. Before using your new instrument, please read this Operating Manual completely and familiarize yourself thoroughly with all functions and connections.

SAFETY RULES

The meter has been designed according to IEC-61010 concerning electronic measuring instruments with a measurement category (CAT II 500V) and Pollution degree 2.

⚠ WARNING

To avoid possible electric shock or personal injury, follow these guidelines:

a. Do not use the meter if it is damaged. Before you use the meter, inspect the case.
b. Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity. Replace damaged test leads before you use the meter.
c. Do not use the meter if it operates abnormally. Protection may be impaired. When in doubt, have the meter serviced.
d. Do not operate the meter around explosive gas, vapor, or dust.
e. Do not measure more than the rated voltage which is marked on the meter.
f. Before use, verify the meter's operation by measuring a known voltage.
g. When measuring current, turn off circuit power before connecting the meter in the circuit. Remember to place the meter in series with the circuit.
h. When servicing the meter, use only specified replacment parts.
i. Use with caution when working above 30V ac rms, 42V peak, or 60V dc. Such voltages pose a shock hazard.
j. When using the probes, keep your fingers behind the finger guards on the probes.
k. Connect the common test lead before you connect the live test lead. When you disconnect test leads, disconnect the live test lead first.
l. Do not operate the meter with the back cover or portions of the case removed or loosened.
m. To avoid false readings, which could lead to possible electric shock or personal injury, replace the batteries as soon as the low battery indicator (" ⊟ ") appears.
n. This meter is designed to be indoor use.
O. CATII - Measurement Category II is for measurements performed on circuits directly connected to low voltage installation. (Examples are measurements on household appliances, portable tools and similar equipments.)
Do not use the meter for measurements within Measurement Categories III and IV.

Caution

To avoid possible damage to the meter or to the equipment under test, follow these guidelines:

- Disconnect circuit power and discharge all capacitors before testing resistance, diode and continuity.
- Use the proper function, and range for your measurements.
- Before measuring current, check the meter's fuses and turn off the power to the circuit before connecting the meter to the circuit.
- Before rotating the range switch to change functions, disconnect test leads from the circuit under test.

GENERAL CHARACTERISTICS

Display	3 1/2 digits LCD
Polarity indication	Automatic negative polarity indication
Low battery indication	⊟ mark displayed on the right LCD
Operating temperature	23±5℃ ,less than 75%RH
Battery	9-12V (following batteries can be used:23A and other equivalents)
Dimensions	120x70x21mm
Weight	Approx.110g (including batteries)

SPECIFICATIONS

Accuracy is specified for a period of one year after calibration and at 23±5℃ with relative humidity up to 75%.
Accuracy specifications take the form of:
±([% of Reading]+[number of Least Significant Digits])

DC VOLTAGE

Range	Resolution	Accuracy
2V	1mV	±(0.5%+5)
20V	10mV	±(0.8%+5)
200V	0.1V	
500V	1V	

Max. Input voltage : 500V
Input impedance: 1MΩ

AC VOLTAGE

Range	Resolution	Accuracy
2V	1mV	Accuracy is not guaranteed.
20V	10mV	
200V	0.1V	±(1.2%+10)
500V	1V	

Max. Input impedance: about 500kΩ
Max. input voltage: 500V
Frequency: 40Hz~400Hz
Indication: Average respond,rms of sine wave

DC CURRENT

Range	Resolution	Accuracy
200mA	0.1mA	±(2%+2)

Overload Protection : Fuse, F 250mA L 250V, Fast action

RESISTANCE

Range	Resolution	Accuracy
2k	1 Ω	±(1.0%+2)
20k	10 Ω	
200k	100Ω	
2000k	1kΩ	

Open circut Voltage:0.4V
Overload protection:250V DC or rms AC

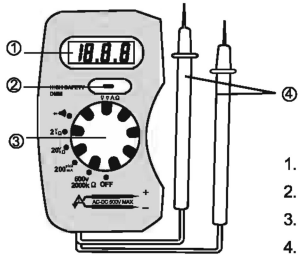
DIODE

Resolution	Test Current Max.	Open circuit Voltage	Overload Protection
1mV	0.8mA	3.2V	250VrmAC

BUZZER

It will sound when the resistance value is under 50Ω

DESCRIPTION OF PANEL

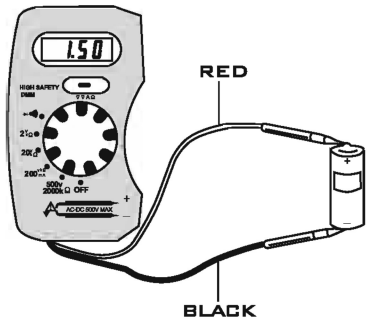


1. LCD
2. Function Switch
3. Range Switch
4. "black" or "red" test lead

OPERATING INSTRUCTION

DC VOLTAGE MEASUREMENT

Set the function switch at $\overline{\overline{V}}$ position.
Set the range switch at desired position. If the magnitude of voltage is not known beforehand, set the switch at the highest range and reduce until satisfactory reading is obtained.
Connect test leads to device or circuit to be measured. Voltage value will appear on the display along with the voltage polarity.
When the range switch is in 500V position, a "HV" sign will appear on the display to remind you of high voltage measuring.
Special attention should be paid.



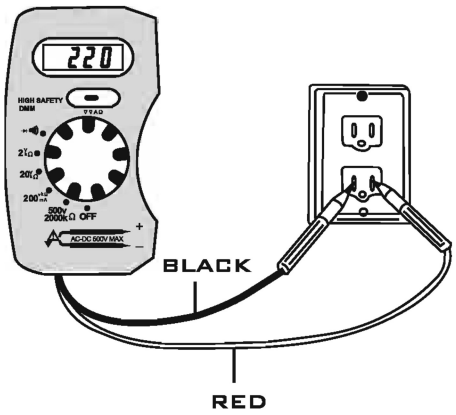
AC VOLTAGE MEASUREMENT

Set the function switch at $\tilde{V}$ position.

Set the range switch at desired position. Measurement reading can be obtained at 2V and 20V position, but the accuracy is not guaranteed.

Connect test leads to device or circuit to be measured. Read voltage value on the display.

When the range switch is in 500V position, a "HV" sign will appear on the display to remind you of high voltage measuring. Special attention should be paid.



DC CURRENT MEASUREMENT

Set the function switch at A position.

Set the range switch at 200mA position. Measurement reading can be obtained at other positions, but the decimal point is in incorrect place.

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

Read the current value on the display along with the polarity of the red test lead's connection.

DIODE AND CONTINUITY TESTS

Set the function switch at Ω position.

Set the range switch at ⊣◀ •)) position.

Connect the red test lead to the anode of the diode to be tested and black test lead to the cathode. Read the forward voltage drop on the display in mV. If the connection of diode is reversed, only figure "1" will be displayed.

Connect the test leads across the circuit to be measured for continuity. If the resistance is less than about 50Ω, the built-in buzzer will sound.

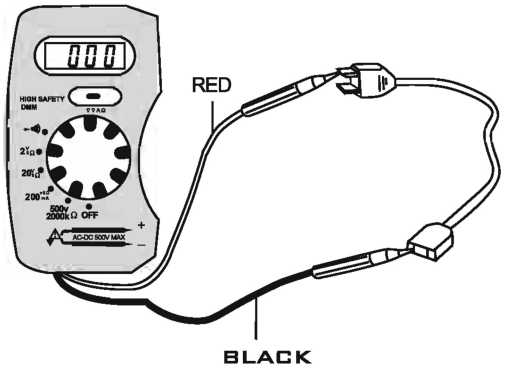
RESISTANCE MEASUREMENT

Set the function switch at Ω position.

Set the range switch at desired position.

If the resistor is connected to a circuit, turn off power and discharge all capacitors before applying test leads.

Connect test leads across the resistor to be measured and read resistance value on the display.



REPLACEMENT OF BATTERIES

When the batteries become exhausted or drop below the operation voltage, the sign ⊟ will appear on the left of the display.

Turn off the meter prior to replacing batteries.

Remove the cover and replace batteries, making sure that the proper polarity is observed. Close the cover and install the screw.

CAUTION

Do not operate instrument unless cover is installed back in place and fully closed.

REPLACEMENT OF FUSE

Fuse rarely need to be replaced and blow almost always as a result of operator 's error.

To replace fuse, remove the screw on the back case and open the case. Replace fuse with a new one of the same type.

Close the cover and install the screw.

CAUTION

Make sure that test leads are disconnected from the circuit under test and the range switch is in **OFF** position before opening the case. To prevent fire, install only fuse with the same ratings (250mA/250V).

NOTE

1. This manual is subject to change without notice.
2. Our company will not take the other responsibilities for any loss.
3. The content of this manual can not be used as the reason to use the meter for any special application.

DISPOSAL OF THIS ARTICLE

Dear Customer,
If you at some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled. Please do not discharge it in the garbage bin, but check with your local council for recycling facilities in your area.