ANALOG MULTIMETER
WITH SIDE ATTACHABLE TEST LEADS
OPERATION MANUAL

1.0 SAFETY RULES

- This meter is designed and tested in accordance with IEC publication 1010, pollution degree II and installation category (overvoltage category) II.
- This meter has been tested according to the following EC Directives:-
- 2004/108/EC(EMC: EN 61326-1 : 2006 EN 61326-2-2 : 2006)
- 2006/95/EC (LVD：EN 61010-1:2002；EN 61010-031: 2002+A1: 2008)
- This meter is designed to be indoor use at temperature 5℃ to 40 ℃ and altitude up to 2,000m.
- To ensure that the meter is used safely, follow all safety and operating instructions in this manual. If the meter is not used as described in this manual, the safety features of the meter might be impaired.

2.0 INTERNATIONAL SYMBOLS

⚠ Important Information see manual	High Voltage
~ AC	Ground
⎓ DC	⧈ Double Insulation

3.0 SPECIFICATIONS

3.1 General Specifications

Display	:Analog Display.
Switching range	:Manual Operation.
Operating temperature and humidity	:5℃ to 40℃,max. 75% RH.
Power source	:IEC Lr3 Single 1.5Volt AAA size battery..
Fuse	:5x20mm 250V/500mA Fast Acting.
Dimensions	:85(W)x 120(H)x30(D)mm.
Weight	:Approx,150g(including battery,holster and test leads)
Packing	:Complete with Operation Manual Blister pack and Battery.

3.2 Electrical Specifications

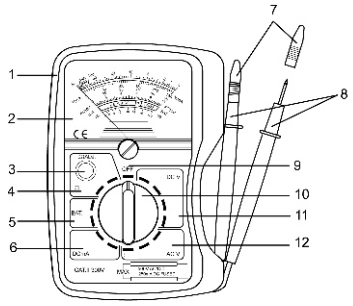
Accuracies are±(% of reading) at 23℃ ±5 ℃, max 75% RH.

DC Voltage	Range	10/50/250/500V
	Accuracy	±(5% of full scale)
	Sensitivity	2kΩ/V
AC Voltage	Range	50/250/500V
	Accuracy	±(5% of full scale)
	Sensitivity	2kΩ/V
DC Current	Range	25/250mA
	Accuracy	±(5% of full scale)
Resistance	Range	Rx10,x1k(measurement up to 1MΩ)
	Accuracy	±(5% of full arc)
Decibel	Range	4to 56(0dB 1mW 600Ω)
Battery Test	1.5V	125mA
	Accuracy	±(10% of full scale)
	9.0V	25mA
	Accuracy	±(10% of full scale)

Meter Resistance:2kΩ/V

4.0 PANEL DESCRIPTION

1.Case with protective holster
2.Analog display
3.Resistance zero adjustment knob
4.Resistance range
5.Battery test range
6.DC current range
7.Pin Cover
8.Attachable test leads with probes
9.Power off
10.Range switch
11. DC voltage range
12. AC voltage range



5.0 OPERATION

WARNING!

1) When measuring voltage ensure that the instrument is not connected or switched to a current or resistance range.Always ensure that the correct terminals are used for the type of measurement to be made.
2) Use extreme care when measuring voltage above 50V,especially from sources where high energy exists.
3) Avoid making connections to"live" circuits whenever possible.
4) When making current measurements ensure that the circuit is not"live" before opening it in order to connect the test leads.
5) Before making resistance measurements,ensure that the circuit under test is de-energized.
6) Ensure that no voltage.current applied to the input terminal when the selector switch is at the"Resistance"range.
7) Always ensure that the correct function and range is selected. If in doubt about the correct range, start with the highest and work downwards.
8) Extreme care should be taken when using the instrument to conjunction with a current transformer connected to the terminals,High voltage may be produced at the terminals if an open circuit occurs.
9) Ensure that test leads and probes are in good condition with no damage to the insulation.
10) Take care not to exceed the over-load limits as given in the specifications.
11) Fuse for replacement must be of the correct type and rating.
12) Before opening the case of the instrument to replace the battery or fuse, disconnect the test from any external circuit,set the selector switch to "OFF" Position.

5.1 DC Voltage Measurements

Set the Range switch to desired "DCV" range and connect the test leads across the sources or load under measurement. If the voltage range is not known before hand, set the range switch to the highest range and work down. Read the DC voltage reading on the "DCV" scale (Black color)

5.2 AC Voltage Measurements

Set the Range switch to desired "ACV" range and connect the test leads across the source or load under measurement, If the voltage range is not known before hand. set the range switch to the highest range and work down. Read the AC Voltage on the"ACV" scale (Red color)

5.3 Resistance Measurements

WARNING!
NEVER APPLY VOLTAGE/CURRENT TO INPUT TERMINALS ON THIS RANGE.
Set the Range to the desired "OHM" range,short two probes together and adjust the"0 Ω ADJ" knob to set the pointer to"0 " next to the resistance scale. If the pointer cannot be set to "0 ",replace the battery by a new one and set the pointer again. If the resistance being measured is connected to a circuit, turn off power and discharge all capacitors before applying test probes. Connect the test leads across the source of load under measurement. Read the resistance reading on the "OHMS" scale(Green Color), use proper multiply to get the correct value(R X 10, R x 1k), depending on the resistance range.

5.4 DC Current Measurements

WARNING!
NEVER MEASURE IN CIRCUITS WITH MORE THAN 240V NOMINAL VOLTAGE. DO NOT ATTEMPT TO READ AC CURRENT ON THIS RANGE.
Set the Range switch to the desired "DC mA" range, connect test leads IN SERIES with the load in which current is to be measured. If the current range is not known beforehand, set the range switch to the highest range and work down. Read the DC current reading on the " mA" scale (Black color)

5.5 Decibel Measurements

WARNING!
NEVER APPLY MORE THAN 500V AC/DC TO INPUT TERMINALS. EXCEEDING THESE THRESHOLD VALUES COULD LEAD TO EQUIPMENT DAMAGE OR PERSONNEL INJURY.
DISCONNECT TEST LEADS FROM UNIT UNDER TEST PRIOR TO SELECTING DIFFERENT MEASUREMENT RANGE.
Set the Range switch to the desired "AC V" range, connect test leads across the sources or load under measurement. For"10 V AC" Range read dB reading on the dB scale directly, but for other ranges, calculate the reading with the following table:-

dB Range	4 to 36	18 to 50	24 to 56
AC Range	50V	250V	500V
Add Value	0	14	20

Note: For Absolute dB measurement, circuit impedance must be 600Ω, 0dB = 1mW dissipated in a 600Ω load .
For the signal with DC component. Connect a capacitor with capacity > 0.1F between test probes and circuit under test.

5.6 Battery Check for 9.0V and 1.5V

Set the Range switch to the desired"BATT" Range connect the test leads across the battery under test, Read the reading on the "BATT" scales("RED"color for bad,"Green"color for good)

6.0 MAINTENANCE

⚠ CAUTION

BEFORE ATTEMPTING BATTERY AND FUSE REMOVAL OR REPLACEMENT, DISCONNECT TEST LEADS FROM ANY ENERGISED CIRCUITS TO AVOID SHOCK HAZARD.

6.1 FITTING AND REPLACING THE BATTERY AND FUSE

1) Ensure that the instrument is not connected to any external circuit ,set the selector switch to OFF position and remove the test leads from any live source.
2) Remove the screws on the bottom case. And lift bottom case.
3) Replace the battery of fuse with the same type and rating.
4) Reinstate the bottom case, tighten the securing screws.

6.2 CLEANING

Periodically wipe the case with a soft damp cloth and mild household cleanser. Do not use abrasives or solvents. Ensure that no water gets inside the equipment to prevent possible shorts and damage.

FOR TECHNICAL ASSISTANCE, PLEASE CONTACT:

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