DIGITAL MULTIMETER

INSTRUCTION MANUAL

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1. INTRODUCTION

NOTE

This meter has been designed and tested According to CE Safety Requirements for Electronic Measuring Apparatus, IEC / EN 61010-1 and other safety standards. Follow all warnings to ensure safe operation.

WARNING

READ "SAFETY NOTES" (NEXT PAGE) BEFORE USING THE METER.

CAT IV - Is for measurements performed at the source of the low voltage installation.

CAT III - Is for measurements performed in the building installation.

CAT II - Is for measurement performed on circuits directly connected to the low voltage installation.

2. SAFETY NOTES

- Read the following safety information carefully Before attempting to operate or service the meter.
- Use the meter only as specified in this manual. Otherwise, the protection provided by the meter may be impaired.
- Rated environmental conditions :
  (1) Indoor Use.
  (2) Installation Category III.
  (3) Pollution Degree 2.
  (4) Altitude up to 2000 meters.
  (5) Relative humidity 80% max.
  (6) Ambient temperature 0~40°C.
- Observe the International Electrical Symbols listed below :


Meter is protected throughout by double insulation or reinforced insulation.


Warning ! Risk of electric shock.


Caution ! Refer to this manual before using the meter.


AC... Alternating current.


DC... Direct current.

3. FEATURES

- 4000 - count LCD.
- Full automatic measurement.
  Voltage measurement.
  Current measurement.
  Resistor measurement.
  Frequency measurement.
- Range change function.
- Data Hold function.
- Continuity check.
- Diode measurement.
- Low battery indication.
- 40M Hz frequency counter.
- 3V DC power supply.
- Input impedance : 10 MΩ
- Safety Standard :
  EN 61010-1 CAT III 600V
  EN 61326-1
- To disable the auto-off function, press the "Range" key and turn on the digital multimeter at the same time.

4. SPECIFICATIONS (All at 23°C±5°C, ≤80%R.H)

AC Voltage :

Range	Resolution	Accuracy
400 mV	100 µV	±(1% rdg+5dgt)
4 V	1 mV	±(1% rdg+5dgt)
40 V	10 mV	±(1% rdg+5dgt)
400 V	100 mV	±(1% rdg+5dgt)
750 V	1 V	±(1% rdg+5dgt)

Input impedance : 10 MΩ

DC Voltage :

Range	Resolution	Accuracy
400 mV	100 µV	±(0.5% rdg+3dgt)
4 V	1 mV	±(0.5% rdg+3dgt)
40 V	10 mV	±(0.5% rdg+3dgt)
400 V	100 mV	±(0.5% rdg+3dgt)
1000 V	1 V	±(0.5% rdg+3dgt)

Input impedance : 10 MΩ

AC µA, mA & DC µA, mA :

Range	Resolution	Accuracy
400 µA	0.1 µA	±(1% rdg+5dgt)
4000 µA	1 µA	
40 mA	0.01 mA	±(1% rdg+5dgt)
400 mA	0.1 mA	

Overload Protection 0.5 A(250 V) fast blow fuse

DC AC 10A :

Range	Resolution	Accuracy
10 A	10 mA	±(2% rdg+3dgt)

Overload Protection 12.5 A(500 V) fast blow fuse

Resistance :

Range	Resolution	Accuracy
400 Ω	0.1 Ω	±(1.5% rdg+3dgt)
4 kΩ	1 Ω	±(1.5% rdg+3dgt)
40 kΩ	10 Ω	±(1.5% rdg+3dgt)
400 kΩ	100 Ω	±(1.5% rdg+3dgt)
4 MΩ	1 kΩ	±(1.5% rdg+3dgt)
40 MΩ	10 kΩ	±(2.0% rdg+4dgt)

Overload Protection 500V DC

Continuity Test :

Range	Audible threshold
400 Ω	Less than 25 Ω

Frequency Counter :

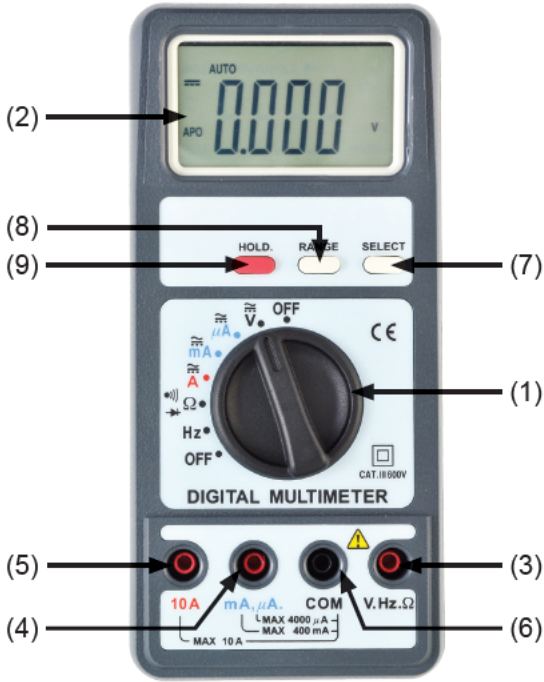
Range	Resolution	Accuracy
4k Hz	1 Hz	±(1% rdg+2dgt)
40k Hz	10 Hz	±(1% rdg+2dgt)
400k Hz	100 Hz	±(1% rdg+2dgt)
4M Hz	1k Hz	±(1% rdg+2dgt)
40M Hz	10k Hz	±(1% rdg+2dgt)

Overload Protection : 500V RMS

5. GENERAL

- **Dimensions :**
  192(L) x 88.5(W) x 45(D)mm
- **Weight :**
  Approx. 350g (batteries included)
- **Power source :**
  1.5V (AAA) battery x 2.
- **Low Battery Indication :**
  "BATT" sign appears on the display when the battery voltage drops below accurate operating level.
- **Accessories :**
  Instruction Manual
  Batteries
  Test leads
  Holster (Optional)

6. INSTRUMENT LAYOUT



(1) Function Switch
(2) LCD Display
(3) V. Hz. Ω Terminal
(4) mA. μA Terminal
(5) 10A Terminal
(6) COM Terminal
(7) Select Button
(8) Range Button
(9) HOLD Button

(1) Function selection rotary switch
The rotary switch selects the function.

(2) LCD Display
3999 count LCD with LOW BATTERY indication.

(3) Volt /Ohm/Frequency Terminal
This is positive input terminal for voltage / ohm / frequency measurement. Use the RED test lead to connect.

(4) μA / mA Terminal
This is positive input terminal for current. The Maximum is 4000uA for μA measurement. The Maximum is 400mA for mA measurement.

(5) 10A Terminal
This is positive input terminal for 10A current.

(6) COM Terminal
This is the ground input terminal. Use the BLACK test lead to connect.

(7) Select Button
For AC/DC function selection.
In the resistance + continuity + diode function, press the Select button to select resistance, continuity or diode function.

(8) Range Button

Press the Range button to selects the manual range mode and turns off the AUTO annunciator and turns on the manual annunciator and changes the full scale range. In manual range mode, each time press Range button (less than one second), the range increments and a new value is displayed. To exit the manual range mode and return to auto mode, press the RANGE button (More than one second).

(9) HOLD Button

Press the HOLD button (HOLD annunciator turns on) makes the meter stop updating the LCD display. This mode can be nested in most of the special modes. Enabling HOLD function in automatic mode makes the meter switch to manual mode, but the full scale range remains the same. HOLD function can be cancelled by changing the measurement mode, pressing range, or push HOLD again.

7. MEASUREMENT

Before proceeding with measurement , read the safety notes.

(1) Voltage measurement

Insert the BLACK test lead to COM and the RED One to the other terminal.

Switch to V function for ACV or DCV function. Use the test lead tip to the circuit and read the reading of display directly.

If the readings exceed AC 600V(DC 600V), maybe the reading value is wrong and it is dangerous. (Refer to the safety notes)

(2) Current measurement

Switch to mA / μA or 10A function for AC current or DC current measurement.

(3) Resistance measurement

Switch to OHM range and make sure there is no power in the circuit being measured. Insert the BLACK lead to the COM and the RED one to the OHM terminal.

Connect the test leads to the circuit or device under test and read the display directly.

(4) Continuity Check

Continuity check shares the same configuration with 400.0Ω manual resistance measurement mode, but with buzzer output to indicate continuity. The buzzer generates a 2kHz sound whenever the digit number less than 25Ω. Because the cycle time of measurement is only 50ms, the least significant digit will not display.

(5) **Diode measurement**

Diode measurement mode shares the same configuration with 4.000V manual voltage measurement mode.

If the test circuit is open or the voltage drop between the two ports of the device (diode) under test are larger than 2V, the LCD panel will show "OL".

The buzzer generates a 2kHz sound whenever the digit number is less than 0.25V. Because the cycle time of measurement is only 50ms, the least significant digit will not display.

(6) **Frequency measurement**

Switch to frequency measurement mode.

Insert the BLACK test lead to COM and the RED one to the Hz terminal.

Apply the test leads to the points across which the frequency is to be measured, and read the result directly from the display.

8. MAINTENANCE

Battery replacement :

When low battery warning appears, change new batteries as follows :

(1) Disconnect the test leads from the instrument and turn off power.
(2) Unscrew the case and replace new batteries.
(3) Close the case and lock the screw.

Cleaning and Storage :

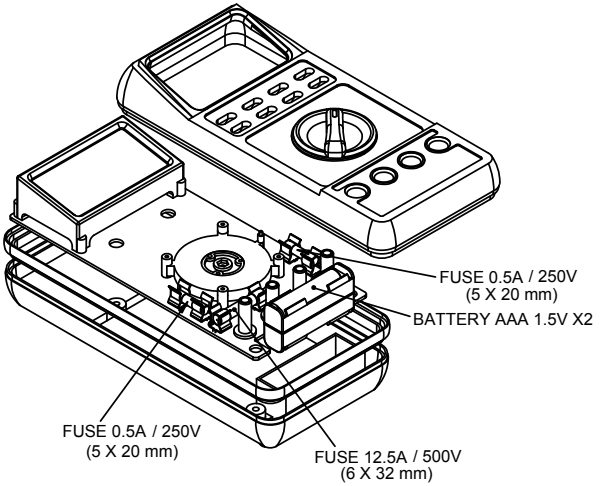
> ⚠ **WARNING**
> To avoid electrical shock or damage to the meter, do not get water inside the case.

Periodically wipe the case with a damp cloth and detergent. Do not use abrasives or solvents.
If the meter is not used for over 60 days, remove the battery for storage.

Due to our policy of constant improvement and development, we reserve the right to change specifications without notice.

9. FUSE REPLACEMENT

There are 3 fuses on the PCB.
0.5A for mA. Range and 12.5A for 10A range.
Another 0.5A for Volt / OHM / frequency range.
Open the meter case, then remove and replace the fuse.
Only replace with the same specification fuse.



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