

POCKET-SIZED
DIGITAL MULTIMETER
OPERATOR'S
INSTRUCTION MANUAL

Introduction

Congratulations on the purchase of your pocket size digital multimeter. With proper use and care, your digital multimeter will give you years of satisfactory service.

Safety Information

This meter has been designed according to EN 61010 concerning electronic measuring instruments with an over voltage category (CAT III) and pollution degree 2.

Follow all safety and operating instructions to ensure the meter is used safely and is kept in good condition.

Measurement category III is for measurements performed on circuits directly connected to the low voltage installation. (Examples are measurements on household appliances, portable tools and similar equipment).

During Use

Never exceed the protection limit indicated in the specifications for each range of measurement.

- Never use the meter to measure voltages that might exceed 600V above earth ground in category III installations.

- Always be careful when working with voltages above 60V dc or 30V ac rms. Keep your fingers behind the probe barriers while taking measurement.

- Do not perform resistance measurements on live circuits.
- Inspect test leads and probes for cracks, breaks or crazes in the insulation before using the meter.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by equipment may be impaired.

3. Safety Symbols

⚠ Important safety information, please refer to the instruction manual

⏏ Earth ground

☐ Indicates compliance with requirements for double insulation

⚡ Fuse must be replaced with ratings specified in the manual

~ AC (Alternating Current)

⎓ DC (Direct Current)

Maintenance

- Before opening the case, always disconnect the test leads from all energized circuits.
- For continuous protection against fire, replace fuse only with the following ratings: F 400mA/600V Ø 5 x 20 mm (fast blow).
- Never use the meter unless the back cover is in place and fastened completely.
- Do not use abrasives or solvents on the meter. Use a damp cloth and mild detergent to clean meter.

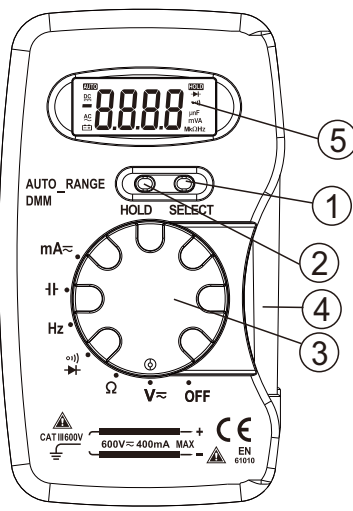
General Description

This compact digital multimeter is designed to measure AC and DC Voltages, AC and DC Current, Resistance, Diode and to perform audible Continuity checks with accuracy and ease.

Small and lightweight with a carrying case and integrated test leads, this instrument will provide you years of satisfactory service.

Auto power-off function extends the battery life. Meter automatically turns off after 30 minutes of inactivity.

Front Panel Description



①SELECT Button

Push button for selection of measuring function

②HOLD Button

Push button for data hold

③Function Rotary Switch

Rotary switch for function selection and turning meter ON/OFF

④Test Leads

Red test lead for positive (+) and black test lead for negative (-)

⑤LCD Display

3 ¼ digits, 7 segment, maximum 3999 counts

Specifications

Accuracy is guaranteed for 1 year, 23°C ± 5°C, less than 75% RH

DC Voltage

Range	Resolution	Accuracy
400mV	0.1mV	±0.8% of rdg ±3 dgts
4V	1mV	±0.8% of rdg ±3 dgts
40V	10mV	±0.8% of rdg ±3 dgts
400V	0.1mV	±0.8% of rdg ±3 dgts
600V	1V	±0.8% of rdg ±3 dgts

Overload Protection: 600 V DC or RMS AC for all ranges

Input Impedance: 10MΩ

AC Voltage

Range	Resolution	Accuracy
4V	1mV	±0.8% of rdg ±4 dgts
40V	10mV	±0.8% of rdg ±4 dgts
400V	0.1mV	±0.8% of rdg ±4 dgts
600V	1V	±1.2% of rdg ±4 dgts

Overload Protection: 600V DC or RMS AC for all ranges

Input Impedance: 10MΩ

Frequency Range: 50Hz to 400Hz, 50 to 60Hz for 400V and 600V ranges

Response: average responding, calibrated in RMS of a sine wave

DC Current

Range	Resolution	Accuracy
40mA	0.01mA	±2.0% of rdg ±3 dgts
400mA	0.1mA	±2.0% of rdg ±3 dgts

Overload Protection: F 400mA/600V fuse

AC Current

Range	Resolution	Accuracy
40mA	0.01mA	±3.0% of rdg ± 4 dgts
400mA	0.1mA	±3.0% of rdg ± 4 dgts

Overload Protection: F 400mA/600V fuse

Resistance

Range	Resolution	Accuracy
400Ω	0.1Ω	±1.0% of rdg ±3 dgts
4kΩ	1Ω	±1.0% of rdg ±3 dgts
40kΩ	10Ω	±1.0% of rdg ±3 dgts
400kΩ	0.1kΩ	±1.0% of rdg ±3 dgts
4MΩ	1kΩ	±1.0% of rdg ±3 dgts
40MΩ	10kΩ	±2.0% of rdg ±3 dgts

Maximum Open Circuit Voltage: 0.65V

Overload Protection: 600V RMS AC for all ranges

Frequency

Range	Resolution	Accuracy
10Hz	0.001Hz	±0.5% of rdg ±3 dgts
100Hz	0.01Hz	±0.5% of rdg ±3 dgts
1kHz	0.001kHz	±0.5% of rdg ±3 dgts
10kHz	0.01kHz	±0.5% of rdg ±3 dgts
100kHz	0.1kHz	±0.5% of rdg ±3 dgts

Overload Protection: 600V DC or RMS AC for all ranges

Sensitivity: 500mV RMS

Capacitance

Range	Resolution	Accuracy
4nF	0.001nF	±5% of rdg ±10 dgts
40nF	0.01nF	±4% of rdg ±5 dgts
400nF	0.1nF	±3% of rdg ±3 dgts
4uF	0.001uF	±3% of rdg ±3 dgts
40uF	0.01uF	±3% of rdg ±3 dgts
100uF	0.1uF	±3% of rdg ±3 dgts

Overload Protection: 600V RMS AC

Diode Test

Range	Description
➡	Show the approximate forward voltage drop of the diode

Overload protection: 600V RMS AC

Audible Continuity Test

Range	Description
•	Built-in buzzer sounds when resistance is less than 50Ω

Overload Protection: 600V RMS AC

General Specifications

Environment Conditions:

Pollution degree: 2

Altitude: up to <2000 m

Operating Temperature: 0 ~ 40°C (32°F ~ 104°F) (<80% RH, non-condensing)

Storage Temperature: -10 ~ 50°C (14°F ~ 122°F) (<70% RH, battery removed)

Max Voltage between

Terminals & Earth Ground:CAT III 600V

Fuse Protection: F 400mA/600V

Power Supply: 3V battery, SR44 or LR44 x 2

Display: LCD, 3999 counts, updates 2-3 seconds

Measuring Method: Dual-slope integration A/D converter

Over Range Indication:"OL" symbol displayed on LCD

Polarity Indication: "-" displayed for negative polarity

Low Battery Indication: indicator is displayed on LCD

Size: 120 x 70 x 18mm

Weight: Approx. 110g including batteries



Operating Instructions

DC Voltage Measurement

- Set the function switch at "V" position and push the "SELECT" button for DC voltage measurement.

- Connect test leads across the source or load under measurement. The polarity of red lead connection will be indicated at the same time as the voltage value.

AC Voltage Measurement

- Set the function switch at "V" position and push the "SELECT" button for AC voltage measurement.

- Connect test leads across the source or load being measured and read the voltage value on the LCD display.

DC Current Measurement

- Set the function switch at "mA" position and push the "SELECT" button for DC current measurement.

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

- Read the current value on the LCD display along with the polarity of red lead connection.

AC Current Measurement

- Set the function switch at "mA" position and push the "SELECT" button for AC current measurement.

- Open the circuit in which the current is to be measured and connect the test leads in series with the circuit and read the value on the LCD display

Resistance Measurement

- Set the function switch at "Ω" position. (Note: the polarity of the red lead is positive "+")
- Connect the test leads across the resistor to be measured and read the value on the LCD display.
- If the resistor being measured is connected to a circuit, turn off the power of the circuit and discharge all capacitors before applying test leads.
- When measuring resistance above 1MΩ, the meter will take a few seconds to get a stable reading. It is normal for high resistance measurement.

Frequency Measurement

- Set the function switch at "Hz" position.
- Connect the test leads across the source or load being measured and read the frequency value on the LCD display.

Capacitance Measurement

- Set the function switch at "Capacitance" position.
- Connect the test leads across the source or load being measured and read the capacitance value on the LCD display

Diode Test

- Set the function switch at position. (Note: the polarity of the red test lead is positive "+").
- Connect the red test lead to the anode of the diode to be tested and the black lead to the cathode of the diode.
- The approximate forward voltage drop of the diode will be displayed. If the connection is reversed, only the symbol "OL" will appear on the LCD display.

Audible Continuity Test

- Set the function switch at position and push "SELECT" button for continuity test.
- Connect the test leads to two points of the circuit to be tested. If the resistance is less than 50Ω, the buzzer will sound.

Data Hold Application

"HOLD" button is used to hold a measuring result. When this button is pushed, the LCD will keep the last reading until pushing this button again or rotating the function switch.

Battery and Fuse Replacement

If the sign appears on the LCD display, it indicates that the battery should be replaced. Remove the screw on the back cover and open the case. Replace the exhausted batteries (SR44 or LR44) with same type of batteries.

The fuse rarely needs replacement and blows almost always as a result of operator's error. Open the case and replace blown fuse with fuse of same ratings (F400mA/600V / Ø5 x 20mm).

Warning

- Before attempting to open the case, always be sure that the test leads have been disconnected from measurement circuit. Close case and tighten screw completely before using the meter to avoid electrical shock hazard.
- For protection against fire, replace the fuse only with the specified ratings: F400mA/600V / Ø5 x 20mm

Accessories

Batteries (SR44 or LR44), carrying case, test leads and instruction manual.

Caution

Using this appliance in an environment with a strong radiated radio-frequency electromagnetic field (approximately 3V/m) may influence its measuring accuracy. The measuring result can be strongly deviating from the actual value.

Warranty Clause

The Instruments warrants this instrument to be free of defects in parts and workmanship for one (1) year from date of shipment. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operating outside of specification, improper maintenance or repair, or unauthorized modification. The Instruments specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be held liable for any direct, incidental or consequential damages. The Instruments total liability is limited to repair or replacement of the product.

说明书折页后大小：100*70mm