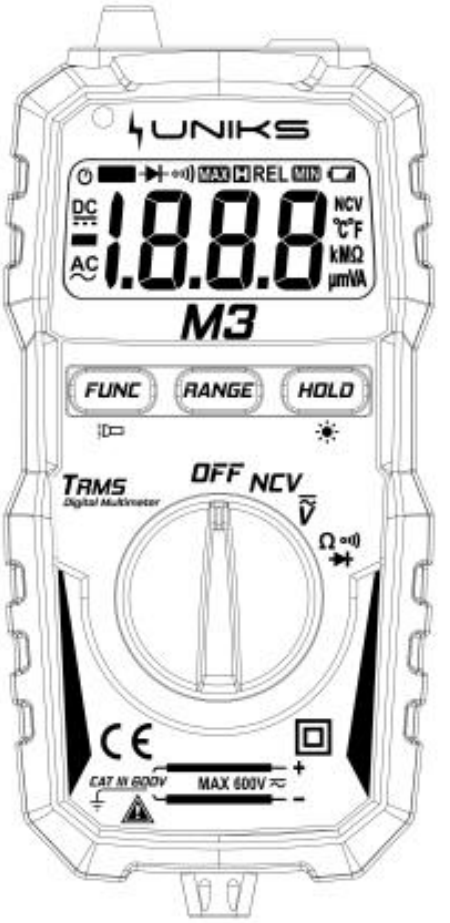

User Manual

M3 Mini Digital Multimeter

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Statement

Overview

This portable digital multimeter has stable performance, high accuracy, low power consumption and novel structure, which is safe and reliable, making it an ideal measuring instrument for most users.

This instrument can measure DC voltage, AC voltage, resistance, diode and continuity. Non-contact voltage detector promptly reminds users to pay attention to safety in operation for a secure use.

This manual includes relevant safety information and warnings. Please read the relevant contents carefully before use and strictly abide all warnings and cautions.

Safety Information

This measuring instrument is designed and produced strictly in accordance with the safety requirements for IEC61010 and meets the double insulation over-voltage standard CAT III 600V and pollution degree II. Failure to use the instrument as described in this user manual can weaken or negate the protections provided.

Safe Work Procedure

 **WARNING**

In order to avoid possible electric shock or personal injury, please strictly comply with the following instructions:

- Please read the "Safety Instructions" before use. Use the instrument in strict accordance with the regulations. Failure to use the instrument as described in this user manual can weaken or negate the protections provided
- Inspect the case before using the meter. Check for cracks or defective plastic parts. Pay attention to the insulation around the connectors.
- Do not use the meter if it is not working properly or is damaged.
- Do not touch conductors when measuring voltages greater than 30V AC (true RMS), 42V AC (peak) or

60V DC.

- The meter should be used in accordance with the specified measurement category, voltage or battery operating voltage.
- Please replace the battery promptly when low battery symbol is displayed to prevent measurement errors.
- Please follow local and national safety regulations. Wear personal protective equipment (approved rubber gloves, masks, flame-retardant clothing, etc.) to prevent injury from electric shock and arcing when dangerous live conductors are exposed.
- Do not apply signals greater than those specified between any two terminals or any terminal and ground.
- Measure a known voltage to determine if the meter is operating properly.
- Use the proper terminals, function, and range for your measurements.
- Do not store or use the instrument in an explosive or flammable environment or an environment characterized by high temperature, high humidity, or strong electromagnetic fields.
- Do not use test leads that have been damaged. Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity.
- When measuring, please connect the neutral or ground wire first, and then the live wire. When

disconnecting, please cut off the live wire first, then the neutral or ground wire.

- Keep fingers behind the finger guard on the test leads to avoid electrical shocks when measuring.
- Disconnect the test leads from any source of voltage before removing the back cover.
- Do not use the meter in an environment that exceeds the measurement category (CAT) rating of the lowest rated individual component of the meter, test leads, or accessories.

Safety Symbols

⚠ Note (important security information, see the Instruction Manual).

Able to be used on dangerous electrified conductors.

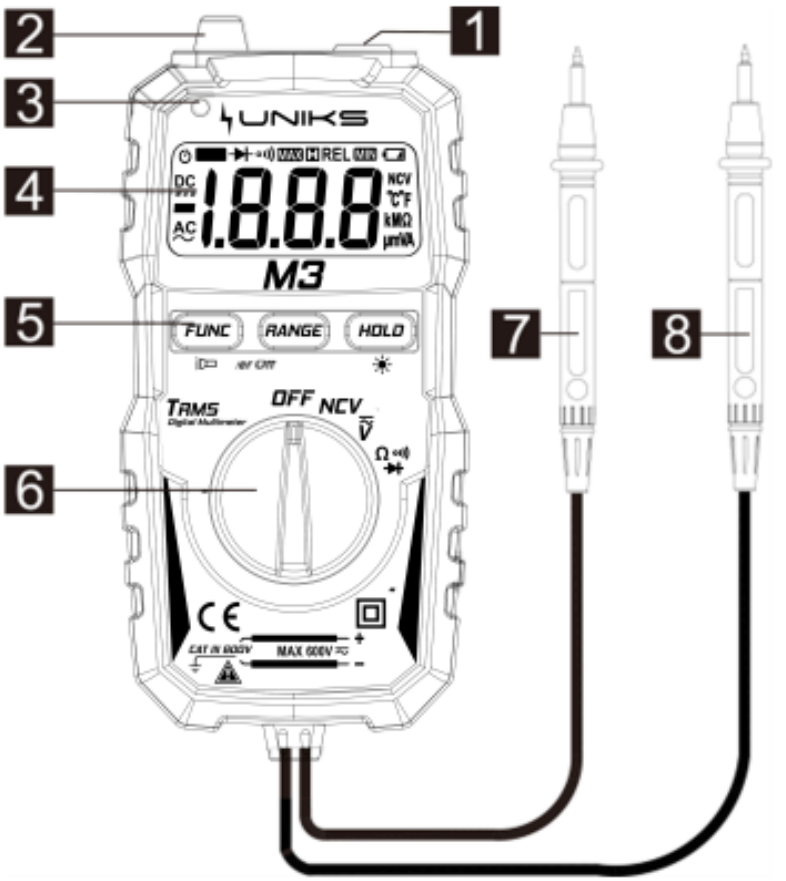
Dual- insulation protection (Category II).

CAT II ,CAT III follow the over-voltage (Setup) level III、IV of IEC-61010-1 standard and pollution degree 2 means the impulse withstand voltage level of protection provided.

CE In line with the European Union (EU) Standard.

⏚ Grounded

Meter Description



① Backlight

② Non-contact voltage induction zone

③ Non-contact voltage induction indicator

④ Display

⑤ Button

⑥ Function switch

⑦ Red test lead

⑧ Black test lead

FUNC/ Function selection button and backlight button. Press and hold it for 2 seconds to turn on the backlight. You can press and hold it again for 2 seconds to turn it off manually.

RANGE Range selection button. Press short to enter the manual range selection, and press short again to switch to the next range. Press and hold for 2 seconds to return to auto-range mode.

HOLD/ Data hold button. Press and hold it for 2 seconds to turn on the backlight. It will go off automatically after about 15 seconds, or you can press and hold it for 2 seconds to turn it off manually. The meter will automatically turn off to save power, when there is no operation within 15 minutes. Press and hold the FUNC/ button to turn on the meter, and the auto-off function will be canceled. In the auto-off state, the meter will turn on automatically by pressing the button FUNC/ or dialing the switch.

Measuring Procedure

Non-Contact Voltage Test

1. Turn the function switch to the NCV position.
2. Place the non-contact voltage induction zone of the meter close to the live wire of the AC voltage.
3. The non-contact voltage induction indicator will light up and you will hear the beep sound, indicating

that there is AC voltage on the live wire.

Note: The strength of the induction signal is affected by distance and insulation. Please do not rely entirely on the NCV function to determine the presence or absence of electricity.

AC/DC Voltage Measurement

1. Set the function switch to the $\tilde{\overline{V}}$ position and press the FUNC/ button to select DC or AC voltage measurement function.
2. Connect the test probes to each end of the voltage to be measured.
3. Read the measurement results from the display. When measuring DC voltage, the display also shows the voltage polarity of the test point of red test probes.

⚠WARNING

- **The input voltage should not be higher than 600V RMS. It is possible to display higher voltage values, but there is a risk of damage to the meter.**
- **Be extra careful when measuring voltages greater than 36V to avoid electric shock.**
- **After completing the measurement operation, disconnect the test leads from the circuit under test.**

Resistance Measurement

1. Set the function switch to the position and press the FUNC/ button to select resistance measurement function.

2. Connect the test probes to each end of the resistance to be tested.

3. Read the measurement result from the display.

⚠WARNING

- **To prevent possible electric shock, fire, or personal injury, please disconnect power supply from the circuit under test and fully discharge all high-voltage capacitors before measuring resistance.**
- **After completing the measurement operation, disconnect the test leads from the circuit under test.**

Diode Test

1. Set the function switch to the  position and press the  button to select diode test function.

2. Connect the red test probe to the anode of the diode to be measured and the black test probe to the cathode of the diode to be measured.

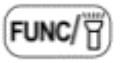
3. The reading on the display is an approximation of the forward voltage drop of the diode. Reverse connection will show "**OL**"

⚠WARNING

- **To prevent possible electric shock, fire, or personal injury, please disconnect power supply from the circuit under test and fully discharge all high-voltage capacitors before measuring diodes or continuity.**

- **If the diode under test is in the open circuit or the polarity is reversed, the meter will display "OL".**
- **After completing the measurement operation, disconnect the test leads from the circuit under test.**

Continuity Test

1. Set the function switch to the  position and press the 

button to select continuity test function.
2. Connect the test probes in parallel to each end of the measured circuit. The buzzer will sound, when the resistance of the measured circuit is less than 35Ω.

Note: The buzzer may make a slight sound at 35Ω ~100Ω.

⚠WARNING

- **To prevent possible electric shock, fire or personal injury, disconnect power to the circuit to be measured and fully discharge all high voltage capacitors before measuring diodes or continuity.**
- **After completing the measurement operation, disconnect the test leads from the circuit under test.**

General Specifications

Operating environment condition:
IEC/EN 61010-1 600V CAT III; Pollution Degree II

Altitude < 2000 m

Operating temperature and humidity: 0~40℃ (<80% RH, not considered when <10℃)

Storage temperature and humidity: -10~60℃ (<70% RH without battery)

Temperature coefficient: 0.1 x Accuracy / ℃

Maximum voltage allowed between measurement terminal and ground: 600V DC or AC RMS

Sampling rate: approx. 3 times per second

Display: 3 1/2 digits LCD

Over-range indication: "OL" is displayed

Battery low voltage indication:  is displayed

Input polarity indication: "-" is automatically displayed

Power supply: 2 x 1.5V AAA batteries

Dimension: 128 x 61 x 25 mm

Accuracy

Accuracy is applicable within one year after calibration.

Reference conditions: ambient temperature 18°C~28° C, RH<80%

DC Voltage

Range	Resolution	Accuracy
200mV	0.1mV	±(0.8%rdg+5dgt)
2V	0.001V	
20V	0.01V	
200V	0.1V	±(1.0%rdg+5dgt)
600V	1V	

Input impedance: Approx. 10MΩ.

Maximum input voltage: 600V DC or AC RMS

AC Voltage

Range	Resolution	Accuracy
2V	0.001V	±(1.2%rdg+5dgt)
20V	0.01V	
200V	0.1V	
600V	1V	

Input impedance: Approx. 10MΩ.

Maximum input voltage: 600V DC or AC RMS

Frequency: 40Hz~1000Hz

Note: Excessive input voltage may burn out the load

resistance.

Resistance

Range	Resolution	Accuracy
200Ω	0.1Ω	±(0.8%rdg+3dgt)
2kΩ	0.001kΩ	
20kΩ	0.01kΩ	
200kΩ	0.1kΩ	
2MΩ	0.001MΩ	
20MΩ	0.01MΩ	

Over voltage protection: max. 600V DC or AC RMS

Diode

Function	Range	Resolution	Test environment
Diode 	2 V	0.001V	Open circuit voltage: approx. 2.4V. The display shows the approximate value of the forward voltage drop of the diode.

Over voltage protection: max. 600V DC or AC RMS

Continuity

Function	Description	Test environment
	The buzzer beeps when the measured resistance value is less than 35Ω.	Test current: about 1mA; Open circuit voltage: about 2.4V.

Over voltage protection: max. 600V DC or AC RMS

Maintenance

Disclaimer: Do not attempt to repair this meter unless you are an experienced repairer and have relevant calibration, performance test and maintenance materials at hand.

⚠**WARNING**

- **Do not use the meter for any measurement operation while the case is open.**
- **Remove the input signal and turn off the meter before cleaning.**
- **Replace with specified parts. Let a professional technician repair the meter.**

General Maintenance

Clean the case with a damp cloth and a small amount of detergent. Do not use abrasives or chemical solvents.

Battery Replacement

⚠ WARNING

- **To avoid electric shock or personal injury caused by incorrect readings, the battery should be replaced promptly when the "  " symbol appears on the display.**
- **Please remove the batteries when the meter is not in use for a long period of time to prevent damage to the product due to battery leakage.**
- **To avoid electric shock or personal injury, please turn off the meter and check if the test leads are disconnected from the measurement circuit, before opening the back cover to replace the battery.**

Please follow the steps below to replace the battery:

1. Turn off the meter.
2. Disconnect the test leads from the circuit to be measured.
3. Loosen the screw of the back cover with a screwdriver and remove the back cover.
4. Remove the old batteries and replace them with new ones.
5. Put on the back cover and tighten the screws.

ASSISTANCE

WARRANTY CONDITIONS

This instrument is warranted against defects in materials and workmanship, in accordance with the general terms and conditions. During the warranty period, defective parts can be replaced, but the manufacturer reserves the right to repair or replace the product. If the instrument is to be returned to the after - sales service or to a dealer transportation is borne by the customer. The shipment must, however, be agreed. Attached to dispatch an explanatory note about the reasons of the instrument must always be inserted. For shipping only use the original packaging. Any damage caused by the use of non-original packing shall be charged to the customer. The manufacturer accepts no responsibility for damage caused to people or objects.

The warranty does not apply in the following cases:

- Repair and / or replacement of accessories and battery (not covered by

warranty).

- Repairs made necessary because of a misuse of the instrument or of its use with no compatible devices.
- Repairs made necessary due to improper packaging.
- Repairs made necessary due to work carried out by unauthorized personnel.
- Modification of the instrument without the explicit permission of the manufacturer.
- Use not provided for in the specifications of the instrument or in the instruction manual.

Our products are patented and their trademarks. The manufacturer reserves the right to change specifications and prices if this is due to technological improvements.

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