UNIKS


# M8

## TRMS Digital Multimeter

## User Manual

## REGISTER YOUR PRODUCT

**www.uniks.it**

The registration of your products will allow you to stay informed about news, take advantage of advantageous discounts dedicated to you for the purchase of accessories and products for your daily work.

Registration is free

## Overview

This instrument adopts a LCD monitor with backlight, so that the values can be clearly read even at a dark piace. It is a compact handheld digital multimeter (4000 counts) with high performance and reliability. It uses integrate circuit and A/D converter as the core, equipped with overload protection circuit. It can be used to measure AC/DC voltage, DC current, resistance, diode and continuity tests, which is regarded as an ideal tool for laboratories, factories and electronics enthusiasts.

## Safety Information

This digital multimeter is designed in accordance with IEC61010-1 CAT lll 600V and Pollution Grade 2.
Please read the instructions carefully far the purpose of correct and safe use of the instrument.

## Safety Signs

| | |
|---|---|
|  | Important safety information; refer to the instruction manual. |
|  | Danger of high voltage. |
|  | Unrecyclable. |
|  | The fuse must be replaced according to the specifications specified in the instructions. |

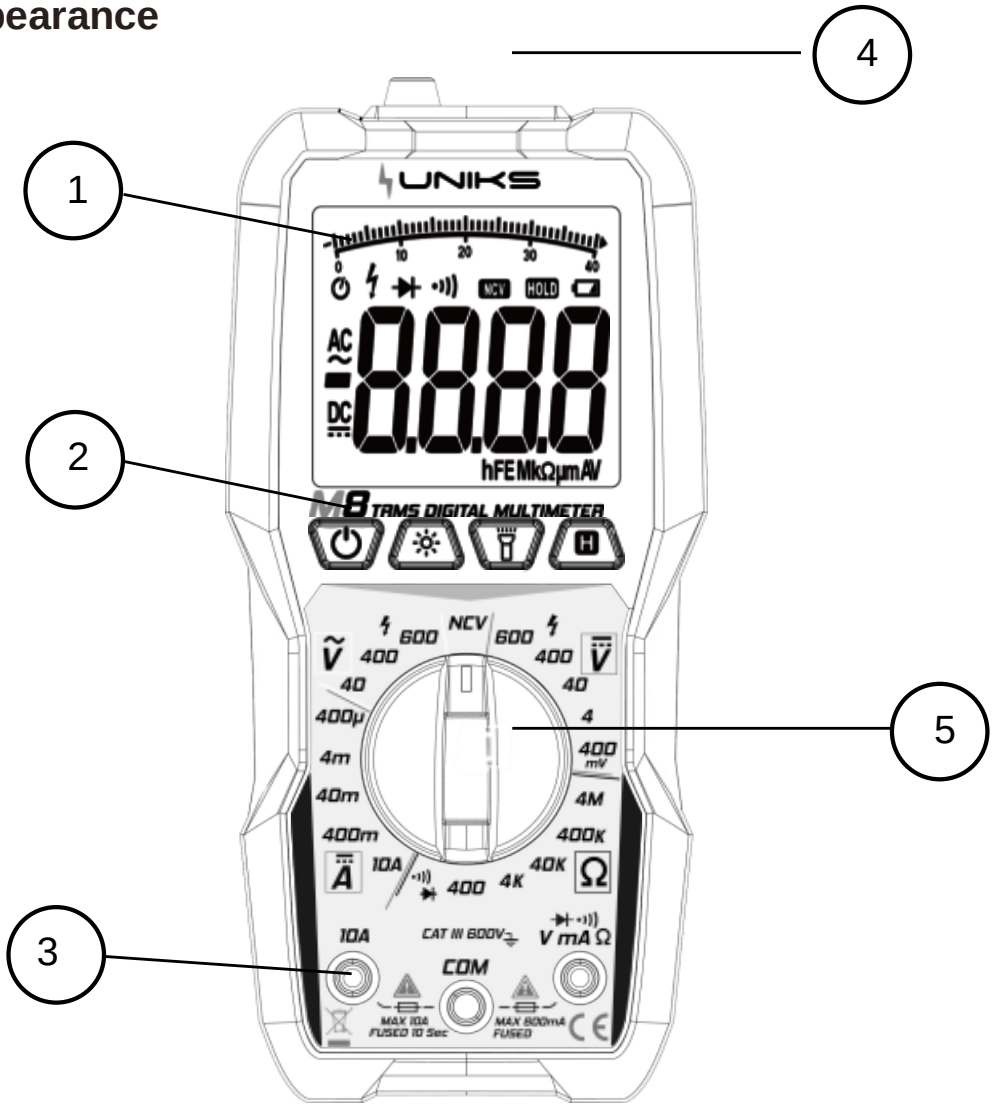
## Precautions for Use

1. The instrument can only be used together with the test pen provided, which meet the requirements of safety standards. The test pen that is damaged or needs to be changed must be replaced with a test pen of the same model or specification.
2. The input limits specified for each range shall not be exceeded.
3. The unused input ends shall not be touched when the meter is measured.
4. The function range switch shall be set to the maximum range when the

measured range is unknown in size.Keep the test pen from the circuit under test before the function range is switched.

5. Power off the circuit and discharge all the capacitors before in-circuit resistance measuring.
6. Please be careful not to put your fingers beyond the hand-blocking part of the test pen when measuring voltage over 60VDC or 30VAC.
7. Please note that the high voltage pulse in the circuit may damage the internal circuit of the instrument when measuring a TV set or switching power supply, so keep careful in operation.
8. It can't be used in any environment where high concentration of flammable dust or flammable gas exists, in order to prevent the electronic components from generating electric sparks that ignite the dust and gas or lead to explosion in some rare cases.

## 1. Appearance



## 1.1 Description of the instrument

① **LCD screen:**7-segment LCD monitor with 4000 counts and the function of analog bar indication.

② **Button area:**

Power button:

Press the button  once to power on and press it again to power off. (It will automatically power off after 15-minute no-operation because it has an auto sleep function.)

Backlight button:

Press the button  to turn on the backlight and press it again to turn off. (Note: The backlight is not bright enough in case of 1ow battery).

Flashlight button:

Press the button  to enable the flashlight function and press it again to turn *off.* (Note: The flashlight is not bright enough in case of low battery).

Data hold button:
After press the button  in the measurement, the last readings and the symbol HOLD will be shown on the instrument; press the button again, and it will return to the normal measurement state. 

③ **Jack area**


10A jack:
Positive input end for 400mA-10A current measurement (connected to the red probe).


COM jack:
Common input end for all measurements (connected to the black probe).


Jack V:

Positive input end for voltage, resistance, diode, buzzer, current measurement within 400mA (connected to the red probe).

④ NCV inducing area

⑤ Function range switch:

Used for selection of functions and ranges.

## 1.2 Description of LCD Symbol


| | |
|---|---|
| | **Auto power-off** |
| | **Danger of high voltage** |
| | **Diode measurement** |
| | **On-off measurement** |
| NCV | **NCV measurement** |
| HOLD | **Data hold** |
| | **Battery under voltage** |
| AC | **AC voltage/current** |
| DC | **DC voltage/current** |

## 2. Technical specification

Degree of accuracy: % of reading numbers; the warranty period is 1 year from the date of delivery.
Ambient temperature: 18°C-28°C. Ambient humidity: <80%.

**DC Voltage**

| Range | Resolution | Degree of accuracy |
|---|---|---|
| 400mV | 100μV | ±(0.8% +2 digits) |
| 4V | 1mV | ±(0.8% +2 digits) |
| 40V | 10mV | ±(0.8% +2 digits) |
| 400V | 100 mV | ±(0.8% +2 digits) |
| 600V | 1V | ±(1.0% +2 digits) |

**DC Current**

| Range | Resolution | Degree of accuracy |
|---|---|---|
| 400μA | 0.1μA | ±(1.0% +2 digits) |
| 4mA | 1μA | ±(1.0% +2 digits) |
| 40mA | 10μA | ±(1.5% +2 digits) |
| 400mA | 10μA | ±(1.5% +2 digits) |
| 10A | 10mA | ±(3.0% +2 digits) |

Overload protection: F400mA/250V fuse; F10A/250V fuse.

**AC Voltage**

| Range | Resolution | Degree of accuracy |
|---|---|---|
| 40V | 10mV | ±(1.2% +10 digits) |
| 400V | 100mV | ±(1.2% +10 digits) |
| 600V | 1V | ±(1.2% +10 digits) |

Frequency range: 40Hz-400Hz. Display: average value (RMS value of sine wave).

**Resistance**

| Range | Resolution | Degree of accuracy |
|---|---|---|
| 400Ω | 0.1Ω | ±(0.8% +3 digits) |
| 4KΩ | 1Ω | ±(0.8% +3 digits) |
| 40KΩ | 10Ω | ±(0.8% +3 digits) |
| 400KΩ | 100Ω | ±(0.8% +3 digits) |
| 4MΩ | 1KΩ | ±(1.0% +3 digits) |

Maximum open circuit voltage: 1.2V Overload protection: PTC 600V DC or AC RMS value.

**Diode and Continuity**

| Function | |
|---|---|
|  | The on resistance is about less than 50Ω, and the buzzer is buzzing in the instrument. |
|  | The approximate forward voltage value of diode is displayed. |

Maximum open circuit voltage: 2.1V

# 3. How to Use

### 3.1 Precautions for operation:

1. Power on and check whether the battery ìs under voltage or not. If the symbol is displayed, the battery needs to be replaced; otherwise, please follow the following steps.
2. The warning symbc next to the test pen jack indicates that the input voltage or current should not exceed the indicated value, in order to protect the internal circuit from damage.
3. Set the function range switch as needed before testing.
4. The instrument has an auto power-off function. It will automatically shut down after about 15-minute no-operation. Canee! the auto power-off function: Press the Hold button to turn on, then the warning tane "Di! Di!" will be heard from the buzzer far several times, and the symbol is not displayed on the LCD screen. It can prevent the instrument from tne dormant state in the measurement process.
5. The backlight function will automatic turn off about 15 seconds after being turned on. Please press the button again if needed.
6. The flashlight function will automatically turn off about 20 seconds after being turned on. Please press the button again if needed.

### 3.2 DC voltage measurement

1. insert the red probe into the jack VΩmA and the black probe into the jack "COM".
2. Set the function range switch to the range V and connect the test pen to the power supply or load to be measured. The polarity and measured value of the end connected with the red probe will be displayed on the screen simultaneously.

**Attention**

1. If the measured voltage range is unknown in advance, please the function range switch to the maximum, and then reduce it gradually far a satisfactory resolution.
2. The test pen should keep away from the circuit under test before the function
3. The monitor that only displays OL indicates an overrange state, and the function range switch should be set to a higher range.
4. Please do net input voltage higher than 600V that may damage the internal circuit of the instrument.
5. Please pay special attention to avoid electric shock when measuring high voltage.

### 3.3 AC voltage measurement

1. insert the red probe into the jack VΩmA and the black probe into the jack"COM"
2. Set the function range switch to the range Ṽ and connect the test pen to the power supply or load to be measured. The measured value will be displayed on the screen.

Note: See the precautions far DC voltage measurement 1, 2, 3, 4 and 5.

### 3.4 Direct current measurement

1. Insert the probe into the jack "COM". insert the red probe into the jack VΩmA when the measured current does not exceed 400mA. Insert the red probe into the 10A jack when the measured current is between 400mA and 10A.
2. Set the functional range switch to the required A⎓ range and connect the test pen to the load under test in series. The polarity and current value of the end connected with the red probe will be displayed on the screen simultaneously.

**⚠ Attention**

1. If the measured current range is unknown in advance, please the function range switch to the maximum, and then reduce it gradually far a satisfactory resolution.
2. The test pen should keep away from the circuit under test before the function range is switched.
3. The monitor that only displays ***OL*** indicates an overrange state, and the function range switch should be set to a higher range.
4. The symbol next to the ⚠ jack of the test pen indicates that the maximum input current of 400mA or 10A depends on the jack used. Excessive current will burn out the fuse.

### 3.5 Resistance measurement:

1. Insert the probes into the jack "COM" and the red probe into the jack VΩmA
2. Set the function range switch to the required range, connect the probe to the resistance under test, and read the measurement results on the screen.

**Attention**

1. It shows an overrange state when the measured resistance exceeds the maximum value in the selected range. In this case, a higher range **OL** should be selected. The readings may keep stable in a few seconds when measuring resistance above 1M. It's normal for high resistance measurements.
2. When there is no input, the instrument shows **OL**.
3. All the power source in the circuit under test must be cut off at first when checking the in-circuit resistance, and all the capacitors should be fully discharged.

### 3.6 Diode measurement

1. Insert the probes into the jack "COM" and the red probe into VΩmA ; the polarity of the red probe is "+" at this time.
2. Set the functional range switch to the diode buzzer range, and connect the red probe to the measured diode anode and the black probe to the cathode. The approximate forward voltage drop value of the measured diode is displayed on the screen.

### 3.7 Continuity circuit measurement

1. Insert the probes into the jack "COM" and.
   me red probe into the jack VΩmA
   Set the functional range switch to the rai
2. Connect the probes to two points on the circuit under test. If the resistance between the two points is less than about 50Ω, the built-in buzzer will make a sound indicating the continuity between the two points.

### 3.8 Non-contact voltage measurement

1. Set the functional range switch to the **NCV** position.
2. Move the **NCV** inducing area gradually erose to the lead to be measured, as shown in the figure.
3. The buzzer will make a sound when AC voltage is measured.

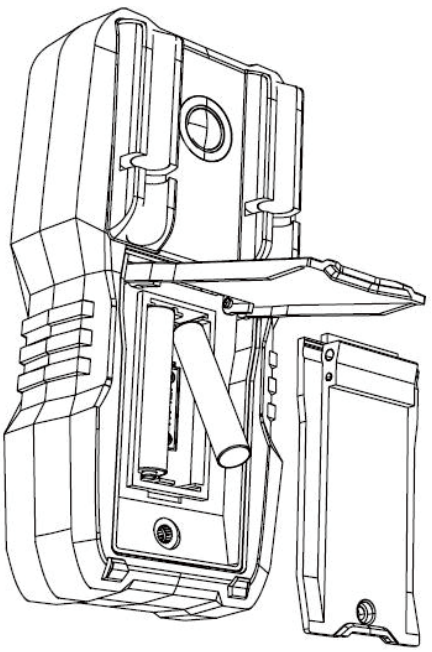
**warning**

1. Check and confirm that the test pen has kept off the circuit under test, in order to avoid electric shock.
2. Check and confirm that the rear cover is tightly fixed before use.

## 4. Maintenance

1. Keep the test pen away from the circuit under test before opening the rear cover of the instrument.
2. The fuse should be replaced in the same specifications.
3. Please do not use it before the rear cover is in piace and the screw is tightened.
4. The instrument can be only cleaned with wet cloth and a small amount of detergent. Please do not wipe the shell with chemical solvent.
5. Please stop using the instrument immediately and send it for repair if there is anything abnormal.

## 5. Replacement of Battery and Fuse



### 5.1 Replacement of battery

Replacement of battery: **If** the symbol appears on the LCD screen in use, it is necessary to replace the battery lest the instrument should not work normally.

1. Unplug the test wire and power off.
2. Open the battery cover on the back with a screwdriver and take out the battery.
3. Put in the battery of the same specification and fix the cover.

### 5.2 Replacement of fuse

1. Unplug the test wire first and power *off.*
2. Open the rear cover with a screwdriver and take out the damaged fuse.
3. Insert a fuse of the same specification. Tighten the screw after fixing the rear cover.

warning

1. Measurement range: 80V-600V AC, S0Hz or 60Hz.
2. Voltage may exist in use even when there is no sound or light alarm. The instrument may fail to sense the electric field due to other factors such as shielded wire and cable, thickness of insulating layer, distance from voltage source, and differences of socket design

## 6.General specification

| | |
|---|---|
| Voltage input end and maximum voltage: | CAT lll 600V |
| Cartridge fuse: | F400mA/250V F10A/250V |
| Power supply: | 1.5 V AAA batteries x 2 |
| Maximum display: | 3999 |
| Overrange indication: | OL |
| Auto power-off: | about 15 minutes |
| Polarity display: | negative polarity displays - |
| Power undervoltage indication: | |
| Operating temperature: | 0-40°C |
| Storage temperature: | -10°C-50°C |
| Dimension: | 166mm X 78mm X 48mm |
| Weight: | about 268g |

## 7.List of Accessories

- Manual instructions X1
- Test probe X 2
- 1.5V AAA battery X2
- Bag

### 8. 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.

## 9. ASSISTANCE

If the instrument does not operate properly, before contacting the Customer Service, check the status of the battery and wear of the cables and replace them if necessary. If the instrument continues to manifest malfunctions check if the procedure of use of the same is in accordance with what is indicated in this manual. 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.


**Uniks Srl**

***https://www.uniks.it***
**info@uniks.it**

Via Vittori 57
48018 Faenza (RA), Italy
0546.623002
0546.623691