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## 1. The Statement

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### 1.1 Safety Statement



“Caution” mark refers to the condition and operation which may cause damage to the instrument or equipment.

It requires that you must be careful during the execution of the operation. If incorrectly perform the operation or do not follow the procedure, it may damage the instrument or equipment. In the circumstances that such conditions are not met or not fully understood, please do not continue to perform any operation indicated by the caution mark.



“Warning” mark indicates the condition and operation which may cause danger to users.


It requires that you must pay attention during the execution of this operation. If incorrectly perform the operation or do not follow the procedure, it may result in personal injury or casualties. In the circumstances that such conditions are not met or not fully understood, please do not continue to perform any operation indicated by the warning mark.

Before using the instrument, please read this manual carefully and pay attention to the relevant safety warning information.

## 1.2 Safety Instructions

The instrument is designed in accordance with the safety requirements on electronic measurement instruments in International Electrical Safety Standards EN61010. The instrument is designed and manufactured strictly in accordance with provisions in EN61010-1 CAT III/1000V, over-voltage safety standard CAT IV/600V and pollution level 2.












## 1.3 Safety Operation Specifications

 **Warning: In order to avoid possible electric shock or personal injury and other safety accidents, please abide by the following specifications:**

- ⇒ Before using the instrument, please read this manual carefully, and pay attention to the safety warning information.
- ⇒ Check whether there are any cracks or damage on the plastic parts of the outer cabinet before using the instrument, if any, please do not use it.
- ⇒ Before using the instrument, please check whether the instrument works properly, if it's not or it has been damaged, please do not use.
- ⇒ Before using the instrument, please carefully check the insulator around the input terminals of the instrument, please do not use if any damage.
- ⇒ Before using the instrument, please check whether there's any crack or damage on the probe, if any, please replace the probe with same specifications.
- ⇒ Before using the instrument, please check whether there's any damage, metal exposed or sign of wear on the insulating layer of the probe, check the connectivity of the probe, if any damage, please do not use.
- ⇒ Before using the instrument, please use it to measure a known voltage to verify whether the instrument works properly.
- ⇒ Use the instrument strictly in accordance with the operation in the manual, otherwise the protection function provided by the instrument may be damaged or weakened.

- ⇒ The instrument shall be used in accordance with the specified measurement category, voltage or current rating.
- ⇒ Please comply with local and national safety code. Wear personal protection equipment (such as approved rubber gloves, masks and flame retardant clothes, etc.) to prevent being damaged by electric shock and electric arc due to exposed hazardous live conductor.
- ⇒ Before connecting the instrument to the circuit under test, be sure to choose the correct input terminal and switch position.
- ⇒ The voltage applied between input terminals or between any terminal and earth point cannot exceed the specified ratings of the instrument.
- ⇒ Please be careful if the measurement exceeds 30V AC true RMS, 42V AC peak or 60V DC. There may be danger of electric shock at this kind of voltage.
- ⇒ When it shows low battery indicator, please replace the battery in time in case of any measurement error.
- ⇒ Do not use the instrument around explosive gas, steam or in wet environment.
- ⇒ When using the probe, please put your fingers behind the finger protector of the probe.
- ⇒ When measuring, please connect the zero line or the ground line firstly, then connect the live wire; but when disconnecting, please disconnect the live wire firstly, then disconnect the zero line and ground line.  
Before opening the outer cabinet or battery cover, please remove the probe on the instrument. Do not use the instrument in the circumstances that the instrument is taken apart or battery cover is opened.
- ⇒ It only meets the safety standards when the instrument is used together with the supplied probe. If the probe is damaged and needs to replace, the probe with same model number and same electrical specifications must be used for replacement.

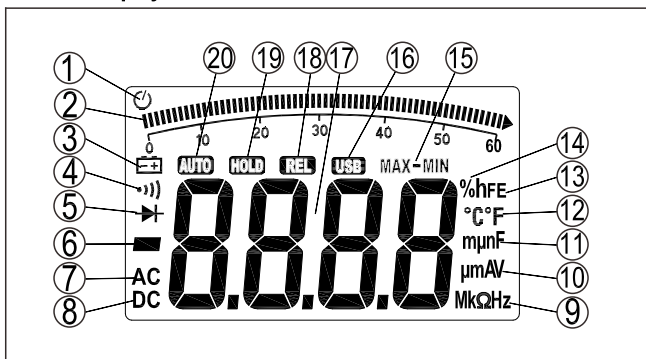
## 1.4 Safety Symbols

	High voltage warning
	AC (Alternating current)
	DC (Direct current)
	AC or DC
	Warning, important safety signs
	Ground
	Fuse
	Equipment with double insulation or reinforced insulation protection
	Battery undervoltage
	Product complies with all relevant European laws
	The additional product label shows that do not discard this electrical/electronic product into household garbage.
CAT III 1000V	CAT III 1000 V over-voltage protection
CAT IV 600V	CAT IV 600 V over-voltage protection

## 2. Overview

The instrument is a hand-held intelligent multifunctional measurement instrument, integrating noise, illuminance, humidity, temperature and digital multimeter into one. With large LCD digital display (three sets of data display) and backlight, it's easy for user to read, with overload protection and battery undervoltage indication. Whether for professionals, factories, schools, amateurs or family, it's an ideal multi-functional instrument .

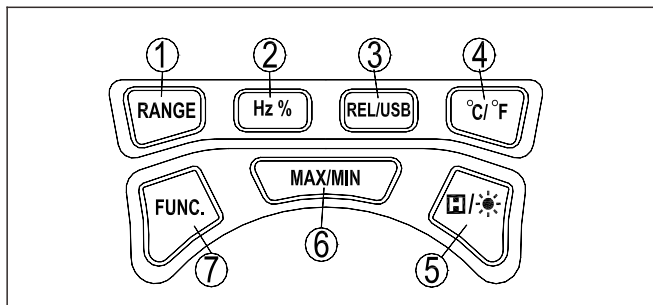
### 2.1 LCD Display



1	Auto Power-off indicator	5	Diode measurement indicator
2	Simulation bar, indicating rapid change trend	6	Minus
3	Battery undervoltage indicator	7	AC indicator
4	Connectivity measurement indicator	8	DC indicator

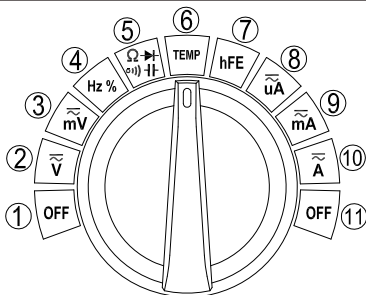
9	Resistance or frequency unit	15	Maximum/Minimum value measurement
10	Voltage or current unit	16	USB interface or Bluetooth start indication
11	Capacitance unit	17	Data display area
12	Temperature unit	18	Relative value measurement indicator
13	Transistor indicator	19	Data hold indicator
14	Duty ratio unit	20	Automatic range indicator

## 2.2 Buttons



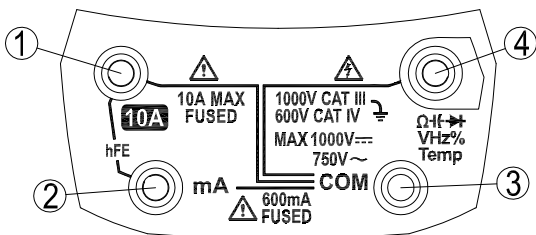
1	RANGE: switch between automatic range and manual range
2	Hz%: switch between frequency and duty ratio
3	REL/USB: turn on relative measurement and USB or Bluetooth start key
4	°C/°F: switch between centigrade and Fahrenheit
5	☀/H: turn on backlight and data hold
6	MAX/MIN: turn on Maximum value, minimum value, maximum-minimum measurement
7	FUNC.: switch among function selections

## 2.3 Rotary Switch



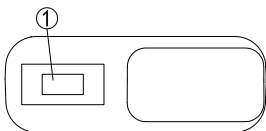
1	OFF
2	AC or DC voltage, press FUNCTION button to switch
3	AC or DC voltage mV, press FUNC. button to switch
4	Frequency, duty ratio, press Hz% button to switch
5	Resistance, diode, connectivity, capacitance, press FUNC. button to switch
6	Temperature measurement, press °C/°F button to switch unit
7	Transistor amplification test
8	AC and DC current microampere measurement, press FUNC. button to switch
9	AC and DC current milliampere measurement, press FUNC. button to switch
10	AC and DC current ampere measurement, press FUNC. button to switch
11	OFF

## 2.4 Input Socket



1	Used for AC and DC current measurement (can measure maximum 10A), input socket for frequency/duty ratio measurement (frequency measurement in current mode); when testing transistor, multi function test socket "IN" input socket.
2	Used for AC and DC microampere ( $\mu\text{A}$ ) and milliampere (mA) measurement (can measure maximum 600mA) and input socket for frequency/duty ratio (frequency measurement in current mode); when testing transistor, multi function test socket "COM" input socket.
3	Used for public terminal of all measurement; negative input socket of K type thermocouple temperature measurement.
4	Input socket for voltage, resistance, connectivity, diode, capacitance, frequency, duty ratio measurement; positive input socket of K type thermocouple temperature measurement.

## 2.5 At the Top






1

USB socket, used to connect to the computer.

## 3. Measurement Operation

### 3.1 Manual and Automatic Range

The instrument is equipped with manual and automatic range. In automatic range mode, the instrument will select the best range for the input signal detected, so it is convenient that the user does not need to re-select range when changing the measuring signal. The instrument can also be set to manual range. It is defaulted as automatic range mode after the unit is turned on or function is switched, the instrument displays "AUTO" symbol. The operations of entering or quitting manual range are as follows:

1. In automatic range mode, press  button, "AUTO" symbol hides.
2. Press  button to increase the range, when reached the maximum range, the instrument will return to the minimum range.
3. Press and hold  button for 2 seconds to quit manual range mode, the instrument displays "AUTO" symbol.



#### Note



Duty ratio, connectivity, diode, temperature and transistor measurement function has only one range.

### 3.2 Relative Value Measurement

The instrument is equipped with relative value measurement function. In this mode, the instrument display value=actual value-set reference value. Operations of entering or quitting relative measurement are as follows:




1. Set the instrument to the measurement function you need, contact the probe to the measured object which you want to set as reference value, the instrument displays the measured value.
2. Press  button and store the measured value as reference value, enter the relative measurement mode, the instrument displays "REL" symbol.
3. Measure, the instrument will display "actual value-set reference value" .
4. Then press  button and quit relative value measurement mode, the "REL" symbol hides.


#### Note

Frequency, duty ratio, diode, connectivity, temperature, and and transistor measurement has no relative value measurement mode.

### 3.3 Maximum Value/Minimum Value/Maximum-minimum Value Hold

The instrument is equipped with maximum value, minimum value and maximum-minimum value hold function. Operations of entering or quitting this function are as follows:

1. Set the instrument to the measurement function you need.
2. Press  button to enter maximum value hold mode, the instrument displays "MAX" symbol.
3. Press  button again to enter minimum value hold mode, the instrument displays "MIN" symbol.
4. Press  button again to enter maximum-minimum value hold mode, the instrument displays "MAX-MIN" symbol.



- Press and hold  button longer than 2 seconds, the instrument returns to normal measurement mode.

### Note

Frequency, duty ratio, diode, connectivity and transistor measurement does not have this function.

## 3.4 USB or Bluetooth interface function

USB or Bluetooth interface function is set for the instrument, and you could upload instrument measurement data onto PC or mobile APP for displaying, recording and analysis via USB or Bluetooth. Operation for turning on/off this function is as follows:

- Rotate instrument knob to any shift except for OFF shift.
- Press  button, and maintain for more than 2 seconds, instrument will display "USB" symbol, and data transfer function of the instrument will be turned on.
- Press  button, and maintain for more than 2 seconds, "USB" symbol will disappear, and data transfer function of the instrument will be turned off.

## 3.5 Obtain Apple iOS system and install MeterView application

- Open "APP Store" program icon on home page of the mobile.
- Click the "Search" option below the page.
- Click search bar, and then input "MeterView" in search bar (if it indicates to input APPLE ID password, please enter your APPLE ID password).
- Click the "Install" icon appeared on "MeterView", "Loading..." will display on the screen.
- After installation is completed, "MeterView" icon will display on mobile screen.

## 3.6 Obtain Android system and install MeterView application

- Obtain "MeterView.apk" file from CD attached with product.
- Connect mobile with Android system to PC with a USB cable.
- Copy "MeterView.apk" file to mobile storage or SD storage


(according your personal habit for detailed copy position).

4. Find the “MeterView.apk” file copied to mobile storage or SD storage using “Resource Manager” of the mobile or a third-party file browser, and click “MeterView.apk” to install.

**Note**

**MeterView-CN is Chinese version, and MeterView is English version.**

### 3.7 Run MeterView

1. Click “MeterView” icon, and open “MeterView” application.
2. Open instrument power supply.
3. Press **REL/USB** button, and maintain for more than 2 seconds, “USB” symbol will display on instrument, and data transfer function of the instrument will be turned on.
4. Click “” Bluetooth symbol on the upper left of the screen, find “MultiMeter-001” device, and click “MultiMeter-001” to carry out Bluetooth connection.
5. After connection is successful, “MeterView” application starts to receive instrument measurement data, and display it on “MeterView” application page.

**Note**

**Note: For use of software, please refer to operation instructions on PC application or mobile APP.**

### 3.8 Measure AC or DC Voltage

As shown in the figure below:

1. Scroll the rotary knob to  $\sqrt{\sim}$ , press "FUNC." button and switch to AC voltage or DC voltage function.
2. Insert the red probe in " $\Omega$  Hz% Temp" socket, and the black probe in "COM" socket.
3. Contact the probe to the measured circuit (connect to the measured power supply or circuit in parallel), measure the voltage.
4. Read the measurement result on the screen.

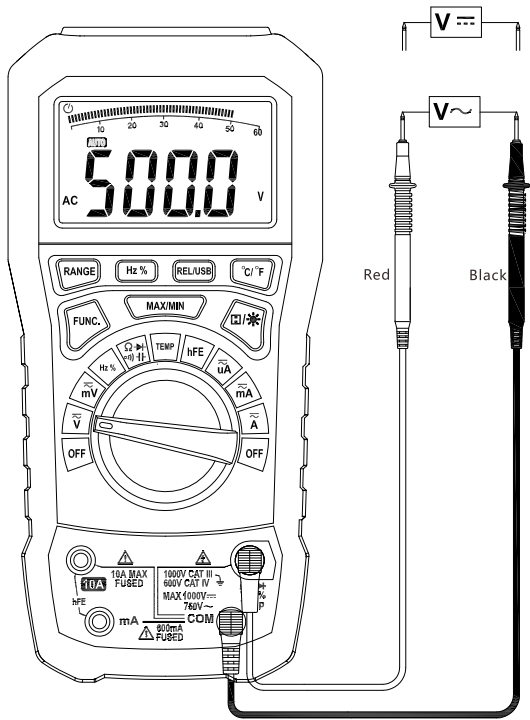
#### Note

- ◆ In AC voltage function, press Hz% button to measure the frequency and duty ratio of the AC voltage source, please refer to Measure Frequency.
- ◆ The AC voltage value measured by using this instrument is true RMS (root mean square). For sine wave and other wave (no DC offset), such as square wave, triangle wave and step wave, these measurements are accurate.

#### Warning





- ◆ Do not allow measurement of any voltage higher than DC 1000V or AC 750VRMS, otherwise it may cause instrument damage, electric shock or personal injuries.
- ◆ Do not allow applying voltage exceeding DC 1000V or AC 750V RMS between a public terminal and the earth, otherwise it may cause instrument damage, electric shock or personal injuries.



### 3.9 Measure DC or AC mV Voltage

As shown in the figure below:

1. Scroll the rotary knob to "mV" , press "FUNC." button and switch to DC or AC voltage function.
2. Insert the red probe in "  " socket and the black probe in "COM" socket.
3. Contact the probe to the measured circuit (connect to the measured power supply or circuit in parallel), measure the voltage.
4. Read the measurement result on the screen.

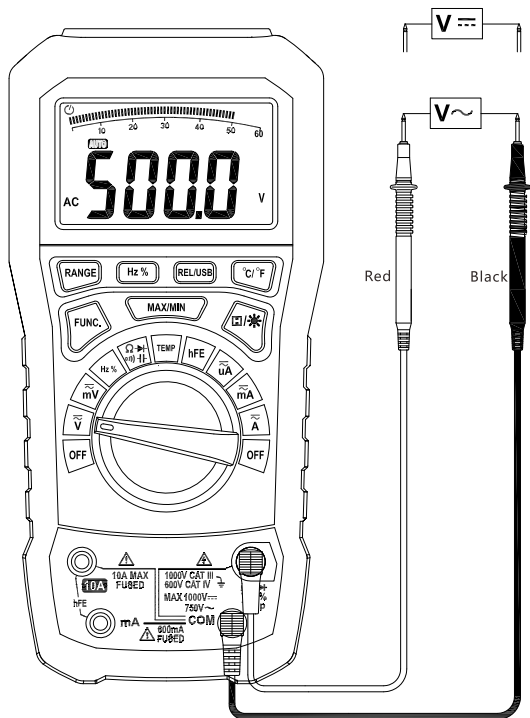
#### Note

- ◆ In AC voltage function, press Hz% button to measure the frequency and duty ratio of the AC voltage source, please refer to Measure Frequency.
- ◆ The AC voltage value measured by using this instrument is true RMS (root mean square). For sine wave and other wave (no DC offset), such as square wave, triangle wave and step wave, these measurements are accurate.
- ◆ The maximum range for AC/DC mV (60/600mV) voltage measurement is 600mV, input impedance up to  $10^{11} \Omega$ , and the weak signal of measurement will not weaken, therefore the measurement precision is high. But it's normal in the circumstances that the probe is in open circuit or contacting the measured circuit, the probe will be back to zero as long as in short circuit, the reading will stabilize.

#### Warning



- ◆ Do not allow measurement of any voltage higher than DC 1000V or AC 750VRMS, otherwise it may cause instrument damage, electric shock or personal injuries.
- ◆ Do not allow applying voltage exceeding DC 1000V or AC 750V RMS between a public terminal and the earth, otherwise it may cause instrument damage, electric shock or personal injuries.



### 3.10 Measure Frequency and Duty Ratio

As shown in the figure below:

1. Scroll the rotary knob to "Hz%" , press "Hz%" button and switch between frequency and duty ratio. (or in AC voltage or AC current shift frequency and duty ratio can also be measured)
2. Insert the red probe in "OH $\rightarrow$ " socket and the black probe in "COM" socket.
3. Contact the probe to the measured circuit (connect to the measured power supply or circuit in parallel), measure the frequency or duty ratio.
4. Read the measurement result on the screen.

#### Warning

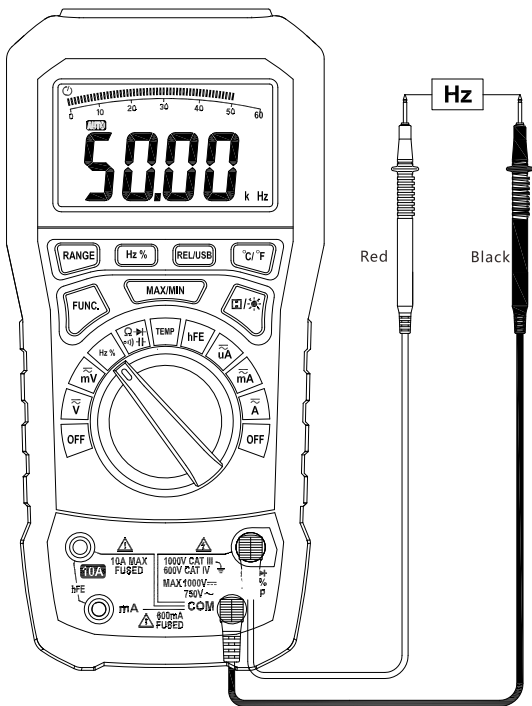


- ◆ Do not allow measurement of any voltage higher than DC 1000V or AC 750VRMS, otherwise it may cause instrument damage, electric shock or personal injuries.
- ◆ Do not allow applying voltage exceeding DC 1000V or AC 750V RMS between a public terminal and the earth, otherwise it may cause instrument damage, electric shock or personal injuries.

#### Caution



To avoid any damage on the instrument or the equipment, do not input frequency or duty ratio signal higher than 10V RMS.



### 3.11 Measure AC or DC Current

As shown in the figure below:

1. According to the current of measurement scroll the rotary knob to any shift among " $\widetilde{\mu A}$ ", " $\widetilde{mA}$ " and " $\widetilde{A}$ ", press "FUNC." button and switch to AC or DC function.
2. According to the shift of measurement insert the red probe in "mA" socket or 10A socket, and the black probe in "COM" socket.
3. Disconnect the power supply of the measured circuit, connect the probe to the measured circuit in series, and turn on the power supply of the circuit.
4. Read the measurement result on the screen.



Do not allow measurement of any voltage higher than DC 1000V or AC 750V RMS, otherwise it may cause instrument damage, electric shock or personal injuries. The power supply of the measured circuit must be switched off firstly, otherwise it may cause electric shock or personal injuries.



To avoid any damage on the instrument or equipment, please check the fuse before measurement, and use correct input socket.