

# MASTECH®

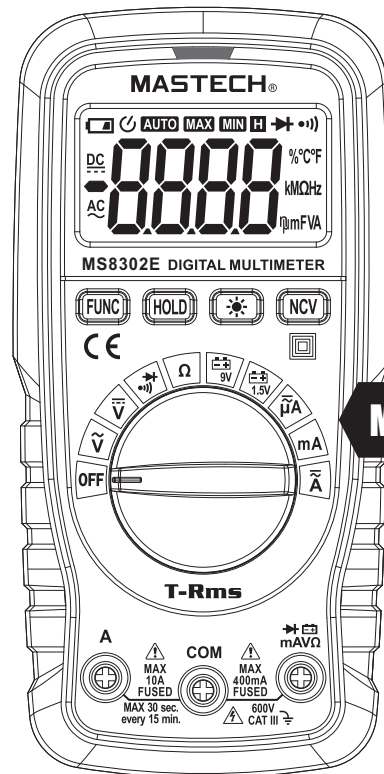
## SERVICE

Thank you for purchasing our product!  
As our customers are our top priority and we strive for 100% satisfaction,  
we would appreciate your feedback on the product.  
Please contact us if you have any questions regarding the product.  
Our professional support team is always ready to answer  
your enquiries and provide assistance.

00-05-3768

# MASTECH®

## DIGITAL MULTIMETER



**MS8302E**



Intertek  
3080912




## 1. GENERAL SPECIFICATIONS

**MS8302E** is a stable, safe, reliable compact digital handheld 6000 count auto-ranging multimeter. This meter can measure AC/DC voltage, AC/DC current, resistance, capacitance, frequency, duty cycle, temperature, diodes and continuity. This meter is ideal for many situations, whether you're a professional or casual user.

- **Operating Altitude:** 2000m
- **Relative Humidity:** 75% max operating
- **Operating Temperature:** 0°C~40°C/32°F~104°F (<80% RH)
- **Storage Temperature:** -10°C~60°C/14°F~140°F (<70% RH)
- **Accuracy Temperature:** -18°C~28°C/64°F~82°F (<80% RH)
- **Temperature Coefficient:** 0.1x(specified accuracy)/°C (<18°C or >28°C)
- **Sampling Frequency:** approx. 3 times/sec.
- **Fuse Protection:**  $\mu$ A/mA input: FF 600mA H 600V  
10A input: FF 10A H 600V
- **DC/AC Voltage:** 600V
- **DC/AC Current:** 10A
- **Resistance:** 40M $\Omega$
- **Diodes:** 3.2V DC
- **Continuity:** <50 $\Omega$
- **Temperature:** -20°C~1000°C/-4°F~1832°F
- **Battery Voltage:** 1.5V/9V
- **LCD Display:** 3 ¾ digit display (4000 counts)
- **Product Supply:** 9V battery
- **Product Size:** 150mm×74mm×48mm / 6.3"×2.9"×1.9"
- **Product Weight:** 482g / 1.06lb
- **Safety Rating:** CAT III 600V; pollution degree: II
- **Safety Standards:** IEC61010-1
- **Pollution Degree:** 2
- **Accuracy:**  $\pm$ (of reading + # of least significant digits)

## 2. ⚠ WARNINGS

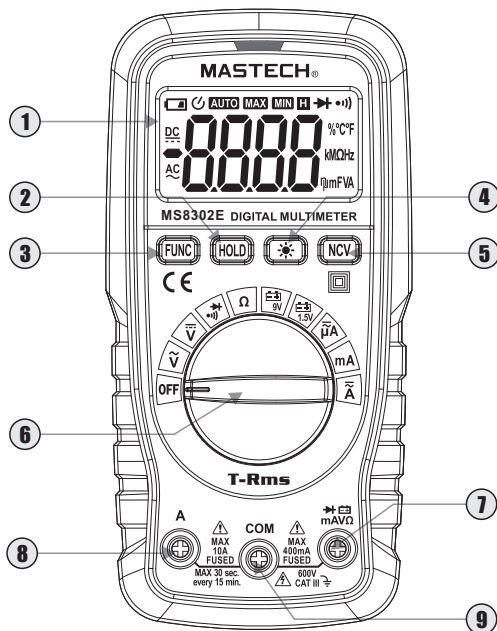
To avoid electric shock and injury or damage to the meter, observe the following safety methods:

- Check the meter before use to make sure there was no damage during transit.
- Check that the insulation on the test leads is not damaged and/or wires are not exposed.
- If any faults or abnormalities are observed, the meter should not be used and should be checked out prior to use.
- Never exceed the protection limit values indicated in specifications for each range of measurement.
- Always be careful when working voltages above 60V DC or 30V AC rms, keep fingers behind the probe barrier while measuring.
- Make sure the rotary switch is in the correct position before measurement.
- Never use the meter in an environment with explosive gas, vapor or dust.
- Always keep fingers behind probe barriers when making measurements.
- When connecting test leads to a circuit, connect the black test lead first, then the red lead. Disconnect in the opposite order.
- Turn off power and discharge all capacitors first before measuring resistance, continuity or diodes.
- Failure to follow safety guidelines could compromise the safety features of this meter.
- Do not use the meter without the battery cover in place.
- Replace the batteries as soon as the low battery symbol "  " to avoid false reading that could lead to electric shock and injury.
- Remove test leads from all circuits before opening the battery cover.

## 3. SAFETY SYMBOLS

	Important safety information		Ground
	AC(alternating current)		Double insulation protection
	DC(direct current)		Fuse
	DC/AC Voltage or Current		Compliance with EU regulations

## 4. FEATURE DETAILS



### 1.LCD Display

### 2.Hold

Press “**HOLD**” to hold the current reading on the display. Press the button again to normal measurement.

### 3.Function Switch Button

Press “**FUNC**” to switch between functions or between AC/DC current.

### 4.Backlight Button

Press “” to turn on the backlight. Press the button again to turn off the backlight.

### 5.NCV Button

Press the “**NCV**” button down in any mode and the meter will activate the non-contact voltage detection. Hold the meter up to a voltage source and the buzzer will sound and the NCV indicator will light up if voltage is detected. Release the “**NCV**” button to stop NCV detection.

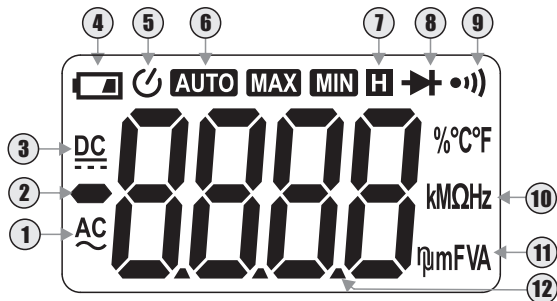
### 6.Rotary Switch

### 7.Input Jack (all measurements; current below 600mA)

### 8.A Jack (current measurements between 600mA-10A only)

### 9.Common Jack (all measurements)

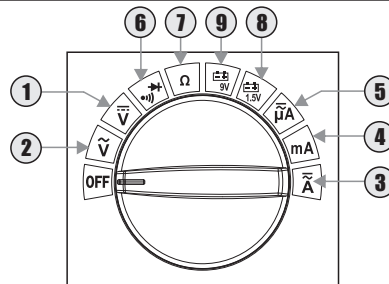
## 5. DISPLAY FUNCTION INSTRUCTIONS



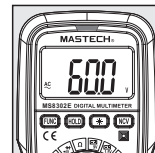
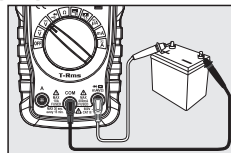
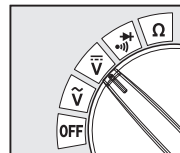
- 1 AC Alternating Current
- 2 DC Negative DC Value
- 3 DC Direct Current
- 4 Low Battery
- 5 Auto Power Off
- 6 AUTO Auto Range Active

- 7 Data Hold
- 8 Diode Test
- 9 Continuity Test
- 10 Resistance
- 11 DC/AC Current
- 11 mV DC/AC Voltage
- 12 Main Display

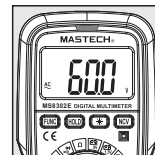
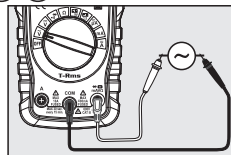
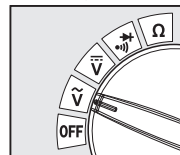
## 6. ROTARY SWITCH FUNCTION INSTRUCTIONS



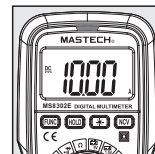
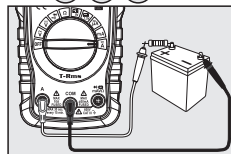
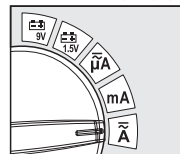
### 1. DC Voltage: <600V



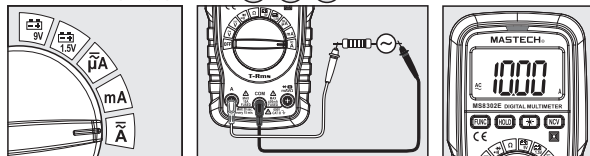
### 2. AC Voltage: <600V



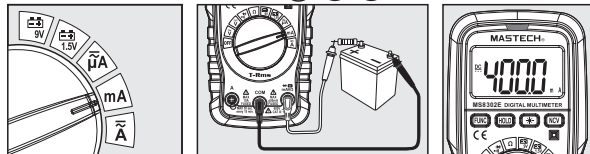
### 3.1 DC Current (large): <10A



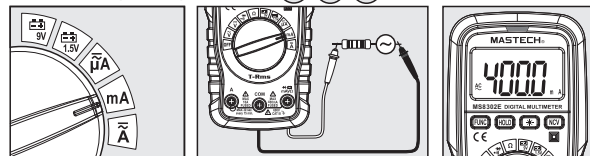
## 3.2 AC Current (large): <10A



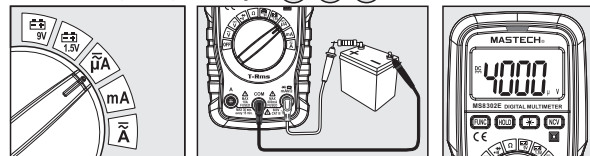
## 4.1 DC Current (Middle): <400mA



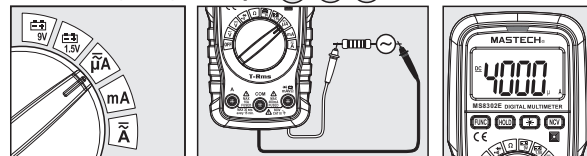
## 4.2 AC Current (Middle): <400mA



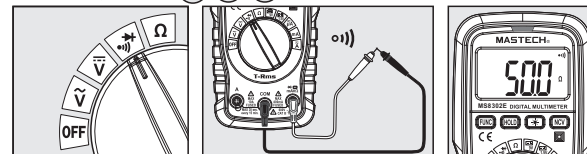
## 5.1 DC Current (Small): <4000μA



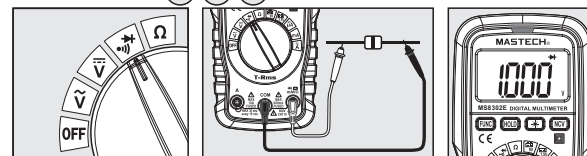
## 5.2 AC Current (Small): <4000μA



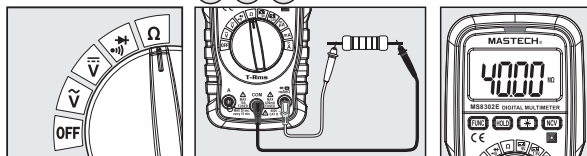
## 6.1 Continuity: <50Ω

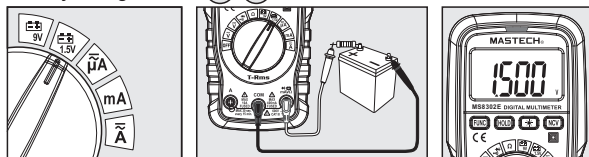
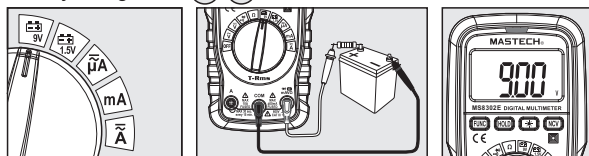
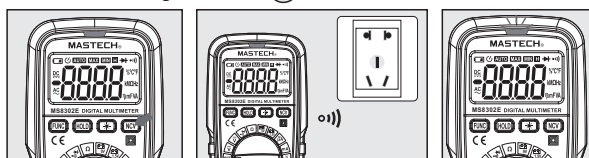


## 6.2 Diode Test: <3V



## 7. Resistance: <40MΩ



**7. Battery Voltage: <1.5V**

**8. Battery Voltage: <9V**

**9. Non-Contact Voltage Detector**

**7. ELECTRICAL SPECIFICATIONS**
**DC Voltage Measurement**

Range	Resolution	Accuracy
400mV	0.1mV	±(0.5% of reading + 2 digits)
4V	0.001V	
40V	0.01V	
400V	0.1V	±(0.7% of reading + 2 digits)
400V	1V	
600V	1V	

- Input impedance: 10MΩ
- Max. input voltage: 600V rms

**AC Voltage Measurement**

Range	Resolution	Accuracy
400mV	0.1mV	±(1.0% of reading + 5 digits)
4V	0.001V	
40V	0.01V	
400V	0.1V	
400V	1V	±(1.0% of reading + 10 digits)
600V	1V	

- Input impedance: 10MΩ
- Max. input voltage: 600V rms
- Frequency response: 40~400Hz, calibrated to rms of sine wave (average response)

**DC Current Measurement**

Range	Resolution	Accuracy
400μA	0.1μA	±(1.0% of reading + 5 digits)
4000μA	1μA	
40mA	0.01μA	
400mA	0.1μA	
10A	10mA	±(2.0% of reading + 10 digits)

**• Overload protection:**

μA/mA input: Fuse(FF 400mA H 600V) 10A input: Fuse (FF 10A H 600V)

**• Max. input current:**

μA/mA input: 400mA rms 10A input: 10A rms

**AC Current Measurement**

Range	Resolution	Accuracy
400μA	0.1μA	±(1.2% of reading + 5 digits)
4000μA	1μA	
40mA	0.01μA	
400mA	0.1μA	
10A	10mA	±(2.5% of reading + 10 digits)

**• Overload protection:**

μA/mA input: Fuse(FF 400mA H 600V) 10A input: Fuse (FF 10A H 600V)

**• Frequency response: 40~400Hz,**

calibrated to rms of sine wave (average response)

**• Max. input current:**

μA/mA input: 400mA rms 10A input: 10A rms

**Resistance Measurement**

Range	Resolution	Accuracy
400Ω	0.1Ω	±(0.8% of reading + 5 digits)
4kΩ	0.001kΩ	
40kΩ	0.01kΩ	
400kΩ	0.1kΩ	
4MΩ	0.001MΩ	
40MΩ	0.01MΩ	±(2.0% of reading + 5 digits)

**• Max. input voltage: 600V rms**
**Continuity Test**

Overload Protection	Open Circuit Voltage
600V RMS	Appx. 1.0V DC

**• Max. input voltage: 600V rms**
**Diode Test**

Overload Protection	Test Current	Open Circuit Voltage
600V RMS	Appx. 1mA	Appx. 3.2V DC

**• Max. input voltage: 600V rms**
**Battery Voltage Measurement**

Range	Resolution	Accuracy
9V	0.01V	±(1.2% of reading + 7 digits)
1.5V	0.001V	±(3.0% of reading + 5 digits)

## 8. MAINTENANCE

This section provides basic maintenance principles, including replacing batteries and fuses.

Do not attempt to repair or perform any maintenance on the meter not included in the section below unless you are qualified personnel.

## 9. CLEANING

### WARNINGS

**To prevent injury or damage to the meter, do not allow moisture inside the casing. Before opening the battery cover/case, disconnect test leads from all circuits.**


Clean the meter regularly with a damp cloth and a small amount of detergent; do not use abrasives or solvents. Dirty/wet input jacks can affect readings.

To clean input jacks:

1. Turn off the meter and remove test leads.
2. Brush off any dirt or contaminants from the input jacks.
3. Use a cotton swab with a cleaner/lubricant (i.e. WD40) to clean the input jack.
4. Use a new swab on each jack to prevent cross contamination.

## 10. REPLACING THE BATTERIES

### WARNINGS

**To avoid false reading that could lead to injury or damage to the meter, replace the batteries as soon as the “” symbol appears. Turn off the meter and remove the test leads before opening the battery cover to avoid injury or damage to the meter.**

To replace the batteries:

1. Turn off power to the meter.
2. Remove test leads from input jacks.
3. Loosen the screw on the battery cover and remove cover from meter.
4. Replace used batteries with new batteries.
5. Replace battery cover and secure to meter.

## 11. REPLACING THE FUSES

### WARNINGS

**To prevent injury or damage to the meter, turn off power to the meter and disconnect test leads from input before opening case.**

To replace the fuses:

1. Turn off power to the meter.
2. Remove test leads from input jacks.
3. Remove the 6 screws on the back case and remove back case from meter.
4. Replace blown fuse(s) with a new fuse.
5. Replace back cover and secure to meter.

## 12. DISPOSAL / RECYCLE



**Caution:** This symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal.