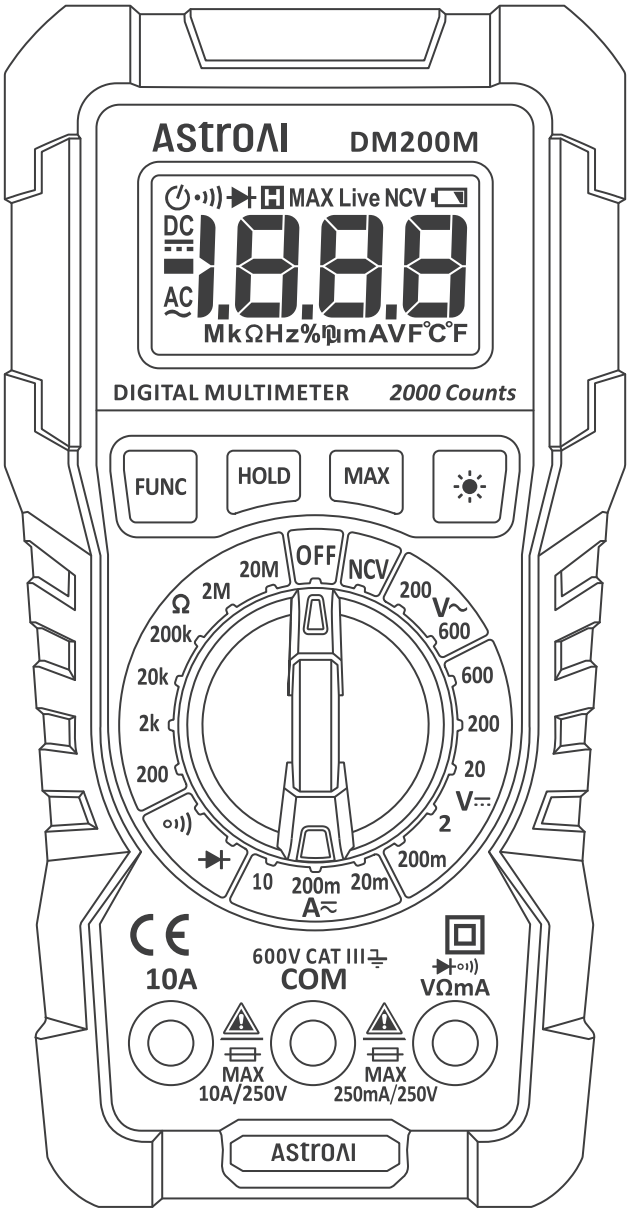
AstroAI



DM200M

DIGITAL MULTIMETER

USER MANUAL

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INTRODUCTION

Thank you for purchasing the AstroAI DM200M 2000 Counts Digital Multimeter.

AstroAI digital multimeters are designed to safely and accurately troubleshoot a wide range of automotive and home electrical issues in schools, laboratories, factories, and other areas.

This manual provides all safety information, operation instructions, detailed specifications, and maintenance procedures for the meter. This instrument performs AC/DC Voltage, AC/DC Current, Resistance, NCV Detection, Diode, and Continuity Testing.

Thank you again for choosing AstroAI. If you have any questions or concerns regarding your product, please contact us via support@astroai.com.

Please fully read and understand this manual before using this product and keep this manual for future reference.

WARNING

To avoid possible electric shock, personal injury, and other safety accidents, always adhere to the following rules:

- Please read through this manual before using this multimeter. Failure to follow the instructions may result in damaging or weakening the meter.
- Be cautious when measuring voltages beyond 60 V in DC, 30 V in AC RMS, or 42 V peak. There is a risk of getting shocked when working with these types of voltages.
- Do not measure voltages higher than the rated value between the terminals or between any terminal and grounding.
- Measure a known voltage to check whether the meter is working normally. Do not use it if the readings are incorrect or the meter is damaged.
- Before using the meter, inspect it for any defects. Do not use the meter if there are cracks or other damage to the plastic case.
- Inspect the test leads for any defects before using this product. If they are damaged, replace the test leads with those of the same model number and the same electrical specifications as the original.
- Always use this meter within the measurement ranges listed on the meter and in this manual.
- To avoid false readings, please replace the battery as soon as the low battery symbol appears on the screen. Using the meter with a low battery may cause inaccurate readings.

- Always comply with local and national safety regulations. Wear personal protective equipment (such as approved rubber gloves, masks, fireproof clothing, etc.) to prevent injury from electrical shocks and electric arcs when hazardous live conductors are exposed.
- Do not use the meter in an environment where there are explosive gasses/vapors present, or in high levels of humidity.
- When using the test leads, always keep your fingers behind the finger guards.
- When taking measurements, connect the neutral wire (ground) first. Then, connect the live wire. When disconnecting, remove the live wire first. Then, disconnect the neutral (ground) wire.
- Remove the test leads from the meter before opening its case or battery cover. Do not use the meter if it is disassembled or if the battery cover is open.
- To ensure safe operation, only use the meter with the included test leads. If the test leads are damaged and need to be replaced, they must be replaced with the same model number or identical electrical specifications as the original.

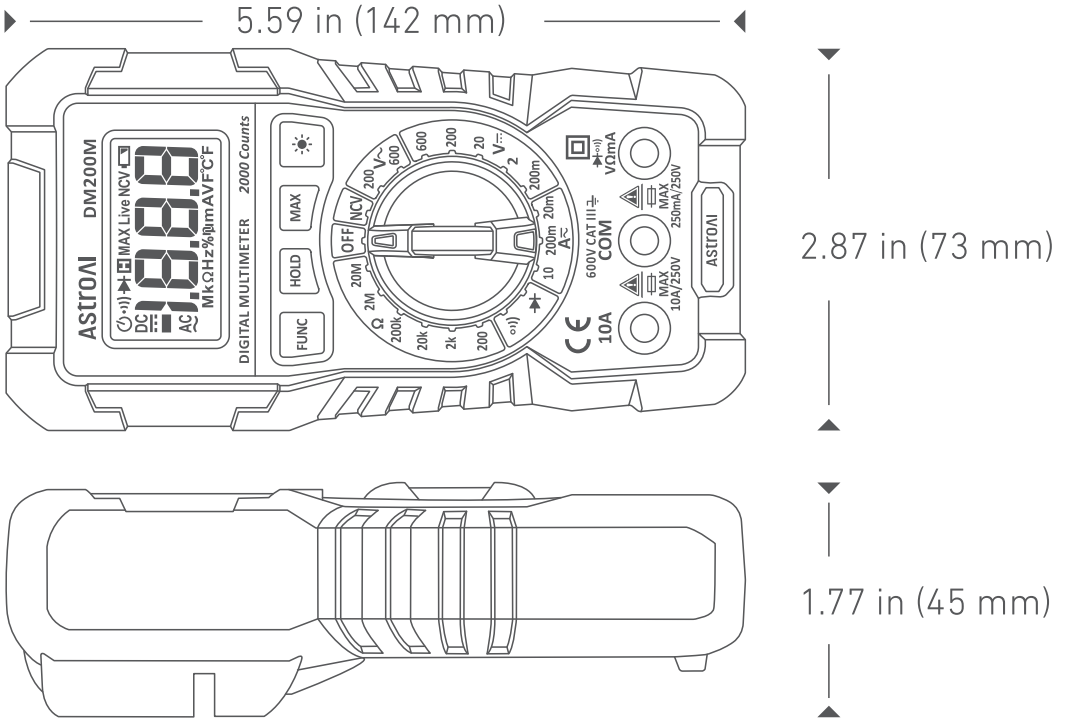
INCLUDED IN BOX

User Manual	×1
Pair of Test Leads	×1
AstroAI 2000 Counts Multimeter	×1

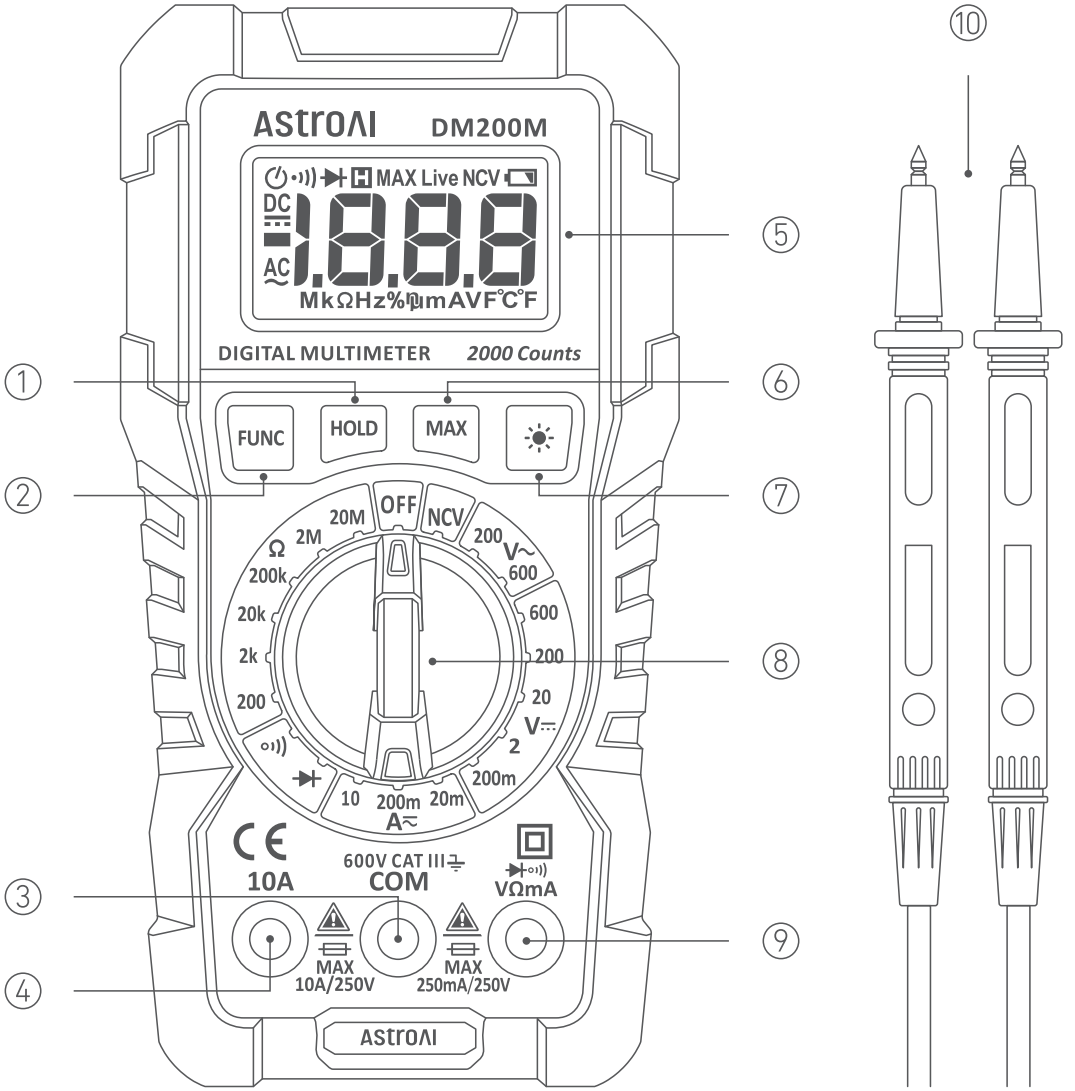
ELECTRICAL SYMBOLS

- Automatic Power Off
- DC (Direct Current)
- Negative Reading
- Fuse
- Continuity Test
- AC (Alternating Current)
- Compliance with EU Directives
- AC (Alternating Current) or DC (Direct Current)
- Warning
- Diode Test
- Data Hold
- Resistance Test
- Earth Ground
- Double Insulation
- Low Battery

DIMENSIONS



DIAGRAM



① Hold Button

② Function Switch Button

③ COM Terminal

④ 10 A Terminal

⑤ Screen

⑥ Max Button

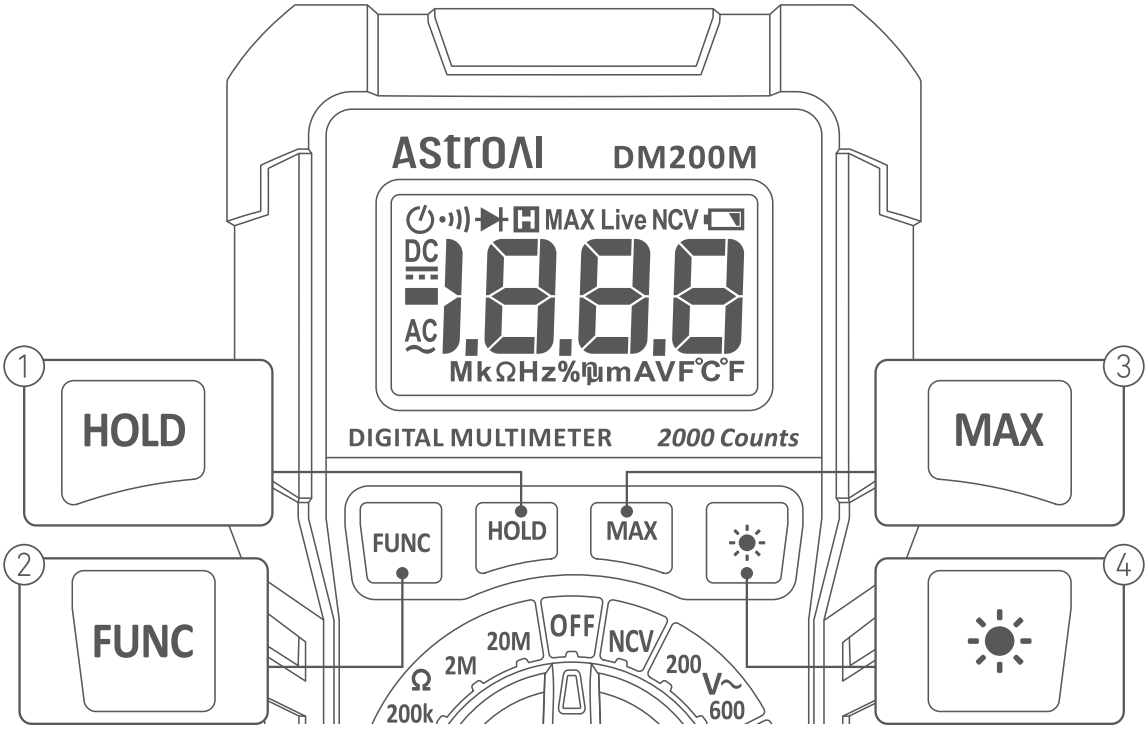
⑦ Backlight Button

⑧ Rotary Switch

⑨ " VΩmA " Terminal

⑩ Test Leads

FUNCTION BUTTONS



① HOLD Function

Press the HOLD Button to activate or deactivate the data hold function.

② FUNC Function

Press the FUNC Button to switch between AC and DC current tests.

③ MAX Function

Press the MAX Button to turn the maximum value measurement on/off. In this mode, the meter will capture the highest reading it records.

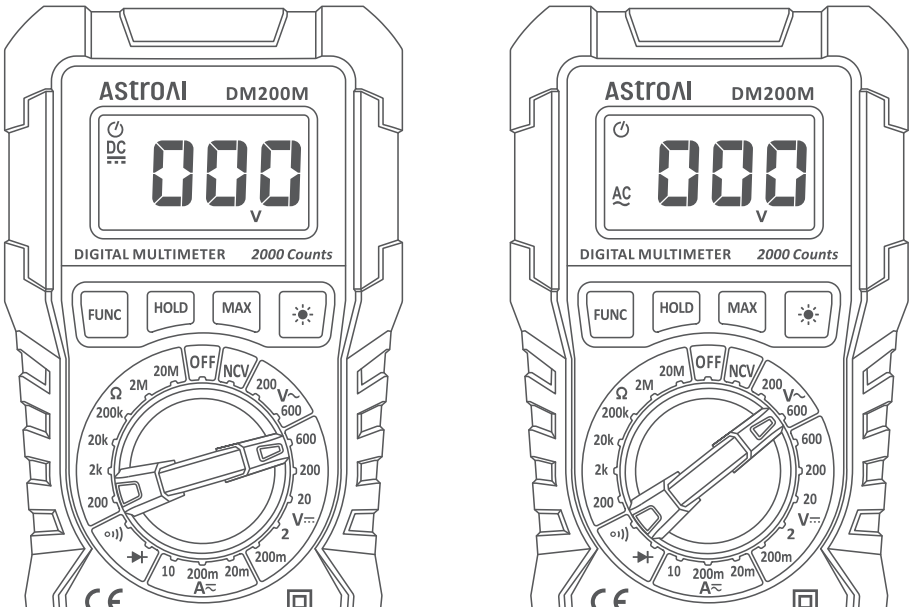
④ ☼ Function

Press this button to turn the screen's backlight on/off.

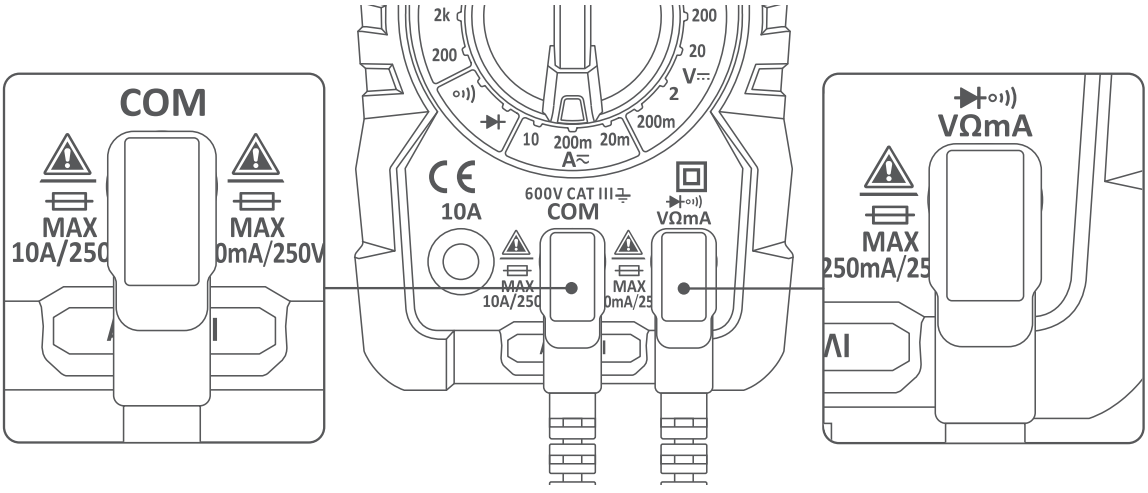
OPERATING INSTRUCTIONS

Measuring DC/AC Voltage

1. Turn the rotary switch to the DC or AC setting and choose the appropriate voltage range.



2. Insert the red test lead into the "VΩmA" terminal, and the black test lead into the "COM" terminal.



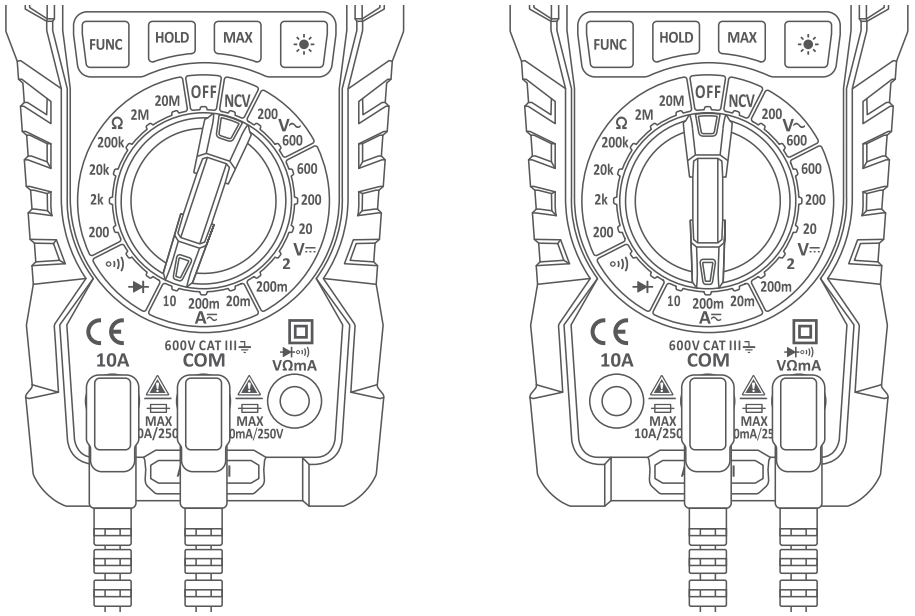
3. Connect the test leads to the circuit being tested in parallel.
4. The reading will appear on the screen.

Warning:

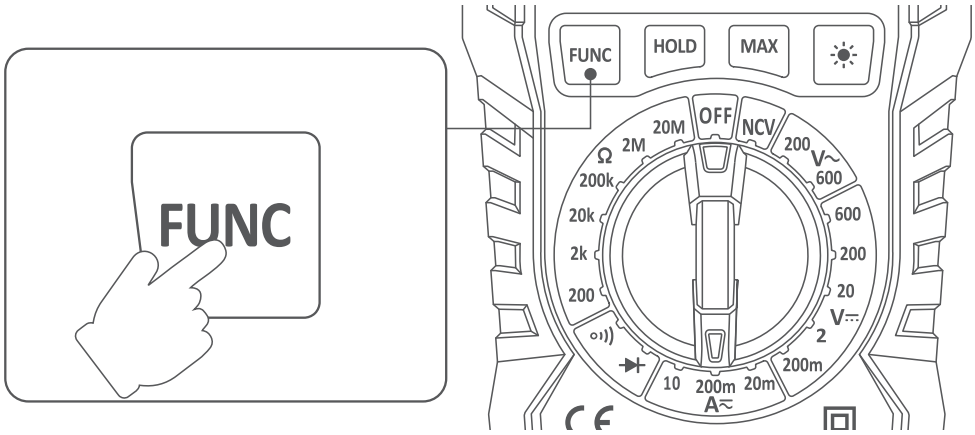
- To avoid damaging the meter, do not measure voltages exceeding 600 V DC or 600 V AC.
- To prevent electrical shocks or personal injury, exercise extra caution when measuring high voltages.
- Before using the meter, test a known voltage to confirm the meter is functioning normally.

Measuring DC/AC Current

1. Turn the rotary switch to the current setting and choose the appropriate current range.
2. Insert the red test lead into the "VΩmA" terminal or the "10A" terminal and the black test lead into the "COM" terminal according to the current level to be measured.



3. Press the “FUNC” Button to measure DC/AC current.



4. Disconnect the power supply of the circuit being tested. Connect the meter in series to the circuit being tested. Then, turn on the circuit’s power supply.
5. The reading will be displayed on the screen.

Warning:

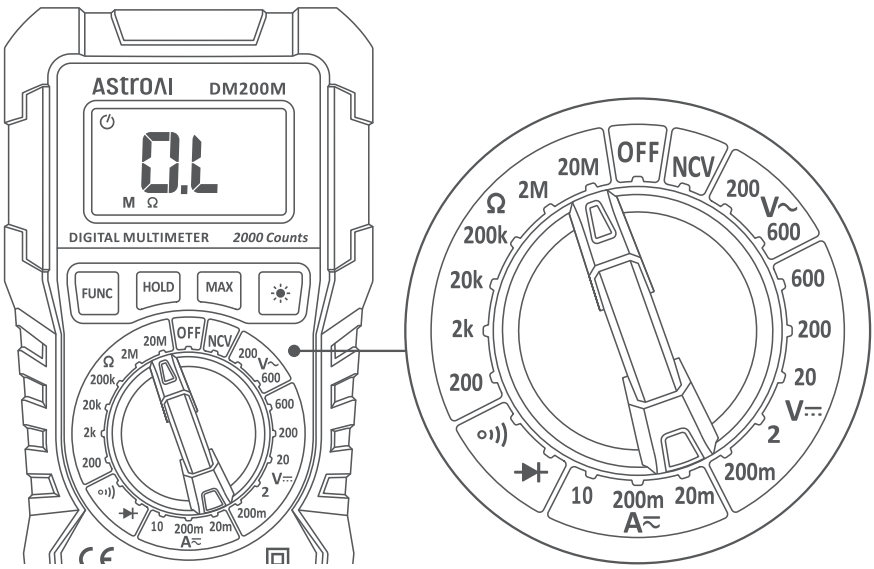
- Please be cautious when measuring high voltages to avoid getting shocked and injured.
- Before using the meter, make sure the meter is working normally by measuring a known voltage.

Note:

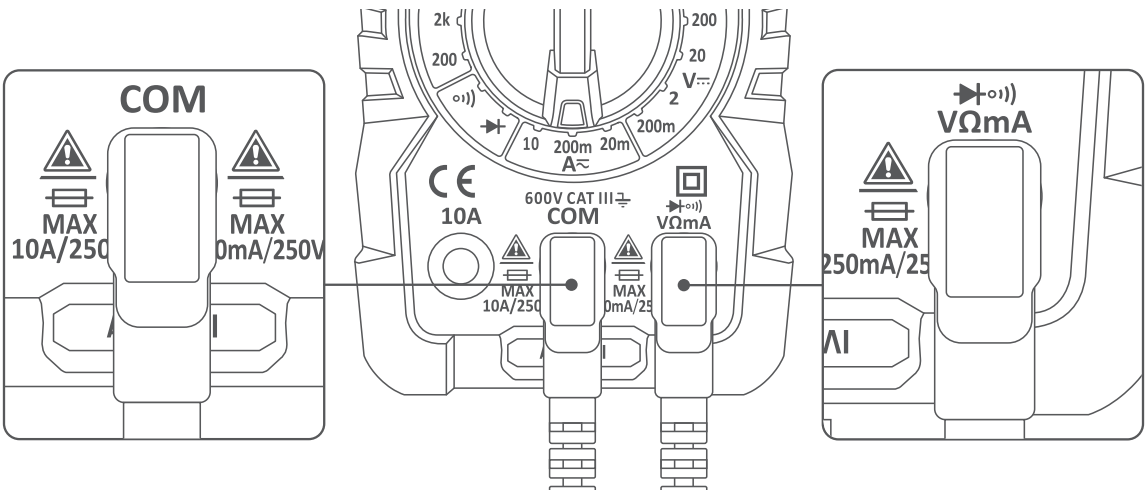
To avoid damaging the meter or equipment, check the fuse before performing measurements and ensure that the measured current does not exceed the rated maximum current. Be sure to put the test leads into the correct terminal.

Measuring Resistance

1. Turn the rotary switch to the desired resistance setting and choose the appropriate range.



2. Insert the red test lead into the "VΩmA" terminal and the black test lead into the "COM" terminal.



3. Connect the probe of the test leads to both ends of the circuit or resistor that needs to be measured.
4. The reading will be displayed on the screen.

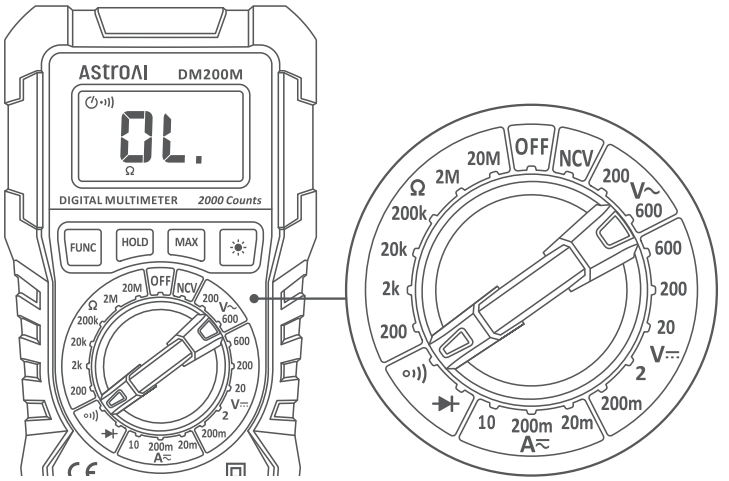
Warning:

Safely disconnect the power supply and discharge high-voltage capacitors before measuring resistors on a circuit board. Failure to do so may damage the meter and increase the risk of electrical shock.

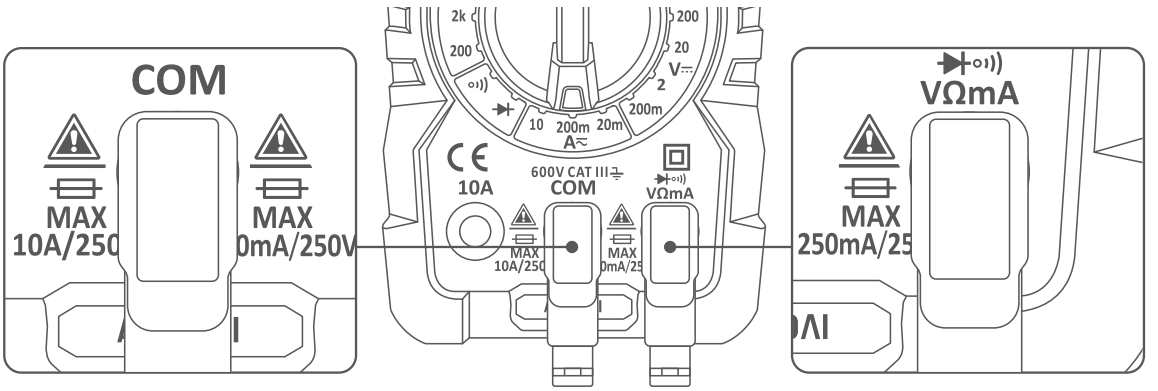
Note: When measuring resistors on a circuit board, the reading may be affected by other electrical paths between the test leads.

Continuity Test

1. Turn the rotary switch to the "•))) " setting.



2. Insert the red test lead into the " VΩmA " terminal and the black test lead into the "COM" terminal.



3. Connect the probe of the test leads to both ends of the circuit or resistor that needs to be measured.
4. If the resistance value of the measured resistor or circuit is less than 50 Ω, the buzzer will beep. The screen will display the resistance value of the resistor or circuit.

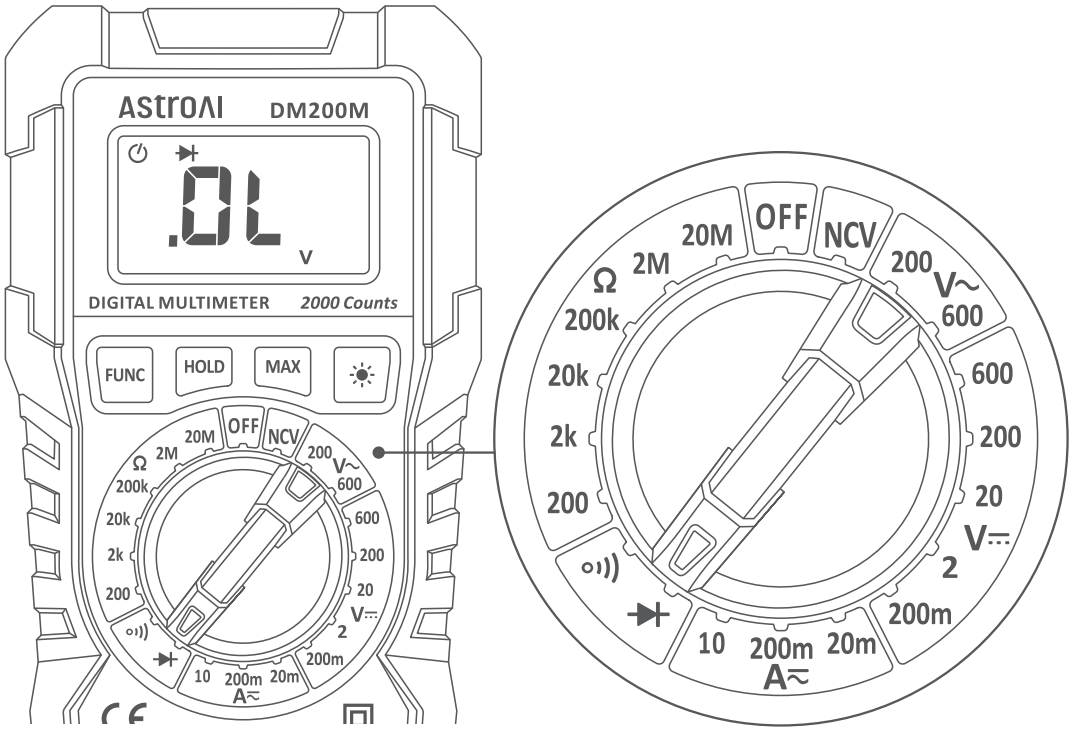
Warning:

Safely disconnect the power supply and discharge high-voltage capacitors before measuring the meter's continuity. Failure to do so may damage the meter and increase the risk of electrical shock.

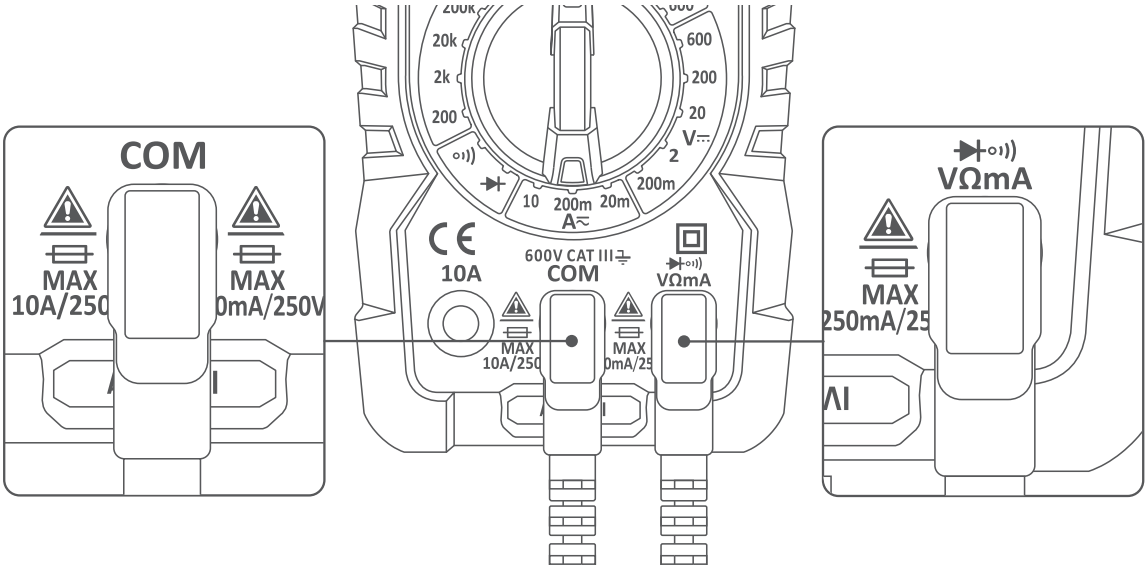
Note: When measuring the meter's continuity, the reading may be affected by other electrical paths between the test leads.

Diode Test

1. Turn the rotary switch to the "⏭" setting.



2. Insert the red test lead into the "VΩmA" terminal and the black test lead into the "COM" terminal.



3. Connect the red test lead to the positive end of the diode and the black test lead to the negative end.
4. The reading will be displayed on the screen.

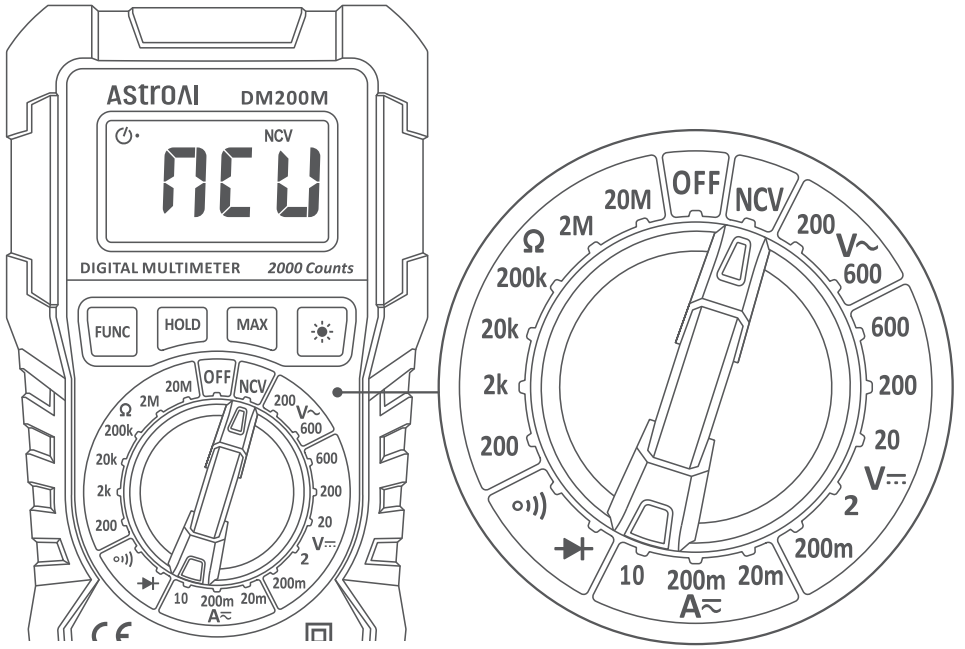
Warning:

Safely disconnect the power supply and discharge high-voltage capacitors before performing diode tests on the circuit board. Failure to do so may damage the meter and increase the risk of electrical shock.

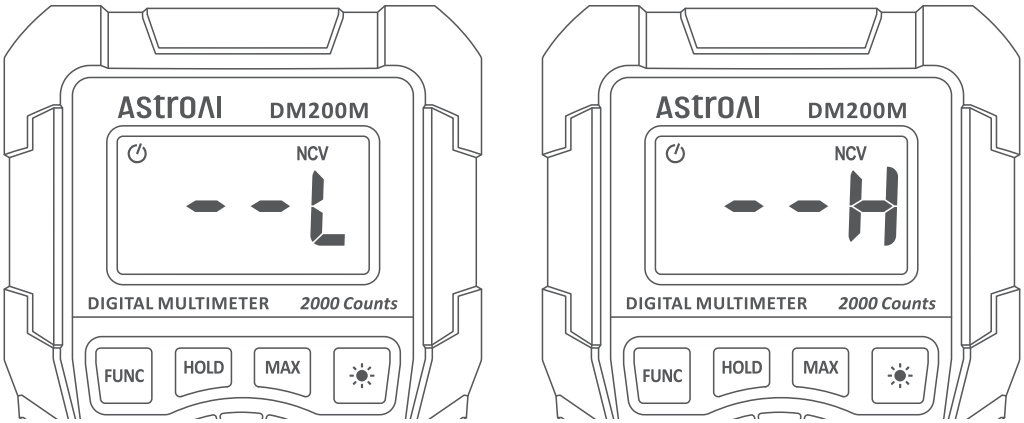
Note: When performing a diode test on the circuit board, the reading may be affected by other electrical paths between the test leads.

Non-Contact Voltage Test (NCV)

1. Turn the rotary switch to the “NCV” setting.



2. Next, gradually move the meter’s NCV probe closer to the detected object.
3. When the meter senses a weak EMF signal, the “--L” character will appear on the screen. The buzzer will emit a slow beep.
4. When the meter senses a strong EMF signal, the “--H” character will appear on the screen and the buzzer will beep rapidly.



Auto Power Off

1. If the meter is on and not in use, it will shut off after 15 minutes to preserve battery life. Press the button or turn the rotary to turn it back on.
2. To cancel the automatic power off function, press and hold the HOLD Button. Then, turn on the meter. To resume the automatic power off function, turn off the meter and then turn it back on.

MAINTENANCE

Cleaning the Meter

If the terminals are dusty or wet, incorrect measurements may occur. Please clean the meter as follows:

1. Turn off the meter and remove the test leads.
2. Flip the meter over and shake out any dust that has built up in the terminals. Wipe the case with a damp cloth or mild detergent. Do not use abrasives or solvents. Wipe the contacts in each terminal with a clean cotton and alcohol.

Warning:

Always keep the inside of the meter clean and dry to prevent electrical shock or damage.

Battery Replacement

1. Turn off the meter and remove the test leads.
2. Remove the screws on the battery cover with a screwdriver. Then, remove the cover.

3. Remove the old battery and replace it with a new battery of the same specification. Pay attention to the polarity of the battery, there are positive and negative polarity markings for each battery in their compartments.
4. Put the battery cover back in its original position and secure the battery cover with its screws.

Warning:

- Replace the battery as soon as it gets low. This will help prevent false readings, electrical shocks, and even injuries. Do not discharge the battery by short-circuiting it or reversing its polarity.
- To ensure safe operation and maintenance of the meter, remove the battery when not used for a long time. Doing so will prevent battery leakage and possible damage to the multimeter.

Fuse Replacement

1. Turn off the meter and remove the test leads.
2. Remove the screws on the meter's back cover. Then, remove the back cover.
3. Remove the blown fuses and replace them with new fuses of the same specification; make sure that the fuse is loaded into the fuse holder and clamped tightly.
4. Put the back cover back on and secure it with the removed screws.
5. Fuse specifications

Fuse 1: F250 mA/250 V, φ 5 x 20 mm

Fuse 2: F10 A/250 V, φ 5 x 20 mm

Warning:

Please use fuses of the same or specified rating to prevent electrical shock, injury, or damage to the meter.

SPECIFICATIONS

Max Display	1999
Pollution Level	2
Range Selection	Manual
Power	1 x 9 V 6F22 Battery
Altitude	6562 ft (<2000 m)
Sample Speed	3 Times Per Second
Overload Indication	“OL” Displayed
Low Battery Indication	“ ▭ ” Displayed
Environmental Conditions	CAT III 600 V
Input Polarity Indication	“-” Automatically Displayed
Fuse Protection	mA: F250 mA/250 V Fuse 10 A: F10 A/250 V Fuse
Temperature and Humidity	32~104 °F (0~40 °C); (<80% RH, <10 °C RH)
Storage Temperature and Humidity	14~140 °F (-10~60 °C); (<70% RH, take out battery)
Temperature Coefficient	0.1 x Accuracy/°C, <18 °C or >28 °C (<64 °F or > 82 °F)
Maximum voltage between the measuring terminals and the ground	600 V

DETAILED SPECIFICATIONS

Accuracy Note: Accuracy applies within one year after calibration.

Operating Conditions: The ambient temperature is between 64.4 ° F to 82.4 ° F (18 ° C to 28 ° C), and the relative humidity is less than or equal to 80%.

Accuracy: ± (% rdg + dgts) (rdg for reading and dgts for digits)

DC Voltage

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

Overload Protection: 600 V; Max Input Voltage: 600 V

Resistance

Range	Resolution	Accuracy
200 Ω	0.1 Ω	±(1.2% rdg + 5 dgts)
2 kΩ	0.001 kΩ	
20 kΩ	0.01 kΩ	
200 kΩ	0.1 kΩ	
2 MΩ	0.001 MΩ	
20 MΩ	0.01 MΩ	

Overload Protection: 250 V

AC Voltage

Range	Resolution	Accuracy
200 V	0.1 V	±(1.2% rdg + 5 dgts)
600 V	1 V	

Overload Protection: 600 V; Max Input Voltage: 600 V/40~400 Hz

DC/AC Current

Range	Resolution	Accuracy
20 mA	0.01 mA	±(1.5% rdg + 5 dgts)
200 mA	0.1 mA	
10 A	0.01 A	±(2.0% rdg + 5 dgts)

Overload Protection: mA: F250 mA/250 V fuse A: F10 A/250 V
Max Input Current: 250 mA; 10 A
AC Current Frequency Range: 40 Hz ~ 400 Hz; Response: True RMS
When measuring high currents, the continuous measuring time does NOT exceed 15 seconds.

Continuity

	If the value of the measured resistance or circuit is less than 50 Ω, the buzzer will beep.	Open circuit voltage is about 2 V. Overload Protection: 250 V

Diode

	Displays the approximate diode forward voltage value.	The reverse DC voltage is about 2.0 V. Overload Protection: 250 V

RECYCLING

You may dispose of the product when its service life has ended. Please recycle the recyclable parts according to local guidelines.

WARRANTY PERIOD

3-Year Limited Warranty from AstroAI.

Each AstroAI DM200M Digital Multimeter will be free from defects in material and workmanship.

This warranty does not cover fuses, disposable batteries and damage from neglect, misuse, contamination, alterations, accidents, or abnormal conditions of operation or handling, including overvoltage failures caused by use outside the multimeter's specified rating, or normal wear and tear of mechanical components. This warranty covers the original purchaser only and is not transferable.

If this product is defective, please contact AstroAI Customer Support at support@astroai.com.

AstroAI

Web: www.astroai.com
E-Mail: support@astroai.com