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› ChgImposs Analog Multimeter INS_50T User Manual

ChgImposs INS_50T

ChgImposs Analog Multimeter Model INS_50T User Manual

Comprehensive instructions for safe and effective use.

1. SAFETY INFORMATION

Before using the ChgImposs Analog Multimeter, please read and understand all safety warnings and operating instructions. Failure to follow these instructions may result in electric shock, fire, or damage to the device or property.

- Always ensure the multimeter is set to the correct range before making any measurements.
- Do not attempt to measure voltages or currents exceeding the maximum rated values of the device.
- Exercise extreme caution when working with live electrical circuits. Always assume circuits are live until proven otherwise.
- Inspect test leads for damage before each use. Do not use if insulation is cracked or if the probes are exposed.
- Replace the battery only with the specified type (1 x AA Battery). Ensure the device is disconnected from all circuits before opening the battery compartment.
- Keep the device dry and clean. Do not operate in wet or damp conditions.



Figure 1: Back of the multimeter with a warning label. The label states: "WARNING TO AVOID ELECTRIC SHOCK DISCONNECT MEASURING TERMINALS BEFORE REMOVING BATTERY. REPLACE ONLY WITH SAME TYPE BATTERY."

2. PRODUCT OVERVIEW

The ChgImposs Analog Multimeter Model INS_50T is a portable, manual-ranging device designed for measuring DC voltage, AC voltage, DC current, resistance (Ohms), and decibels. It is suitable for basic electrical troubleshooting in automotive, household, and educational settings.



Figure 2: The ChgImposs Analog Multimeter Model INS_50T, shown held in a hand, illustrating its compact size.

2.1 Components and Controls

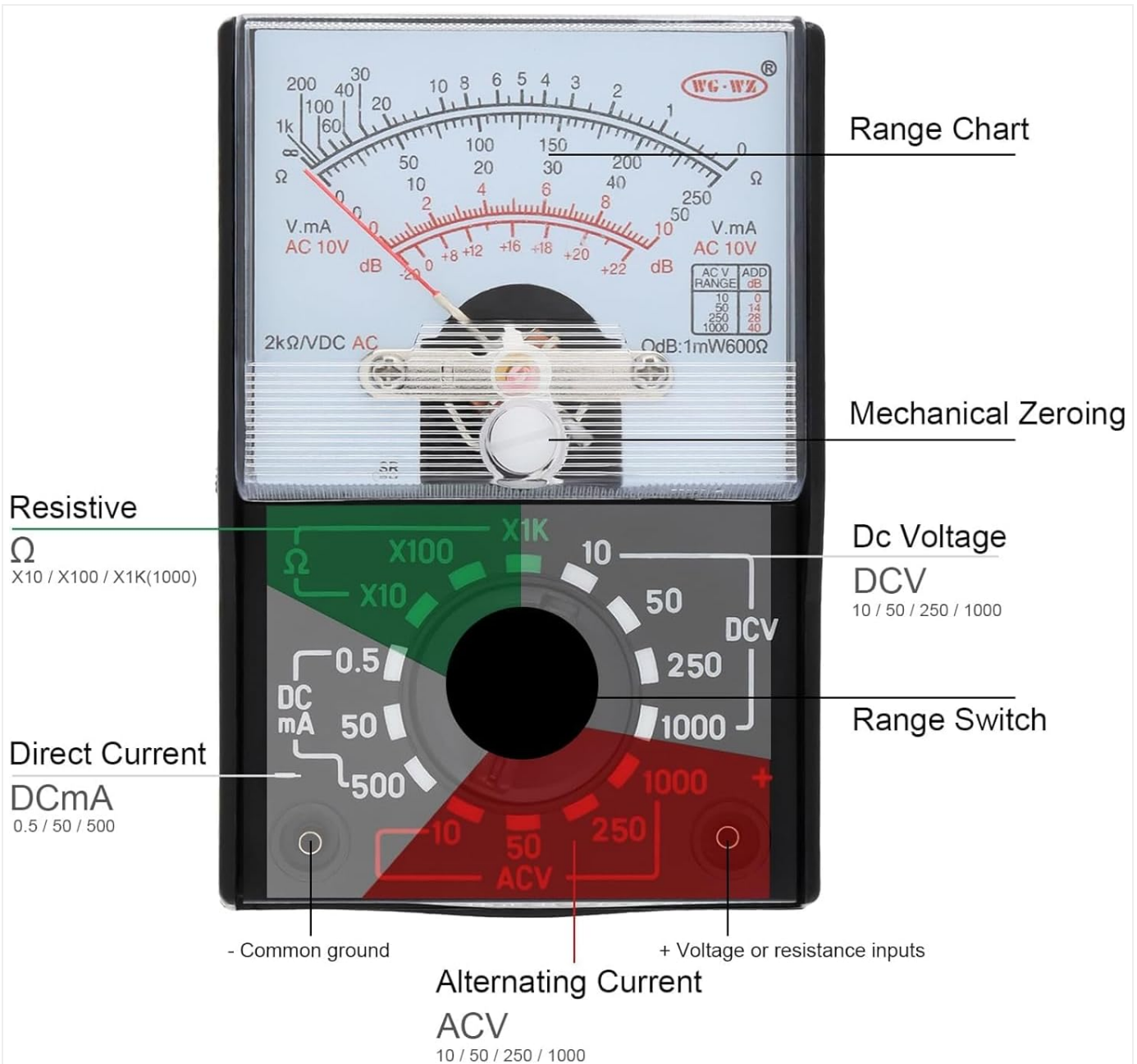


Figure 3: Detailed diagram of the multimeter's front panel with key components labeled.

1. **Range Chart:** Displays the various measurement scales for voltage, current, resistance, and decibels.
2. **Mechanical Zeroing:** Adjustment screw for setting the needle to zero when no input is present.
3. **Resistive (Ω) Scale:** Used for resistance measurements (x10, x100, x1K).
4. **DC Voltage (DCV) Ranges:** Settings for measuring direct current voltage (10V, 50V, 250V, 1000V).
5. **Range Switch:** Rotary dial to select the desired measurement function and range.
6. **Direct Current (DCmA) Ranges:** Settings for measuring direct current (0.5mA, 50mA, 500mA).
7. **Common Ground (-):** Input terminal for the black test lead.
8. **Alternating Current (ACV) Ranges:** Settings for measuring alternating current voltage (10V, 50V, 250V, 1000V).
9. **Voltage or Resistance Inputs (+):** Input terminal for the red test lead when measuring voltage or resistance.

3. SPECIFICATIONS

Parameter	Value
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Parameter	Value
DC Voltage Range	0 - 10 - 50 - 250 - 1000V
AC Voltage Range	0 - 10 - 50 - 250 - 1000V
DC Current Range	0 - 0.5 - 50 - 500mA
Ohm Meter Ranges	x10, x100, x1K
Decibels (dB)	-20dB to +22dB (on AC Voltage Ranges)
Power Supply	1 x AA Battery (Not Included)
Material	Plastic
Item Weight	80 Grams
Dimensions (approx.)	90mm (H) x 60mm (W) x 28.5mm (D)
Minimum Operating Voltage	250 Volts
Maximum Operating Voltage	1000 Volts

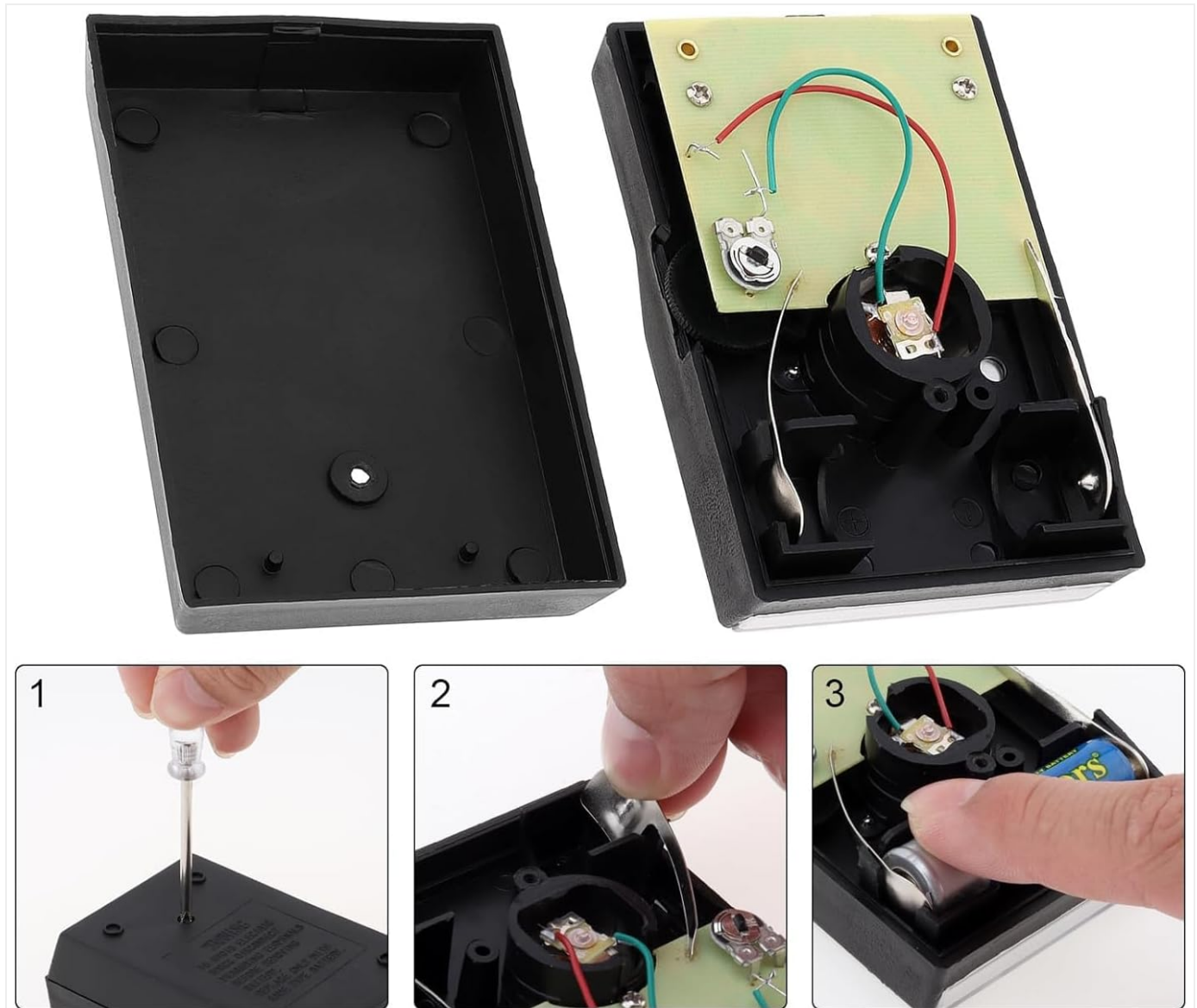


Figure 4: Diagram illustrating the approximate dimensions of the multimeter: 90mm height, 60mm width, and 28.5mm depth.

4. SETUP

4.1 Battery Installation

The multimeter requires one AA battery (not included) for operation. Follow these steps to install the battery:



1. First open the back cover of multimeter,
2. Then press the iron sheet of battery inner cover,
3. Finally install the AA battery and close the cover, tighten the screw.

Note: If the battery was stuck out, please directly close the back cover, tighten the screw and then the multimeter can be used normally.

Figure 5: Visual guide for installing the AA battery into the multimeter's back compartment.

1. First, open the back cover of the multimeter. This usually involves unscrewing a small screw or sliding a latch.
2. Next, gently press the iron sheet of the battery inner cover to make space for the battery.
3. Finally, install the AA battery, ensuring correct polarity (+/-), and then close the back cover. Tighten any screws to secure it.

Note: If the battery appears stuck or does not fit perfectly, ensure it is correctly aligned. If the battery was slightly protruding, you can directly close the back cover and tighten the screw, and the multimeter should function normally.

4.2 Connecting Test Leads

Proper connection of the test leads is essential for accurate and safe measurements.



Figure 6: The multimeter with the red test lead connected to the positive input and the black test lead connected to the common ground.

- Insert the black test lead into the **Common Ground (-)** terminal.
- Insert the red test lead into the **Voltage or Resistance Inputs (+)** terminal for most measurements (voltage, resistance, decibels). For current measurements, refer to the specific instructions in the operating section.

5. OPERATING INSTRUCTIONS

Always ensure the multimeter is set to the appropriate range before connecting to a circuit. If the approximate value is unknown, start with the highest range and work downwards.

5.1 Measuring Resistance (Ohms)

To measure resistance, ensure the circuit is de-energized before connecting the multimeter.

1. Set the Range Switch to the desired **Ω (Ohm)** range (x10, x100, or x1K).

2. Touch the test probes together to check for continuity and to zero the meter if necessary using the mechanical zeroing adjustment.
3. Connect the test leads across the component whose resistance you wish to measure.
4. Read the value from the Ω scale on the meter face and multiply by the selected range multiplier.

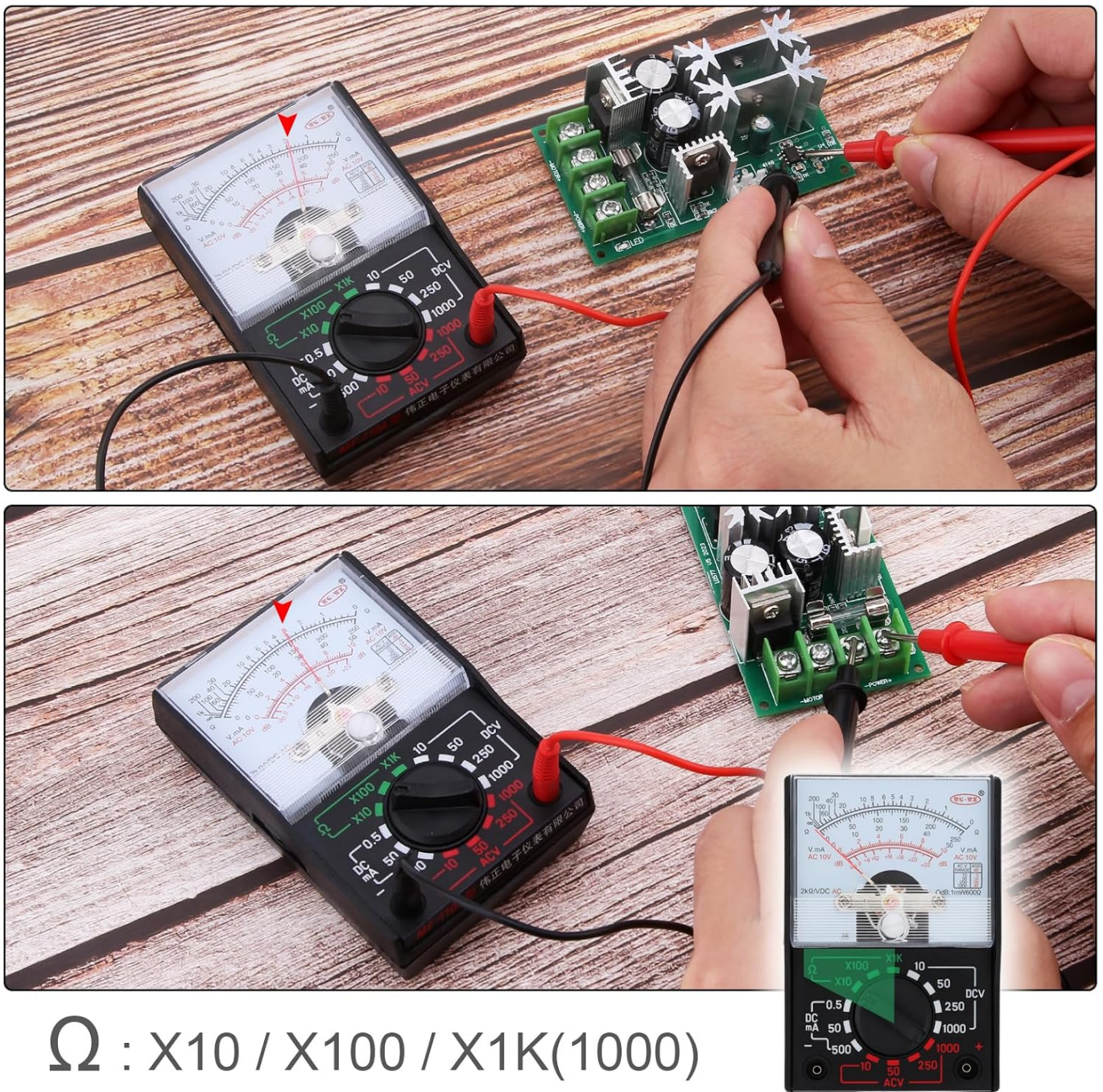


Figure 7: Example of measuring resistance on a circuit board. The range switch is set to an Ohm (Ω) setting.

5.2 Measuring DC Voltage (DCV)

To measure DC voltage, connect the multimeter in parallel with the component or power source.

1. Set the Range Switch to the desired **DCV** range (10V, 50V, 250V, or 1000V).
2. Connect the red test lead to the positive (+) side of the circuit and the black test lead to the negative (-) side.
3. Read the value from the DCV scale on the meter face.



DCV: 10 / 50 / 250 / 1000 (V/mA)

Figure 8: Example of measuring DC voltage across a battery. The range switch is set to a DCV setting.

5.3 Measuring AC Voltage (ACV)

To measure AC voltage, connect the multimeter in parallel with the AC power source or component.

1. Set the Range Switch to the desired **ACV** range (10V, 50V, 250V, or 1000V).
2. Connect the test leads across the AC source or component. Polarity is not critical for AC voltage measurement.
3. Read the value from the ACV scale on the meter face.

5.4 Measuring DC Current (DCmA)

To measure DC current, the multimeter must be connected in series with the circuit. This requires breaking the circuit to insert the meter.

WARNING: Never connect the multimeter in series with a live circuit without first selecting the appropriate current range. Incorrect connection can damage the meter or cause injury.

1. Ensure the circuit is de-energized.

- 2. Set the Range Switch to the desired**DCmA** range (0.5mA, 50mA, or 500mA).
- 3. Break the circuit at the point where you want to measure current.
- 4. Connect the multimeter in series, with the red lead towards the higher potential and the black lead towards the lower potential.
- 5. Re-energize the circuit and read the value from the DCmA scale.

5.5 Measuring Decibels (dB)

Decibel measurements are typically performed in conjunction with AC voltage measurements.

- 1. Set the Range Switch to an appropriate**ACV** range.
- 2. Connect the test leads across the AC signal source.
- 3. Read the value from the**dB** scale on the meter face.

6. MAINTENANCE

6.1 Battery Replacement

When the meter's needle does not respond or provides erratic readings, the battery may need replacement. Refer to Section 4.1 for detailed battery installation instructions. Always use a fresh AA battery.

6.2 Cleaning

To clean the multimeter, wipe the case with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the device is completely dry before use.

6.3 Storage

Store the multimeter in a cool, dry place away from direct sunlight and extreme temperatures. If storing for extended periods, remove the battery to prevent leakage.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
No reading or erratic needle movement	Dead or low battery Loose test leads Incorrect range selection	Replace battery Ensure leads are firmly connected Select appropriate measurement range
Incorrect reading	Wrong range selected Improper connection (series vs. parallel) Mechanical zeroing off	Adjust range Verify connection method Adjust mechanical zeroing screw
Meter does not turn on	No battery or dead battery Battery installed incorrectly	Install or replace battery Check battery polarity

8. WARRANTY AND SUPPORT

Specific warranty information for the ChgImposs Analog Multimeter Model INS_50T is not available in this manual. Please refer to the product packaging or contact the retailer or manufacturer directly for warranty details and technical support.

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