AmazonCommercial 90DM610

AmazonCommercial 90DM610 Digital Multimeter User Manual

Model: 90DM610

1. Introduction

The AmazonCommercial 90DM610 is a 6000-count digital multimeter designed for accurate electrical measurements. It features True RMS for precise readings of non-sinusoidal waveforms, an IP67 rating for dust and water resistance, and a CATIV 600V safety rating for industrial environments. This multimeter includes a built-in thermometer and functions such as a Low Pass Filter (VFD), Max/Min, Relative, and Data Hold, making it suitable for a wide range of applications.

2. Safety Information

Read and understand all safety information and operating instructions before using this multimeter. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- **Always adhere to safety standards:** Use appropriate personal protective equipment (PPE) such as insulated gloves and eye protection.
- **Voltage Limits:** Do not exceed the maximum input limits for any function. This device is rated CATIV 600V.
- **Proper Lead Connection:** Connect the common (COM) test lead before connecting the live test lead. Disconnect the live test lead first.
- **Inspect Test Leads:** Before each use, check test leads for damaged insulation or exposed metal. Replace if damaged.
- **Avoid Wet Conditions:** Do not operate the multimeter in wet environments. The IP67 rating provides protection against dust and temporary immersion, but caution is still advised.
- **Fuse Replacement:** Replace blown fuses only with fuses of the specified type and rating.
- **Battery Replacement:** Ensure the multimeter is turned off and test leads are disconnected before opening the battery compartment.
- **Circuit De-energization:** Always de-energize the circuit and discharge all high-voltage capacitors before performing resistance, continuity, diode, or capacitance measurements.

3. Package Contents

Verify that all items listed below are included in your package. If any items are missing or damaged, contact customer

support.

- AmazonCommercial 90DM610 Digital Multimeter
- Test Leads (Red and Black)
- 9V Battery
- Carrying Case
- Type K Temperature Probe
- Waterproof Plug for Jack
- User Manual



Image 3.1: Digital Multimeter with test leads, temperature probe, 9V battery, and carrying case.

4. Product Overview

The AmazonCommercial 90DM610 Digital Multimeter features a robust design with an intuitive interface for various electrical measurements.



Image 4.1: Front view of the AmazonCommercial 90DM610 Digital Multimeter.

4.1. Display



Image 4.2: Close-up of the multimeter's backlit LCD display.

The large, backlit LCD displays measurement values, units, and function indicators. It features a 6000-count resolution for precise readings.

4.2. Controls and Input Jacks

- **Rotary Switch:** Selects the desired measurement function (e.g., V~, V-, A~, A-, Ω, CAP, Hz, Temp).
- **RANGE Button:** Manually selects the measurement range (Auto Range is default).
- **MODE Button:** Toggles between different sub-functions within a rotary switch position (e.g., AC/DC voltage, continuity/diode). Activates VFD (Low Pass Filter) function.
- **MAX/MIN Button:** Records and displays the maximum and minimum measured values.
- **REL Button:** Activates the Relative measurement mode, displaying the difference between the current reading and a stored reference value.
- **HOLD Button:** Freezes the current display reading.
- **Hz/% Button:** Toggles between frequency and duty cycle measurements.
- **VΩCAPHzTemp Input Jack:** Positive input for voltage, resistance, capacitance, frequency, and temperature measurements.
- **COM Input Jack:** Common (negative) input for all measurements.

- **mAµA Input Jack:** Positive input for current measurements up to 800mA.
- **10A Input Jack:** Positive input for current measurements up to 10A.

5. Setup

5.1. Battery Installation

The multimeter requires one 9V battery (included). Ensure the multimeter is OFF and test leads are disconnected before proceeding.

1. Locate the battery compartment cover on the back of the multimeter.
2. Unscrew the retaining screw and remove the cover.
3. Connect the 9V battery to the battery connector, observing correct polarity.
4. Place the battery into the compartment and replace the cover, securing it with the screw.



Image 5.1: Back of the multimeter showing the battery compartment.

5.2. Connecting Test Leads

Always connect the black test lead to the COM jack. Connect the red test lead to the appropriate input jack based on the measurement type.

- For Voltage, Resistance, Capacitance, Frequency, and Temperature: Connect the red test lead to the **VΩCAPHzTemp** jack.
- For Current (mA/µA): Connect the red test lead to the **mAµA** jack.
- For High Current (10A): Connect the red test lead to the **10A** jack.

6. Operating Instructions

Turn the rotary switch to the desired function. The multimeter will typically auto-range. Use the RANGE button for manual ranging if needed, and the MODE button to select specific sub-functions (e.g., AC/DC).

6.1. AC/DC Voltage Measurement

To measure voltage:

1. Connect the black test lead to the COM jack and the red test lead to the VΩCAPHzTemp jack.
2. Turn the rotary switch to V~ (AC Voltage) or V- (DC Voltage). Use the MODE button to toggle if a combined setting is present.
3. Connect the test probes in parallel to the circuit or component being measured.
4. Read the voltage value on the display.



Image 6.1: Measuring AC voltage at an electrical panel.

6.2. Resistance Measurement

To measure resistance:

1. Ensure the circuit is de-energized.
2. Connect the black test lead to the COM jack and the red test lead to the VΩCAPHzTemp jack.
3. Turn the rotary switch to the Ω (Resistance) position.
4. Connect the test probes across the component to be measured.
5. Read the resistance value on the display.



Image 6.2: Measuring resistance on a circuit board.

6.3. Temperature Measurement

To measure temperature:

1. Connect the Type K temperature probe to the VΩCAPHzTemp and COM jacks, observing polarity.
2. Turn the rotary switch to the Temp °C/°F position.
3. Use the MODE button to select between Celsius (°C) and Fahrenheit (°F).
4. Place the tip of the temperature probe on the object or in the environment to be measured.
5. Read the temperature value on the display.



Image 6.3: Measuring temperature with the Type K probe.

6.4. Other Functions

- **Current (A~, A-, mA~, mA-, µA~, µA-):** Connect the red lead to the appropriate current jack (mAµA or 10A) and the black lead to COM. Turn the rotary switch to the desired current range. Connect the multimeter in series with the circuit.
- **Continuity:** Turn the rotary switch to Ω. Press MODE to select continuity (indicated by a buzzer symbol). A continuous beep indicates a complete circuit.
- **Diode Test:** Turn the rotary switch to Ω. Press MODE to select diode test (indicated by a diode symbol). Connect probes across the diode to measure forward voltage drop.
- **Capacitance (CAP):** Turn the rotary switch to CAP. Connect probes across the capacitor. Ensure the capacitor is discharged before testing.
- **Frequency/Duty Cycle (Hz/%):** Turn the rotary switch to Hz/%. Connect probes to the signal source. Press Hz/% button to toggle between frequency and duty cycle.
- **VFD (Low Pass Filter):** Activate by pressing the VFD button (if available on your model) or MODE button in AC voltage mode. This function filters out high-frequency noise for accurate measurements on variable frequency drives.
- **MAX/MIN:** Press the MAX/MIN button to record the highest and lowest readings during a measurement session.

- **REL (Relative Mode):** Press the REL button to set the current reading as a reference. Subsequent readings will show the difference from this reference.
- **HOLD:** Press the HOLD button to freeze the current reading on the display. Press again to release.

7. Specifications

Feature	Specification
Brand	AmazonCommercial
Model	90DM610
Measurement Type	Multimeter
Display Count	6000 Counts
True RMS	Yes
Safety Rating	CATIV 600V
Ingress Protection (IP) Rating	IP67 (Waterproof)
Power Source	9V Battery
Item Weight	0.56 Pounds
Item Dimensions (L x W x H)	7.09 x 2.17 x 3.23 inches
Included Components	Multimeter, Test Leads, 9V Battery, Carrying Case, Type K Temperature Probe, Waterproof Plug, User Manual

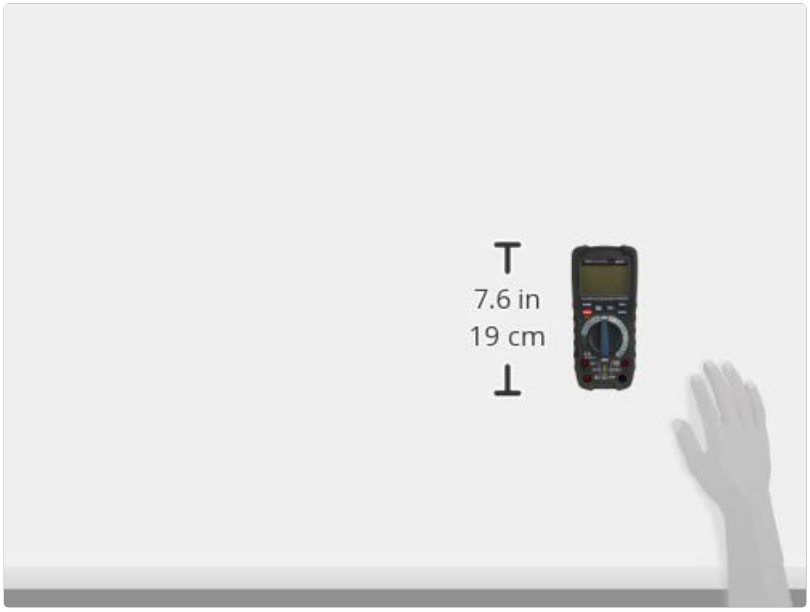

Image 7.1: Multimeter dimensions.

8. Maintenance

8.1. Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Ensure the device is dry before use.

8.2. Battery Replacement

When the battery indicator appears on the display, replace the 9V battery as described in the Setup section (5.1).

8.3. Fuse Replacement

If the current measurement function fails, the fuse may need replacement. Refer to the safety section and consult a qualified technician if unsure. Use only specified fuse types and ratings.

9. Troubleshooting

Problem	Possible Cause	Solution
No display or dim display	Low or dead battery	Replace the 9V battery.
Incorrect readings	Incorrect function selected, poor test lead connection, or damaged test leads.	Verify rotary switch position and MODE setting. Check test lead connections and inspect for damage.
Current measurement not working	Blown fuse.	Replace the fuse with the correct type and rating.
Continuity function slow or inconsistent	Test leads or probes may be worn or have high resistance.	Ensure firm contact with the circuit. Consider replacing test leads if issues persist.

10. Warranty and Support

This AmazonCommercial 90DM610 Digital Multimeter comes with a **1 Year Warranty** from the date of purchase. For warranty claims, technical support, or service inquiries, please refer to the contact information provided in your product packaging or visit the AmazonCommercial website.