GOLDEN BLUE 612

GOLDEN BLUE 612 Smart Digital Multimeter User Manual

Model: 612

1. Introduction

This manual provides detailed instructions for the safe and effective operation of the GOLDEN BLUE 612 Smart Digital Multimeter. The 612 model is a versatile tool designed for measuring AC/DC voltage, AC/DC current, resistance, capacitance, frequency, and includes features such as a calendar display, thermometer, and buzzer. It is suitable for various applications including DIY learning, home appliance repair, automotive diagnostics, and experimental debugging.
Please read this manual thoroughly before using the device and retain it for future reference.

2. Safety Information

WARNING: To avoid electrical shock or personal injury, please read and understand all safety information before using this multimeter.

- Always ensure the multimeter is in the correct function and range for the measurement being performed.
- Do not apply voltage or current that exceeds the maximum specified limits for the multimeter.
- Exercise extreme caution when working with live circuits. High voltages can be lethal.
- Inspect test leads for damaged insulation or exposed metal before use. Replace if damaged.
- Do not use the multimeter if it appears damaged or if it is not operating properly.
- Always disconnect power to the circuit and discharge all high-voltage capacitors before measuring resistance, continuity, diodes, or capacitance.
- Do not operate the multimeter in explosive gas, vapor, or dusty environments.
- Ensure the battery cover is securely closed before operation.

3. Product Overview

The GOLDEN BLUE 612 Smart Digital Multimeter features a compact design with a clear LCD backlight screen and intuitive controls. Below are the key components and their functions.

Figure 3.1: The GOLDEN BLUE 612 Smart Digital Multimeter, showing the main unit, test leads (red and black), a protective carrying case, and the included instruction manual.

Figure 3.2: Key analysis of the multimeter's display and control panel. This image highlights the Week Measurement display area, AC voltage, DC voltage, Hertz, Capacitor, mA AC/DC current, 10A current input, COM input, Black watch pen positive input, Red marker positive input, Year Month Day/Time/alarm clock, Temperature °C/°F, Humidity show, Shutdown button, Resistor/Diode/on and off beep, Function turntable, AC and DC current, and various control buttons (MODE, ADJ, SELECT, RANGE, F/C, H/*).

3.1. Display Features

- **LCD Backlight Screen:** High-definition display for clear readings in various lighting conditions.
- **Maximum Count:** 4000 counts.
- **Calendar Clock:** Displays year, month, day, and time.
- **Hygrothermograph:** Real-time temperature and humidity display.
- **Low Battery Reminder:** Indicates when battery replacement is needed.
- **Data Retention:** Holds the current measurement on the display.
- **Automatic Shutdown:** Powers off after 15 minutes of inactivity to conserve battery.

3.2. Control Buttons and Dial

- **Function Turntable:** Selects the primary measurement mode (e.g., Voltage, Current, Resistance).
- **MODE Button:** Used for time/alarm switch, and to enter clock or alarm mode (press and hold for 3

seconds).

- **ADJ Button:** Adjusts settings when in clock or alarm mode.
- **RANGE Button:** Short press to enter manual range selection mode; long press to exit and return to Auto Range Mode.
- **SELECT Button:** Function selection key, primarily for multi-function modes.
- **F/C Button:** Toggles between Fahrenheit and Celsius temperature units.
- **H/* Button:** Long press to turn the backlight on or off. Short press to toggle data hold (lock) function.

3.3. Input Jacks

- **COM Jack:** Common input for all measurements (black test lead).
- **VΩmAHz Jack:** Input for voltage, resistance, capacitance, frequency, and milliampere current measurements (red test lead).
- **10A Jack:** Input for 10 Ampere current measurements (red test lead).

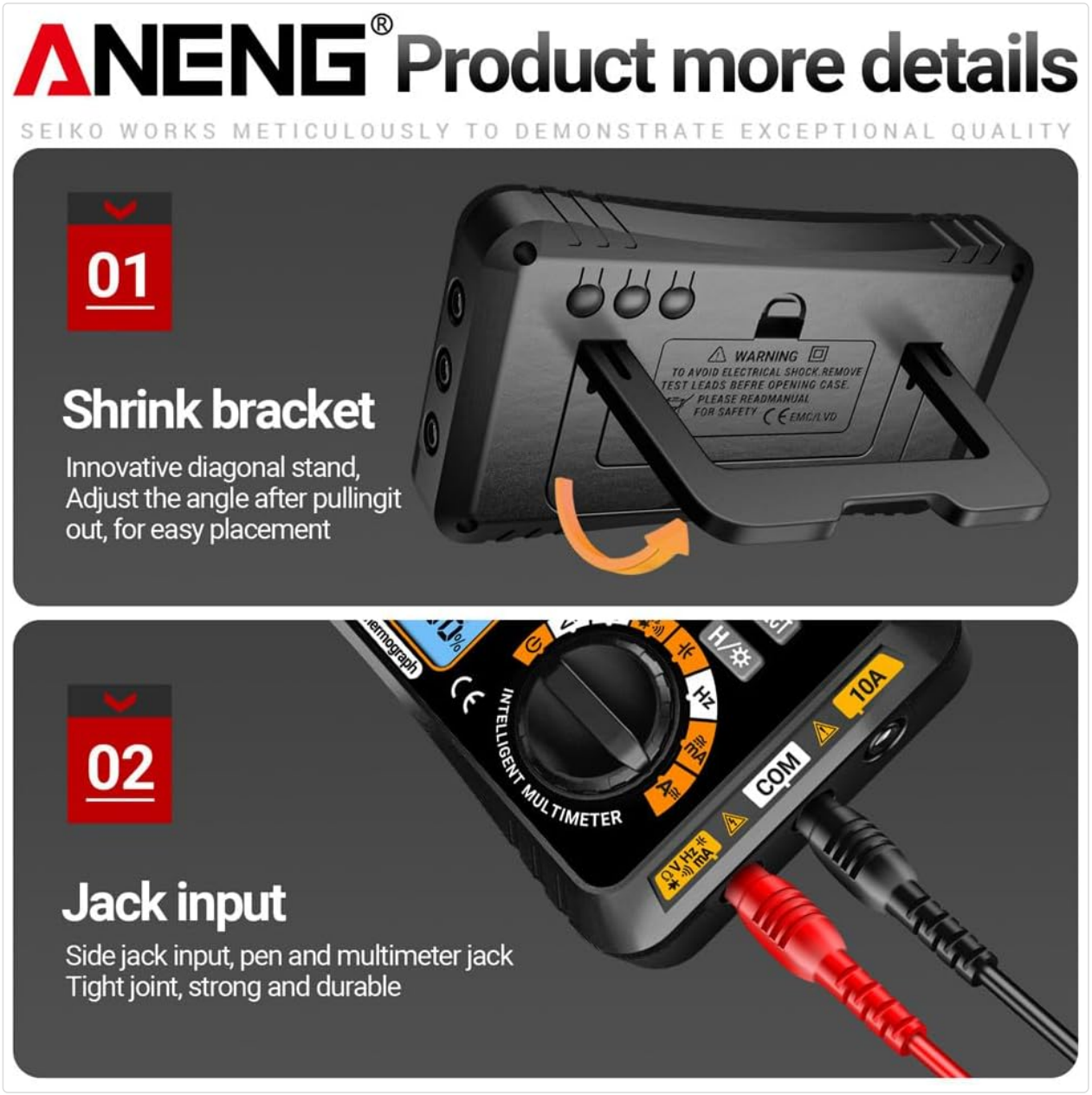

Figure 3.3: Details of the multimeter's physical features. The top panel shows the innovative shrink bracket for vertical support, allowing for adjustable viewing angles. The bottom panel illustrates the side jack inputs for test leads, emphasizing a tight, strong, and durable connection.

4. Setup

4.1. Battery Installation

The GOLDEN BLUE 612 Multimeter requires two AAA batteries (not included). Follow these steps to install them:

1. Ensure the multimeter is powered off.
2. Locate the battery compartment on the back of the device.
3. Use a screwdriver (if necessary) to open the battery compartment cover.
4. Insert two AAA batteries, observing the correct polarity (+ and -) as indicated inside the compartment.
5. Replace the battery compartment cover and secure it.

Figure 4.1: Illustration of the AAA battery compartment on the back of the GOLDEN BLUE 612 Multimeter, showing the placement of two 1.5V AAA batteries. The cover is shown detached, indicating how to access the compartment for battery installation or replacement.

4.2. Connecting Test Leads

Connect the test leads to the appropriate input jacks:

- Insert the black test lead into the **COM** (Common) jack.
- For most measurements (voltage, resistance, capacitance, frequency, mA current), insert the red test lead into the **VΩmAHz** jack.
- For high current measurements (up to 10A), insert the red test lead into the **10A** jack.

5. Operating Instructions

Turn the function turntable to the desired measurement mode. The multimeter will typically operate in auto-ranging mode, but manual ranging can be selected using the RANGE button.

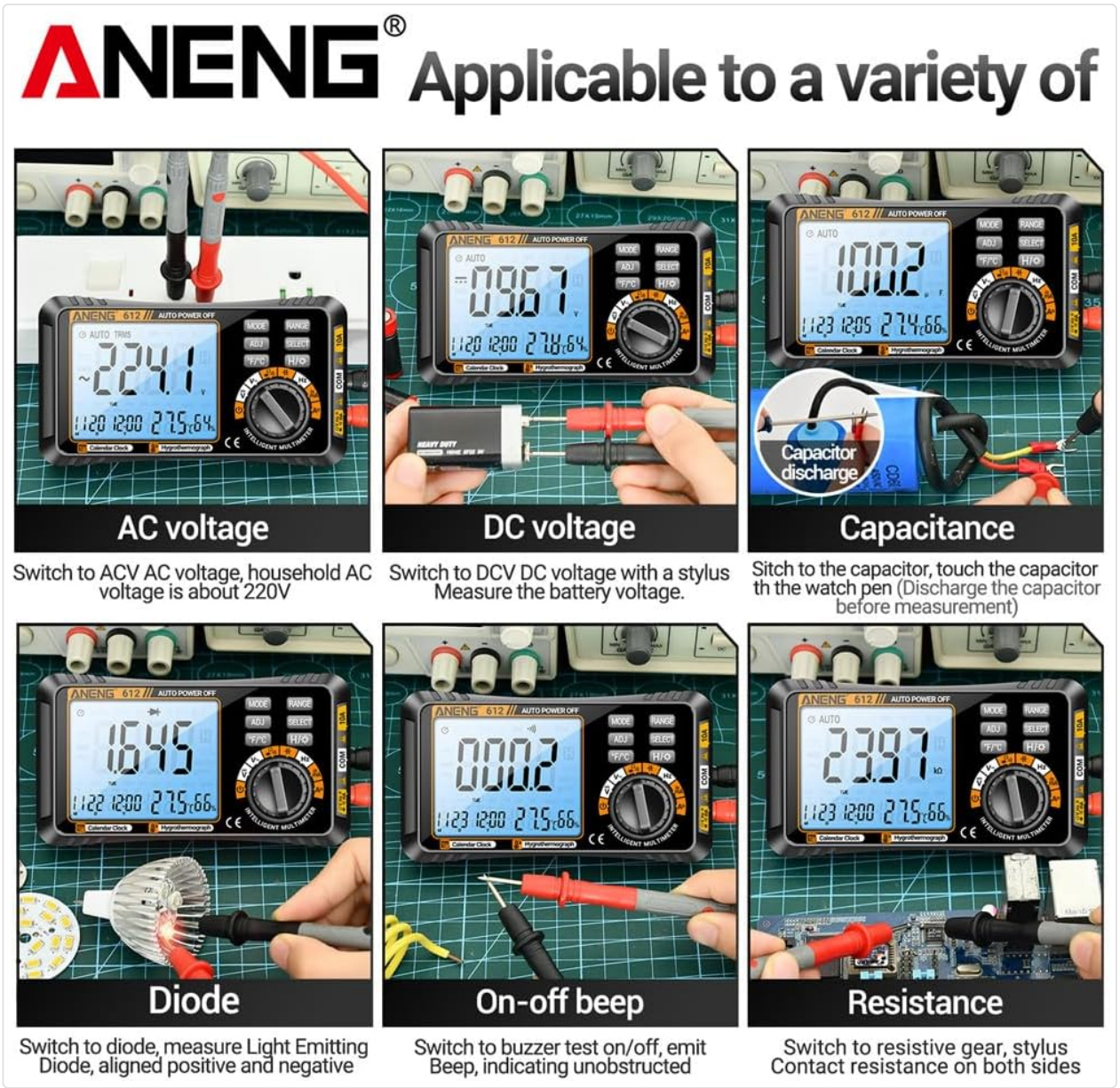

Figure 5.1: The multimeter displaying various measurement applications. This includes measuring AC voltage (e.g., household AC), DC voltage (e.g., with a stylus), capacitance (after discharging the capacitor), diode testing (for LEDs), on-off beep (continuity), and resistance.

5.1. Measuring AC Voltage

1. Set the function turntable to the AC Voltage (V~) position.
2. Connect the red test lead to the VΩmAHz jack and the black test lead to the COM jack.
3. Touch the test probes to the two points of the circuit where you want to measure AC voltage.
4. Read the voltage value on the display.

5.2. Measuring DC Voltage

1. Set the function turntable to the DC Voltage (V-) position.
2. Connect the red test lead to the VΩmAHz jack and the black test lead to the COM jack.
3. Touch the red test probe to the positive side and the black test probe to the negative side of the DC voltage source.
4. Read the voltage value on the display.

5.3. Measuring Capacitance

1. **WARNING:** Always discharge capacitors before measuring capacitance to avoid damage to the multimeter or personal injury.
2. Set the function turntable to the Capacitance (F) position.
3. Connect the red test lead to the VΩmAHz jack and the black test lead to the COM jack.
4. Touch the test probes to the terminals of the capacitor.
5. Read the capacitance value on the display.

5.4. Diode Test

1. Set the function turntable to the Diode (->|) position.
2. Connect the red test lead to the VΩmAHz jack and the black test lead to the COM jack.
3. Touch the red test probe to the anode and the black test probe to the cathode of the diode.
4. A forward voltage drop will be displayed for a good diode. Reverse the probes; the display should show "OL" (Open Loop).

5.5. Continuity Test (On-off Beep)

1. Set the function turntable to the Continuity (Buzzer) position.
2. Connect the red test lead to the VΩmAHz jack and the black test lead to the COM jack.
3. Touch the test probes to the two points of the circuit you want to test for continuity.
4. If there is continuity (low resistance), the multimeter will emit an audible beep.

5.6. Measuring Resistance

1. Set the function turntable to the Resistance (Ω) position.
2. Connect the red test lead to the VΩmAHz jack and the black test lead to the COM jack.
3. Touch the test probes across the component or circuit where you want to measure resistance.
4. Read the resistance value on the display.

Figure 5.2: The multimeter demonstrating additional measurement capabilities. This includes frequency (Hz) measurement, milliampere AC current (mA AC), milliampere DC current (mA DC), DC current, and AC current. Note the correct test lead placement for current measurements (in series with the load).

5.7. Measuring Frequency (Hz)

1. Set the function turntable to the Hz position.
2. Connect the red test lead to the VΩmAHz jack and the black test lead to the COM jack.
3. Touch the test probes to the circuit where you want to measure frequency.
4. Read the frequency value on the display.

5.8. Measuring AC/DC Current (mA and 10A)

WARNING: Never connect the multimeter in parallel with a voltage source when measuring current. Always connect it in series with the load.

1. **For mA Current:** Set the function turntable to the mA~ (AC) or mA- (DC) position. Connect the red test lead to the VΩmAHz jack and the black test lead to the COM jack.
2. **For 10A Current:** Set the function turntable to the 10A~ (AC) or 10A- (DC) position. Connect the red test lead to the 10A jack and the black test lead to the COM jack.

3. Open the circuit where you want to measure current and connect the multimeter in series.
4. Apply power to the circuit.
5. Read the current value on the display.

5.9. Calendar and Alarm Clock Functions

The multimeter includes a calendar display and an alarm clock function.

- **Setting Time/Alarm:** Press and hold the **MODE** button for approximately 3 seconds to enter clock or alarm setting mode. Use the **ADJ** button to adjust values.
- **Alarm Activation:** The device will emit an audible alert when the set alarm time is reached.

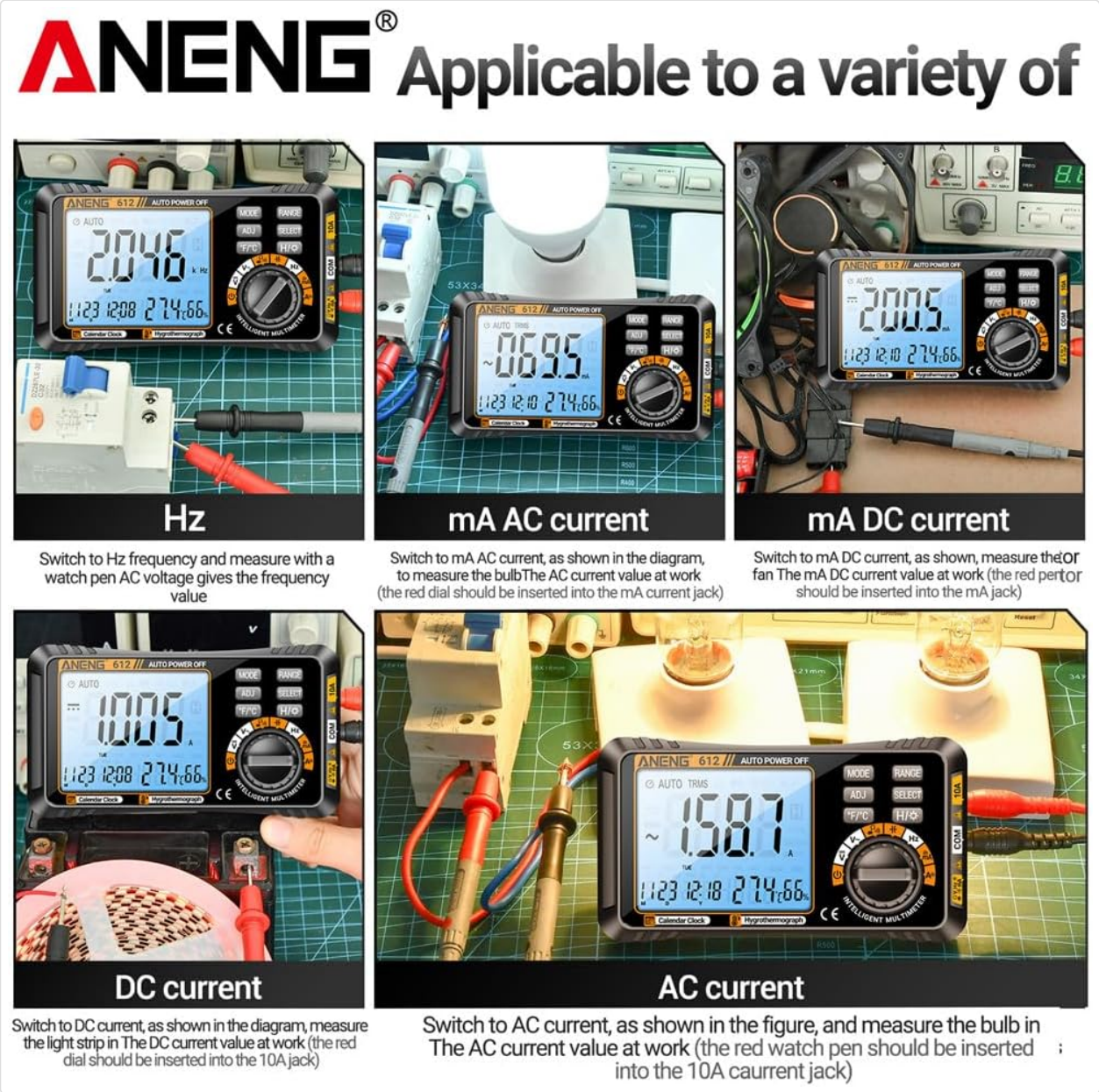

Figure 5.3: The multimeter's display showing the electronic alarm clock function. The screen indicates the current time and temperature/humidity, with an alarm icon and sound waves illustrating the alarm capability. The text "Set the time, it will dididi when the time is up. LCD backlight screen scene is clear." further explains this feature.

6. Maintenance

6.1. Cleaning

- Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

- Keep the input terminals free of dirt and moisture.

6.2. Battery Replacement

When the low battery indicator appears on the display, replace the batteries promptly to ensure accurate measurements. Refer to Section 4.1 for battery installation instructions.

6.3. Storage

- If the multimeter is not used for an extended period, remove the batteries to prevent leakage.
- Store the device in a cool, dry place, away from direct sunlight and extreme temperatures.

7. Troubleshooting

If the multimeter is not functioning as expected, refer to the following common issues and solutions:

Problem	Possible Cause	Solution
No display or dim display	Dead or low batteries; incorrect battery installation.	Replace batteries; check battery polarity.
"OL" (Overload) displayed	Input value exceeds the selected range; open circuit in continuity/resistance mode.	Select a higher range (if in manual range); check circuit connections.
Inaccurate readings	Low battery; incorrect function/range selection; damaged test leads.	Replace batteries; verify function/range; inspect and replace test leads if necessary.
No continuity beep	Open circuit; high resistance.	Ensure circuit is closed; check for breaks in wiring.

If the problem persists after attempting these solutions, please contact customer support.

8. Specifications

The GOLDEN BLUE 612 Smart Digital Multimeter offers the following technical specifications:

- **AC Voltage:** 0mV - 600V
- **DC Voltage:** 0V - 600V
- **AC Current:** 0mA - 10A
- **DC Current:** 0mA - 10A
- **Resistance:** 0 - 40MΩ
- **Capacitance:** 0nF - 40mF
- **Frequency (Hz):** 0Hz - 4MHz
- **Buzzer:** Yes (Continuity)
- **Diode Test:** Yes
- **Real-time Temperature:** Yes
- **Humidity:** Yes
- **Perpetual Calendar:** Yes

- **Timer Alarm:** Yes
- **Automatic Shutdown:** Yes (after 15 minutes of inactivity)
- **Data Retention:** Yes
- **Low Battery Reminder:** Yes
- **Screen Display:** LCD backlight screen
- **Maximum Count:** 4000 counts
- **Battery:** AAA*2 (not included)

Figure 8.1: Physical dimensions of the GOLDEN BLUE 612 Smart Digital Multimeter. The device measures approximately 13.5 cm (5.31 inches) in length, 7.45 cm (2.93 inches) in width, and 2.8 cm (1.1 inches) in thickness.

9. Warranty and Support

For warranty information and customer support, please refer to the documentation included with your purchase or contact GOLDEN BLUE customer service directly. Keep your purchase receipt as proof of purchase.
For additional resources, you may visit the GOLDEN BLUE Store on Amazon.