allsun EM8910

ALLOSUN EM8910 Digital Multimeter User Manual

Model: EM8910 | Brand: allsun

1. Introduction

This user manual provides comprehensive instructions for the safe and effective operation, maintenance, and troubleshooting of the ALLOSUN EM8910 Digital Multimeter. Please read this manual thoroughly before using the device to ensure proper functionality and to prevent potential hazards.
The ALLOSUN EM8910 is a portable, battery-powered digital multimeter designed for measuring DC/AC voltage, DC/AC current, resistance, capacitance, frequency, temperature, diode, and continuity. It is suitable for professional, factory, school, and home use.

2. Safety Information

WARNING: To avoid electric shock or personal injury, read the "Safety Information" and "Operating Instructions" carefully before using the meter.

- Always ensure the meter is in good working condition before use.
- Do not apply more than the rated voltage, as marked on the meter, between the terminals or between any terminal and earth ground.
- Use caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. Such voltages pose a shock hazard.
- Always disconnect the test leads from the circuit before changing functions or ranges.
- Do not use the meter if the test leads are damaged or if the meter itself appears damaged.
- Replace the battery as soon as the low battery indicator appears to ensure accurate readings.
- Do not operate the meter in explosive gas, vapor, or dust environments.
- Adhere to local and national safety codes. Individual protective equipment should be used to prevent shock and arc blast injury where hazardous live conductors are exposed.

3. Product Overview and Components

Figure 3.1: The ALLOSUN EM8910 Digital Multimeter, showing the main unit, test leads, 9V battery, and user manual.

Figure 3.2: Key components of the EM8910 Multimeter, including the LCD Display, HOLD Button, Continuity Indicator, Capacitance Test Socket, Transistor Socket, Function/Range Switch, and Input Terminals.

3.1 Front Panel Description

1. **LCD Display:** Shows measurement readings, units, and function indicators.
2. **Function/Range Switch:** Used to select the desired measurement function (e.g., V, A, Ω, F) and range. Also serves as the power ON/OFF switch. Turn to "OFF" position when not in use to save battery.
3. **HOLD Button:** Press to freeze the current reading on the display. Press again to exit Data Hold mode.
4. **Continuity Indicator:** An indicator used in continuity tests, often accompanied by an audible buzzer.
5. **Capacitance Test Socket (Cx):** Used for inserting capacitor leads for capacitance measurements.
6. **Transistor Socket (EBCE):** Used for testing NPN and PNP transistors by inserting their emitter, base, and collector leads.
7. **Input Terminals:**
    a. **COM:** Common terminal for all measurements. Connect the black test lead here.

b. **VΩHz:** Input terminal for voltage, resistance, frequency, diode, and continuity measurements. Connect the red test lead here.
c. **mA:** Input terminal for current measurements up to 200mA. Connect the red test lead here for mA range.
d. **20A:** Input terminal for high current measurements up to 20A. Connect the red test lead here for 20A range.

Figure 3.3: Detailed view of the Continuity Indicator, Function/Range Switch, and HOLD Button.

4. Setup and Battery Installation

The ALLOSUN EM8910 Digital Multimeter requires a 9V battery for operation. Ensure the battery is correctly installed before first use.

4.1 Battery Installation

1. Locate the battery compartment cover on the back of the multimeter.
2. Use a screwdriver to remove the screw securing the battery cover.

3. Carefully remove the cover.
4. Connect a new 9V battery (e.g., 6F22X type, as shown in Figure 3.1) to the battery clips, observing correct polarity (+ and -).
5. Place the battery into the compartment.
6. Replace the battery cover and secure it with the screw.

Note: If the low battery indicator appears on the display, replace the battery immediately to maintain measurement accuracy.

5. Operating Instructions

Before taking any measurements, ensure the test leads are properly connected to the multimeter and the circuit under test. Always select the appropriate function and range.

5.1 Measuring DC/AC Voltage

1. Insert the black test lead into the COM terminal and the red test lead into the VΩHz terminal.
2. Set the Function/Range Switch to the desired DCV (V=) or ACV (V~) range. If the voltage is unknown, start with the highest range and decrease as necessary.
3. Connect the test leads in parallel to the circuit or component you wish to measure.
4. Read the voltage value on the LCD display.

5.2 Measuring DC/AC Current

1. Insert the black test lead into the COM terminal. For current up to 200mA, insert the red test lead into the mA terminal. For current up to 20A, insert the red test lead into the 20A terminal.
2. Set the Function/Range Switch to the desired DCA (A=) or ACA (A~) range.
3. Disconnect power to the circuit. Open the circuit where you want to measure current. Connect the multimeter in series with the circuit.
4. Apply power to the circuit. Read the current value on the LCD display.
5. After measurement, disconnect power, remove the multimeter from the circuit, and restore the circuit.

5.3 Measuring Resistance

Figure 5.1: Measuring Resistance and Capacitance with the EM8910 Multimeter.

1. Insert the black test lead into the COM terminal and the red test lead into the VΩHz terminal.
2. Set the Function/Range Switch to the desired Ω (Ohm) range.
3. Ensure the circuit or component is de-energized before measuring resistance. Disconnect the component from the circuit if necessary to avoid parallel paths.
4. Connect the test leads across the component.
5. Read the resistance value on the LCD display.

5.4 Measuring Capacitance

Refer to Figure 5.1 for visual guidance.

1. Insert the black test lead into the COM terminal and the red test lead into the VΩHz terminal.
2. Set the Function/Range Switch to the desired F (Farad) range.
3. Discharge the capacitor completely before measurement to avoid damage to the meter.

4. Insert the capacitor leads into the Cx socket or connect the test leads across the capacitor.
5. Read the capacitance value on the LCD display.

5.5 Continuity Test

Figure 5.2: Performing a Continuity Test with the EM8910 Multimeter. A low resistance reading and an audible tone indicate continuity.

1. Insert the black test lead into the COM terminal and the red test lead into the VΩHz terminal.
2. Set the Function/Range Switch to the continuity (buzzer) position.
3. Connect the test leads across the circuit or component you want to test for continuity.
4. If there is continuity (low resistance), the meter will emit an audible tone and display a low resistance value (typically near 0). If there is no continuity, the display will show "OL" (Open Loop).

5.6 Diode Test

1. Insert the black test lead into the COM terminal and the red test lead into the VΩHz terminal.
2. Set the Function/Range Switch to the diode symbol position.

3. Connect the red test lead to the anode and the black test lead to the cathode of the diode. The display will show the forward voltage drop.
4. Reverse the test leads. The display should show "OL" (Open Loop) for a good diode. If it shows a reading in both directions or "OL" in both directions, the diode is faulty.

5.7 Transistor hFE Test

1. Set the Function/Range Switch to the hFE position.
2. Determine if the transistor is NPN or PNP.
3. Insert the emitter, base, and collector leads of the transistor into the corresponding holes in the Transistor Socket (EBCE) on the front panel.
4. Read the hFE value (DC current gain) on the LCD display.

6. Maintenance

6.1 Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Keep the terminals free from dirt and dust.

6.2 Battery Replacement

When the battery symbol appears on the LCD, the battery needs to be replaced. Follow the steps outlined in Section 4.1 "Battery Installation". Use a 9V (6F22X) battery.

6.3 Fuse Replacement

The multimeter is protected by fuses. If the current measurement function does not work, the fuse may be blown. Refer to the specifications for fuse ratings. To replace the fuse:

1. Ensure the meter is turned OFF and all test leads are disconnected.
2. Remove the battery compartment cover (as for battery replacement).
3. Locate the fuse(s) inside the meter.
4. Carefully remove the old fuse and replace it with a new fuse of the identical type and rating.
5. Replace the battery cover and secure it.

Note: The 20A input is unfused. Exercise extreme caution when using this range.

6.4 Durable Rubber Holster

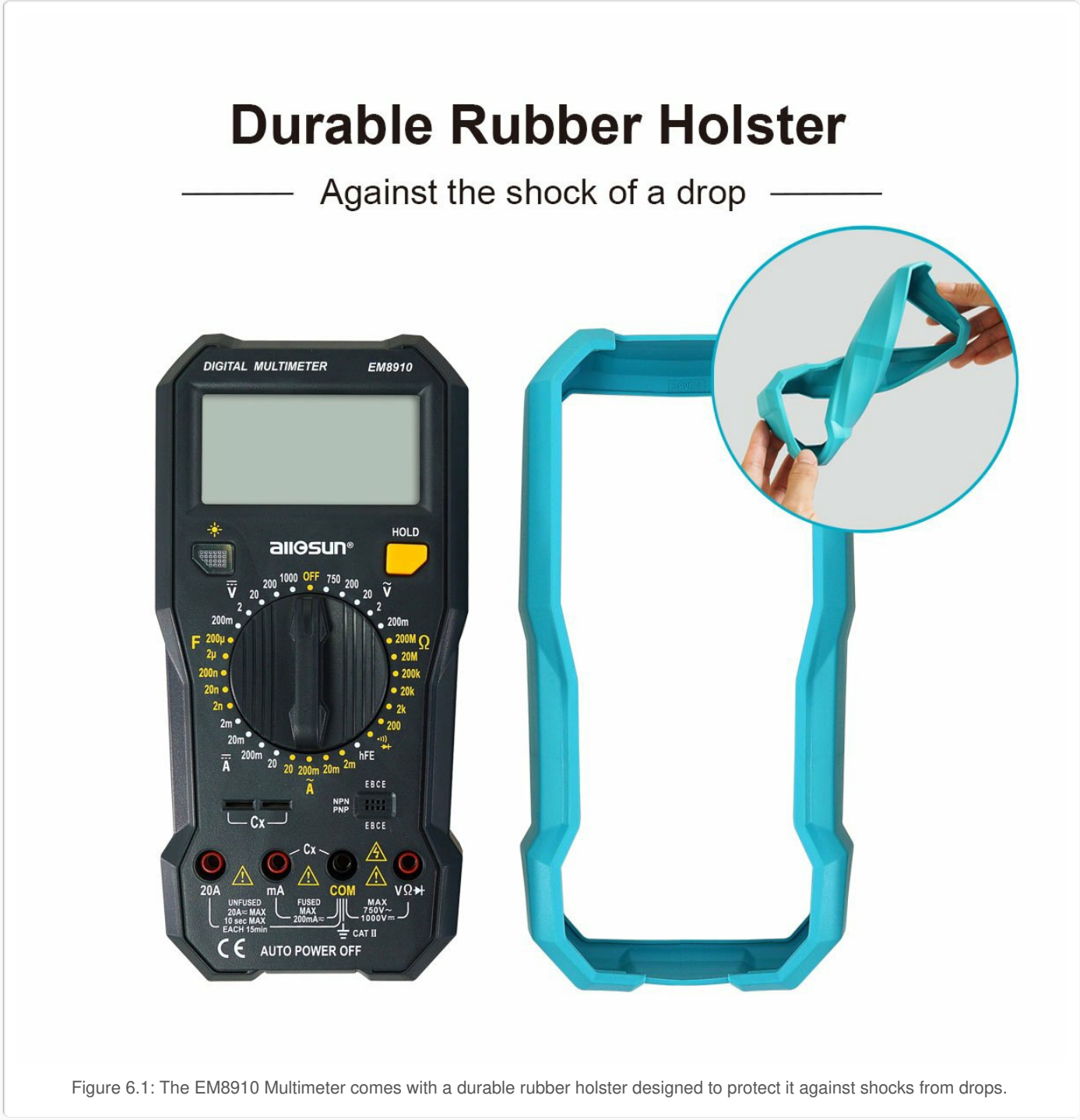

Figure 6.1: The EM8910 Multimeter comes with a durable rubber holster designed to protect it against shocks from drops.

The multimeter is equipped with a durable rubber holster that provides protection against physical impact and drops. This holster can be removed for cleaning or battery/fuse replacement if needed.

7. Troubleshooting

If the multimeter is not functioning correctly, check the following common issues before seeking professional assistance:

Problem	Possible Cause	Solution
No display or dim display	Low or dead battery; Meter is OFF.	Replace the 9V battery; Turn the Function/Range Switch to an ON position.
"OL" (Overload) displayed	Measurement exceeds selected range; Open circuit (for continuity/resistance).	Select a higher range; Check circuit for breaks or disconnected leads.

Problem	Possible Cause	Solution
Incorrect readings	Wrong function/range selected; Poor test lead connection; Blown fuse (for current).	Select correct function/range; Ensure leads are firmly connected; Check and replace fuse if necessary.
No current measurement	Blown fuse; Incorrect input terminal.	Check and replace the current fuse; Ensure red lead is in mA or 20A terminal.

8. Specifications

Feature	Specification
Model Number	EM8910
Brand	allsun
Dimensions (L x W x H)	21.08 x 11.94 x 23.11 cm
Item Weight	231 g (0.51 Pounds)
Power Source	9V Battery (6F22X type)
Display	LCD Digital Display
Safety Rating	CAT III (implied from image)
DC Voltage Range	200mV / 2V / 20V / 200V / 1000V (from dial)
AC Voltage Range	2V / 20V / 200V / 750V (from dial)
DC Current Range	200uA / 2mA / 20mA / 200mA / 20A (from dial)
AC Current Range	200uA / 2mA / 20mA / 200mA / 20A (from dial)
Resistance Range	200Ω / 2kΩ / 20kΩ / 200kΩ / 2MΩ / 20MΩ / 200MΩ (from dial)
Capacitance Range	2nF / 20nF / 200nF / 2uF / 20uF / 200uF (from dial)
Diode Test	Yes
Continuity Test	Yes (with buzzer)
Transistor hFE Test	Yes
Data Hold	Yes
Auto Power Off	Yes
UPC	788537554035

9. Warranty and Support

Specific warranty information for the ALLOSUN EM8910 Digital Multimeter is not provided in the product details. Please refer to the documentation included with your purchase or contact the manufacturer, Zhangzhou Eastern Intelligent Meter Co., Ltd, for warranty terms and customer support inquiries.
Manufacturer: Zhangzhou Eastern Intelligent Meter Co., Ltd

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