## allsun EM8910

# Allsun EM8910 Digital Multimeter User Manual

Comprehensive guide for operation, maintenance, and troubleshooting.

Overview Safety Components Setup Operation Maintenance Troubleshooting Specifications Support

## 1. Product Overview

The Allsun EM8910 Digital Multimeter is a compact and versatile 3 1/2-digit instrument designed for accurate electrical measurements. It is an essential tool for electricians, hobbyists, and DIY enthusiasts, capable of measuring a wide range of electrical parameters.
This manual provides detailed instructions for the safe and effective use of your EM8910 Digital Multimeter. Please read it thoroughly before operation.




Figure 1: Allsun EM8910 Digital Multimeter and included accessories. The image displays the multimeter unit, a 9V battery, a pair of red and black test leads, and a compact user manual.

## 2. Safety Information

Always observe safety precautions when using any electrical testing equipment. Failure to do so may result in injury or damage to the meter or equipment under test.

- **Do not** apply more than the rated voltage, as indicated in the specifications, between the terminals or between any terminal and ground.
- **Always** disconnect the test leads from the circuit before changing the function switch.
- **Be cautious** when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- **Ensure** the meter is in good working condition before use. Do not use if damaged.
- **Replace** the battery when the low battery indicator appears to ensure accurate readings.
- **Do not** operate the meter in explosive gas, vapor, or dust environments.
- **Use** the correct terminals, function, and range for your measurements.

## 3. Product Components and Controls

Familiarize yourself with the various parts and controls of your Allsun EM8910 Digital Multimeter.




Figure 2: Key components of the EM8910 Multimeter. This image highlights the Continuity Indicator, the Function/Range Switch for selecting measurement types, and the "HOLD" button for freezing readings on the display.

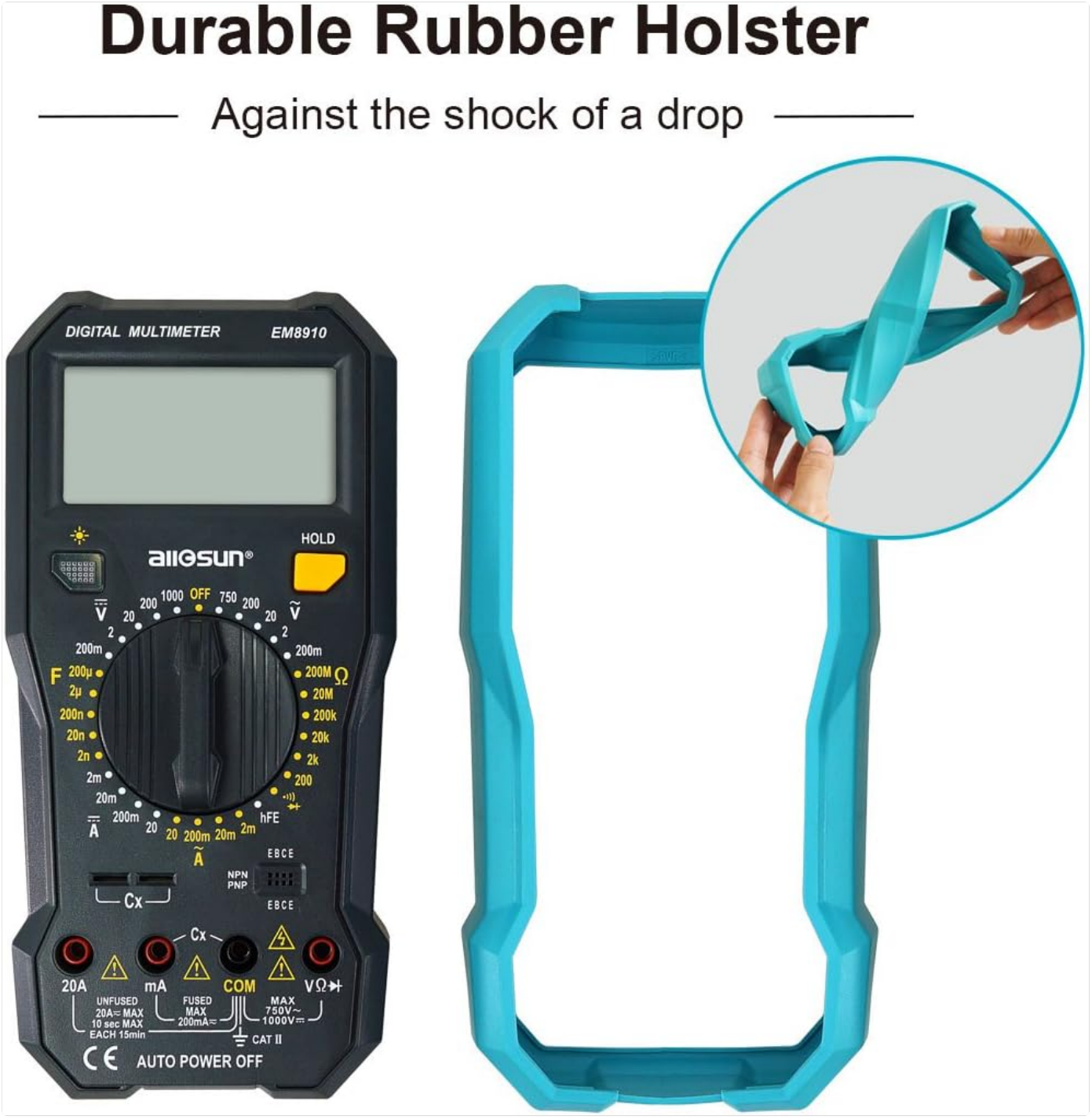



Figure 3: The durable rubber holster provides protection against drops and impacts, enhancing the longevity of the multimeter.

### Main Controls:

- **LCD Display:** 3 1/2-digit display with a maximum reading of 1999. Features backlight for low-light conditions.
- **Function/Range Switch:** Rotary switch to select the desired measurement function (e.g., V~, V-, A~, A-, Ω, F, Diode, Continuity, hFE) and range. Turn to "OFF" when not in use to conserve battery.
- **"HOLD" Button:** Press to freeze the current reading on the display. Press again to release.
- **Input Jacks:**
  - **"COM" Jack:** Common (negative) input for all measurements. Connect the black test lead here.
  - **"VΩmA" Jack:** Positive input for voltage, resistance, capacitance, diode, continuity, and small current (mA) measurements. Connect the red test lead here.
  - **"20A" Jack:** Positive input for high current (up to 20A) measurements. Connect the red test lead here for these measurements.

## 4. Setup and Initial Use

### 4.1. Battery Installation

The Allsun EM8910 Multimeter requires one 9V battery (6F22 or equivalent) for operation. A battery is typically included.

1. Ensure the multimeter is turned OFF.
2. Locate the battery compartment cover on the back of the unit.
3. Unscrew the retaining screw(s) and carefully remove the cover.
4. Connect the 9V battery to the battery clip, observing correct polarity (+ and -).
5. Place the battery into the compartment and replace the cover, securing it with the screw(s).




Figure 4: Rear view of the multimeter with the battery compartment open, illustrating the proper placement of the 9V battery.

### 4.2. Connecting Test Leads

Always connect the black test lead to the "COM" jack. Connect the red test lead to the appropriate positive input jack based on the measurement you intend to perform:

- For most measurements (Voltage, Resistance, Capacitance, Diode, Continuity, mA Current): Connect the red lead to the **VΩmA** jack.
- For high current (up to 20A) measurements: Connect the red lead to the **20A** jack.

## 5. Operating Instructions

### 5.1. General Operation

1. Turn the Function/Range switch to the desired measurement type and range.
2. Connect the test leads to the appropriate input jacks.
3. Connect the test leads to the circuit or component under test.
4. Read the measurement value on the LCD display.
5. To save the reading, press the "HOLD" button. Press again to resume live readings.
6. When finished, turn the Function/Range switch to "OFF".

## 5.2. Specific Measurement Functions

### 5.2.1. DC Voltage Measurement (V-)

- Set the Function/Range switch to the desired DC Voltage range (e.g., 200m, 2, 20, 200, 1000V).
- Connect the black test lead to "COM" and the red test lead to "VΩmA".
- Connect the test leads in parallel across the DC voltage source.
- The display will show the DC voltage value. If a negative sign appears, it indicates reversed polarity.

### 5.2.2. AC Voltage Measurement (V~)

- Set the Function/Range switch to the desired AC Voltage range (e.g., 200, 750V).
- Connect the black test lead to "COM" and the red test lead to "VΩmA".
- Connect the test leads in parallel across the AC voltage source.
- The display will show the AC voltage value.




Figure 5: Measuring AC voltage from a power strip. The multimeter is set to an AC voltage range, and the test leads are inserted into the power strip's outlets.

### 5.2.3. Resistance Measurement (Ω)

- Set the Function/Range switch to the desired Resistance range (e.g., 200, 2k, 20k, 200k, 2M, 20MΩ).
- Connect the black test lead to "COM" and the red test lead to "VΩmA".
- Ensure the circuit or component is de-energized before measuring resistance.
- Connect the test leads across the component.
- The display will show the resistance value. "OL" indicates an open circuit or resistance beyond the selected range.

### 5.2.4. Continuity Test (♫)

- Set the Function/Range switch to the Continuity position (often shared with Diode test).
- Connect the black test lead to "COM" and the red test lead to "VΩmA".
- Connect the test leads across the circuit or component.
- If the resistance is below approximately 50Ω, the meter will emit an audible beep, indicating continuity.




Figure 6: Performing a continuity test. The multimeter indicates continuity with an audible buzzing sound and a low resistance reading on the display.

### 5.2.5. Diode Test (→|→)

- Set the Function/Range switch to the Diode position.
- Connect the black test lead to "COM" and the red test lead to "VΩmA".
- Connect the red lead to the anode and the black lead to the cathode of the diode. The display will show the forward voltage drop (typically 0.5V to 0.8V for silicon diodes).
- Reverse the leads. The display should show "OL" (open circuit) for a good diode.

### 5.2.6. Capacitance Measurement (F)

- Set the Function/Range switch to the desired Capacitance range (e.g., 200p, 2n, 20n, 200n, 2µ, 20µ, 200µF).
- Connect the black test lead to "COM" and the red test lead to "VΩmA".
- Ensure the capacitor is fully discharged before testing.
- Connect the test leads across the capacitor terminals.
- The display will show the capacitance value.

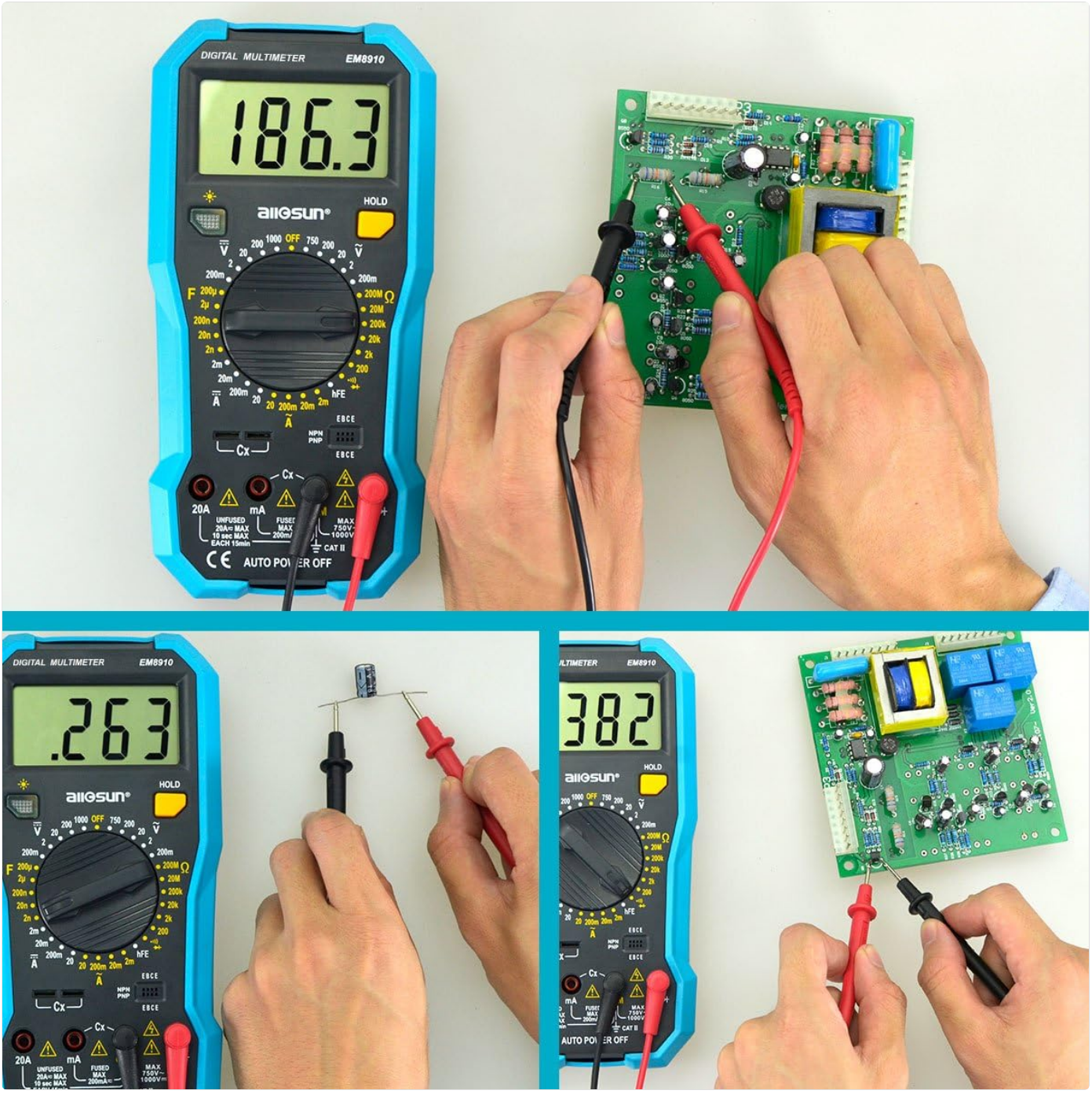



Figure 7: Examples of measurements: Top image shows resistance measurement on a circuit board. Bottom left shows capacitance measurement of a component. Bottom right shows diode test on a circuit board.

### 5.2.7. DC Current Measurement (A-)

- Set the Function/Range switch to the desired DC Current range (e.g., 200µ, 2m, 20m, 200m, 20A).
- For currents up to 200mA, connect the black test lead to "COM" and the red test lead to "VΩmA".
- For currents up to 20A, connect the black test lead to "COM" and the red test lead to "20A".
- **Important:** Connect the meter in series with the circuit. Break the circuit and insert the meter.
- The display will show the DC current value.

**Caution:** Do not attempt to measure currents exceeding the maximum rated input for the selected jack (200mA for VΩmA, 20A for 20A). Exceeding these limits can damage the meter's internal fuse or the meter itself.

### 5.2.8. Transistor hFE Test

- Set the Function/Range switch to the "hFE" position.
- Identify if the transistor is NPN or PNP.
- Insert the transistor leads (Emitter, Base, Collector) into the corresponding holes in the hFE socket on the multimeter.
- The display will show the hFE (DC current gain) value of the transistor.

## 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 moisture.

### 6.2. Battery Replacement

When the low battery indicator ("+ -") appears on the display, the 9V battery needs to be replaced to ensure accurate readings. Follow the steps outlined in Section 4.1. Battery Installation.

### 6.3. Fuse Replacement

If the meter fails to measure current, the fuse may be blown. The EM8910 uses a 200mA/250V fast-blow fuse for the mA range and a 20A/250V fast-blow fuse for the 20A range. To replace a fuse:

1. Ensure the meter is turned OFF and test leads are disconnected.
2. Remove the battery compartment cover (as for battery replacement).
3. Carefully unscrew the screws holding the back casing and open the meter.
4. Locate the blown fuse(s) and replace them with fuses of the exact same type and rating.
5. Reassemble the meter, ensuring all screws are tightened.

**Warning:** Replacing fuses with incorrect types or ratings can lead to meter damage or personal injury.

## 7. Troubleshooting

| Problem | Possible Cause | Solution |
|---|---|---|
| No display or dim display | Dead or low battery | Replace the 9V battery. |
| "OL" displayed in resistance/continuity mode | Open circuit; resistance too high; incorrect range selected | Check connections; select a higher resistance range; ensure circuit is complete. |
| No current measurement | Blown fuse; incorrect input jack; incorrect range | Check/replace fuse; ensure red lead is in "VΩmA" or "20A" jack; select appropriate current range. |
| Inaccurate readings | Low battery; incorrect range; external interference | Replace battery; select appropriate range; move away from strong electromagnetic fields. |

## 8. Specifications

| Parameter | Detail |
|---|---|
| Display | 3 1/2-digit LCD, max. reading 1999 |
| Overrange Indication | "1" shown on display |
| Negative Polarity Indication | "-" shown automatically |
| Sampling Rate | Approx. 2-3 times/sec |
| Operating Environment | Temperature: 0°C ~ 40°C, Humidity: < 75%RH |
| Storage Environment | Temperature: -10°C ~ 50°C, Humidity: < 85%RH |
| Battery | 9V battery, 6F22 or equivalent (1 piece) |
| Low Battery Indication | "+ -" shown on display |
| Dimensions | Approx. 8.7 x 5.3 x 2.3 inches (Package Dimensions) |

| Parameter | Detail |
|---|---|
| Weight | Approx. 16 ounces |
| Manufacturer | Zhangzhou Eastern Intelligent Meter Co., Ltd |

### Measurement Ranges:

- **DC Voltage:** 200mV, 2V, 20V, 200V, 1000V
- **AC Voltage:** 200V, 750V
- **DC Current:** 200µA, 2mA, 20mA, 200mA, 20A
- **Resistance:** 200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ, 20MΩ
- **Capacitance:** 200pF, 2nF, 20nF, 200nF, 2µF, 20µF, 200µF
- **Diode Test:** Yes
- **Continuity Test:** Yes (with buzzer)
- **Transistor hFE Test:** Yes

## 9. Warranty and Support

For warranty information, technical support, or service inquiries regarding your Allsun EM8910 Digital Multimeter, please contact the manufacturer, Zhangzhou Eastern Intelligent Meter Co., Ltd, or visit the official Allsun brand store.
You can find more information and contact details on the**Allsun Brand Store on Amazon**.
Please retain your purchase receipt for warranty purposes.

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