

allsun EM135

ALLOSUN EM135 Automotive Digital Multimeter Instruction Manual

Model: EM135

1. PRODUCT OVERVIEW

The ALLOSUN EM135 is a high-performance digital auto-ranging automotive multimeter designed for comprehensive automotive diagnostics. It offers a wide range of measurement functions including AC/DC voltage, AC/DC current, resistance, diode, continuity, capacitance, frequency, duty cycle, and Celsius/Fahrenheit temperature. Additionally, it features specialized functions for measuring RPM, dwell angle, fuel injection duration, O2-sensor, alternator, and fault code detection. Its large LCD display and full-range overload protection make it a reliable tool for automotive repair and service.



Figure 1: Front view of the ALLOSUN EM135 Automotive Digital Multimeter, showcasing its large LCD display and function dial.

2. WHAT'S IN THE BOX

Upon unpacking, please verify that all the following items are included:

- ALLOSUN EM135 Digital Multimeter
- Instruction Manual
- RPM Clamp Lead
- Test Leads (Red and Black)
- Carrying Bag



Figure 2: The ALLOSUN EM135 product packaging, indicating the contents within.

3. SETUP

3.1 Battery Installation

The ALLOSUN EM135 requires 6 AA batteries for operation. To install the batteries:

1. Ensure the multimeter is powered off.
2. Locate the battery compartment cover on the back of the device.
3. Use a screwdriver to loosen the screw securing the battery cover.
4. Remove the cover and insert 6 AA batteries, observing the correct polarity (+/-) as indicated inside the compartment.
5. Replace the battery cover and tighten the screw.



Figure 3: Rear view of the multimeter with the battery compartment open, showing where to insert the AA batteries.

3.2 Connecting Test Leads

For most measurements, connect the test leads as follows:

- Insert the **black** test lead into the "**COM**" (Common) terminal.
- Insert the **red** test lead into the "**INPUT**" terminal for voltage, resistance, diode, continuity, and capacitance measurements.
- For current measurements, the red test lead may need to be moved to the "**A**" terminal (refer to specific measurement instructions).

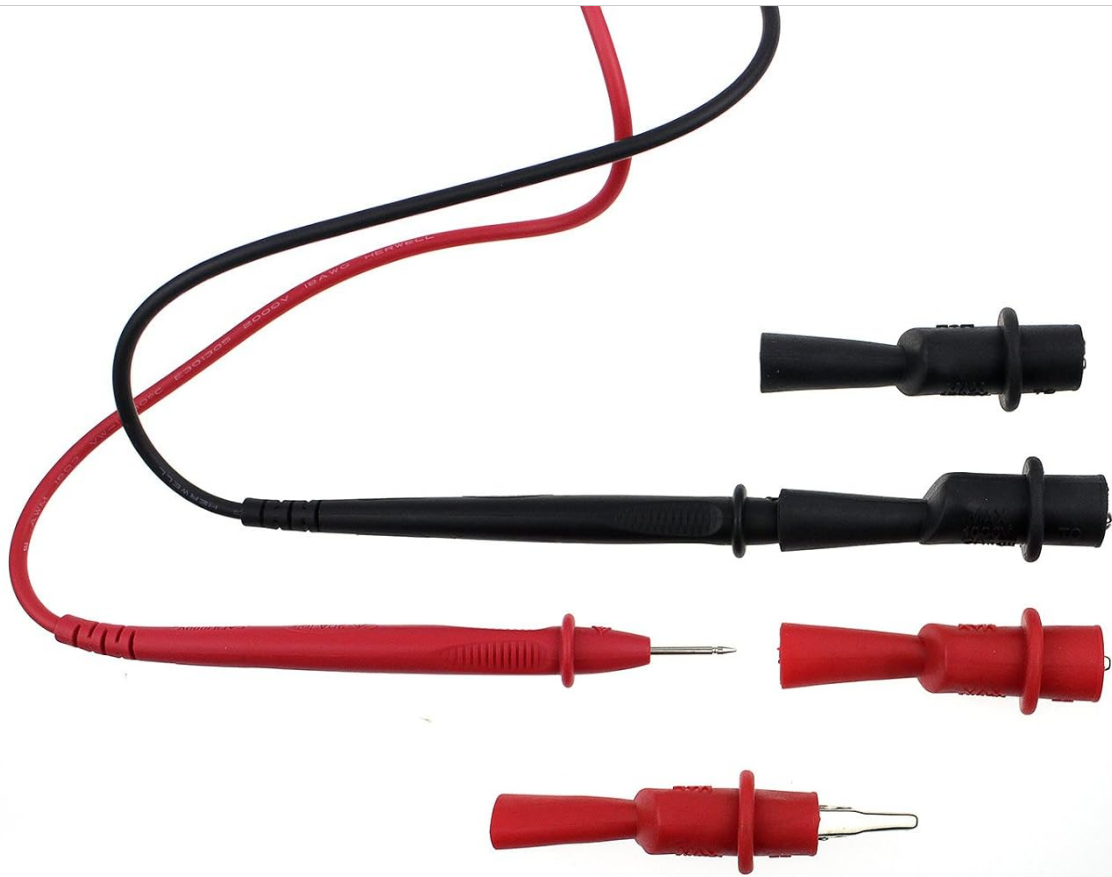


Figure 4: The red and black test leads, essential accessories for various measurements with the multimeter.

4. OPERATING INSTRUCTIONS

This section details how to perform various measurements using the ALLOSUN EM135 multimeter.

4.1 Measuring AC or DC Voltage

To measure AC or DC voltage:

1. Connect the black test lead to the "COM" terminal and the red test lead to the "INPUT" terminal.
2. Rotate the function switch to the $V\sim$ (AC Voltage) or $V-$ (DC Voltage) position.
3. If the switch position covers both AC and DC, press the **SELECT** button to toggle between DC and AC voltage modes.
4. Connect the test leads across the source to be measured.
5. Observe the voltage reading on the main display.

Video 1: Demonstration of measuring AC or DC voltage using the ALLOSUN EM135 multimeter.

4.2 Measuring AC or DC Current

To measure AC or DC current:

1. Connect the black test lead to the "COM" terminal.
2. Connect the red test lead to the "A" terminal.
3. Rotate the function switch to the **A~** (AC Current) or **A-** (DC Current) position.
4. If the switch position covers both AC and DC, press the **SELECT** button to toggle between DC and AC current modes.
5. Connect the test leads in series with the circuit to be measured.
6. Observe the current reading on the main display.

Video 2: Demonstration of measuring AC or DC current using the ALLOSUN EM135 multimeter.

4.3 Measuring Resistance

To measure resistance:

1. Connect the black test lead to the "COM" terminal and the red test lead to the "INPUT" terminal.
2. Rotate the function switch to the Ω (Ohm) position.
3. Connect the test leads across the object to be tested.
4. Read the resistance value on the main display.

Video 3: Demonstration of measuring resistance using the ALLOSUN EM135 multimeter.

4.4 Diode Test

To perform a diode test:

1. Connect the black test lead to the "COM" terminal and the red test lead to the "INPUT" terminal.
2. Rotate the function switch to the Ω (Ohm) position.
3. Press the **SELECT** button until the diode symbol ($\rightarrow| \rightarrow$) appears on the LCD display.
4. Connect the red test lead to the anode of the diode and the black test lead to the cathode of the diode to be tested.
5. Observe the forward voltage drop on the main display. Reverse the leads to check for open circuit (OL).

Video 4: Demonstration of performing a diode test using the ALLOSUN EM135 multimeter.

4.5 Continuity Test

To perform a continuity test:

1. Connect the black test lead to the "COM" terminal and the red test lead to the "INPUT" terminal.
2. Rotate the function switch to the Ω (Ohm) position.
3. Press the **SELECT** button until the continuity symbol ($\rightarrow| \rightarrow$) appears on the LCD display.
4. Connect the test leads across the circuit or component to be tested.
5. If continuity exists (low resistance), the multimeter will emit an audible beep and display a low resistance value. An open circuit will display "OL".

Video 5: Demonstration of performing a continuity test using the ALLOSUN EM135 multimeter.

4.6 Measuring Capacitance

To measure capacitance:

1. Connect the black test lead to the "COM" terminal and the red test lead to the "INPUT" terminal.
2. Rotate the function switch to the **F** (Capacitance) position.
3. Connect the test leads across the capacitor to be tested. Ensure the capacitor is discharged before testing.
4. Read the capacitance value on the main display.

Video 6: Demonstration of measuring capacitance using the ALLOSUN EM135 multimeter.

4.7 Measuring RPM (Revolutions Per Minute)

To measure engine RPM:

1. Connect the red output plug of the inductive pick-up to the **RPM** terminal on the multimeter.
2. Connect the black output plug of the inductive pick-up to the **A** terminal on the multimeter.
3. Rotate the function switch to the **RPM** position.
4. Clamp the inductive pick-up onto a spark plug wire. Ensure the arrow mark on the inductive pick-up points towards the spark plug.
5. Start the engine.
6. Read the RPM value on the main display.



Figure 5: The RPM clamp lead, used for inductive RPM measurements on spark plug wires.

Video 7: Demonstration of measuring engine RPM using the ALLOSUN EM135 multimeter with the inductive pick-up.

5. SPECIFICATIONS

Key technical specifications for the ALLOSUN EM135 Automotive Digital Multimeter:

Feature	Specification
Model Number	EM135
Display	5-digit LCD, Max. Reading 99999
Power Source	6 AA batteries

Feature	Specification
Product Dimensions	3.94 x 2.17 x 7.87 inches
Item Weight	1.3 Pounds
Measurement Functions	AC/DC Voltage, AC/DC Current, Resistance, Diode, Continuity, Capacitance, Frequency, Duty Cycle, Temperature (Celsius/Fahrenheit), RPM, Dwell Angle, Fuel Injection Duration, O2-Sensor, Alternator, Fault Code Detection
Overload Protection	Full-range

6. MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your ALLOSUN EM135 multimeter:

- **Cleaning:** Use a soft, dry cloth to clean the meter's casing. Do not use abrasives or solvents.
- **Battery Replacement:** Replace batteries promptly when the low battery indicator appears to ensure accurate readings. Remove batteries if the meter will not be used for an extended period.
- **Storage:** Store the multimeter in a cool, dry place, away from direct sunlight and extreme temperatures. Use the provided carrying bag for protection.
- **Test Leads:** Inspect test leads for any damage (cuts, cracks) before each use. Replace damaged leads immediately to prevent electrical shock.

7. TROUBLESHOOTING

If you encounter issues with your ALLOSUN EM135 multimeter, consider the following common troubleshooting steps:

- **No Display/Power Issues:** Check battery installation and ensure batteries are not depleted. Replace if necessary.
- **"OL" Reading:** This typically indicates an open circuit or a measurement exceeding the meter's range. Verify connections and ensure the selected range is appropriate for the measurement.
- **Inaccurate Readings:** Ensure test leads are properly connected and not damaged. Verify the correct function and range are selected. Clean the test points if necessary.
- **No Continuity Beep:** Confirm the continuity mode is selected. Check if the circuit has high resistance, which would prevent the beep.
- **RPM Measurement Issues:** Ensure the inductive clamp is correctly positioned on the spark plug wire and the engine is running. Check connections of the RPM clamp to the multimeter.

For persistent issues not resolved by these steps, please contact customer support.

8. WARRANTY AND SUPPORT

ALLOSUN products are designed for reliability and performance. For information regarding warranty coverage, technical support, or service, please refer to the warranty card included with your product or visit the official ALLOSUN website. Keep your purchase receipt as proof of purchase for warranty claims.

