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allsun EM133A

ALLOSUN Digital Multimeter EM133A User Manual

Model: EM133A | Brand: allsun

1. Introduction

This manual provides essential information for the safe and effective operation of your ALLOSUN Digital Multimeter, Model EM133A. This multi-function meter is designed for measuring AC/DC voltage, AC/DC current, resistance, frequency, duty cycle, temperature, RPM, and Dwell angle, making it suitable for various electrical and automotive testing applications. Please read this manual thoroughly before use and retain it for future reference.

2. Safety Information

To ensure safe operation and avoid damage to the meter, observe the following safety precautions:

- Always ensure the test leads are properly connected and the function switch is set to the correct range before making any measurements.
- Do not apply voltage or current that exceeds the maximum specified limits for the meter. Refer to the Specifications section for details.
- Exercise extreme caution when working with live circuits. High voltages can cause electric shock.
- Do not use the meter if it appears damaged or if the insulation on the test leads is compromised.
- Replace the battery immediately when the low battery indicator appears to ensure accurate readings.
- Always disconnect the test leads from the circuit before changing the function switch position.



Image: Close-up view of the input jacks (20A, COM, VΩmAh) and associated safety warnings on the multimeter's face.

3. Product Overview

The ALLOSUN EM133A Digital Multimeter features a clear digital display, a rotary function switch, and several control buttons for various measurement modes. It is housed in a durable blue casing with a protective holster and an integrated kickstand for convenient viewing.



Image: Front view of the ALLOSUN EM133A Digital Multimeter, showing the display, rotary switch, and buttons.



Image: Side view of the ALLOSUN EM133A Digital Multimeter, illustrating the integrated kickstand.

Key Components:

- **Digital Display:** Shows measurement readings, units, and various indicators.
- **Function Rotary Switch:** Used to select the desired measurement function (e.g., V~, V–, Ω, A~, A–, Temp, RPM, Dwell).
- **Input Jacks:**
  - **COM:** Common (negative) input for all measurements.
  - **VΩmAh:** Positive input for voltage, resistance, frequency, duty cycle, temperature, and milliampere/microampere current measurements.
  - **20A:** Positive input for 20 Ampere current measurements.
- **Function Buttons:**
  - **RANGE:** Manually selects measurement range.

    - **Hz%:** Toggles between frequency and duty cycle measurement.
    - **REL:** Activates relative measurement mode.
    - **HOLD:** Freezes the current display reading.
- **USB Port:** Allows connection to a PC for data logging and analysis.



Image: Detailed view of the USB port located on the side of the multimeter, used for PC connectivity.

4. Setup

4.1 Battery Installation

The ALLOSUN EM133A requires one 9V battery (6F22 or equivalent) for operation. The battery is not provided by the seller and must be installed before first use.

1. Ensure the multimeter is turned OFF and disconnect any test leads.

2. Locate the battery compartment cover on the back of the meter.
3. Use a screwdriver to loosen the screw securing the battery cover.
4. Remove the cover and insert a new 9V battery, observing the correct polarity (+ and -).
5. Replace the battery cover and tighten the screw.



Image: Rear view of the multimeter, highlighting the battery compartment cover.

4.2 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, Frequency, Duty Cycle, Temperature, Diode, Continuity, and low current (mA/µA) measurements, connect the red lead to the **VΩmAh** jack.
- For high current (up to 20A) measurements, connect the red lead to the **20A** jack.

5. Operating Instructions

5.1 Powering On/Off

Turn the rotary function switch from the OFF position to any desired measurement function to power on the meter. To power off, turn the rotary switch back to the OFF position.

5.2 Function Selection

Rotate the function switch to select the desired measurement mode. The display will show the corresponding unit and measurement type.

- **V~ (AC Voltage):** Measures alternating current voltage.
- **V– (DC Voltage):** Measures direct current voltage.
- **Ω (Resistance):** Measures electrical resistance.
- **•))) (Continuity):** Checks for continuity in a circuit, emitting an audible tone if resistance is low.
- →| **(Diode Test):** Tests the forward voltage drop of a diode.
- **Hz% (Frequency/Duty Cycle):** Measures the frequency or duty cycle of a signal. Press the Hz% button to toggle between modes.
- **A~ (AC Current):** Measures alternating current.
- **A– (DC Current):** Measures direct current.
- **Temp (Temperature):** Measures temperature using a K-type thermocouple (not included).
- **RPM (Revolutions Per Minute):** Measures engine RPM.
- **Dwell (Dwell Angle):** Measures the dwell angle in automotive ignition systems.

5.3 Using Function Buttons

- **RANGE:** In manual ranging modes, press this button to cycle through available measurement ranges.
- **Hz%:** Toggles between frequency and duty cycle measurement when in the Hz% function.
- **REL (Relative Measurement):** Press to store the current reading as a reference value. Subsequent measurements will be displayed as the difference from this reference.
- **HOLD (Data Hold):** Press to freeze the current reading on the display. Press again to release.
- **Backlight:** The meter features a backlight for improved visibility in low-light conditions. Activation method may vary; typically, a short press of a specific button (often HOLD or a dedicated light button) activates it.

5.4 PC Connectivity (USB)

The USB port allows the meter to establish communication with a personal computer. This feature is typically used with dedicated software (not included) for data logging, real-time monitoring, and analysis of measurements. Refer to the software's instructions for detailed usage.

6. Maintenance

6.1 Battery Replacement

When the low battery indicator appears on the display, replace the 9V battery as described in the Setup section (4.1 Battery Installation) to ensure continued accurate operation.

6.2 Cleaning

To clean the meter, wipe the case with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the meter is completely dry before use.

6.3 Fuse Replacement

The meter is protected by internal fuses. If the current measurement functions cease to work, the fuses may need replacement. Fuse replacement should only be performed by qualified personnel. Refer to the specifications for fuse ratings. Incorrect fuse replacement can damage the meter or pose a safety hazard.

6.4 Storage

When not in use for extended periods, remove the battery to prevent leakage and store the meter in a cool, dry place away from direct sunlight and extreme temperatures.



Image: The ALLOSUN EM133A multimeter and its test leads stored neatly within a protective carrying case.

7. Troubleshooting

- **No Display:** Check battery installation and ensure the battery has sufficient charge. Replace if necessary.
- **Incorrect Readings:** Verify test lead connections, ensure the function switch is on the correct setting, and check for low battery indication.
- **Current Measurement Not Working:** Check the fuse for the current input. If blown, replace with a fuse of the correct rating.
- **"OL" or Overrange Indication:** The measured value exceeds the selected range. Switch to a higher range or a different function if applicable.

8. Specifications

Feature	Specification
Model Number	EM133A
Brand	allsun
Style	Digital
Color	Blue
Power Source	9V Battery (6F22 or equivalent)
Product Dimensions	7.24 x 3.5 x 2.44 inches
Item Weight	447 Grams (15.77 ounces)
Manufacturer	Zhangzhou Eastern Intelligent Meter Co.

9. Warranty and Support

Specific warranty information for the ALLOSUN EM133A Digital Multimeter is not provided in this document. For warranty details, technical support, or service inquiries, please contact the manufacturer, Zhangzhou Eastern Intelligent Meter Co., or your point of purchase.

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