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**ANENG SZ304**

# ANENG SZ304 Digital Multimeter User Manual

Model: SZ304

## 1. Introduction

The ANENG SZ304 is a high-precision, auto-ranging digital multimeter designed for a wide range of electrical measurements. It is suitable for hobbyists, students, and engineers, offering functions such as AC/DC voltage, AC/DC current, resistance, capacitance, frequency, diode testing, Hfe transistor testing, and continuity (buzzer) checks. Its compact design, clear backlit display, and safety features make it a reliable tool for various electrical tasks.

## 2. Safety Information

Please read and understand all safety warnings and operating instructions before using this multimeter. Failure to do so may result in electric shock, fire, or damage to the meter or the equipment under test.

- Always set the appropriate measurement range before connecting the test leads to the circuit.
- Do not measure voltages exceeding the maximum rated input of the meter.
- Use caution when working with voltages above 36V DC or 25V AC RMS, as they pose a shock hazard.
- Ensure the test leads are in good condition, without any damaged insulation.
- The Non-Contact Voltage (NCV) function helps detect live wires without direct contact, enhancing safety.
- Replace batteries promptly when the low battery indicator appears to ensure accurate readings.

## 3. Package Contents

Verify that all items are present in the package:

- 1 x ANENG SZ304 Digital Multimeter
- 1 x Pair of Test Leads (Red and Black)
- 1 x Instruction Manual

- 1 x Packing Box

## 4. Product Overview

Familiarize yourself with the components of your ANENG SZ304 Digital Multimeter.




Figure 4.1: ANENG SZ304 Multimeter showing its multifunctional range dial and display.

The multimeter features a large, backlit LCD display for clear readings, even in low-light conditions. The central rotary dial allows selection of various measurement functions. Input jacks are provided for test leads, and a dedicated socket is available for Hfe transistor testing.

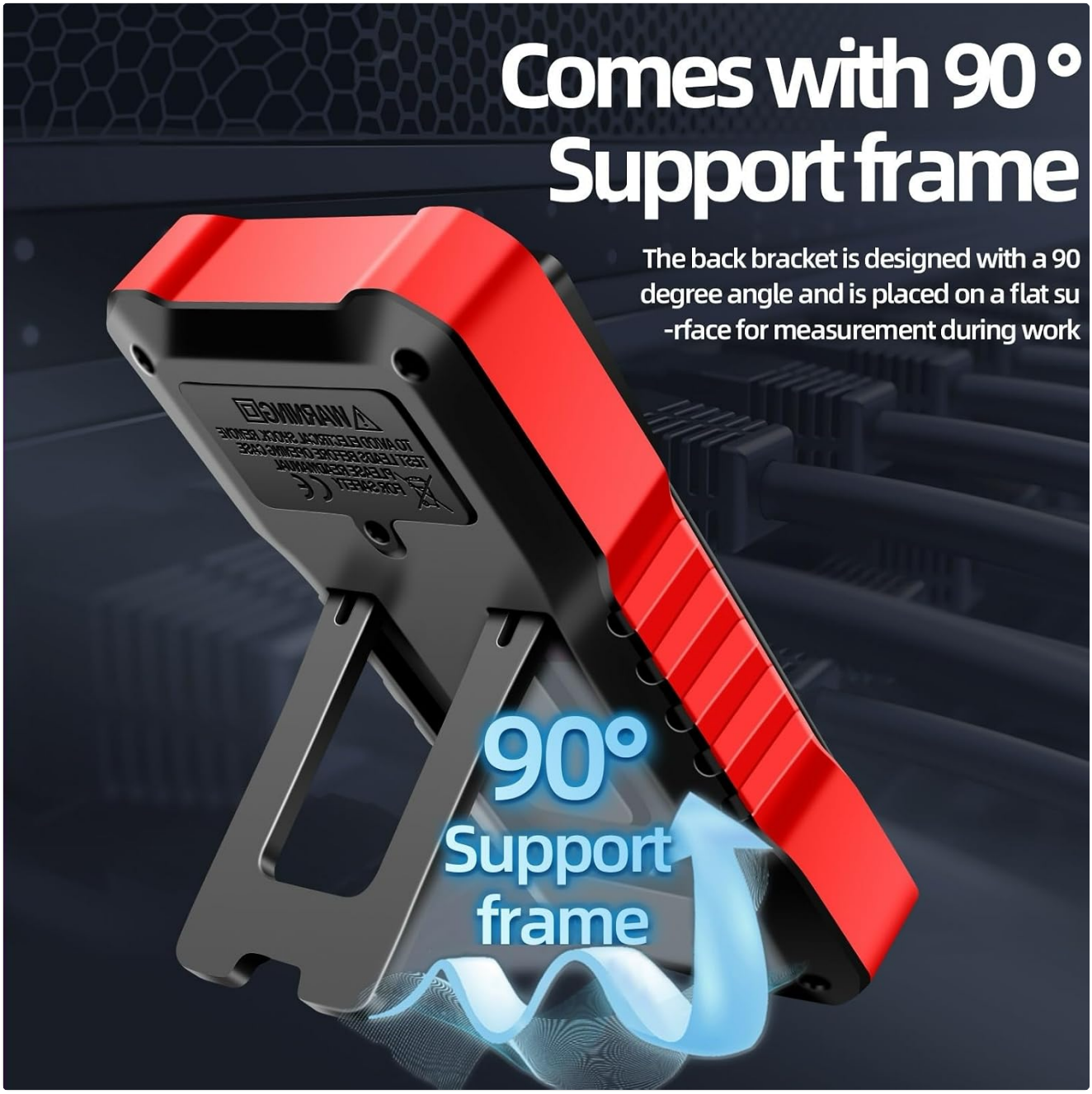



Figure 4.2: The ANENG SZ304 Multimeter featuring a convenient 90-degree support frame for stable desktop use.

A built-in 90-degree support frame allows the meter to stand upright on a flat surface, providing a convenient viewing angle during measurements.

## 5. Setup

### 5.1 Battery Installation

The ANENG SZ304 typically uses standard AAA or 9V batteries (check the battery compartment for specific type). To install or replace batteries:

1. Ensure the multimeter is powered off and test leads are disconnected.
2. Locate the battery compartment cover on the back of the meter.
3. Unscrew the retaining screw(s) and remove the cover.
4. Insert new batteries, observing the correct polarity (+ and -).
5. Replace the battery cover and secure it with the screw(s).

### 5.2 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, frequency, capacitance, diode, Hfe), insert the red test lead into the 'VΩHz' jack.
- For current measurements (Amps or Milliamps), insert the red test lead into the '10A' or 'mA' jack, respectively. Refer to the dial for specific current ranges.

## 6. Operating Instructions

### 6.1 Power On/Off

Rotate the central dial from 'OFF' to any desired measurement function to power on the meter. To power off, rotate the dial back to 'OFF'. The meter also features an automatic shutdown function after 15 minutes of inactivity to conserve battery life.

### 6.2 AC Voltage Measurement

To measure AC voltage:

1. Set the rotary dial to the 'V~' (AC Voltage) range. The meter is auto-ranging, so it will automatically select the appropriate range.
2. Connect the test leads in parallel across the circuit or component to be measured.
3. Read the voltage value on the display.




Figure 6.1: Measuring AC Voltage with the ANENG SZ304 Multimeter.

## 6.3 DC Voltage Measurement

To measure DC voltage:

1. Set the rotary dial to the 'V=' (DC Voltage) range.
2. Connect the red test lead to the positive side and the black test lead to the negative side of the circuit.
3. Read the voltage value on the display.

## 6.4 AC/DC Current Measurement

To measure current (AC or DC):

1. **Important:** Disconnect power to the circuit before connecting the meter.
2. Set the rotary dial to the appropriate 'A~' (AC Current) or 'A=' (DC Current) range (e.g., 10A or mA).
3. Connect the meter in series with the circuit. The current must flow through the meter.
4. Apply power to the circuit and read the current value.

5. **Caution:** Never connect the meter in parallel for current measurement, as this can damage the meter and the circuit.

### 6.5 Resistance Measurement

To measure resistance:

1. Ensure the circuit or component is de-energized before measurement.
2. Set the rotary dial to the 'Ω' (Resistance) range.
3. Connect the test leads across the component.
4. Read the resistance value on the display.

### 6.6 Capacitance Measurement

To measure capacitance:

1. Ensure the capacitor is fully discharged before measurement.
2. Set the rotary dial to the 'F' (Capacitance) range.
3. Connect the test leads across the capacitor terminals.
4. Read the capacitance value on the display.

### 6.7 Frequency Measurement

To measure frequency:

1. Set the rotary dial to the 'Hz' (Frequency) range.
2. Connect the test leads across the signal source.
3. Read the frequency value on the display.

### 6.8 Diode Test

To perform a diode test:

1. Ensure the diode is disconnected from the circuit.
2. Set the rotary dial to the 'Diode' symbol.
3. Connect the red test lead to the anode and the black test lead to the cathode. A forward voltage drop will be displayed.
4. Reverse the leads. An open circuit (OL) reading indicates a good diode.

### 6.9 Hfe Transistor Test

To test Hfe (DC current gain) of a transistor:

1. Set the rotary dial to the 'HFE' range.
2. Identify if the transistor is NPN or PNP type.
3. Insert the transistor leads (Emitter, Base, Collector) into the corresponding sockets on the meter.
4. Read the Hfe value on the display.




Figure 6.2: Performing an Hfe transistor test using the dedicated socket on the ANENG SZ304 Multimeter.

## 6.10 Continuity Test (Buzzer)

To check for continuity:

1. Ensure the circuit or component is de-energized.
2. Set the rotary dial to the 'Continuity' symbol (often shared with Diode).
3. Connect the test leads across the component or wire.
4. If a continuous beep sounds and a low resistance value is displayed, there is continuity.

## 6.11 Data Hold Function

The 'HOLD' button allows you to freeze the current reading on the display. Press it once to hold the data, and press it again to release the hold and resume live readings.




Figure 6.3: The Data Hold function on the ANENG SZ304 Multimeter, allowing users to freeze readings on the display.

### 6.12 Backlight

The display features a backlight for improved visibility in dimly lit environments. Consult the manual or product for specific button to activate/deactivate the backlight, usually a dedicated button or a long press of 'HOLD' or 'SEL'.

## 7. Maintenance

### 7.1 Cleaning

To clean the multimeter:

- Power off the meter and disconnect all test leads.
- Wipe the casing with a damp cloth and a mild detergent. Do not use abrasives or solvents.
- Ensure the meter is completely dry before use.

### 7.2 Battery Replacement

Refer to Section 5.1 for detailed instructions on battery replacement. Replace batteries when the low battery indicator appears on the display to maintain measurement accuracy.

### 7.3 Storage

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

## 8. Troubleshooting

If you encounter issues with your ANENG SZ304 multimeter, refer to the following common problems and solutions:

- **No Display / Meter Does Not Turn On:** Check battery installation and ensure batteries are not depleted. Replace if necessary.
- **'OL' or Overload Indication:** The measured value exceeds the selected range. For auto-ranging meters, this might indicate a value beyond the meter's maximum capability or an open circuit.
- **Inaccurate Readings:** Ensure test leads are properly connected and not damaged. Check battery level. Verify the correct measurement function and range are selected.
- **No Continuity Beep:** Ensure the circuit is de-energized. Check if the component has high resistance, which would not trigger the beep.

If problems persist, contact customer support for assistance.

## 9. Specifications

Key technical specifications for the ANENG SZ304 Digital Multimeter:

| Feature | Specification |
|---|---|
| Brand | ANENG |
| Model | SZ304 |
| Display Counts | 1999 Counts |
| Measurement Functions | AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Frequency, Diode, Hfe Transistor, Buzzer |
| Special Features | Auto-Ranging, Data Hold, Auto Shutdown (15 min), Low Voltage Display, Backlight, NCV (Non-Contact Voltage) |
| Dimensions (L x W x H) | 188mm x 91mm x 38mm (approx. 7.4 x 3.58 x 1.49 inches) |
| Weight | Approx. 0.6g (Product weight from source, may refer to a component or be a typo. Actual device weight is typically higher.) |
| Power Source | Battery (Type not specified, typically AAA or 9V) |




Figure 9.1: Dimensions of the ANENG SZ304 Digital Multimeter.

## 10. Warranty and Support

For warranty information, please refer to the documentation provided with your purchase or contact the retailer where the ANENG SZ304 Digital Multimeter was acquired. Specific warranty terms may vary by region and seller. If you require technical support or have questions regarding the operation of your multimeter, please contact ANENG customer service or your local distributor. Contact details can typically be found on the manufacturer's official website or the product packaging.

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