ANENG AN9205A Digital Multimeter User Manual

Model: AN9205A | Brand: ANENG

1. Introduction

The ANENG AN9205A is a high-precision digital multimeter designed for a wide range of electrical measurements. It features a large LCD backlight display for easy reading, a durable silicone shell for protection, and an automatic shutdown function to conserve battery life. This manual provides detailed instructions for safe and effective use of your multimeter.

2. Safety Information

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

- Ensure the multimeter is in good working condition before use. Inspect test leads for damage.
- Do not apply voltage or current that exceeds the maximum rated values for each function.
- Always disconnect power to the circuit before measuring resistance, capacitance, or continuity.
- Use the correct function and range for your measurement.
- Be cautious when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Keep fingers behind the finger guards on the test probes during measurements.
- Replace the battery when the low battery indicator appears to ensure accurate readings.
- Do not operate the meter in explosive gas, vapor, or dusty environments.

3. Package Contents

Verify that all items are present in your package:

- 1 x ANENG AN9205A Digital Multimeter
- 2 x Test Leads (Red and Black)
- 1 x User Manual (English)



Figure 3.1: Multimeter, test leads, and user manual included in the package.

4. Product Overview

The ANENG AN9205A Digital Multimeter is designed for ease of use and durability. Key features include:

- **Humanity Design:** Compact look with a silicone shell for conservation, back support for convenient operation, and automatic shutdown.
- **Large Screen Backlight Display:** Provides clear and easy-to-read measurements, even in low-light conditions.

- **Non-slip Design:** PVC silicone non-slip texture on the sides ensures a secure grip and prevents accidental drops.
- **Back Bracket:** Allows the multimeter to stand upright for hands-free operation.
- **Double Fuses:** Enhanced anti-burn design for safety and reliability.
- **Zero/Fire Wire Identification:** A feature to identify live wires.
- **Automatic Shutdown:** Powers off after 15 minutes of inactivity to save battery.



Figure 4.1: Front panel layout and component identification.

Component Identification:

1. **Low Power Indicator:** Displays when the battery is low.
2. **Switch:** Rotary dial to select measurement functions and ranges.
3. **Transistor/Diode Socket:** For testing transistors and diodes.
4. **Continuity/Diode:** Function for continuity checks and diode testing.
5. **Resistance:** Measures electrical resistance (Ω).
6. **Triode:** For transistor testing (hFE).
7. **Zero FireWire:** Indicator for live wire detection.
8. **DC Voltage:** Measures direct current voltage (V).
9. **Black Test Lead Jack (COM):** Common terminal for the black test lead.
10. **Red Test Lead Socket (VΩHz):** Input for voltage, resistance, frequency, and capacitance measurements.
11. **Red Test Lead Socket (mA):** Input for milliampere current measurements.
12. **Red Test Lead Socket (20A):** Input for high current (up to 20A) measurements.
13. **Indicator Light:** General indicator.
14. **Capacitance:** Measures capacitance (F).
15. **DC Current:** Measures direct current (A).
16. **Alternating Current:** Measures alternating current (A).
17. **AC Voltage:** Measures alternating current voltage (V).
18. **Current / 1.5V Capacitance:** Additional current and 1.5V battery test function.
19. **20A Current:** High current measurement range.



Figure 4.2: Non-slip silicone texture and integrated back bracket for convenient use.

5. Specifications

Parameter	Value
Brand	ANENG
Model	AN9205A
Material	ABS
Weight	Approx. 178g / 6.28oz
Product Size	182.5 x 90 x 35.4 mm / 7.18 x 3.54 x 1.39 inches
Pen Material	Brass / PVC
Total Length of Line	70cm / 27.5 inches
Power Supply	9V 6F22 Battery (Not included)
Display Type	Digital Display (1999 Count)
Automatic Shutdown	Yes (after 15 minutes of inactivity)
Overload Protection	Yes
Low Voltage Symbol Display	Yes

Technical Parameters (Accuracy ±3%)

Measurement Type	Range
DC Voltage	200mV, 2V, 20V, 200V, 1000V
AC Voltage	200mV, 2V, 20V, 200V, 750V
DC Current	20mA, 200mA, 20A
AC Current	20mA, 200mA, 20A
Resistance	200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ, 20MΩ, 200MΩ
Capacitance	20nF, 200nF, 2uF, 200uF
Continuity Check	Yes (with buzzer)
Diode Measurement	Yes
Triode Measurement (hFE)	Yes
Fire Wire Identification	Yes



Figure 5.1: Product dimensions (front and side view).

6. Setup

6.1 Battery Installation

1. Ensure the multimeter is turned OFF.
2. Locate the battery compartment on the back of the meter.
3. Use a screwdriver to open the battery cover.

4. Insert a new 9V 6F22 battery, observing the correct polarity (+ and -).
5. Replace the battery cover and secure it with the screw.

6.2 Connecting Test Leads

The multimeter comes with two test leads: one red and one black. Always connect them correctly for accurate and safe measurements.

- Connect the black test lead to the **COM** (Common) jack.
- For most measurements (voltage, resistance, capacitance, frequency, diode, continuity), connect the red test lead to the **VΩHz** jack.
- For current measurements up to 200mA, connect the red test lead to the **mA** jack.
- For high current measurements (up to 20A), connect the red test lead to the **20A** jack.



Figure 6.1: Test lead nib and socket display for proper connection.

7. Operating Instructions

Turn the rotary switch to the desired function and range. If the value is unknown, start with the highest range and work downwards.

7.1 DC Voltage Measurement

1. Connect the red test lead to the **VΩHz** jack and the black test lead to the **COM** jack.

2. Set the rotary switch to the desired DC Voltage (V) range.
3. Connect the test probes across the component or circuit to be measured, observing polarity.
4. Read the voltage value on the display.

7.2 AC Voltage Measurement

1. Connect the red test lead to the **VΩHz** jack and the black test lead to the **COM** jack.
2. Set the rotary switch to the desired AC Voltage (V~) range.
3. Connect the test probes across the component or circuit to be measured.
4. Read the voltage value on the display.



Figure 7.1: Measuring AC voltage from a socket.

7.3 DC/AC Current Measurement

1. **IMPORTANT:** Disconnect power to the circuit before connecting the meter in series.
2. Connect the black test lead to the **COM** jack.
3. Connect the red test lead to the **mA** jack for currents up to 200mA, or to the **20A** jack for currents up to 20A.

4. Set the rotary switch to the appropriate DC Current (A) or AC Current (A~) range.
5. Open the circuit where current is to be measured and connect the meter in series.
6. Apply power to the circuit and read the current value on the display.

7.4 Resistance Measurement

1. **IMPORTANT:** Ensure the circuit is de-energized and all capacitors are discharged before measuring resistance.
2. Connect the red test lead to the **VΩHz** jack and the black test lead to the **COM** jack.
3. Set the rotary switch to the desired Resistance (Ω) range.
4. Connect the test probes across the component to be measured.
5. Read the resistance value on the display.

7.5 Capacitance Measurement

1. **IMPORTANT:** Ensure the capacitor is fully discharged before measurement.
2. Connect the red test lead to the **VΩHz** jack and the black test lead to the **COM** jack.
3. Set the rotary switch to the Capacitance (F) range.
4. Connect the test probes across the capacitor.
5. Read the capacitance value on the display.

7.6 Diode and Continuity Test

1. Connect the red test lead to the **VΩHz** jack and the black test lead to the **COM** jack.
2. Set the rotary switch to the Diode/Continuity function.
3. **For Diode Test:** Connect the red probe to the anode and the black probe to the cathode. The display will show the forward voltage drop. Reverse the probes; the display should show 'OL' (Open Line) for a good diode.
4. **For Continuity Test:** Connect the probes across the circuit or component. If there is continuity (low resistance), the buzzer will sound.

7.7 Transistor (hFE) Measurement

1. Set the rotary switch to the hFE position.
2. Identify if the transistor is NPN or PNP.

3. Insert the transistor's Emitter (E), Base (B), and Collector (C) leads into the corresponding holes in the transistor/diode socket.
4. Read the hFE value on the display.

7.8 Zero/Fire Wire Identification

1. Set the rotary switch to the Zero FireWire function.
2. Insert one test lead into the socket you wish to test.
3. If the screen displays 'HV', it indicates a live wire (FireWire).
4. If the screen does not display 'HV', it indicates a neutral or ground wire (Zero line).



Figure 7.2: Identifying live (FireWire) and neutral (Zero line) connections.

7.9 Battery Test (1.5V)

1. Connect the red test lead to the **VΩHz** jack and the black test lead to the **COM** jack.
2. Set the rotary switch to the 1.5V battery test function.
3. Connect the test probes across the battery terminals, observing polarity.

4. Read the battery voltage on the display.

8. Maintenance

8.1 Battery Replacement

When the low power indicator appears on the display, replace the 9V 6F22 battery as described in Section 6.1. Always use a fresh battery of the specified type.

8.2 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.

8.3 Storage

If the meter is not to be used for an extended period, remove the battery to prevent leakage and damage. Store the meter in a cool, dry place away from direct sunlight and extreme temperatures.

9. Troubleshooting

Problem	Possible Cause	Solution
No display / Faint display	Dead or low battery	Replace the 9V battery.
Incorrect readings	Incorrect function/range selected; Poor test lead connection; Damaged test leads	Select the correct function/range. Ensure test leads are securely connected. Inspect and replace damaged leads.
"OL" displayed (Open Line)	Measurement exceeds selected range; Open circuit; No connection	Select a higher range. Check for breaks in the circuit. Ensure good contact with test probes.
Buzzer not working for continuity	Circuit resistance too high; Function not selected	Ensure the circuit has very low resistance. Verify continuity function is selected.

10. User Tips

- For quick checks of 9V batteries, use the dedicated 1.5V/9V battery test function.
- Always double-check your test lead connections to the correct jacks (COM, VΩHz, mA, 20A) before making any measurements to prevent damage to the meter or circuit.
- When measuring unknown values, start with the highest range setting and gradually decrease it until you get a stable and accurate reading. This prevents overloading the meter.
- The silicone protection is effective against minor drops, but always handle the multimeter with care to ensure its longevity and accuracy.

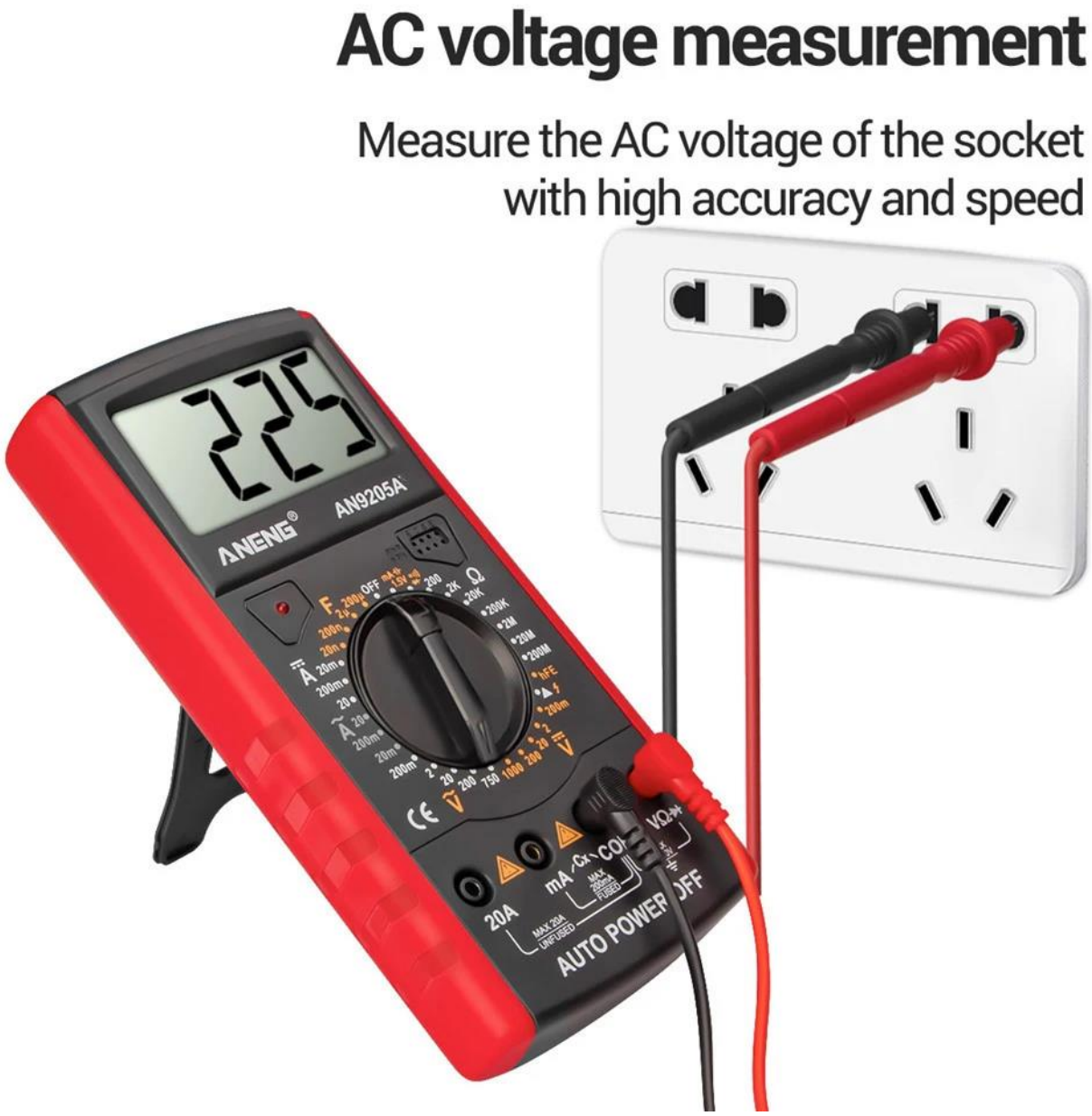


Figure 10.1: Testing a 9V battery with the multimeter.

11. Warranty & Support

This ANENG AN9205A Digital Multimeter comes with a 1-year guarantee from the date of purchase. This warranty covers manufacturing defects and ensures that the product meets merchantable quality and fitness for purpose as described. Please retain your proof of purchase for warranty claims.

For technical support or warranty inquiries, please contact your retailer or the manufacturer directly. Provide your product model number (AN9205A) and a detailed description of the issue.

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