ANENG 681

ANENG 681 Smart Digital Multimeter User Manual

Model: ANENG 681

1. Introduction

The ANENG 681 Smart Digital Multimeter is a versatile and intelligent measuring instrument designed for electrical testing. It features a large 5-inch LCD display with backlight, smart anti-burn protection, and a built-in rechargeable lithium battery, making it suitable for a wide range of applications from professional use to DIY projects. This manual provides detailed instructions for safe and effective operation of your multimeter.

2. Safety Information

Always observe basic safety precautions when using this multimeter to avoid personal injury or damage to the device. Read all instructions carefully before use.

- Do not exceed the maximum input values specified for each measurement range.
- Exercise extreme 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 and properly connected before making any measurements.
- Do not use the multimeter if it appears damaged or is not operating correctly.
- Always disconnect power to the circuit before measuring resistance, capacitance, or diodes.
- The device features intelligent anti-burn protection with a built-in fuse. However, proper operation is still essential to prevent damage.

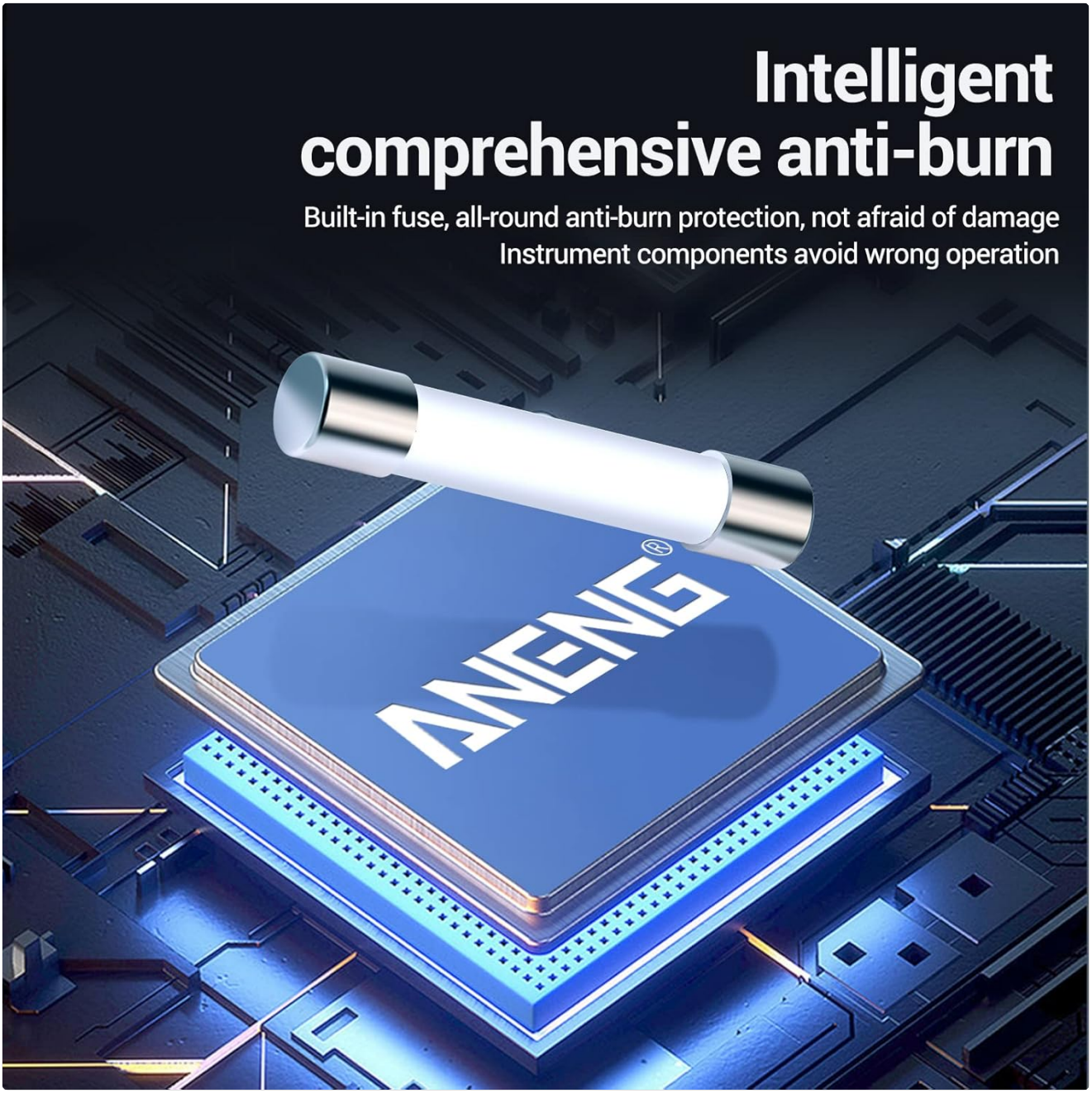

Figure 2.1: Intelligent comprehensive anti-burn protection. The multimeter is designed with a built-in fuse to provide all-round protection against damage from incorrect operation.

3. Package Contents

Verify that all items listed below are included in your package:

- 1 x ANENG 681 Digital Multimeter
- 1 x Thermocouple
- 1 x USB Type-C Charging Cable
- 1 x Pair of Test Leads (Red and Black)
- 1 x Storage Bag
- 1 x User Manual (English)

Figure 3.1: The complete package contents of the ANENG 681 Smart Digital Multimeter, including the meter, test leads, thermocouple, charging cable, storage bag, and user manual.

4. Product Overview

The ANENG 681 features a robust design with a large LCD display and intuitive controls.

4.1 Key Features

- **Multifunctional Tester:** Measures AC/DC voltage, AC/DC current, resistance, capacitance, temperature, frequency, diode, on/off continuity, and fire wire detection.
- **5-inch Large LCD Digital Display:** 6000 counts maximum display with backlight for clear readings in various lighting conditions.
- **Smart Anti-burn Protection:** Built-in fuse for comprehensive protection against damage.
- **NCV Non-contact Inductive:** Detects nearby AC voltage with visual and audible alarms.
- **Built-in Rechargeable Lithium Battery:** 3.7V 2800mAh battery, rechargeable via Type-C cable.
- **Silicone Protective Sleeve:** Provides shockproof and scratch-resistant protection.
- **Data Hold Function:** Freezes the displayed measurement for easy recording.
- **Automatic Shutdown:** Conserves battery life by automatically turning off after a period of inactivity.

Figure 4.1: A close-up view of the ANENG 681's large 5-inch LCD digital display, showing various measurement indicators and the 6000 counts maximum display capability.

Figure 4.2: The ANENG 681 features an LCD reverse display large screen, demonstrating an AC voltage measurement. This intelligent anti-burn meter provides automatic identification of measurement types.

Figure 4.3: A detailed view of the ANENG 681 multimeter's display and control interface, highlighting the various measurement modes and input jacks.

5. Setup

5.1 Charging the Multimeter

The ANENG 681 comes with a built-in rechargeable lithium battery. Before first use, or when the low power prompt appears, charge the device using the provided Type-C cable.

1. Locate the Type-C charging port on the top of the multimeter.
2. Connect the Type-C end of the charging cable to the multimeter.
3. Connect the USB-A end of the charging cable to a standard USB power adapter (not included) or a computer USB port.
4. The charging indicator on the display will show the charging status.

Figure 5.1: The USB Type-C charging port located on the top of the ANENG 681 multimeter, used for recharging the built-in lithium battery.

5.2 Connecting Test Leads

Always ensure test leads are securely connected to the correct input jacks for the desired measurement.

- Insert the black test lead into the "COM" (Common) jack.
- For most measurements (Voltage, Resistance, Capacitance, Diode, Frequency, Temperature), insert the red test lead into the "VΩHzC" jack.
- For current measurements (mA A), insert the red test lead into the "mA A" jack.

6. Operating Instructions

The ANENG 681 features smart automatic identification for most common measurements. Simply connect the test leads and the meter will automatically detect the measurement type (Voltage, Resistance, Continuity).

6.1 Automatic Measurement Mode

In the default "Auto" mode, the multimeter intelligently identifies and measures AC/DC voltage, resistance, and continuity without manual range selection.

6.2 Specific Measurement Functions

To access specific functions not covered by auto mode, press the "FUNC" button to cycle through available modes (e.g., Hz, Diode, Capacitance, Temperature, Current).

6.2.1 DC Voltage Measurement

Connect the black test lead to COM and the red test lead to VΩHzC. Place the probes across the DC voltage source. The meter will display the DC voltage. For example, a normal 1.5V battery will show approximately 1.440V.

Figure 6.1: Demonstrations of various measurement functions: DC voltage measurement (top left), Resistance measurement (top right), Buzzer continuity test (bottom left), and AC voltage measurement (bottom right).

6.2.2 AC Voltage Measurement

Connect the black test lead to COM and the red test lead to VΩHzC. Place the probes across the AC voltage source. The meter will display the AC voltage. Household current above 220V can be measured as shown in the figure.

6.2.3 Resistance Measurement

Connect the black test lead to COM and the red test lead to VΩHzC. Ensure the circuit is de-energized. Place the probes across the component to measure its resistance. The meter can accurately measure resistance with test wires at both ends.

6.2.4 Capacitance Measurement

Connect the black test lead to COM and the red test lead to VΩHzC. Ensure the capacitor is discharged before testing. Place the probes across the capacitor. The meter will display the capacitance value. For example, a 100 µF capacitor can be measured.

Figure 6.2: Demonstrations of advanced measurement functions: Hz frequency measurement (top left), Diode measurement (top right), Temperature measurement using a thermocouple (bottom left), and Capacitance measurement (bottom right).

6.2.5 Frequency (Hz) Measurement

Switch to Hz measurement mode and insert the stylus into the two holes of the circuit to measure frequency.

6.2.6 Diode Measurement

Connect the black test lead to COM and the red test lead to VΩHzC. Place the probes across the diode. The meter will accurately distinguish between positive and negative poles to measure the value.

6.2.7 Temperature Measurement

Connect the thermocouple to the multimeter. Switch to the temperature gear and measure the temperature with direct contact using the thermocouple.

6.2.8 Continuity (On and Off Beep) Measurement

Connect the black test lead to COM and the red test lead to VΩHzC. Place the probes across the circuit or component. If continuity exists, the buzzer will sound. The flashlight may also illuminate, indicating the wire core is normal.

6.2.9 NCV (Non-Contact Voltage) Induction

The NCV function allows for non-contact detection of AC voltage. Simply bring the top of the multimeter near an AC voltage source. The meter will flash a red light and sound an alarm when a nearby AC voltage is detected, and an analog bar index will rise on the screen.

Figure 6.3: The NCV non-contact inductive power supply feature in action. When a nearby AC voltage is detected, the analog bar index rises on the screen, and an alarm buzzer sounds, indicated by the 'di di di' sound waves.

7. Maintenance

7.1 Cleaning

Wipe the multimeter casing with a damp cloth and mild detergent. Do not use abrasives or solvents. Ensure the device is off and disconnected from any power source before cleaning.

7.2 Storage

When not in use for extended periods, store the multimeter in its protective storage bag in a cool, dry place, away from direct sunlight and extreme temperatures.

7.3 Battery Care

To prolong battery life, charge the multimeter regularly, even if not in frequent use. Avoid completely draining the battery before recharging.

8. Troubleshooting

If you encounter issues with your ANENG 681 multimeter, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Display is blank or dim.	Low battery or device is off.	Charge the multimeter. Press the power button to turn it on.
Incorrect readings.	Incorrect test lead connection, wrong measurement mode, or damaged leads.	Ensure leads are in correct jacks. Cycle through modes if not in auto. Check leads for damage.
No continuity beep.	Circuit is open or continuity mode not selected.	Verify circuit integrity. Ensure meter is in continuity mode.
NCV not detecting voltage.	Voltage source too weak or not AC.	Ensure the source is live AC voltage. Bring the meter closer to the source.

9. Specifications

Parameter	Value
AC Voltage Range	0-750V
DC Voltage Range	0-1000V
AC Current Range	0-10A
DC Current Range	0-10A
Resistance Range	0Ω-60MΩ
Capacitance Range	0nF-100mF
Temperature Range	-40~1000℃ / -40~1832℉
Frequency Range	0-999.9kHz
Max. Count	6000 counts
Built-in Battery	3.7V 2800mAh lithium battery
Item Size	150.8 x 74.8 x 23.8mm (5.94 x 2.94 x 0.94in)
Item Weight	Approximately 1.04 pounds (470g)
Material	ABS+silicone

10. Warranty and Support

This ANENG 681 Smart Digital Multimeter is covered by a standard manufacturer's warranty against defects in

materials and workmanship. Please refer to the warranty card included in your package for specific terms and conditions.
For technical support, troubleshooting assistance, or warranty claims, please contact the seller or manufacturer through the platform where the product was purchased. Keep your purchase receipt as proof of purchase.