ANENG SZ12

ANENG SZ12 TRMS 20000 Counts Digital Multimeter User Manual

Model: SZ12 (Part No. 201806)

1. Introduction

This manual provides detailed instructions for the safe and effective use of your ANENG SZ12 TRMS 20000 Counts Digital Multimeter. This device is designed for accurate measurement of AC/DC voltage, current, resistance, capacitance, frequency, duty cycle, temperature, diodes, and continuity, along with Non-Contact Voltage (NCV) and Live wire detection. Its magnetic adsorption feature allows for hands-free operation, and the high-resolution display ensures precise readings.

Figure 1: ANENG SZ12 Digital Multimeter and included accessories.

2. Safety Information

Always adhere to safety precautions when using electrical testing equipment. Failure to do so may result in injury or damage to the device or equipment under test.

- **Double Fuse Protection:** The SZ12 features double fuse protection to prevent damage from overloading and ensure user safety.
- **Overload Protection:** Do not exceed the maximum input values specified for each measurement range.
- **Insulated Test Leads:** Always use the provided insulated test leads. Inspect them for damage before each use.
- **Hi-Impact Resistant Housing:** The device is constructed with a durable ABS housing and soft over-molded rubber for enhanced drop protection.
- **Correct Jack Usage:** The intelligent LED Jack Indicator guides probes to the correct input terminals, preventing incorrect connections.
- **Working Environment:** Use the multimeter in a dry environment. Avoid operating in damp or wet conditions.

- **Battery Check:** Replace batteries promptly when the low battery indicator appears to ensure accurate readings.

3. Package Contents

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

- 1x ANENG SZ12 Digital Multimeter Tester
- 1x Combination Lead Set (4 connection sockets, 2 PVC cables, 2 copper needles, 2 U-shaped inserts, 2 meter pens, 2 alligator clips, 2 puncture needles)
- 1x Standard Test Lead Set
- 1x Temperature Probe
- 1x Instruction Manual (this document)
- 2x AA Batteries
- 1x Storage Bag

4. Features Overview

The ANENG SZ12 Multimeter offers a range of features designed for versatility and ease of use:

- **20000 Counts Display:** Provides high resolution for precise measurements.
- **True RMS (TRMS):** Ensures accurate readings for non-sinusoidal AC waveforms.
- **Magnetic Adsorption:** Allows the multimeter to be securely attached to metal surfaces for hands-free operation.
- **Built-in Flashlight:** Illuminates work areas in low-light conditions.
- **Min/Max Function:** Records minimum and maximum values during a measurement session.
- **Data Hold:** Freezes the current reading on the display.
- **Auto Ranging:** Automatically selects the appropriate measurement range.
- **Auto Power-Off:** Conserves battery life by automatically shutting down after a period of inactivity.
- **NCV (Non-Contact Voltage) Detection:** Detects AC voltage without direct contact.
- **Live Wire Detection:** Identifies live electrical wires.
- **Back Kickstand and Pen Slot:** Provides convenient positioning and storage for test leads.

Figure 2: The ANENG SZ12 Multimeter's multi-function display.

Figure 3: High-definition LCD display for clear readings.

5. Setup

5.1 Battery Installation

1. Locate the battery compartment cover on the back of the multimeter.
2. Use a screwdriver to open the cover.
3. Insert the two AA batteries, observing correct polarity (+ and -).
4. Replace the battery compartment cover and secure it with the screw.

5.2 Connecting Test Leads

1. Insert the black test lead into the 'COM' (common) input jack.
2. For most measurements (voltage, resistance, continuity, capacitance, frequency, temperature, diode), insert the red test lead into the 'VΩHz' input jack.
3. For current measurements (mA/µA), insert the red test lead into the 'mAµA' input jack.

4. For high current measurements (up to 20A), insert the red test lead into the '20A' input jack.

6. Operating Instructions

The ANENG SZ12 Multimeter features a rotary dial for function selection and several buttons for additional features.

6.1 Power On/Off

Rotate the central dial from 'OFF' to any measurement function to power on the device. Rotate back to 'OFF' to power off.

6.2 Function Selection

Turn the rotary dial to select the desired measurement function (e.g., V~ for AC Voltage, V— for DC Voltage, Ω for Resistance).

6.3 Button Functions

- **FUNC:** Press to cycle through sub-functions within a dial position (e.g., AC/DC in voltage mode, diode/continuity).
- **HOLD:** Press to freeze the current reading on the display. Press again to release.
- **MAX/MIN:** Press to enter MAX/MIN recording mode. The display will show the maximum or minimum value measured since activation. Press again to cycle between MAX, MIN, and exit.
- **Flashlight Button:** Press to turn the built-in flashlight on or off.

6.4 Specific Measurement Modes

6.4.1 AC/DC Voltage Measurement

1. Turn the dial to 'V~' (AC Voltage) or 'V—' (DC Voltage).
2. Connect the test leads in parallel to the circuit or component.
3. Read the voltage value on the display.

Figure 4: Examples of AC/DC voltage measurement.

6.4.2 AC/DC Current Measurement

1. Turn the dial to 'A~' (AC Current) or 'A—' (DC Current).
2. **Important:** Connect the multimeter in series with the circuit. Ensure the circuit is de-energized before connecting.
3. Apply power to the circuit and read the current value.

6.4.3 Resistance Measurement (Ω)

1. Turn the dial to 'Ω'.
2. Ensure the component is de-energized. Connect the test leads across the component.
3. Read the resistance value.

6.4.4 Continuity Test

1. Turn the dial to 'Ω' and press 'FUNC' until the continuity symbol (♫) appears.
2. Connect the test leads across the circuit or component.
3. A continuous beep indicates a low resistance path (continuity).

6.4.5 Diode Test

1. Turn the dial to 'Ω' and press 'FUNC' until the diode symbol (▲) appears.
2. Connect the red lead to the anode and the black lead to the cathode of the diode.
3. Read the forward voltage drop. Reverse the leads; an open circuit reading indicates a good diode.

6.4.6 Capacitance Measurement

1. Turn the dial to 'CAP'.
2. Ensure the capacitor is fully discharged before testing. Connect the test leads across the capacitor.
3. Read the capacitance value.

6.4.7 Frequency (Hz) and Duty Cycle (%) Measurement

1. Turn the dial to 'Hz%'.
2. Connect the test leads to the signal source.
3. Press 'FUNC' to switch between frequency and duty cycle readings.

6.4.8 NCV (Non-Contact Voltage) Detection

1. Turn the dial to 'NCV LIVE'.
2. Bring the top of the multimeter near an AC voltage source.
3. The device will emit an audible alarm and the NCV indicator will light up, with increasing frequency as it gets closer to the voltage source.

Figure 5: NCV induction detection in progress.

6.4.9 Live Wire Detection

1. Turn the dial to 'NCV LIVE'.
2. Insert the red test lead into the 'VΩHz' jack.
3. Touch the red test lead to the suspected live wire. The display will show 'LIVE' and an audible alarm will sound if a live wire is detected.

6.4.10 Temperature Measurement

1. Turn the dial to 'TEMP'.
2. Connect the temperature probe to the input jacks (observe polarity if applicable).
3. Place the probe tip on the object whose temperature is to be measured.
4. Read the temperature value on the display.

6.5 Magnetic Adsorption and Kickstand

The integrated magnet allows the multimeter to be mounted on metal surfaces, freeing your hands for testing. The kickstand provides an angled view for desktop use, and the pen slot keeps test leads organized.

Figure 6: Magnetic adsorption feature in use.

Figure 7: Flashlight, pen slot, and kickstand features.

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 dry before use.

7.2 Battery Replacement

When the low battery indicator appears on the display, replace the AA batteries as described in Section 5.1. Remove batteries if the device will not be used for an extended period.

7.3 Storage

Store the multimeter in its provided storage bag in a cool, dry place, away from direct sunlight and extreme temperatures.

8. Troubleshooting

- **No Display:** Check battery installation and ensure batteries are not depleted.
- **Incorrect Readings:** Verify test lead connections, ensure correct function selection, and check battery level.
- **No Continuity Beep:** Ensure the device is in continuity mode and the circuit is de-energized.
- **NCV Not Detecting:** Ensure the device is in NCV mode and the sensor is close enough to the AC voltage source.

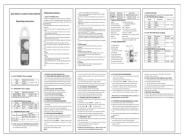
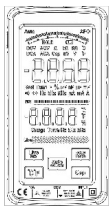
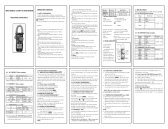
9. Specifications

Specification	Value
Brand	ANENG
Model	SZ12
Display Counts	20000
Measurement Type	TRMS (True RMS)
DC Voltage Accuracy	± (0.08% + 5)
Power Source	2 AA Batteries (included)
Item Weight	730 g
Package Dimensions	21.31 x 13.31 x 6.2 cm
Safety Rating	1000V CAT III, 600V CAT IV

10. Warranty and Support

ANENG provides service and technical support for your electrical testing needs. For warranty claims, technical assistance, or further inquiries, please refer to the contact information provided with your purchase documentation or visit the official ANENG website.

Related Documents - SZ12

 Large screen digital multimeter Operating instruction	[ANENG SZ08 Digital Multimeter Operating Instructions] Operating instructions and technical specifications for the ANENG SZ08 digital multimeter, covering safety precautions, measurement methods, electrical specifications, maintenance, and battery replacement.
	[ANENG ST181 Mini Digital Clamp-On Multimeter Operation Manual] Operation manual for the ANENG ST181 Mini Digital Clamp-On Multimeter, covering safety, panel description, specifications, and detailed instructions for various electrical measurements including voltage, current, resistance, capacitance, frequency, and temperature.
Touch Meter User Manual 	[ANENG 683 Touch Meter User Manual: Features, Specs & Operation Guide] Comprehensive user manual for the ANENG 683 digital multimeter. Covers safety, specifications, measurement functions (voltage, current, resistance, etc.), and operational guidance for electrical testing.
	[ANENG ST181 Digital Clamp-On Multimeter Operation Manual and Specifications] Detailed operation manual and technical specifications for the ANENG ST181 digital clamp-on multimeter. Covers safety, features, panel description, measurement procedures for AC/DC voltage, current, resistance, capacitance, frequency, temperature, and NCV detection.
	[ANENG ST180 Mini Digital Clamp-On Multimeter Operating Manual] Operating manual for the ANENG ST180 Mini Digital Clamp-On Multimeter, covering safety information, introduction, specifications, panel description, control buttons, operation instructions for various measurements (AC/DC voltage, resistance, current, frequency, capacitance, temperature, NCV), and battery replacement.
 迷你笔式万用表 Mini Pen Multimeter User's Manual	[6000counts Mini Pen Multimeter User Manual & Features] Explore the 6000counts Mini Pen Multimeter, a versatile and portable digital multimeter. This user manual details its auto-ranging capabilities, precise measurements for voltage, resistance, capacitance, and more, making it an ideal tool for electronics enthusiasts and professionals.

[pdf] User Manual

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