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› OWON CMS101 Clamp Meter User Manual

OWON CMS101

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SMART AC/DC CLAMP METER WITH OSCILLOSCOPE AND RECORD FUNCTION

1. Introduction

The OWON CMS101 is a versatile 3-in-1 measurement device, combining the functionalities of a 1000A AC/DC clamp meter, a 1MHz oscilloscope, and a data recording function with Bluetooth connectivity. Designed for electrical troubleshooting, motor maintenance, and general electrical component analysis, this device offers comprehensive testing capabilities with a user-friendly 2.8-inch IPS LCD display.



Figure 1.1: Front view of the OWON CMS101 Clamp Meter, showing its display and controls.

ONE DEVICE INFINITE FUNCTIONS

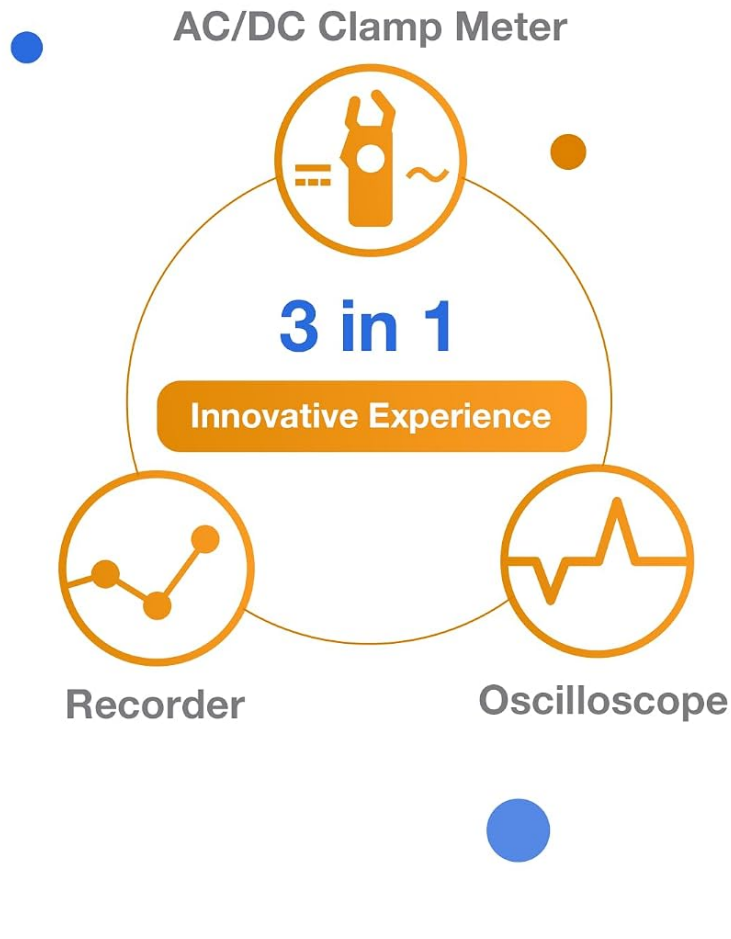


Figure 1.2: The OWON CMS101 integrates a clamp meter, recorder, and oscilloscope into one device.

2. Setup

2.1 Powering On the Device

The OWON CMS101 comes with a pre-installed Lithium Ion battery. To power on the device, press and hold the **POWER** button located at the bottom left of the control panel. The 2.8-inch IPS LCD display will illuminate.

2.2 Charging the Battery

To charge the device, connect the provided USB cable to the charging port on the side of the meter and to a suitable USB power source. The charging indicator on the display will show the charging status.



Figure 2.1: The CMS101 features a USB-C port for convenient charging.

3. Operating Instructions

3.1 General Operation and Display Modes

The CMS101 features a 2.8-inch IPS LCD display that offers wide viewing angles and supports dual theme display (light and dark modes) for optimal visibility in various lighting conditions. Use the **DMM/OSC** button to switch between Digital Multimeter (DMM) mode and Oscilloscope (OSC) mode.

2.8-Inch IPS LCD

Wide viewing angle for clearer display of values and waveforms.



Dual Theme Display

Adapts to different lighting conditions to ensure clearer display.

Figure 3.1: The 2.8-inch IPS LCD provides clear display of values and waveforms, with dual theme options.

3.2 Clamp Meter Functions

In DMM mode, the CMS101 functions as a high-performance clamp meter, capable of measuring a wide range of electrical parameters without direct contact with the conductor. The 38mm narrow-edge elongated opening design allows for measurements in confined spaces and on large wire diameters.

- **Voltage Measurement:** 1000V DC/AC Voltage.
- **Current Measurement:** 1000A AC/DC Current.
- **Inrush Current:** 1000A Inrush Current measurement.
- **Resistance:** Up to 100.00MΩ Resistance.
- **Capacitance:** Up to 20.00mF Capacitance.
- **Frequency:** Up to 20.000MHz Frequency.
- **Duty Cycle:** 0.1%-99.99% Duty Cycle.
- **Diode Test:** 3.0000V Diode test.

- **Continuity:** 0~200.0 Ω On-Off (Continuity) test.
- **NCV (Non-Contact Voltage):** Support for non-contact voltage detection.

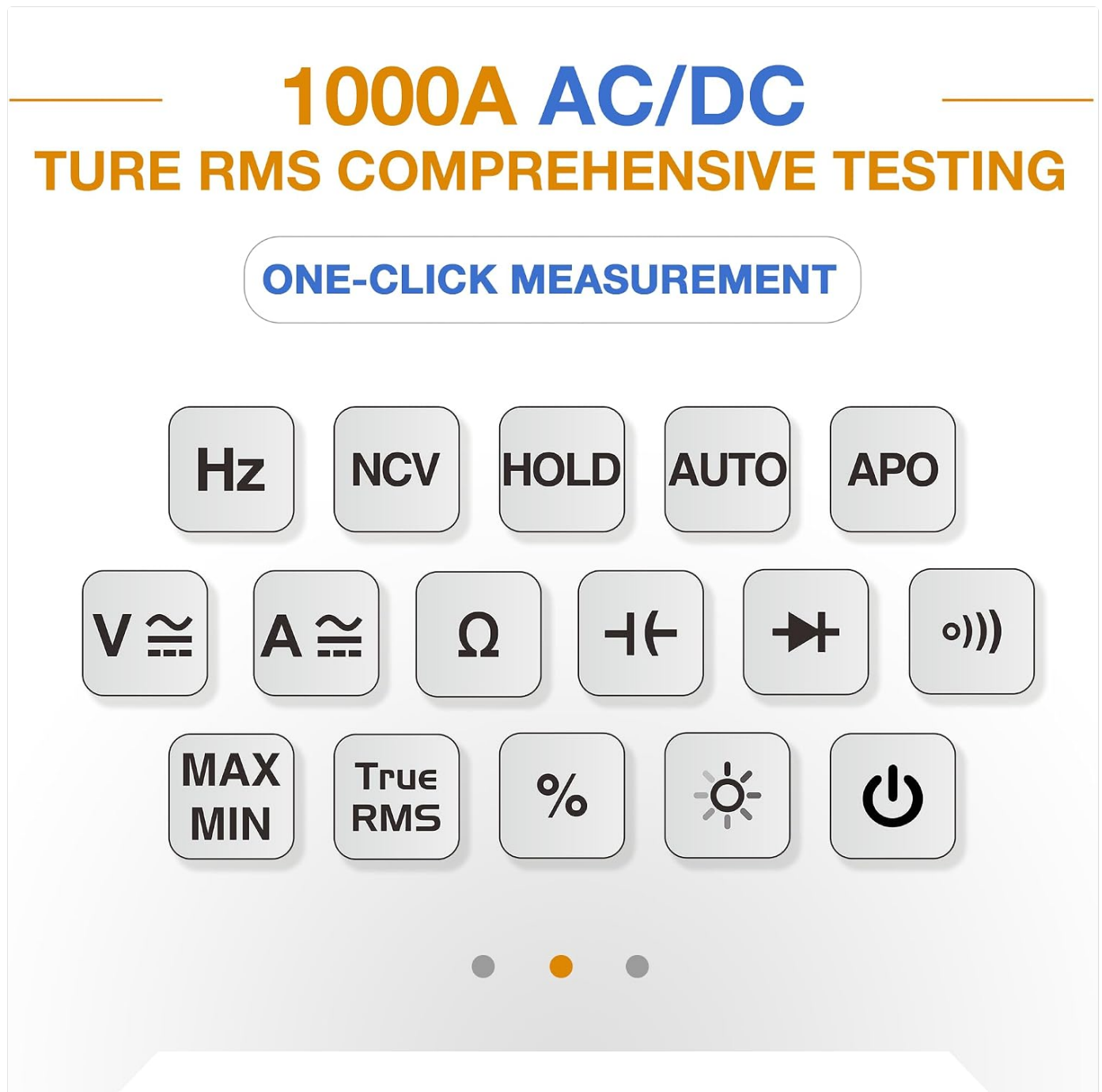


Figure 3.2: The CMS101 offers a wide range of measurement functions accessible via dedicated buttons.

38mm Narrow-Edge Elongated Opening Design



Suitable confined spaces and large wire diameters measurements

Figure 3.3: The 38mm jaw opening facilitates measurements in tight spaces and on larger conductors.

3.3 Oscilloscope Functions

In OSC mode, the CMS101 transforms into a compact oscilloscope, allowing for the visualization and analysis of voltage and current waveforms. This function provides a more comprehensive understanding of electrical signals.

- **Analog Bandwidth:** 1MHz (Voltage), 1KHz (Current).
- **Channels:** 1CH.
- **Sample Rate:** 5.0MSa/S.
- **Input Impedance:** $\geq 10\text{M}\Omega$.
- **Max Input Voltage:** 1000V.
- **Max Sample Current:** 1000A.
- **Measurement Values:** Displays Rms, Period, Freq, Max, Min, PK-PK, Avg.
- **Trigger Mode:** Auto trigger mode.
- **Trigger Type:** Rise, Fall.

Accessories

The accessories subject to final delivery.



Figure 3.4: Oscilloscope display showing waveform analysis with key measurement parameters.

3.4 Record Function and Bluetooth Connectivity

The CMS101 supports Bluetooth connectivity, allowing you to connect the device to your smartphone. This feature enables remote control, display of data charts, and storage of measurement data in CSV format for trend visualization and analysis.



Figure 3.5: The mobile application allows for remote monitoring and data logging of measurements.

4. Maintenance

To ensure the longevity and accuracy of your OWON CMS101 Clamp Meter, follow these maintenance guidelines:

- **Cleaning:** Regularly wipe the device with a soft, dry cloth. For stubborn dirt, use a slightly damp cloth with mild detergent, then dry thoroughly. Do not use abrasive cleaners or solvents.
- **Storage:** Store the meter in a cool, dry place, away from direct sunlight and extreme temperatures. If storing for extended periods, ensure the battery is partially charged (around 50%) to preserve battery health.
- **Battery Care:** Avoid fully discharging the battery frequently. Recharge the battery as needed.
- **Probe and Lead Inspection:** Periodically inspect the multimeter leads and probes for any signs of damage, such as frayed wires or cracked insulation. Replace damaged accessories immediately to ensure safety and accurate readings.

5. Troubleshooting

This section addresses common issues you might encounter with the OWON CMS101.

Problem	Possible Cause	Solution
NCV (Non-Contact Voltage) function is inconsistent or not working.	Environmental interference, low battery, or specific circuit conditions.	Ensure the battery is adequately charged. Test in different environments to rule out external interference. For critical measurements, use direct contact methods.
Oscilloscope mode displays incorrect or unstable values (e.g., voltage readings).	Software glitch, processor lag, or incorrect settings.	Try restarting the device. Ensure correct input settings (e.g., voltage range, time base). Check for firmware updates from OWON's official support channels.

Problem	Possible Cause	Solution
Device does not power on.	Battery fully discharged or faulty.	Connect the device to a charger and allow it to charge for at least 30 minutes before attempting to power on again. If the issue persists, contact customer support.

6. Specifications

Detailed technical specifications for the OWON CMS101 Clamp Meter.

Feature	Specification
Product Dimensions	2.24 x 7.17 x 1.26 inches; 1.8 Pounds
Item Model Number	CMS101
Batteries	1 Lithium Ion battery (included)
Manufacturer	OWON
Power Source	Battery Powered
Color	Blue
Display	2.8-inch IPS LCD
AC/DC Voltage	0 ~ 1000V
AC/DC Current	0 ~ 1000A
Inrush Current	0 ~ 1000A
Resistance	0 ~ 100.00MΩ
Capacitance	0 ~ 20.00mF
Frequency	0 ~ 20.000MHz
Duty Cycle	0.1% ~ 99.9%
Diode Test	3.0000V
Continuity	0 ~ 200.0 Ω
Oscilloscope Analog Bandwidth (Voltage)	1MHz
Oscilloscope Analog Bandwidth (Current)	1KHz
Oscilloscope Sample Rate	5.0MSa/S

Feature	Specification
Connectivity	Bluetooth

7. What's in the Box

The OWON CMS101 package includes the following items:

- OWON CMS101 Clamp Meter (Host)
- Multimeter Leads
- USB Cable
- Soft Bag
- User Manual (this document)

Capable of measuring current and voltage waveforms Provides more comprehensive analysis

● Voltage measurement ●

● Current measurement ●

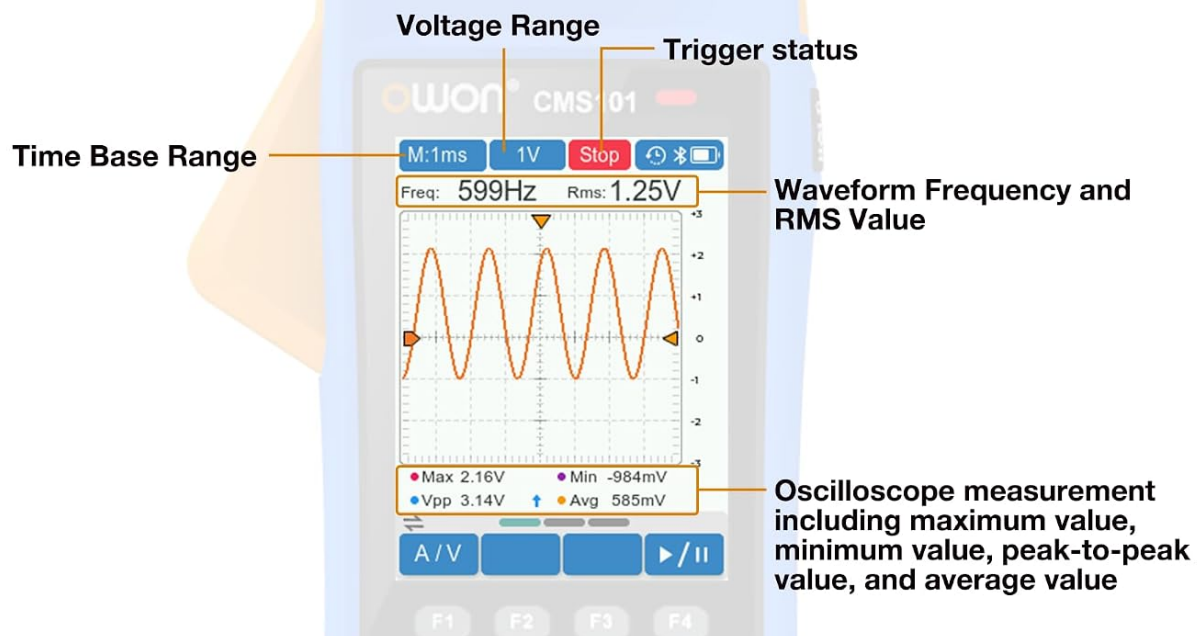


Figure 7.1: Included accessories with the OWON CMS101 Clamp Meter.

8. Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the warranty card included with your product or visit the official OWON website. You can also contact OWON customer service directly for assistance with product operation or troubleshooting.

OWON Official Website: www.owon.com

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