HANMATEK CO601

HANMATEK CO601 3-in-1 Clamp Meter & Oscilloscope User Manual

Model: CO601 | Brand: HANMATEK

1. Introduction

The HANMATEK CO601 is a versatile 3-in-1 device combining a digital clamp meter, a voltage oscilloscope, and a current oscilloscope. Designed for precision and ease of use, it is suitable for various applications including industrial maintenance, household appliance repair, and educational purposes. This manual provides detailed instructions for the safe and effective operation of your CO601 device.

2. Safety Information

Always read and understand all safety warnings and operating instructions before using this device.

- Do not exceed the maximum input values for any function.
- Ensure test leads are properly connected and in good condition before use.
- Do not use the device if it appears damaged or is not operating correctly.
- Exercise extreme caution when working with live circuits.
- Always disconnect power to the circuit before making resistance, capacitance, or diode measurements.
- Keep the device dry and clean.

3. What's in the Box



The HANMATEK CO601 package includes all necessary components to get started with your measurements. Upon opening the box, you will find the main CO601 unit, a set of red and black test leads for multimeter functions, a USB-C charging cable, and a protective carrying case. A user manual is also included for detailed instructions.

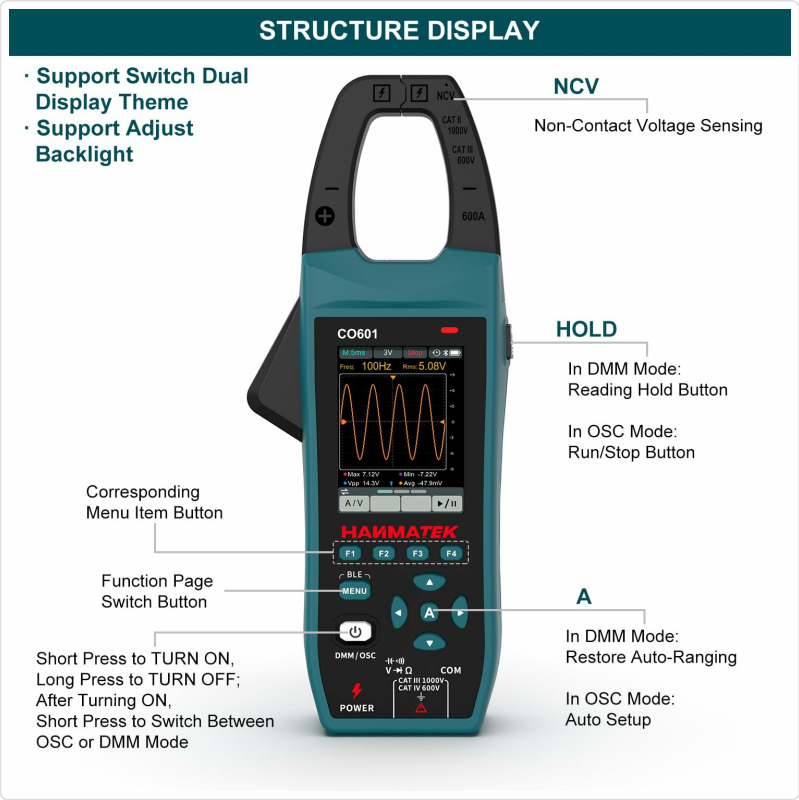
- 1x HANMATEK CO601 2-in-1 Handheld Clamp Oscilloscope Multimeter
- Test Leads (Red and Black)
- USB-C Charging Cable
- Carrying Case
- User Manual

4. Product Overview

4.1 Key Features

- **3-in-1 Functionality:** Seamlessly switch between digital clamp meter, current oscilloscope, and voltage oscilloscope modes.
- **High Precision:** Features a 1MHz analog bandwidth and 5MSa/s real-time sampling rate for accurate waveform analysis.
- **Wide Measurement Range:** Measures up to 1000V AC/DC voltage and 600A AC/DC current.
- **True RMS & Auto Ranging:** Ensures precise AC readings and simplifies operation with automatic range selection.
- **NCV (Non-Contact Voltage) Detection:** Safely and quickly identifies live voltage without direct contact.
- **Data Logging Function:** Sync measurements to your smartphone via BLE (Bluetooth Low Energy) for data storage and analysis.
- **User-Friendly Design:** Equipped with a 2.8-inch LCD screen with backlight, ergonomic clamp trigger, and Type-C charging.

4.2 Device Layout



This image illustrates the main components and controls of the HANMATEK CO601, including the clamp head, NCV sensor, LCD display, function buttons, and measurement inputs.

- **Clamp Head:** Used for non-contact current measurement.
- **NCV (Non-Contact Voltage) Sensor:** Detects AC voltage without physical contact.
- **LCD Display:** 2.8-inch screen showing measurement readings, waveforms, and menu options.
- **Function Buttons (F1-F4):** Context-sensitive buttons for menu navigation and setting adjustments.
- **DMM/OSC Button:** Short press to switch between Digital Multimeter (DMM) and Oscilloscope (OSC) modes. Long press to power on/off.
- **Navigation Buttons:** Up, Down, Left, Right, and Enter for menu navigation.
- **Measurement Inputs:** Ports for connecting test leads for voltage, resistance, capacitance, and other DMM functions.
- **Type-C Charging Port:** For recharging the internal Li-ion battery.

5. Setup

5.1 Initial Charging



Before first use, fully charge the device using the provided USB-C cable and a compatible USB power adapter (not included). The charging indicator light will show the charging status.

5.2 Power On/Off

To power on the device, short press the **DMM/OSC** button. To power off, long press the same button.

6. Operating Instructions

The HANMATEK CO601 offers multiple operating modes. Use the **DMM/OSC** button to switch between Digital Multimeter (DMM) and Oscilloscope (OSC) modes.

6.1 Digital Multimeter (DMM) Mode



In DMM mode, the device functions as a traditional multimeter, allowing you to measure various electrical parameters. Connect the test leads to the appropriate input jacks (VΩHz and COM) for voltage, resistance, capacitance, diode, and continuity tests.

- **AC/DC Voltage:** Connect leads to the circuit in parallel.
- **Resistance:** Ensure the circuit is de-energized before connecting leads.
- **Capacitance:** Discharge capacitors before measurement.
- **Diode & Continuity:** Use for testing diodes and checking circuit continuity.
- **Frequency & Duty Cycle:** Measure signal frequency and duty cycle.

For AC/DC Current measurements using the clamp, ensure the clamp head is closed around a single conductor. Do not clamp around multiple conductors as this will result in an inaccurate reading.

6.2 Oscilloscope (OSC) Mode



In Oscilloscope mode, the CO601 displays real-time waveforms of voltage or current. This mode is useful for analyzing signal shapes, frequencies, and amplitudes. Use the navigation buttons to adjust settings like time base and vertical sensitivity.

- **Voltage Waveform:** Connect test leads to the circuit to observe voltage signals.
- **Current Waveform:** Use the clamp head to measure and display current waveforms.

- **Automatic Trigger Mode:** The device automatically triggers to capture stable waveforms.

6.3 NCV (Non-Contact Voltage) Detection



The NCV function allows for safe detection of AC voltage without direct contact. Simply bring the top of the clamp meter (where the NCV sensor is located) near a live wire or outlet. The device will beep and the NCV indicator will light up if voltage is detected.

6.4 Bluetooth & Data Logging



The CO601 supports Bluetooth connectivity to sync measurements with your smartphone. Download the dedicated app (refer to the included manual for app details) to enable data logging, real-time monitoring, and CSV export for further analysis.

6.5 Official Product Video

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This video provides a visual demonstration of the HANMATEK CO601 Clamp Oscilloscope, showcasing its various functions including current and voltage oscilloscope modes, AC/DC clamp meter usage, Bluetooth data logging, and NCV detection. It highlights the device's capabilities in practical scenarios.

7. Maintenance

- **Cleaning:** Use a soft, damp cloth to clean the device. Do not use abrasive cleaners or solvents.
- **Storage:** Store the device in a cool, dry place, away from direct sunlight and extreme temperatures. If storing for extended periods, ensure the battery is partially charged.
- **Battery Care:** The device uses a built-in Li-ion battery. Avoid fully discharging the battery frequently to prolong its lifespan.
- **Test Leads:** Regularly inspect test leads for any signs of damage (cracks, frayed insulation). Replace damaged leads immediately.

8. Troubleshooting

Problem	Possible Cause	Solution
Device does not power on.	Low battery or power button not pressed correctly.	Charge the device. Ensure the DMM/OSC button is long-pressed to power on.

Problem	Possible Cause	Solution
Inaccurate readings.	Incorrect mode selected, damaged test leads, or improper connection.	Verify the correct mode for the measurement. Check test lead connections and condition. Ensure clamp is around a single conductor for current.
Bluetooth connection fails.	Bluetooth not enabled on device/phone, app issues, or distance.	Ensure Bluetooth is active on both devices. Restart the app and the CO601. Reduce distance between devices.
NCV not detecting voltage.	Too far from source, or source is not live AC voltage.	Bring the NCV sensor closer to the live wire. Confirm the wire is energized with AC voltage.

9. Specifications

Parameter	Value
Model Number	CO601
Brand	HANMATEK
AC/DC Voltage	Up to 1000V
AC/DC Current	Up to 600A
Analog Bandwidth (Voltage)	1MHz
Analog Bandwidth (Current)	1KHz
Real-Time Sampling Rate	5MSa/s
Display	2.8-inch LCD with backlight
Power Source	Battery Powered (1 Lithium Polymer battery included)
Charging Port	Type-C
Dimensions	11.22 x 5.2 x 2.91 inches
Weight	1.92 Pounds

10. Warranty and Support

HANMATEK products are designed and manufactured to the highest quality standards. For warranty information and technical support, please refer to the warranty card included with your product or visit the official HANMATEK website. Keep your purchase receipt as proof of purchase for warranty claims.
For further assistance, you may contact HANMATEK customer service through their official channels. Details can typically be found on the product packaging or the manufacturer's website.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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