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› ST212 Digital Clamp Meter User Manual

## OSCWAZZS ST212 Black PRO

# ST212 Digital Clamp Meter User Manual

Model: ST212 Black PRO | Brand: OSCWAZZS

## 1. PRODUCT OVERVIEW

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The OSCWAZZS ST212 Digital Clamp Meter is a versatile and essential tool for electrical testing and maintenance. This multimeter is designed to accurately measure AC and DC voltage, AC/DC current, resistance, frequency, capacitance, and temperature. It also features continuity testing and Non-Contact Voltage (NCV) detection.

Equipped with a large color LCD display and backlight, the ST212 ensures clear readability in various lighting conditions. Its automatic measurement function and range selection simplify operation, while built-in overload protection enhances safety across all measurement ranges. Additional features include data retention, a low battery indicator, and an automatic shutdown function to conserve power.



Figure 1: ST212 Digital Clamp Meter and its included accessories.

## 2. PACKAGE CONTENTS

Please check the package contents upon receipt to ensure all items are present:

- 1 x ST212 Digital Clamp Meter
- 2 x Test Probes (Red and Black)
- 1 x Thermocouple (for temperature measurement)
- 1 x User Manual

## 3. KEY FEATURES

- Measures AC and DC voltage, AC/DC current, resistance, frequency, capacitance, and temperature.
- 6000 counts display for high precision measurements.
- Automatic measurement function and range selection.
- Overload protection across the entire measuring range.
- Large color LCD display with backlight for easy reading.
- Data retention function to hold readings.
- Low battery indicator.

- Automatic shutdown to save battery life.
- Non-Contact Voltage (NCV) detection for safety.
- Continuity test function.

## 4. GETTING STARTED (SETUP)

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### 4.1 Battery Installation

The ST212 Clamp Meter requires 2 x AAA batteries (not included) for operation. To install the batteries:

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

### 4.2 Connecting Test Probes

For most measurements (voltage, resistance, continuity, capacitance, frequency, temperature), the test probes are required. Refer to the diagram below for input jack locations:



Figure 2: Labeled components of the ST212 Digital Clamp Meter.

- Insert the black test probe into the "COM" (Common) input jack.
- Insert the red test probe into the "VΩHz" input jack for voltage, resistance, frequency, capacitance, and diode measurements.
- For temperature measurements, connect the thermocouple to the appropriate input jacks as indicated on the device or in the specific temperature measurement instructions.

## 5. OPERATING INSTRUCTIONS

### 5.1 Power On/Off

Press the **SEL** button (Power button/function switch) to turn the meter on. The meter will automatically enter the AUTO

measurement mode. To turn off the meter, press and hold the **SEL** button until the display turns off. The meter also features an automatic shutdown function after a period of inactivity.

## 5.2 Function Selection

In AUTO mode, the meter automatically identifies the measurement type (voltage, resistance, continuity). To manually select a specific function (e.g., AC current, DC current, NCV, Live Wire detection), press the **SEL** button repeatedly to cycle through the available modes.

## 5.3 Measuring AC/DC Voltage

1. Connect the red test probe to the V $\Omega$ Hz input and the black test probe to the COM input.
2. Turn on the meter. It will automatically detect AC or DC voltage.
3. Connect the test probes in parallel to the circuit or component you wish to measure.
4. Read the voltage value on the display.

## 5.4 Measuring AC/DC Current (Clamp Function)

The clamp function is used for non-contact current measurement. This is ideal for measuring current without breaking the circuit.

1. Ensure the meter is in AC or DC current measurement mode (use the **SEL** button to cycle if necessary).
2. Open the clamp jaws by pressing the trigger.
3. Enclose only one conductor (wire) of the circuit within the clamp jaws. Do not clamp around multiple wires, as this will result in an inaccurate reading (the magnetic fields will cancel each other out).
4. Close the clamp jaws securely.
5. Read the current value on the display.



Figure 3: Demonstrating the clamp function for current measurement.

## 5.5 Measuring Resistance, Continuity, Capacitance, Frequency, and Temperature

For these measurements, connect the test probes as described in Section 4.2. The meter will automatically detect the function in AUTO mode, or you can manually select it using the **SEL** button.

- **Resistance:** Connect probes across the component.
- **Continuity:** Connect probes across the circuit. A buzzer will sound if continuity is detected.
- **Capacitance:** Connect probes across the capacitor (ensure it is discharged first).
- **Frequency:** Connect probes to the signal source.
- **Temperature:** Connect the thermocouple to the meter and place the tip on the object to be measured.

## 5.6 NCV (Non-Contact Voltage) Detection and Live Wire Recognition

The NCV function allows for quick detection of AC voltage without direct contact, enhancing safety. The Live Wire recognition function helps identify live and neutral wires.

1. Press the **SEL** button to select the NCV mode.
2. Place the NCV induction zone (top of the clamp meter) near the conductor or outlet.
3. If AC voltage is detected, the NCV indicator will light up and an audible alarm will sound.

4. For Live Wire recognition, adjust the meter to the LIVE gear. Insert the red test lead into the hole. If the red light flashes and a buzzing sound is heard, it indicates a live wire. If no light or sound, it is likely the zero line.



Figure 4: Live Wire and Zero Line recognition.

## 5.7 Data Hold and Backlight

- **Data Hold:** Press the **HOLD** button (often combined with flashlight button) to freeze the current reading on the display. Press it again to release.
- **Backlight:** The color display has an automatic backlight. If there's a dedicated backlight button, press it to toggle the backlight on/off.

## 6. CARE AND MAINTENANCE

- **Cleaning:** Wipe the meter with a damp cloth and mild detergent. Do not use abrasives or solvents. Ensure the meter is off and disconnected from any circuits before cleaning.
- **Storage:** When not in use for extended periods, remove the batteries to prevent leakage. Store the meter in a cool,

dry place, away from direct sunlight and extreme temperatures.

- **Battery Replacement:** Replace batteries promptly when the low battery indicator appears to ensure accurate readings and proper operation.
- **Test Probes:** Inspect test probes for any damage (cracks, frayed insulation) before each use. Replace damaged probes immediately.

## 7. TROUBLESHOOTING COMMON ISSUES

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Problem	Possible Cause	Solution
Meter does not power on.	Dead or incorrectly installed batteries.	Check battery polarity; replace batteries.
Inaccurate readings.	Low battery; incorrect function selected; damaged probes; external interference.	Replace batteries; ensure correct mode; inspect probes; move away from strong magnetic fields.
No continuity beep.	Circuit is open; meter not in continuity mode.	Verify circuit integrity; select continuity mode.
Clamp meter reading is zero for current.	Clamping around multiple wires (e.g., live and neutral together).	Ensure only a single conductor is within the clamp jaws.

## 8. TECHNICAL SPECIFICATIONS

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The following table provides detailed technical specifications for the ST212 Digital Clamp Meter:

# Function Parameter

Features	Range	Resolution	Accuracy
AC voltage	0.5V~600V	0.1V	±(0.8%+5d)
AC voltage(mV)	0.00mV~600mV	0.01mV	±(0.8%+5d)
DC voltage	0.5V~600V	0.1V	±(0.5%+3d)
DC voltage(mV)	0.00mV~600mV	0.01mV	±(0.5%+3d)
AC current	0.2A~400A	0.01A~0.1A	±(2.5%+8d)
DC current	0.2A~400A	0.01A~0.1A	±(2.5%+8d)
Resistance	0Ω~60MΩ	0.1Ω~0.01MΩ	±(0.8%+3d)
Capacitance	0nF~60mF	0.001nF~0.01mF	±(2.5%+20d)
Hertz (Pass A file)	40Hz~1000Hz	0.1Hz~1Hz	±(1.0%+5d)
Hertz (Pass V file)	40Hz~1000Hz	0.1Hz~1Hz	±(1.0%+5d)
°C	-40°C~1000°C	1°C	±(1.0%+3d)
°F	-40°F~1832°F	1°F	±(1.0%+3d)
Diode	√	On-off detection	√
NCV induction	√	Zero line of fire	√
Auto shut-down	√	Data retention	√
Battery Model	AAA*2	Weight	149.2g
Product Material	ABS	Jaws open to	31.5mm/1.24in
Max display	6000 counts	Test lead length	88.5cm/34.8in
Screen display	VA color reverse display screen	Test lead material	PVC/Brass
Product Size	62.1 * 182 * 33.4mm / 2.44 * 7.16 * 1.31in		

The above parameters are for reference only, the actual measurement of the specific equipment shall prevail

Figure 5: Detailed Function Parameters of the ST212 Clamp Meter.

Parameter	Range	Accuracy
AC Voltage	600mV / 600V	±(0.5%+3)
DC Voltage	600mV / 600V	±(0.8%+5)
Resistance	600Ω / 6kΩ / 60kΩ / 600kΩ / 6MΩ / 60MΩ	±(0.8%+3)
AC/DC Current	60A / 400A	±(2.5%+8)
Frequency	60Hz ~ 1000Hz	±(1.0%+5)
Capacitance	6nF / 600nF / 6uF / 60uF / 600uF / 6mF / 60mF	±(2.5%+20) (6nF: ±(10%+40))

Parameter	Range	Accuracy
Temperature	-40°C ~ 1000°C	±(1.0%+3)
Display	6000 Counts, VA Color Display Screen	
Battery Model	AAA*2	
Product Material	ABS	
Product Size	62.1mm x 182mm x 33.4mm (2.44in x 7.16in x 1.31in)	
Jaws Open To	31.5mm / 1.24in	
Test Lead Length	88.5cm / 34.8in	

## 9. SAFETY PRECAUTIONS

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Always observe the following safety precautions when using the ST212 Digital Clamp Meter to prevent personal injury or damage to the meter or equipment under test:

- Do not exceed the maximum input limits for any function.
- Do not use the meter if it or the test leads appear damaged.
- Exercise extreme caution when working with live circuits.
- Do not operate the meter in explosive gas, vapor, or dust environments.
- Ensure the meter is in the correct function mode before making measurements.
- Always disconnect the test leads from the circuit before changing functions.
- Keep fingers behind the finger guards on the test probes during measurements.
- Do not use the meter if the battery cover is not properly closed.
- Refer to the CAT ratings (CAT II 600V, CAT III 300V) on the meter for appropriate measurement categories.

## 10. WARRANTY AND CUSTOMER SUPPORT

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OSCWAZZS products are manufactured to high-quality standards. For any questions regarding the operation, maintenance, or troubleshooting of your ST212 Digital Clamp Meter, please refer to this manual. If you require further assistance, please contact your retailer or the manufacturer's customer support. Please retain your purchase receipt as proof of purchase for any warranty claims.