

## Mastech MS2108A

# MASTECH Professional MS2108A AC/DC Current Clamp Meter User Manual

Model: MS2108A

## 1. INTRODUCTION

This manual provides comprehensive instructions for the safe and effective operation of the MASTECH Professional MS2108A AC/DC Current Clamp Meter. The MS2108A is a portable, professional measuring instrument designed for accurate measurement of AC and DC current, voltage, resistance, frequency, and duty cycle. It features a clear LCD with backlight for easy reading in various lighting conditions. Please read this manual thoroughly before using the device to ensure proper operation and to prevent potential hazards.

## 2. PRODUCT OVERVIEW

The MASTECH MS2108A is a versatile clamp meter, ideal for electrical testing and troubleshooting. Its ergonomic design and robust construction ensure reliability and ease of use.

### 2.1 Key Features

- 4000 Counts LCD Display with Backlight
- Measures AC/DC Current up to 400A
- Measures AC/DC Voltage, Resistance, Capacitance, Frequency, Duty Cycle
- Diode Test and Continuity Buzzer
- Data Hold, MIN/MAX, Relative Measurement (REL)
- Non-contact Voltage (NCV) Detection
- Auto Power Off function

### 2.2 Components and Controls



Figure 1: Front view of the MASTECH MS2108A Clamp Meter, showing the clamp jaws, rotary dial, function buttons, LCD display, and input terminals.



Figure 2: Detailed view of the COM (common) and INPUT terminals on the MS2108A, used for connecting test leads for voltage, resistance, and other measurements.



Figure 3: Close-up of the rotary dial for function selection and the control buttons including SEL, REL, MIN/MAX, Hz/DUTY, and B.L HOLD (Backlight/Hold) on the MS2108A.



Figure 4: The MASTECH MS2108A Clamp Meter displayed alongside its protective carrying case and a set of red and black test leads, indicating included accessories.

### 3. SAFETY INFORMATION

**WARNING: To avoid possible electric shock, fire, or personal injury, please read all safety information before using the product.**

- Always adhere to local and national safety codes.
- Do not use the meter if it appears damaged or if the insulation on the test leads is compromised.
- Verify the meter's operation on a known voltage source before use.
- Do not apply more than the rated voltage, as marked on the meter, between the terminals or between any terminal and earth ground.
- Use caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Keep fingers behind the finger guards on the test probes during measurements.
- Remove test leads from the meter before opening the battery cover.
- Replace the battery immediately when the low battery indicator appears.
- Do not operate the meter in explosive gas, vapor, or dust environments.
- Ensure the rotary switch is in the correct position for the desired measurement before connecting to the circuit.

### 4. SETUP

#### 4.1 Battery Installation

1. Ensure the meter is turned OFF.
2. Locate the battery compartment cover on the rear of the meter.
3. Use a screwdriver to loosen the screw(s) securing the battery cover.
4. Remove the battery cover.
5. Insert the required batteries (typically AAA or 9V, refer to the battery compartment label for exact type and polarity) ensuring correct polarity.
6. Replace the battery cover and secure it with the screw(s).

The MS2108A is powered by batteries, ensuring portability. Always use fresh batteries for optimal performance.

### 5. OPERATING INSTRUCTIONS

Before any measurement, ensure the meter is set to the correct function and range.

#### 5.1 Turning On/Off

Rotate the central dial from the "OFF" position to any desired measurement function to turn the meter ON. To turn OFF, rotate the dial back to the "OFF" position. The meter features an Auto Power Off function to conserve battery life, which activates after approximately 15 minutes of inactivity.

## 5.2 AC/DC Current Measurement (Clamp)

1. Rotate the dial to the "400A" or "40A" AC/DC current range.
2. Press the trigger to open the clamp jaws.
3. Enclose only one conductor (wire) within the clamp jaws. For AC current, ensure the conductor is centered. For DC current, observe the polarity indicated on the display.
4. Release the trigger to close the jaws securely around the conductor.
5. Read the current value on the LCD display.
6. Use the "SEL" button to switch between AC and DC current measurement if the dial position covers both.

## 5.3 AC/DC Voltage Measurement

1. Insert the red test lead into the "INPUT" terminal and the black test lead into the "COM" terminal.
2. Rotate the dial to the "V~" (AC Voltage) or "V-" (DC Voltage) position.
3. Connect the test probes in parallel to the circuit or component to be measured.
4. Read the voltage value on the LCD display.
5. Use the "SEL" button to switch between AC and DC voltage if the dial position covers both.

## 5.4 Resistance Measurement ( $\Omega$ )

1. Insert the red test lead into the "INPUT" terminal and the black test lead into the "COM" terminal.
2. Rotate the dial to the " $\Omega$ " (Ohms) position.
3. Ensure the circuit or component to be measured is de-energized.
4. Connect the test probes across the component.
5. Read the resistance value on the LCD display.

## 5.5 Frequency (Hz) and Duty Cycle (%) Measurement

1. Insert the red test lead into the "INPUT" terminal and the black test lead into the "COM" terminal.
2. Rotate the dial to the "Hz/DUTY" position.
3. Connect the test probes to the signal source.
4. Press the "Hz/DUTY" button to toggle between frequency and duty cycle display.
5. Read the value on the LCD display.

## 5.6 Special Functions

- **B.L HOLD (Backlight/Data Hold):** Press briefly to hold the current reading on the display. Press and hold for 2 seconds to activate/deactivate the LCD backlight.
- **MIN/MAX:** Press to enter MIN/MAX recording mode. The meter will display the minimum or maximum reading detected since entering the mode. Press again to cycle between MIN, MAX, and current reading.
- **REL (Relative Measurement):** Press to store the current reading as a reference value. Subsequent readings will be displayed as the difference from this reference. Press again to exit relative mode.
- **SEL (Select):** Used to toggle between different measurement types within a single rotary switch position (e.g., AC/DC voltage, Diode/Continuity).

## 6. MAINTENANCE

### 6.1 Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Keep the input terminals free of dirt and moisture.

### 6.2 Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in the "Battery Installation" section (Section 4.1). Remove batteries if the meter is not to be used for an extended period.

### 6.3 Calibration

The MS2108A is factory calibrated. For continued accuracy, periodic calibration by qualified personnel is recommended. Do not attempt to calibrate the meter yourself.

## 7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Meter does not turn on.	Dead or incorrectly installed batteries.	Check battery polarity and replace batteries if necessary.
No reading or "OL" (Overload) displayed.	Incorrect range selected, open circuit, or measurement exceeds range.	Select a higher range, check circuit continuity, or ensure proper connection.
Inaccurate readings.	Low battery, dirty terminals, or external interference.	Replace batteries, clean terminals, move away from strong electromagnetic fields.
Backlight not working.	Backlight function not activated or low battery.	Press and hold the B.L HOLD button for 2 seconds. Replace batteries if needed.

## 8. SPECIFICATIONS

Parameter	Detail
Model Number	MS2108A
Display	4000 Counts LCD with Backlight
AC/DC Current Range	Up to 400A
Power Source	Battery Powered
Item Weight	7.68 ounces (approx. 218 grams)
Package Dimensions	9.2 x 4.6 x 2.2 inches (approx. 23.4 x 11.7 x 5.6 cm)
Manufacturer	Mastech

Parameter	Detail
Date First Available	July 23, 2012
UPC	713831670976

## 9. WARRANTY AND SUPPORT

For warranty information and technical support, please contact Mastech customer service directly. Refer to the product packaging or the official Mastech website for the most current contact details.

It is recommended to register your product upon purchase to facilitate any future warranty claims or support requests.

For additional resources, you may visit the [Mastech Store on Amazon](#).