Mastech MAS830L

Mastech MAS830L Digital Multimeter User Manual

Model: MAS830L
Brand: Mastech

Product Overview

The Mastech MAS830L is a compact and versatile digital multimeter designed for basic electrical measurements. It features a clear LCD display and a rotary switch for selecting various functions, making it suitable for hobbyists and general household use.

This image displays the Mastech MAS830L Digital Multimeter. The device features a green protective casing and a black front panel. At the top, there is a large LCD display showing '-1.8.8.8'. Below the display, a green 'HOLD' button is visible on the left, and a yellow 'BACK LIGHT' button on the right. The central part is dominated by a large black rotary switch with various measurement ranges and functions, including DC Voltage (V-), AC Voltage (V~), DC Current (A-), Resistance (Ω), Diode Test, Continuity Test, and Hfe. At the bottom, there are three input jacks labeled '10A', 'COM', and 'mA V Ω', with corresponding safety warnings for fused inputs. The brand 'MASTECH' and model 'MAS830L' are printed at the very bottom.

Safety Information

Always observe basic safety precautions when using electrical testing equipment to reduce the risk of fire, electric shock, or personal injury.

- Do not apply more than the rated voltage, as marked on the meter, between terminals or between any terminal and ground.
- Use extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. Such voltages pose a shock hazard.
- Before measuring current, ensure the meter's fuses are intact and the test leads are connected to the correct input jacks.
- Always disconnect the test leads from the circuit before changing the function or range switch.

- Do not operate the meter if it appears damaged or if the protective casing is compromised.
- Replace the battery immediately when the low battery indicator appears to ensure accurate readings.

Setup

1. Battery Installation

The Mastech MAS830L requires one 9V battery (6F22 type) for operation.

1. Ensure the multimeter is turned **OFF**.
2. Locate the battery compartment cover on the back of the unit.
3. Unscrew the retaining screw(s) and remove the cover.
4. Connect a 9V battery to the battery clip, observing correct polarity (+ and -).
5. Place the battery into the compartment and replace the cover, securing it with the screw(s).

2. Connecting Test Leads

Proper connection of test leads is essential for accurate and safe measurements.

- The black test lead should always be connected to the **COM** (Common) input jack.
- For most measurements (Voltage, Resistance, Diode, Continuity, Hfe, and low current), connect the red test lead to the **VΩmA** input jack.
- For high current measurements (up to 10A), connect the red test lead to the **10A** input jack.

Operating Instructions

Before taking any measurement, ensure the test leads are correctly inserted into the appropriate input jacks and the rotary switch is set to the desired function and range.

1. DC Voltage Measurement (V-)

- Connect the red lead to **VΩmA** and the black lead to **COM**.
- Set the rotary switch to the desired DC Voltage range (200m, 2, 20, 200, 600V). Select a range higher than the expected voltage.
- Connect the test probes across the DC voltage source to be measured.
- The display will show the voltage reading. If a negative sign appears, it indicates reversed polarity.

2. AC Voltage Measurement (V~)

- Connect the red lead to **VΩmA** and the black lead to **COM**.
- Set the rotary switch to the desired AC Voltage range (200, 600V). Select a range higher than the expected voltage.
- Connect the test probes across the AC voltage source to be measured.
- The display will show the AC voltage reading.

3. DC Current Measurement (A-)

- Connect the black lead to **COM**.
- For currents up to 200mA, connect the red lead to **VΩmA**. For currents up to 10A, connect the red lead to **10A**.
- Set the rotary switch to the desired DC Current range (200µ, 2m, 20m, 200m, 10A).
- **CAUTION:** Disconnect power to the circuit before connecting the meter in series.
- Connect the meter in series with the circuit where current is to be measured.
- Apply power to the circuit. The display will show the DC current reading.

4. Resistance Measurement (Ω)

- Connect the red lead to **VΩmA** and the black lead to **COM**.
- Set the rotary switch to the desired Resistance range (200, 2k, 20k, 200k, 2MΩ).
- **CAUTION:** Ensure the circuit is de-energized and all capacitors are discharged before measuring resistance.
- Connect the test probes across the component to be measured.
- The display will show the resistance reading.

5. Diode Test (*symbol for diode*)

- Connect the red lead to **VΩmA** and the black lead to **COM**.
- Set the rotary switch to the Diode Test position.
- Connect the red probe to the anode and the black probe to the cathode of the diode.
- The display will show the forward voltage drop. Reverse the probes; the display should show 'OL' (Overload) for a good diode.

6. Continuity Test (*symbol for continuity/buzzer*)

- Connect the red lead to **VΩmA** and the black lead to **COM**.
- Set the rotary switch to the Continuity Test position.
- Connect the test probes across the circuit or component to be tested.
- If the resistance is below approximately 50Ω, the built-in buzzer will sound, indicating continuity.

7. Hfe Test (Transistor Gain)

- Set the rotary switch to the Hfe position.
- Identify if the transistor is NPN or PNP.
- Insert the transistor leads (Emitter, Base, Collector) into the corresponding holes in the Hfe socket on the meter.
- The display will show the Hfe value (DC current gain) of the transistor.

8. Data Hold Function (HOLD button)

- Press the **HOLD** button to freeze the current reading on the display.
- Press the **HOLD** button again to release the reading and resume live measurement.

9. Backlight Function (BACK LIGHT button)

- Press the **BACK LIGHT** button to illuminate the display for better visibility in low-light conditions.
- The backlight will automatically turn off after approximately 8 seconds to conserve battery life.

Maintenance

1. Battery Replacement

When the battery voltage drops below the operating level, the battery symbol will appear on the display. Replace the battery as described in the "Setup" section.

2. Fuse Replacement

The meter is protected by fuses. If the current measurement function fails, the fuse may need replacement. Refer to the specifications for fuse ratings.

- Ensure the multimeter is turned **OFF** and test leads are disconnected.
- Unscrew the back cover of the meter.
- Carefully remove the old fuse and replace it with a new one of the correct type and rating.
- Securely replace the back cover.

3. Cleaning and Storage

- Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.
- If the meter is not to be used for a long period, remove the battery to prevent leakage.
- Store the meter in a cool, dry place, away from direct sunlight and extreme temperatures.

Troubleshooting

Problem	Possible Cause	Solution
No display or dim display	Dead or low battery	Replace the 9V battery.
Incorrect readings	Incorrect range selected; Poor test lead connection; Low battery	Select appropriate range; Ensure leads are firmly connected; Replace battery.
Current measurement not working	Blown fuse	Check and replace the fuse(s) if necessary.
"OL" (Overload) displayed	Input value exceeds selected range; Open circuit (for continuity/resistance)	Select a higher range; Check circuit for breaks.

Specifications

Display: 1999 Counts, 15mm high digit LCD

DC Voltage: 200mV / 2V / 20V / 200V (±0.5%), 600V (±0.8%)

AC Voltage: 200V / 600V (±1.2%)

DC Current: 200µA / 2mA / 20mA (±1.0%), 200mA (±1.5%), 10A (±3.0%)

Resistance: 200Ω / 2kΩ / 20kΩ / 200kΩ (±0.8%), 2MΩ (±1.0%)

Hfe: 1 - 1000

Diode Test: Yes

Data Hold: Yes

Backlight: Yes (approx. 8 seconds duration)

Continuity Test: Yes (with buzzer)

Power: 1 x 9V battery (6F22)

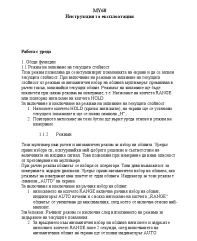
Dimensions: 138mm x 69mm x 31mm (5.7 x 3 x 1.57 inches)

Weight: Approx. 170g (5.87 ounces)

Warranty and Support

Mastech products are designed for reliability and performance. For any technical assistance, warranty inquiries, or support, please contact Mastech customer service through their official website or authorized distributors.
Please retain your purchase receipt as proof of purchase for warranty claims.
For more information, visit the Mastech Store on Amazon.

Related Documents - MAS830L

	[Инструкция по эксплуатации цифрового мультиметра MASTECH MY68] Полное руководство пользователя для цифрового мультиметра MASTECH MY68. Узнайте о функциях, безопасной эксплуатации, измерениях напряжения, тока, сопротивления и многом другом.
	[MASTECH MS8223A Pen-Type Digital Multimeter Quick Start Guide] Quick start guide for the MASTECH MS8223A pen-type digital multimeter, covering safety precautions, specifications, and basic operation for voltage, current, resistance, continuity, logic test, and NCV detection.
	[Mastech MS8332C Digital Multimeter Quick Start Guide - Features, Specs, and Usage] Concise guide for the Mastech MS8332C Digital Multimeter. Learn about its specifications, safety precautions, and how to perform common measurements like voltage, current, resistance, and frequency.
	[MASTECH MY60 Digital Multimeter Quick Start Guide] This guide provides essential information for using the MASTECH MY60 Digital Multimeter, including safety precautions, technical specifications, and step-by-step instructions for common measurements.
	[MASTECH MS8250D Digital Multimeter Quick Start Guide] A concise and SEO-optimized guide for the MASTECH MS8250D Digital Multimeter, providing essential information on safety, specifications, and basic operation.
	[MY68 Digital Multimeter User Manual] Detailed user manual for the Mastech MY68 digital multimeter, covering functions such as voltage, resistance, current, capacitance, frequency, and transistor testing, along with maintenance instructions.