

Mastech MAS830L

MASTECH MAS830L Digital Multimeter User Manual

Model: MAS830L

1. INTRODUCTION

This manual provides detailed instructions for the safe and effective use of your MASTECH MAS830L Digital Multimeter. This device is a portable, battery-powered digital multimeter designed for measuring DC/AC voltage, DC current, resistance, diode, and continuity. It features a 2000-count display and a low battery indicator.

Please read this manual thoroughly before operating the multimeter and keep it for future reference.

2. SAFETY INFORMATION

Always observe the following safety precautions when using the multimeter:

- Do not exceed the maximum input values for any range.
- Use extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Before changing functions, disconnect the test leads from the circuit under test.
- Do not use the meter if it appears damaged or if the insulation on the test leads is compromised.
- Ensure the battery cover is securely closed before operation.
- Adhere to local and national safety codes.

This device complies with CE, UL, and RoHS standards.

3. PRODUCT OVERVIEW AND COMPONENTS



Figure 3.1: Front view of the MASTECH MAS830L Digital Multimeter, showing the display, rotary switch, and input jacks.



High Definition LCD Screen

Clear display and easy reading of data



Figure 3.2: Close-up view of the test leads and probes, essential accessories for measurement.

Key Features:

- 2000 Counts Display
- Diode Open Voltage: 3.0V
- Data Hold Function
- Low Battery Display Indicator
- Continuity Buzzer: $< 70 \pm 30\Omega$
- Display Backlight

Package Contents:



DIGITAL MULTIMETER MAS830L

SKU NO.: MAS830LCBGLO
UPC CODE: 810053671993
EAN CODE: 8435394777726

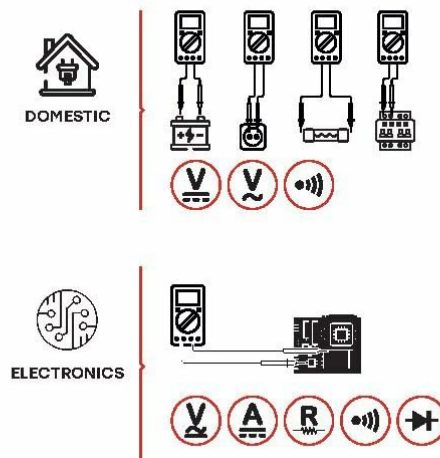
FEATURE

- Diode Open Voltage 3.0V.
- Data Hold.
- Low Battery Display.
- Continuity Buzzer $<70 \pm 30\Omega$.

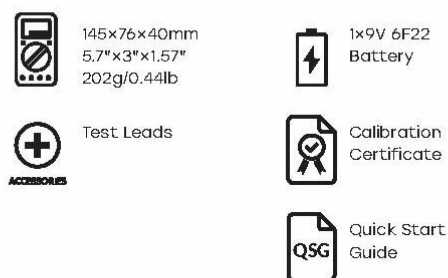
SPECIFICATIONS

AC Voltage 600V	DC Voltage 600V	DC Current 10A
Resistance 2MΩ	Display Counts 2000	Continuity $<70 \pm 30\Omega$

MAIN APPLICATIONS



CONTENTS



PACKAGING INFORMATION



Figure 3.3: Illustration of the multimeter's main applications and included accessories.

- MASTECH MAS830L Digital Multimeter
- Test Leads (Red and Black)
- 1x 9V 6F22 Battery (included)
- Calibration Certificate
- Quick Start Guide

4. SETUP

4.1 Battery Installation

The MAS830L multimeter is powered by one 9V 6F22 battery. To install or replace the battery:

1. Ensure the multimeter is turned OFF and disconnect all test leads.

2. Locate the battery compartment on the back of the unit.
3. Unscrew the retaining screw(s) and remove the battery cover.
4. Insert the 9V battery, observing the correct polarity (+ and -).
5. Replace the battery cover and secure it with the screw(s).

A low battery indicator will appear on the display when the battery needs replacement.

4.2 Connecting Test Leads

Connect the red test lead to the "VΩmA" input jack and the black test lead to the "COM" input jack for most measurements. For high current measurements (up to 10A), connect the red test lead to the "10A" input jack.

5. OPERATING INSTRUCTIONS

Before taking any measurement, ensure the rotary switch is set to the correct function and range.

5.1 DC Voltage Measurement (V—)

1. Set the rotary switch to the desired DC Voltage range (e.g., 200mV, 2V, 20V, 200V, 600V).
2. Connect the red test lead to the positive (+) side of the circuit and the black test lead to the negative (-) side.
3. Read the voltage value on the display.

5.2 AC Voltage Measurement (V~)

1. Set the rotary switch to the desired AC Voltage range (e.g., 200V, 600V).
2. Connect the test leads across the AC voltage source.
3. Read the voltage value on the display.

5.3 DC Current Measurement (A—)

1. Set the rotary switch to the desired DC Current range (e.g., 2mA, 20mA, 200mA, 10A).
2. For measurements up to 200mA, connect the red lead to "VΩmA". For 10A, connect the red lead to "10A".
3. Break the circuit and connect the multimeter in series with the load.
4. Read the current value on the display.

5.4 Resistance Measurement (Ω)

1. Ensure the circuit is de-energized before measuring resistance.
2. Set the rotary switch to the desired Resistance range (e.g., 200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ).
3. Connect the test leads across the component to be measured.
4. Read the resistance value on the display.

5.5 Diode Test (→|→)

1. Set the rotary switch to the Diode Test position.
2. Connect the red test lead to the anode and the black test lead to the cathode of the diode.
3. The display will show the forward voltage drop. Reverse the leads to check for open circuit (OL).

5.6 Continuity Test (♥)

1. Set the rotary switch to the Continuity Test position.

- 2. Connect the test leads across the circuit or component.
- 3. If the resistance is less than $70 \pm 30\Omega$, the built-in buzzer will sound, indicating continuity.

5.7 Data Hold Function (HOLD)

Press the "HOLD" button to freeze the current reading on the display. Press it again to release the hold and resume live readings.

6. MAINTENANCE

6.1 Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Ensure the meter is dry before use.

6.2 Battery Replacement

Refer to Section 4.1 for battery installation and replacement instructions. Replace the battery promptly when the low battery indicator appears to ensure accurate readings.

6.3 Fuse Replacement

The multimeter is protected by internal fuses. If the current measurement function stops working, the fuse may need replacement. This procedure should only be performed by qualified personnel. Use only fuses of the specified type and rating (e.g., MAX 200mA/250V FUSED, MAX 10A/250V FUSED).

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
No display or dim display	Low or dead battery	Replace the 9V battery.
"OL" (Overload) displayed	Input value exceeds selected range or meter's maximum capacity.	Select a higher range or ensure the input is within the meter's specifications.
Incorrect readings	Incorrect range selected, poor test lead connection, or damaged test leads.	Verify range, check lead connections, or replace leads if damaged.
Current measurement not working	Blown fuse.	Replace the appropriate fuse (refer to Maintenance section).

8. SPECIFICATIONS

DIGITAL MULTIMETERS MANUAL RANGING

								
CAT II CAT III CAT IV								
Model	M3900	M830B	M830BZ	M832	M838	MAS830	MAS830B	MAS830L
Page	30	31	32	33	34	35	36	37
Safety Rating	CAT II 1000V CAT III 600V	CAT II 600V	CAT II 600V	CAT II 600V	CAT II 600V	CAT III 600V	CAT III 600V	CAT III 600V
Display Counts	2000	2000	2000	2000	2000	2000	2000	2000
Auto Ranging								
Auto Power Off								
True RMS								
DC Voltage	1000V	600V	600V	600V	600V	600V	600V	600V
AC Voltage	750V	600V	600V	600V	600V	600V	600V	600V
DC Current	10A	10A	10A	10A	10A	10A	10A	10A
AC Current	10A							
Resistance	20MΩ	2MΩ	2MΩ	2MΩ	2MΩ	2MΩ	2MΩ	2MΩ
Capacitance								
Frequency								
Duty Cycle								
Type K Temperature	-20~1370°C							
Battery Test								
Diode	•	•	•	•	•	•	•	•
Continuity	•		•	•	•	•		•
Display Backlight								•
Work Light								•
Data Hold						•		•
NCV								
Inductance								
hFE Transistor	•	•		•	•			•
Dual Display								
MAX								
MAX/MIN								
MAX/MIN/AVG								
Relative Measurement								
Peak Measurement								
DWELL Test								
TACH Test								

Figure 8.1: Comparative specifications table for various MASTECH digital multimeters, including the MAS830L.

- **Display:** 2000 Counts
- **DC Voltage:** Up to 600V
- **AC Voltage:** Up to 600V
- **DC Current:** Up to 10A
- **Resistance:** Up to 2MΩ
- **Continuity Buzzer:** < 70 ±30Ω
- **Diode Test:** Yes (Open Voltage 3.0V)
- **Data Hold:** Yes
- **Low Battery Display:** Yes
- **Power Source:** 1x 9V 6F22 Battery (included)
- **Dimensions (L x W x H):** 20 x 15 x 25 cm (approx. 5.7" x 3" x 1.57")

- **Weight:** 1 Kilogram (approx. 0.44lb)
- **Operating Temperature:** Up to 50°C
- **Safety Rating:** CAT III 600V
- **Compliance:** CE, UL, RoHS
- **Model Number:** YQ-MAS830L

9. SUPPORT AND WARRANTY

For technical support or inquiries, please contact your retailer or the manufacturer, Mastech.

Spare Parts Availability: 1 Year (EU: 1 Year).

Please retain your purchase receipt for warranty purposes.