

Mastech MY68

Mastech MY68 3 3/4 3260-Count Auto-Ranging AC/DC Digital Multimeter User Manual

Model: MY68

1. INTRODUCTION

The Mastech MY68 is a compact, auto-ranging digital multimeter designed for measuring AC/DC voltage, AC/DC current, resistance, capacitance, and frequency. It also includes functions for diode testing, continuity checking, and transistor (hFE) testing. Featuring a 3 3/4 digit display with a maximum reading of 3260 counts, this device is suitable for a wide range of electrical and electronic troubleshooting tasks.

2. SAFETY INFORMATION

Please read and understand all safety information before operating this multimeter. Failure to follow these instructions may result in electric shock, fire, or damage to the meter or the equipment under test.

- Always ensure the test leads are in good condition, free from cracks or damaged insulation.
- Do not apply more than the rated voltage between terminals or between any terminal and earth ground. The maximum input for voltage is 1000V DC or 750V AC.
- Use the correct terminals, function, and range for your measurements.
- Never measure current on a circuit with voltage present without first ensuring the circuit is de-energized or the meter is properly connected in series.
- Be cautious when working with voltages above 60V DC or 30V AC RMS, as these pose a shock hazard.
- Always disconnect the test leads from the circuit before changing functions or ranges.
- Replace the battery immediately when the low battery indicator appears to ensure accurate readings.
- Observe the CAT (Category) ratings: CAT III 600V and CAT II 1000V. Do not use the meter in environments exceeding these ratings.

3. PRODUCT OVERVIEW

3.1. Display

The MY68 features a 3 3/4 digit liquid crystal display (LCD) capable of showing up to 3260 counts. It indicates measurement values, units, function modes, auto-ranging status, data hold, and low battery.

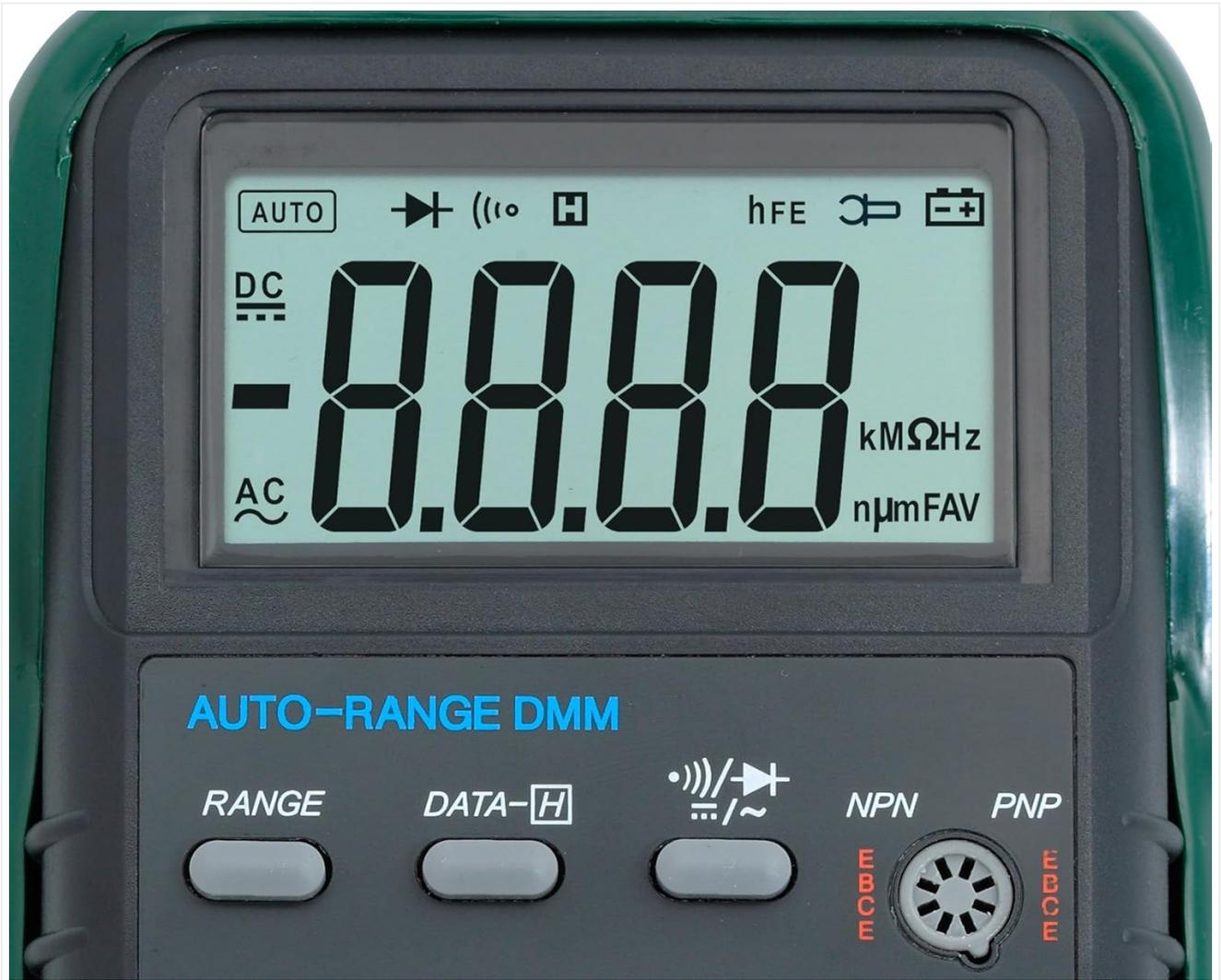


Figure 1: Close-up view of the Mastech MY68 multimeter display. The display shows the 3 3/4 digit reading area, along with indicators for AUTO range, DC/AC voltage, current, resistance, capacitance, frequency, diode, continuity, hFE, and battery status.

3.2. Rotary Switch

The central rotary switch is used to select the desired measurement function. Turn the switch to the appropriate position for voltage, current, resistance, capacitance, frequency, diode, continuity, or hFE tests. Always ensure the meter is OFF when not in use.



Figure 2: Close-up view of the Mastech MY68 multimeter's rotary switch. The switch allows selection between various functions including OFF, AC/DC Voltage (V_{\sim} , $V_{=}$), Resistance (Ω), Capacitance (Cap), Frequency (Hz), hFE, Diode/Continuity, and AC/DC Current (μA , mA, A).

3.3. Input Jacks

- **COM:** Common terminal for all measurements. Connect the black test lead here.
- **VΩFCx:** Input terminal for voltage, resistance, frequency, and capacitance measurements. Connect the red test lead here.
- **mA:** Input terminal for current measurements up to 400mA. Fused. Connect the red test lead here for mA measurements.
- **A:** Input terminal for current measurements up to 10A. Fused. Connect the red test lead here for A measurements.



Figure 3: Close-up view of the Mastech MY68 multimeter's input jacks. From left to right: 10A MAX (fused), 400mA MAX (fused), COM (common), and VΩFCx (Voltage, Resistance, Frequency, Capacitance). Safety warnings for CAT III 600V and CAT II 1000V are also visible.

3.4. Buttons

- **RANGE:** Toggles between auto-ranging and manual ranging modes. In manual mode, press to cycle through available ranges.
- **DATA-H:** Holds the current displayed reading. Press again to release.

4. SETUP

4.1. Battery Installation

The MY68 multimeter is powered by a 9V battery (not included). To install or replace the battery:

1. Ensure the multimeter is turned OFF and test leads are disconnected.
2. Locate the battery compartment cover on the back of the meter.
3. Unscrew the retaining screw(s) and remove the cover.
4. Connect a new 9V battery to the battery connector, observing correct polarity.
5. Place the battery into the compartment and replace the cover, securing it with the screw(s).

If the low battery indicator appears on the display, replace the battery promptly to maintain measurement accuracy.

4.2. Connecting Test Leads

For most measurements:

- Connect the **black** test lead to the **COM** (common) jack.
- Connect the **red** test lead to the **VΩFCx** jack for voltage, resistance, frequency, or capacitance measurements.
- For current measurements, connect the **red** test lead to the **mA** jack (for up to 400mA) or the **A** jack (for up to

10A).

Always ensure test leads are securely inserted before taking measurements.

5. OPERATING INSTRUCTIONS

5.1. Measuring AC/DC Voltage

1. Connect the red lead to V Ω FCx and the black lead to COM.
2. Turn the rotary switch to the desired AC Voltage (V \sim) or DC Voltage (V-) position.
3. Connect the test leads in parallel across the circuit or component to be measured.
4. Read the voltage value on the display.

5.2. Measuring AC/DC Current

1. **WARNING:** Ensure the circuit is de-energized before connecting the meter in series.
2. Connect the black lead to COM. Connect the red lead to the mA jack (for current up to 400mA) or the A jack (for current up to 10A).
3. Turn the rotary switch to the desired AC Current (A \sim , mA \sim , μ A \sim) or DC Current (A-, mA-, μ A-) position.
4. Open the circuit where current is to be measured and connect the meter in series.
5. Apply power to the circuit and read the current value on the display.
6. **IMPORTANT:** Never connect the meter in parallel when measuring current, as this will blow the fuse.

5.3. Measuring Resistance

1. **WARNING:** Ensure the circuit or component is de-energized before measuring resistance.
2. Connect the red lead to V Ω FCx and the black lead to COM.
3. Turn the rotary switch to the Ω (Resistance) position.
4. Connect the test leads across the component to be measured.
5. Read the resistance value on the display.

5.4. Measuring Capacitance

1. **WARNING:** Ensure the capacitor is fully discharged before measuring capacitance.
2. Connect the red lead to V Ω FCx and the black lead to COM.
3. Turn the rotary switch to the Cap (Capacitance) position.
4. Connect the test leads across the capacitor.
5. Read the capacitance value on the display.

5.5. Measuring Frequency

1. Connect the red lead to V Ω FCx and the black lead to COM.
2. Turn the rotary switch to the Hz (Frequency) position.
3. Connect the test leads across the signal source.
4. Read the frequency value on the display.

5.6. Diode Test

1. **WARNING:** Ensure the diode or circuit is de-energized.
2. Connect the red lead to V Ω FCx and the black lead to COM.
3. Turn the rotary switch to the Diode symbol position.

4. Connect the red lead to the anode and the black lead to the cathode of the diode. The display will show the forward voltage drop.
5. Reverse the leads. The display should show 'OL' (Open Loop) for a good diode.

5.7. Continuity Test

1. **WARNING:** Ensure the circuit or component is de-energized.
2. Connect the red lead to V Ω FCx and the black lead to COM.
3. Turn the rotary switch to the Continuity symbol position.
4. Connect the test leads across the circuit or component.
5. If the resistance is below approximately 50 Ω , the buzzer will sound, indicating continuity.

5.8. Transistor (hFE) Test

1. Turn the rotary switch to the hFE position.
2. Identify the type (NPN or PNP) and pin configuration (EBC) of the transistor.
3. Insert the transistor leads into the corresponding holes in the hFE socket on the meter.
4. Read the hFE value (DC current gain) on the display.

5.9. Data Hold Function

Press the **DATA-H** button to freeze the current reading on the display. Press it again to release the hold and resume live readings.

5.10. Range Selection (Manual Ranging)

The MY68 operates in auto-ranging mode by default. To select a specific range manually, press the **RANGE** button. Each press will cycle through the available ranges for the selected function. To return to auto-ranging, press and hold the **RANGE** button for a few seconds, or turn the rotary switch to a different function and then back.

6. MAINTENANCE

6.1. Battery Replacement

When the battery symbol appears on the display, the 9V battery needs to be replaced. Refer to Section 4.1 for instructions.

6.2. Fuse Replacement

If the current measurement functions (mA or A) stop working, the corresponding fuse may have blown. To replace a fuse:

1. Ensure the multimeter is turned OFF and test leads are disconnected.
2. Open the battery compartment cover as described in Section 4.1.
3. Carefully remove the old fuse(s).
4. Replace with new fuses of the correct type and rating:
 - For 400mA input: 0.5A/250V fast-acting fuse.
 - For 10A input: 10A/250V fast-acting fuse.
5. Replace the battery compartment cover and secure it.

Always use fuses with the specified voltage and current ratings to prevent damage to the meter or personal injury.

6.3. Cleaning

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

7. TROUBLESHOOTING

- **No display or dim display:** Check battery. Replace if necessary.
- **Incorrect readings:** Ensure correct function and range are selected. Check test lead connections. Verify the circuit is de-energized for resistance/capacitance.
- **No current reading:** Check if the fuse for the selected current range has blown. Replace if necessary (refer to Section 6.2).
- **'OL' (Overload) displayed:** The measured value exceeds the selected range. If in manual range, select a higher range. If in auto-range, the value exceeds the meter's maximum capability.

8. SPECIFICATIONS

The Mastech MY68 Digital Multimeter offers the following specifications:

- **Display:** 3 3/4 digits, 3260 counts maximum.
- **Auto/Manual Ranging:** Yes.
- **Transistor (hFE) Test:** Yes.
- **Test-AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Frequency:** Yes.
- **Power Source:** 9V Battery.
- **Product Weight:** Approximately 1.1 lbs (0.5 kg).
- **UPC:** 849649088990.

Detailed measurement ranges, resolutions, and accuracies are provided in the table below:

Specifications				
Function	Range	Resolution	Accuracy	
DC Voltage	326mV	0.1mV	±0.5% of rdg ±2 digits	
	3.26V	1mV	±0.03% of rdg ±2 digits	
	32.6V	10mV	±0.03% of rdg ±2 digits	
	326V	0.1V	±0.03% of rdg ±2 digits	
	1000V	1V	±0.5% of rdg ±2 digits	
			50Hz-60Hz	40Hz-1000Hz
AC Voltage	3.26V	1mV	±0.8% of rdg ±10 digits	±1.5% of rdg ± 10digits
	32.6V	10mV	±0.8% of rdg ±10 digits	±0.8% of rdg ±10 digits
	326V	0.1V	±0.8% of rdg ±10 digits	±1.0% of rdg ±10 digits
	750V	1V	±0.8% of rdg ±10 digits	±1.0% of rdg ±10 digits
Resistance	326Ω	0.1Ω	±0.8% of rdg ±3 digits	
	3.26KΩ	1Ω	±0.6% of rdg ±1 digits	
	32.6KΩ	10Ω	±0.8% of rdg ±1 digits	
	326KΩ	100Ω	±0.8% of rdg ±1 digits	
	3.26MΩ	1KΩ	±0.8% of rdg ±1 digits	
	32.6MΩ	10KΩ	±1.2% of rdg ±2 digits	
Frequency	32.6 Hz	10 Hz	±1.0% of rdg ± 2digits	
	150 K Hz	100 Hz	±1.0% of rdg ± 2digits	
Capacitance	326nF	0.1nF	±04.0 % of rdg ± 20digits	
	32.6uF	10nF		
Function	Range	Resolution	Accuracy	Burden Voltage
DC Current	326uA	0.1uA	±1.2% of rdg ±3 digits	0.11mV/uA
	3260uA	1uA	±0.5% of rdg ±3 digits	12mV/mA
	32.6mA	10uA	±0.8% of rdg ±3 digits	2.0mV/mA
	326mA	0.1mA	±1.20% of rdg ±3 digits	0.05V/A
	10A	10mA	±2.0% of rdg ±3 digits	0.05V/A
AC Current	326uA	0.1uA	±1.5% of rdg ±3 digits	110mV/mA
	3260uA	1uA	±1.5% of rdg ± 3 digits	15mV/mA
	32.6mA	10uA	±1.5% of rdg ±3 digits	8.0mV/mA
	326mA	0.1mA	±1.5% of rdg ±3 digits	8.0mV/mA
	10A	10mA	± 3.0% of rdg ± 5 digits	0.02V/A

Figure 4: Detailed specifications table for the Mastech MY68 multimeter, including ranges, resolutions, and accuracies for DC Voltage, AC Voltage, Resistance, Frequency, Capacitance, DC Current, and AC Current measurements.

9. WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the documentation provided with your purchase or contact your local Mastech distributor. Keep your purchase receipt as proof of purchase.