Mastech

MASTECH MY70 Digital Multimeter User Manual

Model: MY70

1. Introduction

The MASTECH MY70 is a compact and versatile digital multimeter designed for electrical measurements in various applications, including domestic, industrial, and electronics. It features a 2000-count display, auto power off, transistor hFE testing, diode testing, and continuity buzzer. This manual provides detailed instructions for safe and effective use of your MY70 multimeter.

Figure 1: Front view of the MASTEch MY70 Digital Multimeter, showing the display, rotary switch, and input jacks.

2. Safety Information

Always adhere to the following safety precautions to prevent personal injury or damage to the multimeter or equipment under test.

- Read and understand all instructions and safety information before operating the meter.
- Do not exceed the maximum input limits for any function.
- Exercise extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Always disconnect the test leads from the circuit before changing functions or ranges.
- Inspect test leads for damaged insulation or exposed metal. Replace if damaged.
- Do not operate the meter if it appears damaged or if the case is open.
- Ensure the battery compartment is securely closed before operation.
- Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.

3. Product Overview

The MY70 multimeter is designed for ease of use and reliability. Key components include:

- **LCD Display:** Shows measurement readings, units, and function indicators.
- **Rotary Switch:** Selects the desired measurement function (e.g., V~, V-, A~, A-, Ω, hFE, Diode, Continuity).
- **Input Jacks:**
  - **COM Jack:** Common input for all measurements (negative lead).
  - **VΩmA Jack:** Input for voltage, resistance, diode, continuity, and current measurements up to 200mA.
  - **10A Jack:** Input for current measurements from 200mA up to 10A.
  - **hFE Socket:** For transistor hFE testing.
- **HOLD Button:** Freezes the current display reading.
- **ON/OFF Button:** Powers the unit on or off.

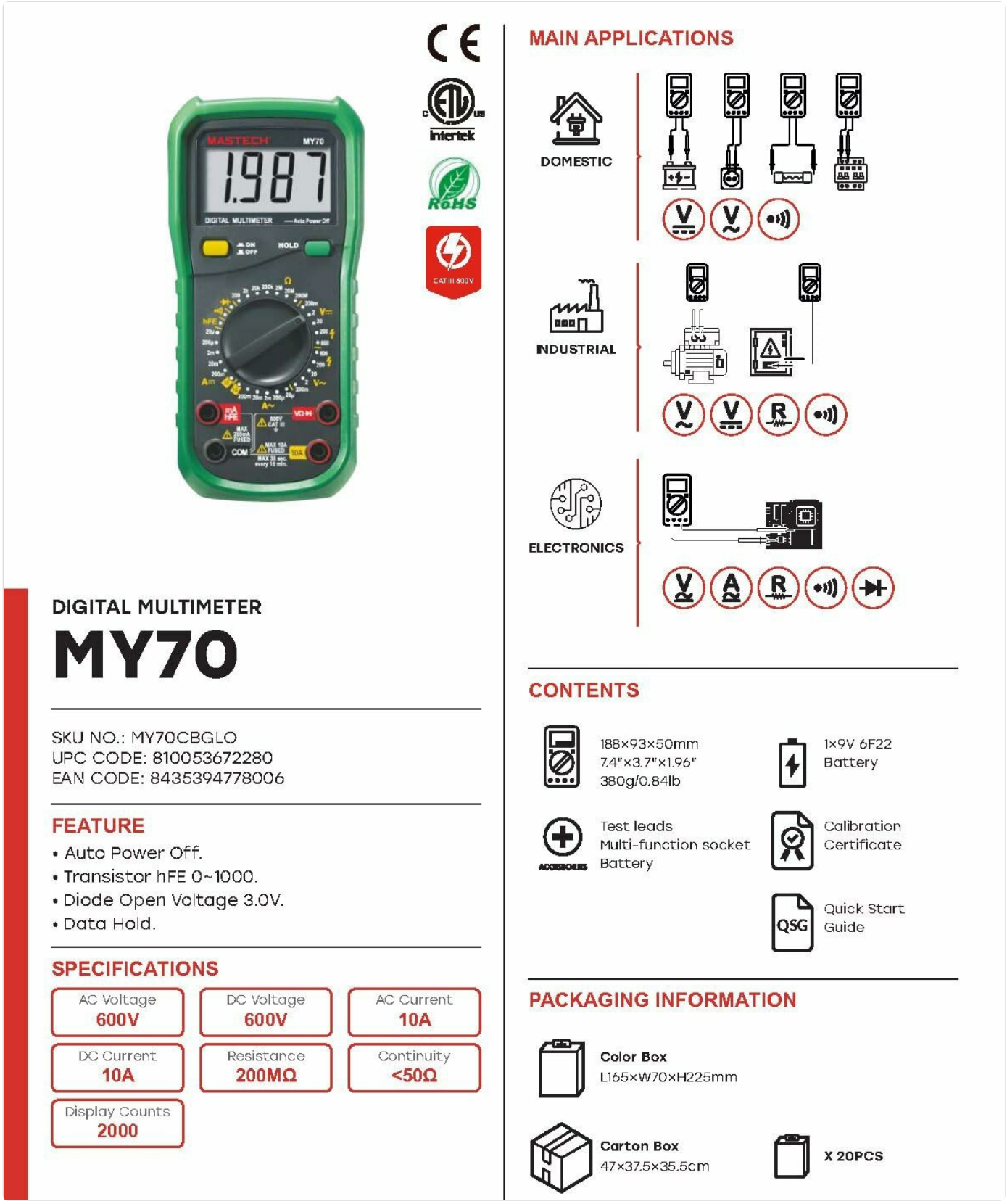

Figure 2: Overview of the MY70 Multimeter, highlighting its main applications in domestic, industrial, and electronics settings, along with key features and specifications.

4. Setup

4.1 Battery Installation

The MY70 multimeter requires two LR44 batteries (included). To install or replace batteries:

1. Ensure the multimeter is turned off and test leads are disconnected.

2. Locate the battery compartment cover on the back of the unit.
3. Use a screwdriver to loosen the screw(s) on the battery cover.
4. Remove the cover and insert the LR44 batteries, observing correct polarity (+/-).
5. Replace the battery cover and secure it with the screw(s).

4.2 Connecting Test Leads

For most measurements, connect the black test lead to the **COM** jack and the red test lead to the **VΩmA** jack. For high current measurements (above 200mA up to 10A), connect the red test lead to the **10A** jack. Black lead to **COM**.

5. Operating Instructions

Before taking any measurement, ensure the correct function is selected and test leads are connected to the appropriate jacks.

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 black test lead to the **COM** jack and the red test lead to the **VΩmA** jack.
3. Connect the test leads across the component or circuit to be measured, observing polarity.
4. 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., 2V, 20V, 200V, 600V).
2. Connect the black test lead to the **COM** jack and the red test lead to the **VΩmA** jack.
3. Connect the test leads across the component or circuit to be measured.
4. 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., 20µA, 200µA, 2mA, 20mA, 200mA, 10A).
2. For ranges up to 200mA, connect the red test lead to the **VΩmA** jack. For 10A, connect to the **10A** jack. Black lead to **COM**.
3. Open the circuit where current is to be measured and connect the meter in series with the load.
4. Read the current value on the display.

5.4 AC Current Measurement (A~)

1. Set the rotary switch to the desired AC Current range (e.g., 20µA, 200µA, 2mA, 20mA, 200mA, 10A).
2. For ranges up to 200mA, connect the red test lead to the **VΩmA** jack. For 10A, connect to the **10A** jack. Black lead to **COM**.
3. Open the circuit where current is to be measured and connect the meter in series with the load.
4. Read the current value on the display.

5.5 Resistance Measurement (Ω)

1. Set the rotary switch to the desired Resistance range (e.g., 200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ, 20MΩ, 200MΩ).
2. Connect the black test lead to the **COM** jack and the red test lead to the **VΩmA** jack.
3. Ensure the circuit or component is de-energized before measuring resistance.
4. Connect the test leads across the component.
5. Read the resistance value on the display.

5.6 Diode Test

1. Set the rotary switch to the →|→ (Diode) position.
2. Connect the black test lead to the **COM** jack and the red test lead to the **VΩmA** jack.
3. Connect the red test lead to the anode and the black test lead to the cathode of the diode. The display will show the forward voltage drop.
4. Reverse the leads. The display should show 'OL' (Open Loop) for a good diode.

5.7 Continuity Test

1. Set the rotary switch to the **Ω** (Continuity) position.
2. Connect the black test lead to the **COM** jack and the red test lead to the **VΩmA** jack.
3. Connect the test leads across the circuit or component.
4. If the resistance is less than approximately 50Ω, the buzzer will sound, indicating continuity.

5.8 Transistor hFE Test

1. Set the rotary switch to the **hFE** position.
2. Identify if the transistor is NPN or PNP.
3. Insert the transistor's emitter, base, and collector leads into the corresponding holes in the hFE socket.
4. Read the hFE value (DC current gain) on the display.

6. Specifications

The following table details the technical specifications for the MASTECH MY70 Digital Multimeter.

MY70 Features

- Display 2000 counts
- Auto Power Off
- Transistor hFE 0~1000
- Diode Open Voltage 3.0V
- Continuity Buzzer <50Ω
- Data Hold
- Low Battery Display

Specifications	Range	Resolution	Accuracy
DC Voltage	200mV/2V/20V/200V 600V	0.1mV/1mV/10mV/0.1V 1V	±(0.5%+2) ±(0.8%+2)
AC Voltage	200mV 2V/20V/200V 600V	0.1mV 1mV/10mV/0.1V 1V	±(1.2%+3) ±(0.8%+3) ±(1.2%+3)
DC Current	20μA 200μA 2mA 20mA 200mA 10A	0.01μA 0.1μA 1μA 10μA 0.1mA 0.01A	±(2.0%+5) ±(0.8%+1) ±(0.8%+1) ±(0.8%+1) ±(1.5%+1) ±(2.0%+5)
AC Current	20μA 200μA 2mA 20mA 200mA 10A	0.01μA 0.1μA 1μA 10μA 0.1mA 0.01A	±(2.0%+5) ±(1.0%+5) ±(1.0%+5) ±(1.0%+5) ±(1.8%+5) ±(3.0%+7)
Resistance	200Ω 2kΩ/20kΩ/200kΩ/2MΩ 20MΩ 200MΩ	0.1Ω 1Ω/10Ω/0.1kΩ/1kΩ 10kΩ 0.1MΩ	±(0.8%+3) ±(0.8%+2) ±(1.0%+2) ±(6.0%+10)

Figure 3: Detailed features, ranges, resolutions, and accuracies for the MY70 Multimeter.

MASTECH MY70 Key Specifications

Feature	Range	Resolution	Accuracy
Display	2000 counts		
DC Voltage	200mV / 2V / 20V / 200V / 600V	0.1mV / 1mV / 10mV / 100mV / 1V	±(0.5%+2) to ±(0.8%+2)
AC Voltage	2V / 20V / 200V / 600V	1mV / 10mV / 100mV / 1V	±(1.2%+3) to ±(1.8%+3)

Feature	Range	Resolution	Accuracy
DC Current	20µA / 200µA / 2mA / 20mA / 200mA / 10A	0.01µA / 0.1µA / 1µA / 10µA / 0.1mA / 0.01A	±(2.0%+5) to ±(2.0%+5)
AC Current	20µA / 200µA / 2mA / 20mA / 200mA / 10A	0.01µA / 0.1µA / 1µA / 10µA / 0.1mA / 0.01A	±(2.0%+5) to ±(3.0%+7)
Resistance	200Ω / 2kΩ / 20kΩ / 200kΩ / 2MΩ / 20MΩ / 200MΩ	0.1Ω / 1Ω / 10Ω / 100Ω / 1kΩ / 10kΩ / 0.1MΩ	±(0.8%+2) to ±(6.0%+10)
Diode Open Voltage	3.0V		
Continuity Buzzer	<50Ω		
Transistor hFE	0~1000		
Auto Power Off	Yes		
Data Hold	Yes		
Low Battery Display	Yes		
Dimensions	160 x 90 x 50 mm (6.3 x 3.54 x 1.97 inches)		
Weight	Approx. 0.5 kg (1.1 lbs)		
Batteries	2 x LR44 (included)		

7. Maintenance

7.1 Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

7.2 Battery Replacement

When the 'Low Battery' indicator appears on the display, replace the batteries as described in Section 4.1. Remove batteries if the meter is not used for extended periods.

7.3 Fuse Replacement

The 10A input jack is fused. If the 10A current function does not work, the fuse may need replacement. This operation should only be performed by qualified personnel. Refer to the internal diagram for fuse specifications.

8. Troubleshooting

Common Issues and Solutions

Problem	Possible Cause	Solution
No display or faint display	Dead or low batteries	Replace batteries (Section 4.1)
Meter does not respond	Incorrect function/range selected; Blown fuse (for current measurements)	Verify function/range; Check and replace fuse if necessary (Section 7.3)

Problem	Possible Cause	Solution
'OL' displayed	Overload; Open circuit (for resistance/continuity)	Select a higher range; Check circuit for breaks
Inaccurate readings	Low battery; Poor test lead connection; External interference	Replace batteries; Ensure secure connections; Move away from strong electromagnetic fields

9. Warranty and Support

MASTECH products are designed and manufactured to the highest quality standards. For warranty information and technical support, please refer to the warranty card included with your product or visit the official MASTECH website. Keep your purchase receipt as proof of purchase.

For further assistance, you may contact MASTECH customer service through their official channels. Please have your model number (MY70) and purchase details ready.