Mastech MS8321D

Mastech MS8321D Digital Multimeter Instruction Manual

Introduction

The Mastech MS8321D is a compact, manual-ranging digital multimeter designed for measuring AC/DC voltage, AC/DC current, resistance, temperature, diode, and continuity. It is suitable for a wide range of electrical testing applications in domestic, electronics, and industrial settings. This manual provides essential information for the safe and effective operation and maintenance of your device.

Safety Information

To ensure safe operation and service of the meter, please read this instruction manual thoroughly before use. Failure to observe safety warnings can result in electric shock, fire, or damage to the meter.

- Always use the correct function and range for measurements.
- Do not exceed the maximum input values specified for each range.
- Inspect test leads for damage before each use. Do not use if insulation is compromised.
- Ensure the meter is switched off and disconnected from the circuit before opening the battery compartment.
- Avoid using the meter in wet environments or during electrical storms.
- Always replace batteries when the low battery indicator appears to ensure accurate readings.
- Do not attempt to measure voltage or current on circuits exceeding the meter's rated capacity.

Product Features

The Mastech MS8321D Digital Multimeter includes the following key features:

- Display: 2000 counts
- Manual Range selection
- Auto Power Off function
- Data Hold function
- Diode Open Voltage: 3.0V
- Continuity Buzzer: Activates at <40Ω
- Low Battery Display indicator
- Transistor hFE measurement: 0~1000

Package Contents

Upon opening the package, verify that all items listed below are present and undamaged. If any items are missing or damaged, contact your supplier.

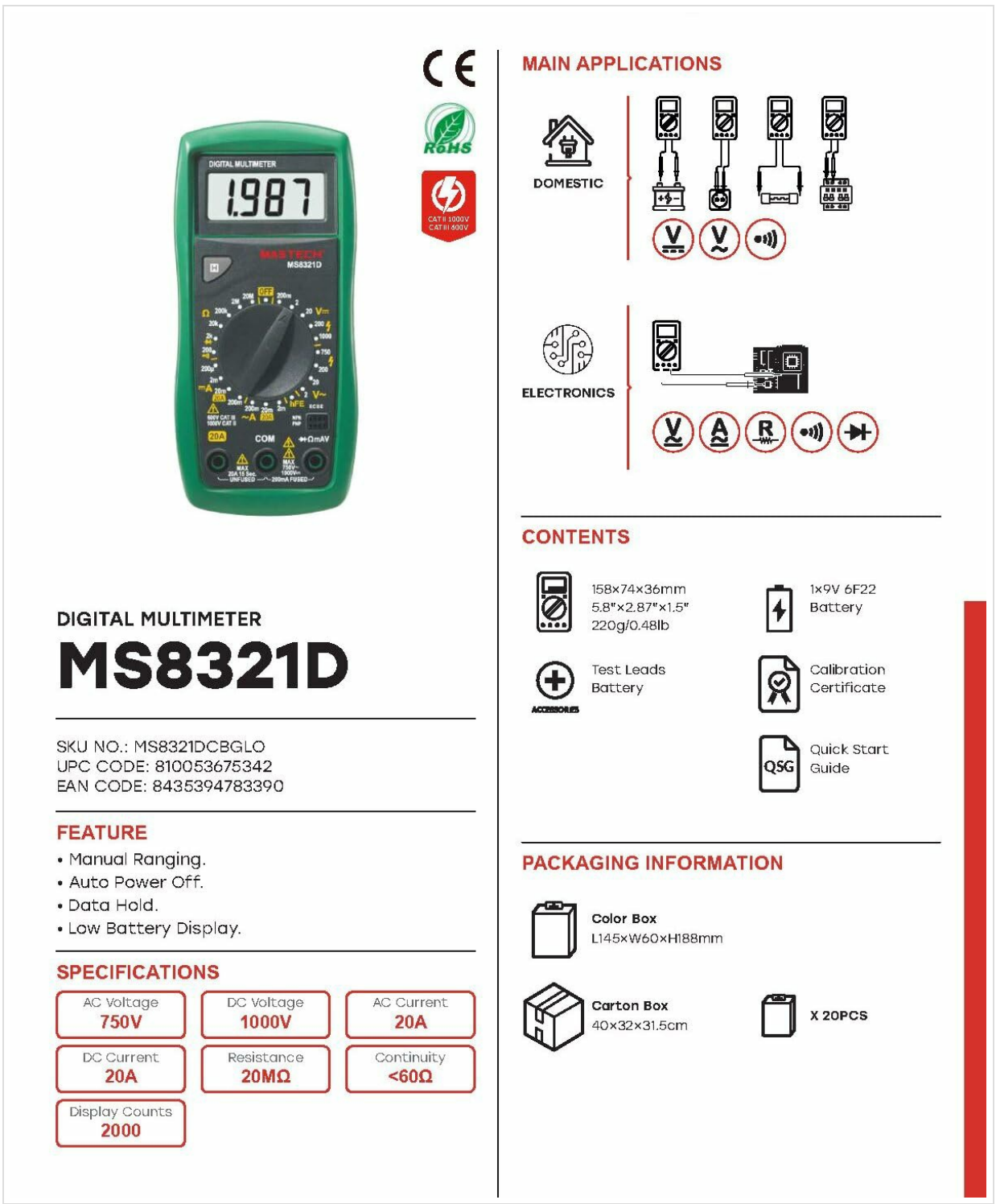


Image showing the Mastech MS8321D Digital Multimeter, its main applications (domestic and electronics), and the included package contents.

- Mastech MS8321D Digital Multimeter
- Test Leads
- 1x 9V 6F22 Battery
- Calibration Certificate
- Quick Start Guide

Setup

Battery Installation

The Mastech MS8321D requires 2 LR44 batteries for operation, which are included. To install or replace the batteries:

1. Ensure the multimeter is powered off and disconnect all test leads from the input terminals.
2. Locate the battery compartment cover on the back of the meter.
3. Use a screwdriver to loosen the screw(s) securing the cover.
4. Carefully remove the cover.
5. Insert the 2 LR44 batteries, observing the correct polarity (+ and - markings).
6. Replace the battery compartment cover and secure it with the screw(s).

Operating Instructions

Overview of Controls

Front view of the Mastech MS8321D Digital Multimeter, showing the LCD display, rotary switch, function buttons, and input jacks.

The multimeter features a large LCD display for reading measurements, a central rotary switch for selecting measurement functions and ranges, and input jacks for connecting test leads.

Making Measurements

Follow these general steps for making measurements:

1. **Connect Test Leads:** Insert the black test lead into the 'COM' (common) jack. Insert the red test lead into the appropriate input jack for your measurement type (e.g., 'VΩmA' for voltage, resistance, or small current; '20A' for high current measurements).
2. **Select Function:** Turn the rotary switch to the desired measurement function (e.g., V~ for AC Voltage, V- for DC Voltage, Ω for Resistance, A~ for AC Current, A- for DC Current, Diode, Continuity, hFE).
3. **Select Range (Manual Ranging):** If the meter is manual ranging, select an appropriate range that is

higher than the expected measurement value. If the value is unknown, start with the highest range and work downwards until a stable reading is obtained.

4. **Connect to Circuit:** Connect the test leads to the circuit or component you wish to measure. Ensure proper parallel connection for voltage measurements and series connection for current measurements.
5. **Read Display:** Observe the measurement value on the LCD display.
6. **Data Hold:** Press the 'HOLD' button to freeze the current reading on the display. Press again to release.
7. **Power Off:** After use, turn the rotary switch to the 'OFF' position to conserve battery life. The meter also features an Auto Power Off function.

Maintenance

Cleaning

To clean the meter, wipe the case with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the meter is completely dry before use.

Battery Replacement

When the 'Low Battery' indicator appears on the display, the batteries should be replaced promptly to ensure accurate measurements. Refer to the 'Battery Installation' section under Setup for detailed instructions.

Troubleshooting

If you encounter issues with your Mastech MS8321D, refer to the following common troubleshooting tips:

- **No Display or Faint Display:** Check battery installation and ensure batteries are not depleted. Replace batteries if necessary.
- **Incorrect Readings:** Verify that the correct function and range are selected for the measurement. Ensure test leads are properly connected to the meter and the circuit. Check for damaged test leads.
- **Continuity Buzzer Not Working:** Ensure the continuity function is selected and the circuit resistance is below 40Ω.
- **Meter Does Not Power On:** Check battery condition and installation. Ensure the rotary switch is not stuck between positions.

Specifications

Detailed electrical specifications for the Mastech MS8321D are provided below:

MS8321D Features

- Display 2000 counts
- Manual Range
- Auto Power Off
- Data Hold
- Diode Open Voltage 3.0V
- Continuity Buzzer <40Ω
- Low Battery Display
- Transistor hFE 0~1000

Specifications	Range	Resolution	Accuracy
DC Voltage	200mV/2V/20V/200V 1000V	0.1mV/1mV/10mV/0.1V 1V	±(0.7%+1) ±(0.8%+2)
AC Voltage	2V/20V/200V 750V	1mV/10mV/0.1V 1V	±(0.8%+3) ±(1.2%+3)
DC Current	200μA/2mA/20mA 200mA 20A	0.1μA/1μA/10μA 0.1mA 0.01A	±(1.0%+3) ±(1.5%+1) ±(2.0%+5)
AC Current	2mA/20mA 200mA 20A	1μA/10μA 0.1mA 0.01A	±(1.2%+5) ±(1.8%+5) ±(3.0%+10)
Resistance	200Ω 2kΩ/20kΩ/200kΩ/2MΩ 20MΩ	0.1Ω 1Ω/10Ω/0.1kΩ/1kΩ 10kMΩ	±(1.0%+3) ±(1.0%+1) ±(1.0%+5)

Table detailing the range, resolution, and accuracy for various measurement functions of the MS8321D.

Measurement Specifications

Measurement Type	Range	Resolution	Accuracy
DC Voltage	200mV/2V/20V/200V 1000V	0.1mV/1mV/10mV/0.1V 1V	±(0.7%+1) ±(0.8%+2)
AC Voltage	2V/20V/200V 750V	1mV/10mV/0.1V 1V	±(0.8%+3) ±(1.2%+3)
DC Current	200μA/2mA/20mA 200mA 20A	0.1μA/1μA/10μA 0.1mA 0.01A	±(1.0%+3) ±(1.5%+1) ±(2.0%+5)
AC Current	2mA/20mA 200mA 20A	1μA/10μA 0.1mA 0.01A	±(1.2%+5) ±(1.8%+5) ±(3.0%+10)
Resistance	200Ω 2kΩ/20kΩ/200kΩ/2MΩ 20MΩ	0.1Ω 1Ω/10Ω/0.1kΩ/1kΩ 10kΩ	±(1.0%+3) ±(1.0%+1) ±(1.0%+5)

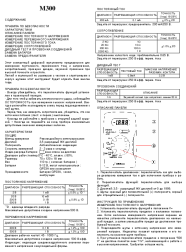
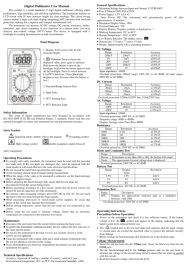
General Specifications

- Product Dimensions: 16 x 9 x 5 cm
- Item Weight: 0.5 Kilograms
- Power Source: Battery Powered (2 LR44 batteries included)
- Min. Operating Voltage: 3 Volts
- Upper Temperature Rating: 50 Degrees Celsius
- Specification Met: CE, RoHS
- Manufacturer: MASTECH/MGL
- Country of Origin: Taiwan

Warranty and Support

For detailed warranty information, technical support, or service inquiries regarding your Mastech MS8321D Digital Multimeter, please refer to the documentation included with your product or visit the official Mastech website. Contact information for customer support is typically provided in the Quick Start Guide or on the manufacturer's website.

Related Documents - MS8321D

	MASTECH MS2016A Leakage Clamp Meter Operation Manual Comprehensive operation manual for the MASTECH MS2016A AC Leakage Clamp Meter, covering safety information, specifications, operating guidance, maintenance, and accessories. Features include AC/DC voltage, resistance, capacitance, continuity, diode, and temperature measurements.
	MASTECH M300 Digital Multimeter User Manual User manual for the MASTECH M300 digital multimeter, detailing its features, specifications, safety precautions, and operating instructions for measuring DC/AC voltage, DC current, resistance, continuity, and diode testing.
	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 MY74 Digital Multimeter Quick Start Guide | Accurate Measurements Get started quickly with the MASTECH MY74 Digital Multimeter. This guide covers setup, safety, and specifications for accurate voltage, current, resistance, capacitance, frequency, and temperature measurements.
	Mastech Digital Multimeter User Manual: Features, Specifications, and Operation Guide Comprehensive user manual for the Mastech handheld digital multimeter. Covers features, safety precautions, general and technical specifications, operating instructions for voltage, current, resistance, diode, continuity, battery, and transistor measurements, NCV detection, and maintenance.

	[MASTECH MS8211D Pen-type Digital Multimeter Quick Start Guide] A quick start guide for the MASTECH MS8211D pen-type digital multimeter, providing essential safety information, technical specifications, and basic operational instructions for voltage, current, resistance, and logic testing.