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HANMATEK DM20

HANMATEK S1 DM20 Digital Multimeter User Manual

Model: DM20

1. Introduction

Thank you for choosing the HANMATEK S1 DM20 Digital Multimeter. This intelligent multimeter is designed for safe and accurate measurements of various electrical parameters. Please read this manual thoroughly before use to ensure proper operation and to prevent potential hazards.

Image 1.1: HANMATEK S1 DM20 Digital Multimeter with included test leads.

2. Safety Information

WARNING: Failure to follow these safety instructions may result in electric shock, fire, or personal injury.

- To prevent erroneous readings and avoid electric shock or personal injury, replace the battery as soon as the low battery voltage symbol appears.
- To prevent electric shock or personal injury, turn off the device and ensure test leads are disconnected from the circuit under test before opening the battery cover to replace the battery.
- Do not measure any AC or DC voltage exceeding 600V to prevent electric shock or damage to the instrument.
- Always inspect the multimeter and test leads for any damage before use. Do not use if damaged.
- Ensure your hands are dry when operating the multimeter.
- Do not operate the multimeter in explosive gas, vapor, or dusty environments.

3. Product Features and Components

The HANMATEK S1 DM20 Digital Multimeter is equipped with several features for versatile measurements. Familiarize yourself with the components shown below.

Image 3.1: Front view of the multimeter with labeled components.

1. NCV Detection Induction Area
2. Soft Rubber Cover
3. LCD Screen
4. NCV / Flashlight Button
5. Power Button / Function Selection Button (SEL)
6. Current Input End (A mA)
7. Voltage Resistor Input End (INPUT)
8. Public End (COM)
9. Backlight / Data Hold Button
10. NCV Detection Indicator
11. Flashlight

Image 3.2: Overview of multimeter functions including AC/DC Voltage, AC/DC Current, Resistance, Continuity, Backlight, Data Hold, NCV, Flashlight, and 6000 Count display.

4. Setup

4.1 Package Contents

Before starting, ensure all items are present in the package:

- HANMATEK S1 DM20 Digital Multimeter
- 3 x 1.5V AAA Batteries
- Test Leads (Red and Black)
- User Manual

Image 4.1: Package contents including the multimeter, batteries, test leads, and manual.

4.2 Battery Installation

The multimeter requires 3 x 1.5V AAA batteries. Follow these steps to install them:

1. Ensure the multimeter is powered off and test leads are disconnected.
2. Locate the battery compartment on the back of the multimeter.
3. Use a screwdriver to open the battery cover.
4. Insert the 3 AAA batteries, observing the correct polarity (+/-).
5. Replace the battery cover and secure it with the screw.

Image 4.2: Detailed view of the multimeter's rear, showing the battery bay and stable holder.

5. Operating Instructions

The HANMATEK S1 DM20 features auto-ranging for most measurements, simplifying operation.

5.1 Power On/Off

- Press the **SEL** button to power on the multimeter.
- The multimeter will automatically power off after a period of inactivity to conserve battery life.
- To manually power off, press and hold the **SEL** button.

5.2 Function Selection

The multimeter automatically detects the measurement type (voltage, resistance, continuity) when test leads are connected. For specific functions or to switch between AC/DC, press the **SEL** button briefly.

5.3 Basic Measurements

Connect the red test lead to the**INPUT** terminal and the black test lead to the**COM** terminal for most measurements.

- **Voltage (AC/DC)**: Connect test leads in parallel to the circuit or component. The multimeter will automatically detect AC or DC voltage.
- **Current (AC/DC)**: Connect test leads in series with the circuit. Use the**A mA** terminal for current measurements. Ensure the circuit is de-energized before connecting.
- **Resistance**: Connect test leads across the component. Ensure the component is isolated from power.
- **Continuity**: Connect test leads across the circuit. A buzzer will sound if continuity is detected.
- **Diode**: Connect test leads across the diode.
- **Frequency**: Connect test leads to the signal source.

Image 5.1: Demonstrations of NCV testing, resistance test, current measuring, voltage measuring, and on-off test.

5.4 Non-Contact Voltage (NCV) Detection

The NCV function allows for detection of AC voltage without direct contact.

1. Press the **NCV / Flashlight** button to activate NCV mode.

2. Place the NCV detection area (top of the multimeter) near the conductor.
3. If AC voltage is detected, the NCV LED will flash, and the buzzer will sound. The LCD screen will display segments ('-' to '----') indicating signal strength.

Image 5.2: NCV function detecting voltage in a live line versus a null line.

5.5 Backlight and Data Hold

- **Backlight**: Press the **Backlight / Data Hold** button briefly to turn the LCD backlight on/off.
- **Data Hold**: Press and hold the **Backlight / Data Hold** button to freeze the current reading on the display. Press again to release.

5.6 Flashlight

- Press and hold the **NCV / Flashlight** button to turn the built-in flashlight on/off.

6. Maintenance

- **Cleaning**: Wipe the multimeter with a damp cloth and mild detergent. Do not use abrasives or solvents.
- **Storage**: Store the multimeter in a dry, cool place away from direct sunlight. If storing for extended periods, remove the batteries to prevent leakage.
- **Battery Replacement**: Replace batteries promptly when the low battery indicator appears to ensure accurate readings. Refer to Section 4.2 for instructions.

7. Troubleshooting

- **No Display/Power On**: Check battery installation and ensure batteries are not depleted. Replace if necessary.
- **Inaccurate Readings**: Ensure test leads are properly connected and not damaged. Verify the correct measurement function is selected (though auto-ranging handles most). Check battery level.
- **No NCV Detection**: Ensure NCV mode is activated. The detection area must be close to the AC voltage source.
- **Auto Power Off Too Soon**: This is a power-saving feature. The device will power off after a period of inactivity.

8. Specifications

Feature	Specification
Model Number	DM20
Display Counts	4000
Safety Rating	600V CAT II, Pollution Degree 2, IEC61010
Power Source	3 x 1.5V AAA Batteries
Dimensions	147mm x 71mm x 45mm (7.1 x 4.5 x 14.7 cm)
Weight	220 g
Special Features	NCV, Auto-Ranging, Data Hold, Auto Power-Off, Backlight, Flashlight

9. Warranty and Support

The HANMATEK S1 DM20 Digital Multimeter comes with a **24-month warranty** from the date of purchase. This warranty covers manufacturing defects under normal use.
For technical support, warranty claims, or any inquiries, please contact HANMATEK customer service through their official channels or the retailer where the product was purchased. You can find more information on the HANMATEK Brand Store.

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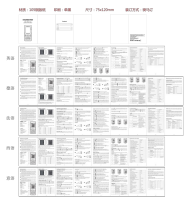
	[HANMATEK WT1 Multi-Functions Wire Tracker User Manual] Comprehensive user manual for the HANMATEK WT1 Multi-Functions Wire Tracker, detailing its features, operation, safety instructions, and technical specifications for efficient cable testing and network maintenance.
	[BD10 Battery System Tester User Manual] Comprehensive user manual for the Hanmatek BD10 Battery System Tester, covering features, operation, safety, technical specifications, and FAQs for 12V/24V lead-acid batteries.
	[HANMATEK DM20 Intelligent Digital Multimeter - User Manual] Comprehensive user manual for the HANMATEK DM20 Intelligent Digital Multimeter, covering features, specifications, instructions for use, battery replacement, and troubleshooting. Includes AC/DC voltage/current, resistance, NCV, and True RMS measurements.
	[HANMATEK DOS1202 Digital Oscilloscope: General Safety Instructions] Safety instructions for the HANMATEK DOS1202 Digital Oscilloscope, covering general warnings to prevent injury and product damage. Available in multiple languages.
	[Hanmatek Stud Finder User Manual] User manual for the Hanmatek Stud Finder, model BF1/8F2, providing instructions for operation, display elements, and technical data in multiple languages.

	Hanmatek LM50 Laser Distance Meter User Manual Official user manual for the Hanmatek LM50 Laser Distance Meter, providing specifications and contact information for Shenzhen Hanmatek Precision Technology Co.,Ltd.