

FNIRSI HRM-10

FNIRSI HRM-10 Voltage Internal Resistance Battery Tester User Manual

Model: HRM-10 | Brand: FNIRSI

1. INTRODUCTION

The FNIRSI HRM-10 is a high-precision voltage and internal resistance battery tester designed for various battery types, including car batteries, household batteries, AAA, AA, button batteries, lithium, and lead-acid batteries. It provides simultaneous measurement of voltage and internal resistance, allowing users to assess battery quality and performance. The device features a vibrant TFT HD color display for clear data presentation and supports advanced functions like sorting, historical record keeping, and data export.



Figure 1: FNIRSI HRM-10 Battery Tester with included Kelvin clip test leads.

2. WHAT'S IN THE BOX

- FNIRSI HRM-10 Internal Resistance Battery Tester Unit
- Kelvin Clip Test Leads (Red and Black)
- USB Type-C Charging Cable
- User Manual (this document)

3. SETUP

1. **Initial Charge:** Before first use, fully charge the device using the provided USB Type-C cable. Connect the cable to the Type-C port on the side of the unit and plug the other end into a 5V/1A USB power adapter (not included). The charging indicator LED will turn green when fully charged.
2. **Attach Test Leads:** Screw the Kelvin clip test leads connector firmly into the top port of the HRM-10 unit. Ensure a secure connection for accurate measurements.
3. **Power On:** Press and hold the power button (OK/Power symbol) located on the front panel to turn on the device.

4. **Language Selection:** Upon first power-on, the device may prompt for language selection. Use the navigation buttons (up/down arrows) to select "English" and press "OK" to confirm.



Figure 2: Proper connection of Kelvin clip test leads for precise measurement.

4. OPERATING INSTRUCTIONS

4.1 Basic Measurement

1. Ensure the device is powered on and test leads are connected.
2. The default mode is "AUTO" for both Voltage (V-Gear) and Resistance (R-Gear), which is suitable for most general measurements.
3. Connect the red Kelvin clip to the positive terminal of the battery and the black Kelvin clip to the negative terminal. Ensure good contact.
4. The voltage and internal resistance values will be displayed simultaneously on the TFT HD color screen.



Figure 3: The HRM-10 displays real-time voltage and internal resistance readings.

4.2 Manual Range Selection

For specific measurement needs, you can manually select the voltage and resistance ranges:

- Use the "V/A" button to cycle through Voltage ranges (AUTO, 1V, 10V, 100V).
- Use the "R" button to cycle through Resistance ranges (AUTO, 20mΩ, 200mΩ, 2Ω, 20Ω, 200Ω).

4.3 Sorting Mode

The sorting mode allows you to set custom threshold data groups for voltage and resistance, useful for batch testing and selecting batteries. The device can store up to 8 sets of voltage and resistance values.

1. From the main screen, long-press the "OK" button to enter the System Settings menu.
2. Navigate to "1. Sorting Mode" using the arrow buttons and press "OK".
3. Set your desired upper and lower limits for voltage and resistance for each of the 8 groups.
4. When testing in sorting mode, the device will indicate "PASS" or "FAIL" based on your set thresholds.

Sorting & Comparison Function

Presets 8 sets of voltage and resistance values. Select premium batteries or pinpoint faulty ones in batches.



Figure 4: Sorting mode allows setting custom thresholds for battery selection.

4.4 Historical Records and Data Export

The HRM-10 automatically saves test records, allowing you to review past measurements and export data to a PC for further analysis.

- **View History:** From the System Settings menu, navigate to "2. History" and press "OK" to view stored records.
- **Data Export:** Connect the device to a PC using the USB Type-C cable. The device will appear as a removable disk. You can then export the historical data tables.

Full-process Record Clear at a Glance

Auto-saved test records for clear, instant results. Connect to PC, export & analyze data easily!



Figure 5: The device stores test records for easy review and export.

4.5 Official Product Video

Your browser does not support the video tag.

Video 1: Official product overview of the FNIRSI HRM-10 Internal Resistance Battery Tester, demonstrating its features and usage.

5. MAINTENANCE

- Cleaning:** Use a soft, dry cloth to clean the device. Do not use abrasive cleaners or solvents.
- Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures. Ensure the battery is partially charged (around 50%) before long-term storage to preserve battery life.
- Battery Care:** Recharge the device regularly, even if not in frequent use, to maintain battery health. Avoid fully discharging the battery for extended periods.
- Lead Care:** Inspect the Kelvin clip test leads for any damage or wear before each use. Replace if necessary to ensure accurate and safe operation.

6. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	Low or depleted battery.	Charge the device fully using the USB Type-C cable.
Inaccurate readings.	Poor contact with battery terminals; damaged test leads; incorrect range selected.	Ensure firm contact with terminals. Inspect and replace leads if damaged. Switch to "AUTO" range or manually select an appropriate range.
Display shows "OL" (Overload).	Measurement exceeds selected range.	Switch to a higher measurement range or "AUTO" mode.
Device freezes or behaves erratically.	Temporary software glitch.	Power off the device by holding the power button, then power it back on.

7. SPECIFICATIONS

Feature	Value
Voltage Measurement Range	0 ~ $\pm 100V$ (DC)
Resistance Measurement Range	0 ~ 200Ω
Accuracy	$\pm 0.5\%$
Test Signal Frequency	AC 1Khz
Charging Interface	Type-C (5V/1A)
Built-in Battery	1000mAh Lithium Battery
Working Environment Temperature	-10°C ~ +45°C
Working Environment Humidity	Relative humidity $\leq 80\%$
Dimensions	158.7 x 80.5 x 28.4mm
Weight	225g

Note: Do not apply AC voltage under any circumstances. The device must not be used with a DC voltage higher than 100V.

8. WARRANTY AND SUPPORT

FNIRSI products typically come with a standard manufacturer's warranty. Please refer to the warranty card included with your product or visit the official FNIRSI website for detailed warranty terms and conditions. For technical support, troubleshooting assistance, or warranty claims, please contact FNIRSI customer service through their official channels. Keep your purchase receipt and product serial number handy for faster service.

For more information, visit the [FNIRSI Store on Amazon](#).



[FNIRSI HRM-10 High-Precision Internal Resistance Tester User Manual](#)

The FNIRSI HRM-10 is a handheld high-precision internal resistance tester designed for accurate battery analysis. This user manual provides detailed instructions on operation, features like sorting mode and data export, specifications, firmware updates, and safety precautions for optimal performance.

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[FNIRSI HRM-10 High-Precision Internal Resistance Tester](#)

The FNIRSI HRM-10 is a handheld, high-precision four-wire internal resistance meter designed for simultaneously testing internal resistance and voltage of batteries. It features a sorting mode for filtering batteries based on user-defined thresholds, supports historical data records, and allows data export, making it an ideal tool for battery analysis and management.

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[FNIRSI HRM-10 High-Precision Internal Resistance Tester User Manual](#)

The FNIRSI HRM-10 is a handheld, high-precision four-wire internal resistance tester designed for batteries. It simultaneously measures internal resistance and voltage, features a sorting mode based on user-set thresholds, and supports historical data recording and export. This manual provides detailed operating instructions, specifications, and safety precautions for optimal performance.

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