



HRM-10

Internal Resistance Tester User Manual



Read this manual carefully before first use. The instrument cannot be supplied with a DC voltage higher than 100 V, and AC voltage must not be applied to the instrument under any conditions.

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Notice to users

- This manual provides detailed instructions on how to use the product, safety precautions, and relevant information. Before using the product, please read the manual carefully to ensure optimal performance of the product.
- Do not use the instrument in flammable or explosive environments.
- Disposed batteries and obsolete instruments should not be disposed of with household waste. Please follow the relevant national or local laws for disposal (see Chapter 8.3).
- If there are any quality issues with the instrument or if you have any questions about using the instrument, please contact **FNIRSI** online customer service or the manufacturer. We will promptly assist you. If you purchased the product in the Czech Republic, you can also contact the importer (see Chapter 8.1).

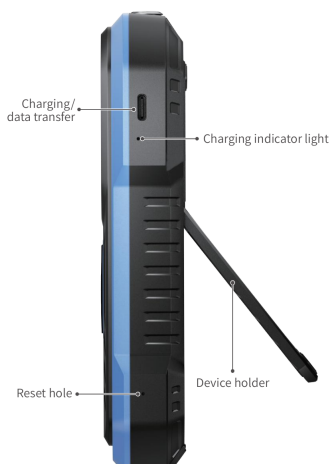
1. Product Introduction

The **HRM-10** is our company's first handheld high-precision internal resistance meter. It is a true four-wire measurement internal resistance meter, designed with precision, convenient to carry. The device can automatically test internal resistance and voltage values simultaneously, with measurement results displayed on the screen. Users can also manually adjust the voltage and resistance range. The product features a sorting mode, automatically filtering the good and bad batteries based on user-set thresholds. It also supports historical records and exporting data tables of historical measurements.

2. Panel Introduction



Front of the instrument



Side of the instrument



Control buttons

In the following chapters the buttons are referred to by the marking printed on the instrument: **OK** (the central button, which also switches the instrument on and off), **V|▲**, **R|▼**, **↔|←** and **→|↔**.

3. Parameter Introduction

	Voltage	Resistances
Measuring range	0 — ±100 V (DC)	0 — 200 Ω
Accuracy	±0.5 %	±0.5 %
Gear	Automatic, 1 V, 10 V, 100 V	Automatic, 20 mΩ, 200 mΩ, 2 Ω, 20 Ω, 200 Ω
Instrument test signal frequency	AC 1 kHz	
Rechargeable	TYPE-C interface (5 V/1 A)	
Built-in battery	1000 mAh lithium battery	
User Calibration	Support	
Sorting Mode	Support	
History Record	Support	
Recorded Data Export	Support	
Working environment	−10 °C to +45 °C, relative humidity < 80 %	
Storage environment	−20 °C to +80 °C, relative humidity < 80 %	
Size	158.7 × 80.5 × 28.4 mm	
Weight	225 g	

4. Operating Instructions

- ① **Power on:** short press **OK** to power on.
- ② **Shut down:** long press **OK** to shut down.
- ③ **Adjust voltage:** short press **V|▲** to select voltage, then short press **↵|◀ / ▶|** to switch range.
- ④ **Adjust the resistance:** short press **R|▼** to select resistance, then short press **↵|◀ / ▶|** to switch the range.
- ⑤ **Sorting Mode:** long press **▶|** to enter the menu, select *Sorting Mode* and click **OK** to enter Sorting Mode. In sorting mode, there are 8 groups of customized threshold data groups, short press **V|▲ / R|▼** to switch data groups, and **↵|◀ / ▶|** to select the threshold value to be set. In the sorting mode, the test results will be automatically evaluated and compared with the set threshold interval to judge whether they pass or fail, so as to filter out the qualified devices, and the evaluation will also be automatically saved in the history record.
- ⑥ **Export data to the computer:** the device through the USB to TYPE-C cable connected to the computer, it will pop up a U disk, at this time the U disk inside the table is the recorded data.
- ⑦ **Voltage and resistance calibration:** long press **▶|** to enter the menu, choose whether to calibrate voltage or resistance, click **OK** to enter, follow the instructions to select the gear calibration. Each range is calibrated manually separately and does not affect each other. Restoring the machine to factory settings will restore the factory calibration parameters.

5. Firmware Update

Connect the device to the computer via USB to Type-C cable, long press the left button and then click the power on button to enter the upgrade page. At this time, a USB drive will pop up on the computer, pull the firmware into the USB flash drive will automatically upgrade.

6. Precautions

❖ **The machine cannot input DC voltage greater than 100 V. AC voltage cannot be input under any conditions.**

- Avoid high temperature and humid environment. Prevent the interface and circuitry from oxidizing by moisture.
- If it is not used for a long time, please keep the battery with 50 % power (or battery voltage between 3.7 V and 3.9 V) to extend lifespan.
- Use of Kelvin Plus Test Leads: when measuring the battery, the clips must be open. There should be no direct contact between the two metal pieces, and they

must be in good contact with the battery electrodes, otherwise stable and accurate measurement will not be possible.

7. Contact the manufacturer

Any FNIRSI users with any questions who comes to contact us will have our promise to get a satisfactory solution + an Extra 6-Month Warranty to thanks for your support!

By the way, we have created an interesting community, welcome to contact FNIRSI staff to join our community.

Manufacturer	Shenzhen FNIRSI Technology Co., Ltd.
Address	West of Building C, Weida Industrial Park, Dalang Street, Longhua District, Shenzhen, Guangdong, China
E-mail	fnirsiofficial@gmail.com (Business) fnirsiofficialcs@gmail.com (Equipment service)
Tel	0755-28020752 / +8613536884686

❖ If you purchased the product in the Czech Republic, make your claim with the retailer from whom you purchased it. The importer's contact details are given in Chapter 8.1.

8. Information for the EU and Czech Market

8.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorاما.cz
Phone	+420 252 252 098
Website	www.rotorاما.cz

8.2 Product conformity



- The product bears the **CE** marking and complies with the requirements of the applicable European Union harmonisation legislation.
- A copy of the **EU Declaration of Conformity** is available from the importer at the address stated above or at the e-mail address info@rotorاما.cz.
- **Product identification:** the type designation of the product is **HRM-10**; the identification data of the individual unit (serial number or batch number) can be found on the label on the product or on its packaging.

8.3 Disposal of electrical equipment and batteries



- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The product contains a built-in rechargeable battery. Where possible, hand it over together with the device – do not dispose of the battery in mixed waste or in fire.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also <https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu>.

8.4 Waste batteries and accumulators

This product contains a built-in lithium battery. The following information is provided pursuant to Article 74 of Regulation (EU) 2023/1542 of the European Parliament and of the Council concerning batteries and waste batteries.

► How to prevent waste

- You will extend the service life of the battery by not discharging it completely unnecessarily and by not exposing the instrument to high temperatures or humidity.
- If you do not use the instrument for a longer period, keep the battery charged to approximately 50 % (see Chapter 6). A deeply discharged battery left uncharged may be irreversibly damaged.

► Separate collection and hand-over

- Waste batteries and accumulators **do not belong in mixed municipal waste**. Separate collection makes it possible to recycle lithium, nickel, cobalt and copper and reduces the need to mine new raw materials.
- The battery is built into the instrument. Therefore hand the instrument over at a take-back point **together with the battery** – the take-back points are listed above.
- Take-back is free of charge for the end user and is not conditional on the purchase of a new product.

► Safe handling of waste lithium batteries

❖ **A damaged lithium battery may cause fire or explosion. Handle it with care.**

- **Do not pierce, deform, disassemble or throw the battery into fire** and do not expose it to temperatures outside the range given in Chapter 3.
- Do not short-circuit the contacts. Do not store waste batteries loose together with metal objects (keys, coins, screws).
- If the battery is swollen, mechanically damaged, heats up or leaks electrolyte, stop using the instrument and do not charge it. Hand it over at a take-back point as soon as possible; until then keep it away from flammable materials.
- If electrolyte comes into contact with skin or eyes, rinse the affected area with plenty of water and seek medical attention.

► Meaning of the marking

- The **crossed-out wheeled bin symbol** on the product, on the battery or on the packaging means that neither the product nor the battery belongs in mixed municipal waste and that they must be handed over separately.
- If a **chemical symbol** (Pb, Cd, Hg) is given below the symbol, the battery contains lead, cadmium or mercury above the limit laid down by Regulation (EU) 2023/1542. Lithium-ion batteries are not marked with this symbol.

► Impact on the environment and health

Batteries contain substances which, if disposed of improperly, are released into the soil and water and may harm ecosystems and human health. By handing the product over at a take-back point you ensure that these substances are treated safely and that the raw materials they contain are returned to circulation.

9. Warranty and rights arising from defective performance

9.1 Rights of the buyer under Czech law

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection. The manufacturer's warranty terms set out below (Chapter 9.2) **do not in any way limit** the buyer's rights arising from these regulations.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 8.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.

9.2 Manufacturer's warranty terms

The manufacturer's original manual does not contain separate warranty terms. It only states the following commitment:

- Any FNIRSI users with any questions who come to contact the manufacturer will have its promise to get a satisfactory solution and, as thanks for their support, **an extra 6-month warranty**.

✳ **This commitment of the manufacturer is a voluntary undertaking beyond the scope of the law. It in no way replaces or limits the buyer's rights arising from defective performance under Chapter 9.1.**