



S1

Large-screen smart digital multimeter User manual



Read this manual carefully before first use, especially the safety instructions in chapter 1.

Manufacturer: Shenzhen FNIRSI Technology Co., LTD. · Importer: Rotorama, s.r.o.

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1. Safety instructions

- Please read this instruction manual carefully and follow the instructions in it, so that the instrument can function fully. Please keep this manual.
- Do not use this equipment in a flammable or explosive environment.
- Used batteries and discarded instruments cannot be disposed of with household waste – see chapter 8.3.
- If there are any quality problems with the instrument or questions about its use, contact the seller or FNIRSI customer service.

When using this instrument, the user must follow all standard safety procedures to prevent electric shock. To ensure your personal safety, use the test leads provided with the meter. Before use, check and make sure they are in good condition.

The overvoltage category of the instrument is CAT III 1000V. The measured voltage must not exceed 1000V. The multimeter does not measure current.

1.1 Safety precautions

- When the meter is used near equipment with strong electromagnetic interference, the reading will be unstable and may even produce larger errors.
- Do not use the meter if the meter or the test leads are damaged.
- If the instrument is not used correctly, the safety functions provided by the instrument may be ineffective.
- Extreme care must be taken when working around exposed conductors or busbars.
- It is forbidden to use this instrument near explosive gas, vapour or dust.
- The correct input terminal, function and range must be used for measurement. The input value must not exceed the limit specified for each range, to prevent damage to the instrument.
- When the meter is connected to the line under test, do not touch the unused input terminals.
- When the measured voltage exceeds 60V DC or 30V AC (RMS), be careful to prevent electric shock.
- When measuring with the test leads, keep your fingers behind the protective rings of the test leads.
- Before changing the range, make sure that the test leads are disconnected from the circuit under test.
- For all DC functions, to avoid the risk of electric shock due to possible incorrect readings, first use the AC function to check whether any AC voltage is present. Then select a DC voltage range equal to or greater than the AC voltage.
- Before measuring resistance or testing continuity, disconnect the power supply of the circuit under test and discharge all high-voltage capacitors in it.

- Do not measure resistance or test continuity on live circuits.
- Do not store the instrument in an explosive or flammable place when not in use.
- When repairing TV sets or measuring power conversion circuits, beware of high-amplitude voltage pulses in the circuit under test, which may damage the meter.
- The instrument is powered by a 3.7V/1000mAh lithium battery, which must be correctly installed in the battery compartment of the instrument.
- When the low battery symbol appears, charge the battery in time. A low battery can cause incorrect readings, which could result in electric shock or personal injury.
- In the measurement category, the measured voltage must not exceed 1000V.
- Do not use the instrument when its case (or part of it) is removed.

1.2 Safe maintenance

- Before opening the case of the instrument or removing the battery cover, pull out the test leads first.
- When repairing the instrument, use only the designated replacement parts.
- Before switching on an opened instrument, disconnect all related power sources and make sure you are not carrying static electricity, to prevent damage to the components of the instrument.
- For accurate calibration or maintenance, return the instrument to the manufacturer.
- When the case is open, note that some capacitors in the meter may still hold dangerous voltages even after the meter is switched off.
- If any abnormality is observed, stop using the instrument immediately and have it repaired. Do not use it until it has passed inspection.
- When not used for a long time, do not store the instrument in places with high temperature and high humidity.

1.3 Input protection

- For voltage measurements, the maximum input voltage the meter can withstand is 1000V DC or AC.
- In the resistance, continuity, capacitance, frequency and diode functions, the input is protected against overload up to 250V AC or the equivalent RMS value.

2. Introduction

Fnirsi S1 is a handheld large-screen smart multimeter. It offers fast measurement, a large dual-line LCD display with lighting and easy-to-read values, overload protection and low battery indication. It is suitable for professionals, factories, schools, hobbyists and households. The overvoltage category is **CAT III 1000V**.

2.1 Package contents

- 1x Fnirsi S1 multimeter
- 1x Pair of test leads
- 1x Temperature probe (thermocouple)
- 1x USB cable
- 1x User manual

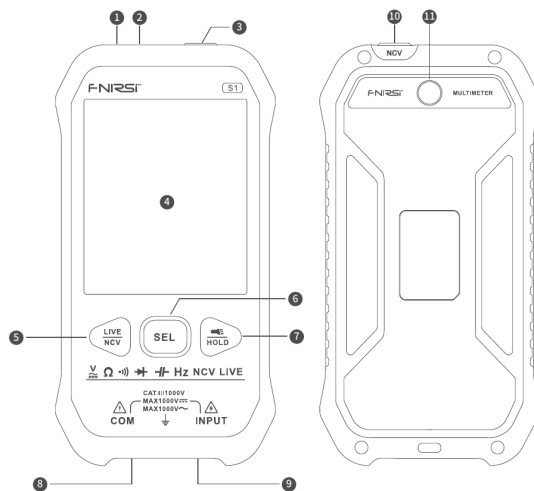
2.2 Charging

The multimeter is charged via the USB-C port (5V/1A). The charging indicator lights red during charging and green when fully charged. Measurement is not possible while charging – the display shows "----". After the charger is unplugged, the instrument automatically switches to normal measurement mode.

2.3 Manufacturer

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)
Phone	0755-83242477 / +8613536884686
Web	www.fnirsi.cn

3. Instrument description



Front and rear of the multimeter

- ① Charging port USB-C (5V/1A)
- ② Charging indicator (red – charging, green – fully charged)
- ③ On/Off button
- ④ LCD display
- ⑤ LIVE/NCV button
- ⑥ SEL button
- ⑦ HOLD and flashlight button
- ⑧ Black test lead input (COM)
- ⑨ Red test lead input (INPUT)
- ⑩ NCV sensing area
- ⑪ Flashlight

3.1 Button functions

Button	Function
On/Off	Power on and off
SEL	Function switching
HOLD	Data hold; long press – flashlight
LIVE/NCV	Non-contact voltage detection (NCV) and live wire detection (LIVE)

4. Basic operation

Reading hold mode keeps the current reading on the display. It is exited by changing the measurement function or by pressing the button again.

- ① Short press HOLD – the reading is held and the HOLD symbol is shown on the display.
- ② Short press HOLD again – the meter returns to normal measurement.
- ③ Long press HOLD to turn on the flashlight; long press again to turn it off.
- ④ Press LIVE/NCV to start non-contact voltage detection (NCV); press it again to enter live wire detection (LIVE).

5. Measurement

5.1 Automatic measurement (AUTO)

Do not measure any voltage higher than 1000V DC / 1000V AC and do not apply such a voltage between the COM terminal and ground – risk of electric shock or damage to the instrument.

In automatic mode, the meter automatically measures AC and DC voltage, resistance and continuity.

- ① After power-on, the meter automatically switches to AUTO mode.
- ② Connect the black test lead to the COM input and the red test lead to the INPUT input.
- ③ Touch the test leads to both ends of the point to be measured (in parallel with the circuit under test).
- ④ The display shows the measured voltage and resistance. For DC voltage it also shows the polarity at the red test lead. If the resistance is less than 50Ω, the buzzer sounds.

❖ Notice

- The minimum measurable voltage is 0.75V DC and AC. At lower voltages the display may show a resistance value.
- When measuring low resistance, first short the two test leads, read their own resistance and subtract it from the measured value.
- In the 10MΩ range it takes a few seconds for the reading to stabilise. This is normal for high resistance measurements.
- If the circuit is open or the resistance is too large, the display shows "OL" – the value is out of range.

5.2 Non-contact voltage detection (NCV)

Press the LIVE/NCV button and bring the top of the meter close to the conductor. If the meter detects AC voltage, it shows the signal strength in three levels (low, medium, high) and the buzzer sounds at different frequencies.

- Voltage may still be present even without indication. Do not rely on non-contact voltage detection to determine whether a line is dead. The result is influenced by socket design, insulation thickness and type, and other factors.
- When voltage is present on the input terminals, the buzzer may also sound due to induced voltage.
- Sources of interference in the environment (such as flashlights) may falsely trigger the non-contact voltage detection.

5.3 Live wire detection (LIVE)

Press the LIVE/NCV button twice – the display shows LIVE. Insert the red test lead into the INPUT jack and into the power socket. If the meter displays LIVE, it is the live wire.

5.4 Diode test

- ① After power-on (AUTO mode), press SEL to switch to the diode test.
- ② Connect the black test lead to COM and the red test lead to INPUT.
- ③ Touch the test leads to both ends of the component – red to the anode, black to the cathode. The display shows the forward voltage of the diode. With reversed polarity it shows "OL".

A normal diode has a forward voltage drop of 0.5–0.8V. The reverse reading depends on the resistance of the other paths between the test leads.

5.5 Capacitance measurement

- ① After power-on (AUTO mode), press SEL to switch to capacitance measurement.
 - ② Connect the black test lead to COM and the red test lead to INPUT.
 - ③ Touch the test leads to the capacitor terminals and read the value on the display.
- When measuring large capacitances, it takes some time for the reading to stabilise.
 - When measuring polarised capacitors, observe the polarity to avoid damage to the meter.

5.6 Frequency measurement

- ① After power-on (AUTO mode), press SEL to switch to frequency (Hz) measurement.
- ② Connect the black test lead to COM and the red test lead to INPUT.

- ③ Touch the test leads to the measuring point and read the value on the display.

5.7 Temperature measurement

- ① After power-on (AUTO mode), press SEL to switch to temperature measurement.
- ② Connect the black plug of the thermocouple to COM and the red plug to INPUT.
The value in °F is displayed together with the temperature in °C.
- ③ Read the value on the display.

If there is inductive impedance in the circuit, the reading may fluctuate and be inaccurate. In that case disconnect the test and measure again.

6. Technical specifications

6.1 General specifications

Parameter	Value
Overvoltage category	CAT III 1000V, pollution degree 2
Altitude	below 2000 m
Operating conditions	0–40 °C, humidity below 80 % (not considered below 10 °C)
Storage conditions	–10–60 °C, humidity below 70 % (remove the battery)
Temperature coefficient	0.1 × accuracy / °C (below 18 °C or above 28 °C)
Max. voltage between terminal and earth	1000 V DC or 1000 V AC RMS
Measurement rate	approx. 3 times per second
Display	LCD, max. 9999 counts
Overrange indication	"OL" is displayed
Polarity	"–" displayed automatically
Power supply	lithium battery 3.7 V / 1000 mAh
Dimensions	143×75×19 mm
Weight	approx. 130 g (including battery)

6.2 Accuracy

Accuracy is given as $\pm(\% \text{ of reading} + \text{number of digits})$. The accuracy is guaranteed for one year from the date of delivery. Reference conditions: ambient temperature 18–28 °C, relative humidity up to 80 %.

► DC voltage (max. input 1000 V, min. measured voltage 0.75 V)

Range	Resolution	Accuracy
0–10 V	0.001 V	$\pm(0.8 \% + 3)$
10–100 V	0.01 V	$\pm(0.8 \% + 3)$
100–1000 V	0.1 V	$\pm(0.8 \% + 3)$
1000 V	1 V	$\pm(1.2 \% + 3)$

► AC voltage (max. input 1000 V, min. 0.75 V, true RMS 50 Hz–1 kHz)

Range	Resolution	Accuracy
0–10 V	0.001 V	$\pm(0.8 \% + 3)$
10–100 V	0.01 V	$\pm(0.8 \% + 3)$
100–1000 V	0.1 V	$\pm(0.8 \% + 3)$
1000 V	1 V	$\pm(1.2 \% + 3)$

► Resistance (overload protection 250 V DC/AC)

Range	Resolution	Accuracy
0–1000 Ω	0.1 Ω	$\pm(0.8 \% + 3)$
1–100 k Ω	0.01 k Ω	$\pm(0.8 \% + 3)$
100–1000 k Ω	0.1 k Ω	$\pm(0.8 \% + 3)$
1–100 M Ω	0.01 M Ω	$\pm(1.2 \% + 3)$

► Continuity (overload protection 250 V DC/AC)

Range	Resolution	Conditions
100 Ω	0.1 Ω	buzzer sounds continuously at resistance up to 50 Ω ; open-circuit voltage approx. 0.4 V

► Temperature

Range	Resolution	Accuracy
-20-0 °C	1 °C	±(5.0 % + 4)
1-400 °C	1 °C	±(1.0 % + 3)
401-1000 °C	1 °C	±(2.0 % + 5)
-4-32 °F	1 °F	±(5.0 % + 8)
33.8-752 °F	1 °F	±(1.0 % + 6)
753.8-1832 °F	1 °F	±(2.0 % + 10)

► Capacitance (overload protection 250 V DC/AC)

Range	Resolution	Accuracy
0-10 nF	0.001 nF	
10-100 nF	0.01 nF	
100-1000 nF	0.1 nF	
1-10 µF	0.001 µF	±(4.5 % + 5)
10-100 µF	0.01 µF	
100-1000 µF	0.1 µF	
1-10 mF	0.001 mF	

► Frequency (sensitivity 1.5 V RMS; overload 250 V DC or AC peak, max. 10 s)

Range	Resolution	Accuracy
0-10 Hz	0.001 Hz	
10-100 Hz	0.01 Hz	
100-1000 Hz	0.1 Hz	
1-10 kHz	0.001 kHz	±(0.1 % + 3)
10-100 kHz	0.01 kHz	
100-1000 kHz	0.1 kHz	
1-10 MHz	1 kHz	

► Diodes (overload protection 250 V DC/AC)

Resolution	Test conditions
0.001 V	forward DC current approx. 1 mA, open-circuit voltage approx. 3.2 V; the display shows the approximate forward voltage drop

※ Ranges are given excluding the maximum value.

7. Maintenance

- Regularly clean the meter case with a damp cloth and a small amount of detergent. Do not use abrasives or chemical solvents.
- Dirty or wet input jacks may affect readings.

Cleaning the input jacks:

- ① Turn off the meter and unplug all test leads from the input jacks.
- ② Remove all dirt from the jacks.
- ③ Clean each jack with a new cotton swab dipped in detergent or lubricant. The lubricant protects the jacks against moisture-related contamination.

8. Information for the EU and Czech Market

The information in chapters 8 and 9 describes the situation in the Czech Republic, where the product was purchased. If you use the product in another country, also follow the regulations of the country in which you operate it – in particular regarding the take-back and disposal of electrical waste.

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 (FNIRSI-S1) and the serial or batch number are given 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>.

9. Warranty and rights arising from defective performance

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. Any warranty terms of the manufacturer **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.