FNIRSI 菲尼瑞斯

DST-201

多功能示波器万用表说明书 V1.3

MULTIFUNCTIONAL OSCILLOSCOPE MULTIMETER USER MANUAL

※使用产品前请仔细阅读本说明书，并妥善保管。

※Please read this instruction manual carefully before using the product and keep it properly.

CONTENTS

1.SECURITY REQUIREMENT

1.1 Environmental Requirement

Precautions

- Avoid high temperature, open flame, corrosive gas, humid or dusty environment to prevent equipment failure.
- To prevent incorrect use of the instrument, please read the instruction manual carefully and follow the safety regulations. To ensure your personal safety, please use the test leads provided with the meter. Before use, check and make sure they are intact.
- Measurements must be made using the correct input terminal, function, and range. The input value must not exceed the input limit value specified for each range to prevent damage to the instrument.

Keep away from the following items

- Heaters: Avoid overheating or fire risks.
- Water sources, chemical solvents: Leakage may damage the device or cause a fire.
- Strong magnetic equipment: Prevent magnetic fields from interfering with the normal operation of the device.
- Air Conditioning and Ventilation Equipment: Prevent condensation from causing short circuits.

Please do not dispose of used batteries or equipment with regular household waste. They should be handled according to national or local regulations.

2.PRODUCT OVERVIEW

2.1 Production Introduction

The DST-201 is a highly practical multifunction oscilloscope multimeter launched by FNIRSI, specifically designed for the electronics repair and R&D industries. The product combines an oscilloscope, signal generator, and multimeter into one, meeting a wide range of measurement needs.

The main features of the product are:

Oscilloscope function:

• Sampling rate: 5MSa/s

• Analog bandwidth: 1MHz

• Voltage protection: ±400V

Signal generator function:

·Support 13 waveform output, frequency range 0-10KHz, output voltage is adjustable from 0-3V.

·Output parameters (frequency, amplitude, duty cycle) are adjustable, which is flexible to meet various needs.

Multimeter Functions:

•**Comprehensive features:**Includes recording mode, auto measurement, AC/DC voltage, AC/DC current, resistance, capacitance, diode/continuity, frequency, temperature, data hold, LIVE wire detection, and more. Also offers overload protection and low battery warning.

Portable Design:

·Equipped with a 2.8-inch TFT color screen, providing clear and intuitive display.

·Built-in high-capacity rechargeable lithium battery (3000mAh) supports long standby time (15 hours).

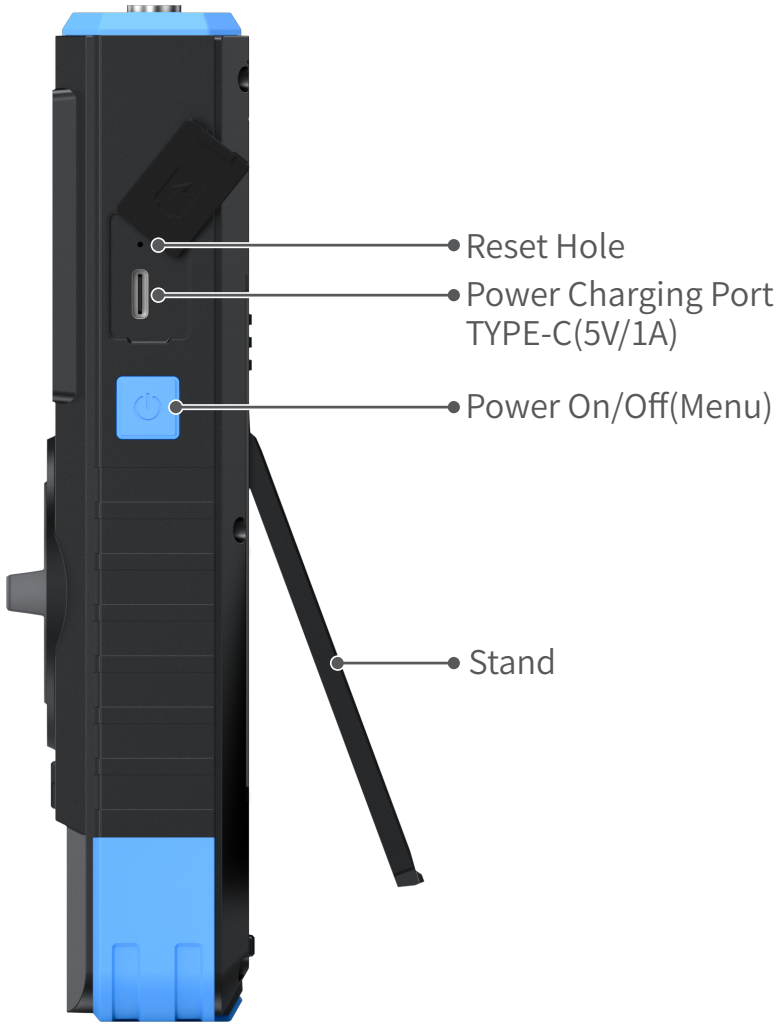
·Compact and lightweight, making it ideal for mobile use.

The FNIRSI-DST-201 is designed to provide users with powerful, versatile functionality and a portable operating experience. Whether used in factories, schools, home environments, or by professionals and enthusiasts, the DST-201 is an ideal multifunctional instrument.

2.2 Operation Diagram

Knob Selector:

- Ⓐ :Auto Range
- Ω :Resistance
- ⊣⊢ :Diode
- Hz :Frequency
- ≂ mA :AC/DC mA Current
- ≂ V :AC/DC Voltage
-))) :Buzzer
- ⊣⊢ :Capacitance
- :Temperature Measurement
- ≂ A :AC/DC Current



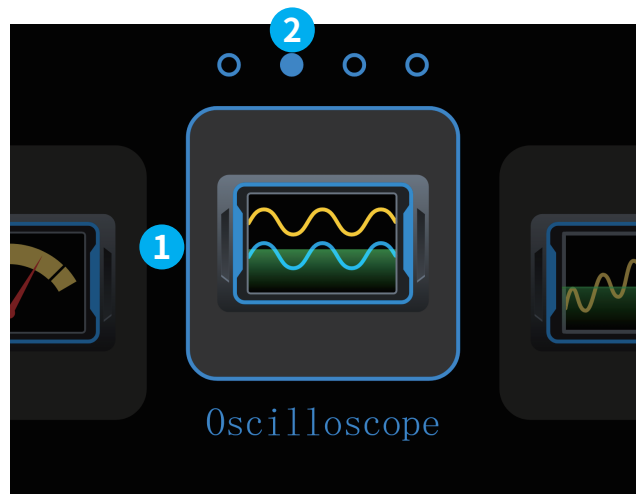
2.3 Function Mode Page

① **Function page display:** This area displays the function name selected at the moment.

② **Mode switch:** Click the left and right keys or the up and down keys to select the function. There are 4 sections in total:

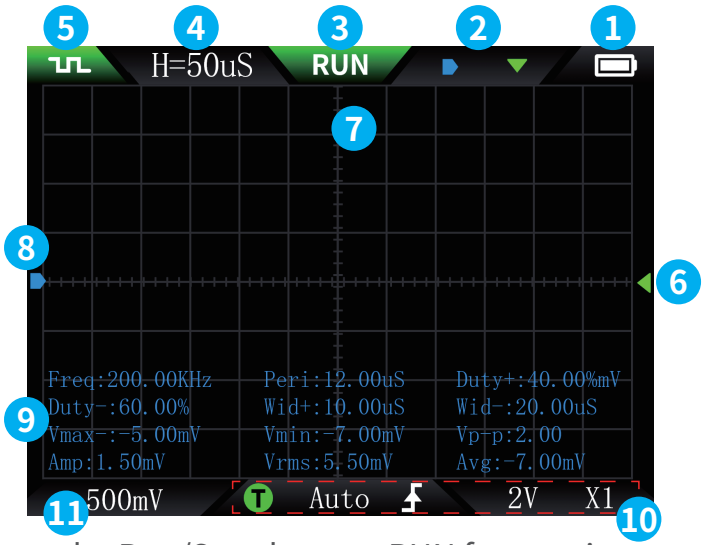
Multimeter **Oscilloscope**

Signal generator **Settings**



Key	Operation	Function description
⏻	Long press	Switch on/off
	Short press	Menu button
◀ ▶ / ▲ ▼	Short press	Enter the mode switch function menu and select the mode.
ENTER ⇋ 50%	Short press	ENTER "Confirm key", press to confirm and enter the selected mode.
MODE	Short press	MODE "Mode switch key", used to quickly switch between modes.
Knob Gear	Rotate	Quickly jump to the corresponding multimeter function and measurement range.

2.4 Oscilloscope



① **Battery display:** This area displays the remaining battery.

② **Mode switch:** Short press the ENTER confirmation key to switch horizontal and vertical units, horizontal trigger movement, channel waveform up and down movement, and trigger level up and down movement.

③ **Run/Stop indication:** Short press the Run/Stop button, RUN for running, STOP for stopping.

④ **System time base:** refers to a large horizontal grid representing the length of time, which is determined by the sampling rate.

⑤ **Function signal generator indication:** Green means the function signal generator is turned on, red means it is not turned on, and the displayed graph represents the set waveform category.

⑥ **Trigger voltage indication icon:** that is, the trigger threshold.

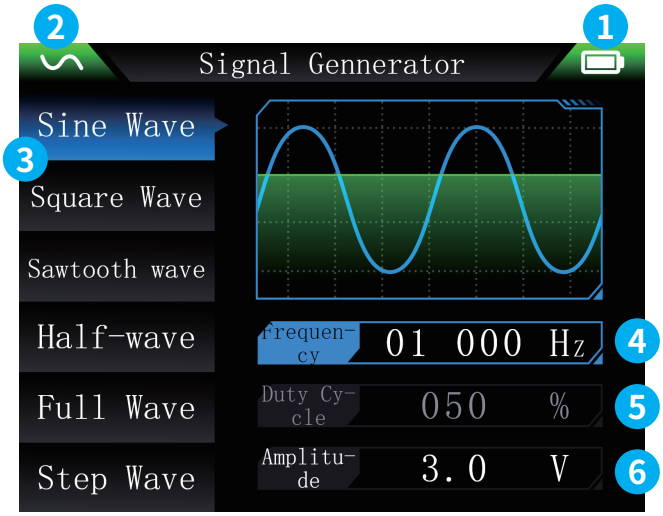
⑦ **Trigger X position indication arrow:** indicates that this is the trigger point.

⑧ **Channel waveform:** The waveform signal collected by the channel.
⑨ **Measurement data:** You can press and hold the Run/Pause key to turn on/off the measurement parameter display.
⑩ **Trigger setting:** You can press and hold the MODE key to set the trigger mode, trigger edge, probe ratio, and coupling type.
⑪ **System voltage:** refers to a large vertical grid representing the voltage length, which is determined by the sampling rate.

Key	Operation	Function description
⏻	Short press	Menu button, get back to menu
	Long press	Turn power on/off
MODE	Short press	Switch to other modes
	Long press	Open oscilloscope setting menu, it can be used to set coupling type, probe ratio, trigger mode, trigger edge etc..Long press again to close the parameter menu.
AUTO LIVE	Short press	Auto Measurement
	Long press	Auto Calibration
ENTER 50%	Short press	You can switch between horizontal and vertical units, horizontal trigger movement, channel waveform movement, and trigger level movement. If in the parameter menu, short press to confirm the setting.
	Long press	50% center
RUN SAVE	Short press	Click to pause, click again to run
	Long press	Quickly display/close parameter measurement

2.5 Signal Generator

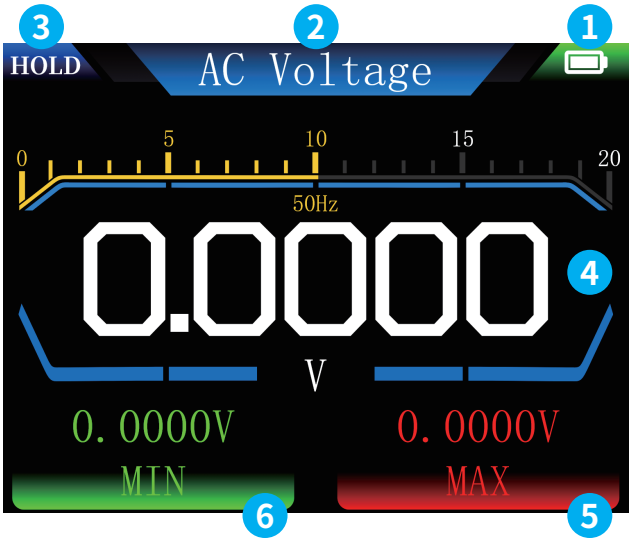
① **Battery display:** This area displays the remaining battery.
② **Status display:** This area displays the on-state of the signal generator, green for on, red for off.
③ **Waveform category:** Short press the up or down key to select the waveform category, a total of 13 waveforms are available.



④ **Frequency setting:** Click the confirmation key to enter the frequency/duty cycle/amplitude selection, click the "Select the frequency" to enter the third-level navigation, set the frequency value, and click the return key to save.
⑤ **Duty cycle setting:** Click the confirmation key to enter the frequency/duty cycle/amplitude selection, click the "Select duty cycle" to enter the third-level navigation, set the duty cycle, and click "Return" to save.
⑥ **Amplitude setting:** Click the confirmation key to enter the frequency/duty cycle/amplitude selection, click the key to select the amplitude to enter the third-level navigation, set the amplitude, and click "Return" to save.

Key	Operation	Function description
⏻	Short press	Menu button, switch to function menu.
	Long press	Turn on/off power
MODE	Short press	Switch to other modes
AUTO LIVE	Long press	"Back"
ENTER 50%	Short press	Confirm, enter the frequency/duty cycle/amplitude selection, use the up,down, left, and right keys to set the corresponding value
RUN SAVE	Short press	Click to turn on/off generator

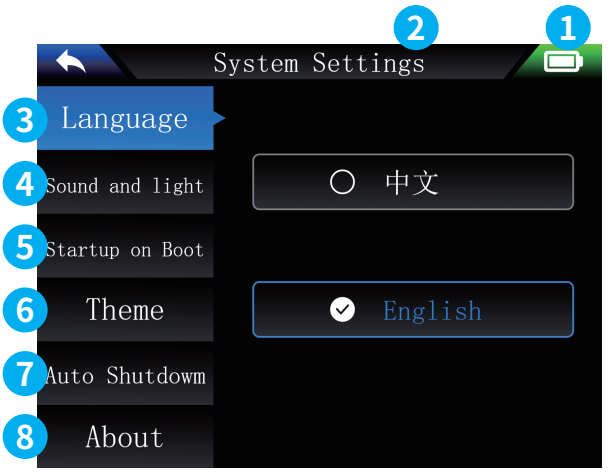
2.6 Multimeter



① **Battery display:** This area displays the remaining battery.
② **Range display:** This area displays the gear selected for the multimeter measurement.
③ **Data hold:** Short press the Run/Pause button to implement data retention.
④ **Measurement data display:** This area displays the measurement data of gear selected.
⑤ **Maximum value:** This area displays the maximum value during the measurement process and updates in real time.
⑥ **Minimum value:** This area displays the minimum value during the measurement process and updates in real time.

Key	Operation	Function description
⏻	Short press	Menu key, return to function menu
	Long press	Turn power on or off
MODE	Short press	Switch to other modes
	Long press	Switch to recording mode, this mode will visualize the measured data
AUTO LIVE	Short press	Switch to zero-live detection, click again to exit
RUN SAVE	Short press	Turn on/off Data Retention
	Long press	Display in recording mode, record the measured data at the moment, and display it in the right area of the screen
ENTER	Short press	Quickly switch the current gear to other options

2.7 System Setting Page



① **Battery display:** This area displays the remaining battery.
② **Mode display:** This area displays the mode system settings.
③ **Language settings:** Chinese and English can be switched.
④ **Sound and light settings:** Click the confirmation button to enter the sound and light settings, use the up and down keys to select the sound/brightness, and the left and right keys to adjust. The sound can be set to mute.
⑤ **Default turning-on mode :** There are 3 function modes to choose to enter by default when the device is turned on, or you can choose none of them.
⑥ **Theme settings:** The device provides two themes: night and daylight.
⑦ **Auto shutdown settings:** You can set the auto shutdown time to 15min, 30min, and 1hour. When there is no operation, the device will automatically shut down after the standby time is set.
⑧ **About:** Display product brand information and current version number.
⑨ **Restore factory settings:** Click OK to choose whether to restore factory

3.TECHNICAL SPECIFICATION

3.1 Device Parameters

Parameters	Specification
Item No.	DST-201
Screen Material	2.8 inches TFT Colorful Screen
Backlight	Backlight brightness adjustable
Charging Power	TYPE-C (5V1A)
Battery	3000mAh
Languages	中文/English
Product Size	≈177.43×87.47×34.5mm
Net Weight	≈300g

3.2 Oscilloscope Parameters

Parameters	Specification	Remarks
Real-time Sampling rate	5MSa/s	
Analog Bandwidth	1MHz	
Input Impedance	1MΩ	
Coupling Mode	AC/DC	
Test Voltage Range	1:1 Probe:80Vpp(±40V) 10:1 Probe:800Vpp(±400V)	Oscilloscope sets X1 gear Oscilloscope sets X10 gear
Vertical Sensitivity	10mV/div~10V/div	X1 gear
Vertical Displacement	Adjustable with indicators	
Level Time Base	500ns~20s	
Trigger Mode	Auto/Normal/Single	
Trigger Type	Rising Edge & Falling Edge	
Trigger Level	Adjustable with indicators	
Waveform Freeze	Support(HOLD function)	
Auto Measurement	Maximum, Minimum, Average, RMS, VPP, Frequency, Period, Duty Cycle	

3.3 Multimeter Parameters

Function	Range	Accuracy
DC Voltage	1.9999V/19.999V/199.99V/1000V	±(0.5%+3)
AC Voltage	1.9999V/19.999V/199.99V/750.0V	±(1%+3)
DC Current	19.999mA/199.99mA/1.9999A/9.999A	±(1.2%+3)
AC Current	19.999mA/199.99mA/1.9999A/9.999A	±(1.5%+3)
Resistance	19.999MΩ/1.9999MΩ/199.99KΩ/19.999KΩ	±(0.5%+3)
	1.9999KΩ/199.99Ω	±(2.0%+3)
Capacitance	999.9uF/99.99uF/9.999uF/ 999.9nF/99.99nF/9.999nF	±(2.0%+5)
	9.999mF/99.99mF	±(5.0%+20)
Frequency	9.999MHz/999.9KHz/99.99KHz/9.999KHz/ 999.99Hz/99.99Hz/9.999Hz	±(0.1%+2)
Temperature	(-55~1300°C)/(-67~2372°F)	±(2.5%+5)
Diode/Continuity	✓	
Single Probe AC Voltage Measurement(LIVE)	✓	

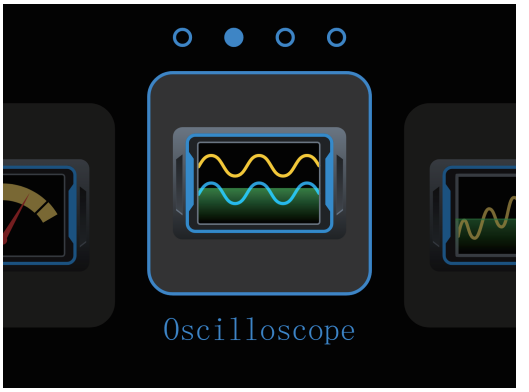
3.4 Signal Generator Parameters

Parameters	Specification
Output Waveform	Support 13 types of waveform output
Waveform Frequency	0-10KHz
Square Duty Cycle	0-100%, Square and Sawtooth are adjustable
Waveform Amplitude	0.1V-3.0V

4.OPERATION GUIDE

4.1 Boot

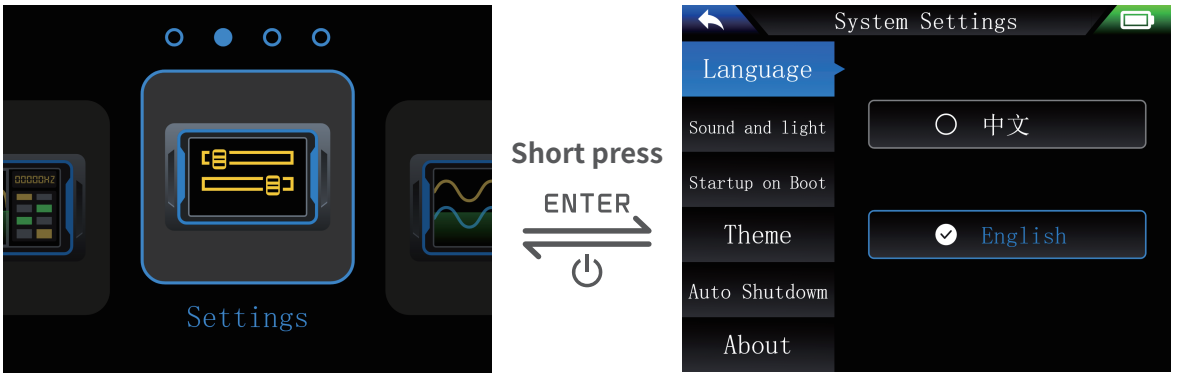
Long press ⏻ power on, wait for the system to load, and enter the default interface of system settings.



Default Boot Interface

4.2 Language Settings

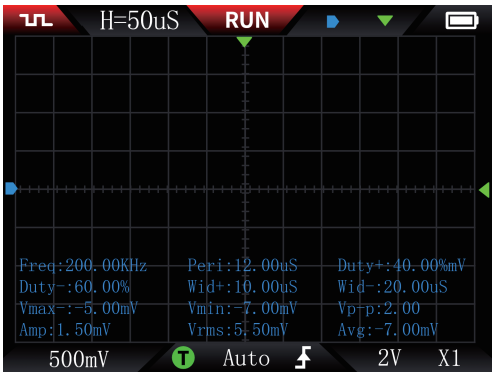
In the default interface, short press select button to select "System Settings", press "Enter" to enter system settings, select language settings, and then press "Enter" to enter language settings, select the language by using the up/down buttons.



4.3 Adjust Oscilloscope Parameters

Oscilloscope Adjustment

In the default interface, short press the left or right key to select the function module oscilloscope, and click "Enter" to enter the oscilloscope. Long press the mode switch key (MODE) to enter the oscilloscope parameter setting. You can select and set parameters at relevant selection area, such as coupling type, probe ratio, trigger mode, trigger edge, etc. Long press the mode switch key (MODE) again to close the oscilloscope parameter setting.



Long press MODE

MODE

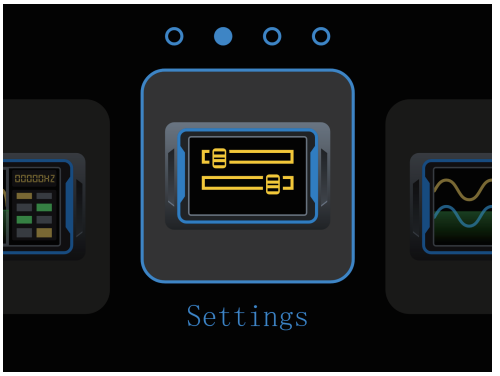
Oscilloscope Function Interface

Oscilloscope Parameter Setting Interface

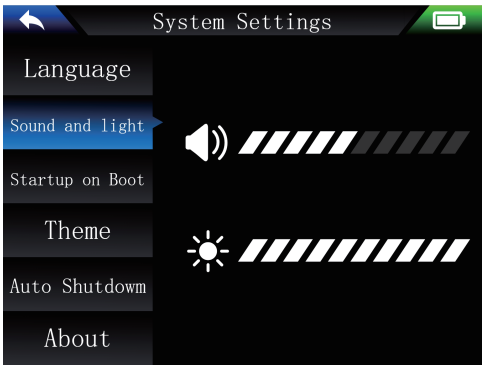
4.4 Brightness Adjustment

Brightness Adjustment

In the default interface, short press the selection key to select system settings, click "Enter" to enter the system settings, click the selection key to select sound and light settings, and then click "Enter" to enter the sound and light settings, select the brightness then press left or right selection key to adjust the brightness in real time.



Short press ENTER



Adjust Other Functions of System Settings:

The corresponding function selection and opening are roughly the same as the above operation navigation, and the step description is omitted

5.QUICK START GUIDE

5.1 Quick Measurement

1. Turn on the multi-functional oscilloscope and wait for the system to load. You can choose the mode: oscilloscope, signal generator, multimeter, etc. For example, select the signal generator.
2. First connect the interface, enter the signal generator, and select the waveform to be output. Click the confirmation key to confirm the setting of frequency, duty cycle, amplitude, etc.
3. When the corresponding parameters are set, click the run/pause key to start the signal generator.
4. Click the mode switch button to perform other functions.

5.2 Firmware Upgrade

- Shut down the device, long press "MODE" and the power button at the same time, the device will pop up the Firmware Upgrade interface, plug in the USB Type-c data cable to connect to the computer, enter the Firmware Upgrade interface to upgrade the firmware.
- After entering the Firmware Upgrade, the computer recognizes the USB drive, and the firmware file can be directly copied to the USB drive.
- Pull the firmware file to the specified folder of the USB drive. If the firmware upgrade is completed, the shutdown charging interface will be displayed

※Note: Firmware upgrade is only supported on computers with Windows 10 and above.

6.TROUBLESHOOTING

6.1 Unable to Boot

Possible causes:

· Battery exhausted. · Loose or damaged battery connection

Solution:

①Check battery charge and charge if low.

②If battery fails to charge or device still does not power on, try reinstalling or replacing the battery.

6.2 Screen Does Not Display

Possible causes:

· Back light of screen is closed

· Display hardware malfunction.

· System software abnormality

Solution:

①Check and adjust the backlight brightness settings according to the manual.

②Try restarting the device to ensure the system returns to normal.

②If the screen still does not display properly, the display may need to be repaired or replaced.

7. MAINTENANCE

Cleaning The Outside of The Device

●**Frequency:** Clean once a month, depending on the usage environment.

●**Method:** Use a soft cloth to gently wipe the surface of the device. Avoid using chemical cleaners, especially those containing alcohol or strong acids or alkalis, to avoid damaging the casing or screen.

●**Note:**

· Clean the dust around the device and buttons regularly to keep the device in good condition.

· Make sure no liquid, dust or debris enters the device interface.

· If the input jack is dirty or wet, it may affect the reading.

· Use a new cotton ball dipped in a cleaning agent or lubricant to clean each jack. The lubricant can prevent moisture-related jack contamination.

Check the battery and power:

- **Battery maintenance:** For instruments with built-in batteries, check the health of the battery regularly. Avoid complete battery discharge. It is recommended to charge regularly and avoid not using the device for a long time.
- **Charging specifications:** Use the official charger to charge, avoid overcharging or over-discharging, and ensure that the battery is in the appropriate operating voltage range.
- **Battery replacement:** If the battery shows excessive attenuation (such as failure to charge normally or extremely fast discharge), it should be replaced in time.

Storage and Carrying:

- **Storage environment:** The device should be stored in a dry and ventilated environment, avoiding high temperature, high humidity or drastic temperature changes. Avoid placing it in direct sunlight.
- **Carrying:** Be careful to avoid falling when using, especially when carrying. It is recommended to use a protective case or a special bag for carrying.

Software Update:

- Regularly check whether the device has new firmware to update. The latest firmware can fix known bugs and improve device performance.
- When updating, make sure the operation steps are correct, use the officially released firmware files, and avoid power outages or other interference.

Restore Factory Settings:

- If the device is abnormal or does not work properly, try to restore the factory settings. After restoring the settings, the device will clear all custom configurations and return to the initial state.
- For methods to restore factory settings, please refer to the user manual or contact the manufacturer's customer service.

8.CONTACT US

Any FNIRSI users who contact us with questions will receive our promise of a satisfactory solution, plus an extra 6-month warranty as a token of our appreciation for your support! By the way, we have created an exciting community, and we welcome you to contact FNIRSI staff to join.

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9.WARRANTY INFORMATION

※**This page is the basic warranty card. Please keep it.**

Thank you for choosing our company's products. The warranty period of this product starts from the date of sale. During the product warranty period, if the product is installed and used in accordance with the product manual and used in normal environment and conditions, and the fault is caused by defects in the original materials and processing, you can enjoy free repair services according to the content of this warranty clause. Please keep this warranty card properly as a warranty certificate. No reissue will be issued if it is lost.

The following situations will incur paid repair services

1.Unable to present the original valid warranty card.
2.Damage caused by improper installation not meeting product requirements, standards, or relevant specifications.
3.Damage caused by accessories in the installation environment not meeting product requirements, standards, or relevant specifications.
4.Damage caused by improper use, improper storage, unauthorized disassembly, or unauthorized repairs by the user.
5.Expiration of the warranty period.

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