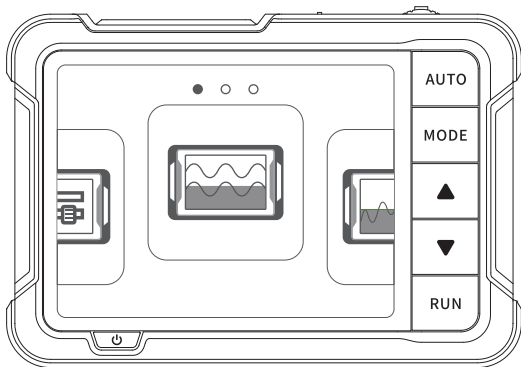


FNIRSI

DSO510



CATALOG

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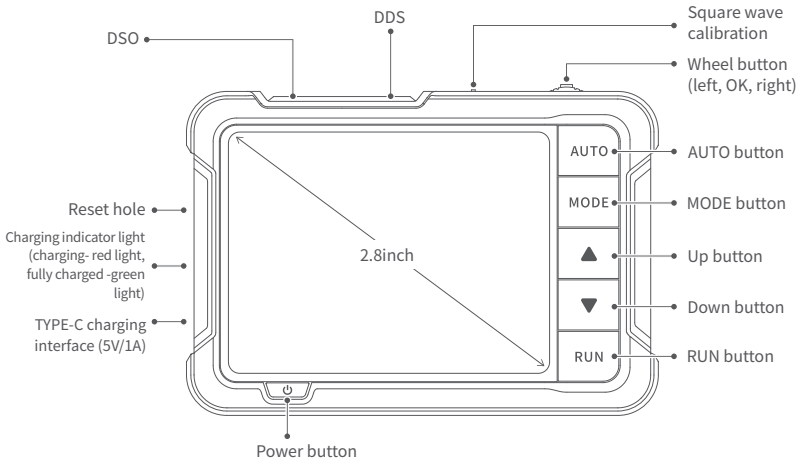
NOTICE TO USERS

- This manual provides detailed introductions to the product. Please read this manual carefully ensure obtain the best state of the product.
- Please keep this manual properly .
- Do not use the instrument in flammable and explosive environments.
- Waste batteries and instruments cannot be disposed of together with household waste. Please dispose of them in accordance with relevant national or local laws and regulations.
- If there are any quality issues with the device or if you have any questions about using the device, please contact “FNIRSI” online customer service and we will solve it for you in the first time.

1、PRODUCT INTRODUCTION

DSO-153 is a highly practical and cost-effective handheld oscilloscope launched by our company, targeting the maintenance industry and development education industry. This oscilloscope has a real-time sampling rate of 48MS/s, 10MHz bandwidth, and complete triggering function (single, normal, auto). It can be used freely for both periodic analog signals and non periodic digital signals, and can measure up to $\pm 400V$ voltage with an efficient one click AUTO, which can display the measured waveform without complicated adjustments. In addition, it also comes with multiple functions signal generator (50KHz). Equipped with a 2.8-inch 320 * 240 resolution HD LCD screen and a built-in 1000mAh high-quality lithium battery, it can be used for about 4 hours when fully charged.

2.PANEL INTRODUCTION



3.BUTTONS FUNCTIONS

Button	Operation	Main Menu	Oscilloscope	Signal Generator	Setting
	Move to the left	Upward selection	Control various parameters, function adjustment selection	Numerical position selection	Decrease volume/brightness
	Short press	Enter interface	/	Enter/exit numerical values	Enter current settings/Confirm current setting parameters
	Long press	Return main menu			
	Move to the right	Downward selection	Control various parameters, function adjustment selection	Numerical position selection	Increase volume/brightness

Button	Operation	Main Menu	Oscilloscope	Signal Generator	Setting
AUTO	Short press	/	Automatic measurement	/	/
	Long press		Auto calibration		
MODE	Short press	/	Switch measurement mode	Return	Return
	Long press	/	Parameter settings interface	/	/
	Short press	/	Upward selection/adjustment of parameters		
	Short press	/	Downward selection/adjustment of parameters		
RUN	Short press	/	Run/pause waveform	Enable/disable output	/
	Long press		Save waveform	/	
	Short press	Power on/Power off			

Oscilloscope Parameter Settings Interface Buttons Functions

Button	Operation	Wave-form	Parameters	Persistence	Image
	Short press	Switch parameters	Turn on/off parameters	/	Open image
	Move to the left	Select leftward			View previous image
	Move to the Right	Select rightward			View next image
	Short press	Move upward (in parameter interface, move to the previous column)			
	Short press	Move downward (in parameter interface, move to the next column)			
MODE	Long press	Enter/exit parameter settings interface			

*Oscilloscope Parameter Settings Interface can be found on page 22

4.PRODUCT PARAMETERS

Sampling rate	48MS/s
Bandwidth	10M
Vertical sensitivity	10mV/Div-10V/Div
Time Base Range	50ns-20S
Voltage range	X1: $\pm 40V$ (Vpp:80V)
	X10: $\pm 400V$ (Vpp:800V)
Trigger Mode	Automatic/Normal/Single
Trigger Edge	Rising edge /Falling edge
Coupling	AC/DC
Square wave calibration	Frequency: 1K; Duty cycle: 50%; Amplitude: 3.3V

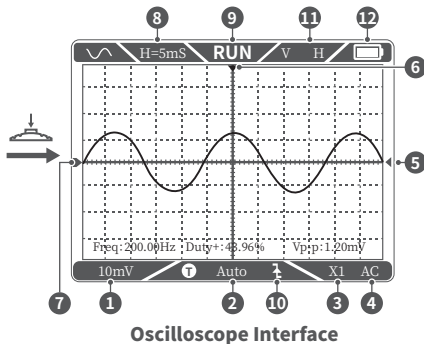
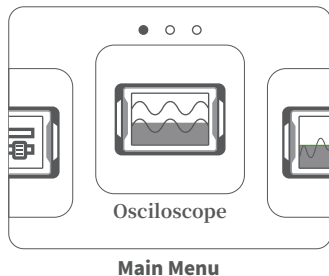
※The size and weight are both manually measured, with slight errors, please refer to the actual product for accuracy.

Signal generator	
Frequency	0-50KHz
Duty cycle	0-100% (rectangular and sawtooth waves)
Amplitude	0.1-3.0V
Waveforms	Sine wave, rectangular wave, sawtooth wave, half wave, full wave, step wave, anti step wave, exponential rise, exponential drop, DC signal, multi tone, Sink pulse, Lorentz wave.

Others	
Display	2.8 inches/PPI:320*240
USB charging	5V/1A
Lithium battery capacity	1000mAh
Size	99x68.3x19.5mm
Weight	104g

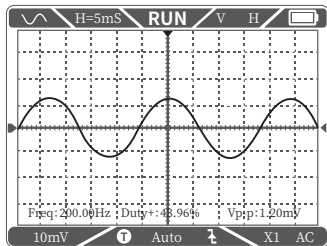
5.SCREEN INDICATION

5.1 Oscilloscope Interface



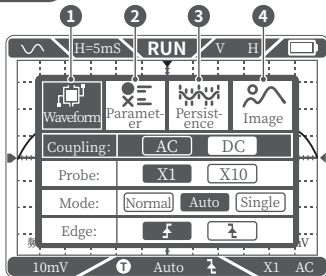
- ① Vertical unit: represents the voltage represented by a large grid in the vertical direction
- ② Trigger mode indicator icon, Auto represents automatic triggering, Single represents single triggering, Normal represents normal triggering
- ③ Probe ratio: This must be consistent with the setting of the 1X/10X switch on the probe handle. If the probe is in 1X mode, then the oscilloscope should also be set to 1X mode, where 1X measures 40V voltage and 10X measures 400V voltage
- ④ Input coupling method indicator icon, AC represents AC coupling, DC represents DC coupling
- ⑤ Trigger voltage indicator icon ⑥ Trigger position indicator icon
- ⑦ Baseline indicator icon, this icon indicates the current position as 0V voltage
- ⑧ Horizontal time base, representing the length of time represented by a large grid in the horizontal direction.
- ⑨ Run pause indicator icon, RUN represents run, STOP represents pause.
- ⑩ Trigger edge indicator icon
- ⑪ V H : Left and right control the time base, up and down control the vertical sensitivity of the channel.
 - ▶ ▼ : Left and right control horizontal trigger movement, up and down move the channel waveform up and down.
 - ◀ ▼ : Left and right control horizontal trigger movement, up and down adjust the trigger level.
- * MODE button control switching icons
- ⑫ Battery level

5.2 Oscilloscope Parameter Settings Interface



Oscilloscope Interface

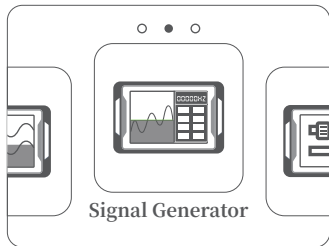
Long press
MODE



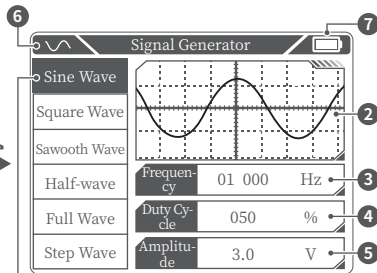
Oscilloscope Parameter Settings Interface

- ① **Waveform:** Set coupling type, probe ratio, trigger mode, trigger edge
- ② **Parameter:** Toggle parameter display (frequency, period, positive duty cycle, negative duty cycle, positive pulse width, negative pulse width, maximum value, minimum value, peak-to-peak value, amplitude, RMS value, average value)
- ③ **Persistence:** Set afterglow: off, 500ms, 1s, ∞
- ④ **Image:** View image

5.3 Signal Generator Interface



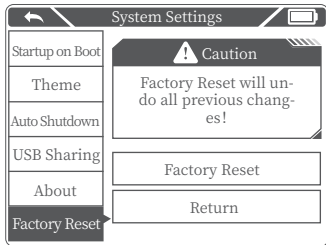
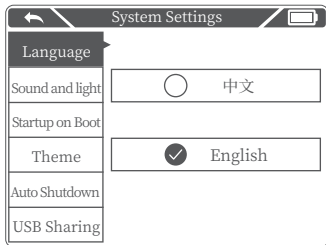
Main Menu



Signal Generator Interface

- ① Waveforms selection
- ② Display of waveforms
- ③ Frequency setting
- ④ Duty cycle setting
- ⑤ Amplitude setting
- ⑥ Opening and closing of signal generator (graying out when closed)
- ⑦ Battery level

5.4 Settings Interface



1. Set single item selection:

Language, Sound and light, Startup on boot, Theme, Auto Shutdown, USB Sharing, About, Factory Reset

2. Specific settings details:

- ①**Language:** Chinese, English.
- ②**Sound and light:** Brightness: 25-100; Sound: 0-10.
- ③**Startup on Boot:** turn off, oscilloscope, signal generator. This setting is used to set which function mode will be automatically started upon startup.
- ④**Theme:** blue, yellow.
- ⑤**Auto shutdown:** off, 15 minutes, 30 minutes, 1 hour.
- ⑥**USB Sharing:** After opening, you can connect to the computer via USB interface to transfer pictures, etc.
- ⑦**About:** Brand information, version number.
- ⑧**Factory Reset.**

6.FIRMWARE UPDATE

- ① In the case of shutting down, press and hold the  first and then press  button.
- ② Use a Type-C cable to connect the Type-C port on the board to the computer, and a USB drive named "IAP" will pop up on the computer.
- ③ Pull the firmware into the USB drive, and if the firmware upgrade is completed, it will automatically jump to the APP.



NOTICE

- Firmware upgrade only supports use on computer Windows 10 and above systems.
- During the upgrade process, you need to keep pressing the power button until the file transfer is complete.

7.POINTS FOR ATTENTION

- After receiving the device, please use it when fully charged.
- When using oscilloscope, pay attention to the selection of gear, and the gear of the oscilloscope should be consistent with the gear of the probe.
- When measuring high voltage, do not touch any metal parts of the oscilloscope to avoid the risk of electric shock.
- Try not to conduct a high-voltage test during charging.

- When calibrating, it is necessary to unplug the BNC probe or short circuit the positive and negative terminals of the probe.
- USB firmware upgrade only supports WIN10 and above. It is prohibited to drag files other than the released firmware, otherwise it may cause irreparable consequences.
- Please charge using the voltage within the specifications in the instruction manual.

8.CONTACT US

Any FNIRSI's users with any questions who comes to contact us will have our promise to get a satisfactory solution +an extra 6 months warranty to thanks for your support!

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

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