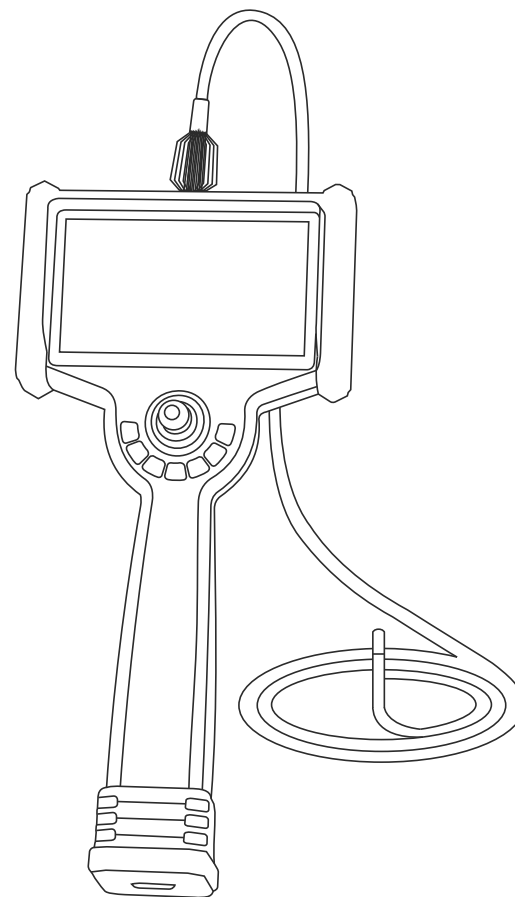


Industrial Endoscope

(Touch Screen)

Instruction Manual



Warning: Please read the instruction manual before use

Copyright announcement

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Warning:

Due to the continuous update of product technology, the market changes rapidly, and the editing time is limited, there is no guarantee that it is not included in this manual there are errors, so this manual is only for the reference of the user, do not provide any form of warranty. Our company reserves the right the content of this article is revised and changed right. The company has no obligation or obligation to notify any of the amendments.

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1. User Instructions

1.1 Application and scope of application

This product is applied to realtime detection and analysis of industrial on-site equipment, aerospace, shipbuilding, new energy, and transportation production and maintenance, with direct visual features Point, can directly observe whether there are defects or abnormalities on the inner surface of pipes, turbines, cylinders, engines and other devices. The other in Real-time photography and video recording are performed to provide indispensable data collection for analyzing equipment usage and equipment production guarantee Set.

1.2 Maintenance and modification

This product does not have any parts that can be maintained by the user, do not attempt to disassemble, refit and repair, the repair service of this product is only provided by our company and our company authorized dealer repair.

1.3 Safety Precautions (Please observe the following when using this product)

- Do not use this instrument to observe human or animal body.
- Do not use or store in places with explosive, strong electromagnetic field or combustible gas, which may cause fire or explosion.
- Do not allow the detected material to work under the condition of live, so as not to cause electric shock.
- Do not contact the end of the lens directly during use, especially pay special attention to the use of the endoscope in a high temperature environment.
- Contact with the ends at this point may cause burns.
- Do not look at the strong light source from the LED at the end of the endoscope probe close to avoid the impact of strong light on vision.
- Do not bend, stretch, twist or roll the probe line too hard, otherwise it may cause damage to the equipment.
- Long-term use of this product will cause stains on the lens objective lens, resulting in blurred picture and affecting data collection.
- Wipe the objective lens clean with alcohol or acetone before use.
- If you feel any abnormality in the Angle adjustment operation, stop the current operation and shut down. Then contact the supplier.
- Keep tube away from any liquids except water, salt water, oil, and light oil.
- After the instrument is used up, please clean the front section of the insertion tube of the instrument in time to prevent corrosion.

2. Product introduction

2.1 System parameters (Based on general models)

Bending control	360°full direction articulation
Insert tube	Four layer tungsten wire braided hose
System language	Chinese, English, German, French, Russian, Spanish, Italian, Polish, Japanese, Ukrainian, and other languages
Screen size	6 inch FHD large screen
Image/Video format	JPEG/AVI
Host structure	Integrated handheld design
Storage	Built in storage, Standard 32GB TF card, Max support 128GB
Data port	Type-C port, HDMI video output port, AUX port
IP Grade	Insert probe IP67
Host working time	≥8 hours
Host weight	≤ 0.8kg (with battery)
Power	18650 rechargeable lithium battery (Dismantle)
Power adapter	DC5V

2.2 Operating environment

Host system working temperature	-10°C~50°C
Video probe working temperature	-20°C~70°C Below 0°C, Steering operations should be reduced
Storage temperature	-20°C~60°C(Host)
Relative humidity	Max 90%, no condensation

2.3 Packing list

Series Number	Description	Number	Unit
1	Host	1	PCS
2	Endoscope Probe	1	PCS
3	Card reader	1	PCS
4	TF card(32G)	1	PCS
5	Battery	1	PCS
6	Packing case	1	PCS
7	Charging adapter	1	PCS
8	Type-C cable	1	PCS
9	HDMI cable	1	PCS
10	User Manual	1	PCS
11	Certificate card	1	PCS
12	Warranty card	1	PCS
13	Battery Charger	1	PCS
14	Micro USB cable	1	PCS

3. Operation process

3.1 Take out the instrument

Open the outer box of the instrument, take out the endoscope host and hold the probe tightly to avoid collision probe and scratching probe head.

3.2 Power up and prepare to insert the TF card

3.3 Press the boot key to turn on the instrument

3.4 Use endoscope

Use the endoscope probe to insert into the internal part of the inspection work piece.

3.5 Bending operation

According to the on site detection, the joystick is required to control the probe bending. If the joystick is suddenly resistant during the shaking process, or any abnormalities in the operation of the endoscope, please stop observing immediately. After shaking the joystick to the middle position, carefully take out the endoscope from the testing products

3.6 Exit

It is confirmed that the bending of the endoscope is in a rough straight position (the joystick is in the middle position), and then slowly exit it.

3.7 After use

Turn off the power switch, put the endoscope into the portable box, and coil the inserted tube. (if the battery is not used for a long time, take out the batteries)

4. Operation Guide

4.1 Preparations before starting up

Remove the endoscope and insert the TF card; keep the probe as straight as possible. When the environment is not allowed, the probe is prohibited from being used.

4.2 Bending control

The curved corner control of the endoscope is directly controlled by the joystick on the operating panel. The direction of shaking the joystick is the direction of the probe rotation. The size of the corner is determined by the angle of the joystick shaking.

4.3 Buttons, port introduction

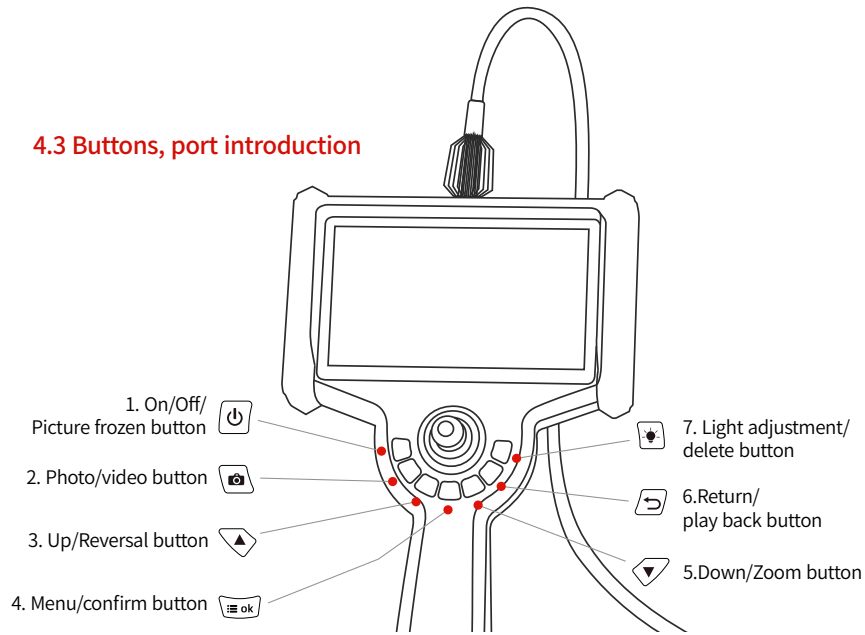


Figure 1 Button introduction

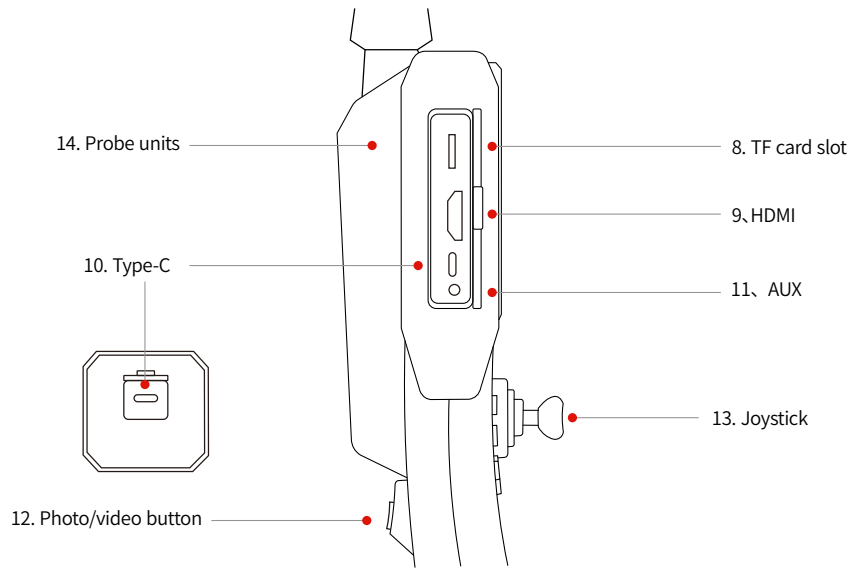


Figure 2 Port introduction

1. On/Off/Picture frozen button:Power on and power off function, long press to power on or power off. In the preview state, short press tap to freeze the screen
2. Photo/video button: Short press to take photos, long press for video recording, in the video mode, short press is the camera function. Long press seconds to exit the video mode and save the video file.
3. Up/Reversal button:When setting the interface, the upward navigation function is enabled. The function is rotated when previewing the interface.
4. Menu/confirm button:When previewing the interface, press to enter the setting interface; The confirm button is displayed on the Settings screen
5. Down/Zoom button:When previewing the interface, it works as zoom buttons, when it comes to setting interface, it is a menu down navigation function.
6. Return/play back button:In the preview screen, go to the Photos and videos browse folder; It is used as a return function in the browsing interface.
7. Light adjustment/delete button:When the system is powered on, the system is in the visible light lighting state by default, and the brightness level is 0 when it is in the unlit state. Press the "LED light adjustment" button successively, and the LED light will gradually increase :0, 1, 2...9, after the LED light increases to 9, press the key again, and the LED light will turn to 0, and so on
8. TF card slot: External storage; maximum support 128GB
9. HDMI: Use with external large screen
10. Type-C: Used for data transmission and charging functions
11. AUX: AUX audio port (Limited to the device with AUX port)
12. Photo/video button: Short press to take photos, long press for video recording, in the video mode, short press is the camera function. Long press seconds to exit the video mode and save the video file.
13. Joystick: 360 degree full way articulation
14. Probe unit:Dismantled probes, changing different probes according to different inspection request

4.4 Battery disassembly and charging

On the back of the endoscope, open the battery cover case and remove 4 batteries.

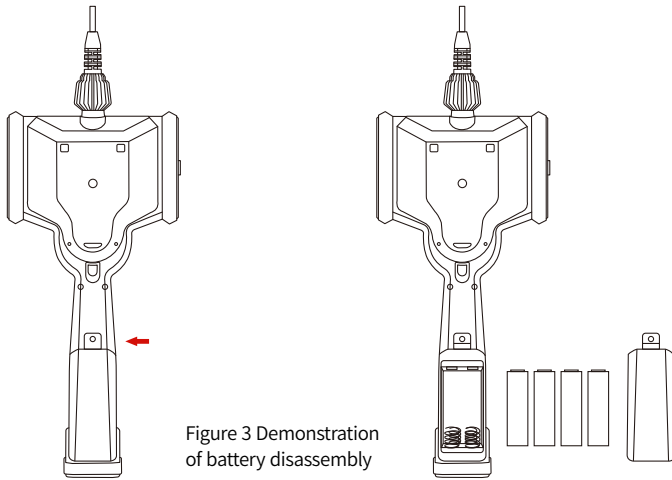


Figure 3 Demonstration of battery disassembly

Battery charging can be charged by using a special battery charger or directly connected to the Type-C line to charge. When charging online, there is a charging identifier in the upper right corner of the preview screen

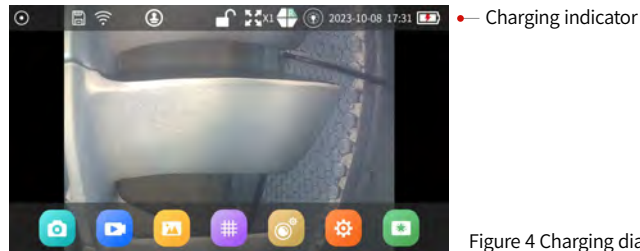
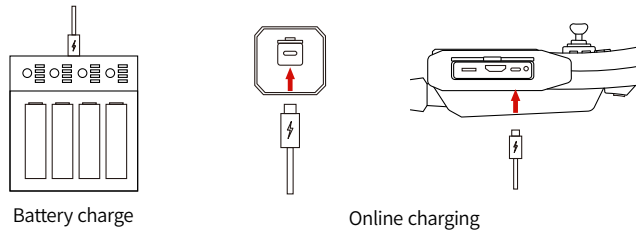


Figure 4 Charging diagram

4.5 Quick replacement of probes

1. Remove the two antislip pads on the back of the probes
2. Take 4 screws on the back with a hexagonal screw knife

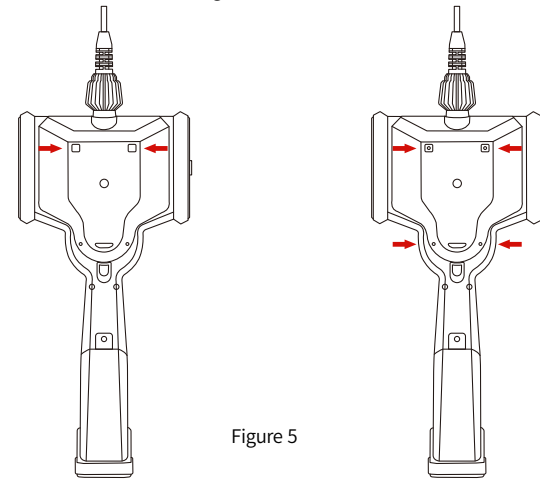


Figure 5

3. Support the probe group, and press the joystick slightly from the front of the endoscope to get away from the probe group from the host.

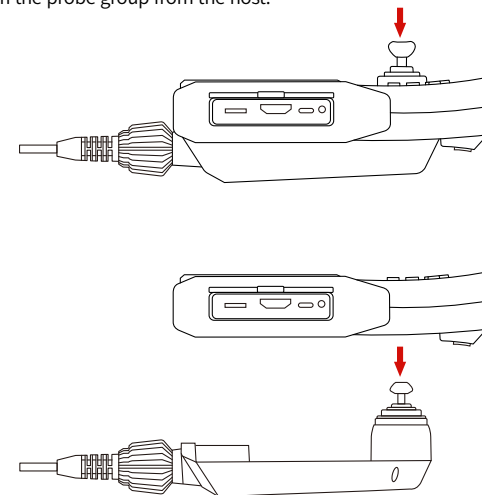


Figure 6

4.6 Data reading

Method 1: The PC directly reads the TF card data, removes the TF card from the TF card slot of the endoscope and inserts it into the PC.

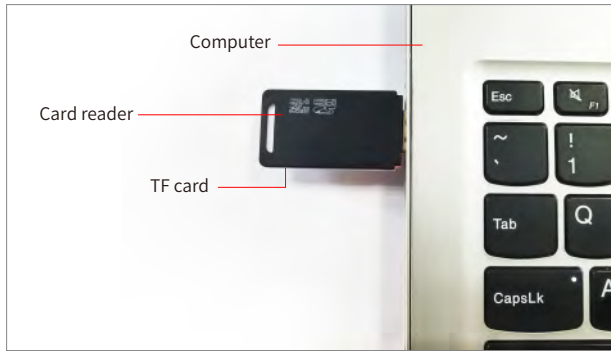


Figure 7 Schematic diagram of card reader reading

Method 2: Turn off the endoscope, connect the endoscope and the computer with a Type-C data cable, turn on the endoscope, and do not pull out the TF card at will while the computer is reading data, otherwise it will cause abnormal errors.

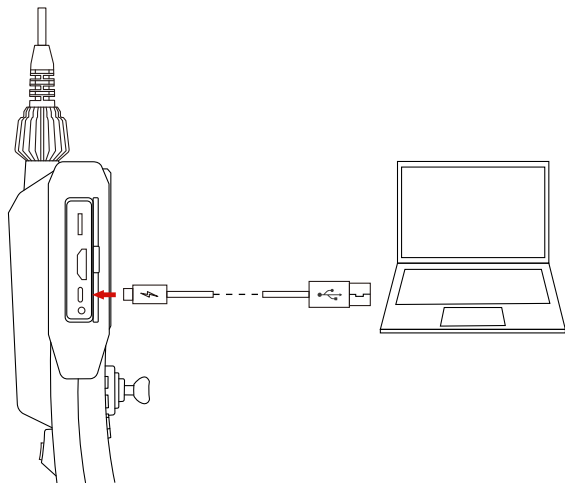


Figure 8 Direct connection to read data

4.7 Endoscope working mode quick start guide

The video observation mirror system mainly has 3 working modes, namely: "real time preview mode"; "photo video browsing mode" and "system setting mode". After booting, it will enter the "real-time preview mode" by default. Each mode and sub mode Please refer to "Table 1 Button Function List" for details of the button functions in the mode.

4.7.1 Key function list

Key shape	Name	Browsing interface	Browsing	Play video	System setup	Time setup
	Switch image/freezes	Shutdown/off image freezes	Long press to power off	Long press to power off	Long press to power off	Long press to power off
	Up key/Rollover key	Image flip	Navigate up	Navigate up	Navigate up	Navigate up
	Down arrow/zoom key	Image scaling	Navigate down	Navigate down	Navigate down	Navigate down
	Menu Confirm	Enter menu	confirm/zoom	suspend/play	confirm	confirm
	Back/Playback key	Photo/video browsing	Back	Back	Back	Back
	Light adjustment/Delete	Light adjustment	Delete	Delete	/	/
	Photo/Video key	Photo/Video	Back	Back	Back	/
	Photo/Video key	Photo/Video	Back	Back	Back	/
	Joystick	Joystick UP: Probe swings up				
		Joystick Down: Probe swings down				
		Joystick Left: Probe swings left				
		Joystick Right: Probe swings right				

4.7.2 Preview interface

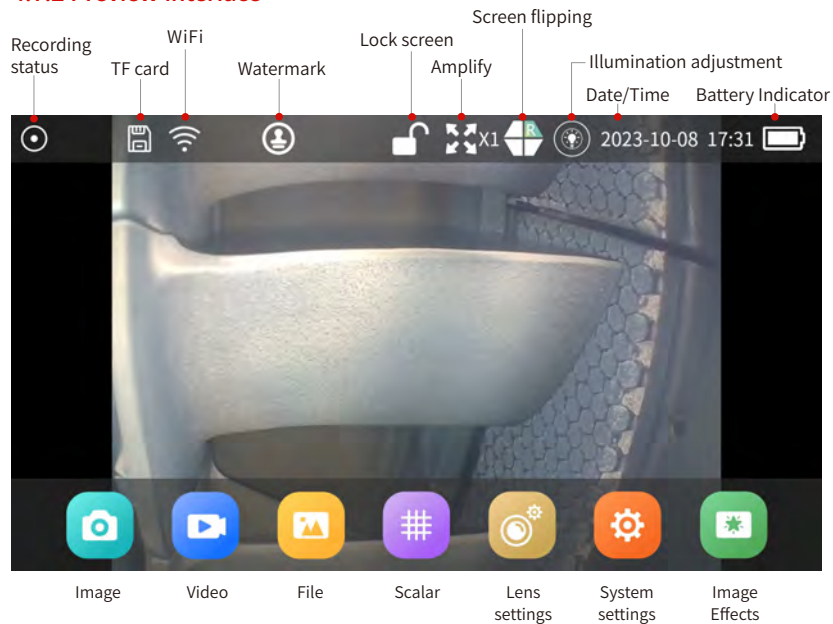


Figure 9 Preview Status

Click on the screen to hide/display the functional bar under the image preview interface, double-click the screen switch to dual-view preview status. Suitable for dual view camera probes.

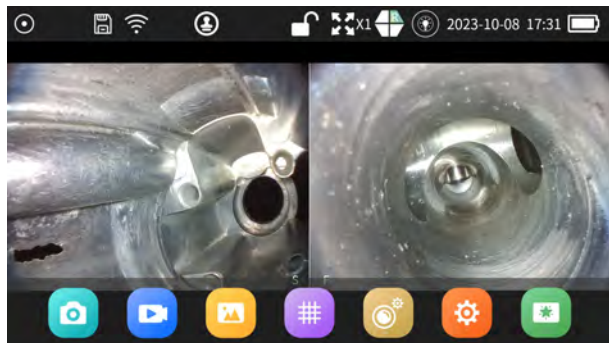


Figure 10 dual view Preview Status

4.7.3 Photo/video browsing

Under the interface of the image preview, you can take pictures or videos by taking pictures/videos, short press to take pictures, or click to take pictures on the screen, and the interface will be briefly displayed after the operation is successful.

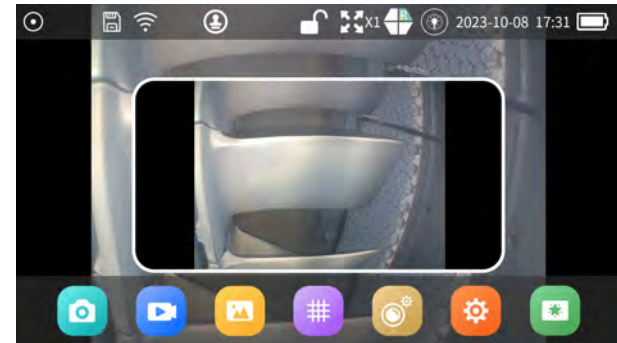


Figure 11 Taking photos

Taking photos/ videos by photo or video button in the image preview interface, pressing button is taking video, or clicking the button on the screen will be recording, while it will show the recording icon and time on the top left of the screen

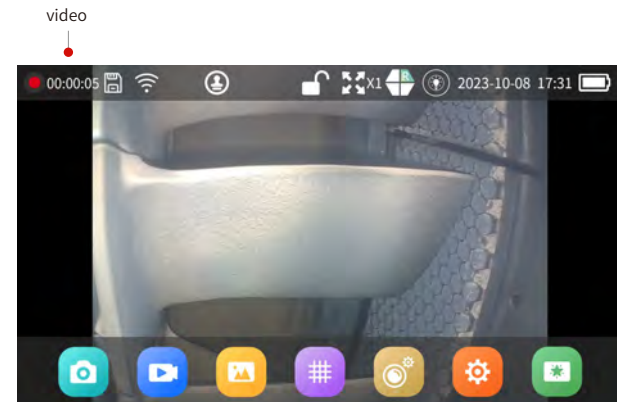


Figure 12 Taking videos

4.7.4 Display status of TF card:

Observe the TF card indicator status above in the preview interface to determine whether the TF card is inserted.

TF card inserted

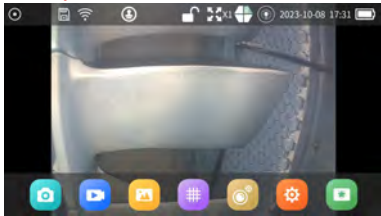


Figure 9 Preview status

TF card not inserted

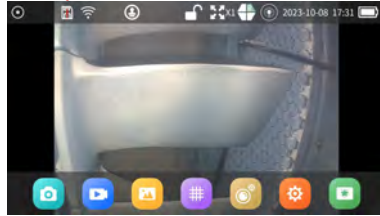



Figure 13 Display status when TF card is not inserted

4.7.5 Watermark setting status:

Click in the top status bar  button to enter the watermark content, which will be displayed in the upper left corner of subsequent captured files.

No watermark content entered

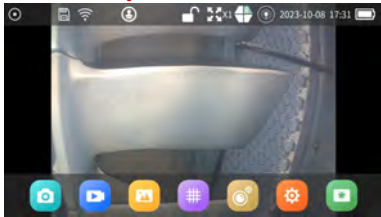


Figure 9 Preview status

Watermark content has been entered

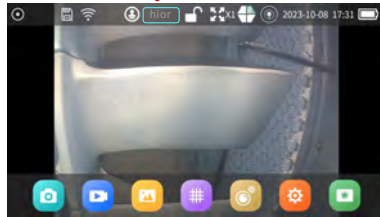




Figure 14 Display status of edited watermark content

4.7.6 Display and setting status of screen lock/unlock

Click  to lock the current screen; click  unlocked screen indication

Unlock the current screen

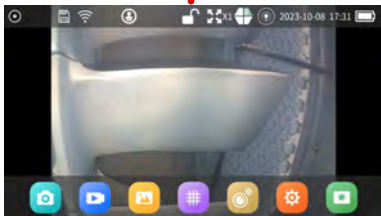


Figure 9 Preview status

Locked screen indication

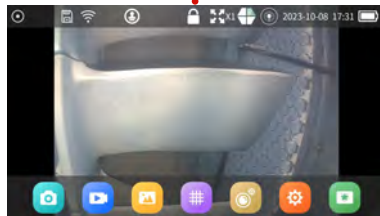



Figure 15 Locked screen display status

4.7.7 Display and setting status of screen zoom

Click in the top status bar  to zoom in and out of the screen (up to five levels).

First level screen size




Figure 9 Preview status

Secondary screen size indication



Figure 16 Secondary screen size display status

4.7.8 Display and setting status of screen rotation:

Click  in the top status bar to rotate the screen.

Initial perspective

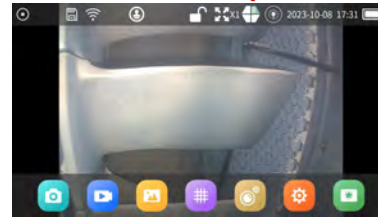



Figure 9 Preview status

Rotate screen instructions



Figure 17 Screen rotation display status

4.7.9 Lens brightness display and setting status

In the unilluminated state, the brightness level is 0. Press the "LED light brightness adjustment"  button continuously in sequence, and the LED light brightness will gradually increase: 0, 1, 2...9. After the LED light brightness increases to 9, press the button again and the LED light brightness will change into 0, and so on.

You can also click  button in the top status bar to adjust.

0-level lens brightness indicator

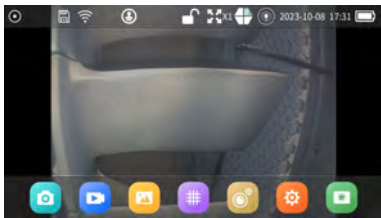


Figure 9 Preview status

9-level lens brightness indicator

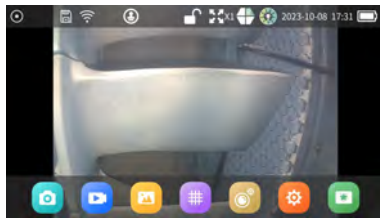






Figure 18 9-level lens brightness display status

4.7.9.1 White light/infrared light/UV light switching (double light source probe only)

When turned on, the system defaults to infrared light or UV light and is in an unilluminated state, the top icon displays as , and the brightness level is 0 at this time.

Long press  (>2 seconds), the system enters white light, the top icon displays as , and the brightness level is 0. Press and hold  again (>2 seconds), the system returns to infrared light or UV light.

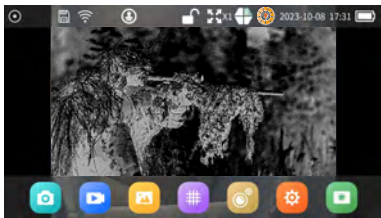


Figure 19 Infrared light status

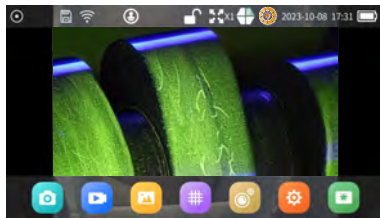



Figure 20 UV light status

4.7.10 Photo/video browsing:

Press  button in the preview interface to enter the album folder to display the local and storage card space.

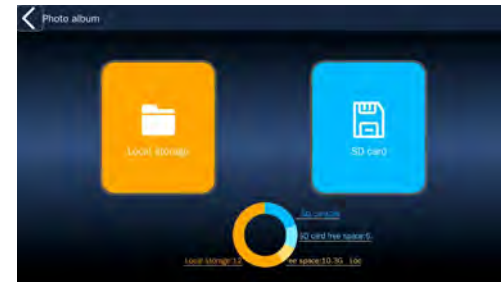


Figure 21 Storage location and storage space


Select a storage location to enter, or click directly  on the preview interface to enter the album.




Figure 22 Photo folder



Figure 23 Video folder

4.7.10.1 Photo/video rename or delete:

Press  button in the folder to preview photos or play videos in full screen. In this state, we can perform operations such as "delete" or "rename" on photos or videos.

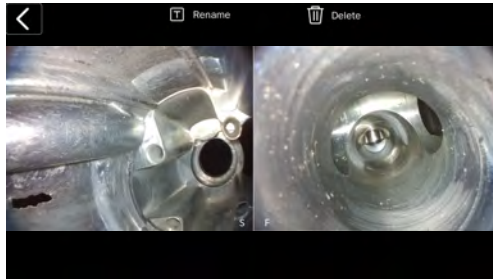


Figure 24 Preview photo status

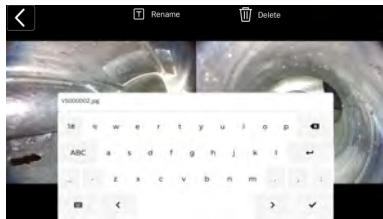


Figure 25 Rename status

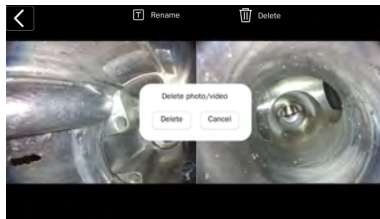



Figure 26 Delete inquiry status

4.7.10.2 Video playback:

Press  button to start playing the video. We can adjust the video playback speed and video sound in the lower right corner. Click the fast forward and rewind buttons on both sides of the progress bar to control the video to fast forward or rewind five seconds respectively.

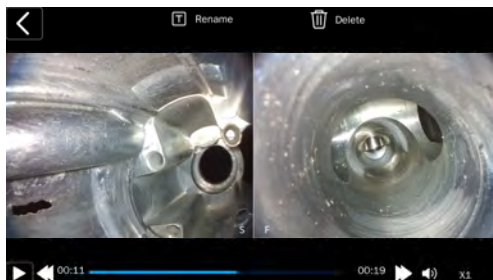


Figure 27 Preview video status

4.7.10.3 Batch operation:

Click the multi-select button in the upper right corner of the album to select multiple files, we can delete, cut, and copy multiple files.

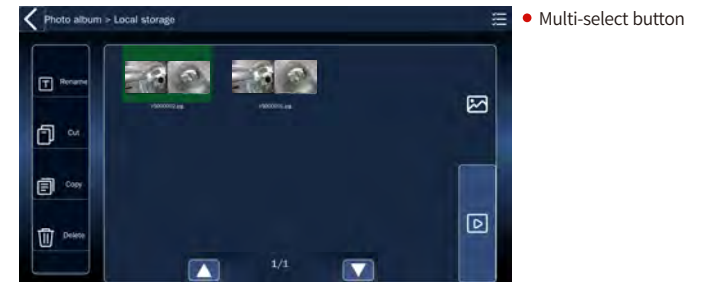


Figure 28 Multi-select button instruction

Check the checkbox in the upper right corner of the file to make multiple selections.



Figure 29 Multiple selection status

Click the function on the left to operate on multiple selected files.

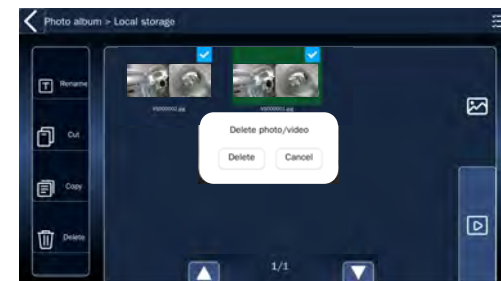



Figure 30 Multi-select delete query status

4.7.11 Ruler display

Click  button in the preview interface to switch and display three different rulers.

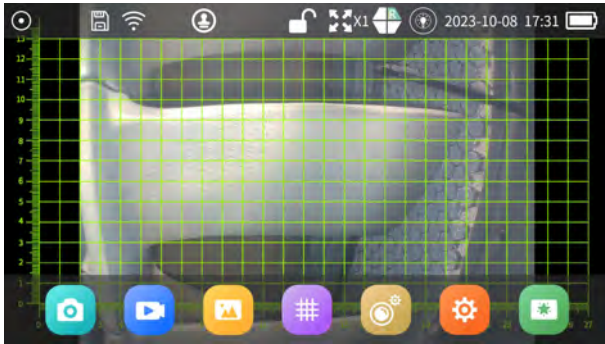


Figure 31 Grid ruler display status

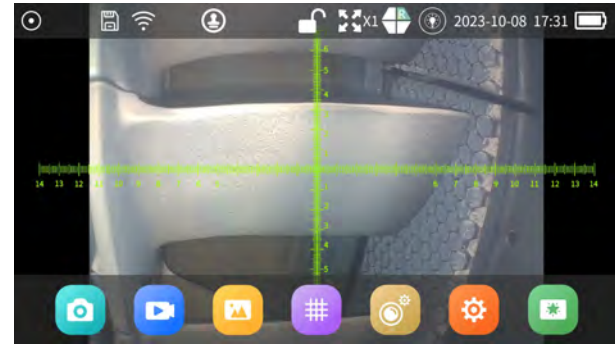


Figure 33 Cross ruler display status

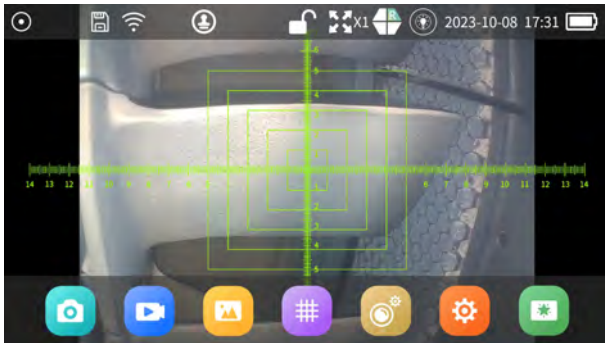


Figure 32 Cross grid ruler display status

4.7.12 Lens setting:



Press  button in the preview interface to adjust the display effect of the lens.



Figure 34 Lens setting adjustment status

4.7.13 Setting

Press  button in the preview interface to display the setting interface.

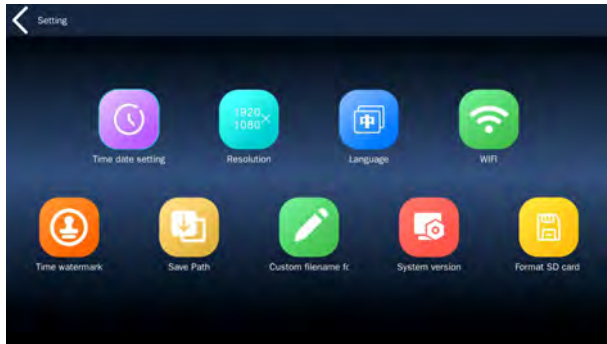



Figure 35 Setting interface status

4.7.13.2 Resolution setting:

Press  button in the setting interface to set the screen resolution.

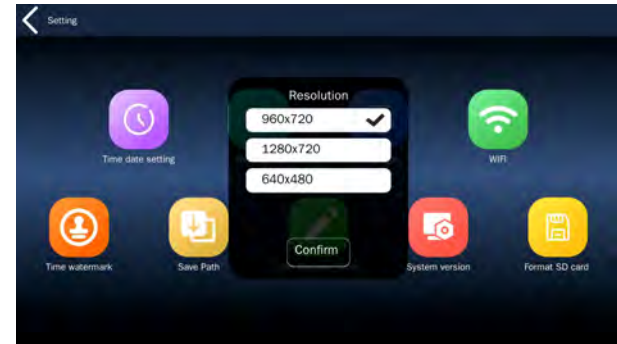


Figure 37 Resolution setting status

4.7.13.1 Time setting:


Press  button in the setting interface to set the time and date.



Figure 36 Time and date setting status

4.7.13.3 Language setting:




Press  button in the setting interface to set the system language.



Figure 38 Language setting status

4.7.13.4 Wi-Fi setting

1. Install the APP  on your phone:
For IOS system, search “VS borescope” in the APP store and install
For Android system, scan the following QR code to download and install
2. Connect your phone with the borescope

Press  in the setting interface to set the Wi-Fi status, name and password. Turn on WIFI and connect to WIFI with your mobile phone.

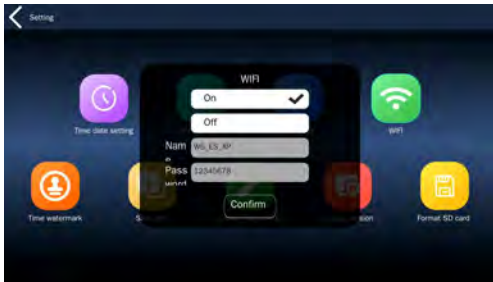



Figure 39 WiFi setting



Scan the QR code to download the APP on Android system

4.7.13.5 Time watermark setting

Press  in the setting interface to set the on/off status of the time and date watermark.

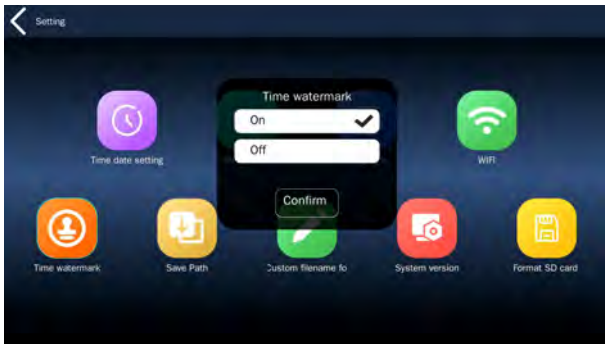


Figure 40 Time watermark setting

4.7.13.6 Storage location settings:


You can set the storage location by pressing  in the settings interface.



Figure 41 Storage location setting

4.7.13.7 Custom file name:

You can customize the file name by pressing  in the settings interface.



Figure 42 Custom file name

4.7.13.8 Check system version



Press  in the settings interface to view the system version information.



Figure 43 Check system version

4.7.13.9 Memory card formatting:

Press  in the settings interface to format the memory card.

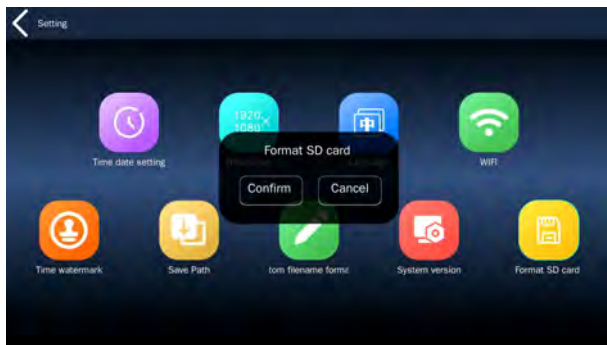



Figure 44 Memory card formatting

4.7.14 Display effect settings

Press  in the preview interface to switch the display effect to “gray” mode.

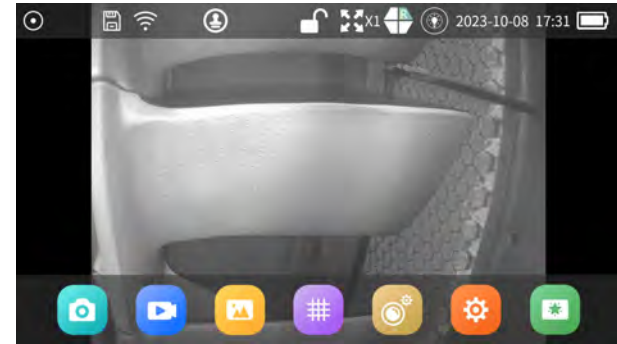


Figure 45 “gray” display effect

5. Instrument storage mode

Store the instrument at normal room temperature in a clean, dry, stable place, and keep the instrument level.

It is strictly prohibited to store the instrument in high temperature, high humidity, strong light, strong shock, high dust, pollution or corrosive environment.

When storing, do not collide with other objects or treat the instrument roughly.

When the product is not used for a long time, please remove the battery and check the function of the instrument regularly.

6. Troubleshooting

Malfunction	Possible reason	Solution
Unable to start	No battery inserted	Charge or install the battery
Cannot adjust brightness	Low battery	Charge or replace the battery
Automatic shutdown	Low battery	Remove battery, reinstall and restart, charge
Image cannot be recorded	Card Capacity is insufficient	Replace cards or delete unwanted pictures