

User Guide



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1.1 General Warning







The following warning statements apply to the use of the Hawkeye X-PLOR Video Borescopes general. Warning statements that apply to specific procedures appear in the corresponding sections of the user guide.


User Instructions


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 Hawkeye Borescope – Gradient Lens Corporation.

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

-  Do not use the Hawkeye X-PLOR to observe human or animal body
-  Do not use or store the Hawkeye X-PLOR in places with explosive, strong electromagnetic field or combustible gas, which may cause fire or explosion.
-  Do not allow the X-PLOR system to come into direct contact with voltage or current source.
-  Do not look directly into the LED in the tip of X-PLOR injury may occur.
-  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 may cause stains on the lens objective lens, resulting in blurred picture and affect data collection.

 Keep tube away from any liquids except water, salt water, oil when possible.

 Chemicals may damage the X-PLOR. For a list of substances that are safe for the Hawkeye X-PLOR, see chemical compatibility.

2. Product introduction

2.1 System Parameters

Articulation	4-way Joystick (360° Articulation)
Insertion tube	Durable Multi-Layer Stainless Steel Braid
System Language	English, Chinese, German, French, Russian, Spanish, Italian, Polish, Japanese, Ukrainian, and other languages
Screen Size	5.0 inch HD screen
Image/Video Format	JPEG/MOV
Host	Screen and handle detachable split design
Storage	Standard 32GB Micro SD card, Max support 128GB
Interface Port	Type-C port, HDMI video output port, AUX port
IP Grade	Probe IP67, Host IP54
Host working time	≥4 hours
Host weight	≤0.8kg (with battery)
Power	26650 battery (5000mAh)
Power adapter	DC 5V

2.2 Operating Environment

Host system working temperature	-10°C~50°C
Video probe working temperature	-20°C~70°C
Storage temperature	-20°C~60°C(Host)
Relative humidity	Max 90%, no condensation

2.3 What's Included

Item Number	Description	Number	Unit
1	Host	1	PCS
2	X-PLOR HD video borescope	1	PCS
3	Card Reader	1	PCS
4	Micro SD Card (TF) (32G)	1	PCS
5	26650 Battery	1	PCS
6	Carrying / Storage Case	1	PCS
7	Charging Adapter	1	PCS
8	Type-C Cable	1	PCS

9	HDMI Cable	1	PCS
11	Neck strap	1	PCS
12	User guide	1	PCS

3. Using X-PLOR Video Borescope

3.1 Unboxing Your X-PLOR Video Borescope

Open the outer box, take out the main body of the X-PLOR video borescope connect the handle and monitor, and hold the probe firmly to avoid collision with the probe.

3.2 Power up and prepare to insert the Micro SD (TF) card

3.3 Press the power button to turn on the X-PLOR

3.4 Use Your X-PLOR HD Video Borescope

X-PLOR HD video borescope. Carefully insert the XPLOR probe tip in the internal part of the inspection.

3.5 Articulation Operation

The joystick is required to control the X-PLOR tip articulation. If the joystick is suddenly resistant during the process, or any abnormalities in the operation of the borescope, please stop using it immediately. After guiding the joystick to the middle position, carefully remove the borescope from the testing products, no excessive force should be necessary.

3.6 Exit

When the joystick is centered you can safely remove probe.

3.7 After Use - Powering Down and Packing X-PLOR

Turn off the power switch and put the borescope into the portable box, split the host and the probe, and store in case (if the battery is not used for a longtime, take out the batteries)

4. Operation Guide

4.1 Preparation Before Use

Remove the borescope and insert the Micro SD (TF) card; keep the probe as straight as possible.

4.2 Articulation

The articulation is directly controlled by the joystick on the host. The direction of the joystick is the direction of the probe articulation.

4.3 Keypad and Interface

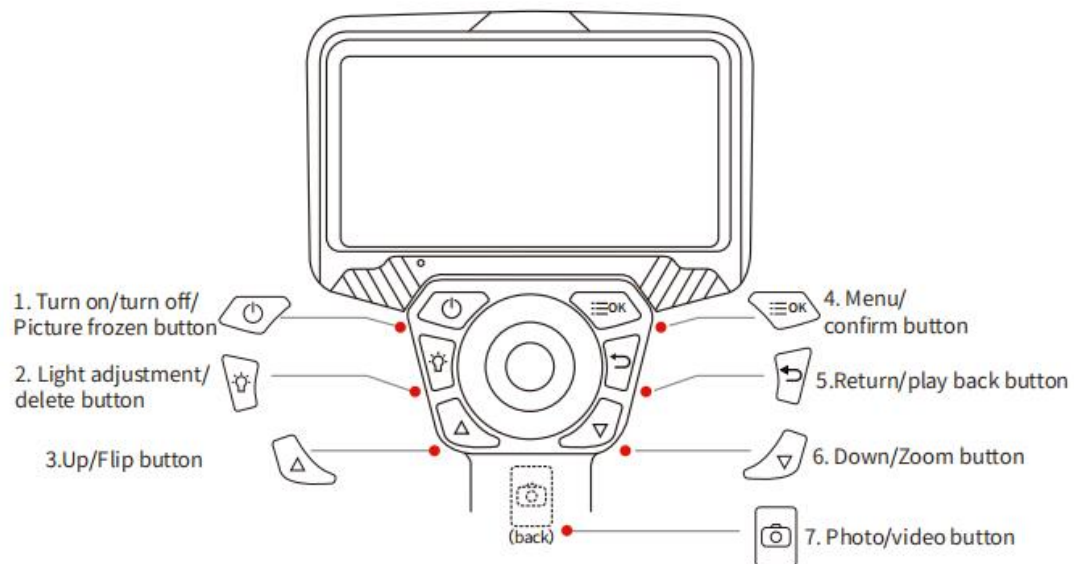


Figure 1 Keypad diagram

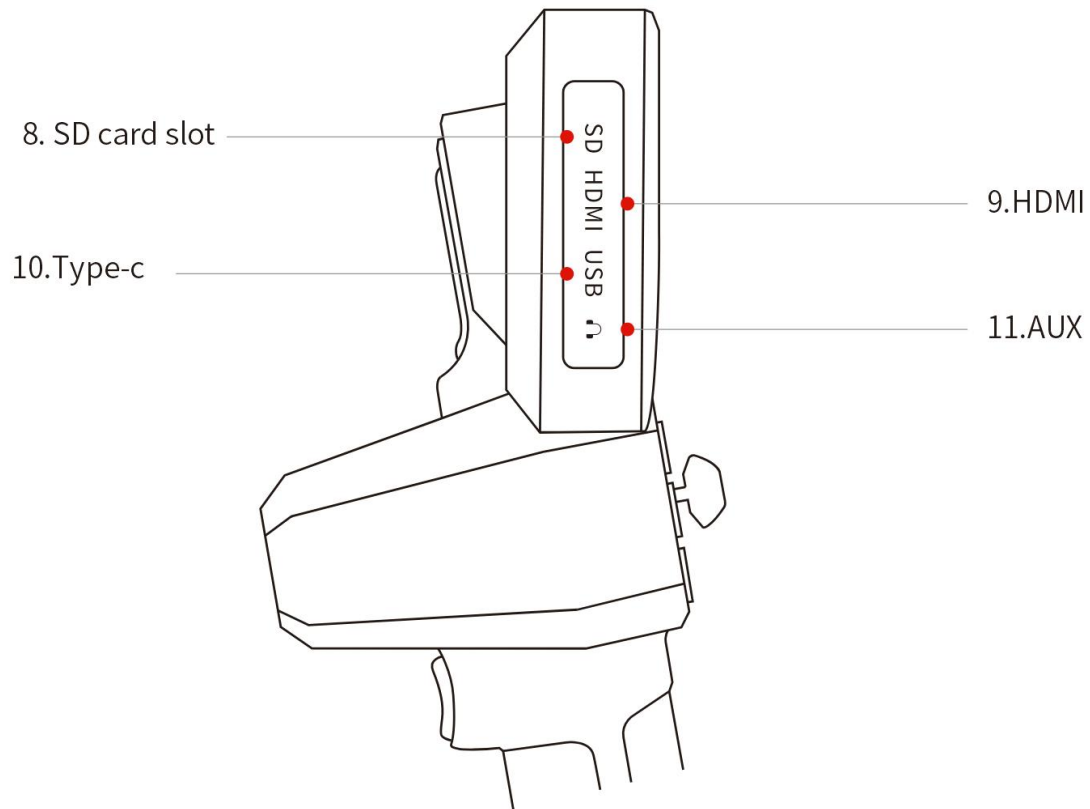


Figure 2 Interface diagram

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. 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...8.after the LED light increases to 8, press the key again, and the LED light will turn to 0, and so on
3. Up/Flip 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. 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.
6. 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.

7. Photo/video button: When the small dot icon is displayed in the upper left corner, press and hold for 3 seconds to take a picture. Press and hold for 3 seconds to enter the video mode. Press and hold for 3 seconds to return to the video mode and save the video file
8. Micro SD (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

4.4 Battery Removal, Charging and Storage

The battery cover is at the bottom of the handle. Use a phillips screwdriver to remove the 4 screws and open the cover to take out the battery.

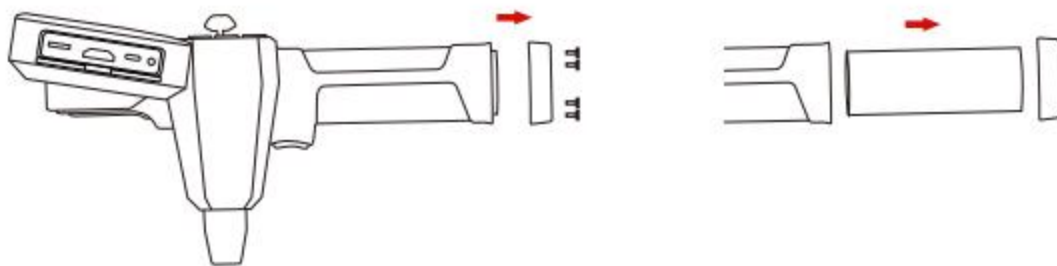


Figure 3 Demonstration of battery remove

You can also directly connect the Type-C cable to charge while in operation. The screen has a charging logo in the upper right corner of the screen.

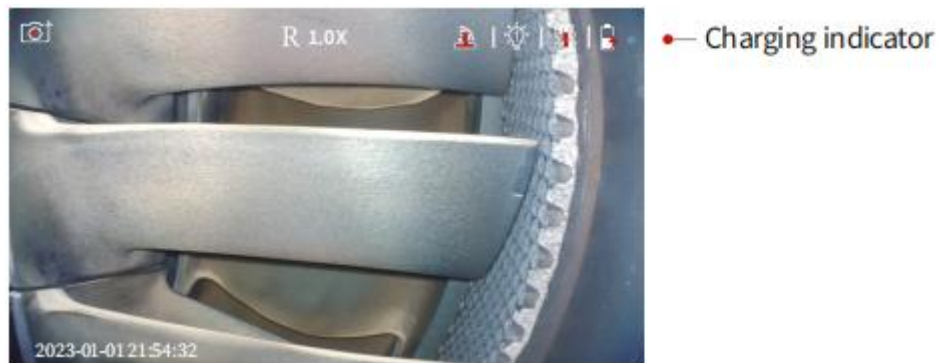
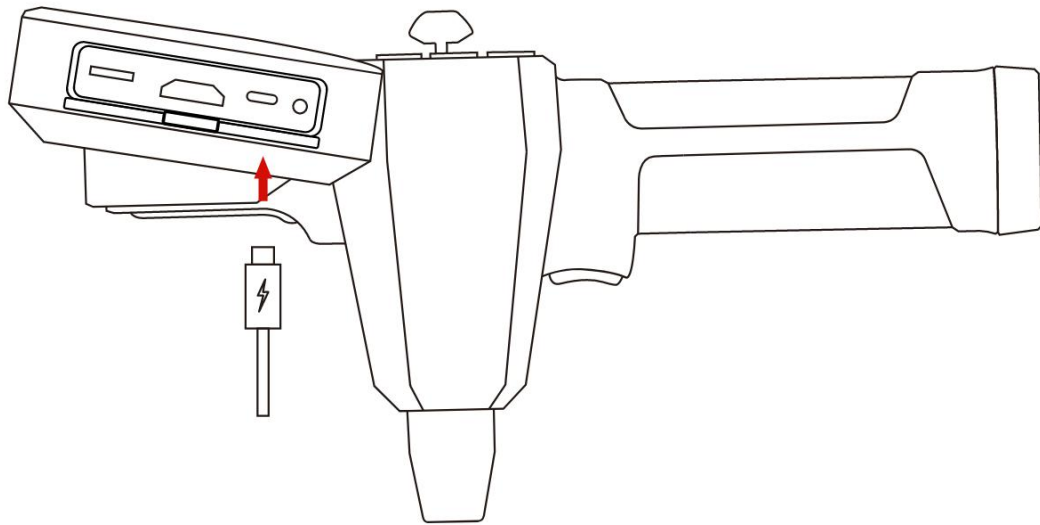


Figure 4 Charging diagram

When charging, the indicator light below the screen shows red, and when the battery is full, the indicator light shows green.

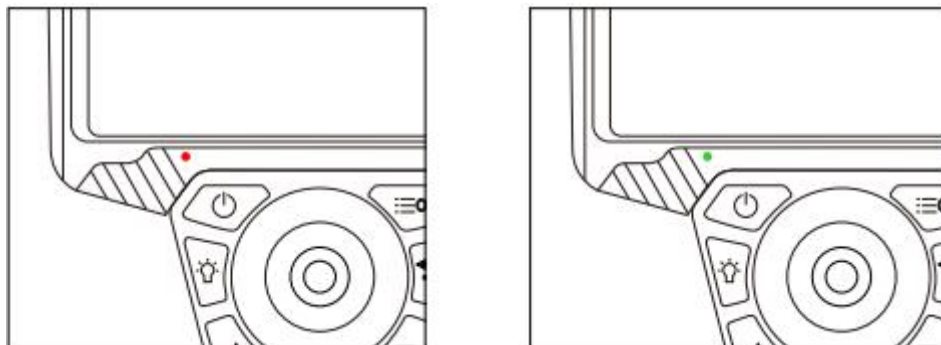


Figure 5

4.5 Split Screen and Install Screen

Hold the handle tightly and pull up the screen to separate it; to install the screen, just align it with the slot and press down firmly.

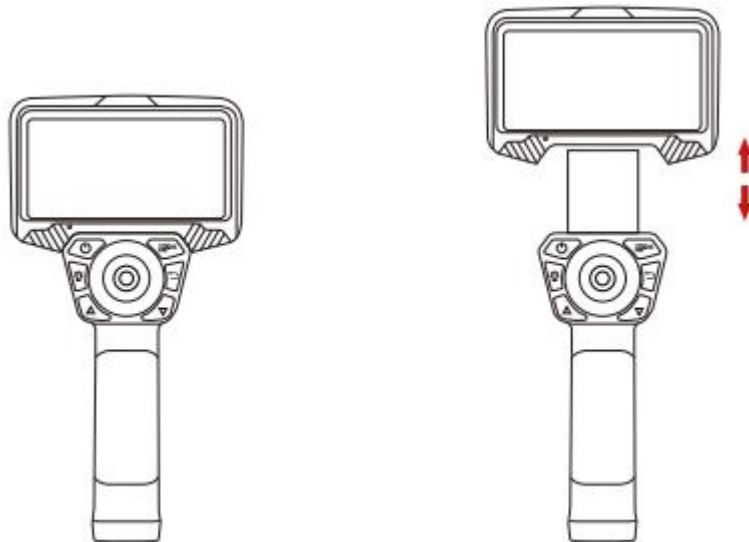


Figure 6

4.6 Data Reading

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

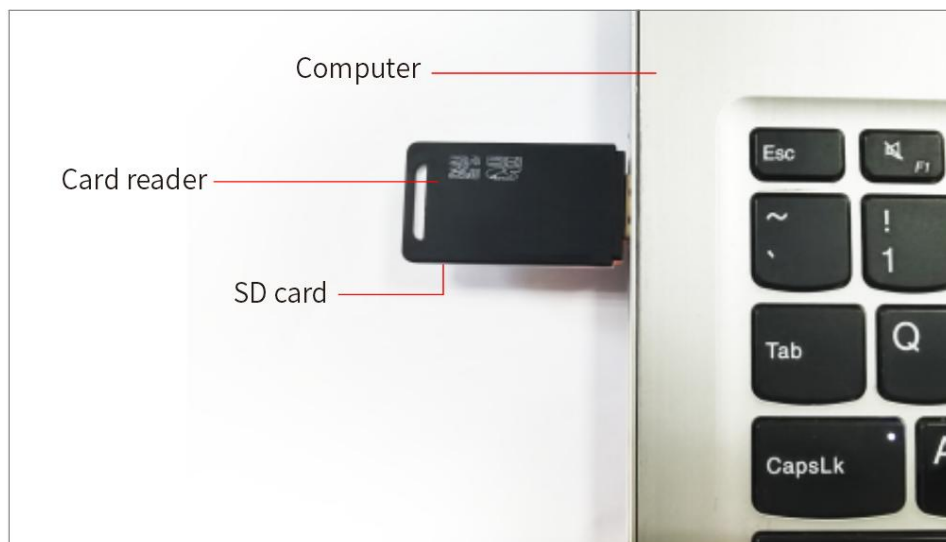


Figure 7 Schematic diagram of card reader reading

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

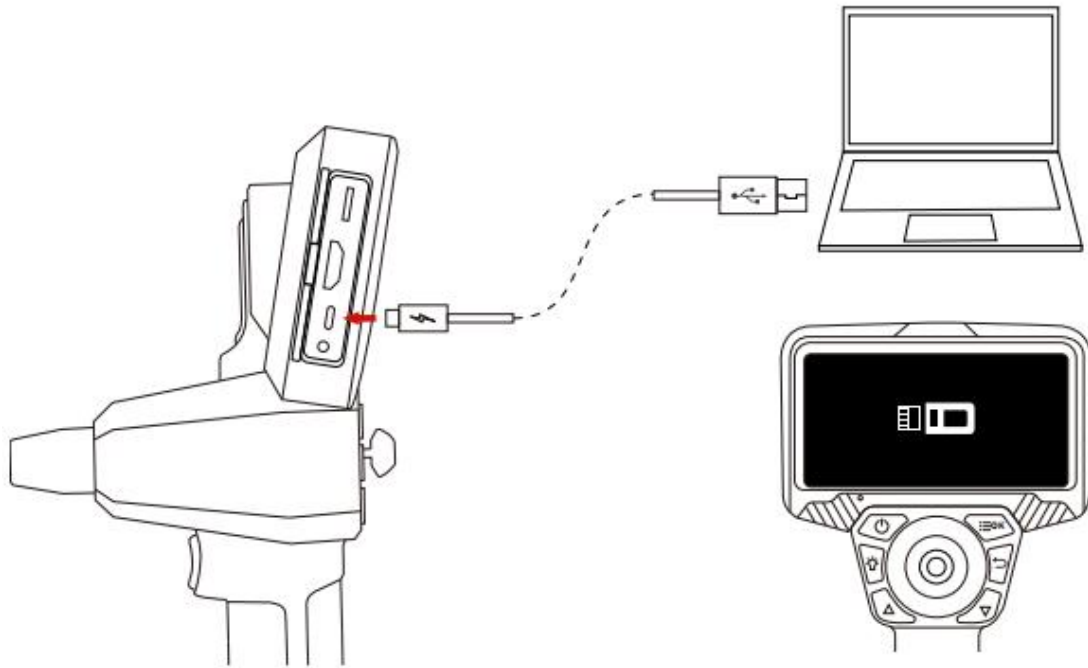









Figure 8 Direct connection to read data

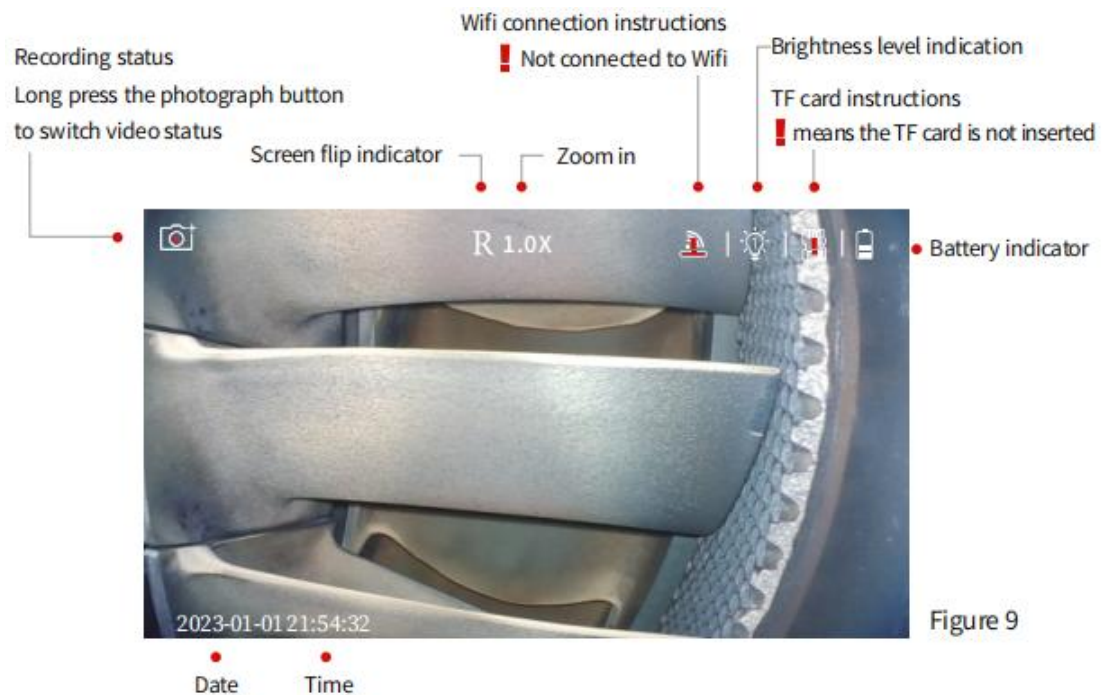
4.7 X-PLOR HD Video Borescope Working Mode Guide

The video borescope system mainly has 3 working modes: "live mode", "photo video browsing mode" and "system setting mode". After powering on, it will enter the "live mode" by default. Please refer to "Table 1 Button Function List" for details of the button functions in the mode.

4.7.1 Key Functions

Keypad	Name	Live interface	Browsing	Play video	System setup	Time setup
	On/Off/Picture frozen button	Off/Picture frozen button	Long press to power off	Long press to power off	Long press to power off	Long press to power off
	Light adjustment /Delete	Light adjustment	Delete	Delete	/	/
	Up key/Rollover key	Image flip	Navigate up	Navigate up	Navigate up	Navigate up
	Menu Confirm	Enter menu	confirm/zoom	Suspend play	confirm	confirm
	Back/Playback key	Photo/ video browsing	Back	Back	Back	Back
	Down /zoom key	Image scaling/Long press the hide icon	Navigate down	Navigate down	Navigate down	Navigate down
	Photo/Video key	Photo/ Video	Back	Back	Back	Back
	Joystick	Joystick UP: Probe swings up				
		Joystick Down: Probe swings down				
		Joystick Left: Probe wings left				
		Joystick Right: Probe swings right				

4.7.2 Preview Software Interface




4.7.3 Installing the Micro SD (TF) Card

Without inserting the SD card, the device will display "no SD card" when taking photos or videos.

Please insert the SD card in the SD card slot.



4.7.4 Photo/Video

Short press the  button to capture photos and long press the  button to record video.

When recording, you can short press the button to capture photos while recording video and long press to exit video recording and save.




Figure 12 Photo Mode



Figure 13 Recording Mode

4.7.5 Photo/Video Review

Press in the preview interface, Press the key  to enter the file, and you can preview photos and play videos.

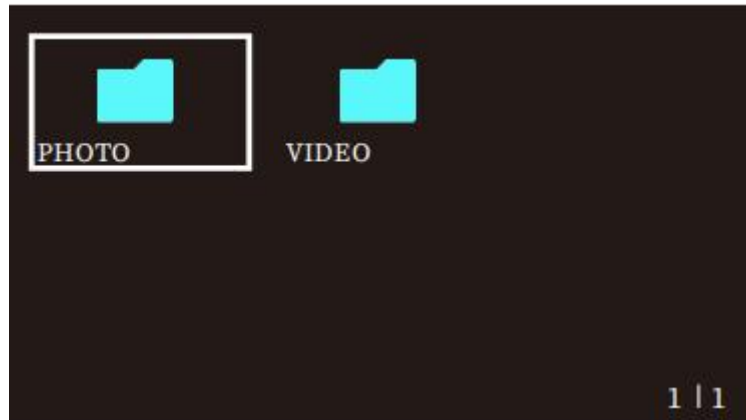


Figure 14 Files

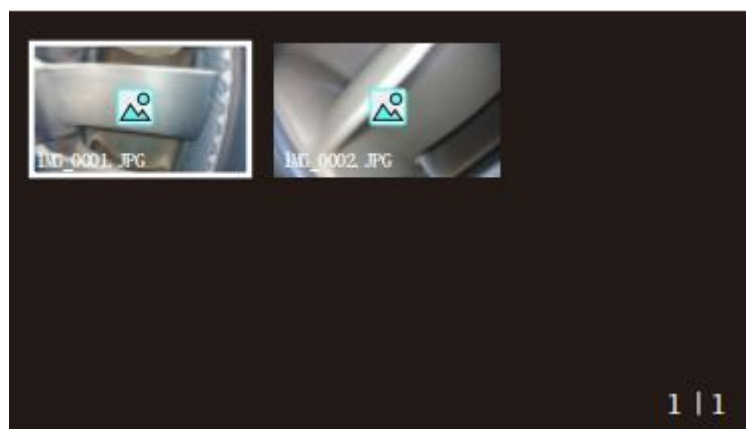


Figure 15 Photos files

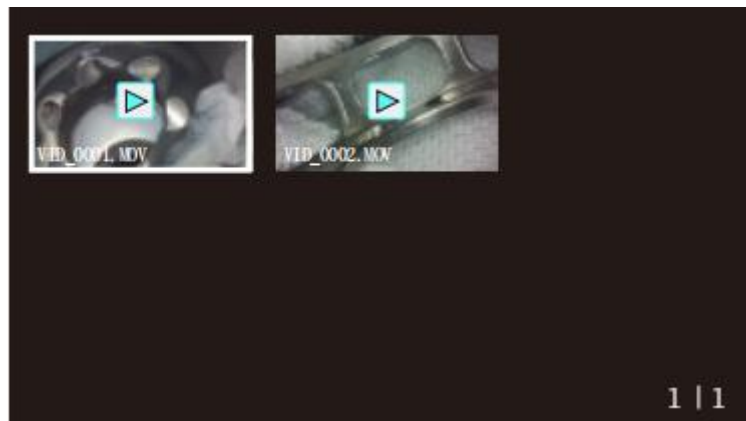


Figure 16 Videos files


Press  key in the file folder to preview photos or play videos in full screen.





Figure 17 View photos in full screen mode



Figure 18 Video not display mode



Figure 19 Video playing mode

When previewing photos or videos in full screen and not playing, press  and  to scroll up or down photos and videos


During video playback, press  and  to fast forward or rewind the video



Figure 20 Video fast forward



Figure 21 Video rewind

Press  to delete photos, video files or folders, and the delete option can select single or multiple files.

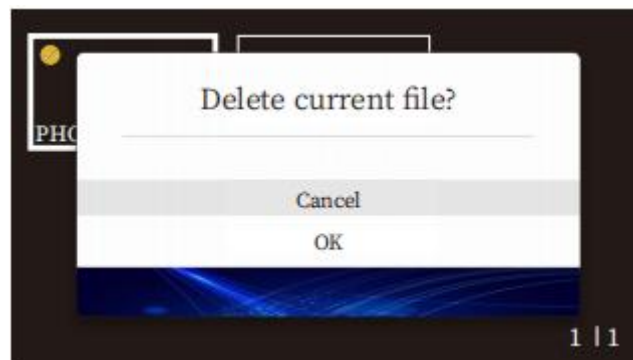


Figure 22 Asking for deletion status

4.7.6 System Settings

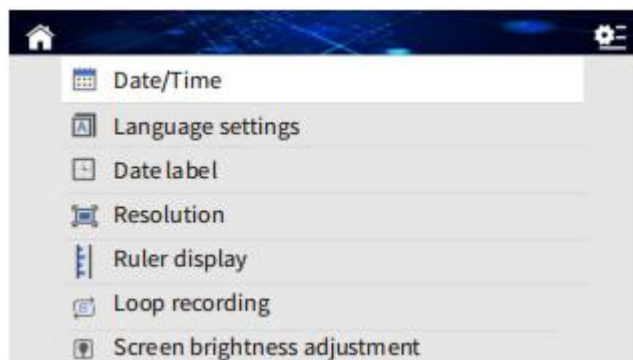






Figure 23 Setting interface

4.7.6.1 Date and Time Settings

Press  to enter the date and time setting interface.

Press  and  to add or subtract, and press  to switch.

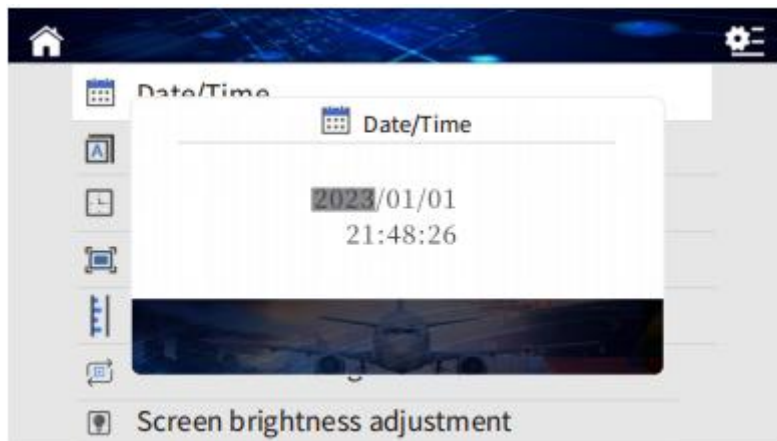



Figure 24 Date and time setting interface

4.7.6.2 Language Settings

Select "Language Settings" in the setting interface and press  to enter the language setting interface.

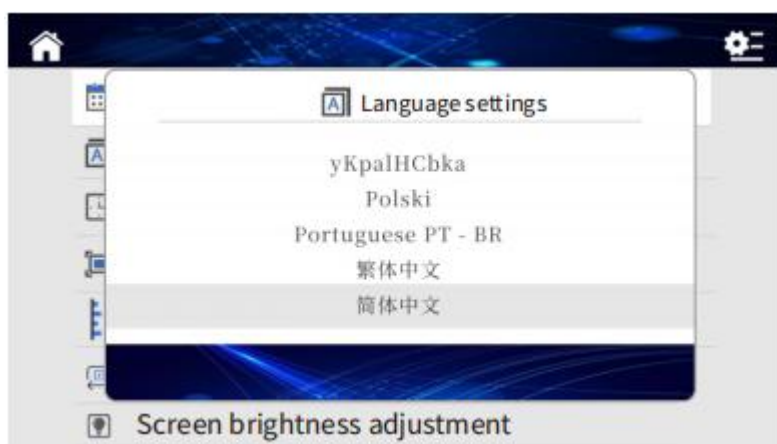



Figure 25 Language setting interface

4.7.6.3 Date Label

Select "Date Label" in the setting interface and press  to enter the date label setting interface.

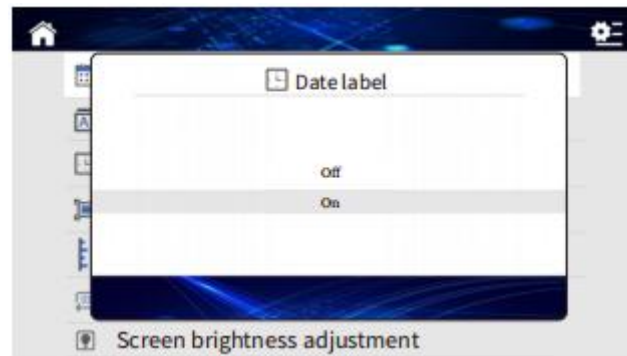


Figure 26 Date label settings

The shooting time and date will be displayed in the lower right corner of the file taken with "Date Tag" turned on, but not with the shooting time and date.





Figure 27 Open the date label and shoot



Figure 28 Close date label and shoot

4.7.6.4 Resolution

Select "Resolution" in the setting interface and press  to enter the resolution setting interface.

Select the desired resolution and press  to complete the setting.

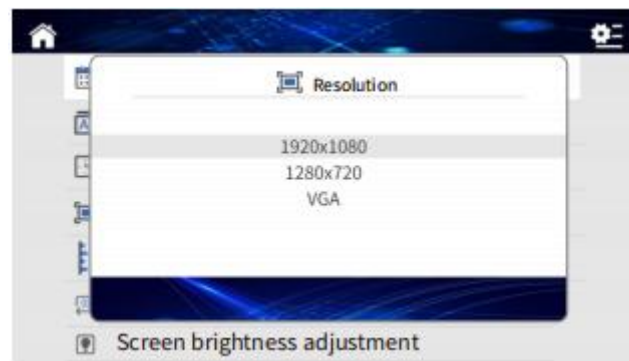



Figure 29 Resolution settings

4.7.6.5 Ruler display

Select ""Ruler Display" in the setting interface, and press  to enter the ruler display setting interface to select the desired ruler mode.

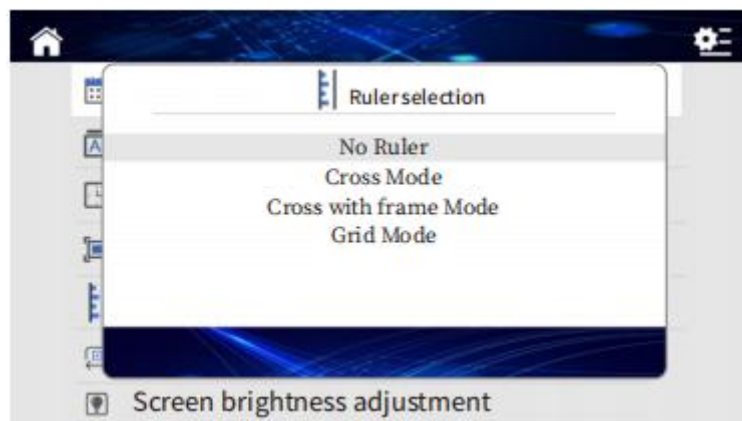


Figure 30 ruler display

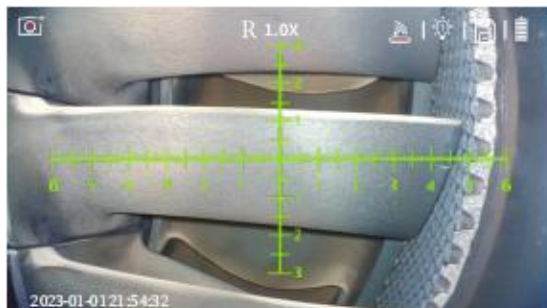


Figure 31 Cross mode

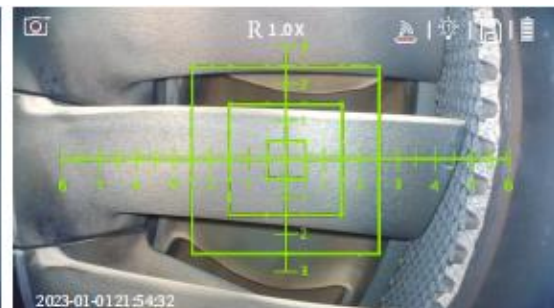


Figure 32 Cross frame mode

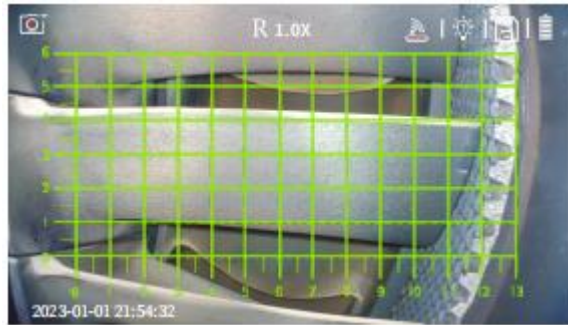



Figure 33 Grid mode

4.7.6.6 Loop Recording

Select "Loop Recording" in the setting interface, press  to enter the loop recording interface, and select the time interval for saving images.

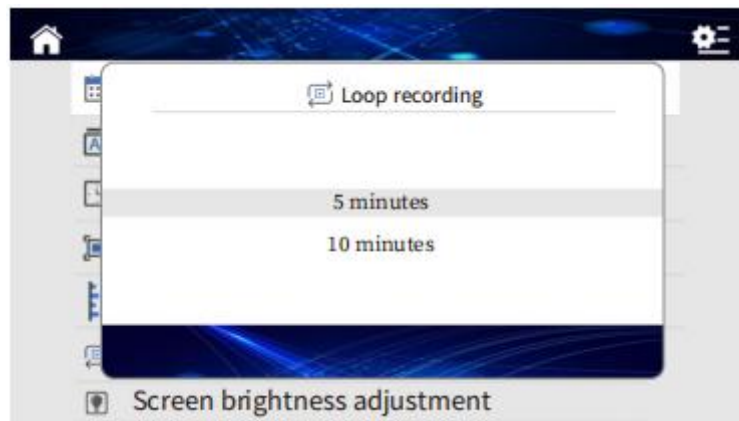



Figure 34 Loop recording

4.7.6.7 Screen Brightness Adjustment

Select "Screen Brightness Adjustment" in the settings interface, press  to enter the screen brightness adjustment interface, and select the screen brightness level.

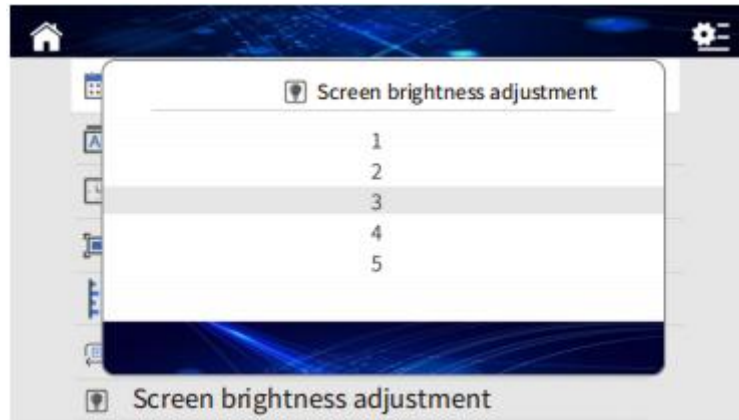


Figure 35 Loop recording

4.7.6.8 Wi-Fi



Select "Wi-Fi" in the setting interface, press the button  to enter the Wi-Fi setting interface and choose to turn on or off the WiFi function, and connect WiFi with a mobile phone, a tablet.



Figure 36 Wi-Fi setting

Install APP "DVRRunning2"  from Apple Store or Google Play

To get started:

- ✓ Download DVRRunning2 (free) from the Google Play Store or Apple App Store
- ✓ Power on your borescope and enable its built-in WiFi



✓ Connect your phone to the borescope's WiFi network




✓ Launch DVRRunning2 on your phone — the live feed appears instantly, snapshot and video recording features.



Figure 37 WiFi connection

4.7.6.9 Format

Select "Format" in the setting interface, press the button  to enter the formatting interface, and choose whether to format the data.

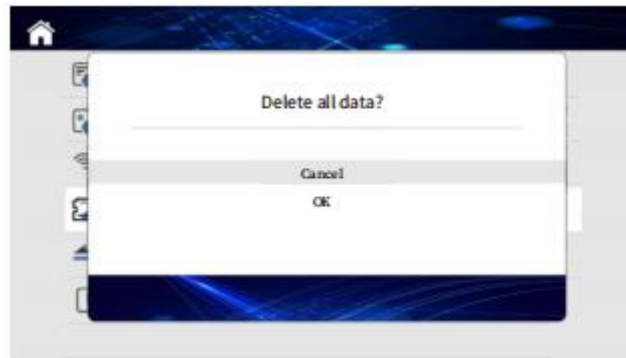



Figure 38 Format setting

4.7.6.10 Default Settings

Select "Default Settings" in the settings interface and press  to choose whether to restore the default settings.

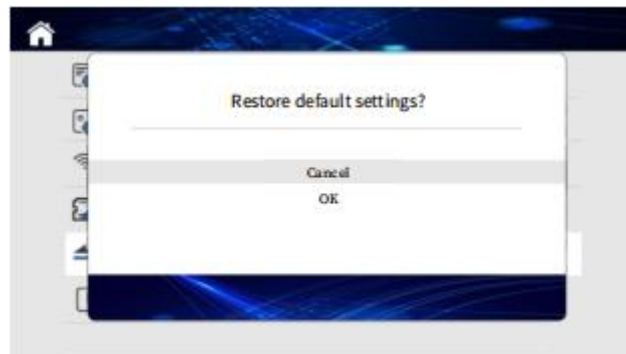


Figure 39 Default settings

4.7.6.11 Version

Select "Version" in the settings interface to view the software version information of the device

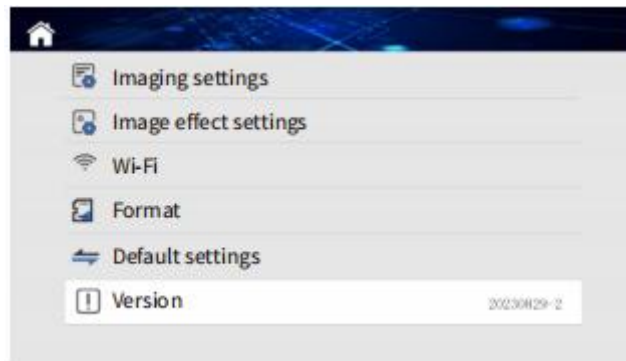


Figure 40 Version information

4.7.7 Battery Status

When the borescope is running, the battery indicator icon on the upper right side of the screen displays the real-time battery status. When the battery is too low to continue working, the battery indicator icon will show 0. At this time, the system will issue a low battery alarm and automatically shut down after 30 seconds.




Figure 41 Battery status



Figure 42 Low battery status

4.7.8 LED Brightness and Display Setting

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...8, after the LED light increases to 8, press the key again, and the LED light will turn to 0, and so on.

grade 0 len brightness indicator




Figure 43 preview status


grade 8 len brightness indicator





Figure 44 Len grade 8 brightness status

5. X-PLOR Storage

 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 card or delete unwanted pictures

Maintenance

Cleaning the System

Clean the exterior of the Hawkeye® X-PLOR with a soft, damp cloth. Clean the optical surfaces at the tip, as well as the Touch Screen with the supplied lens cleaning solution, or a commercial glass cleaner. Use a soft non-scratching cloth or the included cotton swabs or equivalent.



DO NOT use strong solvents such as acetone on the Hawkeye® X-PLOR.

Chemical Compatibility

Chemical compatibility refers to the probe's ability to withstand contact with various liquid substances for short periods of time and not be damaged.



DO NOT use the Hawkeye® X-PLOR Video Borescope in explosive environments.

These substances are safe for a short duration of contact with the insertion tube:

- Water
- Aircraft Gasoline
- Jet-A-Fuel
- Isopropyl alcohol
- JP-4Fuel
- Kerosene
- Synthetic Turbo Oil
- Gasoline
- Diesel Fuel
- Hydraulic Oil
- Inhibited Transformer Oil

After contact with the above fluids, the insertion tube must be cleaned using soap and water and then dried prior to returning the Hawkeye® X-PLOR Video Borescope to the case for storage, The foam in the storage case is not compatible with these chemicals.

Sales and Technical support

Gradient Lens Corporation

4647 Jackson Lane, Unit D

Phelan, CA 92371

Phone: 585-235-2620

www.hawkeyeborescopes.com

info@gradientlens.com

Toll Free: 800-536-0790

Service

To obtain service for a Hawkeye® X-PLOR Video Borescope, please contact your reseller or Gradient Lens Corporation directly. If the problem cannot be corrected over the phone, a Return Materials Authorization number (RMA) will be issued along with instructions for shipment to an authorized service center.

Warranty

Gradient Lens Corporation warrants that all Hawkeye® Borescopes and accessories will be free of defects in materials and workmanship for one year from the date of first retail purchase. Video and lighting products have manufacturer's warranties for one year. This warranty does not cover breakage or failure due to tampering, misuse, neglect, accidents, improper installation, modification, shipping, or to improper maintenance, service, and cleaning procedures. This warranty is also void if the instrument is not used in accordance with the manufacturer recommendations or if required service is performed by anyone other than a Gradient Lens Corporation authorized agent. NO OTHER EXPRESS OR IMPLIED WARRANTY IS GIVEN.



PRECISION BORESCOPIES

4647 Jackson Lane, Unit D

Phelan, CA 92371

www.hawkeyeborescopes.com

info@gradientlens.com

585.235.2620 800.536.0790