

Industrial Borescope

User Manual

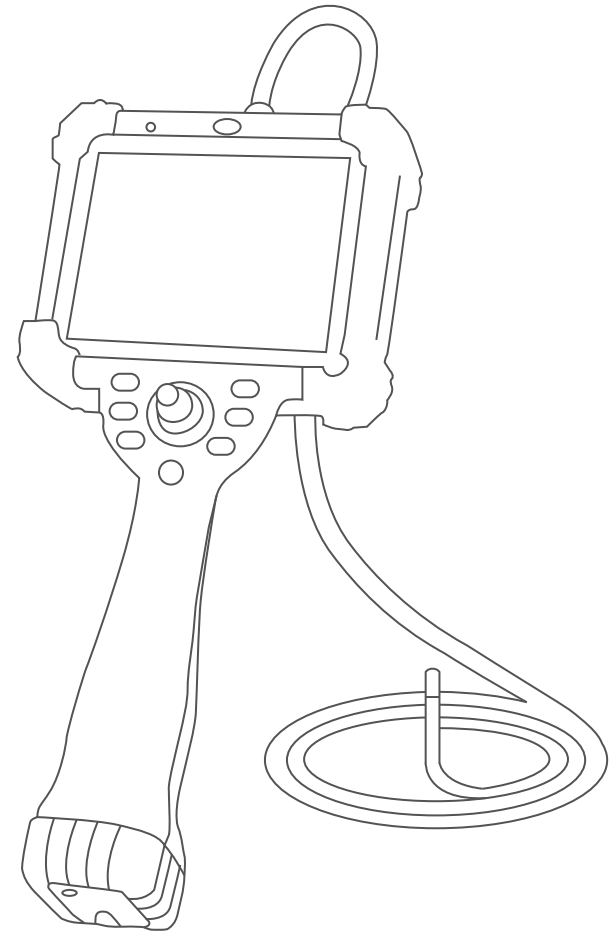
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Warning: Before using this machine, be sure to read the instructions for use

Precautions

- Do not hit against or knock the inside of the probe for it is composed of precision electronic components.
 - It is strictly forbidden to pull, bend or twist the insertion tube which consists of precision light tube elements.
 - The pipeline shall be straightened for use as far as possible.
 - When the light is on, due to the strong light, it is strictly forbidden to irradiate the eyes.
-
- The ambient temperature of the probe shall be within the range of -20°~+70°. If it is used beyond the range, the imaging of the probe will be abnormal or damaged.
 - Please do not use it in any combustible gas or liquid for this may cause fire or explosion.
 - Please do not put the lithium battery in water for this may cause damage or battery explosion.
 - The design grade of the machine body is IP65. Do not wash it with water or use it in the rain.
 - It is strictly forbidden to violently use the probe guide operating rocker which is composed of precision accessories.
 - Do not use metal or other hard objects to operate the touch screen, so as to avoid scratches or damage.
-
- This equipment is a dedicated precision instrument with complex internal structure and circuit. If there is any problem, please contact the after-sales personnel for treatment. Do not disassemble it without permission or by a third party. Any problems caused by private behavior will not be included in the scope of after-sales service.
 - It is forbidden to use this instrument to observe human body or animal body, or the consequences will be borne by yourself.
 - It is forbidden to use or store it in explosive, strong electromagnetic field and combustible gas places, or it may cause fire or explosion.
 - It is forbidden to operate it for the tested object under live conditions, so as to avoid electric shock.
 - Do not directly touch the end of the lens during use, especially after the endoscope is used in a high temperature environment, because contact with the end at this moment may cause burns.
-
- Do not look directly at the strong light source emitted by the LED at the end of the endoscope probe, so as to prevent the strong light from affecting the vision.
 - Do not bend, stretch, twist or roll the probe pipeline violently, or the equipment may be damaged.
 - Long-term use of this product will stain the objective lens, leading to fuzzy image that affects data acquisition. Please wipe the objective lens with alcohol or acetone before use.
 - In case of any abnormality during the angle adjustment, stop the current operation and shut down the instrument. Then, contact the supplier.
 - Keep the insertion tube away from any liquid other than water, brine, machine oil and light oil.
 - After use of the instrument, please clean the front section of the insertion tube of the instrument in time to prevent corrosion.

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I. Packaging Configuration and Product Function Introduction

2.1 Packaging Configuration

Check all items in the package according to the parts shown in the list and images. If any item is missing or damaged, please contact your authorized dealer immediately.



S/N	Description	Qty	Unit
1	Machine body of endoscope	1	Set
2	Transmission signal line	1	Pcs
3	USB flash disk (32G)	1	Pcs
4	Battery pack	1	Set
5	Instrument container	1	Pcs
6	A-frame	1	Pcs
7	Power adapter	1	Set
8	Portable straps	1	Pcs
9	Touch pen	1	Pcs
10	Instructions	1	Copy
11	Product Quality Certificate	1	Pcs
12	Warranty card	1	Pcs

2.2 Product Function Introduction

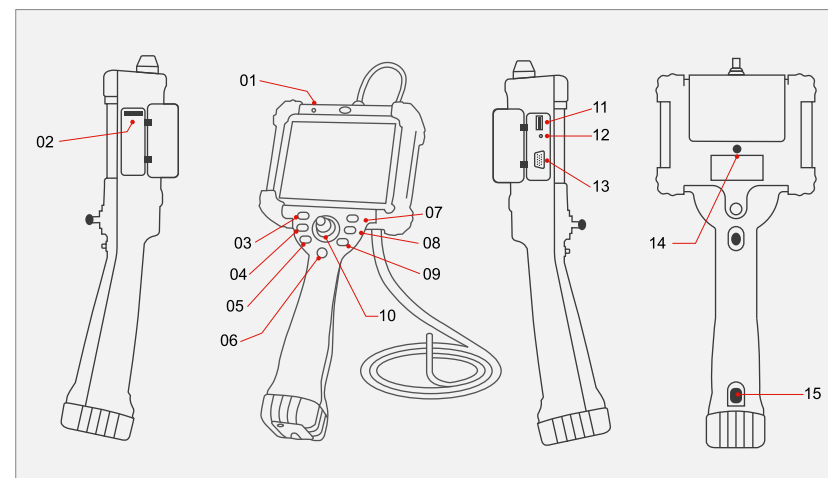


Fig. 1

- | | | |
|------------------------|-------------------------------|-----------------------------|
| ● 1 Indicator light | ⏮ 6 Menu navigation key | USB 11 USB-2 interface |
| USB 12 USB-1 interface | ☀ 7 Brightness adjustment key | 🎧 12 Headset socket (3.5mm) |
| ⏻ 3 Power On key | ❄ 8 Screen Freeze key | 📺 13 VGA interface |
| ↩ 4 Return key | 📹 9 Video key | ⚙ 14 1/4 threaded hole |
| 📷 5 Camera key | 🔍 10 Probe guide rod | 🔋 15 Battery button key |

2.2.1 Indicator Light:

After power-on, the power-on indicator light is green. (Fig. 2)

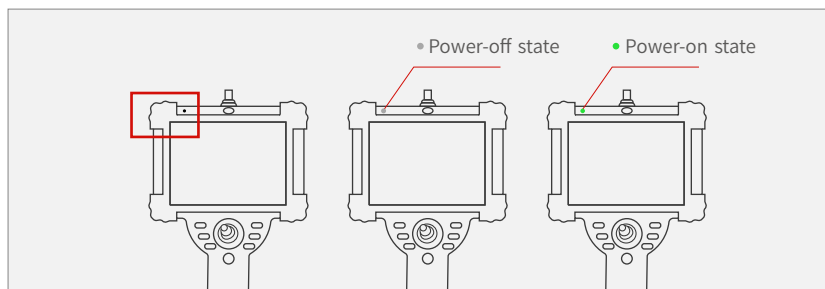


Fig. 2

2.2.2 USB-1 Interface

The USB-1 interface can be used as an external USB flash disk and adopts a rotary design. When in use, rotate the interface outward and insert it into the USB flash disk (Fig. 3).

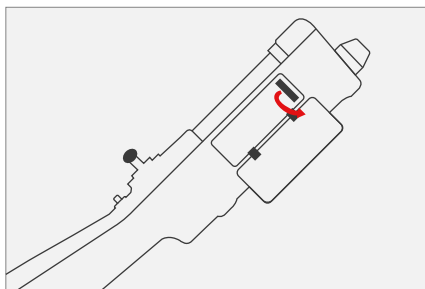


Fig. 3

II. Preparations before Use

3.1 Check the Insertion Tube

- Check the insertion tube for damage. If there is steering function, please confirm whether it is normal.
- Check the lens for damage.
- Check the lens for foreign matters or dirt. If so, please wipe it with dust-free cloth or dry towel.

3.2 Check the Battery Power

- The back of the battery pack consists of a battery power display key and four LED lights (see Fig. 4).
- Long press the battery power display key for 3s to display the current power status.
- If all four lights are on, the battery power is 76%-100%.
- If three lights are on, the battery power is 51%-75%.
- If two lights are on, the battery power is 26%-50%.
- If one light is on and green, the battery power is 4%-25%. If it is orange, the battery power is 1%-3%.
- If the power is displayed in orange, the system will shut down automatically 3 minutes later! Please charge it immediately!

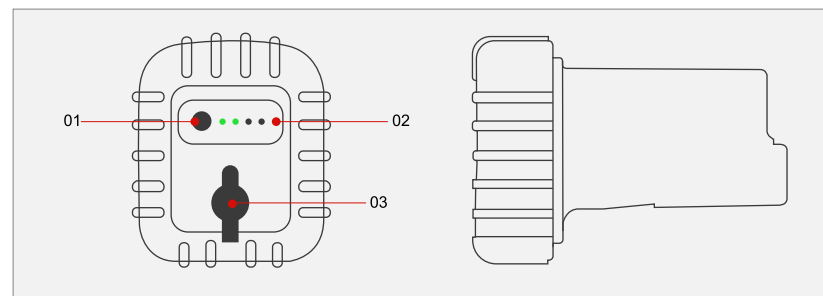


Fig. 4

- | | | |
|------------------------|-------------------------------|--------------------|
| ⚡ 1. Power Display Key | ●●●● 2. Power indicator light | 🔌 3. Charging port |
|------------------------|-------------------------------|--------------------|

3.3 Charging

- (a) Open the dust cap of the charging port;
- (b) Insert the charger.

- During charging, the power indicator light will flash according to the current status, and the charging function will be automatically off after the battery is full (all LED lights are off).
- Do not use non-original charger. The purpose is to avoid damaging the battery pack or causing an explosion.

3.4 Battery Disassembly

Press and hold the battery button key and pull out the battery in the opposite direction of the machine body of endoscope. (Fig. 5)

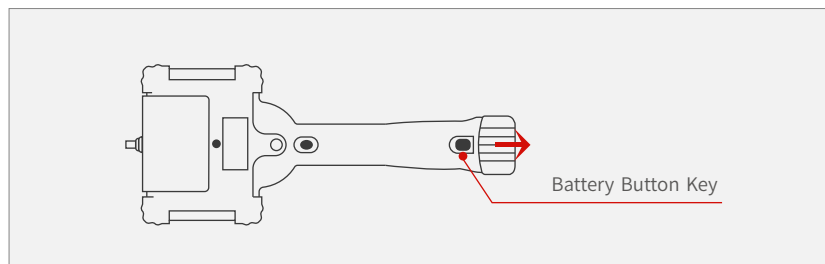


Fig. 5

3.5 Battery Assembly:

Insert the battery into the machine body of endoscope in the direction shown in the Figure below.

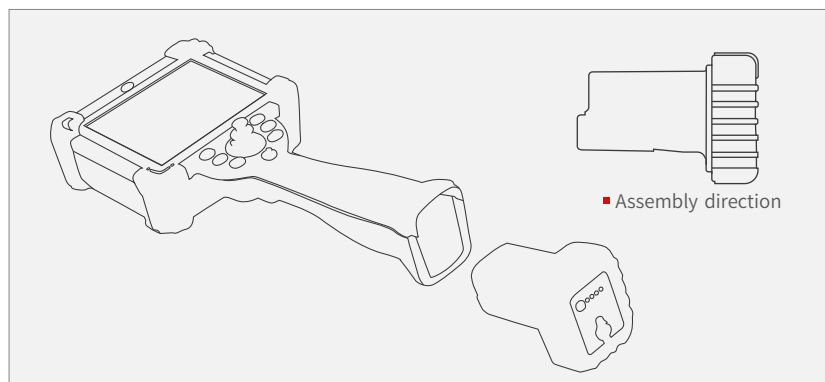


Fig. 6

III. System and Function Introduction

4.1 Power-on


Long press the Power On/Off key  for 3s, and the power-on indicator light turns green, indicating that the endoscope has been started normally; after power-on, it will automatically enter the real-time preview interface of endoscope. (As shown in the Figure below)



Fig. 7

4.2 Interface Introduction

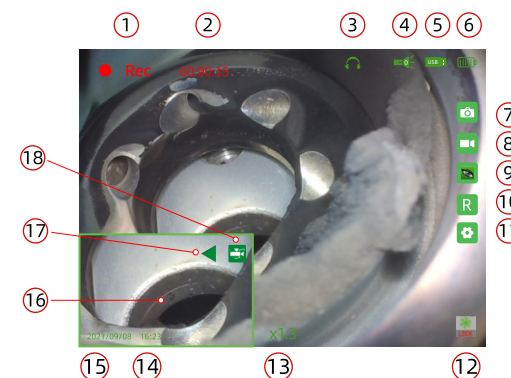


















Fig. 8

- | | | |
|--|---|---|
| ● Rec 1. Video mode |  7. Camera key | x1.3 13. Preview proportion |
| 00:00:15 2. Record time |  8. Video key | 16:23 14. Time |
|  3. Headset insertion mode |  9. Photos/video playback button | 2021/09/08 15. Date |
|  4. Brightness level |  10. Screen rotation key |  16. Side lens interface |
|  5. USB insertion mode |  11. Setting key |  17. Hidden symbol |
|  6. Battery power indicator light |  12. Screen Freeze |  18. Direct\side view switching symbol |

4.3 Photographing



Press Camera key  or  to take photos.

4.4 Video

Press video key  or the video button to start recording. After recording, the recording time and recording status **Rec 00:00:15** will be displayed in the upper left. Then, press video key  or click pause recording button  to stop the recording operation.

You can also take photos under the video mode.

4.5 Brightness Adjustment

Press brightness adjustment key  to adjust the brightness of the probe. The number  in the brightness level icon in the interface is the current brightness level of the endoscope.

4.6 Probe Control

The bending angle of the probe is controlled by the rocker.

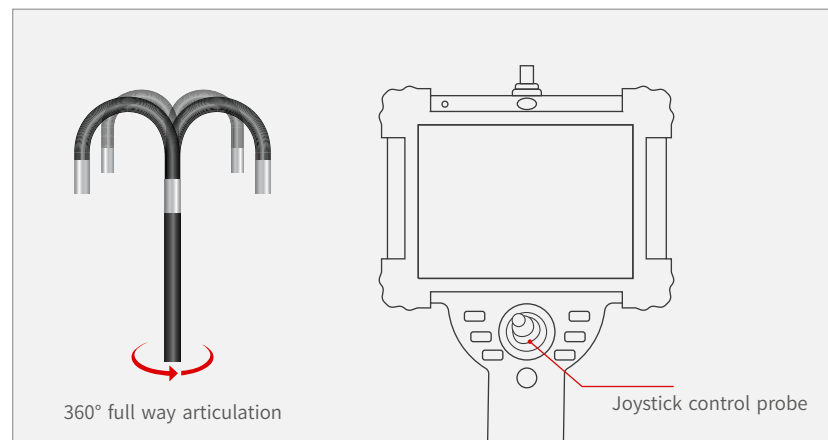





Fig. 9

4.7 Image Rotation

The orientation of the letter "R" in the figure is the current image rotation state. Click image rotation key  to rotate the image 180 degrees  clockwise an display in mirror image  state.




4.8 Image Zooming

Operate the up/down direction of the menu navigation key to dynamically adjust the display scale of the screen; the default preview scale is X1.0: zoom-in by 0.1 times by the up operation menu navigation key, or zoom-out by 0.1 time by the down operation menu navigation key. At most X3.0 zooming is supported.



Fig. 10

4.9 Screen Freeze

In the camera preview state or video state, press screen freeze key  to freeze the current screen. During freezing, freeze icon  pops up in the lower right corner; press screen freeze key  again to release the screen freezing operation.

4.10 Photo/Video Playback


Click photo/video playback key  to enter the photo/video playback interface (as shown in Fig. 11).



Fig. 11

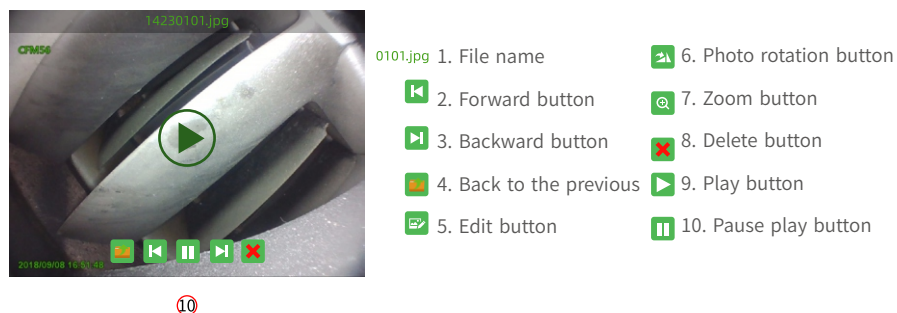








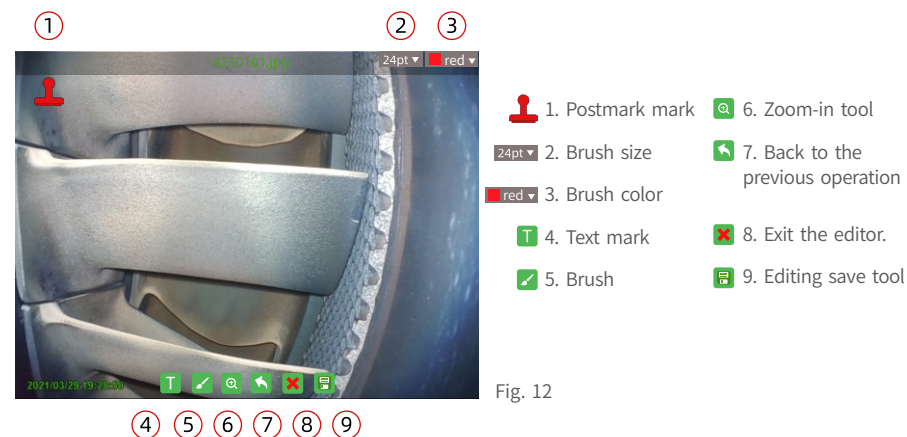


Fig. 12

- Click backward/forward button  /  to switch to the previous photo or video.
- Click back to previous button  to return to the storage path.
- Click delete button  to delete the current file.
- Click photo rotation button  to rotate the current photo.
- Click zoom button  to zoom the current photo.
- Click play button  to play the video.
- Click pause button  to pause the current video playback.

4.11 Image Edit



4.11.1 Postmark Tool



Click the postmark  icon → Select the required text size and color → Click the annotation text under the postmark → Select the placement area → End. The postmark content can be customized and changed.



Fig. 13

4.11.2 Text Tool

Click text tool , select the placement area, pop up the handwriting input panel, and select the required text size and color. After input, click the "Insert" button in the lower right corner of the wordpad to complete the text input. Click to switch to touch key mode to quickly input English letters.

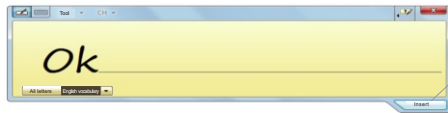


Fig. 14



Fig. 15

4.11.3 Brush Tool





Click brush tool , and select the required brush line width and color in the upper right corner. Make arbitrary graffiti marks in the photo area, as shown in the red circle in the Figure below. Click back to previous operation button  to return to the previous operation.



Fig. 16


4.11.4 Zoom-in Tool

Click zoom-in tool  to zoom in and preview the photo. The magnification times are displayed above zoom-in tool .


4.11.5 Back to the Previous Operation

Click back to previous operation button  to return to the previous operation.

4.11.6 Exit the Editor

Click Exit the editor , and the prompt box of "Exit image editing" will pop up on the display screen.

4.11.7 Save/Save as

After editing the photo, click Save tool ; after the Save option box pops up, double click "Replace the original file" to replace the original photo with the edited photo, and double click "Save as" to add (2) after the current photo and save the original photo (as shown in the Figure below).

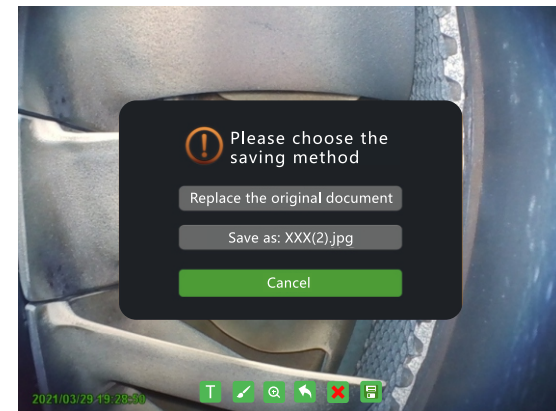



Fig. 17

4.12 Setting Interface

Press the middle key of the menu navigation key or click the setting button  to enter the system setting interface.

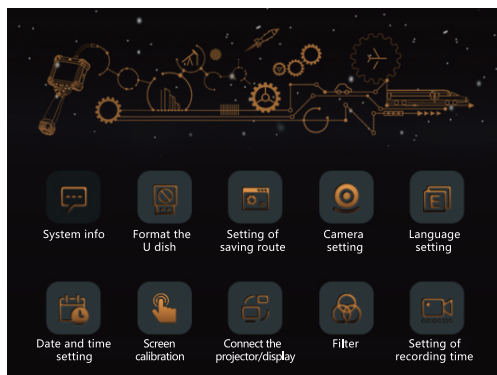


Fig. 18

4.13 Storage Path Setting

Click "Storage path setting"; enter the storage path setting interface (as shown in the Figure), and double click and select the corresponding folder; after selecting the path, click "OK" to complete the setting of storage path.

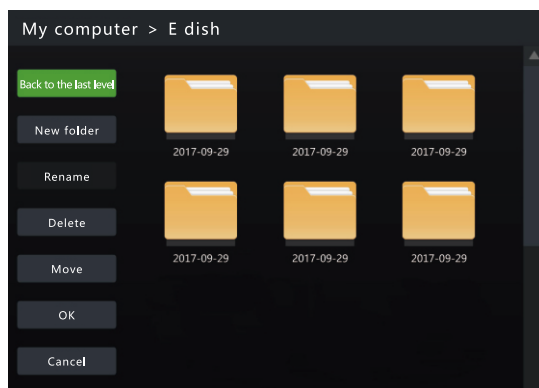


Fig. 19

III. System and Function Introduction

4.13.1 New Folder

Click "New folder" to pop up the handwriting board.

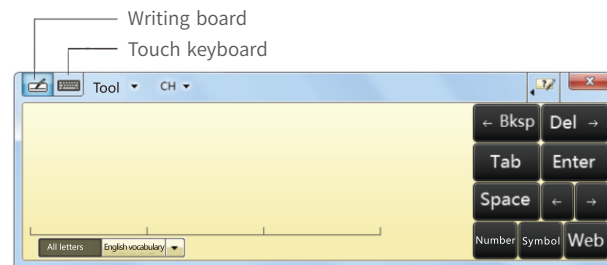


Fig. 20

4.13.2 Rename

Click in the file storage path to select the folder or file to be renamed, and then click the "Rename" button on the left menu bar. The "Writing board" pops up. After input, click the "OK" button on the left menu bar to rename the file.

4.13.3 Delete

Click the "Delete" button on the left menu bar, select the file/folder to be deleted (as shown in the Figure), and click the "OK" button; complete file deletion.

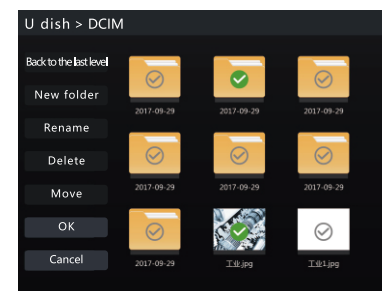


Fig. 21

4.13.4 Move

In the setting storage path, click the "Move" button on the menu bar → Select the folder or file to be moved → Click "OK" → Find the folder to be placed → Click "Paste" button on the menu bar.

4.14 Camera Setting

Enter the camera setting interface (Fig. 22). Click and drag the bar to dynamically adjust the function parameters.

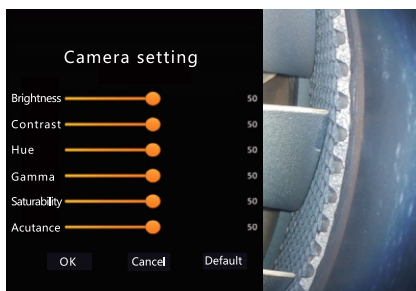


Fig. 22

4.15 Format USB Flash Disk

Click the "Format USB flash disk" button in the setting interface to enter the USB flash disk selection interface. After selecting the disk to be deleted, click "OK" to start formatting; click "Cancel" to return to the setting interface.

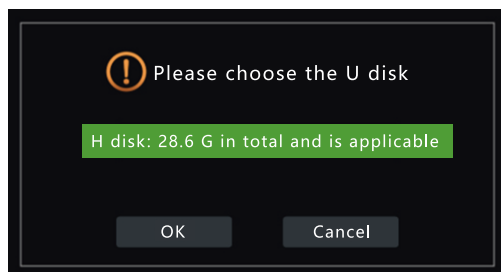


Fig. 23

4.16 System Info

Click "System info" to view the system version information and storage information.

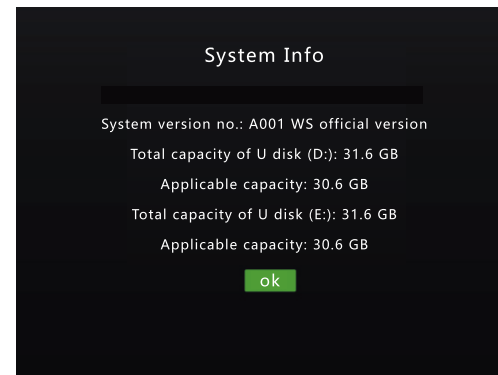


Fig. 24

4.17 Language Setting

Click "Language setting" to select the corresponding language, and then click "OK" to complete the language setting.

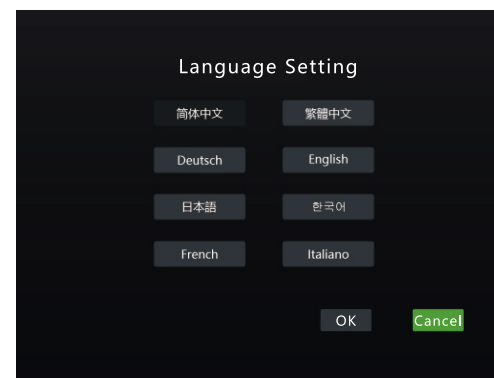


Fig. 25

4.18 Date/Time Setting

Click "Date/Time setting" in the setting interface to adjust the date/time; adjust the value by pressing the Up/Down key of the menu navigation key, press the right key to jump to the next setting, and press the left key to return to the previous setting; after setting, press the right key to move to "OK", press the middle key or click "OK" to complete the date/time setting.

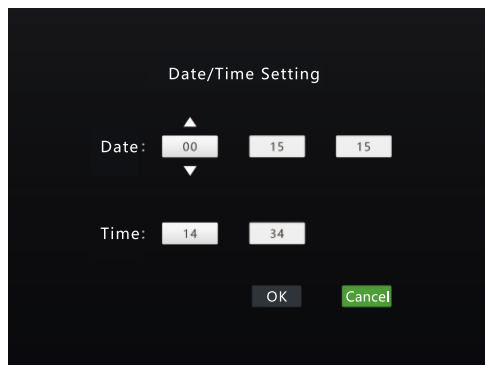


Fig. 26

4.19 Filter

In the filter settings, you can perform relevant operations, such as negative film, ambient mode, custom watermark, custom naming, date/time watermark settings, etc.

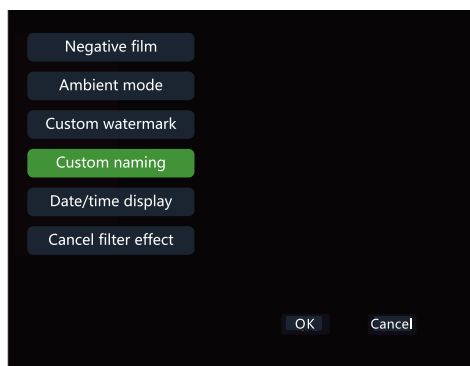


Fig. 27

4.20 Negative Film

This equipment is designed for internal inspection sites that cannot be seen from the outside. The use of this equipment should not exceed its own allowable range, in particular, you must not be used to observe the inner cavity of humans and animals. Or the company is not responsible for the resulting casualties.

Operating steps: click the "Filter" option on the setting page, enter the filter page and select the "Negative film" option; to cancel it, select "Cancel filter effect" option, and then click "OK" in the lower right corner to complete the operation.

Normal Preview Effect



Fig. 28

Negative film preview effect



Fig. 29

4.20.1 Date\Time Watermark

After the "Date\time watermark" option appears, the date and time will be displayed in the lower left corner of the photo and video recorded, as shown in the red box in the Figure.

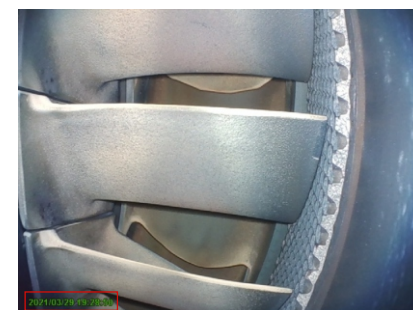


Fig. 30

4.20.2 Custom Watermark

After setting the custom watermark text, the photos and videos taken will be marked with corresponding text (Fig. 31).

In the "Filter" option, click the "Custom watermark" interface to pop up the input dialog box and touch keyboard (Fig. 32), and switch to the writing board for input. After completion, click "OK", as shown in the Figure.

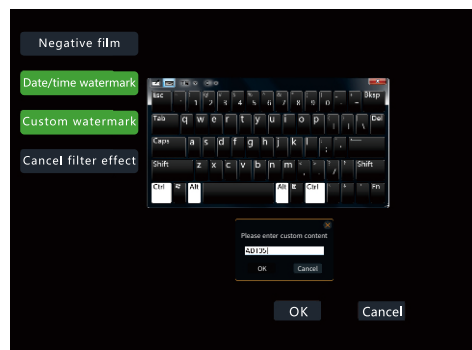


Fig. 31



Fig. 32

4.21 Power-off

Long press the Power On/Off key for 3s to enter the off state. Please take out the battery after the power-on indicator light is off. Please take out the battery and place it separately if not in use for a long time.

IV. Daily Maintenance

- Please keep the instrument clean and dry after use.
- Do not clean it with high-pressure sterilization equipment or other relevant cleaning equipment.
- Do not put the machine body in water or detergent.
- Please clean it with clean cloth or dry soft towel.
- Please take out the battery if not in use for a long time.

V. Troubleshooting

Fault	Possible Reason	Measures
Power-on failure	The battery is not installed properly. Low battery	Reinstall the battery.
Auto power-off	Low battery	Charge the battery.
The battery adapter model is improper when charging The indicator light does not flash.	The adapter model is not proper and battery is full	Use the original charger. Press the power display key to determine whether the battery is full.
Other problems		Please contact your authorized operator.