



DX Industrial videoscope

Operation manual



-
- Please read the manual carefully before using the product.
 - Please keep it for easy reference

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Product instruction



DX series Industrial videoscope is a new nondestructive flaw detection equipment, which combine with optics, electronic technical, precision machinery and micro-camera shooting.

○ Optical detection

The Controller adopts high brightness LCD, micro-small CCD/ CMOS camera, the video signal was processed and amplified, and the detection results will be clearly displayed on the 7inches LCD. High definition, reliability, and stability shows that the industrial videoscope has a good detection capabilities.

○ Precision Machinery

The bending part adopts precision machinery, 4-way articulation, bending angle $\geq 90^\circ$.

○ Application

This product can be used in the area, such as Automobile, Industrial Machinery, Electronics, Petrochemical, Aviation, Shipbuilding, Special Survey, Construction and so on.

Hardware instruction

Controller front



A/R: Capture button

B/S: Video button

C: Menu button

D: OK button

E: Power on/ off button and return button

F/P: LED +

G/Q: LED -

H: Close focus button

I: Far focus button

J: Up button

K: Right button

L: Left button

M: Down button

N: Power indicator

O: Charging indicator

T: Up/down bending lock button

U: Up/down bending control knob

V: Left/right bending control knob

W: Left/right bending lock button

Capture button: In real-time image mode, press this button to take pictures.

Video button: In real-time image mode, press this button to start or stop recording

Menu button: Press this button to enter the menu interface when it is in real-time image mode.

Ok button: To confirm the item that was chose.

Power on/ off and return button: Press this button for about 2 seconds to turn on, and then entering real-time image mode; Press this button again for 3-5 seconds,the system prompts whether to shut down,press"OK"to turn off.

When the system is working, shortly press the button, the system entering power-saving sleep state,and then press it again, waking up the device to work.During work.There is no any respond when operating the system, press this button to reset, also this button has the returning function.

LED +: LED +.

LED -: LED -.

Charging indicator: this indicator is on when charging.

Up/down bending control knob

When up/down bending lock button is under non-locking condition,turn knob to control the up/down bending angle

Left/right bending control knob

When left/right bending lock button is under non-locking condition,turn knob to control the left/right bending angle

Up/down bending lock button

To lock the bending part position after confirm the up/down bending angle

Left/right bending lock button

To lock the bending part position after confirm the left/right bending angle

When lock button is under non-locking condition “F”, turn the knob to control the bending angle

U: Up

D: Down

L: Left

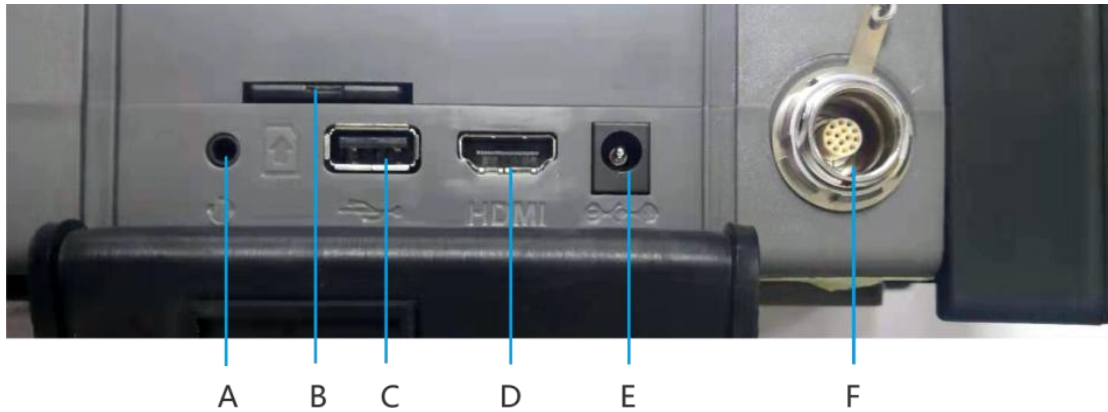
R: Right

Note: The Flexible part is bent in 4-way. When knob is rotated to the point that it can no longer be rotated, do not force it to rotate again;

Otherwise, the rotating mechanism will be damaged. After the bending angle locking knob fixes the bending angle of the rotatable part,

Observe; do not turn the handwheel while it is locked.

Controller interface



- A: headphone jack B: SD slot C: USB data interface
D: HDMI interface E: charging interface F: external cable interface

Headphone jack: During video playback, plug in headphones to monitor the sound collected by the detection probe.

Tf card slot: insert SD card.

USB data interface: used for data transfer between the device and an external computer.

HDMI interface: used to connect the device and an external monitor, through this interface, the video detected by the device can be output to the external monitor.

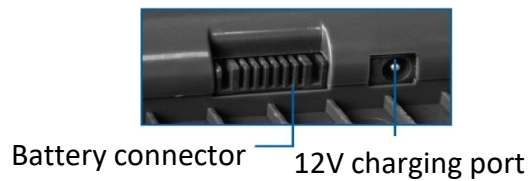
Charging interface: Through this structure, the internal battery of the device can be charged or the device can be directly powered.

External cable interface: This interface is used to connect the controller to the electronic mirror handle. After connection, the detection video input will automatically switch to the external cable lens.

Controller side



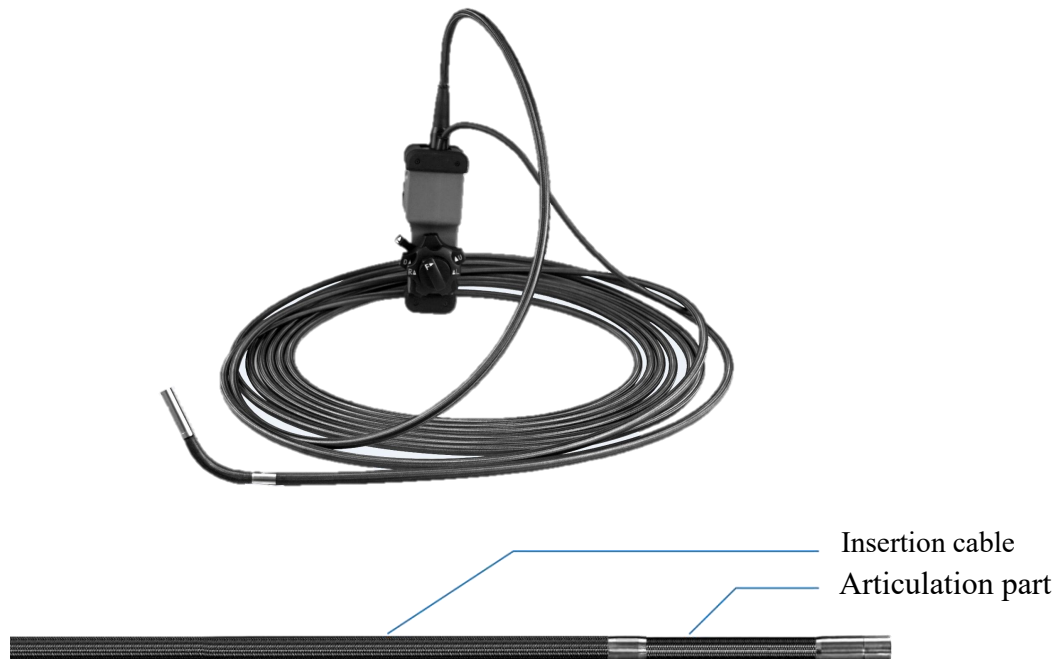
Battery Instructions and Charging Tips



1. When using the charger to charge the battery, the battery indicator light will keep flashing. When the battery is fully charged, the charger indicator will turn from red to green. At this time, the four green indicator lights of the battery are always on.
2. When the device is in use, press the "■" key, the battery level indicator will display the battery level, and when there are 2 green indicators remaining in the battery level indicator, it is recommended to charge the device.

Note: When the battery is completely empty, do not plug in the power adapter to continue using it, so as not to damage the battery; please ensure that the battery has a certain amount of power before use.

Probe

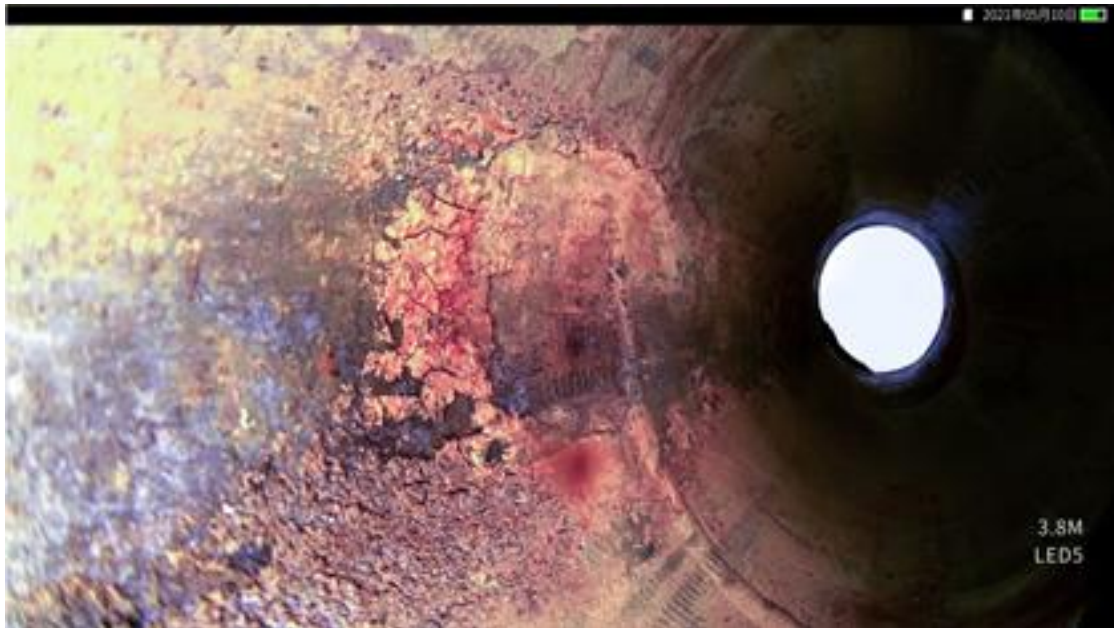


Insertion cable: It is a part that is inserted into the observed object, and this part is waterproof.

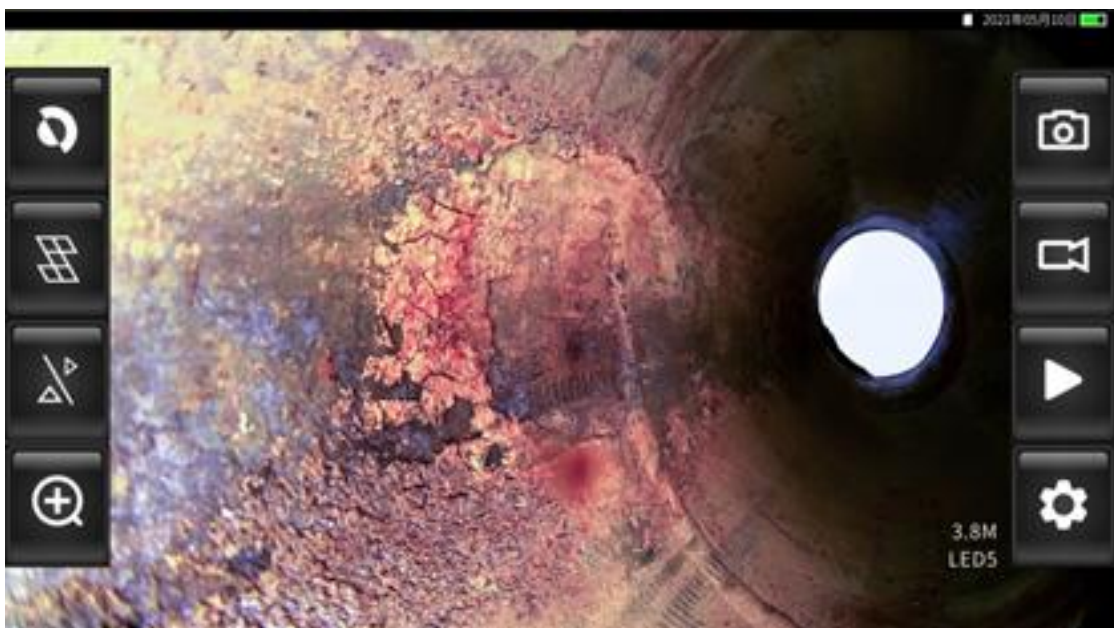
Articulation part: It can be bent in four directions under the control of the operating lever. This part can be customized waterproof (IP67). The rest of the buttons have the same functions as the corresponding buttons on the controller.

Menu operation

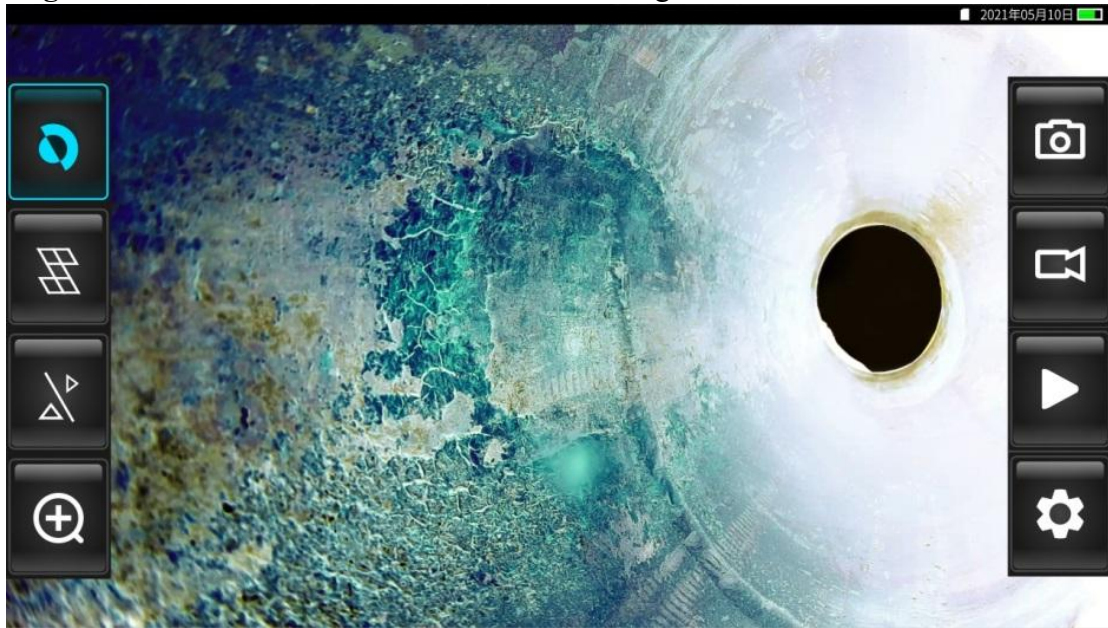
After the device is turned on, it will automatically enter the video screen and the screen will be full screen. The lower right corner shows the brightness level of the camera light.




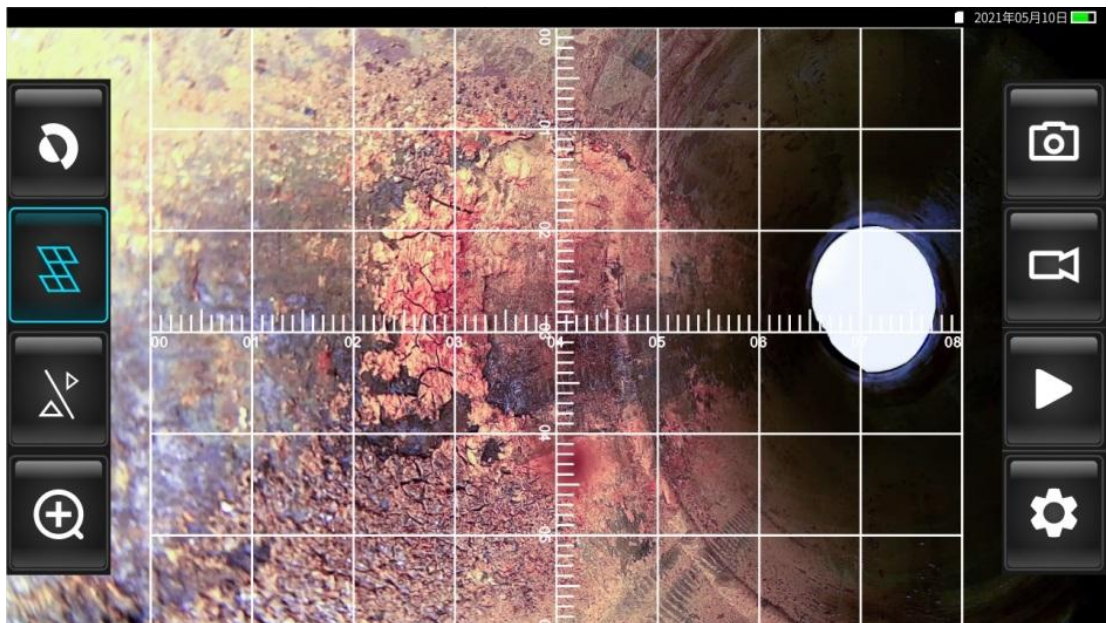
Click any point on the screen to call up the touch screen button interface. After about 8 seconds of no operation, the button interface will be automatically hidden.




Negative film: Click the icon  to enter the negative film state;

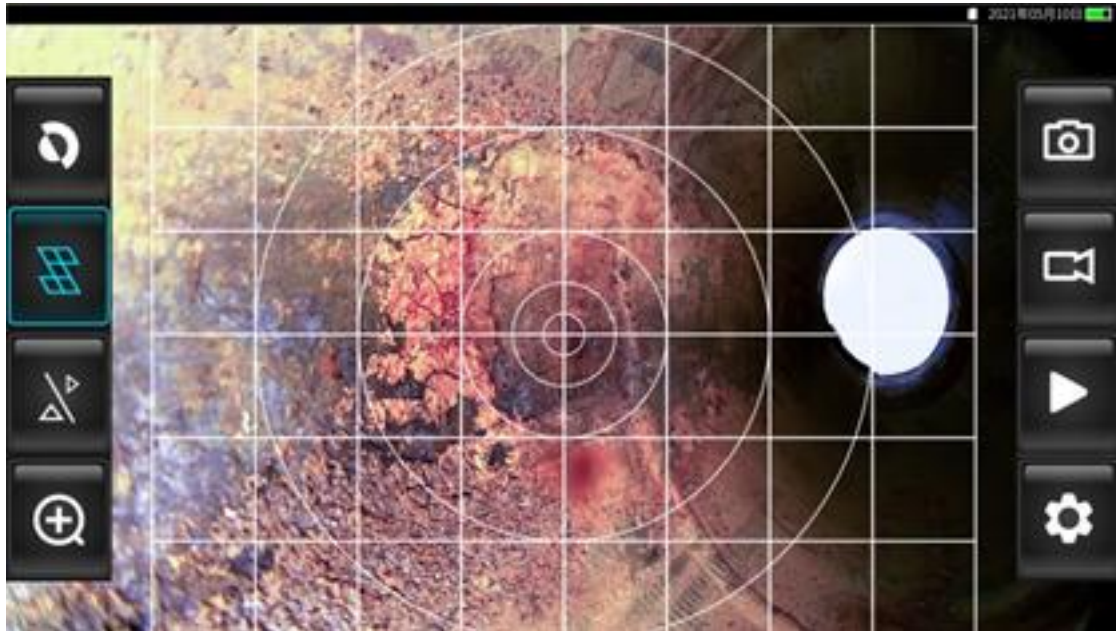


Ruler: when the menu is set to "ruler 1", click the icon  to turn on or off the XY cross ruler for comparison measurement;




XY cross ruler display

When the menu is set to "Ruler 2", click the icon  to open or close the ring ruler; (The menu setting will be explained in detail in the menu introduction later.)



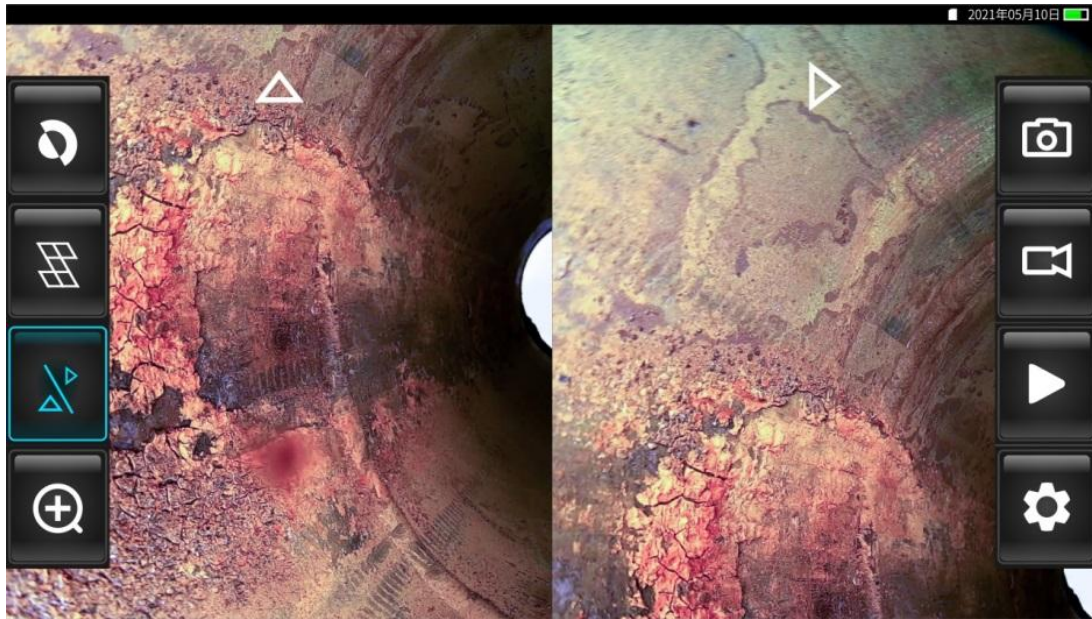
Ring ruler display

Split screen switching: cycle the button, click the icon  to display in sequence, front full screen, side full screen, straight/side split screen display. This function is only tested for special specifications ---- front and side view camera lens. Other specifications do not have this function.




Front full screen


Side full screen

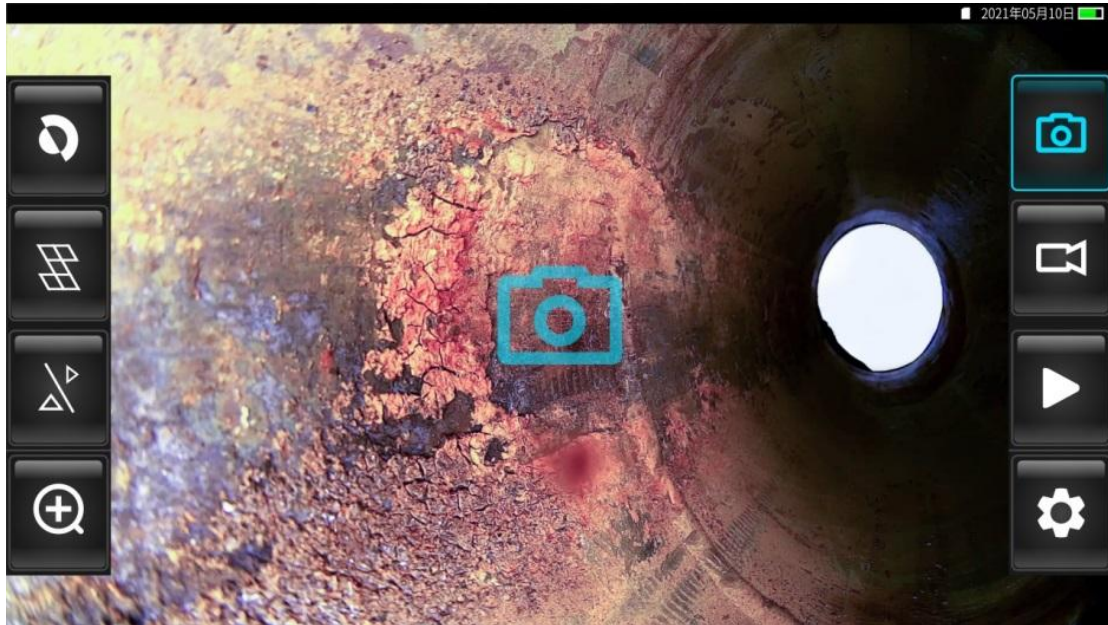



Front/side split screen display

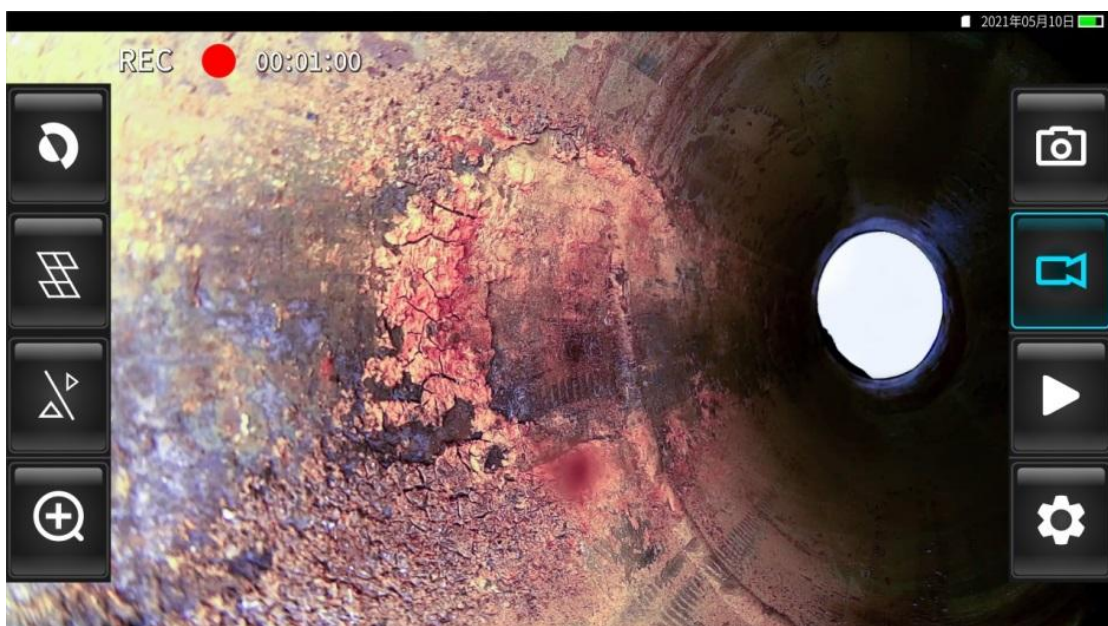
Image enlargement: Click the icon  to enlarge the image, up to 3 times enlargement.






Take photo: Click the icon  or the photo button, take a photo with one button, as shown in the figure.



Recording: Click the icon  or the recording button, one-key recording, when recording, the recording indicator flashes, and the recording time is displayed at the same time, touch the screen or press the icon or the recording button again to exit the recording state.



Playback: Click the icon  to enter the picture and video playback interface, and click the  or icon  to switch between the picture preview interface and the video preview interface. Click the vertical blue scroll bar on the right side up or down or the up and down buttons to turn pages on the interface. Click directly on the pictures and videos or press the left and right keys to select files by jumping left and right.

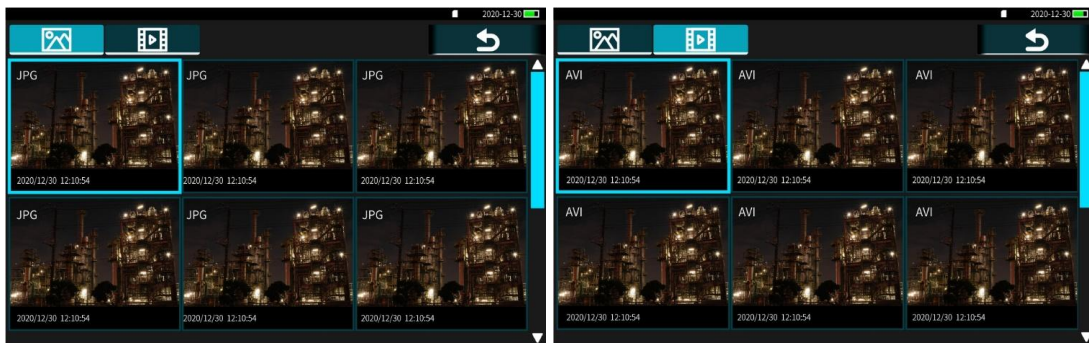







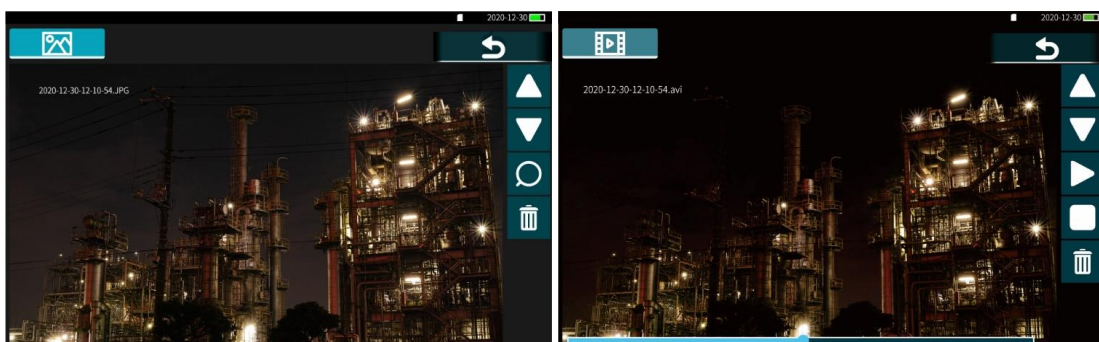


Photo files


Video files

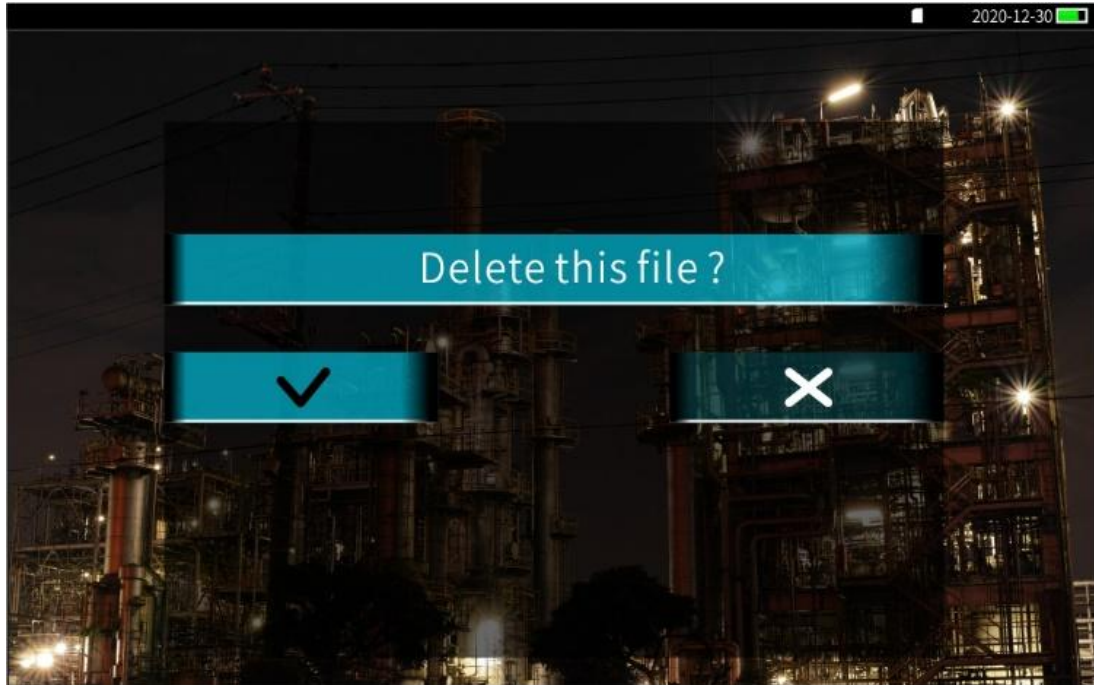
Double-click the picture/video or press the OK button to browse a single file, click the  or  icon or up and down buttons to switch the front and rear files; click the icon  to zoom in or zoom out the picture; click the icon , the icon changed to , and the video is played; click the icon again changed back,  the video is paused; click the playback progress bar below the video to fast forward and rewind; click  the icon or short press the power button, the video exits.




picture preview interface

video preview interface





When previewing image files and video files, click the icon  to enter the delete interface and choose whether to delete the file.




Setting: Click the icon  or menu key to enter the menu interface.

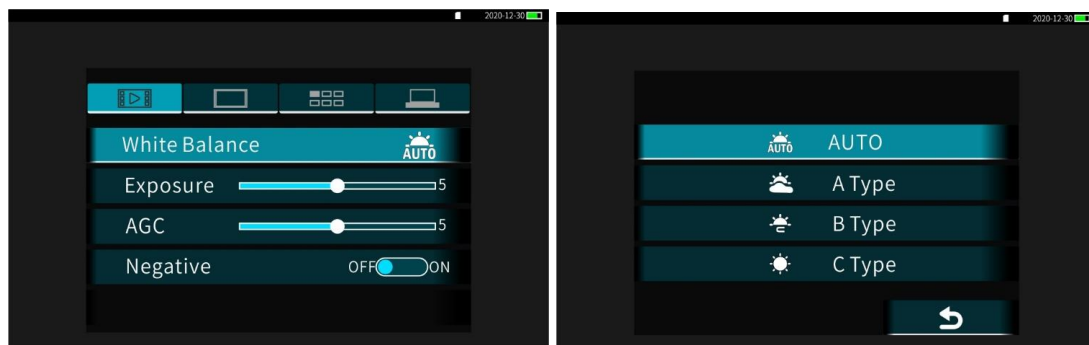


Video settings

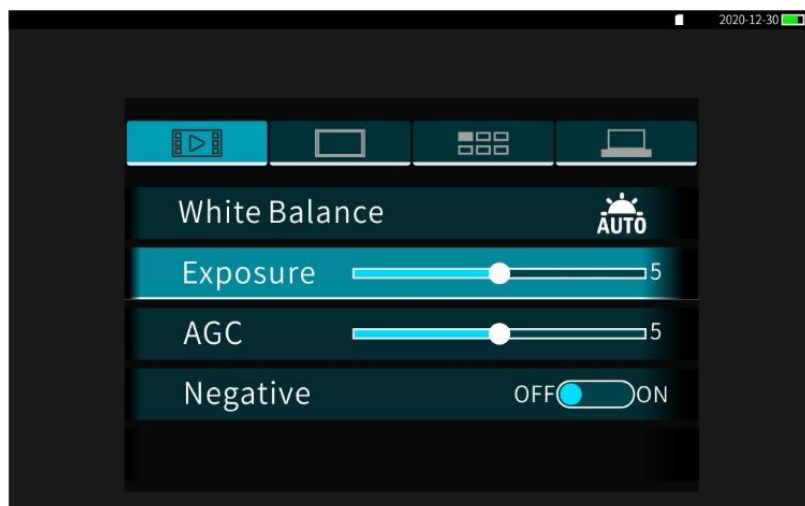
After entering the menu interface, respectively click the corresponding icon at the top of the screen to enter video settings  /screen settings  /application settings  /system settings .

White balance: The camera image can accurately reflect the color status of the subject, including automatic, cloudy, incandescent, sunlight, etc. Double-click the "white balance" light bar to enter the submenu, double-click the parameter to be selected or click the icon  to return to the previous menu

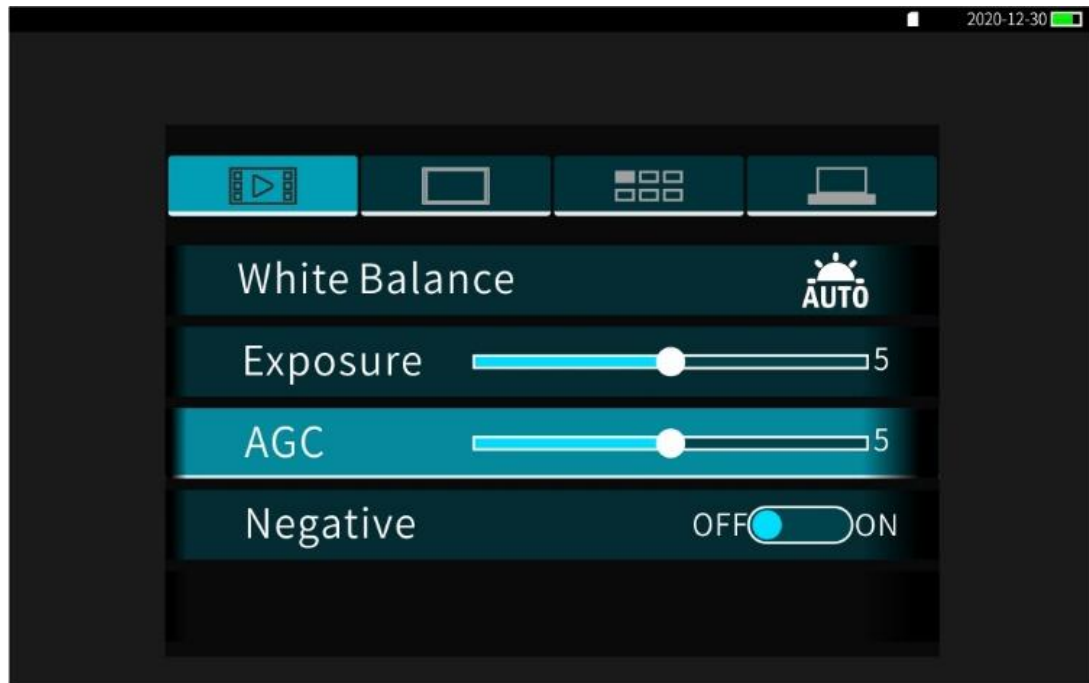
You can also press the up/down key to select the main menu, press the OK key to enter the submenu, then press the up/down key to select parameters, and then press the OK key to complete the setting. Short press the power button to exit.



Contrast: Click the icon bar cursor or press the left and right keys to adjust the contrast, the user can choose according to the actual needs, the setting method is the same as above.



Hue: Drag the icon cursor or press the left and right keys to adjust the color tone, the user can choose according to the actual needs, the setting method is the same as above.

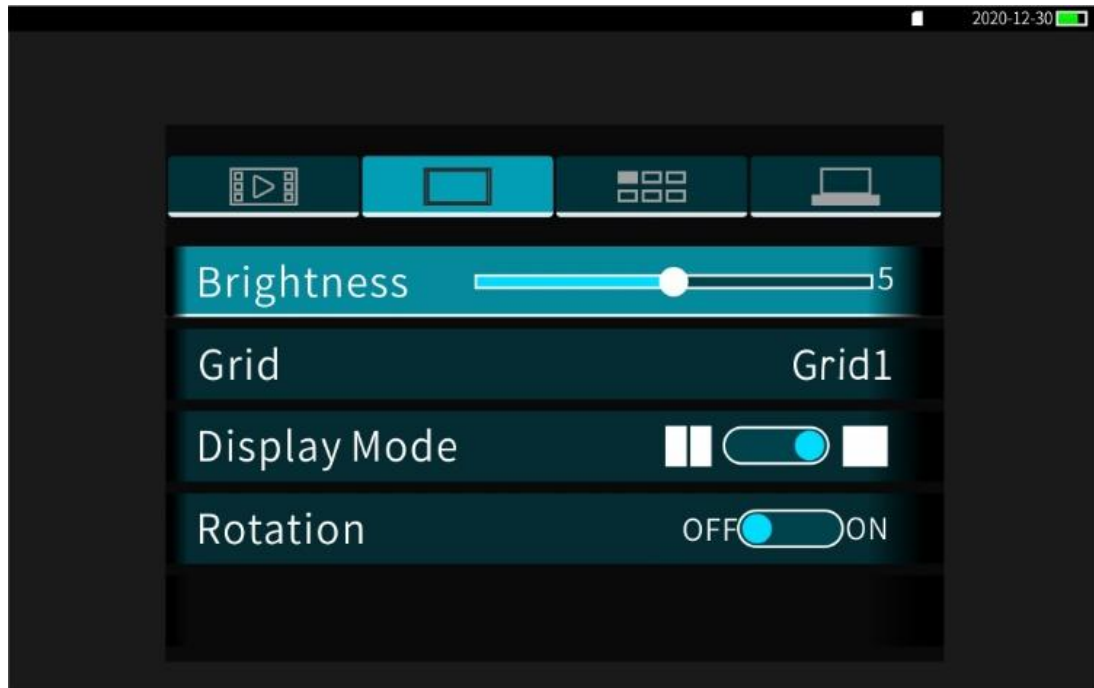


Negative: Click "On" or "Off" to turn on or off the negative state, and press the OK button to switch between on and off. Users can choose according to actual needs. The setting method is the same as above.

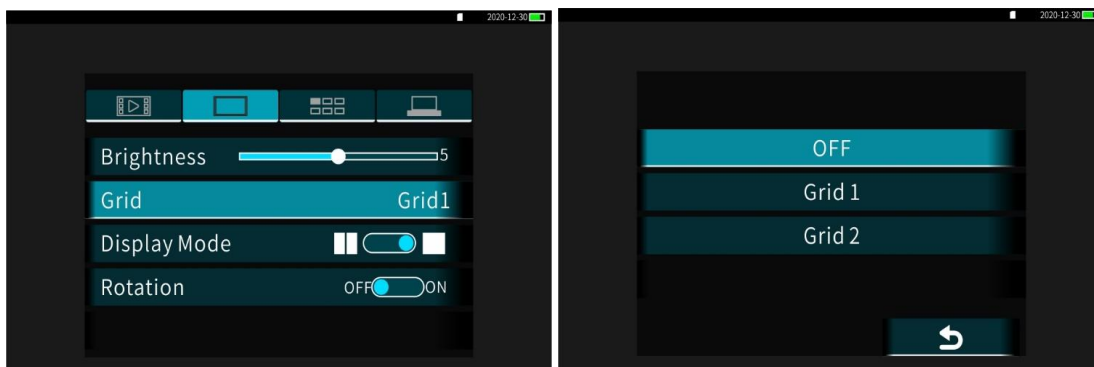


Screen settings

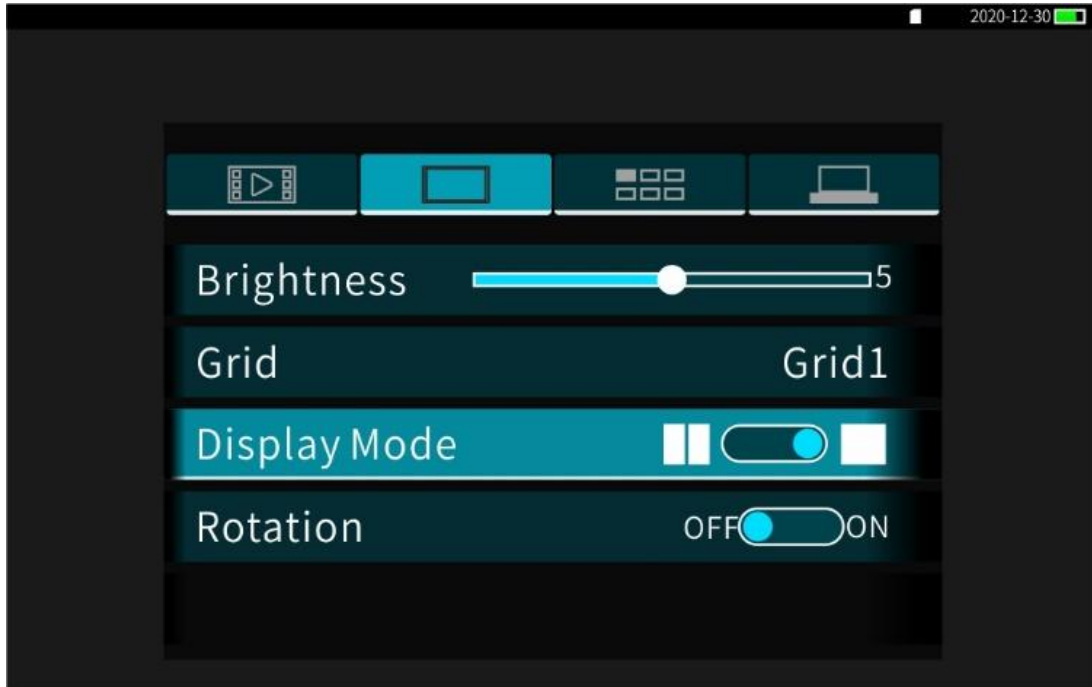
Screen brightness: Drag the icon cursor or press the left and right keys to adjust the screen brightness, the user can choose according to actual needs, the setting method is the same as above.



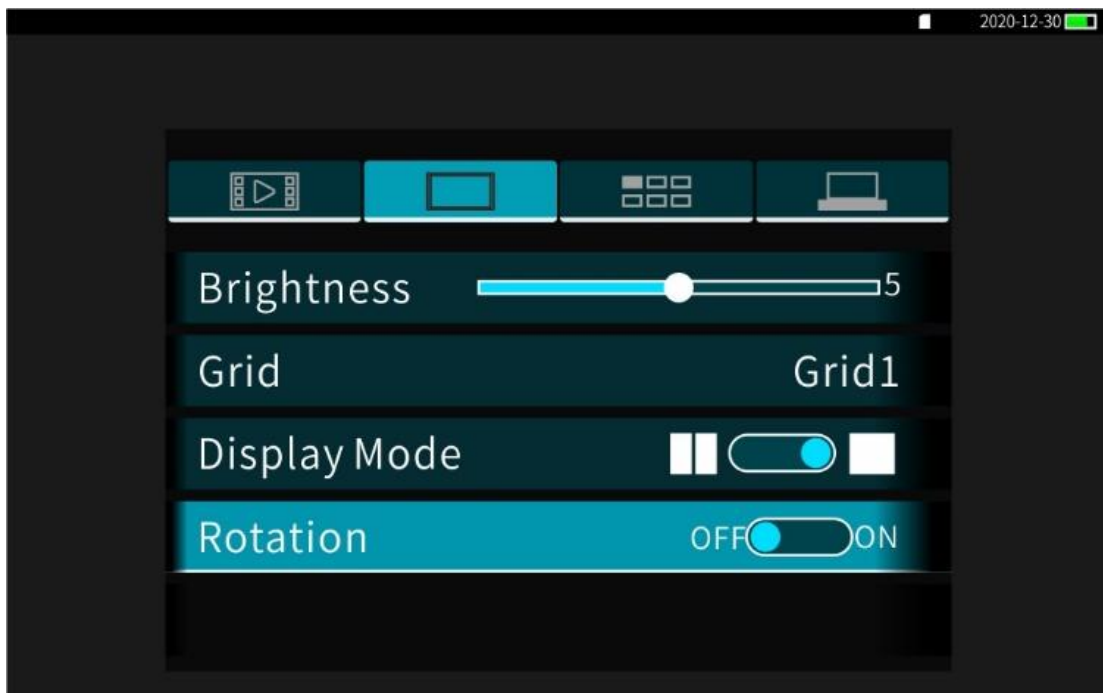
Ruler: Click this cursor or enter the submenu to open or close the ruler. Scale 1 is an XY cross scale, and scale 2 is a ring scale. Users can choose according to actual needs, and the setting method is the same as above.





Display mode: Click the left or right side of the icon ○ in the picture or the Ok key to select the display mode, the user can choose according to actual needs, the setting method is the same as above.

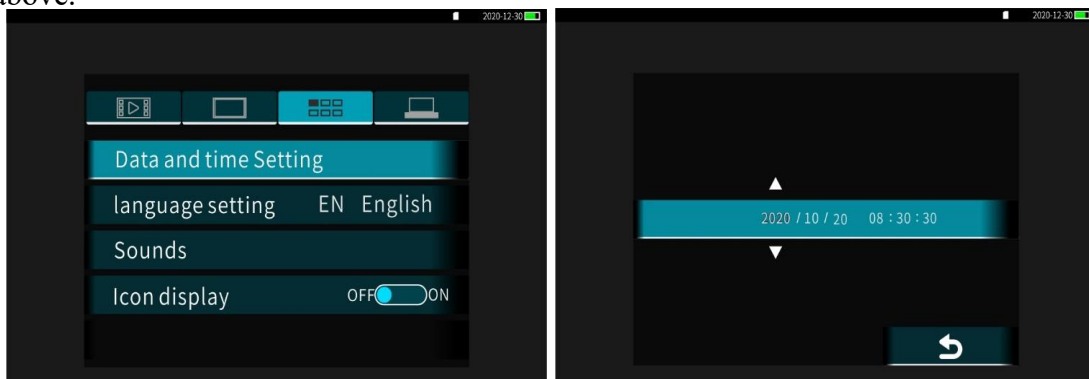


Screen rotation: Click the left and right sides of the icon ○ in the picture or the Ok key to rotate the screen 0° and 180°. Users can choose according to actual needs. The setting method is the same as above.

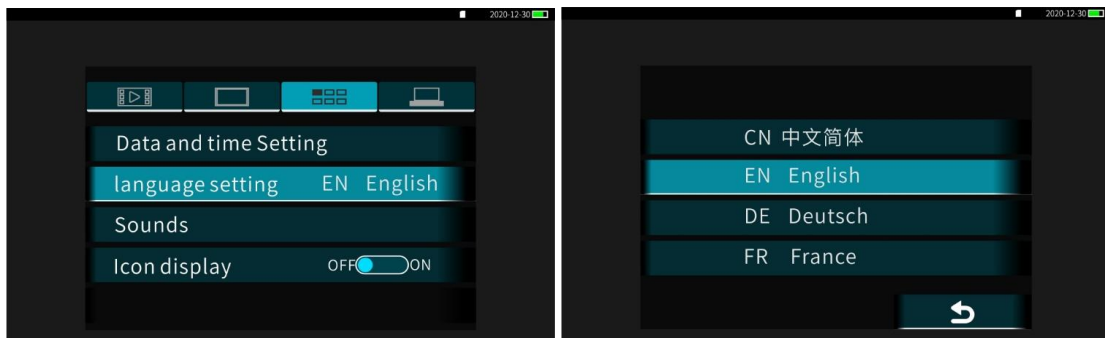


Application settings

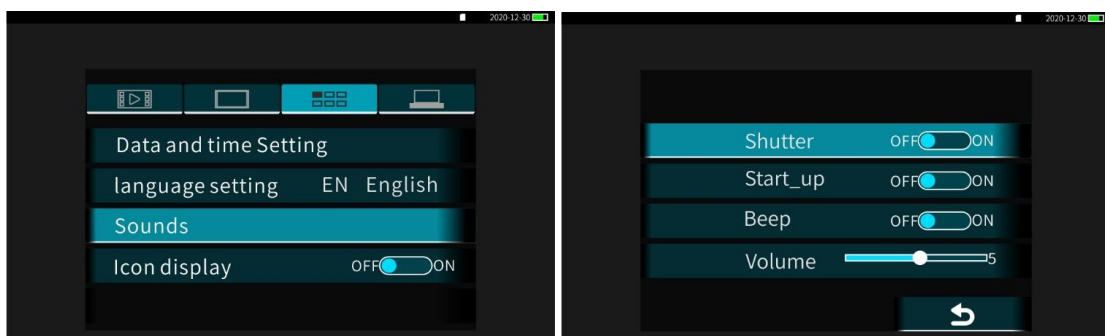
Date setting: Click the date setting light bar or the OK key to enter the date and time submenu, and to adjust the year/month/day/hour/minute. When selects the parameter with the cursor , click icon  or  or the up and down keys to adjust the parameter , and press the OK key to complete the adjustment of the date and time. Users can choose according to actual needs, and the setting method is the same as above.



Language: This product supports the selection of multiple languages such as Simplified Chinese and English. Users can set it by themselves. The method is the same as above.



Sound: Users can choose whether to enable or not according to actual needs, the method is the same as above.

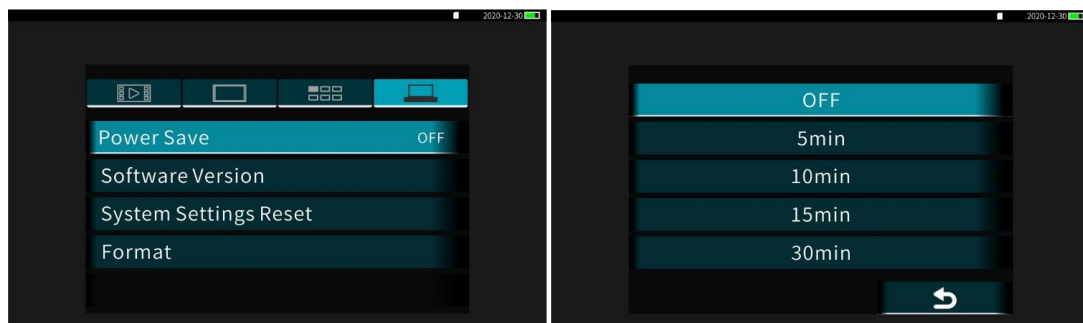


Icon display: After the icon display state is turned on, in the real-time image state, the SD card marking, date and power are displayed on the screen respectively. Users can choose according to actual needs, and the setting method is the same as above.

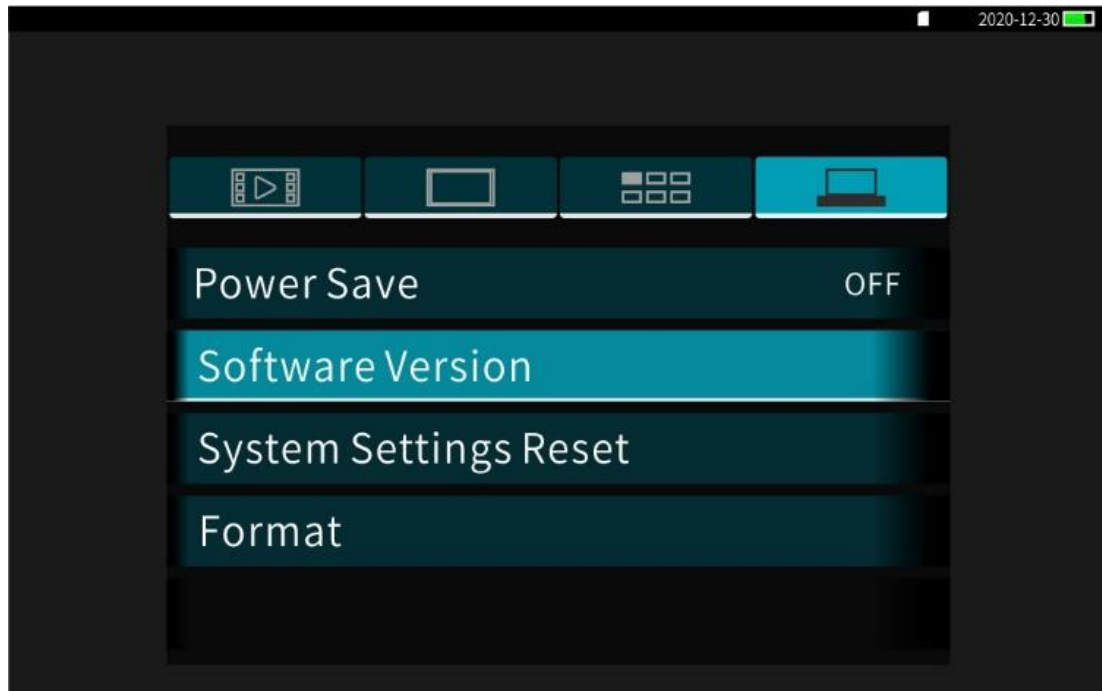


System settings

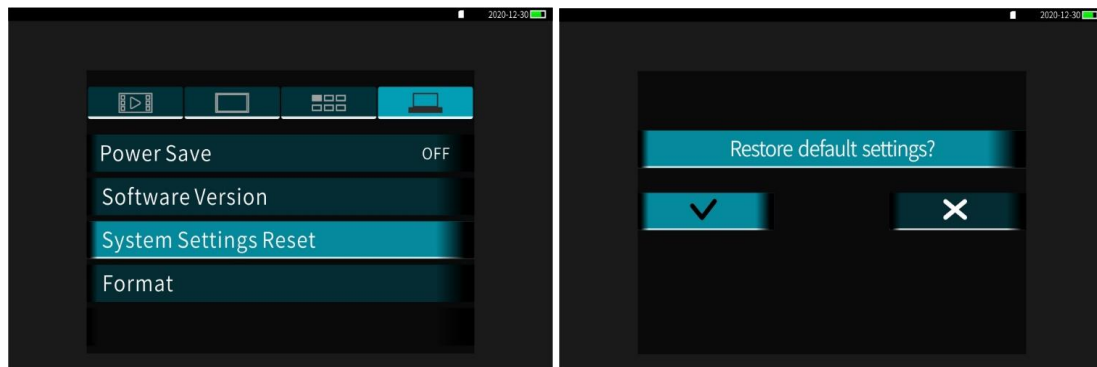
Automatic shutdown: to set the length of the automatic shutdown time according to actual needs. When the device does not have any operation within the set time, the device will automatically shutdown.



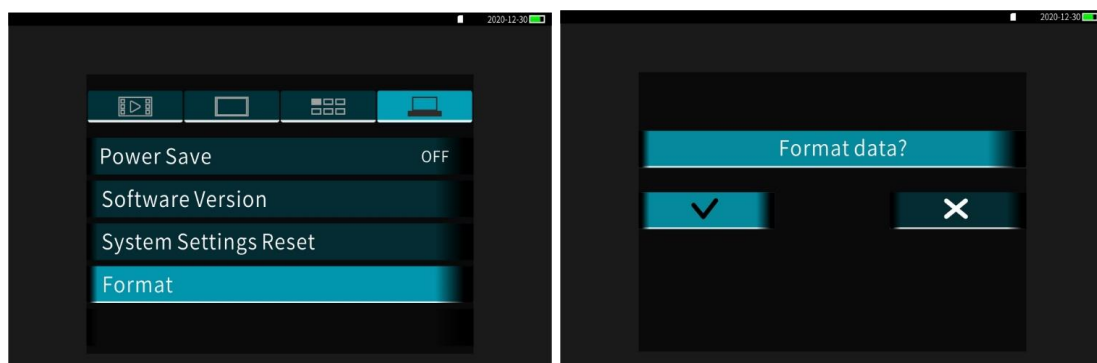
Software version: The software version is fixed, which is used to display the version status of the software. The device can be software upgraded via SD.



Setting recovery: Users can choose whether to restore the factory settings of the device according to their needs, the method is the same as above.



Format: Users can choose whether to format the memory card according to their needs, the method is the same as above.



Product Specifications

Controller part

Model	Controller
LCD monitor	7 inch
Resolution	1280*720
Fps	30 fps
Screen brightness	400cd/m ²
Screen contrast	800
Touch screen	Capacitive touch screens
Video output	HMDI high resolution
USB interface	Data transfer
Memory card	32G SD
Video resolution	1280*720
Picture resolution	1280*720
WIFI	Optional
Software	Negative, grid
Language	Multiple language
Li-ion	11.1V 7000MAH
Charger	12V 1A
Charging time	8 hours
Battery working hour	>5 hours
Operation temperature	-10°C~50°C
Storage temperature	-10°C~50°C

Articulation probe

Inspection cable dia.	8.2mm
Inspection cable length	8M/10M/15M
Inspection cable materials	Tungsten wire
Bending Angle	>90°
Waterproof	IP64, IP67* (Articulation degree>90°)

Camera

Camera dia.	8.4mm
Image sensor	CMOS 1/4
Pixels	720P
FOV	>120°
DOV	25mm-infinity
Materials of the camera surface	Titanium alloy
Waterproof	IP64, IP67*

Note: the parameter with “*” means this data is an optional one, besides the above parameters are subject to change without notice.

Trouble shooting

Description	Possible causes	Solutions
Cannot turn on the instrument	Battery is out	Charge the battery or connect directly to an external power supply
Mnitor blue or blinking	Camera is not installed properly	Re-install the camera
Abnormal video display colours	Error in parameter adjustment on screen display	Adjusting the hue, contrast and other parameters of the screen
Image blurry	Lens slide/protector stained	Switch off and wipe the lens
The instrument does not shut down properly	The equipment is subject to strong magnetic interference, causing system errors	Remove the battery and reinstall it

Precautions

1. Before using the equipment be sure to check whether the equipment has installed batteries and whether the batteries are charged, whether the detection wire of the electronic mirror handle has parts coiled around it, and prohibit the operation of the rocker in the state of the detection wire coiled around it to avoid damage to the wire inside the detection wire. Try not to bend the rigid glass fibre wire excessively in use, so as not to cause irreversible bending.
2. During installation, the communication data interface must not be rotated after insertion.
3. When taking photos and videos, ensure that the brightness of the camera light is appropriate and that the probe end is stable and does not shake; during use, users should not look directly at the lens light to avoid burning their eyes.

4. At the end of the use of the equipment, adjust the bending part straight, and then pull out the measured body, prohibit hard pulling and tugging.
5. When the device is finished, please turn off the power supply, and at the same time do a good job of protecting the lens pins by installing a protective cover for the pins (or directly to the built-in cable tray connection port) to avoid damage to the pins.
6. Do not soak and rinse the product, use a soft cloth to clean the probe and controller to avoid dirt corrosion and damage to the product performance. Then put the device into a special equipment box and protect it properly to prolong its service life.

7. Do not subject the device to extrusion, collision or impact to avoid unnecessary damage; be sure to remove the battery when the device is not in use for a long time to avoid battery damage and corrosion of the instrument.
8. When charging, be sure to use the charger provided with the device, with a voltage of 12 volts and a current of no more than 2000 MA.
9. Do not use at temperatures outside the range of -10°C to 50°C.
10. Do not use or place the product in a corrosive environment.
11. Do not expose the product to rain and do not leave the probe in liquid for a long time except for waterproof probes.
12. Do not place the product near objects with strong magnetic force.
13. Do not use in environments with excessive smoke and dust.
14. Do not scratch the screen and keep the body clean.
15. Do not attempt to disassemble the product yourself, repair work should only be carried out by authorized staff of the original manufacturer.

After-sale Service

1.Service Commitment

1.1 The main body of the product is guaranteed for one year, the warranty period for the parts replaced by the repair is six months, the warranty period for the parts only repaired without replacement is three months, man-made damage is not covered by the warranty, lifetime repair is only charged for the cost of repair. The effective warranty period for repaired products shall be the longer of the following two periods.

- a. The remaining warranty period of the product.
- b. Ninety days from the date of repair.

Transportation and handling costs for the product to and from the after-sales service department are borne by the purchaser.

1.2 The warranty period starts from the date of shipment. During the warranty period, if there is a problem with the quality of the product itself in terms of machine parts and materials under normal use and a fault occurs, the company will provide free repair services after verification of authenticity.

1.3 During the warranty period, the parts and labour used in the repair or replacement of the product will not be charged to the purchaser for non-human damage. All replaced parts, circuit boards or equipment will belong to us.

1.4 This service is only available to the initial purchaser of the product.

2.Non-warranty liability

In the event that your product breaks down during normal use, our company only commits to the above free warranty service. In the event of the following, you are invited to choose our paid service. Our 'service commitment' is limited to the repair of faulty hardware of the product.

2.1 Your product is repaired by our after-sales service department and continues to be covered by the warranty period for the original machine. If the repaired part exceeds the free warranty period, please pay a repair service fee, which will be customised by our after-sales service department, for your product.

2.2 We are not responsible for and reserve the right not to provide warranty service if the equipment has been subject to abnormal use, improper storage, unauthorised modification of connection, maintenance, misuse, abuse, accident, alteration, incorrect installation, force majeure (e.g. fire, earthquake), etc.

2.3 Defects and faults which are not notified to the manufacturer in time by the purchaser and which are beyond the valid warranty period at the time of reporting are also covered by the warranty.

3.Maintenance period

If the equipment is inspected and requires repair, we will complete the repair task within one month of receipt of the equipment. In case of special circumstances, if the repair cannot be completed within the deadline, the customer service staff will call you in advance to negotiate the repair date, and the aforementioned repair time does not include the time for the equipment to travel back and forth.

(Note: All the above terms, product features and specifications are subject to change at any time without prior notice)



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