GMGA MEASURING
Address: No. 33 Alley 99/120 Dinh Cong Ha, Dinh Cong Ward, Hoang Mai District, 10000 Hanoi City, Vietnam
Telephone: +84 845 969 336
Email: info@gmga.vn
Website: https://gmga.vn/

Product Manual

CX Series

Inspection technology for better future.

⚠ Please read the manual before using the equipment.

Declaration

The manual is only used for this series of products.

As this manual is used as product series manual, however, the configuration and function of different models may be different, about the specific specification and function, the technic requirements when you purchasing is the only reference. For the manual amendment, we have no responsibility and obligation to inform any company or individuals.

This manual is edited manually. Please understand if there is any error in the content description.

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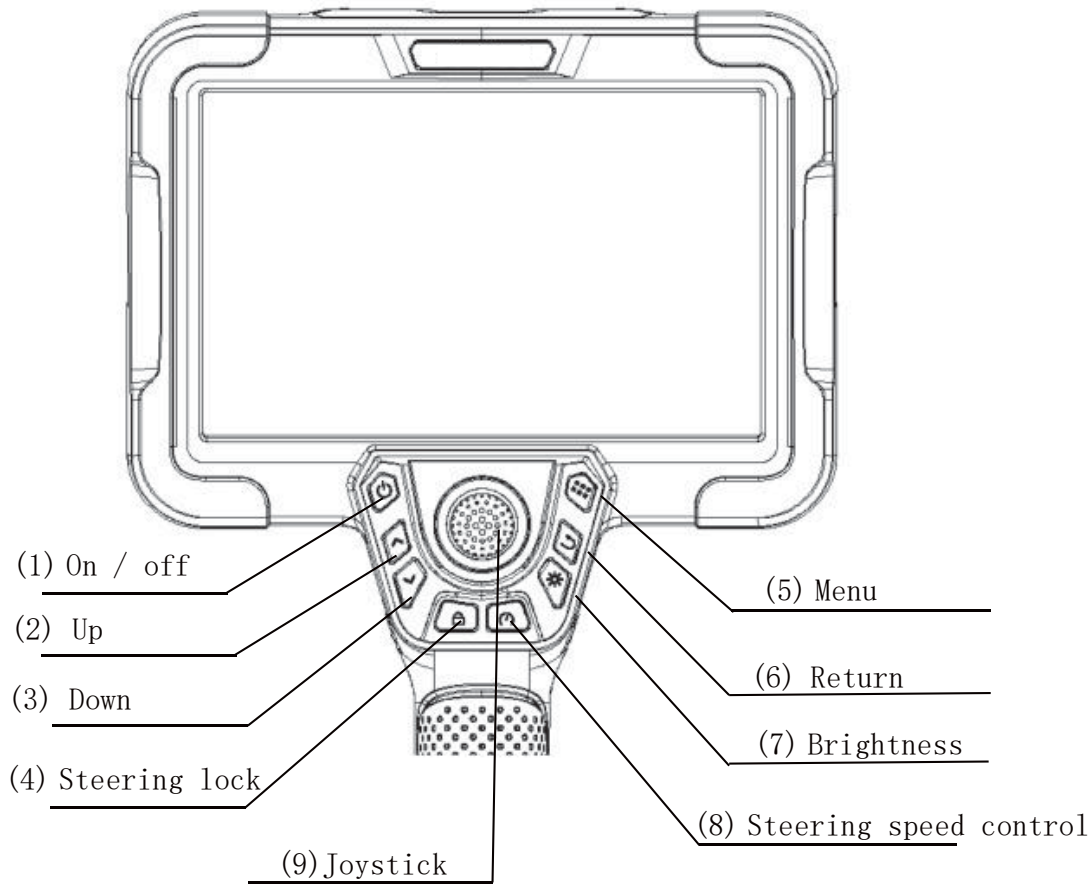
Instruction Before Use

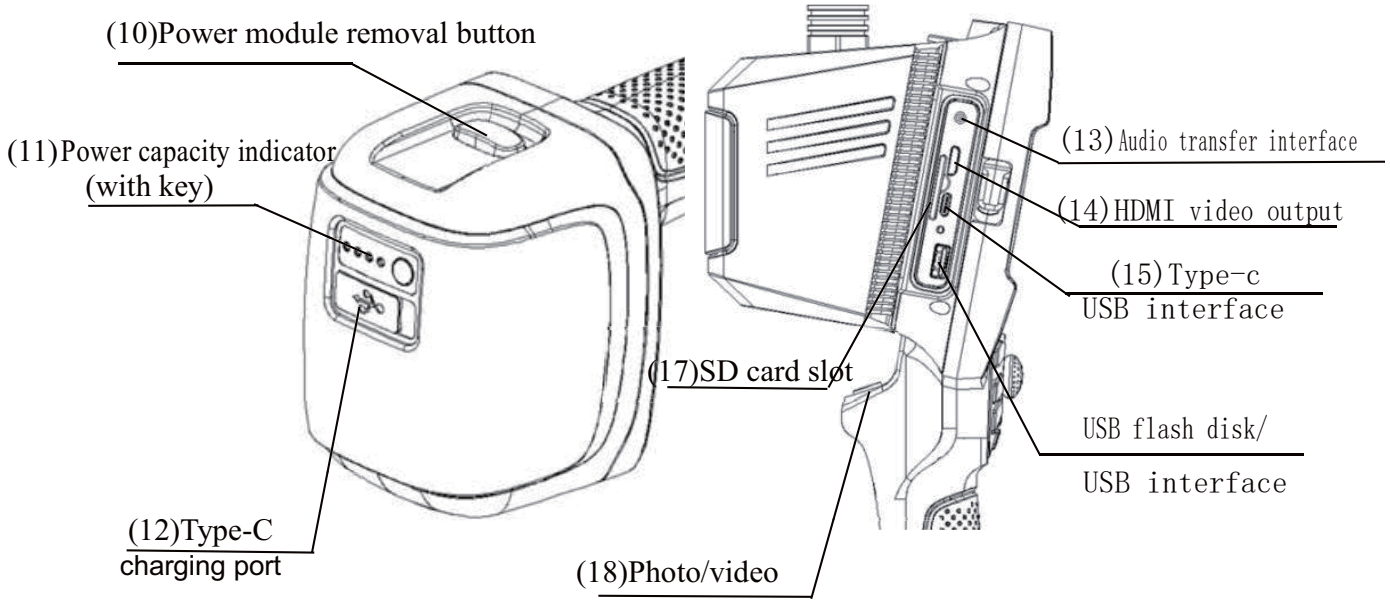
Main configuration

For the specific configuration, please refers to the packing list.

Name	Specs	Qty	Note
Case	580*345*230 mm^3	1	
Videoscope	366mm*194mm*137mm	1	
TF card	64G	1	
Card reader	USB2.0 port	1	
Rechargeable battery	7.4V,6400mAH	1	Option
Type-C cable	1m	1	
Charger	USB-C charger（65W）	1	

Button and Port





（1） On/off: Long press this button for 3 seconds to boot; long press it for 3 seconds to shut down.

（2） Up: in menu setting mode, press this button to upward navigation.

（3） Down: in the preview interface, scroll down to enlarge 8 times.

（4） Steering lock：lock the steering angle of the joystick.

（5） Menu button: enter the system Settings, which mainly include storage path setting, image calling, language setting, date/time setting, watermark setting, etc.;

（6） Return: return to previous menu.

（7） Brightness control: control the light from 0-5 levels.

（8） Steering speed control：control the speed adjustment of the joystick for the probe steering. There are two switching modes: fast and slow.

（9） Joystick:compatible with the steering adjustment and confirmation keys of the probe, the steering angle can be adjusted up, down, left and right, and short press down to confirm the operation.

（10）Battery module removal button:Used for disassembly and replacement of battery module.

（11）Power indicator:display power capacity,dynamic running light mode during charging, it does not light up after being fully charged. When the power is insufficient, the last grid will flash.

（12）Type-C USB charging port: used for charging the battery module.

（13）Audio transfer interface: used for audio input of video recording operation and audio output of video playback.

（14）HDMI: connect the monitor with display by HDMI cable, the image on the monitor will be displayed synchronously on the display.

（15）Type-C USB port: Developers can upgrade and use it.

（16）USB flash disk / USB interface: used for copying, saving and exporting local system files by USB flash disk and other devices.

（17）SD card slot: The maximum support for 128G memory.

（18）Photo/video: short press for taking photo, long press for taking video.

Application

This product can be used for defect or fault detection in aerospace, automobile engine, automobile parts, military manufacturing, police safety, power plant, special inspection and other fields. It is applicable to the detection and analysis of industrial equipment or industrial site to ensure the safe production and operation of equipment.

After-service

This product has not any spare parts which can be repair by users. Any disassemble, refit or maintenance is not allowed. If damage and losses caused by this, we do not assume any responsibility. The product maintenance is only afforded by the authorized dealers and distributors.

Warning

warning

·Prohibit the use of this instrument to observe the body or the animal's body;

·Do not use the product to inspect equipment in action;

·Do not use or store the product on explosive, strong electromagnetic field or with combustible gas, otherwise it may cause fire or explosion;

·Do not use the product to check objects with current carrying, so as to avoid the occurrence of electric shock;

·Do not watch the LED light source at the end of the lens straightly, avoiding the effect of strong light on the visual acuity;

·Never excessive bending, stretching, twisting, rolling cable, otherwise it may cause cable disconnect, a fire or electric shock accident;

·If there is abnormal in the angle adjustment operation, stop the current operation, and turn off. Then contact the supplier;

·Keep the insert tube away from any liquid, except water, salty water or oil;

·When finish using, please clean the front section of the instrument in time, to prevent corrosion.

1 Brief Introduction

CX series endoscope is a hand-held electric three-dimensional measurement endoscope independently developed by **Shenzhen Jeet Technology Co., Ltd.**This product adopts full-color IPS full view LCD touch screen, high-definition image sensor, high-sensitivity electric steering control joystick and multi-layer tungsten-braided insertion tube. The whole machine is easy to operate, durable and clear. It is mainly used in special inspection, aviation, pipeline, pressure vessel, automobile manufacturing, electric power and other industrial fields.

1.1 Parameters

Probe Diameter(mm)	Φ8/Φ6/Φ3.8/Φ2.8/Φ2.2/Φ1.8
Camera Pixels	1000000/300000
DOF	10-100mm/5-50mm
Probe material	Superwear-resisting alloy
FOV	120°
Viewing Direction	0° front view/90° side view
Illuminance	Max 50000Lx
Tube Material	tungsten-braided
Tube Length	1.5m/2m/3m（other lengths can be customized）
Protecting Device of Durability	buffer protection device between the host and wear-resistant tube
Articulation	360° all way
Bending Angle	Max 190°
Display	7-inch full-color full view IPS LCD touch screen
Display Resolution	1920*1200
Image/Video Format	JPG/MP4

Image Resolution	1280*720
Video Resolution	1280*720
Zoom function	Image 8X
Outer Case Material	anti-fall engineering alloy material
Memory	Built-in 16GB flash memory,external 64G SD card (up to 128G)
Data Port	HDMI port、USB port、type-c port
Batteries	DC12V、detachable lithium batteries
Working Time	≥3
Battery Capacity	(7.4V，6400mAh)*2
Power Consumption	10W
Weight	≈ 2.4 kg（battery included）
Compatibility	The handle can be replaced; with a variety of functional accessories
Standard Accuracy	0.1mm
Minimum Accuracy	0.01mm
Accuracy Rating	≥95%
Store Temperature	-23℃~63℃
Relative Humidity	Max: 92%, non-condensing
Host Working Temperature	-15℃~50℃,when 0° C below, the display needs preheating.
Camera Working Temperature	-25℃~80℃,when 0° C below, please reduce probe articulation.

2 Operation Steps

2.1 Take out the instrument

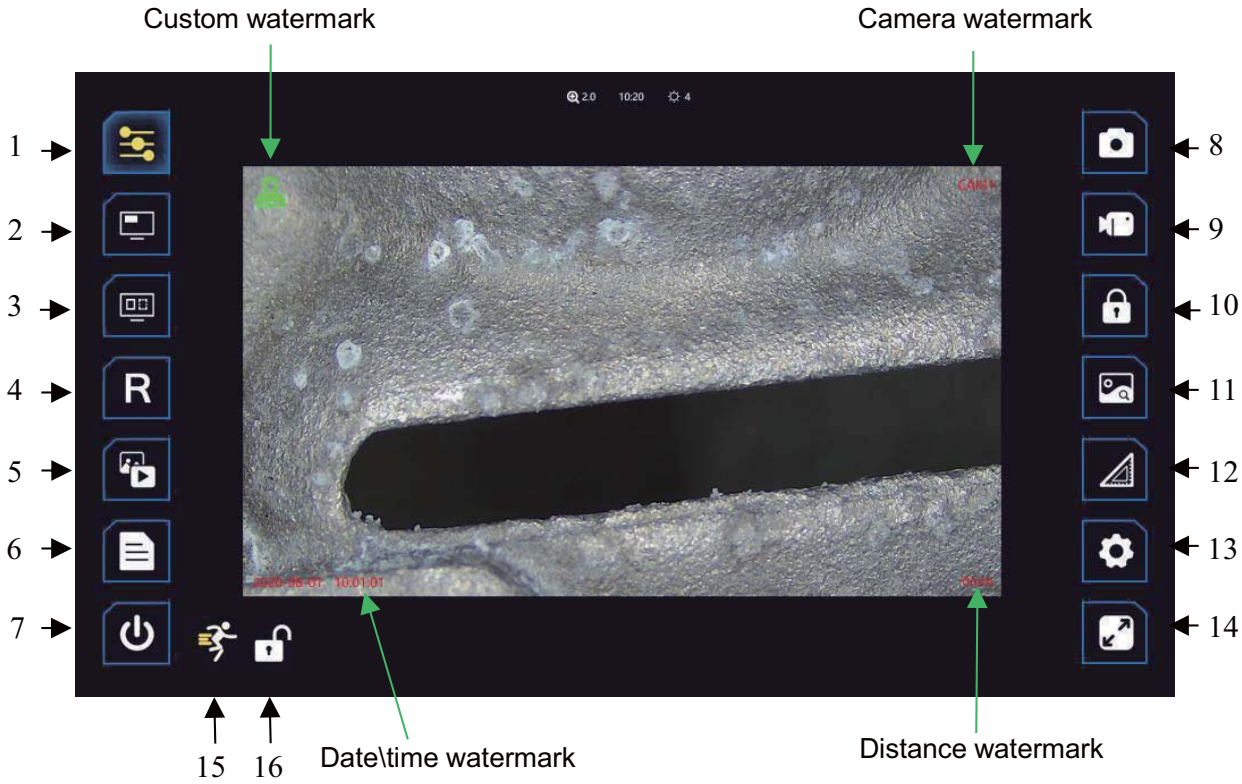
Open the instrument case, while taking out the instrument host, set aside and pay close attention to the probe; avoid colliding the probe and scratching probe lens.

2.2 Boot Preparation

Visually check whether the appearance of the videoscope is intact, connect the handle to the host, straighten the insertion tube, and adjust the direction of the probe to 0°.

2.3 Operation

It supports for 5 levels of brightness adjustment. Press the light control button to suitable brightness. Slowly insert the tube to the inspected object. The operation interface is as follows:



Below explains the functions of the floating window ICONS from top to bottom and from left to right.

1. Camera setting, Set image parameters, proportions, special effects, etc.
2. Picture-in-picture, switch small window display function.
3. Dual camera preview, switch dual camera display.
4. Image rotation. The preview image rotates 90° clockwise each time on the

interface.

5. Photo/video preview, view photos or videos, and access to system files.

6. Test report, in PDF format, packs a report of the selected photos.

7. Power off button, quick power off with one button.

8. Snapshot,Take pictures.

9. Video recording.

10. Image freezing. Freeze the image in the preview interface.

11. Call the image to complement the contrast image, and select the image that needs to be displayed with a small window.

12.Measurement, 3D measurement function, providing a variety of measurement methods.

13.Setting: Set the application, such as storage path setting, call image setting, language setting, date \ time setting, watermark setting, etc.

14. Full screen, switch full screen display.

15. Steering speed: fast and slow mode, running posture represents fast mode, and walking posture is slow mode.

Top of the screen:

1. Image zoom level display, can adjust from 0 to 8 levels by touch the screen.

2. Time display

3. Brightness indicator, 0~5 levels can be displayed.

2.4 Probe articulation control

According to the testing need, operate the joystick to control probe articulation, in order to observe. The bending motion of the front probe is controlled by rotating the joystick. During the operation, if the joystick suddenly meets larger resistance, or there is any abnormity, please immediately stop using. After adjust the joystick to the middle position, please remove the insert tube carefully from the testing equipment.

2.5 After use

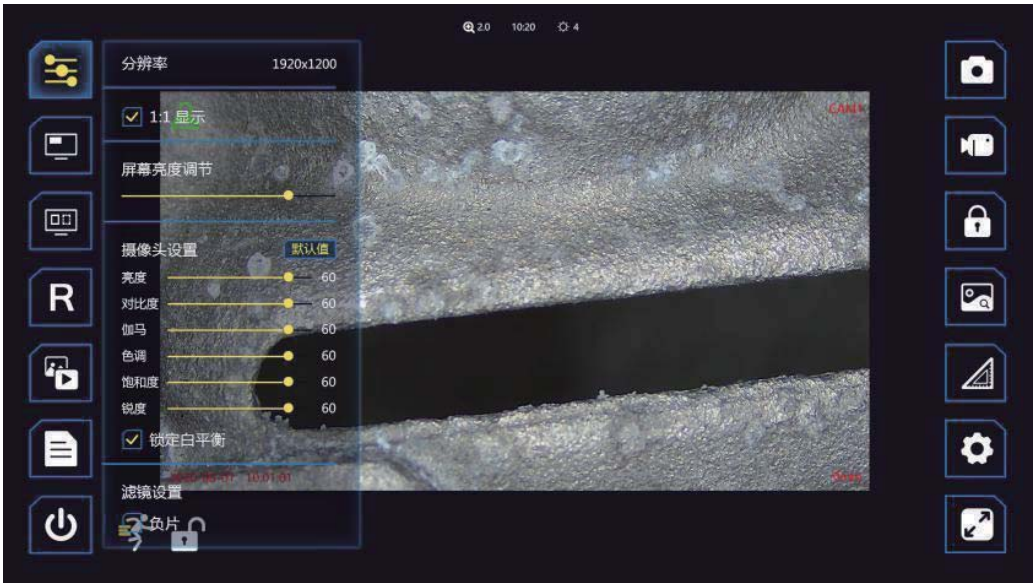
Before you remove the insert tube from the inspected object, please make

sure the probe is reset to be straight. If the product is damaged due to improper operation, the user bears the loss. Turn off the power switch, put the instrument into the portable case carefully, and put the tube into the case well.

3 Function Operational Specification

3.1 Camera setting

Click ICON 1 “camera Settings” to set various parameters of the camera. You can view resolution, select the image scale and turn on the negative effects.

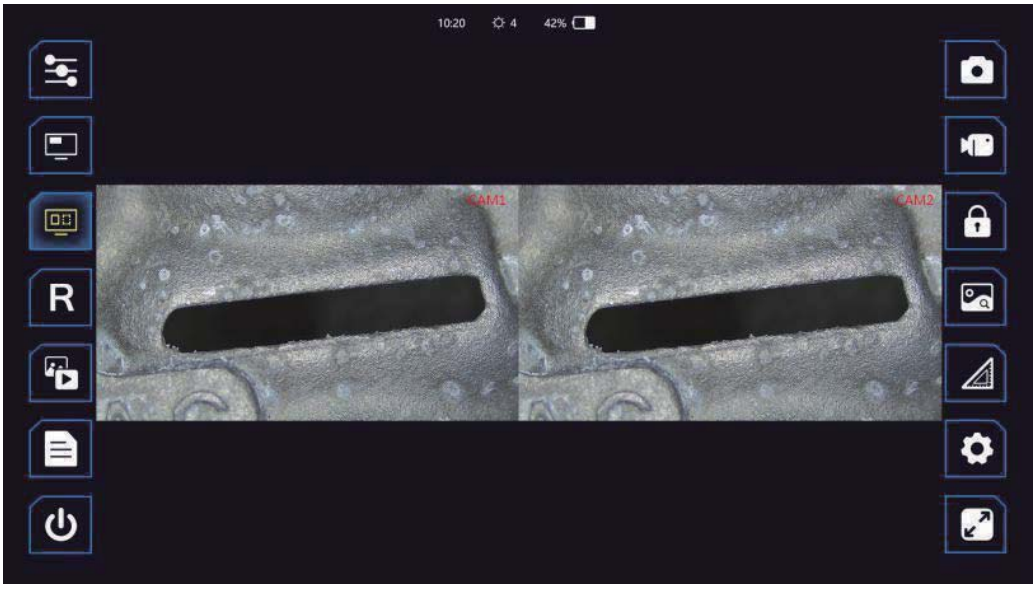


3.2 Picture-in-picture

Click ICON 2 "picture in picture", and the current live preview static picture will appear in the upper left corner. You can click this static image to switch with the real-time image. You can also select historical pictures for static comparison. You need to "call pictures", see 3.11. After selecting pictures, you can use the function ‘picture-in-picture’.

3.3 Dual camera preview

Click ICON 3 “dual camera preview” Dual cameras can be displayed on the same screen.



3.4 Image Rotation

Click ICON 4 "Image Rotation". Rotate clockwise 90° each time, and with mirror image display function.

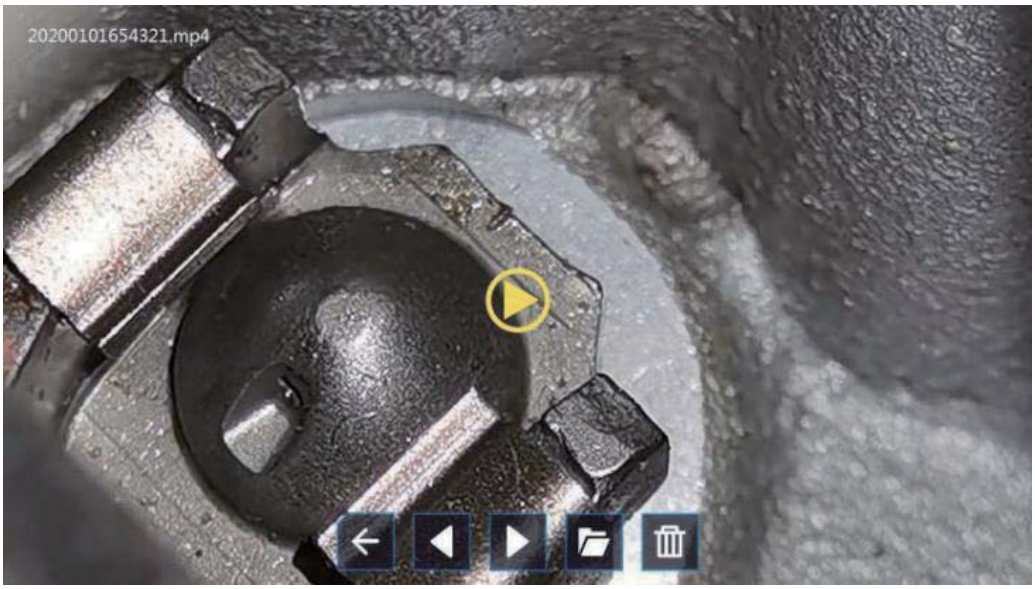
3.5 Photo/video preview

In the preview interface, click ICON 5 "Photo/Video Preview" to jump to the file preview. You can switch files left and right, enter the file management system, and delete files.

①Photos can be doodled, rotated and zoomed;

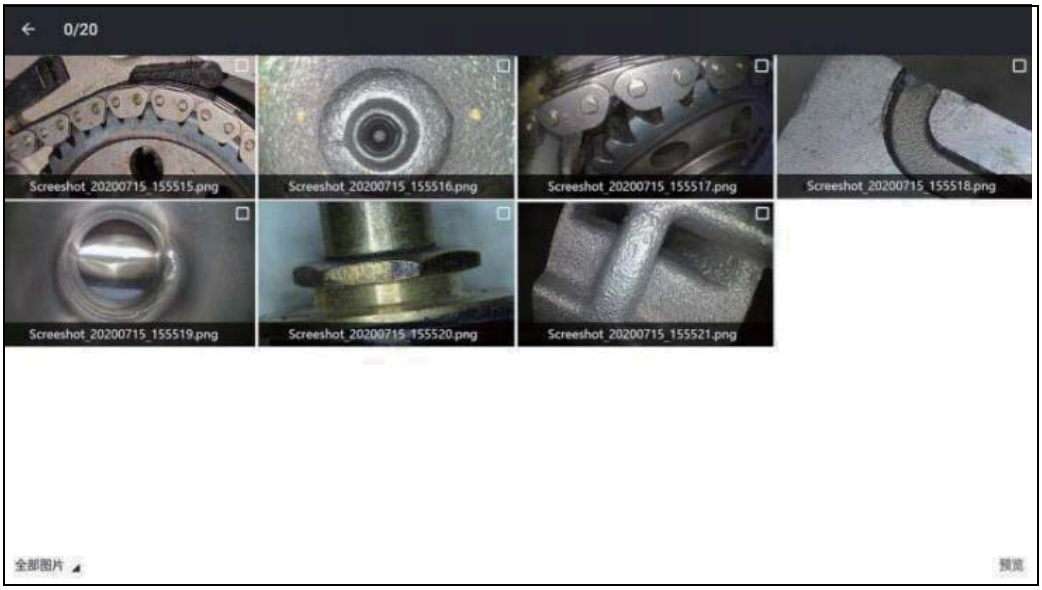
②Videos can be watched and paused;

③Click the folder icon to enter the system file interface.

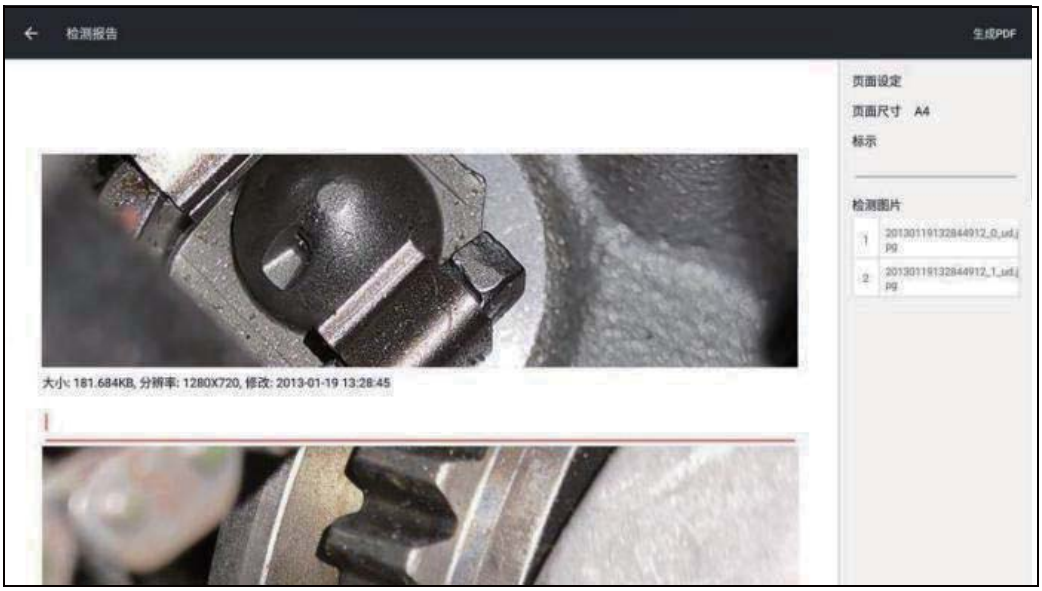


3.6 Test Report

Select the image to automatically generate the PDF report.



After clicking the image, a small check mark will appear in the upper right corner. Click the small check mark to complete the selection of the image and the following interface will appear.



You can doodle and edit each image, or you can put edit text under each image, and you can set the title of the file on the right.Once the Settings are complete, click on the top right corner to create the test report.

3.7 Snapshot

Short press ICON 8 "Snapshot" to save "date \ time watermark", "Distance watermark", "Custom watermark" and "Custom file name prefix", see 3.12;
The saved file is named in the form as follows:

XXXX-20200215114714-012.JPG
Prefix YMD HMS

3.8 Video Record

Short press ICON 9 "Video" to record video, and second short press to exit. During recording, you can also short press to take photos. You can save "date \ time watermark", "Camera watermark", "Distance watermark" and "Custom watermark" and "Custom file name prefix", see 3.12.

The saved file is named in the form as follows:

XXXX-20200215114714-012.mp4
Prefix YMD HMS

3.9 Image freezing

Click ICON 10 "Freeze", the image is frozen, and can be doodled and saved.

3.10 Image Call

Click ICON 11 "Freeze" "Image call" to select the image to be displayed in "picture in Picture"

mode, see 3.2

3.11 Measurement（Option）

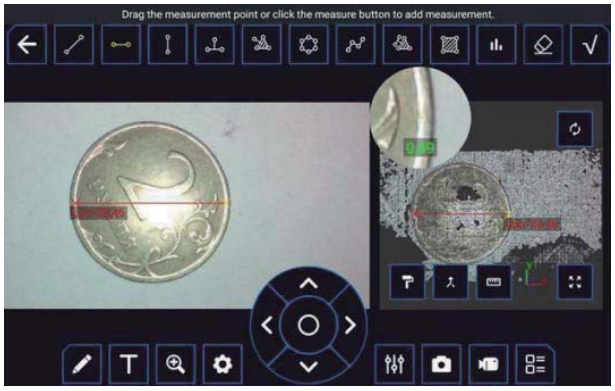
Click ICON 12 "measurement" to enter the measurement interface. The top of the interface is the measurement method. From left to right: linear distance from any point to point, linear distance from horizontal point to point, linear distance from vertical point to point, point to linear distance, point to surface distance, perimeter, polyline length, line to surface distance, area, section, eraser, confirm.

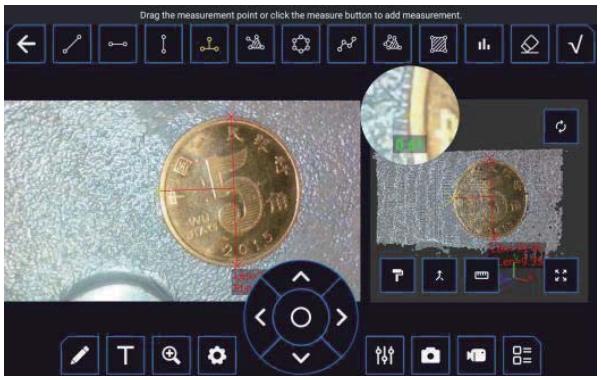
At the bottom of the screen are the measuring tools and Settings.From left to right are:doodle, add text, zoom, set constraint lines,navigation key, draw settings, snapshot, video record, list.

The left area of the interface is plane measurement, and the right area is 3D cloud image area, which can be zoomed in and measured.

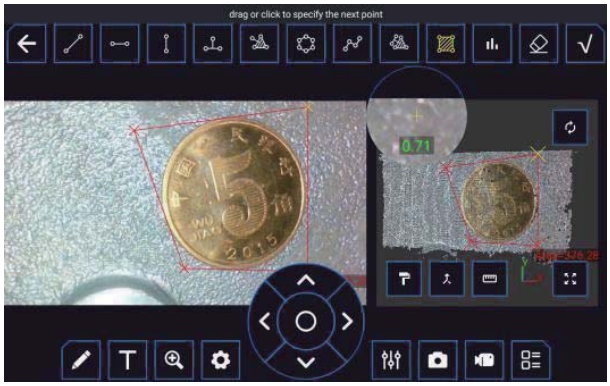
Select points on the left image first, use navigation keys, fine tune the selection points up, down, left and right, and click " " key in the navigation keys to cycle through the selection points.

3.12 Measurement Instruction（Option）

No.	Measurement Type	Operation Guiding
1	Arbitrary measurement of the distance between two points.	Select two arbitrary points to measure it
2	Measure the distance between two points horizontally.	Select two points at arbitrary points within one horizontal line 
3	Measure the distance between two vertical points.	Select two arbitrary points within one vertical line

4	Measure the perpendicular distance between a point and a given line.	Select 2 arbitrary points of the image to make a line. Then select a point to measure the distance of the point to the line 
5	Depth / height measurement.	Select 3 random points to confirm a plane. Then select a point on another plane to measure the distance from the point to the plane
6	Measurement of the perimeter of an arbitrary polygon.	Select at least 3 points in random points to confirm an arbitrary polygon and measure the perimeter

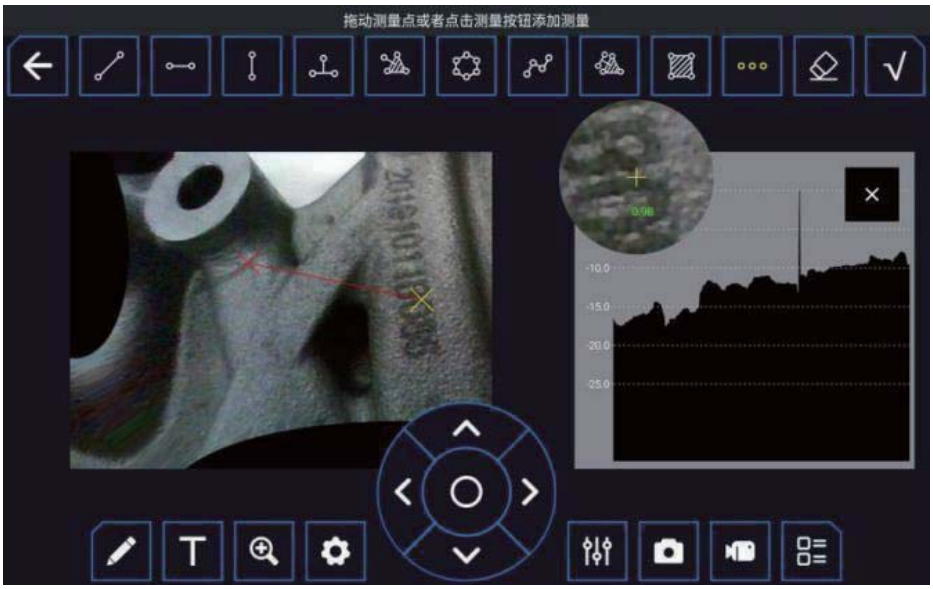
7	Measure the perimeter of a multi-segment line.	Select at least 3 arbitrary points to confirm a multi-segment line and measure the perimeter
8	Measure the perpendicular distance between a line and a given plane.	Select 3 random points of one plane to confirm a plane. Then select 2 arbitrary points to confirm a line. measure the distance from the line to the plane.

9	Measure the area of a closed polygon.	Select at least 3 arbitrary points to confirm a polygon and measure the area 

Click the ruler key in the 3D cloud image area on the right to measure the cloud image.Click the "confirm" button in the upper right corner to display the measurement results and complete the measurement operation.

Click the section key in the upper tool area to view the section depth of the area to be inspected on the left.

After entering the section tool, select any two points in the left area to form a section depth view in the right area.



Eraser: During the selection process, click the eraser button to return to the top step.

Doodle: Click the doodle key to doodle on the left image and confirm in the upper right corner.

Screen capture and recording: During the measurement process, you can take any screen capture and recording to retain the measurement data and operation process

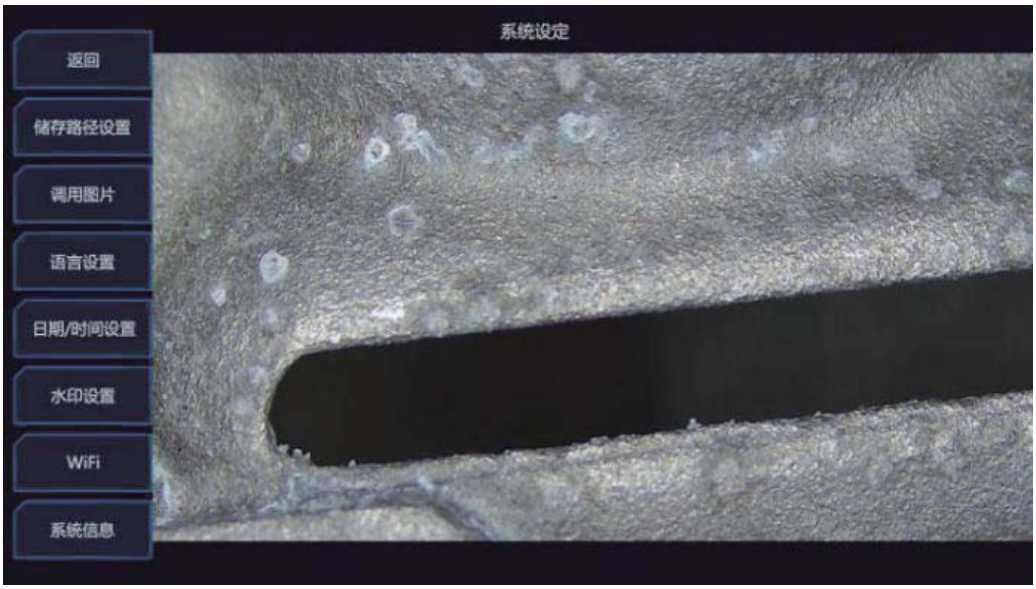
Draw Settings: Adjust the measured line segment, font size and color.

List: The value after multiple measurements is displayed in the form of a list on the right side. Click the serial number in the list, such as "1", and the "delete" option pops up to delete the corresponding value and measurement point.

Note: Strong characteristics are needed to the selection point for measurement.

3.13 Settings

Click ICON 13 "setting" to pop up the setting menu;



Storage path Settings, set the storage path for photos and videos,see 3.14.

Image call, set the image to be called in picture-in-picture.

Language Settings, set system language, there are 8 languages optional.

Date/Time setting, set system date and time.

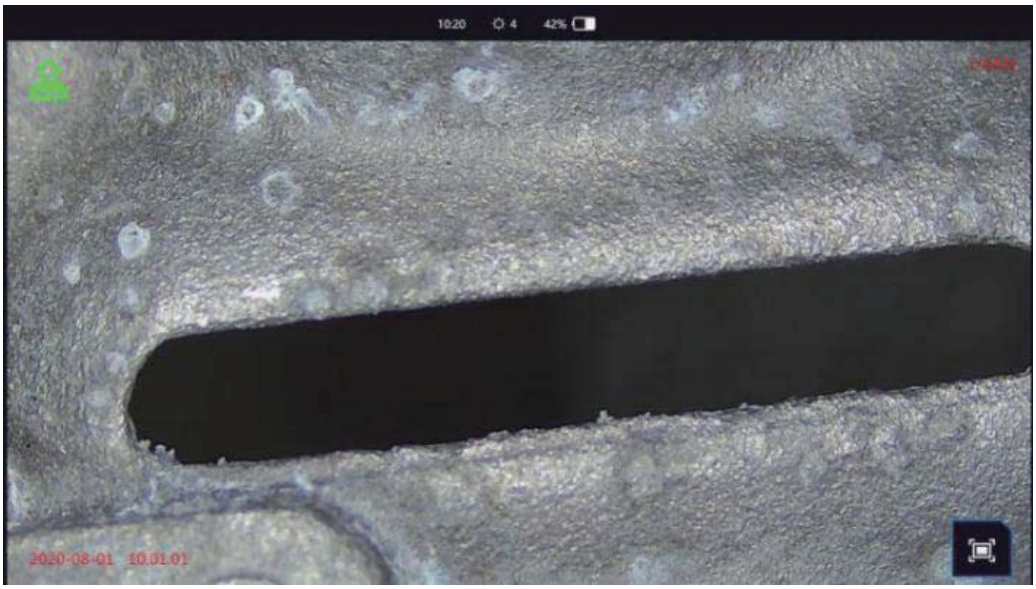
Watermark setting: Set the switch of "date \ time watermark, camera watermark, distance watermark, custom watermark" ,"Custom file name prefix" and draw seal style in the preview interface.

WiFi: WiFi is enabled, the system can be updated quickly

System information, view system version.

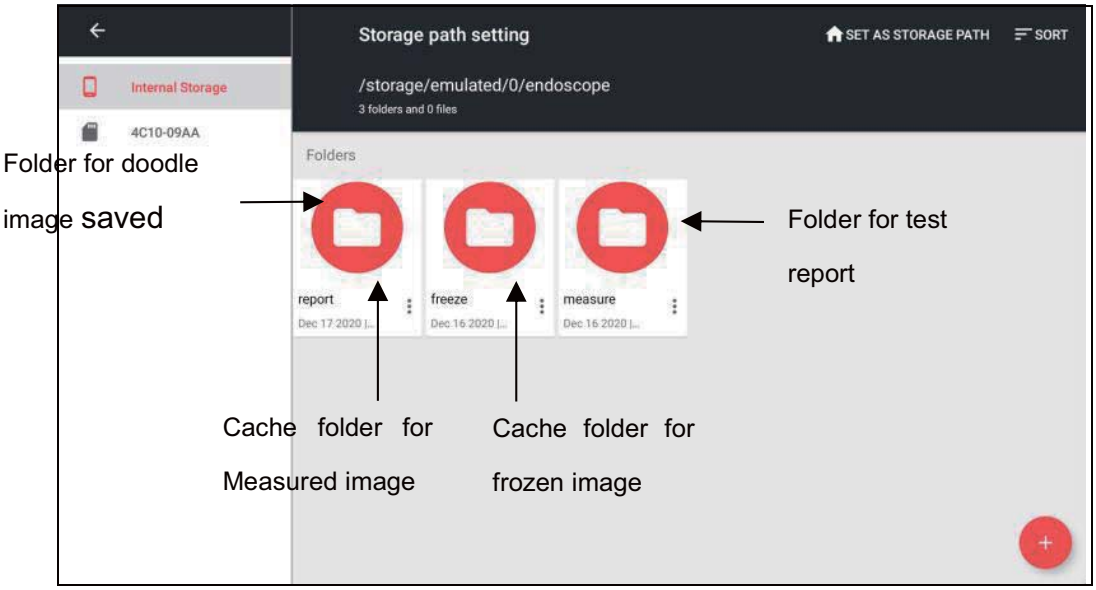
3.14 Full Screen

Display the image in full screen, hiding the left and right Settings floats.

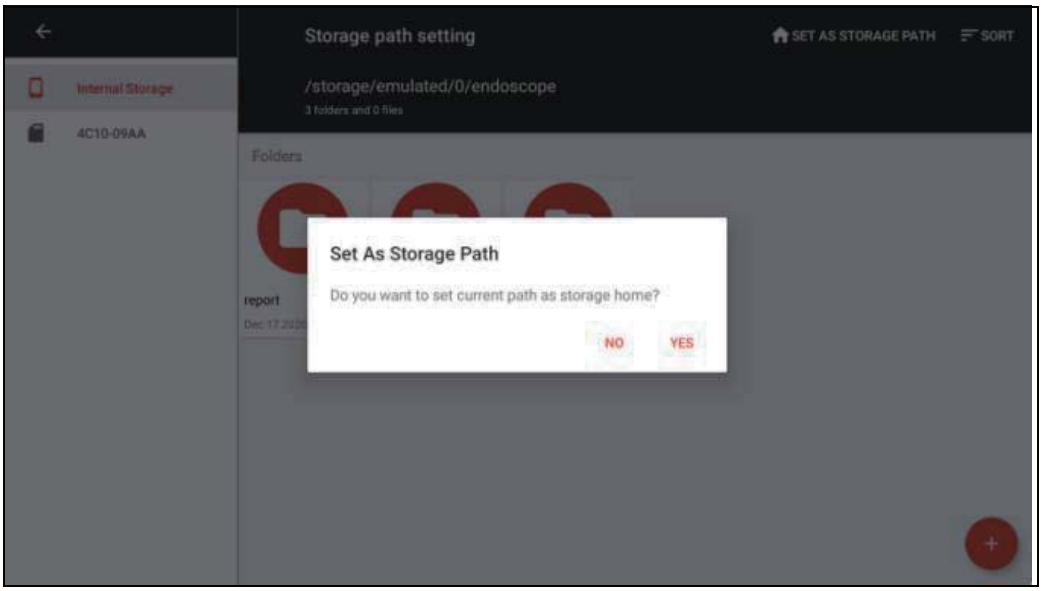


3.15 File storage path

Click ICON 13 "Settings" to enter the storage path Settings and enter the file management interface.

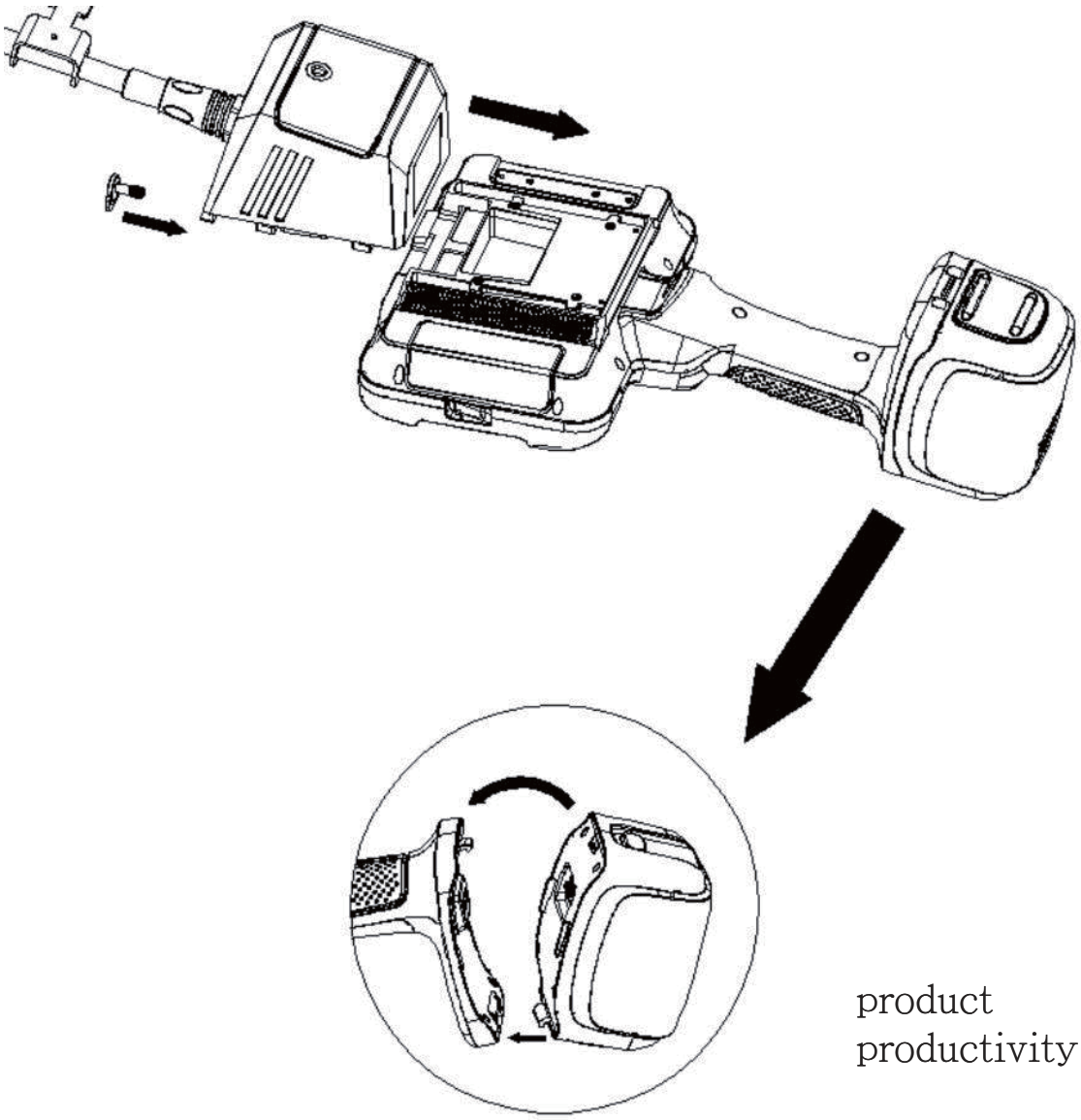


Select the location you want to set as the default storage path, and click the “small House” ICON in the upper right corner to set as the storage Path,then pop up the dialog box to determine if you want to change the default storage Path.



Note: When the memory card is unplugged, the device will automatically restore internal memory as the default storage path. After the memory card is inserted again, the memory card shall be set as the default storage path again.

4 Solution to Common Problems

Problem	Reason	Solution
Boot without reaction	dead battery	charging
Auto shutdown	battery power shortage	charge or change battery
Boot screen freezing	system boot failure or battery power shortage	remove the battery to re install or charge, or forced shutdown by triggered the restart button
The image cannot be recorded or found	the capacity of SD card is not enough	Remove unwanted files
Image stuck and fail to turn off	system stuck	forced shutdown by triggered the restart button

5 Product Assembly Diagram