USER MANUAL

Model:GT

e: Please read this user manual carefully before operating the instrument.

GT Industrial Touch Screen Endoscope

Xuzhou Weipuss Optoelectronic Technology Co., Ltd.

User Instructions

Please read this User Manual carefully before operating the instrument.

DANGER

- It is strictly prohibited to use this instrument to inspect human bodies and animals.
- It is strictly prohibited to use or store the instrument in explosive, strong electromagnetic field environments or places with flammable gases.
- Do not operate when the inspected object is electrified.

WARNING

- Unauthorized disassembly or modification of the instrument will void the warranty and maintenance service provided by Maiteks Company.
- Do not allow any liquid other than water to contact the insertion tube, otherwise the insertion tube may be damaged.
- Make sure to turn off the power before placing the instrument into the carrying case.
- Do not directly touch the lens of the insertion tube during operation. Contacting the lens after use in a high-temperature environment may cause burns.
- Immediately stop using the instrument and turn off the power if smoke or abnormal noise is observed.
- Do not stare directly at the light emitted from the front end of the insertion tube at close range to avoid eye damage from strong light.
- Immediately stop using the instrument and turn off the power if any abnormality is felt during angle adjustment operation.

CAUTIONS

- Do not use the instrument beyond the operating temperature range.
- Do not excessively bend, twist or fold the insertion tube.
- Only use the power adapter supplied by Maiteks Company.
- Do not force the insertion tube out when removing it from the inspected object, and comply with the following requirements:
    - Do not withdraw the insertion tube from the inspected object when the angle is locked or the angle part is bent.
    - If the insertion tube gets stuck during withdrawal, gently rotate the joystick

and withdraw the tube after it is straightened.

- After operation, reset the bent front lens of the insertion tube. Do not keep the lens fixed in a single direction for a long time, as this will keep the instrument under high load and shorten its service life.
- Pay attention to the following points when operating the front end of the insertion tube:
    - Avoid severe impact or strong pulling on the front end of the insertion tube.
    - Prevent severe impact or excessive bending of the angle bending part, otherwise the glass lens and precision components at the front end and bending part of the insertion tube will be damaged.
- Clean the lens with alcohol or acetone before use to avoid dirt accumulation, corrosion and deformation.
- Do not apply force if any abnormality is felt during angle bending operation, so as to prevent damage to the insertion tube or inspected object.
- Do not allow metal objects or foreign matter to enter the host through interfaces or other openings, which may cause malfunction or electric shock.
- Do not strongly impact, squeeze or scratch the LCD screen with hard or sharp objects, otherwise cracks or scratches will appear on the screen.
- Do not cover the host with plastic bags or other objects during use, as internal overheating may damage the instrument.
- Align the red dot direction when operating the quick video connector, and do not apply force blindly.
- Do not store the instrument in the following environments to avoid damage:
    - Environments with high temperature, high humidity, heavy dust or particles.
    - Places with direct sunlight or radiation.
    - Places containing halide gas.

Battery Handling Instructions

Comply with the following danger, warning and caution rules when handling the battery. Failure to do so may cause battery leakage, overheating, smoking, explosion, electric shock and burns.

DANGER

1. Only use the dedicated battery and battery charger designed for this instrument for lithium-ion battery operation.
2. Do not install the battery with reversed electrodes.

3. Do not connect battery electrodes with metal objects, nor carry or store the battery together with metal items.

4. Do not throw the battery into fire or heat it, otherwise explosion may occur.

5. Do not attempt to open or modify the battery, otherwise fire or explosion hazards may arise.

6. Do not immerse the battery in fresh water or salt water, or expose it to moisture.

7. Do not charge the battery near open flames or direct sunlight, otherwise fire or explosion may occur.

8. Do not pierce, strongly impact or compress the battery, otherwise fire or explosion may occur. Do not drop, throw or subject the battery to violent impact.

9. Remove the battery only when the device is placed on a stable surface. An unstable placement may cause the battery to fall, leading to explosion and fire.

WARNING

1. Do not use non-original batteries for this instrument. The applicable battery model is 18650 protected 3.6V lithium battery.

2. Do not attempt to charge non-dedicated batteries for this instrument.

3. Stop using batteries with abnormalities such as liquid leakage, discoloration or deformation, and apply for maintenance immediately.

4. If battery liquid contacts skin or clothes, rinse immediately with clean tap water to avoid skin injury. Seek medical attention if necessary.

5. Do not deform the battery compartment or place foreign objects inside it.

6. Do not cover the battery charger with clothes or cushions during charging.

CAUTIONS

1. Do not use or store the battery in high-temperature environments, such as direct sunlight, enclosed cars under sunlight or near heating equipment.

2. The battery will heat up after long-term operation. Do not remove the battery immediately after use to avoid scalding hands.

3. Keep the battery out of reach of children.

4. Do not store the battery in humid, leaking, extreme high or low temperature environments.

5. Do not touch battery electrodes with wet hands.

6. Charge the battery before first use or reuse after long-term idle storage.

7. Remove the battery from the instrument if it will not be used for a long time, to prevent battery leakage or heat accumulation which may cause fire or personal injury.

Tips:

1. Use the battery correctly. Improper use may cause liquid leakage and overheating damage. Install the battery in the correct direction when replacing.

2. Battery performance decreases as ambient temperature drops. The performance will recover when the temperature returns to normal.

3. Recycle waste batteries in accordance with local regulations.

4. Recommended temperature range for lithium-ion battery operation:

Discharging (instrument operation): 0°C to 40°C

Charging: 0°C to 40°C

Storage: -20℃ to 50℃

5. Operation beyond the above temperature range will reduce battery performance and service life. Always remove the battery from the instrument for long-term storage.

6. The battery is a consumable part.

7. Due to power differences between individual batteries after long-term use, it is recommended to fully charge 18650 lithium batteries with a dedicated base charger.

TABLE OF CONTENTS

User Instructions----------1
1. Product Description----------6
2. Product Features----------6
3. Product Functions and Diagrams----------7
4. Pre-use Preparation and Inspection----------12
5. Borescope Angle Operation Method (Optional)----------14
6. Interface Description----------15
7. Button Function Instructions----------15
8. Touch Screen System Operation Instructions----------16
■ Preview Mode----------16
■ Photo Capture----------17
■ Video Recording----------17
■ Light Adjustment ----------17
■ Settings----------17
■ Image Flip----------17
■ Image Zoom----------17
■ Screen Lock----------17
■ Simulated Scale----------17
■ Host Button Menu Settings----------18
9. Instrument Storage and Maintenance----------18
10. Troubleshooting Guide----------20
11. Additional Cautions----------20
Appendix 1: Product Warranty----------22

1. Product Description

The GTGS4-2 industrial touch screen borescope is a multi-purpose visual inspection instrument. It adopts optional joystick control, supporting 360° omnidirectional bending and rotation (two-way / non-directional optional) for on-site real-time photo and video recording. Equipped with a high-definition image sensor, it delivers clear and smooth images, and features a 5-inch high-definition LCD touch screen with vivid and bright colors.

Main Applications:

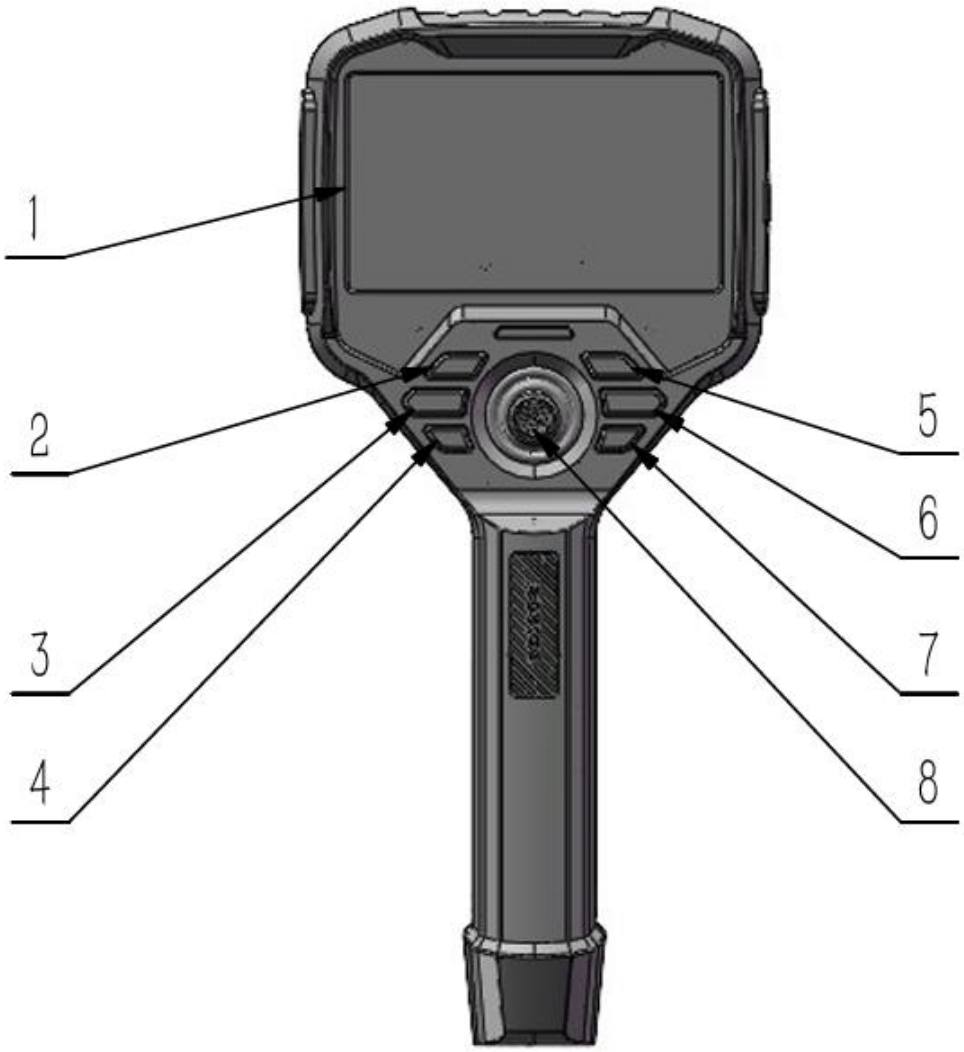
1.1 Industrial field: Applied to quality inspection of pipelines, heat exchange devices, cooling systems, transmission devices, hydraulic castings, pumps and valve castings. It is used for early quality control of welding and casting defects such as internal welds, surface finish, deep holes, blind holes, staggered holes, sand inclusions and burrs in pipelines and cavities.

1.2 Police field: Applied to security inspection, investigation, hidden danger troubleshooting and criminal evidence collection.

2. Product Features

- Compact, portable and handheld design with simple operation and convenient maintenance, improving working efficiency.
- Adjustable lens with optional joystick control, supporting 360° rotation and dead-angle-free observation (two-way / non-directional optional).
- Equipped with high-definition probe sensor to present clear and smooth full-scene images.
- Standard 5-inch high-definition LCD touch screen with high brightness, high image quality and multi-times digital zoom function.
- Adopts high-brightness lighting source with low power consumption and long service life.
- Supports multi-functional operations including photo capture, video recording, image and video playback, brightness and clarity adjustment, and system menu setting.
- The insertion tube is made of tungsten wire mesh (coated plastic tube / gooseneck tube optional) with rotatable and quick-replaceable pipeline. It features wear resistance, waterproof performance and acid and alkali corrosion resistance.

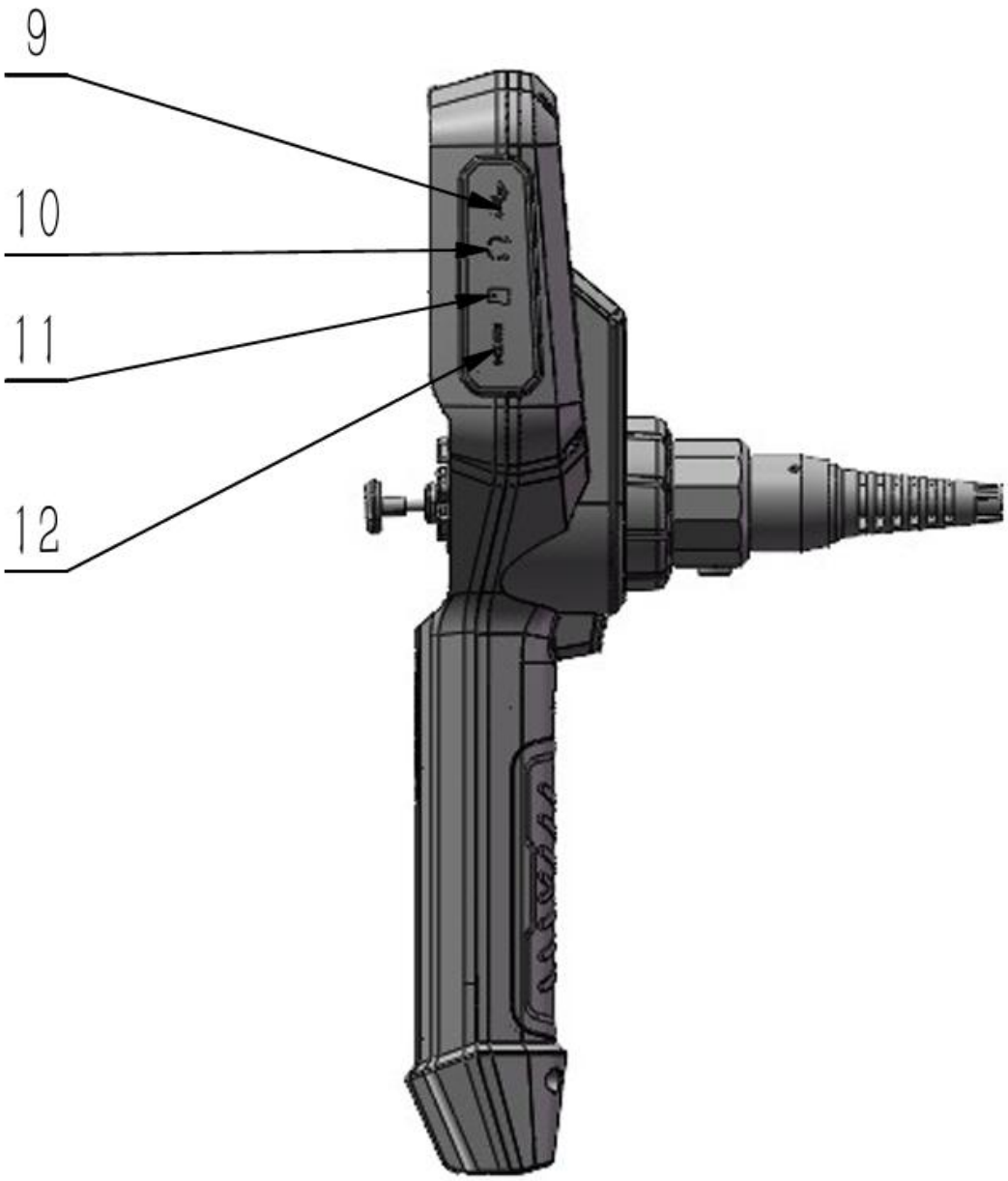
3. Product Functions and Diagrams



(Figure 1: Front Button Layout of Host)

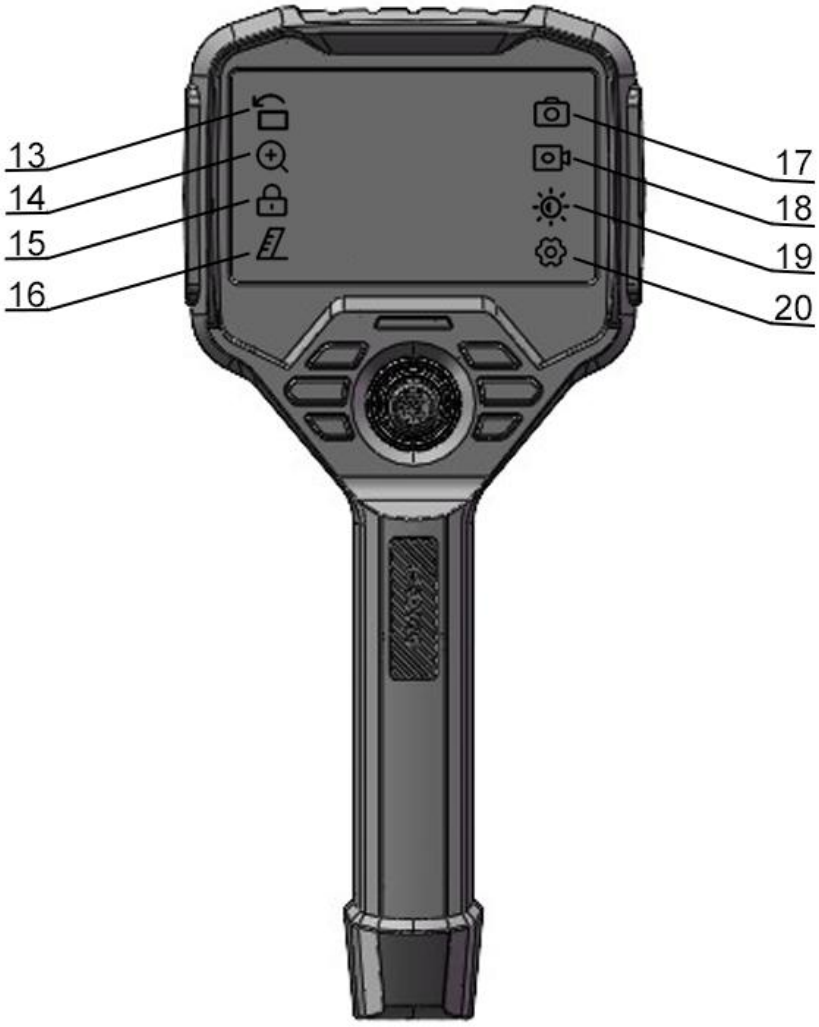
No.	Name	No.	Name
①	5-inch Touch Screen Display	⑤	Power On/Off Key

②	Brightness Adjustment Key (Long press for infrared/white light switching, optional)	⑥	Menu/OK Confirm Key (Long press to turn on fill light)
③	Short press to return / Long press to enter playback interface	⑦	Short press for down function in menu interface / cyclic zoom in preview interface
④	Short press for up function in menu interface / 90° cyclic image rotation in preview interface	⑧	Joystick (Optional)



(Figure 2: Side Button Layout of Host)

No.	Name	No.	Name
⑨	MINI USB Interface	⑪	TF Card Slot
⑩	Reserved Headphone Port	⑫	HDMI Output Interface



(Figure 3: Touch Screen Component Layout)

No.	Name	No.	Name
⑬	Image Flip Key	⑰	Photo Capture Key
⑭	Image Zoom Key	⑱	Video Recording Key
⑮	Screen Lock Key	⑲	Light Adjustment Key (Long press for infrared/white light switching)

⑯	Simulated Scale Key	⑳	Function Setting Key

Long press the handle setting key to turn on the fill light; short press for photo capture and long press for video recording in preview interface, long press again to exit recording.

(Figure 4: Host Schematic Diagram 4)

(Figure 5: Front, Side and Back Schematic Diagram of Host)

4. Pre-use Preparation, Inspection and Hidden Functions

4.1 This product is a split pluggable borescope with multi-purpose functions. First inspect the equipment for defects or damage before use, then install the equipment and battery accessories. Align the interface during installation, fix it with a rotating buckle after tight connection.

4.2 As a split pluggable device, install the battery and TF memory card in advance after equipment inspection to facilitate photo and video recording. Press the button at the bottom of the handle after battery installation to check the battery level via indicator lights, then insert the TF card into the slot.

4.3 Short press the menu key to enter the setting state; long press the setting key to turn on/off the auxiliary fill light (on the back of the host). In addition to the touch screen keys, the reverse side of the handle is equipped with convenient recording keys: short press for photo capture, long press to start/stop video recording.

4.4 Borescope Access and Storage

① Taking out the borescope: Take out the host signal line, probe end and insertion hose first, then the operating part when opening the package.

② Storing the borescope: Place the operating part first, then the main hose, probe end and host signal line during storage.

4.5 Inspection of Borescope and Accessories

Inspect all components before each use. Stop using the instrument and contact professional technical personnel of our company if any minor defects or abnormalities are found.

① Insertion hose inspection: Visually check the surface of the insertion hose for damage or defects.

② Bending part inspection (optional): Push the joystick in all directions to confirm the bending part can bend smoothly to the maximum angle, and visually inspect the outer surface for defects.

Bending Joystick Inspection (Optional)

Slowly push the joystick up, down, left and right with your thumb to bend the probe at continuous angles. Do not bend to a large angle at one time. Stop pushing when the joystick reaches the limit to avoid damage. Do not keep the joystick pressed for a long time to maintain a large bending angle.

③ Check the host signal line for cracks, distortion, compression or other damage.

④ Check the tightness of signal plug connection to ensure safe and normal operation of the supporting driver.

5. Borescope Angle Operation Method (Optional)

Battery Level Detection

This instrument adopts replaceable rechargeable lithium batteries. Charge the

battery in time when the power is low.

① The battery icon on the screen displays the real-time power level after power-on (full grid for sufficient power).

② The battery icon flashes to remind low power when the power is insufficient.

③ The instrument will automatically shut down when the battery is exhausted.

Angle Operation (Optional)

Ensure the insertion hose is fully stretched and unfolded before probe bending operation; do not bend or coil the hose during operation.

Push the joystick with your right thumb to bend the probe up, down, left and right for observation. Immediately stop operation if the bending control mechanism fails or abnormal operation is detected. Reset the joystick to the middle position, then slowly withdraw the borescope while observing.

Do not force bending if abnormal resistance is felt when operating the joystick. Always operate the joystick slowly.

Shutdown and Storage

Reset the probe to a horizontal straight state after use. Long press the power key ⏻ to shut down the instrument, then place it into the dedicated safety box.

6. Interface Environment Description

According to professional usage scenarios, the instrument is equipped with three operation modes to maximize convenience: Preview Mode, Menu Mode and Playback Mode.

7. Button Function Instructions

Each button has different functional definitions in different modes for humanized and convenient operation. The function comparison table is as follows:

Button	Preview Mode	Menu Mode	Dimming Mode
Power Switch	Power On/Off	Power On/Off	/
Rotation/Up Key ↑	Image Rotation	Up Selection	/
Zoom/Down Key ↓	Image Zoom	Down Selection	/
Setting/OK Key	Enter Settings	OK Confirm	/

8. System Operation Instructions

Preview Mode

Long press the power key to turn on the device. The system will enter the preview interface 3 seconds after the boot screen. The screen displays real-time images and status information including time & date, TF card insertion status and battery level. A no-card icon will be displayed if no TF card is inserted; do not hot-swap the TF card.

Right Touch Screen Keys (Top to Bottom):

• Photo Capture: Short press the photo key to capture images. A fleeting camera icon indicates successful capture.

• Video Recording: Short press the recording key in preview mode to start recording (flashing red dot indicator and recording time display). Press again to stop recording and return to preview mode automatically.

• Light Adjustment: Short press the key to adjust light brightness (8-level adjustable) for optimal illumination and image clarity.

• Setting Key: Short press to enter the menu setting interface.

All files are named with the shooting timestamp for easy query. **Note:** The device has no built-in storage; a TF card must be inserted before photo/video recording.

Left Touch Screen Keys (Top to Bottom):

• Image Flip: Short press to flip the captured image by 360° for viewing.

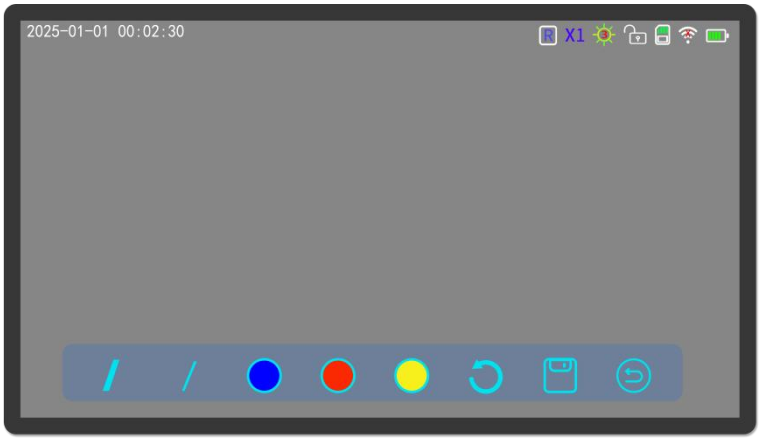
• Image Zoom: Short press to zoom the image up to 8 times.

• Screen Lock: Short press to freeze the real-time screen image.

• Simulated Scale: Short press to measure the size of inspected objects.

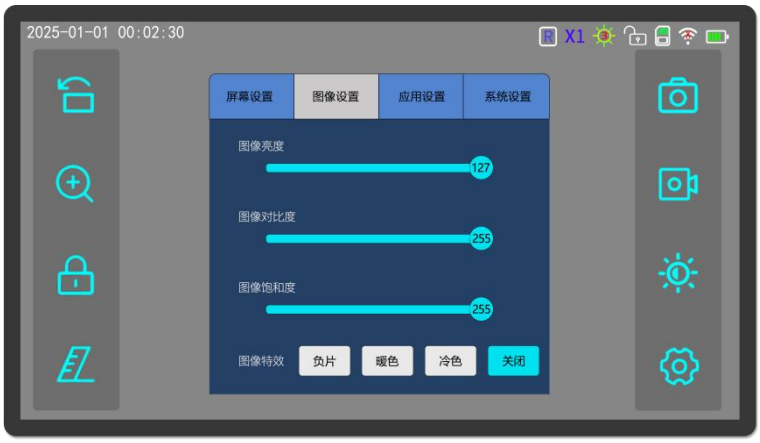
Host Button Menu Settings

1.Touch and hold the screen for 3 seconds to enter the screen editing interface. Short press the save key to confirm editing, press the edit key / to modify content, and press the exit key to quit editing. The upper right corner displays status prompts including battery level, WIFI, TF card, screen lock, brightness level, zoom multiple and mirror mode.



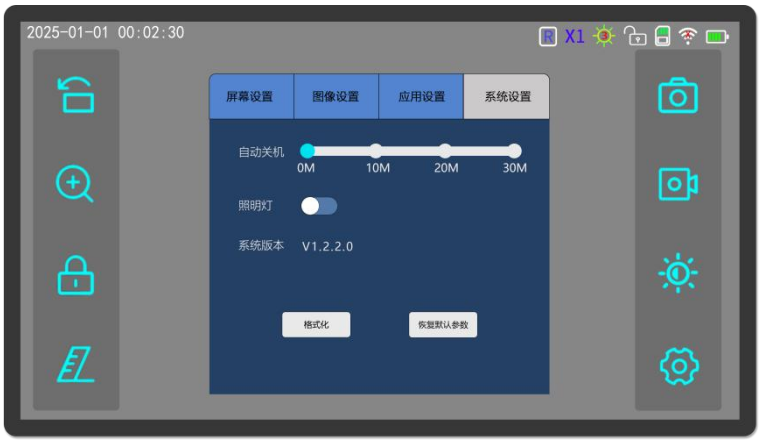
2． Screen Settings: Enter the system menu in preview mode to adjust screen brightness, display ratio and scale type via up/down ▲/▼keys, and confirm with the OK key.

3． Image Settings: Enter the image setting interface in preview mode to adjust image brightness, contrast, saturation and special effects via up/down keys, and confirm with the OK key OK.



4． Function Settings: Enter the function setting interface to adjust time, language, volume and WIFI status via up/down keys, and confirm with the OK key.

5． System Settings: Enter the system setting interface to set auto-shutdown, view software version, format storage, upgrade software and restore factory settings via up/down keys, and confirm with the 'OK' key.

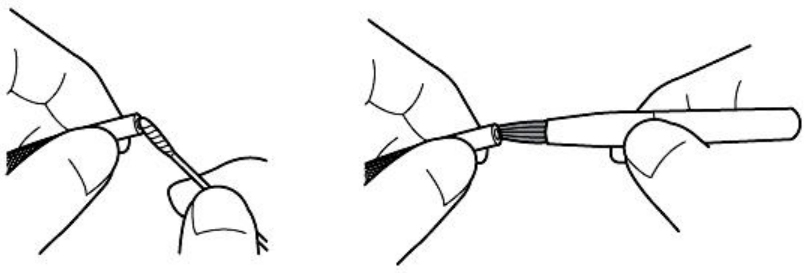


9. Instrument Storage and Maintenance

9.1 Borescope Hose Cleaning

1. Wipe foreign matter on the insertion tube with a dust-free cloth.

2. If the insertion tube is contaminated with waste water or engine oil, clean in the following order: ① Wipe with dust-free cloth; ② Clean with neutral detergent and dust-free cloth; ③ Wipe with clean water and dust-free cloth; ④ Dry thoroughly with dust-free cloth.



Cautions:

• Clean thoroughly with dust-free cloth to extend the service life of the insertion tube.

• Do not flush the lens directly with tap water to avoid equipment damage.

• Store the instrument horizontally at room temperature in a clean and dry environment.

• Handle with care and avoid collision during storage.

• Check instrument functions regularly during long-term idle storage.

9.2 Instrument Storage Requirements

Store the instrument in a clean, dry, well-ventilated and constant-temperature environment, avoiding direct sunlight, high temperature, high humidity and X-ray radiation. Keep the insertion hose straight during storage; if coiled, do not coil tighter than the original factory packaging state.

Warning:

• Place the instrument out of children’s reach and operate only after mastering usage rules.

• Do not store in high-temperature, high-humidity, high-vibration, high-dust, polluted or corrosive environments.

Screen and Host Cleaning

Wipe fingerprints and stains on the LCD screen, host and operating handle with a dust-free cloth. **Caution:** Do not clean the instrument directly with tap water.

9.3 Instrument Reassembly and Storage Sequence

Reassembly sequence: Operating handle → Host

Cautions:

• Follow the correct storage sequence to avoid insertion tube damage.

• Place the insertion tube gently into the box without bending or extrusion.

• Fasten the box buckle firmly to prevent accidental opening during handling.

• Use the original dedicated safety box for storage.

9.4 General Storage Cautions

• Store under normal room temperature and humidity conditions.

• Turn off the power before packing and storage.

• Place the instrument on a clean, dry and stable plane.

Danger: Do not violently bend, pull, twist or squeeze the signal line to avoid line breakage, fire or electric shock hazards.

10. Troubleshooting Guide

Fault Phenomenon	Possible Causes	Solutions
Blurred image	Dirty objective lens	Clean the objective lens surface
	Water droplets in the field of view	Stop use and send to the company for maintenance
Abnormal probe bending	Bending angle below standard value / joystick backlash / abnormal resistance / failure to lock / damaged bending sheath	Stop forced operation and send to the company for adjustment and maintenance
System failure	Abnormal power supply	Check battery level, power supply voltage and fuse integrity
LCD fails to power on	Dead battery	Charge or replace the battery
Video playback failure / garbled text	Unsupported video format / incorrect language setting	Convert to supported video format / reset system language
File upload/download failure	Faulty USB cable or interface	Replace USB cable or change computer USB interface
Failed to save recording files	No TF card inserted / TF card full / TF card bad sectors	Insert or format the TF card

Stop use and send to the company for maintenance if faults cannot be eliminated by the above methods. The company shall not be liable for damage caused by unauthorized private maintenance.

11. Additional Operation Cautions

1. Keep the hose stretched during operation; avoid bending, knotting, falling or extruding the probe and hose.

2. Do not aim the working probe at strong light (above 100,000 Lux) to prevent camera damage.

3. Turn off the light via the brightness key when not in use to save battery power.

4. Charge the instrument regularly every 1-2 months during long-term idle storage to avoid battery loss and damage.

5. Ensure the TF card is inserted when browsing files or formatting the card.

6. Avoid rapid movement of the probe during shooting to prevent blurred images and mosaic distortion.

7. Do not press the panel with hard objects or nails to avoid surface damage.

8. Insert and pull out TF card and USB cable horizontally without forced shaking.

9. Turn off the power after use to prevent battery exhaustion.

10. Restart the device to recover from system abnormality or crash.

11. Test photo and video functions formally before official use, and confirm file integrity after shooting. The company shall not be liable for accidental file loss or damage.

Do not disassemble or repair privately if faults cannot be judged; contact professional electricians or return to the factory for maintenance. The product specifications in the manual are subject to technical upgrade changes without prior notice.

Appendix 1: Product Warranty

1. Free repair service is provided for equipment failures caused by normal use within one year from the purchase date with valid warranty.

2. The company provides 24-hour after-sales response via phone, QQ or on-site service; minor faults will be resolved within 48 hours.

3. Free warranty is invalid under the following conditions:

- Failures caused by violation of operation specifications and steps in the manual.
- Damage caused by non-compliant storage and maintenance.
- Damage caused by violent operation or external force impact (falling, collision, etc.).
- Unauthorized disassembly, modification or private maintenance.
- Damage caused by non-compliant power connection and system wiring errors.
- Damage caused by natural disasters and irresistible external forces.

4. Paid maintenance at cost price is provided for equipment beyond the warranty period.

5. No replacement for lost warranty certificates; the warranty period is calculated based on the factory number and production date.

6. Altered, manually filled or unsealed warranty certificates are invalid.

FCC Caution.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.