Industrial Endoscope

User Manual

COANTEC X35 Series

Please read this Operation Manual carefully before using this instrument.

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Notice:

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In case of any questions, please call our after-sales service personnel. Tel.: +86-755-89728626

Contents

I. Instructions to Users

1.1 Purpose and Scope of Application

This product can be used to effectively observe the parts and components or the internal area of the device that are difficult to be directly observed by human eyes in a narrow space. Users can observe the internal state and surface defects of an object in real time on the display screen, and take photos and videos for recording, so as to obtain more complete and reliable detection data. This product can be widely used in aerospace, automobile manufacturing, precision casting, railway and ship, petrochemical power, special equipment and other fields.

1.2 Repair and Refitting

This product has no parts or components that can be repaired by the user. Do not try to disassemble, refit or repair the instrument by yourself, and Coantec will not assume any responsibility for injury or loss caused to the user thereby. This product can only be repaired by Coantec and its authorized dealers.

1.3 Safety Precautions

When using this product, please observe the following instructions to avoid accidental injury or instrument damage due to improper operations:

①Do not use this instrument to check human or animal bodies.

② Do not work on the object under test while it is electrified in order to avoid electric shock.

③ Do not touch the lens end with a bare hand during operation; otherwise, it may cause burns.

④ Do not look directly at the strong light from the front end of the probe at close range as it may affect your vision.

⑤ Do not bend, stretch, twist or roll over the tube excessively.

⑥ The image will be blurred if the lens is stained. Please wipe the lens clean with a lint-free wiper dipped in a little alcohol before using the instrument.

⑦ Keep the insertion tube away from liquids other than water, saline, engine oil and light oil.

⑧ Please clean the instrument in time after use.

II. Introduction

The X35 Series Desktop Industrial Endoscope is a compact yet powerful visual inspection device featuring a 6-inch TFT HD touchscreen. It boasts a user-friendly interface supporting both Chinese and English, with functionalities including photo capture, video recording, and image editing. The main unit's housing, constructed from ABS+PC composite material, incorporates pin positioning for easy detachment from its base.Images can be transmitted to a PC via data cable for real-time viewing, image/video capture, and file retrieval. The probe is equipped with calibration markings to pinpoint inspection positions and holds an IP67 dustproof/waterproof rating. This product is ideal for detecting surface defects in small-scale equipment, precision components, pipelines, and other internal cavities.

III. Operation Process

① Unpacking: open the product box, and take out the videoscope and the insertion tube. Hold the probe properly during unpacking to avoid collision. Securely mount the videoscope onto the base using the positioning pins.Install the insertion tube to the videoscope according to the Instructions.

② Preparation for startup: Check whether all parts of the videoscope are in good condition, and long press the ON/OFF button to turn on the videoscope.

③ Real-time observation: Extend the insertion tube into a device or component..

④ Brightness adjustment: Press the +/- buttons on the device's top to control the light brightness.

⑤ Examination: Users can reconfigure functions based on application demands, and check and take photos and videos of the target in real time.

⑥ Tube retraction: Operate the insertion tube to be roughly straight and flat, and pull back the tube slowly.

⑦ Product storage: Turn off the power switch, put the product into the product box, put away the insertion tube, close the upper cover, and lock the catch.

IV. Operation Guide

4.1 Buttons and Interfaces

Schematic diagram of operation buttons and interfaces of X35 series industrial endoscope (as shown in Fig. 1).

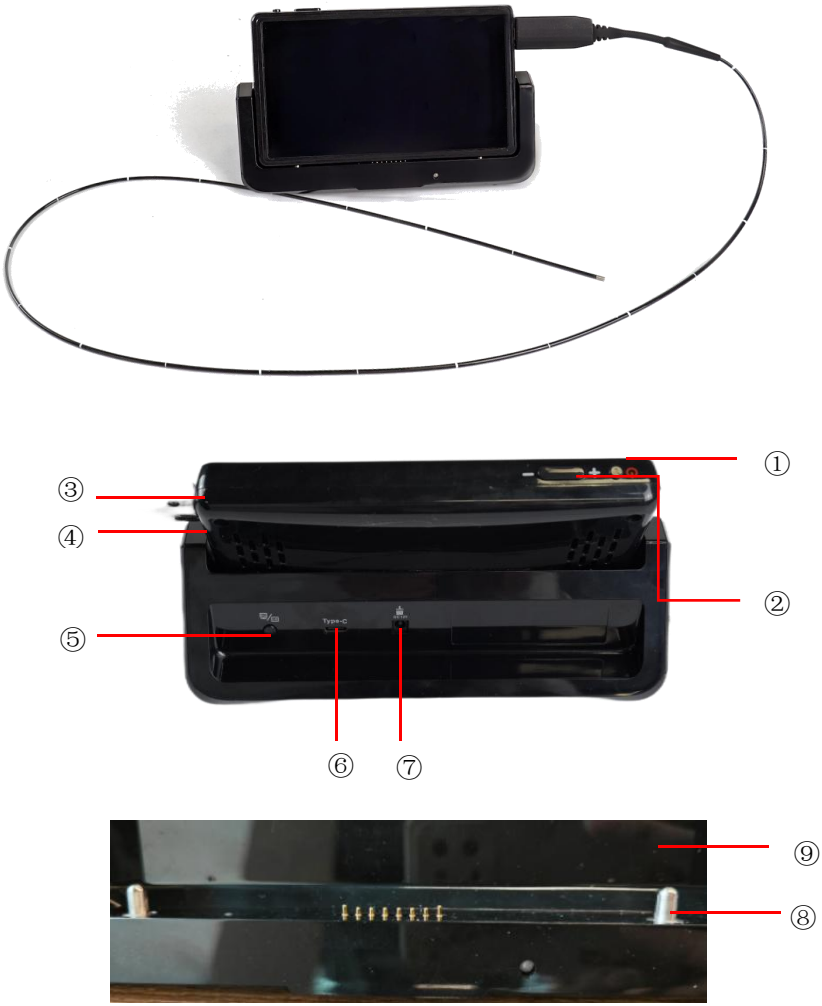

Fig. 1

① ON/OFF button

② Brightness increase/decrease button

③ HDMI interface

④ Type-C (for Image Display)

⑤ PC/Device Display Switching

⑥ USB Type-C (for data transmission)

⑦ Charging Port

⑧ Pin Positioning

⑨ Base

4.2 Operation Interface

Press and hold the ON/OFF button for about 3s to turn on the videoscope, and the ON interface pops up after the system startup. After the program is loaded, the main interface of the system for real-time examination pops up (as shown in Fig. 2), and the end of the insertion tube stretches into the target to be examined for examination. Double-click the blank area of the touchscreen to enable/hide the menu function.

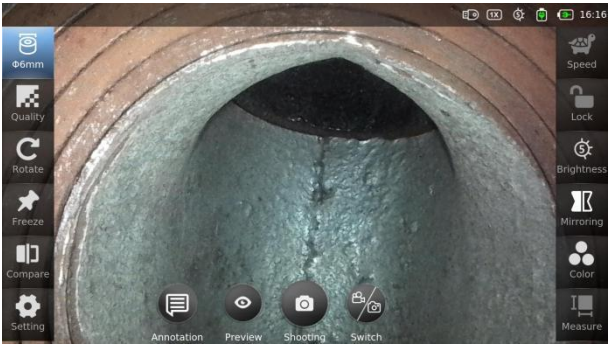

Fig.2

① Tube diameter: The system automatically checks and displays the diameter of the current insertion tube.

② Image quality: adjust the image brightness, contrast, tone, saturation, definition and gamma, and restore defaults.

③ Rotation: rotate the real-time examination image clockwise by 90° each time.

④ Image freezing: freeze the real-time examination images.

⑤ Comparison: compare the real-time examination images with the saved images.

⑥ Settings: enter the setting interface where the following operations can be performed:

- WLAN Setting: connect/disconnect the wireless network.

- User Administration: enable the administrator, visitor, and standard user administration modes.
- About this Product: view the product information, check for upgrades, and upgrade this product to the latest version.
- Display: set the screen brightness, language, date, and time.
- Custom Settings: enable the watermark and scale functions, and set the image format.
- Help

⑦ Speed: not available for this model.

⑧ Release/lock: not available for this model.

⑨ Brightness: set the LED brightness of the probe.

⑩ Mirroring:To switch mirror image.

⑪ Colors: default, black and white, negative, bright, highlight, and soft.

⑫ Measurement: not available for this model.

⑬ Annotation: add annotations and preferences.

⑭ Preview: enter the file browsing interface.

⑮ Photo/Video: take photos and videos and save the files automatically.

⑯ Switch: switch photo/video modes.

Icon display: The icons in the upper right corner of the screen indicate the current status: image magnification (1~5), LED brightness level (0~9), SOC of host battery, and system time.

4.3 Function Settings

Enter the main interface to set functions, such as WLAN Setting, User Administration, About this Product, Display, Custom Settings, and Help (as shown in Fig. 3).

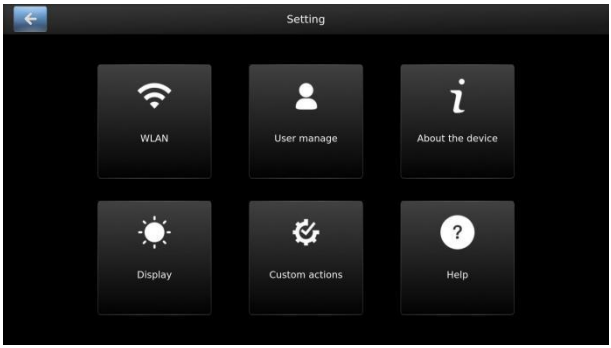

Fig.3

- **WLAN Setting**

Enter the WLAN Setting interface to enable the wireless network function, search for and connect with the WLAN available, and enter the correct password for networking.

- **User Administration**

Enter the User Administration (as shown in Fig. 3-1) interface to set the modes of administrator, visitor, and standard user (added by the administrator). The user administration mode is enabled mainly to grant different administration authorities. Log in as an administrator (the initial password is "123456") to create a standard user, delete a user, and change the password. Information such as images taken and reports generated in different user administration modes can only be viewed and processed in the current mode. The system is in visitor mode by default, and no login is required.

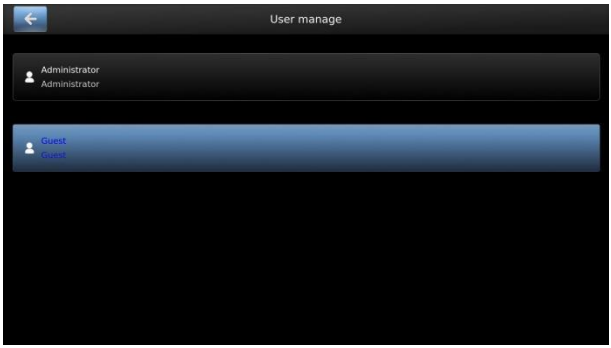

Fig. 3-1

- **About this Product**

View the product information to check for upgrades, and upgrade this product to the latest version.

- **Display**

Set the display brightness level (manually 10-100), language (simplified Chinese, English, French, German, Portugal, Spanish, Italy, Netherlands, Poland, Korean, Traditional Chinese, and Japanese), and date and time (Sync to Web or manually), as shown in Fig. 3-2.

Fig. 3-2

- **Custom Settings**

Set the watermark (time and position), scale (hide, cross scale, circular scale, and reference line), and image format (JPG, and BMP), as shown in Fig. 4.

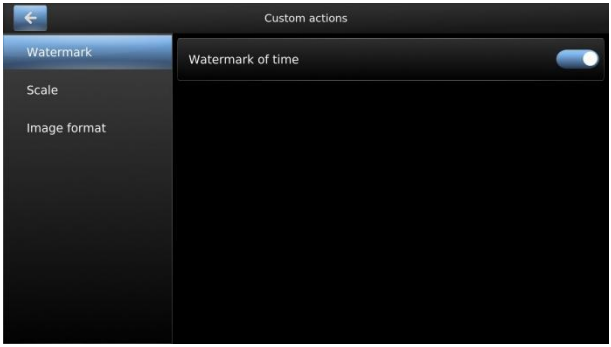

Fig. 4

- **Help**

The Operation Instructions are available therein.

4.4 Brightness Control

In the real-time examination mode, the LED brightness of the front-end probe is controlled by the brightness +/- button (as shown in Fig. 5). The brightness levels 0 to 9 are available. At Level 0, the LED is off, and the brightness is the highest at Level 9. After startup, the brightness at Level 5 is set by default. The current brightness level is displayed in the upper right corner of the screen.

The brightness can also be adjusted step by step by pressing the brightness increase/decrease button on the top of the videoscope.

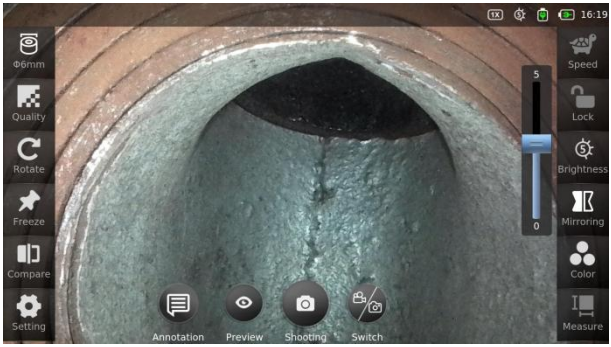

Fig. 5

4.5 Color Conditioning

Enter the main interface to enable the image color conditioning function to set the image to default, black and white, negative, bright, highlight, and soft modes as required (as shown in Fig. 6).

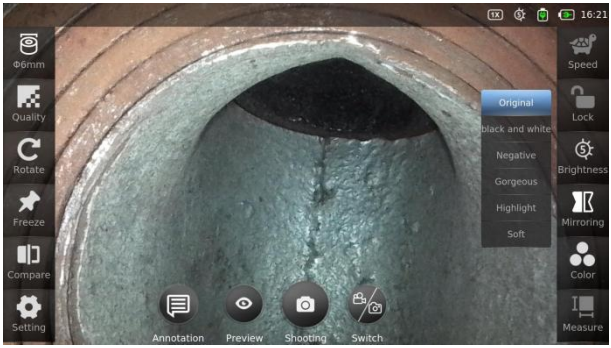

Fig. 6

4.6 Image Quality Control

Enter the main interface to enable the image color control function, allowing the user to adjust the following parameters of the image or restore

defaults (as shown in Fig. 7) according to the actual situation. The adjustable range values are as follows:

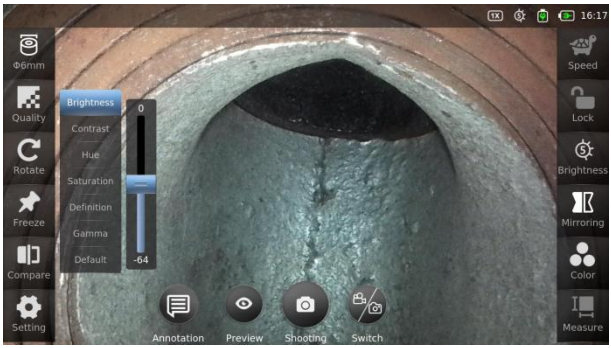

Fig. 7

4.7 Image Scaling

In the real-time examination mode, the image can be scaled up by 1-5 times by the Image Up-scaling button on the front panel of the videoscope, or the examination image can be scaled down/up in multi-touch mode by two fingers. The current magnification is displayed in the upper right corner of the screen.

4.8 Photo/Video

Photo: The photo mode is enabled by default during real-time examination. Tap the touch screen or press the photo/video button on the back of the videoscope handle to directly take and save photos automatically (as shown in Fig. 8).

Video: The photo mode is switched to the video mode by the Photo/Video Switch button on the touch screen or handle, tap the touch screen or press the Photo/Video button on the back of the videoscope handle to enable the Video mode, and press this button again to disable the Video mode and save video files. The current duration will be displayed during taking video. During taking video, the functions such as LAN streaming（refer to 4.14 Video-streaming）, annotation adding, pause and screenshot can be enabled (as shown in Fig. 8-1).

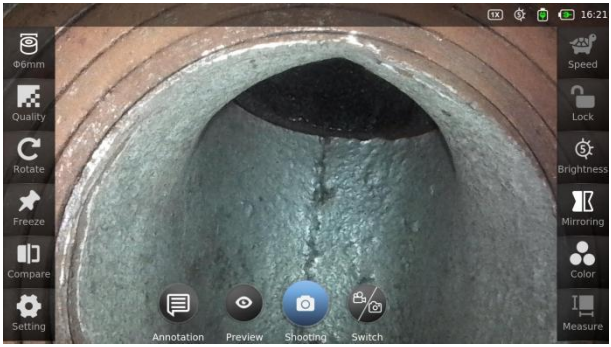

Fig. 8

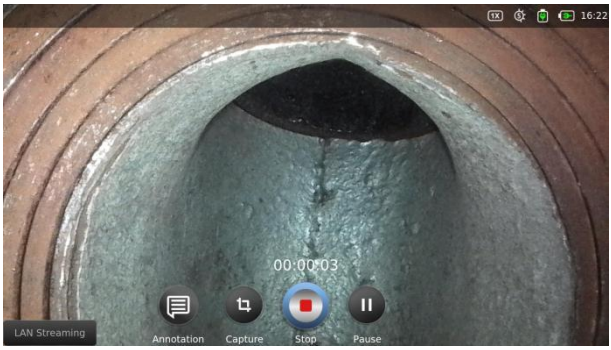

Fig. 8-1

4.9 Image Comparison

Enter the main interface to enable the image comparison function to compare the real-time image with the images in the gallery. The user may browse and select an image, or select the previous or next image. The real-time screen can be frozen and rotated (as shown in Fig. 9).

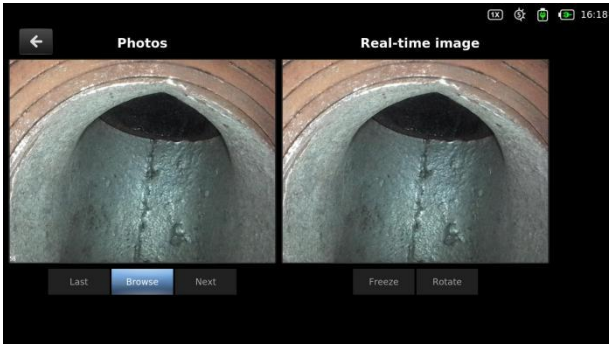

Fig. 9

4.10 File Preview

Press the Preview button to enable the playback mode to search for files and view images, videos, and reports respectively (as shown in Fig. 10).

The file can be searched by inputting certain characters of the file name in the Files Search box in Simplified Chinese, English, French, German, Portugal, Spain, Italy, Netherlands, Poland, Korean, Traditional Chinese, Japanese, and other languages, and also by inputting numbers, capital and lower-case letters, symbols, etc.

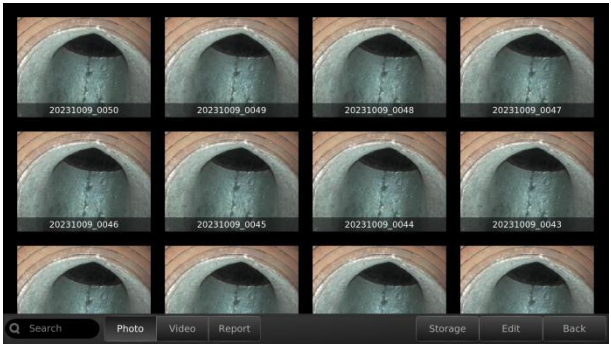

Fig. 10

Save: select the file save path, create/rename folders (in more than ten languages such as Chinese and English), select the folder save path, and set the current path as the default save path (as shown in Fig. 10-1).

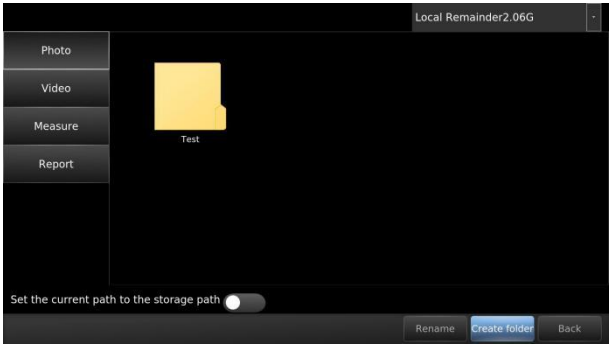

Fig. 10-1

Edit: Select files (multiple choices), move, share, select all/clear all, and delete (as shown in Fig. 10-2).

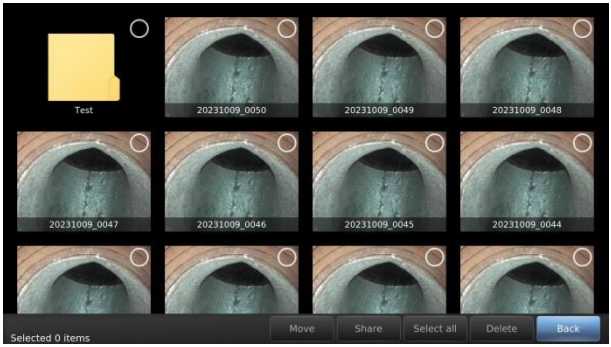

Fig. 10-2

Move: Select a file, and cut and paste it to a designated folder (as shown in Fig. 10-3).

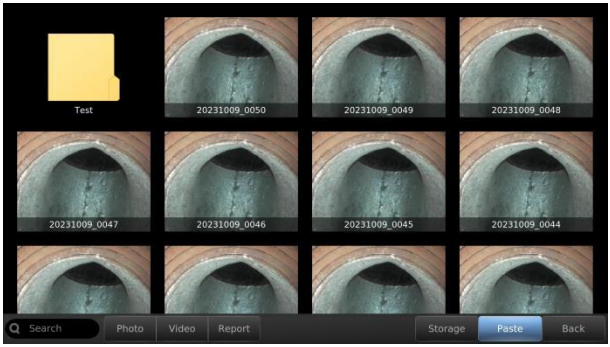

Fig. 10-3

Share: Multiple files can be shared through the USB, while a single file can be shared through the USB, Bluetooth, LAN, and the Internet (as shown in Fig. 10-4).

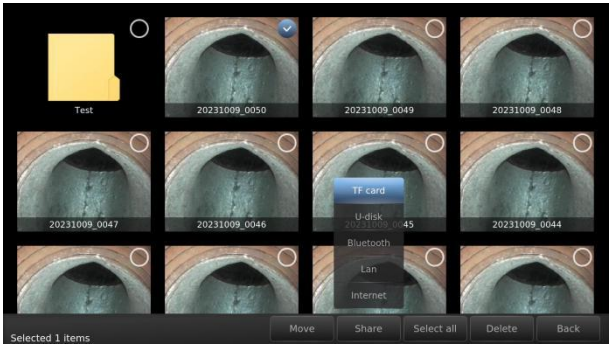

Fig. 10-4

USB: Share files in the videoscope through the USB Type-C.

Bluetooth: Enable the Bluetooth function of the receiving device (mobile phone), and select a device to be paired with the videoscope from the list of devices in the system, allowing for file transmission through Bluetooth.

LAN: Connect the videoscope with WLAN, with the receiving device (mobile phone) also connected with the same LAN. The system displays the QR code shared through the LAN, and files can be received by scanning this QR code with a mobile browser (as shown in Fig. 10-5).

Fig. 10-5

4.11 Image Editing

Open the image, view the image details and the previous and next images, graffiti, rename, rotate and delete files (as shown in Fig. 11).

Details: indicate file name, type, size, creation time, etc.

Image up-scaling/moving: scale the image up and down by two-finger pinching, and move and view the enlarged part of the image.

Rename: The user can rename the image file in more than 10 languages such as English and simplified Chinese.

Rotate: rotate the image clockwise by 90° each time.

Delete: directly delete the image.

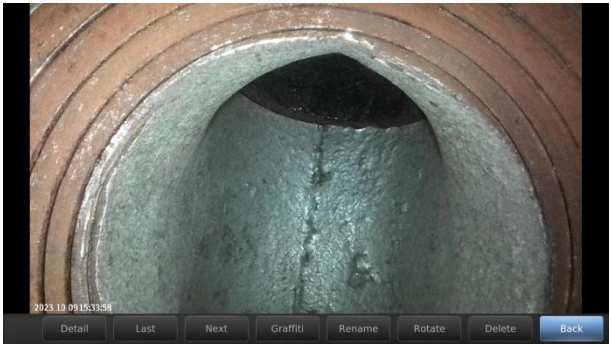

Fig. 11

Graffiti: The Graffiti function can be used to mark images (as shown in Fig. 11-1). The main functions include image up-scaling/moving, brush, rectangle, oval, arrow, text, brush color and thickness setting, undoing the previous step, back to the previous step, save, and return.

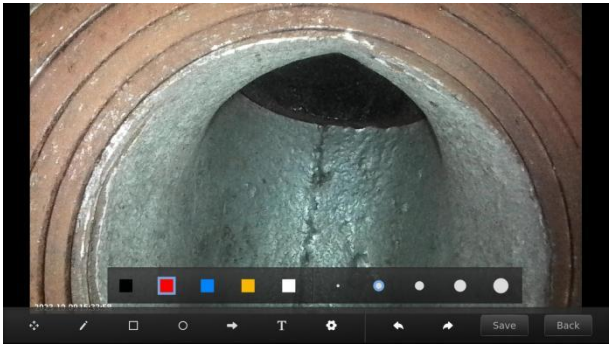

Fig. 11-1

4.12 Report Generation

Enter the main interface to enable the File Preview function and open the report options, to set the page, and create and edit reports (as shown in Fig.

12).

Page setting: The header and footer images are imported through an external USB (as shown in Fig. 12-1).

Report creation: edit the title, format, size, and examination items, and select an examination image (multiple images) to create a report.

Report editing: move the report to another folder, view the report details, share the report through the USB, Bluetooth (it is necessary to enable the Bluetooth function of the receiving device in advance for device pairing), LAN, the Internet, select all/clear all, delete files, etc. The specific operation method can be found in 4.11 File Management Instructions.

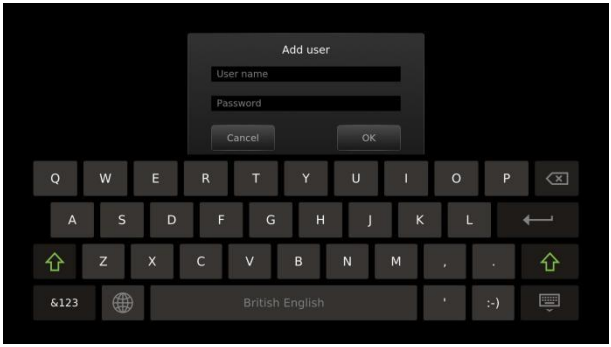

Fig. 12

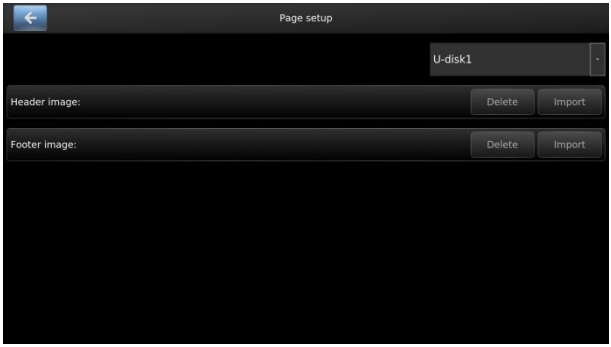

Fig. 12-1

4.13 File Read-out

Images and video files stored in the device can be exported via the Type-C port located on the rear of the base.

4.14 Video Output

The examination videos and images can be viewed in real time by connecting an external display to this product through the HDMI cable (as shown in Fig. 13,Fig. 13-1).

Fig. 13

Fig. 13-1

5. Power Off

Pull back the insertion tube slowly. Press and hold the ON/OFF button to display the OFF interface, and turn off this product after the system parameters and files are saved.

6. Charging

The current SOC is displayed in the upper right corner of the display screen. When the low SOC is prompted, charge this product or replace the batteries as soon as possible. When the batteries are about to run out, a low SOC is warned, and this product is automatically turned off. This product can be charged only by the dedicated charger through the DC12V charging port above the base. The red light on the device’s bottom-right lights up when charging starts.

7. Removal and Installation of Insertion Tube

Installation: Connect the insertion tube to the Type-C port located on the right side of the videoscope(as shown in Fig. 14).

Removal: Pull out the insertion tube directly.

Fig. 14

8. Basic Configuration

Dedicated product case *1, videoscope *1, insertion tube*1, HDMI connecting cable *1, dedicated charger *1, Operation Instructions *1, user manual *1.

9. Maintenance

① After use, put the videoscope in this product box, close the upper cover and lock the buckle, and place the box horizontally in a cool, dry, clean and stable place at normal room temperature;

② Do not store this product in high temperature, high humidity, strong light, strong vibration, high dust, pollution, or corrosive environment;

③ Avoid collision with other objects or rough treatment during storage;

④ When the low SOC is prompted during use, the batteries shall be fully charged in time before use, to avoid the situation that the batteries cannot be recharged after over-discharging;

⑤ This product left unused for a long time shall be stored after being fully charged, and attention shall be paid to recharging every three months.

10. Common Faults

Faults	Possible cause	Solutions
No response after power-on	The batteries run out or are not loaded	Recharge or replace the batteries with new ones
Automatic power-off	Low battery	Recharge or replace the batteries with new ones
The system stops on	System startup failure	Restart the videoscope,

the startup screen	or low battery	and charge the batteries
No images can be recorded or searched	Insufficient capacity of videoscope	Delete useless files in the videoscope

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