

# **C60** series

## **Industrial Videoscope User Manual**



**Please read this Manual before using the machine.**



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As the company is committed to continuously improving product functions and improving service quality, any product and software program and content described in the text are subject to change without prior notice. We have carried out strict collation and repeated checks on this Manual, but errors and omissions are inevitable. This Manual is only used as a guide to help you use the product correctly. It does not represent any description of the software and hardware configuration. If you have any questions, please contact us by 0086- 755-89728626.

# 1. Notice to Users

## 1.1 Purpose and Scope of Application

Coantec C60 series industrial videoscope is a brand new visual inspection instrument independently developed and produced by Coantec. The product utilizes a 7-inch / 12-inch large-size HD display screen, equipped with HD industrial camera, which caused clear inspection images, bright colors and rich details, and can truly present the condition of the object's inner surface, enabling remote observation and inspection.

This product has the feature of real-time image display, users can observe the internal condition of object in real time without disassembly of components. It can also observe other areas which are small, curved, dark and human eyes hard to reach, and It can take photos and videos, suitable for inspection job in industrial fields such as aerospace, energy and electric power, mechanical casting, automobile manufacturing, special inspection industry.

## 1.2 Repair and Modification

This product does not have any spare parts that can be maintained by users independently. Please do not attempt to disassemble, modify or repair it. The company does not assume any responsibility for the injury and loss caused to the user by the above-mentioned behaviors. The maintenance service of the product is only provided by our company and authorized dealers.

## 1.3 Safety Precautions



It is not advisable to keep the probe at the maximum bending angle for a long time when operating the equipment, because this will make the equipment stay in a high load state for a long time and affect the service life. The time that the probe stays at the maximum bending angle should not exceed 40 seconds.



Please observe the following when using this product:

- ① Do not use this instrument to observe the body of humans or animals;
- ② Do not work on the object under test while it is electrified in order to avoid electric shock;
- ③ Do not directly touch the end of the lens during use; especially note that touching the end of the videoscope after use in a high temperature environment may cause burns;
- ④ Do not look directly at the strong light source emitted by the LED at the front of the probe at close range to avoid injury to the eyesight;
- ⑤ Do not excessively bend, stretch, twist, or roll the insertion tube to avoid damage to the insertion tube or equipment;
- ⑥ Long-term use of this product will cause stains on the lens, resulting in blurred images and affecting data collection; please wipe the lens with alcohol before use;
- ⑦ Keep the insertion tube away from any liquid except water, salt water, engine oil and light oil;
- ⑧ After using the instrument, please clean the front end of the insertion tube in time to prevent corrosion;
- ⑨ During the operation, please move the joystick slowly; if the equipment is abnormal, please stop observing immediately, adjust the joystick to the middle position, retract the insertion tube carefully and shut down the equipment, then contact the manufacturer or distributor in time;

## 2. Product Introduction

### 2.1 Product Appearance

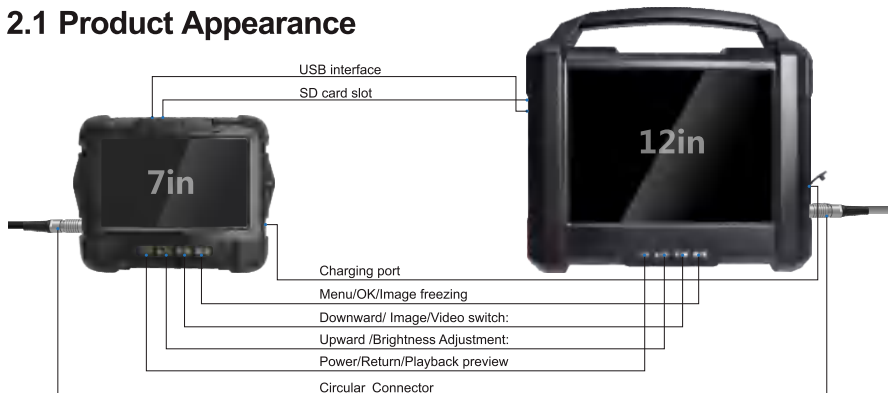
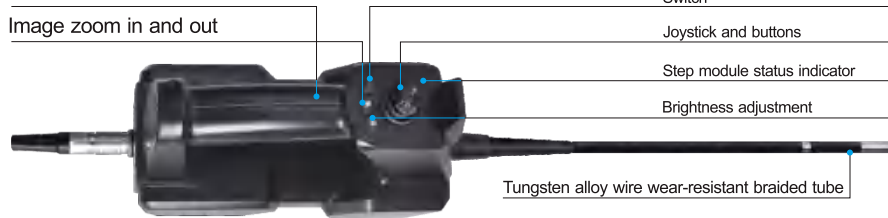


Diagram of host buttons and function interfaces

#### Electric operating handle



#### 4-way operation mechanical handle



#### 2-way operation mechanical handle



#### None-articulation mechanical handle



Diagram of buttons on probes and function interfaces

## 2.2 System Specifications

| Host                           |   |  |          |
|--------------------------------|---|--|----------|
| Display Dimension              | 7-inch  |  | 12-inch  |
| Display Resolution             | 1024*600  |  | 1024*768 |
| Digital Zoom                   | Support real-time 4x zoom ,8x partial zoom when playback  |  |          |
| LED Brightness Level           | 0-7 level adjustment  |  |          |
| Auxiliary Measurement Function | Cross cursor guide  |  |          |
| Photo/Video                    | With photo and video functions, can be captured during recording  |  |          |
| Document Format                | Image :JPEG/BMP; Video:MP4  |  |          |
| Image Rotation                 | Real-time detection image can be rotated 0°/90°/180°/270°   |  |          |
| Time Watermark                 | Yes   |  |          |
| Screen Backlight Brightness    | 3 -level adjustment   |  |          |
| Storage Medium                 | Standard 8G capacity SD card, maximum support 32G   |  |          |
| Menu Language                  | Simplified Chinese、Traditional Chinese、English,Japanese, Korean, French, German, Portuguese,Spanish, Russian, Italian, Dutch etc. |  |          |
| Host Weight                    | 1.45kg  |  | 2.9kg    |
| Electric Operating Handle      | 1.1kg   |  |          |

| Tube                   |   |      |           |            |
|------------------------|---|------|-----------|------------|
| Handle Style           | Electric handle/mechanical handle   |      |           |            |
| Tube Material          | Tungsten alloy wire wear-resistant braided tube                                   |      |           |            |
| Probe Diameter(±0.1mm) | Φ2.0  | Φ2.8 | Φ3.9      | Φ4.8/Φ6/Φ8 |
| Camera Pixels          | 160,000   |      | 1,000,000 | 1,000,000  |
| Depth of Field         | 5-50mm  |      | 5-100mm   | 8-80mm     |
| Field of View          | 120°  |      | 120°      | 85°        |
| Tube Length            | 1-1.5m  | 1-3m | 1-3m      | 1-10m      |
| Lighting Mode          | High-power LED  |      |           |            |
| Joystick Control       | None articulation/ 2-way / 4-way /360° all-way articulation                       |      |           |            |
| Probe Unidirectional   | Bending Angle ≥120°   |      |           |            |
| View Direction         | Forward view /Side view   |      |           |            |
| Guided Control Method  | Mechanical control / Electric control   |      |           |            |
| Tube Type              | Tungsten alloy wire wear-resistant braided tube/alloy hard tube/alloy spring tube |      |           |            |
| Compatibility          | Replaceable Tube  |      |           |            |
| Probe Waterproof Level | IP67  |      |           |            |

| Power                 |  |
|-----------------------|--|
| Power Supply          | DC:15V,Special lithium battery pack, support online charging |
| Lithium Battery Pack  | 11.1V , 3200mAh*3  |
| System Operating Time | ≥4H  |

| Operation Environment         |  |
|-------------------------------|--|
| Machine Operating Temperature | -10°C-50°C   |
| Probe Operating Temperature   | -20°C-60°C   |
| Storage Temperature           | -20°C-60°C   |
| Relative Humidity             | 15%-90%  |
| Configurations                |  |
| Standard Configurations       | C60 videoscope x1,instrument case x1, lithium battery x2, power adapter x1, battery charger x1, 8G SD card x1, card reader x1, user manual x1,precautions for use x1 |

### Customized service :

1. Tube length, diameter and lighting method can be customized
2. The tube can be graduated with scale
3. Software function customization
4. Forward/Side view interchangeable lens
5. Foreign object retrieval tool sets

### 3 Operation Process

- ① Take out the instrument: Open the instrument case, take out the main unit and insertion tube. Please hold the probe appropriately during removal to avoid collision.
- ② Start-up preparation: Check whether all parts of the equipment are in good condition, confirm that the TF card has been correctly installed. Follow the instructions to install the insertion tube into the main unit, and connect the power. Long press the power button of the host to boot the equipment, and set various parameters according to the actual inspection situation.
- ③ Inspection operation: Put the tube into the equipment under test , and control the movement direction of the front-end probe by operating the joystick.
- ④ Brightness adjustment: Adjust the brightness of the light source to get





the appropriate illumination for the best image quality.

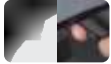




- ⑤ Image and video recording: Adjust the bending angle and movement mode of the probe as needed, take images and record videos of the target in real time.
- ⑥ Retract insertion tube: Adjust the probe movement to follow mode, unlock and release the joystick to reset the probe automatically. Adjust the insertion tube to a roughly straight state and retract it slowly.
- ⑦ Store the instrument: Turn off the power switch, put the equipment in the instrument case, pack the insertion tube properly, close the upper cover, and fasten the lock.

### 4 Operation Guide


C60 series industrial videoscope has 3 working modes: real-time inspection mode, playback preview mode and system setting mode. For details of key functions of the host system in each mode and sub-mode, please refer to the "host and tube button function list" below.

**Host and tube button function list**

| Button shape  | Button name                                   | Real-time Inspection                                     | Playback                    | Play videos | System Settings | Time setting                            |
|---|---|--|-----------------------------|-------------|-----------------|---|
|  | Power key/<br>Return/<br>Playback preview     | Boot into real-time inspection mode/<br>Playback preview | Return to the previous menu |             |                 |   |
|  | Previous tab/<br>Brightness adjustment button | Adjust the brightness of LED lights                      | Previous tab                |             |                 |   |
|  | Previous tab/<br>Image/Video recording        | Image/<br>Video recording                                | Previous tab                |             |                 |   |
|  | Menu/OK/<br>Screen freeze                     | Enter menu   | OK                          | Pause       | OK              | Confirm and proceed to the next setting |


|   |  |  |   |
|---|--|--|---|
|  | Image/Video recording button                             | Image/Video recording  | — |
|  | Joystick and buttons                                     | Control the direction and mode of probe movement (rigid tube videoscope and none-articulation videoscope without Joystick) |   |
|  | Power button (electric operating handle)                 | Shutdown System  |   |
|  | Image zoom button (electric operating handle)            | Zoom in/zoom out the real-time inspection image  |   |
|  | Brightness adjustment button (electric operating handle) | Adjust the brightness of LED lights  |   |

## Real-time inspection mode:

Long press the host power button  for 3 seconds, the system will display the boot screen and enter the real-time inspection mode by default. In this mode, the user can observe the images detected by the camera through the display screen of the host. Users can also use the electric handle on the Image zoom key to zoom in/out the image.

If the mechanical handle is used, the movement direction and speed of the probe can be directly controlled by the joystick.



If the electric handle is used for inspection, the direction and speed of the probe can be controlled by operating the joystick. The joystick button can switch the probe motion mode, which has two movement modes: follow and lock step. The small icon in the upper right corner of the host screen shows the current status:

1) Follow the movement mode  : the probe bends along the movement direction of the joystick, loosen the joystick, and the probe will automatically reset.





This mode can help users find the tested target quickly.

2) Locking step movement mode  : Toggle the joystick to move the


probe in microsteps to achieve precise control of the front-end probe's movement orientation, which is convenient for fine observation of the measured target.

1.The panel button  can adjust the brightness of LED lighting. The brightness can be adjusted at level 7, and the icon  in the upper right corner of the screen is displayed

Current brightness level. Users can also adjust the lighting intensity by the brightness adjustment key on the electric handle. Brightness adjustment can only performed in real-time inspection mode.

2.Left upper corner of the screen the default display as  icon, Indicates that the current camera mode , Press the button  on the back of the operating handle you can take images.The button  on the host can switch the image and video, icon  indicates that it's in video mode, press it to start the video, the screen shows the recording time,press it again to end the video and save it automatically.

### **System setting mode:**

Press the  button in real-time inspection mode to enter the system setting mode, which can set the following system parameters:

1.Image zoom: Press the upward button to zoom in the image in real time, press the downward button to zoom out the image, and the digital table in the upper right corner of the screen indicates the current magnification, 4 times at maximum.

2.Image display:Can choose "color""black and white""negative"image display mode.

3.Guides: Turn off/on cross cursor guides.

4.Watermark information: Turn off/on time watermarking

5.Image format: Optional format JPEG /BMP.

6. Image Rotation: Optionally rotate the real-time inspection image clockwise at 0°, 90°, 180°, 270°.

7. Time/Date: Set the system date and time.




8. Backlight brightness: The backlight brightness of the display can be adjusted.

9. Language: Set up the system language, including simplified Chinese, traditional Chinese, English, Japanese, Korean, French, German, Portuguese, Spanish, Russian, Italian, Dutch and more than 10 languages are available




10. Card formatting: Format memory card, please use this function carefully.

11. Restore the default: Make the device to the factory default Settings.

12. Version information: Select the current version of the system and set the system upgrade.

In real-time inspection mode short press power button/Return/Playback preview button  enter into playback preview mode. Images and videos are stored separately and previewed as lists. Preview while the screen will show the current file information. After selecting a file, an icon  and  will appear on the interface, you can view and delete the current file in full screen respectively.

1. In full screen mode, There are 7 icons "+ - left, right, up, down, return", which can be used to zoom in and out the images, to move the picture left, right, up and down, and to return to the previous menu. The left, right, up and down buttons can only be used when the image is enlarged, for viewing part of the image.

2. After opening the video file, the video will play at the normal speed. Press  to fast forward the video play, press  to play back the video, Press  to pause, Press it again to play.

3. When selecting "Delete", the icon "x" on the interface means "Cancel Delete", choose "✓" the file will be directly deleted.

## 5 Read the file

Remove the TF memory card,insert it into the card reader, and read the data in the card directly through the computer. The file will be saved under the path"My Computer \ Removable Disk \DCIM".

**Note:** Please do not pull out the TF card when reading data, otherwise there may be abnormal error.

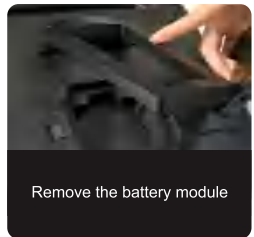
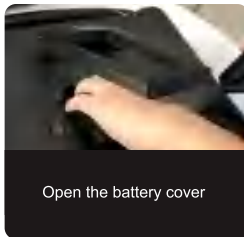
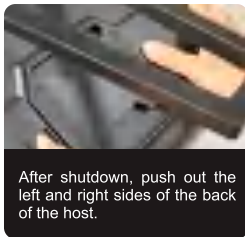
## 6 Shutdown

Long press the power on the host or the power button on the electric handle in the power-on state, then the shutdown screen will be displayed on the screen.At this time, the device needs to save the system parameters and files. Generally, it needs to wait for a period of time before saving,the the device will shut down.

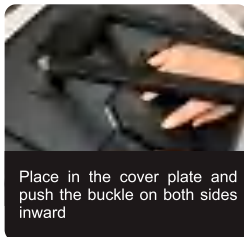
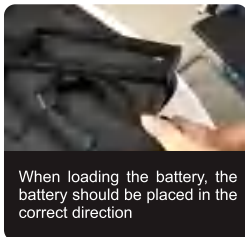
## 7 Remove and install the battery

Note: The battery box is an integral design, please do not disassemble without authorization to avoid damage.


### Remove



### Install



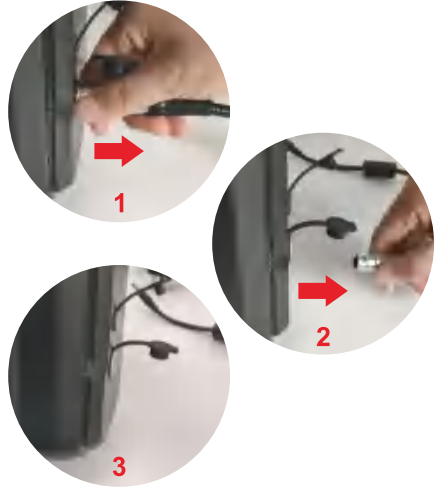
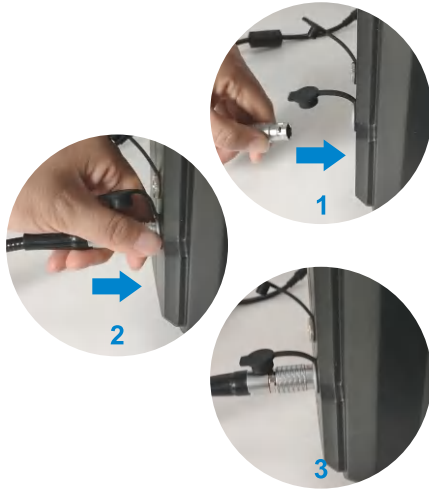
## 8 Battery Charging

The device is powered by a battery module or charged online. The icon  in the top right corner of the screen shows the current power, when the power is low, please use the power adapter to charge the device through the charging port on the right side of the host, also available charge the battery by battery holder.

## 9 Method of replace the insertion tube

Part 1: Remove the tube

The host and the tube are connected by circular connector slot. Pinch the locking ring at the plug connection and pull out the tube from the host.



Part 2: Install the tube

Aimed the red dot on the tube at the red symbol on the host, gently push the plug in, When a click is heard, the tube is installed successfully.

## 10 Instrument storage and battery maintenance

- Please place the device horizontally in the instrument case and keep it in a clean, dry and stable place at room temperature.
- Strictly forbidden to store the device in high temperature, high humidity, strong light, strong earthquake, high dust, pollution or corrosive environment.

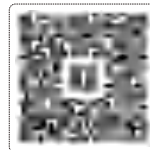
- Do not collide the device with other objects during storage to avoid damage.
- During the normal use of the device, when the power is low, it should be fully charged in time before continuing to use, in order to avoid over discharge of power causing the battery to be unable to charge normally later
- When the product is not used for a long time, please store it after full charge, and pay attention to recharge the battery every 3 months to fill it up

### 11 FAQ Guide

| Problem                               | Reason  | Solution   |
|---------------------------------------|---|--|
| Boot without reaction                 | No battery or power shortage                  | Charge or install battery                              |
| 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 and restart or charge |
| The image cannot be recorded or found | The capacity of TF card is not enough         | Replace TF card or delete useless files                |



YouTube



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Coantec Website