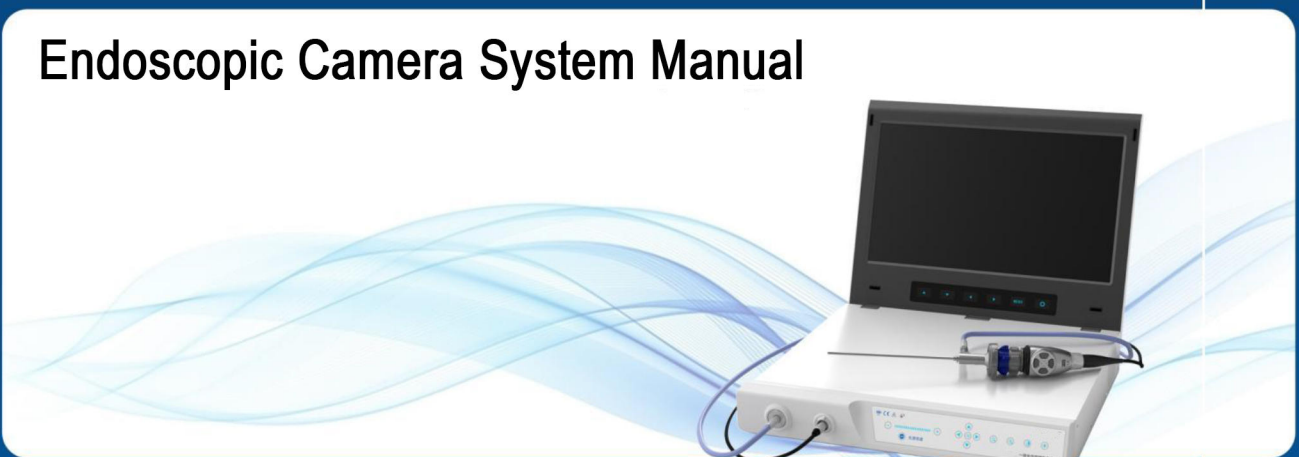


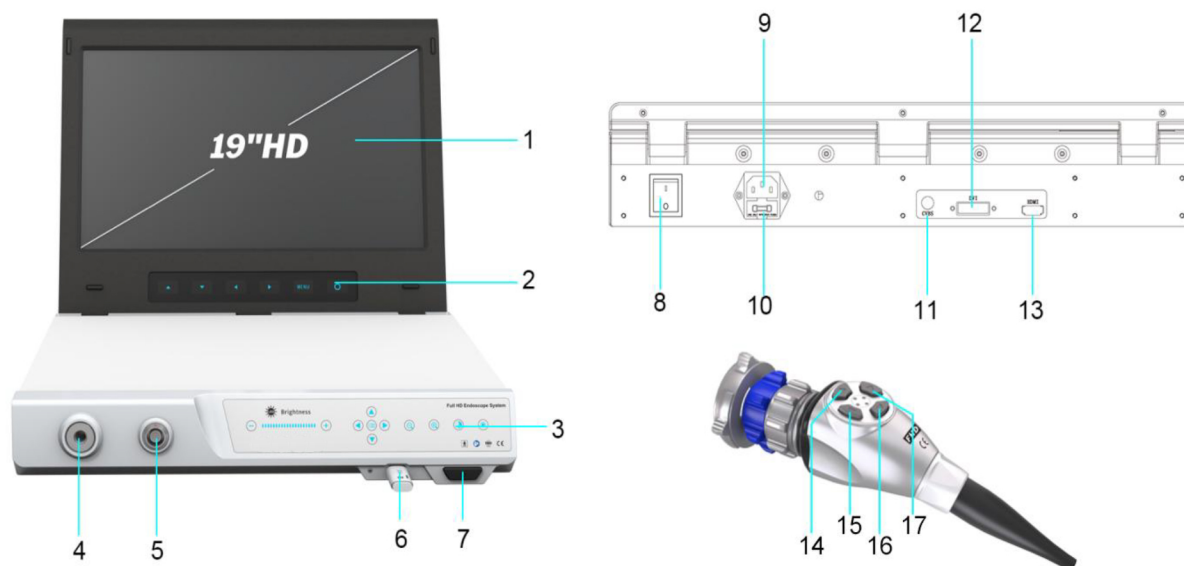
HAYDEN MEDICAL

User Manual

Endoscopic Camera System Manual



Chapter 1 Functions of Keys and Interfaces



1. 19" HD Medical Monitor

2. Screen Operation Panel

3. Camera Operation Panel

4. Fiber Optic Light

5. Camera Interface

6. USB Storage

7. Power ON/OFF

8. Power Supply Switch

9. Outlet, (AC 110V-220V)

10. Fuse

11. CVBS

12. DVI

13. HDMI

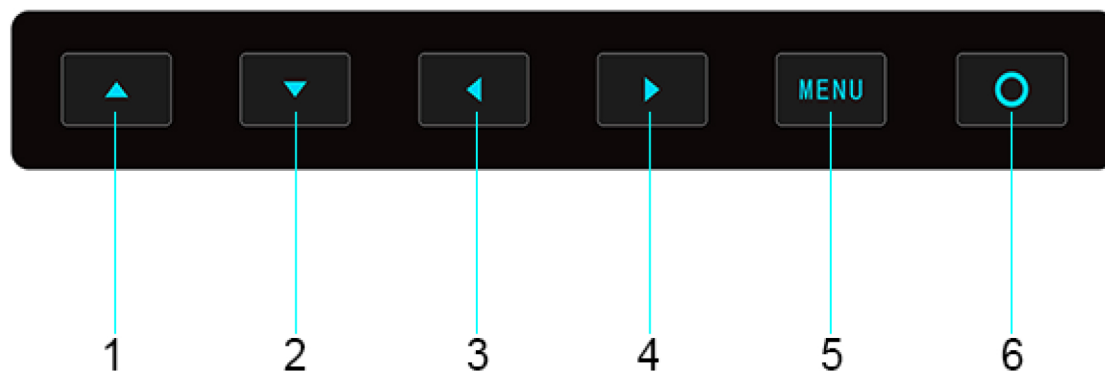
14. Zoom in

15. White Balance

16. Zoom out

17. Image Capture

1.2 Screen Button Function



1. Up

2. Down

3. Left

4. Right (Adjust monitor color pattern)

5. Menu/Confirmation

6. Return

Chapter 2 Installation



2.1.2 Installation Reference 2

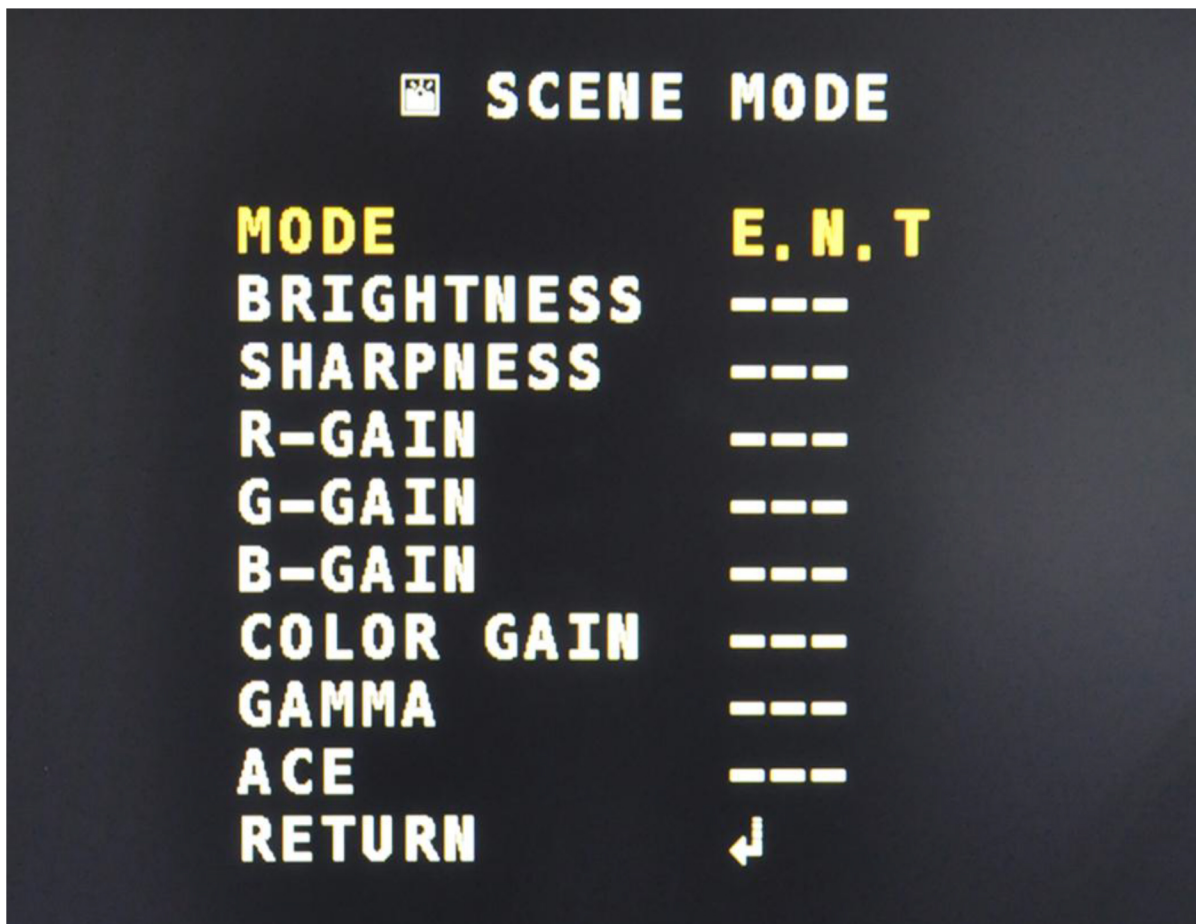


Chapter 3 Video Recording



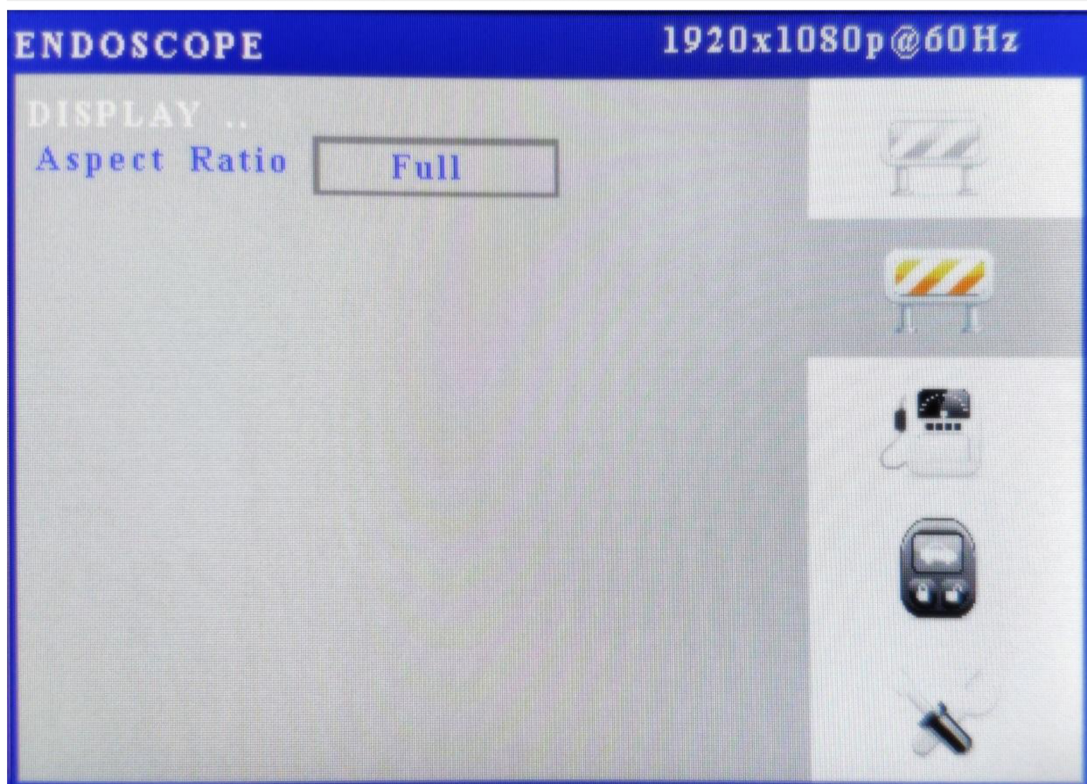
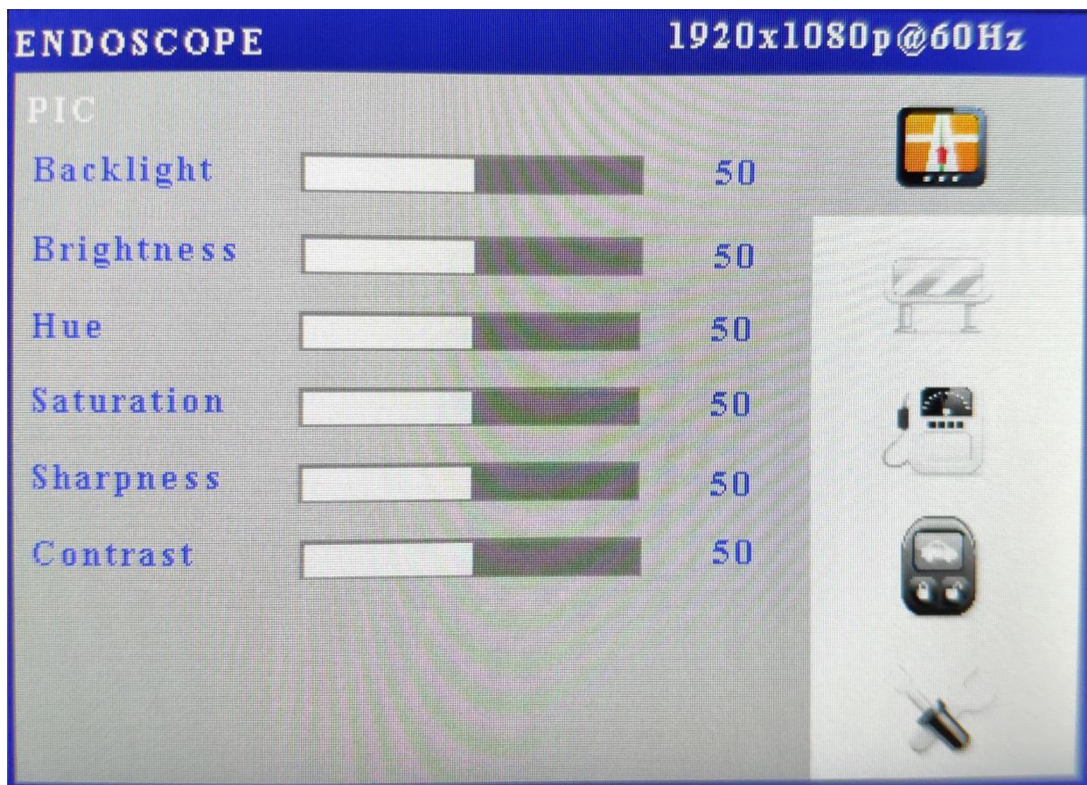
- 1) Insert the USB Flash Drive into the USB port on the front of the machine
- 2) Press the  button when you want to record. While recording, the  button turns green
- 3) Press the  again when you want to stop the recording. The  flickers 3 times while the video is saved to the USB Flash Drive
- 4) Insert the USB Flash Drive to your computer to access footage

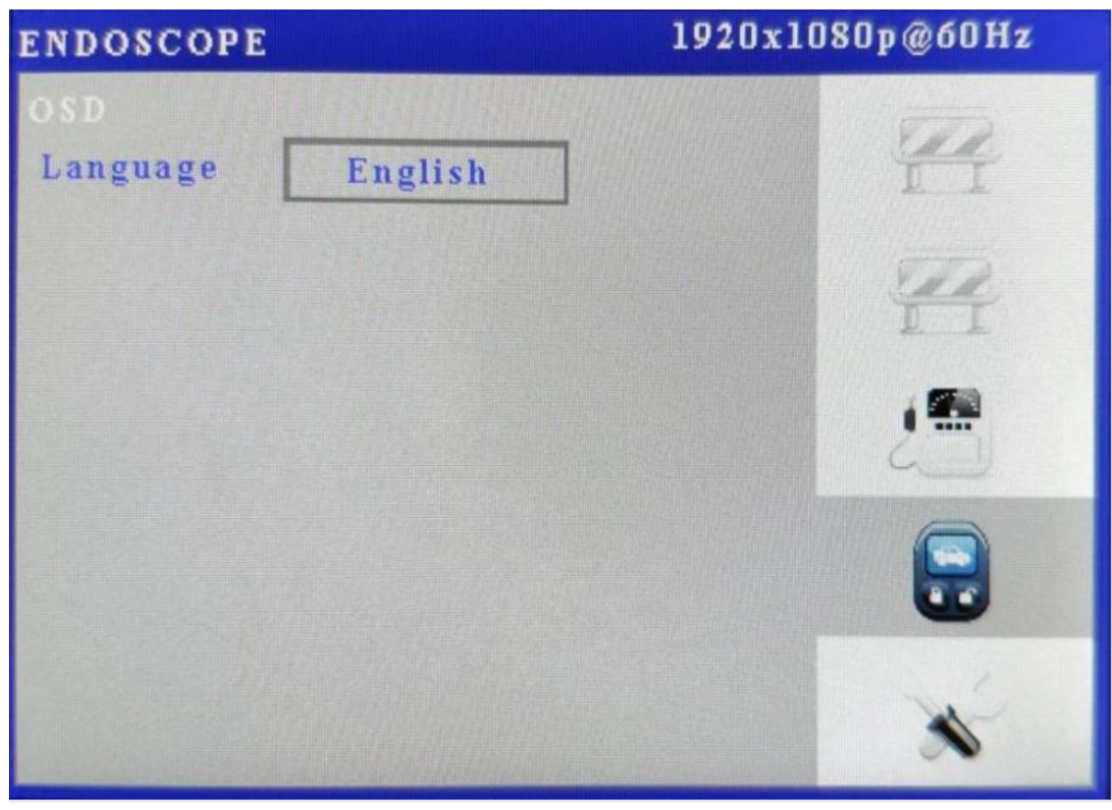
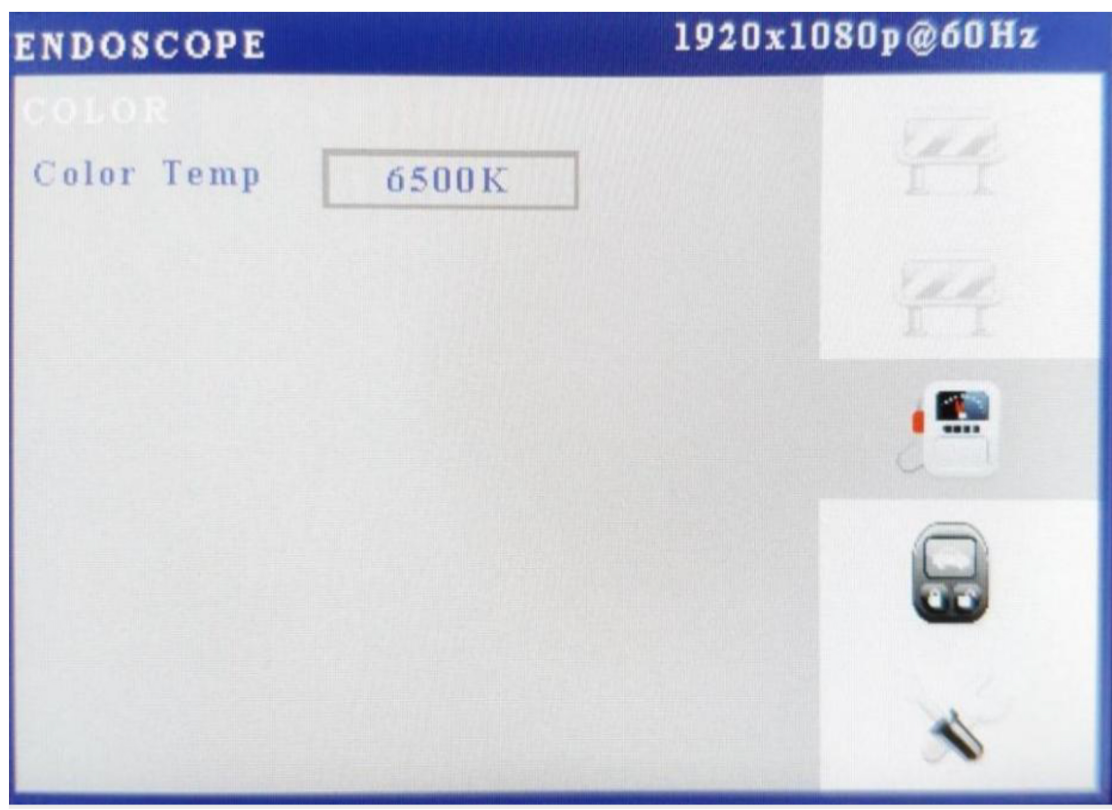
Chapter 4 Mode Switch

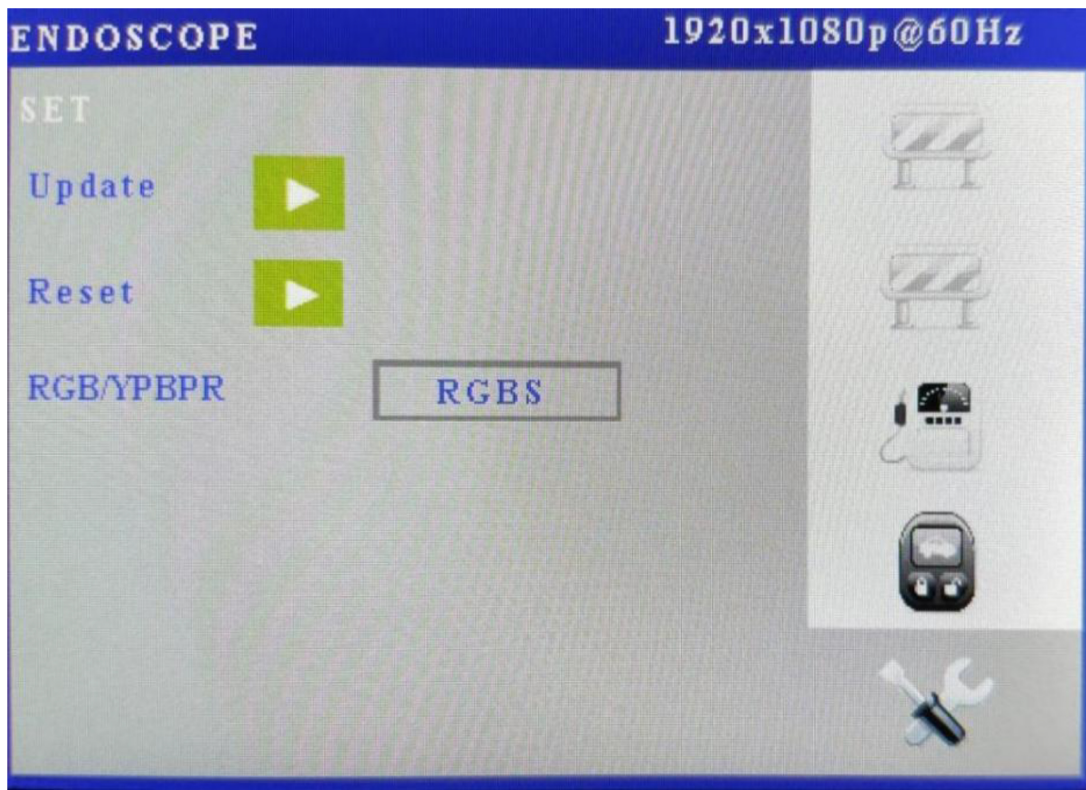


- 1) Tap the button "MENU" to enter the settings, access the "SCENE MODE" by the Arrow keys and "OK"
- 2) Select and access the "SCENE MODE"
- 3) Use arrow keys to select your scene, then return.
- 4) Scene selection complete

Chapter 5 19" Monitor Parameters







Chapter 6 Instruction for Use

6.1 Camera System Instructions

- 1) If the monitor is not clear, please adjust the connection of the endoscope and the focal length of the optical coupler to make the image clear.
- 2) Make sure that the power plug is not loose, and turn the power switch on only after it has been plugged in.
- 3) Please keep the camera system away from strong radio frequency devices.
- 4) Unplug the external power socket, make sure the system is completely disconnected from the power source, and cover with a drape.

6.2 Instructions for Accessories

- 1) Optical Coupler: The camera matches the C-type optical coupler F14-F32. Remove the protective cover when in use, connect the camera head, and connect the optical endoscope at the other end. Clean and disinfect after use and install the protective cover.
- 2) Fiber Cable: Connect one end to the 10mm light source output port and connect the other to the optical endoscope. Avoid excessive twisting.
- 3) Power Cable: Standard power cord, connect one end to the 220V 50HZ network power, and connect the other to the host port of the Endoscopic Camera System.
- 4) Video Output Cable: Connect the DVI, HDMI, and VGA cables to the host of the endoscopic camera system and connect the other to the video output system.
- 5) Optical Endoscope: Remove the protective cover when using, connect the optical coupler and fiber cable after cleaning, and rotate the focus wheel to make the image clear. Clean and disinfect after use and install the protective cover.

Chapter 7 Notes

- 1) This equipment is only used for this system and cannot be used for other purposes.
- 2) When the power is on, do not move or shake the equipment, and do not plug in or disassemble any parts of the equipment.
- 3) The equipment should be placed in a clean and ventilated room for use. Before using the product, leave a gap of at least 5 cm around the device for ventilation. The equipment or system should not be used close to or stacked with other equipment. Avoid contact with chemicals and keep strong electromagnetic and radio frequency away.
- 4) Due to static electricity, the surface of the equipment is easy to absorb dust. When wiping, please disconnect the power first and wipe it with soft absorbent cotton to avoid scratches on the surface.
- 5) When there is dust on the surface of the camera head, it should be wiped with absorbent cotton and alcohol.
- 6) The equipment should avoid frequent switching, and the minimum switching interval should not be less than 3 seconds. When the equipment is not in use, turn off the power, unplug the external power supply, and cover it with a cloth. Run the system once every other month to ensure optimal performance.
- 7) Keep the light source out of your eyes to prevent eye damage. The high-energy radiated light passing through the light output port of the host will generate high temperature in the front of the panel, handle this equipment with care while using it to prevent burns or damage.

8) After using the device, please turn off the power first, and then remove the matched cables.

Note: Wait 2 minutes after turning the power off to remove the fiber cable from the device to avoid burns caused by excessive temperature at the light source outlet of the device.

9) The equipment is packed in a Pelican case for protection during transportation.

10) Contact Hayden Medical for the replacement of equipment accessories. Do not attempt to repair the equipment.

11) When the surface temperature of the applied part of the equipment exceeds 41°C, stop using it and let it cool down before continuing to use it to avoid burns.

12) Before use, it is necessary to check whether the host and camera-related accessories could cause safety hazards: such as rough surfaces, sharp edges or protrusions.

13) Contact Hayden Medical to replace the LED Light source module. Do not attempt to repair the equipment.

14) The installation and commissioning of the equipment can only be completed by medical technicians who have undergone formal training and have operating qualifications

15) Equipment related to EMC requires special precautionary measures, and its installation and use must comply with the requirements of the instructions.

16) Portable and mobile Radio Frequency communication equipment may interfere with integrated endoscopic imaging systems.

Chapter 8 Failure Analysis and Elimination

8.1 Checking

- Check whether the power supply is normal, whether the host power cord is connected and plugged into the power socket.
- Check whether every port connection is normal.
- For the replacement of the fuse tube, disconnect the power cord, use a tool to pry off the fuse cap on the filter, take out the fuse tube (fuse). After replacement, close the fuse cap tightly. Its fuse type is F3AL250V.

8.2 Failure Elimination

Problem	Possible Reasons	Solutions
No image in the image display area	1) Whether the power supply of the camera is connected properly. 2) Whether the camera cable is well connected with the light source	1) Re-connect the power cable. 2) Power on the camera.
Blurred Image	1) The focal length adjustment of the optical coupler is not at the optimal distance 2) The endoscope front side or coupler is dirty.	1) Adjust the focal length of the optical coupler 2) Clean it with clean gauze.
Non-real Color	1) White Balance setting is not correct	1) The WB setting for the camera head is fixed mode. 2) Re-do the white balance. When facing the clean gauze, there should be no iodine or other colors on the front of the endoscope. The image window must display all white to ensure that the color after the

			dialogue is correct. The dialogue time is 2-3 seconds.	
The power light is off.		Check the power plug and fuse		
Irradiate objects with anti-glare		Reduce the Intensity of the light source to reduce the speckle.		

Chapter 9 Care and Maintenance

1) Working Environment Requirements

- The power supply should be checked frequently. If the voltage exceeds the adaptable range of the instrument (AC198V-AC242V), it must not be turned on for use, otherwise a regulated power supply should be added.
- The equipment requires grounding of the power supply to improve the safety of the equipment.
- The equipment should not be placed in a humid or dusty environment, and corrosive gases and liquids should not be stored nearby.
- Check the power cord of the equipment frequently and replace it immediately if it is damaged or broken.
- When cleaning or disinfecting the outer surface of the camera and fiber cable, unplug the power cord first, wipe it with absorbent cotton and medical alcohol, and do not wipe it with detergent and bactericide. Maintain the outer surface of the camera and fiber cable once a month to ensure optimal performance.
- Do not open the outer cover to clean the inside.
- After moving the instrument, check whether the connection between the components is loose if so, connect it properly.
- If the equipment fails, contact our company to repair it

2) Care and Maintenance of Equipment

- Do not take photos pointed directly into bright light to ensure optimal performance. The equipment cannot take images of strong bright objects, such as strong bright light sources, the sun and so on.
- Do not place it in a place that is too hot or too cold. The working temperature of the system is 41°F-95°F.
- The working and placing environment should be dust-proof, moisture-proof,

moisture-proof, and violent impact should be avoided.

- Try to stay away from radio frequency lines, such as audio or video sources.
- It is recommended to use low-temperature plasma, medical alcohol, or iodophor to wipe the camera for disinfection. Do not use high temperature, high-pressure or soaking methods to disinfect the camera and linked devices.

3) Requirements for Equipment Transportation and Storage Environment:

- When not in use, it should be covered with a dust cover.
- Do not store the equipment in an environment with high humidity and dust.
- The equipment should be maintained regularly to keep the instrument clean and hygienic. (maintained once a month)
- The instrument is a valuable item, and care should be taken to avoid excessive shaking and rain during transportation and storage.