



HD Endoscope Video System

User Manual, Version A/1

Model: UC-100 Plus


Read Before Use


Thank you for purchasing this product from Guangzhou North-Southern Electronics! This manual is intended to introduce this product's safety information, technical parameters, operational method, and maintenance instructions. Please be kindly reminded to read this manual carefully to properly use this product. To achieve the optimum performance of the product, please follow the operational and maintenance methods specified in this manual.

Special attention shall be paid to the following:

- Keep this manual in places that are easy to reach make it easier to refer to.
- Keep this manual properly when not in use to avoid loss and damage.

Warning signs below are defined to ensure safe and proper operation.

 **Warning:** Such kind of information cannot be ignored, or it may lead to potential safety hazards or product damage.

 **Attention:** This is to remind readers that the important message following the sign shall be learned, though it may not be necessarily related to possible personal injury or product damage.

Guangzhou North-Southern Electronics reserves all the rights of final explanation.

Parts for Inspection

All the mentioned parts shall be examined to see if they are complete and intact once the packaging case is opened. Please contact your supplier immediately if there's any missing or broken part.

1	Main recording unit	x1
2	Camera handle	x1
3	Optical mount (Supported specifications: 2/25/28/32/35mm)	x1
4	Light source (Optional: portable LED light source/ LED light source)	x1
5	SD card	x1
6	HDMI cable	x1
7	AC line	x1
8	Certification	x1
9	User manual	x1

CONTENTS

01	1 Overview
01	1.1 Product Name
01	1.2 Model and Specification
01	1.3 Structural Composition
01	1.4 Scope of Application
01	1.5 Contraindications
02	1.6 Introduction to the Figures, Symbols, and Abbreviations in the Labels
02	1.7 Environmental Criteria
03	2 The Product's Structure
03	2.1 Product Sketch Map
04	2.2 Buttons and Display Screen
05	3 Installation and Operation
05	3.1 Camera Handle Installation
06	3.2 Main recording unit and Light Source Installation (Optional)
07	3.3 SD Card Installation
08	3.4 Video Output Connection
08	3.5 System Startup
08	3.6 Light Source Brightness Adjustment
09	3.7 Focal Length Setting
09	3.8 Photo Taking/Video Recording Operation
10	3.9 System Setup
11	3.10 Introduction to the System Setup Functions

11	3.10.1 Light Source Setup
11	3.10.2 White Balance
12	3.10.3 Date Label
12	3.10.4 Formatting
13	3.10.5 Default Setting
13	3.10.6 Version
14	4 Product Maintenance
15	5 Common Trouble Shooting
15	5.1 Abnormal System Running Status
15	5.2 File Save Failure
15	5.3 Image Blurring
16	5.4 Black Block in Images
17	6 Technical Parameters

1 Overview

1.1 Product Name

HD Endoscope Video system

1.2 Model and Specification

UC-100 Plus

1.3 Structural Composition

This product is composed of a main recording unit, a camera handle, a light source, and an optical mount. The endoscope is connected to the optical mount of the handle, while the handle is connected via a plug onto the port located on one side of the main recording unit. The main recording unit is directly powered by the AC mains supply. A 720P high definition display screen is installed at the front panel. The light source brightness is directly adjusted by independent rotary knobs. The video can be directly showed in the display screen via an HDMI cable. Moreover, this main recording unit also has an SD card slot for video storage.





1.4 Scope of Application

This product is to be connected to an optical endoscope and used for real-time observation and recording of the endoscopy.

1.5 Contraindications

Currently no contraindication has been found.

1.6 Introduction to the Figures, Symbols, and Abbreviations in the Labels

Symbol	Explanation
	Attention! Please refer to the attached files.
	Refer to the instructions.
	This symbol indicates the need to respectively collect electrical and electronic equipment in line with WEEE provisions.
	The product is recyclable.

1.7 Environmental Criteria

Environmental requirement	Operational environment	Storage and transportation environment
Ambient Temperature	5°C ~ 40°C	-10°C ~ 55°C
Relative Humidity	20% ~ 80%	10% ~ 95%, non-condensing
Atmospheric pressure	86 kPa ~ 106 kPa	86kPa ~ 106kPa

2 The Product's Structure

2.1 Product Sketch Map

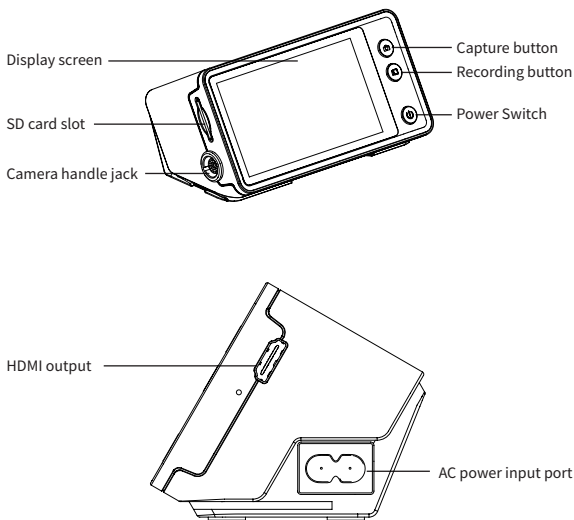


Figure 1 Product Diagram

2.2 Buttons and Display Screen

The main recording unit is composed of 3 control buttons and one 4.5 inches display screen for control operation and status indication. Its function is as shown in Table 1.






Icon	Name	Function Description
	Capture button	<ul style="list-style-type: none">• Short press this button to activate the camera function;• Short press this button until a “beep” sound is heard, the button lights up, and the  icon can be seen at the top right corner of the display screen. At this time, the memory card will start saving the picture. After that, it will automatically exit the camera function, and the light will be off.
	Recording button	<ul style="list-style-type: none">• Short press the button to start or stop video recording.• Short press this button until a “beep” can be heard, the button lights up and flashes, and the red dot  icon is displayed at the top right corner of the display screen. At this time, the memory card will start saving the video file. After you short press the button until it beeps again, the storage will be completed and the video recording function will be exited. Then, the light of the recording button will be off.
	Power switch	<ul style="list-style-type: none">• Short-pressing the button until it beeps will turn on the power and the light of the power supply button.• Long-pressing the button until it beeps will turn off the power and the light of the power supply button.

Table 1 Buttons

3 Installation and Operation

3.1 Camera Handle Installation

Before use, the camera handle and light source shall be installed first. The following are its detailed steps:

- (1) Rotate and tighten the optical mount to the handle.
- (2) Squeeze the switch of the optical mount, and install the endoscope to the mount. Then loosen the switch, and the endoscope will be automatically fastened.
- (3) Install the light source optical fiber or an end of portable LCD light source with nuts in the light input port of the endoscope. Then fasten the nut.
- (4) After the front end of the handle is installed, insert its plug into the handle jack on one side of the main recording unit. Also, insert the optical fiber or the other side of the portable light source in the light output jack. Then the whole process is completed.

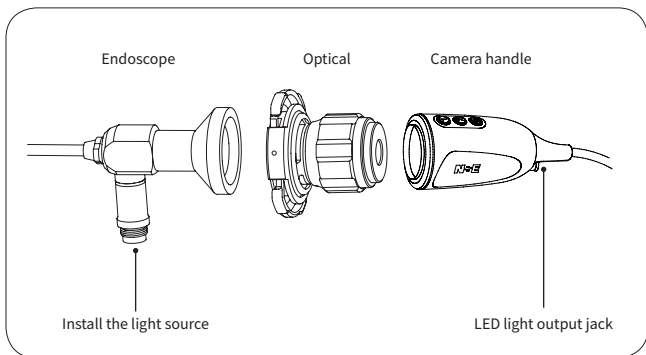


Figure 2 Camera Handle Installation

⚠ Attention: The endoscope is fragile to impact, so please pay close attention to the lens during installation.

3.2 Main recording unit and Light Source Installation (Optional)

(1) Option 1: Portable LED light source

- I. Insert one end of the LED light source plug of the endoscope into the 2Pin light source socket at the end of the camera handle. Install the other threaded end into the light input port, and the endoscope is now usable.
- II. Insert the 2Pin plug of LED light source line of the endoscope to the LED light source output jack of the camera handle. Please match the red dots in the LED light source line of the endoscope with red dots in the light source output jack correspondingly.

(2) Option 2: If the LED light source is selected, the main recording unit and light source base shall be installed. Spring contacts are used to connect the light source base and main recording unit. The light source base shall be connected to a power supply (as shown in Figure 3). Here are the detailed steps:

- I. Align the convex groove at the bottom of the main recording unit to that at the top of the light source base. Gently push it into the bottom to make it clamp (push it out of the card slot to separate them)
- II. After the main recording unit and light source base are installed, dismantle the protective cap on the plug of the equipped optical fiber.
- III. Insert the plug of the equipped optical fiber to the
- IV. flashing socket of the light source base.
- V. Install the other end of the threaded optical fiber to the light source port of the endoscope; once this is done, it can be used.

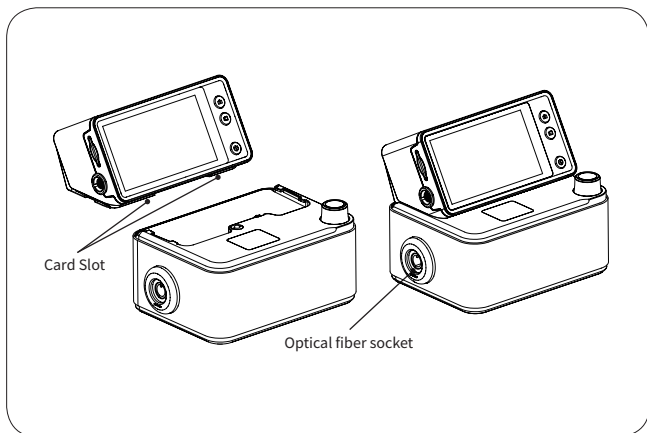


Figure 3 Light Source Installation

3.3 SD Card Installation

Take out the SD card from the packing case, and insert it into the SD card slot in the front panel of the main recording unit. Then the SD card installation is completed.

⚠Attention: The main recording unit must be shut down before the SD card is inserted. If not, the main recording unit will be automatically turned off.


⚠Attention: If this is the first time installing the SD card, please format the SD card in “system setup” menu. Refer to Chapter 3.10.3 for specific operation methods.

3.4 Video Output Connection




Take out the HDMI cable from the packing case, then connect it to the HDMI output port in the front panel of the main recording unit. The other end shall be connected to the display screen at the HDMI input. Information shown in the external monitor should be consistent with that in the main recording unit display screen.

⚠ Attention: Just one output video is available in one usage, i.e., only one of LCD or HDMI.

3.5 System Startup

Install the camera handle and light source, connect the AC cables to both AC ports on the side plate of the main recording unit, then short press the switch button  on the front panel of the main recording unit to initiate system startup. It will beep after about 3 to 5 seconds, then images will show in the camera.

3.6 Light Source Brightness Adjustment

The light source button  in the upper part of the camera handle can be pressed to control the brightness. There are 5 levels of brightness. Every time after the  button is short-pressed, the brightness will be increased. When the brightness reaches the maximum, short-pressing the  button will turn off the light. The current brightness level is shown at the top left corner of the display screen.

⚠ Attention: current illuminating brightness settings will be saved automatically before the system shutdown.

3.7 Focal Length Setting

After starting up, manually rotate the optical mount to adjust the focal length until the clearest image appears in the display screen (as shown in figure 4).

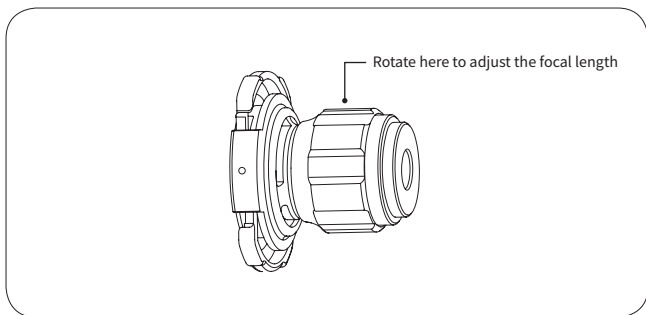


Figure 4 Optical Mount- Focal Length Adjustment


3.8 Photo Taking/Video Recording Operation

Press the capturing (📷) / recording (📹) button on the front panel of the main recording unit to take pictures or record a video (but a memory SD card must be inserted). Here's the operation method:


(1) Video recording


After the system startup, short press the recording button (📹) to record a video. Then at the top right corner of the image shown in the display screen, a flashing red round dot will appear, indicating the video recording session is ongoing. Short press the recording (📹) button again to exit the session. Attention: in the video recording mode, no other operation can be handled, including menu or picture taking, etc., but light source brightness adjustment is allowed.


(2) Picture taking

After the system startup, you can take pictures directly as needed just by short-pressing .


Videos or pictures can be read by the built-in SD card. Pictures are stored in the folder “DCIM-Photo” in .JPG format, while videos are stored in folder “DCIM-Movie” in .MP4 format. The main recording unit system adopts “recording date + recording start date (hour, minute and second) + Serial No.” to automatically name the folder. The name shall be in the format of YYYY_MMDD_HHMMSS_XXX

 Attention: The system sets a fixed duration and the maximum storage size of a single file. When the video duration of a single recording is less than a fixed duration, the actual duration shall be stored; If the duration of a single video exceeds a fixed duration, the system will save it as multiple files according to the fixed duration/segment.

 Attention: Please check SD card capacity before use and timely backup the files into your local hard disk.

 Attention: Insert the SD card into the main recording unit first if the file size is larger than 32G, then go to menu to format it. The SD card can only be used normally after formatting and restarting.

3.9 System Setup

Firstly, check the Main recording unit to make it not in illumination adjustment mode. Then long press the capturing button  to get the main interface of system setup. The following operations can be conducted on the main interface (as shown in table 2):

1.Exposure compensation	2.Photometry	3.Storability
4.Light source setting	5.White balance	6.Language setting
7.Date label	8.LCD height adjustment	9.Media playback
10.Date/time	11.Formatting	12.Default settings
13.Version		

Table 2 Functions of Main Interface of System Setup

3.10 Introduction to the System Setup Functions

After entering the main interface of system setup, please operate according to table 3.






Move up	Short press  in system setup interface to move up settings.
Move down	Short press  in system setup interface to move down settings.
Enter settings	After settings are selected, long press  to enter secondary menu to set values.
Save settings	After making changes, long press  to save changes and go back to the previous menu.
After system setup is finished, long press  to close the “system setup” main interface.	





Table 3 System Setup: Buttons Operation





3.10.1 Light Source Setup

Light source setup works to adjust built-in white balance parameters. If a portable LED light source is used, please set up it as 1. If a LED light source is used, please set up it as 2.

3.10.2 White Balance

In white balance setup, the white balance can be either turned on or off. When it's off, RGain and BGain can be set up to adjust the color of pictures.









- (1) Long press the capturing button  to enter the main interface of system setup menu.
- (2) Short press capturing button  and video button  to go up and down, select “white balance” option, and then long press the capturing button  for white balance setup.

- (3) Short press the capturing button  and recording button  to go up or down to turn on or off AWB auto white balance. When turning off it, white balance can be operated manually, and RGain parameter shall be rectified from 0 to 1,024. Long press the capturing button  to confirm setup selection.
- (4) After setup, long press the recording button  to go back to the previous menu.

3.10.3 Date Label

The date label refers to the timestamp in the bottom right corner of previewed and recorded video. It can be used to turn on or off the timestamp.

3.10.4 Formatting

- (1) Long press the capturing button  to enter the main interface of system setup menu.
- (2) Short press the capturing button  and the recording button  to move up and down, select “formatting” option, and long press  for SD card formatting (as shown in figure 5).
- (3) Short press the capturing button  and the recording button  to move left and right to select confirmation or cancellation. Long press the capturing button  to confirm your selection (as shown in figure 6).
- (4) After operations above are completed, long press the recording button  to go back to the previous menu.

System setup
Media playback
Date/time
Formatting
Default setting

Figure 5 Sketch Map of Formatting Settings

Formatting the memory card
will delete all the data

Cancel

Confirm

Figure 6 Sketch Map of Formatting
SD Card Interface

3.10.5 Default Setting

- (1) Long press the capturing button (Ⓢ) to enter the main interface of system setup menu.
- (2) Short press the capturing button (Ⓢ) and the recording button (Ⓜ) to move up and down. Select “default setting”, and long press the capturing button (Ⓢ) to go back to system default settings (as shown in figure 7).
- (3) Short press the capturing button (Ⓢ) and the recording button (Ⓜ) to move right and right to confirm or cancel system default settings. Long press the capturing button (Ⓢ) to confirm your selection (as shown in figure 8).
- (4) After operations above are completed, long press the recording button (Ⓜ) to go back to previous menu.

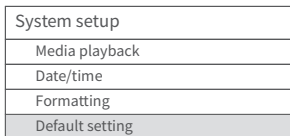


Figure 7 Sketch Map of Default settings

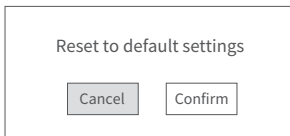


Figure 8 Sketch Map of Resetting to Factory Default Settings

3.10.6 Version

- (1) Long press camera button (Ⓢ) to enter the main interface of system setup menu.
- (2) Short press the capturing button (Ⓢ) and the recording button (Ⓜ) to move up and down. Select “version”, and then long press (Ⓢ) to check and immediately find current software version (as shown in figure 9).
- (3) After operations above are completed, long press the recording button (Ⓜ) to go back to previous menu.

System setup
Version

Figure 9 Sketch Map of Version Settings

4 Product Maintenance

- (1) The main recording unit shall be power off before cleaning.
- (2) Wipe the external surface of the product gently with the soft cloth and neutral detergent. Do not drop the solution into the jack when wiping.
- (3) Clean and dry all parts with the dry cloth.

⚠ Attention: This product does not apply to biocidal treatment. The sterilization cover is recommended to be used for protection.

⚠ Warning: This is a sophisticated electronical equipment. Any dismantling will lead to unrecoverable product damage and unavailability.

5 Common Trouble Shooting

5.1 Abnormal System Running Status

Problem description:

Pictures are not shown or moving in the display screen.

Cause analysis:

connection interruption between camera mount and the main recording unit, or camera handle damage.

Solution:

Shut down the main recording unit, then pull out the connecting line of the coaxial camera mount. Restart after inserting the connecting line again, which must be firmly connected.

5.2 File Save Failure

Problem description:

The dialog “Please insert SD card” pops up in the display screen.

Cause analysis:

SD card is not inserted or damaged.

Solution:

Shut down the main recording unit. Restart after the SD card is inserted. If there's any SD card damage, please replace with a new one to try again.

5.3 Image Blurring

Problem description:

(1) The display screen just shows stripe images instead of round one.

(2) It can show round images, but they are blurring.

Cause analysis:

(1) The camera mount is not well connected;

(2) The main recording unit start-up is abnormal;

(3) The focal length of camera mount is not well adjusted.

Solution:

- (1) Reconnect the camera mount;
- (2) reboot the system of the main unit;
- (3) Adjust the focal length.

5.4 Black Block in Images

Problem description:

There are black blocks in the pictures shown in display screen.

Cause analysis:

There's smudginess on the surface of lens of the camera mount, or camera mount is damaged.

Solution:

Wipe lens with a clean and soft cloth to remove the stains.

⚠Attention: If the problem still cannot be solved, please dial in after-sales service call to gain further technical support. Please do not disassemble the product without permission to avoid damage.

6 Technical Parameters

Main technical parameters of the HD Endoscope Video system are shown as follows:

Size	308*300*120mm
Display Screen	4.5" TFT, 1280 *720
Sensor	2 million pixels high performance CMOS sensor
Image format	JPG
Video format	1080P@60fps, MP4 format
Memory	SD card, maximum 128G
Optical interface	C-Mount
Video output	HDMI
LED lifetime	20,000 hours
Total power	2.5W+32W (MAX)
Power supply	AC100-240V, 50/60Hz

Table 5 Main technical parameters



North-Southern Electronics



Shanghai International Holding Corp. GmbH (Europe)
Eiffestrasse 80, 20537 Hamburg, Germany



North-Southern Electronics Limited
Rm.202-2, NO.5 Tianfeng Rd., Science City,
Development District, 510530 Guangzhou,
PEOPLE'S REPUBLIC OF CHINA