North-Southern Electronics

HD Headlight & Camera System

User Manual (A/0)

Model: UV-100

Read this First

Dear Customer, Thank you for purchasing UV series HD Headlight & Camera System. Please read this instruction manual carefully and understand it well before using the product.

- This manual should be put to a place from where you are easy to take for convenient reference at any time.
- When you don't need to read this manual, please put it to a place where it will not be lost or damaged.
- For safety and correct operation, the following Warning marks are identified in this manual:

⚠ Caution: Ignorance of this caution will lead to a slight damage.
⚠ Warning: Ignorance of this caution will cause a heavy damage.

This manual was created on December 07, 2016.

North-Southern Electronics Limited reserves the right to interpret the usage of this manual.

Check the spare parts provided

When first time open the package, please check if the describing spare parts are complete and in good condition. If any spare part is incomplete or damaged, please contact with your supplier.

Packing list	
Main Unit	1pc
Battery	2pcs
Charger	1pc
Charging Base	1pc
Micro SD Card	1pc
SD Card Reader	1pc
USB Power Cable	1pc
User Manual	1pc
Warranty Card	1pc
Warranty Hangtag	1pc
Tablet & App	1set

⚠ Caution:

- Tablet & App is for option. It can be ordered according to practical demand.
- Please keep the packing materials well for future use.

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1 Overview

1.1 Operational Principle

Product name: HD Headlight & Camera System. Model: UV-100. UV-100 is made up of lighting and video system.

The video system is comprised of the precise optical lens, low power consumption image processor and wireless video transmission module, it is used to record the process of check and surgeon. Using the optical lens with long depth and high performance image processor, to assure take high definition and high quality image.

The Lighting system is used to provide auxiliary lighting in deep-cavity surgeon. It uses low power consumption intelligent constant current control based on SMPS to realize the long battery life, in use process, the brightness is always a constant, not with the power decline and decay.

1.2 Intended Use

UV-100 with lighting and recording function, can provide auxiliary lighting for hospital check-ups, surgical lighting, and record examination and operation process.

1.3 Contraindication

No contraindication

1.4 Product Features

★ Using special-designed optical lens and high performance image processor assure record every details of the operation very clearly.

★The LED lighting not only can provide auxiliary lighting during surgeon, but

also can guide the location in the video to make sure surgical areas always in the video.

★ With unique structural design, the device can be fold up for convenient carry; with perfect Ergonomic design, the wearing is comfortable and stable, which ensure comfort for long time operation.

★ No need tedious work, easy to use. Photo taking and Video recording can be executed through the APP pre-installed in the tablet.

1.5 Safety Category

- Shock Proof: Power provided by internal electrical source.
- Liquid-proof Level: IPX1
- Operation mode: Continuous operation

1.6 Environment Condition

Operation:

- Temperature: 5℃ ~ 40℃;
- Humidity: 20% ~ 80%;
- Pressure: 86kPa ~ 106kPa ;
- Power: rated voltage for charger is 110-240Vac.

Storage and transportation:

- Temperature: -20℃ ~ 55℃;
- Humidity: 20% ~ 93%;
- Barometric pressure: 86kPa ~ 106kPa;
- Long-term storage should be conducted indoor with non-corrosive gas, and well ventilated.
- Transport with general vehicle. Avoid severe impact, strenuous vibration and snow rain splashed.

1.7 Label and Symbol

Symbol	Explanation
	Caution! Refer to attached file.
	Refer to instruction manual.
	Electrical & Electronic device should be collected respectively according to WEEE.
	Recyclable.
	Keep away from fire.
CE	CE mark
	Follow instructions for use.
	Name and address of the manufacture.
EC REP	Name and address of European Representative.
LOT	Product LOT Number.
SN	Product Serial Number.

2 Safety Precaution

⚠ Warning:

● To avoid short circuit please do not connect the polarities with any metal material.
● Please do not put the battery to the environment up to 60℃, and do not through it to fire.
● To avoid short circuit please use the original charger.
● Please do not disassemble the product and spare parts like battery etc. Any malfunction or failure, please stop using it and contact with your provider or directly to the manufacturer.
● Do not disassemble the product and spare parts. If malfunction or abnormalities happened, please stop using the product and contact with your supplier or call to factory

⚠ Caution:

● Please do not disassemble, strike and hit the lighting and camera system; do not throw away and bump against, or abrade the lighting and camera system; avoid any accidental falls.
● This is precise optical device, any disassemble will result in unrecoverable damage and malfunction.
● Please do not directly shoot to the eyes with LED light beam in short distance.
● The surface temperature of LED Lamp is fairy hot after long time in use; please operate it carefully to avoid scald.
● Please do not touch the LED lamp during in use.
● Avoid any accidental falls during using or storing.
● If long time no use, please unload the battery from the main unit and charger, and charge it every three months to avoid malfunction caused by over discharge.
● Avoid corrosive material and liquid.
● Please switch off the device before changing battery.

3 Structure

3.1 Structure Diagram of the Main Unit

The main unit is made up of camera, headband, controlling circuit, Li-ion Polymer battery and LED lamp. The structural diagram and operation buttons are as showing in Figure 1, 2, & 3.

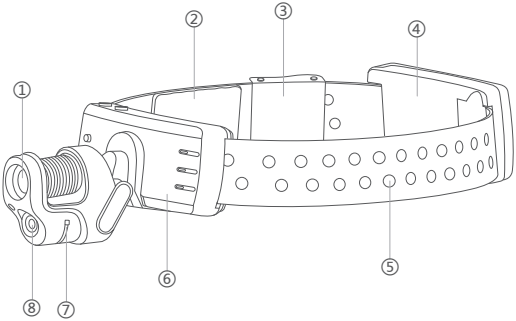

Figure 1 Structural diagram of the main unit

① LED lamp	② Cushion	③ Headband Buckle	④ Battery
⑤ Headband	⑥ Control Panel	⑦ Focusing lever	⑧ Camera

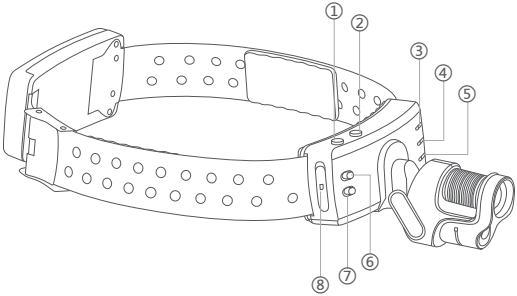

Figure 2 Structural diagram of the controlling system

① Photo Button	② Video Button	③ Video Indicator	④ Wi-Fi Indicator
⑤ System Indicator	⑥ Wi-Fi Switch	⑦ Mode Switch	⑧ Micro SD Card

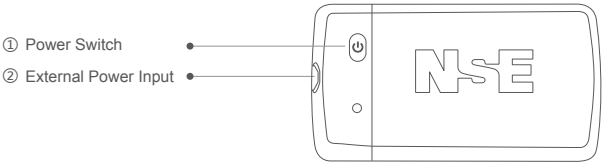

Figure 3 Structural diagram of the power system

3.2 Buttons description

Name	Function
Photo Button	Icon of photo button: , photo shooting can be done both in Video & Photo mode, during when the Photo/Video indicator flash once.
Video Button	Icon of video button: , use to start or stop video recording in video mode, during when the Photo/Video indicator starts or stops flashing.
Wi-Fi Switch	Wi-Fi On /Off switch. When Wi-Fi switched on, the indicator will be on; When it switched off, the indicator will be off.
Mode Switch	Shift between Photo and Video mode.
Power Switch	Icon: , use to switch power on/off, and indicator on/off.
Micro SD Card	Position of Micro SD Card. Open the silicone cap to insert or extract the Micro SD Card.

3.3 Main Parameters

Parameters \ Model	UV-100
Field of View	50mm*85mm~150mm*250mm @ 200~600mm
Diameter of Light Spot	43~110mm @ 200~600mm
Max. Illumination	≥40000 Lux@200mm
Photo	2048x1536p, JPEG format
Video	1920x1080p, MOV format
Battery Duration in one charge	≥1.5hrs
Battery Parameter	2000mAh, removable
Storage Card	Micro SD Card, Max. 128GB, the lowest writing speed at 10M/S, the highest reading speed at 30M/S
Range of Headband	400~650mm
Adjustable angle of the lighting and camera system	Max. up to 45°
Color	Black
Net Weight (incl. battery)	210±5g

4 Instruction for installation and Operation

4.1 Product Wearing

Adjust headband: Open the lock of headband, adjust the length till it fit well to your head and then lock up the buckle.

⚠ Caution: Please wear a cap before wearing this device, avoid it directly touch to the skin. Please use it with care, especially those allergic people.

4.2 Power Switch

Switch on: Press the power button (see Figure 3) more than 2 seconds when the product in power off situation, the device will start to work as the indicators will light up.

Switch off: Press the power button more than 2 seconds when the product in working situation, the device will be shut down as the indicators switches off.

4.3 Lighting Control

Press the photo button more than 2 seconds, the LED light will be truned on or turned off.

4.4 Selection of System Modes

This system includes Photo & Video modes. Slide the mode switch to shift between Photo & Video mode.

1) Slide the mode-switch to Photo mode, press the Photo button to take photo for the current view, the photo is saved as JPEG format automatically into the micro SD card, with the file name of “Year_MonthDate_HourMinuteSecond_Serialnumber” The indicator flash once when press the photo button.

2) Slide the mode-switch to Video mode, press the Video button to start up

video recording, during recording procedure the Photo/Video indicator keep flashing. Re-press the Video button to stop recording, in the meantime the Photo/Video indicator stop flashing. The video is saved as MOV format automatically into the micro SD card, with the file name of “Year_Month Date_Hour Minute Second_Serialnumber”.

⚠ Caution:

● Please make sure that the Micro SD Card is inserted into the card slot before operating the system. Photo & Video function cannot be achieved without Micro SD Card.
● When starting up, if no SD card is detected or the SD card has some errors, the system will beep for three times.
● Hot-Swap is not supported; please switch off the system before inserting or unloading the Micro SD Card.
● The standard configuration memory for the Micro SD Card is 128GB. Please remove the needless files for more storage space when the videos to 20 hours, and if the Micro SD Card is full, system will delete the earliest files in the card.
● Under the photo mode, the video function is not available; under video mode, the video function is available, and while taking video, press the photo button, it will save a photo with the same resolution as video.
● Please keep UV-100 stable to take a high quality photo.
● When the Wireless Controlling System is open, the Photo button, Video button and Mode-Switch button are not available. Please use the App to execute photo taking and video recording.

4.5 Wireless Controlling Function

Wireless transmission & control can be achieved in this device. Here are the steps:
1) Open the wireless transmission function: slide the wireless controlling switch to start up status, Wi-Fi indicator light up.

2) Open the tablet with APP, and enter the APP. For the first time enter the interface, there will be no device in the system, at this time the system will indicate “Please click ‘+’ to add a camera”. See Figure 4:

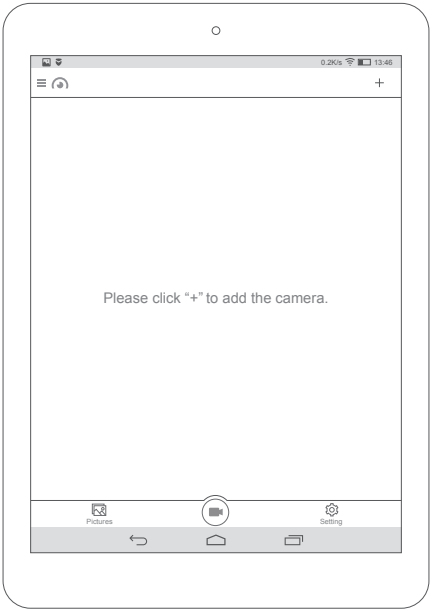

Figure 4 APP Interface

3) Click “+”, the Wi-Fi signals nearby can be found. Select the one start with “NSE_UV100”. See Figure5:

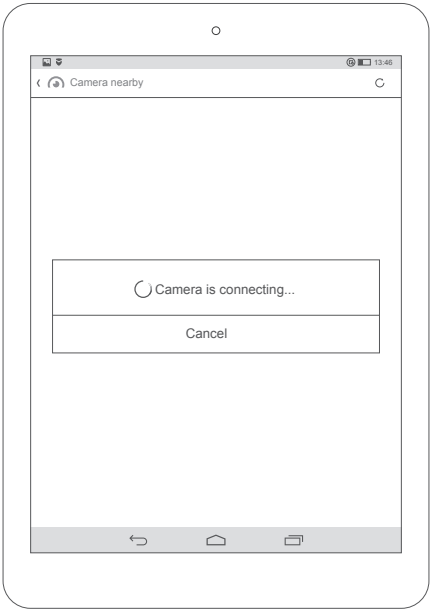

Figure 5 Wi-Fi Interface

4) When the first connected to Wi-Fi, password is requested: 12345678. Click “Add” button and the interface will shows indication as “Camera is connecting…” and the Wi-Fi indicator will flash at this time. It will be connected in a few seconds. See Figure 6:

Figure 6 Wi-Fi Connection

5) When Wi-Fi is connected, click icon, see Figure 7:

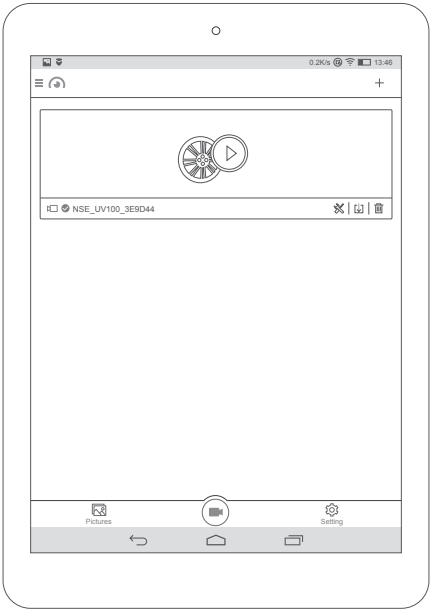

Figure 7 Wi-Fi connected

6) When the current view from the HD Headlight & Camera System transferred to the tablet, photo taking and video recording can be controlled through clicking the Photo & Video button on the interface of the tablet.

Figure 8 APP Interface

Brightness Control	Photo	Video
Sound Switch	Volume Control	Setting

⚠ Caution:

- The APP can be copied from the Micro SD Card. The lowest configuration of the tablet is: 1.0 GHz; dual-core processors; 2G System memory; Wi-Fi Supported.
- The photo & video button are not available when the wireless controlling system is open. Please execute it through the App.
- If you use a new Micro SD card that is not FAT32 file system format(the default file system format of the Micro SD card with more than 32G capacity is not FAT32), please format the SD card using the setting menu in the APP, and reboot UV-100, otherwise it will not save the video file or causes crash.
- Only the functions of preview, photo shooting, video and audio recording in the APP are recommended to use, other functions may cause loss of file because of the interference of WIFI signal.

4.6 Working distance Adjustment

In 200-600mm distance, the work by adjusting the focus on the UV - 100 pole, can make UV - 100 clear imaging.

When working distance to increases, will focus the "F +" direction adjustment; When working distance to reduce, will focus the "F -" direction adjustment.

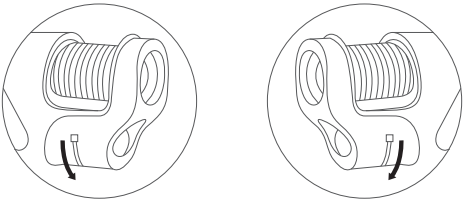

Figure 9 working distance adjustment

4.7 Data Review

The photos & videos are saved in the Micro SD Card. To view them please unload the Micro SD Card, insert it into the card reader, and connect it to computer system.

4.8 Power Indicator

If the working time of the battery less than 20 minutes, UV-100 emits a beep sound for ten times, if the working time less than 10 minutes, UV-100 will emits a double beep sound for ten times, and the system status LED will flicker.

⚠Caution: To ensure normal use, please check the power status every time before using the device, recharge it in time when low power.

4.9 Using External Battery

If the battery is low or it needs to extend working hour, you can connect to an external battery by using the USB power cable. Please plug the USB port of USB power cable to external battery and the other end connect to the power input port in to use extern battery.

⚠ Caution: Taking into consideration of safety, external battery will not charge the battery in the battery base; you should use the charger to charge the battery.

4.10 Change Battery

Unload battery: push the buckle according to the direction marked on the battery, and take it out from the battery box.

Install battery: put the battery into the battery box, check the buckle to make

sure that the battery was well installed.

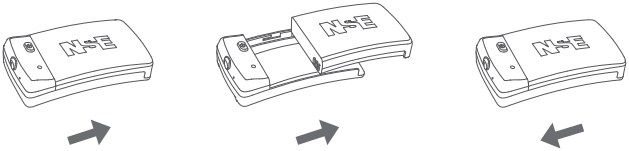

Figure 10 Replace Battery

⚠ Caution:

- The device must be switched off before unload the battery.
- Please use the original battery provided by NSE.

4.11 Recharge Battery

Switch off the device, unload the battery and insert it into the charging base, connect it to the power adapter and 110-240V AC power supply, the battery started recharging. During recharging, the indicator is yellow color. When it turns green, means that the battery is fully charged. At this time the power supply should be stop, and the battery must be taken out from the charging base.

⚠ Caution:

- The device must be switched off before extracting or installing the battery.
- The battery must be recharged independently with the charging base. Please do not recharge it during using the device.

● Please make sure the charge base is power off while unloading the battery from charge base.
● Please do not contact the power adapter output and patient simultaneously. Please do not contact battery contactor together.

4.12 Charger

Power input: AC 100V-240V, 50Hz-60Hz; Voltage output: 4.2V-5V, current output: 1A-1.5A.

When recharge the battery with the charger, please switch off the device, unload the battery and insert it to the charging base, connect it to power adapter for recharging.

⚠ Caution: Please use the original charger provided by NSE. The charger provided is only to be used with rechargeable battery and charging base, please don't use it directly with the main unit.

5 Maintenance

5.1 Maintenance

● Please do not touch the LED lamp or camera, and do not scratch it with rigid object.
● The recharging cycles of battery are more than 300 recharging cycles under normal random recharging.
● The lifetime of LED lamp can last for 100,000 hours.
● Please clean the device and keep it in original package when long time no use.

⚠ Caution: Please recharge the device for 6 hours more for the first use or long time no use.

5.2 Cleanings

● Suggest rubbing the surface with a wet cloth and cleaning it with dry soft cloth.

● A special soft cloth or wiping paper should be used for the lens cleaning, please don’t clean the lens with simple paper or alcohol.
● Alcohol is only to be used for surface cleaning and sterilization.

⚠ Warning: Please don’t soak it in water or sterilize it under high temperature & pressure.

5.3 Electronic Waste Disposal Method

The electronic waste generated during usage is wasted battery. Please do not throw it away, but sent to waste battery recycle posts.

⚠ Warning: The product is coming with battery, please keep away from fire.

5.4 Explanation of Anti-electromagnetic interference

We design a certain batch of anti-electromagnetic circuit in the internal PCB, and add some ESD and EMC protective devices that can protect the equipment to some extent. However, in case of failure to work or even malfunction to the device, please keep it away from electromagnetic interference environment as far as possible during actual use.

6 After-sales Service

HD Headlight & Camera System is warranted to be maintained by manufacturer or its agents. We give one-year guaranty time during the guaranty period we will provide free repairing service and replaced spare part.

Warranties are void and do not apply if:

1. Damage caused by error operating or using without following instruction manual (any application beyond the usable range)
2. Damage caused by repair or modified inspection that not operated by our service engineer.

3. Damage caused by natural hazard such as fire, flood, earthquake or thunder.
4. Ordinary wear and tear of consumable like battery caused by normal use.
If there is any malfunction please contact manufacturer or agents for services.

⚠ Caution:

- Warranties will not be applied if the device is disassembled.
- The warranty card will be required if repair is needed, please keep it well.

EC REP

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