INNPO

DIGITAL
NIGHT
VISION
SCOPE

DC23

Night vision device

Version 1

Legal Statement

- **Copyright Shenzhen NNPO Technology Co., Ltd. All rights reserved.**

Any part of this manual, including text, pictures and graphics, belongs to Shenzhen NNPO Technology Co., Ltd. or its affiliated company (hereinafter referred to as "NNPO").
Without written permission, no unit or individual may extract, copy, translate or modify all or part of this manual in any way. Unless otherwise agreed, NNPO does not provide any express or implied statement or guarantee for this manual.

- **About this product**

This product can only enjoy after-sales service and maintenance in the country or region where it is purchased.

- **About this manual**

This manual is only used as a guide for related products, which may be different from the actual products. Please refer to the actual products. NNPO may update this manual due to product version upgrade or other needs. If you need the latest manual, please log in to NNPO official website for reference.

NNPO recommends that you use this manual under the guidance of professionals.

- **Trademark declaration**

Other trademarks involved in this manual are owned by their respective owners.

- **Statement of responsibility**

To the maximum extent permitted by law, this manual and the products described (including its hardware, software, firmware, etc.) are provided "as is", and there may be defects or errors. NNPO does not provide any express or implied warranty, including but not limited to the warranties of merchantability, quality satisfaction and suitability for specific purposes;There is no compensation for any special, incidental, incidental or indirect damages caused by the use of this manual or NNPO products, including but not limited to the loss of business profits, system failure, loss of data or documents.
You are aware of the openness of the Internet, and there may be risks such as network attack, hacker attack and virus infection when you connect your products to the Internet. NNPO will not be responsible for the abnormal operation of products and information leakage caused by this, but NNPO will provide you with technical support related to products in time.

Preface

When using this product, please strictly abide by the applicable laws and regulations and avoid infringing the rights of third parties, including but not limited to the right of publicity, intellectual property rights, data rights or other privacy rights. You may not use this product for weapons of mass destruction, chemical and biological weapons, nuclear explosions or any unsafe use of nuclear energy or for human rights violations.

- **Preface**

  This operation manual describes the operation method and precautions of the night vision device. Please read the operation manual carefully before using the night vision device, and use the night vision device according to the standard operation methods to avoid danger or property loss during operation. Please keep this manual properly for future reference.



When laser is turned on, please do not irradiate the eyes and skin. The laser emitted by the equipment may cause damage to eyes and skin.

Description of icons used in the manual:

—— Warning, the words involved in danger or harm.

—— Tips, additional instructions, or helpful techniques.

—— Comments, a description of the meaning of words.

Precautions for safe use

⚠ DANGER

- During the installation and use of the equipment, all electrical safety regulations of the country and region of use must be strictly observed. Use a power supply that matches and meets SELV (safety extra low voltage) requirements, and the device is powered by DC9V-5V/2A.
- Please use the power adapter provided by the regular manufacturer. Please refer to the product parameter table for specific requirements of the power adapter.
- During wiring, disassembly and other operations, the power supply of the equipment should be disconnected, and live operation is not allowed.

⚠ CAUTION

- Because the digital night vision combines precise optical instruments and electronic equipment sensitive to static electricity, it is necessary to avoid objects falling on the equipment or vigorously vibrating the equipment, and keep the equipment away from the place where there is magnetic interference.
- The equipment should not be installed in the place where the surface vibrates or is vulnerable to be impacted as far as possible (ignoring this may damage the equipment).
- Avoid installing the equipment where the surface vibrates or is easily impacted (ignoring this item may damage the equipment).
- If you connect your products to the Internet at your own risk, including but not limited to network attacks, hacker attacks, virus infections, etc., our company will not be responsible for the abnormal operation and information leakage of the products, but we will provide you with technical support related to the products in time.
- Equipment access to the Internet may suffer network security problems, please enhance the protection of personal information and data security. When you find that the equipment may encounter network security risks, please contact us in time.
- Please do not disassemble the night vision by yourself. Please contact the factory in case of failure, otherwise no warranty will be given.
- Please keep all the original packaging materials of the equipment properly, so that in case of problems, the equipment can be packaged with packaging materials and sent to the service center for processing. Our company will not bear any responsibility for accidental damage in transit caused by non-original packaging materials.

Contents

Legal Statement 1
Foreword 2
Safety Precautions For Using 3
1 Product Overview 7
2 Product Features 7
3 Main Technical Parameters 8
4 Packing Configuration 10
5 Operation 11
5.1 Digital night vision components 11
5.2 Preparation before use 12
5.2.1 Check 12
5.2.2 Install the battery 12
5.3 Key and Knob function description 13
5.3.1 Keys 13
5.3.2 Knob 15
5.4 Power on/off 15
5.5 Sleep mode 16
5.6 Shortcut key operation instructions 16

Contents

5.7 Digital night Vision Commissioning 17
5.7.1 Eyepiece visibility adjustment 17
5.7.2 lens focusing 17
5.8 Main image interface of digital night vision 18
5.9 Operation instructions for main menu of digital night vision 21
5.9.1 Enter main menu 24
5.9.2 Color mode 24
5.9.3 Brightness 24
5.9.4 Contrast 24
5.9.5 Laser rangefinder 25
5.9.6 Gyroscope 25
5.9.7 WIFI 26
5.9.8 Audio sound 26
5.9.9 Playback. 26
5.9.10 Date/time 26
5.9.11 Format card 26
5.9.12 Language 27
5.9.13 Firmware version 27
5.9.14 Default setting 27
5.9.15 Crosshairs Adjust. 27

Contents

5.9.16 Screen brightness 28
6 Analysis And Troubleshooting Of Common Faults 29
7 Maintenance And Service 31

1 Product overview

DC23 is an excellent night vision digital product. With lighter weight , it is well adapted to traditional installation fixtures. By the team that has won the Red Dot Award, the highest design award in the world, we strive to create a strong, muscular, domineering, and technological design concept. The night vision system adopts the most advanced ultra-low illumination image sensor, with realistic image color reproduction and excellent product quality. Meet the requirements of high-strength impact vibration and can adapt to various harsh environments. Multiple aiming cursors are available, with functions such as photography, video recording, and WIFI transmission, meeting various applications such as law enforcement patrols and outdoor hunting.

2 Product features

- CMOS 2014*1196 ultra-low illumination response, full-color night vision.
- Multiple exposure, wide dynamic function.
- It is light and low battery consumption.
- Easy operation ,quick system response.
- Adapt with traditional 30mm ring ,easy for installation.
- Integrated laser ranger finder, it is compact design.
- Rugged & durable with high shock resistance, multi-functions.
- WIFI App remote control, Photo and video real time sharing on media.





• 3 Main technical parameters

Model	DC23
Lens	50mm±2%
Thermal sensor	CMOS 2014*1196

DC23 series user manual

Pixel size	2.9μm
Frame rate	30fps
Display resolution	1024*768 OLED
Digital Zoom	2X，4X，6X，8X
Field of view(HxV)	6.38°×3.59°
Focusing range	1m-∞
Optical Magnification	5.1
Eye Relief	48mm
Diopter(Range)	±5
Reticle	8 styles, 4 colors
WIFI	Yes
E-compass	Yes
3D Gyroscope	Yes
Capture snapshot	Yes

Video recorder	Yes (Recordable)
laser rangefinder	distance 800m, ranging accuracy ±1m(Optional)
Video output	HDMI
Battery	Single 21700 replaceble
Operation time	Single battery>10 hours
External power supply	TYPE-C interface
Housing material	Aviation aluminum alloy
Impact force	1000g
mounting ring size	30mm Standard ring
Dimension	408mmx86mmx64mm; 408mmx86mmx71mm(LRF)
Weight	750g; 780g (LRF)
Protection Level	IP67
Workingtemperature	-20°C～60°C

• 4 Packing configuration

The night vision configuration is shown below.

Serial Number	Name	Quantity
①	Digital night vision	1 piece
②	21700 rechargeable battery	2 piece
③	Charger	1 piece
④	Operation & Maintenance Manual	1 piece
⑤	Lens cleaning cloth	1 piece
⑥	Battery Sleeve(18650)	1 piece

① ② ③ ④ ⑤ ⑥

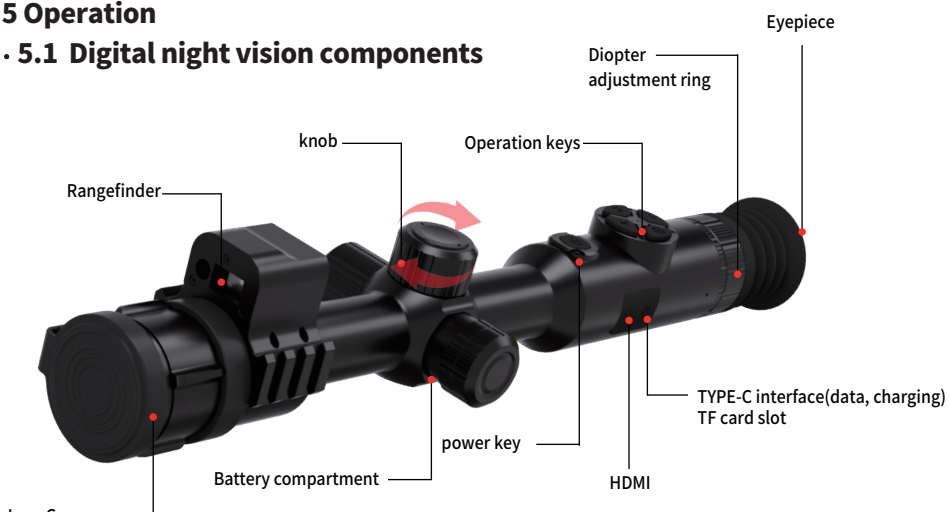








- **5 Operation**
  - **5.1 Digital night vision components**



• 5.2 Preparation before use

• 5.2.1 Check

Check whether the lens, body, eyepieces and keys of the digital night vision are obviously damaged. Wipe the lens with the lens cleaning cloth to ensure that the lens is clean.

• 5.2.2 Install the battery

This product uses a single 21700 battery. Open the battery compartment cover and install the battery in the direction indicated by the positive and negative poles on the body.

• 5.3 Key and Knob function description

• 5.3.1 Keys

The keys of the digital night vision are as follows

-  : Power /Sleep key: Power on、Power off 、Sleep mode switch.
- 

: Menu key:laser rangefinder on/off、enter or exit the menu.
-  : Confirm key：Color mode switch、menu confirmation operations.
-  : + key: Digital Zoom +、 menu + operation、Switch reticle.
-  : - key:Menu-operation、photo taking、 video recording.

Key	Trigger state condition	Press and release	Long press 2 seconds
	Shutdown status	/	Starting up
	Sleep status	Starting up	Starting up
	Starting up - shortcut key	Sleep	Shutdown
	Shortcut key	Color mode switch	/
	Menu operation	Menu confirmation operation	/
	Shortcut key	Digital Zoom +	Switch reticle
	Menu operation	Move up menu options	/
	Shortcut key	Ranging ON/OFF	Enter main menu
	Menu operation	Return to previous menu/Exit menu	/
	Shortcut key	Photo capture	Video recording
	Menu operation	Move down menu options	/

- **5.3.2 Konb**

Trigger conditions	Short press	Long press (hold 2 seconds)	Rotate
Shortcut key	/	Enter main menu	Digital Zoom
Menu operation	Menu confirmation operation	Return to previous menu/ Exit menu	Move menu options

• 5.4 Power On/Off

When the device is not turned on, Long press the power key for 2 seconds until the start screen appears on the display and the digital night vision is powered on .

After the self-test, the image is on the display of the device.

When the device is turned on, Long press the power key for 2 seconds to turn off the digital night vision.

Refer to the figure below for the main view of the device display.

• 5.5 Sleep mode

Sleep mode is used to save battery power。In the view mode, Short press the power button twice. After a second, the display will turn off. Press the button again to exit the Sleep Mode

• 5.6 Shortcut key operation instructions

When the device does not enter the menu, some common functions can be operated quickly by pressing the keys.

• Digital zoom: short press  + key or Rotate the Knob: zoom

• Color mode switch: short press  Confirm key;

• Laser rangfinder ON/OFF: Short press  M key (valid for Rangfinder Version device)

• Switching reticle: Long Press  + key to change reticles.

• Photo capture: when it not video recording, short press  - key

• Video recording: long press  - key

• Stop video recording: Short press or long press  - key

Note: Shortcut key operation is only valid when the device does not enter the menu.

• 5.7 Digital night vision commissioning

·5.7.1 Eyepiece visibility adjustment

In order to adapt to users with different vision, the digital night vision is designed with visibility adjustment. When the interface icon or text on the screen is blurred, it means that the visibility of the eyepiece does not match that of the user. Please adjust the visibility of the eyepiece.

Slowly rotate the visibility adjustment ring until the icon and text in the screen is clearly visible, it means that the visibility of the eyepiece has adapted to that of the user, and the visibility adjustment is completed.

·5.7.2 Lens focusing

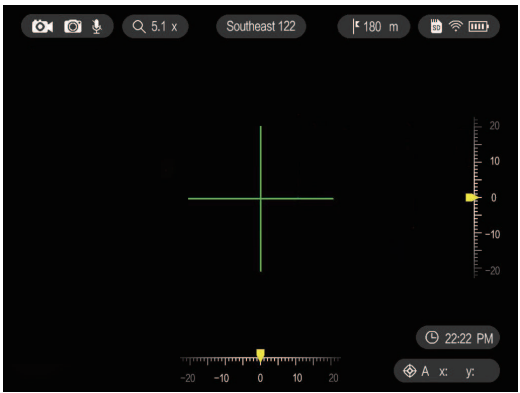
The lens of the digital night vision is provided with a lens focusing ring at the front of the lens.

After the digital night vision is turned on, the digital night vision should be aimed at the observation target, and the lens focusing ring should be rotated until the image is clear. When the distance of the observation target changes, the image may be blurred. The lens focusing ring should be rotated to refocus until the target image is clear.

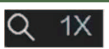
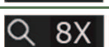
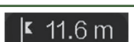
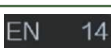
Clockwise rotation of the focusing ring is far focusing, and counterclockwise rotation is near focusing.

• 5.8 Main image interface of digital night vision

When the digital night vision is not menu operated, the image interface is as shown in the figure below.

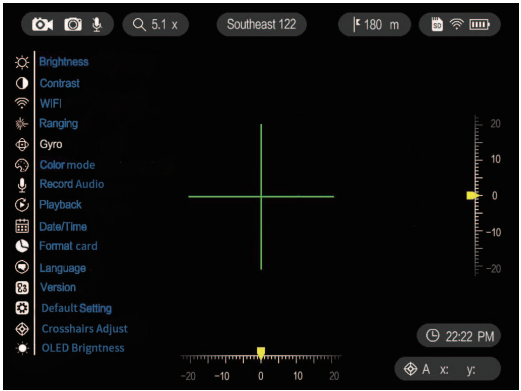


Status Item	Symbol	Option	Function
Power indicator		full charge	The battery is sufficient and can be used with confidence
		low-battery	Pay attention to charging or replacing the battery soon
		out of charge	The machine is about to fail to work before charging
		the battery is charging	The machine can be used normally while charging
Wi-Fi hotspot		Wi-Fi is connected	APP software can be used
		Wi-Fi is not connected	App software cannot be used
TF card status		The card is inserted	Photos and videos can be stored on the device
		The card is not inserted	Photos and videos cannot be stored on the device

Status Item	Symbol	Option	Function
Digital Zoom ratio		No digital zoom	No digital zoom, wider field of view
		8x digital Zoom	8x digital zoom, bigger target
Target LRF value	/	No LRF value	Disable LRF function
		Real-time LRF value	Enable LRF function and real-time ranging
Compass, pitch-roll angle		Compass	North-east/south-east / South-west/North-west :0°~359°
		Pitch angle	-90°~+90°
		Roll angle	-90°~+90°
Audio and video recording		Record video and sound at the same time	Playback with video and sound
		Record video without sound	Playback with video but no sound

• 5.9 Operation instructions for main menu of digital night vision

When the digital night vision is not menu operated, the image interface is as shown in the figure below.



Menu Item	Symbol	Option	Function
Brightness		50 levels of image brightness	Adjust the image brightness
Contrast		50 levels of image contrast	Adjust the image contrast
WIFI		Off/On	Enable or disable Wi-FI
Ranging		Meter/Yard/Adjust	Set distance units and laser cursor calibration
Gyro		Off/On/Gyro Calibration /Compass Cal	Enable or disable compass, pitch-roll angle
Color mode		4 Color mode settings to choose	Switch between Four Color mode
Record Audio		Off/On	Record AudioEnable or disable Record Audio
Playback		Video/photo	View recorded videos and photos

Menu Item	Symbol	Option	Function
Date/Time		Date: Year, Month, Day; Time, Hours, Minutes and Seconds	Set the date and time displayed on the screen
Format card		Cancel/OK	Format memory card
Language		6 language settings to choose	Switch night vision device operating language
Version		SDC23_62.1.32	Check the version number of the firmware
Default Setting		Cancel/OK	Restore factory default settings
Crosshairs Adjust		5 Reticle group, including reticle type, reticle color, X-axis, Y-axis, Magnification and save	There are 5 reticle groups, and 8 types and 4 colors in each reticle group.
OLED Brightness		5 OLED Brightness settings to choose	Adjust screen brightness level

• 5.9.1 Enter main menu

Long press the menu key, and a main menu will pop up on the left side of the screen.

• 5.9.2 Color mode

Image color mode adjustment allows the image to be highlighted in the corresponding color, making it easier for users to observe and identify targets.

The digital night vision has 6 kinds of palette for users to choose, which are normal , white +black, Brown , green.

• 5.9.3 Brightness

The brightness of the scene image can be increased or decreased by adjusting the image brightness.

The digital night vision is designed with 0-50 levels of image brightness, which ranges from the darkest to the brightest. Users can choose the appropriate brightness according to their viewing habits and current environment.

• 5.9.4 Contrast

The scene image can be increased or decreased by adjusting the device contrast to make the target more prominent.

The digital night vision is designed with 0~50 levels of image contrast, which ranges from the weakest to the strongest. Users can choose the appropriate contrast according to their viewing habits and current environment.

- **5.9.5 Laser rangefinder**

Set the unit of distance measurement in meters/yards.

Enter the ranging cursor calibration interface.

Use the menu key to switch between the X/Y coordinates of the ranging cursor and the save option.

Use the +/- keys to change the coordinate value and adjust the aiming position of the ranging cursor.

After confirmation, move to the save option and short press the confirmation key to save and exit.

- **5.9.6 Gyroscope**

The Gyroscope information display on/off.

Accelerometer calibration: Enter calibration mode and follow the prompts to complete calibration.

When the Gyroscope information is turned on:

• Compass information is displayed in the upper middle position of the screen.
• Pitch information is displayed in the middle right position of the screen.
• Roll information is displayed in the bottom middle position of the screen.

- **5.9.7 WIFI**

  WIFI on/Off

  When the WIFI is turned on, it can be connected with the mobile phone through WIFI, displayed and operated on the mobile APP.

- **5.9.8 Audio sound**

  Audio sound on/off

  Turn on the audio sound of recording, and the live sound will be recorded simultaneously into the video; turn off it, and the recorded video will have no sound.

- **5.9.9 Playback**

  Enter the playback interface, where you can view the recorded videos and photos.

- **5.9.10 Date/time**

  Setting the time on the screen of the device.

- **5.9.11 Format card**

  Format the memory card and clear all contents stored on the card.

- **5.9.12 Language**

  Switch the operation language of thermal imager.

- **5.9.13 Firmware version**

  Indicating the firmware version

- **5.9.14 Default setting**

  Restore the factory default settings.

- **5.9.15 Crosshairs Adjust**

  After entering the calibration interface, use the menu keys to switch options, and use the +/- keys to adjust the options.

  There are 5 reticle settings to choose from for the digital night vision.

  Each type of reticle setting can be individually set with the corresponding reticle style, color, and corresponding to a separate zero calibration position.

  The digital night vision has 8 kinds of reticle types to choose.

  The digital night vision has 4 kinds of reticle colors to choose. They are Green, Blue yellow and Red.

  If the night vision goggles are installed on different devices, the zero position will be different. When replacing night vision device assembly equipment, zero calibration is required.

•X: Move the reticle left and right;

•Y: Move the reticle up and down.

•After confirmation, move to the save option, short press the confirmation key to save and exit.

- **5.9.16 Screen brightness**

The brightness of eyepiece display screen can be increased or decreased by adjusting the screen brightness button.

The night vision is designed with 1-10 levels of screen brightness, which ranges from the darkest to the brightest. Users can choose the appropriate screen brightness according to their viewing habits.

Note: If the screen brightness is too high, long-term use may cause damage to vision.

• 6 Analysis and troubleshooting of common faults

If your instrument fails, first check the common faults shown in Table 5. If it is not caused by the following faults, please contact NNPO as soon as possible.

Fault detection	Fault location	Actions
The night vision will not start up after the power key is pressed and held	Whether the battery is installed correctly	Open the battery cover and check that the battery is installed in the opposite direction
	Whether the battery is fully charged	Take out the battery and charge it
	The battery cover is not tightened	Tighten the lens cap

Fault detection	Fault location	Actions
Image is poor and blurred after starting up	Lens are out of focus	Rotate the lens focus ring until the image is clear
Image is blurred	Lens are out of focus lens are contaminated	Rotate the lens focus ring until the image is clear Use special lens cleaning wipes to clean the lens
Different distances were observed	Lens are out of focus	Rotate the lens focus ring until the image is clear
The interface is not clear	The visibility of eyepiece is improper	Adjust the visibility according to the Manual
The night vision is shut down suddenly during use	The battery compartment cover is loose	Tighten the battery compartment cover

Fault detection	Fault location	Actions
The precision is decreased obviously during use	The connecting seat is loose	Check whether the connecting seat is fully locked
It is unable to shut down normally	It is unable to shut down	Press and hold the power button to force the shutdown

• 7 Maintenance and Service

After the observation is completed or if the target is not observed for a long time following the startup, it should be shut down in time to extend the effective utilization time of the digital night vision.

The lens of digital night vision is an important optical component. Therefore, in the process of installation and use, oil stains and various chemical substances should be avoided to contaminate and damage the lens surface. After use, please cover the lens cap.

When the night vision is not in use, and during transportation, remove the battery and put the digital night vision in a safety box.

After service

When the digital night vision is stored for a long time or does not work, it should be kept in a cool and dry environment as far as possible.

Do not use chemical solvents, diluents, etc. to scrub, but apply a soft, dry flannel cloth to wipe the digital night vision shell.

The lens of the digital night vision only needs to be cleaned when it is obviously dirty. Please avoid touching the surface of the lens. The acid substance on the skin left by the fingerprint will damage the coating and the surface of the lens. Only use special lens cleaning wipes to clean the lens.

When it is not used for a long time, it should be electrified for check and correction once every six months.

Warranty Service:

Thank you for choosing this product. Please read the Product Warranty Card carefully and keep it properly to be fully entitled to the perfect after-sales service support.

We will provide you with after-sales service according to the standard product warranty commitment. Please check the official website for details of after-sales service policy. Some of the information is excerpted as follows:

1. The warranty period starts from the date of the first purchase of the product, and the purchase date is subject to the invoice date of the purchased product. If there is no valid invoice, the warranty period will be calculated from the date of delivery. If the invoice date is later than the actual delivery date of the product, the warranty period shall be calculated from the actual delivery date of the product.

2. No warranty coverage (only some of the information is excerpted, please refer to the after-sales service policy for details)

① Exceeding the specified warranty period;

② Failure or damage caused by misuse, accident, modification, improper physical or operating environment, natural disaster, surge and improper maintenance or storage;

③ Failure or damage caused by the products, software, services or behaviors of a third party;

④ Normal decolorization, wear and consumption during the use of the product;

⑤ The product can run normally without interruption or error;

⑥ Data loss or damage;

⑦ Consumable parts, except for the failure due to material or process defects;

⑧ Failure to show valid warranty certificate and valid original purchase invoice or receipt, alteration, replacement or tear of original serial number label, absence of serial number or inconformity of product model or number on warranty certificate with actual product;

⑨ Any other circumstances in which the product is not used in accordance with the attached instructions or operation manual, or the product is not used in the intended function or environment, and it is confirmed that you have violated the operation manual.

3. NNPO will not be responsible for the additional promises made to you by the seller or any third party, and you should ask these third parties to fulfill them.

Protection To Fix Card

User name	
Detailed address	
Tel	
Product model	
Product number (S/N)	
Purchase date	
Seller	
Tel	

After service

Notes:

1. You will be entitled to the free warranty within the warranty period and preferential service beyond the warranty period with this card.

2. This Warranty Card is only applicable to the products stated in it, which is valid after being sealed by the sales unit.

3. The warranty terms of special items shall be subject to the specific purchase and sale contract.

MOBILE APPLICATIONS

Control your device and view a live streaming feed with our App (Currently available for Android and IOS. Operation can take pictu res, video)

Android

IOS

Software: DCAM
password: 12345678

Brand:	NNPO
Product model:	DC23
Service hotline:	0086-0755-2790 1239
Oficial website:	www.nnpotech.com
E-mail:	sales@nnpotech.com
Manufacturer's address:	Building 4,DH Flying Technology Industry Park, No. 16, Dahua Road, Baoan District,Shenzhen ,Guangdong,China 518105

NNPO

Made in China