



# Night Vision Go User Manual V1.0.2



**IRay Technology Co., Ltd.**

[www.infiray.com](http://www.infiray.com)

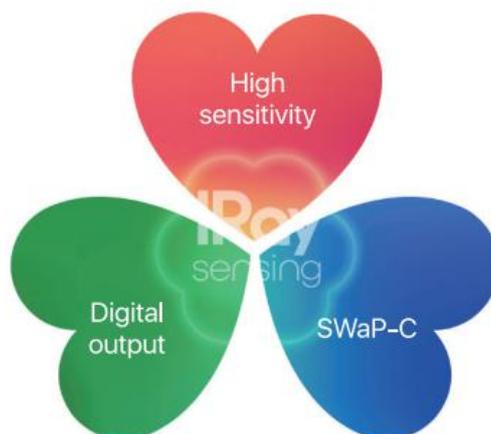
# Explore And Perceive The Future

## Introduction to IRay Technology

IRay Technology Co., Ltd. concentrates on developing infrared thermal imaging technologies and manufacturing relevant products, with completely independent intellectual property rights. IRay is committed to providing global customers with professional and competitive infrared thermal imaging products and solutions. The main products include IRFPA detectors, thermal imaging modules, and terminal thermal imaging products.

With R&D personnel accounts for 48% of all employees, 662 intellectual property projects in terms of IRay have been authorized and accepted: 522 patented technologies authorized and accepted in China (including those for integrated circuit chips, MEMS sensors design and manufacture, Matrix III image algorithms and intelligent precise temperature measurement algorithms, etc.); 16 patented technologies authorized and accepted overseas; 86 software copyrights; and 38 integrated circuit layout designs.

IRay products have been applied in various fields, including epidemic prevention and control, industrial thermography, security and fire control, night vision observation, automatic driving, Internet of Things, AI, and machine vision.



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The product described in this manual is only available for sale and use in Mainland China. This manual is intended to be used as a guide. Pictures, figures, diagrams, illustrations, etc. provided in this manual are for explanation and illustration purposes only and may be different from the particular product. Please refer to the physical product. While the Company does its utmost to ensure the accuracy of content in this manual, it makes no explicit or implicit claims or guarantees on this manual.

IRAY TECHNOLOGY may update this manual as a result of product upgrades or other needs. For the latest manual, please contact IRAY TECHNOLOGY. IRAY TECHNOLOGY recommends using this manual under the guidance of a professional.

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## 1. Overview

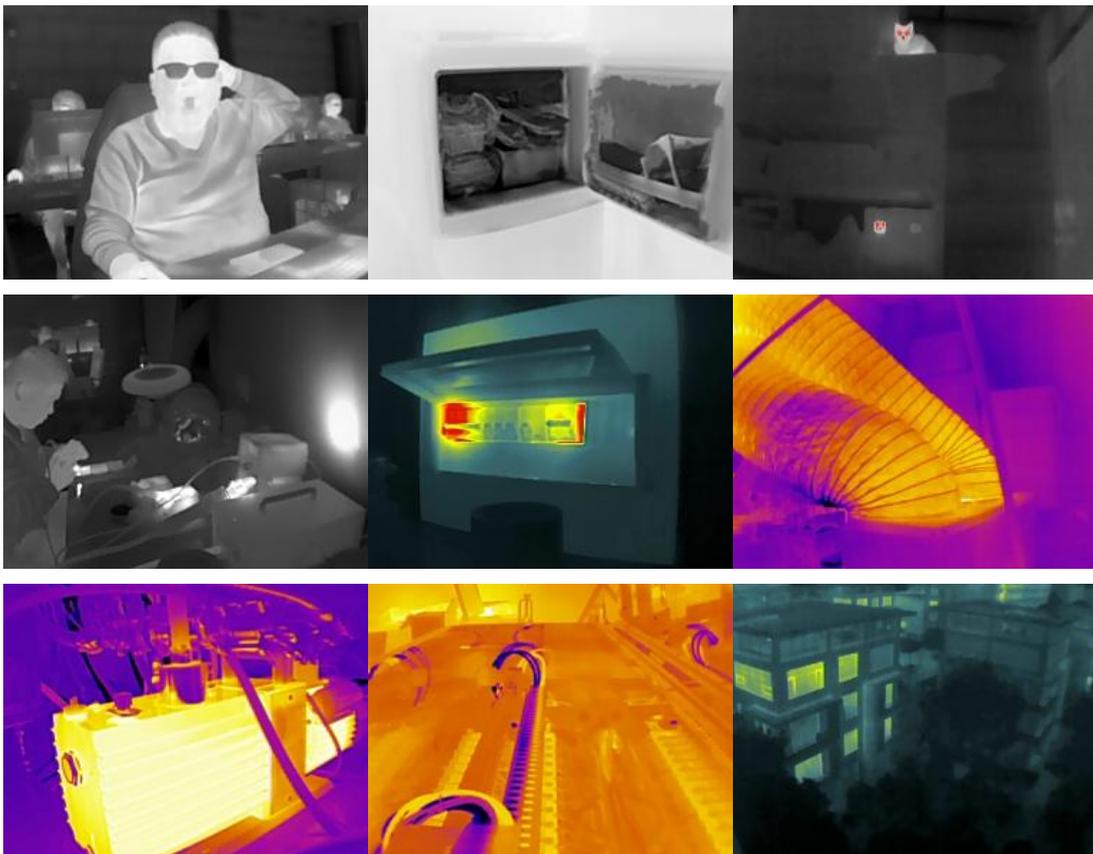
### 1.1. Product Overview

The Night Vision Go Infrared Phone Accessory is equipped with an industrial-leading high-performance detector and chip, thus delivering superior imaging quality and taking precise temperature measurements. Smallest and lightest of its kind, it is easy to carry around, yet powerful and features low power consumption. It can be directly connected to a phone and is plug and play, making itself an ideal device for exploring the infrared world.

### 1.2. Product application

Personal consumption: household temperature measurement, water, electricity, and heating pipeline distribution and fault inspection, photo taking, peep-proofing, animal searching, etc.;

Industrial and engineering usage: PCB overhaul, pipeline inspection, equipment overhaul, heating alarm, breeding, heat map analysis, etc.



### 1.3 Product Parameters

<b>Detector</b>	
Resolution	256×192
Pixel Size	12μm
NETD	≤50mK@25°C, F#1.0
Spectral Range	8~14μm
<b>Specifications</b>	
Frame Rate	25Hz
Operating Temperature	-10°C ~ 55°C
Storage Temperature	-40°C ~ 85°C
Typical power consumption	340mW
Processor	Self-developed LY ASIC chip
<b>Lens</b>	
Focal Length	3.2mm
Aperture	F1.1
Field of View (FOV)	56.0° (H)×42.2° (V), 71.3°(D)
Focus Mode	Athermalized fixed focus
<b>Temperature Measurement Performance</b>	
Measurement range	-20°C ~ 170°C
Measuring Accuracy	±2°C or ±2% of readings, the larger value shall prevail
Temperature Correction	Distance, ambient temperature, and emissivity
<b>Shell</b>	
Dimensions	27×18×9.7(mm)
Color	Outer Space Silver
Weight	About 9g
Interface	USB type C
<b>App Function</b>	
Palette	White/Black-hot+6 palettes
Measurement Method	Point/Line/Region temperature measurement
Information Sharing	Instant information sharing
Data analysis	Secondary temperature data processing for images
App Compatibility	Android 6.0 or later

Software Update	Online update
<b>Parts</b>	
List	Quick Start Guide, Warranty Card, cleaning cloth, carrying box, extension cord, Certificate of Qualification

## 2.Preparations

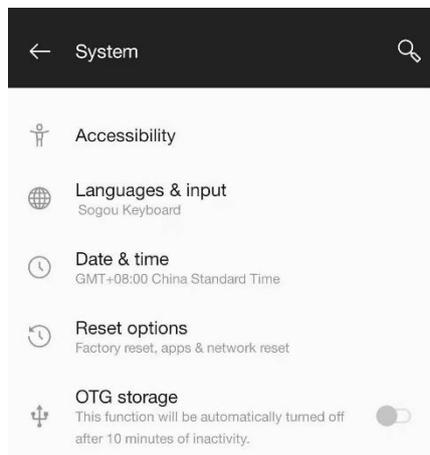
### 2.1 Obtaining Required Software

This device must be used together with the Android app in order to access infrared image snapshot, thermography, and other functions from the app.

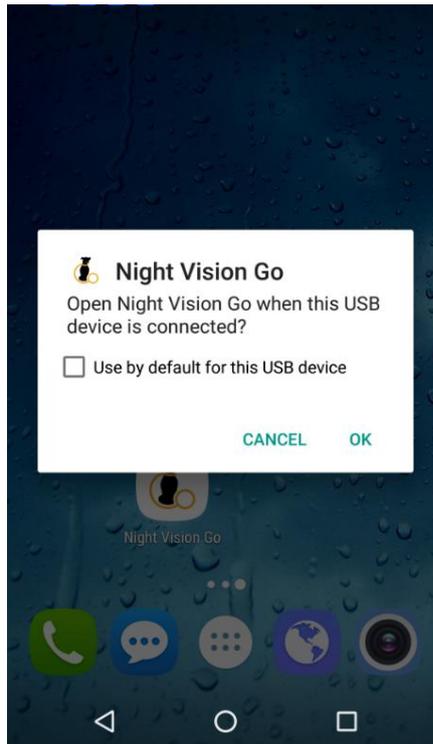
### 2.2 Connection Setup

Ensure that all permissions required by the installed app are enabled on your phone. Otherwise, some functions may not be available. These include storage, camera, audio recording, and phone call permissions for managing the infrared photo album, using the visible light camera, accessing the video taking function, and storing image information, respectively.

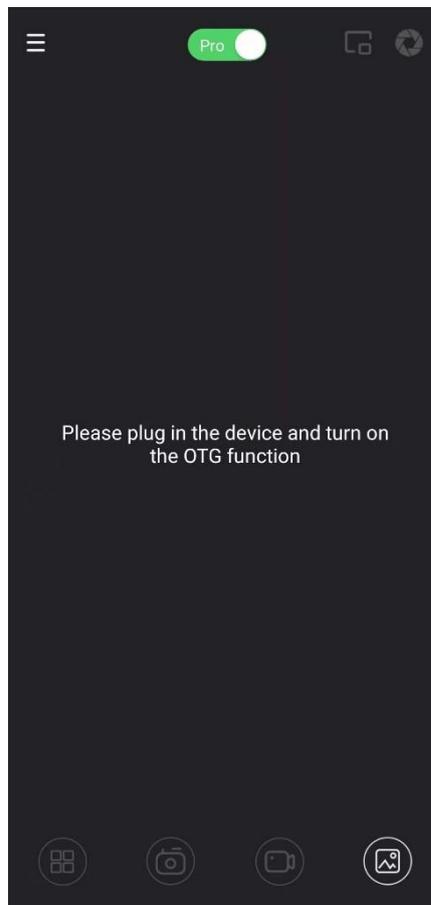
Before plugging into the device, ensure that the OTG storage function has been turned on. On some phones, this function is turned on by default and therefore does not need to be set manually.



Once the device is plugged into and recognized by your phone, the following prompt pops up. Tap **OK**.



If the app has been opened and cannot detect the device, the following interface is displayed. This means that some functions are disabled.



## 3.App Function

### 3.1 Overview of the Home Page

The app's home page includes upper and lower function areas and an image area in the middle. The upper function area contains ① Personal Center, ② Temperature Measurement Settings, ③ Dual-spectrum Setting, and ④ a Shutter Switch. The lower function area contains ⑤ Palette, ⑥ Image Capture ⑦ Video Recording, and ⑧ Album. The image area is used to display infrared images, measured temperatures, and other information.



### 3.2 Personal Center

The Personal Center contains Help, About, Setting, and Feedback.

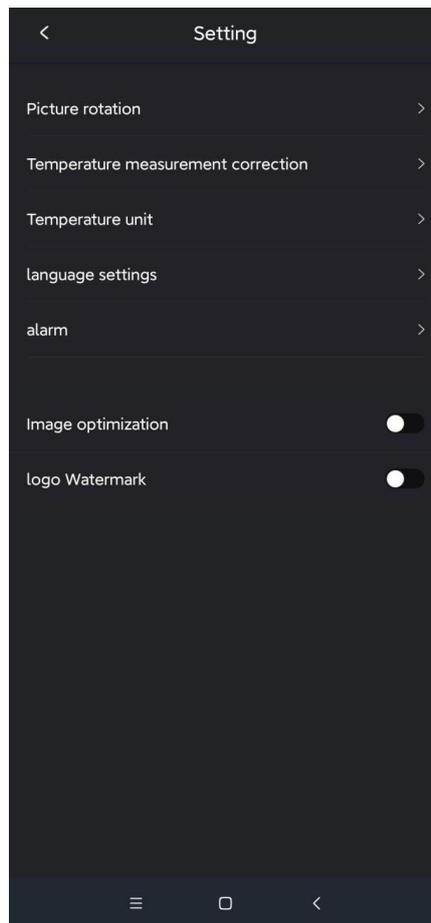
#### 3.2.1 Help

Help provides a user manual for the app.

### 3.2.2 About

About shows the app version number, firmware version number of the current device, the SN code, User Agreement, and Disclaimer.

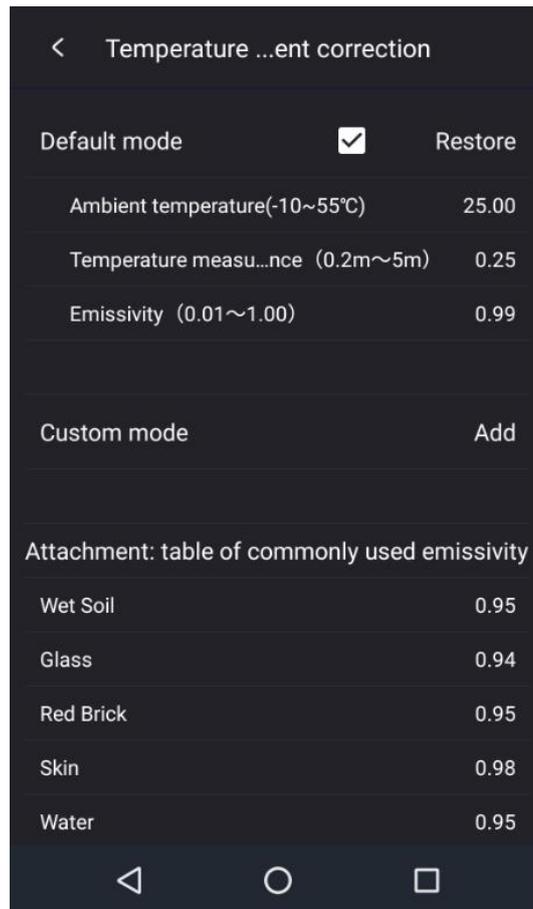
### 3.2.3 Setting



#### (1) Picture rotation

In Picture rotation, you can flip the infrared image horizontally or turn around the visible light camera. When the device lens is in the same direction as the phone screen, the infrared flip is "ON" and the visible light turning is "TOP". In this case, the selfie image is displayed. If the device lens is in the opposite direction of the phone screen, the infrared flip is "OFF" and the visible light turning is "BACK". In this case, the image captured by the rear camera is displayed.

## (2) Temperature measurement correction



With the temperature measurement correction function, you can adjust parameters in default mode. Or you can add custom modes, change the mode name and parameters, then select modes you have defined to quickly switch between different temperature measurement scenarios.

Difference between the default and custom modes: The default mode cannot be deleted and can restore the preset temperature measurement parameters of the product. There can be up to 10 custom modes, all of which can be deleted. By tapping a mode name, you can modify the name to one that consists of up to 6 characters.

Emissivity correction: provides the surface emissivity of eight common objects and allows customized object surfaces. The allowed emissivity range is 0.01~1.00.

Distance correction: corrects temperature measurement based on the input distance to the measured object. The allowed distance range is 0.2m~5m. The recommended temperature measurement distance is 0.25m. Other distances can be measured, but the accuracy of temperature measurement cannot be guaranteed. Ambient temperature correction: corrects temperature based on the input ambient temperature of the current device. The allowed ambient temperature range is the temperature range supported by the device.

### (3) Temperature unit

The temperature unit can be selected as Celsius (°C), Fahrenheit (°F), or Kelvin (K).

### (4) Language settings

The app supports switching between Chinese and English. By default, it uses the same language as your phone's operating system.

#### (5) Alarm settings

Above alarm: enter a threshold and save. The phone sounds an alarm when any temperature shown on the image exceeds the threshold.

Below alarm: enter a threshold and save. The phone sounds an alarm when any temperature shown on the image is lower than the threshold.

#### (6) Image optimization

This function is a noise reduction switch and can to some extent improve image quality. However, when enabled, it consumes more power and may cause some phones with lower-level configurations to stuck. This function is disabled by default. Decide whether to enable it as required.

### **3.3 Temperature Measurement Settings**

There are two measurement modes: simple and pro. To switch between the modes, use the status control on the top of the interface.

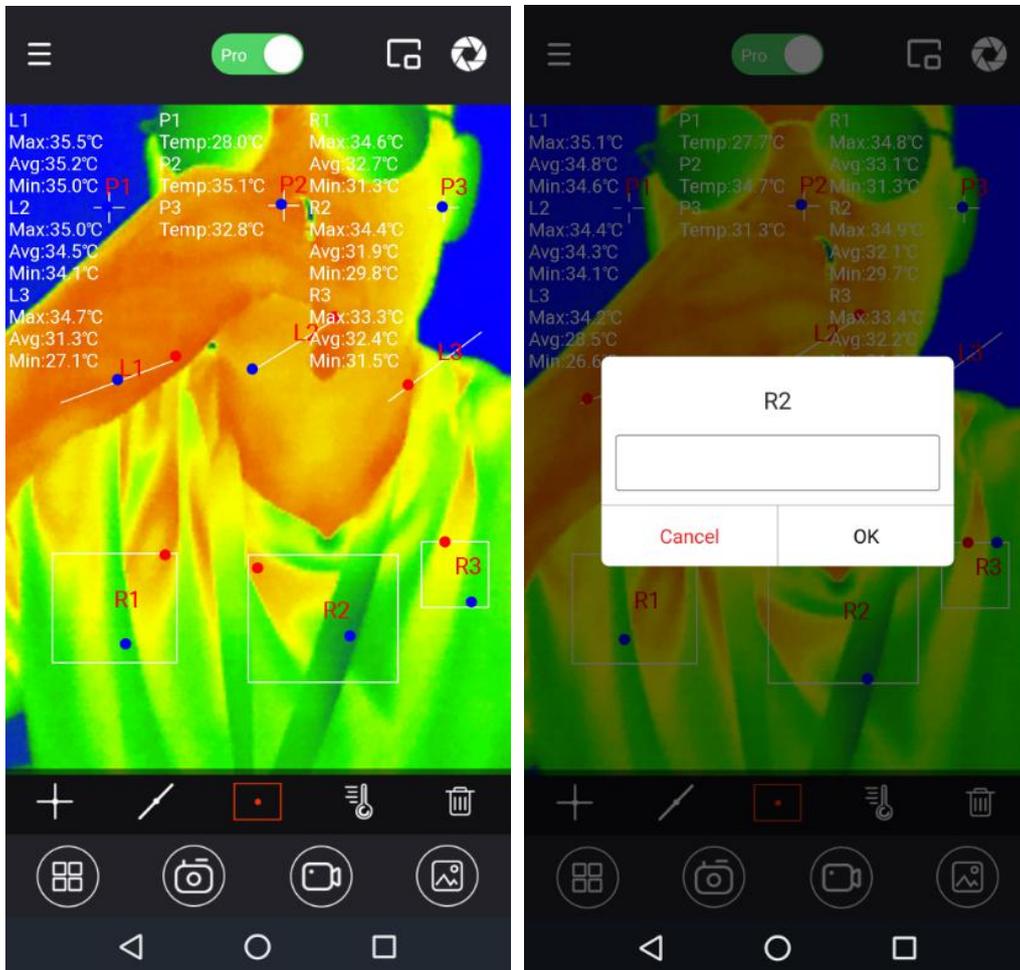
### 3.3.1 Simple Mode



The simple mode requires no additional action and displays the highest, lowest, and center temperatures by default. To view the real-time highest and lowest temperatures in the measurement frame, drag the frame. The measurement frame can be dragged and stretched. To delete the measurement frame, tap anywhere in the frame.

### 3.3.2 Pro Mode

The pro mode supports temperature measurement by three points, three lines, and three regions. For lines and regions, the highest, lowest, and average temperatures are displayed.



Only spot-based temperature measurement supports adding or dragging measurement spots. To delete a measurement spot, tap the spot. This is also the case for other controls.

To modify remarks for certain measurement content, press and hold the corresponding measurement information in the upper left corner. For example, modify "R2" to "R2: Face of People with Normal Temperature". Up to six characters can be inputted.



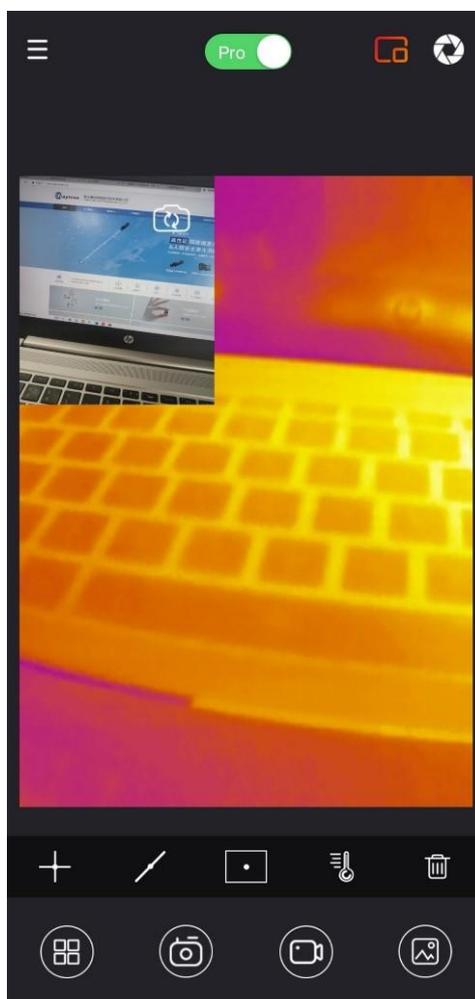
The isotherm scale is used for palettes other than white-hot or black-hot to highlight the temperature zone requiring special attention. The selected zone is displayed in the form of a palette while others are white-hot. When the isotherm scale is in "M" status (see the upper and lower status indicators), adjust the yellow slide on the left to select a temperature range to display in the form of a palette. When it is in "L" status, the corresponding highest or lowest temperature is adjusted depending on the actual temperatures in the image.

To clear all the spots, lines, and regions, tap the dustbin-shape control rightmost.

### 3.4 Dual-Spectrum

Dual-Spectrum enables the presence of a small window in the image display area to simultaneously display the image taken by the phone camera. The small window supports drag operation.

To switch the front and rear camera of the phone, tap the reversal icon in the small window. The horizontal flip of the infrared image is set in Personal Center -Setting - Image Flip.



### 3.5 Shutter Switch

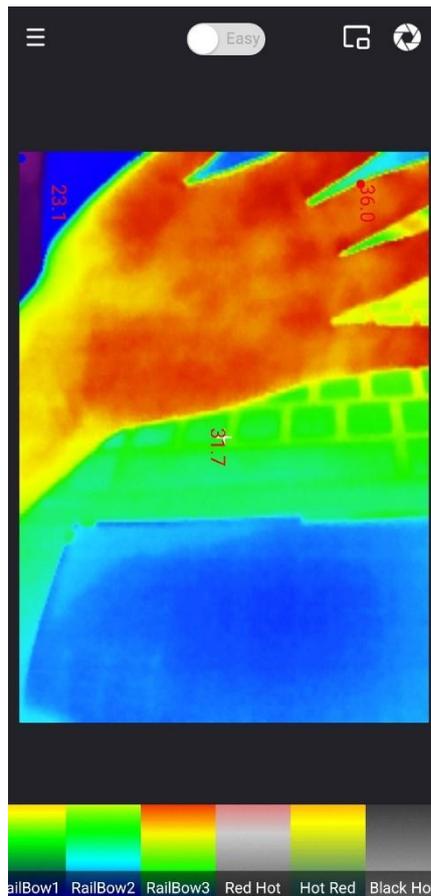
If the infrared image has poor quality or displays obviously inaccurate temperatures, tap the shutter switch to refresh the infrared imaging effect by turning on the shutter.

Under the preset conditions of the system, the device also automatically turns on the shutter to increase the image quality.

### 3.6 Palette

By default, the app has white-hot, black-hot, and other palette modes. Select different palettes as you prefer or as required. The palette mode does not affect temperature measurement. However, the isotherm scale only applies to palettes other than white-hot and black-hot.

In addition, because colored infrared images are rendered, the data may be damaged after processing. Therefore, the original white-hot image is the clearest.



### 3.7 Photo Taking

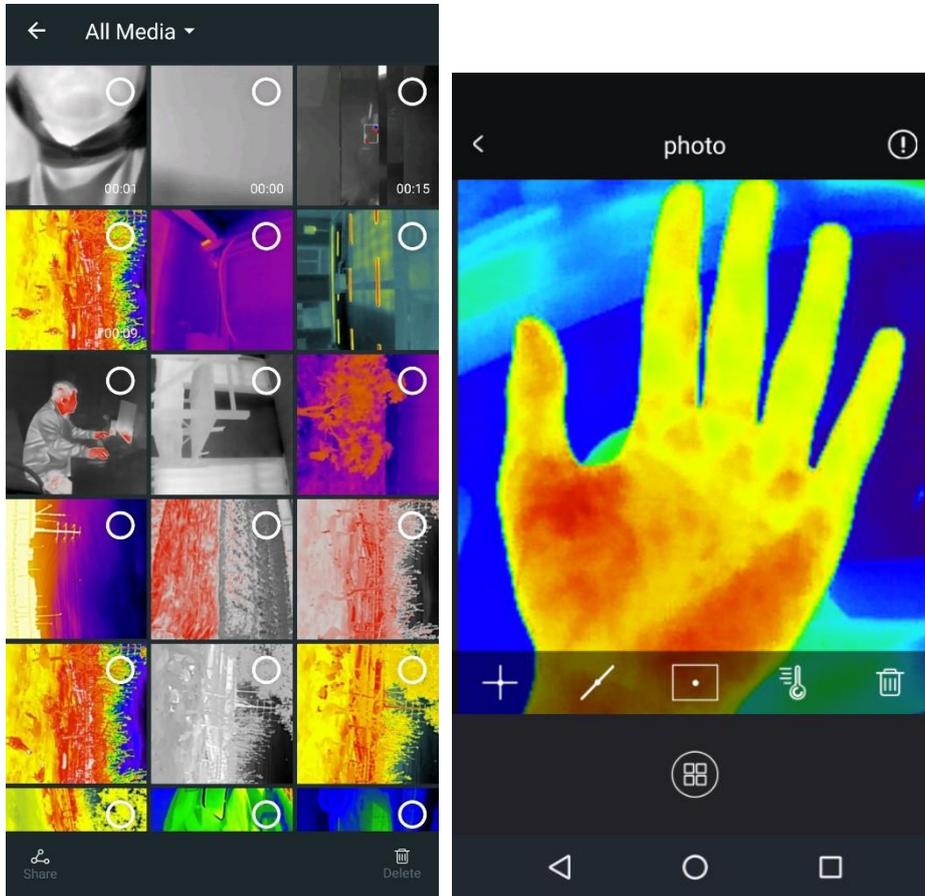
To take a photo of the display area and save it to the album, tap Photo Taking. The display area includes the infrared image, visible-light image (dual-spectrum enabled), and temperature measurement elements (temperature measurement enabled).

### 3.8 Video Taking

To record the infrared video and save it to the album, tap Video Taking.

### 3.9 Album

You can share or delete any photo(s) and video(s) in the app's album and can view their information. The example photo is a pure infrared image taken by this device. Its palette and temperature measurement can be further edited.



## 4.Precautions



### WARNING

1. Do not place this product in a humid environment or rinse it with water, to prevent electrical leakage or short circuit.
2. This product is sensitive to thermal radiation. Whether you are using it or not, do not direct its lens to the sun or other heat sources at temperatures above 300 °C for a long time.
3. Please store the product in the supplied pouch or box after use.
4. To prevent device failure, disassembling the device shell without permission is strictly prohibited.
5. The lens and the Type-C connector are prone to damage. Do not knock, pry, puncture, or scratch them.

## 5.FAQs

(1) Q: Why does my Night Vision Go not respond after being plugged into the phone?

A: Troubleshoot in this order:

- a) Ensure that your phone runs with Android 6.0 or later, Android 9.0 or later are recommended.
- b) Verify that the OTG option is available on your phone and is enabled. If you are using OPPO, VIVO, OnePlus, Realme, or iQOO, search "OTG" in Settings and manually turn it on. This function is automatically turned off after 10 minutes of inactivity. On most other phones, OTG is turned on by default and can be used directly.
- c) Ensure that you have downloaded the Night Vision Go app and granted all permissions required by the app.
- d) Unplug and plug in Night Vision Go. If it still does not respond, contact our after-sales staff.

(2) Q: What should I do in the event of a blurry screen or inaccurate temperature measurement?

A: Given the operating characteristics of uncooled infrared detectors, you need to refresh the screen using the shutter, that is, tapping the shutter icon in the upper right corner. This helps produce clearer images and more accurate temperatures.

(3) Q: Can I use Night Vision Go to observe objects under water, outside glass windows, under clothes, or under the skin?

A: Night Vision Go mainly detects an infrared wavelength range of 8~14μm. So it cannot observe through water or ordinary glass and can only measure temperatures on the surfaces of clothes and skin.

(4) Q: Why is the measured body temperature not 36°C?

A: Different parts of the human body have different temperatures. Skins on the forehead, cheek, and limbs are often exposed. Temperatures at these parts are largely affected by the ambient temperature, ambient humidity, and the grease and sweat on skins. In normal cases, they will not be higher than 36°C. For a person staying in a cool outdoor environment for a long time, a body temperature measured below 10°C is also normal. The temperature of skins exposed to the sunlight for some time is often higher than 36°C and can even reach 40°C.

(5) Q: Does Night Vision Go pose a radiological hazard to the human body?

A: Night Vision Go does not actively emit any hazardous radiation but only collects the heat information of objects. It can be used with peace of mind.

(6) Q: The temperature readings of people at a distance are relatively lower and can get higher when I come close to them. Why is this happening?

A: The infrared radiation attenuates after passing through the atmosphere. The farther the distance is, the more it attenuates. As a result, the temperatures measured are less accurate for objects at a distance. For users who need only to find abnormal heat sources, the distance attenuation does not affect the relative temperature distribution. So they can use Night Vision Go as usual. Users who need accurate temperature data can obtain the corrected temperature by inputting the distance from the object to be measured (up to 5m) in Personal Center - Setting - Temperature Measurement Correction - Distance Correction.

## **6.Product service**

### **6.1 Service Commitment**

IRay Technology Co., Ltd. is committed to providing customers with high-quality training, maintenance, and technical support services. The Company wishes to maintain a long-term relationship with the customers. It continues to offer systems of the latest version and effective, timely support, retraining, and consulting services based on customer needs to help maximize customers' economic benefits.

## Worth comes from Service

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**24h Hotline:**

**400-998-3088**

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**Technical Support**

**Hotline:**

**400-883-0800**

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**Customized Services**