

ThermTec

Cyclops SE Series

Thermal Imaging Monocular

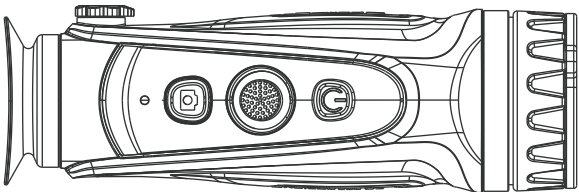
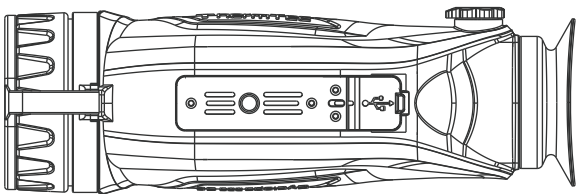
CYCLOPS SE SERIES User Manual



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About This Manual

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This Manual is applicable to Thermal Imaging Monocular.

The Manual includes instructions for using and managing the product. Pictures, charts, images, and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons.



REGULATORY INFORMATION

This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Directive 2014/53/EU(RED), Directive 2014/30/EU(EMC), Directive 2014/35/EU(LVD), Directive 2011/65/EU(RoHS).



The full text of the EU declaration of conformity is available at the following internet address: <https://www.thermeyertec.com/declaration-of-conformity/>

Frequency Bands and Power (for CE). The frequency bands and transmitting power (radiated and/or conducted) nominal limits applicable to the following radio equipment are as follows:

Wi-Fi 2.4 GHz (2.4 GHz to 2.4835 GHz), 17dBm

For the device without a supplied power adapter, use the power adapter provided by a qualified manufacturer. Refer to the product specification for detailed power requirements.

For the device without a supplied battery, use the battery provided by a qualified manufacturer. Refer to the product specification for detailed battery requirements.



This product contains a battery and it is in conformity with the Regulation (EU) 2023/1542. The battery cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information.



The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), or lead (Pb). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info.



This product and - if applicable - the supplied accessories too are marked with “UKCA” and comply therefore with the following directives: Radio Equipment Regulations 2017, Electromagnetic Compatibility Regulations 2016, Electrical Equipment (Safety) Regulations 2016, the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012.



This product and - if applicable - the supplied accessories too are marked with “RoHS” and comply therefore the requirements of Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (“RoHS recast” or “RoHS 2”).



2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.



Directive 2006/66/EC and its amendment 2013/56/EU (Battery Directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info.

SAFETY INTRODUCTION

These instructions are intended to ensure that user can use the product correctly to avoid danger or property loss. Please read all the safety information carefully before using.

Transportation

- Keep the device in original or similar packaging while transporting it.
- Keep all wrappers after unpacking them for future use. In case of any failure occurred, you need to return the device to the factory with the original wrapper. Transportation without the original wrapper may result in damage on the device and the company shall not take any responsibilities.
- Do not drop the product or subject it to physical shock. Keep the device away from magnetic interference.

Power Supply

- If a power adapter is provided in the device package, use the provided adapter only. If no power adapter is provided, ensure the power adapter or other power supply complies with Limited Power Source. Refer to the product label for the power supply output parameters.
- Make sure the plug is properly connected to the power socket.
- DO NOT connect multiple devices to one power adapter, to avoid over heating or fire hazards caused by overload.
- The power delivered by the charger must be between min. 10 Watts required by the radio equipment, and max. 10.4 Watts in order to achieve the maximum charging speed.

Battery

- The device is equipped with built-in li-ion battery. The battery rated voltage and capacity is 3.6 V/3300 mAh.
- CAUTION: Risk of explosion if the battery is replaced by an incorrect type. Replace with the same or equivalent type only.
- Batteries of improper size cannot be installed, and may cause abnormal shutdown.
- Improper replacement of the battery with an incorrect type may defeat a safeguard (for example, in the case of some lithium battery types).

- Please purchase the batteries recommended by the manufacturer if necessary.
- The purchased batteries by users need to comply with the relevant international standards about battery safety (e.g. EN/IEC standards).
- Use the battery provided by qualified manufacturer. Refer to the product specification for detailed battery requirements.
- Dispose of used batteries according to the instructions.
- CAUTION: Risks of short circuit, fire, or explosion if the battery is damaged. Frequent use, dropping, impact, corrosion, or compression of the battery may cause damages including cracked casing, detached plates, or leakage of internal liquid or gas, etc.
- If the battery is damaged, stop using it immediately and dispose of it according to the instructions.
- Remove the battery if you do not use the device for a long time.
- For long-term storage of the battery, make sure it is fully charged every 2 months to ensure the battery quality. Otherwise, damage may occur.
- The built-in battery cannot be dismantled. Please contact the manufacture for repair if necessary.
- Make sure the battery temperature is between 0°C to 50°C (32°F to 122°F) when charging.
- Do not dispose of the battery into fire or a hot oven, or mechanically crush or cut the battery, which may result in an explosion.
- Do not leave the battery in an extremely high temperature or low air pressure environment, which may result in an explosion or the leakage of flammable liquid or gas.
- Confirm there is no flammable material within 2 m of the charger during charging.
- DO NOT place the device with battery or the battery alone near heating or fire source. Avoid direct sunlight.
- DO NOT place the battery in the reach of children.
- DO NOT swallow the battery to avoid chemical burns.
- This product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.
- If the battery compartment does not close securely, stop using the product and keep it away from children.
- If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

Maintenance

- If the product does not work properly, please contact your dealer or the nearest service center. We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.
- Make sure that the power has been disconnected before device teardown and repair by professionals.
- Check the optical surfaces of objective lens, eyepiece, rangefinder, etc. If necessary, remove dust and sand from the optics using tools and solvent designed especially for this purpose (it is preferable to use a non-contact method).
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the device may be impaired.
- Wipe the exterior surfaces of metal, plastic, and silicone parts with a clean and soft cloth. Do not use chemically active substances, solvents, etc. as these may damage the paint.

Using Environment

- Make sure the running environment meets the requirement of the device. The operating temperature shall be $-20\text{ }^{\circ}\text{C}$ to $50\text{ }^{\circ}\text{C}$, and the operating humidity shall be from 5% to 95%.
- DO NOT expose the device to high electromagnetic radiation or dusty environments.
- DO NOT aim the lens at the sun or any other bright light.
- Place the device in a dry and well-ventilated environment.
- When any laser equipment is in use, make sure that the device lens is not exposed to the laser beam, or it may burn out.
- Avoid equipment installation on vibratory surface or places subject to shock (neglect may cause equipment damage).
- This equipment is not suitable for use in locations where children are likely to be present.

Emergency

- If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.

1 Introduction

1.1 Device Description

ThermTec Cyclops-SE Series Thermal Imaging Monocular, a next-generation intelligent thermal imaging device, features a 12 μ m uncooled infrared detector, a 35mm objective lens, and a 1024x768 OLED high-definition display. With its AI image recognition algorithm, it delivers clear views in various lighting conditions, including complete darkness, ensuring reliable, high-quality visuals for nighttime activities. Additionally, its seamless mobile phone connectivity enables real-time view sharing.

1.2 Features

1. Mechanical Joystick Design

It balances the central of gravity, providing an easier and outstanding handheld experience.

2. 12 μ m VOx Detector

The 12 μ m VOx detector provides images with better quality, and ensures perfect detail recognition.

3. OLED Display

Designed with 1024x768 OLED display, it brings outstanding HD image quality as well as great durability, making it operable in a broader temperature range as low as minus 20°C.

4. AI Intelligent Ranging

Based on the deep learning algorithm, the monocular can automatically measure the object distance in the various objects.

6. Photo and Video Playback

Integrated pictures and video recording makes sharing the thermal action quick and easy, with the functions of playback and APP sharing.

7. Long Battery Life

Built-in battery with up to 16H super long standby, recording every and instant moment of your hunting and outdoor experience.

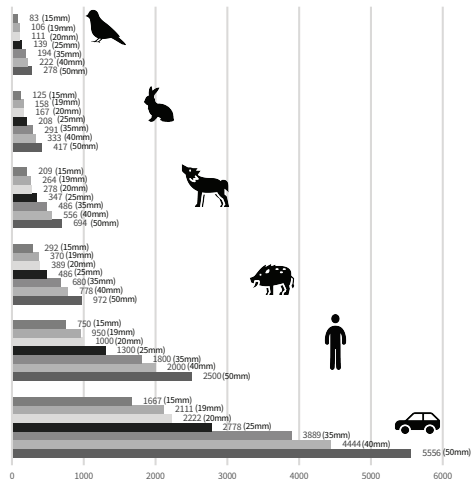
8. Continuous Zooming

Continuous 1.0-4.0 HD zooming ensures excellent sharpness and the highest resolution of details from minimum to maximum magnification.

9. IP67 Protection Design

1.3 Detection Range

The illustration below shows the comparative range performance of the monocular with different lens configurations. The data is based on detecting a car of 4m, a man of 1.8m tall, a wild boar of 0.7m tall, a wolf of 0.5m tall, a rabbit of 0.3m tall and a bird of 0.2m tall.



1.4 Application Scenarios

- Animal Observation
- Outdoor Adventure
- Security Law Enforcement
- Emergency Search and Rescue

1.5 Cautions



CAUTION



Avoid hard objects.



Do not aim the lens directly at the sun or high-temperature light sources.



Do not use the device in extremely cold or hot environment.



Charge the battery once every three months when it is not used for a long period of time.



Make sure the USB cover is tightly closed when used in water environment.



Do not irradiate the laser indicator of the device to human eyes.



Do not disassemble or modify the device by yourself in any way.

2 Packing List



Monocular (x1)



User manual (x1)



Lanyard(x2)



USB cable (x1)



Lens cloth (x1)

3 Operation Guide

3.1 Battery Charging

The battery should be fully charged prior to use.

Note: The battery is not user replaceable.


Follow the below steps to charge the battery:

1. Lift the cover from the USB port.
2. Plug the cable provided into the USB port.
3. Plug the opposite end of the cable into a USB power source.



Notes: When the charging indicator on the device becomes red, it means you need to charge the device immediately. The indicator turns to red when it is charging and turns to green when it finishes charging. After it turns to green, stop charging.

3.2 Power on/off

	Power on	Power off
	Hold the POWER button for four seconds and the boost screen will be shown.	When the device is turned on, hold the POWER button for four seconds to power off the device.

Note: Refer to Figure 1 for the main view of the monocular.



3.3 Buttons and Controls


3.3.1 Button Features and Introduction




Figure 1

Before entering the main menu

	Long press	Short press	Double-Click
	Power on/off	Standby mode on/off	N/A
	Take videos	Take photos	N/A

	Up	Down	Left	Right		Center	
	Zoom in	Zoom out	AI Ranging	Short push	Long push	Brief press	Double press
				Peseudo switch	Outline mode	Calibration	Main menu

After entering the main menu

	Up	Down	Short Press	Long Press	Double press
	Move up	Move down	Confirmation	Exit	N/A

3.3.2. Lens Adjustment

Diopter Adjustment

Looking through the eyepiece, adjust the position of diopter level to optimize the image sharpness on the OLED display.



Objective Lens Focusing

Manually adjust the objective lens focus when necessary.



3.3.3 Joystick Operation

3.3.3.1 Zoom

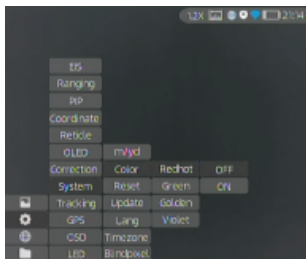


3.3.3.2 Pseudo Color Switch

Use joystick towards right to switch pseudo color.



There are six color palettes by default. You can choose the pseudo color you want by customizing. Unwanted colors can be turned off in the system setting.



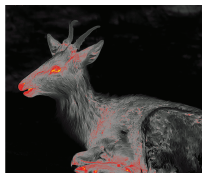
Color Palettes



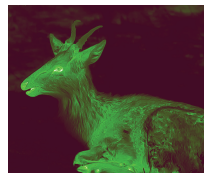
White



Black



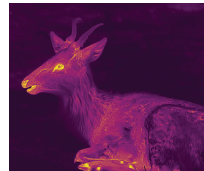
Red



Green



Golden



Violet

3.3.3.3 Target Outline Function

Long press the joystick towards right to activate the Target Outline Mode. You can clearly observe the outline of your targets in darkness, and it will help to reduce the strong light contrast to your eyes.

Long press the joystick towards right for one more time to exit the Outline Mode.




3.3.3.4 AI Ranging

Use the joystick towards left to enable or disable AI ranging function (before this function is enabled, please make sure the device is in AI ranging mode. Otherwise, refer to Section 3.4 for setting).



AI Ranging Function

3.3.3.4.1 Turning on AI Ranging Function

Double click the joystick to enter the main menu, and check whether the AI ranging function is enabled (this function is enabled by default). If not, press  to enter the System Setting menu, and press Ranging and AI to turn on this function.

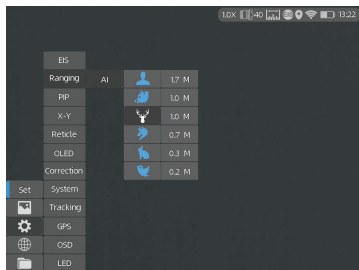
Short press the joystick to left to turn on AI Ranging function, and the corresponding icon will turn to blue at the upper right corner.

Notes: There are six types of objects to be selected for AI measurement in total. If the AI ranging function is not enabled by user before using this device, this function will not be working properly.
the upper right corner.

3.3.3.4.2 Unselecting the Type of Objects

Move the cursor and short press the joystick one time to unselect the type of object that is not your target object in the submenu.

The icon of the unselected type of object will turn to white, as shown in the below figure. The distance of unselected type of object will not be shown on your device.



Press the joystick to the left to exit the current menu.

3.3.3.4.3 Accurate Distance Measurement


Move the cursor to select the type of object that is your target object in the submenu.


Short press the joystick one time to save your selection. The height of the selected type of object can also be set by the user.

Press the joystick to the left to exit the current menu.

Notes: The actual height of the types of objects should be consistent with the set parameters for accurate distance measurement.

3.3.4 Capture/Record

Press  to take photos. Then the photo icon in the upper left corner will flash once.


Press and hold  to take videos. Then the recording icon in the upper left corner starts flashing, and the recording starts timing. Press and hold again to stop recording.

3.4 Settings

Double-click the joystick to enter Setting menu.

Note: Select by moving the joystick, and short press the joystick to confirm the selection.

3.4.1 Image Setting

Press  to enter the Imaging Setting menu. There are five sub-menus for image setting, which are “Image Mode”, “Sharpness”, “Denoise”, “Brightness” and “Contrast”.

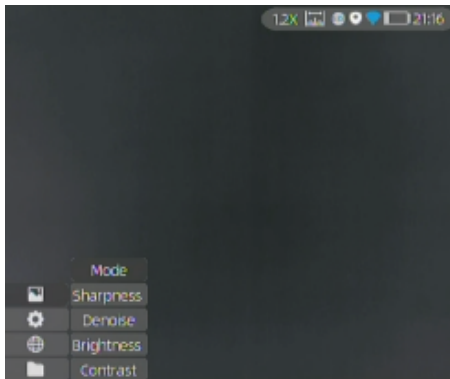

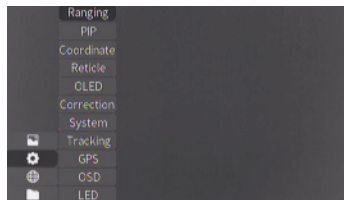


Image Setting		
Mode	Object mode	Especially enhance target's detail. It's recommended to be used in bad weather conditions.
	Forest mode	Obtaining both background and target's detail simultaneously.
Sharpness	0-10	Adjust image sharpness to make the image edge sharper. The recommended value is 5.
Denoise	0-10	Adjust image noise to make the image cleaner. The recommended value is 5.
Brightness	1-10	Adjust image brightness to make the image brighter. The recommended value is 5.
Contrast	1-10	Adjust image contrast to make the target more prominent in the image. The recommended value is 5.

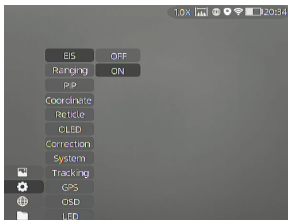
3.4.2 System Setting

Press  to enter the System Setting menu. Select by moving the joystick, and short-press the joystick to confirm the selection.




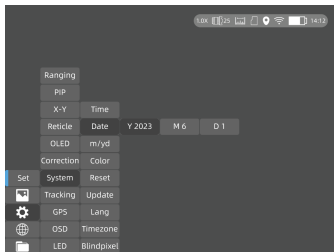
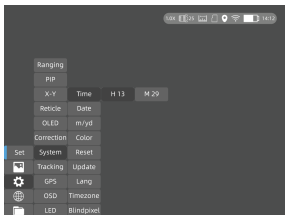
System Setting		
EIS		Electronic Image Stabilization. Can be turned on/off in the system setting.
Ranging	AI	AI distance measurement
	MIL	MIL distance measurement
PIP	Picture-in-picture	In the picture, the image is 2x enlarged from the center of the cross.
X-Y		The position of the crosshair in the picture can be adjusted and separately saved.
Reticle	0-8	Choose the style of the crosshair. "0" represents none, and "1-8" represents seven different styles.
OLED	Hue	Blue, purple and gray are optional for OLED hue.
Correction	Manual/ Auto	The mask works to calibrate the uniformity of images.
System	Shutdown	Setting off time
	Logo	Logo watermark at picture or video
	Reset	All configuration parameters are restored to the factory default values after resetting.
	Update	You can adjust and upgrade the device system.
	Language	Support multiple languages.
	Time zone	Select local time zone and adjust the date and time.
Tracking	Blind pixel	The blind pixel in the picture can be replaced.
		Turn on heat tracking to mark the target with the highest temperature in real time in the screen.
OSD		Turn off OSD.
LED		Turn off LED. The work indicator is turned off and the hidden work mode is started.

EIS function: Turn on the EIS function to reduce the impact of body shaking on the image and keep the image stable when observing distant targets.



3.4.3 Date & Time Setting

Double press the joystick and press  to enter the System submenu, and press Time and Date to set the time (hour and minute) and date (year, month and day) respectively, as shown in the below figures.



Notes: The date will be displayed on the screen only when entering the Stand-by Mode.

3.4.4 Network Connection

Press  to enter the Network Connection menu.



3.4.4.1 APP Download

Search "ThermTec Outdoor" in APP store, or scan the below QR code to download the APP.

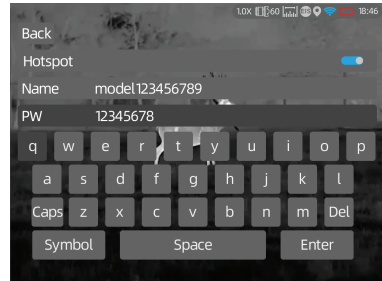


3.4.4.2 Connect via Hotspot

- Turn on device's hotspot.




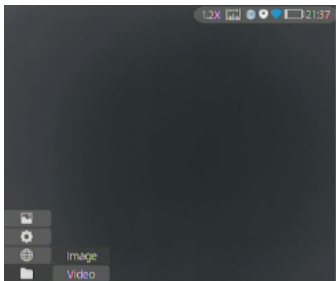
- Connect mobile client with device's hotspot.



- After the connection, you could control devices freely with APP (ThermTec Outdoor).

3.4.5 File Management

Short-press  to enter the File Management menu. Select the image and video sub-menus to view the images and videos and play the videos.



File Setting	
Image	Access the Image sub-menu, and select photo files through the joystick for management.
Video	Access the Video sub-menu, and select video files through the joystick for management.

3.5 External Video & Data Reading

Power on the device before using a type-C to AV video cable to output analog video. When external display is connected, the OLED of the device automatically turns off the display.

Power on the device, use a type-C to USB cable to connect with the computer to read the video and image data in the memory.

Note: video and image taken in analog format (usually taken by external display with analog output) will be saved in folder named “720”, video and image directly taken by monocular will be saved in folder named “1024”.

3.6 System Software Upgrade

Cyclops-SE series thermal imaging monocular supports “ThermTec Outdoor” APP, which allows you to transmit the image from the thermal imager to the smartphone or tablet via Hotspot in real time mode.

3.6.1 Upgrading via APP

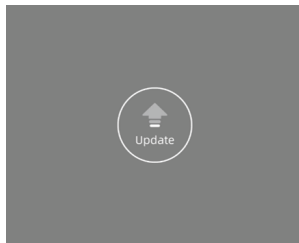
- Open ThermTec Outdoor APP.
- Turn on the hotspot of the device, and connect it with the Mobile phone.
- Select Update on the menu options.
- The downloading and upgradation would be a continuous process if there is an update.
- After finishing the update, the device will reboot.

3.6.2 Upgrading via PC

- Please download the corresponding upgrade package from the official website, www.thermeyerotec.com. Connect the device to your PC via a Type-C data cable.



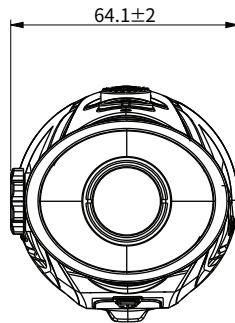
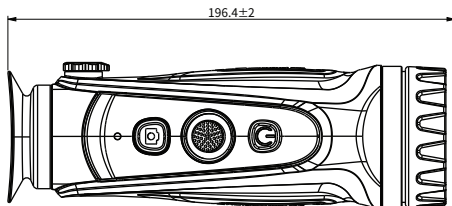
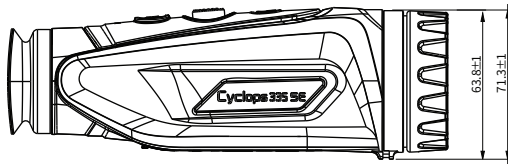
- Copy the related updating firmware to the storage file of Cyclops-SE. Press joystick to select Update icon, and the system will prompt “Update”.



- Enter version to check firmware version.

4 Technical Data

4.1 Dimensions



4.2 Dimensions

Model	Cyclops335 SE
Microbolometer	
Resolution	384x288
Pixel Pitch	12μm
NETD	20mK@300k
Spectral range	8-14μm
Frame rate	50HZ
Detection Range	1800m
Optics	
Objective lens	35mm/F1.0
Field of view	7.5° x 5.6°
/ m @100m	13.2m x 9.9m
Magnification	3.3x
Digital Zoom	1-4x continuous zoom
Eye relief	40mm
Exit pupil	6mm
Diopter	±5D
Display	
Type	AMOLED
Resolution	1024x768
Display size	0.39 inch
Color palette	6
Image mode	Forest/Target/Outline

Function	
Photo/video playback	Yes
Language	Multiple-languages
Inbuilt Memory	64GB
Calibration	Auto/Manual
PIP	Yes
AI/MIL Distance Measurement	Yes
Heat Track	Yes
Real-time Notification	Yes
OSD Recording	Yes
Battery	
Internal battery	Internal High Capacity Li-ion Battery (18650x2)
Battery life	16h
Interface	
Type-C	Supports battery charging, data transfer, analog video output
Hotspot	App remote control
Environment	
Working temperature	-20°C—+50°C
Protection Level	IP67
Weight, g	522
Dimension mm	196.4*63.8*64.1
Accessories	
External Cable	USB Cable / Analog Video Cable
Other Accessories	Non-dust cloth and etc.



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