

# PARD

Thermal Imaging Monocular  
**Leopard Series**



## User Manual



# Important Reminder

**1** All PARD products are exclusively designed for civilian use and strictly prohibited for any military purposes.

**2** All PARD products are not authorized for export to, including but not limited to Russia, Belarus, Palestine, Israel, Sudan, South Sudan, and other conflict zones.

<b>1. Introduction</b> .....	<b>01</b>
<b>2. Precautions</b> .....	<b>01</b>
<b>3. Package Contents</b> .....	<b>02</b>
<b>4. Description &amp; Key Features</b> .....	<b>02</b>
<b>5. Specifications</b> .....	<b>03</b>
<b>6. Components</b> .....	<b>05</b>
<b>7. Installation</b> .....	<b>06</b>
<b>8. Operation Instruction</b> .....	<b>07</b>
<b>1) Shortcut Mode</b> .....	<b>07</b>
<b>2) Menu Mode</b> .....	<b>09</b>
<b>9. FCC Warning</b> .....	<b>15</b>

## Introduction

Thank you for your continued support and for choosing PARD Leopard thermal imaging monocular. Please read this manual carefully before using the device for the first time. Please follow the instructions in this manual to avoid any damage caused by improper use and to ensure that your device operates properly.

After reading, please keep this manual in a safe place, for future reference. This manual provides step-by-step instructions on how to use your digital device and is intended for your reference only.

Please note that PARD reserves the right to update this manual without prior individual notifications. For the latest information and updates, we recommend you to visit our official website. Additionally, PARD reserves the final right of interpretation of this manual.

## Precautions

- Please remove the insulating tape on the battery before first use. It is recommended to use a fully charged lithium-ion battery with a rated voltage of 3.7V.
- Please turn off the device and remove the battery when it's not in use for more than 10 days, and store the device & battery in a dry and safe place.
- Be extra cautious and handle the device with care during use or transportation. It is recommended to use the original packaging during transportation.
- Do not use the device to focus directly on strong sources of light such as the sun or electric welding. The detector may be damaged and it will void the warranty.
- Avoid lens scratches and damage caused by oil or chemical contamination of the lens. Keep the lens cap on when not in use.
- The device should be placed in a cool, dry, and ventilated environment without strong electromagnetic fields, and the storage environment temperature should not be lower than (-30°C/-22°F) or higher than (55°C/131°F).
- Do not disassemble the device without authorization. If you encounter any problems, please contact our after-sales team. Failure to do so will render the warranty service null and void.
- **Attention!** All PARD night-vision and thermal imaging devices require a license when exported to outside your country.

## Package Contents

Icon	Contents	Quantity
1	Leopard 480/640	1
2	Type-C cable	1
3	18650 Rechargeable Lithium-Ion battery	1
6	Lanyard	1

## Description & Key Features

Leopard, a super compact monocular, tiny but powerful, completely fits in the palm of your hand.

Featuring a self-developed detector with a high resolution of 640\*512/480\*360 and NETD  $\leq 20\text{mK}$ , ensuring clear visibility of abundant target details and characteristics.

Notably, it features a 1920\*1080 high-resolution display, delivering visuals that are richer, more detailed, and exceptionally clear for observation.

Integrated 1200yds rangefinder module swiftly and accurately measures and displays real-time target distances, supporting a quick and error-free assessment of the situation. It saves you the hassle of carrying and installing extra LRF equipment. Leopard is undoubtedly your best observation partner.

## Key Features

- 1000m/1200yds LRF
- NETD  $\leq 20\text{mK}$
- 6 Image modes
- 18650 rechargeable Li-ion battery
- Photo & video recording
- Display resolution: 1920\*1080
- WiFi connection
- IP67 rating

## Specifications

Model	Leopard 480		Leopard 640	
<b>Sensor</b>				
<b>Type</b>	Uncooled VOx (vanadium oxide)		Uncooled VOx (vanadium oxide)	
<b>Resolution(pixel)</b>	480*360		640*512	
<b>Pixel Size(<math>\mu\text{m}</math>)</b>	12*12		12*12	
<b>NETD</b>	$\leq 20\text{mK}$ (0.02 C)		$\leq 20\text{mK}$ (0.02 C)	
<b>Frame Rate(Hz)</b>	50		50	
<b>Detection Distance(m)</b>	900/1200/1800		900/1200/1800	
<b>Optics</b>				
<b>Objective Lens(mm)</b>	25/35		35	
<b>Optical Magnification(x)</b>	2/2.8		2.2	
<b>Digital Zoom(x)</b>	2/4/6/8		2/4/6/8	
<b>Field of view(HxV)</b>	Horizontal	13.1°/9.4°		12.5°
	Vertical	9.9°/7.1		10.0°
	Diagonal	16.4°/11.7°		16.0°
<b>Eye Relief(mm)</b>	20		20	
<b>Diopter Adjustment(D)</b>	-5~5		-5~5	
<b>Display</b>				
<b>Type</b>	AMOLED		AMOLED	
<b>Resolution(pixel)</b>	1920*1080		1920*1080	
<b>Scene Mode</b>	City/Rain/Forest		City/Rain/Forest	
<b>Image Mode</b>	WT-HOT/BK-HOT/EDGE/ RD-HOT/IN-HOT/SKY		WT-HOT/BK-HOT/EDGE/ RD-HOT/IN-HOT/SKY	

Photo / Video		
<b>Photo Resolution(pixel)</b>	1440*1080	1440*1080
<b>Photo Format</b>	.JPG	.JPG
<b>Video Resolution(pixel)</b>	1440*1080	1440*1080
<b>Video Format</b>	.MP4	.MP4
<b>Storage(GB)</b>	Micro SD card(Max. 128)	Micro SD card(Max. 128)
<b>Image Engine</b>	Pard IREA	Pard IREA
Main function		
<b>LRF Detection Range(m/yd)</b>	1000/1200	1000/1200
<b>PIP</b>	Yes	Yes
<b>Gyroscope</b>	Yes	Yes
<b>Loop Recording</b>	Yes	Yes
<b>Hot Track</b>	Yes	Yes
<b>E-compass</b>	Yes	Yes
<b>Shutter</b>	Mechanical shutter	Mechanical shutter
<b>Microphone</b>	Yes	Yes
<b>Firmware Upgrade</b>	Yes	Yes
Connections		
<b>USB Tpye-C</b>	Yes	Yes
<b>HDMI Output</b>	Yes	Yes
<b>WiFi</b>	Yes	Yes
<b>Supported Apps</b>	PardVision2	PardVision2
Power Supply		
<b>Battery Type</b>	Lithium Ion 18650*1	Lithium Ion 18650*1
<b>Output Voltage(V)</b>	3.7	3.7
<b>Operating Time(h)</b>	≤6	≤6
<b>External Power Supply(V)</b>	Type-C	Type-C



Environmental characteristic		
Degree of protection	IP67	IP67
Operating temp(°C/°F)	-30 ~ +55 / -22 ~ +131	-30 ~ +55 / -22 ~ +131
Material		
Housing	Aluminum Alloy+Composite	Aluminum Alloy+Composite
Eyepiece	All-glass multi-coated lens	All-glass multi-coated lens

## Components

### Leopard Series

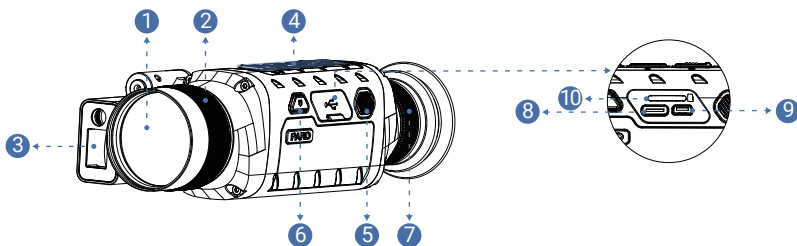


Fig. 1

No.	Name	No.	Name
1	objective lens	6	Battery compartment switch
2	Objective Lens Focusing wheel	7	Diopter Adjustment wheel
3	LRF Module	8	Type-C Port
4	Keypad	9	HDMI Port
5	Power key	10	Micro SD card

### 1. Battery Installation and Startup

The battery installation steps are as follows:

- 1.1. Press the battery button to open the battery compartment and remove the battery.
- 1.2. Remove the insulating tape.
- 1.3. Put the positive pole (+) of the battery inwards, then close the battery compartment.
- 1.4. To turn on the device, press and hold the power button for about 3 seconds. (When the PARD Logo appears on the screen, the device is ready for use.)

### 2. Diopter Focusing

Diopter focusing is used to clearly see the content displayed on the screen.

- 1 After power on the device, rotate the diopter focusing wheel until you can see the screen clearly.
- 2 Please note that the image may not be clearly visible before objective lens focus adjusted, only the words and icons on the display are clearly visible at this stage.

### 3. Objective Lens Focusing

- 1 Before you focus the objective lens, ensure that the diopter focusing has been completed.
- 2 Aim at the target you want to see, and rotate the focusing wheel of the objective lens until you can see the target clearly.

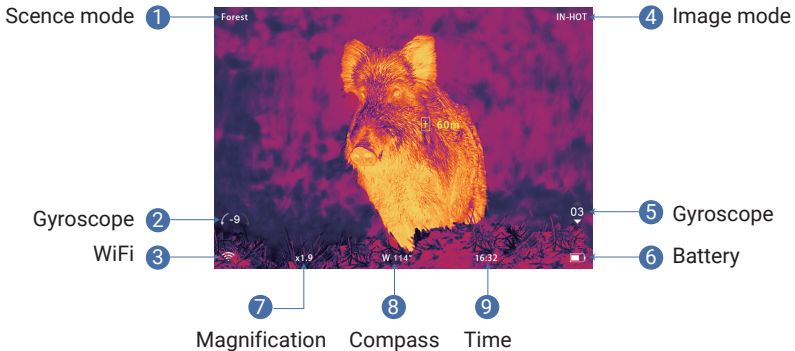
### 4. Compass Calibration

Users are required to tilt and move the device in a figure 8 motion until the compass is calibrated, as shown in the picture.

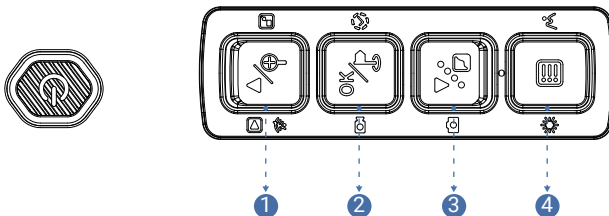


Fig 2

## Operation Instruction



## Shortcut Key Mode



Keypad	Single press	Press and hold	Double press
	Sleep mode	Power on/off	-
1	Zoom in/Up	File/Turn off WiFi	Turn on/off PIP
2	OK/LRF	Record/Save video	Shutter correction
3	Switch image mode/Down	Take photos	-
4	Menu/Back	-	Switch scene mode

## Explanation:

### Key 1

#### 1. Single press :

- ① **Home screen mode:** single press [Key 1] to zoom in;
- ② **Menu mode:** single press [Key 1] to scroll up or adjust the values;

#### 2.Press and Hold

① **Home screen mode:** After pressing and hold [Key 1], the video and picture files stored on the micro SD card will be displayed.

- Press [Key 1]/[Key 3] to switch among files.
- Press [Key 2] to play/pause the video.
- When playing videos, press [Key 1] to fast forward at 2x/4x/8x times.
- Single press the [Key 4] button to access the following settings:

1)Delete:

- Delete Current
- Delete All

2)Protect:

- Lock Current
- Unlock Current
- Lock All
- Unlock All

3)Slide Show:

- 2 seconds
- 5 seconds
- 8 seconds

**Note:** Press [Key 1]/[Key 3] to move the cursor among “Delete”, “Protect” and “Slide Show”; press [Key 2] to enter the sub-menu, press [Key 4] to return to the file. Long press the [Key 4] button to return the home screen.

- ② When the WiFi is on, press and hold the [Key 1] to turn off WiFi.

### Key 2

#### 1. Single press :

- ① **Home screen mode:** single press [Key 2] to turn on the LRF.
- ② **Menu mode:** single press [Key 2] to confirm.

#### 2.Press and Hold

**Home screen mode:** press and hold [Key 2] to record a video. press and hold [Key 2] again to save the video.

#### 3.Double Press

**Home screen mode:** press and hold [Key 2] to perform the shutter correction.

## Key 3

### 1. Single press:

- ① **Home screen mode:** single press [Key 3] to switch image mode among WT-HOT/BK-HOT/EDGE/RD-HOT/IN-HOT/SKY;
- ② **Menu mode:** single press [Key 3] to scroll down and adjust relative values.

### 2. Press and Hold

**Home screen mode:** press and hold [Key 3] to take photos;

## Key 4

### 1. Single press:

- ① **Home screen mode:** single press [Key 4] to turn on the menu.
- ② **Menu mode:** single press [Key 4] to return to the previous menu.

### 2. Press and Hold

**Home screen mode:** double press [Key 4] to switch scene mode among City/Forest/Rain.

## Power Key

### 1. Single press:

**Home screen mode:** single press the power key to enter the sleep mode.

### 2. Press and Hold

**Home screen mode:** press and hold the power key to turn on/off .

## Menu Mode

**Home screen mode:** single press [Key 4] to enter menu mode. (the shortcut key function is invalid at this time).

## 1. Image Setting

Users can adjust the image contrast, brightness, target and mode under this setting.

- Press [Key 4] to open the menu, press [Key 3] to move the cursor to the image setting option, press [Key 2] to enter it.
- Press [Key 2] to switch between contrast/brightness/target/mode options, and press [Key 1]/[Key 3] to adjust the option value.
- Long press [Key 2] to save and exit.

**Note:** Upon the next startup, the device will maintain the saved image settings.

## 2. Display Brightness

Users can adjust the display brightness of the screen to adapt to different surroundings.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the display brightness option, press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to move the cursor to select "level 0"/"level 1"/"level 2"/"level 3"/"level 4"/"level 5"/"level 6"/"level 7" options.
- Press [Key 2] to save and return to the home page.

## 3. Range Unit Selection

Users can choose "meter" or "yard" as the unit of measurement for the device according to their habits.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to move the cursor range unit selection option, and press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to choose between "meter" or "yard", then press [Key 2] to save and return to the previous page.

## 4. Gyroscope

This function measures the orientation of the device so that the yaw and pitch angles of the device can be displayed and calibrated.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to move the cursor to the gyroscope setting option, and press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to select "Display" or "Calibration", and then press [Key 2] to enter it.  
(1) "Display" indicates whether (or not) to display the yaw and pitch angle of the device on the home screen. Press [Key 1]/[Key 3] to select "Off" or "On", and press [Key 2] to save and exit.  
(2) "Calibrate" means to enter the calibration state. After selecting, please place the device on a horizontal plane surface, and press [Key 2] to perform automatic calibration. After calibration, the device will automatically return to the home screen.

## 5. Scene

There are three scene modes, "City", "Forest" and "Rain". Users can choose any of the available scenes to achieve the best image display effect.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the scene option. press [Key 1]/[Key 3] to select "City", "Forest" or "Rain".
- Press [Key 2] to save and return to the previous page.

## 6. Picture in Picture

The PIP mode displays a 2x magnified center area in the top of the screen, allowing you to see magnified target details without losing the field of view.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the PIP setting option, and press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to move the cursor to select "PIP OFF" or "PIP ON".
- Press [Key 2] to save and return to the previous page.

## 7. Hot Track

The device can detect and display the highest temperature point on the screen, and automatically track this target heat source.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the hot track setting option, and press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to move the cursor to select "Off" or "On".
- Press [Key 2] to save and return to the previous page.

## 8. Auto Power Off

After selecting your preferred time duration, the device will sense the last point of operation before beginning the shutdown. Auto power off will start after the device has been idle then it automatically triggers the auto power off command.

- Press [Key 4] to enter the menu, press [Key 3] move the cursor to select the auto power off setting, and press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to select "Off", "1 minute", "10 minutes" or "30 minutes" duration options. After selection, press [Key 2] to save and return to the previous page.

## 9. Auto Recording

After auto recording is on, device will start recording and continue to record after the next startup.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the auto recording setting option and press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to select "Off" or "On" options.
- Press [Key 2] to save and return to the previous page.

## 10. Loop Recording

Users can customize the segment recording duration. This can be set up under loop recording. When the capacity of the memory card is full, the new recording will automatically overwrite the previous saved files. When you select "Off", the recording will stop when the memory card is full, and the oldest video file will not be overwritten.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the loop recording setting option, and press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to move the cursor to select preferred loop time duration "Off", "1 Min", "3 Min", "5 Min" or "10 Min". Press [Key 2] to save and return to the previous page.

## 11. Date Stamp

Users can set whether to display the time stamp in the lower right corner of photos and videos taken.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the date stamp setting option, and press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to move the cursor to select "Off" or "On" options. After selection, press [Key 2] to save and return to the previous page.

## 12. Record Audio

User can set whether to record audio synchronously in the video.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the recording audio setting option, press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to move the cursor to select "Off" or "On" option,
- Press [Key 2] to save and return to the previous page.

## 13. WiFi

Through the WiFi connection, you can use your phone as an external viewfinder enabling users to synchronously see the photos and videos on a larger screen.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the WiFi setting option, and press [Key 2] to enter the sub-menu.
  - Press [Key 1]/[Key 3] to move the cursor to select "On" or "Off" option.
- (1) Press [Key 2] to select "Off", and return to the previous page.
  - (2) Press [Key 2] to select "On" to enable WiFi and return to the home screen.



### Steps to connect to your mobile device:

- Download "PardVision2" from the Apple App Store or the Google Play Store.
- Turn on the WiFi on your device and on your mobile device.
- Search the WiFi on your mobile device (the device WiFi network is a string of characters starting with PARD, which is a string of numbers). Please enter the password: 12345678 to connect.
- Enter the application to operate and use.

**Note:** After the WiFi is turned on, you cannot access the menu. Press and hold [Key 1] to disable the WiFi and then enter the menu interface.

## 14. Language

Users can choose their preferred language.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the language setting option, press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to move the cursor to select the desired language.
- Press [Key 2] to save and return to the previous page.

## 15. Date/Time

Users can set the system date and time of the device.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the date/time setting option, press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to adjust the setting date and time value, press [Key 2] to switch options.
- Press [Key 4] to save and return to the previous page.

## 16. Format

If users want to reformat the Micro SD Card, it will delete all the data on the Micro SD card permanently. Data cannot be recovered after reformatting. Please operate with caution!

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the format setting option, and press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to move the cursor to select "Cancel" or "OK" option.
- Press [Key 2] to confirm the operation and return to the previous page.

## 17. Blind Pixel Compensation

The blind pixel compensation algorithm enables effective compensation for blind spots that didn't respond to temperature and also reduces image distortion.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the blind pixel compensation option, click [Key 2] to enter it and you will see a prompt:
  - ① Please put on lens cap;  
Long press the menu key to execute;  
Short press the ok key to exit;
- Operate as prompts.

## 18. Default Settings

If users decide to reset the device, it will restore the device to the factory default settings and all of the user data and personalized settings will be deleted. **Please operate with caution!**

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to restore default setting option, press [Key 2] to enter the sub-menu.
- Press [Key 1]/[Key 3] to move the cursor to select "Cancel" or "OK" option.
- Press [Key 2] to confirm the relevant operation and return to the previous page.

## 19. Firmware Upgrade

System firmware can be updated to maintain an optimized current version.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the firmware upgrade option, and press [Key 2] to enter the sub-menu.
- Operate as prompts.

**Note:** When performing this operation, please load the device with type-C power supply.

## 20. Version

This function displays the device's version.

- Press [Key 4] to enter the menu, press [Key 3] to move the cursor to the version option, press [Key 2] to enter the sub-menu to view the version.
- Press [Key 4] to exit and return to the home page.

## FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**Note:** The Grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. such modifications could void the user's authority to operate the equipment. The device has been evaluated to meet general RF exposure requirement. This equipment complies with FCC's RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna(s) must not be co-located or conjunction with any other antenna or transmitter.