



CABIN

Thermal Imaging Monocular

Operating Manual



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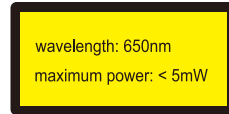
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English/Chinese

www.infirayoutdoor.com

警告!
WARNING!



ENGLISH

SPECIFICATION

Model	CBL19	CBL25
Microbolometer		
Resolution, pixels	384 x 288	
Pixel size, μm	12	
NETD, mk	≤ 40	
Frame refresh rate, Hz	50	
Optical Specifications		
Objective Lens, mm	19	25
Field of view, degree	13.8 x 10.4	10.5 x 7.9
Optical magnification, x	2 ~ 8	2.5 ~ 10
Digital zoom, x	1 / 2 / 3 / 4	
Exit pupil diameter, mm	20	
Focusing range of eyepiece, D	-5 ~ +5	
Detection range, m (Target size: 1.7m x 0.5m, P(n)=99%)	980	1300
Display		
Type	LCOS	
Resolution, pixels	1280 x 960	
Power Supply		
Battery / Capacity / Output voltage	Li-Ion battery pack / 3.1 Ah / 3.6 V	
Max. battery life (t=25°C)*, h	7.5	
External power supply	5V (Type C)	
Operational Specifications		
Amount of built-in memory, GB	16	
IP rating	IP67	
APP compatibility	Support	
Operating temperature, °C	-20 ~ +50	
Dimension, mm	165 x 50 x 85	
Weight, g	≤ 380	

- * Actual operation time depends on the intensity of Wi-Fi use and the built-in video recorder.
- ❖ Improvements may be made to the design and software of this product to enhance its useful features. Technical parameters of the device may be improved without prior notice of the customer.

PACKAGE CONTENTS

- Cabin Series Thermal Imager
- Portable bag
- IBP-2 battery pack × 2
- IBC-2 battery charger
- Power adapter
- USB cable with Type C and video output
- Hand strap
- Neck strap
- Cloth for cleaning optics
- Warranty card
- Operating manual

DESCRIPTION

Cabin Series Thermal Imaging Monocular is specially designed for outdoor night vision. Cabin has powerful performance, no matter it is day or night, and no matter how bad weather conditions are (such as rain, snow, fog, and haze, etc.). Unaffected by the strong light and requiring no external light source, it can even observe the targets hidden behind obstacles (such as branches, grass, and bushes, etc.). Cabin is small and lightweight, that is easy and comfortable to carry and operate with one hand. And its battery can be quickly removed. With exquisite functions and the built-in LED light, Cabin can be widely used for hunting, searching, and positioning under various outdoor conditions.

DISTINGUISHING FEATURES

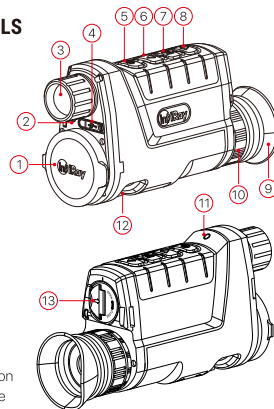
- 12μm self-developed thermal detector
- High image quality
- Display off function
- Lightweight and compact
- HD micro display
- Quickly removable battery pack

- Zooming LED indicator
- Ultraclear mode for harsh weather conditions
- Stadiametric rangefinder function
- Long detection range
- Built-in memory, support photographing and video recording
- Support APP connection via Wi-Fi
- Built-in digital compass and motion sensor
- Defective pixel calibration function
- Convenient user interface

UNITS AND CONTROLS

1. Lens cap
2. Laser indicator*
3. LED light
4. Type C port
5. Power button
6. Up/Zoom button
7. Menu button
8. Down/Photo button
9. Eyeshade
10. Eyepiece adjustment
11. Power indicator
12. Lens focus knob
13. IBP-2 battery pack

* The laser and cursor function may be disabled due to the legal restrictions in your countries and regions.



Power indicator (11) displaying the current status of the device

Color	Status	Operating Mode
●	Normal	Power on/ fully charged
	Flashing	Standby
●	Flashing	Less than 10% battery level
●	Normal	Charging

BUTTON OPERATIONS

Button	Device status/ operation mode	Short press	Long press
	The device is off.	--	Power on device
Power button	Home screen	Calibration	Power off the device / Standby
	Standby mode	Wake up the device	--
	Shortcut menu/ Main menu	Return to the upper menu	--
	Defective pixels calibration interface	Add / delete defective pixels	--
Menu button	Home screen	Open the shortcut menu	Open the main menu
	Shortcut menu	Adjust the parameter	Exit the shortcut menu
	Main menu	Confirm parameter / enter the submenu	Save and exit to the home screen
	Laser cursor calibration interface	Enable/disable the cursor movement	Save and exit to the home screen
	Defective pixels calibration interface	Enable/disable the cursor movement	Save or cancel the calibration
	Home screen	Magnification from $\times 2 - \times 8$	Turn the PIP function on/off
Up/ Zoom button	Shortcut menu / main menu	Navigation up	--
	Laser cursor calibration/ Defective pixels calibration interface	Move the cursor up/ left by one pixel	Quickly move the cursor up/ left
	Home screen	Photographing	Start video recording
Down/ Photo button	Video recording	Photographing	Stop and save video recording
	Shortcut menu / main menu	Navigation down	--
	Laser cursor calibration/ Defective pixels calibration interface	Move the cursor down/ right by one pixel	Quickly move the cursor down/ right
	Home screen	Turn the laser on/off	Turn on/off the stadiametric rangefinder function
Down+ Menu	Home screen	Turn on/off or adjust the LED light	Turn the hotspot tracking on/off

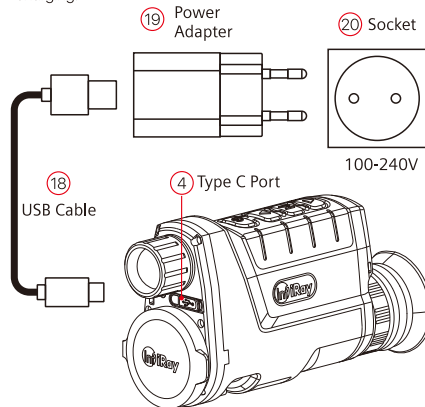
Note: Cabin's laser function is hidden by default. When used for the first time, please press and hold the **Up + Menu + Down** buttons for more than 10s to unhide the laser function after the sound of the shutter clicks.

BATTERY AND SAFTY

Cabin is supplied with a quickly removable 18650 Li-ion battery pack, which enabled the device to be used for up to 7.5h. The battery should be fully charged before first use.

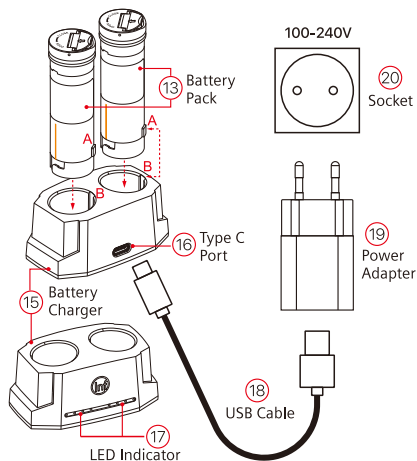
Method 1: Charging with Type-C Port

- Align the orange vertical line on the battery pack with the orange horizontal line next to the battery compartment on the Cabin, and install the battery pack into the battery compartment of the product. For details, see **Battery Pack Installation**.
- Connect the Type C end of the data cable (18) to the Type C port (4) of the product.
- Connect the other end of the data cable (18) to the power adapter (19) that comes with the product, or connect to another USB power socket with a rated output voltage not exceeding 5V.
- Plug the adapter (19) into a 100–240V power socket (20) for charging.



Method 2: Charging with Battery Charger

- Align the positioning block (A) of the battery pack (13) with the groove (B) of the battery charger (15), and insert the battery pack (13) into the battery charger (15).
- Connect the plug of the USB Type-C cable (18) to the USB connector of the power adapter (19). Plug the power adapter (19) into a socket 100-240V (20) (110V for US).
- Connect the other end of the USB cable (18) to the Type-C port (16) of the battery charger (15).
- After finishing the above steps, the LED indicator (17) on the battery charger (15) will display the battery charge state.
- After the battery is fully charged, remove the battery pack from the battery charger.



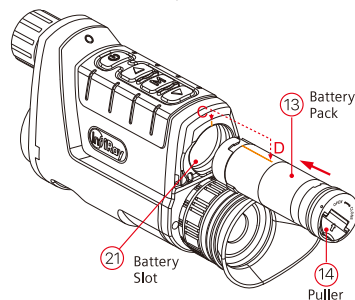
Battery charge status (see table).

LED Indicator	Battery charge status
●	Battery level is from 1% to 25%.
● ●	Battery level is from 25% to 50%.
● ● ●	Battery level is from 50% to 75%.
● ● ● ●	Battery level is from 75% to 99%.
● ● ● ● ●	Battery is fully charged.

Note: Two batteries can be charged at the same time: the second slot is designed for it.

Battery Pack Installation

- Turn up the puller (14) on the battery pack (13), and align the orange line (D) on the battery pack (13) with the orange line (C) on the battery slot (21) and push the battery pack (13) into the battery slot (21).
- When the battery pack is completely inserted into the battery slot, turn the puller (14) clockwise to lock the battery pack.
- Close the puller (14), and the battery pack is completely installed.
- Cabin can only be powered by this battery pack. If other battery packs are used, it may cause irreparable loss, damage to the device, and can even possibly cause fire.





Safety Measures

- Use this battery holder to charge the battery pack only. Otherwise it will cause irreparable damage to the battery pack or holder and even may cause fire.
- Before a long storage time, the battery pack should be partially charged, not fully charged or discharged.
- Do not charge the battery immediately after you bring it from the cold to the warm. Wait 30 to 40 minutes for it to warm up.
- Do not use the charger if it is modified or damaged.
- The device should be charged at a temperature of 0°C~+45°C. Otherwise the battery life will be significantly reduced.
- When charging, please don't leave the battery unattended.
- Do not expose the battery to high temperature or open flame.
- Do not immerse the battery in water.
- The battery pack has short circuit protection. But situations that may lead to short circuits should be avoided.
- Do not charge the battery for more than 24 hours after it is already fully charged.
- It is not recommended to connect third-party devices that consume more power than allowed.
- Do not disassemble or modify the battery pack without professional instructions; Do not knock or drop the battery pack.
- The recommended operating temperature for the device is -20°C~+50°C; Do not use the device beyond this temperature range, which may shorten the battery life.
- When the device is used under sub-zero temperature, the battery capacity drops, which is normal and does not indicate a defect.
- Please keep the battery pack out of the reach of children.

EXTERNAL POWER SUPPLY

Cabin supports external power supply, such as the portable power source (5V).

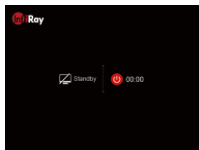
- Connect the external power supply to the Type-C port (4) of the device.
- The device will automatically switch to the external power supply and charge the internal battery pack at the same time.
- At this time, the battery icon on the display will become to the charging icon  and the power indicator will turn orange, and then turn green after the battery is fully charged.
- If an external power supply is connected, but no battery pack is installed, the battery icon will become a USB icon  and the power indicator will turn green.
- When the external power supply is disconnected, Cabin will automatically switch to the battery pack power supply and will not shut down.

OPERATION

WARNING! The lens of Cabin must not be pointed at any sources of intense energy, such as laser-emitting devices or the sun. This may damage the electronic components in the device. Damage caused by failure to comply with the operating guidelines is not covered under warranty.

- Remove the lens cap (1). Press and hold the Power button (5) for 2s to power on the device. Then, the home screen appears after 3s.
- Rotate the eyepiece diopter adjustment (10) to adjust the resolution of the icons on the display. After the adjustment is completed, for the same user, when using it again there is no need to adjust the diopter again.
- Rotate the lens focus knob (12) to focus on the object observed.
- Set the image mode: Press the Menu button (7) to open the shortcut menu, and set the image palette mode, which is white-hot, black-hot, palette, red-hot, and highlight. The icon on the top status bar is updated in real-time.
- Settings of the screen brightness, image sharpness, image mode, and digital zoom (Refer to the Shortcut Menu section in this manual for details).

- After using, press and hold the **Power button (5)**, and the shutdown countdown screen will appear. When the countdown counts from 3 to 0, the device shuts down. Then, you can release the power button. The current status will be automatically saved after shutdown. During the shutdown data saving period, do not cut off the power, otherwise the data will not be saved.
- If you release the button before the end of the countdown, the device will be on standby. You can wake it up with a short press of the **Power button (5)**.



CALIBRATION

When the image is degraded or uneven, it can be improved by calibration. Calibration can balance the background temperature of the detector and eliminate the defects in the image.

There are three calibration modes: Automatic shutter calibration (A), Manual shutter calibration (M), and Background calibration (B).

Select the required mode in "Calibration Mode" of the main menu.

- **Automatic shutter calibration (A):** The device will automatically perform shutter calibration according to the software algorithm. There is no need to close the lens cover (the internal shutter covers the sensor). Before automatic calibration, there will be a 5s countdown prompt behind the shutter icon in the status bar, that can be cancelled this calibration with a short press of the **Power button (5)** during countdown. In this mode, you can also press the **Power button (5)** for manual shutter calibration.
- **Manual shutter calibration (M):** On the home screen, press the **Power button (5)** briefly to perform the calibration without closing the lens cap (the internal shutter covers the sensor).
- **Background calibration (B):** Close the lens cap and short press the **Power button (5)**. A text prompt will appear on the screen as "Cover lens during calibration!". The background calibration will start after 2s. Remove the lens cap after calibration.

DIGITAL ZOOM

The Cabin series supports 1-4 times magnification of images to increase visual magnification.

- On the home screen, press the **Up/Zoom button (6)** to circularly zoom the image.
- The visual amplification corresponding to 1-4 times magnification of the Cabin CBL19 series is 2×, 4×, 6×, and 8× respectively, which are displayed in the top status bar.

PHOTOGRAPHING AND VIDEO RECORDING

The Cabin series is equipped with a built-in 16 GB memory card, which allows photographing and video recording. The image and video files will be named by date, so it is recommended to set the system date and time in the main menu ("Main Menu > Settings > Date"), or synchronize the system date and time in the settings page of the App before photographing and video recording. For specific steps, see the Operating Instructions for the app that can be downloaded from the official website www.infirayoutdoor.com.

Photographing

- On the home screen, short press the **Down/Photo button (8)** to take a photo. The image will be frozen for 0.5 seconds, and a photo icon (📷) appears in the upper right corner of the screen.
- The photographed pictures are stored in the built-in memory card.

Video Recording

- On the home screen, press and hold the **Down/Photo button (8)** to start the video recording.
- A recording icon and a tooltip showing the recording time will appear in the upper right corner of the display. The time format is 00:00:00 (hours: minutes: seconds).





- During recording, you can also take a photo by pressing the **Down/Photo button (8)**.
- Stop the recording and save the video by pressing and holding the **Down/Photo button (8)**.
- Image and video files are stored in the built-in memory card after photographing and video recording are turned off.

⚠ Note

- You can enter and work on the menu during video recording.
- The maximum duration of a video recording file is 10 minutes. When it's more than 10 minutes, the video will be automatically recorded onto a new file.
- The number of files is limited by the capacity of the device's built-in memory. It is recommended to check the remaining capacity of the memory card regularly, and transfer videos and images to other media to free up the space on the memory card.
- The captured video or image does not display interface icon information.

Memory Access

When the device is turned on and connected to a computer, it will be recognized by the computer as a flash memory card, which is used to access the memory of the device and copy images and videos.

- Turn on the device and connect it to the computer through the USB cable.
- Double-click "my computer" on the desktop - double-click to open the device named "Infiray" - then click and open the device named "Internal Storage" 
- There are different folders named by time in memory 
- Recorded videos and photographs are saved in these folders in the format: IMG_HHMMSS_XXX.jpg (for photos) and VID_HHMMSS_XXX.mp4 (for video). HHMMSS- hour/minute/second; XXX means three-digit common file counter (for photos

and videos) which is NOT reset.

STATUS BAR



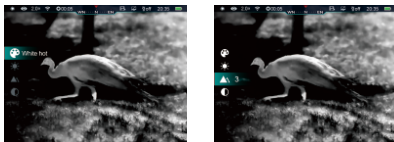
The status bar is located at the top of the image interface and displays the information related to the current operating status of the device. From left to right, there are:

- **Current image mode** (☀: white hot; ☾: black hot; 🔴: red hot; 🎨: palette; 🎯: target highlight)
- **Ultraclear mode** (👁: Ultraclear mode is on; 👁: Ultraclear mode is off)
- **Current magnification** (such as 2x, 4x, 6x, 8x)
- **Wi-Fi** (📶: Wi-Fi is on; 🚫: Wi-Fi is off)
- **Calibration mode** (A: automatic shutter calibration; M: manual shutter calibration; B: background calibration. When in the A mode, a 5 seconds countdown timer ⌚00:05 will appear after the icon instead of the letter A before the automatic calibration). The timer will appear only after the microbolometer temperature has stabilized (after 10 minutes of continuous operation of the device). Immediately after turning on the device, the shutter activates automatically without displaying the timer.
- **Compass** (when it is on)
- **Video output** (when it is on)
- **Auto standby** (when it is on)
- **LED light** (🔆off: the light is off; 🔆1/2: the brightness of the light is level 1 or 2)
- **Time** (set time in the App "Infiray Outdoor" or the Main Menu)
- **Battery** (🔋: When the icon is in green, it means the power is higher than 20%. 🔴: When the icon is in red, the battery power is lower than 20%, please charge in time. 🔌: an external power source is connected to the device and charging the battery pack. 🔌: The device is powered by an external power supply and the battery pack is not installed.)

SHORTCUT MENU

You can quickly adjust the settings of some common functions through the shortcut menu, including image mode, screen brightness, image sharpness, and image contrast.

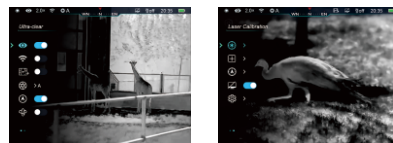
- On the home screen, press the **Menu button (7)** to go to the shortcut menu interface.
- Press the **Up/Zoom button (6)** or **Down/Photo button (8)** to switch the following options.
 - **Image mode:** After selecting this option, press the **Menu button (7)** to adjust the image mode. There are five modes: white-hot, black-hot, red-hot, palette, and highlight.
 - **Screen brightness:** After selecting this option, press the **Menu button (7)** to adjust the screen brightness among 1-5 levels.
 - **Image sharpness:** After selecting this option, press the **Menu button (7)** to adjust the image sharpness among 1-5 levels.
 - **Image contrast:** After selecting this option, press the **Menu button (7)** to adjust the image contrast among 1-5 levels.
- Press and hold the **Menu button (7)** to save the changes and return to the home screen.
- In the shortcut menu, if there is no operation within 5s, the device will automatically save the changes and return to the home screen.



MAIN MENU

- On the home screen, press and hold the **Menu button (7)** to enter the main menu.
- Briefly press the **Up/Zoom button (6)** or **Down/Photo button (8)** to switch the main menu options.

- The main menu navigation is cyclical: as soon as the last menu option of the first page is reached, the first menu option of the second page starts. When the cursor > stays at the first option on the first page, you can press the **Up/Zoom button (6)** to jump directly to the last menu option on the second page.
- Adjust the current parameters or enter the submenus with a short press of the **Menu (5) button**.
- When the cursor > reaches, the color of the icon changes blue.
- In all menu interfaces, you can press and hold the **Menu button (7)** to save the modifications and return to the home screen. And short press the **Power button (5)** to return to the upper menu without saving.
- Automatic exiting from the main menu to the home screen will occur after 15 seconds of inactivity.
- Upon exiting from the main menu, the location of the cursor is stored only for a single working session (i.e. until the device is turned off). Upon restarting the device and entering the menu the cursor will be on the first menu item.



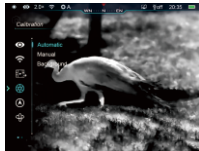
Composition and Description of Main Menu

- 👁 **Ultraclear** - Selection of the Ultraclear mode
 - Press and hold the **Menu button (7)** to enter the menu.
 - Select the 'Ultraclear' option with the **Up (6)/Down (8)** button.
 - Short press **Menu button (7)** to turn the Ultra-clear on/off.
 - The icon in the status bar changes accordingly after this option is enabled or disabled.
 - When the Ultraclear mode is on, the image contrast is enhanced, which is suitable for rainy, foggy and other harsh weather conditions.

- 📶 **Wi-Fi** – Selection of the Wi-Fi function
 - Press and hold the **Menu button (7)** to enter the menu.
 - Select the 'Wi-Fi' option with the **Up (6)/Down (8)** button.
 - Briefly press the **Menu button (7)** to switch the Wi-Fi on/off.
 - The icon in the status bar changes accordingly after this option is on or off.

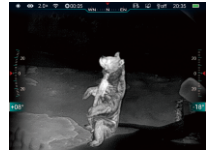
- 📺 **Video Out**–Selection of the video out function
 - Press and hold the **Menu button (7)** to enter the menu.
 - Select the 'Video out' option with the **Up (6)/Down (8)** button.
 - Briefly press the **Menu button (7)** to turn the video out function on/off.
 - The icon is displayed on the status bar when it is on.

- 🔍 **Calibration Mode**– Selection of the calibration mode
There are three modes: automatic shutter calibration (A), manual shutter calibration (M), and background calibration (B).
 - Press and hold the **Menu button (7)** to enter the menu.
 - Select the 'Calibration Mode' option with the **Up (6)/Down (8)** button.
 - Enter the submenu of the calibration function with a short press of the **Menu button (7)**.
 - Short press the **Up button (6)** or **Down button (8)** to select a mode from the three choices.
 - **Automatic (A):** Calibration requirements are determined by the software algorithm in the automatic mode. The calibration process starts automatically.
 - **Manual (M):** The user independently determines the need for calibration based on the quality of the observed image.
 - **Background (B):** Close the lens cover before starting the calibration.
 - Short press the **Menu button (7)** to confirm the selection. The icon in the status bar changes accordingly.



- ⬆️ **Digital Compass** – Selection of the Digital Compass
 - Press and hold the **Menu button (7)** to enter the menu.
 - Select the 'Digital Compass' option with the **Up (6)/Down (8)** button.
 - Short press the **Menu button (7)** switches the compass on/off.
 - The compass bearing is displayed in the top center of the image.

- 📶 **Motion Sensor** – Selection of the Motion Sensor
 - Press and hold the **Menu button (7)** to enter the menu.
 - Select the 'Motion Sensor' option with the **Up (6)/Down (8)** button.
 - Switch the Motion sensor function on/off with a short press of the **Menu button(7)**.
 - When enabled, relevant functions will appear on the right side of the image.
 - The curved ruler on the left represents the tilt angle and the vertical ruler on the right represents the pitch angle.



- ✳️ **Laser Cursor Calibration**
When the target position pointed by the laser is not consistent with the laser cursor position, this function can be used to correct the cursor position.
 - Press and hold the **Menu button (7)** to enter the menu.
 - Select the 'Laser Cursor Calibration' option with the **Up (6)/Down (8)** button.
 - Short press the **Menu button (7)** to enter the laser cursor calibration interface. Meanwhile, the laser indicator is switched on automatically.
 - A small cross cursor appears on the screen, with the prompt information as below shown in the upper left corner:
 - X indicates the X-axis in the horizontal direction
 - Y indicates the Y-axis in the vertical direction

- Center means to return the cursor to the center of the screen.
- Default means to return the cursor to the factory default.



- Select the options with the **Up (6)/Down (8)** button, and confirm your selection with a short press of the **Menu button (7)**.
- When the **X** or **Y** is selected, the icon will become blue and continuously flashing. Then, move the cursor with a short or long press the **Up (6)/Down (8)** button. Press the **Up button (6)** to move the cursor right or up and the **Down button (8)** to move left or down. Short press to move one pixel every time and long press to move ten pixels once.
- When cursor moved to right position, briefly press the **Menu button (7)** to save the position, and the icon will stop blinking.
- Switch to another axis and repeat until the cursor is aligned with the target position indicated by the laser.
- When **Center/Default** is selected, briefly press the **Menu button (7)** to return the cursor to the center/default position.
- Press and hold the **Menu button (7)** to save and exit to the home screen.

+ Defective Pixels Correction

Defect pixels are pixels such as visible light spots or dark spots with stable brightness, they are either brighter or darker than surrounding pixels. Cabin series offer the possibility to remove any defective pixels on the sensor using software, as well as to cancel any deletion.

- Press and hold the **Menu button (7)** to enter the menu.
- Select the 'Defective Pixels Correction' option with the **Up (6)/Down (8)** button.
- Short press the **Menu button (7)** enter the Pixels Defect Correction interface.

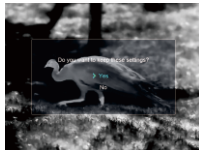
- A small cross cursor appears on the center of the screen.
- The Picture in Picture (PIP) window is displayed on the lower left corner of the screen.
- The right side of the PIP shows the cursor moving direction (X-axis and Y-axis) and the number of the corrected pixels.



- Short press the **Up button (6)** or **Down button (8)** to switch between the X and Y axis. And press the **Menu button (7)** briefly to confirm your selection with the icon blinking.
- Move the cursor to align with the defective pixel with a short or long press the **Up (6)/Down (8)** button. Press the **Up button (6)** to move the cursor rightward or upward and the **Down button (8)** to move leftward or downward. Short press to move one pixel every time and long press to move ten pixels once.
- Short press the **Menu button (7)** to save and exit the cursor position and the icon stops blinking.
- Repeat until the cursor moves to the position of the defective pixel. Then correct the defective pixel with a short press of the **Power button (5)**. When the pixel has been successful deleted, the **Add** message will appear on the PIP window for a short time.
- Repeat the operation to correct the other defective pixels.
- If you want to cancel the correction, press the **Power button (5)** briefly in the same position as the corrected defective pixel. The **Del** message will appear on the PIP window for a short time. But it is **only limited** to not exiting this correction.
- Each time you add or delete a defective pixel, the quantity of defective pixel changes accordingly.
- When the cursor moves near the lower left corner, the PIP window and the prompt information will move to the upper left corner automatically.
- After finishing the correction, press and hold the **Menu**

button (7) until a dialog box is displayed asking you whether to save the corrections.

- Press the Up (6)/Down (8) button briefly to select an option, and short press Menu button (7) to confirm your selection. Select 'Yes' to save and exit, and 'No' to cancel setting and exit.



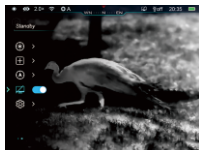
Ⓐ Compass Calibration - Calibrate the digital compass

- Press and hold the Menu button (7) to enter the menu.
- Select the 'Compass Calibration' option with the Up (6)/Down (8) button.
- Short press the Menu button (7) enter the compass calibration interface. An icon like a triaxial coordinate system appears on the screen.
- Follow the icon prompt to rotate the device along three axes at least 360 degrees each axis in the 15 seconds.
- After 15s, the calibration is finished and exit to the home screen.
- Press the Power button (6) briefly to terminate and exit the calibration without saving within 15 seconds.



☑ Standby - Selection of the auto standby mode

- Press and hold the Menu button (7) to enter the menu.
- Select the 'Standby' option with the Up (6)/Down (8) button.
- Press the Menu button (7) briefly to turn the standby mode on/off.
- The icon is displayed on the status bar when it is on.
- When the standby mode is on, device will the automatically



enter the standby state with no operation within 15 minutes, and power off automatically after 15 minutes in the standby state.

- When the Wi-Fi, recording or video output function is turned on, it will not automatically stand by.

⚙ Settings - Select the general settings

- Press and hold down the Menu button (7) to enter the Main Menu.
- Select the Settings menu option with the Up (6)/Down (8) button.
- Briefly press the Menu button (7) to enter the submenu.
- This menu item allows you to configure the following settings.

📅 Date - Setting the system date

- In the Settings submenu, briefly press the Menu button (7) to active the Date submenu. Two triangle icons will appear above and below the value.
- Date format is displayed as YY. MM. DD format (2020.01.01).
- Select the correct value for the year, month and date with a short press of the Up (6)/Down (8) button.
- Switch between digits with a short press of the Menu button (7).
- Save selected date and exit the submenu with a long press of the Menu button (7).



🕒 Time - Setting the system time

- In the Settings submenu, briefly press the Menu button (7) to active the Time submenu. Two triangle icons will appear above and below the value.
- The format is displayed as HH: MM in 24-hours format .

- Select the correct value for the hour and minute with a short press of the **Up (6)/Down (8)** button.
- Switch between digits with a short press of the **Menu button (7)**.
- Save selected date and exit the submenu with a long press of the **Menu button (7)**.



Language - Setting the system language

- In the Settings submenu, select the Language menu option with the **Up (6)/Down (8)** button.
- Enter the Language submenu with a short press of the **Menu button (7)**.
- Short press the **Up (6)/Down (8)** button to select language between English and Chinese.
- Confirm your selection with a short press of the **Menu button (7)**.
- Submenu exit will take place automatically.



Status Auto Hiding - Selection of automatic status hiding

- In the Settings submenu, select the Status Auto Hiding menu option with the **Up (6)/Down (8)** button.
- Press the **Menu button (7)** briefly to enter the Status Auto Hiding submenu.
- Briefly press the **Up (6)/Down (8)** button to select on or off.
- Confirm your selection with a short press of the **Menu button (7)**.
- Submenu exit will take place automatically.



Factory Reset - Reset to the factory settings

- In the Settings submenu, select the Factory Reset menu option with the **Up (6)/Down (8)** button.
- Enter the Factory Reset submenu with a short press of the **Menu button (7)**.
- Briefly press the **Up (6)/Down (8)** button to select **Yes** or **No**.
- Confirm your selection with a short press of the **Menu button (7)**.
- The device will reboot if **Yes** is selected.
- If **No** is selected, the action will be cancelled and will return to the submenu.
- The following settings will be returned to the defaults:
 - **Image mode:** White Hot; - **Magnification:** 2.0 x;
 - **Calibration:** Automatic; - **Language:** English
 - **Ultraclear mode:** Off;
 - **Wi-Fi:** Off
 - **Video out:** Off
 - **Digital Compass:** Off
 - **Motion Sensor:** Off
 - **Standby:** Off;
 - **Status Auto Hiding:** Off



Info - Show device information

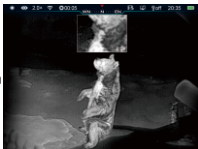
- In the Settings submenu, select the Info menu option with the **Up (6)/Down (8)** button.
- The relevant information of the device will be shown by a short press of the **Menu button (7)**.
- This item allows the user to view the following info: the product model, SYS Info, GUI version, Boot version, FPGA, PN / SN number, and Hardware version.
- Long press the **Menu button (7)** to return to the upper menu.



PICTURE IN PICTURE FUNCTION (PIP)

The PIP (Picture in Picture) function allows you to see both a magnified image in a particular window and the main image. This window shows part of the image which is enlarged to 2x in a certain area centered on the reticle of the main image.

- In the home screen, press and hold down the **Up button (6)** to switch the PIP function on/off.
- When the main image is enlarged with a short press of the **Up button (6)**, the PIP image will synchronously be enlarged two times.
- For example, when the magnification of the main image is 2x, 4x, 6x, 8x, the corresponding magnification of the PIP image is 4x, 8x, 12x, 16x.



LASER INDICATOR

Cabin provides a laser indicator, which is hidden by default.

- When using it for the first time, please press and hold the **Up button (6) + Menu button (7) + Down button (8)** for more than 10 seconds to unhide the laser function after the sound of the shutter clicks.
- On the home screen, short press the **Up button (6) + Menu button (7)** to enable or disable the laser indicator function.



STADIAMETRIC RANGEFINDER

Cabin provides the stadiametric rangefinder function, which allows user to estimate the approximate distance to an object with a known size.

- In the home screen, press and hold the **Up (6) and Menu (7)**

button (7) to switch the stadiametric rangefinder function on/off.

- When this function is on, two horizontal lines for measurement will appear on the display, meanwhile icons of three predefined objects and measured values will be displayed on the right side.
- Dimensions of three pre-defined objects are:
 - Deer: 1.7 m high
 - Wild boar: 0.9 m high
 - Hare: 0.2 m high
- Locate the object in the middle of the measurement lines, by pressing the **Up button (6)** or **Down button(8)**.
- Widen or lessen the measurement line to ensure that the measured object is within the line. When you adjust the width of the measurement line, the rangefinder data on the right changes accordingly.
- To change the unit of rangefinder, short press the **Menu button (7)**.
- Press and hold the **Up button (6)** and the **Menu button (7)** to exit the stadiametric rangefinder function.



LED LIGHT

Cabin series is equipped with a LED light, which can be quickly opened, adjusted, and closed.

- The LED light is disabled by default. Shortly press the **Menu button (7) + Down button (8)** to enable the LED light. At this time, the brightness is in level 2, and the status bar displays $\text{☼}2$.
- Short press the **Menu button (7) + Down button (8)** again, the brightness will turn to level 1, and the status bar will display $\text{☼}1$.
- Shortly press the **Menu button (7) + Down button (8)** again to turn on the LED light, and the status bar will display ☼off .



HOTSPOT TRACKING

Cabin provides hotspot tracking function, which allows you to track the hottest object in the image.

- In the home screen, press and hold the **Menu button (7) + Down button (8)** to turn on the hotspot tracking function.
- A blue box will appear in the image and track the hottest object automatically.
- Press and hold the **Up button (6) + Menu button (7)** to exit the hotspot tracking function.



STATUS AUTO HIDING

This function is used to automatic hiding of the GUI information on the interface with reticle displayed only, so to make the image unobtrusive.

- Press and hold down the **Menu button (7)** to enter the Main Menu.
- Select the **Settings** option with the **Up (6)/Down (8)** button.
- Briefly press the **Menu button (7)** button to enter the submenu.
- Select the Status Auto Hiding menu option with the **Up (6)/Down (8)** button.
- Enter the **Status Auto Hiding** submenu with a short press of the **Menu button (7)**.
- Briefly press the **Up (6)/Down (8)** button to select On or Off.
- Confirm your selection with a short press of the **Menu button (7)**.
- When the selecting is On, the GUI icons in the interface including the status bar will be automatic hidden after 8 seconds without any operation. Only the image and the reticle will be displayed.
- The GUI information will be displayed again with the press of any button.
- Only after the GUI is displayed, the button and menu can be manipulated.

Wi-Fi FUNCTION

The device is equipped with wireless communication with mobile devices (computer, smart phone) via Wi-Fi.

- Turn the Wi-Fi function on in the main menu, referring to 'Main Menu - Wi-Fi'.
- On your mobile device, search and select the Wi-Fi signal named CBL19_XXXXXX, among which XXXXX is the serial number of the device.
- Enter the password and establish a connection. The initial password is 12345678.
- And then, the device can be controlled via the APP named **InfiRay Outdoor** pre-installed on your mobile device (see **Update and APP** section).

Set Wi-Fi name and password

The Wi-Fi name and password of your device can be reset in the **InfiRay Outdoor** application.

- After connected with the mobile device, click the "setting" icon in the APP to enter the setting interface.
- In the text box, enter and submit the new Wi-Fi name (SSID) and password.
- It needs to restart the device to take the new name and password effect.



⚠ Note

- When factory Settings are restored, the Wi-Fi name and password are also restored to factory default Settings.

UPDATE AND APP TECHNOLOGY

In order to continuously improve the product performance and provide better user experience, the software program, as well as parameters and operating instruction of the device will be

constantly updated. Users can go to the official website (www.infirayoutdoor.com) to download and update.

The Cabin series support APP technology, and can be connected to a smartphone or tablet PC via Wi-Fi for real-time image transmission, control operations, and program updates.

About InfiRay Outdoor

- You can download and install the **InfiRay Outdoor** app on the official website (www.infirayoutdoor.com) or App store. Alternatively, you can download the app by scanning the following QR code.



- When installation completed, open InfiRay Outdoor application.
- If your device is already connected with a mobile device, please switch on the mobile data in mobile device. After connection, the update detection is performed automatically with a prompt in the application. Click 'Now' to download the updates or click 'Later' to update later.
- InfiRay Outdoor will automatically store the last connected device. So, if your device has not connected with your mobile device, but linked to InfiRay Outdoor before, the update prompt will appear if there is an update when turning on InfiRay Outdoor. You can download the update first via mobile Wi-Fi and then connect your device with mobile device to finish the update.
- After finishing the update, the device will root.

TECHNICAL INSPECTION

It is recommended to carry out a technical inspection each time before using the device. Check the following:

- The external appearance of the device (there should be no cracks in the casing).
- The condition of the lens and eyepiece (there should be no cracks, greasy spots, dirt or other deposits)
- The state of the rechargeable battery (it should be charged).
- The controls / buttons should be in working order.

MAINTENANCE

Maintenance should be carried out at least twice a year and consist of the following actions.

- Wipe the external surfaces of metal and plastic parts of dust and dirt with a cotton cloth. Silicone grease maybe used for this.
- Clean the electrical contacts of the battery and battery slot on the device using a non-greasy organic solvent.
- Check the glass surfaces of the eyepiece and the lens. If necessary, remove dust and sand from the lenses (preferably using a non-contact method). Cleaning of the external surfaces of the optics should be done with substances designed specially for this purpose.

TROUBLESHOOTING

This table lists all the problems that may arise when operating the device. Carry out the recommended checks and troubleshooting steps in the order shown in the table. If there are defects that are not listed in the table or it is impossible to repair the defect yourself, return the device for repair service.

Malfunction	Possible reason	Correction
The thermal imager cannot start.	Battery pack is out of charge.	Charge the battery.
The device cannot be powered by external power supply.	The USB cable is damaged.	Replace USB cable
	The external power supply is insufficient.	Check external power supply (if necessary).
Image is unclear, with vertical lines and uneven background.	Calibration is required	Calibration the image as instructed by Section 9 'Calibration' of the Manual.
The image is too dark.	The screen is in low brightness level .	Adjust the screen brightness.
The GUI is clear, but the image is fuzzy.	The lens is not focused.	Rotate the lens focus knob to adjust the focus.
	There is dust or condensate on the interior or exterior optical surfaces of the lens.	Wipe off the outside optical surfaces with a soft cotton cloth. Let the imager dry by leaving it in a warm environment for 4 hours.
The device cannot connect to a smartphone or tablet.	The Wi-Fi password is incorrect.	Enter the correct Wi-Fi password.
	There are too many Wi-Fi networks that are accessible to the device.	To ensure stable Wi-Fi operation, relocate the device to an area with fewer Wi-Fi networks, or into an area with none.
Poor image quality or reduced detection distance	These problems may occur when you use the device in the harsh weathers (snow, rain, fog, etc.).	

Malfunction	Possible reason	Correction
Wi-Fi signal lost or is interrupted	The device is outside the Wi-Fi coverage area. There are obstacles between the device and the receiver (e.g. concrete walls.)	Relocate the device into direct line of sight of the Wi-Fi signal.
When used in low temperature conditions, the image quality is poorer than in positive temperature conditions.	In positive temperature conditions, objects being observed (surroundings and background) heat up differently because of thermal conductivity, thereby generating a high-temperature contrast. Accordingly, the image quality produced by the device will be higher.	
	In low-temperature conditions, objects being observed (background) do, as a rule, cool down to roughly the same temperature because of which temperature contrast is substantially reduced and the image quality (detail) is poorer. This is a feature of thermal imaging devices.	