



THERMFOX

Cabin Series Operating Instructions

V1.0



IRay Technology Co., Ltd.

Specifications

Model	CBL19
Microbolometer	
Type	Uncooled VOx
Resolution	384 × 288
Pixel size, μm	12
NETD, mk	≤ 40
Frame rate, Hz	50
Optical specifications	
Lens lens, mm	19
Field of view	13,8° × 10,4°
Visual magnification, ×	2-8
Digital zoom, ×	1-4
Output pupil diameter, mm	20
Focusing range of eyepiece, D	-5~+5
Detection range, m (Target size: 1.7 m × 0.5 m, P (n) = 99%)	980
Display	
Type	LCOS
Resolution	1280 × 960
Battery power supply	
Battery type/capacity/output voltage	Lithium-ion battery IBP-2/3.1 Ah/3.6 V
Operating time (22 °C), h*	≤ 7,5
External power supply	5 V (type C)
Operating specifications	
Class of protection against ingress	IP67
Memory capacity, GB	16
APP	Support
Operating temperature, °C	-20 ~ + 50
Weight (without battery), g	< 380
Dimension, mm	165×50×85

*Actual uptime depends on the frequency of Wi-Fi use and the built-in VCR.

Improvements may be made to the design and software of this product to enhance its features without prior notice to customers.

This manual can be downloaded from the official InfiRay Outdoor website: www.infirayoutdoor.com.

1. Contents of the package

- Cabin Series Thermal Imager
- Hand strap
- Neck strap
- Carrying bag
- IBC-2 Power Adapter
- Accumulator IBP-2
- Data output cable type C-USB-Video for video output
- Power adapter
- Lens cleaning cloth
- Operating Instructions

2. Description:

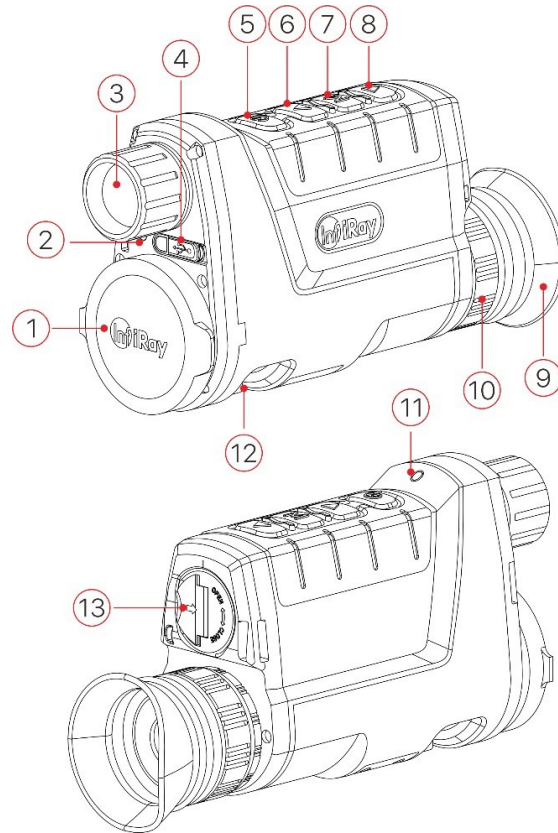
The Cabin Series Monocular Thermal Imaging Camera is specifically designed for outdoor night vision. The Cabin product has strong performance no matter if it is day or night and no matter how bad the weather conditions are (e.g. rain, snow, fog and haze, etc.). It is not affected by strong light and requires no external light source, it can even observe targets hidden behind obstacles (such as branches, grass and bushes, etc.). The Cabin product is small and lightweight, easy and convenient to carry and operate with one hand. And its battery can be quickly removed. With excellent functions and built-in LED light, the Cabin product can be widely used for hunting, searching and positioning under various outdoor conditions.

3. Characteristic features

- 12 μ m self-developed thermal detector
- High image quality
- Lightweight and compact
- HD display
- Quickly removable battery
- LED proximity indicator
- Stadiametric rangefinder
- Long detection range
- High refresh rate 50Hz
- Integrated memory card, supporting photo and video recording
- Support for app connection via Wi-Fi
- Integrated digital compass and motion sensor
- Support for PIP (Picture in Picture) mode
- Defective pixel calibration
- Convenient user interface

4. Units and controls

1. Lens cover
2. Laser indicator
3. LED light
4. Type C port
5. Power button
6. Up/Magnify button
7. Menu button
8. Down/Photos button
9. Eye shade
10. Dioptic adjustment
11. Power indicator
12. Lens focus dial
13. Accumulator IBP-2



5. Operating the buttons

Button	Device status/operating mode	Short press	Long press
Power button	The device is switched off	--	Switch on the device
	Home screen	Image calibration	Turn off device/standby mode
	Standby status	Wake up the device	--
	Main Offer/Local Offer	Exit menu/Return to top menu	--
	Defective Pixel Calibration Interface	Add/remove defective pixels	--
Button Offers	Home screen	Open local offer	Open main menu
	Local offer	Edit parameter	Exit the local offer
	Main offer	Confirm parameter/ enter submenu	Save and go to the home screen
	Laser cursor calibration	Enable/disable cursor movement	Save and go to the home screen
	Defective Pixel Calibration Interface	Enable/disable cursor movement	Save or cancel calibration

Up/Magnify button	Home screen	Magnification from 2× to 8×	Turn PIP on/off
	Local Offer/Main Offer	Navigation to the top	--
	Laser cursor calibration/faulty pixel calibration interface	Move cursor up/down one pixel	Quickly move the cursor up/down
Down/ Photo button	Home screen	Photography	Start video recording
	Video recording	Photography	Stop and save video recording
	Local offer/Main offer	Navigation down	--
	Laser cursor calibration/faulty pixel calibration interface	Move cursor down/right one pixel	Quickly move the cursor down/right
Top + offer	Home screen	Switch laser on/off	Turn the stadiametric rangefinder on/off
Down + offer	Home screen	Switch on/off or adjust the LED light	Enable/disable hotspot monitoring

Note: The laser function of the Cabin product is hidden by default. When using the device for the first time, press and hold the **Up + Menu + Down** buttons simultaneously for more than 10 seconds to reveal the laser function after the shutter click sound.

6. Batteries and safety

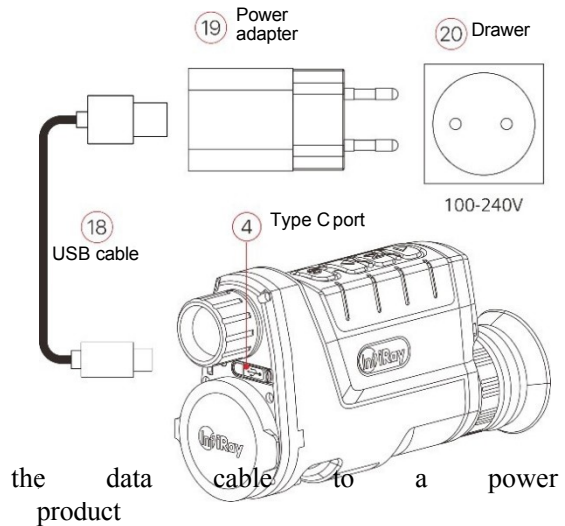
The Cabin product comes with a quick-change 18650 lithium-ion battery that allowed the device to be used for up to 7.5 hours. The battery should be fully charged before first use.

Method 1: Charging via Type C port

- Align the orange vertical line on the battery with the orange horizontal line next to the battery compartment on the Cabin product and insert the battery into the product's battery compartment. See **Installing the battery** for details.

- Connect the C-type connector (18) of the data cable to the product's type C port (4).

- Connect the other end of the data cable to a power product



or other USB outlet with a nominal output voltage not exceeding 5 V.

- Plug the adapter into a 100-240 V (20) outlet for charging.

Method 2: Charging with a battery charger

- Align the positioning block (A) of the battery (13) with the groove (B) of the charger (15) and insert the battery (13) into the charger (15).

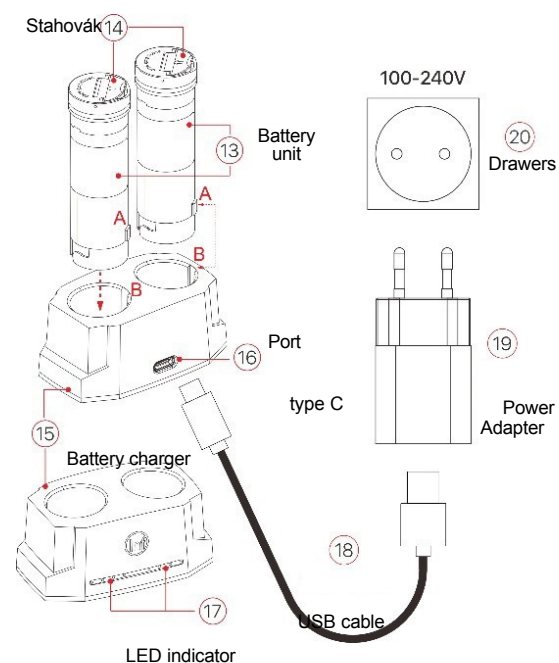
- Connect the USB Type-C cable plug (18) to the USB connector of the power adapter (19). Plug the power adapter (19) into the sockets 100-240 V (20) (110 V for USA).

- Connect the other end of the USB cable (18) to Type C port (16) of the battery charger (15).

- After completing the above steps, the LED (17) on the battery charger will (15) to display the battery charge status.

- Battery status is from 1% to 25%
- Battery status is between 25% and 50%
- Battery status is between 50% and 75%
- Battery status is between 75% and 99%
- The battery is fully charged.

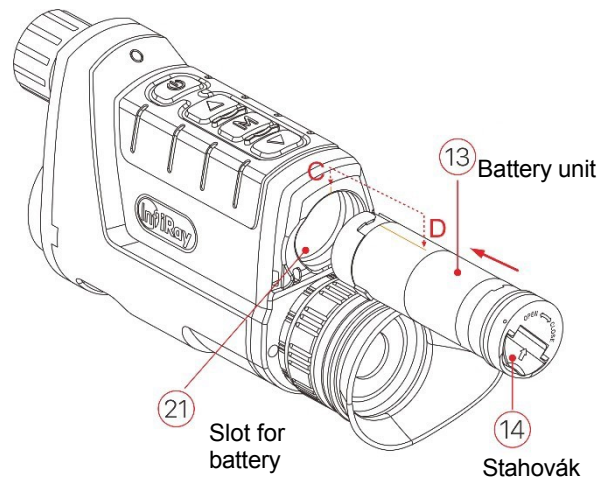
- When the battery is fully charged, remove the battery pack from the battery charger.



Remark: Two batteries can be charged simultaneously: there is a second slot for this.

Installing the battery unit

- Lift the puller (14) on the battery pack (13), 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 fully inserted into the battery slot, secure the battery pack by turning the puller (14) clockwise.
- Close the puller (14) and the battery unit is fully installed.
- The Cabin can only be powered from this battery pack. If you use other battery units, it may cause irreparable loss, damage to the equipment and even fire.





Security measures

- Use this battery holder only to charge the battery pack. Otherwise, it will cause irreparable damage to the battery pack or the holder and may even cause a fire.
- Before a long period of storage, the battery unit should be partially charged, not fully charged or discharged.
- Do not charge the battery immediately after taking it from cold to 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 to + 45 °C. Otherwise, battery life will be significantly reduced.
- Do not leave the battery unattended while charging.
- Do not expose the battery to high temperatures or open flames.
- Do not immerse the battery in water.
- The battery pack has short circuit protection. However, situations that can lead to a short circuit should be avoided.
- Do not charge the battery more than 24 hours after it is fully charged.
- It is not recommended to connect third-party devices that consume more power than allowed.
- Do not disassemble or modify the battery without professional instructions. Do not knock the battery pack and don't drop it on the ground.
- The recommended operating temperature is -20 °C to + 50 °C. Do not use the device outside this temperature range as it may shorten the battery life.
- If the device is used at temperatures below freezing, the battery capacity decreases, which is normal and it's not a glitch.

- Keep the battery pack out of the reach of children.

7. External power supply

The Cabin product supports external power supply such as a portable power supply (5 V).

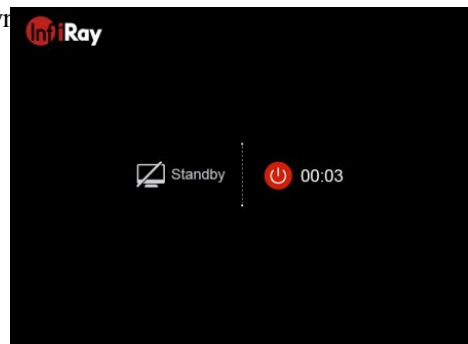
- Connect an external power supply to the Cabin's Type C port **(4)**.
- The device automatically switches to an external power source and simultaneously charges the internal battery pack.
- At this point, the battery icon on the display changes to the charging icon  and the power light turns red and then green when the battery is fully charged.
- If an external power supply is connected but no battery pack is installed, the icon the battery changes to the  USB icon and the power light turns green.
- When the external power supply is disconnected, the Cabin will automatically switch to battery power and will not shut down.

8. Installation and use

Switching on and operation

WARNING! The lens of the Cabin product must not be pointed at any intense energy sources such as laser devices or the sun. This could damage electronic components in the device. Damage caused by failure to follow operating instructions is not covered by warranty.

- Remove the **lens cap (1)**. Press and hold the **power button (5)** for 2 s to turn on the facility. The home screen will then appear after 3 seconds.
- Rotate the **eyepiece diopter adjustment ring (10)** to adjust the resolution of the icons on the display. Once the adjustment is complete, it is not necessary to readjust the diopters for the same user the next time.
- Rotate the **lens focus wheel (12)** to focus on the subject.
- Set the picture mode: Press the **Menu button (7)** to open the local 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.
- Adjust screen brightness, image sharpness, image mode and digital zoom (details see the **Local Menu** section in this guide).
- After use, press and hold the Power button (5) to display the shutdown countdown screen. When the countdown counts down from 3 to 0, the device will turn off. You can then release the power button. The current status will be automatically saved when the power is turned off. Do not turn off the power during the data saving period when switching off, otherwise the data will not be saved.
- If you release the button before the end of the countdown the device will be in standby mode. You can wake it up by pressing the **Power button (5)**.



9. Calibration

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

There are three calibration modes: automatic shutter calibration (A), manual shutter calibration (M) and background calibration (B).

Select the desired mode in the "**Calibration Mode**" section of the main menu.

- **Automatic shutter calibration (A):** the device automatically calibrates the shutter according to a software algorithm. There is no need to close the lens hood (the internal shutter covers the sensor). Prior to automatic calibration, a countdown warning will appear behind the shutter icon in the status bar for 5 s, during which time this calibration can be cancelled by briefly pressing the power button (5) during the countdown. In this mode, you can also press the power button (5) to manually calibrate the shutter.
- **Manual shutter calibration (M):** Press the **power button (5)** briefly on the home screen, to calibrate the shutter without closing the lens cover (the internal shutter covers the sensor).
- **Background calibration (B):** close the lens cap and briefly press the **power button (5)**. The screen will display a text prompt such as "Cover the lens during calibration!". After calibration, remove the lens cap.

10. Digital zoom

The Cabin series supports 1-4x image magnification for increased visual magnification.

- From the home screen, press the **Up/Magnify button (6)** to zoom in circularly.
- The visual magnification corresponding to the 1-4x magnification of the Cabin CBL19 series is 2×, 4×, 6× and 8×, and these values are displayed in the top status bar.

11. Photography and video recording

The Cabin series comes with a built-in 16GB memory card that allows for photo and video recording. Image and video files will be named after the time, 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 Application section before taking photos and videos. For specific steps, please refer to the application's user manual, which can be downloaded from the official website: www.infirayoutdoor.com.

Photography

- To take a photo, briefly press the **Down/Photo button (8)** on the home screen. The image will be frozen for 0.5 seconds and a photo icon will appear in the upper right corner of the screen.

- The images taken are stored on the built-in memory card.

Video recording

- From the home screen, press and hold the Down/Photo button to start recording video.
- The top right corner of the display will show a recording icon and a caption showing the recording time. The time format is 00:00:00 (clock : minutes : seconds).
- You can also take a photo during recording by pressing the **Down/Photo** button **(8)**.
- To stop recording and save the video, press and hold the **Down/Photo** button **(8)**.
- The image and video files are saved to the built-in memory card when shooting and video recording are turned off.



Remark:

- You can enter and work in the menu while the video is being recorded.
- Photographed images and recorded videos are stored on the built-in memory card in the format IMG_HHMMSS_XXX.jpg (image) and VID_HHMMSS_XXX.mp4 (video); HHMMSS stands for hours/minutes/seconds; XXX stands for the three-digit code of the multimedia file.
- This media file code cannot be reset.
- The maximum file duration for video recording is 10 minutes. If the video is longer than 10 minutes, it will automatically be recorded to a new file.
- You can also control the menu during video recording.
- The number of files is limited by the capacity of the device's built-in memory card. It is recommended that you check the remaining capacity of the memory card regularly and transfer videos and images to other media to free up space on the memory card.
- The captured video or image does not display information about the interface icon.

Memory access

When the device is switched on and connected to the computer, it will be recognised by the computer as a flash memory card that can be used to access the device's memory and copy pictures and videos.

- Connect the device to your computer using a data cable.
- Switch on the device.
- On the desktop, double-click "This computer". Double-click to open the device named "Infiray"



to access the memory.

- There are various folders in memory named by time in the format xxxx (year) xx (month) xx (day).
- These folders store the images taken and videos uploaded on the current day. You can copy or delete the desired files or folders.

12. Status bar



The status bar is located at the top of the visual interface and displays information regarding the current operating status of the device. From left to right here is:

- ①. Current image mode (☀️ : white-hot; 🌙 : black-hot; 🔥 : red-hot; 🎨 : palette; 🐦 : highlight)
- ②. Ultraclear mode status (👁️/🚫 : Ultra-clear mode is off; 👁️ : Ultra-clear mode is on)
- ③. Visual magnification (e.g. 2.0×)
- ④. Wi-Fi status (🚫 : Wi-Fi is OFF; 📶 : Wi-Fi is ON)
- ⑤. Calibration mode (in automatic calibration mode, a countdown appears instead of the letter A
Timer ⌚00:05 , with 5 seconds left for automatic calibration). The timer appears after the microbolometer temperature has stabilized (after 10 minutes of continuous operation of the device). Immediately after switching on the device, the shutter is automatically activated without the timer display.
- ⑥. Compass (if compass is on)
- ⑦. Video output status (if enabled)
- ⑧. Automatic standby (if enabled)
- ⑨. LED status (by default, not lit at start-up)
- ⑩. Clock (set in the main menu or sync the time in the InfRay Outdoor app)
- ⑪. Battery unit indication (when the inside of the icon is green 🔋 , it means the power is more than 20%; when it is red 🔋 , it means the battery is almost empty, charge it in time; when a flash appears in the middle of the icon 🔋⚡ , it means the device is powered by an external power source, and this icon appears as a USB icon 🔌 .)

13. Local offer

You can quickly adjust the settings of some common features, including picture mode, screen



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brightness, picture sharpness and picture contrast, via the local menu.

- From the home screen, press the **Menu button (7)** to access the local menu interface.
- Press the **Up/Magnify (6)** or **Down/Photo (8) button** to toggle the following options.
 - **Image mode:** After selecting this option, adjust the picture mode by pressing the **Menu button (7)**. There are five modes: white-hot, black-hot, red-hot, palette and highlight.
 - **Screen brightness:** after selecting this option, adjust the screen brightness to levels 1-5 by pressing the **Menu button (7)**.
 - **Image sharpness:** After selecting this option, adjust the image sharpness to levels 1-5 by pressing the **Menu button (7)**.
 - **Image contrast:** After selecting this option, adjust the image contrast to levels 1-5 by pressing the **Menu button (7)**.

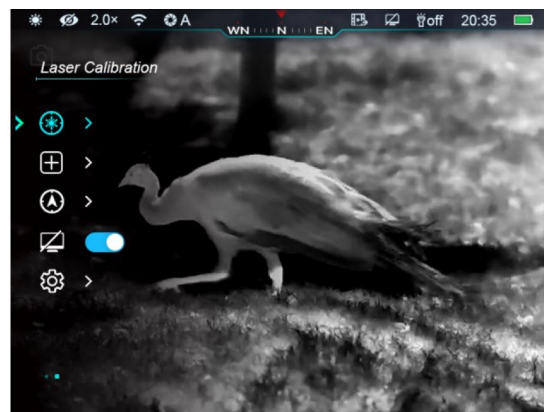


- Press and hold the **Menu button (7)** to save your changes and return to the home screen.


Note: If no operation is performed in the local menu within 5 seconds, the device automatically saves the changes and returns to the home screen.



14. Main offer




- From the home screen, press and hold the **Menu button (7)** to open the main menu.
- Press the **Up/Magnify (6)** or **Down/Photo (8) button** to toggle the menu options.
- The main menu options are cyclical: when the last menu option on the first tab is reached, the first menu option on the second tab is triggered. When the cursor remains on the first option on the first page, you can press the **Up/Magnify button (6)** to go directly to the last menu option on the second page.
- Press the **Menu button (7)** to edit the parameters of the current option or to move to the next the level of the offer.
- When the cursor reaches , the option icon changes from white to blue.
- For all menu interfaces, you can press and hold the **Menu button (7)** to save changes and return to the home screen, and press the **Power button (5)** briefly to return to the top menu without saving.
- If you do not perform any operation within 15 seconds, the device will return to home screen.
- During the Cabin product's continuous operation, when you exit the main menu, the cursor remains in the pre-exit position. When you restart the thermal imager and go to the main menu for the first time, the cursor will remain at the first menu option.



Composition and description of the main menu

<p>Ultra-clear (Ultra clear)</p> 	<p>Enable/Disable Ultra-clear mode</p> <ul style="list-style-type: none"> • Press and hold the Menu button (7) to open the main menu. • Select Ultra-clear, selected by default in the post-launch menu. • Press the Menu button (7) briefly to enable or disable the mode Ultra-clear, during which you will hear the click of the shutter calibration. • The icon in the status bar changes accordingly when you enable or disable this option.
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<p>Wi-Fi</p> 	<p>Enable/disable Wi-Fi</p> <ul style="list-style-type: none"> • Press and hold the Menu button (7) to open the main menu. • Short press the Up/Magnify (6) or Down/Photo button (8) Select Wi-Fi. • Press the Menu button (7) briefly to enable or disable Wi-Fi. • The icon in the status bar changes accordingly when you enable or disable this option.
<p>Video output</p> 	<p>Enable/disable video output</p> <ul style="list-style-type: none"> • Press and hold the Menu button (7) to access the main menu interface. • Short press the Up/Magnify (6) or Down/Photo button (8) select Video Output. • Press the Menu button (7) briefly to enable or disable the analog video output. • The icon in the status bar appears when you enable or disable this option will change accordingly.

<p>Calibration</p> 	<p>Calibration mode selection</p> <p>Cabin provides three calibration modes: automatic shutter calibration (A), manual shutter calibration (M) and background calibration (B).</p> <ul style="list-style-type: none"> • Press and hold the Menu button (7) to enter the main interface Offers. • Short press the Up/Magnify (6) or Down/Photo button (8) Select Calibration Mode. • Press the Menu button (7) briefly to open the secondary menu of the calibration function. • Short press the Up/Magnify (6) or Down/Photo button (8) select a mode from three options. <ul style="list-style-type: none"> - Automatic (A): in this mode, it is defined by software algorithms and the images are calibrated automatically. - Manual (M): images are calibrated by the user according to the image effect. - Background (B): In this mode, you need to cover the lens cap on the camera. • Confirm the selection by briefly pressing the Menu button (7). The icon in the status bar will change accordingly. 
<p>Digital compass</p> 	<p>Enabling/disabling the digital compass</p> <ul style="list-style-type: none"> • Press and hold the Menu button (7) to access the main menu interface. • Short press the Up/Magnify (6) or Down/Photo button (8) Select Digital compass. • Press the Menu button (7) briefly to enable or disable the Digital Compass function. • When the digital compass is enabled, its icon appears in the middle of the status bar at the top.

Gravity sensor



Enable/disable gravity sensor

- Press and hold the **Menu button (7)** to access the main menu interface.
- Short press the **Up/Magnify (6)** or **Down/Photo** button
(8) Select Gravity Sensor.
- Briefly press the **Menu button (7)** to enable or disable the gravity sensor.
- When the motion sensor is enabled, its function is displayed on both sides of the screens.
- The curved ruler on the left represents the pitch angle and the vertical ruler on the right represents the roll angle.



**Laser
cursor
calibration**



If the actual location is different from the location marked by the laser pointer, you can use this function to calibrate the laser pointer.

- Press and hold the **Menu button (7)** to enter the main interface Offers.
- Short press the **Up/Magnify (6)** or **Down/Photo (8)** Select Calibrate Laser Pointer.
- Press the **Menu button (7)** briefly to open the Laser Pointer Calibration options. The laser pointer is activated automatically.
- The laser pointer appears in the centre of the screen and the prompts displayed on the following image will be displayed in the top left corner.
 - X denotes the X-axis in the horizontal direction
 - Y denotes the Y axis in the vertical direction
 - Center means returning the cursor to the center of the screen.
 - Default means to return the cursor to the factory default settings.
- Select the options using the **Up (6)/Down (8)** button and confirm your selection by briefly pressing the **Menu (7) button**.
- When the **X** or **Y** axis is selected, the icon will turn blue and flash permanently. Then move the cursor by pressing the **Up (6)/Down (8)** button briefly or long. Press the **Up (6) button** to move the cursor right or up and the **Down (8) button** to move left or down. Short press to move one pixel at a time and long press to move ten pixels at a time.
- When the cursor moves to the correct position, briefly press **the Menu (7)** to save the position and the icon stops flashing.
- Switch to another axis and repeat until the cursor is aligned with the target position marked by the laser.
- If the **Centre/Default** option is selected, briefly press **the Menu (7)** to return the cursor to the center/default position.
- Press and hold the **Menu button (7)** to save your changes and return to the home screen.



Defective pixel correction



When using the Cabin product, defective pixels such as visible bright spots or dark spots with stable brightness may appear. To resolve this issue, use the Pixel Defect Calibration feature to remove the defective pixels.

- Press and hold the **Menu button (7)** to enter the main interface Offers.
- Short press the **Up/Magnify (6)** or **Down/Photo button (8)** select Defective Pixel Correction.
- **Press the Menu button (7)** briefly to enter the Defective Pixel Correction interface.
- A small crosshair will appear in the centre of the screen. In the bottom left corner screen, the Picture in Picture (PIP) window appears.
- The right side of the PIP window shows the direction of cursor movement (X-axis and Y-axis) and the number of pixels corrected.
- Short press the **Up/Magnify (6)** or **Down/Photo button (8)** to switch between the X and Y axes. Then briefly press the **button Menu (7)** enter the current coordinate.
- Short press the **Up/Magnify (6)** or **Down/Photo button (8)** to move to the current coordinate. If you press the **Up/Magnify button (6)**, the pointer moves to the left or up. If you press the **Down/Photo button (8)**, the pointer moves to the right or down.
- When you have finished moving the pointer, briefly press the **Menu button (7)** save the settings and exit. The icon will stop flashing.
- You can repeat the previous steps to reposition the pointer until it reaches the position of the blank pixel.
- After moving the pointer to the blind pixel position, add and calibrate blind pixel by briefly pressing the **Power button (5)**. "Add" will appear on the PIP screen, indicating that the blank pixel has been successfully added. Repeat this procedure to calibrate additional blank pixels.
- On the blank pixel calibrated in the previous step, you can remove it by briefly pressing the **Power button (5)** again. The PIP will display "Del" (Delete).
- Each time you add or remove a blind pixel marking, the amount of defective pixels changes accordingly.
- When the pointer moves near the PIP, the PIP and the content on the right will automatically move to the top left corner.
- When the calibration is complete, long press the **Menu button (7)**. A dialog box will appear asking if you want to save the calibration. Short press the **Up/Magnify (6)** or **Down/Photo (8)** button to select the desired option. Then briefly press the **Menu button (7)** to confirm the selection. Select "Yes" to confirm the setting and


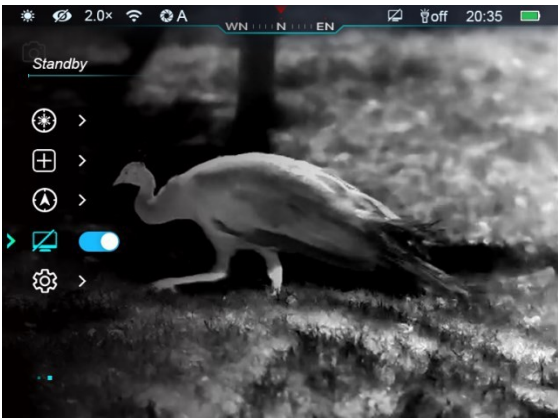


Calibrating the compass



Digital compass calibration

- Press and hold the **Menu button (7)** to access the main menu interface.
- Short press the **Up/Magnify (6)** or **Down/Photo** button (7) select Compass Calibration.
- **Press the Menu button (7)** briefly to enter the Compass Calibration interface. The icon will appear on the screen as a three-axis coordinate system.
- Follow the icon prompts and within 15 seconds, rotate the device along the three axes at least 360 degrees in each axis.
- After 15 seconds, the calibration is complete and you return to the home screen.
- A short press of the **Power button (6)** will end the calibration and exit without saving within 15 seconds.



<p>Standby status</p> 	<p>Setting the standby state and duration</p> <ul style="list-style-type: none"> • Press and hold the Menu button (7) to enter the main menu interface. • Short press the Up/Magnify (6) or Down/Photo button (8) Select Standby settings. • Press the Menu button (7) briefly to switch the standby mode on/off. • When it is on, an icon appears in the status bar. • When the standby function is enabled, the device will automatically enter standby mode if no activity occurs within 15 minutes and will automatically shut down after 15 minutes in standby mode. • Note: When Wi-Fi, recording or video output is enabled, does not automatically enter standby mode. 
<p>Settings</p> 	<p>Set date, time, language and auto-hide status, factory reset and query device information.</p> 

Date**Setting the system date**

- Press the **Menu button (7)** briefly to open the secondary Settings menu.
- Short press the **Up/Magnify button (6)** or **Down/Photos (8)**, select Date.
- Press the **Menu button (7)** briefly to activate the new date setting. The date is in the format YY/MM/DD.
- Short press or press and hold **Up/Magnify (6)** or **Down/Photo (8) buttons** set the year, month and day.
- Press the **Menu button (7)** briefly to switch between year, month and day.
- After setting the date, save the settings and exit by pressing and hold down the **Menu button (7)**.



Time

**Setting the system time**

- Press the **Menu button (7)** briefly to open the secondary Settings menu.
- Short press the **Up/Magnify button (6)** or **Down/Photos (8)**, select Time. The 24-hour display is used with the hour and minute displayed.
 - Press the **Menu button (7)** briefly to activate new time settings.
- Short press the **Up/Magnify button (6)** or **Down/Photos (8)** to set the hour and minute.
- Press the **Menu button (7)** briefly to toggle between hour and minute.
- After setting the time, save the settings and exit. Press and hold the **Menu button (7)**.
- After setting the time, the time in the status bar will change accordingly.



**Lang
uage**



Language selection

- Press the **Menu button (7)** briefly to open the secondary Settings menu.
- Short press the **Up/Magnify button (6)** or **Down/Photos (8)**, select Language. Short press the **Menu button (7)** to open its secondary menu.
- Short press the **Up/Magnify button (6)** or **Down/Photos (8)** to switch between English and Simplified Chinese.
- Confirm your selection by briefly pressing the **Menu button (7)** and leave the option to return to the home menu.

Settings



**Automatic
state hiding**

Enable/disable automatic state hiding

- Press the Menu button briefly to open the secondary Settings menu.
- Short press the **Up/Magnify** button **(6)** or **Down/Photos (8)**, select Auto Hide Status. Short press the **Menu button (7)** to open its secondary menu.
- Short press the **Up/Magnify** button **(6)** or **Down/Photos (8)** to enable or disable this function.
- Confirm your selection by briefly pressing the **Menu button (7)** and leave the option to return to the main menu.



**Restore
factory
settings**



To restore the factory default settings

- Press the **Menu button (7)** briefly to open the secondary Settings menu.
- Short press the **Up/Magnify button (6)** or **Down/Photos (8)**, select Factory Reset. Short press the **Menu button (7)** to open its secondary menu.
- Short press the **Up/Magnify button (6)** or **Down/Photos (8)** select "Yes" or "No" (No). "Yes" means to restore the factory settings and "No" means to cancel the operation.
- Confirm your selection by briefly pressing the **Menu button (7)**.
- If "Yes" is selected, the device will automatically shut down.
- If "No" is selected, the operation is cancelled and the top menu will appear.

Selecting Factory Reset will restore the following functions to their default settings:

- Picture mode: white-hot
- Ultraclear mode: off
- Visual magnification: 2.0×
- Shutter calibration: A
- Compass: off
- Standby: Off
- Analogue video: Off
- Wi-Fi: Off
- Gravity sensor: off
- Language: English
- Automatic status hiding: Off

**Info
 (Information)**



Enquire about equipment information

- Press the **Menu button (7)** briefly to open the General Settings secondary menu.
- Short press the **Up/Magnify button (6)** or **Down/Photos (8)**, select Version Information.
- Press the **Menu button (7)** briefly to display information about the current device.
- Press the **Menu button (7)** or the **Power (5)** to return to the top menu.



15. Picture in Picture (PIP)

Picture-in-Picture (PIP) provides a floating window independent of the entire screen. This window displays a portion of the image that is enlarged to 2x in a specific area centered on an intentional cross of the main image.

- Press and hold the **Up/Zoom (6)** on the home screen to enable or disable PIP.
 - When you zoom in on the home screen short press the **Up/Magnify button (8)**. The image displayed in the PIP window is also enlarged to 2x. For example, the magnification of the image on the home screen is 2.0x, 4.0x, 6.0x, 8.0x, and the corresponding magnification of the image displayed in the small PIP window should be 4.0x, 8.0x, 12.0x, 16.0x.



16. Laser indicator

The Cabin product provides a laser indicator that is hidden by default.

- For first use, press and hold the **button Up/Magnify (6) + Menu button (7) + Down/Photo button (8)** for more than 10 seconds and the laser indicator will activate when the shutter clicks.
- From the home screen, short press **Up/Magnify buttons (6) + Menu buttons (7)** to enable or disable the laser indicator;

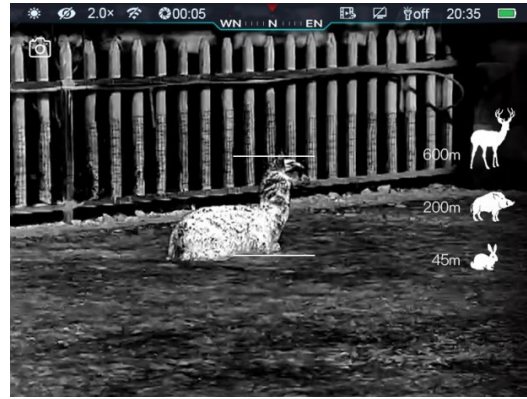


17. Stadiametric rangefinder

The Cabin product provides a stadiametric rangefinder function that allows you to calculate the total distance to an object of known size.


- From the home screen, press and hold the **Up/Zoom button (6) and the Menu button. (7)** to activate the stadiametric rangefinder.
- When this function is activated, the two lines used for the measurement appear on the panel and the icons of the three preconfigured objects and the measured values are displayed on the right side.
- Dimensions of three predefined objects:
 - Deer: 1,7 m tall

- Wild boar: 0,9 m high
- Hare: 0.2 m tall
- Adjust the device so that it is in the center of the image by pressing the **Up/Magnify (6)** or **Down/Photo (8) button**. Expand or contract the measurement line to ensure that the measurement object is within the line. When you adjust the width of the measuring line, the rangefinder data on the right will change accordingly.
- To change the rangefinder unit, briefly press the **Menu button (7)**.
- To exit the stadiometric rangefinder, press and hold the **Up/Magnify button (6)** and **Menu button (7)**.




18. LED indicator

The Cabin product provides an LED indicator light that can be quickly opened, adjusted and closed.

- The LED is deactivated by default. Press the **Menu button (7)** + **Down/Photo buttons (8)** to activate the LED indicator. At this point the brightness is at level 2 and the status bar displays .

- Briefly press the **Menu button (7)** again + **Down/Photo button (8)**, the brightness is set to

level 1 and the status bar displays ; 

- Short press the **Menu button (7)** + **Down/Photo button (8)** to deactivate the LED and the status bar will display



19. Hotspot monitoring

The Cabin product provides a hotspot tracking feature that allows you to track the hottest object in the image.

- From the home screen, activate to monitor hotspots, press and hold the **Menu button (7)** + **the Down/Photo buttons (8)**.
- When this function is activated, the image will appear a blue box that automatically tracks



the hottest object.

- To stop viewing the hotspot, press and hold the **Up/Magnify button (6)** and the **Menu button (7)**.

20. Automatic hiding

This feature is used to hide the GUI with only the intentional cross displayed, so there is no blocking in the image.

- In the main menu interface, short press the **Up/Magnify button (6)** and the **Menu button (7)** select "Settings".
- Short press the **Menu button (7)** to open the secondary menu "Settings" and short press **the Up/Magnify (6) and Down/Photo (8) buttons** to select the function "Automatic Status Hiding".
- Press the **Menu button (7)** briefly to open the secondary menu "Automatic Status Hiding" (Automatically hide the status). Then select "On" or "Off".
- After enabling automatic status hiding, all GUI elements, including the status bar, will be automatically hidden and only the image will be displayed if no operation is performed within 8 seconds.
- Press or hold any button briefly to bring up the graphical user interface.
- You can operate the buttons and menu after you have viewed the GUI information.

21. Wi-Fi

The Cabin product has a built-in Wi-Fi module. The device can connect to a mobile device (computer or smartphone) via Wi-Fi.

- Enable Wi-Fi in the main menu, see "**Main Menu-Wi-Fi Settings**" offer).
- After enabling Wi-Fi, look for a Wi-Fi signal named CBL19_XXXXXX, where XXXXXX is a serial number consisting of six digits and letters.
- Select Wi-Fi and enter your password. The initial password is 12345678.
- Once connected to Wi-Fi, you can control the device using the mobile app.

To set a Wi-Fi name and password

The Cabin product allows you to change the Wi-Fi name and password in the app.

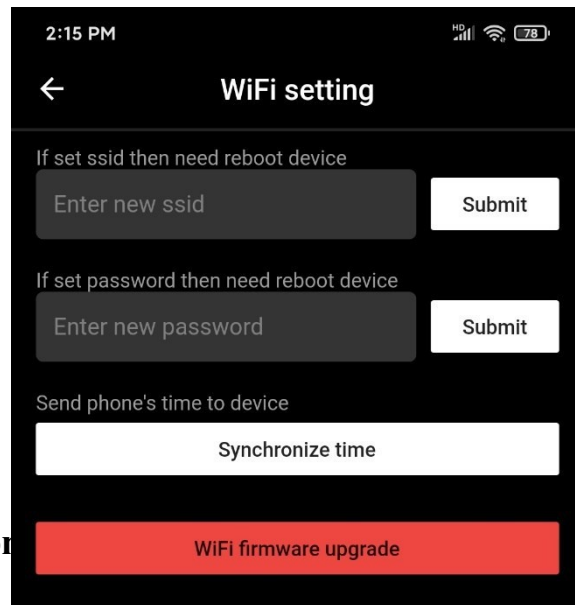
- Once the device is connected to your

mobile device, find the "Settings" icon 

in the **InfiRay Outdoor** interface and tap it to navigate.

- In the text box, type the new name of the Wi-Fi (SSID) and password.
- After sending the change, reset the device and activate the settings.

Warning! When you factory reset your device, the factory default Wi-Fi name and password will also be restored.



22. Product updates and application

The Cabin product supports app control. By connecting a smartphone or tablet via Wi-Fi, you can transmit real-time images, operate the device and update the software.

This InfiRay Outdoor instruction manual can be downloaded from the official website (www.infirayoutdoor.com). You can also obtain and update the product firmware program on our official website.

About InfiRay Outdoor

- You can download and install the InfiRay Outdoor app on the official website (www.xinfrared.com) or in the app store. You can also download the app by scanning the following QR code.



- After installation, open the application.
- If your device has been connected to a mobile device, enable mobile data on it. Once connected to the internet, you will be prompted to update. Click "Now" to download the latest version immediately or click "Later".
- The InfiRay Outdoor app saves the last connected device. So once you open the app InfiRay Outdoor, automatically detects the update in the background, even when the Cabin product is not connected to a phone or tablet. If an update is available and the mobile device is accessing the internet,

you can download it first. Once the Cabin product is connected to your mobile device, the version will be automatically updated.

- After installing the update, the device reboots and starts working.

23. Technical inspection

Before using the equipment, perform a technical check to check the following items:

- Outside of the device (no cracks on the cover)
- Lens and eyepiece (free of cracks, oil, stains or other deposits)
- Rechargeable battery status (fully pre-charged) and electrical contact status (no salting or oxidation)

24. Product maintenance

The equipment must be maintained at least twice a year in the following ways:

- Wipe the surface of the metal and plastic parts with a cotton cloth to remove dust and dirt. If necessary, apply silicone grease.
- Use a non-greasy organic solvent to wash the electrical contact and battery slot.
- Check the glass surface of the eyepiece and lens. If necessary, remove dust and sand from the lenses (preferably using a non-contact method). Use a professional cloth and solvent to clean the optical surfaces.

25. Troubleshooting

The following table lists the problems that are likely to occur during operation of the device. Check and solve the problems according to this table. If you experience a malfunction not listed in this table or cannot correct the malfunction, return the equipment to the dealer or supplier for troubleshooting.

Glitch	Possible cause	Solution
The thermal imaging camera cannot be Launch.	The battery's dead.	Charge the device.
The device cannot be powered from an external power sources.	The USB cable is damaged.	Replace the USB cable.
	External power supply is inadequate.	If necessary, check the external power.
Images are unclear, vertical lines appear or the background is not even.	Calibration is required.	Calibrate the images according to the instructions in the User Guide.
The pictures are too dark.	The screen is not sufficiently clear.	Adjust the screen brightness.

The icons are clear, but the images are blurry.	The lens is out of focus.	Adjust the focus by turning the knob focusing the lens.
	There is dust or ice on the inside of the lens or on the optical surface.	Wipe the optical surface with a soft cotton cloth or allow the device to dry in a warm, dry environment for more than 4 hours.
The device cannot connect to a smartphone or computer.	The Wi-Fi password is incorrect.	Enter the correct Wi-Fi password.
	The device has access to too many Wi-Fi networks.	To enable stable network access, we recommend moving the device to an area with a limited number of Wi-Fi networks or to an area without Wi-Fi coverage.
Wi-Fi signals are lost or interrupted.	The device is outside Wi-Fi coverage. Between the device and receiver is blocking (for example, concrete walls).	Move your device to a location where you can receive Wi-Fi signals.
The observed target will disappear.	You're looking at the target through the glass.	Observe the target directly without presence Glass.
The image quality is poor or the distance the rangefinder is getting shorter.	These problems are likely to occur when you use the device in inclement weather (such as snow, rain and fog).	
If the device is used at low temperature, the image quality is worse than at normal temperature.	At temperatures above 0°C , due to different thermal conductivity coefficients, the temperature rise varies with the observed objects (environment and background). The result is high temperature contrast and improved image quality. At low temperatures below 0°C , the observed targets cool to a similar temperature due to reduced thermal contrast. Therefore, the image quality (especially details) is poor, which is characteristic of thermal imaging equipment.	