THERMFOX

User Manual

V1.0

TUBE SE | Thermal Imaging Scope

TL35 SE/TL25 SE

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InfiRay Outdoor

CE UKCA RoHS

Important safety information

Environmental influences

- Never point the lens of the device directly at intense heat sources such as the sun or laser equipment. The objective lens and eyepiece may then become so hot that the internal components of the equipment may be damaged.
- Do not touch the metal surface of the device (cooling fins) after exposure to sunlight or cold.

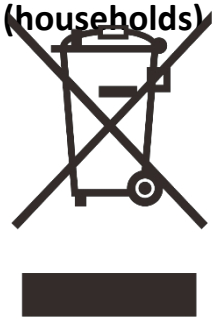
Risk of ingestion

Please note: Do not place this device in the hands of small children. Improper handling may cause small parts to come loose and be swallowed.

Safety instructions

- Handle the device with care: rough handling can damage the internal battery, for example.
- Do not expose the device to fire or high temperatures.
- Always store the equipment in a transport bag in a well-ventilated place.
- Do not expose the device to extreme temperatures below -20 °C and above + 50 °C. If the device has been damaged, send it to our after-sales service for repair.

Information for users on the disposal of electrical and electronic equipment (households)



2012/19/EU (WEEE Directive): products bearing this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier when purchasing equivalent new equipment or dispose of it at

designated collection points. For more information: www.recyclethis.info.

Information for customers within the European Union

Contact your dealer or supplier for disposal of electrical and electronic equipment. They will provide you with further information.

Disposal information for customers in other countries outside the European Union

This symbol is only applicable in the European Union. If you wish to dispose of this product, please contact your local authority or retailer to request disposal.

Purpose of use

The device is designed for imaging heat signatures in nature observation, remote hunting observations and for civilian use. This device is not a toy for children.

Use the device only as described in this User Guide. The manufacturer and the seller are not liable for any damages resulting from improper use of the equipment.

Check functions

1. Make sure your device is not visibly damaged before use.
2. Test that the device displays a clear, unobstructed image.
3. Check that the thermal imaging settings are correct. See notes v section **Switching on a image** **settings**.

Installing/removing the battery

The TUBE SE series thermal imaging camera is equipped with a built-in battery that cannot be removed.

Specifications

Model	TL25 SE	TL35 SE
Parameters		
Type	Uncooled Vox	
Resolution	384 × 288	
Pixel size, μm	12	
NETD, mk	≤ 25	
Frequency, Hz	50	
Optical properties		
Lens, mm	25	35
Field of view, °	10.5 × 7.4	7.5 × 5.3
Linear field of view (H×V), m@100 m	18.4 ×13.0	13.2 × 9.3
Optical magnification, ×	2.0	3.0
Digital zoom, ×	~ 4	~ 3
Eye relief, mm	50	
Output pupil diameter, mm	6	
Dioptric correction, D	-5 ~ +4	
Detection range, m (Target size: 1.7 m×0.5 m, P(n)=99 %)	1300	1800
Display parameters		
Type	OLED	
Resolution	1536×1080 (0.43")	
Power source		
Batteries	Built-in 18650 battery/3350m Ah	
Maximum operating time (t=22°C), h*	11	
External power supply	5 V (Type C)	
Physical properties		
Wi-Fi / APP	Supported (InfiRay Outdoor)	
Taking photos/videos	Supported Supported	
Video recoil activated	Supported 32	
MIC / Bluetooth	IP67	
Memory capacity, GB	-20 ~ +50	
IP class	<720	
Operating temperature, °C	310 × 70 × 70	
Weight, g		
Dimensions, mm		
Connection to the weapon and compatibility		
Maximum recoil of the firearm (eo), J.	6000	
Compatible holders	25.4 mm circumference	

Actual service time depends on the frequency of use of features (e.g. video recording, Wi-Fi).

- □□□ design and software of this product may be improved without notice to enhance its features.
- You can download this user guide on our official website: www.infirayoutdoor.com.

Contents of the package

★ Thermal imaging TUBE SE Series

★ Lampshade

★ Picatinny rail

★ Carrying bag

★ Type-C cable

★ Power adapter (for multiple countries)

★ Lens cloth

★ Heated target for zeroing

Product introduction

The TUBE SE is an infrared rifle scope for hunting in the wild. It is designed based on the principles of infrared thermal imaging and requires no external light sources during the day or night, in all challenging weather conditions (such as rain, snow, fog and haze). Targets behind obstacles (such as branches, grass and bushes) can also be observed without being affected by strong light. The TUBE SE series has a built-in battery for long run time, so it can be widely used for hunting, observing and positioning in low visibility conditions.

The TUBE SE series uses a standard 25.4 mm rifle scope tube diameter, which is characterized by its smaller size and lower weight, which meets the requirements of the general clamp interface.

Functions

★ 12μm self-contained detector

★ High image quality

★ Low power consumption, long battery life

★ Standard rifle scope tube diameter 25.4 mm

★ Long detection range

★ 50 Hz frame rate

★ Built-in 32GB storage space, support photo and video recording

★ Built-in Wi-Fi module, supporting app connectivity

★ Built-in compass and motion sensor

★ Extendable laser rangefinder function with the ability to measure up to 999m

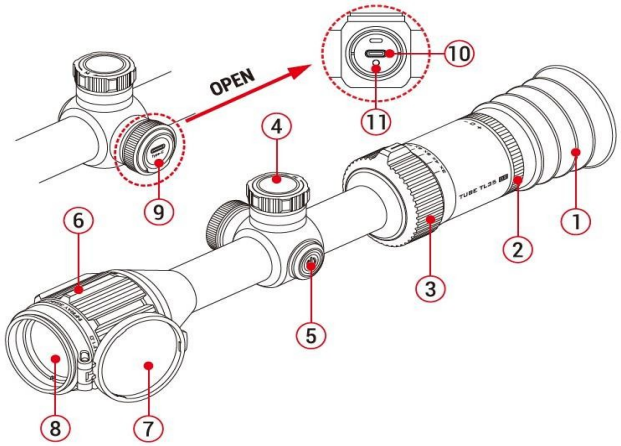
★ PIP (picture-in-picture) function

★ Defective pixel correction

★ Convenient operating interface

Components and buttons

1. Lampshades
2. Eyepiece diopter ring
3. Manual zoom wheel
4. Driver
5. Power button
6. Lens focus ring
7. Lens cap
8. Lens
9. USB rubber cover
10. Type C port
11. LED indicator



Button control

Button	Current status	Short press	Long press	Turning
Power button	Off	–	Switch on the device	–
	Home screen	Image calibration	Turn off / Standby device	–
	Standby mode	Waking up the device	–	–
	Simple distance measurement mode (when the laser is connected rangefinder)	Selecting individual distance measurement modes	–	–
	Main menu interface	Return to the top menu without saving	–	–
	Defective pixel calibration interface	Add/remove defective pixels	–	–
Manual zoom wheel	–	–	–	Adjusting the image magnification (approach - clockwise; recede - counterclockwise)
Power button + driver	Home screen	Switch the distance measurement mode between continuous measurement and single measurement when the laser rangefinder is connected	**For 2 s:** switch the laser rangefinder function on/off **For 8 s:** activation / hiding the intentional cross and its function	–
	Zeroing interface	–	Image freezing	–

Driver	Home screen	**Once**: enter the menu interface shortcut **Twice:** take a photo	**For more than 2 s:** enter the main menu interface	**Clockwise** - switch the picture mode; **Counterclockwise** - adjust the brightness of the image
	Local menu interface	Edit function parameters	Save, go back to the top interface	Switch menu options
	Main menu interface	Confirm selection / Enter submenu		
	Defective pixel calibration / Zeroing / Laser Calibration Interface	Switching the direction of movement		**Clockwise** - move the sight to the right / down; **Counterclockwise** - move the sight left / up

Charging the built-in battery

The TUBE SE series incorporates a rechargeable 18650 battery with up to 11 hours of normal battery life. Charge the battery before first use.

★ Open the USB rubber cap **(9)** to expose the Type-C port **(10)**.

★ Plug the end of the supplied USB Type-C cable (12) into the Type-C port **(10) of** the TUBE SE series device**.**

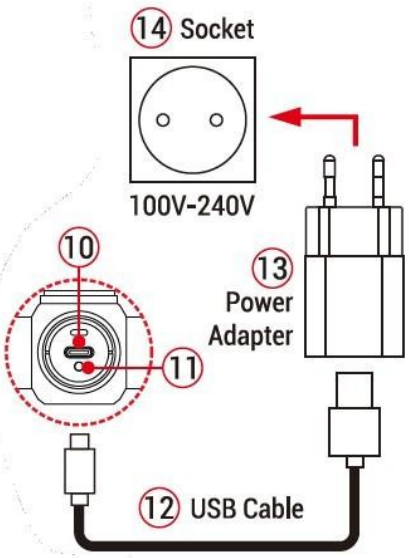
★ Connect the other end of the USB cable to the power adapter (13) and insert the **power adapter (13) into a** 100-240V power outlet **(14)**.

★ When charging, the battery icon will show a flash icon inside the battery , the **LED indicator (11)** on the device is red. When the **LED indicator (11)** turns green, it means that charging has been completed.

★ If the battery icon turns r e d during use , it means that the battery charge level is low. Charge the battery in a timely manner to avoid reducing the life of the device due to excessive battery discharge.

Security measures

★ Use a 5V2A compatible power adapter when charging with the equipment. Using any other type of power adapter may cause irreversible damage to the battery or the adapter itself.



★ If the device is not used for a long time, the battery should be partially charged, but not fully charged or discharged.

★ Do not charge the device immediately after moving it from a cold environment to a warm environment. Please allow 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 0°C to +40°C.

Otherwise, the battery life will be significantly reduced.

★ Do not leave the battery unattended while charging.

★ Do not charge the battery more than 24 hours after it has already been fully charged.

★ It is not recommended to connect third-party devices that consume more power than the allowed value.

★ The device is equipped with a short circuit protection system, but conditions that can lead to a short circuit should be avoided.

★ Use the device at the recommended operating temperature of - 20 °C to + 50 °C. Do not use the device outside this temperature range, otherwise battery life may be shortened.

★ When using the device at sub-zero temperatures, the capacity the battery will drop. This is normal and does not indicate a defect.

Installation and use

Mounting the device on the weapon

To ensure accuracy of aiming, mount the TUBE SE in the correct position on the weapon.

★ The TUBE SE series device must be mounted using adapter clamps, in this case a simple Picatinny rail clamp, which is included in the package. The thermal imaging device is designed with a 25.4 mm diameter pipe, it can be used with a standard 25.4 mm diameter pipe clamp. Only the correct tools can be used to install the device according to the installation suggestions and steps provided by the supplier.

★ Mounting position should be adjusted according to the distance between the eye and the eyepiece (eye relief) as specified in the specifications and ergonomics. If you do not follow this procedure, the eyepiece may injure you during shooting.

★ It is recommended to mount the thermal imaging camera as low as possible, but keep it away from the barrel or other devices.

★ It is recommended to use a torque wrench to tighten the mounting clamp screws to prevent damage to the thermowell body due to over-tightening, recommended torque must not exceed 2.5 Nm.

★ If the thermal imaging camera is used for hunting, first perform the zeroing operation according to the instructions in the **Zeroing** section of this manual.

★ When using thermal imaging at night or in dark environments, the recommends the use of a visor to prevent you from being detected.

Switching on and setting up

★ Remove the lens cap **(7).**

★ Press and hold the **power button (5)** for 2 seconds to start the device and wait a few seconds before finishing startup, you will automatically be taken to the home screen.

● Adjust the clarity of the icons on the display by turning the **eyepiece** diopter ring **(2).**

★ Rotate the **lens** focus ring **(6)** to adjust the focal length.

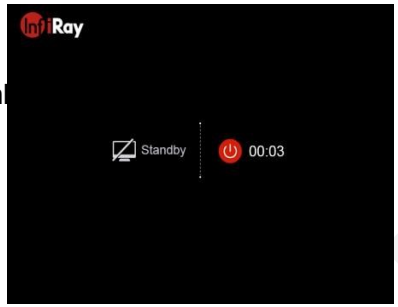
★ **Image mode setting:** On the home screen, rotate **dial (4)** clockwise to set the mode palette, whose options include: warm white; warm black; warm red and target highlight.

★ **Adjust the screen brightness:** turn the **rotary pushbutton (4)** against Clockwise on the home screen, adjust the brightness of the display from level 1 to level 5.

★ **Image sharpness adjustment:** On the home screen, briefly Press the **rotary pushbutton (4)** to go to the local menu and adjust the image sharpness.

★ **Image calibration:** Calibrate on the home screen image by briefly pressing the **power button (5),** when performing background correction, first close the lens cap **(7).** The calibration mode can then be set in the main menu.

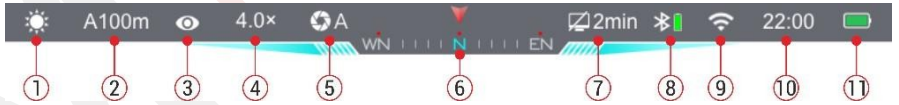
★ On the home screen press and hold the **rotary pushl (4)** for more than 3 seconds to enter the main menu interface for other functions.



★ After use, press and hold **power button (5)** for 3 s, to enter the shutdown interface. Press the button until the countdown icon "Data saving..." (Data saving). When the data has been saved, the display turns black and the device switches off. **When the device turns off it is also saving data, so do not disconnect the device from the power source. Otherwise, data cannot be saved.**

★ When the button is released during the countdown, the device goes into standby mode. Press the **power button (5)** again to wake up the device.

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.

1. Current image mode (: warm white; : warm black; : warm red; : target highlight; : pseudo-color);
2. Current zeroing profile and zeroing distance (e.g. A100 m);
3. Ultra-bright-mode: (: Ultra-bright-mode is off; : Ultra-bright-mode is on);
4. Current visual magnification (TL35 SE: 3.0× to 9.0× adjustable, TL25 SE: 2.0× to 8.0× adjustable, with 1.0 interval);

5. Calibration mode (A: automatic calibration; M: manual calibration; B: background calibration). In A mode, the device automatically performs shutter correction at a specific interval;

6. Compass (displayed when the compass is on);
7. Standby status and time (shutdown according to status and time);
8. Bluetooth status : Bluetooth is disabled. : Bluetooth is enabled but has not been successfully connected to the laser rangefinder module.

: Bluetooth is enabled and successfully connected to the laser rangefinder module, the battery icon shows the power status of the rangefinder module);

9. Wi-Fi status (: Wi-Fi is off; : Wi-Fi is on);
10. Clock (Set it in the main menu or in the InfiRay Outdoor App);
11. Power status of the device's built-in battery

Icon	Battery status
	The output is higher than 20% and is sufficient.
	The output varies between 10 and 20%.
	The output is less than 10%.
	The battery is charging.

Resetting

The TUBE SE series uses the "freeze" zeroing method. It is better to perform zeroing in environments within the operating temperature range of the thermal imaging system.

★ Attach the thermal imaging camera to the gun with the clamp (see details **Section 8 Installation and use**).

★ When using the probe for the first time, press and hold the **rotary pushbutton (4) +**
power button (5) for more than 8 seconds to activate the hidden cross and zero functions.

★ Select a target within a certain distance, for example 100 m.

★ Adjust the distance according to the operating instructions as described in section **8 - Switching on and setting up**.

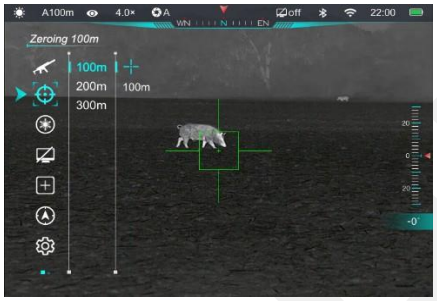
★ Select the zeroing profile (see **Main menu - Zeroing profile**).

★ Press and hold the **rotary pushbutton (4)** to enter the main menu interface.

★ Turn the rotary pushbutton (**4**) to select **Reset Zeroing Distance** ( ). Press the **rotary pushbutton (4)** briefly enter the submenu.

★ Select or add a new reset distance according to the selected target distance (see **Main menu - Reset reset distances**).

★ After selecting the zeroing distance, turn the rotary pushbutton (4) to select the zeroing function ( ) and press the **rotary pushbutton (4)**



go to the reset interface. The coordinate positions of the intentional cross (X-axis and Y-axis) are displayed in the upper left corner of the screen.

★ Aim and shoot at the target.

★ Observe the position of the actual hit point and assume that the red × mark in the figure on the right is the position of the point hit (**This mark is for illustration only, it should actually be a bullet hole**).

★ If the point of impact and the aiming point (centre of the sight) do not coincide, leave the aiming position stationary, at the same time Press and hold the rotary pushbutton (**4) + power button (5) until the** freeze icon appears on the left side of the screen .

★ **Rotate the rotary pushbutton (4)** Move the sight until it coincides with the point of impact. Rotate clockwise to move the sight to the right or down, and rotate counterclockwise to move the sight left or up.

★ **Press the rotary pushbutt** vement between the X-axis and Y. The cursor position indi option, and the icon turns blue.

★ After moving the sight, a small white dot appears on the screen to indicate the position of the aiming cross before moving.

★ After moving the sight position to the actual hit point press and hold the **rotary pushbutton (4),** save the position of the viewfinder and return to the home screen.

★ Repeat aiming and firing until the position of the point of impact matches the position of the sighted target.

Note: After setting the zero position, you can switch the option Via "Zeroing distance" in the local menu.

Calibration

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

★ From the home screen, briefly press the **Power** button **(5)** to calibrate the image.

★ There are three calibration modes: auto calibration (A), manual calibration (M) and background calibration (B), which can be set in main menu (see **Main menu - Calibration).**

★ **Automatic (A): the** device automatically calibrates itself according to software algorithm. No need to close the lens hood (the internal shutter covers the sensor). Before automatic calibration, a 5 second countdown prompt appears behind the shutter icon on the status bar, which can be cancelled during the countdown by briefly pressing the **power button (5).** In this mode, the user can also complete the calibration manually by briefly pressing the **power button (5).**

★ **Manual (M)**: In this mode, shutter calibration is completed manually without closing the lens cap (the internal shutter covers the sensor).

★ **Background (B):** In this mode, the lens cap must be in front of the covered by calibration. After briefly pressing the **power button (5**), the home screen will display the prompt "**Cover cus** during **calibration"** for 2 s, just after 2 s the calibration will be completed.

★ When the device is started, no matter which calibration mode is selected, the device automatically and continuously performs shutter calibration.

Magnification and digital zoom

The TUBE SE Series supports image zooming for fast increase of base magnification. The zoom ring is engraved on the eyepiece cover near the **Zoom handwheel (3).**

★ On the home screen, you can switch by changing the manual of the Zoom wheel (3) to align the indication line of the **Zoom handwheel (3)** with the corresponding magnification of the eyepiece.

★ The TL35 SE supports magnification from 3.0 to 9.0, allowing magnify the image 1 to 3 times. TL25 SE supports magnification from 2.0 to 8.0, which can magnify the image 1 to 4 times.

★ The magnification is shown on the status bar of the display in real time

time.

Photography/video recording

TUBE SE Series devices feature 32GB of built-in storage space that can be used for photography and video recording. The photo and video files will be named according to the time, so it is recommended to reset the system date and time in the main menu (see **Main Menu - Settings - Date/Time**) or synchronize the system date and time in the InfiRay Outdoor app before use.

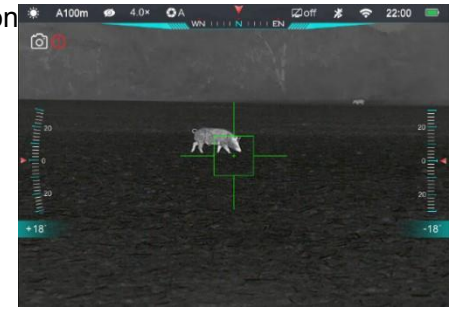
Photography

★ Within the home screen situation, take a photo

Press the rotary pushbutton (4) twice briefly. The screen freezes for 0.5 s and the camera icon appears in the upper left corner of the screen.

★ Photos are stored in the internal memory space of the device.

★ When the exclamation mark icon ( ) appears on the right side of the camera icon the challenge of being short on memory space. Check and transfer your videos and images to other media to free up space.



Video recording

★ From the home screen, press the **rotary pushbutton (4)** briefly to open the local menu function.

★ Turn the **rotary pushbutton (4)** to select the recording option and press the **rotary pushbutton (4)** to turn on and start video recording.

★ The recording icon and a prompt showing the recording time will appear in upper right corner of the display with the time format 00:00:00 (hour: minute: second).

★ You can still take photos and control the menu while recording video.

★ Select the video recording option from the local menu and press the rotary pushbutton **(4)** again to turn off and save the video recording.

★ All videos and photos will be stored in the built-in storage.

Notes

- *The maximum length of the recorded video is 30 minutes. If the duration is longer than 30 minutes, the video is then automatically recorded to a new file.*
- *Images and recorded videos are stored in the built-in memory in the format according to the time and date of capture.*
- *The number of files is limited by the internal memory space of the device. Check the remaining space regularly and transfer videos and images to other media to free up space on the device's memory card.*

Memory access

When the device is turned on and connected to the computer, it will be recognized by the computer as a Flash memory card. Once you have accessed the memory, you can copy images and videos.

When copying images and videos, perform the following operations:

★ Connect the device to your computer using a USB cable.

★ Turn on the device.

★ Click on the This Computer icon - double click to open Device name: "Infiray" - 

tap to open the device name "TUBE SE Storage" to access the memory.

★ Different ingredients named according to the time in the format xxxx (year) xx (month) xx (day) in memory.

★ Recorded photos and videos on a given day are saved in the corresponding folder

★ Select the desired files or folders you want to copy or delete.

Laser rangefinder (ILR-1200-1, sold separately)

The TUBE SE series supports external laser rangefinder modules (available separately).

For a detailed description of how to install and use the laser rangefinder module, please refer to the laser rangefinder manual in the laser rangefinder package. Compared to a stadiametric rangefinder, the laser rangefinder is more accurate and there is no need to look for specific target objects.

★ Press and hold the **power button** on the rangefinder module for 3 seconds to turn on the rangefinder module. Before connecting the module to the TUBE thermal imaging device, the red LED indicator on the rangefinder module flashes.

★ Long press the **rotary pushbutton (4)** for more than 3 seconds on the TUBE SE to enter the main menu interface.

★ Select **Bluetooth** and make sure Bluetooth is turned on.

★ The laser rangefinder module automatically connects to the Tube SE thermal imaging device.

★ When the Bluetooth icon on the right side of the status bar the battery icon appears , it means that thermal imaging is successfully connected to the laser rangefinder module. The LED indicator on the laser rangefinder module goes out.

★ Press and hold the **controller button (4**) **+ power button (5)** on the home screen for 3 seconds, simultaneously turn on the laser rangefinder. The rangefinder cursor appears on the screen.

★ Double **press the power button** on the rangefinder module to turn the laser indicator on/off.

★ There are two distance measurement modes to choose from - continuous (CON) and simple (SGL).

★ The default state is continuous measurement mode. Simultaneous Press the **controller** button **(4**) **+ power** button **(5)** to switch the mode Measurements.

★ In continuous distance measurement mode, the measurement is real-time and automatic without any operation.

★ In simple measurement mode, you must briefly press **power button (5)** to perform the measurement operation.

★ The current measurement mode and distance value are displayed in the upper right corner of the screen.

★ If the distance value shows **MAX**, it means that the target distance has exceeded the maximum laser distance rangefinder (999 m).

★ Switch the unit of measure according to the **main menu - Settings - Units of measure**.

★ During continuous measurement, other functions such as taking photos and recording videos are not affected.

★ Simultaneously press and hold the **controller button (4) + power button (5)** to turn off the laser rangefinder function.

★ If the target position pointed by the laser pointer is not aligned with the center of the rangefinder cursor on the screen, the need to calibrate the laser rangefinder cursor position (see **Main menu - Laser calibration**).

15Local offer

The local menu can be used to quickly change basic settings for some common functions, including video recording, sight style, crosshair color, image sharpness, and zero distance.

★ From the home screen, open the local menu by pressing **the rotary** pushbutton **(4)**.

★ Turn the **rotary pushbutton** you can switch between the following options, the background of the icon of the selected option will be highlighted.

★ **Video recording ( ):** Turn the rotary pushbutton (4) to select the video recording option and press the **rotary pushbutton (4)** turn the video recording function on/off.

★ **Crosshair style ( )**: Turn the **rotary pushbutton (4)** to select the crosshair style, then press the **rotary pushbutton (4)** to switch between 6 styles.

★ **Intentional cross colour ( ):** Turn the **rotary pushbutton (4)** select the desired option, **press the rotary pushbutton (4)** adjust colors, including black, white, red and green.

★ **Image sharpness ( )**: Turn the **rotary pushbutton (4)** to select the desired option, press the **rotary pushbutton (4)** adjust the image sharpness from level 1 to level 5.

★ **Zeroing distance ( )**: Turn the **rotary pushbutton (4)** to select the desired option, press the **rotary pushbutton (4)** to toggle between the distance values stored for the current zeroing profile (e.g. for type A firearms, only the distance values stored for type A are available when selecting this option).

★ Press and hold the **rotary pushbutton (4)** or briefly press the **power button (5)**, save your changes and return to the home screen.

★ If no operation occurs in the local menu within 5 sec,

the device automatically saves the changes and returns to the home screen.

16 Main Menu

★ On the home screen, press and hold the **rotary pushbutton (4)** for more than 3 seconds to enter the main menu function.

★ Turn the **rotary pushbutton (4)** to switch the function options

- clockwise rotation for downward and counterclockwise for upward

clockwise to move up.

★ Press the **rotary push**button **(4)** to adjust the parameters of the current option or enter its submenu.

★ The cursor position indicates the selected option, whose icon changes from white to blue.

★ The operations for sub-offerings are the same as above.

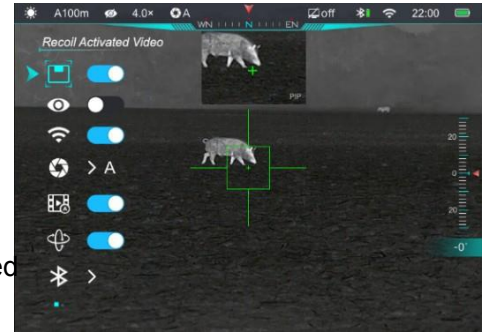
★ In any menu interface, press and hold the **controller button (4)** to save your changes and return to the home screen. Press the **power** button **(5)** to return to the main menu without saving changes.

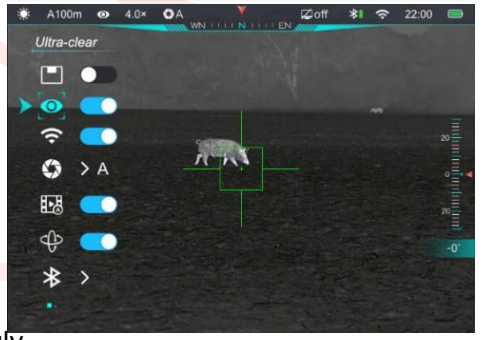
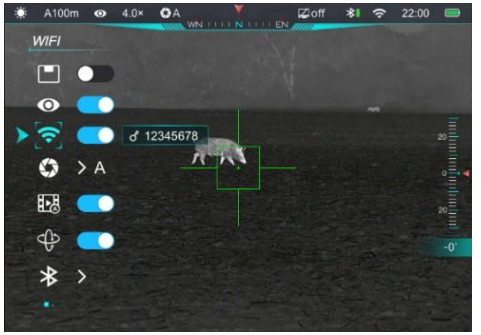
★ If no operation occurs on any interface within 15 s menu, you will automatically return to the home screen without saving.

★ During continuous operation of the thermal imaging system (i.e. until switching off thermovision), the cursor remains in the position before exiting the main menu. When you restart the device and enter the main menu for the first time, the cursor remains at the first option Offers.

Main menu description and functions

PIP 	**Turn PIP on/off** ★ Press and hold the **rotary pushbutton (4)** to enter the main menu. ★ Turn the **rotary pushbutton (4)** to select **PIP** (selected in the default menu setting after startup). ★ Press the **rotary pushbutton (4)** briefly to turn the PIP function on/off. ★ When PIP is on, a separate "window" appears at the top of the display at the same time as the main image. The window displays a portion of the image that is magnified 2x in a specific areas centred on the deliberate cross of the main image. ★ After zooming the image on the home screen by turning the **Zoom hand wheel (3)**, the image displayed in the PIP window will also be zoomed 2X.



Ultra-bright mode 	**Turning Ultra-Clear mode on/off** ★ Press and hold the **rotary pushbutton (4)** to enter the main menu. ★ Turn the **rotary pushbutton (4)** to select "Ultra-clear mode"**.** ★ **Press the dial (4)** briefly to turn Ultra-bright mode on/off, during which you will hear the click of the shutter correction. ★ When Ultra-bright mode is on/off, the icon in the status bar will change accordingly. 
Wi-Fi 	**Switching Wi-Fi on/off** ★ Press and hold the **rotary pushbutton (4)** to enter the main menu. ★ Turn the **rotary pushbutton (4)** to select **Wi-Fi**. ★ Press the **rotary pushbutton (4)** briefly to switch the Wi-Fi function on/off. ★ When Wi-Fi is turned on, 3 seconds after clicking the Wi-Fi icon, the default password (123456) is displayed.  ★ The password will only be displayed for the first three attempts. After changing the password, it will no longer be displayed. ★ When Wi-Fi is on/off, the icon in the status bar will change accordingly.

Calibration 	**Select calibration mode** There are three calibration modes: automatic calibration (A), manual calibration (M) and background calibration (B). ★ Press and hold the **rotary pushbutton (4)** to enter the main menu. ★ Turn the **rotary pushbutton (4)** to select **Calibration**. ★ □□□□□ the **rotary pushbutton (4)** briefly to enter the Calibration submenu. ★ Turn the **rotary pushbutton (4)** to select a mode from the following three options: 1. **Auto:** Parameters are defined by software algorithms and images are calibrated automatically in this mode. 2. **Manual:** images are manually calibrated by the user according to the image effect. 3. **Background: The** lens cap or uniform background must be sealed on the lens before calibration.  ★ **Press the rotary pushbutton (4) briefly** to confirm the selection. The icon in the status bar will change accordingly.

Video recoil activation 	**Turn on/off the Video recoil activated function** ★ Press and hold the **rotary pushbutton (4)** to enter the main menu. ★ Turn the **rotary pushbutton (4)** to select "**Recoil Activated Video**". ★ **Press the rotary pushbutton (4)** briefly to switch the Recoil Activated Video function on/off. ★ When **Recoil Activated Video** is **enabled**, when shooting with Tube SE automatically records video 3 seconds before shooting and 2 minutes and 57 seconds after shooting. ★ The recording icon and information showing the recording time will be displayed on the right top corner of the display with the time format 00:00:00 (hour: minute: second). ★ Video is saved to the built-in storage. If there is continuous shooting up to 3 minutes, only one video is saved.

Compass and motion sensor

Turn the compass and motion sensor function on/off

★ Press and hold the **rotary pushbutton (4)** to enter the main menu.

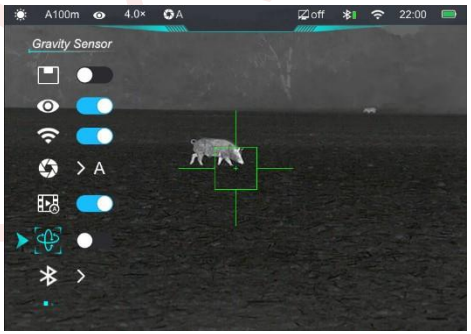
★ Turn the **rotary pushbutton (4)** to select **Compass and motion sensor**.

★ **Press the rotary pushbutton (4) briefly** to switch the compass and motion sensor function on/off.

★ When the compass is on, it is displayed in the middle of the status bar at the top, two motion sensor scales are displayed on either side of the screen.

Only the scale bar on the right side is displayed in the main menu interface.

★ The curved scale on the left represents the tilt angle, the vertical ruler on the right represents the pitch angle.



Bluetooth

Turn Bluetooth on/off

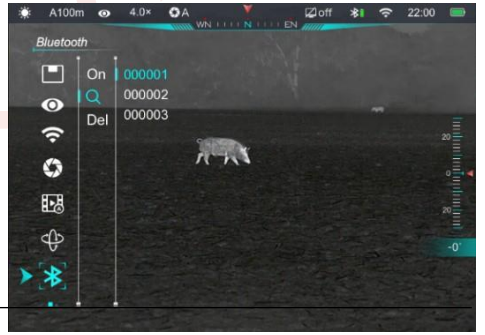
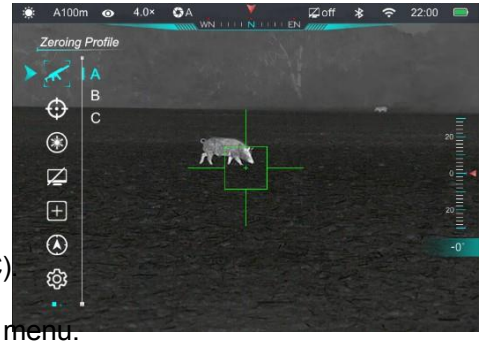
★ Press and hold the **rotary pushbutton (4)** to enter the main menu.

★ Turn the **rotary pushbutton (4)** to select **Bluetooth**.

★ Press the **remote control button (4)** briefly to enter the Bluetooth submenu.

★ Turn the **rotary pushbutton (4)** to select from the following three options:

- **On/Off:** select this option and briefly press **controls (4),** switch the Bluetooth function on/off.

	- : this option supports manual Bluetooth search. Select this option and briefly press the **rotary pushbutton (4)** to search for a nearby Bluetooth laser rangefinder, which will be displayed in the secondary menu, for more than 5 s. Rotate the **rotary pushbutton (4)** to select one device and press the **rotary pushbutton (4)** shortly after connecting. - **Del:** The Tube SE will store the connected Bluetooth laser rangefinder. Select this option and briefly press the **rotary pushbutton (4)** to remove the stored Bluetooth. ★ The icon in the status bar will change accordingly just when the Bluetooth status changes. 
Resetting the profile	**Select a profile for zeroing** 1. Press and hold the **rotary** pushbutton **(4)** to enter the main menu. 2. Turn the **rotary pushbutton (4)** to select **Zeroing profile**. 3. **Press the rotary pushbutton (4)** briefly to enter the secondary menu of the Reset profile. 4. Turn the **rotary pushbutton (4)** to select one of the three reset profiles (A, B, C). 5. Press the **rotary push**button **(4)** to confirm the selection and return to the main menu. ★ □□□ name of the selected profile in the status bar will change accordingly. 

<table>
<tr>
<td rowspan="2">Resetting
  </td>
<td colspan="2">Before performing any zeroing operation, select the zeroing profile and preset the zeroing distance.

TUBE SE thermal imaging cameras support any zeroing distance from 1-999 m.

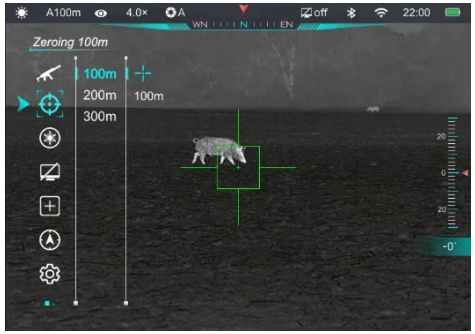
1. Press and hold the rotary pushbutton (4) to enter the main menu.
2. Turn the rotary pushbutton (4) to select Reset.
3. Press the rotary pushbutton (4) briefly to enter the Zeroing submenu where the zeroing distances are displayed.

★ There are three types of distance to choose from: 100m, 200m and 300m by default.</td>
<td> 
</td>
</tr>
<tr>
<td>Resetting
  </td>
<td>If the preset zeroing distance is consistent with the distance displayed on the device, you can zero directly by following the steps below:

★ Rotate the rotary pushbutton (4) to select one zero distance to based on the preset target distance.

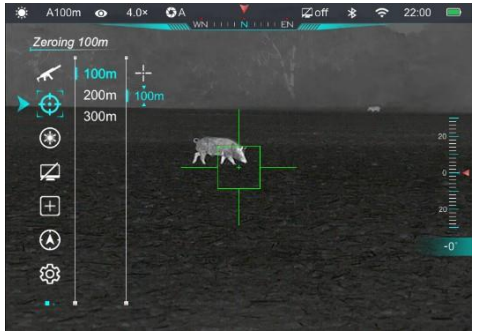
★ □□□□□ □□□ rotary pushbutton (4) briefly to confirm the distance reset a enter to submenus of the zeroing distance.

★ Turn the rotary knob (4) to select the reset function.

★ Press the rotary pushbutton (4) briefly to enter  into the reset interface.</td>
<td> 
</td>
</tr>
</table>

		★ **The X** and **Y** coordinates of the intentional cross are shown in the left top corner of the screen. ★ Aim the center of the thermal sight at the center of the target and fire, then observe the position of the actual hit point. ★ Keep the aiming position stationary and simultaneously press and hold the **controller** button **(4) +** **power (5)** to freeze the image. Meanwhile, the freeze icon will appear on the screen. ★ **Rotate the dial (4)** to move the position of the sight so that the center of the sight coincides with the position of the point hit point. Details See Chapter **10 Resetting**.

Reset distance reset 	If the nulling distance is not consistent with the current target distance, this option can be used to set the nulling distance. ★ Select an invalid reset distance, **then press the rotary pushbutton (4)** briefly to enter its submenu. ★ Turn the rotary pushbutton (**4)** to select **"Reset Zero Distance"** in the submenu. ★ **Press the rotary pushbutton (4) briefly** to activate the reset distance function, then two small triangle symbols  will appear above and below the number. ★ Turn the **rotary pushbutton (4)** to set the value of the current position, which can be switched between 0 and 9. ★ Briefly press the **rotary pushbutton (4)** to switch between the hundreds, tens and units positions. ★ After setting, press and hold the **rotary pushbutton (4)** to save the settings and exit the program. In the meantime, the zeroing distance is changed accordingly. ★ In addition, the status bar is synchronously updated to the new reset distance. ★ After saving the reset distance, select and enter the reset function .
Laser calibration 	The laser rangefinder module (purchased separately) must be calibrated before initial installation and use, which helps align the target position of the laser indicator with the center of the rangefinder cursor on the screen. Install the laser rangefinder module on the Tube SE thermal imaging camera.



★ Press and hold the **power button** on the rangefinder module for 3 seconds to turn on the rangefinder module.

★ Turn on the TUBE SE Bluetooth Thermal Imager in the main menu and wait for the rangefinder module to successfully connect until the battery icon appears on the right side of the Bluetooth icon in the status bar .

★ Press the **power button (5)** twice to turn on/off the laser indicator on the rangefinder module.

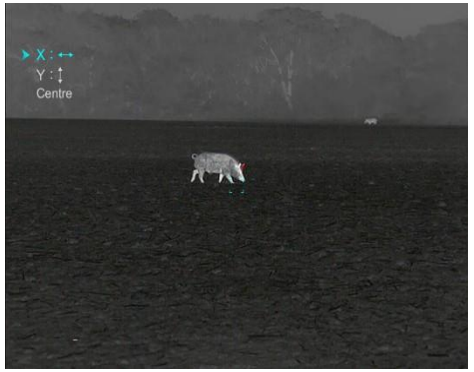
★ On the home screen, press and hold the **controller button (4**) **+ power button (5)** switch on the laser rangefinder function for 3 seconds.

★ Press and hold the **rotary pushbutton (4)** to enter the main menu.

★ Turn the **rotary pushbutton (4)** to select **Laser Calibration**.

★ Press the **rotary pushbutton (4)** briefly to enter the laser calibration interface.

The laser cursor will appear on the screen instead of the sight, and the challenge information will be displayed in the upper left corner, as shown below.



★ Assume that the red "×" in the picture represents the target position aimed by the laser indicator (it is actually shown as a red dot).

★ **Press the rotary pushbutton (4)** to switch between X, Y or Center.

- **X** (horizontal): when X is selected, turn the **rotary pushbutton (4)**, move the laser cursor horizontally - clockwise to the right and counterclockwise to the left.
- **Y** (vertical): when Y is selected, turn the **rotary pushbutton (4)** to move laser cursor vertically - clockwise down and counterclockwise up.

- **Center**: when Center is selected, briefly press the **power button (5)** to center the laser cursor on the screen.

★ Once the laser cursor is aligned with the laser aiming position, press and hold the **rotary pushbutton (4)** save and exit the laser calibration interface.

Standby mode

Setting the standby mode and time

★ Press and hold the **rotary** pushbutton **(4)** to enter the main menu.

★ Turn the **rotary pushbutton (4)** to select **Standby**.

★ A short press of the **rotary push**button **(4)** enters the standby submenu, including four options: 2 minutes, 4 minutes, 6 minutes and off.

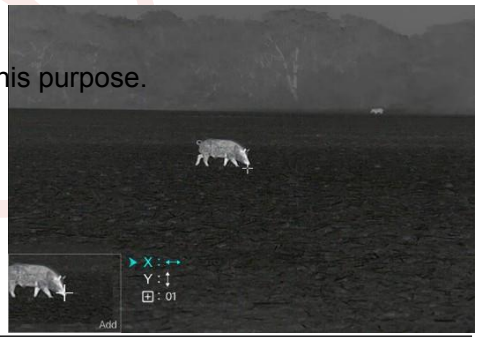
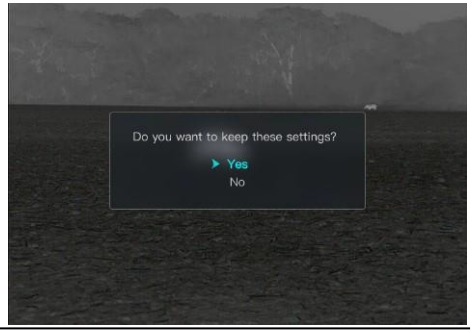
★ Turn the **rotary pushbutton (4)** to select as required.

★ Briefly press the **rotary push**button **(4)** to confirm the selection, then the selected option will be displayed in the top status bar.

★ If Off is selected, the standby function is deactivated.

Remark:

- Standby mode is activated automatically when the device is tilted up or down at an angle greater than 70° and to the left or right at an angle greater than 30°.
- When the device is in the scanning state (horizontally positioned), the standby mode is deactivated.

Fix defective pixels	When using distance measurement, defective (dead) pixels, such as bright or dark spots with stable brightness that are visible in the image, may appear on the sensor. The TUBE SE series offers the possibility of removing defective pixels on the sensor using software developed for this purpose. ★ Press and hold the **rotary** pushbutton **(4)** to enter the main menu. ★ Turn the **rotary pushbutton (4)** to select **"Pixel Defect Correction"** (Defective pixel correction). ★ Press the **rotary pushbutton (4)** briefly to enter the pixel defect correction interface. 
	★ A small crosshair cursor appears in the middle of the screen instead of the viewfinder, while the PIP function is automatically activated to is displayed in the top left corner by default. ★ The right side of the PIP window shows the motion direction options (X, Y axis) and the number of corrected pixels. ★ □□□□□ □□□ **rotary pushbutton (4)** briefly to switch between X-axis and Y-axis. The X axis is selected by default. ★ Turn the **rotary pushbutton (4)** to move in the selected direction. Turn clockwise to move the cursor right/down, turn counterclockwise to move the cursor left / up. ★ When the cursor moves to the position of the defective pixel, press the **power** button **(5)** briefly to add and correct. At the same time, the word Add flashes in the PIP window to indicate that the defective pixel has been added.  

★ At the same position, press the **power** button **(5)** again briefly **to** cancel the defective pixel correction, then the word "**Del**" will flash in the PIP window.

★ Repeat the above steps to complete the repair of other defective pixels.

★ Each time you add or remove a defective pixel, the number of defective pixels will change accordingly.

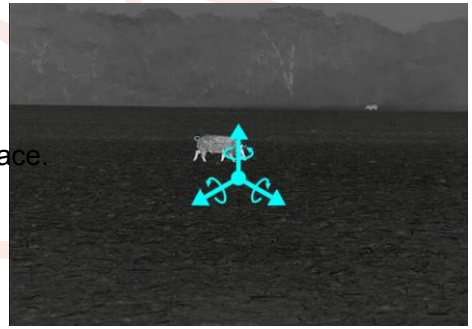
★ When the cursor moves near the PIP window, the PIP and the content on the right will automatically move to the top left corner.

★ After making the correction, press and hold the **controls (4)** until you are prompted **"Do you want to keep these settings?"** will be displayed.

★ Turn the **rotary pushbutton (4)** and select **'Yes'** to save and exit, or select **'No'** to cancel save and exit.

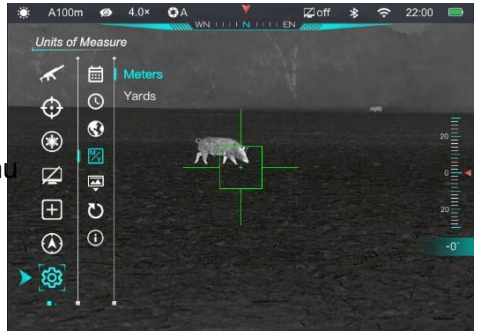
★ Press the **rotary pushbutton (4)** briefly to confirm the selection.

★ If **Yes is selected**, a 5-second save countdown will appear on the screen. When **"Saving successful"** is displayed, the to consider the save complete, then return to the home page.

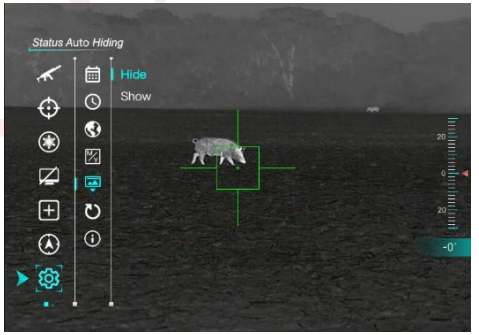
Calibrating the compass	**Digital compass calibration** ★ Turn the **rotary pushbutton (4)** to select **"Compass Calibration"** from the main menu. ★ Press the **rotary pushbutton (4)** briefly to enter the **Compass Calibration** interface. ★ □□ icon similar to the three-axis coordinate system will appear on the screen. ★ Within 15 seconds, rotate the probe along the three axes indicated by the icon, with each axis rotating at least 360°. ★ After 15 s, the calibration is automatically completed, exit the home screen. 
Settings	This function is used to set the date, time, language, units of measure, auto-hide status, factory reset, and display device information. ★ Press and hold the **rotary** pushbutton **(4)** to enter the main menu. ★ Turn the **rotary pushbutton (4**) to select **"Settings"**. ★ Press the **rotary push**button **(4)** briefly to enter the submenu. ★ This menu item allows you to configure the following settings: 

	Date	**Setting the system date** ★ Turn the **rotary pushbutton (4)** to select **"Date"**. ★ The date is displayed in YYYY/MM/DD format. ★ □□□□□ □□□ **rotary pushbutton (4)** briefly to activate the date reset function. The two small triangle symbols are displayed above and below "year" by default. ★ Turn the **rotary pushbutton (4)** to set the desired year, month and date. ★ Press the **rotary pushbutton (4)** briefly to switch between digits. ★ After setting, press and hold the **rotary pushbutton (4)** to save the changes and exit the date reset function.

	Time settings 	**Setting the system time** ★ Turn the **rotary pushbutton (4)** to select **"Time"**. ★ Time is displayed in 24-hour format as HH:MM. ★ □□□□□ □□□ **rotary pushbutton (4)** briefly to activate the time reset function. The two small triangle symbols are displayed above and below the hour by default. ★ Turn the **rotary pushbutton (4)** to select the clock value. ★ Press the **rotary push**button **(4)** briefly to continue setting the minutes. ★ Turn the **rotary pushbutton (4)** to select the minute value. ★ After setting, press and hold the **rotary pushbutton (4)** to save the selected time and exit the time reset function. ★ After resetting the time, the icon on the status bar will be updated accordingly.

Language	**Language selection**  ★ Turn the **rotary pushbutton (4)** to select **"Language"** (Language). ★ Press the **rotary pushbutton (4)** briefly to enter the submenu **Language**. ★ Turn the **rotary pushbutton (4)** to switch the language between English and Russian. ★ □□□□□ □□□ **rotary pushbutton (4)** briefly to confirm the selection and exit the submenu. The system language will change automatically.
Units of measurement	**Choice of unit of measurement**  ★ Turn the **rotary pushbutton (4)** to select **"Units of Measure"**. ★ Press the **rotary pushbutton (4)** briefly to enter the submenu **Units of measure**. ★ **Turn the rotary pushbutton (4)** to select the unit of measurement - metres or yards. ★ Short press the **button (4)** to confirm the selection and exit the submenu.

	Automatic state hiding 	**Enable/disable the** automatic status hiding **function** ★ Turn the rotary pushbutton (**4**) to select **"Status Auto** Hiding**"**. ★ Press the **rotary pushbutton (4)** briefly to enter the **Auto Time Hide function.** ★ Turn the rotary pushbutton **(4)** to select **"Hide"** (Hide) or "**Show**". ★ Briefly press the **button (4)** to confirm the selection and exit the submenu. ★ When **Hide** is selected, all GUI icons without sights will be automatically hidden if no operation occurs within 8 s.

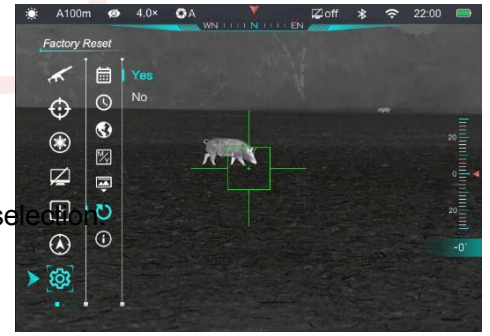


Restore factory settings

To restore the factory default settings

★ Turn the rotary pushbutton (**4**) to select "**Factory Reset**".

★ **Press the controller** button **(4)** briefly to enter the **Factory Reset** submenu.



★ Turn the **rotary pushbutton (4)** to select **Yes** to restore the factory default settings, or **No** to cancellation of the operation.

★ Press the **rotary pushbutton (4)** briefly to confirm the selection.

★ If **Yes** is selected, the device automatically restarts.

★ If **No** is selected, the operation will be aborted and the submenu mode will also be terminated. The following functions will be restored to the default settings:

- **Image mode:** Teplá bílá
- **Zeroing distance:** A100
- **PIP:** Off
- **Ultra-Clear mode:** off
- **Wi-Fi:** Off
- **Calibration mode:** A
- **Shock-activated video:** off

Compass and motion sensor: Off

Bluetooth: off

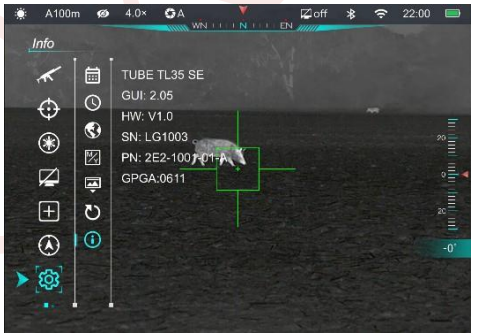
Standby mode: Off

Language: English

Unit of measurement.

Automatic state hiding: Visible

	Information	**Device information displayed** ★ Turn the **rotary pushbutton (4)** to select "**Info**". ★ Short press the **controller** button **(4)** to display relevant information about the device currently in use, including product model, version of the graphical user interfaces, hardware versions, PN and SN numbers of the thermovision, FPGA. ★ Press and hold the **rotary push**button **(4)** to return to the top menu.



17 Automatic state hiding

The TUBE SE series supports automatic hiding of GUI icons and displaying only the viewfinder, so there is no image obscuration.

★ Press and hold the **rotary** pushbutton **(4)** to enter the main menu on the home screen.

★ Turn the **rotary pushbutton (4)** to select "**Settings**".

★ □□□□□ □□□ **rotary pushbutton (4**) briefly to go to the "**Settings**" submenu and turn the **rotary pushbutton (4)** select **"Status Auto Hiding"**.

★ Press the **rotary** pushbutton **(4)** briefly to enter **of the Automatic status hiding** submenu.

★ Turn the **rotary pushbutton (4)** to select **Hide** or **Show**.

★ Press the **rotary push**button **(4)** briefly to confirm the selection and exit the submenu.

★ When **Hide** is selected, all GUI icons including of the status bar will be automatically hidden and only the reticle will be displayed on the image, automatically if no operation occurs within 8 s.

★ GUI icons are displayed by pressing any button.

★ Only after the GUI icons are displayed can the menu icons be manipulated.

18 Wi-Fi features

The TUBE SE series has a built-in Wi-Fi module and can connect wirelessly to a mobile device (laptop or mobile phone) via Wi-Fi.

★ Turn on the Wi-Fi function in the main menu (see **Main Menu** for details) **offer - Wi-Fi**).

★ After turning on the Wi-Fi function, search for a signal on the mobile device Wi-Fi named "Infiray-TUBE_XXXXXX", where XXXXXX is a 6-bit serial number composed of letters and numbers.

★ Select Wi-Fi and enter your password to connect. The initial password is 12345678.

★ Once successfully connected, Wi-Fi supports device content via the **InfiRay Outdoor** app downloaded on your mobile device.

To set a Wi-Fi name and password

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

★ After connecting the thermal image mobile device, click the Settings icon: on the **InfiRay Outdoor** screen to enter the **Settings** interface.

★ Enter and submit a new Wi-Fi name in the text box (SSID) and password.

★ Finally, the device needs to be rebooted to assume the new Wi-Fi name and password.

Note: If the device is reset to factory settings, the Wi-Fi name and password will also be reset to the default settings.

19 InfiRay Outdoor update

The TUBE SE Series thermal imaging camera supports **InfiRay Outdoor** technology, which allows you to transmit images to your smartphone or tablet via Wi-Fi in real-time.

The InfiRay Outdoor User Guide is available for download on our official website (www.infirayoutdoor.com).

Continuous improvements will be made to the application to improve the user experience.

The latest programs can be automatically detected and updated using the InfiRay Outdoor app. It can also be downloaded and updated from the official website: www.infirayoutdoor.com.

About InfiRay Outdoor

★ You can download and install the InfiRay Outdoor app on the official website (www.infirayoutdoor.com) or in the store with apps.

Alternatively, you can scan the QR code and download it for free.

★ After installation, open the InfiRay Outdoor app.

★ If your device is connected to a mobile device, turn on mobile data on the mobile device.

Once connected, the app automatically prompts you to update. Click **Now to** download the latest version immediately, or **Later** to update later.

★ InfiRay Outdoor automatically registers the last connected facility. So once you connect to InfiRay Outdoor before, the app will automatically detect the update.

★ If the update is available and the mobile device is connected to the internet, you can download the app/update. If your device is still connected to the internet, it will automatically update.

★ After installing the update, the device will automatically reboot.

20 Technical inspection

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

★ Outside of the device (no cover crack).

★ Lens and eyepiece (no cracks, oil, stains or other deposits).

★ Rechargeable battery status (pre-charged fully charged) and electrical contact (no salting or oxidation).

21 Maintenance

Maintenance should be carried out at least twice a year and includes the following steps:

★ Using a cotton cloth wipe the surface of plastic parts to remove dust and dirt. Silicone lubricant can also be used for the cleaning process.

★ Clean the electrical contacts and battery slots on the device using a non-greasy organic solvent.

★ Check the glass surface of the eyepiece and lens. If necessary, remove dust and sand on the lens (it is ideal to use

To clean optical surfaces, use a special wiper tool and solvent.

22 Troubleshooting

The following table lists all the problems that may occur during operation of the device. Check and solve the problems by referring to this table. If errors occur that are not listed in this table, or you cannot correct the error, return the equipment to the dealer or supplier for troubleshooting.

Failure	Possible causes	Solution
Thermal imaging cannot be started.	The battery's dead.	Charge the battery.
The device cannot be powered using an external power supply.	The USB cable is damaged.	Replace the USB cable.
	External power supply is insufficient.	If necessary, check the external power supply.
Images are unclear, vertical lines are present in the image or the background is not even.	Calibration is required.	Calibrate images according to the instructions in Chapter XIV of the User's Guide.
The picture is too dark.	The screen is not bright enough.	Adjust the brightness of the display.
The icons are clear, but the image is blurry.	The lens is out of focus.	Rotate the focus ring of the lens to focus the image.
	The inner or outer optical surface of the lens is dusty or frozen.	Wipe the outer optical surface with a soft cotton cloth or allow the thermal imaging camera to dry in a warm, dry environment for more than 4 hours.

The position of the aiming cross shifts after firing.	The thermal sight or clamp is not firmly mounted on the weapon.	Check that the thermowell is firmly mounted. Ensure that the type of bullet and calibre you are using is the same as the function used for zeroing. If you did the zeroing in the summer but use the thermal imaging in the winter (or vice versa), the zero point may have changed slightly.
Thermal imaging cannot be focused.	Configuration error.	Set up the thermowell according to Section VII - Installation and Use. Check the outer surface of the lens and eyepiece, if wipe off any dust and frost. In cold weather, a special antifogging a coating (e.g. the film used on glasses or car rear-view mirrors).
Facilities se cannot connect to a mobile phone or computer.	The Wi-Fi password is incorrect.	Enter the correct password.
	There are too many networks within range of the device Wi-Fi, which can cause signal interference.	To enable stable network access, we recommend moving your device to an area with a limited number of Wi-Fi networks or an area without Wi-Fi coverage.
Wi-Fi signals are lost or interrupted.	The device is outside Wi-Fi coverage. There is a blockage between the device and the receiver (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 the presence of glass.
Quality image quality is poor or the detection range is shortened.	These problems are likely to occur when you use the device in harsh weather (e.g. snow, rain, fog).	
If the device is used at low temperature, the image quality is worse than at normal temperature.	At temperatures above 0 °C, the temperature rise varies depending on the observed objects (environment and background) due to different thermal conductivity coefficients. As a result, the contrast with high temperature is better and the image quality is better. At low temperatures, the observed targets (background) usually cool to a similar temperature due to reduced temperature contrast. Therefore, the image quality (especially details) is poor, which is characteristic of thermal imaging equipment.	

23 Legal and regulatory information

Frequency range of the wireless transmitter module:

WLAN: 2.400-2.500GHz (for EU)

Wireless transmitter module power: <20 dBm (EU only).

InfyRay Technology Co., Ltd. hereby declares that theTube SE series equipment complies with Directives 2014/53/EU and 2011/65/EU.
and other information is available at: www.infirayoutdoor.com.

This equipment can be operated in all EU Member States.

FCC Statement

FCC ID: 2AYGT-2D00

Conditions for FCC designation

This device complies with Part 15 of the FCC Rules. Operation of the equipment is subject to the following two conditions: (1) This equipment shall not cause harmful interference; (2) This equipment shall accept all interference, including interference that may cause undesired operation.

Information for users

Any changes or modifications not expressly approved by the party responsible for authorizing them may void the user's authority to operate the equipment.

Note: The manufacturer is not responsible for any interference to the radio or TV caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to use the equipment.

Note: This device has been tested and found to be compliant with limitations for Class B digital devices under Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a home installation. This equipment may radiate radio frequency e n e r g y when in use and, if not installed and used in accordance with the instructions, may cause harmful interference to radio

communications. However, there is no guarantee that such interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception that can be detected by turning the equipment off and on, the user is advised to attempt to correct the interference by one or more of the following measures:

★ Change the orientation or location of the receiving antenna.

★ Increase the distance between the device and the specific receiver.

★ Connect the device to an outlet in a different circuit than the one to which the receiver is connected.

★ Ask your dealer or an experienced radio/TV technician for help.

This equipment complies with the FCC radio frequency exposure limits for uncontrolled environments.

Wearing on the body

This device has been tested for typical human body functions. A minimum distance of 0.5 cm must be maintained between the user's body (and the handset), including the antenna, to meet RF exposure requirements. Belt clips, holsters and similar accessories used with this device should not contain any

metal parts. Accessories that do not meet these requirements may not meet the RF exposure requirements and should be avoided.

Use only the supplied or approved antenna.