

Pulsar Thermion 3 LRF XR60/XT60

manual

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Specifications

Model	**LRF XR60**	**LRF XT60**
SKU	76589	76590
Microbolometer		
Type	uncooled	uncooled
Resolution, pixels	640×480	1280×1024
Pixel Pitch, µm	12	12
Sensor NETD, mK	<30	<40
System NETD, mK	<18	<20
Frame refresh rate, Hz	50	50
Optical Specifications		
Lens, mm	F60 F/1.0	F60 F/1.0
Magnification, x	4-40	2–24
Eye relief, mm/inch	65 / 2.6	65 / 2.6
Field of view (H), °/m@100	7.3 / 12.8	14.6 / 25.7
Diopter adjustment, D	-4.5/+3.5	-4.5/+3.5
Detection distance (Object of “deer” type), m/y	2950/3226	2950/3226
Aiming Reticle		
Click value, mm@100 m – when magnifying, x	10 mm – 4x 5 mm – 8x 2.5 mm – 16x 1.2 mm – 32x 1 mm – 40x	20 mm – 2x 10 mm – 4x 5 mm – 8x 2.5 mm – 16x 1.7 mm – 24x

Click range (H/V), mm@100 m	2000/2000	4000/4000
Display		
Type	AMOLED	AMOLED
Resolution, pixels	2560×2560	2560×2560
Operating Features		
Diameter of the riflescope body to assemble the mounting rings, mm	30	30
Power Supply, V	3–4.2	3–4.2
Battery type / Capacity / Rated Output Voltage	Li-Ion Battery Pack APS5 / 4900 mAh / DC 3.7 V (removable)	Li-Ion Battery Pack APS5 / 4900 mAh / DC 3.7 V (removable)
	Li-Ion Battery Pack APS5 4900 mAh / DC 3.7 V (built-in)	Li-Ion Battery Pack APS5 4900 mAh / DC 3.7 V (built-in)
External Power Supply	5 V, 9 V (USB Type-C Power Delivery)	5 V, 9 V (USB Type-C Power Delivery)
Battery Packs (built-in APS5 and removable APS5) operating time at temp. = 22 °C, hrs*	14	8
Max. recoil power on rifled weapon, Joules	6000	6000
Degree of protection IP code (IEC60529)	IP67	IP67
Operating temperature, °C / °F	-25 – +50 / -13 – +122	-25 – +50 / -13 – +122

Dimensions, mm/inch	391x96x76 / 15.4x3.8x3	391x96x76 / 15.4x3.8x3
Weight (with removable battery), kg/oz	1.36 / 48	1.36 / 48
Video Recorder		
Photo / video resolution, pixels	1280x960	1280x960
Video / photo format	.mp4 / .jpg	.mp4 / .jpg
Built-in memory	128 GB	128 GB
Wi-Fi Channel**		
Frequency	2.4/5 GHz	2.4/5 GHz
Standard	IEEE 802.11 b/g/n/ac	IEEE 802.11 b/g/n/ac
Bluetooth		
Wireless Protocol	BLE 4.2	BLE 4.2
Laser Rangefinder		
Wavelength, nm	905	905
Max. Measurement Range, m/y***	1200 / 1312	1200 / 1312
Measurement Accuracy, m	1	1

* The actual operating time depends on the intensity of using Wi-Fi, video recorder, Bluetooth and laser rangefinder.

** The reception range may vary depending on various factors: obstacles, other Wi-Fi networks.

*** Depends on the characteristics of the object under observation and environmental conditions.

About the device

Description

Thermion 3 LRF thermal imaging riflescopes are designed for use both at night-time and during the day. They provide exceptional image quality even in adverse weather conditions such as fog, smog and rain without being hindered by obstacles like branches, tall grass, dense foliage, or other debris.

Unlike riflescopes based on electrical-to-optical converters, thermal imaging riflescopes do not require an external light source and are resistant to high levels of illumination.

The riflescopes are equipped with a high precision built-in laser rangefinder which allows distance measurement up to 1200 meters.

These riflescopes are designed for hunting, target shooting and recreational shooting, observation and orientation.

To get started, see the sections:

Battery Charging

Battery Installation

Mounting on the Rifle

Powering on and Image Setting

Zeroing

Using the Laser Rangefinder

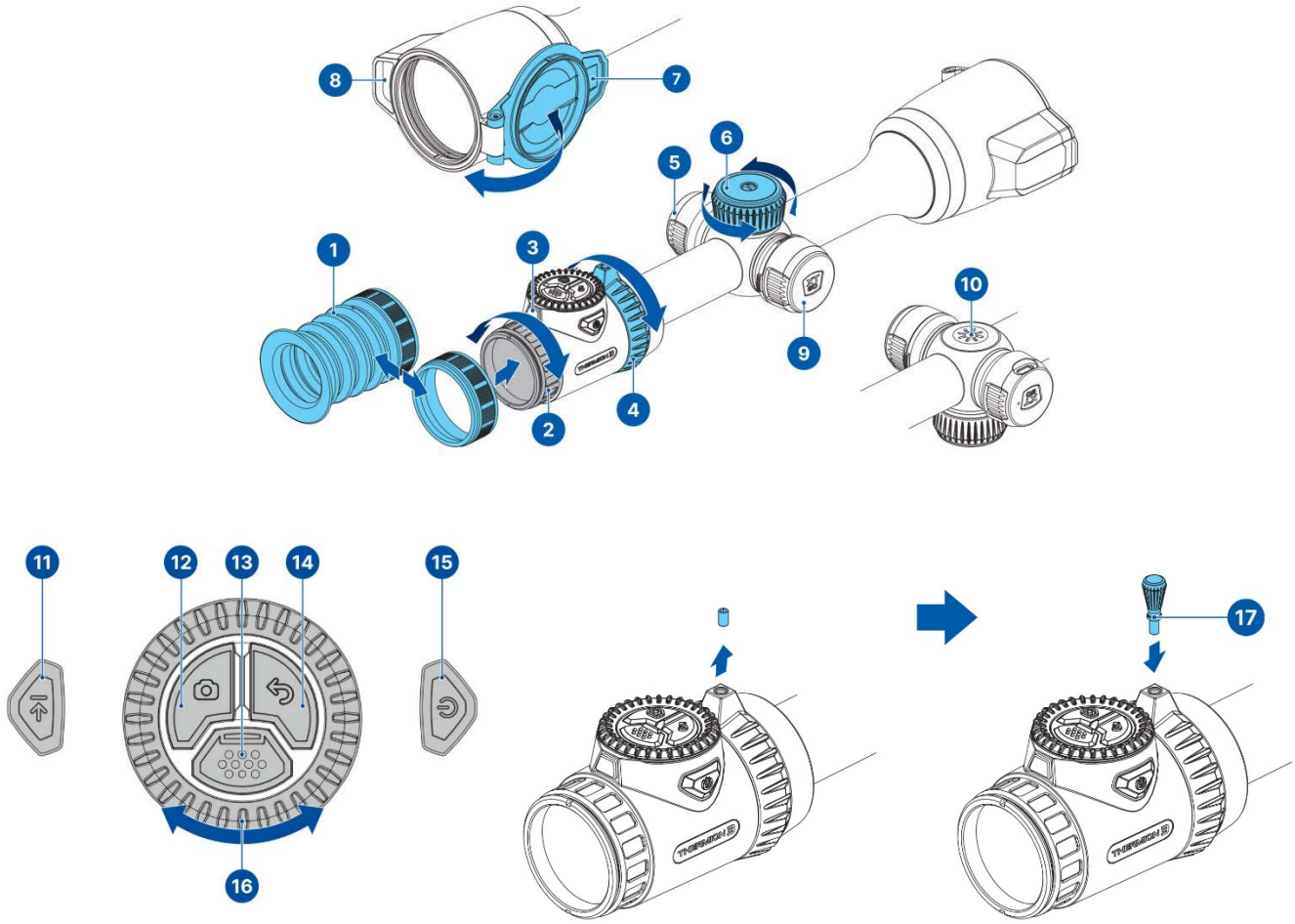
Stream Vision 2

Ballistic Calculator

Package Contents

- Thermal imaging riflescope
- Removable rubber day eyecup
- Removable rubber night eyecup
- Zoom ring lever
- APS5 rechargeable battery pack
- APS5 battery charger
- Power adapter
- Remote control
- USB Type-C cable with Type-A adapter
- Carrying case
- Lens cleaning cloth
- Quick Start Guide
- SV Ballistics Quick Start Guide
- Warranty card

Components and Controls



1. Eyecup
2. Eyepiece diopter adjustment ring
3. Proximity sensor
4. ZOOM ring
5. USB Type-C port
6. Lens focus control
7. Lens cap
8. Laser rangefinder
9. Battery compartment
10. Microphone
11. LRF button
12. REC button
13. MENU button
14. BACK button
15. ON/OFF button
16. Controller ring
17. Zoom ring lever

Features

- Premium image quality
- Classic design with 30mm tube mounting
- Ergonomic controls
- Top turret wheel focusing
- Precise built-in laser rangefinder
- Integrated ballistic calculator
- High recoil resistance
- Recoil activated video recording
- High contrast AMOLED screen
- Safe eye relief
- Advanced graphic user interface

Auxiliary Features

- 3 Sensitivity amplification levels (Normal, High, Ultra-high)
- 9 Color palettes
- 3 Calibration modes (Automatic, Semi-automatic, Manual)
- Smoothing filter for noise reduction
- Picture-in-Picture function
- Circular display shape
- Display dimming function
- 10 levels of overlay brightness
- Target position angle indication
- Side incline angle indication
- True horizontal distance indication
- Defective pixel repair function
- Proximity sensor activated Display off function
- USB-C video output
- 10 Reticle shapes
- 11 Reticles color options

- 10 Levels of reticle brightness
- 10 Zeroing profiles
- Bluetooth remote control support
- Shot detection using Stream Vision 2 app

Video Recording

- Built-in photo and video recorder with audio
- 128 GB internal memory
- iOS and Android compatible
- Storing photos and videos in Cloud when using the Stream Vision 2 App

Battery Pack

- Quick-change rechargeable Li-Ion 4900 mAh Battery Pack APS5
- Charging via USB Type-C port

Power supply

Precautions

- Always use the APS 5 charger supplied with the device (or purchased separately) to charge the APS 5 Battery Pack. The use of any other charger may irreparably damage the Battery Pack or the charger and may cause fire.
- Do not charge the Battery Pack immediately after bringing it from a cold environment to a warm one. Wait for 30-40 minutes for the Battery Pack to get warm.
- Do not leave the Battery Pack unattended while charging.
- Never use a modified or damaged charger.
- Do not leave the Battery Pack with a charger connected to the power adapter after charging is complete.
- Do not expose the Battery Pack to high temperatures or an open flame.
- Do not submerge the Battery Pack in water.
- Do not connect an external device with a current consumption that exceeds permitted levels.
- Do not dismantle or deform the Battery Pack.
- Do not drop or hit the Battery Pack.
- Keep the Battery Pack out of the reach of children.

Recommendations for battery use

- During long-term storage, the Battery Pack should be partially charged – the charge level should be between 50% and 80%.
- Charge the Battery Pack at a temperature from 0° C to +45° C (32° F to +113° F), otherwise the battery life will decrease significantly.
- When using the Battery Pack at sub-zero (sub 32° F) temperatures the battery capacity decreases. This is normal and is not a defect.
- Do not use the Battery Pack at temperatures above those shown in the table – this may decrease battery life.
- The Battery Pack is short circuit protected; however, any situation that may cause short-circuiting should be avoided.

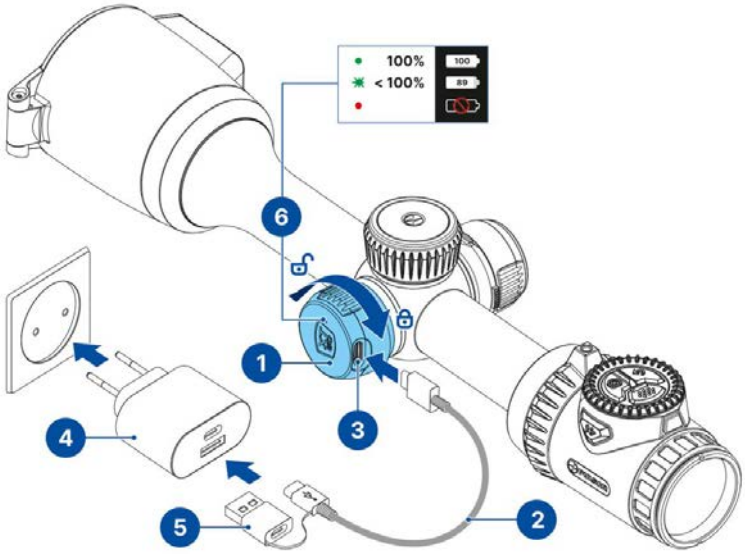
Battery charging

Thermion 3 LRF thermal imaging riflescopes come with a built-in rechargeable lithium-ion Battery Pack APS5 and a removable rechargeable lithium-ion APS5 Battery Packs. The batteries should be charged before first use.

The icons 

in the status bar will flash when the battery is low. The batteries need to be charged.

Option 1



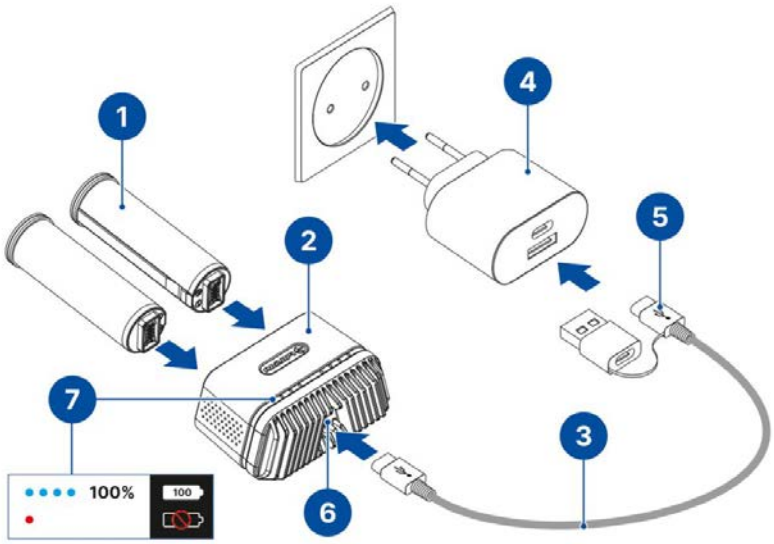
1. Install the APS5 battery in the battery compartment of the device.
2. Open the USB Type-C connector of the device by turning the cover **(1)** anticlockwise.
3. Connect the USB cable **(2)** to the USB Type-C connector **(3)** of the device.
4. Connect the other end of the USB cable **(2)** to the Power Adapter **(4)** by removing the USB Type-A adapter **(5)**.
5. Plug the Power Adapter **(4)** into a 100-240 V socket**.**
6. Wait until the battery is fully charged (indication in the status bar: 

).
7. Disconnect the USB cable **(2)** and close the cover **(1)** by turning it clockwise.

Note: on the cover **(1)** there is a light-emitting **(6)** diode to indicate the battery charge level when the device is switched off.

LED indication	Battery status
✳	Battery is charging
●	Battery is charged
●	Defective battery. **Do not use the battery!**
–	The device is switched on

Option 2



1. Insert the APS 5 battery **(1)** along the guide into the APS 5 charger* **(2)** slot as far as it will go. The APS 5 charger is supplied with your device or purchased separately.
2. Connect the other end of the USB Type-C cable **(3)** to the Power Adapter **(4)** by removing the USB Type-A adapter **(5)**.
3. Plug the Power Adapter **(4)** into a 100-240 V socket**.**
4. Connect the other end of the USB Type-C cable **(3)** to the USB Type-C connector **(6)** of the charger.
5. LED indicators **(7)** will display the battery charge level (see Table).
6. Wait until the battery is fully charged (LED indication **(7)**: ● ● ● ●).

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

LED indication in the battery charging mode	Battery Level
	Battery charge level is from 0% to 25%
	Battery charge level is from 26% to 50%
	Battery charge level is from 51% to 80%
	Battery charge level is from 81% to 99%
	Battery is fully charged. Charging will automatically stop. The battery can be disconnected from the charger.
	Defective battery. **Do not use the battery!**

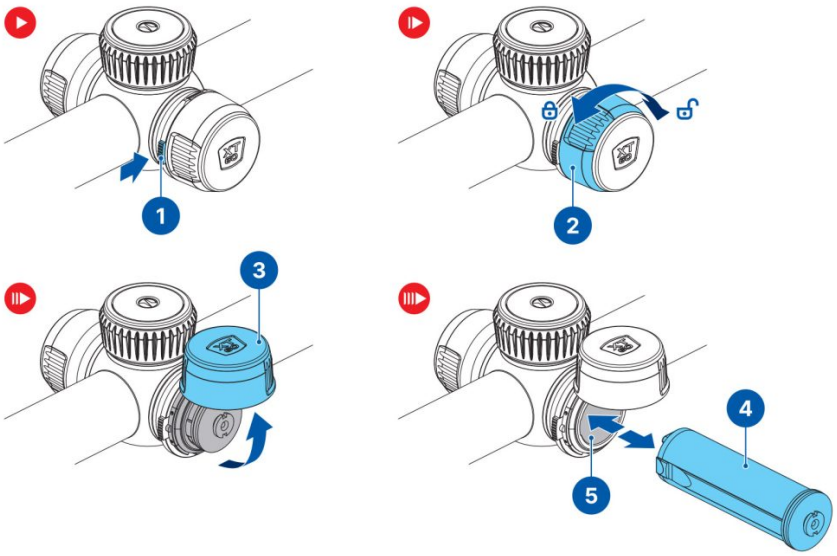
LED indication in the standby mode*	Battery Level
	Battery charge level is from 0% to 25%
	Battery charge level is from 26% to 50%
	Battery charge level is from 51% to 80%
	Battery charge level is from 81% to 99%
	Battery is fully charged. It can be disconnected from the charger.
	Defective battery. **Do not use the battery!**

* Standby mode is when the batteries are in the charger but the Power Adapter is not connected. In this mode, the indicators are only on for 10 seconds.

Attention! When using a Power Adapter that does not support USB Power Delivery fast charging technology, the flicker frequency of the LED indicators decreases by a factor of 3 and the charge time increases.

Attention! The charger heats up during fast charging. Excess heat is removed through the radiator and does not affect the device operation.

Battery installation



1. Push the button **(1)**.
2. Turn the battery cover ring **(2)** anticlockwise and open the battery cover **(3)**.
3. Insert the battery **(4)** along the guide in the battery compartment **(5)** and push it in until it stops.
4. Close the battery cover **(3)** and turn the battery cover ring **(2)** clockwise.

Switching and changing the batteries

Thermion 3 LRF riflescopes are powered by 2 batteries: a built-in APS5 internal battery and a removable APS5 battery.

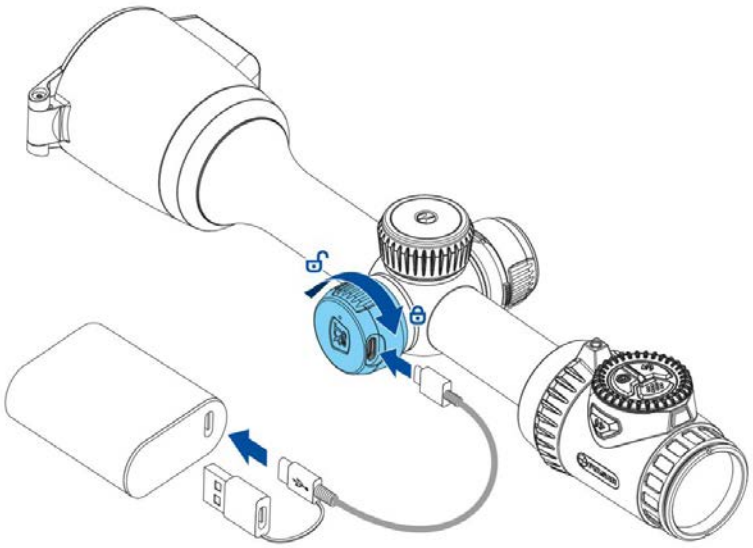


1. If there are two batteries in the device, two battery icons are displayed in the status bar (1 – built-in battery, 2 – removable battery). The device battery is displayed in grey and white; it is grey when inactive.
2. When there is no removable battery in the device, only one icon for the built-in battery displays in white in the status bar.
3. When both batteries are fully charged, the device is powered by the removable battery. If there is low removable battery level, the device will switch to the built-in battery.
4. Battery charge level is displayed in % above the icon in the status bar while charging.
5. It is possible to replace the removable battery even while the device is on.

Attention! When installing a removable battery with a sufficient charge level, the device will automatically switch to it.

External power supply

Power can be supplied from an external source such as a 5 V or 9 V power bank.



1. Connect the external power supply to the USB Type-C port of the device.
2. The device switches to external power source, while built-in and removable batteries will gradually recharge.
3. The display will show the battery icon 

with charge level as a percentage.
4. If the device is powered by an external power supply, but the APS5 battery is not connected, an icon 

is shown.
5. When the external power supply is disconnected, the device switches to the LPS7i battery without powering off.

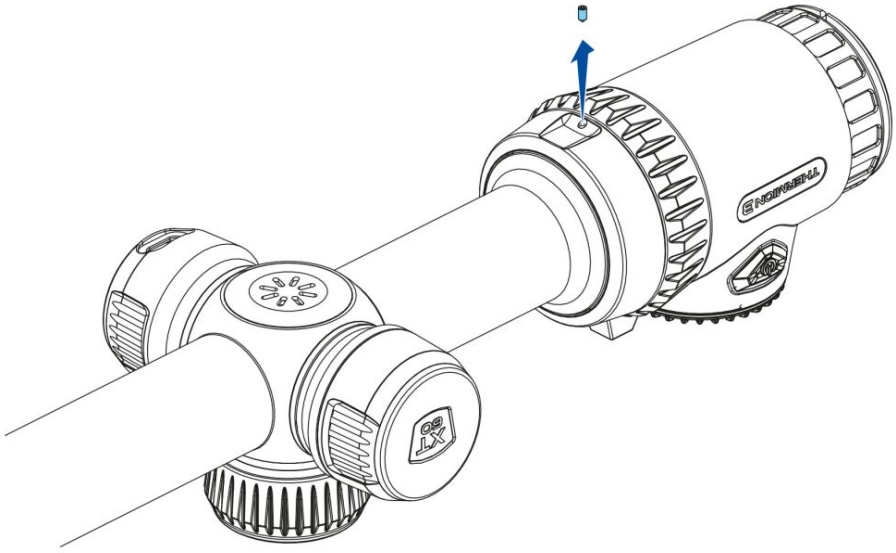
Warning! Charging the APS 5 batteries from the power bank at an external temperature below 0 °C (32 °F) can reduce the battery life. When using external power, connect the Power Bank to the device after it has been turned on and working for several minutes.

Internal battery replacement

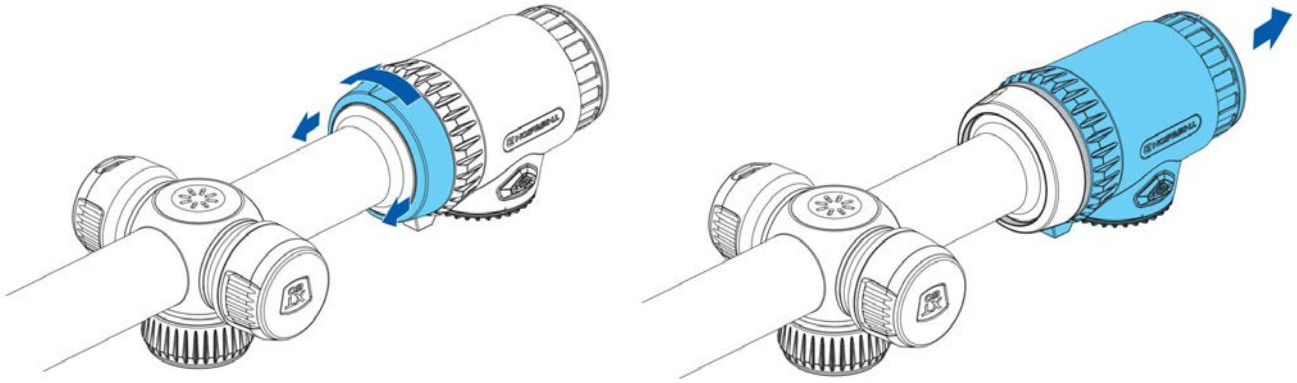
DISCLAIMER:

- For safety and reliability, we recommend having the battery replaced by a qualified professional or an authorized service center.
- Removing the internal battery without reinstalling it will reduce the operating time of the device compared to the specifications.

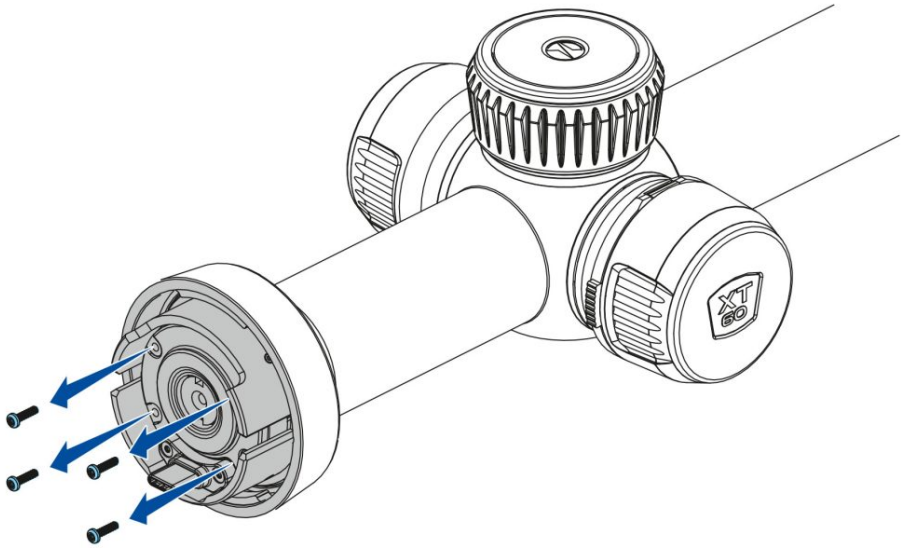
1. Loosen the M2×4 DIN 914 eyepiece fixing ring screw using a 0.9 mm hex screwdriver.



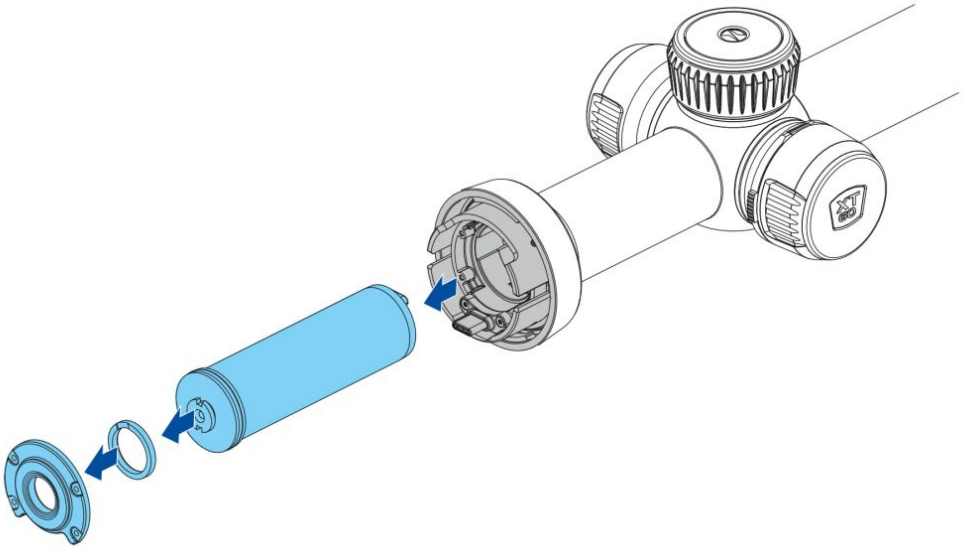
2. Turn the eyepiece fixing ring clockwise and remove the eyepiece.



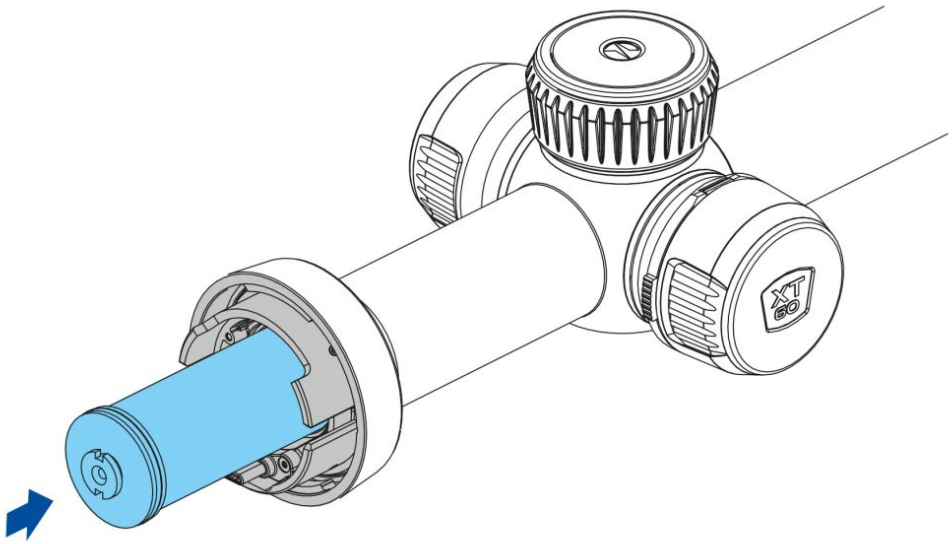
3. Unscrew the four TX5 screws.



4. Remove the plastic cover and take out the battery.



5. Insert the new APS5 battery along the guide until it stops.



6. Reinstall the cover and screws, then refit and secure the eyepiece by reversing steps 1–4.

7. To confirm correct installation, switch on the riflescope and make sure that battery No. 1 is shown in the status bar.



Getting started

Powering on and Image Setting

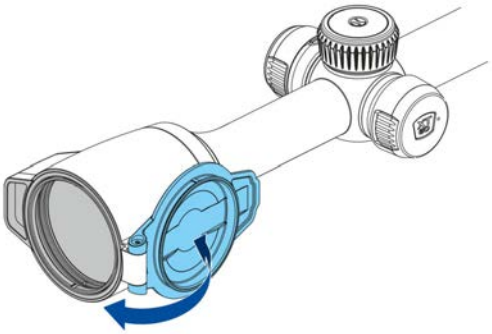
Recommended: When using the device for the first time, it is recommended to connect to the Stream Vision 2 app and check for firmware updates. If a newer version is available, the software should be updated.

Charging the Battery

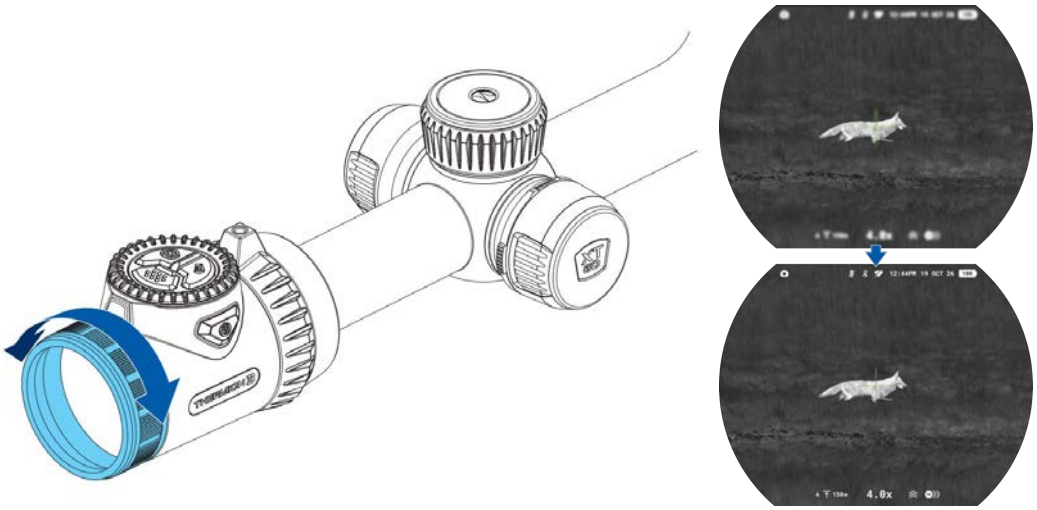
- Charge the battery before the first use.
- Insert the battery into the battery compartment.

Power On and Image Setup

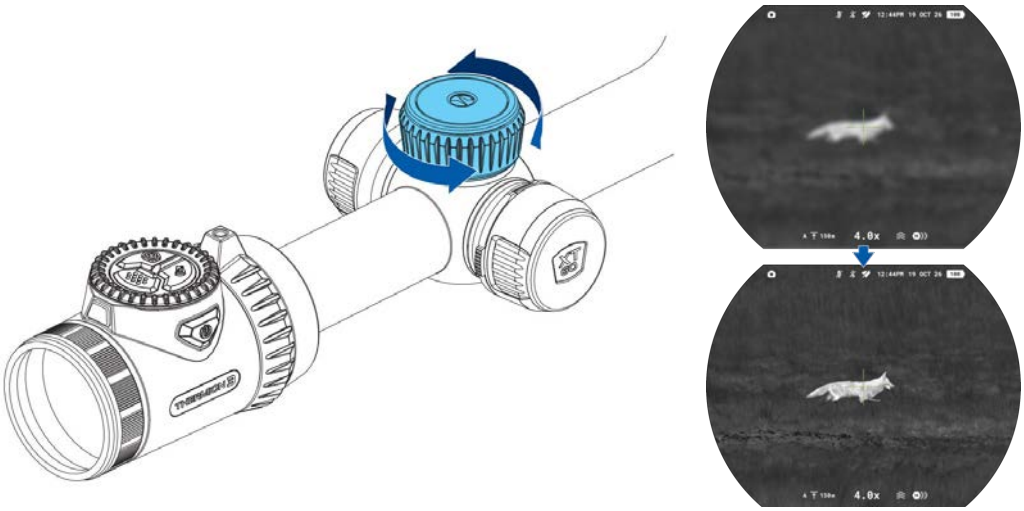
- Open the lens cap.



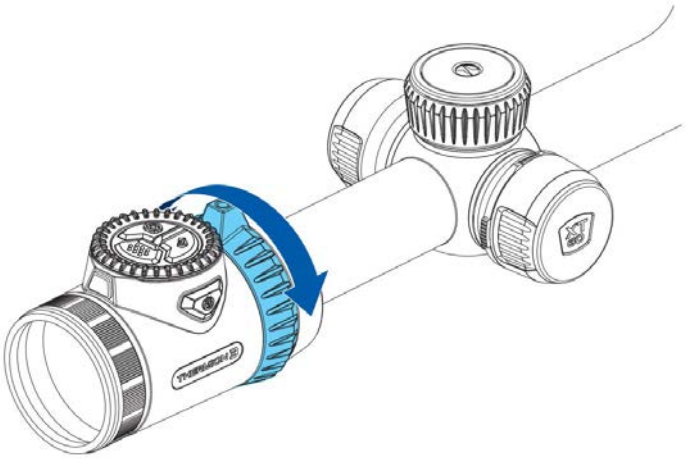
- Press and hold the **ON/OFF**  button to switch on the device.
- Adjust the sharp image of the symbols on the display by rotating the diopter adjustment ring of the eyepiece.



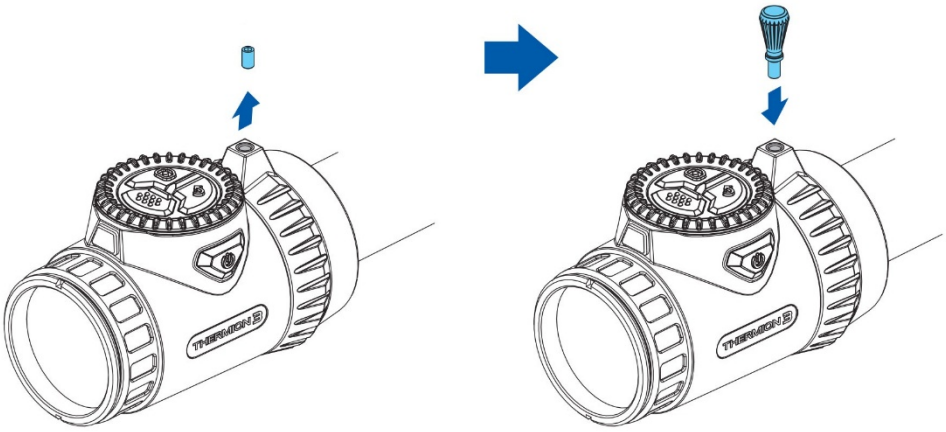
- To focus on the observed object, rotate the lens focus knob.



- Select the calibration mode : **manual**, **semi-automatic**, or **automatic** in the main menu (accessed by long-pressing the MENU button).
- Calibrate the image by briefly pressing the **ON/OFF** button (if the **semi-automatic** or **manual** calibration mode is selected). Close the lens cap before manual calibration.
- Select the desired amplification level in the quick menu (activated by briefly pressing the MENU button).
- To improve the thermal image when the amplification level is increased, activate Smoothing in the main menu.
- Select one of the color palettes by short-pressing the **BACK** button.
- If necessary, adjust the display brightness and contrast in the quick menu.
- To smoothly change the magnification, rotate the Zoom Ring.



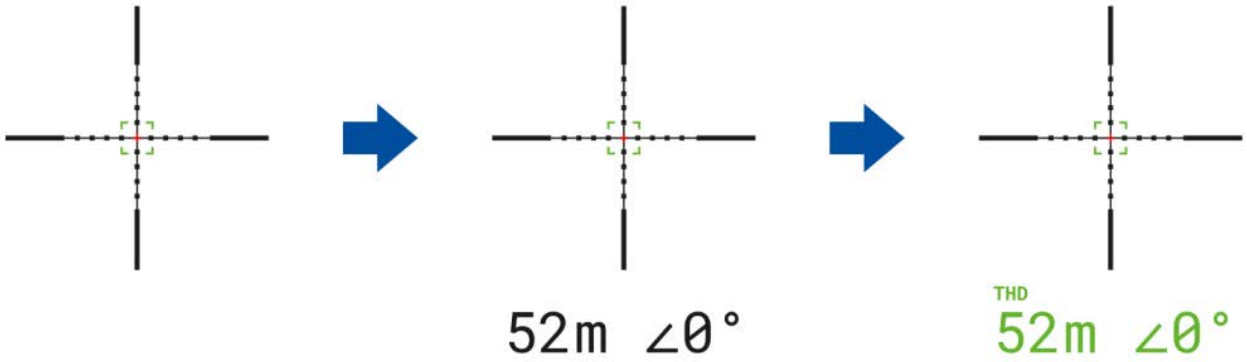
For easier zoom adjustment, unscrew the pin from the Zoom Ring and screw the lever into the same socket.



- To change the riflescope magnification in steps, press the **BACK** button sequentially.

Observation conditions: time of day, weather, and type of observed objects affect image quality. To achieve the desired quality in a specific situation, you can use custom settings for brightness, display contrast, and the function for adjusting the microbolometer sensitivity amplification level.

Laser Rangefinder



- Briefly press the **LRF** button to turn on the rangefinder. A rangefinder mark will appear in the centre of the display.
- Briefly press the **LRF** button to measure the distance. If the rangefinder is not used for more than 10 seconds after measuring, it will turn off automatically.
- To measure distance in scan mode, press and hold the **LRF** button for 2 seconds.

Proximity Sensor

- To prevent accidental user exposure, the display automatically turns off when the device is moved away from the face.
- When the device is brought close to the face, the display turns on automatically.
- The proximity sensor can be enabled or disabled in the main menu (**Device settings** -> Proximity sensor).

Power Off

- After use, turn off the riflescope by long-pressing the **ON/OFF** button.

Mounting on the rifle

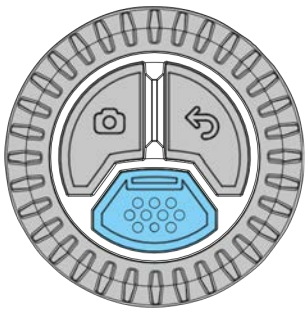
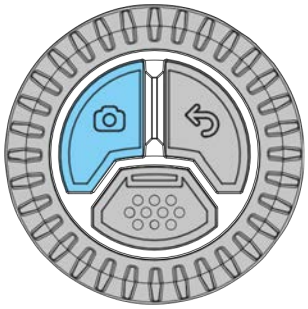
To ensure accurate shooting the **Thermion 3 LRF** riflescope should be properly mounted on the rifle.

- Mount the riflescope with 30mm scope rings or a single-piece scope mount, purchased separately. Use only high-quality mounts and rings compatible with your rifle. Follow the mount manufacturer's installation instructions and use the proper tools.
- When mounting the riflescope, adjust the position of the scope on the rifle to achieve optimal, comfortable eye relief as specified by the technical specifications. Failure to comply with this recommendation may result in injury to the shooter.
- Install the riflescope as low as comfortably possible without contacting the barrel or receiver.
- In order to avoid pinching the riflescope body, tighten ring screws to a maximum of 2.5 Nm (22.1 in.-lbs). Using a torque wrench is recommended.
- Using the included eyecup is recommended to increase camouflage and avoid detection. The eyecup is mounted on the riflescope's eyepiece via integral magnets.
- Before using the riflescope (especially for hunting), follow instructions in the Zeroing section.

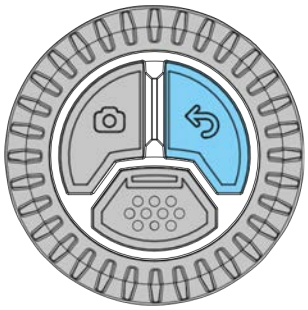
Button operation

– Short press

– Long press

Controls	Action
ON/OFF 	Microbolometer Calibration Power on/off / Display off
MENU 	Quick menu / Back Main menu / Back
REC 	Photo / Video recording Toggle photo / Video mode

BACK/ZOOM



- Switching palettes / Back
- PiP mode / Back

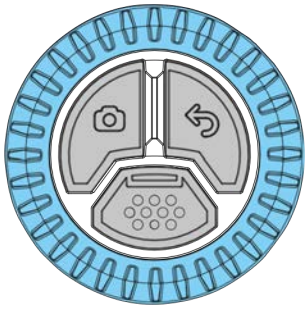
LRF



- Rangefinder activation / Single distance measurement / Ballistic calculator
- Rangefinder Scan Mode

Double press: Disable SPOA of ballistic calculator

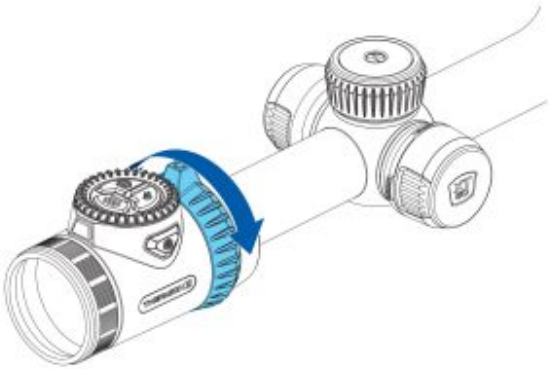
CONTROLLER RING



Rotation:

- Parameter change
- Menu navigation

ZOOM RING

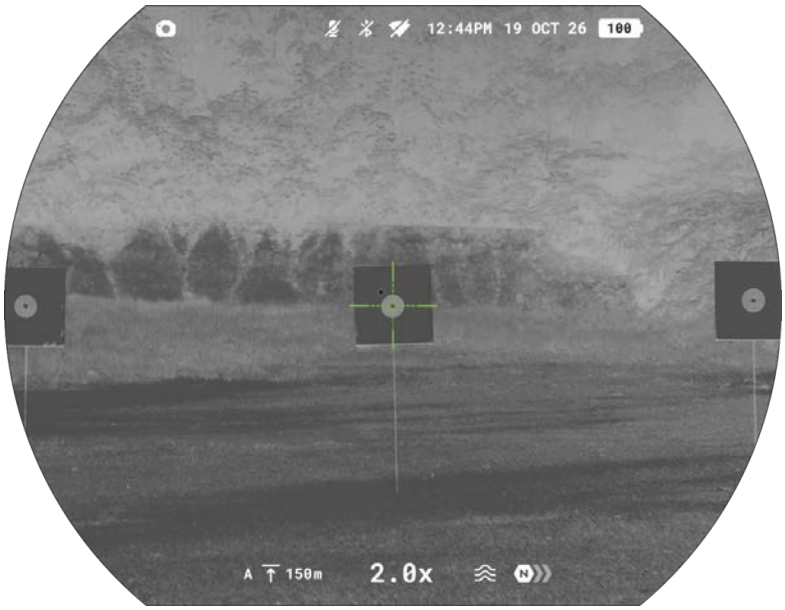


Rotation: Smooth digital zoom

Zeroing

It is recommended to perform zeroing at a temperature close to the operating temperature of the riflescope.

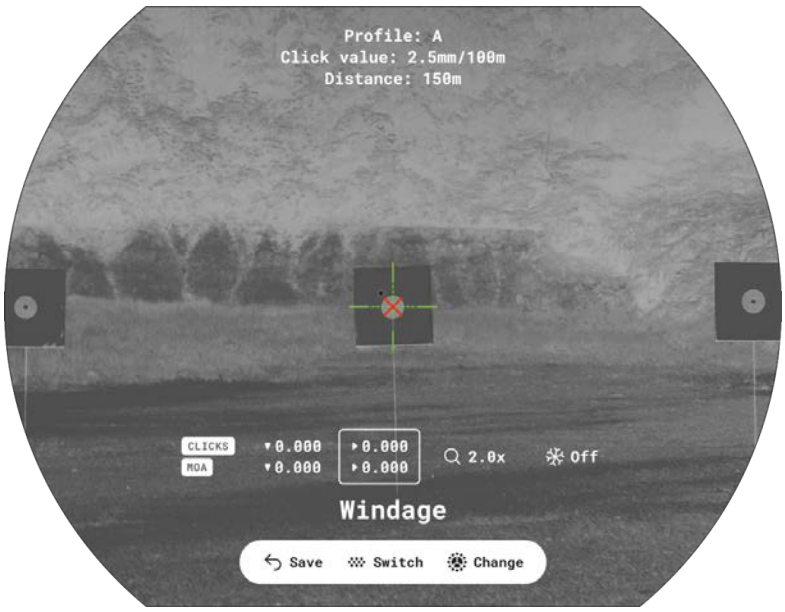
Step 1. Take a shot



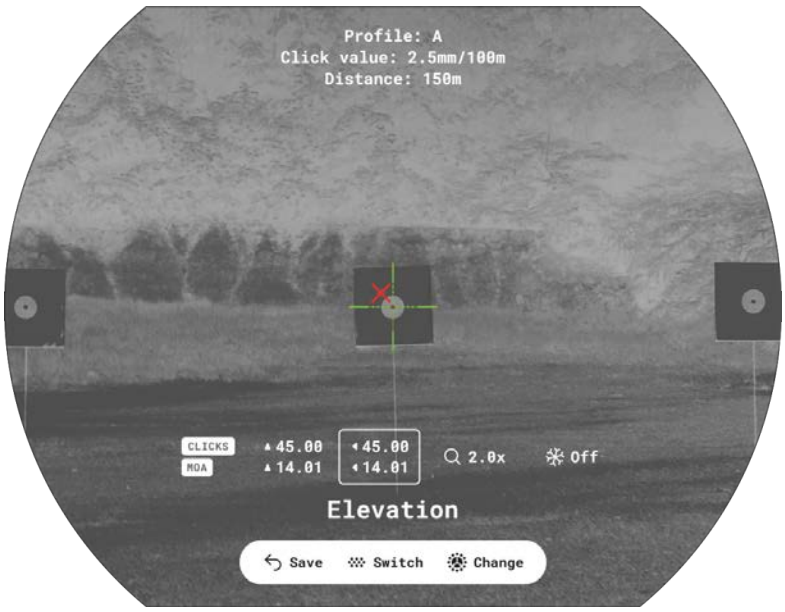
1. Mount the rifle with the riflescope installed on a bench rest.
2. Set the target at the zeroing distance.
3. Adjust the riflescope according to the **Powering on and Image Setting** section.
4. Select the zeroing profile (see **Aiming & Zoom Controls** -> Reticle & Zeroing -> **Zeroing Profile** main menu item)
5. Aim the rifle at the centre of the target and take a shot.

Step 2. Align the reticle with the point of impact

1. Add a distance: Go to the main menu → **Aiming & Zoom Controls** → **Reticle & Zeroing** → **Add new distance**, and set the zeroing distance value.
2. Save the distance value by pressing the **BACK** button.
3. Briefly press the **MENU** button to switch between “Elevation” and “Windage”.



4. While holding the reticle on the aiming point, rotate the controller ring to align the auxiliary cross with the of impact.



One-shot “Freeze image” function

To avoid holding the reticle at the initial aiming point you can freeze the image. Activate the function on the zeroing screen in one of two ways:

- Briefly press the **REC** button before starting to adjust the zeroing coordinates.
- Select the “Freeze image” option by briefly pressing the **MENU** button and rotate the controller ring to activate/deactivate the function.

The image will be “frozen”.

Zoom Zeroing function

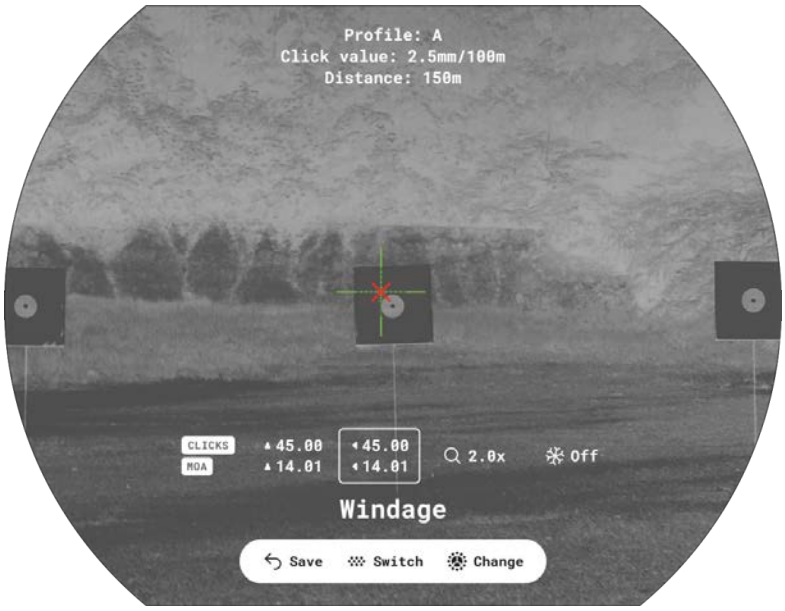
To improve the accuracy of zeroing, you can change the magnification inside the zeroing menu:

- Rotate the ZOOM ring during zeroing to change the magnification in steps.

The larger the magnification, the smaller the step of shifting the reticle on the display relative to the image from the sensor.

Model	**XR60**	**XT60**
Click value, mm@100 m – when magnifying, x	10 mm – 4x 5 mm – 8x 2.5 mm – 16x 1.2 mm – 32x 1 mm – 40x	20 mm – 2x 10 mm – 4x 5 mm – 8x 2.5 mm – 16x 1.7 mm – 24x

Step 3. Save the zeroing coordinates



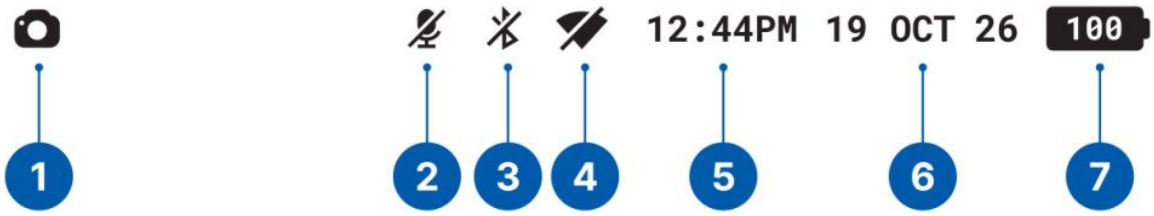
1. To save the new reticle position, press the **BACK** button.
2. Exit the zeroing menu by pressing the **BACK** button.
3. Fire a second shot – now the point of impact and the aiming point should coincide

Notes:

- After zeroing, the reticle may not be in the center of the display.
- The range of movement of the riflescope reticle allows you to successfully zero the riflescope, even on mounts that are far from ideal, minimizing the possible disadvantages of the mounts. The better the mount is installed, the less you have to move the reticle. We recommend mounting the riflescope as low as possible.
- In the **Reticle & Zeroing** menu, you can select the zeroing profile, reticle type, and reticle color.
- In the submenu **Reticle & Zeroing** -> **Distance**, you can rename distances, set any distance as Primary, or delete them as needed.

Interface

Status Bar



1. Photo/video recorder
2. Microphone
3. Bluetooth
4. Wi-Fi connection
5. Time
6. Date
7. Power indication:



– charge level of the internal and removable battery.

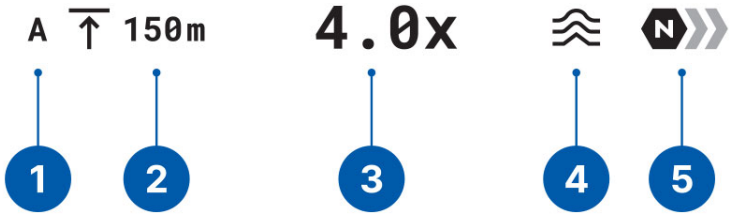


– charge level if the device is charging and powered by a battery



– the device operates on an external power supply but is not charging


– low battery charge



1. Zeroing profile
2. Zeroing distance
3. Magnification
4. Smoothing filter
5. Amplification level

Quick Menu

The Quick Menu gives you instant access to the most important device settings, letting you adjust key parameters quickly without opening the main menu. It’s designed for fast, on-the-go changes to brightness, contrast and sensitivity amplification levels, as well as for adjusting the zeroing distance and ballistic calculator settings.



How to open the Quick Menu:

- Briefly press the **MENU** button.

Navigation:

- To switch between settings, press the **MENU** button repeatedly.

Available settings:

- **Brightness** **:** Rotate the controller ring to set the display brightness level from 0 to 20.
- **Contrast** **:** Rotate the controller ring to set the display contrast level from 0 to 20.
- **Sensitivity amplification levels** **:** Select one of three levels for thermal imaging — Normal, High, Ultra.

- **Current zeroing distance** : Rotate the controller ring  to switch between zeroing distances for a selected zeroing profile. This option is visible if there are multiple distances in the zeroing profile.
- **Ballistics calculator distance** : Rotate the controller ring  to manually adjust a distance while using the ballistics calculator. This option is visible when ballistics parameters are activated for a current zeroing profile.

How to exit the Quick Menu:

- Press the **BACK**  button or wait 5 seconds for automatic exit.

Main Menu

The main menu provides access to the full range of settings and functions of the device. It includes:

- Aiming & Zoom Controls
- Image settings
- Device settings
- Media
- System settings



1. **To enter the main menu**, press and hold the **MENU** button until the menu appears on the screen.
2. **Navigate through the menu items** by rotating the controller ring .
3. **To select a menu item or confirm selection**, press the **MENU** button.
4. **To return to the previous level or exit the menu**, press the **BACK** button or press and hold the **MENU** button.
5. If no actions are performed within 10 seconds, the menu will close automatically.

Note: When entering the main menu, the background image darkens to improve menu visibility. This is a normal feature and not a defect.

Aiming & Zoom Controls

Reticle & Zeroing

Zeroing profile

This item of the main menu allows you to select one of ten profiles (A, B, C, D, E, F, G, H, I, J) to use. Each profile stores information on the following parameters:

- A set of zeroed distances
- Reticle color
- Reticle type
- Ballistic profile on/off

Different profiles can be used when using the riflescope on different rifles or when shooting with different bullets.

Zeroing profiles cannot be deleted. You can change the parameters of zeroing distances within a profile. You can also change the name of the zeroing profile in the Stream Vision Ballistics App.

Reticle type

This option allows you to select one of 10 available reticle shapes to match your aiming preferences and shooting tasks.

The **X51Fi-300**, **M56Fi**, and **M57Fi** reticles are **scalable** and designed to preserve their ballistic properties at all magnification levels.

Notes:

- When you zoom in or out, the selected scalable reticle automatically adjusts its size on both the display and in recorded video, matching the current magnification level.
- The reticle is scaled on both the main display and in Picture-in-Picture (PiP) mode.

Reticle color

This function  enables you to select the color or color combination of the reticle for optimal visibility in various conditions.

Available options: Black/Red, Black/Green, White/Red, White/Green, Red, Green, Yellow, Blue, Orange, Black/White, White/Black.

Reticle brightness

This function adjusts the reticle brightness  from 1 to 10 to ensure comfortable aiming in different lighting environments.

Add new distance

This item  allows you to add a new distance to a zeroing profile. For more details, see the Zeroing section.

Ballistics

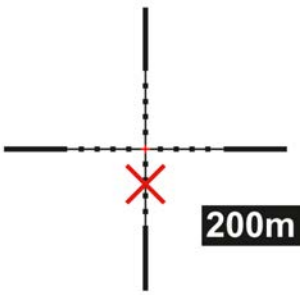
Activation

The item enables/disables the Ballistic calculator function to show the recommended aiming point and correction values. For more information on using the function, see the section Ballistics Calculator.



Distance indication

The “Distance indication” function shows an additional window with the measured distance.



Available options:

- Reticle mark – shows near the rangefinder reticle
- SPOA mark – shows near the ballistics calculator reticle.
- Off

SPOA mark type

This option allows you to select the shape of the Suggested Point of Aiming (SPOA) reticle for the Ballistic Calculator. Choose from three reticle shapes to match your shooting needs.



Notes:

- MilLine is a line with 1 mil grooves. It scales as the magnification changes. It is designed for shooting with aiming off for adjustment depending on wind direction: the entire line moves vertically. As for the horizontal direction, you can navigate by grooves. If the weather correction function is turned on, the cross on the line will also move to the side.

SPOA mark color

This option lets you choose the color combination of the SPOA reticle for better visibility in different conditions

Calculator units

Choose units for ballistic corrections:

- MOA
- MRAD
- Click
- mm/cm (default)
- inch

Laser rangefinder

Reticle type

Reticle Type menu item allows you to select one of the three reticle shapes



Target position angle

Function Target Position Angle allows you to measure the angle of target location (angle of elevation). When the function is activated, the angle is shown continuously.



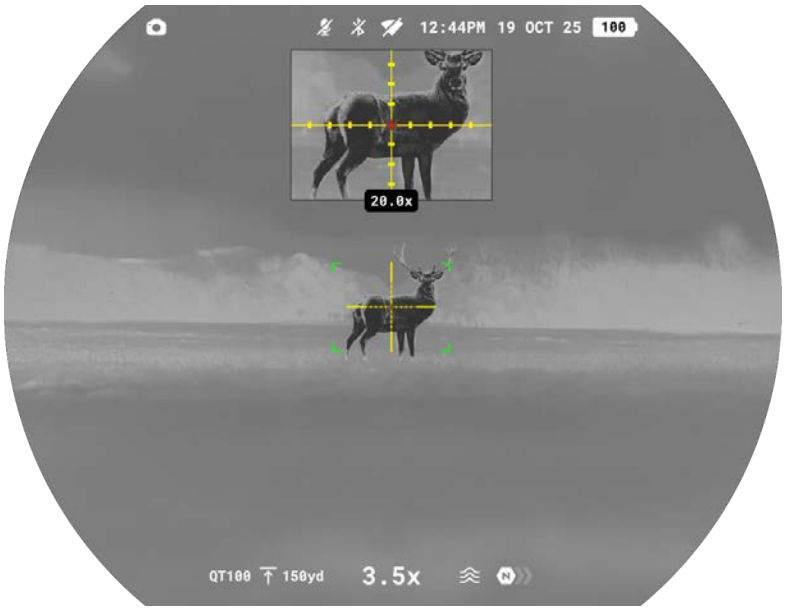
True distance

True Horizontal Distance THD function allows you to measure true horizontal distance to a target based on the angle of elevation value.



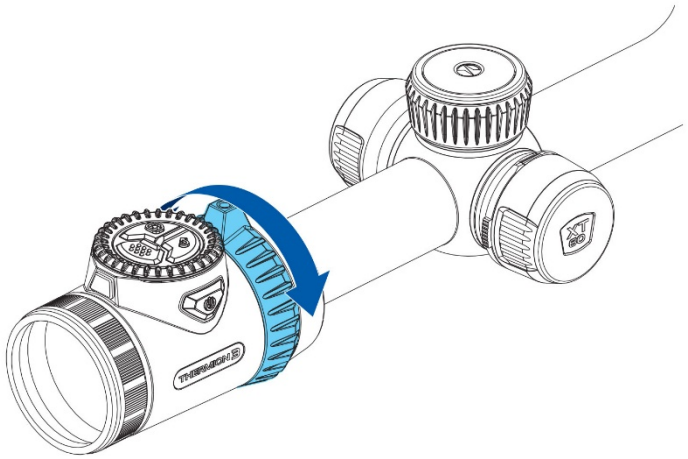
Picture-in-Picture

PiP (“Picture-in-Picture”) allows you to see a zoomed image simultaneously with the main image in a dedicated window.



- Turn on/off the PiP function with a long press of **BACK** button or in the main menu: **Aiming & Zoom Controls** > **Picture-in-picture** PIP.

- Change zoom ratio in the PiP window with a rotation of the Zoom ring.

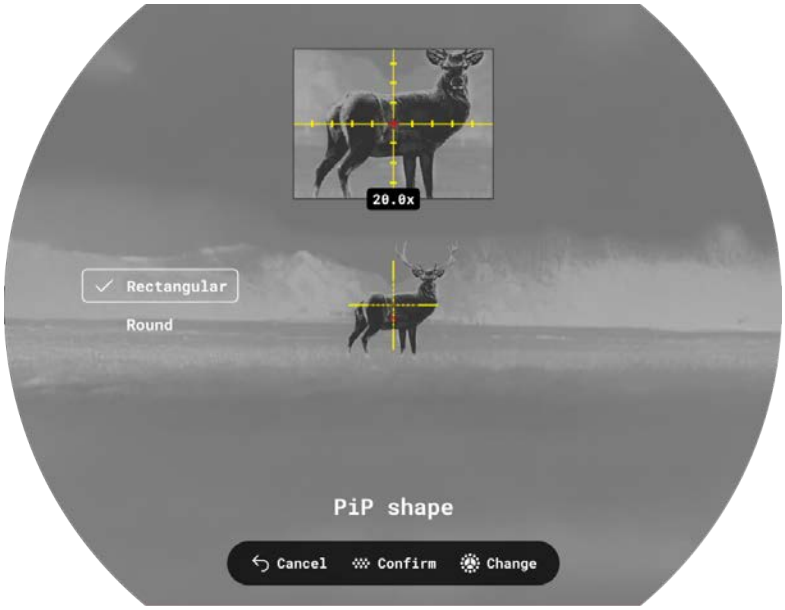


- The zoomed image is displayed in a dedicated window, while the image in the rest of the screen is displayed at base magnification.
- When PiP is turned on, you can operate the discrete and continuous digital zoom. The magnification will take place only in the dedicated window.
- When PiP is turned off, the image is shown with the optical magnification set for the PiP function.

PiP Shape

This menu item PIP allows you to select the shape of the Picture-in-Picture window displayed on the screen. Choose the shape that best suits your preferences and viewing comfort.
Available options:

- **Rectangular** — rectangular window at the top of the screen



- **Round** — round window in the center of the screen



Image Settings

Brightness

– allows adjustment display brightness from 0 to 20.

Contrast

– allows adjustment display contrast from 0 to 20.

Save thermal image settings

If enabled, the device will restore the previously saved brightness and contrast values when powered on again.
If disabled, default brightness and contrast values for the selected palette will be applied.

Available palettes

In this section, you can select colour palettes that can be switched by pressing and holding the **BACK** .



The user can disable all palettes except one.
If the active palette is disabled, it will remain in use until the user presses the button. After that, the palette is removed from the switching cycle.

To preserve brightness and contrast values when switching palettes, activate Save thermal image settings.



Available colour palettes:

- White hot
- Black hot
- Green
- Red Hot
- Red Monochrome
- Rainbow
- Ultramarine
- Violet
- Sepia

Amplification

The Normal , High , Ultra  sensitivity enhancement features are the latest in software algorithm offerings from Pulsar that enhance the quality of detection and object recognition, regardless of observation conditions. When the temperature contrast decreases due to conditions such as fog, precipitation or high humidity, increasing the amplification level can optimize the image picture.

To reduce digital distortion, activate the Smoothing in the main menu.

Option 1: Choose amplification level in the main menu: **Image settings** **> Amplification** .

Option 2: Choose amplification level in the quick menu.

Smoothing

The Smoothing function refines the image and makes the thermal picture appear smoother and more uniform. When smoothing is enabled, the image looks less grainy and more comfortable for long-term observation, especially on uniform backgrounds.

Display Dimming

The Dimming function is designed to reduce the brightness of the display when using the device in the dark to reduce eye strain.

The Interface brightness value in dimming mode will be retained when the function is turned on again.

Interface Brightness

Adjusting the Interface brightness helps ensure comfortable viewing in any lighting conditions. Increase brightness for daytime use or lower it at night to minimize glare and reduce eye strain.

Device Settings

Bluetooth

Activate Bluetooth module to connect the device to a remote control the SV Ballistics mobile App.

Bluetooth settings

Find accessory or device

This feature allows you to connect the device to a remote control.

The process of connecting the wireless remote control is described in the Wireless Remote Control **-> Remote Control Activation** section.

Bluetooth pairing

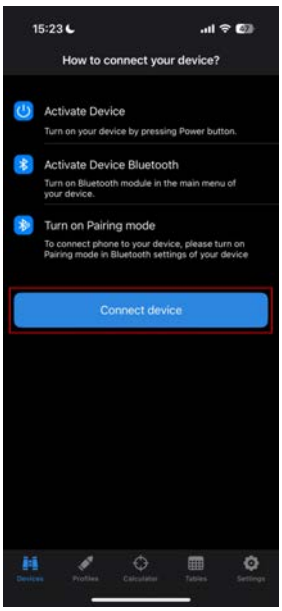
1. Turn on the Bluetooth module in the main menu: **Device settings > Bluetooth .**

2. Go to **Device settings > Bluetooth settings > Bluetooth pairing** to activate pairing.



3. Turn on Bluetooth on your smartphone.

4. Connect your smartphone to the device using the Stream Vision Ballistics App (Devices tab > Connect Device button).

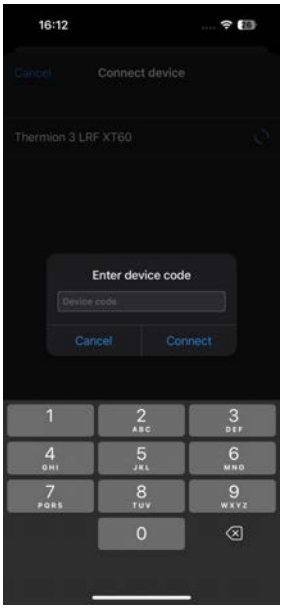


5. Click “Connect” next to your device.

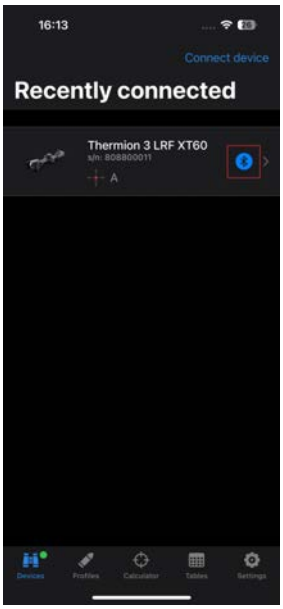


6.Enter the code from the device screen in the Stream Vision Ballistics App and tap “Connect”.





7. The blue Bluetooth icon next to the device means that the device is connected.



Wi-Fi

Activate Wi-Fi to connect the device to the Stream Vision 2 application on your smartphone. This enables remote control of the device and provides access to additional features via the app.

Wi-Fi settings

Password Setup

This menu option PAS allows you to set a password for accessing your Pulsar device from an external device. The password is unique for each device.

Access Level Setup

This menu option allows you to set the required access level for the Stream Vision 2 application:

- **Owner:** Full access to all device functions.
- **Guest:** Access to real-time video streaming only.

Wi-Fi Band

This setting helps resolve smartphone connection issues in the following cases:

- If your smartphone does not support the 5 GHz Wi-Fi band, switch to 2.4 GHz.
- If there is interference from multiple Wi-Fi networks, switching between Wi-Fi bands can improve the connection between the device and your smartphone.

Side incline

This item →← allows you to activate or deactivate the “sector” arrows on the sides of the display. These arrows show the direction in which your rifle scope should be rotated to eliminate incline.



There are three modes of incline:

- 5°-10° – one sector arrow;
- 10°-20° – two sector arrow;
- > 20° – three sector arrow.

A side incline of less than 5° is not displayed.

Calibration

Calibration equalizes the microbolometer’s background temperature and eliminates image flaws such as vertical bars and phantom images on the thermal image.

There are three calibration modes: **Automatic**, **Semi-Automatic** and **Manual**:

Automatic

- The device calibrates itself automatically according to firmware algorithms.
- There is no need to close the lens cover; an internal shutter automatically covers the microbolometer.
- The user can also initiate calibration manually by pressing the **ON/OFF**  (as in SA mode).
- A countdown timer  appears on the right side of the screen when 5 seconds remain before automatic calibration.

Semi-Automatic

- The user decides when calibration is needed (based on the observed image).
- Briefly press the **ON/OFF**  to start calibration.
- There is no need to close the lens cover; an internal shutter automatically covers the microbolometer.

Manual Mode

- Close the thermal imaging channel lens cover.
- Briefly press the **ON/OFF**  button.
- Open the lens cover after calibration is complete.

Notes:

- During calibration, the image on the display may freeze for up to 1 second.
- The selected calibration mode is retained after restarting the device.

Proximity sensor

This feature  allows you to disable/enable the display to turn off automatically when the device moves away from the user's face.

When the proximity sensor is off, the display can be turned on/off by pressing the **ON/OFF**  button.

No-use shutdown

The No Use Shutdown function automatically turns off the device after 30 minutes of inactivity in Display off mode. If no buttons are pressed and no actions are performed during this period, the device will power off to conserve battery life.

Tilt power-off

This function automatically turns off the riflescope if it stays tilted (over 70° up/down or 45° left/right) for a set time (1, 3, or 5 minutes). The timer resets if the device is moved or a button is pressed.

Zoom ring direction

This feature allows you to select the direction in which the digital zoom value changes when rotating the **Zoom ring**.

- **Left < Right:** turning the ring clockwise increases the zoom level.
- **Left > Right:** turning the ring clockwise decreases the zoom level.

The selected direction is saved after the device is powered off or updated.

Media

Record with sound

This function allows you to enable the microphone to record video with sound.

Video compression

This setting allows you to choose the level of video compression to balance between file size and video quality.

ON: Standard compression is applied.

- Video files take up less space.
- You can store more videos on the device.

OFF: Minimal compression is applied.

- Video quality is higher.
- Video files are much larger and take up more space.

Note: Larger video file sizes result in shorter available recording times and may increase the download time for video files when using the Stream Vision 2 app.

Shadow recording

When shadow recording is active, pressing the **REC** button saves a video file starting **30 seconds before** the button was pressed and continues until recording 

is stopped. To stop recording, press and hold the **REC** button.

Recoil recording

When recoil-activated recording 

is enabled, video recording starts **30 seconds before the first** detected shot 

and ends **30 seconds after the last shot**.

If additional shots are detected during recording, the recording continues in the same file, and the duration is extended by 30 seconds from each subsequent shot. The maximum length of a single video file is 5 minutes.

Choose from three recoil sensitivity levels — **High**, **Medium**, or **Low** — to match your shooting style and firearm. If you prefer, you can disable recoil-activated recording entirely.

Format media disk

This function  erases all files from the device's internal memory.

Use this option to quickly clear all recorded videos and photos.

Formatting should be performed if a memory error occurs.

Note: All data will be permanently deleted and cannot be restored. Before formatting, make sure to transfer important files to another device.

System Settings

Language

This function allows you to select the device's menu language from the following options: English, German, Spanish, French, Russian, Italian, Portuguese, Dutch, Danish, Norwegian, Swedish, Polish, Czech, Hungarian, Lithuanian, Latvian, Bulgarian, Finnish, and Ukrainian.

Date

This function lets you set the current date in the device.
The date is shown in the status bar and is used for naming videos and photos.

Time

This function lets you set the current time on the device.
The time is shown in the status bar and is used for naming videos and photos.
You can choose between 12-hour and 24-hour formats.

Units of measurement

This function lets you choose the units for distance displayed in the laser rangefinder widget. You can select either meters or yards.

Reset to default settings

This function restores all device settings to their original factory values.
The reset cannot be undone. All your custom settings will be erased.

Note: When restoring the factory defaults, the date, time, and user pixel map as well as the zeroing profiles data entered by the user are saved.

Image pixel repair

When using the thermal imager, you may notice defective (dead) pixels—bright or dark dots that do not change brightness.
Defective pixels on the microbolometer can increase in size relative to the digital-zoom power.
The Pixel Repair function allows you to mask these pixels on the image.

How it works:

- Go to the menu: **System settings** > **Image pixel repair** > **Pixel Repair** and use a movable marker to select a defective pixel on the display.
- A magnified area helps you precisely align the marker with the defective pixel.



- Move the marker by rotating the controller. To switch between vertical and horizontal movement, press the MENU button. The x and y coordinates are shown in the widget below the magnified area.
- Once aligned, remove (mask) the defective pixel by pressing the **ON/OFF** button. An “OK” message will confirm the action.
- To save the pixel map and exit the menu, press the **BACK** button.
- You can repeat the process for other defective pixels.
- All masked pixels are saved in the device’s memory and added to the factory pixel map.

Note: While in the Pixel Repair menu, other device functions are temporarily unavailable.

Restore default pixel map

If needed, you can restore the original factory pixel map through the menu. This will remove all user-masked pixels and return the display to its original state.

Device information

This option ⓘ allows you to view important details about your device, including:

- Full name
- SKU number
- Serial number
- Firmware version
- Hardware version
- Service information

Functions

Video Recording and Photography

Thermion 3 LRF thermal riflescopes feature video recording and photography of the image being ranged to the internal memory card.

Before using the photo and video functions, setup the Date and Time in the **System Settings**.

For information on how to watch recorded photos and videos, see the Stream Vision 2 user manual: Android, iOS.

The built-in recorder operates in two modes **– Video** and **Photo.**

Built-in recorder operates in two modes:

- **Photo** (photography; the icon is displayed in the upper left corner of the image).
- **Video** (video recording; the icon is displayed in the upper left corner of the image, the total remaining recording time is given taking into account the current resolution in the HH:MM format (hours:minutes).

Switching between the operating modes of the video recorder is done by long pressing the **REC** button. Switching between the modes is cyclical (**Video**–> **Photo**–> **Video**…).

Photo mode. Capturing an image



1. Switch to the **Photo** mode with a long press of the **REC** button.

2. Press the **REC** button briefly to capture a photo. The icon flashes – the photo file is being saved to the built-in SD card.

Video mode. Recording a video



1. Switch to the **Video** mode with a long press of the **REC** button.

2. Press the **REC** button briefly to start video recording.

3. When the video recording starts, the icon will disappear, instead of it an icon with a timer in the MM:SS (minutes:seconds) format will appear 0:03.



4. Pause/continue recording by briefly pressing the **REC** button.

5. Press and hold the **REC** button to stop video recording.

Video files are stored in the built-in memory card:

- After turning off the video recording;
- Upon powering the device off if recording was on;
- When the memory card is overfilled during recording (Memory Full message appears).

Notes:

- Photos and videos are always recorded in a rectangular shape
- You can enter and navigate the menu during video recording.
- Recorded videos and photos are saved to the built-in memory card of the device in the format img_xxx. jpg (for photos); video_xxx. mp4 (for video).

- Videos are recorded in clips with a maximum duration of 5 minutes. The number of recorded files is limited by the capacity of unit's internal memory and video compression ratio.
- Regularly check free memory within the built-in memory card and move the footage to other storage media to free up the memory card space.
- In case of a memory card error, you can use the format media disk function in the **Media** section of the main menu.
- When the Display Off function is activated, video recording continues to run in the background.

Using the Laser Rangefinder

The riflescope is equipped with a built-in rangefinder, allowing you to measure distance to objects up to 1200 m away.

How the rangefinder works

1. Turn on the riflescope, adjust image according to section Powering on and Image Setting.

2. Briefly press the **LRF** button to activate the rangefinder. The rangefinder reticle will appear in the centre of the image.



3. Point the rangefinding reticle at an object and press **LRF** button. In the bottom of the display you will see distance in meters (or yards – depending on settings).

Notes:

- If the rangefinder is idle longer than 10 seconds, it turns off automatically.
- The point of aiming of the rangefinding reticle and the aiming reticle might not coincide due to aiming reticle shift after zeroing.
- To see the recommended aiming point while measuring the distance, activate the Ballistic Calculator.

Operation in SCAN mode

1. Turn on the rangefinder by briefly pressing the **LRF** button.

2. Hold down the **LRF** button for longer than two seconds. Measurement readings will be changing in real time as you point the riflescope at different objects. The text in the LRF widget will become green.



3. In case of unsuccessful measurement dashes will appear on the display.

4. To turn off the rangefinder hold the **LRF** button.

Notes:

- The rangefinding reticle can be changed in the **Aiming & Zoom Controls** -> Laser rangefinder -> **Reticle Type**.
- Units of measurement (meters or yards) can be changed in see the **System Settings** -> Units of measurement section.

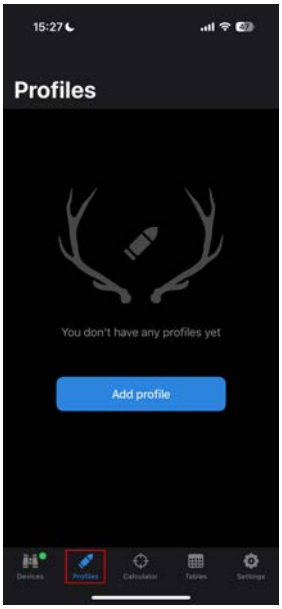
Additional Information:

- Accuracy of measurement and maximum range depend on the reflection ratio of the target surface, the angle at which the emitting beam falls on the target surface and environmental conditions. Reflectivity is also affected by surface texture, color, size and shape of the target. A shiny or brightly colored surface is normally more reflective than a dark surface.
- Measuring range to a small sized target is more difficult than to a large sized target.
- Accuracy of measurement can also be affected by light conditions, fog, haze, rain, snow etc. Ranging performance can degrade in bright conditions or when ranging towards the sun.

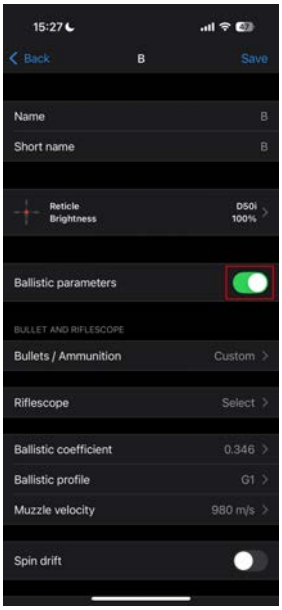
Ballistic calculator

1. Install the Stream Vision Ballistics app from Google Play or AppStore.

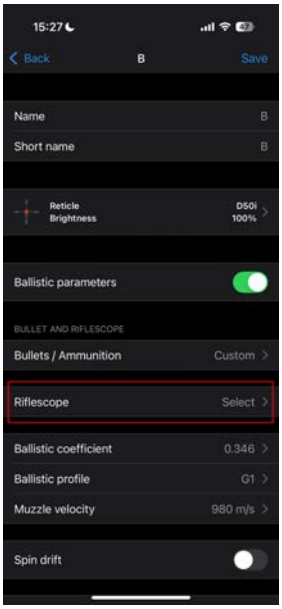
2. Go to Profiles tab.



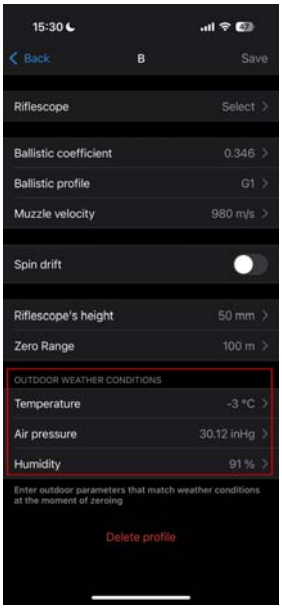
3. Create a profile for your riflescope, ammunition and zeroing distance. Make sure that “Ballistic parameters” switch is on. If your ammo is not on the list, you can enter its parameters manually. The more parameters you specify, the more accurate the recommended point of aiming will be.



If you select a riflescope model, you will be able to display the correction values in clicks.



4. Adjust the temperature, pressure and humidity of the environment while zeroing your riflescope.



5. Enter a profile name and click save.

6. Connect your device to your smartphone using Bluetooth.

7. Load the profile into the device.

To do this, go to the “Devices” tab –> Select your device –> “All device profiles” -> click on the profile you want to replace and select the created profile from the list.



8. Set the status to “Active” for the ballistic profile. To do this, click on the button next to the desired profile, or select it in the profile selection menu in the device.



9. Make sure that the **Activation** option is enabled in the device's Ballistics menu.



10. Briefly press the **LRF** button to activate the rangefinder in the riflescope.

11. Point the rangefinder reticle at the object and press the **LRF** button. The screen will display the recommended aiming point and correction values in the display bottom.

You can also use ballistic calculator in the rangefinder SCAN mode by briefly pressing the **LRF** button. In this mode, the target distance widget near the reticle cannot be disabled in the main menu, it is always displayed.



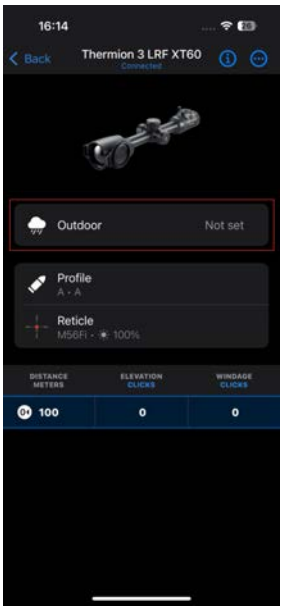
12. To manually adjust the ballistic calculator, select the desired distance in the quick menu:

- Press the **MENU** button briefly to enter the quick menu.
- Briefly press the **MENU** button to select .
- Rotate the controller ring to select the desired distance.
- Press and hold the **MENU** button to exit the menu or wait 10 seconds to exit automatically.

13. Check the accuracy of your profile settings with a test shot at the shooting range.

Note: profiles for different types of ammunition must be zeroed separately.

14. To activate the use of weather data in your geolocation during the shot, go to the “Devices” tab -> Select your device -> “Outdoor”.



In the Ballistics section of the main menu, you can configure the following settings of the ballistic calculator:

- Screen position of the measured distance value
- Turn on/off the ballistic calculator
- Correction units
- Reticle type and color for suggested point of aiming.

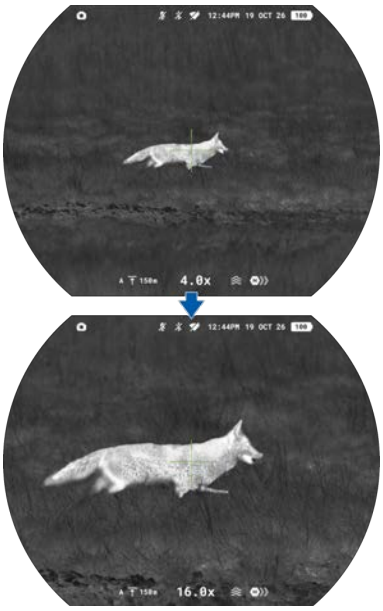
Stream Vision Ballistics Manual

Android

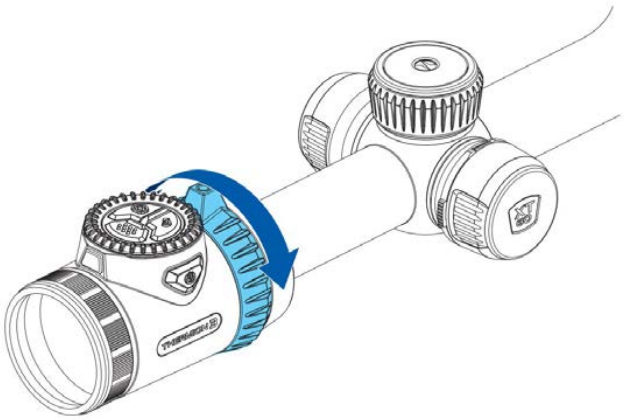
iOS

Smooth Digital Zoom

The device allows you to quickly increase the basic magnification (see the **Magnification** line in the Specifications table).



- To smoothly adjust the magnification, rotate the Zoom Ring.



Note: You can change the rotation direction of the Zoom Ring in the section **Device settings** -> **Zoom ring direction** of the main menu.

Display-Off Function

This function darkens the screen, which aids the user's concealment. However, the device stays on.

The displays can be turned off automatically if the proximity sensor is turned on or by pressing the **ON/OFF**  button if the proximity sensor is turned off.

The proximity sensor is turned on:

1. When the device moves away from the user's face, the displays will turn off, the Pulsar logo will appear.
2. When the device approaches the user's face, the display will turn on again.
3. While holding the **ON/OFF**  button, a countdown icon will appear on the display and the device will turn off.

The proximity sensor is turned off:

1. When the device is on, press and hold the **ON/OFF**  button for 1 second. The display will turn off, the Pulsar logo will appear.
2. Turn the display back on with a short press of the **ON/OFF**  button.
3. When you press and hold the **ON/OFF**  button, a countdown timer appears on the display. Pressing & holding the button down for the duration of the countdown will power the device off completely.

Wi-Fi Function

The device has a function enabling wireless communication with external devices (smartphone or tablet) via Wi-Fi.

- How to connect your Pulsar device to a smartphone:
- Find the unique Wi-Fi password in your Pulsar device's main menu section Wi-Fi Settings  → **Password Setup** .
- Turn on Wi-Fi on your Pulsar device: **Device Settings**  > Wi-Fi . A Wi-Fi icon in the status bar will start to flicker, then a question mark will appear next to it .
- Turn on Wi-Fi in your smartphone settings. Select the network with your Pulsar device's name and serial number in your phone. Click "Connect".

- Type in the device's Wi-Fi password in the prompt box in your smartphone.
- An icon in the status bar of your Pulsar device will change to an icon . Ignore "no internet connection" messages (if any).
- Launch **Stream Vision 2** on your phone. Press the button "Connect device".

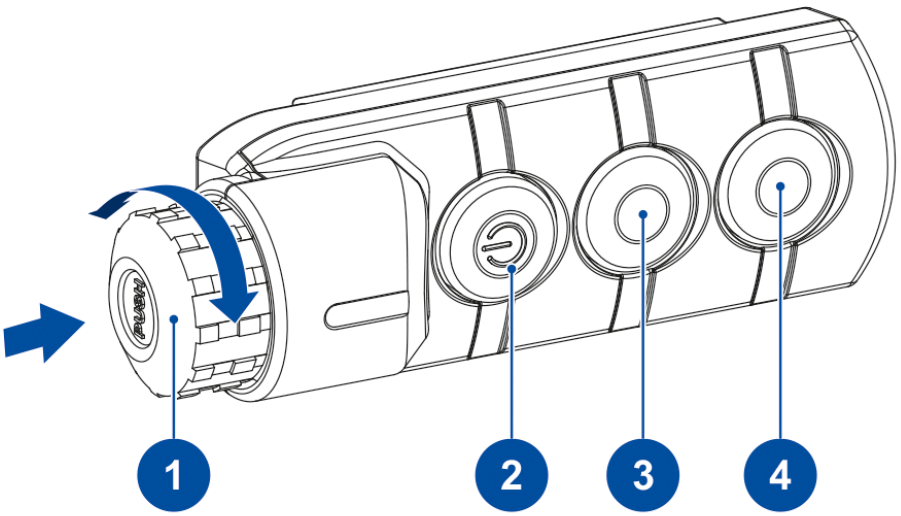
Note: The Wi-Fi function will turn off automatically if there is not enough battery power for Wi-Fi.

Wireless Remote Control

Description of controls

The Pulsar BT wireless remote control (purchased separately) duplicates the functions of turning off the device, turning off the display, calibration, rangefinder control, switching colour pallets, and it allows navigation through the menu.

Attention! The adhesive layer of the remote control mounting tape is intended for metal, glass, and most plastics. On wooden surfaces with coatings (varnish, oil, etc.), removal may cause damage. Use on such materials is not recommended.



(1) Controller:

- Short press: Enter quick menu/submenus, confirm selection, switch to next quick menu item
- Long press: Enter/exit main menu, exit quick menu
- Rotate: Change parameter (quick menu), navigate (main menu).

(2) ON/OFF button:

- Short press: Power on / Microbolometer Calibration
- Long press: Power off / Display off

(3) BACK button:

- Short press: Switching palettes
- Long press: PiP mode / Back

(4) LRF button:

- Short press: Rangefinder activation / Single distance measurement / Ballistic calculator
- Long press: Rangefinder Scan Mode
- Double press: Disable SPOA of ballistic calculator

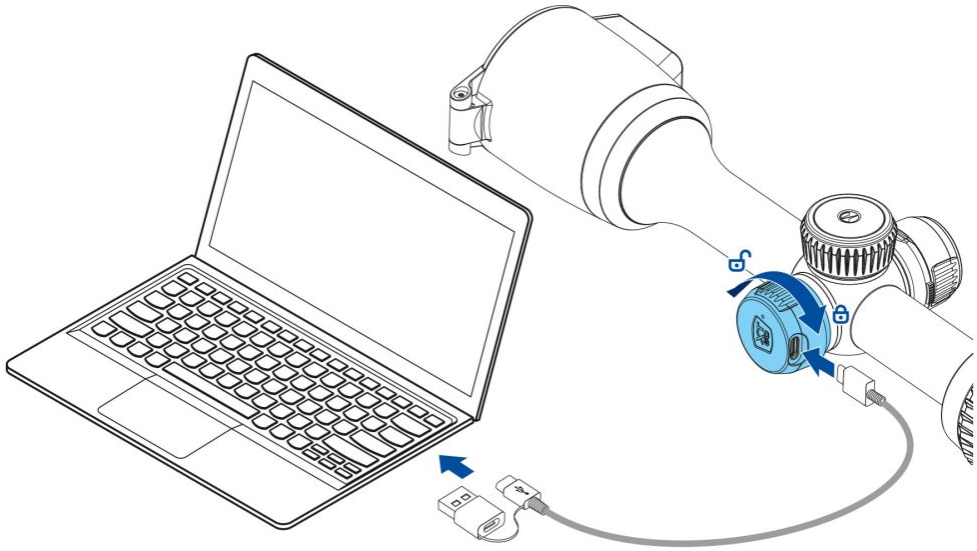
Remote control activation

1. Turn on the Bluetooth module the **Device settings** **-> Bluetooth** menu.
2. In the **Bluetooth settings** to enter the **Find accessory or device** menu item.
3. Press and hold any button on the Remote Control. The Remote Control is visible in the Bluetooth network and can be connected during this time.
4. Select the remote control from the dropdown list that appears.
5. Confirm your selection by pressing the **MENU** button.

Notes:

- Once paired, the Remote Control can operate the Pulsar device.
- Going forward, the Remote Control will automatically connect to the paired device when within visible range.
- The name of the remote control and its battery charge level will appear in the list of paired devices at the bottom of the display in the **Bluetooth settings**.

USB Connection



1. Connect one end of the USB cable to the USB Type-C connector of the device, the other one to the USB port on your computer using a USB Type-A adapter.

2. Turn the device on (device that has been turned off cannot be detected by your computer).

3. Your device will be detected by the computer automatically; no drivers need to be installed.

4. Three connection modes will appear on the image: **Device charging**, **File access (external memory)** and **Video stream**.



5. Select connection mode by rotating the controller ring .

6. Confirm selection with a short press of the **MENU** button.

Device charging

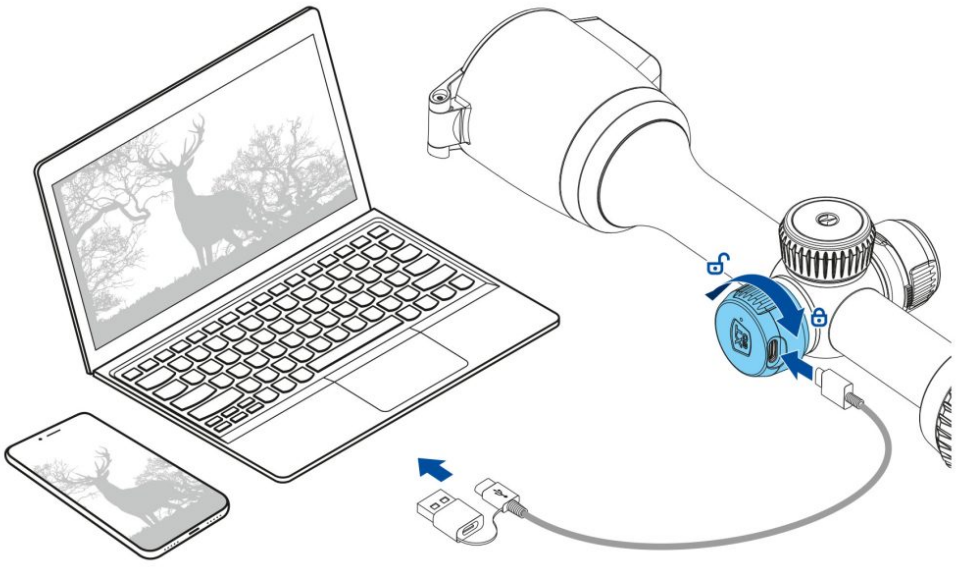
- In this mode, when a computer is used as an external power supply, the icon 

appears in the status bar. The device will continue operating and all functions are available.
- The Battery pack installed in the device is not being charged!
- A battery recharge feasibility depends on your computer's USB port.
- When the USB is disconnected from the device connected as the **Device charging** mode, the device continues operating from the rechargeable batteries if they are sufficiently charged.

File access

- In this mode the device is detected by the computer as a flash card.
- This mode is designed for work with the files saved in device's memory. The device's functions are not available in this mode; the device turns off automatically.
- If video recording was in progress when connection was made, recording stops and video is saved.
- If the device is in **File access** mode and is disconnected from USB, the device will remain on.

Video stream



The device can be connected to PC or smartphone via USB Type-C cable.

The device is recognized as a web camera and accessed via any app that can work with web cameras. Signal from USB has better quality and latency and can be recorded or edited with software on the connected device.

During the video stream it is possible to record the observed picture. Activation of video recording is only available from the device itself by briefly pressing the **REC**  button.

NOTE! Feature is supported only with iPhones that have USB Type-C port.

To view the video stream, use any application (on desktop or mobile platforms) that supports the UVC video standard.

Image transfer latency may occur in some applications. To reduce latency, disable the buffer in the application settings.

Software

Stream Vision 2

Install the Stream Vision 2 application to download files, update firmware, control the device by remote control and broadcast images from your device to a smartphone or a tablet via Wi-Fi.

You can find further guidelines on Stream Vision 2 here.

Download from Google Play

Download from App Store

Find answers to frequently asked questions about using Stream Vision 2 **here**.

Stream Vision 2 Manual

Android

iOS

Stream Vision Ballistics

The Stream Vision Ballistics app is a full-featured mobile ballistic calculation tool for accurate longer-range shooting. You can pair the app with supporting Pulsar device or any daytime scope. We use proprietary algorithms to provide accurate, flexible, and reliable point-of-impact suggestions. To get them working, create a ballistic profile (or multiple) and enter the required data.

Download from Google Play

Download from App Store

Stream Vision Ballistics Manual

Android

iOS

Firmware Update

1. Download the free Stream Vision 2 App in Google Play or App Store.
2. Connect your Pulsar device to your mobile device (smartphone or tablet).
3. Launch Stream Vision 2 and go to section “Settings”.
4. Select your Pulsar device and press “Check firmware update”.
5. Wait for the update to download and install. Pulsar device will reboot and will be ready to operate.

Important:

- if your Pulsar device is connected to a phone or mobile device, please turn on mobile data transfer (GPRS/3G/4G) to download update;
- if your Pulsar device is not connected to your phone or mobile device but is already listed in “Settings” > “My devices” section, you may use Wi-Fi to download update.

Find answers to frequently asked questions about using Stream Vision 2 **here**.

Is your firmware up to date?

Click here to check the latest firmware for your device.

Maintenance

Technical Inspection

It is recommended to inspect your device before each use. Check the following:

- The device should be free of any cracks or deformations.
- The lenses and protective glass should be free of cracks, grease, dirt or debris.
- The battery level of the device should be full. Electrical sockets should be free of salts, oxidation, or other debris.
- All controls should be responsive.

Technical Maintenance

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

- Wipe the exterior surfaces of metal and plastic parts with a cotton cloth. Do not use chemically active substances, solvents, etc. as these will damage the paint.
- Clean the electric terminals of the Battery Pack and device's battery slot using a grease-free organic solvent.
- Recharge the battery if necessary (50%-80% is recommended for normal use).
- Inspect the following optical components for cleanliness and damage:
- Eyepiece lens
- Objective lens
- Protective glass of the laser rangefinder

If necessary, remove dust and sand using a non-contact method whenever possible.
Clean the exterior surfaces of the optics only with cleaning agents specifically designed for optical components**.**

- Avoid getting repellent on the housing of the device. This may damage the appearance of the housing coating.

Troubleshooting

For technical support please contact support@pulsar-vision.com.

The device does not turn on

Possible cause

The Battery Pack is empty

Solution

Charge the Battery Pack

The device does not operate from an external power source

Possible cause

USB cable is damaged.

Solution

Replace USB cable.

Possible cause

The external power supply is discharged.

Solution

Charge the external power supply.

The image is fuzzy. There are distortions in the form of bars of different widths lying in different directions, or dots of different size and brightness.

Possible cause

Calibration is required.

Solution

Perform image calibration according to Calibration section.

Black screen after calibration

Solution

If the image does not clear after calibration, you need to recalibrate.

The reticle is blurred and cannot be focused with the dioptre ring

Possible cause

The dioptre adjustment range is not enough for your eyesight.

Solution

If you wear glasses with a range of -5/+5, keep glasses on when looking through the eyepiece.

Coloured lines appeared on display or image has disappeared

Possible cause

The device was exposed to static electricity during operation.

Solution

After exposure to static electricity, the device may either reboot automatically, or require turning off and on again.

The image is too dark

Possible cause

Brightness or contrast level is too low.

Solution

Adjust the brightness or contrast in the **Quick Menu.**

The reticle is crisp but an object at least 30 m away is blurry

Possible cause

Dust and condensation are covering the outside or inside optical surfaces.

Solution

Wipe the outer surface of the objective lens with a soft cotton cloth. Dry the riflescope. Let it stand for four hours in a warm room.

Possible cause

The lens is not focused.

Solution

Adjust the clarity of the picture by rotating the lens focus control.

The point of impact shifts after firing rounds

Possible cause

The riflescope is not mounted securely or the mount was not fixed with thread sealant.

Solution

Check that the riflescope has been securely mounted.

Make sure you are shooting the same cartridge and load as when the weapon was first zeroed.

Be advised that changes in season, time of day and/or changes in temperature may slightly shift your point of impact. Double checking your zero before hunting is recommended.

The riflescope will not focus

Possible cause

Wrong settings.

Solution

Adjust the riflescope according to the **Powering on and Image Setting** section.

Check the outer surfaces of the objective lenses and eyepiece and, where necessary, wipe away dust, condensation, frost, etc. In cold weather, you can use special anti-fogging coatings (e.g., the same as for corrective glasses).

Smartphone or tablet cannot be connected to the device

Possible cause

Password in the riflescope was changed.

Solution

Delete network and connect again inserting the password saved in the riflescope.

Possible cause

There are too many Wi-Fi networks in the area where the riflescope is located which may cause signal interference.

Solution

To ensure stable Wi-Fi performance, move the riflescope to an area with few or no Wi-Fi networks.

Solution

Switch the device's Wi-Fi bandwidth.

Possible cause

The device has a 5 GHz network enabled, but the smartphone only supports 2.4 GHz.

Solution

Switch the device's Wi-Fi bandwidth to 2.4 GHz.

More information on solving problems with connection to Stream Vision 2 by following the link.

Wi-Fi signal is missing or interrupted

Possible cause

Smartphone or tablet is out of range of a strong Wi-Fi signal. There are obstacles between the device and the smartphone or tablet (e.g., concrete walls).

Solution

Relocate smartphone or tablet into the Wi-Fi signal line of sight.

The image of the object being observed is missing

Possible cause

The object is behind glass, which obstructs thermal vision.

Solution

Remove the glass.

Poor image quality / Reduced detection distance

Possible cause

These problems may occur during observation in adverse weather conditions (snow, rain, fog etc.).

There are several light or black dots (pixels) on riflescope's display or microbolometer

Solution

The presence of dots is caused by peculiarities of microbolometer or display production technology and is not a defect.

When the device is used in low temperature conditions the image quality is worse than in positive temperatures.

Possible cause

In warm climates, objects in the background of a thermal image heat up differently because of thermal conductivity, generating a high temperature contrast and a sharper thermal image.

In cold climates, objects in the background of a thermal image will cool down to roughly the same temperature, which leads to a greatly reduced temperature contrast and a degraded image quality. This is normal for all thermal imaging devices.

The riflescope turns off by itself

Possible cause

Tilt power off function is enabled. This function automatically turns off the riflescope if it stays tilted (over 70° up/down or 45° left/right) for a set time (1, 3, or 5 minutes). The timer resets if the device is moved or a button is pressed.

Solution

Disable this feature in the Device settings section if you do not require automatic shutdown.

Possible cause

No Use Shutdown function is enabled. The function automatically turns off the device after 30 minutes of inactivity in Display off mode. If no buttons are pressed and no actions are performed during this period, the device will power off to conserve battery life.

Solution

Disable this feature in the Device settings section if you do not require automatic shutdown.

The display turns on and off by itself

Possible cause

The proximity sensor is enabled. This feature allows you to disable/enable the display to turn off automatically when the device moves away from the user’s face.

Solution

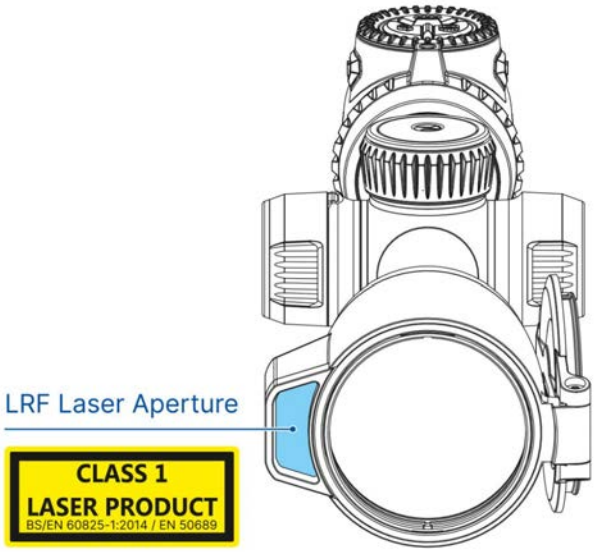
Disable this feature in the Device settings section if you do not require automatic display on/off.

Legal Compliances and Disclaimers

Attention! Thermion thermal imaging riflescopes require a license when exported outside your country.

Electromagnetic compatibility. This product complies with the requirements of European standard EN 55032: 2015, Class A.

Caution: operating this product in a residential area may cause radio interference.



Caution: use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Updates of the Product. The manufacturer reserves the right at any time, without mandatory prior notice to the Customer, to make changes to the package contents (subject to the applicable laws, if any), design and characteristics that do not impair the quality of the Product.

Repair. Repair of the product is available within 5 years after purchase of the product.

Limitation of Liability. Subject to mandatory applicable laws and regulations: manufacturer will not be liable for any claims, actions, suits, proceedings, costs, expenses, damages or liabilities (if any), arising out of the use of this product. Operation and use of the product are the sole responsibility of the Customer. Manufacturer's sole undertaking is limited to providing the product(s) and related services in accordance with the terms and conditions of concluded transactions, including provisions established in warranty. The provision of products sold and services performed by Manufacturer to the Customer shall not be interpreted, construed, or regarded, either expressly or implied, as being for the benefit of or creating any obligation toward any third party (other than Distributor, Dealer, Buyer). Manufacturer's liability

hereunder for damages, regardless of the form or action, shall not exceed the fees or other charges paid to Manufacturer for the product(s) and/or service(s).

MANUFACTURER WILL NOT BE LIABLE FOR LOST REVENUES OR INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY, OR PUNITIVE DAMAGES, EVEN IF THE MANUFACTURER KNEW OR SHOULD HAVE KNOWN THAT SUCH DAMAGES WERE POSSIBLE AND EVEN IF DIRECT DAMAGES DO NOT SATISFY A REMEDY.

