



# **Thermion 2 LRF Pro**

## **Manual**

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# Description

**Thermion 2 LRF Pro** thermal imaging riflescopes are designed for use both at night-time and during the day and provide exceptional image quality even in adverse weather conditions (fog, smog, rain) and beyond obstacles like branches, tall grass, dense foliage, etc. known to hinder target detection.

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 800 meters.

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

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To get started, see the sections:

[\*\*Battery Charging\*\*](#)

[\*\*Battery Installation\*\*](#)

[\*\*Mounting on the Rifle\*\*](#)

[\*\*Powering on and Image Setting\*\*](#)

[\*\*Zeroing\*\*](#)

[\*\*Laser Rangefinder\*\*](#)

# Package Contents

- Thermal imaging riflescope
- APS2 Battery Pack
- APS battery charger
- Power adapter
- USB Type-C - Type-C cable
- USB Type-C - Micro USB Type-B cable
- Carrying case
- Lens-cleaning cloth
- Quick User Manual
- Warranty card
- APS3 battery cover

# Features

- Built-in laser rangefinder (up to 800 m)
- Built-in 3-axis accelerometer gyroscope (slope angle indication)
- 4 observation modes: Forest, Rocks, Identification and User
- 3 calibration modes: manual, semi-automatic and automatic
- Smooth Digital Zoom
- Multiple reticle options
- Scalable reticles (proportional to Zoom)
- 5 zeroing profiles (10 distances per profile)
- One-shot “Freeze-Zeroing” function
- Precise “Zoom zeroing” (reducing the MOA per click when zooming in)
- 8-color display palette
- Pixel repair function
- “Display-Off” function
- Integrated Wi-Fi for remote control and personal device connectivity
- Device firmware update using the free Stream Vision 2 App
- High-strength aluminium alloy housing
- Recoil rated to .375H&H, 9.3x64 and 12-gauge

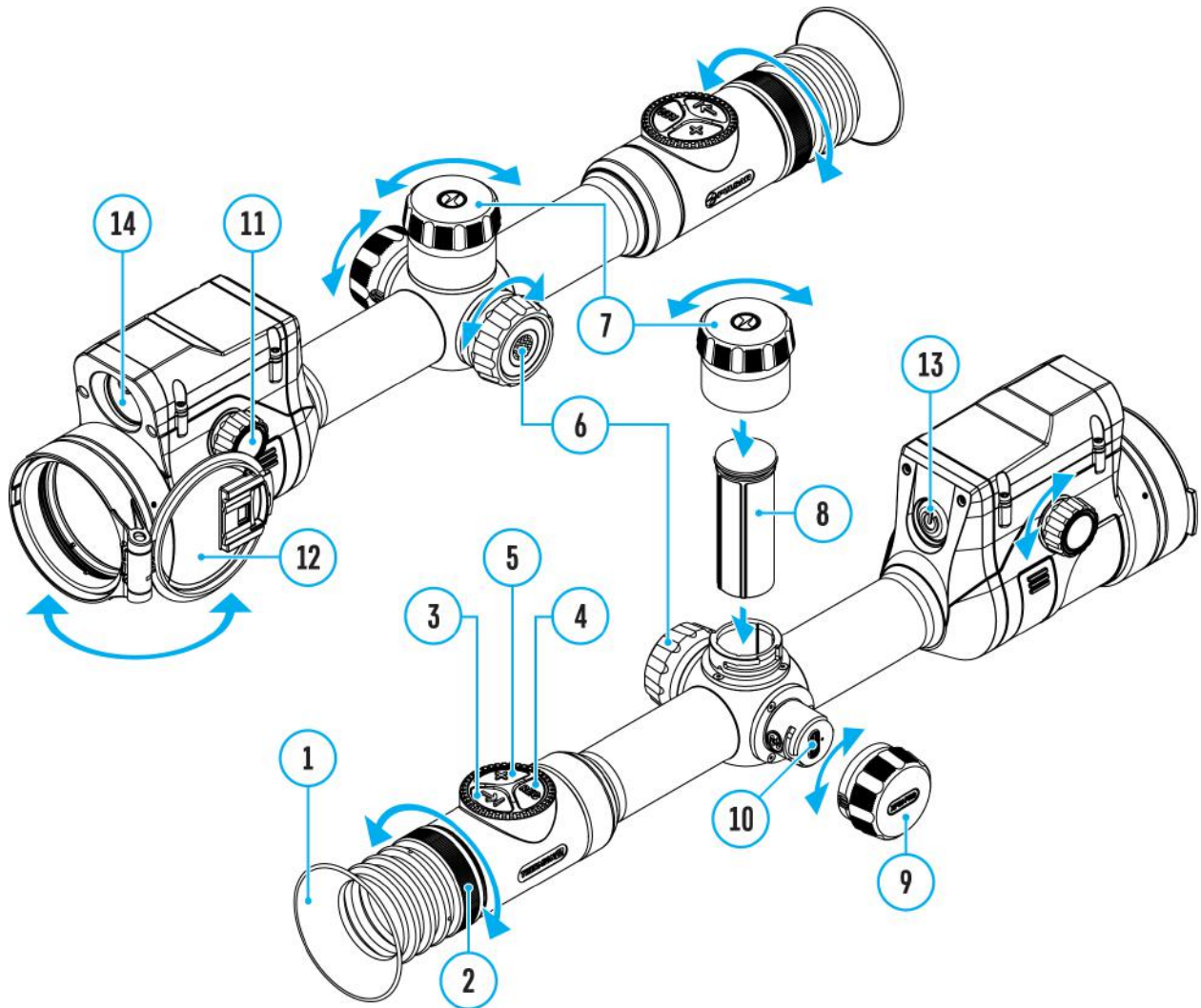
## Video Recording

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

## Battery Pack

- Built-in 4900 mAh Battery Pack APS5
- Quick-change rechargeable Li-Ion APS2/APS3 battery packs
- Internal and external battery charging via USB Type-C port

# Components and Controls



1. Eyecup
2. Eyepiece diopter adjustment ring
3. LRF button
4. REC button
5. ZOOM button
6. Controller
7. Battery compartment cover
8. Battery APS2
9. USB Type-C cover
10. USB Type-C port

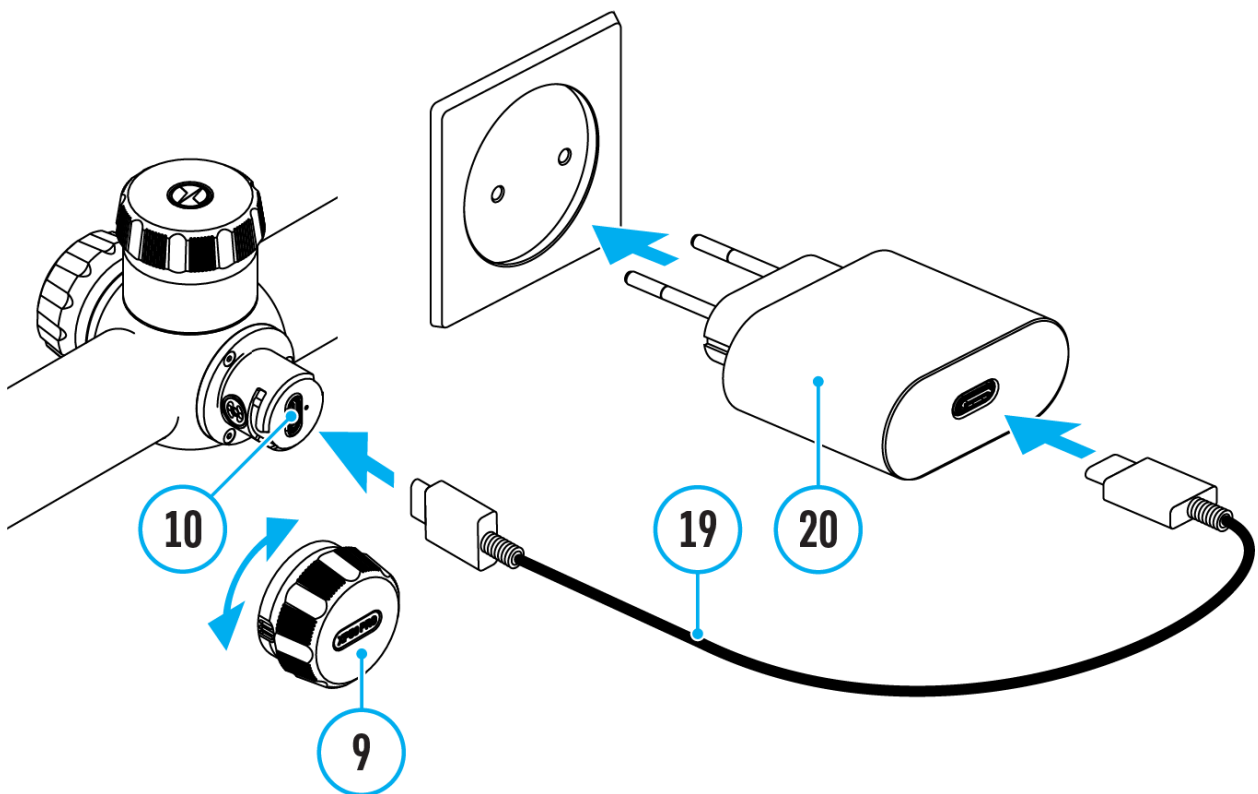




11. Lens focus knob
12. Lens cap
13. ON/OFF button
14. Laser rangefinder

# Battery Charging

**Thermion 2 LRF Pro** thermal imaging riflescopes come with a built-in rechargeable lithium-ion Battery Pack APS5 and a removable rechargeable lithium-ion APS2 Battery Pack. The batteries should be charged before first use.

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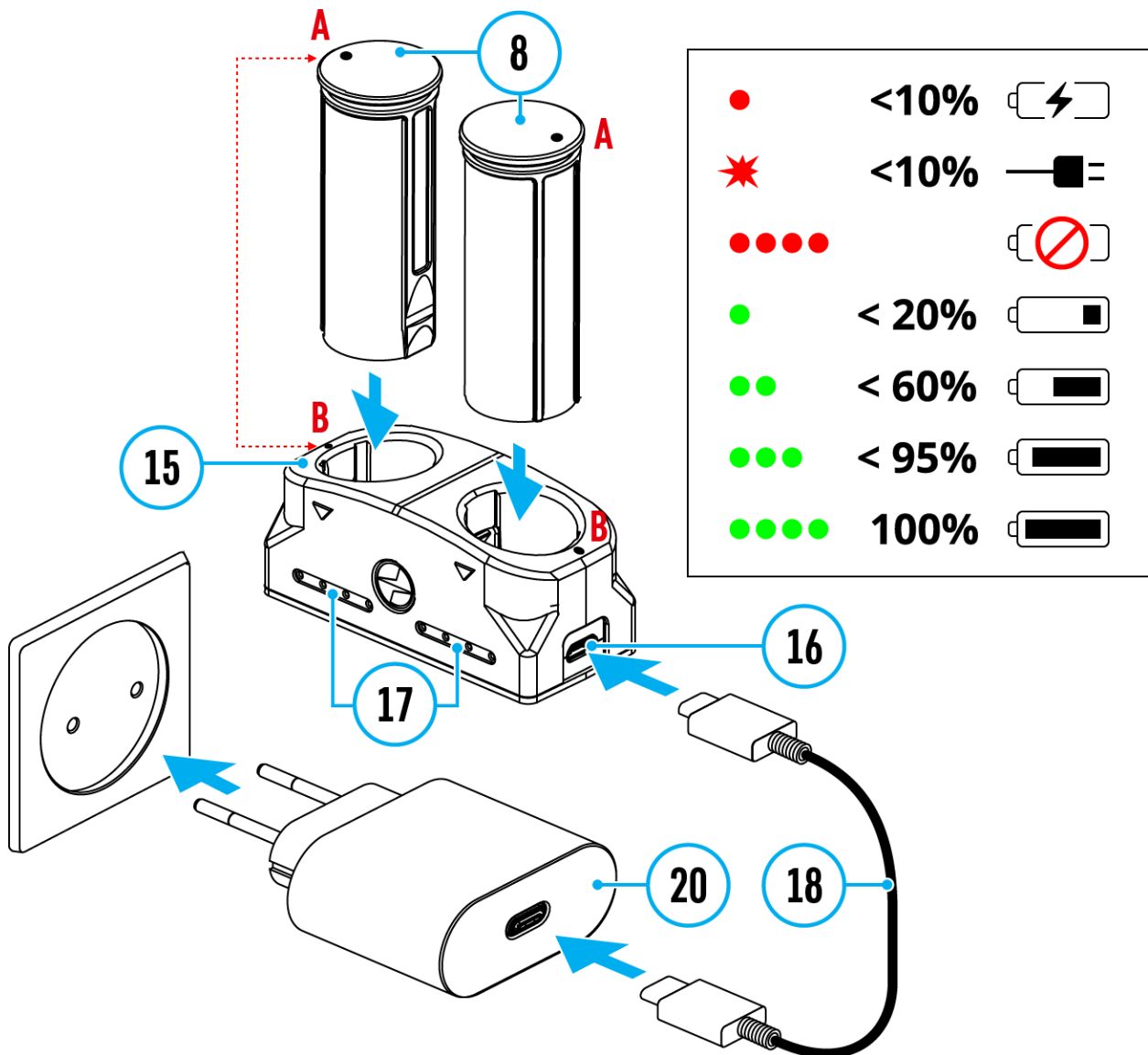


1. Open the USB Type-C cover **(9)** by turning it counterclockwise.
2. Connect the USB Type-C plug of the USB cable **(19)** to the USB Type-C port **(10)** in the body of the riflescope.
3. Connect the second USB plug of the USB cable **(19)** to the USB port on the power adapter **(20)**.
4. Plug the device into a 100-240 V socket.
5. Wait until the batteries are fully charged (indication in the status bar: 1  2 ).

**Attention!** When charging rechargeable batteries with a USB Type-C connector **(10)** in the riflescope body section, charging priority is given to

the built-in battery. When the device is off, both batteries are charged at the same time. When using the device, the external battery is discharged first.

The rechargeable lithium-ion APS2 and APS3\* Battery Packs may be recharged using the APS\*\* charger



1. Insert the Battery Pack **(8)** along the rail into the APS charger **(15)** slot as far as it will go. The APS charger is supplied with your device or purchased separately.
2. Point **A** on the battery and point **B** on the charger should match.
3. Connect the Micro USB Type-B plug of the USB cable **(18)** to the port **(16)** of the charger **(15)**.
4. Connect the second plug of the USB cable **(18)** to the USB port on the power adapter **(20)**.
5. Plug the device into a 100-240 V socket.

6. The LED indicator **(17)** will display battery charge status.
7. Wait until the battery is fully charged (LED indication **(17)**: ●●●● ).
8. Two batteries\* can be charged at the same time: the second slot is designed for it.

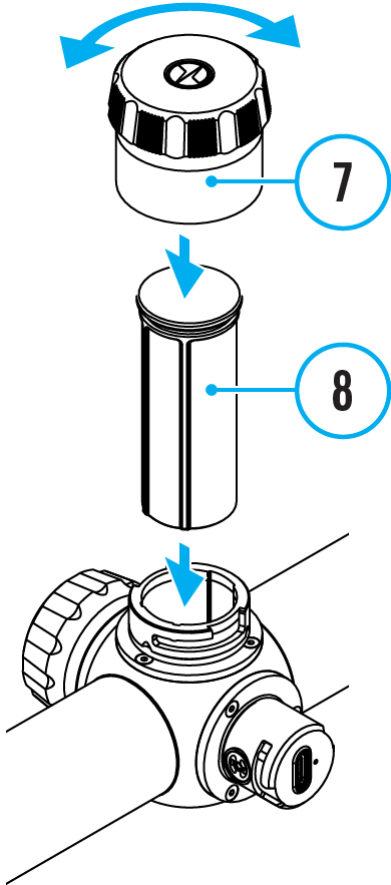
<b>(17) LED Indicator***</b>	<b>Battery Charge Status</b>
●	Battery level is from 0% to 10%. Charger is not connected to a power supply.
●	Battery level is from 0% to 10%. Charger is connected to a power supply.
■■■	Defective battery. Do not use the battery.
●	Battery level is from 10% to 20%.
■■	Battery level is from 20% to 60%.
■■■	Battery level is from 60% to 95%.
■■■■	The battery is completely charged and can be disconnected from the charger.

\* Purchased separately.

\*\* Included in the delivery package.

\*\*\* LED indicator displays the current battery charge status for 30 seconds when the APS charger is not plugged in. When the power is being supplied, the indicator is constantly displaying the current battery charge status, the LEDs are additionally flickering to display the battery charging process.

# Battery Installation

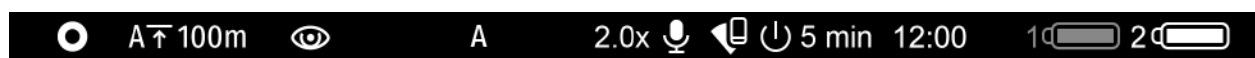


1. Turn the battery cover **(7)** counter clockwise and remove.
2. Install the battery **(8)** into the battery compartment along the special guides in the device casing designed for it.
3. When properly installed, the battery is locked into the slot with a special clip.
4. Close the battery cover **(7)** by turning it clockwise.

# Switching and Changing the Batteries

**Thermion 2 LRF Pro** riflescopes are powered by 2 batteries: built-in Battery Pack APS5 and removable Battery Pack APS3/APS2.

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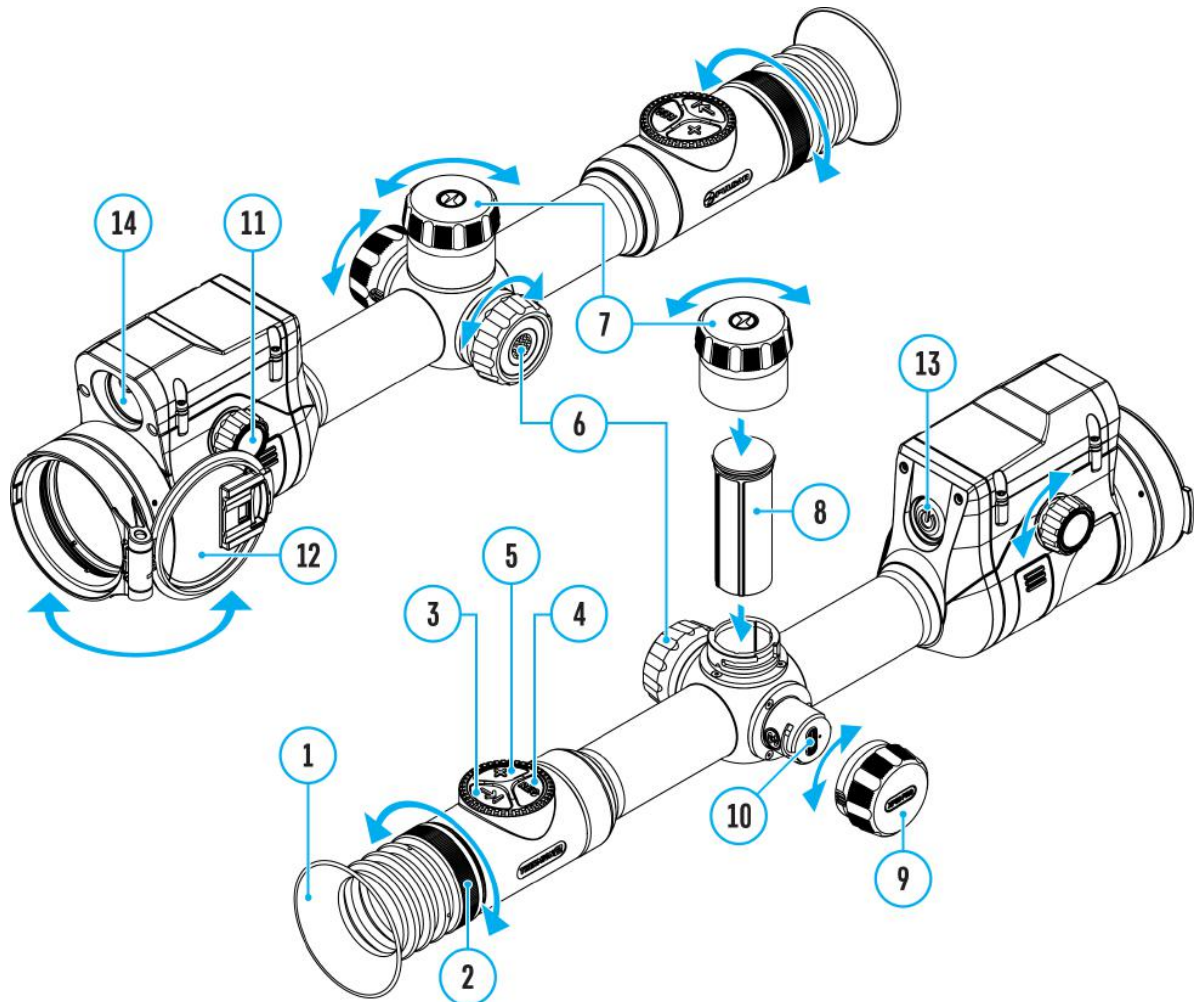


1. If there are two batteries in the device, two battery icons are displayed in the status bar (1 - built-in battery, 2 - removable battery). The device battery is displayed in grey and white; it is grey when inactive.
  2. When there is no removable battery in the device, only one icon for the built-in 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 removable battery with device turned on when it is powered by built-in battery (the device will continue to work properly).
- 


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

# External Power Supply

## Show device diagram



External power can be supplied from an external source, such as a Power Bank (5 V, 9 V).

1. Connect the external power supply to the micro USB Type-C port **(10)** of the riflescope.
2. The riflescope switches to external power source, while built-in Battery Pack APS5 and removable Battery Pack APS2 (or APS3\*) will gradually recharge.
3. A rechargeable battery icon  indicating a percentage of the battery life will appear in the status bar.

4. When you turn off external power source, the riflescope switches over to the removable battery without turning off. When there is no removable battery or low power level the device switches to the built-in battery.

\* Available separately

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**Warning!** Charging APS3 / APS3 / internal APS5 batteries at air temperatures below 0° C (32° F) may reduce battery life. When using external power, connect the Power Bank to the device after it has been turned on and working for several minutes.



# Precautions

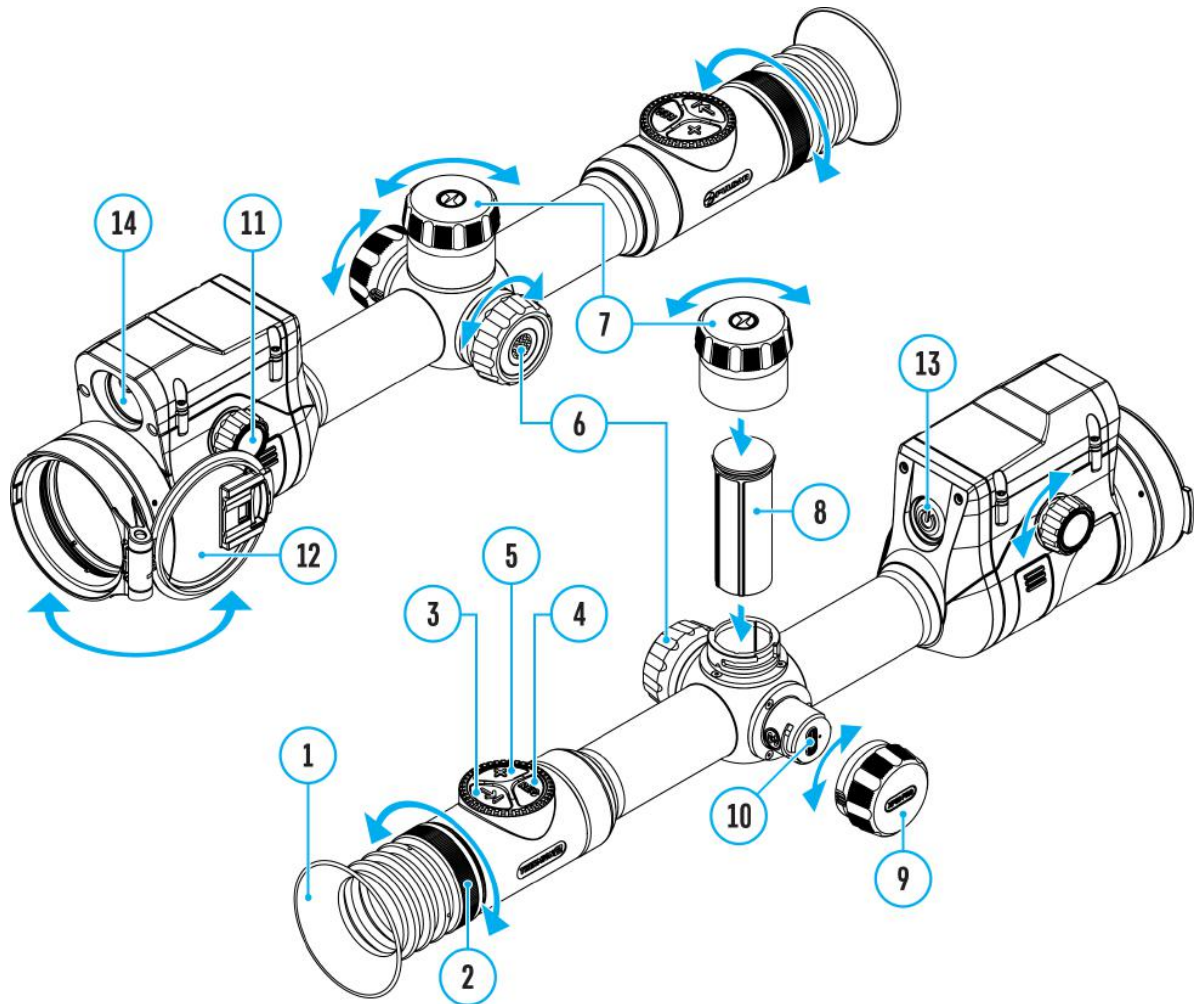
- Only use the charger supplied with the Battery Pack. The use of any other charger may irreparably damage the Battery Pack or the charger and may cause fire.
- Do not charge the Battery Pack immediately after bringing it from a cold environment to a warm one. Wait for 30-40 minutes for the Battery Pack 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 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.

# Mounting on the Rifle

## Show device diagram



To ensure accurate shooting the **Thermion 2 LRF Proriflescope** should be properly mounted on the rifle.

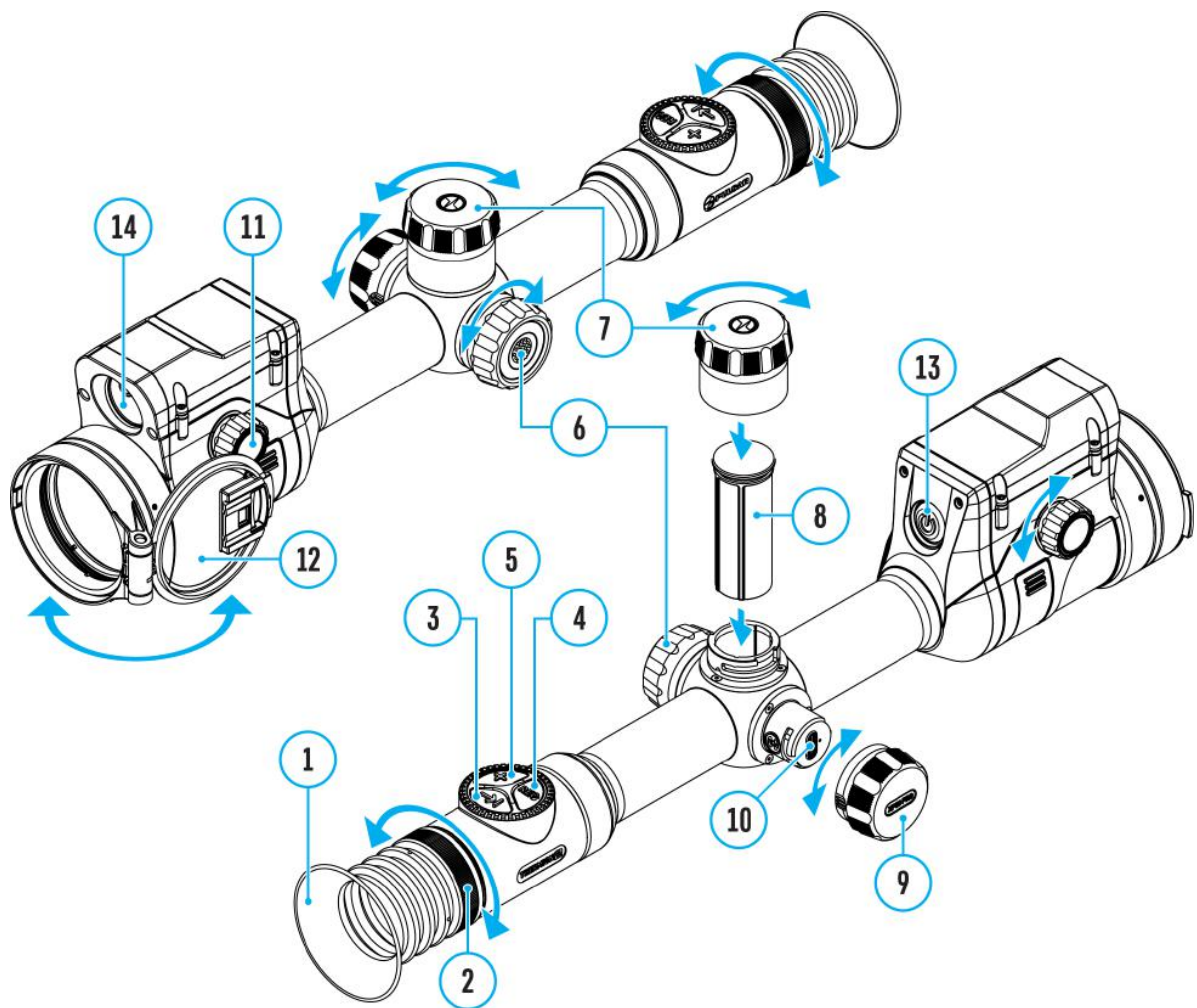
- Mount the riflescope with 30mm scope rings or a single-piece scope mount, purchased separately. Use only high-quality mounts and rings compatible with your rifle. Follow the mount manufacturer's installation instructions and use the proper tools.
- When mounting the riflescope, adjust the position 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 **(1)** 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.


# Powering on and Image Setting

Show device diagram





















1. Remove the lens cover **(12)**.
2. Turn the unit on with a short press of the **ON/OFF (13)** button.
3. Adjust the sharpness of the symbols on the display by rotating the dioptric adjustment ring of the eyepiece **(2)**.
4. Rotate the lens focus knob **(11)** to focus on the object being observed.
5. Enter the main menu with a long press of the controller button **(6)** and select the desired **Calibration Mode: manual (M), semi-automatic (SA)**

or **automatic (A)**.

6. Calibrate the image with a short press of the **ON/OFF (13)** button (when calibration mode **SA** or **M** has been selected). Close the lens cap before manual calibration.
  7. Select the required **operating mode (Forest, Rocks, Identification, User)** in the main menu. User mode allows you to configure and save custom brightness and contrast settings, as well as one of three modes as a base.
  8. Activate the quick menu by briefly pressing the controller button **(6)** to adjust the brightness and contrast of the display (see the **Quick Menu Functions** section).
  9. Press the **ZOOM (5)** button successively to change the magnification ratio of the riflescope. While the icon  is visible on the screen, rotate the controller ring **(6)** for smooth digital zooming from the current magnification.
  10. Power the device off with a long press of the **ON/OFF (13)** button.
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**Warning!** Never point the lens at intensive energy sources such as laser radiation emitting devices or the sun. It can damage electronic components in the device. The warranty does not cover damage arising from failure to comply with operating instructions.

# Button Operation

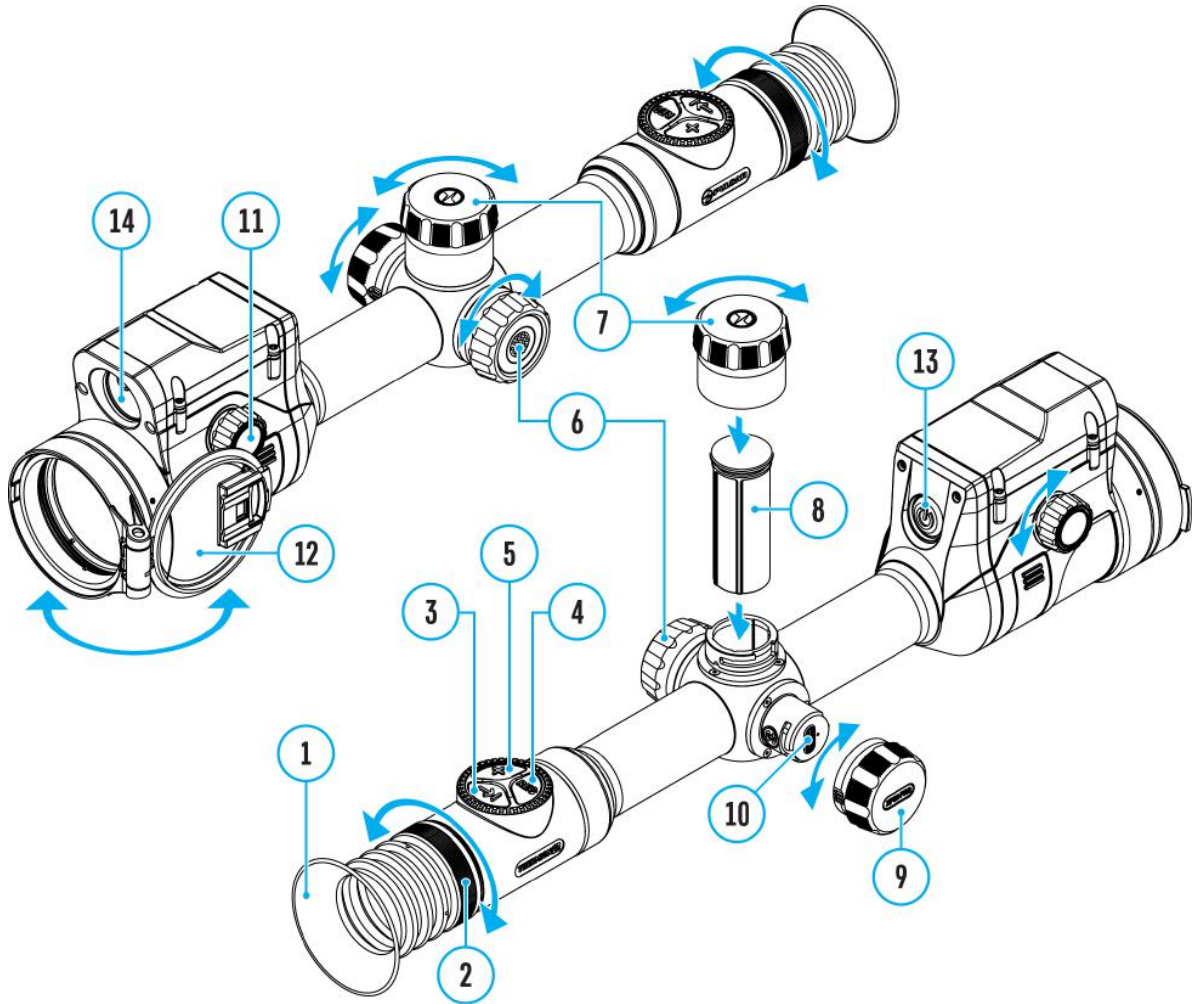
<b>Operation</b>	<b>Button</b>
Power device on	 short press
Power device off	 long press for 3 secs
Turn display off	 long press for less than 3 secs
Turn display on	 short press
Calibrate the microbolometer	 short press
Control discrete digital zoom	 short press
Smooth Zooming	 rotation
PiP on/off	 long press
Change observation modes	 long press
<b>Video Recorder</b>	<b>Button</b>
Start/pause/resume video recording	 short press
Stop video recording	 long press
Switch to video / photo mode	 long press
Capture Photo	 short press
<b>Main Menu</b>	<b>Button</b>
Enter main menu	 long press
Navigation through menu	 rotation
Enter menu items	 short press
Confirm value	 short press
Exit menu items	 long press
Exit main menu	 long press

<b>Quick Menu</b>	<b>Button</b>
Enter quick menu	⊙ short press
Switch between quick menu options	⊙ short press
Parameter change	⊙ rotation
Exit quick menu	⊙ long press
<b>Rangefinder</b>	<b>Button</b>
Activate rangefinder	→  short press
Measure distance	→  short press
Start/stop SCAN mode	→  long press



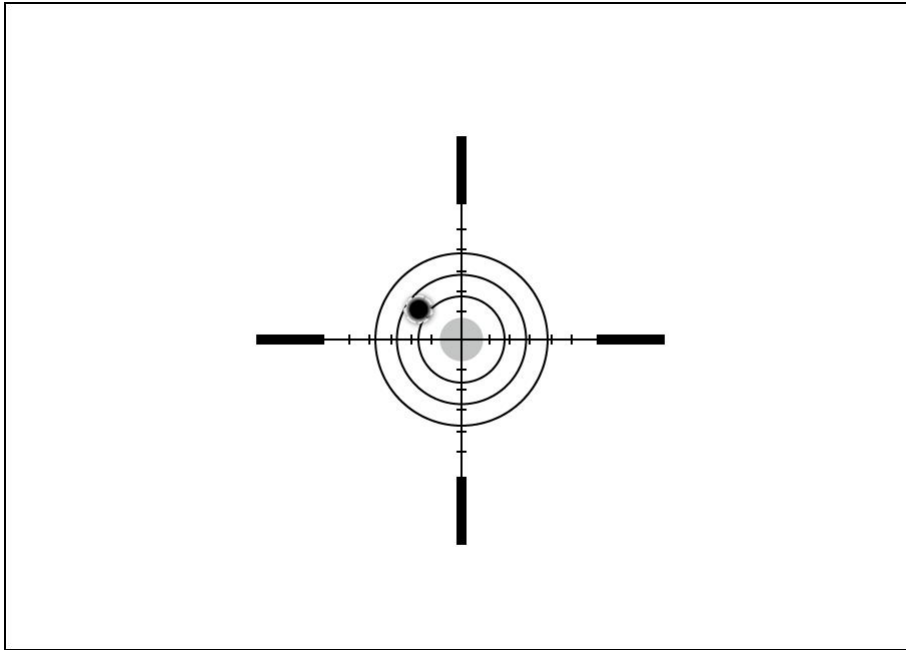
# Zeroing



Show device diagram





Zeroing at a temperature close to the riflescope's operating temperature is recommended.

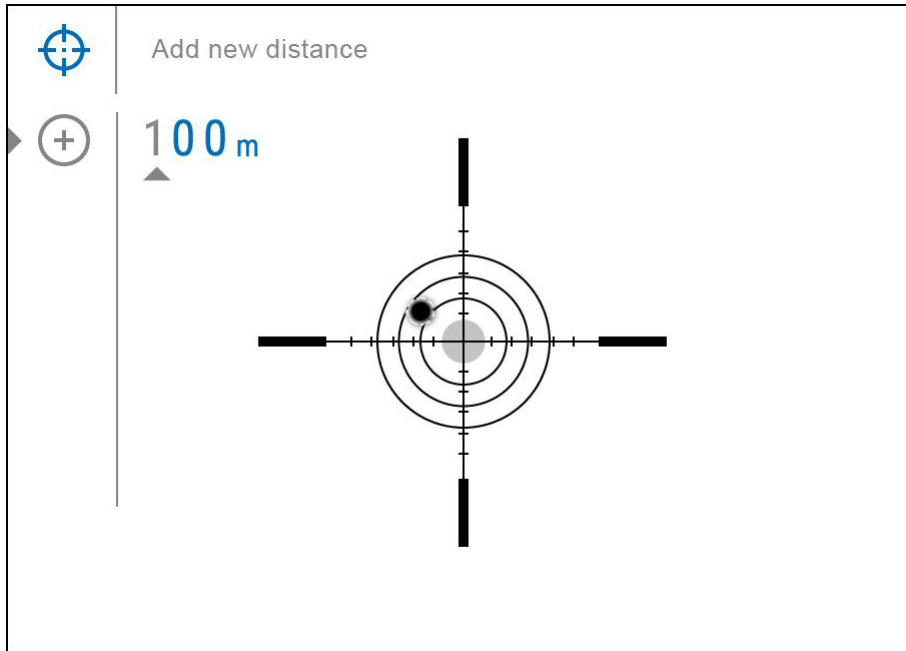
**Step 1. Take a shot**





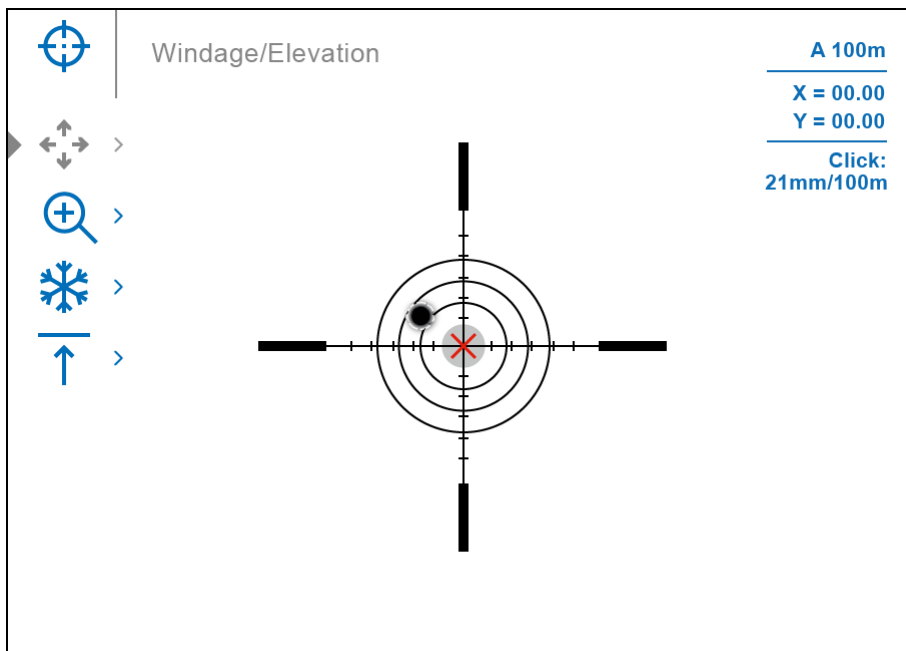
1. Shooting from a benchrest is recommended.
  2. Set a target at a known distance.
  3. Adjust the riflescope according to the **Powering on and Image Setting** section.
  4. Select the zeroing profile (see **Reticle & Zeroing**  -> **Zeroing Profile**  main menu item)
  5. Point the rifle at the center of the target and shoot.
- 


## **Step 2. Align the reticle with the point of impact**


1. Press and hold the controller button **(6)** to enter the main menu.
2. Add the distance you are aiming at (e.g. 100 meters): **Reticle & Zeroing**  -> **Add New Distance** . Select the value for each distance digit by rotating the controller ring **(6)**. Press the controller button **(6)** briefly to switch between digits. After setting the required distance, press and hold the controller button **(6)** to save it.

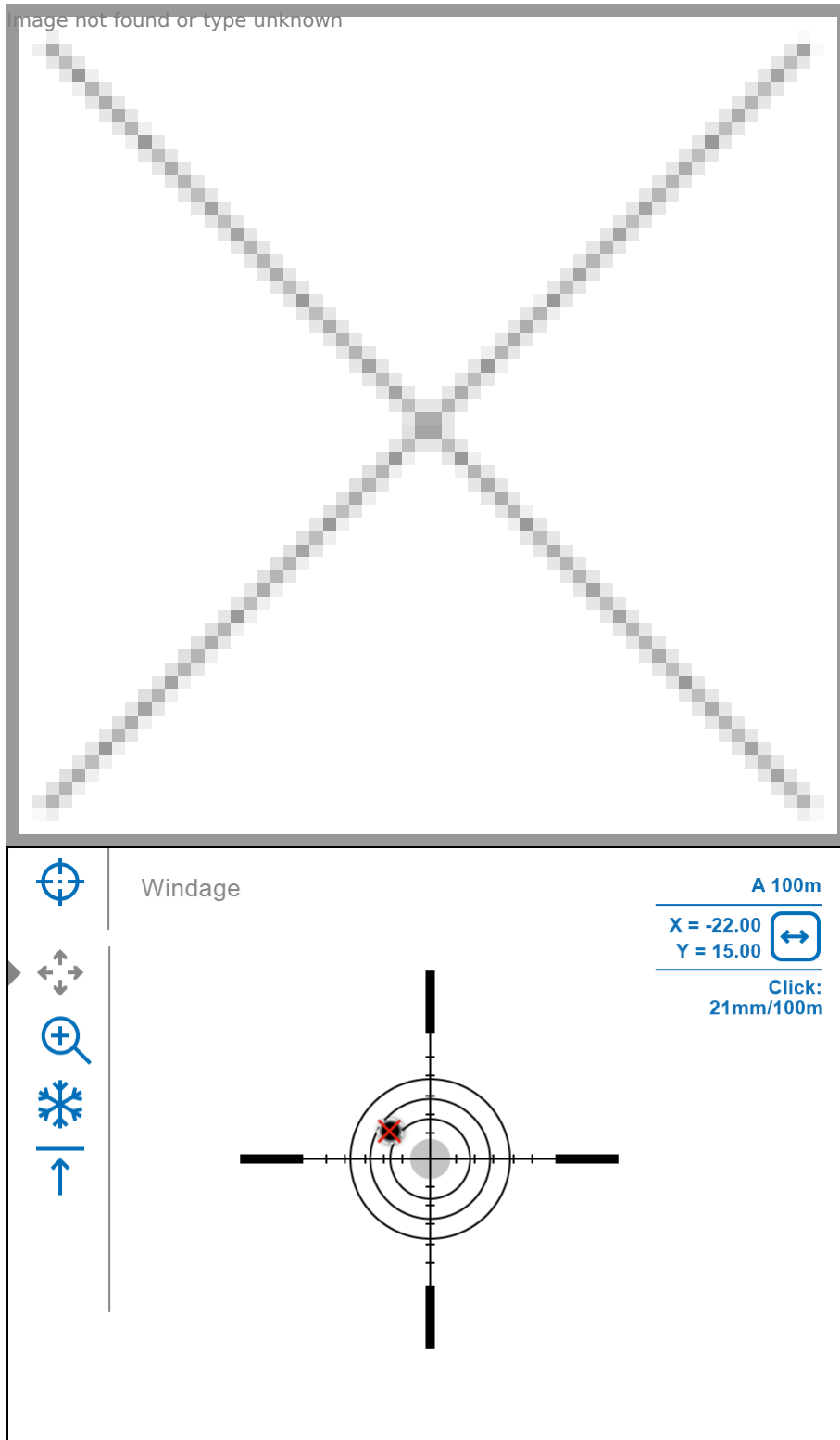


3. After adding the distance, it will switch to the **Zeroing parameters settings** menu . An auxiliary cross  will appear in the center of the display, and X and Y coordinates of the auxiliary cross will appear in the upper right corner.



4. Press the controller button **(6)** briefly to enter the **Windage/Elevation**  submenu.

5. While holding the reticle at the aiming point, move the auxiliary cross  until it is aligned with the impact point by rotating the controller ring **(6)**.







**6.** To change the direction of the auxiliary cross movement from horizontal to vertical, press the controller button **(6)** briefly.

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### **One-shot "Freeze Zeroing" function:**

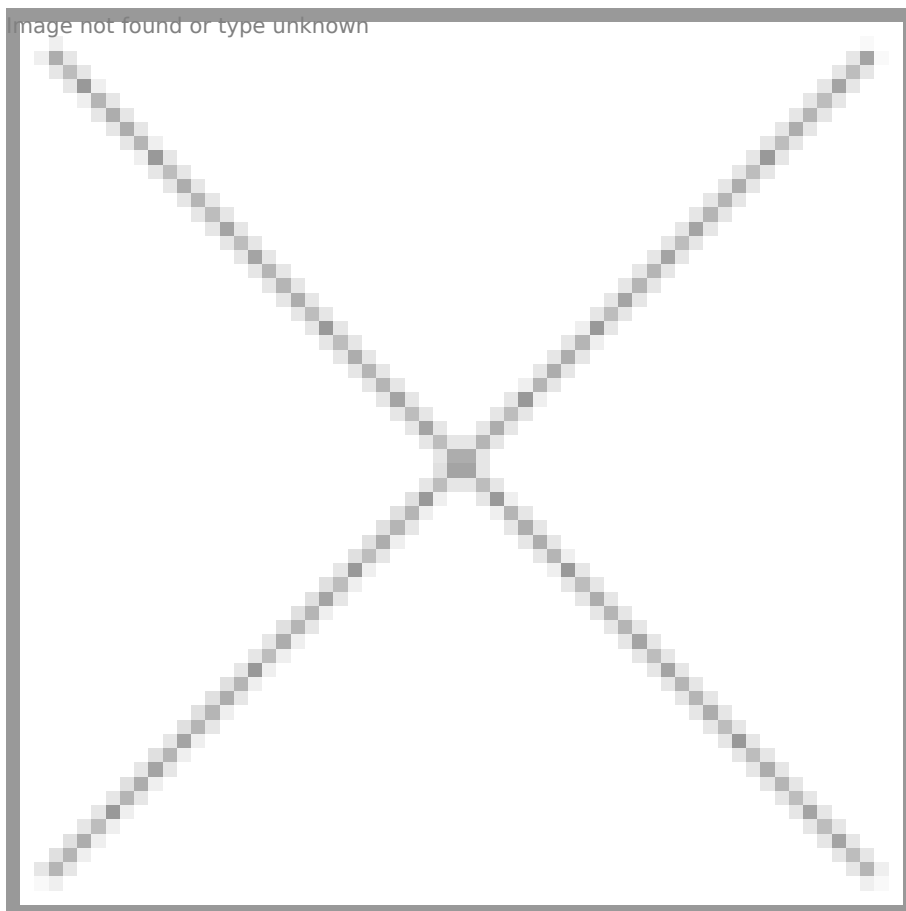
Using the **Freeze** function allows you to make adjustments without the

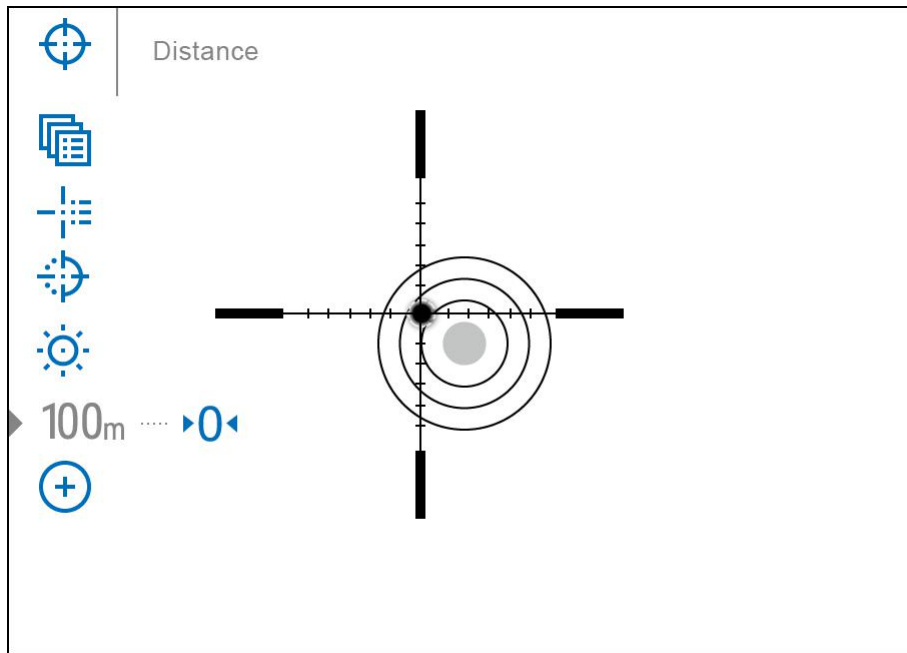
need to hold the rifle precisely at the initial aiming point - freezing the zeroing screen (refer to **Reticle & Zeroing**  menu item => **Distance** submenu => **Zeroing Parameters Settings**  submenu => **Freeze**  submenu or short pressing of the **ON/OFF (13)** button. The image will “freeze” and the  icon will appear.

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### Step 3. Save the coordinates

**1.** Press and hold the controller button **(6)** to save a new position for the reticle. The reticle will be aligned with the impact point and it will exit the **Windage/Elevation**  submenu.

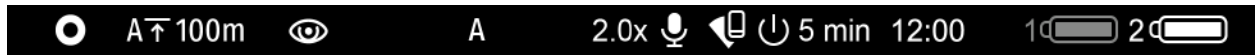









**2.** Press and hold the controller button **(6)** again to exit the zeroing settings menu - the message “Zeroing coordinates saved” appears, confirming the successful operation.

**3.** Fire a second shot - now the point of impact and the aiming point must be matched.

# Status Bar

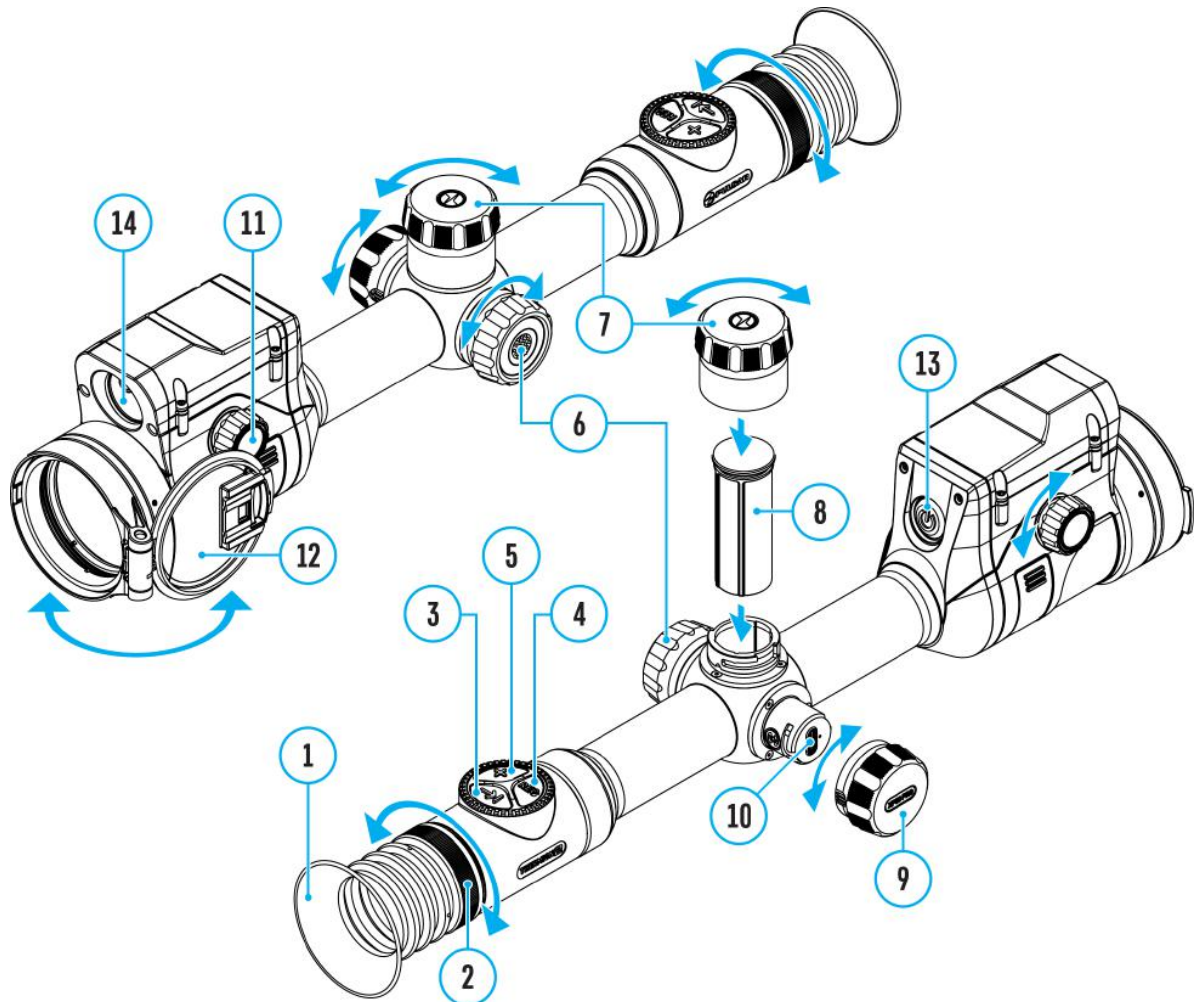


The status bar at the bottom of the display shows current operating statuses via icons, including:

1. Colour Mode (shown only when the Black Hot color mode is selected)
2. Actual zeroing profile (e.g., A)
3. Zeroing distance (e.g., 100 m)
4. Observation mode (e.g., Identification)
5. Calibration mode (a countdown timer  00:03 will appear instead of the calibration icon when in automatic calibration mode with 3 seconds remaining until automatic calibration)
6. Current magnification
7. Microphone
8. Wi-Fi connection
9. Auto Shutdown function (e.g., 5 min.)
10. Clock
11. Power supply:
  - Battery discharge level   (when riflescope is powered by a built-in or removable battery).
  - External battery power indicator  (if the riflescope is powered by an external power supply).
  - Battery indicator  with current percentage of charge (when charging from an external power source).

# Quick Menu Functions

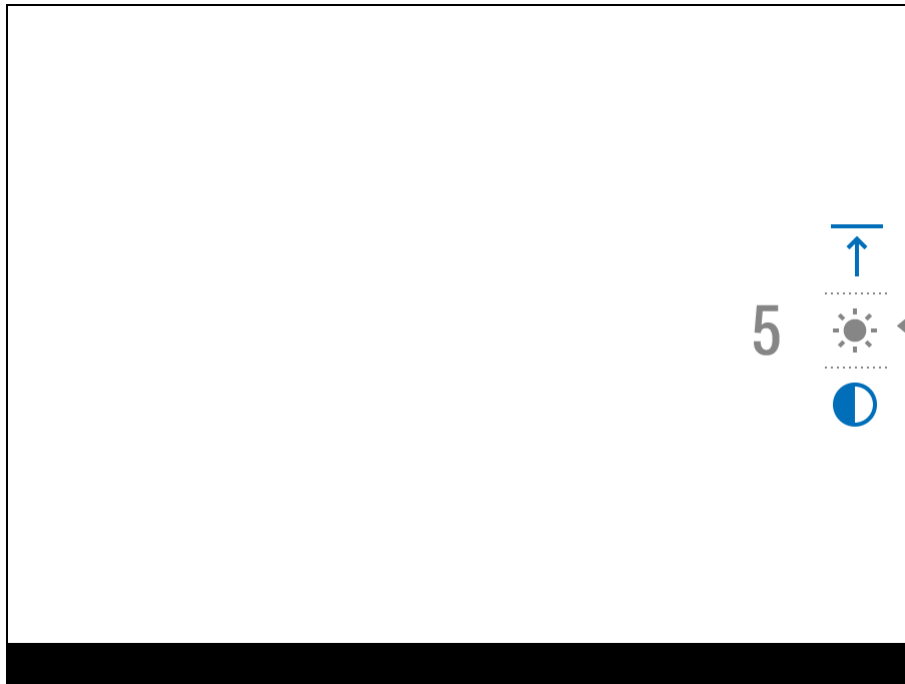
## Show device diagram



The basic settings (adjusting brightness and contrast, information on the distance) can be changed using the quick access menu.




- Press the controller button **(6)** briefly to enter the quick menu.
- A short press of the controller button **(6)** enables you to switch between functions, as described below.







**Brightness**  - rotate the controller ring **(6)** to change the display brightness value from 00 to 20.

**Contrast**  - rotate the controller ring **(6)** to change the image contrast value from 00 to 20.

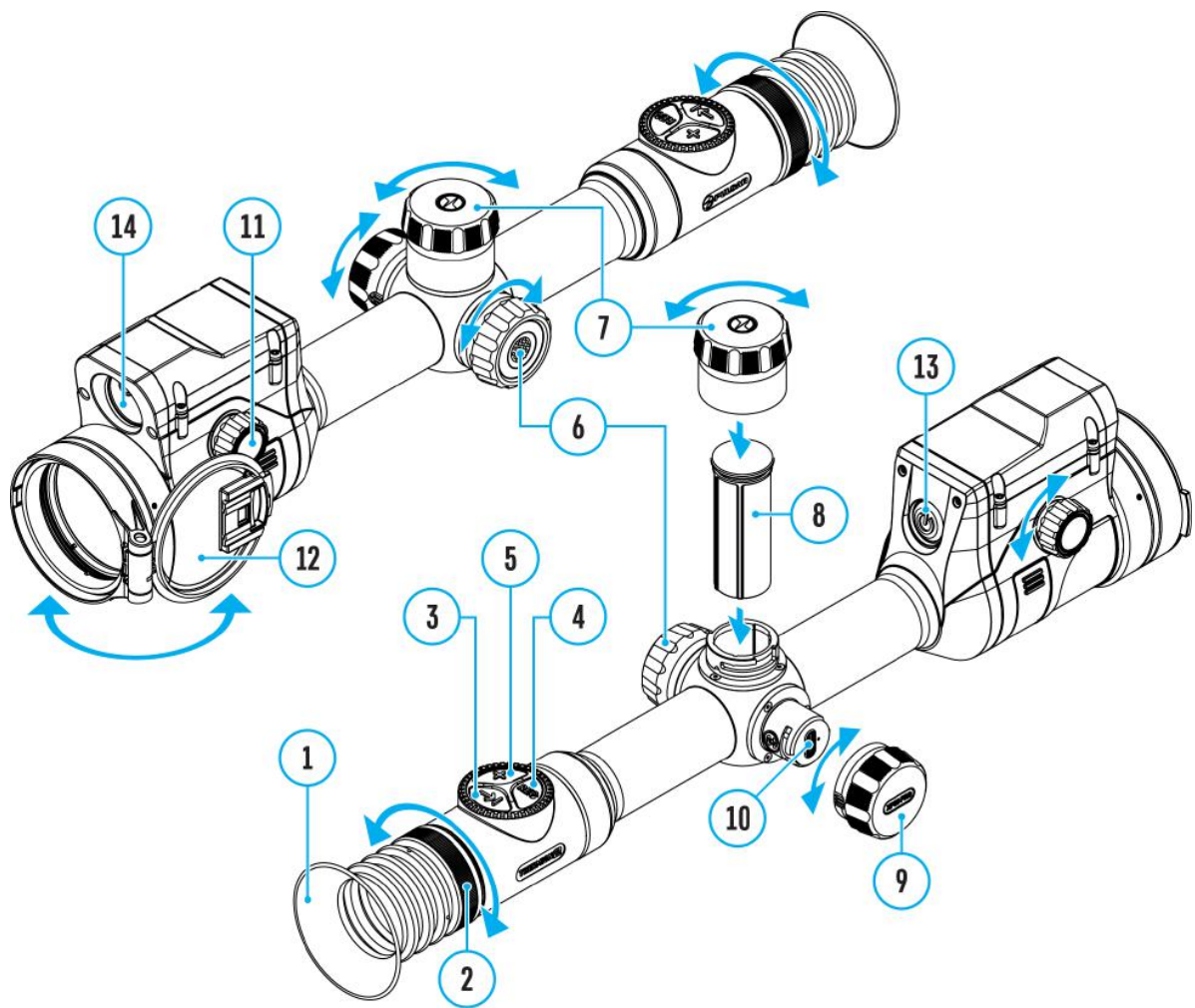
**Base mode**    - it allows you to select one of the three observation modes (Forest, Rocks, Identification) as a base for the User mode.

**A100**   - information on the current profile and zeroing distance in this profile (e.g., profile A, zeroing distance of 100 m). This information is always displayed in the status bar. Rotate the controller ring **(6)** to switch between the zeroing distances in the selected profile. This function is available if there are two or more distances in the profile.

- Press and hold the controller button **(6)** to exit the menu or wait 10 seconds to exit automatically.

# Video Recording and Photography

Show device diagram



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The riflescope is equipped with a function for video recording (photography) of the observed image that is saved on the built-in memory card.


Before using the photo and video functions, read the **Date and Time** subsections of the **General Settings** section.

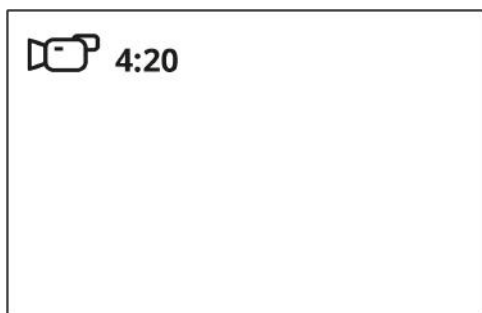
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Built-in recorder operates in two modes:

- **Photo** (photography; the icon  is displayed in the upper left corner of the display).




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



Toggle (switch) between the riflescope operating modes with a long press of the **REC (4)** button. Switching between the modes is cyclical (**Video**-> **Photo**-> **Video**...).


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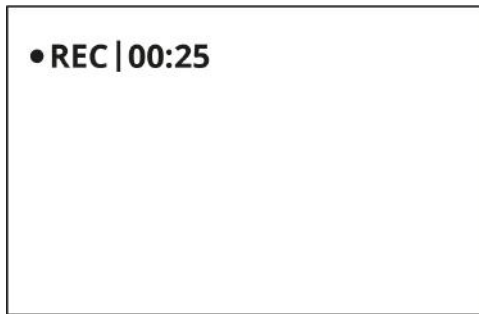
### **Photo mode. Capturing an image**

1. Switch to the **Photomode** with a long press of the **REC (4)** button.
  2. Press the **REC (4)** 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 (4)** button.
2. Press the **REC (4)** button briefly to start video recording.

3. When the video recording starts, the icon  will disappear, instead of it the **REC** icon as well as the video recording timer displayed in the MM:SS (minutes:seconds) format will appear ●REC | 00:25.



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

5. Press and hold the **REC (4)** button to stop video recording.

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

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

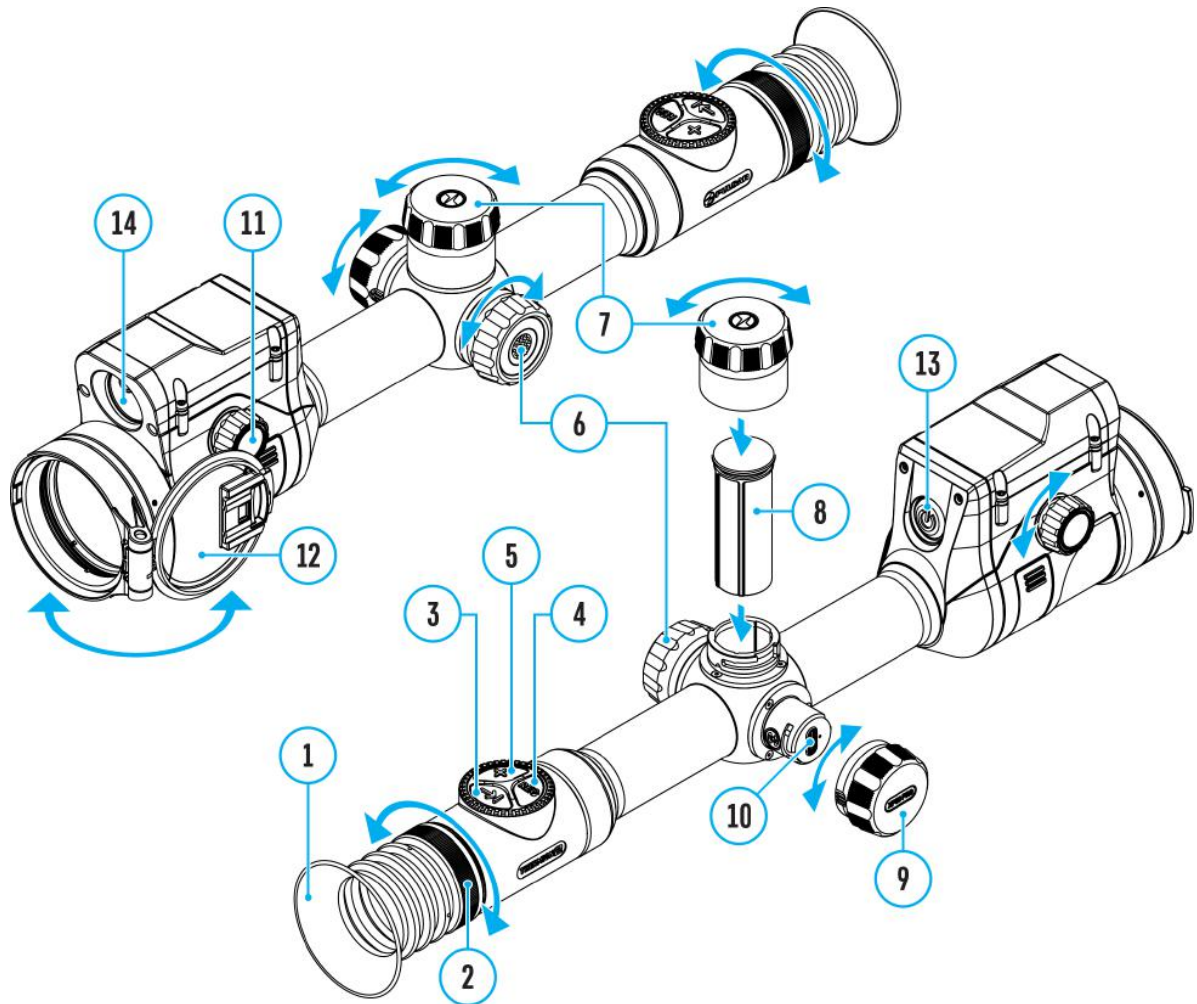
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*Notes:*

- You can enter and navigate the menu during video recording.
- Recorded videos and photos are saved to the built-in memory card of the riflescope in the format img\_xxx. jpg (for photos); video\_xxx. mp4 (for video).
- Maximum duration of a recorded video file is 5 minutes. After this time expires, the video is recorded to a new file. The number of recorded files is limited by the capacity of unit's internal memory.
- 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.

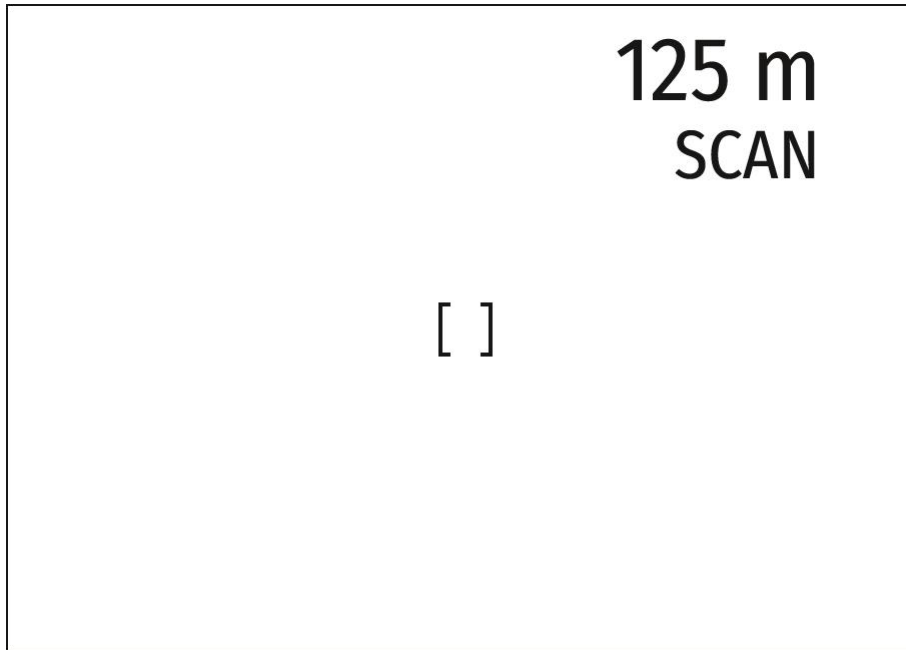
# Laser Rangefinder

Show device diagram



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The riflescope is equipped with a built-in rangefinder (**14**), allowing you to measure distance to objects up to 800 m away.



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### How the rangefinder works:

1. Turn on the riflescope, adjust image according to section **Powering on and Image Setting**.
2. Press **LRF(3)** button — rangefinding reticle appears (and aiming reticle disappears), dashes of distance values with unit of measurement appear in the top right corner of the display , i.e. the rangefinder enters stand-by mode. ----m
3. If PiP mode is on, the aiming reticle disappears upon activation of the rangefinder, but in the PiP window remains active.
4. If PiP mode is off, the activation of the rangefinder automatically turns on the PiP window with the last digital magnification set for it and a reticle in it.
5. Point the rangefinding reticle at an object and press **LRF(3)** button.
6. In the top right corner of the display you will see distance in meters (or yards depending on settings). 7m

### Notes:

- If the rangefinder is idle longer than three seconds, it turns off automatically and aiming reticle appears.
- The point of aiming of the rangefinding reticle and the aiming reticle in the PiP window might not coincide due to aiming reticle shift after zeroing.

---

## Operation in SCAN mode:

1. Turn on the rangefinder by briefly pressing the **LRF(3)** button.
2. Hold down **LRF(3)** button for longer than two seconds. Measurement readings will be changing in real time as you point the riflescope at different objects. In the top right corner a message **SCAN** appears.
3. In case of unsuccessful measurement dashes will appear on the display.
4. To exit **SCAN** mode and to return to stand-by mode, press **LRF(3)** button briefly.
5. To turn off the rangefinder hold the **LRF(3)** button.

### Notes:

- To select a rangefinding reticle, please go to submenu **Rangefinder** in the main menu.
- To select units of measurement (meters or yards) go to submenu **General Settings** in the main menu.
- While you measure the distance in the **SCAN** mode you can use the reticle of the PiP window to make a shot.

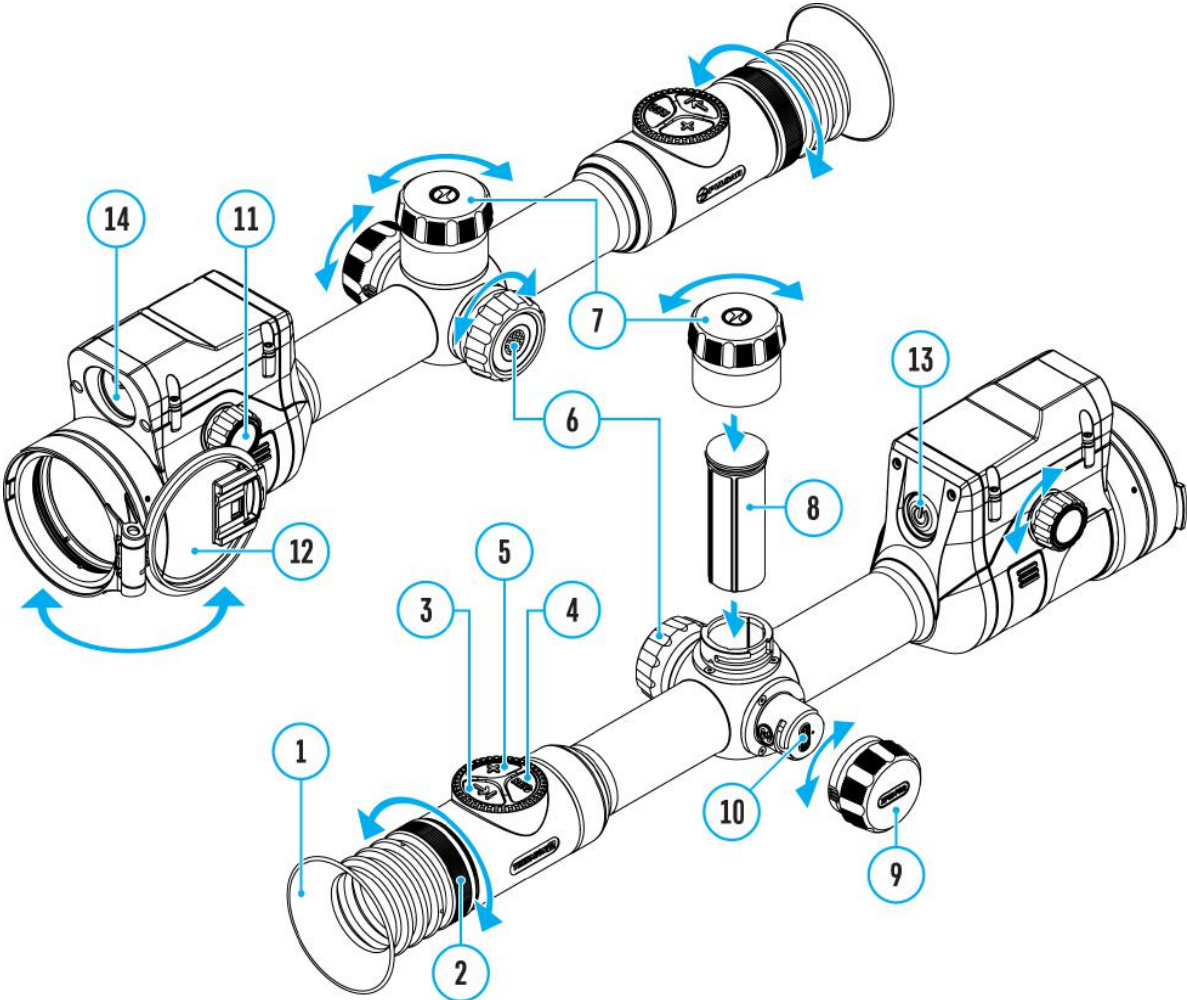
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## Additional Information:

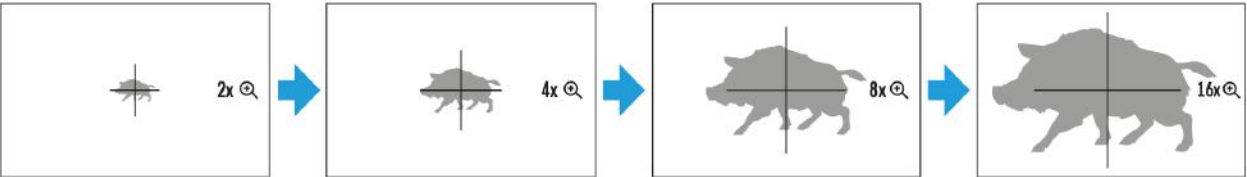
- Accuracy of measurement and maximum range depend on the reflection ratio of the target surface, the angle at which the emitting beam falls on the target surface and environmental conditions. Reflectivity is also affected by surface texture, color, size and shape of the target. A shiny or brightly colored surface is normally more reflective than a dark surface.
- 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.
- Measuring range to a small sized target is more difficult than to a large sized target.

# Discrete Digital Zoom

Show device diagram




Discrete digital zoom allows you to quickly increase the basic magnification (see **Magnification** line in the table of **Technical Specifications**) by 2x, 4x or 8x, as well as return to the basic magnification.



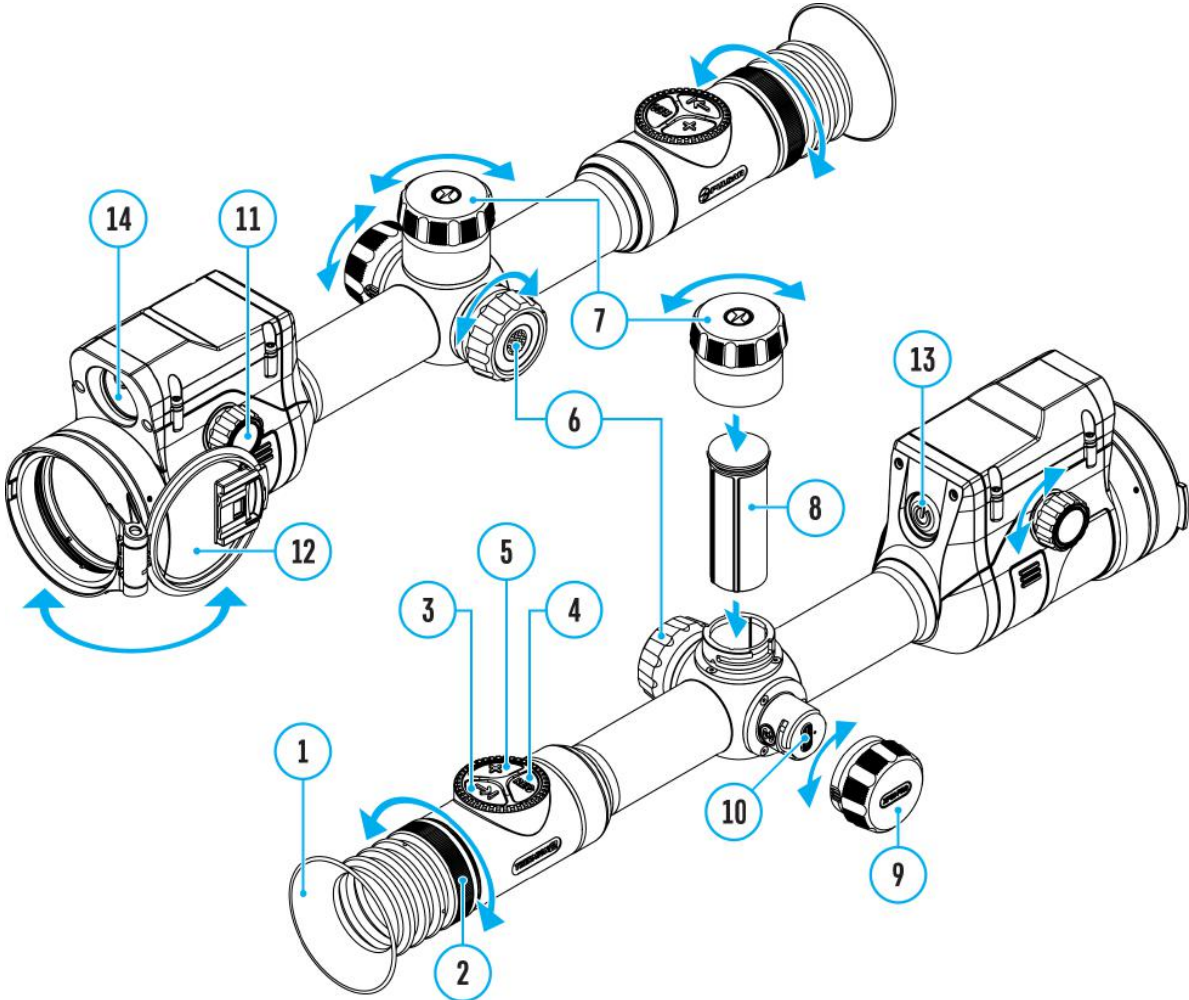
- Press the **ZOOM (5)** button successively to change the magnification ratio of the riflescope.



- While the icon  is visible on the screen, rotate the controller ring **(6)** for smooth digital zooming from the current magnification.

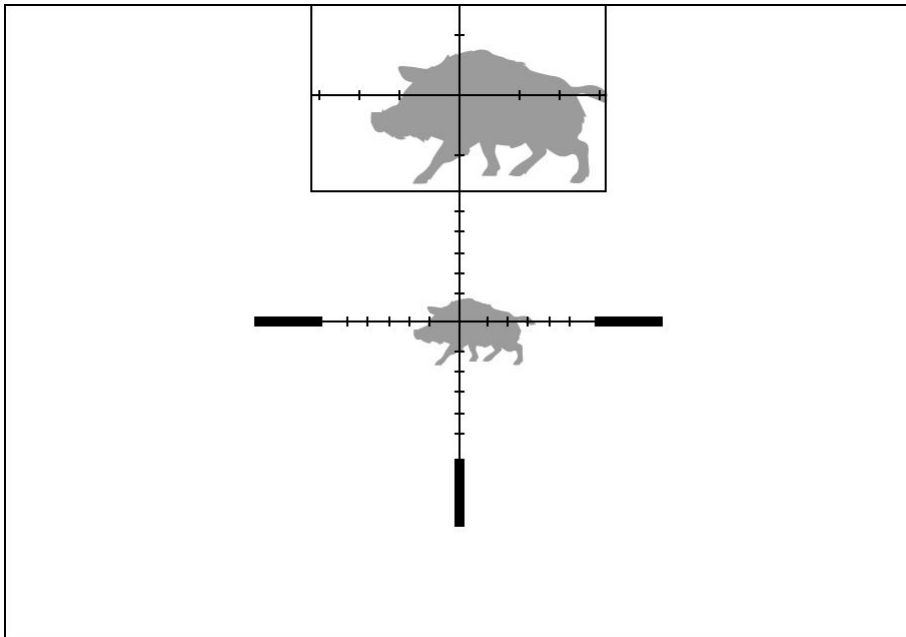
# PiP Function


Show device diagram



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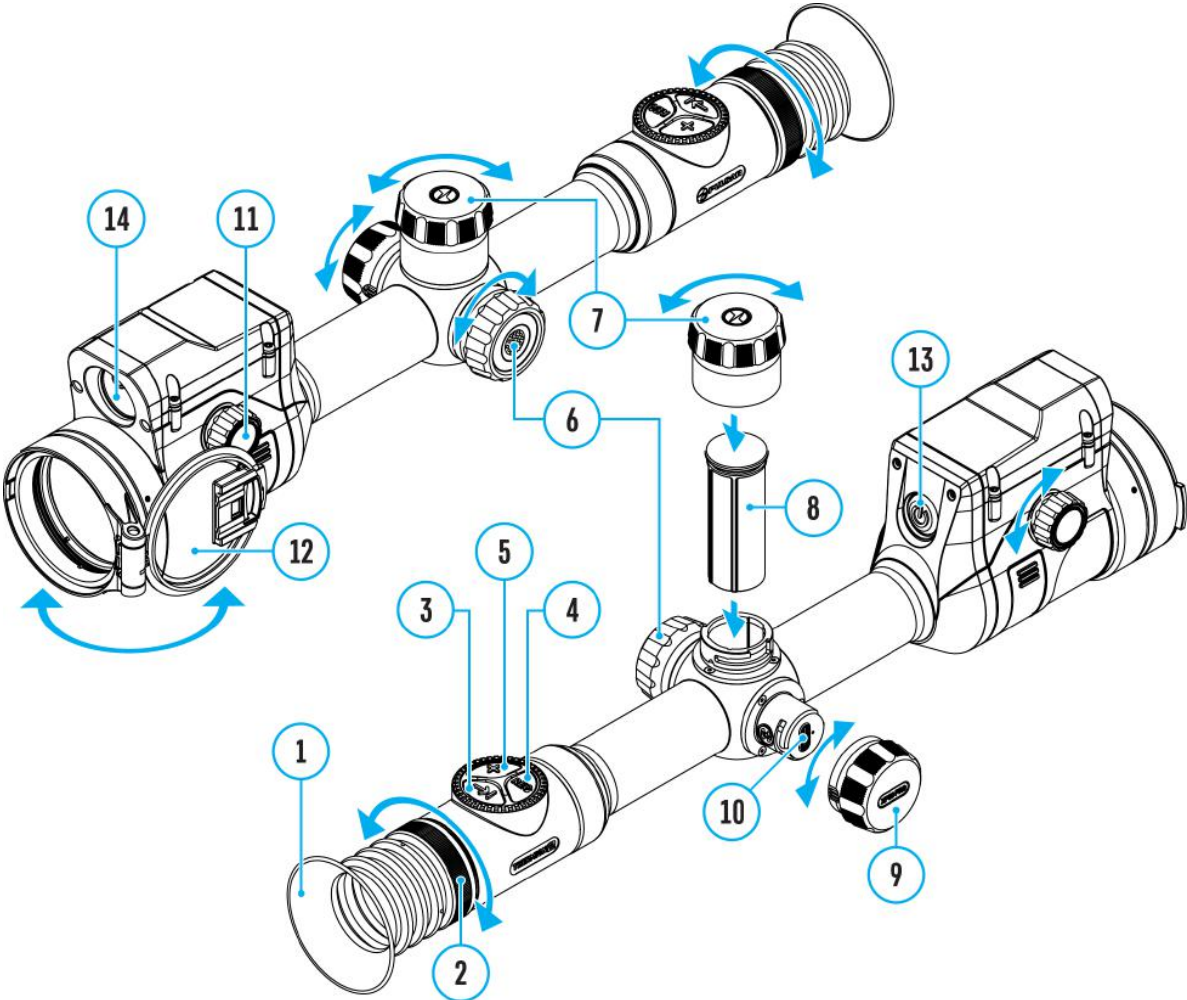
The PiP function (Picture-in-Picture) allows you to see both a magnified image in a particular dialog box and the main image.



1. Press and hold the **ZOOM (5)** button to turn on/off the PiP function.
2. To change the digital zoom in the PiP window, briefly press the **ZOOM (5)** button or rotate the controller ring **(6)** until the icon is visible on the screen  .
3. The magnified image is displayed in a particular dialog box, with the full magnification being used.
4. The rest of the image is displayed only with the optical zoom (digital zoom is off).
5. When PiP is turned off, the display shows the full magnification set for the PiP mode.

# Display-Off Function

Show device diagram



This function deactivates the image transmission to the display by minimizing its brightness. This helps prevent accidental disclosure. However, the device stays on.



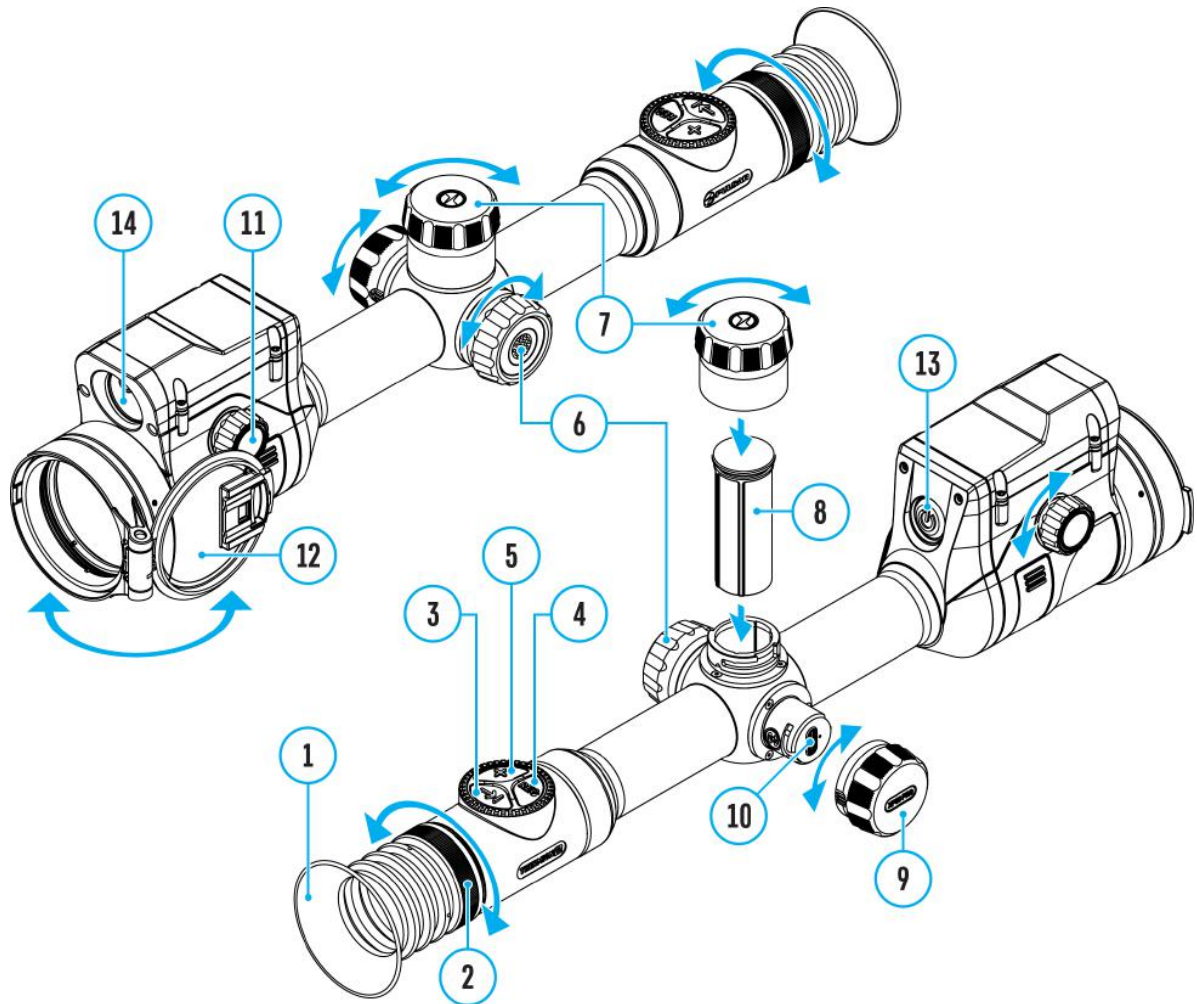
1. When the device is on, press and hold the **ON/OFF (13)** button for less

than 3 seconds. The display will turn off, the current time and the "**Display off**" icon will appear.

2. Press the **ON/OFF (13)** button briefly to turn on the display.
3. When you press and hold the **ON/OFF (13)** button, the display shows the icon "**Display off**" with a countdown. Holding the button down for the duration of the countdown will power the device off completely.


# Wi-Fi Function

## Show device diagram









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The riflescope has a function for wireless communication with mobile devices (smartphone or tablet) via Wi-Fi.

1. To enable the wireless module, enter the main menu by long pressing the controller button **(6)**.
  2. Rotate the controller ring **(6)** to select the **Wi-Fi Activation**  menu item.
  3. Press the controller button **(6)** briefly to turn on/off the Wi-Fi module.
-

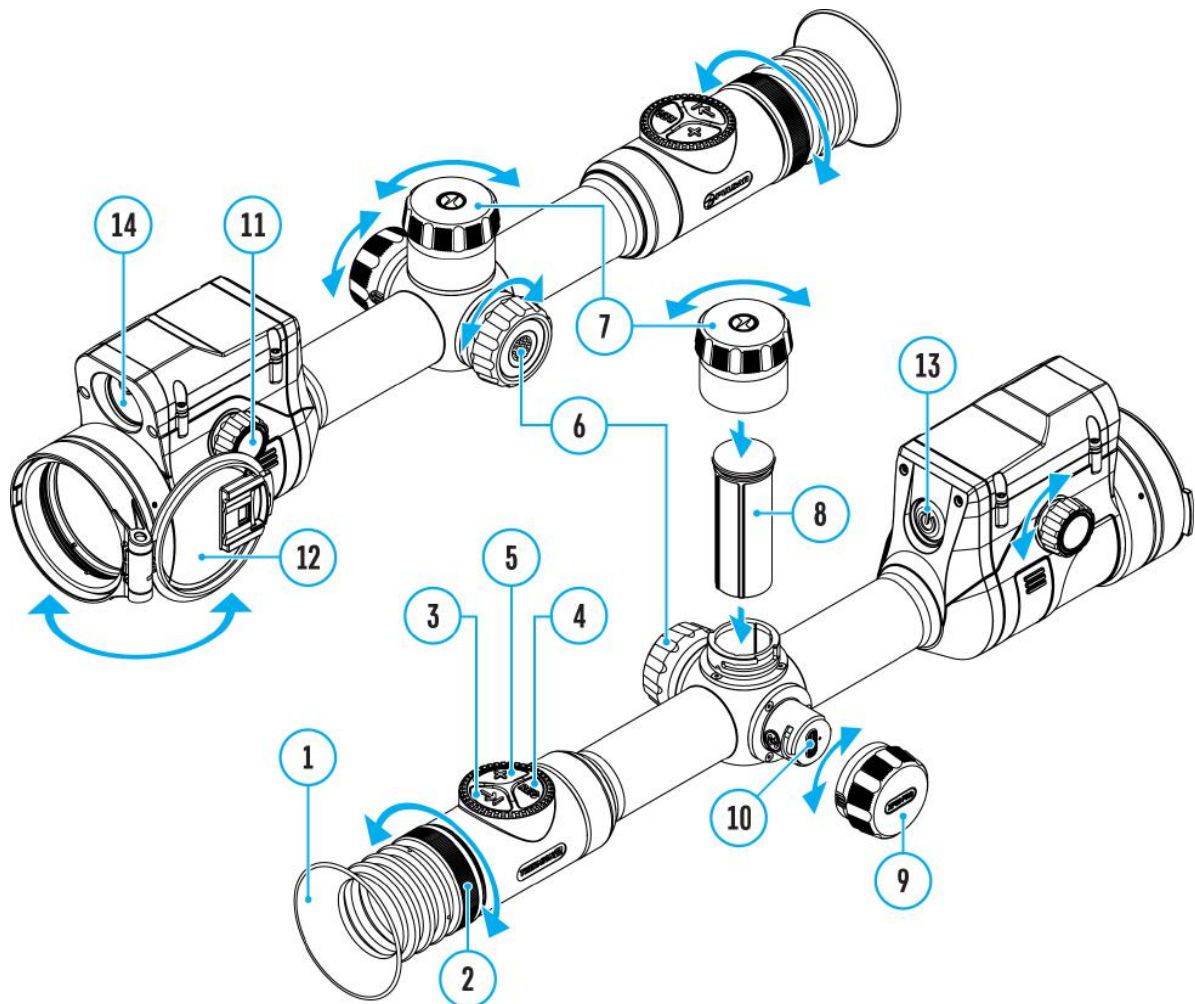
Wi-Fi is displayed in the status bar as follows:

Indication in the Status Bar	Connection Status
	Wi-Fi is switched off
	Wi-Fi is switched on by the user, Wi-Fi connection in the riflescope is in progress.
	Wi-Fi is switched on, there is no connection to the riflescope
	Wi-Fi is switched on, there is connection to the riflescope



- An external device recognizes the riflescope under the name Thermion2\_XXXX, where XXXX are the four last digits of the serial number.
- After entering the password (**default: 12345678**) on a mobile (see **Password Setup** subsection of the **Wi-Fi Settings** section for more information on setting a password) and setting up a connection, the icon  in the riflescope status bar changes to . Image not found or type unknown
- Launch Stream Vision 2 application on your mobile device (see **Stream Vision 2** section).
- Video broadcasting on a mobile screen starts after the viewfinder button on the mobile screen is activated.

# Scalable Reticles

## Show device diagram



This function is designed to preserve ballistic properties of the scalable reticles X51Fi-300, M56Fi, M57Fi for all magnifications.

1. Enter the main menu with a long press of the controller button **(6)**.
2. Enter submenu **Reticle & zeroing**  -> **Reticle Type** 
3. Select the reticle X51Fi-300, M56Fi, M57Fi.

### Notes:

- When zooming in and out the image, the selected reticle on the display

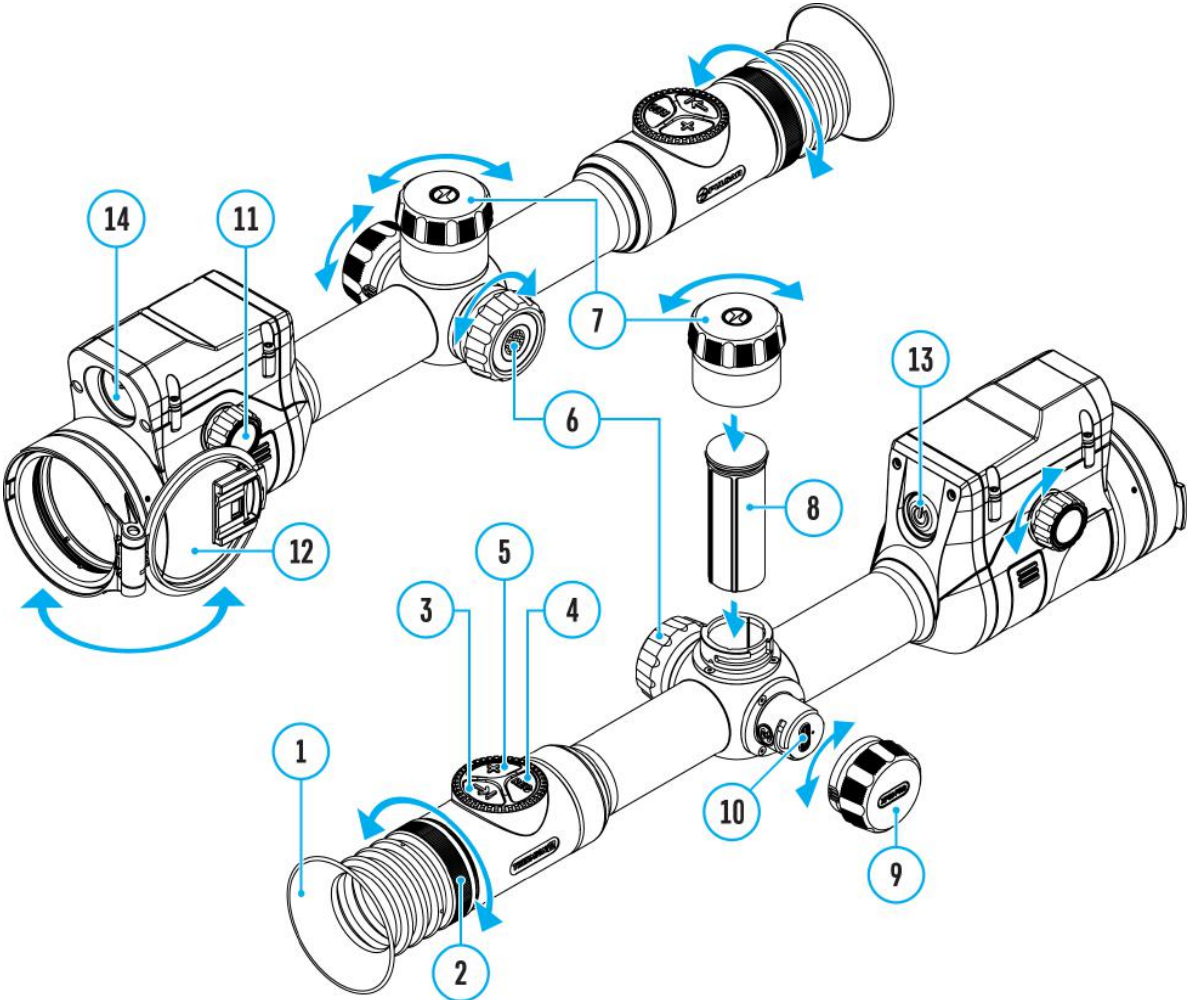


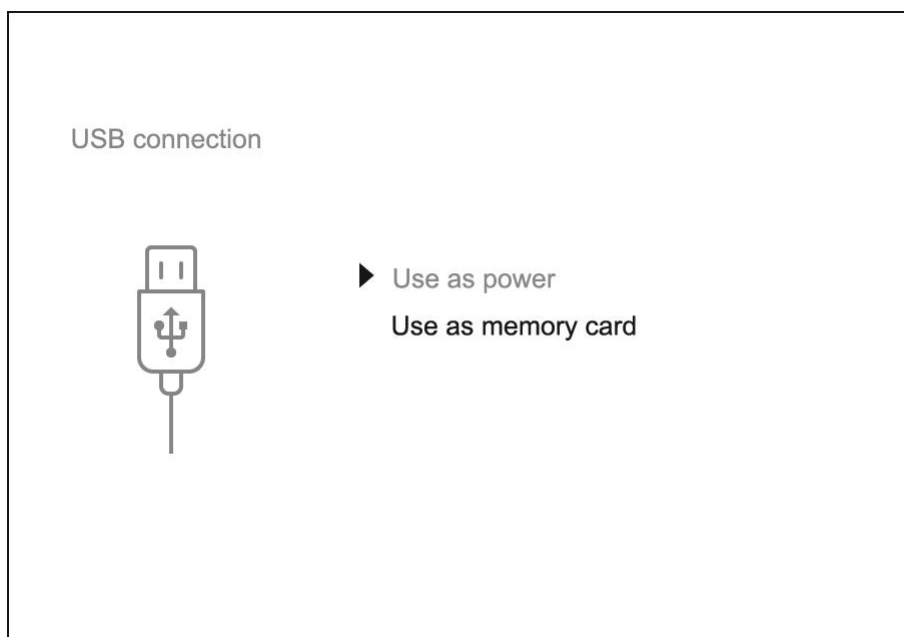
and in the recorded video changes its geometrical size according to the magnification selected.

- The reticle scale changes both on the main display and in the PiP mode.

# USB Connection

Show device diagram






1. Press the **ON/OFF (13)** button briefly to power the riflescope on (the computer will not detect the riflescope if it is turned off).
2. Connect one end of the USB cable to the riflescope USB Type-C port **(10)** and the other one to the port on your computer.
3. The riflescope is detected by the computer automatically and no installation of drivers is required.
4. After a few seconds, two connection options appear on the display:  
**Power** and **Memory card**.
5. Rotate the controller ring **(6)** to select the connection mode.
6. Press the controller button **(6)** briefly to confirm your selection.

---

## Power

- Upon choosing this mode, your PC is used as an external power supply. An icon  will appear in the status bar.
- The riflescope continues operating and all functions are accessible.
- Battery recharge feasibility depends on your computer's USB port.

---

## Memory Card

- When selecting this mode, the computer recognizes the riflescope as a memory card. This mode is designed to manage the files saved in riflescope's memory.
- The riflescope's functions are not available in this mode; the riflescope turns on. The device continues to operate after being disconnected from

the computer.

- If a video was being recorded at the moment of connection, the recording will stop and will be saved.
- 

## **USB Disconnection**

- When disconnecting from the computer, the device will continue to operate from the battery pack (if it is present and holding enough charge).
- When the USB is disconnected from the riflescope connected in the **Memory Card** mode, the riflescope remains switched on.

# 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 WiFi.

We recommend using the latest version – Stream Vision 2.

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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](#).

# Firmware Update

1. Download 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 phone, please turn on mobile data transfer (GPRS/3G/4G) to download update;
- if your Pulsar device is not connected to your phone 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](#).

# Technical Maintenance

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

- Wipe the exterior surfaces of metal and plastic parts off dust and dirt with a cotton cloth. To avoid damage to the paint coating, do not use chemically active substances, solvents, etc.
- Clean the electric contacts of the battery pack and battery slots on the riflescope using a non-greasy organic solvent.
- Check the lenses of the eyepiece, objective and rangefinder. If necessary, remove dust and sand from the optics (it is preferable to use a non-contact method). Cleaning of the exterior surfaces of the optics should be done with cleaners designed especially for this purpose.

# Technical Inspection

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

- The riflescope appearance (there should be no cracks on the body).
- The state of the lenses of the objective, eyepiece and rangefinder (there should be no cracks, greasy spots, dirt or other deposits).
- The state of the rechargeable battery (must be charged to 50-70%) and the electric contacts (should be no signs of salts, oxidation or debris).
- The controls should be in working order.



# Troubleshooting

## 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 Mode](#) 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 -3/+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 image by rotating the lens focus knob.

---

## **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 that the same cartridge type and load bullets are being used as when the scope was initially zeroed.

If your riflescope was zeroed during the summer, and is now being used in the winter (or the other way round), in the day or night, or through extreme temperature changes) slight shifts in points of impact are possible. 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).

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## **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.

### **Possible cause**

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

### **Solution**

**Switch** the device's WiFi 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.

More information on solving problems with connection to Stream Vision 2 by following the [link](#).

---

## **The image of the object being observed is missing**

### **Possible cause**

Observation through glass.

### **Solution**

Remove the glass from the field of vision.

---

## **Poor image quality / Reduced detection distance**

### **Possible cause**

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

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## **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.

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

### **Possible cause**

In positive temperature conditions, objects being observed (surroundings and background) heat up differently because of thermal conductivity, thereby generating a high temperature contrast.

Consequently, the image quality produced by the thermal imager will be better.

In low-temperature conditions, objects being observed (background) 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.

---

## **Rangefinder will not measure distance**

### **Possible cause**

There is an object in front of the receiver or emitter lens preventing signal transmission.

### **Solution**

Make sure that: the lenses are not blocked by your hand or fingers; the lenses are clean.

### **Possible cause**

The device is not being held steadily when measuring.

### **Solution**

Do not stress the device when measuring.

### **Possible cause**

Distance to the object exceeds 800 m.

### **Solution**

Pick an object at a distance not longer than 800m.

### **Possible cause**

Low reflection ratio (for example, tree leaves).

**Solution**

Pick an object with higher reflection ratio (see point **Additional Information** in section [Laser Rangefinder](#)).

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## **Large measurement error**

**Possible cause**

Inclement weather conditions (rain, mist, snow).

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# Specifications

## LRF XP50 PRO

<b>Model</b>	<b>LRF XP50 PRO</b>
SKU	76551
<b>Microbolometer</b>	
Type	uncooled
Resolution, pixels	640x480
Pixel Pitch, $\mu\text{m}$	17
NETD, mK	< 25
Frame refresh rate, Hz	50
<b>Optical Specifications</b>	
Lens, mm	F50 F/1.0
Magnification, x	2-16
Eye relief, mm/inch	50/1.96
Field of view (H), $^{\circ}/\text{m}@100$	12.4/21.8
Diopter adjustment, D	-3/+5
Detection distance (Object of "deer" type), m/y	1800/1970
<b>Aiming Reticle</b>	
	21 - 2x
Click value (H/V), mm@100 m	10.5 - 4x
- when magnifying, x	5.25 - 8x
	2.6 - 16x
Click range, mm@100 m (H/V)	4200/4200
<b>Display</b>	

Type	AMOLED
Resolution, pixels	1024x768
<b>Operating Features</b>	
Diameter of the riflescope body to assemble the mounting rings, mm	30
Power Supply, V	3-4.2
Battery type / Capacity / Rated Output Voltage	Li-Ion Battery Pack APS2 / 2000 mAh / DC 3.7 V (removable) or Li-Ion Battery Pack APS3 / 3200 mAh / DC 3.7 V (removable)*  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)
Battery Packs (built-in APS5 and removable APS2) operating time at temp. = 22 °C, hrs**	10
Max. recoil power on rifled weapon, Joules	6000
Max. recoil power on smoothbore weapon, caliber	12
Degree of protection IP code (IEC60529)	IPX7
Operating temperature, °C / °F	-25 - +50 / -13 - +122
Dimensions with an eyecup, mm/inch	420x78.5x94.5 / 16.54x3.09x3.72
Weight (without removable battery), kg/oz	0.97 / 34.22

**Video Recorder**

Photo / video resolution, pixels	1024x768
Video / photo format	.mp4 / .jpg
Built-in memory	16 GB

**Wi-FiChannel\*\*\***

Frequency	2.4/5 GHz
Standard	IEEE 802.11 b/g/n/ac

**Laser Rangefinder**

Wavelength, nm	905
Max. Measurement Range, m/y****	800 / 874.9
Measurement Accuracy, m	1

\* Purchased separately.

\*\* The actual operating time depends on the intensity of using Wi-Fi, video recorder, 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.



# Legal Compliances and Disclaimers

**Attention!** Thermion thermal imaging riflescopes require a licence 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.



Improvements may be made to the design of this product to enhance its user features.

Repair of the device is possible within 5 years.

