

FORWARD Manual

Specifications

About the device

Components and Controls

Features

Package Contents

Power supply

External Power Supply

Battery Installation

Battery Charging

Getting started

Powering on and Image Settings

Mounting Attachment on Optical Rifle Scope

Operating Features

Safety Measures

Button Operation

Interface

Main Menu

Display Calibration

Descriptions of Controls

Bluetooth

Device Information

Auto Shutdown

General Settings

Wi-Fi Settings

Microphone

Icon Brightness

Enter the Main Menu

Quick Menu Functions

Status bar

Functions

USB Connection

Using the Weaver Rail

Remote Control Activation

SumLight™ Function

Display-Off Function

Removing the IR Illuminator

Installing the IR Illuminator

Wi-Fi Function

Video Recording and Photography

Software

Firmware Update

Stream Vision 2

Maintenance

Technical Maintenance and Storage

Technical Inspection

Legal Compliances and Disclaimers

Troubleshooting

Remote control does not work

Cannot open the adapter clamp

The attachment slides off the riflescope during firing

Impact point does not coincide with aiming point

The device does not focus

The display is not centred

There is a clear image of the aiming mark, but a fuzzy image of the object

Color bars appear on the display or the image disappears

Image is too dark

Poor image quality / Reduced detection distance

Missing or interrupted broadcasting via Wi-Fi

Smartphone or tablet cannot be connected to the device

The device does not operate from an external power source

Device malfunction

The device does not turn on

Specifications

Model	F455S
SKU	78189
Optical Characteristics	
Lens focus, mm	50
Relative aperture, D/f	1:1
Field-of-view (Horizontal), °	6.3
Field-of-view (Horizontal), m per 100 m	11
Detection Range (animal height 1.7 m), m/y	500/546.8
Minimum Focusing Distance, m/y	5/5.47
Recommended magnification of the daytime riflescope	2-8
Electronic Specifications	
Sensor type / resolution	CMOS HD 1280X720
Display type / resolution	AMOLED 1746×1000
Detachable IR Illuminator	
Type / wavelength, nm	LED 940
Operational Characteristics	
Power Supply, V	3.1-4.2
Battery type / Capacity / Rated Output Voltage	Li-Ion Battery Pack IPS7 / 6400 mAh / DC 3.7 V
External Power Supply	Micro USB type B (5V)
Max. Battery Pack Life at t = 22 °C (Wi-Fi off, IR off), Hour	9

Maximum Recoil Power when Used with a Rifled Weapon, Joules	6000
Maximum Shock-Resistance when Used with a Slug Gun, Caliber	12
Degree of protection IP code (IEC60529)	IPX7
Operating temperature, °C	-25 – +50
Overall Dimensions (with battery), mm/inch	155x136x77/6.1×5.35×3.03
Weight (with battery), kg/oz	0.84/29.6

Video Recorder

Video/Photo Format	.mp4 / .jpg
Built-in Memory	16 GB

Wi-Fi Channel*

Frequency	2.4 GHz
Standard	802.11 b/g

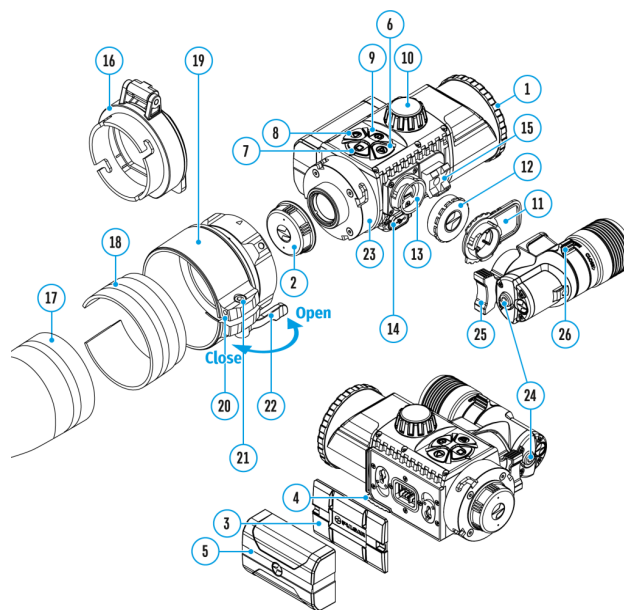
Bluetooth

Wireless Protocol	BLE 4.2
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*Reception range may vary depending on various factors: the presence of obstacles, other Wi-Fi networks.

About the device

Components and Controls



1. Lens cover
2. Eyepiece cover
3. Battery compartment cover
4. Battery locking lever
5. Battery pack
6. RIGHT button
7. M (MENU) button
8. LEFT button
9. ON/OFF button
10. Lens focus knob
11. IR illuminator cover

12. IR illuminator connector cap
 13. Connector for installing IR illuminator
 14. MicroUSB port
 15. Weaver rail
 16. Adapter cover*
 17. Riflescope lens
 18. Insert*
 19. Adapter*
 20. Tightening screw*
 21. Screw*
 22. Adapter lever*
 23. Mounting area
 24. IR button
 25. IR illuminator arm
 26. IR illuminator lens lock knob
-

*Items of Cover Ring Adapter FN (available separately)

Features

- 1280×720 HD sensor
- Enhanced night-time sensitivity
- Simple transformation of daytime optical riflescope into night riflescope
- Preserves the benefits of daytime optics in night-time conditions
- Aiming point stability
- Comfortable use in a wide range of daytime optical magnifications
- Invisible long-range IR Illuminator
- SumLight™ enhanced sensitivity firmware
- Detection distance of up to 500m
- Instant power up

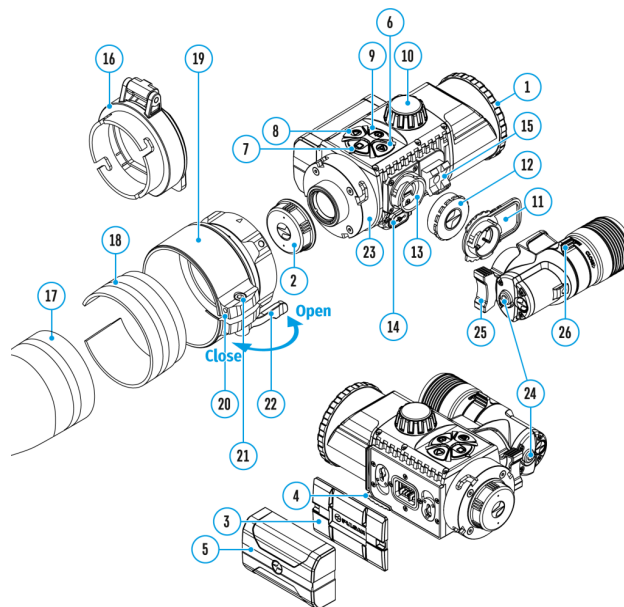
- Built-in video
- Power from quick-release, high-capacity B-pack rechargeable batteries
- Four-point mounting system with automatic clamp
- Compatibility with other manufacturers' adapters
- High caliber recoil resistance 12 gauge, 9.3×64, 0.375H&H
- Wireless remote control
- Wi-Fi integration with iOS and Android devices
- Remote firmware updates
- Fully waterproof (IPX7)
- Extreme operating temperature range (-25 °C – +50 °C / -13 °F – +122 °F)
- MicroUSB Power Bank charging
- Storing photos and videos in Cloud when using the Stream Vision 2 App

Package Contents

- Digital Night Vision Attachment
- Carrying Case
- Wireless Remote Control
- IPS7 Battery Pack
- Battery Pack Charger
- Power Adapter
- USB Cable
- Quick Start Guide
- Lens-Cleaning Cloth
- Warranty Card

Power supply

External Power Supply



External power is supplied from an external source, such as a 5V Power Bank.

1. Attach the external power source to the USB connector **(14)** on the device.
2. The device will switch to operation from the external power supply, while the IPS7 battery will be gradually recharged.
3. A battery icon



will appear on the display showing charge level as a percentage.

4. If the device is connected to a computer, network adapter or power bank that does not conform to the BC1.0 battery charger standard, an IPS7 battery will not begin charging: the external power icon only will be displayed



- If the device is operated from an external power source and the IPS7 battery is not connected, an icon

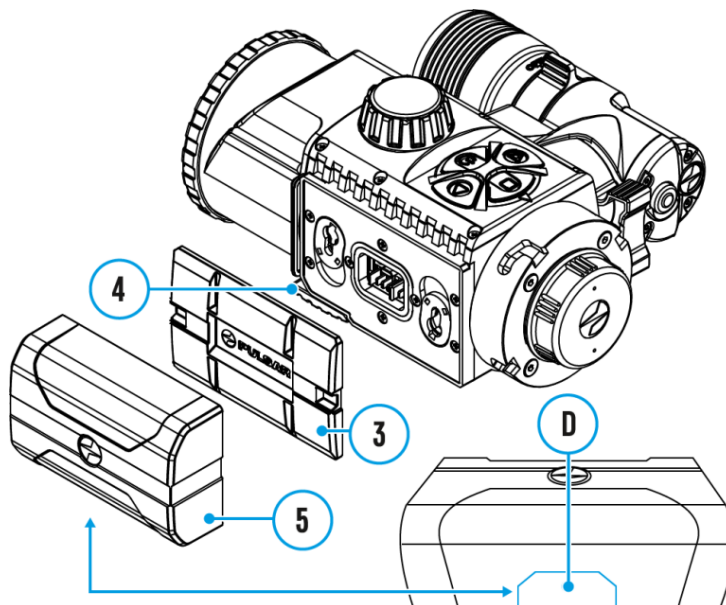


is displayed.

- Once the external power source is disconnected, the adapter will begin functioning on battery power.

Attention! Charging Power Bank IPS7 batteries at air temperatures below 0 °C can result in reduced battery life. When using external power, connect Power Bank to the switched-on device, which have worked for several minutes.

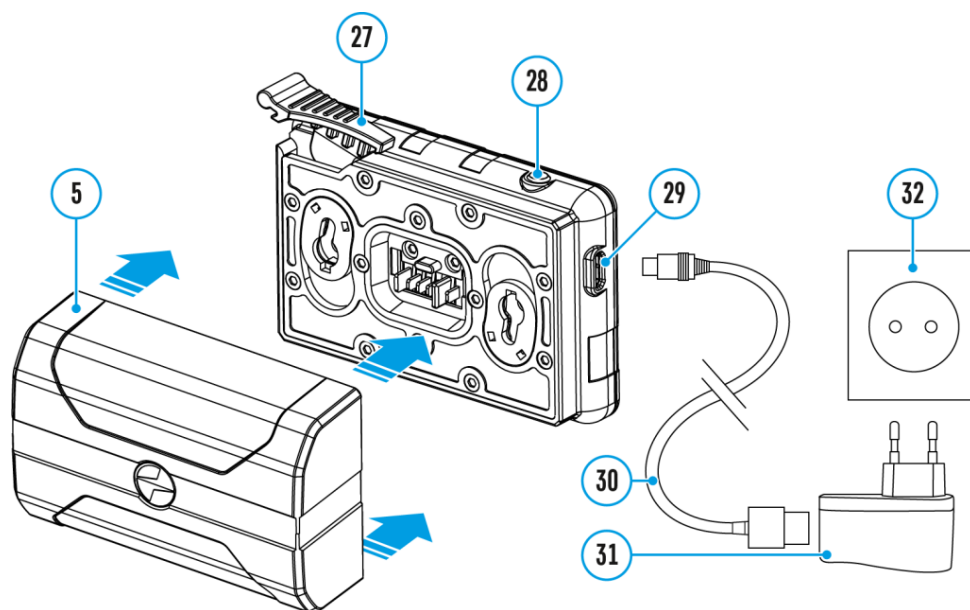
Battery Installation



1. Lower the lever **(4)**.
2. Remove the protective cover of the battery compartment **(3)**.
3. Insert the battery **(5)** into the slot designed for it on the device body so that the element **(D)** is pointing downwards.
4. Lock the battery in place by raising the lever **(4)**.

Battery Charging

The device is supplied with a rechargeable IPS7 Lithium-ion Battery Pack which allows the attachment to be used for up to 9 hours. Charge the battery before first use.



Charging

Step 1. Install the battery into the charger

1. Raise the lever **(27)** of the charger.
2. Install the Battery Pack **(5)** into the charger.

3. Click the lever **(27)**.

Step 2. Check the current battery level

- Upon installation, a green LED indicator **(28)** on the charger will start to glow and begin flashing:
 - once if the battery charge ranges from 0% to 50%.
 - twice if the battery charge ranges from 51% to 75%.
 - three times if the battery charge ranges from 76% to 100%.
- When the indicator is continuously green, the battery is fully charged. Disconnect the charger from the mains and disconnect the battery from the charger.
- If the battery charger indicator is constantly red when the battery is inserted, the charge level is probably below the permissible level (the battery has been in a discharged state for a long period of time). Leave the battery in the charger for a long period of time (up to several hours), then remove and reinsert.
- If the indicator begins to flash green, the battery is good.
- If it continues to show red, the battery is defective. **Do not use this battery!**

The LED indicator **(28)** will display the battery charge status:

LED Indicator **(28)**

Battery Charge Status



Battery is empty



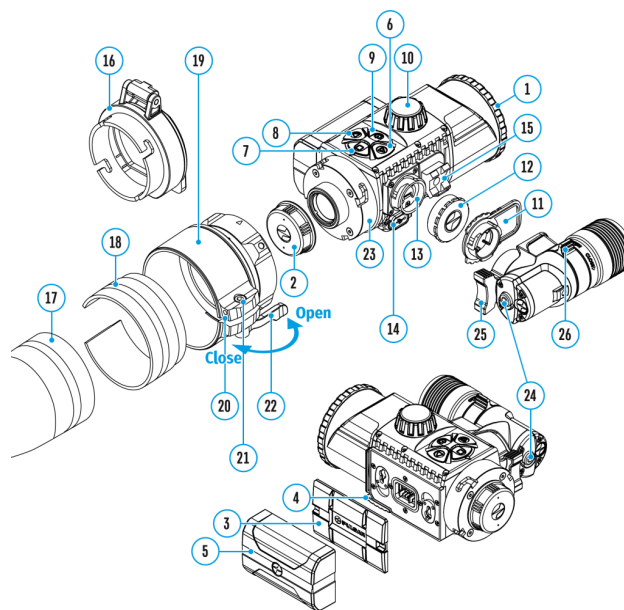
Battery is full

Step 3. Connect the charger to the mains supply

1. Attach the microUSB plug of the USB cable **(30)** to the microUSB connector **(29)** on the charger.
2. Connect the USB plug on the cable **(30)** to the power adapter **(31)**.
3. Plug the power adapter **(31)** into a 100-240V **(32)** socket.
4. When the indicator **(28)** is continuously green, the battery is fully charged. Disconnect the charger from the mains.

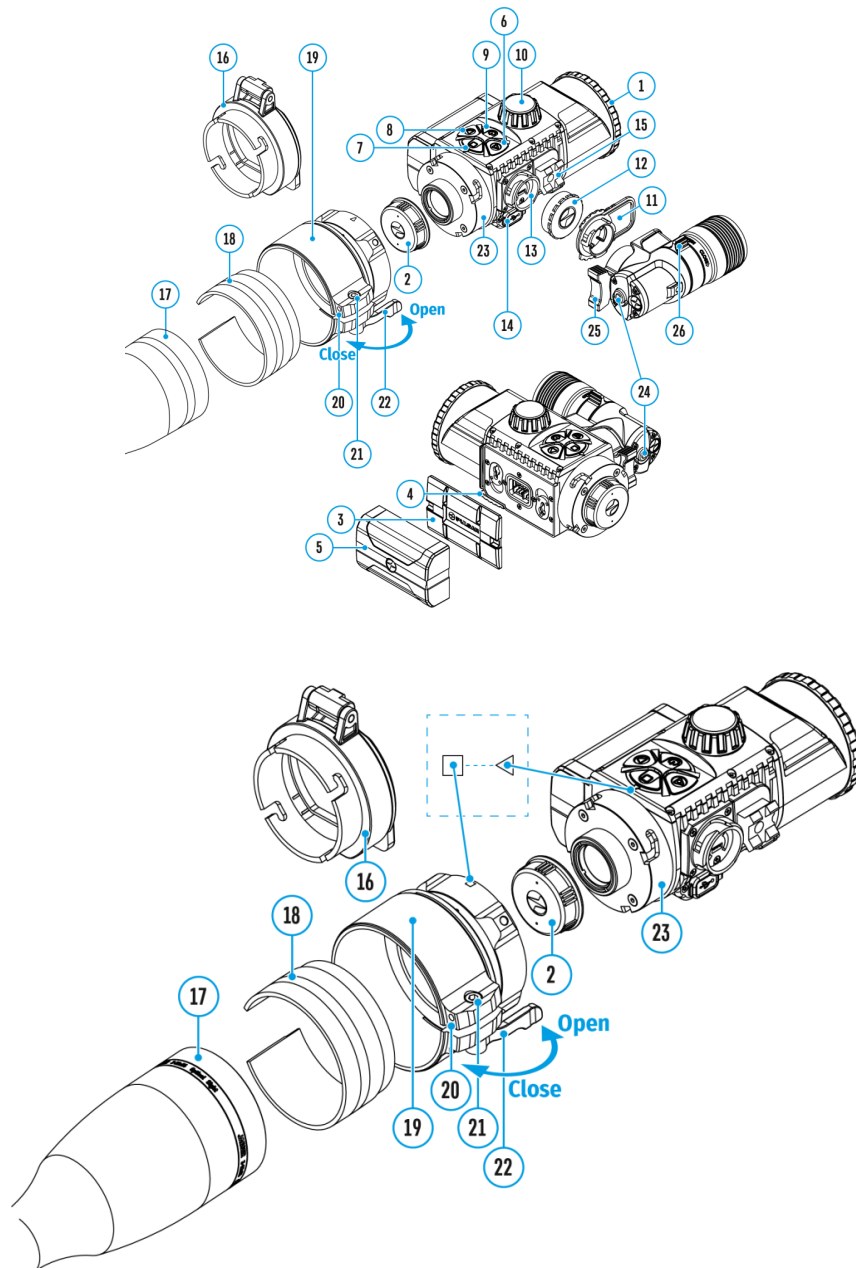
Getting started

Powering on and Image Settings



1. Remove the lens cap **(1)** by turning it anticlockwise.
2. Turn on the attachment with a short press of the **ON/OFF (9)** button. An image will appear on the display.
3. Adjust the resolution of the icons on the display by rotating the dioptre adjustment ring of your optical riflescope. In future, it will not be necessary to rotate the eyepiece dioptre adjustment ring, regardless of distance and other conditions.
4. Rotate the lens focus ring **(10)** to focus on the object being observed.
5. Basic settings (brightness and contrast adjustment) can be altered by using the **quick menu**.
6. Power the attachment off after use with a long press of the **ON/OFF (9)** button.

Mounting Attachment on Optical Riflescope



1. Select the adapter (available separately) with the required diameter of insert depending on the outer diameter of the lens of your optical riflescope (see the Table).

2. The designation 42mm / 50mm / 56mm in the title of the adapter refers to the optical diameter of the lens in the optical riflescope.
3. Remove the cap **(16)** from the 42mm adapter **(19)** (SKU 79171) by turning it clockwise. To remove the cap from the 50mm (SKU 79172) or 56mm (SKU 79173) adapters, turn it anticlockwise.
4. Degreasing of the body of the optical riflescope before mounting is recommended.
5. Mount the insert **(18)** onto the adapter **(19)** as far as it will go.
6. Move the lever **(22)** to the OPEN position.
7. Mount the adapter with the insert into the lens of the optical riflescope **(17)**.
8. Move the lever **(22)** from its initial OPEN position to the CLOSE position.
9. Ensure that the adapter fits snugly against the lens.
10. If there is any gap, do the following:
 - Loosen the locking screw **(20)** with an Allen key (S=2mm).
 - Tighten the screw **(21)** with an Allen key (S=4mm) with the force necessary to ensure that the adapter fits tightly against the lens. The clamping forces should be 1 Nm.
 - Tighten the locking screw **(20)**.
11. The effort can be tested with a torque screwdriver.
12. Insert the attachment firmly into the adapter so that the pins located in the adapter case fit into the grooves **(23)** of the attachment. Turn the attachment clockwise as far as it will go. The triangular mark on the attachment and the square on the adapter body must be aligned.
13. To align the attachment, turn the handle **(22)** to the OPEN position and align the attachment with the horizon.

Selection Table for Riflescope Inserts

Cover adapter model	The internal diameter of the insert needs to match the outer diameter of the objective lens housing of the daylight riflescope it is being installed on.
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	Insert internal diameter, mm	Suitable for lens housing of daylight riflescopes with an outer diameter of, mm
Cover adapter FN 42mm	45.5	45.5
	46	46
	46.5	46.5
	47	46.7-47.6
	48	47.7-46.7
	49	48.7-49.6
	50	49.7-50.6
Cover adapter FN 50mm	51.6	51.6
	53.4	53.4
	55	54.7-55.6
	56	55.7-56.6
	57	56.7-57.6
	58	57.7-58.6
	59	58.7-59.6
Cover adapter FN 56mm	60	59.7-60.6
	61	60.7-61.6
	62	61.7-62.6
	63	62.7-63.6
	64	63.7-64.6
	65	64.7-65.6

Operating Features

The **Forward F455S** attachment is designed for long-term use. Please follow these guidelines to ensure long life and maximum performance:

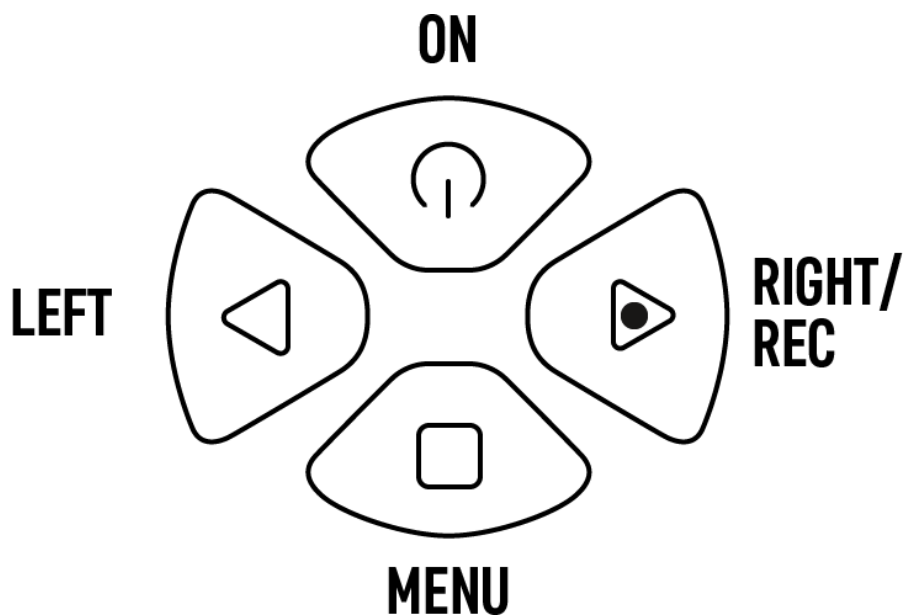
- Before using the attachment make sure you mount it according to the instructions in the **Mounting Attachment on Optical Riflescope** section.
- Power off the attachment after use.
- Do not repair or dismantle an attachment under guarantee by yourself!
- The attachment can be used over a wide range of temperatures. If the attachment has been operated in the cold and brought into a warm room, do not remove it from its carrying case for at least 2-3 hours; this will prevent condensation forming on the external optical elements.
- **Inspect** and **maintain** the attachment regularly to ensure trouble-free operation and to avert and eliminate the cases of premature wear and tear and failure of components.

Safety Measures

- Do not use the charger if it has been modified or damaged.
- Do not leave a battery unattended during charging.
- Do not leave the battery in a charger connected to the mains after charging is complete.
- The battery should be charged at a temperature between 0 °C and +45 °C, otherwise the battery life will be significantly reduced.
- Do not charge the battery immediately after bringing it from the cold into a warm atmosphere. Wait 30–40 minutes for the battery to warm up.
- Do not expose the battery to high temperatures or naked flame.
- Do not submerge the battery in water.
- The connecting of third-party devices with an energy consumption greater than permissible is not recommended.
- The battery is equipped with a short circuit protection system. However, situations that may lead to short circuiting should be avoided.
- Do not dismantle or deform the Battery Pack.
- Do not subject the Battery Pack to shocks or falls.
- When using the battery at negative temperatures, battery's capacity decreases, this is normal and is not a defect.
- The batteries should be partially charged (50 to 80 %) for long-term storage.

- Store the battery out of the reach of children.

Button Operation



Operation

Button

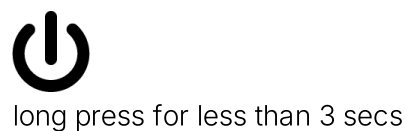
Power device on



Power device off



Turn display off



Turn display on



Turn on/off SumLight™



Turn on/off Wi-Fi



long press

Video Recorder

Button

Start/pause/resume video recording



short press

Stop video recording



long press

Switch to video/photo mode



long press

Capture Photo



short press

Main Menu

Button

Enter main menu



long press

Navigation downwards/counterclockwise



short press

Navigation upwards/clockwise



short press

Confirm value



short press

Exit submenu without confirming selection



long press

Exit main menu



long press

Quick Menu

Button

Enter quick menu



short press

Switch between quick menu options



short press

Increase value



short press

Reduce value



short press

Exit quick menu

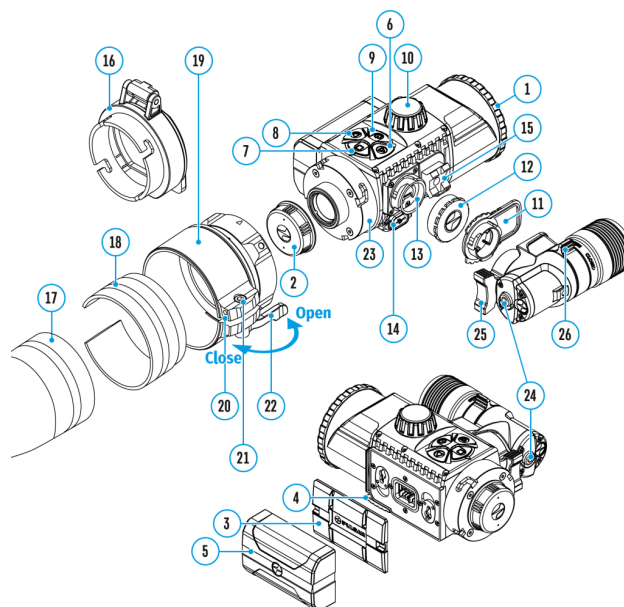


long press

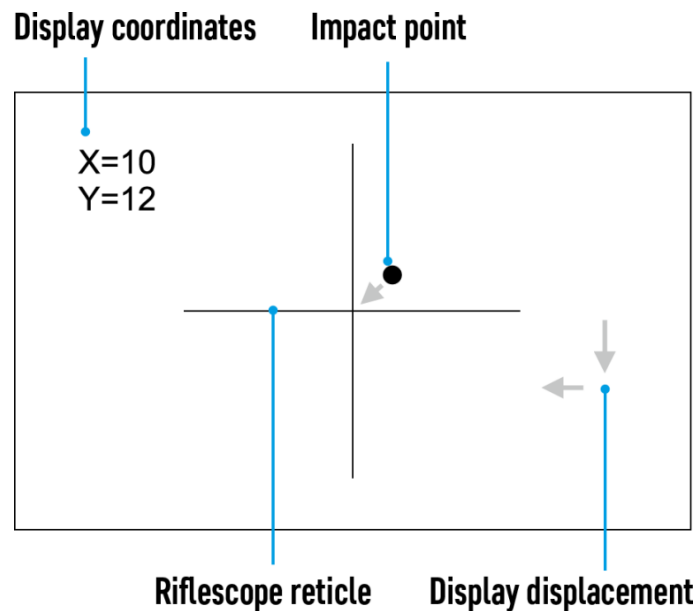
Interface

Main Menu

Display Calibration



The attachment is configured so that after fitting onto an optical riflescope that had been properly zeroed, no adjustment of the aiming point is required. Yet if point of impact change is observed after putting on the attachment, you can fix it with display calibration procedure.



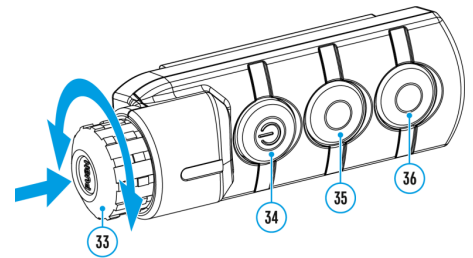
1. To enter display calibration mode, first press and hold the **M (7)** button for 10 seconds.
2. The display coordinates $X=0$; $Y=0$ will appear.
3. Use the **LEFT (8)** and **RIGHT (6)** buttons to move the display horizontally (X axis) and vertically (Y axis) so that the point of impact moves to the center of the riflescope reticle.
4. Press the **M (7)** button to toggle between the X and Y coordinates.
5. The image offset range is +/- 20 pixels horizontally (X axis), +/- 20 pixels vertically (Y axis).
6. To exit the menu and save the settings, press and hold the **M (7)** button for two seconds.

Descriptions of Controls

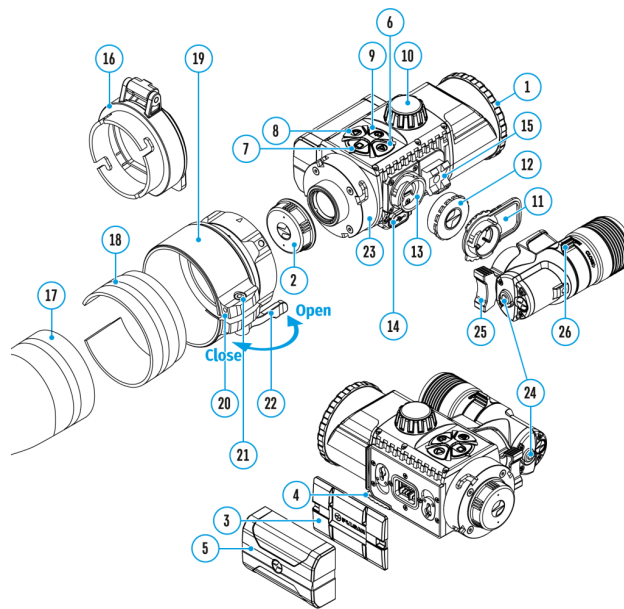
The wireless remote control duplicates the functions of turning off the device, turning off the display, controlling the IR illuminator, video recording and photographing, and it allows navigation through the menu.

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.

	Controller (33)	Button (34)	Button (35)	Button (36)
Short press	Enter the quick menu and submenus of the main menu / confirm the selection / Switch to the next item of the quick menu	Turn the display on	Turn on the IR illuminator / Switch the IR power level	Start video recording / Capture a photo
Long press	Enter/exit the main menu / Exit the quick menu	Turn the display off / Turn the device off	Turn off the IR illuminator	Switch to photo/video mode
Clockwise rotation	Quick menu Increase parameter Main menu Navigate downwards/clockwise			
Counter-clockwise rotation	Quick menu Decrease parameter Main menu Navigate upwards/counterclockwise			



Bluetooth



Turn on/off Bluetooth

1. Press and hold the **M (7)** button to enter the main menu.
2. Select the **Bluetooth**

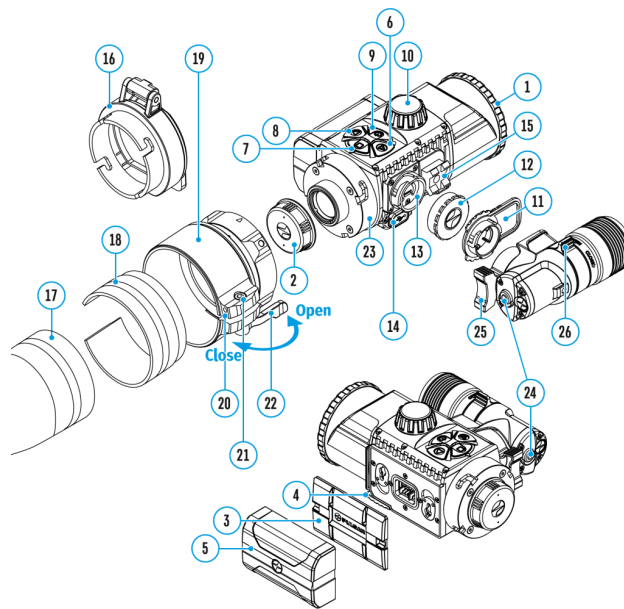


submenu with the **RIGHT (6)** and **LEFT (8)** buttons.

3. A short press of the **M (7)** button opens the submenu.
4. Turn Bluetooth on/off with a short press of the **M (7)** button.
5. Press and hold down the **M (7)** button to exit the submenu.

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

Device Information



1. Press and hold the **M (7)** button to enter the main menu.
2. Select the **Device Information**



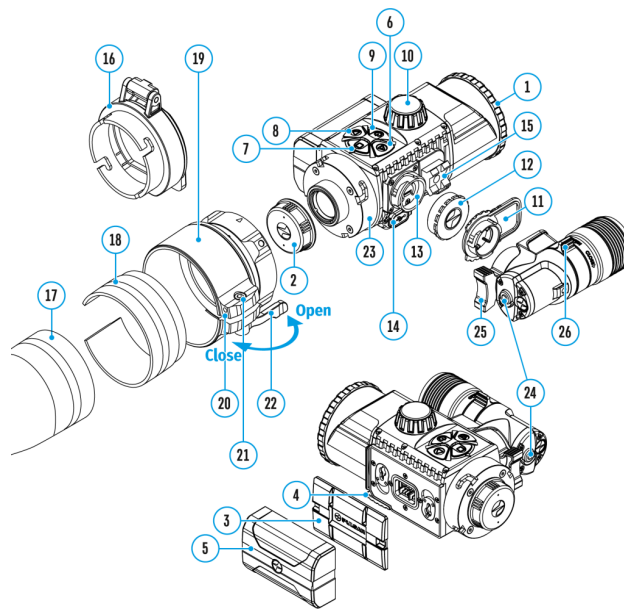
menu with the **RIGHT (6)** and **LEFT (8)** buttons.

3. A short press of the **M (7)** button opens the submenu.

The user has access to the following information about the device:

- full name
- SKU number
- serial number
- firmware version
- hardware version
- service information

Auto Shutdown



This function enables you to activate automatic shutdown of the device after a certain period of time when it is tilted up or down by more than 70°, or right or left by more than 30°. Meanwhile the device controls should not be activated.

1. Press and hold the **M (7)** button to enter the main menu.
2. Select the **Auto Shutdown**



menu with the **RIGHT (6)** and **LEFT (8)** buttons.

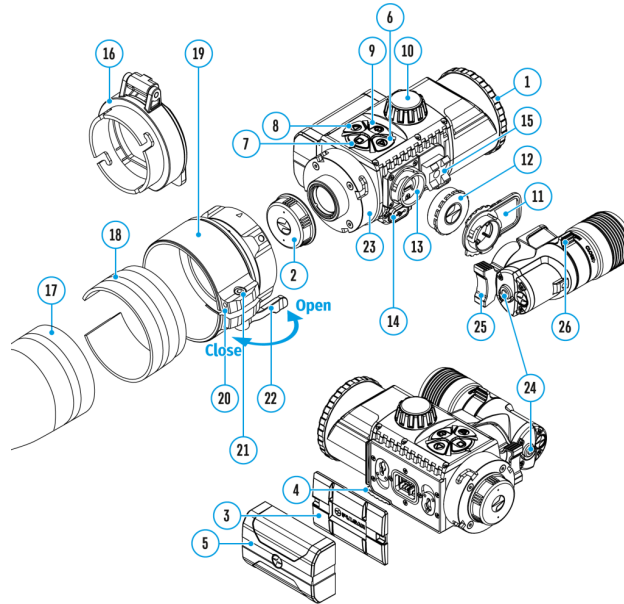
3. A short press of the **M (7)** button opens the submenu.
4. Use the **RIGHT (6)** and **LEFT (8)** buttons to select the time period after which the device will automatically turn off (**1 min; 3 min; 5 min**), or select **"Switch off"** if you want to deactivate the automatic shutdown function.
5. Confirm your selection with a short press of the **M (7)** button.

Note: the status bar will display Auto Shutdown status icon



1 min.

General Settings



1. Press and hold the **M (7)** button to enter the main menu.
2. Select the submenu **General Settings**



with the **RIGHT (6)** and **LEFT (8)** buttons.

3. A short press of the **M (7)** button opens the submenu.
4. Select the desired menu item with the **RIGHT (6)** and **LEFT (8)** buttons.

This menu item allows you to program the following settings:

Language

1. A short press of the **M (7)** button opens the **Language**



submenu.

2. Select one of the available interface languages (English, French, German, Spanish or Russian) with the **RIGHT (6)** and **LEFT (8)** buttons.
 3. Confirm your selection with a short press of the **M (7)** button.
-

Date

1. A short press of the **M (7)** button opens the submenu **Date**



2. The date appears in dd/mm/yyyy format (01/01/2021).
 3. Set the required year, month and day with the **RIGHT (6)** and **LEFT (8)** buttons (the **RIGHT (6)** button increases the value and the **LEFT (8)** button reduces it). Press the **M (7)** button to toggle the digits.
 4. To save your chosen date and exit the submenu, press and hold the **M (7)** button.
-

Time

1. A short press of the **M (7)** button opens the submenu **Time**



2. Select the time format (24-hour clock or AM/PM) by pressing the **RIGHT (6)** and **LEFT (8)** buttons.
3. Press the **M (7)** button to move to the hour setting.
4. Set the hour with the **RIGHT (6)** and **LEFT (8)** buttons. The **RIGHT (6)** button increases the value and the **LEFT (8)** button reduces it.
5. Press the **M (7)** button to move to the minute setting.

6. Set the minute by pressing the **RIGHT (6)** and **LEFT (8)** buttons.
 7. To save your chosen time and exit the submenu, press and hold the **M (7)** button.
-

Default Settings

1. A short press of the **M (7)** button opens the submenu **Default Settings**



2. Select the **'Yes'** option to reset to factory settings or **'No'** to cancel using the **RIGHT (6)** and **LEFT (8)** buttons.
3. Confirm your selection with a short press of the **M (7)** button.

The following settings will be restored to their factory state before being set by the user:

- **Brightness level** – 10
 - **Contrast level** – 8
 - **Language** – English
 - **Wi-Fi** – off (default password)
 - **Auto shutdown** – off
-

Format

Formatting the built-in memory card permanently deletes all of the recorded files.

Formatting should be carried out in case of a memory card error.

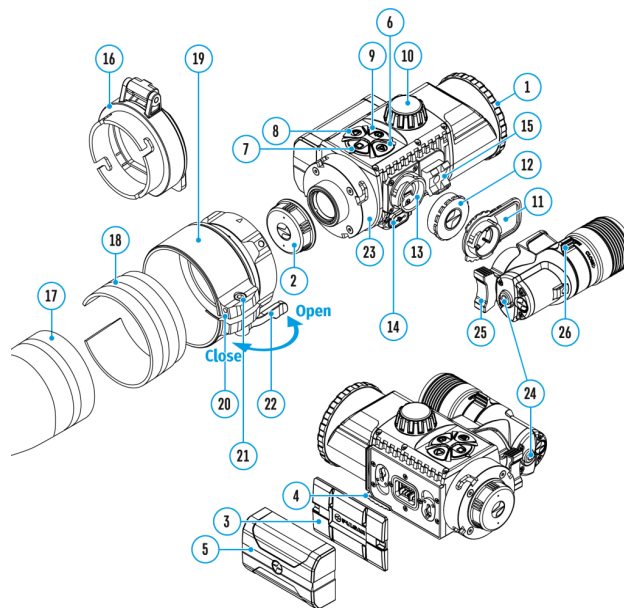
Attention! Make sure that you no longer need the files to be deleted or create a backup on other media.

1. A short press of the **M (7)** button opens the submenu **Format**



2. Select the **'Yes'** option to format or **'No'** to cancel using the **RIGHT (6)** and **LEFT (8)** buttons.
3. Confirm your selection with a short press of the **M (7)** button.

Wi-Fi Settings



This option enables you to configure the device to operate on a Wi-Fi network.

Note: Wi-Fi is turned on/off with a long press of the **LEFT (8)** button.

1. Press and hold the **M (7)** button to enter the main menu.
2. Select **Wi-Fi Settings**



submenu using the **RIGHT (6)** and **LEFT (8)** buttons.

3. A short press of the **M (7)** button opens the submenu.
4. Select the desired menu item with the **RIGHT (6)** and **LEFT (8)** buttons.

Password Setup

This submenu allows you to set a password to access the attachment from an external device. This password is used when linking an external device (e.g. a smartphone) to the attachment.

1. A short press of the **M (7)** button opens the **Password Setup**



submenu.

2. The default password **(12345678)** will appear on the screen.
 3. Set your desired password with the **RIGHT (6)** and **LEFT (8)** buttons. The **RIGHT** button increases the value and the **LEFT** button reduces it. Press the **M (7)** button to toggle the digits.
 4. Press and hold down the **M (7)** button to save the password and exit the submenu.
-

Access Level Setup

This sub-function enables you to configure the appropriate level of access to your device made available to the Stream Vision app.

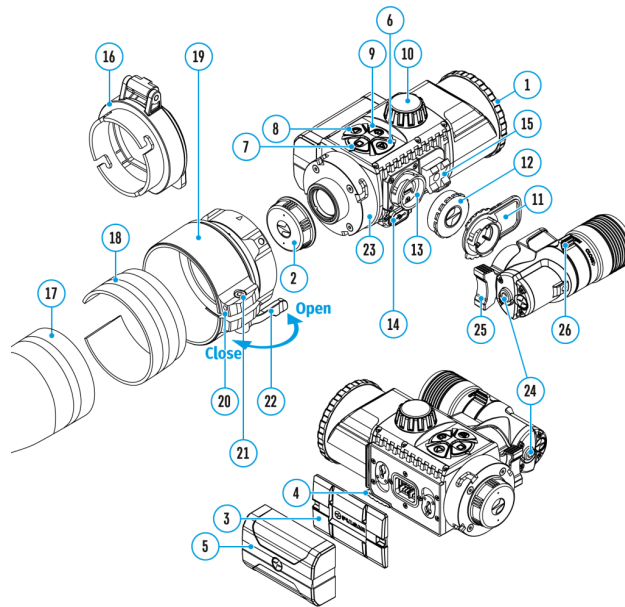
- **Owner** level. A Stream Vision user has full access to all the device's functions.
- **Guest** level. A Stream Vision user is only able to view video footage from the device in real time.

1. A short press of the **M (7)** button opens the submenu **Access Level Setup**



2. Select **Owner** or **Guest** with the **RIGHT (6)** and **LEFT (8)** buttons.
3. Confirm your selection with a short press of the **M (7)** button.

Microphone



This item allows you to enable (or disable) the microphone for recording sound during video recording.

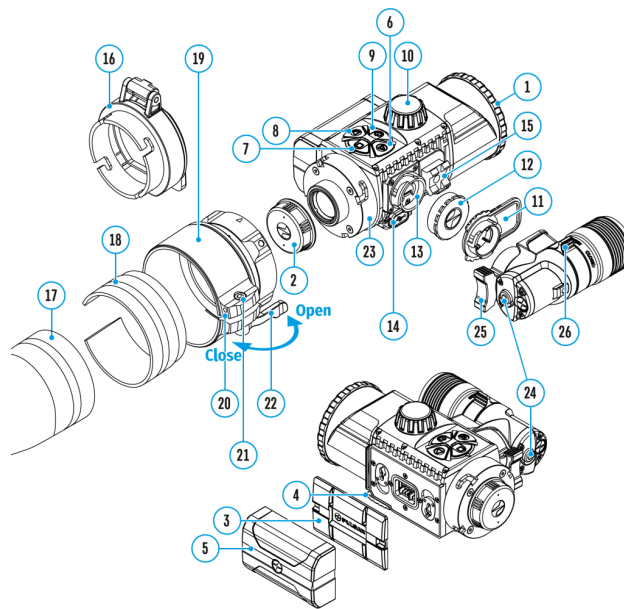
1. Press and hold the **M (7)** button to enter the main menu
2. Select **Microphone**



option with the **RIGHT (6)** and **LEFT (8)** buttons.

3. A short press of the **M (7)** button opens the submenu.
4. To turn the microphone on or off press **RIGHT (6)** or **LEFT (8)** buttons.
5. Confirm your selection with a short press of the **M (7)** button.

Icon Brightness



This menu item sets the brightness of icons on the attachment display.

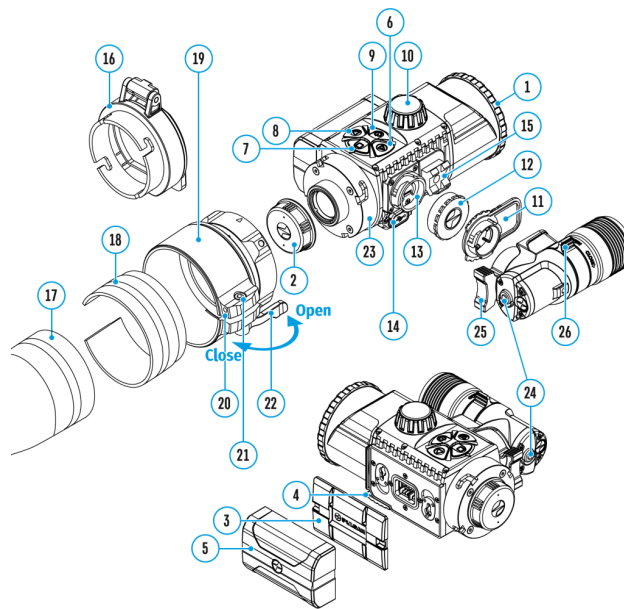
1. Press and hold the **M (7)** button to enter the main menu.
2. Select submenu **Icon Brightness**



with the **RIGHT (6)** and **LEFT (8)** buttons.

3. A short press of the **M (7)** button opens the submenu.
4. Change the brightness level of the icons with the **RIGHT (6)** and **LEFT (8)** buttons.
5. Confirm your selection with a short press of the **M (7)** button.

Enter the Main Menu



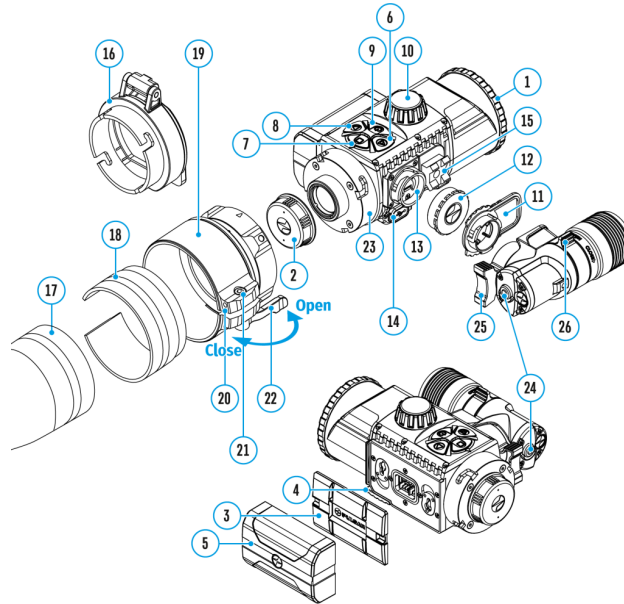
1. Enter the main menu with a long press of the **M (7)** button.
2. Press the **RIGHT (6)** and **LEFT (8)** buttons to toggle through the main menu functions.
3. Open sub-items in the main menu with one short press of the **M (7)** button.
4. To exit a sub-item in the main menu, press and hold down on the **M (7)** button.
5. Automatic exit from the main menu occurs after 10 seconds of inactivity.

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

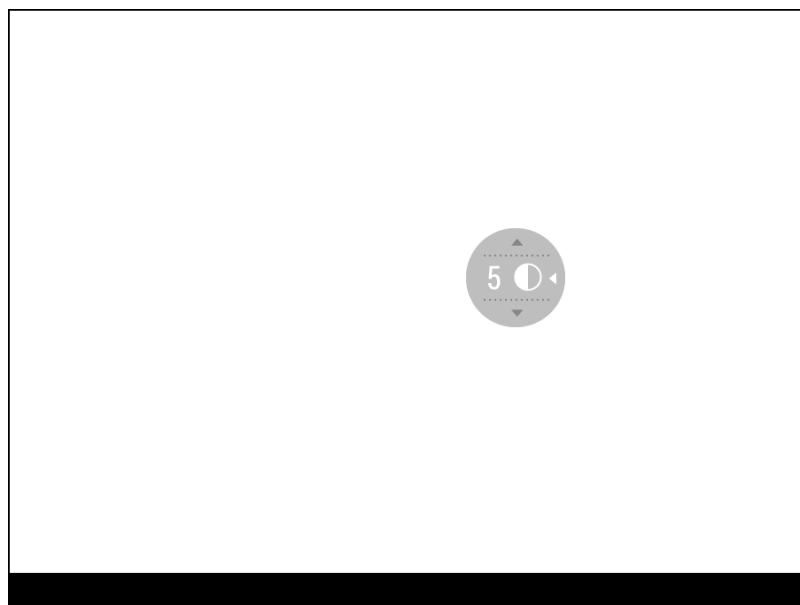
General View of the Menu



Quick Menu Functions



1. Enter the quick menu with a short press of the **M (7)** button.
2. A short press of the **M (7)** button enables you to switch between functions, as described below.



Contrast



– by pressing the **RIGHT (6)** and **LEFT (8)** buttons and changing the display contrast value from 0 to 20.

Brightness



– by pressing the **RIGHT (6)** and **LEFT (8)** buttons and changing the display brightness value from 0 to 20.

Status bar



The status bar is at the bottom of the display and displays information on the actual operating status of the device, including:

- Auto shutdown function



1 min (if activated)

- Microphone
- IR illuminator power level (e.g. Level 3)
- Power Indication:



– Battery Pack charge level (when the device is powered by the Battery Pack)



– external battery power indicator (if the device is powered from an external supply)



– battery charge indicator with current charge in percent (where charging is by an external power supply)

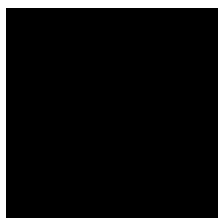
- The SumLight™ function
- Video recording status:



– video recording is on



– pause

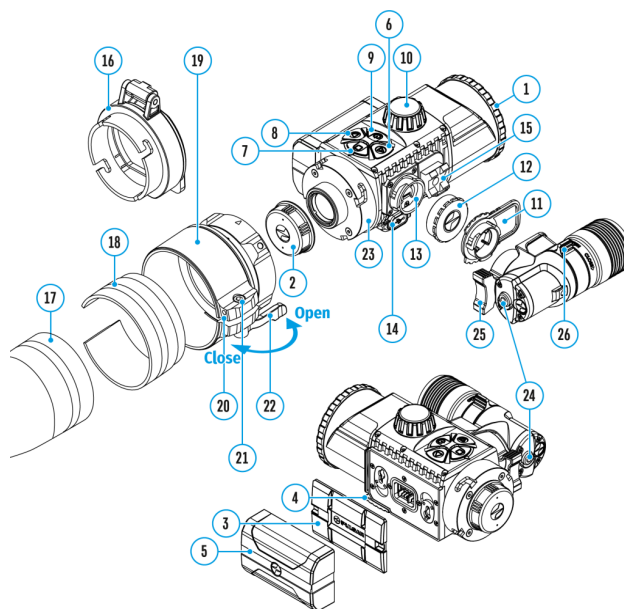


– video recording is off

- Wi-Fi Connection
- Time
- Bluetooth

Functions

USB Connection



USB connection



- Use as power
- Use as memory card

1. Power on the device by pressing the **ON/OFF (9)** button (the computer will not detect the device if it is turned off).
 2. Connect one end of the USB cable to the device's microUSB connector **(14)** and the other end to the port on your computer.
 3. The device is detected automatically by the computer and no installation of drivers is required.
 4. Two connection modes will appear on the display: **Power** and **Memory card**.
 5. Select the connection mode with the **RIGHT (6)** and **LEFT (8)** buttons.
 6. A short press of the **M (7)** button confirms the selection.
-

Power

- When this mode is selected, the computer is used by the device as an external power supply. An icon



will appear in the status bar.

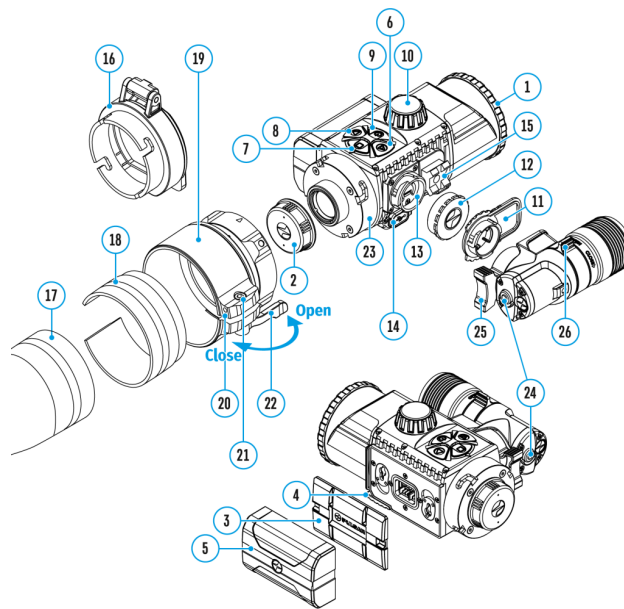
- The device will continue to function and all functions are available.
 - The battery pack installed in the device will not be charged.
-

Memory card

- When this mode is selected, the device will be recognised by the computer as a flash card.
 - This option is designed for working with files that are stored in the device's memory; the device's functions are not accessible and the device turns itself off. The device continues to function after disconnection from the computer.
 - If a video was being recorded at the time of connection, the recording will cease and will be saved.
-

Disabling the USB

- When disconnecting the USB from the device in **Power** mode, the device will continue to function with the Battery Pack, if it is available and has sufficient



1. Turn on the Bluetooth module (see the **Bluetooth** section).
2. In the **Bluetooth**



section of the menu, use the **RIGHT (6)** and **LEFT (8)** buttons to select the **Scan**



menu item.

3. Confirm your selection with a short press of the **M (7)** button.
4. 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.
5. Use the **RIGHT (6)** and **LEFT (8)** buttons to select the remote control from the dropdown list that appears.
6. Confirm your selection with a short press of the **M (7)** button.

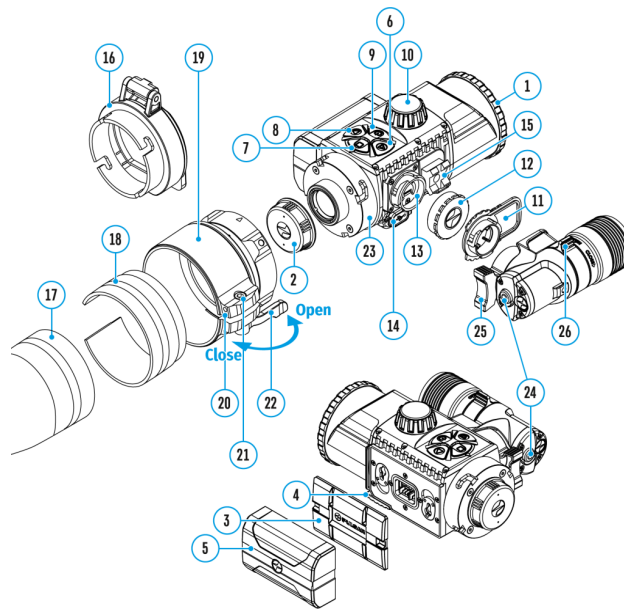
Notes:

- 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**



section of the menu.

SumLight™ Function



The SumLight™ function substantially increases the sensitivity of the CMOS array in the event of a reduction in the light level, thus enabling observation in conditions of low light without using the IR illuminator.

1. Turn off the IR illuminator before using the SumLight™ function.
2. To activate the SumLight™ function, press briefly the **LEFT (8)** button.
3. Press the **LEFT (8)** button once more to switch off.
4. The SumLight™ icon (on

S

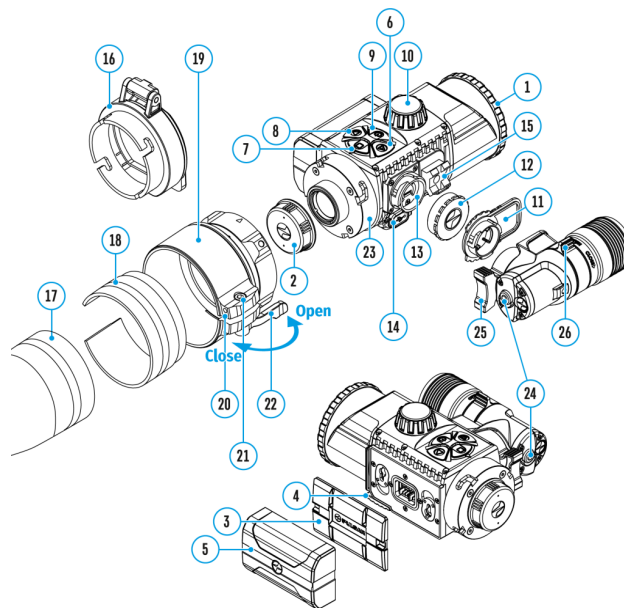
or off



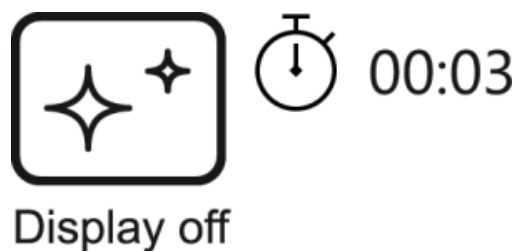
) is displayed in the status bar.

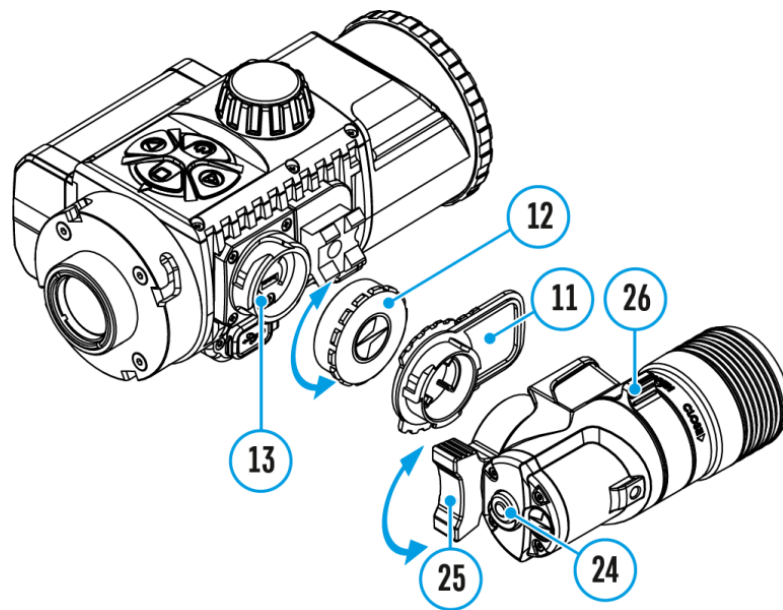
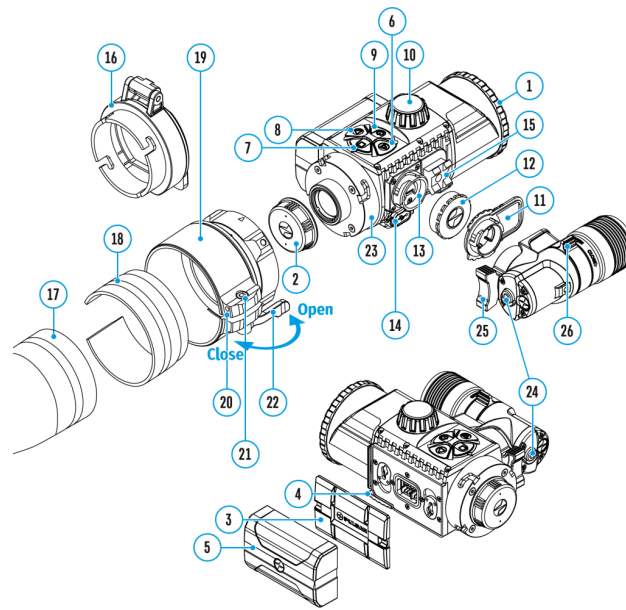
Attention! When the SumLight™ function is activated, the noise level in the image increases, the frame rate decreases and the image slows down. Any sharp movement of the device may cause the image to become “blurred”. Such effects are not defects. Luminous white dots (pixels) may be visible on the device’s display. The number of dots may increase when the SumLight™ function is enabled. This is due to the nature of how this function works and is not a defect.

Display-Off Function



When this function is in use, the device switches to standby mode, which allows it to be turned off quickly if necessary.





Step 1. Install the IR illuminator

1. Remove the cap (**12**) from the connector to attach the IR illuminator (**13**).
 2. Remove the cover (**11**) from the IR illuminator.
 3. Install the IR illuminator on the connector (**13**). The lever (**25**) should be in the up position.
 4. Lock the IR illuminator by pressing the lever (**25**) down.
 5. Make sure that the IR illuminator is mounted and connected to the device.
-

Step 2. Turn on the IR illuminator

1. Turn on the device using the **ON/OFF (9)** button to activate the IR illuminator.
2. The status bar will display the disabled illuminator icon



if the IR illuminator is not connected. This icon is not displayed when the IR illuminator is connected.

Step 3. Adjust the power level of the IR illuminator

1. Briefly press the **IR (24)** button at the end of the illuminator. The power level when switching on is minimum



.

2. The IR illuminator icon will be displayed on the status bar with the relevant power level.
3. Successive brief presses of the **IR (24)** button will toggle the brightness level of the illuminator (



>



>



>

IR

).

Step 4. Adjust the position of the light spot

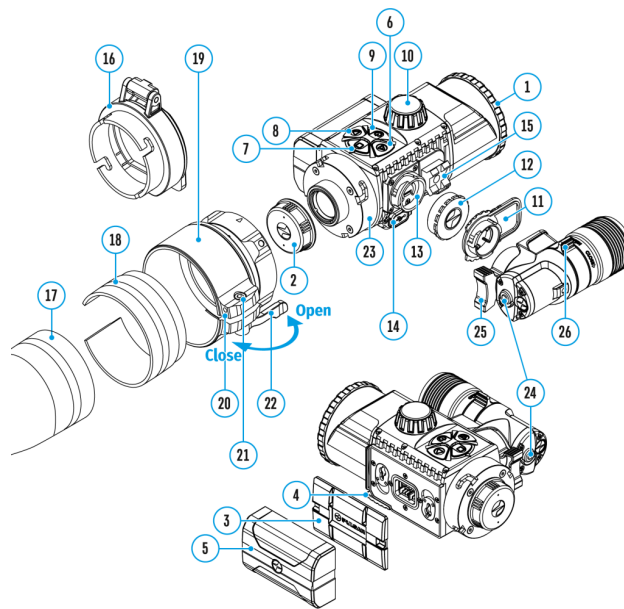
1. To adjust the position of the light spot in the field of view of the device, turn the IR-illuminator lens lock knob **(26)** to the OPEN position.
 2. By moving the lens of the IR illuminator with your hand, adjust the required position of the light spot in the field of view of your device. After successful adjustment, turn the lock knob **(26)** in the CLOSE direction while aiming the lens in the desired direction to lock the IR illuminator lens.
-

Step 5. Turn off the IR illuminator

1. The IR illuminator is turned off by a long press of the **IR (24)** button.
 2. The **IR** icon will disappear from the screen.
-

Note: when using an IR illuminator on a rifle with a silencer installed, light flare may appear on the display.

Wi-Fi Function



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

- Turn on the wireless connection module with a long press of the **LEFT (8)** button.

Wireless operation is displayed in the status bar in the following:

Connection Status	Indication on the status bar
Wi-Fi disconnected	No icon
Wi-Fi turned on by the user, Wi-Fi connection in the device is in progress	
Wi-Fi turned on, no connection to the device	
Wi-Fi turned on, the device is connected	

- The device is recognised by a mobile device under the label "Forward F_XXXX", where XXXX are the four last digits of the serial number.
- Once the password has been entered on the mobile device (for more information on setting a password, see the **Password Setup** subsection in the **Wi-Fi Settings** section) and the connection has been established, the icon



in the status bar changes to



, the video signal on the mobile device screen starts after the “viewfinder” button is activated on the screen of the mobile device. The icon in the status bar changes to



Note: you can configure the required access level to your device that is granted to the Stream Vision application in the **Access Level Setup**



subsection in the Wi-Fi Settings



menu section.

Video Recording and Photography

Photo mode. Photographing an image

1. Switch to **Photo** mode with a long press of the **RIGHT (6)** button.
 2. To capture a photo, press the **RIGHT (6)** button briefly. The image freezes for 0.5 sec.
 3. The photo is saved to the internal memory.
-

Video Mode. Recording video clips

1. Switch to **Video** mode with a long press of the **RIGHT (6)** button.
2. The icon



and the remaining recording time in HH:MM (Hours:Minutes) format are displayed in the upper left corner, for example, 5:12*. In the status bar, the video recording status is displayed continuously.

3. Start video recording with a short press of the **RIGHT (6)** button.
4. When the video recording starts, the icon



will disappear and the REC icon and timer in MM:SS (Minutes:Seconds) format will appear.

5. Press the **RIGHT (6)** button briefly to pause or resume video recording.
6. Stop the video recording by pressing and holding down the **RIGHT (6)** button.
7. Video files are stored in the internal memory card:
 - After turning off the video recorder;
 - When you turn off the device if the recorder had been turned on;
 - If the memory card is full, or if during a video recording the memory becomes full (a "Memory full" message appears on the display).

* an icon will be displayed for 2 seconds and then disappear. When the **RIGHT (6)** or **M (7)** button is briefly pressed again, an icon will appear and the recording timer will show the current time of the video recording.

Notes:

- You can enter and navigate the menu during video recording.
- Recorded videos and photographs are saved to the device's built-in memory card in the format: img_XXX.jpg (for photos); video_XXX.mp4 (for video). XXX – three-digit common file counter (for photos and video).
- The counter used for the names of multimedia files cannot be reset.
- If a file is deleted from the middle of the list, its number is not taken by another file.
- When the counter is full, a new folder is created – img_XXXX, where XXXX is the file counter.
- The maximum duration of a recorded video file is 5 minutes. After this time expires, a video is recorded onto a new file. The number of files is limited by the capacity of the device's built-in memory.
- Regularly check the free memory on the internal memory card, moving footage and photographs to other storage media to free up space.
- In case of a memory card error, you can use the format function in the **General Settings** section of the main menu.
- Graphic information (status bar, icons etc.) is displayed in recorded video files and photos.
- When the Display Off function is activated, video recording is paused.

Software

Firmware Update

Stream Vision 2

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](#).

Stream Vision

1. Download free of charge Stream Vision App on [Google Play](#) or [App Store](#).
2. Connect your Pulsar device to your mobile device (smartphone or tablet).
3. Launch Stream Vision and go to section "My Devices".
4. Select your Pulsar device and press "Check Updates".

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 it's already in the "My Devices" section, you may use Wi-Fi to download update.

Find answers to frequently asked questions about using Stream Vision [here](#).

Is your firmware up to date?

Click [here](#) to check the latest firmware for your device.

Stream Vision 2



Forward S devices support Stream Vision and Stream Vision 2 mobile apps that allow you to stream real-time image from your device to your smartphone or tablet via Wi-Fi.

We recommend using the latest version – Stream Vision 2.



Mobile App

**STREAM
VISION 2**

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**



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Stream Vision 2 Manual

Android

iOS

Maintenance

Technical Maintenance and Storage

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

- Wipe the external surfaces of metal and plastic parts free of 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 terminals of the Battery Pack and battery slot on the device using a non-greasy organic solvent.
- Check the glass surfaces of the eyepiece and the lens. If necessary, remove dust and sand from the lenses (preferably using a non-contact method). Cleaning of the external surfaces of the optics should be done with substances designed especially for this purpose.
- Always store the device in its carrying case, in a dry, well-ventilated space. It is essential during prolonged storage to remove the Battery Pack.

Technical Inspection

A check is recommended before each use of the device.

Check:

- External appearance (there should be no cracks on the housing).
- The condition of the lens and eyepiece the digital module and the lens of the IR illuminator (there should be no cracks, grease spots, dirt or other residue). Wipe the

exterior surfaces of metal and plastic parts free from dust, dirt and moisture with a soft, cotton cloth.

- The condition of the battery (whether it needs to be charged), electrical contacts on the battery and the IR illuminator, and connectors for their attachment to the device (there should be no sign of salts or oxidation).
- The controls should be in working order.
- The digital module should be properly and firmly attached to the optical riflescope.

Legal Compliances and Disclaimers

Attention! A license is required for Digital Night Vision Attachment **Forward** when exporting 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.

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.

C E UK
CA



Troubleshooting

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

Answers to frequently asked questions about the devices can also be found in the **FAQ** section.

Remote control does not work

Possible cause

The Bluetooth module is not turned on.

Solution

Turn on the Bluetooth module according to the instructions (see the **Bluetooth** section).

Possible cause

The Remote control is not activated.

Solution

Activate the remote control according to instructions (see the **Remote Control Activation** section).

Possible cause

The Remote Control is out of range of the device.

Solution

Return to the device coverage area.

Possible cause

Remote control battery low.

Solution

Install a new CR2032 battery as follows: unscrew the screws on the rear cover of the Remote Control, remove the cover, install a new battery, and screw the cover with screws.

Cannot open the adapter clamp

Possible cause

Unsuitable insert selected.

Solution

Select a suitable insert.

Check for a gap between the lips of the adapter.

The attachment slides off the riflescope during firing

Possible cause

Adapter insufficiently clamped.

Unsuitable insert selected.

Solution

Select a suitable insert and clamp the adapter as recommended (see the section **Mounting Attachment on Optical Riflescope**).

Impact point does not coincide with aiming point

Possible cause

Display calibration required.

Solution

Calibrate the display in accordance with the instruction in the section **Display Calibration**.

Possible cause

The device is not securely mounted on the riflescope, or the riflescope on the rifle.

Solution

Check that the device is firmly fixed on the riflescope and that the mounting of the riflescope to the rifle is secure.

Ensure that you are using the very type of ammunition that was previously fired from your rifle.

If you zero a riflescope in summer and then use it in winter (or vice versa), some change in the zero point of the zeroing cannot be discounted.

The device does not focus

Possible cause

Incorrect setting.

Solution

Adjust the device in accordance with section **Powering on and Image Setting**. Check the outer surfaces of the lens and eyepiece; where necessary, wipe them free from dust, condensate, frost, etc. In cold weather, you can use special anti-fogging coatings (as, for example, for corrective glasses).

The display is not centred

Possible cause

The position of the attachment on the day sight requires adjusting.

Solution

Remove the attachment and set the display to the center of the field of vision (see section **Mounting Attachment on Optical Riflescope**).

There is a clear image of the aiming mark, but a fuzzy image of the object

Possible cause

Dust or condensation on the interior or exterior optical surfaces of the lens.

Solution

Wipe the exterior optical surfaces with a soft cotton cloth. Dry it. Let it stand for 4 hours in a warm room.

Possible cause

The lens will not focus.

Solution

Adjust the sharpness by rotating the lens adjuster.

Color bars appear on the display or the image disappears

Possible cause

The device was exposed to static charges during operation.

Solution

When the exposure to static charges is over, the device may either reboot automatically or require to be switched off and on again.

Image is too dark

Possible cause

Brightness or contrast level is too low.

Solution

Adjust the brightness or contrast in the Quick Menu.

Poor image quality / Reduced detection distance

Possible cause

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

Missing or interrupted broadcasting via Wi-Fi

Possible cause

The smartphone or tablet is beyond reliable Wi-Fi range. There are obstacles between the device and the signal receiver (e.g. concrete walls).

Solution

Move the devices in line-of-sight and within range of the Wi-Fi signal.

More information on solving problems with connection by following the links: [Stream Vision FAQ](#), [Stream Vision 2 FAQ](#).

Smartphone or tablet cannot be connected to the device

Possible cause

The device password has been changed.

Solution

Delete the network and connect again using the password saved in the device.

Possible cause

The device is in an area with too many Wi-Fi networks that may be causing signal interference.

There is a strong source of electromagnetic interference nearby.

Solution

To ensure a stable Wi-Fi connection, relocate the device to an area with fewer or no Wi-Fi networks.

Make sure there are no sources of electromagnetic interference nearby (working motors, transformers, etc.)

More information on solving problems with connection by following the links: [Stream Vision FAQ](#), [Stream Vision 2 FAQ](#).

The device does not operate from an external power source

Possible cause

The USB cable is damaged.

Solution

Replace the USB cable.

Possible cause

The external power supply is discharged.

Solution

Charge the external power supply (if necessary).

Device malfunction

Solution

In case of any malfunctions during operation, try resetting the device by long pressing the ON/OFF button for 10 seconds.

The device does not turn on

Possible cause

The battery is completely discharged.

Solution

Charge the battery.