PULSAR KRYPTON Manual

Specifications

Model	FXG50
SKU	76655
Microbolometer	
Type	Uncooled
Resolution, Pixels	640×480
Pixel Pitch, μm	12
Frame Rate, Hz	50
Optical Characteristics	
Magnification of Attachment, x	1
Recommended Daylight Optics Magnification, x	1.5-6
Lens	F50/1.2
Field-of-view (Horizontal), deg/m per 100 m	8.7/15.4
Detection Range (animal height 1.7 m), m/y	2300/2515
Minimum Focusing Distance, m/y	5/5.47
Display	
Type	AMOLED
Resolution, Pixels	1746×1000
Operational Characteristics	
Power Supply, V	3-4.2
Battery type/ Capacity/ Rated Output Voltage	Li-Ion Battery Pack IPS 7 / 6400 mAh / DC 3.7 V

External Power Supply	5 V (USB)
Max. Battery Pack Life (at t = 22 °C), Hour*	8
Degree of protection IP code (IEC60529)	IPX7
Maximum Recoil Power When Used with a Rifled Weapon, Joules	6000
Maximum Shock-Resistance When Used with a Slug Gun, Caliber	12
Operating temperature, °C / °F	-25 – +50 / -13 – +122
Overall Dimensions, mm/inch	143x93x76 / 5.63×3.66×2.99
Weight (without Battery), kg/oz	0.52 / 18.34

Video Recorder

Photo/Video Resolution, Pixels	960×720
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

* Actual operating time will depend to what extent the Wi-Fi and built-in video recorder is used.

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

About the device

Description

Thermal Imaging Front Attachment **Krypton FXG50** is a multipurpose device that allows you to quickly and easily transform a daylight riflescope into a thermal imaging one.

The attachment is mounted on the lens of an riflescope with the help of adapters designed for various lens diameters. The attachment does not require any additional adjustment.

The attachment is intended for various applications, including hunting, sport shooting, night photography & video recording, and surveillance.

Package contents

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

Features

- High resolution thermal imaging microbolometer
- Microbolometer pixel size of 12 microns
- High-resolution AMOLED display
- Easily converts daylight optical riflescopes into thermal imaging riflescopes
- Preserves the benefits of daylight optics in night-time conditions
- Three calibration modes (manual, semi-automatic and automatic)
- Four observation modes: Forest, Rocks, Identification, User
- Compatible with a wide range of daylight optical magnifications
- Detection distance up to 2300 m
- Wireless remote control
- High caliber recoil resistance 12 gauge, 9.3×64, .375 H&H
- Instant start
- Display off function
- Built-in video recording
- Remote Firmware update
- Fully watertight (IPX7 protection class)
- Wide operating temperature range (-25 °C – +50°C)

Video/audio recording

- Built-in video recorder
- Integration with iOS and Android devices
- Wi-Fi Smartphone remote control and surveillance
- Storing photos and videos in Cloud when using the Stream Vision 2 App

Battery Pack

- Quick-change IPS7 Li-ion battery pack
- USB charging option

Components and controls
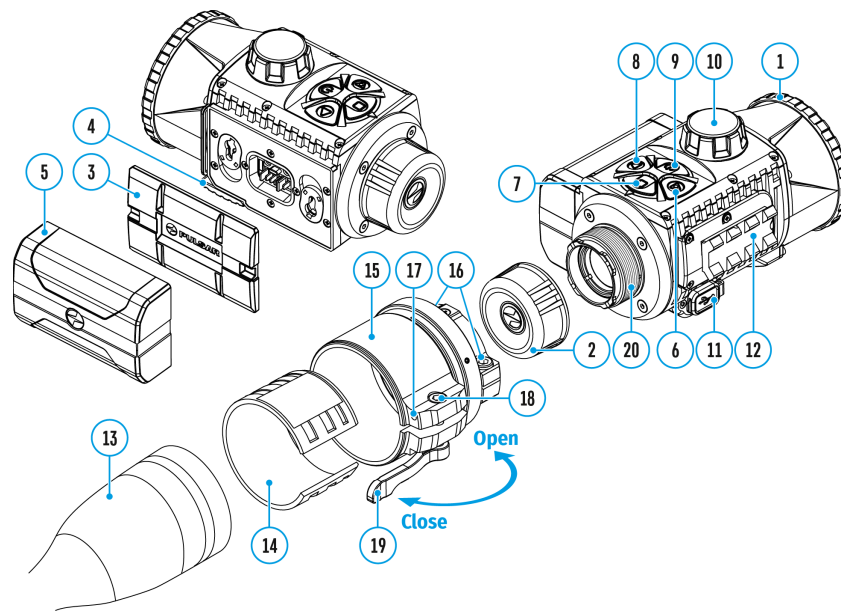
1. Lens cover
2. Eyepiece cover
3. Battery compartment cover
4. Battery locking lever
5. Battery pack
6. RIGHT/REC button
7. MENU button
8. LEFT/MODE button
9. ON/OFF/CALIBRATION button
10. Lens focus knob
11. MicroUSB port
12. Weaver rail
13. Objective lens end of daylight riflescope
14. Insert
15. Adapter
16. Screws
17. Tightening screw
18. Screw
19. Adapter lever
20. Mount

Power supply

Precautions

- Always use the IPS charger supplied with the device (or purchased separately) to charge IPS batteries. Using an unsuitable charger can cause irreparable damage to the battery and fire.
- Do not charge the battery immediately after bringing it from cold to warm. Wait at least 30 minutes for the battery to warm up.
- Do not leave the battery unattended while charging.
- Do not use the charger if it has been modified or damaged.
- Do not leave the battery in a charger connected to the network after charging is complete.
- Do not expose the battery to high temperatures and naked flame.
- Do not use the battery as a power source for devices that do not support IPS7 batteries.
- Do not disassemble or deform the battery.
- Do not drop or strike the battery.
- Do not submerge the battery.
- Keep the battery out of the reach of children.

Attention! Please do not use the IPS 14 Battery Pack with the **Krypton FXG50** due to the battery´s heavy weight.

Recommendations for battery use

- The battery should be partially charged for long-term storage – 50 to 80 %.

- The battery should be charged at an ambient temperature of 0°C...+35°C (+32°F...+95°F). Otherwise, lifespan of the battery will decrease significantly.

- When using the battery at sub-zero temperatures, the battery capacity decreases, this is normal and not a defect.

- Do not use the battery at temperatures outside the range of -25 °C...+50 °C (-13°F...+122°F) – this may reduce battery's life.

- The battery has a short-circuit protection. However, any situation that may cause short-circuiting should be avoided.

Battery charging

The device is supplied with a rechargeable IPS7 Lithium-ion Battery Pack which allows the attachment to be used for up to 8 hours. Charge the battery before first use.
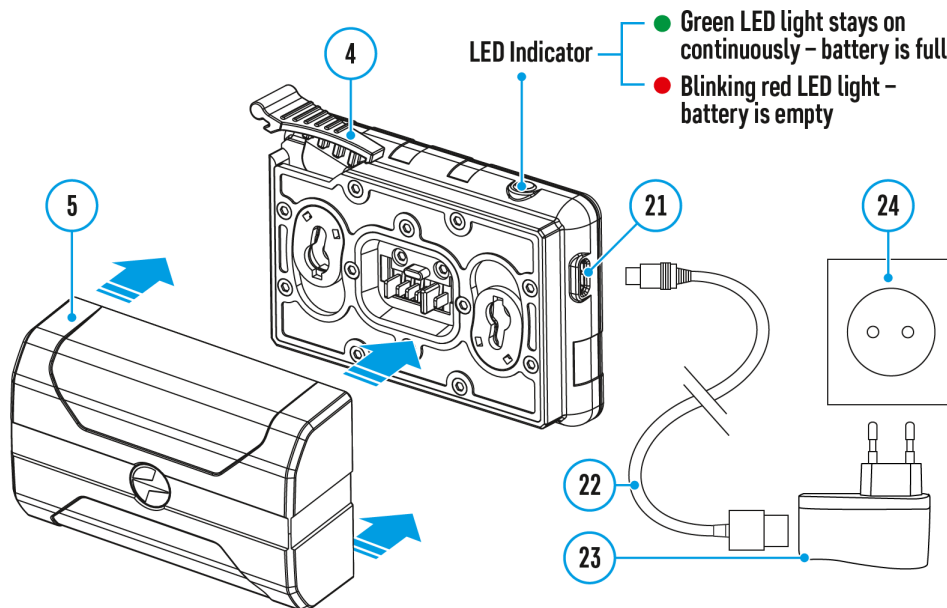
Charging

Step 1. Install the battery into the charger

1. Raise the lever **(4)** of the charger.
2. Install the Battery Pack **(5)** into the charger.
3. Click the lever **(4)**.

Step 2. Check the current battery level

- Upon installation, a green LED indicator 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 will display the battery charge status:

LED Indicator	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 **(22)** to the microUSB connector **(21)** on the charger.
2. Connect the USB plug on the cable **(22)** to the power adapter **(23)**.
3. Plug the power adapter **(23)** into a 100-240V **(24)** socket.
4. When the indicator is continuously green, the battery is fully charged. Disconnect the charger from the mains.

Battery installation
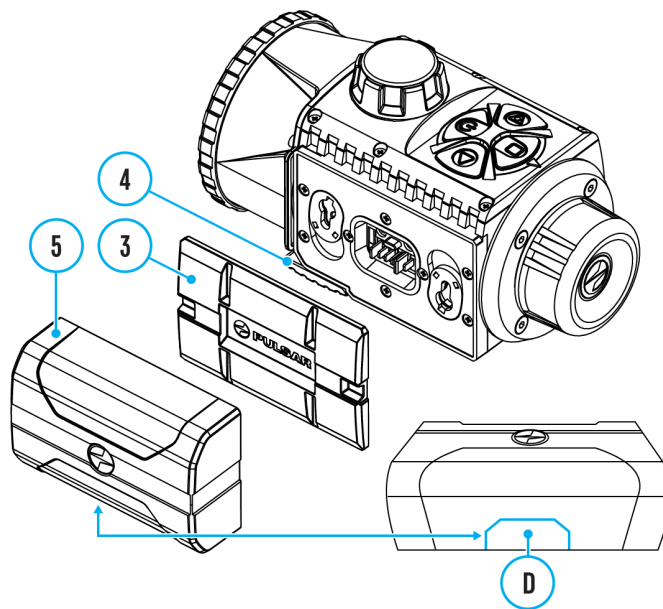
1. Lower the lever **(4)**.

2. Remove the protective cover of the battery compartment **(3)**.

3. Insert the battery **(5)** into the slot designed for it on the attachment body so that the element **(D)** is pointing downwards.

4. Lock the battery in place by raising the lever **(4)**.

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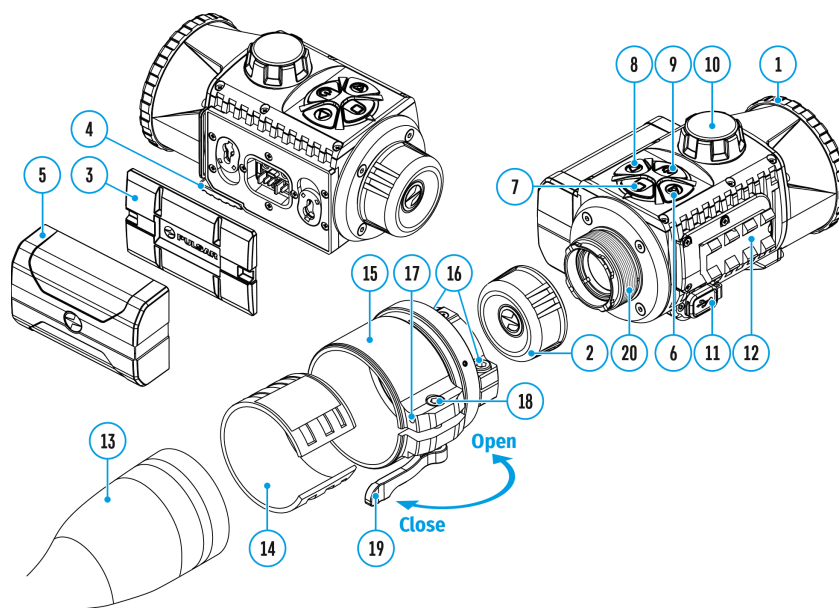
External power is supplied from an external source, such as a 5V Power Bank.

1. Attach the external power source to the USB connector **(11)** 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

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

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

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   is displayed.

5. Once the external power source is disconnected, the device 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.

Getting started

Button operation

ON

LEFT

RIGHT/
REC

MENU
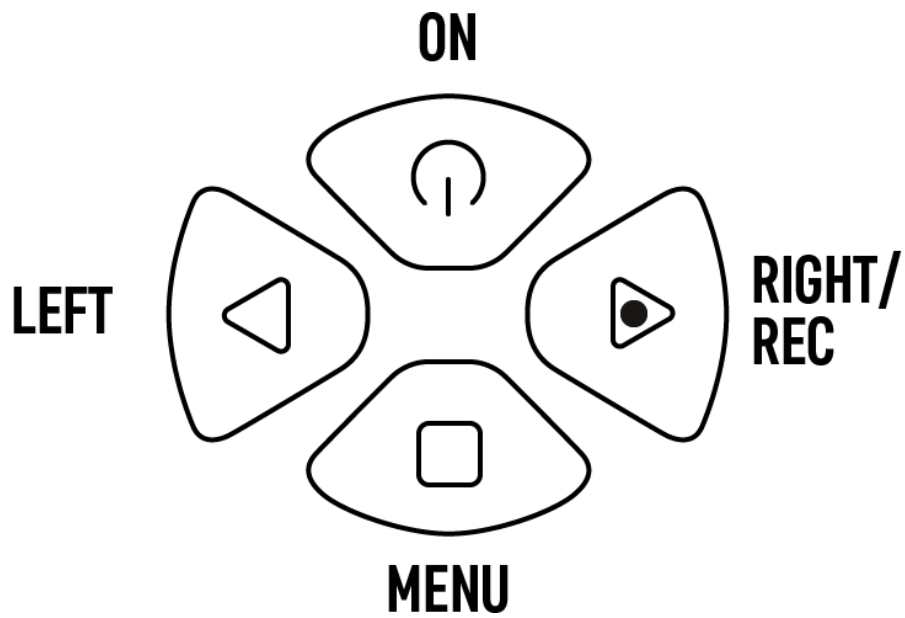
Operation	Button
Power device on	⏻ short press
Power device off	⏻ long press for 3 secs
Turn display off	⏻ long press for less than 3 secs
Turn display on	⏻ short press
Calibrate the microbolometer	⏻ short press
Switch observation modes	◁ short press
Turn on/off the Black Hot palette	◁ long press
Video recorder	**Button**
Start/pause/resume video recording	▷ short press
Stop video recording	▷ long press
Switch to video / photo	▷

	long press
Capture Photo	▷ short press
Main Menu	**Button**
Enter main menu	☐ long press
Navigation down/counter-clockwise	◁ short press
Navigation up/clockwise	▷ short press
Confirm selection	☐ short press
Exit submenu without confirming selection	☐ long press
Exit menu (switch to viewing mode)	☐ long press
Quick Menu	**Button**
Enter quick menu	☐ short press
Switch between quick menu options	☐ short press
Increase value	▷ short press
Decrease value	◁ short press
Exit quick menu	☐ long press

Powering on and image settings
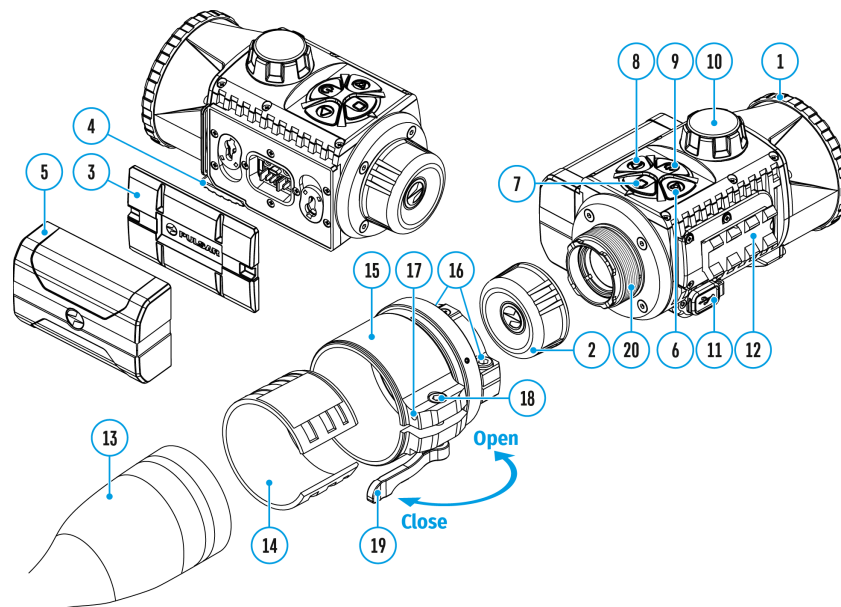
1. Remove the lens cover **(1)** by turning it counterclockwise.

2. Turn on the attachment by pressing the **ON/OFF (9)** button.

3. If necessary, adjust the reticle sharpness according to the instructions for your riflescope.

4. Rotate the lens focus knob **(10)** to focus on the visual target.

5. Enter the main menu with a long press of the **MENU (7)** button and select the desired calibration mode: **manual (M), semi-automatic (SA)** or **automatic (A)**.

6. Calibrate the image by briefly pressing the **ON/OFF (9)** button. Close the lens cover when calibrating manually.

7. Select the desired observation mode (**Forest, Rocks, Identification** or **User**) by briefly pressing the **MODE (8)** button or 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. Select one of the two color palettes by a long press of the **MODE (8)** button.

9. Activate the quick menu by briefly pressing the **MENU (7)** button to adjust the brightness and contrast of the display.

10. Upon completion of use turn the device off by a long press of the **ON/OFF (9)** button.

Attention! The lens of the device must not be pointed at any sources of intense energy, such as laser-emitting devices or the sun. This may damage the electronic components in the device. Damage caused by failure to comply with the operating guidelines is not covered under warranty.

Microbolometer calibration
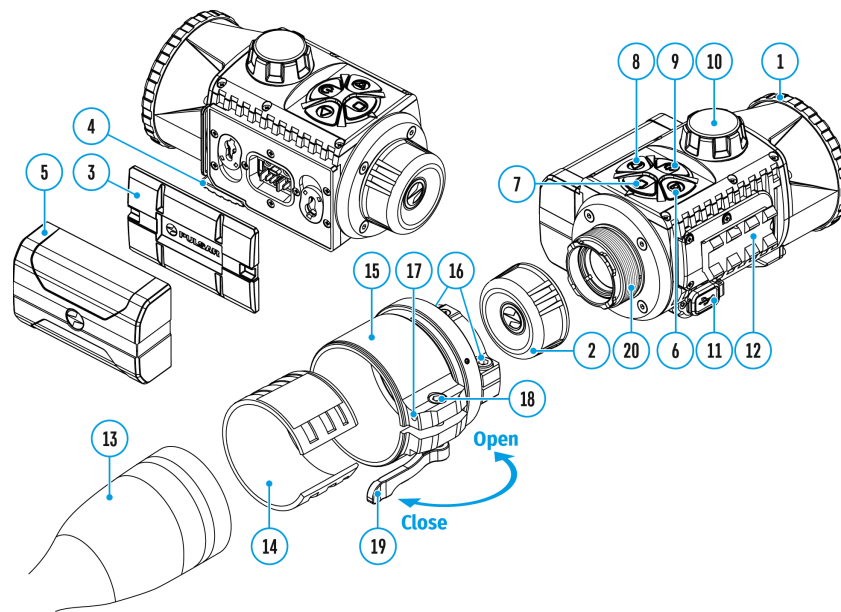
Calibration enables the device to equalize the microbolometer background temperature and eliminate the image flaws (such as vertical bars, phantom images, etc.).

During calibration, the image on the display briefly freezes for up to 1 second.

There are three calibration modes: **Manual (M)**, **Semi-Automatic (SA)** and **Automatic (A)**.

Select the required mode in the **Calibration Mode**

menu item.

M mode (Manual).

- Close the lens cover.
- Press the **ON/OFF (9)** button briefly.

- Open the lens cover after the calibration is completed.

SA mode (Semi-Automatic).

- Press the **ON/OFF (9)** button briefly to activate calibration.
- There is no need to close the lens cover because an internal shutter covers the microbolometer automatically.

A mode (Automatic).

- The device is calibrated autonomously according to firmware algorithms.
- There is no need to close the lens cover because an internal shutter covers the microbolometer automatically.
- In this mode, the user can still choose to calibrate the device using the **ON/OFF (9)** button if required (as in the **SA** mode).
- In Automatic calibration mode a countdown timer will appear instead of the calibration mode icon 3 seconds before automatic calibration begins.

Installing Pulsar 5X30 B monocular on to the attachment
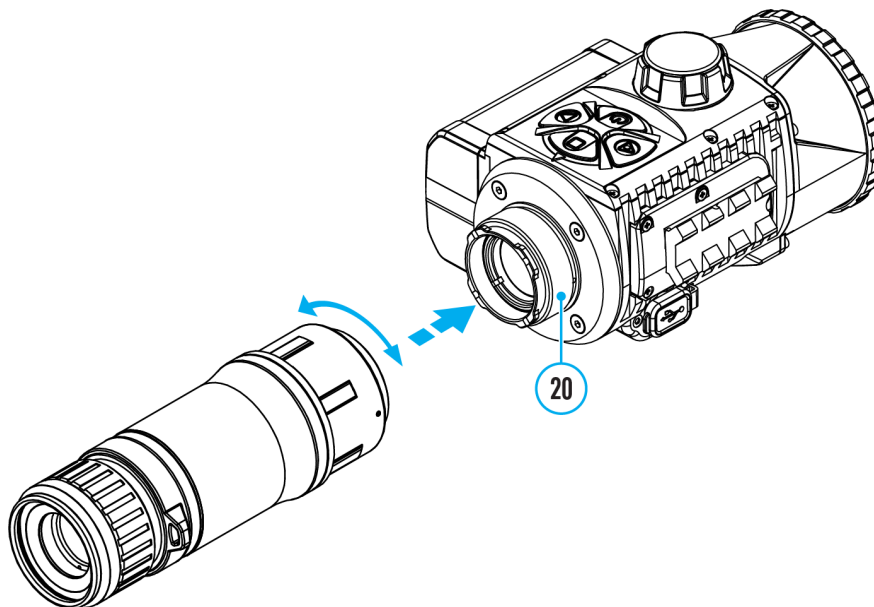
The **Pulsar 5×30 B monocular** (available separately) allows you to transform the attachment into a hand-held thermal imager with 5x magnification.

1. Align the tabs on the monocular with the slots of the mount **(20)**.

2. Turn the monocular clockwise to secure it on the thermal imaging attachment.

3. To remove the monocular, turn it counterclockwise and disconnect from the attachment.

Notes:

- The monocular can be installed on a thermal imaging attachment with an adapter already installed. The Ring Adaptor must be mounted onto the mounting area **(20)** of the attachment until it stops.

- The monocular can be installed on the device with an adapter installed only if the original PSP adapter is installed. This may not be possible when using an adapter from other manufacturers.

- The single-point neck strap (available separately) can be used with the monocular.

Mounting attachment on optical riflescope
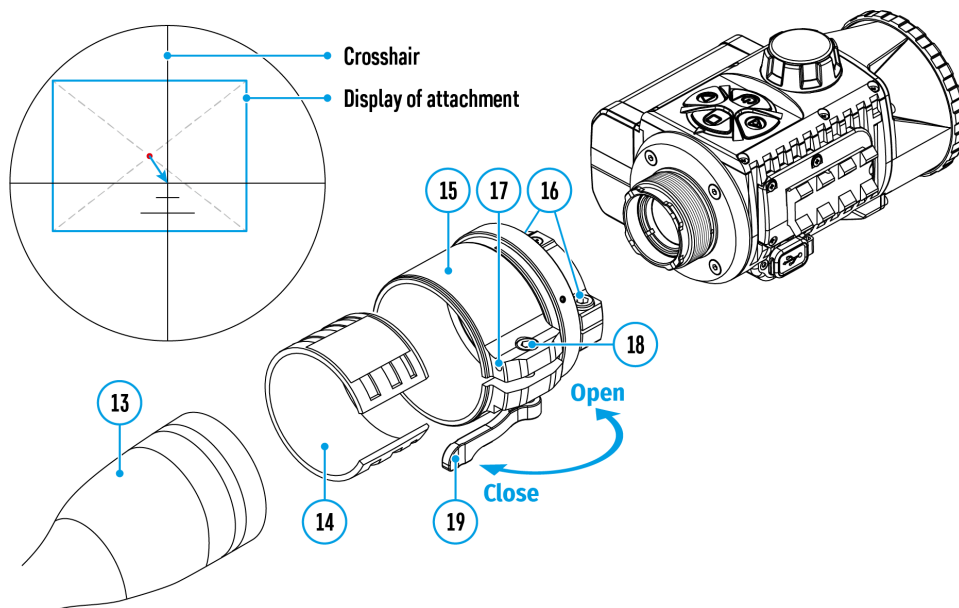
1. Remove the eyepiece cover **(2)**.

2. Select the Ring Adapter **(15)** (sold separately) with the insert **(14)** of the required diameter depending on the outer diameter of the lens of your riflescope **(13)**. The designation 42 mm / 50 mm / 56 mm in the name of the adapter means the lens diameter of the riflescope.

3. Screw together the Ring Adapter **(15)** and the attachment along the threads of the mounting area **(20)** until it stops. Then untighten a little (no more than one turn) so that the lever **(19)** is on the right side (see Figure).

4. Evenly tighten the screws **(16)** until the ball joint grips in the Ring Adapter **(15)**.

5. Apply 2-3 strips of double-sided tape to the outer surface of the insert of your choice **(14)**.

6. Push the insert **(14)** of your choice into the Ring Adapter **(15)** until it stops.

7. Move the lever **(19)** to the OPEN position.

8. Before installing the Ring Adapter **(15)** onto the riflescope, it is recommended to degrease the lens body of the riflescope **(13)**.

9. Mount the Ring Adapter **(15)** with the insert **(14)** onto the lens of the riflescope **(13)** as far as it will go.

10. If the Ring Adaptor **(15)** with the insert **(14)** selected according to the table cannot be mounted onto the lens **(10)**, follow the steps below:

- Loosen the locking screw **(17)** with a 2mm Allen key.
- Untighten the screw **(18)** with a hex wrench (S = 4mm) until the Ring Adaptor with the insert can be mounted onto the lens **(13)**.

11. Move the lever **(19)** from its initial OPEN position to the CLOSE position.

12. Loosen the locking screw **(17)** with a 2mm Allen key, if it hasn't been done before.

13. Tighten the screw **(18)** using a 4mm Allen key. The clamping force should be 1.5-2 Nm (use a torque screwdriver) to ensure the lever is correctly tightened **(19)**, while the Ring Adapter with the attachment should not move relative to the body of the riflescope **(13)**. If necessary, tighten or loosen the screw (18) to operate the lever **(19)** in the best way possible.

14. Tighten the locking screw **(17)** as far as it will go.

15. Turn on the attachment by briefly pressing the **ON/OFF (9)** button.

16. Align the display center with the crosshairs of the reticle by tilting the attachment.

17. Align top and bottom display boundaries parallel to the horizontal axis of the riflescope by turning the attachment clockwise or counterclockwise.

18. Having reached the best possible position of the attachment, tighten two screws **(16)** until stop. The clamping force should be 6.5-7.5 N·m (use a torque screwdriver to check).

Selection table for riflescope inserts

Ring 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	
	Insert internal diameter, mm	Suitable for lens housing of daylight riflescope with an outer diameter of, mm
PSP Ring Adapter 42 mm	45.5	45.5
	46	46
	46.5	46.5
	47	46.7-47.6
	48	47.7- 48.6
	49	48.7-49.6
	50	49.7-50.6
PSP Ring Adapter 50 mm	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
PSP Ring Adapter 56 mm	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

Interface

Status bar

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

- Color Mode (shown only when the Black Hot color mode is selected)
- Auto shutdown function (for example, 5 min)
- Microphone
- Calibration Mode (in Automatic calibration mode a countdown timer will appear instead of the calibration mode icon 3 seconds before automatic calibration begins).
- Power Indication:

– charge level if the device is powered by a battery

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

– no battery, the device is connected to an external power supply.

- Observation Mode
- Video recording status:

– video recording is on
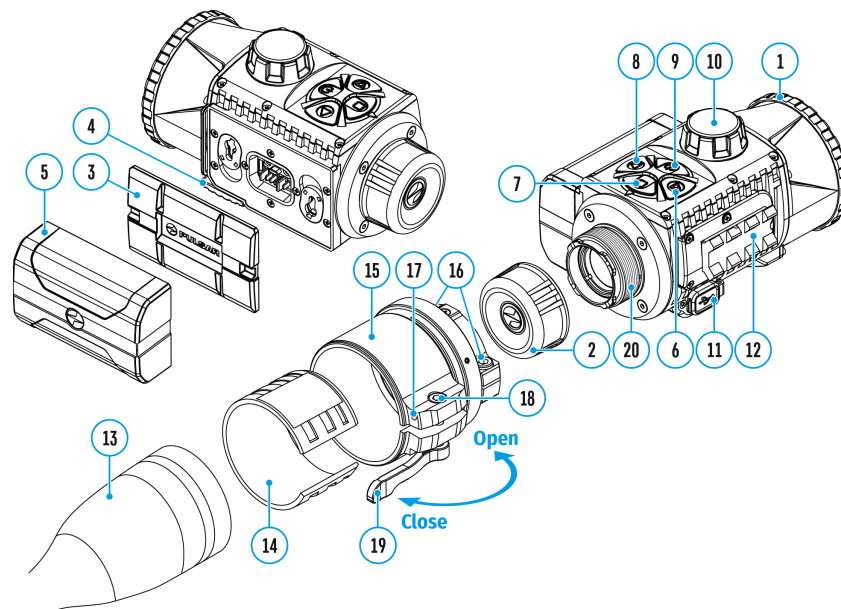
– pause
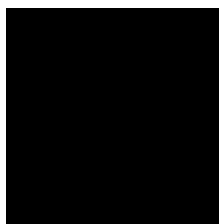
– video recording is off

- Wi-Fi Connection
- Time
- Bluetooth

Quick menu functions

- Enter the menu with a short press of the **MENU (7).**

- To select the functions below, press successively **MENU (7).**
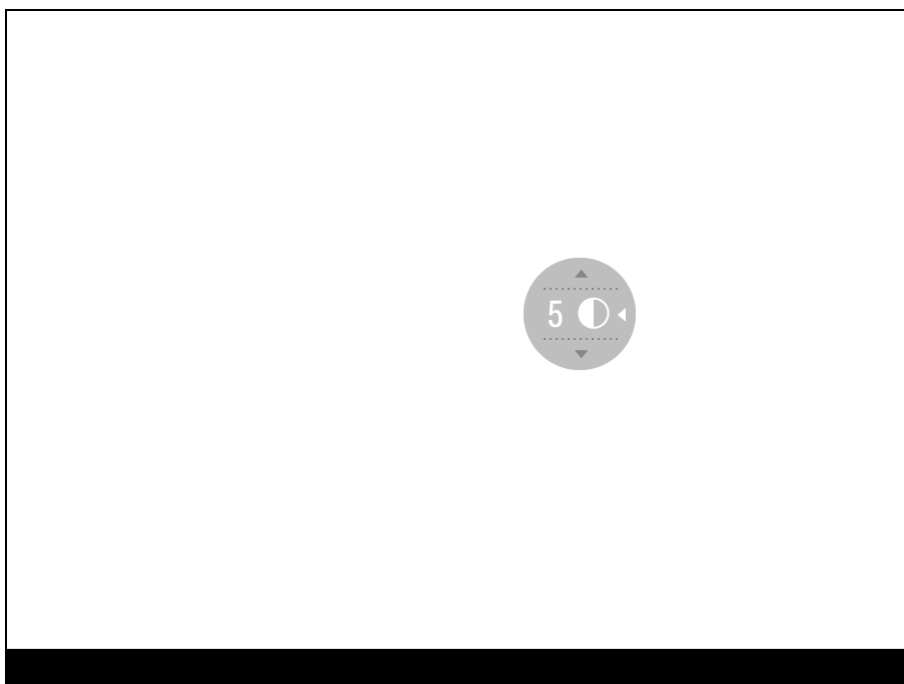
Contrast

– press the **RIGHT (6)/LEFT (8)** buttons to change the display contrast value from 0 to 20.

Brightness
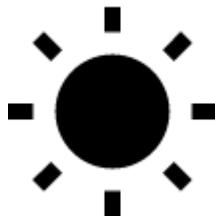
– press the **RIGHT (6)/LEFT (8)** buttons to change the display brightness value from 0 to 20.

Basic mode

– it allows you to select one of the three observation modes (Forest, Rocks, Identification) as the basic one for the user mode.

- To exit the menu, press and hold down the **MENU (7)** button, or wait 10 seconds for automatic exit.

Main menu

Enter the main menu
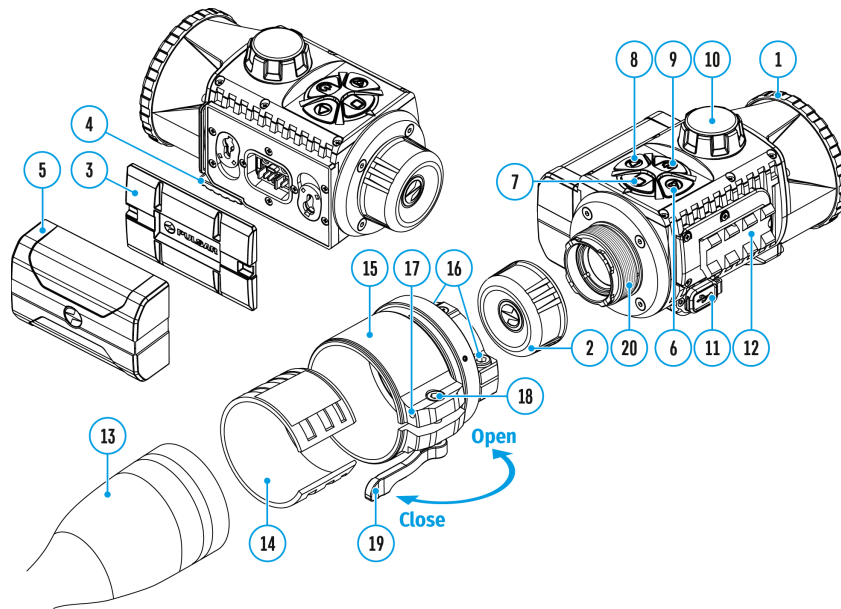
1. Enter the menu with a long press of the **MENU (7)** button.

2. Press the **RIGHT (6)/LEFT (8)** buttons to move through the menu functions.

3. One short press of the **MENU (7)** button opens a menu item.

4. To exit the menu, press and hold down the **MENU (7)** button.

5. Automatic exit from the 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:
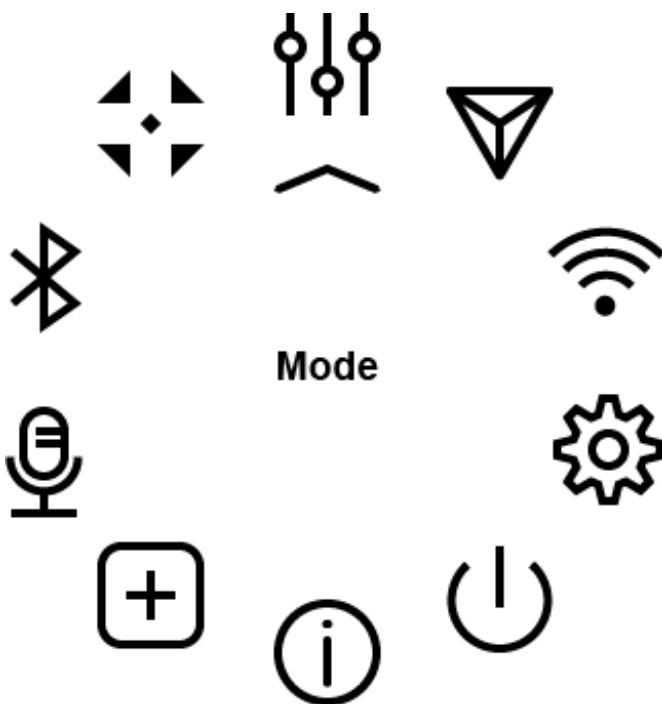
Mode
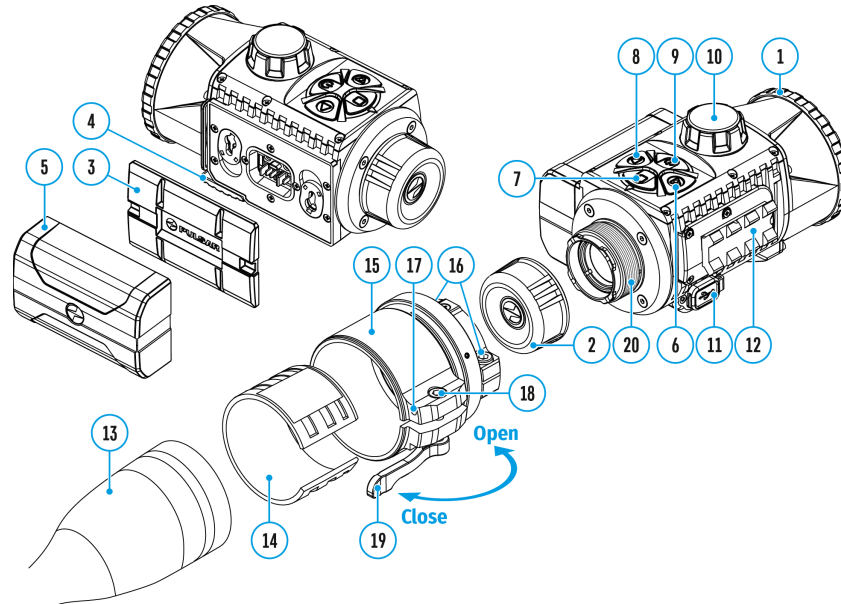
The device has four observation modes of the thermal imager: Forest (observation mode of objects within low thermal contrast conditions), Rocks (observation mode of objects within high thermal contrast conditions), Identification (high detalization mode), and User (individual brightness and contrast settings).

Option 1:

Briefly press the **MODE (8)** button to switch observation modes.

Option 2:

1. Press and hold the **MENU (7)** button to enter the menu.
2. Select the **Mode**

    option with **RIGHT (6)/LEFT (8)** buttons.
3. A short press of the **MENU (7)** button opens the menu.
4. Select one of the modes described below with **RIGHT (6)/LEFT (8)** buttons.
5. A short press of the **MENU (7)** button confirms the selection.

Forest This is the best mode when searching and observing within field conditions, against the background of leaves, bushes and grass. The mode is highly informative about an object being observed as well as landscape details.

 Rocks. This is the best mode when observing objects after a sunny day or within urban conditions.

Identification. This is the best mode when observing objects within adverse weather conditions (fog, mist, rain and snow). It allows you to recognize the characteristics of an object being observed more clearly. Increased detail may be accompanied by insignificant image graininess.

 User. It allows you to configure and save custom brightness and contrast settings, as well as one of the three modes (Forest, Rocks, Identification) as a base.

Image detail boost
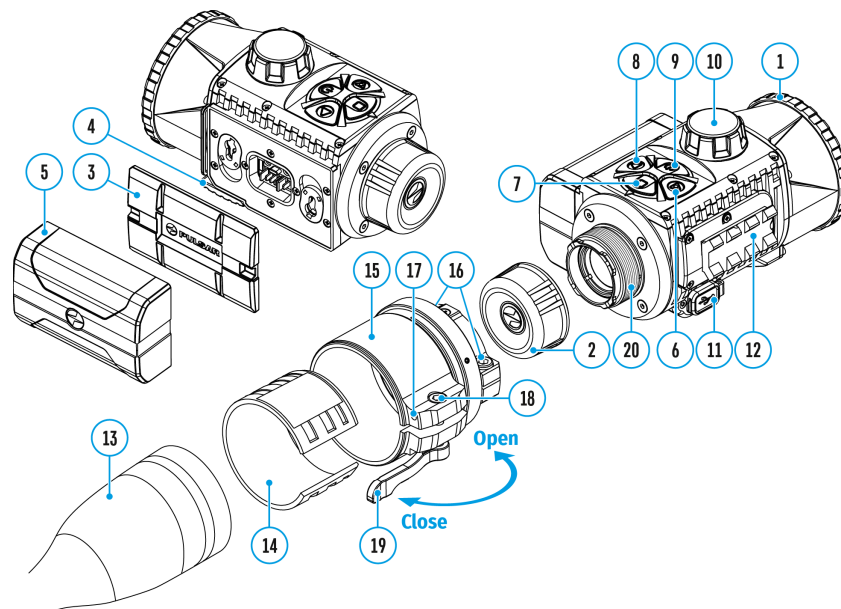
The **Image Detail Boost**

function increases the sharpness of the contours of heated objects, which increases their detail. The result of the function depends on the selected mode and observation conditions: the higher the contrast of objects, the more noticeable the effect. This option is enabled by default, but can be disabled in the main menu.

Turn on/off Image Detail Boost

1. Press and hold the **MENU (7)** button to enter the menu.
2. Select the **Image Detail Boost**

   option with the **RIGHT (6)/LEFT (8)** buttons.
3. A short press of the **MENU (7)** button opens the submenu.
4. To turn **Image Detail Boost** on or off press the **RIGHT (6)/LEFT (8)** buttons.
5. Confirm your selection with a short press of the **MENU (7)** button.

Wi-fi settings
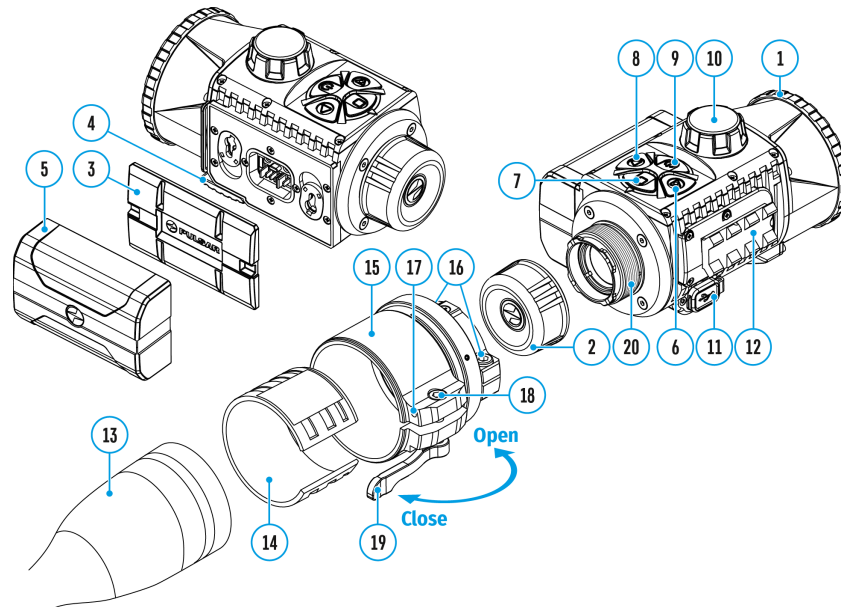
This menu option allows you to set up your device for operation in a Wi-Fi network.

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

   📶

   option with the **RIGHT (6)/LEFT (8)** buttons.
3. A short press of the **MENU (7)** button opens the menu section.

Wi-Fi Activation

Turn Wi-Fi on/off.

1. Select the **Wi-Fi Activation**

   📶

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

2. A short press of the **MENU (7)** button opens the submenu.

3. To turn the Wi-Fi on or off press the **RIGHT (6)/LEFT (8)** buttons.

4. Confirm your selection with a short press of the **MENU (7)** button.

Password Setup

This submenu allows you to set a password to access your thermal imaging attachment from a mobile device.

1. Select the **Password Setup**

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

2. A short press of the **MENU (7)** button opens the submenu.

3. The default password **(12345678)** will appear on the screen.

4. Set your desired password with the **RIGHT (6)/LEFT (8)** buttons. Press the **MENU (7)** button to toggle the digits.

5. Press and hold down the **MENU (7)** button to save the password and exit the submenu.

Access Level Setup

This submenu allows you to set access levels of Stream Vision application to your device.

- Access level **Owner**. **Stream Vision** user has complete access to all device's functions.

- Access level **Guest**. **Stream Vision** user has access only to real time video stream from the device.

1. Select the **Access Level Setup**

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

2. A short press of the **MENU (7)** button opens the submenu

3. Select **Owner** or **Guest** with the **RIGHT (6)/LEFT (8)** buttons.

4. Confirm your selection with a short press of the **MENU (7)** button.

General settings

This menu section allows you to change the interface language, set the date, time, return the device to factory default settings and perform memory card formatting.

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

⚙

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

Icon Brightness

Adjust brightness level of the icons and screensavers (Pulsar, Display off) on the display.

1. A short press of the **MENU (7)** button opens the **Icon Brightness**

   ☼

   submenu.
2. Use the **RIGHT (6)/LEFT (8)** buttons to select the desired brightness level from 0 to 10.
3. Press the **MENU (7)** button briefly to confirm the selection.

Language

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

   🌐

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

Date

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

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

Time

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

   🕐

   .

2. Select the time format (24-hour clock or AM/PM) by pressing the **RIGHT (6)/LEFT (8)** buttons.
3. Press the **MENU (7)** button to move to the hour setting.
4. Set the hour with the **RIGHT (6)/LEFT (8)** buttons. The **RIGHT (6)** button increases the value and the **LEFT (8)** button reduces it.
5. Press the **MENU (7)** button to move to the minute setting.
6. Set the minute by pressing the **RIGHT (6)/LEFT (8)** buttons.
7. To save your chosen time and exit the submenu, press and hold the **MENU (7)** button.

Default Settings

1. A short press of the **MENU (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)/LEFT (8)** buttons.
3. Confirm your selection with a short press of the **MENU (7)** button.

- If **Yes** is selected, display will show **"Do you want to restore default settings?"** and **Yes** and **No** options. Select **Yes** to restore the default settings.
- Selecting the **No** option will cancel the reset and exit the submenu.

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

- **Video recorder mode** – video
- **Observation mode** – Forest
- **Calibration mode** – automatic
- **Language** – English

- **Wi-Fi** – off (default password)
- **Color palette** – White Hot

Attention! When restoring the factory defaults the date, time and user pixel map are saved.

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 **MENU (7)** button opens the submenu **Format**

   .

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

- If **Yes** is selected, the message **"Do you want to format the memory card?"** appears on the display as well as **Yes** and **No**Select **Yes** to format the memory card.
- Selecting the **No** option will cancel the formatting and exit the submenu.

General settings

This menu section allows you to change the interface language, set the date, time, return the device to factory default settings and perform memory card formatting.

1. Press and hold the **MENU (7)** button to enter the main menu.

2. Select the submenu **General Settings**

   ⚙️

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

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

4. Select the desired menu item with the **RIGHT (6)/LEFT (8)** buttons.

Icon Brightness

Adjust brightness level of the icons and screensavers (Pulsar, Display off) on the display.

1. A short press of the **MENU (7)** button opens the **Icon Brightness**

   ☀️

   submenu.

2. Use the **RIGHT (6)/LEFT (8)** buttons to select the desired brightness level from 0 to 10.

3. Press the **MENU (7)** button briefly to confirm the selection.

Language

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

   ⊕

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

Date

1. A short press of the **MENU (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)/LEFT (8)** buttons (the **RIGHT (6)** button increases the value and the **LEFT (8)** button reduces it). Press the **MENU (7)** button to toggle the digits.
4. To save your chosen date and exit the submenu, press and hold the **MENU (7)** button.

Time

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

   🕐

   .
2. Select the time format (24-hour clock or AM/PM) by pressing the **RIGHT (6)/LEFT (8)** buttons.
3. Press the **MENU (7)** button to move to the hour setting.

4. Set the hour with the **RIGHT (6)/LEFT (8)** buttons. The **RIGHT (6)** button increases the value and the **LEFT (8)** button reduces it.

5. Press the **MENU (7)** button to move to the minute setting.

6. Set the minute by pressing the **RIGHT (6)/LEFT (8)** buttons.

7. To save your chosen time and exit the submenu, press and hold the **MENU (7)** button.

Default Settings

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

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.

2. Select the **Yes** option to reset to factory settings or **No** to cancel using the **RIGHT (6)/LEFT (8)** buttons.

3. Confirm your selection with a short press of the **MENU (7)** button.

- If **Yes** is selected, display will show **"Do you want to restore default settings?"** and **Yes** and **No** options. Select **Yes** to restore the default settings.

- Selecting the **No** option will cancel the reset and exit the submenu.

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

- **Video recorder mode** – video
- **Observation mode** – Forest
- **Calibration mode** – automatic
- **Language** – English
- **Wi-Fi** – off (default password)
- **Color palette** – White Hot

Attention! When restoring the factory defaults the date, time and user pixel map are saved.

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 **MENU (7)** button opens the submenu **Format**

.

2. Select the **Yes** option to format or **No** to cancel using the **RIGHT (6)/LEFT (8)** buttons.

3. Confirm your selection with a short press of the **MENU (7)** button.

- If **Yes** is selected, the message **"Do you want to format the memory card?"** appears on the display as well as **Yes** and **No**Select **Yes** to format the memory card.

- Selecting the **No** option will cancel the formatting and exit the submenu.

Auto shutdown
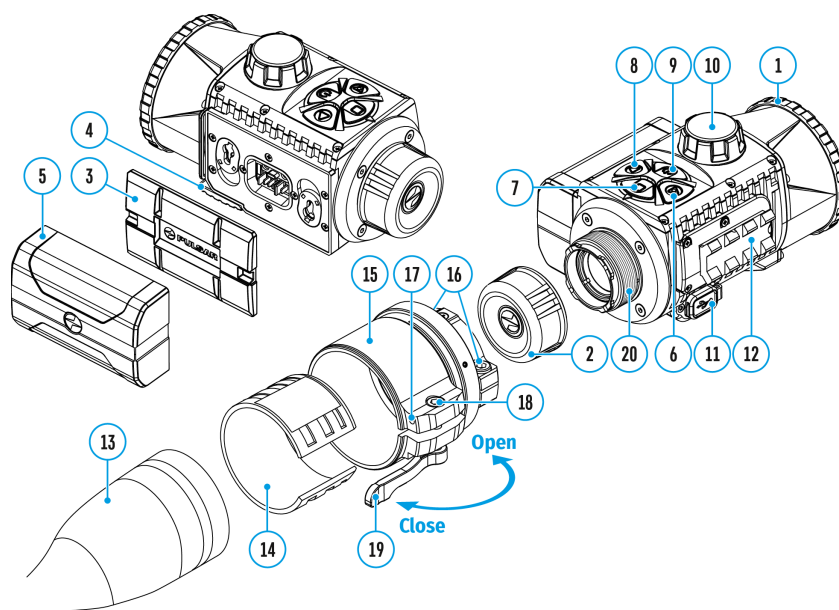
This item allows you to activate the auto shutdown function for when the device is in a non-operating position (tilted up or down at an angle of more than 70°, right or left at an angle of more than 30°).

1. Press and hold the **MENU (7)** button to enter the main menu.

2. Use the **RIGHT (6)/LEFT (8)** buttons to select the **Auto Shutdown**

   ⏻

   submenu.

3. Press the **MENU (7)** button briefly to enter the submenu.

4. Use the **RIGHT (6)/LEFT (8)** buttons to select the time period (**1 min, 3 min, 5 min**) upon expiry of which the device will automatically shut down, or select **Off** if you wish to deactivate Auto Shutdown.

5. Press the **MENU (7)** button briefly to confirm the selection.

Note: If the Auto shutdown function is activated, the status bar shows an icon and shutdown time period as

⏻

1 min.

Device information

This menu item allows the user to view the following information about the device:

- SKU Number
- Firmware Version
- Device Name
- Hardware Version
- Device Serial Number
- Service Information

To display information, do the following:

1. Press and hold the **MENU (7)** button to enter the main menu.
2. Use the **RIGHT (6)/LEFT (8)** buttons to select the **Device Information**

(i)

icon.
3. Press the **MENU (7)** button briefly to view/exit the information.

Defective Pixel Repair

Restore default pixel map
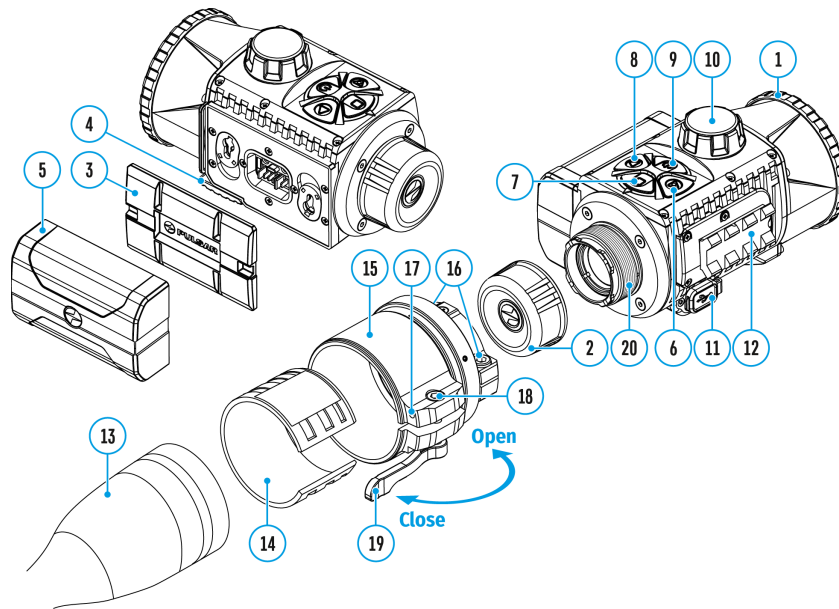
This option allows the user to return all previously disabled defective pixels to their original state.

1. Press and hold the **MENU (7)** button to enter the main menu.

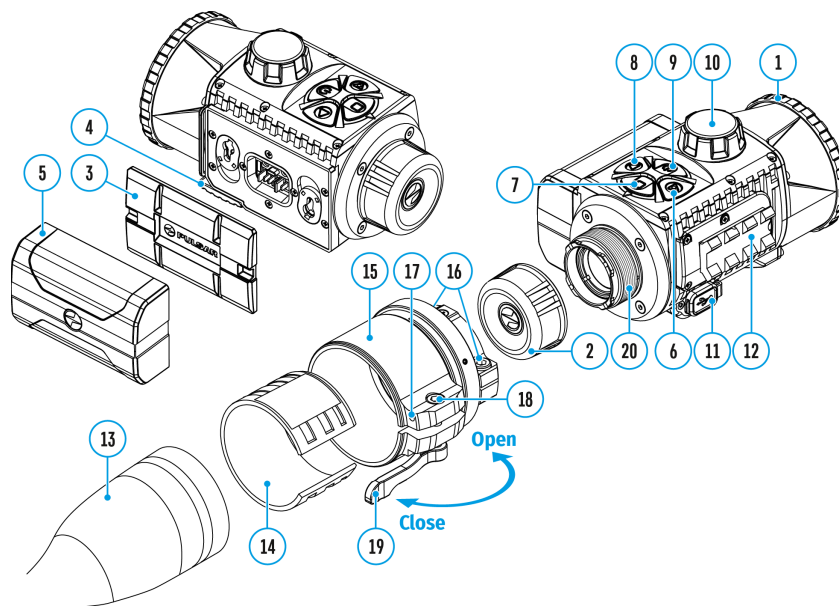2. Use the **RIGHT (6)/LEFT (8)** buttons to select the **Defective Pixel Repair**

$$\boxed{+}$$

    icon.

3. Press the **MENU (7)** button to enter the submenu.

4. Use the **RIGHT (6)/LEFT (8)** buttons to select the **Restore Default Pixel Map**

↩

    icon.

5. Activate the function by briefly pressing the **MENU (7)**

6. Using the **RIGHT (6)/LEFT (8)** buttons, select **Yes** if you want to return to the factory pixel map and select **No** if you do not.

7. Confirm your selection with a short press of the **MENU (7)**

Defective pixel repair

When using the device, defective (dead) pixels may appear on the microbolometer. These are bright or dark points of a constant brightness that are visible on the image.

Krypton FXG50 thermal imaging attachments offer the possibility to repair any defective pixels on the microbolometer using firmware as well as to cancel removing.
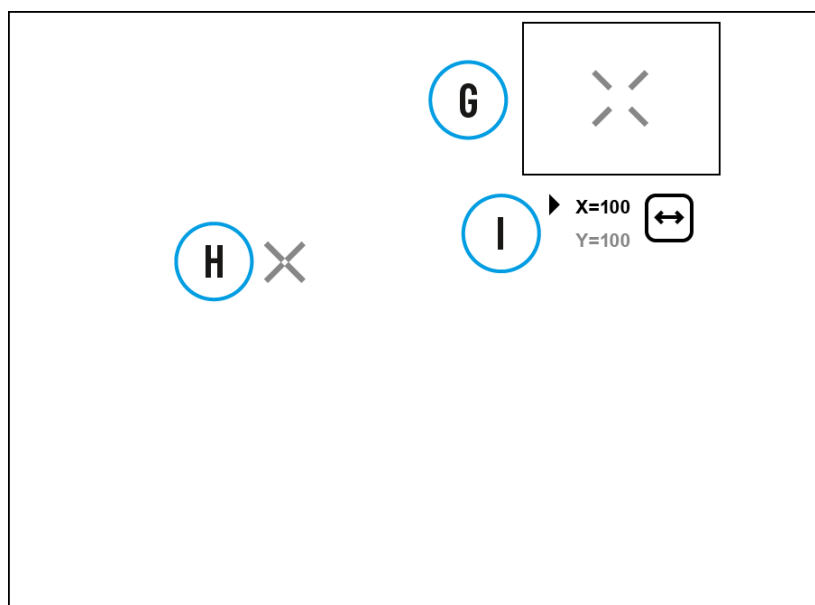
1. Press and hold the **MENU (7)** button to enter the main menu.

2. Use the **RIGHT (6)/LEFT (8)** buttons to select the **Defective Pixel Repair**
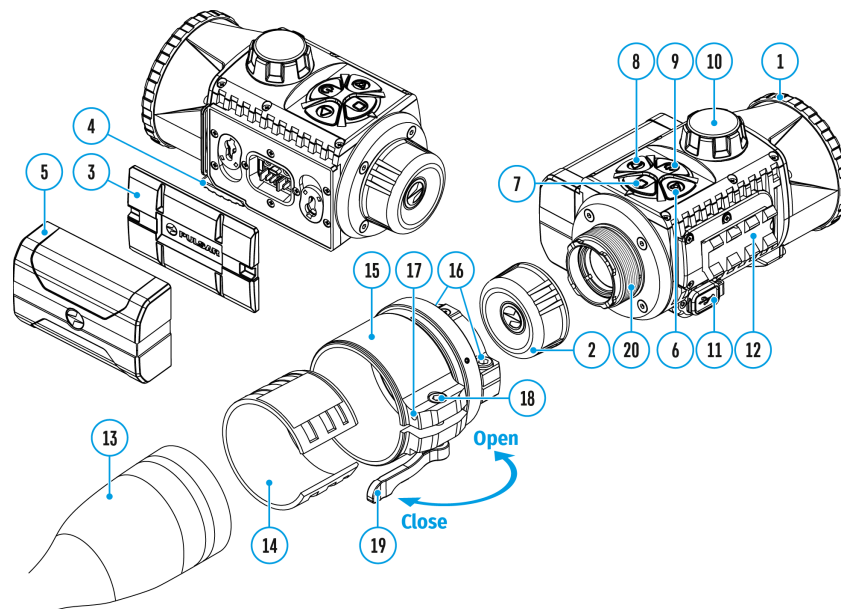
   [+]

   menu item.

3. Press briefly the **MENU (7)** to open the submenu.

4. Select the **Defective Pixel Repair**

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option by briefly pressing the **MENU (7)** button.

5. A marker **(H)**

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appears on the left side of the display.

6. On the right side of the display appears a "magnifying glass" **(G)** – a magnified image in the frame with a fixed cross

⟩⟨

, designed for easier detection of a defective pixel and to match the pixel with the marker, and horizontal and vertical arrows for X and Y axes **(I)** showing the marker's movement.

7. With a short press of the **RIGHT (6)/LEFT (8)** buttons move the marker to align it with a defective pixel.

8. Switch the direction of the marker from horizontal to vertical and vice versa with a short press of the **MENU (7)** button**.**

9. Align the defective pixel with the fixed cross in the frame – the pixel should disappear.

10. Delete the defective pixel with a short press of the **ON/OFF (9).**

11. Once the pixel has been successfully deleted an **"OK"** message will briefly appear on the screen.

12. You can then delete another defective pixel by moving the marker across the display.

13. Exit the **Defective Pixel Repair** submenu with a long press of the **MENU (7).**

Warning! The display of a thermal imager may have 1- 2 pixels represented as bright white or coloured (blue, red) dots which cannot be deleted and are not a defect.

Calibration mode
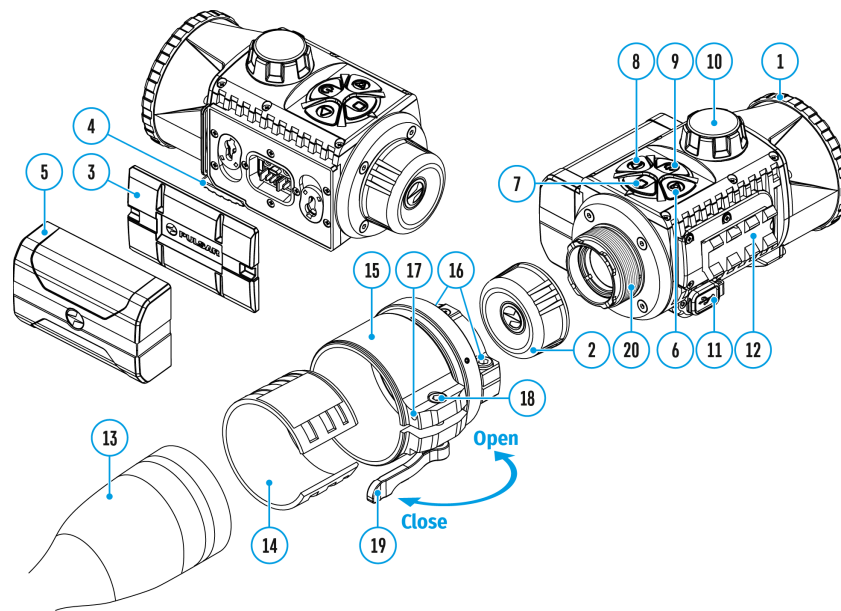
Calibration mode selection.

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

1. Press and hold the **MENU (7)** button to enter the main menu.
2. Use the **RIGHT (6)/LEFT (8)** buttons to select the **Calibration Mode**

◀ ▶
◀ ▶

   icon.
3. Press the **MENU (7)** button briefly to enter the submenu.
4. Use the **RIGHT (6)/LEFT (8)** buttons to select one of the calibration modes described below.
5. Press the **MENU (7)** button briefly to confirm the selection.

Automatic (A). In this mode the firmware determines the need for calibration. The calibration process starts automatically.

Semi-Automatic (SA). The user determines the need for calibration based on the image quality and can action at a convenient time depending on the object being observed.

Manual (M). In the Manual (silent) calibration mode the user determines the need for calibration (as in **SA** mode) but the lens cover must be closed during calibration.

Microphone
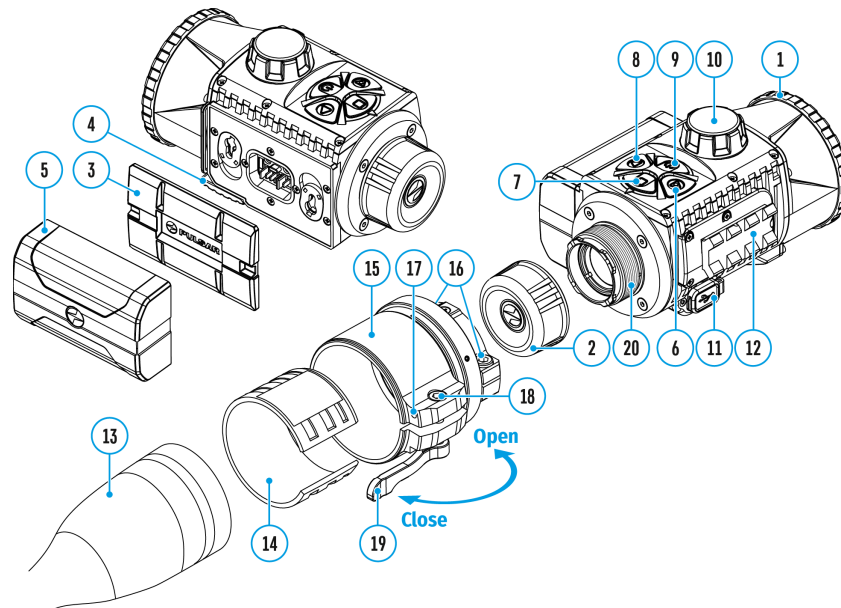
Turning microphone on/off.

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

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

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

Bluetooth
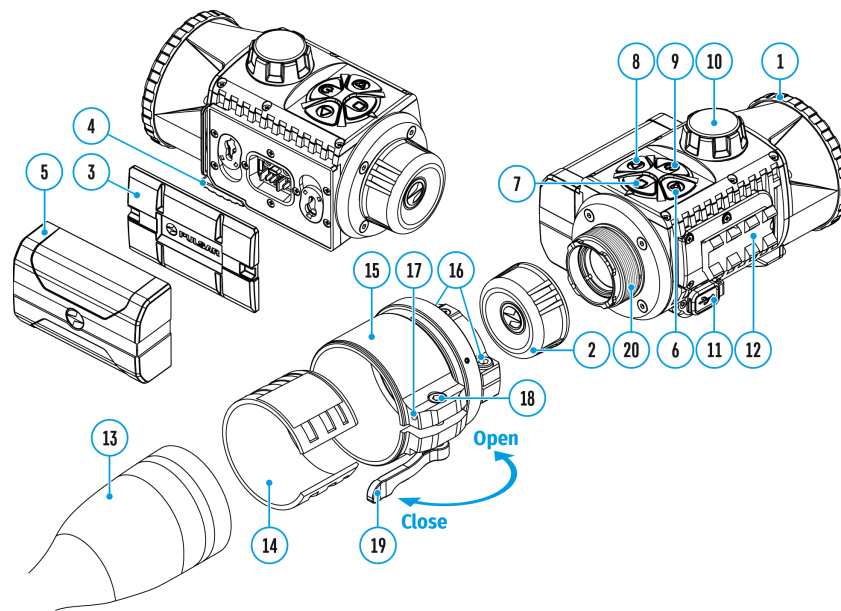
Turn on/off Bluetooth

1. Press and hold the **MENU (7)** button to enter the main menu.

2. Select the **Bluetooth**

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

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

4. Turn Bluetooth on/off with a short press of the **MENU (7)** button.

5. Press and hold down the **MENU (7)** button to exit the submenu.

Functions

USB connection

USB connection

▶ Use as power
Use as memory card
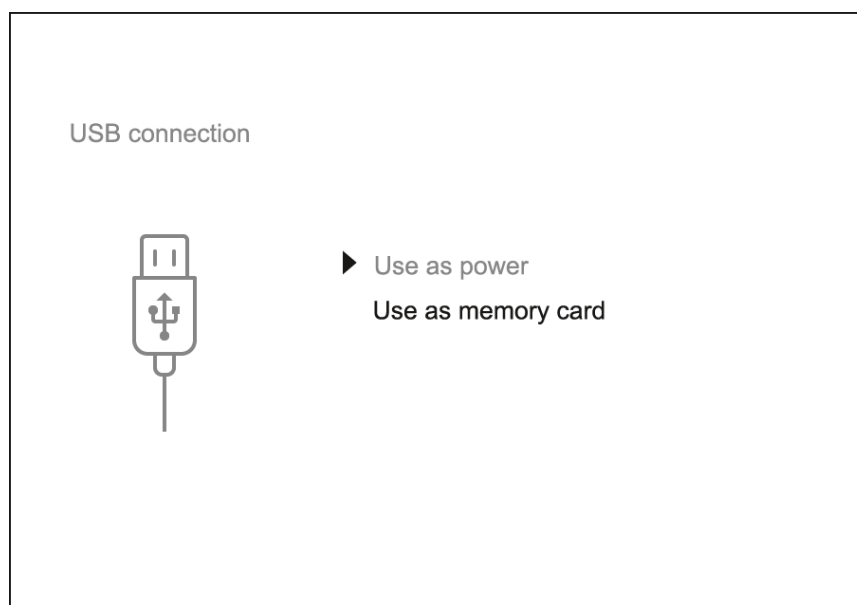
1. Connect one end of the USB cable **(22)** to the device micro-USB port **(11)** and the other end to the port on your computer.

2. Switch the device on with a short press of the **ON/OFF (9)** button (the computer will not detect the device if it is switched off).

3. The device is detected by the computer automatically and no drivers need to be installed.

4. Two connection modes will appear on the display: **Use as power** and **Use as memory card**.

5. Use the **RIGHT (6)/LEFT (8)** buttons to select the connection mode.

6. Press the **MENU (7)** button briefly to confirm the selection.

Use as power

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

appears in the status bar. The device will continue operating and all the functions are available.

- A battery installed in the device will not be charged.

- When disconnecting the USB from the device connected in **Use as power** mode, the device will continue to operate from the rechargeable battery if it is present and provided it has enough charge.

Use as memory card

- When this mode is selected, the device is recognized by the computer as a flash card. This option is designed for working with files that are stored on the device's built-in memory. However, the device functions are not available in this mode and it will switch off automatically.

- If video recording was in progress when the connection was made, recording stops and the video is saved.

- When USB cable is disconnected from the device in **Use as memory card** mode, the device remains turned OFF. Press the **ON/OFF (9)** button to turn on the device.

Video recording and photography
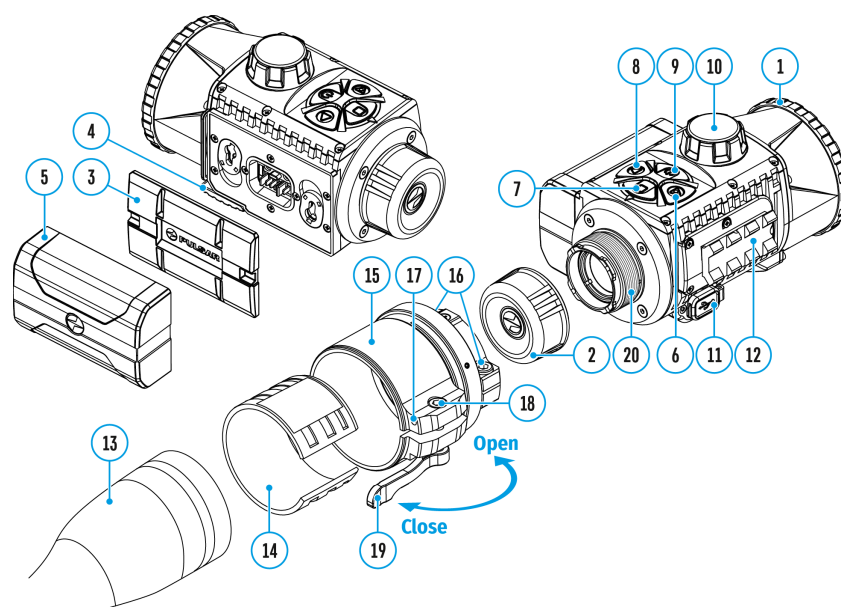
The **Krypton FXG50** thermal imaging attachments are equipped with a video recording (photography) function where the observed image can be saved on the built-in memory card.

Before using this feature please set the **date** and **time**.

The built-in recorder operates in two modes:

Video Mode. Video Recording

1. Switch to **Video** mode by pressing and holding the **RIGHT/REC (6).**
2. The icon

   and the remaining recording time in HH:MM (Hours:Minutes) format are displayed in the upper left corner for a short time, for example, 5:12. In the status bar, the video recording status is displayed continuously.
3. Press the **RIGHT/REC (6)** button briefly to start video recording.
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/REC (6)** button briefly to pause or resume video recording.
6. Press and hold the **RIGHT/REC (6)** button to stop video recording.
7. Video files are saved to the built-in memory card after the video recording has been stopped.
8. Press and hold the **RIGHT/REC (6)** button to switch between the video and photo modes.

Photo Mode. Capturing a photo

1. Switch to **Photo** mode by pressing and holding the **RIGHT/REC (6)**
2. Press the **RIGHT/REC (6)** button briefly to take a photo. The image freezes for 0.5 sec while the photo is saved to the internal memory.

Notes:

- You can enter and navigate the menu during video recording.

- The recorded videos and photos are saved to the built-in memory card of the device in the formats img_xxx.jpg (photos) and video_xxx. mp4 (video) where xxx is a 3 digit counter.

- The counter for multimedia files cannot be reset.

Attention!

- The maximum duration of a recorded video file is five minutes. After this time expires, the video is recorded to a new file.

- The number of recorded files is limited by the capacity of the internal memory of the device.

- Regularly check the free capacity of the internal memory and move recorded footage to other storage media to free up space on the internal memory card.

- In case of a memory card error, you can use the format function in the **General Settings** section of the main menu.

- When the Display Off function is activated, video recording is paused.

Wi-fi function

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

- Turn on the wireless module in the **WI-Fi Activation**

menu option.

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

Connection Status	Indication on the status bar
Wi-Fi is switched off	
Wi-Fi connection is in progress	
Wi-Fi is switched on, no connection with device	
Wi-Fi is switched on, device connected	

- The device is recognized by an external device as KRYPTON_XXXX where XXXX are the four last digits of the serial number.

- After entering the password on the external device (see the **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 status bar changes to

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Display calibration
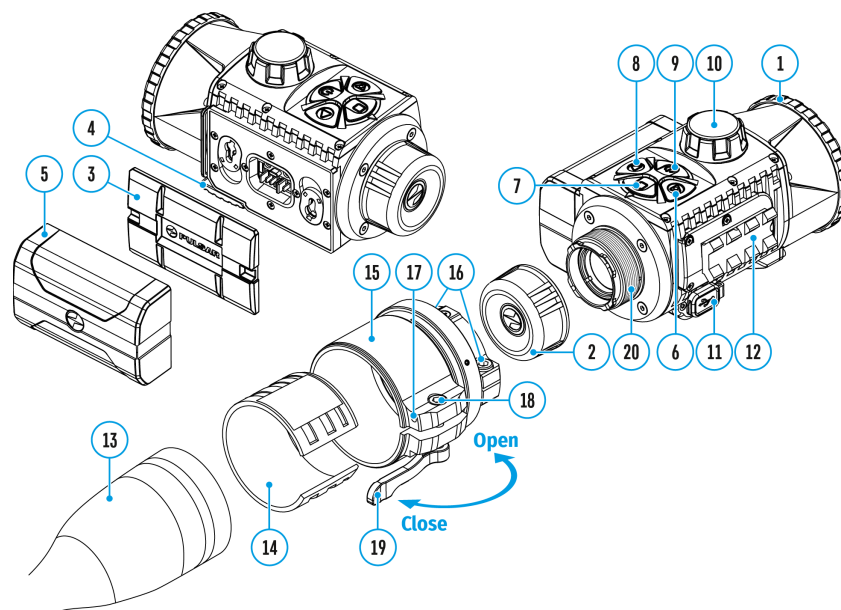
The attachment is configured so that after fitting onto an riflescope that had been properly zeroed, no adjustment of the aiming point is required. Yet if point of impact

change is observed after putting on the attachment, you can fix it with display calibration procedure.

Display coordinates   **Impact point**

X=10
Y=12

Riflescope reticle   **Display displacement**
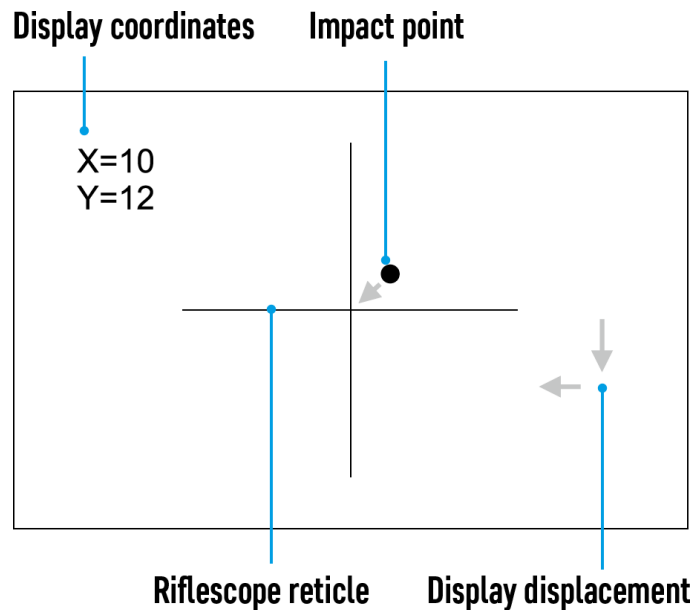
1. To enter display calibration mode, first press and hold the **MENU (7)** button for 10 seconds.

2. The display coordinates X=0; Y=0 will appear.

3. Use the **LEFT (8)/RIGHT (6)** buttons to move the display horizontally (X axis) and vertically (Y axis) so that the point of impact moves to the centre of the riflescope reticle.

4. Press the **MENU (7)** button to toggle between the X and Y coordinates.

5. The image offset range is +/- 30 pixels horizontally (X axis), +/- 30 pixels vertically (Y axis).

6. To exit the menu and save the settings, press and hold the **MENU (7)** button for two seconds.

Wireless Remote Control

Description of controls

The wireless remote control duplicates the functions of turning off the device, turning off the display, calibration, switching observation modes and palettes, video recording and photographing, and it allows navigation through the menu.

		Controller (25)	Button (26)	Button (27)	Button (28)
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 / Calibrate the microbolometer	Switch observation modes	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 on/off the Black Hot palette	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			

Remote control activation
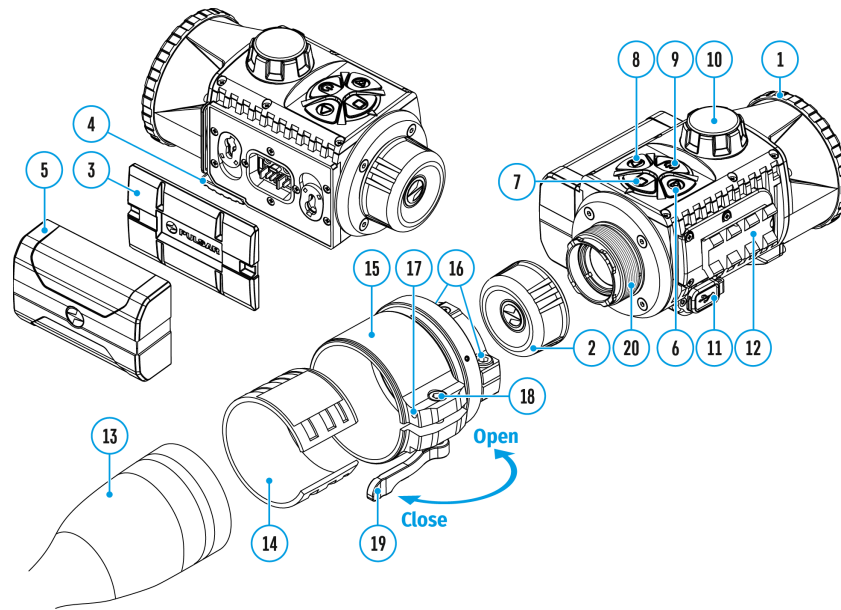
1. Turn on the Bluetooth module.

2. In the **Bluetooth**

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

   ✳⃝

   menu item.

3. Confirm your selection with a short press of the **MENU (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)/LEFT (8)** buttons to select the remote control from the dropdown list that appears.

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

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

Krypton FXG50 thermal imaging attachments 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.

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.

You can find further guidelines on Stream Vision here.

Download from Google Play

Download from App Store

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

Maintenance

Technical inspection

It is recommended to carry out a technical inspection before each use of the device. Check the following:

- The device appearance (there should be no cracks on the body).
- The state of the objective and eyepiece lenses of the attachment (there should be no cracks, grease spots, dirt or other deposits).
- The state of the rechargeable battery (it should be charged) and the electric contacts (there should be no signs of salts or oxidation).
- The controls should be in working order.
- The attachment is properly and firmly fixed on the riflescope.

Technical maintenance and storage

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

- Wipe the exterior metal and plastic surfaces with a cotton cloth to remove dust and dirt. To avoid damage to the paint coating, do not use chemically active substances, solvents, etc.
- Clean the electrical contacts of the rechargeable battery on the device using a non-greasy organic solvent.
- Check the eyepiece and the lens and if required remove dust and dirt from the optics (preferably using a non-contact method). Cleaning of the exterior surfaces of the optics should only be done with products specifically designed for this purpose.
- Always store the device in its carrying case in a dry, well-ventilated space. For prolonged storage, remove the batteries.

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.

The supplied USB cable is broken

Solution

To replace the USB cable, contact your **local distributor**.

Self-repair of the cable is prohibited.

The ability to use a USB cable from other manufacturers with the device may be limited.

Remote control does not work

Possible cause

The Bluetooth module is not turned on.

Solution

Turn on the Bluetooth module according to the instructions.

Possible cause

The Remote control is not activated.

Solution

Activate the remote control according to instructions.

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.

Residual horizontal lines and traces of horizontally placed objects during observation process.

Possible cause

Algorithms that are used for image processing might sometimes cause traces of horizontal lines to temporarily appear on the image. This should not be considered as a critical error.

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 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).

Blurred image with vertical stripes or an uneven background

Possible cause

Calibration is required.

Solution

Perform image calibration according to the **Microbolometer Calibration** section of the manual.

Poor quality image. There is noise or ghost images of previous scenes or objects

Possible cause

Manual calibration has been performed with the lens cover open.

Solution

Check the **Calibration Mode**, close the lens cover and **calibrate** the device.

Black screen after calibration

Solution

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

When the device is turned on, the calibration frequency is at first higher, then decreases (if the automatic calibration mode is enabled)

Possible cause

After turning on the device, it takes some time for the sensor temperature to stabilize. This is normal and is not a defect.

Image is too dark

Possible cause

Brightness or contrast level is too low.

Solution

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

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.

The device does not turn on

Possible cause

The battery is completely discharged.

Solution

Charge the battery.

The image of the object being observed is missing

Possible cause

You are looking through glass.

Solution

Remove the glass or change the viewing position to avoid it.

Poor image quality / Reduced detection distance

Possible cause

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

Smartphone or tablet cannot be connected to the device

Possible cause

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.

Solution

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

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.

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.

Legal compliances and disclaimers

Attention! A license is required for Thermal Imaging Front Attachment Krypton FXG50 when exporting outside your country.

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

Caution! Operation of this equipment in a residential environment could 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.

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