

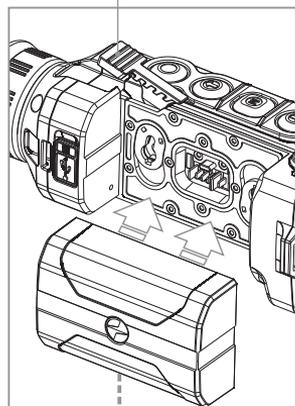
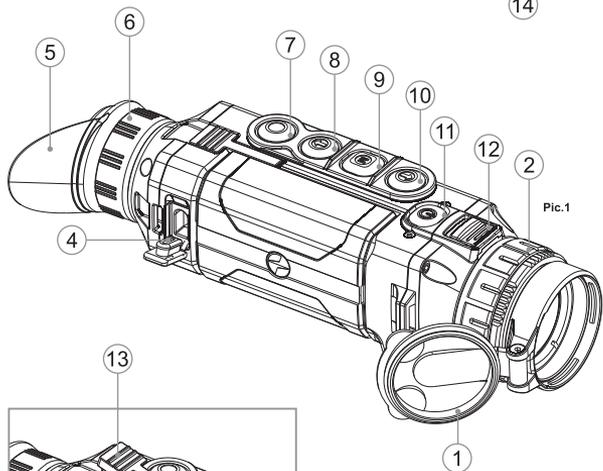
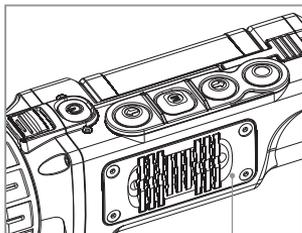


Helion Thermal Imaging Scopes

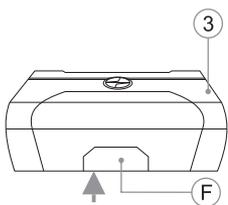
I N S T R U C T I O N S

ENGLISH / FRANÇAIS / DEUTSCH / ESPAÑOL / ITALIANO / РУССКИЙ





Pic.2



Stream your
discoveries



**STREAM
VISION**



Thermal Imaging Scope HELION	1-24	ENGLISH
Lunette d'imagerie thermique HELION	25-48	FRANCAIS
Wärmebildgerät HELION	49-74	DEUTSCH
Monocular térmico HELION	75-100	ESPAÑOL
Termovisore HELION	101-126	ITALIANO
Тепловизор HELION	127-152	РУССКИЙ

SPECIFICATIONS

MODEL HELION SKU#	XQ19F 77391	XQ30F 77393	XQ38F 77394	XQ50F 77395
Microbolometer:				
Type	uncooled		uncooled	
Resolution, pixels	384x288		384x288	
Frame rate, Hz	50	50	50	50
Pixel size, μm	17	17	17	17
Optical characteristics:				
Magnification, x	1.6	2.5	3.1	4.1
Continuous digital zoom, x	1.6-6.4	2.5-10	3.1-12.4	4.1-16.4
Digital zoom	2x/4x	2x/4x	2x/4x	2x/4x
Objective lens	F19 mm, F/1.2	F30 mm, F/1.6	F38 mm, F/1.2	F50 mm, F/1.2
Close-up range, m	3-5	3	3	5-7
Exit pupil diameter, mm	5	5	5	5
Field of view (HxV), degrees	19.5x14.7	12.4x9.3	9.8x7.4	7.5x5.6
Field of view (HxV), m@100m	34.3x25.8	21.8x16.3	17.2x12.9	13x9.8
Dioptre adjustment, D	± 5	± 5	± 5	± 5
Max. observation range of an animal, such as a deer, m / y	700/765	800/875	1350/1476	1800/1969
Display:				
Type	AMOLED		AMOLED	
Resolution, pixels	640x480		640x480	
Operational characteristics:				
Power supply	3 – 4.2V		3 – 4.2V	
Battery type / Capacity / Output voltage	Li-Ion Battery Pack IPS5 / 5000 mAh / DC 3.7V			
External power supply	5V (USB)		5V (USB)	
Operating time on battery pack (at $t=22^{\circ}\text{C}$), hours	8	8	8	8
Degree of protection, IP code (IEC60529)	IPX7		IPX7	
Operating temperature range	-25 $^{\circ}\text{C}$... +50 $^{\circ}\text{C}$ / -13 $^{\circ}\text{F}$... 122 $^{\circ}\text{F}$			
Dimensions, mm	219x55x58	230x55x58	226x55x58	235x55x58
inch	8.6x2.2x2.3	9.2x2.2x2.3	8.9x2.2x2.3	9.2x2.2x2.3
Weight (without batteries), kg	0.4	0.45	0.45	0.5
oz	14.1	15.9	15.9	17.6
Video recorder				
Video / photo resolution, pixel	640x480		640x480	
Video / photo format	.avi / .jpg		.avi / .jpg	
Built-in memory	8 Gb	8 Gb	8 Gb	8 Gb
Built-in memory capacity	150 min video or >10 000 pictures			
Wi-Fi channel				
Frequency	2.4GHz	2.4GHz	2.4GHz	2.4GHz
Standard	802.11 b/g/n		802.11 b/g/n	
Line-of-sight reception range, m	15	15	15	15

MODEL HELION SKU#	XP28 77403	XP38 77404	XP50 77405
Microbolometer:			
Type	uncooled		
Resolution, pixels	640x480	640x480	640x480
Frame rate, Hz	50	50	50
Pixel size, μm	17	17	17
Optical characteristics:			
Magnification, x	1.4	1.9	2.5
Continuous digital zoom, x	1.4-11.2	1.9-15.2	2.5-20
Digital zoom	2x/4x/8x		
Objective lens	F28 mm, F/1.2	F38 mm, F/1.2	F50 mm, F/1.2
Close-up range, m	3	3	3
Exit pupil diameter, mm	5	5	5
Field of view (HxV), degrees	22x16.6	16.3x12.3	12.4x9.3
Field of view (HxV), m@100m	39x29	28.6x21.5	21.8x16.3
Dioptre adjustment, D	± 5	± 5	± 5
Max. observation range of an animal, such as a deer	1000/1094	1350/1476	1800/1969
Display:			
Type	AMOLED	AMOLED	AMOLED
Resolution, pixels	640x480	640x480	640x480
Operational characteristics:			
Power supply	3 – 4.2V	3 – 4.2V	3 – 4.2V
Battery type / Capacity / Output voltage	Li-Ion Battery Pack IPS5 / 5000 mAh / DC 3.7V		
External power supply	5V (USB)	5V (USB)	5V (USB)
Operating time on battery pack (at $t=22^{\circ}\text{C}$), hours	8	8	8
Degree of protection, IP code (IEC60529)	IPX7	IPX7	IPX7
Operating temperature range	-25 $^{\circ}\text{C}$... +50 $^{\circ}\text{C}$ / -13 $^{\circ}\text{F}$... 122 $^{\circ}\text{F}$		
Dimensions, mm	219x57x58	226x55x58	234x55x58
inch	8.6x2.2x2.3	8.9x2.2x2.3	9.2x2.2x2.3
Weight (without batteries), kg	0.4	0.45	0.5
oz	14.1	15.9	17.6
Video recorder			
Video / photo resolution, pixel	640x480	640x480	640x480
Video / photo format	.avi / .jpg	.avi / .jpg	.avi / .jpg
Built-in memory	8 Gb	8 Gb	8 Gb
Built-in memory capacity	150 min video or >10 000 pictures		
Wi-Fi channel			
Frequency	2.4GHz	2.4GHz	2.4GHz
Standard	802.11 b/g/n		
Line-of-sight reception range, m	15	15	15

● PACKAGE CONTENTS

- HELION Thermal Imaging Scope
- IPS5 Battery Pack
- Battery charger with mains charger
- USB cable
- Carrying case
- Hand strap
- User manual
- Lens cloth
- Warranty card

The design and software of this product are subject to change for development purposes.

The latest edition of this user manual is available at www.pulsar-nv.com

● DESCRIPTION

HELION thermal imaging scopes are based on an IR sensor (uncooled microbolometer) are represented by a number of models featuring various frame rate, magnification and lens diameter. The scopes are designed for the use both in the night-time and during the day in adverse weather conditions (fog, smog, rain) to see through obstacles hindering detection of targets (branches, tallgrass, thick bushes etc.). Unlike the image intensifier tube based night vision device, **HELION** thermal imaging scopes do not require an external source of light and are not affected by bright light exposure.

HELION thermal imaging scopes are designed for various areas of application including night hunting, observation, trail orienteering, rescue operations etc.

● FEATURES

- User-friendly interface
- Three operating modes - City, Forest, Identification
- Three calibration modes – Manual, Semi-automatic, Automatic,
- Eight colour palettes for observation
- Built-in 3-axis accelerometer, gyroscope, magnetometer
- Defective pixel repair function
- Stadiametric rangefinder
- Display off option
- Functional and ergonomic design
- Updatable features
- Wide range of operating temperatures (-25 °C ...+50 °C)

VIDEO RECORDING

- Built-in video recorder
- Integration with iOS and Android based mobile devices
- Wi-Fi. Remote control and viewing using smartphone
- YouTube. Direct video streaming and recording to the Internet via smartphone using the Stream Vision application

BATTERY PACK:

- Quick-release Li-Ion battery packs IPS5/IPS10
- Operating time in Wi-Fi mode up to 16 hours*
- Operation on AA or CR123 batteries**
- Charging IPS5/IPS10 batteries via USB

** on Battery Pack IPS10 (sold separately).*

*** using special battery container (sold separately).*

● EXTERNAL VIEW AND CONTROLS

- ① Lens cover
- ② Lens focusing ring
- ③ Battery Pack
- ④ Micro-USB port
- ⑤ Eyeshade
- ⑥ Dioptre adjustment ring
- ⑦ Recording button REC
- ⑧ Navigation button DOWN
- ⑨ Button MENU
- ⑩ Navigation button UP
- ⑪ Power on/off button ON
- ⑫ Latch for lens change (only in models XP28; XP38; XP50)
- ⑬ Lever for battery pack
- ⑭ Radiator cooling system

DESCRIPTION OF CONTROLS

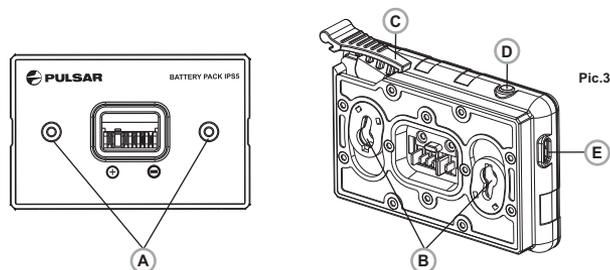
BUTTON	DEVICE STATUS (CURRENT OPERATING MODE)	FIRST SHORT PRESS	OTHER SHORT PRESSES	LONG PRESS
ON ⏻	Device is off	Power device on	Calibrate the sensor	Turn display off/ Power device off
	Display OFF mode	Turn display on	Calibrate the sensor	
	Device is on	Calibrate the sensor		
UP ↑	Regular (viewing)	Switch between colour palettes		Wi-Fi on/off
	Main menu	Navigation upwards/rightwards		
	Hot menu	Changes parameters		
MENU M	Regular (viewing)	Enter hot menu	n/a	Enter main menu
	Main menu	Confirm selection		Exit submenu without confirming selection / Exit menu (switch to viewing mode)
	Hot menu	Switch between hot menu options		
DOWN ↓	Regular (viewing)	Control discrete digital zoom		PiP on/off
	Main menu	Navigation downwards/leftwards		
	Hot menu	Changes parameters		
REC ⊙	Video mode	Start video recording	Pause / resume video recording	Stop video recording (if recording is on)/ Switch to photo mode (if recording is off)
	Photo mode	Take a photograph		

USING THE BATTERY PACK

HELION thermal imaging scopes are supplied with a rechargeable Li-Ion Battery Pack IPS5 which allows operation for up to 8 hours. Please remember to charge the Battery Pack before first use.

Charging:

- Lift the lever **(C)** of the charger.
- Remove the protective cover from the Battery Pack.
- Install the Battery Pack into the charger by inserting the pins **(A)** of the battery into the grooves **(B)** of the charger – the Pulsar logo on the battery Pack should be located closer to the lever; click the lever **(C)**(Pic.3).
- Upon installation, a green **LED** indicator **(D)** 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 75% to 100%;
- If the indicator lights green continuously, the battery is fully charged.
- You can remove the battery from the charger by lifting the lever **(C)**.
- If the indicator of the charger lights red continuously upon battery installation, probably the battery's charge level is lower than acceptable (the battery has been long in deep discharge). Keep the battery in the charger for a long time (up to several hours), remove and re-insert it. If the indicator starts blinking green, the battery is good; if it keeps lighting red it's defective. **Do not use the battery!**
- Connect the Micro-USB plug of the USB cable to the port **(E)** of the charger.
- Connect the Micro-USB plug to the charger.
- Insert the plug of the charger to the 220V socket.



Pic.3

INSTALLATION:

- Remove the protective cover from the Battery Pack.
- Lift the lever (13).
- Install the battery into the dedicated slot on the device housing so that element A (Pic.2 on the flyleaf) appears from below.
- Fix the battery by clicking the lever.

SAFETY MEASURES:

- Only use the charger supplied with the Battery Pack. The use of any other charger may irreparably damage the Battery Pack or the charger and may cause fire.
- **When keeping the battery for a long period, the battery should not be fully charged or fully discharged.**
- **Do not charge the battery immediately after bringing the battery from cold environment to a warm one. Wait for 30-40 minutes for the battery to get warm.**
- Do not leave a battery unattended while charging. Never use a modified or damaged charger.
- Charge the Battery Pack at a temperature from 0 °C to +45 °C. Otherwise batter's life will decrease significantly.
- Do not leave the Battery Pack with a charger connected to the mains longer than 24 hours after full charge.
- Do not expose the battery pack to high temperature or to a naked flame.
- Do not submerge the battery in water.
- Do not connect external device with a current consumption that exceeds permitted levels.
- The Battery Pack is short circuit protected. However, any situation that may cause short-circuiting should be avoided.
- Do not dismantle or deform the Battery Pack.
- Do not drop or hit the battery.
- When using the battery at negative temperatures, battery's capacity decreases, this is normal and is not a defect.
- Do not use the battery at the temperatures above those shown in the table – this may decrease battery's life.
- Keep the battery out of the reach of children.

7

EXTERNAL POWER SUPPLY

The device can be powered with an external power supply such as Power Bank (5V).

- Connect the external power supply to the USB port (4) of the device (Pic. 1 on the flyleaf).
- The device switches to operation from external power supply, and the IPS5 Battery Pack will begin slowly charging.
- The display will show the battery icon  with charge level as a percentage.
- If the device operates on external power supply but the IPS5 battery is not connected, the icon  is shown.
- When the external power supply is disconnected, the device switches to the internal battery pack without powering off.

8

OPERATION

WARNING! Do not point the objective lens of the unit at intensive sources of light such device emitting laser radiation or the sun. This may render the electronic components inoperative. The warranty does not cover damage caused by improper operation.

WARNING! The radiator cooling system (14) becomes warm during operation: this is normal and allows an increase in the sensitivity of the device.

Powering on and image setup

- Open the lens cover (1).
- Turn the unit on with a short press of the **ON (11)** button .
- To obtain a crisp image of the icons on the display, rotate the dioptre adjustment ring (6). After this there is no need to rotate the dioptre adjustment ring for distance or any other conditions.
- To focus on the object being observed rotate the lens focusing ring (2).
- To set up display brightness and contrast and continuous zoom, please refer to the HOT MENU FUNCTIONS section.
- After use, hold down the **ON** button to turn the unit off.

9

SENSOR CALIBRATION

Calibration allows levelling of the background temperature of the microbolometer and eliminates image flaws (such as frozen image, vertical stripes etc.).

There are three calibration modes: manual (**M**), semi-automatic (**SA**) and automatic (**A**).

Select the desired mode in the menu option "CALIBRATION"  .

- **Mode M (manual).** Close the lens cover, turn the device on with a short press of the **ON** button (11). Having finished calibration, open the lens cover.
- **Mode SA (semi-automatic).** Calibration is activated with a short press of the **ON** button. You do not have to close the lens cover (the sensor is closed with the internal shutter automatically).
- **Mode A (automatic).** The device calibrates by itself according to the software algorithm. You do not have to close the lens cover (the sensor is closed with the internal shutter automatically). User assisted calibration with the **ON** button is allowed in this mode (in semi-automatic mode).

10

DISCRETE DIGITAL ZOOM

The device allows you to quickly increase the basic magnification (please refer to the “**Digital zoom**” line in the specifications table) by two times or four times (8 times in XP models), as well as to return to the basic magnification. To operate the discrete digital zoom, press successively the **DOWN** (8) button.

11

HOT MENU FUNCTIONS

The Hot menu allows change of basic settings (display brightness and contrast, continuous digital zoom and stadiametric rangefinder).

- Enter the menu with a short press of the **M** (9) button.
- To toggle between the functions below, press successively the **M** button.
- **Brightness**  – press the **UP** (10)/ **DOWN** (8) buttons to change display brightness from 00 to 20.
- **Contrast**  – press the UP/ DOWN buttons to change display contrast from 00 to 20.
- **Digital zoom**  – press the UP/ DOWN buttons to change digital zoom from 1.0x to 4.0x (or 8.0x in XP models). Continuous digital zoom is in 0.1x increments.

The initial value of the continuous digital zoom is x1.0 if the discrete digital zoom is not active; x2.0 is discrete digital zoom is 2x; x4.0 is discrete digital zoom is 4x; x8.0 is discrete digital zoom is 8x.

Notes.

- actual magnification is the product of the basic magnification value and continuous digital zoom value. For example: the device's basic magnification is 3.0x, continuous digital zoom value x1.7. Actual magnification is 5.1x (3.0*1.7).

- display brightness and contrast settings are saved in the memory when the unit is turned off.

The stadiametric rangefinder  — press the UP/ DOWN buttons to change distance to an object being ranged (please refer to section 16 for more details).

12

MAIN MENU FUNCTIONS

- Enter the main menu with a long press of the **M** (9) button.
- Press the **UP** (10)/ **DOWN** (8) buttons to switch between the menu options.
- Menu navigation is cyclical: as soon as the last menu option of the first tab is reached, first menu option of the second tab starts.
- Enter a menu option with a short press of the **M** button.
- Exit the menu with a long press of the **M** button.
- Automatic exit takes place in 10 sec of inactivity.
- Upon exit from the menu the cursor location  is memorized only for the duration of the working session (i.e. until the unit is turned off). Upon restarting the device and entering the menu the cursor will be located on the first menu option.

MENU CONTENTS:

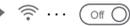
TAB 1

Menu	Wi-Fi activation
 ...	<input type="checkbox"/> Off
 ...	
 ...	Black Hot
 ...	Automatic
 >	

TAB 2

Menu	General settings
 >	
 >	
 >	
	

Menu contents and description

 Wi-Fi	Wi-Fi ON/OFF
	Turn Wi-Fi on with a short press of the M (9) button.
	Turn Wi-Fi off with a short press of the M (9) button. You can also turn Wi-Fi on/off with a long press of the UP (10) button during operation.
 Mode	Selection of operating mode. There are three automatic operating modes: Each mode includes optimal combination of parameters (brightness, contrast, gain etc.) to deliver best possible image in specific viewing conditions.
 Rocks	Enhanced contrast mode. Perfect for viewing animals against the background of rocks, ground in mountain areas.
 Forest	Low contrast mode Perfect for viewing animals against a background of vegetation.
 Identification	Universal mode for various modes of observation.
 Color palettes	Selection of colour palettes. Basic image mode is “White Hot”. Menu option “ Colour palettes ” allows you to select an alternative palette. <ul style="list-style-type: none">• Enter the main menu with a long press of the M (9) button.• Enter the submenu with a short press of the M button.• Select one of the palettes below with a short press of the UP (10)/DOWN (8) buttons.• Confirm selection with a short press of the M button. Black Hot palette (white colour corresponds to low temperature, black colour – to high temperature) Hot Red Red Monochrome Rainbow Ultramarine Violet Sepia

Switch between the palette selected in the menu and the basic palette with a short press of the **UP (10)** button.



Calibration

Selection of calibration mode. There are three calibration modes: manual (**M**), semi-automatic (**SA**) and automatic (**A**).

- Enter the main menu with a long press of the **M** button.
- Enter the submenu with a short press of the **M** button.
- Select one of the below calibration modes with **UP (10)/DOWN (8)** buttons.
- Confirm selection with a short press of the **M** button.

A

In automatic mode the need for calibration is based on software algorithm. Calibration starts automatically.

SA

The user determines for himself the need for calibration based on the actual image status.

M

Manual (silent) calibration.

Close the lens cover before calibration.



WiFi settings

Wi-Fi setup.

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

Password setup

This menu option allows you to set a password to access your thermal imager from an external device.

▶  ...12345

The password is used to connect an external device (i.e. smartphone) to your thermal imager.

- Enter the submenu “**Wi-Fi**” with a short press of the **M (9)** button.
- The default password “**12345**” appears on the display.
- Set the desired password with the **UP (10)** and **DOWN (8)** buttons (button **UP** to increase value; button **DOWN** to reduce). Switch between digits with a short press of the **M** button.
- Save the password and exit the submenu with a long press of the **M** button.

Access level setup

Access level setup

This menu option allows you to set required access level of the Stream Vision application to your device.

▶  ▶ Owner
Guest

- Access level **Owner**. The Stream Vision user has the complete access to all device's functions.
- Access level **Guest**. The Stream Vision user has the access only to the real time video stream from the device.



Settings

Language

- ▶ ... English

The following settings are available:

Language selection

- Enter the submenu **"Language"** with a short press of the **M** button.
- Select one of the available interface languages with a short press of the **UP/ DOWN** buttons: English, French, German, Spanish.
- Switch between languages with a short press of the **M** button.
- Save selection and exit the submenu with a long press of the **M** button.

Date setup

- Enter the submenu **"Date"** with a short press of the **M** button. Date format is displayed as: **YYYY/MM/DD** (year/month/day)
- Select the correct values for the year, month and date with a short press of the **UP/ DOWN** buttons.
- Switch between digits with a short press of the **M** button.
- Save selected date and exit the submenu with a long press of the **M** button.

Time setup

- Enter the submenu **"Time"** with a short press of the **M (9)** button.
- Select the desired time format with a short press of the **UP/ DOWN** buttons: 24 or PM/AM.
- Switch to hour setup with a short press of the **M** button.
- Select hour value with a short press of the **UP/ DOWN** buttons.
- Switch to minute setup with a short press of the **M** button.
- Select minute value with a short press of the **UP/ DOWN** buttons.
- Save selected date and exit the submenu with a long press of the **M** button.

Units of measure



Meters



Format

Selection of units of measurement

- Enter the submenu **"M/Y"** with a short press of the **M** button.
- Select the desired time format with a short press of the **UP/ DOWN** buttons, press **M** again.
- Menu exit will take place automatically.

Formatting.

This menu option allows you to format your device's Flash card or memory card (erase all files from its memory).

- Enter the Format submenu with a short press of the **M (9)** button.
- With a short press of the **UP/ DOWN** buttons select **"Yes"** to format the memory card or **"No"** to return to the submenu.
- Confirm selection with a short press of the **M** button.
- If **"Yes"** is selected, display will show **"Do you want to format memory card?"** and **"Yes"** and **"No"** options. Select **"Yes"** to format the memory card.
- Message **«Memory card formatting»** means that formatting is in progress.
- Upon completion of formatting the message **«Formatting completed»** is shown.
- If **"No"** is selected, formatting is aborted and you return to the submenu.



Reset

Restore default settings

- Enter the Reset submenu with a short press of the **M (9)** button.
- With a short press of the **UP/ DOWN** buttons select **"Yes"** to restore default settings or **"No"** to abort.
- Confirm selection with a short press of the **M** button.
- If **"Yes"** is selected, display will show **"Return default settings?"** and **"Yes"** and **"No"** options. Select **"Yes"** to restore default settings.
- If **"No"** is selected, action is aborted and you return to the submenu.

The following settings will be restored to their original values before changes made by the user:

- **Operating mode of video recorder** – video
- **Unit's Operating mode** – Forest
- **Calibration mode** – automatic
- **Language** – English

- **Wi-Fi** – off (default password)
- **Digital zoom** – off
- **PiP** – off
- **Colour palette** – White Hot
- **Unit of measurement** - metric

Warning: date and time settings, default pixel map and remote control activation are not restored.



Lens selection

Lens selection is used when replacing objective lenses for the models: **HELION XP28; HELION XP38; HELION XP50**.

Selection of the lens type is important for the correct display of the optical magnification and adequate operation of the Stadiametric rangefinder.

- Replace the objective lens: to do this, move the latch (**13**) backwards, turn the lens counter clockwise all the way and remove the lens.
- Install a new lens, move the latch backwards and move clockwise until the latch snaps.
- Enter the submenu with a short press of the **M** button.
- With a short press of the **UP/ DOWN** buttons select the desired lens: 28; 38 or 50.
- Confirm selection with a long press of the **M** button.



Remote Control

Remote control activation (bought separately)

Before operating the remote control (RC), remember to activate it as follows:

- Press the **M** button, countdown starts (30 sec), within which hold down for two seconds any RC button.
- If activation is successful, the message «**Connection complete**» appears .
- If error occurs the message «**Connection failed**» appears . Repeat the procedure.
- The RC is activated and ready for use.



Defective pixel repair

Defective pixel repair

When operating a thermal imager, defective (dead) pixels (bright or dark dots with constant brightness) may become visible on the sensor. **HELION** thermal imagers allow the user to repair defective pixels on the detector using a software-based method or to abort deletion.

- Enter the submenu with a short press of the **M** button.
- Select icon with a short press of the **M** button.
- A marker appears on the left side of the display.
- On the right side of the display appears "magnifying glass" – a magnified image in a frame with a fixed cross , designed for easier detection of a defective pixel and to match the pixel with the marker, horizontal and vertical arrows for X and Y axes showing marker's movement .

- With a short press of the **UP/ DOWN** buttons move the marker to align it with a defective pixel.
- Switch the direction of the marker from horizontal to vertical and vice versa with a short press of the **M** button.
- Align the defective pixel with the fixed cross in the frame – the pixel should disappear.
- Delete the defective pixel with a short press of the **REC (7)** button.
- A brief message "**OK**" appears in the frame in case of success.
- Then you can delete another defective pixel by moving the marker along the display.
- Exit "**Defective pixel repair**" option with a long press of the **M** button.

Return to default defective pixel pattern

This option allows you to cancel deletion of the defective pixels and return them to the original state.

- Enter the submenu with a short press of the **M** button.
- Select icon and press **M**.
- Select "**Yes**" if you wish to return to default defective pixel pattern, or "**No**" if you do not.
- Confirm selection with a short press of the **M** button.



Device information

This option allows the user to view the following information about the device:

- Full name
- SKU number
- serial number
- software version

- hardware version
- service information

Select menu option **Device information** with a short press of the **M** button to review information.

13

STATUS BAR

The status bar is located in the lower part of the display and shows information on the actual operating status of the device, including:

- Operating mode
- Calibration mode (in the automatic calibration mode, three seconds before automatic calibration a countdown timer  00:01 is shown in place of the calibration mode icon. The timer appears only as soon as the operating temperature of the microbolometer is stabilized (in 5-7 minutes of continuous operation of the sight). Upon start of the sight the shutter is actuated automatically without showing the timer).
- Current full magnification
- Wi-Fi connection
- USB connection (if the device is connected)
- Colour palette (shown only if the “**Black Hot**” palette is selected)
- Running time
- Battery charge level (if the device is powered by the Battery Pack) or
- External battery power indicator (if the device is powered by an external power supply) or
- Battery charge with current level in per cent (if battery is installed or it is being charged by external power supply)



Note: the image “freezes” on the display during calibration.

14

VIDEO RECORDING AND PHOTOGRAPHY

HELION thermal imagers feature video recording and photography of the image being ranged to the internal memory card.

Before using this feature please read the menu options “**Date setup**”, “**Time setup**” of the section “**Main menu functions**”.

The built-in recorder operates in two modes:

- **Photo** (photography; in the top left corner of the display you can see: photography icon .
If estimated number of photos that can be saved to the Flash card is more than 100, message «>100». Is shown.
- **Video** (video recording; in the top left corner of the display you can see: video icon , current video resolution, total video time left in the format HH:MM:SS (hours : minutes : seconds)

When switched on, the device is in the Video mode. Switch between Video and Photo modes with a long press of the **REC (7)** button. Switching is cyclical (Video-> Photo-> Video...).

Photo mode. Photography

- Switch to the Photo mode.
- Take a picture with a short press of the **REC (7)** button. The image freezes for 0.5 sec and a photo is saved to the internal memory.

Video mode. Video recording

- Switch to the Video mode.
- Start video recording with a short press of the **REC (7)** button.
- Upon start of video recording icon  disappears, icon **REC** and recording timer in the format MM:SS (minutes : seconds) appear instead:
- Pause and resume recording video with a short press of the **REC** button.
- Stop recording video with a long press of the **REC** button.
Video files are saved to the memory card:
 - After stopping video / after taking a picture;
 - Upon powering the sight off if recording was on;
 - When the memory card is overfilled during record message “**Memory full**” appears.

Notes:

- you can enter and operate the menu during video recording;
- recorded videos and photos are saved to the built-in memory card in the format **img_xxx.jpg (photos); video_xxx.avi (videos)**. **xxx** – three-digit counter for videos and photos;
- counter for 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 folder counter.

- the maximum duration of a recorded file is seven minutes. After this time expires a video is recorded into a new file. The number of recorded files is limited by the capacity of unit's internal memory.
- regularly check the free capacity of the internal memory, move recorded footage to other storage media to free up space on the internal memory card;
- graphic data (status bar, icons and other) are not shown in recorded video/photo files.

IMPORTANT!

To playback video files recorded by thermal imaging devices on iOS-based computers, we recommend that you use **VLC** video player or **Elmedia player**.

Download links and QR codes are shown below:



VLC VIDEO PLAYER

<http://www.videolan.org/vlc/download-macosx.html>



ELMEDIA VIDEO PLAYER

<http://itunes.apple.com/us/app/elmedia-multiplatform-video/id937759555?mt=12>

15

WI-FI FUNCTION

Your thermal imager features wireless connection option (Wi-Fi) which links it with external appliances (PC, laptop, smartphone).

- Turn on the wireless module the with a long press of the **UP (10)** button. Wi-Fi operation is shown in the status bar as follows:

Connection status	Status bar indication
Wi-Fi is off	icon
Wi-Fi activated by the user, Wi-Fi in the device is being activated	icon
Wi-Fi is on, no connection with device	icon
Wi-Fi is on, device connected	icon

- Your device is detected by an external device as **HELION_XXXX**, where **XXXX** – is the last four digits of device's serial number».
- After a password is generated on an external appliance (please refer to the menu option **“Wi-Fi setup”** of the section **“Main menu functions”** of this user manual) and connection is established, the icon in the status bar changes to ; transmission of the video signal to the display of external device starts automatically.

16

STADIAMETRIC RANGEFINDER

Thermal imagers are equipped with a stadiametric rangefinder which allows the user to estimate approximate distance to an object of known size.

- Select the **“Stadiametric rangefinder”** function with a short press of the **M (9)** button and select icon .
- You will see on the display: measurement bars, icons of three reference objects and respective distances for the three objects.

- **There are three pre-set reference objects:**

- **Hare** – height 0.3 m
- **Wild boar** – height 0.7 m
- **Deer** – height 1.7 m



- Move the lower fixed bar under the object being ranged and, while pressing the **UP/ DOWN** buttons, move the upper horizontal bar relative to the lower fixed bar until the object fits entirely between the two cursors. The distance to the object is automatically recalculated as you move the upper line.

If ranging does not take place within 10 seconds, the information disappears from the display.

- To select the unit of measurement (metres or yards), go to the respective menu option.
- Before it appears on the display, a measured distance value is rounded up to 5 m for larger values, and rounded down to 1 m for smaller values.
- Exit rangefinder mode with a short press of the **M** button or wait 10 seconds to exit automatically.

17

FUNCTION DISPLAY OFF

The DISPLAY OFF function activates stand-by mode which allows the device to be quickly powered on.

Operating scenarios for the «Display off» function

Scenario 1. Device is turned off. Turn the device on and activate **«Display off»**.

- Turn on the device on with a short press of the **ON** button.
- Activate **«Display off»** with a long press of the **ON** button. Message **“Display off”** with countdown appears. 00:03



- Release the **ON** button.

Scenario 2. «Display off» is on, the device needs to be turned off.

- Hold down the **ON** button. Message “**Display off**” with countdown appears (1,2,3)
- Hold down the **ON** button until the device turns off (the device turns off after 1 is reached).

18

● FUNCTION PiP

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

- Turn on/off the **PiP** function with a long press of the **DOWN (8)** button.
- Change zoom ratio in the **PiP** window with a short press of the **DOWN** button.
- The zoomed image is displayed in a dedicated window, with the full optical magnification being shown.
- The main image is shown with optical magnification ratio which corresponds to ratio x1.0.
- When **PiP** is turned on, you can operate the standard and continuous digital zoom. The full optical magnification will take place only in the dedicated window.
- When **PiP** is turned off, the image is shown with the optical magnification set for the **PiP** function.

19

● STREAM VISION

HELION thermal imagers support Stream Vision technology which allows you to stream an image from the display of your thermal imager to a smartphone or PC tablet via Wi-Fi in real time mode. You can find further guidelines on Stream Vision in a separate booklet or at our web site www.pulsar-nv.com

Note: The Stream Vision application allows you to update the software features of your thermal imager.

Scan the QR codes to download Stream Vision free of charge:

Google Play (Android OS):



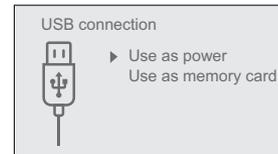
iTunes (iOS):



20

● USB CONNECTION

- Connect one end of the **USB** cable to the **Micro-USB (4)** port of your device, and the other end to the USB port of your PC/laptop.
- Turn the device on with a short press of the **ON (11)** button (device that has been turned off cannot be detected by your computer).
- Your device will be detected by the computer automatically; no drivers need to be installed.
- Two connection modes will appear on the display:
- **Memory card (external memory)** and **Power**.
- Select connection mode with **UP** and **DOWN** buttons.
- Confirm selection with a short press of the **M** button.



Connection modes:

- **Memory card (external memory).** In this mode the device is detected by the computer as a flash card. This mode is designed for work with the files saved in device's memory. The device's functions are not available in this mode; the device turns off automatically.
- If video recording was in progress when connection was made, recording stops and video is saved.
- **Power.**
In this mode PC/laptop is used as an external power supply. The status bar shows icon . The device continues operating and all functions are available.

Note: The Battery pack installed in the device is not being charged!

USB disconnection.

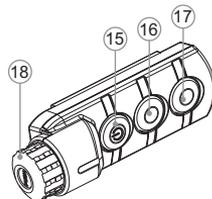
- When **USB** is disconnected from the device where connection is in the **USB** Mass storage device mode, the device remains on the **OFF** state. Turn the device **ON** for further operation.
- When **USB** is disconnected from the device when in the Power mode, the device keeps operating with Battery Pack, if available, and it has sufficient charge.

● WIRELESS REMOTE CONTROL (bought separately)

Wireless remote control (RC) duplicates the **POWER ON** function, digital zoom, video start/stop and menu navigation.

The RC controls are:

- **ON Button (15)**: duplicates the functions of the **ON (11)** button.
- **Button (16)**: digital zoom activation. Function **PiP**.
- **Button (17)**: duplicates the functions of the **REC (7)** button.
- **Controller (18)**: duplicates the functions of the **M (9)** button when pressed; duplicates the functions of the **UP (10)/ DOWN (8)** upon rotation (in hot menu/main menu).



● TECHNICAL INSPECTION

Check:

- External view (there should be no cracks on the housing).
- The state of the objective and eyepiece lenses (there should be no cracks, spot, dust, deposits etc.).
- The state of the Battery Pack (should be charged) and electric terminals (there should be no oxidation).
- Correct functioning of the controls.

● MAINTENANCE AND STORAGE

Maintenance should be carried out no less frequently than twice a year, and should consist of the following measures:

- Wipe external plastic and metal surfaces clean of dust and dirt with a soft cloth moistened with a synthetic cleaning agent.
- Clean the electric terminals of the Battery Pack and device's battery slot using a grease-free organic solvent.
- Check the objective and eyepiece lenses. If required, remove dust and sand (preferably by a noncontact method). Clean the external surfaces of the lenses with products expressly designed for this purpose.
- Store the device in a carrying case. Remove the Battery Pack for long-term storage.

● TROUBLESHOOTING

The table presented below lists some potential problems that may occur when using the device. If a problem encountered with the device is not listed, or if the recommended action does not resolve the problem, the unit should be returned for repair.

Problem	Check	Corrective action
The thermal imager will not turn on.	Battery Pack is discharged.	Charge the battery.
The unit does not operate on external power supply.	USB cable is damaged.	Replace USB cable.
	External power supply is discharged.	Charge the external power supply (if necessary).
The image is blurry, with vertical stripes and uneven background.	Calibration is required.	Carry out calibration according to Section 9 "SENSOR CALIBRATION".
The image is too dark.	Brightness or contrast level is too low.	Adjust brightness/contrast with the UP/DOWN buttons.
Poor image quality / Detection range reduced.	Problems described may arise in adverse weather conditions (snow, rain, fog etc.).	
Smartphone or tablet PC cannot be connected to the device.	Password in the unit was changed.	Delete network and connect again inserting the password saved in the device.
The device cannot be powered on with wireless remote control.	Remote control is not activated. Low battery.	Activate the remote control according to instructions. Install a new CR2032 battery.
When using the scope at below zero temperatures the image quality is worse than at positive temperatures.	Because of variations in thermal conductivity, objects (surrounding environment, background) under observation become warm more quickly at above-zero temperatures, which allows higher temperature contrast and, thus, the quality of the image produced by a thermal imager will be better. At low operating temperatures, objects under observation (background) normally cool down to roughly identical temperatures, which leads to lower temperature contrast, and to image quality (precision) degradation. This is normal for thermal imaging device.	

Follow the link to read FAQs on thermal vision

<http://www.pulsar-nv.com/support/faq/>