

AXION XM30S

Thermal Imaging Monoculars



Operating Instructions

English / Français / Deutsch / Español / Italiano / Русский



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⚡ SPECIFICATIONS

SKU#	77423
AXION Model	XM30S
Microbolometer	
Type	uncooled
Resolution (pixels)	320x240
Frame refresh rate (Hz)	50
Pixel size (microns)	12
Optical specifications	
Optical magnification (x)	4.5
Smooth digital zoom (x)	4.5-18
Digital zoom (x)	2/4
Relative aperture (D/f)	1.2
Minimum focusing Distance (m/y)	3
Exit pupil diameter (mm/inch)	3.5
Angle of field of view (HxV), degrees	7.3x5.5
Angle of field of view, metres at 100m	12.8
Focusing range of eyepiece (dioptries)	±5
Detection distance (m/y) *	1300/1420
Display	
Type	AMOLED
Resolution (pixels)	1024x768
Operational specifications	
External power voltage	3 – 4.3 V
Battery type	Li-Ion Battery Pack APS3
Capacity	3200 mAh
Rated Output Voltage	DC 3.7 V
External power supply	5 V (USB)
Battery charge life in hours (at 22°C)	4
IP code (IEC60529) degree of protection	IPX7
Stream Vision compatibility	Yes
Operating temperature range	-25°C ... +40°C / -13F ... +104F
Dimensions (mm/inch)	143x41x69/5.63x1.61x2.71
Weight without batteries (kg/oz)	0.25/8.82
Video recorder	
Video/photo resolution (pixels)	1024x768
Video / photo format	.mp4 / .jpg
Built-in memory capacity	650 min video or > 100 000 pictures
Wi-Fi channel	
Frequency	2.4 Ghz
Standard	802.11 b/g
Reception range in direct line of sight (m)	15

* For animal object, such as a deer.

Improvements may be made to the design and software of this product to enhance its user features. The detailed user manual is available at www.pulsar-vision.com

⚡ DELIVERY PACKAGE

- AXION Thermal Imager
- APS3 rechargeable battery
- APS Battery Charger with power adapter
- USB cable
- Case
- Hand strap
- Quick start guide
- Cloth for cleaning optics
- Warranty card

⚡ DESCRIPTION

AXION IR-matrix (microbolometer) based thermal imaging monoculars are represented by a number of models that differ in magnification and lens diameter. These devices are designed for use both at night-time and during the day in difficult weather conditions (fog, smog, rain), as well as where obstacles are present that impede the detection of a target (branches, tall grass, dense shrubs etc.). Unlike night-vision devices that are based on electron-optical converters, thermal vision monoculars do not require an external light source and are resistant to the effects of bright light.

AXION monoculars can be used for night-time hunting, observation and terrain orientation, and carrying out rescue operations.

⚡ DISTINGUISHING FEATURES

- Microbolometer pixel size of 12 microns
- High-resolution AMOLED display
- Lightweight and compact
- Functional and ergonomic design
- Convenient user interface
- Observation in eight colour modes
- Three calibration modes (manual, semi-automatic and automatic)
- Long detection distance
- High magnification
- Four observation modes: Forest, Rocks, Identification and User
- Stadiametric rangefinder
- Display off function
- Pixel correction function
- Upgradeable software
- Wide operating temperature range (-25 °C – +40 °C)
- Fully watertight (IPX7 protection class)

Video/audio recording

- Built-in video recorder
- Integration with iOS and Android devices
- Wi-Fi Smartphone remote control and surveillance
- YouTube Live broadcasting and direct recording on the Internet via a smartphone and the Stream Vision app.

Battery Pack

- Quick-change APS3 Li-ion battery pack
- USB charging option

⚡ COMPONENTS AND CONTROLS

1. Eyepiece dioptre adjustment ring
2. Down/Rec button ▽
3. Menu button ☰
4. Up/Zoom button △
5. On/Calibration ON button ☺
6. Lens focus ring
7. Lens cap
8. MicroUSB connector
9. Battery release button

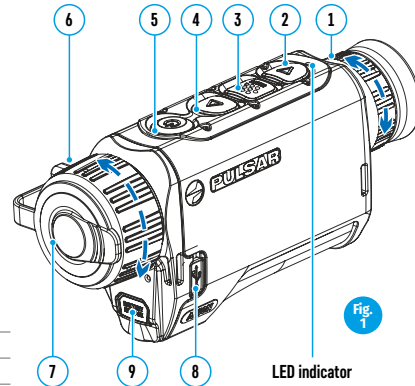
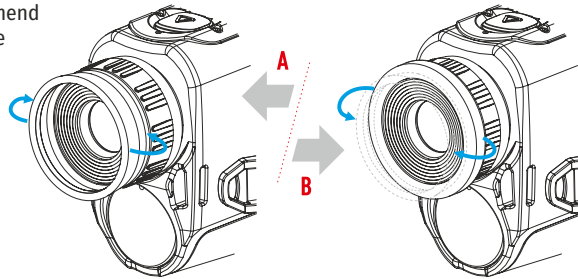


Fig. 1

LED indicator displaying current status of the device

LED Indicator	Operating Mode
•	Device is powered on
★	Device on / video recording
•	Device on / battery charge <10%
★	Device on / video recording / battery charge <10%

For a better viewing experience, we recommend that glass wearers fold back the edge of the elastic eyeshade.



⚡ BUTTON OPERATION

	Device status / current device operating mode	First short press	Next short press	Long press
ON button ⏻	Device is powered off	Power on the device	Device calibration	Power on the device
	Display off	Turn on display	Device calibration	Power off the device
	Device turned on, quick menu, main menu	Device calibration		Display off / device powered off
Up/Zoom button △	Device is powered on	Operating modes		Change magnification (zoom)
	Quick menu	Increase parameter		Increase parameter
	Main menu	Navigation up, right		Navigation up, right
Menu button ☰	Device is powered on	Open quick menu		Open main menu
	Quick menu	Navigation up		Exit quick menu
	Main menu	Confirm value, enter menu options		Exit menu options, exit main menu
Down / Rec button ▽	Device on / video mode	Start video recording	Pause	Toggle video / photo mode
	Device on / video mode	Pause	Start video recording	Stop video recording
	Device on / photo mode	Photographing		Toggle video / photo mode
	Quick menu	Reduce parameter		Reduce parameter
	Main menu	Navigation down, left		Navigation down, left

⚡ USING THE RECHARGEABLE BATTERY

AXION thermal imagers are supplied with a rechargeable APS3 Lithium-ion Battery Pack. The battery should be charged before first use.

Charging the battery

Option 1:

- Install the battery (10) into its slot on the instrument case (14) by aligning the icons to form a 'dot' on the device and the battery.
- Attach a USB cable (15) to the microUSB connector (8) on the device.
- Connect the other end of the USB cable (15) to the mains charger (16) or to a USB socket connected to another power source with rated output of 5V or less.
- Connect the mains charger (16) to the mains power supply.

Note: The PB8I Power Bank may be used as a charger.

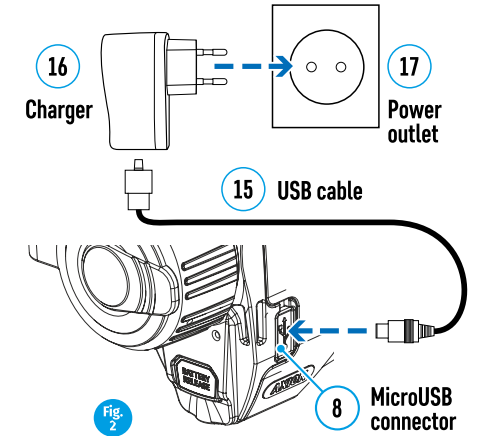


Fig. 2

Option 2:

- Insert the rechargeable battery (10) supplied with your device, or purchased separately, fully along the guide rail into the APS charger slot (11).
- Point A on the battery and Point B on the charger should be aligned.
- Two batteries can be charged at the same time – a second slot is provided for this.
- Attach the microUSB plug of the USB cable (15) to the socket (12) of the battery charger (11).
- Attach the second plug of the USB cable (15) to the USB port on the mains adapter (16). Plug the device into a 100 – 240 V socket (17).
- The LED indicator (13) will light up the battery charge status (see table).

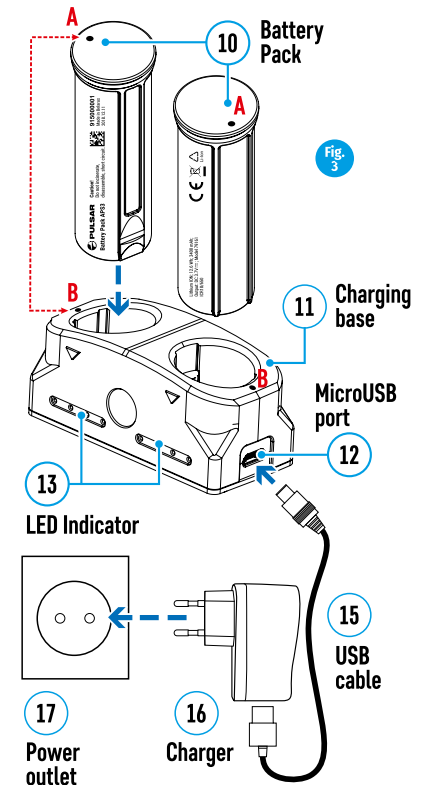


Fig. 3

Battery charge status (see table).

LED Indicator*	Battery charge status
•	Battery charge from 0% to 10%. Charger not connected to the mains power supply.
☼	Battery charge from 0% to 10%. Charger connected to the mains power supply.
• • • •	Battery defective. Battery should not be used.
•	Battery charge from 10% to 20%.
• •	Battery charge from 20% to 60%.
• • •	Battery charge from 60% to 95%.
• • • •	Battery completely charged. Can be disconnected from the charger.

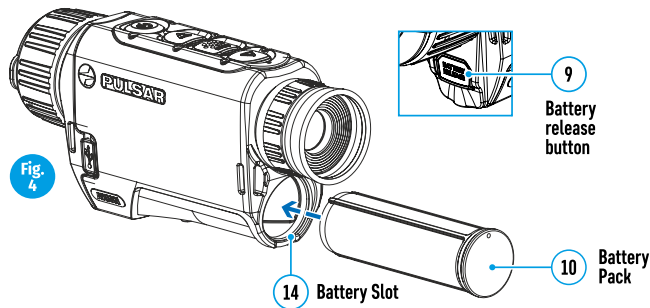
* The LED indicator displays the current level of charge of the battery for 30 seconds when the APS charger is not plugged in. When the power is connected, the display shows the current status of the battery constantly, the LEDs additionally flickering to indicate the battery charging process.

Installation:

- Insert the battery (10) into the assigned slot on the device casing (14), aligning the images on the instrument and the battery.
- When properly installed, the battery is locked into the slot with a special clip.
- To remove the battery, press the Battery Release button (9).

Safety measures:

- When charging, always use the charger supplied with your optical device. The use of a different charger may cause irreparable damage to the battery or the charger and may cause the battery to ignite.
 - After being stored for a long time, the battery should be partially charged – it should not be fully charged or completely discharged.
 - Do not charge the battery immediately after bringing it from the cold into a warm atmosphere. Wait 30–40 minutes for the battery to warm up.
 - Do not leave the battery unattended during charging.
 - Do not use the charger if it has been modified or damaged.
 - The battery should be charged at a temperature of between 0° C and +45° C, otherwise the battery life will be significantly reduced.
 - Do not leave a charger with a battery connected to the mains for more than 24 hours after full charge.
 - Do not expose the battery to high temperatures or naked flame.
 - The battery is not intended to be immersed in water.
 - The connecting of third-party devices with an energy consumption greater than permissible is not recommended.
 - The battery is equipped with a short circuit protection system. However, situations that may lead to short circuiting should be avoided.
 - Do not dismantle or deform the battery.
 - Do not subject the battery to shocks or falls.
 - Where the battery is used in below-zero temperatures, capacity will decrease. This is normal and does not indicate a defect.
 - Do not use the battery in temperatures that exceed those shown in the table – this may shorten battery life.
- Store the battery out of the reach of children.



EXTERNAL POWER SUPPLY

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

- Attach the external power source to the device's USB connector (8).
- The device will switch to operation from the external power source, while the APS3 battery will be gradually recharged.
- An icon of a battery will appear on the display showing its charge as a percentage.
- If the device is operated from an external power source and the APS3 battery is not connected, an icon is displayed .
- When the external power supply is disconnected, the device switches to the internal power supply without the device powering off.

Attention! Charging Power Bank APS3 batteries at air temperatures below 0 °C can result in reduced battery life. When using external power, connect Power Bank to the switched-on riflescope, which have worked for several minutes.

OPERATION

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.

Switching on and adjusting the image

- Remove the lens cover (7). Secure the cover to the strap using the magnet built into the cover.
- Power up the device by pressing the ON button (5).
- Adjust the resolution of the icons on the display by rotating the dioptre adjustment ring on the eyepiece (1). In future, it will not be necessary to rotate the eyepiece dioptre adjustment ring, regardless of distance and other conditions.
- To focus on the object being observed, rotate the lens focus ring (6).
- Adjustment of brightness and contrast in the display, as well as turning on the smooth digital zoom, are described in the QUICK ACCESS MENU FUNCTIONS section.
- Turn the device off after use with a long press of the ON button (5).

CALIBRATING THE SENSOR

Calibration enables the microbolometer temperature background to be equalised and defects in the image (such as vertical lines, phantom images etc.) to be eliminated.

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

Select the required mode in the CALIBRATION section of the menu ⇄.

- **M mode (manual).** Secure the lens cap and briefly press the ON button (5). After completing the calibration process, remove the lens cap.
- **SA mode (semi-automatic).** Calibration is engaged by a brief press of the ON button (5). The lens cap does not need to be secured (the sensor is closed by an internal shutter).
- **A mode (automatic).** The device is calibrated autonomously, in accordance with the software algorithm. The lens cap does not need to be secured (the sensor is closed by an internal shutter). In this mode, the device may be calibrated by the user using the ON button (5).

DISCRETE DIGITAL ZOOM

The device's functionality offers the possibility of quickly increasing its base multiplicity (see the table of technical properties in the Digital Zoom line) by a factor of 2 or 4. Adjust the digital zoom accordingly by pressing the DOWN button (2).

QUICK ACCESS MENU FUNCTIONS

The basic settings (brightness and contrast adjustment, use of the smooth digital zoom function and the stadiametric rangefinder) are changed via the Quick Access Menu.

- Enter the menu with a short press of the Menu button (3).
- A short press of the Menu button (3) enables you to switch between functions.

Brightness ☀ – by pressing the UP (4) / DOWN (2) buttons and changing the display brightness value from 0 to 20.

Contrast ● – by pressing the UP (4) / DOWN (2) buttons and changing the display contrast value from 0 to 20.

Smooth digital zoom 🔍 – by pressing the UP (4) / DOWN (2) buttons and changing the digital zoom value from 1.0 to 4.0. The increment size of the digital zoom is 0.1.

To exit the menu, press and hold down the Menu button (3), or wait 10 seconds for automatic selection.

The initial smooth digital zoom factor displayed is equal to x1.0 if the discrete zoom is inactive, x2.0 if is 2x, and x4.0 if 4x.

Stadiametric rangefinder 📏 – press the UP (4) / DOWN (2) buttons to change the position of the markings for determining the distance of the object being observed (see Section 16 for further information on the rangefinder).

Basic mode 🏔 🌲 👁 – it allows you to select one of the three modes as the basic one for the user mode.

⚡ MAIN MENU FUNCTIONS

- Enter the menu with a long press of the Menu button (3).
- Press the UP (4) / DOWN (2) buttons to move through the menu functions.
- Menu navigation is be means of scrolling. When the last item on the first tab is reached, navigation moves to the first item of the second tab.
- One short press of the Menu button (3) opens a menu item.
- To exit the menu, press and hold down the Menu button (3).
- Automatic exit from the menu occurs after 10 seconds of inactivity.
- When exiting the menu, the cursor location (▶) is remembered only for the duration of the one working session (i.e. until the device is powered off). The next time the device is powered on and the menu is accessed, the cursor will be at the first item on the menu.

General view of the menu

Tab 1















Menu	Mode
▶	
	Hot White
	Automatic
	<input type="checkbox"/> Off <input type="checkbox"/>
	10








Tab 2





Menu	General Setting
▶	>
	>
	>
	>

Composition and description of the menu


Mode 	<p>Selection of observation mode. The thermal imager has three automatic operating modes. Each of these modes includes an optimum combination of parameters (brightness, contrast, intensity etc.) for ensuring the best image quality under any given observation conditions.</p> <p>Option 1:</p> <ul style="list-style-type: none">• Briefly press the UP button (4) to switch observation modes. <p>Option 2:</p> <ul style="list-style-type: none">• Press and hold the Menu button (3) to enter the menu.• Select the Mode option.• A short press of the Menu button (3) opens the menu.• Select one of the settings described below with the UP (4) / DOWN (2) buttons.• A short press of the Menu button (3) confirms the selection. <p>Mountains/Rocks 🏔 – High Contrast Mode This is the optimum mode for observing wildlife against a background of rocks, and soil in an upland situation.</p> <p>Forest 🌲 – Low Contrast Mode This is the optimum mode for observing wildlife against a background of vegetation.</p> <p>Identification Mode 👁 – A universal mode for application under various observation conditions.</p> <p>User Mode ⚙ – It allows you to configure and save custom brightness and contrast settings, as well as one of the three modes as basic.</p>
Colour Palettes 	<p>Colour Palette Selection The principal display mode for an observed image is 'White Hot'. The 'Colour Palettes' menu item allows you to select an alternative palette:</p> <ul style="list-style-type: none">• Press and hold the Menu button (3) to enter the menu.• Select the 'Colour Palettes' option.• A short press of the Menu button (3) opens the menu.• Select one of the palettes described below with the UP (4) / DOWN (2) buttons.• A short press of the Menu button (3) confirms the selection. <p>White Hot. A black and white palette (cold temperature corresponds to black, and hot temperature to white).</p> <p>Black Hot. A black and white palette (cold temperature corresponds to white, and hot temperature to black).</p> <p>Red Hot</p> <p>Red monochrome</p> <p>Rainbow</p> <p>Ultramarine</p> <p>Violet</p> <p>Sepia</p>
Calibration Mode 	<p>Selection of calibration mode There are three calibration modes: manual, semi-automatic and automatic.</p> <ul style="list-style-type: none">• Press and hold the Menu button (3) to enter the menu.• Select the 'Calibration Mode' option.• A short press of the Menu button (3) opens the submenu.• Select one of the calibration modes described below with the UP (4) / DOWN (2) buttons.• A short press of the Menu button (3) confirms the selection. <p>Automatic</p> <p>Calibration requirements in the automatic mode are determined programmatically, with the calibration process being started automatically.</p> <p>Semi-automatic</p> <p>The user independently sets the calibration requirements (according to the image being observed).</p> <p>Manual</p> <p>Manual calibration. Close the lens cap before beginning calibration.</p>

Microphone 	Turning on/off the microphone This item allows you to enable (or disable) the microphone for recording sound during video recording. <ul style="list-style-type: none"> Press and hold the Menu button (6) to enter the main menu. Select the 'Microphone' option A short press of the Menu button (3) switches Microphone on/off.
PiP Mode 	Selection of the Picture in Picture Mode <ul style="list-style-type: none"> Press and hold the Menu button (3) to enter the menu. Select the  'PiP Mode' option A short press of the Menu button (3) switches the mode on/off.
Icon brightness 	Adjusting icon brightness. <ul style="list-style-type: none"> Press and hold the Menu button (3) to enter the menu. Select the  'Icon Brightness' option. A short press of the Menu button (3) opens the submenu. Select the brightness level of the pictograms with the UP (4) / DOWN (2) buttons. A short press of the Menu button (3) confirms the selection.
General Settings  . This menu item allows you to program the following settings	
Language 	Choose Language <ul style="list-style-type: none"> Enter the 'Language' submenu  with a short press of the Menu button (3). Select one of the available interface languages (English, French, German, Spanish or Russian) with the UP (4) / DOWN (2) buttons. Confirm your selection with a short press of the Menu button (3). To save your choice and exit the submenu, press and hold down the Menu button (3).
Date 	Setting the Date <ul style="list-style-type: none"> Enter the 'Date' submenu  with a short press of the Menu button (3). The date appears in dd/mm/yyyy format. Set the required year, month and day with the UP (4) / DOWN (2) buttons. Press the Menu button (3) to move through the digits. To save your chosen date and exit the submenu, press and hold down the Menu button (3).
Time 	Setting the Time <ul style="list-style-type: none"> Enter the 'Time' submenu  with a short press of the Menu button (3). Select the time format (24-hour clock or AM/PM) by pressing the UP (4) / DOWN (2) buttons. Press the Menu button (3) to move to the hour setting. Set the hour by pressing the UP (4) / DOWN (2) buttons. Press the Menu button (3) to move to the minute setting. Set the minute by pressing the UP (4) / DOWN (2) buttons. To save your chosen time and exit the submenu, press and hold down the Menu button (3).
Units of measure 	Selecting a unit of measure <ul style="list-style-type: none"> Enter the 'Unit of measure' submenu  with a short press of the Menu button (3). Set the unit of measurement (metres or yards) by pressing the UP (4) / DOWN (2) buttons; then press the Menu button (3). Return to the submenu occurs automatically.

Default Settings 	Restore Factory Settings <ul style="list-style-type: none"> Enter the 'Default Settings' submenu  with a short press of the Menu button (3). Select the 'YES' option to reset to factory settings or 'NO' to cancel with the UP (4) / DOWN (2) buttons. Confirm your selection with a short press of the Menu button (3). If the YES option has been selected, the message 'Do you want to return to default settings?' will appear together with options YES and NO. Select YES to format the memory card. If the NO option has been selected, formatting will be cancelled and the submenu will reappear. The following settings will be restored to their factory state before being set by the user: Operating mode – video. Mode – forest. Calibration mode – automatic. Language – English. Wi-Fi – off (default password). Magnification – original value. PiP – off. Colour palette – White Hot. Unit of measurement – metres. Note: When resetting to factory settings the date/time settings and the user pixel map are saved.
Formatting the Memory Card 	This function enables the device's Flash Card (memory card) to be formatted (all files to be deleted from its memory). <ul style="list-style-type: none"> Enter the 'Memory Card Formatting' submenu  with a short press of the Menu button (3). Select the 'YES' option to reset to format the memory card or 'NO' to return to the submenu with the UP (4) / DOWN (2) buttons. Confirm your selection with a short press of the Menu button (3). If the YES option has been selected, the message 'Format the Memory Card?' will appear together with options 'YES' and 'NO'. Select YES to format the memory card. The message 'Formatting memory card' means that formatting is in progress. The message 'Formatting completed' means that formatting is completed. If the NO option has been selected, formatting will be cancelled and the submenu will reappear.
Wi-Fi Settings 	This option enables you to configure the device to operate on a Wi-Fi network. Turn on/off Wi-Fi <ul style="list-style-type: none"> Press and hold the Menu button (3) to enter the main menu. Select the "Wi-Fi activation" option A short press of the Menu button (3) switches Wi-Fi on/off.
Setting a password 	This function enables you to set a password to access the device from an external device. This password is used when linking an external device (e.g. a smartphone) to the device. <ul style="list-style-type: none"> Press the Menu button (3) to enter the 'Wi-Fi settings' submenu. The default password (12345678) will appear on the screen. Set your desired password with the UP (4) / DOWN (2) buttons. The UP (4) button increases the number and the DOWN (2) button reduces the numbers. Press the Menu button (3) to move through the digits. To save the password and exit the submenu, press and hold down the Menu button (3).
Setting Access Levels	This sub-function enables you to configure the appropriate level of access to your device made available to the Stream Vision app. Owner level. A Stream Vision user has full access to all the device's functions. Guest level. A Stream Vision user is able to view video footage from the device only in real time.
Removal of Defective Pixels 	When using the device, defective (broken) pixels may appear on the sensor: i.e. bright or dark points of constant brightness that are visible on the image. AXION thermal imagers offer the possibility of removing any defective pixels on the sensor programmatically, as well as to cancel any deletion.

- Open the submenu by pressing the Menu button (3).
- Select the icon  with a short press of the Menu button (3).
- A marker  will appear on the left side of the display.
- A magnifying glass will appear on the right side of the display – an enlarged image with a fixed cross  – that is required to facilitate a search for the defective pixel and to align the marker with it. There are horizontal and vertical directional arrows to move the marker  with the coordinates along the X and Y axes.
- Use the UP (4)/DOWN (2) buttons to move the marker to align its centre with the defective pixel.
- A short press of the Menu button (3) switches the marker direction from the horizontal to the vertical and vice versa.
- Using the UP (4) and DOWN (2) buttons, 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 On/Calibration ON button (5).
- Where a pixel has been successfully deleted, the word 'OK' will appear briefly on the screen.
- Then, by moving the marker across the display, you can delete the next defective tile.
- To exit the 'Delete defective pixels' function, press and hold down the Menu button (3).

Return all defective pixels previously disabled by the user to their original state:

- Open the submenu by pressing the Menu button (3).
- Select the icon  and press the Menu button (3).
- Select 'YES' if you want to return to the factory pixel map and 'NO' if you do not.
- Confirm your selection with a short press of the Menu button (3).

Attention! One or two pixels on the imager display in the form of black, bright white or coloured (blue or red) dots may appear. These are not a defect.

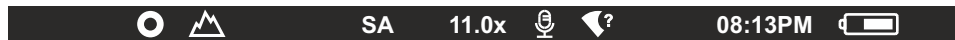
Return to
factory
'pixel map'



STATUS BAR

The status bar is located at the bottom of the display and displays information relating to the operational status of the device, including:

- Observation mode
- Calibration mode (when in automatic calibration mode with 3 seconds remaining until automatic calibration, a countdown timer will appear in place of the calibration icon).
- Current full magnification
- Microphone
- Wi-Fi connection
- USB connection (if the device is connected)
- Colour palette (displayed only when the Hot Black palette is installed)
- Current time
- Battery discharge level (when the device is powered by the rechargeable battery)
- External power supply indicator (when the device is powered from an external supply)




Note: when calibration is in progress, the display image freezes for the duration of the calibration

VIDEO RECORDING AND PHOTOGRAPHING AN OBSERVED IMAGE

AXION thermal imagers are equipped with a function for video recording and photographing an observed image onto the built-in memory card. It is recommended that the date and time be set before using the video recording and photographing function (see the corresponding menu items).

The built-in recording device operates in two modes:

VIDEO mode : Video recording of an image

- The device is in VIDEO mode as soon as it is turned on.




- An icon is displayed in the upper left corner  with the remaining recording time (in hh:mm format), for example,  5:12.
- Start video recording with a short press of the Down/REC button (2).
- Once video recording has begun, the icon  will disappear, with a REC icon appearing in its place and the record timer showing in MM:SS (minutes:seconds) format.
- Pause the video recording and resume recording with a short press of the Down/REC button (2).
- Stop the video recording by pressing and holding down the Down/REC button (2).
- Video files are stored in the built-in memory card after video recording has been turned off.
- To toggle between Video and Photo modes press and hold down the Down/REC button (2).

PHOTO mode : Photographing an image

- Switch to PHOTO mode with a long press of the Down/REC button (2).
- Take a photograph with a short press of the Down/REC button (2). The image freezes for 0.5 seconds and the image file is saved to the built-in memory card.






Notes: You can enter and work on the menu during video recording. Recorded videos and photographs are saved to the device's built-in memory card in the format: img_XXX.jpg (for photos); video_XXX.mp4 (for video). XXX - three-digit common file counter (for photos and video). The counter used in the naming of multimedia files is NOT reset.



Attention: The maximum duration of a video recording file is 5 minutes. After this time, the video will be recorded onto a new file. The number of files is limited by the capacity of the device's built-in memory. Regularly monitor the amount of free memory in the built-in memory card, transferring footage and photographs to other media to free up space on the memory card.

Wi-Fi FUNCTION

The device is equipped with wireless communication with external devices (computer, smartphone) via Wi-Fi.


- Turn on the wireless connection module in the menu. Wireless operation is displayed in the status bar in the following way:

Connection status	Status bar indication
Wi-Fi disconnected	
Wi-Fi enabled by the user	
Wi-Fi connection process in progress	
Wi-Fi turned on, no connection to the device	
Wi-Fi turned on, the device is connected	

- The device is recognised by an external device under the label 'AXION_XXXX', where XXXX are the four last digits of the serial number.
- After entering the password on an external device (for more detailed information of setting passwords, see the subsection entitled 'Wi-Fi setting' in the section 'Main Menu Functions' of the Instructions) and establishing a connection, the icon  in the status bar changes to .

STADIAMETRIC RANGEFINDER

Thermal imagers are fitted with a stadiametric rangefinder that enables the distance to an object to be defined where its size is known.

- The stadiametric rangefinder function is accessed by a short press of the Menu button (3) and selecting the icon .
- Bars will appear on the display to determine the distance, icons of three objects and digits of the estimated distance of these three objects.

There are three pre-set values for objects:

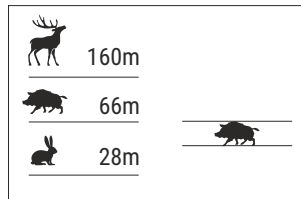
Hare – height 0.3 m

Boar – height 0.7 m

Deer – height 1.7 m

- Place the lower fixed cursor beneath the object and, with the UP (4) / DOWN (2) navigation buttons, move the upper horizontal cursor relative to the lower horizontal fixed cursor so that the object is positioned between the cursors. An automatic recalculation of the distance to the target occurs simultaneously with this movement.

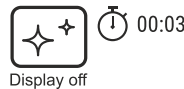
- If the distance is not determined within 10 seconds, the information disappears from the display.
- Go to the relevant item on the menu to select a unit of measurement (metres or yards).
- A distance value is rounded up or down before appearing on the display to 5 metres for longer distance readings and 1 metre for shorter distance readings.



⚡ DISPLAY OFF FUNCTION

This function disables the transfer of images to the display, reducing the intensity of its illumination to a minimum. This helps prevent inadvertent unmasking. The device will continue to function.

- When this function is in use, the device switches to standby mode, which allows it to be quickly turned off, if necessary.
 - When the device is switched on, press and hold the ON button (5). The display will disappear and the message 'Display off' will appear.
 - To switch on the display, press the ON button (5) briefly.
 - When the ON button (5) is held, the display will show 'Display off:' and a countdown.
- Then the device will turn off.

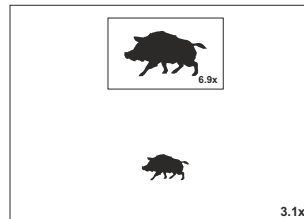


⚡ PiP FUNCTION

PiP (Picture in Picture) enables you to view a magnified digital zoom image in a separate 'window' simultaneously with the main image.

Enabling/disabling the PiP function:

- Press and hold the Menu button (3) to enter the main menu.
- Select the PiP Mode' option
- A short press of the Menu button (3) switches the mode on/off.
- Press and hold the Menu button (3) to exit the main menu.
- The enlarged image is displayed in a separate window using the full optical zoom value.
- To alter the zoom ratio in the PiP window, briefly press the UP button (4).
- The remaining image is displayed with the optical zoom value which corresponds to the value of the x1.0 coefficient.
- When the PiP is turned on, you can control the discrete and smooth zooms. In this instance, the full optical magnification value will appear only in the separate window.
- When PiP is turned off, the image is displayed with the optical zoom value set for the PiP mode.



⚡ STREAM VISION

AXION thermal imagers support Stream Vision technology, which enables the transmission of an image in real time from the thermal imager to your smartphone or tablet via Wi-Fi.

Detailed instructions on the operation of Stream Vision technology can be found in a separate booklet or on the www.pulsar-vision.com website.

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

How to update instructions are as below:

- Download free of charge Stream Vision App on Google Play or App Store. Scan the QR codes to download Stream Vision free of charge:



- Connect your Pulsar device to your mobile device (smartphone or tablet).
- Launch Stream Vision and go to section "My Devices".
- Select your Pulsar device and press "Check Updates".

Important:

- if your Pulsar device is connected to phone, please turn on mobile data (GPRS/3G/4G) on your phone 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.
- Wait for the update to download and install. Pulsar device will reboot and will be ready to operate.

⚡ USB CONNECTION

- Connect one end of the USB cable to the device's microUSB connector (8) and the other end to the port on your computer.
- Switch the device on by pressing the ON button (5) (the computer will not detect the device if it is turned off).
- The device is detected automatically by the computer and no installation of drivers is required.
- Two connection options will appear on the display:

Use as power

Use as memory card

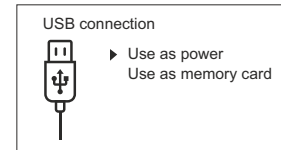
- Select the connection option with the UP (4) / DOWN (2) buttons.
- A short press of the Menu button (3) confirms the selection.

Use as power

- When this option is selected, the computer is used by the device as an external power source. An icon will appear in the status bar. The device will continue to function, and all functions are available.
- The battery installed in the device will not be charged.
- When the USB is disconnected from the device when in Power mode, the device will continue to function on battery power, where present and sufficiently charged.

Use as memory card

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



⚡ TECHNICAL INSPECTION

A technical inspection of the device is recommended before each use. Check:

- The external appearance of the device (there should be no cracks in the casing).
- The condition of the lens and eyepiece (there should be no cracks, greasy spots, dirt or other deposits).
- The condition of the rechargeable battery (this should be charged) and the electrical contacts (there should be no presence of salts or oxidation).
- The controls should be in working order.

⚡ MAINTENANCE

- Maintenance should be carried out at least twice a year and consist of the following actions.
- Wipe the external surfaces of metal and plastic parts free of dust and dirt with a cotton cloth. Silicone grease may be used for this.
- Clean the electrical contacts of the battery and battery slot on the unit using a non-greasy organic solvent.
- Check the glass surfaces of the eyepiece and the lens. If necessary, remove dust and sand from the lenses (preferably using a non-contact method). Cleaning of the external surfaces of the optics should be done with substances designed specially for this purpose.

⚡ TROUBLESHOOTING

This table lists all the problems that may arise when operating the device. Carry out the recommended checks and repairs in the order shown in the table. If a defect should occur that is not listed in the table, or if it is impossible to repair the defect yourself, the device should be returned for repair.

Malfunction	Possible reason	Correction
Thermal imager does not power up.	Battery completely discharged.	Charge the battery.
Does not operate from external power source.	USB cable damaged.	Replace USB cable.
	External power source discharged.	Charge external power source (if necessary).
Image is unclear, with vertical lines and uneven background.	Calibration required.	Perform image calibration according to Section 8 'Operation' of the Instructions.
Image is too dark.	Low brightness or contrast level set.	Adjust brightness or contrast.
Coloured lines appeared on display or image has disappeared.	The device was exposed to static electricity during operation.	After exposure to static electricity, the device may either reboot automatically, or require turning off and on again.
Poor image quality / reduced detection distances.	These problems may occur during observation in difficult weather conditions (snow, rain, fog etc.).	
Smartphone or tablet cannot be connected to the device.	Device password has been changed.	Delete the network and reconnect using the device password.
	The device is in an area with a large number of Wi-Fi networks that may cause interference.	To ensure stable Wi-Fi operation, relocate the device to an area with fewer Wi-Fi networks, or into an area with none.
Wi-Fi signal non-existent or interrupted.	Smartphone or tablet is out of range of a strong Wi-Fi signal. There are obstacles between the device and the receiver (e.g. concrete walls).	Relocate smartphone or tablet into direct line of sight of the Wi-Fi signal.
When used in low temperature conditions, image quality of the surroundings is worse than in positive temperature conditions.	In positive temperature conditions, objects being observed (surroundings and background) heat up differently because of thermal conductivity, thereby generating a high temperature contrast. Accordingly, image quality produced by the device will be higher. In low-temperature conditions, objects being observed (background) do, as a rule, cool down to roughly the same temperature, because of which temperature contrast is substantially reduced and image quality (detail) is poorer. This is a feature of thermal imaging devices.	

Repair of the device is possible within 5 years.

By following the link below you can find answers to the most frequently asked questions about thermal imaging <https://www.pulsar-nv.com/glo/support/faq/79>



Environment protection first!
Your appliance contains valuable material which can be recovered or recycled.
Leave it at a local civic waste collection point.



Attention! AXION thermal imagers require a licence when exported outside your country.

Electromagnetic compatibility.

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

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