



THERMAL IMAGING SCOPE

AXION XQ38

ENGLISH | FRANÇAIS | DEUTSCH | ESPAÑOL | ITALIANO | РУССКИЙ

USER MANUAL

EN	<p>Attention! A license is required for AXION Thermal Imager when exporting outside your country.</p> <p>Electromagnetic compatibility.</p> <p>This product complies with the requirements of European standard EN 55032: 2015, Class A.</p> <p>Caution! Operating this product in a residential area may cause radio interference.</p> <p>For detailed information on the device, download the complete manual:</p> <p>https://www.pulsar-nv.com/glo/products/33/thermal-imaging-scopes/</p>
FR	<p>Attention! Les imageurs thermiques AXION nécessitent l'obtention d'une licence s'ils sont exportés hors de votre pays.</p> <p>Compatibilité électromagnétique.</p> <p>Ce produit est conforme aux exigences de la norme européenne EN 55032: 2015, classe A.</p> <p>Attention! L'utilisation de ce produit dans une zone résidentielle peut provoquer des interférences radio.</p> <p>Pour des informations détaillées sur l'appareil, téléchargez le manuel d'utilisation complet:</p> <p>https://www.pulsar-nv.com/glo/products/33/thermal-imaging-scopes/</p>
DE	<p>Achtung! Wärmebildgeräte AXION erfordern eine Lizenz, wenn sie über die Grenzen Ihres Landes exportiert werden.</p> <p>Elektromagnetische Verträglichkeit.</p> <p>Dieses Produkt entspricht den Anforderungen der Europäischen Norm EN 55032:2015, Klasse A.</p> <p>Achtung! Der Betrieb dieses Produktes in Wohngebieten kann Funkstörungen verursachen.</p> <p>Laden Sie die Vollversion der Bedienungsanleitung für ausführliche Informationen zum Gerät herunter:</p> <p>https://www.pulsar-nv.com/glo/products/33/thermal-imaging-scopes/</p>
ES	<p>¡Atención! Los dispositivos de imagen térmica AXION requieren una licencia si se exportan fuera de su país de usted.</p> <p>Compatibilidad electromagnética.</p> <p>Este producto cumple con los requisitos de la norma europea EN 55032:2015, Clase A.</p> <p>¡Advertencia! El uso de este producto en la zona residencial puede provocar la interferencia de radiofrecuencia.</p> <p>Para obtener más información sobre el dispositivo, descargue el manual completo de usuario:</p> <p>https://www.pulsar-nv.com/glo/products/33/thermal-imaging-scopes/</p>
IT	<p>Attenzione! I visori termici AXION necessitano di un certificato nel caso in cui vengano esportati.</p> <p>Compatibilità elettromagnetica.</p> <p>Questo prodotto è conforme ai requisiti della norma europea EN 55032:2015, Classe A.</p> <p>Attenzione! L'uso di questo prodotto in un'area residenziale può causare dei radiodisturbi.</p> <p>Per ulteriori informazioni sul dispositivo, scaricare il manuale d'uso completo:</p> <p>https://www.pulsar-nv.com/glo/products/33/thermal-imaging-scopes/</p>
RU	<p>Внимание! Тепловизоры AXION требуют лицензии, если они экспортируются за пределы Вашей страны.</p> <p>Электромагнитная совместимость.</p> <p>Данный продукт соответствует требованиям европейского стандарта EN 55032:2015, Класс А.</p> <p>Внимание! Эксплуатация данного продукта в жилой зоне может создавать радиопомехи.</p> <p>Для получения подробной информации о приборе скачайте полное руководство по эксплуатации:</p> <p>https://www.pulsar-nv.com/glo/products/33/thermal-imaging-scopes/</p>

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⚡ TECHNICAL SPECIFICATIONS

MODEL	AXION XQ38
SKU	77427
Microbolometer	
Type	uncooled
Resolution, Pixels	384x288
Pixel Pitch, μm	17
Frame Rate, Hz	50
Optical characteristics	
Optical Magnification, x	3.5
Smooth Digital Zoom	3.5-14
Digital Zoom, x	2/4
Lens Focus, mm	38
Focal Ratio, D/f'	1.2
Minimum Focusing Distance, m	3
Eye Relief Diameter, mm	3.5
Angular Field of View (HxV), degree	9.8x7.4
Linear Field of View, m per 100 m	17.2
Eye-piece Focusing range, Diopter	+4/-5
Detection Distance for Deer-Sized Objects, (m)	1350
Display	
Type	AMOLED
Resolution, Pixels	1024x768
Operational characteristics	
Power Supply, V	3-4.2 V
Battery Type	APS 5 Li-ion Battery Pack
Capacity	4900 mAh
Nominal Output Voltage	DC 3.7 V
External Power Supply	5-15 V (USB Type-C)
Battery Run Time at $t=22^{\circ}\text{C}$, h	6
Degree of Protection, IP Code (IEC60529)	IPX7
Stream Vision Compatible	+
Operating Temperature Range, $^{\circ}\text{C}$	-25 ... +40
Dimensions, mm	167x49x73
Weight (without battery), kg	0.35
Video recorder	
Photo/Video Resolution (Pixels)	1024x768
Video/Photo Formats	.mp4/.jpg
Built-in Memory	16 GB
Wi-Fi channel	
Frequency	2.4 GHz
Standard	802.11 b/g
Line-of-Riflescope Reception Range, m*	up to 15

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

⚡ PACKAGE CONTENTS

- AXION XQ Thermal Imager
- APS 5 Rechargeable Battery
- 2x Lock-cover for APS 5 Battery
- Battery Pack Charger
- Power Adapter
- USB Type-C Cable
- Carrying Case
- Hand Strap
- Quick User Manual
- Lens Cleaning Cloth
- Warranty Card
- Tripod Adapter

Improvements may be made to the design of this product to enhance its user features.
The current version of the User Manual can be found on the website www.pulsar-vision.com

⚡ DESCRIPTION

AXION XQ thermal imaging monoculars are designed for use both at night-time and during the day in adverse weather conditions (fog, smog, rain) to see through obstacles (branches, tall grass, dense bushes, etc.) hindering target detection. Unlike night-vision devices based on electron-optical converters, thermal imaging devices do not need an external light source and are resistant to bright light.

AXION XQ thermal imagers are designed for various applications including hunting, observation, security, terrain orientation, search and rescue operations, etc.

⚡ FEATURES

- Microbolometer with a resolution of 384x288 pixels
- Microbolometer pixel size is 17 microns
- 1024x768 AMOLED display resolution
- Compact size and light weight
- Functional and ergonomic design
- User-friendly interface
- Eight color modes
- Three calibration modes: Manual, Semi-Automatic, Automatic
- Detection distance of up to 1350 m
- Smooth digital zoom 3.5-14x
- Four observation modes: Forest, Rocks, Identification, User
- Stadiametric Rangefinder
- Display Off function
- Defective pixel repair function
- Updatable firmware
- Wide operating temperature range (-25°C to $+40^{\circ}\text{C}$)
- Fully waterproof (IPX7 rated)
- Tripod mount

VIDEO/AUDIO RECORDING

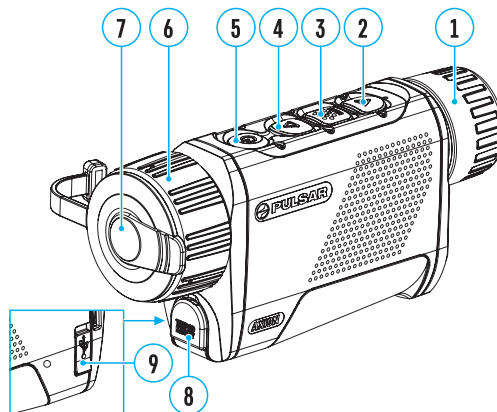
- Built-in video and sound recorder
- Integration with IOS and Android devices
- Wi-Fi remote control and viewing using a smartphone
- Direct YouTube streaming and recording to the Internet using the Stream Vision application

BATTERY PACK

- Quick Change Li-Ion Battery Pack APS 5
- Charging from USB Power Bank
- USB Power Delivery quick charge

COMPONENTS AND CONTROLS

1. Eyepiece focus ring
2. DOWN/REC button ▽
3. MENU button
4. UP/ZOOM button △
5. Power ON/CALIBRATION button
6. Lens focus ring
7. Lens cover
8. Tripod adapter
9. USB Type-C connector



LED indicator displays the current status of the device:

LED Indicator	Operating Mode
	Device is turned on
	The device is turned on/video recording
	The device is turned on/battery charge < 10%
	The device is turned on/video recording/battery charge < 10%

BUTTONS OPERATION

Button	Operating Mode	First short press	Subsequent short presses	Long press
Button ON/OFF (5)	Device is turned off	Turn device on	Device calibration	Turn device on
	Display is turned off	Turn display on	Device calibration	Turn device off
	Device is turned on, quick menu, main menu	Device calibration		Turn display off / Turn device off
Button UP/ZOOM △ (4)	Device is turned on	Toggle between observation modes		Zoom
	Quick menu	Increase value		Increase value
	Main menu	Navigate up / right		Navigate up / right
Button MENU (3)	Device is turned on	Access quick menu		Enter main menu
	Quick menu	Switch between quick menu options		Exit quick menu
	Main menu	Confirm selection, enter menu items		Exit menu items, main menu

Button	Operating Mode	First short press	Subsequent short presses	Long press
Button DOWN/ REC ▽ (2)	Device is on / video mode	Start video recording	Pause	Toggle between video / photo mode
	Device is on / video mode / recording is on	Pause	Resume video recording	Stop video recording
	Device is on / photo mode	Photography		Toggle between video / photo mode
	Quick menu	Decrease value		Decrease value
	Main menu	Navigation down / left		Navigation down / left

BATTERY PACK CHARGING

The AXION XQ thermal imagers come with APS 5 rechargeable lithium-ion battery. APS 5 batteries support USB Power Delivery fast charging technology when using a standard charging set (Charger, USB Type-C cable, Power Adapter). Before first use, the battery should be charged.

Option 1

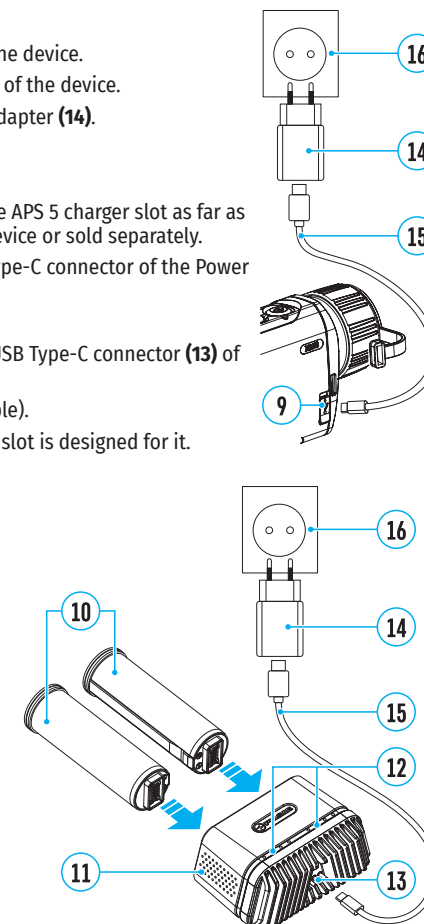
- Install the battery (10) in the battery compartment (18) of the device.
- Connect the USB cable (15) to the USB Type-C connector (9) of the device.
- Connect the other end of the USB cable (15) to the Power Adapter (14).
- Plug the Power Adapter (14) into a 100-240 V socket (16).

Option 2

- Insert the rechargeable battery (10) along the guide into the APS 5 charger slot as far as it will go (see Fig.). The APS charger is supplied with your device or sold separately.
- Connect the plug of the USB Type-C cable (15) to the USB Type-C connector of the Power Adapter (14).
- Plug the Power Adapter (14) into a 100-240 V socket (16).
- Connect the other end of the USB Type-C cable (15) to the USB Type-C connector (13) of the charger.
- LED indication (12) will display battery charge level (see Table).
- Two batteries can be charged at the same time: the second slot is designed for it.

LED indication (12) in the battery charging mode:

Battery Level	
	Battery level is from 0% to 25%
	Battery level is from 26% to 50%
	Battery level is from 51% to 80%
	Battery level is from 81% to 99%
	The battery is fully charged. It can be disconnected from the charger.
	Defective battery. It is forbidden to use the battery.



LED indication (12) in the standby mode*:

Battery Level	
★	Battery level is from 0% to 25%
●	Battery level is from 26% to 50%
●●	Battery level is from 51% to 80%
●●●	Battery level is from 81% to 99%
●●●●	The battery is fully charged. It can be disconnected from the charger.
●	Defective battery. It is forbidden to use the battery.

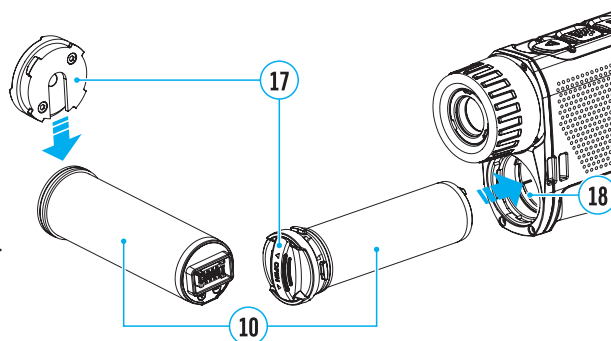
* Standby mode – operating mode when the batteries in the charger, but the power adapter is not connected. In this mode, the indication is on for 10 seconds.

Attention! When using a power adapter that does not support USB Power Delivery fast charging technology, the flicker frequency of LED indicators decreases by 3 times and charge time increases.

Attention! The charger heats up during fast charging. Excess heat is removed through the radiator and does not affect the device operation.

⚡ INSTALLING BATTERY PACK

- Put the Lock-cover (17) on the rechargeable APS 5 battery (10).
- Insert the APS 5 battery (10) along the guide into the battery compartment (18).
- Lock the battery (10) by turning the Lock-cover (17) clockwise until it stops.
- Turn the Lock-cover (17) counter-clockwise to remove the batteries (10).



PRECAUTIONS:

- Always use the APS 5 charger supplied with the device (or purchased separately) to charge APS 5 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 mains after charging is complete.
- Do not expose the battery to high temperatures or naked flames.
- Do not use the battery as a power source for devices that do not support APS 5 batteries.
- Do not disassemble or deform the battery or charger.
- Do not drop or strike the battery or charger.
- The battery and charger must not be immersed in water.
- Keep the battery out of the reach of children.



RECOMMENDATIONS FOR USE:

- The batteries should be partially charged (50 to 80 %) for long-term storage.
- The battery is to be charged at an ambient temperature of 0°C to +35°C or the lifespan of the battery will decrease significantly.
- When using the battery at sub-zero ambient 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 to +40 °C or it may reduce battery life.

- The battery is short circuit protected. However, any situation that may cause short-circuiting should be avoided.

⚡ EXTERNAL POWER SUPPLY

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

- Connect the external power source to the USB Type-C connector (9) on the device.
- The device will switch to draw power from the external source while the APS5 battery will be gradually recharged.
- A battery icon  will appear on the display showing the percentage charge level.
- An icon  will be displayed when the device is powered by an external power source and the APS5 battery is not connected.
- The device automatically switches to the APS 5 battery when the external power supply is disconnected.

Attention! Charging APS 5 batteries from an external source at temperatures below 0°C can reduce battery life. When using external power, connect the Power Bank to the device only after it has been turned on and working for at least several minutes.

⚡ OPERATION

WARNING! Never point the lens at intensive energy sources such as laser radiation emitting devices or the sun. It can damage electronic components in the device. The warranty does not cover damage arising from failure to comply with the operating rules.

POWERING ON AND IMAGE SETTING

- Open the lens cover (7). The lens cover can be secured to the strap using the built-in magnet.
- Press the ON/OFF (5) button briefly to turn on the device.
- Adjust the eyepiece focus ring (1) of the device until the symbols on the display are sharp.
- Rotate the lens focus ring (6) to focus on the object being observed.
- Enter the main menu with a long press of the MENU (3) button and select the desired calibration mode: Manual (M), Semi-Automatic (SA) or Automatic (A).
- Calibrate the image by briefly pressing the ON/OFF button (5). If the SA or A calibration mode has been selected the microbolometer is closed with an internal shutter automatically. However, if the M calibration mode has been selected you must close the lens cover before calibrating manually.
- Select the desired observation mode (Forest, Identification, Rocks, User) by briefly pressing the UP (4) button. User mode allows you to change and save user defined brightness and contrast settings in the quick menu.
- Enter the main menu with a long press of the MENU (3) button and select the desired color palette (for more details see the Main Menu Functions section).
- Activate the quick menu by briefly pressing the MENU (3) button to adjust the brightness, contrast and smooth digital zoom (for more details see the Quick Menu Functions section).
- After use, turn the device off by a long press of the ON (5) button.

⚡ 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 and press the ON (5) button briefly.
- Open the lens cover after the calibration is completed.

SA mode (semi-automatic)

- Press the ON (5) 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 (5) button if required (as in the SA mode).

⚡ DISCRETE DIGITAL ZOOM

The device functionality allows you to quickly increase the base magnification by 2 or 4 times as well as return to the base magnification. Press and hold the UP (4) button to change the digital zoom.


⚡ IMAGE DETAIL BOOST

The Image Detail Boost  function increases the contour sharpness of heated objects to improve the image detail. The results of the function depend on the selected mode and the observation conditions: the higher the object contrast the more noticeable the effect. This option is enabled by default but can be disabled in the main menu.


⚡ QUICK MENU FUNCTIONS


The basic settings (adjusting brightness and contrast, using the Smooth Digital Zoom and Stadiametric Rangefinder functions) can be changed using the quick access menu.

- Enter the menu by briefly pressing the MENU (3) button.
- A short press of the MENU (3) button enables you to toggle between functions, as described below.

Brightness  – press the UP (4) / DOWN (2) buttons to change display brightness from 0 to 20.

Contrast  – press the UP (4) / DOWN (2) buttons to change image contrast from 0 to 20.

Smooth Digital Zoom  – press the UP (4) / DOWN (2) button to change the value of the digital zoom from 3.5 to 14. The digital zoom changes in 0.1 increments.

Stadiametric Rangefinder  – change the position of special marker lines to determine the distance to the object being observed by pressing the UP (4) / DOWN (2) buttons (for more details see the Stadiametric Rangefinder section).

Base Mode    – allows you to select one of the three other modes as the base for the User mode.

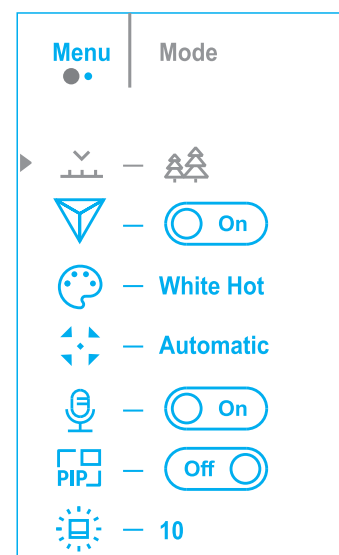
- Press and hold the MENU (3) button to exit the menu or wait for 10 seconds to exit automatically.

⚡ MAIN MENU FUNCTIONS

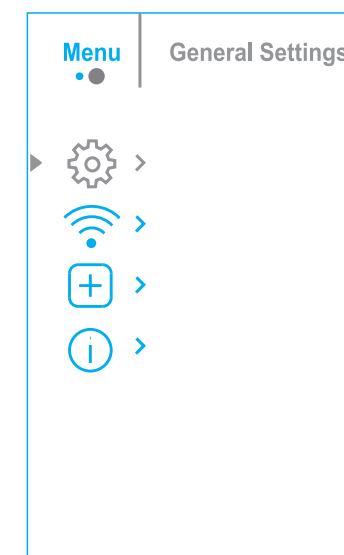
- Enter the main menu with a long press of the MENU (3) button.
- Press the UP (4) / DOWN (2) buttons to move through the menu items.
- Press the MENU (3) button briefly to select the menu item.
- Press and hold the MENU (3) button to exit the menu or wait for 10 seconds to exit automatically.

GENERAL VIEW OF MENU:

Tab 1



Tab 2



MAIN MENU CONTENTS AND DESCRIPTION

































Mode	Observation mode selection.
	There are four observation modes: Forest (mode for low temperature contrast conditions), Rocks (mode for high temperature contrast conditions), Identification (high detail mode), and User (personalized brightness and contrast settings mode).
	Option 1:
	• Press the UP (4) button briefly to switch the observation mode
	Option 2:
	• Press and hold the MENU (3) button to enter the main menu.
	• Use the UP (4) / DOWN (2) buttons to select the Mode icon  .
	• Press the MENU (3) button briefly to enter the Mode submenu.
	• Use the UP (4) / DOWN (2) buttons to select one of the modes described below.
	• Press the MENU (3) button briefly to confirm the selection.
	▲ Rocks. The most suitable mode for observing objects after a sunny day or in urban environments.
	▲ Forest. The most suitable mode when searching and observing in the field against a background of foliage, shrubs and grass. This mode provides a high level of information on both the observed object and landscape details.
	👁 Identification. The most suitable mode for observation in adverse weather conditions (fog, mist, rain, snow). It allows the characteristic features of objects to be more clearly recognized. The increased detail may result in a small graininess of the image
	👤 User. It allows you to configure and save custom brightness and contrast settings, as well as one of the three other modes as the base.

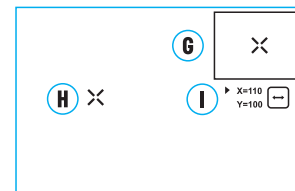
Image Detail Boost 	<p>Enable / disable Image Detail Boost.</p> <ul style="list-style-type: none"> Press and hold the MENU (3) button to enter the main menu. Use the UP (4) / DOWN (2) buttons to select Image Detail Boost icon . Press the MENU (3) button briefly to turn the function on / off.
Color modes 	<p>Color palette selection</p> <p>White Hot is the default display mode. To select an alternative palette, do the following:</p> <ul style="list-style-type: none"> Press and hold the MENU (3) button to enter the main menu. Use the UP (4) / DOWN (2) buttons to select Color Modes icon . Press the MENU (3) button briefly to enter the submenu. Use the UP (4) / DOWN (2) buttons to select the desired palette. Press the MENU (3) button briefly to confirm the selection. <ul style="list-style-type: none"> Black Hot – a black and white palette where white corresponds to cold temperatures and black to hot temperatures. Red Hot Red Monochrome Rainbow Ultramarine Violet Sepia
Calibration Mode 	<p>Calibration mode selection</p> <ul style="list-style-type: none"> There are three calibration modes: Manual, Semi-Automatic and Automatic. Press and hold the MENU (3) button to enter the main menu. Use the UP (4) / DOWN (2) buttons to select the Calibration Mode icon . Press the MENU (3) button briefly to enter the submenu. Use the UP (4) / DOWN (2) buttons to select one of the calibration modes described below. Press the MENU (3) button briefly to confirm the selection. <p>Automatic. In this mode the firmware determines the need for calibration. The calibration process starts automatically.</p> <p>Semi-Automatic. 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.</p> <p>Manual. 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.</p>
Microphone 	<p>Turning microphone on / off</p> <p>This item allows you to enable (or disable) the microphone for recording sound during video recording.</p> <ul style="list-style-type: none"> Press and hold the MENU (3) button to enter the main menu. Use the UP (4) and DOWN (2) buttons to select Microphone icon . Press the MENU (3) button briefly to turn on / off.
PiP Mode 	<p>Picture in Picture mode</p> <ul style="list-style-type: none"> Press and hold the MENU (3) button to enter the main menu. Use the UP (4) / DOWN (2) buttons to select the PiP Mode icon . Press the MENU (3) button briefly to turn on / off.
Icon Brightness 	<p>Icon brightness</p> <ul style="list-style-type: none"> Press and hold the MENU (3) button to enter the main menu. Use the UP (4) / DOWN (2) buttons to select the Icon Brightness icon . Press the MENU (3) button briefly to enter the submenu. Use the UP (4) / DOWN (2) buttons to select the desired brightness level from 0 to 10. Press the MENU (3) button briefly to confirm the selection.

General Settings 	<p>This menu section allows you to change the interface language, set the date, time, units of measure, return the device to factory default settings and perform memory card formatting.</p> <ul style="list-style-type: none"> Press and hold the MENU (3) button to enter the main menu. Use the UP (4) / DOWN (2) buttons to select the General Settings icon . Press the MENU (3) button briefly to enter the submenu. Choose the required menu option with UP (4) / DOWN (2) buttons.
Language 	<p>Language selection</p> <ul style="list-style-type: none"> Press the MENU (3) button briefly to enter the Language submenu. Use the UP (4) and DOWN (2) buttons to select one of the available interface languages: English, German, Spanish, French, and Russian. Press the MENU (3) button briefly to confirm the selection. Press and hold the MENU (3) button to save your selection and exit from the submenu.
Date 	<p>Date setting</p> <ul style="list-style-type: none"> Press the MENU (3) button briefly to enter the Date submenu. The date is displayed in dd/mm/yyyy format. Use the UP (4) / DOWN (2) buttons to select the desired year, month, and date. Press the MENU (3) button briefly to toggle between digits. Press and hold the MENU (3) button to save the date and exit the submenu.
Time 	<p>Time setting</p> <ul style="list-style-type: none"> Press the MENU (3) button briefly to enter the Time submenu. Select the time format (24-hour clock or AM / PM) by pressing the UP (4) / DOWN (2) buttons. Press the MENU (3) button to select the hours. Press the UP (4) and DOWN (2) buttons to select the hour value. Press the MENU (3) button to select the minutes. Press the UP (4) and DOWN (2) buttons to select the minute value. Press and hold the MENU (3) button to save the time and exit the submenu.
Units of Measure 	<p>Rangefinder units of measure</p> <ul style="list-style-type: none"> Press the MENU (3) button briefly to enter the Units of Measure submenu. Press the UP (4) / DOWN (2) buttons to select either Meters or Yards as the unit of measure. Press the MENU (3) button briefly to confirm your selection. Exit from the submenu will happen automatically.
Default Settings 	<p>Factory reset</p> <ul style="list-style-type: none"> Press the MENU (3) button briefly to enter the Default Settings submenu. Use the UP (4) and DOWN (2) buttons to select Yes to restore default settings or No to cancel. Confirm your selection with a short press of the MENU (3) 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. <p>The following settings will be returned to their defaults before being changed by the user: Video Recorder Mode – Video; Observation Mode – Forest; Calibration Mode – Automatic; Language – English; Wi-Fi – Off (default password); Magnification – Standard (without digital zoom); PiP – Off; Color Mode – White Hot; Units of Measure – Meters</p> <p>Attention! When restoring the factory defaults the date, time and user pixel map are saved.</p>

Format 	<p>This function enables you to format the Flash memory card. All files will be deleted.</p> <ul style="list-style-type: none"> Press the MENU (3) button briefly to enter the Format submenu. Use the UP (4) and DOWN (2) buttons to select Yes to format the memory card or No to return to the submenu. Press the MENU (3) button briefly to confirm your selection. If Yes is selected, the message "Do you want to format the memory card?" appears on the display as well as Yes and No options. Select Yes to format the memory card. Selecting the No option will cancel the formatting and exit the submenu.
Wi-Fi activation 	<p>Turning Wi-Fi on / off</p> <ul style="list-style-type: none"> Press and hold the MENU (3) button to enter the main menu. Use the UP (4) / DOWN (2) buttons to select the Wi-Fi icon . Press the MENU (3) button briefly to turn Wi-Fi on / off.
Wi-Fi Settings 	<p>This item enables you to set up your device for operation in a Wi-Fi network.</p> <ul style="list-style-type: none"> Press and hold the MENU (3) button to enter the main menu. Use the UP (4) / DOWN (2) buttons to select the Wi-Fi Settings icon . Press the MENU (3) button briefly to enter the submenu.
Password Setup 	<p>This function enables you to set a password to access the scope from an external device. The password is used to connect an external device (i.e. smartphone) to your thermal imager.</p> <ul style="list-style-type: none"> Press the MENU (3) button briefly to enter the Password Setup submenu. The default password (12345678) will appear on the screen. Use the UP (4) and DOWN (2) buttons to set the desired password using the UP (4) button to increase and the DOWN (2) button to decrease the values. Press the MENU (3) button to toggle between the digits. Press and hold the MENU (3) button to save your password and exit the submenu.
Access Level Setup 	<p>This option allows you to configure the appropriate access level to your device made available to the Stream Vision application.</p> <p>Owner level. A Stream Vision user has full access to all device functions.</p> <p>Guest level. A Stream Vision user only has access to the real time video stream from the device.</p>
Defective Pixel Repair 	<p>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.</p> <p>Defective pixels on the microbolometer can increase in size relatively when digital zoom is activated.</p> <p>AXION XQ thermal imagers allow the user to remove any defective pixels on the microbolometer using firmware as well as to cancel removing.</p> <ul style="list-style-type: none"> Press and hold the MENU (3) button to enter the main menu. Use the UP (4) / DOWN (2) buttons to select the Defective Pixel Repair icon . Press the MENU (3) button to enter the submenu.


Defective Pixel Repair

- Select the Defective Pixel Repair  option by briefly pressing the MENU (3) button.
- A marker  (H) will appear on the left side of the display.
- A magnifying glass (G) will appear on the right side of the display – a rectangle with an enlarged view of the marker for precise pixel selection – and the coordinates (I) of the marker under the magnifying glass.
- Press the UP (4) and DOWN (2) buttons briefly to align a defective pixel with the center of the enlarged marker in the magnifying glass – the pixel should be removed. Press the MENU (3) button briefly to switch the marker direction between the horizontal to the vertical.
- Press the ON (5) button briefly to delete the dead pixel.
- Once the pixel has been successfully deleted, an OK message will briefly appear on the screen.
- You can then delete the next defective pixel if required by moving the marker across the display.
- Press and hold the MENU (3) button to exit the function.



Restore Default Pixel Map


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

- Use the UP (4) / DOWN (2) buttons to select the Restore Default Pixel Map icon .
- Activate the function by briefly pressing the MENU (3) button.
- Using the UP (4) / DOWN (2) buttons, select Yes if you want to return to the factory pixel map and select No if you do not.
- Confirm your selection with a short press of the MENU (3) button.

Attention! One or two pixels on the display of the device in the form of bright white, black or colored (blue, red or green) points may appear. These points cannot be removed and are not a defect.

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:
 - Press and hold the MENU (3) button to enter the main menu.
 - Use the UP (4) / DOWN (2) buttons to select the Device Information icon .
 - Press the MENU (3) button briefly to view / exit the information.

⚡ STATUS BAR



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)
- Observation Mode
- Calibration Mode (in Automatic calibration mode a countdown timer will appear instead of the calibration mode icon 3 seconds before automatic calibration begins).
- Magnification
- Microphone
- Wi-Fi Connection
- Time
- 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

⚡ VIDEO RECORDING AND PHOTOGRAPHY

The AXION XQ thermal imagers are equipped with the option to record video and still images (photography) of the observed image by saving them on the built-in memory card. It is recommended to set the date and time (see the corresponding menu items) before using the photo and video functions.

The built-in recorder operates in two modes:

VIDEO MODE. VIDEO RECORDING

- The video mode is activated when you turn on the device.
- The icon and the remaining recording time in HH:MM (Hours:Minutes) format are displayed in the upper left corner, for example, 5:12
- Press the DOWN / REC (2) button briefly to start video recording.
- When the video recording starts, the icon will disappear and the REC icon and timer in MM:SS (Minutes:Seconds) format will appear ●REC | 00:25.
- Press the DOWN / REC (2) button briefly to pause or resume video recording.
- Press and hold the DOWN / REC (2) button to stop video recording.
- Video files are saved to the built-in memory card after the video recording has been stopped.
- Press and hold the DOWN / REC (2) button to switch between the video and photo modes.

PHOTO MODE. PHOTOGRAPHY

- Switch to photo mode by pressing and holding the DOWN / REC (2) button.
- Press the DOWN / REC (2) 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.

⚡ 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 main menu. Wi-Fi is displayed in the status bar as follows:

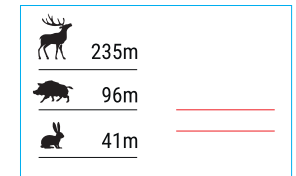
Connection Status	Indication on the status bar
Wi-Fi is switched off	
Wi-Fi connection is in progress	
Wi-Fi is switched on, no connection with device	
Wi-Fi is switched on, device connected	

- The device is recognized by an external device as AXION_XXXX where XXXX are the four last digits of the serial number.
- After entering the password (default: 12345678) on a mobile (see Wi-Fi Setup section of the Main Menu Functions section of this manual for more information on setting a password) and setting up a connection, the icon in the status bar changes to .

⚡ STADIAMETRIC RANGEFINDER

AXION XQ thermal imagers are equipped with a stadiametric rangefinder which allows the user to determine the approximate distance to an object of a known size.

- Select the rangefinder function with brief presses of the MENU (3) button until the Stadiametric Rangefinder icon is selected.
- The display will show 2 horizontal measurement lines, the icons of three reference objects and the respective distances for those three objects.
- There are three predefined values for the reference objects:
 - Deer – 1.7m high
 - Boar – 0.7m high
 - Hare – 0.3m high
- Place the lower fixed horizontal line below the object and use the navigation buttons UP (4) / DOWN (2) to move the upper horizontal line relative to the lower line so that the object fits directly between the lines. The range to the object is automatically recalculated as the distance between the lines is adjusted.
- If the range is not measured within 10 seconds, the information disappears from the display.
- To select either Meters or Yards as the unit of measure please see the corresponding menu item.
- Range values are rounded off before being displayed, to 5m for long ranges and to 1m for short ranges.
- Press the MENU (3) button briefly to exit the rangefinder mode or wait 10 seconds to exit automatically.

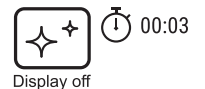


⚡ DISPLAY OFF FUNCTION

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

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

- When the device is on, press and hold the ON (5) button for less than 3 seconds. The display goes blank and the message Display Off appears.
- Press the ON (5) button briefly to turn on the display.

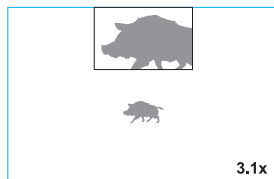


- When you press and hold the ON **(5)** button, the display shows the message Display Off with a countdown. Holding the button down for the duration of the countdown will power the device off completely.

⚡ PIP FUNCTION

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

- To turn on and off the PiP function see the PiP Mode section in the Main Menu Functions section of the manual.
- Press and hold the UP **(4)** button to change the magnification ratio in the PiP window.
- An enlarged image of the central area of the display is shown in an additional window above and the image area is captured by angles.
- The main image is displayed with an optical magnification ratio of x1.0.
- When the PiP is turned on you can control both the discrete and smooth digital zoom. In this case the zoom value changes only take place in the dedicated window.
- When the PiP function is turned off, the screen will display at the magnification that was set in PiP mode.



⚡ STREAM VISION

AXION XQ thermal imagers support Stream Vision technology which allows you to stream an image from the thermal imager to a smartphone or tablet in real time 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 Pulsar Device.

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 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.
- 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 micro-USB port **(9)** and the other end to the port on your computer.
- Switch the device on with a short press of the ON **(5)** button (the computer will not detect the device if it is switched off).

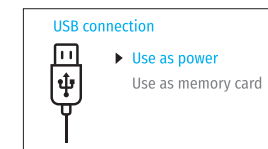
- The device is detected by the computer automatically and no drivers need to be installed.
- Two connection modes will appear on the display:
 - Use as power.
 - Use as memory card.
- Use the UP **(4)** and DOWN **(2)** buttons to select the connection mode.
- Press the MENU **(3)** button briefly to 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 APS 5 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.



⚡ 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 condition of the lens and eyepiece (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.

⚡ MAINTENANCE

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. Silicone grease may be used for this.
- 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.

⚡ TROUBLESHOOTING

The table below lists problems that may occur when using the device. Carry out the recommended checks and troubleshooting steps in the order listed in the table. If there are defects not listed in the table or it is impossible to resolve the problem yourself, the device should be returned for repair.

Malfunction	Possible cause	Corrective action
The thermal imager does not turn on.	The battery is completely discharged	Charge the battery.
The device does not operate from an external power source.	The USB cable is damaged.	Replace the USB cable.
	The external power supply is discharged.	Charge the external power supply (if necessary).
Blurred image with vertical stripes or an uneven background.	Calibration is required.	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	Manual calibration has been performed with the lens cover open.	Check the calibration mode, close the lens cover and calibrate the device.
Image is too dark.	Brightness or contrast level is too low.	Adjust the brightness or contrast.
Color bars appear on the display or the image disappears.	The device was exposed to static charges during operation.	When the exposure to static charges is over, the device may either reboot automatically or require to be switched off and on again.
The image of the object being observed is missing.	You are looking through glass.	Remove the glass or change the viewing position to avoid it.
Poor image quality / reduced detection distance.	These problems may occur during observation in adverse weather conditions (snow, rain, fog, etc.).	
Smartphone or tablet cannot be connected to the device.	Device password has been changed.	Delete the network and connect again using the password saved in the device.
	The device is in an area with too many Wi-Fi networks that may be causing signal interference.	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.	The smartphone or tablet is beyond reliable Wi-Fi range. There are obstacles between the device and the signal receiver (e.g. concrete walls).	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.	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.	

Repair of the device is possible within 5 years.