

Pulsar Helion 2 XP50 Pro

Pulsar Helion 2 XP50 Pro Thermal Imaging Monocular User Manual

Model: Helion 2 XP50 Pro (PUL-77431)

1. INTRODUCTION

The Pulsar Helion 2 XP50 Pro Thermal Imaging Monocular represents an advanced step in thermal detection technology. This device is engineered for detailed imaging even in environments with minimal temperature differences, offering clear and ultra-smooth observation.

It features a high-resolution thermal sensor, a fast objective lens, and a frost-resistant HD AMOLED display. Designed for long-distance observation, it includes significant native and digital magnification capabilities. The Helion 2 XP50 Pro also integrates photo and video recording, ample internal memory, and compatibility with Stream Vision for enhanced functionality. Its robust magnesium alloy body ensures durability, structural integrity, and efficient heat dissipation, while remaining lightweight and weather-resistant (IPX7).



Figure 1: Front view of the Pulsar Helion 2 XP50 Pro Thermal Imaging Monocular, showcasing its objective lens and control buttons.

2. KEY FEATURES

- **Long Detection Range:** Capable of detecting heat signatures at extended distances, up to 1800 meters.
- **High-Resolution Sensor:** Equipped with a 640x480 17 µm NETD <25 mK thermal sensor for detailed imaging.
- **Fast Objective Lens:** Features a 50mm (F/1.0) lens for excellent light gathering and image clarity.
- **High Magnification:** Offers a native magnification of 2.5x with an 8.0x digital zoom, providing a total magnification of up to 20.0x.
- **Frost-Resistant AMOLED Display:** A 1024x768 HD AMOLED display ensures clear viewing in various temperatures.
- **High Refresh Rate:** A 50 Hz frame rate provides ultra-smooth observation of moving objects.
- **Integrated Photo and Video Recorder:** Capture still images and videos directly to the device's internal memory.
- **16 GB Internal Memory:** Ample storage for recorded media.
- **8 Color Modes:** Multiple color palettes for optimized observation in different conditions.
- **Picture-in-Picture (PiP) Mode:** Displays a magnified image of the reticle area at the top of the screen while retaining the main field of view.
- **Stadiametric Rangefinder:** Estimate distances to observed objects.
- **Stream Vision Compatibility:** Connects to mobile devices for remote control, streaming, and data transfer.
- **Durable Magnesium Alloy Body:** Lightweight, weather-resistant (IPX7), and provides excellent heat dissipation.
- **Long Battery Life:** IPS7 battery provides up to 13 hours of operation.

3. SETUP

3.1 Unboxing and Initial Inspection

Carefully remove all components from the packaging. Verify that all items listed in the packing contents are present and undamaged. Typical contents include:

- Pulsar Helion 2 XP50 Pro Monocular
- IPS7 Battery Pack
- Battery Charger
- USB Cable
- Carrying Case
- Lens Cleaning Cloth
- Quick Start Guide

3.2 Battery Installation and Charging

The Helion 2 XP50 Pro uses an IPS7 battery pack. To install:

1. Locate the battery compartment on the device.
2. Insert the IPS7 battery pack into the compartment, ensuring correct orientation. It should click into place.
3. To charge the battery, either connect the device directly via the USB cable to a power source, or remove the battery and use the dedicated IPS7 battery charger.

4. A full charge provides up to 13 hours of operation.



Figure 2: Rear view of the monocular, highlighting the eyepiece and the USB charging port.

3.3 Initial Power On

After installing the charged battery:

1. Press and hold the Power button (usually marked with a power symbol) located on the top panel of the device.
2. The display will illuminate, showing the Pulsar logo, followed by the live thermal image.
3. Adjust the diopter on the eyepiece for clear viewing, if necessary.



4. OPERATING INSTRUCTIONS

4.1 Power On/Off and Display Off Mode

- **Power On:** Press and hold the Power button until the display activates.
- **Power Off:** Press and hold the Power button until the device shuts down.
- **Display Off Mode:** A short press of the Power button will turn off the display while keeping the device operational, saving battery and preventing light emission. Press again to reactivate the display.

4.2 Focusing and Magnification

- **Objective Lens Focus:** Rotate the focusing ring on the objective lens to achieve a sharp image of your target.
- **Eyepiece Diopter Adjustment:** Rotate the diopter ring near the eyepiece to ensure the on-screen information and image are clear for your vision.
- **Digital Zoom:** Use the designated zoom buttons (refer to your device's button layout) to cycle through the digital magnification levels (up to 8.0x).



Figure 4: The monocular with its objective lens cap open, ready for use.

4.3 Observation Modes and Color Palettes

The Helion 2 XP50 Pro offers various observation modes and 8 color palettes to optimize viewing for different scenarios. Consult your device's menu system to navigate and select these options. Common modes include:

- **White Hot:** Displays warmer objects as white, cooler as black.
- **Black Hot:** Displays warmer objects as black, cooler as white.
- **Red Hot:** Similar to White Hot, but with red coloration for the hottest areas.
- **Rainbow/Ultramarine:** Various color gradients to highlight temperature differences.
- **Picture-in-Picture (PiP):** Activates a small window at the top of the display showing a magnified view of the central area, allowing for detailed observation without losing the overall field of view.



Figure 5: Example of a thermal image captured by the device, illustrating its ability to detect and display heat signatures.

4.4 Photo and Video Recording

The integrated recorder allows you to capture moments directly to the device's 16 GB internal memory.

- **Taking a Photo:** Press the dedicated Photo/Record button (consult your manual for exact button). A brief icon will appear on screen indicating a photo has been taken.
- **Starting/Stopping Video Recording:** Press and hold the Photo/Record button to start recording. A recording indicator will appear. Press and hold again to stop recording.
- **Accessing Media:** Recorded photos and videos can be reviewed directly on the device or transferred to a

computer via the USB cable.

4.5 Stream Vision Connectivity

The Helion 2 XP50 Pro is compatible with the Stream Vision mobile application. This app allows for:

- Remote control of the device's functions.
- Live streaming of the thermal image to your smartphone or tablet.
- Transferring recorded photos and videos to your mobile device.
- Firmware updates.

Download the Stream Vision app from your device's app store and follow the in-app instructions to connect to your monocular.



Figure 6: A user observing with the Pulsar Helion 2 XP50 Pro, demonstrating its ergonomic design for field use.

5. MAINTENANCE

5.1 Cleaning the Device

- **Lens Cleaning:** Use the provided lens cleaning cloth or a soft, lint-free cloth specifically designed for optics. Gently wipe the objective and eyepiece lenses. For stubborn smudges, use a small amount of optical cleaning solution applied to the cloth, not directly to the lens.
- **Body Cleaning:** Wipe the monocular's body with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- **Avoid Water Jets:** While the device is IPX7 rated (waterproof), avoid direct high-pressure water jets on the lenses or ports.

5.2 Storage

- Store the device in its carrying case when not in use to protect it from dust, dirt, and physical damage.
- Store in a cool, dry place, away from direct sunlight and extreme temperatures.
- If storing for extended periods, ensure the battery is partially charged (around 50%) and remove it from the device if recommended by the manufacturer to prevent deep discharge.

6. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	Battery is discharged or not properly installed.	Ensure battery is fully charged and correctly inserted. Try recharging the battery.
Image is blurry or out of focus.	Objective lens or eyepiece diopter not adjusted.	Adjust the objective lens focusing ring and the eyepiece diopter until the image is sharp.
No thermal image, only black screen.	Lens cap is on, or device is in Display Off mode.	Remove the lens cap. Press the Power button briefly to exit Display Off mode.
Cannot connect to Stream Vision app.	Bluetooth/Wi-Fi is off, or app is not updated.	Ensure Wi-Fi/Bluetooth is enabled on both devices. Update the Stream Vision app to the latest version. Restart both devices.
Short battery life.	Frequent use of power-intensive features (Wi-Fi, recording), or battery degradation.	Reduce use of Wi-Fi and continuous recording. Ensure battery is fully charged. Consider replacing the battery if it's old.

7. SPECIFICATIONS

Feature	Detail
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Feature	Detail
Model Name	Helion 2 XP50 Pro
Item Model Number	PUL-77431
Sensor Type	Uncooled microbolometer, 640x480, 17 μm, NETD <25 mK
Objective Lens	F50/1.0 (50 Millimeters)
Magnification	2.5x (native), 8.0x digital zoom (total 20.0x)
Detection Range	Up to 1800 meters
Display Type	HD AMOLED, 1024x768
Refresh Rate	50 Hz
Internal Memory	16 GB
Power Source	Battery powered (IPS7 battery pack)
Operating Time (on one battery charge)	Up to 13 hours
Material	Magnesium Alloy (Metal)
Waterproof Rating	IPX7
Item Weight	3 Kilograms
Color	Black
Focus Type	Manual Focus
Lens Coating	Fully Coated
Field of View	4 degrees (approximate)

8. WARRANTY AND SUPPORT

Pulsar products are manufactured to high quality standards and are covered by a manufacturer's warranty. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official Pulsar website.

For technical support, service, or inquiries regarding your Helion 2 XP50 Pro, please contact Pulsar customer service or an authorized service center. Contact information can typically be found on the Pulsar website or in the product packaging.

When contacting support, please have your product model number (PUL-77431) and serial number ready.

