

MINI TEST

In-depth, independent reviews every month

PULSAR HELION XP50 AND XQ50F THERMAL MONOCULARS

Thermal imaging hit the market in a big way last year, and improvements on those models are now emerging. Chris Parkin compares two of Pulsar's latest designs

Pulsar's thermal monoculars have become very popular for a simple reason: they are good. Although previous models were expensive, few buyers thought they didn't represent great value for money for either vermin control/foxing/stalking, or for inconspicuously assessing fauna

populations for land management. The Helions are the update to the Quantum series and caused quite a lot of excitement, with promises of higher resolution sensors and new features. There was, however, a sort of two-tier technical capability boundary to overcome when it came to choosing which model would suit you best. In

ABOVE: Can you tell which is the XP and which is the XQ?

this article I have set out to try to dispel the myths, and outline the basic differences in capability between the two choices: higher resolution sensor/low optical magnification with the XP family versus lower sensor resolution with higher optical magnification on the XQ50F. Which would I choose if money were no stumbling block?

LEFT: The new battery is a massive improvement with secure attachment and electrical contacts

To cut a long story short and get a true side-by-side comparison, I mounted both units in parallel to build a pair of thermal binoculars. This was easier than I thought, but showed why optical binocular manufacturers pay so much attention to detail when synchronising the two internally on dependent tubes. Each unit is externally identical but for the underside badge, and a small mechanical toggle-slide above the objective lens on the XP, which allows the lens unit to be changed over. Rather than the square shape of the Quantum and a roller at the front and button on top for controls, Helions have five buttons on top, one row of



PICTURES: CHRIS PARKIN

four, and a separate loner at the front for on/off and screen refresh. Also different and fundamental to the ergonomics is the new battery layout. The 3.7 volt 5,000mAh battery attaches externally to the side of the Helion under your palm. It has two main stud terminals for power, along with a multiple connector in its centre for modern battery function display of charge level with greater accuracy; the simple voltage 'drop' sensors of old were somewhat temperamental.

A flush-fitting lever locks the battery and its terminals in place with similar functionality on the supplied charging unit, which feeds from a mini USB cable from a supplied 240v adapter or any USB port. I will start by complimenting the new battery system. The 4x AAs of the older Quantum were functional, but occasionally suffered from needing the spring terminals bent back up to ensure good electrical conduction. Changeover, although not difficult, could be 'fingertip fiddly' in the dark. The new battery promises an eight-hour runtime and I found both this, and the accuracy of the internal display screen, totally reliable. Just to note, however, it is typical spring weather right now and nowhere near the cold/freezing temperatures of winter, which may affect it.

A flip-up lens cover protects the 50mm objective lens and will rotate through 360 degrees to suit your preferences. The image focus collar sits behind this for regular usage in the field, with a similar collar at the rear to focus the internal screen. At the back there is a rubber eyecup with a wing-collar sealing to your eye socket, blocking out external light. As always, if you stay glued to it for too long you lose your natural night vision in one eye as your pupil will close, and you also get some condensation forming on the external glass from your body heat. The



ABOVE: Pulsar Helion XP on the right, the XQ on the left

\\ THE NEW BATTERY PROMISES AN EIGHT-HOUR RUNTIME AND I FOUND THIS TOTALLY RELIABLE //

BELOW: Rangefinding capability is hampered by the slow and heavy button presses while trying to maintain 'aim'



collar rotates with detents inbuilt so, when it's set, it stays set for either your left or right eye and won't get nudged. An adjustable padded Velcro strap wraps the back of your right hand over the battery, which I'm sure has the added benefit of keeping your hand in one position and keeping the battery a little warmer, too. It happily copes with any hand size and adds security to your grip, allowing your four fingers to sit atop, almost aligned with the buttons. I found my fingers naturally fell on the three rearmost buttons with my index behind them, not on a button.

Both units feature the same 640x480 pixel resolution internal screen (XQ's 384x288 versus XP's 640x480) to display the image conveyed from the un-cooled microbolometer sensor. I found the display structure clear but was cautious of the fact that the ocular lens

is quite critical to precise eye position, and even though there seems to be an 'exit pupil' that is broad, the screen's display soon loses sharpness if your eyeball drifts away from the absolute prime position for optical focus. I would suggest that you get used to mounting it to your eye correctly, and don't be tempted to keep re-focusing the eyepiece, which is technically set for the dioptre of your eye. I feel this is a little disappointing, and I worry it's because Pulsar think that culture is pushing us all in the direction of using external display screens running off the Helion's other new feature: Wi-Fi connectivity. An intuitive, capable Stream Vision app for smartphones will act as a viewfinder, video recorder, photographic conveyance and connectivity to social media, etc., but I, for one, won't use this feature. I personally believe it could be bad news >>



ABOVE: Colour palette options

for shooting if morally irresponsible content gets erroneously posted online. Your choice!

Helions also record video and photographs on 8GB internal memory, which can be later downloaded using the supplied data cable to your desktop computer; similar caveats apply, but 150 hours or 10,000-photo storage will give you a good record of what you have seen for further study if required. I can see the point in doing this for technical and ecological reasons, and display of relevant research to the appropriate land owners is always of great use when gaining favour. Reproduction of the

BELOW: Pulsar Helion XP50 thermal monocular with carry case

video is quite good, but beware online displays as the inherent video quality and further compression for online usage diminishes quality twice, and it's never quite as good as what you see live through the viewfinder, even though you have more time to assess the information.

Anyway, let's get back on topic! The control buttons are complex; the instructions, however, are comprehensive and, when you get to know how all the functions work with combinations of fast, slow and long button presses, it does become easier. The new screen menu structure is simpler and more intuitive than that of old, but you will find yourself regularly pressing the wrong button. All four are in a line like a clarinet's buttons,

segregate it from up/down controls, but these are too subtle. At night with cold fingers or, worse still, gloves, you have no chance for tactile identification and the single-handed gripped hold of the Helion tended to angle my four fingers onto the rear three buttons, with one spare at the back. It's all very well when you are looking at it, but, remember, this all gets done in the dark! I prefer the menu structure on the Helion, but without doubt preferred the physical control inputs of the older Quantum; they were just more intuitive and tactile. This looks like a one-handed unit but I always found myself operating it with both hands anyway. Pressing the firm, rubberised buttons with a firm grip wrapped around the unit is an ergonomic compromise that

\\ THERE WAS ABSOLUTELY NO PROBLEM IDENTIFYING NON-QUARRY SPECIES //

controlling brightness, contrast, magnification, colour palettes, recording on/off, etc.; they have slight shape variations and the centre main menu button has physical partitions to

disturbs your 'aim' and, once set up, I left everything well alone except for occasional changes in brightness, contrast and colour palette. Even then, mistakes occurred and valuable



RRPS
 Pulsar Helion XP50
£3,699.95
 Pulsar Helion XQ50F
£2,459.95

seconds were wasted fiddling in the dark and swearing.

Ghosting occurred occasionally and screen refresh is necessary with either the XQ or XP. It can be set on automatic, semi-auto or manual, and I tended to leave it on semi-auto but regularly pointed the unit directly at the sky or ground, or flipped the lens cap down to do a manual refresh as the internal shutter didn't seem to 'clean' the screen on all occasions. This is fairly common with thermal and never bothered me because, for greatest clarity and detail, the refresh function is mandatory when studying a specific object you locate in detail.

With the units run literally side by side, I set the 0.1x magnification increments of the XP to 4.1x magnification so that it matched the XQ, which shows this at its optical base level. Scanning for rabbits and foxes, the image detected and showed me all I have seen before on the Quantum, but of course the \$10m question is... are the Helions better? Well, yes and no. I would personally have the XQ or XP38 for starters, as base level magnification enables you to walk and scan with the unit welded to your eye, and this is a wonderful capability, bringing almost daylight levels of detail to total darkness, and not only for detection and assistance in identification of quarry, but for navigation of topography and day-to-day obstacles. Close focus on both units is far improved because I had 4m capability on the XQ (advertised at 5-7) which was a significant benefit over the 5-8m of the Quantum days, which I found quite debilitating around farmyard buildings and unusable for ridding inside barns. The image quality is a little better but, to be honest, it's hard to differentiate. I went out on several occasions and, in the dark where I was unable to see minor external differences, I would forget which side or pocket I had either mounted or placed the XP and XQ, with both set at 4.1 magnification. I had to regularly swap back and forth to see a difference between the two, and other than looking at the setting indicating magnification, I couldn't absolutely tell you which I was looking through. You could see very subtle differences between the higher sensitivity of the XP's sensor, but given that you were using more digital magnification of the image to match the optical magnification of the XQ's sensor, you were comparing apples and pears, yet



ABOVE: The locking latch for the battery clamps the terminals in place

PROS

New battery system is a huge improvement over older AAs or wired add-ons

I think the image quality is very slightly improved but I was unable to test the Quantum and Helion units side by side as desired

Closer focus capability is appreciated

CONS

An ergonomic step backwards for button controls and carrying around your neck

Exit pupil is broad but critical for repetitive focus

with no taste or texture difference. Let's just say that there are two ways to skin a cat, and neither wins. I remained mostly on the black/white colour palettes as they seemed to offer the most relaxed detail, contrast and resolution, with occasional switches to 'hot red' to ascertain between warm stones and rabbits (but I have got quite used to the image quality Pulsar thermals give you, and I would not be without one at night now). The 50Hz refresh rate is very smooth and the movement patterns of an animal are easy to pick up to differentiate species. I was able to watch a badger for quite some time and the detail on show at about 50m was impressive. Unlike the red/orange glow of older thermals with twitchy motion, there was absolutely no problem differentiating this non-quarry

species. The gradiometric rangefinder did seem a little clunky to use, but it's always going to be an approximation of range, and it was not as easy to control with the buttons as it was with the roller on the Quantum. I never used it on the Helion because it was impossible to maintain any kind of steady hold while you physically manipulated the buttons.

So, after all that, where does it leave us? Well, if I had to have a 50, I would go with the XP because it has lower magnification, and therefore a wider field of view and more comfort when walking. On the other hand, I could just get this and significant pocket change from the XQ38 – though it is a supposed 450m reduction from the 1,800m detection range of the 50s, it doesn't seem to matter in the real



Objective lens caps will flip out of the way in any direction



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world. I find Pulsar to be very accurate in their technical product descriptions and have tried to divert from a breakdown of the statistics to what matters in the real world and how I found them in use. Don't get me wrong, both are great products. I feel lost without one now as they change your horizons in the field, quite literally, but when it comes to living with one and buying one, real-world experience, irrespective of cost, has continually pointed me to the 38s, and with a base level 1.9x magnification setting, I

certainly like the look of the XP38 because I walk and stalk. I agree that those scanning large fields from vehicles for vermin and foxes may appreciate the longer detection range and magnification of the 50s, but I don't think a 38 would ever be regretted. The 0.1x zoom increments on the XP feel slow to use, although you can take larger steps, and you now get a screen-in-screen zoom capability on both.

The IPX 7 waterproof rating suggests submersion to 1m is possible, but I'd

ABOVE: Pulsar Helion XP on the far left, XQ on the near right

VERDICT

There are mixed blessings to the new Helion ranges to my mind and I still see low magnification capability as a significant factor in any model you choose. It may look neater, but it's harder to operate the buttons and it won't sling around your neck like a pair of binoculars. It's very hard to weigh up the choices – neither unit will disappoint, but you will never know what you missed out on.

keep this to mean showerproof at most. The single ¼" mounting point for the unit to a tripod is forwards of the battery, which is the main mass in the 590/595g weight of the two items, and this provides a solid anchor point. I liked the twin side mounts on the Quantum, allowing you to fit a strap similar to that on a pair of binoculars so they would hang around your neck freely when you are otherwise occupied. The location here means the centre of mass is higher than the mounting point, so it won't hang naturally upright or flat to your chest, which is a shame as it twists around too. The benefits of either are hard to accumulate. The XP benefits over the XQ because of its lower magnification capability, which seems to disappear when you use like for like 4.1 digital zoom to compare against the XQ's optical zoom; yet at close range, when rattling for example, the low magnification and greater sensor resolution of the XP is stunning, but cannot be compared against that of the XQ. It's tricky but, when it comes down to it, money is easy to compare and for general vermin control, the XQ is better value and dropping to a 38 gets the lower mag. Really look at your land before choosing: if you walk, go low; if you drive and have huge fields to scan... I could go on and on. **RS**



You only get one lens with the XP but it can be physically changed here and on the internal set-up menu