

## Binocular Sky Review: Helios Stellar II 10x50

### Manufacturer's Specification

Weight (g)	1550
Field of View (°)	6.5
Eye Relief (mm)	20
IPD (mm)	56-74
Waterproof	Yes
Prism Type	Porro
UK Guarantee	1 year
Origin	China
Body Material	Magnesium Alloy
Armour Type	Rubber, full
Nitrogen Filled	Yes
Prism Material	BAK-4
Prism Coating	Multi-coated
Lens Coating	Fully multi-coated
Eyecup Type	Fold down



**Price: £129**

**Available from: [The Binocular Shop](#)**

### Initial Impressions

The binocular appears to be of Bausch&Lomb (aka “American”)-type construction, i.e. the objective tube is integral to the prism housing.

The binocular is covered in a ribbed rubber armour, which gives a secure grip with or without gloves. The eyepiece focusing is smooth, with no “stiction” after it has not been used for a few days.

Unfortunately, it is not stiff enough to prevent accidental refocusing when, for example, you are folding down the eye cups. (I had a 15x70 for evaluation as well, and it had the same looseness, so this is probably a design feature.) This does, however, make it easy to focus with gloved fingers. The hinge is smooth, with little “stiction” and tight enough not to accidentally slip once it is adjusted or when you are adjusting the focus. The eyecups fold down easily.



The lens coatings seem to be evenly applied and reduce the amount of reflected light. The manufacturer specifies that the optical transmission is 85%; this seems to be a realistic value. The insides of the objective tubes are ribbed along their entire length, suggesting that control of stray light should be good.



There are is an obvious cut-off segment in each of the light paths, indicating that one of the prisms is slightly undersized, but not so much as to noticeably dim the image. The prisms do not appear to have grooved hypotenuses.

The soft, slightly padded case is sufficient to keep the binocular clean, but will only protect it against the lightest of knocks. The plug-in type objective covers fit quite well (better than the BA8), but do occasionally come off accidentally; at least they are tethered, so they will not get lost when they do fall out. The eyepieces have a tetherable (left hand side) double rainguard-type cover that fits securely when the eye-cups are up, but not at all when they are folded down. It does not to restrict the interpupillary distance when it is in place.

### Testing the Specifications

The aperture is the full 50mm and is not internally stopped. Examination of reflections when a bright light is shone down the objective end confirms the fully multi-coated specification. There are no grey segments in the exit pupil, confirming that the prisms are of high-index glass. I measured the interpupillary distance range as 55 to 73.5 mm. The eye cups are 48 mm diameter, so there is 7 mm between them at their closest; this may be uncomfortable for people with wide nose bridges. The objective lenses are recessed 13.5 mm into their barrels, offering good protection against accidental touching, but insufficient for dew protection. With fully-corrected vision, the eyepiece dioptres were set close to zero when I focused to infinity, suggesting that they are properly adjusted. There is a nominal 5-dioptre adjustment available either side of this, so the binocular could be used without spectacles by people with moderate to strong myopia or hyperopia/presbyopia. For those who do need spectacles, the eye lenses are recessed 5 mm into their housings so, with the eye-cups folded down, there is 15mm of the specified 20mm eye relief available. I found this to be adequate to enable the entire field of view to be visible.

### Under the Stars

For testing, I hand-held the binoculars, as this is how they will normally be used. I compared it to a *United Optics BA8 (Oberwerk Ultra 10x50 – OU)* has become recognised as a good-quality 50mm astronomical binocular and is one that many have used. My observing site is in a reasonably dark suburban location and transparency was very good for the test.

Collimation was, as far as I could ascertain, perfect. The field of view just fails to simultaneously contain *Zeta* and *Eta Ursae Majoris* ( $6.68^\circ$ ), which is consistent with the specified field of  $6.5^\circ$ . The view is good over the central half of the field. Field curvature affects the periphery. *Albireo* (34 arcsec separation, magnitudes +3.1 and +4.7) started to deteriorate at 50% out, but was still just

about recognisable as double to about 70% out from the centre of the field (OU about 75%). Vignetting was obtrusive in the outside 5% of the field of view. Control of false colour (chromatic aberration) is good on axis, but becomes noticeable on bright objects (e.g. Venus or the lunar limb) once they are more than slightly off-axis. It is not noticeable on first magnitude stars near the edge of the field of view.

There is a small amount of pincushion distortion: it is unobtrusive, but is sufficient to eliminate the nauseating “rolling ball” effect that can occur without it. Control of stray light was quite good: there were no spurious “ghost” reflections and only a little glare when a bright streetlight was immediately outside the field of view. This glare was very slightly more than in the OU and contributes to a slightly reduced image contrast: the sky looks slightly less dark in this binocular than in the OU, but I would probably not have noticed this had I not actively been comparing them. In the glare from Jupiter, Ganymede (74 arcsec from the limb of the planet) was extremely difficult, but Europa and Callisto (25 arcsec apart) appeared as a single body, easy to see at 149 arcsec from the planet. The colour rendition is quite good – the colour differences between Arcturus, Spica and Mars were obvious.

“...the two binoculars (were) very similar in what they showed.”

Melotte 111 was delightfully framed in this binocular. M53 was easily visible as a "fuzzy star" with direct vision; M3 was obvious and appeared to grow slightly with averted vision. Comet Catalina was bright and obvious. Emboldened by my success with M53, I decided to try a few galaxies: M94 was quite easy, M63 less so – it needed averted vision and, even then, was only fleetingly visible. M51 was also quite obvious and I decided to try for M101 which was only about  $10^\circ$  from the zenith. It wasn't easy, but it was definitely there, even with direct vision. I found it slightly easier to detect in this than in a good 16x70 that I had with me, probably due to its being more concentrated. Dropping down to Leo, M66 was visible, but I was unable to detect M65, even with averted vision.

I found the two binoculars very similar in what they showed. Using a star-count in a group of stars near Arcturus as a guide to brightness, I found the *Stellar II* to be about 0.2 magnitudes less bright than the *Helios Apollo*.

## Conclusions

I was pleasantly surprised by this binocular. Having recently compared the 70mm version to its BA8 counterpart and finding some significant differences, I was pleased to find that the 50mm versions are much more alike in optical quality. Its eye relief for spectacle wearers is significantly better than that of the *Oberwerk Ultra*.

It is very comfortable to use and, being nearly 500g (1 lb) lighter than the OU, it is far less tiring to hold. Its individual eyepiece focusing makes it suitable for astronomy. Unfortunately, it shares an irritating feature with its 70mm stable-mate: the very loose focus. It is far too easy to accidentally defocus it, although if you do need to fold the eyecups up or down, e.g. for use with spectacles or for different users, you will need to refocus anyway.

It is waterproof and nitrogen-filled so it will not suffer from internal condensation if you use it on humid nights. With the strap, it weighed 1190g which, although not “lightweight”, made it easy to hold for long periods. It feels good and substantial in the hands. It has some very nice touches like the tethered, well-fitting objective caps and a decent padded neck-strap.

I also compared it to a *United Optics BW6 (Strathspey Marine)* 10x50, which retails at a similar price to the *Stellar II*. The *BW6* was slightly sharper but (owing to being internally stopped to an effective aperture of about 41mm) far less bright. It was also heavier.

The *Helios Stellar II* 10x50 is worth considering by someone who wants a full aperture, individual eyepiece focusing 10x50 without breaking the bank.

<b>Binocular Sky Ratings (/10)</b>	
Sharpness of Image	8
Size of usable field	5
Colour Correction	8
Control of stray light	7
Eye relief	10
IPD	9
<b>Overall Optical Quality</b>	<b>7.8</b>
Focus mechanism	4
Eye cups	8
Hinge	8
Armour	8
Weight and balance	8
<b>Overall Mechanical Quality</b>	<b>7.2</b>
Case	4
Neck-strap	10
Objective caps	9
Eyepiece caps	10
<b>Value for Money</b>	<b>9</b>
<b>Overall</b>	<b>8</b>

[Click here](#) to see the [Helios Stellar II 10x50](#) on [The Binocular Shop](#) website

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