

Binocular Sky Review: Helios Stellar II 15x70

Manufacturer's Specification

Weight (g)	1750
Field of View (°)	4.4
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: £179

Available from: [First Light Optics](#)

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 10x50 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.

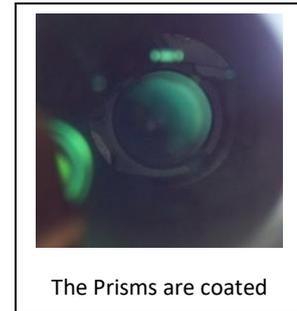


The lens coatings seem to be evenly applied and reduce the amount of reflected light. The manufacturer specifies that the optical transmission is 85%; this seems to be a realistic value. The insides of the objective tubes are ribbed along their entire length, suggesting that control of stray light should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



There are two minuscule cut-off segments in the light path, suggesting that the prisms are very slightly undersized, but not so much as to noticeably dim the image. They do not appear to be grooved on their hypotenuses.

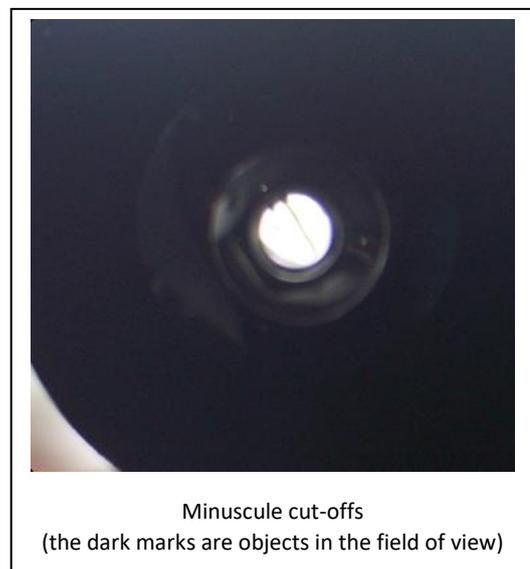
The soft, slightly padded case is sufficient to keep the binocular clean, but will only protect it against the lightest of knocks. The tethered plug-in type objective covers are fit well, and do not come off accidentally. The eyepieces have a tetherable (left hand side) double rainguard-type cover that fits securely. It does not restrict the interpupillary distance when it is in place.



The Prisms are coated

Testing the Specifications

The aperture is the full 70mm 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 74.5 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 11 mm into their barrels, offering some protection against accidental touching, but insufficient for dew protection. With fully-corrected vision, the eyepiece dioptres are set close to zero when you focus 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.



Minuscule cut-offs
(the dark marks are objects in the field of view)

Under the Stars

For testing, which involved a comparison with other binoculars, I mounted the binocular on a *Manfrotto #475B* tripod with a #222 trigger-grip (aka joystick) head. For normal observing, I use a monopod instead of a tripod, but this is less satisfactory when doing comparisons. I compared this to a *Helios Apollo* 15x70 (HA), which has become recognised as a good-quality 70mm astronomical binocular and is one that many have used. My observing site is in a reasonably dark suburban location.

“The colour differences between *Mu*, *Zeta*, *Lambda* and *Delta Cephei* were obvious.”

Collimation was, as far as I could ascertain, perfect. The field of view just contains *Zeta* and *Epsilon Ursae Majoris* (4.36°), which is consistent with the specified field of 4.4°. The view is good over the central half of the field. Field curvature, astigmatism and coma affect the periphery. *Delta Cephei* (40 arcsec separation, magnitudes +4.1 and +6.1) started to deteriorate at 40% out, but was still splittable to about 50% out from the centre of the field (HA 75%). I could detect very little vignetting towards the edge. 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 even slightly off-axis. It is 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 disappointing: a bright blue-rich white streetlight or a gibbous Moon gave spurious “ghost” reflections when they were within and immediately outside the field of view. This reduces the image contrast in this binocular. The colour rendition is quite good – the colour differences between *Mu*, *Zeta*, *Lambda* and *Delta Cephei* were obvious. The Andromeda Galaxy was bright and showed shape and very good differentiation of the core; I could distinguish a sharper cut-off in brightness from the dust lane at the nearer edge. The Orion Nebula showed a lot of detail, but was slightly less bright than in the HA. I could fleetingly distinguish two stars of the Trapezium (17 arcsec) when the seeing settled momentarily. Using a star-count in NGC 1981 as a guide to brightness, I found the *Stellar II* to be about 0.3 magnitudes less bright than the *Helios Apollo*.

Conclusions

This is a mixed bag. As well as the *Helios Apollo*, I also compared it to one of the common budget 15x70s (that are internally stopped to 62mm); the *Stellar II* is clearly a better binocular and is a good half magnitude brighter and has a larger area in which the image is good. It also has much better colour correction and better control of stray light. Its eye relief for spectacle wearers is significantly better than that of the *Helios Apollo*.

It is comfortable to use and has decent eye relief. Its individual eyepiece focusing makes it suitable for astronomy. Being waterproof and nitrogen-filled it will not suffer from internal condensation if you use it on humid nights. With the strap, it weighed 1915g, which

Binocular Sky Ratings (/10)	
Sharpness of image	8
Size of usable field	5.5
Colour Correction	8
Control of stray light	6
Eye relief	10
IPD	9
Overall Optical Quality	7.8
Focus mechanism	4
Eye cups	8
Hinge	8
Overall Mechanical Quality	6.7
Case	4
Neck-strap	10
Objective caps	10
Eyepiece caps	10
Value for Money	7
Overall	7.5

means it can be hand-held for short periods, although it really needs to be mounted, and is light enough not to need a particularly substantial mount. It has some very nice touches like the tethered, well-fitting objective caps and a decent padded neck-strap.

Its most irritating feature is the very loose focus: it is simply 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.

The *Helios Stellar II* is worth considering by someone who wants a good step up in quality from the budget 15x70s, has a budget between £150 and £200, and for whom its shortcomings are merely minor irritants.

[Click here](#) to see the [Helios Stellar II 15x70](#) on [First Light Optics](#) website

Stephen Tonkin

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