

Binocular Sky Review: Helios LightQuest-HR 10x50

Manufacturer's Specification

Weight (g)	1320
Field of View (°)	6.5
Eye Relief (mm)	20
IPD (mm)	56-74
Waterproof	Yes (IPX7)
Prism Type	Porro
UK Guarantee	Not specified
Origin	China
Body Material	Magnesium Alloy
Armour Type	Thin synthetic "leatherette"
Nitrogen Gas Filled	Yes
Prism Material	BaK4
Prism Coating	Fully multi-coated
Lens Coating	Fully multi-coated
Eyecup Type	Fold down



Price: £269

Available from: [First Light Optics](#)

Initial Impressions

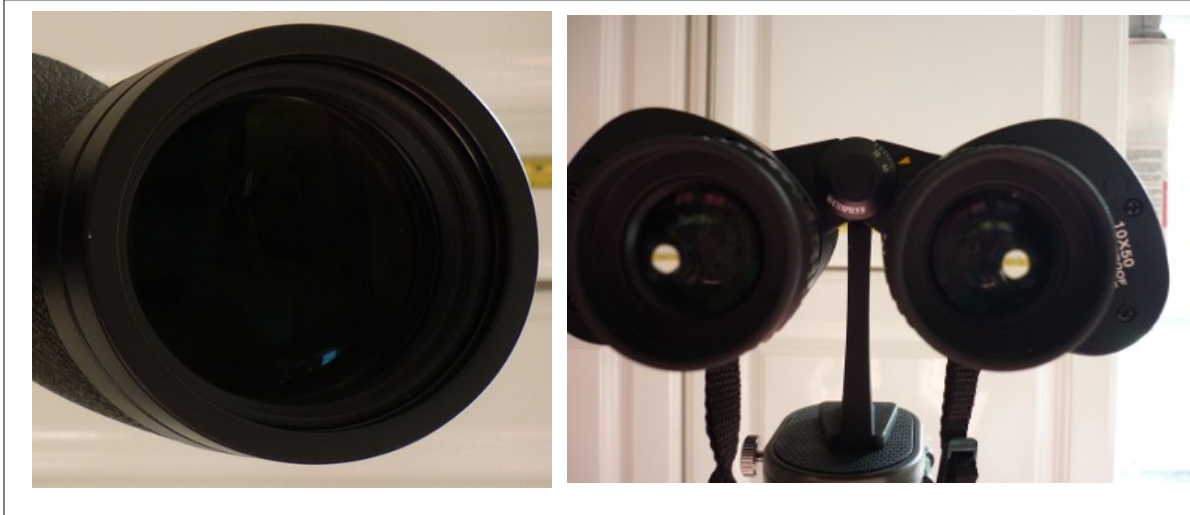
The binocular is of Bausch&Lomb (aka "American")-type construction, i.e. the objective tube is integral to the prism housing. It is similar in appearance to the [Lunt Magnesium 10x50](#); the only immediately obvious differences are the colour of the band on the metal ring around the objective and the dominant colour reflected by the coatings of the objectives and eyepieces.



Like the Lunt, the binocular is covered in a thin synthetic "leatherette"-type armour, which gives a secure grip with or without gloves. The eyepiece focusing is smooth, with no "stiction" and is sufficiently stiff to prevent accidental refocusing, especially when folding down the eye cups. There is a knurled ring on each eyepiece; this makes it easy to focus with gloved fingers. The hinge is smooth and tight enough not to accidentally slip once it is adjusted or when you are adjusting the focus. The eye-cups fold down easily.

The prisms are housed in a proper "cage" and are not merely held in place with clips. They do not appear to be grooved on their hypotenuses.

The coatings look very good and reflect only a small amount of light (green dominant). The insides of the objective tubes are ribbed along their entire length, suggesting that control of stray light should be good. There are no cut-offs in the light path, suggesting that the prisms are adequately sized.



The cordura case is quite stiff and has enough padding to protect the binocular from knocks it might get in reasonable use. The strap attaches to the case with side-release buckle clips and is therefore easily removable. There are substantial belt/harness loops on the back of the case. The case closes with a side-release buckle, not the hook-and-loop fasteners that are nowadays ubiquitous. The untethered plug-in type objective covers are an excellent fit, and do not come off accidentally; they are fitted with tabs to aid removal. 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 binocular is also provided with a sturdy metal tripod adaptor.

Testing the Specifications

As you would expect with a binocular of this quality, 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 spec. There are no grey segments in the exit pupil, confirming that the prisms are of high-index glass. I measured the minimum interpupillary distance at 56 mm, but with the included tripod adaptor in place it is only 57mm. This is because the tripod mounting bush is recessed between the prism housings and the adaptor is pinched between them. The eye cups are 46 mm diameter, so there is 10 mm between them at their closest (11mm when mounted); this should accommodate most people's noses. The objective lenses are recessed 14mm into their barrels, offering good 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 3mm into their housings so, with the eye-cups folded down, there is 17mm 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, which involved a comparison with other binoculars, I both hand-held it and mounted it on an [Amazon Basics tripod with a 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 [Lunt Magnesium 10x50](#), which has become my 10x50 of choice for astronomy, and a United Optics BA8 (branded Oberwek Ultra). My observing site is in a reasonably dark suburban location.

Collimation was, as far as I could ascertain, spot on. The field of view just fails to contain Alkaid and Mizar (6.7°), which is consistent with the specified field of 6.5°. The view is very sharp and flat over the central 80% of the field. Field curvature affects the periphery. Delta Cephei (40 arcsec separation, magnitudes +4.1 and +6.1) was still cleanly split to about 85% out from the centre of the field (about the same as the Lunt, better than the Obie). There was noticeable vignetting in the outer 5% or so of the field of view. Control of false colour (chromatic aberration) is very good on axis, but becomes noticeable on bright objects (e.g. Venus or the lunar limb) once they are off-axis, although it is still well-controlled and not overly obtrusive here. I did not notice it at all on first magnitude stars, although the colour of Mu Cephei seemed to change slightly towards the edge. Colour correction is quite sensitive to eye positioning: you do need to ensure your eyes are on-axis to get the best of this.

“The Orion Nebula looked delightfully crisp and bright...”

There is an unobtrusive amount of pincushion distortion, just sufficient to eliminate the nauseating “rolling ball” effect that can occur without it. Control of stray light from objects in the field of view is good but when Venus was to the side and below the field of view, I noticed obtrusive streaks of light at 45°, the angle suggesting that they are produced by prism edges. In the Lunt, Venus in the same place produced very faint points of light, suggesting that the difference in the appearance of the coatings is not merely cosmetic. These spurious reflections were also apparent with the Moon and first magnitude stars in a similar position, but I could not detect them with second magnitude stars. However, even if they are not visible, they must slightly reduce contrast. Colour rendition was good. The varied colours of the stars in the Meissa cluster was indistinguishable from that in the Lunt, and marginally better than in the Obie. I also compared the binoculars on NGC 1981, Cr70, M45 and M94 and the LightQuest held up very well indeed. Where I could distinguish a difference is with globular clusters. M3 and M53 (especially the latter) were subtly less bright than in the Lunt and did not grow and brighten to the same extent with averted vision.

Binocular Sky Ratings (/10)	
Sharpness of Image	10
Size of usable field	9.2
Colour Correction	8
Control of stray light	7
Eye relief	10
IPD	10
Overall Optical Quality	9.0
Focus mechanism	10
Eye cups	8
Hinge	10
Armour	9
Weight and balance	9
Overall Mechanical Quality	9.2
Case	7
Neck-strap	10
Objective caps	8
Eyepiece caps	10
Value for Money	9.5
Overall	9.2

Please note, though, that this difference was slight and I'd probably not have noticed it had I not been actively seeking subtle differences.

The Orion Nebula looked delightfully crisp and bright; the more I looked, the more structure became apparent. The binoculars are sufficiently light weight to permit this sort of long, hand-held examination.

Conclusions

Priced between the Obie and the Lunt, you would expect its quality to be between the two, and indeed it is. However, please be aware that, at this end of the market, incremental improvements in quality become increasingly more expensive, and you would not expect to see enormous differences. They are 200g (7 oz, 12.5%) lighter than the Obie and it makes a noticeable difference to the ease of holding them for extended periods. The effective eye relief is greater than the Obie, making it much more suitable for spectacle wearers, and the eye-cups are a bit more comfortable. Apart from the streaks of uncontrolled light, it is nearly as good as the Lunt.

This binocular would be a good purchase for someone who wants a very good astronomical 10x50 for hand-held use but does not want to stretch to the extra £100 that would buy the mostly subtle improvements in the Lunt. At its price of £269, I think the [Helios LightQuest-HR 10x50](#) is very good value for money.

Stephen Tonkin
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