

Binocular Sky Review: Celestron SkyMaster Pro 15 x70

Manufacturer's Specification

Weight (g)	1702
Field of View (°)	4.4
Eye Relief (mm)	17
IPD (mm)	54-73
Waterproof	Yes
Prism Type	Porro
UK Guarantee	Limited Lifetime
Origin	China
Body Material	Polycarbonate and Aluminium
Armour Type	Rubber
Nitrogen Gas Filled	Yes
Prism Material	BaK-4
Prism Coating	Multi-coated
Lens Coating	Fully multi-coated
Eyecup Type	Fold down, changeable



Price: £125

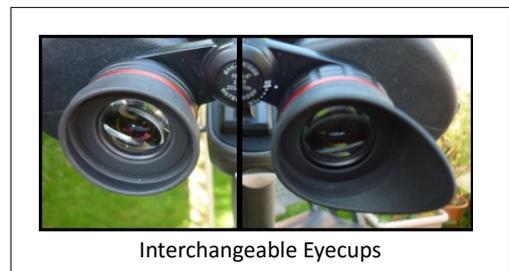
Available from: [First Light Optics](#)

Initial Impressions

The binocular is of Zeiss (aka “European”)-type construction, i.e. the objective tubes screw into the prism housing. It is covered in a robust, textured rubber armour, which gives a secure grip with or without gloves. The centre-focus is smooth throughout its range, with no “stiction” and is sufficiently stiff to prevent accidental refocusing. There is a knurled ring on the right eyepiece; this makes it easy to adjust the dioptre 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 interchangeable eyecups (“normal” and “winged”) fold down easily, but the winged ones tended to come adrift when they were folded up again.

The prisms appear to be housed in a proper “cage” and not merely held in place with clips. Original collimation appears to be achieved through a system of pairs of push-pull screws in the prism housing. There does not appear to be any facility for user-collimation.

The coatings look very good and reflect only a small amount of light (purple 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.



Interchangeable Eyecups

The cordura-type case is quite stiff and has enough padding to protect the binocular from knocks it might get in reasonable use. The strap attaches to D-rings on the case with spring 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 tethered objective covers are an excellent fit, 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.

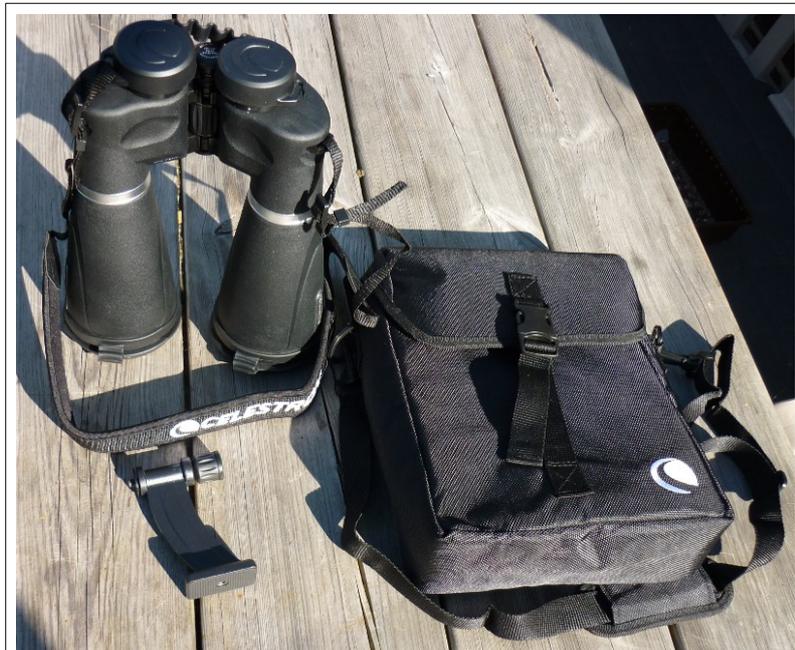


Effective anti-reflective coatings

The binocular is also provided with a sturdy metal tripod adaptor and a removable rail for a red dot finder.

Testing the Specifications

I was delighted to discover that the aperture is the full 70mm and is not internally stopped down. 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 54 mm; this is not restricted by the use of the tripod adaptor. The soft rubber eye cups are 45 mm diameter, so there is 9 mm between them at their closest ; this should accommodate most people's noses. The objective lenses are recessed 11.5 mm into their barrels, offering good protection against accidental touching, but insufficient for dew protection. With fully-corrected vision, the right eyepiece dioptre adjustment is set close to zero when you focus to infinity, suggesting that it has been set properly. There is a nominal 4-dioptre adjustment available either side of this, so the binocular could be used without spectacles by people whose eyes have different focus errors, as long as the left side can be brought to focus. There is a small amount of "beyond infinity" range on the centre-focus, so the binocular is suitable for spectacle-free use by people with mild to moderate myopia and with moderate to strong hypermetropia/presbyopia. For those who do need spectacles, the eye lenses are recessed 3mm into their housings so, with the eye-cups folded down,



Good quality accessories

there is 14mm of the specified 17mm eye relief available. I found this to be just adequate to enable the entire field of view to be visible with my spectacles.

Under the Stars

For testing, I mounted it on an [Amazon Basics tripod with a trigger-grip \(aka joystick\) head](#). For normal observing with a 70mm binocular, I use a monopod instead of a tripod, but this is less satisfactory when doing rigorous testing.

“The RDF makes aiming very much easier..”

Most people find it more difficult to aim a mounted binocular than a hand-held one. The red dot finder rail allows you to mount a Celestron or SkyWatcher-type RDF and, once it is properly aligned, this makes aiming very much easier. However, you do need to be careful: it is quite easy to bump it out of alignment.

The option of winged eye-cups is a nice idea, and they do protect against stray light from the side, but they are a little fiddly to use and tend to come off when you fold them up (they need to be folded down to put the eyepiece covers on).

Collimation was, as far as I could ascertain, perfect. The field of view only just contains *Polaris* and *Epsilon Ursae Minoris* (4.36°), which is consistent with the specified field of 4.4° . The view is very sharp and flat over the central half of the field, but aberrations combine to affect it outside of this. *Delta Cephei* (40 arcsec separation, magnitudes +4.1 and +6.1) started to deteriorate noticeably at 50% out, but was still cleanly split to about 75% out from the centre of the field if I focused out the field curvature. There was noticeable vignetting in the outer 10% or so of the field of view. Control of false colour (chromatic aberration) is good on axis, but becomes noticeable on bright objects (e.g. the lunar terminator and limb) once they are off-axis. Colour correction is very sensitive to eye positioning: you do need to ensure your eyes are on-axis to get the best of this.

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 the first quarter Moon was just outside the field of view, I noticed spurious reflections on the opposite side of the field of view. A similar effect was only just perceptible on *Vega*. Colour rendition was very good. The varied colours of the stars in the Meissa cluster in Orion were obvious. M51 looked elongated but did not show any core condensations with averted vision. 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 began to show structure, despite being low in the sky at the time of testing; I could fleetingly see two Trapezium stars (17 arcsec).

Jupiter showed a clean disc, with no markings, but with the four Galilean satellites well-defined either side of it. Uranus appeared turquoise.

Conclusions

This is a unique binocular with some interesting features, of which the detachable RDF rail is easily the most useful. The only irritant is the tendency of

“... good value for money in a ‘step up from entry-level’ astronomical binocular.”

the winged eye-cups to become dislodged when folded up. Taken as a whole, it is a pleasure to use, has a sturdy feel, and is generally a capable binocular. It is a significant improvement on the ubiquitous budget 15x70s, having brighter, sharper images and better colour rendition and colour correction. Its “sweet spot” is approximately the same size as that of other similarly priced 70mm binoculars.

Being waterproof and nitrogen-filled it will not suffer from internal condensation if you use it on humid nights. It weighs 1702g, which means it can be hand-held for short periods, although it really needs to be mounted, but is light enough not to need a particularly substantial mount.

This binocular would be an excellent purchase for someone who has discovered the limitations of budget 15x70s but does not want to three or more times as much for a premium 70mm astronomical binocular, and who especially likes the convenience of centre-focus, which would be useful if you are going to use it for, say, wildlife observing.

At its current discounted price of £125, I think the [Celestron Skymaster Pro 15x70](#) is very good value for money in a ‘step up from entry-level’ astronomical binocular.

Thanks to [First Light Optics](#) and [Celestron UK](#) for arranging the loan of the review binocular.

Binocular Sky Ratings (/10)	
Sharpness of Image	8
Size of usable field	5.5
Colour Correction	7
Control of stray light	7
Eye relief	8
IPD	10
Overall Optical Quality	7.6
Focus mechanism	10
Eye cups	7
Hinge	10
Armour	10
Weight and balance	9
Overall Mechanical Quality	9.3
Case	7
Neck-strap	10
Objective caps	10
Eyepiece caps	10
Value for Money	9
Overall	8.6

Stephen Tonkin
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