

# FIRST light

See an interactive 360° model of these binoculars at [www.skyatnightmagazine.com/vixenbt70s](http://www.skyatnightmagazine.com/vixenbt70s)



## Vixen BT-ED70S-A binocular telescope

Splendid optics and interchangeable eyepieces define Vixen's latest

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### VITAL STATS

- **Price** £1,995
- **Optics** Fully multicoated
- **Aperture** 70mm (2.75 inches)
- **Focal length** 400mm (f/5.7)
- **Visual back** 31.7mm push-fit
- **Focusing** Individual eyepiece
- **Interpupillary distance** 58-102mm
- **Weight** 4kg
- **Supplier** Opticron
- **www.opticron.co.uk**
- **Tel** 01582 726522

ALL PHOTOS: WWW.THESCREETUDIO.NET

The use of extra-low dispersion (ED) and abnormal dispersion glass in binoculars has, when used properly, led to superb optics with near-apochromatic qualities.

We were looking forward to seeing whether that was the case with this 70mm binocular telescope from Vixen. The BT-ED70S is supplied with a double-sided A4 instruction sheet, but not with eyepieces, a finderscope or a protective carry case.

This instrument is finished in a gloss-white enamel, with smart metallic blue rings around the objective lenses. There is a carry handle above the centre of mass and an accessory shoe on the left optical tube. This shoe is ideally placed for those who prefer to put their right eye to a finderscope, as it keeps your breath away from the eyepieces.

### Early observations

The binoculars have independent, very smoothly operating helical focusers mounted in rotatable prism housings: turning these housings sets the interpupillary distance, which ranges from 58mm to 102mm. The housings are a little stiff, but very

smooth to adjust. Their stiffness is essential to prevent them from rotating once the individual eyepieces are focused.

For testing, we mounted the binoculars on a Manfrotto 501 fluid head and a Universal

### SKY SAYS...

Despite some minor design imperfections, this is an outstanding binocular telescope

Astronomics T-Mount (a sturdy parallelogram). You also need matching eyepieces and for the purposes of this review we were loaned pairs of 10mm (40x magnification) and 20mm (20x) Vixen NLV eyepieces and a pair of 22mm (18x) Vixen LVW eyepieces. All of these eyepieces had sufficient eye relief for use with spectacles. When you change the eyepieces, the prism assemblies are open to the

elements. You will therefore need to minimise the changeover time to prevent damp air and dust from entering the optical tubes. We also noticed a small amount of miscollimation, but this did not preclude the merging of images with any of the eyepieces. ▶

### SHARP HIGH-CONTRAST OPTICS

The excellent quality of the optics was immediately obvious when we first looked through the BT-ED70S-A – images snap to a precise focus, which is enhanced by the good contrast. Our first target with the 20mm eyepieces was the Orion Nebula and we saw exquisite detail. In moments of steady seeing, we were able to see all four members of the Trapezium Cluster within it easily. The closest stars are separated by 8.6 arcseconds, so this is a good test. In the 10mm eyepieces, the split was obvious and did not need the seeing to settle; in the 22mm eyepieces, the split was less obvious. The fan-shaped nebulosity in M78 was easily identifiable in all of the eyepieces. The Moon, meanwhile, was a good test of colour correction – we didn't see any fringing at all when we viewed it on-axis, and an almost imperceptible amount off-axis through the 22mm eyepieces.

### MOUNTING BAR

The integral mounting bar is very versatile. It has three threads – two 1/4-inch and one 3/8-inch – which allow the binoculars to be mounted on a standard photographic tripod or video head. The bar itself has a dovetail profile, so it can be attached on a variety of astronomical mounts.



### CARRY HANDLE

The value of a carry handle is underestimated until it is absent. Transporting an instrument such as this and manoeuvring it onto and off of a mount – especially in the dark with cold gloved hands – is much more difficult than it is with the single telescope tube.



### MULTICOATINGS

We were impressed with the quality of the multicoatings on the objective lenses. Reflections were minimal, indicating that light transmission is maximised. This led to the bright, crisp images that we saw in the eyepieces.



### RECESSED LENSES

The objective lenses are recessed 8cm into the optical tubes. This reduces glare, helping to maintain contrast. It also offers some protection against dew formation, but needs augmenting with extensions or dew heaters for long sessions on humid nights. The recessing also reduces the likelihood that you'll touch the lenses inadvertently.

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## SKY SAYS...

Now add these:

1. Pair of NLV 20mm eyepieces
2. 7x50 finderscope
3. HF2 fork mount with SXG-HAL130 tripod



## INTERCHANGEABLE EYEPIECES

Interchangeable eyepieces are de rigeur for a serious binocular telescope as this allows for maximum flexibility in order to suit personal preferences and observing conditions. The BT-ED70S-A accepts standard astronomical eyepieces, the type that can be fitted with suitable light-pollution or coloured filters if desired.

► We tested the binoculars on a range of objects, ranging from faint nebulae to bright planets. With the 20mm eyepieces, star images were pin-sharp to the edge of the field of view with no discernible field curvature. We saw a minuscule (you had to look for it) amount of off-axis false colour on the lunar limb, but none on Jupiter.

## Comparing the Moon

Using the 10mm eyepieces, star images were sharp to the edge of the field and the extra magnification improved contrast compared to the 20mm. We saw crisp detail on the lunar terminator, right to the edge of the field of view. The 22mm eyepieces gave us sharp star images over almost all of the view, but they softened very slightly at the extreme edges. There was also very slightly less contrast than in the other eyepieces, but we probably would not have noticed this had it not been a direct comparison.

When we panned from the Moon to Jupiter, we discovered the only noticeable flaw: about 3° either side of the Moon, a series of overlapping ghost images of it fleetingly appeared on the Moonward side of the field of view. These were probably spurious reflections off the prisms and were the reason we docked a point off the design score. We did not notice this at any other time and it was not apparent when we were actually observing the Moon.

Despite some minor design imperfections, this is an outstanding binocular telescope and it gives truly splendid images. It is best suited to an experienced astronomer who wants a very portable but optically superior instrument. **S**



## VERDICT

BUILD AND DESIGN	★★★★★
EASE OF USE	★★★★★
EYE RELIEF	★★★★★
FEATURES	★★★★★
OPTICS	★★★★★
OVERALL	★★★★★