

## 3.7mm ETHOS-SX EYEPIECE INSTRUCTIONS



*Warning: Do not unscrew any sections of the eyepiece, as the lenses may fall out, thereby voiding the warranty.*

### **3.7mm ETHOS-SX 110° (Simulator eXperience)**

Apparent Field: 110°  
 Focal length: 3.7mm  
 Effective Field Stop: 7.0mm  
 Eye Relief: 15mm (accepts Tele Vue's Dioptrx astigmatism corrector)  
 Barrel Diameter: 56mm  
 Parfocal: with Tele Vue 1¼" eyepieces  
 Barrel Size: 1¼", with 2" adapter included  
 Weight: 1.1 lbs., adapter/stand: 2oz

Thank you for purchasing the Tele Vue 3.7mm ETHOS-SX, which fits both 2" and 1¼" focusers or diagonals. In 2" mode it is parfocal with 10mm and 13mm Ethos. As a 1¼" eyepiece, it's parfocal with Tele Vue Plössls, Radians, Type 6 Naglers, Nagler Zooms, and 1¼" Panoptics.

Since it is designed as a 1¼" eyepiece, there is NO optical benefit to using a 2" holder. The 2" adapter is included just for convenience, but it is also threaded to accept our 48mm filters.

**For 1¼" holders:** Just unscrew the 2" adapter.

**For 2" holders:** Just leave the 2" adapter attached. When re-attaching, screw on until it stops. Do not tighten!

**For Newtonians/Dobsonians:** This eyepiece is very well corrected over the full field. With mirrors faster than f/4, you may wish to consider a Tele Vue Paracorr Type 2 to correct coma, which is usually more visible with longer focal length eyepieces.

If you have eyesight astigmatism, you can add Tele Vue's Dioptrx Astigmatism Corrector to ETHOS, instead of using eyeglasses, to get the sharpest view possible (check dioptrx.com for more details). However, unless you have substantial astigmatism such as 2 diopters, and a fast scope, such as f/4, you are not likely to need Dioptrx with this short focal length eyepiece.

We wish you years of exciting viewing with the 3.7mm ETHOS-SX, and we welcome comments on your personal experiences.

Here's a summary of performance with Tele Vue scopes:



Telescope	Mag. (x)	True Field (°)	Exit pupil (mm)
TV-60, TV-60is	97.3	1.12	0.62
TV-76	129.7	0.84	0.59
NP-101, NP-101is	145.9	0.75	0.69
TV-85	162.2	0.67	0.52
NP-127is	178.4	0.61	0.71
TV-102, TV-102iis	237.8	0.46	0.43

### Approximate dimensions of 3.7mm ETHOS-SX

- A. Length of barrel above reference surface (5")**
- B. Length below reference surface (1.1")**
- D. Diameter of black barrel (2.2")**
- F. Approx. location of field stop (0.25")**

## 3.7mm ETHOS-SX 110° ORIGINS

Al Nagler eagerly pushed Ethos designer Paul Dellechiaie to extend the new 3.7mm focal length to reach 110°, the same field as the LEM Simulator optics Al designed 45-years ago to train NASA astronauts for lunar landings (See picture below). Years after the LEM program, the memory of the 110° view of the simulated lunar surface moving through the triangular cabin window of the LEM inspired Al to develop an “Ultra Wide Angle” (his patent title) telescope eyepiece to approach that “simulator experience.” When the 82° Nagler eyepiece hit the observing fields, it changed how amateur astronomers viewed the heavens. An early customer dubbed it a “spacewalk” view.

Essentially, “the experience” is about creating an image as natural as one sees with the unaided eye. With Paul's help, Al's initial dream for amateur astronomers is now fully realized. The 3.7mm Ethos-SX is designed and crafted to combine its exceedingly wide field of view with all the contrast, color-rendition, distortion correction and center-to-edge sharpness needed to achieve that natural view.

Beyond the desire to simply achieve 110°, the extended field of view gave Tele Vue the ability to produce a superb planetary eyepiece with a deep sky true field of view that logically fits within the rest of the Ethos eyepiece line. With 110°, the Ethos-SX has 21% more AFOV area than the 100° Ethos design. This permits a nice 62% power increase from a 6mm Ethos, while retaining 68% of its TFOV. The 3.7mm actually has more TFOV than our 8mm Plössl, 6mm Radian, and 5mm Nagler Type-6!

We don't think we can aptly describe Al's original experience of “flying over the moon,” but for the first time, YOU can experience what the astronauts saw four decades ago.

### Apollo Lunar Excursion Module (LEM) Simulator



Seen at left is one of the Infinity Display Projectors that fit over the LEM simulator. A separate unit was required for each window of the spacecraft. You can see why the astronauts affectionately dubbed the full collection of simulators for the Apollo mission “The Great Train Wreck!”

The optical design consisted of a series of six-foot mirrors, beam splitters, and a three-foot lens. It took a televised image of the lunar surface along with a separate background star field and projected the combined image to infinity. The triangular compressor lens (seen at left) was positioned against the triangular window of the simulated LEM cabin. The Infinity Display Projectors essentially acted as giant 110° eyepieces, each with a 12” exit pupil and 12” eye-relief. So, at one-foot from the window, the astronauts saw a 110° field of view through the windows corners.

And, you thought the new Tele Vue 3.7mm Ethos-SX was big. Imagine *that* hanging off your telescope!