



# ASTRO-TECH

## AT127EDT from Astronomy Technologies

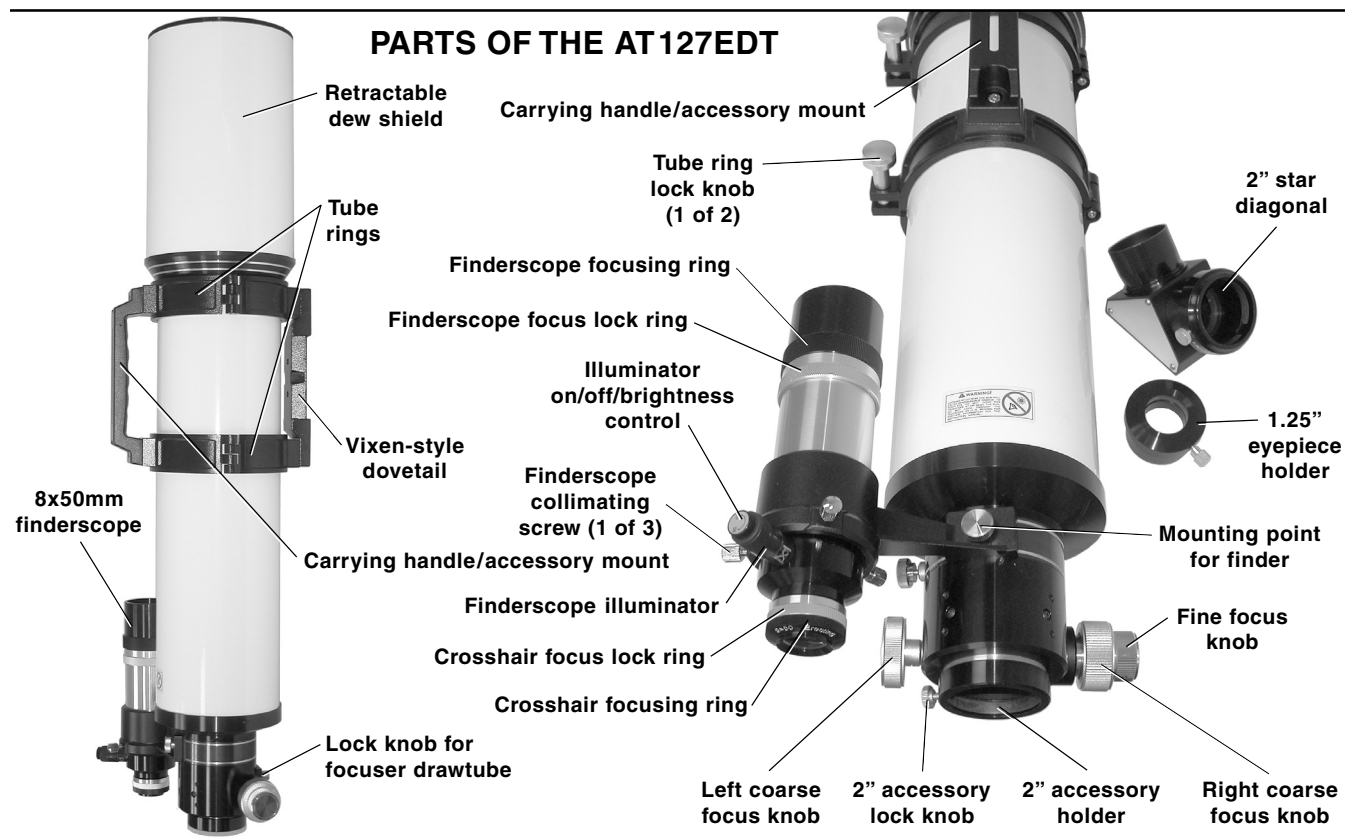
Thank you for choosing this **Astro-Tech AT127EDT** ED triplet refractor.

The lenses in your scope's 950mm f/7.5 air-spaced triplet optics include an advanced ED (Extra-low Dispersion) glass element to give you images that are virtually color-free, even at very high powers. Thanks to its computer-optimized optical design, quality ED glass, and high transmission multicoatings, the optical

performance of your AT127EDT is very impressive for its very reasonable price.

This instruction sheet will provide you with information on how to get the most out of your new Astro-Tech refractor, and how to properly maintain it so it can give you a lifetime of observing enjoyment.

Please familiarize yourself with the parts and functions of your AT127EDT before using it for the first time.



### Astro-Tech AT127EDT ED Triplet Refractor Specifications

**Aperture** ..... 127mm (5")  
**Focal Length** ..... 950mm  
**Focal Ratio** ..... f/7.5  
**Objective Type** ..... air-spaced triplet  
**Optical Coatings** ..... fully multicoated  
**Resolving Power** (Dawes' Limit) ..... 0.91 arc seconds  
**Visual Limiting Magnitude** ..... 13.0 maximum  
**Light Grasp** (versus the eye) ..... 329x  
**Field Stops** ..... two internal knife-edge baffles  
**Focuser** ..... dual-speed rack and pinion with 10:1 reduction ratio fine focus and 2" and 1.25" compression ring eyepiece holders  
**Focuser Travel** ..... 4.25" (108mm)  
**Finder** ..... 8 x 50mm with erect right-reading image and variable brightness illuminated crosshair reticle  
**Lens Shade** ..... retractable

**Lens Shade Outer Diameter** ..... 156mm  
**Objective Lens Cover** ..... thread-in metal  
**Tube Diameter** ..... 130mm o. d.  
**Tube Rings** .... dual split hinged rings with Vixen-style dovetail and carrying handle/accessory mount  
**Tube Length** (lens shade retracted) ..... 33.25" (845mm)  
**Tube Length** (lens shade extended) ..... 37.25" (946mm)  
**Optical Tube Weight** ..... 18.75 lbs. (8.52 kg)  
**Case** ..... aluminum-frame foam-fitted lockable hard case, with carrying handle  
**Case Dimensions** ..... 36.5" x 14.5" x 10"  
**Lowest Usable Power** ..... 19x (50mm eyepiece)  
**Highest Practical Power** ..... 238x (4mm eyepiece)  
**Theoretical Maximum** ..... 271x (3.5mm eyepiece)  
**Supplied Accessories** ..... 10mm and 20mm 1.25" eyepieces; enhanced 99% reflectivity 2" diagonal

**Eyepieces and Star Diagonals:** Your Astro-Tech AT127EDT includes two 1.25" wide field eyepieces, a 2" enhanced reflectivity non-marring compression ring star diagonal, and a 1.25" non-marring compression ring eyepiece adapter so you can start observing immediately. In addition, any brand or type of eyepiece can be used with the scope, from a 50mm 2" for the lowest practical magnification (19x) to a 3.5mm (271x) for very high power use.

The focal length of the AT127EDT is ideal for low to medium power wide-angle views of nebulas, open star clusters, large galaxies, and comets. Crisp views of the Moon and planets are also routine at magnifications of 95x to 190x when seeing conditions permit.

To calculate the magnification of your telescope and eyepiece combination, divide the telescope focal length in mm by the eyepiece focal length in mm. For example, a 10mm eyepiece in the AT127EDT will give you a magnification of 95x (950mm/10mm = 95).

**Mounting the AT127EDT:** A stable mount is essential for best viewing. The scope is supplied with 130mm i. d. split rings and a detachable Vixen-style dovetail bar. These will let you mount your AT127EDT on a German equatorial mount (such as a Celestron Advanced Series or Meade LX-75 go-to mount, or a Vixen Polaris or Great Polaris equatorial or Sphinx go-to mount) for serious astronomical observing. The AT127EDT can also be used on a suitable sturdy altazimuth mount.

Keep in mind that the AT127EDT with 2" diagonal and a 2" eyepiece can weigh as much as 24 pounds, so pay particular attention to the payload capacity of the mount you choose.

**Astronomical Observing:** The theoretical maximum usable power available from this telescope is 271x, although this requires a 3.5mm eyepiece that provides a very dim 0.47mm diameter exit pupil. Still higher powers are within the scope's capabilities, but require truly excellent seeing conditions and the patience to wait for those conditions to make their brief and infrequent appearances.

A more practical maximum magnification for astronomical viewing with the AT127EDT would be 238x, using a 4mm eyepiece. Keep in mind that seeing conditions play an important role in how high a magnification you can use on any given night. Only very good seeing conditions (clear skies and calm air) will support viewing at 238x. Under less than ideal conditions, lower powers in the 95x to 158x range provide more consistently usable and pleasing images.

The widest possible field of view with a 1.25" eyepiece is about 2.2°, which can be achieved with a 24x (40mm) Plössl eyepiece yielding a 5.33mm exit pupil. A 2" wide field eyepiece, such as the 40mm TMB Paragon, will give a 2.9° field at the same 24x power.

The AT127EDT does an outstanding job as an astrograph for 35mm and CCD imaging. A large chrome lock knob on underside of the focuser lets you lock the position of the extra-long 108mm travel rack and pinion focuser drawtube at a sharp focus for photography.

**The Finderscope:** The AT127EDT comes with a straight-through viewing 8 x 50mm illuminated crosshair finderscope. Unlike most finders, that show images that are upside down and backwards, the AT127EDT finder images are upright and right-reading (the star patterns in the finder are oriented the same way you see them with your bare eye).

The finder has two ribbed rings just behind its lens shade. The black ring in front focuses the finder on infinity to match your eyesight. The silver ring locks the desired focus in place. The focuser is set at a standard infinity focus at the factory. However, if the stars are not sharp for your individual eyesight, loosen the silver lock ring and turn the black focus ring back and forth until the stars appear sharp. Then turn the silver ring until it snugs up against the black focus ring to lock in the focus for your eyesight.

The finder has also has two ribbed rings on the eyepiece. The black ring at the rear adjusts the sharpness of the finderscope crosshairs to match your eyesight. The silver ring locks the desired crosshair focus in place. The crosshairs are set for a standard focus at the factory. However, if the crosshairs don't look sharp to you, loosen the silver lock ring and turn the black focus ring until the crosshairs are sharp for your particular eyesight. Then turn the silver ring until it snugs up against the black focus ring to lock in the focus for your eyesight.

Attach the finderscope bracket to the scope using the large chrome knob on the top of the focuser body. There are three collimating screws on the finderscope bracket to line up the finder crosshairs with the center of the eyepiece field.

As supplied, the finderscope will be positioned on the left side of the scope. If you'd prefer to have it on the right, reverse the finder in the bracket by unthreading the illuminator from the eyepiece, loosen the

three collimating screws, slide the finder out of the bracket, turn it 180°, and slide it back into the bracket. Reinstall the illuminator and tighten the collimating screws. Bolt the bracket into the same top hole on the focuser and the finder will now be on the right.

The finderscope illuminator uses two LR41 button-type batteries, available at most Wal-Mart, drug, and camera stores. You access the battery compartment by firmly holding the smooth base of the illuminator while you unthread the ribbed top portion counterclockwise. When installing new batteries, be sure the + marking on the batteries are facing up as you drop them in the battery compartment. Turn the illuminator off when not using the finder to conserve battery life.

**Caring for Your Scope Optics:** Never store the telescope in a damp or humid environment. Avoid leaving it in a hot environment (exposed to direct sunlight on a window sill, in a car trunk, etc.) If you must store it in high humidity conditions, put a few packets of desiccant (silica gel or the equivalent, available from most camera stores) in with the telescope to absorb excess moisture. If not properly stored in a humid environment, the telescope may develop mildew which can damage the optics.

If dew has formed on the scope after a night of observing, allow the scope optics to air dry at room temperature before putting the lens cover on the scope and storing it away.

If the lens becomes dusty, smeared, or shows fingerprints or any other surface build-up, clean it as follows. First, gently blow away any surface dust or particles with a clean air blower (a child's ear syringe or a photographer's camel's hair brush with attached blower bulb, for example). Using canned or compressed air is not recommended, as the propellant in the can may spit out and leave difficult-to-remove deposits on the lens. Also, the expanding compressed air drops in temperature as it leaves the can. The cold air coming out of the tiny tube that most compressed air cans use to direct the air flow has been known to chill a lens enough to spall pieces of glass off the lens if pointed too closely at the same spot on the lens for too long.

Second, moisten a cloth with a few drops of a photographic-quality optical cleaning solution designed for multicoated camera and binocular lenses. A well-worn cotton handkerchief works well and Zeiss and Kodak both make suitable fluids. Do not drip the cleaning fluid directly on the lens. Use the barely damp (not wet) cloth to gently wipe the lens surface clean. Turn the cloth frequently to always keep a clean portion of the cloth in contact with the lens. Blot the lens dry with a dry portion of the cleaning cloth or with a separate cloth. Start with a clean cloth each time cleaning is needed.

Avoid overcleaning your optics. The multicoatings on the lens are quite hard and durable. However, frequent overzealous cleaning can scratch the coatings if all the dust particles (which are often tiny flecks of windborne rock) are not removed before you start pushing a damp cloth around the lens surface. A few specks of dust on the lens will not be visible in your images, as they are not in the focal plane and don't block enough light to measure, let alone be seen. Clean your optics only when absolutely necessary. If you take proper care of your scope, cleaning should rarely be needed.

**Caring for Your Scope Finish:** The AT127EDT uses a durable automotive-style baked paint finish with anodized components. The surfaces can become smudged with fingerprints during use, but these will not harm the finish. A soft cloth slightly dampened with plain water (or a little moisture from your breath and a quick wipe with a clean handkerchief) is generally enough to remove fingerprints. Avoid harsh chemical cleaners or organic solvents like benzene, alcohol, etc., as these may ruin the finish. They can certainly affect the optical coatings if they accidentally drip or splash on the objective lens.

Never use the telescope in the rain or in conditions where it may get wet. The telescope is not waterproof. If the telescope accidentally gets caught in a shower, immediately wipe off all water using a clean and dry soft cloth. If the telescope gets totally soaked in water, or submerged, immediately contact your dealer for service instructions. Do not disassemble or attempt to repair your telescope yourself, as this violates the warranty terms under the limited product warranty, and negates any guarantee.

**Caution! Never directly view the Sun with your telescope!** Never aim your AT127EDT at the Sun without having a professionally-manufactured solar filter mounted over the objective lens. Viewing the Sun through the scope without the proper protection for even a moment may result in permanent severe damage to your eyes, and can even cause blindness. Contact your Astro-Tech dealer if you are interested in purchasing a compatible professional solar filter.

 **ASTRO-TECH** [www.astronomytechnologies.com](http://www.astronomytechnologies.com)  
from Astronomy Technologies, PO Box 720013, Norman, OK 73070