

ASTRO-TECH AT80EDT

from Astronomy Technologies

Thank you for choosing our Astro-Tech **AT80EDT** high-performance apochromatic triplet ED refractor.

While some observers might doubt that you can get apochromatic performance from an 80mm scope that is as inexpensive as the Astro-Tech AT80EDT, we can say only that seeing is believing.

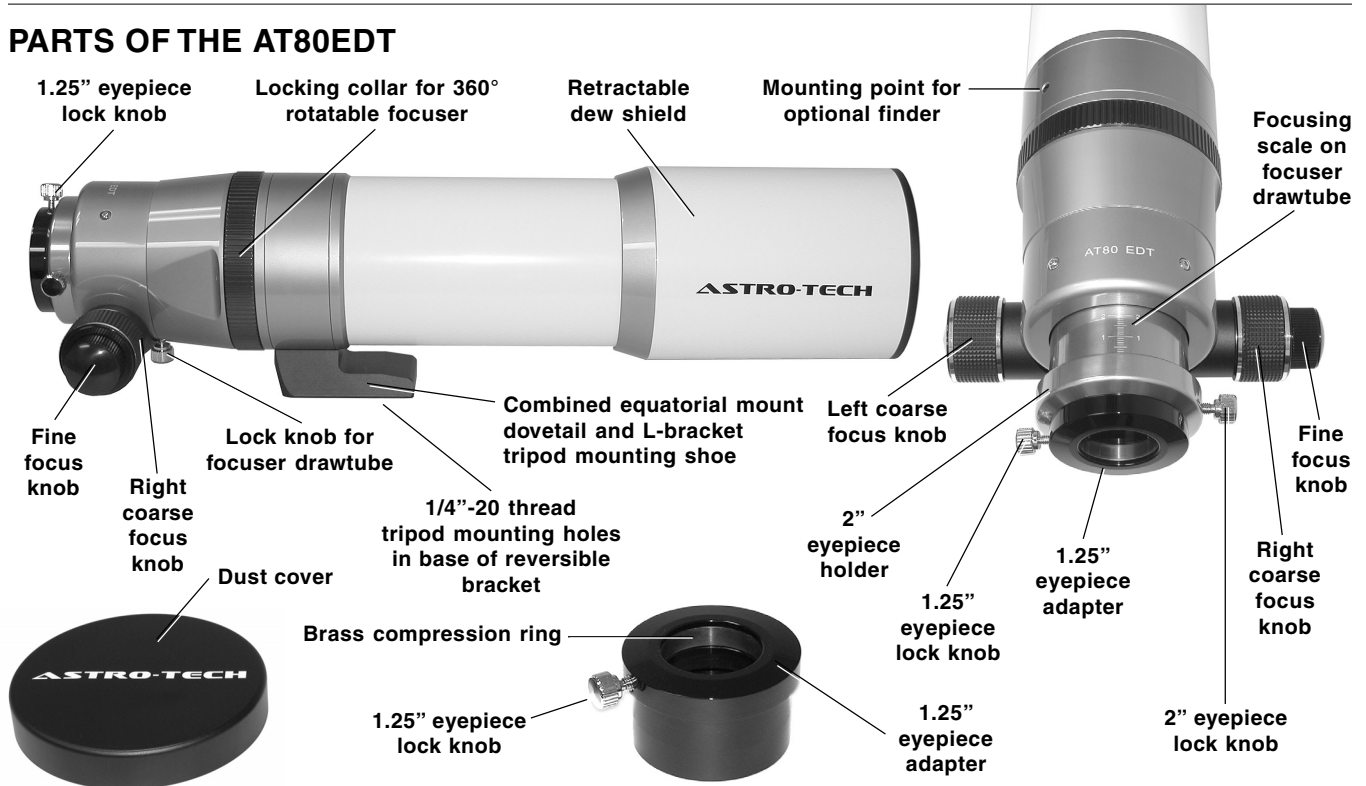
The images from its fully-multicoated 560mm f/7 ED (Extra-low Dispersion element) premium Ohara glass triplet optics are virtually color-free, even at high

magnifications. At its low price, we believe you will find that the visual and photographic performance of your AT80EDT triplet is little short of remarkable.

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

Please familiarize yourself with your telescope's parts and functions before operating it for the first time.

PARTS OF THE AT80EDT



Astro-Tech AT80EDT Apochromatic Triplet Refractor Specifications

Aperture 80mm (3.1")
Focal Length 560mm
Focal Ratio f/7
Objective Type triplet using Ohara ED glass
Optical Coatings fully multicoated
Resolving Power (Dawes' Limit) 1.45 arc seconds
Visual Limiting Magnitude 12.0 maximum
Light Grasp (versus the eye) 131x
Field Stops glare-reducing baffle in optical tube
Focuser dual-speed Crayford-type with 11:1 reduction ratio fine focus; 2" and 1.25" compression ring eyepiece holders; 360° rotating camera angle/observing angle adjuster
Focuser Travel 3.1" (80mm), millimeter scale on drawtube for repeatable focus
Lens Shade retractable

Objective Lens Cover slip-on metal
Tripod Mount .. removable combination L-bracket and dovetail for direct mounting on Celestron, Meade, and Vixen equatorial mounts; two 1/4"-20 thread mounting holes for photo tripod use
Tube Diameter 90mm o. d.
Tube Length (lens shade retracted)..... 17.75" (451mm)
Tube Length (lens shade extended) ... 20.25" (514mm)
Optical Tube Weight 6.75 lbs. (3.07 kg)
Case aluminum-frame foam-fitted lockable hard case, with carrying handle
Case Dimensions 22.25" x 12.75" x 8.25"
Lowest Usable Power 14x (40mm eyepiece)
Highest Terrestrial Power 80x (7mm eyepiece)
Highest Practical Power 140x (4mm eyepiece)
Theoretical Maximum 187x (3mm eyepiece)

Your **Astro-Tech AT80EDT** ED triplet refractor is usable for day and night viewing, simply by adding a star diagonal and eyepiece. Any brand of eyepiece can be used, from a 40mm for the lowest practical magnification (14x) to a 3mm (187x) for high power use. A 2" compression ring eyepiece holder on the focuser drawtube and a supplied 1.25" eyepiece adapter let you use either 2" or 1.25" star diagonals and eyepieces with no other adapter needed.

The focal length of the AT80EDT 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 112x to 187x 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 5mm eyepiece in the AT80EDT will give you a magnification of 112x ($560\text{mm}/5\text{mm} = 112$).

Astronomical Observing: The theoretical maximum usable power available from this telescope is 187x, although this requires a 3mm eyepiece that provides a narrow and very dim 0.43mm exit pupil. A more practical maximum magnification for astronomical viewing with the AT80EDT would be 140x, 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 187x. Under less than ideal conditions, lower powers in the 80x to 112x range provide more consistently usable and pleasing images.

The widest possible field of view with a 1.25" eyepiece is about 3°, which can be achieved with a 14x (40mm) Plössl eyepiece.

While the AT80EDT has not been specifically designed for astrophotography, it does an outstanding job as a wide-field astrograph for casual 35mm and CCD imaging. A chrome thumbscrew under the focuser lets you lock in a sharp focus for photography.

The focuser can be rotated a full 360° for the best photographic composition, or to put your star diagonal and eyepiece into the most comfortable observing position. To rotate the focuser, loosen the dark green ribbed lock ring on the telescope barrel by turning it to the left. Adjust the focuser to the desired angle, then turn the lock ring back to the right to lock the focuser at the new angle.

Terrestrial Observing: The AT80EDT works well for daytime birding, nature studies, sweeping the landscape from the home with a view, etc. It is also a very good 560mm (11.2x) f/7 telephoto lens for terrestrial photography. Generally speaking, the maximum usable daytime power with any terrestrial scope is about 1x per mm of aperture (80x with a 7mm eyepiece on the AT80EDT). Attempts to push the daytime power beyond 80x often magnify the heat waves, dust, and "mirage" in our atmosphere to the point where the images become blurry and unusable. A 22x (25mm) to 62x (9mm) eyepiece is usually more satisfying for everyday terrestrial use than an 80x.

Mounting the AT80EDT: A stable tripod or astronomical mount is essential for best viewing. The AT80EDT is light enough to be used on any good quality camera tripod with an 8 to 10 pound payload capacity, using either of the two 1/4"-20 thread holes in the scope's L-shaped mounting bracket. The front mounting hole provides a better balance when the scope is used with a 1.25" star diagonal and eyepiece. The rear mounting hole is better suited for use with a heavier 2" diagonal and eyepiece, or a camera.

The bracket can also be unbolted, rotated 180°, and reinstalled on the scope. This moves the balance point further back on the scope body to help balance very heavy 2" accessories and cameras.

The L-bracket is sized and shaped like the dovetail used to connect optical tubes to the Celestron Advanced Series; Meade LXD-75; and Vixen Sphinx, Porta, and Great Polaris astronomical mounts. This dovetail shape allows you to install the AT80EDT directly on any of these mounts with no other adapter required.

The L-bracket can be totally removed from the AT80EDT by undoing the recessed hex-head bolts holding it to the scope body. This allows you to install the scope on other telescope mounts by using a pair of optional Astro-Tech 90mm split mounting rings.

Optional Astro-Tech Accessories: Astro-Tech makes 1.25" and 2" star diagonals with state-of-the-art 99% reflectivity dielectric coatings that nicely complement the performance of the AT80EDT. These

diagonals are available from your Astro-Tech dealer to provide the maximum possible reflectivity and planetary detail. An Astro-Tech 45° viewing angle image-erecting 1.25" diagonal is available for terrestrial observing. An inexpensive non-magnifying Astro-Tech illuminated multireticle finder is also available for your AT80EDT.

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 optics to air dry at room temperature before putting the lens cover on the scope and storing it away.

If the front lens surface becomes dusty, smeared, or shows fingerprints or any other surface build-up, clean the lens using the following technique. 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 to the point of spalling chips of glass off the lens if pointed at the same spot on the glass 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, turning 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 a separate cloth. Start with a clean cloth each time cleaning is needed.

Avoid overcleaning your scope. 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 debris on the lens will not be visible in your images. 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 finish of the AT80EDT is a durable baked automotive paint with anodized components. The scope can become smudged with fingerprints during use, but these will not harm the finish. A clean 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 the rain, 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 terms of the limited product warranty, and negates any guarantee.

Caution! Never directly view the Sun with your telescope! Never aim your AT80EDT 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.

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