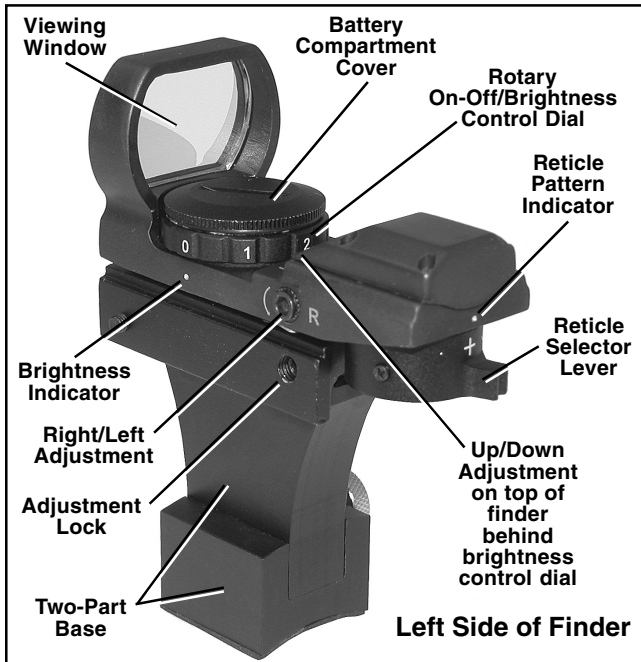


## Illuminated Multiple Reticle Finder

The **Astro-Tech** finder is a non-magnifying illuminated multiple reticle finder for astronomy and daylight terrestrial use. The compact Astro-Tech finder has a precision ground reflex lens viewing window with minimal parallax at infinity; four different reticle patterns; seven brightness levels; and a two-part base for installing the finder on a variety of scopes.

The Astro-Tech finder is used with both eyes open and one eye directly behind the finder. One of four red reticle patterns is projected onto the multicoated viewing window at the front of the finder and is superimposed on the sky or daytime landscape seen through the viewing window. Your telescope is aimed by moving the telescope until the projected red pattern is superimposed on top of the target.

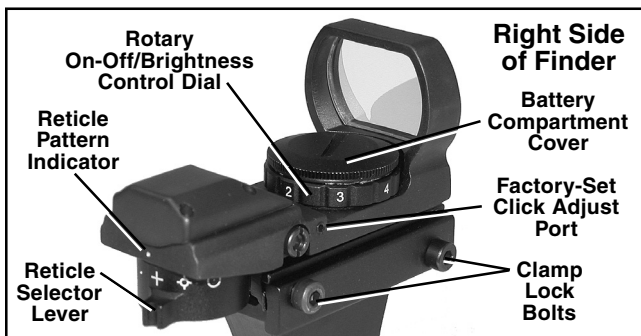


On the top of the finder is a rotary On-Off/Brightness control. This control contains the battery compartment. An Up/Down aiming adjustment is located just behind this control.

At the rear of the finder is the Reticle Selector lever, with the reticle patterns etched on it for easy identification.

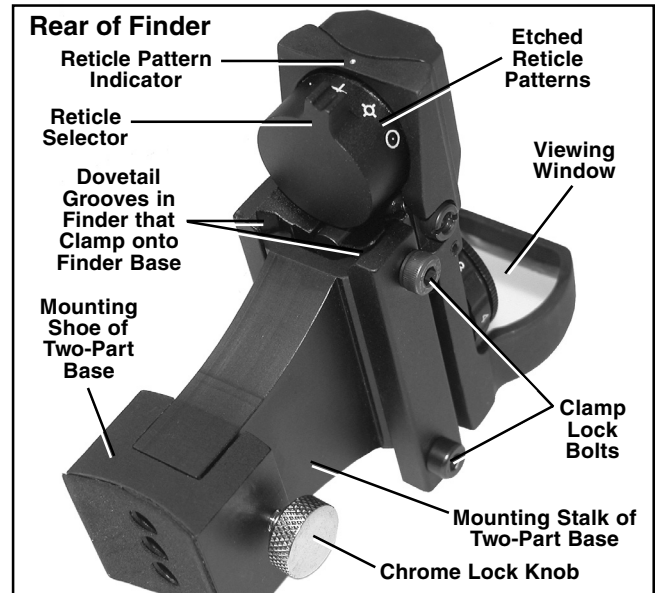
On the left side of the finder is a Right/Left aiming adjustment. Just below is a recessed adjustment lock to prevent the Up/Down and Right/Left adjustments from shifting.

Two clamp lock bolts for attaching the finder to its base are on the right side of the finder. There is also a factory-set screwdriver adjustment on this side for setting the amount of click feedback when making Up/Down adjustments.



### Mounting the Finder

The Astro-Tech finder mounts directly on Astro-Tech and TMB refractors using the two-part mounting base. Use the supplied 5mm mounting bolt(s) to mount the dovetail shoe with the chrome locking knob on small Astro-Tech refractors and the TMB-80 refractor, plus most William Optics and Stellarvue refractors (as well as any other scope having a 5mm finder mounting hole). The underside of the shoe is felt-lined to keep from scratching your telescope's finish.



The finder has two clamp lock bolts on the right side that allow dovetail grooves in the underside of the finder to slide onto the narrow V-shaped ridges at the top of the mounting stalk. After the finder is positioned on the stalk, the clamp lock bolts are tightened with the larger supplied hex wrench to lock the finder in place. Be sure the dovetail grooves in the underside of the finder properly engage the narrow ridges of the stalk before tightening the clamp bolts.

Once the dovetail shoe is firmly attached to your telescope, the mounting stalk slips into the mounting shoe and is locked in place using the dovetail shoe's chrome knob. A safety recess is machined into one side of the mounting stalk. This engages the chrome knob to hold the finder firmly in place. Be sure the finder is installed on the mounting stalk so that the safety recess in the stalk is on the same side as the chrome lock knob in the mounting shoe.

The mounting stalk is 13.5mm wide. This lets it fit directly into the finder mounting bracket provided with most large Astro-Tech and TMB refractors. It will also fit into the Antares quick release finderscope bracket, as well as into many other brands of quick release bracket shoes.

The two-piece finder base is also available separately, to allow you to use the Astro-Tech finder on two telescopes without having to change the base between scopes. Adding a second base also allows you to mount other brands of finders on Astro-Tech and TMB refractors.

An optional Vixen-style base is available for mounting the finder in a Vixen/Celestron/Orion-style finder mounting shoe.

### Use and Operation

Once the finder is installed on your scope, remove the protective rubber cover over the viewing window of the finder.

We suggest replacing the cover on the viewing window when your scope is stored to keep the window from accidentally getting scratched.

Turn on the finder by rotating the On-Off/Brightness control. The Off position is shown in the first picture on the front page, with the "0" on the rotary dial aligned with the white brightness indicator dot on the finder body. The switch has click stops at the seven brightness settings and the Off position.

Rotate the On-Off/Brightness control dial until the desired brightness of the reticle is reached. The control can be turned in either direction to reach the desired brightness.

A setting of 1 is the dimmest setting. Settings of 1 to 3 are the most suitable for nighttime use. Settings of 4 to 7 are more usable during the day for nature observing. The 0 setting turns the finder off.

Next, turn the Reticle Selector lever at the rear of the finder until the desired reticle pattern is projected onto the viewing screen. The individual patterns are etched into the Reticle Selector. A white dot on the finder body above the selector indicates which reticle pattern has been selected.

Keep both eyes open and position one eye a comfortable distance behind the finder (any distance from 3" to 24" is usable). You will see the sky or landscape normally with both eyes, although one eye will be seeing it through the clear viewing window of the finder. In addition, the eye behind the finder will also see the red reticle pattern superimposed on the view of the sky or landscape seen in the viewing window.

Precise eye placement behind the finder is not overly critical because the finder has very little parallax at infinity. In other words, as long as the reticle is visible in the viewing window, it will remain superimposed on the same part of the sky, even if your eye moves around behind the finder.

### Reticle Patterns

Any one of four different reticle patterns can be selected. The four patterns are shown from left to right in the photo to the right. They include a single dot, such as that found in most traditional red dot finders; a plain crosshair; a circle with four short bars that extend out from the edges of the circle; and a dot within a circle. The selector lever lets you choose the reticle that is most convenient for you.

Rotate the selector lever until the desired reticle pattern is aligned under the indicator dot etched on the finder body. Remember to adjust the rotary Brightness control to ensure that the reticle is visible in the viewing window.



The Reticle Patterns Etched into the Selector

### Aligning the Finder

The Astro-Tech finder has an Up/Down adjustment on the top of the finder body (with the "up" direction indicated by an arrow) and a Right/Left adjustment on the left side of the body (with the "right" direction also indicated by an arrow). Use the supplied larger 3mm hex head wrench to make the

adjustments needed to center the reticle patterns on the same point in the sky that is visible in your telescope through an eyepiece. The Up/Down adjustment moves the reticle up and down in the viewing window in small increments, and the Right/Left adjustment moves the reticle from side to side, when viewing the reticle from behind the finder.

**Caution:** Before aligning the finder on your telescope, be sure that the adjustment lock is loosened. Use the supplied smaller 1.5mm hex wrench to loosen the recessed adjustment lock on the left side of the finder body. For astronomical use, retightening the lock after aligning is not necessary, and the lock can remain loose, allowing the finder to be freely aligned whenever needed. However, since a scope used for terrestrial observing often receives more inadvertent rough handling than one used for astronomy, you might want to retighten the adjustment lock if you do much daytime observing.

Use the larger hex wrench to fine-tune the Up/Down and Right/Left adjustments. Both adjustment bolts have positive click stops, with each click moving the reticle by approximately 1 minute of angle.

To align the finder, put a low to medium power eyepiece in your telescope and position a bright star in the center of the field of view. Polaris would be a good one to use, as it will not move in the telescope field of view while you adjust the finder. Select the single red dot reticle and look through the finder. Using the larger wrench, turn the Up/Down and Right/Left adjustments until the red dot in the reticle falls on top of the bright star previously centered in the telescope eyepiece.

Once the finder has been roughly aligned, the alignment can be fine-tuned by using a higher magnification eyepiece and tweaking the Up/Down and Right/Left adjustments as needed. Once it has been aligned on a telescope, the finder generally will not require realignment when reinstalling it on the same scope. However, it is a good practice to verify that the finder is properly aligned with the telescope optics each time the finder is reattached to your telescope, particularly if the finder is regularly switched between scopes.

### Changing the Battery

The finder battery has a long life, due to the low wattage requirement of the finder's LED illuminator. However, the battery will not last forever. To conserve battery life, turn off the finder when you are not actually using it to center objects for observing, and be sure to turn the finder off when you are finished observing.

When the reticle patterns are no longer visible or become too dim to be useful, the battery must be replaced. Holding the rotary On-Off/Brightness control firmly with one hand, unscrew the battery cover on top of the rotary control to replace the battery. There is a slot in the lid that will let you use a coin to get some extra leverage if the battery cover is hard to turn the first time you remove it.

The battery is a standard #CR2032 lithium 3V button cell that is readily available at camera stores, drugstores, and other outlets that carry camera batteries.

The battery compartment lid is spring-loaded, so it helps to push down on the center of the battery cover with your forefinger while screwing the battery cover back in place with your other hand. Be careful not to cross-thread the cover when reinstalling it.

**Caution:** Be sure that you put in the new battery with the plus (+) side of the battery up, facing the battery cover.

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