HyperStar

Made by
STARIZONA

HyperStar 6 v4 Operating Instructions

At f/2, HyperStar is the fastest way to take professional images with your Schmidt Cassegrain telescope. These instructions will show you how to:

- Identify parts of the HyperStar
- Install your Secondary Mirror Mounting Plate
- Install your HyperStar
    - Use a filter
    - Install your camera
- Balance your telescope and HyperStar
- Collimate your HyperStar
- Rotate your camera

Parts Lists

1. HyperStar 6v4
2. Secondary Mirror Holder
3. Secondary Mirror Mounting Plate w/ Knob
4. Camera Adapter
5. Dust Cap

    Optional Parts

    - Starizona Filter Slider
    - Filter Slider Camera Adapter

HyperStar 6v4





Secondary Mirror Holder



Secondary Mirror
Mounting Plate w/ Knob



Camera Adapter + Dust Cap



Starizona Filter Slider



Filter Slider Camera Adapter

Installing the Secondary Mirror Mounting Plate

The Secondary Mirror Mounting Plate is intended to replace the original secondary mirror mounting plate that came with your Celestron 6″ OTA. The new plate will still allow for collimation of the secondary mirror but with an added convenient knob in the center of the plate for safe handling of your secondary mirror.



Secondary Mirror
Mounting Plate w/ Knob

Before and after installation of the Secondary Mirror Mounting Plate



Step 1. Remove Secondary Mirror Retaining Ring.

a. Keep your scope on a level surface or pointed up at a 45-degree angle to prevent your secondary mirror from falling out unexpectedly.
b. Unthread the mason-jar style retaining ring holding in your secondary mirror by turning it counter-clockwise until it completely unthreads.



Step 2.Remove the secondary mirror and carefully place the mirror face down on a soft, non-abrasive surface. We use PEC*PAD non-abrasive wipes for this.



Note: It's important prior to unscrewing your collimation screws to make note where the set-screw on the original secondary mirror is located so you can attach the new Secondary Mirror Backplate in the same orientation.

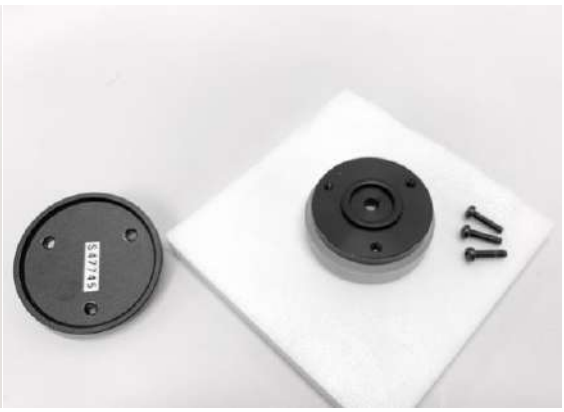
Step 3.Remove the collimation screws

a. Use a Phillips screwdriver to unscrew the three collimation screws.
b. Once you have removed the three screws remove the backplate from the top of the secondary mirror and set it aside. It will no longer be used.

c. There will be a small rubber ring found under the secondary mirror backplate. Leave it in place. It'll be used with the new backplate.

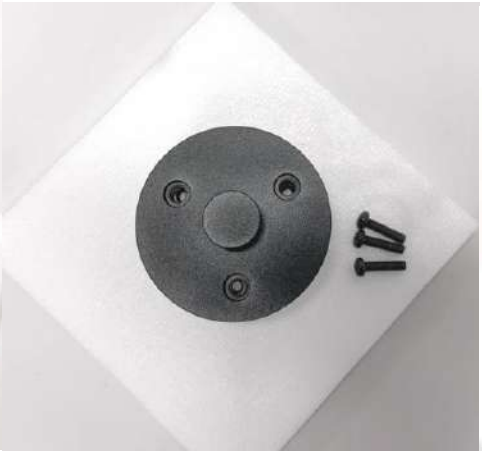






Step 4. Install the new Backplate.

a. Place the new Secondary Mirror Backplate on top of the secondary mirror. Line up the screw holes and thread the Philips screws into the new backplate.


Tip: Do your best to thread each screw into the secondary mirror about the same amount. When remounting the secondary mirror, you will need to recollimate the scope for visual use.

Starting with your screws roughly threaded in the same amount will help you have a flat starting place for your next collimation.



5. You have successfully mounted your new Secondary Mirror Holder!

a. Put it back in your scope for visual use, or put it in your secondary mirror holder for safe keeping while you have fun with your HyperStar.







Installing the HyperStar Lens

***Tip:** there is a HyperStar 6 installation video on the Product page that shows how to install the HyperStar and camera to your telescope.*
https://starizona.com/products/hyperstar-6

Step 1. Remove the bottom cap of the HyperStar to reveal the secondary mirror holder.





1. Remove secondary mirror retaining ring



2. Pull out the secondary mirror and line up the setscrew with the secondary mirror holder notch, then safely insert it into the secondary mirror holder.





3. Thread the retaining ring on top of the secondary mirror holder to safely secure the secondary mirror in the holder.

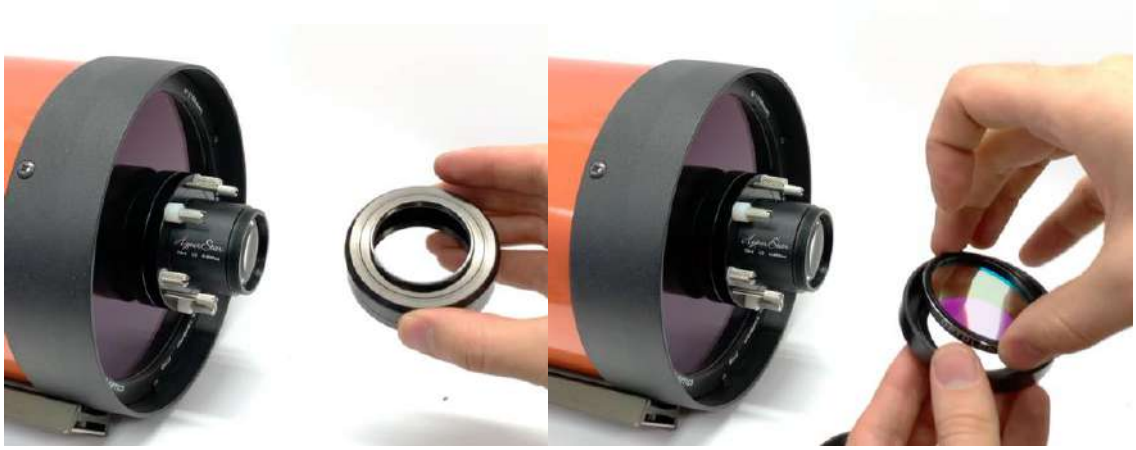


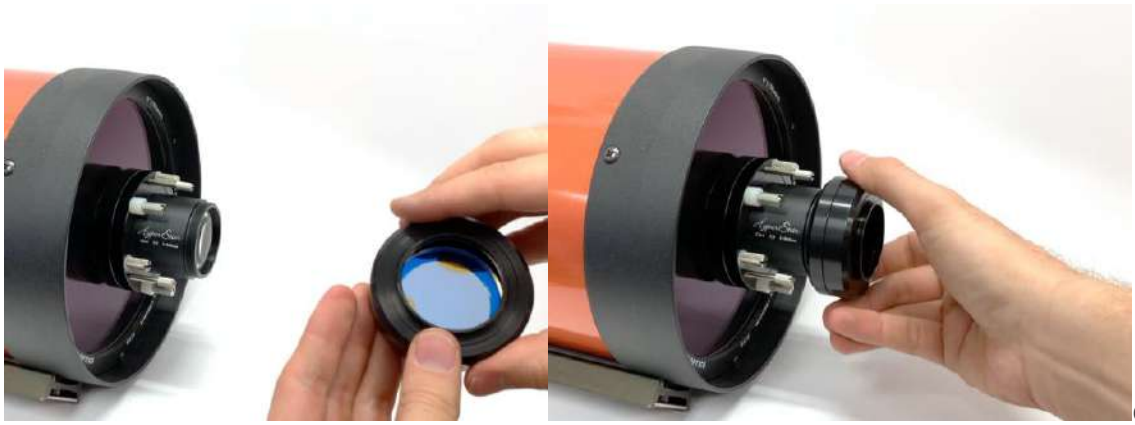
4. Insert the HyperStar into the opening where you removed the secondary mirror from the scope. Thread clockwise until the HyperStar comes to a natural stop.

Tip: Do not overtighten the HyperStar. Once the threads come to a natural stop do not apply anymore pressure.

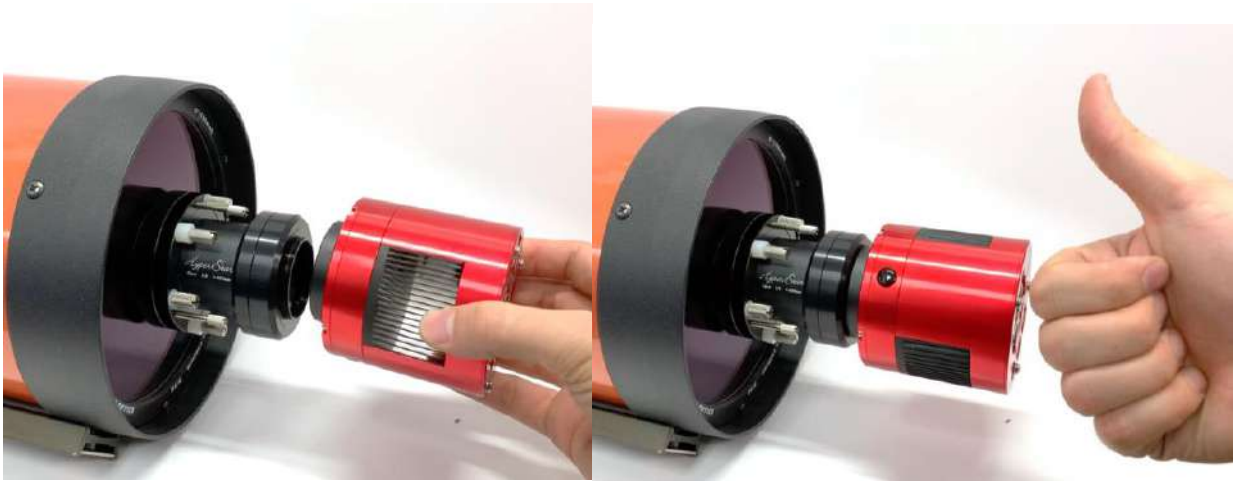


5. Thread your camera adapter to the male threads exposed on top of the HyperStar.
    a. If you'd like to use a 2" filter you can install one in the HyperStar camera adapter. The camera adapter unthreads into two pieces. A 2" mounted filter will thread into the top portion of the camera adapter. Thread the two pieces back together and thread it back on to the HyperStar.




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6. Attach your camera to your HyperStar by matching the camera to your HyperStar Camera Adapter threads and turn clockwise to secure the camera. Do not overtighten the camera. Lightly snug is all it takes.



Ready to go!

Balancing the Telescope

If using a Celestron NexStar 6 SE, NexStar Evolution 6 or another Alt-Az mount, slide the optical tube back slightly to help balance the system so your telescope isn't nose-heavy when the HyperStar is attached. If your 6" SCT is on a German equatorial mount, balance as you normally would. Check the balance of the optical tube first, sliding the tube front to back as needed. Then check the counterweight balance second, moving the weight up or down the shaft as needed.

Tip: *Balancing the telescope is critical for getting good tracking accuracy.*

Collimating the HyperStar Lens

The HyperStar incorporates a simple collimating system. The three pairs of screws around the base of the HyperStar push and pull to tilt the lens and correct for any alignment error.

Tip: *Keep in mind that the three pull screws (shown below) hold the lens in place on the telescope. Do not loosen these screws too much. Small adjustments should be all that is necessary to collimate the HyperStar.*

You will only need to make a collimation adjustment if there is a noticeable coma effect (flaring of the star images to one side) on one edge or corner of the field while the rest of the stars appear sharp. This implies the primary mirror is slightly tilted and not perfectly aligned with the optical axis of the HyperStar. This is normally compensated by adjusting the secondary mirror, but with the mirror removed it now needs to be compensated for with the HyperStar.

The easiest method is to take a single short exposure of a star field. 1-3 seconds is usually enough. Make an adjustment by loosening one of the pull screws (shown below) and tightening one of the push screws. This will tip that side of the HyperStar outward. Take a second image and see if there was an improvement. If things got worse, return the pair of screws to their original position and try a different set. Continue until the stars are sharp across the full field. It may be necessary to refocus during adjustment to see the best results.

Tip: *Try adjusting the screws about 1/8-1/4 turn at a time. Very little adjustment is all that is usually necessary.*



Rotating Camera Position

The third set of screws (labeled above as ROTATE) allow the HyperStar and camera to be rotated into a different orientation for the purpose of framing objects. Loosen the three screws slightly. The nylon bushings will allow the lens to rotate with the screws still somewhat snug. Once the camera and lens are in the desired orientation, tighten down the screws.

HyperStar 6v4 Specifications

Focal Ratio: f/2

Focal Length: 300mm

STARIZONA

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