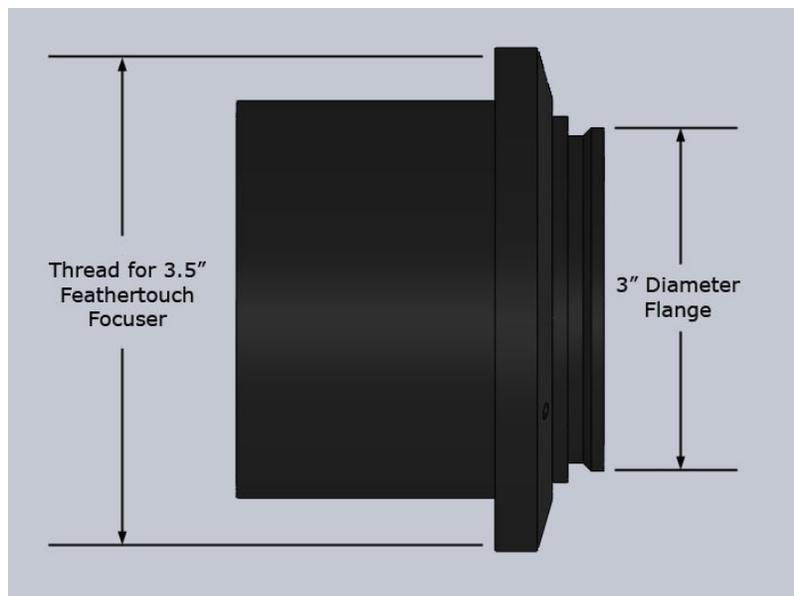


Hyperion Focal Reducer



The Hyperion focal reducer was designed to provide a wider field of view and faster focal ratio for the Hyperion line of telescopes. Its design preserves the excellent optical performance of the Hyperion. In fact, performance is diffraction-limited across a 52mm image circle. Large lens elements allow a large illuminated field with minimal vignetting.

The focal reducer is designed to thread into the drawtube of the Hyperion's 3.5" Feathertouch Focuser. The reducer replaces the standard end cap on the focuser drawtube. The standard configuration of the focal reducer has a 3" diameter flange which accepts the Astrodon MonsterMOAG off-axis guider, or can be used with optional adapters for other setups.



A Word of Caution

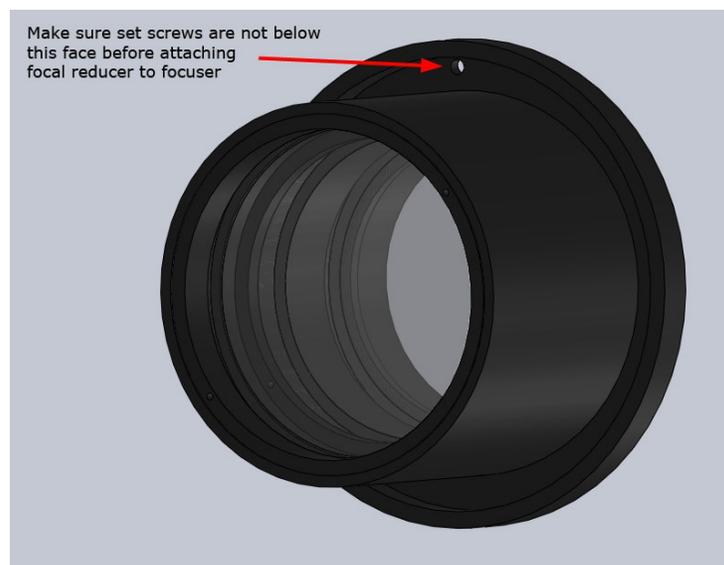
Be careful when setting the focal reducer down on a flat surface: the front lens surface is highly curved and its center is near the end of the metal barrel that houses the lenses. It does not protrude past the end of the barrel, but watch that there are no objects that might scratch the lens surface when you set it down.



The black vinyl cap on the front of the focal reducer is shipped with an insert to keep the inside surface of the cap from sagging and touching the front lens.

Installing the Focal Reducer

Remove the standard end cap from the Feathertouch focuser by loosening the three small set screws and unthreading the cap. Before attaching the focal reducer, be sure the three set screws on the reducer are backed out enough that they do not protrude below the flat face of the reducer which will sit against the focuser drawtube. This allows the reducer to seat flat against the drawtube and avoids any tilt in the lens and camera adapter which could degrade the image quality.



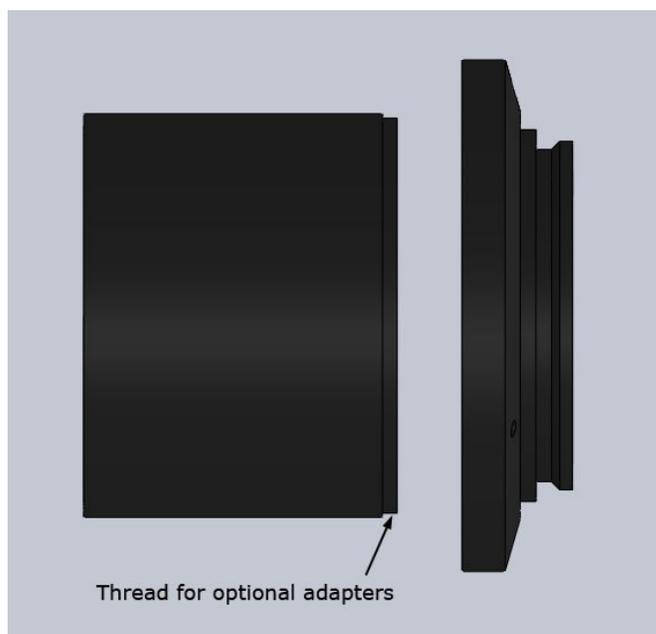
Once the focal reducer is threaded onto the focuser drawtube, tighten the set screws with the included 1/16" hex wrench.

Attaching the Camera

The standard 3" flange adapter included with the Hyperion focal reducer will allow the attachment of an Astrodon MonsterMOAG off-axis guider and provides the correct backfocus for use with an Apogee Alta series camera (with deep-cooling D09 body) plus an Apogee FW50 filter wheel. Other configurations will require additional spacers to achieve the correct backfocus distance.

Note: *With the above configurations, the backfocus is short enough that you will need to use the short 1.25" guide camera port on the MonsterMOAG rather than the helical focuser option.*

It is possible to remove the flanged focuser adapter—as shown below—to install other optional adapters. A short shelf holds the lenses in the main barrel of the reducer, so nothing will fall out if you remove the adapter.



Focusing Notes

The Hyperion focal reducer requires a fair amount of inward focus travel from the native backfocus distance of the telescope. The required inward focus travel is about 48mm. The focuser adapter on the focal reducer is designed to be shorter than the standard focuser end cap, allowing extra inward focus travel. With the 12.5" Hyperion, there will be only about 1/2" of drawtube travel remaining, but this is sufficient for running an autofocus V-curve with FocusMax. The 16" Hyperion has about 1/2" more native backfocus, so there will be more drawtube travel remaining.

Note that you will have to run a new FocusMax autofocuser profile when the focal reducer is installed. You can save multiple profiles in FocusMax, so you should only need to train the software once for the native Hyperion configuration and once for the focal reducer configuration.

Specifications

Reduction Factor	0.72x
Optimized Image Circle	52mm
Optical Backfocus	4.43" (112.5mm)
Mechanical Backfocus (with flange adapter)	3.97" (101mm)
Clear Aperture	3.00" (76mm)
Overall Length (with flange adapter)	3.35" (85.1mm)
Lens Barrel Diameter	3.47" (88.1mm)
Maximum Diameter (with adapter)	4.40" (112mm)
Weight (with flange adapter)	2.07 lbs. (0.94 kg)

Hyperion 12.5" Specifications

Focal Ratio	f/5.7
Focal Length	1825mm
Field of View (KAI-11000 CCD)	67.8' x 46.5'
Field of View (KAF-16803 CCD)	69.5' x 69.5'
Pixel Scale (9-micron pixels)	1.02"/pixel

Hyperion 16" Specifications

Focal Ratio	f/5.25
Focal Length	2132mm
Field of View (KAI-11000 CCD)	58.0' x 39.8'
Field of View (KAF-16803 CCD)	59.5' x 59.5'
Pixel Scale (9-micron pixels)	0.87"/pixel

Included Hardware

(3) 6-32 x 1/8" Stainless Steel Set Screws

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