



#19711 - FastFocus Secondary Mirror Focusing System For Celestron C-11

Step-by-Step Instructions for Installing the FastFocus to your Celestron C-11 Fastar compatible telescope.

Optec's FastFocus Secondary Mirror Focusing System with FocusLynx Controller was designed to conserve the limited back focus of the Edge HD telescopes and can be used with any Fastar compatible Celestron OTA. With focus being performed at the secondary mirror, the primary mirror and entire imaging train can be locked in place avoiding flexure, mirror flop, and tilt at the image plane. A secondary rack-and-pinion or Crayford type focuser on the rear of the scope works quite well to reduce mirror flop but with the addition of AO units, off axis guiders, filter wheels, and focal reducers, the limited amount of back focus of the EdgeHD telescope is easily consumed. FastFocus allows you to both save back-focus on the rear in your imaging train and at the same time eliminate mirror flop.

Installing the FastFocus onto the telescope is quite easy. The basic idea is to remove the mirror and attach it to an adapter that will then attach to the Fast Focus focusing mechanism. Finally, the entire assembly is threaded on my means of threaded collar – specific to the C-11 corrector lens thread.

Please review these instructions carefully for installation procedures. Use caution when handling the first surface secondary mirror in your telescope.

Contact [Optec Support](#) if you have any questions or concerns when installing the FastFocus SMFS.



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Optec FastFocus SMFS for C-11 with FocusLynx



FastFocus C-11 SMFS Package Contents

Confirm the contents of your C-11 FastFocus SMFS package. The package should contain the following:

- FastFocus SMFS focuser for C-11
- Mirror mount assembly and hardware
- FocusLynx controller hub
- 12VDC power supply with cord
- USB-Serial cable
- Cat-5e Ethernet cable Qty 2
- 5/32" Ball driver for 10-32 collimation screws
- 0.050" hex key
- Software CD



The second Cat-5e Ethernet cable is for a network connection using the Network port on the bottom of the FocusLynx hub. This cable and the Ethernet cable included with the FastFocus are interchangeable with any Cat-5e or better cable.



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Installation Procedure: Step-by-Step

Step 1 – Remove Pinch Ring

Remove the cap on your C-11 telescope. Look at the secondary mirror mount and carefully unscrew the corrector pinch ring.



Step 2 – Remove Secondary Mirror

Remove secondary mirror assembly from the telescope. Notice the alignment setscrew on side of the assembly and mark the side of the mirror if not already marked.



Step 3 - Separate Mirror

Use care and unscrew the (3) pan head collimation screws to remove the mirror from the mount. Use a soft cloth when placing the mirror on your work surface to protect the aluminized coating.



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Step 4 – Store Parts

Store corrector pinch ring, collimation screws, and mirror mount in a safe place. They will not be used with the FastFocus system.

Step 5 – Install Mirror Mount

Notice the secondary mirror is bonded to an aluminum mounting block. Attach this mounting block securely to the supplied Mirror Adapter with three (3) M3 flat head screws. Tighten each securely.



Step 6 – Transfer Reference Mark

In the next few steps, we will transfer the reference mark on the mirror to the outer locking ring so that the mirror will line up properly when the locking ring is tightened down. The purpose of this step is to retain the factory-original rotational alignment between the primary and secondary mirrors. Whether or not this extra step is required is uncertain. For best performance it is probably worth the extra effort.

First, screw the new FastFocus Corrector Thread Adapter or retaining ring onto the threads of the C-11 secondary mirror thread adapter which is already mounted to the C-11 corrector plate. Ideally, this secondary mirror thread adapter will be tightened against the corrector plate to provide a secure starting point. In some cases, we have seen that the factory original mirror thread adapter can be rotated against the corrector. If this is the case with your OTA, you can probably skip to Step 9 below.



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Step 7 – Mark Alignment Slot

When the FastFocus Corrector Thread Adapter (CTA) is tightened securely, look inside the CTA and note the location of the alignment slot. Now mark a line on the inside of the CTA where the alignment slot is located. Unscrew and remove the CTA and transfer the mark you just made on it around to the outside surface. Now the mirror can be attached to the CTA.



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Step 8 – Attach FastFocus to CTA

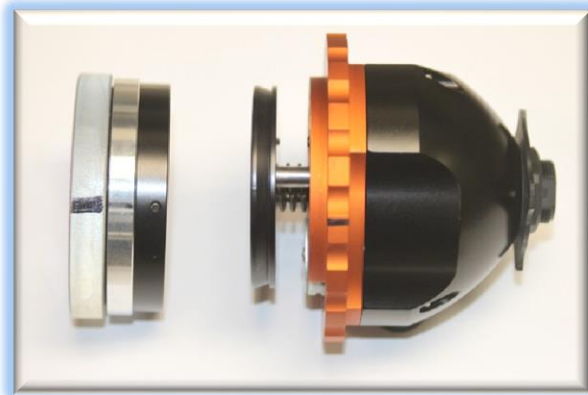
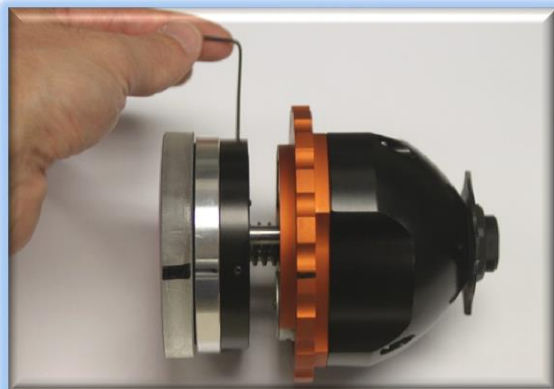
Place the FastFocus onto the CTA corrector thread adapter, align and secure three flat end #10-32 socket cap screws. Transfer the mark from the adapter to the orange plate of the FastFocus.



Test fit the FastFocus assembly onto the C-11 OTA confirming the alignment of the mark and alignment slot. Remove the entire assembly from the OTA. Remove the socket cap screws and the CTA adapter.

Step 9 – Attach the Mirror

Now, to attach the mirror to the FastFocus assembly, slide the Mirror Adapter over the dovetail of the focuser and align the mark on the side of the mirror to the mark you just



made on the side of the orange flange. Tighten the three (3) setscrews along the circumference of the mirror adapter with the 0.050" hex key. These screws should be very tight so that the mirror is secure.



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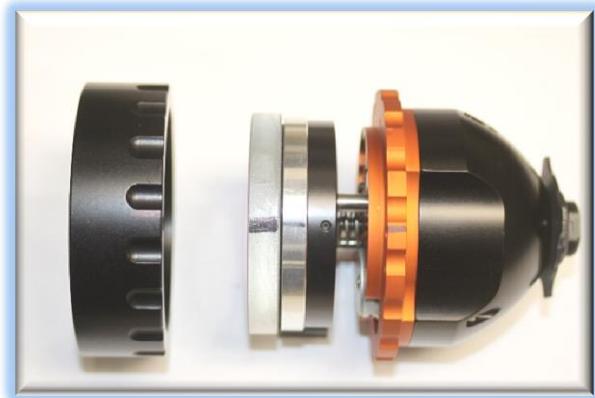
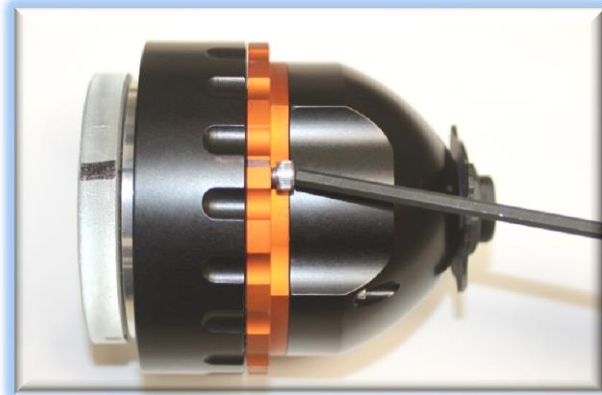


Optec FastFocus SMFS for C-11 with FocusLynx



Step 10 – Insert Pull Screws

Slide the Corrector Thread Adapter (CTA) over the mirror and align the mark against the orange flange of the focuser body. Insert three (3) socket cap screws with the flat ends through the orange plate and into the threaded holes on the CTA. These three socket caps will serve as the pull screws.



Step 11 – Insert Push Screws

Thread in three (3) push screws with the rounded ends until they are snug against the face of the CTA. These will serve as the push screws for collimation.

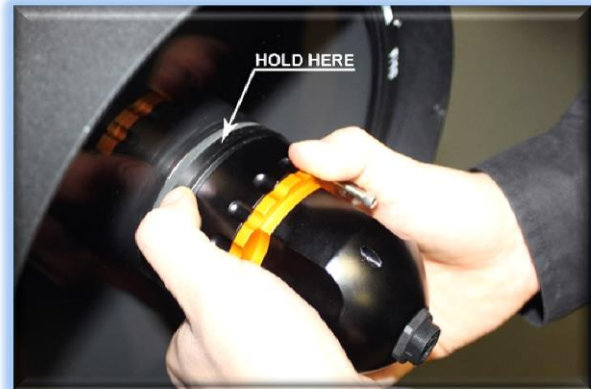


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Step 11 – Attach FastFocus Assembly

Finally, thread the entire assembly back onto the corrector. Be careful of the mirror when placing back into the OTA. Hold the exposed aluminum on the corrector thread so that the focuser can be tightened properly.



Step 12 - Collimation

Your FastFocus SMFS is now ready for FocusLynx Software Setup and collimation. Once configured for the FastFocus device type, the FastFocus focuser will home and return to the midpoint of travel. The system has been designed to be near the optimal f/10 focal point with the focuser travel at center. Once the best focus has been achieved, you can proceed with the collimation procedures outlined in the **FastFocus Collimation Guide** available separately.

First, follow the [FocusLynx Software Setup](#) procedures described below.

Contact [Optec Support](#) if you have any questions or concerns installing your **FastFocus SMFS**.



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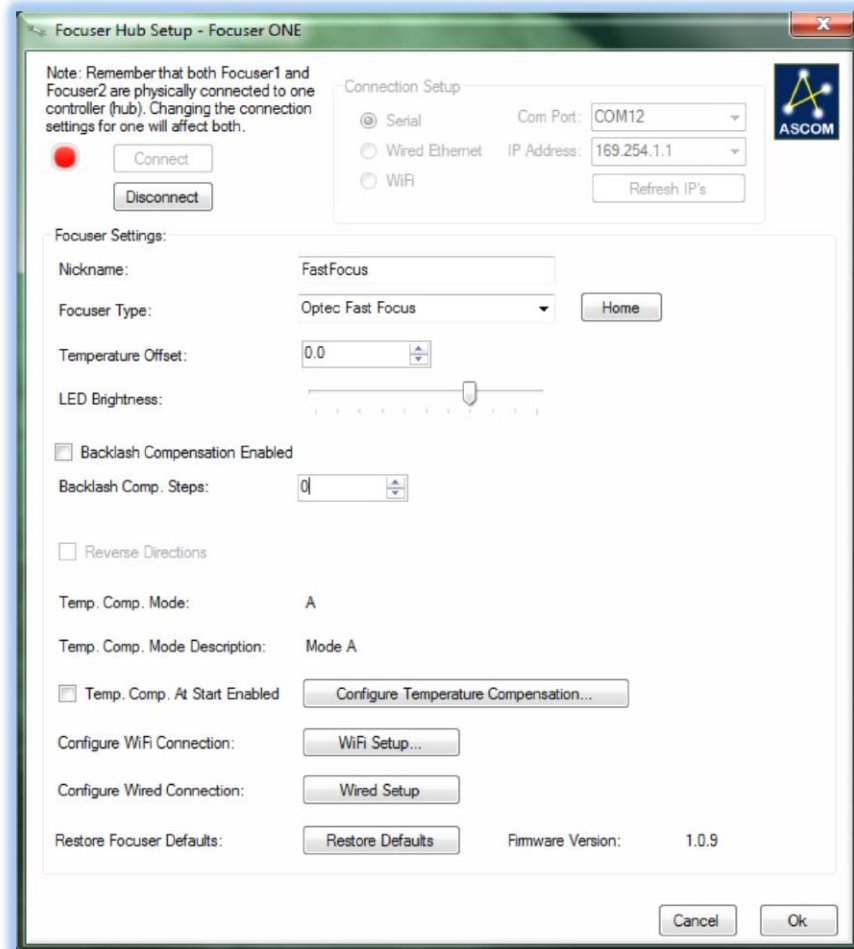


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FocusLynx Software Setup

Your FastFocus focuser is now installed. Consult the **FocusLynx Quick Start Guide** to install the latest FocusLynx Commander software. Once installed, you will need to configure the FocusLynx Commander for your new FastFocus. Configuration within FocusLynx Commander will also configure the ASCOM driver so that the same settings will apply when using auto-focusing software such as Maxim D/L or FocusMax.



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FocusLynx Commander Focuser Type selection

Open the Focuser Hub Setup dialog for Focuser 1 or Focuser 2 and choose the **Optec FastFocus** Focuser Type option. Your FocusLynx Hub firmware must be v1.0.6 or higher for this option to function properly.

Set the Position Units

In the main form of the FocusLynx Commander window, you may left-click directly on the Position digital read-out to toggle units between Steps, Microns, and Millimeters. Note that only the step count is passed through to the ASCOM driver. The iFocuserV2 standard for ASCOM absolute focusers relates all focuser movements to actual step counts with the higher level client responsible for making the conversions to real-world measurements. The FocusLynx Commander client extends the property to easily convert the units to mm and microns.

Step Size and Focuser Range

The FastFocus provides incredibly small 0.197 micron (197 nm) per step size resolution for very precise focusing. Focuser range total travel of the FastFocus is 44800 steps equal to 8.9mm, which is equal to a net effective focal travel of approximately 8 inches at focal plane.

Temperature Compensation

Optec's FastFocus includes a built-in temperature probe for temperature compensation. Temperature compensation capability is integrated in the FastFocus SMFS keeping you in focus for the duration of the night. Within FocusLynx Commander click File – Temp Comp Wizard to automatically determine the "TC" or Temperature Coefficient for your particular telescope configuration. After completing the wizard, turn on temperature compensation by selecting "On" just above the Sync button. The FocusLynx controller will automatically adjust the FastFocus for changing temperatures.



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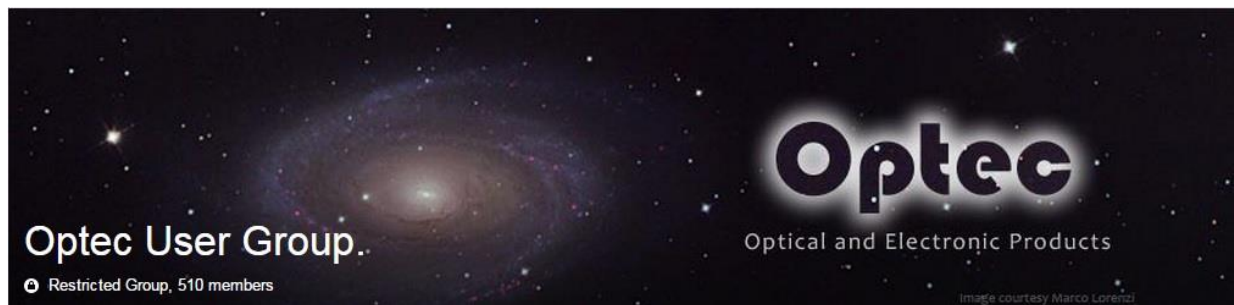


Third-Party Software

Visit the Optec website for the additional information describing FocusLynx configurations for ASCOM clients such as **FocusMax** and **Maxim D/L**, as well as non-ASCOM software such as Software Bisque's **TheSky X** native X2 drivers for FocusLynx. Our FocusLynx Resource page is currently under development: <http://www.optecinc.com/astronomy/catalog/focuslynx/resources.htm>.

Optec User Group

The Optec User Group on Yahoo! can also provide answers to specific configuration questions and provides a forum to communicate with other users. Click the banner below to subscribe.



Or visit the Yahoo! site here: <https://groups.yahoo.com/neo/groups/Optec/info>.



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