



FocusLynx QuickSync TEC Installation

Step-by-Step Instructions for Installing the QuickSync TEC Motor Assembly to your TEC Focuser.

The QuickSync motor assembly fits directly in place of the coarse and fine focus knobs on the right side of the native TEC Large Focusers.

The gold knob on the QuickSync will attach to the smaller diameter shaft of the pinion assembly and allow fine manual focus when the motor is disengaged. Coarse manual focus can be accomplished by disengaging the motor and adjusting the black focus knob on the opposite side of the focuser.



TEC Focuser Model

The native TEC Large Focuser is supplied with new APO140 and larger telescopes manufactured by **Telescope Engineering Company.**

See www.telescopeengineering.com for the latest telescope models supplied with the TEC Large Focuser.

Based upon the QuickSync FT40 design for the FeatherTouch focusers, the installation procedure for the QuickSync TEC is similar with a few changes.

Installation Video

For an overview of the installation process, review the installation video for the QuickSync FT40 online <http://video.optecinc.com/view?q=512947ba48723.flv>.



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FocusLynx TEC with QuickSync

While this video discusses the QuickSync FT40 rather than the QuickSync TEC, the installation procedures are very similar. The QuickSync TEC kit includes Contact Optec Support if you
have any questions or concerns when installing the QuickSync TEC.

Package Contents

Confirm the contents of your FocusLynx QuickSync TEC package. The package should contain the following:

- QuickSync TEC motor assembly
- Cat-5e or Cat-6 Ethernet cable
- Tool kit including long 1/16" and 7/64" Allen hex keys
- Brass threaded expansion ring and spanner tool



If you've purchased the QuickSync TEC as part of a FocusLynx package you will also have the following items:

- FocusLynx control hub
- 12VDC power supply with cord
- USB/Serial cable
- Cat-5e or Cat-6 Ethernet cable
- Software CD



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Installation Procedure: Step-by-Step

Step 1

Loosen the tensioning lock screw on the gold fine focus knob by turning it counterclockwise. Next, while holding the coarse black knob, grasp the gold fine focus knob and unscrew it counterclockwise completely until it is removed from the fine focus threaded shaft.



Step 2

Locate the felt washer (shown at right) and carefully remove it. This will expose three cross-tip screws that will need to be removed to allow removal of the black coarse knob.



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Step 3

Next, note the black anodized surface covering the inner stainless “bell housing”. The bell housing acts as the outer race of the reduction assembly ball bearings. The outer black surface will serve as our clamp base.

First, however, you must install the brass threaded expansion collar. Carefully thread the expansion collar onto the fine focus shaft. This is a fine pitch thread so use extreme caution not to cross-thread the expansion collar. It must fully seat against the



end of the fine focus shaft. Grasp the coarse focus knob on the left side of the focuser and tighten the brass expansion collar using the included spanner tool.



Step 4

With the brass expansion collar in place, slide the QuickSync TEC motor assembly onto the pinion assembly. Use care to locate the gold focus knob onto the expansion collar. Loosen

the setscrew in the gold knob if needed.

The fit should be snug. Use a gentle back and forth motion to slide the motor assembly on the shaft and then locate the clamp onto the black anodized bell housing.



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Step 5

Rotate the motor assembly so that the knob will be easily accessible for your thumb during operation. Ensure the clamp is pushed firmly onto the stainless housing before tightening. Use the 7/64" hex key to tighten the clamp onto the stainless shaft. Ensure the knob can move freely.



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Step 6

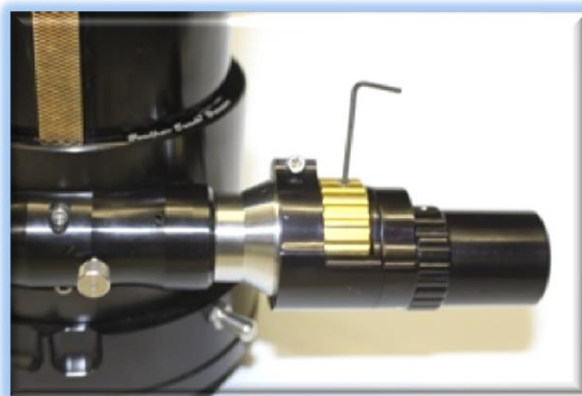
With the gold knob still loose, disengage the motor by rolling the motor cap down about 30 to 40-degrees (about $1/8^{\text{th}}$ of a turn). The clamp should hold the motor assembly in place. Now rotate the original black knob on the opposite side of the focuser, ensuring the gold knob is centered and does not rub against the housing.



Step 7

Use the long $1/16^{\text{th}}$ hex key to tighten the setscrew inside the gold knob against the brass expansion collar. Rotate the black knob to confirm the gold knob moves freely.

When satisfied with the feel, tighten the setscrew in the gold knob securely. It is important to tighten firmly so that the brass expansion collar does not unscrew during typical usage. You should take care to center the knob as best as possible once the motor housing is clamped in place.



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Step 8

Roll the motor cover up to engage the motor assembly. Ensure the internal gear engagement is tight for best performance.



Step 9

Connect the Cat-5e Ethernet cable into the RJ45 socket on the end of the motor housing and connect the other end to the FocusLynx control hub using either the Focuser 1 or Focuser 2 port.



Your QuickSync TEC should now be ready to connect to a PC. Refer to the next section for software setup.



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FocusLynx Software Setup

Your QuickSync TEC motor is now installed. Consult the **FocusLynx Quick Start Guide** to install the FocusLynx Commander software. Once installed, you will need to configure the FocusLynx Commander for your new QuickSync TEC motor. 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.

FocusLynx Commander Focuser Type selection

Select the **FocusLynx FT Hi-Speed** Focuser Type option first. If you find the pinion assembly is slipping try the **FocusLynx Hi-Torque** setting. With stepper motors, speed and torque typically work inversely. That is, higher speeds will usually result in lower torque. If you find your pinion assembly continually slips contact Optec support (support@optecinc.com).

If the motor begins to stall you may hear a buzzing or chattering sound. First, try the **FocusLynx FT Hi-Torque** selection. In cases where there is exceptional friction in the pinion assembly you may need to loosen the internal tensioning nut slightly. Alternatively, you may try selecting the **FeatherTouch Motor Hi-Torque** setting which operates the stepper motor at an even slower rate. This setting is designed for the unipolar motors in the original Micro-Touch and Feather Touch Motor assemblies shown below, but will also work well with the bi-polar motor used in the QuickSync TEC assembly. Contact Optec support (support@optecinc.com) if your focus motor cannot be adjusted without slippage or stalling.

Sync the QuickSync position

With FocusLynx Commander running and connected to the QuickSync motor, manually set the focuser near the center of travel. Re-engage the motor and enter 32,767 in the box next to the Sync button. Press **Sync** and wait a few seconds. Test the In and Out movements to ensure proper operation.

NOTE: For some very long travel focusers like the TEC Large Focuser, Feathertouch FTF3545 and all the FTM Micro Pinion Retro-Fits, you may need to manually re-focus and Sync again to utilize the full focuser travel range. Each step corresponds to approximately 1 micron for the TEC and FTF focusers (much less with the FTM) so the 16-bit resolution of FocusLynx will allow up to about 65mm of travel. In nearly all cases, you will find that you will only need a few hundred steps to maintain focus once it has been achieved.



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FocusLynx TEC with QuickSync



*FocusLynx QuickSync motor with Feather Touch
FTM Micro Pinion Retro-fit on a Celestron C11 HD.*

Backward Compatibility for MicroTouch[®]

What if you already own a MicroTouch motor housing and want to continue using it? For owners of existing MicroTouch motors, Optec offers a special low cost cable option to control the unipolar motor of the original Starlight Instruments MicroTouch. While you won't enjoy the higher resolution, higher torque, and **QuickSync** convenience the FocusLynx FT offers, the FocusLynx controller can drive the MicroTouch unipolar motor quite well with no other loss of performance.



A simple MicroTouch motor control cable can be made from any Ethernet Cat5 cable. Optec offers complete packages which include the FocusLynx hub and this motor cable, or a full temperature probe kit to allow temperature compensation with the FocusLynx controller and MicroTouch motor.



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FocusLynx TEC with QuickSync



FocusLynx FT QuickSync shown with FeatherTouch Focusers



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