ThirdLynx FTX QuickSync Installation

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

The QuickSync FTX integrated motor assembly fits directly in place of the coarse and fine focus knobs on the right side of the FeatherTouch manual 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 usually be accomplished by disengaging the motor and adjusting the black focus knob on the opposite side of the focuser.

ThirdLynx FTX Model

Be sure you have the correct size QuickSync FTX motor assembly for your focuser. The table below provides the recommended FTX motor for various FeatherTouch focuser sizes and models.

FeatherTouch Model	Nominal Drawtube Size	Housing / Shaft Dia.	ThirdLynx FTX Model
FTF20xx series	2-inch	1.000" / 0.109" (7/64")	#19971 FTX20
FTF20xx Rack-&-Pinion	2-inch	1.000" / 0.156" (5/32")	#19970 FTX20R
FTF25xx series	2.5-inch	1.330" / 0.156" (5/32")	#19972 FTX30
FTF27xx series	2.7-inch	1.330" / 0.156" (5/32")	#19972 FTX30
FTF30xx series	3-inch	1.330" / 0.156" (5/32")	#19972 FTX30
FTF35xx series	3.5-inch	1.460" / 0.156" (5/32")	#19973 FTX40
AP series scopes	4.0-inch	1.460" / 0.156" (5/32")	#19973 FTX40
FTM-xxx series	n/a – Feather Touch Micro replacement for SCT standard focuser.	1.000" / 0.109" (7/64")	#19971 FTX20

Installation Video

The QuickSync FTX motors install on the focuser pinion block exactly the same as the original QuickSync FT motors.

Review the installation video for the QuickSync FT40 online https://www.youtube.com/watch?v=Olqkyuj7D1Q.

Note, however, that the configuration screens within FocusLynx Commander have changed slightly.   The ThirdLynx FTX motors are fully compatible with the latest versions of the FocusLynx drivers.

Package Contents

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

- QuickSync FTX motor assembly,
- Tool kit including 1/16" and 7/64" Allen hex keys,
- 12VDC power supply with wall cord,
- Long and Short USB A-B cables.

Installation Procedure: Step-by-Step

Step 1 – Remove Fine Knob

Remove the gold fine focus knob using the 1/16" hex key.
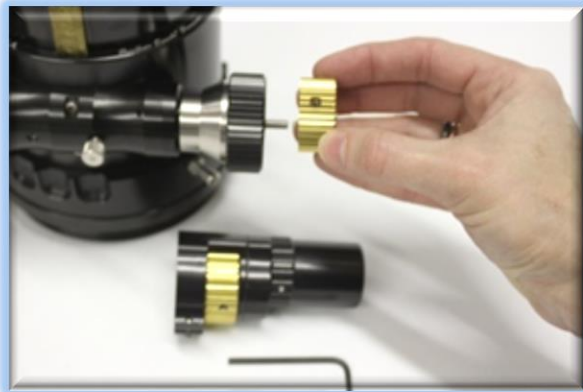
Step 2 – Remove Coarse Knob

Remove the larger black focus knob using the 1/16" hex key.

Step 3 – Install FTX Motor

Slide the QuickSync FTX motor assembly onto the pinion assembly. Use care to locate the gold focus knob onto the small shaft. Loosen the setscrew in the gold knob if needed. The fit will likely be snug. Use a gentle back and forth motion to slide the motor assembly on the shaft and then locate the clamp onto the stainless housing.

Step 4 – Tighten Clamp

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.

Step 5 – Test Clutch

(NOTE: This step applies only to the FTF and MPA type focusers.)

With the gold knob still loose, disengage the motor by rolling the motor cap down about 30 to 40-degrees (about ¼ to 1/8th 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 6 – Tighten Fine Knob

Use the 1/16" hex key to tighten the setscrew holding the gold knob against the small shaft. Rotate the black knob to confirm the gold knob moves freely. Test the fine focus gold knob.
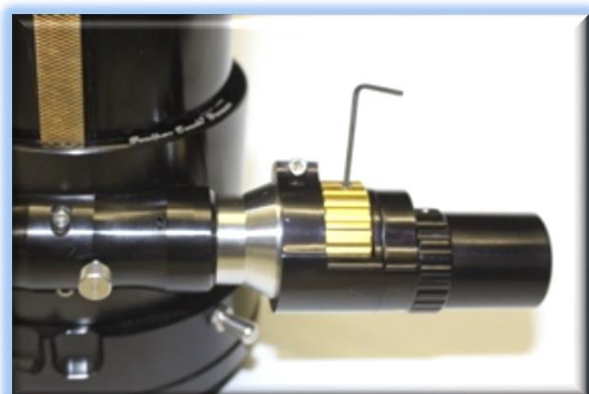
Step 7 – Test Gear Engagement

Roll the motor cover up to engage the motor assembly. You may need to slightly turn the gold knob if the clutch does not fully engage. To check this make sure that the stainless pin on the motor cover is completely to one side of the notch. Ensure the engagement is tight for best performance.

Step 8 – Connect Power and USB

Connect the 12-volt power supply to the QuickSync FTX motor. (The ThirdLynx motors require an external 12VDC power source for operation - see Power section below). Pull wall cord into local 110 or 220VAC power socket.

Plug in either long or short USB cable to best fit your telescope mount setup.

Power Options

The ThirdLynx FTX control circuit is powered by the 5-volt USB line. However, the bi-polar stepper motor used in the FTX requires an external 12-volt DC power source. Each kit includes a well-regulated 12VDC desktop type power supply capable of delivering at least 1.25A is provided for AC installations.

For portable users wishing to provide alternative power Optec offers several options below. Contact Optec Sales for pricing and availability.

#17061 – Paramount ME/MX Converter Cable

This cable is supplied in a standard length of 20-inches to take advantage of the Software Bisque Paramount through-mount power option. Longer or shorter cables can be made upon request.

#17063 - Molded Power Plug with 6-ft. Wire

This optional power cord features a molded 2.5 x 5.5mm power plug and 6-ft. leads with tinned ends. Cut to length and attach Power Pole or Rig Runner type connectors and wire with the center pin positive. The center pin is denoted by a white mark along the length of the stranded cable.

#17068 - Cigarette Lighter Plug

Optec offers a standard automotive cigarette lighter plug converter cable in straight or coiled versions. Each features Optec's 2.5 x 5.5mm power plug with center pin positive.

#17070 - USB-to-12VDC Power Converter

For mounts featuring a 1A or higher USB charging port, this 3-ft. cable can be used to supply power to the QuickSync FTX motors. Many USB hubs can supply more than the original USB 0.5A power limitation.

USB flat Type-A connector to 2.5 x 5.5mm power plug.

#17071 – 2.1mm to 2.5mm Expander

Short power converter plug for PegasusAstro Ultimate PowerBox cables to fit QuickSync FTX motors. Female 2.1mm to Male 2.5 x 5mm power plug converter.

Contact sales@optecinc.com for advice on other power options for the QuickSync FTX motors. We can fabricate Y-splitter cables or custom length power and communications cables to suit any mount.

Download FocusLynx Commander Software

Visit Optec's download page to obtain the latest version of the FocusLynx Commander ASCOM driver and software package. FocusLynx Commander runs on any Windows 7 or higher operating system. Be sure to download version 3.1 or higher to operate the ThirdLynx control circuit. Separate installer packages for Mac and Linux will be available soon.

http://www.optecinc.com/astronomy/downloads/focuslynx.htm
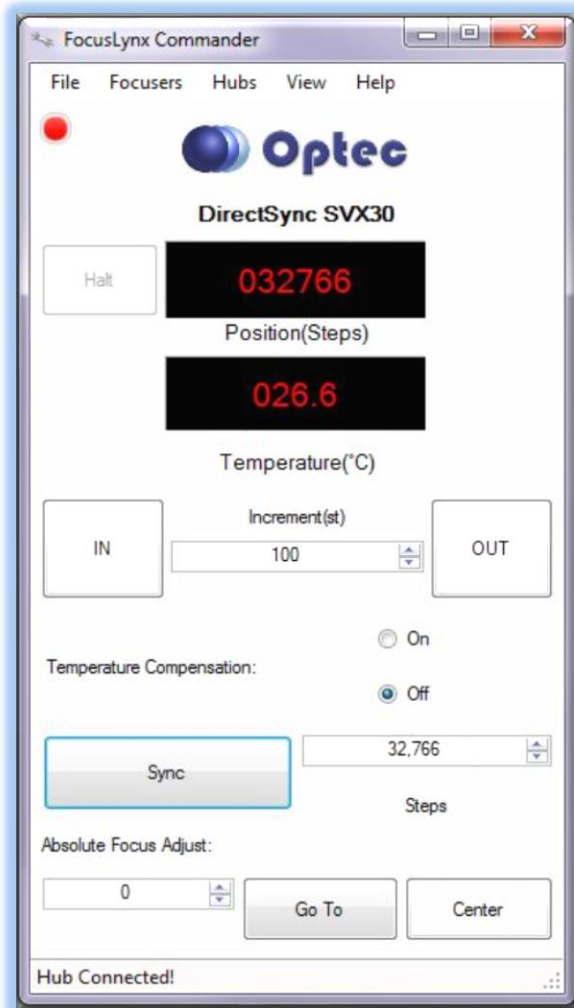
The ThirdLynx controller is an iFocuser3 type device. Because FocusLynx Commander is an ASCOM client, you will need ASCOM Platform 6.4 to configure the focuser. Visit the ASCOM webpages for the latest version.

https://ascom-standards.org/

On non-Windows computers, there is no need to install the ASCOM platform. Optec's driver includes a built-in Alpaca standard server that will provide the required interface for any client –level software displaying the Alpaca logo.
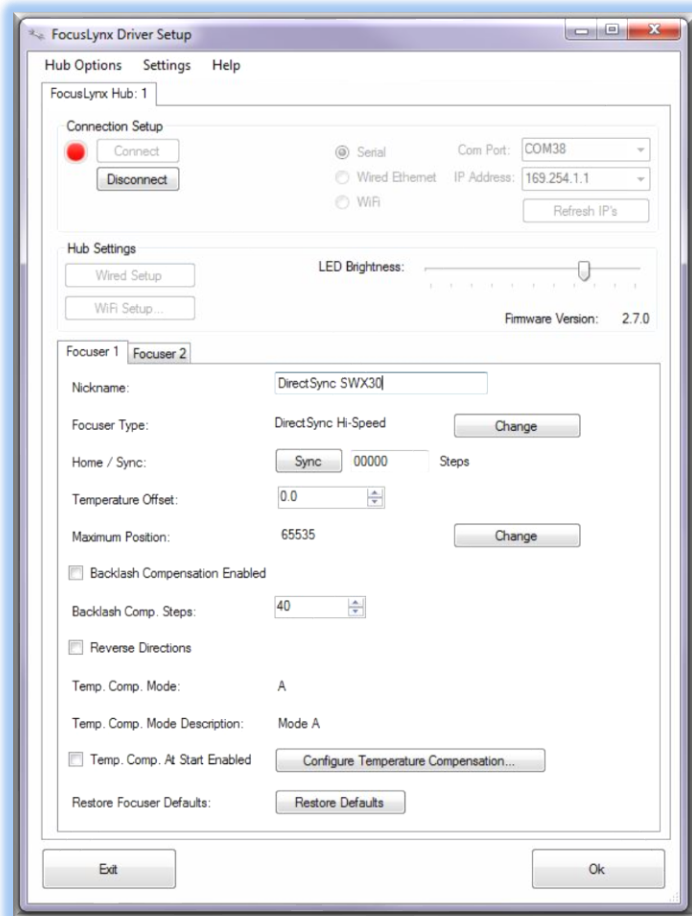
Windows Software Setup

Consult the *FocusLynx Quick Start Guide* to install FocusLynx Commander for Windows. Once installed, you will need to configure FocusLynx Commander for your new DirectSync 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, FocusMax, Sequence Generator Pro, or TheSky X for Windows. Control of FocusLynx or ThirdLynx focusers within TheSky X Windows version can be accomplished through either the ASCOM chooser or with the native X2 drivers for FocusLynx.

Focuser Type Selection

In FocusLynx Commander, click **Focusers – Setup** to open the FocusLynx Driver Setup dialog. The ThirdLynx USB-CDC controller will be automatically assigned a virtual COM port by Windows. (note the Wired Ethernet and WiFi connection types will be greyed out). Select the assigned COM port and click Connect. In the Focuser 1 section below, type in a Nickname for your telescope and click Change for the Focuser Type. Choose the **QuickSync** option and select either the Hi-Torque or Hi-Speed option using the slide bar near the bottom. With stepper motors speed and torque typically work inversely. That is, higher speeds will usually result in lower torque. The QuickSync Hi-Speed Focuser Type option coupled with the **QuickSync FTX** motor assembly can reliably handle payloads of 10kg (22 lbs.) or more.
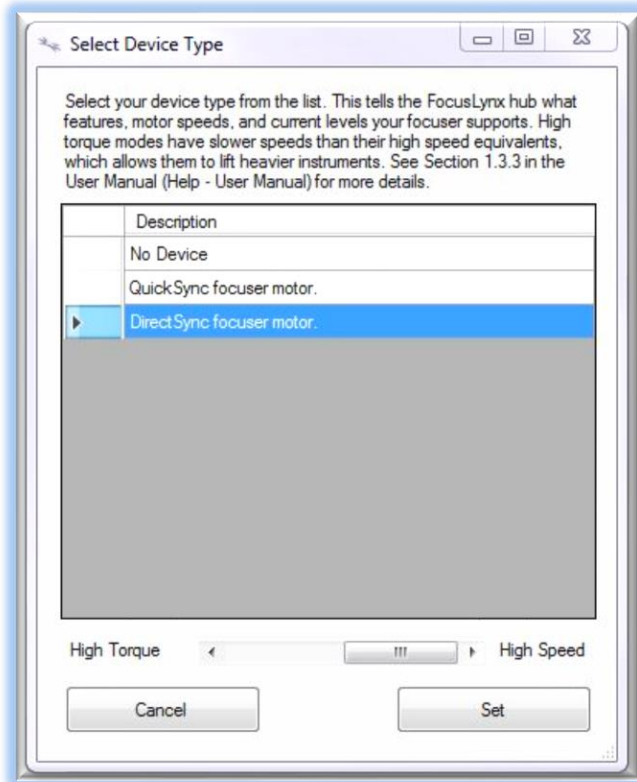
Click OK to exit the setup form and return to the main FocusLynx window. Click Focusers – **Connect**. Test the focuser movement by engaging the motor (roll the endcap clockwise as viewed from the cable end). Test both IN and OUT functionality with 1000 step increments. You should see the coarse and fine focus knobs move on the opposite side of the pinion block. All movements should be smooth. Disengage the motor to return to manual focus.

Contact Optec support (support@optecinc.com) if your focus motor cannot be adjusted without slippage or stalling. Some focusers present unique challenges with internal slipping.

Optional Setup Steps

Set the Position Units
The iFocuserV3 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. FocusLynx Commander acts as a client and extends the property to easily convert the units to mm and microns. In the main form of the FocusLynx Commander window, you may left-click directly on the red 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.

Step Size and Focuser Range
The FeatherTouch focuser drawtubes have a wide variety of travel ranges. The QuickSync FTX stepper motors have a step-size of approximately 1 micron so the default maximum position of 65,535 steps would allow for about 65mm.   If your focuser has a longer drawtube travel, you may wish to increase the Maximum Position value in the FocusLynx/ThirdLynx Driver Setup screen. Click **File**- **Step Size**

Wizard in FocusLynx Commander to calculate the exact step size and set the MaxStep values for your focuser and motor.

Recommended Sync Procedure

For most auto-focus routines, the required range of movement for the focuser is quite small compared to the total range of travel. The default 16-bit digital range of 65,535 steps is always more than adequate to allow successful auto-focusing. For best results, we recommend the focuser be manually moved to a rough focus and the position be synced to the center position of 32,767. The FocusLynx Hand Control offers an easy push-button method of accomplishing this "sync to center" operation. To "sync to center" with FocusLynx Commander, enter 32,767 (or simply round to 33,000) in the box immediately right of the Sync button. Press **Sync** and wait a few seconds. Test the IN and OUT button movements to ensure proper operation and function.

Alternatively, you can manually move the focuser drawtube all the way IN and Sync to 0. Then, use the hand control or FocusLynx Commander interface to move the drawtube outward to the end of travel. Note the step position and enter this value in the Maximum Position within setup. Subsequent connection to the focuser will automatically calculate the new center position (half of MaxPos) and display it as the new default Sync position on the main form and in the hand control "sync to center" feature.

Temperature Compensation

The DirectSync motor includes a built-in temperature sensor for temperature compensation. Within FocusLynx Commander click File – **Temp Comp Wizard** to let the software step you through the process and automatically calculate the "TC" or Temperature Coefficient for your particular telescope configuration. After completing the wizard, save the new TC value in any of the five available TC modes. Click the adjacent radio button next to Mode A through E to select that TempComp Mode for the current session.
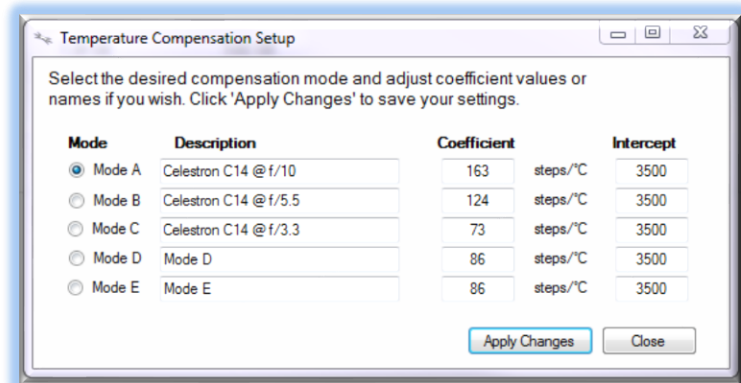
Turn on temperature compensation by selecting "On" just above the Sync button on the main FocusLynx Commander form. The FocusLynx controller will automatically adjust the focus for changing temperatures.

Linux and Mac Software Setup

Optec is developing a Linux based Commander program to provide much of the same functionality and features available with Windows FocusLynx Commander. Check the Optec website for the latest developments.

INDI Support

A group of dedicated volunteer programmers has developed the INDI Library which is a collection of programs designed to control astronomical equipment.   Full details are available at the INDI Library website: https://www.indilib.org/

ThirdLynx uses the same low-level commands as FocusLynx and will function with the INDI FocusLynx driver developed by Mr. Philippe Besson and Jasem Mutlaq.   Complete instructions and the INDI Linux driver are available for download here: https://www.indilib.org/devices/focusers/focuslynx.html

A special thanks to both developers.

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.

TheSky X Pro

Many users have asked for specific instructions to configure the DirectSync ThirdLynx controllers with TheSky X native X2 drivers. Currently, you should configure ThirdLynx as FocusLynx Focuser 1.
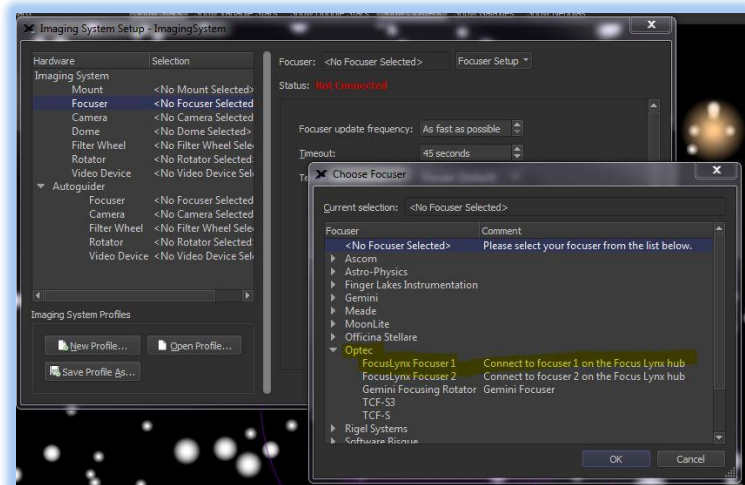
We expect a future daily build to offer the ThirdLynx as a separate option. Under settings, look for the COM port labeled **Optec ThirdLynx USB CDC**.

Optec

YouTube Channel

Optec is developing videos for installation and configuration of our many products for various software packages. Visit our YouTube channel by searching "Optec Inc" or clicking the link below.

https://www.youtube.com/channel/UCLOJ43G-q2SQfZfqeoaLiLA

Optec User Group

The Optec User Group is now located at Groups.io which provides a forum to communicate with other users of Optec instruments. Other end-users can often provide answers to specific configuration questions and Optec staff routinely follow and answer many questions as well. Click the banner below to subscribe.

Or visit the Groups.io Optec User Group here: https://groups.io/g/Optec.