



FocusLynx DirectSync SV Installation

Step-by-Step Instructions for Installing the DirectSync SV Motor Assembly to your Stellarvue SVF-25 Focuser.

The DirectSync SV motor assembly fits directly in place of the coarse focus knob on the left side of the Stellarvue SV 2.5" dual-speed focuser. The right-side coarse and fine focus knobs are left intact on the focuser while the DirectSync clutch mechanism offers easy engagement and disengagement of the stepper motor for manual focus.

When properly mounted, the DirectSync SV provides a 1.1 micron per step resolution and superior repeatability and load carrying capacity. A precision digital temperature sensor and electronic noise suppression circuitry are integrated into the DirectSync motor assembly allowing any Cat-5e cable to connect FocusLynx hub and motor.



Stellarvue SV Focuser

See www.stellarvue.com for the latest telescope models supplied with the Stellarvue 2.5" dual-speed focuser.

Developed as an improvement over the original QuickSync SV motor, DirectSync SV provides a direct geared connection to the focuser rack and pinion assembly. The system will not slip and can carry loads in excess of 5 kg (11 lbs.) with excellent repeatability. The DirectSync SV uses a clutch mechanism and a simple twist of the motor housing disengages and re-engages the motor.

Please review these instructions carefully for installation procedures. Contact [Optec Support](#) if you have any questions or concerns when installing the DirectSync SV.



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FocusLynx SV with DirectSync



DirectSync SV Package Contents

Confirm the contents of your FocusLynx DirectSync SV package. The package should contain the following:

- DirectSync SV motor assembly
- Cat-5e or Cat-6 Ethernet cable
- 60-tooth gear for coarse shaft
- Tool kit including 2mm and 1/16" Allen hex keys with a 3/32" hex balldriver.



FocusLynx SV Package Contents

If you've purchased the full FocusLynx SV with DirectSync 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

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



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Installation Procedure: Step-by-Step

Step 1

To install the DirectSync SV motor, first remove the large coarse focus knob on the left side of the Stellarvue focuser with the 2mm hex key. No need to adjust or remove the fine focus knob on the right side.

Notice the flat machined into the shaft. A setscrew holding the knob in place should make contact against this flat.



Step 2

Slide the 60-tooth gear hub-end first onto the pinion shaft. Rotate the gear so that one of the two setscrews falls upon the flat. Make sure the gear is flush with the end of the shaft, do not push the gear on too far. Tighten the setscrews with the 1/16" hex key and be sure they are secured before continuing. Test the focuser function by moving the coarse and fine focus knobs on the right side of the focuser up and down ensuring smooth free movement.

Step 3

Set the DirectSync SV motor to the disengaged position by rolling the motor clutch counterclockwise (away from you). Make sure the nylon tip setscrews are backed out for clearance.



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Step 4

Find the flat surface with the setscrew of the DirectSync SV and align it with the flat surface of the pinion block. Slide the DirectSync SV all the way onto the pinion block assembly.

Step 5

Keeping the two flat surfaces aligned, use the 3/32" ball driver to snug up evenly the two setscrews except the one on the flat surface (do not tighten too much yet). Now snug up the third setscrew on the flat surface.



Step 6

With the motor still disengaged move the right side manual focus knobs to test the feel. If focus travel feels smooth tighten up the three setscrews evenly (careful not to overtighten). If focus travel binds up or is very rough loosen the setscrew on the flat while tightening the others to adjust.

Your DirectSync SV is now ready for FocusLynx Software Setup. Contact [Optec Support](#) if you

have any questions or concerns installing your DirectSync SV.



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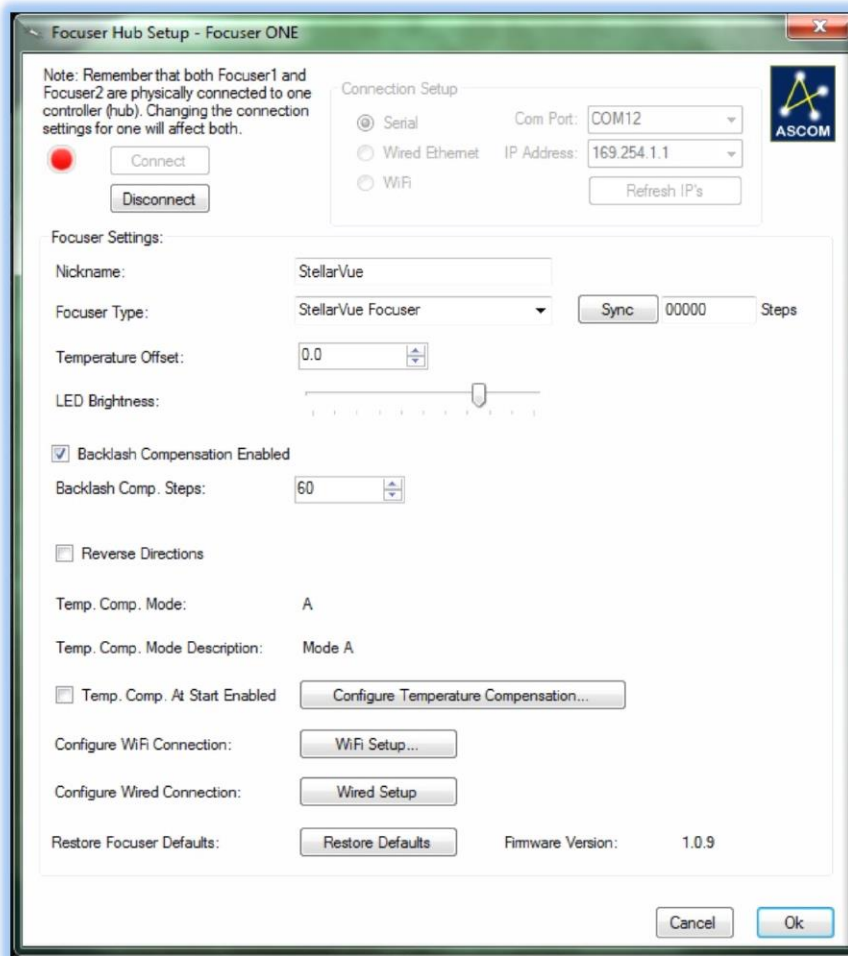


FocusLynx Software Setup

Your DirectSync SV 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 DirectSync SV 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

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



We recommend you turn on backlash compensation and set the number of steps to 60.

With stepper motors, speed and torque typically work inversely. That is, higher speeds will usually result in lower torque. The DirectSync SV Focuser Type option coupled with the **DirectSync SV** motor assembly can reliably handle payloads in excess of 5 kg (11 lbs.).

Contact Optec support (support@optecinc.com) if your focus motor cannot be adjusted without slippage or stalling.



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FocusLynx SV with DirectSync



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 Stellarvue SVF25 focuser has a total travel range of approximately 82 mm. The DirectSync SV stepper motor has a step-size of approximately 1.1 microns and 16-bit resolution. With 65,535 total steps available a range of approximately 74 mm can be accommodated by the FocusLynx Commander software. To take advantage of the full range of the Stellarvue focuser travel, the DirectSync motor can be disengaged for manual focuser movement, re-engaged, and synced at any time.

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 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.

Temperature Compensation

The DirectSync SV motor includes a built-in temperature probe for temperature compensation. 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 SV focus for changing temperatures.



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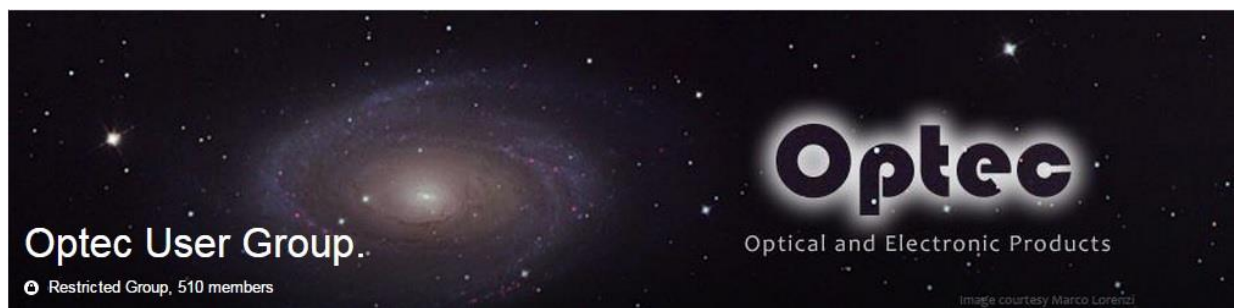


Third-Party Software

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/astromony/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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