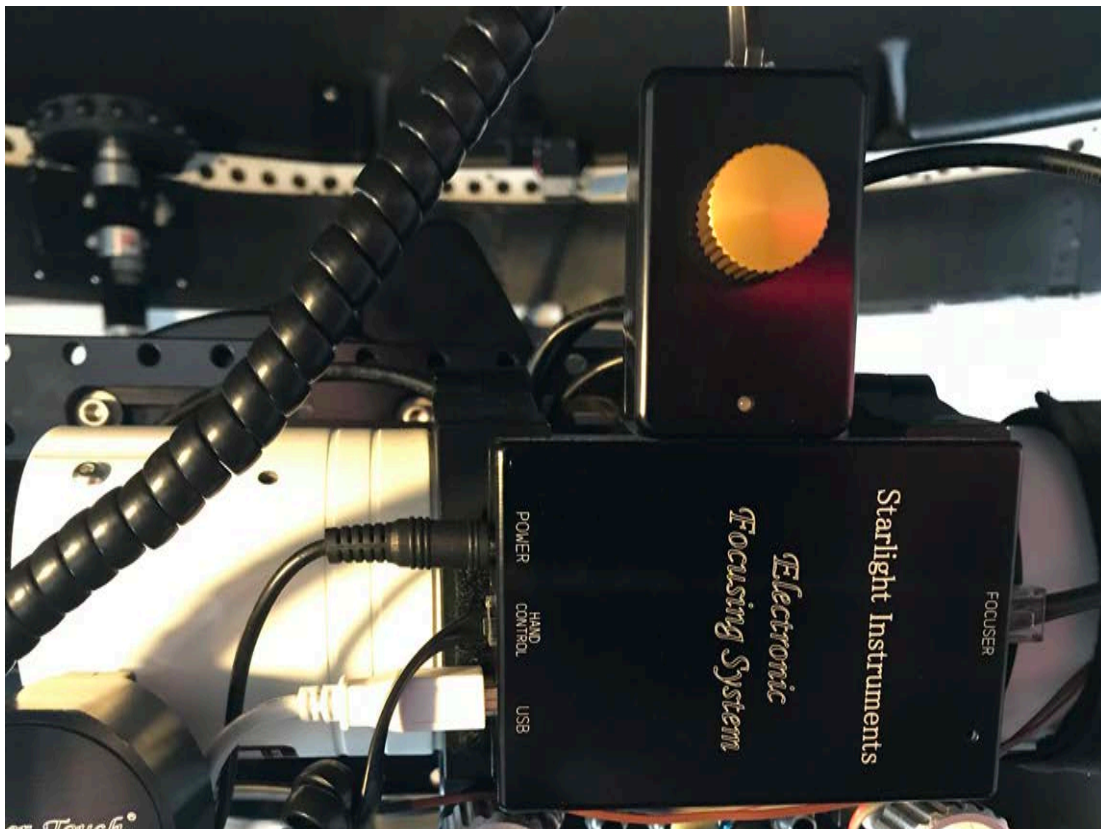


Impressions of the Starlight Instruments Electronic Focusing System

by Jon Talbot



Over the last several months I've had the opportunity to test the new Starlight Instruments Electronic Focusing System (EFS) which is a control box that interfaces Starlight Instruments focus motor's with a computer allowing one to remotely control the focusing of your telescope or perform automatic focusing with the majority of the telescope control software packages available to the amateur astronomer. The package also comes with a hand controller that allows the operator to manually adjust the focuser and also control several other functions. Also included are the necessary power adapter and cables to interface the EFS to your system along with a ASCOM driver. The system offers all the standard features that Amateur Astronomers have come to expect including the ability to correct backlash, temperature compensation and extremely accurate focus. The ASCOM driver

also offers several settings including braking of the focus motor and locking the focus motor and several speed options.

The Starlight Instruments Electronic focusing system (EFS) measures 4.13" (105mm) long, 2.87" (73mm) wide and 1.1" (28mm) thick. It has connections on the rear for power, the hand controller, and a USB connection. The connection to the focuser is on the front of the EFS box. The EFS can be controlled by a computer via the USB interface.

THE SETUP

My test setup was a 70mm refractor utilizing a Starlight Instruments Posi Drive focuser motor

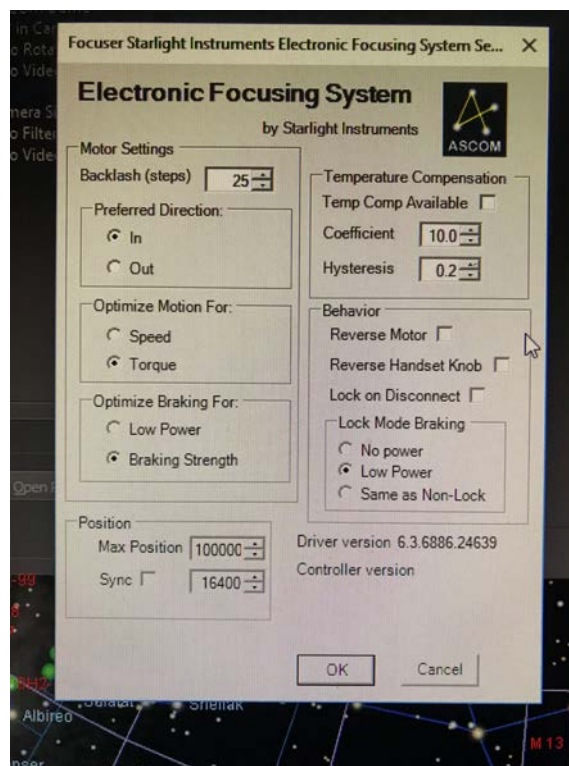


mounted on a Software Bisque Paramount MyT. I utilized the EFS system to do imaging and controlled the focuser via software. I mounted the EFS box using velcro to the flat top portion of the rings which held the refractor. The EFS system draws about 1 amp of power @ 12V so I was able to utilize the 12V 1 amp power connection right on the MyT versa plate, otherwise you would need to connect the 12V power supply. I was also able to connect the USB cable to one of the available USB ports on the mount versa plate but one could also utilize a USB hub mounted close to the scope or powered extension cable. The included network interface cable was plugged into the focuser motor and the front of the EFS box. There are two red power indicator lights on the EFS box. One by the power connector to indicate power and one by the USB connection indicating your connected. Both of these red lights are dim so they will not bother you visually or interfere with a camera if your imaging. Since I control my mount with The Sky X it was nice to see that a native X2 driver was already available for the EFS system. The EFS package comes with a ASCOM driver which can also interface with The Sky X by selecting "ASCOM focuser" on the The Sky X focuser

setup page. The driver will also interface with any other ASCOM compatible telescope control program. The ASCOM driver requires at least the ASCOM platform V6 but it never hurts to make sure you have the latest release of the ASCOM platform which as of this writing is Version 6.4SP1.

IN OPERATION

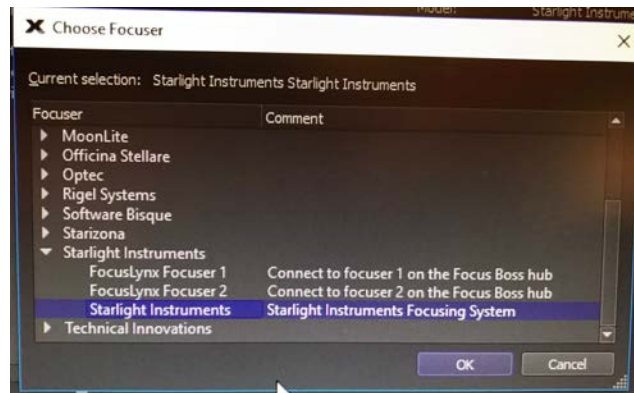
Operating the Starlight Instruments EFS system was similar to any of the other electronic focus controllers. Setting up the drivers is a bit different depending upon which one you're using. If you use the ASCOM driver supplied with the EFS system, selecting the various options is explained in the included manual. The “Preferred Direction” of the backlash compensation is the direction the motor



ASCOM Driver

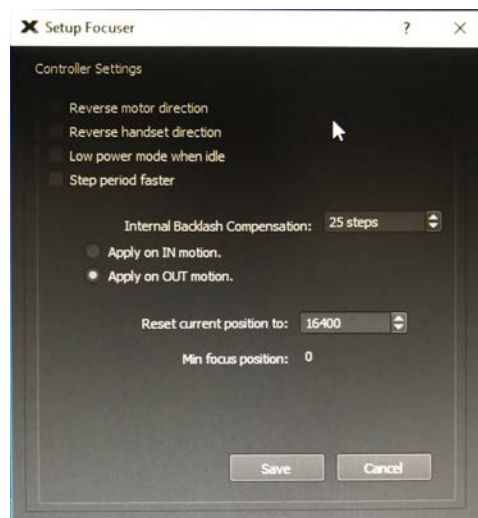
will move the focuser after a move. So, if you move the focuser out (further away from the optics) selecting “In” for the preferred direction will cause the motor to move “In” by the amount of the number of steps you input during the driver setup once the focuser reaches the out distance you told it to go. This “In” movement is usually against gravity which is typically what you want. The “Optimize Motion For” selection gives you the option to make the motor move faster or slower. Usually if you have a heavy camera, the “torque” option is the one to use. The “Optimize Braking for” section defines how much power goes to the motor after a move to hold the camera in place. Most times low power should be enough, however if you have a heavy camera “Braking Strength” is what you should select.

If you use The Sky X, to select the native driver click on the “Choose Focuser” button within the focuser setup section of The Sky X. Scroll down to Starlight Instruments and select “Starlight Instruments”



The Sky X Choose Focuser dialog

Using The Sky X driver, the options and the backlash compensation is a bit different. In The Sky X driver, “low power mode when idle” is the same as selecting “low power” in the “Optimize Braking for” section of the ASCOM driver. Step period faster is the same as having “speed” checked in the “Optimize motion for” section of the ASCOM driver. Lastly, by selecting “apply on OUT motion” in The Sky X driver, the focuser will move out to the specified point, then “in” against gravity by the number of steps you specified. In my case 25.



The Sky X native Driver

The Starlight Instruments EFS system has worked flawlessly over the last several months controlling the Posi Drive focus motor on my system. I've had zero issues using the EFS with The Sky X to do a focus run with @focus3 or autonomously using @focus3 through CCD AutoPilot.

OTHER NEAT FEATURES

The small hand controller that comes with the EFS system can offer interesting options. It plugs into the hand controller port on the back of the box. It allows you to control the movement of the focuser by turning the knob on the hand controller. By clicking the knob you can change the number of steps the focuser moves from 1 step to 10 steps to 100 steps per movement. A small light on the hand controller shows you what movement rate is set based on the color. As you rotate the knob you can feel detents. Each detent means the focuser will move by 1 step, 10 steps or 100 steps. This precision can come in handy when using a scope visually or doing planetary imaging and manually adjusting focus. Pressing and holding the knob turns extended functions on and off like temperature compensation, focus lock and zeroing the focus position. You also update the EFS system firmware by utilizing the hand controller. All of these functions are well explained in the EFS user manual. I should also note that you don't have to have the hand controller plugged in to use the focus controller with a computer.

CONCLUSIONS

The Starlight Instruments EFS system works as advertised. It precisely controls a Starlight Instruments focus motor allowing precise focus. It's small, lightweight and has all the bells and whistles of typical electronic focusing systems. The hand controller is really nice and unique and operates several functions from manually moving the focuser to updating the firmware. The form factor is relatively small and light making it easy to mount to a telescope. Visual observers and imagers alike will find it to be a very useful accessory to their telescope system.