Optec Hand Controller

Quick Start Instructions for the #19754 Optec Hand Controller.

The Optec Hand Control replaces the original FocusLynx Hand Control (FLHC) as well as the Gemini Hand Control. This new version works with FocusLynx, Gemini, and Hercules focusing rotators. Included with the Gemini package, the Optec Hand Controller is an optional accessory for the FocusLynx focuser control hub or the Hercules focusing rotator. It features three buttons, a red digital display and a Fine Focus Knob with embedded rotary encoder.

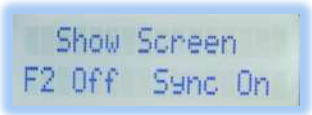


Connect to Focuser

To connect to your Optec Hand Controller simply attach either the long or short coiled telephone handset cable to the RJ22 socket on the bottom of the Hand Control. Connect the other end to the Hand Controller socket on the bottom of the FocusLynx or Gemini hub. The Hercules has an RJ22 socket on the body of the focusing rotator. You can replace this cable at any time with any telephone handset cord obtained locally. However, longer cables may require a ferrite choke for proper communications. When initially connecting the hand control to the hub, you may see a "Waiting for Data" message while the hub and hand control firmware pass data along the serial link.

Mode Button Function - FocusLynx

The top left button is the Mode button. Pressing the Mode button will cycle between the **Firmware** information screen, **Focuser 1**, **Focuser 2**, and **Home/Sync Focuser** screens for FocusLynx. Focuser 1 and Focuser 2 screens will display the focuser Nicknames set up in the FocusLynx Commander software, the current position in steps and temperature (if the temperature probe is connected). The fourth Mode screen will be the Sync Focuser screen which will display **Home** for homing focusers like the TCF-Lynx or **Sync** for non-homing focusers such as the QuickSync or DirectSync motors.



The Focuser 2 and Home/Sync Focuser screens can be disabled if Focuser 2 is not populated or connected. Press and hold the **Mode** button, then tap the rotary encoder switch four times to enter the Mode Display Setup screen. Press the left (IN) button to toggle the Focuser 2 screen on and off. Press the right (OUT) button to toggle the Home/Sync screen on and off. This setting is saved in the main

Optec

199 Smith Street · Lowell, Michigan 49331 · U.S.A.
Telephone: 616-897-9351 · Fax: (616) 897-8229 · Toll Free: 888-488-0381
sales@optecinc.com · http://www.optecinc.com · www.optecinc.us

FocusLynx hub rather than the Hand Control and will persist with any connected hand controller having version 1.3.0 firmware or higher. Pressing the Mode button will now cycle only through the selected screens. The Firmware Version screen and Focuser 1 screen cannot be disabled.

FocusLynx hub firmware version 2.1.0 and higher will automatically disable Focuser 2 screen if no device type is setup for Focuser 2 within FocusLynx Commander.

Mode Button Function – Gemini and Hercules

The Optec Hand Control functions slightly differently with the Gemini or Hercules focusing rotators. Pressing the Mode button will toggle between the Firmware information screen, Focuser, Rotator, and Home screens. The Focuser and Rotator screens will display the Nicknames set up in the Gemini / Hercules Commander software and the current position. The Focuser display will also display the temperature when a temperature probe is connected. Use the IN and OUT buttons to move the focuser position. These same buttons serve to move the rotator in counterclockwise or clockwise directions.

Important Note: Only the instrumental PA will be displayed on the Optec Hand Control. If a Sky PA offset is being used, it will not be reported on the hand control display.

IN/OUT Buttons

Use the IN and OUT buttons to move the focuser position of the currently displayed focuser. Use the Mode button to toggle between Focuser 1 or Focuser 2. When used with Gemini or Hercules, press the Mode button to toggle between Focuser and Rotator.

Multiple Speeds



The Optec Hand Control is designed for multiple speeds while at the telescope. Tap the IN or OUT button once and the focuser will move one step. Note that if backlash compensation is enabled on the FocusLynx hub, any move in the OUT direction will move the number of steps defined in the Setup dialogs plus one extra step, and then reverse to yield a net move of just one step while taking up any undesirable backlash. Turning off backlash compensation will disable this behavior but is not recommended since most geared motors will have at least twenty steps or more of inherent backlash.

Holding the IN or OUT button down will first move the motor one step, then 0.2 seconds later continue into a low speed move. If the button remains held down for 2-1/2 seconds the motor will shift into a higher speed mode. Backlash compensation will be taken up in the initial button press only. Releasing the button will immediately stop the focuser movement.

Optec

199 Smith Street · Lowell, Michigan 49331 · U.S.A.
Telephone: 616-897-9351 · Fax: (616) 897-8229 · Toll Free: 888-488-0381
sales@optecinc.com · http://www.optecinc.com · www.optecinc.us

Fine Focus Knob

The Optec Hand Controller includes a Fine Focus Knob with rotary encoder for improved tactile feedback during manual focus. The Fine Focus Knob is designed for easy reach with your thumb for one-handed operation. Alternatively, you can use two hands if this is more comfortable. The Fine Focus Knob is designed so that clockwise rotations move the focuser OUT while counter-clockwise turns move the focuser IN.

Rotary Thumbwheel Button

When used with Gemini or Hercules the rotary thumbwheel button is designed to allow an absolute rotator move to be made when in Rotator mode. Note that the position display will be an instrumental position angle only. Rotate the rotary knob with your thumb or opposite hand until the desired position angle is displayed, then press down on the rotary switch to send the Rotator to the instrumental PA being displayed. The rotator will move to the new position angle. To halt a rotator move in progress, press either the IN or OUT buttons while the Mode button is in the Rotator screen.

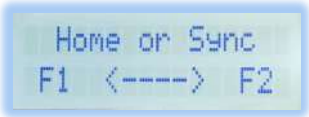
Multiple Speeds

The Fine Focus Knob offers four focuser speeds – 1X for single step resolution, 10X for ten step movements with each encoder tic, 100X and 500X for high speed and longer travel moves. Press the Fine Focus Knob to toggle between 1X, 10X, 100X and 500X speeds. The Temperature display will change to the current speed while the rotary encoder wheel is actively being used.



You will find that using the Fine Focus Knob is much more intuitive and responsive than using the buttons above. Without looking away from your eyepiece, the rotary knob is easy to use and provides a much higher level of precision than the IN and OUT buttons alone.

Home/Sync Function



The Sync Focuser function will synchronize a non-homing focuser like the QuickSync FT to the midpoint of available travel. This function is useful when re-engaging the focus motor after a visual session. Simply press and hold the IN button to Sync F1 (Focuser 1) or the OUT button to Sync F2. After a few seconds you will see a “Sync Succeeded!” message and the focuser position will be synchronized to the midpoint of travel based on the maximum position value set in FocusLynx Commander.



Optec

199 Smith Street · Lowell, Michigan 49331 · U.S.A.
Telephone: 616-897-9351 · Fax: (616) 897-8229 · Toll Free: 888-488-0381
sales@optecinc.com · http://www.optecinc.com · www.optecinc.us

Troubleshooting

Occasionally, the Hand Control screen may appear blank or locked in the "Waiting for Data" screen for too long. If the screen is blank or the "Waiting for Data" message persists, first try simply unplugging and re-plugging the coiled handset cable in the bottom of the hand control. If this does not solve the issue try adding a ferrite core choke or contact Optec support. When changes are made in FocusLynx Commander set up dialogs, the cable may need to be unplugged and then re-plugged to re-establish communication between the hub firmware and FLHC firmware.

Contact Optec Technical Support (support@optecinc.com) with any other issues concerning the FocusLynx Hand Control option.

Upgrades

FocusLynx and Gemini Hand Controllers can be upgraded to the Optec Hand Controller by simply replacing the firmware chip. If the Optec Hand Control firmware needs to be updated, a PIC chip replacement must be ordered. Specify Optec #19754-FW to order a hand control firmware update. The firmware is provided in a 28-pin DIP (dual in-line package) programmable integrated circuit with the version number marked on the IC.



First unplug the coiled cable from the hand control. Remove the FLHC back cover to expose the circuit board and IC socket. Note the position of the notch indicating Pin 1. Gently pry the existing firmware chip up and out of the socket and replace with the new firmware PIC chip. Ensure that Pin 1 is in the same orientation as the original. Re-attach the back cover and coiled cable. Connect to the hub and watch for the firmware version number to appear.

Fine Focus Knob Upgrade

Owners of the older first generation FocusLynx Hand Controllers may wish to upgrade to the second generation which includes the Fine Focus Knob. This second generation upgrade requires returning the hand control to Optec for addition of the rotary encoder and associated circuitry. Optec offers our service item #17696 for the upgrade which includes the #19754-FW firmware update to the most current version Optec Hand Controller. Contact Optec Sales (sales@optecinc.com) for details and pricing.

Optec

199 Smith Street · Lowell, Michigan 49331 · U.S.A.
Telephone: 616-897-9351 · Fax: (616) 897-8229 · Toll Free: 888-488-0381
sales@optecinc.com · http://www.optecinc.com · www.optecinc.us