

FLI



Finger Lakes Instrumentation

Engineering Excellence

Because Your Image Depends On It

Atlas

Focuser

User's Guide



WELCOME

Thank you for purchasing an FLI Atlas Focuser. We know that the accessory will bring you years of enjoyment and excellent imaging results.

This User's Guide is intended as a reference tool for you to use with the FLI Atlas Focuser. Please read it and follow the procedures to ensure trouble-free installation of your hardware and software. For information on other FLI Focusers, please visit our website at:

www.flicamera.com

If you have any questions about your purchase, please contact us.

CONTACT INFORMATION

Finger Lakes Instrumentation, LLC

7287 West Main Street

Lima, New York 14485

Web: www.flicamera.com

Email: support@flicamera.com

Fax: 585-624-9879

Phone: 585-624-3760

FLI Yahoo Group is an active forum for members wishing to discuss FLI imaging systems, share imaging experiences, techniques, and results, and discuss imaging solutions and problem solving. The forum is accessible online at:

http://tech.groups.yahoo.com/group/FLI_Imaging_Systems.

CONTENTS

WELCOME	1
CONTACT INFORMATION	1
CONTENTS	2
PRODUCT SAFETY	3
ATLAS FOCUSER OVERVIEW	4
ATLAS FOCUSER SPECIFICATIONS.....	4
INSTALLING THE FLI FOCUS SOFTWARE.....	5
ATLAS FOCUSER CONNECTIONS.....	6
CONNECTION ACCESSORIES	7
SETTING-UP AND POWERING AN ATLAS FOCUSER	8
CONNECTING ADAPTERS TO ATLAS FOCUSER.....	10
APPENDIX A – TROUBLESHOOTING	12
APPENDIX B - WARRANTY FOR FLI PRODUCTS.....	13
APPENDIX C - FLI RETURN PROCEDURE	16

PRODUCT SAFETY



This FLI Atlas Focuser is shipped with a 12 VDC power supply. Do not use any other power supply with this System or use the power supply in a way other than described in this Guide as it may cause damage to the Atlas Focuser that will not be covered under the warranty.



If you are concerned about lightning strikes in the area in which you use your Atlas Focuser, you may want to take safety precautions as electrical surges can damage electrical equipment. We recommend that when your Atlas Focuser is not in use that you unplug the Atlas Focuser from power and unplug the USB cable from the Atlas Focuser.

ATLAS FOCUSER OVERVIEW

FLI's digital focusers are specifically designed for modern CCD astronomy where the digital imaging system is mounted very close to correct focus. The thin designs allow focusing with short-travel optical designs. All of our focusers are ASCOM compliant and are compatible with most software. The table below provides specifications for the FLI Atlas Focuser.

The Atlas is designed to achieve critical focus with heavy loads.

The Zero Tilt Adapter™ locking mechanism implemented on both sides of the focuser is designed to achieve a rigid and tilt-free connection to adapters and other hardware.

Note: If the directions in this guide are followed properly, the Atlas Focuser will recall its last position after being powered down.

ATLAS FOCUSER SPECIFICATIONS

Minimum Travel	0.35"
Dimensions	7.0" x 7.0"
Thickness in Closed Position (Factory Set)	1.26"
Weight	3.0 lbs
PC Interface	USB 2.0
Number of Steps	105,000
Resolution per Step	0.083 micron
Clear Aperture	89 mm
Maximum Payload	25.0 lbs
Payload at 6" Distance	10.0 lbs

Note: Please be sure to abide by the product specifications, do not overload the Atlas Focuser.

INSTALLING THE FLI FOCUS SOFTWARE

Obtain the most up to date software to install and test your Atlas Focuser from our web site:

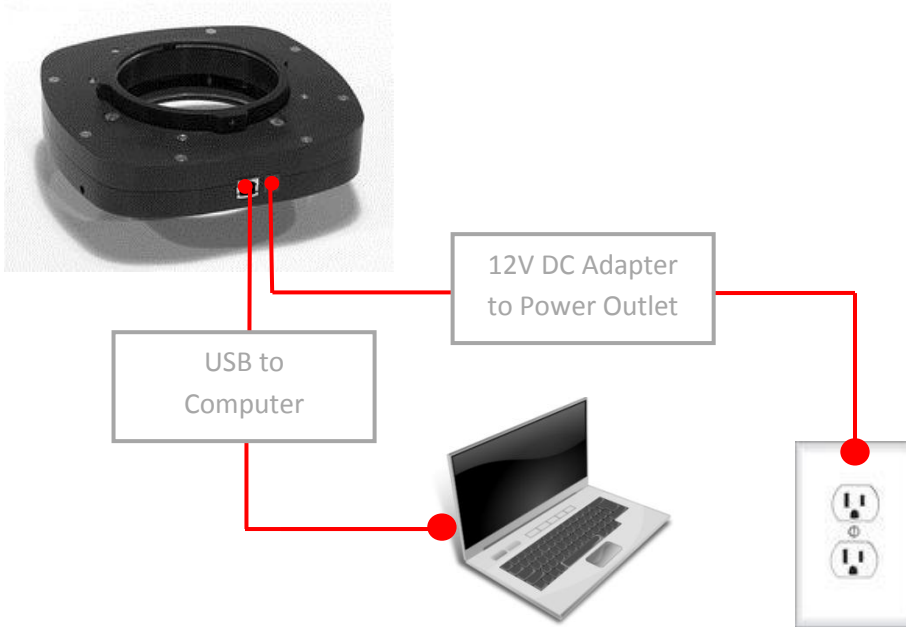
<http://www.flicamera.com/software>

Select the FLI Software Installation Kit. Follow the installation instructions given in on-screen prompts that will guide you through the whole procedure. The FLI Software Installation Kit includes drivers for FLI products as well as utilities that can be used to control the hardware.

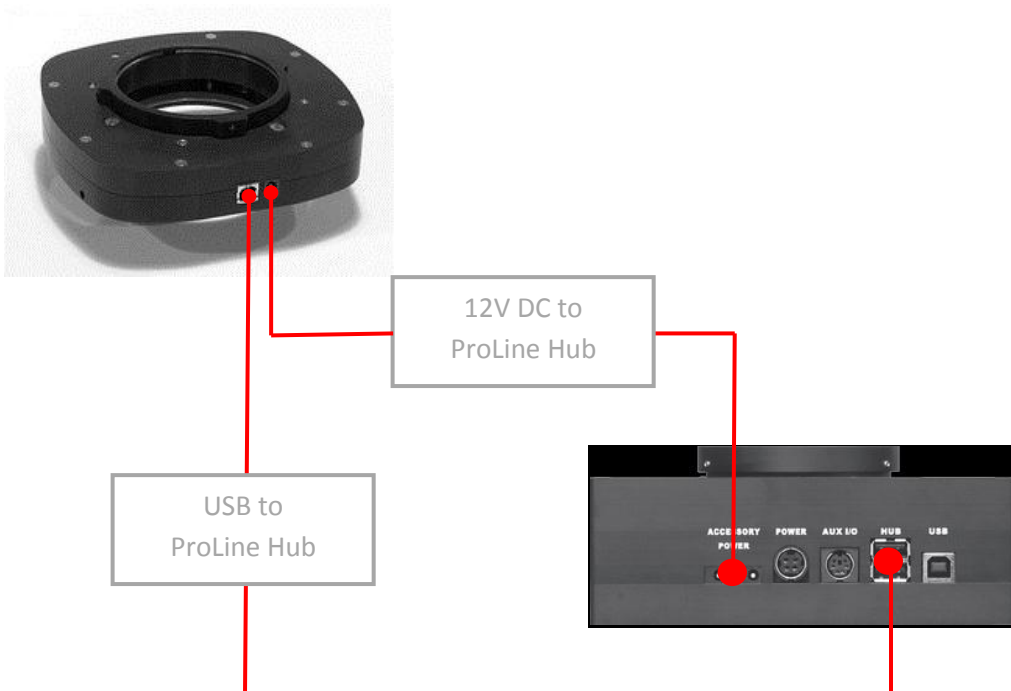
Note: Run the FLI Software Installation Kit before you set up and power the Atlas Focuser for the first time to ensure the system recognizes and correctly initializes the Atlas Focuser when you connect it.

ATLAS FOCUSER CONNECTIONS

Connecting the Atlas Focuser to a Computer



Connecting the Atlas Focuser to a ProLine Hub



CONNECTION ACCESSORIES



Note: A Short Cable Kit (Part# SCK) is available for connecting the Atlas Focuser to a ProLine Hub more efficiently. Please contact FLI via phone or email for more info.

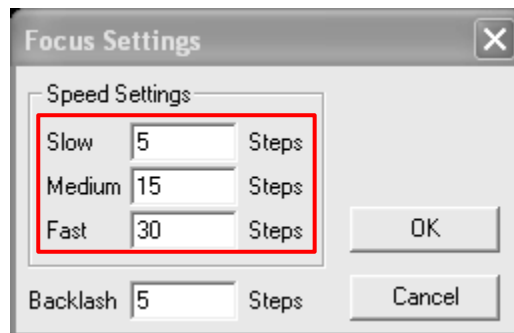
SETTING-UP AND POWERING AN ATLAS FOCUSER

Assemble all components in one area before beginning this set up procedure. Complete the software installation previously detailed before running the Atlas Focuser for the first time.

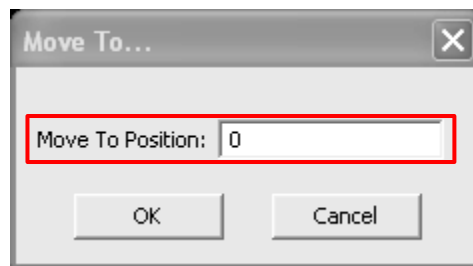
1. Plug the power supply cable into the Atlas Focuser.
2. Attach the USB cable between the Atlas Focuser and your computer.
3. Plug the power supply cable into a wall socket or switched AC power strip.
4. Run FLI Focus to operate the Atlas Focuser.

The following notes are provided to assist you with the FLI Focus Software:

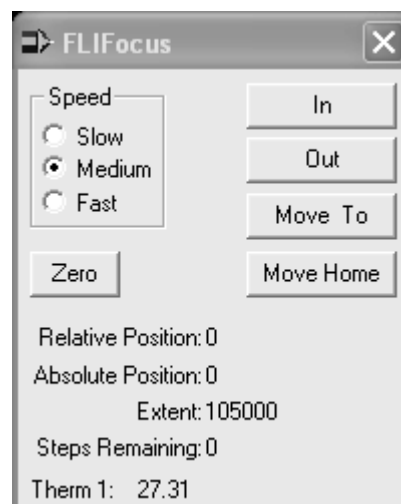
- The FLI Focus software will automatically recognize the type of Focuser that is attached to your computer. If the computer does not correctly identify the Atlas Focuser, refer to the Troubleshooting topic later in this Guide for instructions.
- The home position of the focuser could be 0 (completely closed) or the middle of its range, depending on the software in use. The Atlas Focuser has 105,000 steps. Press the “Move Home” button to put the focuser in the home position.
- Use the “Zero” button to override the focuser position indicator without homing.
- To increase the position (extend the focuser) click “Out” and to decrease the position (retract the focuser) click “In”. The rate at which the focuser position depends on the speed setting.
- You can modify the Speed settings of Slow, Medium and Fast to better match your imaging setup and protocol. To configure the Speed settings, right-click on the dialog box and select “Focus Settings”. Choose the number of steps you would like for each setting, then click “OK”.



- To jump to an exact position, click the “Move To” button which will display the following window. Enter the desired position and then select “OK”.



- **Relative Position** displays the value of the focuser position relative to the user designated zero value.
- **Absolute Position** displays the value of the focuser position relative to the zero-value designated by the system.
- **Extent** is the number of steps of the focuser, which is 105,000 for the Atlas Focuser.
- **Steps Remaining** displays the number of steps remaining during a focusing move.
- **Therm 1** displays the internal temperature in degrees Celsius of the unit.



CONNECTING ADAPTERS TO ATLAS FOCUSER

FLI Atlas Focusers employ the Zero-Tilt Adapter™ mechanism to attach to other components in the imaging train. The mechanism is easy to use and provides an extremely rigid connection. The locking mechanism is actuated with three set screws accessible at the perimeter of the engraved side of the housing and three set screws located on the moving center portion of the focuser, in a manner similar to a more traditional V-groove connection.

Visit the Atlas tab under the Focusers section of our website <http://www.flicamera.com/> to view an animation demonstrating the operation of the Zero-Tilt Adapter™.

See our web site for a list of available adapters.

<http://www.flicamera.com/adapters>

The following notes are provided to assist you with attaching an adapter:

1. Place the focuser on a clean surface with the FLI logo facing down (this is the camera side of the Atlas Focuser).
2. Insert the adapter inside the center bore of the Atlas focuser. The fit between the adapter and the focuser is very close to achieve maximum precision, it is necessary to align the adapter with the opening. If the Zero Tilt Adapter™ spring in the groove in the focuser inhibits the insertion of the adapter, loosen the three set screws in the bosses around the perimeter of the center bore.

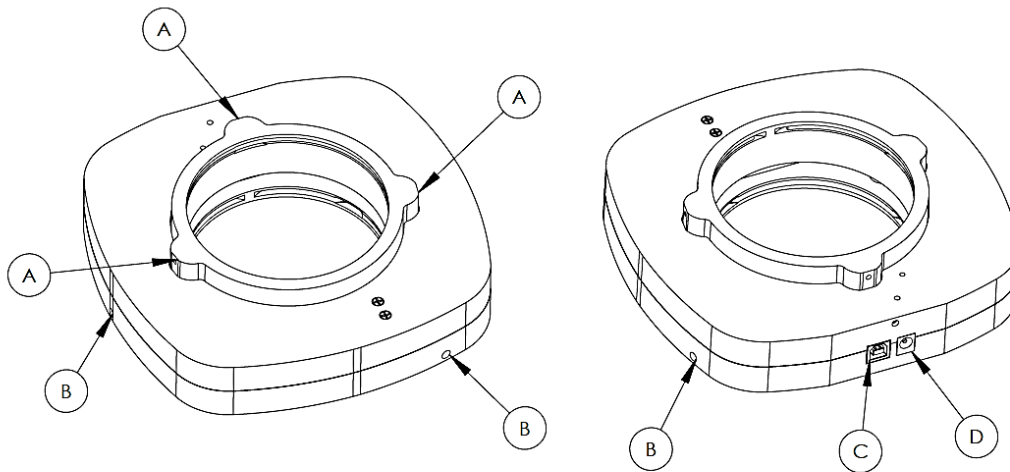
Note: The Atlas Focuser ships in retracted state. The Focuser must be extended out by 50,000 steps for the camera-side adapter set screws to become accessible.

3. Once the adapter is inserted fully inside the focuser and the adapter flange rests on the focuser metal, use the supplied 5/64" Allen key to secure the adapter in place by tightening the three set screws (the locations are outlined in the photo on the following page). It is recommended that you begin with the set screw located in the center and then proceed to the two outer set screws.
4. After all three set screws have been securely tightened, it is safe to attach the focuser with the adapter to the imaging train.

Note: Be sure the adapter is firmly attached before operating to avoid potential damage caused by incorrect assembly.

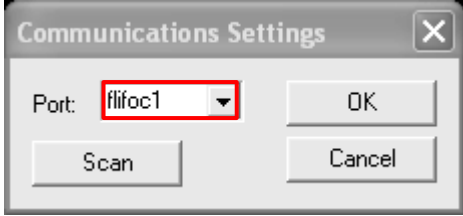
5. Repeat these steps for attaching an adapter to the telescope side of the Atlas Focuser, the set screws for this side are located around the perimeter of the housing (the locations are outlined in the photo below).

Set Screw Locations



Label	Description
A	Three (3) Zero-Tilt Adapter set screws (camera side)
B	Three (3) Zero-Tilt Adapter set screws (telescope side)
C	USB connector
D	12V DC power connector

APPENDIX A – TROUBLESHOOTING

Issue	Remedy
<p>The computer does not correctly identify the attached Atlas Focuser.</p>	<p>Check that the Atlas Focuser’s power supply and USB cable are properly connected. If so, follow the steps below.</p> <ol style="list-style-type: none"> 1. On the FLI Focus dialog box right click on the top of the dialog box and select “Communications Settings”. 2. On the new dialog box click “Scan”. The system will display “flifoc0” or “flifoc1” in the port window. <div style="text-align: center; margin: 10px 0;">  </div> <ol style="list-style-type: none"> 3. If a problem persists, unplug the Atlas Focuser power and USB cable, then uninstall and reinstall FLI Focus.
<p>There is non-parallelism in the images.</p>	<p>Verify that the adapter is correctly attached to the Zero Tilt Adapter™.</p>
<p>In the event that the Atlas Focuser becomes overloaded.</p>	<p>Rectify the cause of the overload and then reset the Atlas Focuser to the home position.</p>

APPENDIX B - WARRANTY FOR FLI PRODUCTS

Limited Warranty Coverage

If your product does not function properly because of a defect in materials or workmanship, Finger Lakes Instrumentation, LLC (“FLI”) will at its sole option and for length of the period indicated on the chart below, which period begins with the date of original purchase (the “Warranty Period”), either: (a) repair the Product with new or refurbished parts; or (b) replace the Product with a new or refurbished product. The decision to repair, replace, the parts used to repair, or the product used to replace the Product, as applicable, shall be made by FLI in its sole discretion. Without limiting its discretion, where FLI determines that the Product shall be replaced with a new or refurbished product that is different from the Product, FLI will use its commercially reasonable efforts to replace the Product with a product that is as close to equivalent to the Product as practicable.

This Limited Warranty is offered to the original purchaser of a new Product from FLI, which was not sold on an “as-is” basis. A legible purchase receipt or other verifiable proof of purchase for the Product is required to receive Limited Warranty parts or service.

This Limited Warranty does not apply in special circumstances in which prior arrangements have been made and separate documentation has been supplied prior to, or with, the Product; in such cases, the warranty (if any) provided in such documentation shall supersede and replace this Limited Warranty for your Product.

Item or Part Name	Warranty Period
Your Product, except those items listed in this table below	One (1) Year
Your Product’s Application Software (if included) and Batteries	None

Parts and Service

You must carry-in or mail-in your Product during the Warranty Period to receive the Limited Warranty parts or service. Prior to mailing or carrying-in your Product to FLI, you are required to contact FLI at the e-mail address or telephone number provided in the “Directory Information” Section of this Limited Warranty to receive a warranty service identifier code (and any other

reasonably required identifiers, as directed by FLI) that you must provide in a legible writing included in the package in which you mail FLI your Product.

The Limited Warranty does not include costs of shipping the Product, installation or re-installation of the Product, insurance relating to shipping the Product, or travel to carry the Product to FLI, except that FLI shall bear the costs of shipping the Product to and from FLI's service center (but not insurance or travel) for Product Internal Environment Limited Warranty service claims made within one (1) year from the date of original purchase when shipped within the continental United States. All products and services are F.O.B. Lima, NY.

Directory Information

Finger Lakes Instrumentation, LLC

15 Charles St, Ste 1E

Binghamton, New York 13905

Phone: 585-624-3760

Fax: 585-624-9879

This directory information is provided as a courtesy, and is subject to change without notice. Please verify this directory information by consulting FLI's website located at:

<http://www.flicamera.com>

Product Software

As noted in the chart in the section of this Limited Warranty titled "Limited Warranty Coverage," the Limited Warranty does not apply to the Product software. Software supplied with the Product is for demonstration purposes only. FLI supplies the necessary information, drivers, and libraries, for users and third party vendors to develop software for their specific purposes. FLI seeks to maintain compatibility with many third party software vendors, but does not and cannot warrant or guarantee operation with non-FLI software. FLI is not responsible for changes, upgrades, or errors in third party programs.

Important Limited Warranty Information

This limited warranty ONLY COVERS failures due to defects in materials and workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. This limited warranty ALSO DOES

NOT COVER damages which occurred in shipment, or failures which are caused by or to products not supplied by FLI, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, improper maintenance, power supplied to the product (including, without limitation, over-voltage, mechanical shock, reverse polarity, or power surges), electrostatic discharge, modification, or commercial use, rental use of the Product, service to the Product by anyone other than FLI at an authorized service center, damage due to environmental conditions (including, without limitation, extreme temperatures, exposure to excessive moisture or humidity, radiation, or electromagnetic fields), damage occurring after condensation or moisture has appeared in the Product inner (sealed) chamber, or damage attributable to acts of God (including, without limitation, lightning).

- **THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LIMITED UNDER “LIMITED WARRANTY COVERAGE.” FLI IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING UNDER ANY BREACH OF THIS WARRANTY.**
- **ALL EXPRESS WARRANTIES MADE IN THIS LIMITED WARRANTY ARE LIMITED TO THE WARRANTY PERIOD OF THE LIMITED WARRANTY, AND ARE OTHERWISE HEREBY DISCLAIMED TO THE FULLEST EXTENT PROVIDED BY LAW.**
- **ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, ARE HEREBY DISCLAIMED TO THE FULLEST EXTENT PROVIDED BY LAW.**
- **PARTS AND SERVICE WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY ARE YOUR RESPONSIBILITY.**

If your locality does not permit all or a portion of this Limited Warranty, this Limited Warranty may not apply to you. Please consult your local laws, rules, and regulations for any differences that may be present in your jurisdiction and apply to you. If you do not meet all of the criteria for this Limited Warranty or are outside of the Warranty Period, please be advised that you are not covered by this Limited Warranty and there may be a charge for any servicing and parts for your Product - please contact FLI using the directory information in this Limited Warranty for more information.

The Product is not authorized for use as critical components in life support or medical diagnostic applications where failure to perform could result in injury, faulty diagnosis, or other risk to patients or personnel.

The Product is not authorized for use in robotic control systems where malfunction or failure could cause system motions hazardous to personnel.

APPENDIX C - FLI RETURN PROCEDURE

If you need to return a product, please follow the instructions outlined below.

- 1.** Contact FLI by phone or email to obtain a Return Material Authorization (RMA) number to return the camera/product and:
 - a.** If you are outside the United States, contact your Customs Authority to register the merchandise to be returned to the United States for warranty repair or refund. Use the Harmonized Code number 9801.00.1012 on your shipping documentation. The monetary value you place on the item should be stated for insurance purposes. Clearly state that the “Value is for Customs purposes ONLY.” When FLI returns the repair item to you, we will use the same monetary value.
 - b.** If you are outside the United States, prepare a Pro Forma invoice to accompany the shipment with the following statement:
 - For Equipment not covered under warranty: “American goods returned for repair only with NO Commercial Value. Temporary return only”
 - For Equipment covered under warranty: “American goods returned for Warranty Repair only with NO Commercial Value. Temporary return only”
 - c.** For all customers, if you are requesting service under warranty or a return, a copy of your original receipt.
 - d.** For you records, make a copy of these documents.
 - e.** Prepare a large shipping label with the appropriate return address (FLI or distributor) and for shipments from outside the U.S., include the Harmonized Code number.
- 2.** Locate the original shipping boxes in which your item(s) was packaged. These boxes are designed to protect the products.
 - If you do not have the original shipping boxes, obtain a rigid box that is at least 3” (7.5 cm) larger in all dimensions than the items. A smaller box will not allow appropriate cushioning. Tape the side and bottom seams to secure the box.
- 3.** If you have the original packing materials, place the item(s) in the original plastic bag(s) and place the bagged item in the appropriate foam cutout in the proper orientation. Insert other items into their appropriate compartments.

- If you do not have the original bag, place the item(s) in a plastic bag and seal it. Wrap the bagged item(s) with at least two layers of bubble wrap or two bubble wrap bags. Wrap other items in the same manner. Into the bottom of the box, place two inches of packing material (Styrofoam peanuts or additional bubble wrap). Place the item(s) on the bottom layer with space around each. Surround each item with additional packing material.
4. Write a letter that includes the following: reason the item is being returned to FLI or distributor, your complete contact information (name, phone number(s), email address, return shipping address), and, if appropriate, payment method and information. On top of the item(s) in the box, add the required paperwork described in step 1 and the letter described in step 4. Seal the box with packing tape. Tape the top flaps and label the box with the shipping label prepared in step 1.
 5. Contact a shipper for pickup or bring it to a reliable carrier. As noted in step 1, use the appropriate value on shipping forms. FLI is not responsible for damage to any item or items when they are in the possession of a carrier.

