

GEMINI INTEGRA 85 USER'S MANUAL ver1.2

The Integra 85 is an ASCOM microfocuser integrated into a camera rotator that saves you backfocus and weight. It works under MaximDL, TheSkyX.

Physical dimensions

Maximum inner diameter: 85mm

Outside dimensions: see the drawing at the end of this manual.

Backfocus: 69 +/- 5mm (with telescope and CCD adapters added), Travel: 10 mm

Weight: 2,3 kg

Mounting interface: M5 coaxial push-pull screws at 3x120 degree, on R64 mm circle

Loading capacity

8kg @ 50mm from focuser end, 5kg @ 100mm from focuser end

At these loads the measured flexure is within the focus depth of an F5 system.

Rotator – 3,5 Nm unbalanced torque.

Focusing/Rotating Precision

Focuser: 0,053 micron resolution at full motor step (188 000 steps/full travel)

Rotator: 21 arcsec per full motor step (171,66 step/degree)

Power and Driver

12-15VDC, Lunatico Armadillo or Platypus http://tienda.lunatico.es/epages/Store.sf/en_GB/?ObjectPath=/Shops/Store.Lunatico/Categories/Seletek

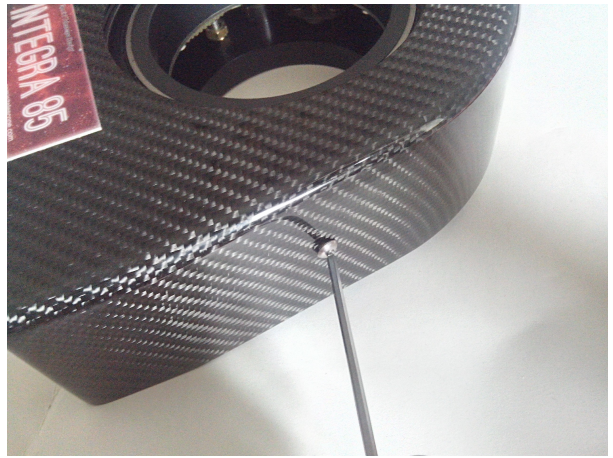
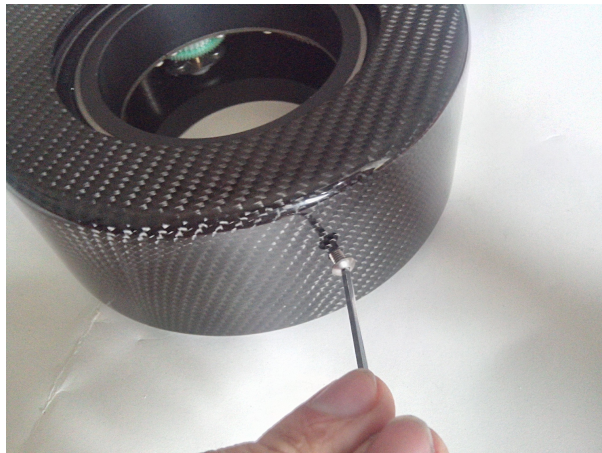
Installation

In short, before using the Integra 85 on your scope

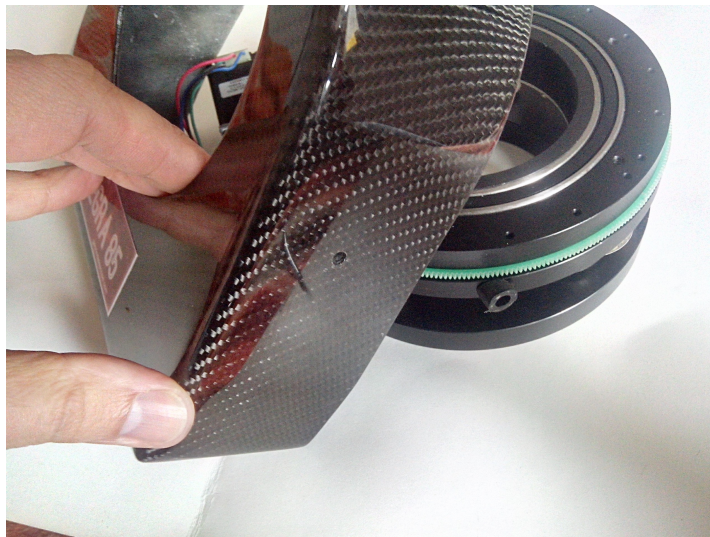
- 1) make sure you have the adapter for the telescope and the camera
- 2) you have the power supply (12-15VDC 1.5A), cables (motor, USB) for the driver
- 3) mount the RF85 on the scope and collimate it
- 4) connect the motor cables
- 5) install the drivers and control software on the PC
- 6) connect the PC cable (USB) and power up the driver
- 7) enter the correct parameters into the setup windows
- 8) attach the camera

Mounting the Integra 85 on the scope

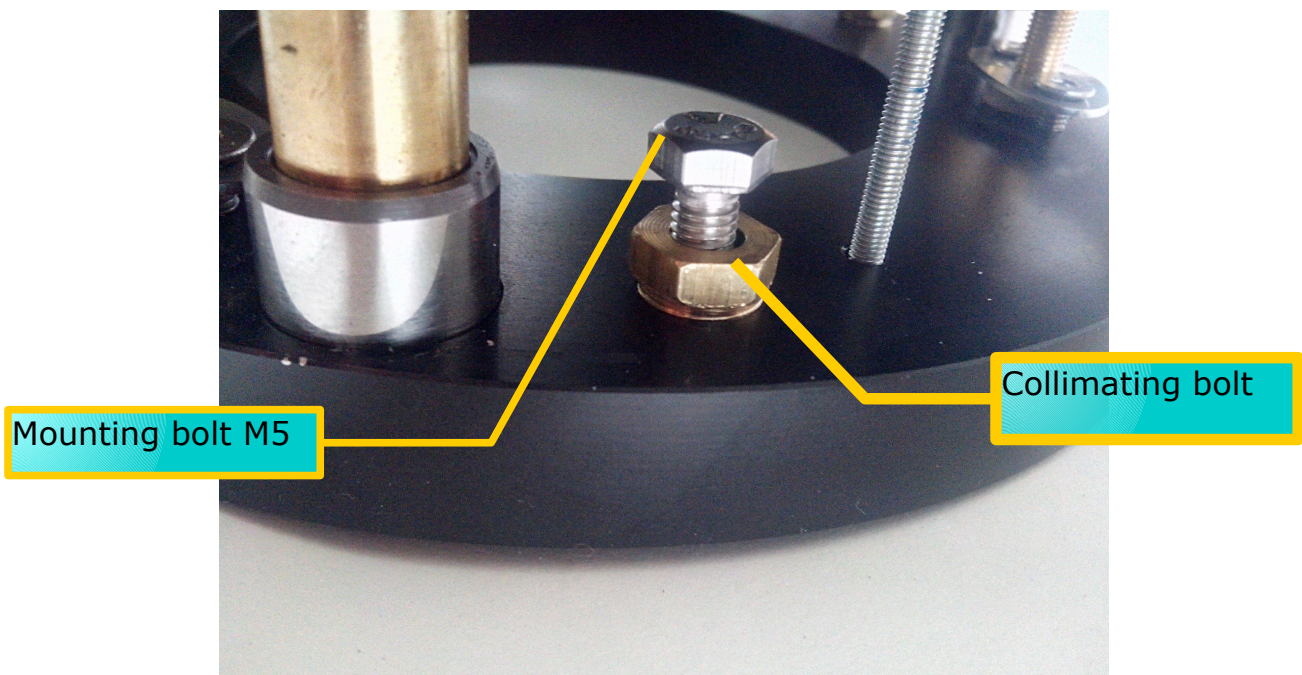
To have access to the mounting screws the carbon hood must be removed. Unscrew the 3pc M4 bolts that hold the cover in place, as shown below.



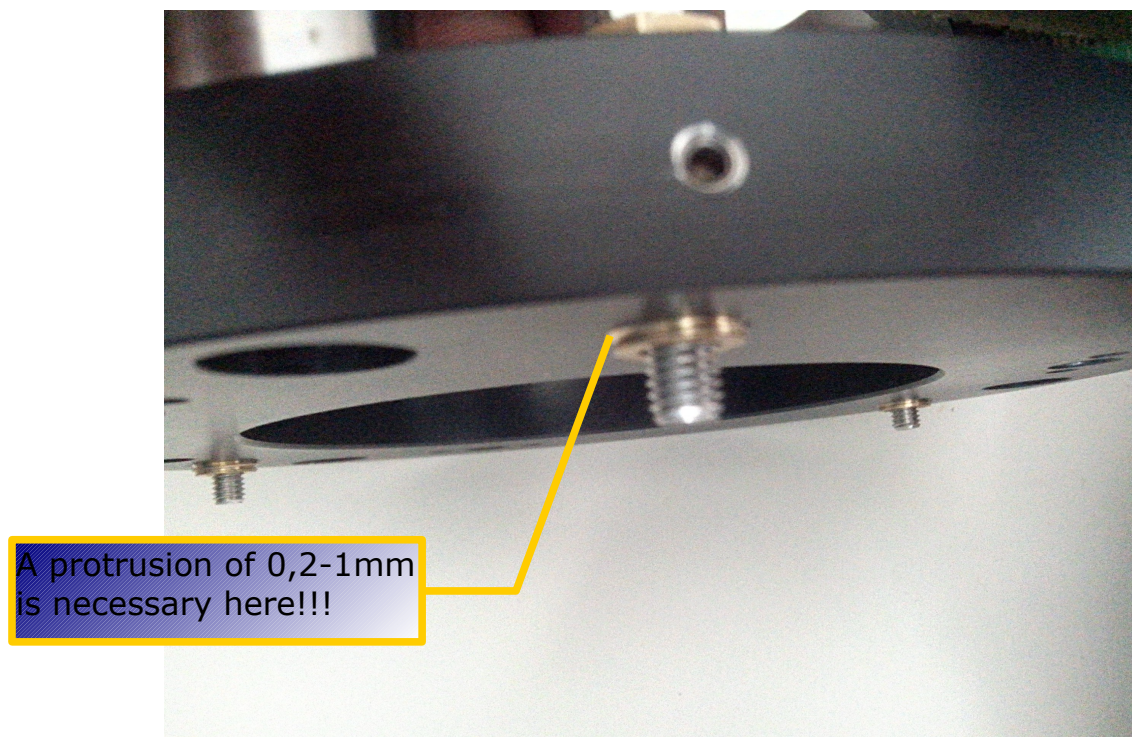
Lift the hood off (attention: the motor cables can be disconnected at the plastic clips).



Locate the 3pc M5 mounting bolts (The larger copper bolt is for collimation)



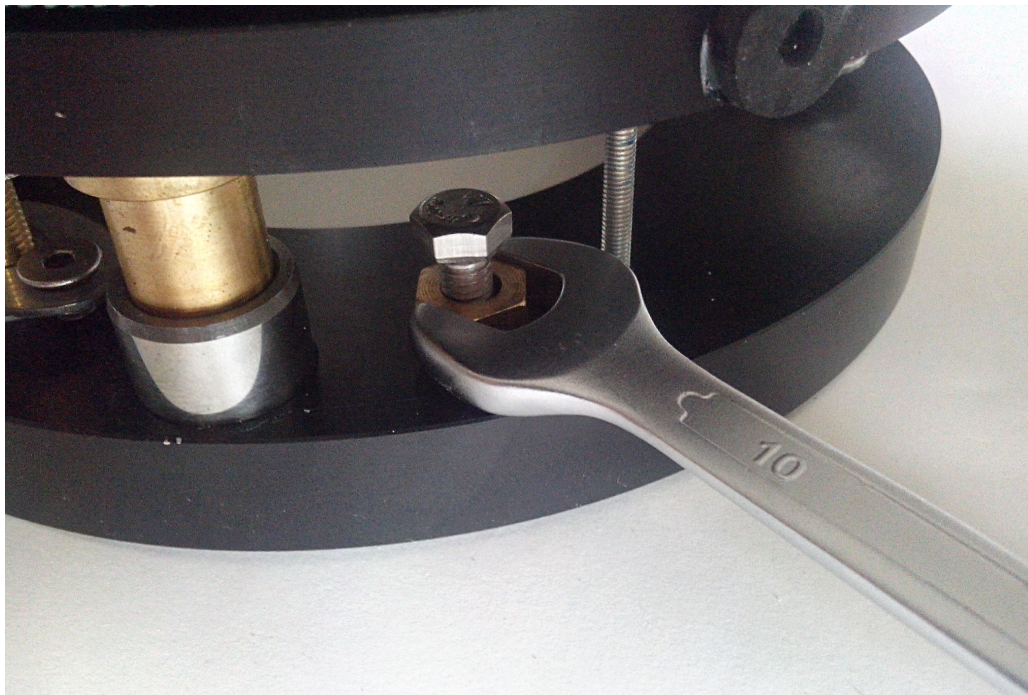
Before placing the Integra85 on the telescope side adapter, make sure that all three collimating bolts slightly protrude from the plane of the focuser body! The focuser should ALWAYS rest on these three points only, NOT on the whole surface of the adapter!!!!



Place the Integra85 on the adapter, paying attention to orient the mounting bolts to meet the holes on the adapter. Using an open wrench of 8mm, drive the mounting bolts in. Do not tighten any of them until all are in place. Leave them slightly loose until collimation is done.



Now you can collimate the focuser with the collimating bolts.



Finally, you have to lock the collimating bolts with the lateral M4 grub screws.



The hood can be mounted and fixed with the 3pc M4 bolts.

Connecting Cables

Connect the supplied motor cables to the Main (focuser) and Aux (rotator) ports of the driver as shown at right...



... then to the Integra 85.



Installing Drivers and Software

You need to have the latest ASCOM platform installed before proceeding.
Install the Seletec drivers and software from the CD or the latest from:

<http://www.lunatico.es/site/ourproducts/seletek-armadillo-platypus/technical-information/firmware-and-software.html>

Configuring the Software

Now you can connect the driver to the PC and power up the driver (**12VDC, 1.5A, 5.5/2,1mm DC power plug, center positive**).
From the program group select SELETEC, then again SELETEC and click “Configuration”.
Please configure according to this screen.

Configuration options

☐ Auto start with user session ☐ Start minimized

OK Cancel

Utility programs

Launch...
Now: Auto: Minimized

MAIN port: Focuser application Go ☐ ☐
EXP port: Camera rotator Go ☐ ☐
THIRD port: Firefly Go ☐ ☐

Internal configuration

Temperature sensor calibration

$$(((Reading - C1) * F - C2) / 10 = Value$$

Internal: ReadInt 261 1.8 250 Error Test LM60 LM61
External: ReadExt 192 1.7 0 Error Test LM60 LM61

Connect with

☒ Any USB controller ☐ Armadillo Remote address: Remote port:
☐ Original Seletek ☐ Armadillo 2 192.168.1.150 10000
☐ Platypus USB ☐ Platypus TCP/IP Timeout (ms): Local Port:
100 10000

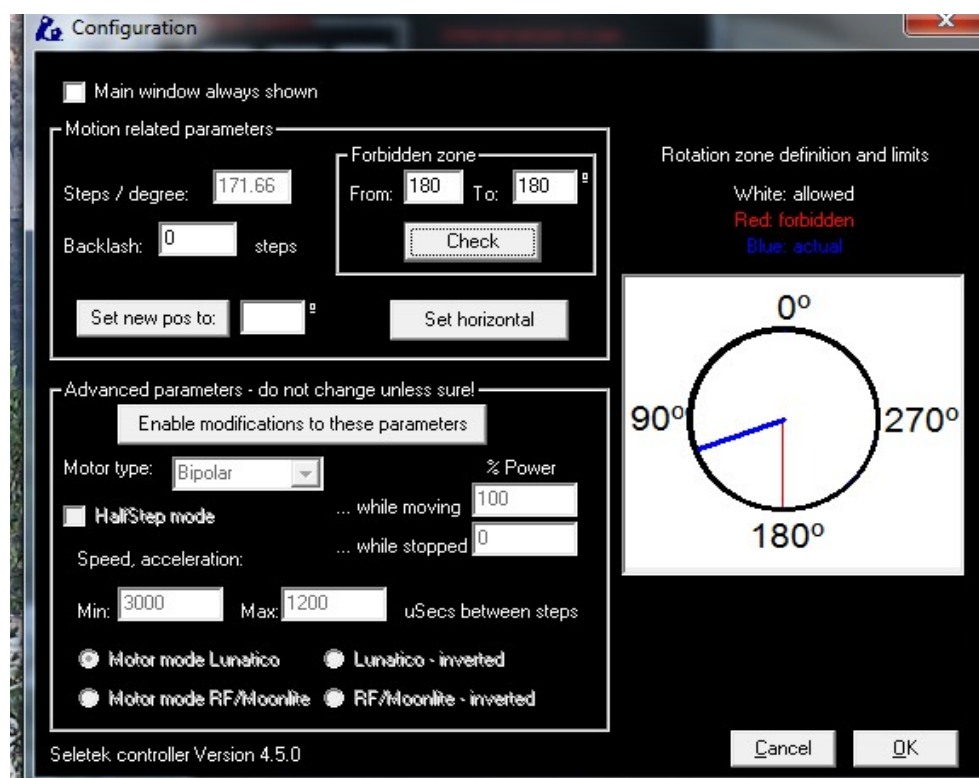
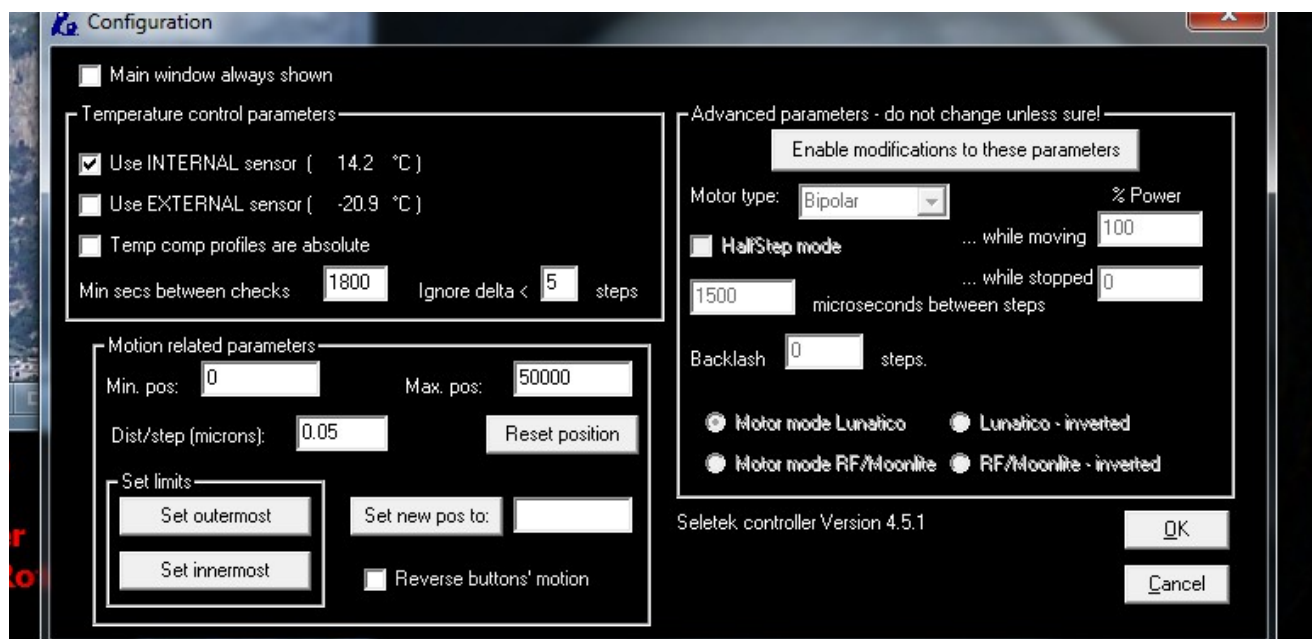
The next step is setting up the configuration of the focuser and the rotator.

Start with the focuser (Main port) by clicking “Go” in the above window.

- 1) enter the parameters as seen below,

- 2) exit setup and check if moving OUT really moves the focuser out,
- 3) if not, reopen the configuration window and click "Reverse button's motion",
- 4) take the focuser to the outermost position, where it stalls, return a few steps, reopen the configuration window and click "Set outermost", exit setup,
- 5) take the focuser to the innermost position, where it stalls, return a few steps, reopen the configuration window and click "Set innermost", exit setup.

Note: you will need to experiment to get the correct value of backlash. It is normally between 50 -200 steps.



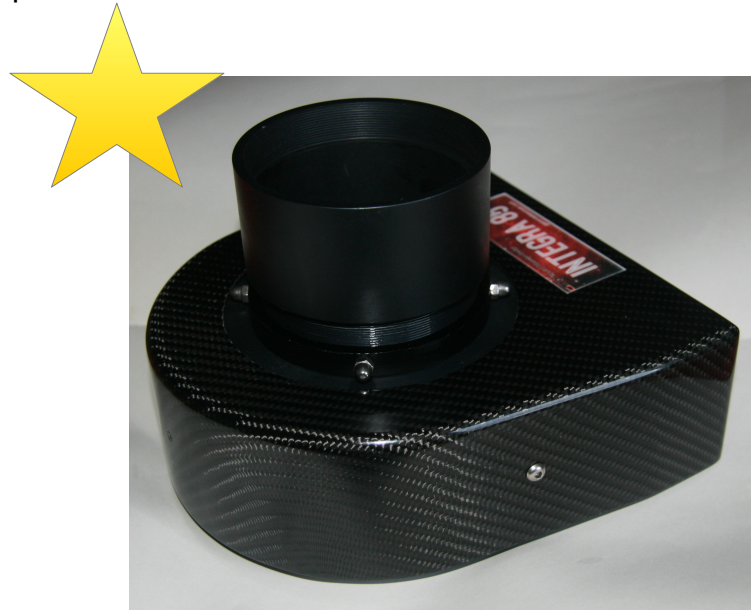
Proceed with the Rotator (Exp port) and enter the parameters. To enter the step number (171.66) please press “Set Horizontal” to enable parameter updating. At “% Power” set the voltage in percentage of the supply to protect the driver from overheating. With 12V enter 100%.

Note: if the rotator or focuser tends to stall when operated for a longer period, reduce this percentage value as the driver chip is overheating. Alternatively a cooling fan can be mounted on the electronics.

Some parameters may need adjustment according to firmware version. “Speed” is actually a delay between motor steps, so higher the entered value, the lower the speed will be.

Attaching the Camera

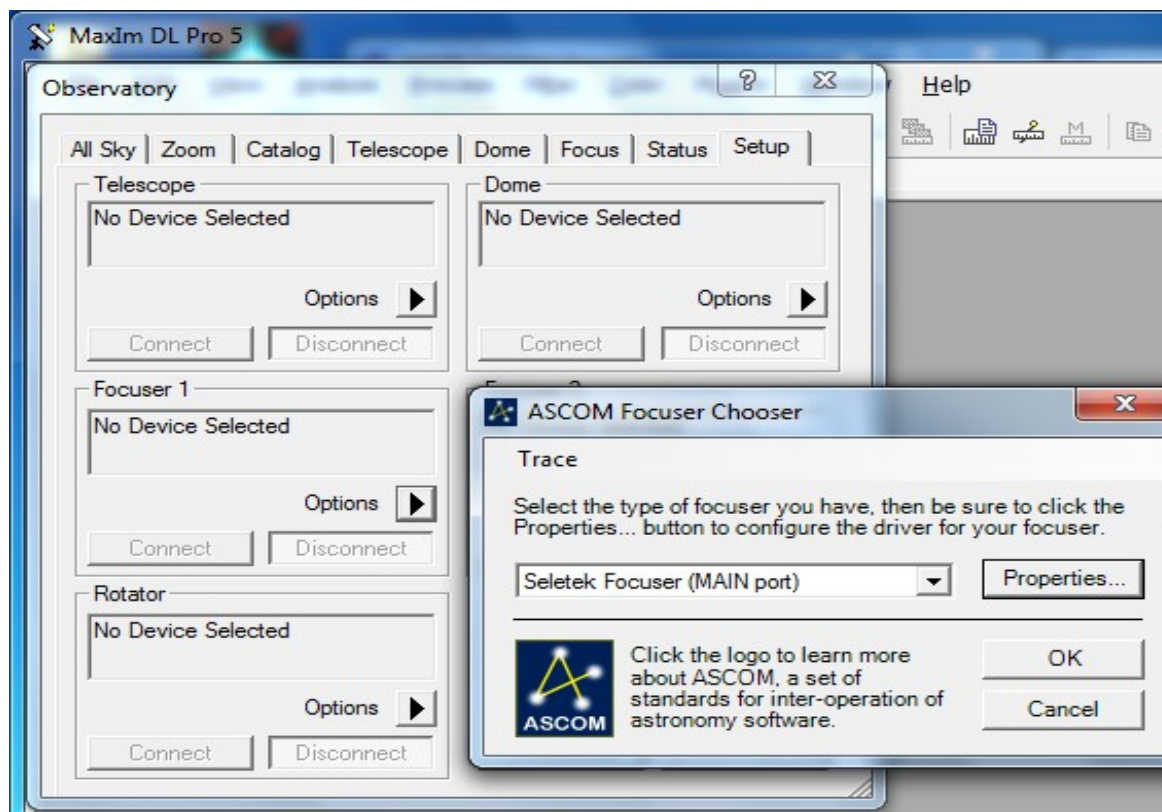
You will need an adapter for your camera. The adapter can be ordered with your Integra 85 or prepared according to the drawing supplied at the end of this manual. Note that the backfocus of the Integra85 with a 5mm telescope adapter and a 5mm CCD adapter plate is 69 +/- 5mm. Desing your adapter with the value of 69mm.



Above is a variable adapter for a Newtonian field flattener.

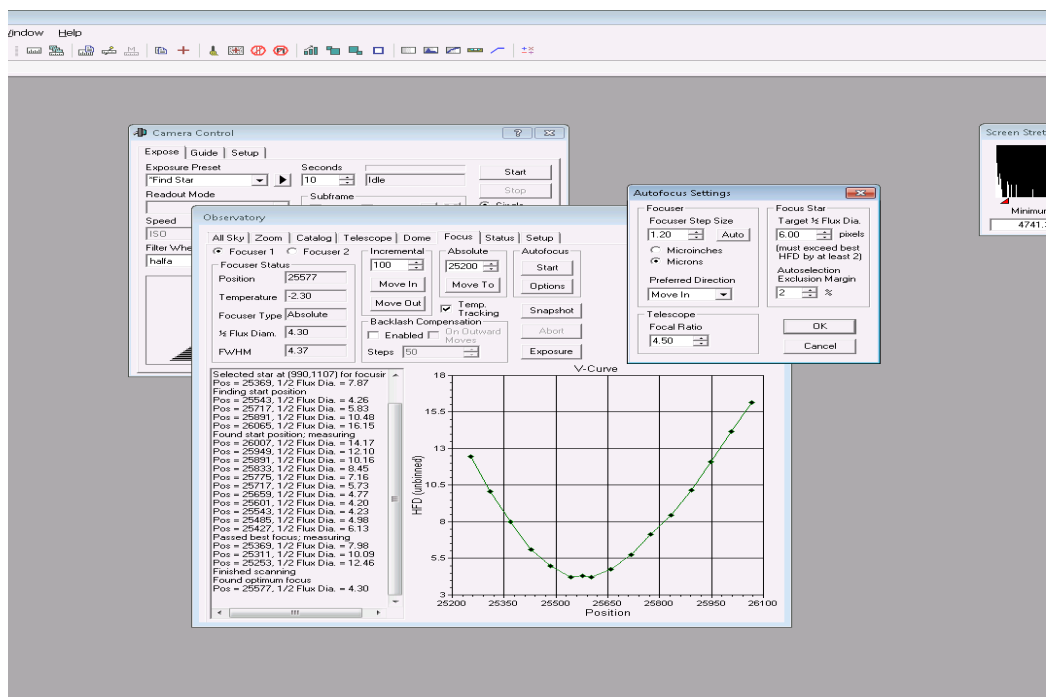
Using the Integra 85 with MaximDL

In Maxim click View/Observatory Control/Setup and at the Focuser click Options/Choose. In the ASCOM chooser select Seletec Focuser (Main port).



You must do the setup of the rotator similarly, clicking the Options at the Rotator setup.

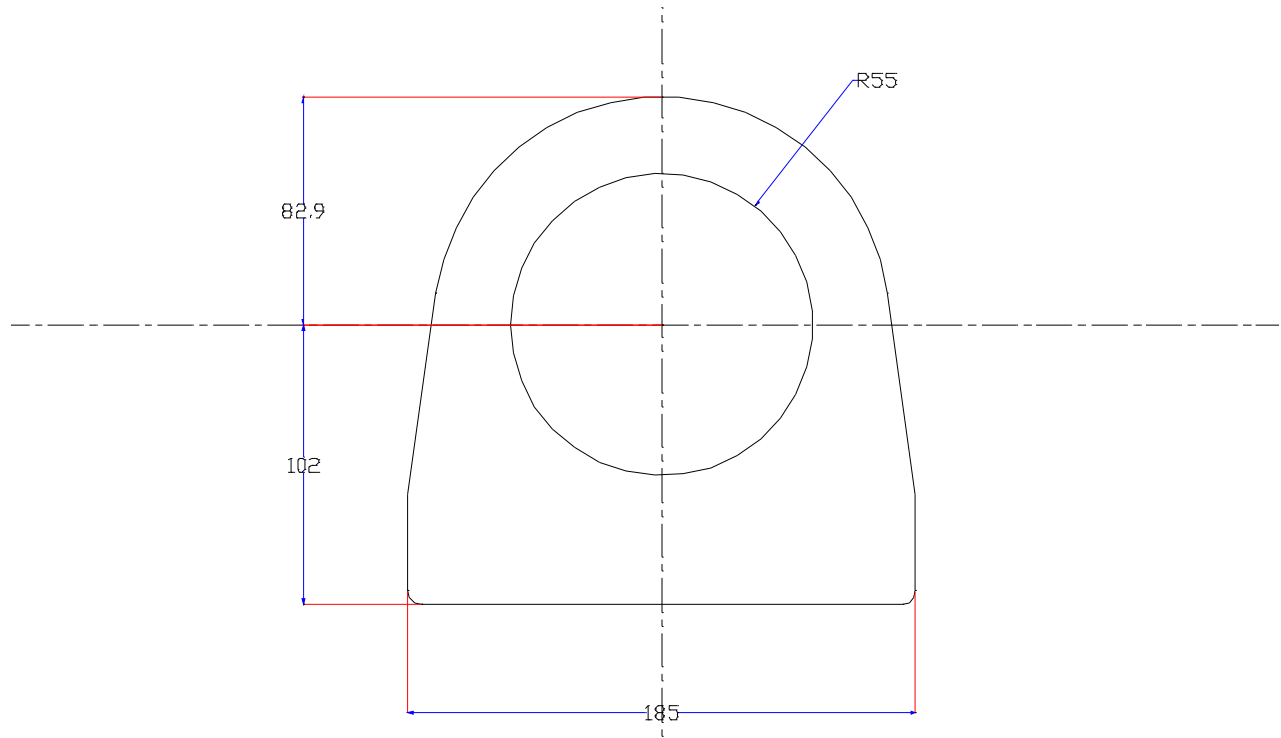
You can see an autofocus session result at right. It is important to configure Maxim autofocus options correctly (system F No., central obstruction, focuser step size) to get a good result.



Care of your Integra 85

No special care is needed, other than keeping it clean and occasionally checking for insects building nests inside. Do not lubricate the focuser drive pinions. The carbon hood can be cleaned with a damp cloth, eventually with kitchen detergent. Do not use solvents for cleaning it!

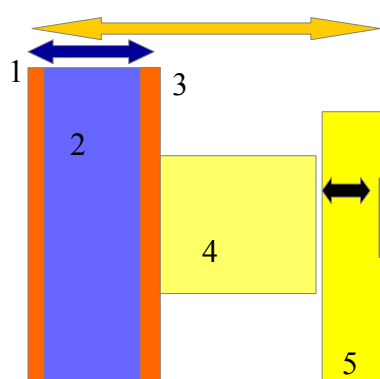
Outside dimensions of the Integra 85



Camera adapter for the Integra 85

If you wish to prepare your own camera side adapter, these are the dimensions to respect. The adapter will attach to the Integra 85 with a maximum of 6pc M4x10 screws that must be countersunk. The adapter plate has a maximum thickness of 5mm. Put M4 washers as spacers between the Integra85 and the adapter.

The diagram below helps to find the correct adapter length for your setup.



Orange arrow: total telescope backfocus

Blue arrow: Integra85 mid backfocus 69mm

Black arrow: CCD backfocus (from manual)

Total BF – 69mm – CCD BF = adapter length

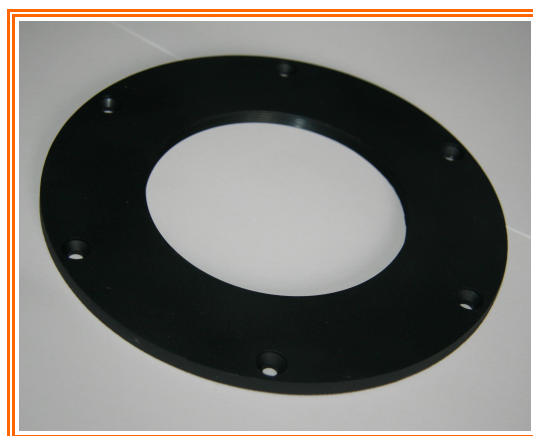
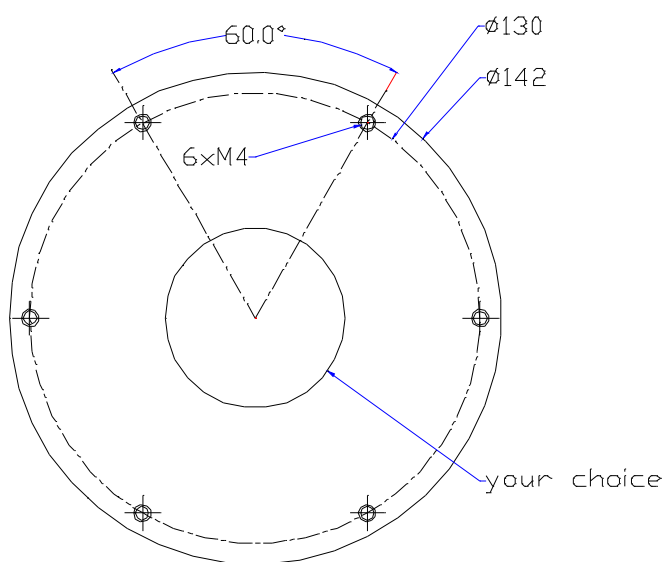
1 telescope side adapter (5mm)

2 Integra 85 (59 mm)

3 CCD side adapter plate (5mm)

4 your adapter

5 CCD camera (with filter wheel if present)



An adapter plate like at top right is available for EUR 30 with a custom central hole or thread.

What is in the box?

The box has the Integra85, telescope side adapter (included in the price), CCD side adapter (optional), 2m motor cable (longer on request), Armadillo controller (with external temp sond), 1,5m USB cable.

What you will need to make it run: a 12VDC 1A power supply

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