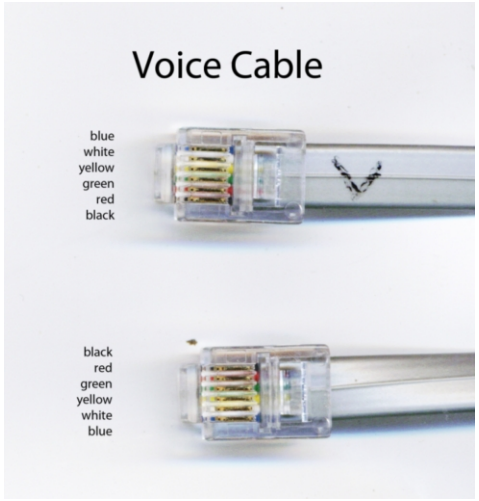
usb-nSTEP Instructions

Hardware Connection

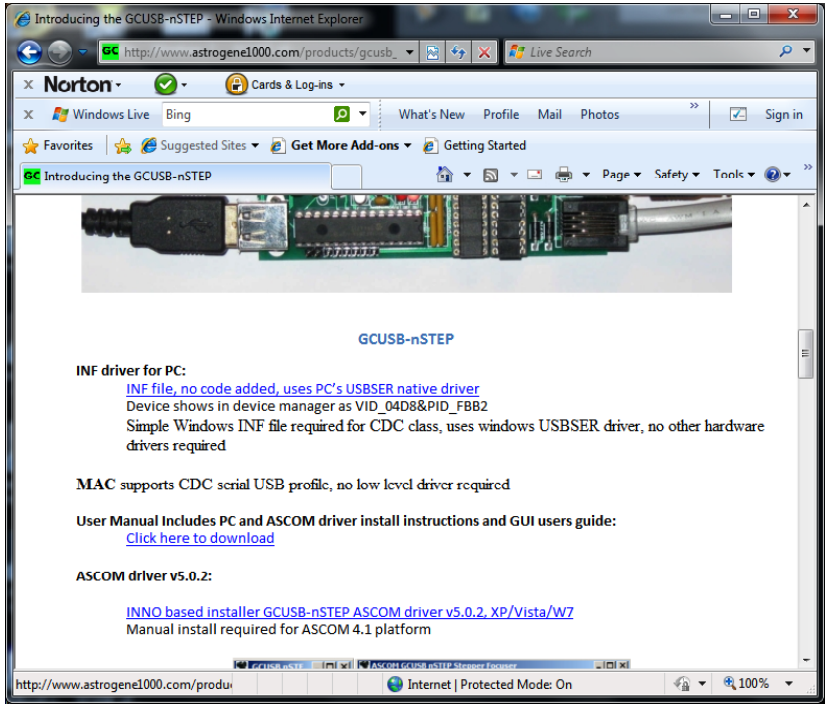
1) Stepper motor connects to usb-nSTEP using supplied **VOICE** cable. Do **not** use DATA cables. **VOICE** cables can be identified by looking at the ends of the cable. Color of wires are reversed comparing one end to the other.
2) usb-nSTEP connects to external 12V DC using supplied power cable
3) usb-nSTEP connects to PC usb port using supplied usb cable



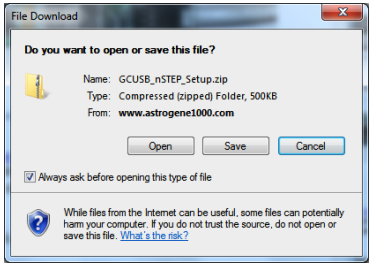
4) Optional temperature probe plugs into 2.5mm jack next to usb socket on usb-nSTEP.

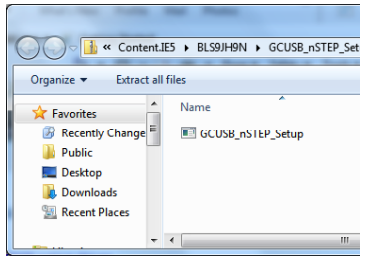
Software Installation

1) Download and install the ASCOM platform from http://ascom-standards.org/index.htm
2) Go to http://www.astrogene1000.com/products/gcusb_nstep/gcusb_nstep.htm

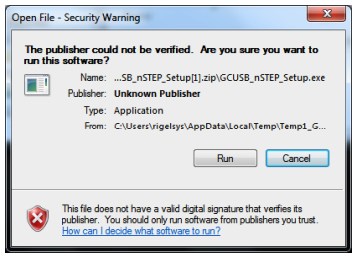


3) Click on "**INNO Based installer GCUSB-nSTEP ASCOM Driver**" and **OPEN**



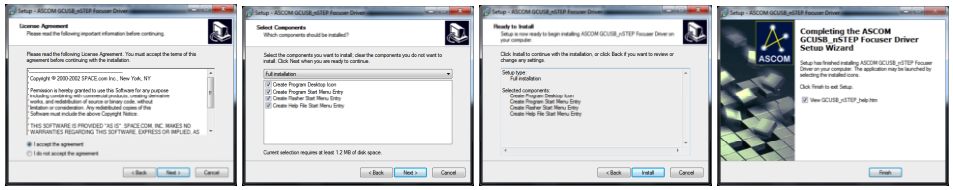


4) Double click on the "**GCUSB_nSTEP Setup.exe**" and run the exe



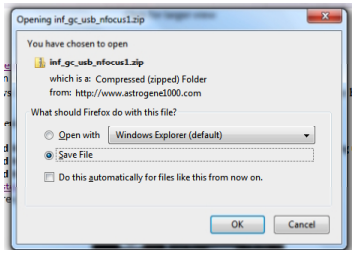
usb-nSTEP Instructions

5) Accept license agreement and proceed

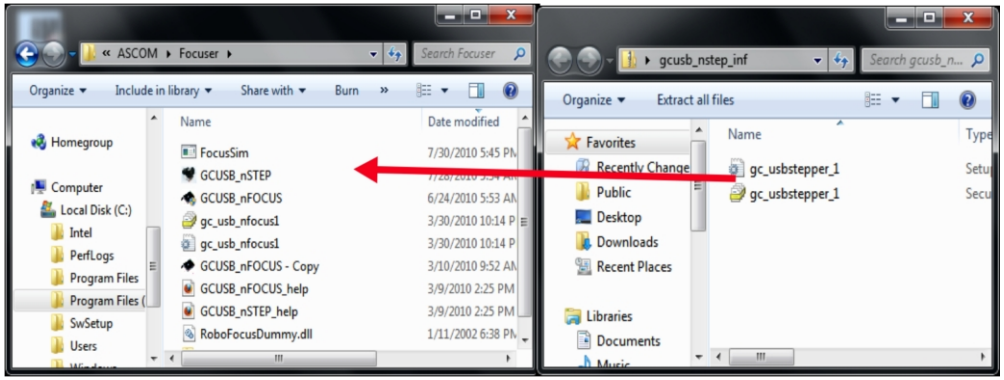


6) Go Go to http://www.astrogene1000.com/products/gcusb_nstep/gcusb_nstep.htm

7) Download and save the "**INF file, no code added**" zip file, then double click the zip file to unzip.



8) Open the folder where the **GCUSB_nSTEP** executable is installed (left side of image below), and drag the "**gc_usb_nSTEP1**" setup information and security catalog files into it.



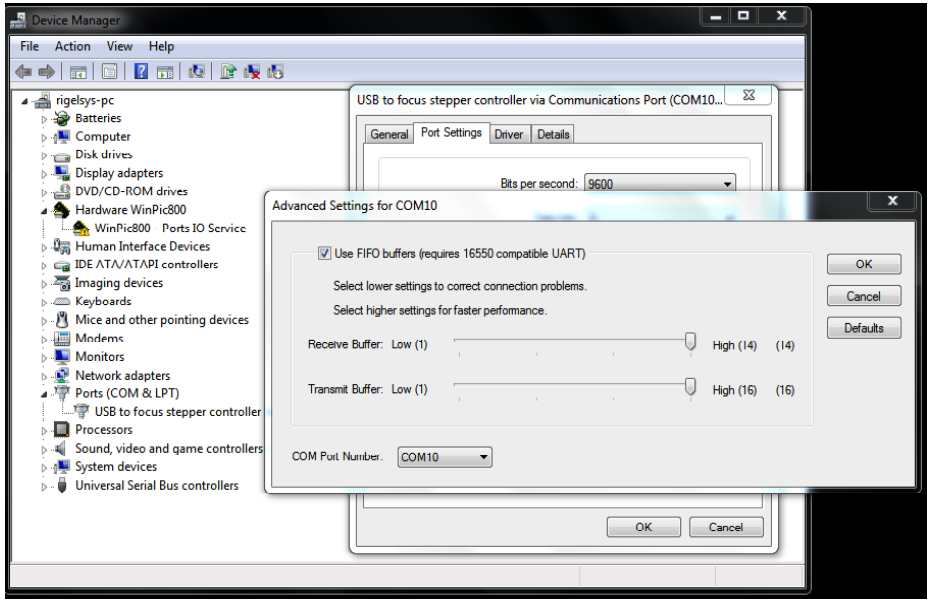
9) Plug the **usb-nSTEP** hardware into a USB port and device drive should install. If it doesn' then follow steps 10-12

10) Open **Device Manager**, click on **Other Devices**, click on **USB nSTEP** device, pick **Driver** tab and select **Update Driver**.

11) **Browse** for the directory where "**gc_usb_nSTEP**" setup information and security catalog files are located and press NEXT. Then on the next screen, select **Install This Driver Software Anyway**.

12) Driver is installed ☺ so select **Close**.

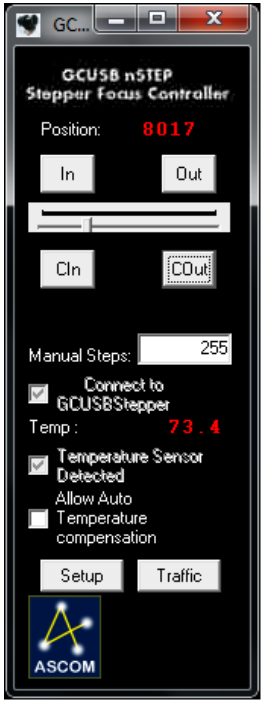
13) Select **PORTS (COM & LPT)** in the **Device Manager**. **USB to focus stepper controller (COM#)** is displayed, with COM port assigned. You will need to know this COM port to setup the **GCUSB-nSTEP** application. You can change the COM port assignment by clicking on the USB to nSTEP controller, select the **Port Settings** tab, select **Advanced** and selecting a **COM Port Number**. For backwards compatibility, valid values are 1-16.



14) Ready to go ☺ Use the shortcut on your desktop to activate the **GCUSB-nSTEP** application.

usb-nSTEP Instructions

Control Window



Position:

Where the driver thinks the focuser is. For nSTEP this is truly always relative to a point you set in the SETUP screen.

In/Out:

Press to move in or out the number of “steps” indicated by the 'sliders' setting.

Slider

Select number of 'pulses' to do for each press of an In/Out or C

CIn/COut

Equivalent to repeatedly pressing the In/Out buttons. nSTEP will continue to move until you release the button.

Manual Steps

Displays the value selected on 'slider', or you can manually enter the number of “pulses

Connect to nSTEP:

Check box to connect control software to usb-nSTEP hardware via the COM port selected in the setup screen (below).

Note: Once connected to the nSTEP you cannot disconnect without quitting program.

Note: An ASCOM application opening the driver will force this connection when “Linked”

Temp:

Displays the current temperature in degC or degF for the temperature probe is attached to the usb-nSTEP.

Temperature Sensor Detected

The software will “check” this box if it detects that a temperature probe is connected to the usb-nSTEP. If temp probe detected then you can choose to allow automatic temperature compensation.

Temperature Compensation

Check box to enable temperature compensation but note that manual focusing is disabled while in temperature compensation mode.

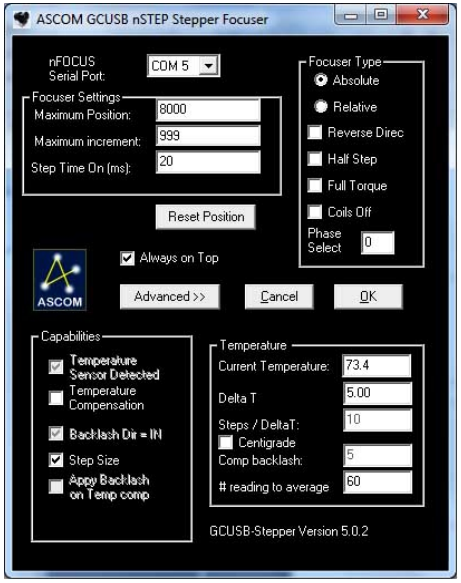
Setup

Select to display usb-nSTEP setup screen.

Traffic

Select to display ASCOM usb-nSTEP command traffic with usb-nSTEP hardware.

Setup Window



nSTEP Serial Port:

Set to the COM port number assigned to the usb-nSTEP hardware when first plugging it into a usb port on your computer. You can confirm/change the usb-nSTEP hardware COM port number using the WINDOWS DEVICE MANAGER. For backwards compatibility, valid values are 1-16.

Focuser Settings

Maximum Position: Value is used by the **Absolute Focuser Type** (see below).

Maximum Increment: Maximum number of “steps” to send to the nSTEP at one time. Generally used to limits the number of “moves” an ASCOM autofocus application can execute during each call to the usb-nSTEP ASCOM driver.

Step Time On (ms): Sets the duration of a “step”. Valid range is 1-250 ms.

Focuser Type

Absolute: Select **Absolute Focuser Type**, rack focuser all the way in (to 'Home') and then press **Reset Position**. The gcusb-nSTEP software will will set the racked-all-the-way-in position to 00000. **Absolute Focuser Type** limits focuser position to between 00000 and **Maximum Position** in ASCOM applications.

Relative: Does not enforce limits on focuser position. Uses **Maximum Position** value to set the current position to half the max position value, when you press **Reset Position**.

Reverse Direc: Reverse In/Out directions to reflect peculiarities of focusers and focus motors.

Half Step: Energizes 1 or two coils at a time, doubling step resolution.

Full Torque: Highest power mode, two coils always energized.

Coils Off: Turn coils off after stepping to save power and reduce heating of the stepper motor. Only use with a gear-head stepper a non-gearhead stepper may slip lifting heavy loads

Phase Select: **set to 0 for usb-nSTEP**. Can be used for any possible the phase wirings. Allow a person to wire the phases in any order then chose one of 3 settings in software to drive them.

Reset Position

Press to set the current focuser position to zero.

Basic/Advanced

Toggles between displaying the **Advanced** (full screen as shown at left) or **Basic** setup (only upper half of screen)

Cancel

Cancel setup changes and, return to the control window.

OK

Apply all changes to setup and return to control window.

Capabilities

Temperature Sensor Detected: If temperature probe is attached this box will be 'checked' and enable other menu items.

Temperature Compensation: Enable automatic temperature compensation. Manual movement is disabled If "Apply Backlash on Temp Comp" is chekced then apply backlash if moving "IN", else if moving "OUT"

Temperature

Current Temperature: As read from temperature probe (if attached).

Delta T: For a change of Delta T, move "Steps/DeltaT"

Steps/DeltaT: Number of “steps” to move if "Delta T" temperature change is detected

Centigrade: Check box to report temperature in Centigrade, otherwise temperature will be displayed in Farenheit.

Comp Backlash: Move this number of pulses to compensate for backlash in DC motor gears.

 # readings to average: Read the temperature probe this number of times, average the readings, and display the result as the temperature and use when applying temperature compensation.

5 Year limited warranty: Rigel Systems, 26850 Basswood Ave, Rancho Palos Verdes CA, 90275 warrants to the original consumer purchaser of its product that the product will be free of defects in material or workmanship 5 years from the date of purchase under normal use. During this warranty period, **Rigel Systems** will, at its option, repair or replace the product without charge for parts or labor when delivered to **Rigel Systems** with proof of the date of purchase and a statement of the problem with the product. Shipping and handling charges to **Rigel Systems** are your responsibility. This warranty does not apply if the product has been altered or repaired by anyone other than **Rigel Systems** or has been subjected to purchaser abuse, accident, negligence or damage subsequent to purchase including battery damage to product. This warranty excludes incidental or consequential damages resulting from the product or use of the product. The product is not a toy. Keep away from children.

For more information visit
http://www.rigelsys.com