

ASCOM driver for MoonLite NiteCrawler Focuser and Rotator

Introduction

This driver implements the ASCOM focuser and Rotator drivers for the NiteCrawler 2 axis Rotating worm drive Focuser.

Installation

Prerequisites:

Make sure that the NiteCrawler is operating correctly using the non ASCOM control application. If there is a problem it's best to fix it.

The ASCOM platform version 6.2 or better must be installed. This can be obtained from the ASCOM site (link to be added).

Install the focuser driver by running the NiteCrawler Setup.exe program.

It is a really good idea to read the instructions.

Operation

The focuser and rotator drivers use the same USB port so this only needs to be set up once:

- Run the setup dialog and select the COM port that the NiteCrawler uses (TBD only show serial ports that have a NiteCrawler connected). The NiteCrawler must be connected and turned on to be able to do this.
- Review and adjust the rotation limits as required. This is to prevent cord wrap issues while allowing the full rotation. See the Setting the Rotation Limits section for more information.
- Click on OK to save the setup data.
- There is no other setup required; everything else is read from the NiteCrawler device.

Select the Focuser and Rotator devices in your application.

Once the setup has been done connect to the device. The focuser and rotator must be connected separately. More than one application can be connected to each device although only one application can control things at a time.

Focuser

The focuser travel is 1 inch, 25.4mm and this takes 94,580 steps, giving a step size of 0.269 microns. The current position is remembered between power cycles.

The focuser temperature is read and reported.

Rotator

The rotator position is expressed as degrees relative to an arbitrary zero position corresponding to the zero step position. The range is set in the setup dialog.

The focuser movement, both relative and absolute, will be to the position in this range that will give the shortest movement. Cables will need to be arranged so that they do not restrict movement over the rotation range.

The conversion between rotator steps and degrees will depend on the size of the NiteCrawler hardware, this is read from the hardware.
As with the focuser the position is saved and will be restored after a power cycle.

Not Implemented

Focuser temperature compensation, do we need this?
Rotator Reverse.

Support

If there are problems a driver log that shows the problem is essential. To get this:

- Enable tracing by checking the Trace On checkbox in the driver setup.
- Run the system to reproduce the problem and collect any additional information.
- The log file is located in the My Documents folder, in the ASCOMLogs<date> folder, the log files are named ASCOM.NiteCrawler....txt
- Send the log files with as clear a description as possible to me.

Setting the Rotation limits

The rotation limits are set in degrees relative to the rotator zero home position, the default is from +190 degrees to -190 degrees. This allows all rotate positions to be reached with a 20 degree overlap so that moving slightly beyond 180 degrees will not cause a lengthy 360 degree rotation.

These limits can be changed, up to 400 degrees plus and minus but the following things must be borne in mind:

- Your camera and filter wheel cables must be able to tolerate the camera rotating about the full range that you specify.
- The rotation need not be symmetrical, so for example specifying limits of 280 and -90 is allowed.
- The zero home position must be allowed.
- The minimum rotation should be 360 degrees, such as from 180 to -180, 270 to -90 etc. If you specify less then you will be warned in the setup dialog. This is allowed but an attempt to rotate to the forbidden range will cause an error in the Move or MoveAbsolute command.

Work In Progress Warning!

This is currently (September 2016) a work in progress. I've not finished or tidied up the drivers at all, especially the names and description code, the setup dialog or this help. I hope the basic functionality is OK but need help and confirmation that it is OK. Once I get some feedback I will be removing bugs and tidying up the driver, including adding sensible description fields and getting this help better.