

Trident **GTR**

User Manual

NEVER STOP EVOLVING

Preparing for First Light

Prerequisites

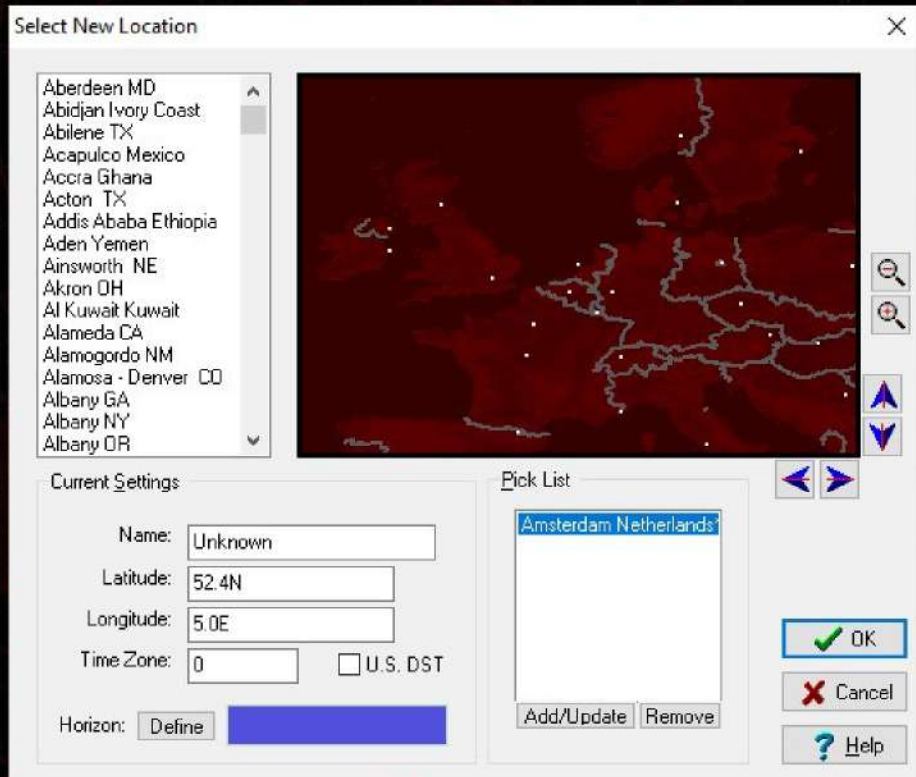
- Mount is installed and approximately polar aligned
- Instrumentation is installed
- Software/Drivers are all installed

Remaining Tasks

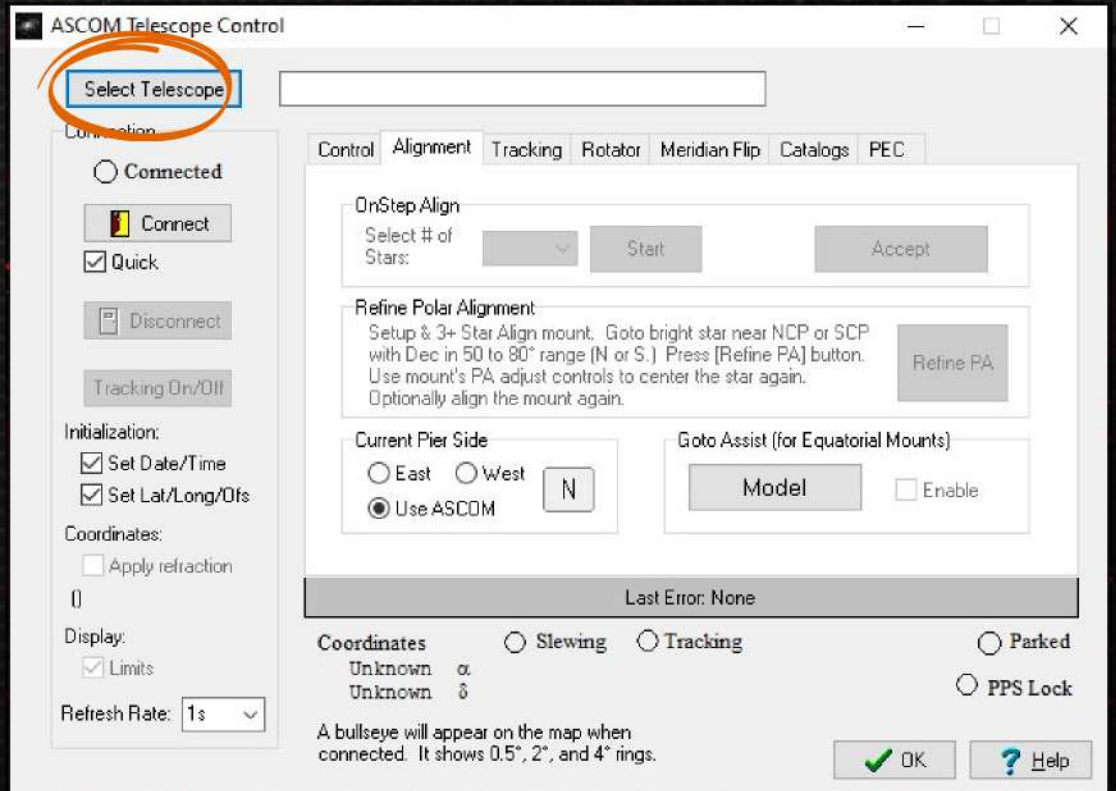
- Configure OnStep/Sky Planetarium
- Polar alignment
- 9 point alignment
- Refine polar alignment/9 pt alignment
- Guide test
- First Light



OnStep Setup

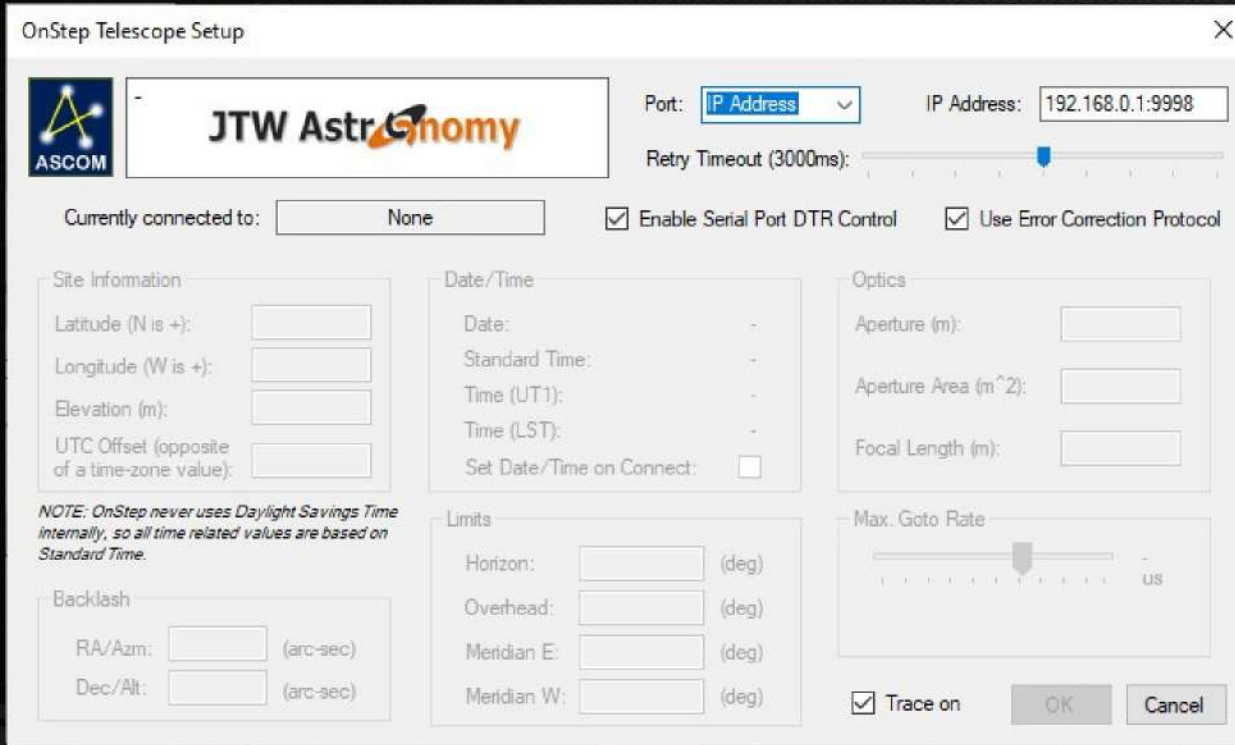


Sky Planetarium>Observer>New Location...
Set site location and time zone



Sky Planetarium>Connections>Telescope...
Click 'Select Telescope' and select 'OnStep Telescope'

OnStep Setup



OnStep Telescope Setup

ASCOM JTW Astronomy

Port: IP Address:

Retry Timeout (3000ms):

Currently connected to: Enable Serial Port DTR Control Use Error Correction Protocol

Site Information

Latitude (N is +):

Longitude (W is +):

Elevation (m):

UTC Offset (opposite of a time-zone value):

NOTE: OnStep never uses Daylight Savings Time internally, so all time related values are based on Standard Time.

Backlash

RA/Azm: (arc-sec)

Dec/Alt: (arc-sec)

Date/Time

Date:

Standard Time:

Time (UT1):

Time (LST):

Set Date/Time on Connect:

Optics

Aperture (m):

Aperture Area (m²):

Focal Length (m):

Limits

Horizon: (deg)

Overhead: (deg)

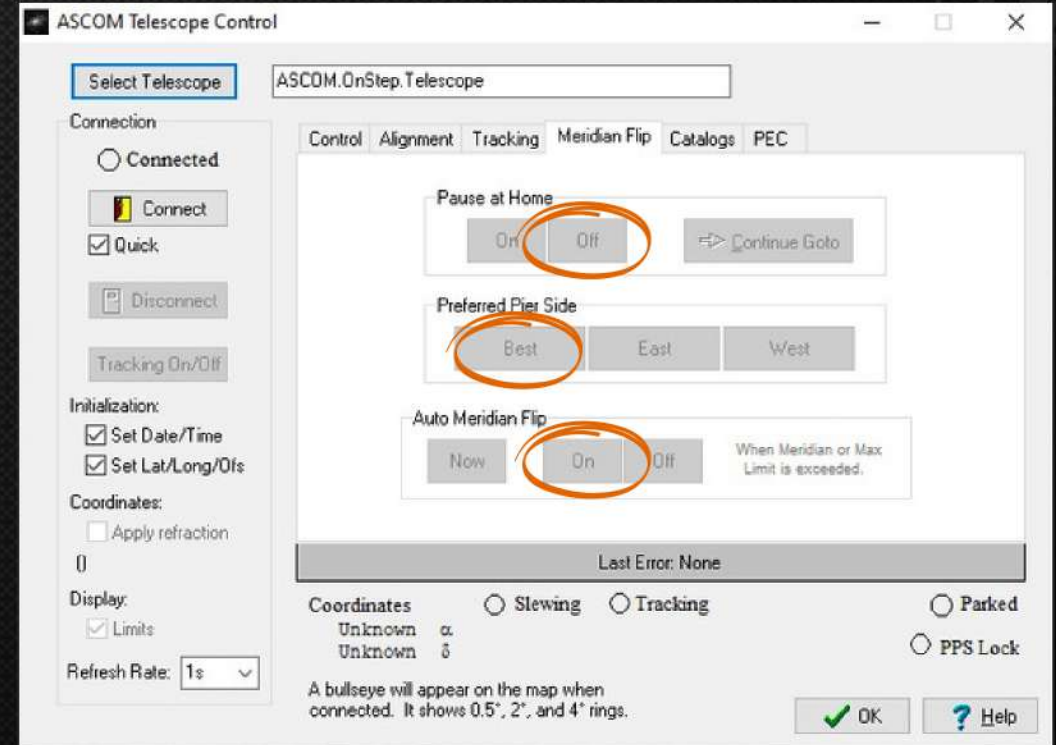
Meridian E: (deg)

Meridian W: (deg)

Max. Goto Rate us

Trace on

Input data to ASCOM window and close



ASCOM Telescope Control

Select Telescope:

Connection

Connected

Quick

Tracking On/Off

Initialization:

Set Date/Time

Set Lat/Long/Ofs

Coordinates:

Apply refraction

Display:

Limits

Refresh Rate:

Control Alignment Tracking Meridian Flip Catalogs PEC

Pause at Home

Preferred Pier Side

Auto Meridian Flip When Meridian or Max Limit is exceeded.

Last Error: None

Coordinates Slewing Tracking Parked

Unknown α

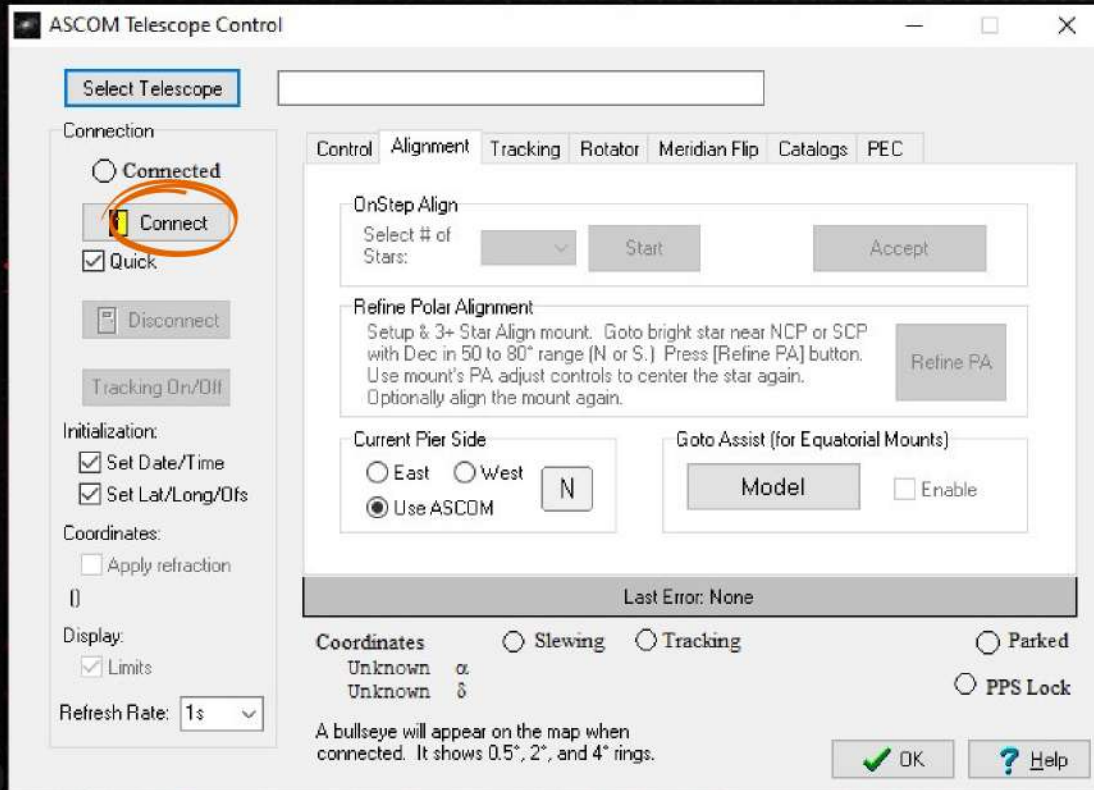
Unknown δ

PPS Lock

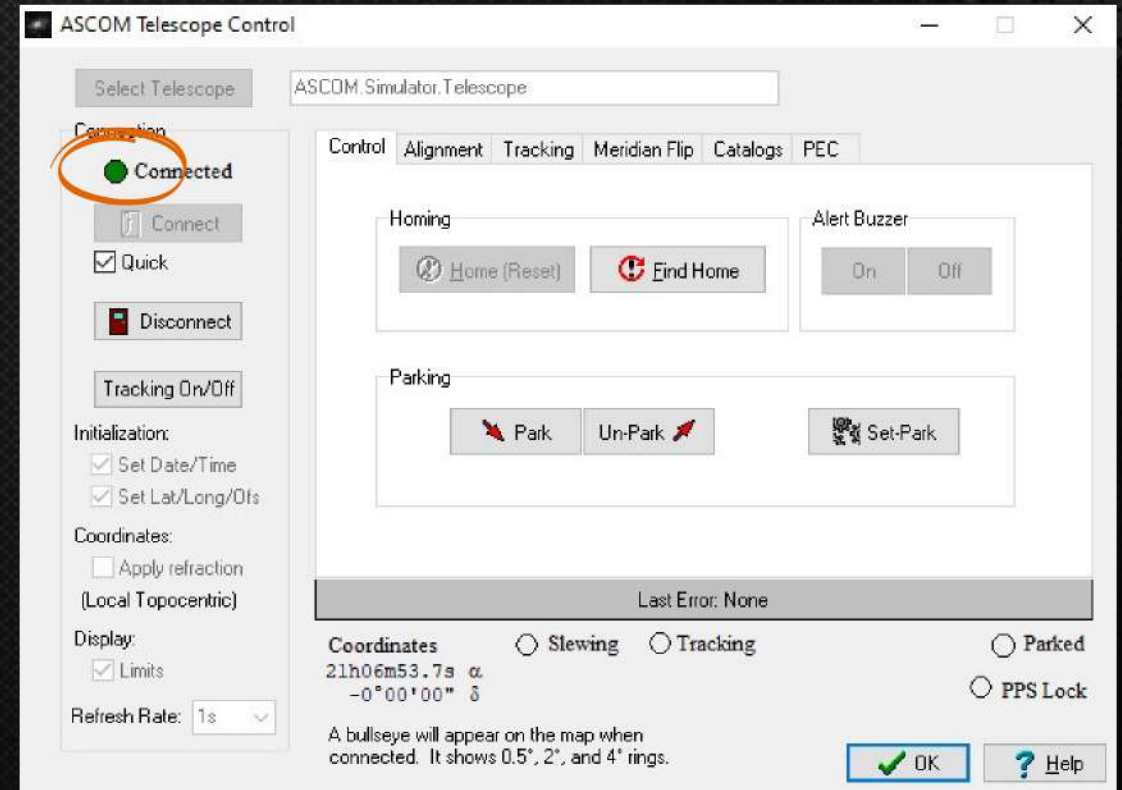
A bullseye will appear on the map when connected. It shows 0.5°, 2°, and 4' rings.

Input Meridian flip settings

OnStep Setup

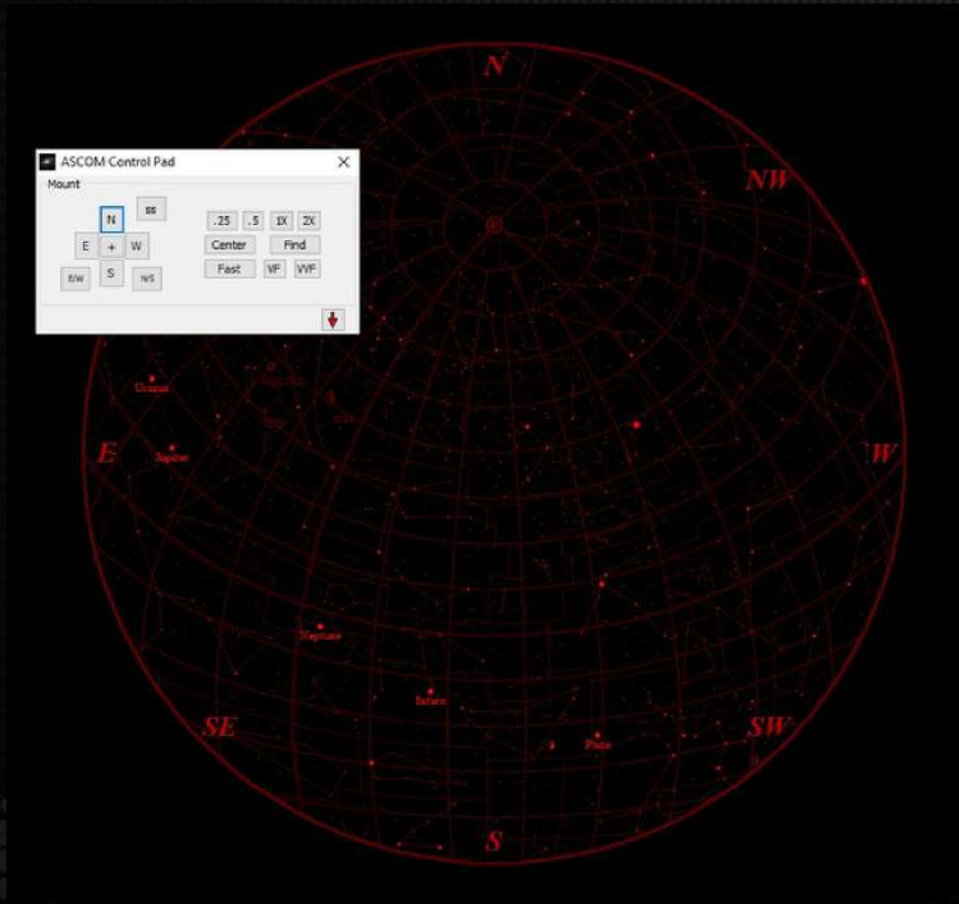


Click 'Connect'

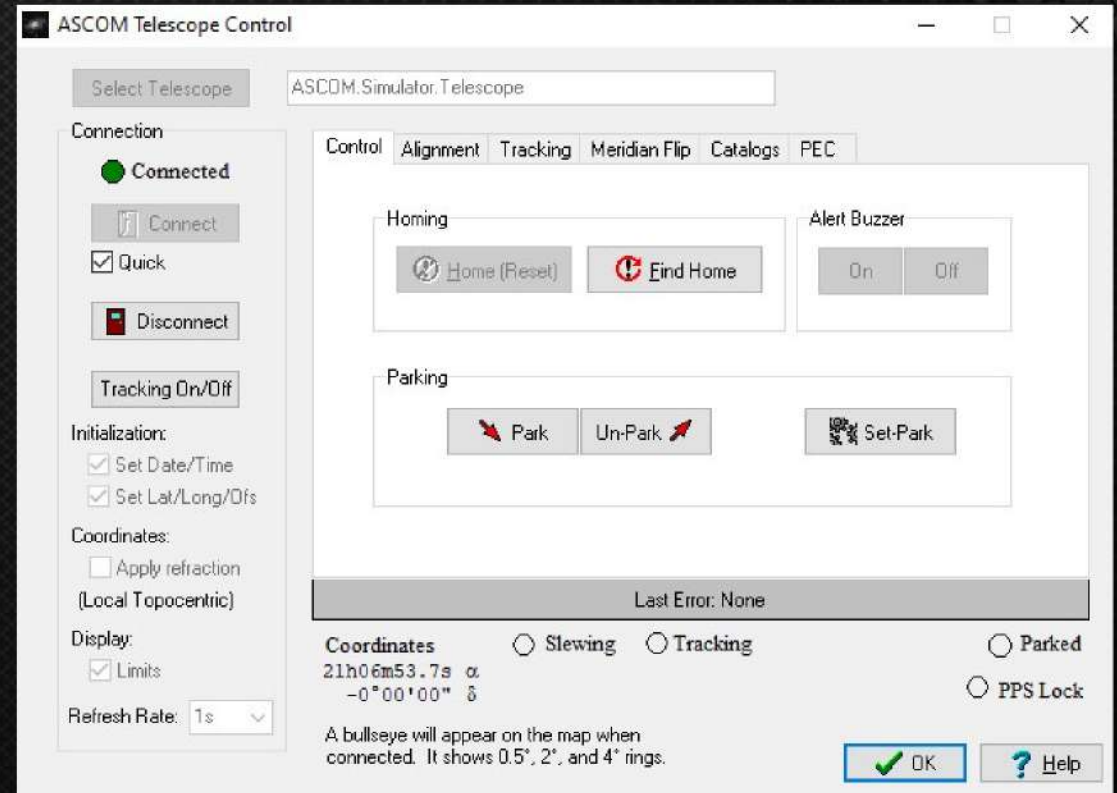


Confirm that telescope connects

OnStep Setup

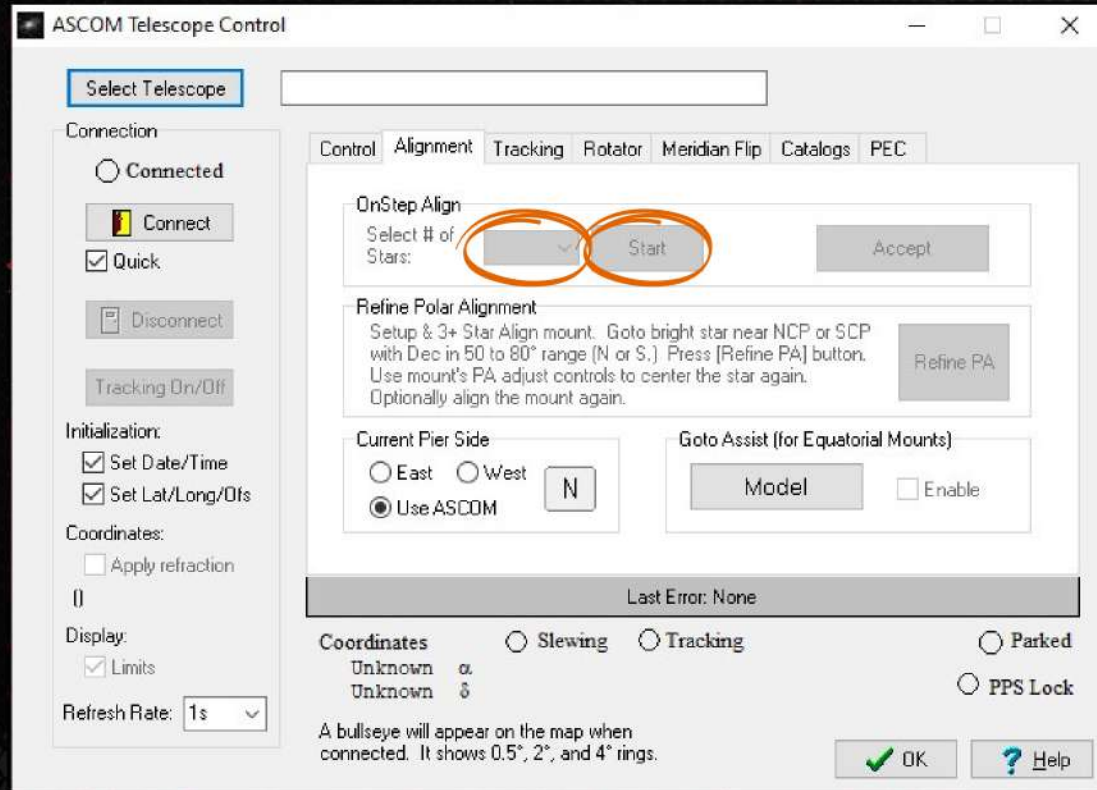


Sky Planetarium>Connections>Control Pad...
Virtual hand pad. Confirm basic operation and perform some GOTO's and slews



Navigate to control tab and click 'Find Home'

OnStep Setup



Navigate to Alignment tab, select 9 stars and click 'Start'

9-Point Alignment

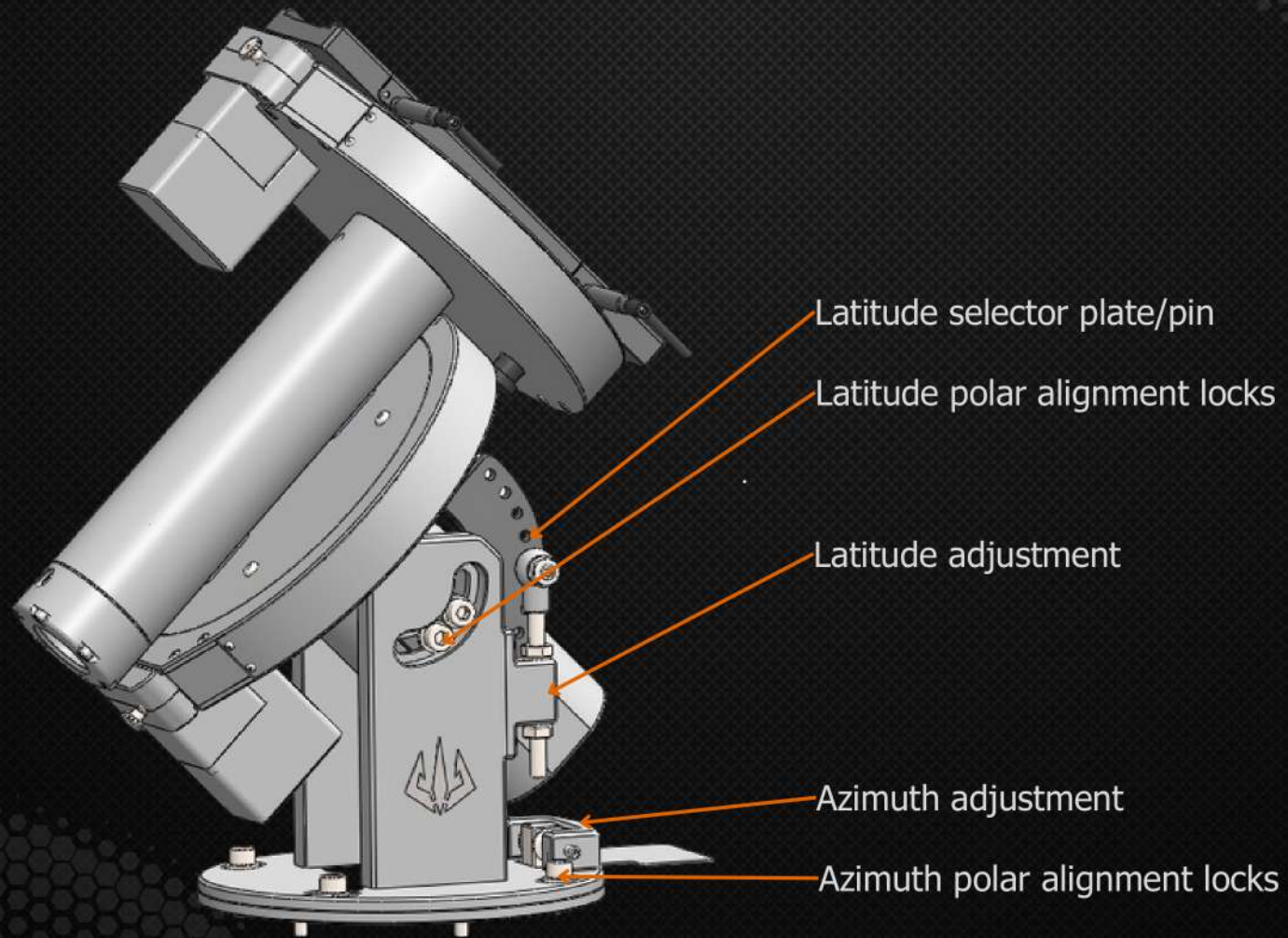
To start 9-pt alignment the camera and platesolver must be configured and working via control software such as N.I.N.A.

Pressing F1 at this point in Sky Planetarium will give the help file and full instructions however the process is very simple.

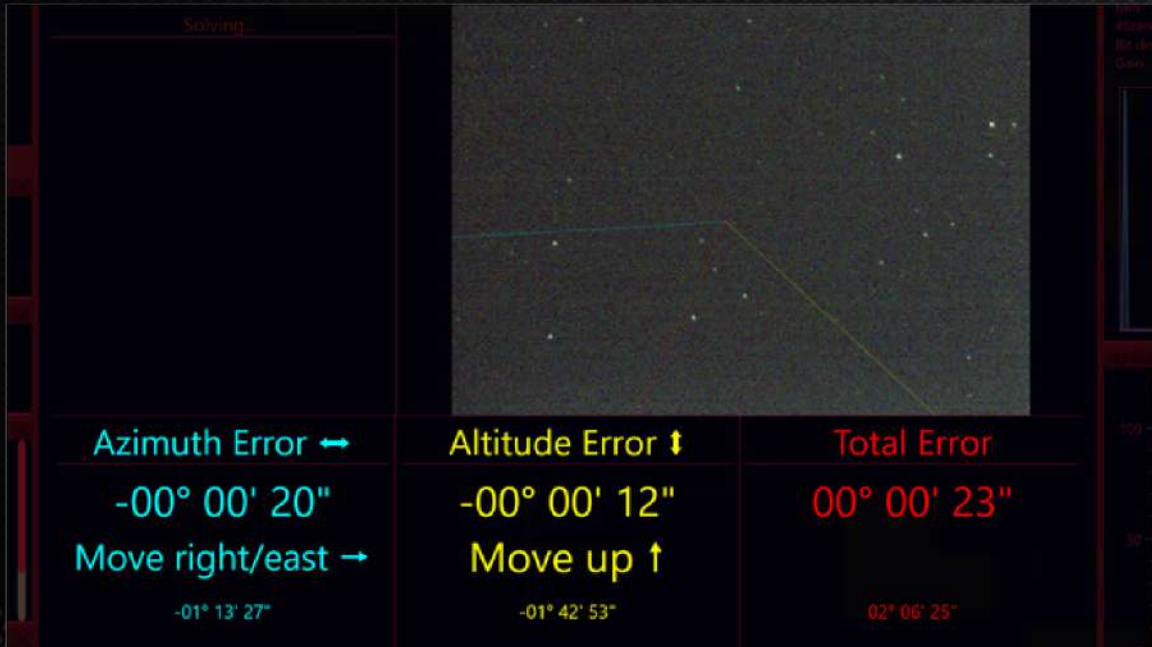
- With the mount at home and 9pt alignment started, right click and slew to a position in Sky Planetarium
- Go to the 3rd party app and perform a plate solve with auto-sync on
- Control will take this position and indicate it is ready for 2nd star
- Repeat 8 more times until completed

The nine points should be evenly distributed across the sky. It is possible to do up to 200 points using the GOTO assist however the gains over 9 point are marginal for most purposes.

Polar Alignment



Polar Alignment



3 Point Polar alignment N.I.N.A. plugin

Digitally Assisted

This process is best complete using a 3rd party software, such as the 3pt Polar Align Plugin in N.I.N.A.

The process should be completed as accurately as possible. Time spent now pays dividends later.

Refinement

Due to Direct Friction Drive not having a fixed gear ratio (factory setting is within 0.5% of actual) and polar alignment/9pt alignment/motor steps per degree (explained later) having circular dependencies it is necessary to repeat the 9pt alignment/polar alignment process for at least 2 iterations.

First Light



Congratulations!

The mount is now setup, configured and aligned. It's now time for first light. The basics are now complete. Please see the troubleshooting manual for any further issues.

