Sequence quick start guide

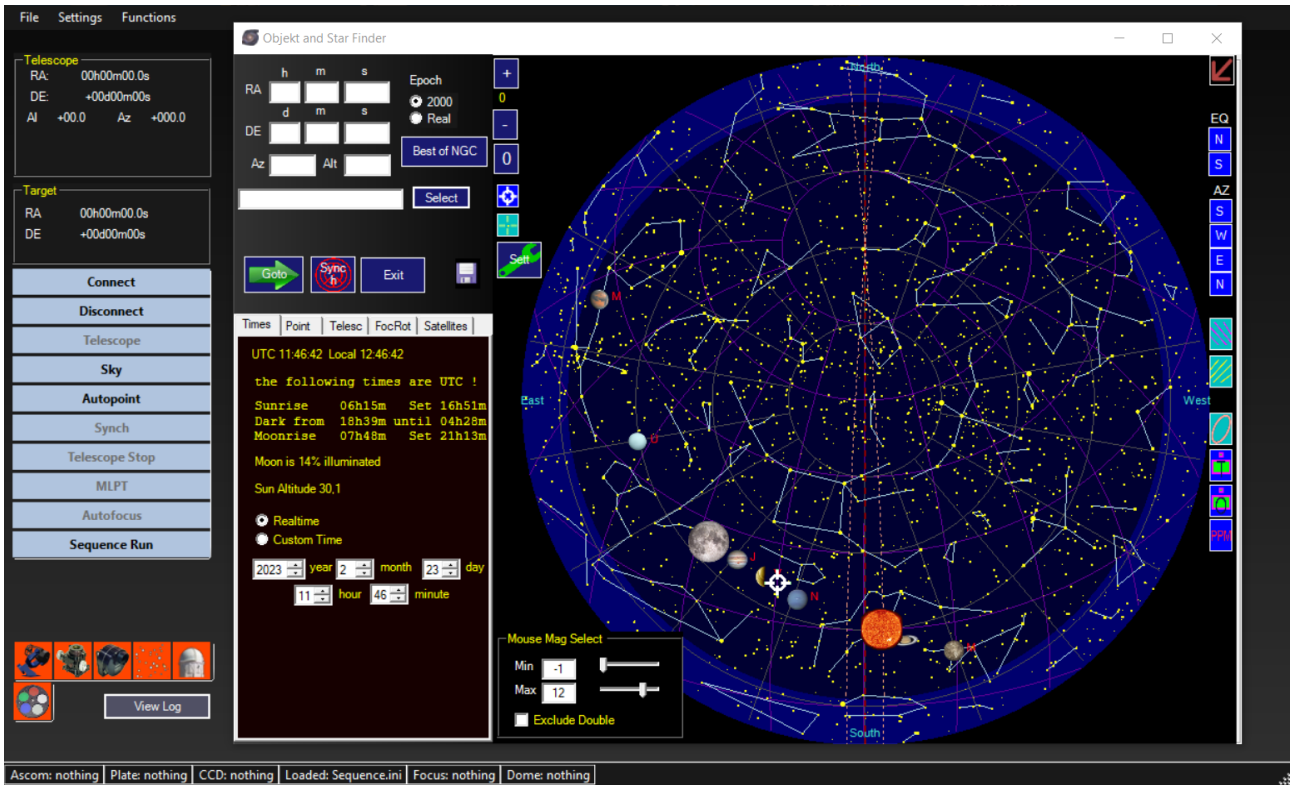


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1 General

1.1 Manufacturer address

ASA Astrosysteme GmbH
Galgenau 19
4212 Neumarkt i. M.
AUSTRIA

Phone: +43 7942 778 11-500
Email: office@astrosysteme.com
Homepage: https://www.astrosysteme.com

1.2 Support

If you experience problems or have further technical questions, feel free to contact our support at support@astrosysteme.com.

If you have questions concerning accessories or prices consult our sales department at sales@astrosysteme.com.

1.3 Changelog

Version #	Date	Change
A	2023-03	Release preliminary version;

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2 Software concept

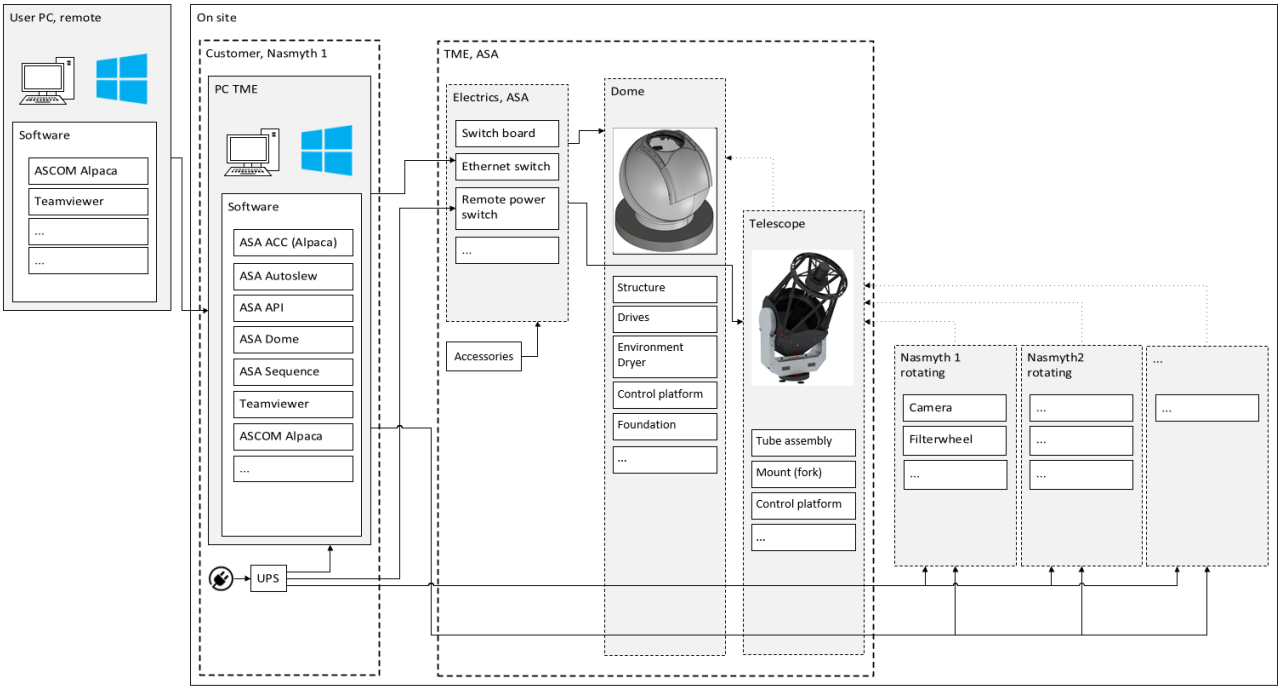
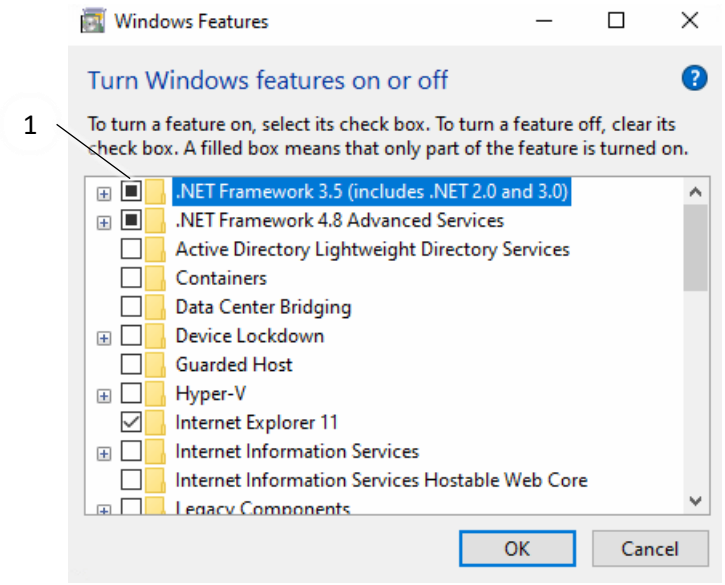


Figure 2.1: Software concept

3 Requirements

1. PC with Windows, see document ASA# 9600108;



Windows features

Press ⊞ in your task bar.
Type: windows features;
Start: Windows features activate or deactivate;
Check if .NET Framework 3.5 is installed/activated (1);

2. ASCOM Platform 66;
3. Autoslew; for details see document ASA# 9600130.
4. …

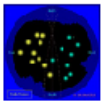
4 What is Sequence?

Autoslew is a software provided by ASA software for operating your device and its features. It provides an ASCOM Alpaca interface for establishing a connection to other astro-programs/devices.

These components are e.g.:

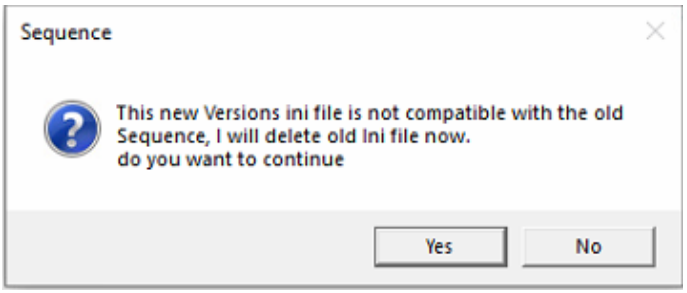
1. Telescope
2. Mount
3. Camera
4. Focuser
5. Dome
6. Derotator
7. Filter wheel
8. Covers
9. …

5 Installing



SequenceSetup.0.3.3.0.exe

Follow the installation process.



Confirm with ***Yes***.
Follow the installation process.
After successful installation start Sequence.

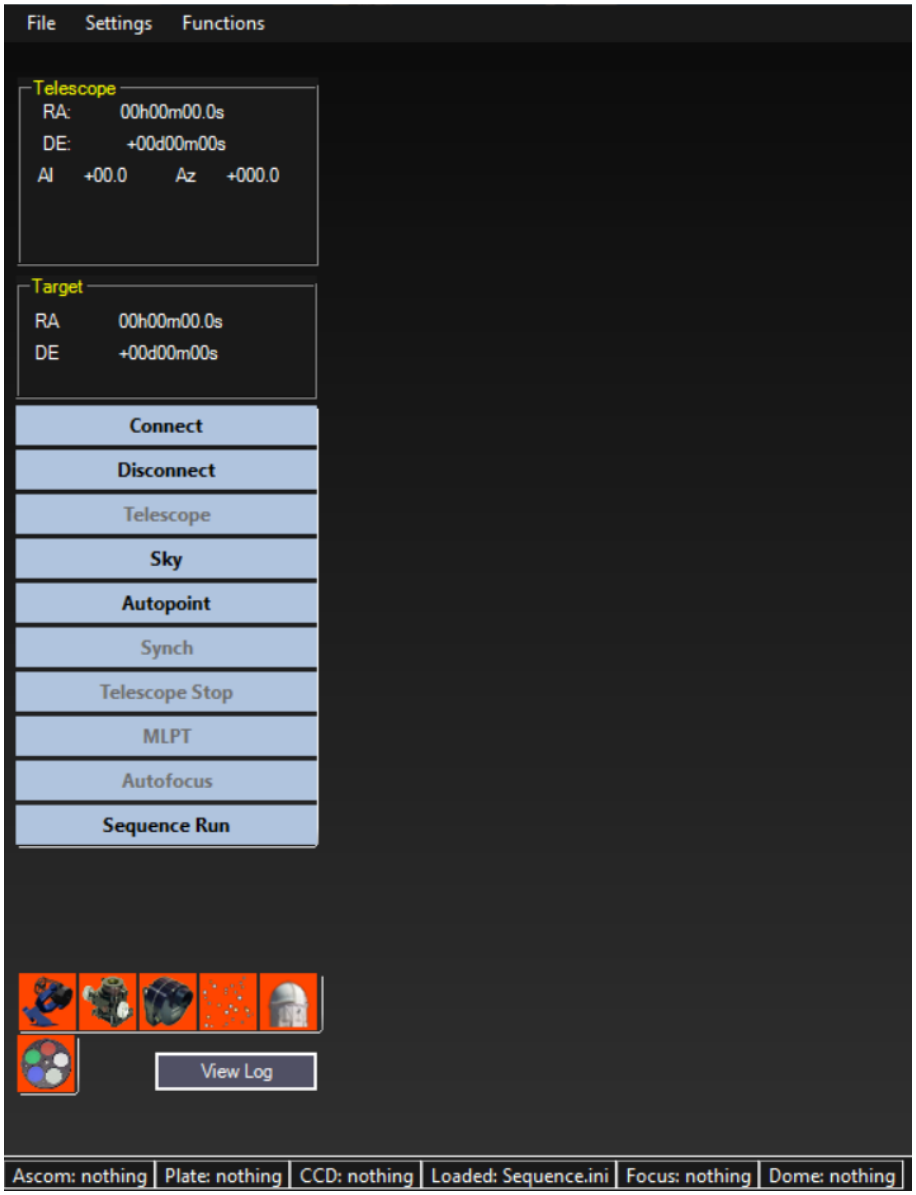
6 Settings

	**Important!** All times in Sequence are UTC.

For a quick start guide see the document ASA#: 9600100.

Although this document describes the setup for German mounts, the workflow can also be applied to AZ telescopes;

6.1 Main window



6.2 Telescope and location

	ASA recommends to use an GPS-receiver. If these settings are made in Autoslew, they can be imported into Sequence.

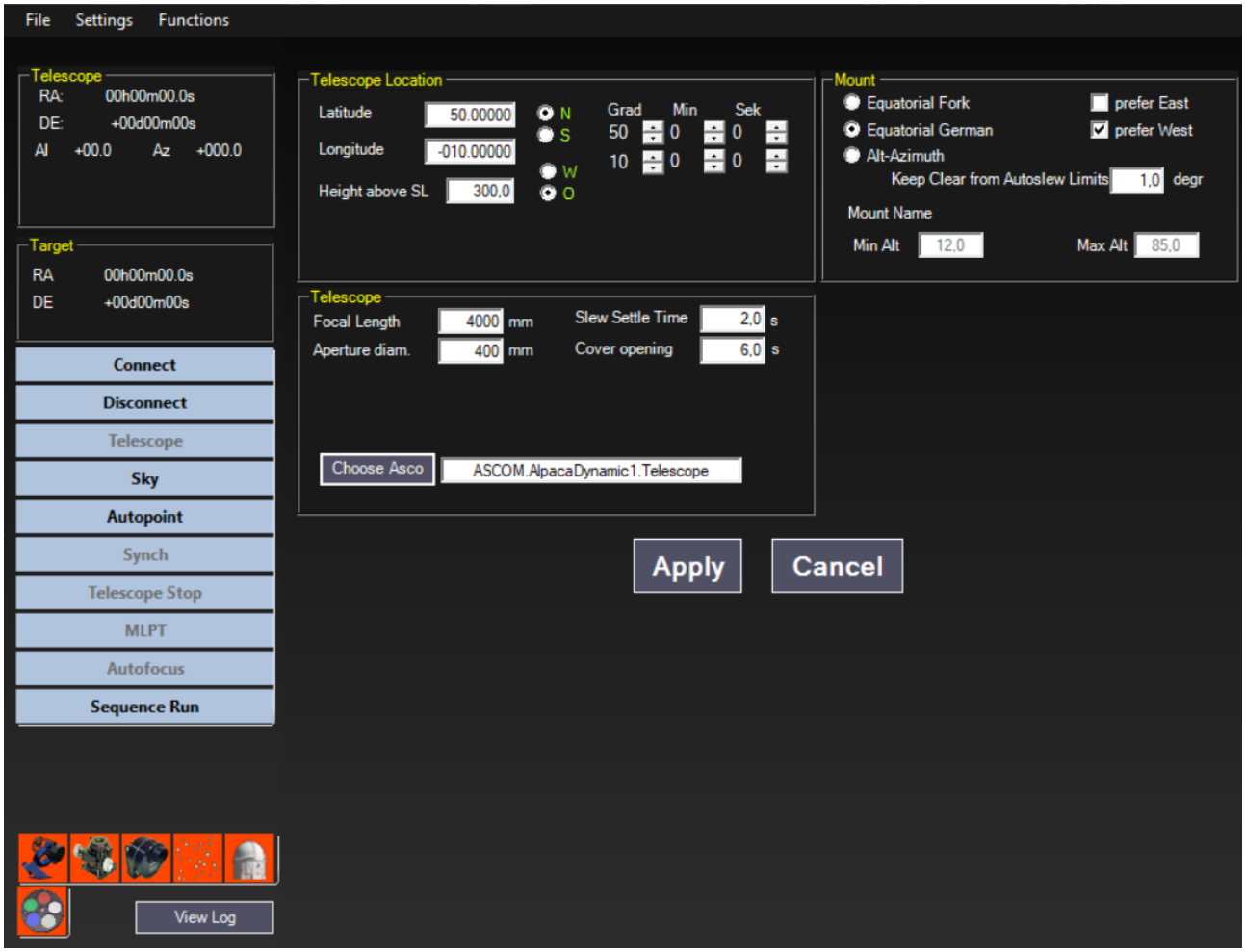
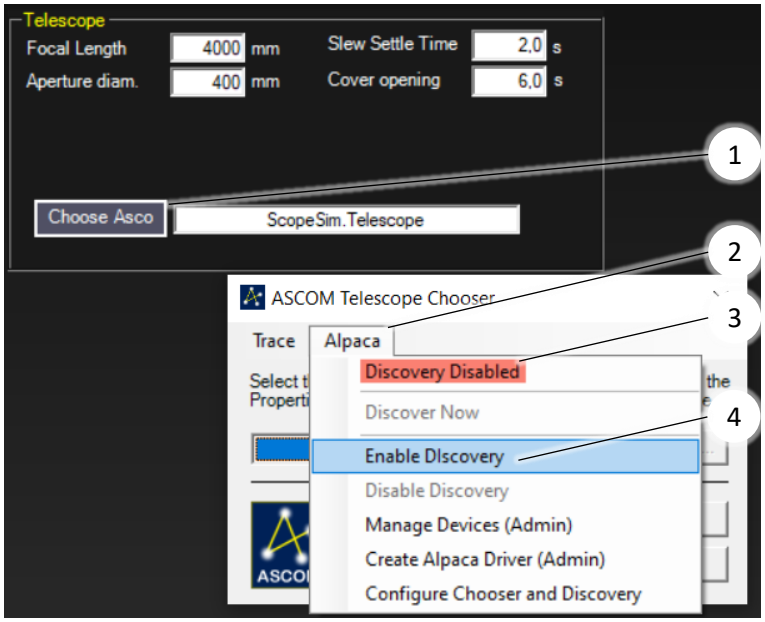


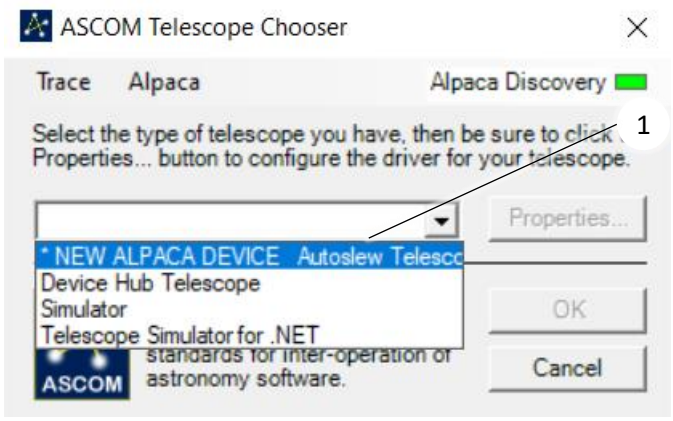
Figure 6.1: Telescope and Locations settings

Goto ***Settings --> Telescope and Location***.

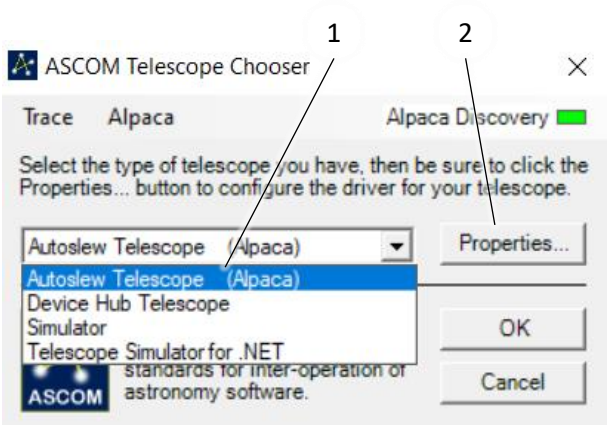
6.2.1 Connect telescope via ASCOM Alpaca



Goto ***Choose Ascom*** (1);
Goto ***Alpaca*** (2);
If ***Discovery Disabled*** (3), choose ***Enable Discovery*** (4);

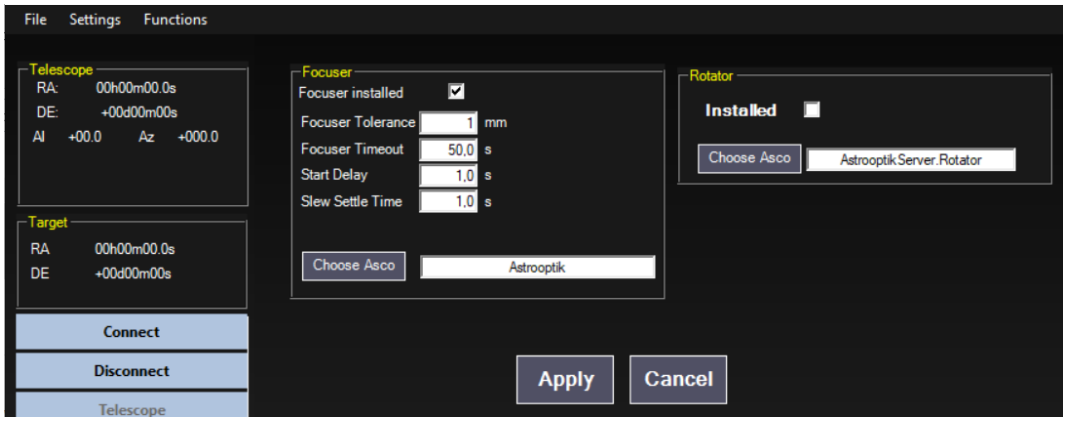


Choose ***NEW ALPACA DEVICE*** (1);
Confirm with ***OK***;
Now the drivers are registered to ASCOM.



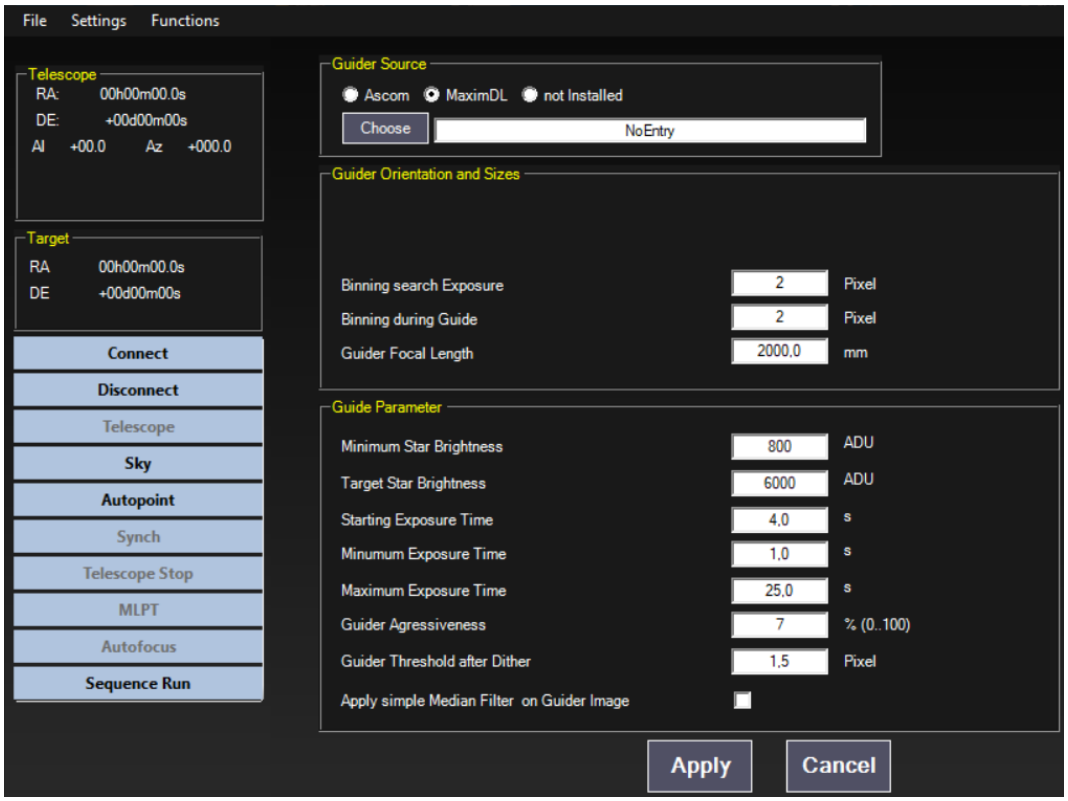
Choose ***Autoslew Telescope (Alpaca)*** (1);
Confirm with ***OK***;
Use ***Properties*** (2) for expert settings;

6.3 Focuser and rotator settings



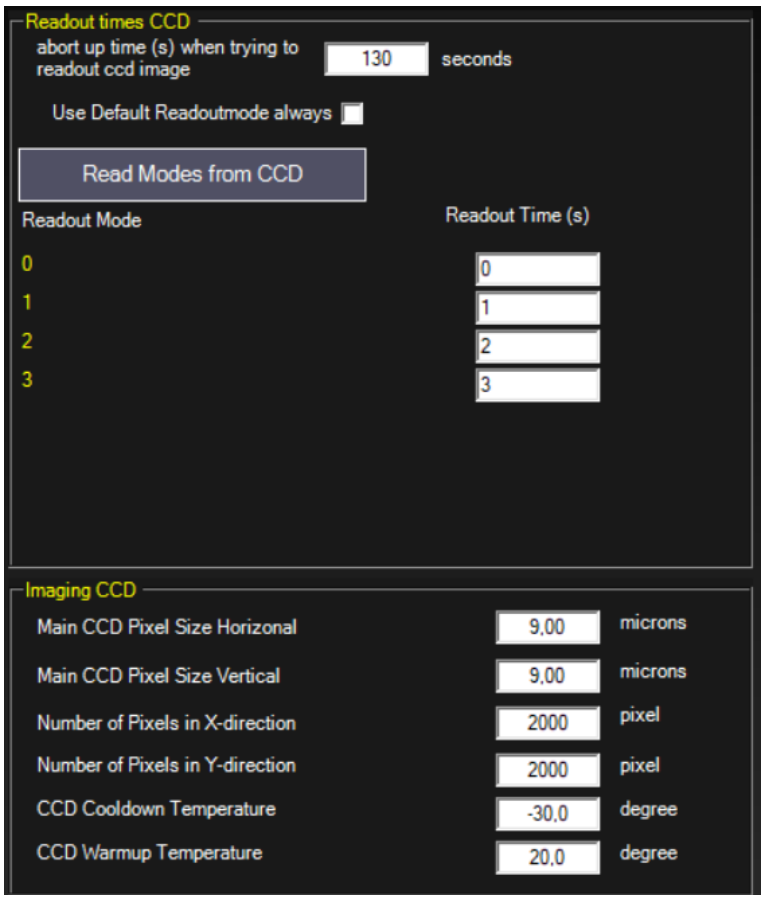
Goto **Settings --> Focuser and Rotator**.

6.4 Autoguider



Goto ***Settings --> Autoguider***

6.5 CCD, Filterwheel



Goto ***Setting --> CCD***.
Set your **Imaging CCD**.
Set the values of your camera;
Apply.



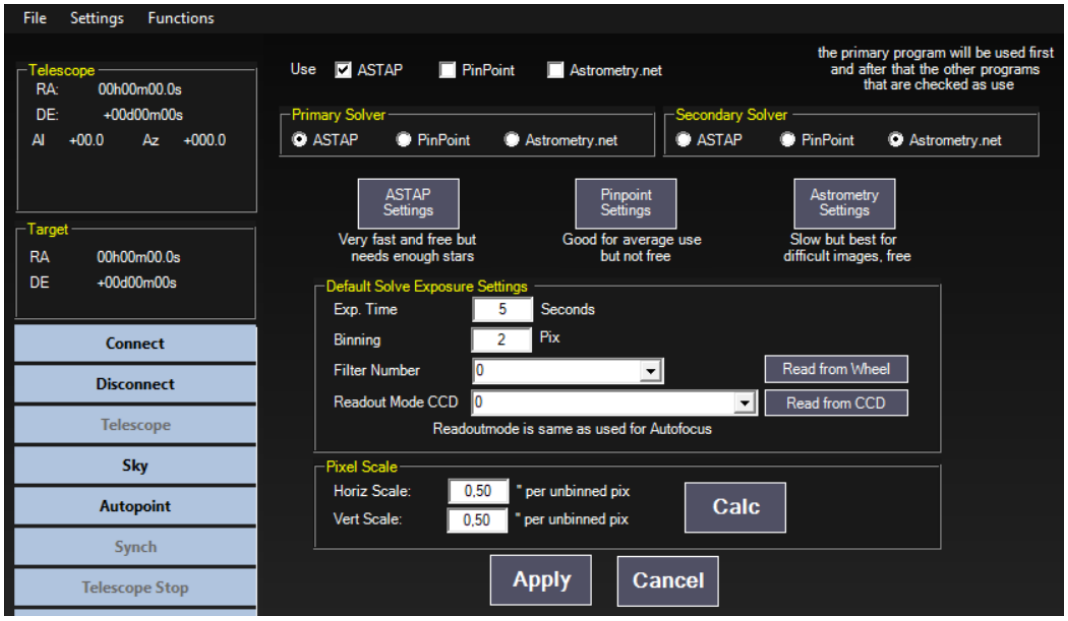
Goto ***Setting --> CCD***.
Set your ***Filter Wheel***.
Apply.

6.6 Autofocus



Goto ***Settings --> Autofocus***.

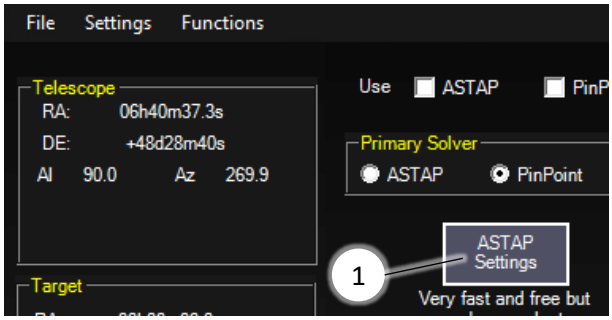
6.7 Plate Solve



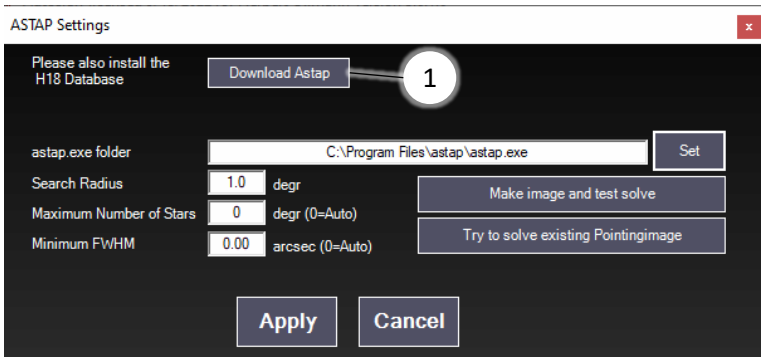
Goto **Settings --> Plate Solve**.

	**Note!** The desired astrometry software needs to be installed on your computer. ASTAP and Astrometry.net can be downloaded in the ASTAP AstrometrySettings.

6.7.1 ASTAP (example)

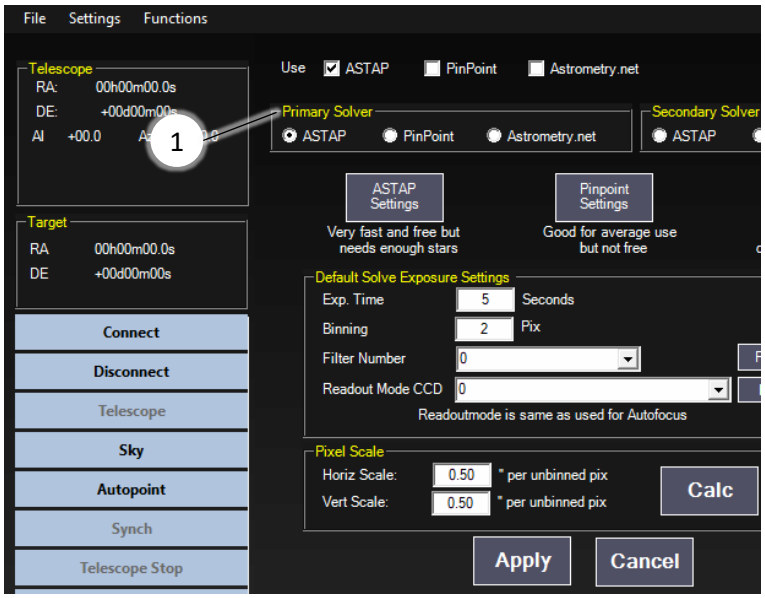


Goto ***Settings --> Plate Solve***;
Press ***ASTAP Settings*** (1);



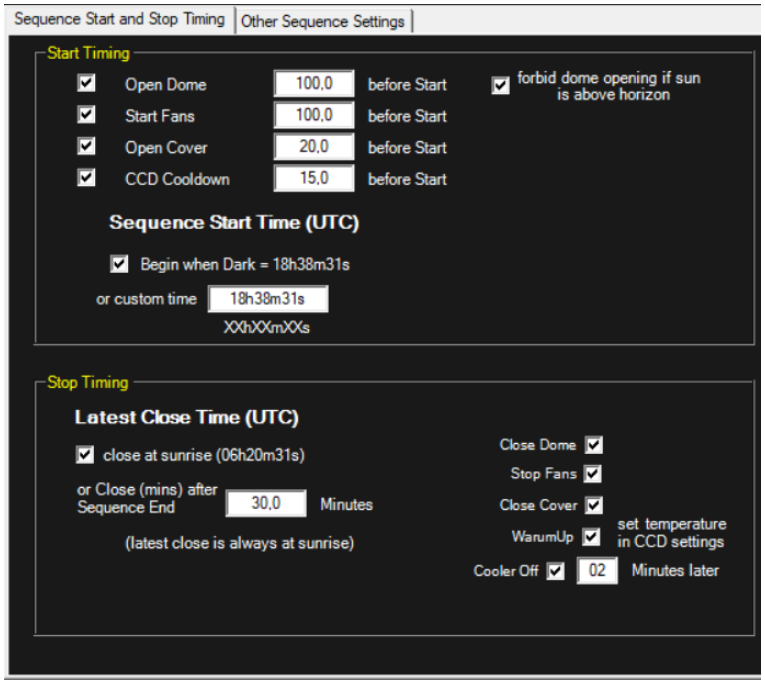
Press ***Download Astap*** (1).
Download the program;
Download the database;
Install the program ***ASTAP***
Install ***H18 Database***.

Set the path for ***astap.exe***.
Press ***Apply***.



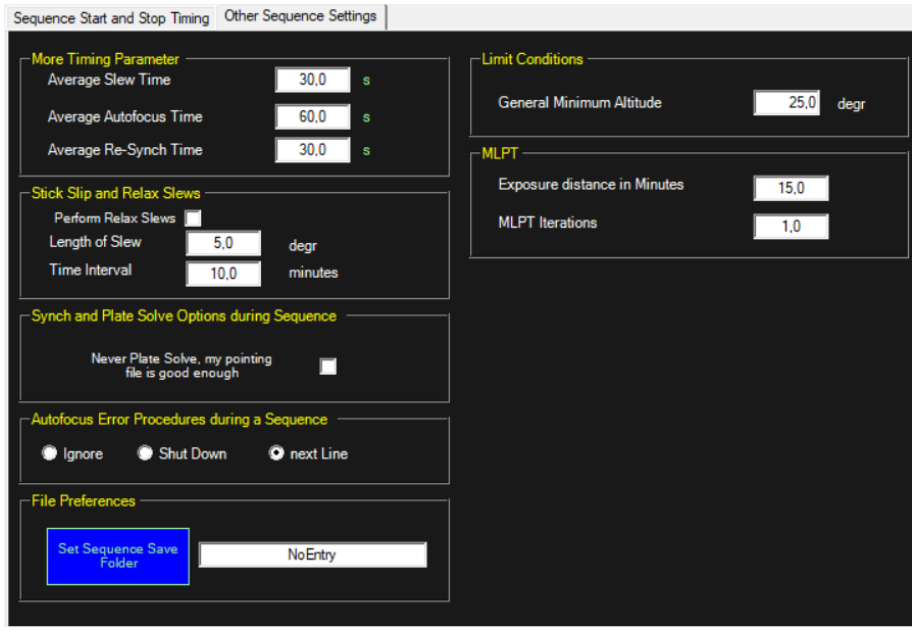
Primary Solver (1)
Choose ***ASTAP***.
Press ***Apply***.
File --> Save.

6.8 Sequence



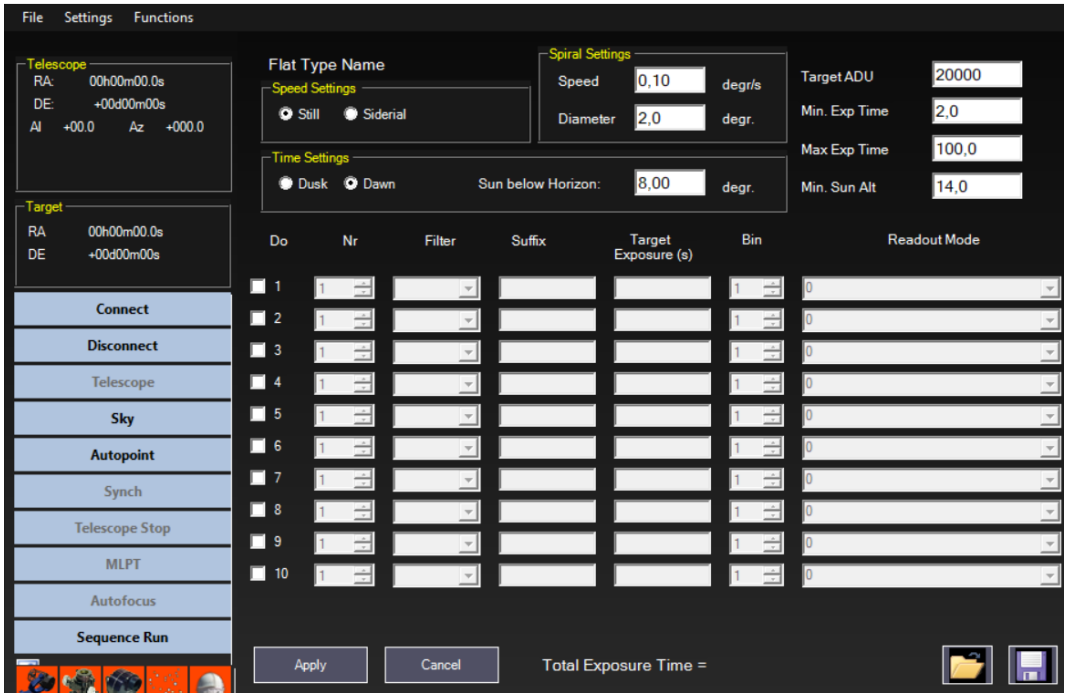
Goto **Settings --> Sequence**.

Make your settings in:
Sequence Start and Stop Timing;



Make your settings in:
Other Sequence Settings;

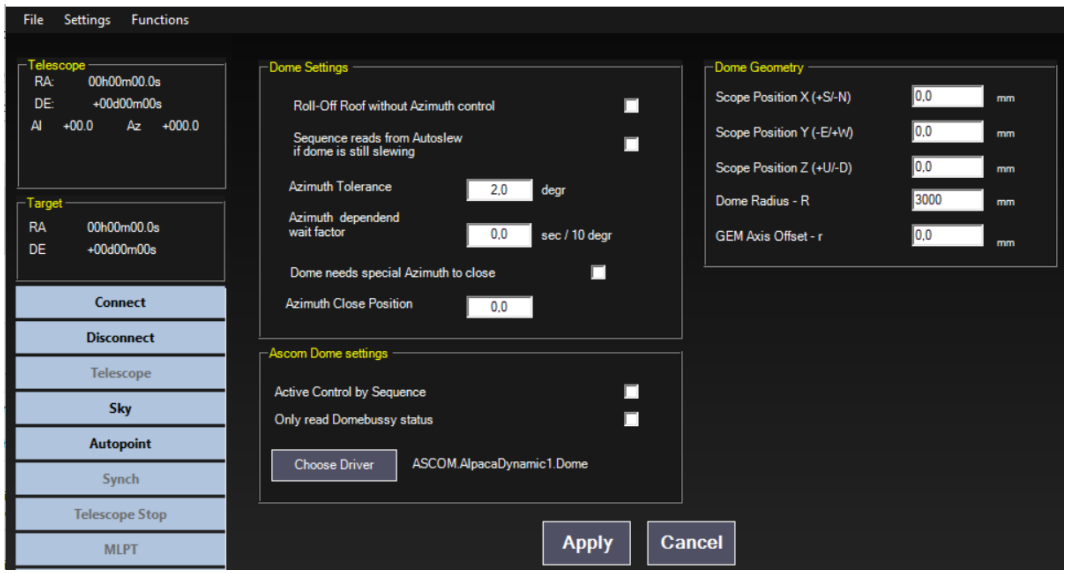
6.9 Flats



Goto ***Settings --> Flats***.

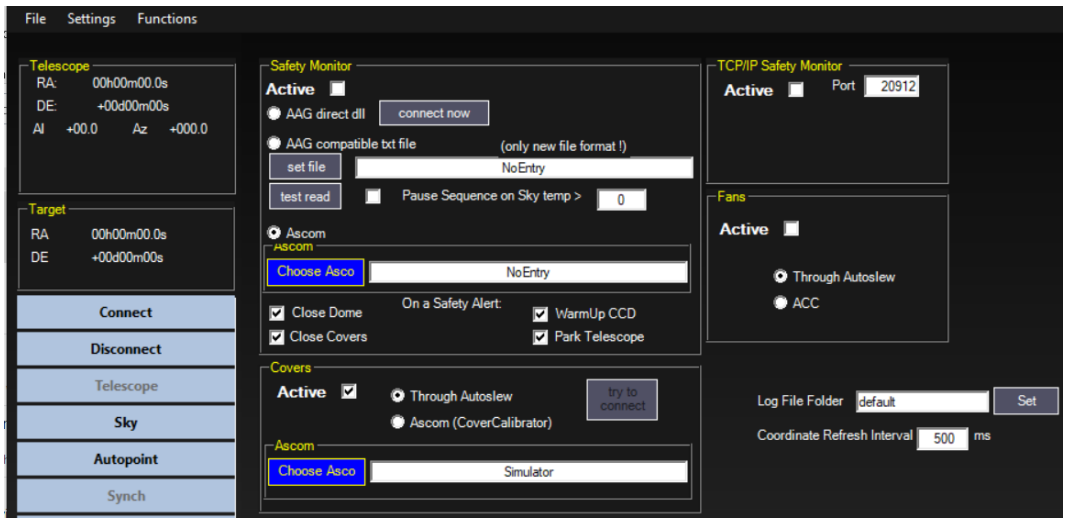
6.10 Dome

How to connect Sequence with a dome see document ASA# 9600133.



Goto ***Settings --> Dome***.

6.11 More Hardware



Goto ***Settings --> more Hardware***.

6.11.1 Covers, Fans

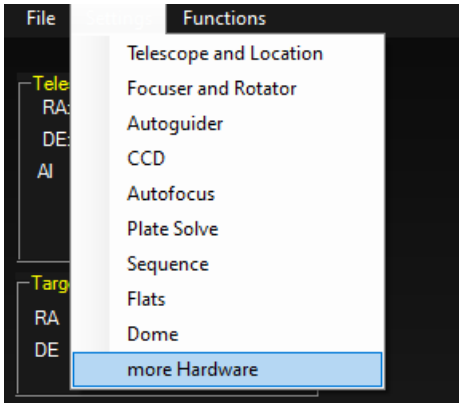
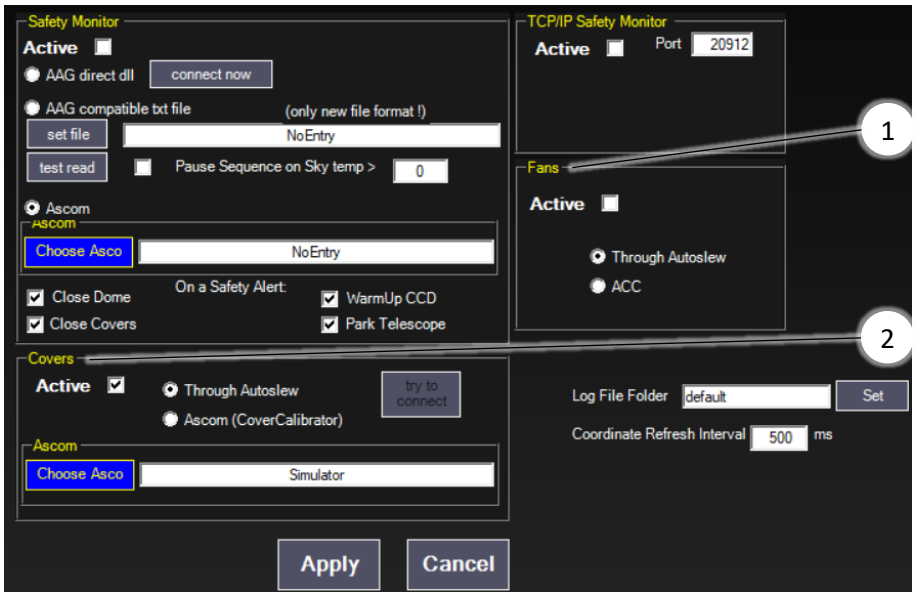


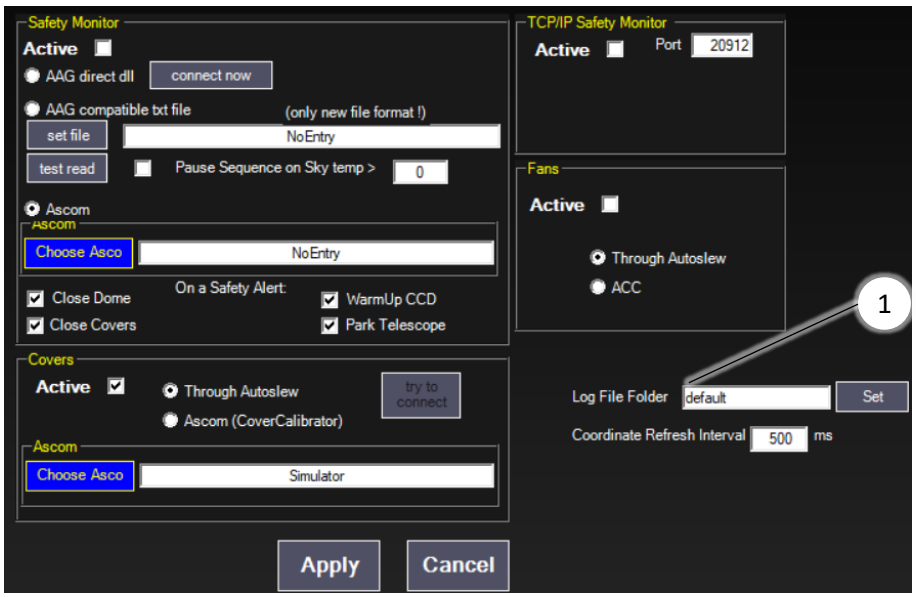
Figure 6.2: Settings -> more Hardware



Goto ***Settings --> More Hardware***.

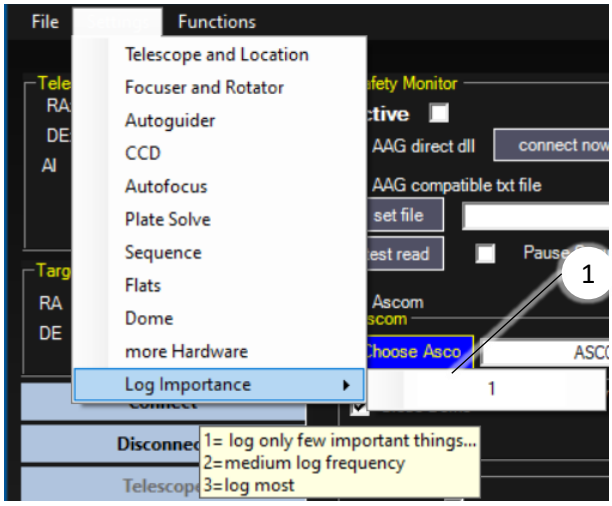
Choose your settings.
Fans (1);
Covers (2);

6.12 Logging



Goto ***Settings --> More Hardware***.

Choose your settings. (1);



Goto ***Settings --> Log Importance.***
Enter a value (1).

	When all problems are solved, disable the log-files again. Otherwise Sequence will create a new file at every start and use hard disk space.

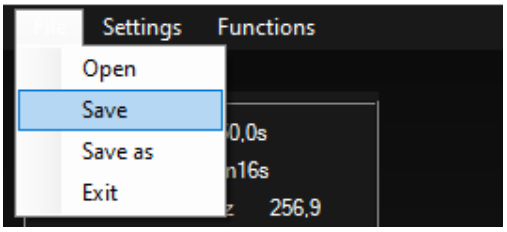
Windows Vista, Win7, 8, 10:

C:\ProgramData\ASA\Sequence\SequenceLogs

By default, the program data folder is hidden in windows. So, make hidden folders visible or just copy the file path above into the address bar of your windows explorer.

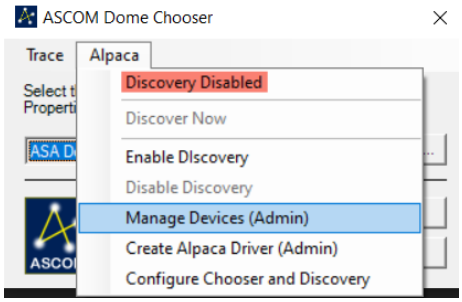
In a case of support with an ASA employee, choose the appropriate log-file and send it via email. This will help analysing the problem.

6.13 File Save

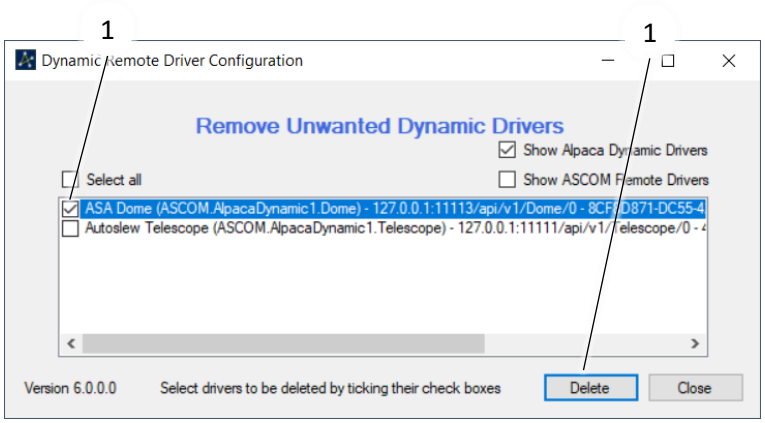


Save your settings after you have completed the setup.
File --> Save.

6.14 Disconnect Sequence from ASCOM devices



Goto ***Alpaca --> Manage Devices (Admin)***;



Select e.g., ASA Dome … (1);
Press ***Delete*** (2);

7 Operating

7.1 Sky window

For details see document ASA# 9600134;

7.2 Connection to hardware

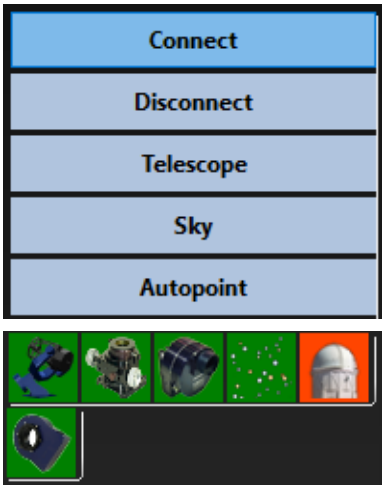


Figure 7.1: Connection status

After completing the Telescope and Current Location, Focuser and Rotator and Dome settings, connect to the hardware by clicking the ***Connect*** button in the main window.

Check the connection with the **telescope, focuser, CCD, plate solving** and the **dome** by looking at the buttons in the main window.
If everything is connected the symbols are shown in green. If they are not connected, they are shown in red (see Figure 7.1).

7.3 Start drives

In the next step, start the motors, which can be done in two different ways.

7.3.1 Telescope



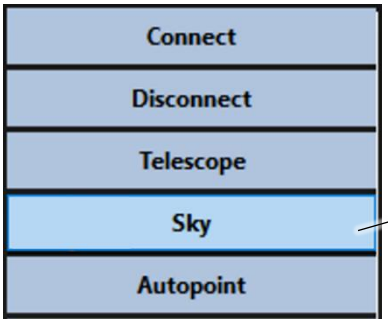
Figure 7.2: Telescope operation

Click **Telescope** (1).

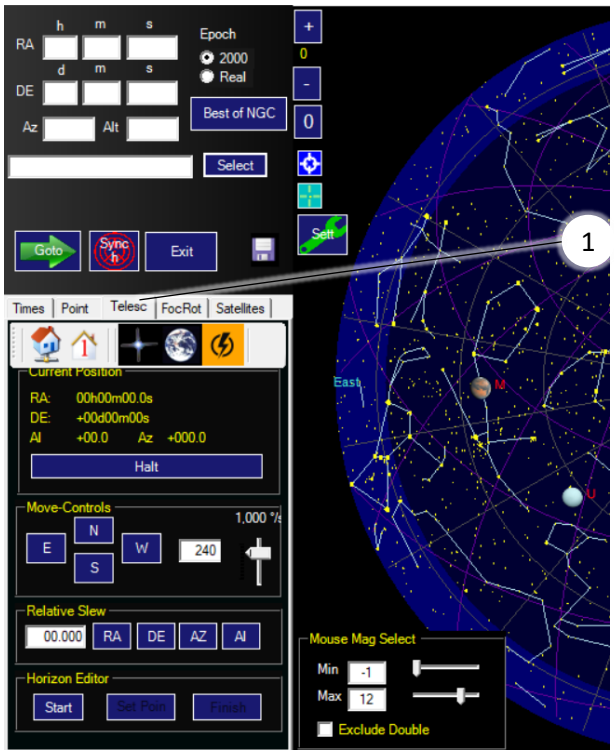
The Telescope Control window (3) opens, which is a simple version of the Autoslew home window with the basic telescope control buttons.

The last button (2) is for **turning on/ off** the motors. It will change its colour to green when the drives are on and to orange when they are off.

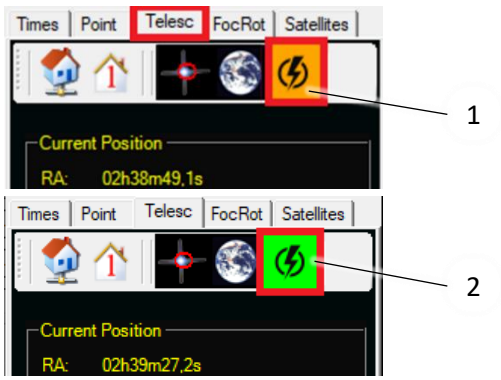
7.3.2 Sky



The second way is in the Sky window.
Click on the blue ***Sky*** (2) button in the main window.

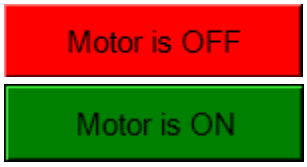


Choose ***Telesc*** (1) to get to the motor turn on/off settings.



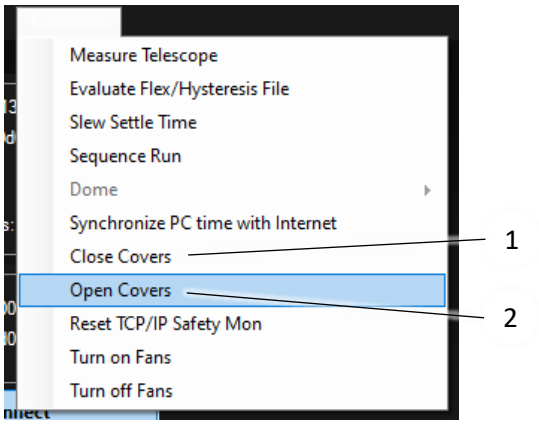
Goto ***Telesc***;
Click on (1) to switch on and of the motors.

Motor off (1);
Motor on (2);



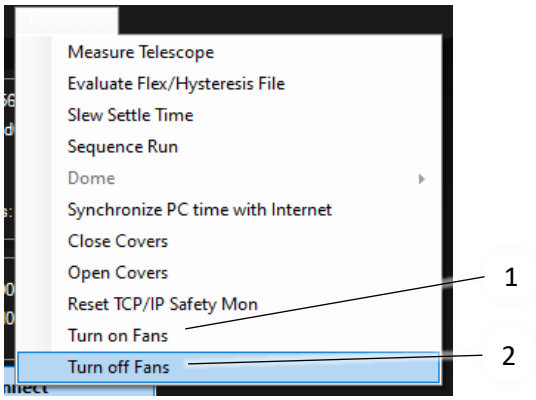
The Motors can also be turned on in Autoslew main window
Click the red **Motor is OFF** button. This button will then change to a green **Motor is ON** button, or vice versa.

7.4 Opening mirror covers



Goto ***Functions --> Close Covers*** (1) or ***Open Covers*** (2).

7.5 Starting fans



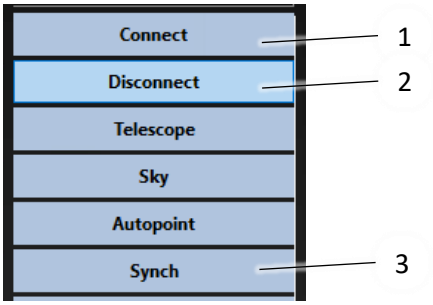
Goto ***Functions --> Turn on Fans*** (1) or ***Turn off Fans*** (2).

7.6 First movements

Open.

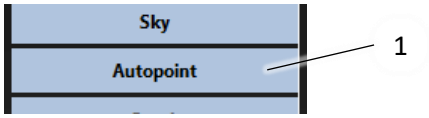
7.7 Camera

Install Maxim DL and connect the camera.



Sequence;
Press ***Disconnect (2) --> Connect (1)***;
Press ***Synch (3)***;

8 Pointing for polar alignment



Sequence
Press ***Autopoint*** (1);

8.1 Start a small pointing process

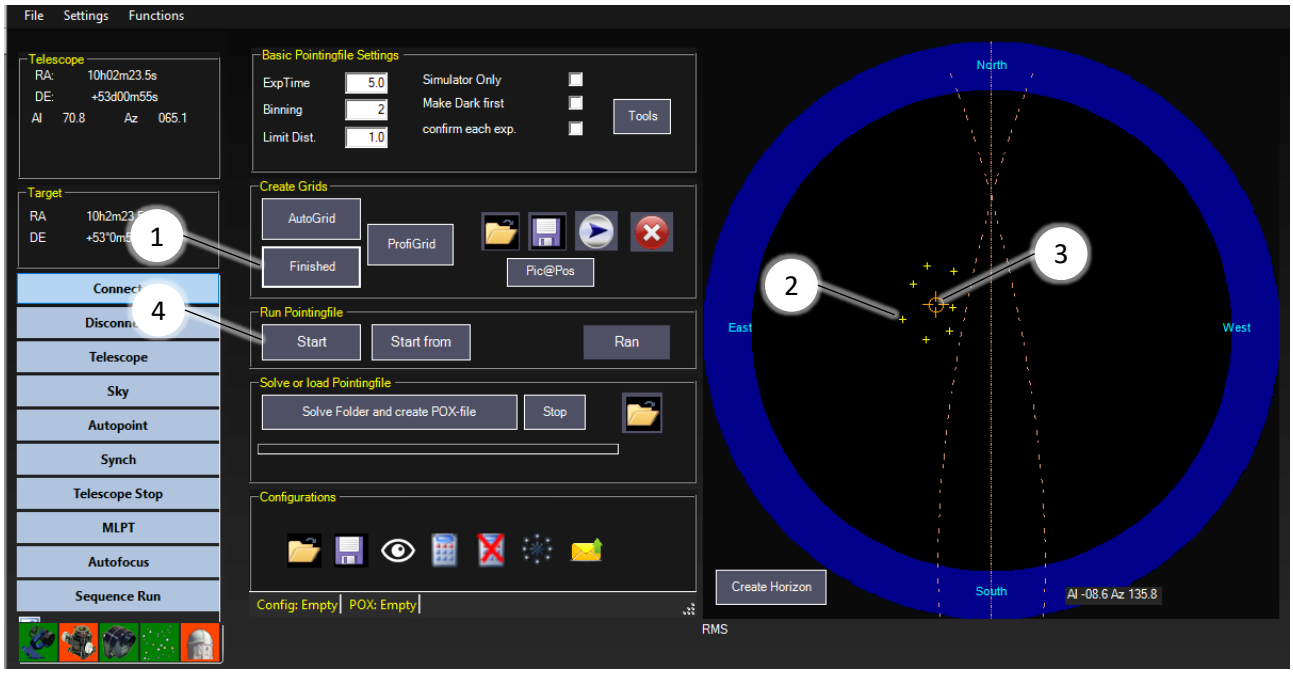


Figure 8.1: Pointing setup

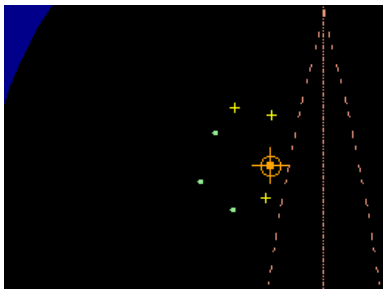
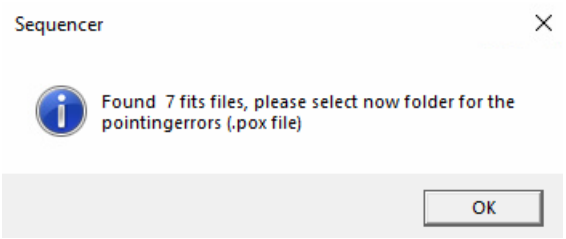


Figure 8.2: During pointing

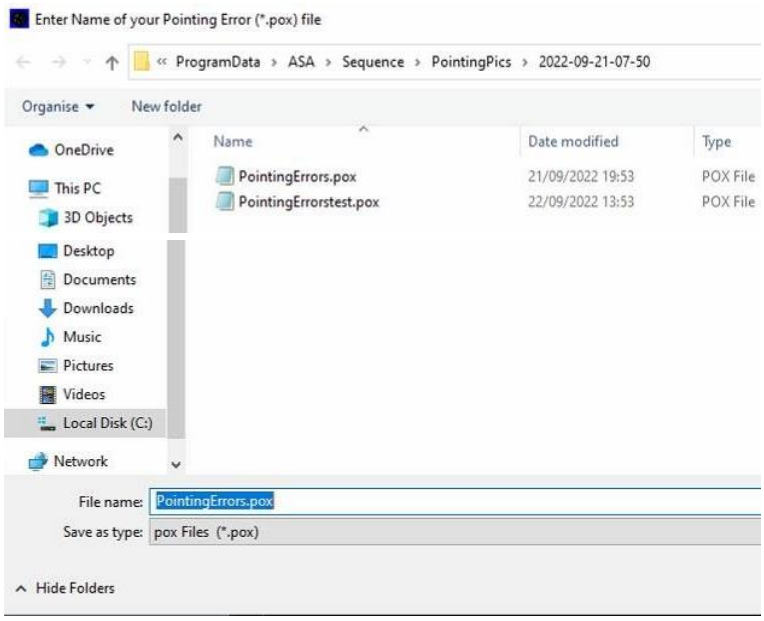
Press ***Mousegrid***; Figure 8.1 (1);
Set approx. 7 stars Figure 8.1 (2) nearby the telescope position (3), use only one side, avoid a meridian flip.
Left mouse button for peer side east
Right mouse button for peer side west;
To run a Pointingfile, Press ***Start***, Figure 8.1 (4);
Browse for folder, ***OK***;



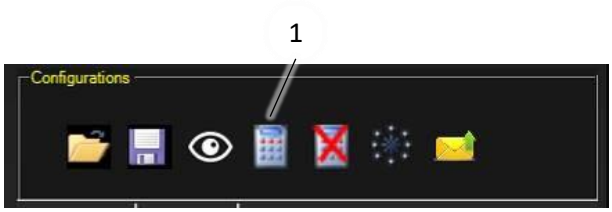
Press ***Yes***;



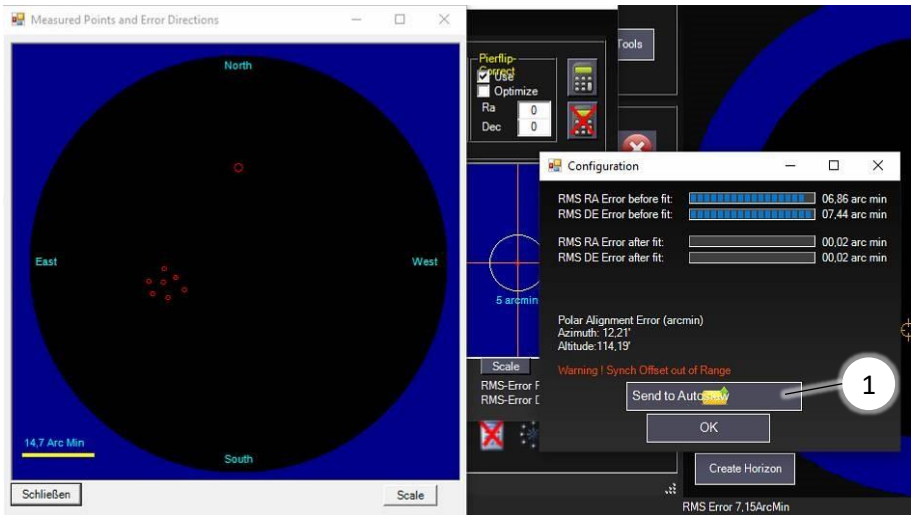
Confirm with ***OK***;



Press ***Save***;

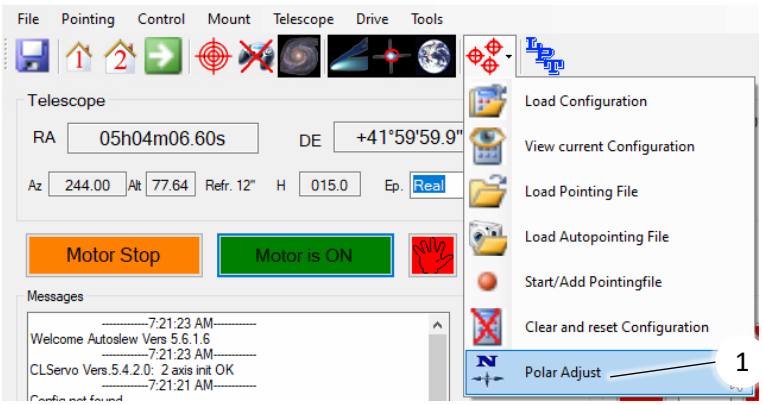


Press ***Calculate Config*** (1);

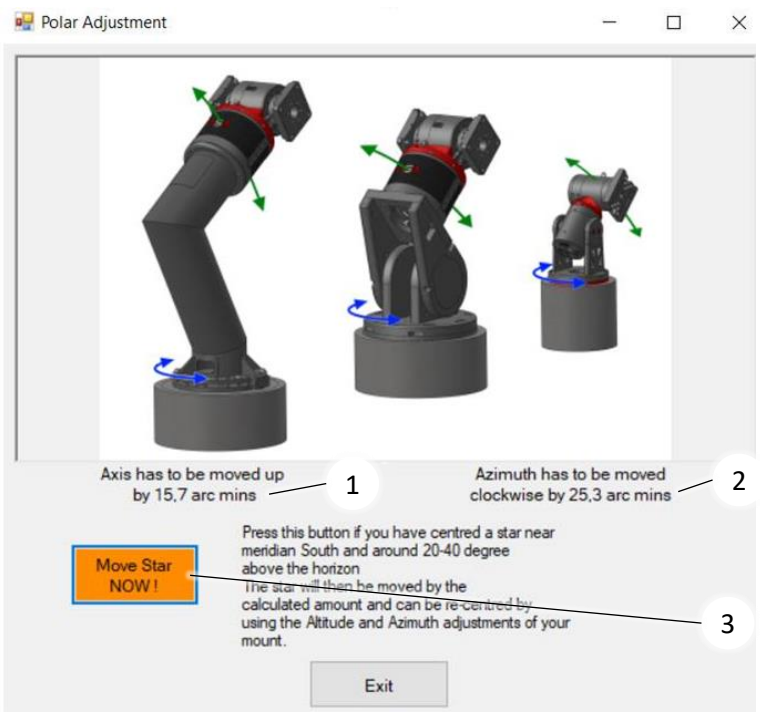


Press ***Send to Autoslew*** (1);
Move to a star near the position you looking at;

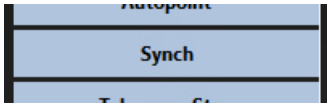
Sequence:
Press ***Synch***.



Switch to Autoslew
Choose ***Polar Adjust*** (1);

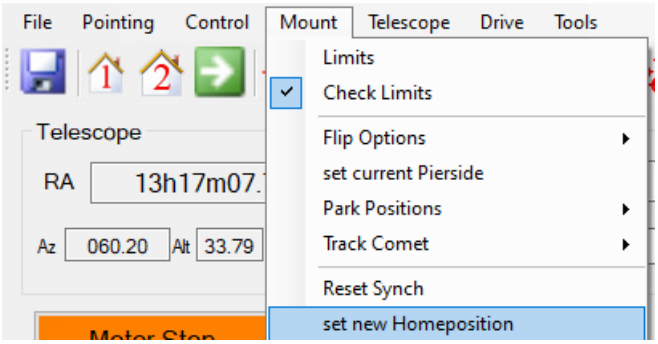


The Polar Alignment Error (1, 2) is calculated.
Press ***Move Star NOW !*** (3);



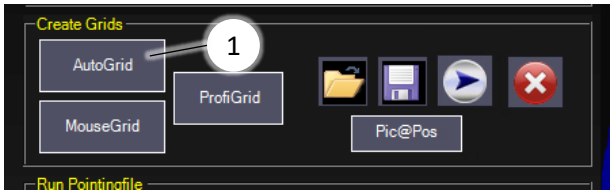
Switch to Sequence.
Press ***Synch***.

Repeat the procedure described in chapter 8.1 until the error is less than 5 arcmin.



Autoslew
Mount --> set new Homeposition.
File --> Save Parameter.

9 Pointing for standard operation



Start a large pointing process (> 50 stars).
We recommend using ***AutoGrid*** (1).
To run Pointingfile press ***Start***, Figure 9.1 (1).

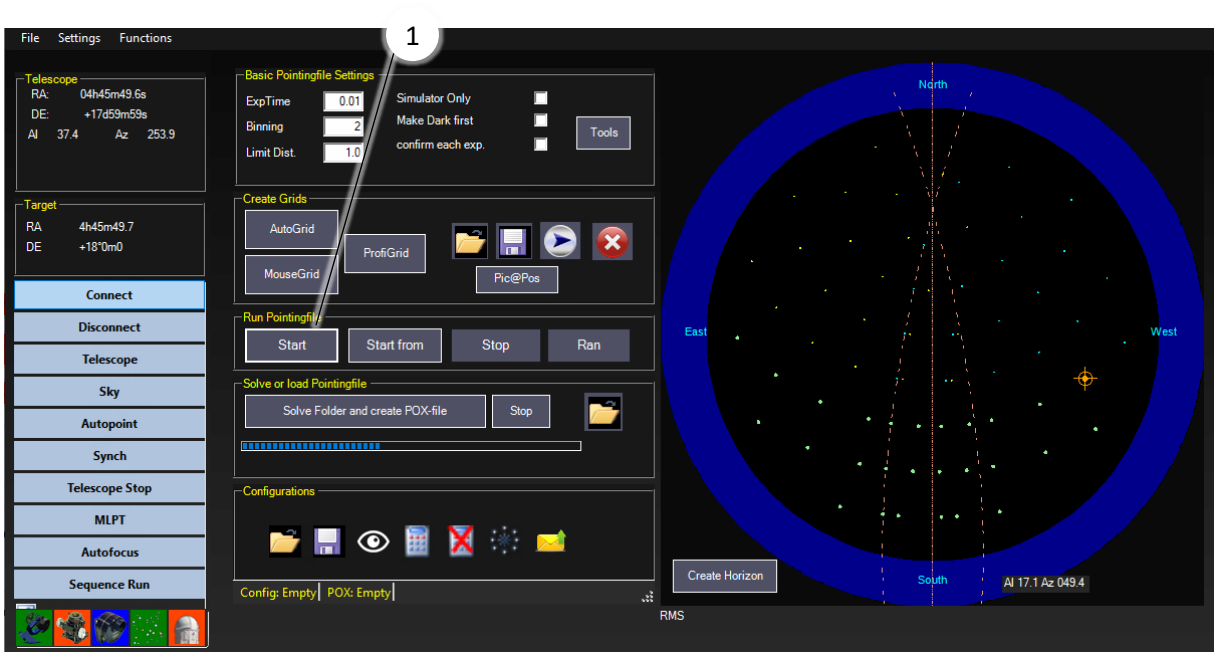
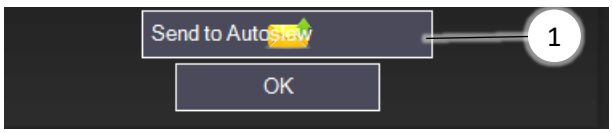
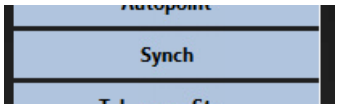


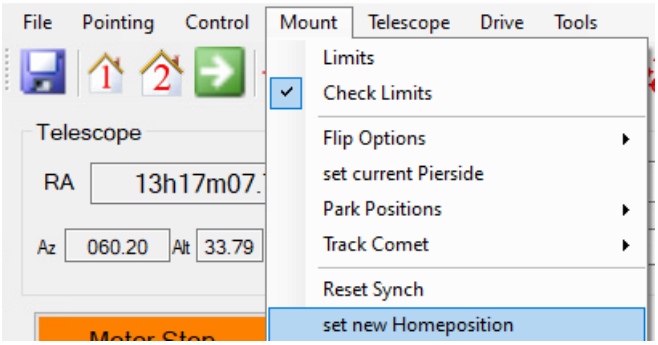
Figure 9.1: Sequence during pointing



Press ***Send to Autoslew*** (1);

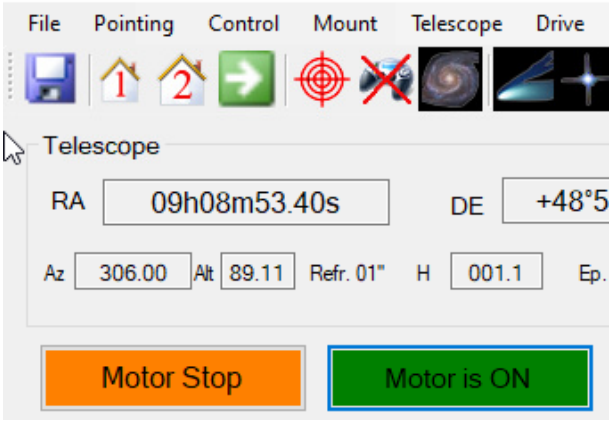


Sequence
Press ***Synch***.

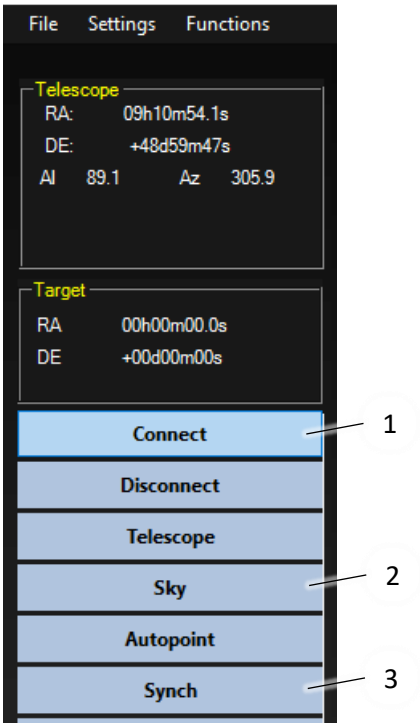


Start Autoslew;
Goto ***Mount --> set new Homeposition***.
File --> Save Parameter.

10 Operation

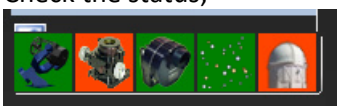


Start Autoslew;
Check: **Motor ON**;



Start Sequence;
Press ***Connect*** (1);

Check the status;



Green: connected;
Red: unconnected;
Blue: working;

Press ***Sky*** (2);

Choose your object;

1. Click on an object in the sky window, or
2. Enter the name of the object in in the field next to Select (1), seeFigure 10.1: Sequence during slewing;

Press Goto 

;
Slew to object;
Press ***Synch*** (3);

Press Goto 

;

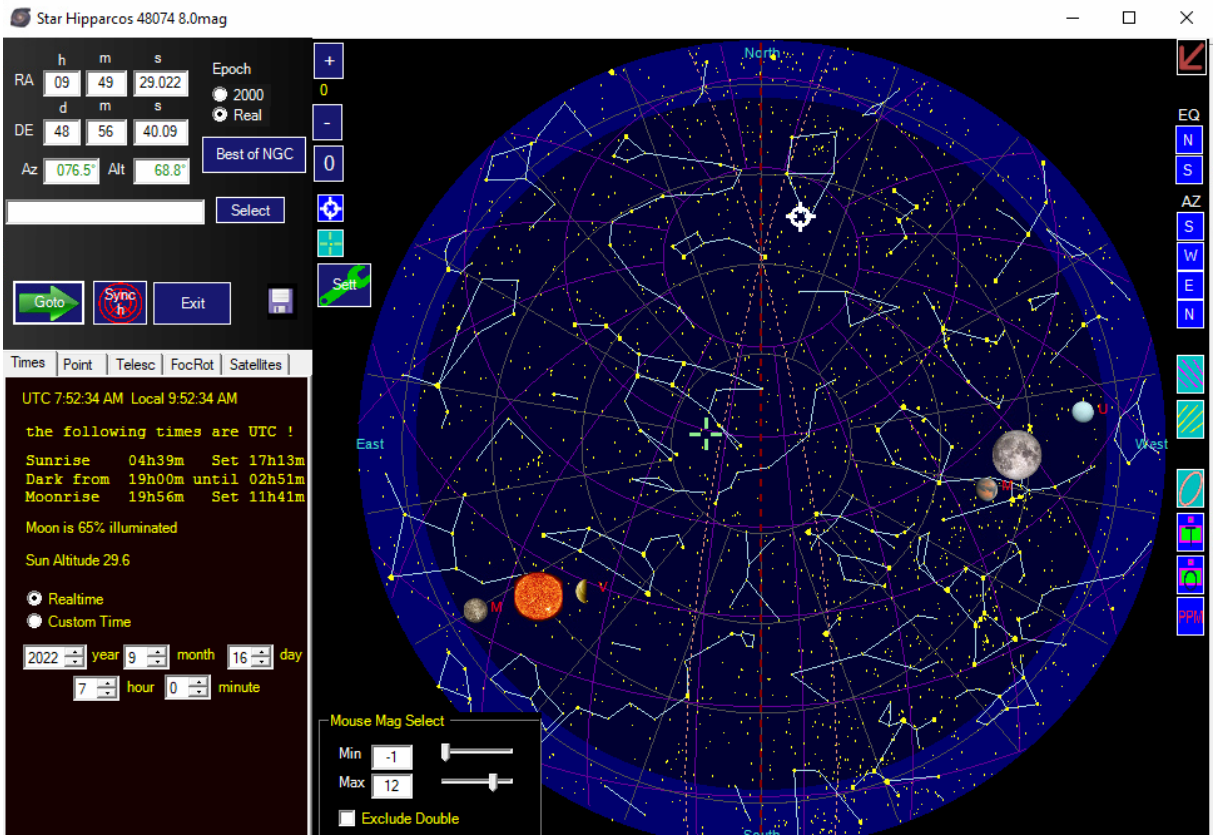
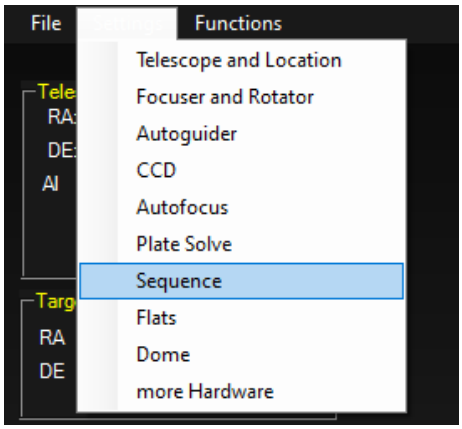


Figure 10.1: Sequence during slewing

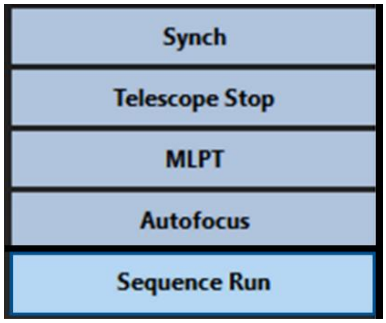
11 Taking observations

11.1 Settings



Goto ***Settings --> Sequence***.

11.2 Sequence Run



Goto ***Sequence Run***.

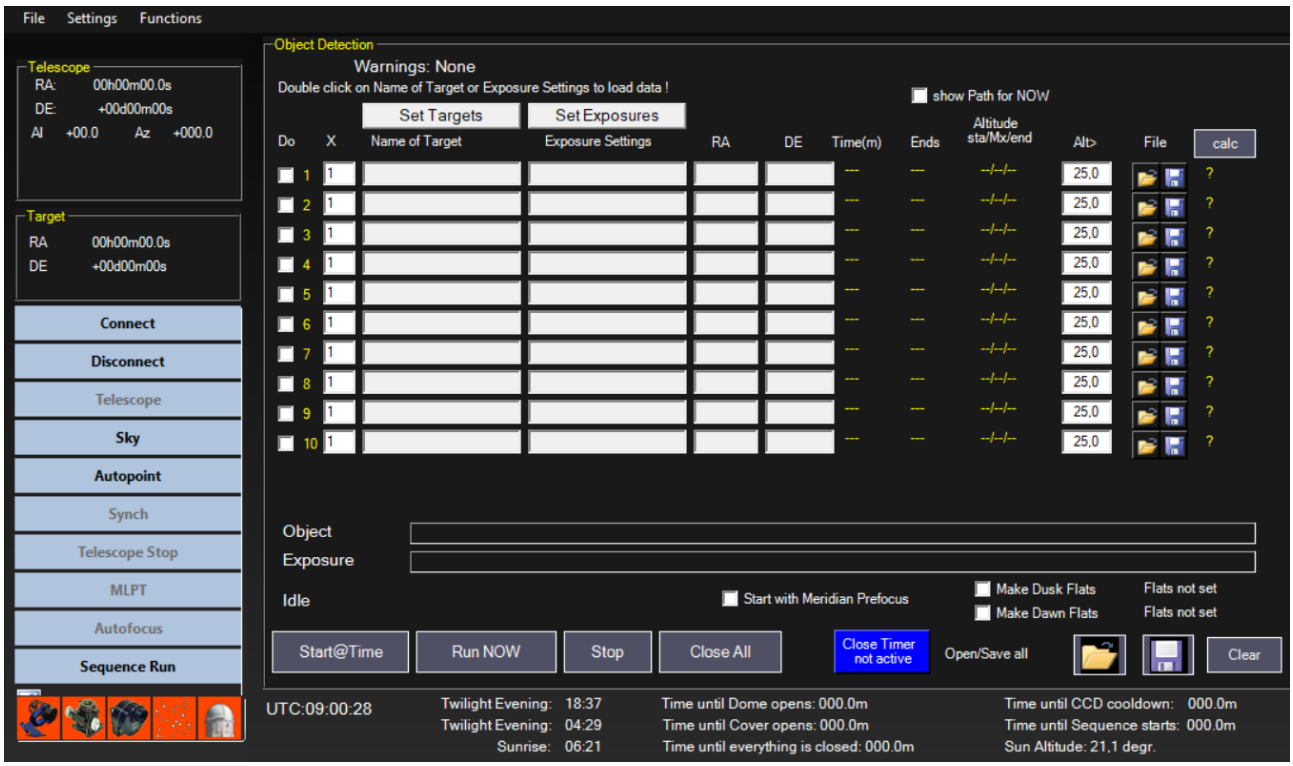
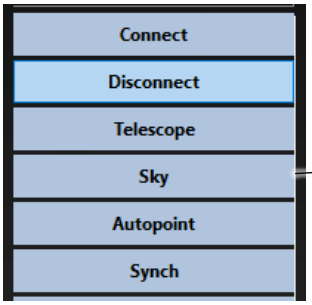
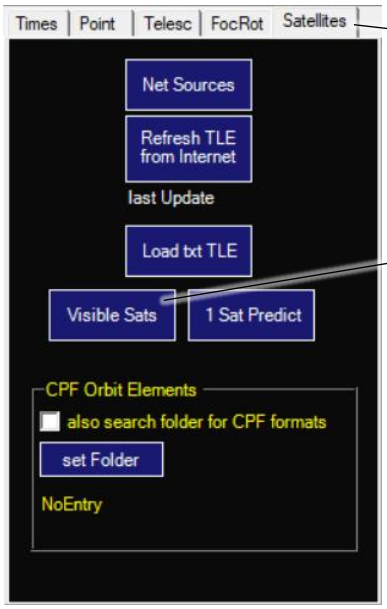


Figure 11.1: Sequence Run

11.3 Tracking satellites



Press ***Sky*** (1);



Goto ***Satellites*** (1);
Press ***Visible Sats*** (2);



Choose the satellite;

1. If the satellite is below the horizon, the device waits at the point where the satellite appears above the horizon and then starts tracking.
2. If the orbit goes through the zenith limit, the device will stop tracking when the satellite enters this area. And starts tracking again after the satellite leaves the zenith limit.

Press ***Track***;

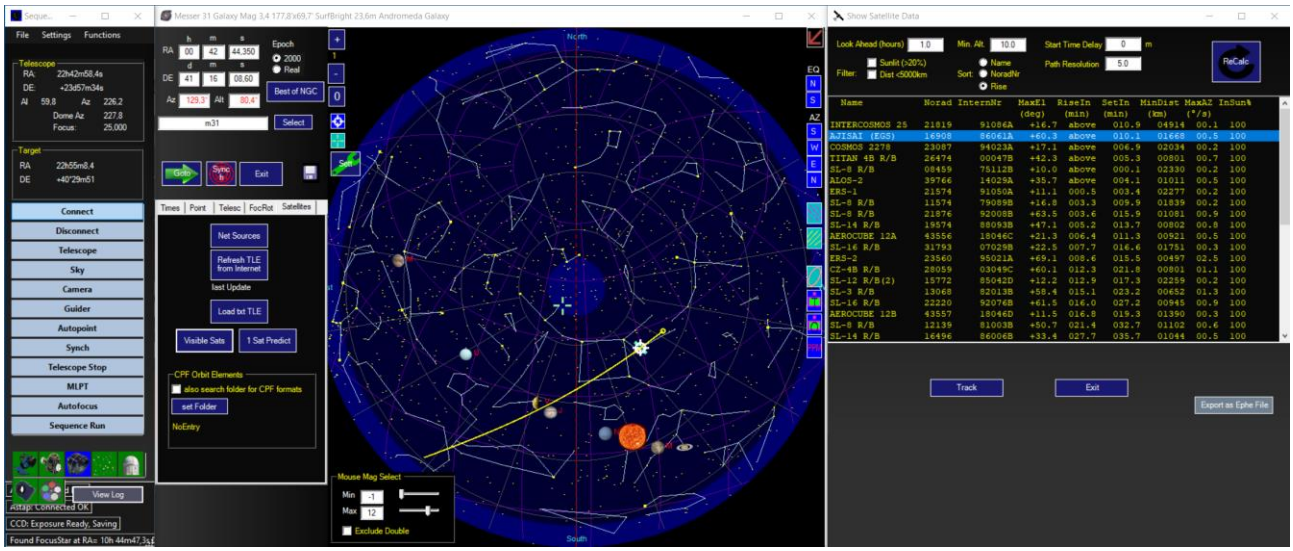


Figure 11.2: During satellite tracking

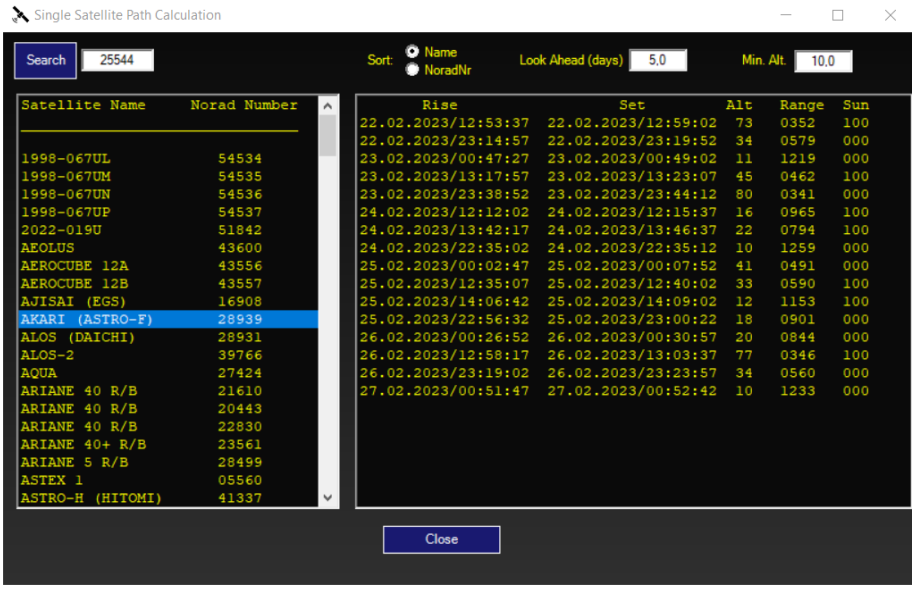
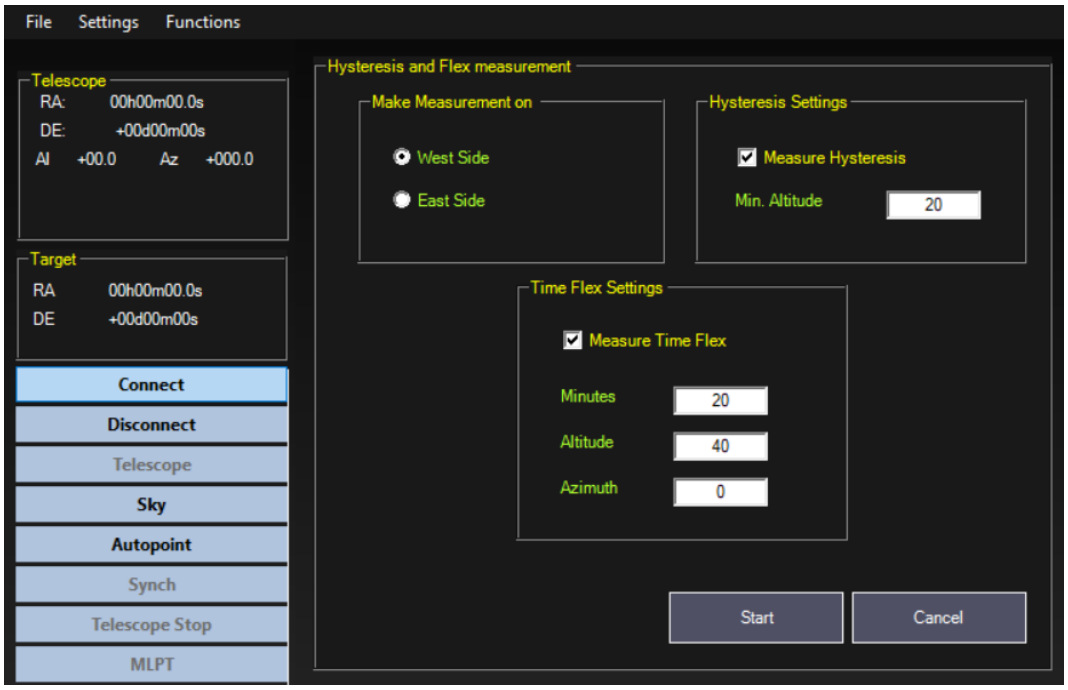


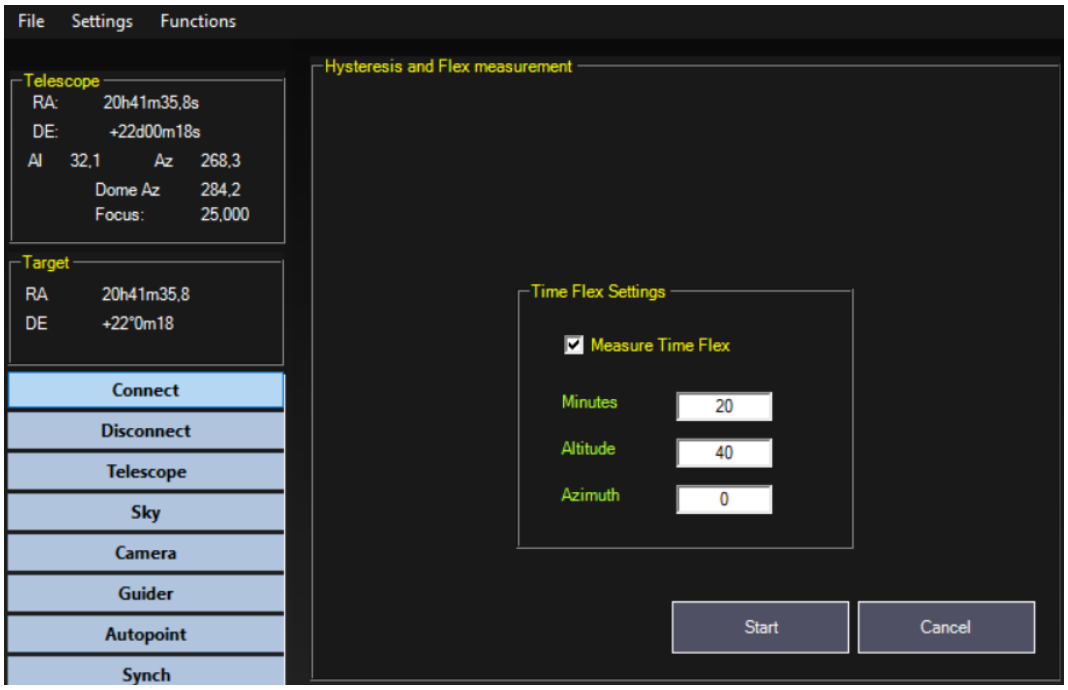
Figure 11.3: 1 Sat Predict

12 Additional settings

12.1 Hysteresis and Time Flex measurements

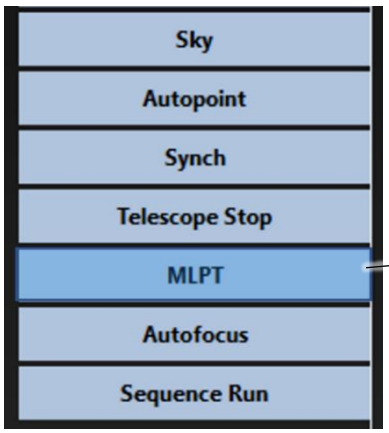


Goto ***Functions --> Measure Telescope***;



Goto ***Functions --> Measure Telescope***;

12.2 MLPT



Press **MLPT** (1).

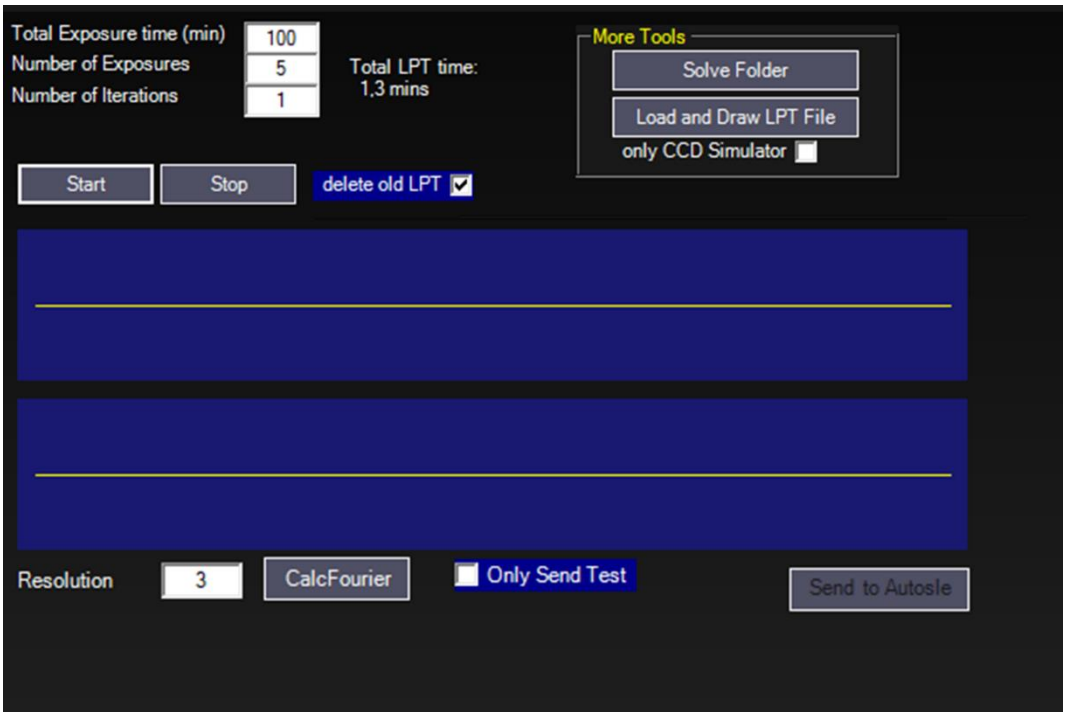
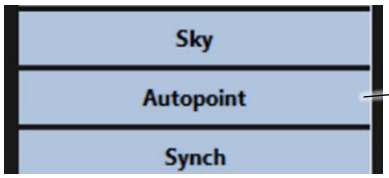
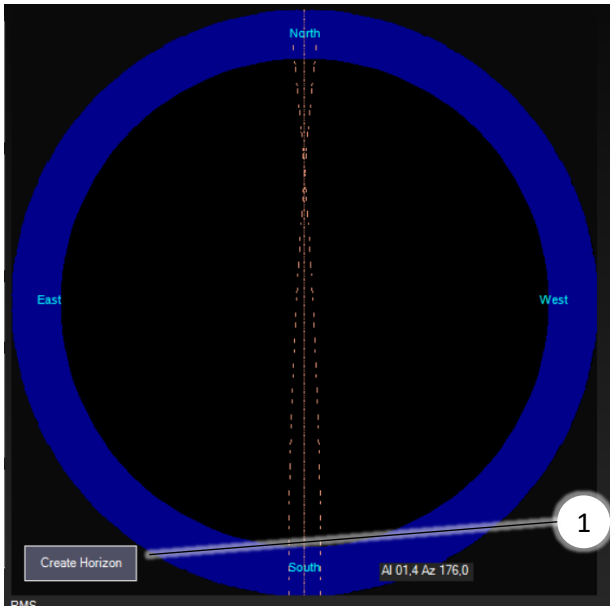


Figure 12.1: MLPT settings

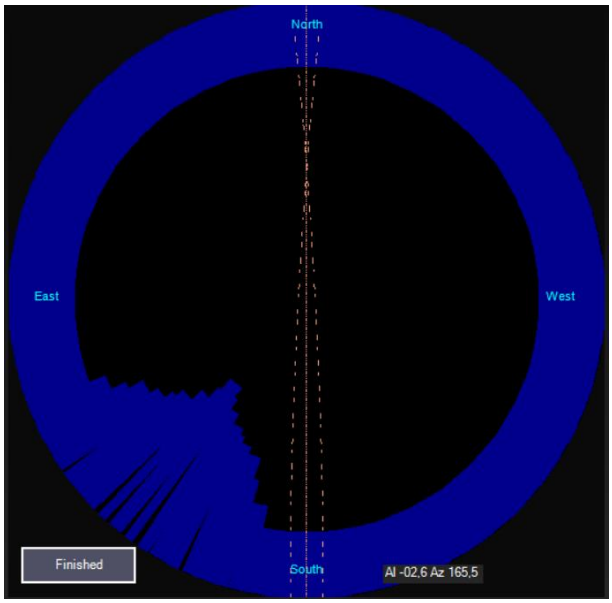
12.3 Create Horizon



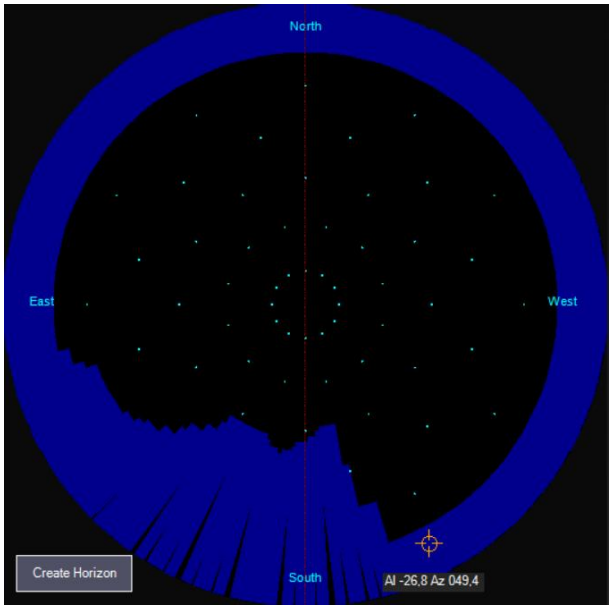
Press **Autopoint** (1).



Press **Create Horizon** (1);
Follow the instructions;



Click in the area, where you do not want to drive with your device.



During ***AutoGrid*** these areas are not considered.