

# Schulman Telescope StartUp Procedure

## Check Internet

Go to the warm room closet and check that all internet cables are plugged in. There is one CAT5 cable that goes to the main observatory computer and another that goes directly to the telescope controller. During lightning shutdown these cables are often unplugged. While in the closet check to see that the StarDot video server is healthy.

## Power up the Main Observatory Computer and UPS's

Plug in and turn on the small UPS that delivers power to the main computer and telescope services (including the TIM unit via the remotely controlled power outlets). Login to the main Windows user account. This is currently labeled "Adam" and the password is the standard "I8...." Next plug in and turn on the larger telescope controller UPS. (Do not turn on the controller yet.)

## Interpret the Telescope Orientation and Clear Manual E-stops

[Check the Telescope Orientation](#) and assess the condition of the telescope. If the current position does not "make sense," consider investigating further before proceeding. If engaged, release any E-stops on the [hand paddle](#), [telescope controller](#), and [dome controller](#). Although it should be in operable state by default, also check the [upper shutter E-stop plunger](#) by visual inspection. If this is inadvertently left pushed in it must be released or software shutter errors will follow. The key should be turned to the "on" position.

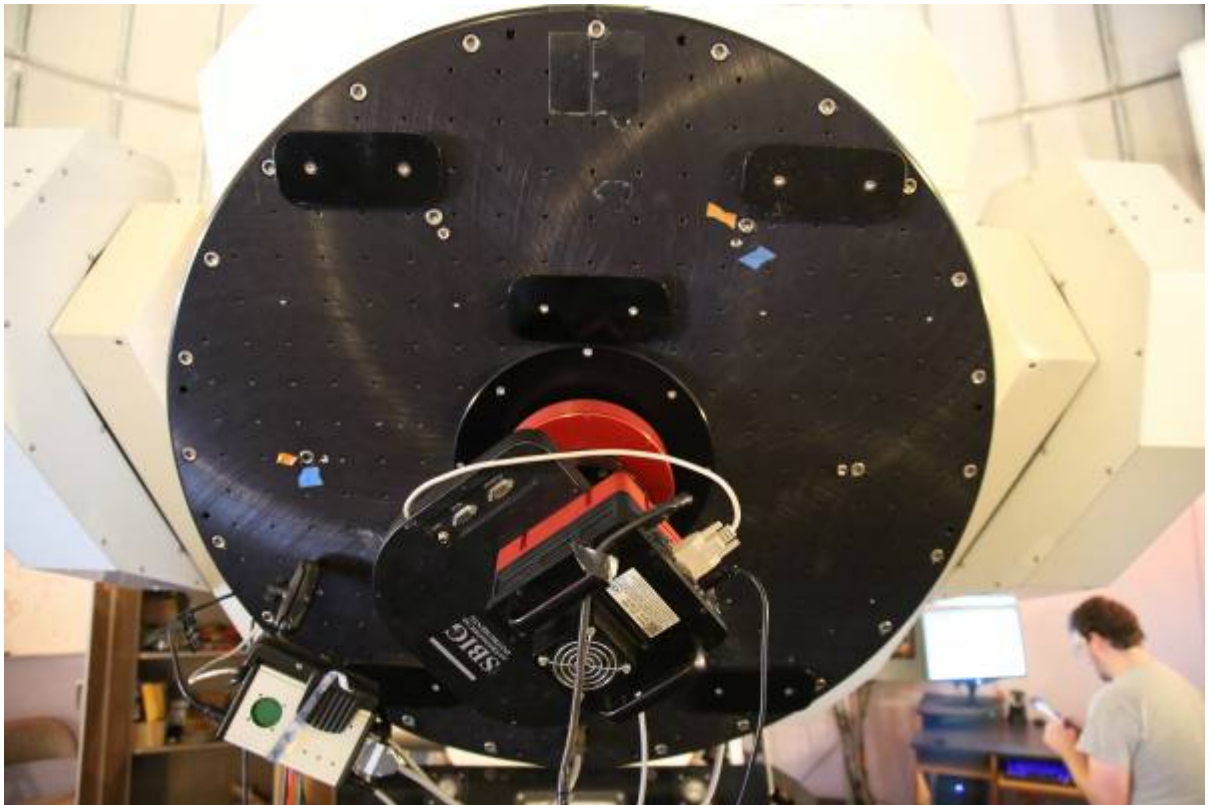
## Check the RA Optical Tape and Read Heads

Before turning on the controller (or moving the telescope for [normal operation](#)) examine the RA axis [optical tape](#) for signs of water condensation or insect "residue." This must be [cleaned](#) before operation. Make certain both the [drive and idler bearings](#) are also free of anything that might be transferred to the optical tape. Look closely at the [read heads](#) and check to make certain they appear aligned without anything in the space between the read head and the tape. (Use a thin Tek wipe or something similar to clear the space and clean the window if necessary.)

## Check the telescope Balance state

As of Fall 2016 the telescope is in a balanced state when the following conditions are met:

1. The CCD camera is attached to the back of the telescope. \* (see note below)
2. There are no extra hardware or eyepieces attached to the telescope (e.g. No eyepieces should be installed in the refractor.)
3. The number of weights and configuration are as in the picture below:



1.

4. **THE MIRROR COVERS ARE OPEN** This will be done shortly.

#### **Note (Eyepieces)**

The combination of the 31mm Nagler eyepiece and adapter at the back of the telescope is sufficiently close to “balanced” that it is OK to follow the startup process in this state. Being optimized for the CCD configuration permits better success at automation and recovery from errors.

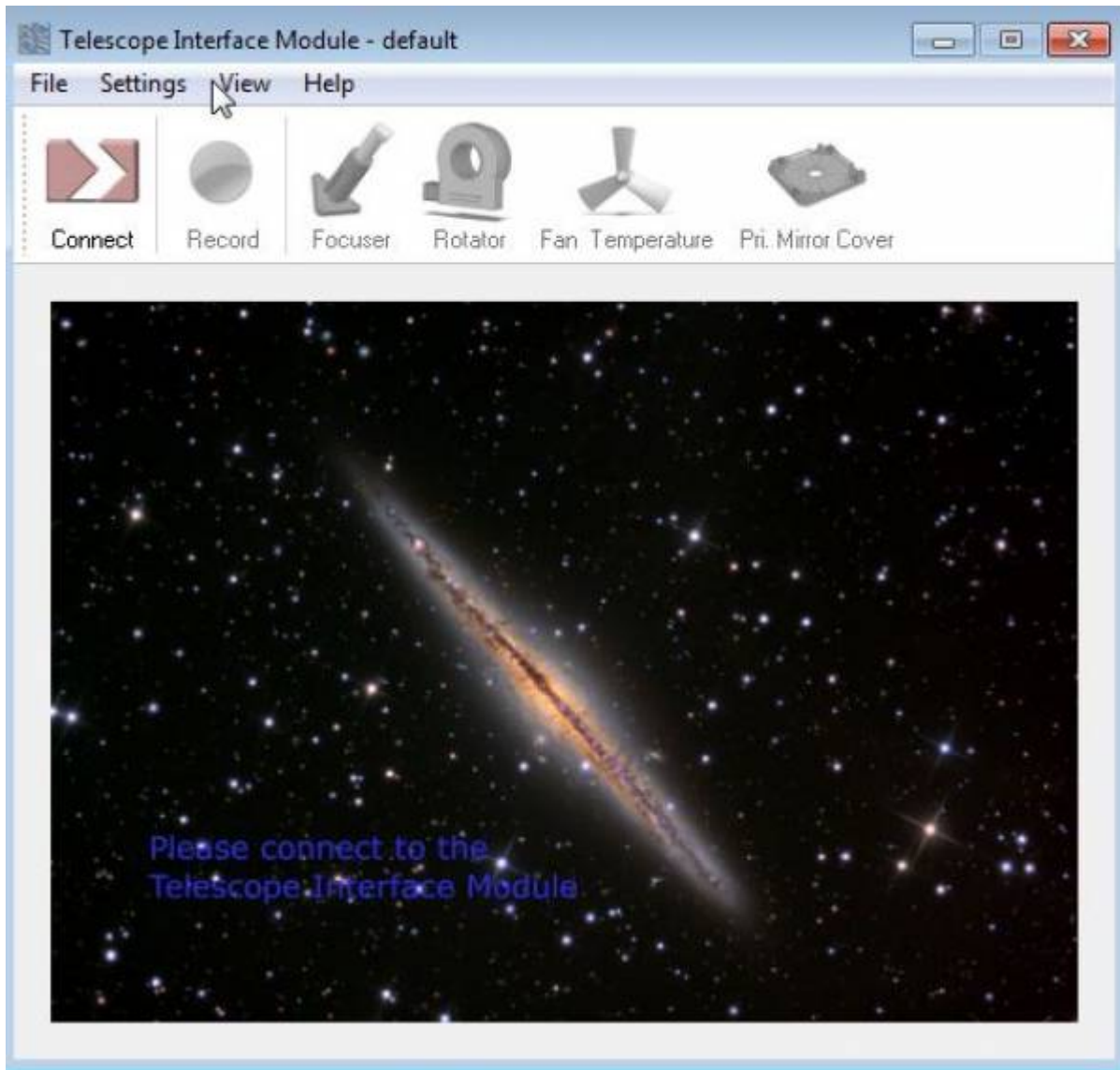
#### **Manually Point the Telescope to the Zenith**

When on site for startup purposes it is OK to move the telescope against the Declination brake to point the telescope vertically ([at the zenith on the meridian](#)). This step is necessary as mountain operations currently (Fall 2016) requires the telescope be pointed “up” before opening the mirror covers. During a recovery event when the controller is one but the telescope needs to be re-homed, opening the mirror covers in other positions will still be OK. Even if the mirror covers do not fully deploy (“Mid Position”)- the balanced state will be achieved and initializing the system can proceed. The mirror covers can then be closed and re-opened later.

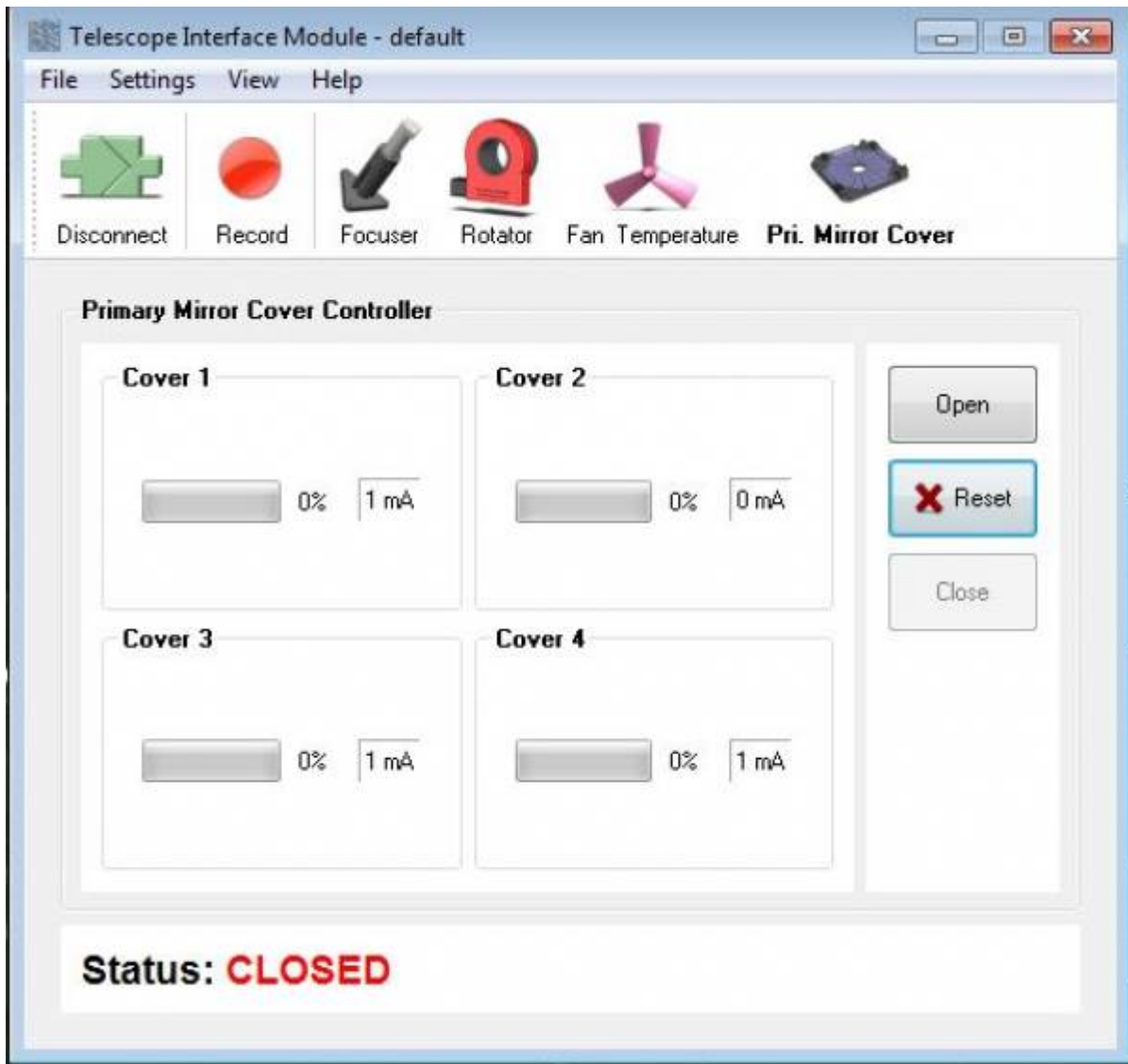
#### **Turn on the TIM Unit, Connect, and Open Mirror Covers**

The [TIM Unit](#) must be turned on in order to open the mirror covers. Before turning it on make certain all [connections](#) are firmly seated into the enclosure. Turn the unit on with the rocker style toggle switch.

Next on the computer [open the RCOS TIM software](#).



Connect to the TIM unit and navigate to the “Primary Mirror Covers” tab.

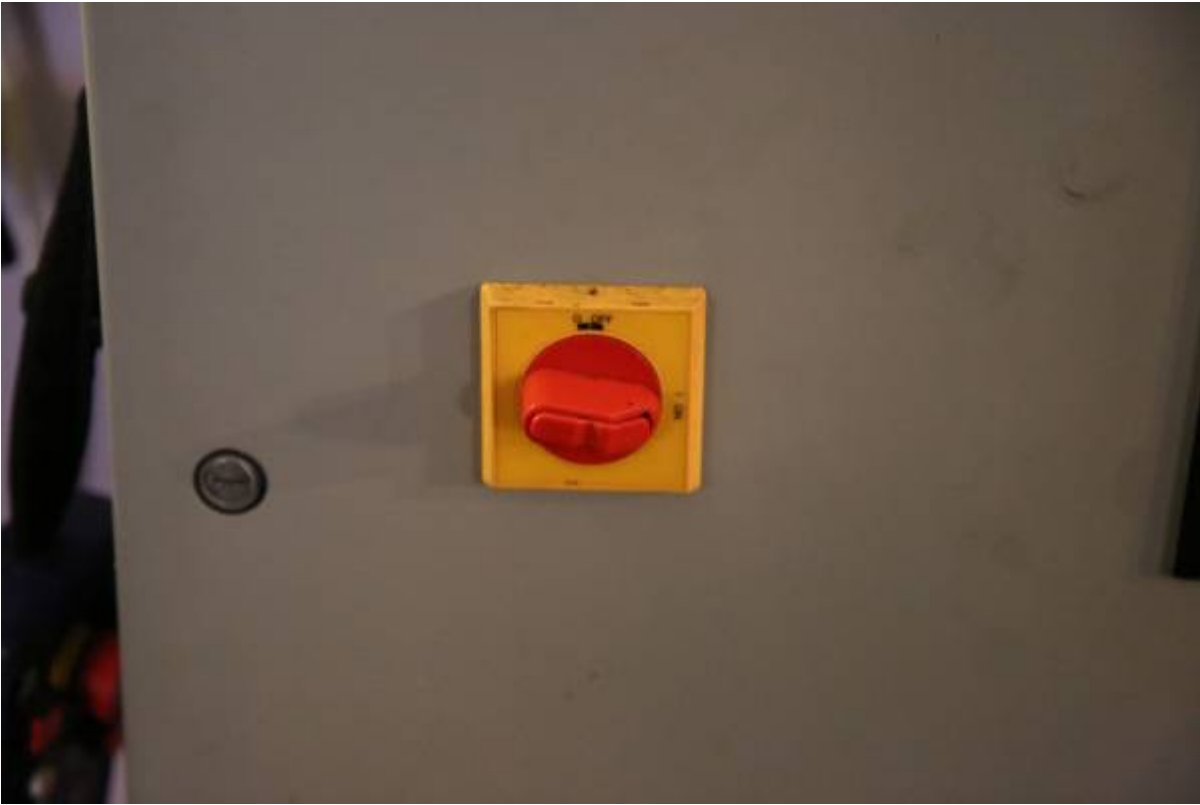


Open the Mirror Covers:



### Turn On Telescope Controller

Turn the red switch to the "on" position. Fans and other noises will be heard as the system comes on. Wait for 3 minutes for the Mic and PubSub internal computers to boot.



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