

APEX System Description

East/West				North/South				Focus			
Position	Command	Actual	Enc	Position	Command	Actual	Enc	Position	Command	Actual	Enc
0		0.000	0.058	-5		0.499	0.423	50		52.803	52.985
			LVDT				LVDT				POT

East/West		North/South		Focus	
Status	Manual	Status	Manual	Status	Manual
Motor Off		Motor Off		Motor Off	
Busy		Busy		Busy	
Home		Home		Home	
Manual		Manual		Manual	

-- Screen Description

Position Field - The position field is only usable when the Manual Button has been pushed and the light is red. (The tracker servo continuously updates the position unless it is in manual.) The range for East/West is +/-5.0mm, North/South is +/-7.5mm, and Focus is 11.0 - 76.8mm.

Actual Location - To the right of the position field is the Enc and LVDT or POT display. These display the actual position of the individual axis. The Enc field is the readout of the incremental encoder. The encoder have a 1um resolution and are very stable. The second field right below it is the LVDT or POT readout from the old system. It provides a rough verification of the system. If the two fields don't match within a reasonable amount then you may need to run a Find Home to recalibrated. The difference in the values shown in above picture are about normal.

Status - This button does not change any values or mess anything up. It is there to establish the network socket connections.

Stop - This button aborts the current move and is only effective if the Manual Button is set.

Find Home - After a reboot or if you feel the Actual values are not in tolerance, push this button to "refind" the index pulse. This recalibrates the incremental encoder. (Normally this procedure runs automatically, but you will want to check it after a reboot to make sure everything went smoothly.) This procedure can take a couple of minutes and the screen does not update regularly while it is moving the axis. Also note that this procedure runs the best if you start from the 0.0 LVDT position for NS and EW and 50mm POT for focus

Reset - This resets the servo card. If this button is pushed, you have to run Find Home to

recalibrate. You should be in manual to push this button also.

Manual - If this button is pushed all commands from the tracker servo are ignored.

Clear Scroll - Clean out the scroll window of status messages.

Status Lights -

- **Motor Off** - Determines the trajectory profile of the axis. This light can be off and the motor will still move.

- **Busy** - This light is red as long as the axis is out of position. It goes green when the axis is in position.

- **Home** - This light is red under two conditions. You pushed the Find Home button or the Find Home failed during power up. This light has to be green for the system to be operating properly.

- **Manual** - State of the Manual button. (It takes about a second for the Manual light to change state.)

Scroll Window - Displays communications from the apex Linux system.

Hints -

This is a Linux system, not a vxworks system. You need to shut it down like a Unix system, otherwise it will take about 10 minutes to run the fsck's and you won't be able to use it while it's rebooting. There is a oper12m account and the root account. When shutdown properly, it normally takes a couple of minutes to reboot. The machine name is apex.as.arizona.edu.

There is a folder of hardware documentation in the file cabinet under APEX Documentation.

The AC power is the red extension cord in a star box and the network connection is a fiber optic cable that terminates in the computer room fiber hub.

The software is in /home/corona/cactus/focus. There are 3 almost identical software files - ew.c, ns.c, and focus.c. The screen software is in /home/corona/cactus/focus/screen/main.

If you just want to restart the process you can connect to the process through a socket "sock EW" (or NS or FOCUS) and type "END". If you do this you have to log into apex and restart it manually as root by typing ./ew& (or ns or focus) in the main directory.