

Operator's Manual  
Observatory Control Software  
( DFOT 130cm Telescope )  
Version 1.0

## 1. OCS Installation & Configuration

OCS_ROOT	/home/aries/OCS130	OC130 application directory
OCS_Application file	OCS130	Application executable file
OCS Configuration File	/home/aries/OCS130/ocs.conf	OCS configuration parameters file
OCS_LOG	/home/aries/OCS130/log	Log directory
DATA_DIR	/home/aries/OCS130/data	ICS program may transfer data here if configured

**Note :** Make sure that TCS, ICS and filter parameters are correctly configured in the **ocs.conf** ( OCS configuration ) file. Otherwise OCS will not connect to the TCS, ICS or Filter. Do not modify this file if you are not sure what you are going to do.

**Note :** To connect OCS to TCS, TCS Application must be running in DFM-TCS PC. And also make sure that in TCS Application TCP/IP Interface is on.

**Note :** To connect OCS to ICS, ICS Application must be running in Instrument PC.

## 2. Starting the OCS130 application

a. Login into the Observer PC using Cent OS  
 user name : aries  
 password : aries123

b. Open terminal window and execute the following commands

```
#cd OCS130
#./OCS130
```

It will launch the OCS130 GUI window. Do not close the terminal window, OCS will display messages on it. You can minimize the terminal window and perform the various tasks from GUI window.

## 3. Connect the OCS with TCS, ICS and FCS

- Make sure that TCS program is running and TCP/IP Interface in it is "Active".
- Click on the "Connect" button in TCS Commands Box.
- TCS Connection in TCS Status Information Box will change to Connected with green background. If it fails to connect then check the TCS IP Address in **ocs.conf** file, and make sure it is same as the IP Address of the TCS Computer.

- d. Make sure that ICS Server Program is running in the Instrument PC. And the ICS IP Address in the **ocs.conf** file is same as that of the Instrument PC's IP Address.
- e. Click on the "Connect" button in Instrument Control Box. Connection status information will change to Connected with green background. Click on the "**init**" button to initialize the instrument/CCD.
- f. Click on "Connect" button in filter Control Box. The filter status will change to Connected with green background. If "permission is denied" error comes up, please change the permission to "/dev/ttyS0" to Read Write for all using root user.

**#chmod a+rw /dev/ttyS0**

If it gives other error or the command is not working make sure that filter cable is connected to ttyS0 physical port. Otherwise change the Filter Port in **ocs.conf** to "ttyS1" or "ttyS2" whichever applicable.

### 3. Slewing the Telescope to desired RA and DEC

- a. See TCS status information box, both Drive and Track must be on to move the telescope.
  - a. Enter/Feed the target coordinates ( RA and DEC ) in either Degrees or Degree<space>Minute<space>Seconds format, in the TCS Target RA, DEC field ( TCS Coordinates and Parameters Group-box ) also enter the epoch in epoch input box. If you want to use default TCS epoch then enter zero in epoch.
- b. Click on the "Set Target" button in TCS Commands Group-box. On clicking this button "Slew" in TCS Status information Group-box will change to Enabled with green background color.
- c. Once "Slew" is Enabled (TCS Status), click on the "Go" button to move the Telescope to set target. On clicking this button you will see RA and DEC are changing, and in TCS Status Information Box "Slewing" Status will change to *Slewing* with green background.
- d. On reaching the Target both the "Slew" and "Slewing" status will change to default. (No status with white background).

### 4. Slewing the Telescope relative to current position using offset ( arcsecs )

- a. Enter/Feed the RA and DEC offsets in ( arcseconds ) in the RA and DEC Offset input box in TCS Coordinates and Parameters Group-box.
- b. Click on the "Set Target" button in TCS Commands Group-box. In response to this "Slew" in TCS Status Information Group-box will change to "Enabled" with green background.
- c. Click on the "Go" button in TCS Commands Group-box. In response to this command "Slewing" Status in TCS Status Group-box will change to Slewing with green background.

## 5. Set Telescope Focus

Click on the focus button and input the Focus Value and press OK.

## 6. Set the Telescope Epoch

Click on the “epoch” button and enter the epoch value and click on “OK” button.

## 7. Open/Close the mirror flap

Click on the “Open Mirror” or “Close Mirror” button respectively.

## 8. Stop the telescope motion/slew

Click on the “Stop” button to stop the moving telescope immediately.

## 9. Park the Telescope

Click on the “Park” button to move the telescope to zenith.

## 10. Disconnect the OCS and TCS connection

Click on the “Disconnect” button in TCS Commands Group-box.

## 11. Switch the Instrument/CCD Fan On/Off

Click on the “Fan” button and select On/Off in Fan Dialog Box and click on OK button.

## 12. Set Instrument/CCD Temperature

Click on the “Temperature” button, select the temperature value in Temperature Dialog Box and press OK button. **Once the CCD temperature is stable the temperature background will change to Blue, otherwise it will be red(unstable).**

## 13. Setup CCD Acquisition Parameters

Click on the “Setup Acquisition” Button and set the parameters value and modes.

Click on OK button. It set all the parameters one by one and take around 16 seconds.

You can see CCD response/messages in OCS Message box at the bottom. **Setup Acquisition Dialog Box will hide/disappear once the setup is done.**

## 14. Start/Abort Data Acquisition

Click on the “Capture” button. It will start the Data Acquisition. Click on the Abort button if you want to abort the current data acquisition.

### **15. Shutdown Instrument/CCD Camera**

Set the CCD temperature to 0 degree. Once the temperature falls to this value, click on the shutdown button.

### **16. Disconnect the OCS-ICS connection**

Click on the “Disconnect” button in Instrument Command Box.

### **17. Move the filter**

Click on the “**FilterX**” button to select the desired filter. Once the desired filter is positioned the filter status will change from “moving” to filter number. Where X is the Filter number. **X=1,2....8. It takes approx. 14 seconds to move to next/previous filter position.**

### **18. Fetch the Current Filter Position**

Click on the “**Current**” button to get the current filter position.

### OCS130 Main GUI Window

