

MallinCam VSS Special Operating Instructions



Below are the recommended **STARTUP** MENU Settings for the MallinCam VSS
for observing Deep Sky Objects

RATE KNOB = FULL COUNTERCLOCKWISE (3.3 SECONDS)

Depress the Center On Screen Display (OSD) Button lightly to call up the MENU. Set the Parameters as Follows:

SENS = 128X

ALC = OFF

AGC = MAN (Slider set to midpoint)

SYNC = VBS (VBS sets the HYPER Mode to OFF)

MOTION DETECT or TEC = ON with Sensitivity 3 notches from the right and Timer set to 10 Seconds

SAVE the settings by depressing the Center OSD Button.

The MENU should be returned to these settings before powering down the MallinCam VSS.

Start with a fairly bright Messier Object and center it in the field of view (FOV) of the MallinCam and focus. A Bahtinov Mask makes achieving perfect focus very easy. The VSS is in 2.1 second exposure mode which makes focusing easier. The Messier Object should be clearly visible on the monitor.

Re-start the MENU by depressing the Center OSD Button and change the SYNC to INT. Save this change to the Menu. The VSS is now in HYPER Mode.

Turn the RATE Knob clockwise slightly and release. Watch the Yellow LED on the rear of the VSS. It will flash every time an new image appears on the monitor. By timing the interval between flashes, you can determine the exposure time. The image on the monitor should be brighter than before changing SYNC to INT. There should also be more detail visible in the Messier object. Keep slightly rotating the RATE Knob until the desired level of brightness and detail is achieved. The camera is now set up for most Deep Sky Objects. The GAIN (AGC) can also be adjusted to improve the final monitor image. This is accomplished by starting the MENU and adjusting the AGC slider to the left (lower GAIN) or right (higher GAIN). Many people prefer increasing the GAIN and lowering the exposure time as this helps reduce telescope tracking errors showing up on the monitor's image.

For really low surface brightness objects, start the MENU and change SYNC to LINE. This will DOUBLE the exposure time set by the RATE Knob, and thus increase image brightness.

Experimentation is the key to success. In general as the exposure times are increased, the GAIN level will need to be lowered to avoid washing out the image. The exact best settings depend upon sky conditions, scope f/ratio and aperture.

Below are the recommended **STARTUP** MENU Settings for the MallinCam VSS
for observing During the Daytime or for Lunar, Solar and Planetary Observing

For DAYTIME use of the MallinCam VSS, always have the SYNC set to VBS. SYNC = VBS sets the HYPER Mode to OFF and returns the camera to normal operation.

DAYTIME settings are similar to LUNAR settings. Experimentation is needed to achieve the optimum image on the monitor due to the variables involved, such as telescope-lens f/ratio and daytime brightness.

DAYTIME and **LUNAR** settings should be:

SENS = OFF

ALC = 100 to 12000 (1/100th second to 1/12,000th seconds) to achieve the best monitor image

AGC = OFF

SYNC = VBS

MOTION DETECT = ON with Sensitivity set to Full Right and Timer set to 60 seconds. (This will allow the Peltier cooler to run at Minimum with the large RED Noise Detection LED lighting up often.)

Since there are no external switches on the MallinCam VSS, below are the steps to follow to access the HYPER Mode and Peltier Cooler settings when using the Five On Screen Display (OSD) Buttons on the rear of the camera.

HYPER MODE

To access the Hyper mode, open the MENU by depressing the CENTER OSD Button lightly. Scroll down the MENU to SYNC.

- **SYNC- VBS** = normal camera operation up to 2.1 seconds (HYPER Mode is OFF)
- **SYNC- INT** = Hyper mode ON. Select the desired integration time using the side RATE Control Knob. Look at the Yellow LED on the Rear of the MallinCam. Every time a new image appears on the monitor, the LED will flash. The time between flashes is the exposure time
- **SYNC- LINE** = X2 the selected exposure time in INT mode. As an example, if the side RAE Control Knob is set in the **INT** mode such that the exposure is 10 seconds in duration, changing **SYNC-INT** to **SYNS-LINE** will double the exposure to 20 seconds. The maximum exposure time in **SYNC-INT** mode is 56 seconds and it is 112 seconds in **SYNC-LINE** mode.

If you are controlling the MallinCam MENU using the MallinCam Control Software and RED Control Cable, make sure that under the "CONFIG" TAB, the "Camera Revision" is set to "MallinCam VSS". This will activate the "Hyper Mode" Option MENU on the "ADVANCED" MENU. With a click of the Mouse, one will be able to go from HYPER OFF to HYPER ON to HYPER X2.

PELTIER COOLER (TEC or ThermoElectric Cooler)

Peltier Cooler Control is under MOTION DETECT in the MENU. If MOTION DETECT is ON, Noise Detection is ON and the PeltierCooler will Cycle On and OFF based on noise detected on the CCD sensor. If you turn MOTION DETECT OFF, the Peltier cooler will always be ON. You can select the sensitivity of the noise detection system by pressing the ENTER button while in MOTION DETECT. The sensitivity adjusting scale will then appear.

There is a RED LED on the rear/bottom of the MallinCam. When it is ON, Noise Detection is OFF and the Peltier Cooler is OFF. When it is OFF, Noise Detection is ON and the Peltier Cooler is ON.

When the Sensitivity Slider is set to the Right, Noise Detection will turn ON/OFF more frequently. Set it further to the Right for Lunar/Planetary and slightly lower for DSO's.