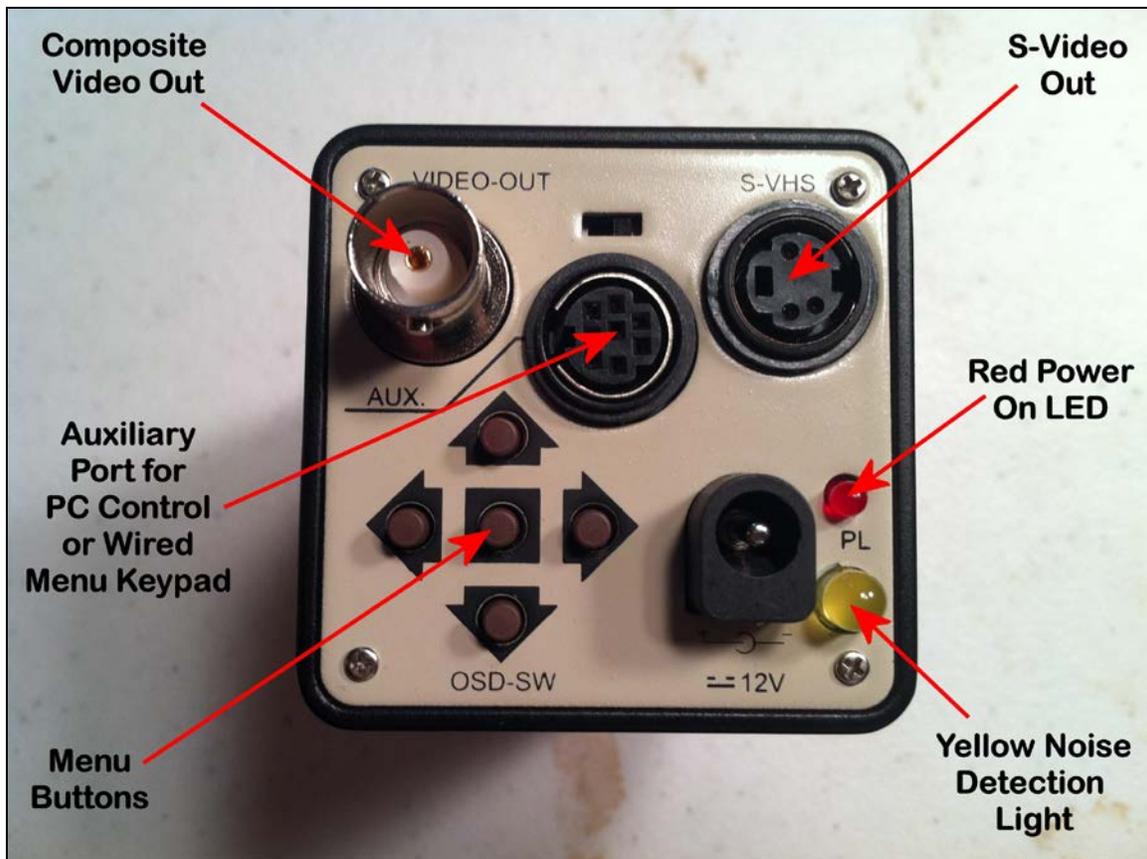




## Camera Setup Instructions

Hopefully this document will help new MallinCam owners set up their systems and get them to successful “first light” more quickly. Through the use of images, I hope to describe the components and how they are connected to each other.

**Image 1** shows the rear of the MallinCam. The Hyper Plus, VSS, VSS PLUS, Xtreme and Xtreme X2 all have the same rear panel.



**FIGURE 1**

There are two video outputs – Composite Video and S-Video – and they both can be used simultaneously without degradation of either signal.

The AUX or Auxiliary Port is for connecting either the MallinCam Control Cable for computer control or the Wired Menu Keypad for manual menu adjustment.

At the lower/right is the 12-volt DC power connector.

On the lower/left are the 5 buttons composing OSD – the On Screen Display – also known as the MENU. Depressing the middle button lightly for two seconds will bring the menu up on monitor. Pushing the top or bottom button will scroll one through the menu items and pushing the left or right buttons will change the selected menu value. To close out the OSD, scroll down to the bottom of the menu to EXIT and lightly depress the middle button again for 2 seconds.

**NOTE: To quickly call up the color bars for monitor calibration, depress the top and bottom buttons simultaneously. Repeat this to turn off the color bars.**

Each model MallinCam has a different number of LED lights on the rear panel.

On the Hyper Plus, there is one LED that indicates if the MallinCam is receiving power. On current cameras, it is RED.

On the Xtreme and Xtreme X2, there are two LED – one RED and one YELLOW. The RED LED illuminates when the camera is receiving 12 VDC power. The Yellow LED is OFF when the noise detection circuit is in the OFF position. When noise detection is OFF, the internal Peltier cooler is ON continuously. When the noise detection circuit is ON, the Yellow LED will cycle ON and OFF as noise is detected on the CCD sensor. When the Yellow LED is ON, the Peltier cooler is OFF; and when the Yellow LED is OFF, the Peltier cooler is ON.

On the VSS and VSS PLUS, there are three LED lights – a small RED LED, a large RED LED and a YELLOW LED. The small RED LED illuminates when the camera is receiving 12 VDC power. The large RED LED is OFF when the noise detection circuit is in the OFF position. When noise detection is OFF, the internal Peltier cooler is ON continuously. When the noise detection circuit is ON, the large RED LED will cycle ON and OFF as noise is detected on the CCD sensor. When the large RED LED is ON, the Peltier cooler is OFF; and when the large RED LED is OFF, the Peltier cooler is ON. The YELLOW LED flashes every time a new exposure appears on the monitor. The longer the time between YELLOW LED flashes, the longer the current exposure. To determine the exposure time, measure the time between flashes of the YELLOW LED on a VSS or VSS PLUS.

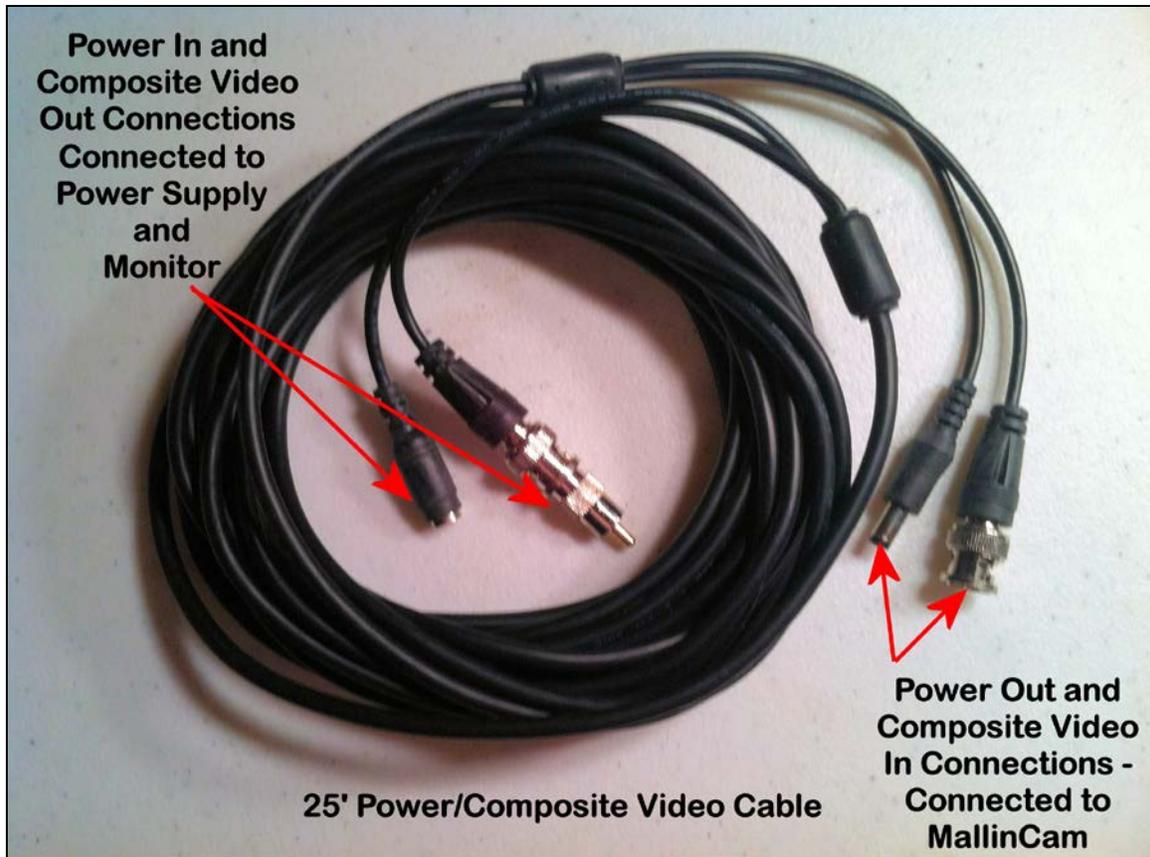
**Figure 2** shows the side of the MallinCam Xtreme. The supplied 1.25” Deluxe Adapter has been screwed to the brass ring on the front of the camera.



**FIGURE 2**

Use the Deluxe Adapter if no focal reduction is desired. The MallinCam will provide a field of view similar to that of a 8mm eyepiece with a 50-degree field of view (FOV). For most telescopes, this results in a fairly high-powered view with a very narrow field of view. To lower the power and increase the FOV, a focal reducer can be substituted for the Deluxe Adapter. The use of focal reducers is not discussed in this document. Other documents are available on this topic.

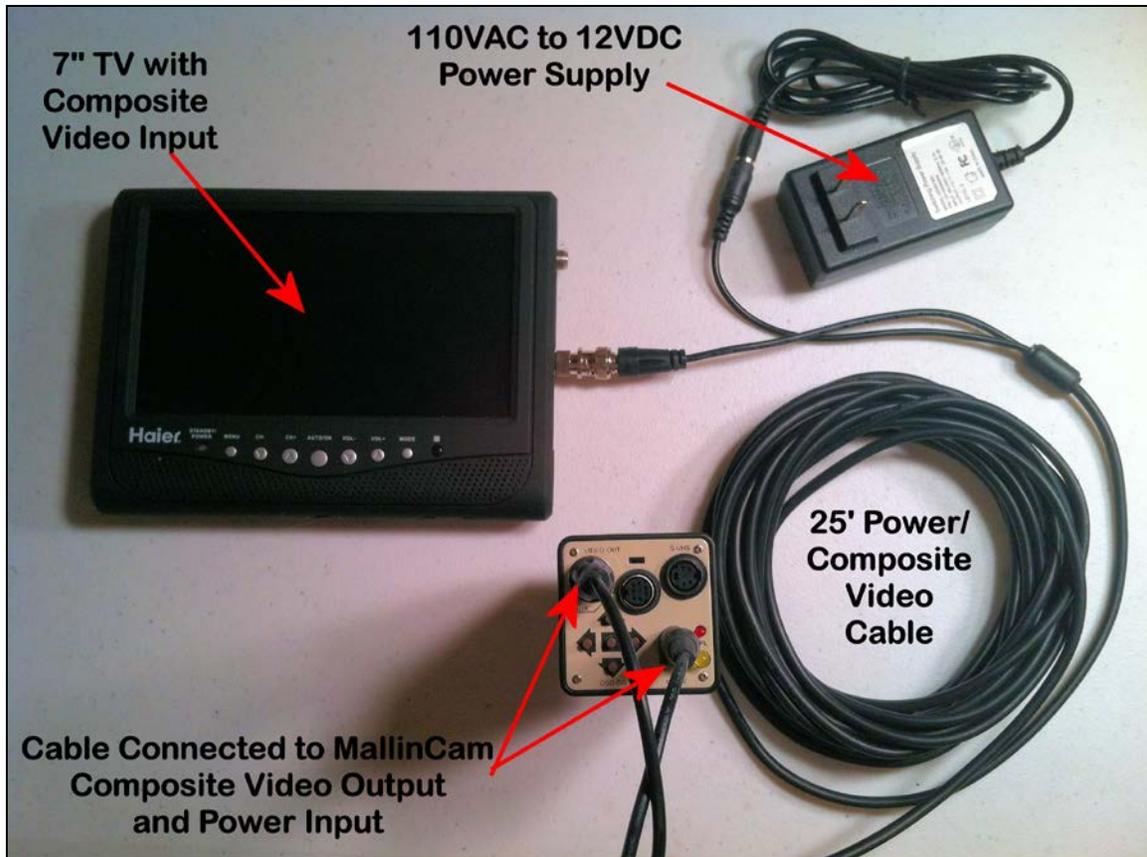
**Figure 3** shows the 25' power/composite video cable that is included with every MallinCam.



**FIGURE 3**

One end of the cable has the female power in connector and the composite video output connector. The other end has the male power output connector and the composite video input connector.

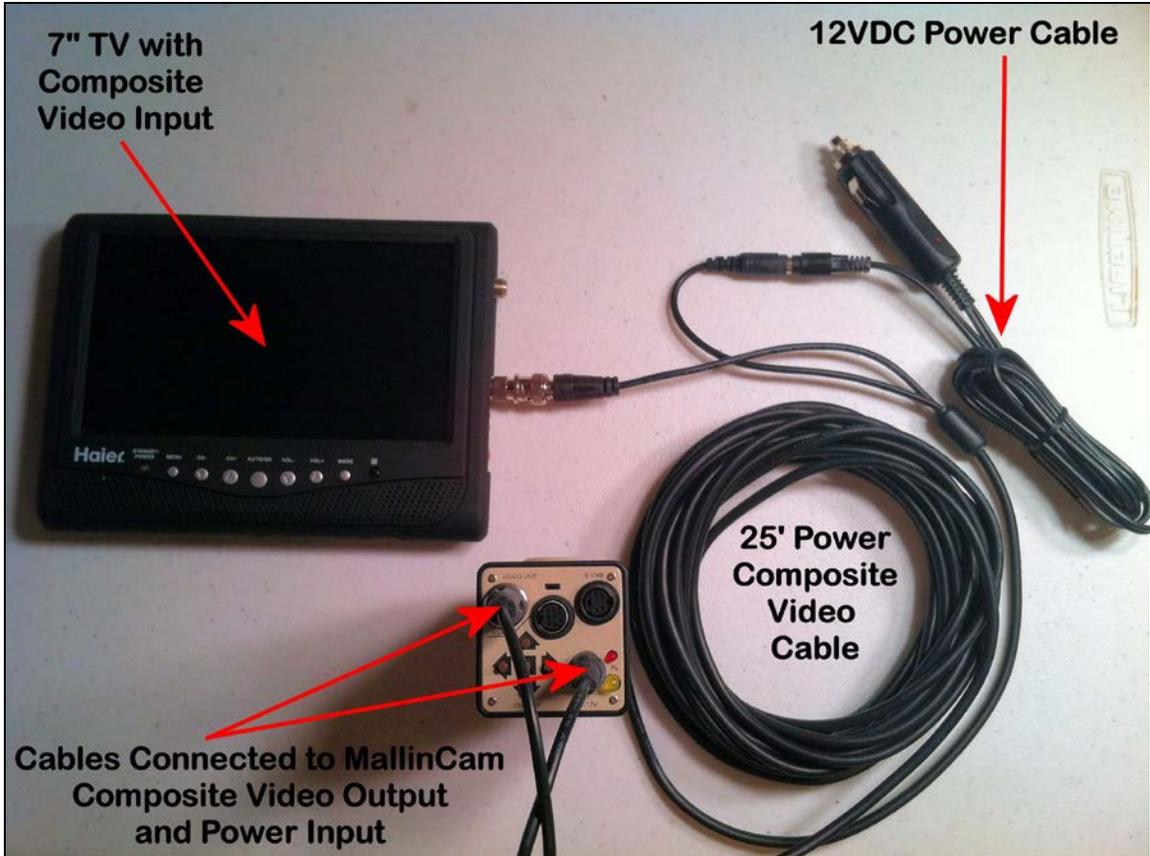
**Figure 4** shows how the 25' power/composite video cable is connected to the 120VAC power supply and the MallinCam.



**FIGURE 4**

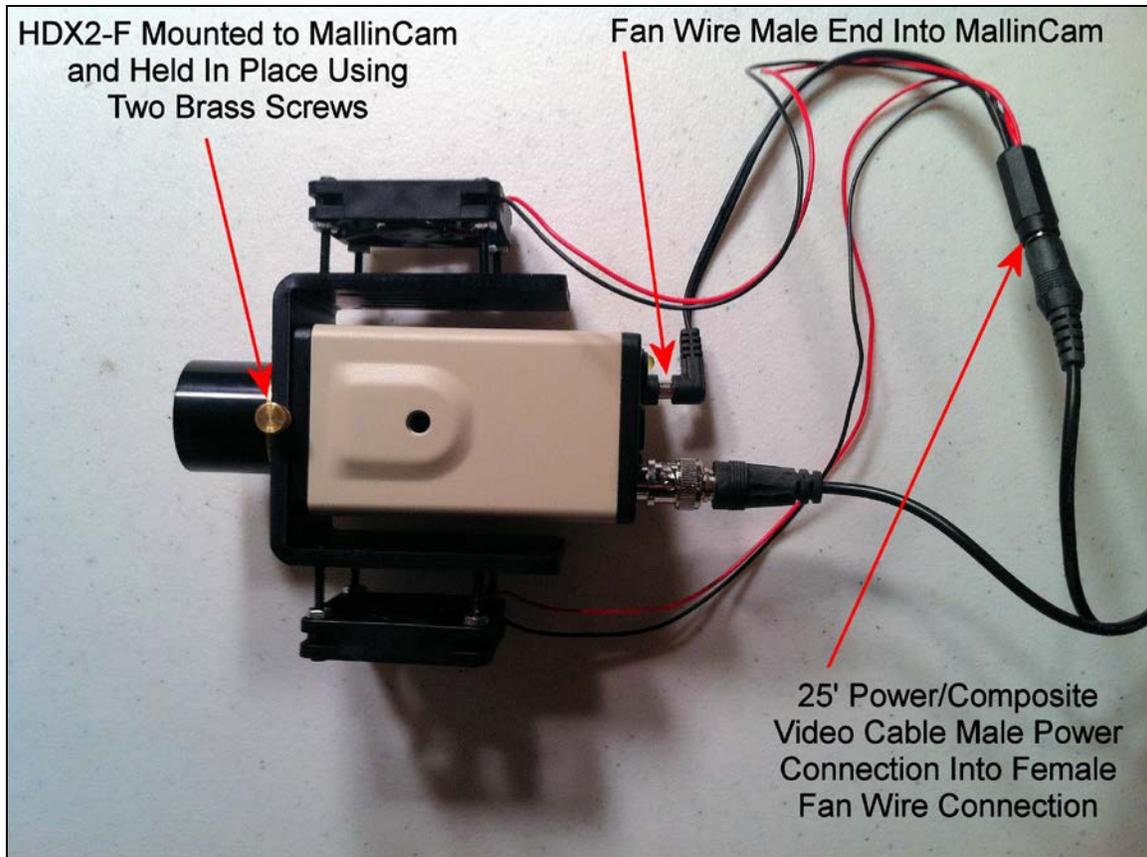
The male end of the cable from the 110VAC to 12VDC power supply is inserted into the matching plug of the power/video cable. The RCA male connector is inserted into the matching connector on the monitor – a 7" battery powered televisions as seen in the above photograph. The MallinCam is connected to the twist-on BNC composite video out adapter and the 12VDC plug on the power/video cable. Only after all cable connections are made should the power supply be plugged into 110VAC power.

**Figure 5** shows the same setup with the 110VAC power supply replaced with an optional 12VDC cable with male cigarette plug for connection to a 12 volt battery.



**FIGURE 5**

**Figure 6** shows the HDX2-F dual fin fan kit mounted onto the MallinCam.



**FIGURE 6**

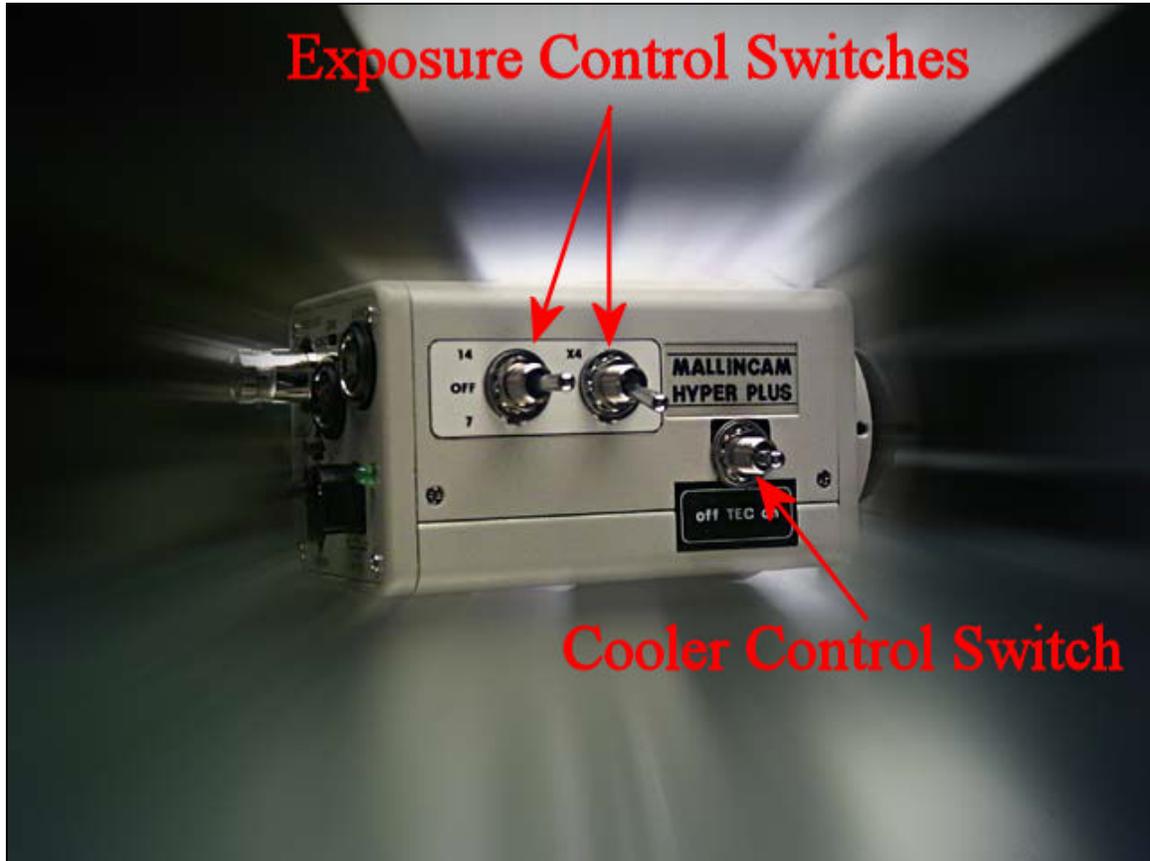
The HDX2-F slips over the round, raised portion of the front of the MallinCam and is secured to the camera using two brass screws. The HDX2-F can be mounted as shown in the photograph above, or it can be rotated 90 degrees with the fans above and below the camera.

The HDX2-F is supplied with a pass through power cable. The male end of the fan cable is plugged into the rear of the MallinCam and the male end of the power/video cable is inserted into the female connection on the fan wiring cable.

So far I have shown how to connect power to the MallinCam, how to power the fans and how to connect the composite video output to a monitor. Now I will get into connecting the computer control cabling.

**NOTE:** MallinCam Control Software can be used to control the Menu items on the Hyper Plus, VSS and VSS Plus video cameras.

For a Hyper Plus, all exposure control adjustments are made using the switches on the side of the camera. In addition, the internal Peltier cooler is turned off using the “TEC” Switch on the same side of the camera. **Figure 7** shows a Hyper Plus and the Control Switches.



**FIGURE 7**

For a VSS or VSS PLUS, MallinCam Control Software can be employed to adjust all Menu items and three exposures are selectable via computer. They are known as HYPER OFF, HYPER ON and HYPER X2. **Figure 8** shows the Exposure Control Knob on a VSS or VSS PLUS. The knob allows for the selection of exposure times from 3.3 seconds to 56 seconds. Built into the camera is a “Doubler” that allows for exposures from 6.6 seconds to 112 seconds. Selection of HYPER ON, HYPER OFF, and HYPER X2 is done via the SYNC Function in the Menu.

HYPER OFF = SYNC VBS (2.1 Second Exposure)

HYPER ON = SYNC INT (3.3 – 56 Second Exposures)

HYPER X2 = SYNC LINE (6.6 – 112 Second Exposures)

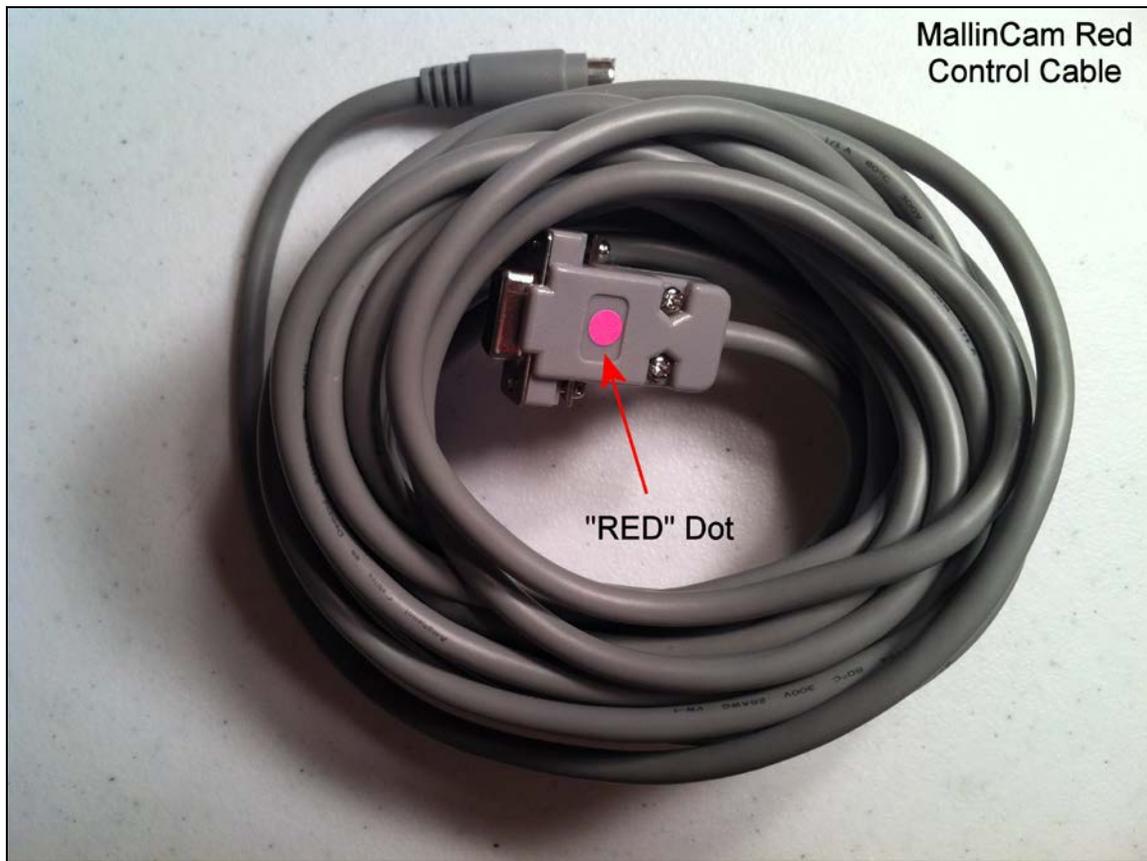
In addition, on the VSS and VSS PLUS, the Peltier cooling system is adjusted through the MOTION DETECT section of the Menu. If Motion DETECT is set to OFF, the Peltier cooler runs at its maximum level. If Motion Detect is set to ON, with the Timer set to 60 seconds, the Level set to Full Right and the entire CCD sensor array selected for monitoring, the cooling level is set to minimum. The Peltier cooler on a VSS or VSS PLUS cannot be completely turned OFF.



**FIGURE 8**

**NOTE:** MallinCam Xtreme Control Software can be used to control all camera functions on the Xtreme and Xtreme X2, including complete exposure control. The operation of the Peltier cooling system is the same as it is for the VSS and VSS PLUS.

**Figure 9** is a photograph of a “RED” Control Cable – as indicated by the RED dot on the RS232 connector.



**FIGURE 9**

Older MallinCam video cameras that had a GREEN Power-ON LED had an RS485 Auxiliary Port and control cables for those cameras needed to have an RS232 to RS485 Adapter. To avoid confusion, those cables had “GREEN” dot on the RS232 end of the cable. All current production MallinCam video cameras have RS232 Auxiliary Ports and RED Power-on LEDs. On one end of the RED Control Cable is an RS232 connector and on the other end is an 8 pin mini DIN connector. The 8 pin connector is inserted into the Auxiliary Port on the MallinCam. The RS232 connector goes to a Serial port on the computer.

Most computers manufactured in the last five years no longer have Serial ports; so to connect the Control Cable to a computer, one needs to use a USB to Serial Adapter. **Figure 10** shows a typical USB to Serial Adapter.



**FIGURE 10**

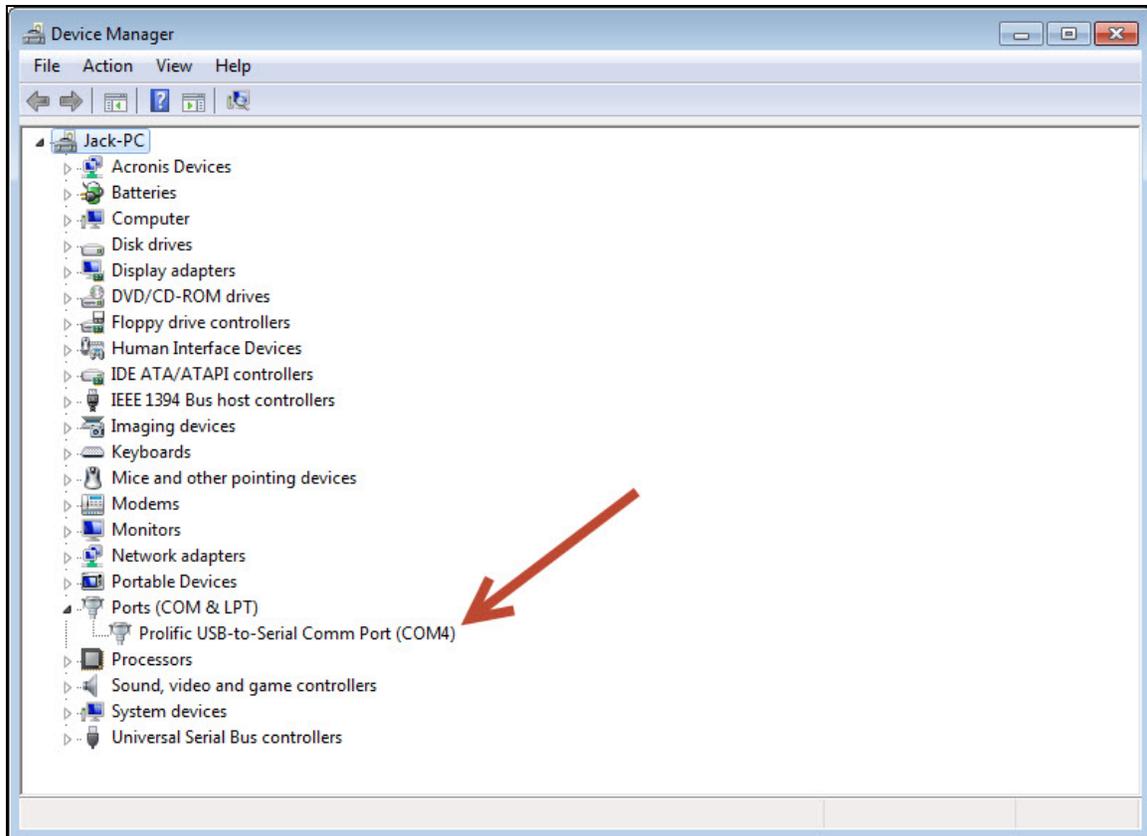
**Figure 11** shows the USB to Serial Adapter connected to the RED Control Cable.



**FIGURE 11**

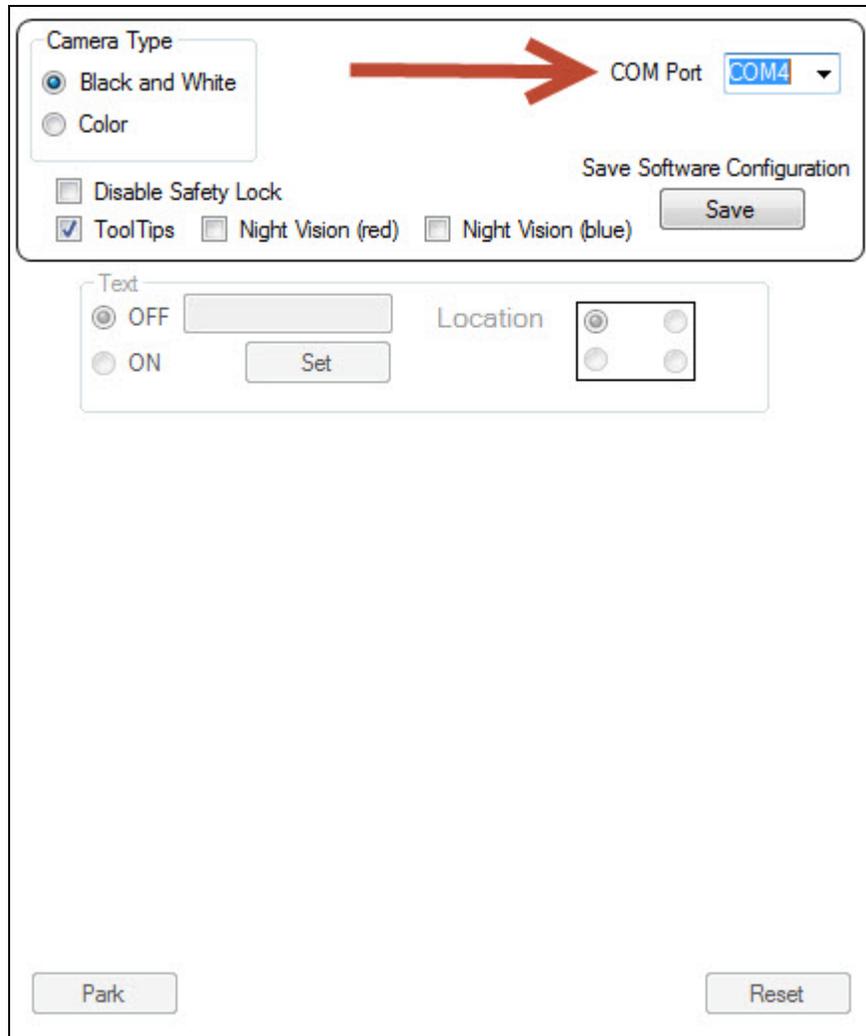
The flat USB end of the combined cable plugs into a USB port on the computer.

**NOTE:** When the USB to Serial Adapter is inserted into a USB port, the computer assigns a COM port identifier to it. See an example from my desktop computer below in Figure 12.



**FIGURE 12**

In this example, the Prolific USB to Serial Adapter was assigned COM4. This needs to be the COM port number selected in the Control Software. **Figure 13** shows that in MallinCam Control, COM4 has been selected as the designated COM Port.

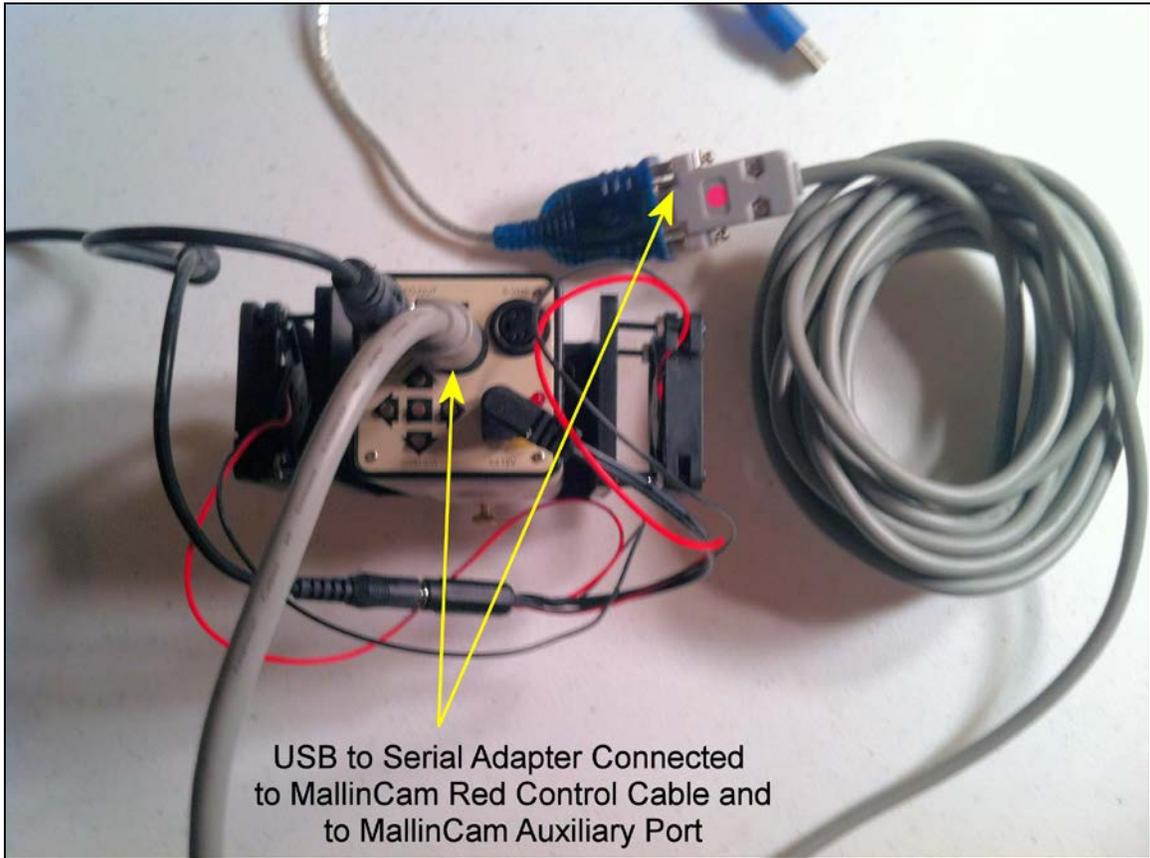


**FIGURE 13**

Also, it is important to remember to place the USB to Serial Adapter into the same computer USB Port to retain the same COM port identifier. If the USB to Serial Adapter is placed into a different USB Port, the computer will assign a different COM Port identifier.

Another way to select the correct COM port assignment is to start the Control Software. If the error “The port ‘COM ‘X’ does not exist.” Does not appear, then the software has the correct COM port selected. If the error does appear, go to the Configuration TAB in the software, select the highest COM port number, close the program and restart it. Keep doing this until the error does not appear. At that point, you have selected the correct COM port number.

**Figure 14** shows the addition of the Control Cable to the MallinCam.



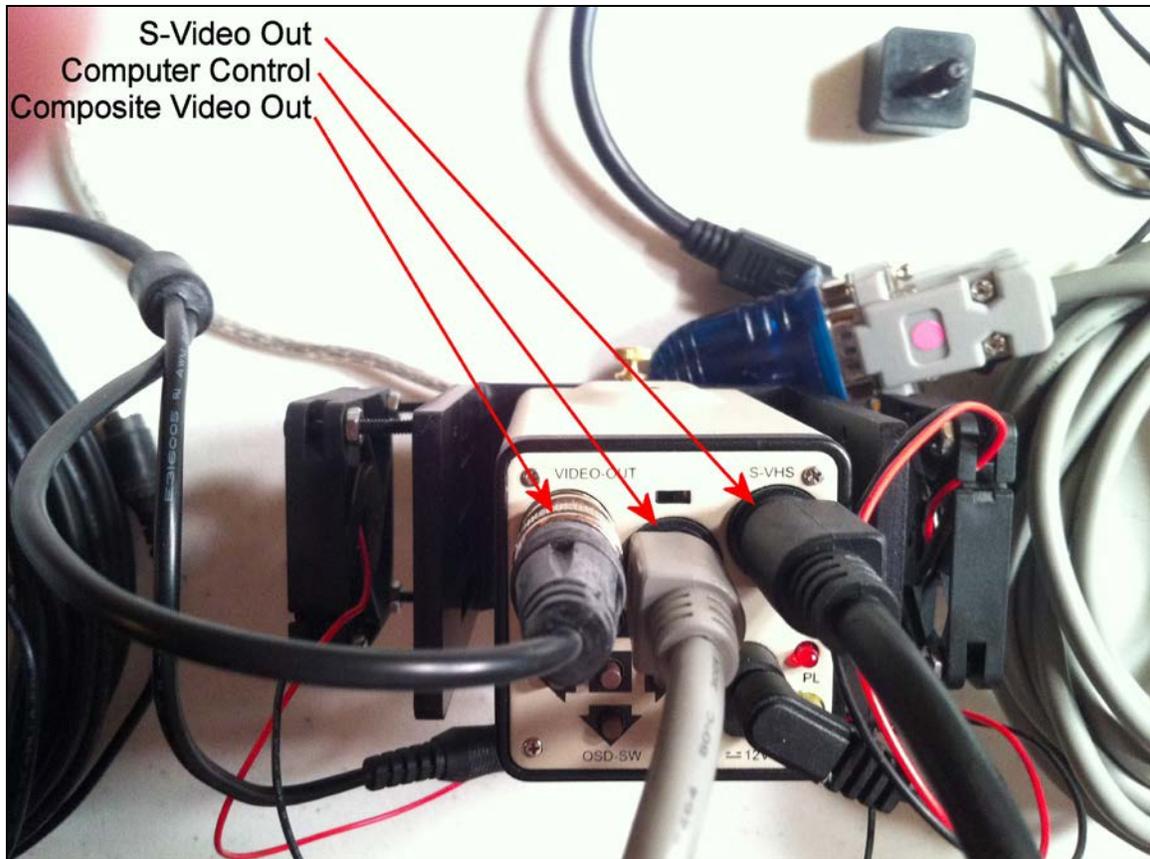
**Figure 14**

There is one remaining port available for use on the MallinCam – the S-Video Output Port. **Figure 15** shows a 25' S-Video Cable.



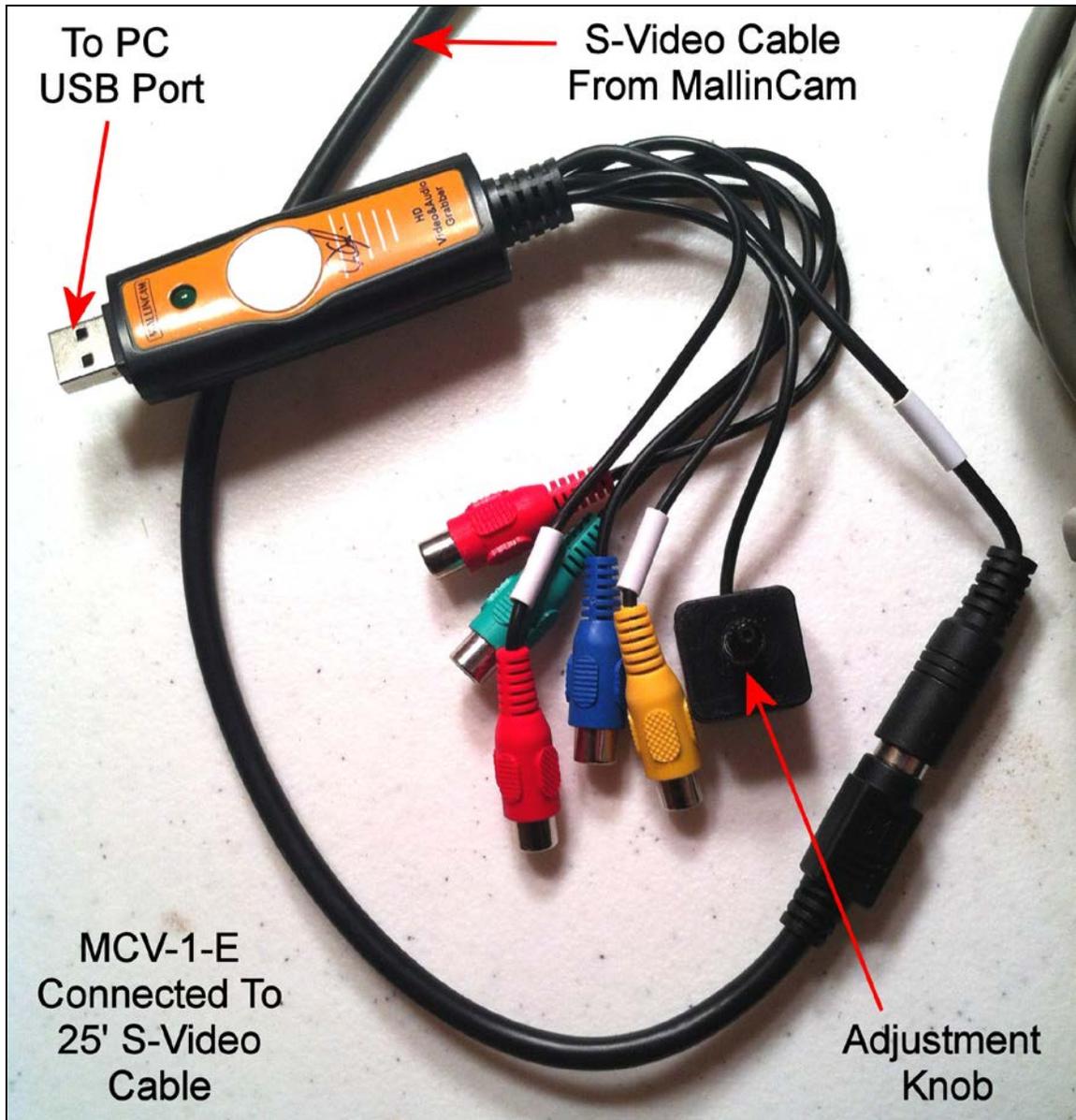
**FIGURE 15**

One end of the S-Video Cable is plugged into the S-Video Output Port on the top/right of the rear of the MallinCam. See **Figure 16**.



**FIGURE 16**

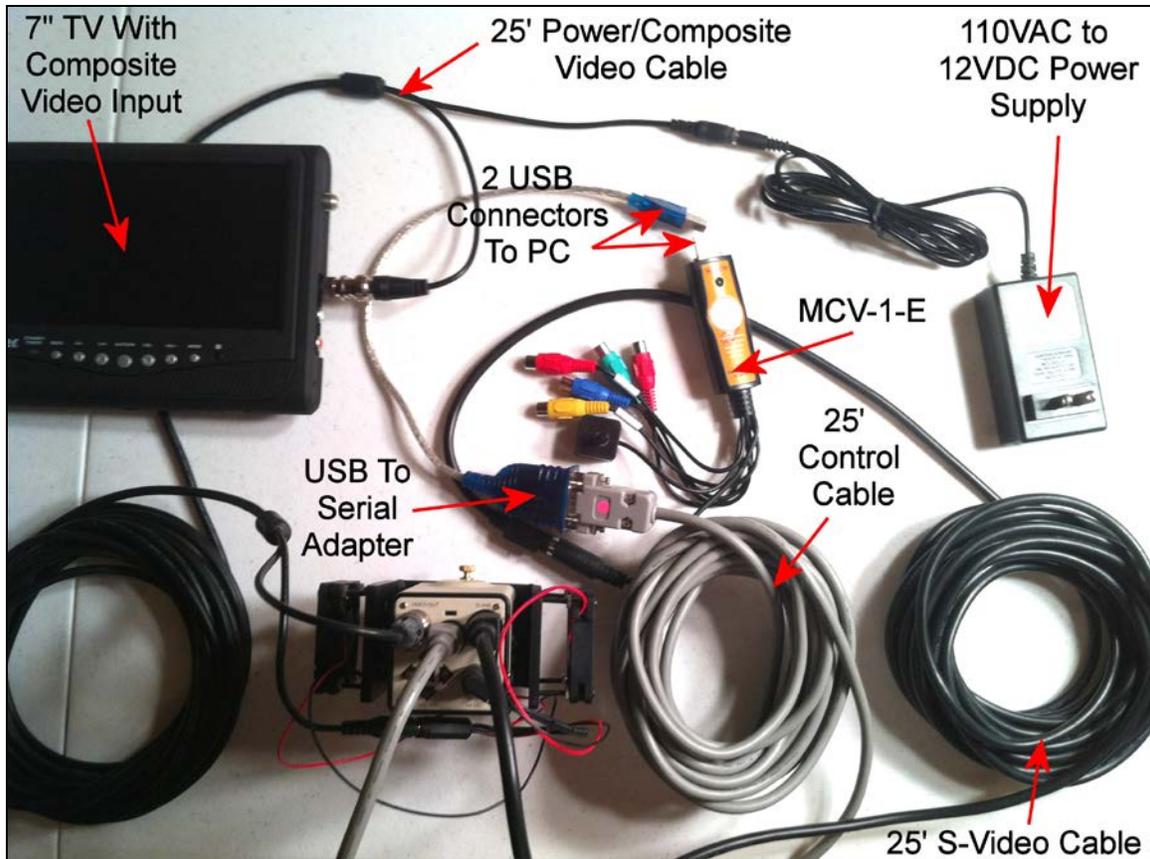
The other end of the S-Video Cable can be input into a monitor with an S-Video input. Or it can be connected to the MCV-1-E for viewing the MallinCam's output on the computer's screen. **Figure 17** shows the S-Video Cable plugged into the S-Video Connection on the MCV-1-E.



**FIGURE 17**

The flat end of the MCV-1-E is inserted into a USB Port on the computer.

**Figure 18** shows all the cables and adapters connected to the MallinCam.



**FIGURE 18**

All prior photos have described how to set up the MallinCam for control by a computer. For those who do not want to use a computer to control their Hyper Plus or VSS, there is an optional Wired Menu Keypad that can be used to adjust the Menu items. In the case of the VSS, using the Wired Menu Keypad, one has access to the three exposure settings mentioned previously (HYPERE OFF, HYPER ON and HYPER X2). **Figure 19** shows the Wired Menu Keypad for the Hyper Plus and VSS. It plugs into the Auxiliary Port on the camera.



**FIGURE 19**

For the VSS PLUS, there is a separate Wired Menu Keypad that adds the ability to adjust the cameras exposure time. **Figure 20** shows a VSS PLUS Wired Menu Keypad.



**MallinCam VSS PLUS  
Wired Menu Keypad**

**FIGURE 20**

For non-computer control of an Xtreme or Xtreme X2, one must purchase at a minimum the Wireless Exposure Controller (WEC). The WEC is composed of a hand-held wireless transmitter and its matching receiver that is plugged into the side socket on the MallinCam. Without computer control

or the WEC, an Xtreme or Xtreme X2 is limited to a 2.1 second exposure. Once the WEC Receiver is connected to the 4-Pin Socket on the side of the Xtreme or Xtreme X2, full exposure function is restored. To facilitate the adjusting of the Menu, the same Wired Menu Keypad used on the Hyper Plus and VSS can be connected to the Auxiliary Port on the camera. **Figure 21** shows an Xtreme set up for non-computer control.



**FIGURE 21**

Hopefully this document will help explain the function of the different components of a MallinCam System and assist those in setting theirs up quickly to achieve “First MallinCam Light”.

Jack Huerkamp

Jack’s Astro Accessories, LLC.