

Capturing real-time
images of Deep-Sky
Objects, MOON,
PLANETS, and

ASTROVID StellaCam

PROPER USE AND CARE OF YOUR ASTROVID StellaCam™ ASTRONOMICAL CCD VIDEO IMAGING SYSTEM

Congratulations on the purchase of the **ASTROVID StellaCam™ VIDEO CAMERA!** This is a high quality Astronomical CCD Video Imaging System. With proper care this system should last many years and provide excellent images!

SAFETY PRECAUTIONS:

1. Use **only the power transformer supplied with the camera.** Use of any other power transformer will damage the camera and invalidate the Warranty.
2. A portable 12 volt battery pack can be used if there is a **0.5 (500 milliamp) amp fuse wired in series with the positive lead.** We also found that an excellent way to use the cameras in the field is to use a 110 volt inverter. These



IMAGING SOLUTIONS YOU CAN DEPEND ON

are available from either Wal-Mart or K-mart for less than 50.00.

3. Avoid static electricity discharges. These may damage the CCD chip.
4. **Do not point the CCD towards the Sun or bright light. Permanent damage to the CCD chip will result. If you want to image the Sun you need a good quality solar filter.**
5. Do not directly touch or attempt to clean the CCD chip.
6. The thread mount on the CCD camera has fine threads. **Do not force it onto the 1.25"-C adapter, T-C adapter, or lens mount.**
7. In our use of the T-C adapter we have found that at times small metal flakes from the T-adapter threads will end up on the protective glass that covers the CCD chip. When using your camera they will show up as irregular opaque black dots on the screen. They can either be blown off using an Air Syringe Bulb available at drugs stores or by using a **very soft** artist's paintbrush to carefully dust them off.
8. Keep the cover on the camera when it is not in use.
9. Treat the ASTROVID StellaCam camera as a fine piece of equipment and it will give you many years of enjoyment.

Please note: Camera setup will immediately follow the next section.

PLUGGING INTO THE UNIVERSE:

Your results will depend greatly on "seeing conditions" at the time of observation.

1. An T-C or 1.25"-C adaptor is required to attach the video camera to the telescope.
2. The camera can be attached directly to the telescope via the T-C adapter or via a 1.25"-C adapter into an eyepiece holder for prime focus videography.
3. If closer views are desired, either a barlow or stacked barlows with the 1.25"-C adaptor or an eyepiece projection setup must be used.
4. Eyepiece or Barlow enlargement needs to be used on the planets. Deep-Sky images can be done at prime focus or with camera lenses.

ASTROVID StellaCam™ CCD VIDEO CAMERA

5. Eyepieces with focal lengths from 7-40mm work well with eyepiece projection depending upon the focal length of your telescope. It is best to experiment to find the eyepiece that gives you the most detailed image combined with your seeing conditions.
6. Orthoscopic eyepieces work well because they tend to have less internal reflection (less ghosting) and also have fairly flat fields of view. Barlow lenses are the BEST way to enlarge images. There are no internal reflections and they can be stacked to increase magnification further. You will need the 1.25"-C adapter for Barlows Lens use. The StellaCam also has a built in 2X digital zoom giving you more magnification options with a single Barlow lens or camera lenses
7. The ASTROVID StellaCam video camera has greatly increased sensitivity to infrared radiation to approximately 1100nm. To more closely approximate the visual appearance of the object you should use a green eyepiece filter. Either green #56 or green #58.
8. Other filters will give different effects depending on which objects you are looking at. Having a set of filters including UV for Venus imaging and RGB dichroic filters for the highest transmission rates.

***The ASTROVID StellaCam
is a "bridge camera"
Bridging the gap between
Video and Conventional
CCD Imaging !!***

9. The StellaCam has manual controls that should accommodate any imaging situation. However, when the Moon is Full or Gibbous you may want to use a green filter, or a Moon filter to reduce the brightness. A variable polarizing filter may also be used.
10. The increased Infrared sensitivity is not a hindrance and may; in fact; be very useful. The increased IR along with longer integration times allow imaging of deep sky objects with the ASTROVID StellaCam.

11. Star field video-astronomy should be done at prime focus or with 35 mm camera lenses. This allows you to use the StellaCam as a video finderscope. The above information is just a guideline to get you started. Because Astrovideography is an unexplored area that does not get much attention, you should take the initiative to experiment with different objects and filters using the ASTROVID camera .

We invite your comments and feedback and look forward to exploring this new facet of Amateur Astronomy with you. We will publish images sent to us on our web page. Credit will be given for all items used.

ADIRONDACK VIDEO ASTRONOMY

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ASTROVID StellaCam™ CCD VIDEO CAMERA

CAMERA CONNECTIONS:

*****The power supply is to be connected last to prevent any damage to the camera.*****

1. This camera cannot be hooked directly to a television for a picture as it only supplies Baseband or Composite Video.
2. Most newer televisions have separate **Video In** jacks that can be used with this camera.
3. Look at the back of the Astrovid **StellaCam** camera.
4. On the back is a 15 pin female jack. The **male metal** jack on the gray cord going into the ASTROVID **StellaCam** control box attaches to the back of the camera via 2 small screws. Screw it in to lock. **DO NOT force this connection .**
5. Plug in the mini-phono plug from the power supply into the power jack on the control box.
6. You can connect either an S-Video cable (optional) or Composite video cable (standard) to the ASTROVID StellaCam Control box.
7. The S-Video Cable (optional) is attached via the round plug. The BNC cable (standard) attaches to the BNC jack on the control box.
8. Push in and turn the 25 foot white video cable with the male BNC connector onto the female BNC video jack.
9. The other end of the white video cable has a **Male RCA Adapter** that can be plugged into a **VIDEO IN** jack for a television, camcorder, or VCR. (please note set VCR or TV to line in or video in)
10. Our monitors come with the same BNC jacks as the camera. So if you are using our monitor you will need 1 BNC to F-adapter. The RG-59 cable can then be screwed into the **VIDEO INPUT JACK** on the monitor. There is another BNC jack on the monitor for **VIDEO OUTPUT**. From here using another cable with a BNC on one end and an RCA adapter on the other end, you can plug into a VCR or Camcorder to simultaneously watch and record your observations. Using this configuration with one of our 850 line high resolution monitors will give the best results from the **ASTROVID StellaCam**.
11. **Once all of the cables and adapters are plugged in, you may plug the power supply in.**

With total manual control the ASTROVID StellaCam™ provides the most flexibility possible !

ASTROVID StellaCam™ CONTROL BOX

The use of the separate control box and the on-screen display of the camera controls make this camera very easy to use. The outlay of all of the controls also make the AstroVid StellaCam very intuitive to use. We also designed the control box with large buttons so that under less than ideal conditions the controls are easily managed. It is possible to control the camera quite efficiently even while wearing gloves.

The functions of the various buttons on the control box are as follows.

MIDDLE BUTTON - IS THE MENU / ENTER BUTTON - This button is used to access the Main Menu.

Depressing the middle button for 1- 2 seconds will allow you to enter the Main Menu. Once in the Main Menu you can also use the Middle Button as an Enter button to enter any of the On Screen Display Camera Controls that are manually controlled.

TOP and BOTTOM BUTTON - SCROLLING BUTTONS - These buttons will allow you to scroll up and down within the main menu and within any sub menu that will have more than one vertical choice. The active parameter will blink.

LEFT and RIGHT BUTTONS - SELECTION BUTTON - These buttons allow you to make a selection either in the main menu (ie. turning titles on or off) or in one of the sub menus. (ie. setting your gain or shutter speed selections)

This may sound difficult at first, but it becomes very intuitive and adjustments can be made very quickly. You can operate in complete darkness. You will not even need to look down at the control box as you make your adjustments.

The control box comes with 12 feet of camera to control box cabling. Highly shield extension cables are available in 12, 24,50, 75, 100 feet. This will permit remote operation of the camera.

ASTROVID StellaCam™ CCD VIDEO CAMERA

MAIN MENU - The main menu can be accessed by pressing the **center button** on the control box and holding it down for one to two seconds. StellaCam settings accessed via the Main Menu are described below. The active setting will blink. The sub-menus have a **RETURN** setting. Select the RETURN setting using the Up or Down buttons and then hitting the Center Control Box button will return you to the Main Menu

Title— Allows you to access the title menu to label your video image. Once the title menu is blinking press the center control box button again. This gets you into TITLE MENU. Use the right button to select the letter or character. Use the center button to enter the character. Use the up and down buttons to move up and down within the lines of title menu. Go to the RETURN line and hit the center button on the control box to return to the main menu.

Sense Up - This is the frame accumulation mode used when you want an extended integration time beyond the normal 1/60 of a second video frame exposure.

Various frame accumulation rates can be selected up to 128 frames before the image is output to the monitor.

If the Sense Up setting is set to **off** then the normal shutter speed rates of 1-50 -1/12,000 second can be accessed via the ALC / ELC setting also found in the main menu.

To increase the number of frames use the right button on the control box. You will be able to select the number of integrated frames as follows. 2,4,6,8,12,16,24,32,48,64,96,128.

To decrease the number of frames use the left button. The Sense Up mode will primarily be used for Deep

VIEW AND RECORD YOUR IMAGES AT THE SAME TIME ! SHOW THE WONDERS OF THE NIGHT-SKY TO LARGE GROUPS AT ONE TIME !

Sky Images, Meteor images , camera lens images and high F-ratios. **PLEASE NOTE: If you change the SenseUp number while imaging, the image will go dark and then re-accumulate the frames until the image is bright again. This is normal.**

ALC/ELC - this is the parameter used for the control of the shutter speeds. **ALC** is the **manual** shutter control / **ELC** is the **automatic** shutter speed control. **You can only use the ALC settings when the Sense Up mode is off.** These shutter speeds will be mainly used for planetary imaging. The right control box button will increase the shutter speeds. The left control box button will decrease the shutter speeds. On planetary images you want to use the highest shutter speed that will allow you to keep the gain as low as possible.

ALC- To use the ALC/ELC setting use the right arrow on the control box to select the ALC settings. Hit the center button to enter the ALC manual shutter speed setting. You will be able to set the following shutter speeds. OFF is 1/60 sec., 1/100 sec., 1/120 sec., 1/180sec., 1/250 sec.,1/350.,1/500 sec., 1/750sec., 1/1000sec.,1/1500sec., 1/2000sec., 1/3000sec.,1/4000 sec.,1/6000sec., 1/8000 sec.,12,000sec..

ELC- The ELC button will give you electronic shutter speed control. It will establish a range of automatic shutter speeds to compensate from the various light levels. Moving the arrow to the right will allow you to use the entire range of shutter speeds. Moving the arrow to the left will give you a range of lower or slower shutters speeds above 1/60 second.

AGC- This is the **Gain** control parameter. There are three settings. **OFF**— The gain setting is OFF corresponding to a dB setting of 0dB gain. This is used for Planetary imaging when you want to keep you gain as low as possible. The **AGC** is an automatic gain setting. This automatically sets the gain value using a range of gain settings. Once the AGC setting is selected you can hit the Center button on the control box and enter the AGC menu. You can then move the left arrow left or right using the left and right arrows. This will allow you to set the peak value for your gain settings from 0-18dB. Your gain setting will not go above this value when you are imaging. The manual or **MANU** setting allows you to permanently change your gain setting from 0-18dB for all light settings.

ASTROVID StellaCam™ CCD VIDEO CAMERA

BLC - This parameter is more for terrestrial use, as it compensates for a brightly back illuminated scene. Keep this setting OFF.

White Balance - not used on the monochrome ASTROVID StellaCam Keep this setting on ATW

Sync - synchronization of the camera - setting should be left on INT. or internal.

OPTION - optional functions of the camera are accessed via this menu.

The optional functions are as follows.

MASK A,B,C,D, Turing the Masks on block out part of the image. In the security field this is done for privacy. This may or may not have any astronomical uses. (ie. Possible occultation bar uses)

POS/NEGA - This will allow you to image as either a Postive or a Negative image. The Negative image looks like a photographic negative. The use of the Negative Image allows you to see more detail in the brighter areas of the moon, and planets. It will also help to show detail in faint nebulosity.

MIRROR- This function shifts image from left to right and will allow you to orient your images in SCT's to chart images.

PRIORITY This sets the priority of the camera upon star up to either the AGC or Sense Up mode. The AGC mode will put it in the Normal Gain & Shutter speed mode. The Sense Up will put the camera into the Frame Accumulation mode upon power up.

Zoom - This is a 2X digital zoom that allows you to zoom in on your image. The high quality of the image is maintained during the zooming. This will allow you to vary your magnification as your seeing conditions permit. The digital zoom feature is also very useful when you are using a Barlow lens. If your seeing permits, you effectively have the ability to vary the magnification of your barlow lens digitally. This means a 2X Barlow can be varied up to 4X. A 3X Barlow to a 6X Barlow

You can click the right arrow on the control box to turn the zoom OFF or ON.

EXIT - You can either save your settings on exit by Selecting SAVE or you can revert your settings to the manufacturers presets by selecting PRESET upon exiting the Main Menu.

SUGGESTED SETTINGS:

PLANETARY

TITLE OFF OR ON
SENSEUP OFF
ALC/ELC ELC
BLC OFF
AGC OFF or MANU
W/B ATW
SYNC INT
OPTION SET
ZOOM ON
EXIT SAVE

DEEP SKY

TITLE OFF OR ON
SENSE UP 128
ALC/ELC ALC
BLC OFF
AGC MANU—SET ARROW TO RIGHT 18dB GAIN
W/B ATW
SYNC INT
OPTION SET
ZOOM OFF OR ON
EXIT SAVE