



Equipment review

The MallinCam takes great images in seconds

Whether you photograph the sky or show live images to a group, this video camera delivers the goods.
by Gary W. Kronk

During the past 4 decades, I have taken more astronomical photographs than I can count. I started in 1971 when I took an old box camera and modified it to take time exposures. A few years later, I moved into 35mm film photography and stuck with it until I graduated to a digital SLR in 2004. Then, in 2006, I started using the MallinCam, and my life would never be the same.

The MallinCam is a video camera that provides great live views of whatever you point your telescope toward. The current product line is the MallinCam Hyper Plus, and it comes in both color and black-and-white models. I have had the black-and-white camera since 2006 and began using the color camera in 2009. Each camera has a resolution of 811 by 508 pixels.

Be aware that U.S. and Canadian customers must order from different dealers.

The warranty on a Canadian camera will not be honored for purchasers in the United States.

Several features make these cameras shine. First, the custom-designed high-gain circuitry amplifies the signal from the CCD while still providing a good image. Second, a high-quality Peltier cooler slowly lowers the sensor's temperature to diminish electronic noise and increase sensitivity. Third, a custom-designed hyper circuit board allows light to accumulate on the CCD for up to 56 seconds. And finally, the camera's creator, Rock Mallin, handcrafts and fully tests each camera to ensure it performs up to specs. In short, the camera electronically soups up your telescope.

Images that will blow you away
I typically use these cameras on my 8-inch Meade LX200 telescope, and I know

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the visual performance of this instrument like the back of my hand. Still, when I first connected the black-and-white MallinCam to the LX200, the view amazed me. My first target was the Crab Nebula (M1), a supernova remnant in Taurus. The live image revealed lots of nebular detail as well as stars fainter than 16th magnitude.

After tweaking the camera settings, I began to acquire images that far exceeded any I had taken before. Using the 7- and 14-second hyper settings, I pushed the limiting magnitude of my images to about 18.5 — nearly 100,000 times fainter than what naked eyes can see. I can observe great detail in deep-sky objects and easily view faint comets. I don't have any trouble picking out several of the moons that orbit Uranus and Neptune.

Gary W. Kronk is an avid amateur astronomer who specializes in observing comets and meteors.



The MallinCam Hyper Plus video camera delivers deep views of the cosmos in mere seconds. All images by the author



◀ **The MallinCam features two video outputs (Super-VHS and 75-ohm composite) and an AC power adapter for its 12-volt DC power supply.**

Unfortunately, I do not get great results with the 28- and 56-second hyper settings. But the reason is obvious: The camera greatly enhances the low light-pollution levels around my Illinois observatory. Even so, I have managed to take some decent images with these longer integration modes when using a 2x Barlow lens.

Great for groups

Although I use these cameras primarily for imaging, they prove incredibly helpful for public outreach. With the MallinCam, you don't need a giant telescope to show people exceptional detail in galaxies and nebulae. And, because the live image is fed to a monitor, you can point out different features to a group of onlookers.

I have tried three software packages that enhance the output of these cameras. Because the MallinCam can capture AVI movies, I use the free software package *Registax* to align and stack the images. This program allows my 8-inch scope to reach a limiting magnitude of 19 when using the 14-second integration mode.



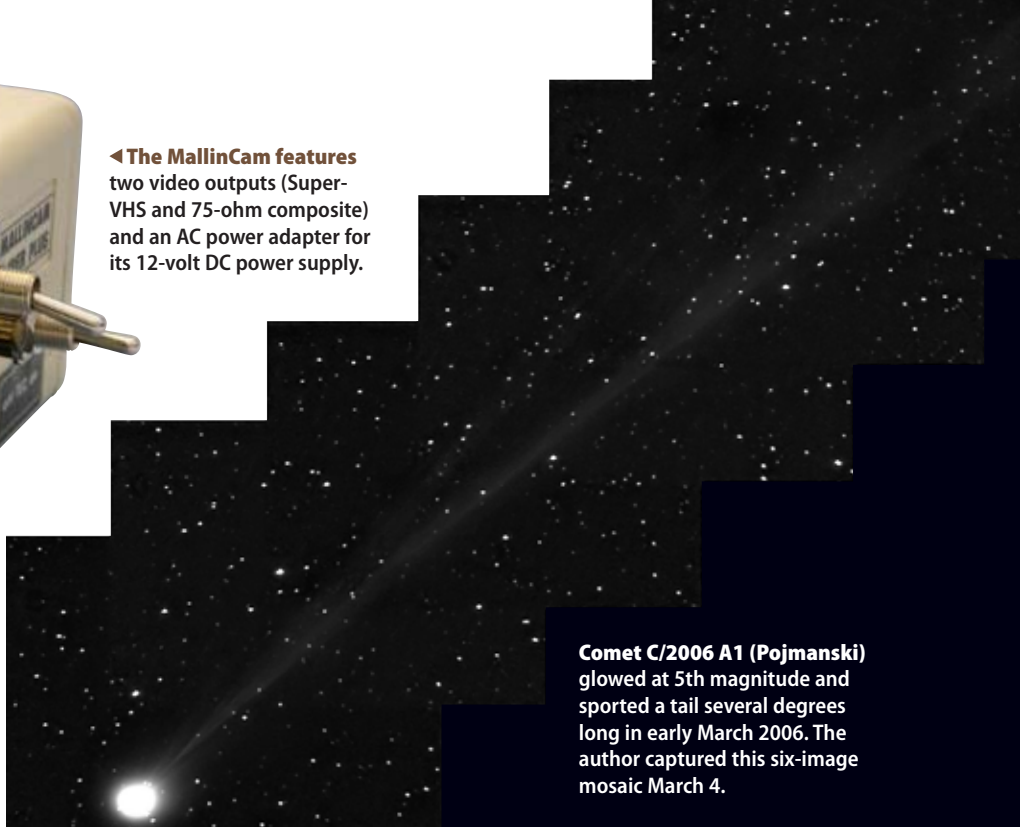
The Ring Nebula (M57) in Lyra is a planetary nebula whose gaseous envelope glows as it absorbs ultraviolet light from the central star and re-emits it at visible wavelengths.

Handy AVI from AZcendant Software is easy to use and costs just \$39.95. It has a nice preview window that allows you to adjust the brightness and contrast of the image coming from the MallinCam.

The program's main window also has settings for altering the number of frames and how often to shoot. If I set the camera to 7-second integration, I change the numbers in *Handy AVI* so that the camera shoots one frame every 7 seconds. And if I set the camera to 14-second integration, I change the numbers accordingly.

This works well for photographing comets — I can play back the movie and watch the comet slowly glide through the star field. I often show these movies in presentations, and they never fail to impress the audience.

The only downside I've encountered with the MallinCam is a glow in the upper left corner caused by the amplifier. It becomes particularly noticeable during the longer integration modes. Although the company offers instructions on how to minimize this glow, I found an Adobe *PhotoShop* plug-in called *GradientXTerminator* that solves the problem. This \$49.95 plug-in comes from Russell Croman Astrophotography. The plug-in is a gradient removal tool that also works great for vignetting problems. In just a few quick and easy steps, the tool gives



Comet C/2006 A1 (Pojmanski) glowed at 5th magnitude and sported a tail several degrees long in early March 2006. The author captured this six-image mosaic March 4.

Product specifications

MallinCam Video CCD Observational System

TV system: NTSC (also available in PAL)

Image sensor: Sony ICX418AKL-A Class 1 CCD with Micro Lens Technology (color); Sony ICX428ALL-A EXview HAD Class 1 CCD with Micro Lens Technology (black and white)

Total pixels: 811 (horizontal) by 508 (vertical)

Scanning system: 525 lines, 60 fields/sec (NTSC); 625 lines, 50 fields/sec (PAL)

Shutter: Standard and variable modes from 1/60 to 1/2,000 second

Power supply: 12.1 volts DC at 390 milliamps

Prices: MallinCam Color Hyper Plus, \$1,199.95; MallinCam B&W Hyper Plus, \$1,099.95

the image a nice even background that's ready to show off.

I have a lot of fun using these cameras. They are a joy if you want to watch live images through your telescope or show a group the wonders of space. Slew through galaxies in the Virgo cluster or across the Sagittarius Milky Way for scenes you (and they) won't soon forget. And, of course, if you want to do some imaging, these cameras will perform beautifully. ☛