

TRIED & tested

We review well-established equipment that's stood the test of time

See an interactive 360° model of this camera at www.skyatnightmagazine.com/360/macx

VITAL STATS

- Price \$1,499.95
- Sensor Sony ICX 418
- Sensor dimensions 795x596 pixels (PAL)
- Telescope connection C-threaded 1.25-inch nosepiece
- Ports Composite and S-video, aux, 12V power input
- Dimensions 100x50x50mm
- Weight 300g
- Software MallinCam
- Supplier Jack's Astro Accessories
- www.mallincamusa.com
- Tel +1 985 863 2165

MallinCam Xtreme CCD colour video camera

Bring the skies to life with stunning video footage

WORDS: MARK PAYNE-GILL

Not long ago the possibility of enhancing what is visible through a telescope with deep-sky video astronomy would have seemed far-fetched. But a few products have appeared on the market claiming to do just that – and in colour. No computers, no image processing, just a video camera and TV with instant live results.

One such product is the MallinCam Xtreme, a dedicated deep-sky astro video camera that is also capable of shooting solar, lunar and planetary objects. It's compact and solidly built. The circuitry and software have all been designed with customised features optimised for astronomical use, pushing the boundaries to the extremes of what a video sensor can record.

Roll cameras

We tested the Xtreme using a Meade 14-inch RCX telescope connected to a domestic 19-inch TV monitor and targeted some iconic Messier objects. It is crucial to set focus on a bright star after powering up the camera, as an unfocused image around a deep-sky object will just leave you looking at a blank monitor.

For deep-sky filming the Xtreme circuitry features a Peltier cooler, which mildly lowers the temperature of the 0.5-inch video sensor. This feature is unique to Mallincams and is included to reduce electronic noise and speed up acquisition times.

Setting up is relatively straightforward. The camera is controlled by the five menu buttons on the back. Pushing the middle menu button activates the menu on a connected monitor. The other buttons navigate around the options and change the various settings. One minor criticism is that the onscreen menu could do with a more descriptive guide than the one supplied. An explanation of all the abbreviations would be really helpful.

Once set up the most important settings are the integration time ('Sense Up'), gain ('AGC') and contrast. Adjusting these will be enough to start acquiring views of deep-sky objects. Adjusting the gain to change sensitivity activates a safety timer for up to two minutes; it's an automatic procedure that protects the sensor from overloading while the circuitry refreshes. During this time, functions shut down and the screen will go blank until the image with the new settings is integrated. ▶

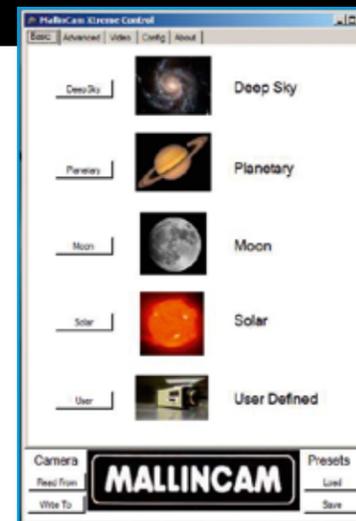
OWNER'S OBSERVATIONS

Name Mark Payne-Gill
Location Chew Magna, Bristol
Equipment MallinCam Xtreme colour video CCD camera
Owner since January 2011

I've owned a MallinCam Xtreme for nearly three years and have used it on a variety of scopes from my 14-inch RCX Meade right down to 3-inch apo refractors – and it produces wonderful live views. Although twice the price of other astro video cameras, this one stood out thanks to its versatility and the features it has that aren't found on other products, particularly the top-grade sensor, extended

integrations and Peltier cooling. MallinCam also gives great online support, which went a long way towards helping to understand the camera's features and operations not covered in the manual.

A 0.5x focal reducer was a necessary addition to my kit to offset the high magnification of the small chip, along with external cooling fans to further increase the sensor's performance. I've also added a flip mirror system to aid object locating and centring. With this I can effortlessly switch between eyepiece and live camera views. It's great fun watching the faint, fuzzy blobs transform into picture-book images on a TV screen.



SOFTWARE

Functions can also be controlled by computer using the included MallinCam software, with modes for deep-sky, lunar, planetary and solar observing. Footage can also be captured to computer with a suitable frame-grabber device. Software with more advanced features to extend the Xtreme's capabilities can be purchased separately.



SENSOR

At the heart of the camera is a 0.5-inch Sony ICX series sensor with 795x596 pixels, available in both NTSC and PAL versions. It gives views that approximate to a 9mm eyepiece. A Sony EXview HAD sensor with 40 per cent more sensitivity is also available.



FRAME RATE

Shutter speeds range from 4 seconds to 1/12,000th of a second. This making the Xtreme well suited for lunar and planetary filming, but deep-sky observing is where it excels. An optional wireless exposure controller is a must as it sets the Xtreme apart, allowing for longer exposures of up to 99 minutes.

PORTS

Composite and S-video outputs at the back of the camera allow simultaneous viewing and recording. An aux port allows a remote keypad to be used for menu access without causing camera shake when pushing the rear buttons. The aux port can also be used for computer control with available software for image capture.



SKY SAYS...
The camera is optimised for live viewing and pushes the boundaries of what is possible with a video sensor

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CAMERA BODY

With the familiar look of a security camera, the Xtreme is compact and solidly built. Each one is made individually by hand and even signed. It accepts a 12V power supply. The mount on the front is C-threaded and comes with a 1.25-inch nosepiece that's also threaded to accept filters and focal reducers.

► Selecting 'Sense Up' to a maximum of 128x, giving 4 seconds of integration with the Peltier cooler on, the ghostly outline of my first target, the Ring Nebula, appeared on the TV. Adding more integration time with the optional wireless exposure control caused the image to disappear while the sensor built up an image. Then, suddenly, a full-colour, live image exploded on to the screen. Structure within the ring and colours normally only seen in processed CCD photographs were beautifully recorded after just 20 seconds. These could be enhanced with the auto white balance setting in the menu. Adjusting the Gamma setting from 0.45 to 1 darkened the background, increasing contrast nicely. Once displayed, the image remains while the sensor builds up the next exposure. If there is any movement in the imaging train between exposures it shows up on screen, adding to its live feel.

Next was the Dumbbell Nebula, which also looked stunning after only 20 seconds, with rich colours and delicate wisps of gas extending out from the sides. With 30 seconds of integration, the characteristic tendril structure of the Crab Nebula popped into view, revealing more subtle colours. Something that was an indistinct smudge through an eyepiece of the 14-inch scope became instantly recognisable.

SKY SAYS...

Now add these:

1. Wireless exposure keypad
2. Hand controller
3. MFR-5 focal reducer

Going live

The overall image quality doesn't compare to that of astro CCD cameras with their larger sensors, but you have to remember this is a video camera optimised for live viewing with no processing or image stacking and, as such, it is impressive.

With knowledge, the MallinCam Xtreme is straightforward to operate; a familiarity of video would come in handy for getting to know it. However, once you grasp the principles, getting to see barely discerned objects come to life with shape, structure and – best of all – colour becomes addictive. From 'wowing' friends by turning 'faint fuzzies' into the real thing, to broadcasting live views at star parties or even helping as an optical aid for those with poor eyesight, this is a great outreach tool for enhancing deep-sky observing. For some it might just replace the eyepiece permanently. **S**



► The rarified gas of the Dumbbell Nebula in Vulpecula showed up well



► The colours of the Ring Nebula in Lyra were easily differentiated

VERDICT

BUILD AND DESIGN	★★★★★
CONNECTIVITY	★★★★★
EASE OF USE	★★★★★
FEATURES	★★★★★
IMAGING QUALITY	★★★★★
OVERALL	★★★★★