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Test Report
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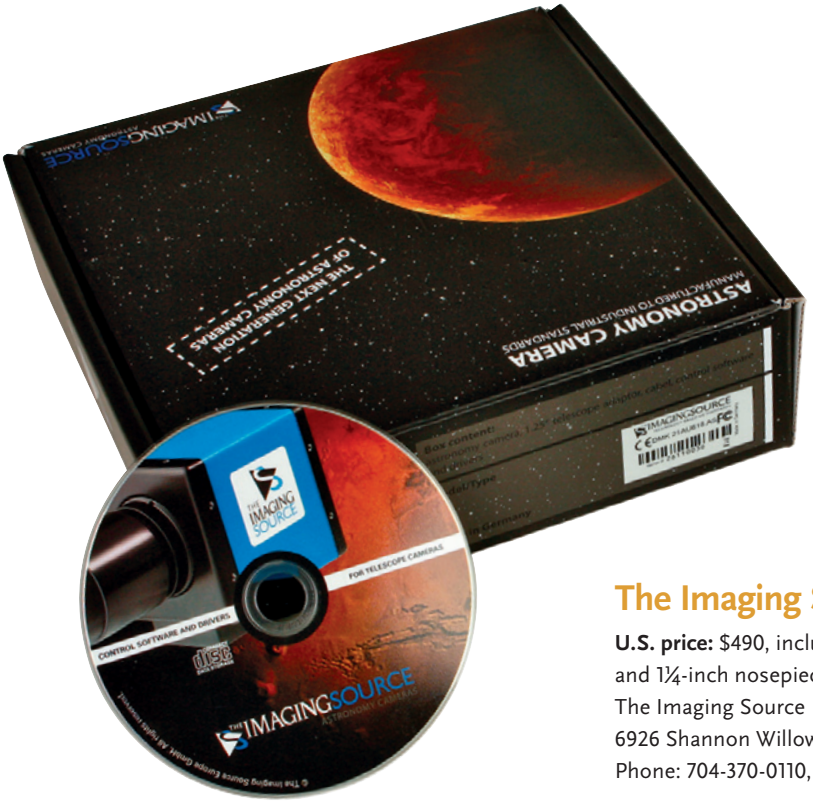
Sean Walker

The Imaging Source DMK 21AU618.AS

Is this the best planetary camera yet from Imaging Source?



The Imaging Source DMK 21AU618.AS

U.S. price: $490, including PC control software, USB cable, and 1¼-inch nosepiece
The Imaging Source
6926 Shannon Willow Rd., Suite 400, Charlotte, NC 28226
Phone: 704-370-0110, www.astronomycameras.com

WHAT WE LIKE:

Compact, lightweight design

Easy to use

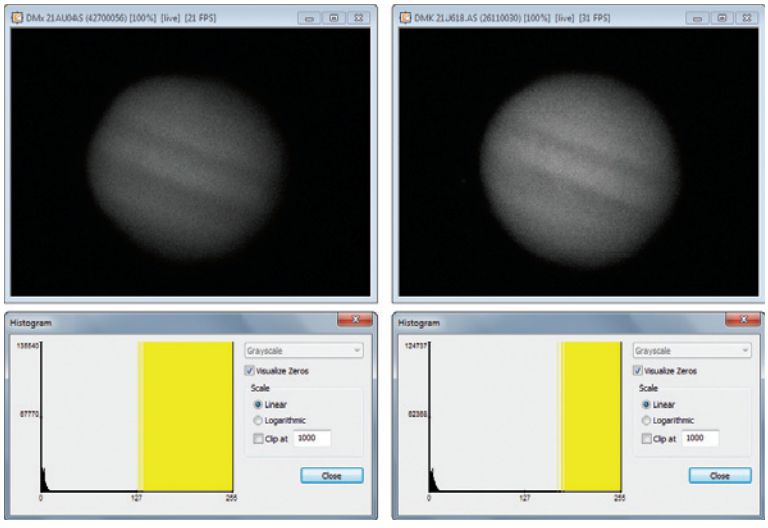
WHAT WE DON'T LIKE:

Short USB cable

JUST WHEN I THINK that planetary imaging has reached its zenith in both camera abilities and quality of achievable results, something new comes along. For several years we've had lightning-fast cameras that record video at 60 frames per second (FPS) and automatic stacking programs that "freeze" moments of steady seeing captured by these videos to reveal planetary details with resolutions approaching ¼ arcsecond. As good as this is, planetary imagers always long for more, and now the Imaging Source has delivered with its new DMK 21AU618.AS video camera.

Much like its predecessor, (the DMK 21AF04.AS reviewed in our October 2007 issue, page 36), the new camera is a compact 2-inch-square design. It connects to a Windows-based PC computer using an included USB cable, and it fits in any 1¼-inch telescope focuser using the C-to-1¼-inch nosepiece that's also included. One minor quibble: the USB cable is only 5 feet (1.5 meters) long, which is too short to be useful with most Newtonian telescopes that have their focusers high off the ground when imaging planets near the meridian. I replaced the cable with a 10-foot Belkin Gold USB cable I picked up at a local computer store.

The big change with this camera is its new Sony ICX618ALA CCD detector, which boasts higher sensitivity across the visible spectrum, and especially at red wavelengths, compared with the ICX098BL chip in the

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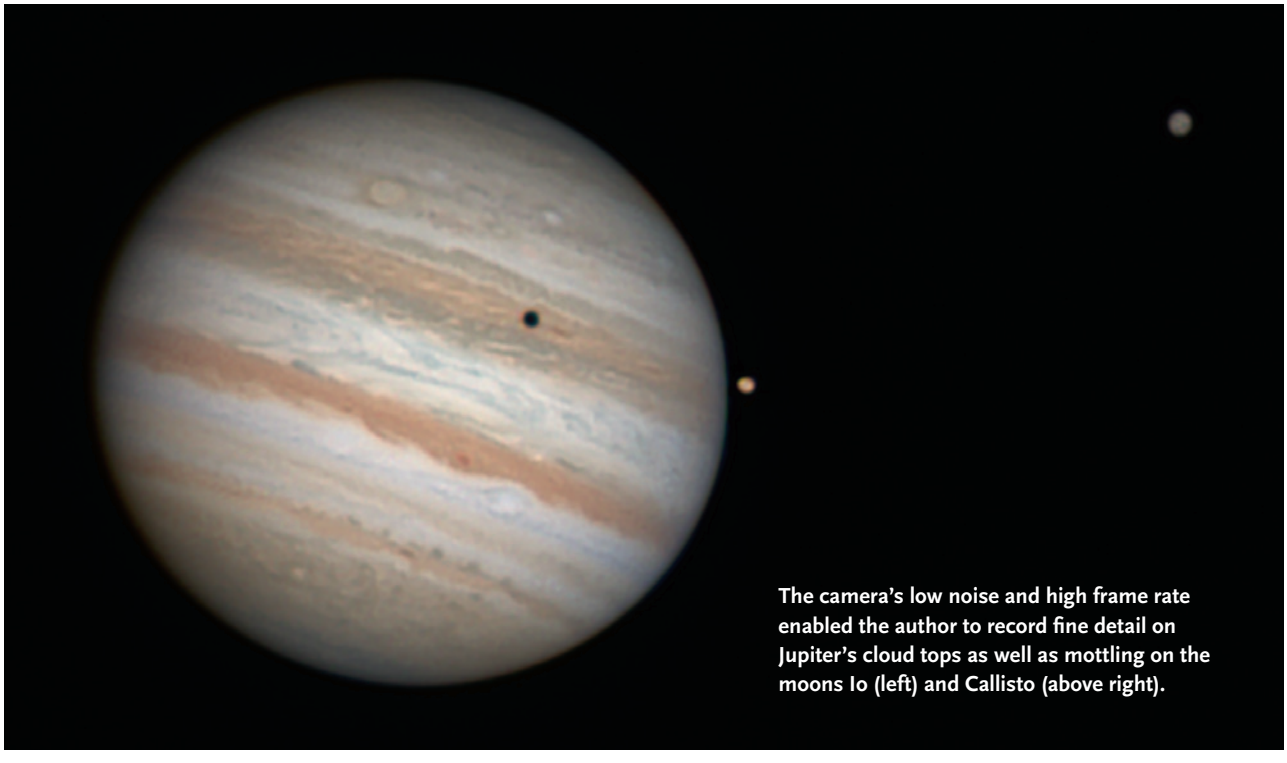
Though physically identical to its predecessor, the Imaging Source's new DMK 21AU618.AS video camera is significantly more sensitive, especially at the red end of the spectrum. These back-to-back recordings of Jupiter made through a red filter and the author's 12½-inch reflector show that the old camera (*far left*) produces a fainter image and less data as indicated by the greater portion of the histogram showing zeros (yellow area).

original camera. The new camera records brighter images than the original when shooting at the same image scale, reducing the need for high gain settings that create noisy image stacks.

At the telescope, the new camera performs almost exactly like the old one. It's capable of recording uncompressed AVI video streams at rates as high as 60 FPS. But to take advantage of this huge data stream, your computer should have a 7,200-RPM hard drive in order to avoid dropping frames during recording.

I found the 21AU618.AS to be noticeably more sensitive than its predecessor, enabling me to use lower gain settings when capturing videos of Jupiter and Mars. This difference was particularly dramatic in red and near-infrared wavelengths. The sensitivity increase was less apparent at green wavelengths, and it was hardly noticeable when I was shooting through blue filters.

There's a difference in the new camera's handling of planet video streams recorded at 60 FPS. Users of the older camera often noticed a limb artifact on planetary videos that appeared as a dark curve inside the left edge of the planet's image — it looked a bit like a sharpening artifact on a stacked image, though it appeared in every frame in the raw video. This limb artifact was less appar-



The camera's low noise and high frame rate enabled the author to record fine detail on Jupiter's cloud tops as well as mottling on the moons Io (left) and Callisto (above right).

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ent when shooting lunar and solar video clips at 60 FPS. With the new camera, I found no sign of the artifact on videos I made of Jupiter and Mars at 60 FPS. At the time of this review, Saturn was too low to shoot in the morning twilight.

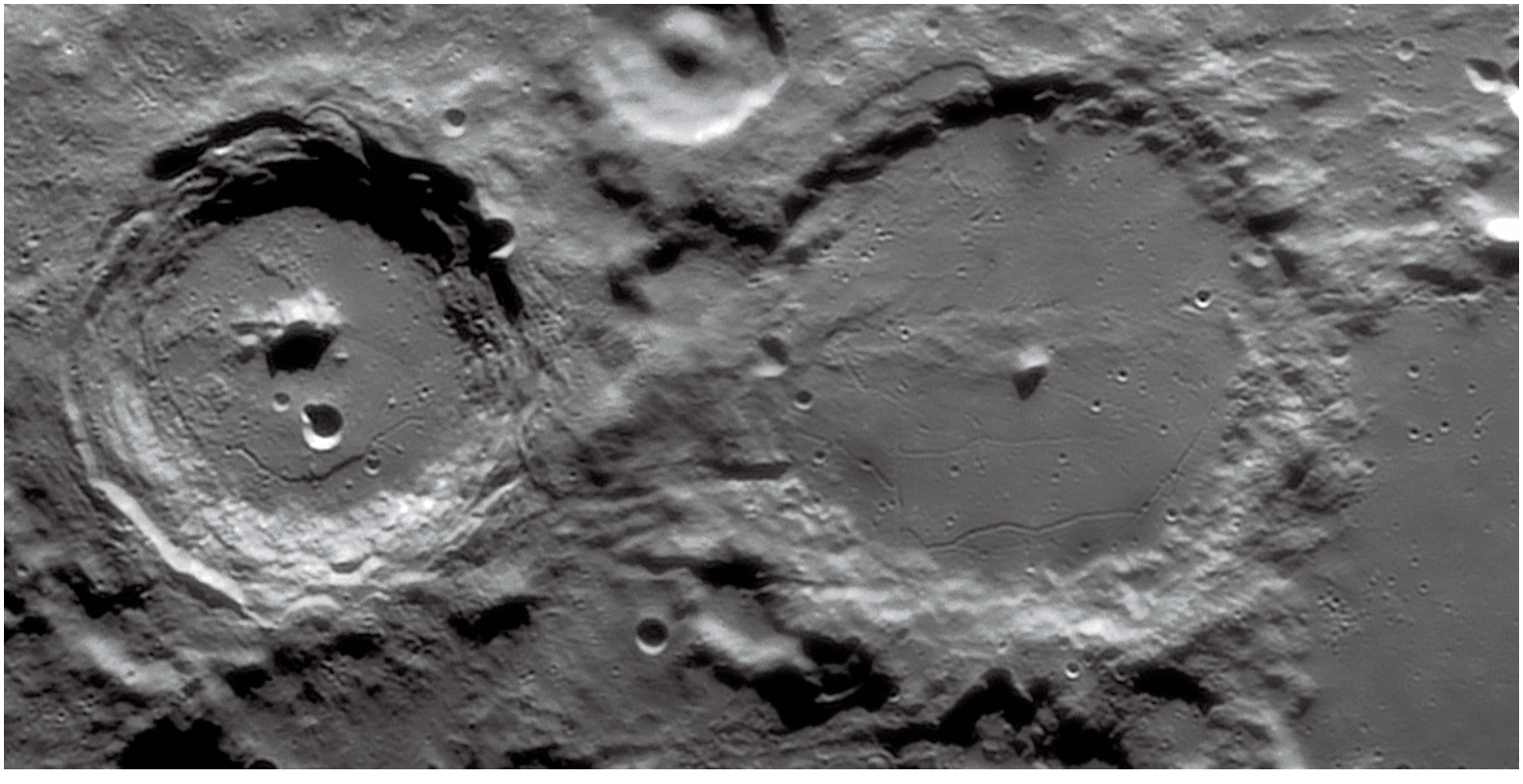
The new model comes with the camera-control and video-recording program *IC Capture.AS* version 2.2.315.1235. The software performs its assigned task of recording AVI video streams to my computer without problems. One feature that I'd like to see added to future updates of the program is the ability to store various camera settings and file-name prefixes. With the current version of *IC Capture.AS*, every time I switched to a different color filter I had to manually adjust the camera's gain settings to achieve proper exposure and re-title the video file with a prefix that reflects which filter I was using. The software automatically numbers each video sequentially as they are recorded, but I had to be mindful of which filter was used for each video clip and re-title them accordingly at the end of my observing session.

Like all Imaging Source cameras, the DMK 21AU618.AS records 8-bit data, which means that more total frames may be required to produce the smoothest stacked result when compared with cameras that generate 12-bit data. But the end result is essentially the same; exquisite, highly detailed images of our solar system neighbors. Though I only tested a monochrome version of the camera, a one-shot color version is also available. In addition to USB, there are camera models with Firewire and high-speed GigE computer interfaces available from the manufacturer and its dealer network.

The camera's only shortcoming is its relatively small chip size. Often when imaging the Moon, I lamented the camera's limited field of view.

The DMK 21AU618.AS is currently among the most sensitive planetary cameras on the market. Its compact design and intuitive control software make it a pleasure to use. It's the one I'm reaching for to image the current apparition of Mars and the one I'll be using for the upcoming transit of Venus in June.

S&T *imaging editor* ***Sean Walker*** *is an avid lunar and planetary photographer living in New Hampshire.*



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High-resolution close-ups of the Moon often require stitching multiple frames together to cover larger craters. This four-frame mosaic of Arzachel (left) and Alphonsus was made with the DMK camera during the first-quarter Moon last December.