

We test Nikon's hot new astrocamera

The D810A full-frame sensor produces colorful, ultra-low-noise images. **by Tony Hallas**

I first learned

of the D810A from an emailed news alert, which included the manufacturer's suggested retail price: \$3,799.95! That's as much as a small CCD camera costs. What is so special about this Nikon camera? As it turns out, a lot.

To begin with, it has a full-frame (35mm) 36.2-megapixel sensor (in a 7360-by-4912-pixel array) with no anti-

aliasing filter in front. This allows the camera greater sharpness, something I was able to verify as soon as I saw the way it recorded stars. Although Nikon discourages the use of this camera for daytime photography, I, and many other reviewers, have found that it works fine for daytime shots. If reds come out slightly stronger it is an easy matter to go into Photoshop to adjust the reds to your liking. In my daytime images with color balance set to "Auto," everything looked great.



Nikon's D810A is a full-frame DSLR with an extended red response specifically engineered with astroimagers in mind. ASTRONOMY: WILLIAM ZUBACK

Although the camera comes with an instruction manual of intimidating length and detail, the basic controls are fairly easy to learn and execute. In 30 minutes of using the camera, I mastered setting the ISO, navigating to the time-exposure control, setting the f/stop if I was using a lens, and implementing my noise suppression of choice in the noise-reduction panel.

The chroma noise (blotches of color) so common in cameras that I have used previously was completely absent at ISO 1600. Frankly, I was stunned. Beyond the lack of noise, the camera picked up color and detail in deep shadows at night far beyond anything I was used to.

However, on my first night out a glaring shortcoming of the D810A became evident: It has no articulating screen in the back. Chiropractors are going to love this camera! I found myself twisting and contorting in unnatural positions to check my focus and cropping when I pointed the camera high in the sky. If I bought this camera, I would attempt fastening a small mirror to the screen so I could view it at a more comfortable angle.

When you can see the screen, it is high quality and offers an enhanced live-view mode that turns up the gain so you can see fainter detail more easily. This also turns up the noise, so I found myself using it more often in the ordinary viewing mode.

Another feature that surprised me was the efficiency of the camera using battery power. I imaged nonstop for 2½ hours one night and in the end the battery still showed half capacity. For such a feature-rich camera, this is truly excellent.

I should add that at no time did I use the built-in "dark subtract" feature in the camera. I didn't have to. The images at ISO 1600 were so clean they didn't need it. And if I thought that was something, the images I took the next night at ISO 3200 were equally clean.

Somehow Nikon figured out how to get rid of "color mottle" (colored dots 5 to 10 pixels across) at these useful ISO settings. Getting multiple dithered images already so clean results in combined images of unprecedented quality from a DSLR.

For my test shots, and to evaluate the response of the camera, I attached it to my Vixen VSD 100mm f/3.8 refractor. The exposures were all 4 minutes at ISO 1600 from my backyard, where M31 is clearly

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This shot of the Lagoon (M8) and Trifid (M20) nebulae in Sagittarius demonstrates the wide color range the Nikon D810A can capture. Note how the blue reflection nebulae stands out amid all the glowing red gas. TONY HALLAS



One of the things about the D810A that impressed the author the most was the way it captured gorgeous round star images, as this image of the North America (NGC 7000) and Pelican (IC 5070) nebulae shows. TONY HALLAS

naked eye visible and the Milky Way is obvious. It's not as good as my dark-sky site but not bad for a backyard. The western sky is bright, but the east is quite dark. At this exposure, I didn't need to guide to get round stars. I used the hand control to dither my images. I typically took seven to nine exposures of each object.

I found the color response to be evenly balanced. The D810A picks up blue and yellow well, as evidenced by the image of the Lagoon (M8) and Trifid (M20) nebulae above. The camera also clearly picks up red, as can be seen by the image of the North America (NGC 7000) and Pelican (NGC 5067/70) nebulae. The difficult

Andromeda Galaxy (M31) showed a surprising amount of blue, but I found the reddish HII regions to be somewhat absent. Maybe more color would have come through had I waited longer for M31 to climb higher in the sky.

With regard to astroimaging, several specific modifications for this model of the Nikon 810 series bear mentioning. The first is the ISO range, which starts at 200 and tops out at 12,800. Shutter speed goes from an extremely fast 1/8000 second all the way to 900 seconds (15 minutes) without having to use the camera in bulb mode or employ a remote control. To access the long exposure mode, you'll find a special "M" setting

that makes taking long exposures as easy as turning a dial.

Using a fast refractor or reflector, an astrophotographer should be able to produce many excellent photos of the night sky beyond the typical foreground/Milky Way variety that is currently so popular. I only had the camera to use for a few weeks for the purpose of this review. I had the feeling that even more could be done with it, however. I would have liked to attach it to a larger and slower f/ratio telescope.

The low noise and high sensitivity of the Nikon D810A make this an impressive camera, one that undoubtedly will expand the possibilities of nighttime imaging. ☛



Although the D810A offers myriad features (explained in its thick instruction manual), its basic ones are easy to understand and use. ASTRONOMY: WILLIAM ZUBACK

PRODUCT INFORMATION

Nikon D810A

Type: DSLR camera
Sensor: Full-frame CMOS
Image size: 7360x4912 (36.2 megapixels)
Lens mount: Nikon F mount
ISO range: 200 to 12,800
Shutter speeds: 1/8000 to 900 seconds
Weight: 31.1 ounces (882 grams)
Price: \$2,996.95 (varies)
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