

## megapixel Imaging for Less:

# SBIG's ST-8300M CCD Camera

*Don't be fooled by the price; this camera is built for serious deep-sky imaging.*



## SBIG's ST-8300M CCD Camera

**U.S. price:** \$1,995  
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**OVER THE YEARS**, many of the products I've tested have held surprises. SBIG's new ST-8300M CCD camera was not one of them. And that alone speaks volumes, since the bar had been set very high for this product from the moment its carefully guarded development was announced last October.

There were good reasons that expectations ran so high for this camera. Foremost is the company itself; SBIG has remained solidly focused on the astronomy community since it arguably launched the amateur CCD revolution more than 20 years ago with the introduction of its ST-4

autoguider/imager. Then there's the new camera's 8.3-megapixel KAF-8300 chip, which has generated more interest among amateur astronomers than any other CCD in recent memory. Unveiled with the lowest price of any similarly featured camera, the ST-8300M understandably drew considerable interest from the get-go.

Amateur astronomers have had an especially positive response to the KAF-8300 chip since Kodak introduced it several years ago. It's a full-frame CCD with a 3326×2504 array of 5.4-micron-square pixels. The active imaging area measures a very respectable 18 by 14 millimeters, and the chip has antiblooming protection, which helps prevent unsightly streaks from appearing on bright objects in the image. The CCD is also very sensitive, with a quantum

**Except for the FW5-8300 Filter Wheel, everything seen here is included with SBIG's ST-8300M CCD camera. The camera body and filter wheel have standard female T-thread mounts.**

ALL PHOTOS BY THE AUTHOR; ASTRONOMICAL IMAGE PROCESSING BY SEAN WALKER

efficiency that peaks at almost 60% in the middle of the visual spectrum and is close to 50% at the astronomically important deep-red wavelength of hydrogen-alpha light.

Equally interesting are the chip's small pixels, which make the CCD attractive to astrophotographers imaging with today's popular short-focus refractors and camera lenses. To achieve the often-recommended scale of 2 arcseconds per pixel for deep-sky work, the KAF-8300 requires an effective focal length of only 560 mm. Furthermore, at that focal length the chip covers a generous 1.8°-by-1.4° field of view. For optimum imaging at longer focal lengths, you can bin the ST-8300M's CCD 2×2 or 3×3 to create pixels that are effectively 10.8 or 16.2 microns square, respectively.

SBIG did not cut any obvious corners when creating this camera. The only feature lacking on the ST-8300M compared to SBIG's more-advanced imaging cameras is the company's patented internal autoguiding that uses a second, off-axis CCD mounted next to the imaging chip. Then too, guiding is no longer the prerequisite it once was for producing quality deep-sky images. Telescope drives have improved markedly in the past decade, and many of today's excellent astrophotos are made by stacking multiple 1-minute exposures, which can typically be made without guiding.

The ST-8300M is very compact, measuring just 4 by 5

### WHAT WE LIKE:

Full-featured CCD camera at a remarkable price

Compact, lightweight, and well made

### WHAT WE DON'T LIKE:

Presently, a limited selection of "non-standard" 36-mm-diameter filters

by 2 inches (10 by 13 by 5 cm) and weighing 29 ounces (0.8 kg). The optional 5-position filter wheel (\$695) adds 17 ounces, increases the cross section to 5 by 7 inches, and makes the camera 1 inch thicker, but the distance to the chip is still small enough to allow using the camera with standard lenses made for 35-mm cameras. To that end the ST-

8300M has a 1/4-20 "tripod" socket machined into its body, and SBIG already has optional adapters (\$165) for Nikon and Canon FD lenses. The only caveat regarding the filter wheel is its use of "non-standard" 36-mm-diameter filters. Fortunately, three of the major players making filters for astronomical imaging — Astrodon, Baader, and Custom Scientific — offer this size.

The ST-8300M requires a single 12-volt DC power source capable of delivering 3 amps, and the camera comes with a "universal" adapter that runs on 100-to-240-volts AC. The only other cable needed is for the USB 2.0 connection between the camera and your computer. Because I already had USB 2.0 cabling snaked through my telescope mount, my setup also involved a small USB

**The ST-8300M's wide-field performance and impressive sensitivity to deep-red hydrogen-alpha light are apparent in this 2°-wide view of the North America Nebula's "Gulf of Mexico." The 2-hour exposure through a Baader 7-nanometer H-alpha filter was taken with a William Optics FLT-98 apo refractor working at f/5.1.**

