Model ST-8XE/XME
CCD Imaging Camera

SBIG

ASTRONOMICAL
INSTRUMENTS

Model ST-8XME Dual CCD Self-Guiding Camera

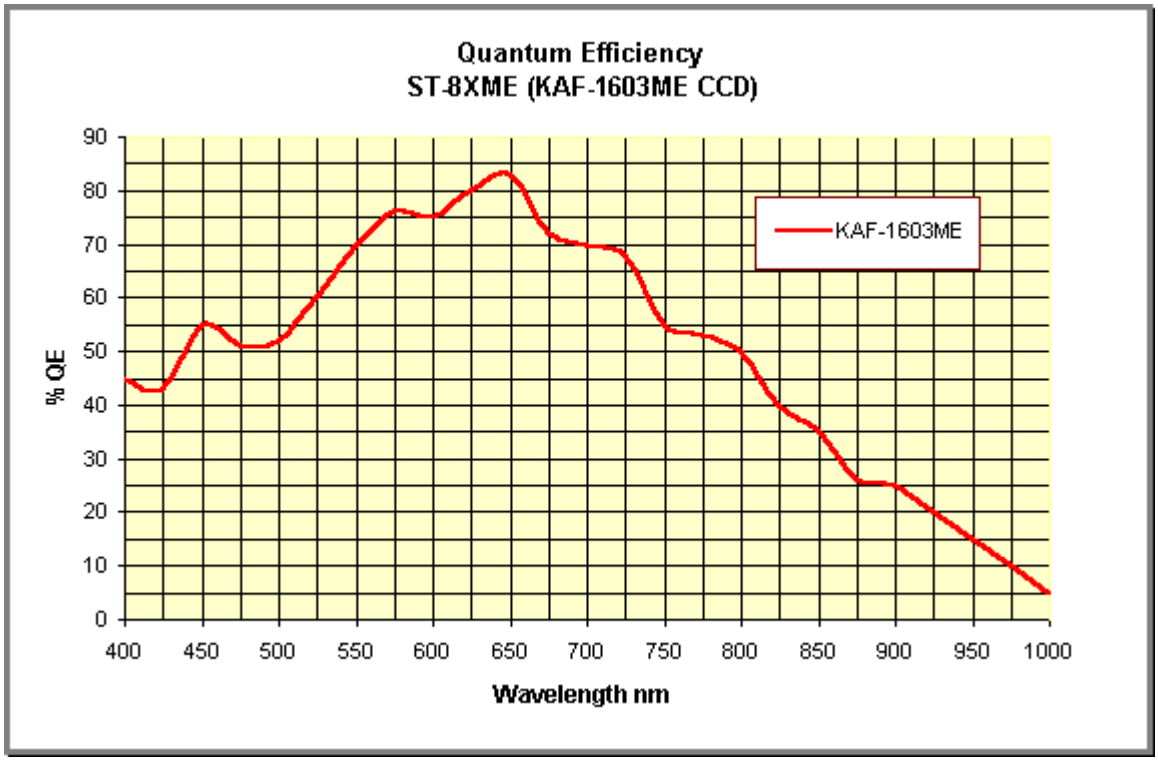
ST-8XME CCD IMAGING CAMERA

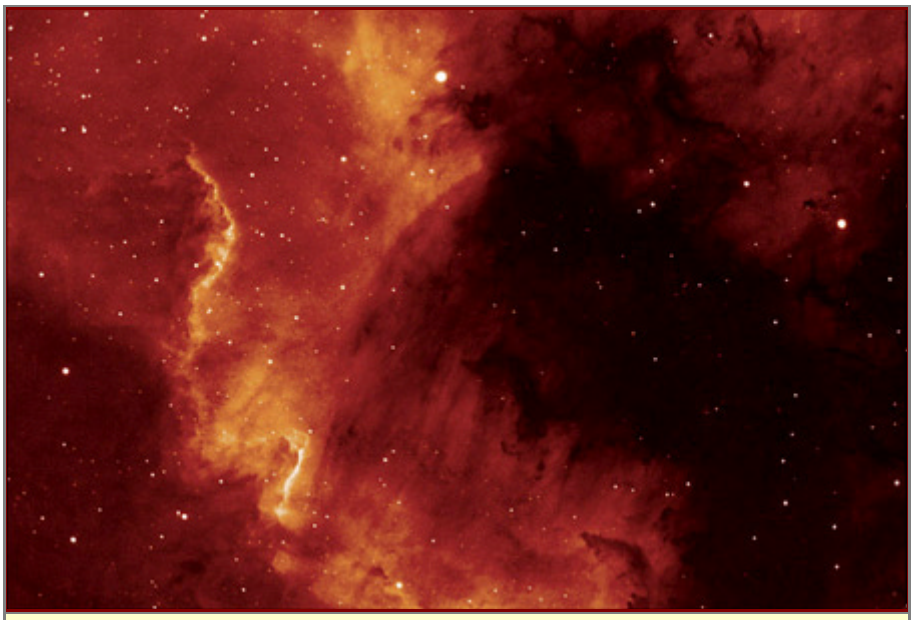
The Model ST-8XME is identical to the Model ST-7XME except that it is furnished with a 4x larger imaging CCD. The imaging CCD has a Full Frame Resolution of 1530 x 1020 pixels at 9 microns square and the tracking CCD has 657 x 495 pixels at 7.4 microns square. The imaging CCD utilizes the latest microlens technology and AR coated cover glass found in the ST-7XME and ST-10XME cameras. This technology boosts the peak Quantum Efficiency of the CCD to nearly 85% and improves sensitivity across the visible sprectrum. Since the ST-7XME and ST-8XME imaging CCD detectors are pin to pin compatible, SBIG designed the CCD head to accept either detector. As a result the Model ST-7XME is easily upgraded to the Model ST-8XME. The large CCD active area of 13.8 x 9.2 mm allows the user to image large fields of view with the ST-8XME. The various binning modes of 9, 18, and 27 micron pixels allows the user to match the focal length of a wide range of telescopes and lenses to this imaging camera. The imaging camera includes an electro-mechanical shutter, 16-bit analog to digital (A/D) converter, regulated temperature control with all of the electronics integrated into the CCD head and a built-in, cooled, TC-237H, 656x495 pixel,guiding CCD. Communication to the PC is through the USB port. The Full Frame download time is approximately 3.7 seconds, nearly 14 times faster than the previous parallel port version of this camera. The image update rate in focus mode is approximately 2 frames per second.

M31. ST-8E two image mosaic of Andromeda galaxy taken through a 4" refractor using a CFW8 filter wheel**.** *Courtesy Robert Gendler*

SBIG actively encourages wide field imaging with the Model ST-8XME. We offer Camera Lens Adapters (CLA-7) to attach standard camera lenses to the imaging camera. In wide field imaging the ST-8XME, CLA-7 and camera lens are typically mounted piggyback on the primary telescope, which acts as a guiding platform. The ST-8XME is set for the high resolution (9 x 9 micron) pixel mode to match the short focal lengths of the camera lens. SBIG has received wide field customer images with 4 to 5 degrees field of view showing large extended objects with much detail and structure. Wide field imaging (i.e., f/2 to f/4) is easy to do, as locating objects becomes a relatively simple matter and guiding is much less critical at the short focal lengths of 100 to 400 mm. We urge our customers to try this technique with both Models ST-7XME and ST-8XME.

M51. Model ST-8E image of the Whirlpool Galaxy taken through a 12.5" f/6.7 telescope. *Courtesy William McLaughlin*





NGC 7000. A portion of the North American nebula was captured with 5" f/6 telescope using an ST-8 camera equipped with an H-alpha filter . Three 20 minute frames were averaged to create this false color image. *Courtesy Brad Ehrhorn*

In its price range, the Model ST-8XME is unmatched in resolution, performance, low noise and field of view in the amateur astronomy market and, therefore, is widely used in astronomy for high resolution imaging and wide field searches for near earth asteroids, comets, supernova, etc. The dual CCD structure allowed SBIG to design an Adaptive Optics System to work in conjunction with the ST-8XME and ST-7XME. This unique system is described under the Accessory Products section of this catalog.

NGC 5128. This ST-8E image of Centarus A was taken through a C14 telescope at f/11**.** *Courtesy Peter Ward*

ST-8XME Typical Specifications

CCD Specifications	
CCD	Kodak KAF-1603ME + TC-237H
Pixel Array	1530 x 1020 pixels, 13.8 x 9.2 mm
Total Pixels	1.56 million
Pixel Size	9 x 9 microns
Full Well Capacity (NABG)	~100,000 e-
Dark Current	$1e^-$/pixel/sec at 0° C
Antiblooming	Standard (non ABG as option)

Readout Specifications	
Shutter	Electromechanical
Exposure	0.11 to 3600 sec., 10ms resolution
Correlated Double Sampling	Yes
A/D Converter	16 bits
A/D Gain	2.3e- /ADU
Read Noise	15e- RMS
Binning Modes	1 x 1, 2 x 2, 3 x 3
Pixel Digitization Rate	Up to 420,000 pxels per second
Full Frame Acquisition	~3.7 seconds

Optical Specifications (8" f/10)	
Field of View	24 x 16 arcminutes
Pixel Size	.9 x .9 arcseconds
Limiting Magnitude	Magnitude 14 in 1 second
(for 3 arcsec FWHM stars)	Magnitude 18 in 1 minute

System Specifications	
Cooling - standard	Single Stage Thermoelectric, Active Fan, Water Assist Ready -45 C from Ambient Typical w/water
Temperature Regulation	±0.1°C
Power	5 VDC at 1.5 amps, ±12 VDC at 0.5 amp desktop power supply included
Computer Interface	USB
Computer Compatibility	Windows XP, Mac OS-X
Guiding	Dual CCD Self-Guiding

Physical Dimensions	
Optical Head	5 inches dia. x 3 inches 12.5 cm dia. x 7.5 cm deep, 2 pounds/0.9 Kg
CPU	All electronics integrated into Optical Head, No CPU
Mounting	T-Thread, 1.25" and 2" nosepieces included
Backfocus	0.92 inches/2.3 cm

Prices and specifications are subject to change without notice