



QHY294C

11.6 Megapixel 4/3-inch, Back-Illuminated Color CMOS Camera



Back-Illuminated / High QE Sensor

The QHY294C camera uses a Sony IMX294, 4/3-inch, back-illuminated, cooled, color CMOS sensor with 11.6 Megapixels, 14-bit A/D and 1e- read noise at highest gain. The QHY294C full well capacity is nearly 65,000 electrons with 4.63um x 4.63um pixels, almost the same as an interline CCD camera with 9um pixels. Sony estimates that the back-illuminated design is about 2X as sensitive as a comparable front-illuminated sensor. We estimate the peak QE, including filters, is approximately 75%.

High Resolution Frame Rates

The QHY294C produces 16.5 frames per second at high resolution with 14-bit A/D. Higher rates are achieved for regions of interest, for example, 41 FPS at 1080 lines (up to 290 FPS for small regions).

Low Dark Current 0.005e-/p/s @ -20C

The QHY294C uses QHYCCD's proprietary low dark current control technology. This technology significantly reduces the dark current noise in our CMOS cameras. The QHY294C has very low dark current as a result, lower than many CCD cameras, allowing for very long exposure times.

Dual Gain Auto Switch - HGC/LGC MODE Boosts Low Light Performance

The QHY294C's CMOS sensor has a dual gain mode, HGC (high gain) and LGC (Low gain). The QHY294C will switch the two modes automatically when the gain is set to 1600 you will get the benefits of the ultra-low read noise (1e- to 1.6e-) of the HGC mode and a full well capacity of about 14.5ke- at the switch point setting.

Anti-Dew Technology

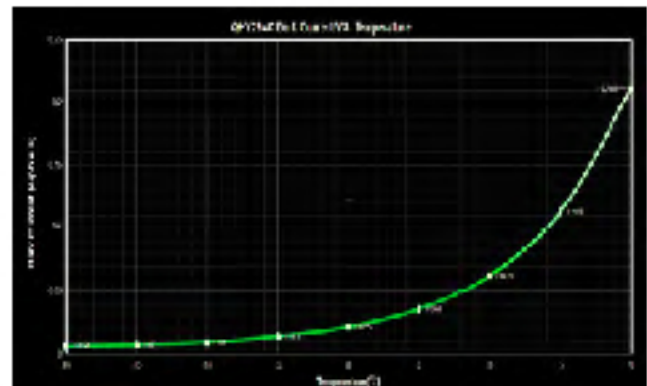
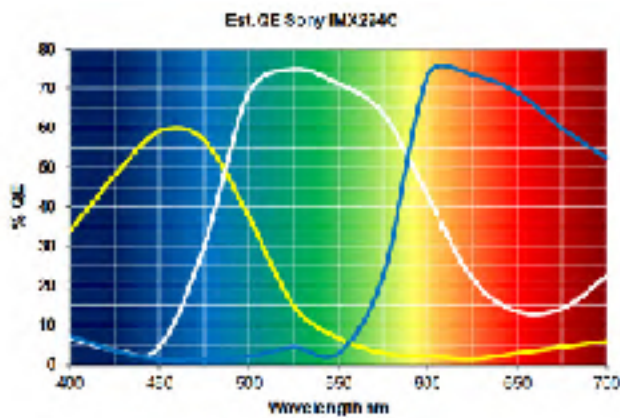
The QHY294C benefits from more than a decade of cooled camera design experience. QHYCCD has implemented full dew control solutions. The optical window has a built-in dew heater and the CMOS chamber is protected from internal humidity condensation.

Flexible Adapters

The QHY294C has the same body design and mechanical interface as the QHY163. It has a short back focal distance allowing the use of QHYCCD's 0.5mm-27mm spacers (step size 0.5mm) for flexibility in setting up your optical train.

256MB DDR3 Image Buffer

The QHY294C has an internal 256MByte high speed DDR3 image buffer. This is more than enough for one frame and it significantly reduces any issue of lost frames due to a busy computer CPU or slow USB communication packet errors.



		QHY294C	
Sensor	Sony IMX294 Back-Illuminated CMOS	Peak QE	75%
Optical Format	Typical 4/3-inch	Read Noise	1.0e-to 1.6e-HGC, 4.2e-to 6.8e-LGC
Sensor Size	19.28 mm x 12.95 mm	Dark Current	0.005e-/p/s@-20C
Pixel Size	4.63 um	Full Well	65ke-
Effective Pixels	4164 x 2796, 11.6 Megapixels	Cooling / Delta T	2-stage TEC, -30 to -35C Regulated
A/D	14-bit (output as 16-bits and 8-bits)	Mechanical	M42/0.75 female thread
Shutter	Electronic Shutter	Weight	650g
Exposure Time	60us-3600 sec	Frame Rate FF/ROI	16.5FPS FF to 290 FPS ROI
Computer	USB3.0	Reference Price	999 USD (not including tax)
Non-volatile memory In-camera storage	100 Kbytes user-accessible space for stellar ROI frames for analysis of exoplanet investigation, occultations, atmospheric seeing measurement, focus, optical analysis etc. 100*100 image x 10frames, 50*50 image x 40 frames, 25*25 image x160 frames,10*10 image x 1000 frames.		