# SCION CORPORATION   CFW-1600

The CFW-1600 family of FireWire digital cameras provides cost effective solutions to a variety of scientific imaging applications. These 2 MPixel cameras are well suited for bright-field, dark field, and fluorescence imaging situations. All CFW-1600 cameras come complete with software and a full 30-day money-back guarantee of satisfaction. Call us to discuss how a CFW-1600 camera can help in your imaging application.

CFW-1600 Models

Model	Sensor	Depth	MSRP
CFW-1612C	1/1.8" Color CCD	12 Bits	$2495
CFW-1610C	1/1.8" Color CCD	10 Bits	$2195
CFW-1608C	1/1.8" Color CCD	8 Bits	$1895
CFW-1612M	1/1.8" Mono CCD	12 Bits	$2495
CFW-1610M	1/1.8" Mono CCD	10 Bits	$2195
CFW-1608M	1/1.8" Mono CCD	8 Bits	$1895
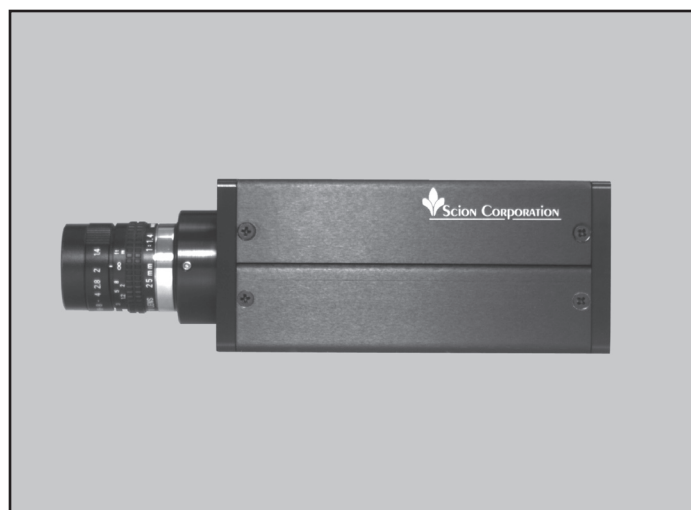
Features

- Simple to use FireWire (IEEE-1394) computer connection
- 1600 x 1200 image resolution in 8, 10, or 12 bit depth
- Frame rate of 10 frames per second (30 fps preview mode)
- Based on Sony ICX-274 CCD sensor
- Exposure to 100 seconds for low-light applications
- Analog Gain (36 dB range), RGB gains (6 dB range)
- Variable read-out rates for precision low-noise images
- FireWire cable included
- Free software for Windows and OS X included
- Full 30-day money-back guarantee of satisfaction

Applications

- General bright-field or dark-field video microscopy
- Fluorescence microscopy
- Ethidium bromide electrophoretic gel documentation
- Pathological, histological, and cytological imaging
- Failure analysis
- Metallurgical and mineralogical microscopy
- Motion and motility analysis
- Semiconductor wafer inspection
- Forensic analysis
- Sequence and time-lapse imaging

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Easy to Use

Scion CFW-1600 FireWire cameras are very easy to use. All that is required is a FireWire port on your computer. All necessary cabling and software is included. Simply hook the camera to the computer with the FireWire cable, plug the power transformer into the wall, and install the software. One can be imaging within 5 minutes of opening the box.

The software provided with the CFW-1600 cameras is intuitive and straightforward. Whether using The Scion VisiCapture application, the TWAIN module, or the Image/J plug-in, the user interface is consistent, and all software features are present. The cameras and the software operate identically on both Windows and Mac OS X platforms. Free technical support, whether by telephone or email, is provided for the life of the camera.
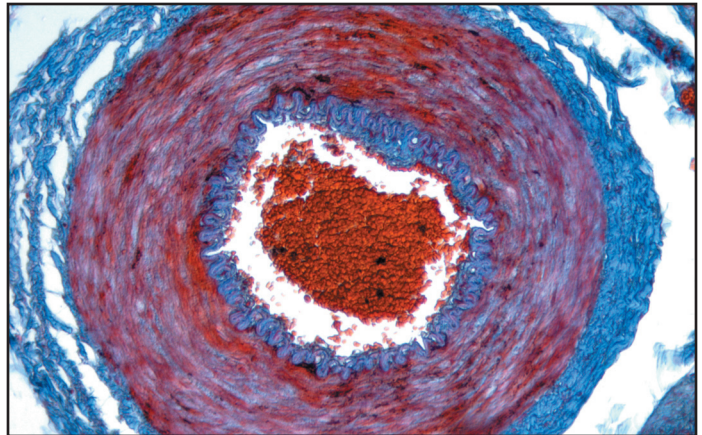
Quantitative Quality

CFW-1600 cameras are designed with quantitative performance in mind. They use Charged Coupled Device (CCD) sensors, instead of the CMOS sensors usually found in cameras in this price range. CCD sensors enable capture of lower noise images than CMOS sensors and provide greater dynamic range. Having a camera with a CCD sensor is particularly important in low-light and fluorescence applications.

In addition, CFW-1600 cameras provide a user selectable low-noise readout mode. This mode increases the readout time per pixel and employs a low pass filter in the digitization circuitry to reduce readout noise, providing highly accurate images. Another factor which improves image quality is the all aluminum case design which minimizes environmental electrical interference.

Excellent Value

Scion CFW-1600 FireWire Cameras provide excellent value for the scientific professional. Cameras comparable in features and specifications with the CFW-1600 cameras typically retail for far more -- up to twice the price of a CFW-1600 or greater. The are no extras to purchase with Scion digital cameras. Software is included at no charge, technical support is always free, and software development kits are provided with the camera. Additionally, Scion's 30-day money-back guarantee insures satisfaction.

Scion Corporation is committed to remaining a value leader in the field of scientific imaging. Scion forgoes expensive advertising campaigns and costly trade shows in order to provide a superior product at the lowest possible cost. The CFW-1600 family of cameras can help you to stretch your research budget.

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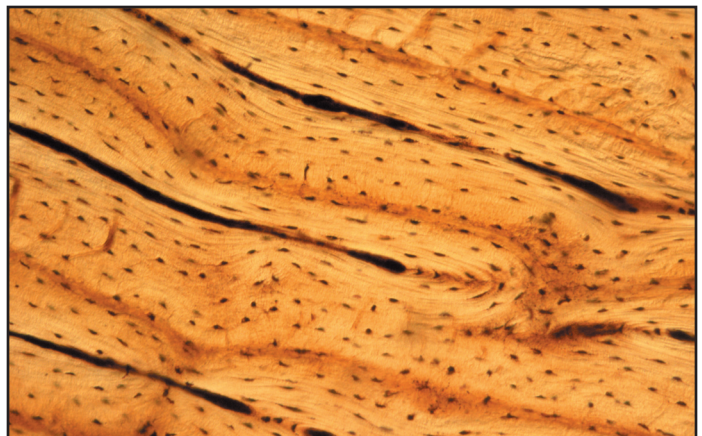
Special Features

The CFW-1600 family of cameras has several special features of design and construction that help to produce images of superior quality. To start with, the optical components of each camera are assembled in a Class A clean environment and is then checked for contaminants using a laser inspection system. There are also other manufacturing techniques which indicate the care with which the CFW-1600 cameras are designed and constructed.

For example, the CCD sensors in most cameras are mounted such that the front surface of the sensor is aligned perpendicular to the optical axis. However, the actual semiconductor wafer in the sensor is generally guaranteed to be aligned with the rear surface of the sensor package. Scion uses a spring plate design to ensure that the rear surface of the sensor package is aligned perpendicular to the optical axis.

Another design choice of the CFW-1600 family of cameras involves the alignment of the center of the CCD sensor with the optical axis. It is important the center of the sensor be precisely aligned with the optical axis for best image results. Unlike other cameras in this price range, the sensor in each CFW-1600 camera is precisely aligned to the optical axis using precision set screws. Once the sensor is aligned, it is permanently sealed in place to prevent future shifting.

Software Support

The user of a CFW-1600 camera has varied software options on both Microsoft Windows and Apple Macintosh platforms. First is Scion's own VisiCapture application. VisiCapture is a stand-alone application which provides full capabilities for acquiring and saving images. It allows for complete control of image properties such as gain and black level, color balance, camera readout rate, exposure time, and gamma. Images can be saved in TIFF and BMP formats.

Also included are TWAIN modules for both platforms. TWAIN is a standard interface for image acquisition used by many third party software applications such as Adobe Photoshop. The TWAIN modules allow viewing of live video and capture of images within these third party applications. The capabilities and operation of the TWAIN modules are very similar to Scion VisiCapture.

Full plug-in support for Image/J is included as well. Image/J is a popular, sophisticated Java based image analysis package developed at the National Institutes of Health and available for free. Full support is provided for the CFW-1600 cameras in Image/J via included plug-in modules. Also available are plug-in modules for capturing sequences of images and for time-lapse acquisition. Finally, a software development kit is included with the cameras at no charge for those developing software.

Mechanical Drawing

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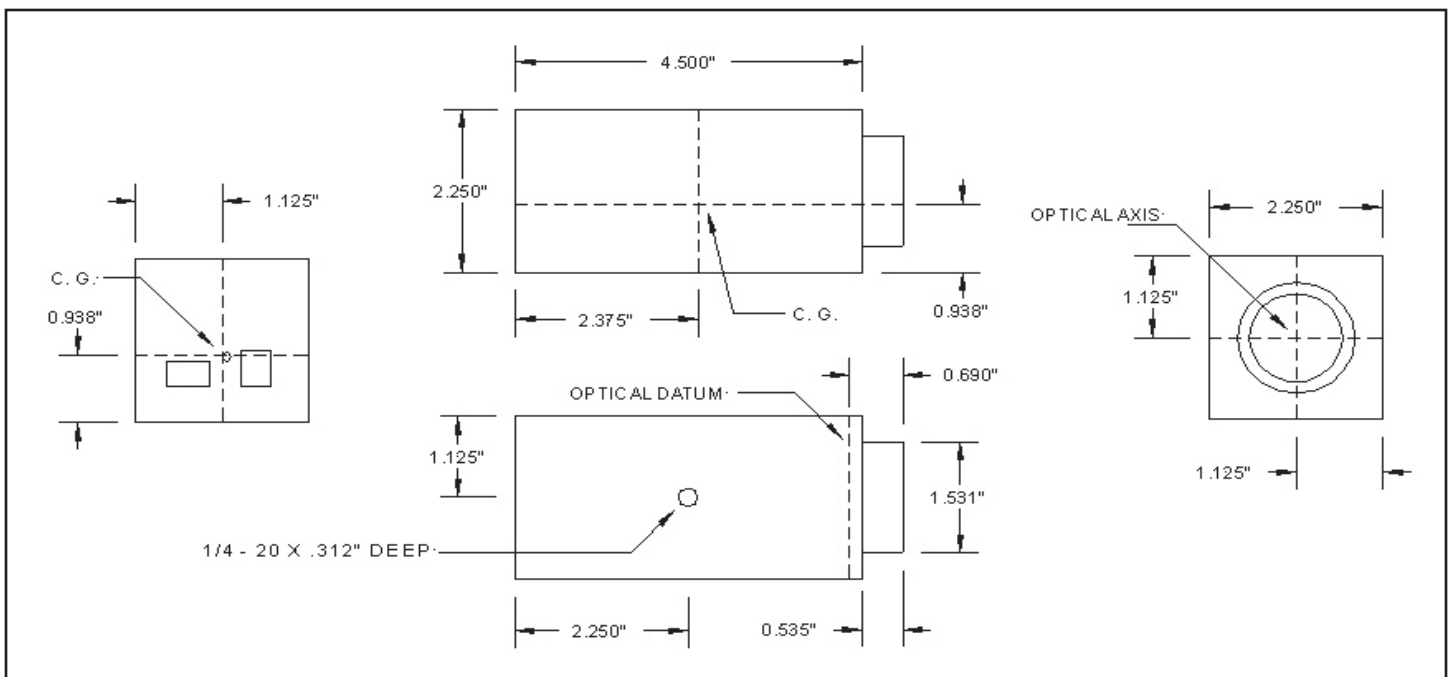
Specifications

	CFW-1612C	CFW-1610C	CFW-1608C	CFW-1612M	CFW-1610M	CFW-1608M
Image Sensor	Sony ICX274AQ	Sony ICX274AQ	Sony ICX274AQ	Sony ICX274AL	Sony ICX274AL	Sony ICX274AL
Image Format	1/1.8" Bayer Color CCD	1/1.8" Bayer Color CCD	1/1.8" Bayer Color CCD	1/1.8" Mono CCD	1/1.8" Mono CCD	1/1.8" Mono CCD
Sensor Size	8.50 mm x 6.80 mm	8.50 mm x 6.80 mm	8.50 mm x 6.80 mm	8.50 mm x 6.80 mm	8.50 mm x 6.80 mm	8.50 mm x 6.80 mm
Pixel Size	4.40 um x 4.40 um	4.40 um x 4.40 um	4.40 um x 4.40 um	4.40 um x 4.40 um	4.40 um x 4.40 um	4.40 um x 4.40 um
Pixel Resolution	1600 x 1200	1600 x 1200	1600 x 1200	1600 x 1200	1600 x 1200	1600 x 1200
Pixel Depth	12 bits	10 bits	8 bits	12 bits	10 bits	8 bits
Pixel Read Rate	28 MHz/ 14 MHz / 7 MHz	28 MHz/ 14 MHz / 7 MHz	28 MHz/ 14 MHz / 7 MHz	28 MHz/ 14 MHz / 7 MHz	28 MHz/ 14 MHz / 7 MHz	28 MHz/ 14 MHz / 7 MHz
Frame Rate	Up to 10 fps	Up to 10 fps	Up to 10 fps	Up to 10 fps	Up to 10 fps	Up to 10 fps
S/N Ratio	67 dB	67 dB	67 dB	67 dB	67 dB	67 dB
Quantum Efficiency	42%	42%	42%	42%	42%	42%
Sensitivity	4050 e/p/s	4050 e/p/s	4050 e/p/s	4050 e/p/s	4050 e/p/s	4050 e/p/s
Power	15 V	15 V	15 V	15 V	15 V	15 V
Current	400 mA	400 mA	400 mA	400 mA	400 mA	400 mA
Operating Temp	0 C - 40 C	0 C - 40 C	0 C - 40 C	0 C - 40 C	0 C - 40 C	0 C - 40 C
Storage Temp	-20 C - 80 C	-20 C - 80 C	-20 C - 80 C	-20 C - 80 C	-20 C - 80 C	-20 C - 80 C
Operating Humidity	90% Relative Humidity	90% Relative Humidity	90% Relative Humidity	90% Relative Humidity	90% Relative Humidity	90% Relative Humidity

Spectral Response - Mono Models
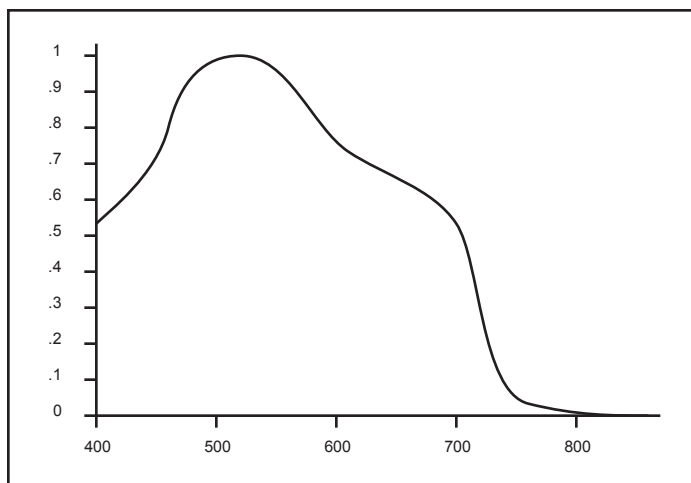
Spectral Response - Color Models
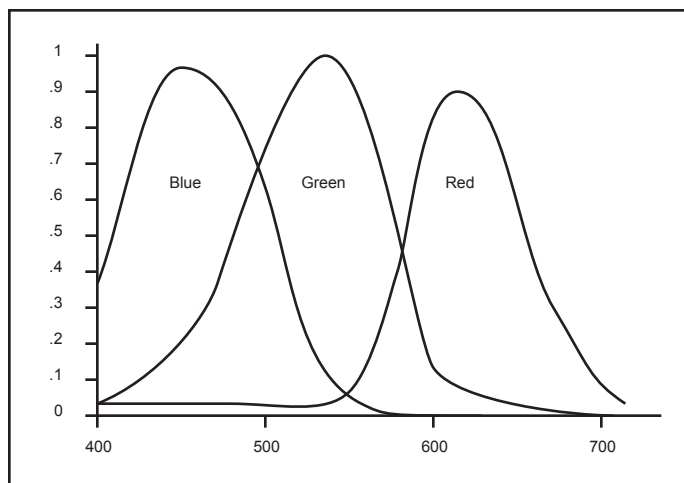
About Scion Corporation

Since 1991 Scion Corporation has been manufacturing imaging products for the scientific marketplace. It is our goal to provide quality products that will not strain your research budget.

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System Requirements

The CFW-1600 family of cameras are compatible with personal computers running Windows 2000, Windows XP, or Mac OS X. The computer requires a IEEE-1394 port, also known as FireWire.

Effective frame rate is computer dependent. At least 256 Mb of RAM is recommended for best performance. Requires Mac OS X 10.4 or higher, Windows 2000, Window XP, or Windows Vista.