

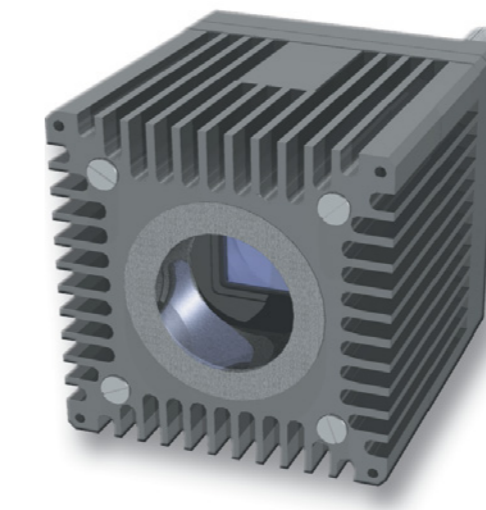
# CC-12

High-sensitivity, digital CCD color camera



[www.soft-imaging.net](http://www.soft-imaging.net)

**Giving you a great start in the digital world!**



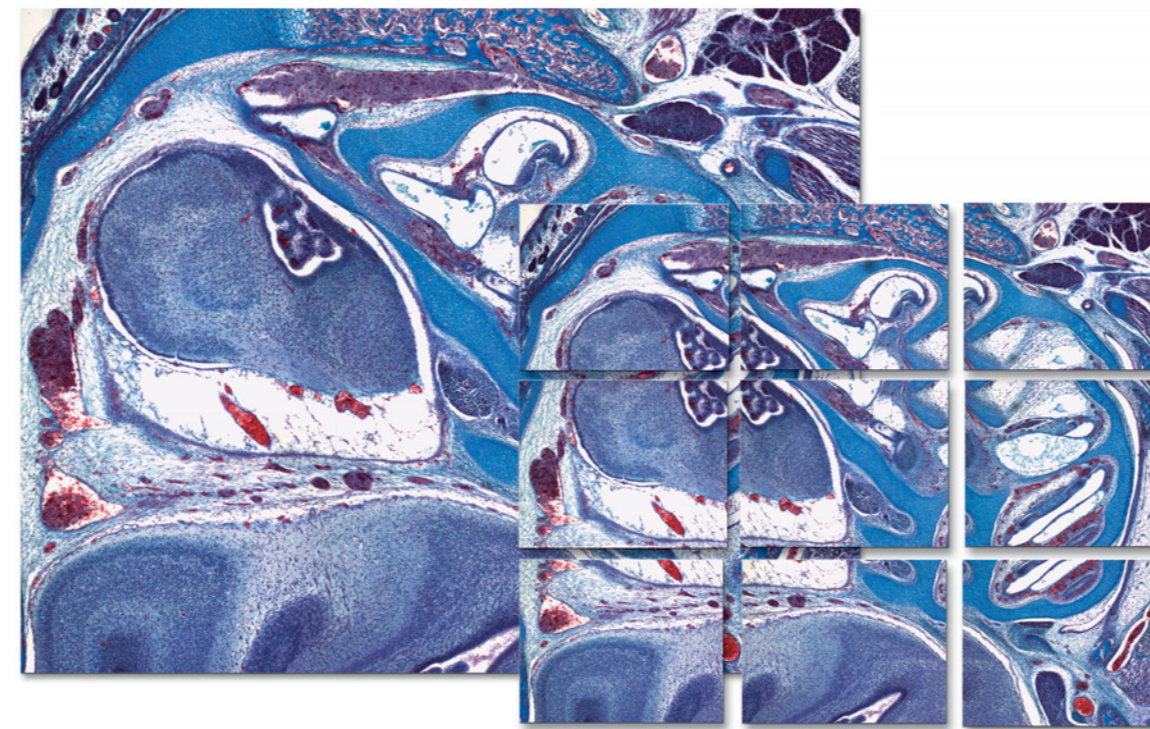
The **CC-12** ("ColorCube") is a high resolution 12-bit CCD color camera for use with any and all light microscopy applications.

The "**ColorCube**" is Peltier-cooled and powered by FireWire™ technology (IEEE 1394). And it provides an optimal signal-to-noise ratio even at low illumination levels.

The "**ColorCube**" is fully integrated into the **analySIS**® image-analytical software.

**A growing family!**  
Digital cameras by Soft Imaging System.

Digital Solutions for Imaging and Microscopy  
Soft Imaging System 



#### CC-12 and mia

Automatic pattern recognition means you can use mia to montage multiple component images acquired with the **CC-12** into a single, high-resolution image.

This is tremendously useful, eg. when you wish to display a sample in its entirety at high resolution but the microscope is only capable of showing a portion of the sample at such high resolution. All you need to do is define image size and resolution. The rest is taken care of automatically.

#### Specifications

- resolution: 1376 x 1032
- binning: 2x
- cell size: 6.7 x 6.7 µm
- effective area: 8.6 x 6.9 mm (2/3")
- pixel clock rate: 20 MHz
- ADC clock rate: 20 MHz
- dynamic range: 12 bit
- exposure time: 100 µs to 160 s
- frame rate\*: > 22 Frames/s @ 2x Binning
- cooling element: Peltier-Cooling, 10 °C @ 25 °C ambient
- temperature monitor: CCD chip & Housing
- temperature stabilized: yes; ± 0.5 °C
- readout noise: < 1 count @ 20MHz
- non linearity: < 0.6%
- anti-blooming: > 1000
- dimensions: 60 x 60 x 60 mm
- weight: 285 g
- camera mount: standard C-mount
- firmware: Flash EEPROM
- PC interface: FireWire™ (IEEE 1394)

Depending on options, **analySIS**® expansion level and camera:

- real-time automatic contrast control
- real-time automatic white balance

\* Camera test conducted on a typical Dual CPU PC configuration. The camera resolution setting and the speed of the PC used will directly affect the frame rate.

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#### Online

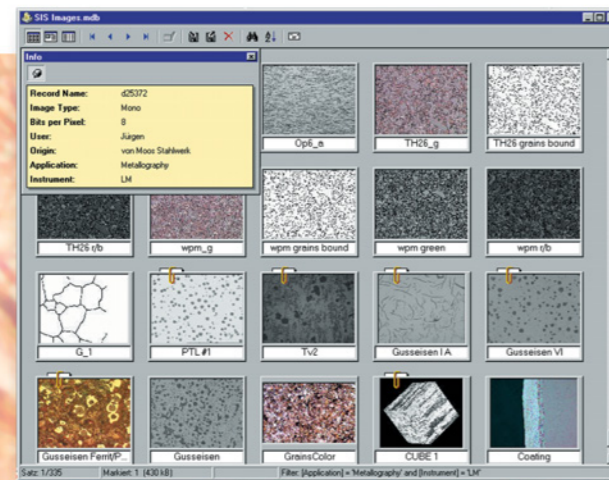
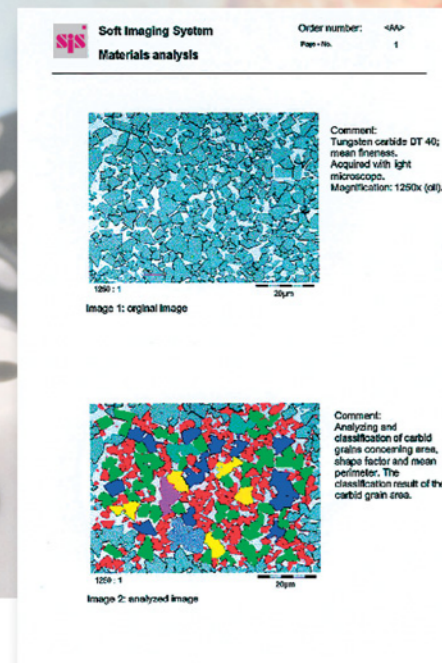
email:  
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Website  
[www.soft-imaging.net](http://www.soft-imaging.net)



#### Archiving

**analySIS**® offers you a powerful, fully network-able, image-archiving system that handles all the images and data generated during the process of image acquisition and documentation. Images can be stored along with text, sheets and other graphics as records for complete documentation of tasks and processing steps. Input, display and query masks can be defined independently.



#### Automatic report generation

Now you can produce multi-page reports quickly and efficiently. Select multiple images in the image database and insert them all into the report via a single command. In addition to the images themselves, you can have information from any database field automatically included in reports. Automatic scaling, detail zooms, and more – all available to optimize the way you work with images. All documents generated using the **analySIS**® software can be inserted into reports. Use the report generator to print out images, related measurement sheets, and diagrams – all on the same page. This report generator provides you with the utmost flexibility for page layout and design. You set up your own templates exactly the way you want them to be. Templates need to be created just once. Templates are what your reports are based on and ensure that the appearance of your documents is uniform. Use the RTF Export function to export your reports to MS Word for continued editing.

**What a plus!** CC-12's full integration into **analySIS**®

#### ■ Real-time functions

**CC-12** is fast. Put this in combination with the high speed of today's CPU's, and you've got an attractively broad range of real-time functions within **analySIS**® available to you. These include automatic contrast control, automatic white balance and histogram display.

#### ■ Analyzing images

A vast library of text, graphic and editing functions is available for labeling images. Special filters and professional particle analysis assist in more extensive investigation of images. All this makes it simple to obtain reliable and reproducible results quickly.

#### ■ No more darkroom

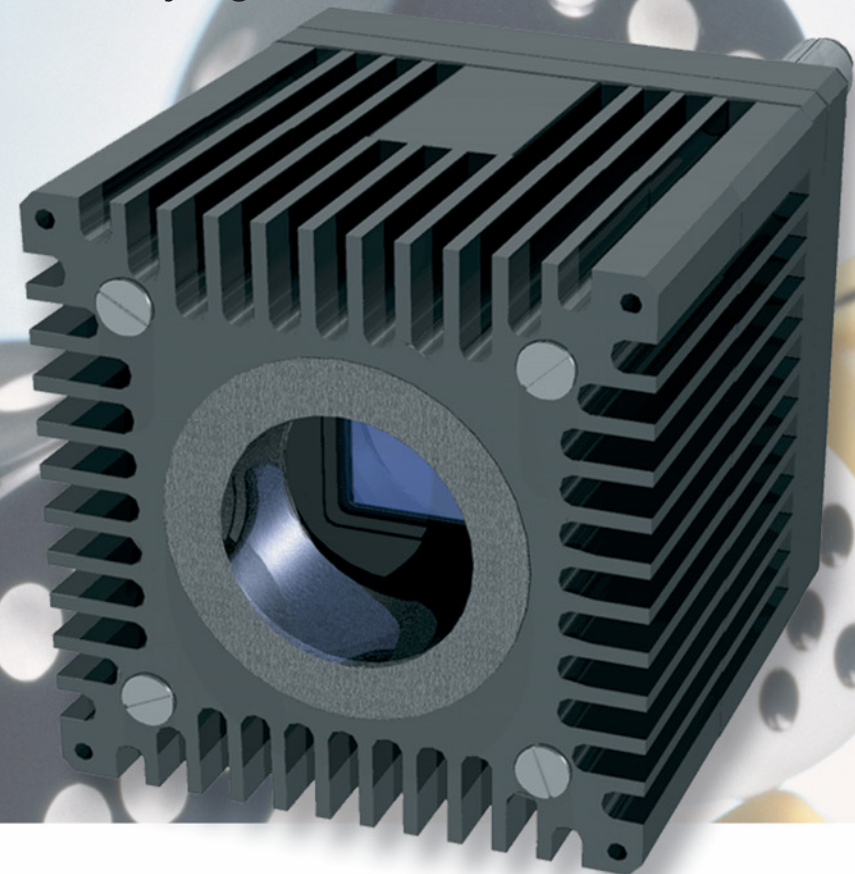
Photo-quality printouts can be obtained following acquisition without any need for a darkroom nor its developing chemicals. And these photo-quality printouts are in your hands in minutes.

#### CC-12 and **analySIS**® –

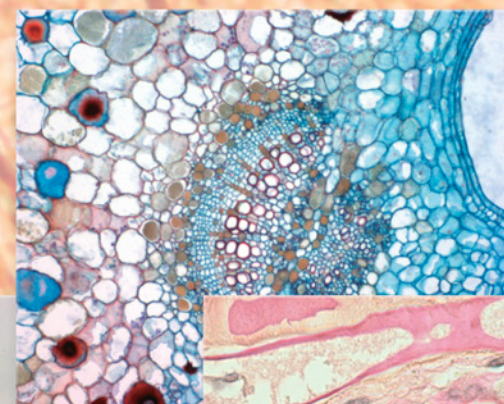
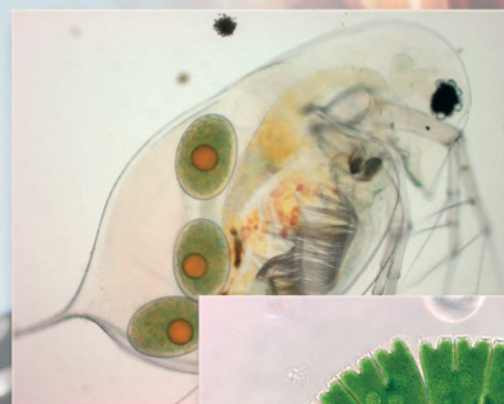
**Giving you the tools from tomorrow for the tasks of today!**

# CC-12

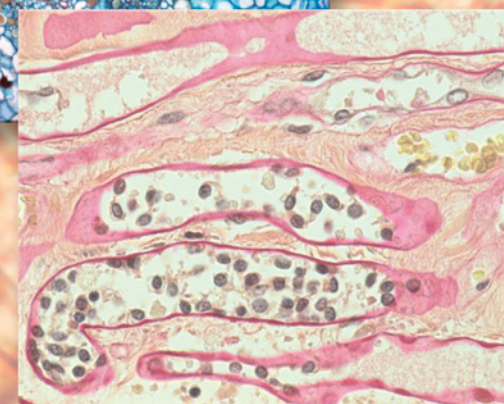
High-sensitivity, digital CCD color camera



CC-12 mounted onto Olympus BX60F  
daphnia longispina (long-spined water flea) with eggs



CC-12 mounted onto Olympus BX60F  
stem axis of tulipa gesneriana (garden tulip)  
vascular bundle in parenchymatous pith of stem  
alcian blue-safranin staining; nonlignified cell walls are blue; lignified cell walls are red



CC-12 mounted onto Olympus BX60F  
Neoflabellina (species of marine protozoa)



CC-12 mounted onto Olympus BX2  
chip structure



CC-12 mounted onto Olympus BX60F  
micrasterias rotata (a desmid - single-celled green algae)

CC-12 mounted onto Olympus BX60F  
Kidney



CC-12 mounted onto Olympus AX70  
protective lacquer coating



CC-12 mounted onto Olympus AX70  
carbon fiber

## Digital Solutions - Developed to be exceptional!

The series of light microscope cameras by Soft Imaging System has been designed to meet the highest digital-imaging acquisition demands for all areas of the microscopy field.

The **CC-12** is the successor to the **ColorView 12**. This 12-bit, Peltier-cooled and FireWire™(IEEE 1394) equipped color digital camera is the ideal introduction to digital image acquisition in the field of light microscopy.

All functions of the camera can be completely controlled and operated via the **analySIS**® image-analytical software. No matter what current acquisition conditions are, real-time functions guarantee that the entire dynamic

range is taken advantage of. This ensures the user optimal contrast all the time.

Following acquisition, **CC-12**'s total integration into **analySIS**® provides the full range of options and advantages of the latest in image processing and analysis, from image labeling to archiving, report generation and e-mailing all the way on to photo-realistic printouts – and there's no more need for the darkroom.

### ■ High Resolution

The **CC-12** camera has a resolution of 1376 x 1032 pixels. This is three times greater than that of a regular video camera.

### ■ A camera that's low-noise and cooled

Highly efficient readout technology (Correlated Double Sampling) coupled with Peltier-cooling of the CCD chip results in images of superior signal-to-noise ratio.

### ■ Variable exposure times

Highly sensitive CCD elements are even capable of detecting signals that are extremely weak. The electronic shutter offers variable exposure times ranging from 100 µs to 160 seconds.

### ■ High frame rate

The high speed ADC (Analog-Digital Converter) working at a clock rate of 20 MHz in full 12-bit dynamic range is able to perform double sampling even at a readout rate of 20 MHz. Various frame rates are supported by this camera. For example, the camera can be set to acquire at a high frame rate of more than 22 fps at TV resolution using 2x binning. View your zoomed-in sample, locate the area of interest and focus – all conveniently onscreen. No longer are you forced to trade off speed for quality. For acquisition the system switches automatically into the high-resolution mode. This avoids bleaching of your fluorescence specimen and offers optimal performance when setting parameters.

### ■ FireWire™ Interface (IEEE 1394)

FireWire™ technology guarantees that the **CC-12** installation is easy on any PC or laptop equipped with a FireWire™ port. The days when you were limited to a frame grabber and just a single camera are history. FireWire™ technology enables you to use multiple cameras on the same PC.

### ■ Peltier-Cooling

Image noise is generally the result of one of two things: either the CCD chip is not being cooled to a low enough temperature (known as "dark current"), or due to mechanical vibrations. For the **CC-12**, thermal noise and instability is not a problem because the CCD chip

is Peltier-cooled and stabilized at 10°C, resulting in a very high signal-to-noise ratio. Noise is further suppressed by the application of a highly efficient digital readout technique known as Correlated Double Sampling.

### ■ Installation is easy

The **CC-12** can be mounted onto all light microscopes with a C-mount adaptor. Plus, you only need one cable for getting data and power to the PC's FireWire™ port. No more clutter and no 'octopus' of cables getting in your way.