

SV9M001M Monochrome Camera

SV9M001C Color Camera

Exceptional Image Quality Small Size – Low Cost



- 1280 x 1024 8-bit capture @ 43 fps
- Compact Camera Head
- PIXCI® SI Digital Frame Grabber
- 7 Foot Interface Cable (default)
- Infrared Cut Filter (9M001C)
- XCAP-Lite Imaging Program
- Camera Integration and Reset Control
- Sequence Save (XCAP-Ltd or Std)
- Triggered Sequence Capture
- 132 MB/s Burst Transfers
- PCI Bus: 32 or 64 bit, 3.3 or 5 volt
- Compatibility: Win VISTA, XP, 2K, NT, ME, 98, 95, 32-bit DOS & LINUX

SILICON VIDEO® 9M001M and 9M001C CMOS camera systems offer the advantages of high resolution progressive scan image capture, low noise digital signaling, small size, flexible interface cable, convenient software control, the availability of extensive processing, measurement, and analysis capabilities, and low cost. The SV9M001M is a 10-bit monochrome camera. The SV9M001C is a 10-bit Bayer Pattern color camera. XCAP software provides control of all camera operations.

SENSORS BY APTINA – SILICON VIDEO® 9M001M/C cameras are based on the MT9M001 CMOS sensor from Aptina. This progressive scan sensor offers an electronic rolling shutter, continuous and single frame capture, windowing, column and row skip modes, snapshot mode, 10 bit dynamic range, and an active programmable array resolution of 1280 x 1024 pixels.

ASYNCHRONOUS CAPTURE with STROBE OUTPUT – The SV9M001 cameras offer Asynchronous Capture: the recording of an image (or images) in response to a trigger signal. The cameras also provide a strobe output signal to synchronize an electronic flash (strobe), for bright, uniform, short duration illumination. The SV9M001 cameras can be triggered to capture an image (or images) as might be required in product inspection, laser beam profiling, medical imaging, or any application that requires image capture at a specific time (there is a delay of one frame time between trigger and start of frame capture). The optional use of strobe illumination allows minimum exposure time with maximum image sharpness.

ONLY ONE CABLE – One cable connects the SILICON VIDEO 9M001M/C camera head to the PIXCI SI board. The PIXCI SI (Serial Interface) board provides power to the camera, sends and receives camera control signals, generates the programmable pixel clock, and receives video data. No dedicated power supply or power cable required.

CAPTURE & ADJUST DIALOG – The XCAP Imaging Application provides a Capture & Adjust Dialog for selecting pixel clock frequency, integration/exposure time, capture resolution, gain, offset, trigger control, and more. The color camera dialog provides automatic white balance as well as manual adjustment of Red, Green, and Blue gain.

The SILICON VIDEO 9M001M and 9M001C camera systems include the following items:

- Camera Head (B&W or color)
- Infrared Cut Filter (color camera)
- Shielded Interface Cable (various lengths)
- PIXCI SI PCI Image Capture Board
- XCAP-Lite Imaging Program (XCAP-Ltd or Std Optional)

To complete the system add 1/2" format C-Mount lens, analysis software, lighting, and computer – all available from EPIX, Inc., or from your authorized EPIX, Inc. distributor.

SV9M001M/C CMOS Digital Cameras

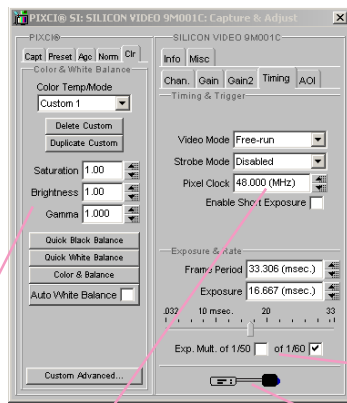
CAMERA CONTROL FROM SOFTWARE

SV9M001M / SV9M001C Capture & Adjust Dialogs

The XCAP Imaging Program simplifies camera operation with a dedicated Capture & Adjust Dialog. The Capture & Adjust Dialog provides one convenient location for camera controls such as exposure, resolution, triggering, color balance and frame rate. In addition, the SV9M001M/C Dialog provides a camera-to-computer communication indicator, a programmable pixel clock, and exposure synchronized to AC power frequencies.

The Color & White Balance menu offers simple color balance settings for common sunlight, fluorescent light, and incandescent light conditions. In addition, for greater color precision, or for unusual light sources, XCAP offers advanced options for building custom color settings.

The camera's pixel clock frequency is user-selectable over a range of 25 MHz to 70 MHz. The programmable pixel clock



provides a wider range of frame rates and exposure times.

The intensity of AC lighting fluctuates with the phase of the AC voltage that powers it. Capturing sequences of images using arbitrary frame rates with AC lighting will result in images with differing brightness. The SV9M001M/C Capture & Adjust Dialog offers a convenient fix for this problem — exposure times can be easily set to multiples of the local AC line frequency, either 1/50th or 1/60th second. Synchronizing exposure times to the line voltage

provides images with consistent illumination from a varying-intensity AC light source.

The presence or absence of the 2 lines between the camera and computer icons indicate whether or not the computer and camera are properly connected and capable of communicating.

CONFIGURATIONS & PRICING

SI-SV9M001C-7FT	SV9M001C CMOS color camera head, lens mount <i>with</i> infrared cut filter, PIXCI SI imaging board, 7 foot cable, tripod mount, XCAP-Lite Imaging Program.	\$1095.00
SI-SV9M001M-7FT	SV9M001M CMOS monochrome camera head, lens mount <i>without</i> infrared cut filter, PIXCI SI imaging board, 7 foot cable, tripod mount, XCAP-Lite Imaging Program.	\$1095.00
TTL-MODULE	Allows TTL level trigger input signal and produces TTL level strobe output signal.	\$ 130.00

Infrared (IR) Cut Filter: The CMOS sensor is more sensitive to infrared wavelengths than a CCD sensor. Infrared sensitivity skews color fidelity. An IR cut filter attenuates (reduces) the CMOS sensor's response to infrared light while improving color fidelity. IR cut filters are supplied with all SV9M001C CMOS color cameras. The SV9M001-OPT-MNTNOF (\$25.00) allows operating a color camera without an IR cut filter.

NO (IR) Cut Filter: Enhanced infrared sensitivity is often an advantage. EPIX does not provide an infrared cut filter with an SV9M001M monochrome camera in order to maximize the camera's infrared sensitivity. The SV9M001-OPT-MNTIRCF (\$50.00) allows operation of the monochrome camera WITH an IR cut filter.

Available Cable Lengths: 7', 10', 14', 25', 30' & 50' (2.1, 3, 4.2, 7.6, 9.1 & 15.2 meters).

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SPECIFICATIONS

Format: SV9M001C - Bayer Pattern Color
SV9M001M - Monochrome

Pixel Clock Range: 25 MHz - 70 MHz

FRAME RESOLUTION:

1280 (H) x 1024 (V) Maximum
4 (H) x 4 (V) Minimum

FRAME RATE EXAMPLES (8-Bit Mode)

Frame Resolution	Pixel Clock Frequency		
	25 MHz	48 MHz	70 MHz
1280 x 1024	15 fps	30 fps	43 fps
774 x 580	40 fps	77 fps	112 fps
640 x 480	55 fps	107 fps	155 fps
342 x 256	156 fps	290 fps	420 fps
1280 x 4	528 fps	1049 fps	1479 fps

Note: Pixel clock frequencies higher than 48 MHz may reduce image quality.

CAMERA HEAD:

Dimensions:

4.85 cm (H) x 3.84 cm (W) x 1.88 cm (D)
1.91" (H) x 1.51" (W) x 0.74" (D)

Weight: 73 Grams (2.6 Ounces)

Tripod Mount Positions:

Any 1 of the 4 sides: 1/4"-20 thread
(tripod mount attachment not pictured)

Lens: 1/2" optical format C-mount

PIXCI SI Board Dimensions:

12.7 cm (L) x 7.4 cm (H)
5.0" (L) x 2.875" (H) [short slot]

INTERFACE CABLE:

Shielded CAT-6 with RJ45 plugs.
Maximum Cable Lengths:
9.1M (30') at 70 MHz data rate.
15.2M (50') at 57 MHz data rate.

BUS REQUIREMENTS:

3.3 volt or 5 volt PCI slot.

APTINA CMOS MT9M001 Sensor

Resolution: 1280H x 1024V

Pixel Size: 5.2µm x 5.2µm

Responsivity: 2.1 V/lux-sec (monochrome)

EPIX SOFTWARE Support

<http://www.epixinc.com/products/index.htm>

Supported by XCAP-Lite (no charge with camera purchase), XCAP-Ltd, XCAP-Std, XCLIB, and XCLIBPL. Compatible with WIN VISTA XP, 2000, NT, ME, 98, 95, DOS and LINUX.

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