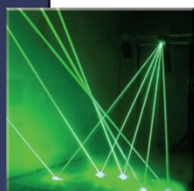
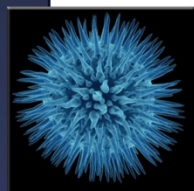
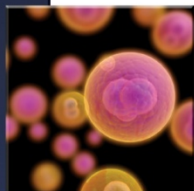




Precision CCD and EMCCD Cameras

SI-VGA60-EM

658x496 Pixel EMCCD Camera Ultra-Low Light Video Capture
60 Frames/Second Color and Monochrome Versions



Salvador Imaging's SI-VGA60-EM camera is a video rate high resolution monochrome camera providing unprecedented performance under a very wide range of lighting conditions from full daylight to extremely low light levels (overcast starlight). The electron multiplying CCD (EMCCD) sensor used in this camera provides programmable, solid-state gain to amplify the photon-generated charge before it reaches the readout amplifier, thus boosting the signal above the amplifier noise. The use of closed loop thermo-electric coolers significantly reduces dark current and dark current noise, enhancing the cameras ability to see in the dark. Both color and monochrome versions are available.

The camera provides a wide range of exposure times, from 500usec to several seconds, and provides onboard signal processing as well as programmable off-chip gain to further improve the image quality over a broad range of lighting conditions. Performance is assured through Salvador's characterization of each production unit using the Photon Transfer Curve method. Please visit our website for more technical information at - <http://www.salvadorimaging.com/character>

Applications

- Night Vision
- Surveillance
- Low Light Microscopy
- Bio Applications
- Airborne Imaging

Features

- 658x496 resolution, up to 60fps
- Ultra-low light sensitivity with on-chip gain of 1x-1000x
- Programmable 12-bit / 14-bit digitization
- 500:1 Anti-blooming
- Interline Frame Transfer architecture for on-chip shuttering
- Programmable operation (via serial port over Camera Link)
- Color or monochrome
- Ruggedized versions and remote head configurations available

Trigger Modes

- (Defined via serial commands)
- Free Run mode with defined integration time
- Trigger via Camera Link CC1 or SMA connector
- Positive going edge initiates integration
- Integration duration selectable:
 - Width of trigger pulse
 - Fixed to a programmed time duration
- Sync output pulse available on SMA (out)



Image Shown does not necessarily reflect "base" configuration

Specifications

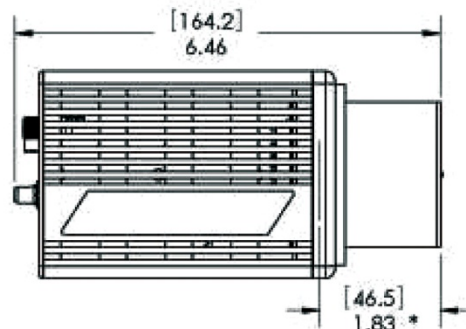
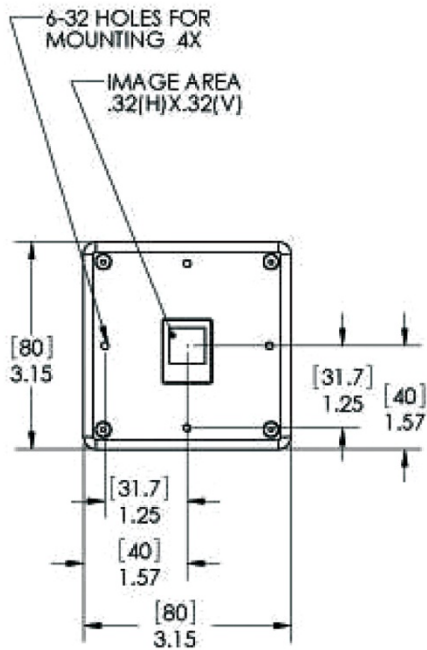
Resolution	658x496
Pixel size	10um x 10um
Sensor format	Interline Frame Transfer
Full well capacity @ 30 fps	28 ke (typical)
Amp noise @ 100 x gain	<1 e rms equivalent
Max. frame rate	60 fps
Pixel rate	25 MHz
Data format	Camera Link (see note 1)
Dark signal @ 0° C	1 pA/cm ²
Dynamic range	70 dB (see note 2)
Housing	Aluminum
Lens Mount	C-mount
Size (without lens)	3.15" x 3.15" x 4.51"
Weight	1.5 lbs
Operating Temp	0° - 40° C (see note 3)
Power supply	+22 VDC to +26VDC
Power dissipation	15 W @ 25C
Cooling	Integral TE cooler
Electronic Shutter	500usec –frame time

Note1: Consult Salvador for Firewire, GigE or NTSC configurations
Note 2: DR = 20Log(Sat. output signal)/(rms noise at pixel @ CMG gain = 100)
Note 3: Contact Salvador for ruggedized temperature or power conditions

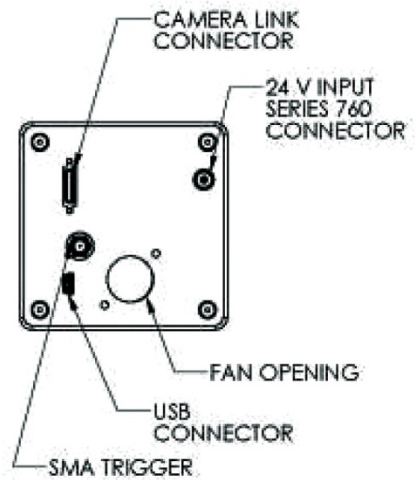
I/ O Connectors

Trigger/Sync	Selectable: Camera Link CC1 or SMA (in)
Data	Camera Link (Base Configuration)
Power	+22 to +26 VDC (or 110 VAC or 220 VAC with supplied AC/DC converter)
Programming	Serial port via Camera Link

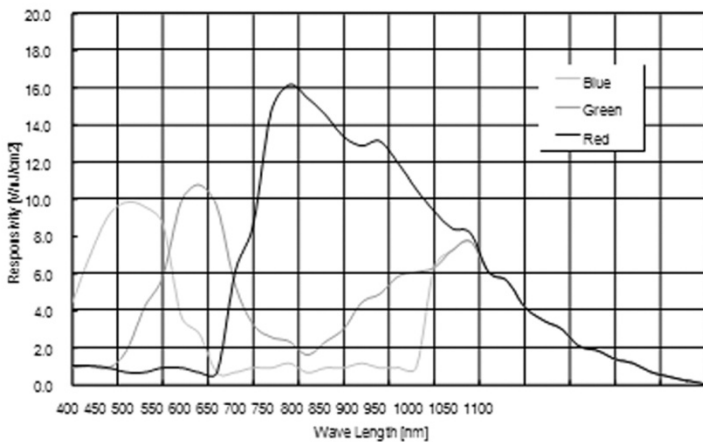
Package Drawing



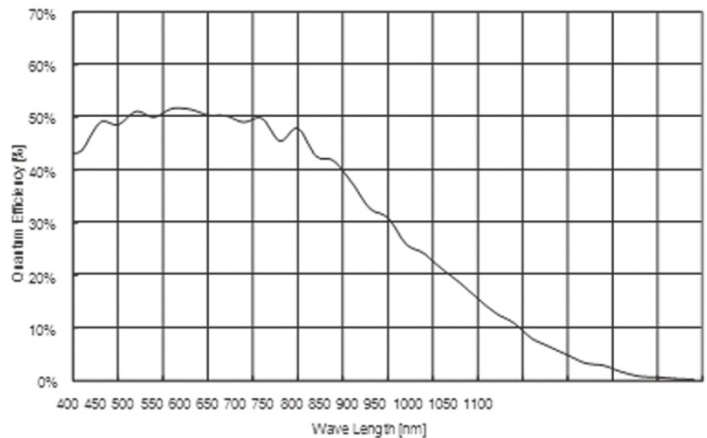
C-MOUNT AND F-MOUNT LENS AVAILABLE
F-MOUNT SHOWN



Units of measurement = inches
[Brackets = millimeters]
* =Optical distance



Typical Spectral Responsivity for Color Imager



Typical Spectral Quantum Efficiency for Monochrome Imager

About Salvador Imaging

Salvador Imaging's camera technology combines the low-noise and high resolution needed for true analytical measurements with the speed demanded in today's medical, commercial/industrial, and aerospace/military imaging systems.

Salvador offers standard products as well as fully custom designs to meet the needs of a broad range of markets. Applications for Salvador products range from semiconductor, printed circuit-board and flat panel inspection to medical imaging, biotech data capture, airborne mapping, low light security and surveillance, and burst mode ballistic imaging. Camera products typically incorporate low noise, precision analog design coupled with proprietary thermal stabilization (cooling) to provide unrivaled imaging performance. Features such as binning, area-of-interest and external synchronization are standard in many Salvador cameras. Salvador cameras are 100% inspected using the Photon Transfer curve and other techniques to verify that the technical specifications are achieved.

SI-VGA60-EM

Specifications and availability subject to change without notice – July 2008

10-10010-01-04

Precision CCD and EMCCD Cameras



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