



The Global Leader in Infrared Cameras

## ThermoVision SC6000<sup>®</sup>

The premier infrared solution for advanced industrial, scientific and military applications



- > Simultaneous Analog and Digital Data Output
- > Adjustable and Triggered Integration Times
- > Gigabit Ethernet, Camera Link<sup>™</sup> and USB
- > Selectable Preset Sequencing
- > Integrated IRIG-B Time Stamp
- > Optimized for ThermaCAM<sup>®</sup> RTools Software
- > Compatible with ThermaCAM RTools/HSDR



# ThermoVision SC6000® - Raising the bar for Scientific Infrared Cameras

*The ThermoVision SC6000 is the new standard for science and research thermal imaging and measurement applications. The rugged one-piece design and single cable PC connectivity creates a simplified system set-up without compromising the high performance features required by today's demanding IR user.*



## SC6000® Features

- FPA gain modes for low background applications
- Adjustable integration times
- FPA windowing capability for increased frame rates
- Built-in programmable delays
- Variety of external synchronization modes
- Dynamic range extension with super-framing
- SDK available

### High Performance Camera Head

Available with a 640 x 512 detector, the SC6000 camera line offers unmatched spectral sensitivity in multiple wave bands. Combined with an extremely sensitive detector and high speed design the camera provides extraordinary image quality for the most demanding applications.

### Multiple Wavebands

The SC6000 camera is available in various wavebands to cover imaging applications across the spectrum.

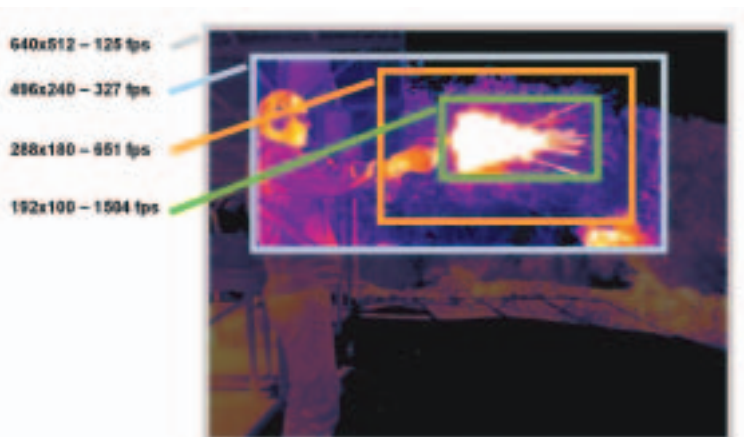
NIR	MWIR	LWIR
VisGaAs/InGaAs	InSb	QWIP

Working in multiple wavebands becomes simplified with the SC6000 as all cameras operate on a common hardware and software platform.

*\*There are also broadband options available that further expand the spectral capabilities of the SC6000 camera line.*

### High Speed Data Output

The SC6000 outputs 14-bit digital data at rates up to 50 Mega-Pixel per second, yielding 125Hz of 640 x 512 imagery. For high speed applications, increased frame rates can be achieved by windowing the focal plane array. The sub-sample window sizes and locations are easily defined using the camera control software.



*Example of SC6000 window sizes and corresponding frame rates.*

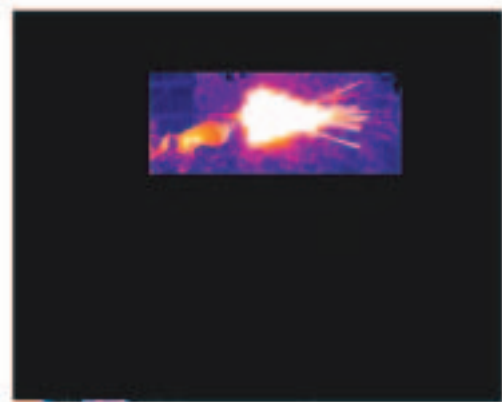


## Advanced FPA Features

The focal plane array (FPA) is the heart of any infrared camera system and a major determinant of overall system performance. The SC6000 FPA incorporates FLIR's own proprietary readout technology in the form of a standard CMOS integrated circuit (ROIC). FLIR's ROICs offer many advanced features, including snapshot simultaneous pixel exposure, adjustable gain, variable exposure times, windowing, invert/revert and precise external synchronization.

## Independent Digital & Analog Data Streams

The SC6000 has a built-in frame buffer for simultaneous and independent analog and digital output data streams. An example of this capability would be sending corrected imagery to a video monitor while uncorrected data is being sent to a digital recording system. This capability also works in windowing mode maintaining the analog video output.



Analog video output in window mode. Image window is surrounded by black edges.

## Advanced Synchronization

The SC6000 has several advanced synchronization options:

- **GENLOCK IN** - Synchronize the analog/composite video display to other video sources.
- **SYNC IN** - Synchronize the start of detector integration (exposure), period to an external event.
- **INT ACTIVE** - Monitor when the camera integration is active (exposure length).
- **SYNC OUT** - Use the camera as a master to clock an external instrument.
- **IRIG-B** - Synchronize the camera from an IRIG input.

## Built-in IRIG-B

With IRIG-B embedded directly into the SC6000, each data frame collected from the camera system will be time stamped to the sub millisecond. The IRIG-B can also be used as a synchronization option.

## Rugged One-piece Mechanical Design

The rugged semi-sealed one-piece design enables operation over a wide range of temperature and environmental conditions.

## A Wide Range of Optics

FLIR Systems offers a wide range of optics to support all possible applications ranging from telescopes to microscopes.

## Made in the USA

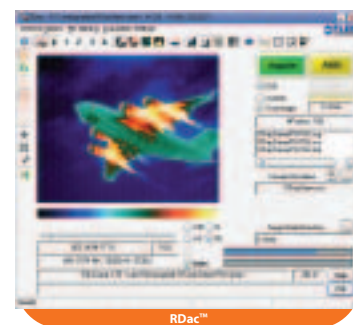
Questions regarding the SC6000 can be addressed directly to the people who designed and built the camera. The entire support staff for the camera line, from design engineers to client services, resides in the United States.

## Seamless Integration with ThermoCAM® RTools/HSDR

The optional High Speed Data Recorder (HSDR) is a PC-based digital recording system designed to collect, record, display, radiometrically calibrate, and analyze images from the SC6000. The HSDR utilizes FLIR's ThermoCAM® RTools™ Radiometric Software Suite. The system can record full SC6000 data rates to removable, nonvolatile storage for up to one hour. The system also features real-time image display capability over Gigabit Ethernet while recording at maximum frame rates with zero dropped frames.



The FLIR ThermoCAM® RTools/HSDR



RDac Software Module for Data Acquisition

# SC6000<sup>®</sup> Specifications

	SC6000-NIR	SC6000-MWIR	SC6000-LWIR
<b>Detector Specifications</b>			
<b>Detector</b>	Indium Gallium Arsenide (InGaAs)	Indium Antimonide (InSb)	Gallium Arsenide (GaAs) Quantum Well Infrared Photodetectors (QWIP)
<b>Spectral Range</b>	0.9 - 1.7 $\mu\text{m}$	3.0 - 5.0 $\mu\text{m}$	8.0 - 9.2 $\mu\text{m}$
<b>Broadband Option</b>	0.4 - 1.7 $\mu\text{m}$ (VisGaAs)	1.5 - 5.0 $\mu\text{m}$	NA
<b>Resolution</b>	640 (H) x 512 (V)	640 (H) x 512 (V)	640 (H) x 512 (V)
<b>Detector Size</b>	25 x 25 $\mu\text{m}$	25 x 25 $\mu\text{m}$	25 x 25 $\mu\text{m}$
<b>Electronics &amp; Data Rate</b>			
<b>Integration Type</b>	Snapshot	Snapshot	Snapshot
<b>Integration Time (Electronic Shutter Speed)</b>	3 $\mu\text{s}$ to full frame time	9 $\mu\text{s}$ to full frame time	9 $\mu\text{s}$ to full frame time
<b>Read-out Modes</b>	Asynchronous Integrate while read Asynchronous Integrate then read Special Integrate then read	Asynchronous Integrate while read Asynchronous Integrate then read	Asynchronous Integrate while read Asynchronous Integrate then read
<b>Dynamic Range</b>	14 bits	14 bits	14 bits
<b>Data Rate</b>	50 MHz	50 MHz	50 MHz
<b>Full Frame Rate</b>	Programmable 1 Hz - 125 Hz	Programmable 1 Hz - 125 Hz	Programmable 1 Hz - 125 Hz
<b>Subwindowing</b>	Yes — user defined	Yes — user defined	Yes — user defined
<b>Superframing</b>	Yes — up to 4 presets	Yes — up to 4 presets	Yes — up to 4 presets
<b>Preset Sequencing</b>	Yes — up to 4 presets	Yes — up to 4 presets	Yes — up to 4 presets
<b>Performance Specifications</b>			
<b>NEI / NETD</b>	Low Gain: 3E-10W/cm <sup>2</sup> High Gain: 1.5E-7W/cm <sup>2</sup>	< 25mK (18mK typical)	< 35mK
<b>Well Capacity</b>	Low Gain: 2.5 M electrons High Gain: 93 K electrons	11 M electrons	11 M electrons
<b>Operability</b>	>99.5% >99.8% typical	>99.5% >99.8% typical	>99.5% >99.8% typical
<b>Camera Specifications</b>			
<b>Sensor Assembly f/#</b>	Set by lens iris	f/2.5 standard, f/4.1 optional	f/2.5 standard, f/4.1 optional
<b>Sensor Cooling</b>	Thermoelectric cooler	Stirling closed cycle cooler; optional Liquid Nitrogen (LN <sub>2</sub> )	Stirling closed cycle cooler
<b>Lens Mount</b>	Canon FD	Twist-lock Bayonet	Twist-lock Bayonet
<b>Power</b>	24 VDC	24 VDC	24 VDC
<b>Advanced Communication and Data Transfer</b>			
<b>Command and Control</b>	USB, Gigabit Ethernet, Camera Link		
<b>Data</b>	Gigabit Ethernet - Digital Camera Link - Digital Composite (BNC) - Analog		



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[www.flirthermography.com/sc6000](http://www.flirthermography.com/sc6000)



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