

Anacapa SWIR™ 640A

*Small, High Performance, High-Resolution
Shortwave Infrared Camera System*

OVERVIEW

Nova Sensors™' Anacapa SWIR™ 640A camera system is comprised of a core module and signal interface board. The compact, high performance short wave infrared (SWIR) imager has excellent sensitivity and image quality. It is the smallest and highest frame rate fully integrated commercial off-the-shelf SWIR 640 x 512 camera available.

Applications include low-light level imaging for man-portable and unmanned vehicle payloads, low-power security & surveillance products, spectroscopy, factory automated inspection, and more.

The camera core is comprised of a three board set of camera drive electronics and a short wave infrared sensor module. The sensor module incorporates a 640 x 512 pixel format readout integrated circuit that is hybridized to an InGaAs detector array. The detector array has high quantum efficiency (QE) from 0.9 to 1.7 μ m. The small camera drive electronics provide thermoelectric (TE) cooler control, clock timing and biases required to drive the focal plane array, buffer and convert the video outputs to a Camera Link format. Camera control is through either the Camera Link bus or RS-232 port depending on the hardware configuration.



INTERFACE MODULE 1

- Digital Video: Camera Link (pass through)
- Command and Control: Camera Link (RS-232 optional)
- Illuminator control (pass through)
- Power: 7-30 VDC

INTERFACE MODULE 2

- Digital Video Interface 1: HDMI and HD-SDI
- Command and Control: USB
- Illuminator control (pass through)
- Power: 7-30 VDC

Nova Sensors typically sells its factory-calibrated and tested Anacapa cameras with an associated lens. However the camera system may be purchased without a lens.

FEATURES

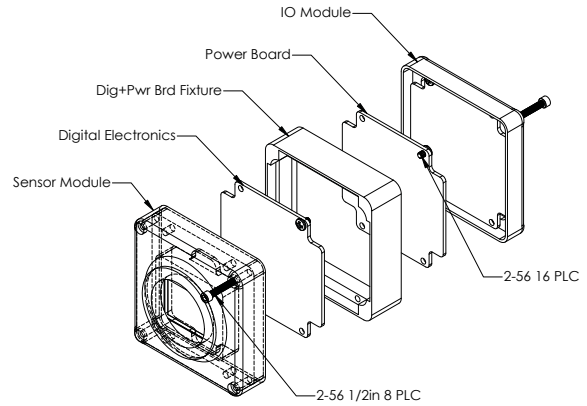
- Day and night imaging
- High sensitivity from 0.9 to 1.7 μ m
- 640 x 512 pixel format with 25 μ m pitch
- Centered 320 x 256 or 160 x 128 window modes
- Full format frame rate up to 107Hz
- Windowed frame rates >340Hz (320 x 256) and >1kHz (160 x 120)
- Video ADC: 14 bit
- HDMI and HD-SDI digital video output
- On-board non-uniformity correction (6 tables)
- On-board bad pixel replacement
- Thermoelectric (TE) cooled FPA
- Illuminator control
- Compact size (2" x 2" x 2" with enclosure, 1.9" x 1.9" x 1.18" OEM module)
- M42 x 1mm or C-mount lens interface
- Interchangeable signal interface modules, i.e. Camera Link or HDMI/HD-SDI
- Automatic Gain Control (AGC)
- Automatic camera exposure for improved scene contrast (patent pending)
- Fully integrated design supports OEM and commercial customers and applications
- Startup kit includes: 1/4-20 tripod mount, 25mm SWIR lens, M42 x 1mm, AC power supply and cable, Camera Link cable or HDMI cable lens mount



WHAT'S IN THE BOX

INTEGRATED CAMERA SYSTEM

- Camera core
- IO modules: (1) HDMI/HD-SDI, (2) Camera Link
- Lens: 25mm F/1.4 SWIR
- Power supply (AC/DC) and cable
- Cables: HDMI and Camera Link
- Software: Command, display and acquisition GUI
- Protective hard case
- User guide
- Storage media, e.g. CD/DVD: User guide including GUI, lens specification



OEM CAMERA MODULE

- Camera core
- Protective hard case
- User guide
- Storage media, e.g. CD/DVD: User guide, GUI, mechanical drawings

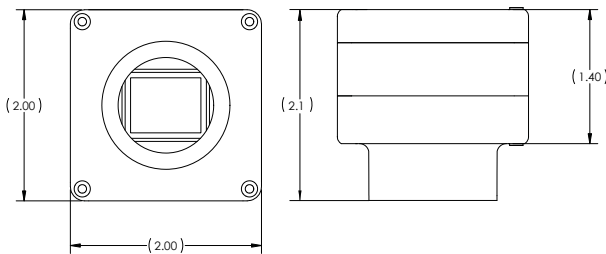
ACCESSORIES

Nova Sensors offers a range of accessories for your Anacapa SWIR 640A camera system for purchase.

- IO modules: (1) HDMI/HD-SDI, (2) Camera Link
- SWIR lens (options): 25mm, 50mm, others upon request
- AC power adapter with cable
- Cables: HDMI, Camera Link
- Software: Command, display and acquisition GUI
- Software Developers Kit (SDK)
- Memory card portable recorder
- Battery pack
- Illuminator with tether cable
- Protective hard case

SUPPORT & SERVICE

Nova Sensors provides support and service for your Anacapa SWIR 640A camera system under our limited warranty agreement (one year parts and labor).



Camera System Parameters

Camera Model Number	Anacapa SWIR™ 640A
Format	640 x 512
Pixel Pitch	25 µm
Spectral Response	.9 to 1.7 µm
Quantum Efficiency	70% @ 1.5 µm
Pixel Operability	>99.5%
Automatic FPA Exposure Control?	Yes
Weight (enclosed)	164 grams
Weight w/Lens (25mm)	312 grams
Weight w/Lens (50mm)	408 grams
Size (inches)	2.0" x 2.0" x 2.1"
Power Including Cooling	3.0 Watts @ 10° C
Cooling Method	Thermoelectric
Integration Type	Staring, Snapshot
System NEI (ph/cm2-s)	TBD
Operating Temp Range	-40° to +55° C
Non-uniformity Correction	6 Tables
Image Control	Cameralink or USB 2.0 (RS-232 optional)
Output Formats	Cameralink or HDMI/HD-SDI
Camera Link Digital Output	14 bits/pixel, FS, LS, PXCLK
Display Capability	HDMI 720P 60 Hz
Predicted MTBF	>10,000 hrs.
Optics Mounting	M42 x 1mm or C-Mount with Lens adapter
Optics F Number	User-Specified
Windowing Modes	640 x 512, 320 x 256, 160 x 128
640 x 512 Frame Rate (Hz)	107.8 HZ
320 x 256 Frame Rate (Hz)	367.4 HZ
160 x 128 Frame Rate (Hz)	1128.9 HZ



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