

New cooled InGaAs camera for quantitative SWIR imaging and spectroscopy

The camera uses selected InGaAs focal plane arrays with low dark current and low defective pixels.

Thanks to efficient cooling, stable offset and low dark current, the InGaAs camera allows reproducible acquisition for precise metrology measurements in the SWIR spectrum.

Camera link and Gigabit Ethernet Vision compliant interface enables easy integration into existing systems.

InGaAs sensors with visible extension are available in 640 x 512 and SWIR extension in 320 x 256 resolution.

OEM versions with special form factors/cooling options are available for integration into specific instruments/systems.

APPLICATIONS

All cameras are available with passive cooling for

- Semiconductor inspection
- SWIR hand held vision enhancement
- SWIR airborne payload
- Photoluminescence for solar cells

Air cooling or water cooling are available for long exposure applications such as

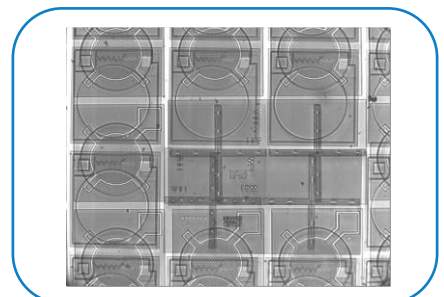
- Astronomy
- Hyper spectral imaging
- Laser beam profiling
- Spectroscopy



Cooled SWIR /InGaAs camera



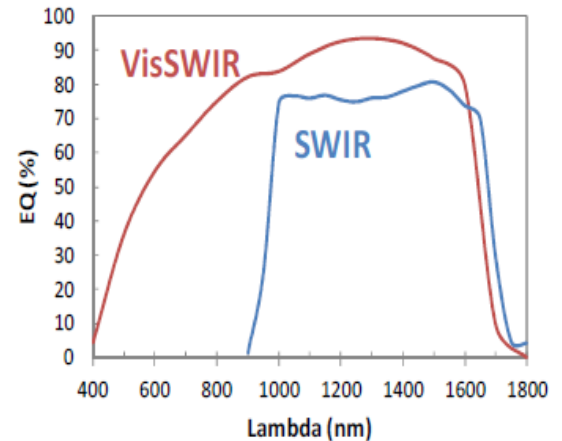
Photoemission on IC using water cooled SWIR InGaAs camera, with 20x objective, exposure time 30s



Alignment of MEMS wafers using SWIR InGaAs camera with 6x objective, exposure time 15ms

FEATURES

- 14-bit digitization / 16-bit image processing
- Genicam Compliant
- Read out noise down to typically <30 electrons
- >170 fps with VGA at full resolution
- Non-uniformity, bright pixel, gain & offset corrections
- High Gain and High Dynamic Range operation modes
- Excellent linearity response to varying intensities
- Gigabit Ethernet interface
- Software option: SDK kit, Labview VI's



CHARACTERISTICS	PSL VGA 15 microns
Spectral Range	900-1700nm
Frame rate	174 fps at full VGA resolution 570 fps at ¼ VGA resolution 7,200 fps at 640x4 resolution (spectroscopy or line mode)
Sensor Size	9.6 mm x 7.68mm
Resolution in pixels	640 x 512
Pitch (microns)	15
Full well capacity	22,000 - 25,000 electrons (high gain mode) 90,000 - 105,000 electrons (mid gain mode) 1,100,000 - 1,500,000 electrons (low gain mode)
Read-out noise	22-32 electrons (high gain mode) 46-50 electrons (mid gain mode) 380-400 electrons (low gain mode)
Reading mode	Integrate Then Read, Integrate While Read
Dark current	0.5fA with air cooling & 0.1fA with water cooling
Sensor Operating Temperature	-30 C with air cooling, -50 C with water cooling (lower dark current)
Corrections	Non uniformity, bright pixel, gain, offset, flatfield
ADC	14-bit with 16-bit digital processing
Exposure control	30microseconds up to > 1minute
QE@1.1 microns	80%