



AFFORDABLE. HIGH DEFINITION. SWIR VISION.

Acuros™ SWIR Camera

SWIR Vision Systems™ introduces the Acuros™ family of high definition cameras featuring CQD™ Colloidal Quantum Dot technology. Acuros cameras deliver **broadband, visible-to-SWIR, high resolution** images, at far superior cost points compared to InGaAs SWIR cameras. The cameras are classified as EAR99 products (no license required for global export), and are intended for use in applications including industrial machine vision, silicon inspection, surveillance, hyperspectral imaging, and more.

Applications

Industrial automation

- Machine vision
- Silicon inspection
- Process control
- Moisture detection
- Fill level inspection
- Plastics sorting

Surveillance and security

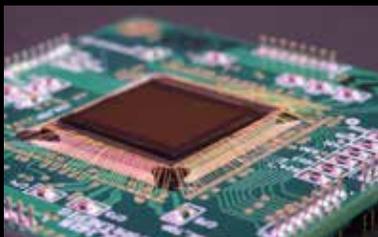
- Chemical sensing
- Gas leak detection
- Explosives detection
- IR surveillance

Agriculture

- Crop health monitoring
- Water, moisture monitoring
- Food sorting

Innovation: CQD™ Sensor Technology

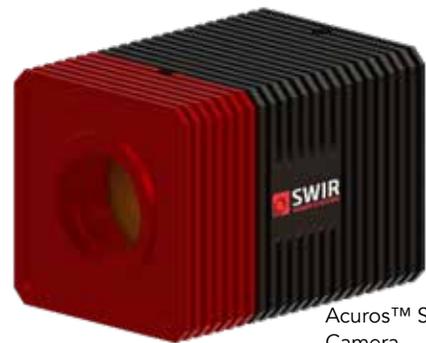
Tiny semiconductor 'Quantum Dot' crystals are deposited directly onto silicon CMOS circuitry. The result is higher resolution sensors, delivered at lower cost/megapixel than InGaAs sensors.



High Definition SWIR Cameras

SWIR Vision Systems cameras are built with increasing resolution to provide the needed performance for specific applications.

- Acuros™ VGA SWIR Camera (640 x 512)
- Acuros™ 1MP SWIR Camera (1280 x 1024)
- Acuros™ HD SWIR Camera (1920 x 1080)



Acuros™ SWIR HD Camera

SWIR Application Images

Pharmaceutical Vials Imaging



a.



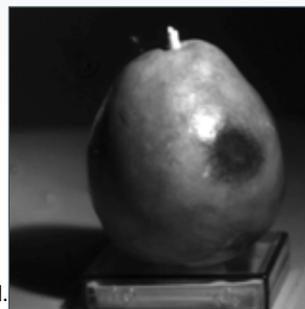
b.

Imaging liquid fill level in pharmaceutical vials with
(a) CMOS Camera Image
(b) SWIR Camera Image

Food Sorting Imaging



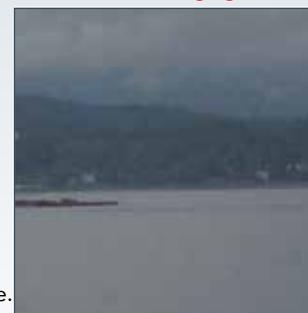
c.



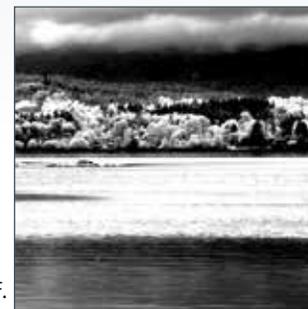
d.

Imaging sub-surface bruising of fruit:
(c) CMOS Camera Image
(d) SWIR Camera Image

Maritime Haze Imaging



e.



f.

Maritime imaging across misty inlet:
(e) CMOS camera image
(f) SWIR camera image

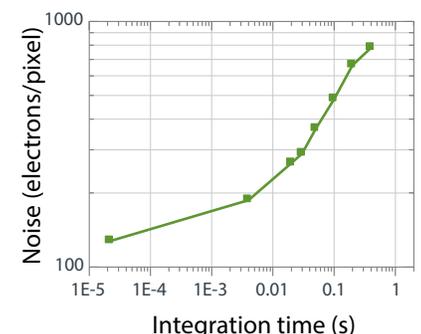
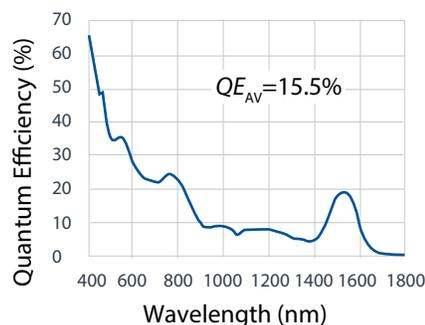
For More Information

For sales inquiries and pricing information, and to explore co-development and partnership opportunities, contact us at:

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+1 919.248.0032

Ideal in daylight or artificially lit environments, Acuros cameras provide the superior image resolution needed in challenging image sensing environments. With inherently lower cost per megapixel than InGaAs detectors, Acuros SWIR cameras provide excellent value for system integrators.

SWIR Vision Systems™ Acuros Camera Performance	Acuros™ VGA	Acuros™ 1MP	Acuros™ HD
Sensor Technology	CQD™ Quantum Dot	CQD™ Quantum Dot	CQD™ Quantum Dot
Format	640 x 512	1280 x 1024	1920 x 1080
Resolution	0.33	1.31	2.07
Sensor Size	12.3 mm	24.6 mm	33 mm
Spectral Band	400-1700 nm	400-1700 nm	400-1700 nm
Pixel pitch	15 μm	15 μm	15 μm
Integration Time	10 μsec–30 msec	10 μsec–30 msec	10 μsec–30 msec
Max frame rate	10 bit: 380 fps 14 bit: 190 fps	95 fps 45 fps	60 fps 30 fps
Quantum Efficiency	15% average	15% average	15% average
Total Noise	280 electrons rms, 30 ms integration	280 electrons rms, 30 ms integration	280 electrons rms, 30 ms integration
Noise Equivalent Irradiance	6 x 10 ⁹ photons/cm ² /s (33 fps at 1550 nm)		
Operability (typical)	>99%	>99%	>99%
Dynamic Range	>2100:1	>2100:1	>2100:1
TEC Cooler	yes	yes	yes
Non-Uniformity Correction	2-point, firmware	2-point, firmware	2-point, firmware
Binning Arrays	2x2, 4x4	2x2, 4x4	2x2, 4x4
Windowing/Region of Interest (ROI)	Max frame rate scales with ROI. Array centered.		
Exposure Control	Global Shutter	Global Shutter	Global Shutter
External Trigger	Hirose 12-pin	Hirose 12-pin	Hirose 12-pin
Data interface	USB3 Vision or GigE Vision	USB3 Vision or GigE Vision	USB3 Vision or GigE Vision
Lens mount	C-mount	C-mount, F-mount	F-mount
Supply Voltage	6–12 V	6–12 V	6–12 V
Power (typical)	5.75W at 25C	5.75W at 25C	5.75W at 25C
Physical Dimensions	(H) 6.1 cm (W) 6.1 cm (L) 9.9 cm	(H) 6.1 cm (W) 6.1 cm (L) 9.9 cm or 13.0 cm	(H) 6.1 cm (W) 6.1 cm (L) 13.0 cm
Software Development Kit	Pleora SDK	Pleora SDK	Pleora SDK



(Left) Plot of the FPA spectral QE. QE shown is the mean response for the array under monochromatic illumination. The FPA exhibited an average QE of 15% across the spectral range shown. (Right) Total per pixel RMS noise electrons as a function of integration time.