SWIR
PAs640 Series



LYNRED SNAKE-SW – High-Speed, Low-Noise SWIR Imaging

High-Performance InGaAs Sensor Technology

The LYNRED SNAKE-SW is a high-performance InGaAs image sensor featuring 640 × 512 resolution, frame rates of up to 300 fps, and exceptionally low readout noise of less than 30 e^-.

Available in both integrated Thermoelectric Cooling (TEC) and compact, low-power TECless package configurations, the SNAKE-SW offers exceptional flexibility for industrial, scientific, and surveillance applications.

Ultra-High-Speed Imaging – Up to 300 fps

Delivers frame rates of up to 300 fps, offering significantly faster image acquisition than conventional 30–60 fps SWIR cameras.

Enables detailed imaging of rapidly moving objects in high-speed production lines, rotating machinery inspection, and airborne imaging applications, helping minimize motion-related image degradation.

Exceptional Low-Noise Performance – < 30 e^-

Combines extremely low readout noise with high Quantum Efficiency (QE > 70% at 1.0–1.6 µm), enabling precise detection of weak infrared signals.

Provides excellent sensitivity and image quality for low-light surveillance, scientific spectroscopy, and demanding SWIR imaging applications.

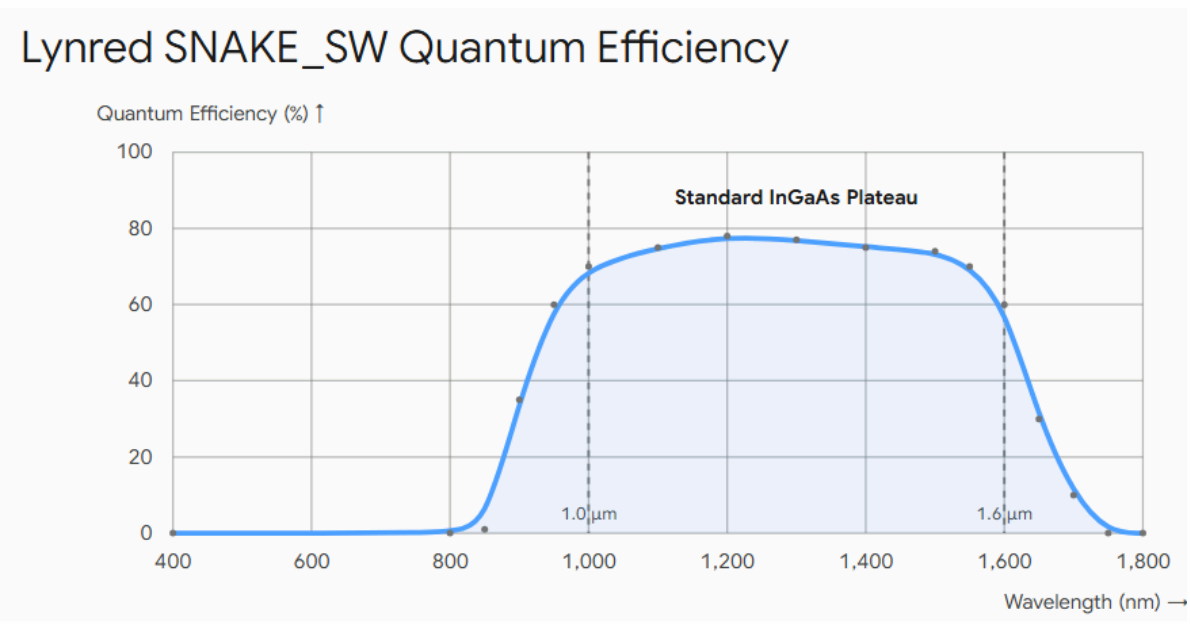
APPLICATIONS

- **Semiconductor & Solar Cell Inspection**
  Enables high-precision backside inspection through silicon, microcrack detection, and identification of semiconductor packaging defects.

- **Laser Beam Profiling & Alignment**
  Supports precise beam profile measurement and optical alignment of invisible laser sources used in optical communications and defense applications.

- **Hyperspectral Imaging – Food & Agricultural Inspection**
  Enables moisture distribution mapping in grains and material classification of foreign contaminants, such as plastics and stones, in processed foods when integrated with suitable spectral imaging systems.

- **High-Temperature Measurement (Pyrometry)**
  Supports non-contact temperature monitoring in industrial processes, including glass manufacturing, steel production, and metal processing.
  Applicable to high-temperature measurements from approximately 100°C to over 1,000°C, depending on the optical configuration, emissivity, and system calibration.



SPECIFICATION

Feature	PAs640 F100 NCL	PAs640 F100 NGE
SWIR Sensor Information		
Maker	Area InGaAs Non-TEC	
Sensor	Lynred SNAKE_SW	
Spectral Response	0.9 ~ 1.7µm(SWIR)	
Pixel Pitch	15µm	
Focal Plane Array	640 × 512	640 × 512
Interfaces		
Mode	Camera Link Base	GigE
Pixel Clock / Protocol	40Mhz	GigE Vision
Image Data	12/14-bit Mono	14-bit Mono
Frame Rate	100fps	100fps
Functionality		
Image Acquisition Mode	Free running / External Trigger using +5V TTL or CC1 (for CL only) or Software(for CXP only)	
Image Correction	2-point correction (Gain, Offset) / Bad Pixel / FFC	
Electrical Interface		
Input Voltage	DC12V	DC12V or PoE
Power Consumption	<5.5 or <6.4W	<5.5W
Environmental Conditions		
Operation Temperature	-10°C ~ 40°C	
Operation Relative Humidity	maximum 90% non-condensing	
Storge Temperature	-40°C ~ 85°C	
Storage Relative Humidity	maximum 90% non-condensing	
Mechanical Interface		
Size (W x H x D)	56 × 56 × 56.49mm	56 × 56 × 67.1mm
Weight	260g or 380g (w/o lens)	290g (without Lens)
Lens mount	M42 or C-mount	
Power connector	12-pin threaded Hirose Mating connector part# HR10A-10R-12PB(71)	6-pin threaded Hirose Mating connector part# HR10A-7R-6PB(73)

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