Cooled SWIR
PA320 or 640



High-Sensitivity SWIR Imaging with Advanced TEC Cooling Technology

Ultra-Low Noise & High-Precision Imaging Performance

Delivers exceptional imaging sensitivity and measurement stability through advanced Thermoelectric Cooling (TEC) technology, enabling reliable SWIR imaging for demanding industrial and scientific applications.

Advanced Single-Stage / Two-Stage TEC Cooling Technology

High-performance thermoelectric cooling effectively reduces and stabilizes the sensor operating temperature, significantly suppressing dark current and thermal noise.

Ensures consistent image quality and reliable measurement data, even during extended periods of continuous operation.

Superior Light-Gathering Capability with Large Pixel Pitch

Featuring a large pixel pitch, the sensor offers enhanced photon collection capability compared with smaller-pixel SWIR detectors.

Provides high sensitivity and clear image acquisition even under extremely low-light conditions, making it ideal for precision inspection and low-light SWIR imaging applications.

Snapshot ITR/IWR Readout Modes for High-Speed Imaging

Supports Snapshot Integrate-Then-Read (ITR) and Integrate-While-Read (IWR) modes, enabling synchronized image acquisition with global shutter operation.

Minimizes motion distortion and rolling shutter artifacts, ensuring accurate imaging of fast-moving objects in high-speed industrial inspection and machine vision applications.

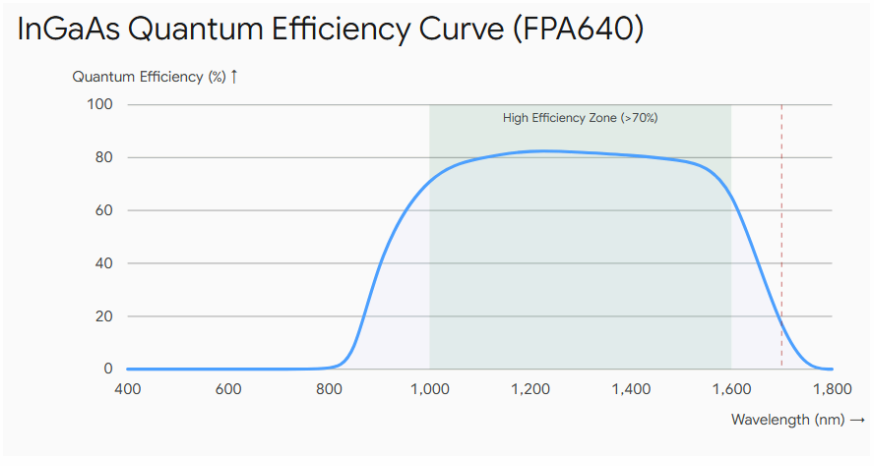
APPLICATIONS

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

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

- **Hyperspectral Imaging – Food & Agricultural Inspection**
  Supports moisture distribution mapping in grains and material classification of foreign contaminants, such as plastics and stones, in processed foods.
  Enables advanced quality inspection and precision sorting for food processing and agricultural applications.

- **High-Temperature Thermal Measurement (Pyrometry)**
  Enables non-contact, high-precision temperature monitoring in industrial processes ranging from approximately 100°C to over 1,000°C, depending on system calibration and configuration.
  Ideal for demanding applications such as glass manufacturing, steel production, and metal processing.



SPECIFICATION

	PA320 F30 TCL	PA640 F100 TCL
SWIR Sensor Information		
Sensor	CLPT FPA320-TE	CLPT FPA640 TE
Maker	Area InGaAs Cooled TEC	
Spectral Response	0.9 ~ 1.7㎛ (SWIR)	
Pixel Pitch	30㎛	25㎛
Frame Rate	300fps	100fps
Focal Plane Array	320 × 256	640 × 512
Interfaces		
Mode	Camera Link Base (MDR26)	
Pixel Clock / Protocol	40Mhz	
Image Data	8, 10, 12 or 14-bit mono.	
Analog Video Output	8-bit NTSC or PAL (750Ω BNC)	N.A
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	
Electrical Interface		
Input Voltage	DC12V	
Power Consumption	<13w	
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)	74 × 99 × 90.8mm	
Weight	850g (without Lens)	
Lens mount	M42 or C-mount	
Power connector	12-pin threaded Hirose Mating connector part# HR10A-10R-12(male)	

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