near-IR Camera
PA1280 F40 GE



SIONYX Black Silicon – Advanced Ultra-Low-Light Imaging Technology

■ Advanced Black Silicon Sensor Technology

SIONYX's proprietary Black Silicon technology utilizes nanoscale surface structures to enhance light absorption, achieving higher quantum efficiency (QE) and improved sensitivity compared with conventional silicon image sensors.

■ Ultra-Low-Light Performance & High Dynamic Range (HDR)

- Ultra-low read noise enables clean, high-quality imaging with minimal noise, even in extremely low-light environments.
- Supports up to 120 dB High Dynamic Range (HDR), preserving image details in both bright and dark areas within the same scene.

■ Exceptional Night Vision Without Additional Illumination

Enables imaging under moonless night-sky conditions at illumination levels below 1 mLux, without the need for auxiliary lighting.

Delivers up to 10 times higher sensitivity in the 700–1100 nm near-infrared (NIR) spectrum compared with conventional silicon sensors, depending on wavelength and measurement conditions.

APPLICATIONS

• Semiconductor & Solar Cell Inspection
Supports silicon wafer and solar cell inspection, including backside imaging, microcrack detection, and identification of packaging defects, where the sensor's spectral sensitivity and optical configuration are suitable.

• Laser Beam Profiling & Alignment
Enables beam profile analysis and precise optical alignment for compatible near-infrared laser sources used in optical communications and defense applications.

• Hyperspectral Imaging – Food & Agricultural Inspection
Supports spectral imaging applications for agricultural quality assessment, material classification, and food inspection when integrated with suitable spectral optics.

• High-Temperature Measurement (Pyrometry)
Supports non-contact temperature measurement in industrial processes such as glass manufacturing, steel production, and metal processing, with the measurable temperature range depending on spectral response and system calibration.

• Medical Diagnostics & Imaging
Supports specialized low-light and near-infrared imaging applications for medical research and diagnostic system development.

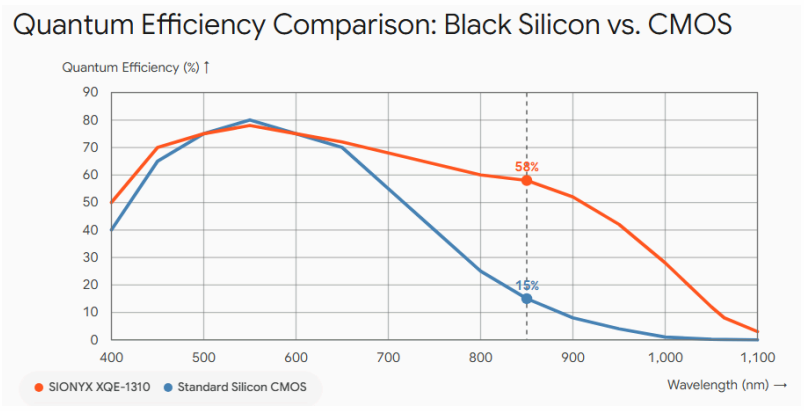
• Day & Night Surveillance
Provides enhanced visibility in extremely low-light environments for continuous security and surveillance applications.

• Robotics & UAV Navigation
Enables low-light visual perception for autonomous robots, unmanned aerial vehicles (UAVs), and intelligent navigation systems.

• Weapon Sights & Targeting Systems
Supports low-light imaging applications for optical sighting and observation systems.

SPECIFICATION

	PA1280 F40 GE
SWIR Sensor Information	
Sensor	SiOnyx XQE-1310
Maker	Area NIR Rolling Shutter
Spectral Response	0.4 ~ 1.1um (VIS + NIR)
Pixel Pitch	10μm
Frame Rate	40fps
Focal Plane Array	1280 × 1024
Interfaces	
Mode	GigE (10/100/1000Mbps)
Pixel Clock / Protocol	GigE Vision
Image Data	8-bit Mono.
Functionality	
Image Acquisition Mode	Free running / External Trigger using +5V TTL or CC1 (for CL only) or Software(for CXP only)
Image Correction	PRNU / VIGNETTNG / Bad Pixel
Electrical Interface	
Input Voltage	DC12V or PoE
Power Consumption	<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 × 65.8mm
Weight	260g (without Lens)
Lens mount	C-Mount
Power connector	6-pin threaded Hirose Mating connector part# HR10A-7R-6PB(73)



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