

ACUROS® CQD® 640 GigE SWIR Camera

ACUROS-0640-GigE-001

The ACUROS CQD SWIR cameras are sensitive to wavelengths from 400 nm to 1700 nm and feature up to 1920 x 1080 resolution with 15 μ m pixels to enable high performance at the lowest cost. The camera features low noise, highly stable performance, and up to 10 dB higher SNR compared to the competition's 5 μ m pixel InGaAs cameras. It supports a range of applications, including industrial inspection, military intelligence, and advanced research, offering versatility and outstanding image quality for both low-cost and high-performance applications.

Please see the ACUROS eSWIR product line for expanded sensitivity capabilities from 400 nm to 2000 nm.

SPECIFICATIONS

Table 1. ELECTRO-OPTICAL SPECIFICATIONS

Parameter	Value/Description
Sensor	ACUROS CQD sensor
Temperature Stabilization	Single-stage thermo-electric cooler
Sensor Array Format	640 x 512
Resolution	0.33 MP (megapixel)
Spectral Band	400–1700 nm
Array Size	9.6 mm x 7.7 mm, 12.3 mm diagonal
Pixel Pitch	15 μ m x 15 μ m
Max Frame Rate at Full Resolution	270 fps (8 bit), 180 fps (10, 12, 14 bit)
Pixel Operability	99.9% typical, 99.75% min
Bit Depth	8, 10, 12, 14 bit selectable
Integration Type	Snapshot global shutter
Trigger	External TTL
Integration Time	100 μ s to 4 s
Dynamic Range	70 dB typical
Windowing & Windowing Frame Rate	Array centered. Scales inversely to window size
Laser Beam Fringeless Operation	No (See ACUROS laser series cameras)
Binning Arrays	2 x 2, 4 x 4
Non-uniformity Correction	2-point non-uniformity correction
Temporal Dark Noise	80/70/65 e ⁻ typical
Quantum Efficiency	See typical QE curve (Figure 4)



ORDERING INFORMATION

Part Number
ACUROS-0640-GigE-001

Features

- VGA Resolution
- TEC Cooling
- Low Noise
- Fast Frame Rate
- Visible-SWIR
- GigE Vision

Applications

- Machine Vision
- Silicon Inspection
- Automotive
- Fill-level
- Surveillance
- Hyperspectral
- Chemical Sensors
- Agricultural
- Medical Imaging
- Thermography

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Table 2. ENVIRONMENTAL & POWER SPECIFICATIONS, TYPICAL PERFORMANCE

Parameter	Value/Description
Operating Case Temperature	–20 °C to +55 °C
Power Consumption	6.5–12 W depending on TEC settings
Power Supply Voltage	6–16 V dc. POE not supported
Regulatory Compliance	CE mark

Table 3. MECHANICAL SPECIFICATIONS

Parameter	Value/Description
Dimensions Excluding Lens	6.1 x 6.1 x 10.9 cm (C-mount)
Weight Excluding Lens	600 grams with C-mount adapter
Lens Mounts	C, M42 (C-mount flange-back distance)
Power Connector	Hirose 12-pin, HR10A-10R-12PB (71)
Trigger Connector	BNC

Table 4. SOFTWARE AND USER INTERFACE

Parameter	Value/Description
Software Development Kit	Windows GUI & Pleora eBUS SDK (Linux, Windows, macOS)
GenICam Compliance	Yes
Interface	GigE Vision



Figure 1. C-mount and M-42 Lens Mounts



Figure 2. GigE Vision Interface

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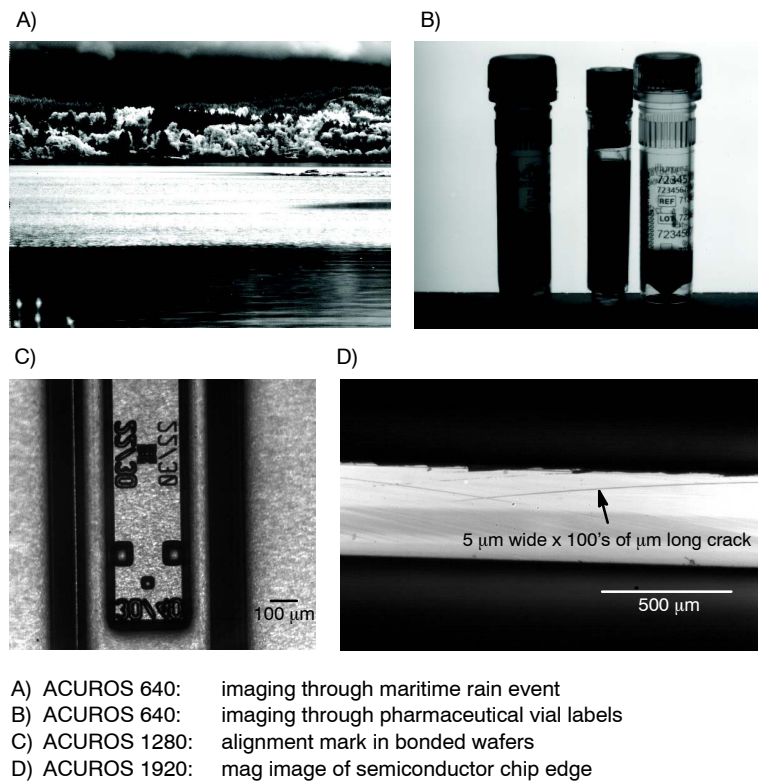


Figure 3. ACUROS CQD SWIR Camera Images

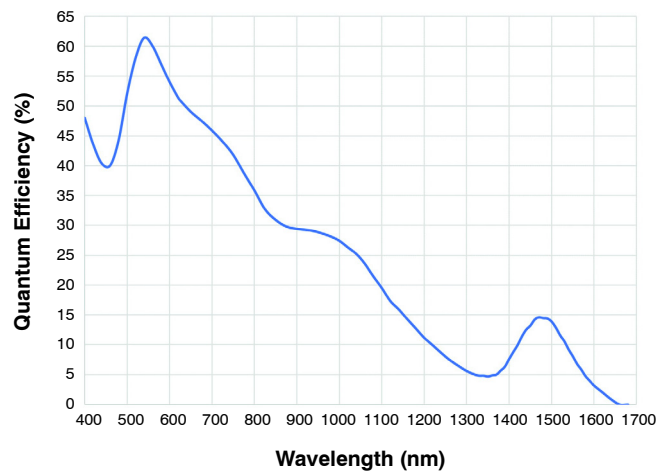
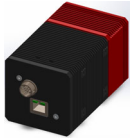


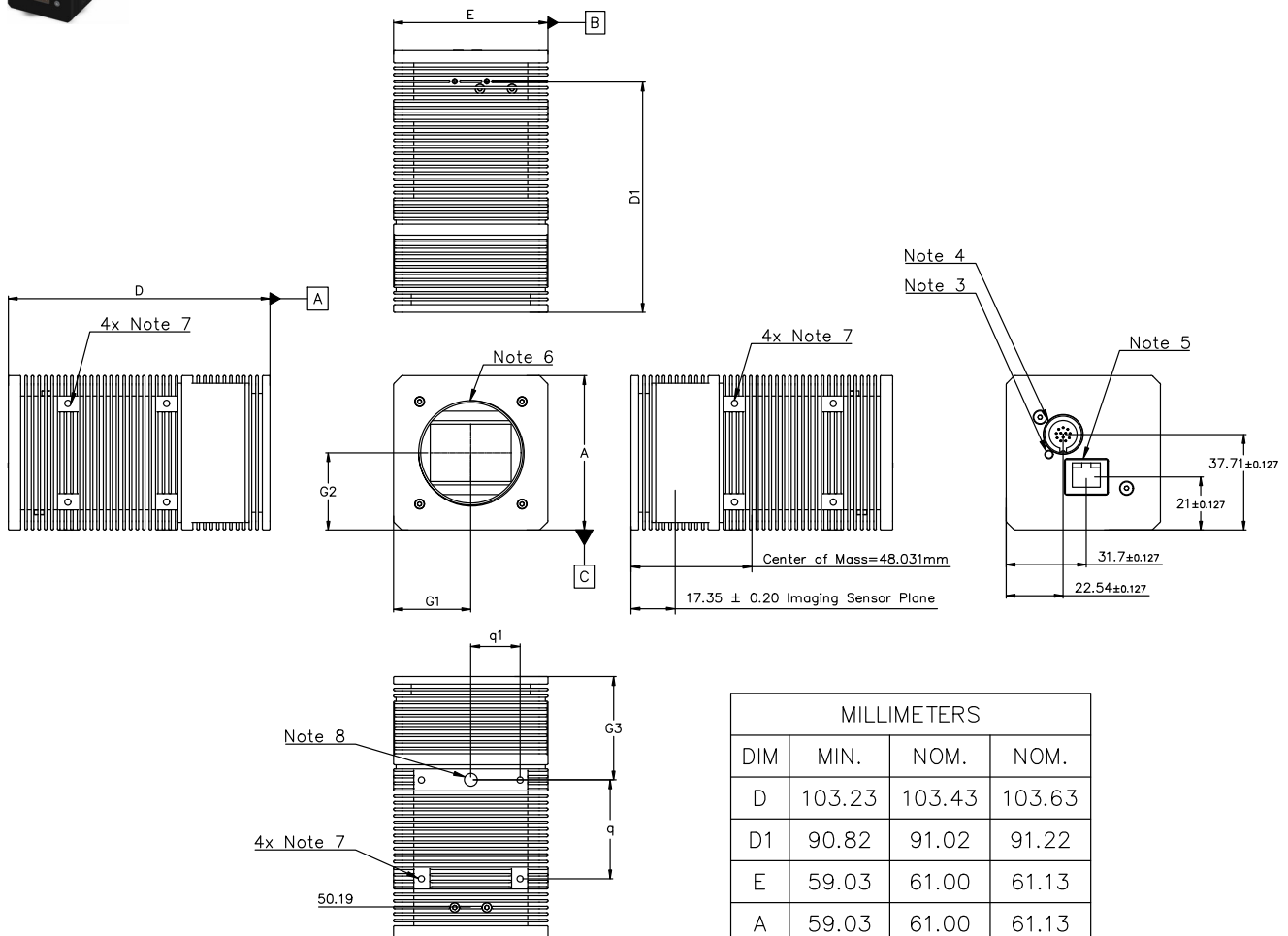
Figure 4. Typical QE Performance

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NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETER
3. POWER INDICATOR
4. HIROSE 12 PIN CONNECTOR
5. GigE CONNECTOR
6. M42 MOUNT DEPTH ∇ 9.8
7. M3X0.5 DEPTH ∇ 3.0
8. 1/4-20 UNC DEPTH ∇ 5.08

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