

# ACUROS<sup>®</sup> CQD<sup>®</sup> 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  $\mu$ 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  $\mu$ 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 $\mu$ m x 15 $\mu$ 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 $\mu$ 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 <sup>-</sup> 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
GenICam Compliance	Yes
Interface	GigE Vision

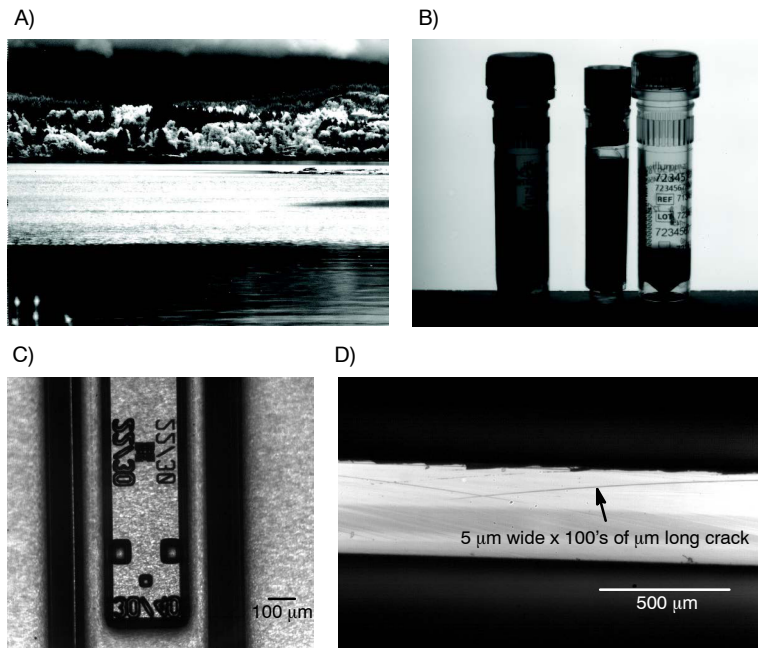


**Figure 1. C-mount and M-42 Lens Mounts**



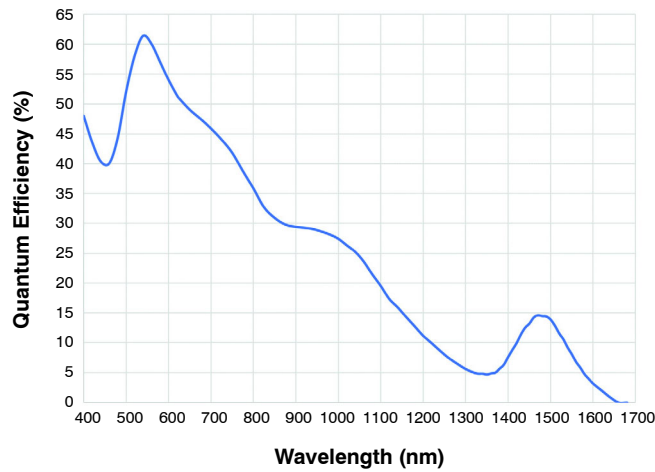
**Figure 2. GigE Vision Interface**

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- A) ACUROS 640: imaging through maritime rain event
- B) ACUROS 640: imaging through pharmaceutical vial labels
- C) ACUROS 1280: alignment mark in bonded wafers
- D) ACUROS 1920: mag image of semiconductor chip edge

**Figure 3. ACUROS CQD SWIR Camera Images**



**Figure 4. Typical QE Performance**

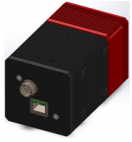
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## REVISION HISTORY

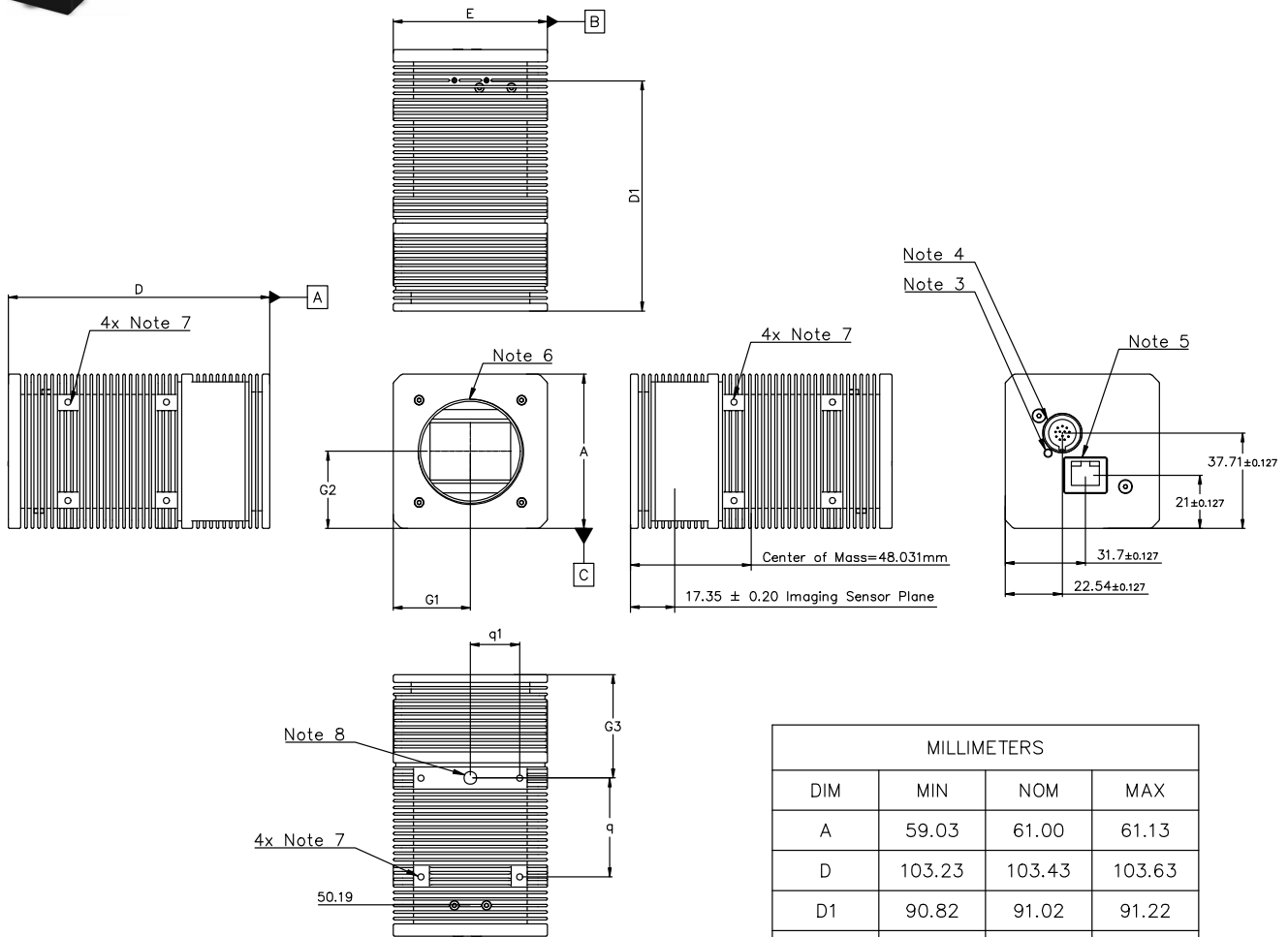
Revision	Description of Changes	Date
2	Removed "eBUS SDK" from Software Development Kit due to change in licensing.	3/13/2026

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.



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**CASE 810AA**  
**ISSUE B**

DATE 12 SEP 2025



- 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  $\nabla$  9.8
  7. M3X0.5 DEPTH  $\nabla$  3.0
  8. 1/4-20 UNC DEPTH  $\nabla$  5.08

MILLIMETERS			
DIM	MIN	NOM	MAX
A	59.03	61.00	61.13
D	103.23	103.43	103.63
D1	90.82	91.02	91.22
E	59.03	61.00	61.13
G1	30.37	30.50	30.63
G2	30.37	30.50	30.63
G3	40.70	40.83	40.96
q	38.98	39.11	39.24
q1	19.37	19.50	19.63

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