

ACUROS® CQD® 640L USB3 SWIR Camera

ACUROS-0640-USB3-003

The ACUROS CQD L-Series SWIR cameras feature large sensor area, low angular dependence and a longer working distance for highly divergent emitters and collimated beams. Acuros cameras deliver high resolution, high dynamic range and very high detectivity imaging from 400 to 1700 nm. The L-Series cameras are designed for use in laser beam diagnostics, laser beam imaging and laser alignment applications by mitigating interference fringing sources.

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 μm x 15 μm
Max Frame Rate at Full Resolution	270 fps (8, 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 μs to 4 s
Dynamic Range	70 dB typical
Windowing & Windowing Frame Rate	Array centered. Scales inversely to window size
Laser Beam Fringeless Operation	Yes
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 5)



ORDERING INFORMATION

Part Number
ACUROS-0640-USB3-003

Features

- Large Sensor Size
- Short Working Distance for Highly Divergent Beams
- Low Angular Dependence
- Dynamic Range up to 70 dB
- Linear Photoresponse
- VGA Resolution
- TEC Cooling
- Low Noise
- USB3 Vision
- Visible-SWIR

Applications

- Laser Beam Diagnostics
- Laser Beam Imaging
- Laser Alignment

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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
Regulatory Compliance	CE mark

Table 3. MECHANICAL SPECIFICATIONS

Parameter	Value/Description
Dimensions Excluding Lens	6.1 x 6.1 x 9.1 cm (C-mount)
Weight Excluding Lens	508 grams with (C-mount) adapter
Lens Mounts	Standard mount (C-mount). Inquire for other options.
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	USB3 Vision

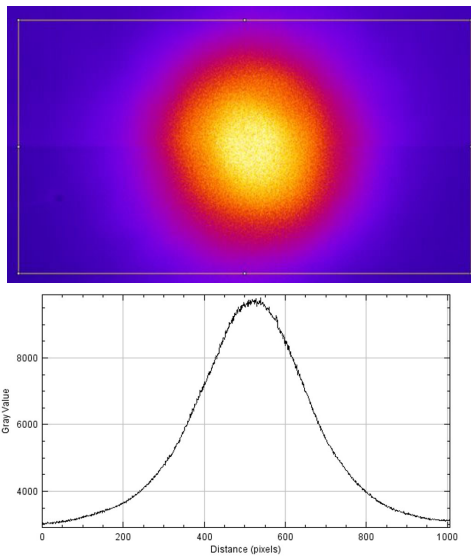


Figure 1. Lens Mount



Figure 2. USB Vision Interface

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1550 nm Laser image and corresponding line file (false color added post image)

Figure 3. ACUROS CQD SWIR Camera Image of Laser

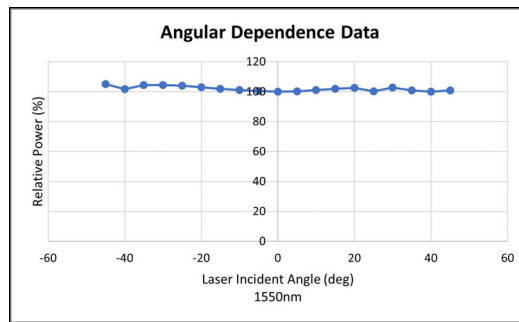


Figure 4. Angular Dependence Data

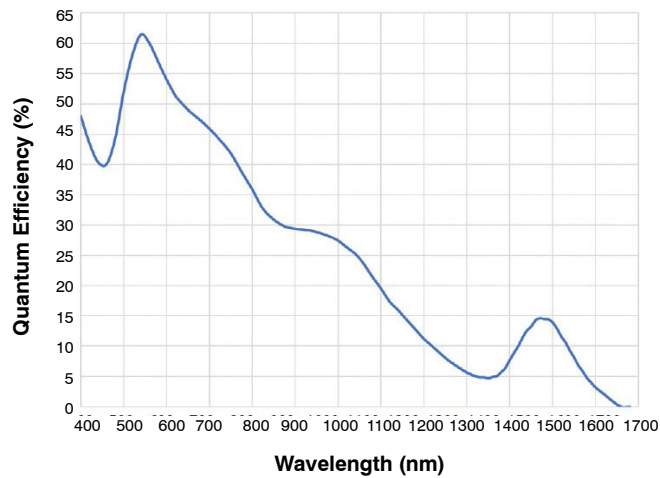


Figure 5. Typical QE Performance

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REVISION HISTORY

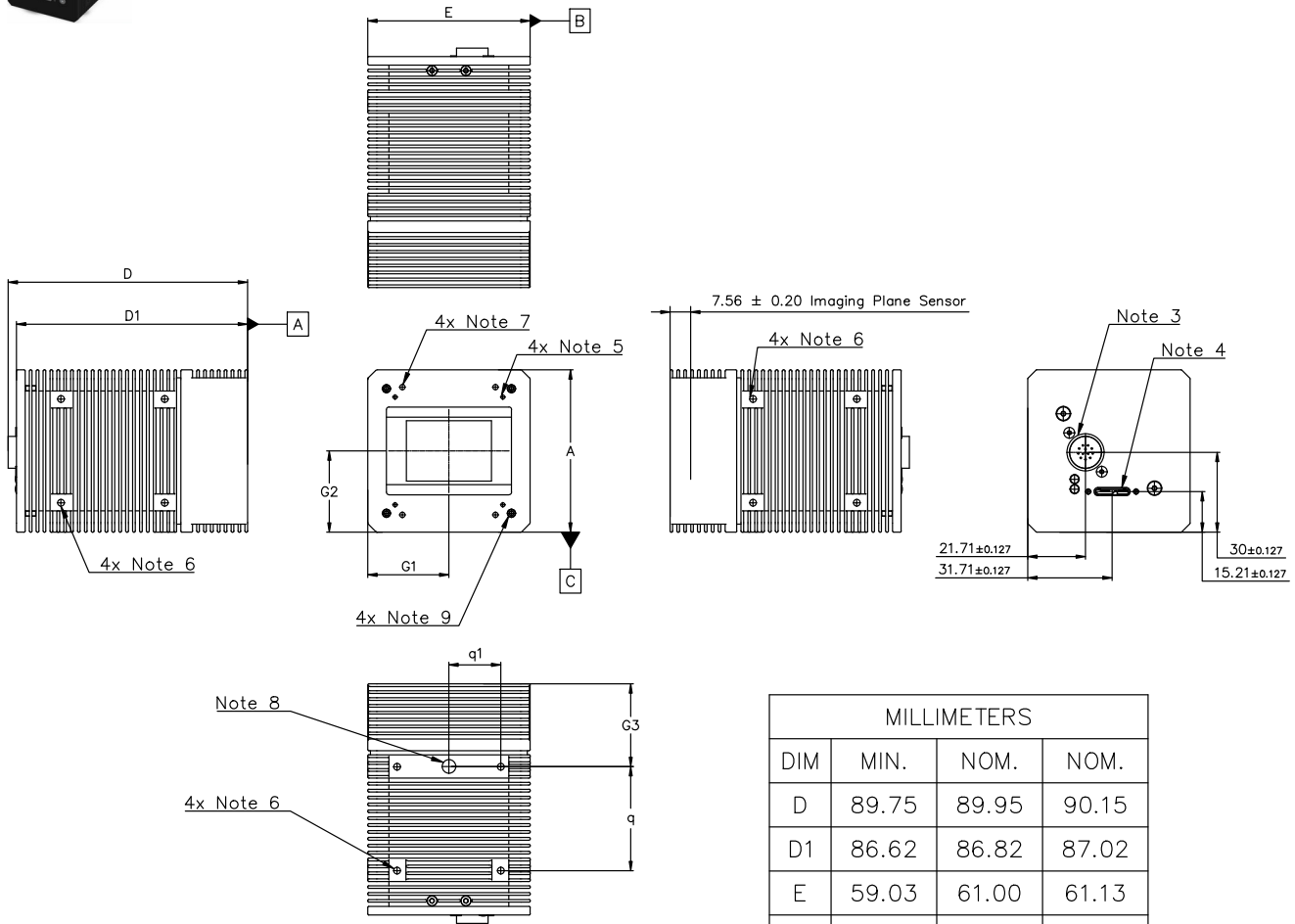
Revision	Description of Changes	Date
3	Removed "eBUS SDK" from Software Development Kit due to change in licensing.	3/13/2026

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.



CMOD 89.95x61.00x61.00
CASE 810AE
ISSUE A

DATE 04 JUN 2025



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M. 2018.
2. CONTROLLING DIMENSION: MILLIMETER
3. HIROSE 12 PIN CONNECTOR
4. USB 3.0 Micro-B
5. M2x0.4 ∇ 2
6. M3X0.5 DEPTH ∇ 3.0
7. REGISTRATION HOLES \varnothing 2.05 ∇ 2
8. 1/4-20 UNC DEPTH ∇ 5.08
9. M2X6

MILLIMETERS			
DIM	MIN.	NOM.	NOM.
D	89.75	89.95	90.15
D1	86.62	86.82	87.02
E	59.03	61.00	61.13
A	59.03	61.00	61.13
G1	30.37	30.50	30.63
G2	30.37	30.50	30.63
G3	30.84	31.04	31.24
q	38.98	39.11	39.24
q1	19.37	19.50	19.63

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