

# ACUROS® CQD® 640L USB3 eSWIR Camera

## ACUROS-0640-USB3-004

The ACUROS CQD L-Series extended SWIR (eSWIR) cameras feature large sensor area, low angular dependence and a long working distance for highly divergent emitters and collimated beams. Acuros cameras deliver high resolution, high dynamic range and very high detectivity imaging from 400 nm to 2000 nm. The L-Series cameras are designed for use exclusively in laser beam diagnostics, laser beam imaging and laser alignment applications by mitigating interference fringing sources.

### 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	400–2000 nm
Array Size	9.6 mm x 7.7 mm, 12.3 mm diagonal
Pixel Pitch	15 $\mu\text{m}$ x 15 $\mu\text{m}$
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 $\mu\text{s}$ to 4 s
Dynamic Range	65 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 <sup>-</sup> typical
Quantum Efficiency	See typical QE curve (Figure 4)



### ORDERING INFORMATION

Part Number
ACUROS-0640-USB3-004

### Features

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

### Applications

- Laser beam Diagnostics
- Laser Beam Imaging
- Laser Alignment

**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	495 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**

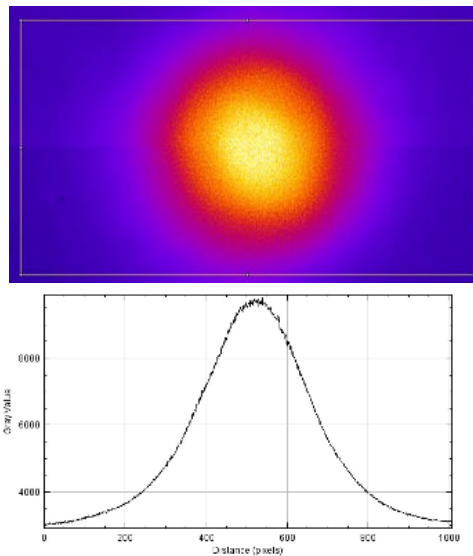
Parameter	Value/Description
Software Development Kit	Windows GUI & Pleora eBUS SDK (Linux, Windows, macOS)
GenICam Compliance	Yes
Interface	USB3 Vision



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

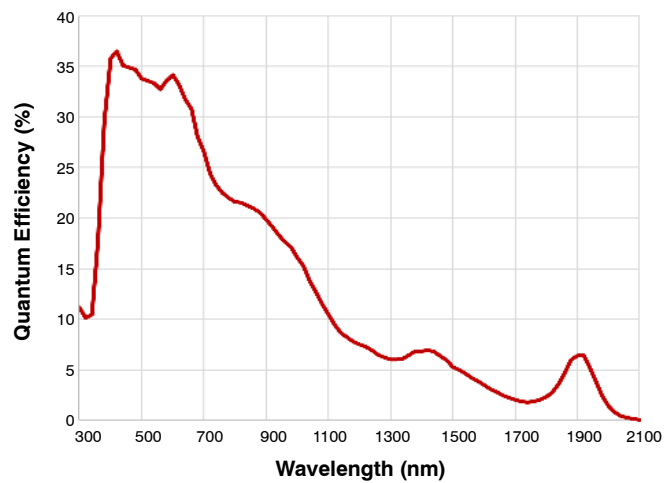


**Figure 2. USB Vision Interface**

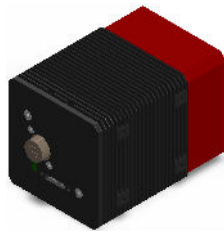


1550 nm Laser image and corresponding line file (false color added post image)

**Figure 3. ACUROS CQD SWIR Camera Image of Laser**

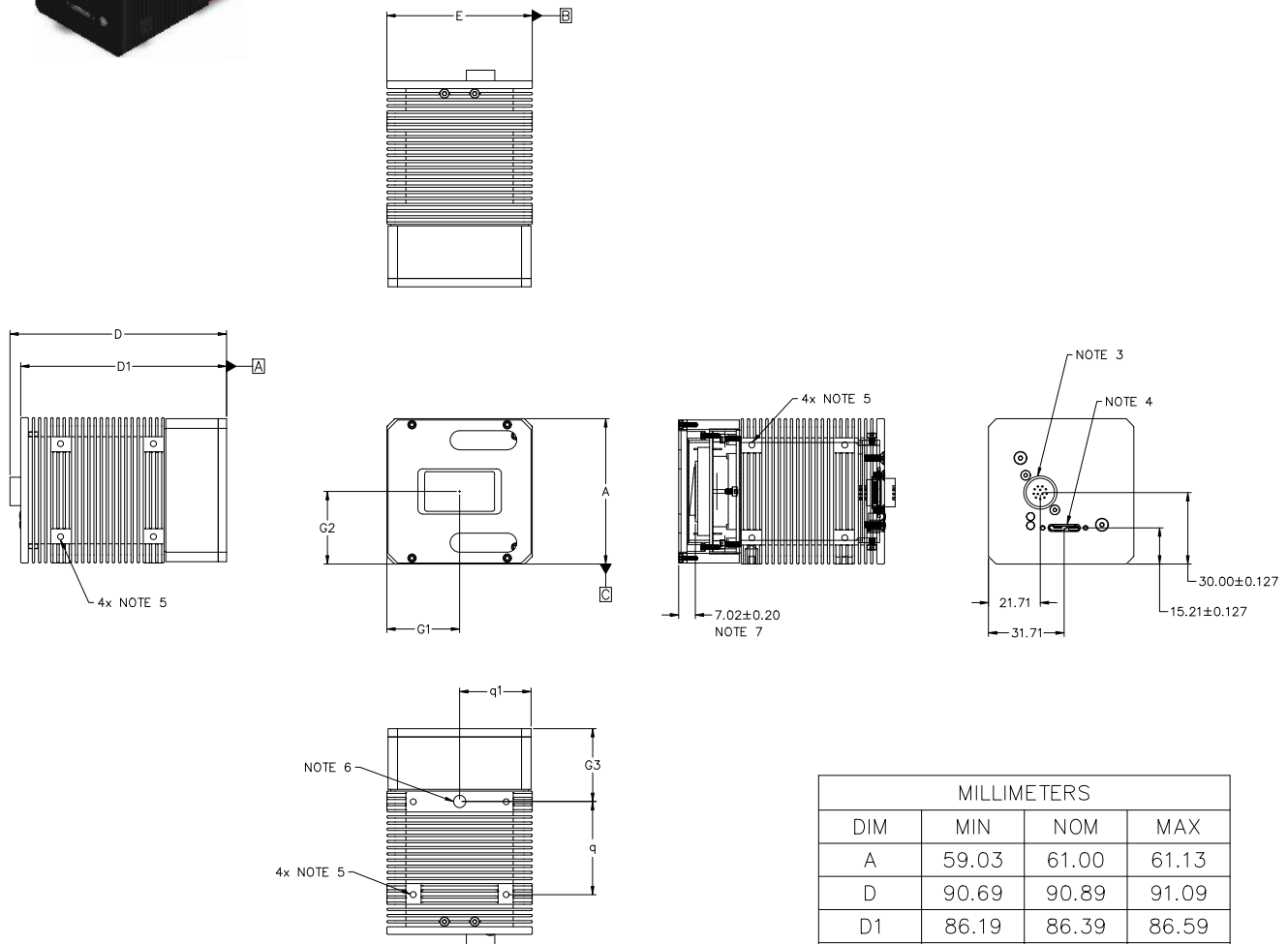


**Figure 4. Typical QE Performance**



CMOD 90.89x61.00x61.00  
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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. M3X0.5 DEPTH  $\nabla$  8.5.
6. 1/4-20 UNC DEPTH  $\nabla$  5.08
7. IMAGING SENSOR PLANE

MILLIMETERS			
DIM	MIN	NOM	MAX
A	59.03	61.00	61.13
D	90.69	90.89	91.09
D1	86.19	86.39	86.59
E	59.03	61.00	61.13
G1	30.37	30.50	30.63
G2	30.37	30.50	30.63
G3	30.49	30.61	30.74
q	38.00	39.11	39.24
q1	19.37	19.50	19.63

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