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
- 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

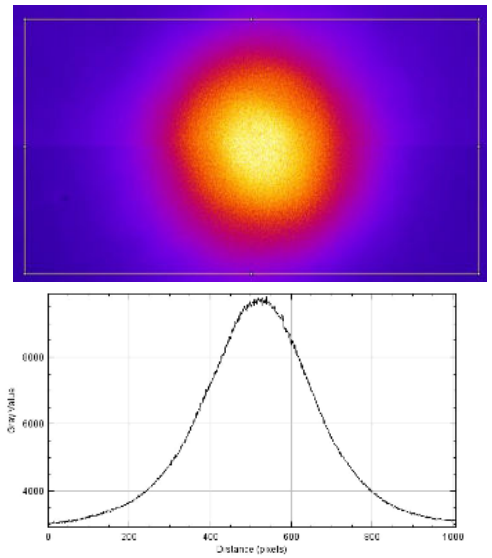
Parameter	Value/Description
Dimensions Excluding Lens	6.1 x 6.1 x 9.1 cm (C-mount)
Weight Excluding Lens	508 grams with (C-mount) adapter
Lens Mounts	Standard mount (C-mount). Inquire for other options.
Power Connector	Hirose 12-pin, HR10A-10R-12PB (71)
Trigger Connector	BNC

Table 4. SOFTWARE AND USER INTERFACE

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

Figure 1. Lens Mount

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

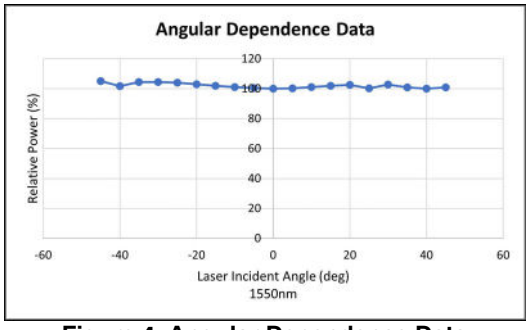


Figure 4. Angular Dependence Data

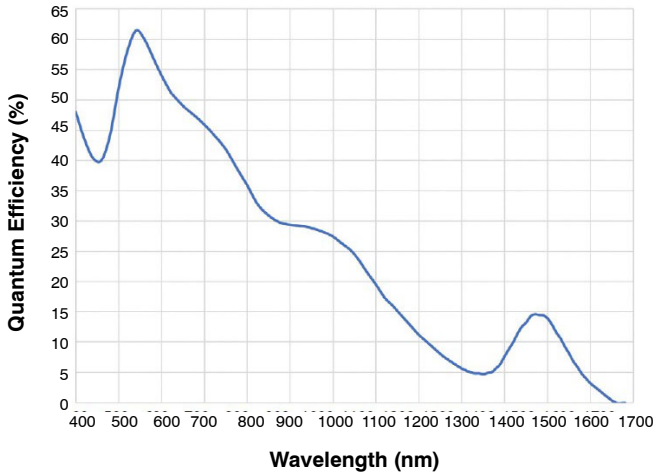


Figure 5. Typical QE Performance

CMOD 90.89x61.00x61.00
CASE 810AF
ISSUE A

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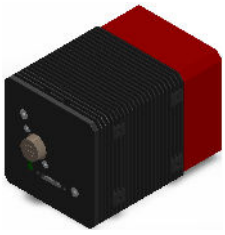

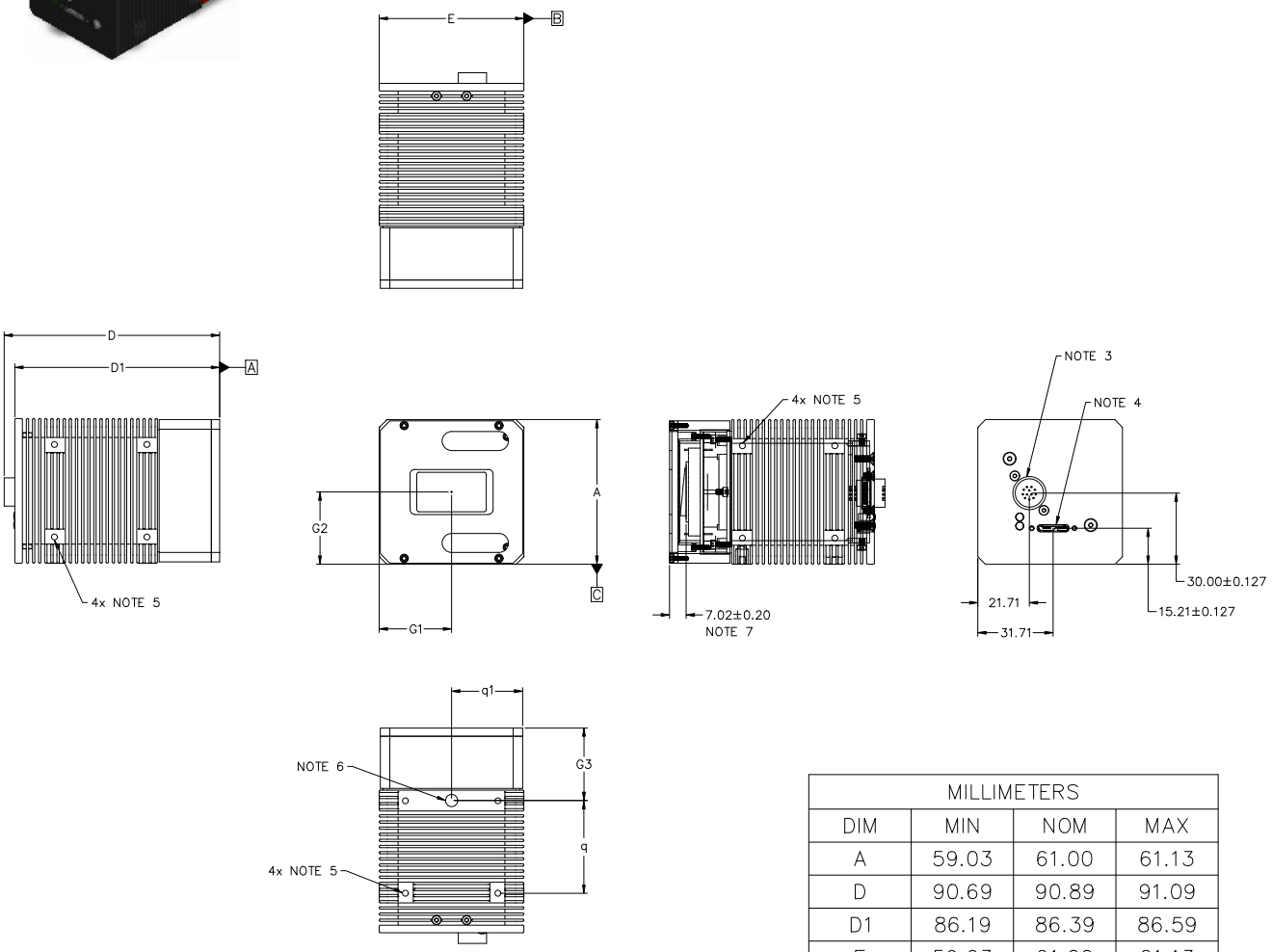

MILLIMETERS			
DIM	MIN	NOM	MAX
A	59.03	61.00	61.13
D	90.69	90.89	91.09
D1	86.19	86.39	86.59
E	59.03	61.00	61.13
G1	30.37	30.50	30.63
G2	30.37	30.50	30.63
G3	30.49	30.61	30.74
q	38.00	39.11	39.24
q1	19.37	19.50	19.63

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 ↧ 8.5.
6. 1/4−20 UNC DEPTH ↧ 5.08
7. IMAGING SENSOR PLANE

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