# ACUROS® CQD® 640L GigE eSWIR Camera

# ACUROS-0640-GigE-004


The ACUROS CQD L-Series SWIR cameras feature large sensor area, low angular dependence and a short working distance for highly divergent emitters. ACUROS cameras deliver high resolution, high dynamic range and very high detectivity imaging to 2000 nm.

The L-Series cameras are designed for use exclusively in laser beam diagnostics, laser beam imaging and laser alignment applications.

## 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 | 350−2000 nm |
| Array Size | 9.6 mm x 7.7 mm,<br>12.3 mm diagonal |
| Pixel Pitch | 15 μm x 15 μm |
| Max Frame Rate at Full Resolution | 270 fps (8 bit),<br>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 μs to 4 s |
| Dynamic Range | 65 dB typical |
| Windowing & Windowing Frame Rate | Array centered.<br>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 4) |

## ORDERING INFORMATION

| Part Number |
|---|
| ACUROS-0640-GigE-004 |

### 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-eSWIR

### 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. POE not supported |
| Regulatory Compliance | CE mark |

**Table 3. MECHANICAL SPECIFICATIONS**

| Parameter | Value/Description |
|---|---|
| Dimensions Excluding Lens | 6.1 x 6.1 x 9.8 cm |
| Weight Excluding Lens | 505 grams |
| Lens Mounts | Standard 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 | GigE Vision |

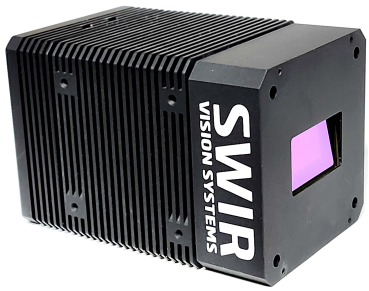
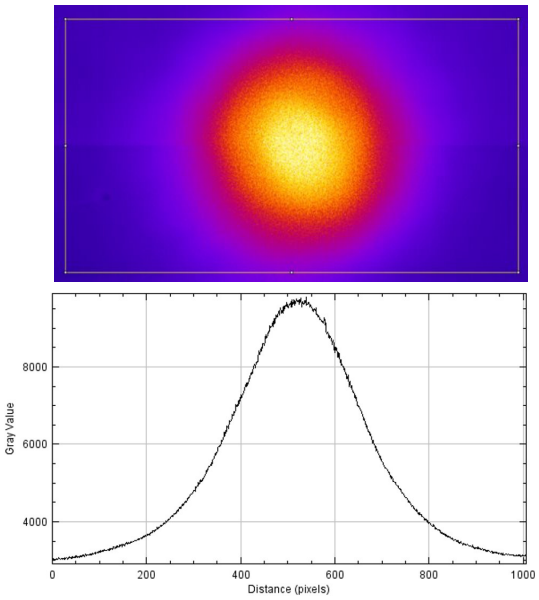



**Figure 1.**


**Figure 2. GigE Vision Interface**




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

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

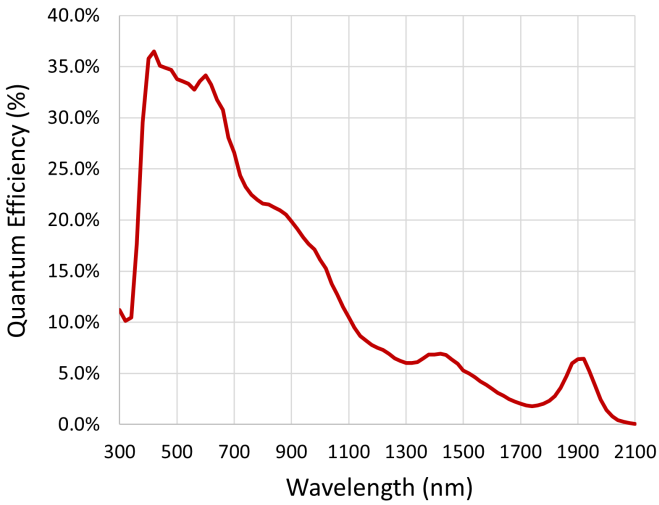
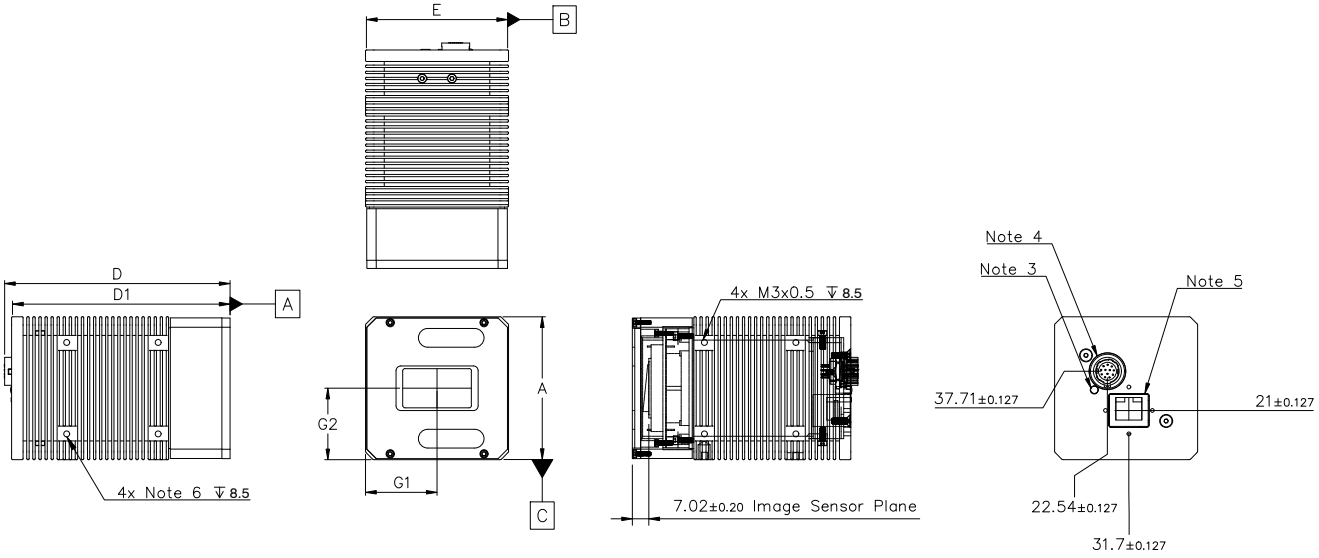
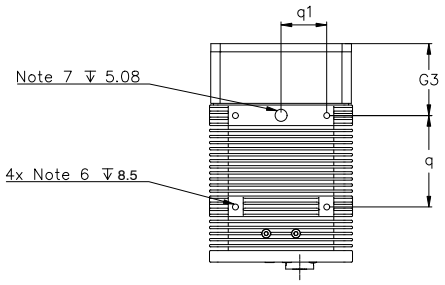



**Figure 4. Typical QE Performance**

**CMOD 96.20x61.00x61.00**
CASE 810AD
ISSUE A

DATE 18 NOV 2024




| MILLIMETERS | | | |
|---|---|---|---|
| DIM | MIN. | NOM. | MAX. |
| D | 96.00 | 96.20 | 96.40 |
| D1 | 93.00 | 93.20 | 93.40 |
| E | 59.03 | 61.00 | 61.13 |
| A | 59.03 | 61.00 | 61.13 |
| G1 | 30.35 | 30.48 | 30.61 |
| G2 | 30.35 | 30.48 | 30.61 |
| G3 | 30.47 | 30.60 | 30.73 |
| q | 38.98 | 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. POWER INIDCATOR
4. HIROSE 12 PIN CONNECTOR
5. GigE CONNECTOR
6. M3X0.5 DEPTH ⊽ 8.5.
7. 1/4−20 UNC DEPTH ⊽ 5.08

| | | | |
|---|---|---|---|
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