

ACUROS[®] CQD[®] 1280 USB3 eSWIR Camera

ACUROS-1280-USB3-002

The ACUROS CQD extended SWIR (eSWIR) cameras have sensitivity from 400 nm to 2000 nm. This novel, wide bandwidth capability opens up new applications for chemical sensing, surveillance imaging, plastic sorting, and more. Acuros eSWIR cameras have unmatched SNR without the need for expensive cooling systems.

SPECIFICATIONS

Table 1. ELECTRO-OPTICAL SPECIFICATIONS

| Parameter | Value/Description |
|-----------------------------------|--|
| Sensor | ACUROS CQD sensor |
| Temperature Stabilization | Single-stage thermo-electric cooler |
| Sensor Array Format | 1280 x 1024 |
| Resolution | 1.31 MP (megapixel) |
| Spectral Band | 400–2000 nm |
| Array Size | 19.2 mm x 15.4 mm, 24.6 mm diagonal |
| Pixel Pitch | 15 μm x 15 μm |
| Max Frame Rate at Full Resolution | 88 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 | 65 dB typical |
| Windowing | Array centered |
| Windowing Frame Rate | Scales inversely to window size |
| Binning Arrays | 2 x 2, 4 x 4 |
| Non-uniformity Correction | 2-point non-uniformity correction |
| Temporal Dark Noise | 80/70/65 e ⁻ typical |
| Detectivity | See typical detectivity curve (Figure 4) |



ORDERING INFORMATION

| Part Number |
|----------------------|
| ACUROS-1280-USB3-002 |

Features

- HD Resolution
- TEC Cooling
- Low Noise
- Fast Frame Rate
- Visible-eSWIR
- USB3 Vision

Applications

- Hydrocarbon Detection
- Chemical Sensing
- Medical Imaging
- Plastic Sorting
- Hyperspectral
- High Resolution
- Thermal Imaging
- Surveillance
- Machine Vision
- Silicon Inspection
- Instrumentation

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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 9.7 cm (C-mount) |
| Weight Excluding Lens | 590 grams with C-mount adapter |
| Lens Mounts | C, F, 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 & Pleora eBUS SDK (Linux, Windows, macOS) |
| GenICam Compliance | Yes |
| Interface | USB3 Vision |

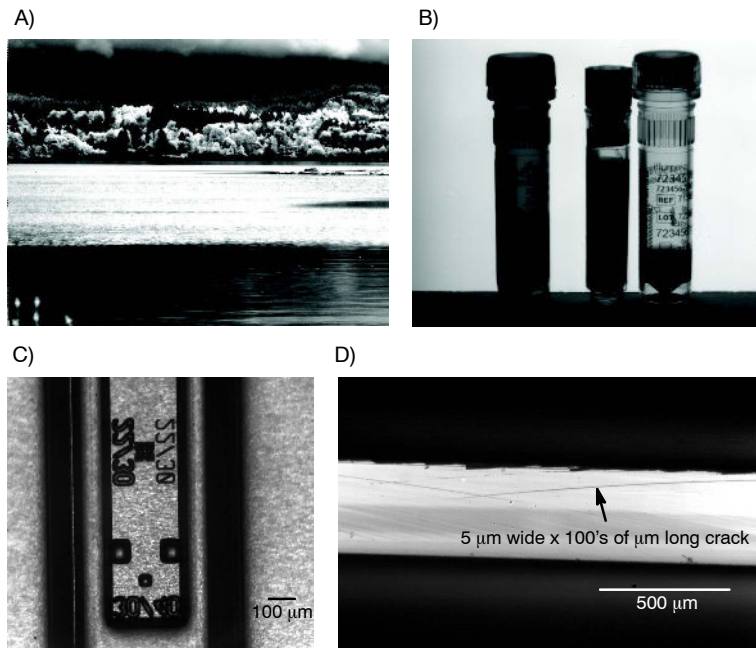


Figure 1. C-mount, F-mount, and M-42 Lens Mounts



Figure 2. USB3 Vision Interface

ACUROS-1280-USB3-002



- 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

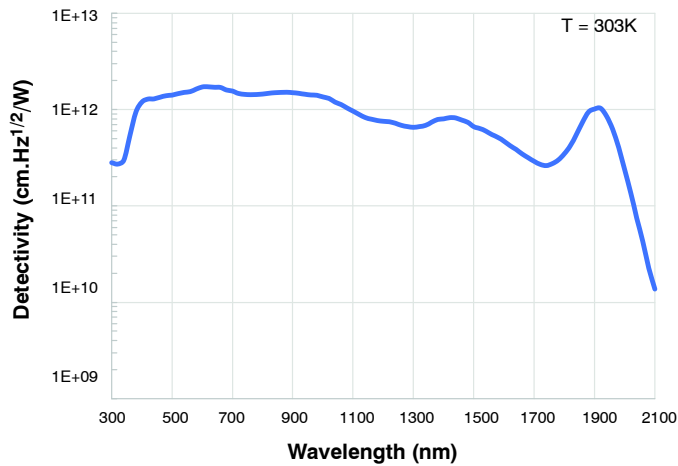
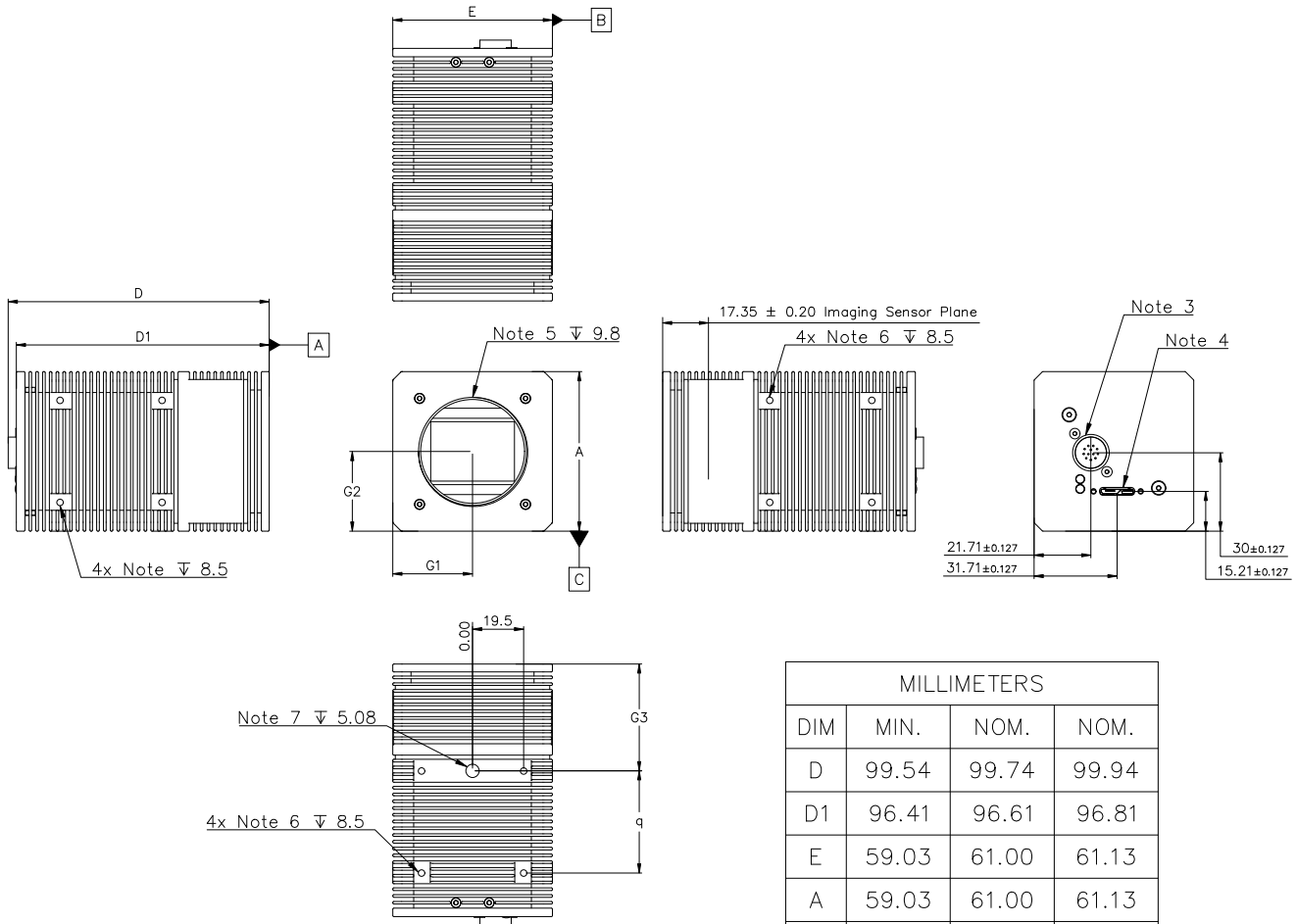


Figure 4. Typical Detectivity Performance

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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. M42-MOUNT ∇ 9.8
6. M3X0.5 DEPTH ∇ 8.5
7. 1/4-20 UNC DEPTH ∇ 5.08

| MILLIMETERS | | | |
|-------------|-------|-------|-------|
| DIM | MIN. | NOM. | NOM. |
| D | 99.54 | 99.74 | 99.94 |
| D1 | 96.41 | 96.61 | 96.81 |
| 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 | 40.63 | 40.83 | 41.03 |
| q | 38.98 | 39.11 | 39.24 |
| q1 | 19.37 | 19.50 | 19.63 |

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