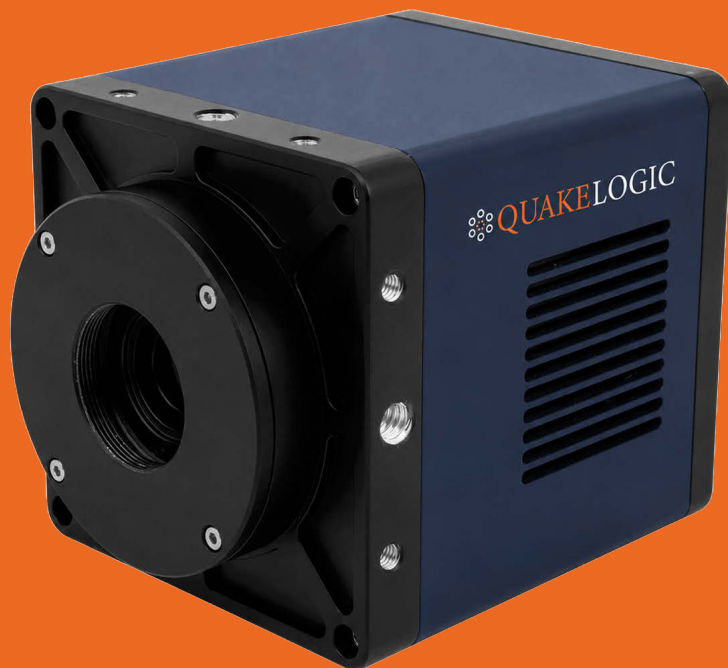


# QUAKELOGIC

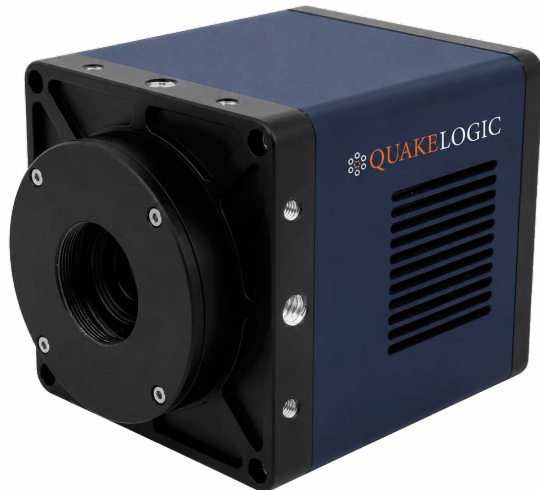
## SCIENTIFIC NIR/SWIR CAMERA



**QL-SpectraVision NIR**

# QL-SpectraVision NIR

## Scientific NIR/SWIR Camera



### PRECISION NEAR-INFRARED IMAGING FROM 400 TO 1700 NM

QL-SpectraVision NIR is a high-performance scientific near-infrared imaging camera built for semiconductor inspection, optical metrology, machine vision, and demanding laboratory research. It pairs a high-resolution Sony SenSWIR InGaAs sensor with visible-to-near-infrared sensitivity across the 400-1700 nm range, thermoelectric cooling, and global-shutter acquisition. The result is stable, distortion-free imaging with the measurement repeatability required for precision scientific and industrial applications.

- Broad 400-1700 nm spectral response lets a single camera cover visible and short-wave infrared imaging, reducing the number of instruments a lab must maintain.
- Thermoelectric closed-loop sensor cooling suppresses dark noise, delivering low-noise images and stable measurements during long or repeated acquisitions.
- Global shutter architecture captures fast-moving subjects without distortion, ensuring accurate geometry for metrology, inspection, and machine-vision tasks.
- USB 3.0 interface with included SDK for Windows, Linux, and macOS speeds integration into existing acquisition pipelines and automation systems.

### STANDARD FEATURES »

- SenSWIR InGaAs Sensor
- Global Shutter
- Thermoelectric Cooling
- USB 3.0 Interface
- C-Mount Lens Interface
- 1/4-20 Mounting Thread
- 12-bit ADC
- Pixel Binning
- ROI Selection
- Image Offset Control
- Non-Uniformity Correction
- Defective-Pixel Correction
- External TTL Trigger Input
- Programmable Output Trigger
- High-Speed Image Buffer
- Acquisition Software
- Multi-OS SDK
- Factory-Calibrated System
- DC Power Supply Included
- CE / FCC Compliant

# Key Features

- High-resolution 2560 × 2048 InGaAs sensor with 60 fps full-frame acquisition provides detailed imaging and throughput for high-speed inspection lines.
- InGaAs image sensor delivers greater than 30% quantum efficiency across 400–1600 nm for strong signal capture through the visible and SWIR bands.
- Global shutter architecture acquires every pixel simultaneously, eliminating motion smear and preserving geometric accuracy for measurement applications.
- Integrated thermoelectric cooling with software-selectable setpoint and closed-loop regulation minimizes sensor noise for demanding low-light imaging.
- 12-bit analog-to-digital conversion with selectable 8-bit or 12-bit output balances dynamic range against data rate to suit each application.
- Built-in non-uniformity and defective-pixel correction improve image fidelity out of the box without external post-processing overhead.
- Flexible acquisition with free-running and external TTL trigger modes plus programmable output enables synchronization of illumination and peripherals.
- Region-of-interest selection, pixel binning, and image offset control tailor frame rate, sensitivity, and data volume to each measurement task.
- Compact sub-100 mm metal housing with C-Mount interface and 1/4-20 thread integrates cleanly into fixtures, microscopes, and inspection rigs.

## PRODUCT FEATURES

### Image Sensor

High-Resolution scientific scientific-grade InGaAs 2D area scan sensor · 2560 × 2048 effective resolution or higher · Sensor size 1 in or smaller

### Spectral Response

400–1700 nm spectral sensitivity · Quantum efficiency > 30% across 400–1600 nm

### Acquisition

60 fps or higher at 8-bit full frame · Global shutter, distortion-free capture · High-speed image buffer for continuous acquisition

### Exposure & Triggering

Exposure 25 µs to 2 s, software-selectable · Free-running and external trigger modes · External TTL input; programmable output trigger

### Digitization & Processing

12-bit ADC, selectable 8-bit / 12-bit output · ROI selection, pixel binning, image offset · Non-uniformity and defective-pixel correction

### Cooling

Thermoelectric (TEC) sensor cooling · Software-selectable temperature setpoint · Precision closed-loop temperature regulation

### Interface & Mounting

USB 3.0 high-speed computer interface · Industrial C-Mount lens interface · 1/4-20 mounting thread

### Software

Image acquisition and live-view software included · SDK for Windows, Linux, and macOS

**For more information about the features, specifications, and available configurations of the QL-SpectraVision NIR, please contact QuakeLogic.**

MACHINE CONFIGURATION

| COMPONENT          | CONFIGURATION                              |
|--------------------|--------------------------------------------|
| Image Sensor       | High-Resolution InGaAs, 2D area scan       |
| Sensor Size        | 1 in (25.4 mm) or smaller                  |
| Shutter            | Global shutter architecture                |
| Digitization       | 12-bit ADC, selectable 8/12-bit output     |
| Cooling            | Thermoelectric (TEC), closed-loop setpoint |
| Computer Interface | USB 3.0 high-speed                         |
| Lens Mount         | Industrial C-Mount                         |
| Trigger I/O        | External TTL input, programmable output    |
| Housing            | Compact metal, < 100 × 100 × 100 mm        |
| Mounting           | Integrated 1/4-20 thread                   |
| Power Supply       | DC supply for U.S. AC systems (included)   |
| Software           | Acquisition suite + multi-OS SDK           |

CAPACITY

| SPECIFICATION         | VALUE                                     |
|-----------------------|-------------------------------------------|
| Effective Resolution  | 2560 × 2048 or higher                     |
| Full-Frame Frame Rate | 60 fps or higher (8-bit)                  |
| Spectral Range        | 400–1700 nm                               |
| Quantum Efficiency    | > 30% across 400–1600 nm                  |
| Exposure Time Range   | 25 μs to 2 s (extendable)                 |
| Bit Depth             | 12-bit ADC; 8-bit / 12-bit output         |
| Sensor Size           | 1 in (25.4 mm) or smaller                 |
| Acquisition Modes     | Continuous free-run / external trigger    |
| Housing Envelope      | < 3.9 × 3.9 × 3.9 in (100 × 100 × 100 mm) |

OPTIONAL FEATURES & ACCESSORIES

C-MOUNT NIR/SWIR LENS

Adds a broadband near-infrared to short-wave infrared optimized lens for imaging across the full 400–1700 nm range.

NIR ILLUMINATION MODULE

Provides synchronized near-infrared lighting driven by the programmable output trigger for consistent, controlled scene illumination.

PRECISION MOUNTING KIT

Adds fixture-grade mounts and adapters using the 1/4-20 thread for stable integration into optical benches and inspection rigs.

EXTENDED-LENGTH USB 3.0 CABLING

Supplies qualified high-speed cabling for reliable USB 3.0 data transfer over longer runs in automation cells.

## TECHNICAL SPECIFICATIONS

| SPECIFICATION         | DESCRIPTION                            |
|-----------------------|----------------------------------------|
| Sensor Type           | Scientific-grade 2D area scan InGaAs   |
| Sensor Model          | High-Resolution InGaAs                 |
| Effective Resolution  | 2560 × 2048 or higher                  |
| Sensor Size           | 1 in (25.4 mm) or smaller              |
| Shutter Type          | Global shutter                         |
| Spectral Sensitivity  | 400 nm to 1700 nm                      |
| Quantum Efficiency    | > 30% across 400–1600 nm               |
| Full-Frame Frame Rate | 60 fps or higher (8-bit output)        |
| ADC Resolution        | 12-bit                                 |
| Output Bit Depth      | Selectable 8-bit / 12-bit              |
| Exposure Time         | 25 µs to 2 s, software-selectable      |
| Extended Exposure     | Supported for specialized imaging      |
| Acquisition Modes     | Continuous free-run / external trigger |
| Trigger Input         | External TTL via camera I/O            |
| Trigger Output        | Programmable external output           |
| ROI                   | Pixel Region of Interest selection     |
| Binning               | Pixel binning supported                |

| SPECIFICATION              | DESCRIPTION                                  |
|----------------------------|----------------------------------------------|
| Image Offset               | Adjustable offset control                    |
| Gain Control               | Software-configurable                        |
| NUC                        | Built-in non-uniformity correction           |
| Defective-Pixel Correction | Built-in                                     |
| Sensor Cooling             | Thermoelectric (TEC), software setpoint      |
| Temperature Regulation     | Precision closed-loop                        |
| Image Buffer               | High-speed buffer for continuous acquisition |
| Computer Interface         | USB 3.0 high-speed                           |
| Lens Mount                 | Industrial C-Mount                           |
| Housing                    | Compact metal enclosure                      |
| Housing Dimensions         | < 3.9 × 3.9 × 3.9 in (100 × 100 × 100 mm)    |
| Mounting Thread            | Standard 1/4-20                              |
| Software                   | Acquisition & live-view suite included       |
| SDK Support                | Windows, Linux, macOS                        |
| Power Supply               | DC supply for U.S. AC systems (included)     |
| Calibration                | Factory-calibrated imaging system            |
| Compliance                 | CE and FCC compliant                         |

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**About QuakeLogic:**

QuakeLogic Inc. is a California-based engineering and technology company providing innovative, reliable, high-quality solutions to customers worldwide.

**Our Commitment**

We are committed to quality, innovation, and customer satisfaction – building lasting partnerships through reliable solutions and dependable support.

QL-SpectraVision NIR