

# Ninox ULTRA 640 SWIR

High resolution, low noise, Deep cooled, digital SWIR camera  
640 x 512 • Cooled to  $-80^{\circ}\text{C}$  •  $<30\text{e}$  in high gain



## Key Features and Benefits

*The best performing SWIR camera in the World!*

- **Deep cooled to  $-80^{\circ}\text{C}$  with PentaVac, Raptor's Vacuum technology**  
Enables ultra low dark current and longer exposure
- **$15\mu\text{m} \times 15\mu\text{m}$  pixel pitch**  
Enables highest resolution SWIR image
- **$<30\text{e}$  in high gain**  
Enables highest SWIR detection limit
- **Ultra high intrascene dynamic range - 71dB**  
Enables simultaneous capture of bright & dark portions of a scene

Resolution	<b>640 x 512</b>
Frame Rate	<b>Up to 300Hz</b>
Camera Link	<b>12-16 bit</b>
Wavelength Range	<b>SWIR</b>
Dark Current	<b><math>&lt;100 \text{ e/p/s}</math></b>

PRELIMINARY

## Specification for Ninox ULTRA 640 SWIR

Sensor Type	InGaAs PIN-Photodiode
Active Pixel	640 x 512
Pixel Pitch	15µm x 15µm
Active Area	9.6mm x 7.68mm
Spectral response <sup>1</sup>	0.9µm to 1.7µm
Noise (RMS)	<390 electrons Low Gain, <30 electrons High Gain
Quantum Efficiency	Peak >77%
Pixel Well Depth	Low Gain: 1.4Me-, High Gain: 40ke-
Pixel Operability	>99.5%
Dark Current	<100e/p/s @-80°C
Digital Output Format	12-16 bit
Exposure time	1µs until Saturation (typical 5 minutes)
Shutter mode	Global shutter
Frame Rate	300Hz
Dynamic Range	Low Gain: 71dB, High Gain: 63dB
Optical Interface	C-mount (selection of SWIR lens available)
Camera Setup / Control	Camera Link
Trigger interface	Trigger IN and OUT - TTL compatible
Power supply	12V DC ±10%
TE Cooling	-80°C with liquid cooling
Image Correction	RAW or 2 point NUC (Offset and Gain) + pixel correction
Functions controlled by serial communication	Exposure, intelligent AGC, Non Uniformity Correction, TEC
Camera Power Consumption <sup>2</sup>	Total power consumption <100W
Operating Case Temperature <sup>3</sup>	-20°C to +55°C
Storage Temperature	-30°C to +60°C
Dimensions (L*W*H) <sup>4</sup>	129mm x 112mm x 94mm (additional mounting holes, M4 or M5)
Weight	<1.5kg

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## Ordering Information

### Camera

NINOX ULTRA 640 SWIR digital camera	NXU17-CL-640
NINOX Power Supply Cable	RPL-HR4-K
Chiller Tubing <sup>5</sup>	RPL-WTUBE-NINOX
Liquid Re-circulator Unit	RPL-RECIRC

### Optional Accessories

EPIX(R) base CL card	RPL-EPIX-EB1
EPIX(R) XCAP STD software	RPL-XCAP-STD
CameraLink Cable, 2m <sup>6</sup>	RPL-CL-CBL-2M
Optical SWIR lenses <sup>7</sup>	RPL-xx-xxxx

Note 1: Optional filters available: Low, High or bandpass

Note 2: Measured in an ambient of 25°C with adequate heat sinking

Note 3: Extended Operating Temperature range on request

Note 4: Dimensions include all connector parts on camera interface

Note 5: This includes the tube + connectors

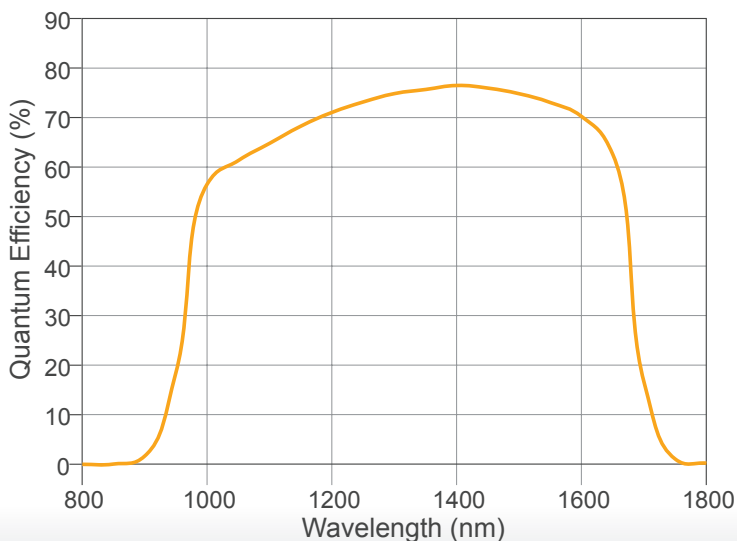
Note 6: Longer CL cable available

Note 7: Please consult us to check our range of lenses

Demo is available on request.  
Pricing AOR subject to volumes.

Detailed technical drawings  
can be downloaded at  
[www.raptorphotonics.com](http://www.raptorphotonics.com)

## Quantum Efficiency



## Applications

- Astronomy
- Beam Profiling
- Hyperspectral Imaging
- Semiconductor Inspection
- Solar Cell Inspection
- Thermography
- Microscopy
- Art Inspection

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