

# Ninox 640 SU

High resolution, low noise, Deep cooled, digital SWIR camera  
640 x 512 • 15µm x 15µm Pixel Pitch • Cooled to -80°C • <40e- in high gain •



## Key Features and Benefits

*The best performing SWIR camera in the World!*

- **Vacuum cooled to -80°C**  
Enables ultra-long exposure times
- **Ultra-low dark current and read-noise**  
Resulting in the highest sensitivity SWIR camera on the market
- **15µm x 15µm pixel pitch**  
Enables highest spatial resolution
- **PentaVac Vacuum Technology**  
Guaranteed protection and integrity of sensor

Resolution	<b>640 x 512</b>
Frame Rate	<b>Up to 98Hz</b>
Camera Link	<b>16 bit</b>
Wavelength Range	<b>SWIR</b>
Dark Current	<b>&lt;300 e/p/s</b>

PRELIMINARY

## Specification for Ninox 640 SU

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
Readout Noise (RMS) LG = Low Gain HG = High Gain	HG: <40e- (Typical <33e-) LG: <96e- (Typical <92e-)
Peak Quantum Efficiency	80% @ 1.5µm
Full Well Capacity	Low Gain: >85ke-, High Gain: >18.5ke-
Pixel Operability	>99%
Dark Current (e/p/s)	<300 @ -80°C
Digital Output Format	16 bit CameraLink (Base configuration) / SDR
Exposure time	20µs - 300 secs *
Shutter mode	Global shutter
Frame Rate	98Hz
Dynamic Range (typical)	Low Gain: 59.6dB High Gain: 56dB
Optical Interface	C-mount (selection of SWIR lens available)
Camera Setup / Control	16 bit Camera Link (Base Configuration / SDR)
Trigger interface	Trigger IN and OUT - TTL compatible
Power supply	12V DC ±10%
TE Cooling	-80°C with liquid cooling
Image Correction	2 Point NUC (Offset & Gain) + pixel correction
Functions controlled by serial communication	Exposure, Non Uniformity Correction, TEC
Camera Power Consumption <sup>2</sup>	<120W (TEC ON, NUC ON)
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>	120.9mm x 140.2mm x 113.1mm
Weight	<1.9kg

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\* IN HG mode exposure will be limited due to pixel well depth.

## Ordering Information

### Camera

Ninox 640 SU Digital Camera	NXU1.7-CL-640
Ninox Power Supply Cable	RPL-NXU-PSU

### Optional Accessories

Mini PC with XCAP STD and frame grabber	RPL-PC-mf2280
Thunderbolt frame grabber	RPL-mf2280
EPIX® EB1 frame grabber	RPL-EPIX-EB1
EPIX® XCAP Std software	RPL-XCAP-STD
MDR-SDR CameraLink Cable (2m) <sup>5</sup>	RPL-MCL-CBL-2M
Chiller Tubing <sup>6</sup>	RPL-WTUBE-NINOX
Thermoelectric Water Chiller Unit	RPL-CHILLER
Optical SWIR lenses <sup>7</sup>	RPL-xx-xxxx

Note 1: Optional filters available.

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: Longer Camera Link cable available.

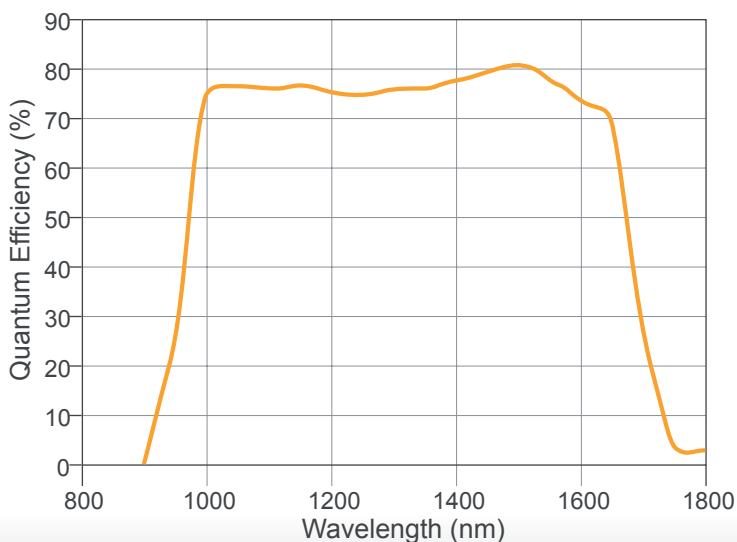
Note 6: This includes the tubing & connectors.

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



\* Data supplied by sensor manufacturer.

## Applications

### Scientific

- Art Inspection
- Astronomy
- Beam Profiling
- Hyperspectral Imaging
- In-vivo / NIR-II imaging
- Microscopy
- Semiconductor Inspection
- Solar Cell Inspection
- Thermography