

# Ninox 640 SU

High resolution, low noise, Deep cooled, digital SWIR camera  
640 x 512 • 15µm x 15µm Pixel Pitch • Cooled to -80°C • <30e in high gain •



## Key Features and Benefits

*The best performing SWIR camera in the World!*

- **Deep cooled to -80°C with PentaVac, Raptor's Vacuum technology**  
Enables ultra low dark current and longer exposure
- **15µm x 15µm pixel pitch**  
Enables highest resolution SWIR image
- **<30e 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 100Hz</b>
Camera Link	<b>16 bit</b>
Wavelength Range	<b>SWIR</b>
Dark Current	<b>&lt;100 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
Noise (RMS) LG = Low Gain HG = High Gain	LG: <390e- HG: <30e-
Peak Quantum Efficiency	80% @ 1.5µm
Pixel Well Depth	Low Gain: 1.4Me-, High Gain: 43ke-
Pixel Operability	>99.5%
Dark Current	<100e/p/s @-80°C
Digital Output Format	16 bit
Exposure time	1µs until Saturation (typical 5 minutes)
Shutter mode	Global shutter
Frame Rate	up to 100Hz
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>	<100W (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>	129mm x 112mm x 94mm (additional mounting holes, M4 or M5)
Weight	<1.5kg

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## Ordering Information

### Camera

Ninox 640 SU Digital Camera	NXU1.7-CL-640
Ninox Power Supply Cable	RPL-HR4-K
Chiller Tubing <sup>5</sup>	RPL-WTUBE-NINOX
Thermoelectric Water Chiller Unit	RPL-CHILLER

### Optional Accessories

Mini PC with XCAP Std and frame grabber	RPL-PC-EL1
EPIX® Camera Link frame grabber	RPL-EPIX-EB1
EPIX® XCAP Std software	RPL-XCAP-STD
Camera Link Cable (2m) <sup>6</sup>	RPL-CL-CBL-2M
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: This includes the tubing & connectors.

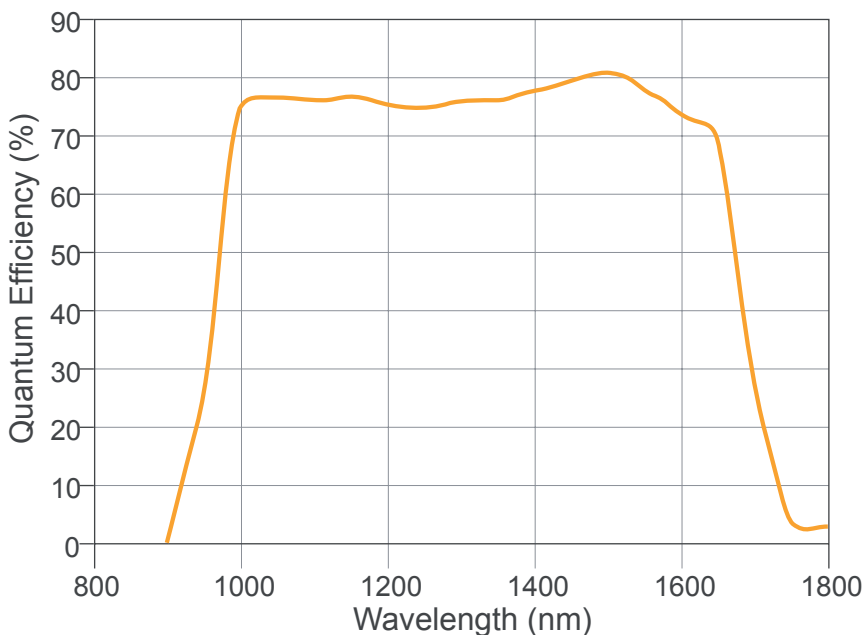
Note 6: Longer Camera Link cable available.

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

### Scientific

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

Document #: INNXU1.7-CL-640 0120



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