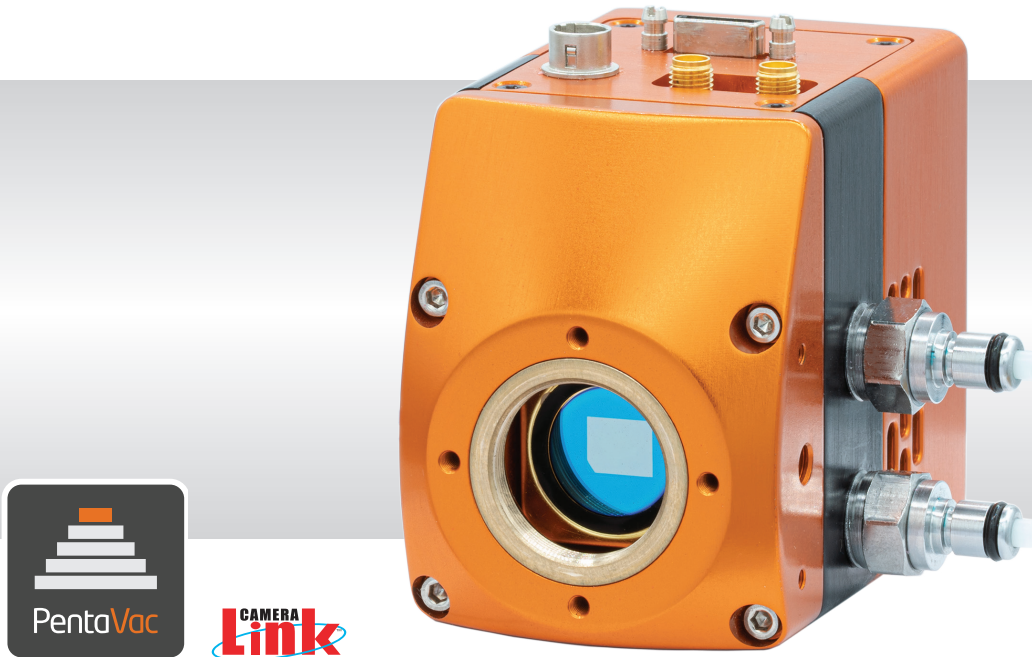




# Ninox 640 II

Ultra low noise, cooled, digital VIS-SWIR camera

640 x 512 • 15µm x 15µm Pixel Pitch • 18 electrons • Air Cooled to -15°C •



## Key Features and Benefits

*The best performing VIS-SWIR camera in the World!*

- **Ultra Low Noise Sensor: 18e-**  
Enables ultimate low light Vis-SWIR image
- **Air Cooled VIS-SWIR technology**  
Air Cooled to -15°C. Enables low dark current for longer exposures
- **15µm x 15µm Pixel Pitch**  
Enables highest resolution VIS-SWIR image
- **Ultra High Intra-scene Dynamic range - 62dB (Typical)**  
Enables simultaneous capture of bright & dark portions of a scene

Resolution	<b>640 x 512</b>
------------	------------------

Readout Noise	<b>18e- (typical)</b>
---------------	-----------------------

Spectral Response	<b>0.6µm - 1.7µm</b>
-------------------	----------------------

Typical Dark Current	<b>&lt;1500e/p/s</b>
----------------------	----------------------

Specification for Ninox 640 II

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>	0.6µm to 1.7µm
Readout Noise (RMS) <sup>2</sup> LG = Low Gain HG = High Gain	LG: <175e- (150e- typical) HG: <22e- (18e- typical)
Peak Quantum Efficiency	>90% @ 1.3µm
Pixel Well Depth	LG: >250ke-, HG: 10ke-
Pixel Operability	>99.5%
Dark Current (e/p/s)	<3,000 @-15°C (1,500 typical)
Digital Output Format	14bit Camera Link (Base Configuration) /SDR
Exposure Time <sup>3</sup>	LG: 10µs to 26.8s HG: 100µs to 26.8s
Shutter Mode	Global shutter
Frame Rate	Up to 120Hz
Optical Interface	C-mount (selection of SWIR lens available)
Dynamic Range (Typical)	LG: 62dB HG: 55dB
Trigger Interface	Trigger IN and OUT - TTL compatible
Power Supply	12V DC +/- 0.5V
TE Cooling	Cooled to -15°C, ΔT = 35°C
Image Correction	3 point NUC (offset, Gain & Dark Current) + pixel correction
Functions controlled by serial communication	Exposure, intelligent AGC, Non Uniformity Correction, Gamma, Pk/Av, TEC, ROI
Camera Power Consumption <sup>4</sup>	<10W with TEC ON, NUC ON)
Operating Case Temperature <sup>5</sup>	-20°C to +55°C
Storage Temperature	-30°C to +60°C
Dimensions (L*W*H) <sup>6</sup>	87.30mm x 78.86mm x 79.30mm
Weight	550g

Raptor Photonics Limited reserves the right to change this document at any time without notice and disclaims liability for editorial, pictorial or typographical errors.

Ordering Information

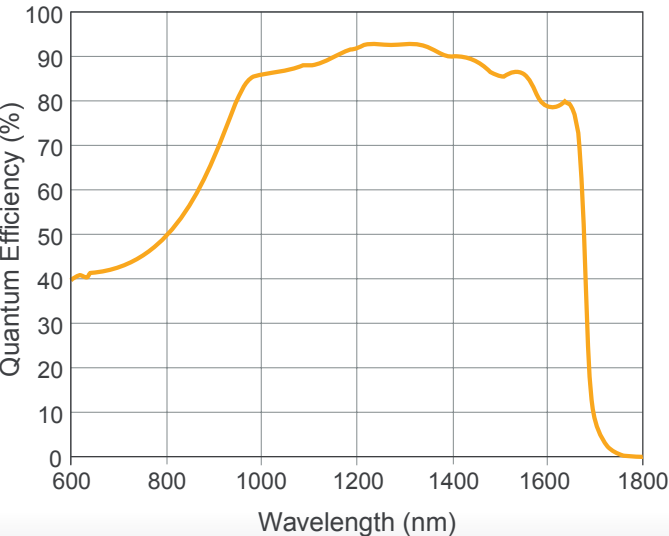
<b>Camera</b>	
Ninox 640 II Digital Camera	NN1.7-VS-CL-640
Power Supply Cable	RPL-HR4-K
<b>Optional Accessories</b>	
Mini PC with XCAP STD and frame grabber	RPL-PC-mf2280
Thunderbolt frame grabber	RPL-mf2280
EPIX® EB1 frame grabber	RPL-EPIX-EB1
EPIX® XCAP Std software	RPL-XCAP-STD
MDR-SDR Camera Link Cable (2m) <sup>7</sup>	RPL-MCL-CBL
Thermoelectric Water Chiller Unit <sup>8</sup>	RPL-CHILLER
Chiller Tubing <sup>9</sup>	RPL-WTUBE-NINOX
Optical Lenses <sup>10</sup>	RPL-xx-xxxx

- Note 1: Optional filters available: low, high or bandpass.
- Note 2: Typical readout noise is calculated from an average of the last 20 cameras shipped..
- Note 3: In practice, the maximum exposure time will be dark current limited.
- Note 4: Measured in an ambient of 25°C with adequate heat sinking. For more detailed power consumption values, please refer to the user manual.
- Note 5: Extended Operating Temperature range available on request.
- Note 6: Dimensions include all connector parts on the camera interface.
- Note 7: Longer Camera Link cable available.
- Note 8: This includes the chiller and the liquid. Recommended coolant flow rate >0.5l/min & cooling capacity >100W @ 20°C.
- Note 9: This includes the tubing & connectors.
- Note 10: 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**
- Astronomy
  - Beam Profiling
  - Hyperspectral Imaging
  - Semiconductor Inspection
  - Solar Cell Inspection
  - Thermography
  - Microscopy
  - Art Inspection