

Ninox ULTRA 640 SWIR

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	640 x 512
Frame Rate	Up to 300Hz
Camera Link	16 bit
Wavelength Range	SWIR
Dark Current	<100 e/p/s

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 ¹	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 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 ²	<100W (TEC ON, NUC ON)
Operating Case Temperature ³	-20°C to +55°C
Storage Temperature	-30°C to +60°C
Dimensions (L*W*H) ⁴	129mm x 112mm x 94mm (additional mounting holes, M4 or M5)
Weight	<1.5kg

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

Camera

NINOX ULTRA 640 SWIR digital camera	NXU1.7-CL-640
NINOX Power Supply Cable	RPL-HR4-K
Chiller Tubing ⁵	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) ⁶	RPL-CL-CBL-2M
Optical SWIR lenses ⁷	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.

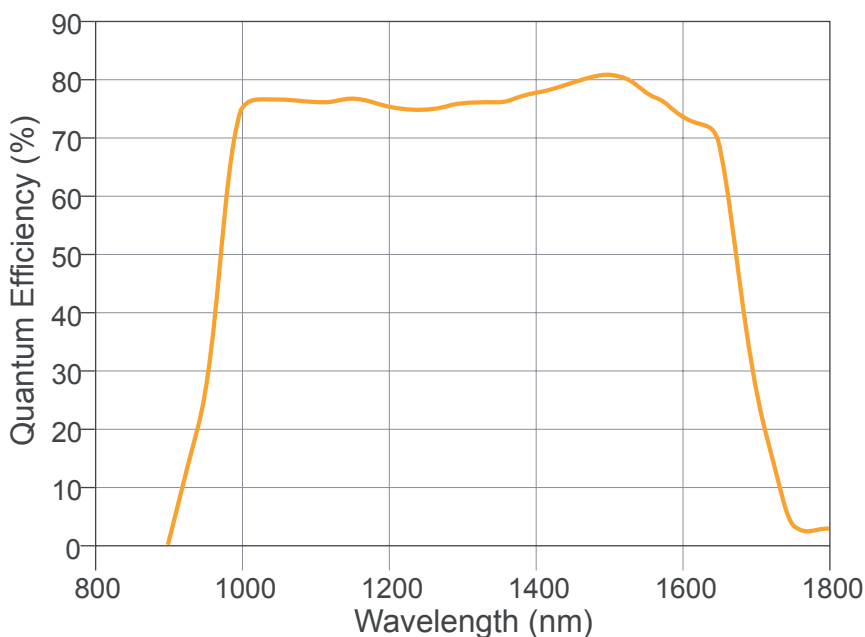
Note 6: Longer Camera Link cable available.

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

Quantum Efficiency



Applications

Scientific

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

Document #: INNXU1.7-CL-640 1019R3



Willowbank Business Park
Larne, Co Antrim
BT40 2SF,
Northern Ireland

Raptor Photonics Ltd. (UK)
T: +44(0)2828 270 141
E: sales@raptorphotonics.com
www.raptorphotonics.com

Raptor Photonics Inc. (USA)
T: +1 (877) 230-4836
E: sales@raptorphotonics.com
www.raptorphotonics.com

