OXFORD INSTRUMENTS | ANDOR

C-RED New Space

New Space Applications SWIR Camera Core

Key Specifications

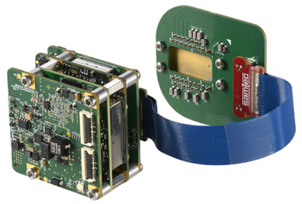
- ✓ SWIR 0.9 - 1.7 µm
- ✓ Full Frame 600 fps
- ✓ <30 e- read noise
- ✓ 640 x 512 InGaAs, 15 µm pixel pitch
- ✓ High dynamic range: 93 dB & true 16 bits
- ✓ Designed for space optical payloads
- ✓ Board level for easy integration

Key Applications

- ✓ FSO communications
- ✓ Space exploration
- ✓ Data exchange
- ✓ Cubesats
- ✓ Earth observations
- ✓ Environmental monitoring
- ✓ Gas detection

andor.oxinst.com

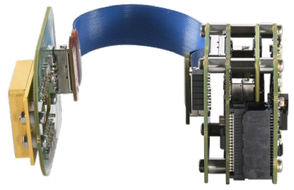
Introducing C-RED New Space



C-RED New Space is a SWIR camera core specifically tailored for satellite optical payloads. Based on a VGA InGaAs sensor with a resolution of 640x512 pixels and a 15 µm pixel pitch, the camera is sensitive in the 0.9 to 1.7 µm range with a quantum efficiency exceeding 70% from 1000 to 1650 nm.

C-RED New Space is an off-the-shelf SWIR camera module, for a successful seamless integration into any system, specifically satellite optical payloads. The camera offers extensive customization in hardware, electronic design and firmware to ensure optimal performance and support the demanding conditions of space operations.

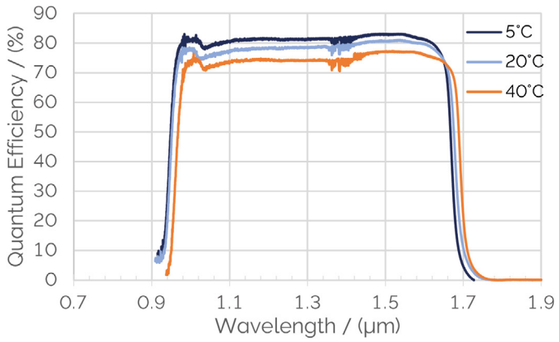
The camera offers a full frame acquisition speed of 600 frames per second and up to 32066 frames per second in 32x4 in windowing mode. Its high frame rate optimizes temporal resolution, making it invaluable for applications that involve rapid changes or movements.



This high frame rate is combined to an extreme sensitivity and high dynamic range, without compromises. C-RED New Space offers a readout noise below 30 electrons and a 93 dB and true 16 bits high dynamic range mode: it enables imaging and sensing in ultra low light conditions and various light intensities. Additionally, the camera can operate across a large operational temperature range, making it suitable for challenging environments. Its advanced thermal design ensures low and repeatable noise, as well as maintained quantum efficiency performances.

C-RED New Space is equipped with a high-throughput CameraLink® interface, ensuring minimal latency and optimal real time capability. Other interfaces can be provided upon request. The camera is designed to be customizable both on hardware and software aspects, and offers multiple assets for an easy integration into your system: user presets and synchronization configurations, along with on-board processing features including AGC, 2-point NUC (Non Uniformity Correction), and image flip.

Contact us to discuss your project.



Technical Specifications

Some specifications are project dependent, please contact us to discuss your specific requirements.

Sensor Specifications		C-RED New Space
Sensor size		640 x 512 pixels | 0.3 Mp
Pixel pitch		15 µm
Quantization		14 bit
Readout Noise at high gain, Tint at 50 µs, 600 fps Full Frame at 5°C		<30 e-
Flat Quantum Efficiency from 1.0 µm to 1.65 µm		>70%
Operability due to signal response (pixels with signal ± 0.3*median at 20°C)		> 99.8 %
Image full well capacity	low gain	1.4 Me-
	medium gain	115 ke-
	high gain	34 ke-
Frame rate	full frame	600 fps
	32 x 4 (min) pixels	32066 fps
	320 x 256 pixels	1779 fps
Power	Sensor: 0.5 W to 13.9 W max Stack: 6 W	

Additional Features	All models
Output	CameraLink®
Triggering	LVTTL synchronization (5 V tolerant)
High Dynamic Range mode	93 dB and true 16 bits
Configuration	Fast configuration switch mode (To be developed)
Operating temperature	Dependent on mechanical integration
Software	Graphical User Interface: First Light Vision Software Development Kit: (C, C++, C#, Python, MatLab) / LabVIEW / µManager)

Lines	Frame rate table cropping mode CameraLink® output Columns					
	32	**64**	**128**	**256**	**512**	**640**
4	32066	31512	30458	28548	25367	24029
8	28108	27348	25945	23532	19840	18397
16	22542	21631	20015	17413	13819	12526
32	16147	15254	13736	11455	8599	7646
64	10302	9596	8440	6801	4898	4297
128	5975	5509	4765	3752	2632	2291
256	3247	2975	2547	1978	1367	1184
512	1697	1549	1319	1016	697	602

Order Today

Need more information? At Andor we are committed to finding the correct solution for you. With a dedicated team of technical advisors, we are able to offer you one-to-one guidance and technical support on all Andor products. For a full listing of our local sales offices, please see: andor.oxinst.com/contact

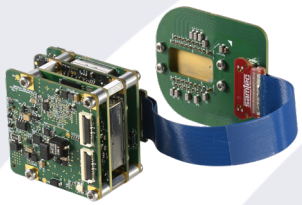
Our regional headquarters are:

Europe
Belfast, Northern Ireland
Phone +44 (28) 9023 7126
Fax +44 (28) 9031 0792

North America
Concord, MA, USA
Phone +1 (860) 290 9211
Fax +1 (860) 290 9566

Japan
Tokyo
Phone +81 (3) 6744 4703
Fax +81 (3) 3446 8320

China
Beijing | Shanghai | Guangzhou
Phone +86 (400) 678 0609
Fax +86 (10) 5884 7901



Items shipped with your camera:
1x Camera (model as ordered)
1x Power supply
1x Power supply cable

Footnotes: Specifications are subject to change without notice

Minimum Computer Requirements:
RAM: 8 GB minimum
Processor: Intel® Core™ i5 or higher
Screen resolution: at least 1920 x 1080
See system requirements for more information.

Operating and Storage Conditions

- Operating Temperature: Mechanical integration dependent

Camera Part	Min Temperature/ °C	Max Temperature/ °C
Sensor	-20	60
CPU		90
Interface		70
Backend		70
Ambient		65

- Relative Humidity: 95% (non-condensing) (Cooling off or cooling on with ambient temperature above the dew point.)
- Storage Temperature: -40°C to 60°C

Power Requirements

- 100 – 264 VAC 50 - 60 Hz
- Max. power consumption:
  Sensor: 0.5 W to 13.9 W max
  Stack: 6 W

CE

C-REDNS SS 0624 R1