

ULTRA LOW NOISE ULTRA HIGH SPEED SWIR CAMERA



SWIR
0.8 - 2.43 μm



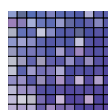
3500 FPS



Subelectron RON + Dark



320 x 256 e-APD MCT,
24 μm pixel pitch

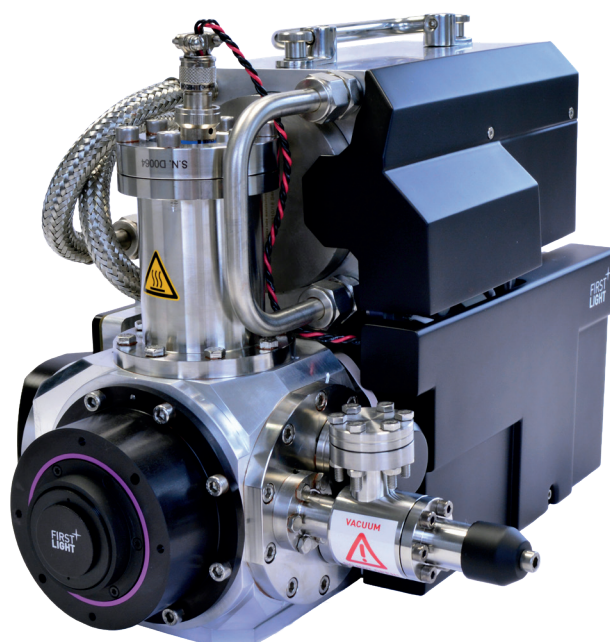


Multiple Readout Modes



SDK compatible with μ Manager,
LabVIEW, MatLab, Python...

FASTEST AND LOWEST NOISE MCT
FOR HIGH DEMANDING SCIENTIFIC APPLICATION



APPLICATIONS

ASTRONOMY:

Adaptive Optics for Astronomy
Astronomical Observations
with Interferometers
Space Debris Tracking
Fringe Tracking

LIFE SCIENCES:

Adaptive optics
Cellular microscopy
Hyperspectral imaging

INDUSTRY:

Semiconductor inspection
Gas monitoring
Leak detection

C-RED ONE PERFORMANCES

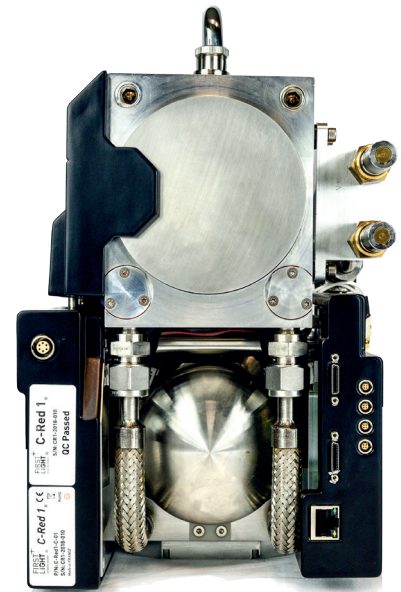
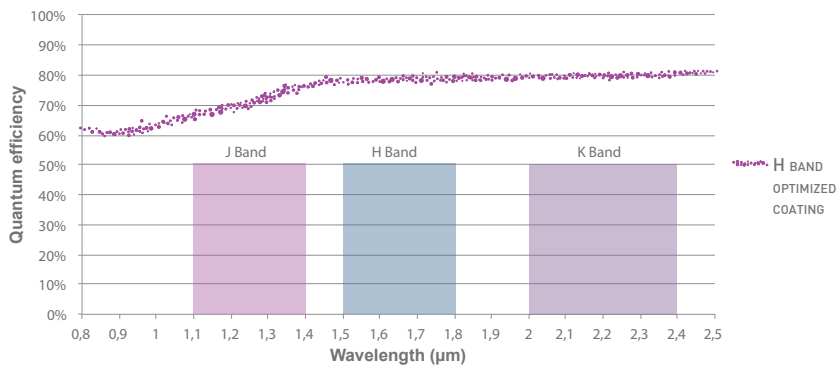
TEST MEASUREMENT*	Result	Unit
Maximum speed Full Frame single readout	3500	FPS
Readout Noise at 1720 FPS CDS readout and gain x50, looking at a black body at a temperature of 90K	<1	e-
Dark current looking at a black body at a temperature of 90K and e-APD gain x10	<80	e-/p/s
Quantization	16	bit
Detector Operating Temperature (No LN2)	90	K
Flat Quantum Efficiency from 1.1 μm to 2.4 μm (J, H, K) at 100K	>60	%
Operability due to signal response / pixels with signal <0.8*median at bias of 9V and integration time of 10 ms	<0.1	%
Operability due to CDS noise / pixels with noise <2*median at bias of 9V and integration time of 10 ms	<0.1	%
Excess noise Factor F	<1.25	n/a
Pulse tube cooling, vibration imparted to the detector with respect to the front flange of the camera (RMS along each detector axis)	<1	μm

*Average values observed

ADDITIONAL FEATURES

Output : Camera Link® Full
Optical Interface : T-Mount
Multiple Readout Modes <ul style="list-style-type: none"> •Global reset •Rolling reset •Single read, CDS or multiple non destructive reads
Region of Interest (ROI)
Ultra low latency Camera Link® full interface
Clock & Trigger input/output for synchronous operation
Custom design available upon request
Embedded cold blocking filters
Available in H band configuration (0.8 - 1.75 μm) with f/4 baffle or in K band configuration (0.8 - 2.43 μm) with f/20 baffle
Software: Graphical User Interface: First Light Vision - Software Development Kit: (C, C++, C#, Python, MatLab) / LabVIEW / μManager / Halcon

TYPICAL QE OF SAPHIRA E-APD



SWaP : H 238 x W 180 x L 365 mm, 19.4 kg, up to 300 W

First Light Imaging SAS

Europarc Sainte Victoire Bât 5, Route de Valbrillant, Le Canet 13590
Meyreuil FRANCE
Tel.: +33 4 42 61 29 20
www.first-light-imaging.com
contact@first-light.fr

First Light Imaging Corp.

185 Alewife Brook Parkway, Suite 210, Cambridge, MA 02138 USA
www.first-light.us



東京インスツルメンツ
TOKYO INSTRUMENTS
本社: 〒134-0088 東京都江戸川区西葛西 6-18-14 T.I.ビル
TEL: 03-3686-4711 FAX: 03-3686-0831
大阪営業所: 〒532-0003 大阪府淀川区豊原 4-1-46 新大阪北ビル
TEL: 06-6393-7411 FAX: 06-6393-7055



This project leading to this application has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement N°673944

FIRST LIGHT
ADVANCED IMAGERY