

## 1.9 $\mu\text{m}$ & 2.2 $\mu\text{m}$ EXTENDED InGaAs SWIR CAMERA



1.1 - 1.9  $\mu\text{m}$   
or  
1.3 - 2.2  $\mu\text{m}$



600 FPS



< 40  $e^-$  RON  
or  
< 50  $e^-$  RON



InGaAs 640x512  
15  $\mu\text{m}$  pixel pitch



SDK compatible with  $\mu$ Manager,  
LabVIEW, MatLab, Python...

### HIGH SPEED EXTENDED SWIR



### APPLICATIONS

#### ASTRONOMY:

Adaptive Optics  
Laser Communications

#### SURVEILLANCE:

LiDAR  
Long Range Imaging

#### INDUSTRY:

Multispectral Imaging  
Quality/Production Control  
Laser beam characterization

#### RESEARCH:

Spectroscopy  
Fluorescence Microscopy  
Material Science

# C-RED 2 EXTENDED RANGE 1.9μm & 2.2μm PERFORMANCES

TEST MEASUREMENT*	C-RED 2 ER 1.9μm	C-RED 2 ER 2.2μm	Unit
	Result	Result	
Full sensitivity range (QE >10%)	1100 - 1900	1300 - 2150	nm
Quantum Efficiency >70%	1150 - 1800	1380 - 2050	nm
Maximum speed Full Frame	600		FPS
Readout Noise at high gain, Tint @ 50μs, 600 FPS Full Frame	<50 (@ -40°C)	<40 (@ -55°C)	e-
Dark Current (looking at a 20°C target)	20 (@ -40°C)	120 (@ -55°C)	ke/p/s
Quantization	14		bit
Operability	> 95 (@ -40°C)	contact us	%
Image Full well capacity at low gain, 600 fps	1500		ke-
Image Full well capacity at med gain, 600 fps	130		ke-
Image Full well capacity at high gain, 600 fps	34		ke-
<b>Maximum speed in 32 x 4 (min)</b>	<b>32066</b>		<b>FPS</b>
Maximum speed in 320 x 256	1779		FPS

\* Average values observed

## ADDITIONAL FEATURES

Outputs: USB 3.1 Gen 1 or CameraLink® Full

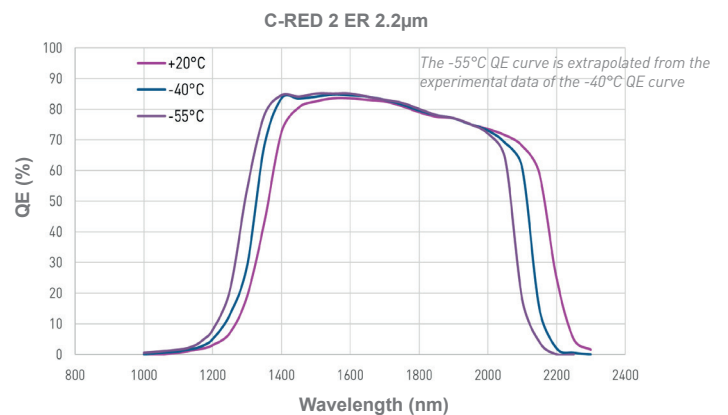
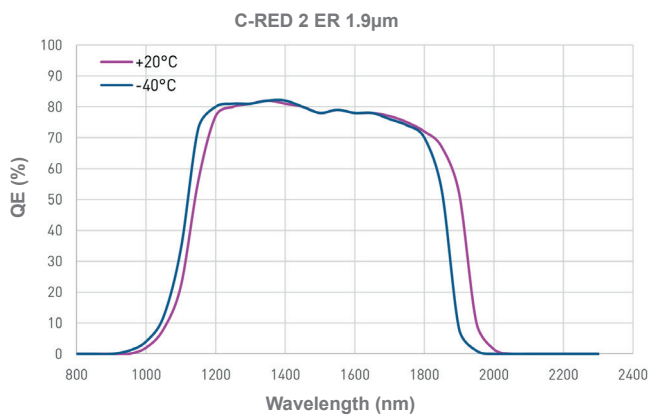
Embedded image corrections

Optical interface: C-Mount

LVTTTL/LVDS synchronization

Software: **Graphical User Interface:** First Light Vision - **Software Development Kit:** [C, C++, C#, Python, MatLab] / LabVIEW / μManager / Halcon

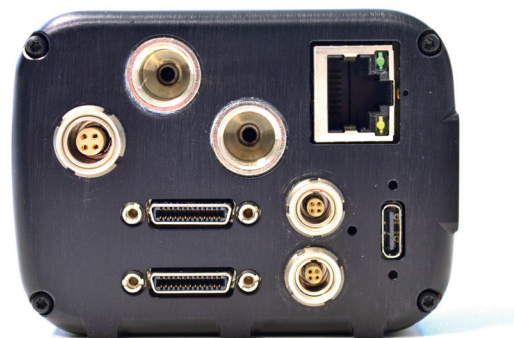
## QUANTUM EFFICIENCY



## FRAME RATE TABLE AT 600 FPS READOUT SPEED CAMERA LINK® OUTPUT

		Columns					
		32	64	128	256	512	640
Lines	4	32 066	31 512	30 458	28 548	25 367	24 029
	8	28 108	27 348	25 945	23 532	19 840	18 397
	16	22 542	21 631	20 015	17 413	13 819	12 526
	32	16 147	15 254	13 736	11 455	8 599	7 646
	64	10 302	9 596	8 440	6 801	4 898	4 297
	128	5 975	5 509	4 765	3 752	2 632	2 291
	256	3 247	2 975	2 547	1 978	1 367	1 184
512	1 697	1 549	1 319	1 016	697	602	

For USB 3 Output: Max 9999 FPS



SWaP : H55 x W75 x L140 mm, 0.9 kg

### 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](http://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](http://www.first-light.us)

**TII 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 大阪府深川区宮原 4-1-46 新大阪北ビル  
TEL: 06-6393-7411 FAX: 06-6393-7055

**FIRST LIGHT**  
ADVANCED IMAGERY