

VERY HIGH SPEED ULTRA LOW DARK SWIR CAMERA



SWIR
0.9 - 1.7 μm



600 FPS



<30 e- RON + ultra low dark



640 x 512 InGaAs,
15 μm pixel pitch



93 dB and true 16 bits
High Dynamic Range



SDK compatible with μ Manager,
LabVIEW, MatLab,

LONG EXPOSURE TIMES OPTIMISATION
FOR LOW LIGHT SWIR APPLICATIONS



APPLICATIONS

ASTRONOMY:

Adaptive optics
Astronomical observations
Wavefront sensing

SURVEILLANCE:

Low visibility imaging
Fire prevention

LIFE SCIENCES:

Small animal imaging
Hyperspectral imaging
Fluorescence microscopy

INDUSTRY:

Semiconductor inspection
Quality / Production control
Food sorting

C-RED 2 PERFORMANCES

FEATURES*		Result	Unit
Sensor size		640 x 512	pixels
		0.3	Mp
Pixel pitch		15	µm
Maximum speed Full Frame		600	FPS
Readout Noise at high gain, Tint at 50 µs, 600 FPS Full Frame		< 30	e-
Dark Current @ -40°C		< 600	e-/p/s
Quantization		14	bit
Flat Quantum Efficiency 1.0 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	1400	ke-
	med gain	128	ke-
	high gain	33	ke-
Maximum speed in 32 x 4 (min)		32066	FPS
Maximum speed in 320 x 256		1779	FPS

* Average values observed

ADDITIONAL FEATURES

Outputs: USB 3.1 Gen 1 and CameraLink®

Optical interface: C-Mount

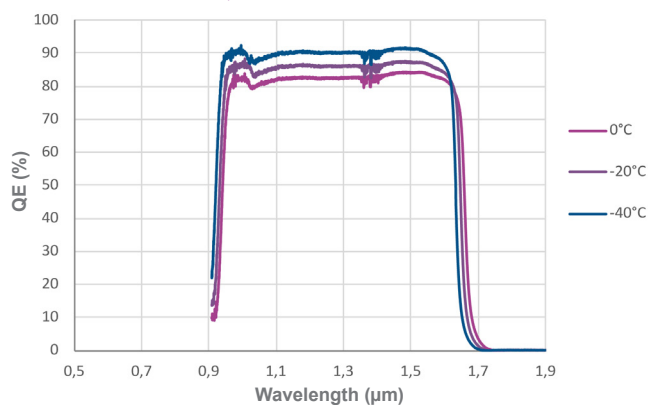
LVTTTL/LVDS synchronization

HDR : 93 dB and 16 bits

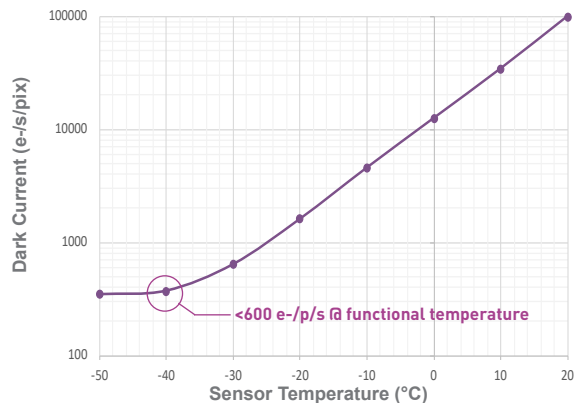
Long exposure times optimization up to several minutes

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

QUANTUM EFFICIENCY



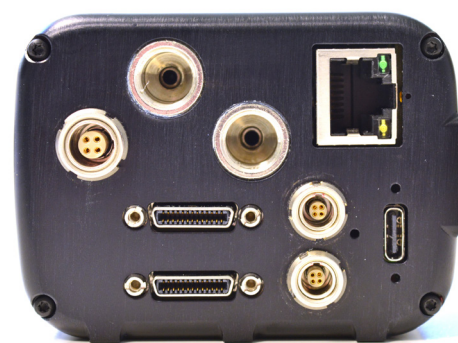
DARK VS SENSOR TEMPERATURE



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, up to 90W

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