heliCam™ C4

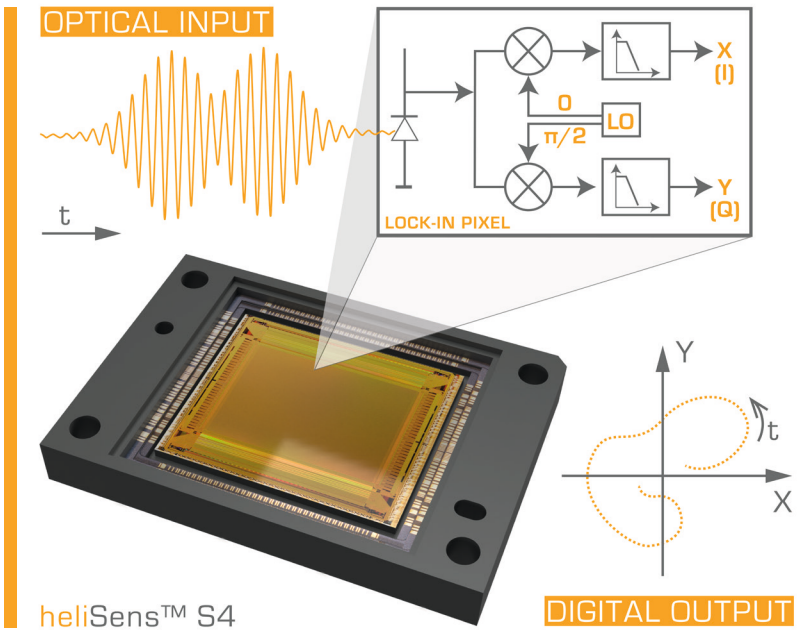
Lock-in Camera

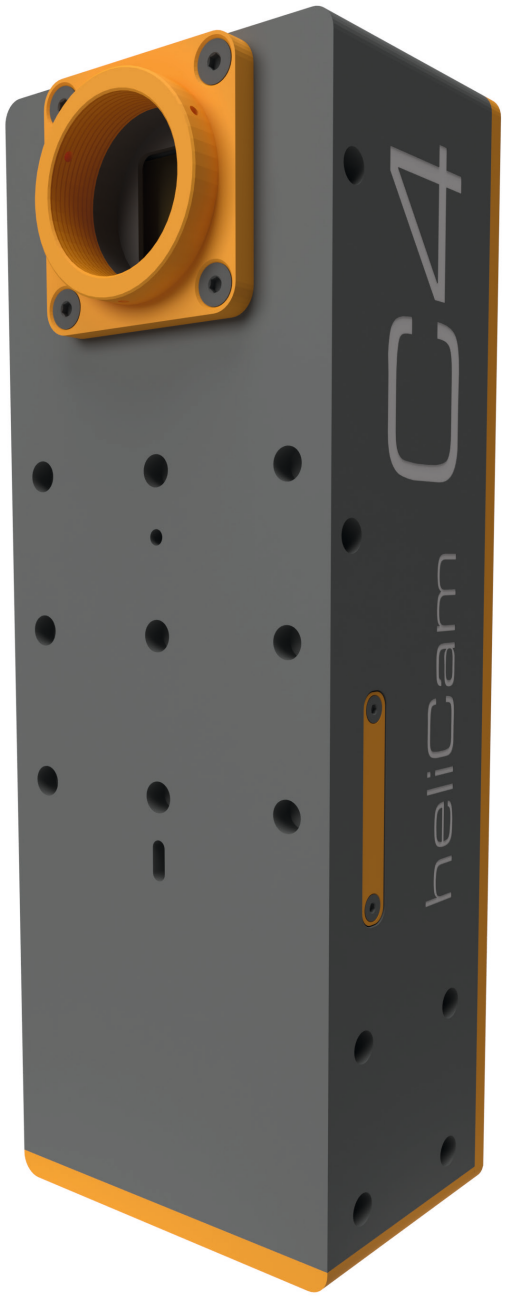
Imagine what you could do with

TIME-RESOLVED PIXEL-PARALLEL LOCK-IN DETECTION

Transform your lock-in measurements using our unique sensor technology with 277 504 parallel dual-phase demodulators.

Applications include pump-probe microscopy, quantum diamond magnetometry, quantum sensing, Raman spectroscopy, holography, phase contrast imaging, interferometry and more.





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advancing 3D metrology

C4DS0004

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Specifications

Features \ Model	C4.0-S40	C4.0-S40U	C4.0-S41U
heliSens™ S4 High Speed Lock-in Pixel Image Sensor	542 x 512 pixel with in-pixel lock-in amplifiers		
	pixel pitch: 24 µm x 24 µm		
	Full Well Capacity (FWC): 500 ke⁻		FWC: 125 ke⁻
	fill factor: 21%	fill factor: 55% w. µ-lens	fill factor: 55% w. µ-lens
	detection threshold P_{min} [mW/m²]		
	fd=1kHz, tc=10ms: 1.03	0.34	0.14
	fd=10kHz, tc=1ms: 10.3	3.4	1.4
	fd=100kHz, tc=1ms: 33.3	10.9	4.2
	quantum efficiency (QE)		
Lock-in Features	number of parallel demodulators: 277 504 dual-phase		
	demodulation frequency fd: 305 Hz - 134 kHz (250kHz with future firmware)		
	filter time constant tc: 0.2 ms - 100 ms		
	frequency resolution: < 0.013 x demodulation frequency (internal reference)		
	phase resolution: 0.1 deg		
	dynamic range for signal: 2 x 10 bit (X, Y)		
	background (common mode) suppression: 21 bit equivalent		
	min detectable contrast: 1E-4 time-resolved, 1E-5 with averaging		
	output data: magnitude & phase, in-phase X & quadrature Y, grey scale		
	max signal sample rate: 1 MSa/s per channel, 277 GSa/s in total		
	max output sample rate: 5.6 kSa/s per channel, 1.55 GSa/s in total		
	memory depth: 900 time-resolved output frames, 250 MSa in total		
heliSDK™ 4 Programming Interface	GEN<i>CAM producer DLL for client systems		
	examples for Python, Matlab®, LabVIEW®, C++, .NET		
heliViewer™ 4 Application Software	GUI based application for camera control, data acquisition, visualization and storage		
Electrical Interfaces	Gigabit Ethernet		
	reference input, internal reference output, configurable output, acquisition trigger with programmable phase delay		
	test LED driver (DC, sine wave continuous/burst up to 50 kHz)		
Power Supply	24 V DC, 30 W		
Mounting	C-mount for standard objectives (detachable)		
	M6-mounting holes at front, left, right, top		
Accessories	heliDriver™ D3 with lock-in module		
	active cooling module (silent fan-unit with off-switch)		
	test LED module (starter kit)		
	set of cables		
Dimensions [mm]	46 x 65 x 180 (without C-mount adapter)		
Weight [g]	850		
Operating Temperature [°C]	0 to 45 (mounted on heat sink or with active cooling module)		

nm	400	450	500	550	600	650	700	750	800
%	61.7	73.1	78.7	78.6	74.9	72.9	69.4	58.4	45.5

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For more information please contact sales@heliotis.com
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