

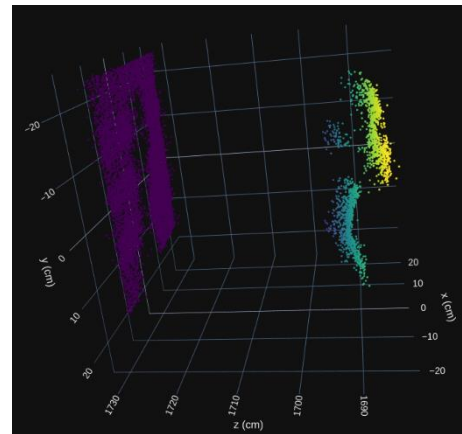


Pointcloud Surnia 15/25 DK

High Resolution 4D Imaging Camera Development Kit

Key features

- Millimeter-class depth accuracy, independent of range
- High angular resolution
- High dynamic range
- Simultaneous measurement of velocity & reflectivity
- Immunity to direct sunlight and other extreme lighting conditions
- All solid-state technology including two-axis beam steering



Applications

- 3D mapping
- Logistics
- Robotics
- Object recognition

Description

Surnia 15/25 DK are the technology development kits for Pointcloud's high-performance, medium-range 4D imaging platform. At their core, the kits contain Pointcloud's proprietary optoelectronic chipset, which includes two-axis digital solid-state beam steering and coherent focal plane array (CFPA) receiver technology.

The kits provide designers early access to the all-solid-state 4D imaging platform and facilitate familiarization with unique features and performance characteristics not available from competing technologies.

The Surnia platform provides high-density point clouds, industry-leading depth accuracy that is independent of range, immunity against extreme lighting conditions (tested to over 10 million lux), and high dynamic range (tested 15% reflectance targets next to retroreflectors). The system can be configured to provide both 3D point clouds as well as radial velocity and reflectivity data for each point.

The products from the Surnia family currently under development use our proprietary CFPA core technology to produce large sensors that support fields of view (FOV) and sensor resolutions up to 85 degrees and up to 640x480 pixels, respectively. The development kit uses a reduced area version of the proprietary CFPA of only 5x1 mm² (128x16 pixels), which ensures performance representative of the planned products on all parameters except FOV and number of pixels.



System performance

Surnia 15 DK

Parameter	Conditions	Min	Typ	Max	Units
Maximum range	At R=15% ¹	10.0	15.0	20.0	m
Depth accuracy	Standard deviation at R=15%		2.5	5.0	mm
Points per second (distance and velocity)		31,000	83,000	250,000	points per second
Frame rate		15	41	122	Hz
Lateral resolution at max distance		30.0	45.0	60.0	mm
Horizontal FOV			22		degrees
Vertical FOV			4		degrees
Horizontal angular resolution			0.17		degrees
Vertical angular resolution			0.25		degrees
Velocity resolution		2	4	12	mm/s
Maximum acceptable ambient illuminance			10,000,000		lux
Area illuminated	At maximum range	2.7	6.1	10.8	m ²
Integration time ²		32	96	256	microseconds

Surnia 25 DK

Parameter	Conditions	Min	Typ	Max	Units
Maximum range	At R=15% ¹	20.0	25.0	30.0	m
Depth accuracy	Standard deviation at R=15%		2.5	5.0	mm
Points per second (distance and velocity)		31,000	83,000	250,000	points per second
Frame rate		15	41	122	Hz
Lateral resolution at max distance		43.6	54.5	65.4	mm
Horizontal FOV			16		degrees
Vertical FOV			3		degrees
Horizontal angular resolution			0.13		degrees
Vertical angular resolution			0.18		degrees
Velocity resolution		2	4	12	mm/s
Maximum acceptable ambient illuminance			10,000,000		lux
Area illuminated	At maximum range	5.7	8.9	12.8	m ²
Integration time ²		32	96	256	microseconds

¹ Range maximum measured at >50% detection probability, including the effects of speckle and depolarization

² Integration time defined as the length of individual up or down frequency chirps

Optical & electrical characteristics

Parameter	Value	Units
Illumination wavelength	1550	nm
Chirp bandwidth	4	GHz
Steering	Two Axis Digital Solid State	
Sensor type	Coherent Focal Plane Array	
Sensor resolution	128(H)x16(V)	pixels
Pixel size	40x60	micron ²
Number of parallel readout channels	16	
Average power consumption	20	W
Interface	Gigabit Ethernet	
Laser protection class	Class1, IEC 60825-1:2014	