

INDUSTRIAL CAMERAS



GigE, 5GigE, 10GigE, USB3, Camera Link/HS, CoaXPress & fiber; visible, NIR and SWIR cameras, 3D, frame grabbers



Metavision event-based sensors, cameras, evaluation kits and software for ultra-low-latency, HDR



USB2/3, GigE/PoE and 10GigE CMOS cameras; area scan, board-level, 3D, AI, event-based and streaming models



Ethernet machine vision cameras from 1GigE to 25GigE; area scan, ToF 3D, SWIR, UV, HDR, polarization, and RDMA



GigE, 5GigE, USB3, CSI-2, GMSL2 and FPD-Link III CMOS cameras; embedded, modular and SWIR options



CoaXPress/CXP-over-Fiber & Camera Link frame grabbers, GigE Vision acquisition and vision SW



GigE, 5/10GigE, USB3, CoaXPress, Camera Link & SFP+; CMOS area/line scan, prism-based multispectral and SWIR cameras



High-speed 3D laser triangulation sensors & smart infrared cameras; GigE Vision/GenICam 3D,

LENSES & OPTICS



C/CS/F-mount Factory Automation lenses, fixed/ varifocal/zoom, VIS/SWIR



C/F/M42 to M95-mount Factory Automation lenses, fixed & varifocal, telecentric and Line Scan lenses



C-mount Factory Automation lenses, fixed focus up to 4/3" and 100mm focal lengths



C/CS-mount Factory Automation lenses, fixed/ varifocal/zoom



C/CS-mount Factory Automation lenses, fixed/ varifocal/zoom



C/CS/S-mount Factory Automation lenses, fixed/ varifocal/zoom, telecentric



C/F/T/M72-mount high-precision lenses, fixed/varifocal/zoom, VIS to SWIR



C/F/V/M42 to M95-mount modular high-precision lenses, area/line scan



C/F/M42 to M95-mount telecentric lenses, 360°, macro, area/line scan



Machine vision filters, polarizers & optical solutions for a wide variety of imaging applications



C-mount electronically focused tunable liquid lenses, VIS/NIR/1064nm,

LIGHTING



LED lighting & controllers, ultra-high uniformity back/front, bar, line, tunnel, on-axis lighting



LED lighting & controllers, high-power area & line illuminators/ projectors



LED lighting & controllers, high-power area & line illuminators/ projectors



LED Lighting, Powerful, flexible, easy to use lighting for machine vision applications

ACCESSORIES



FPGA modules, Frame grabbers, Real Time Image compression, Mini Jetson PC



DVR software supporting GigE/USB/ CL/CXP cameras, GPS/DAQ/DMI/ Batch/Audio/JPEG mods



USB3, GigE, CXP, Camera link, and I/O industrial cables, Power Supplies, and Enclosures



LED lighting and focus tunable optics controllers, 1 to 16 channels, high current pulsing

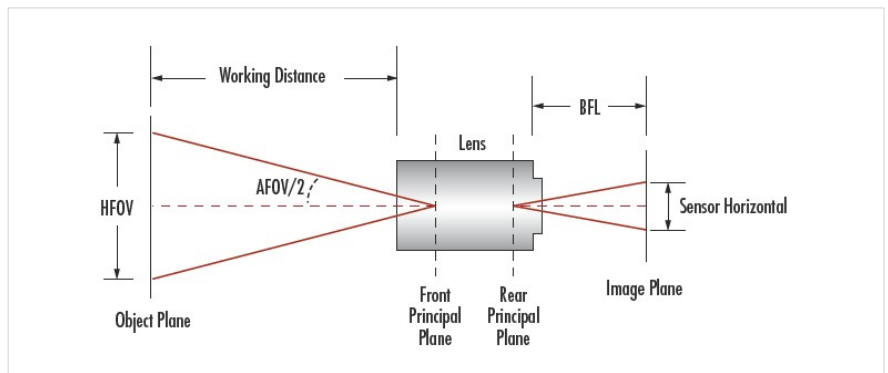
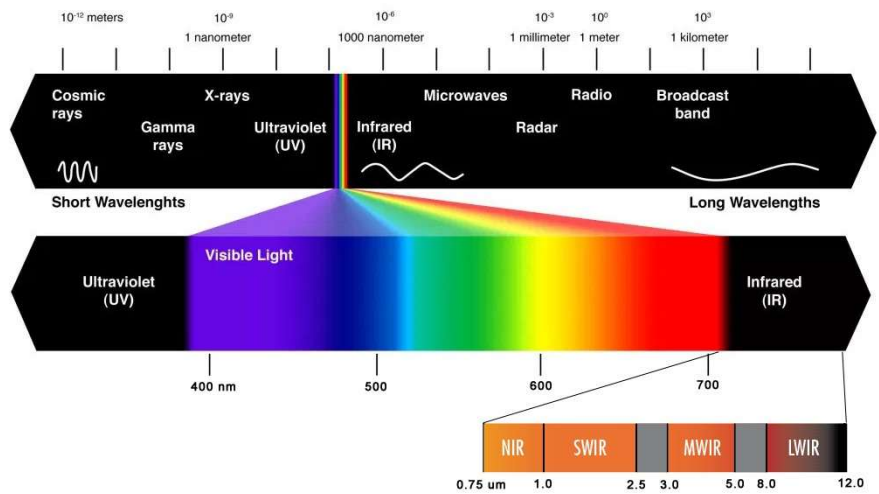
Imager Format vs. Image Circle

Format	Image Circle	H x V
1/4"	4.5 mm	3.6 x 2.7 mm
1/3.6"	5 mm	4.0 x 3.0 mm
1/3"	6 mm	4.8 x 3.6 mm
1/2.7"	6.7 mm	5.4 x 4.0 mm
1/2.5"	7.2 mm	5.8 x 4.3 mm
1/2.3"	7.9 mm	6.3 x 4.7 mm
1/2"	8 mm	6.4 x 4.8 mm
1/1.8"	8.9 mm	6.4 x 4.8 mm
2/3"	11 mm	8.8 x 6.6 mm
1/1.2"	13.4 mm	11.3 x 7.1 mm
1"	16 mm	12.8 x 9.6 mm
1.1"	17.5 mm	14.1 x 10.3 mm
4/3"	21.6 mm	17.9 x 15.6 mm
APS-C/DX	28.3 mm	23.7 x 15.6 mm
APS-H	33.5 mm	27.9 x 18.6 mm
35mm/FX	43.3 mm	35.9 x 24.0 mm

Pixel size vs. LP/mm

Pixel Size	Nyquist Limit
1.67 μ m	299 lp/mm
2.2 μ m	227 lp/mm
3.45 μ m	145 lp/mm
4.54 μ m	110 lp/mm
5.5 μ m	91 lp/mm

Electromagnetic Spectrum



Magnification	Sensor Horizontal/HFOV
Focal Length	Working Distance/(1+1/Magnification)
Magnification	Focal Length/Working Distance

Sony Pregius Image Sensors - Average Performance by Generation

	1st Generation	2nd Generation	3rd Generation	4th Generation
Pixel Size (μ m)	5.86	3.45	4.5	2.74
Average Quantum Efficiency (%)	68	66	77	74
Average Dark Noise (e-/sec)	6.8	2.2	5.4	2.1
Average Saturation Capacity (ke-)	32.5	10.7	25	9.4
Average Dynamic range (dB)	70	71	71	71
Average SNR (dB)	45	40	44	40

For additional imaging tips, guidelines, and calculators check out our online knowledgebase at:

1stvision.com/knowledgebase