

Machine Vision, Spherical, & Inference Cameras

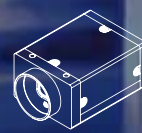
Product Catalog 2022 Q1-Q2



teledyneflir.com/mv

25 YEARS OF MACHINE VISION INNOVATION

Starting out as Point Grey Research in 1997, the Teledyne FLIR Machine Vision team is a key provider of 2D machine vision, spherical, and people counting cameras around the world. We offer reliable, easy-to-use, and cost effective products for demanding imaging and vision applications.



2000 2001 2002 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

First IEEE 1394 stereo vision camera
Digiclops

First IEEE 1394 imaging camera
Firefly

First spherical vision camera
Ladybug

First IEEE 1394b camera
Dragonfly Express

New products
Dragonfly2
Ladybug2

New products
Flea2
Firefly MV

New products
Grasshopper
FirePRO

New product
USB 2.0 camera
Chameleon

New product
Ladybug3

World's first
USB 3.0 Camera

New product
Flea3

First
Camera Link camera
Gazelle

New Product
IP camera
Zebra2

New USB3 products
Ladybug5
Grasshopper3

New USB3 product
Blackfly USB 3.0

New USB3 product
Chameleon3

New USB3 and
GigE Vision
product
Blackfly S

10 GigE Camera
Oryx

Board-level
Blackfly S

New product
GigE camera
Grasshopper2

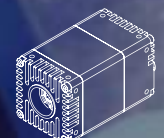
First USB 3.0 camera
Flea3

World's Smallest
PoE GigE Camera
Blackfly

World's smallest
GigE camera
Flea3

New product
Grasshopper Express

New GigE product
Grasshopper4



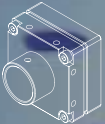
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2019

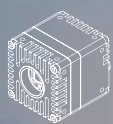
Industry's first
Deep Learning
Camera
Firefly DL

APS-C Dryx
Dryx



2020

New 10 Gige
Form Factor
Dryx



QUICK FACTS

What is included with my camera?

During your camera selection please be mindful of which accessories are included and which accessories are not included with the camera.

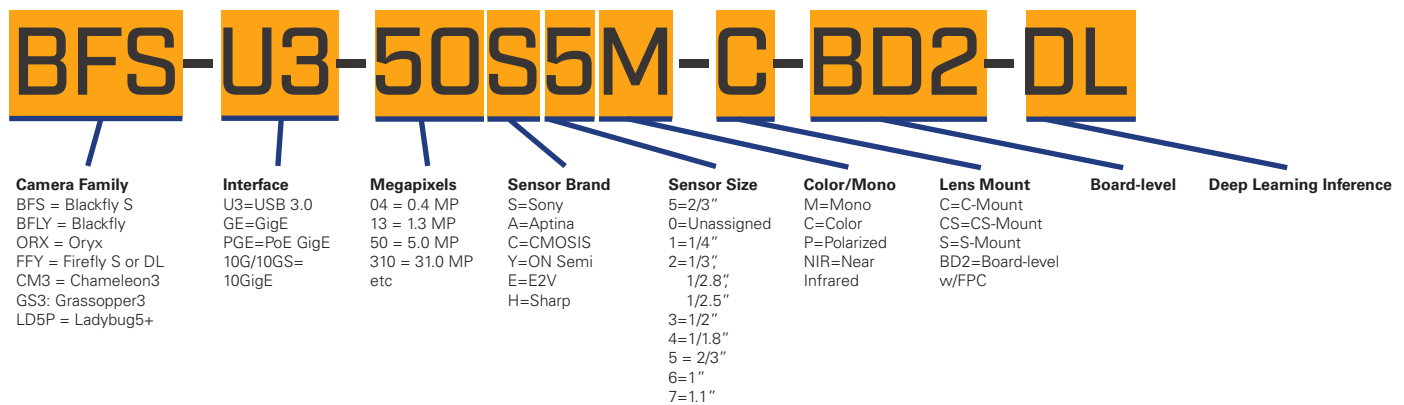
Here is a quick table guide for your reference:

USB VISION	USB3 VISION CAMERAS	Tripod Adapter	5mm C-Mount Adapter	Cables	Lens
	Blackfly S USB3	No	No	No	No
Blackfly USB3	No	No	No	No	No
Chameleon3 USB3	No	No	No	No	No
Flea3 USB3	Yes	Yes for CS-mount models	No	No	No
Grasshopper3 USB3	Yes	N/A (no CS-mount models)	No	No	No

GiG VISION	GIGE VISION CAMERAS	Tripod Adapter	5mm C-Mount Adapter	Cables	Lens
	Oryx GigE	N/A	No	No	No
Blackfly GigE	No	No	No	No	No
Blackfly S GigE	No	No	No	No	No
Flea3 GigE	Yes	Yes for CS-mount models	No	No	No
Grasshopper2 GigE	Yes	N/A (no CS-mount models)	No	No	No
Grasshopper3 GigE	Yes	N/A (no CS-mount models)	No	No	No

What do your model numbers mean?

Here is one example of our model numbers and what each section means. Understanding this will give you a quick explanation of the model's specifications and help you when comparing models.



Where can I get more technical support?

You can search our online Knowledge Base for answers to camera usage questions once you choose your camera family here: www.flir.com/knowledgebase

You can contact our support team directly and email them your issue. We have support teams staffed at our North America, Germany, China and Japan offices ready to assist with your cameras. You can contact our support team directly at mv-support@teledyneflir.com

Where can I get more sales assistance?

Pricing and web purchase are available at www.teledyneflir.com/mv. You can also email us, we're always happy to help: mv-sales@flir.com



POPULAR FEATURE CATEGORIES

Logic Block Control

A Logic Block is a collection of combinatorial logic and latches that allows the user to create new, custom signals inside the camera. Each Logic Block is comprised of 2 lookup tables (LUT) with programmable inputs, truth tables and a flip flop output.

Counter and Timer Control

The Counter and Timer control feature allows you to a) create a function generator; and b) keep a count of how many times a signal has fired.

Serial Port

The serial port can be used to transmit and receive serial data through the device using the transport layer. The serial data can be sent through the transport layer in image data (via the SerialData Chunk Data), in control data (via the File Access Control), or in event data (via the SerialPortReceive Event).

Lossless Compression

Lossless compression occurs on camera before transmitting data to the host; thereby enabling our cameras to transmit data at higher maximum frame rates, utilizing lower bandwidth for data transmission while maintaining 100% image data. Once the data is transmitted to the host, it can be uncompressed or saved in its smaller, compressed form for lower disc space utilization.

Chunk Data Control

Chunk Data allows you the ability to send additional information with the image data. This can be helpful when debugging issues or looking at what settings have been applied to the acquired image.

Color Transformation Control

A color transformation is a linear operation applied to input red, green, and blue values for each pixel, which are multiplied by a 3x3 matrix and then added to an offset triplet. Note: To access color transformation controls, ISP must be enabled. The ISP enable feature is under the Image Format control (IspEnable). Color transformation is available on color models.

For detailed information, see any of our Technical Reference documents including this one for the Blackfly S:



BLACKFLY® S

POWERFUL HIGH PERFORMANCE CAMERAS - INTEGRATE ONCE ONCE AND DEPLOY WITH 100+ CAMERA MODELS



Part Number	MP	FPS	Max Res	Shutter	Pixel Size μm	Sensor Format	Sensor	Camera Dimensions
BFS-U3-04S2C/M-C	0.4	522	720*540	Global Shutter	6.9	1/2.9"	IMX287	A
BFS-U3-04S2C/M-CS	0.4	522	720*540	Global Shutter	6.9	1/2.9"	IMX287	A
BFS-U3-13Y3C/M-C	1.3	170	1280*1024	Global Shutter	4.8	1/2"	PYTHON1300	A
BFS-U3-16S2C/M-CS	1.6	226	1440*1080	Global Shutter	3.45	1/2.9"	IMX273	A
BFS-U3-16S7C/M-C	1.7	97	1600*1100	Global Shutter	9	1.1"	IMX432	B
BFS-U3-17S7C/M-C	1.7	196	1600*1100	Global Shutter	9	1.1"	IMX425	B
BFS-U3-19S4C/M-C	2	131	1616*1240	Global Shutter	4.5	1/1.7"	IMX430	B
BFS-U3-20S4C/M-C	2	175	1616*1240	Global Shutter	4.5	1/1.7"	IMX422	B
BFS-U3-23S3C/M-C	2.3	163	1920*1200	Global Shutter	3.45	1/2.3"	IMX392	A
BFS-U3-27S5C/M-C	2.8	95	1936*1464	Global Shutter	4.5	2/3"	IMX429	B
BFS-U3-28S5C/M-C	2.8	130	1936*1464	Global Shutter	4.5	2/3"	IMX421	B
BFS-U3-31S4C/M-C	3.2	55	2048*1536	Global Shutter	3.45	1/1.8"	IMX265	A
BFS-U3-32S4C/M-C	3.2	118	2048*1536	Global Shutter	3.45	1/1.8"	IMX252	A
BFS-U3-50S5C/M-C	5	35	2448*2048	Global Shutter	3.45	2/3"	IMX264	B
BFS-U3-51S5C/M-C	5	75	2448*2048	Global Shutter	3.45	2/3"	IMX250	A
BFS-U3-51S5P-C	5	75	2448*2048	Global Shutter	3.45	2/3"	IMX250MZR	A
BFS-U3-51S5PC-C	5	75	2448*2048	Global Shutter	3.45	2/3"	IMX250MYR	A
BFS-U3-63S4C/M-C	6.3	59.6	3072*2048	Rolling Shutter	2.4	1/1.8"	IMX178	A
BFS-U3-70S7C/M-C	7.1	51	3208*2200	Global Shutter	4.5	1.1"	IMX428	B
BFS-U3-88S6C/M-C	8.9	32	4096*2160	Global Shutter	3.45	1"	IMX267	A
BFS-U3-89S6C/M-C	8.9	42	4096*2160	Global Shutter	3.45	1"	IMX255	A
BFS-U3-120S4C/M-CS	12	31	4000*3000	Rolling Shutter	1.85	1/1.7"	IMX226	A
BFS-U3-122S6C/M-C	12.3	23	4000*3000	Global Shutter	3.45	1.1"	IMX304	A
BFS-U3-123S6C/M-C	12.3	30	4000*3000	Global Shutter	3.45	1.1"	IMX253	A
BFS-U3-200S6C/M-C	20	18	5472*3648	Rolling Shutter	2.4	1"	IMX183	A
BFS-U3-244S8C/M-C	24.5	15	5320*4600	Global Shutter	2.74	4/3"	IMX540	B

Part Number	MP	FPS	Max Res	Shutter	Pixel Size μm	Sensor Format	Sensor	Camera Dimensions
BFS-PGE-04S2C/M-CS	0.4	291	720*540	Global Shutter	6.9	1/2.9"	IMX287	A
BFS-PGE-13Y3C/M-C	1.3	84	1280*1024	Global Shutter	4.8	1/2"	PYTHON1300	A
BFS-PGE-14Y3M-C	1.3	92	1440*1080	Global Shutter	4.8	1/2"	PYTHON1300P1	A
BFS-PGE-16S2C/M-CS	1.6	78	1440*1080	Global Shutter	3.45	1/2.9"	IMX273	A
BFS-PGE-16S7C/M-C	1.76	69	1440*1080	Global Shutter	9	1.1"	IMX432	B
BFS-PGE-19S4C/M-C	2	60	1616*1240	Global Shutter	4.5	1/2.3"	IMX430	B
BFS-PGE-23S3C/M-C	2.3	53	1616*1240	Global Shutter	3.45	1/2.3"	IMX392	A
BFS-PGE-23S3C-CS	2.3	53	1920*1200	Global Shutter	3.45	1/2.3"	IMX392	A
BFS-PGE-27S5C/M-C	2.8	43	1936*1464	Global Shutter	4.5	1/1.8"	IMX429	B
BFS-PGE-31S4C/M-C	3.2	35	1936*1464	Global Shutter	3.45	1/1.8"	IMX265	A
BFS-PGE-50S4C/M-C	5	24	2448*2048	Global Shutter	2.74	1/1.8"	IMX547	B
BFS-PGE-50S5C/M-C	5	24	2448*2048	Global Shutter	3.45	2/3"	IMX264	A
BFS-PGE-51S5C/M-C	5	24	2448*2048	Global Shutter	3.45	2/3"	IMX250MZR	A
BFS-PGE-51S5PC-C	5	24	2448*2048	Global Shutter	3.45	2/3"	IMX250MYR	A
BFS-PGE-63S4C/M-C	6.3	19	3072*2048	Rolling Shutter	2.4	1/1.8"	IMX178	A
BFS-PGE-70S7C/M-C	7.1	17.4	3208*2200	Global Shutter	4.5	1.1"	IMX428	B
BFS-PGE-88S6C/M-C	8.9	19.9	4096*2160	Global Shutter	3.45	1"	IMX267	A
BFS-PGE-120S4C/M-CS	12	8.5	4000*3000	Rolling Shutter	1.85	1/1.7"	IMX226	A
BFS-PGE-122S6C/M-C	12.3	10	4096*3000	Global Shutter	3.45	1.1"	IMX304	A
BFS-PGE-123S6C-C	12.3	10	4096*3000	Global Shutter	3.45	1.1"	IMX253MZR	A
BFS-PGE-161S7C/M-C	16.1	7	4000*3000	Global Shutter	2.74	1.1"	IMX542	B
BFS-PGE-200S6C/M-C	20	6.1	5472*3648	Rolling Shutter	2.4	1"	IMX183	A
BFS-PGE-244S8C/M-C	24.5	5	5320*4600	Global Shutter	2.74	4/3"	IMX540	B

CAMERA DIMENSION A

CAMERA DIMENSION B



Compatible Accessories	
ACC-01-0003	Tripod Adapter for BFS (30mm) (Camera Dimension A)
ACC-01-0016	Tripod Adapter for 39 mm (Camera Dimension B)
ACC-01-2300	3 m USB 3.0 cable, Type-A Micro-B (lockable)
ACC-01-2304	1 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2305	3 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2306	5 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-1201	Universal USB 3.1 Gen 1 PCIe 2.0 x1 2-port card
ACC-01-1202	Universal USB 3.1 Gen 1 PCIe 2.0 x1 4-port card
ACC-01-1203	USB 3.1 Gen 1 PCIe 2.0 x4 4-port card
ACC-01-3009	1.0 m, circular 6-pin GPIO Hirose connector
ACC-01-9011	12 V 1.5 A wall-mounted PS, power adapter, HR10 GPIO harness

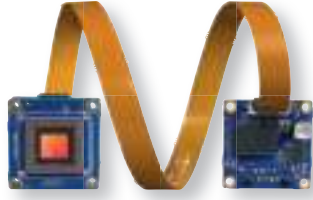
Compatible Accessories	
ACC-01-0003	Tripod Adapter for BFS (30mm) (Camera Dimension A)
ACC-01-0016	Tripod Adapter for 39 mm (Camera Dimension B)
ACC-01-2100	5 m CAT 5e Ethernet lockable cable high flexibility
ACC-01-2101	4.5 m CAT 5e Ethernet cable
ACC-01-1100	Intel PRO 1000 CT Gigabit Ethernet PCIe
ACC-01-1105	Dual port 1GigE POE card
ACC-01-3009	1.0 m, circular 6-pin GPIO Hirose connector
ACC-01-9011	12 V 1.5 A wall-mounted PS, power adapter, HR10 GPIO harness
ACC-01-0016	Tripod adapter
ACC-01-5004	C, CS base 5 mm gasket adapter

INTERFACE	USB 3.1 Gen 1 interface with screw locks for camera control, data, and power	Gigabit Ethernet interface with screw locks for camera control and data; Power over Ethernet
GPIO	6-pin Hirose HR10A-7R-6PB GPIO connector for trigger, strobe, and power. 1 opto-isolated input, 1 opto-isolated output. 1 bi-directional I/O pin, 1 input pin.	6-pin Hirose HR10A-7R-6PB GPIO connector for trigger, strobe, and power. 1 opto-isolated input, 1 opto-isolated output. 1 bi-directional I/O pin, 1 input pin.
ADC	12-bit • 10-bit (BFS-U3-13Y3)	12-bit • 10-bit (BFS-PGE-13Y3)
TRIGGER MODES	External trigger and software trigger	External trigger and software trigger
TIME SYNC PROTOCOL	-	IEEE 1588 Precision Time Protocol
IMAGE BUFFER	240 MB	240 MB
USER SETS	2 memory channels for custom camera settings	2 memory channels for custom camera settings
SIZE (WxHxD)	29 x 29 x 30 mm / 29 x 29 x 39 mm excluding lens holder (metal case)	29 x 29 x 30 mm / 29 x 29 x 39 mm excluding lens holder (metal case)
MASS	36g (Without optics or tripod mounting bracket)	36g (Without optics or tripod mounting bracket)
POWER	8-24 V via GPIO or 5 V via USB 3.1 interface, <3 W	Standard voltage via Power over Ethernet (PoE) or 8 - 24 V via GPIO interface, < 2.5 W
LENS MOUNT	C-mount, CS-mount	C-mount / CS-mount (5 mm C-mount adapter sold separately)
TEMPERATURE	-30° to 60°C (storage) • 0° to 50°C (operating)	-30° to 60°C (storage) • 0° to 50°C (operating)
WARRANTY	3 years	3 years



BLACKFLY S BOARD LEVEL QUARTET

FULLY FEATURED BOARD LEVEL CAMERA;
NO COMPROMISES



STREAM 4X CAMERAS SIMULTANEOUSLY AT FULL BANDWIDTH
SDK PRE-INSTALLED FOR PLUG AND PLAY



Part Number	MP	FPS	Max Res	Shutter	Pixel Size µm	Sensor Format	Sensor
BFS-GE-16S2C/M-BD2	1.6	78	1440 x 1080	Global Shutter	3.45	1/2.9"	IMX273
BFS-GE-50S5C/M-BD2	5	24	2448 x 2048	Global Shutter	3.45	2/3"	IMX264
BFS-GE-88S6C/M-BD2	8.9	13	4096 x 2160	Global Shutter	3.45	1"	IMX267
BFS-GE-122S6C/M-BD2	12.3	10	4096 x 3000	Global Shutter	3.45	1.1"	IMX304
BFS-U3-16S2C/M-BD2	1.6	226	1440 x 1080	Global Shutter	3.45	1/2.9"	IMX273
BFS-U3-31S4C/M-BD2	3.2	55	2048 x 1536	Global Shutter	3.45	1/1.8"	IMX265
BFS-U3-32S4C/M-BD2	3.2	118	2048 x 1536	Global Shutter	3.45	1/1.8"	IMX252
BFS-U3-50S5C/M-BD2	5	35	2448 x 2048	Global Shutter	3.45	2/3"	IMX264
BFS-U3-51S5C/M-BD2	5	75	2448 x 2048	Global Shutter	3.45	2/3"	IMX250
BFS-U3-63S4C/M-BD2	6.3	59	3072 x 2048	Rolling Shutter	2.4	1/1.8"	IMX178
BFS-U3-88S6C/M-BD2	8.9	32	4096 x 2160	Global Shutter	3.45	1"	IMX267
BFS-U3-122S6C/M-BD2	12.3	23	4096 x 3000	Global Shutter	3.45	1.1"	IMX304
BFS-U3-200S6C/M-BD2	20	17	5472 x 3648	Rolling Shutter	2.4	1"	IMX183

Part Number	Description
ACC-01-6003	Quartet Carrier without TX2 Module
ACC-01-6004	Quartet Carrier with TX2 Module 8GB
ACC-01-6005	Quartet Carrier with TX2 Module 16GB

Compatible Accessories

ACC-01-7000	Heatsink for Board level Blackfly S
ACC-02-7002	RJ45 Ethernet Connector
ACC-02-7000	TF38 compatible outline
ACC-01-5010	C-Mount front for Blackfly S board level cameras (No filter glass - for monochrome cameras)
ACC-01-5011	C-Mount front for Blackfly S board level cameras (IR filter glass - for color cameras)
ACC-01-5012	CS-Mount for BFS mono board level cameras
ACC-01-5013	CS-Mount & IR filter for BFS color board level cameras
ACC-01-5008	S-Mount for BFS mono board level cameras
ACC-01-5009	S-Mount & IR filter for BFS color board level cameras
ACC-01-2400	15 cm FPC cable for board level Blackfly S
ACC-01-2401	30 cm FPC cable for board level Blackfly S
ACC-01-1100	Intel PRO 1000 CT Gigabit Ethernet PCIe
ACC-01-1201	Universal USB 3.1 Gen 1 PCIe 2.0 x1 2-port card
ACC-01-1202	Universal USB 3.1 Gen 1 PCIe 2.0 x1 4-port card
ACC-01-1203	USB 3.1 Gen 1 PCIe 2.0 x4 4-port card
ACC-01-1105	Dual port 1GigE POE card
ACC-01-3015	Board-level JST connector for Blackfly S GPIO

USB 3.1 Gen 1 interface with screw locks for camera control, data, and power	INTERFACE
6-pin Hirose HR10A-7R-6PB GPIO connector for trigger, strobe, and power. 1 bi-directional I/O pin, 1 input pin.	GPIO
12-bit • 10-bit (BFS-U3-13Y3)	ADC
Pixel binning and region of interest (ROI) modes	PARTIAL IMAGE MODES
0.50 to 4.00, programmable lookup table	TRIGGER MODES
External trigger and software trigger	TRIGGER LOGIC
240 MB	IMAGE BUFFER
2 memory channels for custom camera settings	USER SETS
29 mm × 29 mm × 10 mm, 10g	SIZE (WXHXD)
8-24 V via GPIO or 5 V via USB 3.1 interface, <3 W	POWER
C mount, CS mount, S mount	LENS MOUNT (OPTIONAL)
-30° to 60°C (storage) • 0° to 50°C (operating)	TEMPERATURE
3 years	WARRANTY

8/16 GB 128-bit LPDDR4 51.2GB/s	MEMORY
10-24Vdc with 2-pin terminal block	POWER INPUT
Dual-Core NVIDIA Denver 1.5 64-Bit CPU and Quad-Core ARM® Cortex®-A57 MPCore processor	CPU
HDMI Type A x 1	DISPLAY
256-core NVIDIA Pascal™ GPU architecture with 256 NVIDIA CUDA cores	GPU
16 GB eMMC 5.1	STORAGE
SATA connector x1, Fan connector x1	EXPANSION
138mm × 92mm × 18.2mm	DIMENSIONS
182g	MASS
-4°F o 140°F (-20°C o 60°C)* w/0.5 m/s air-flow	OPERATING TEMPERATURE
5 to 95% @ 40°C, non-condensing	STORAGE HUMIDITY
-40°F — 158°F (-40°C o 70°C)	STORAGE TEMPERATURE
USB 3.0 x 4 (TF-38); USB 2.0 type A x 1; USB 3.0 type A x 1; Power switch x 1 with LED; Micro SD slot x 1; OTG x 1	INPUT_OUTPUT
7.5W / 15W	MODULE POWER
Arch Linux	OPERATING SYSTEM



FIREFLY S

ESSENTIAL MACHINE VISION FEATURES IN AN ULTRA COMPACT BODY



FIREFLY DL

ON-CAMERA DEEP LEARNING IDEAL FOR EMBEDDED SYSTEMS ON THE EDGE



Part Number	MP	FPS	Max Res	Shutter	Pixel Size μm	Sensor Format	Sensor
FFY-U3-04S2C/M-C	0.4	120	750*540	Global Shutter	6.9	1/2.9"	IMX297
FFY-U3-04S2C/M-CS	0.4	120	750*540	Global Shutter	6.9	1/2.9"	IMX297
FFY-U3-04S2M-S	0.4	120	750*540	Global Shutter	6.9	1/2.9"	IMX297
FFY-U3-16S2C/M-C	1.6	60	1440*1080	Global Shutter	3.45	1/2.9"	IMX296
FFY-U3-16S2C/M-CS	1.6	60	1440*1080	Global Shutter	3.45	1/2.9"	IMX296
FFY-U3-16S2C/M-S	1.6	60	1440*1080	Global Shutter	3.45	1/2.9"	IMX296

Part Number	MP	FPS	Max Res	Shutter	Pixel Size μm	Sensor Format	Sensor
FFY-U3-16S2C/M-C-DL	1.6	60	1440*1080	Global Shutter	3.45	1/2.9"	IMX296
FFY-U3-16S2C/M-CS-DL	1.6	60	1440*1080	Global Shutter	3.45	1/2.9"	IMX296
FFY-U3-16S2C/M-S-DL	1.6	60	1440*1080	Global Shutter	3.45	1/2.9"	IMX296

Compatible Accessories	
ACC-01-1201	Universal USB 3.1 Gen 1 PCIe 2.0 x1 2-port card
ACC-01-1202	Universal USB 3.1 Gen 1 PCIe 2.0 x1 4-port card
ACC-01-1203	USB 3.1 Gen 1 PCIe 2.0 x4 4-port card
ACC-01-2300	3 m USB 3.0 cable, Type-A Micro-B (lockable)
ACC-01-2304	1 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2305	3 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2306	5 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-0017	Tripod Adapter for FFY cameras

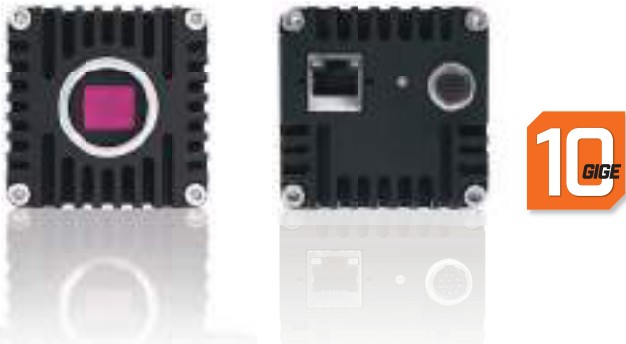
Compatible Accessories	
ACC-01-1201	Universal USB 3.1 Gen 1 PCIe 2.0 x1 2-port card
ACC-01-1202	Universal USB 3.1 Gen 1 PCIe 2.0 x1 4-port card
ACC-01-1203	USB 3.1 Gen 1 PCIe 2.0 x4 4-port card
ACC-01-2300	3 m USB 3.0 cable, Type-A Micro-B (lockable)
ACC-01-2304	1 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2305	3 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2306	5 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-0017	Tripod Adapter for FFY cameras

INTERFACE	USB3.1 Gen 1 interace with screw locks for camera control, data, and power	USB3.1 Gen 1 interace with screw locks for camera control, data, and power
ADC	10 bit	10 bit
PARTIAL IMAGE MODES	ROI	ROI
TRIGGER MODES	External trigger and software trigger	External trigger and software trigger
IMAGE BUFFER	32 MB	32 MB
USER SETS	2 user configuration sets for custom camera settings	2 user configuration sets for custom camera settings
SIZE (WxHxD)	27 mm x 27 mm x 14.5 mm	27 mm x 27 mm x 14.5 mm
MASS	20 g	20 g
POWER	5 V via USB 3.1 interface	5 V via USB 3.1 interface
LENS MOUNT	C mount, CS mount, S mount	C mount, CS mount, S mount
TEMPERATURE	Operating: 0-85 (case) / Storage: -30-60 (ambient)	Operating: 0-85 (case) / Storage: -30-60 (ambient)
WARRANTY	3 years	3 years



ORYX 10 GIGE

TAKE ADVANTAGE OF THE LATEST SENSORS WITH 10 GBIT/S



ORYX & MYRICOM BUNDLE

FLAWLESS 10GIGE PERFORMANCE



Part Number	MP	FPS	Max Res	Shutter	Pixel Size μm	Sensor Format	Sensor
ORX-10GS-32S4C/M-C	3.2	216	720*540	Global Shutter	3.45	1/1.8"	IMX252
ORX-10GS-51S5C/M-C	5	162	2448*2048	Global Shutter	3.45	2/3"	IMX250
ORX-10G-71S7C/M-C	7.1	112	3208*2200	Global Shutter	4.5	1.1"	IMX420
ORX-10GS-89S6C/M-C	8.9	93	4096*2160	Global Shutter	3.45	1"	IMX255
ORX-10GS-123S6C/M-C	12.3	68	4096*2160	Global Shutter	3.45	1.1"	IMX253
ORX-10G-245S8C/M	24.6	44	5320*4600	Global Shutter	2.74	1.2"	IMX530
ORX-10G-310S9C/M	31	26	6464*4852	Global Shutter	3.45	APS-C	IMX342

Part number when paired with Oryx cameras:	
DEV-ORX-71S7C	DEV-ORX-71S7M
DEV-ORX-89S6C	DEV-ORX-89S6M
DEV-ORX-123S6C	DEV-ORX-123S6M
DEV-ORX-245S8C	DEV-ORX-245S8M
DEV-ORX-310S9C	DEV-ORX-310S9M

Compatible Accessories	
ACC-01-2101	4.5 m CAT 5e Ethernet cable
LENS-120C7C	Computar single-focus 12 mm C fixed lens, for 1.1" sensor (V1228-MPY), 12MP
LENS-250C7C	Computar single-focus 25 mm C fixed lens, for 1.1" sensor (V2528-MPY), 12MP
LENS-080C7C	Computar single-focus 8 mm C fixed lens, for 1.1" sensor (V0828-MPY), 12MP
LENS-80T6C	Tamron single-focus 8 mm C fixed lens, for 1.1" sensor (MF111FM08), 12MP
ACC-01-1104	Myricom 10GigE dual port card
ACC-01-1106	Single port 10GigE card
ACC-01-1107	Intel X550 dual port 10G card
ACC-01-3001	12-pin, 0.1 m GPIO cable, Hirose HR10 circular connector cable
ACC-01-9013	12-pin, 18 W power supply
ACC-01-5014	Oryx F-Mount Base
ACC-01-5016	Oryx C-Mount Base

10 Gigabit Ethernet Camera Features:

- 4K60 and beyond
- The latest Global shutter CMOS sensors at their maximum frame rates
- High density 12 pin GPIO
- IEEE 1588 Precision Time Protocol
- Designed and tested for continuous operation at 50°C

Myricom Features:

- Optimized for content creation
- Pair with most Oryx 10GigE cameras
- Low CPU overhead
- Minimal dropped frames or packets
- Custom machine vision driver built into Spinnaker SDK

10 Gigabit Ethernet (10GBASE-T)	INTERFACE
GigE Vision	MACHINE VISION STANDARD
12 Pin Hirose GPIO connector for power, trigger strobe 2x Op-to-isolated input, and output, 2x non-isolated bi-directional, serial port over non-isolated I/O, Auxiliary output (3.3V, 120 mA max)	GPIO
8-bit • 10-bit • 12-bit	ADC
Pixel Binning, Decimation, and Region of Interest	PARTIAL IMAGE MODES
Gamma, lookup table, pixel correction, target grey value, and sharpness	IMAGE PROCESSING
0.5 to 4, programmable lookup table	GAMMA
External Trigger, Software Trigger	TRIGGER MODES
Logic Blocks, Counter and Timers, Sequencer with 8 user sets	TRIGGER LOGIC
IEEE 1588 Precision Time Protocol	TIME SYNC. PROTOCOL
240MB	IMAGE BUFFER
2 memory channels for custom camera settings	USER SETS
60x60x64mm / 60x60x100mm excluding lens holder, without optics (metal case)	SIZE (WXHXD)
Externally Powered over GPIO (12-24V) 14W Max	POWER
C-mount; F-mount	LENS MOUNT
-30°C to 60°C (storage) • 0°C to 50°C (operating)	TEMPERATURE
3 years	WARRANTY

Cat 5e, Cat 6, Cat 6a, or Cat7	CABLE TYPES
RJ45	CONNECTOR
Four lane (x8) PCI Express compatible with x8, and x16 PCI Express slots	PCI BUS TYPE
10 GigE only	TRANSFER RATE
Dual port, 20 Gbps (full duplex) bandwidth	PORTS
0°C to 55°C	OPERATING TEMPERATURE
68.9 mm x 167 mm (not including faceplate) / Total thickness: 22 mm	DIMENSIONS
108.9 grams	MASS
IEEE 8023.an, TAA, RoHS	COMPLIANCE



BLACKFLY®

PERFORMANCE AND VALUE



CHAMELEON®3

FLEXIBLE FORM FACTOR



Model#	Sensor	Specifications	Sensor Format	Pixel Size μm	Shutter	Max Res	Max FPS
BFLY-PGE-12A2C/M-CS	1.2MP	Aptina AR0134 CMOS	1/3"	3.75 μm	Global	1280 x 960	52 fps
BFLY-PGE-13E4C/M-CS	1.3MP	e2v EV76C560 CMOS	1/1.8"	5.3 μm	Global	1280 x 1024	60 fps
BFLY-PGE-14S2C-CS	1.4MP	Sony IMX104 CMOS	1/3"	3.75 μm	Rolling	1296 x 1032	60 fps
BFLY-PGE-20E4C/M-CS	2.0MP	e2v EV76C570 CMOS	1/1.8"	4.5 μm	Global	1600 x 1200	50 fps
BFLY-PGE-23S2C-CS	2.3MP	Sony IMX136 CMOS	1/2.8"	2.8 μm	Rolling	1920 x 1200	27 fps
BFLY-PGE-23S6C/M-C	2.3MP	Sony IMX249 CMOS***	1/1.2"	5.86 μm	Global	1920 x 1200	41 fps
BFLY-PGE-31S4M/C-C	3.2MP	Sony IMX265 CMOS***	1/1.8"	3.45 μm	Global	2048 x 1536	35 fps
BFLY-PGE-50A2C/M-CS	5.0MP	Aptina MT9P006/031 CMOS	1/2.5"	2.2 μm	Rolling	2592 x 1944	13 fps
BFLY-PGE-50SSM/C-C	5.0MP	Sony IMX264 CMOS***	2/3"	3.45 μm	Global	2448 x 2048	22 fps

*High performance Sony Pregius™ Global Shutter CMOS

Model#	Sensor	Specifications	Sensor Format	Pixel Size μm	Shutter	Max Res	Max FPS
CM3-U3-13Y3C/M-CS	1.3MP	ON Semi PYTHON 1300 CMOS	1/2"	4.8 μm	Global	1280 x 1024	149 fps
CM3-U3-13Y3C/M-S-BD	1.3MP	ON Semi PYTHON 1300 CMOS	1/2"	4.8 μm	Global	1280 x 1024	149 fps
CM3-U3-31S4C/M-CS	3.2MP	Sony IMX265 CMOS*	1/1.8"	3.45 μm	Global	2048 x 1536	55 fps
CM3-U3-50S5C/M-CS	5.0MP	Sony IMX264 CMOS*	2/3"	3.45 μm	Global	2448 x 2048	35 fps

*High performance Sony Pregius™ Global Shutter CMOS

Compatible Accessories	
ACC-01-2100	5 m CAT 5e Ethernet lockable cable high flexibility
ACC-01-2101	4.5 m CAT 5e Ethernet cable
ACC-01-2300	3 m USB 3.0 cable, Type-A Micro-B (lockable)
ACC-01-2304	1 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2305	3 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2306	5 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
LENS-50F5-125C	Fujinon single-focus 12.5 mm C fixed lens, for 2/3" sensor (HF12.5SA-1), 5MP
LENS-160T5C	Tamron single-focus 16 mm C fixed lens, for 2/3" sensor (Z3FM16SP), 1.3MP
LENS-250T5C	Tamron single-focus 25 mm C fixed lens, for 2/3" sensor (Z3FM25SP), 1.3MP
LENS-15F5-125C	Fujinon single-focus 12.5 mm C fixed lens, for 2/3" sensor (HF12.5HA-1B), 1.5MP
LENS-15F5-250C	Fujinon single-focus 25 mm C fixed lens, for 2/3" sensor (HF25HA-1B), 1.5MP
ACC-01-1100	Intel PRO 1000 CT Gigabit Ethernet PCIe
GIGE-PCIE2-2P02	Gigabit Ethernet PCIe PoE, 2-port, Intel
ACC-01-1201	Universal USB 3.1 Gen 1 PCIe 2.0 x1 2-port card
ACC-01-1202	Universal USB 3.1 Gen 1 PCIe 2.0 x1 4-port card
U3-PCIE2-2P01X	PGR USB 3.1 PCIe 2.0 x1 card, Fresco, 2-port
ACC-01-1203	USB 3.1 Gen 1 PCIe 2.0 x4 4-port card
ACC-01-1105	Dual port 1GigE PDE card
ACC-01-3009	1.0 m, circular 6-pin GPIO Hirose connector
ACC-01-9011	12 V 1.5 A wall-mounted PS, power adapter, HR10 GPIO harness
ACC-01-0003	Tripod adapter
ACC-01-5004	C, CS base 5 mm gasket adapter

Compatible Accessories	
ACC-01-2300	3 m USB 3.0 cable, Type-A Micro-B (lockable)
ACC-01-2304	1 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2305	3 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2306	5 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-1201	Universal USB 3.1 Gen 1 PCIe 2.0 x1 2-port card
ACC-01-1202	Universal USB 3.1 Gen 1 PCIe 2.0 x1 4-port card
U3-PCIE2-2P01X	PGR USB 3.1 PCIe 2.0 x1 card, Fresco, 2-port
ACC-01-1203	USB 3.1 Gen 1 PCIe 2.0 x4 4-port card
ACC-01-3013	9-pin GPIO JST connector
ACC-01-0003	Tripod adapter
ACC-01-5004	C, CS base 5 mm gasket adapter
ACC-01-5005	CS, M12 microlens adapter
ACC-01-5006	Cast metal M12 microlens support
ACC-01-5007	Cast metal M12 microlens support, with IR filter

	BLACKFLY	CHAMELEON3
INTERFACE	USB 3.1 Gen 1 & GigE interface with screw locks for camera control, data, and power	USB 3.1 Gen 1 interface with screw locks for camera control, data, and power
GPIO	6-pin Hirose HR10A-7R-6PB GPIO connector for trigger, strobe, and power. 1 opto-isolated input, 1 opto-isolated output	9-pin JST GPIO connector, 4 pins for trigger and strobe, 1 pin +3.3 V, 1 VEXT pin for external power 1 opto-isolated input, 1 opto-isolated output
ADC	12-bit	12-bit • 10-bit (CM3-U3-13Y3)
IMAGE DATA FORMATS	Y8, Y16, Mono8, Mono12, Mono16 (all models)	Y8, Y16, Mono8, Mono12, Mono16 (all models)
PARTIAL IMAGE MODES	RGB8, YUV411, YUV422, YUV444, Raw8, Raw12, Raw16 (color models)	RGB8, YUV411, YUV422, YUV444, Raw8, Raw12, Raw16 (color models)
GAMMA	Pixel binning and region of interest (ROI) modes	Pixel binning and region of interest (ROI) modes
TRIGGER MODES	0.50 to 4.00, programmable lookup table	0.50 to 4.00, programmable lookup table
TIME SYNC. V PROTOCOL	Standard, bulb, multi-shot, overlapped	Standard, bulb, multi-shot, overlapped
IMAGE BUFFER	16 MB frame buffer	16 MB frame buffer
USER SETS	2 memory channels for custom camera settings	2 memory channels for custom camera settings
SIZE (WxHxD)	29 x 29 x 30 mm excluding lens holder (metal case)	44 x 35 x 19.5 mm excluding lens holder (metal case)
MASS	36g (Without optics or tripod mounting bracket)	55g (Without optics or tripod mounting bracket)
POWER	5-24 V via GPIO or 5 V via USB 3.1 interface, <2.5W	5 - 24 V via GPIO or 5 V via USB 3.1 interface, <3 W
LENS MOUNT	CS-mount, C-mount	CS-mount
TEMPERATURE	-30° to 60°C (storage) • 0° to 45°C (operating)	-30° to 60°C (storage) • 0° to 45°C (operating)
WARRANTY	3 years	3 years

GRASSHOPPER[®]3

HIGH PERFORMANCE CMOS AND CCD



USB
VISION



GIGAVISION
POE[®] ENABLED

Model#	Sensor	Specifications	Sensor Format	Pixel Size μm	Shutter	Max Res	Max FPS
GS3-U3-23S6C/M-C	2.3MP	Sony IMX174 CMOS*	1/1.2"	5.86 μm	Global	1920 x 1200	163 fps
GS3-U3-32S4C/M-C	3.2MP	Sony IMX252 CMOS*	1/1.8"	3.45 μm	Global	2048 x 1536	121 fps
GS3-U3-41C6NIR-C	4.1MP	CMOSIS CMV4000-3E12 CMOS	1"	5.5 μm	Global	2048 x 2048	90 fps
GS3-U3-41C6C/M-C	4.1MP	CMOSIS CMV4000-3E5 CMOS	1"	5.5 μm	Global	2048 x 2048	90 fps
GS3-U3-51S5C/M-C	5.0MP	Sony IMX250 CMOS*	2/3"	3.45 μm	Global	2448 x 2048	75 fps
GS3-U3-89S6C/M-C	8.9MP	Sony IMX255 CMOS*	1"	3.45 μm	Global	4096 x 2160	43 fps
GS3-U3-123S6C/M-C	12.3MP	Sony IMX253 CMOS*	1.1"	3.45 μm	Global	4096 x 3000	30 fps

*High performance Sony Pregius™ Global Shutter CMOS

Model#	Sensor	Specifications	Sensor Format	Pixel Size μm	Shutter	Max Res	Max FPS
GS3-PGE-23S6C/M-C	2.3MP	Sony IMX174 CMOS*	1/1.2"	5.86 μm	Global	1920 x 1200	45 fps

*High performance Sony Pregius™ Global Shutter CMOS

Compatible Accessories

ACC-01-2100	5 m CAT 5e Ethernet lockable cable high flexibility
ACC-01-2101	4.5 m CAT 5e Ethernet cable
ACC-01-2300	3 m USB 3.0 cable, Type-A Micro-B (lockable)
ACC-01-2304	1 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2305	3 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-2306	5 m USB 3.0 cable, Type-A Micro-B (lockable - metal connector)
ACC-01-1100	Intel PRO 1000 CT Gigabit Ethernet PCIe
ACC-01-1201	Universal USB 3.1 Gen 1 PCIe 2.0 x1 2-port card
ACC-01-1202	Universal USB 3.1 Gen 1 PCIe 2.0 x1 4-port card
ACC-01-1203	USB 3.1 Gen 1 PCIe 2.0 x4 4-port card
ACC-01-1105	Dual port 1GigE PoE card
ACC-01-3000	1.0 m, circular 8-pin GPIO Hirose connector cable
ACC-01-3005	4.5 m, circular 8-pin GPIO Hirose connector cable
ACC-01-3006	8-pin circular Hirose HR25 GPIO connector
ACC-01-9009	12 V 1.5 A wall-mounted PS, power adapter, HR25 GPIO harness
ACC-01-0011	Tripod adapter
ACC-01-5004	C, CS base 5 mm gasket adapter

Gigabit Ethernet interface with screw locks for camera control and data; Power over Ethernet	Gigabit Ethernet interface with screw locks for camera control and data; Power over Ethernet	INTERFACE
8-pin Hirose HR25 GPIO connector for power, trigger, strobe, PWM, and serial I/O	8-pin Hirose HR25 GPIO connector for power, trigger, strobe, PWM, and serial I/O	GPIO
10/12-bit • 14-bit	10/12-bit • 14-bit	ADC
Mono8, Mono12, Mono16 (all models) RGB, YUV411, YUV422, YUV444, Raw8, Raw12, Raw16 (color models)	Mono8, Mono12, Mono16 (all models) RGB, YUV411, YUV422, YUV444, Raw8, Raw12, Raw16 (color models)	IMAGE DATA FORMATS
Pixel binning and region of interest (ROI) modes	Pixel binning and region of interest (ROI) modes	PARTIAL IMAGE MODES
0.50 to 4.00, programmable lookup table	0.50 to 4.00, programmable lookup table	GAMMA
Standard, bulb, overlapped, multi-shot	Standard, bulb, overlapped, multi-shot	TRIGGER MODES
128 MB frame buffer	128 MB frame buffer	IMAGE BUFFER
2 memory channels for custom camera settings	2 memory channels for custom camera settings	USER SETS
44x29x58 mm excluding lens holder and connectors (metal case)	44x29x58 mm excluding lens holder and connectors (metal case)	SIZE (WXHXD)
90 grams (without optics or tripod mounting bracket)	90 grams (without optics or tripod mounting bracket)	MASS
Standard voltage via Power over Ethernet (PoE) or 5 - 24 V via GPIO interface, < 2.5 W	Standard voltage via Power over Ethernet (PoE) or 5 - 24 V via GPIO interface, < 2.5 W	POWER
C-mount	C-mount	LENS MOUNT
-30° to 60°C (storage) • 0° to 50°C (operating)	-30° to 60°C (storage) • 0° to 50°C (operating)	TEMPERATURE
3 years	3 years	WARRANTY





SPINNAKER SDK

MULTIPLE PLATFORMS

• **Windows 10**
32/64 bit



• **LINUX®**

Ubuntu 16.04
Ubuntu 18.04
Ubuntu 20.04



• **Mac® OS**

Mojave (10.14)

MULTIPLE LANGUAGES

- C, C++, C#
- Visual Basic .NET
- Python

MULTIPLE ARM CPU ARCHITECTURES

- X64
- X86

THIRD PARTY SOFTWARE SUPPORT

- | | |
|--------------------------|--------------|
| • Adaptive Vision Studio | • libdc |
| • VisionPro | • OpenCV |
| • Matlab | • eBUS SDK |
| • MIL | • DirectShow |
| • HALCON | • ActiveDCAM |
| • ActiveVisionTools | • ActiveGigE |
| • LavVIEW | • ActiveUSB |
| • VisionBuilder | |

MULTIPLE INTERFACES



This SDK provides the same programming interface across USB3 Vision and GigE Vision cameras.

The Spinnaker SDK is a next generation GeniCam3 API library built for machine vision developers. It features an intuitive GUI called SpinView, rich example code, and comprehensive documentation designed to help you build your application faster.

BUILD FASTER

Engineered for faster development into your application and better forward compatibility.

ACCELERATED INTEGRATION

Unlock the power of GeniCam3. Quickly build your own software and have UI customizations. Minimize future development time with Spinnaker's API forward compatibility.

DYNAMIC FEATURES

Simplify and improve performance by enabling camera events, imaging sequencer and programmable logic. Use chunk data to gather image metadata and validate system performance.

TRANSMISSION RELIABILITY

Superior image transfer control and bandwidth management offers greater flexibility and insight into all transmission pipeline layers. Review detailed diagnostics and take command of our advanced logging functionality.

LADYBUG5+

LADYBUG SDK

HIGHEST QUALITY SPHERICAL 360° IMAGING AND ACCURACY.

ACQUIRE 8K30 OR 4K60 OF CONTENT ACCURACY LEVEL OF 2MM AT 10M.



Model#	Sensor Specifications	Sensor Format	Pixel Size μm	Shutter	Max Res
LD5P-U3-51S5C-R LD5P-U3-51S5C-B	30MP Sony IMX264 CMOS	2/3"	3.45 μm	Global	2448 x 2048 2448 x 2048 @ 30 FPS 2448 x 1024 @ 60 FPS

Compatible Accessories	
ACC-01-1201	Generic USB 3.0 PCI Express 2.0 x1 2-port card (Renasas)
ACC-01-1202	USB 3.1 Gen 1 PCIe 2.0 x1 4-port card (Fresco)
ACC-01-1203	USB 3.1 Gen 1 PCIe 2.0 x4 4-port card (Fresco)
ACC-01-2303	1m USB3 cable, Type A to Micro-B (lockable)
ACC-01-2300	3m USB3 cable, Type A to Micro-B (lockable)
ACC-01-2301	5m USB3 cable, Type A to Micro-B (lockable)
ACC-01-2304	1m USB3 cable, Type A to Micro-B (lockable, metal)
ACC-01-2305	3m USB3 cable, Type A to Micro-B (lockable, metal)
ACC-01-2306	5m USB3 cable, Type A to Micro-B (lockable, metal)
ACC-01-6001	USB3 Hub VIA VL812 1-port screw locks

Every Ladybug® system includes a feature rich Software Development Kit (SDK) to manage image acquisition, spherical and panoramic image production, and camera settings. The Ladybug SDK includes the LadybugCapPro program, source code for a quick start in the C/C++ programming environment, a camera device driver, and Application Programming Interface (API) software library. The API allows users to integrate Ladybug functionality with custom applications.

Compatible Accessories	
ACC-01-6001	USB3 Hub VIA VL812 1-port screw locks
ACC-01-0012	Ladybug3 and Ladybug5 Desktop Mount
ACC-01-0015	Ladybug5 Tripod Mount Adapter with 3/8-1
ACC-01-3012	Ladybug5 6m 12PIN Hirose GPIO cable with Barrel Power Jack
ACC-01-9001	LD2 & LD5 24V 2.5A Wall Wart Power Supply
DEVKIT-01-0007	Ladybug5 Development Accessory Kit, includes the following: ACC-01-0012, ACC-01-0015, ACC-01-1201, ACC-01-2304, ACC-01-2305, ACC-01-2306, ACC-01-3012, ACC-01-6001, ACC-01-9001

USB 3.1 Gen 1 interface with screw locks for camera control and data	INTERFACE
12-pin GPIO connector for external trigger input, strobe output, and camera power	GPIO
Six high quality f2.5, 4.4 mm focal length lenses	OPTICS
Calibrated from 2 m to infinity	SPHERICAL DISTANCE
~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity	FOCUS DISTANCE
12-bit	ADC
Raw8, Raw12 in uncompressed and JPEG	IMAGE DATA FORMATS
8-, 12-, or 16-bit, Raw or JPEG compressed	IMAGE DATA OUTPUT
Automatic/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats; 0 - 18 dB	GAIN RANGE
0.50 to 4.00	GAMMA
Standard, bulb, skip frames, overlapped, multi-shot	TRIGGER MODES
Cycle 4 gain and exposure presets	HIGH DYNAMIC RANGE
Global shutter; Automatic/manual/one-push/extended shutter modes 0.02 ms to 2 seconds (extended shutter)	EXPOSURE RANGE
Shutter, gain, white balance, gamma and JPEG compression, are programmable via software	IMAGE PROCESSING
Single unit, water resistant	CASE TYPE
Machined aluminum housing, anodized red or black	CASE MATERIAL
Temperature, Barometer, Humidity, Accelerometer, Compass	ENVIRONMENTAL SENSORS
197 mm diameter, 160 mm height (with lens hoods)	SIZE (WXHxD)
3000 g	MASS
12-24 V, 13 W via GPIO (external power required)	POWER
-30° to 60°C (storage) • -20° to 50°C (operating)	TEMPERATURE
2 years	WARRANTY

SAMPLE ACCESSORIES LIST

For the most up to date list, please visit www.flir.com/accessories

Model#	TRIPOD MOUNT / ENCLOSURES	BFS-PGE BFLY-PGE	BFS-U3 BFLY-U3	BFS-BD	CM3-U3	GS3-PGE	GS3-U3	LD5	Oryx	FFY-MV FFY-S FFY-DL
ACC-01-0003	Tripod Adapter for BFS (30mm)									
ACC-01-0011	Tripod Mount Adapter-11									
ACC-01-0012	Ladybug5+ Desktop Mount									
ACC-01-0015	Ladybug5+ Tripod Mount Adapter									
ACC-01-0016	Tripod Adapter for 39 mm									
ACC-01-0017	Tripod Adapter									
ACC-01-0018	Tripod Adapter for 64 mm									

Model#	HOST ADAPTER CARDS	BFS-PGE BFLY-PGE	BFS-U3 BFLY-U3	BFS-BD	CM3-U3	GS3-PGE	GS3-U3	LD5	Oryx	FFY-S FFY-DL
ACC-01-1105	Gigabit (PoE), 2 Port, Network Interface Card									
ACC-01-1202	Generic USB 3.1 Gen 1 PCIe 2.0 x1 4 Port Card									
ACC-01-1203	USB 3.1 Gen 1 PCIe 2.0 x4 4 Port Card									
ACC-01-1106	10GBASE-T Ethernet PCI Express 2.1 x4 Single Port Adapter, AQCI07									
ACC-01-1107	10GBASE-T Ethernet PCI Express 3.0 x4 Dual Port Adapter, Intel X550AT2									

Model#	CABLES	BFS-PGE BFLY-PGE	BFS-U3 BFLY-U3	BFS-BD	CM3-U3	GS3-PGE	GS3-U3	LD5	Oryx	FFY-S FFY-DL
ACC-01-2100	5 m CAT 5e Ethernet Locking Cable, High Flex									
ACC-01-2101	4.5 meter CAT 5e Ethernet Cable									
ACC-01-2300	3 m USB 3.0 Cable, Type-A to Micro-B (Locking)									
ACC-01-2301	5 m USB 3.0 Cable, Type-A to Micro-B (Locking)									
ACC-01-2303	USB3, 1 meter Certified, Type-A to Micro-B Cable									
ACC-01-2304	1 m USB 3.0 Cable, Type-A to Micro-B (Locking - Metal Connector)									
ACC-01-2305	3 m USB 3.0 Cable, Type-A to Micro-B (Locking - Metal Connector)									
ACC-01-2306	5 m USB 3.0 Cable, Type-A to Micro-B (Locking - Metal Connector)									
ACC-01-2400	15 cm FPC cable									
ACC-01-2401	30 cm FPC cable									
ACC-01-2404	30 mm FPC cable									
ACC-01-2405	15 cm FPC cable									

Model#	GPIO CONNECTORS	BFS-PGE BFLY-PGE	BFS-U3 BFLY-U3	BFS-BD	CM3-U3	GS3-PGE	GS3-U3	LD5	Oryx	FFY-S FFY-DL
ACC-01-3000	1.0 m, Circular 8-pin Prewired GPIO Hirose Conn.									
ACC-01-3001	12 pins, 0.1m GPIO Cable, Hirose HR10 Circular Connector									
ACC-01-3002	ST GPIO Connector 0.1 m 7 pins									
ACC-01-3005	4.5 m, Circular 8-pin Prewired GPIO Hirose Conn.									
ACC-01-3013	9-pin Prewired GPIO JST Connector									
ACC-01-3006	8-pin Circular Hirose HR25 GPIO Connector									
ACC-01-3009	1.0m, Circular 6-pin Prewired GPIO Hirose Conn.									
ACC-01-3010	4.5m, Circular 6-pin Prewired GPIO Hirose Conn.									
ACC-01-3011	6-pin Circular Hirose HR10 GPIO Connector									
ACC-01-3012	12-pin Circular Hirose GPIO Cable with Power Jack									
ACC-01-3014	12 pins, 4.5 m GPIO Cable, Hirose HR10 Circular Connector									
ACC-01-3015	ST GPIO Connector 30 cm 6 pins									



Model#	OPTIC MOUNTS	BFS-PGE BFLY-PGE	BFS-U3 BFLY-U3	BFS-BD	CM3-U3	GS3-PGE	GS3-U3	LD5	Oryx	FFY-S FFY-DL
ACC-01-5002	CS Mount Lens Holder									
ACC-01-5003	CS Mount Lens Holder with IR Filter									
ACC-01-5004	C to CS-Mount Mount 5mm Spacer Adapter									
ACC-01-5005	CS-to M12 MicroLens Adapter									
ACC-01-5006	Cast Metal M12 MicroLens Holder									
ACC-01-5007	Cast Metal M12 MicroLens Holder with IR Filter									
ACC-01-5008	S-Mount front for Blackfly S board level cameras									
ACC-01-5010	C-Mount front for Blackfly S board level cameras									
ACC-01-5012	CS-Mount front for Blackfly S board level cameras									
ACC-01-5014	Oryx F Mount									

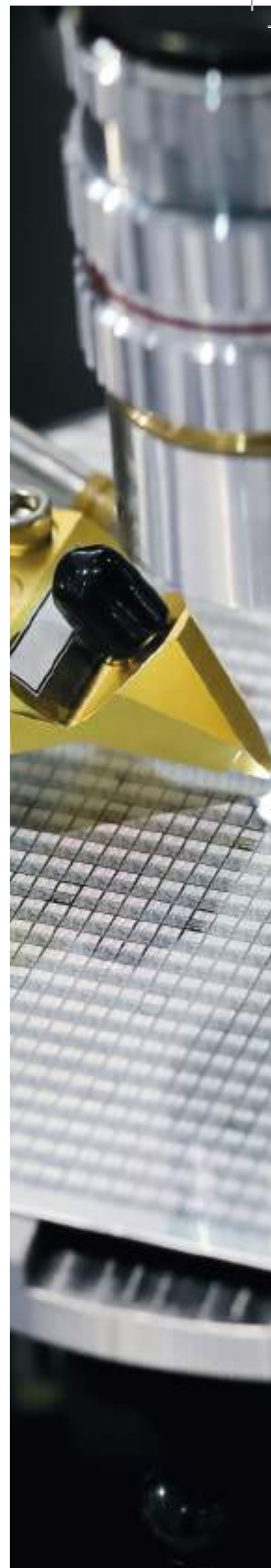
Model#	HUBS	BFS-PGE BFLY-PGE	BFS-U3 BFLY-U3	BFS-BD	CM3-U3	GS3-PGE	GS3-U3	LD5	Oryx	FFY-S FFY-DL
ACC-01-6000	4-Port USB 3.0 Hub, Screw Locks, Ext Power Adap.									
ACC-01-6001	USB 3.1 Gen 1 Hub, VIA VL812, Micro B to Standard A, 1-port with screw locks									
ACC-01-6002	4 Port TF38 to USB3.1 Gen1 Hub									

Model#	POWER SUPPLY (PS) / MISC	BFS-PGE BFLY-PGE	BFS-U3 BFLY-U3	BFS-BD	CM3-U3	GS3-PGE	GS3-U3	LD5	Oryx	FFY-S FFY-DL
ACC-01-9009	12V 1.5A Wall-Mount PS, Plug Adapters, HR25 GPIO Harness									
ACC-01-9011	12V 1.5A Wall-Mount PS, Plug Adapters, HR10 GPIO Harness									
ACC-01-9013	12Pin, 18W Power supply									

Model#	HEATSINK	BFS-PGE BFLY-PGE	BFS-U3 BFLY-U3	BFS-BD	CM3-U3	GS3-PGE	GS3-U3	LD5	Oryx	FFY-S FFY-DL
ACC-01-7000	Heatsink for Board level Blackfly S									

Model#	REGULAR LENS
LENS-15F5-125C	Fujinon fixed focal length 12.5mm C-mount lens for 2/3" sensors (HF12.5HA-1B)
LENS-15F5-250C	Fujinon fixed focal length 25mm C-mount lens for 2/3" sensors (HF25HA-1B)
LENS-15F3-60C	Fujinon fixed focal length 6mm C-mount lens for 1/2" sensors (DF6HA-1B)
LENS-V500F2CS	Fujinon vari-focal 15-50mm CS-mount lens, for 1/3" sensors (YV3.3x15SA-2)

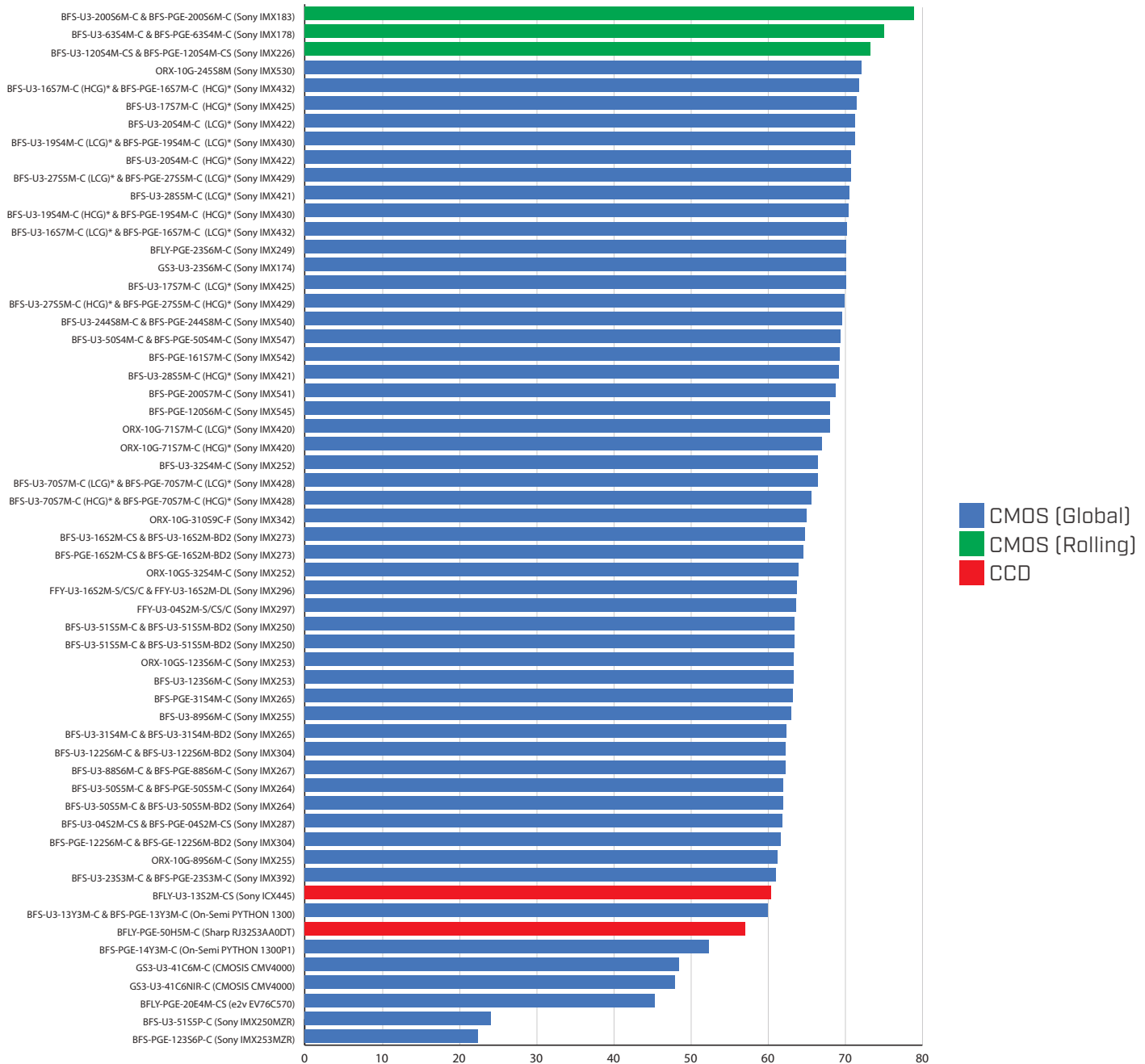
Model#	HIGH RESOLUTION LENS
LENS-V500F2CS-DC	Fujinon 15mm 50mm 1/3inch CS mount DC iris Lens
LENS-50F5-125C	Fujinon fixed focal length 12.5mm C-mount lens for 2/3" sensors (HF12.5SA-1)
LENS-80C7C	Computar 8mm fixed focal length C-mount lens, for 1.1" sensors (V0828-MPY)
LENS-160T5C	Tamron fixed focal length 16mm C-mount lens for 2/3" sensors (23FM16SP)
LENS-80T4C	Tamron fixed focal length 8mm C-mount lens for 1/1.8" sensors (MF118FM08)
LENS-80T6C	Tamron fixed focal length 8mm C-mount lens for 1.1" sensors (MF111FM08)
LENS-120C7C	Computar 12mm fixed focal length C-mount lens, for 1" sensors (V1228-MPY)
LENS-120T6C	Tamron 12mm fixed focal length C-mount lens, for 1/1.2" and 2/3" sensors (M112FM12)
LENS-160T4C	Tamron fixed focal length 16mm C-mount lens for 1/1.8" sensors (MF118FM16)
LENS-160E6C	Edmund Optics fixed focal length 16mm C-mount lens for 1" sensors (86-571)
LENS-160T6C	Tamron 16mm fixed focal length C-mount lens, for 1/1.2" and 2/3" sensors (M112FM16)
LENS-250T6C	Tamron 25mm fixed focal length C-mount lens, for 1/1.2" and 2/3" sensors (M112FM25)
LENS-250C7C	Computar 25mm fixed focal length C-mount lens, for 1" sensors (V2528-MPY)
LENS-250T5C	Tamron fixed focal length 25mm C-mount lens for 2/3" sensors (23FM25SP)
LENS-28C2-V100CS	Computar A4Z2812CS-MPIR, 2.8mm-10mm, 1/2.7", CS mount Lens



EMVA1288 Specification Comparison Charts

QUANTUM EFFICIENCY [%] AT 530 nm [HIGHER IS BETTER]

Quantum efficiency (QE) is the ability of the sensor to turn photons into electrons, or in other words, turn incoming light into an electrical signal for imaging. A higher QE % means greater sensitivity for detecting light. A sensor with a measurement of 79% means that for every 100 photons that hit the sensor an average of 79 will be detected. Please note that the results below are taken at the wavelength of 530nm.



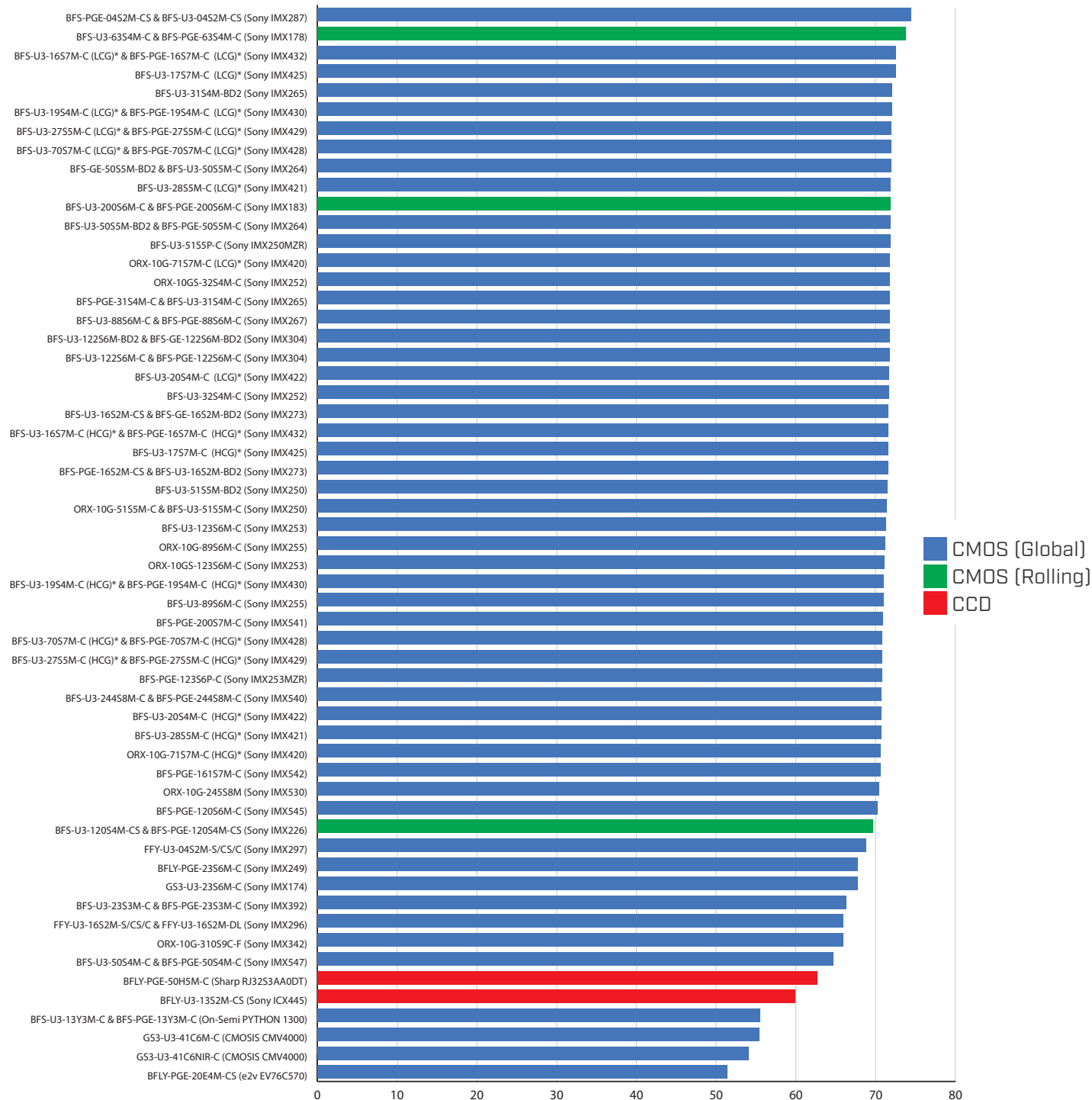
* LCG and HCG stand for low conversion gain and high conversion gain respectively. These are explained in "Selectable Conversion Gain" section.

Please note that all measurements are taken based on guidelines in the EMVA 1288 standard. Camera settings are at maximum exposure time and bit depth unless otherwise noted. The pixel format is Mono 16 for mono cameras except for the last two Bandwidth and Throughput graphs which are done at Mono 8. Results are captured at room temperature (20°C). For more information on the EMVA 1288 standard please visit EMVA.org.

DYNAMIC RANGE dB

[HIGHER IS BETTER]

Dynamic range describes the camera model's ability to detect the maximum and minimum of light intensities (shadows and highlights). Models with higher dynamic range can detect more detail in the darks and lights.

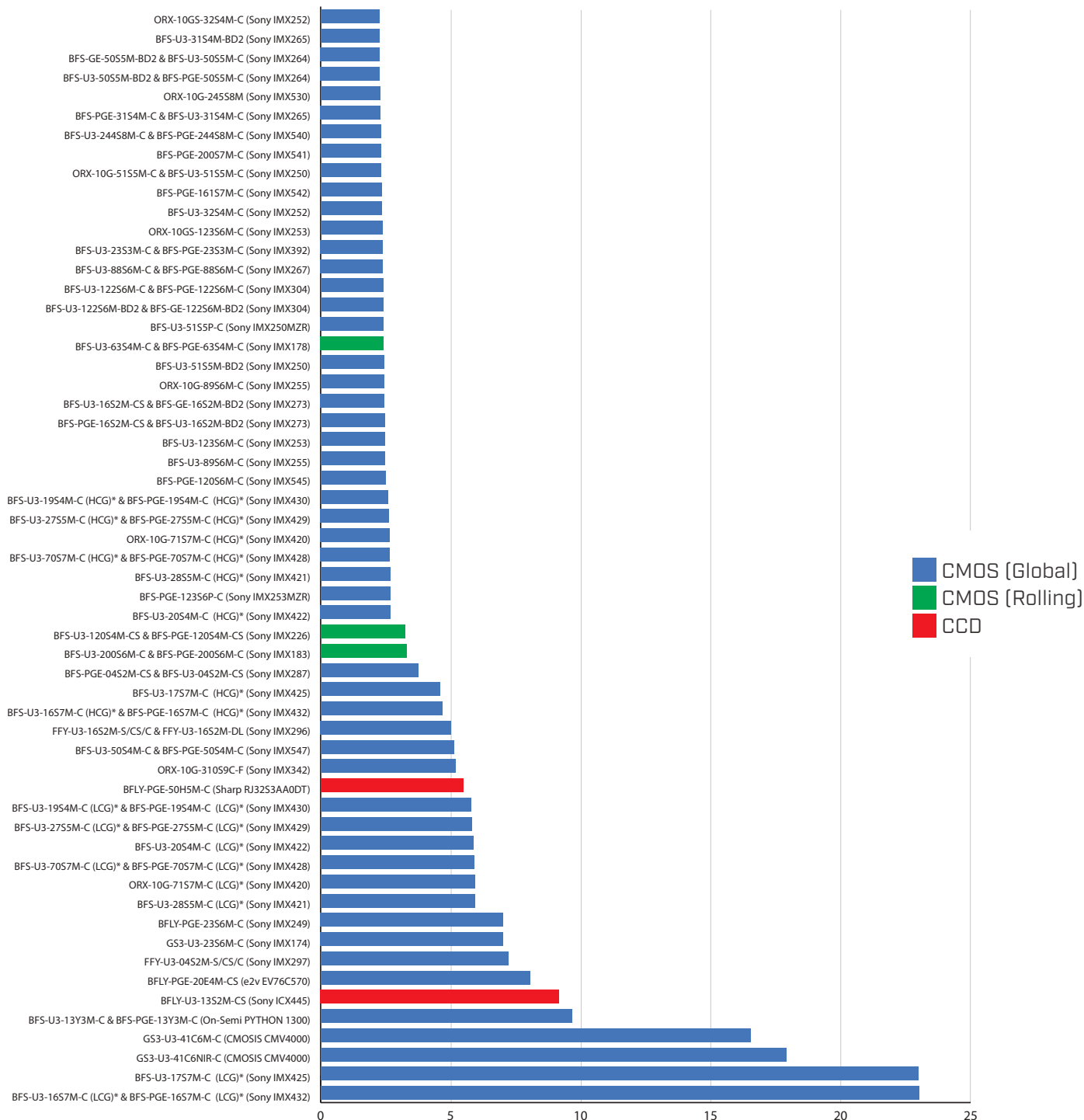


* LCG and HCG stand for low conversion gain and high conversion gain respectively. These are explained in "Selectable Conversion Gain" section.



TEMPORAL DARK NOISE/READ NOISE e- (LOWER IS BETTER)

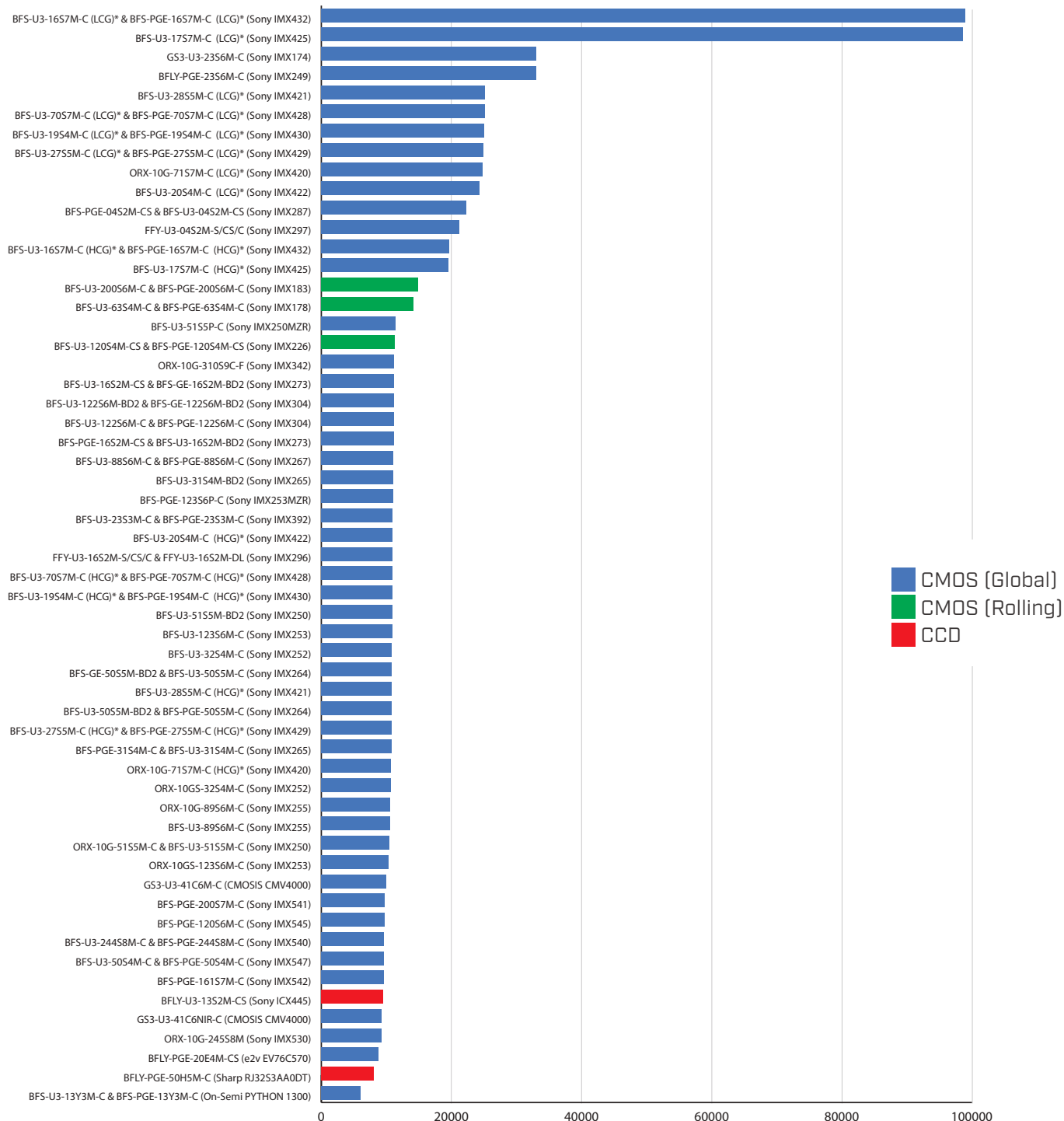
Temporal dark noise (also known as read noise) comes from energy within the sensor and the surrounding sensor electronics. Over time, random electrons are created that fall into the sensor wells and are detected and turned into signal. Models with lower read noise measurements produce cleaner images.



* LCG and HCG stand for low conversion gain and high conversion gain respectively. These are explained in "Selectable Conversion Gain" section.

SATURATION CAPACITY (WELL DEPTH) e- (HIGHER IS BETTER, SORTED BY PIXEL SIZE)

The saturation capacity (well depth) is the largest charge a pixel can hold before over-saturation occurs and signal degradation begins. Saturation must be avoided because it diminishes the quantitative ability of the sensor and in the case of CCDs produces image smearing due to a phenomenon known as blooming.



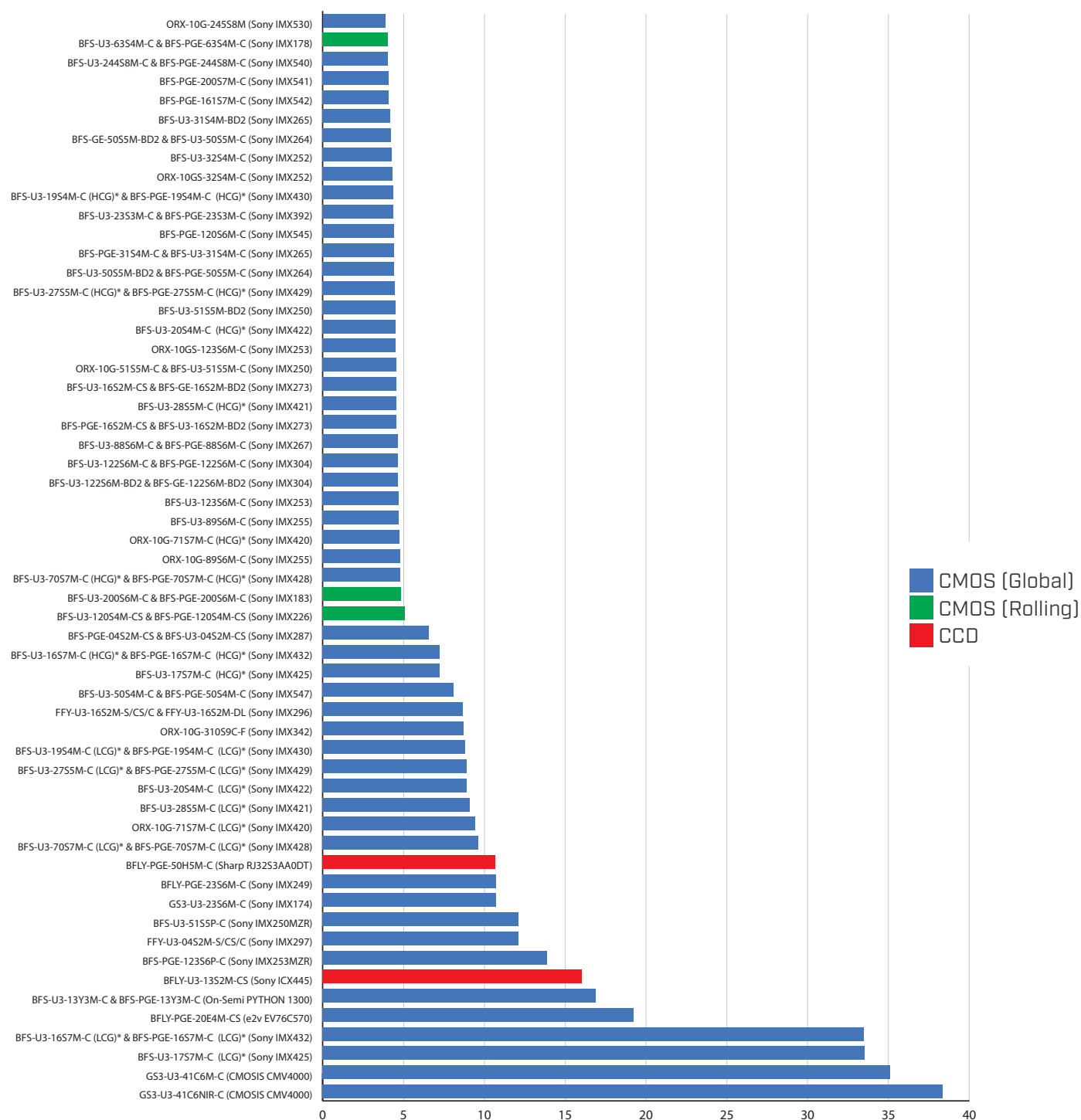
* LCG and HCG stand for low conversion gain and high conversion gain respectively. These are explained in "Selectable Conversion Gain" section.



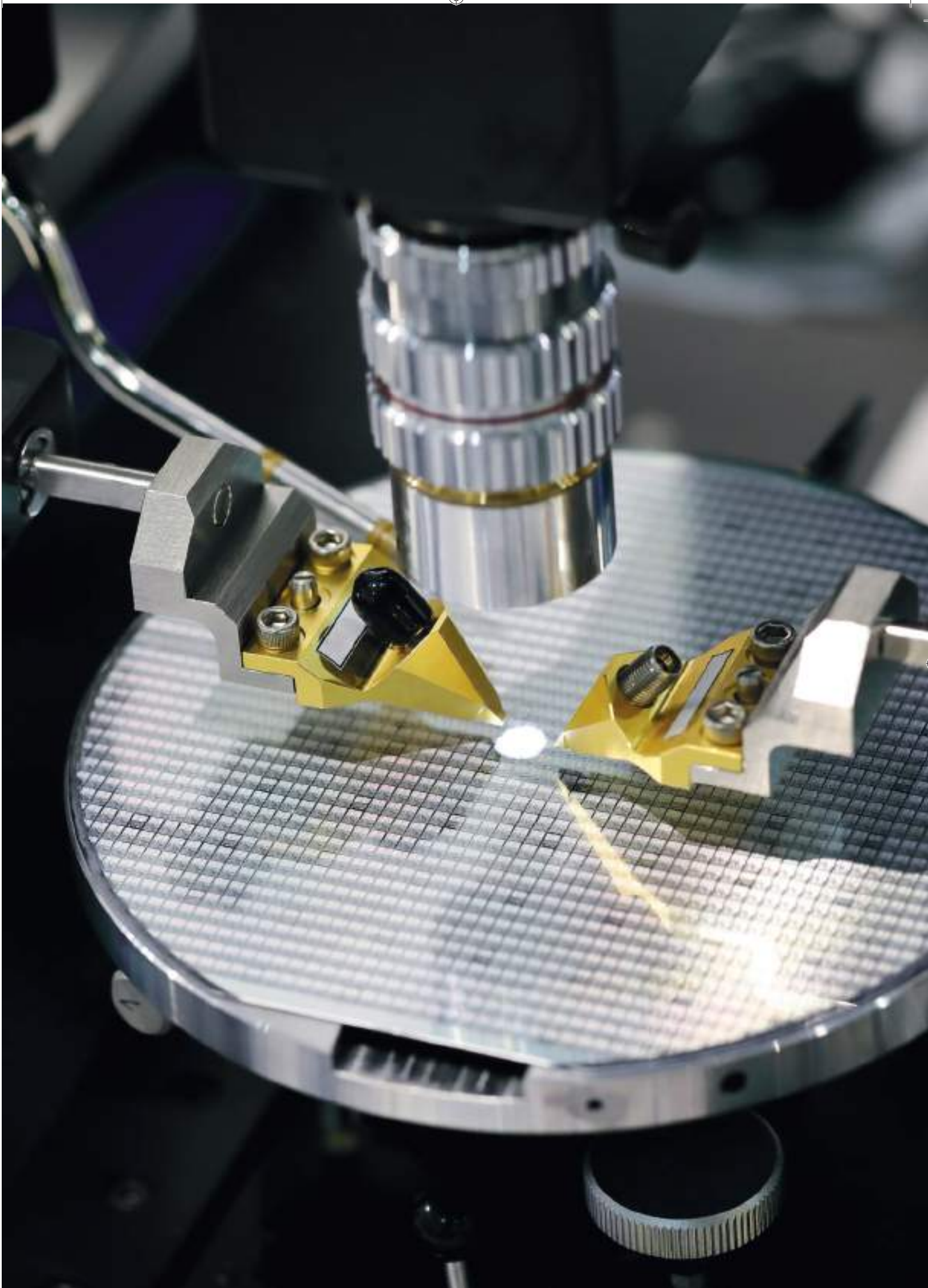
ABSOLUTE SENSITIVITY THRESHOLD (γ)

[LESS IS BETTER]

Absolute sensitivity threshold is the minimum number of photons needed to equal the noise level. The lower the number the less light is needed to detect useful imaging data.



* LCG and HCG stand for low conversion gain and high conversion gain respectively. These are explained in "Selectable Conversion Gain" section.





MONO CAMERA SENSOR REVIEW SORTED BY SENSOR TYPE (CMOS/CCD) AND RESOLUTION

Model Number	Sensor Manufacturer	Sensor Name	Sensor Size	Interface	Sensor Type	Readout	Resolution	Mega-pixels	Max FPS	Pixel Pitch
GS3-U3-41C6M-C	CMOSIS	CMV4000	1	USB 3.1 Gen 1	CMOS	Global shutter	2048 x 2048	4.2	90 FPS	5.0
GS3-U3-41C6NIR-C	CMOSIS	CMV4000	1	USB 3.1 Gen 1	CMOS	Global shutter	2048 x 2048	4.2	90 FPS	5.0
BFLY-PGE-20E4M-CS	e2v	EV76C570	1/1.8	PoE GigE	CMOS	Global shutter	1600 x 1200	1.9	50 FPS	8.0
BFLY-U3-13S2M-CS	Sony	ICX445	1/3	USB 3.1 Gen 1	CCD	Global shutter	1288 x 964	1.2	30 FPS	10.7
GS3-U3-23S6M-C	Sony	IMX174	1	USB 3.1 Gen 1	CMOS	Global shutter	1920 x 1200	2.3	163 FPS	7.5
BFS-PGE-63S4M-C	Sony	IMX178	1/1.8	PoE GigE	CMOS	Rolling shutter with global reset	3072 x 2048	6.3	19 FPS	4.7
BFS-U3-63S4M-C	Sony	IMX178	1/1.8	USB 3.1 Gen 1	CMOS	Rolling shutter with global reset	3072 x 2048	6.3	59.6 FPS	4.7
BFS-PGE-200S6M-C	Sony	IMX183	1	PoE GigE	CMOS	Rolling shutter with global reset	5472 x 3648	20.0	6.1 FPS	2.7
BFS-U3-200S6M-C	Sony	IMX183	1	USB 3.1 Gen 1	CMOS	Rolling shutter with global reset	5472 x 3648	20.0	18 FPS	2.7
BFS-PGE-120S4M-CS	Sony	IMX226	1/1.7	PoE GigE	CMOS	Rolling shutter with global reset	4000 x 3000	12.0	8.5 FPS	3.3
BFS-U3-120S4M-CS	Sony	IMX226	1/1.7	USB 3.1 Gen 1	CMOS	Rolling shutter with global reset	4000 x 3000	12.0	31 FPS	3.3
BFLY-PGE-23S6M-C	Sony	IMX249	1	PoE GigE	CMOS	Global Shutter	1920 x 1200	2.3	41 FPS	8.3
BFS-U3-51S5M-BD2	Sony	IMX250	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5.0	75 FPS	9.6
BFS-U3-51S5M-C	Sony	IMX250	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5.0	75 FPS	9.6
ORX-10G-51S5M-C	Sony	IMX250	2/3	10GigE	CMOS	Global Shutter	2448 x 2048	5.0	162 FPS	9.6
BFS-U3-51S5P-C	Sony	IMX250MZR	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5.0	75 FPS	9.6
BFS-U3-32S4M-C	Sony	IMX252	1/1.8	USB 3.1 Gen 1	CMOS	Global Shutter	2048 x 1536	3.1	118 FPS	6.5
ORX-10GS-32S4M-C	Sony	IMX252	1/1.8	10GigE	CMOS	Global Shutter	2048 x 1536	3.1	216 FPS	6.5
BFS-U3-123S6M-C	Sony	IMX253	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 3000	12.3	30 FPS	3.3
BFS-PGE-123S6P-C	Sony	IMX253MZR	1.1	PoE GigE	CMOS	Global Shutter	4096 x 3000	12.3	10 FPS	3.3
ORX-10GS-123S6M-C	Sony	IMX253	1.1	10GigE	CMOS	Global Shutter	4096 x 3000	12.3	68 FPS	3.3
BFS-U3-89S6M-C	Sony	IMX255	1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 2160	8.8	42 FPS	4.5
ORX-10G-89S6M-C	Sony	IMX255	1	10GigE	CMOS	Global Shutter	4096 x 2160	8.8	93 FPS	4.5
BFS-GE-50S5M-BD2	Sony	IMX264	2/3	GigE	CMOS	Global Shutter	2448 x 2048	5.0	22 FPS	4.9
BFS-PGE-50S5M-C	Sony	IMX264	2/3	PoE GigE	CMOS	Global Shutter	2448 x 2048	5.0	22 FPS	4.9
BFS-U3-50S5M-BD2	Sony	IMX264	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5.0	35 FPS	4.9
BFS-U3-50S5M-C	Sony	IMX264	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5.0	35 FPS	4.9
BFS-PGE-31S4M-C	Sony	IMX265	1/1.8	PoE GigE	CMOS	Global Shutter	2048 x 1536	3.1	35 FPS	8.3
BFS-U3-31S4M-BD2	Sony	IMX265	1/1.8	USB 3.1 Gen 1	CMOS	Global Shutter	2048 x 1536	3.1	57 FPS	8.3
BFS-U3-31S4M-C	Sony	IMX265	1/1.8	USB 3.1 Gen 1	CMOS	Global Shutter	2048 x 1536	3.1	57 FPS	8.3
BFS-PGE-88S6M-C	Sony	IMX267	1	PoE GigE	CMOS	Global Shutter	4096 x 2160	8.8	13.9 FPS	3.7
BFS-U3-88S6M-BD2	Sony	IMX267	1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 2160	8.8	32 FPS	3.7
BFS-U3-88S6M-C	Sony	IMX267	1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 2160	8.8	32 FPS	3.7
BFS-GE-16S2M-BD2	Sony	IMX273	1/2.9	GigE	CMOS	Global Shutter	1440 x 1080	1.6	78 FPS	6.5
BFS-PGE-16S2M-CS	Sony	IMX273	1/2.9	PoE GigE	CMOS	Global Shutter	1440 x 1080	1.6	78 FPS	6.5
BFS-U3-16S2M-BD2	Sony	IMX273	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	1440 x 1080	1.6	226 FPS	6.5
BFS-U3-16S2M-CS	Sony	IMX273	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	1440 x 1080	1.6	226 FPS	6.5
BFS-PGE-04S2M-CS	Sony	IMX287	1/2.9	PoE GigE	CMOS	Global Shutter	720 x 540	0.4	291 FPS	16.3
BFS-U3-04S2M-CS	Sony	IMX287	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	720 x 540	0.4	522 FPS	16.3
FFY-U3-16S2M-DL	Sony	IMX296	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	1440 x 1080	1.6	60 FPS	8.3
FFY-U3-16S2M-S/CS/C	Sony	IMX296	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	1440 x 1080	1.6	60 FPS	8.3
FFY-U3-04S2M-S/CS/C	Sony	IMX297	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	720 x 540	0.4	120 FPS	16.3
BFS-GE-122S6M-BD2	Sony	IMX304	1.1	GigE	CMOS	Global Shutter	4096 x 3000	12.3	10 FPS	3.3
BFS-PGE-122S6M-C	Sony	IMX304	1.1	PoE GigE	CMOS	Global Shutter	4096 x 3000	12.3	10 FPS	3.3
BFS-U3-122S6M-BD2	Sony	IMX304	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 3000	12.3	23 FPS	3.3
BFS-U3-122S6M-C	Sony	IMX304	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 3000	12.3	23 FPS	3.3
ORX-10G-310S9C-F	Sony	IMX342	APS-C	10GigE	CMOS	Global Shutter	6464 x 4852	31.4	27 FPS	2.5
BFS-PGE-23S3M-C	Sony	IMX392	1/2.3	PoE GigE	CMOS	Global Shutter	1920 x 1200	2.3	53 FPS	8.3
BFS-U3-23S3M-C	Sony	IMX392	1/2.3	USB 3.1 Gen 1	CMOS	Global Shutter	1920 x 1200	2.3	163 FPS	8.3
ORX-10G-71S7M-C (HCG)*	Sony	IMX420	1.1	10GigE	CMOS	Global Shutter	3208 x 2200	7.1	112 FPS	4.5
ORX-10G-71S7M-C (LCG)*	Sony	IMX420	1.1	10GigE	CMOS	Global Shutter	3208 x 2200	7.1	112 FPS	4.5
BFS-U3-28S5M-C (HCG)*	Sony	IMX421	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	1936 x 1464	2.8	130 FPS	6.5
BFS-U3-28S5M-C (LCG)*	Sony	IMX421	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	1936 x 1464	2.8	130 FPS	6.5
BFS-U3-20S4M-C (HCG)*	Sony	IMX422	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1616 x 1240	2.0	175 FPS	8.3
BFS-U3-20S4M-C (LCG)*	Sony	IMX422	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1616 x 1240	2.0	175 FPS	8.3
BFS-U3-17S7M-C (HCG)*	Sony	IMX425	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	1600 x 1100	1.7	196 FPS	6.5
BFS-U3-17S7M-C (LCG)*	Sony	IMX425	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	1600 x 1100	1.7	196 FPS	6.5
BFS-PGE-70S7M-C (HCG)*	Sony	IMX428	1.1	PoE GigE	CMOS	Global Shutter	3208 x 2200	7.1	17.4 FPS	4.5
BFS-PGE-70S7M-C (LCG)*	Sony	IMX428	1.1	PoE GigE	CMOS	Global Shutter	3208 x 2200	7.1	17.4 FPS	4.5
BFS-U3-70S7M-C (HCG)*	Sony	IMX428	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	3208 x 2200	7.1	51 FPS	6.5
BFS-U3-70S7M-C (LCG)*	Sony	IMX428	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	3208 x 2200	7.1	51 FPS	6.5
BFS-PGE-27S5M-C (HCG)*	Sony	IMX429	2/3	PoE GigE	CMOS	Global Shutter	1936 x 1464	2.8	43 FPS	6.5
BFS-PGE-27S5M-C (LCG)*	Sony	IMX429	2/3	PoE GigE	CMOS	Global Shutter	1936 x 1464	2.8	43 FPS	6.5
BFS-U3-27S5M-C (HCG)*	Sony	IMX429	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1936 x 1464	2.8	95 FPS	6.5
BFS-U3-27S5M-C (LCG)*	Sony	IMX429	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1936 x 1464	2.8	95 FPS	6.5
BFS-PGE-19S4M-C (HCG)*	Sony	IMX430	1/1.7	PoE GigE	CMOS	Global Shutter	1616 x 1240	2.0	60 FPS	8.3
BFS-PGE-19S4M-C (LCG)*	Sony	IMX430	1/1.7	PoE GigE	CMOS	Global Shutter	1616 x 1240	2.0	60 FPS	8.3
BFS-U3-19S4M-C (HCG)*	Sony	IMX430	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1616 x 1240	2.0	132 FPS	8.3
BFS-U3-19S4M-C (LCG)*	Sony	IMX430	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1616 x 1240	2.0	132 FPS	8.3
BFS-PGE-16S7M-C (HCG)*	Sony	IMX432	1.1	PoE GigE	CMOS	Global Shutter	1600 x 1100	1.7	69 FPS	6.5
BFS-PGE-16S7M-C (LCG)*	Sony	IMX432	1.1	PoE GigE	CMOS	Global Shutter	1600 x 1100	1.7	69 FPS	6.5
BFS-U3-16S7M-C (HCG)*	Sony	IMX432	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	1600 x 1100	1.7	97 FPS	6.5
BFS-U3-16S7M-C (LCG)*	Sony	IMX432	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	1600 x 1100	1.7	97 FPS	6.5
ORX-10G-24S8M	Sony	IMX530	1.2	10GigE	CMOS	Global Shutter	5320 x 4600	24.6	44 FPS	4.2
BFS-PGE-244S8M-C	Sony	IMX540	4/3	PoE GigE	CMOS	Global Shutter	5320 x 4600	24.5	5 FPS	4.2
BFS-U3-244S8M-C	Sony	IMX540	4/3	USB 3.1 Gen 1	CMOS	Global Shutter	5320 x 4600	24.5	12 FPS	4.2
BFS-PGE-200S7M-C	Sony	IMX541	1.1	PoE GigE	CMOS	Global Shutter	4540 x 4504	20.2	6 FPS	4.2
BFS-PGE-161S7M-C	Sony	IMX542	1.1	PoE GigE	CMOS	Global Shutter	5320 x 3032	16.1	7.5 FPS	4.2
BFS-PGE-120S6M-C	Sony	IMX545	1/1.1	PoE GigE	CMOS	Global Shutter	4096 x 3000	12	10 FPS	4.2
BFS-PGE-50S4M-C	Sony	IMX547	1/1.8	PoE GigE	CMOS	Global Shutter	2448 x 2048	5	24 FPS	4.2
BFS-U3-50S4M-C	Sony	IMX547	1/1.8	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5	72 FPS	4.2
BFS-PGE-13Y3M-C	On-Semi	PYTHON 1300	1/2	PoE GigE	CMOS	Global Shutter	1280 x 1024	1.3	84 FPS	4.2
BFS-U3-13Y3M-C	On-Semi	PYTHON 1300	1/2	USB 3.1 Gen 1	CMOS	Global Shutter	1280 x 1024	1.3	170 FPS	4.2
BFS-PGE-14Y3M-C	On-Semi	PYTHON 1300P1	1/2	PoE GigE	CMOS	Global Shutter	1280 x 1024	1.3	92 FPS	4.2
BFLY-PGE-50H5M-C	Sharp	RJ3235AA00T	2/3	PoE GigE	CCD	Global Shutter	2448 x 2048	5.0	7.5 FPS	4.2





Pixel Size (µm)	Quantum Efficiency (% @530nm)	Gain (ADU/e-)	Temporal Dark Noise (ADU)	Temporal Dark Noise (e-)	SNR (dB)	SNR (Bits)	Absolute Sensitivity Threshold (e-)	Saturation Capacity (e-)	Dynamic Range (dB)	Dynamic Range (Bits)
5.5 µm	48.50	6.27	103.71	16.53	39.99	6.64	35.11	9983	55.36	9.20
5.5 µm	48.00	6.64	118.82	17.90	39.68	6.59	38.34	9282	54.06	8.98
4.5 µm	45.30	6.70	36.55	8.04	39.41	6.55	19.22	8727	51.38	8.53
3.75 µm	60.38	6.51	59.70	9.17	39.77	6.61	16.01	9487	59.84	9.94
5.86 µm	70.14	1.92	13.32	7.02	45.19	7.51	10.72	33022	67.71	11.25
2.4 µm	77.07	4.30	10.98	2.55	41.52	6.90	3.96	14177	73.33	12.18
2.4 µm	75.05	4.31	10.58	2.42	41.52	6.90	4.03	14204	73.73	12.25
2.4 µm	75.73	4.17	13.81	3.26	41.70	6.93	4.97	14794	71.89	11.94
2.4 µm	78.91	4.17	13.85	3.30	41.71	6.93	4.83	14837	71.84	11.93
1.85 µm	76.00	5.88	32.62	5.61	40.32	6.70	8.04	10752	14136.00	10.78
1.85 µm	73.27	5.56	18.09	3.23	40.54	6.73	5.09	11323	69.64	11.57
5.86 µm	70.14	1.92	13.32	7.02	45.19	7.51	10.72	33022	67.71	11.25
3.45 µm	65.06	5.68	13.82	2.43	40.38	6.71	4.51	10917	71.42	11.86
3.45 µm	63.40	5.70	13.87	2.44	40.40	6.71	4.63	10970	71.45	11.87
3.45 µm	61.95	5.88	13.96	2.31	40.18	6.67	4.54	10435	71.38	11.86
3.45 µm	24.10	5.56	13.59	2.42	40.55	6.74	12.10	11359	71.81	11.93
3.45 µm	66.50	5.73	13.46	2.35	40.36	6.70	4.29	10858	71.62	11.90
3.45 µm	63.93	5.88	13.37	2.26	40.27	6.69	4.32	10648.5	71.72	11.91
3.45 µm	63.30	5.88	14.39	2.47	40.37	6.70	4.71	10878	71.27	11.84
3.45 µm	22.42	5.56	14.94	2.68	40.41	6.71	13.87	10995	70.77	11.76
3.45 µm	63.35	5.88	14.35	2.37	40.12	6.66	4.53	10277	71.08	11.81
3.45 µm	62.99	5.88	14.33	2.47	40.22	6.68	4.72	10514	70.97	11.79
3.45 µm	61.22	5.88	14.57	2.44	40.25	6.68	4.80	10584	71.13	11.81
3.45 µm	65.55	5.56	13.28	2.27	40.35	6.7	4.22	10849	71.87	11.94
3.45 µm	66.08	5.56	13.42	2.35	40.52	6.73	4.32	11278	71.93	11.95
3.45 µm	62.51	5.77	13.10	2.27	40.34	6.70	4.43	10824	71.83	11.93
3.45 µm	62.00	5.88	13.19	2.25	40.28	6.69	4.47	10658	71.77	11.92
3.45 µm	63.20	5.88	13.41	2.30	40.32	6.70	4.43	10760	71.69	11.91
3.45 µm	66.46	5.88	13.09	2.26	40.43	6.72	4.16	11047.7	72.04	11.97
3.45 µm	62.36	5.88	13.10	2.26	40.33	6.70	4.43	10791	71.83	11.93
3.45 µm	63.45	5.88	14.16	2.45	40.33	6.70	4.66	10784	71.25	11.83
3.45 µm	64.6	5.88	13.62	2.33	40.29	6.69	4.38	10688.70	71.55	11.88
3.45 µm	62.26	5.88	13.73	2.39	40.46	6.72	4.64	11107	71.69	11.91
3.45 µm	64.00	5.88	13.80	2.41	40.42	6.71	4.58	11007	71.55	11.88
3.45 µm	64.60	5.71	14.05	2.46	40.46	6.72	4.58	11127	71.50	11.88
3.45 µm	64.81	5.88	14.01	2.45	40.48	6.72	4.55	11179	71.58	11.89
3.45 µm	64.81	5.88	14.01	2.45	40.48	6.72	4.55	11179	71.58	11.89
6.9 µm	65.00	2.86	10.68	3.74	43.48	7.22	6.57	22302	74.42	12.36
6.9 µm	61.82	2.86	10.71	3.71	43.46	7.22	6.81	22187	74.43	12.36
3.45 µm	65.45	0.1	0.45	4.91	40.26	6.69	8.26	10612.20	65.86	10.94
3.45 µm	63.75	0.09	0.46	5.02	40.39	6.71	8.66	10941.00	65.94	10.95
6.9 µm	63.62	0.05	0.34	7.21	43.27	7.19	12.12	21210	68.79	11.43
3.45 µm	65.14	5.88	13.65	2.33	40.32	6.7	4.34	10764	71.61	11.89
3.45 µm	61.60	5.88	14.11	2.43	40.40	6.71	4.76	10971	71.45	11.87
3.45 µm	62.29	5.88	13.82	2.40	40.46	6.72	4.65	11130	71.69	11.91
3.45 µm	62.29	5.88	13.82	2.40	40.46	6.72	4.65	11130	71.69	11.91
3.45 µm	65.04	5.88	29.80	5.18	40.49	6.72	8.70	11188	65.89	10.94
3.45 µm	64.61	5.88	13.54	2.35	40.43	6.71	4.41	11031	71.75	11.92
3.45 µm	61.00	5.88	13.7172	2.38827	40.41	6.71	4.39055	10983	66.23	11.00
4.5 µm	67.00	5.88	15.89	2.66	40.29	6.69	4.74	10692	70.59	11.73
4.5 µm	68.00	2.56	15.23	5.92	43.92	7.30	9.42	24802	71.74	11.92
4.5 µm	69.15	5.80	15.47	2.67	40.35	6.70	4.58	10841	70.69	11.74
4.5 µm	70.55	2.51	14.87	5.93	44.00	7.31	9.11	25122	71.84	11.93
4.5 µm	70.77	5.88	15.73	2.69	40.40	6.71	4.51	10960.9	70.72	11.75
4.5 µm	71.27	2.56	15.15	5.87	43.85	7.28	8.93	24277.1	71.63	11.90
9 µm	71.50	3.22	15.34	4.59	42.91	7.13	7.26	19557	71.53	11.88
9 µm	70.09	0.65	14.98	22.99	49.94	8.30	33.52	98654	72.46	12.04
4.5 µm	70.64	5.88	15.28	2.63	40.36	6.70	4.42	10864	70.82	11.76
4.5 µm	71.22	2.56	14.93	5.85	43.97	7.30	8.92	24920	71.88	11.94
4.5 µm	65.65	5.88	15.41	2.66	40.39	6.71	4.81	10938	70.78	11.76
4.5 µm	66.46	2.56	14.89	5.89	44.00	7.31	9.61	25101	71.89	11.94
4.5 µm	67.82	5.88	15.24	2.64	40.38	6.71	3.14	10912	70.81	11.76
4.5 µm	68.64	2.56	14.76	5.81	43.99	7.31	6.31	25048	71.97	11.95
4.5 µm	69.93	5.88	15.22	2.63	40.34	6.7	4.48	10817.80	70.77	11.75
4.5 µm	70.73	2.56	14.80	5.80	43.95	7.3	8.91	24858.90	71.92	11.95
4.5 µm	70.85	5.88	14.98	2.60	40.38	6.71	4.37	10920	70.95	11.78
4.5 µm	71.58	2.55	14.68	5.81	43.99	7.31	8.82	25090	71.99	11.96
4.5 µm	70.43	5.88	14.95	2.59	40.38	6.71	4.38	10921.9	70.98	11.79
4.5 µm	71.23	2.5	14.58	5.78	43.99	7.31	8.81	25052.9	72.02	11.96
9 µm	72.34	3.22	15.31	4.76	42.95	7.13	7.31	19744	71.49	11.87
9 µm	70.70	0.64	14.80	23.25	49.98	8.30	33.75	99483	72.44	12.03
9 µm	71.81	3.22	15.16	4.68	42.93	7.13	7.22	19643.6	71.57	11.89
9 µm	70.22	0.65	14.81	23.01	49.95	8.3	33.49	98965.6	72.48	12.04
2.74	72.09	6.67	15.36	2.29	39.66	6.59	3.87	9239	70.4	11.69
2.74 µm	68.61	6.67	15.01	2.28	39.9	6.63	4.06	9770	70.9	11.78
2.74 µm	69.56	6.67	15.15	2.31	39.83	6.62	4.03	9623	70.72	11.73
2.74 µm	68.76	6.67	15.18	2.31	39.91	6.63	4.09	9787	70.83	11.76
2.74 µm	69.26	6.67	15.54	2.34	39.81	6.61	4.10	9562	70.55	11.72
2.74 µm	68.05	6.67	16.26	2.50	39.89	6.63	4.41	9751	70.23	11.66
2.74 µm	67.99	6.67	16.18	2.49	39.99	6.63	4.40	9748	70.26	11.67
2.74 µm	69.34	6.67	33.42	5.13	39.83	6.62	8.11	9623	64.66	10.74
4.8 µm	60.00	6.25	62.47	9.73	38.02	6.32	17.13	6341	55.85	9.28
4.8 µm	60.00	6.67	62.93	9.65	37.81	6.28	16.90	6034	55.48	9.22
4.8 µm	52.36	6.67	62.92	9.47	37.83	6.28	19.05	6065	55.68	9.25
3.45 µm	57.00	7.69	61.32	5.48	39.08	6.49	10.67	8086	62.61	10.40

*Low and high conversion gain is explained in section "Selectable Conversion Gain"





COLOR CAMERA SENSOR REVIEW SORTED BY SENSOR TYPE (CMOS/CCD) AND RESOLUTION

Model Number	Sensor Manufacturer	Sensor Name	Sensor Size	Interface	Sensor Type	Readout	Resolution	Mega-pixels	Max FPS	Pixel Size (µm)	Q
GS3-U3-41C6C-C	CMOSIS	CMV4000	1	USB 3.1 Gen 1	CMOS	Global Shutter	2048 x 2048	4.2	90 FPS	5.5 µm	
BFLY-PGE-20E4C-CS	e2v	EV76C570	1/1.8	PoE GigE	CMOS	Global Shutter	1600 x 1200	1.9	50 FPS	4.5 µm	
BFLY-U3-13S2C-CS	Sony	ICX445	1/3	USB 3.1 Gen 1	CCD	Global Shutter	1288 x 964	1.2	30 FPS	3.75 µm	
GS3-U3-23S6C-C	Sony	IMX174	1	USB 3.1 Gen 1	CMOS	Global Shutter	1920 x 1200	2.3	163 FPS	5.86 µm	
BFS-PGE-63S4C-C	Sony	IMX178	1/1.8	PoE GigE	CMOS	Rolling Shutter with global reset	3072 x 2048	6.3	19 FPS	2.4 µm	
BFS-U3-63S4C-C	Sony	IMX178	1/1.8	USB 3.1 Gen 1	CMOS	Rolling Shutter with global reset	3072 x 2048	6.3	59.6 FPS	2.4 µm	
BFS-PGE-200S6C-C	Sony	IMX183	1	PoE GigE	CMOS	Rolling Shutter with global reset	5472 x 3648	20.0	6.1 FPS	2.4 µm	
BFS-U3-200S6C-C	Sony	IMX183	1	USB 3.1 Gen 1	CMOS	Rolling Shutter with global reset	5472 x 3648	20.0	18 FPS	2.4 µm	
BFS-PGE-120S4C-CS	Sony	IMX226	1/1.7	PoE GigE	CMOS	Rolling Shutter with global reset	4000 x 3000	12.0	8.5 FPS	1.85 µm	
BFS-U3-120S4C-CS	Sony	IMX226	1/1.7	USB 3.1 Gen 1	CMOS	Rolling Shutter with global reset	4000 x 3000	12.0	31 FPS	1.85 µm	
BFLY-PGE-23S6C-C	Sony	IMX249	1	PoE GigE	CMOS	Global Shutter	1920 x 1200	2.3	41 FPS	5.86 µm	
BFS-U3-51S5C-BD2	Sony	IMX250	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5.0	75 FPS	3.45 µm	
BFS-U3-51S5C-C	Sony	IMX250	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5.0	75 FPS	3.45 µm	
ORX-10G-51S5C-C	Sony	IMX250	2/3	10GigE	CMOS	Global Shutter	2448 x 2048	5.0	162 FPS	3.45 µm	
BFS-U3-51S5PC-C	Sony	IMX250MYR	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5.0	75 FPS	3.45 µm	
BFS-U3-32S4C-C	Sony	IMX252	1/1.8	USB 3.1 Gen 1	CMOS	Global Shutter	2048 x 1536	3.1	118 FPS	3.45 µm	
ORX-10GS-32S4C-C	Sony	IMX252	1/1.8	10GigE	CMOS	Global Shutter	2048 x 1536	3.1	216 FPS	3.45 µm	
BFS-U3-123S6C-C	Sony	IMX253	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 3000	12.3	30 FPS	3.45 µm	
ORX-10GS-123S6C-C	Sony	IMX253	1.1	10GigE	CMOS	Global Shutter	4096 x 3000	12.3	68 FPS	3.45 µm	
BFS-U3-89S6C-C	Sony	IMX255	1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 2160	8.9	42 FPS	3.45 µm	
ORX-10G-89S6C-C	Sony	IMX255	1	10GigE	CMOS	Global Shutter	4096 x 2160	8.8	93 FPS	3.45 µm	
BFS-GE-50S5C-BD2	Sony	IMX264	2/3	GigE	CMOS	Global Shutter	2448 x 2048	5.0	22 FPS	3.45 µm	
BFS-PGE-50S5C-C	Sony	IMX264	2/3	PoE GigE	CMOS	Global Shutter	2448 x 2048	5.0	22 FPS	3.45 µm	
BFS-U3-50S5C-BD2	Sony	IMX264	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5.0	35 FPS	3.45 µm	
BFS-U3-50S5C-C	Sony	IMX264	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5.0	35 FPS	3.45 µm	
BFS-PGE-31S4C-C	Sony	IMX265	1/1.8	PoE GigE	CMOS	Global Shutter	2048 x 1536	3.1	35 FPS	3.45 µm	
BFS-U3-31S4C-BD2	Sony	IMX265	1/1.8	USB 3.1 Gen 1	CMOS	Global Shutter	2048 x 1536	3.1	57 FPS	3.45 µm	
BFS-U3-31S4C-C	Sony	IMX265	1/1.8	USB 3.1 Gen 1	CMOS	Global Shutter	2048 x 1536	3.1	57 FPS	3.45 µm	
BFS-PGE-88S6C-C	Sony	IMX267	1	PoE GigE	CMOS	Global Shutter	4096 x 2160	8.9	13.9 FPS	3.45 µm	
BFS-U3-88S6C-BD2	Sony	IMX267	1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 2160	8.9	32 FPS	3.45 µm	
BFS-U3-88S6C-C	Sony	IMX267	1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 2160	8.9	32 FPS	3.45 µm	
BFS-GE-16S2C-BD2	Sony	IMX273	1/2.9	GigE	CMOS	Global Shutter	1440 x 1080	1.6	78 FPS	3.45 µm	
BFS-PGE-16S2C-CS	Sony	IMX273	1/2.9	PoE GigE	CMOS	Global Shutter	1440 x 1080	1.6	78 FPS	3.45 µm	
BFS-U3-16S2C-BD2	Sony	IMX273	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	1440 x 1080	1.6	226 FPS	3.45 µm	
BFS-U3-16S2C-CS	Sony	IMX273	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	1440 x 1080	1.6	226 FPS	3.45 µm	
BFS-PGE-04S2C-CS	Sony	IMX287	1/2.9	PoE GigE	CMOS	Global Shutter	720 x 540	0.4	291 FPS	6.9 µm	
BFS-U3-04S2C-CS	Sony	IMX287	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	720 x 540	0.4	522 FPS	6.9 µm	
FFY-U3-16S2C-DL	Sony	IMX296	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	1440 x 1080	1.6	60 FPS	3.45 µm	
FFY-U3-16S2C-S/CS/C	Sony	IMX296	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	1440 x 1080	1.6	60 FPS	3.45 µm	
FFY-U3-04S2C-C	Sony	IMX297	1/2.9	USB 3.1 Gen 1	CMOS	Global Shutter	720 x 540	0.4	120 FPS	6.9 µm	
BFS-GE-122S6C-BD2	Sony	IMX304	1.1	GigE	CMOS	Global Shutter	4096 x 3000	12.3	10 FPS	3.45 µm	
BFS-PGE-122S6C-C	Sony	IMX304	1.1	PoE GigE	CMOS	Global Shutter	4096 x 3000	12.3	10 FPS	3.45 µm	
BFS-U3-122S6C-BD2	Sony	IMX304	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 3000	12.3	23 FPS	3.45 µm	
BFS-U3-122S6C-C	Sony	IMX304	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	4096 x 3000	12.3	23 FPS	3.45 µm	
ORX-10G-310S9C	Sony	IMX342	APS-C	10GigE	CMOS	Global Shutter	6464 x 4852	31.4	27 FPS	3.45 µm	
BFS-PGE-23S3C-C	Sony	IMX392	1/2.3	PoE GigE	CMOS	Global Shutter	1920 x 1200	2.3	53 FPS	3.45 µm	
BFS-U3-23S3C-C	Sony	IMX392	1/2.3	USB 3.1 Gen 1	CMOS	Global Shutter	1920 x 1200	2.3	163 FPS	3.45 µm	
ORX-10G-71S7C-C (HCG)*	Sony	IMX420	1.1	10GigE	CMOS	Global Shutter	3208 x 2200	7.1	112 FPS	4.5 µm	
ORX-10G-71S7C-C (LCG)*	Sony	IMX420	1.1	10GigE	CMOS	Global Shutter	3208 x 2200	7.1	112 FPS	4.5 µm	
BFS-U3-28S5C-C (HCG)*	Sony	IMX421	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	1936 x 1464	2.8	130 FPS	4.5 µm	
BFS-U3-28S5C-C (LCG)*	Sony	IMX421	2/3	USB 3.1 Gen 1	CMOS	Global Shutter	1936 x 1464	2.8	130 FPS	4.5 µm	
BFS-U3-20S4C-C (HCG)*	Sony	IMX422	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1616 x 1240	2.0	175 FPS	4.5 µm	
BFS-U3-20S4C-C (LCG)*	Sony	IMX422	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1616 x 1240	2.0	175 FPS	4.5 µm	
BFS-U3-17S7C-C (HCG)*	Sony	IMX425	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	1600 x 1100	1.7	196 FPS	9 µm	
BFS-U3-17S7C-C (LCG)*	Sony	IMX425	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	1600 x 1100	1.7	196 FPS	9 µm	
BFS-PGE-70S7C-C (HCG)*	Sony	IMX428	1.1	PoE GigE	CMOS	Global Shutter	3208 x 2200	7.1	17.4 FPS	4.5 µm	
BFS-PGE-70S7C-C (LCG)*	Sony	IMX428	1.1	PoE GigE	CMOS	Global Shutter	3208 x 2200	7.1	17.4 FPS	4.5 µm	
BFS-U3-70S7C-C (HCG)*	Sony	IMX428	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	3208 x 2200	7.1	51 FPS	4.5 µm	
BFS-U3-70S7C-C (LCG)*	Sony	IMX428	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	3208 x 2200	7.1	51 FPS	4.5 µm	
BFS-PGE-27S5C-C (HCG)*	Sony	IMX429	2/3	PoE GigE	CMOS	Global Shutter	1936 x 1464	2.8	43 FPS	4.5 µm	
BFS-PGE-27S5C-C (LCG)*	Sony	IMX429	2/3	PoE GigE	CMOS	Global Shutter	1936 x 1464	2.8	43 FPS	4.5 µm	
BFS-U3-27S5C-C (HCG)*	Sony	IMX429	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1936 x 1464	2.8	95 FPS	4.5 µm	
BFS-U3-27S5C-C (LCG)*	Sony	IMX429	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1936 x 1464	2.8	95 FPS	4.5 µm	
BFS-PGE-19S4C-C (HCG)*	Sony	IMX430	1/1.7	PoE GigE	CMOS	Global Shutter	1616 x 1240	2.0	60 FPS	4.5 µm	
BFS-PGE-19S4C-C (LCG)*	Sony	IMX430	1/1.7	PoE GigE	CMOS	Global Shutter	1616 x 1240	2.0	60 FPS	4.5 µm	
BFS-U3-19S4C-C (HCG)*	Sony	IMX430	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1616 x 1240	2.0	132 FPS	4.5 µm	
BFS-U3-19S4C-C (LCG)*	Sony	IMX430	1/1.7	USB 3.1 Gen 1	CMOS	Global Shutter	1616 x 1240	2.0	132 FPS	4.5 µm	
BFS-PGE-16S7C-C (HCG)*	Sony	IMX432	1.1	PoE GigE	CMOS	Global Shutter	1600 x 1100	1.7	69 FPS	9 µm	
BFS-PGE-16S7C-C (LCG)*	Sony	IMX432	1.1	PoE GigE	CMOS	Global Shutter	1600 x 1100	1.7	69 FPS	9 µm	
BFS-U3-16S7C-C (HCG)*	Sony	IMX432	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	1600 x 1100	1.7	97 FPS	9 µm	
BFS-U3-16S7C-C (LCG)*	Sony	IMX432	1.1	USB 3.1 Gen 1	CMOS	Global Shutter	1600 x 1100	1.7	97 FPS	9 µm	
ORX-10G-24S58C	Sony	IMX530	1.2	10GigE	CMOS	Global Shutter	5320 x 4600	24.6	44 FPS	2.74 µm	
BFS-PGE-24S58C-C	Sony	IMX540	4/3	PoE GigE	CMOS	Global Shutter	5320 x 4600	24.5	5 FPS	2.74 µm	
BFS-U3-24S58C-C	Sony	IMX540	4/3	USB 3.1 Gen 1	CMOS	Global Shutter	5320 x 4600	24.5	12 FPS	2.74 µm	
BFS-PGE-200S7C-C	Sony	IMX541	1.1	PoE GigE	CMOS	Global Shutter	4540 x 4504	20.2	6 FPS	2.74 µm	
BFS-PGE-161S7C-C	Sony	IMX542	1.1	PoE GigE	CMOS	Global Shutter	5320 x 3032	16.1	7.5 FPS	2.74 µm	
BFS-PGE-120S6C-C	Sony	IMX545	1/1.1	PoE GigE	CMOS	Global Shutter	4096 x 3000	12	10 FPS	2.74 µm	
BFS-PGE-50S4C-C	Sony	IMX547	1/1.8	PoE GigE	CMOS	Global Shutter	2448 x 2048	5	24 FPS	2.74 µm	
BFS-U3-50S4C-C	Sony	IMX547	1/1.8	USB 3.1 Gen 1	CMOS	Global Shutter	2448 x 2048	5	72 FPS	2.74 µm	
BFS-PGE-13Y3C-C	On-Semi	PYTHON 1300	1/2	PoE GigE	CMOS	Global Shutter	1280 x 1024	1.3	84 FPS	4.8 µm	
BFS-U3-13Y3C-C	On-Semi	PYTHON 1300	1/2	USB 3.1 Gen 1	CMOS	Global Shutter	1280 x 1024	1.3	170 FPS	4.8 µm	
BFLY-PGE-50H5C-C	Sharp	RJ323SAADT	2/3	PoE GigE	CCD	Global Shutter	2448 x 2048	5.0	7.5 FPS	3.45 µm	





Quantum Efficiency (% @530nm)	Gain (ADU/e-)	Temporal Dark Noise (ADU)	Temporal Dark Noise (e-)	SNR (dB)	SNR (Bits)	Absolute Sensitivity Threshold (e-)	Saturation Capacity (e-)	Dynamic Range (dB)	Dynamic Range (Bits)	Dynamic Range (dB)	Dynamic Range (Bits)
38.81	38.30	34.32	6.25	110.77	17.73	40.03	6.65	47.59	10061	54.84	9.11
37.53	35.04	29.30	4.85	36.86	7.60	40.33	6.70	23.11	10789	62.49	10.38
39.21	42.52	35.14	6.55	63.59	9.70	39.72	6.60	24.00	9385	59.27	9.85
60.25	59.70	37.91	1.92	13.14	6.90	45.09	7.49	23.15	32291	67.37	11.19
62.30	66.85	41.69	4.33	10.84	2.50	41.45	6.88	4.49	13965	73.35	12.18
61.48	65.53	41.46	4.37	10.84	2.41	41.44	6.88	4.65	13921	73.61	12.23
59.69	65.39	41.01	4.21	13.95	3.31	41.75	6.94	5.83	14978	71.89	11.94
63.18	69.49	43.67	4.21	13.95	3.31	41.75	6.94	5.47	14978	71.89	11.94
61.41	66.09	38.93	5.70	18.76	3.29	40.40	6.71	5.74	10956	69.22	11.50
58.15	62.65	38.03	5.65	18.32	3.24	40.42	6.71	5.98	11020	69.38	11.52
60.25	59.70	37.91	1.92	13.14	6.90	45.09	7.49	23.15	32291	67.37	11.19
49.04	58.81	47.22	5.65	13.60	2.41	40.48	6.72	4.94	11164	71.69	11.91
46.57	56.33	44.94	5.74	14.04	2.45	40.44	6.72	5.23	11071	71.50	11.88
46.21	55.89	43.50	5.56	13.32	2.24	40.25	6.69	4.93	10603	71.74	11.92
17.27	22.45	18.60	5.76	13.82	2.40	40.27	6.69	15.58	10649	71.31	11.84
49.52	59.66	47.02	5.81	13.43	2.31	40.30	6.69	4.72	10725	71.62	11.90
48.08	58.93	44.87	5.88	13.32	2.24	40.33	6.7	4.67	10787.1	71.89	11.94
46.27	57.09	45.81	5.95	14.74	2.48	40.20	6.68	5.22	10476	70.92	11.78
46.39	57.05	46.39	5.88	14.08	2.35	40.19	6.68	5.00	10449	71.28	11.84
46.43	56.28	45.94	5.72	14.27	2.50	40.43	6.72	5.32	11038	71.33	11.85
44.99	55.04	44.12	5.88	14.64	2.44	40.21	6.68	5.34	10490	71.04	11.80
49.87	60.65	46.5	5.88	13.39	2.37	40.58	6.74	4.72	11440	72.02	11.96
48.21	58.30	45.94	5.80	12.89	2.22	40.31	6.70	4.67	10740	71.92	11.95
48.21	58.30	45.94	5.80	12.89	2.22	40.31	6.70	4.67	10740	71.92	11.95
47.00	57.00	45.00	5.88	13.25	2.28	40.37	6.71	4.86	10889	71.85	11.93
48.34	59.51	45.86	5.88	13.17	2.30	40.46	6.72	4.71	11126	72.00	11.96
48.55	59.91	46.45	5.88	13.19	2.27	40.23	6.68	4.64	10545.4	71.62	11.9
47.13	56.10	44.53	5.88	12.81	2.21	40.29	6.69	4.83	10689	71.92	11.95
44.79	57.23	44.78	5.88	13.95	2.42	40.31	6.70	5.06	10740	71.32	11.85
45.33	55.99	44.33	5.88	13.74	2.31	40.28	6.69	5.02	10659	71.57	11.89
45.33	55.99	44.33	5.88	13.74	2.31	40.28	6.69	5.02	10659	71.57	11.89
47.91	58.07	44.96	5.88	13.71	2.37	40.41	6.71	4.97	10992	71.65	11.90
48.41	59.37	46.26	5.94	13.90	2.34	40.23	6.68	4.78	10554	71.40	11.86
49.91	60.28	46.26	5.88	13.60	2.36	40.53	6.72	4.77	11046	71.73	11.91
48.03	59.32	47.08	5.88	14.26	2.41	40.36	6.70	4.91	10862	71.43	11.86
48.70	57.43	45.60	2.90	10.85	3.74	43.41	7.21	7.39	21947	74.27	12.34
49.86	56.96	45.11	2.86	10.82	3.80	43.51	7.23	7.55	22436	74.35	12.35
47.04	57.43	44.35	0.1	0.46	4.93	40.2	6.68	9.49	10461.3	65.69	10.91
47.60	58.34	45.54	0.1	0.45	4.65	40.11	6.66	8.89	10260.2	65.98	10.96
47.31	57.17	44.78	0.05	0.36	7.68	43.23	7.18	14.29	21014	68.20	11.33
48.58	58.65	45.62	5.88	13.76	2.33	40.29	6.69	4.82	10702	71.55	11.88
44.30	55.31	43.77	5.88	14.10	2.44	40.35	6.70	5.31	10830	71.33	11.85
48	59.00	47.00	5.88	13.92	2.36	40.35	6.70	4.83	10850	71.57	11.89
44.51	55.98	44.07	5.88	13.73	2.33	40.27	6.69	5.06	10651	71.51	11.88
48.29	60.13	46.62	6.00	14.77	2.45	40.19	6.67	5.07	10436	70.96	11.79
47.26	56.20	45.09	5.85	13.62	2.33	40.28	6.69	5.03	10655	71.52	11.88
47.00	56.00	46.00	5.88	13.7781	2.38	40.29	6.69	4.81	11031	65.86	10.94
52.00	61.00	48.00	5.88	16.01	2.78	40.44	6.72	5.39	11054	70.57	11.72
53.00	62.00	49.00	2.50	14.92	6.02	44.08	7.32	10.53	25583	71.88	11.94
53.57	62.21	49.80	5.72	15.38	2.69	40.44	6.72	5.13	11074	70.82	11.76
54.61	63.33	50.13	2.48	14.87	5.99	44.08	7.32	10.25	25613	71.92	11.95
51.10	61.84	49.92	5.88	15.30	2.64	40.36	6.70	5.07	10868.4	70.80	11.76
51.82	62.67	50.13	2.56	14.85	5.88	43.98	7.31	10.16	25023.4	71.87	11.94
53.49	63.94	52.68	3.22	15.56	4.77	42.94	7.13	8.24	19687.1	71.45	11.87
52.57	62.55	51.53	0.65	15.15	23.28	49.86	8.28	37.99	96889.2	72.20	11.99
52.07	62.43	49.47	5.66	15.39	2.62	40.24	6.68	5.00	10559	70.59	11.72
53.01	63.45	50.34	2.43	15.01	5.92	44.01	7.31	10.11	25198	71.87	11.94
49.21	58.36	47.20	5.66	15.30	2.70	40.42	6.71	5.49	11022	70.73	11.75
50.15	59.35	48.11	2.46	14.87	6.04	44.07	7.32	11.01	25519	71.83	11.93
51.13	60.10	47.26	5.88	15.40	2.63	40.27	6.69	5.21	10652	70.63	11.73
51.91	61.05	47.36	2.56	14.88	5.79	43.89	7.29	10.30	24495	71.81	11.93
52.44	62.41	49.54	5.88	15.13	2.63	40.39	6.71	4.98	10942.2	70.95	11.78
53.13	63.11	50.16	2.56	14.78	5.8	44.01	7.31	9.99	25175.8	72.02	11.96
52.13	62.91	49.09	5.88	14.90	2.58	40.42	6.71	4.90	11011	71.06	11.80
52.59	63.40	50.00	2.50	14.76	5.87	44.01	7.31	10.05	25186	71.93	11.95
52.31	62.39	49.89	5.88	14.98	2.61	40.4	6.71	4.98	10969.8	70.95	11.79
52.94	63.16	50	2.5	14.68	5.74	44.01	7.31	9.88	25196	72.12	11.98
53.58	63.93	52.19	3.22	15.37	4.76	42.93	7.13	8.22	19621	71.43	11.86
52.70	62.69	51.11	0.64	15.04	23.61	50.02	8.31	38.46	100439	72.39	12.02
53.67	64.49	52.08	3.23	15.18	4.72	42.98	7.14	8.10	19859	71.61	11.89
52.93	63.13	50.85	0.64	14.76	23.3	50.04	8.31	37.69	100924	72.55	12.05
46.5	52.98	40.52	6.67	15.34	2.31	39.69	6.59	5.32	9308	70.4	11.69
45.37	52.29	34.03	6.67	15.02	2.29	39.83	6.62	5.34	9615	70.75	11.75
47.24	54.12	35.51	6.67	15.15	2.33	39.83	6.62	5.24	9623	70.63	11.73
45.84	52.53	34.13	6.67	14.95	2.27	39.83	6.62	5.29	9618	70.8	11.76
45.76	52.26	33.49	6.67	15.54	2.38	39.83	6.62	5.52	9609	70.46	11.7
44.18	50.45	31.94	6.67	16.4	2.48	39.84	6.62	5.91	9629	70.2	11.66
46.15	52.87	32.9	6.25	16.34	2.54	39.89	6.63	5.74	18466	70.14	11.65
46.75	53.61	33.85	6.25	33.23	5.2	39.86	6.64	10.63	18481	64.81	10.76
40.00	44.00	49.00	7.14	68.91	9.50	38.08	6.33	22.87	6433	56.17	9.33
40.00	46.00	50.00	6.25	63.59	9.89	38.03	6.32	22.46	6384	55.72	9.26
44.00	49.00	32.00	7.69	43.56	5.64	39.08	6.49	13.15	8096	62.40	10.36

* LCG and HCG stand for low conversion gain and high conversion gain respectively. These are explained in "Selectable Conversion Gain" section.









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