



MACHINE VISION

CAMERA CATALOG AND SENSOR REVIEW

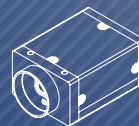
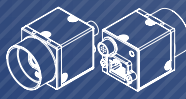


USB
VISION

GiGE
VISION

flir.com/mv





2000

First IEEE 1394 stereo vision camera
Dragonfly

2001

First IEEE 1394 imaging camera
Firefly

2002

First spherical vision camera
Ladybug

2004

First IEEE 1394b camera
Dragonfly Express

2005

New products
Dragonfly2
Ladybug2

2006

New products
Flea2
Firefly M/V

2007

New products
Grasshopper FireFly

2008

New product
USB 2.0 camera
Chameleon

2009

World's first
USB 3.0 Camera

2010

New product
Flea3

2011

First Camera Link camera
Gazelle

2012

New Product
IP camera
Zebra2

2013

New USB3 products
Ladybug3
Grasshopper3

2014

New USB3 product
Blackfly USB 3.0

2015

New USB3 product
Chameleon3

2016

New USB3 and
GigE Vision product
Blackfly S

2017

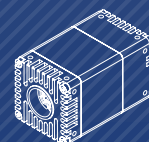
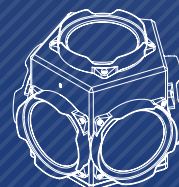
10 GigE Camera
Dryx

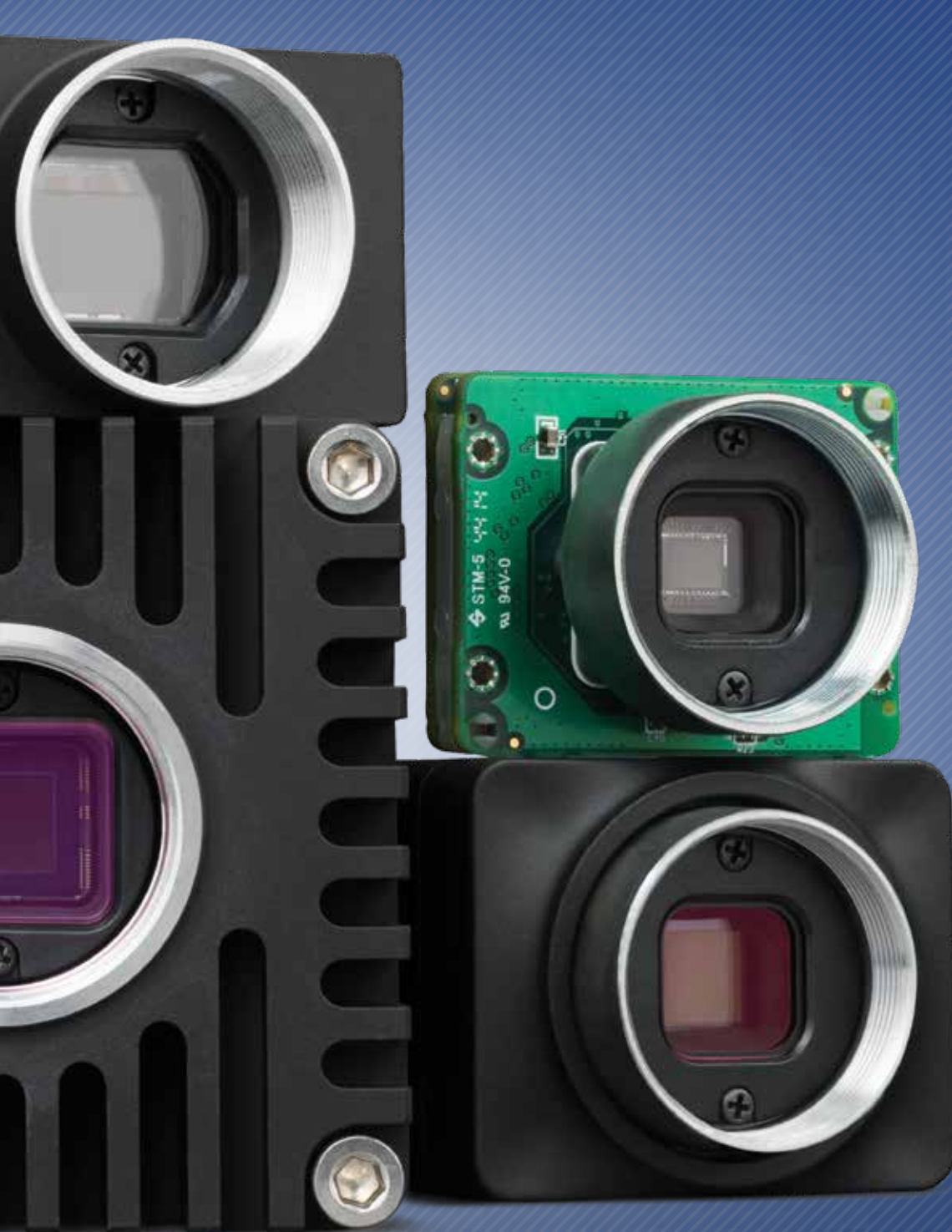
2018

Board-level
Blackfly S

QUICK FACTS

- FLIR acquired Point Grey in Nov 2016
- FLIR IIS Achieves ISO 9001:2015 Certification
- Designed and manufactured in **Canada**
- **3 year warranty** on most products
- **Global offices** & distribution network





High performance imaging solutions

FLIR is a global leader in the design and manufacture of innovative, high-performance digital cameras for industrial, medical and life science, traffic, biometric, GIS, and people counting applications. We offer a unique and comprehensive portfolio of USB 3.1, 10 GigE, GigE, FireWire, and USB 2.0 products known for their outstanding quality, ease of use, and unbeatable price-performance.



USB 3.1 Camera Features:

- Largest selection of CMOS and CCD sensors
- FPGA and frame buffer-based architecture for optimal reliability
- Proprietary USB 3.1 link layer and driver stack
- Industry-standard C- and CS- mount
- Fully tested USB 3.1 Gen 1 accessories: interface cards, hubs, and cables

BLACKFLY® S

UP TO 20 MP CMOS IN AN ICE CUBE

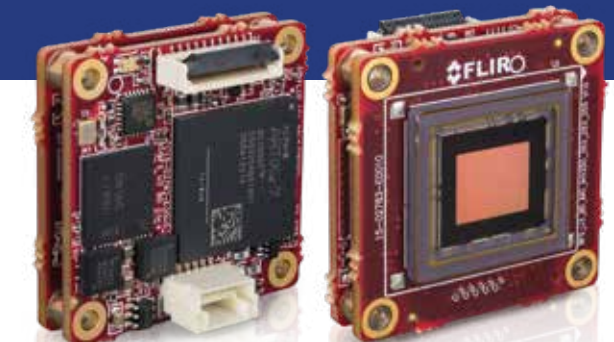


Model#	Sensor Specifications	Shutter	Max Res	Max FPS
BFS-U3-04S2C/M-CS	0.4MP Sony IMX287 CMOS*	1/2.9"	6.9µm Global	720 x 540 523 fps
BFS-U3-13Y3C/M-C	1.3MP ON Semi PYTHON 1300 CMOS	1/2"	4.8µm Global	1280 x 1024 170 fps
BFS-U3-16S2C/M-CS	1.6MP Sony IMX273 CMOS*	1/2.9"	3.45µm Global	1440 x 1080 241 fps
BFS-U3-31S4M/C-C	3.2 MP Sony IMX265 CMOS*	1/1.8"	3.45µm Global	2048 x 1536 57 fps
BFS-U3-32S4C/M-C	3.2MP Sony IMX252 CMOS*	1/1.8"	3.45µm Global	2048 x 1536 118 fps
BFS-U3-51S5M/C-BD2	5.0 MP Sony IMX250 CMOS*	2/3"	3.45µm Global	2448 x 2048 75 fps
BFS-U3-50S5M/C-BD2	5.0 MP Sony IMX264 CMOS*	2/3"	3.45µm Global	2448 x 2048 35 fps
BFS-U3-50S4M/C-C	5.0 MP Sony IMX264 CMOS*	2/3"	3.45µm Global	2448 x 2048 35 fps
BFS-U3-51S5C/M-C	5.0MP Sony IMX250 CMOS*	2/3"	3.45µm Global	2448 x 2048 75 fps
BFS-U3-51S5P-C	5.0 MP Sony IMX250MZR CMOS*	2/3"	3.45µm Global	2448 x 2048 75 fps
BFS-U3-63S4M/C-C	6.3 MP Sony IMX178 CMOS**	1/1.8"	2.4µm Rolling	3072 x 2064 60 fps
BFS-U3-89S6C/M-C	8.9MP Sony IMX255 CMOS*	1"	3.45µm Global	4096 x 2160 43 fps
BFS-U3-88S6M/C-C	8.9 MP Sony IMX267 CMOS*	1"	3.45µm Global	4096 x 2160 32 fps
BFS-U3-120S4M/C-C	12.0 MP Sony IMX226 CMOS**	1/1.7"	1.86µm Rolling	4000 x 3000 31 fps
BFS-U3-122S6M/C-C	12.3 MP Sony IMX304 CMOS*	1.1"	3.45µm Global	4096 x 3000 9.9 fps
BFS-U3-123S6C/M-C	12.3 MP Sony IMX253 CMOS*	1.1"	3.45µm Global	4096 x 3000 30 fps
BFS-U3-200S6C/M-C	20 MP Sony IMX183 CMOS**	1"	2.4µm Rolling	5472 x 3648 18 fps
BFS-U3-23S3M/C-C ¹	2.3 MP Sony IMX392 CMOS*	1/2.3"	3.45µm Global	1920 x 1200 164 fps
BFS-U3-70S7M/C-C ¹	7.1 MP Sony IMX428 CMOS*	1.1"	4.5µm Global	3208 x 2200 51 fps

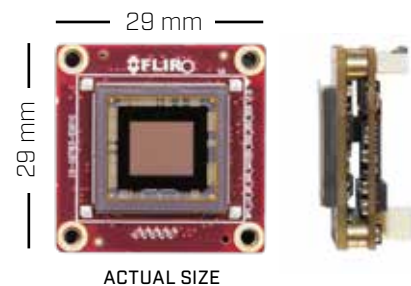
¹Coming Soon

*High performance Sony Pregius™ Global Shutter CMOS

***Sony Exmor R™ CMOS



FLIR BLACKFLY® S FOR EMBEDDED SYSTEMS



ACTUAL SIZE

DEVELOP ONCE, DEPLOY EVERYWHERE

New to the FLIR Blackfly S family is a high performance, board level version designed for embedded systems. It boasts a rich feature-set and the latest Sony Pregius CMOS sensors. It is ready for integration with proven compatibility with popular SBCs and operating systems. The Blackfly S board-level models enable you to build smaller, lighter, and lower cost solutions without sacrificing image quality or speed.

KEY FEATURES

- With its 29 x 29 mm board level footprint and low-profile **Flexible Printed Circuit** (FPC) connectors for **USB 3.1** or **GigE**, the Blackfly S is ideal for embedding into mobile and handheld devices.
- FLIR Blackfly S cameras feature the latest **CMOS sensors** and advanced on-camera features including binning, **auto-exposure** and **color transformation** tools.
- Proven compatibility with popular **ARM** and **x64** SBCs, operating systems, and software ensures support for an entire ecosystem of **embedded systems**.



INTERFACE 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. 1 bi-directional I/O pin, 1 input pin.

ADC 12-bit • 10-bit (BFS-U3-13Y3)

IMAGE DATA FORMATS Mono8, Mono16, Bayer8, Bayer16, RGB8, YCbCr8, YCbCr411_8, YCbCr422_8

PARTIAL IMAGE MODES Pixel binning and region of interest (ROI) modes

GAMMA 0.50 to 4.00, programmable lookup table

TRIGGER MODES External trigger and software trigger

IMAGE BUFFER 240 MB

USER SETS 2 memory channels for custom camera settings

SIZE (WxHxD) 29 x 29 x 30 mm excluding lens holder (metal case)

MASS 36g (Without optics or tripod mounting bracket)

POWER 8-24 V via GPIO or 5 V via USB 3.1 interface, <3 W

LENS MOUNT C-mount, CS-mount

TEMPERATURE -30° to 60°C (storage) • 0° to 50°C (operating)

WARRANTY 3 years





BLACKFLY®

PERFORMANCE AND VALUE

CHAMELEON3

FLEXIBLE FORM FACTOR



Model#	Sensor Specifications				Shutter	Max Res	Max FPS
BFLY-U3-03S2C/M-CS	0.3MP	Sony ICX424	CCD	1/3" 7.4 µm	Global	648 x 488	84 fps
BFLY-U3-05S2C/M-CS	0.5MP	Sony ICX693	CCD	1/3" 6.0 µm	Global	808 x 608	50 fps
BFLY-U3-13S2C/M-CS	1.3MP	Sony ICX445	CCD**	1/3" 3.75 µm	Global	1288 x 964	30 fps
BFLY-U3-20S4C/M-CS	2.0MP	Sony ICX274	CCD**	1/1.8" 4.4 µm	Global	1624 x 1224	15 fps
BFLY-U3-23S6C/M-C	2.3MP	Sony IMX249	CMOS*	1/1.2" 5.86 µm	Global	1920 x 1200	41 fps
BFLY-U3-50H5C/M-C	5.0MP	Sharp RJ3254/S3AA00T	2/3" 3.45 µm	Global		2448 x 2048	7.5 fps

*High performance Sony Pregius™ Global Shutter CMOS **High sensitivity Sony EXview HAD CCD*

Model#	Sensor Specifications			Shutter	Max Res	Max FPS
CM3-U3-13S2C/M-CS	1.3MP	Sony ICX445 CCD**	1/3"	3.75 µm	Global	1288 x 964 30 fps
CM3-U3-13S2C/M-CS-BD	1.3MP	Sony ICX445 CCD**	1/3"	3.75 µm	Global	1288 x 964 30 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-U3-28S4C/M-CS	2.8MP	Sony ICX818 CCD**	1/1.8"	3.69 µm	Global	1928 x 1448 13 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 **High sensitivity Sony EXview HAD CCD*

USB 3.1 Gen 1 interface with screw locks for camera control, data, and power

6-pin Hirose HR10A-7R-6PB GPIO connector for trigger, strobe, and power. 1 opto-isolated input, 1 opto-isolated output

12-bit

Y8, Y16, Mono8, Mono12, Mono16 (all models)
RGB8, YUV411, YUV422, YUV444, Raw8, Raw12, Raw16 (color models)

Pixel binning and region of interest (ROI) modes

0.50 to 4.00, programmable lookup table

Standard, bulb, multi-shot, overlapped, low smear mode (CCD models only)

16 MB frame buffer

2 memory channels for custom camera settings

29 x 29 x 30 mm excluding lens holder (metal case)

36g (Without optics or tripod mounting bracket)

5-24 V via GPIO or 5 V via USB 3.1 interface, <2.5W

CS-mount, C-mount

-30° to 60°C (storage) • 0° to 45°C (operating)

3 years

USB 3.1 Gen 1 interface with screw locks for camera control, data, and power

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

12-bit • 10-bit (CM3-U3-13Y3)

Y8, Y16, Mono8, Mono12, Mono16 (all models)
RGB8, YUV411, YUV422, YUV444, Raw8, Raw12, Raw16 (color models)

Pixel binning and region of interest (ROI) modes

0.50 to 4.00, programmable lookup table

Standard, bulb, multi-shot, overlapped, low smear mode (CCD models only)

16 MB frame buffer

2 memory channels for custom camera settings

44 x 35 x 19.5 mm excluding lens holder (metal case)

55g (Without optics or tripod mounting bracket)

5 - 24 V via GPIO or 5 V via USB 3.1 interface, <3 W

CS-mount

-30° to 60°C (storage) • 0° to 45°C (operating)

3 years

INTERFACE

GPIO

ADC

IMAGE DATA FORMATS

PARTIAL IMAGE MODES

GAMMA

TRIGGER MODES

IMAGE BUFFER

USER SETS

SIZE (WxHxD)

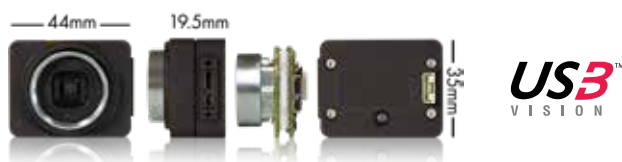
MASS

POWER

LENS MOUNT

TEMPERATURE

WARRANTY



GRASSHOPPER® 3

HIGH PERFORMANCE CMOS AND CCD



Model#	Sensor Specifications			Shutter	Max Res	Max FPS
GS3-U3-1455C/M-C	1.4MP	Sony ICX285 CCD	2/3"	6.45 µm Global	1384 x 1036	30 fps
GS3-U3-1555C/M-C	1.4MP	Sony ICX825 CCD	2/3"	6.45 µm Global	1384 x 1036	45 fps
GS3-U3-2356C/M-C	2.3MP	Sony IMX174 CMOS*	1/1.2"	5.86 µm Global	1920 x 1200	163 fps
GS3-U3-2854C/M-C	2.8MP	Sony ICX687 CCD**	1/1.8"	3.69 µm Global	1928 x 1448	26 fps
GS3-U3-2855C/M-C	2.8MP	Sony ICX674 CCD**	2/3"	4.54 µm Global	1920 x 1440	26 fps
GS3-U3-3254C/M-C	3.2MP	Sony IMX252 CMOS*	1/1.8"	3.45 µm Global	2048 x 1536	121 fps
GS3-U3-4154C/M-C	4.1MP	Sony ICX808 CCD**	1/1.8"	3.1 µm Global	2016 x 2016	18 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-U3-5055C/M-C	5.0MP	Sony ICX625 CCD	2/3"	3.45 µm Global	2448 x 2048	15 fps
GS3-U3-5155C/M-C	5.0MP	Sony IMX250 CMOS*	2/3"	3.45 µm Global	2448 x 2048	75 fps
GS3-U3-6056C/M-C	6.0MP	Sony ICX694 CCD**	1"	4.54 µm Global	2736 x 2192	13 fps
GS3-U3-60Q56C/M-C	6.0MP	Sony ICX694 CCD**	1"	4.54 µm Global	2736 x 2192	25 fps
GS3-U3-8956C/M-C	8.9MP	Sony IMX255 CMOS*	1"	3.45 µm Global	4096 x 2160	43 fps
GS3-U3-9156C/M-C	9.1MP	Sony ICX814 CCD**	1"	3.69 µm Global	3376 x 2704	9 fps
GS3-U3-12056C/M-C	12MP	Sony ICX834 CCD**	1"	3.1 µm Global	4240 x 2824	7 fps
GS3-U3-12356C/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 **High sensitivity Sony EXview HAD CCD II*

INTERFACE USB 3.1 Gen 1 interface with screw locks for camera control, data, and power

GPIO 8-pin Hirose HR25 GPIO connector for power, trigger, strobe, PWM, and serial I/O: 1 opto-isolated input, 1 opto-isolated output, 2 bi-directional I/O pins

ADC 14-bit • 10/12-bit (GS3-U3-23S6, 32S4, 51S5, 89S6, 123S6) • 10-bit (GS3-U3-41C6)

IMAGE DATA FORMATS Mono8, Mono12, Mono16 (all models) RGB, YUV411, YUV422, YUV444, Raw8, Raw12, Raw16 (color models)

PARTIAL IMAGE MODES Pixel binning and region of interest (ROI) modes

GAMMA 0.50 to 4.00, programmable lookup table

TRIGGER MODES Standard, bulb, multi-shot, overlapped, low smear mode (CCD models only)

IMAGE BUFFER 128 MB frame buffer

USER SETS 2 memory channels for custom camera settings

SIZE (WxHxD) 44 x 29 x 58 mm excluding lens holder (metal case)

MASS 90 g (Without optics or tripod mounting bracket)

POWER 5 V via USB 3.1 interface or 8-24 V via GPIO (external power is recommended for this model)

LENS MOUNT C-mount

TEMPERATURE -30° to 60°C (storage) • 0° to 50°C (operating)

WARRANTY 3 years





GiGE
VISION

High Speed Interface

Capture global shutter 4K images at 60FPS, and minimize cycle times with low latency image transfer

Reliability and Simplicity

Proven and reliable 10GBASE-T interface supports cable lengths over 50 m using widely available hardware

Flexibility for Integrators

GiGE Vision compatibility and advanced on-camera features give integrators the tools to quickly develop innovative solutions

4K60 and beyond

FLIR ORYX

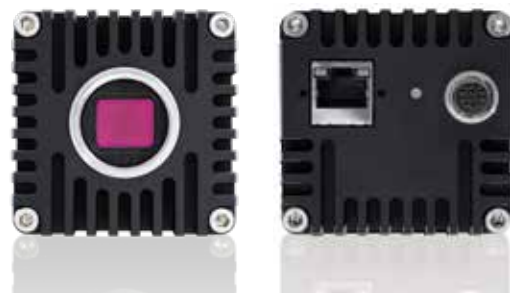


10 Gigabit Ethernet Camera Features:

- 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

ORYX™

10 Gigabit Ethernet Camera



Model#	Sensor Specifications		Shutter	Max Res	Max FPS
ORX-10G-S1SSM/C-C	5.0MP	Sony IMX250 CMOS*	2/3"	3.45 µm Global	2448 x 2048 163 fps
ORX-10G-89S6M/C-C	8.9MP	Sony IMX255 CMOS*	1"	3.45 µm Global	4096 x 2160 93 fps
ORX-10G-123S6M/C-C	12.3MP	Sony IMX253 CMOS*	1.1"	3.45 µm Global	4096 x 3000 68 fps

* High performance Sony Pregius™ Global Shutter CMOS

10 Gigabit Ethernet (10GBASE-T)	INTERFACE
GiGE Vision	MACHINE VISION STANDARD
12 Pin Hirose GPIO connector for power, trigger strobe 2x Opto-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
Color correction Matrix, gamma, saturation, 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 SYNCHRONIZATION PROTOCOL
240MB	IMAGE BUFFER
2 memory channels for custom camera settings	USER SETS
60x60x100mm excluding lens holder, without optics (metal case)	SIZE (WXHxD)
Externally Powered over GPIO (12-24V) 12W Max	POWER
C-mount	LENS MOUNT
-30°C to 60°C (storage) • 0°C to 50°C (operating)	TEMPERATURE
3 years	WARRANTY



GiGE
VISION



GigE Camera Features:

- Unique selection of CMOS and CCD sensors
- Supports GigE Vision 1.2
- Industry's most compact sizes
- GigE image filter driver for reduced latency and maximized bandwidth
- Firmware versions updatable in the field
- On-board temperature, power sensors, and status LED



BLACKFLY® S

UP TO 20 MP CMOS IN AN ICE CUBE



BLACKFLY®

ULTRA-COMPACT POE CAMERA



Model#	Sensor		Specifications		Shutter		Max Res	Max FPS	Model#	Sensor		Specifications		Shutter		Max Res	Max FPS		
BFS-PGE-04S2C/M-CS	0.4MP	Sony	IMX287	CMOS*	1/2.9"	6.9 µm	Global	720 x 540	291 fps	BFLY-PGE-03S2C/M-CS	0.3MP	Sony	ICX424	CCD	1/3"	7.4 µm	Global	648 x 488	84 fps
BFS-PGE-13Y3C/M-C	1.3MP	ON Semi	PYTHON	1300 CMOS	1/2"	4.8 µm	Global	1280 x 1024	84 fps	BFLY-PGE-03S3C/M-CS	0.3MP	Sony	ICX414	CCD	1/2"	9.9 µm	Global	648 x 488	90 fps
BFS-PGE-16S2C/M-CS	1.6MP	Sony	IMX273	CMOS*	1/2.9"	3.45 µm	Global	1440 x 1080	73 fps	BFLY-PGE-05S2C/M-CS	0.5MP	Sony	ICX693	CCD	1/3"	6.0 µm	Global	808 x 608	50 fps
BFS-PGE-23S3C/M-C	2.3 MP	Sony	IMX392	CMOS*	1/2.3"	3.45 µm	Global	1920 x 1200	49 fps	BFLY-PGE-09S2C/M-CS	0.9MP	Sony	ICX692	CCD**	1/3"	4.08 µm	Global	1288 x 728	30 fps
BFS-PGE-31S4C/M-C	3.2MP	Sony	IMX265	CMOS*	1/1.8"	3.45 µm	Global	2048 x 1536	35 fps	BFLY-PGE-12A2C/M-CS	1.2MP	Aptina	AR0134	CMOS	1/3"	3.75 µm	Global	1280 x 960	52 fps
BFS-PGE-50S5C/M-C	5.0MP	Sony	IMX264	CMOS*	2/3"	3.45 µm	Global	2448 x 2048	24 fps	BFLY-PGE-13S2C/M-CS	1.3MP	Sony	ICX445	CCD*	1/3"	3.75 µm	Global	1288 x 964	30 fps
BFS-PGE-51S5P-C	5.0 MP	Sony	IMX250MZR	CMOS*	2/3"	3.45 µm	Global	2448 x 2048	24 fps	BFLY-PGE-13H2C/M-CS	1.3MP	Sharp	RJ3313/RJ3314	CCD	1/3"	3.75 µm	Global	1288 x 964	30 fps
BFS-PGE-88S6C/M-C	8.9 MP	Sony	IMX267	CMOS*	1"	3.45 µm	Global	4096 x 2160	13.5 fps	BFLY-PGE-13E4C/M-CS	1.3MP	e2v	EV76C560	CMOS	1/1.8"	5.3 µm	Global	1280 x 1024	60 fps
BFS-PGE-122S6C/M-C	12.3 MP	Sony	IMX304	CMOS*	1.1"	3.45 µm	Global	4096 x 3000	9.7 fps	BFLY-PGE-14S2C-CS	1.4MP	Sony	IMX104	CMOS	1/3"	3.75 µm	Rolling	1296 x 1032	60 fps
BFS-PGE-200S6M/C-C	20 MP	Sony	IMX183	CMOS*	1"	2.4 µm	Rolling	5472 x 3648	6.1 fps	BFLY-PGE-20E4C/M-CS	2.0MP	e2v	EV76C570	CMOS	1/1.8"	4.5 µm	Global	1600 x 1200	50 fps
BFS-GE-16S2M/C-BD2 ¹	1.6 MP	Sony	IMX273	CMOS*	1/2.9"	3.45 µm	Global	1440 x 1080	78 fps	BFLY-PGE-23S2C-CS	2.3MP	Sony	IMX136	CMOS	1/2.8"	2.8 µm	Rolling	1920 x 1200	27 fps
BFS-PGE-70S7C/M-C ¹	7.1 MP	Sony	IMX428	CMOS*	1.1"	4.5 µm	Global	3208 x 2200	17 fps	BFLY-PGE-23S6C/M-C	2.3MP	Sony	IMX249	CMOS***	1/1.2"	5.86 µm	Global	1920 x 1200	41 fps

INTERFACE	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
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
ADC	12-bit • 10-bit (BFS-PGE-13Y3)	10-bit (BFLY-PGE-13E4, BFLY-PGE-20E4) • 12-bit
IMAGE DATA FORMATS	Mono8, Mono16, Bayer8, Bayer16, RGB8, YCbCr8, YCbCr411_8, YCbCr422_8	Mono8, Mono12, Mono16, Raw8, Raw12, Raw16 (all models) / RGB, YUV411, YUV422, YUV 444 (color models)
PARTIAL IMAGE MODES	Pixel binning and region of interest (ROI) modes	Pixel binning and region of interest (ROI) modes
GAMMA	0.50 to 4.00, programmable lookup table	0.50 to 4.00, programmable lookup table
TRIGGER MODES	External trigger and software trigger	Standard, bulb (except BFLY-PGE-05S2, BFLY-PGE-09S2, BFLY-PGE-12A2, BFLY-PGE-13E4, BFLY-PGE-20E4) overlapped (except BFLY-PGE-12A2, BFLY-PGE-13E4, BFLY-PGE-14S2, BFLY-PGE-20E4, BFLY-PGE-50A2), multi-shot, low smear mode (CCD models only)
TIME SYNCHRONIZATION PROTOCOL	IEEE 1588 Precision Time Protocol	
IMAGE BUFFER	240 MB	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)	29 x 29 x 30 mm excluding lens holder, without optics (metal case)
MASS	36g (Without optics or tripod mounting bracket)	36 grams (without optics or tripod mounting bracket)
POWER	Standard voltage via Power over Ethernet (PoE) or 8 - 24 V via GPIO interface, < 2.5 W	Standard voltage via Power over Ethernet (PoE) or 5 - 16 V via GPIO interface, < 2.5 W
LENS MOUNT	C-mount / CS-mount (5 mm C-mount adapter sold separately)	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 45°C (operating)
WARRANTY	3 years	3 years





FLEA³

ULTRA-COMPACT GIGE CAMERA



GRASSHOPPER³

POE, FAST, HIGH-RESOLUTION IMAGING



Model#	Sensor Specifications	Shutter	Max Res	Max FPS
FL3-GE-03S1C/M-C	0.3MP Sony ICX618 CCD* 1/4"	5.6 µm Global	648 x 488	120 fps
FL3-GE-03S2C/M-C	0.3MP Sony ICX424 CCD 1/3"	7.4 µm Global	648 x 488	82 fps
FL3-GE-08S2C/M-C	0.8MP Sony ICX204 CCD 1/3"	4.65 µm Global	1032 x 776	31 fps
FL3-GE-13S2C/M-C/CS	1.3MP Sony ICX445 CCD* 1/3"	3.75 µm Global	1288 x 964	31 fps
FL3-GE-14S3C/M-C	1.4MP Sony ICX267 CCD 1/2"	4.65 µm Global	1384 x 1032	18 fps
FL3-GE-20S4C/M-C	2.0MP Sony ICX274 CCD 1/1.8"	4.4 µm Global	1624 x 1224	15 fps
FL3-GE-28S4C/M-C	2.8MP Sony ICX687 CCD** 1/1.8"	3.69 µm Global	1928 x 1448	14 fps
FL3-GE-50S5C/M-C	5.0MP Sony ICX655 CCD 2/3"	3.45 µm Global	2448 x 2048	8 fps

*High sensitivity Sony EXview HAD CCD™ **High sensitivity Sony EXview HAD CCD II™

Model#	Sensor Specifications	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
GS3-PGE-50S5C/M-C	5.0MP Sony ICX625 CCD 2/3"	3.45 µm Global	2448 x 2048	15 fps
GS3-PGE-60S6C/M-C	6.0MP Sony ICX694 CCD** 1"	4.54 µm Global	2736 x 2192	13 fps
GS3-PGE-91S6C/M-C	9.1MP Sony ICX814 CCD** 1"	3.69 µm Global	3376 x 2704	9 fps

*High performance Sony Exmor CMOS™ **High sensitivity Sony EXview HAD CCD II™

Gigabit Ethernet interface with screw locks for camera control and data

8-pin Hirose HR25 GPIO connector for power, trigger, strobe, PWM, and serial I/O, 1 opto-isolated input, 1 opto-isolated output, 2 bi-directional I/O pins

12-bit

Y8, Y16, Mono8, Mono12, Mono16 (all models) / RGB, YUV411, YUV422, YUV444, Raw8, Raw12, Raw16 (color models)

Pixel binning and region of interest (ROI) modes

0.50 to 4.00, programmable lookup table

Standard, bulb, skip frames, multi-exposure preset, multi-exposure pulse width, overlapped, multi-shot

32 MB frame buffer

2 memory channels for custom camera settings

29x29x30 mm excluding lens holder, without optics (metal case)

38 grams (without optics or tripod mounting bracket)

Standard voltage via Power over Ethernet (PoE) or 5 - 24 V via GPIO interface, < 2.5 W

C-mount (FL3-GE-13S2 also available with CS-mount)

-30° to 60°C (storage) • 0° to 45°C (operating)

3 years



Gigabit Ethernet interface with screw locks for camera control and data; Power over Ethernet

8-pin Hirose HR25 GPIO connector for power, trigger, strobe, PWM, and serial I/O, 1 opto-isolated input, 1 opto-isolated output, 2 bi-directional I/O pins

10/12-bit (GS3-PGE-23S6) • 14-bit

Mono8, Mono12, Mono16 (all models) RGB, YUV411, YUV422, YUV444, Raw8, Raw12, Raw16 (color models)

Pixel binning and region of interest (ROI) modes

0.50 to 4.00, programmable lookup table

Standard, bulb, overlapped, multi-shot, low smear mode (CCD models only)

128 MB frame buffer

2 memory channels for custom camera settings

44x29x58 mm excluding lens holder and connectors (metal case)

90 grams (without optics or tripod mounting bracket)

Standard voltage via Power over Ethernet (PoE) or 5 - 24 V via GPIO interface, < 2.5 W

C-mount

-30° to 60°C (storage) • 0° to 50°C (operating)

3 years



INTERFACE

GPIO

ADC

IMAGE DATA FORMATS

PARTIAL IMAGE MODES

GAMMA

TRIGGER MODES

IMAGE BUFFER

USER SETS

SIZE (WxHxD)

MASS

POWER

LENS MOUNT

TEMPERATURE

WARRANTY

Ladybug Family Key Features

- 360° degree video streaming
- Covers 90% of visual sphere; 6 sensors each camera
- Full featured SDK including dynamic stitching & image stabilization
- Independent imaging control CMOS and CCD settings controlled individually or in unison
- Pre-calibrated for ease of use
- High dynamic range mode continuously cycles through a series of camera shutter and gain settings



LADYBUG® 5+

8K30 OR 4K60, 30 MP, GLOBAL SHUTTER



LADYBUG® 3

12MP, WATER RESISTANT



Model#	Sensor Specifications	Shutter	Max Res Per Sensor	Max FPS	Model#	Sensor Specifications	Shutter	Max Res Per Sensor	Max FPS
LD5P-U3-S155C-R	30MP Sony IMX264 CMOS	2/3" 3.45 µm Global	2448 x 2048	2448 x 2048 @ 30 FPS 2448 x 1024 @ 60 FPS	LD3-20S4C-33	12MP Sony ICX274 CCD	1/1.8" 4.4 µm Global	1600 x 1200	16 FPS Compressed, 6.5 FPS Uncompressed
LD5P-U3-S155C-B								1600 x 800	32 FPS

INTERFACE USB 3.1 Gen 1 interface with screw locks for camera control and data

IEEE 1394b interface with screw locks for camera control, data, and power

GPIO 12-pin GPIO connector for external trigger input, strobe output, and camera power

8-pin GPIO connector for external trigger, strobe, serial port, or external power

OPTICS Six high quality f2.5, 4.4 mm focal length lenses

Six high quality 3.3 mm focal length lenses

SPHERICAL DISTANCE Calibrated from 2 m to infinity

Calibrated at 20 m

FOCUS DISTANCE ~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity

~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity

ADC 12-bit

12-bit

IMAGE DATA FORMATS Raw8, Raw12 in uncompressed and JPEG

Raw8, Mono8, JPEG8

IMAGE DATA OUTPUT 8-, 12-, or 16-bit, Raw or JPEG compressed

8-bit raw Bayer (color) digital data

GAIN RANGE Automatic/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats; 0 - 18 dB

Automatic/manual/one-push/0dB to 24dB

GAMMA 0.50 to 4.00

0.50 to 4.00

TRIGGER MODES Standard, bulb, skip frames, overlapped, multi-shot

Standard, bulb, skip frames, overlapped, multi-shot

HIGH DYNAMIC RANGE Cycle 4 gain and exposure presets

Cycle 4 gain and exposure presets

EXPOSURE RANGE Global shutter; Automatic/manual/one-push/extended shutter modes
0.02 ms to 2 seconds (extended shutter)

Global shutter; Automatic/manual/one-push/extended shutter modes
0.01 ms to 4.2 s (extended shutter mode)

IMAGE PROCESSING Shutter, gain, white balance, gamma and JPEG compression, are programmable via software

Shutter, gain, white balance, gamma & JPEG compression, programmable via software

CASE TYPE Single unit, water resistant

Single unit, water resistant

CASE MATERIAL Machined aluminum housing, anodized red or black

Machined aluminum housing, anodized red or black

ENVIRONMENTAL SENSORS Temperature, Barometer, Humidity, Accelerometer, Compass

N/A

SIZE (WXHxD) 197 mm diameter, 160 mm height (with lens hoods)

122 x 141 x 133 mm

MASS 3000 g

2414 g

POWER 12-24 V, 13 W via GPIO (external power required)

8-30 V, 7.2 W at 12 V via IEEE 1394b

TEMPERATURE -30° to 60°C (storage) • -20° to 50°C (operating)

-30° to 60°C (storage) • 0° to 45°C (operating)

WARRANTY 2 years

1 year

FREQUENTLY ASKED QUESTIONS

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:



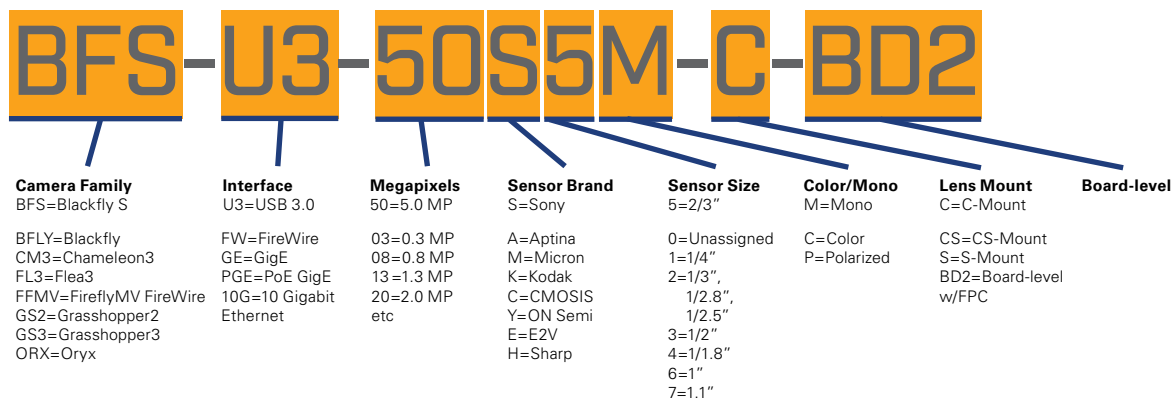
USB VISION CAMERAS	Tripod Adapter	5mm C-Mount Adapter	Cables	Lens
Blackfly S USB3	No	No	No	No
Blackfly USB3	No	No	No	No
Chameleon3 USB3	No	No	No	No
Flea3 USB3	Yes	Yes for CS-mount models	No	No
Grasshopper3 USB3	Yes	N/A (no CS-mount models)	No	No



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



	MODEL NUMBER	INTERFACE	SENSOR TYPE	OPTICAL FORMAT	PIXEL SIZE	MAX RES	MAX FPS
BLACKFLY S Page 3	BFS-U3-0452C/M-CS	USB 3.1 Gen 1	Sony IMX287 CMOS	1/2.9"	6.9 µm	720 x 540	523 fps
	BFS-U3-13Y3C/M-C	USB 3.1 Gen 1	ON Semi PYTHON 1300 CMOS	1/2"	4.8µm	1280 x 1024	170 fps
	BFS-U3-1652C/M-CS	USB 3.1 Gen 1	Sony IMX273 CMOS	1/2.9"	3.45 µm	1440 x 1080	241 fps
	BFS-U3-2353C/M-C	USB 3.1 Gen 1	Sony IMX392 CMOS	1/2.3"	3.45 µm	1920 x 1200	164 fps
	BFS-U3-3154C/M-C	USB 3.1 Gen 1	Sony IMX265 CMOS	1/1.8"	3.45 µm	2048 x 1536	55 fps
	BFS-U3-3254C/M-C	USB 3.1 Gen 1	Sony IMX252 CMOS	1/1.8"	3.45 µm	2048 x 1536	118 fps
	BFS-U3-5055M/C-C	USB 3.1 Gen 1	Sony IMX264 CMOS	2/3"	3.45 µm	2448 x 2048	35 fps
	BFS-U3-5155P-C	USB 3.1 Gen 1	Sony IMX250MZR CMOS	2/3"	3.45 µm	2448 x 2048	75 fps
	BFS-U3-5155C/M-C	USB 3.1 Gen 1	Sony IMX250 CMOS	2/3"	3.45 µm	2448 x 2048	75 fps
	BFS-U3-6354C/M-C	USB 3.1 Gen 1	Sony IMX178 CMOS	1/1.8"	2.4 µm	3072 x 2064	59 fps
	BFS-U3-7057C/M-C	USB 3.1 Gen 1	Sony IMX428 CMOS	1"	4.5 µm	3208 x 2200	51 fps
	BFS-U3-8856C/M-C	USB 3.1 Gen 1	Sony IMX267 CMOS	1"	3.45 µm	4096 x 2160	32 fps
	BFS-U3-8956C/M-C	USB 3.1 Gen 1	Sony IMX255 CMOS	1"	3.45 µm	4096 x 2160	43 fps
	BFS-U3-12054C/M-CS	USB 3.1 Gen 1	Sony IMX226 CMOS	1/1.7"	1.85 µm	4000 x 3000	32 fps
	BFS-U3-12256C/M-C	USB 3.1 Gen 1	Sony IMX304 CMOS	1.1"	3.45 µm	4096 x 3000	23 fps
	BFS-U3-12356C/M-C	USB 3.1 Gen 1	Sony IMX253 CMOS	1.1"	3.45 µm	4096 x 3000	30 fps
	BFS-U3-20056C/M-C	USB 3.1 Gen 1	Sony IMX183 CMOS	1"	2.4 µm	5472 x 3648	18 fps

CHAMELEON3 Page 4	CM3-U3-1352C/M-CS	USB 3.1 Gen 1	Sony ICX445 CCD	1/3"	3.75µm	1288 x 964	30 fps
	CM3-U3-13Y3C/M-CS	USB 3.1 Gen 1	ON Semi PYTHON 1300 CMOS	1/2"	4.8µm	1280 x 1024	149 fps
	CM3-U3-2854C/M-CS	USB 3.1 Gen 1	Sony ICX818 CCD	1/1.8"	3.69µm	1928 x 1448	13 fps
	CM3-U3-3154C/M-CS	USB 3.1 Gen 1	Sony IMX265 CMOS	1/1.8"	3.45 µm	2048 x 1536	55 fps
	CM3-U3-5055C/M-CS	USB 3.1 Gen 1	Sony IMX264 CMOS	2/3"	3.45 µm	2448 x 2048	35 fps

BLACKFLY Page 4	BFLY-U3-0352C/M-CS	USB 3.1 Gen 1	Sony ICX424 CCD	1/3"	7.4µm	648 x 488	84 fps
	BFLY-U3-0552C/M-CS	USB 3.1 Gen 1	Sony ICX693 CCD	1/3"	6.0µm	808 x 608	50 fps
	BFLY-U3-1352C/M-CS	USB 3.1 Gen 1	Sony ICX445 CCD	1/3"	3.75µm	1288 x 964	30 fps
	BFLY-U3-2054C/M-CS	USB 3.1 Gen 1	Sony ICX274 CCD	1/1.8"	4.4 µm	1624 x 1224	15 fps
	BFLY-U3-2356C/M-C	USB 3.1 Gen 1	Sony IMX249 CMOS	1/1.2"	5.86 µm	1920 x 1200	41 fps
	BFLY-U3-50H5C/M-C	USB 3.1 Gen 1	Sharp RJ3253AA0DT CCD	2/3"	3.45 µm	2448 x 2048	7.5 fps

GRASSHOPPER3 Page 5	GS3-U3-1455C/M-C	USB 3.1 Gen 1	Sony ICX285 CCD	2/3"	6.45µm	1384 x 1036	30 fps
	GS3-U3-1555C/M-C	USB 3.1 Gen 1	Sony ICX825 CCD	2/3"	6.45µm	1384 x 1032	45 fps
	GS3-U3-2356C/M-C	USB 3.1 Gen 1	Sony IMX174 CMOS	1/1.2"	5.86µm	1920 x 1200	163 fps
	GS3-U3-2854C/M-C	USB 3.1 Gen 1	Sony ICX687 CCD	1/1.8"	3.69µm	1928 x 1448	26 fps
	GS3-U3-2855C/M-C	USB 3.1 Gen 1	Sony ICX674 CCD	2/3"	4.54µm	1920 x 1440	26 fps
	GS3-U3-3254C/M-C	USB 3.1 Gen 1	Sony IMX252 CMOS	1/1.8"	3.45µm	2048 x 1536	121 fps
	GS3-U3-4154C/M-C	USB 3.1 Gen 1	Sony ICX808 CCD	1/1.8"	3.1µm	2016 x 2016	18 fps
	GS3-U3-41C6NIR-C	USB 3.1 Gen 1	CMOSIS CMV4000-3E12 CMOS	1"	5.5µm	2048 x 2048	90 fps
	GS3-U3-41C6C/M-C	USB 3.1 Gen 1	CMOSIS CMV4000-3E5 CMOS	1"	5.5µm	2048 x 2048	90 fps
	GS3-U3-5055C/M-C	USB 3.1 Gen 1	Sony ICX625 CCD	2/3"	3.45µm	2448 x 2048	15 fps
	GS3-U3-5155C/M-C	USB 3.1 Gen 1	Sony IMX250 CMOS	2/3"	3.45µm	2448 x 2048	75 fps
	GS3-U3-6056C/M-C	USB 3.1 Gen 1	Sony ICX694 CCD	1"	4.54µm	2736 x 2192	13 fps
	GS3-U3-60Q56C/M-C	USB 3.1 Gen 1	Sony ICX694 CCD	1"	4.54µm	2736 x 2192	25 fps
	GS3-U3-8956C/M-C	USB 3.1 Gen 1	Sony IMX255 CMOS	1"	3.45µm	4096 x 2160	43 fps
	GS3-U3-9156C/M-C	USB 3.1 Gen 1	Sony ICX814 CCD	1"	3.69µm	3376 x 2704	9 fps
	GS3-U3-12056C/M-C	USB 3.1 Gen 1	Sony ICX834 CCD	1"	3.1µm	4240 x 2824	7 fps
	GS3-U3-12356C/M-C	USB 3.1 Gen 1	Sony IMX253 CMOS	1.1"	3.45µm	4096 x 3000	30 fps

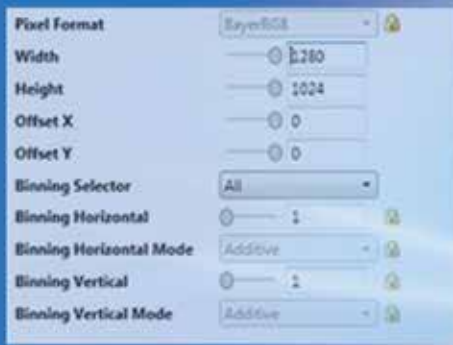
ORYX Page 6	ORX-10G-5155C/M-C	10 Gigabit Ethernet	Sony IMX250 CMOS	2/3"	3.45µm	2448 x 2048	163 fps
	ORX-10G-8956C/M-C	10 Gigabit Ethernet	Sony IMX255 CMOS	1"	3.45µm	4096 x 2160	93 fps
	ORX-10G-12356C/M-C	10 Gigabit Ethernet	Sony IMX253 CMOS	1.1"	3.45µm	4096 x 3000	68 fps



BLACKFLY S Page 7	BFS-PGE-0452C/M-CS	GigE PoE	Sony IMX287 CMOS	1/2.9"	6.9 µm	720 x 540	291 fps
	BFS-PGE-13Y3C/M-C	GigE PoE	ON Semi PYTHON 1300 CMOS	1/2"	4.8 µm	1280 x 1024	84 fps
	BFS-PGE-1652C/M-CS	GigE PoE	Sony IMX273 CMOS	1/2.9"	3.45 µm	1440 x 1080	73 fps
	BFS-PGE-2353C/M-C	GigE PoE	Sony IMX392 CMOS	1/2.3"	3.45 µm	1920 x 1200	49 fps
	BFS-PGE-3154C/M-C	GigE PoE	Sony IMX265 CMOS	1/1.8"	3.45 µm	2048 x 1536	35 fps
	BFS-PGE-5055C/M-C	GigE PoE	Sony IMX264 CMOS	2/3"	3.45 µm	2448 x 2048	24 fps
	BFS-PGE-5155P-C	GigE PoE	Sony IMX250MZR CMOS	2/3"	3.45 µm	2448 x 2048	24 fps
	BFS-PGE-7057C/M-C	GigE PoE	Sony IMX428 CMOS	1"	4.5 µm	3208 x 2200	17 fps
	BFS-PGE-8856C/M-C	GigE PoE	Sony IMX267 CMOS	1"	3.45 µm	4096 x 2160	11 fps
	BFS-PGE-12256C/M-C	GigE PoE	Sony IMX304 CMOS	1.1"	3.45 µm	4096 x 3000	8 fps
	BFS-PGE-20056C/M-C	GigE PoE	Sony IMX183 CMOS	1"	2.4 µm	5472 x 3648	6.1 fps

BLACKFLY Page 7	BFLY-PGE-0352C/M-CS	GigE PoE	Sony ICX424 CCD	1/3"	7.4µm	648 x 488	84 fps
	BFLY-PGE-0353C/M-CS	GigE PoE	Sony ICX414 CCD	1/2"	9.9µm	648 x 488	90 fps
	BFLY-PGE-0552C/M-CS	GigE PoE	Sony ICX693 CCD	1/3"	6.0µm	808 x 608	50 fps
	BFLY-PGE-0952C/M-CS	GigE PoE	Sony ICX692 CCD	1/3"	4.08µm	1288 x 728	30 fps
	BFLY-PGE-12A2C/M-CS	GigE PoE	Aptina AR0134 CMOS	1/3"	3.75µm	1280 x 960	52 fps
	BFLY-PGE-1352C/M-CS	GigE PoE	Sony ICX445 CCD	1/3"	3.75µm	1288 x 964	30 fps
	BFLY-PGE-13H2C/M-CS	GigE PoE	Sharp RJ33J4/RJ33J3 CCD	1/3"	3.75µm	1288 x 964	30 fps
	BFLY-PGE-13E4C/M-CS	GigE PoE	e2v EV76C560 CMOS	1/1.8"	5.3µm	1280 x 1024	60 fps
	BFLY-PGE-1452C-CS	GigE PoE	Sony IMX104 CMOS	1/3"	3.75µm	1296 x 1032	60 fps
	BFLY-PGE-20E4C/M-CS	GigE PoE	e2v EV76C570 CMOS	1/1.8"	4.5µm	1600 x 1200	50 fps
	BFLY-PGE-2352C-CS	GigE PoE	Sony IMX136 CMOS	1/2.8"	2.8µm	1920 x 1200	27 fps
	BFLY-PGE-2356C/M-C	GigE PoE	Sony IMX249 CMOS	1/1.2"	5.86µm	1920 x 1200	41 fps
	BFLY-PGE-3154C/M-C	GigE PoE	Sony IMX265 CMOS	1/1.8"	3.45 µm	2048 x 1536	35 fps
	BFLY-PGE-50A2C/M-CS	GigE PoE	Aptina MT9P006/031 CMOS	1/2.5"	2.2µm	2592 x 1944	13 fps
	BFLY-PGE-50H5C/M-C	GigE PoE	Sharp RJ3254/S3AA0DT CCD	2/3"	3.45µm	2448 x 2048	7.5 fps
	BFLY-PGE-5055C/M-C	GigE PoE	Sony IMX264 CMOS	2/3"	3.45 µm	2448 x 2048	22 fps

SHUTTER	GPIO	LENS MOUNT	A/D CONVERTER	IMAGE DATA OUTPUT	ON-BOARD MEMORY	SIZE	OPERATING TEMP	WARRANTY	
Global	6-pin Hirose HR10A-7R-6PB	CS	10/12-bit ADC	8, 10, 12, 16, 24, 32-bit	240 MB frame buffer 6 MB flash memory	29 x 29 x 30 mm	0° to 50° C	3 years	
Global		C	10-bit ADC						
Global		CS	10/12-bit ADC						
Global		C	10/12-bit ADC						
Global		C	10/12-bit ADC						
Global		C	10/12-bit ADC						
Global		C	10/12-bit ADC						
Global		C	10/12-bit ADC						
Global		C	10/12-bit ADC						
Rolling/Global Reset		C	10/12-bit ADC						
Global		C	10/12-bit ADC						
Global		C	10/12-bit ADC						
Global		C	10/12-bit ADC						
Rolling/Global Reset		C	10/12-bit ADC						
Global		C	10/12-bit ADC						
Global		C	10/12-bit ADC						
Rolling/Global Reset		C	10/12-bit ADC						
Global	9-pin JST	CS	12-bit ADC	8, 12, 16, 24-bit	16 MB frame buffer 1 MB flash memory	44 x 35 x 19.5 mm	0° to 45° C	3 years	
Global		CS	12-bit ADC						
Global		CS	12-bit ADC						
Global		CS	12-bit ADC						
Global		CS	12-bit ADC						
Global	6-pin Hirose HR10A-7R-6PB	CS	12-bit ADC	8, 12, 16, 24-bit	16 MB frame buffer 1 MB flash memory	29 x 29 x 30 mm	0° to 45° C	3 years	
Global		CS	12-bit ADC						
Global		CS	12-bit ADC						
Global		CS	12-bit ADC						
Global		C	10/12-bit ADC						
Global		C	12-bit ADC						
Global	8-pin Hirose HR25	C	14-bit ADC	8, 12, 16, 24-bit	128 MB frame buffer 2 MB flash memory	44 x 29 x 58 mm	0° to 50° C	3 years	
Global		C	14-bit ADC						
Global		C	10/12-bit ADC						
Global		C	14-bit ADC						
Global		C	14-bit ADC						
Global		C	10/12-bit ADC						
Global		C	14-bit ADC						
Global		C	10-bit ADC						
Global		C	10-bit ADC						
Global		C	14-bit ADC						
Global		C	10/12-bit ADC						
Global		C	14-bit ADC						
Global		C	14-bit ADC						
Global		C	10/12-bit ADC						
Global		C	14-bit ADC						
Global		C	14-bit ADC						
Global	12-pin Hirose	C	8/10/12-bit ADC	8, 10, 12, 16, 24-bit	256 MB frame buffer 32 MB flash memory	60 x 60 x 100 mm	0° to 50° C	3 years	
Global		C	8/10/12-bit ADC						
Global		C	8/10/12-bit ADC						
Global	6-pin Hirose HR10A-7R-6PB	CS	10/12-bit ADC	8, 10, 12, 16, 24-bit	240 MB frame buffer 6 MB flash memory	29 x 29 x 30 mm	0° to 50° C	3 years	
Global		C	10-bit ADC						
Global		CS	12-bit ADC						
Global		C	12-bit ADC						
Global		C	12-bit ADC						
Global		C	12-bit ADC						
Global		C	12-bit ADC						
Global		C	12-bit ADC						
Global		C	12-bit ADC						
Global		C	12-bit ADC						
Rolling/Global Reset		C	10/12-bit ADC						
Global	6-pin Hirose HR10A-7R-6PB	CS	12-bit ADC	8, 12, 16, 24-bit	16 MB frame buffer 512 KB flash memory	29 x 29 x 30 mm	0° to 45° C	3 years	
Global		CS	12-bit ADC						
Global		CS	12-bit ADC						
Global		CS	12-bit ADC						
Global		CS	12-bit ADC						
Global		CS	12-bit ADC						
Global		CS	12-bit ADC						
Global		CS	10-bit ADC						
Rolling		CS	12-bit ADC						
Global		CS	10-bit ADC						
Rolling		CS	12-bit ADC						
Global		C	10/12-bit ADC						
Global		CS	12-bit ADC						
Rolling/Global Reset		CS	12-bit ADC						
Global		C	12-bit ADC						
Global		C	12-bit ADC						



MULTIPLE PLATFORM

- **WINDOWS®** 32/64-bit
XP, 7, 8, 10
- **LINUX®**
Ubuntu® 32/64-bit
ARM
- **Mac OS***
*Coming Soon



MULTIPLE INTERFACES

USB VISION **GIGE VISION** **GEN<I>CAM**

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

MULTIPLE LANGUAGES

- **C, C++, C#**
- **Visual Basic .NET**
- **DirectShow**
- **Cognex**
- **Python**

SPINNAKER SDK

The Spinnaker SDK is FLIR's 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. Spinnaker is recommended for new projects.

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.

ACCESSORY LIST

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

Model#	TRIPOD MOUNT / ENCLOSURES	BFLY-PGE	BFS-U3 BFLY-U3	CM3-U3	FL3-GE	FL3-U3	GS3-PGE	GS3-U3	LD3	LD5	ORYX
ACC-01-0003	Tripod Mount Adapter-3										
ACC-01-0011	Tripod Mount Adapter-11										
ACC-01-0012	Ladybug3 Desktop Mount										
ACC-01-0013	Ladybug3 Tripod Mount Adapter and Plugs										
ACC-01-0015	Ladybug5 Tripod Mount Adapter										

Model#	HOST ADAPTER CARDS	BFLY-PGE	BFS-U3 BFLY-U3	CM3-U3	FL3-GE	FL3-U3	GS3-PGE	GS3-U3	LD3	LD5	ORYX
ACC-01-1100	Intel PRO 1000 CT Gigabit Ethernet PCIe										
GIGE-PCIE2-2P02	Gigabit Ethernet PCIe PoE, 2 Port, Intel										
ACC-01-1201	Generic USB 3.1 Gen 1 PCIe 2.0 x1 2 Port Card										
ACC-01-1202	Generic 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-01-1101	Generic 10GBASE-T PCIe 2.0 x4 1 Port										

Model#	CABLES	BFLY-PGE	BFS-U3 BFLY-U3	CM3-U3	FL3-GE	FL3-U3	GS3-PGE	GS3-U3	LD3	LD5	ORYX
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-01-2302	5 m USB 3.0 Cable, Type-A to Micro-B (Locking) Industrial, 80°C										
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)										

Model#	GPIO CONNECTORS	BFLY-PGE	BFS-U3 BFLY-U3	CM3-U3	FL3-GE	FL3-U3	GS3-PGE	GS3-U3	LD3	LD5	ORYX
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-01-3005	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										

Model#	GENERIC OPTICS	BFLY-PGE	BFLY-U3	CM3-U3	FL3-GE	FL3-U3	GS3-PGE	GS3-U3	LD3	LD5	ORYX
ACC-01-4000	M12 Microlens 4MM (Boowon BW38BLF)										
ACC-01-4001	M12 Microlens 6MM (Boowon BW60BLF)										
ACC-01-4002	M12 Microlens 8MM (Boowon BW80H-1000)										

Model#	OPTIC MOUNTS	BFS-PGE	BFS-U3	CM3-U3	FL3-GE	FL3-U3	GS3-PGE	GS3-U3	LD3	LD5	ORYX
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										

Model#	HUBS	BFLY-PGE	BFS-U3 BFLY-U3	CM3-U3	FL3-GE	FL3-U3	GS3-PGE	GS3-U3	LD3	LD5	ORYX
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										

Model#	POWER SUPPLY (PS) / MISC	BFS-PGE	BFS-U3	CM3-U3	FL3-GE	FL3-U3	GS3-PGE	GS3-U3	LD3	LD5	ORYX
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-01-9012	19.6W Single Port PoE Injector with NA power cord										
ACC-01-9013	12Pin, 18W Power supply										

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-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" sensors (V0828-MPY)
LENS-160T5C	Tamron fixed focal length 16mm C-mount lens for 2/3" sensors (Z3FM16SP)
LENS-80T4C	Tamron fixed focal length 8mm C-mount lens for 1/1.8" sensors (MF111FM08)
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-160T7C	Tamron 16mm fixed focal length C-mount lens, for 1.1" sensors (M111FM16)
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 (Z3FM25SP)
LENS-250T7C	Tamron 25mm fixed focal length C-mount lens, for 1.1" sensors (M111FM25)