FLIR BLACKFLY® S

P/N: BFS-U3-13Y3, USB3 VISION

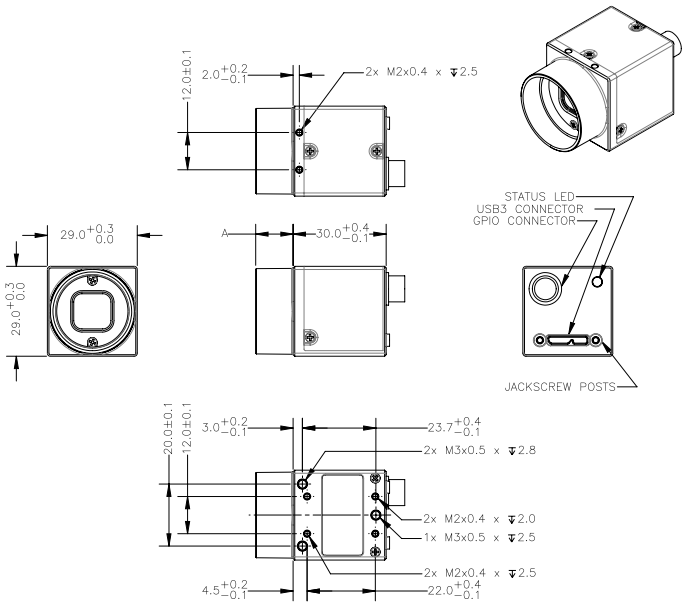
SMALL PACKAGE, POWERFUL RESULTS

The Blackfly S combines the newest CMOS image sensors with our new and intuitive Spinnaker software development kit. The many new advanced camera features are designed to meet your complex imaging needs and speed up development time.

KEY FEATURES

- Leverage the latest **CMOS sensors** and new on-camera image processing features. Harness increased **binning** flexibility, powerful **auto-exposure** controls and robust **color transformation** tools.
- Improve cycle time using advanced camera controls and programmable logic Utilize **sequencer, chunk data, event notification, counters, timers** and **logic blocks**.
- Accelerate your time to market using our **GenICam3 API, GUI API library**, detailed **API logging** and comprehensive **documentation**.

USB3 VISION GENICAM



Specifications

	BFS-U3-13Y3M	BFS-U3-13Y3C
Resolution	1280 x 1024	
Frame Rate*	170 FPS	
Megapixels	1.3 MP	
Chroma	Mono	Color
Sensor	On Semi P1300, CMOS, 1/2"	
Readout Method	Global shutter	
Pixel Size	4.8 µm	
Lens Mount	C-mount	
ADC	10-bit	
Minimum Frame Rate**	1 FPS	
Gain Range**	0 to 18 dB	
Exposure Range**	6 µs to 30 s	
Acquisition Modes	Continuous, Single Frame, Multi Frame	
Partial Image Modes	Pixel binning, decimation, ROI	
Image Processing	Gamma, lookup table, and sharpness	Color correction matrix, gamma, lookup table, hue, saturation, and sharpness
Sequencer	Up to 8 sets using 6 features, including image size	
Image Buffer	240 MB	
User Sets	2 user configuration sets for custom camera settings	
Flash Memory	6 MB non-volatile memory	
Opto-isolated I/O	1 input, 1 output	
Non-isolated I/O	1 bi-directional, 1 input	
Auxiliary Output	3.3 V, 120 mA maximum	
Interface	USB 3.1 Gen 1	
Power Requirements	8 - 24 V via GPIO or 5 V via USB3 interface	
Power Consumption	3 W maximum	
Dimensions/Mass	29 mm x 29 mm x 30 mm / 36 g	
Machine Vision Standard	USB3 Vision v1.0	
Compliance	CE, FCC, KCC, RoHS, REACH. The ECCN for this product is: EAR099.	
MTBF***	6,330,000 hours @20°C, GB environment 1,582,000 hours @20°C, GM environment	
Temperature	Operating: 0°C to 50°C Storage: -30°C to 60°C	
Humidity	Operating: 20% to 80% (no condensation) Storage: 30% to 95% (no condensation)	
Warranty	3 years	

*Frame rates are measured with Device Link Throughput Limit of 380 MBps and Acquisition Frame Rate disabled. Values are rounded down to whole numbers.

**Values are the same in binning and no binning modes.

***Ambient temperature; internal camera temperature is not considered.

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FLIR BLACKFLY® S

P/N: BFS-U3-32S4, USB3 VISION

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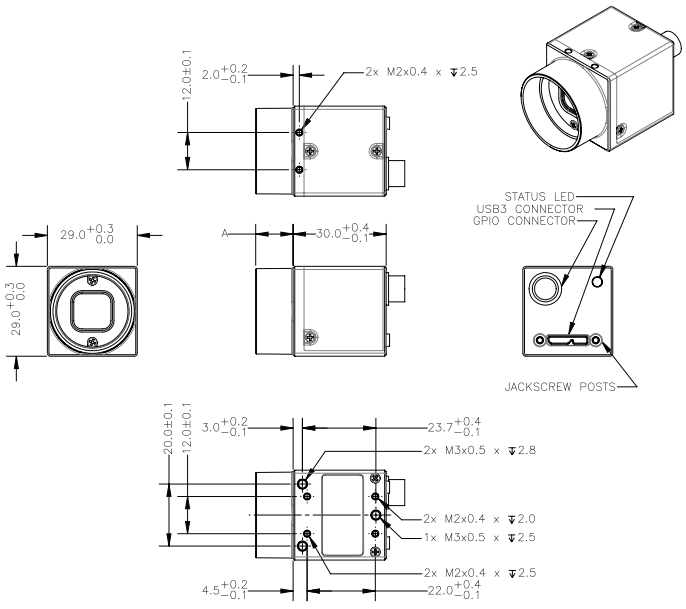
USB3 VISION GENICAM



Specifications

	BFS-U3-32S4M	BFS-U3-32S4C
Resolution	2048 x 1536	
Frame Rate*	118 FPS	
Megapixels	3.2 MP	
Chroma	Mono	Color
Sensor	Sony IMX252, CMOS, 1/1.8"	
Readout Method	Global shutter	
Pixel Size	3.45 µm	
Lens Mount	C-mount	
ADC	10-bit and 12-bit	
Minimum Frame Rate**	1 FPS	
Gain Range**	0 to 47 dB	
Exposure Range**	5 µs to 30 s	
Acquisition Modes	Continuous, Single Frame, Multi Frame	
Partial Image Modes	Pixel binning, decimation, ROI	
Image Processing	Gamma, lookup table, and sharpness	Color correction matrix, gamma, lookup table, hue, saturation, and sharpness
Sequencer	Up to 8 sets using 2 features, exposure and gain	
Image Buffer	240 MB	
User Sets	2 user configuration sets for custom camera settings	
Flash Memory	6 MB non-volatile memory	
Opto-isolated I/O	1 input, 1 output	
Non-isolated I/O	1 bi-directional, 1 input	
Auxiliary Output	3.3 V, 120 mA maximum	
Interface	USB 3.1 Gen 1	
Power Requirements	8 - 24 V via GPIO or 5 V via USB3 interface	
Power Consumption	3 W maximum	
Dimensions/Mass	29 mm x 29 mm x 30 mm / 36 g	
Machine Vision Standard	USB3 Vision v1.0	
Compliance	CE, FCC, KCC, RoHS, REACH. The ECCN for this product is: EAR099.	
MTBF***	4,777,000 hours @20°C, GB environment 1,194,000 hours @20°C, GM environment	
Temperature	Operating: 0°C to 50°C Storage: -30°C to 60°C	
Humidity	Operating: 20% to 80% (no condensation) Storage: 30% to 95% (no condensation)	
Warranty	3 years	

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FLIR BLACKFLY® S

P/N: BFS-U3-51S5, USB3 VISION

SMALL PACKAGE, POWERFUL RESULTS

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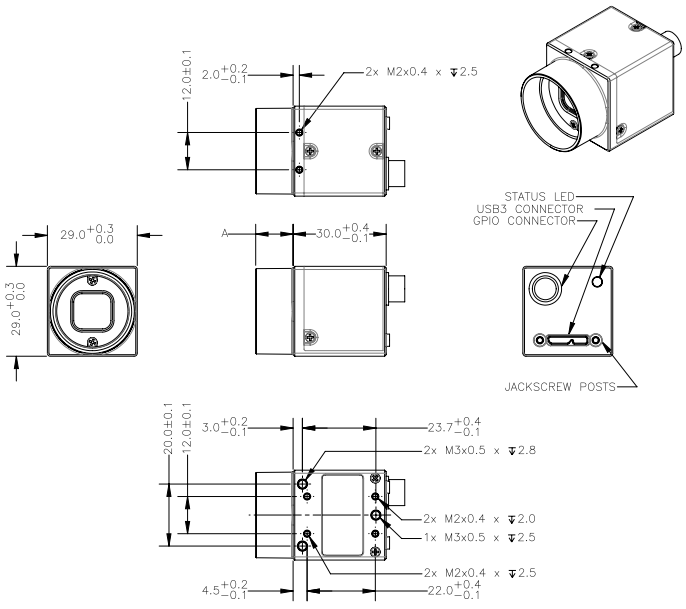
USB3 VISION GENICAM



Specifications

	BFS-U3-51S5M	BFS-U3-51S5C
Resolution	2448 x 2048	
Frame Rate*	75 FPS	
Megapixels	5.0 MP	
Chroma	Mono	Color
Sensor	Sony IMX250, CMOS, 2/3"	
Readout Method	Global shutter	
Pixel Size	3.45 µm	
Lens Mount	C-mount	
ADC	10-bit / 12-bit	
Minimum Frame Rate**	1 FPS	
Gain Range**	0 to 47 dB	
Exposure Range**	6 µs to 30 s	
Acquisition Modes	Continuous, Single Frame, Multi Frame	
Partial Image Modes	Pixel binning, decimation, ROI	
Image Processing	Gamma, lookup table, and sharpness	Color correction matrix, gamma, lookup table, hue, saturation, and sharpness
Sequencer	Up to 8 sets using 2 features, exposure and gain	
Image Buffer	240 MB	
User Sets	2 user configuration sets for custom camera settings	
Flash Memory	1 MB non-volatile memory	
Opto-isolated I/O	1 input, 1 output	
Non-isolated I/O	1 bi-directional	
Auxiliary Output	3.3 V, 150 mA maximum	
Interface	USB 3.1 Gen 1	
Power Requirements	5 - 24 V via GPIO or 5 V via USB3 interface	
Power Consumption	3 W maximum	
Dimensions/Mass	29 mm x 29 mm x 30 mm / 36 g	
Machine Vision Standard	USB3 Vision v1.0	
Compliance	CE, FCC, KCC, RoHS, REACH. he ECCN for this product is: EAR099.	
MTBF***	4,706,000 hours @20°C, GB environment 1,177,000 hours @20°C, GM environment	
Temperature	Operating: 0°C to 50°C Storage: -30°C to 60°C	
Humidity	Operating: 20% to 80% (no condensation) Storage: 30% to 95% (no condensation)	
Warranty	3 years	

*Frame rates are measured with Device Link Throughput Limit of 500 MBps and Acquisition Frame Rate disabled. Values are rounded down to whole numbers.

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FLIR BLACKFLY® S

P/N: BFS-U3-200S6, USB3 VISION

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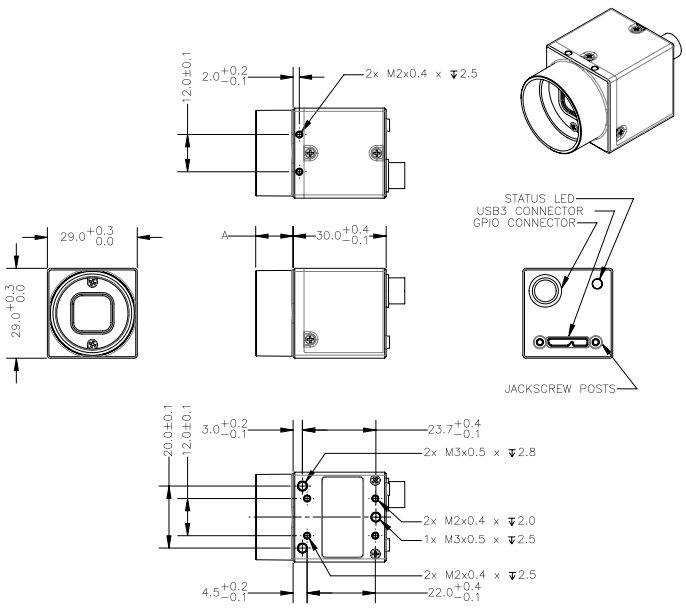

Specifications

	BFS-U3-200S6M	BFS-U3-200S6C
Resolution	5472 x 3648	
Frame Rate*	18 FPS	
Megapixels	20.0 MP	
Chroma	Mono	Color
Sensor	Sony IMX183, CMOS, 1"	
Readout Method	Rolling shutter with global reset	
Pixel Size	2.4 µm	
Lens Mount	C-mount	
ADC	10-bit and 12-bit	
Minimum Frame Rate**	1 FPS	
Gain Range**	0 to 27 dB	
Exposure Range**	67 µs to 30 s	
Acquisition Modes	Continuous, Single Frame, Multi Frame	
Partial Image Modes	Pixel binning, decimation, ROI	
Image Processing	Gamma, lookup table, and sharpness	Color correction matrix, gamma, lookup table, hue, saturation, and sharpness
Sequencer	Up to 8 sets using 5 features	
Image Buffer	240 MB	
User Sets	2 user configuration sets for custom camera settings	
Flash Memory	6 MB non-volatile memory	
Opto-isolated I/O	1 input, 1 output	
Non-isolated I/O	1 bi-directional, 1 input	
Auxiliary Output	3.3 V, 120 mA maximum	
Interface	USB 3.1 Gen 1	
Power Requirements	8 - 24 V via GPIO or 5 V via USB3 interface	
Power Consumption	3 W maximum	
Dimensions/Mass	29 mm x 29 mm x 30 mm / 36 g	
Machine Vision Standard	USB3 Vision v1.0	
Compliance	CE, FCC, KCC, RoHS, REACH. The ECCN for this product is: EAR099.	
Temperature	Operating: 0°C to 50°C Storage: -30°C to 60°C	
Humidity	Operating: 20% to 80% (no condensation) Storage: 30% to 95% (no condensation)	
Warranty	3 years	

*Frame rates are measured with Device Link Throughput Limit of 500 MBps and Acquisition Frame Rate disabled. Values are rounded down to whole numbers.

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