

Blackfly™



UNBEATABLE VALUE + ULTRA-COMPACT + POE

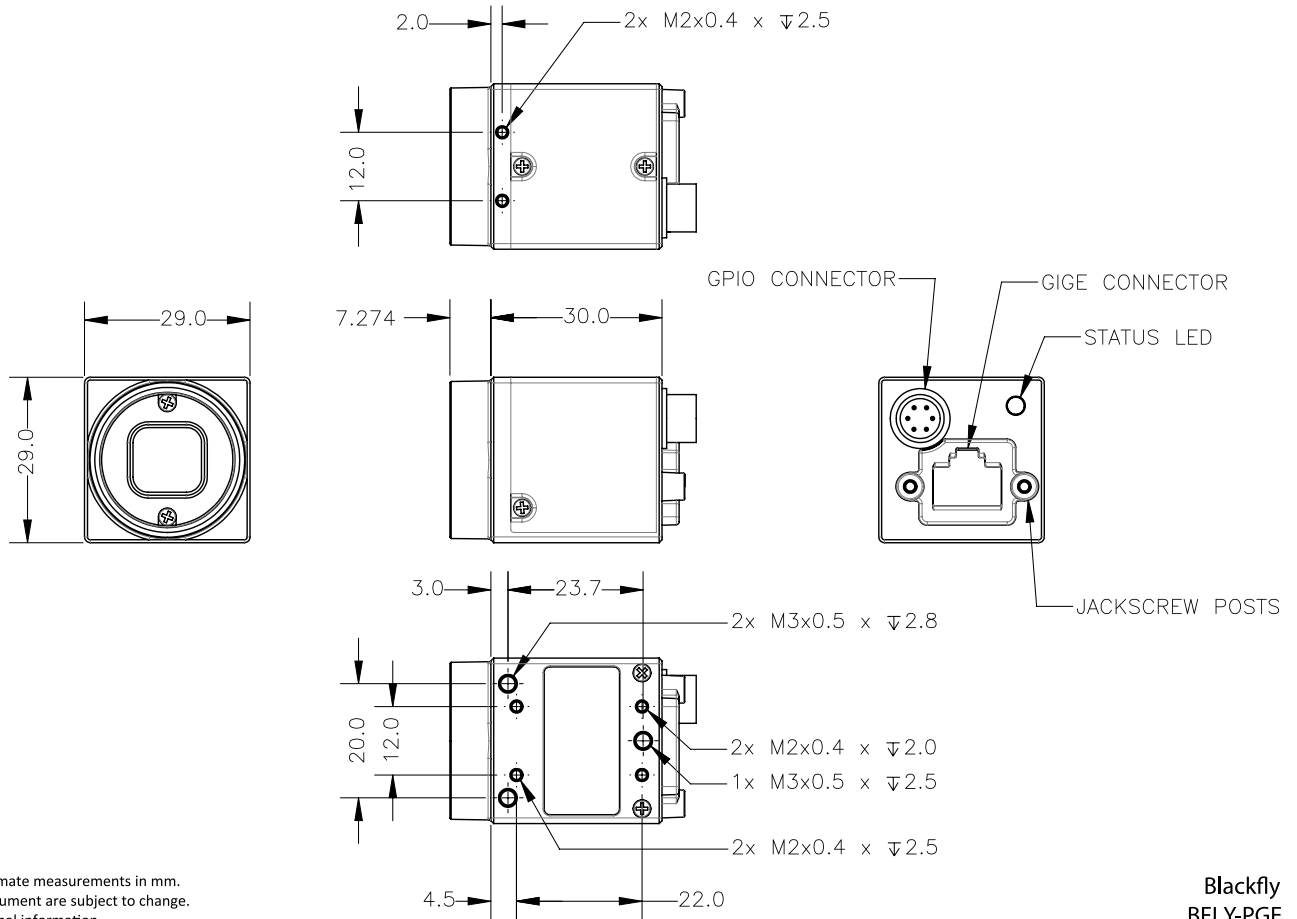
- **World's smallest POE GigE Vision camera: 29x29x30mm**
- **Starting at \$295/€219 (single quantities)**
- **On-camera image processing: color interpolation, gamma, and LUT**
- **16 MByte frame buffer; LED status indicator**

The Blackfly camera line combines Power over Ethernet, industry-leading affordability and a host of unique features for uncompromising value. Every Blackfly model comes packed with functionality designed to maximize performance and reliability, including a 16 MByte frame buffer; LED status indicators; and an on-camera image processing pipeline that provides color interpolation, gamma, and lookup table functionality. The Blackfly camera weighs just 36 grams, measures 29x29x30mm and uses 2 watts of power.



Model	Version	MP	Imaging Sensor
BFLY-PGE-0352C-CS BFLY-PGE-0352M-CS	Color Mono	0.3 MP	<ul style="list-style-type: none"> ■ Sony ICX424 CCD, 1/3", 7.4 μm ■ Global shutter ■ 84 FPS at 648 x 488
BFLY-PGE-0552C-CS BFLY-PGE-0552M-CS	Color Mono	0.5 MP	<ul style="list-style-type: none"> ■ Sony ICX693 CCD, 1/3", 6.0 μm ■ Global shutter ■ 50 FPS at 808 x 608
BFLY-PGE-0952C-CS BFLY-PGE-0952M-CS	Color Mono	0.9 MP	<ul style="list-style-type: none"> ■ Sony ICX692 CCD, 1/3", 4.08 μm ■ Global shutter ■ 30 FPS at 1288 x 728
BFLY-PGE-12A2C-CS BFLY-PGE-12A2M-CS	Color Mono	1.2 MP	<ul style="list-style-type: none"> ■ Aptina AR0134 CMOS, 1/3", 3.75 μm ■ Global shutter ■ 52 FPS at 1280 x 960
BFLY-PGE-13E4C-CS BFLY-PGE-13E4M-CS	Color Mono	1.3 MP	<ul style="list-style-type: none"> ■ e2v EV76C560 CMOS, 1/1.8", 5.3 μm ■ Global shutter ■ 60 FPS at 1280 x 1024
BFLY-PGE-13S2C-CS BFLY-PGE-13S2M-CS	Color Mono	1.3 MP	<ul style="list-style-type: none"> ■ Sony ICX445 CCD, 1/3", 3.75 μm ■ Global shutter ■ 22 FPS at 1288 x 964
BFLY-PGE-14S2C-CS	Color	1.4 MP	<ul style="list-style-type: none"> ■ Sony IMX104 CMOS, 1/3", 3.75 μm ■ Rolling shutter ■ 60 FPS at 1296 x 1032
BFLY-PGE-20E4C-CS BFLY-PGE-20E4M-CS	Color Mono	2.0 MP	<ul style="list-style-type: none"> ■ e2v EV76C570 CMOS, 1/1.8", 4.5 μm ■ Global shutter ■ 47 FPS at 1600 x 1200
BFLY-PGE-23S2C-CS	Color	2.3 MP	<ul style="list-style-type: none"> ■ Sony IMX136 CMOS, 1/2.8", 2.8 μm ■ Rolling shutter ■ 27 FPS at 1920 x 1200
BFLY-PGE-50A2C-CS BFLY-PGE-50A2M-CS	Color Mono	5.0 MP	<ul style="list-style-type: none"> ■ Aptina MT9P031/MT9P006 CMOS, 1/2.5", 2.2 μm ■ Rolling shutter ■ 13 FPS at 2592 x 1944

Imaging Performance (EMVA 1288)	See the Imaging Performance Specification , which includes quantum efficiency, saturation capacity (full well depth), read noise, dynamic range and signal to noise ratio.
A/D Converter	10-bit (BFLY-PGE-13E4/BFLY-PGE-20E4)/12-bit
Video Data Output	8, 12, 16 and 24-bit digital data
Image Data Formats	Mono8, Mono12, Mono16, Raw8, Raw12, Raw16 (all models); RGB, YUV411, YUV422, YUV 444 (color models)
Partial Image Modes	Pixel binning, decimation, and region of interest (ROI) modes
Image Processing	Gamma, lookup table, hue, saturation, and sharpness
Shutter	Global shutter; Rolling shutter (BFLY-PGE-14S2/BFLY-PGE-23S2/BFLY-PGE-50A2); Automatic*/manual/one-push* (**free running only for CMOS) Up to 32 seconds (1 second BFLY-PGE-12A2/BFLY-PGE-13E4/BFLY-PGE-20E4)
Gain	Automatic*/manual/one-push* (**free running only for CMOS) -10.104 dB to 23.991 dB (BFLY-PGE-03S2); 0 dB to 24 dB (BFLY-PGE-05S2/BFLY-PGE-20E4); -4.5 dB to 24 dB (BFLY-PGE-09S2); 0 dB to 18 dB (BFLY-PGE-13E4/BFLY-PGE-50A2); -5.753 dB to 13 dB (BFLY-PGE-12A2); -1.5 dB to 40.5 dB (BFLY-PGE-14S2)
Gamma	0.50 to 3.99, programmable lookup table
White Balance	Automatic*/manual/one-push* (**free running only for CMOS)
Color Processing	On-camera in YUV or RGB format, or on-PC in Raw format
Digital Interface	Gigabit Ethernet interface with screw locks for camera control and data; Power over Ethernet
Transfer Rates	10/100/1000 Mbit/s
GPIO	6-pin Hirose HR10A-7R-6PB GPIO connector for trigger, strobe, and power
External Trigger Modes	Standard, bulb (BFLY-PGE-03S2/BFLY-PGE-13S2/BFLY-PGE-14S2/BFLY-PGE-50A2), low smear (BFLY-PGE-03S2/BFLY-PGE-05S2/BFLY-PGE-09S2/BFLY-PGE-13S2), overlapped (BFLY-PGE-03S2/BFLY-PGE-05S2/BFLY-PGE-09S2/BFLY-PGE-13S2), multi shot
Synchronization	Via external trigger or software trigger
Image Buffer	16 MB frame buffer
Memory Channels	2 user configuration sets for custom camera settings
Flash Memory	512 KB non-volatile memory
Dimensions	29 mm x 29 mm x 30 mm excluding lens holder, without optics (metal case)
Mass	36 grams (without optics)
Power Consumption	Power over Ethernet (PoE); or 12 V nominal (5 - 16 V) via GPIO interface, maximum 2.5 W (2 W BFLY-PGE-13E4)
Machine Vision Standard	GigE Vision v1.2
Camera Control	Via FlyCapture SDK or GigE Vision third party software
Camera Updates	In-field firmware updates
Lens Mount	CS-mount (C-mount BFLY-PGE-50S5) (5 mm C-mount adapter not included)
Temperature	Operating: 0° to 45°C; Storage: -30° to 60°C
Humidity	Operating: 20 to 80% (no condensation) ; Storage: 20 to 95% (no condensation)
Compliance	CE, FCC, RoHS
Operating System	Windows, Linux (32- and 64-bit)
Warranty	3 years



Dimensions are approximate measurements in mm.
The contents of this document are subject to change.
For questions or additional information,
contact support@ptgrey.com

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BFLY-PGE
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DMVTEKS CO.,LTD.

TEL:03-3780669

FAX:03-3792480

MOBILE:0953634661

E-MAIL:dmvteks@ms68.hinet.net

WEB:www.dmvteks.com.tw

SKYPE ID:dmv9999