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FLIR FLEA®3
USB3 VISION





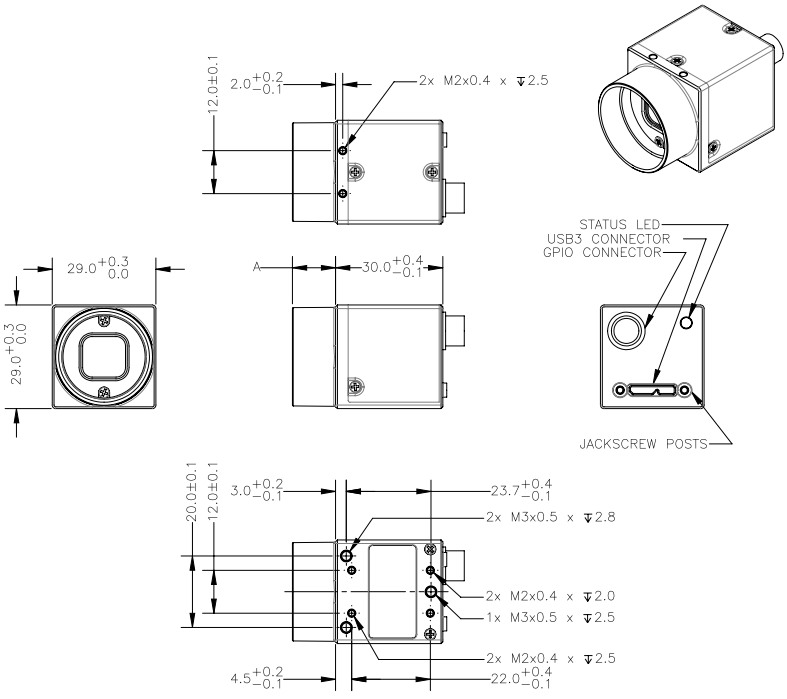
ULTRA-COMPACT + HIGH FRAME RATES

The Flea3 line of USB 3.0 cameras offers a variety CMOS image sensors in ultra-compact, low-cost packages. To maximize USB 3.0 reliability, the Flea3 provides a unique set of features including a 32 megabyte frame buffer; on-camera power, temperature, and status monitoring; and in-field updatable firmware. The camera also provides on-camera processing including color interpolation, look up table, gamma correction, and pixel binning functionality.

KEY FEATURES

- Low-cost, high-speed CMOS image sensors
- USB 3.0, 5 Gbit/s interface
- Ultra-compact 29 x 29 x 30 mm metal case, lightweight

USB3 VISION



Specifications

Model	Version	MP	Imaging Sensor
FL3-U3-13E4C-C **FL3-U3-13E4M-C**	Color Mono	1.3 MP	■ e2v EV76C560, 1/1.8", 5.3 µm ■ Global Shutter ■ 60 FPS at 1280 x 1024
FL3-U3-13S2C-CS **FL3-U3-13S2M-CS**	Color Mono	1.3 MP	■ Sony IMX035, 1/3", 3.63 µm ■ Rolling Shutter ■ 120 FPS at 1328 x 1048
FL3-U3-13Y3M-C	Mono	1.3 MP	■ On Semi VITA1300, 1/2", 4.8 µm ■ Global Shutter ■ 150 FPS at 1280 x 1024
FL3-U3-20E4C-C **FL3-U3-20E4M-C**	Color Mono	2.0 MP	■ e2v EV76C5706F, 1/1.8", 4.5 µm ■ Global shutter ■ 60 FPS at 1600 x 1200
FL3-U3-32S2C-CS **FL3-U3-32S2M-CS**	Color Mono	3.2 MP	■ Sony IMX036, 1/2.8", 2.5 µm ■ Rolling Shutter with Global Reset ■ 60 FPS at 2080 x 1552
FL3-U3-120S3C-C	Color	12 MP	■ Sony IMX172, 1/2.3", 1.55 µm ■ Rolling shutter with Global Reset ■ 15 FPS at 4000 x 3000

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	12-bit (FL3-U3-13S2, FL3-U3-32S2, FL3-U3-120S3) / 10-bit (FL3-U3-13Y3, FL3-U3-13E4, FL3-U3-20E4)
Video Data Output	8, 12, 16 and 24-bit digital data
Image Data Formats	Y8, Y16, 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
Image Processing	Gamma, lookup table, hue, saturation, and sharpness
Shutter	Rolling Shutter (FL3-U3-13S2) / Global Reset (FL3-U3-32S2, FL3-U3-120S3) / Global Shutter (FL3-U3-13Y3, FL3-U3-13E4, FL3-U3-20E4); Automatic/Manual/One-Push/Extended Shutter* modes (*except FL3-U3-13Y3) See product webpage for specific model's range
Gain	Automatic/Manual/One-Push Gain modes See product webpage for specific model's range
Gamma	0.50 to 4.00, programmable lookup table
White Balance	Automatic/Manual modes, programmable via software
High Dynamic Range	Not applicable
Color Processing	On-camera in YUV or RGB format, or on-PC in Raw format
Digital Interface	USB 3.0 interface with screw locks for camera control, data, and power
Transfer Rates	5 Gbit/s
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
External Trigger Modes	IIDC Trigger Modes 0, 1 (excluding FL3-U3-13E4 and FL3-U3-20E4), and 15
Synchronization	via external trigger or software trigger
Image Buffer	32 MB frame buffer
Memory Channels	2 memory channels for custom camera settings
Flash Memory	1 MB non-volatile memory
Dimensions	29 x 29 x 30 mm excluding lens holder (metal case)
Mass	Without optics: 35 g (FL3-U3-13S2, FL3-U3-32S2) / 41 g (FL3-U3-13Y3, FL3-U3-13E4, FL3-U3-20E4, FL3-U3-120S3)
Power Consumption	5-24 V via GPIO or 5 V via USB 3.0 interface, maximum <3 W
Machine Vision Standard	IIDC v1.32, USB3 Vision v1
Camera Control	Via FlyCapture SDK, CSRs, or third party software
Camera Updates	In-field firmware updates
Lens Mount	CS-mount (FL3-U3-13S2, FL3-U3-32S2) / C-mount (FL3-U3-13Y3, FL3-U3-13E4, FL3-U3-20E4, FL3-U3-120S3)
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, KCC, RoHS
Operating System	Windows 7, Linux (32- or 64-bit)
Warranty	3 years

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