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# BFS-U3-31S4M-BD2 USB 3.1 Blackfly® S, Monochrome Camera

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Teledyne FLIR IIS Blackfly® S USB 3.1 Board Level Cameras - Front



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## Product Downloads

Monochrome **Spectrum:**

## General

Monochrome Camera **Type:**

BFS-U3-31S4M-BD2 **Model Number:**

FLIR **Manufacturer:**

Blackfly® S **Camera Series:**

Lens Mount Sold Separately, Found in Accessories Tab **Note:**

## Physical & Mechanical Properties

29 x 29 x 10 (excludes connectors and lens mount) **Dimensions (mm):**

10 **Weight (g):**

Board Level **Housing:**

## Sensor

240MB **Image Buffer:**

1/1.8" **Sensor Format:**

3.20 **Resolution (Megapixels):**

55.00 **Frame Rate (fps):**

2,048 x 1,536 **Pixels (H x V):**

3.45 x 3.45 **Pixel Size, H x V (µm):**

7.07 x 5.30 **Sensing Area, H x V (mm):**

Sony IMX265 **Imaging Sensor:**

Progressive Scan CMOS **Type of Sensor:**

Global **Shutter Type:**

12 bit **Pixel Depth:**

11µs - 30s **Exposure Time:**

71.83 **Dynamic Range (dB):**

USB3 Vision v1.0 **Machine Vision Standard:**

## Electrical

<3 **Power Consumption (W):**

## Hardware & Interface Connectivity

USB 3.1 Gen 1 **Interface:**

USB3 TF38 **Connector:**

1 opto-isolated input, 1 opto-isolated output, 1 non-isolated bi-directional, 1 non-isolated input **GPIOs:**

Hardware Trigger (GPIO) or Software Trigger **Synchronization:**

Back Panel **Interface Port Orientation:**

JST BM06B-NSHSS-TBT **GPIO Connector Type:**

## Threading & Mounting

No Lens Mount **Mount:**

## Environmental & Durability Factors

0 to +50 **Operating Temperature (°C):**

-30 to +60 **Storage Temperature (°C):**

## Product Details

- USB3 Vision and GenICam Compliant
- Ultra-Compact, 29 x 29 x 10mm, Board Level Cameras
- Supports the Trigger-to-Image Reliability (T2IR) Framework
- [Fully Housed Versions](#) Available



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### Teledyne FLIR IIS Blackfly S: Advanced Machine Vision Cameras with powerful features

Capture the images you need from advanced sensors in enclosed or board-level configurations

The **Blackfly® S** is a versatile and compact machine vision camera series that leverages the industry's most advanced area scan sensors in an ultra-compact form factor. It combines powerful features that easily produce the exact images required, accelerating application development. Combining both automatic and precise manual controls over image capture and on-camera pre-processing. With options ranging from high-speed performance, high-resolution images, polarization, or low-light sensitivity, the Blackfly® S series of cameras can deliver the required results.

With the selection of camera variations all sharing the same form factor, it makes it easy to develop once, deploy anywhere. On camera features include IEEE1588 clock synchronization and full compatibility with popular third-party software supporting either GigE Vision or USB3 Vision interfaces. The Blackfly® S is available in GigE, USB3, cased, and board-level versions.

**Note:** Board level cameras with exposed electronics are intended for system integration and may not be suitable for end users. USB3 cable and Lens Mounts sold separately. [FLIR's Spinnaker software development kit \(SDK\)](#) is available for free download. FPC cable and adapter are required for USB3 connectivity and sold separately.

#### Blackfly® S Board level [USB3 or GigE]

- Board level models enable OEMs to develop smaller, lighter, and lower cost solutions with embedded system connectivity and rich features. Ready for integration with proven compatibility with popular SBCs and SOMs.

#### Features

- Ultra-compact form factor (29mm x 29mm x 39mm)
- 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
- Choice of CMOS global shutter, polarization, and high-sensitivity BSI sensors
- Data interface options: GigE, USB3
- Color transformation tools for true-to-life color
- Advanced auto-algorithms or precise manual control over image capture and on-camera pre-processing
- On-camera features such as IEEE1588 clock synchronization, lossless compression, and deep learning inference
- Compatible with third-party software and hardware
- Support for a wide range of operating systems and host system architectures
- Rich sample code and descriptive API logging
- Simplified product iteration with consistent form factor across sensor sizes
- Camera control via FlyCapture SDK or 3rd-party USB3 Vision software

#### Applications

- Intelligent Transportation Systems
- Factory automation
- Bar code reading
- 3D scanning
- Life science instrumentation
- Biometrics kiosk solutions
- Ophthalmoscopy
- Automated optical inspection
- Food & Beverage industry