GETTING STARTED

BLACKFLY®S
USB3 Vision

Will your system support the camera?

Recommended System Configuration:

- **OS**—Windows or Linux (32- or 64-bit)
- **CPU**— Intel i5 or greater
- **RAM**—4 GB
- **Ports**—USB3 host controller
- **Software**—Microsoft Visual Studio 2015 (to run and compile example code)

Do you have a downloads account?

A downloads account is required to download software and firmware.

1. Go to www.flir.com/account.
2. Enter your email address and click Continue.
3. Complete the Create an account form and click Continue.
4. You will receive an email with a link to activate your account.
5. Once activated, you can login using the credentials you've created.

The Blackfly S USB3 resources page has many links to help you operate your camera effectively, including:

- Spinnaker® SDK software, including drivers (login required)
- Firmware updates and release notes (login required)
- Dimensional drawings and CAD models
- Documentation

Do you have all the parts you need?

To install your camera you need the following components:

- USB3 cable
- GPIO cable
- Lens (type of lens mount is model dependent)
- Tripod adapter (optional)
- Interface card

Teledyne FLIR sells a number of the additional parts required for installation. To purchase, visit the Accessories page.

Camera Care

To clean the imaging surface of your camera, follow the steps outlined in Cleaning the imaging surface of your camera.

Extended exposure to bright sunlight, rain, dusty environments, etc. may cause problems with the electronics and optics of the system.
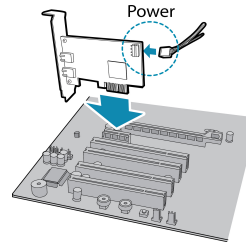
Avoid excessive shaking, dropping, or mishandling of the device.

> **Warning!** Do not open the camera housing. Doing so voids the Hardware Warranty.
>
> Avoid electrostatic charging.

Installing your Interface Card and Software

1. Install your Interface Card

Power

Ensure the card is installed per the manufacturer's instructions.

Connect the internal IDE or SATA power connector on the card to the computer power supply.

Alternatively, use your PC's built- in host controller, if equipped.

Open the Windows Device Manager. Ensure the card is properly installed. USB3 cards appear under **Universal Serial Bus Controllers**. An exclamation point (!) next to the card indicates the driver has not yet been installed.

2. Install the Spinnaker® SDK Software

> **Note:** For existing users who already have Spinnaker installed, we recommend ensuring you have the latest version for optimal performance of your camera. If you do not need to install Spinnaker, use SpinView to install and enable drivers for your card.

a. Go to the Spinnaker SDK page.
b. Click the Download button. You are prompted to login, if not already.
c. Select your operating system. Depending on your selection there may be other versions to select.
d. After download is complete, open the file to start the Spinnaker setup wizard.
e. Follow the steps in each setup dialog.

Using the Spinnaker® SDK

You can monitor or control features of the camera through Spinnaker API examples provided in the Spinnaker SDK, or through the SpinView camera evaluation application. A *Programmer's Guide and API Reference* is included in the installation.

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Installing Your Blackfly S USB3

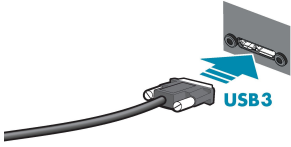**1. Install the Tripod Mounting Bracket (optional)**
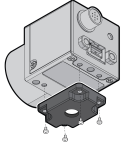
The ASA and ISO-compliant tripod mounting bracket attaches to the camera using the included screws.

2. Attach a Lens

Unscrew the dust cap from the lens holder to install a lens.

3. Connect the interface Card and Cable to the Camera

Plug the interface cable into the host controller card and the camera. The cable jack screws can be used for a secure connection.

When the camera is first connected, the operating system automatically installs the camera driver. Camera drivers are available with the Spinnaker SDK installation.

4. Plug in the GPIO connector if required
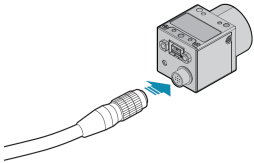
GPIO can be used for power, trigger, and strobe.

5. Confirm Successful Installation

Run the SpinView application: **Start→All Programs→ Spinnaker→SpinView**
The SpinView application can be used to test the camera's image acquisition capabilities.

Changes to your camera's installation configuration can be made using the SpinView application.

Status Indicator LED

LED	USB
No Light	No power or LED is in inactive state or LED is in error status state with no error
Blinking Green (1 blink)	USB1
Blinking Green (2 blinks)	USB2
Blinking Green (3 blinks)	USB3
Solid Green	Acquisition Started
Rapid Flashing Green	Firmware update in progress
Flashing Green and Red	General Error

Camera Interface

USB 3.0 Connector

The camera is equipped with a USB 3.0 Micro-B connector that is used for power, data transmission, and camera control. For more detailed information, consult the USB 3.0 specification available from http://www.usb.org/developers/docs/.

General Purpose I/O Connector

The camera is equipped with a 6-pin GPIO connector on the back of the case.

Diagram	Color[1]	Pin	Line	Function	Description
	Green	1[2]	3	V_{AUX}	Auxiliary Input Voltage (DC)
				GPI	Non-isolated Input
	Black	2	0	OPTOIN	Opto-isolated Input
	Red	3[2]	2	VOUT	Camera Power Output
				GPIO[3]	Non-isolated Input/Output
	White	4	1	OPTOOUT[3]	Opto-isolated Output
	Blue	5	N/A	Opto GND	Opto-isolated Ground
	Brown	6	N/A	GND	Camera Power Ground

1—GPIO cable assembly wire colors
2—Dual function pin
3—Open drain output, requires pullup resistor

For More Information

Teledyne FLIR endeavors to provide the highest level of technical support possible to you.

Support resources can be accessed through the Blackfly S USB3 resources page.

Your camera's settings and capabilities—Technical Reference or Camera Reference
Spinnaker® SDK—API Reference / Programmer's Guide
Selecting a lens for your camera
Using USB 3.1 and Linux
Using third-party applications from our software partners

Contacting Us

For any questions, concerns or comments please contact us via the following methods:

Email	General questions
Support Ticket	Technical support
Website	Find specifications, support articles, downloads on the product page at Teledyne FLIR machine vision

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