

BLACKFLY[®] S CAMERAS

USB3 Vision

Will your system support the camera?

- **OS, CPU, RAM**—dependent on SDK requirements
- **Ports**—USB3 host controller
- **Software**—Microsoft Visual Studio to run/compile example code

Do you have all the parts you need?

Teledyne FLIR IIS sells a number of the additional parts required for installation. Visit our [Accessories page](#).

To install your camera you need the following components:

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

Have you visited our website?

A downloads account is required to download software and firmware.

1. Go to the [Teledyne Vision Solutions website](#).
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 your credentials.

The [Blackfly S USB3 camera resources](#) page has many links to help you operate your camera effectively, including:

- Knowledge Base articles
- Spinnaker[®] SDK software, including drivers and Firmware updates and release notes (login required)
- Documentation and dimensional drawings / CAD models

Contacting Teledyne FLIR IIS

For any questions, concerns or comments please contact us:

Email	General questions
Support Ticket	Technical support
Support Forum	Teledyne FLIR IIS Community
Website	Find specifications, articles, and downloads: Teledyne FLIR IIS

For More Information

Teledyne FLIR IIS endeavors to provide the highest level of technical support possible to you. Support resources can be accessed through:

[Blackfly S USB3 Camera Resources and Support](#)

Your camera's settings and capabilities—Technical Reference or Camera Reference

[Spinnaker[®] SDK—API Reference / Programmer's Guide](#)

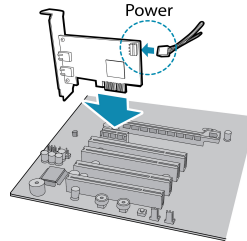
[Selecting a lens for your camera](#)

[Using USB 3.1 and Linux](#)

[Using third-party applications from our software partners](#)

Installing your Interface Card and Software

1. Install your Interface Card



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.

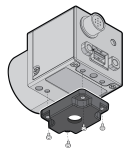
- a. Go to the [Spinnaker SDK Download](#) page. If you are not already logged in, you are prompted to login.
- b. Click the Download Now button.
- c. Select your operating system and version.
- d. After download is complete, open the file to start the Spinnaker setup wizard.
- e. Follow the steps in 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.

Installing Your Blackfly S USB3

1. Install the Tripod Mounting Bracket (optional)



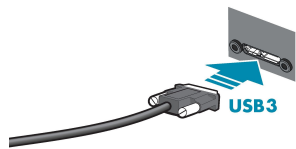
The ASA and ISO-compliant tripod mounting bracket attaches to the camera using the included screws.

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

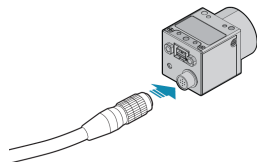
Plug the interface cable into the host controller card and the camera. The cable jack screws can be used for a secure connection.



For optimal ESD protection, use a USB3 cable with metal shielding on connectors and retaining screws connected from the camera housing to a chassis ground (earth).

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→Teledyne Spinnaker SDK→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
Solid Red	Link down
Rapid Flashing Green	Firmware update in progress
Flashing Green and Red	General Error

Camera Interface

USB3 Connector

The camera is equipped with a USB3 Micro-B connector that is used for power, data transmission, and camera control. For more detailed information, consult the USB3 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
				VOUT	Camera Power Output
	Red	3 ²	2	GPIO ³	Non-isolated Input/Output
				OPTOOUT ³	Opto-isolated Output
	White	4	1	Opto GND	Opto-isolated Ground
				GND	Camera Power Ground
	Blue	5	N/A		
	Brown	6	N/A		

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

Camera Care

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.