

# GETTING STARTED

## FLIR GRASSHOPPER<sup>®</sup> EXPRESS

### Will your system support the camera?

Recommended System Configuration:

- **OS**—Vista SP1, Windows 7
- **CPU**—2.0 GHz or equivalent
- **RAM**—2 GB
- **Video**—
- **Ports**—IEEE 1394b
- **Software**—Microsoft Visual Studio 2005 SP1 and SP1 Update for Vista (to compile and run example code using FlyCapture)

### Do you have a downloads account?

Our [downloads](#) page has many resources to help you operate your camera effectively, including:

- Software, including Drivers (required for installation)
- Firmware updates and release notes
- Dimensional drawings and CAD models
- Documentation

To access the downloads resources you must have a downloads account.

1. Go to our website: [www.flir.com/iis](http://www.flir.com/iis).
2. In the upper right corner, click **Register**.
3. Complete the form, then click **Register**.

After you submit your registration, you will receive an email with instructions on how to activate your account.

### Do you have all the parts you need?

To install your camera you will need the following components:

- FireWire cable
- 8-pin GPIO cable
- Powered Ethernet switch or Ethernet power injector (if using PoE)
- C-mount Lens
- Tripod adapter (optional)
- Interface card

FLIR sells a number of the additional parts required for installation. To purchase, visit our [Accessories page](#).

### Camera Care

To clean the imaging surface of your camera, follow the steps outlined in [Knowledge Base Article 10243](#).

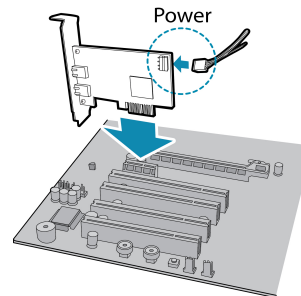
Extended exposure to bright sunlight, rain, dusty environments, etc. may cause problems with the electronics and optics of the system.

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



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.

In most cases, the Windows IEEE-1394 drivers will be automatically installed for the card, with no user input required. However, in some cases the **Found New Hardware Wizard** will appear. Follow the prompts given by the Wizard to install the card.

Open the Windows Device Manager. Ensure the card is properly installed under **IEEE 1394 Bus host controllers**. An exclamation point (!) next to the card indicates the driver has not yet been installed.

#### 2. Install the FlyCapture<sup>®</sup> Software

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

- a. Login to our [downloads](#) page.
- b. Select your **Camera** and **Operating System** from the drop-down lists and click the **Search** button.
- c. Click on the **Software** search results to expand the list.
- d. Click the appropriate link to begin the download and installation.

After the download is complete, the FlyCapture setup wizard begins. If the wizard does not start automatically, double-click the .exe file to open it. Follow the steps in each setup dialog.

#### 3. Enable the Drivers for the card

During installation, you are prompted to select your interface driver.

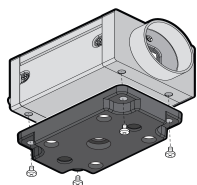
In the **Interface Driver Selection** dialog, select the **I will use FireWire cameras**.

This selection ensures the Point Grey pgrcam and FirePRO drivers are installed and enabled.

To uninstall or reconfigure the driver at any time after setup is complete, use the DriverControlGUI.

## Installing Your Camera

### 1. Install the Tripod Mounting Bracket (optional)



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

**Warning!** Cameras with metal cases should use black screws; cameras with plastic cases should use silver screws. Using improper screws may cause damage to the camera.

### 2. Attach a Lens

Unscrew the dust cap from the C-mount 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.

### 4. Plug in the GPIO connector (optional)

GPIO is used for power, trigger, pulse width modulation, serial input output, and strobe.

GPIO can be used for power, trigger, pulse width modulation, serial input output, and strobe.

The wiring harness must be compatible with a Hirose HR25 8-pin female GPIO connector.

### 5. Confirm Successful Installation

Check Device Manager to confirm that installation was successful.

- Go to the **Start menu**, select **Run**, and enter **devmgmt.msc**.

Verify the camera is listed under **"Point Grey Research Devices."**

- Run the FlyCap program: **All Programs->Point Grey FlyCapture2 SDK-> FlyCap**

The FlyCap program can be used to test the camera's image acquisition capabilities.

Changes to your camera's installation configuration can be made using utilities available in the FlyCapture SDK.

## Camera Interface

### IEEE-1394 Connector

The camera has a standard 9-pin IEEE-1394b bilingual connector for data transmission, camera control and power. For more detailed information, consult the IEEE-1394b Standard document available from [www.1394ta.org](http://www.1394ta.org).

The camera has two standard 9-pin IEEE-1394b bilingual connectors for data transmission, camera control and power. Only one connector can be active at a time. For more detailed information, consult the IEEE-1394b Standard document available from [www.1394ta.org](http://www.1394ta.org).

The camera has a standard 6-pin IEEE-1394 connector that is used for data transmission, camera control and power. The maximum 1394 cable length between any 1394 node (e.g. camera to PCI card, card to hub, etc.) is 4.5m, as specified by the IEEE-1394 standard. Use standard, shielded twisted pair copper cables.

## General Purpose I/O Connector

The camera has an 8-pin GPIO connector on the back of the case; refer to the diagram for wire color-coding.

Diagram	Color	Pin	Function	Description
	Black	1	I0	Opto-isolated input (default Trigger in)
	White	2	O1	Opto-isolated output
	Red	3	IO2	Input/Output/serial transmit (TX)
	Green	4	IO3	Input/Output/serial receive (RX)
	Brown	5	GND	Ground for bi-directional IO, V <sub>EXT</sub> , +3.3 V pins
	Blue	6	OPTO_GND	Ground for opto-isolated IO pins
	Orange	7	V <sub>EXT</sub>	Allows the camera to be powered externally
	Yellow	8	+3.3 V	Power external circuitry up to 150 mA
To configure the GPIO pins, consult the General Purpose Input/Output section of your camera's Technical Reference Manual.				

## Status Indicator LED

LED Status	Description
Off	Not receiving power
Steady on	Receiving power and successful camera initialization
Steady on and very bright	Acquiring/transmitting images
Flashing bright, then brighter	Camera registers being accessed (no image acquisition)
Steady or slow flashing on and off	Indicates possible camera problem

## For More Information

For more information about...	See...
Your camera's settings and capabilities	Technical Reference Manual
Using the FlyCap demo program	the Online Help included with the tool
Accessing customer downloads	<a href="#">Knowledge Base Article 10142</a>
Selecting a lens	<a href="#">Knowledge Base Article 10269</a>

The FlyCapture SDK help and other technical references can be found in: **All Programs>Point Grey FlyCapture2 SDK>Documentation**

Our online [Knowledge Base](#) addresses many questions.

## Contacting Us

For general questions and sales inquiries contact us at [mv-sales@flir.com](mailto:mv-sales@flir.com)

For technical support contact us at [www.ptgrey.com/support/ticket/](http://www.ptgrey.com/support/ticket/)  
[www.flir.com/iis](http://www.flir.com/iis)