

GETTING STARTED

Grasshopper Express 1394b FireWire Camera

Will your system support the camera? Do you have a downloads account?

Recommended System Configuration:

- **OS**—Vista SP1, Windows 7
- **CPU**—2.0 GHz or equivalent
- **RAM**—2 GB
- **Video**—AGP 128 MB
- **Ports**—IEEE 1394b
- **Software**—Microsoft Visual Studio 2005 SP1 and SP1 Update for Vista (to compile and run example code using FlyCapture)

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

- Software (required for installation)
- 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 the [Point Grey downloads](#) page.
2. Under **Register (New Users)**, complete the form, then click **Submit**.

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:

- Interface card
- FireWire cable
- 8-pin GPIO connector
- C-mount Lens

Point Grey sells a number of the additional parts required for installation. To purchase, visit the [Point Grey Webstore](#) or the [Products Accessories](#) page.

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	Knowledge Base Article 35
Selecting a lens	Knowledge Base Article 345
Troublesome Hardware Configurations	Knowledge Base Article 21
Camera Not Recognized/Not Listed in Device Manager	Knowledge Base Article 91
Laptop doesn't supply power to my FireWire camera	Knowledge Base Article 93
Decrease in performance after Windows upgrade	Knowledge Base Article 171

The FlyCapture User Guide and other technical references can be found in the **Programs>Point Grey Research>PGR FlyCapture>Documentation** directory. Our online [Knowledge Base](#) also addresses many problems.


Camera Interface

IEEE-1394 Connector

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.

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	Pin	Function	Description
	1	IO0	Opto-isolated input (default Trigger in)
	2	IO1	Opto-isolated output
	3	IO2	Input/Output/serial transmit (TX)
	4	IO3	Input/Output/serial receive (RX)
	5	GND	Ground for bi-directional IO, V _{EXT} +3.3 V pins
	6	GND	Ground for opto-isolated IO pins
	7	V _{EXT}	Allows the camera to be powered externally
	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

Camera Care

To clean the imaging surface of your camera, follow the steps outlined in [Knowledge Base Article 66](#).

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.



Do not open the camera housing. Doing so voids the Hardware Warranty. Avoid electrostatic charging. For more details, consult [Knowledge Base Article 42](#).

Contacting Point Grey Research

For all general questions please contact us at info@ptgrey.com.

For technical support (existing customers only) contact us at www.ptgrey.com/support/contact/.

Main Office:

Mailing Address:

Point Grey Research, Inc.
12051 Riverside Way
Richmond, BC, Canada V6W 1K7

Tel: +1 (604) 242-9937

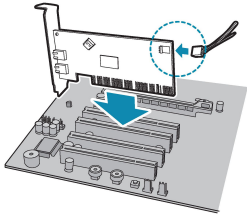
Toll Free +1 (866) 765-0827
(North America only)

Fax: +1 (604) 242-9938

Email: sales@ptgrey.com

Installing Your Interface Card and Software

1. Install your Interface Card



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

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® Software



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 the [Point Grey downloads](#) page.
- b. Expand **Software and Drivers for Imaging Products** for your operating system.
- c. Under FlyCapture v2x, click the 32- or 64-bit **Download** 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 the FlyCapture installation, you are prompted to select your interface driver.

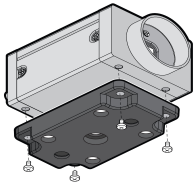
In the **Interface Driver Selection** dialog, select the **I will use FireWire cameras**.

This selection ensures the Point Grey pgcam 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



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

2. Attach a Lens

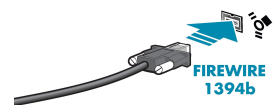
Unscrew the dust cap from the C-mount lens holder to install a lens.

3. Plug in the GPIO connector

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.

4. 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.

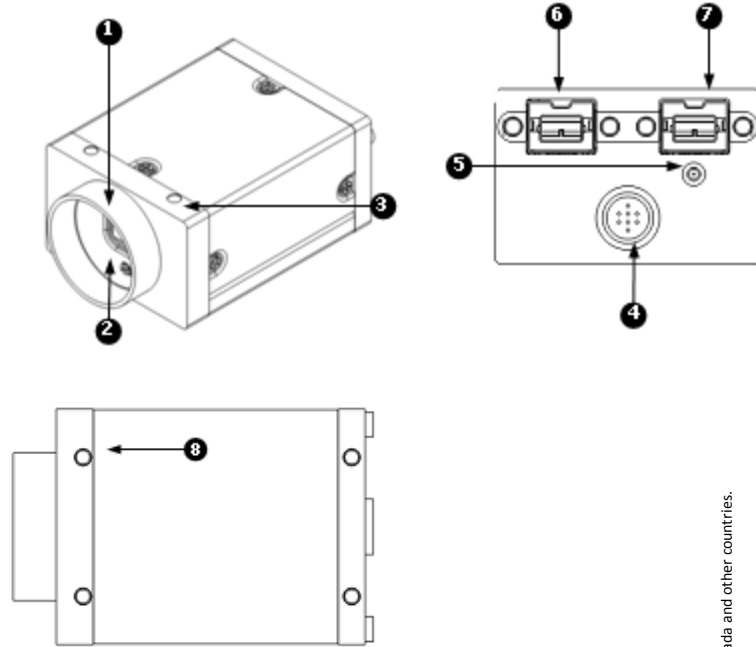
5. Confirm Successful Installation

Check Device Manager to confirm that installation was successful.

- a. Go to the **Start menu**, select **Run**, and enter **devmgmt.msc**. Verify the camera is listed under "**Point Grey Research Devices**."
- b. Run the FlyCap2 program: **Start-> Point Grey Research->FlyCapture2->FlyCap2**
The FlyCap2 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 FlyCapture2 SDK.

Physical Description



- 1. **Lens holder (C-mount)**
- 2. **Glass/IR filter system**
- 3. **M3 x 0.5 mounting holes**
- 4. **GPIO**
- 5. **Status LED**
- 6. **IEEE-1394 connector**
- 7. **IEEE-1394 connector**
- 8. **M3 x 0.5 mounting holes**