

GETTING STARTED

FLIR LADYBUG® 5+ USB3

Will your system support the camera?

Recommended system configuration

- **OS**—Windows 7, Windows 8, or Windows 10, 64-bit; Linux for capture only;
- **CPU**—3 GHz Dual/Quad Core
- **RAM**—8 GB
- **Video**—NVIDIA 512 MB
- **Ports**—USB3
- **Software**—Microsoft Visual Studio 2010 (to compile and run example code using Ladybug SDK)

See [Technical Application Note 10359](#) for information on recommended system components for USB3.

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.
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 need the following components, included with the initial Ladybug5+:

- USB3 cable
- 12-pin GPIO cable
- 24 V 2.5 A (60 W) power supply
- Desktop mount (optional) or tripod adapter (optional)
- Interface card

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

Camera Care

Warning! Do not open the camera housing. Doing so voids the Hardware Warranty.

Your camera is a precisely manufactured device and should be handled with care. Here are some tips on how to care for the device.

- Avoid electrostatic charging.
- When handling the camera unit, avoid touching the lenses. Fingerprints affect the quality of the image produced by the device.
- To clean the lenses, use a standard camera lens cleaning kit or a clean dry cotton cloth. Do not apply excessive force.
- Avoid excessive shaking, dropping or any kind of mishandling of the device.

For More Information

For more information about...	See...
Your camera's settings and capabilities	Technical Reference
Using the LadybugCapPro program	Help in the tool
Recommended system components for USB 3.1	TAN 10359
Using USB 3.1 and Linux	TAN 10685
Setting up multiple USB 3.1 cameras	TAN 10350
Cleaning the imaging surface of your camera	KB Article 10243
Using PPS to Synchronize with External GPS Device	TAN 11131

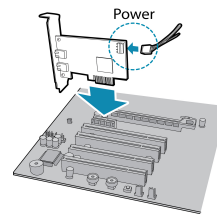
The Ladybug SDK help and other technical references can be found in:

All Programs>Point Grey Ladybug SDK>Documentation

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

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 under **Universal Serial Bus Controllers**. An exclamation point (!) next to the card indicates the driver has not yet been installed.

2. Install the Ladybug® Software

Note: For existing users who already have Ladybug software installed, we recommend ensuring you have the latest version for optimal performance of your camera. Ladybug5+ requires Ladybug SDK v1.15+.

- a. Login to the [downloads](#) page.
- b. From the Camera Family drop-down, select Ladybug5+.
- c. Click on the Software link to expand the results.
- d. Under Ladybug SDK, click the 32- or 64-bit link to begin the download and installation.

After the download is complete, the Ladybug 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 installation, you are prompted to select your interface driver.

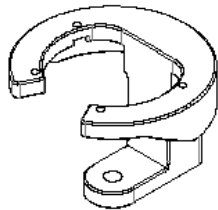
In the **Driver Selection** dialog, select the **I will use the Ladybug5 camera**.

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

Installing Your Camera

1. Install a Mounting Bracket (optional)

- a. Install a Tripod Adapter.



The tripod adapter attaches to the bottom of the camera.

Note: the tripod adapter uses a 3/8" mounting hole which requires an adapter to fit a standard tripod.

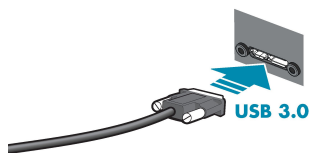
The tripod adapter is not used if using a desktop mount.

- b. Install a Desktop Mount.

Thread the cables through the desktop mount and out the cable exit slot. Connect the cables as per steps 2 and 4 before attaching the mount to the camera.

The desktop mount is not used if using a tripod adapter.

2. Connect the interface Cable to the Camera

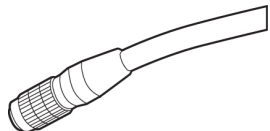


Plug the USB3 cable into the camera and secure with the cable jack screws. Using jack screws ensures a reliable connection and the pressure of the seal helps to keep moisture out of the camera.

3. Connect the Camera to the interface Card

Plug the USB3 cable into the host controller or hub.

4. Plug in the GPIO connector



GPIO is used for power, trigger, and strobe.

The wiring harness must be compatible with a Hirose 12-pin female GPIO connector.

5. Confirm Successful Installation

From the Start menu, select All Programs > Point Grey Research > PGR Ladybug > LadybugCapPro.exe.

- a. The Welcome dialog opens, and it will display a choice of starting a camera, or loading a previously recorded stream file. Select Start Camera.
- b. The Select Camera dialog opens. This dialog allows you to view a list of all the currently connected Ladybug cameras, and select one to control.
- c. Ensure the camera is identified as USB3. If the camera is identified as USB2 it could indicate a bad cable connection or incorrect driver and the camera will not function properly.
- d. To begin grabbing images, select a camera and click OK.

USB 3.1 Connector

The camera is equipped with a USB 3.1 Micro-B connector that is used for power, data transmission, and camera control. For more detailed information, consult the USB 3.1 specification available from <http://www.usb.org/developers/docs/>.

General Purpose I/O Connector

The camera has an 12-pin GPIO connector on the bottom of the case; refer to the diagram below for wire color-coding. The GPIO is a Hirose waterproof 12-pin female connector (Mfg P/N:LF10WBP-12SD).

Diagram	Color	Pin	Function	Description
	Green	1	OPTO_GND	Ground for opto-isolated IO pins
	Blue	2	I0	Opto-isolated input (default Trigger in)
	Brown	3	O1	Opto-isolated output
	Orange	4	IO2	Input/Output / GPS data
	White	5	+3.3 V	Power external circuitry up to 150 mA
	Black	6	GND	Ground for bi-directional IO, V _{EXT} , +3.3 V pins
	Red	7	V _{EXT}	Allows the camera to be powered externally
	Red	8	V _{EXT}	Allows the camera to be powered externally
	Red	9	V _{EXT}	Allows the camera to be powered externally
	Green	10	OPTO_GND	Ground for opto-isolated IO pins
	Yellow	11	IO3	Input/Output / PPS signal
	Black	12	GND	Ground for bi-directional IO, V _{EXT} , +3.3 V pins

Status Indicator LED

LED Status	Description
Off	Not receiving power
Steady green	Receiving power
Flashing/steady yellow	Initializing FPGA
Steady yellow-green	Sensor powered down or insufficient power
Steady bright green	Acquiring and transmitting images
Flashing green	Accessing camera registers (no acquisition)
Flashing green-red	Updating firmware
Flashing red	Temporary problem
Steady red	Serious problem

Contacting Us

For general questions and sales inquiries contact us at: mv-sales@flir.com

For technical support contact us at: www.ptgrey.com/support/ticket/

Website: www.flir.com/mv