System Requirements for best performance

Minimum recommended system configuration:

- ✓ **OS**: Windows, Linux (32 or 64-bit)
- ✓ **RAM**: 1 GB RAM
- ✓ **Hard drive space**: 50 MB
- ✓ **Video:** At least 64 MB
- ✓ **USB3.0 chipset:** Renesas µPD720202 or INTEL(Haswell, Ivy Bridge and etc.) based USB3.0 chipset

See System Requirements to get detailed information on recommended system configuration for PixeLINK USB3.0 cameras.

Additional Information:

Need help with:	*Please see….*
Capture OEM	Knowledge base article on Capture OEM
uScope Microscopy software	Quick Start up Guide
PixeLINK SDK	Knowledge base article on Software Development Kit
Trigger Application	Knowledge base article on Trigger and GPOs
Thermal consideration	Knowledge base article on Thermal Consideration.
Mechanical Drawings	PL-D Enclosed Mechanical Drawings
Cleaning camera glass	Knowledge base article on Protective Glass

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All the parts that you need to set up your new camera system

Basic components required for camera set up:

- ✓ USB3.0 Interface card
- ✓ USB3.0 cable
- ✓ 8-pin GPIO (Trigger) cable
- ✓ C-Mount lens
- ✓ Camera Driver (Capture OEM)

For ultimate performance and compatibility of PixeLINK cameras, we hold most of these components in stock. Please visit PixeLINK Accessories to get the right accessory for your camera.

LED Light Status:

LED Status	Description
Flashing Orange	Camera is initializing
Solid Orange	Camera is loading FFC parameters. This might take 20 seconds.
Flashing Green	Camera is streaming video data or performing a lengthy operation.
Solid Green	Camera is ready
Flashing Red	Warning on the latest command that was received by camera. There may be a frame loss on the bus.
Solid Red	Unrecoverable error. Contact PixeLINK support

PL-D Camera Quick Start Guide

Looking for the right software for your application

PixeLINK offers variety of software which fits your needs.

Capture OEM: a real-time, interactive, easy-to-use application for PixeLINK cameras.

uScope: For advanced Microscopy solutions and great out of box experience.

PixeLINK SDK: Feel the need to create your own application. PixeLINK SDK provides useful libraries in C/C++, dotnet and VB to help you develop your own application. For more information on PixeLINK SDK please contact sales@pixelink.com or call 613-247-1211.

To download our drivers and microscopy software please visit PixeLINK Software page.

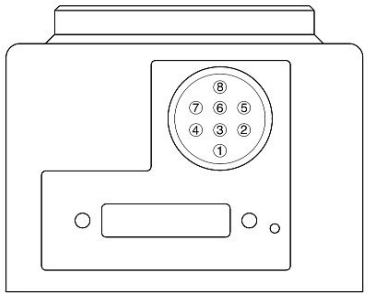
Camera Interface: USB3.0

This line of PL-D cameras are all equipped with USB3.0 Micro-B Male SMT Connector that is responsible for both data transmission and power. For more information on USB3.0 specification please visit http://www.usb.org/developers/docs.

PixeLINK Support:

If you are experiencing any issues with PixeLINK product, then please contact PixeLINK Support or call 613-247-1211 and someone will be able to assist you with your problem.

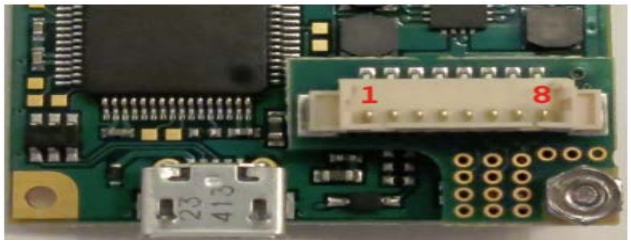
General Purpose I/O Connector: Enclosed Camera



The mating connector is an 8-pin Hirose HR25A-&P-8P cable plug with solder pins for 28 AWG wires.

Pin	Pin Name	Function	Comments
1	VBUS	Power output from USB3 cable, shared with camera, typically 5V DC.	Actual voltage level depends on the computer, cable length, and total current load. The maximum current available from this output pin is 100mA.
2	TRIGGER+	Positive terminal of optically isolated trigger input.	
3	TRIGGER-	Negative terminal of optically isolated trigger input.	
4	GPO1+	Positive terminal of optically isolated General Purpose Output 1	Optical isolator open collector output. Provides current sink to pin 5 when GPO1 is active. Maximum 15mA. Maximum 40V.
5	GPO1-	Negative terminal of optically isolated General Purpose Output 1	Optical isolator emitter output. Typically connected externally to ground at pin 8.
6	GPO1 HCMOS	3.3 V HCMOS General Purpose Output 1	The maximum HCMOS output current is 5mA.
7	GPO2 HCMOS	3.3 V HCMOS General Purpose Output 2	The maximum HCMOS output current is 5mA.
8	GROUND	Logic Ground	Logic ground is internally connected to the camera metal enclosure.

General Purpose I/O Connector: Board level Camera



The connector is an 8-pin 1.25mm Molex connector located on the interface board.

The mating connector is a Molex 51021-0800 receptacle with Molex 50079-8100 wire crimp terminals.

Pin	Pin Name	Function	Comments
1	3.3V	Positive 3.3V Power Output	Maximum current available from this pin is 50mA. Maximum external capacitive load on this pin is 50uF.
2	/Trigger	/Trigger Input	3.3V HCMOS input with internal 1K ohm pull up resistor. voltage transition from 3.3V to 0V will initiate a positive trigger. PixeLINK API-Refer to the functions PxLSetFeatur PxLGetFeature and Trigger Types.
3	Ground	Logic and Chasis ground	0 V reference
4	GPO1	General Purpose Output 1	3.3V HCMOS Outputs. Maximum current 5mA. PixeLINK A Refer to the functions PxLSetFeature, PxLGetFeature an GPIO Mode.
5	GPO2	General Purpose Output 2	
6	Clock	I2C Clock	Both have an internal 1.5 Kohm pull up resistor to 3.3V. PixeLINK API-Refer to I2C Bus Communications.
7	Data	I2C Data	
8	n/c	No Connection	

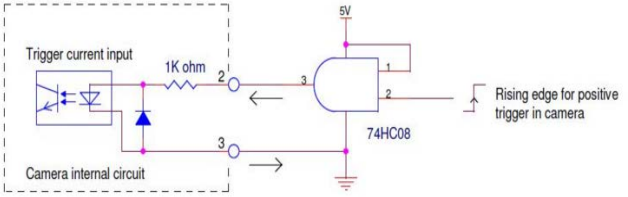
Trigger Notes:

1. To initiate a positive trigger, apply a voltage of between 5V and 12V (4-11mA) to the optically trigger input terminals.
2. The optically isolated trigger input includes an internal 1Kohm resistor.
3. When using a trigger voltage higher than 12V, add an external series resistor with an adequate power rating.
4. Debounce delay is 1 microseconds.

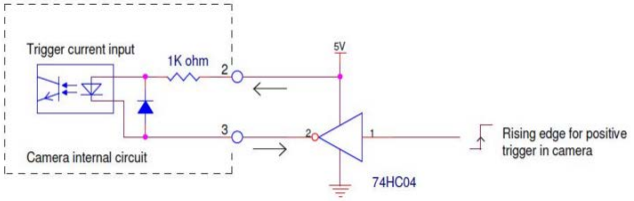
External Trigger Connection Examples

Some examples of external trigger setup.

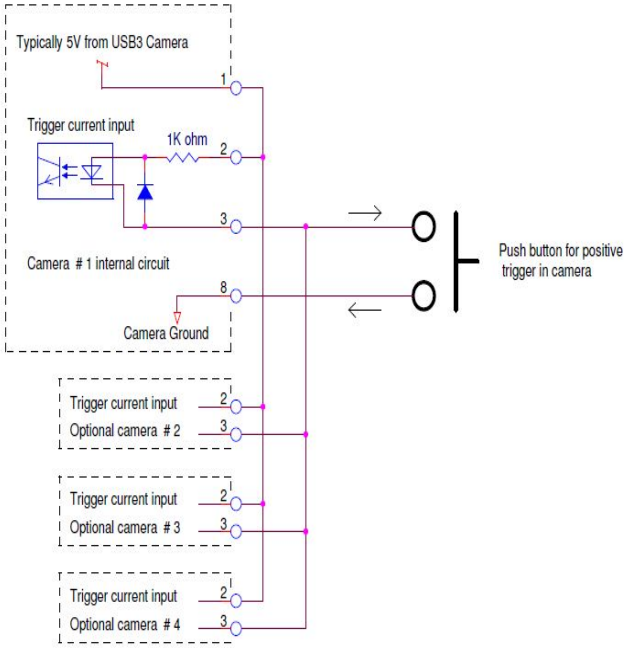
Example 1: HCMOS Source trigger



Example 2: HCMOS Sink Trigger



Example 3: Synchronizing PL-D cameras with Push Button

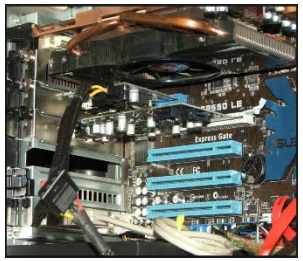


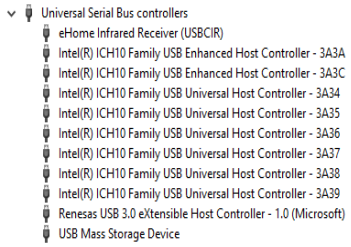
For detailed information on external trigger setup please visit: External Trigger Examples

Installing USB3.0 Interface card

PixeLINK recommends using a Renesas uPD720202 or INTEL (Haswell, IVY Bridge and etc.) based USB3.0 chipset.

Start by locating a free PCI express slot on your desktop computer's motherboard. The PCI slots on this ASUS motherboard is sky blue in colour. Install your USB3.0 interface card on your PCI express slot. Please make sure that you install the interface card according to card manufacturer's instruction. Once the card has been put in place make sure that the drivers are installed properly. You can check the **status** of the card in **Windows device manager** under **Universal Serial Bus controllers**. For instance, a Renesas USB 3.0 has been installed in this motherboard. After installation the drivers were loaded successfully and it was recognized by device manager as **Renesas USB3.0 eXtensible Host Controller – 1.0 (Microsoft)** under Universal Serial Host Controller.





Note:

1. Make sure that there is no exclamation mark beside the driver in Device manager. This means that the driver was not installed correctly.
2. Some USB3.0 adaptor cards may require an external SATA power supply from the motherboard. Refer to the manufacturer's specification.

Installing Software/Drivers for your camera

To download PixeLINK, software please visit: PixeLINK Software Downloads.

Please select **Industrial Software/Drivers** to install **PixeLINK Capture OEM** and **Microscopy Software/Drivers** to install **PixeLINK uScope.**

After the desired software has been downloaded from our website open the **.exe file** to start the installation process. A PixeLINK folder will be created. You can locate this folder by browsing to **Start -> All Programs -> PixeLINK.**

Notes for proper installation:

Before installing the PixeLINK uScope software make sure that you have removed/uninstalled any existing PixeLINK software (if any) from your PC.

Installing and operating your Camera

Connect the USB3.0 cable that is recommended by PixeLINK to the Micro-B female port of the camera. The other side of the cable should be connected to the USB3.0 port/hub on your system. Once connected successfully the camera's LED should lit up. Check the **LED status** table on the first page for more info. Once the system recognizes the camera, the camera's **LED will turn green.** To check whether the camera has been loaded with the proper driver, go to **Device Manager.** The camera should be seen under **Imaging devices** as **OEM USB3 Camera or PixeLINK camera release 4.**

Contact PixeLINK support if camera is not recognized in device manager.

Recommendations for achieving the best performance out of a PixeLINK USB3.0 camera

1) Use PixeLINK recommended USB3.0 chipset that is **Renesas uPD720202 or Intel (Haswell, IVY Bridge and etc).**
2) Use PixeLINK recommended USB3.0 cable. For ultimate performance do not use an USB3.0 cable that is longer than 3 meters. The longer the cable the more the resistance and data throughput will be hampered.
3) Avoid using USB hubs or convertors if speed is a priority. If you must use a USB hub we recommend any hub using the VL810 or VL812 chipset.
4) Always connect your camera to the back USB3.0 port of your desktop computer.