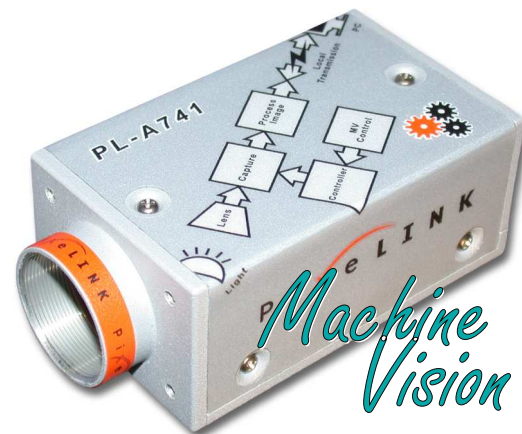


PixeLINK PL-A741 MV Camera



The all-in-one digital camera designed with **your machine vision application in mind.**

General Description

The PL-A741 is a high-performance, 1.3 megapixel monochrome C-mount camera designed specifically for machine vision applications. Fully IIDC 1.3 (DCAM) compliant, the PL-A741 uses a standard FireWire interface for plug-and-play operation with the host computer. Extended features—such as trigger and general-purpose output controls—add a level of functionality beyond the IIDC standard, providing excellent performance for the price.

Easy to Use!

- **Compatible:** The PL-A741 can be operated right out of the box with any system that supports the FireWire (IEEE 1394) IIDC 1.3 specification. Within minutes, the camera can be controlled by any IIDC compatible software such as Linux, National Instruments LabVIEW, and a host of other applications.
- **Connectable:** The PL-A741 connects to the computer via a single FireWire cable that supplies power to the camera and allows high-speed data communication. No special or expensive frame grabber card is required. The camera's two FireWire ports allow multiple cameras to be connected together ("daisy chained") on a single FireWire bus. The external trigger allows cameras to be synchronized with each other or with external systems.
- **Controllable:** The camera's rich set of features and capabilities can all be controlled through software. A global shutter and external trigger allow synchronization in demanding machine vision applications.
- **Fast:** In video mode, the camera's rolling shutter^[1] can deliver 33 fps at 1k x 1k resolution, 107 fps at VGA resolution (640 x 480), and 8000 fps at 64 x 64, all with a user-definable region of interest (ROI). Full-field-of-view images can be decimated for high-speed transmission.
- **Extendable:** With the Developer's Kit, PixeLINK supplies an extensive Application Programming Interface (API) and camera control GUI for fast and easy application development.

PixeLINK provides extensive software support. Go to the PixeLINK web site (www.pixelink.com) to download an extensive sample application for configuring the PL-A741 and for viewing and capturing images. The application demonstrates the full capabilities of the camera, including its IIDC features.

PixeLINK also offers a Software Developer's Kit (SDK) to help you in your evaluation of the PL-A741. The SDK includes an Application Programming Interface (API) designed to simplify integration and shorten the development cycle of your software. The API, which is compatible with C++ and Visual Basic, allows access to the extended features of this camera, increasing functionality beyond the IIDC specification.

The PL-A741 is also sold bundled with the SDK as a Developer's Kit.

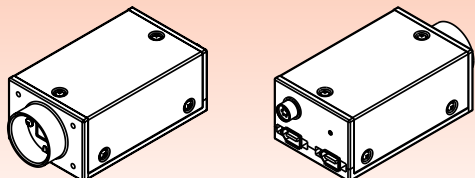
- ✓ Easy to Use
- ✓ Cost-Effective
- ✓ IIDC 1.3 (DCAM) Compatible with Extended Features
- ✓ FireWire Interface
- ✓ 33 fps Uncompressed at 1k x 1k
- ✓ Extended Dynamic Range
- ✓ Global Shutter—Frame on Demand
- ✓ External Trigger (TTL to 12 V range)
- ✓ Available in "Right Angle" Configuration
- ✓ Fully Supported by Software, for Operation "Out of the Box"

Advanced Features Include:

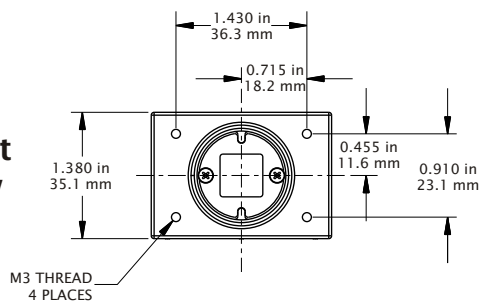
- On-board non-volatile memory for storage of the camera settings. When the camera is shut down, it can be restarted with the same settings even when connected to a different computer.
- Multiple-slope dynamic range controls for balanced image exposure. Reduce overexposure of bright areas while increasing the level of visible detail in dark areas, without losing data in the image, by defining up to the three "knee points" in the exposure time.
- Two general-purpose output connections for camera-based control of external equipment such as lighting and filters. The output controls can be software enabled or programmed to respond to an input trigger signal incorporating user-defined delays.
- Enhanced trigger with delay timings relative to output controls and start of image capture.
- Decimation (ROI sub-sampling) to increase field of view at lower resolutions.
- On-camera, user programmable lookup table (LUT).
- In-field reprogrammability of the camera firmware. Extend the camera's lifetime by applying updates via FireWire.

[1] The rolling shutter option will be implemented in a near-future release of the PL-A741. The current release uses a synchronous (global) shutter. Contact PixeLINK (sales@pixelink.com) for more information and availability.

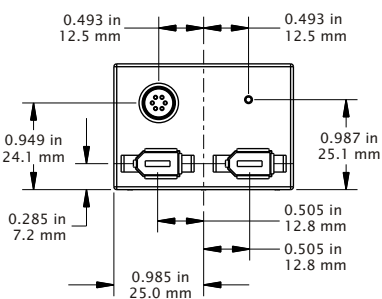
PL-A741 (Standard Configuration)



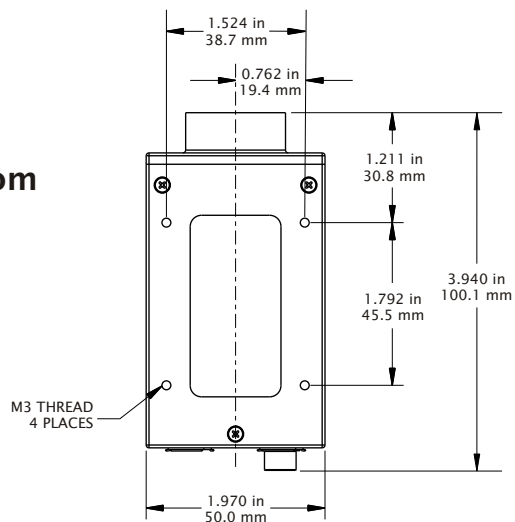
Front View



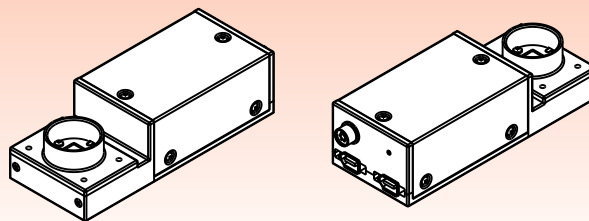
Back View



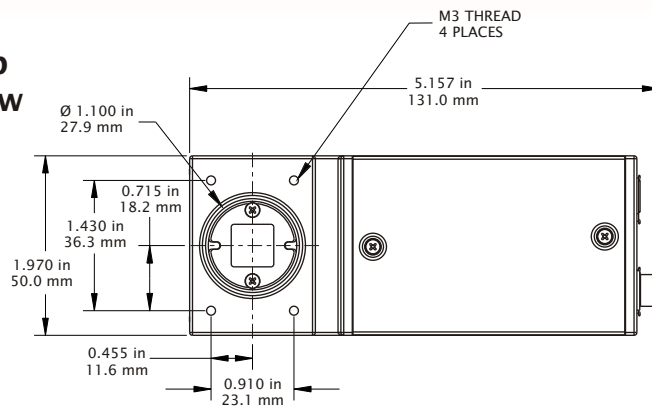
Bottom View



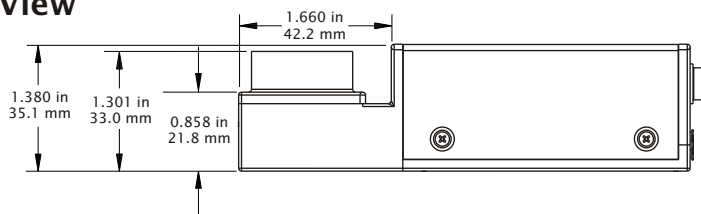
PL-A741-R (Right Angle Configuration)



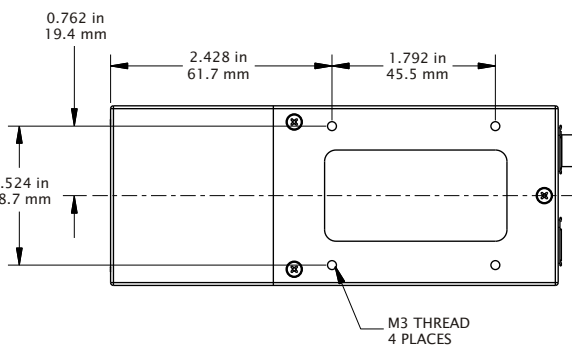
Top View



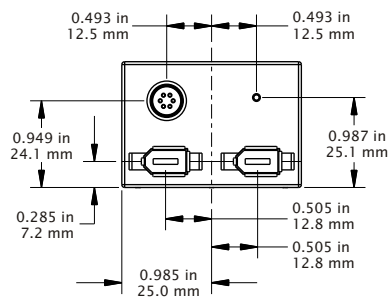
Side View



Bottom View



Back View



Features

Sensor

- o 2/3" CMOS
- o 1280 × 1024 resolution
(8.576mm × 6.912mm, 11.01 mm diagonal)
- o 6.7 μm square pixels

Sub windowing (IIDC Format 7)

- o Any user defined region

Frame Rate – frames per second

ROI Size	Rolling Shutter ^[2]	Synch Shutter ^[3]
1280 x 1024	27	25
1000 x 1000	33	30
750 x 480	77	63
640 x 480	107	81
64 x 64	8000	320

Spectral Sensitivity Range

- o 350 – 1000 nm

Dynamic Range

- o ~ 60 dB linear, > 100 dB with knee points

Triggering

- o Software or Hardware (External)

Strobe / Flash

- o Two user-programmable outputs that can be used stand-alone or synchronized to trigger

Controls

- o Exposure (0.04 ms to 1 second)
- o Shutter – rolling^[2] or synchronous
- o Gain
- o Brightness (black level adjust)
- o Frame Rate (min to 2 fps)
- o Trigger & Strobe Modes
- o Region of Interest
- o Decimation (none or power of 2)
- o Pixel format 8-bit or 10-bit

Other Features

- o Programmable LUT
- o Extended Dynamic Range
- o On-camera configuration memory
- o FPN and PRNU correction (Gain/Offset correction, flat field correction – per pixel)

Compatibility

- o IIDC 1.3 (Format 0 or 7)
- o PixelINK Developers Application
- o PixelINK Application Programmers Interface (C++, Visual Basic, LabVIEW)

Computer Interface

- o Two FireWire (IEEE 1394) jacks allow daisy chaining of the camera
- o Interface provides control of camera and all data transfer
- o Interface can be used to update or reprogram camera firmware

Optical Interface

- o Standard C-mount 2/3" optics
- o BK7 clear glass protective filter

Mechanical Interface

- o M3 threaded holes – 4 in front plate around C-mount and 4 in camera base

Trigger Interface

- o 6 pin Hirose connector

Power Requirements

- o Power supplied over the FireWire bus
- o Max consumption – 4.2 W

Size and Weight

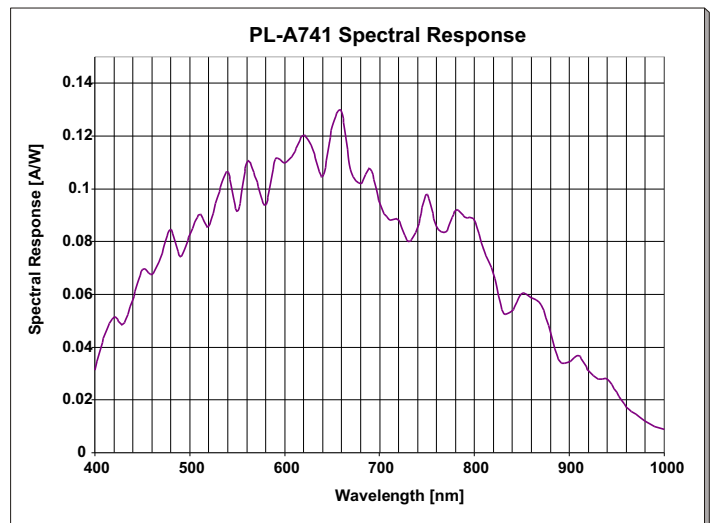
- o *Standard Configuration (PL-A741)*
H×W×L: 1.38"×1.97"×3.94" (35mm × 50mm × 100mm)
Weight (without lens): 160 g
- o *Right Angle (PL-A741-R)*
H×W×L: 1.38"×1.97"×5.16" (35mm × 50mm × 131mm)
Weight (without lens): 190 g

Environmental (as designed)

- o FCC Class B & CE
- o Shock – 50 G
- o Vibration – 10 G (20 to 200 Hz)
- o Temperature – 0° C to 50° C (non-condensing)

Status LED

- o Flashing red and green
- o Signals indicate idle, operating, warning and failed status



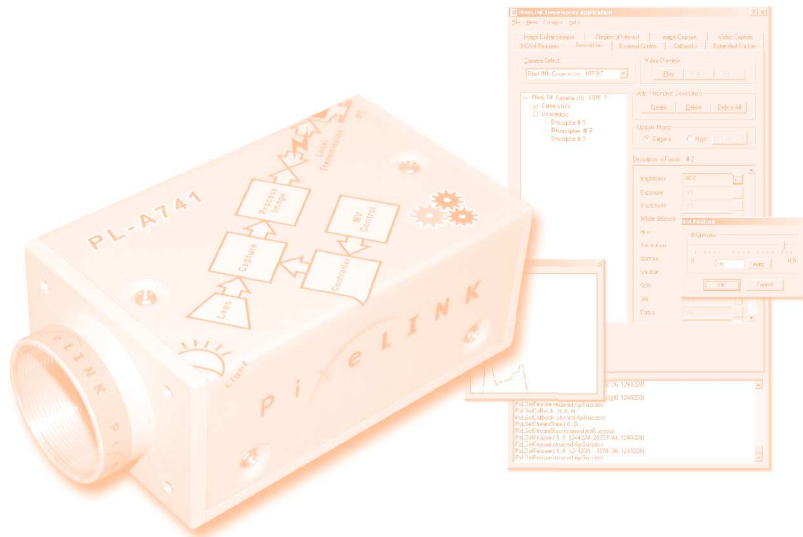
[2] The rolling shutter option will be implemented in a near-future release of the PL-A741. The current release uses a synchronous (global) shutter. Contact PixelINK (sales@pixelink.com) for more information and availability.

[3] Synchronous (global) shutter frame rates are directly dependent on exposure time – in this table a 3 ms exposure was used. The time per frame is determined by adding the exposure time and the frame readout time. The readout time is equivalent to the inverse of the rolling shutter maximum frame rate.

Ordering Information

PL-A741 (Standard configuration) or PL-A741-R (Right Angle configuration)

PixeLINK 1.3 Megapixel Monochrome Machine Vision camera. Includes the camera and C-mount dust cover.



PL-A741-DEV

Developer's Kit for PixeLINK 1.3 Megapixel Monochrome Machine Vision Camera. Kit contains a Monochrome camera, PixeLINK Software Developer's Kit, FireWire desktop adapter card, 4.5 meter FireWire cable, trigger accessory, 1/4-20 mount, and spare Hirose connector. Purchase includes free PixeLINK Technical Support.

Developer's Kits are available to help OEMs evaluate PL-A741 technology, simplify integration and shorten the development cycle.

PL-SDK-VERSION-4

PixeLINK Software Developer's Kit including drivers, Application Programming Interface, sample code, and the PixeLINK Developers Application. Purchase includes free PixeLINK Technical Support.

PL-A741 1/4-20 MOUNT

PL-A741 Tripod Mount, 1/4"-20 UNC.

For more information, contact

PixeLINK

3030 Conroy Road
Ottawa, ON K1G 6C2
CANADA

tel: 1 (613) 247-1211
toll-free: 1 (888) 484-8262 (in North America)
fax: 1 (613) 247-2001
email: sales@pixelink.com
www.pixelink.com



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