PixeLINK
www.pixelink.com

PL-B776F FireWire
PL-B776G Gigabit Ethernet
PL-B776U USB 2.0

3.1 MP (2048 x 1536)
Color Camera
12 fps Free Running - 10 fps Triggered

General Description

The **PL-B776** is a high performance 3.1 megapixel color camera designed for a broad range of industrial, security and life sciences applications. The QXGA resolution (2048 x 1536) imager provides images at 12 frames per second at full resoultion. This camera is based on the Aptina (formerly Micron) CMOS rolling shutter progressive scan sensor with a 1/2" optical format. Factory calibrated Digital Pixel Correction and on-board Flat Field Correction (FFC) provides image quality similar to high-end CCD cameras but at a much more affordable price. External triggering and 2 general-purpose outputs provide users the flexibility to synchronize the camera with their processes and illumination.

You have the choice of a FireWire, Gigabit Ethernet or USB 2.0 interface, all of which eliminate the need for a frame grabber. PixeLINK's industry leading SDK uses a common API for all cameras regardless of the chosen interface. Software code developed for one camera is easily transferred to other PixeLINK models without the need to recompile code resulting in lower system costs and simplified integration.

The sensor architecture provides superior anti-blooming compared to CCD sensors making the PL-B776 an excellent choice for imaging highly reflective objects or scenes with intense illumination. The flexible Region of Interest (ROI) control allows users to operate at higher frame rates by placing a lower resolution "window" on the imager at any location. The PL-B776 camera can deliver 27 fps at SXGA (1280 X 1024) resolution, 66 fps at XGA (800 x 600) resolution and 95 fps at VGA (640 x 480) resolution.

Why CMOS Sensor Technology?

CMOS sensor technology has made great strides in image quality over the past 5 years – to the point where performance levels are on par with many CCD sensors. The machine vision community continues to embrace CMOS technology due to its inherent strengths of low cost, low power consumption, high-speed, superior anti-blooming and the flexible ROI noted above.

Typical Applications

The PL-B776 camera is suitable for a broad range of applications such as biometrics, high performance security & surveillance applications, parts inspection, high resolution document archiving, electronics manufacturing and food, beverage & pharmaceutical inspection.

FireWire, Gigabit Ethernet & USB 2.0 Interfaces

We appreciate that OEMs and System Integrators are constantly looking for ways to reduce system costs and complexity. PixeLINK has answered this call by offering three widely accepted interfaces all of which eliminate the need to purchase & integrate frame grabber boards and expensive custom cables.

IEEE 1394A – FireWire has proven itself as a reliable and robust interface over the past decade in machine vision applications. The deterministic communication provided by FireWire allows for precise timing in machine vision applications. PixeLINK's FireWire cameras support the IIDC 1.31 specification making them compatible with a wide range of 3rd party DCAM software applications.

Gigabit Ethernet – 1,000 Mbit data rates, 100M cable lengths and networked connectivity have made the Gigabit Ethernet interface for machine vision, appropriately named GigEVision, the fastest growing interface over the past years. Transmission is provided via standard CAT5E or CAT6 cables.

USB 2.0 – Universality of this interface on host PCs is a major benefit for applications in the consumer end-user markets. Plug-and-play operation and low cost cabling makes USB 2.0 the leading user-friendly interface.

Customization

The products listed here are standard offerings. PixeLINK also provides an extensive list of customized cameras to OEM customers around the world. If you can't find what you are looking for in the standard products,

Features	Benefits
Common API for all cameras	Use existing code without recompiling. Saves development time and money.
3.1 Megapixel resolution	High definition images provide over 12X resolution compared to VGA cameras
Flexible ROI control	Users can increase frames up to 4000 fps with 8 pixel granularity
In-camera Flat Field Correction (FFC) & Defective Pixel Correction	Provides superior image quality by correcting for non-uniform illumination, lens shading, and sensor Fixed Pattern Noise (FPN)

Sensor

Sensor	Aptina (formerly Micron) CMOS
Type	Rolling Shutter, Progressive Scan
Resolution	2048(H) x 1536(V) 3.1 MP Color
Pixel Pitch	3.2 µm x 3.2 µm
Active Area	6.55 mm x 4.92 mm - 8.19 mm diagonal
Peak QE	39 % (color)
Max Datarate	48 MHz

Computer & Operating System

Processor	2.0 GHz or better
Memory	512 MB min. 1 GB recommended
Operating System	Windows 2000, XP and Vista (32bit)
Hard Drive Space	75 MB

Power Requirements

Voltage Req.	FireWire/GigE 8-32 V DC - USB 5 V DC
Power Consumption	FireWire 3.8 W, USB 3.5 W, GigE 4.8 W

Enviromental & Regulatory

Compliance	FCC Class B, CE & RoHS
Shock & Vibration	300 G & 20 G (10Hz - 2KHz)
Operating Temp.	0°C to 50°C (non-condensing)
Storage Temp.	-45°C to 85°C

Software

PixeLINK Capture OEM	Free Download (www.pixelink.com)
DirectShow (exl. GigE)	Bundled with PixeLINK Capture OEM
TWAIN	Bundled with PixeLINK Capture OEM
SDK	API, sample code and LabVIEW wrappers
DCAM 1394 Compliance	IIDC version 1.31

Camera Controls & Features

Auto & Manual White Balance, Gain, Gamma, Saturation, Region of Interest (ROI), Histogram, Decimation, Binning, Averaging, Resampling, Image Flip & Rotate, Programmable LUT, Callbacks (Image Filters), FFC (Gain & Offset) and Defective Pixel Correction.

Frame Rates (Bayer 8)

Resolution	Free Running Mode	Triggered Mode
2048 x 1536	12	11
1980 x 1020	19	16
1280 x 1024	27	22
800 x 600	66	40
640 x 480	95	49

Frame rates will vary based on host system and configuration

Specifications are subject to change without notice

Performance Specifications *

Responsivity	Color 4.6 DN/(nJ/cm^2)
FPN	<1 %
PRNU	<1 %
Read Noise	<1 DN
Dynamic Range	60 dB
Bit Depth	8 & 10-bit
Color Data Formats	Bayer 8, Bayer 16 and YUV422
Exposure Range	100 µs to 2.0 seconds free running 100 µs to 2.0 seconds triggered
Gain	0 dB to 25.1 dB in 45 increments
Image Formats	Bitmap, Tiff, JPEG, PSD
Video Format	Uncompressed AVI

**Test Settings: Typical values with 100ms integration time, 0dB gain, FFC on, 10-bit mode*

Mechanicals

Dimensions	102 x 50 x 41 mm (straight) 110 x 50 x 41 mm (right angle)
Weight	Straight: 204 g - Right Angle: 258 g
Mounting	4 M3 threaded holes in front plate & 4 M3 threaded holes in camera case
Tripod Mount	1/4" - 20 mount (optional)
Status LED	Amber - Start-up, Green - Idle or streaming Red - Warning or failed status
Lens Mount	C & CS-Mount, 1/2" optical format

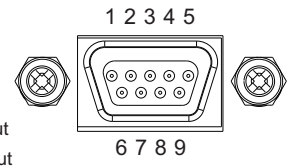
Interfaces

Interface / Date rate / Connector	IEEE 1394A (2) / 400 Mbit / 6-pin GigE / 1000 Mbit / RJ-45 USB 2.0 / 480 Mbit / Type B
Trigger Connector	9-pin Micro D
Trigger Modes	Free running, software, hardware
Trigger Input	Optically isolated 5-12V DC @ 4-11 mA
GPO/Strobe	2 Optically Isolated - Maximum 40V DC differential. Maximum 15 mA

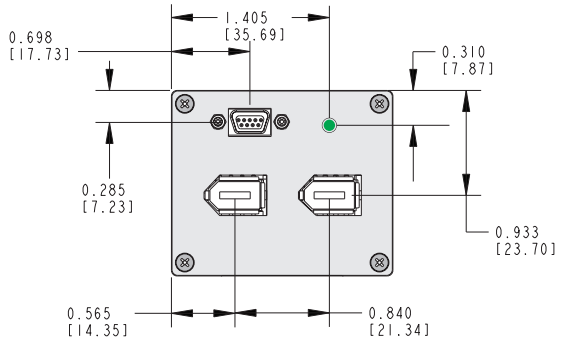
For more information, visit: http://www.pixelink.com/help

Pin Output Description

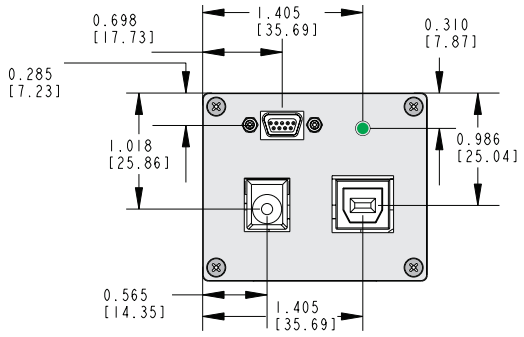
Pin	Pin Name & Function
1	POWER cable power, FireWire/GigE 8-32 V DC - USB 5 V DC
2	Gp2+ Positive terminal of GPO 2
3	Gp2- Negative terminal of GPO 2
4	Gp1+ Positive terminal of GPO 1
5	Gp1- Negative terminal of GPO 1
6	TRIGGER + Positive terminal of trigger input
7	TRIGGER - Negative terminal of trigger input
8	(no connection)
9	GROUND Logic and chassis ground



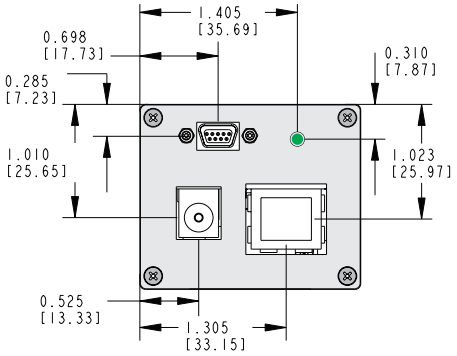
Straight & Right Angled Mechanical Demensions



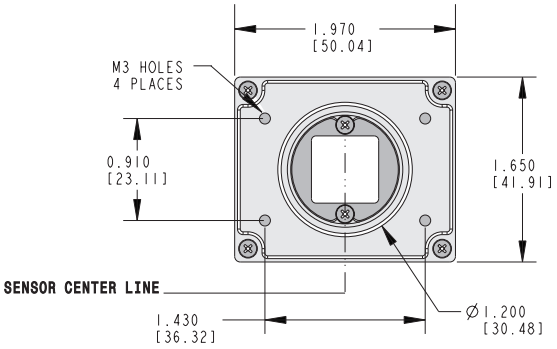
Back Panel FireWire



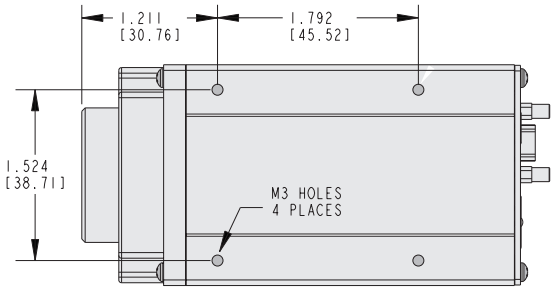
Back Panel USB 2.0



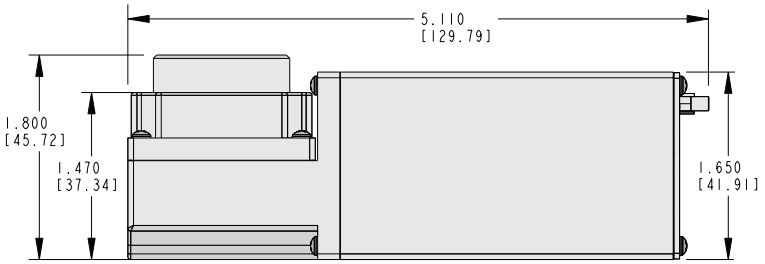
Back Panel GigE



Front Panel

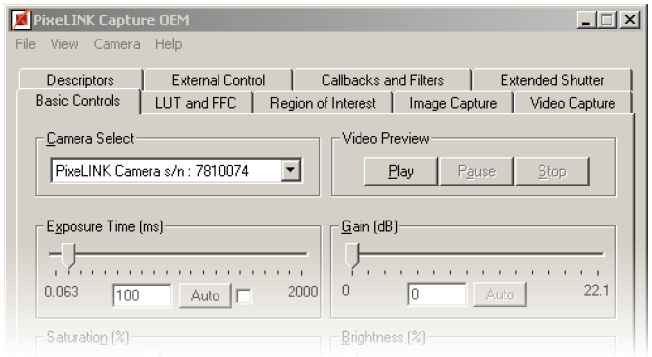


Straight Case Bottom



Right Angle Side

PixeLINK Capture OEM Software



PixeLINK Capture OEM is a user-friendly camera control application offering users full control of the camera's features and settings. For your free copy of Capture OEM, please visit the PixeLINK web site at www.PixeLINK.com

Responsivity Curve - Color