

# PROMETHEUS CAMERA LINE

PL-D721

## GENERAL DESCRIPTION

The Prometheus family of USB 3.0 cameras link together the benefits of high frame rate CMOS technology with the high speed data throughput of USB 3.0 technology. PL-D721 color and monochrome cameras provide low noise images for outstanding value in a broad range of industrial applications. These cameras features a 1.3 megapixel (1280 x 1024) resolution imager capable of 150 fps at full resolution.

The PL-D721 models of cameras are based on a ON Semiconductor CMOS global shutter sensor with a 1/2" optical format. The extensive built-in image processing possibilities (image pre-processing) result in outstanding image quality, less load on the system and higher performance. These cameras provide the user choice of 8-bit or 10-bit digitization and a dynamic range of 53dB and 90dB using Extended Shutter. The external hardware trigger and 2 general-purpose outputs ensure users have the flexibility to synchronize the camera with their processes and illumination.

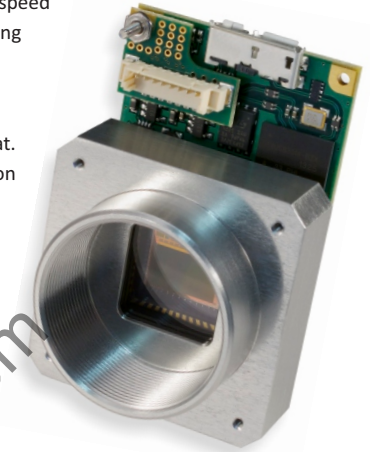
Pixeline's industry leading SDK uses a common API for all cameras regardless of the chosen interface. Software code developed for one camera is easily transferred to other Pixeline models without the need to recompile. Overall system costs are reduced and camera integration is simplified.

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.

### Typical Applications

- Medical
- High performance security & surveillance applications
- Parts inspection
- Metrology and biometrics
- Welding inspection
- PCB and flat panel display inspection.

**Customization** - The products listed here are standard offerings. Pixeline also provides an extensive list of customized cameras to OEM customers around the world. We may already have what you need. If not, we can certainly design and build it for you.



## CAMERA FEATURES

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|---|---|
| <ul style="list-style-type: none"> <li>• 1.3MP (1280 x 1024) Resolution</li> <li>• CMOS Global Shutter</li> <li>• Monochrome and Color</li> <li>• 150 fps at full resolution</li> <li>• USB 3.0</li> <li>• Flexible Region of Interest (8 pixel H x 32 pixel W granularity)</li> <li>• 1 trigger input, 2 general purpose outputs (3.3V)</li> <li>• Great image quality</li> <li>• Compact size</li> <li>• Enclosed or Board Level models available</li> <li>• One common API for <u>all</u> cameras</li> <li>• Free professional technical assistance</li> <li>• Tethered sensor head option 6"/12" (*Board Level version only)</li> </ul> | <ul style="list-style-type: none"> <li>• Extended shutter mode</li> <li>• Auto &amp; manual exposure</li> <li>• Programmable LUT</li> <li>• Auto &amp; Manual White Balance</li> <li>• Color Temperature</li> <li>• Gain</li> <li>• Gamma</li> <li>• Saturation</li> <li>• Histogram</li> <li>• Binning and Decimation</li> <li>• Image Flip &amp; Rotate</li> <li>• Callbacks (Image Filters)</li> </ul> |
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Digital Imaging made simple

## SENSOR

Sensor	ON Semiconductor CMOS
Type	CMOS Global Shutter
Resolution	1280(H) x 1024(V) 1.3 MP Color & Mono
Pixel Pitch	4.8 $\mu\text{m}$ x 4.8 $\mu\text{m}$
Active Area	6.144 mm x 4.92 mm - 7.87 mm diagonal
Peak QE	53 %
Max Datarate	248MHz

## PERFORMANCE SPECIFICATIONS

FPN	<1 % of signal
PRNU	<2% of signal
Dynamic Range	53 dB (90dB with Extended Shutter Mode)
Responsivity at 550 nm	24 LSB10 /nJ/cm <sup>2</sup> , 4.6 V/lux.s
Bit Depth	8 or 10-bit
Color Data Formats	Bayer 8, Bayer 16 and YUV422
Mono Data Formats	Mono 8 and Mono 16

## MECHANICALS

Dimensions	32 x 48 x 11 mm (without lens mount)
Weight	35.8 g (without optics)
Mounting	Holes for 0-80 hardware
Lens Mount	C-mount, CS-mount and S-mount

## INTERFACES

Interface / Data rate	USB 3.0/ Micro-B / 5Gbps
Board Level Trigger Connector	8-pin Molex 1.25mm pitch
Enclosed Trigger Connector	Hirose round 8-pin
Trigger Modes	Software and hardware
Board Level Trigger Input	1 input, 3.3V (with internal pullup resistor)
Enclosed Trigger Input	1 optically isolated, 5-12V DC at 4-11 mA
Board Level GPO/Strobe	2 outputs, 3.3V
Enclosed GPO/Strobe	2 outputs, 3.3V and 1 optically isolated max 40V DC, max 15mA

## FRAME RATES

Resolution	Free Running
1280 x 1024	150
640 x 480	506

Frame rates will vary based on host system and configuration

## BOARD LEVEL GPIO INTERFACE PIN OUTPUT DESCRIPTION

Pin	Pin Name & Function
1	3.3V power output
2	TRIGGER, 3.3V HCMOS input
3	Ground
4	GPO1, 3.3V HCMOS output
5	GPO2, 3.3V HCMOS output
6	Clock, 3.3V (I2C access for OEM's)
7	Data, 3.3V (I2C access for OEM's)
8	No connection

Board connector: Molex 53398-0871 (8-pin, 1.25mm pitch, vertical)  
Cable receptacle: Molex 51021-0800  
Cable crimp terminals: Molex 50079-8100

## ENCLOSED GPIO INTERFACE PIN OUTPUT DESCRIPTION

Pin	Pin Name & Function
1.	VBUS (Power output from USB3 cable)
2	TRIGGER + (optically isolated)
3	TRIGGER - (optically isolated)
4	GPO1 + (optically isolated)
5	GPO1 - (optically isolated)
6	GPO1, 3.3V HCMOS output
7	GPO2, 3.3V HCMOS output
8	Ground (logic and chassis ground)

## POWER REQUIREMENTS

Voltage Req.	5V DC (from USB connector)
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## SOFTWARE

PixelLINK Capture OEM	Free Download ( <a href="http://www.pixelink.com">www.pixelink.com</a> )
DirectShow	Bundled with PixelLINK Capture OEM
TWAIN	Bundled with PixelLINK Capture OEM
SDK (Sold Separately)	API, sample code and LabVIEW wrappers

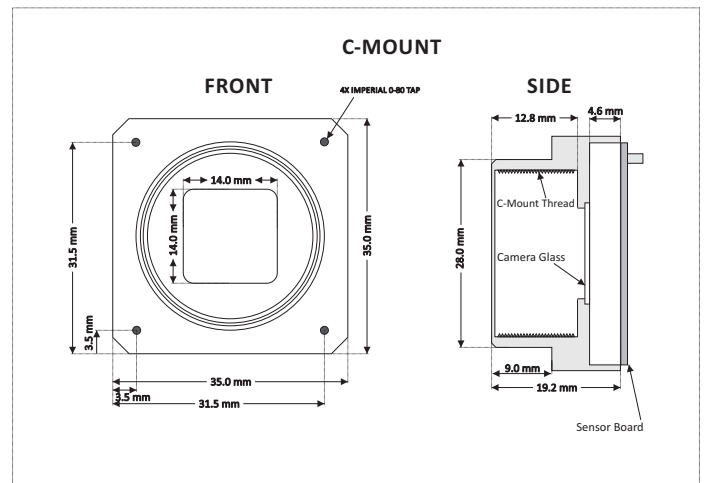
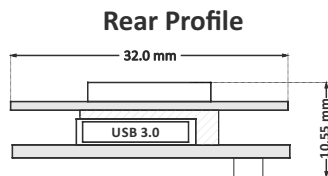
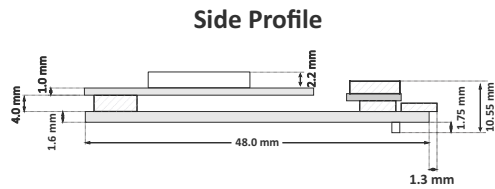
## ENVIRONMENTAL & REGULATORY

Compliance	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

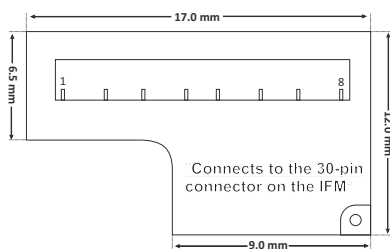
## COMPUTER & OPERATING SYSTEM

Processor	Intel i5 or better
Memory	4 GB recommended
Operating System	Windows 7 / Windows 8
Hard Drive Space	75 MB

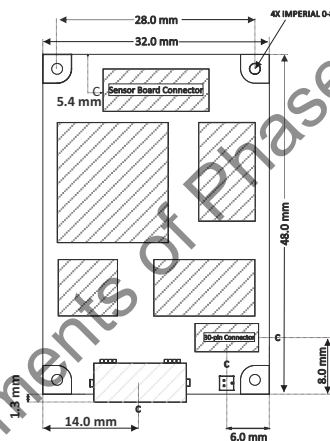
## MECHANICAL DRAWINGS



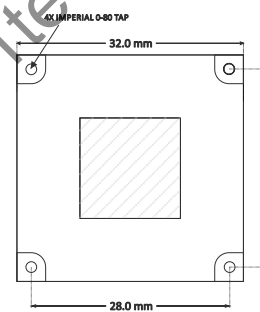
**Trigger/GPO Connector Adapter**



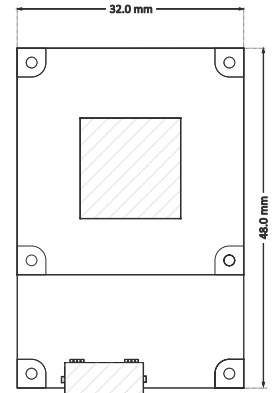
**Interface Board**



**Sensor Board**

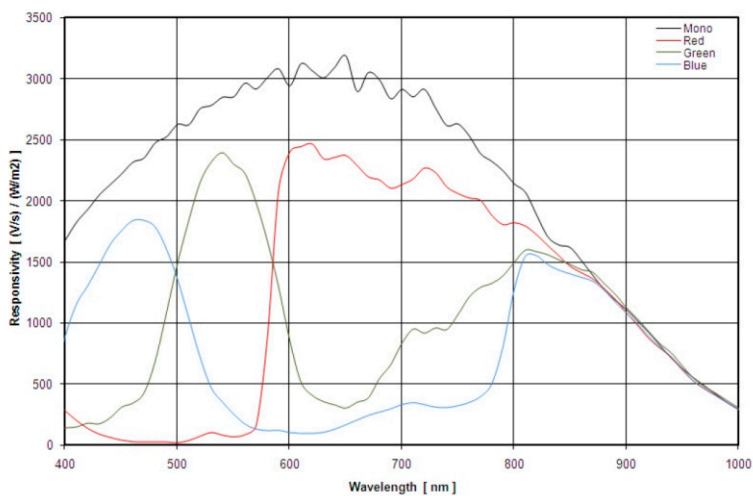


**Stacked Boards**



Drawing is not to scale

## RESPONSIVITY CURVE



## ORDERING GUIDE

### Board Level Model

PL-D721CU-BL  
PL-D721MU-BL

### Enclosed Model

PL-D721CU  
PL-D721MU