# PixeLINK®

## GENERAL DESCRIPTION

The **PL-E531** monochrome ultra small footprint cameras provide high resolution, low noise images for unparalleled value in a broad range of industrial applications. The camera features a 1.3 megapixel (1280 x 1024) resolution imager capable of 30 fps at full resolution.

The **PL-E531** series of cameras are based on a Aptina CMOS progressive scan sensor with a 1/2" optical format. These cameras provide the user of choice of 8-bit or 10-bit digitization and a dynamic range of 60dB in 10-bit mode.

**Typical Applications**

- Biometrics
- High performance security & surveillance applications
- Parts inspection
- Metrology
- Document archiving
- PCB inspection

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 with a granularity of 8 pixels by 8 pixels.

The sensor architecture provides superior anti-blooming compared to the CCD sensors making the PL-E531 and excellent choice for imaging highly reflective objects or scenes with intense illumination.

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, overall system costs are reduced and camera integration is simplified.

**Customization -** The products listed here are standard offerings. PixeLINK® 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.
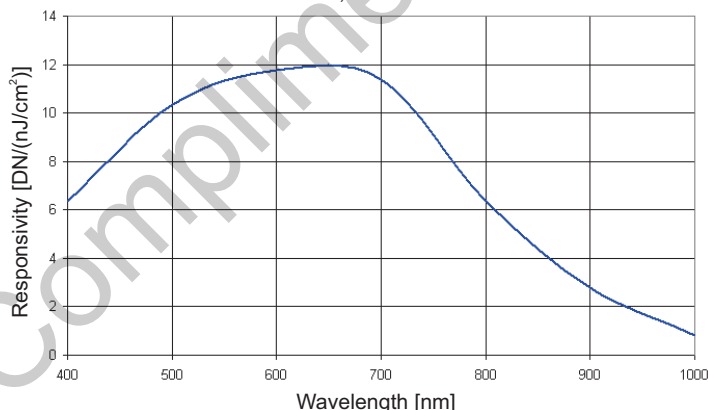
## FEATURES

- 1.3MP (1280 x 1024) High Definition Resolution
- CMOS Progressive Scan Sensor
- Monochrome
- 74 fps at 800 x 600
- USB 2.0 (micro USB connector)
- Flexible Region of Interest to 8 pixel granularity
- Format_7 support
- Great image quality
- Fast frame rate
- Ultra small size
- C-Mount / CS-Mount
- Board level configuration available
- One common API for all cameras
- Free professional technical assistance
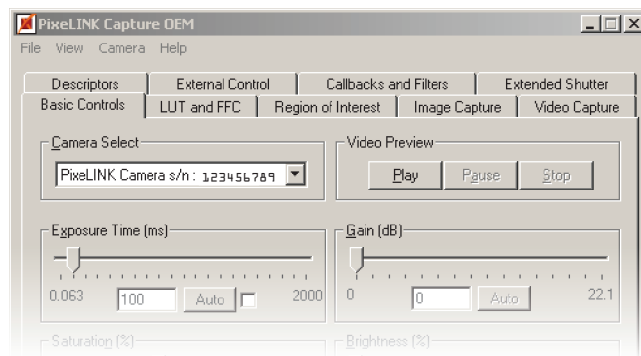
**Camera control options:**
- Auto controlled exposure, white balance
- 
- Programmable LUT
- Auto & Manual White Balance
- Gain
- Brightness (Dark Offset)
- Gamma
- Histogram
- Binning, Averaging, Resampling
- Image Flip & Rotate
- Callbacks (Image Filters)

## RESPONSIVITY CURVE

### 0dB Gain, 10bit Data



## 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

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## SENSOR

| | |
|---|---|
| Sensor | Aptina CMOS |
| Type | Rolling Shutter, Progressive Scan |
| Resolution | 1280(H) x 1024(V) 1.3 MP |
| Pixel Pitch | 5.2 µm x 5.2 µm |
| Active Area | 6.65 mm x 5.32 mm - 8.52 mm diagonal |
| Peak QE | 54 % |
| Pixel Clock | 48 MHz |

## PERFORMANCE SPECIFICATIONS *

| | |
|---|---|
| Responsivity | Mono 11.8 DN/(nJ/cm$^2$) |
| FPN | <1 % |
| PRNU | <1 % |
| Read Noise | <1 DN |
| Dynamic Range | 60 dB |
| Bit Depth | 8 & 10-bit |
| Mono Data Formats | Mono 8 & Mono 16 |
| Exposure Range | 100 µs to 1.21 seconds free running |
| Gain | 0 dB to 21.58 dB in 22 increments |
| Image Formats | Bitmap, Tiff, JPEG, PSD |
| Video Format | Uncompressed AVI |

*PL-B531U Settings: Typical values with 40ms integration time, 0dB gain, 10-bit mode*

## MECHANICALS

| | |
|---|---|
| Dimensions | 40 mm x 70 mm x 20 mm |
| Weight | 46 g |
| Mounting | 4 holes for M2 hardware |
| Status LED | Amber - Start-up, Green - Idle or streaming |
| | Red - Warning or failed status |
| Lens Mount | C, CS, S-Mount, 1/2" optical format |

## INTERFACES

| | |
|---|---|
| Interface / Date rate / Connector | USB 2.0 / 480 Mbps /  Micro-B |

## FRAME RATES

| Resolution | Free Running Mode |
|---|---|
| 1280 x 1024 | 30 |
| 1024 x 768 | 48 |
| 800 x 600 | 74 |
| 640 x 480 | 109 |
| 320 x 240 | 330 |

Frame rates will vary based on host system and configuration

## POWER REQUIREMENTS

| | |
|---|---|
| Voltage Req. | 5 V DC |
| Power Consumption | 3.0 W |

## SOFTWARE

| | |
|---|---|
| PixeLINK Capture OEM | Free Download (www.pixelink.com) |
| DirectShow | Bundled with PixeLINK Capture OEM |
| TWAIN | Bundled with PixeLINK Capture OEM |
| SDK | 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 | 2.0 GHz or better |
| Memory | 512 MB min. 1 GB recommended |
| Operating System | XP, Vista (supported) Windows 7 (recommended) |
| Hard Drive Space | 75 MB |

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## Back

## Side

## Front

All dimensions are in millimetres

28mm Diameter

5.75

22.75 — Optical Center

77.50   50.00

Four external mounting holes for M2 screws
Minimum insertion depth 5mm
Maximum insertion depth 8mm

45.50

10.10

26.00

77.50

58.00

52.50

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