

# Lm080 & Lm085

VGA Mini USB 2.0 Camera



## Dynamic Range with Variable Lighting Conditions

Lumenera's new Lm085 mini CMOS USB 2.0 camera is designed for industrial environments with high contrast-light scenes, tight space constraints, and rugged environmental conditions. An ultra-wide dynamic range makes the Lm085 an ideal choice for applications with variable lighting conditions, as this camera can provide a dynamic range of 100 dB.

## 60+ Frame Per Second

The Lm085's small form factor of 44 x 44 x 56 mm and robust mechanicals are well suited for conditions where the camera is under sustained vibration, fatigue, and stress from conveyor lines, mechanical arms, mobile vehicles, or gantries that introduce shock and vibration. An electronic global shutter eliminates the smear effect generated by moving objects, while the locking mini USB and RJ45 GPI/O connectors keep cables reliably attached to the camera back plate even in challenging conditions. When high throughput is essential, the Lm085 provides 60 fps at full 752 x 480 resolution, and over 100 fps at 376 x 240 binning mode.

## Live Stream and Still Image Capturing

Uncompressed images in live streaming video and still image capture are provided across a mini USB 2.0 digital interface. No framegrabber is required. Advanced camera control is available through a complete Software Developer's Kit (SDK), with sample code available to quickly integrate camera functions into OEM applications. Hardware and software based synchronization trigger is provided standard. 32 MB on-board memory is available for frame buffering.

## Application

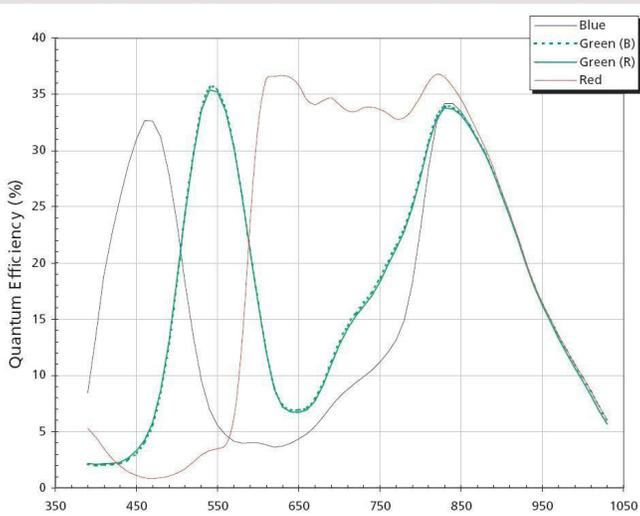
The Lumenera Camera SDK provides a full suite of features and functions that allow you to maximize the performance of your camera within your application. The SDK is compatible with all USB and GigE based cameras. Microsoft DirectX/DirectShow, Windows API and .NET API interfaces are provided allowing you the choice of application development environments from C/C++ to VB.NET or C#.NET. Full inline IntelliSense autocompletion and documentation is provided with the .NET API interface and is accompanied by a full API manual describing all the camera functions and properties.

## Features

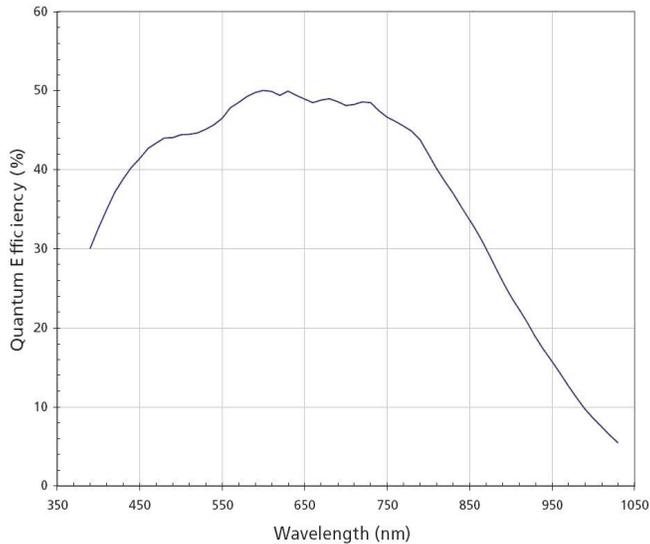
- Ultra-wide dynamic range of 100 dB
- Small form factor measuring 44 x 44 x 56 mm
- Locking industrial mini USB and RJ45 GPI/O connector for control of peripherals and synchronization of lighting
- Color or monochrome, progressive scan wide VGA CMOS sensor
- 32 MB RAM to buffer frames
- Excellent sensitivity in the visible and NIR Spectrums
- Simplified cabling - video, power and full camera control over a single mini USB cable
- 3 software configurable bidirectional I/O ports and 2 optically isolated ports (1in/1out)
- 8 mounting points close to the front edge
- Tripod mount included
- Binning and Region of Interest (ROI) options improve sensitivity and provide higher frame rates
- Selectable bit depth of 8 or 10-bit
- FCC Class B, CE Certified
- DirectShow compatible
- Software compatible with Windows 10, Windows 8.1, Windows 7, Linux, 32 and 64-bit operating systems
- Complete SDK available
- Four (4) year warranty



**Color Quantum Efficiency Curves**



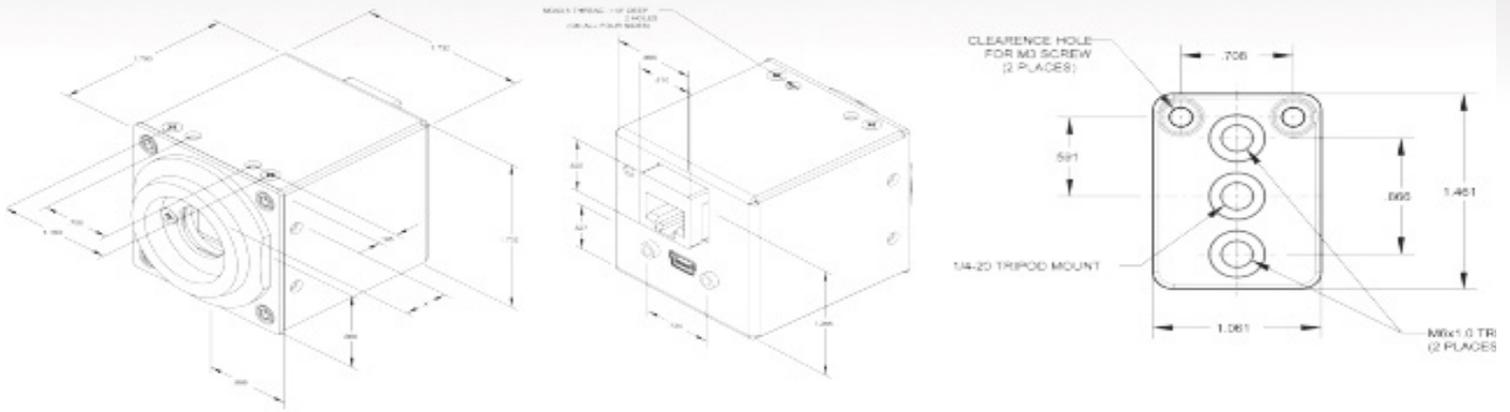
**Monochrome Quantum Efficiency Curve**



Sensor Specifications	
Image Sensor	Micron MT9V022, CMOS, color or mono, progressive scan
Optical Format	1/3"
Imager Size	Diagonal 5.35 mm
Pixel Size	6.0 x 6.0 um
Resolution	752 x 480 pixels
Camera Specifications	
Frame Rate	60 fps @ 752x480 resolution
Bit Depth	8 or 10-bits
Binning Modes	2x2 and 4x4
Exposure Control	Manual and automatic control
Gain Control	Manual and automatic control
Gain Range	1 to 23.815 X
White Balance	Manual and automatic control
Camera Characteristics	
Sensitivity	4.8v/10x-380 (550 m)
Dynamic Range	100 dB
Quantum Efficiency	37 % (red peak), 50 % (mono peak)
Read Noise	<25 e-
Mechanical Specifications	
Data Interface	USB 2.0
Lens Mount	Adjustable C-mount standard, (CS-mount option)
Dimensions (HxWxD)	45.47 x 43.94 x 43.94 mm (enclosed) 1.79 x 1.73 x 1.73 inch (enclosed)
Mass	130 g (enclosed)
Operating Temperature	0 to 50 °C
Storage Temperature	-30 to 70 °C
Operating Humidity	5 to 95 %, non condensing
Shock / Vibration	50 g shock, 5 g (2 to 200 Hz) vibration
Onboard Memory	Camera has onboard non-volatile memory storage
Camera Software	
Operating Systems	Windows 10, Windows 8.1, Windows 7, Linux, 32 and 64-bit operating systems
Software Interfaces	Windows API, .NET, DirectX
Power and Emissions	
Power Consumption	~2.5 W
Power Requirement	USB bus power only
Emissions Compliances	FCC Class BE, CE Certified
Hazardous Materials	RoHS, WEEE Compliant
Warranty	Four (4) year
System Requirements	
Recommended PC Specs	<ul style="list-style-type: none"> <li>• Pentium 4, 1.3 GHz or higher</li> <li>• 512 MB RAM</li> <li>• 60 MB hard drive free space or more</li> <li>• USB 2.0 Port</li> <li>• Windows 10, 8.1, 7; Linux</li> </ul>
Ordering Options	
Lm080M	1.4 MP Mini Monochrome Module (Board Level)
Lm080C	1.4 MP Mini Color Camera Module (Board Level)
Lm085C	1.4 MP Mini Enclosed Color Camera
Lm065M	1.4 MP Mini Enclosed Monochrome Camera
LuSDK	Software Developer's Kit (Web download)
Camera Includes	
Lu802m	Locking 2M USB 2.0 A to mini B cable
Lu905	Tripod mount
Customization Options	
-WOIR	Without IR Cut Filter (in optical path)



**Enclosed Mechanical Drawings**



**Board Level Mechanical Drawings**

