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 onboard 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" x
- **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 B, CE Certified
- **Hazardous Materials**: RoHS, WEEE Compliant
- **Warranty**: Four (4) year

System Requirements
- **Recommended PC Specs**
  - Pentium 4, 1.3 GHz or higher
  - 512 MB RAM
  - 60 MB hard drive free space or more
  - USB 2.0 Port
  - Windows 10, 8.1, 7; Linux

Ordering Options
- **Lm080M**: 1.4 MP Mini Monochrome Module (Board Level)
- **Lm080C**: 1.4 MP Mini Color Camera Module (Board Level)
- **Lm065C**: 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
- **-WDIR**: Without IR Cut Filter (in optical path)