Installation Guide for Lumenera USB 3.0 Cameras

Thank you for purchasing a Lumenera USB 3.0 camera. This camera will operate following the installation of the device drivers and the application software. Follow the steps below for a quick and easy installation.

Required Tools and Parts:

Computer:	Lens:
• 1.6 Ghz Pentium III or higher (compatible) • 1GB RAM (min), 2GB or more (recommended) • USB 3.0 Port	• C-Mount (standard) or CS-Mount (optional) lens with proper optical format for the sensor
Operating System:	**External power for USB 3.0 camera models**
• Windows 8.1, Windows 7, Windows 10 • Both 32-bit and 64-bit platforms are supported	• The Lt225, Lt425, Lt345, Lt545, Lt945, Lt1245 camera models do not require external power when connected to a USB3 port. • The Lt345, Lt545, Lt945, Lt1245) can be externally powered with 5 - 24V +/- 7.5% VDC through the GPIO connector. • The Lt365, Lt665, Lt965, Lt1265 camera models require that a 5 V DC power supply be connected to the camera's GPIO connector. The power supply should be able to provide 2A minimum current (3.5W). • The Lt16059H, Lt29059 camera model requires that a 12V DC power supply be connected to the camera through the power pin connector or the GPIO connector. The power supply should be able to provide 2A.

Notes:
- For camera GPIO pin-out and mating connector details, please refer to user's manual.
- Over-voltage is not covered by warranty.
- Since the USB 3.0 standard continues to evolve, the frame rate performance is dictated by the combination of the hardware components used. It is recommended that you update all USB 3.0 chipset component drivers/firmware to the latest version (usually available from vendor's website).
- When using camera on a USB 2.0 port, external power will be required.
- USB 3.0 ports are typically labeled with the designation 'SS' just to the left of the USB symbol.
- For more information about hardware dependencies or tested hardware configurations, please contact Lumenera at support@lumenera.com.
- Lumenera recommend the usage of Intel USB 3.0 chipset with USB 3.0 product. Users may experience camera disconnection when using non-Intel chipset.

Hardware combinations tested to achieve 90 FPS with Lt425M

Systems	USB 3.0 Adapters
• **Intel i7-3610QM 3.4Ghz** • **Xeon E5-1620 3.6Ghz (Intel C602 chipset)** • **Intel i7-3770 3.46Ghz (Intel Q77 Express chipset)** • **Intel i5-2400 3.10Ghz**	• **Intel (Chipset C216, C220)** • **NEC (Chipset 720202)** • **AsMedia (Chipset ASM1042)**

Based on tests, Lumenera recommends the use of Intel USB 3.0 chipset Adapters only.

Camera Set-up and Installation:

Step 1 — Install a 3rd party USB 3.0 PCIe add-in card if your computer <u>does not</u> already have a USB 3.0 port.

Step 2 — Install the camera software downloaded from the Lumenera web site, before connecting the camera to the computer... Right click on downloaded software and select "Run as Administrator"
http://www.lumenera.com/support/downloads/industrial-downloads.php

> **WARNING**
> Observe the following to ensure smooth installation of camera software:
> - You must ensure you are logged into the computer with Administrator privileges prior to installing the camera software.
> - Download and store the installation package on the PC
> - Close all other application software prior to running the Lumenera Installation.
> - Do not connect the camera to the computer before installing the camera software.
> - Launch the installation by using a right-mouse-click on the file and select 'Run as Administrator' from the pop-up menu

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Step 3 — **Connect a USB 3.0 cable to the camera and to an available USB 3.0 port on your computer. [For an Lt365/665/965/1265 camera model, the 5V DC power must also be connected]**

The detection of new hardware and the identification of the necessary device drivers is performed behind the scenes. It is typical to see a notification balloon appear in the lower right corner of the screen to indicate that the device drivers are being loaded. This operation typically takes less than a minute to complete. When the LED illuminates in green on the back of the camera, the device drivers are loaded and the camera is ready to use.

> **WARNING**
> - You must ensure you are logged into the computer with Administrator privileges prior to installing the camera software.
> - Do not connect the camera to the computer before installing the camera software. See Step 2 for more details on how to install this software.

Step 4 — **If prompted,** restart **your computer.** Once all of the software has been installed, the camera applications can be run from the Windows Start Menu.

LED status indicator

LED Status	Probable meaning
Solid orange	Driver failed to load.
Blinks orange few times per second	Firmware failed to load.
Blinks orange one per second	FPGA failed to load.
Solid green	Camera ready.
Dimmer green	Camera streaming.
Dimmer green (snapshot)	Led will be dimmer green for length of exposure.
Blink orange/green	Camera connected to USB 2.0 port and there is no external power applied.

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Product Warranty

Lumenera Corporation warrants to the original purchaser that our cameras are guaranteed to be free from manufacturing defects for a period of one (1) year from the original date of purchase.

Should the unit fail during the warranty period, Lumenera will, at its option, repair or replace the failed unit. Repaired or replaced units will be covered under warranty for the remainder of the original one (1) year warranty period.

This warranty does not apply to units that, after being inspected by Lumenera, have been found to have failed due to customer abuse, accidents, mishandling, tampering/alteration, improper installation, improper power source, negligence, opening of the enclosure, or if the serial number has been removed or damaged. This warranty does not cover labor or incurred charges required in removing or installing the unit, any business interruption, loss of profits/revenues, or any consequential damages. Units returned to Lumenera beyond the warranty period will be repaired, if possible, and all appropriate material and labor charges will apply. Any returning product, specifically those being returned under warranty, must follow the Returned Material Authorization (RMA) process. Any units being returned are to be properly packaged (in original packing - if possible). Lumenera will not cover damage sustained in shipping due to improper packing.

For RMA instructions please refer to our website at www.lumenera.com/support/rma.php.