

AEO LCS-2048 Linear CCD Scanner OEM Module Datasheet and Software installation



Figure 1. Front and backside view

1. General Description

A key performance parameter for the CCD is the maximum signal to noise ratio achievable by the Scanner. CCD sensors create high quality, low-noise images. Compared to CMOS sensors, a CCD sensor is far less susceptible to noise, making it ideally suited to spectroscopy applications. Especially, CCD detectors are optimum for low signal measurements.

The LCS-2048 Linear CCD Scanner provides an external trigger. The trigger activates on a low to high transition. When the trigger function is active, it effectively replaces the CCD interval time that would otherwise be set through the software. When a trigger occurs, it will begin the exposure period and wait for the exposure time, and then it will read out the frame. After the readout, it will immediately begin the next frame by waiting for the next trigger signal. A standard TTL signal is required for triggering, where 0.8V or lower is considered "low" and 2.4 V or greater is considered "high".

The AEO LCS-2048 software package is included free no extra cost. It provides user interface to control the scanner and easy data capture method. The software work on Windows XP and Windows 7 (32-bit and 64-bit), Window 10 operating systems. The software also provides peaks search function, which is powerful usage for optical analysis application. Scanner can work in single shut and continuous capture. Users can easy adjust the exposure time from 2ms to 65536ms. The software may be used to perform absorption, transmission and emission spectra measurements.

Key performance Features	Application
<ul style="list-style-type: none"> • Excellent data acquisition stability • High-sensitivity linear CCD sensor • Array with 2048 active pixels • (14 x 200 μm each) wide dynamic range • High Speed USB 2.0 (480 Mbit/s) • External trigger capability 	<ul style="list-style-type: none"> ❖ Science, research, education as well as OEM applications. ❖ Lasers, optics, photonics, spectroscopy ❖ Measurements: light, fluorescence. ❖ Beam profile, single shot auto correlates. ❖ Imaging (1-D or 2-D by parallel moving), data acquisition, machine, vision monitoring, process control, industrial OEM applications.

Specifications		
Optical parameters	Typical	Note
Wavelength spectrum range:	350 nm - 1100 nm without UV 200 nm - 1100 nm with UV	The UV option must be ordered explicitly.
Optical detector:	Silicon Linear CCD array	
Electrical Parameters	Typical	Note
Integration Time	5 ~ 65535 ms	

Signal-to-noise ratio:	300:1 (full signal)	The integration time is controllable in an extremely widely range
A/D resolution:	16 bits ADC	
Dark noise:	50 RMS counts	
Dynamic range:	2 x 10 ⁸ (system); 1300:1 for a single shot	
Sensitivity (V/(lx*s)) (typ.)	165	
Corrected Linearity	> 99.8%	
Trigger Signal	TTL 5V/3.3V	
Trigger Frequency, Scan Rate	Max 500 Hz, 500 Scans/s ^d	
Interfaces to PC USB	High Speed USB 2.0 (480 Mbit/s) Option : USB 2.0, Full Speed, 12 Mbps	option must be ordered explicitly
Mechanical Parameters	Typical	Note
Dimensions (L x W x H) :	100 x 78 x 26 mm	
Weight	150 g	Metal Aluminum
Operation temperature	-10 °C ~ +50 °C	
Storage temperature:	-10 °C ~ +70 °C	

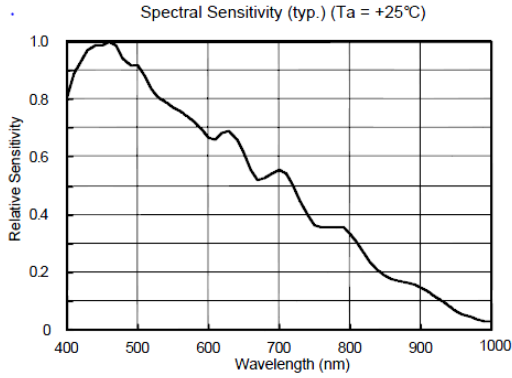
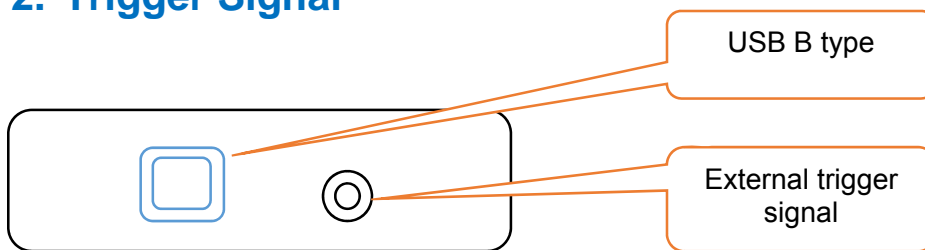


Figure 2 Linear CCD Detector Spectral

2. Trigger Signal



AEO Linear CCD Scanner Backside View

External trigger signal is used for synchronization of the frame capture with external event.

Timing Specification:	Typical	Time
Trigger Pulse Width	80	us
Trigger Delay	100	us

3. Software install Instruction

The LCS-2048 Linear CCD Scanner provides a free software to capture the scanning data in real time.

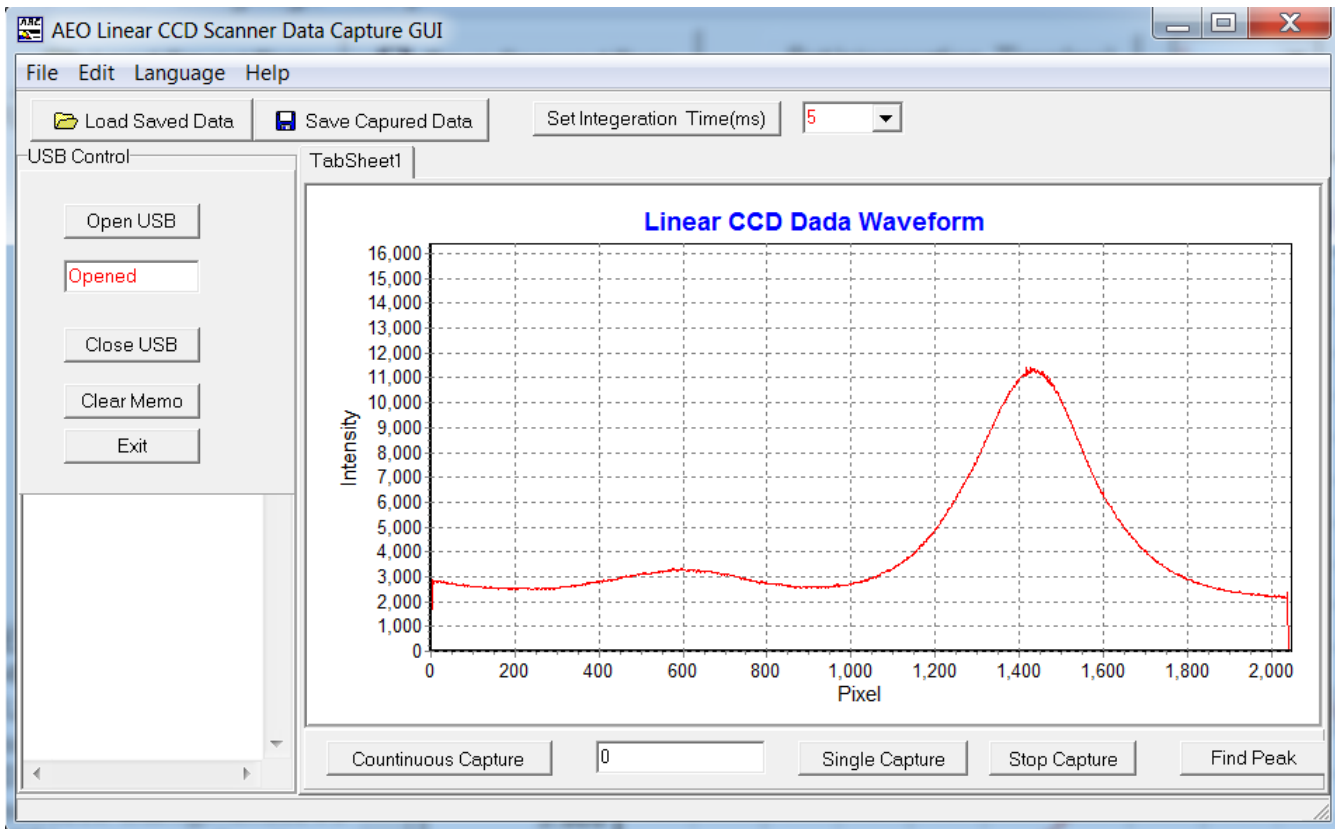


Figure 4 user interface software

3.1 Key Function:

- *Setting and adjust the scanner exposure time from 5ms~65535ms.*
- *Real time and dynamic capture the scanning data and simultaneously display the data waveform like an optical oscilloscope.*
- *Single and continuous capture the scanning data.*
- *Save and export data.*
- *Load the saved data to display the data waveform.*
- *Simultaneously transfer the data to PC computer via USB 2.0 high speed at 480 Mbits/S.*
- *Provides finding peaks function, which is much useful for various analysis application.*

3.2 Software installation

3.1.1 USB Driver installation

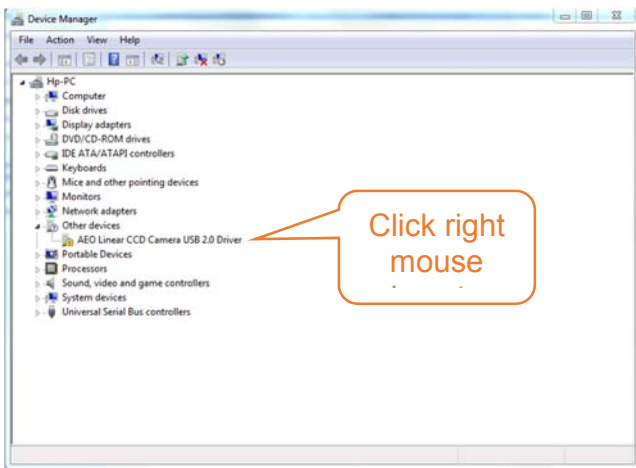
First users need install the USB driver,

3.2.2

USB Driver installation Steps.

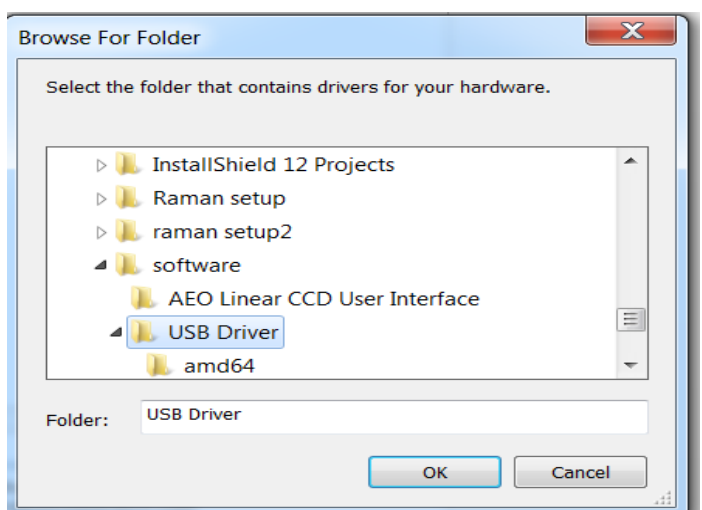
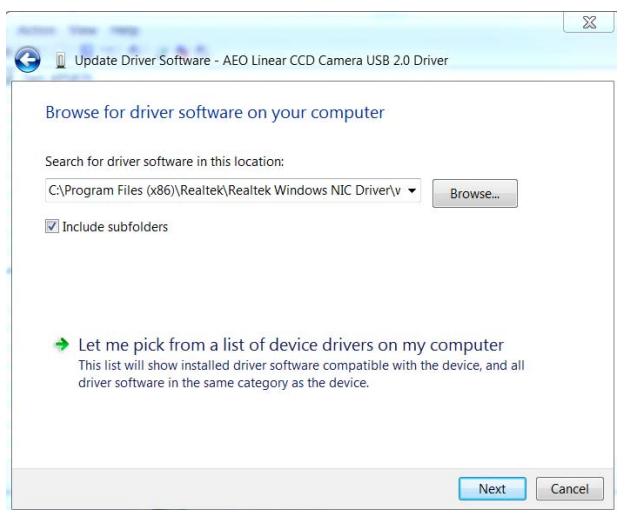
Download software and unzips file to your folder, for example: C:\AEOGUI

1. Plug the LCS-2048 Linear CCD Scanner device USB cable to PC.
2. On PC side, Click start-> control panel->hardware and Sound -> device manager, you will see as figure3



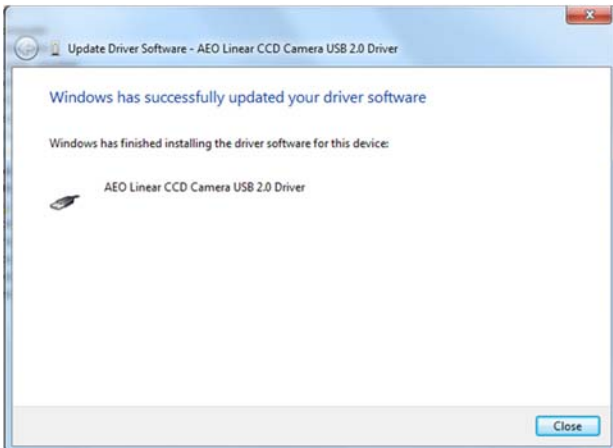
3. Click right mouse key, just select update driver.

Click *“Browse my computer for drive software”*

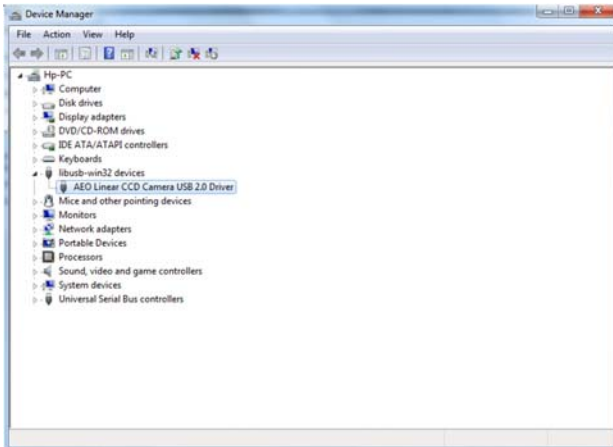


4. Go to your downloaded software installation folder, select "USB Driver" folder, and then click "OK";

You will see installation information as follows figure



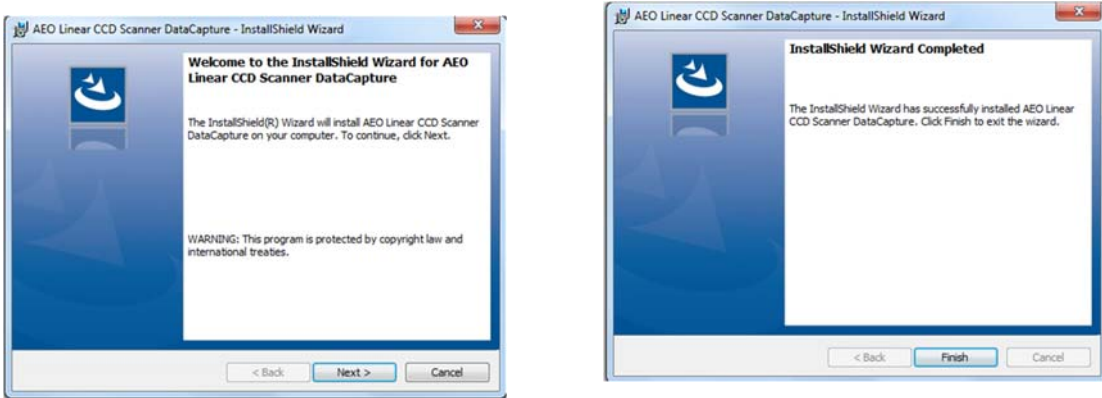
5. Go back to control panel -> device manger, you will see display as figures, which means USB driver has been setup successfully.



3.2.3 User Interface GUI installation

Open your download folder, which you save and unzips download files.

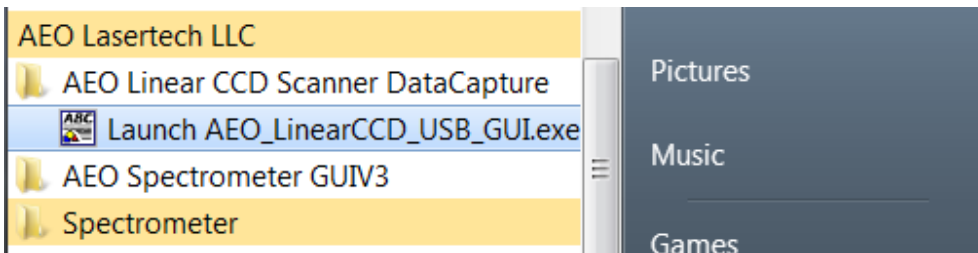
Open folder: "AEO Linear CCD User Interface "and Click "setup", and simply follow the setup instruction shown on your computer screen to Proceed. Just click: "Next", you will quickly finish it.



Software Operation

After finish proper installation of the device driver and the application, user can simply run the application (EXE file) from your installed directory.

Click “Start” go to “All Program”; Run exe file.



4. Scanner Care and ESD Precaution

1. When handling the scanner unit, avoid using hard material to scratch sensor screen.
2. Avoid extended exposure to directly to bright sunlight.
3. Avoid excessive shaking, dropping or mishandling of the device;

Warranty:

AEO Lasertech guarantees its products to be free of defects for one year from the date of shipment. During the warranty period, AEO Lasertech will, at its option, either repair or replace products which

prove to be defective. Opening, modification and or servicing of this unit is expressly prohibited and will result in void any warranty and support.