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Installation

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The download link for the USB driver is:

http://www.ftdichip.com/Drivers/CDM/CDM21228_Setup.zip

Download and install the USB driver.

The download link for the software is:

<https://www.tinyurl.com/chromatation>

Download this directory by right-clicking on the "Download button" on the upper right corner of the window and select "Direct download". Unzip the directory in the desired installation location. Run "setup.exe" to install the software.

The evaluation kit includes Chromatation's host-PC interface software, "Basic Interface."

Basic Interface with Wavelengths.exe

This software uses the LabVIEW 2012 32-bit runtime engine for Windows, which will be automatically installed by running "setup.exe".

Software

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Connect the evaluation module to your PC prior to running the interface program.

Run "Basic Interface with Wavelengths.exe". Hit START to begin data acquisition.

Counts are the raw 10-bit ADC conversions of the 128-pixel line scan sensor output. Each file is a single frame of data. This data is not dark-corrected or averaged.

Click VIEW WAVELENGTH to switch from pixel number to wavelength.

To save data press Ctrl+S. The data will be saved in an ASCII text file. Header lines begin with the "#" character. Data is two-columns, tab-separated. The first column is the pixel number (x-axis), the second column is the ADC counts (y-axis).

To stop data acquisition hit QUIT or press Ctrl+Q. Note this will not close the window but it will stop the program, to restart the program either click the white LabVIEW arrow near the menu bar or close the window and reopen the program.

Measurement Guide

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The Chromation Spec has a free space input with a narrow viewing angle centered 22 degrees from the plane of the photodetector array. The mounted dev kit interface board has three features designed to facilitate alignment:

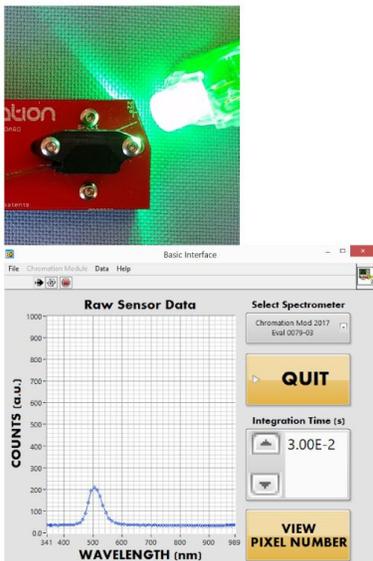
1. Alignment guide: The alignment guide is a line printed on the circuit board that is parallel to the input line of sight. The printed line is location is close to the input line of sight; the spectrometer is mounted with slotted holes which usually introduce a lateral shift.
2. Bias cut: The corner is cut to be normal to the input line of sight.
3. Spacer height: The height of the acrylic spacer under the circuit board was chosen to align the spectrometer input with the included LED finger lights.



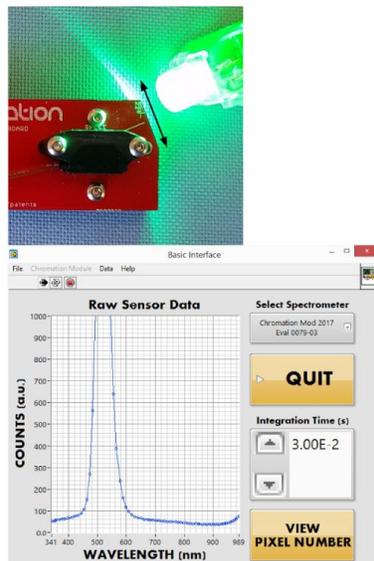
Example 1 - LED finger light measurement

This example shows how the alignment features can be used to optimize alignment for one of the included LED finger lights.

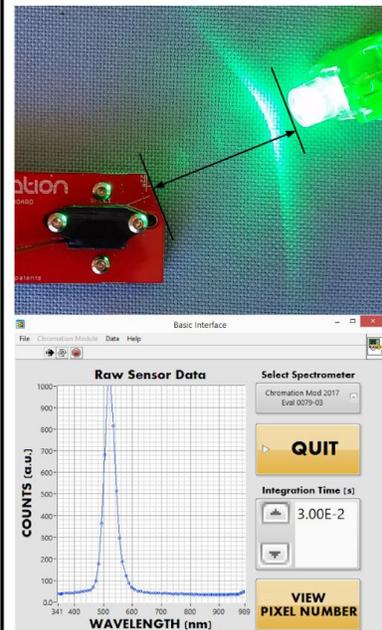
Step 1: Rough alignment of light source using bias cut and alignment guide (source is not aligned)



Step 2: Alignment corrected by translated along bias cut - significant increase in signal intensity observed



Step 3: Source moved further away along spectrometer line of sight to reduce intensity



Example 2 - Reflectance

This example shows reflectance measurements off of a card and another object. In this setup a stack of cards is placed under the mounted interface board to account for the height difference between the spectrometer and light source's emitter. The number of cards in the stack was determined by comparing the source to an LED finger light. The spectrometer and light source were arranged to make the measurement plane coincident with the edge of a table to facilitate measurement of three dimensional objects.

