Helion ISP Demo Quick Start

This document describes how to run the IONOS ISP demo on the Embedded Vision Development Kit.

Contents

Demo Requirements

Hardware Requirements:

- Embedded Vision Development Kit
- HDMI Cable
- HDMI Monitor (1080p60)
- Mini-USB Cable
- 12 V Power Supply

Software Requirements

- Diamond Programmer
- ICG_V0.52-InstallerXX.msi (32 or 64 bit version)
- EVDK Device Programming files
    - ECP5.bit
    - Crosslink.bit

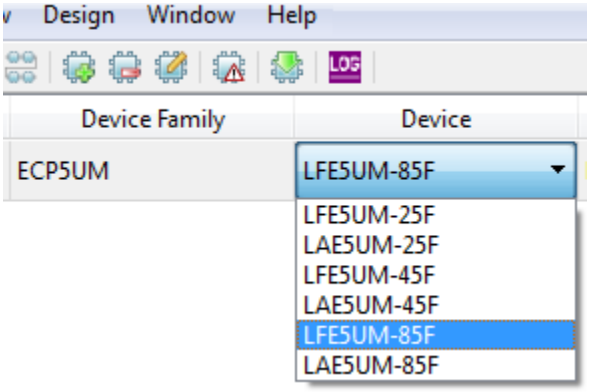
Initial Setup

1. Program ECP5

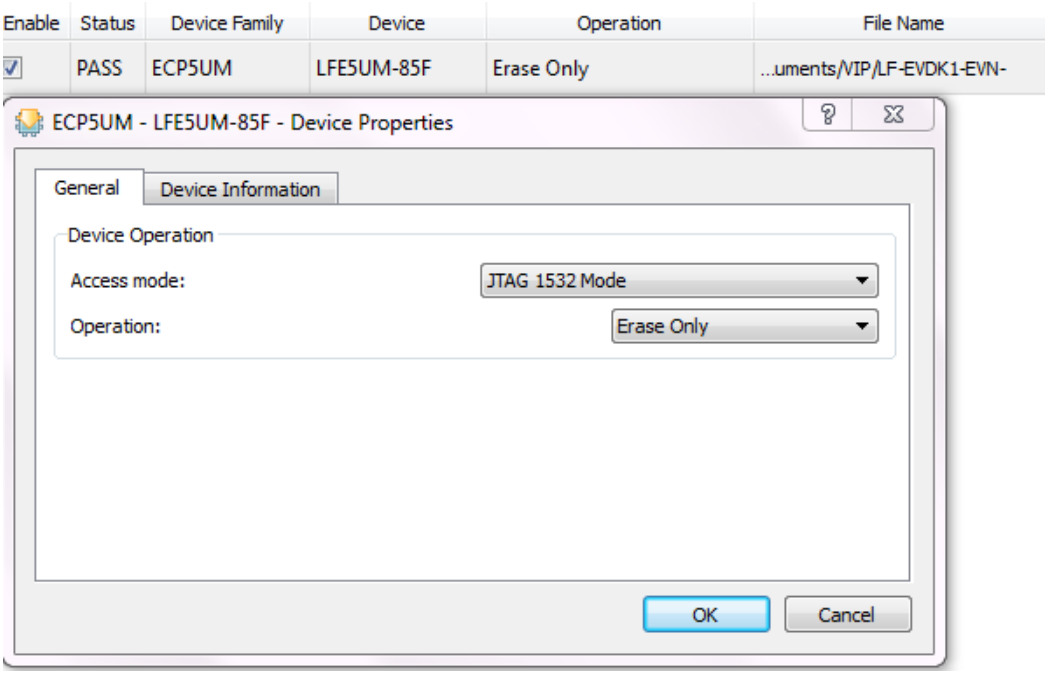
Erase the ECP5 prior to re-programming

If the ECP5 is already programmed (either directly, or loaded from SPI Flash), you'll need to follow this procedure to first erase the ECP5 SRAM memory, then program the ECP5's SPI Flash in the next section. If you are doing this, you need to keep the board powered when re-programming the SPI Flash in the next section.

1. Connect the 12V power supply to the barrel plug at J4.
2. Ensure SW2 on ECP5 board is ON to power the board. (LEDs should be ON)
3. Connect mini-USB cable from PC to mini-USB connector on ECP5 VIP Processor Board
4. Launch Diamond Programmer with "Create a new blank project"
5. Make the following selections in Diamond Programmer for Device Family and Device



6. For Operation, select Erase Only

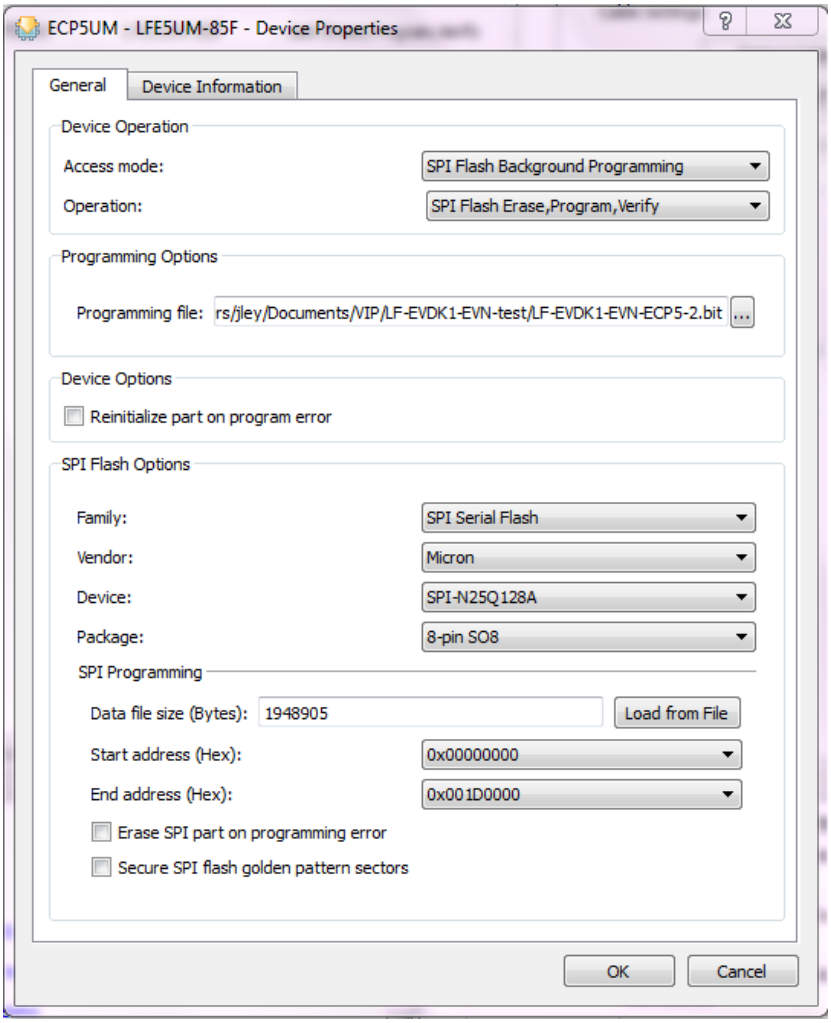


7. Click the Program button  in Diamond Programmer to start the Erase sequence.

(If you power off/on the board, the SPI Flash will program the ECP5 again, and you'll have to repeat steps 1 through 7)

Program the ECP5 VIP Processor Board

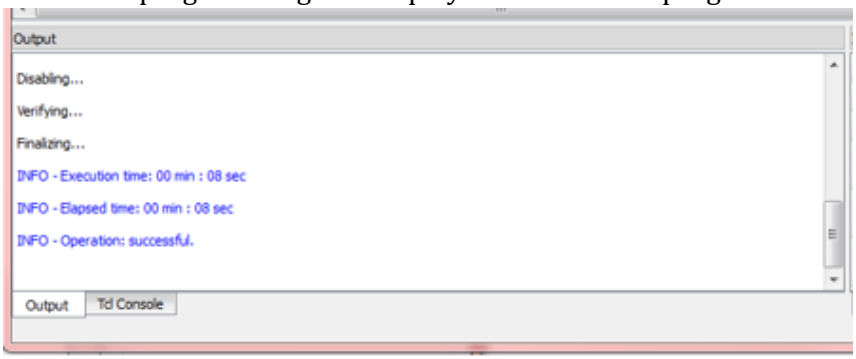
8. Double-click the selection in the Operation box and change "Access mode" to SPI Flash Background Programming to bring up the below dialog, make the selections as shown. Noted that in the "Programming File" section, select the file "ECP5.bit". Click OK.



Note: instead of entering the Data file size, just click “Load from File”.

9. Click the Program button  in Diamond Programmer to start the programming sequence.

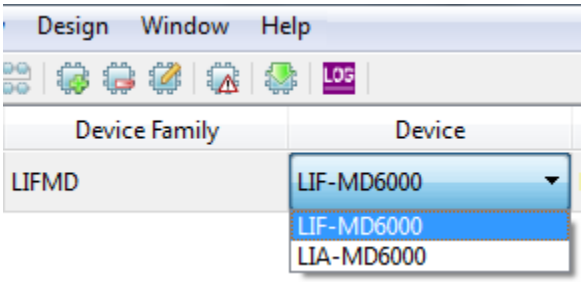
10. Successful programming will display as below in the programmer output console



Program Crosslink

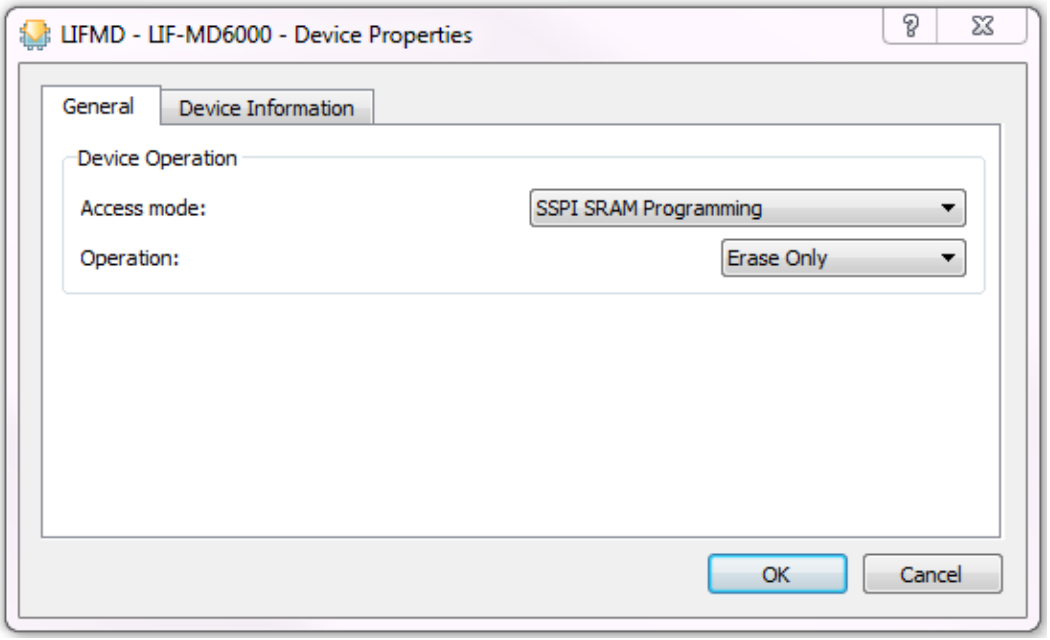
Erase the CrossLink prior to re-programming
If the CrossLink is already programmed (either directly, or loaded from SPI Flash), you'll need to follow this procedure to first erase the CrossLink SRAM memory before re-programming the CrossLink's SPI Flash. If you are doing this, you need to keep the board powered when re-programming the SPI Flash (so it doesn't re-load on re-boot).

11. Launch Diamond Programmer with "Create a new blank project"
12. Make the following selections in Diamond Programmer for Device Family and Device



13. Make the following selections in Diamond Programmer:

Status	Device Family	Device	Operation	File Name
PASS	LIFMD	LIF-MD6000	Erase Only	



Device Family	Device	Operation
LIFMD	LIF-MD6000	Erase Only

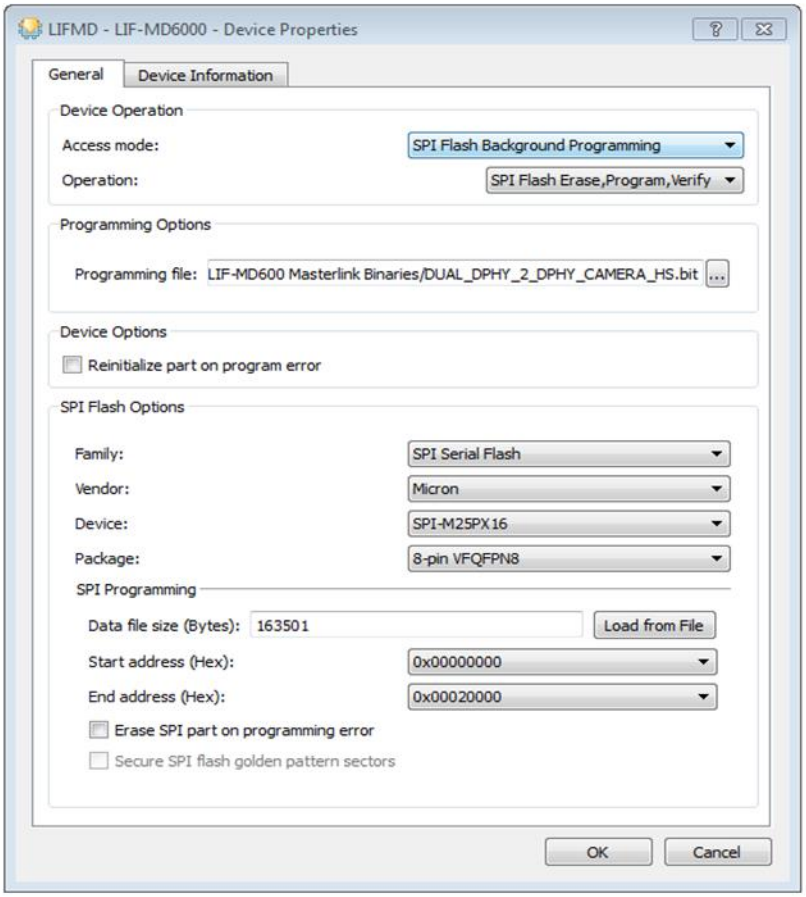
14. Click the Program button  in Diamond Programmer to start the Erase sequence.

(If you power off/on the board, the SPI Flash will program the ECP5 again, and you'll have to repeat steps 11 through 14).

Program the CrossLink VIP Input Bridge Board

15. Double-click the selection in the Operation box and change "Access mode" to SPI Flash Background Programming to bring up the below dialog,, make the selections as shown.

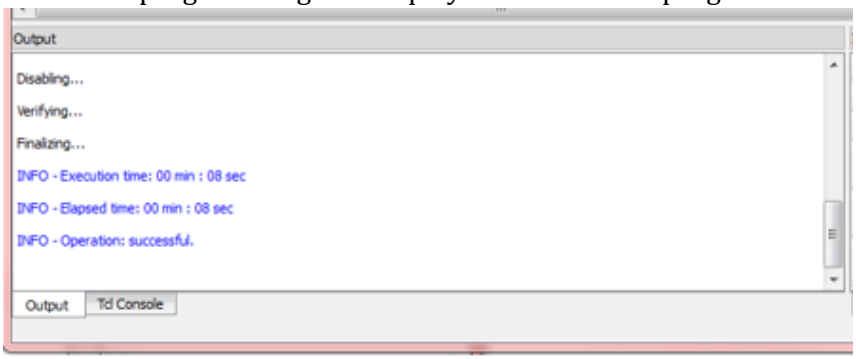
Noted that in the “Programming File” section, select the file ‘Crosslink.bit”, Click OK.



Note: instead of entering the Data file size, just click “Load from File”.

16. Click the Program button  in Diamond Programmer to start the programming sequence.

17. Successful programming will display as below in the programmer output console



2. Install Helion IONOS Configuration GUI

A user account must be created on the Helion web site at http://www.helion-vision.com/ and Helion will grant individual access

The IONOS GUI (IGUI) can be downloaded from the the Helion website at http://www.helion-vision.com/ionos-gui

The following installation files are available for the IGUI

ICG_v0.38.2_Installer32.msi – 32 bit version

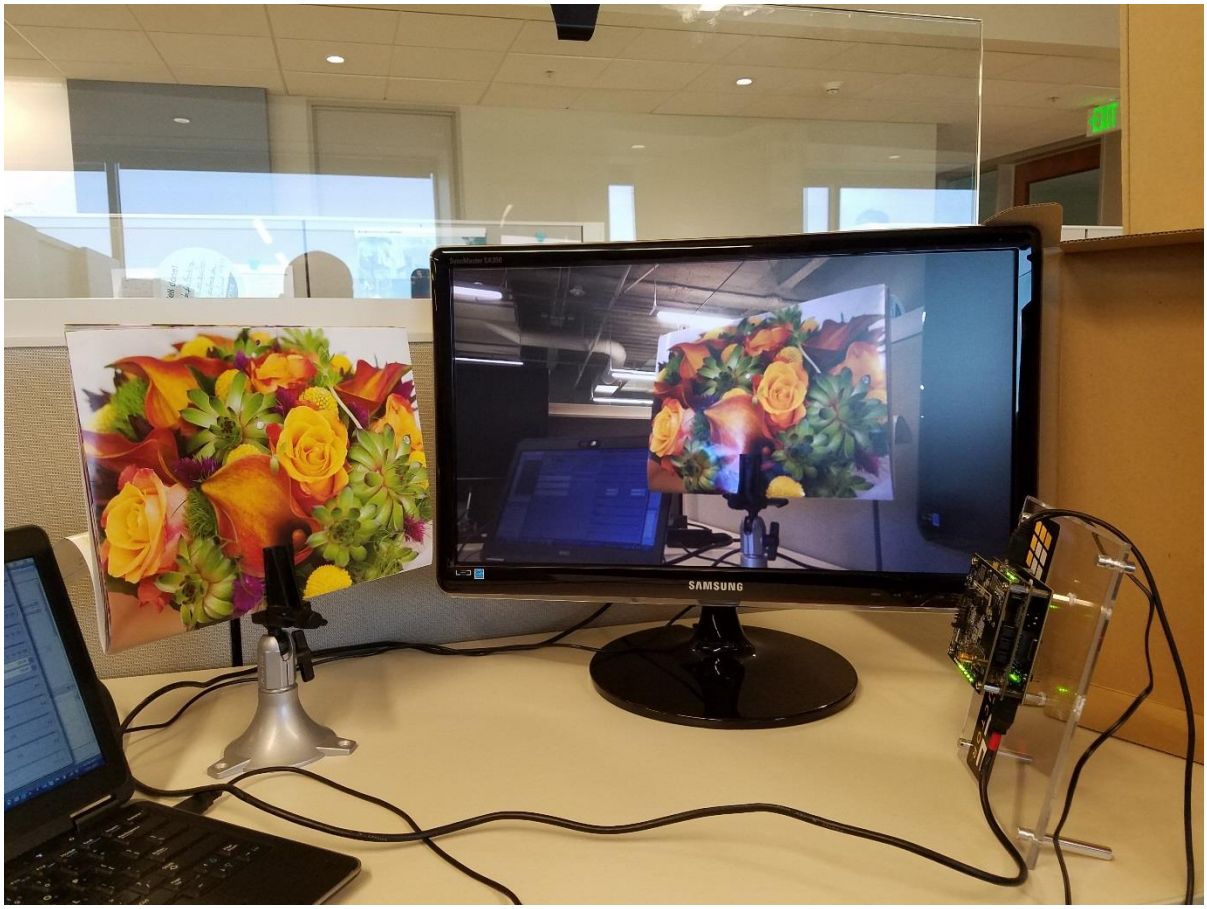
ICG_v0.38.2_Installer64.msi – 64-bit version

To install the appropriate IGU, run Window Installer ICG_V0.52-InstallerXX.msi (32 or 64-bit version depending on your Operating System to install the configuration IGUI.

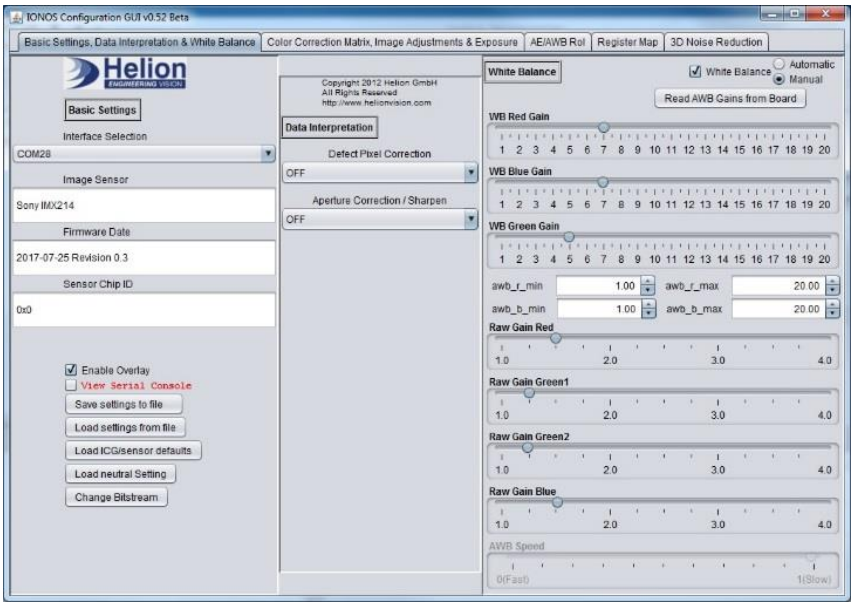
The IGUI provides direct access to the IONOS ISP allowing to change any parameter.

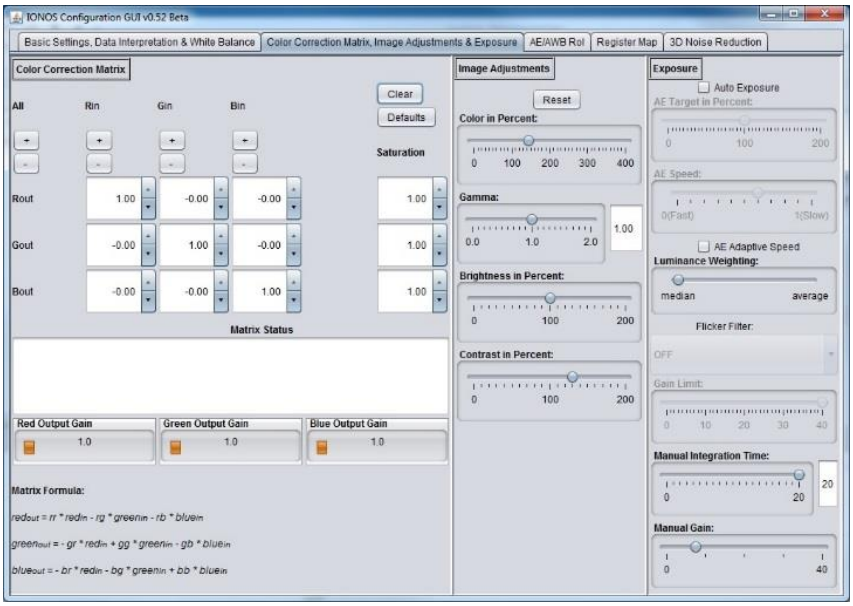
Run Demo

1. Cycle power on EVDK to allow ECP5 and Crosslink to be reconfigured from flash.
2. Connect EVDK to HDMI monitor. Camera image should be displayed on monitor.
3. Connect Mini-USB cable from EVDK to PC
4. Start IONOS Configuration GUI (All Programs->IONOS Configuration GUI->ICG V0.52)
5. In ICG interface selector window, select Auto-Detect
6. GUI should come up and you can make changes to the ISP settings. Refer to ICG_manual_v02s09 for setting description (All Programs->IONOS Configuration GUI-> ICG_manual_v02s09)



The IONOS Configuration GUI (IGUI) provides direct real-time access to many configuration parameters.




IONOS Configuration GUI v0.52 Beta
Basic Settings, Data Interpretation & White Balance
Color Correction Matrix, Image Adjustments & Exposure
AE/AWB RoI
Register Map
3D Noise Reduction
Color Correction Matrix
All
Rin
Gin
Bin
Clear
Defaults
Saturation
Rout
Gout
Bout
Matrix Status
Red Output Gain
Green Output Gain
Blue Output Gain
Matrix Formula:
Image Adjustments
Reset
Color in Percent:
Gamma:
Brightness in Percent:
Contrast in Percent:
Exposure
Auto Exposure
AE Target in Percent:
AE Speed:
AE Adaptive Speed
Luminance Weighting:
median
average
Flicker Filter:
OFF
Gain Limit:
Manual Integration Time:
Manual Gain: