

FWS Poly

Operation Manual

Ver 2.4 [2022. May]



Flexible Wavelength Selector Poly Quick Setup Guide

DO NOT TURN ON THE DEVICE UNTIL YOU READ AND UNDERSTAND THIS QUICK SETUP GUIDE.
TURNING ON THE DEVICE WITHOUT RELEASING THE MOTOR ROTATION BRAKE
WILL LEAD TO CRITICAL DAMAGE.

1. Please go to our website **www.spectrolightinc.com** to download the installer file.
2. Install the FWSPoly software on a PC/Tablet running Microsoft Windows (7 or later).
3. Copy the calibration file provided by the distributor/manufacturer to the installed directory.
4. WARNING: Before anything else, it is necessary to release / unscrew the motor rotation brake. DO NOT TURN ON the device before releasing the motor rotation brake. For instructions on releasing the motor rotation brakes please proceed to the next step.
5. The figure below shows the location of the screws. First, unscrew and remove the cover screws shown below.



6. Insert the hex allen key(T-Wrench) into the hole until the end is reached.
You will feel that the hex allen key is inserted into the head of a screw. Afterwards, turn the screw counter-clockwise (to the left) a few times using the provided wrench as shown in the figure below. Repeat step 6 for the other screw hole.



7. Plug the USB cable into FWSPoly then connect the other end to the Computer/Tablet.
8. Plug the power supply cable into the power connector of FWS Poly, located just above the USB connector. Connect the power supply to a properly grounded outlet.
9. Find the power switch just above the power plug connector. **TURN ON** the device. You will see the power light blink a few times and the device will be turned ON. The power light will remain illuminated until the power is turned OFF.
10. When shipping or transporting the device it is a **MUST** to lock the device by applying the motor rotation breaks. There is a high chance that the interior components will be critically **DAMAGED** during shipping if the motor rotation brakes are NOT applied. Go over steps 5 and 6 but this time turn clockwise to apply the motor rotation brakes.



11. To start operating the device, locate the software icon on your Desktop, then execute the installed software. The device is now ready to use.



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DISCLAIMER

The Flexible Wavelength Selector Auto is designed for selecting center wavelength and bandwidth of input light.

This device is designed for use in laboratory environment. This is not a medical device so it should not be used or applied to humans in any way.

WARNINGS AND PRECAUTIONS

- Operate the device using 100-240 V AC, 50/60 Hz, 1.5 A / Output 12 V DC, 5.0 A.
- Always use grounded power supply cord set provided to connect the system to a grounded outlet.
- Do not expose the device to rain or moisture.
- Never look into the optical pathway of the light sources used.
- Do not connect or disconnect the cables while the power of the device is turned ON.
- Always allow free flow of fresh air on all sides.

- Operating / Storage conditions

Indoor Use Only

Temperature: 10 - 40 °C, 50 - 104 °F Humidity: 20 - 85 %

Pressure: 700 - 1060 hPa

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1. Introduction

Flexible Wavelength Selector Auto Poly is a unique opto-mechanical tunable filter that combines the wavelength tuning and bandwidth adjustment of a grating monochromator with the imaging advantages of a large aperture filter. With both high (10^{-6}) out of band extinction and excellent (>75%) transmission, the Flexible Wavelength Selector is a simple, turnkey solution for any imaging applications that require wavelength control, throughout the extended visible spectrum. Plus the in-line configuration, together with no wavelength associated displacement (neither deflection nor walk-off), means the FWS is simple to integrate with cameras, microscopes and other instruments.

Each FWS-Poly model can cover a different spectral range. The bandwidth of FWS-Poly can be adjusted from 3 to 15 nm. The exact adjustable bandwidth is different from each FWS-Poly model. Please refer to the table below for more details on tuning range.

Spectral Range	Item Number
255 ~ 400 nm	FWS-Poly-UV
350 ~ 890 nm	FWS-Poly-VIS
615 ~ 1015 nm	FWS-Poly-NIR
1005 ~ 1650 nm	FWS-Poly-SWIR
615 ~ 1650 nm	FWS-Poly-IR Plus
Custom range	FWS-Poly-Custom

Spectral Range (nm)	Minimum Bandwidth (nm)	Maximum Bandwidth (nm)
255 ~ 890	3	15
880 ~ 1500	5	15
1475 ~ 1650	7	13

*Note : For the optimal performance of Wavelength Selectors, the incident light should be collimated.

*Center Wavelength can vary few nm depending on the product.

UV and VIS item minimum step size of center wavelength: 0.5 nm

IR item minimum step size of center wavelength: 1.0 nm

Step size of bandwidth (FWHM): 1 nm

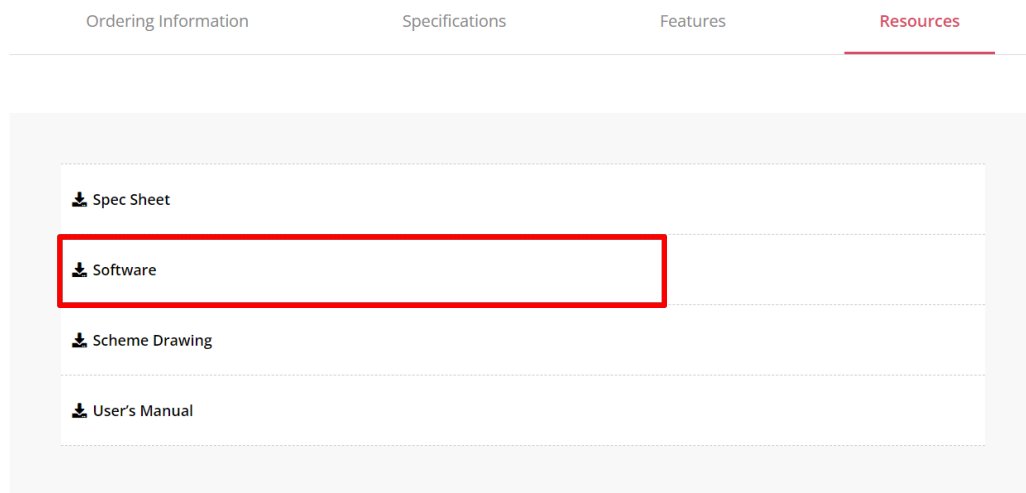
2. Installation

Please follow the quick guide at the beginning of this manual before installing the software.

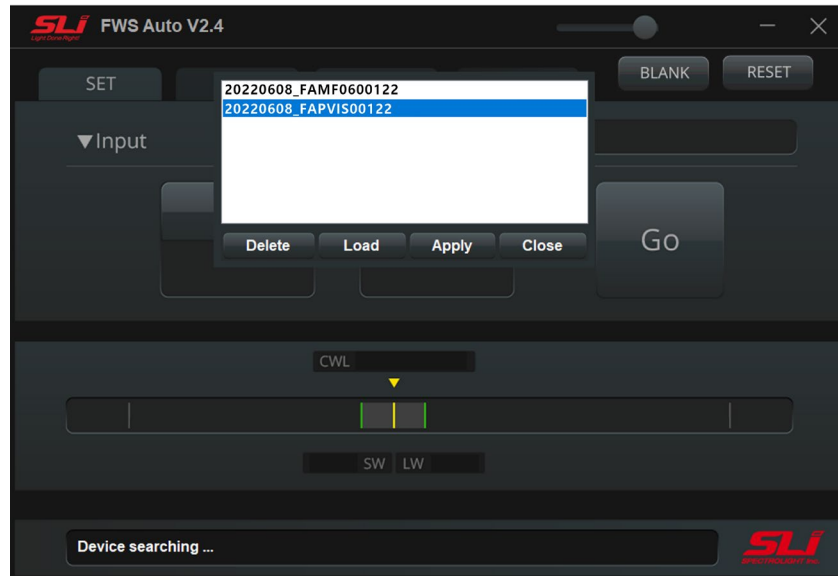
- Minimum PC Requirements.
 - Any PC or Window Based Tablet (Window 7 or higher)
If Windows is properly working, this software will also work properly.
- Software
 - In order to control FWS Auto Poly, you have to download and install the control software. Please do not connect the device before installing the software.

Installation Steps

- How to download and install the software
 - a. Go to **<https://www.spectrolightinc.com/shop/product/57>**



- b. Download the software file.
 - c. Unzip the zip file.
 - d. Double-click Setup.exe
 - e. Follow the guidelines
 - How to copy the calibration file
The calibration file will be provided to you. You can also contact us by email at **support@spectrolightinc.com**. This file should be copied to your installation directory. Please select this file and click on Apply when Poly software is opened.



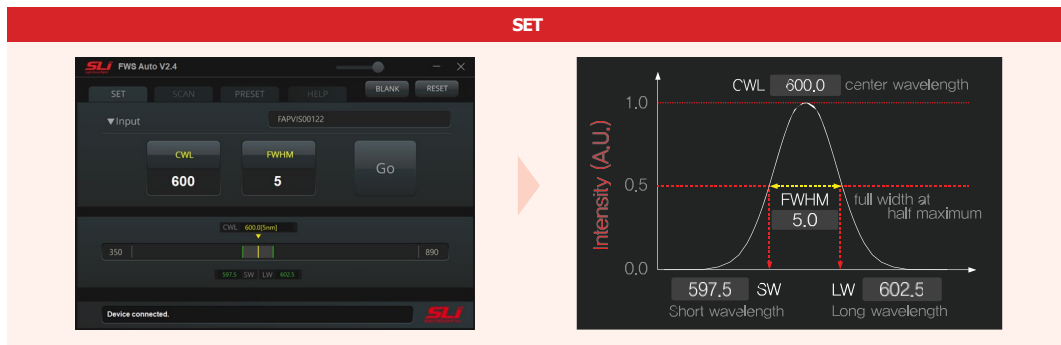
- Hardware
 - Beam path direction – the direction of the input beam should follow this arrowhead. The Iris at the output can be used to control the size of the output.
 - It is possible to couple FWS Poly with different types of broadband sources such as supercontinuum lasers, laser driven light sources and fiber output broadband lamp sources. We provide connecting adapters for each type. Please go to Chapter 4 Applications for more details. You can also refer to our website and youtube channel for details about these adapters. You can contact our support team at support@spectrolightinc.com



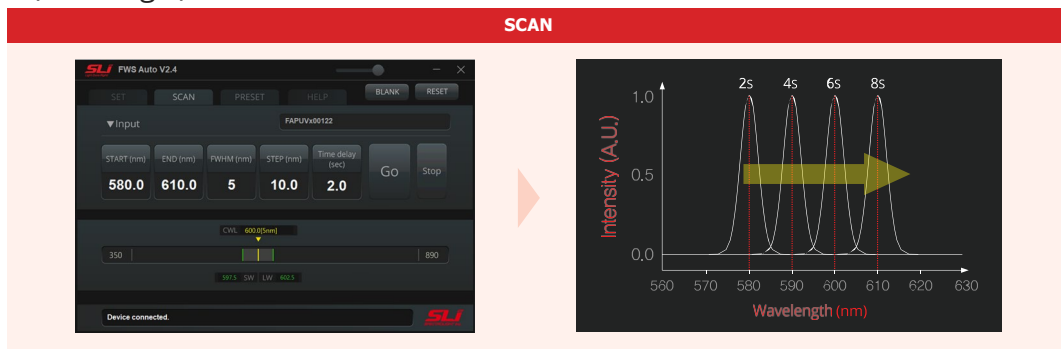
3. Operation

- Software

- ▶ Setting the center wavelength and bandwidth - In the set tab of the software, you can enter the CWL (center wavelength) and FWHM (full-width at half maximum)



- ▶ Scanning across a certain wavelength range. In the scan tab of the software you can enter the following:
 - a. START: wavelength to start scanning.
 - b. END: wavelength to end scanning.
 - c. FWHM: the bandwidth during the scanning.
 - d. STEP: this is the step size of the scan in nm.
 - e. Time Delay: this is the time the device remains in one step during the scanning (wavelength).



- ▶ Setting or editing the preset wavelength and bandwidth. In the PRESET tab, you can type in your frequently used wavelength and bandwidth for easy access.
- ▶ When to use "BLANK" - BLANK is a state wherein no filters are positioned in the pathway of the input light source. In this way, it is possible to check the alignment of the input light source.

4. Application

- How to connect with Mighty Light

We recommend using Mighty Light with the collimator to bolt on to the input port of the device. Please check our video named "How to assemble Mighty Light with collimator to FWS Auto and light guide" in Youtube channel for more details.

- How to connect with a fiber of a light source

Fiber output must be collimated in order to achieve the best performance of our device. We recommend using our adapters (WS-SMA1) with Fixed Focus Collimation Packages from Thorlabs or Edmund Optics. In this way, the maximum performance of the device can be achieved in terms of precision and accuracy.

- How to connect with a supercontinuum light source

Depending on the supercontinuum light source, we can provide different adapters to fit into our device. Please contact our support team for more details.

support@spectrolightinc.com

- How to connect with a microscope for spectral imaging

We can provide compatible adapters for different brands of microscopes. Please contact our support team for more details. support@spectrolightinc.com.



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