Flexible Wavelength Selector

POLY

Operation Manual

Ver 24-01

SPECTROLIGHT Inc.

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1. Introduction

The Flexible Wavelength Selector Poly (Poly-RED, Poly-BLUE) is a tunable bandpass filter which utilizes TwinFilm™ technology to provide a simple software control (scanning or setting) of the center wavelength and the bandwidth via a USB communication. With both high (10^{-6}) out of band rejection and excellent (>75%) transmission, the Flexible Wavelength Selector (FWS) is a simple, turnkey solution for various applications that require specific wavelength excitation and detection throughout the extended wideband spectrum (255 – 1700 nm). Poly is simple to integrate with broadband light sources, cameras, and other instruments, resulting in Tunable light source and Hyperspectral imaging application.

Poly is divided into the Poly-RED and the Poly-BLUE product lines, depending on the bandwidth control function. The Poly-RED model can control center wavelength and bandwidth (FWHM) simultaneously. For the Poly-BLUE model, only the center wavelength can be controlled with the fixed bandwidth of 20 nm (nominal).

Also, Poly has different product lineups depending on input beam size. The Poly-A5 models have beam aperture of 5 mm and is mainly used in case of broadband light source with small beam size such as supercontinuum lasers. For large beam sizes such as LEDs and lamps the Poly-A10 model with an aperture size of 10 mm is recommended.

Poly-RED	Common Specifications	Poly-BLUE
High precision Accurate bandwidth control ***Adjustable FWHM*** ***2 - 15 nm (nominal)*** 	1. Broadband spectral range ***255 - 1700 nm*** 2. High damage threshold ***< 2 MW/cm² (CW)*** 3. High throughput ***> 75 %*** 4. Diverse aperture size ***5 / 10 mm*** 5. Great out of band blocking ***OD 12 at tuning range*** ***OD 6 out of tuning range***	Appropriate precision Improved output power ***Fixed FWHM*** ***20 nm (nominal)*** 

1.1 Poly-RED

Each Poly-RED model can cover a different spectral range. The bandwidth of Poly-RED can be adjusted from 2 to 15 nm (nominal). The exact adjustable bandwidth is different for each model. Please refer to the table below for more details on the tuning range. For the Custom model, you can configure the product by selecting the type of filter you want according to the user's purpose from the wavelength selection table below.

Model name	Spectral range (nm)
Poly-RED-UV	280 - 390
Poly-RED-VIS	430 - 790
Poly-RED-IR	775 - 1150
Poly-RED-SWIR	1140 - 1700
Poly-RED-Custom	Custom range

Bandwidth selection range according to spectral range

Spectral range (nm)	Minimum bandwidth (nm)	Maximum bandwidth (nm)
255 - 700	2	15
701 - 890	3	15
891 - 1500	5	15
1475 - 1700	7	13

* Center Wavelength tuning range can vary by a few nanometers depending on the product.
Minimum step size of center wavelength : 1 nm
Step size of bandwidth (FWHM) : 1 nm
Aperture size : 5 mm (model : Poly-A5) / 10 mm (model : Poly-A10)

	FWHM	2 - 15									3 - 15		5 - 15				7 - 13
	CWL	255 - 290	280 - 310	310 - 350	348 - 390	385 - 435	430 - 490	485 - 550	545 - 620	615 - 700	690 - 790	775 - 890	880 - 1015	1000 - 1150	1140 - 1310	1300 - 1500	1475 - 1700
Poly-RED-UV			●	●	●												
Poly-RED-VIS							●	●	●	●	●						
Poly-RED-IR												●	●	●			
Poly-RED-SWIR															●	●	●
Poly-RED-Custom		*Up to 9 in one device*															

1.2 Poly-BLUE

Each Poly-BLUE model can also cover a different spectral range with bandwidth fixed at 20 nm (nominal). Please refer to the table below for more details on the tuning range. For the Custom model, you can configure the product by selecting the type of filter you want according to the user's purpose from the wavelength selection table below.

Model name	Spectral range (nm)
Poly-BLUE-UV	280 - 390
Poly-BLUE-VIS	430 - 790
Poly-BLUE-IR	775 - 1150
Poly-BLUE-SWIR	1140 - 1700
Poly-BLUE-Custom	Custom range

* Center Wavelength tuning range can vary by a few nanometers depending on the product.
Minimum step size of center wavelength: 1 nm
Bandwidth (FWHM) Fixed: 20 nm (nominal)
Aperture size: 5 mm (model : Poly-A5) / 10 mm (model : Poly-A10)

	FWHM	20 (nominal)														
	CWL	255 - 290	280 - 310	310 - 350	348 - 390	385 - 435	430 - 490	485 - 550	545 - 620	615 - 700	690 - 790	775 - 890	880 - 1015	1000 - 1150	1140 - 1310	1300 - 1500	1475 - 1700
Poly-BLUE-UV			●	●	●												
Poly-BLUE-VIS							●	●	●	●	●						
Poly-BLUE-IR												●	●	●			
Poly-BLUE-SWIR															●	●	●
Poly-BLUE-Custom		*Up to 9 in one device*															

** **WARNING** : When relocating the Poly, ensure that the locking switch is in the '**LOCK**' position for safety reasons. Change the locking switch to the '**UNLOCK**' position when the device is in an idle state and is ready for use.*

2.1 Main components:

A. Poly

B. Power adapter

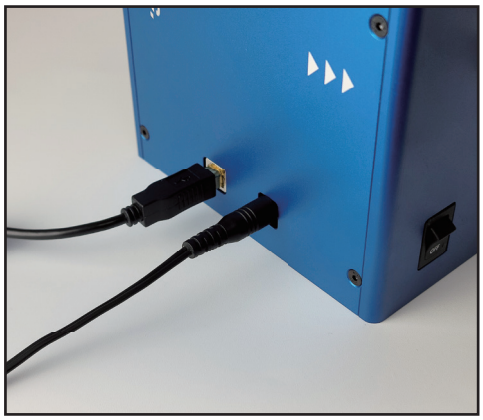
C. USB cable (A-B)

A. Poly : Main device (Software controlled tunable bandpass filter)

B. Power adapter : Power supply cable and power adapter for the Poly
(Power plug types are provided in accordance with the country specified in the order)

C. USB cable (A-B) : A to B type USB cable for connecting the Poly to operating PC

2.2 Product overview



A. USB port : Port for connecting the USB cable from the device to the operating PC/Tablet

B. Power port : Port for connecting power supply cable

C. Power switch : Power switch for turning the device ON and OFF

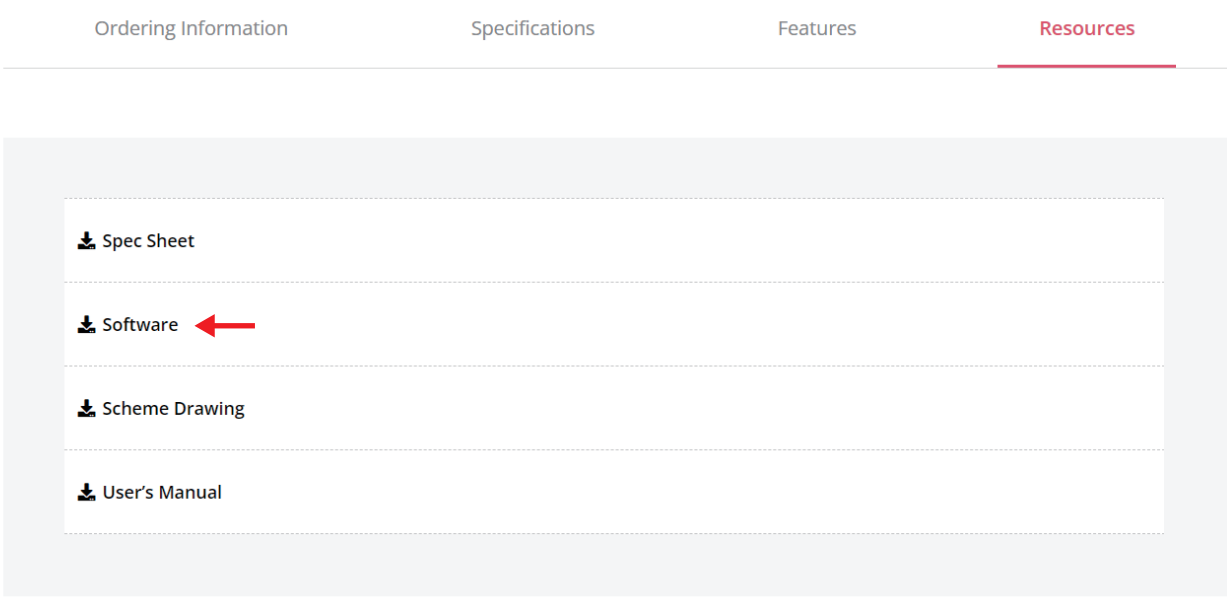
D. Locking switch : Locking switch to LOCK and UNLOCK the device

DO NOT TURN ON THE DEVICE UNTIL YOU READ AND UNDERSTAND THIS INSTALLATION GUIDE. TURNING ON THE DEVICE WITHOUT SETTING THE LOCKING SWITCH TO THE '**UNLOCK**' POSITION WILL LEAD TO CRITICAL DAMAGE.

2.3 Software installation

Minimum PC Requirements : Any PC or Windows Based Tablet (Windows 7 or higher).
If Windows is working properly, this software will also work properly.
– Please do not connect the device before installing the software.

1. Please go to our website **www.spectrolightinc.com** to download the installer file.
   Software location -
   Products » Tunable bandpass filters » Poly » Resources » Software



a. Download the software file from the website.
b. Unzip the zip file.

Inside the zip file there should be 4 folders -

1. User_software
2. SDK
3. C#_example
4. Labview_example

The software installer file is located in the *1. User_software* folder.

a. Double click Setup.exe
b. Follow the guidelines

2. Install the Poly software on a PC/Tablet running Microsoft Windows (7 or later).

3. Copy the **calibration file** (***.ism2*** extension file) provided by the distributor/manufacturer to the default location

→ **C:\SLI2\POLY2**

If the calibration file is not provided to you, please 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** after you run the Poly software.

2.4 Product installation

1. **WARNING** : **When relocating the Poly, ensure that the locking switch is in the 'LOCK' position for safety reasons. Change the locking switch to the 'UNLOCK' position when the device is in an idle state and is ready for use.**

2. Figure below shows the '**LOCK**' and Figure 2 below shows '**UNLOCK**' positions, respectively.

LOCK

UNLOCK

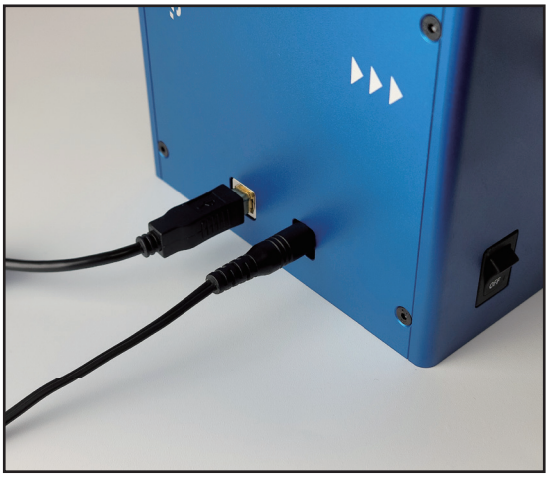
3. When the user first receives the product, the locking switch should be in the '**LOCK**' position. For operation of the device locking switch must be changed to the '**UNLOCK**' position.

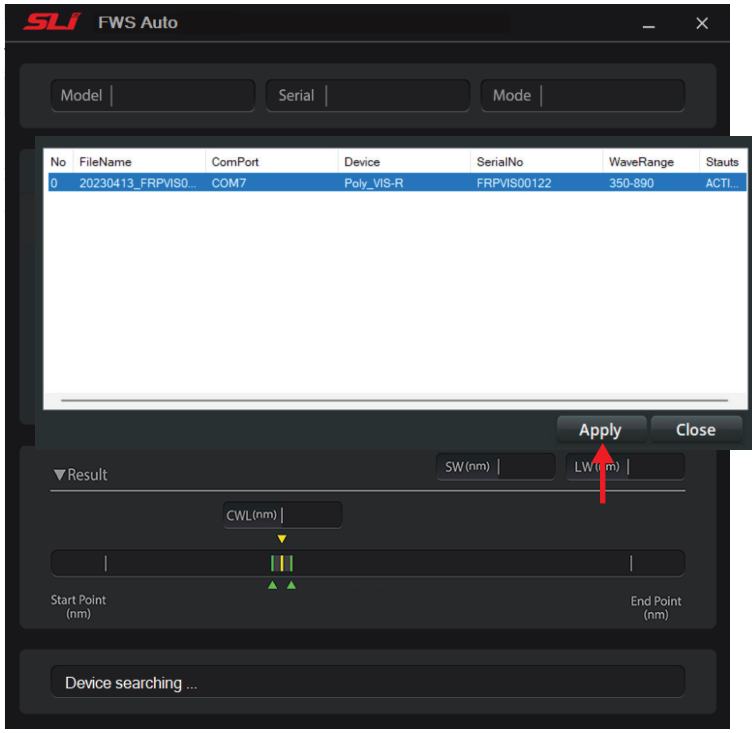
4. Plug the USB cable (A-B) into Poly, then connect the other end to the operating Computer/Tablet.

5. Plug the power supply cable into the power port of Poly, located just beside the USB port.
Connect the power supply to a properly grounded outlet.

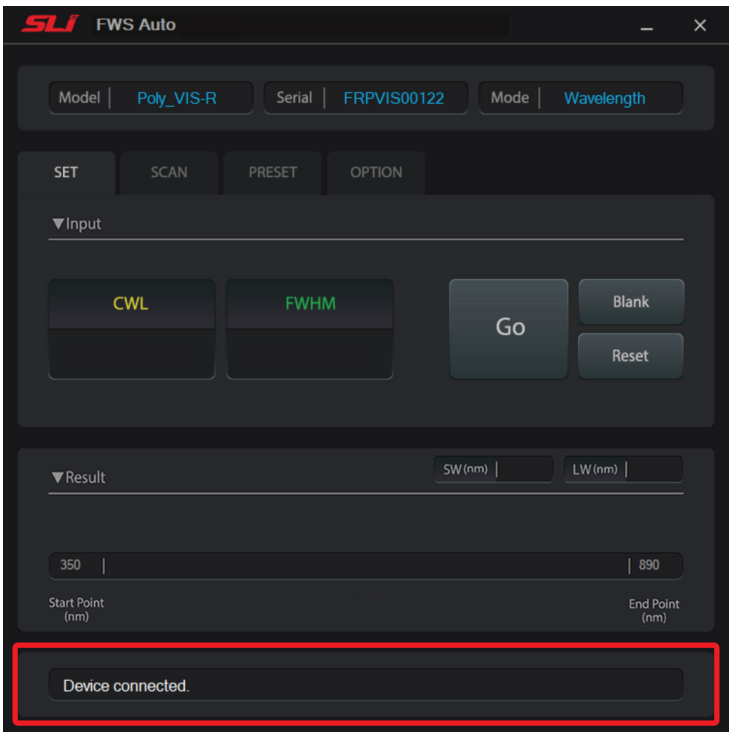
6. Find the power switch just beside the power port. Turn **ON** the device.

7. To start operating the device, locate the software icon on your Desktop, then execute the installed software.
The software will ask for a calibration file appropriate for your device.
Select the calibration file that matches the device serial number and click the '**Apply**' button.
(calibration file must be in the same folder as the software file)





8. If there are no problems with the instrument and calibration file, the software and device should connect promptly. If the connection is successful, the software interface should display the message 'Device connected' at the bottom of the screen. The device is now ready to use.

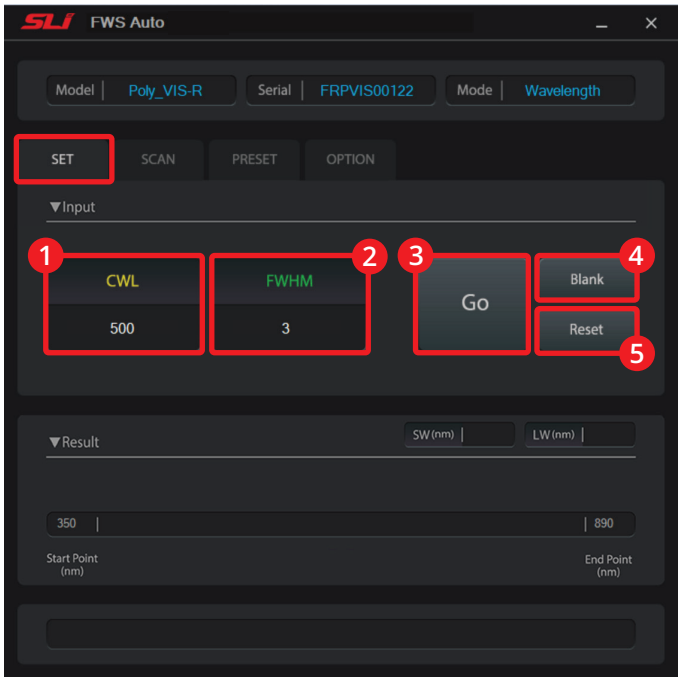


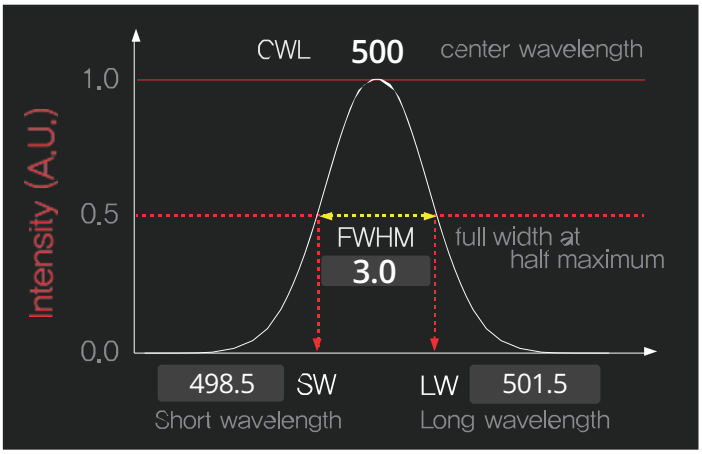
9. Properly align the light source with the specified input port to direct the emitted light towards the designated output port. Ensure that the orientation of the input beam follows the indicated arrow direction.
***For optimal performance of the product, it is recommended that the incident light be collimated.**

It is possible to couple 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. 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**

3.1 Setting the center wavelength and bandwidth

1. **CWL (nm)** : enter the desired CWL (center wavelength)
2. **FWHM (nm)** : enter the desired FWHM (full-width at half maximum)
3. **Go** : click to start wavelength tuning
4. **Blank** : click to set blank mode
5. **Reset** : click to reset filter



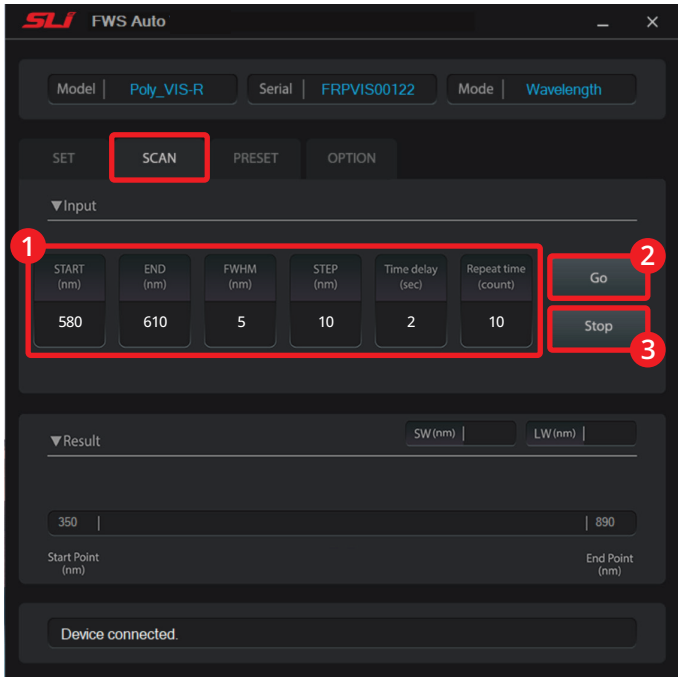


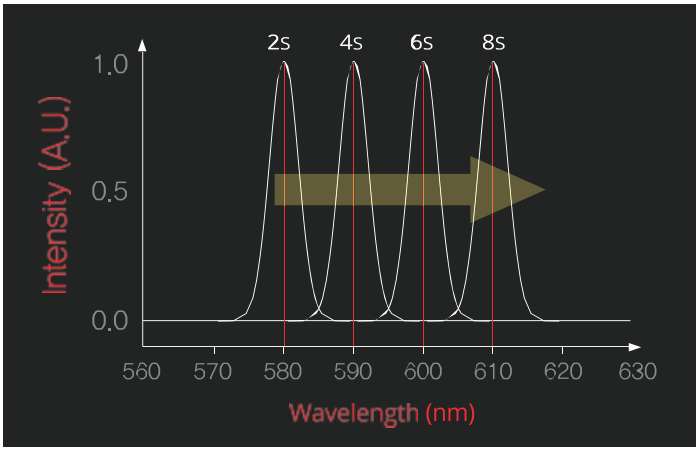
3.2 Scanning across a certain wavelength range

1. Enter the following values
- **START (nm)** : wavelength to start scanning
- **END (nm)** : wavelength to end scanning
- **FWHM (nm)** : bandwidth during the scanning
- **STEP (nm)** : step size of the scan in nm
- **Time delay (sec)** : set the time delay between each individual wavelength steps
- **Repeat time (count)** : number of full scans

2. Go : click to start scanning

3. Stop : click to stop scanning

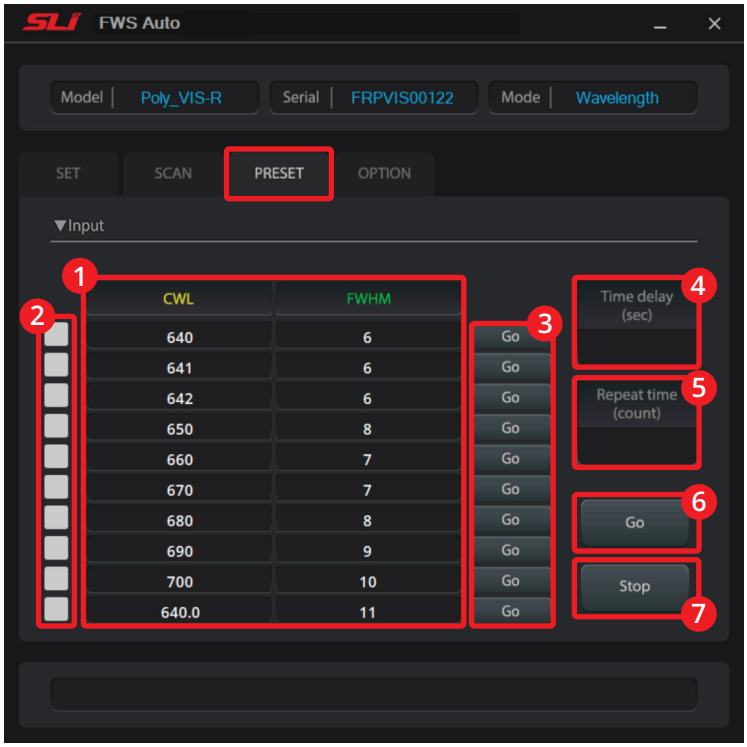




3.3 Setting or editing the preset wavelength and bandwidth

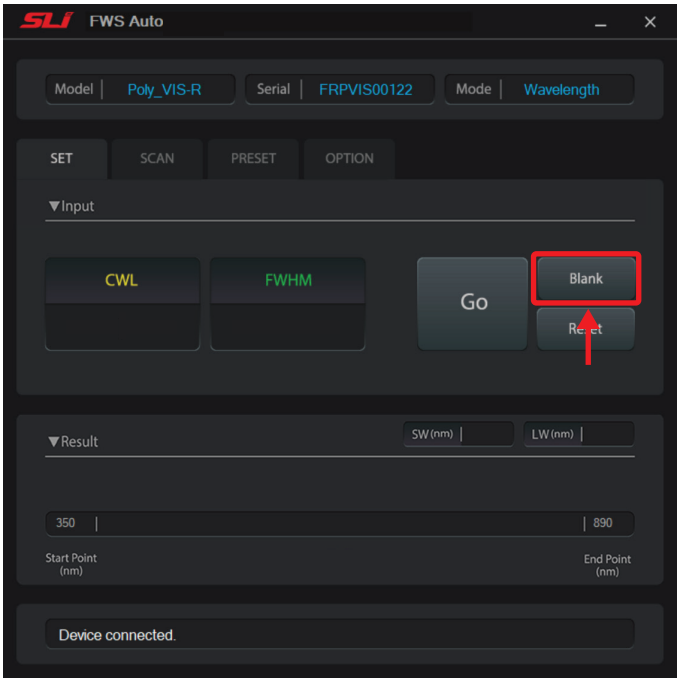
- In the PRESET tab, you can set your frequently used wavelength and bandwidth for easy access.

1. **CWL, FWHM (nm)** : enter the desired CWL and FWHM value
2. **Preset Selection** : select the presets that is to be scanned
3. **Go (individual)** : click to scan individual presets
4. **Time delay (sec)** : set the time delay between each individual presets
5. **Repeat time (count)** : number of full scans
6. **Go** : click to scan all selected presets
7. **Stop** : click to stop scanning



3.4 When to use blank mode

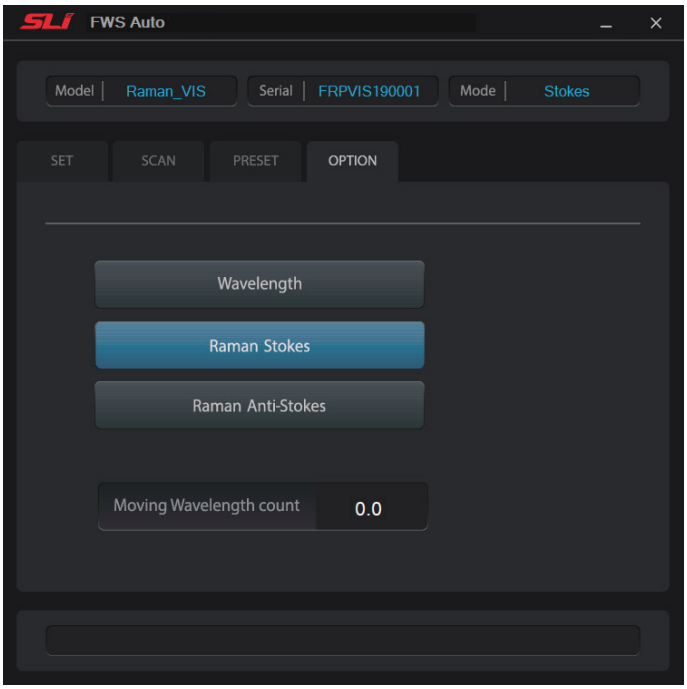
- Blank mode is the state wherein no filters are positioned in the pathway of the input light source. This way, it is possible to check the alignment of the input light source.

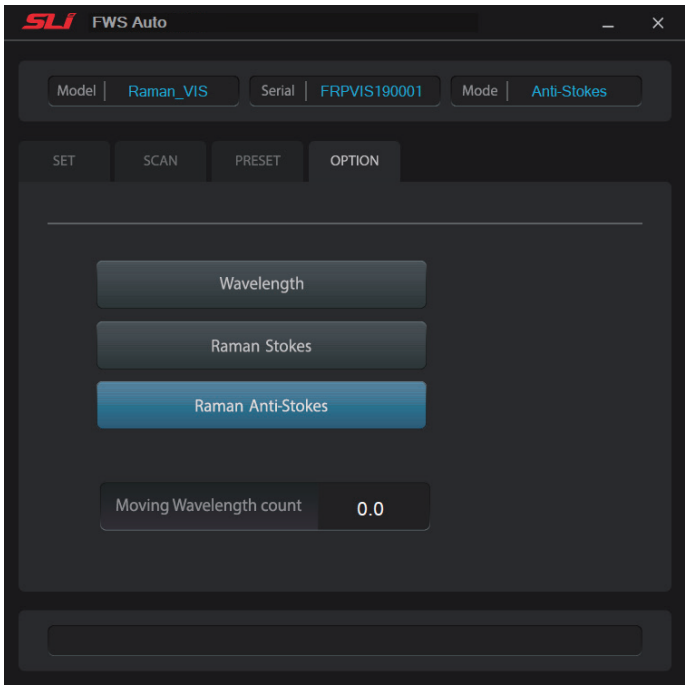


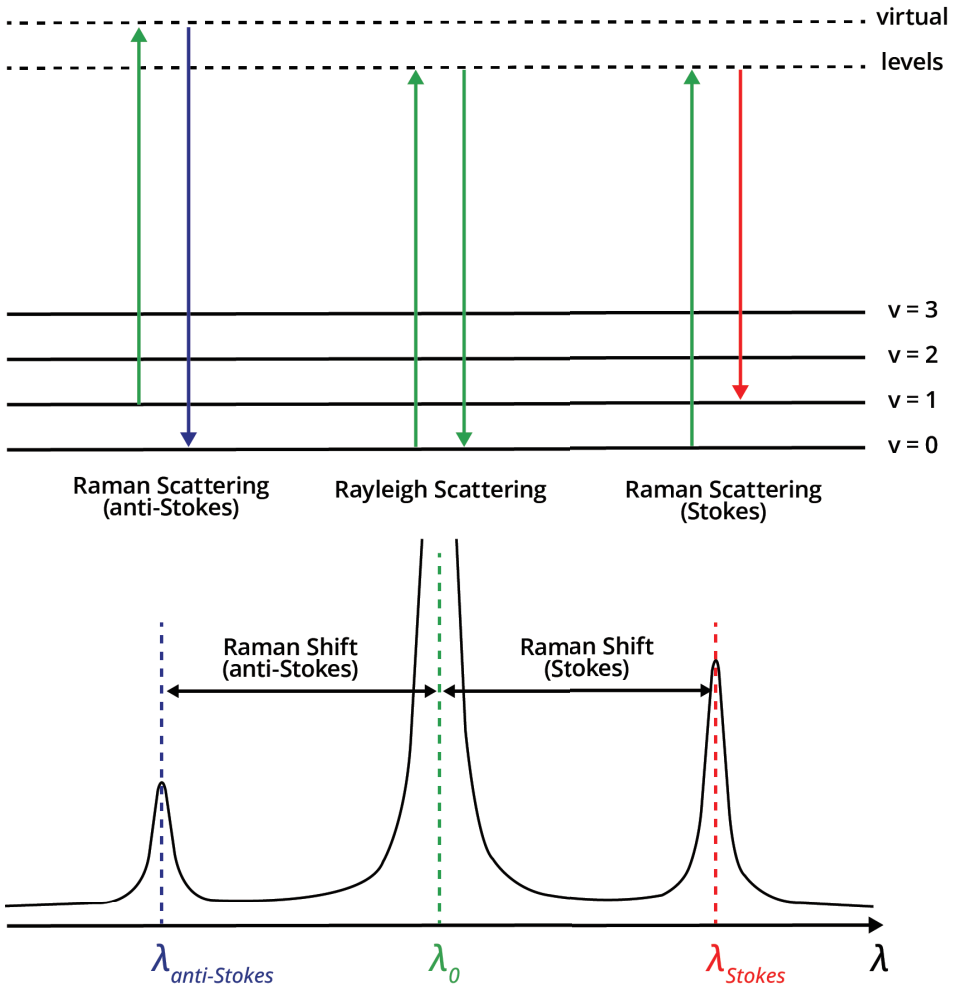
4.1 Raman mode (Optional function)

Customers who purchase the Raman model of Poly-RED can use Raman mode to detect specific Raman band for imaging. The Raman model can select two modes (Stokes, Anti-stokes) in the options tab.

**NOTE : The Raman model is only available for the Poly-RED model.*



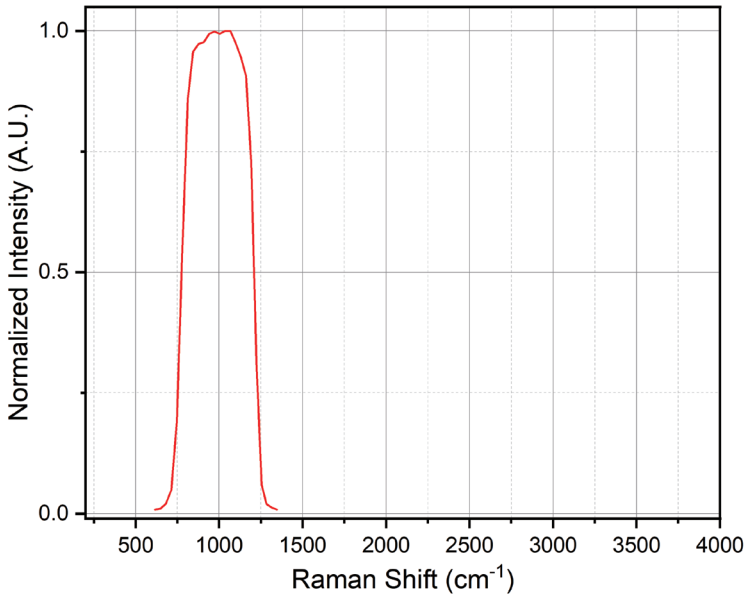




4.2 Setting the center Raman shift and bandwidth

- Since Stokes Raman shift and anti-stokes Raman shift represent the same information as mirror images, this manual mainly explains Stokes Raman shift.
- FWS operates on Wavelength Base, and in order to use it in Raman mode, it operates by converting wavelength to wavenumber. Because the wavenumber is inversely proportional to its wavelength, the specified wavenumber value may not be the exact wavelength at which the Poly can move. Therefore, the Poly sets the wavelength value closest to the user-specified wavenumber.

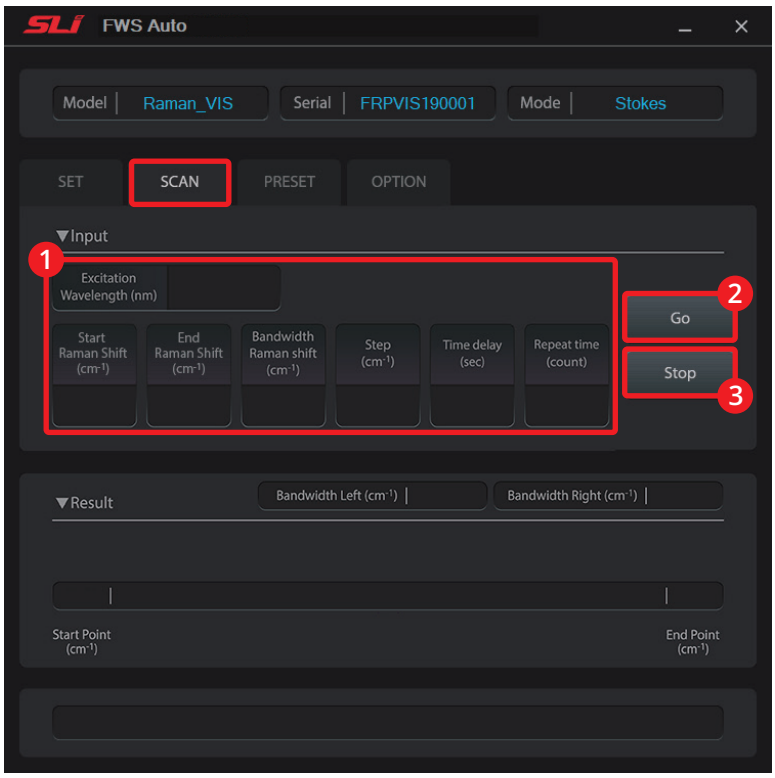
1. **Excitation Wavelength (nm)** : enter the desired Raman Excitation Wavelength
2. **Center Raman Shift (cm^{-1})** : enter the desired Center of Raman shift
3. **Bandwidth Raman Shift (cm^{-1})** : enter the desired Bandwidth of Raman shift
4. **Real Center Raman Shift (cm^{-1})** : indicates the actu al moved value of Raman shift wavelength
5. **Real Bandwidth Raman Shift (cm^{-1})** : indicates the actual moved value of Raman shift bandwidth
6. **Go** : click to start Raman shift tuning
7. **Blank** : click to set blank mode
8. **Reset** : click to reset filter



4.3 Scanning across a certain Raman shift range

1. Enter the following
- **Excitation Wavelength (nm)** : enter the Raman Excitation Wavelength
- **Start Raman Shift (cm^{-1})** : Raman shift to start scanning
- **End Raman Shift (cm^{-1})** : Raman shift to end scanning
- **Bandwidth Raman Shift (cm^{-1})** : bandwidth during the scanning
- **Step (cm^{-1})** : step size of the scan in wavenumber
- **Time delay (sec)** : set the time delay between each individual wavelength steps
- **Repeat time (count)** : number of full scans

2. Go : click to start scanning
3. Stop : click to stop scanning



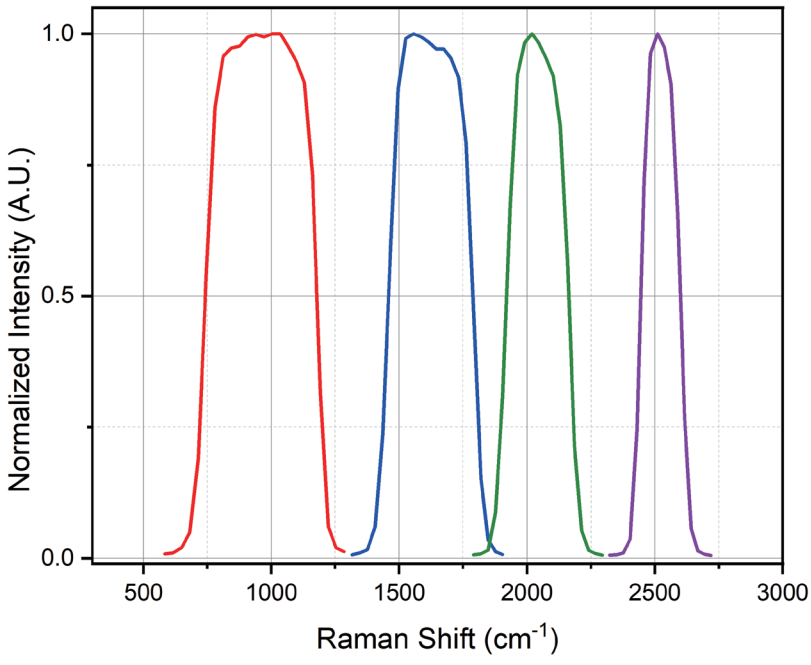
**Note : Although the Poly has calibration data at intervals of 0.2 nm as the wavelength base, there may be instances where a specific wavenumber does not have a corresponding value because the wavenumber is inversely proportional to its wavelength. Consequently, scanning with a constant wavenumber step may not yield optimal results.*

*For scanning of a specific Raman band, it is recommended to use **Preset mode** to scan a specific band.*

4.4 Setting or editing the preset Raman shift and bandwidth

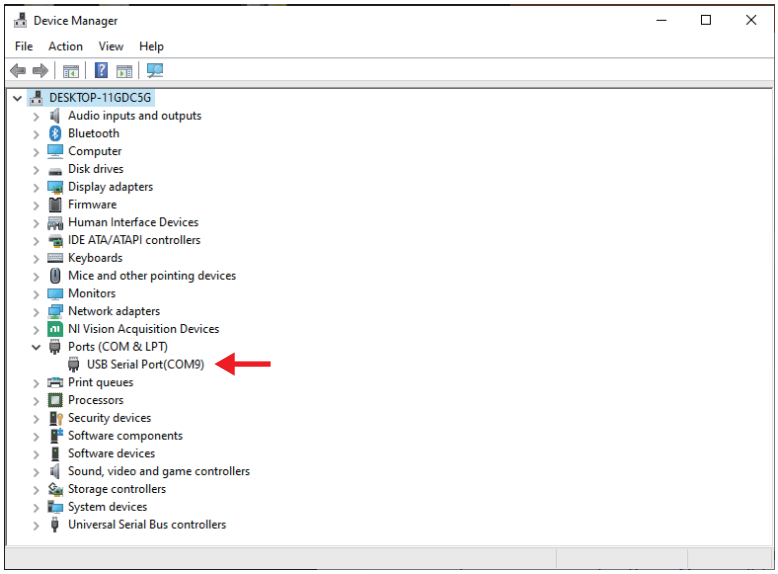
- In the PRESET tab, you can set your frequently used center Raman shift and bandwidth for easy access.

1. Excitation Wavelength (nm) : enter the Raman Excitation Wavelength.
2. Preset Selection : select the desired presets to be scanned
3. Center Raman shift, Bandwidth Raman shift (cm^{-1}) : enter the desired Center Raman shift and Bandwidth Raman shift
4. Go (individual) : click to scan individual presets
5. Time delay (sec) : set the time delay between each individual presets
6. Repeat time (count) : amount of times selected presets are scanned
7. Go : click to scan all selected presets
8. Stop : click to stop scanning



5.1 Device connection error

- If the device and software cannot be properly connected, check whether the communication driver appears properly in Device Manager. If it is a problem with the communication driver, install the latest FTDI USB driver suitable for your OS from the following website - **https://ftdichip.com/drivers/**



5.2 Device not working

- Even though the device and PC are properly connected, if the device does not operate, check the locking switch position. The locking switch must be changed to the 'UNLOCK' position to operate.

- Please contact our support team for other trouble shootings. **support@spectrolightinc.com**

6.1 Poly DLL Manual

SDK file is based on ".NET Framework 3.0"
Namespace: ISM_Device
The class : ClassPoly.

Python supports the "Python.NET" package for the Python programmers.
Or you can check another way of this in the link below.
https://github.com/pythonnet/pythonnet

Labview also support the way to call .NET dll, please refer to a simple example file.

For the overall function flow, refer to the labview example description.

A. Function return value

DLL internal declaration

enumPolymsg:int

{

MSG_NO_ERROR = 0,

MSG_DEVICE_SEARCHING = 1,

MSG_CONNECTION_OK = 2,

MSG_SET_WAVE_OK =3,

MSG_DEVICE_INIT = 4,

MSG_DEVICE_BUSY = 5,

MSG_DEVICE_READY = 6,

MSG_DEVICE_CLOSE_PORT = 10,

ERR_DEVICE_NOT_FOUND = -1,

ERR_DEVICE_FILE_NOT_FOUND = -2,

ERR_DEVICE_FILE_ERROR = -3,

ERR_DEVICE_NOT_READY = -4,

ERR_DEVICE = -5,

ERR_DEVICE_ERROR_MODEL_NO = -6,

ERR_DEVICE_ERROR_SERIAL_NO = -7,

ERR_DEVICE_ERROR_WAVE_RANGE = -8,

ERR_DEVICE_NOTCONNECTED = -9,

ERR_COMM_CONN_ERROR = -11,

ERR_COMM_CONN_LOST = -12,

ERR_COMM_TIMEOUT = -13,

ERR_COMM_ERROR = -14,

ERR_NOT_FOUND_WAVE = -21,

ERR_SET_WAVE_ERROR = -22,

}

MSG_NO_ERROR = The command has been executed properly.
MSG_DEVICE_SEARCHING = Searching for device.
MSG_CONNECTION_OK = Device is connected.
MSG_SET_WAVE_OK = Successfully changed CWL and FWHM.
MSG_DEVICE_INIT = Device is initializing.
MSG_DEVICE_BUSY = Device is busy.
MSG_DEVICE_READY = Device is ready.
MSG_DEVICE_CLOSE_PORT = Device is not ready.
ERR_DEVICE_NOT_FOUND = Device not found.
ERR_DEVICE_FILE_NOT_FOUND = Calibration file not found.
ERR_DEVICE_FILE_ERROR = Calibration file error.
ERR_DEVICE_NOT_READY = Device is busy.
ERR_DEVICE = Communication error.
ERR_DEVICE_ERROR_MODEL_NO = Calibration file and model number doesn't match.
ERR_DEVICE_ERROR_SERIAL_NO = Calibration file and serial number doesn't match.
ERR_DEVICE_ERROR_WAVE_RANGE = Calibration file and wavelength range doesn't match.
ERR_DEVICE_NOTCONNECTED = Device is not connected.
ERR_COMM_CONN_ERROR = Communication error.
ERR_COMM_CONN_LOST = Device disconnected.
ERR_COMM_TIMEOUT = Communication timeout.
ERR_COMM_ERROR = Communication command internal error.
ERR_NOT_FOUND_WAVE = Wavelength out of range.
ERR_SET_WAVE_ERROR = Returning of error for GetCurrentWavelengthdue to absence of Set wavelength because of SetWavelengthcommand error

B. Poly commands

1. int PolyConnect(string path);
-Parameters
path : Path and location of calibration file
-Return Value

MSG_NO_ERROR

ERR_COMM_ERROR

ERR_DEVICE_ERROR_MODEL_NO

ERR_DEVICE_ERROR_SERIAL_NO

ERR_DEVICE_ERROR_WAVE_RANGE

ERR_DEVICE_NOT_FOUND

ERR_DEVICE_FILE_NOT_FOUND

ERR_DEVICE_FILE_ERROR
-Remark
Use the calibration file to activate the port then connect

2. intDisconnect();
-Parameters
-Return Value

MSG_DEVICE_CLOSE_PORT

ERR_COMM_TIMEOUT

ERR_COMM_ERROR
-Remark
Stop communication and close port.

3. intGetDeviceStatus();
-Parameters
-Return Value

MSG_DEVICE_INIT

MSG_DEVICE_BUSY

MSG_DEVICE_READY

ERR_COMM_CONN_LOST

ERR_DEVICE_NOTCONNECTED
-Remark
Read the current status of the device.

4. bool GetDeviceEnabled();
-Parameters
-Return Value

True : Port is openand device is connected.

False : Port is closedor device is not connected.
-Remark
Check the connection status of the device.

5. string GetComPortNumber();
-Parameters
-Return Value

COM port String return
-Remark
Read the connected COM port

6. intGetInforData(ref string model, ref string serial, ref string range);
-Parameters
model : Model number of device
serial : Serial number of device
range : Wavelength tuning range
-Return Value

MSG_NO_ERROR

ERR_DEVICE_NOTCONNECTED
-Remark
Reads the model number, serial number or wavelength tuning range of the connected device.

7. intSetWavelength(string CW, string FWHM);
-Parameters
CW : Center wavelength
FWHM : Bandwidth
-Return Value

MSG_NO_ERROR

ERR_NOT_FOUND_WAVE

ERR_DEVICE_NOT_READY

ERR_DEVICE_NOTCONNECTED
-Remark
Changes to the input wavelength (CW) and bandwidth (FWHM).
If ERR_NOT_FOUND_WAVE is returned, then
GetStringMsgcommand is used to return the CW/FWHM values as string values which caused the error.

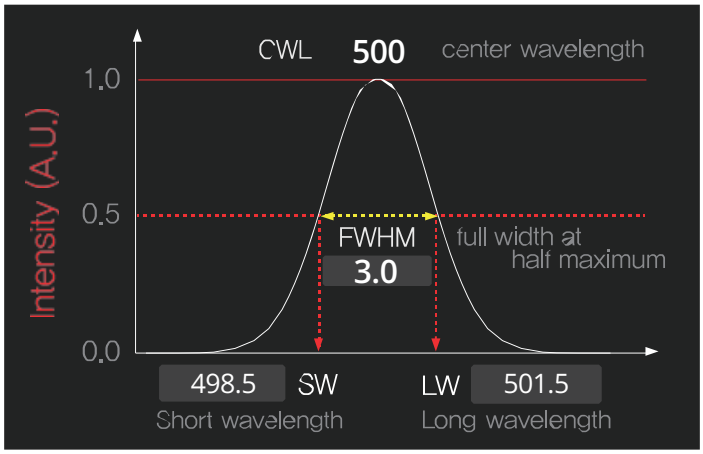
Actually, CWand FWHM are string variables, but CW operates atone decimal point, and FWHM operates as an integer. Therefore, for example, CW/FHWM should be entered in the format of 532.5/10 respectively. And the number format should use US dot. The precision of the decimal point depends on the specifications of the equipment, normal value is 0.5.

8. intGetCurrentWavelength(ref string sw, ref string cwl, ref string lw, ref string fwhm);
-Parameters
sw: short wavelength
cw: center wavelength
lw: long wavelength
fwhm: bandwidth

-Return Value

MSG_NO_ERROR

ERR_DEVICE_NOTCONNECTED
-Remark
Reads the set CW, SW, LW, FWHM



9.int GoBlankPosition();
-Parameters
-Return Value

MSG_NO_ERROR

MSG_DEVICE_BUSY

ERR_DEVICE_NOT_READY

ERR_DEVICE_NOTCONNECTED
-Remark
Moves to blank position. Empty position. No filtering.

10.intScanWavelength(double start, double end, intfwhm, double step, double delay);
-Parameters
start : Start wavelength
end : End wavelength
fwhm: bandwidth
step : step size for scan
delay : time to stay at one wavelength
-Return Value

MSG_NO_ERROR

MSG_DEVICE_BUSY

ERR_NOT_FOUND_WAVE

ERR_DEVICE_NOT_READY

ERR_DEVICE_NOTCONNECTED
-Remark
Scans wavelength from start to end with a fixed FWHM and step size and time for stay in each wavelength

11.string GetStringMsg(intcode);
-Parameters
code : message number
-Return Value

MSG_NO_ERROR

MSG_DEVICE_BUSY

ERR_DEVICE_NOT_READY

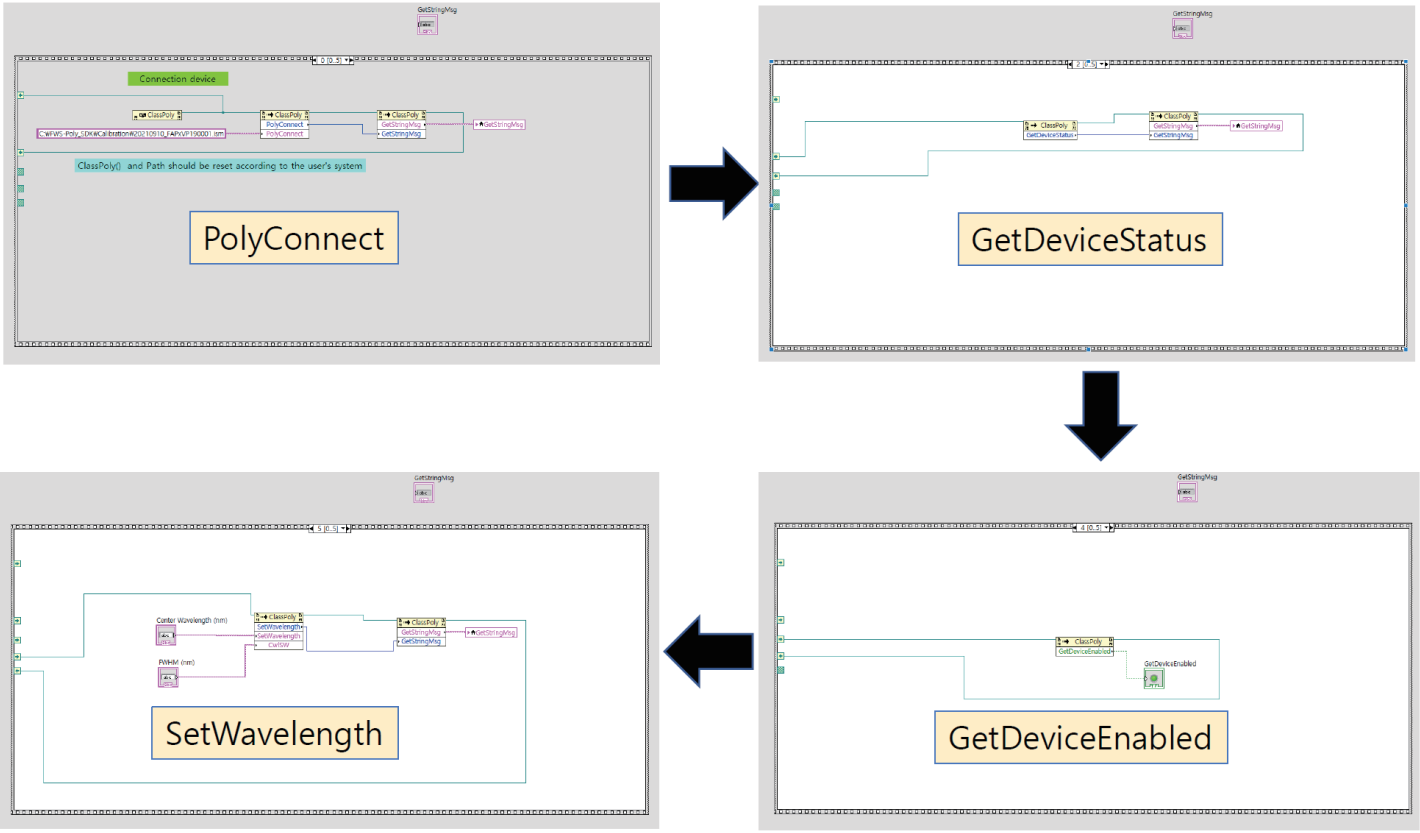
ERR_DEVICE_NOTCONNECTED
-Remark
If the message number parameter input,
Text(string) is returned by decoding message corresponding to the number

12.intDeviceReset();
-Parameters
-Return Value

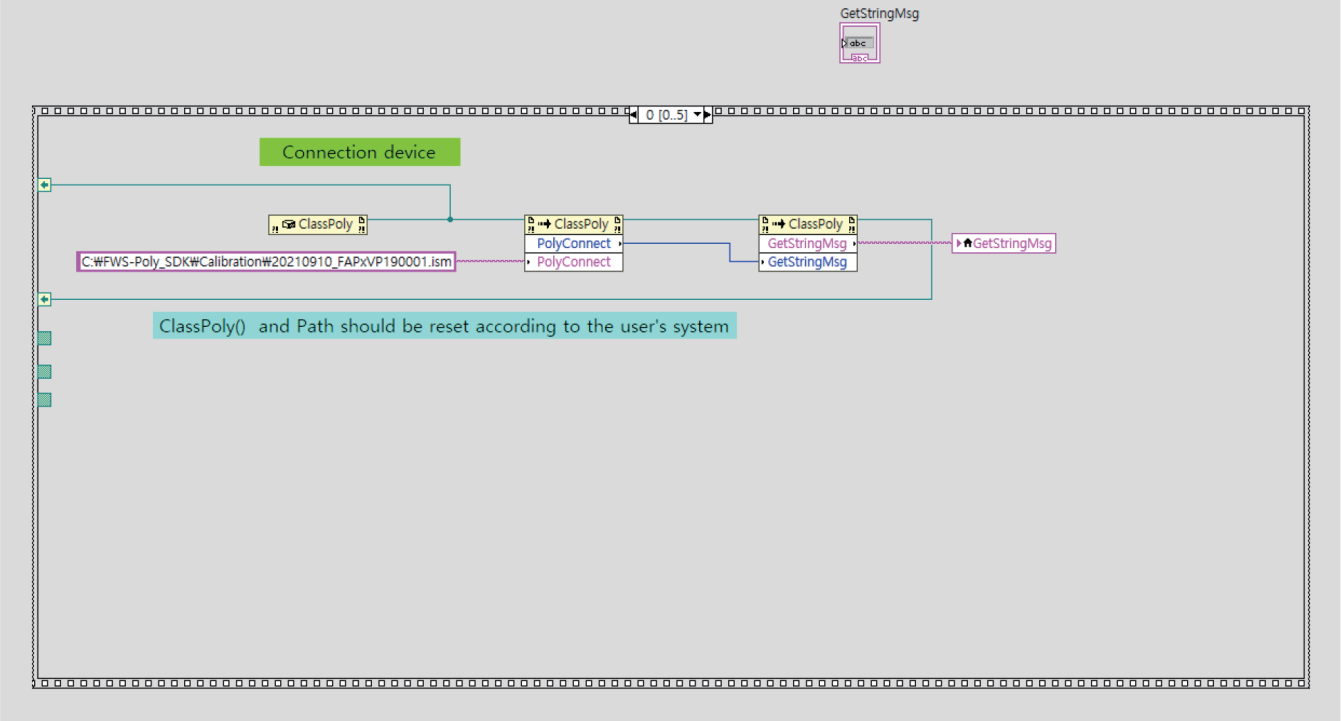
MSG_DEVICE_INIT = Reset the device

ERR_DEVICE_NOTCONNECTED = Device not connected
-Remark
Reset the device

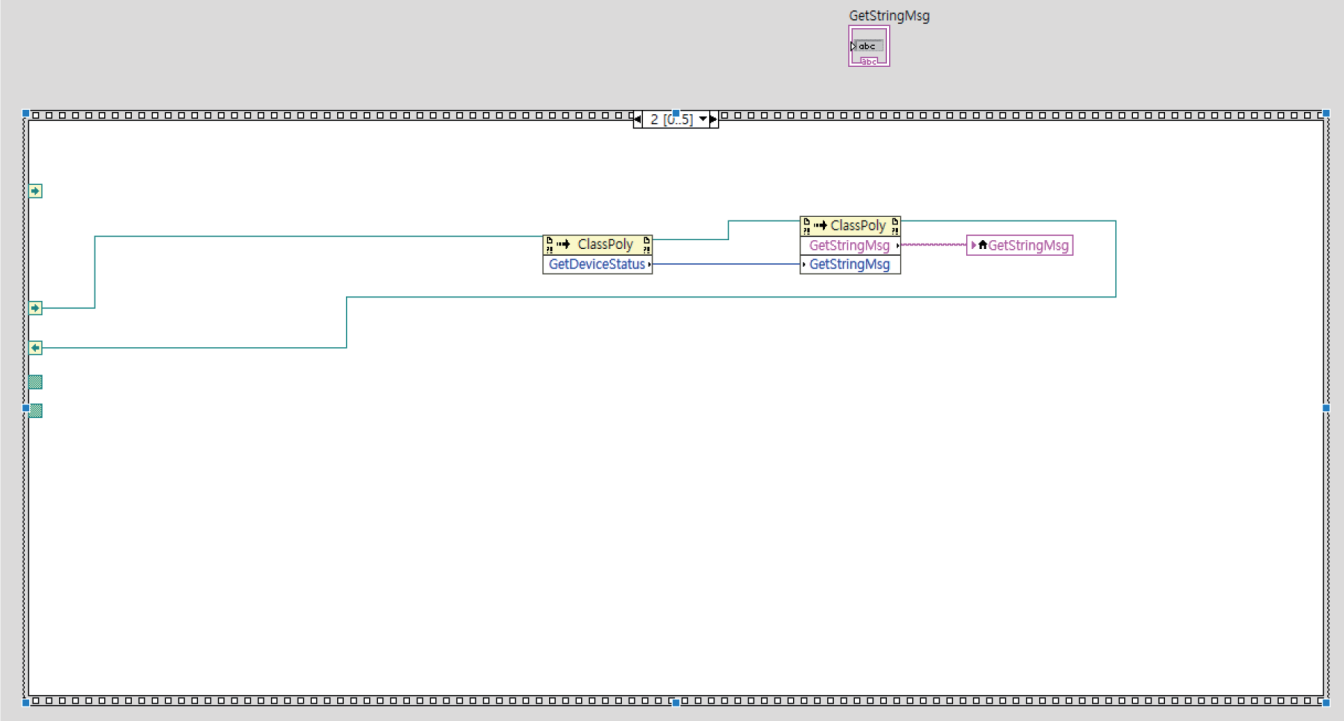
6.2 Overall Poly control flow using SDK via Labview



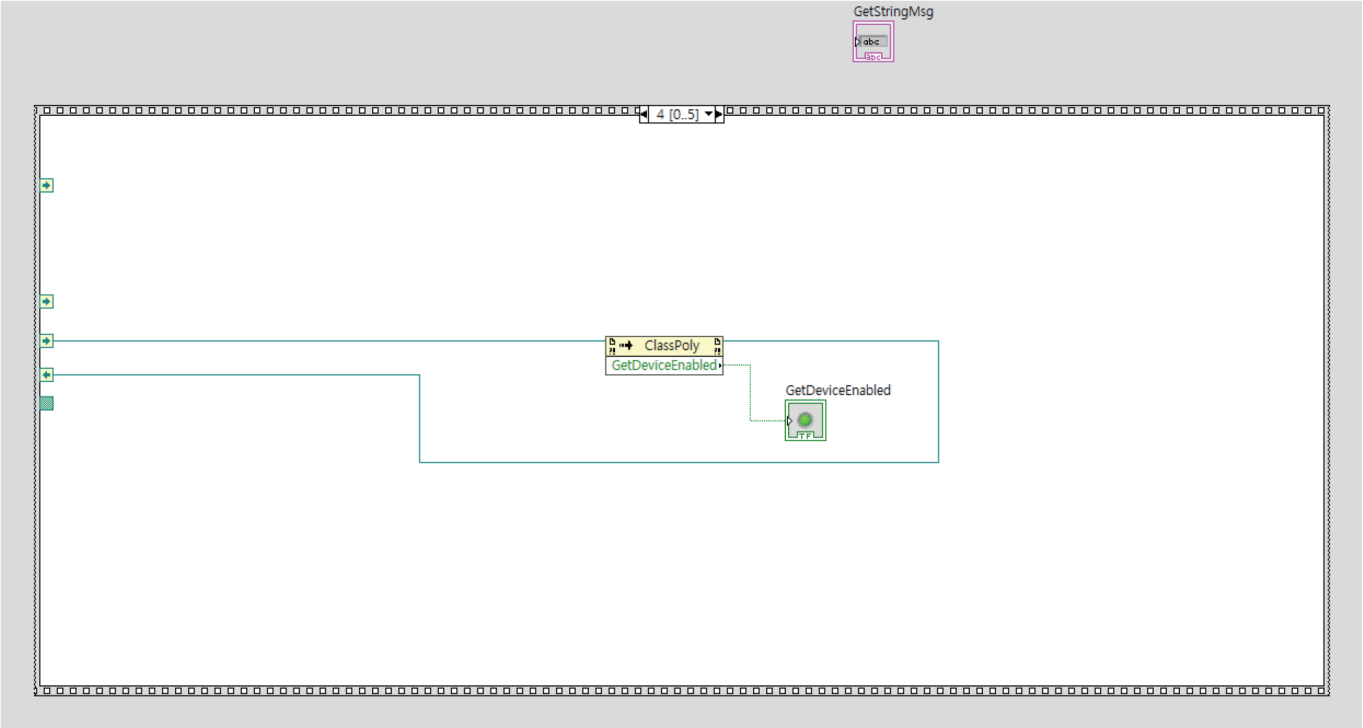
PolyConnect



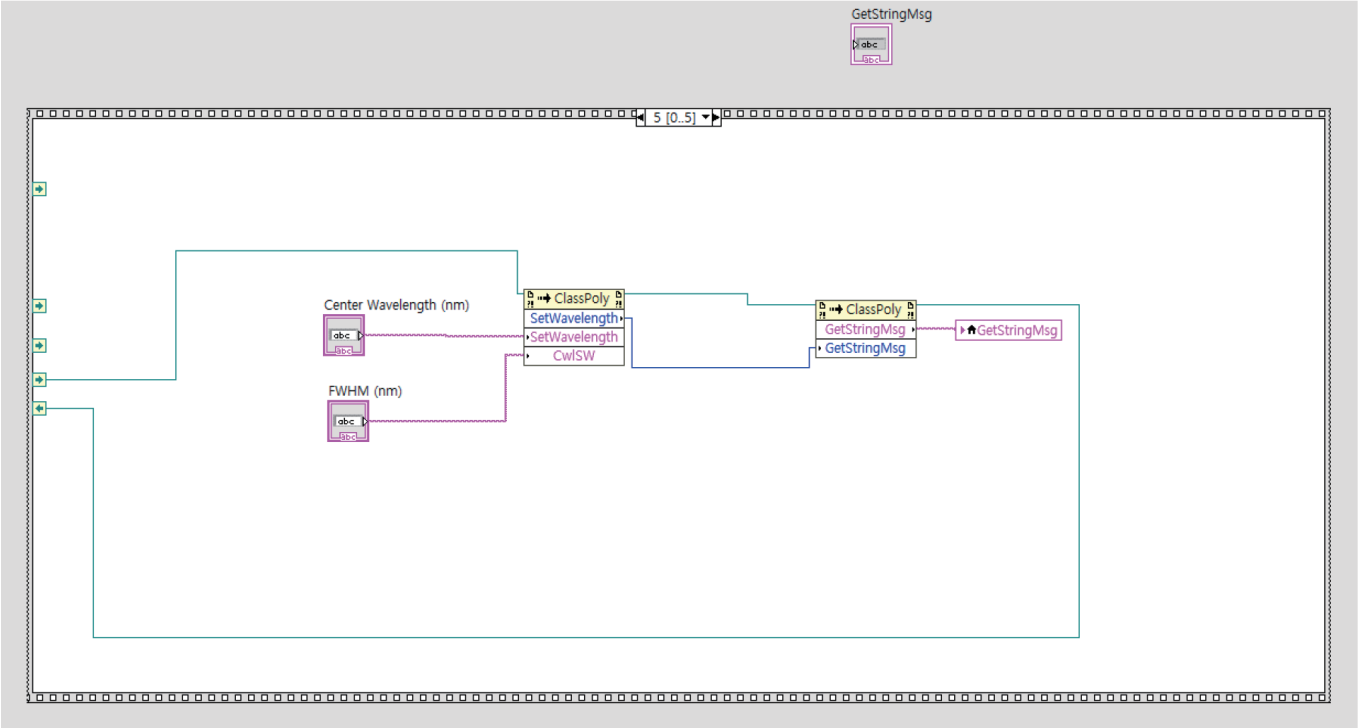
GetDeviceStatus



GetDeviceEnabled



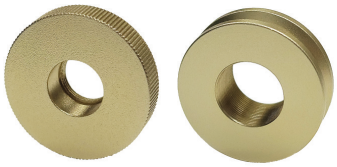
SetWavelength



7.1 Accessories overview

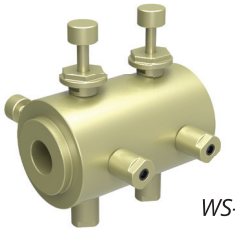
FWS can function as a tunable light source through combination with various broadband light sources such as supercontinuum laser and lamp. For this purpose, an input accessory is prepared that allows combining various light sources and FWS. A variety of output accessories are also available so that the selected wavelength can be applied to light delivery methods such as liquid light guide or fiber.

Input accessories



WS-FA-11P
WS-FA-05P

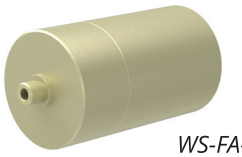
Fiber collimator adapter
To connect wavelength selectors
with fiber collimators [Φ 11 mm, SM05]



WS-SCA

Supercontinuum source adapter
To connect supercontinuum sources
to wavelength selectors

Output accessories



WS-FA-SMA

SMA type fiber adapter
To connect the output of wavelength
selectors directly to an SMA type

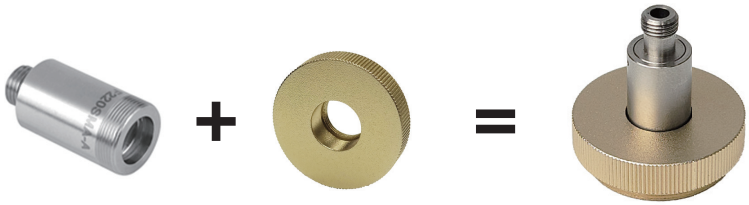
WS-FA-LGA

Light guide adapter
To connect the output of wavelength
selectors directly to light guide
[3 mm, 5 mm]

7.2 Input accessories

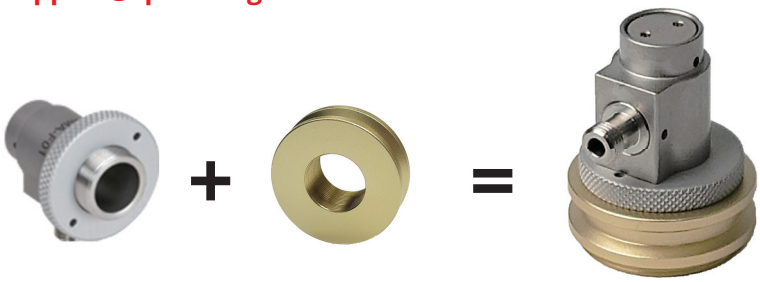
WS-FA-05P
Input accessory for connecting commercial fiber collimators (5 mm diameter) to the FWS. Allows SMA type fiber compatibility.

For collimator suggestions please contact us at -
support@spectrolightinc.com



WS-FA-11P
Input accessory for connecting commercial fiber collimators (11 mm diameter) to the FWS. Allows SMA type fiber compatibility.

For collimator suggestions please contact us at -
support@spectrolightinc.com



WS-SCA
Input accessory for connecting supercontinuum laser light sources.
SCAN model is for connection with supercontinuum laser of NKT.
SCAY model is for connection with supercontinuum laser of YSL.

7.3 Output accessories

WS-FA-SMA
Output accessory for connecting SMA type fiber as an output.

WS-FA-LGA
Output accessory for connecting liquid light guide (LLG) as an output.

Comes in 3 mm and 5 mm models.

8.1 Wavelength selection guide

Poly-RED

FWHM	CWL	UV	VIS	IR	SWIR	CUSTOM
2 - 15	255 - 290					Up to 9 in one device
	280 - 310	●				
	310 - 350	●				
	348 - 390	●				
	385 - 435					
	430 - 490		●			
	485 - 550		●			
	545 - 620		●			
	615 - 700		●			
3 - 15	690 - 790		●			
	775 - 890			●		
5 - 15	880 - 1015			●		
	1000 - 1150			●		
	1140 - 1310				●	
	1300 - 1500				●	
7 - 13	1475 - 1700				●	

** Units : nm*

Poly-BLUE

FWHM	CWL	UV	VIS	IR	SWIR	CUSTOM
20 (nominal)	255 - 290					Up to 9 in one device
	280 - 310	●				
	310 - 350	●				
	348 - 390	●				
	385 - 435					
	430 - 490		●			
	485 - 550		●			
	545 - 620		●			
	615 - 700		●			
	690 - 790		●			
	775 - 890			●		
	880 - 1015			●		
	1000 - 1150			●		
	1140 - 1310				●	
	1300 - 1500				●	
	1475 - 1700				●	

** Units : nm*

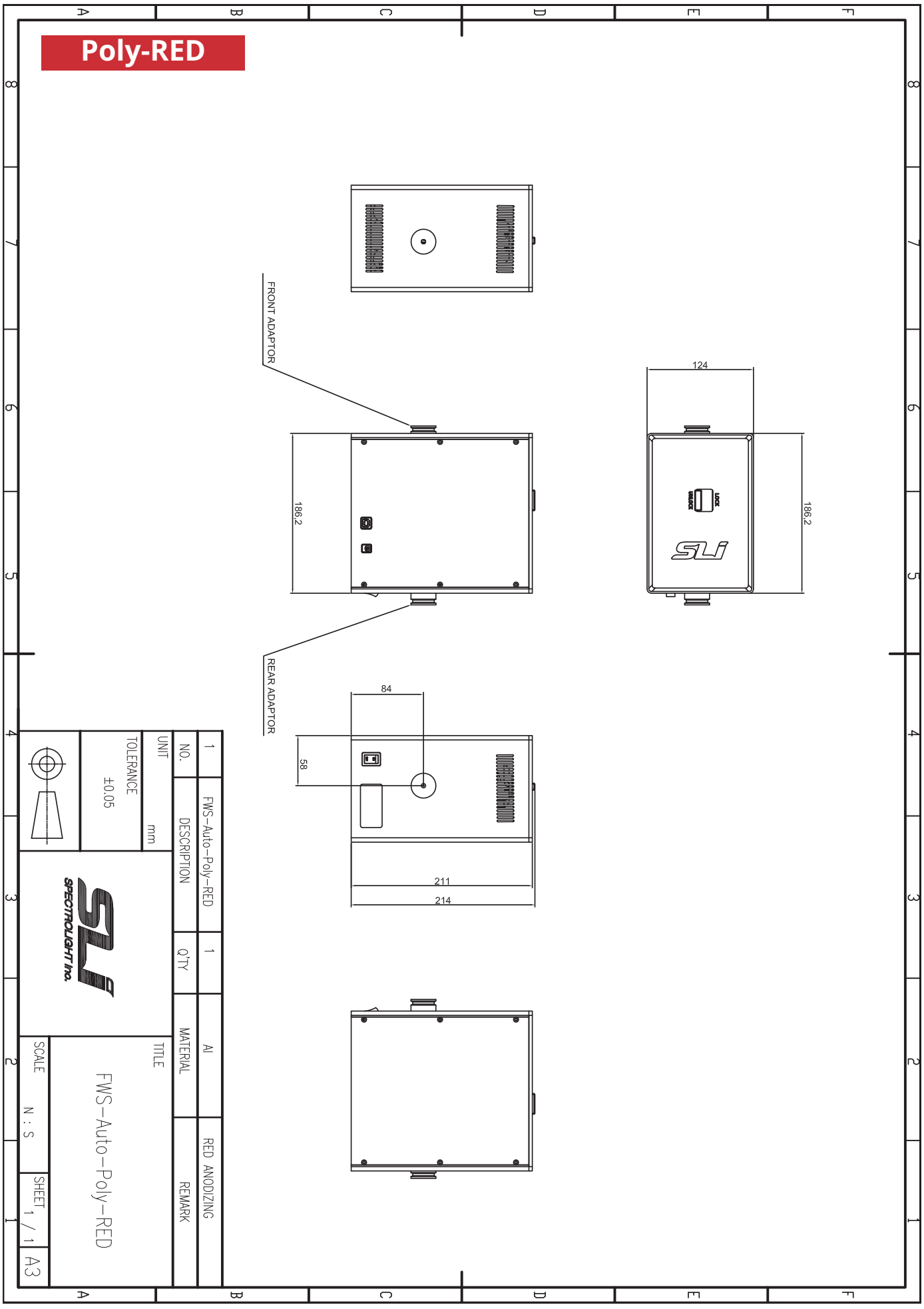
	Aperture size	
Poly-A5	5 mm	Suitable for lasers, supercontinuum lasers
Poly-A10	10 mm	Suitable for light sources with large beam size (tungsten-halogen, plasma, LED)

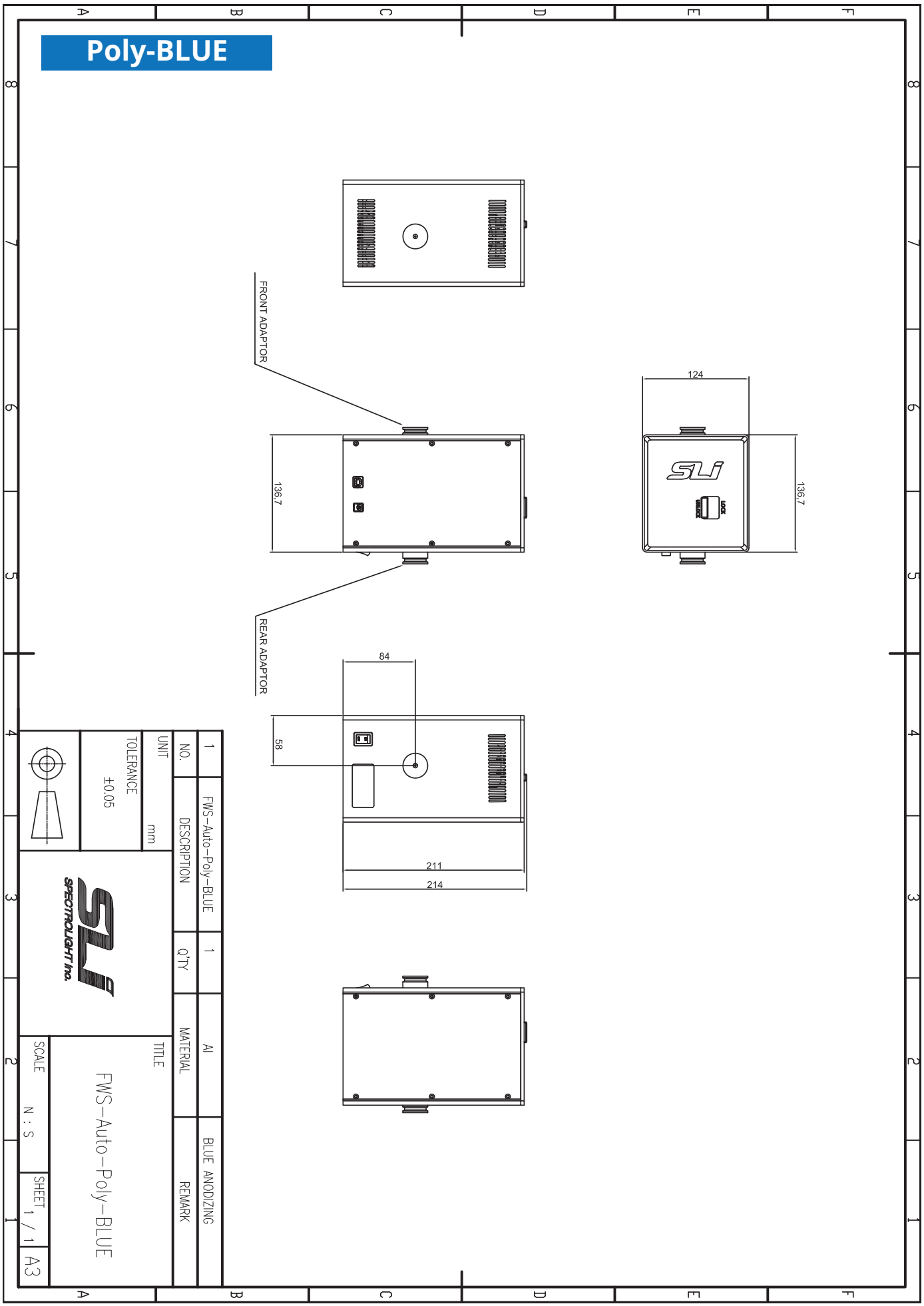
Poly-RED-A5 / Poly-RED-A10

Poly-BLUE-A5 / Poly-BLUE-A10

8.2 Full specifications

	Poly-RED-A5	Poly-RED-A10	Poly-BLUE-A5	Poly-BLUE-A10
Spectral range (nm)	255-1700	255-1700	255-1700	255-1700
Bandwidth (FWHM) (nm)	2-15 (nominal)	2-15 (nominal)	20 (fixed)	20 (fixed)
Aperture size (mm)	5	10	5	10
Out of band Blocking	OD 12 (10^{-12}) in tuning range, OD 6 (10^{-6}) in spectral range			
Step size of center wavelength (nm)	1.0			
Step size of bandwidth (FWHM) (nm)	1.0			
Wavelength accuracy (nm) : CWL, FWHM	< 1 nm			
Damage threshold	Peak Fluence < 1.75 Joules/cm^2 (~70 ㎛ spot diam., 10 ns pulse, 10 Hz repetition rate, 532 nm LASER) CW (Continuous wave) Intensity < 2 MW/cm^2 (1064 nm, ~ 90 ㎛ spot diam.)			
Transmission efficency (%)	≥ 75 % (in proportion to the input light power / FWHM > 10 nm)			
Scanning speed (ms)	20 - 200 ms (depending on step size)			
Software	FWS-Auto ver 4.1			
Dimension (L x W x H, mm)	186.2 x 124 x 214		136.7 x 124 x 214	
Input power	AC 12 V, 5 A			
Electric requirement	AC 100 - 240 V, 50/60 Hz			
Data interface	USB 2.0			
Weight (kg)	4.2		3.15	


Poly-RED
FRONT ADAPTOR
REAR ADAPTOR
124
186.2
186.2
84
58
211
214
NO. 1
DESCRIPTION FWS-Auto-Poly-RED
Q'TY 1
MATERIAL Al
REMARK RED ANODIZING
UNIT mm
TOLERANCE ±0.05
SPECTROLIGHT Inc.
TITLE FWS-Auto-Poly-RED
SCALE N : S
SHEET 1 / 1
A3


Poly-BLUE
FRONT ADAPTOR
REAR ADAPTOR
124
136,7
136,7
84
58
211
214
SLI
SPECTROLIGHT Inc.
TOLERANCE
±0.05
UNIT
mm
NO.
1
DESCRIPTION
FWS-Auto-Poly-BLUE
Q'TY
1
MATERIAL
Al
REMARK
BLUE ANODIZING
TITLE
FWS-Auto-Poly-BLUE
SCALE
N : S
SHEET
1 / 1
A3

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