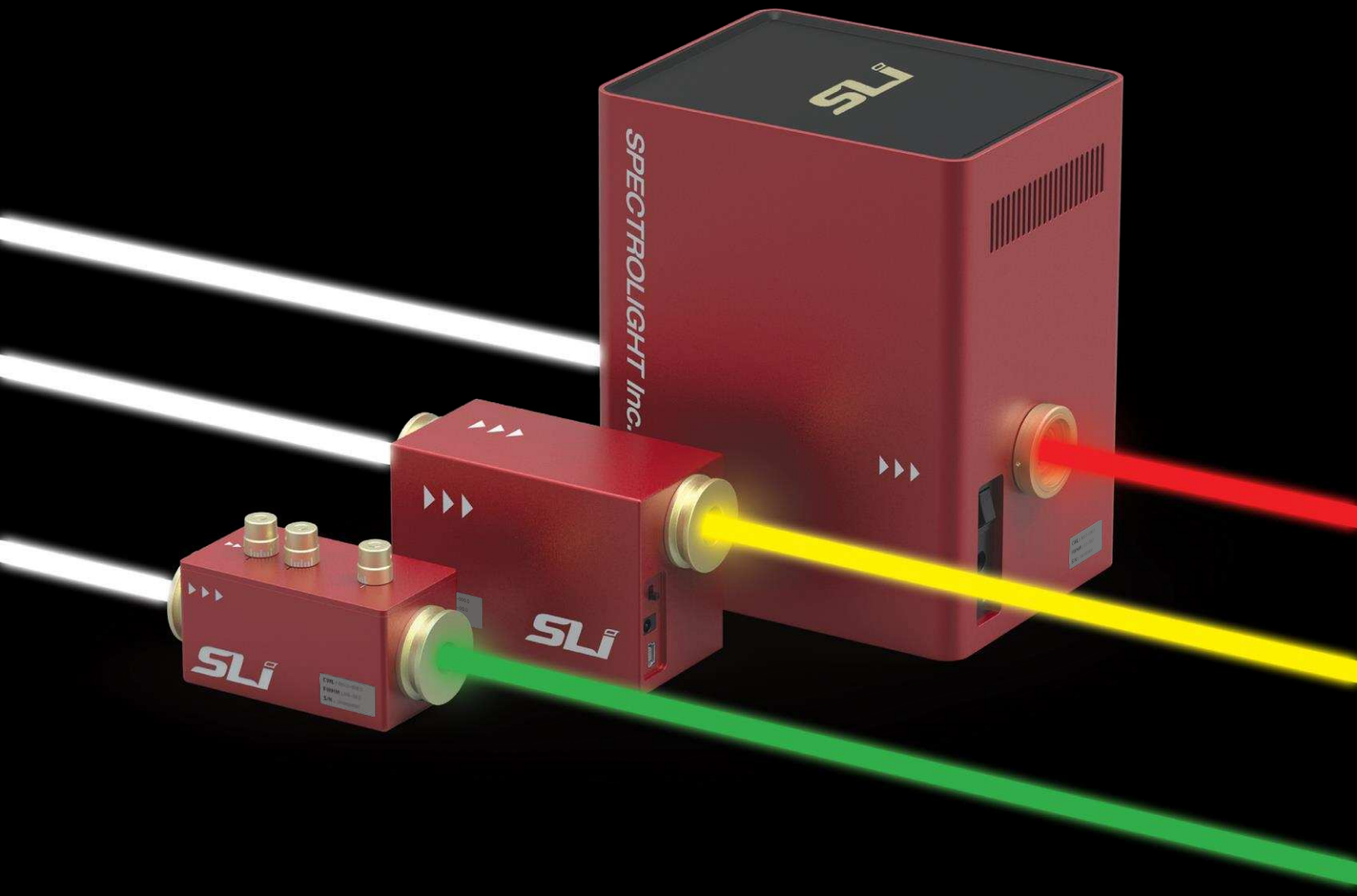
Flexible Wavelength Selector



-Tunable Wavelength range as wide as (255~1700 nm)
-Relevant for both Excitation and Emission
-For the Imaging and Illumination
-With the patented TwinFilm™ technology

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Flexible Wavelength Selector (FWS)

Tunable filter for spectroscopy and spectral imaging

Automated type

Auto Mono

Auto Poly

Manual type

Basic

High Resolution

CenterLine

Customized

Ideal for

- Fluorescence microscopy
- Hyperspectral imaging
- Life sciences instrumentation
- Machine vision
- Laboratory research

Key product advantages

- Broad wavelength tuning
- Adjustable bandwidth (FWHM 3 nm – 16 nm, nominal)
- 5 mm circular aperture
- High level of blocking
- Compact rugged optomechanical package
- In-line operation for easy integration
- No beam deviation or walk-off during tuning

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Flexible Wavelength Selector – Auto Mono (FWS-Mono)

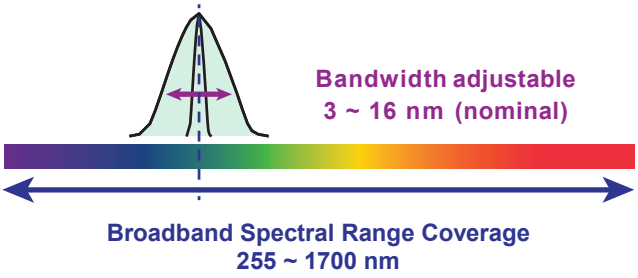
The Flexible Wavelength Wavelength Selector is a unique wavelength selection device that employs TwinFilm™ technology to deliver the tunability and adjustable bandwidth of a grating monochromator, together with the imaging advantages of a circular aperture filter. Auto Mono models feature complete software control of wavelength and bandwidth via a USB link and simple software interface.

Optical Specifications

- Transmission: > 75%
  (in proportion to an input light power / FWHM > 5 nm)
- Spectral Range (nominal): 255 ~ 1700 nm
- Center Wavelength accuracy (nominal): ± 0.5 nm
- FWHM accuracy (nominal): ± 0.5 nm
- High level of blocking
- Cut-on Transition Width: 2% - 3% (from blocking to transmission)
- Cut-off Transition Width: 2% - 3% (from transmission to blocking)

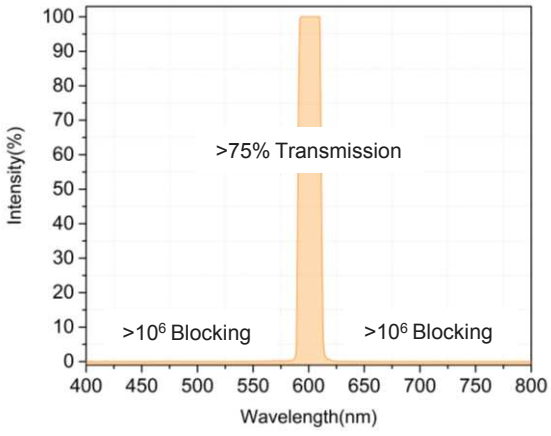
General Specifications

- Dimensions: 48 x 92 x 64 mm
- Aperture Size: 5 mm
- Input Power: 12 V , 2A
- Data Interface: USB



Flexible Wavelength Selector Auto Mono

Spectral Range	Item Number
255 ~ 1700 nm	FWS-Mono
User can select a specific item following the requested spectral range	



Flexible Wavelength Selector - Auto Poly (FWS-Poly)

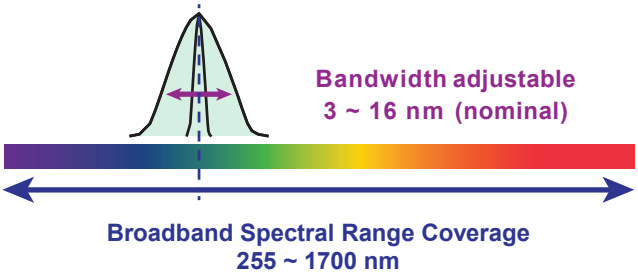
The Flexible Wavelength Selector is a unique wavelength selection device that employs TwinFilm™ technology to deliver the tunability and adjustable bandwidth of a grating monochromator, together with the imaging advantages of a circular aperture filter. Auto Poly models feature complete software control of wavelength and bandwidth via a USB link and simple software interface.

Optical Specifications

- Transmission: > 75%
  (in proportion to an input light power / FWHM > 5 nm)
- Spectral Range (nominal): 255 ~ 1700 nm
- Center Wavelength accuracy (nominal): ± 0.5 nm
- FWHM accuracy (nominal): ± 0.5 nm
- High level of blocking
- Cut-on Transition Width: 2% - 3% (from blocking to transmission)
- Cut-off Transition Width: 2% - 3% (from transmission to blocking)

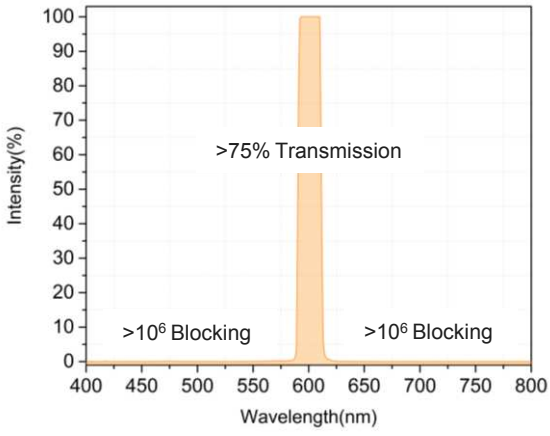
General Specifications

- Dimensions: 170 x 129 x 200 mm
- Aperture Size: 5 mm
- Input Power: 12 V , 4A
- Data Interface: USB



Flexible Wavelength Selector Auto Poly

Spectral Range	Item Number
255 ~ 400 nm	FWS-Poly-UV
350 ~ 900 nm	FWS-Poly-VIS
620 ~ 900 nm	FWS-Poly-NIR
1010 ~ 1700 nm	FWS-Poly-SWIR
620 ~ 1700 nm	FWS-Poly-IR Plus
Custom range	FWS-Poly-Custom



Flexible Wavelength Selector - Auto

/ Application

Tunable Light Generation

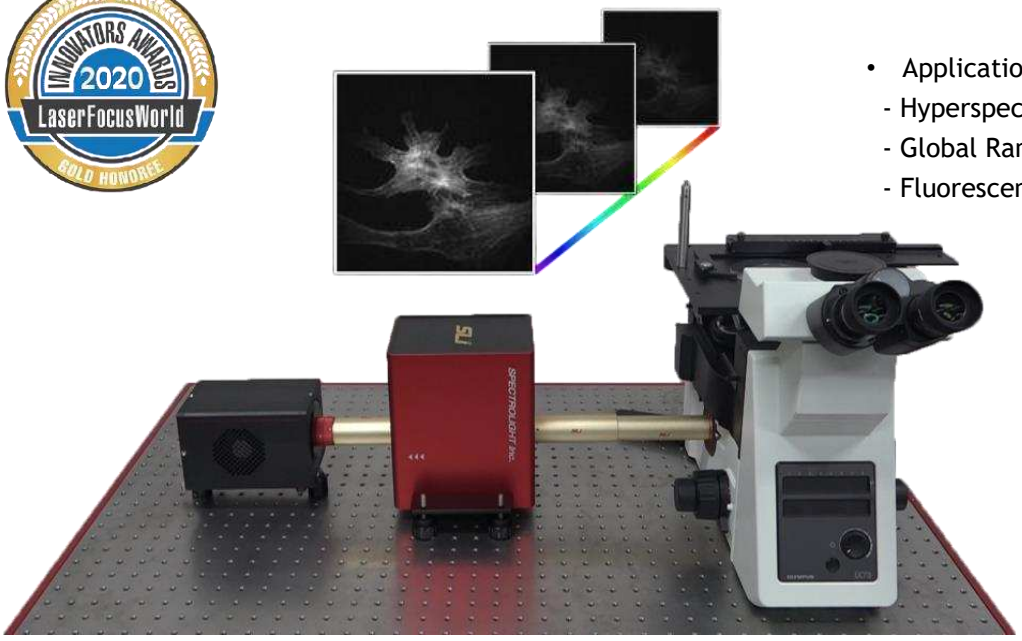
The Flexible Wavelength Wavelength Selector(FWS) can be applied with various types of Light sources, such as plasma light, supercontinuum laser, LED, Xenon lamp and so on. FWS can provide the tenability on the light sources used in a user's system.

- Applications with various light sources
  - NKT, LEUKOS, YSL Supercontinuum lasers
  - Energetiq, ISTEQ Laser-Driven Light Source
  - LED, Xenon and other lamp types

FWS-Mono + WS-SCAN (for NKT lasers)

FWS-Poly + WS-SCAY (for YSL lasers)

Imaging Detection



- Applications using 4f Relay System
  - Hyperspectral Imaging
  - Global Raman Imaging
  - Fluorescent Imaging

It is possible to convert a commercial fluorescence microscope into a hyperspectral imaging microscope by applying our FWS on the emission port of the microscope. Emission intensity and wide-field spectral images can be checked during the hyperspectral imaging process.

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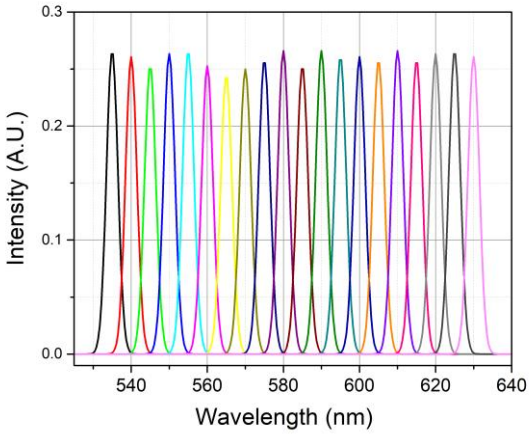
Flexible Wavelength Selector - Auto

/ Application

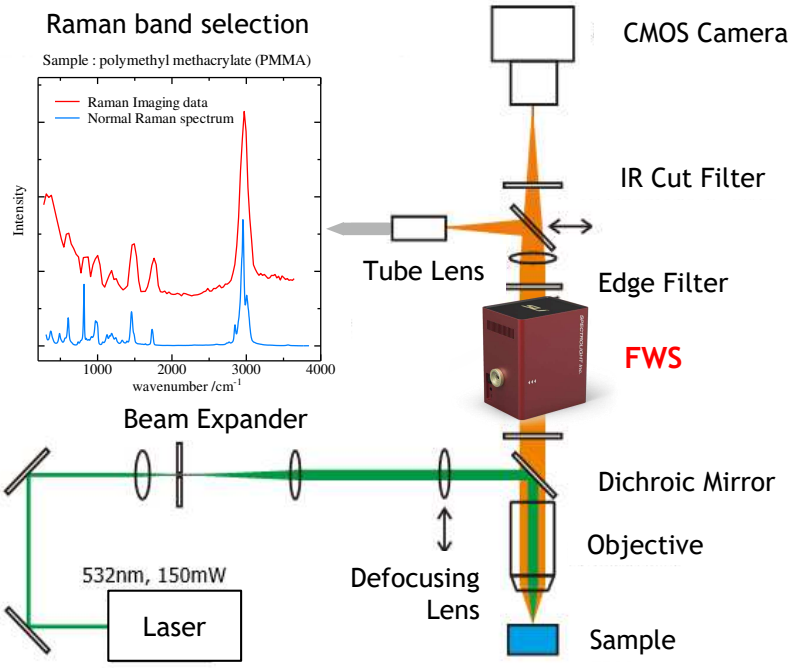
Global Raman Imaging

[Transmission graph of FWS in Raman Imaging]



- Spectral Range : 535 nm - 650 nm
- **FWHM : = 3 nm**

[Scheme]

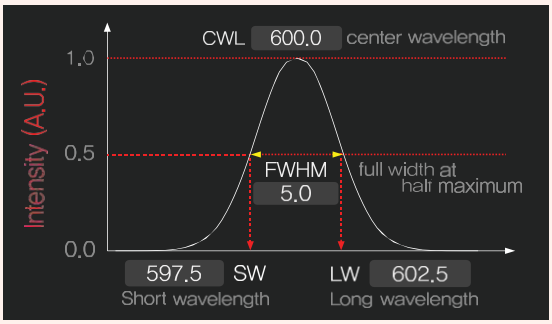


Study by Dr. Hideaki Monjushiro in High Energy Accelerator Research Organization (KEK)

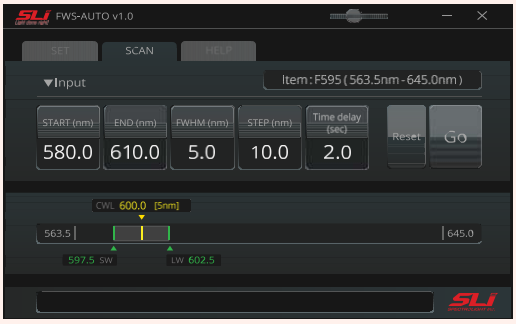
Flexible Wavelength Selector - Auto

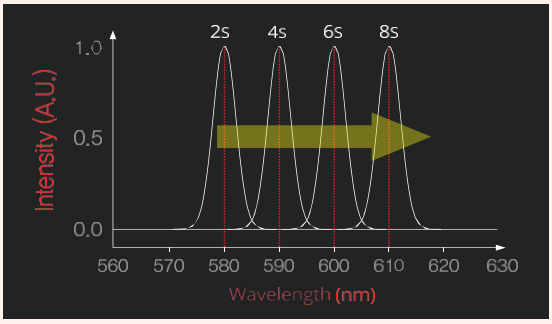
/ Software Features

SET

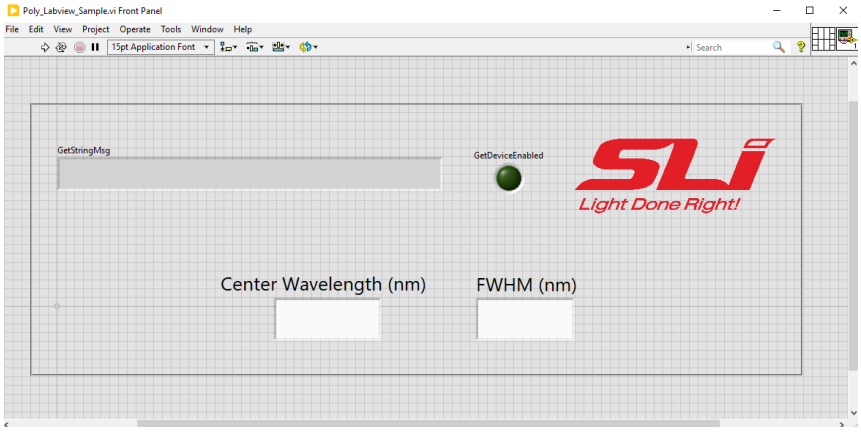


SCAN





/ Software Compatibility



- Applying SDK of FWS to a program (uploaded in the website)
- Compatible with various programs (LabVIEW, Python, μManager)

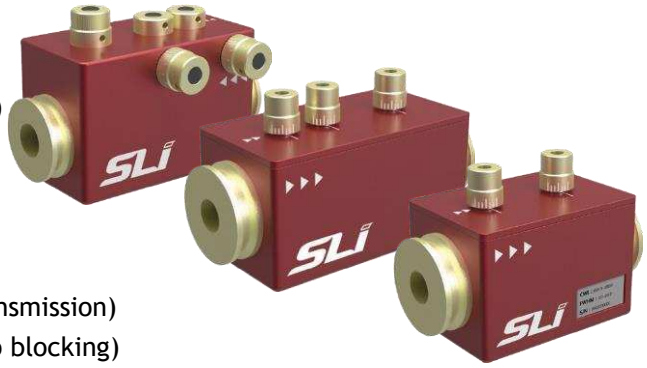
Flexible Wavelength Selector - Manual

High Resolution, Basic and CenterLine

Three manual models feature manual adjustment of the center wavelength, transmission bandwidth and beam offset compensation. For High Resolution (HR) and Basic (B) models, the bandwidth can be manually adjusted from around 1.5 nm to 16 nm.
The bandwidth of the CenterLine (CL) model is fixed at ~ 16 nm (nominal).

/ Optical Specifications

- Transmission: > 75%
  (in proportion to an input light power / FWHM > 5 nm)
- Spectral Range (nominal): 255 ~ 1700 nm
- Center Wavelength accuracy (nominal): ± 0.5 nm
- FWHM accuracy (nominal): ± 0.5 nm
- High level of blocking
- Cut-on Transition Width: 2% - 3% (from blocking to transmission)
- Cut-off Transition Width: 2% - 3% (from transmission to blocking)



/ General Specifications

- Dimensions: 40 x 76 x 40 mm
- Aperture Size: 5 mm

Flexible Wavelength Selector Manual

Spectral Range	Item Number
255 ~ 1700 nm	FWS-Manual
User can select a specific item following the requested spectral range	

Custom Wavelength Selectors (CWS)

Custom performance in a cost-effective format

CWS-B

The Custom Wavelength Selectors(CWS) are ideal for any imaging, microscopy, or illumination application. The bandpass performance of CWS provides benefits for matching the emission profile of a new fluorophore or the emission spectrum of a fluorochrome shifted slightly due to factors such as the particular excitation wavelength being used.

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