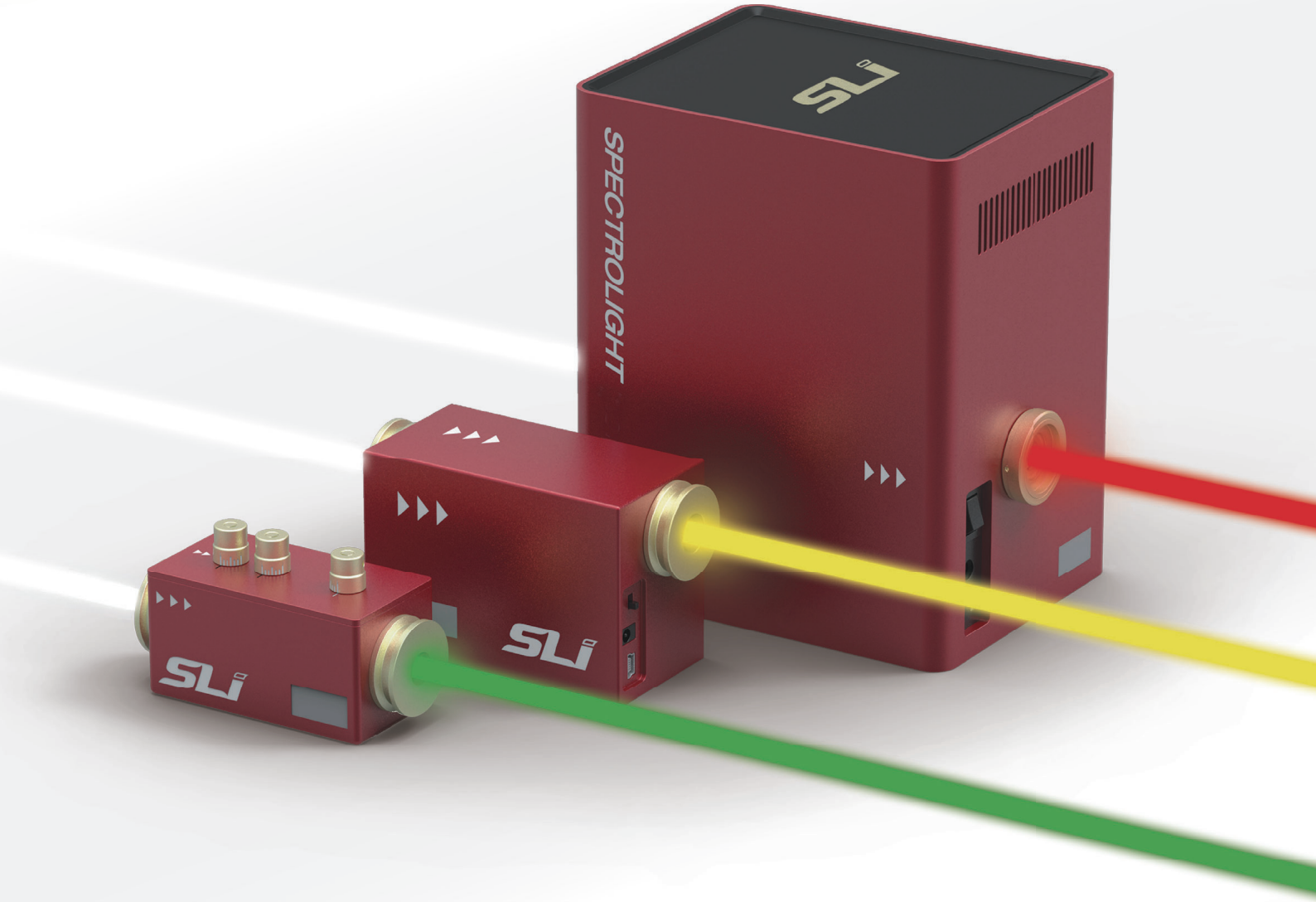
TUNABLE BANDPASS FILTERS



- Wide wavelength tuning range from 255 to 1700 nm
- Suitable for both Excitation and Emission
- Compatible with all Broadband Light Sources
- Implementing the patented TwinFilm™ technology

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Flexible Wavelength Selector (FWS)

Tunable bandpass filter for spectroscopy and spectral imaging

Flexible Wavelength Selector is a unique, compact optomechanical device that utilizes the patented TwinFilm™ technology to deliver precise wavelength tuning and adjustable bandwidth with the imaging advantages of a circular aperture filter.

FWS- Auto (Automated type)

Poly-RED

Poly-BLUE

Mono

FWS- Manual (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 (255 - 1700 nm)
- Adjustable bandwidth (FWHM : 2 - 15 nm, nominal)
- 5 / 10 mm circular aperture
- Compact and light-weight optomechanical device
- No beam deviation or walk-off during tuning

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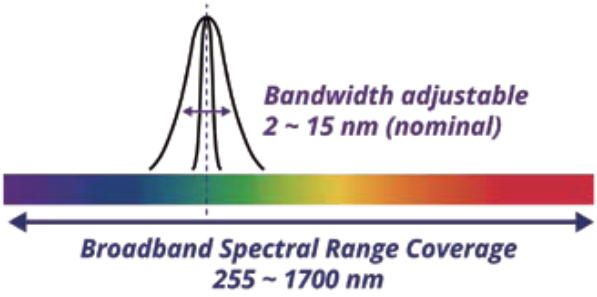
Flexible Wavelength Selector – Poly-RED

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

Spectral range (nm)	Tunable 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*

	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															

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

** For optimal performance input light source must be collimated*

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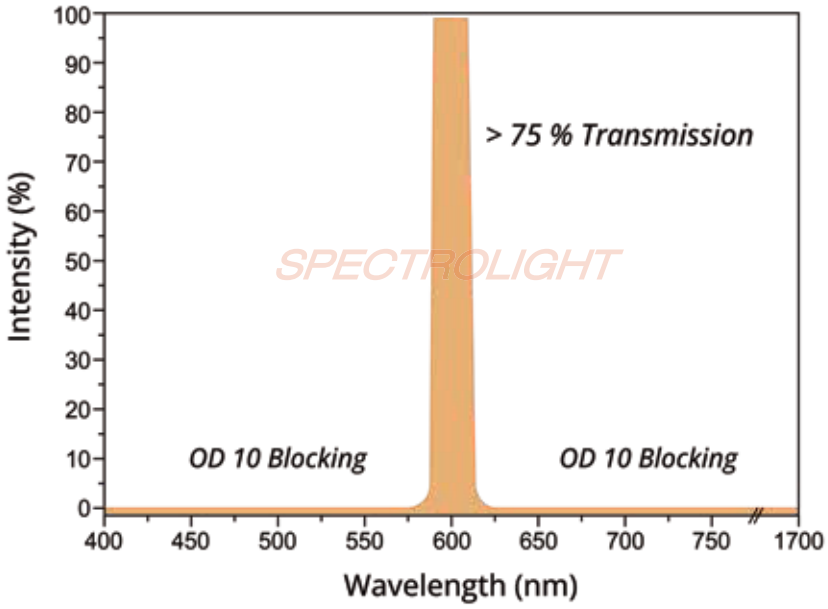
Detailed Models

Model	Optical Specifications
Poly-RED-UV-A5	Spectral range (nm) : 280 - 390 FWHM range (nm, nominal) : 2 - 15 Aperture size (mm) : 5
Poly-RED-VIS-A5	Spectral range (nm) : 430 - 790 FWHM range (nm, nominal) : 2 - 15(430 - 700 nm), 3 - 15(701 - 790 nm) Aperture size (mm) : 5
Poly-RED-IR-A5	Spectral range (nm) : 775 - 1150 FWHM range (nm, nominal) : 3 - 15(775 - 890 nm), 5 - 15(891 - 1150 nm) Aperture size (mm) : 5
Poly-RED-SWIR-A5	Spectral range (nm) : 1140 - 1700 FWHM range (nm, nominal) : 5 - 15(1140 - 1500 nm), 7 - 13(1501 - 1700 nm) Aperture size (mm) : 5
Poly-RED-Custom-A5	USER SPECIFIED CUSTOM RANGE (Selectable wavelength range from 255 to 1700 nm) Aperture size (mm) : 5
Poly-RED-UV-A10	Spectral range (nm) : 280 - 390 FWHM range (nm, nominal) : 2 - 15 Aperture size (mm) : 10
Poly-RED-VIS-A10	Spectral range (nm) : 430 - 790 FWHM range (nm, nominal) : 2 - 15(430 - 700 nm), 3 - 15(701 - 790 nm) Aperture size (mm) : 10
Poly-RED-IR-A10	Spectral range (nm) : 775 - 1150 FWHM range (nm, nominal) : 3 - 15(775 - 890 nm), 5 - 15(891 - 1150 nm) Aperture size (mm) : 10
Poly-RED-SWIR-A10	Spectral range (nm) : 1140 - 1700 FWHM range (nm, nominal) : 5 - 15(1140 - 1500 nm), 7 - 13(1501 - 1700 nm) Aperture size (mm) : 10
Poly-RED-Custom-A10	USER SPECIFIED CUSTOM RANGE (Selectable wavelength range from 255 to 1700 nm) Aperture size (mm) : 10

Full Specifications

	Poly-RED-A5	Poly-RED-A10
Spectral range (nm) [1)]	255 - 1700 nm	
Bandwidth(FWHM) (nm, nominal) [2)]	Max : 3 - 15 nm / Min : 7 - 13 nm	
Aperture size (mm)	5 mm	10 mm
Out of band blocking [3)]	OD 10 up to 1700 nm	
Step size of center wavelength & Bandwidth (nm)	1 nm	
Damage threshold	Pulse : Peak Fluence < 1.75 joules/cm² (~ 70 μm spot diam., 10 ns, 10 Hz, 532 nm Laser) CW (Continuous wave) : Intensity < 2 MW/cm² (1064 nm, ~ 90 μm spot diam.)	
Transmission efficiency (%, nominal)[4)]	> 75 % (avg.)	
Scanning speed (ms)[5)]	30 - 300 ms (depending on step size)	
Software	FWS-Auto ver 4.2	
Electrical requirement	AC 100 - 240 V, 50/60 Hz	
Power supply	DC 12 V, 5 A	
Data interface	USB 2.0	
Dimension (L x W x H, mm)	186 mm x 124 mm x 214 mm	
Weight (kg)	4.2 kg	

1) Specified center wavelength(CWL) tolerance for Poly-RED : ±1 nm.
2) Specified full width at half maximum(FWHM) tolerance: ±1 nm for Poly-RED.
3) OD 7 up to 600 nm for F00-F02 filters; for blocking beyond this range, dedicated out-of-band blockers such as WS-BL400UV and WS-BL1700SWIR are available.
4) Transmission efficiency values are based on filters with a 10 nm full width at half maximum(FWHM). At wavelengths below 400 nm, efficiency remains ≥50%.
5) Scanning speed represents time required for a single wavelength-to-wavelength transition, depending on step size.

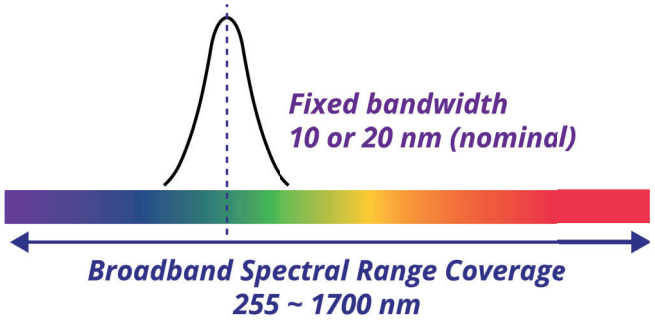


** Transmission may differ depending on specific wavelengths*

Flexible Wavelength Selector – Poly-BLUE

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 : 10 or 20 nm (nominal)*



	FWHM	10 or 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															

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

** For optimal performance input light source must be collimated*

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Detailed Models

Model	Optical Specifications
Poly-BLUE10-UV-A5	Spectral range (nm) : 280 - 390 FWHM range (nm, nominal) : 10 Aperture size (mm) : 5
Poly-BLUE10-VIS-A5	Spectral range (nm) : 430 - 790 FWHM range (nm, nominal) : 10 Aperture size (mm) : 5
Poly-BLUE10-IR-A5	Spectral range (nm) : 775 - 1150 FWHM range (nm, nominal) : 10 Aperture size (mm) : 5
Poly-BLUE10-SWIR-A5	Spectral range (nm) : 1140 - 1700 FWHM range (nm, nominal) : 10 Aperture size (mm) : 5
Poly-BLUE10-Custom-A5	USER SPECIFIED CUSTOM RANGE (Selectable wavelength range from 255 to 1700 nm) FWHM range (nm, nominal) : 10 Aperture size (mm) : 5
Poly-BLUE10-UV-A10	Spectral range (nm) : 280 - 390 FWHM range (nm, nominal) : 10 Aperture size (mm) : 10
Poly-BLUE10-VIS-A10	Spectral range (nm) : 430 - 790 FWHM range (nm, nominal) : 10 Aperture size (mm) : 10
Poly-BLUE10-IR-A10	Spectral range (nm) : 775 - 1150 FWHM range (nm, nominal) : 10 Aperture size (mm) : 10
Poly-BLUE10-SWIR-A10	Spectral range (nm) : 1140 - 1700 FWHM range (nm, nominal) : 10 Aperture size (mm) : 10
Poly-BLUE10-Custom-A10	USER SPECIFIED CUSTOM RANGE (Selectable wavelength range from 255 to 1700 nm) FWHM range (nm, nominal) : 10 Aperture size (mm) : 10

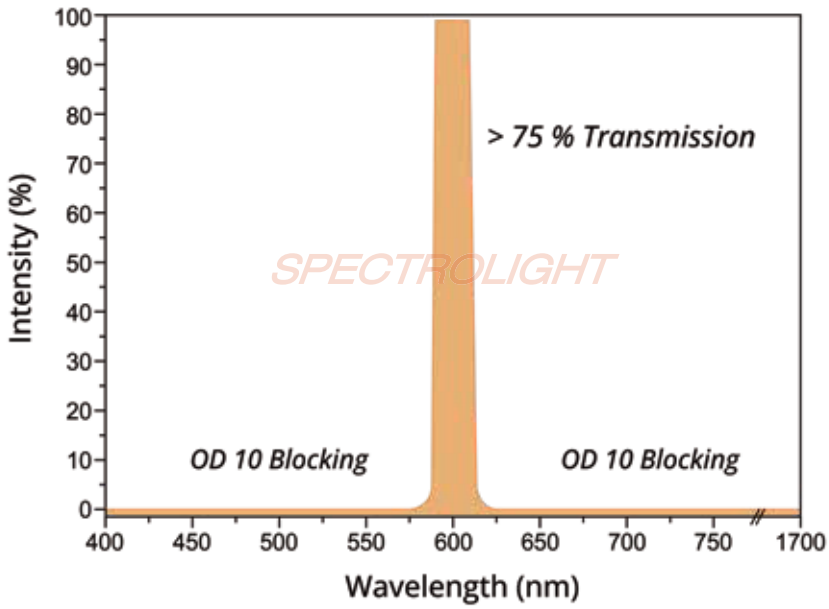
Detailed Models

Model	Optical Specifications
Poly-BLUE20-UV-A5	Spectral range (nm) : 280 - 390 FWHM range (nm, nominal) : 20 Aperture size (mm) : 5
Poly-BLUE20-VIS-A5	Spectral range (nm) : 430 - 790 FWHM range (nm, nominal) : 20 Aperture size (mm) : 5
Poly-BLUE20-IR-A5	Spectral range (nm) : 775 - 1150 FWHM range (nm, nominal) : 20 Aperture size (mm) : 5
Poly-BLUE20-SWIR-A5	Spectral range (nm) : 1140 - 1700 FWHM range (nm, nominal) : 20 Aperture size (mm) : 5
Poly-BLUE20-Custom-A5	USER SPECIFIED CUSTOM RANGE (Selectable wavelength range from 255 to 1700 nm) FWHM range (nm, nominal) : 20 Aperture size (mm) : 5
Poly-BLUE20-UV-A10	Spectral range (nm) : 280 - 390 FWHM range (nm, nominal) : 20 Aperture size (mm) : 10
Poly-BLUE20-VIS-A10	Spectral range (nm) : 430 - 790 FWHM range (nm, nominal) : 20 Aperture size (mm) : 10
Poly-BLUE20-IR-A10	Spectral range (nm) : 775 - 1150 FWHM range (nm, nominal) : 20 Aperture size (mm) : 10
Poly-BLUE20-SWIR-A10	Spectral range (nm) : 1140 - 1700 FWHM range (nm, nominal) : 20 Aperture size (mm) : 10
Poly-BLUE20-Custom-A10	USER SPECIFIED CUSTOM RANGE (Selectable wavelength range from 255 to 1700 nm) FWHM range (nm, nominal) : 20 Aperture size (mm) : 10

Full Specifications

	Poly-BLUE10-A5	Poly-BLUE10-A10	Poly-BLUE20-A5	Poly-BLUE20-A10
Spectral range (nm) [1]	255 - 1700 nm			
Bandwidth(FWHM) (nm, nominal) [2]	10 nm		20 nm	
Aperture size (mm)	5 mm	10 mm	5 mm	10 mm
Out of band blocking [3]	OD 10 up to 1700 nm			
Step size of center wavelength & Bandwidth (nm)	1 nm			
Damage threshold	Pulse : Peak Fluence < 1.75 joules/cm² (~ 70 μm spot diam., 10 ns, 10 Hz, 532 nm Laser) CW (Continuous wave) : Intensity < 2 MW/cm² (1064 nm, ~ 90 μm spot diam.)			
Transmission efficiency (%, nominal) [4]	> 75 % (avg.)			
Scanning speed (ms) [5]	30 - 300 ms (depending on step size)			
Software	FWS-Auto ver 4.2			
Electrical requirement	AC 100 - 240 V, 50/60 Hz			
Power supply	DC 12 V, 5 A			
Data interface	USB 2.0			
Dimension (L x W x H, mm)	137 mm x 124 mm x 214 mm			
Weight (kg)	3.15 kg			

1) Specified center wavelength(CWL) tolerance for Poly-BLUE : ±1 nm.
2) Specified full width at half maximum(FWHM) tolerance: ±2.5 nm for Poly-BLUE.
3) OD 7 up to 600 nm for F00-F02 filters; for blocking beyond this range, dedicated out-of-band blockers such as WS-BL400UV and WS-BL1700SWIR are available.
4) Transmission efficiency values are based on filters with a 10 nm full width at half maximum(FWHM). At wavelengths below 400 nm, efficiency remains ≥50%.
5) Scanning speed represents time required for a single wavelength-to-wavelength transition, depending on step size.



** Transmission may differ depending on specific wavelengths*