

LLTF CONTRAST™

THE ULTIMATE SUPERCONTINUUM FILTER UP TO 20W INPUT POWER



The Laser Line Tunable Filter (LLTF) is a non-dispersive tunable bandpass filter. Its volume holographic gratings allow it to deliver the highest signal throughput in the industry. They also combine very high optical density (> OD6) and outstanding out-of-band rejection (<-60 dB) with wide tunability. A single filter can be tuned for the visible (400-1000 nm), SWIR (1000-2500 nm) or extended (400-2500 nm) ranges. The output pointing is very stable, removing the need for optical realignment. The LLTF Contrast is compatible with any laser source or VIS-NIR supercontinuum. Contact us to determine the best configuration for your specific application.

TECHNICAL SPECIFICATIONS				
(extended and reduced spectral ranges also available**)	CONTRAST VIS	CONTRAST SWIR	CONTRAST EXT-IV	CONTRAST X
Spectral Range	400 - 1000 nm	1000 - 2300 nm (2500 nm optional)	400 - 2300 nm (2500 nm optional)	where X represents a custom spectral range
Bandwidth (FWHM)***	1.0 - 2.5 nm	2.0 - 5.0 nm	≤ 2.5 (<1000 nm) ≤ 5.0 (>1000 nm)	High resolution 0.15 nm - 0.9 nm
Out of Band Rejection (fibered output or with the background suppressor accessory)	< -60 dB @ ± 40 nm	< -60 dB @ ± 80 nm (measured up to 1.7 μm)	< -60 dB @ ± 80 nm (measured up to 1.7 μm)	Depends on the bandwidth
Maximum input average power	HP8 (up to 8W), HP20 (up to 20W)	HP8 (up to 8W), HP20 (up to 20W)	HP8 (up to 8W), HP20 (up to 20W)	HP4 (up to 4W)
Peak Efficiency	typically around 65%			
Optical Density (OD)	> OD6 (measured at 1064 nm)			TBD
Damage Threshold	< 5 GW/cm ² peak power @ 1064 nm, 8 ns			
Input Beam Diameter	5 mm			
Input Beam Divergence Requirement	< 1 mrad			
Wavelength Resolution (Relative)	FWHM / 8			
Pointing Stability	< 1 mm lateral displacement @ 1 m from filter			
Scanning speed (multiple step)	35 ms stabilization time for 0.1 nm step, 45 ms stabilization time for 0.2 nm step, 55 ms stabilization time for 1 nm step, 60 ms stabilization time for 2 nm step, 65 ms stabilization time for 5 nm step, 70 ms stabilization time for 10 nm step			
Operating System (OS)	Windows 8 (64 bits) Windows 10 (64 bits)			
Software	PHySpec™ included (SDK available)			
Computer Connection	USB 2.0 (compatible 1.1)			
Dimensions (L x W x H)	9" x 6.3" x 6.7" 23 cm x 16 cm x 17 cm	11.8" x 9.1" x 6.7" 30 cm x 23 cm x 17.4 cm	9" x 6.3" x 6.7" 23 cm x 16 cm x 17 cm	
Operating Temperature	10 to 40°C			
Storage Temperature	0 to 50°C			
Power Supply	100 - 240 V, 50 - 60 Hz			

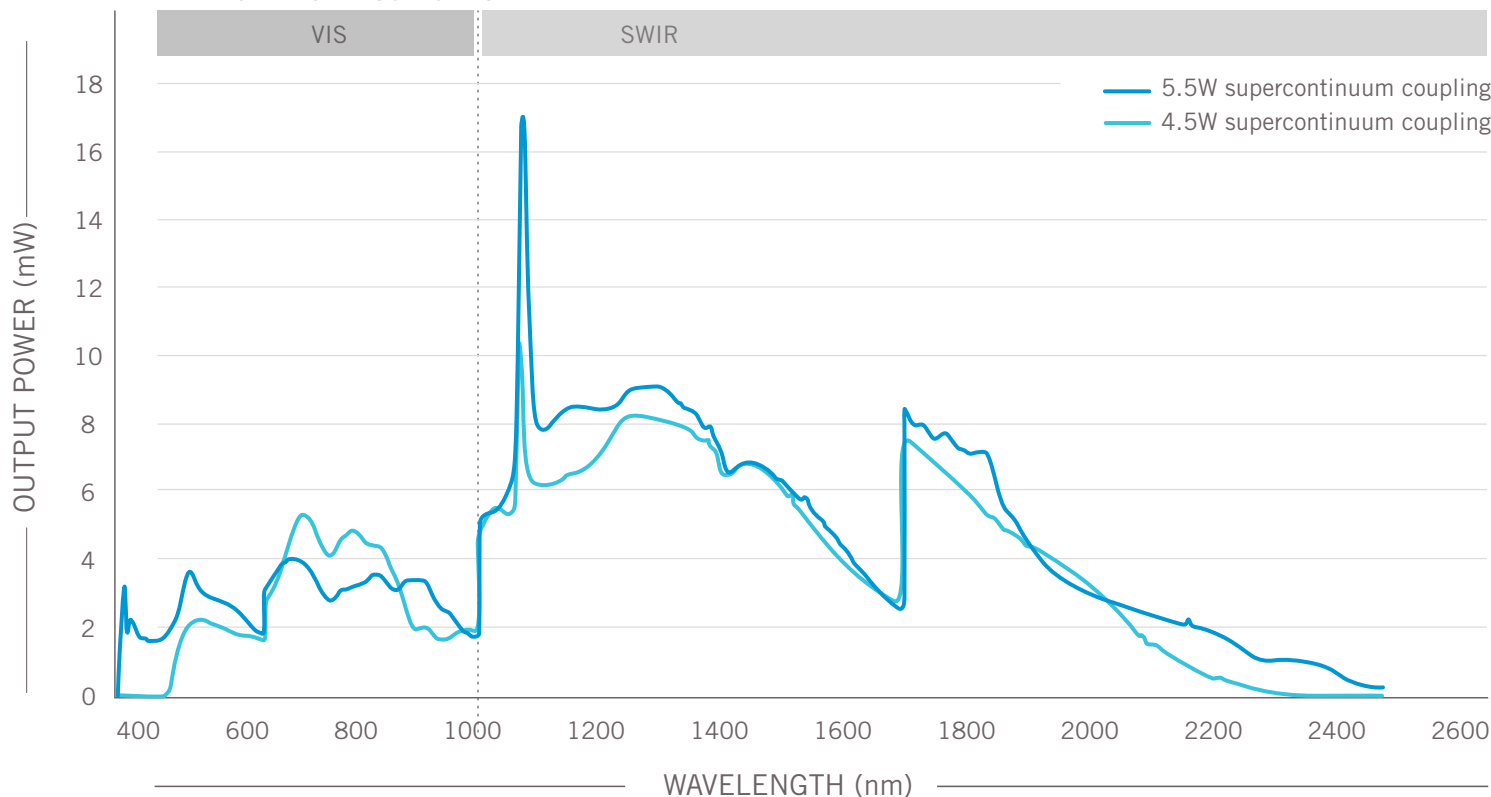
*** Valid if the divergence of the input beam does not exceed 1 mrad

NOTE: Photon etc reserves the right to change the design and specification of the product at any time, without notice.

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LLTF VIS AND SWIR OUTPUT POWER



LLTF EXTENDED (500-2000 nm) OUTPUT POWER

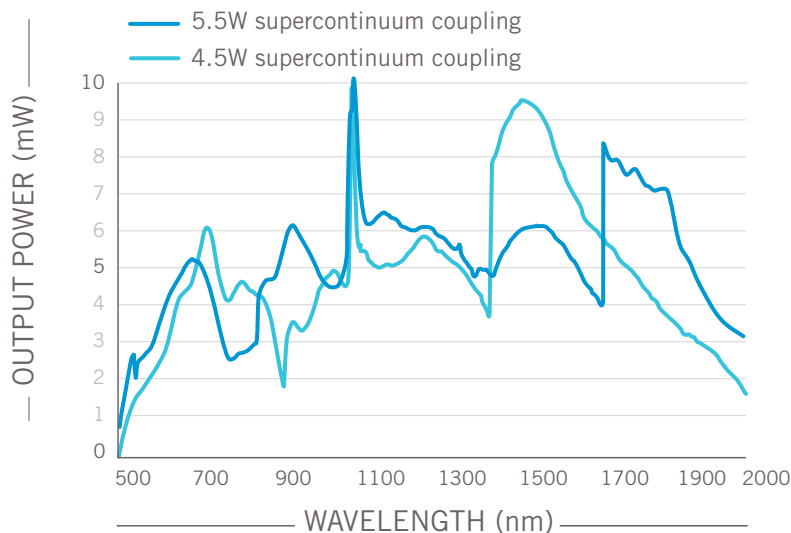
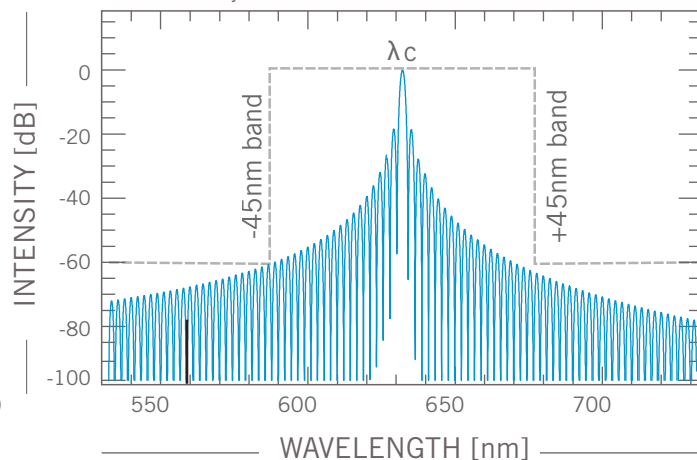


Illustration of the out-of-band rejection of a volume holographic grating at $\lambda_c = 632$ nm. Bands of ± 45 nm are presented and an out-of-band rejection of -60 dB is obtained.



OPTIONS & ACCESSORIES

(extended and reduced spectral ranges also available**)	CONTRAST VIS	CONTRAST SWIR	CONTRAST EXT-IV	CONTRAST X
Enhance SWIR	N/A		up to 2500 nm	
Fibered Output	An X-Y-Z translation adjustment allows coupling optimization.			
Harmonic Filter	Blocks the harmonics coming from the region 400-500 nm	Blocks the harmonics coming from the region 500-1000 nm and/or 1000-1150 nm	Blocks the harmonics coming from the regions 400-500 and/or 500-850 and/or 850-1150 nm	The filter is chosen according to the spectral range
Alignment Kit (for free space)	In free-space (input/output) configuration, the alignment kit allows the user to rapidly find the correct alignment			
** Extended and reduced spectral ranges also available	e.g.: 500-2000 nm, 400-1700 nm, 500-900 nm, 400-650 nm, 650-1000 nm, 1000-1700 nm, 1700-2300 nm, etc.			

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