Ultrabroad Single Mode Supercontinuum Light

450–2300 nm, Single mode, Up to 7 W

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The SUPL is a Turn-Key single-mode supercontinuum ASE source providing continuous emission from 450 to 2300 nm, with up to 7 W average output power and power stability better than 0.5% RMS. The system uses a 1060 nm pulsed fiber laser to pump a photonic crystal fiber (PCF), producing a spatially coherent, diffraction-limited beam across the entire spectral range. The SUPL delivers highly stable linear polarization, featuring an extinction ratio of up to 35 dB with minimal sensitivity to time or temperature variations, making it an ideal polarized broadband light source for demanding applications. Available as a ready-to-use benchtop unit, the SUPL offers two repetition-rate configurations: 100 kHz and 4 MHz with pulse duration of 100 ns and 10 ns, respectively. Shorter pulses generate lighter in the blue spectral. Both output power and repetition rate are user-adjustable via front-panel controls or a USB-based GUI. A TTL BNC output is provided for synchronization with external instrumentation. In its standard configuration, the SUPL provides free-space output from a PCF terminated with a fused glass core endface, ensuring damage resistance while preserving single-mode propagation. Due to the significant mode-field mismatch between PCF and conventional optical fibers, direct connectorization typically results in coupling losses exceeding 10 dB. To mitigate this, mode-field-adapter splicing is available, along with a range of optional connectorized fiber outputs for streamlined system integration. Note that wavelength coverage may be limited by the selected single-mode fiber, while use of multimode fibers may affect mode characteristics. Strong optical back-reflections may damage the laser. Exercise caution during operation and consider to include a special protection isolator.

Features

- Ultra-Broad 450 -2300nm
- Singel Mode Output
- 3W Total Power as Default
- 7W Total Output available
- No Polarization Dependence

Applications

- Sensor
- OTC
- Spectroscopy
- Testing/Characterization
- Metrology

RoHS COMPLIANT

Specifications

Parameter	Min	Typical	Max	Unit
Spectrum Range	450		2300	nm
Average Power (over the entire spectrum)		> 3	7	W
Repetition Rate *	40	100	4000	kHz
Visible Range Average Power		150		mW
Power Density (800-1700nm)	15			dBm/nm
Pulse Duration (at 1060nm)	10		100	ns
Average Power Stability (std. dev.)		< 0.5		%
Output Power Adjustability	1		100	%
Beam Diameter		< 4		mm
Spatial Mode Quality (M^2)		< 1.2		
Polarization	Unpolarized			
PCF	SC-5.0-1040 (NKT)			
PCF 1st Zero Dispersion Wavelength	1050			nm
PCF Mode Field Diameter	4.6			µm
PCF Background Loss @1606nm	14			dB/km
PCF Background Loss @1550nm	10			dB/km
PCF Cladding Diameter	125			µm
PCF Outer Coating Diameter	245			µm
Output Port	Single Mode Fiber. 1m length			
Optical Output	Collimated(in the range 450-1000nm), Single-mode across full spectrum			
Cooling	air cooling			
Power Requirements	220 V / 110V - 50/60 Hz			
Operating Temperature	20		30	°C
Storage Temperature	-40		80	°C

* Two types of pump lasers: one with max repetition of 100kHz, another with 4000kHz.

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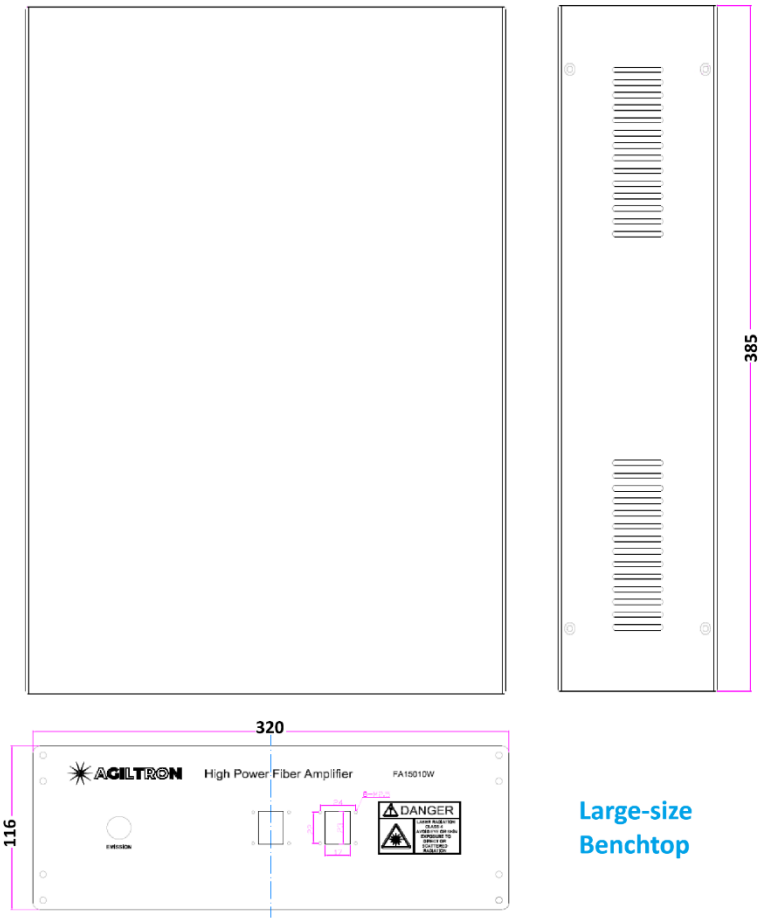
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Dimensions (mm)



Large-size
Benchtop

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Accessory - Tunable Output

We have a tunable laser version for both free space and fiber output

https://agiltron.com/product/fiber-coupled-single-mode-tunable-laser-450-2200nm/

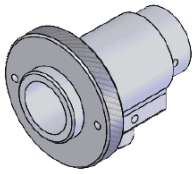
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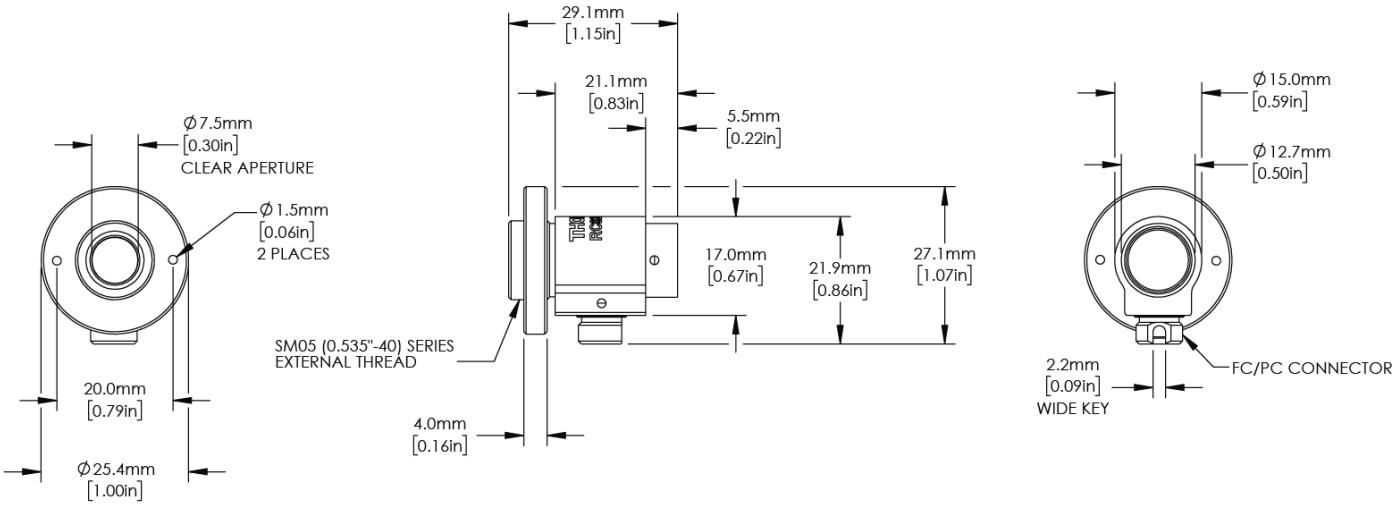
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Collimator Mechanical Dimensions (mm[inches])





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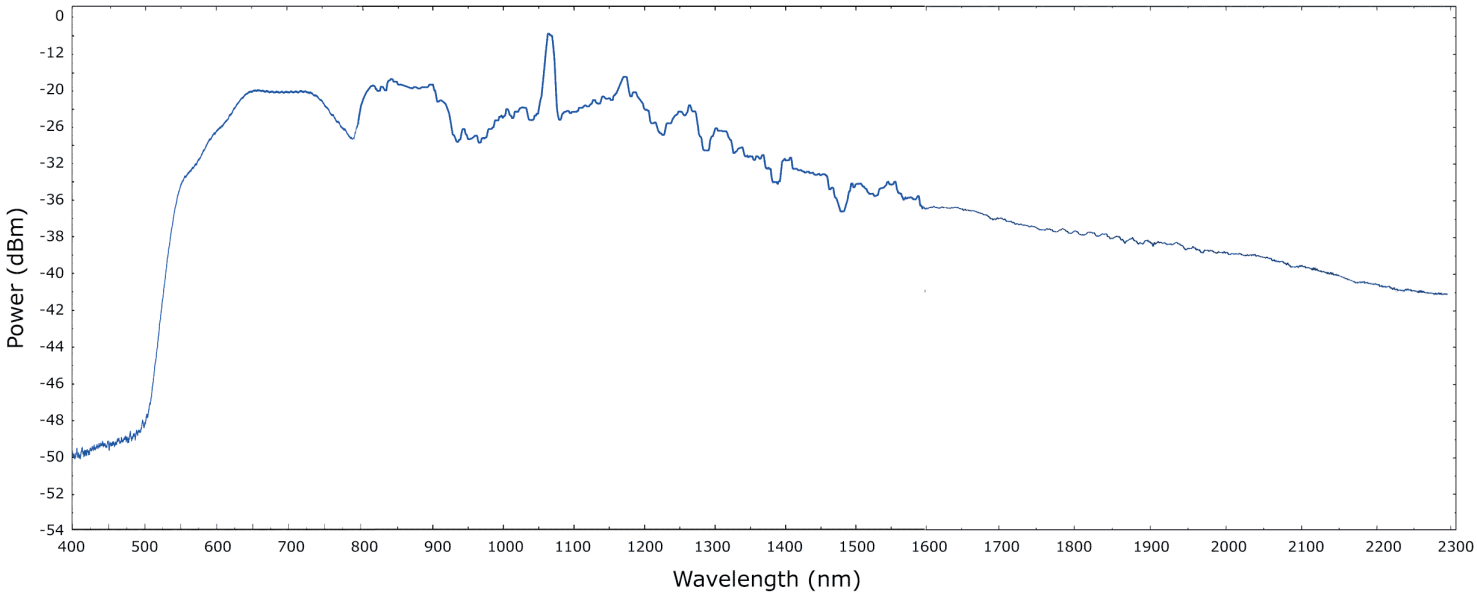
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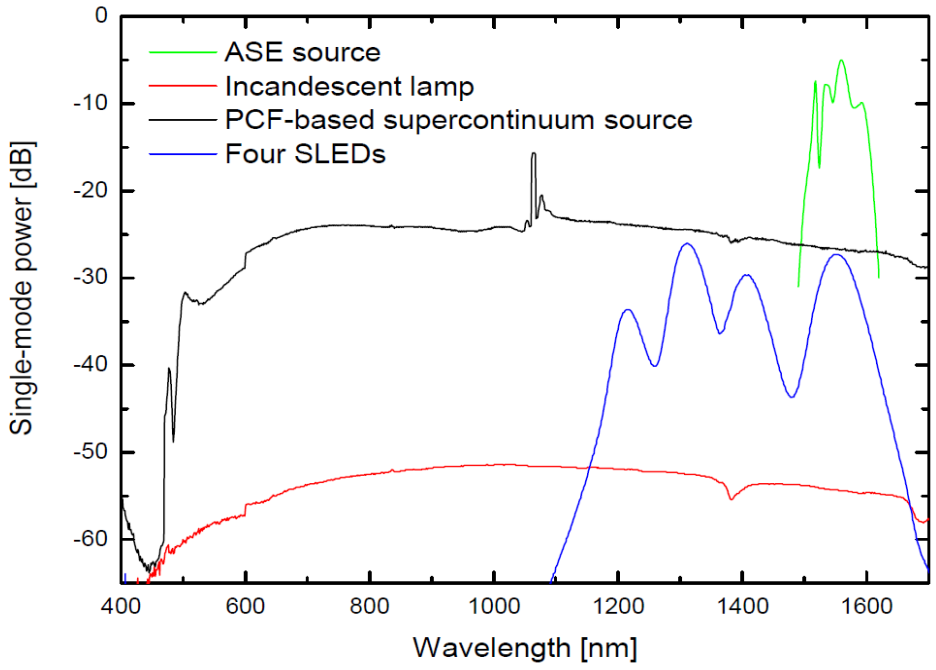
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Typical Spectrum in LOG SCALE (4MHz Pump)



Comparison of the power spectral density delivered into a single mode fiber for various light sources.



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Ordering Information (Part Number)

	1	☐☐	1	☐	☐	☐	☐	☐
Prefix	**Config**	**Total Output Power**	**Interface**	**Repetition**	**Isolator**	**Output [1]**	**Connector [2][4]**	**Collimator [3]**
SUPL-	Standard = 1 Special = 0	3W = 03 5W = 05 7W = 07 10W = 10 15W = 15 20W = 20 Special = 00	Non = 1 USB = 2 RS232 = 3 Special = 0	< 100 kHz = 1 < 4 MHz = 2	Non = 1 Yes = 2	Photonic Fiber = 1 50/125 Fiber = 2 105/125 Fiber = 3 SM28 = S Hi1060 = A Hi980 = B Special = 0	None = 1 FC/PC = 2 Special = 0	Non = 1 4mm/50mm = 2 Special = 0

[1]. The default Photonic Crystal Fiber (PCF) output configuration provides a free-space output. Adding a connector is intended solely for end-face protection, not for mating with another fiber, as mode mismatch can cause severe optical damage. We can splice a standard fiber to the PCF to allow coupling into a regular fiber via a connector; however, if SM28 fiber is selected, the connector can only handle up to about 1 W of optical power. Therefore, bare fiber output is recommended for SM28 applications requiring further splicing without output power limitation.

[2]. The connector is only for regular fiber. For PCF connector can be used to protect the end face, but not for butt coupling. Photonic crystal fiber requires a mode field adaptor to couple into a glass fiber, which we produce.
Regular fiber connector has PER ~22dB. Connector with PER >27 dB is available using special process.

[3]. 4mm/50mm- 4mm diameter parallel beam with a beam waist at a distance of 50mm

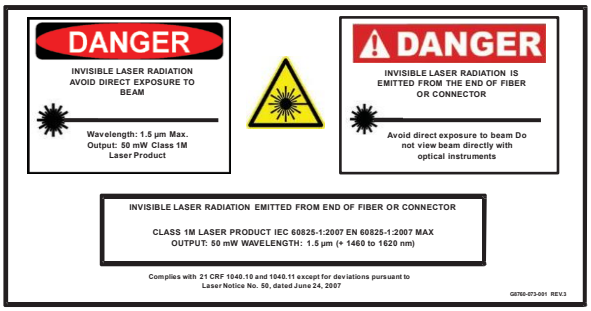
[4]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 µm.

Maximum power = 30 mW.



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