

PPLN Bulk Mixers

PPLN bulk mixers are frequency conversion modules which integrate PPLN bulk chips into a convenient, compact, robust, cost-effective packaged format for your application convenience. Optimized for your desired input pump lasers and frequency mixing configurations, PPLN bulk mixers provide the polarization maintaining output either in free space or optical fiber, with available output wavelength ranging from UV/Visible to NIR/MIR and output power up to few Watts.



Key features

- Single-pass & high-efficiency, optimized for your specified input pumps
- Available output wavelength from UV/Visible to NIR/MIR
- Available mixing configuration from fundamental type to advanced type (such as SHG, SFG, DFG, Cascaded SHG-SFG (THG), Tunable etc.)
- Available for fiber or free space as input/output coupling interfaces (such as 1x0, 1x1, 2x0, 2x1, 0x0, 0=free space, 1=one fiber, 2=dual fibers, with optional alignment beam for free space input)
- Available with integrated thermistor/TEC for QPM temperature optimization & optional photodiode (PD) for power monitoring/automatic power control
- Convenient, compact and robust and available for a variety of application customizations

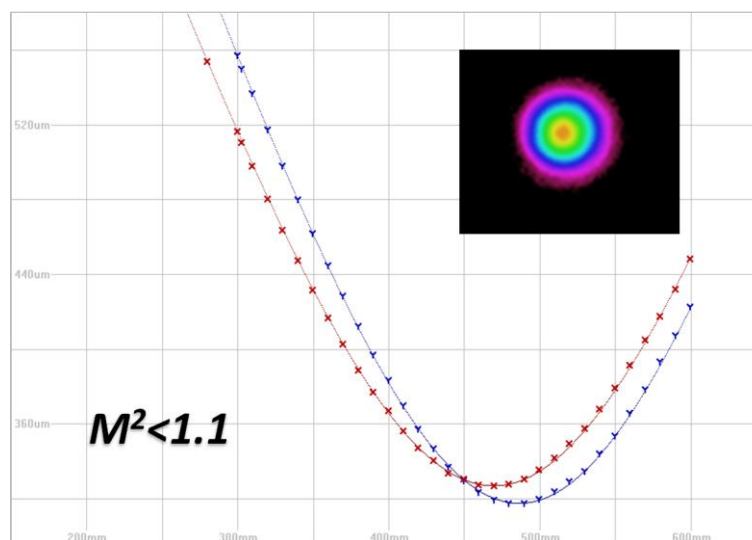
	Bulk Mixer – SHG *1				
Color	B	G	Y	O	R
Range	450-495	495-560	560-580	580-620	620-800
Best seller, λ *2	473nm, <u>488nm</u>	515nm, <u>532nm</u> , 543nm	<u>561nm</u>	<u>589nm</u> , 594nm	<u>775nm</u> , <u>780nm</u> , 785nm
Applications	CyPet, GFP, PA-GFP, Dronpa, FITC	YFP, Rhodamine, mOrange, DsRed	mApple, DsRed, TRITC, Cy3	Texas Red, mCherry, mRFP, mKate	NIR Raman spectroscopy, Rb/K cooling,
Power*3 (max)	1W	2W	3W	4W	6W
Pump	Diode	Diode/Yb&Yb+/Raman lasers			Diode/Er laser
Fiber output*4	Yes, <1W with single mode PM fiber				

Bestseller

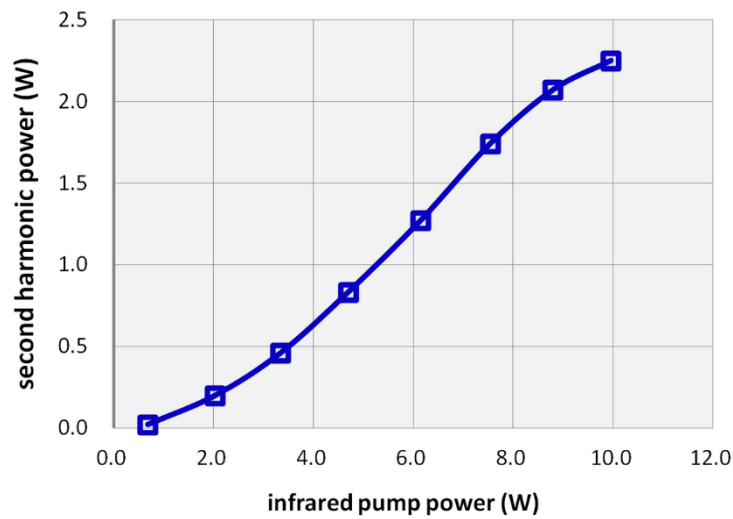
Five color series corresponding to the different wavelength range are our Best-seller selections designed for the specific application such as laser microscopy or atom trapping. Detailed specifications are shown below. Alternatively, contact us for your specific wavelength or requirements.

General Specifications

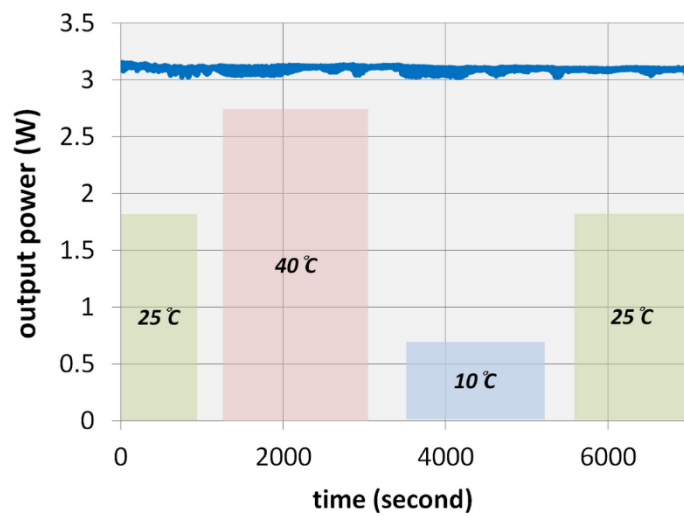
Optics	unit	Spec.		
		Minimum	Typical	Maximum
Beam quality, M^2				≤ 1.2
Diameter of collimated output beam	mm	0.9	1	1.1
Output beam (TEM00) ellipticity	%			≤ 10
Residual IR/output power rejection ratio	dB			-40
Output polarization state		Horizontal, PER>20dB		
Back reflection for IR wavelength	dB		-45	-42
Fiber coupled output	%		75	
Mechanics	unit	Spec.		
		Minimum	Typical	Maximum
Housing dimension (L*W*H)	mm	150x50x35		
Beam height	mm	18.9 \pm 0.5		
Statistic beam angle	mrad	-7.5	0	7.5
Electrics	unit	Spec.		
		Minimum	Typical	Maximum
Electrical connector		Hiroshi HR 10G-10P(73)		
Thermoelectric cooler		3.2V, 4A maximum, Qc = 6.9 W		
Environment	unit	Spec.		
		Minimum	Typical	Maximum
Storage temperature (no humidity)	$^{\circ}$ C	-20	-	70
Operating temperature range	$^{\circ}$ C	10	25	35
Operating rel. humidity (non condensing)	%RH	10	-	85
Restriction of hazardous substances directive (RoHs)		Declaration of Conformity to 2011/65/EG		



Excellent beam quality



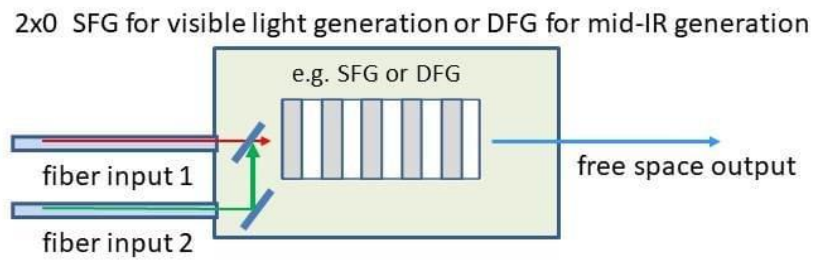
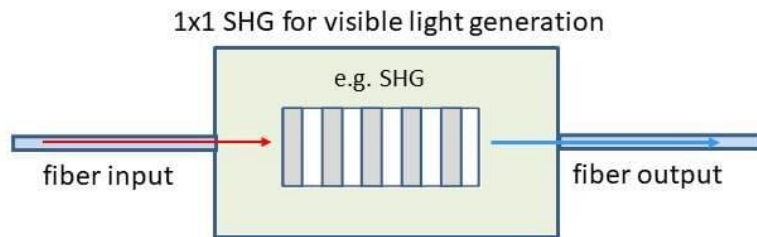
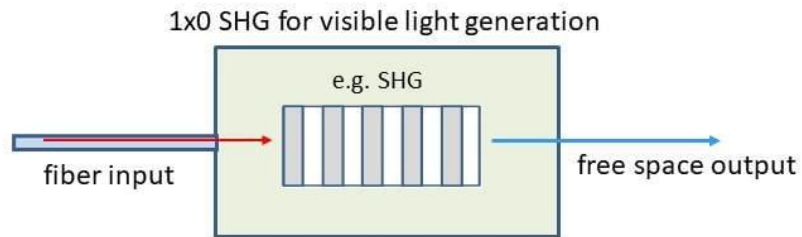
Power scaling of bulk mixer-G (532 nm)



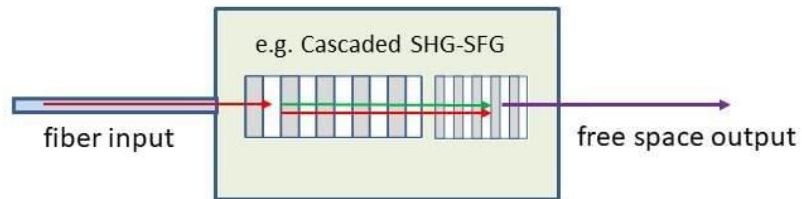
Thermal Reliability

1. Second-harmonic generation (SHG)
2. HC Photonics offers the best sellers at these wavelengths within +/- 0.5 nm. Custom wavelengths are available upon request.
3. SHG power is pump dependent. Please contact us for different power requirements with your pump conditions.
4. Typical coupling efficiency is 75% with single mode PM fiber. Please contact us for higher efficiency.

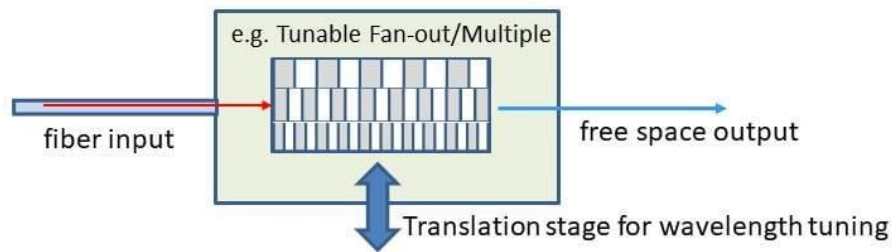
Example available configurations:



1x0 cascaded SHG-SFG for 355nm UV generation



1x0 tunable SHG for tunable visible light generation



0x0 SHG for visible light generation, with optional alignment beam

