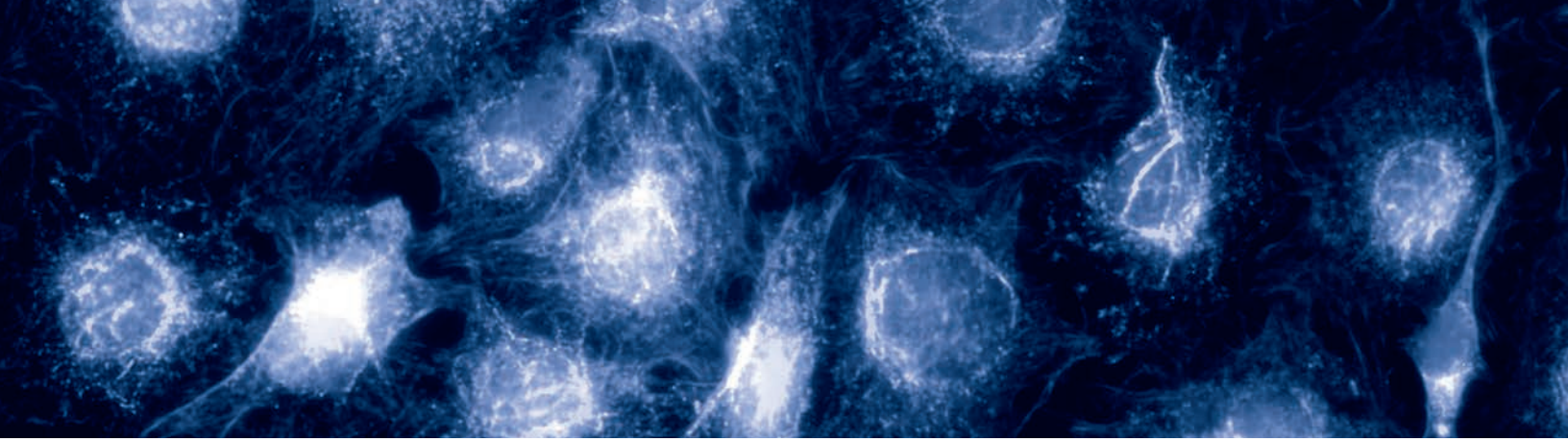


OPerA Solo

Fully Integrated, Computer-Controlled Femtosecond Optical Parametric Amplifier Accessory

OPerA Solo is a one-box femtosecond optical parametric amplifier (OPA) that extends the wavelength availability of the Astrella and Legend Elite HE+ families of ultrafast amplifiers from 240 nm to 20 µm. OPerA Solo is the only kHz OPA that integrates all pump conditioning optics, wavelength extension options and wavelength separation optics within one enclosure. This makes OPerAa Solo a very compact, easy-to-use and stable device. OPerA Solo incorporates well-proven TOPAS technology including white light seeding for lowest output noise performance.

FEATURES & BENEFITS

- Fully integrated one-box system
- Convenient computer-controlled tuning
- Options for 240 nm to 20 µm tuning
- Configurations to accommodate Femto, USP, and USX pulse widths from Coherent kHz femtosecond amplifiers
- "Fresh pump" configuration for optimum spatial, temporal, and spectral performance
- Multiple OPAs may be pumped by a single kHz amplifier

APPLICATIONS

- Time-resolved Spectroscopy
- Multi-dimensional Spectroscopy
- Surface SFG/SHG

COHERENT®
Superior Reliability & Performance

SPECIFICATIONS[1,2]		Wavelength Range	Pulse Energy		Polarization
			<50 fs pump	<110 fs pump	
OPerA Solo[3]	Signal	1160 to 1600 nm	>220 µJ (S+I)	>220 µJ (S+I)	V
	Idler	1600 to 2600 nm			H
OPTIONS[4]					
SH Package	SHI	800 to 1160 nm	>30 µJ	>50 µJ	V
	SHS	580 to 800 nm			V
SF Package	SFI	533 to 600 nm	>30 µJ	>50 µJ	V
	SFS	475 to 533 nm	>40 µJ	>70 µJ	V
FH Package	FHI	400 to 480 nm	>5 µJ	>10 µJ	H
	FHS	290 to 400 nm			H
SHSF Package	SHSFI	266 to 295 nm	>3 µJ	>8 µJ	H
	SHSFS	240 to 266 nm			H
NDFG Package	NDFG1[5,6]	2.6 to 11 µm	>2 µJ at 4 µm >0.5 µJ at 9 µm	>8 µJ at 4 µm >1.5 µJ at 10 µm	H
	NDFG1-KTA[6]	2.6 to 4.9 µm	>2 µJ at 4 µm	>8 µJ at 4 µm	H
	NDFG2[6]	4 to 20 µm	>1 µJ at 5 µm >0.1 µJ at 13 µm	>4 µJ at 5 µm >0.3 µJ at 15 µm	H

1 1 All specifications are based on pumping with 1 mJ from Astrella, Legend Elite or Libra systems at 1 kHz (contact factory for other pump systems). Specifications for harmonic wavelengths pumped by Legend Elite USX and Legend Elite Duo USX models are 25% lower.

2 Energy scales linearly with pump in range 0.2 mJ to 4 mJ for <110 fs pump and 0.2 mJ to 3.5 mJ for <50 fs pump.

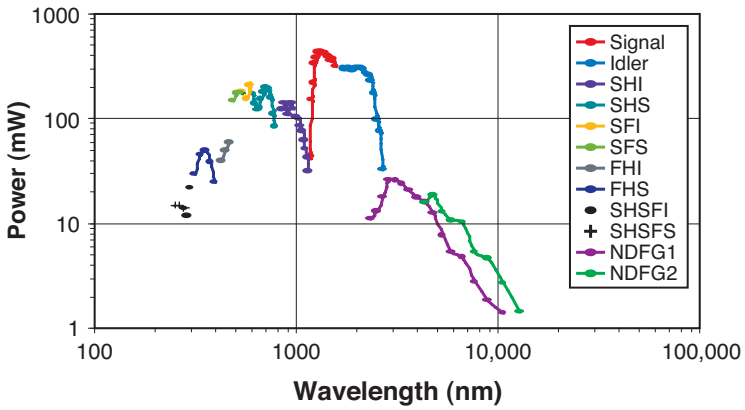
3 Signal pulse width is (0.7 to 1.0) x pump for <110 fs pump duration, (1 to 1.5) x pump for <50 sec. pump duration.

4 Energies given at peak of tuning curves. SH/SF/FH/SHSF wavelength extension packages listed include all mixing crystals listed in preceding options (e.g., SHSF option includes crystals, etc., to tune from 240 to 1160 nm).

5 Maximum pump repetition rate – 1 kHz. Limited crystal life time of 1000 to 2000 hr.

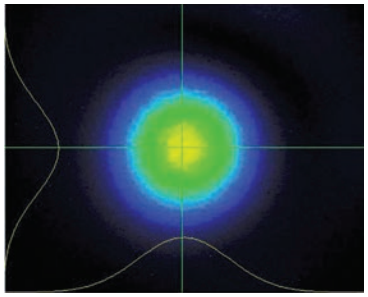
6 For <50 fs pump NDFG tuning ranges are as follows: NDFG1- 2.6 µm to 9 µm, NDFG1-KTA - 2.6 µm to 4.5 µm and NDFG2 - 4 µm to 13 µm.

Typical OPerA Solo Tuning Curve
Legend Elite USP-1K-HE Pump (3.3 mJ)

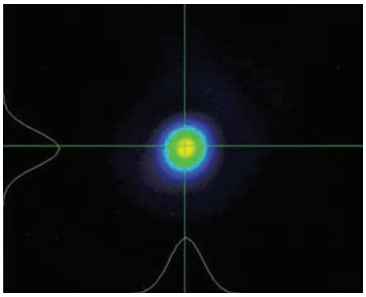


Typical OPerA Solo Beam Profile
500 nm Sum Frequency Generation

Near Field



Far Field



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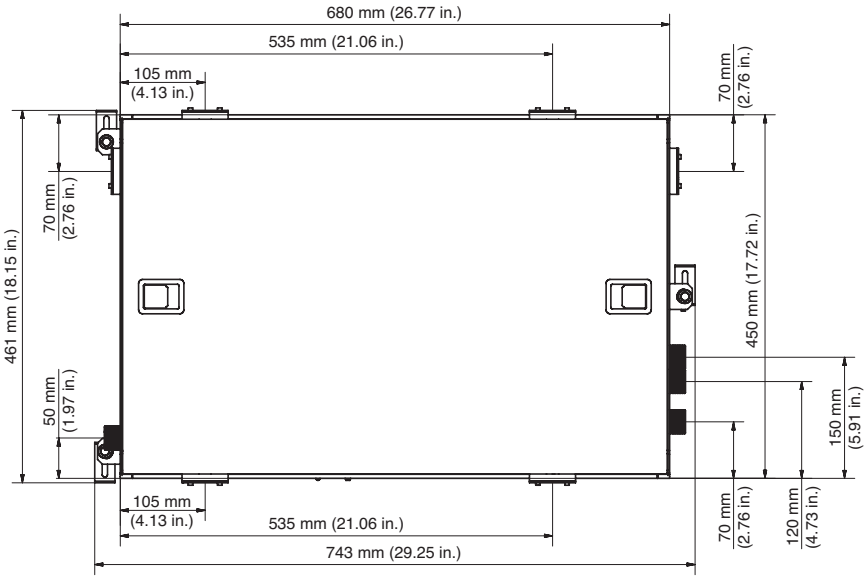
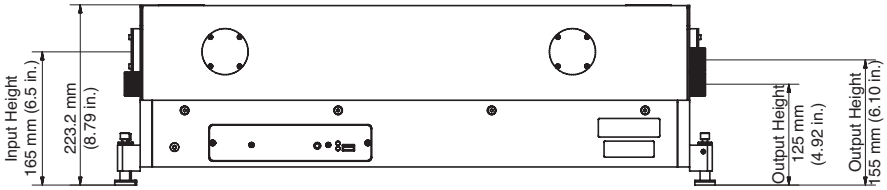
MECHANICAL SPECIFICATIONS

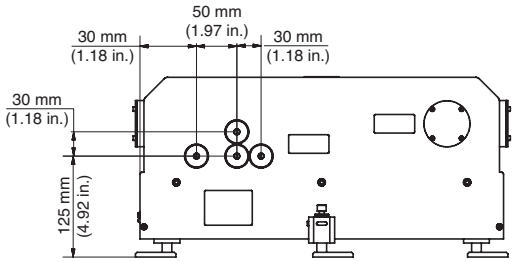
OPerA Solo

Top View





Side View



Front View

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