


**MODEL 800** (femtosecond version)


### PERFORMANCE SPECIFICATIONS

TOPAS-C Model 800-fs is pumped by a fundamental harmonic of Ti:sapphire lasers and covers wavelength range from 1150 to 2600 nm. With optional frequency mixers this range can be extended from 189 nm to 20 microns.

#### PUMP REQUIREMENTS

Wavelength	770- 830 nm
Pulse width (FWHM)	25 to 200 fs
Pulse energy	0.1 to 3 mJ
Maximum average power	5 Watt
Polarization	horizontal
Spectral width	<1.3 times transform limit
Beam divergence	$M^2 < 1.5$
Pulse front tilt	<10% of pulsewidth
Pulse contrast	<5% of output energy in background
Energy instability	<2% peak-to-peak
Pulsewidth instability	<2% pulse-to-pulse
Spatial profile	Gaussian
Intensity modulation	<15%
Beam divergence	<1.2 x (diffraction limit)
Beam pointing instability	<0.1 x (diffraction limit)

#### PERFORMANCE SPECIFICATIONS WITH 800nm/1 mJ/ 100 fs PUMP PULSES AT 1kHz

##### OUTPUT FROM TOPAS

Tuning range (signal+idler)	1150-2600 nm
Energy (signal+idler)	> 250 $\mu$ J at peak
Pulse duration	(0.7 to 1.0) x pump pulse width
Polarization	signal wave (1150-1600 nm) vertical idler wave (1600-2600 nm) horizontal
Energy instability	<2% rms

##### OUTPUT FROM OPTIONAL UV-VIS GENERATOR SH OF SIGNAL (SHS) & SH OF IDLER (SHI)

Tuning range	580-800 nm (SHS)	800-1150 nm (SHI)
Pulse energy	80 $\mu$ J at peak	
Polarization	horizontal(580-800nm)	vertical (800-1150nm)

### FEATURES

- Travelling wave dual crystal, two amplification stages configuration
- High output stability throughout the entire tuning range
- Energy conversion into the parametric radiation ~30-35%
- Angular tuning limited by crystal transparency range only
- Output pulse up to 2 times shorter than pump pulse
- Upgradability for pump energy, wavelength and pulse width
- Computer controlled operation
- Optional frequency mixers

### PUMP+ IDLER (SFI)

Tuning range	533-600 nm
Pulse energy	> 60 $\mu$ J at peak
Polarization	vertical

### PUMP+ SIGNAL (SFS)

Tuning range	475-533 nm
Pulse energy	> 90 $\mu$ J at peak
Polarization	vertical

### SH OF SHS & SH OF SHI (FHS & FHI)

Tuning range	290-400nm (SH SHS)	400-475nm (SH of SHI)
Pulse energy	> 15 $\mu$ J @ 320 nm	> 6 $\mu$ J at peak
Polarization	vertical (290-400nm)	horizontal (400-475nm)

### SH OF SFS & SH OF SFI

Tuning range	240-266nm (SH SFS)	266-300nm (SH of SFI)
Pulse energy	> 8 $\mu$ J at peak	
Polarization	horizontal	

### OUTPUT FROM OPTIONAL DEEP UV GENERATOR\*

#### PUMP+ (SH OF SFI), PUMP+(SH OF SFS) AND FHS

Tuning range	189-200nm (pump+SH of SFS)
	200-218nm (pump+SH of SFI)
	218-267nm (pump+FHS)
Pulse energy	> 3 $\mu$ J
Polarization	vertical
Pulse duration with options	above (0.7 to 1.0) x pump pulse width

### OUTPUT FROM OPTIONAL DIFFERENCE-FREQUENCY GENERATOR (SIGNAL-IDLER)

Tuning range with DFG#1	2.4-11 $\mu$ m	
Pulse energy	> 8 $\mu$ J @ 4.0 $\mu$ m	> 1.5 $\mu$ J @ 10 $\mu$ m
Pulse duration	(1 to 1.5) x pump pulse width	
Tuning range with DFG#2	5-20 $\mu$ m	
Pulse energy	> 4 $\mu$ J @ 5 $\mu$ m	> 0.3 $\mu$ J @ 15 $\mu$ m
Pulse duration	(1 to 2) x pump pulse width	
Polarization	horizontal	

Beam divergence with all options <2x diffraction limit

\* Assuming secondary 0.5 mJ pump channel

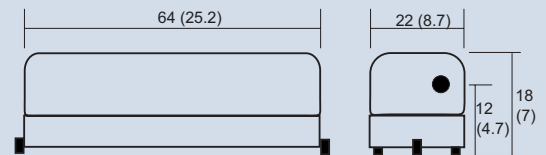
Optional polarization controller may change output polarization

**Note:** with increased pump energy TOPAS output energy scales up linearly

### ACCESSORIES

- Frequency doubling and mixing options
- Deep-UV and mid-IR wavelength extensions
- Wavelength separators
- Polarization control unit

### DIMENSIONS in cm (inches)



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# TOPAS-C

MODEL 800 (femtosecond version)

## PERFORMANCE DATA

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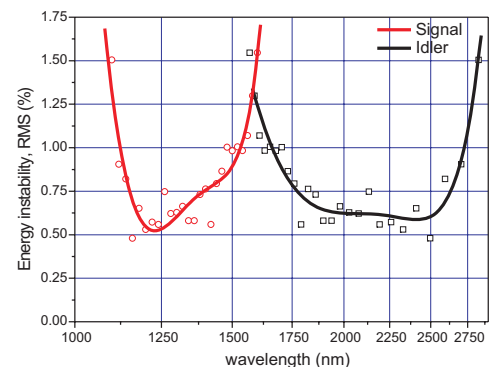
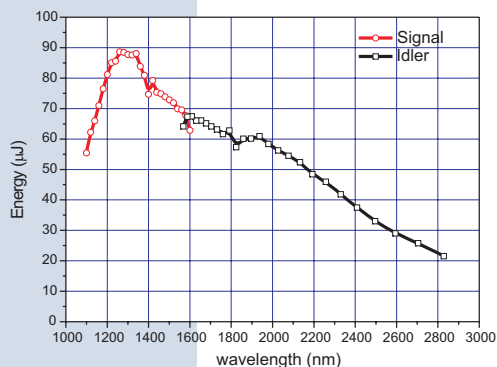
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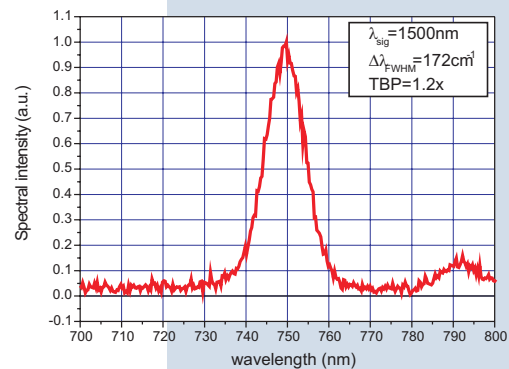
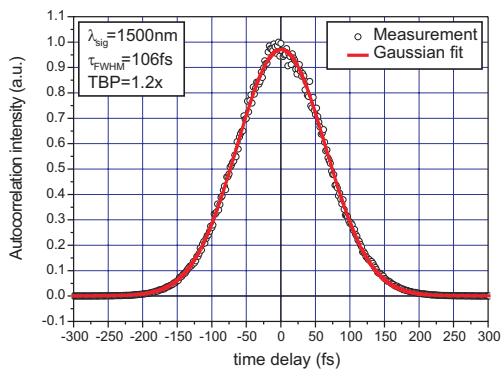
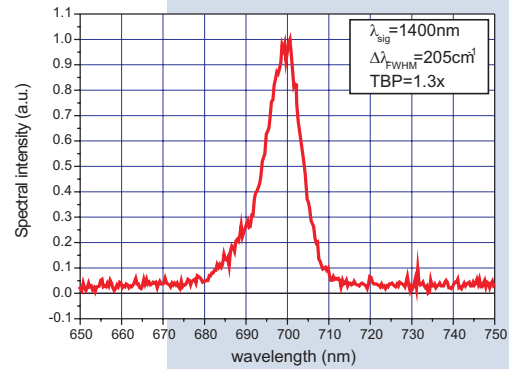
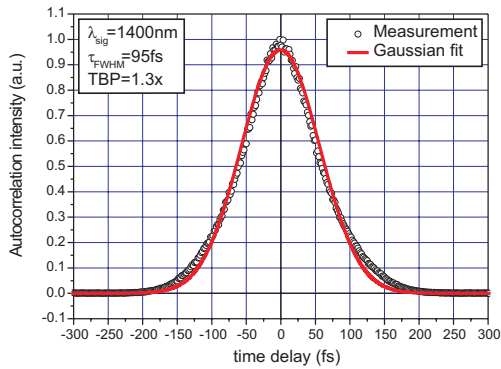
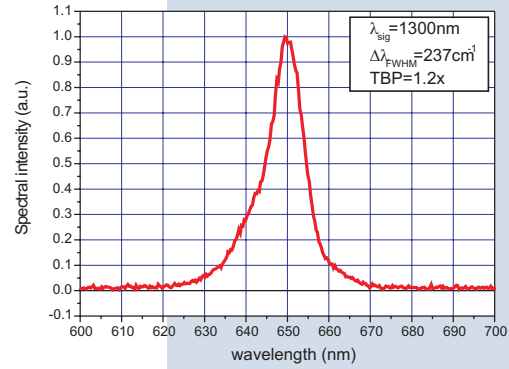
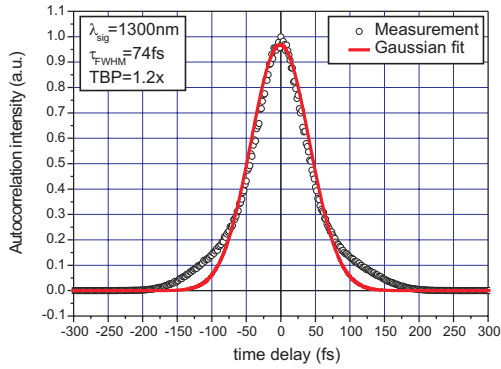
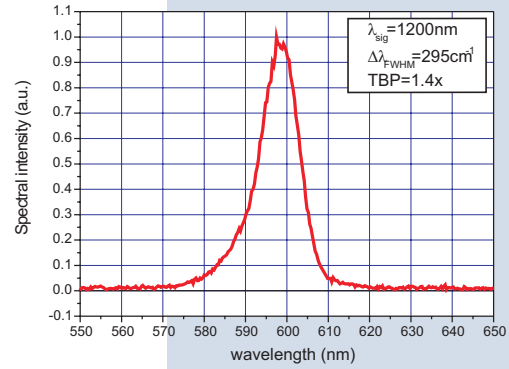
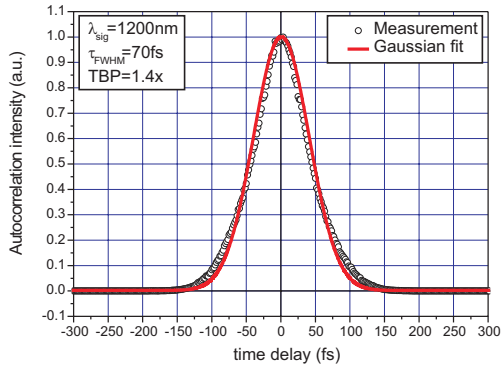
Typical output performance of TOPAS-C pumped with 0.5mJ, 792nm, 135fs pulses (Quantronix-4800). Stability of pump energy ~0.5% rms.

**Note:** output energies scale linearly with the pump energy in the pump energy range of 0.2 - 3 mJ

# PERFORMANCE DATA

## Signal Autocorrelations and SHS Spectra

Typical output performance of TOPAS-C pumped with 0.5mJ, 792nm, 135fs pulses (Quantronix-4800).



**Note:** TBP value is given with respect to TBP of transform limited pulse