

Inspire™

Automated Ultrafast Optical Parametric Oscillators (OPOs)

mks | Spectra-Physics

The Spectra-Physics® Inspire ultrafast OPO delivers user-friendly, gap-free computer-controlled tuning from 345 nm to 2.5 μm with no intracavity optics or crystal change. Pumped with the Mai Tai® HP Ti: Sapphire laser, the OPO delivers high power across the UV and visible range with adjustable pulse widths from 80 to 250 fs. Inspire's robust opto-mechanical design ensures high environmental stability.

The Inspire offers:

- User-friendly gap-free tuning from 345 nm to 2.5 μm .
- Five output ports available: signal output (490–750 nm), idler output (930–2500 nm), fundamental output (690–1040 nm), and doubled fundamental output (345–520 nm)
- Simultaneous output from either two or three output ports—ideal for applications requiring more than one wavelength such as CARS and SRS imaging
- HF version with fully-automated hands-free wavelength tuning complete with automated cavity alignment to maintain optimal power and pulse durations
- Auto version with semi-automated tuning and nearly transform-limited pulse duration flexibility (80–250 fs) for tailoring pulse widths to match experimental conditions

The Inspire Advantage

- Widest gap-free tuning from 345 to 2500 nm
- Highest output power in the UV and visible
- Fully automated computer-controlled tuning without adjustment or change in optics or crystals
- Multiple output ports for simultaneous UV, visible and infrared output
- Adjustable pulse widths from 80 to 250 fs



Applications

- Coherent Anti-Stokes Raman Spectroscopy (CARS)
- Multiphoton excitation (MPE) microscopy
- Time-resolved spectroscopy
- Vibrational overtone spectroscopy
- Semiconductor research and spectroscopy
- Multiple wavelength pump-probe experiments
- Fiber optics and optical communications

Inspire Specifications^{1, 5}

	Inspire Auto 50	Inspire Auto 100	Inspire HF 50	Inspire HF 100
Output Characteristics				
Average Power				
SHG @ 400 nm	N/A	1100 mW	N/A	1100 mW
Signal @ 550 nm	350 mW			
Depleted Fundamental @ 800 nm	1100 mW			
Idler (at peak)	170 mW			
Pulse Width				
SHG	N/A	<140 fs	N/A	<140 fs
Signal	100–250 fs (adjustable)	100–250 fs (adjustable)	200 fs	200 fs
Depleted Fundamental	<140 fs			
Idler	80–250 fs (adjustable)	80–250 fs (adjustable)	200 fs	200 fs
Tuning Range				
SHG	N/A	345–520 nm	N/A	345–520 nm
Signal (Simultaneous with Idler)	490–750 nm			
Depleted Fundamental	690–1040 nm			
Idler (Simultaneous with Signal)	930–2500 nm			
Repetition Rate	80 MHz			
Noise	<1% rms			
Wavelength Stability @ 555 nm	<0.5 nm			
Spatial Mode	TEM ₀₀ , M ² <1.2			
Polarization	Horizontal for Signal and Idler Vertical for SHG			
Spectrometer for UV and Visible Range ³	350–900 nm (integrated into optics unit)			
Dimensions (W x L x H) ⁴	14.2 x 37.6 x 8.1 in (36.0 x 95.4 x 20.7 cm)			

1. Specifications are subject to change without notice.

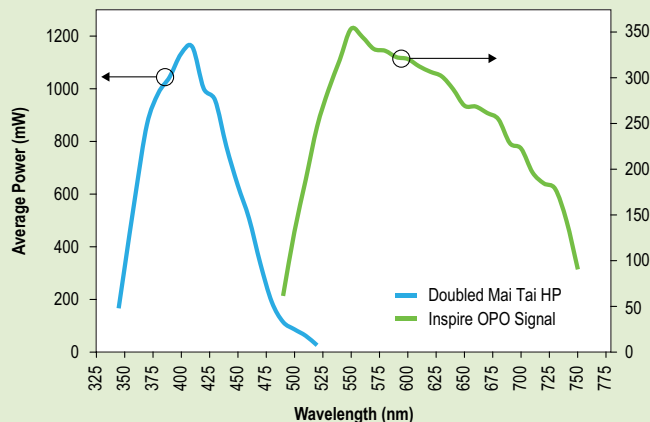
2. Pumped by Mai Tai HP Ti:Sapphire oscillator. Specifications only apply when pumped by Mai Tai HP. For system performance when pumped by a Tsunami®, please contact Spectra-Physics.

3. For IR spectral region, contact Spectra-Physics.

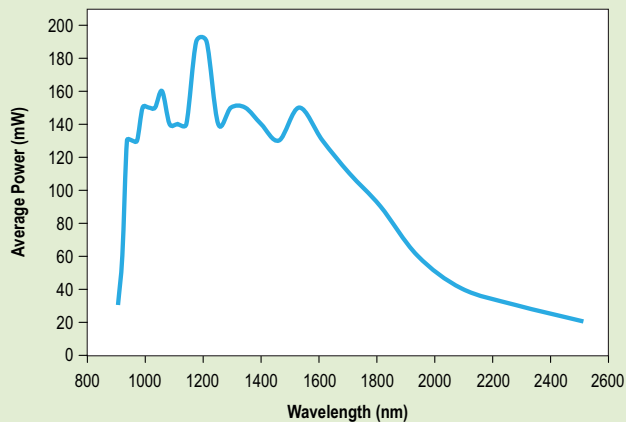
4. PC controllable. No control electronics unit required.

5. The Inspire is a Class IV – High Power Laser, whose beam is, by definition, a safety and fire hazard. Take precautions to prevent exposure to the direct and reflected beams. Diffuse as well as specular reflections can cause severe skin or eye damage.

Typical Signal Performance¹

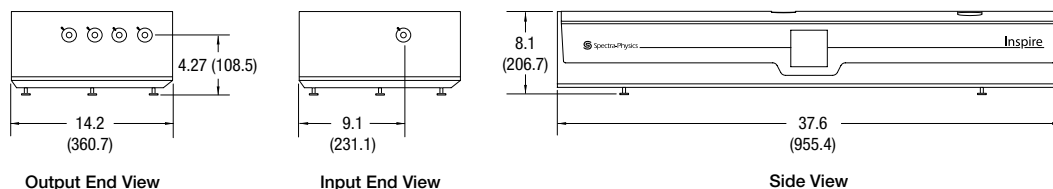


Typical Idler Performance¹



1. Typically measured performance; not a guaranteed or warranted specification.

Inspire Dimensional Drawing



Dimensions in inch (mm)



Manufactured by Radiantis



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