Inspire™ OPO Family

AUTOMATED ULTRAFAST OPTICAL PARAMETRIC OSCILLATORS (OPOs)

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 350 fs
- Insensitive to ambient temperature change

The Spectra-Physics® Inspire™ ultrafast OPO family delivers unprecedented tuning range from 345 nm to 2.5 μm gap-free and with no change of intracavity optics or crystals. Pumped with the Mai Tai® ultrafast Ti:Sapphire lasers, they also deliver exceptionally high power across the UV and visible range and provide adjustable pulse width from 80 to 350 fs. The Inspire OPO features user-friendly, computer-controlled tuning across the entire range with no changes in optics or crystals. The system's robust design ensures high stability and insensitivity to ambient temperature change.

The Inspire OPO family offers:

- User-friendly gap-free tuning from 345 nm to 2.5 μm—no change of optics or crystals required.
- Five output ports available: signal output (490-750 nm with >400 mW), idler output (930-2500 nm with >200 mW), fundamental output (690-1040 nm with >1 W), doubled fundamental output (345-520 nm with >1 W), and alignment output.
- Simultaneous output from either two or three output ports—ideal for applications requiring more than one wavelength such as CARS.
- **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 (80-350 fs) for tailoring pulse widths to match experimental conditions.

With its unprecedented gap-free wavelength coverage with no change in optics required, the Inspire OPO family is the next-generation OPO for developing cutting-edge imaging and spectroscopy applications.

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

Spectra-Physics®
A Newport Corporation Brand

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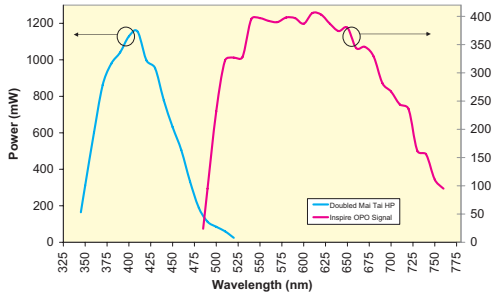
Specifications[1]

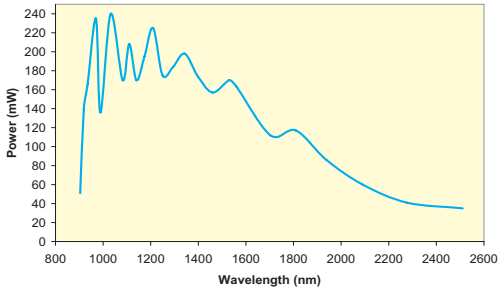
Output Characteristics[2]	Inspire Auto 50	Inspire Auto 100	Inspire HF 50	Inspire HF 100
Average Power				
SHG @ 400 nm	n/a	1100 mW	n/a	1100 mW
Signal @ 550 nm	350 mW	350 mW	350 mW	350 mW
Depleted Fundamental @ 800 nm	1100 mW	1100 mW	1100 mW	1100 mW
Idler	170 mW	170 mW	170 mW	170 mW
Pulse Width				
SHG	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	<140 fs	<140 fs	<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	490–750 nm	490–750 nm	490–750 nm
Depleted Fundamental	690–1040 nm	690–1040 nm	690–1040 nm	690–1040 nm
Idler (Simultaneous with Signal)	930–2500 nm	930–2500 nm	930–2500 nm	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 (Signal)			
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 9.1 in (36.0 x 95.4 x 23.2 cm)			

1. Specifications are subject to change without notice.
2. Pumped by Mai Tai® HP Ti:Sapphire oscillator.
3. For IR spectral region, contact Spectra-Physics.
4. PC controllable. No control electronics unit required.

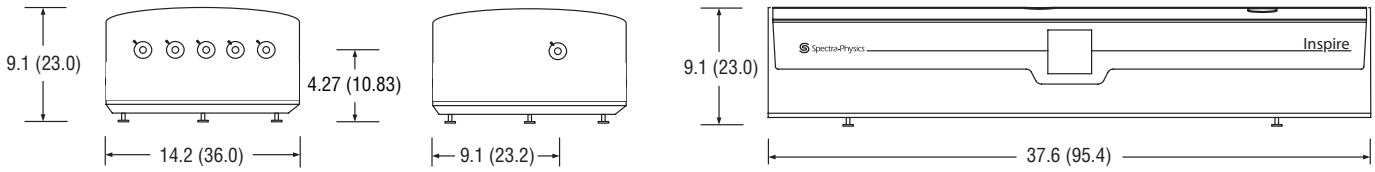
Typical Signal Performance



Typical Idler Performance



Inspire Dimensions



Output End View **Input End View** **Side View**

Manufactured by Radiantis

Dimensions in inches (cm)

Spectra-Physics
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DS-03092 (12/10)