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

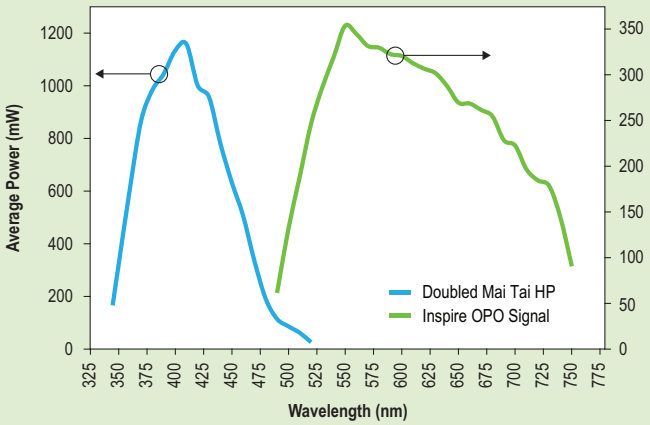
- Coherent Anti-Stokes Raman Spectroscopy (CARS)
- Multiphoton excitation (MPE) microscopy
- Time-resolved spectroscopy
- Vibrational overtone spectroscopy
- Semiconductor research and spectroscopy
- Multiple wavelength pump-probe experiments
- Fiber optics and optical communications

Inspire Specifications[1, 5]

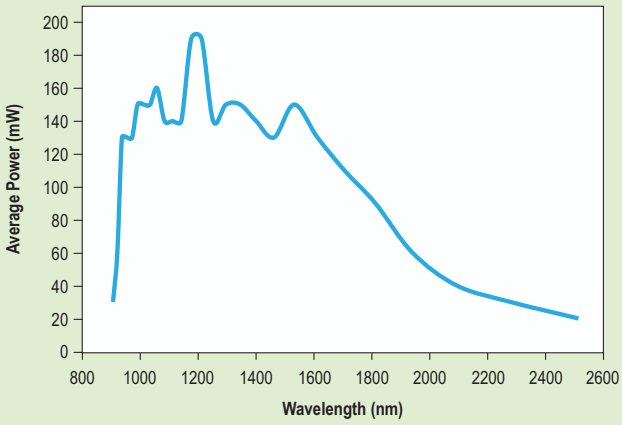
	Inspire Auto 50	Inspire Auto 100	Inspire HF 50	Inspire HF 100
Output Characteristics				
Average Power				
SHG @ 400 nm	N/A	1100 mW	N/A	1100 mW
Signal @ 550 nm	350 mW			
Depleted Fundamental @ 800 nm	1100 mW			
Idler (at peak)	170 mW			
Pulse Width				
SHG	N/A	<140 fs	N/A	<140 fs
Signal	100–250 fs (adjustable)	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 Performance[1]

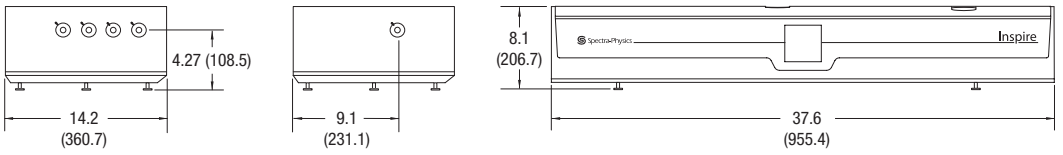


Typical Idler Performance[1]



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

Inspire Dimensional Drawing



Output End View | Input End View | Side View

Dimensions in inch (mm)

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