

Inspire™ IR

Automated Ultrafast Infrared OPO

mks | Spectra-Physics®

The Spectra-Physics® Inspire IR optical parametric oscillator (OPO) delivers a wide, gap-free tuning range from 1000 nm to 1580 nm. Pumped with the Mai Tai® HP ultrafast Ti:Sapphire laser, the system also provides exceptionally high power across the full range. The Inspire IR OPO features user-friendly, computer-controlled tuning in a sealed hands-free package. The system's robust design ensures high stability and insensitivity to ambient temperature change.

The Inspire IR OPO offers:

- Two output ports available: signal output (1000–1550 nm with >900 mW at the peak) and fundamental output (690–1040 nm with >1 W)

- Synchronized output from two output ports—ideal for applications requiring more than one wavelength such as CARS
- Fully-automated hands-free wavelength tuning complete with automated cavity alignment to maintain optimal power and pulse durations

The Inspire IR Advantage

- Wide, gap-free tuning from 1000 nm to 1550 nm
- Accepts a wide range of pump wavelengths
- Highest output power in the near IR
- Fully-automated, computer-controlled tuning
- Synchronized output of near IR (pump) and IR (signal) wavelengths



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 IR Specifications^{1, 2, 4}

	Inspire IR	
Output Characteristics		
Pump Tuning Range	720–820 nm	
Pump Wavelength	760 nm	810 nm
Signal Tuning Range	1000–1400 nm	1010–1550 nm
Signal Average Power at Peak	N/A	>900 mW
Idler Tuning Range ³	1662–3166 nm	1696–4090 nm
Idler Average Power at Peak ³	>250 mW	
Signal Pulse Width at Peak	<200 fs	
Repetition Rate	80 MHz	
Noise at 1300 nm	<1% rms	
Power Stability	5%	
Spatial Mode	TEM ₀₀ , M ² <1.2	
Beam Diameter (Signal) at 1300 nm	1.4 mm ±10%	
Beam Divergence (Signal) at 1300 nm	<1.0 mrad	
Polarization	Horizontal (>100:1)	
Dimensions	15.6 x 27.1 x 7.6 (395 x 687 x 192 mm)	

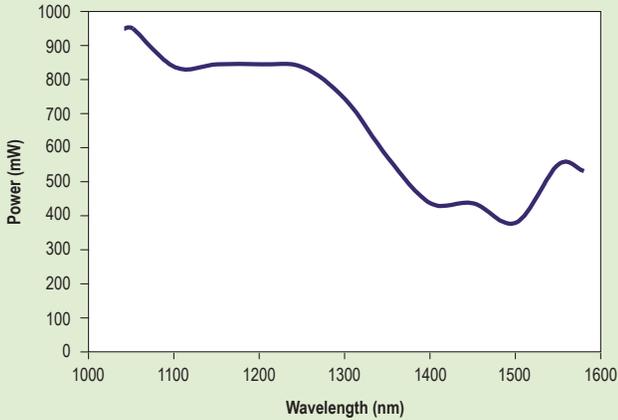
1. Due to our continuous improvement program, specifications may change without notice.

2. Specifications while pumped by a Mai Tai HP; average power is reduced when pumping with the Mai Tai HP DeepSee™.

3. Idler output available as an option.

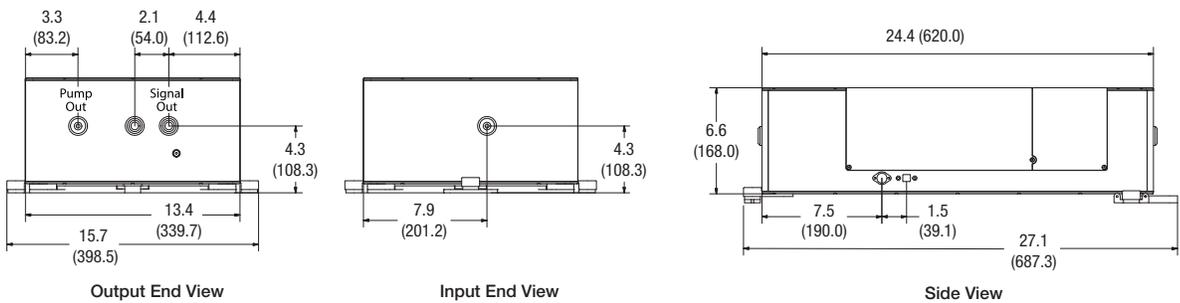
4. The Inspire IR is a Class IV – High Power Laser, whose beam is, by definition, a safety and fire hazard. Take precautions to prevent exposure to the direct and reflected beams. Diffuse as well as specular reflections can cause severe skin or eye damage.

Inspire IR Typical Tuning Curve¹



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

Inspire IR Dimensional Drawing



Dimensions in inch (mm)



Manufactured by Radiantis