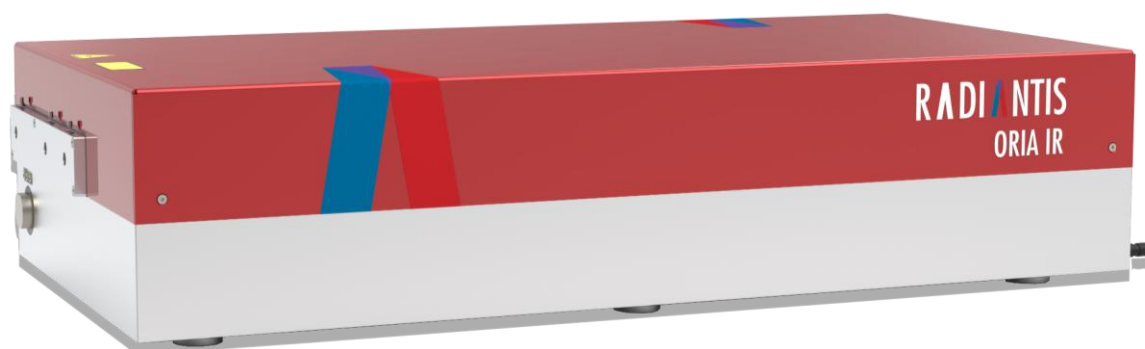


Oria IR

Fully automatic Mid-IR Femtosecond OPO for Ti:Sapphire Oscillators

Oria IR is a sealed, compact and fully automated femtosecond optical parametric oscillator (fs OPO) providing broadly tunable output from **1000 nm to 4090 nm**. Pumped by standard 80 MHz repetition rate femtosecond Ti:Sapphire oscillators, the system delivers high average power, near-transform-limited pulses, excellent beam quality, and high power stability. The compact design enables truly maintenance-free operation and rapid wavelength tuning with independent tuning of the pump, signal, and idler outputs. Oria IR is ideally suited for nonlinear microscopy, ultrafast spectroscopy, semiconductor characterization.



APPLICATIONS

- Ultrafast spectroscopy
- Nonlinear microscopy
- Time-resolved and pump-probe spectroscopy
- Mid-IR optical characterization

Available models

- **Oria IR S:** Fully automated tuning with full-range pump bypass (680 – 1040 nm) and signal (1000 – 1575 nm) outputs.
- **Oria IR XT:** Fully automated tuning with full-range pump bypass (680 – 1040 nm), signal (1000 – 1575 nm) and idler (1667 – 4263 nm) outputs.

KEY FEATURES

- Broad tuning across the mid-IR from 1000 – 1575 nm (signal) and 1696 – 4010 nm (idler).
- Simultaneous output ports for signal, idler and pump bypass (680 – 1040 nm).
- Independent pump tuning while pumping OPO: 720 – 820 nm ideal for pump-probe experiments.
- High output power: >1 W at the peak of the range.
- Ultrashort fs pulses: typ. 160 fs at 80 MHz repetition rate.
- Fully automated wavelength tuning and self-calibration.
- Integrated IR spectrometer for wavelength monitoring and wavelength/power locking.

Typical performance specifications^(1,2)

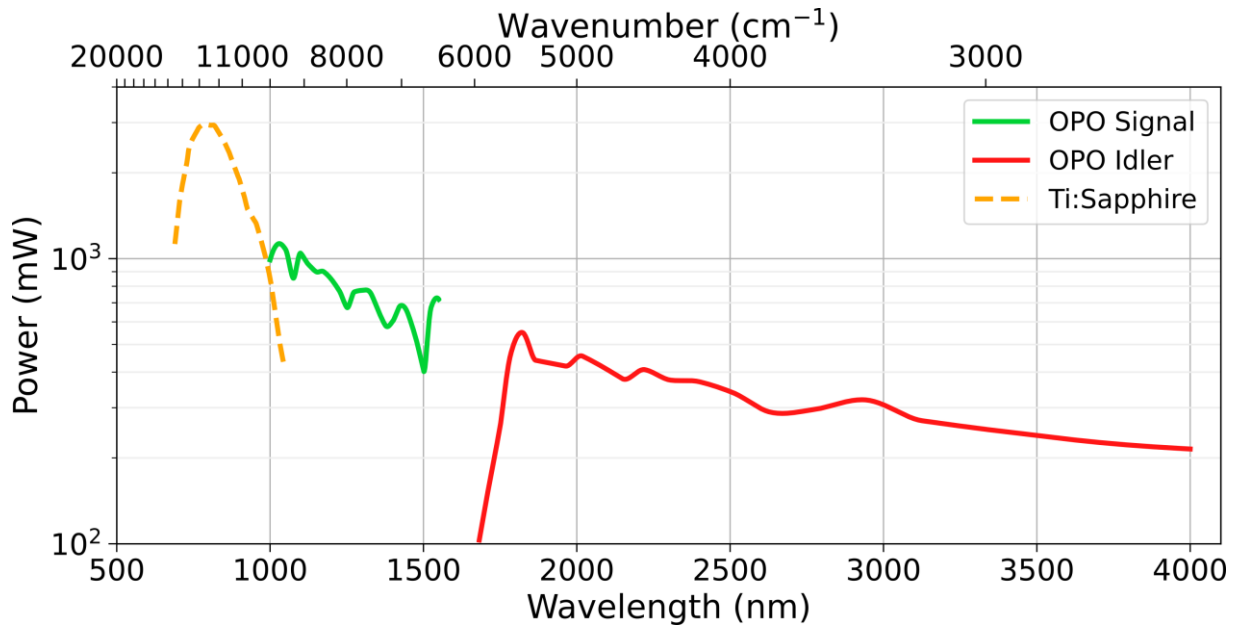
Specification	Oria IR		
	Pump bypass	Signal	Idler
Wavelength range	690 – 1040 nm	1000 – 1575 nm	1696 – 4010 nm
Output power	>2.5 W @800 nm ^(3, 5)	>1 W at peak	>170 mW at peak
Pulse width (FWHM)	Typ. 100 fs	Typ. 160 fs	Typ. 100 fs
Wavelength stability (pk-pk)	-	<1 nm @1300 nm	-
Power stability (RMS)	<1 @800 nm ^(3, 5)	<0.5% @1300 nm	<0.5% @2149 nm
Beam diameter (1/e ²) ²	<1.2 mm ^(3, 5)	1.4 mm ± 10% @1300 nm	
Polarization	Horizontal (>500:1) ^(3, 5)	Horizontal (>100:1)	Horizontal (>100:1)
Spatial mode	TEM ₀₀ M ² ≤ 1.1 ^(3, 5)	TEM ₀₀ M ² ≤ 1.2	TEM ₀₀ M ² ≤ 1.3
Pump tuning with simultaneous OPO outputs ⁽³⁾	Available from 720 - 820 nm, standard		
Repetition rate	80 MHz		
Integrated spectrometer	Included, standard		
Pump bypass mode	1) 100% signal and idler with no pump bypass. 2) Partial signal and idler with 20% pump bypass. 3) 100% pump bypass		
Optical outputs	Free-space		
Size (OPO only)	725 x 365 x 170.5 mm (28.54 x 14.37 x 6.71 inch)		

- 1) Pumped by Mai Tai® HP Ti:sapphire oscillators, 2.8W, 100 fs, 810 nm. Output characteristics with alternative pump lasers may change.
- 2) Specifications are subject to change without notice
- 3) At 100% pump bypass mode.
- 4) OPO specifications may change if the system is pumped at a different wavelength from 810 nm.
- 5) For pump specifications, please refer to the Mai Tai HP datasheet (Spectra-Physics).

Environmental specifications

Specification	Oria IR
Communication interface	USB/Serial
Environmental conditions of use	Lab environment, dust-free air conditions, pollution degree 2
Operation humidity	20 - 80% non-condensing for temperatures up to 25°C
Operation temperature	18 – 26°C
Power consumption	≈0.5 kW
Cooling mechanism	Water cooling

Typical performance data



Typical Oria IR XT tuning curve

Dimensions

