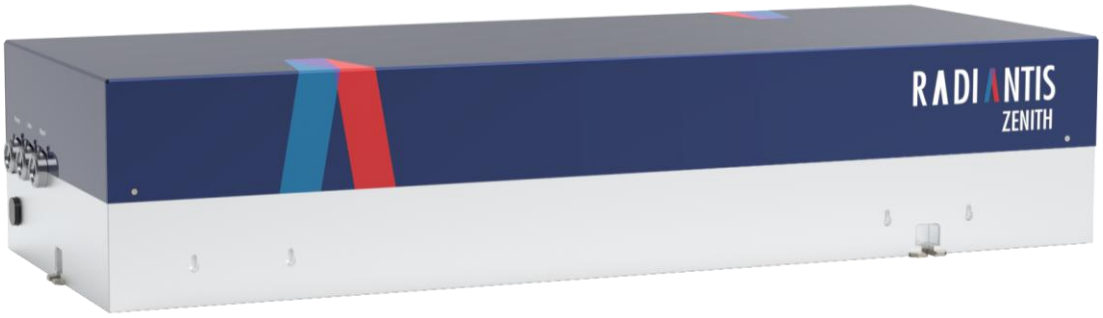
Zenith

Broadly Tunable Picosecond OPO Laser

Zenith is a sealed, fully integrated picosecond OPO providing automated wavelength tuning across **1387 - 4000 nm**. Combining the pump laser and OPO in a compact platform, the system delivers high output power, excellent beam quality, and stable beam pointing with minimal maintenance requirements. Separate signal, idler, and pump-bypass outputs make Zenith an ideal source for ultrafast spectroscopy, pump-probe measurements, nonlinear optics, and advanced materials research.



APPLICATIONS

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

Available models

- **Zenith HP:** High-power model with up to 4 W at peak, and pump bypass (1030 nm), signal (1387 – 2020 nm), and idler (2100 – 4000 nm) outputs.

KEY FEATURES

- Broad tuning across the mid-IR from 1387 – 2020 nm (signal) and 2100 – 4000 nm (idler).
- Built-in high-power pump laser.
- Simultaneous output ports for signal, idler and pump bypass (1030 nm).
- High output power: >4 W at the peak of the range.
- Ultrashort ps pulses: <7 ps at 80 MHz repetition rate.
- Sealed and water-cooled architecture with fully automated wavelength tuning.
- High repetition rate: 80 MHz

Typical performance specifications[1,2]

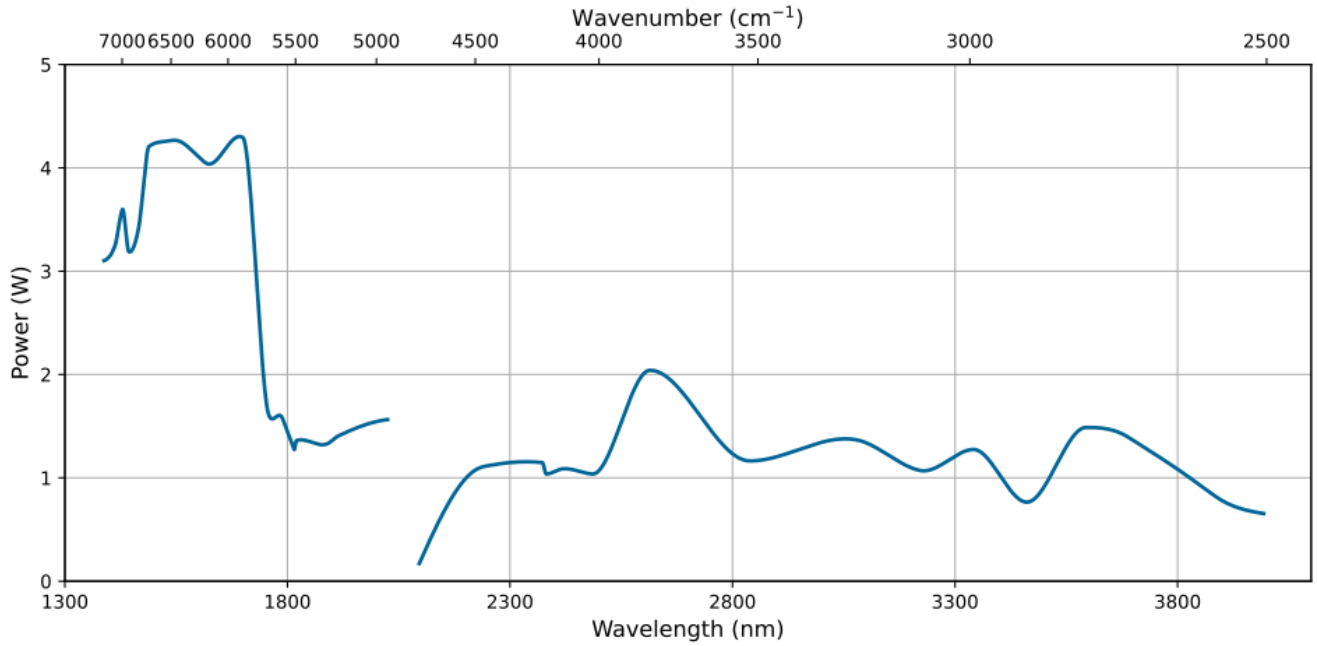
Specification			
	Pump bypass	**Signal**	**Idler**
Wavelength range	1030 nm	1387 – 2020 nm	2100 – 4000 nm
Output power	>1.5 W[2]	> 4 W at peak	>2 W at peak
Pulse width (FWHM)	7 ps	>5 ps	>5 ps
Bandwidth (FWHM)	<1 nm	<1 nm	<1 nm
Wavelength stability (pk-pk)	<0.5 nm @1030 nm	<0.5 nm @1542 nm	-
Power stability (RMS)	<1% @1030 nm	<0.5% @1700 nm	<0.5% @2613 nm
Beam diameter (1/e²)²	<1.2 mm	3 mm ± 10%	-
Polarization	Linear	Linear	Linear
Spatial mode	TEM_{00} $M^2 \leq 1.2$	TEM_{00} $M^2 \leq 1.3$	TEM_{00} $M^2 \leq 1.3$
Repetition rate	80 MHz		
Integrated spectrometer	Spectral range XXX nm		
Optical outputs	Free-space		
Size (OPO only)	625 x 330 x 163 mm (24.6 x 12.99 x 6.4 inch)		

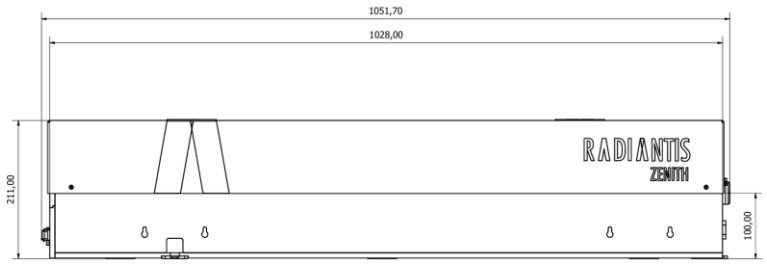
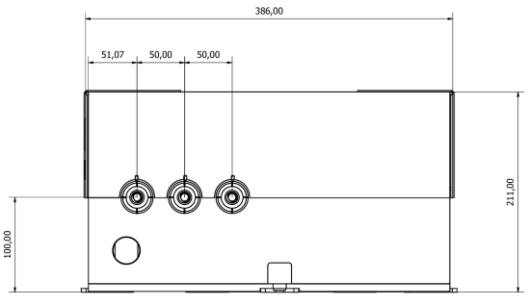
1) Specifications are subject to change without notice
2) At 10% pump bypass. Other possible upon request.

Enviromental specifications

Specification	Oria IR
Power supply	XXX
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	≈1 kW
Cooling mechanism	Water cooling

Typical performance data



Typical Oria IR XT tuning curve

Dimensions