



OPOTEK

RADIANT SERIES



Modular design for optimal flexibility

UV • VIS • NIR • MIR

The RADIANT tunable laser series utilizes optical parametric oscillator technology to generate wavelengths over a broad range. Integration of system components into one compact unit increases ruggedness, minimizes misalignment and allows the user to reposition the system. Included verification hardware enables the user to confirm that beam

paths are preserved after shipment or relocation. Hermetically sealed modules protect sensitive optical materials from the environment. A built-in red laser diode is aligned to overlap with the mid-IR output for beam guidance. Wavelength tuning is motorized and computer controlled.

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FEATURES

- Full-featured, modular, tunable laser system
- Integrated pump laser with quick connect cables
- Motorized, hermetically sealed, harmonic/OPO modules
- End-user replaceable flashlamp and DI cartridge
- All tunable wavelengths output from a single port
- Alignment verification
- Computer controlled tuning via control software/software development kit (SDK)
- Flashlamp and/or Q-Switch external triggering
- Access to residual beams
- Access to full power pump beams
- Temperature controlled, motorized Harmonic(s) (MH)
- Real-time wavelength monitoring (WM)
- Harmonic Auto-Optimization (HAO)
- Warranty: Two years on pump laser, one year on all optics and crystals, mechanics, and electronics. Includes all options except fibers.

OPTIONS

Fiber Delivery Kit (FD)

May be optimized for either ultra-violet (UV), visible (VIS), or near-infrared (NIR) tuning ranges. Externally mounted fiber delivery kit includes mounts, coupling lens and fiber. Fiber specifications: 2.5 m long, 1 mm diameter core, NA = 0.22

Motorized Variable Attenuator (MVA)

End-user installable/removable. Reduces max OPO by 10-15% when installed. Computer controlled. Can only be used with visible and near-infrared wavelengths

Fourth Harmonic Generator (4HG)

The fourth harmonic installed on an extension base plate that is mounted directly to the side of the Radiant.

Fifth Harmonic Generator (5HG) (355nm version only)

Fifth Harmonic Generator installed on an extension base plate that is mounted directly to the side of the Radiant.

Energy Meter (EM)

Real-time pulse energy monitoring, logging for data normalization. Reduces OPO energy by 8%.

Wavemeter (WM) (355nm version only)

Integrated wavemeter for real-time wavelength monitoring

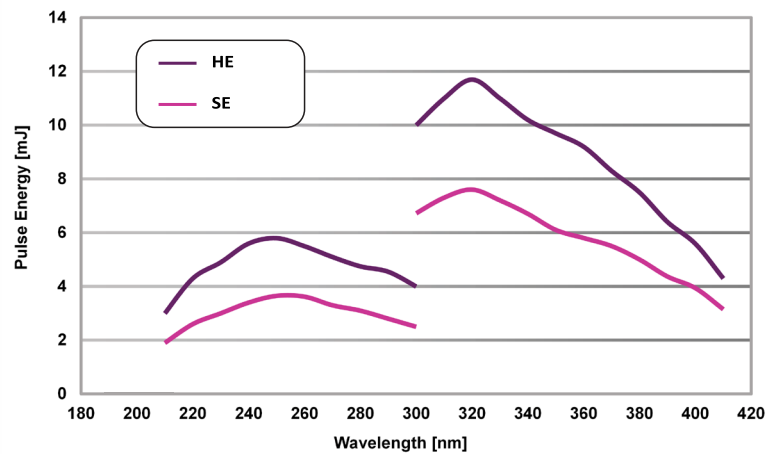
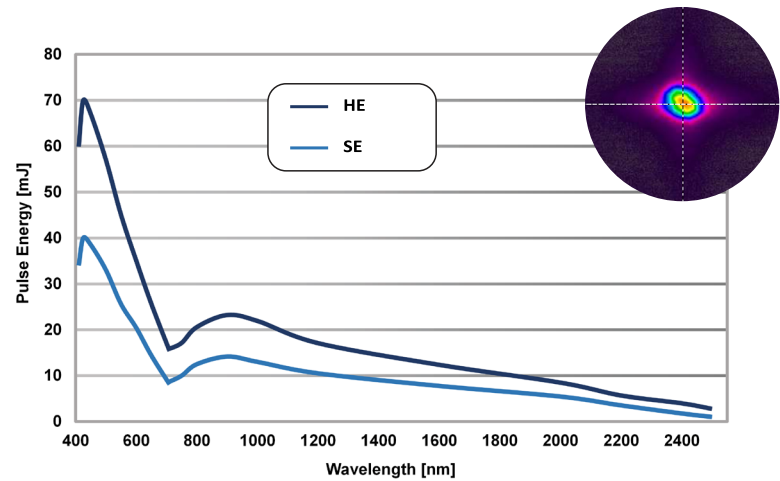
Extended Warranty (EXW)

Extends full system warranty for one additional year, for a total of two years. Includes all options except for fibers.

RADIANT SE 355 LD / HE 355 LD

Output Tuning Range: UV, VIS, NIR

Application: Lidar Spectroscopy

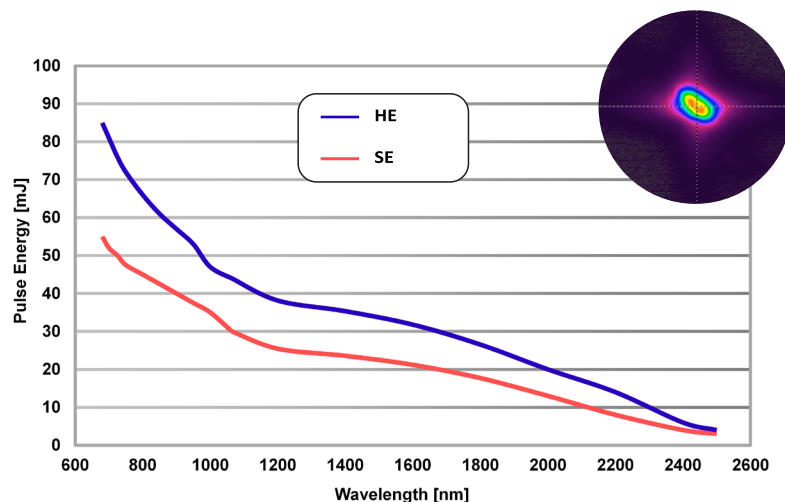


Extend the tuning range with UV tuning (210-410nm).

RADIANT SE 532 LD / HE 532 LD

Output Tuning Range: NIR

Application: Photoacoustic Imaging



Typical far field beam profile at 750nm shown in insert.

RADIANT SE 2731

Output Tuning Range: MIR
Application: Mass Spectrometry

FEATURES

- Fully integrated tunable laser system with quick connect cables
- Integrated pump laser with quick connect cables
- Hermetically sealed OPO module
- End-user replaceable flashlamp (100 million shot lifetime) and DI cartridge
- All tunable wavelengths output from a single port
- Alignment verification
- Integrated alignment diode laser for OPO beam path identification
- Computer controlled tuning via control software/software development kit (SDK)
- Flashlamp and/or Q-Switch external triggering
- Access to residual beams
- Access to full power pump beams
- Warranty: Two years on pump laser, one year on all optics and crystals, mechanics, and electronics. Includes all options except fibers.

OPTIONS

Fiber Delivery Kit (FD)

May be optimized for either ultra-violet (UV), visible (VIS), or near-infrared (NIR) tuning ranges. Externally mounted fiber delivery kit includes mounts, coupling lens and fiber. Fiber specifications: 2.5 m long, 1 mm diameter core, NA = 0.22

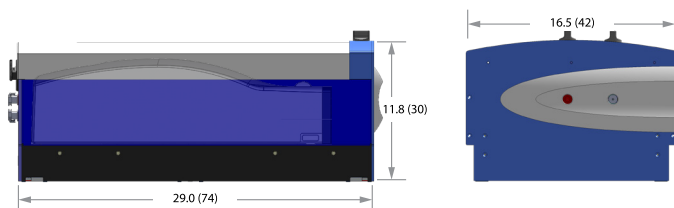
Motorized Variable Attenuator (MVA)

End-user installable/removable. Reduces max OPO by 10-15% when installed. Computer controlled. Can only be used with visible and near-infrared wavelengths

Extended Warranty (EXW)

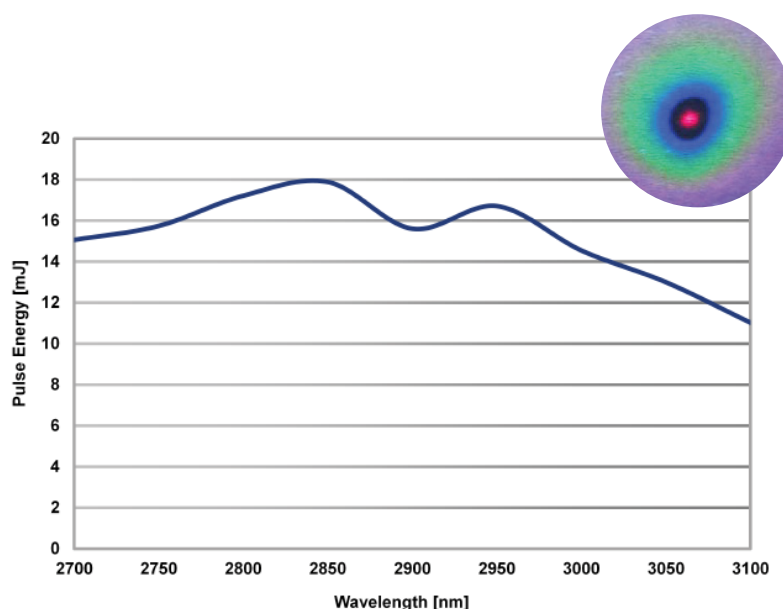
Extends full system warranty for one additional year, for a total of two years. Includes all options except for fibers.

DIMENSIONS



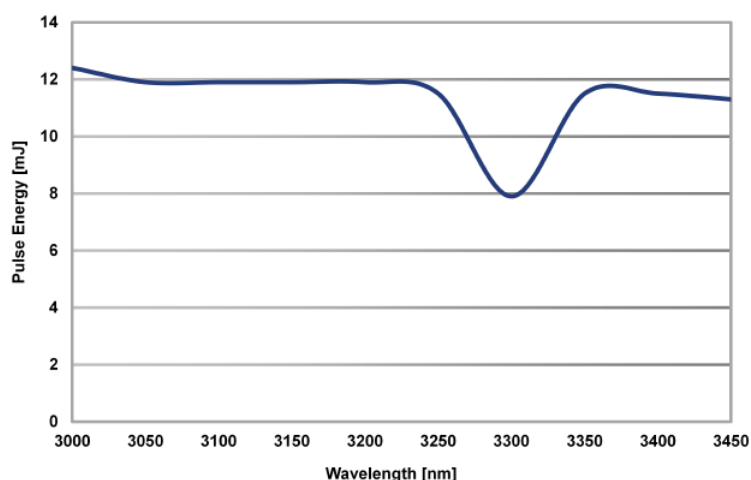
All dimensions approximate in inches (centimeters)

Picture shows MIR OPO beam heating a liquid crystal sheet with built-in guidance laser overlapping the center area.



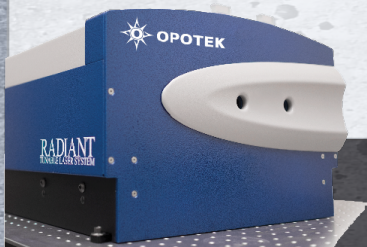
RADIANT SE 3034

Output Tuning Range: MIR
Application: Mass Spectrometry

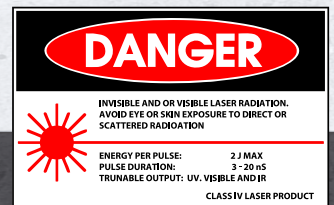


RADIANT SERIES SPECIFICATIONS

Product	SE 532 LD	HE 532 LD	SE 355 LD	HE 355 LD	SE 2731	SE 3034
Wavelength range (1) (nm)	650 - 2600	650 - 2600	410 - 2500	410 - 2500	2700 - 3100	3000 - 3450
Signal	650 - 1064	650 - 1064	410 - 710	410 - 710	N/A	N/A
Idler	1064 - 2600	1064 - 2600	710 - 2500	710 - 2500	2700 - 3100	3000 - 3450
Output pulse energy						
Peak OPO energy (mJ)	60	120	40	70	18	12
Pulse to Pulse Stability (RMS % at Peak OPO WL)	2	2	2	2	2	2
Pump laser residual energy (mJ)	40 - 50 at 532 nm	80 - 100 at 532 nm	30 - 60 at 355 nm	40 - 80 at 355 nm	100 at 1064 nm	100 at 1064 nm
Linewidth (cm ⁻¹)	4 - 7	4 - 7	4 - 7	4 - 7	4 - 7	4 - 7
Tuning Resolution						
Signal (410-710nm) (cm ⁻¹)	< 1	< 1	< 1	< 1	< 1	< 1
Idler (710-2600nm) (cm ⁻¹)	< 1	< 1	< 1	< 1	< 1	< 1
Pulse Duration (ns)	6	6	6	6	5	5
Beam Diameter (mm)	6.5	9	6.5	9	6.5	6.5
Beam Divergence (mrad)	< 2	< 2	< 1.5	< 1.5	< 5	< 5
Polarization						
Signal Beam	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Idler Beam	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Pump Laser						
Pump Wavelength (nm)	532	532	355	355	1064	1064
Max pump pulse energy (mJ)	150	400	110	200	100	100
Pulse Duration (ns)	6	6	6	6	6	6
Beam Divergence (mrad)	< 2	< 2	< 1.5	< 1.5	< 2	< 2
Pulse Pulse Stability (%)	< 4	< 4	< 6	< 6	< 4	< 4
Pulse Repetition Rate (Hz)	10 or 20	10	10 or 20	10	10 or 20	10 or 20
Physical Characteristics (LxWxH) inches (cm)						
Laser Head	27.5 x 16.5 x 11 (69.9 x 41.9 x 27)	27.5 x 16.5 x 11 (69.9 x 41.9 x 27)	27.5 x 16.5 x 11 (69.9 x 41.9 x 27)	27.5 x 16.5 x 11 (69.9 x 41.9 x 27)	27.5 x 16.5 x 11 (69.9 x 41.9 x 27)	27.5 x 16.5 x 11 (69.9 x 41.9 x 27)
Control Electric Box	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
Umbilical Length (m)	2.5	2.5	2.5	2.5	2.5	2.5
Pump laser power supply size	283 x 507 x 513	283 x 507 x 513	283 x 507 x 513	283 x 507 x 513	283 x 507 x 513	283 x 507 x 513
Laser Head weight lbs (kg)	100 (45.4)	100 (45.4)	100 (45.4)	100 (45.4)	100 (45.4)	100 (45.4)
Pump laser power supply weight: lbs (kg)	59.5 (27)	59.5 (27)	59.5 (27)	59.5 (27)	59.5 (27)	59.5 (27)
Operating Requirements						
Coolant system	Distilled water	Distilled water	Distilled water	Distilled water	Distilled water	Distilled water
Room Temperature (°C)	18 - 28	18 - 28	18 - 28	18 - 28	18 - 28	18 - 28
Environment Conditions	Pollution degree 2 or better	Pollution degree 2 or better	Pollution degree 2 or better	Pollution degree 2 or better	Pollution degree 2 or better	Pollution degree 2 or better
Power Requirements	100 - 240 VAC, 50Hz/60Hz	100 - 240 VAC, 50Hz/60Hz	100 - 240 VAC, 50Hz/60Hz	100 - 240 VAC, 50Hz/60Hz	100 - 240 VAC, 50Hz/60Hz	100 - 240 VAC, 50Hz/60Hz



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All specifications are subject to change due to ongoing product improvements.
All tuning curves represent nominal values.
All dimensions approximate in inches (centimeters)



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