



# OPOTEK

## OPOLETTE SERIES



**World's smallest OPO tunable laser system**

**UV • VIS • NIR • MIR**

The Opolette tunable laser series utilizes optical parametric oscillator (OPO) technology to generate wavelengths over a broad range in the UV, VIS, NIR and MIR. Designed for portability, the entire laserhead fits into a compact footprint and ships hermetically sealed to protect from the environment.

Requiring no installation, the system includes verification hardware to check alignment after shipping or relocation. All tunable beams exit the system from the same port resulting in one beam path to the end-user's application. Wavelength tuning is motorized and computer controlled.

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# OPOLETTE HE 355 LD

Tuning Range Output: UV, VIS, NIR

Application: Spectroscopy

## FEATURES

- Hermetically sealed, light-weight, compact tunable laser system
- Integrated pump laser with quick connect cables
- End-user replaceable flashlamp (50 million shot lifetime) 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
- Temperature controlled, motorized Harmonic(s) (MH)
- Real-time wavelength monitoring (WM)
- Harmonic Auto-Optimization (HAO)
- Access to residual beams
- Warranty: One year on pump laser, all optics and crystals, mechanics, and electronics. Includes all options except fibers.

## OPTIONS

### Protective Hard Shell Cases (PHSC)

Includes two protective hard cases with custom foam padding.

### Extended UV Tuning Range (UV)

Extends tuning range to 210 – 410 nm. Decreases OPO by about 20%

### External Motorized Variable Attenuator (eMVA)

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

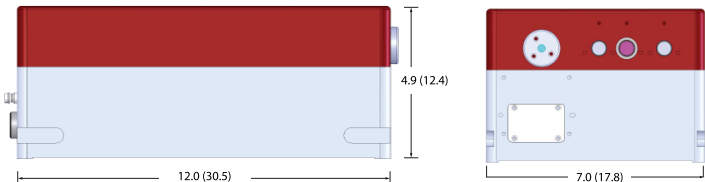
### Fiber Delivery Kit (FD)

Can 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

### Extended Warranty (EXW)

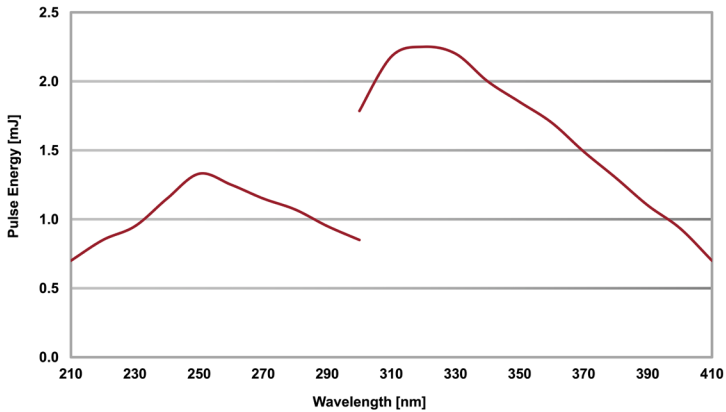
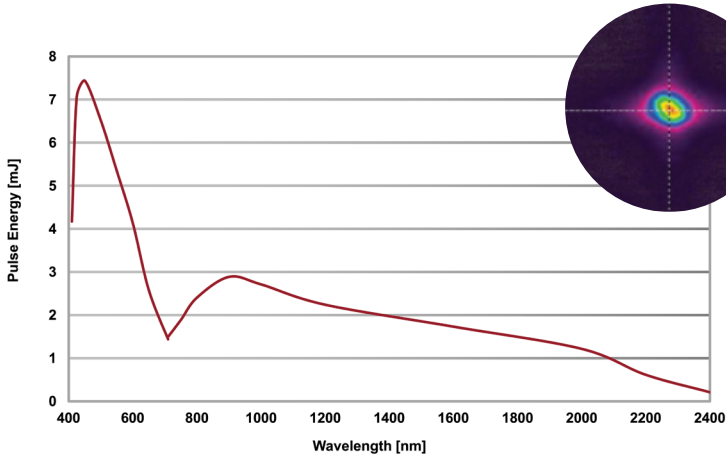
Extends full system warranty for one additional year, for a total of two years. Includes all options except for fibers.

## DIMENSIONS (532 LD, 355 LD, 2731, 3034)



All dimensions approximate in inches (centimeters)

Typical far field beam profile at 450 nm shown in insert.



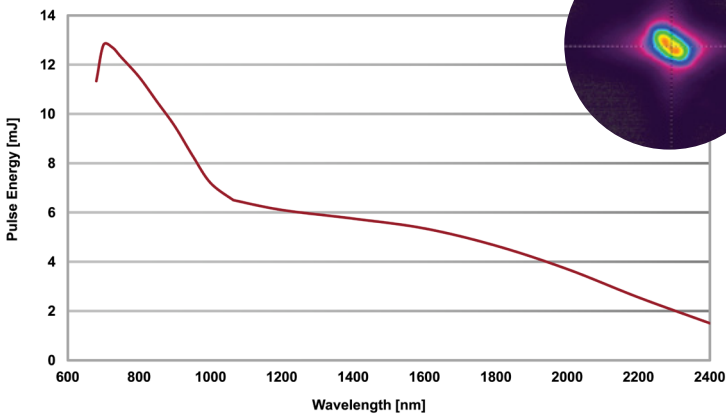
Extend the tuning range with UV tuning (210-410nm).

# OPOLETTE HE 532 LD

Tuning Range Output: NIR

Application: Photoacoustic Imaging

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



# OPOLETTE HE 2731/3034

Tuning Range Output: MIR  
Application: Mass Spectrometry

## FEATURES

- Hermetically sealed, light-weight, compact tunable laser system
- Integrated pump laser with quick connect cables
- End-user replaceable flashlamp (50 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
- Warranty: One year on pump laser, all optics and crystals, mechanics, and electronics. Includes all options except fibers.

## OPTIONS

### Protective Hard Shell Cases (PHSC)

Includes two protective hard cases with custom foam padding.

### External Motorized Variable Attenuator (eMVA)

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

### Fiber Delivery Kit (FD)

Can 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

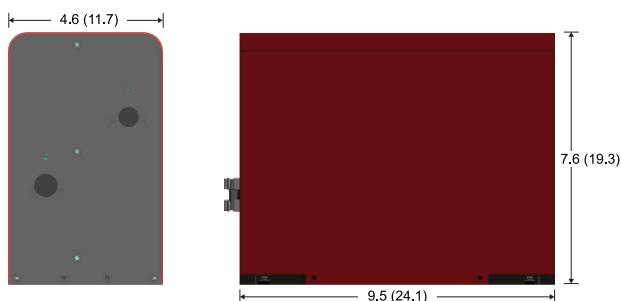
### Harmonic Generation (HG)

355 nm generated from residual 1064 nm.

### Extended Warranty (EXW)

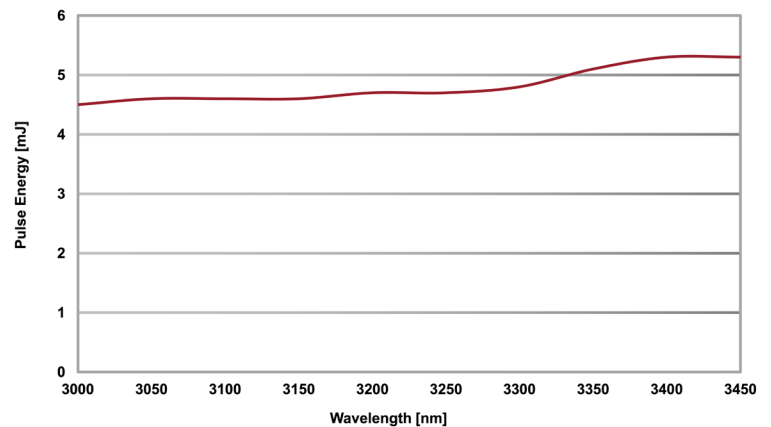
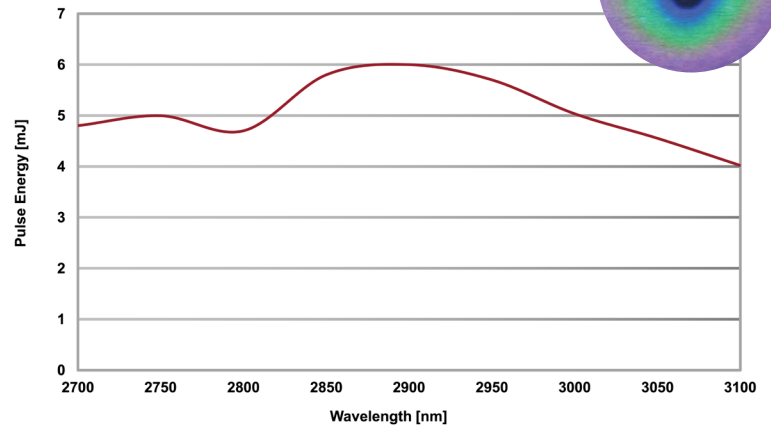
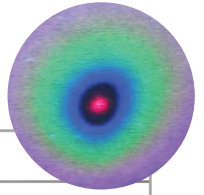
Extends full system warranty for one additional year, for a total of two years. Includes all options except for fibers.

## DIMENSIONS (2940)



All dimensions approximate in inches (centimeters)

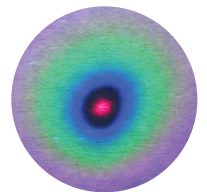
Picture shows MIR OPO beam heating a liquid crystal sheet with built-in guidance laser overlapping the center area.



# OPOLETTE HE 2940

Application: Mass Spectrometry

Fixed Wavelength: 2940 nm  
and Peak OPO Energy: 6 mJ



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



# OPOLETTE SERIES SPECIFICATIONS

Product	HE 532 LD	HE 355 LD	HE 2940	HE 2731	HE 3034
Wavelength range (nm)	650 - 2400	410 - 2400	2940	2700 - 3100	3000 - 3450
Signal	650 - 1064	410 - 710	---	---	---
Idler	1064 - 2400	710 - 2400	2940	2700 - 3100	3000 - 3450
<b>Output pulse energy</b>					
Peak OPO Energy (mJ)	12.5	9	6	6	5
Pulse to Pulse Stability (RMS % at Peak OPO WL)	2	2	2	2	2
Pump laser residual energy (mJ)	20 - 25 at 532 nm	15 - 20 at 355 nm	40 at 1064 nm	40 - 45 at 1064 nm	40 - 45 at 1064 nm
Linewidth (cm <sup>-1</sup> )	4 - 7	4 - 7	3 - 4	3 - 4	3 - 4
<b>Tuning Resolution (cm<sup>-1</sup>)</b>					
Signal	< 1	< 1	< 1	< 1	< 1
Idler	< 1	< 1	< 1	< 1	< 1
Pulse Duration (ns)	7	7	7	7	7
Beam Diameter (mm)	4	4	4	4	4
Beam Divergence (mrad)	< 2	< 2	<10 on x-axis, <5 on y-axis	<10 on x-axis, <5 on y-axis	<10 on x-axis, <5 on y-axis
<b>Polarization</b>					
Signal Beam	Horizontal	Horizontal	---	---	---
Idler Beam	Vertical	Vertical	Vertical	Vertical	Vertical
<b>Pump Laser</b>					
Pump Wavelength (nm)	532	355	1064	1064	1064
Max pump pulse energy (mJ)	55	35	100	100	100
Pulse Duration (ns)	7	7	7	7	7
Beam Divergence (mrad)	< 3	< 3	< 3	< 3	< 3
Pulse to Pulse Stability (RMS %)	< 2	< 2	< 2	< 2	< 2
Pulse Repetition Rate (Hz)	20	20	20	20	20
<b>Physical Characteristics:</b>					
LxWxH - inches (cm)					
Laser Head	12 x 7 x 4.9 (30.5 x 17.8 x 12.4)	12 x 7 x 4.9 (30.5 x 17.8 x 12.4)	9.5 x 4.6 x 7.6 (24.1 x 11.7 x 19.3)	12 x 7 x 4.9 (30.5 x 17.8 x 12.4)	12 x 7 x 4.9 (30.5 x 17.8 x 12.4)
Control Electric Box	11.5 x 10.3 x 3.8 (29.2 x 26.2 x 9.7)	11.5 x 10.3 x 3.8 (29.2 x 26.2 x 9.7)	---	11.5 x 10.3 x 3.8 (29.2 x 26.2 x 9.7)	11.5 x 10.3 x 3.8 (29.2 x 26.2 x 9.7)
Umbilical Length: (m)	2.5	2.5	2.5	2.5	2.5
Pump laser power supply size	17.2 x 5.3 x 14.2 (43.5 x 13.3 x 36)	17.2 x 5.3 x 14.2 (43.5 x 13.3 x 36)	17.2 x 5.3 x 14.2 (43.5 x 13.3 x 36)	17.2 x 5.3 x 14.2 (43.5 x 13.3 x 36)	17.2 x 5.3 x 14.2 (43.5 x 13.3 x 36)
Laser Head weight: lbs (kg)	25 (11)	25 (11)	10 (4.5)	25 (11)	25 (11)
Control Electric Box weight: lbs (kg)	5 (2.3)	5 (2.3)	---	5 (2.3)	5 (2.3)
Pump laser power supply weight: lbs (kg)	31 (14)	31 (14)	31 (14)	31 (14)	31 (14)
<b>Operating Requirements</b>					
Coolant system	Distilled water	Distilled water	Distilled water	Distilled water	Distilled water
Room Temperature (°C)	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
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



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Trademarks are the property of OPOTEK.  
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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