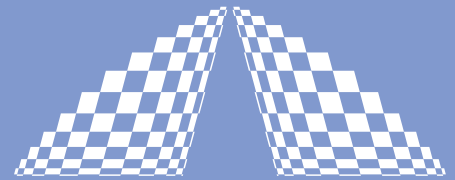


# LEVANTE

## EMERALD



A P E

The Ultimate Light Source  
for CARS Microscopy

### fs- and ps-OPO



The **Levante Emerald** is a synchronously pumped optical parametric oscillator (OPO) pumped by a frequency doubled solid state laser. The **Levante Emerald** is offered in two versions, with the main difference in the pulse duration being generated. The ps-version is pumped by a Nd:YVO laser at 532 nm, the fs-version by an Ytterbium laser at 523 nm.

With the **Levante Emerald** a stable system with broadband tunable ps- or fs-pulses is available offering high average power in the NIR and excellent beam pointing stability. The generated pulses are bandwidth limited and of high beam quality. Tuning of the wavelength is easy and computer controlled.

A complete new beam quality is reached with the intrinsic perfect spatial and time overlap of the Signal and Idler beam, which are collinearly coupled out of the system.

The energy difference between Signal and Idler is continuously tunable, which makes it an ideal system for multi color excitation experiments, such as e.g. coherent Raman scattering or CARS (Coherent Anti-Stokes Raman Scattering). Important wavelengths for multiphoton microscopy are supplied directly from the system, such as e.g. 950 nm for GFP (green fluorescence protein) or 1160 nm for RFP (red fluorescence protein).

Two tuneable output beams with different colours (Signal and Idler)

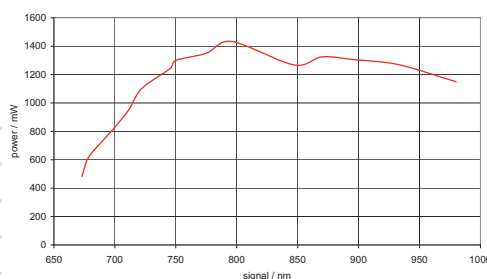
Jitterfree generation of different wavelength

Integrated spectrometer for the Signal range

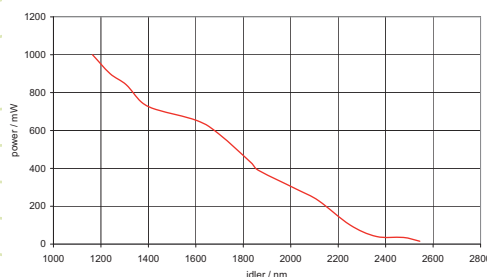
Automatic tuning via PC-Software

Signal and Idler beam separator included

Levante Emerald / typical signal power @ 4.5W pump



Levante Emerald typical idler power @ 4.5W pump



Signal and Idler Power Curves  
typ. @ 4.5 W pump

Ultrafast Pulse Diagnostics

Wavelength Conversion

Pulse Management

Acoustooptics

Your Partner in Ultrafast

## SPECIFICATIONS

	fs-version		ps-version	
	Signal	Idler	Signal	Idler
Pump laser parameters	@ 523 nm   3W   ca. 300 fs		@ 523 nm   4 W   ca. 6 ps	
Tuning range	690 (typ.680) ... 980 nm	1120 ... 2150 nm	690 (typ. 680) ... 990 nm	1150 ... 2300 nm (typ. 2450)
Output power	> 0.5 W (750 .. 980 nm)	>0.35 W (1120 ... 1250 nm)	> 0.75 W (750 ... 990 nm)	> 0.6 W (1150 ... 1350 nm)
$\Delta\nu$ Signal-Idler	1270 ... 9850 $\text{cm}^{-1}$		1400 ... 10000 $\text{cm}^{-1}$	
$\Delta\nu$ Signal - fundament. pump	635 ... 4925 $\text{cm}^{-1}$		700 ... 5000 $\text{cm}^{-1}$	
Pulse width	~300 fs		~5 ... 6 ps	
Spectral bandwidth (Signal)	typ. 4 - 5 nm		typ. 0.3 ... 0.4 nm	
Time bandwidth product	typ. 0.6 typ.		typ. 0.6	
Repetition rate	80 MHz (others on request)		80 MHz (others on request)	
Beam quality $M^2$	< 1.1 (typ. 1.05)		< 1.2 (typ. 1.1)	
Polarization	Linear / horizontal			
Interface	RS232			

## OPTIONS

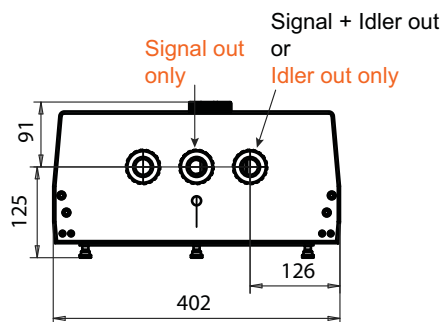
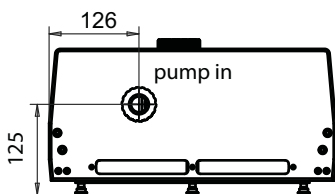
Autocorrelator  
Modulator for SRS and heterodyne CARS

The **APE Levante Emerald** is delivered with an integrated spectrometer and removeable Signal/Idler beam separator.

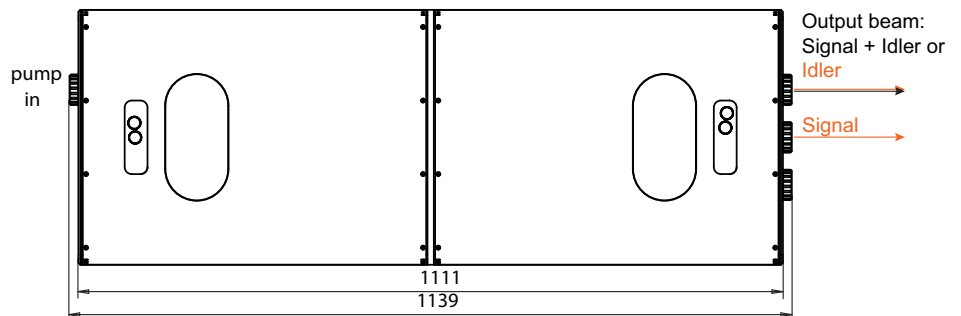
## SIZE (in mm)

Control Electronics (d x h x l) 267 x 180 x 312

Optical Unit:



• optional beam separation by using included beam separator



Distributors  
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APE follows a policy of continued product improvement. Therefore, specifications are subject to change without notice.

**PHOTO  
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