

# EUROPA™

## MHz - Optical Parametric Amplifier

| 5 MHz

| tunable in the visible and mid IR

| up to 20 nJ

### Applications

- Time-resolved spectroscopy
- Biochemistry spectroscopy
- Pump-probe measurements
- Semiconductor diagnostics
- Multiphoton microscopy
- Solar cell diagnostics

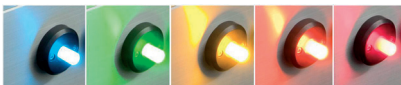


**EUROPA™** is the first Optical Parametric Amplifier directly pumped by sub- $\mu$ J pulses provided by our unique FEMTOSOURCE™ XL high energy oscillator.

FEMTOSOURCE™ XL represents the new generation of high pulse energy ultrafast compact Ti:Sapphire oscillators, based on our patented revolutionary Chirped Pulse Oscillator technology.

The complete system FEMTOSOURCE™ XL, PULSE-FINDER™ programmable pulse picker and EUROPA™ constitutes a formidable tunable laser source delivering high pulse energy at repetition rates up to 5.1 MHz across the visible mid IR spectral range.

The lack of a traditionally required ultrafast amplifier makes the system uncomplicated, inexpensive, stable and compact. This is the ideal choice for spectroscopy and microscopy applications which require a high signal-to-noise ratio.



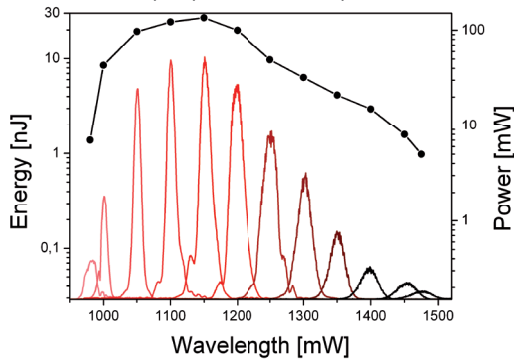
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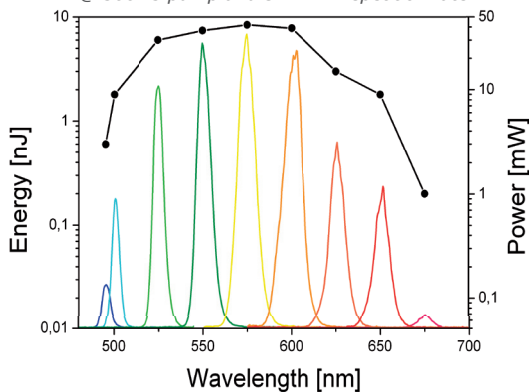
### Extraordinary Features

- MHz repetition rate | Tunable in the MIR
- Compact complete system
- SHG of signal (optional)
- White light seeded

Typical tuning curve for OPA signal output  
@ 500 nJ pump and 5.1 MHz repetition rate



Typical tuning curve for SHG of signal output  
@ 500 nJ pump and 5.1 MHz repetition rate



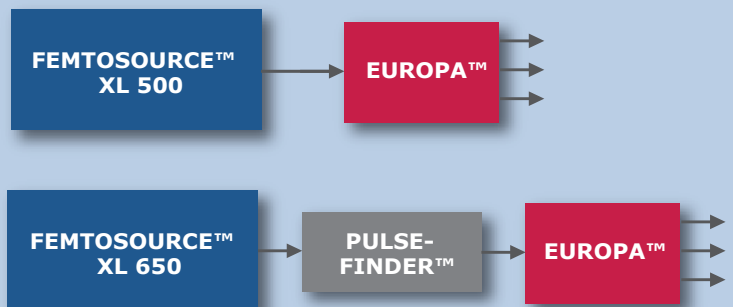
### Main properties

The EUROPA™ signal output delivers ultrashort pulses in the mid IR spectral region with pulse energy exceeding 20 nJ. An optional SHG stage provides pulses covering the visible spectral region. The idler as well as the original sub-50 fs pump beam from the oscillator are available as additional outputs. The MHz repetition rate significantly decreases acquisition time and improves S/N ratio especially benefiting imaging and other data intensive applications.

### Options

In combination with the PULSEFINDER™ pulse picker the repetition rate can be programmed to any sub-harmonic of the full repetition rate of 4.0 MHz.

### Setup variations



### EUROPA™

Required pump laser	FEMTOSOURCE™ XL 500	
Typical wavelength tuning range at 500 nJ pump energy	Signal	1000 nm - 1400 nm
	Idler	1900 nm - 3000 nm
	SHG of signal	500 nm - 650 nm
Repetition rate	5.1 MHz	

### PULSEFINDER™ (optional)

Transmission	> 75 %
Repetition rate	Rate divider: 2 to 65536 or programmable pulse groups

All specifications are subject to change without notice



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FEMTOLASERS' laser products are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by Center of Devices and Radiological Health on all systems ordered for shipment after October 1, 2003.