

PhotoSonus



Following the demand of high output energies in the photoacoustic market for imaging larger volumes of tissue, PhotoSonus, an updated high energy tunable laser source for photo-acoustic imaging is introduced. Time-tested Ekspla nanosecond pump laser, parametric oscillator, power supply and cooling unit are integrated in a single robust housing to provide mobility, ease of use and low maintenance cost.

Highly flexible PhotoSonus platform makes it easy to be integrated and used in a photoacoustic imaging system: it is fully motorized and computer controlled, have user

trigger outputs /inputs and special options such as motorized switching between OPO and pump wavelengths. Parametric oscillator generates output energies up to 180 mJ at peak of wide wavelength tuning range (660 – 2300 nm). Customizable and interlocked fiber bundle connector ensures safety and ability to fit various size fiber bundles.

For customers who demand even higher output energy, we are introducing PhotoSonus with **High Energy option**. 250 mJ output energy is achieved at the peak from OPO at 10 Hz. For more details inquire separately.

**High Energy,
Mobile and Tunable
Wavelength
Laser Source for
Photoacoustic
Imaging**

FEATURES

- ▶ High **180 mJ** output energy
- ▶ Wide tuning range
**from 660 to 1064 nm and
from 1065 to 2300 nm**
- ▶ **10 Hz or 20 Hz** pulse repetition rate
- ▶ Integrated pump laser, OPO and PSU in single portable unit
- ▶ One year warranty
- ▶ Low maintenance cost
- ▶ Fiber bundle connectors with safety interlock

OPTIONS

- ▶ Fast wavelength tuning
- ▶ **High energy (250 mJ)** – inquire separately
- ▶ Motorized switching between OPO and pump wavelengths
- ▶ Access to pump laser wavelengths (1064 / 532 nm)
- ▶ Idler output 1065 – 2300 nm
- ▶ Motorized attenuator
- ▶ Energy meter
- ▶ Fiber bundle

SPECIFICATIONS ¹⁾

Model	PhotoSonus
OPO	
Wavelength range	
Signal	660 – 1064 nm
Idler (optional)	1065 – 2300 nm
Pulse repetition range	10 or 20 Hz
OPO output pulse energy ²⁾	>180 mJ at 10 Hz or >160 mJ at 20 Hz
Scanning step:	
Signal (660 – 1064 nm)	0.1 nm
Idler (1065 – 2300 nm)	1 nm
Pulse duration ³⁾	3 – 5 ns
Signal linewidth	< 10 cm ⁻¹
Typical signal beam diameter (1/e ²) ⁴⁾	7 ± 2 mm
Control interfaces	USB, LAN, RS232
PHYSICAL CHARACTERISTICS	
Cooling	Closed loop air-water cooled
Unit size (W × L × H)	434 × 672 × 887 mm
OPERATING REQUIREMENTS	
Room temperature	18 – 27 °C
Relative humidity	20 – 80 % (non-condensing)
Power requirements ⁵⁾	208 or 240 VAC, single phase 50/60 Hz
Power consumption	< 1.8 kW at 10 Hz, < 3.4 kW at 20 Hz

¹⁾ Due to continuous improvement, all specifications are subject to change without notice. The parameters marked typical are not specifications. They are indications of typical performance and will vary with each unit we manufacture. Unless stated otherwise all specifications are measured at 700 nm.

²⁾ Free space measurement at 700 nm. See tuning curves for typical outputs at other wavelengths.

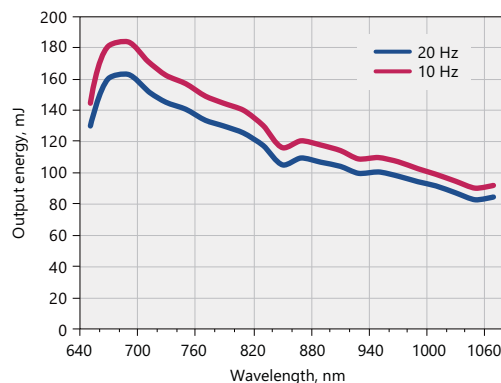
³⁾ FWHM measured with photodiode featuring 500 ps rise time and 600 MHz bandwidth oscilloscope.

⁴⁾ Measured at the output at 700 nm wavelength. Can be adjusted as per request.

⁵⁾ Mains voltage should be specified when ordering.

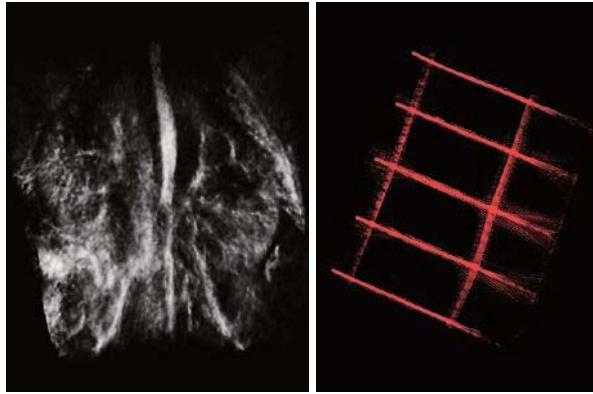


PERFORMANCE



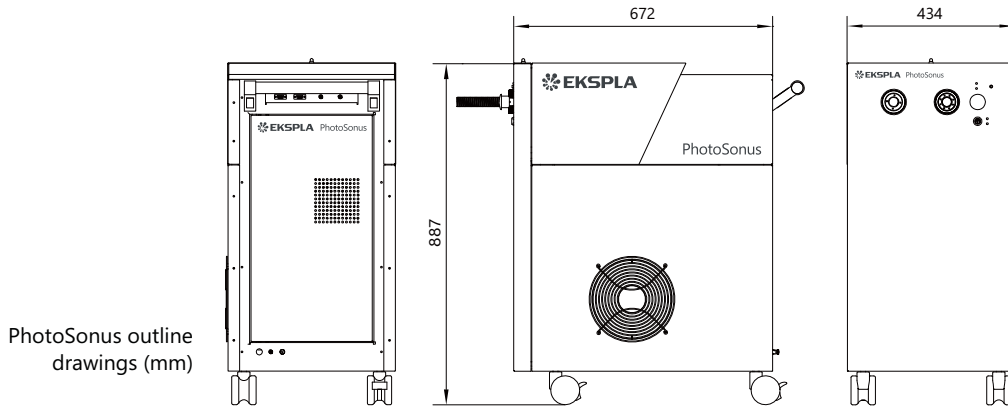
Typical PhotoSonus signal output pulse energy vs. wavelength curve

SAMPLE PHOTOACOUSTIC IMAGES



Courtesy of PhotoSound Technologies, Inc.

DRAWINGS



PhotoSonus outline drawings (mm)

Femtosecond Lasers

Picosecond Lasers

Picosecond Tunable Systems

Nanosecond Lasers

Nanosecond Tunable Lasers

High Energy Lasers

Other Ekspla Products

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