Photoacoustic Imaging Sources

PhotoSonus X



See list of publications written by employing **PhotoSonus** series lasers



High Output Power DPSS Tunable Laser for Photoacoustic Imaging

PhotoSonus X

PhotoSonus X is a perfect solution for photoacoustic imaging in pre-clinical and clinical use and when fast sample scanning is required.

Having high output energy of up to 90 mJ at the peak, a broad wavelength tuning range from 650 to 2600 nm, high pulse repetition rate up to 100 Hz and fast wavelength switching makes it a perfect photoacoustic imaging source for gaining high-resolution images and ensuring high data acquisition rate. Moreover, being built on a diode pumped solid-state laser platform, PhotoSonus X assures significantly quieter operation (< 60 dB) compared with flash-lamp pumped lasers, which is very beneficial for clinical use.

Diode pumped laser technology and well-engineered system design ensures high reliability and low-cost system operation. PhotoSonus X output can be coupled with almost any type of fiber bundle.

With additional options of an internal energy meter and electromechanical shutter with laser self-test capability, PhotoSonus X can be ready for certification in clinical photoacoustic applications.

Features

Ultra-wide signal tuning range from **650** to **1300 nm**

Fully motorized wavelength tuning

Fast wavelength switching

Externally triggerable

High, up to **90 mJ** pulse energy from OPO

100 Hz or **50 Hz** pulse repetition rate

Certification ready

Quiet operation < 60 dB

Integrated DPSS pump laser and OPO into a single housing

Fiber bundle or fiber

Signal and idler through the same output (optional)

Integrated energy meter (optional)

Electromechanical output shutter with laser self-test capability

650 – 90 mJ / < 60 dB



Learn more about PhotoSonus X www.ekspla.com

PhotoSonus X

Specifications 1)

Model		PhotoSonus X-50	PhotoSonus X-100
ОРО			
Wavelength range	Signal	650 – 1300 nm	
	Idler (optional)	1065 – 2600 nm	
OPO output max pulse energy 2)		> 90 mJ	> 50 mJ
Pulse repetition rate 3)		50 Hz	100 Hz
Scanning step	Signal	0.1 nm	
	Idler	1 nm	
Pulse duration ⁴⁾		2 – 5 ns	
Signal linewidth 5)		< 15 cm ⁻¹	< 10 cm ⁻¹
Typical signal beam diameter (1/e²) 6)		6 ± 1 mm	
ontrol interfaces		LAN, RS232	
Physical characteristics			
Cooling		Closed loop air-water cooled 7)	
Unit size (W \times L \times H)		551 × 400 × 162 mm	
Power supply size (W \times L \times H)		483 × 390 × 140 mm	
Umbilical length		0.5 m	
Operating requirements			
Room temperature		18 – 27 °C	
Relative humidity		20 – 80 % (non-condensing)	
Power requirements		100 – 240 VAC, single phase 50/60 Hz	
Power consumption		< 2 kW	
Due to continuous improvement, all speci to change without notice. The parameters not specifications. They are indications of and will vary with each unit we manufactu otherwise all specifications are measured. Measured at the free space output. See to typical energy levels at different waveleng	marked typical are typical performance ire. Unless stated at 700 nm. Ining curves for	 Other fixed pulse repetiton rates are available upon request. FWHM measured with photodiode featuring 1 ns rise time and 300 MHz bandwidth oscilloscope. At 700 nm or higher wavelength. Measured at the free space output at 700 nm wavelength. Using external chiller. 	DANGER: VISIBLE AND/OR INVISIBLE LASER RADIATION AVOID EYE OR S EXPOSURE TO DIRECT, REFLECTED SCATTERED RADIATION CLASS 4 LASER PRODUCT

Performance

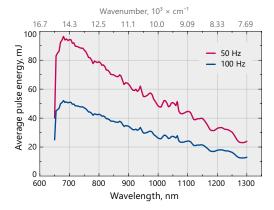


Fig 1. Typical PhotoSonus X free space extended range signal output energy vs. wavelength

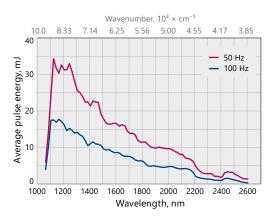
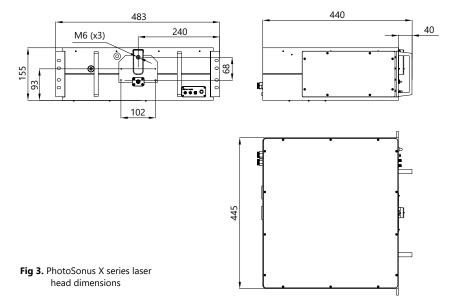


Fig 2. Typical PhotoSonus X free space idler output energy vs. wavelength

PhotoSonus X

Drawings



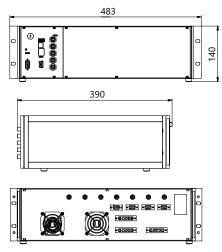


Fig 4. Outline drawing of PhotoSonus X power supply unit

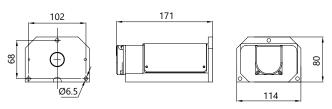


Fig 5. Outline drawing and dimensions of 3 mm fiber bundle



Fig 6. PhotoSonus X laser head with power supply units and cooling chiller installed in one rack

Ordering information

Note: Laser must be connected to the mains electricity all the time. If there will be no mains electricity for longer that 1 hour then laser (system) needs warm up for a few hours before switching on.

