NT230 SERIES

High Energy Broadly Tunable DPSS Lasers

NT230 series lasers deliver high up to 10 mJ energy pulses at 100 Hz pulse repetition rate, tunable over a broad spectral range. Integrated into a single compact housing, the diode pumped Q-switched Nd:YAG laser and Optical Paramteric Oscillator (OPO) offers hands-free, no-gap tuning from 193 to 2600 nm. With its 100 Hz repetition rate, the NT230 series laser establishes itself as a versatile tool for many laboratory applications, as laser induced fluorescence, flash photolysis, photobiology, metrology, remote sensing, etc.

Due to the innovative diode-pumped design, NT230 series lasers features maintenance-free laser operation for an extended period of time and improved stability (compared with flash-lamp pumped counterparts).

NT230 series systems can be controlled from a user-friendly remote control pad or/and a computer using supplied LabVIEW™ drivers. The control pad allows easy control of all parameters and features on a backlit system display that is easy to read even with laser safety eyewear.

Due to DPSS pump source, the laser requires little maintenance. It is cooled by a built-in chiller, which further reduces running costs. An OPO pump energy monitor allows monitoring of pump laser performance. A standard feature includes a separate output port for the 355 nm pump beam.

FEATURES

- *Integrates DPSS pump laser and OPO into a single housing*
- *Hands-free no-gap wavelength tuning from **193** to **2600 nm***
- *High, up to **10 mJ** pulse energy from OPO*
- ***100 Hz** pulse repetition rate*
- *More than **1.5 mJ** output pulse energy in UV*
- *Less than 5 cm^{-1} linewidth*
- ***3–6 ns** pulse duration*
- *Remote control pad*
- *PC control via USB port (RS232 is optional) and LabVIEW™ drivers*
- *Optional separate output port for 355/532/1064 nm beam*

APPLICATIONS

- *Laser-induced fluorescence*
- *Flash photolysis*
- *Photobiology*
- *Remote sensing*
- *Metrology*
- *Non-linear spectroscopy*
- *Medical*
- *Photo acoustic imaging*

Accessories and optional items

Option	Features
-SH	Tuning range extension in UV range (210–409 nm) by second harmonics generation
-SF	Tuning range extension in 300–409 nm range by sum-frequency generation
-SH/SF	Tuning range extension in 210–409 nm range by combining second harmonics and sum-frequency generator outputs for maximum possible pulse energy
-SCU	Spectral filtering accessory for improved spectral purity of pulses
-H, -2H	1064 nm or 532 nm output via separate port
-FC	Fiber coupled output in 350–700 nm range
-DUV	Deep UV option in 193–209.9 nm range

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SPECIFICATIONS [1]

Model	NT230-50-SH/SF	NT230-100-SH/SF
OPO		
Wavelength range		
Signal	405–709 nm	
Idler	710–2600 nm	
SH or SF	210–405 nm [2]	
DUV	193–209.9 nm [3]	
Pulse energy [4]		
OPO	10 mJ	
SH and SF	1.5 mJ at 260 nm and 340 nm	
DUV	0.2 mJ at 200 nm	
Pulse repetition rate [5]	50 Hz [6]	100 Hz
Pulse duration [7]	3–6 ns	
Linewidth [8]	<5 cm^{-1}	
Scanning step		
Signal	0.1 nm	
Idler	1 nm	
SH and SF	0.05 nm	
Polarization		
Signal	horizontal	
Idler	vertical	
SH and SF	vertical	
OPO beam divergence [9]	<2 mrad	
Typical beam diameter [10]	4 mm	
PUMP LASER		
Pump wavelength [11]	355 / 1064 nm	
Max pump pulse energy [12]	35 / 100 mJ	
Pulse duration [7]	6–8 ns at 1064 nm	
PHYSICAL CHARACTERISTICS		
Unit size (W × L × H)	451 × 640 × 162 mm	
Power supply size (W × L × H)	365 × 395 × 290 mm	
Umbilical length	2.5 m	
OPERATING REQUIREMENTS		
Cooling	build-in chiller	
Room temperature	15–30 °C	
Relative humidity	20–80 % (non-condensing)	
Power requirements	90–240 V AC, single phase 50/60 Hz	
Power consumption	<1 kVA	

1) Due to continuous improvement, all specifications are subject to change without notice. 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 450 nm.

2) Tuning range of 210–405 nm is provided by SH/SFG option.

3) Tuning range of 193–209.9 nm is provided by DUV option.

4) See tuning curves for typical outputs at other wavelengths.

5) Inquire for other pulse repetition rates.

6) Variable repetition rate. Please contact Ekspla for more details.

7) FWHM measured with photodiode featuring 1 ns rise time and 300 MHz bandwidth oscilloscope.

8) Linewidth is <8 cm^{-1} for 210–405 nm range.

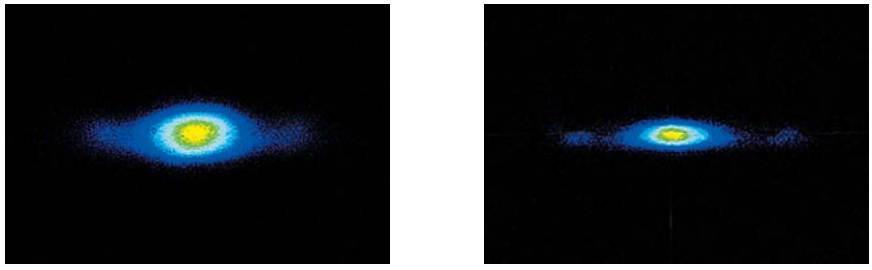
9) Full angle measured at the FWHM level at 450 nm.

10) Beam diameter is measured at 450 nm at the $1/e^2$ level and can vary depending on the pump pulse energy.

11) Separate output port for the 3rd harmonics beam is standard. Output ports for other harmonics are optional.

12) The laser max pulse energy will be optimized for best OPO performance. The actual pump laser output can vary with each unit we manufacture.

PERFORMANCE



Near field Far field

Fig 1. Typical beam profiles of NT230 series lasers at 500 nm

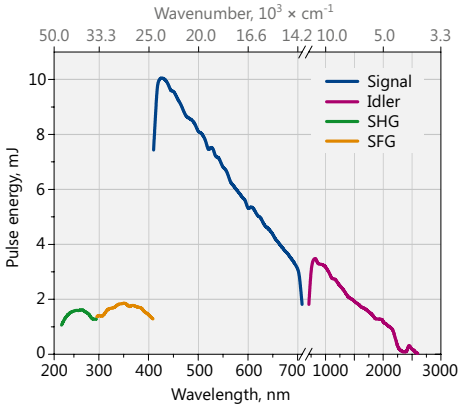


Fig 2. Typical output pulse energy of NT230 laser

OUTLINE DRAWINGS

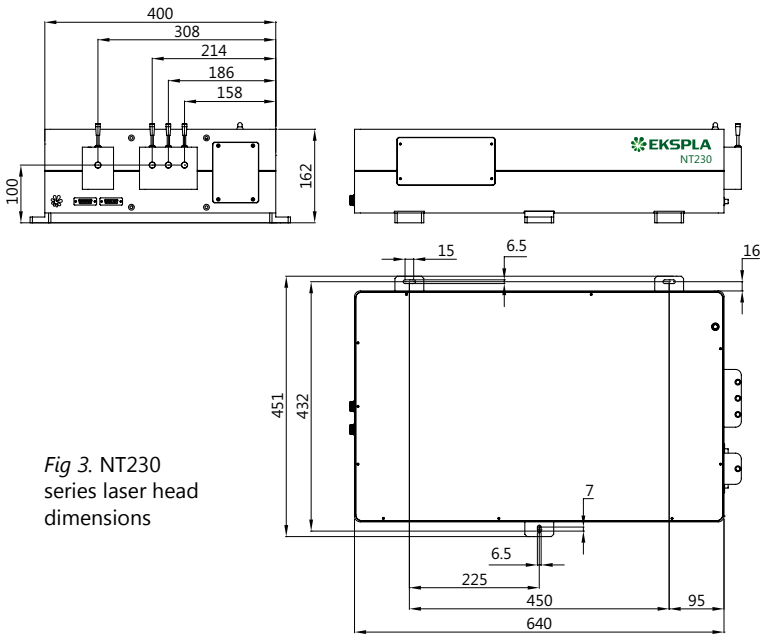


Fig 3. NT230 series laser head dimensions

ORDERING INFORMATION

NT230-50-SH-H/2H/SCU

Model

Pulse repetition rate in Hz

Options:
H → extra 1064 nm output
2H → extra 532 nm output
SCU → spectral filtering accessory

Optional tuning range extension:
SH → 210–409 nm
SFG → 300–409 nm
SH/SFG → 225–409 nm

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