

NT200 SERIES



NT200 series tunable laser systems integrates into a single compact housing a nanosecond Optical Parametric Oscillator (OPO) and Diode-Pumped Solid-State (DPSS) Q-switched pump laser.

Diode pumping enables fast data acquisition at high pulse repetition rates up to 10 kHz (depending on model) while avoiding frequent flashlamp changes that are common when flashlamp pumped lasers are used.

Most of the pump lasers do not require water for cooling, thus further reducing running and maintenance costs.

All lasers feature motorized tuning across the specified tuning range. The output wavelength can be set from control pad with backlit display that is easy to read even while wearing laser safety glasses. Alternatively, the laser can be controlled also from personal computer through USB (RS-232 is optional) interface using supplied LabVIEW™ drivers.

High conversion efficiency, stable output, easy maintenance and compact size make our systems excellent choice for many applications.

NT200 series available models

Model	Features
NT252	Highest pulse energy in near IR range, high efficiency second harmonic generator
NT253	Variable pulse repetition rate in 0 – 10 kHz range, 700 – 900 nm and 1300 – 2200 nm tuning range
NT273	Fixed wavelength OPO producing eye-safe output at 1572 nm
NT273-XIR	Tunable output in mid to far-IR range from 4100 to 12000 nm
NT277	High pulse repetition rate OPO producing tunable output in 2500 – 4475 nm spectral range

Tunable Wavelength DPSS Lasers

FEATURES

- ▶ Integrates DPSS pump laser and OPO into single housing
- ▶ Separate output ports for the pump laser and OPO beams
- ▶ OPO output wavelength range from **335 nm to 12000 nm**
- ▶ Pulse repetition rates up to **10 kHz**
- ▶ Narrow linewidth
- ▶ Hands-free tuning
- ▶ **6-9 ns** pulse duration of pump laser
- ▶ Remote control pad
- ▶ PC control via USB (RS-232 is optional) and LabVIEW™ drivers

APPLICATIONS

- ▶ Laser-induced fluorescence
- ▶ Photolysis
- ▶ IR spectroscopy
- ▶ Photobiology
- ▶ Remote sensing
- ▶ Metrology
- ▶ Gas spectroscopy
- ▶ Other laser spectroscopy applications

SPECIFICATIONS ¹⁾

Model	NT252	NT253-10K	NT273	NT273-XIR	NT277
OPO					
Wavelength range					
Signal	670–1063 nm	700–900 nm	1572 nm	—	—
Idler	1064–2600 nm	1300–2200 nm	3293 nm	4500–12000 nm ²⁾	2500–4475 nm
SH or SFG	335–531 nm	350–450 nm	—	—	—
Pulse energy ³⁾					
OPO	900 µJ at 800 nm	25 µJ at 800 nm	400 µJ at 1572 nm	20 µJ at 7000 nm	150 µJ at 3000 nm
SH or SFG	180 µJ at 400 nm	2 µJ at 400 nm	—	—	—
Pulse repetition rate ⁴⁾	1000 Hz	0–10 kHz	0–1000 Hz ⁵⁾	1000 Hz	1000 Hz ⁵⁾⁶⁾
Linewidth ⁷⁾	<8 cm ⁻¹	<20 cm ⁻¹	<3 cm ⁻¹	<6 cm ⁻¹	10–150 cm ⁻¹ ⁸⁾
Scanning step					
Signal	0.1 nm	—	—	—	—
Idler	1 nm	—	—	1 nm	1 nm
SH or SFG	0.05 nm	—	—	—	—
Polarization					
Signal	horizontal	vertical	vertical	—	—
Idler	vertical	vertical	horizontal	horizontal	vertical
SH or SFG	horizontal	horizontal	—	—	—
Typical beam diameter ^{9) 10)}	2.5 mm	2.5 mm	2 mm	4 mm	4 mm
PUMP LASER					
Pump wavelength ¹¹⁾	532 nm		1064 nm		
Max pump pulse energy ¹²⁾	4.5 mJ	150 µJ	1.9 mJ	1.9 mJ	4 mJ
Pulse duration ¹³⁾	<8 ns	<10 ns	<9 ns		
Beam quality	fit to Gaussian >90%				
Pulse energy stability (StdDev)	<3 %		<1 %		
PHYSICAL CHARACTERISTICS					
Unit size (W × L × H)	453 × 1030 × 274 mm	320 × 800 × 120 mm	305 × 820 × 270 mm	305 × 910 × 270 mm	
Power supply size (W × L × H)	365 × 392 × 289 mm	472 × 461 × 289 mm	365 × 392 × 289 mm		
Umbilical length	2.5 m				
OPERATING REQUIREMENTS					
Cooling	stand-alone chiller	air			
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		<0.5 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 1064 nm.

²⁾ Available wavelength range. Custom tuning ranges are available.

³⁾ Inquire about tuning curves for typical outputs at other wavelengths.

⁴⁾ Inquire for other pulse repetition rates. For some models up to 20 kHz PRR is possible.

⁵⁾ 500 Hz version is available for higher pulse energy.

⁶⁾ 100 kHz version is available. Please contact Ekspla for more details.

⁷⁾ In signal range.

⁸⁾ <10 cm⁻¹ option is available for whole tuning range.

⁹⁾ Measured at the wavelength indicated in the "Pulse energy" specification row.

¹⁰⁾ Beam diameter is measured at the 1/e² level at the laser output and can vary depending on the pump pulse energy.

¹¹⁾ Separate output port for the pump beam is standard. Output ports for other available 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.

¹³⁾ FWHM measured with photodiode featuring 1 ns rise time and 300 MHz bandwidth oscilloscope.



Picosecond Lasers

Picosecond Tunable Systems

Nanosecond Lasers

Nanosecond Tunable Lasers

High Energy Lasers

Ultrafast Fiber Lasers

Other Ekspla Products

PERFORMANCE

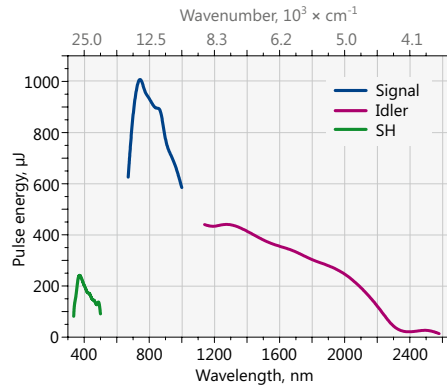


Fig 1. Typical output pulse energy of the NT252-SH tunable laser

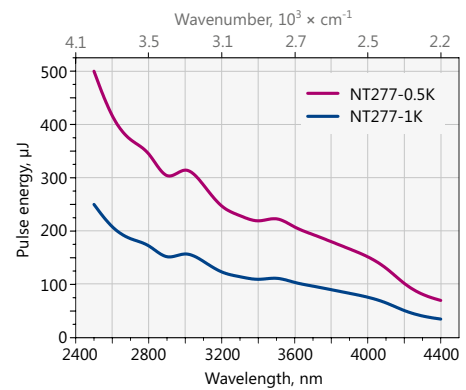


Fig 2. Typical output pulse energy of the NT277 tunable laser

OUTLINE DRAWINGS

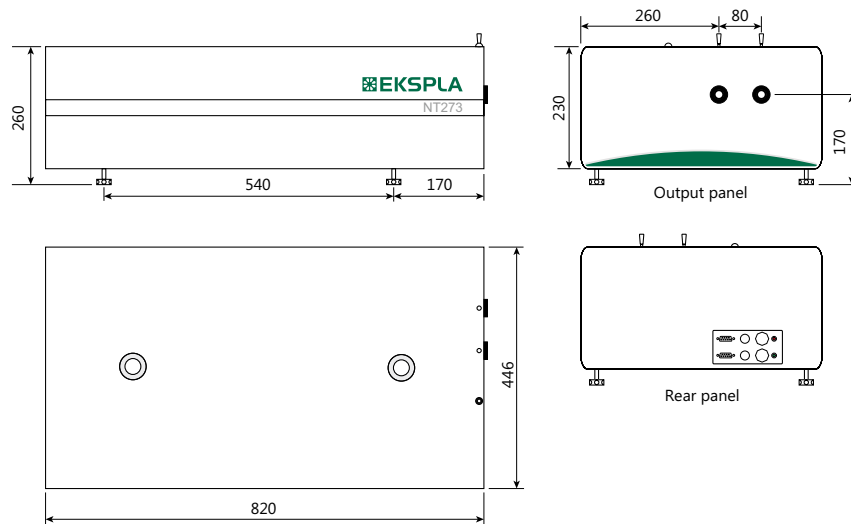


Fig 3. NT273 series laser head dimensions

ORDERING INFORMATION

