

# 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 1 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
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 NIR-IR Range 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
- ▶ 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** <sup>1)</sup>

Model	NT252	NT273-XIR	NT277
<b>OPO</b>			
Wavelength range			
Signal	670–1063 nm	—	—
Idler	1064–2600 nm	4500–12000 nm <sup>2)</sup>	2500–4475 nm
SH	335–531 nm	—	—
Pulse energy <sup>3)</sup>			
OPO	900 µJ at 800 nm	20 µJ at 7000 nm	80 µJ at 3000 nm
SH	180 µJ at 400 nm	—	—
Pulse repetition rate	1000 Hz	1000 Hz	1000 Hz <sup>4)</sup>
Linewidth	<8 cm <sup>-1</sup>	<12 cm <sup>-1</sup>	<10 cm <sup>-1</sup> <sup>5)</sup>
Scanning step			
Signal	0.1 nm	—	—
Idler	1 nm	—	1 nm
SH	0.05 nm	—	—
Polarization			
Signal	horizontal	—	—
Idler	vertical	horizontal	vertical
SH	horizontal	—	—
Typical beam diameter <sup>6) 7)</sup>	2.5 mm	—	4 mm
<b>PUMP LASER</b>			
Pump wavelength <sup>8)</sup>	532 nm	—	1064 nm
Max pump pulse energy <sup>9)</sup>	4.5 mJ	—	1.9 mJ
Pulse duration <sup>10)</sup>	<8 ns	—	<9 ns
Beam quality	fit to Gaussian >90%	—	fit to Gaussian >90%
Pulse energy stability (StdDev)	<3 %	—	<1 %
<b>PHYSICAL CHARACTERISTICS</b>			
Unit size (W × L × H)	453 × 1030 × 274 mm	—	305 × 910 × 270 mm
Power supply size (W × L × H)	365 × 392 × 289 mm	—	365 × 392 × 289 mm
Umbilical length	—	2.5 m	—
<b>OPERATING REQUIREMENTS</b>			
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

<sup>1)</sup> 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.

<sup>2)</sup> Available wavelength range. Custom tuning ranges are available.

<sup>3)</sup> Inquire about tuning curves for typical outputs at other wavelengths.

<sup>4)</sup> 500 Hz version is available for higher pulse energy.

<sup>5)</sup> Higher energy 10 – 150 cm<sup>-1</sup> option is available for whole tuning range.

<sup>6)</sup> Measured at the wavelength indicated in the "Pulse energy" specification row.

<sup>7)</sup> Beam diameter is measured at the 1/e<sup>2</sup> level at the laser output and can vary depending on the pump pulse energy.

<sup>8)</sup> Separate output port for the pump beam is standard. Output ports for other available harmonics are optional.

<sup>9)</sup> The laser max pulse energy will be optimized for best OPO performance. The actual pump laser output can vary with each unit we manufacture.

<sup>10)</sup> FWHM measured with photodiode featuring 1 ns rise time and 300 MHz bandwidth oscilloscope.



**PERFORMANCE**

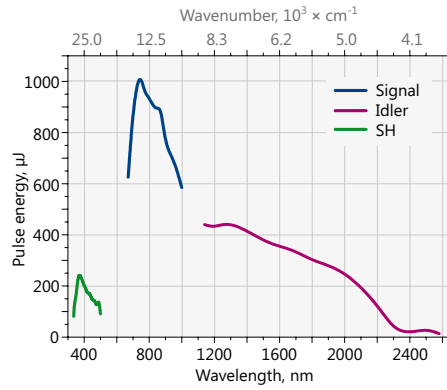


Fig 1. Typical output pulse energy of the NT252-SH tunable laser

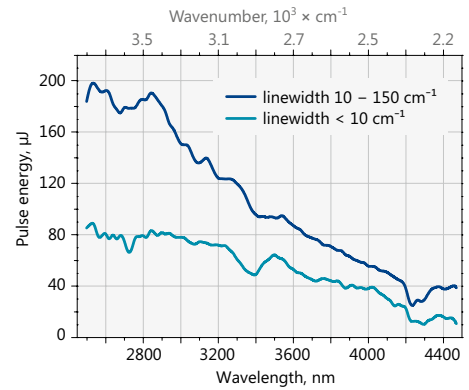


Fig 2. Typical output pulse energy of the NT277 tunable laser

**OUTLINE DRAWINGS**

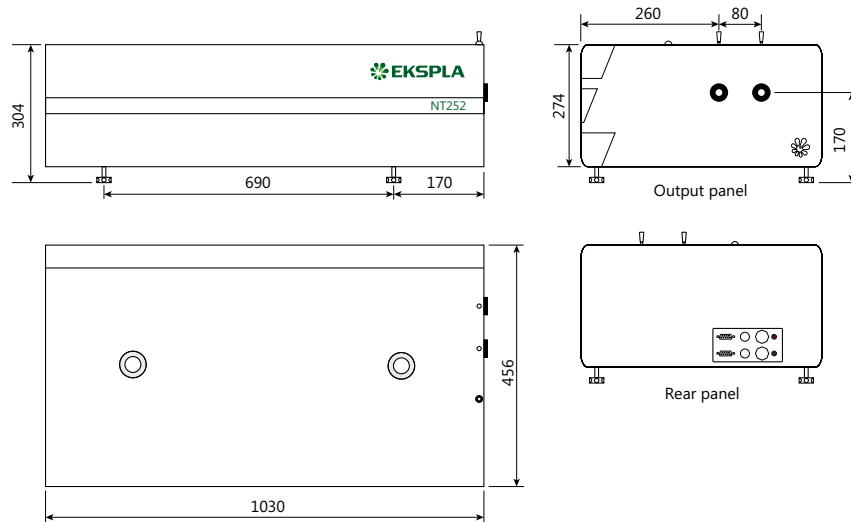


Fig 3. NT252 series laser head dimensions

**ORDERING INFORMATION**

