

# NT200

## SERIES



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

Pulse repetition rates range from 100 Hz to 2500 Hz, thus allowing fast data acquisition.

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

All lasers feature motorized tuning across the specified tuning range. The output wavelength can be set from a control pad with a backlit display that is easy to read even while wearing laser safety eyewear. Alternatively, the laser can be controlled from a personal computer via USB (RS232 is optional) interface using supplied LabVIEW™ drivers.

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

## Tunable Wavelength Nanosecond Lasers

### FEATURES

- Integrates DPSS pump laser and OPO into a single housing
- Separate output ports for the pump laser and OPO beams
- OPO output wavelength range from 210 nm to 12 000 nm
- Pulse repetition rates from 100 Hz to 2500 Hz
- Narrow linewidth
- Hands-free tuning
- 6–9 ns pulse duration of pump laser
- Remote control pad
- PC control via USB (RS232 is optional) and LabVIEW™ drivers

### APPLICATIONS

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

### NT200 series available models

MODEL	NT242	NT253	NT273	NT273-XIR	NT277	NT277-GI
Tuning range	210 to 2600 nm	670 to 2580 nm	1572 nm	4100 to 12000 nm	2500 to 4475 nm	2500 to 4100 nm
Pulse repetition rate	1 000 Hz	500 Hz	500 or 1 000 Hz	500 Hz	500 or 1 000 Hz	1 000 Hz

**SPECIFICATIONS <sup>1)</sup>**

MODEL	NT242 <sup>9)</sup>	NT253	NT273	NT273-XIR	NT277	NT277-GI
<b>OPO</b>						
Wavelength range						
Signal	405–709 nm	670–1000 nm	1572 nm	—	—	—
Idler	710–2600 nm	1140–2580 nm	3293 nm	4100–12000 nm <sup>2)</sup>	2500–4475 nm	2500–4100 nm
SH or SFG	210–405 nm	335–500 nm	—	—	—	—
Pulse energy <sup>3)</sup>						
OPO	450 µJ at 450 nm	250 µJ at 800 nm	400 µJ at 1572 nm	20 µJ at 7000 nm	150 µJ at 3000 nm	50 µJ at 3000 nm
SH or SFG	40 µJ at 240 nm	40 µJ at 400 nm	—	—	—	—
Pulse repetition rate <sup>4)</sup>	1000 Hz <sup>5)</sup>	500 Hz	1000 Hz <sup>6)</sup>	500 Hz	1000 Hz <sup>6)</sup>	1000 Hz
Linewidth	< 5 cm <sup>-1</sup>	< 4 cm <sup>-1</sup>	< 2 cm <sup>-1</sup>	< 6 cm <sup>-1</sup>	10–150 cm <sup>-1</sup> <sup>7)</sup>	< 1 cm <sup>-1</sup>
Scanning step						
Signal	0.1 nm	0.1 nm	—	—	—	—
Idler	1 nm	1 nm	—	1 nm	1 nm	1 nm
SH or SFG	0.05 nm	0.05 nm	—	—	—	—
Polarization						
Signal	horizontal	horizontal	vertical	—	—	—
Idler	vertical	vertical	horizontal	horizontal	vertical	horizontal
SH or SFG	vertical	vertical	—	—	—	—
Typical beam diameter <sup>8)</sup> <sup>10)</sup>	2.5 mm	2.5 mm	2 mm	4 mm	2.5 mm	3 mm
<b>PUMP LASER</b>						
Pump wavelength <sup>11)</sup>	355 nm	532 nm	1064 nm			
Max pump pulse energy <sup>12)</sup>	3 mJ	2 mJ	1.9 mJ	4 mJ	1.9 mJ	
Pulse duration <sup>13)</sup>	6-8 ns	< 8 ns	< 9 ns			
Beam quality	fit to Gaussian >90%					
Pulse energy stability (StDev)	< 3.5 %	< 2 %	< 1 %			
<b>PHYSICAL CHARACTERISTICS</b>						
Unit size (W×H×L)	453×274× ×1030 mm	305×270× ×990 mm	305×270× ×820 mm	305×270× ×910 mm	305×270× ×910 mm	453×274× ×824 mm
Power supply size (W×H×L)	365×289×392 mm					
Umbilical length	2.5 m					
<b>OPERATING REQUIREMENTS</b>						
Cooling	stand-alone chiller	air				
Room temperature	15–30 °C					
Relative humidity (non-condensing)	20–80 %					
Mains voltage	90–240 V AC, single phase 50/60 Hz					
Power consumption	< 1 kVA	< 0.5 kVA				

<sup>1)</sup> 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. Standard tuning range options are 4.1-6 µm or 6-12 µm. Custom tuning ranges are available.  
<sup>3)</sup> Inquire about tuning curves for typical outputs at other wavelengths.

<sup>4)</sup> Inquire about other pulse repetition rates. For some models up to 2.5 kHz PRR is possible.  
<sup>5)</sup> 100 Hz version is available. Pulse energy specification is >0.9 mJ at 450 nm.  
<sup>6)</sup> 500 Hz version is available for higher pulse energy.  
<sup>7)</sup> <10 cm<sup>-1</sup> option is available for whole tuning range.  
<sup>8)</sup> Measured at the wavelength indicated in the "Pulse energy" specification row.  
<sup>9)</sup> Ask for the separate NT240 series brochure.

<sup>10)</sup> Beam diameter is measured at the FWHM level at the laser output and can vary depending on the pump pulse energy.  
<sup>11)</sup> Separate output port for the pump beam is standard. Output ports for other available harmonics are optional.  
<sup>12)</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>13)</sup> FWHM measured with photodiode featuring 1 ns rise time and 300 MHz bandwidth oscilloscope.

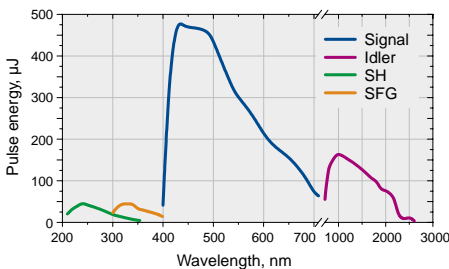


Fig. 1. Typical output pulse energy of the NT242 tunable laser

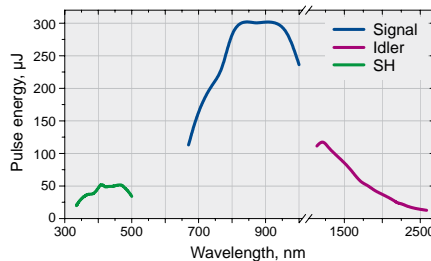


Fig. 2. Typical output pulse energy of the NT253-SH tunable laser

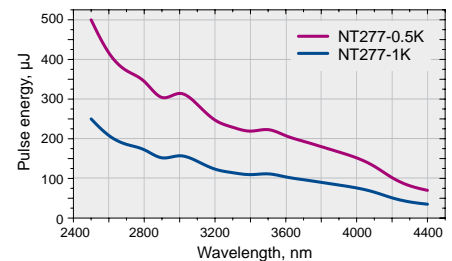


Fig. 3. Typical output pulse energy of the NT277 tunable laser



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