

NT242

SERIES

Nanosecond Tunable Wavelength Lasers

Integrated OPO and DPSS Q-switched Laser

FEATURES

- Integrates **DPSS** pump laser and **OPO** into single housing
- Hands-free, no-gap wavelength tuning from **210 to 2600 nm**
- Unprecedented **1000 Hz** pulse repetition rate
- More than **40 mW** output power in **UV**
- Less than **5 cm⁻¹** linewidth
- **4-7 ns** pulse duration
- Remote control pad
- PC control via RS232 and **LabView** drivers
- Separate output for the OPO pump beam (355 nm)
- OPO pump energy monitoring

APPLICATIONS

- Laser-induced fluorescence
- Flash photolysis
- Photobiology
- Remote sensing
- Metrology
- Non-linear spectroscopy
- Other laser spectroscopy applications



NT242 series lasers produces pulses at unprecedented **1 kHz** pulse repetition rate, tunable over broad spectral range.

Integrated into single compact housing **diode pumped Q-switched Nd:YAG** laser and **OPO** offers hands-free, no-gap tuning from **210 to 2600 nm**. With its **1000 Hz** repetition rate, NT242 series laser establishes itself as a versatile tool for many laboratory applications, including laser induced fluorescence, flash photolysis, photobiology, metrology, remote sensing and many others.

NT242 series systems can be controlled from user-friendly remote control

pad or/and computer using supplied **LabView™** drivers. The control pad allows easy control of all the parameters and features on a backlit display which is easy to read even through laser safety goggles.

Thanks to DPSS pump source the laser requires little maintenance. The laser is cooled by stand alone chiller, which further reduces the running costs. Build-in OPO pump **energy monitor** allows to check pump laser performance without use of external power meters.

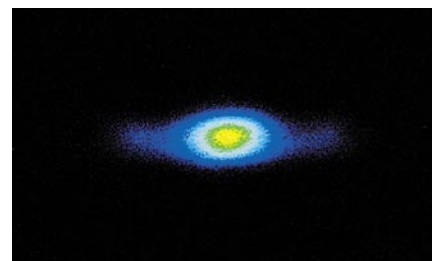
As a standard feature the system has a separate output port for the **355 nm** pump beam.

We offer broad selection of optional items and accessories that allows to configure the laser for any application:

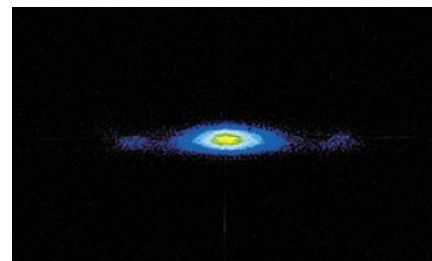
- Tuning range extension in UV range (**210-419 nm**) by second harmonics generation;
- Tuning range extension in **300-400 nm** range with high pulse energy;
- Fiber coupled output in **350-680 nm** range;
- Pulse energy attenuator;
- Spectral filtering accessory for improved spectral purity of the pulses.
- **1064 nm** or **532 nm** output through separate port.

SPECIFICATIONS¹⁾

MODEL	NT242	NT242-SH	NT242-SH/SFG
OPO			
Wavelength range, μm :			
Signal	0.400–0.709		
Idler	0.710–2.6		
UV	—	0.21–0.4	0.225–0.4 ²⁾
Pulse energy, μJ ³⁾			
OPO	450		
UV	40 @ 240 nm	40 @ 330 nm	
Pulse repetition rate, Hz ⁴⁾⁵⁾			
1000			
Pulse duration, ns ⁶⁾			
4–7			
Linewidth, cm^{-1} ⁷⁾			
< 5			
Scanning step, nm			
Signal	0.1		
Idler	1		
UV	—	0.05	
Polarization			
Signal beam	horizontal		
Idler beam	vertical		
UV beam	—	vertical	
Typical beam diameter, mm ⁸⁾			
2.5			
PUMP LASER			
Pump wavelength, nm ⁹⁾	355	355/1064	
Max pump pulse energy, mJ ¹⁰⁾	3	3/1	
Pulse duration, ns ⁶⁾	5–8		
Beam quality	Fit to Gaussian > 90%		
Beam divergence, mrad	< 2		
Pulse energy stability (StDev), %	< 3.5		
PHYSICAL CHARACTERISTICS			
Unit size (W×H×L), mm	453×274×824		
Power supply size (W×H×L), mm	365×289×392		
Umbilical length, m	2.5		
OPERATING REQUIREMENTS			
Cooling	Stand-alone chiller		
Room temperature, °C	15–30		
Relative humidity (noncondensing), %	20–80		
Voltage	90–240 VAC, single phase 50/60 Hz		
Power, kVA	< 1		

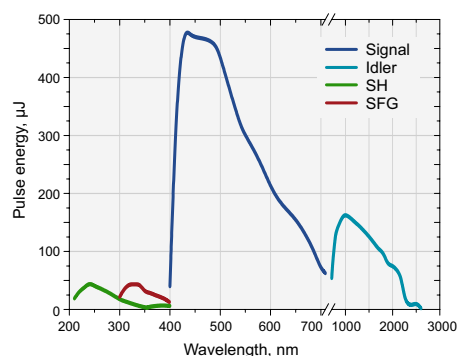


Near field



Far field

Typical beam profiles of NT242 series lasers at 500 nm



Typical output pulse energy of the NT242 tunable laser

¹⁾ All specifications subject to change without notice. The 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 210–400 nm is available by request.

³⁾ See tuning curves for typical outputs at other wavelengths.

⁴⁾ Inquiry for other pulse repetition rates.

⁵⁾ 100 Hz version is available. Pulse energy specification is >1 mJ @ 450 nm.

⁶⁾ FWHM measured with photodiode featuring 500 ps rise time and 300 MHz bandwidth oscilloscope.

⁷⁾ Linewidth is <8 cm^{-1} for 210–419 nm range.

⁸⁾ Beam diameter is measured @ 450 nm at the $1/e^2$ point and can vary depending on the pump pulse energy.

⁹⁾ Separate output port for the 3rd harmonics beam is standard. Output ports for other harmonics are optional.

¹⁰⁾ The laser max pulse energy will be optimized for best OPO performance. The actual pump laser output can vary with each unit we manufacture.

RELATED PRODUCTS

NT200 NANOSECOND TUNABLE WAVELENGTH LASERS

- Integrates DPSS pump laser and OPO into single housing
- OPO output wavelength range from 210 nm to 12 000 nm
- Pulse repetition rates from 100 Hz to 2500 Hz
- 3–5 ns pulse duration
- PC control via RS232 and LabView drivers

NT340 TUNABLE WAVELENGTH LASERS

- Hands-free no gap wavelength tuning from 400 to 2600 nm
- No gap tuning from 210 nm to 2600 nm with UV extension
- Up to 40 mJ pulse energy in visible spectral range
- Up to 4 mJ pulse energy in UV spectral range
- 3–5 ns pulse duration
- 10 or 20 Hz repetition rate



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