

NT340

SERIES

Tunable Wavelength Lasers



NT340 series tunable laser seamlessly integrates in a compact housing the nanosecond optical parametric oscillator and Nd:YAG Q-switched laser.

The system features high conversion efficiency, hands-free wavelength tuning from UV to IR, easy maintenance and separate output for pump laser beam.

The laser is controlled from the remote keypad or from a PC through RS232 interface using LabVIEW™ drivers, that are supplied with the system. The remote pad features a backlit display,

that is easy to read even while wearing laser safety glasses.

Narrow band models feature less than 5 cm^{-1} linewidth, that is ideal for many spectroscopic applications.

System is designed for easy and cost-effective maintenance. Flashlamps can be replaced without misalignment of laser cavity and deterioration of laser performance. OPO pump energy monitoring system helps to increase the lifetime of optical components.

FEATURES

- Hands-free no gap wavelength tuning from 400 to 2600 nm
- No gap tuning from 210 to 2600 nm with optional UV extension
- Up to 40 mJ pulse energy in visible spectral range
- Up to 4 mJ pulse energy in UV spectral range
- Optional sum-frequency generator extension for improved output in 300-409 nm spectral range
- Less than 5 cm^{-1} linewidth
- 3–5 ns pulse duration
- 10 or 20 Hz repetition rate
- Remote control pad
- PC control via RS232 and LabVIEW™ drivers
- Separate output port 355 nm beam. Outputs for 1064 and 532 nm are optional
- OPO pump energy monitoring
- Replacement of flashlamps can be done without misalignment of the laser cavity

NT340 SERIES AVAILABLE MODELS

- Broad bandwidth models based on type 1 BBO OPO.
- Narrow bandwidth models based on type 2 BBO OPO. Narrow bandwidth models can be configured with SH or/and SF tuning range extension for 193-409 nm output.

To configure laser for any application, broad selection of optional items are available:

- Tuning range extension in UV range (210-409 nm);
- Tuning range extension in 300-409 nm range with high pulse energy;
- Tuning range extension in DUV range (193-210 nm);
- Fiber coupled output in 350-680 nm range;
- Pulse energy attenuator;
- Separate Nd:YAG laser harmonics output ports (1064, 532, 355 and 266 nm wavelengths) from build-in harmonics generator;
- Water-air cooled power supply.

APPLICATIONS

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

SPECIFICATIONS ¹⁾

MODEL	NT341A	NT341B	NT342A	NT342B
OPO				
Wavelength range ²⁾				
Signal	410–680 nm	410–680 nm	410–709 nm ³⁾	410–709 nm ³⁾
Idler	740–2300 nm	740–2300 nm	710–2300 nm ³⁾	710–2300 nm ³⁾
SH generator (optional)	—	—	210–409 nm	210–409 nm
SH/SF generator (optional)	—	—	225–409 nm	225–409 nm
DUV generator (optional)	—	—	—	193–210 nm
Output pulse energy				
OPO ⁴⁾	20 mJ	40 mJ	15 mJ	30 mJ
SH generator (optional) ⁵⁾	—	—	2 mJ	4 mJ
SH/SF generator (optional) ⁶⁾	—	—	3 mJ	6 mJ
DUV generator (optional) ⁷⁾	—	—	—	0.2 mJ
Linewidth ⁸⁾	10–350 cm ⁻¹	10–350 cm ⁻¹	< 5 cm ⁻¹	< 5 cm ⁻¹
Scanning step				
Signal (410–709 nm)	0.1 nm			
Idler (710–2300 nm)	1 nm			
SH range (210–409 nm)	—	—	0.05 nm	0.05 nm
Pulse duration ⁹⁾	3–5 ns			
Typical beam diameter ¹⁰⁾	4 mm	5 mm	4 mm	5 mm
Typical beam divergence ¹¹⁾	< 6 mrad		< 2 mrad	
Polarization				
Signal beam	horizontal			
Idler beam	horizontal		vertical	
SH/SF beam	—	—	vertical	
PUMP LASER ¹²⁾				
Pump wavelength	355 nm			
Max pump pulse energy	70 mJ	135 mJ	70 mJ	135 mJ
Pulse duration	4–6 ns			
Beam quality	"Hat-top" in near field, without hot spots			
Beam divergence	< 0.5 mrad			
Pulse energy stability (Std. Dev.)	< 3.5 %			
Pulse repetition rate	10 or 20 Hz			
PHYSICAL CHARACTERISTICS				
Unit size (W×H×L) ¹³⁾	446×260×820 mm			
Power supply size (W×H×L)	330×670×520 mm			
Umbilical length, m	2.5 m			
OPERATING REQUIREMENTS				
Water consumption (max 20 °C) ¹⁴⁾	6 l/min			
Room temperature	15–30 °C			
Relative humidity (noncondensing)	20–80 %			
Mains voltage	208 or 240 V AC, single phase 50/60 Hz			
Power consumption ¹⁵⁾	1.0/1.5 kVA			

- ¹⁾ 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⁾ Hands-free tuning range is from 210 to 2300 nm.
- ³⁾ Tuning range extension to 400–2600 nm is optional.
- ⁴⁾ Measured at 450 nm. See tuning curves for typical outputs at other wavelengths.
- ⁵⁾ Measured at 260 nm. See tuning curves for typical outputs at other wavelengths.
- ⁶⁾ Measured at 340 nm. SF generator is optimized for maximum output in 300–409 nm range. See tuning curves for typical outputs at other wavelengths.
- ⁷⁾ Measured at 200 nm.
- ⁸⁾ Linewidth is <8 cm⁻¹ for 210–409 nm range.
- ⁹⁾ FWHM measured with photodiode featuring 1 ns rise time and 300 MHz bandwidth oscilloscope.
- ¹⁰⁾ Beam diameter is measured at 450 nm at the FWHM level and can vary depending on the pump pulse energy.
- ¹¹⁾ Full angle measured at the FWHM level at 450 nm.
- ¹²⁾ Separate output port for the 355 nm beam is standard. Outputs for 1064 nm and 532 nm beams are optional. Laser output will be optimised for OPO operation and specifications may vary with each unit we manufacture.
- ¹³⁾ Version with DUV generator has dimensions of 446×260×1020 mm (W×H×L).
- ¹⁴⁾ At 10 Hz pulse repetition rate. Air cooled power supply is available for 10 or 20 Hz versions.
- ¹⁵⁾ At 10/20 Hz pulse repetition rate.

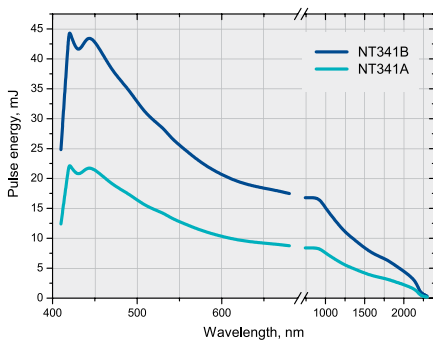


Fig 1. Typical output energy of the NT341 series tunable wavelength systems

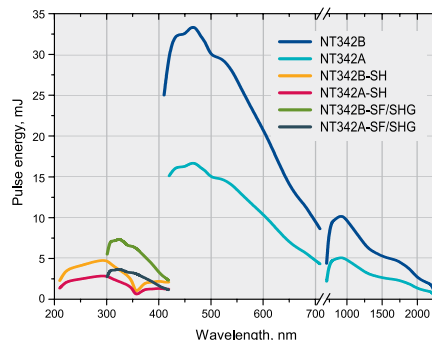


Fig 2. Typical output energy of the NT342 series tunable wavelength systems

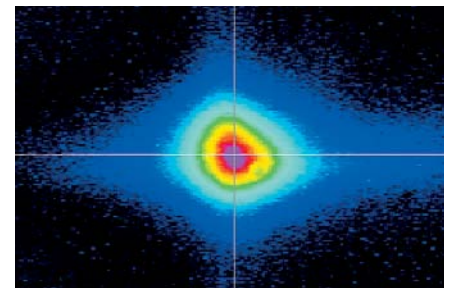


Fig 3. Typical far field beam profile of NT342 laser



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