NT350 SERIES

High Energy NIR Range Tunable Lasers

NT352 series tunable laser seamlessly integrates in a compact housing a nanosecond optical parametric oscillator and Nd:YAG Q-switched laser.

Four models with different output pulse energy values are offered. The most powerful model has more than 125 mJ pulse energy at 800 nm.

Narrow linewidth (<10 cm^{-1}) is nearly constant trough whole tuning range, which makes laser suitable for many spectroscopy application.

The device is controlled from the remote keypad or from 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.

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

Optional items are available allowing to optimize the laser system for Your application, for example:

- Fiber coupled output in 670–1000 nm range;
- Tuning range extension up to 2600 nm;
- Efficient second harmonics generator for 335–500 nm range;
- Pulse energy attenuator;
- Water-air cooled power supply.

Please inquire custom-build versions and options.

FEATURES

- *Hands-free, automated wavelength tuning from **670** to **2600 nm***
- *Up to **125 mJ** pulse energy in near-IR spectral range*
- *Narrow linewidth across tuning range*
- ***3–5 ns** pulse duration*
- *Up to **30 Hz** pulse repetition rate*
- *Remote control pad*
- *PC control via RS232 and LabVIEW™ drivers*
- *Separate output port for 532 nm beam. Output for 1064 nm is optional*
- *OPO pump energy monitoring*
- *Replacement of the flashlamps can be done without misalignment of the laser cavity*
- *Hermetically sealed oscillator cavity protects non-linear crystals from dust and humidity*

APPLICATIONS

- *Photoacoustic imaging*
- *Photobiology*
- *Remote sensing*
- *Time-resolved spectroscopy*
- *Non-linear spectroscopy*
- *Other laser spectroscopy applications*

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SPECIFICATIONS [1]

Model	NT352	NT352A	NT352B	NT352C
OPO				
Wavelength range				
Signal	670–1064 nm			
Idler	1065–2600 nm			
SH	355–500 nm			
Output pulse energy				
OPO [2]	30 mJ	60 mJ	100 mJ	125 mJ
Linewidth	<10 cm^{-1}			
Scanning step				
Signal (670–1064 nm)	0.1 nm			
Idler (1064–2300 nm)	1 nm			
SH (355–500 nm)	0.5 nm			
Pulse duration [3]	3–5 ns			
Typical beam diameter [4]	6 mm	8 mm	10 mm	12 mm
Typical beam divergence [5]	<2 mrad			
Polarization				
Signal beam	horizontal			
Idler beam	vertical			
PUMP LASER [6]				
Pump wavelength	532 nm			
Max pump pulse energy	110 mJ	230 mJ	400 mJ	500 mJ
Pulse duration	4 – 6 ns			
Beam quality	Hat-Top in near field. Close to Gaussian in far field			
Beam divergence	<0.5 mrad			
Pulse energy stability (StdDev)	<2.5 %			
Pulse repetition rate	10 or 20 Hz [7]	10 or 20 Hz	10 Hz [7]	
PHYSICAL CHARACTERISTICS				
Unit size (W × L × H)	452 × 610 × 270 mm		452 × 1020 × 270 mm	
Power supply size (W × L × H)	330 × 490 × 585 mm		550 × 600 × 530 mm	
Umbilical length	2.5 m			
OPERATING REQUIREMENTS				
Water consumption (max 20 °C) [8]	6 l/min		10 l/min	
Room temperature	15–30 °C			
Relative humidity	20–80 % (non-condensing)			
Power requirements [9]	208 or 240 V AC, single phase 50/60 Hz			
Power consumption [10]	1.8 / 3.4 kVA		3.4 kVA	5 kVA

1) Due to continuous improvement, all specifications are 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 800 nm.

2) Measured at 800 nm. See tuning curves for typical outputs at other wavelengths.

3) FWHM measured with photodiode featuring 500 ps rise time and 600 MHz bandwidth oscilloscope.

4) Beam diameter is measured at 800 nm at the FWHM level and can vary depending on the pump pulse energy.

5) Full angle measured at the FWHM level at 800 nm.

6) Separate output port for the 532 nm beam is standard. Output for 1064 nm beam is optional. Pump laser output will be optimised for OPO operation and specification may vary with each unit we manufacture.

7) Pulse repetition rates up to 30 Hz are possible. Inquire for pulse energy and other specifications.

8) At 10 Hz pulse repetition rate. Air cooled power supply is available as option.

9) Mains voltage should be specified when ordering. 20 and 30 Hz versions of the laser might require three phase mains.

10) At 10/20 Hz pulse repetition rate. Required current rating might be calculated by dividing power consumption value by mains voltage value.

OPTIONS

▶ **Fiber-coupled output in 355–2000 nm range.**
Please contact EKSPLA for details.

PERFORMANCE

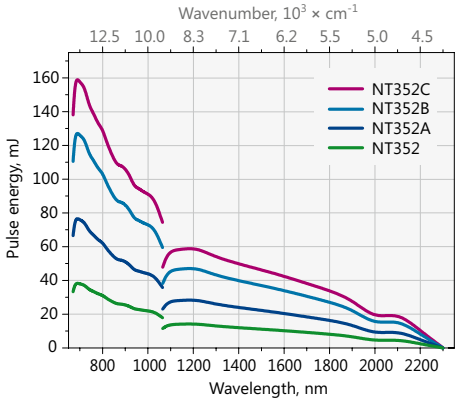

Fig 1. Typical output energy of the NT350 series tunable wavelength systems

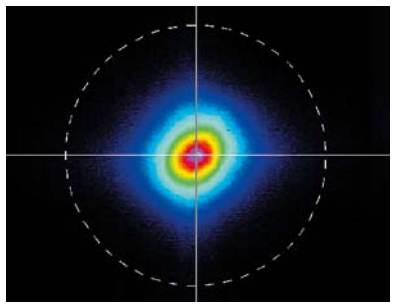

Fig 2. Typical far field beam profile of NT352B laser at 800 nm

ORDERING INFORMATION

NT352A-10-SH-AW-H

Model

Output pulse energy:
none → 30 mJ
A → 60 mJ
B → 100 mJ
C → 125 mJ

Pulse repetition rate, in Hz

Optional tuning range extension
SH → 335–500 nm

Options:
AW → water-air heat exchanger
H → 1064 nm output

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