

Tunable Wavelength Lasers

AWARD WINNING TECHNOLOGIES

For researchers demanding wide tuning range, high conversion efficiency and narrow line-width, EKSPLA tunable wavelength lasers are an excellent choice. All models feature hands-free wavelength tuning, valuable optical components protection system as well as wide range of accessories and extension units. For customer convenience the laser can be operated from master device or personal computer through USB (VCP, ASCII commands), RS232 (ASCII commands) or LAN (REST API) depending on the system configuration or from remote control pad with backlit display that is easy to read even while wearing laser safety glasses.



PICOSECOND TUNABLE WAVELENGTH LASERS ¹⁾

Model	Output wavelength range	Max pulse repetition rate	Linewidth	Special feature
PGx01	193 – 16 000 nm	50 Hz	< 6 cm ⁻¹	High peak power (>50 MW), ideal for non-linear spectroscopy
PT277	1403 – 17 000 nm	87 MHz	< 5 cm ⁻¹	Picosecond MHz rate MIR range laser system
PT403	210 – 2 300 nm	1000 Hz	< 9 cm ⁻¹	Pump laser and OPG integrated in 2-in-1 combo housing
PT501	2 300 – 16 000 nm	100 Hz	< 4 cm ⁻¹	Picosecond 100 Hz rate MIR range laser system

NANOSECOND TUNABLE WAVELENGTH LASERS ¹⁾

Model ¹⁾	Output wavelength range	Repetition rate, up to	Pump laser	Special feature
NT260	192–2 600 nm	10 kHz	Diode pumped solid state	Narrow linewidth at kHz repetition rate
NT230	192–2 600 nm	100 Hz	Diode pumped solid state	High, up to 15 mJ pulse energy from OPO
NT240	210–2 600 nm	1000 Hz	Diode pumped solid state	Broadly tunable kHz pulsed DPSS lasers
NT250	335–2 600 nm	1000 Hz	Diode pumped solid state	UV-NIR range DPSS lasers
NT270	2 500–4 475 nm	1000 Hz	Diode pumped solid state	Wide IR tuning range at kHz repetition rate
NT340	192–4 400 nm	20 Hz	Flash-lamp pump laser	Wide range of modifications to tailor for specific applications

¹⁾ Not all output specifications are available at the same time simultaneously. Please refer to the catalog for exact specifications and available options.

Specifications of Tunable Wavelength Lasers ¹⁾

SPECIFICATIONS OF PICOSECOND TUNABLE WAVELENGTH LASERS

Model	PG401	PG401-SH	PG401-DUV	PT277 - SI	PT277 - XIR	PT403	PT403-SH	PT501
Tuning range								
DUV	—	—	193–209.95 nm	—	—	—	—	—
SH	—	210–340, 370–419 nm	—	—	—	—	210–409 nm	—
Signal	420–680 nm	—	—	1403–2020 nm	1403–2020 nm	410–709 nm	—	—
Idler	740–2300 nm	—	—	2250–4400 nm	2250–4400 nm	710–2300 nm	—	—
MIR	—	—	—	—	12500–17000 nm	—	—	2300–16000 nm
Output pulse energy/power	> 1000 µJ (450 nm)	> 100 µJ (300 nm)	> 50 µJ (200 nm)	> 400 mW (1403–2020 nm) > 100 mW (2250–4000 nm)	> 400 mW (1403–2020 nm) > 100 mW (2250–4000 nm) > 10 mW (12500 nm)	> 75 µJ (Signal) > 25 µJ (Idler)	15 µJ (SH) > 75 µJ (Signal) > 25 µJ (Idler)	> 200 µJ (at 3500 nm) > 50 µJ (at 10000 nm)
Linewidth	< 6 cm ⁻¹	< 9 cm ⁻¹	< 9 cm ⁻¹	< 5 cm ⁻¹	< 5 cm ⁻¹	< 9 cm ⁻¹	< 12 cm ⁻¹	< 4 cm ⁻¹
Max pulse repetition rate	—	50 Hz	—	~ 87 MHz	~ 87 MHz	1000 Hz	—	100 Hz
Beam divergence	—	< 2 mrad	—	< 5 mrad	< 5 mrad	< 2 mrad	< 2 mrad	< 3 mrad
Beam polarization								
Signal	horizontal	—	—	—	vertical	—	horizontal	—
Idler	horizontal	—	—	—	vertical	—	vertical	—
OPA	—	vertical	vertical	—	vertical	—	horizontal	horizontal
Typical pulse duration	—	~20 ps	—	—	~20 ps	—	~ 20 ps	—
Recommended pump source	PL2231-50-TH, PL2251A-TH			—		—		—
Laser head size (W × L × H)	456 × 633 × 244 mm	456 × 1031 × 249 ± 3 mm		320 × 766 × 241 mm		456 × 1241 × 272 mm		520 × 1050 × 272 mm
Tuning curve	Fig. 1	Fig. 2	Fig. 4	Fig. 5	Fig. 6	—	Fig. 7	Fig. 3

SPECIFICATIONS OF NANOSECOND TUNABLE WAVELENGTH LASERS

Model	NT262	NT230-50	NT230-100	NT242	NT252	NT277	NT342B	NT342C	NT342E
Wavelength range									
DUV	—	192–210 nm	—	—	—	—	—	192–210 nm	—
SH / SF	—	210–405 nm	—	210–405 nm	335–669 nm	—	—	210–410 nm	—
Signal	—	405–710 nm	—	405–710 nm	670–1064 nm	—	—	410–710 nm	—
Idler	—	710–2600 nm	—	710–2600 nm	1065–2600 nm	2500–4475 nm	—	710–2600 nm	—
MIR	—	—	—	—	—	—	—	2500–4400 nm	—
Output pulse energy									
OPO	70 µJ / 700 mW	15 mJ	10 mJ	450 µJ	1100 µJ	80 µJ (3000 nm)	30 mJ	60 mJ	90 mJ
SH / SF	6 µJ / 60 mW	1.8 mJ	1.3 mJ	60 µJ (320 nm)	200 µJ	—	4 mJ / 6 mJ	6.5 mJ / 10 mJ	10 mJ / 15 mJ
DUV	1 µJ / 1 mW	0.4 mJ	0.27 mJ	—	—	—	0.6 mJ	1.2 mJ	2 mJ
MIR	—	—	—	—	—	—	—	20 mJ	—
Pulse repetition rate	10 kHz	50 Hz	100 Hz	1000 Hz	1000 Hz	1000 Hz	10 or 20 Hz	10 Hz	10 Hz
Pulse duration	~7 ns	2–5 ns	2–5 ns	3–6 ns	1–4 ns	5–7 ns	—	3–5 ns	—
Linewidth	<3 cm ⁻¹	<5 cm ⁻¹	<5 cm ⁻¹	<5 cm ⁻¹	<10 cm ⁻¹	<10 cm ⁻¹	—	<5 cm ⁻¹	—
Minimal tuning step									
Signal	—	1 cm ⁻¹	—	1 cm ⁻¹	1 cm ⁻¹	—	—	1 cm ⁻¹	—
Idler	—	1 cm ⁻¹	—	1 cm ⁻¹	1 cm ⁻¹	1 cm ⁻¹	—	1 cm ⁻¹	—
SH / SF / DUV	—	2 cm ⁻¹	—	2 cm ⁻¹	2 cm ⁻¹	—	—	2 cm ⁻¹	—
OPO beam divergence	—	<2 mrad	<2 mrad	—	—	—	—	<2 mrad	—
Typical beam diameter	4.5 mm × 2.5 mm	5 mm	5 mm	3 × 6 mm	3 × 6 mm	4 mm	5 mm	8 mm	10 mm
Laser head size (W × L × H)	400 × 790 × 166 ± 3 mm	451 × 705 × 172 mm		456 × 1040 × 297 mm	456 × 1040 × 297 mm	305 × 701 × 270 mm	456 × 821 × 270 mm		
Power supply unit size (W × L × H)	553 × 510 × 529 ± 3 mm	449 × 376 × 140 mm		520 × 400 × 286 mm	520 × 400 × 286 mm	449 × 376 × 140 mm	330 × 490 × 585 mm		
Tuning curve	Fig. 9, 10, 11	Fig. 11, 12, 13		Fig. 14	Fig. 15	Fig. 16	Fig. 17, 18, 19		

¹⁾ 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.

Tuning Curves of Tunable Wavelength Lasers

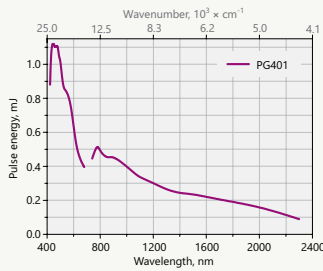


Fig 1. Typical output pulse energy of PG401 model

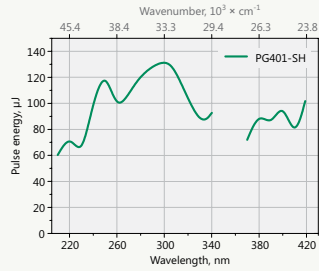


Fig 2. Typical output pulse energy of PG401-SH model

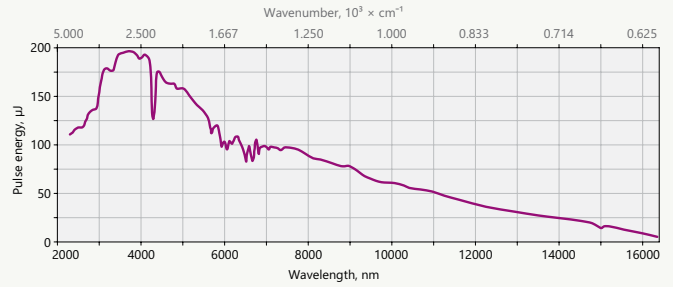


Fig 3. Typical PT501 tuning curve

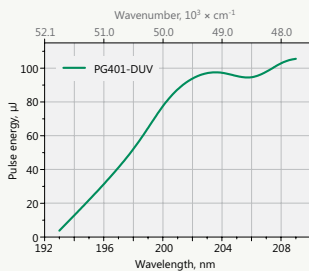


Fig 4. Typical output pulse energy of PG401-DUV model

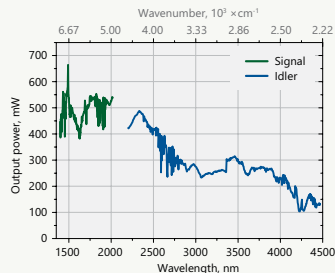


Fig 5. Typical PT277-SI laser system output tuning curve

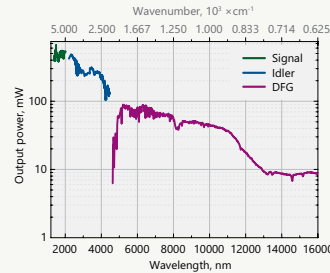


Fig 6. Typical PT277-XIR laser system output tuning curve

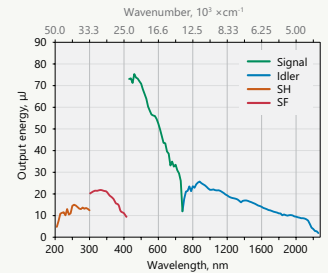


Fig 7. Typical output pulse energy of PT403 laser with SH/SF extension

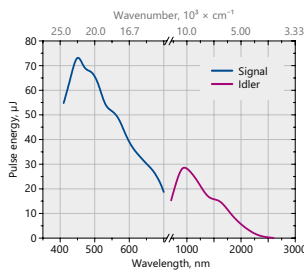


Fig 8. Typical output pulse energy of NT262 laser

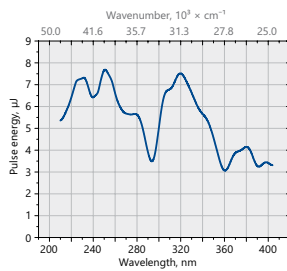


Fig 9. Typical output pulse energy of NT262 laser with SH/SF option

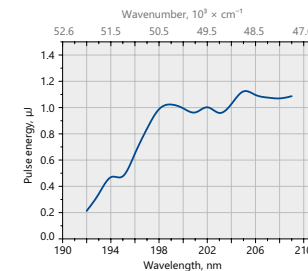


Fig 10. Typical output pulse energy of NT262 laser with DUV option

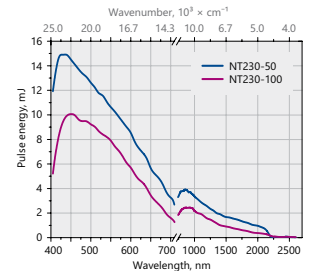


Fig 11. Typical output pulse energy of NT230 laser

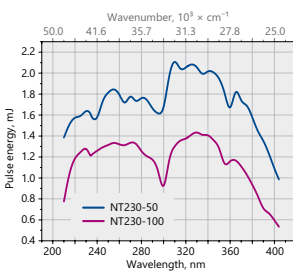


Fig 12. Typical output pulse energy of NT230 laser with SH/SF extension

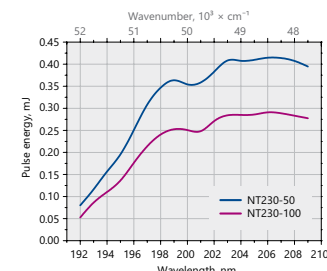


Fig 13. Typical output pulse energy of NT230 laser with DUV extension

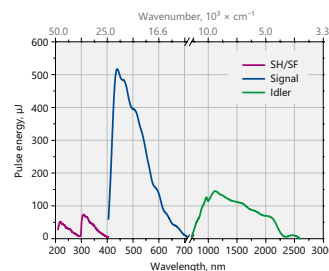


Fig 14. Typical output pulse energy of NT240 laser with SH/SF extension

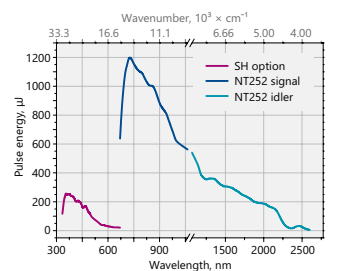


Fig 15. Typical output pulse energy of NT252-SH tunable laser

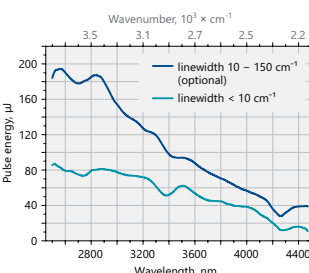


Fig 16. Typical output pulse energy of NT277 tunable laser

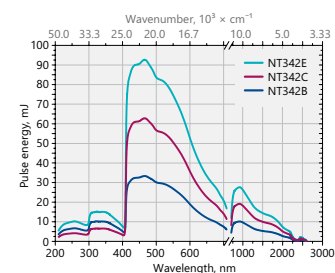


Fig 17. Typical output pulse energy of NT340 laser with SH/SF extension

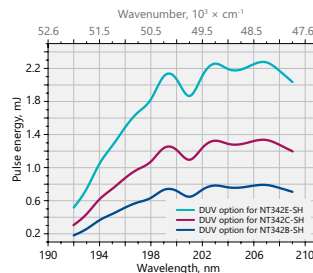


Fig 18. Typical output pulse energy of NT340 laser with SH/DUV extension

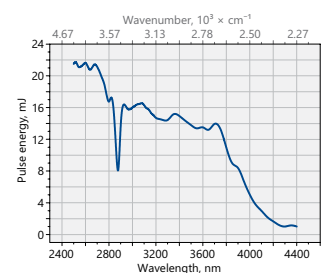


Fig 19. Typical output pulse energy of NT340 laser with MIR extension