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, a valuable optical components protection system, as well as a wide range of accessories and extension units.
For customer convenience, the laser can be operated from a master device or a personal computer using various interfaces. Depending on the system configuration, control is available via the USB interface (REST API over RNDIS or VCP with ASCII commands), the RS-232 interface (ASCII commands), the LAN interface (REST API), or from the remote control pad with a backlit display that remains 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	703 – 18 500 nm	87 MHz	< 4 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
PT401	210 – 2300 nm	1000 Hz optionally 100 Hz	< 4 cm^{-1}	High pulse energy, integrated pump laser and OPG in a single housing

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	PT401-SH-SF
Tuning range									
DUV	—	—	193–209.95 nm	—		—		—	—
SH	—	210–340, 370–419 nm	—	—		—	210–409 nm	—	210–409 nm
Signal	420 – 680 nm	—	—	1403–2020 nm		410–709 nm		—	410–709 nm
Idler	740 – 2300 nm	—	—	2250–4400 nm		710–2300 nm		—	710–2300 nm
MIR (infrared extension)	—	—	—	—	4800–18500 nm [2)]	—		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) > 1 mW (18000 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)	> 45 µJ (SH) > 180 µJ (Signal) > 60 µJ (Idler)
Linewidth	< 6 cm^{-1}	< 9 cm^{-1}	< 9 cm^{-1}	< 4 cm^{-1}		< 9 cm^{-1}	< 12 cm^{-1}	< 4 cm^{-1}	< 4 cm^{-1}
Max pulse repetition rate	50 Hz			~ 87 MHz		1000 Hz		100 Hz	1000 Hz
Beam divergence	< 2 mrad			< 5 mrad		< 2 mrad		< 3 mrad	< 2 mrad
Beam polarization									
Signal	horizontal	—	—	vertical		horizontal		—	horizontal
Idler	horizontal	—	—	vertical		vertical		—	vertical
OPG extension (DUV or SH or MIR)	—	vertical	vertical	—	vertical	—	horizontal	horizontal	horizontal
Typical pulse duration	~20 ps			7.5±1 ps		~ 20 ps		—	~ 20 ps
Recommended pump source	PL2231-50-TH, PL2251A-TH			—		—		—	—
Laser unit size (W × L × H) [3)]	456 × 633 × 244 mm	456 × 1031 × 249 mm		320 × 766 × 241 mm		456 × 1241 × 272 mm		~ 508 × 1030 × 244 mm	~ 508 × 1030 × 244 mm
Tuning curve	Fig. 1	Fig. 2	Fig. 3	Fig. 5	Fig. 6	—	Fig. 7	Fig. 4	Fig. 8

SPECIFICATIONS OF NANOSECOND TUNABLE WAVELENGTH LASERS

NEW

Model	NT262	NT230-50	NT230-100	NT242	NT252	NT277	NT342B	NT342C	NT342E	NT342H
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 (at peak)										
OPO	70 µJ / 700 mW	15 mJ	10 mJ	450 µJ	1100 µJ	80 µJ (3000 nm)	30 mJ	60 mJ	90 mJ	150 mJ
SH / SF	6 µJ / 60 mW	1.8 mJ	1.3 mJ	60 µJ	200 µJ	—	4 mJ / 6 mJ	6.5 mJ / 10 mJ	10 mJ / 15 mJ	15 mJ / 22 mJ
DUV	1 µJ / 1 mW	0.4 mJ	0.27 mJ	—	—	—	0.6 mJ	1.2 mJ	2 mJ	3 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		
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	12 mm
Laser unit size (W × L × H) [3)]	400 × 790 × 166 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 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. 12, 13, 14		Fig. 15	Fig. 16	Fig. 17	Fig. 18, 19, 20			

[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.

[2)] Tuning range extension up to 18000 nm is available with "Option -18000".

[3)] For basic version without options with tolerance ±3 mm.

REV. 260924 SAVANORIU AV. 237, LT-02300 VILNIUS, LITHUANIA TEL +370 5 2649629 E-MAIL SALES@EKSPLA.COM WWW.EKSPLA.COM EKSPLA

Tuning Curves of Tunable Wavelength Lasers

Picosecond Lasers

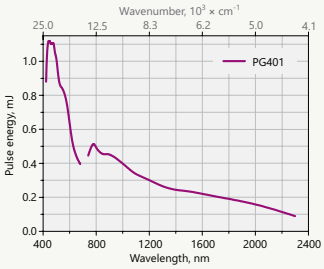


Fig 1. Typical output pulse energy of PG401 model

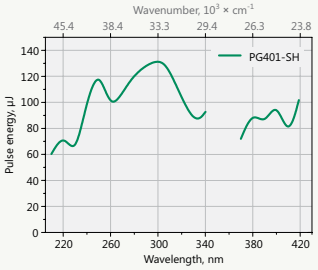


Fig 2. Typical output pulse energy of PG401-SH model

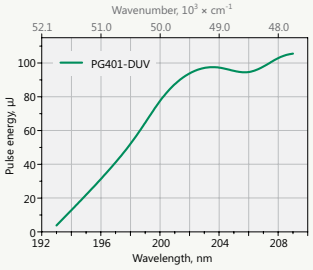


Fig 3. Typical output pulse energy of PG401-DUV model

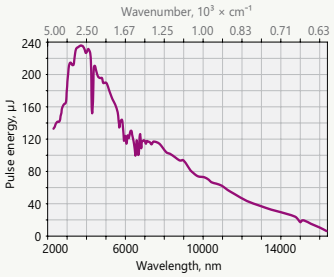


Fig 4. Typical PT501 tuning curve

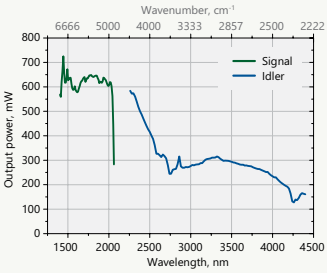


Fig 5. Typical PT277-SI laser system output tuning curve

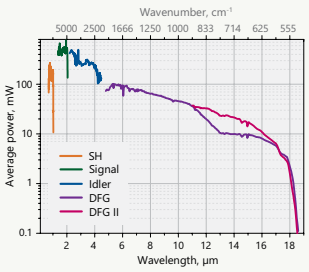


Fig 6. Typical PT277-XIR-SH laser system output tuning curve

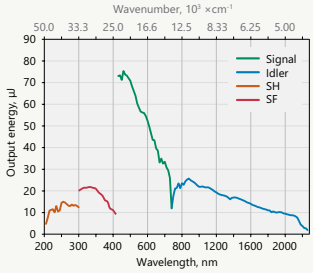


Fig 7. Typical output pulse energy of PT403 aser with SH/SF extension

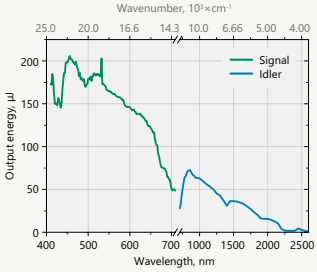


Fig 8. Typical PT401 tuning curve

Nanosecond Lasers

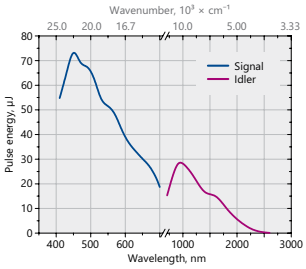


Fig 9. Typical output pulse energy of NT262 laser

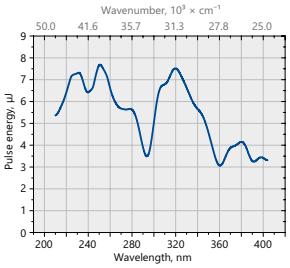


Fig 10. Typical output pulse energy of NT262 laser with SH/SF option

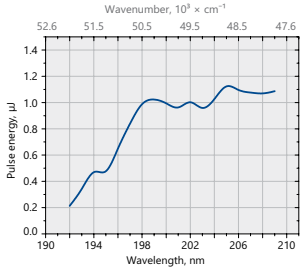


Fig 11. Typical output pulse energy of NT262 laser with DUV option

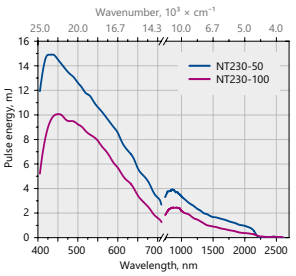


Fig 12. Typical output pulse energy of NT230 laser

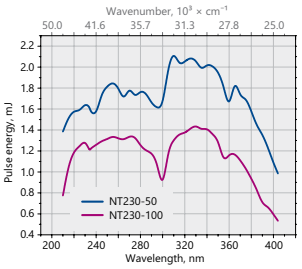


Fig 13. Typical output pulse energy of NT230 laser with SH/SF extension

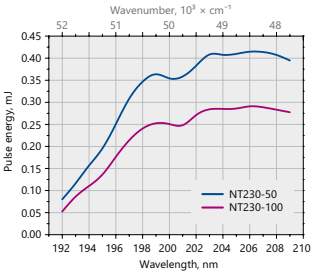


Fig 14. Typical output pulse energy of NT230 laser with DUV extension

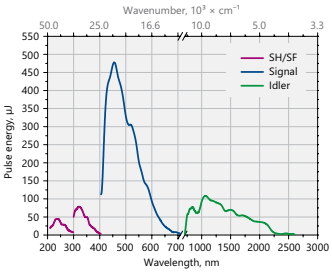


Fig 15. Typical output pulse energy of NT240 laser with SH/SF extension

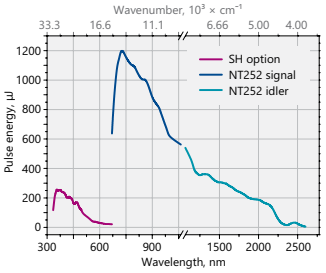


Fig 16. Typical output pulse energy of NT252-SH tunable laser

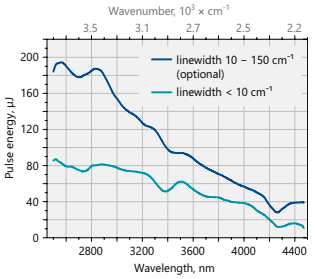


Fig 17. Typical output pulse energy of NT277 tunable laser

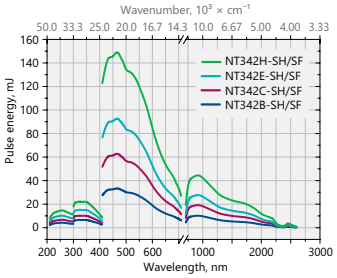


Fig 18. Typical output pulse energy of NT340 laser with SH/SF extension

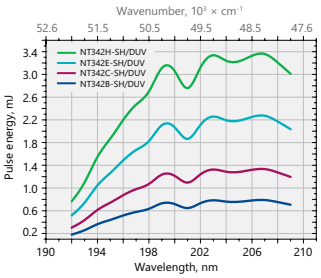


Fig 19. Typical output pulse energy of NT340 laser with DUV extension

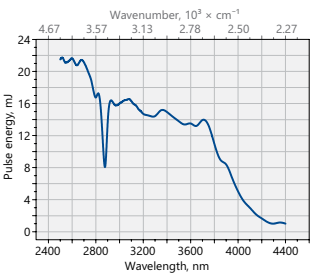


Fig 20. Typical output pulse energy of NT340 laser with MIR extension