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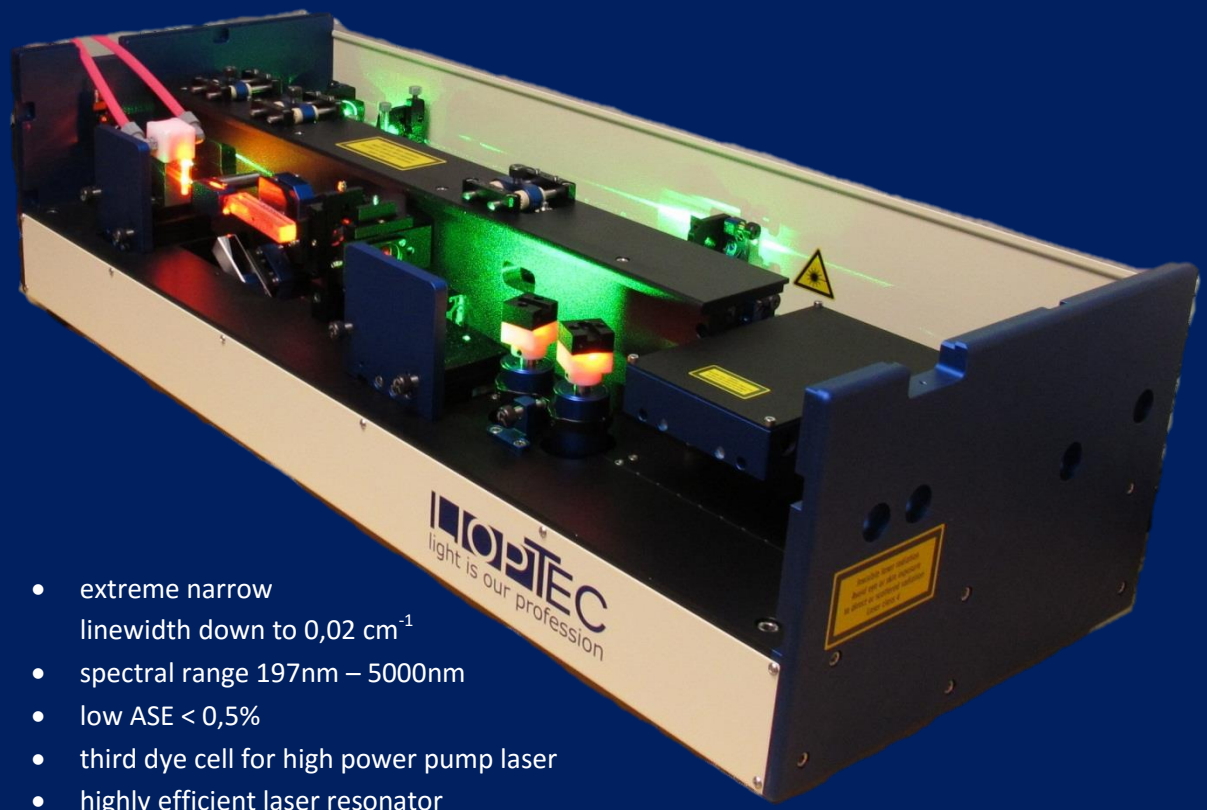
MADE IN GERMANY

Pulsed Dye Laser

LIOPSTAR & LIOPSTAR-E



- extreme narrow linewidth down to 0,02 cm^{-1}
- spectral range 197nm – 5000nm
- low ASE < 0,5%
- third dye cell for high power pump laser
- highly efficient laser resonator
- exchangeable grating
- near Gaussian beam quality due to Bethune cells
- eroded stainless steel case for oscillator and amplifier cells
- new state-of-the-art integrated electronics and user friendly LabView Software
- intelligent PI control for FCU autotracking unit
- temperature stabilized crystals
- USB port
- remote control via TCP / IP protocol
- smallest footprint

Applications:

- laser induced fluorescence: LIF
- combustion and atmospheric studies
- Raman spectroscopy
- and much more
- photolysis
- light detection and ranging: LIDAR
- coherent anti-Stokes Raman spectroscopy: CARS

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Options

frequency conversion units

- internal open loop frequency doubling with look-up-table
- internal open loop frequency tripling and mixing with look-up-table[1]
- autotracking[2] FCU available for second-harmonic generation (SHG), third-harmonic generation (THG)[1], sum- and difference frequency mixing (SFM, DFM)[1,3]
- intelligent PI-control corrects phase matching deviation of the look-up-table algorithm during wavelength scans and temperature changes
- high scan speed, up to 10 nm/min
- usable for repetition rates from < 1 Hz up to 100 kHz
- temperature control for doubling crystal
  internal BBO temperature control can be set up to 70°C

energy output

dye	UV/IR wavelength	pump energy @ 10Hz	dye laser	output energy
SHG 206 nm – 450 nm				
Coumarin 120	220 nm	280 mJ @ 355 nm	LIOPSTAR-N	> 5 mJ
Coumarin 307	250 nm	280 mJ @ 355 nm	LIOPSTAR-N	> 5 mJ
Rhodamine 6G	280 nm	400 mJ @ 532 nm	LIOPSTAR-N	> 25 mJ
DCM	320 nm	400 mJ @ 532 nm	LIOPSTAR-N	> 25 mJ
THG[1] 197 nm – 212 nm				
Rhodamine B	200 nm	400 mJ @ 532 nm	LIOPSTAR-N	3 mJ
Rhodamine 101	205 nm	400 mJ @ 532 nm	LIOPSTAR-N	6 mJ
DCM	210 nm	400 mJ @ 532 nm	LIOPSTAR-N	6 mJ
DFM[1,3] 1.4 µm – 5.0 µm				
DCM	1.6 µm	400 mJ @ 532 nm	LIOPSTAR-E-N	6 mJ
Pyridine1	2.0 µm	400 mJ @ 532 nm	LIOPSTAR-E-N	5.5 mJ
Styryl 9	3.4 µm	400 mJ @ 532 nm	LIOPSTAR-E-N	800 µJ
LDS 867	4.7 µm	400 mJ @ 532 nm	LIOPSTAR-E-N	100 µJ

[1] THG, SFM and DFM operation requires a LIOPSTAR-E with LSEH extension
[2] wavelength separation is required for autotracking operation
[3] for narrowband operation a seeder for the Nd:YAG pump laser is recommend

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linewidth specifications — LIOPSTAR / LIOPSTAR-E

	grating	tuning range	linewidth
LIOPSTAR	1800 l/mm, 90 mm	370 nm – 900 nm	< 0.06 cm^{-1} @ 620 nm
LIOPSTAR	2400 l/mm, 90 mm	370 nm – 750 nm	< 0.06 cm^{-1} @ 570 nm
LIOPSTAR	3000 l/mm, 90 mm	370 nm – 610 nm	< 0.05 cm^{-1} @ 570 nm
LIOPSTAR-N	double 1800 l/mm, 90 mm	370 nm – 900 nm	< 0.05 cm^{-1} @ 620 nm
LIOPSTAR-N	double 2400 l/mm, 90 mm	370 nm – 720 nm	< 0.04 cm^{-1} @ 570 nm
LIOPSTAR-N	double 3000 l/mm, 90 mm	370 nm – 580 nm	< 0.03 cm^{-1} @ 570 nm

beam specifications — LIOPSTAR / LIOPSTAR-E

conversion efficiency: Nd:YAG pumped 355 nm	20% @ 405 nm 14% @ 460 nm	Exalite 404 Coumarin 47
conversion efficiency: Nd:YAG pumped 532 nm	25% @ 630 nm 28% @ 565 nm	DCM Rhodamine 6G
wavelength reproducibility	< 0.002 nm	
absolute accuracy	< 0.01 nm	
scan linearity	< 0.002 nm	
wavelength stability	< 0.001 nm/°C	
divergence	0.5 mrad	
polarisation	> 98 %	vertical
ASE-background	< 0.5 %	

dimensions — LIOPSTAR / LIOPSTAR-E

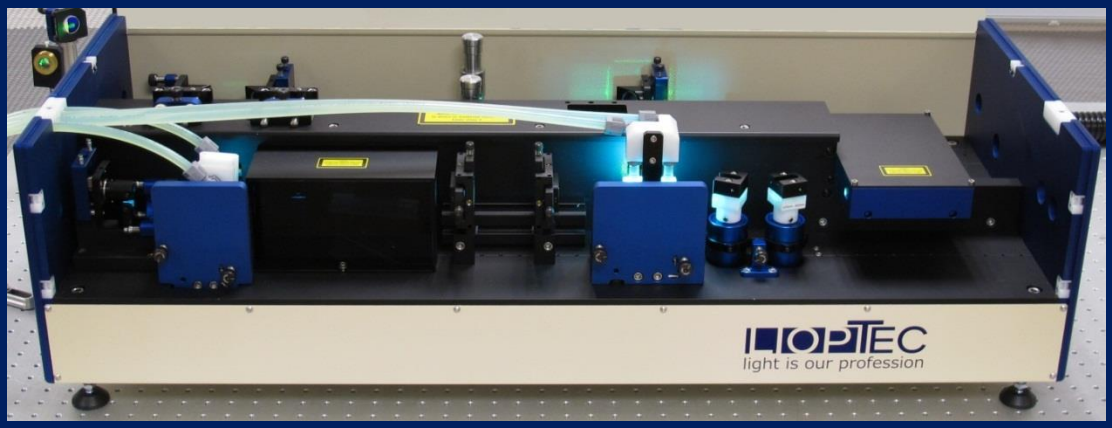
LIOPSTAR	1040 mm x 400 mm x 300 mm ± 10 mm, 80 kg
LIOPSTAR-E	750 mm x 400 mm x 300 mm ± 10 mm, 60 kg
LSEH-Extension	750 mm x 400 mm x 300 mm ± 10 mm, 30 kg
beam input height	180 mm ± 10 mm
beam output height	200 mm ± 10 mm

requirements — LIOPSTAR / LIOPSTAR-E

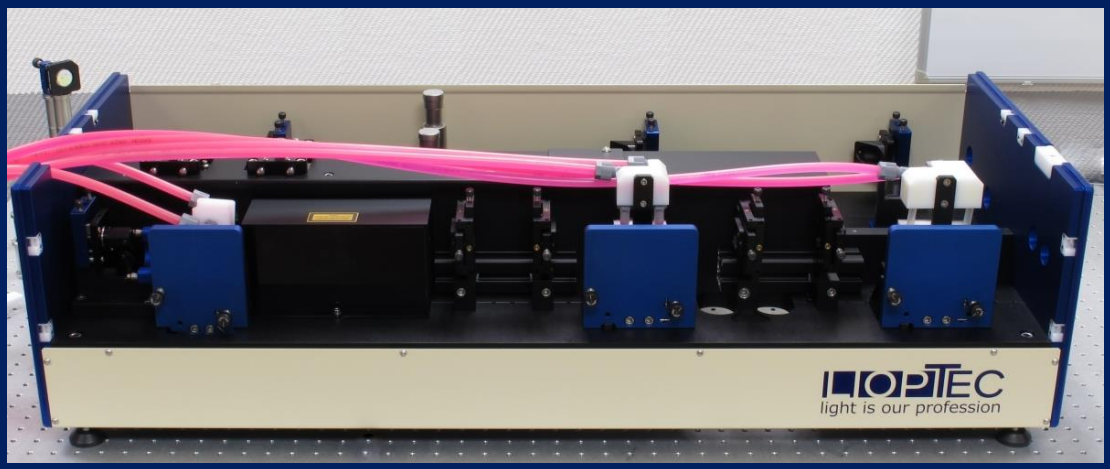
pump laser pulse power	10 mJ … 1000 mJ (high power option), s-pol
voltage	110 V 6A / 220 V 3 A, 50/60 Hz, single phase
computer	Windows, one free USB port

specification are subject to change without notice

LiopStar



LiopStar with 3 dye cells for high power



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