



HIGHLY STABILIZED COMPACT LASER SYSTEM
FOR RAMAN SPECTROSCOPY AND HIGH-RESOLUTION APPLICATIONS

KEY FEATURES:

- Exceptional wavelength stability < 0.015 nm
- Coherence length up to 10.0 m
- Output powers up to 500 mW
- Excellent beam quality and stability
- Temperature-stabilized
- Highly cost-efficient



Wavelength	Maximum output power	Spectral linewidth ¹³	Coherence length ³
405 nm	12, 25, 40 mW	<160 MHz / 0.1 pm	> 1.0 m
633 nm	40, 70 mW	< 20 MHz / 0.05 pm	> 10,0 m
638, 640 nm	32mW	< 300 MHz / 0.5 pm	> 1.0 m
638 nm	120 mW	< 150 MHz / 0.2 pm	> 2.0 m
658 nm	35 mW	< 300 MHz / 0.5 pm	> 1.0m
685, 690 nm	45 mW	< 100 MHz / 0.2 pm	> 3.0 m
785 nm	80, 100mW	< 50 MHz / 0.1 pm	> 3.0 m
785 nm	175, 225 mW	< 12 MHz / 0.1 pm	> 10.0 m
785nm	500 ¹⁺² mW	< 66 GHz / 0.15 nm	> 4,0 mm
785 nm	75 mW	< 50 GHz / 0.1 nm	> 0.6 cm
785 nm	100 mW	< 50 GHz / 0.1 nm	> 0.6 cm
808 nm	120 mW	< 50 MHz / 0.1 pm	> 3.0 m
830 nm	500 ¹⁺² mW	< 66 GHz / 0.15 nm	> 4.0 mm

¹ transversal multi mode

² Water cooler recommended

³ Running the laser continuously at maximum output power

	Beam specifications
Beam diameter	1.1 × 2.2 to 1.2 × 2.8 mm
Divergence	< 1.2 mrad
Spatial beam mode	TEM ₀₀ (except multi-mode lasers)
Polarization	linear, > 100:1 typical
Beam alignment	< 5 mrad und < 0.1 mm (compared to base mount)
Pointing stability	< 5 μrad/K
Noise	< 2 % RMS
Power stability	< 1 % (10 h)
Temperature accuracy	< 10 mK

The actual emission wavelength may deviate from the specified wavelength by up to ± 1 nm.

	General specifications
Warm-up time	ready for use after 5 s, calibrated operation after 3 min
Drive mode	active current control
Modulation modes*	constant adjustable power, analog & digital external modulation up to 1.5 MHz
Control modes	power, temperature and modulation via USB, optional remote control available
CDRH classification	3b, 4 (for laser output > 500mW)
Dimensions	63.5 × 31.0 × 32.5 mm (technical drawing available on our website)
Weight	94 g (laser head)
Operating temperature	0 °C to 45 °C (non-condensing)
Storage temperature	-25 °C to 70 °C

* Modulation may decrease beam quality and stability.

Laser Controller

The Lambda Beam laser head requires a laser controller to provide power and control all operating parameters. For scientific applications and prototyping we recommend using our PowerController. For industrial integration we also offer the highly compact PowerBox to be directly attached to the laser head or connected via a customized cable.

PowerController



Modulation input	analog and digital 0 – 5 V DC
Modulation	up to 0.5 MHz
Digital interface	USB*1 (RS-232 optional)
Further control inputs	Interlock, key switch, modulation mode switch
Cable length	80 cm (default)
Power consumption	12 V DC, up to 2 A (depending on laser output power)
AC adapter (included)	100 – 240 V AC, 50 – 60 Hz
Dimensions	85.0 × 85.0 × 32.5 mm (technical drawing available on our website)
Weight	416 g

PowerBox



Modulation input	analog and digital 0 – 5 V DC
Modulation	up to 1.5 MHz
Digital interface	USB*1 (RS-232 optional)
Further control inputs	Interlock
Power consumption	12 – 36 V DC, up to 2 A (depending on laser output power)
Dimensions	39.0 × 31.0 × 32.5 mm (technical drawing available on our website)
Weight	69 g

For more details, please see the PowerBox data sheet.

*1 Digital connection is not required for operation.

*2 See separate data sheet for details.

Please contact us if your requirements are not matched by these specifications. Custom modifications are available for any quantities. All specifications are subject to change without notice. The latest versions can be found on our website.

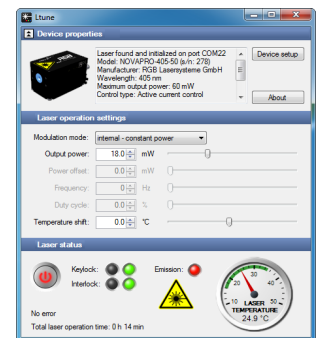
Options and accessories

- Polarization > 10 000 : 1
- Opto-mechanical shutter
- Diode wavelength selection
- Water cooling base plate
- RS-232 interface
- Fiber coupler*2



Ltune control software

All operating parameters can be monitored and controlled from a PC using the Ltune laser control software for Windows. Alternatively, the laser can easily be controlled from your own application software. Please refer to the user manual for a detailed description of the communication protocol.



Typical Applications

- Analytical Instrumentation
- Bio-Instrumentation
- Confocal Microscopy
- Holography
- HeNe Replacement
- LIDAR
- Metrology
- Raman
- Speckle Interferometry
- Photodynamic Therapy

Typical power stability

