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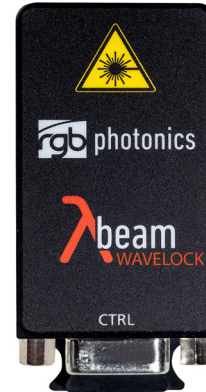
**800.887.5065**



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

**KEY FEATURES:**

- Exceptional wavelength stability < 0.015 nm
- Coherence length up to 2.0 m
- Output powers up to 500 mW
- Excellent beam quality and stability
- Temperature-stabilized
- Highly cost-efficient



| Wavelength | Maximum output power  | Spectral linewidth <sup>13</sup> | Coherence length <sup>3</sup> |
|------------|-----------------------|----------------------------------|-------------------------------|
| 405 nm     | 10, 35 mW             | 160 MHz / 0.1 pm                 | > 1.0 m                       |
| 633 nm     | 40, 70 mW             | 150 MHz / 0.2 pm                 | > 0.9 m                       |
| 640 nm     | 10 mW                 | < 150MHz / 0.2 pm                | > 2.0 m                       |
| 640 nm     | 30 mW                 | 300 MHz / 0.4 pm                 | > 0.5 m                       |
| 660 nm     | 35 mW                 | 300 MHz / 0.5 pm                 | > 0.3 m                       |
| 685 nm     | 45 mW                 | < 50 MHz / 0.1 pm                | > 2.0 m                       |
| 690 nm     | 45 mW                 | < 50 MHz / 0.1 pm                | > 2.0 m                       |
| 785 nm     | 75 mW                 | < 50 MHz / 0.1 pm                | > 2.0 m                       |
| 785 nm     | 100 mW                | < 50 MHz / 0.1 pm                | > 2.0 m                       |
| 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     | 150 mW                | < 50 MHz / 0.1 pm                | > 2.0 m                       |
| 830 nm     | 500 <sup>112</sup> mW | < 66 GHz / 0.15 nm               | > 4.5 mm                      |

<sup>11</sup> transversal multi mode

<sup>12</sup> Water cooler recommended

<sup>13</sup> 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 <sub>00</sub> (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.

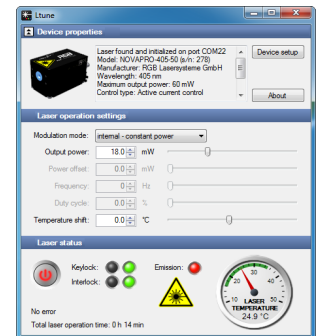
## Options and accessories

- Beam diameter correction
- Polarization > 10 000 : 1
- Opto-mechanical shutter
- Diode wavelength selection
- Water cooling base plate
- Remote control RC-1 for Power Controller
- 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

