

PowerBox

COMPACT LASER CONTROLLER
FOR LAMBDA BEAM LASER MODULES
FOR INDUSTRIAL INTEGRATION



The PowerBox is a miniaturized laser controller for Lambda Beam lasers. It attaches directly to the laser head and is intended for industrial integration where small sizes and weights are important.

KEY FEATURES:

- Attaches directly to the laser head
- Highly compact design
- Straightforward connection via screw-type terminal block
- Digital control via USB (RS-232 on request)
- Powered by 12 – 36 V DC
- Modulation input analog or digital 0 – 5 V DC
- Interlock on/off input

OPERATION:

Important: To avoid damage, always connect the laser head to the laser controller before supplying power to the system.

The connection to the laser head can be locked by moving the slider on the D-SUB connector. The terminal block can be pulled out and removed from the controller.

All inputs are low if not connected. The "Ready" output indicates that power is supplied to the controller and the operating temperature is reached. To operate the laser continuously at maximum output power, please connect the three input pins (Interlock, TTL and analog modulation) to + 5 V or V_{CC} .

The laser starts operation with a five second delay, as required by CDRH regulation (modification available for OEM integration). Afterwards, you can turn the laser on and off instantly by using the TTL modulation input.

For USB operation, please refer to the Lambda Beam user manual.

STATUS INDICATORS:

- green LED: Power on
- red LED: Laser emission possible
(actual laser emission depends on input pins)

Connectors

Screw terminal block:

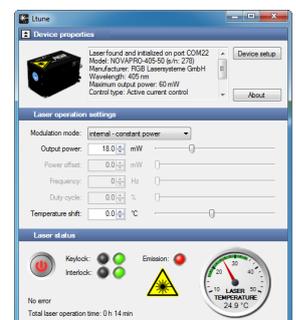
V_{CC}	Supply voltage
GND	Ground
INT	Interlock input
RDY	Ready output
TTL	Digital low-speed modulation input
AN	Analog low-speed modulation input

Other connectors:

Left coaxial MMCX	Digital modulation input
Right coaxial MMCX	Analog modulation input
USB	Laser system control

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.



All our products are RoHS compatible.

Absolute Maximum Ratings

	Minimum	Maximum	Unit
Supply voltage V_{CC}	- 40	+ 40	V
Terminal block inputs	- 0.3	+ 40	V
Coaxial MMCX inputs	0	2.0	V
Storage temperature	-25	70	°C
Operating temperature	0	45	°C

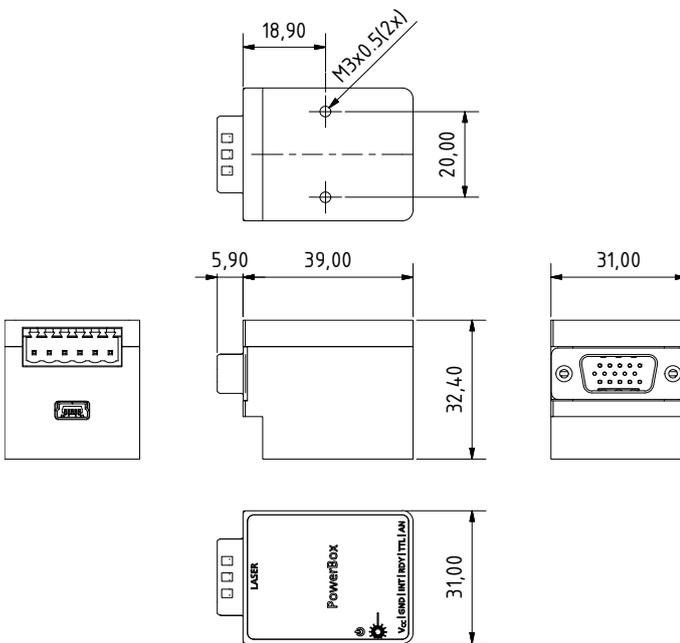
Power Supply and Control

	Value / Range	Unit
Supply voltage V_{CC}	12 – 36	V
Supply Current I_{CC} (at $V_{CC} = 12\text{ V}$)	≤ 2	A
Interlock input	0 – 5	V
Input / output polarity	active high	
Ready output	0 / 5	V

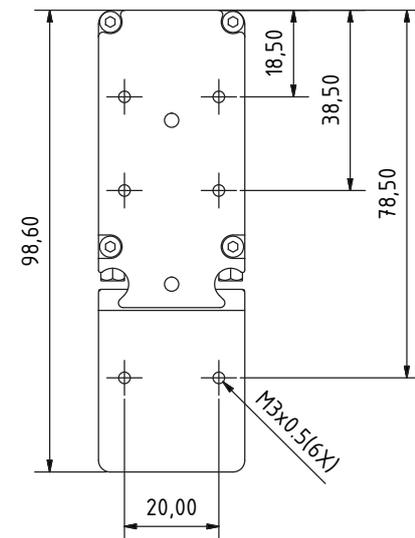
Mechanical Specifications

Dimensions	39.0 × 31.0 × 32.5 mm
Weight	69 g

More technical drawings and 3D CAD files are available for download on our website.



PowerBox



PowerBox with Lambda Beam

Modulation Inputs

Low-speed modulation inputs on terminal block:

	Value / Range	Unit
Analog / digital input	0 – 5	V
Digital input threshold	< 0.8: low > 2.0: high	V
Mod. speed (standard version)	0 – 200	kHz
Input impedance	10	k Ω

Coaxial Modulation inputs:

	Value / Range	Unit
Analog / digital input	0 – 0.5	V
Digital input threshold	< 0.2: low > 0.3: high	V
Modulation speed	0 – 1500	kHz
Input impedance	50	Ω

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.

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