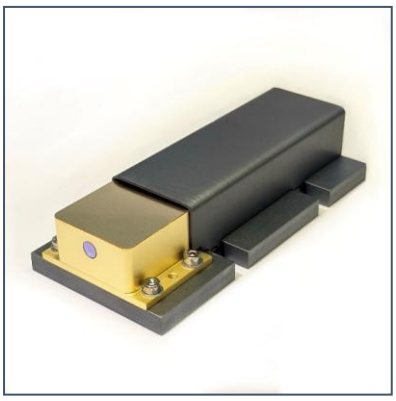
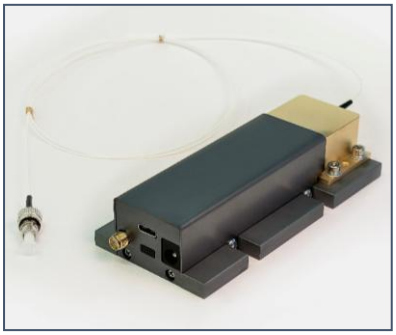
Pulsed Semiconductor Diode Laser Module with pump and thermal stabilization system



Available laser parameters:
Wavelength……. 900 – 2000 nm
Pulse duration…….……1 – 10000 ns
Pulse frequency…… 1 Hz – 1 MHz
Peak optical power……... 10 mW – 100 W
Optical output…….. free-space/ fiber /lens



General system parameters:
Thermal stabilization range…….……...15 – 35 ^{0}C
Temperature stability……0.1^{0}C
Total power consumption…….1 – 20 W
Control interfaces……. USB, SPI

Universal form factor

Universal control system

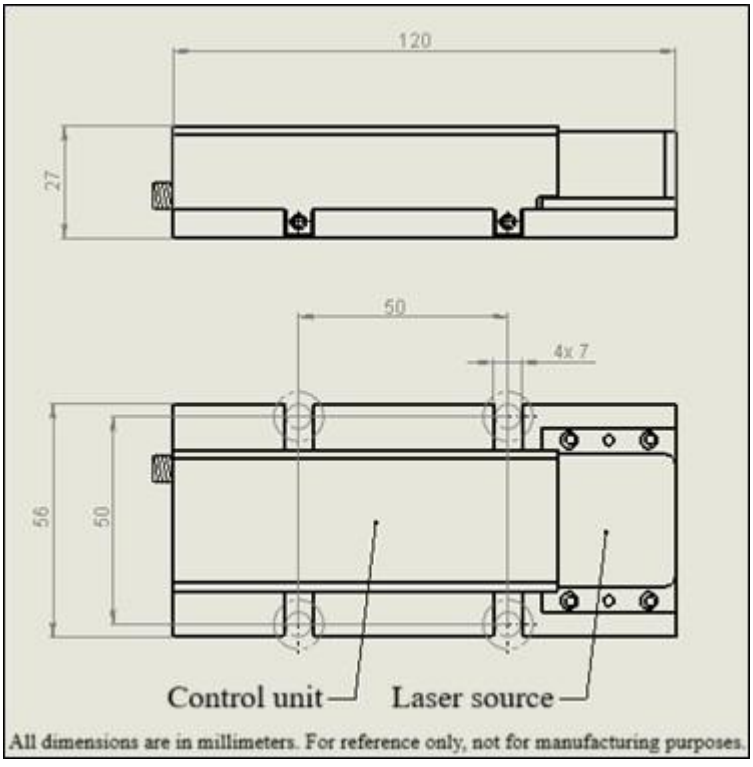
Modular design

Customization and tuning flexibility

Wide range of available operating parameters

Ready to use "out of the box"

Comprehensive protection and monitoring system



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PRODUCT MATRIX

Exact values may vary. Please check when ordering. Specifications can be adjusted upon request.
Base price is valid for free-space output, +12V DC power supply, fixed pulse duration.

Typical optical peak power scale, W	Pulse duration	Pulse frequency	Laser diode type and aperture dimensions, µm
Wavelength 900 nm			
0.01 0.1	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 5 kHz	
1	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	
10	1 ns – 50 ns	1 Hz – 100 kHz	MM, 100x1
	50 ns – 200 ns	1 Hz – 10 kHz	
	200 ns – 10 µs	1Hz – 1 kHz	
100	1 ns – 50 ns	1 Hz – 100 kHz	MM, 200x200
	50 ns – 200 ns	1 Hz – 10 kHz	
500 (max)	1 ns – 50 ns	1 Hz – 100 kHz	MM, 800x300
	50 ns – 200 ns	1 Hz – 10 kHz	
Wavelength 1000 nm			
0.01 0.1	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 5 kHz	
1	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	
10	1 ns – 50 ns	1 Hz – 100 kHz	MM, 100x1
	50 ns – 200 ns	1 Hz – 10 kHz	
	200 ns – 10 µs	1Hz – 1 kHz	
100	1 ns – 50 ns	1 Hz – 100 kHz	MM, 200x200
	50 ns – 100 us	1 Hz – 10 kHz	
500 (max)	1 ns – 50 ns	1 Hz – 100 kHz	MM, 800x300
	50 ns – 200 ns	1 Hz – 10 kHz	
Wavelength 1250 nm			
0.01 0.1	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 5 kHz	
1	1 ns – 50 ns	1 Hz – 1 MHz	MM, 100x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	
10	1 ns – 50 ns	1 Hz – 100 kHz	MM, 400x1
	50 ns – 200 ns	1 Hz – 10 kHz	
Wavelength 1300 nm			
0.01 0.1	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 5 kHz	
1	1 ns – 50 ns	1 Hz – 1 MHz	MM, 100x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	
10	1 ns – 50 ns	1 Hz – 100 kHz	MM, 400x1
	50 ns – 200 ns	1 Hz – 10 kHz	

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PRODUCT MATRIX, continued

Exact values may vary. Please check when ordering. Specifications can be adjusted upon request.
Base price is valid for free-space output, +12V DC power supply, fixed pulse duration.

Typical optical peak power scale, W	Pulse duration	Pulse frequency	Laser diode type and aperture dimensions, µm
Wavelength 1450 nm			
0.01 0.1	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 5 kHz	
1	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	MM, 100x1
10	1 ns – 50 ns	1 Hz – 100 kHz	MM, 100x1
	50 ns – 200 ns	1 Hz – 10 kHz	
50	1 ns – 50 ns	1 Hz – 100 kHz	MM, 200x200
	50 ns – 200 ns	1 Hz – 10 kHz	
Wavelength 1550 nm			
0.01 0.1	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 5 kHz	
1	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	MM, 100x1
10	1 ns – 50 ns	1 Hz – 100 kHz	MM, 100x1 or 200x1
	50 ns – 200 ns	1 Hz – 10 kHz	
50	1 ns – 50 ns	1 Hz – 100 kHz	MM, 200x200 or 400x1
	50 ns – 200 ns	1 Hz – 10 kHz	
Wavelengths 1700 and 1800 nm			
0.01	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 5 kHz	
0.1	1 ns – 50 ns	1 Hz – 1 MHz	MM, 100x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	
1	1 ns – 50 ns	1 Hz – 1 MHz	MM, 200x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	
Wavelength 1950 nm			
0.01	1 ns – 50 ns	1 Hz – 1 MHz	SM, 5x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 5 kHz	
0.1	1 ns – 50 ns	1 Hz – 1 MHz	MM, 100x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	
1	1 ns – 50 ns	1 Hz – 1 MHz	MM, 100x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	
10	1 ns – 50 ns	1 Hz – 1 MHz	MM, 200x1
	50 ns – 500 ns	1 Hz – 100 kHz	
	500 ns – 10 µs	1 Hz – 1 kHz	

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MAIN NON-OPTICAL PARAMETERS OF THE PULSED LASER

Parameter	Units	Value		
		Min	Typ.	Max
Optical pulse amplitude adjustment	%	10	-	100
Pulse frequency instability	ppm	±10	±15	±20
Sync signal or external trigger amplitude	V	4.5	5	5.5
Synchronization of optical pulse with sync pulse or external trigger signal	-	rising edge		
Stabilized laser crystal temperature	^{0}C	+15	-	+35
Laser crystal temperature stability	^{0}C	-	-	±0.1
Laser crystal temperature settling time	s	-	-	30
Standard DC supply voltage	V	11	12	13
Maximum supply current	A	-	-	2
Power consumption	W	1	5	20
Withstand voltage on the power supply input	V	-60	-	+60
Operating temperature range	^{0}C	-20	-	+40
Storage temperature	^{0}C	-40	-	+60

ADDITIONAL OPTIONS

Optical output.

1) Free-space (base price)
2) Optical fiber:
- core 100-120 μm, NA=0.22;
- core 200 μm, NA=0.22;
- core 400 μm, NA=0.22;
- core 800-1000 μm, NA=0.22.

Standard length: 1 m ± 10 cm, FC-connector. Custom lengths and connector types are available upon request. The fiber core diameter must be matched to the emitter aperture. Typical optical power loss compared to free-space output is -5% to -30%

3) Lens:
- Fast-axis microlens;
- Molded aspheric lens, EFL=8 mm;

Default configuration: near-collimated fast-axis beam with minimal divergence. Custom angular divergence settings available on request. Custom lens systems available on request.

DC power supply voltage

1) 12V (base price)
2) 24V
3) Custom power supply values are available upon request.

Optical pulse duration value

1) Fixed, preset (base price)
2) Adjusted

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