

# High Brightness Diode Laser Module

single frequency  
Tapered Laser Diodes

- Highest brightness
- High power
- Spectrally stabilized
- CW/Microsecond pulses
- Gaussian beam profile

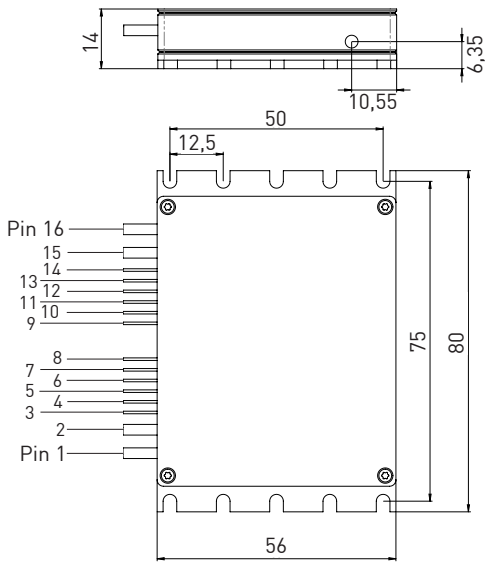


Picture: DLM-12 (NIR) Module

## Specifications

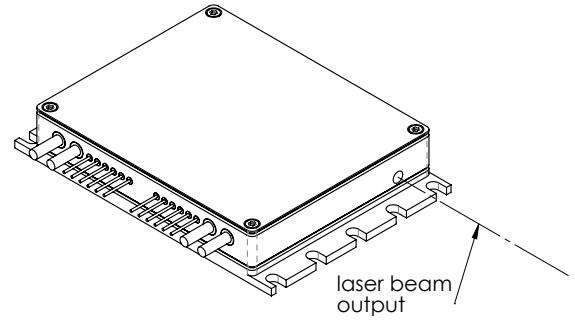
	DLM-6 (NIR)	DLM-12 (NIR)
<b>Optical Parameters</b>		
• Wavelength	~ 980 nm	~ 980 nm
• Output Power (max)	6 W	12 W
• Pulse Duration	50 $\mu$ s - CW	50 $\mu$ s - CW
• Duty Cycle	[0 - 100] %	[0 - 100] %
• Mode of Operation	CW & Pulsed	CW & Pulsed
• Spectral Width (FWHM)	< 1 nm	< 1 nm
• M <sup>2</sup> Factor	< 2	< 2
• Polarization	Linear	Random
• Beam Diameter	< 1 mm	< 1 mm
<b>Electrical Parameters (with optional Tapered Laser Diode Driver)</b>		
• Input Voltage	12 V	12 V
• Input Current	< 2.5 A	< 5 A
<b>Mechanical Dimensions</b>		
• Dimension (W x D x H)	~ (80 x 65 x 15) mm <sup>3</sup>	~ (80 x 65 x 15) mm <sup>3</sup>
• Weight	~ 250 g	~ 250 g
<b>Thermal Parameters</b>		
• Operating Temperature	[15 - 30] °C	[15 - 30] °C
• Heat Sink Capacity	15 W	30 W
<b>Interface</b>		
• Communication	RS232 / Mini USB	RS232 / Mini USB
• Emergency Stop	Potential free / dual	Potential free / dual
• Current Monitor	Analog [0 - 4] V	Analog [0 - 4] V
• Trigger In / Out	TTL 5 V	TTL 5 V
• Current Set	Analog [0 - 4] V	Analog [0 - 4] V
<b>Operation Data</b>		
• Long-term Power Stability	10'000 h	10'000 h





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### Typical spectral properties in CW operation

Spectral drift (typical):	
$d\lambda/dT$	0.08 nm/K
$d\lambda/dI_{TP}$	0.08 nm/A
$d\lambda/dI_{RW}$	1 pm/mA

Tuning range with integrated DBR heaters	2 nm
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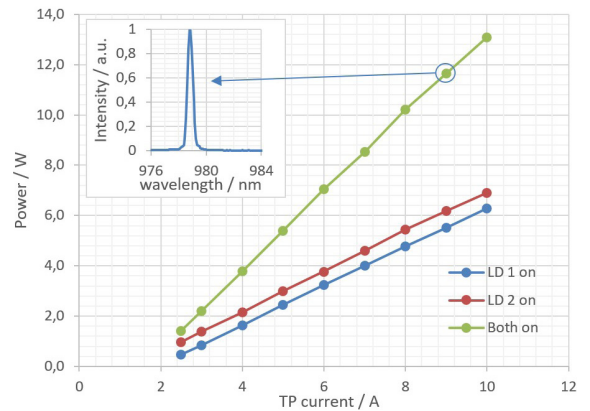
### Typical spatial beam characteristics in CW operation at the operating point

Collimated output beam (typical)	
Beam waist diameter ( $1/e^2$ ) [mm]	0.8
Beam full divergence ( $1/e^2$ ) [mrad]	2.0
$M^2$ ( $1/e^2$ )	<1.5

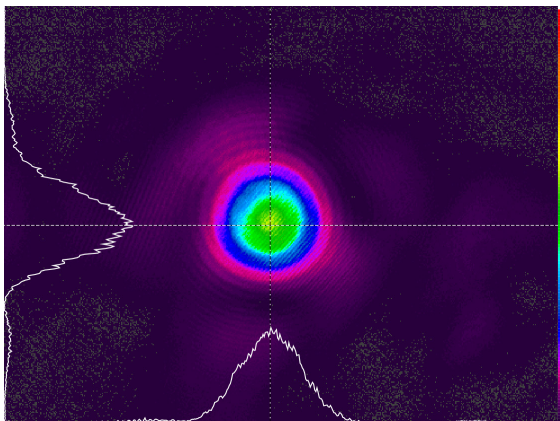
### Typical power-current characteristics in CW operation

$I_{TP1/2}$ [A]	LD 1 on P [W]	LD 2 on P [W]	Both on P [W]
2.5	0.6	0.9	1.5
3.0	1.0	1.3	2.2
4.0	1.7	2.1	3.9
5.0	2.5	3.0	5.5
6.0	3.3	3.9	7.1
7.0	4.1	4.7	8.7
8.0	4.8	5.5	10.3
8.5	5.2	6.0	11.0
9.0	5.6	6.2	11.8
10.0	6.4	7.0	13.2

### Power measurement



### Beam waist profile (typical)



### Long-term power stability

