

LUxxxxDyyy-D Medical Diode Laser Dual wavelength, 808nm, 980nm, or 1064nm



Description:

The Lumics Medical Diode Laser series offers OEM integrators an excellent product to manufacture state-of-the-art end user laser systems. The easy integration and safe use of these medical laser components give the chance to be cost-efficient in development and manufacturing. Equipped with several accessories and features the Lumics diode lasers comply with CE & ROHS requirements. Lumics warranties highest reliability single emitter technology through careful design, extensive burn-in, long life-time & thermal testing.

Features & Functions:

- 808nm + 980nm or 808nm + 1064nm
- 200µm NA 0.22 fiber
- 3 single, burn-in tested laser diode emitters
- Temperature sensor

Options:

- Exchangeable window
- Red or green pilot laser
- Fiber sensor
- Monitor diode

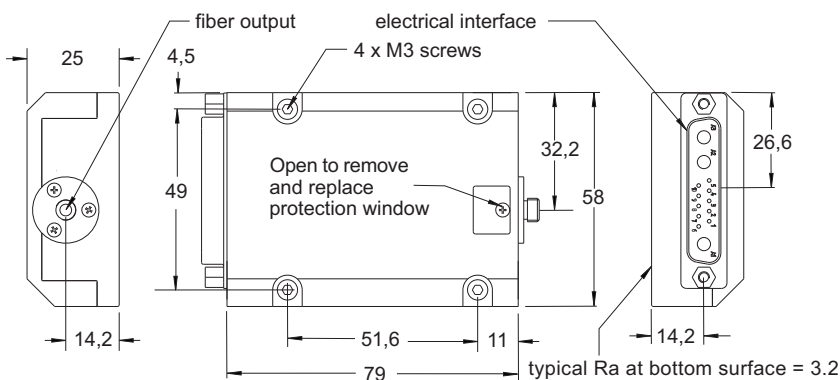
Benefits:

- Ultra long lifetime
- Passive cooling
- Sealed housing
- Small foot print
- SMA connector

Applications:

- Dental
- Dermatology
- Therapeutic
- Veterinary

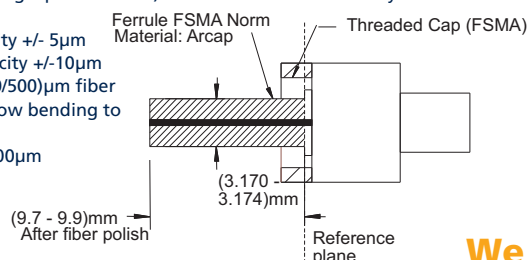
Module Drawing (Dimensions in mm)



Fiber Connector

Lumics laser diode fiber coupling technology ensures loss into the fiber cladding of <1.5% upon compliance with the following strict recommendations:

- Use a fiber microscope to check for dust free fiber end facet and fiber centricity, or with a quick check by turning the SMA fiber ferrule between 0°-180° at minimal possible output.
- Fiber connector to the Lumics laser module without mode stripper can sink a maximum of 4W (1.4% loss from 280W).
- Use transparent and high temperature fiber epoxy (e.g. Epotek ND353) to ensure that fiber is firmly fixed to the connector at 70°C
- 105µm fiber core max. fiber to connector eccentricity +/- 5µm
>105µm fiber core max. fiber to connector eccentricity +/- 10µm
- Use large cladding diameter as (105/600)µm or (200/500)µm fiber for a free standing fiber to enhance stability and low bending to maintain centricity
- For $\leq 105\mu\text{m}$ fiber core: a large cladding 105µm/600µm not free standing fiber can be used

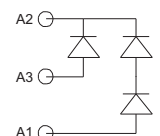


Pin Connections

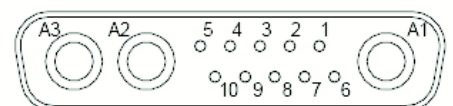
Pin	Configuration
1	Fiber sensor signal 1 *
2	Fiber sensor signal 2 *
3	Fiber sensor / monitor diode cathode 12V
4	Fiber sensor (GND1) LM35 (GND1) Monitor diode (GND1)
5	LM35 signal or NTC or PT100/1000
6	Monitor diode signal 2 *
7	Monitor diode signal 1 *
8	Pilot laser (GND2)
9	LM35 5V or NTC or PT100/1000
10	Pilot laser 3.3V (red) * or <math>< 200\text{mA}</math> (green) *

A1	808nm Laser diode (+)
A2	Laser Diode common cathode (-)
A3	980 or 1064nm Laser diode (+)

* = optional



Connector



We manufacture diode lasers.

Electrical and Optical Characteristics Typical Laser specifications at 25°C

Parameter	Conditions	Min	Typ	Max	Unit
Version 1: 808 + 980 nm					
Output Power	P _{op} 808nm (c.w.)		11		W
	P _{op} 980nm (c.w.)		12		W
Peak Wavelength (at P _{op})	λ _{peak} @ 808nm	798	808	818	nm
	λ _{peak} @ 980nm	970	980	990	nm
Spectral Width (FWHM)	λ _{rms} @ 808 and 980nm		6		nm
Forward Current / Voltage	I _{op} / V _{op} @ 808nm		8.5 / 3.6		A / V
	I _{op} / V _{op} @ 980nm		16.5 / 1.7		A / V
Threshold Current	I _{th} @ 808nm		1.8		A
	I _{th} @ 980nm		1		A
Version 2: 808 + 1064 nm					
Output Power	P _{op} 808nm (c.w.)		11		W
	P _{op} 1064nm (c.w.)		9		W
Peak Wavelength (at P _{op})	λ _{peak} @ 808nm	798	808	818	nm
	λ _{peak} @ 1064nm	1054	1064	1074	nm
Spectral Width (FWHM)	λ _{rms} @ 808 and 1064nm		6		nm
Forward Current / Voltage	I _{op} / V _{op} @ 808nm		8.5 / 3.6		A / V
	I _{op} / V _{op} @ 1064nm		14 / 1.6		A / V
Threshold Current	I _{th} @ 808nm		1.8		A
	I _{th} @ 1064nm		1.0		A
Other General Features					
Conversion Efficiency			ca. 40		%
Spectral Shift with Temp.	λ _{T_shift}		0.3		nm / K
Fiber Core Diameter			200		μm
Fiber Centricity			<10		μm
Numerical Aperture	NA		0.22		
Fiber Connector Type			SMA905		
Pilot Beam (Option)			Red Pilot Beam		
Pilot Beam Output Power			1		mW
Pilot Beam Wavelength			635 ± 10		nm
Pilot Beam Operating Voltage			3 ± 0.3		V
Pilot Beam Operating Current			30 - 55		mA
			Green Pilot Beam		
Pilot Beam Output Power			>5		mW
Pilot Beam Wavelength			520 ± 10		nm
Pilot Beam Operating Voltage			7.0		V
Pilot Beam Operating Current			200		mA
Sensors					
Power Monitor Operating Voltage (Option)			12		V
Power Monitor Signal Voltage			0 - 4		V
Fiber Detection Sensor Operating Voltage (Option)			12		V
Fiber Detection Sensor Signal Voltage			12 / 0		V
Temperature Sensor			LM35, or NTC (10k), or PT100/1000		

Remarks:

- (1) Proper function of fiber sensor requires FSMA ferrules made of steel oder ARCAP. Do not use copper made ferrules.
- (2) Required flatness of customer heat sink 0.05mm over 200mm.

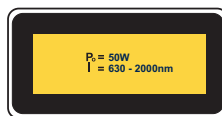
Important Note

Read and carefully follow operating manual instructions. Especially - whenever power supply is switched on or off, always disconnect from laser module. See manual for details. Uncontrolled on / off switching may cause spikes and result in fatal device damage.

General Parameters / Accessories

Parameter	Symbol	Min	Typ	Max	Unit
Storage Temperature	T _s	0		50	°C
Operation Temperature	T _{op}	15		35	°C
Humidity / Non-condensing Atmosphere				90	%
Recommended Thermal Heatsink Resistance				0.1	K / W
Weight			ca. 200		g
Compliance			CE, ROHS		
Standard Accessories					
Interface Connector			13W3 Female		
Mounting Screws / metric			4 x M3 x 10		
Further Options					
2nd Monitor Diode / 2nd Fiber Detection Sensor (Please ask for quotation if needed)					
Optical Fiber Patchcord with SMA Connectors					
Laser diode drivers for each individual wavelenth (on request)					

User Safety



We manufacture diode lasers.