

LuOcean Mini4

Factsheet

The Lumics LuOcean Mini4 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 laser components in combination with several accessories and features promotes cost efficiency in both development and manufacturing.

The Lumics LuOcean Mini4 modules are equipped with single emitters, which have a long service life. The modules can be passively cooled and are well protected from external influences by the housing. Users can connect SMA fibers to the modules and benefit from a small footprint.

Applications for the Mini4 laser modules can be found in numerous medical fields, such as the therapy sector, dentistry, dermatology, veterinary medicine and surgery, as well as in the industry for laser pumping.

FEATURES & FUNCTIONS

- 670 / 760 / 785 / 808 / 890 / 915 / 940 / 975 / 1064 / 1470 / 1940 nm as single and multi-wavelength module
- 105 / 200 / 400 / 600 μm NA 0.22 fiber
- Emitter electrically in series
- Temperature sensor

OPTIONS & ACCESSORIES

- Power monitor (up to two)
- Fiber monitor
- User-exchangeable exit window
- Red or green pilot beam
- Controllable pilot intensity
- OEM LD driver & chiller
- Compatible fibers



Lumics

We manufacture diode lasers.

Optical and Electrical Characteristics for Single Wavelength Modules (Typical specification)

Wavelength [nm]	Fiber core diameter [μm]				Fiber core diameter [μm]				Fiber core diameter [μm]				Fiber core diameter [μm]			
	Fiber core diameter [μm]	Max Power [W]	I _{op} [A]	V _{op} [V]	Fiber core diameter [μm]	Max Power [W]	I _{op} [A]	V _{op} [V]	Fiber core diameter [μm]	Max Power [W]	I _{op} [A]	V _{op} [V]	Fiber core diameter [μm]	Max Power [W]	I _{op} [A]	V _{op} [V]
670					200	7	3.5	8	400	11	6	8	600	11	6	8
760													600	25	11	8
785	105	10	4	7	200	19	7	7	400	19	7	7	600	33	13	7
808	105	10	4	7	200	19	7	7	400	27	11	7	600	33	13	7
890					200	33	15	7	400	33	15	7	600	40	18	7
915									400	50	19	7				
940	105	22	9	7	200	40	13	7	400	70	25	7	600	80	26	7.5
975	105	22	9	7	200	40	13	7	400	70	25	7	600	80	26	7.5
1064	105	26	10	6	200	40	15	6.5	400	60	25	6.5	600	65	26	6.5
1470					200	17	13	5.5	400	22	21	5.5				
1940					200	5	7.5	4.5	400	7	10	4.5				

Optical Characteristics for Dual Wavelength Modules (Other Variants and Options available)

Fiber core diameter [μm]	Wavelength 1		Wavelength 2		Wavelength 1		Wavelength 2	
	Wavelength 1 [nm]	Max Power Wavelength 1 [W]	Wavelength 2 [nm]	Max Power Wavelength 2 [W]	Wavelength 1 [nm]	Max Power Wavelength 1 [W]	Wavelength 2 [nm]	Max Power Wavelength 2 [W]
200	670	5	808	6	670	1.5	808	14
400	670	8	808	9	670	2.5	808	21
600	670	8	808	11	670	2.5	808	24
200	670	5	1064	9	670	1.5	1064	29
400	670	8	1064	14	670	2.5	1064	43
600	670	8	1064	16	670	2.5	1064	48
600	760	18	1470	5	760	7	1470	16
200	808	14	975	11	808	6	975	28
400	808	21	975	17	808	9	975	51
600	808	24	975	19	808	11	975	58
200	808	14	1064	9	808	6	1064	29
400	808	21	1064	14	808	9	1064	43
200	808	14	1470	4	808	6	1470	12
400	808	21	1470	5	808	9	1470	16
200	808	14	1940	1	808	6	1940	3.5
400	808	21	1940	1.5	808	9	1940	5
200	975	51	1470	4	975	11	1470	12
400	915 / 975	17	1470	5	915 / 975	28	1470	16
200	975	51	1940	1	975	11	1940	3.5
400	915 / 975	17	1940	1.5	915 / 975	28	1940	5
200	1064	43	1470	4	1064	9	1470	12
400	1064	48	1940	1.5	1064	14	1940	5

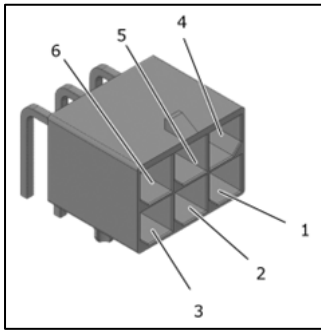
Optical Characteristics for Triple Wavelength Modules (Other Variants and Options available)

Fiber core diameter [μm]	Module 1						Module 2					
	Wavelength 1 [nm]	Max Power Wavelength 1 [W]	Wavelength 2 [nm]	Max Power Wavelength 2 [W]	Wavelength 3 [nm]	Max Power Wavelength 3 [W]	Wavelength 1 [nm]	Max Power Wavelength 1 [W]	Wavelength 2 [nm]	Max Power Wavelength 2 [W]	Wavelength 3 [nm]	Max Power Wavelength 3 [W]
200	670	3	808	6	1064	9	670	1.5	808	6	1064	19
200	670	3	1064	9	1470	4	670	1.5	1064	9	1470	8
200	670	3	1064	9	1940	1	670	1.5	1064	9	1940	2
400	670	5	808	9	915	17	670	2.5	808	14	915	17
600	808	16	915 / 975	19	1064	16	808	11	915 / 975	19	1064	34
200	808	9	975	11	1470	4	808	6	975	11	1470	8
400	808	14	915 / 975	17	1470	5	808	9	915 / 975	17	1470	10
200	808	9	975	11	1940	1	808	6	975	11	1940	2
400	808	14	915 / 975	17	1940	1.5	808	9	915 / 975	17	1940	3.5
200	808	9	1064	9	1470	4	808	6	1064	9	1470	8
400	808	14	1064	14	1470	5	808	9	1064	14	1470	10
200	808	9	1064	9	1940	1	808	6	1064	9	1940	2
400	808	14	1064	14	1940	1.5	808	9	1064	14	1940	3.5
200	975	19	1064	9	1470	4	975	11	1064	9	1470	8
400	975	34	1064	14	1470	5	975	17	1064	14	1470	10
400	975	34	1064	14	1940	1.5	975	17	1064	14	1940	3.5

General Parameters / Options / Accessories / Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Mechanical Characteristics					
Weight of Laser Module			160		g
Pilot Beam (optional, see notes)					
Pilot Beam Output Power (adjustable)	red / green	0	3 / 0.5	3 / 1	mW
Pilot Beam Wavelength	red / green		650 ± 10 / 520 ± 10		nm
Pilot Beam Operating Voltage	red / green	4.8 / 7	5 / 8	5.2 / 8	V
Pilot Beam Operating Current	red / green			≤ 35 / 125	mA
Pilot Beam Intensity Control Voltage	red / green	0 (max. Intensity)		5 (min. Intensity)	V
Sensors (optional)					
Power Monitor Supply Voltage		10	12	14	V
Power Monitor Signal Voltage		0	4 (at max. Power)		V
Fiber Detection Sensor Supply Voltage		10	12	14	V
Fiber Detection Sensor Signal Voltage		0	12	14	V
Temperature Sensor		Standard: NTC (10 k); Optional: PT100 or LM35			
Operating Conditions					
Storage Temperature	T _s	-10			°C
Internal Operating and (Ambient) Temperature, c.w. Operation	T _{op c.w.}	10 (5)	25 (20)	35 (40)	°C
Humidity / Non-condensing Atmosphere				90	%
Thermal Heat Sink resistance				0.1	K/W
Maximum Fiber Flange Temperature				50	°C

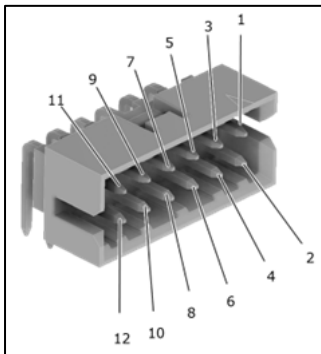
Connector



Connector - laser diode supply
 Molex™ connector (Part No. 172064-0006).
 Pin connection dependent on the individual electro-optical configuration. Maximum current per pin is 26 A if total current to cathode exceeds 26 A two pins must be connected to the cathode of the driver board.

Counterparts for external cable
 Molex Mega-Fit Receptacle Housing Part No. 171692-0106.
 Molex Mega-Fit Female Crimp Terminal Part No. 76823-0322.

Pin configuration
 Pin configuration depends on wavelength selection. Refer to the specific Mini4 datasheets for further details.

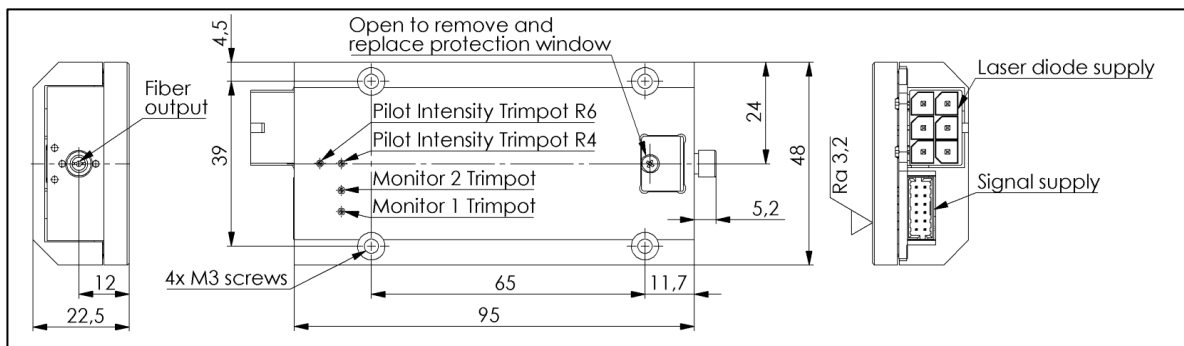


Connector - signals
 Connector on laser module Part No. (Mini revision 3 3M 159112-5012)
 (Mini revision 4 with locking Molex 87833-1231)

Counterpart for external cable
 Molex Milli Grid Cable to Board Receptacle Part No. 87568-1273 with locking ramp.
 Flat ribbon cable with pitch of 1 mm and AWG28.

PIN	Configuration
1	Supply +12V
2	Fiber Sensor 1 Out, 0-12V, option
3	GND1
4	Fiber Sensor 2 Out, 0-12V, option
5	Monitor Photo Diode 1 Out, 0-4V (0.7V 1940nm), option
6	Pilot Supply, 5V red, 8V green, option
7	Monitor Photo Diode 2 Out, 0-4V (0.7V 1940nm), option
8	Pilot GND2, option
9	NTC / PT100 / LM35 Supply 5V
10	Pilot intensity control In 0-5V, option
11	NTC / PT100 / LM35 Signal
12	Not connected

Module Drawing (Dimensions in mm)



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