



LUOcean P2

LU0793Cyyy-M and LU0808Cyyy-M Diode Laser Up to 170W c.w. Operating Power @ 793nm or 808nm



Description:

The LU0808Cyyy-M and LU0793Cyyy-M **LUOcean P2** series offers an optical output power of 20-170W in c.w. operation from a 105µm, 300/400µm, 600µm core diameter, NA 0.22 fiber, respectively. The device consists of multiple single emitter laser diodes in a rugged industrial package. Long lifetime is ensured due to laser diode facet passivation, extensive burn-in testing and screening of the individual single emitters. The performance makes it a valuable tool for various applications.

Features & Functions:

- Wavelength 793nm or 808nm
- Fiber: 105, 300/400, or 600µm
- SMA905 (or D80 connector)
- Sealed housing
- Temperature sensor

Options:

- Power monitor
- Fiber sensor
- Red pilot laser
- Water cooling plate
- Backreflection filter
- VBG

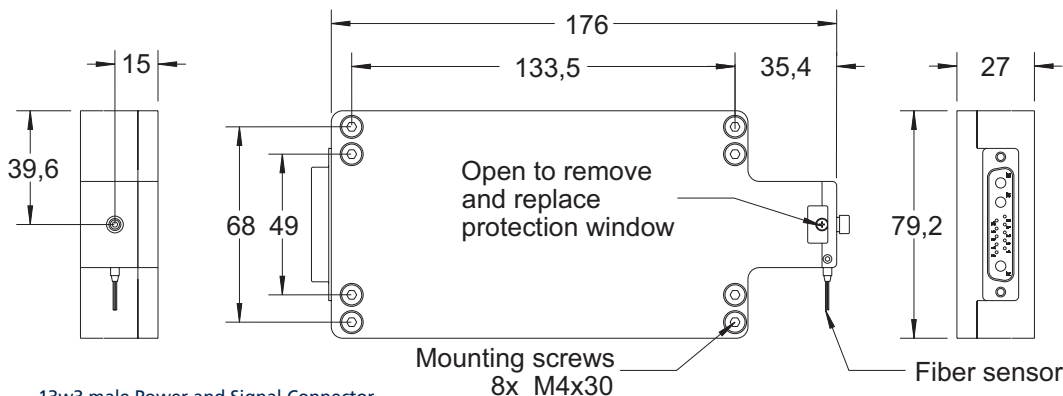
Benefits:

- Life Time > 10.000h
- Cost effective
- High efficiency
- Low Current (single emitter)
- Msec Hard Puls Operation

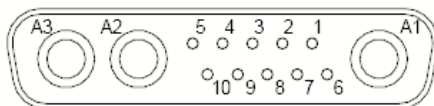
Applications:

- Pumping
- Illumination
- Medical treatment

Module Drawing (Dimensions in mm)



13w3 male Power and Signal Connector

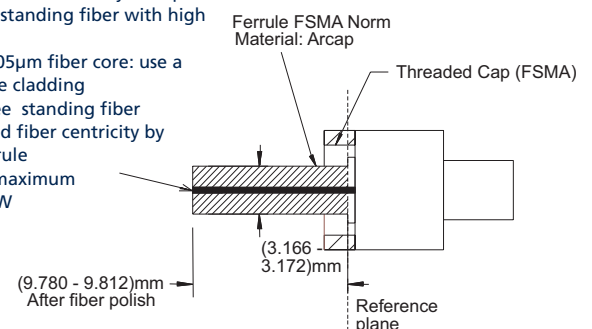


Pin	Configuration
1	N.C.
2	N.C.
3	Monitor Diode (5-12)V *
4	LM35 (GND) Monitor Diode (GND)
5	LM35 Signal or NTC or PT100/1000 *
6	N.C.
7	Monitor Diode Signal *
8	Pilot Laser (GND)
9	LM35 5V or NTC or PT100/1000
10	Pilot Laser 3V *
A1	Laser Diode (+)
A2	Laser Diode GND (-)
A3	N.C.
* Optional	

F-SMA Connector

Strict Recommendations

- (1) Use transparent and high temperature fiber epoxy (e.g. Epotek ND353)
- (2) 105µm fiber core max. excentricity +/- 5µm
>105µm fiber core max. excentricity +/-10µm
- (3) Above 60W: use free standing fiber with high power connector
- (4) Below 60W and <=105µm fiber core: use a free standing or large cladding 105µm/600µm not free standing fiber
- (5) Check always for good fiber centricity by turning the fiber ferrule between 0°-180° to maximum output power at < 5W



Your ideas are welcome.

Electrical and Optical Characteristics Typical Laser specifications at 25°C

Parameter	Cond.	Symbol	LU0xxxC20	LU0xxxC090	LU0xxxC110	LU0xxxC170	Unit
LU0793Cyyy-M and LU0808Cyyy-M							
Output power (1)	c.w.	P_{op}	20	90	110	170	W
Operating current	c.w.	I_{op}	4.5	8.5	16	16	A
Absolut maximum forward current	c.w.	I_{max}	4.8	9	16.5	16.5	A
Peak output power (1)	pulsed	$P_{op/pulse}$	25	110	190	300	W
Peak current (5)	pulsed	$I_{op/pulse}$	5.3	10	26	26	A
Absolut maximum pulse peak current	pulsed	$I_{max, pulse}$	5.5	10.5	27	27	A
Peak wavelength (3)	LU0793Cyyy	λ	793+/-5	793+/-5	793+/-5	793+/-5	nm
	LU0808Cyyy	λ	808+/-5	808+/-5	808+/-5	808+/-5	nm
Spectral width (FWHM)		$\Delta\lambda$	2	2	2	2	nm
Maximum spectral width (95% of Power)		$\Delta\lambda_{95}$	4	4	4	4	nm
Threshold current		I_{th}	0.95	1.7	3.8	3.8	A
Operating voltage		V_f	13	26	17	26	V
Conversion efficiency			40	40	40	40	%
Wavelength tuning vs. temperature		λ / T	0.3	0.3	0.3	0.3	nm/K
Wavelength tuning vs. operating current		λ / I	1	1	0.4	0.4	nm/A
Weight (6)		m	1200	1200	1200	1200	g
Output fiber connector (SMA905 or D80 connector on module, please specify)							
Core diameter of output fiber		d_{core}	105	300/400	600	600	μm
Fiber centricity			5	10	10	10	μm
Numerical aperture		NA	0.22	0.22	0.22	0.22	
Temperature sensor			LM35, NTC (10k) or PT100/1000 (please specify)				
Power monitor		PD	5-30	5-30	5-30	5-30	mV/W
Options							
Option 1: Red pilot laser							
C.w. output power min. value			1	1	1	1	mW
Peak wavelength			635+/-15	635+/-15	635+/-15	635+/-15	nm
Operating voltage			3-5	3-5	3-5	3-5	V
Option 2: Water Cooling Base Plate							
Water temperature		T	<18°	<18°	<18°	<18°	°C
Water quality			Industrial Water, no DI-water, filtered particle size <0.1mm				
Minimum water flux			0.3	0.5	0.5	0.7	l/min
Option 3: 1064nm back reflection filter (>35 on request) (2)			>20	>20	>20	>20	dB
Option 4: Wavelength stabilization with VBG (4)							
Spectral width (FWHM)		$\Delta\lambda$	1	1	1	1	nm
Peak wavelength precision (please specify)		λ	+/-1	+/-1	+/-1	+/-1	nm
Option 5: Fiber sensor PNP IFRM 03P1503/Q or NPN IFRM 03N1503/Q							

Remarks:

- (1) Power is measured ex fiber according to given fiber specifications including precision and measures of fiber and ferrules for uncoated fiber facets
- (2) Back reflection is considered as 10ns pulse with 5% d.c. max. Back reflection filter which provides higher max. back reflection energy of 2mJ is offered on request.
Back reflection reduces power by 2% (18db), 4% (35db)
- (3) narrower wavelength (+/- 3nm) on request
- (4) with Option 4 (VBG) the c.w. and pulsed max. optical output power is reduced by 10% , wavelength shift is 0.01nm/°C
- (5) Max. pulse time <200µsec, duty cycle <20%
- (6) Light version for pulsed operation d. c. 20% with 750g on request

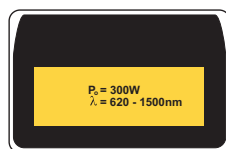
Important Note

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.

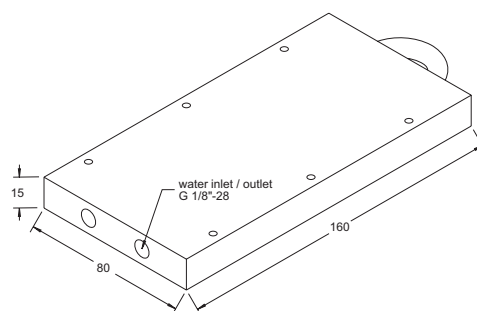
Absolute Maximum Ratings / General Informations

Parameter	Symbol	Min	Max	Unit
Storage Temperature	T_{max}	-15	+55	°C
Operating Temp. c.w.-operation	$T_{op, c.w.}$	+5	+30	°C
pulsed operation (5) $T_{op, pulse}$		+5	+40	°C
Humidity / non Condensing Atmosphere			90	%
Recommended Thermal Heatsink Resistance			0.03	K/W
LD Reverse Voltage	$V_{R, max}$		10	V
Mounting Screws / metric		8 x M4 x 12		
Max. back reflection of intrinsic pump wavelength output power			20	%
Max. back reflection, any other than λ of this diode laser (2)			10	µJ

User Safety



Option 2 water cooling base plate:



Your ideas are welcome.