



LUOcean P2

LU1470Cyyy Diode Laser Up to 47W c.w. Operating Power @ 1470nm



Description:

The LU1470Cyyy **LUOcean P2** series offers an optical output power of 14, 15, 20, 30, 40 or 47W in c.w. operation from a 105µm or 200µm 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 extensive burn-in testing and screening of the individual single emitters. The performance makes it a valuable tool for various applications.

Features & Functions:

- Wavelength 1470nm
- Burn-in tested single emitters
- Fiber: 105 µm or 200µm core, NA 0.22
- SMA905 fiber connector
- Sealed housing
- Temperature sensor

Options:

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

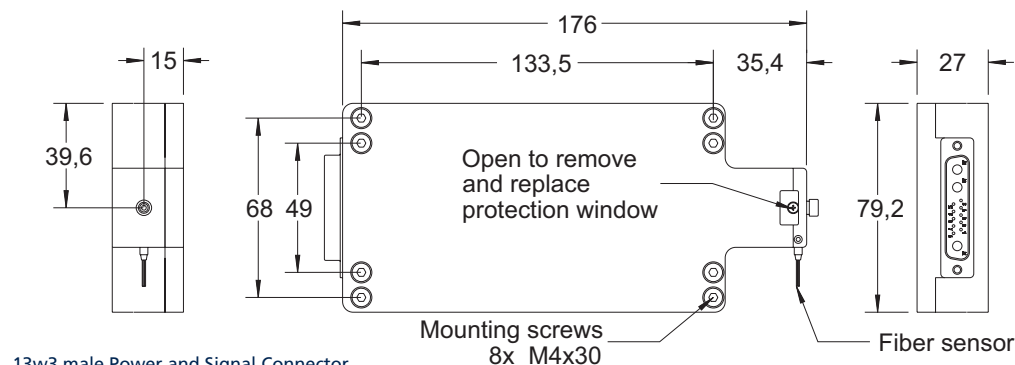
Benefits:

- Small foot print
- MTTF > 40.000h
- High efficiency

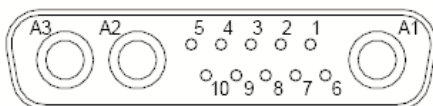
Applications:

- Processing
- Illumination
- Medical treatment

Module Drawing (Dimensions in mm)



13w3 male Power and Signal Connector



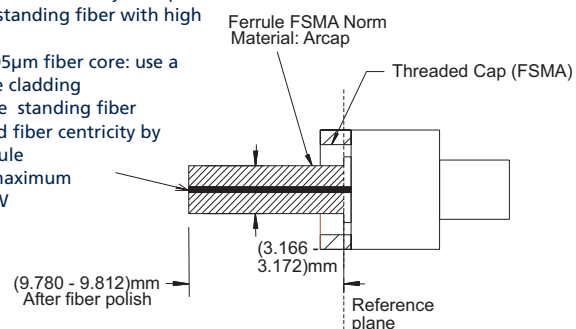
Pin	Configuration
1	N.C.
2	N.C.
3	Monitor Diode Cathode 5-12V *
4	LM35 (GND1) Monitor Diode (GND1)
5	LM35 Signal or NTC or PT100/1000 *
6	N.C.
7	Monitor Diode Signal *
8	Pilot Laser (GND2)
9	LM35 5V or NTC or PT100/1000
10	Pilot Laser 3V *
A1	Laser Diode (+)
A2	Laser Diode common cathode (-)
A3	N.C.

* 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	Conditions	Symbol	LU1470C014	LU1470C015	LU1470C020	LU1470C030	LU1470C040	LU1470C050	Unit
LU1470Cyyy									
Output power (1)	c.w.	P_{op}	14	15	20	30	40	47	W
Operating current	c.w.	I_{op}	8	12	12	12	12	12	A
Maximum forward current	c.w.	I_{max}	9	14	14	14	14	14	A
Peak wavelength		λ	1470 +/-15	1470 +/-15	1470 +/-15	1470 +/-15	1470 +/-15	1470 +/-15	nm
Spectral width (FWHM)		$\Delta\lambda$	10	10	10	10	10	10	nm
Threshold current		I_{th}	0.6	1.1	1.1	1.1	1.1	1.1	A
Operating voltage		V_f	9.5	6	6	8.5	12	16.5	V
Conversion efficiency			20	20	20	20	20	20	%
Wavelength tuning vs. temperature		λ / T	0.6	0.6	0.6	0.6	0.6	0.6	nm/K
Wavelength tuning vs. operating current		λ / I	3	2	2	2	2	2	nm/A
Weight	m		1200	1200	1200	1200	1200	1200	g
Output fiber	(SMA905 connector on module)								
Core diameter of output fiber		d_{core}	105	200/400	200/400	200/400	200/400	200/400	μm
Fiber centricity			5	10	10	10	10	10	μm
Numerical aperture	NA		0.22	0.22	0.22	0.22	0.22	0.22	
Temperature sensor (10 kOhm)			LM35, NTC (10k) or PT100/1000 (please specify)						
Power monitor	PD		10-30	10-30	10-30	10-30	10-30	10-30	mV/W
Options									
Option 1: Red pilot laser (2)									
C.w. output power		P_{pilot}	1	1	1	1	1	1	mW
Peak wavelength		λ_{pilot}	635 +/-10	635 +/-10	635 +/-10	635 +/-10	635 +/-10	635 +/-10	nm
Operating voltage			5	5	5	5	5	5	V
Option 2: Water cooling base plate w/o cap									
Water temperature		T	<18	<18	<18	<18	<18	<18	°C
Minimum water flux (industrial water, no DI-water)			1/100W	1/100W	1/100W	1/100W	1/100W	1/50W	l/min
Internal operating temperature			25	25	25	25	25	20	°C
Option 3: Wavelength stabilization with VBG (3)									
Spectral width (FWHM)		$\Delta\lambda$	1	1	1	1	1	1	nm
Peak wavelength (please specify)		λ	1	14xx+/-1	14xx+/-1	14xx+/-1	14xx+/-1	14xx+/-1	nm
Option 4: 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. Please note that out ut power of 1470nm laser diodes are very sensitive (4% power drop per 10°C internal temperature increase) to temperature.
- (2) Red pilot laser for LU1470C050 available on request.
- (3) With Option 3 (VBG) the c.w. and pulsed max. optical output power is reduced by 10%.
- (4) Required flatness of customer heat sink 0.05mm over 200mm.

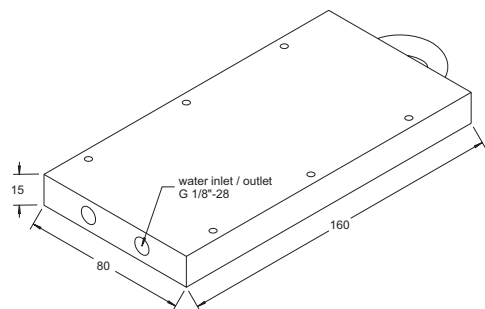
Important Note

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..

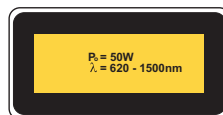
Absolute Maximum Ratings / General Informations

Parameter	Symbol	Min	Max	Unit
Storage Temperature	T_{max}	-15	+60	°C
Operating Temp. c.w.-operation	$T_{op.c.w.}$	+5	+30	°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		mm

Option 2 water cooling base plate:



User Safety



Your ideas are welcome.