



## LUOcean P2

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



#### Description:

The LU1470Cyyy-M **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

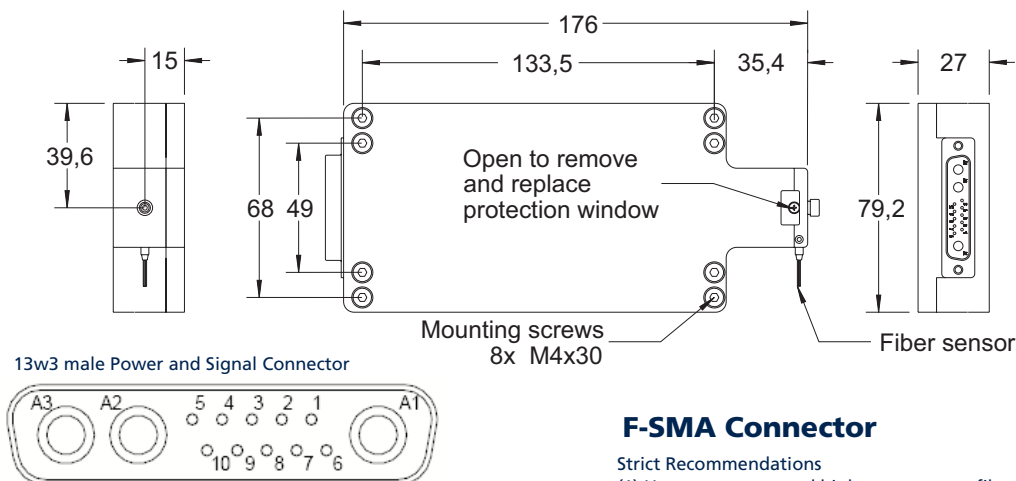
#### Benefits:

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

#### Applications:

- Processing
- Illumination
- Medical treatment

### Module Drawing (Dimensions in mm)



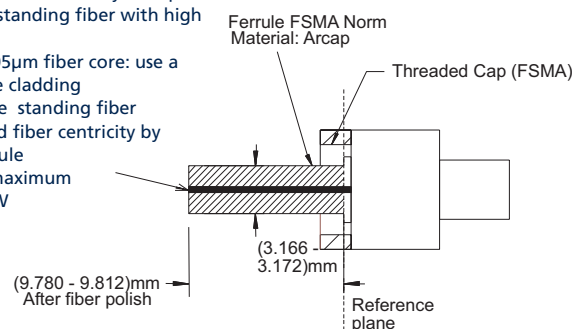
13w3 male Power and Signal Connector

Pin	Configuration
1	N.C.
2	N.C.
3	Monitor Diode (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. eccentricity +/- 5µm  
>105µm fiber core max. eccentricity +/-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	
<b>LU1470Cyyy-M</b>										
Output power	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		$\lambda$	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	21	V
Conversion efficiency			20	20	20	20	20	20	%	
Wavelength tuning vs. temperature		$\lambda / T$	0.6	0.6	0.6	0.6	0.6	0.6	nm/K	
Wavelength tuning vs. operating current		$\lambda / I$	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	$\mu m$	
Fiber centricity			5	10	10	10	10	10	$\mu m$	
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	
<b>Options</b>										
Option 1: Red pilot laser										
C.w. output power	$P_{pilot}$		1	1	1	1	1	1	mW	
Peak wavelength		$\lambda_{pilot}$	635 +/-15	635 +/-15	635 +/-15	635 +/-15	635 +/-15	635 +/-15	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 (4)										
Spectral width (FWHM)		$\Delta\lambda$	1	1	1	1	1	1	nm	
Peak wavelength (please specify)			l	14xx+/-1	14xx+/-1	14xx+/-1	14xx+/-1	14xx+/-1	nm	
Option 4: Fiber sensor PNP IFRM 03P1503/Q or NPN IFRM 03N1503/Q										

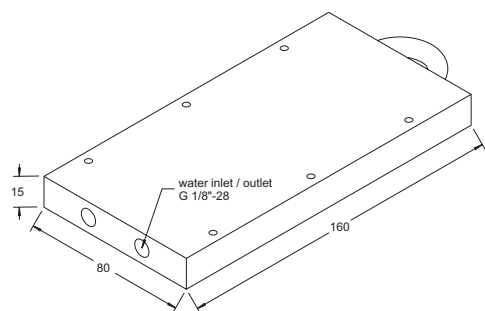
**Remarks:**

- (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 our 1470nm laser diodes are very sensitive (4% power drop per 10°C internal temperature increase) to temperature.
- (2) With Option 3 (VBG) the c.w. and pulsed max. optical output power is reduced by 10%.

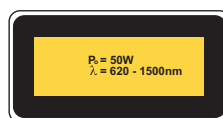
### Absolute Maximum Ratings / General Informations

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.