FLS-1550-02-5070-030

Pulsed Fiber Laser

Technical Specification

Lumíspot

1. Description

This product is a 1.5μm pulsed fiber laser source for human eye safety developed by *Lumispot*. The product can produce peak power output, with high electric-optical conversion efficiency, low ASE and nonlinear effect noise, and wide temperature operating range. It is suitable for use as LiDAR emission light source.

2. Model

The products mentioned in this specification are applicable to the specifications, models and product codes shown in the table below.

Model	Central Wavelength
FLS-1550-02-5070-030	1550nm

3. Technical Data

Item	Unit	Min	Typ	Max	Remarks
Operation mode		Pulsed			
Central wavelength	nm	1547	1550	1553	
Pulsed width (FWHM)	ns	2.5	3	3.5	
Re-frequency	kHz	100	500	2000	Adjustable
Ave. Power	W			2.0	See Peak power-Typical frequency table for details
Peak power	kW		1.4①	3②	Vary depends on repetition frequency
Reference light peak power	mW	0.4	0.5	0.6	
Average power	%			10	

stability (-20-50℃)					
Average power stability (-40-75℃)	%			15	
Spectral distribution	%	70			4nm spectral power /50nm spectral power 3ns, 100k > 70% 3ns, 200k, 300k > 80% 3ns, 400k, 500k > 85% 3ns, 1000k > 90%
Polarization state	NA		Random		
Burst mode	NA		External triggering		
Pulse trigger signal and light output delay time (electric-optical delay)	ns			70	The difference of the same laser at different temperatures is less than 20ps
Pulse output delay jitter	ps			80	@25℃ -40℃-75℃≤300ps
Electricity consumption	W		13	15	@output ave. Power 1W
Operating voltage	V	9	12	13	
Operating temperature (@ shell)	℃	-40		85	The laser shuts down at 95℃
Storage temperature	℃	-40		95	
Package size	mm		50x70x19		
Weight	g			100	

Optical output mode		FC/APC (Main light); FC/UPC (Reference light)			
Output fiber length of main light	mm	175	180	185	900um sleeving
Output fiber length of reference light	mm	175	180	185	
Electrical interface type		MOLEX 505567-1281			

Notification:

① Peak power 1.4kW @1550nm, 500kHz, 3ns, 25℃ and good heat dissipation

② Peak power 3kW @1550nm, 100kHz, 3ns, 25℃ and good heat dissipation

4. Peak power @ Typical frequency

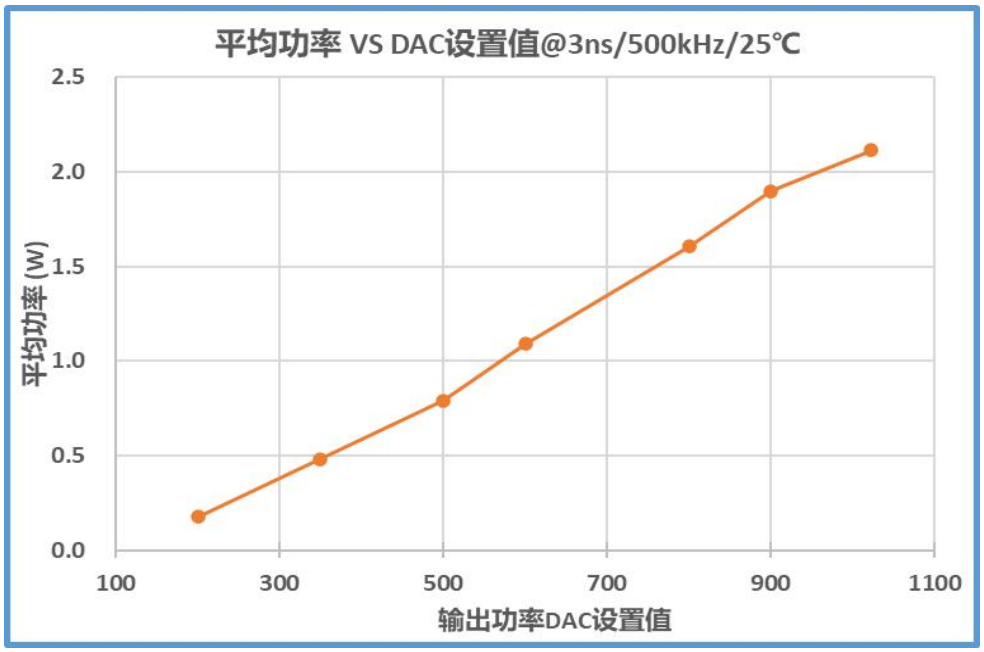
For a 1550nm laser, the reference value of the output pulse peak power @3ns typical rep. frequency (the average power accuracy is P~P+0.5W②) is shown in the following table

Rep. (kHz)	100	200	300	400	500	1000	1500	2000
Ave. Power(W)	0.9	1.8	2.0	2.1	2.1	2.1	2.1	2.1
Peak Power(W)	3000	3000	2222	1750	1400	700	466	350

5. Average power-set curve

Under the condition of pulse width 3ns/500kHz/25℃, the average output

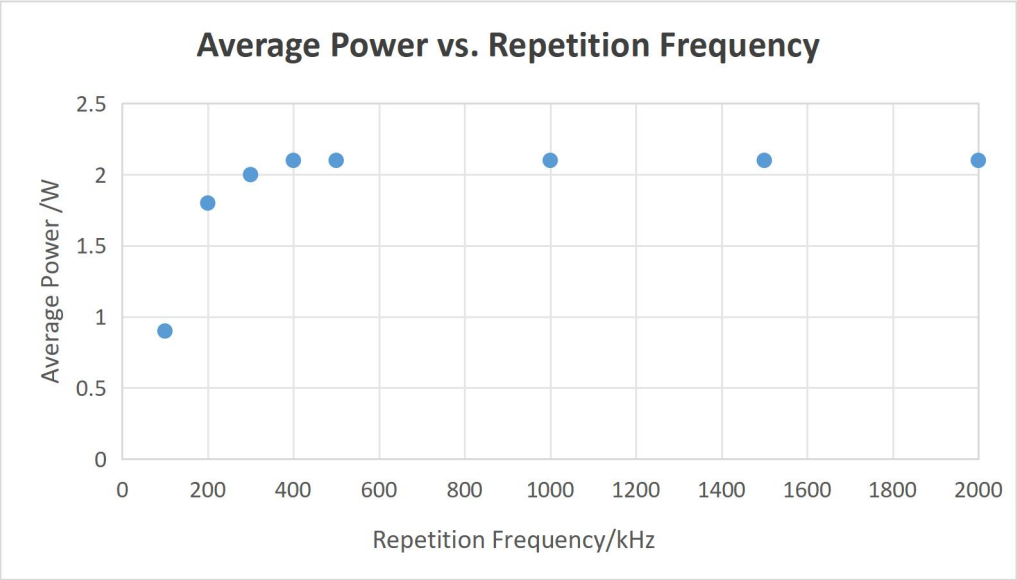
power and the power set value (maximum 1023) of the laser are changed as shown in the figure below.



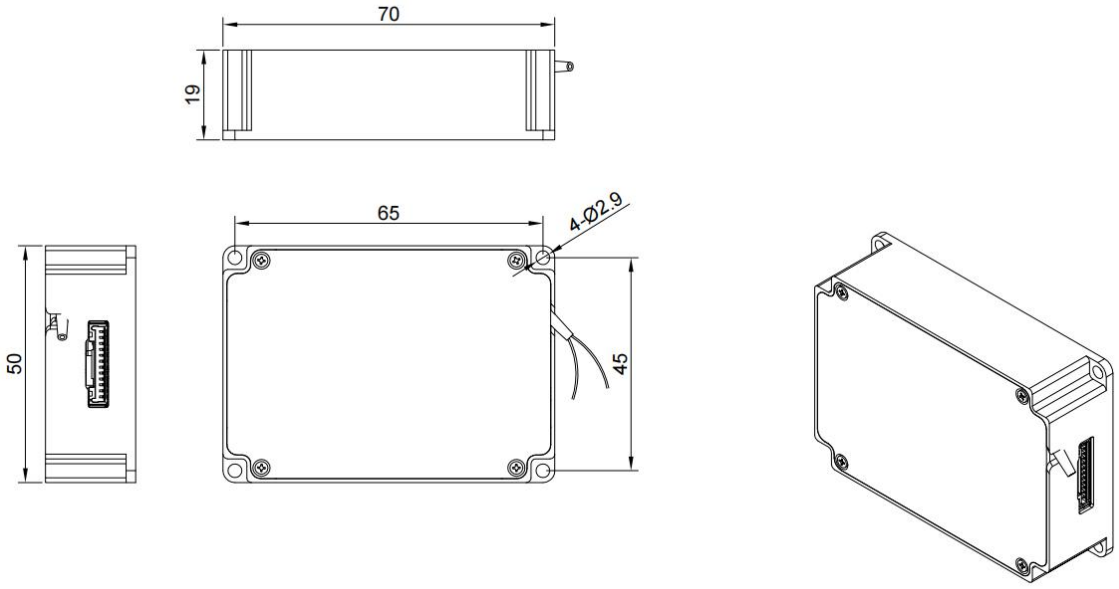
Note that the full power 2w output must provide a good heat dissipation environment.

6. Average power-trigger repetition frequency curve

Under the condition of pulse width 3ns/25℃, the relationship between the average output power and signal trigger repetition frequency is shown in the figure below

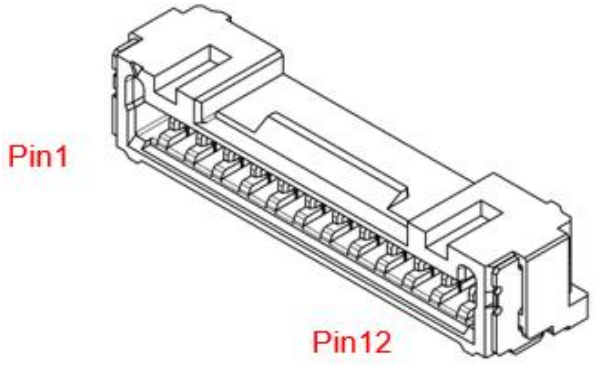


7. Dimension



8. Electrical Parameter

8.1 Electrical interface definition



The laser adopts the pin holder of Molex model 505567-1281, with 12pin and 1.25mm foot spacing. The pin definition is shown in the following table:

Pin	Name	INPUT/OUTPUT	Function Description
1、2、	GND	Power	GND
3、4、	POWER	Power	+12V power supply
5	UART TX	Output	LVTTL，UART TX output
6	UART RX	Input	LVTTL，UART RX input
7	Differential Negative Trigger Clock	Input	LVDS differential negative trigger clock input
8	Differential Positive Trigger Clock	Input	LVDS differential positive trigger clock input
9	NA	NA	NA
10	NA	NA	NA
11	NA	NA	NA
12	NA	NA	NA

8.2 Communication protocols and commands

See annex "Small Laser Communication Protocol" for details.