

## Mode-locked & Picosecond laser Series

### Introduction

Superior beam quality, best reliability, mode-locked & picosecond pulsed laser, pulsed duration could be less than 20 ps. Housed in compact packages, are the perfect choice for design in and integration into OEM instrumentation and systems and also for end user applications in research and development.

### APPLICATIONS

- Raman spectroscopy
- Material processing
- Scientific research
- Marking
- Carving
- Astronomy
- Optical instrument



### PRODUCTS

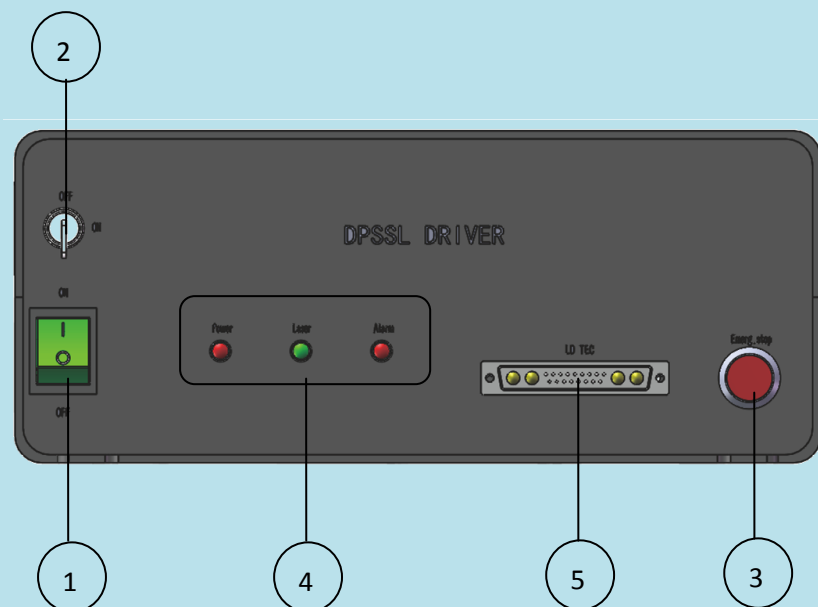
#### A. Mode- locked type

##### Parameters

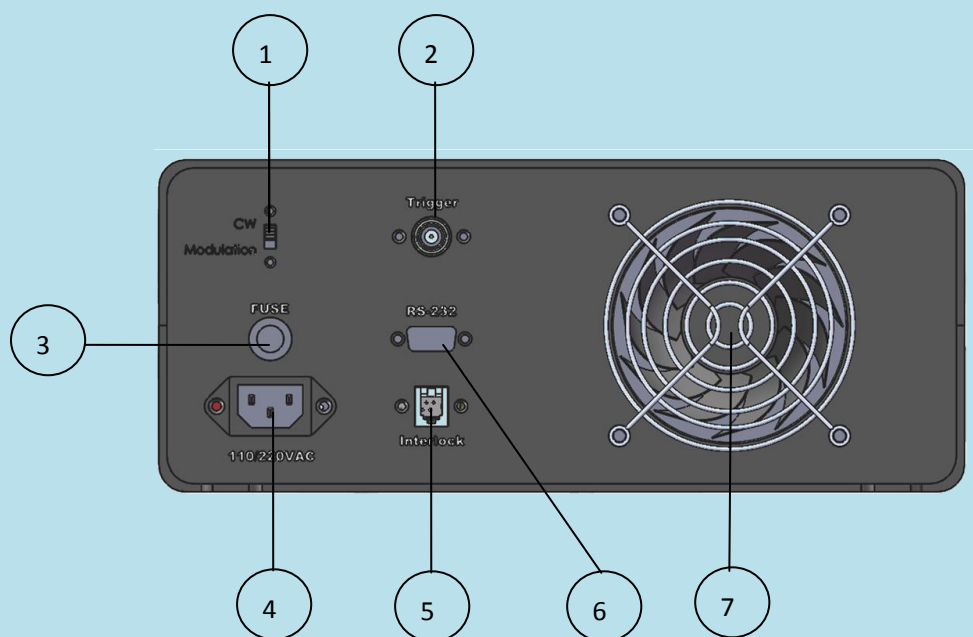
Model name	PS-R-266/355/532/1064				PS-HR-532/1064		PS-RL-1064	PS-Seed-1064
Wavelength (nm)	266 ±1	355 ±1	532 ±1	1064 ±1	532 ± 1	1064 ± 1	1064 ± 1	1064 ± 1
Operating mode	Mode-locked							
Max. Output power (mW/W)	50mW	2W	3W	10W	1-2W@ 500kHz	10W@ 500kHz	1W@10kHz	300mW
Power stability (rms, over 4 hours)	<3%, <5%							<1%, <2%, <3%
Transverse m ode	TEM00							
Rep. Rate (kHz)	48 ± 1				100-1000	100-1000	1-10	80 ± 1
Pulse duration (ps)	10-20				~15@ 500kHz&2W	~15@ 500kHz&10W	~15@ 10kHz&1W	10-20
Beam divergence, full angle (mrad)	<4		<3					<2
Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	~3		~1.5		~2.0			
Beam height at the aperture (1/e <sup>2</sup> ,mm)	60	57			80		80.5	48
Warm-up time (minutes)	<10							
Cooled method	Water cooled							Air cooled
Operation temperature (℃)	10-30							
Expected lifetime (hours)	10000							
Warranty period	1 year							

Model name	MacroMicro-1064-P	Macro/Micro-1319-P
Wavelength (nm)	1064 ± 1	1319 ± 1
Operating mode	Mode-locked	
Output power (W)	10	7
Macro-Pulse duration (us)	160	
Macro-Rep. rate (Hz)	500	
Micro-Pulse duration (ns)	1.5	
Micro-Rep. rate (MHz)	~100	
Linewidth (GHz)	1	0.4
Energy stability	<3%	
Warm-up time (minutes)	<15	
Beam divergence, full angle (mrad)	0.9	
Beam diameter (mm)	4	
Beam height from base plate (mm)	73	
Cooled method	Water cooled	
Operating temperature (°C)	15-35	
Expected lifetime (pulses)	10 <sup>9</sup>	
Warranty period	1 year	
Available Options	Higher output power: up to 30W	Higher output power: up to 18W

#### Power Supply Panel introductions

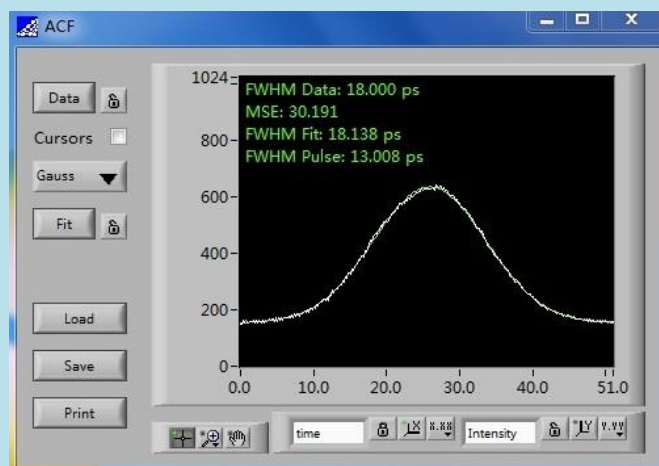
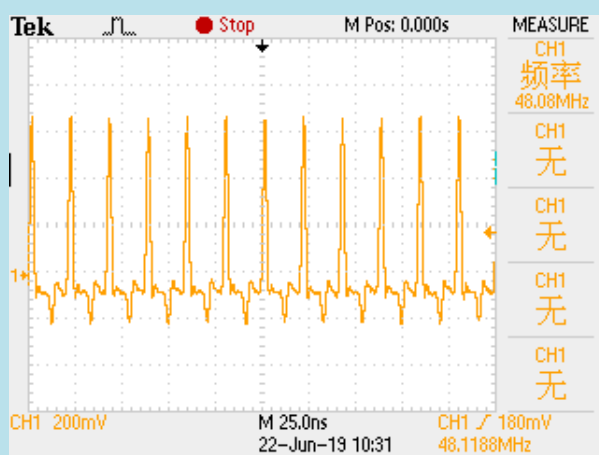


PS-R-266/355/532/1064 power supply front panel		
1	Main switch	----
2	Key switch	----
3	Emergency stop	When unexpected accident occurs, you can press it down to switch off the laser. You need to reset the main power and key switch to restart the laser.
4	Indicator	----
5	LD&TEC power input	----

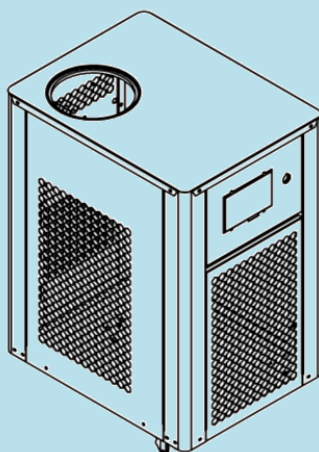


PS-R-266/355/532/1064 power supply back panel		
1	Toggle switch	Push it to "CW" position, the laser works as CW. Push it to "Modulation" position, the laser works as modulation
2	Signal interface	TTL or Analogue external control signal interface
3	Fuse	If the power supply has no function (fan in the driver doesn't work or the red LED- "power" is off), the most possible problem is the fuse broken. Please note to replace the fuse after switching off the key switch and mains power.
4	AC power jack	----
5	Interlock	Pull out the crystal plug or disconnect the short wire on the plug(if there are two short wires ,disconnect both of them), laser system will stop working. At this point you must connect the plug or restore short wires, turn off the electronic lock, and then open it, the laser system return to normal working station.
6	RS232	----
7	Fan	----

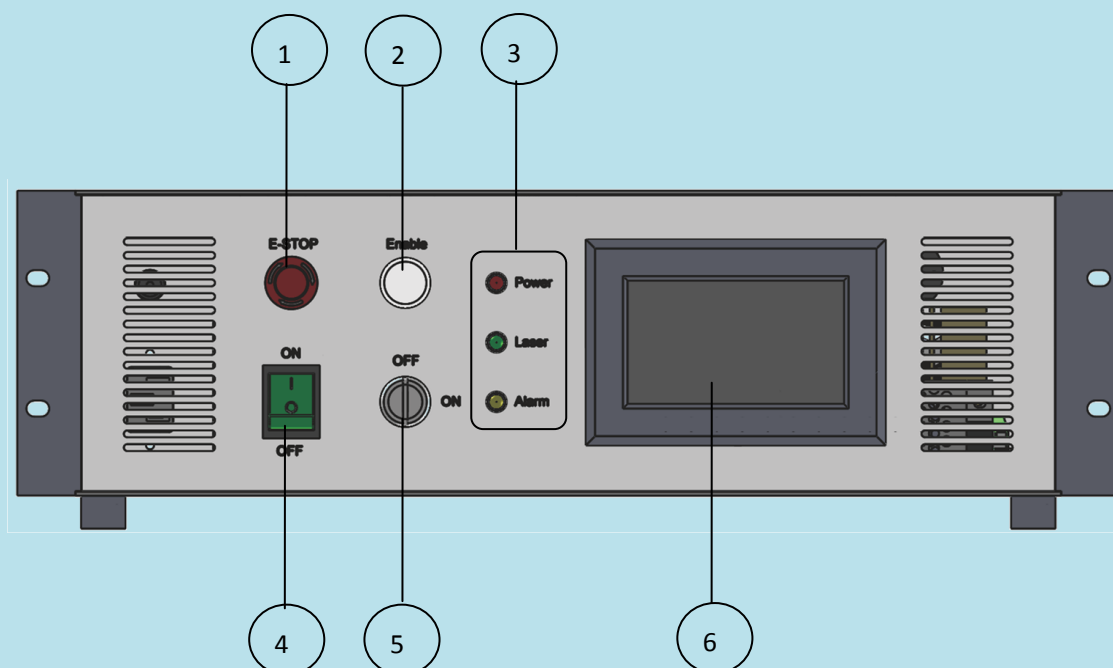
## Measurements



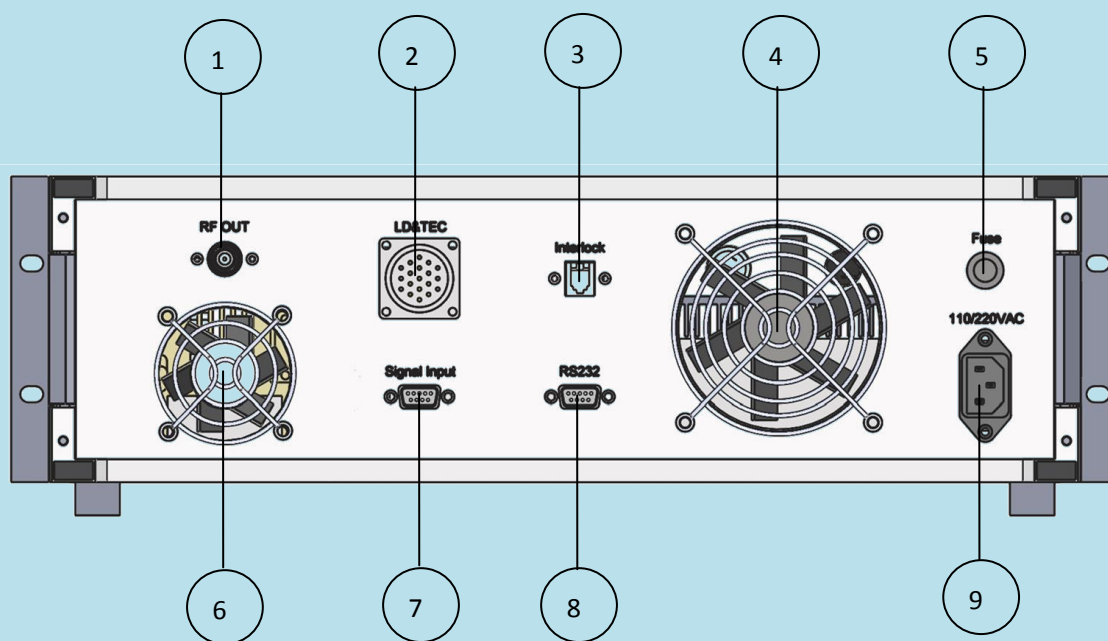
## Accessories: Water chiller



## Power supply panel introduction

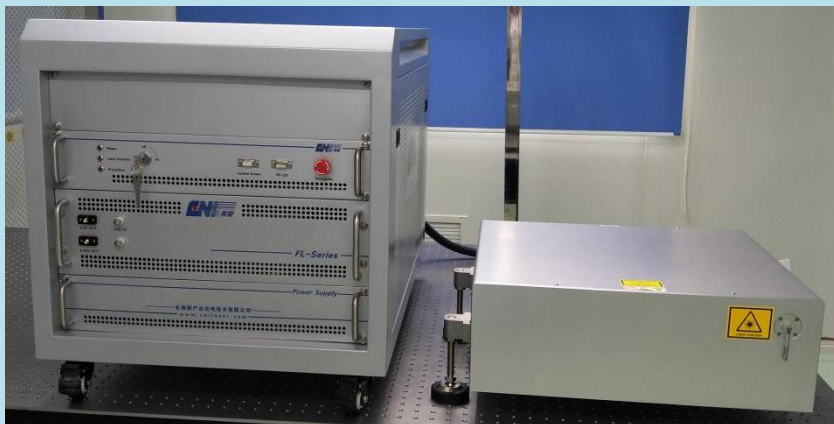


PS-HR-532/1064 & PS-RL-1064 & PS-Seed-1064 power supply front panel		
1	Emergency stop	When unexpected accident occurs, you can press it down to switch off the laser. You need to reset the main power and key switch to restart the laser.
2	Enable switch	Enable the switch to be closed at "OFF".
3	Indicator	Power supply, laser output, alarm indicator
4	Main switch	It is the main power unit of the power supply. It is switched between "on" and "off". The power supply will turn of when the power switch is set to "off".
5	Key switch	The power supply will turn off when the key switch set to "off" .
6	LED display	Display laser operating current value, frequency value and operating mode.



PS-HR-532/1064 & PS-RL-1064 & PS-Seed-1064 power supply back panel		
1	RF out	Input the RF signal of the power supply to the laser head. Use a RF cable to connect the power supply to the RF signal input port of the laser head before use.
2	LD&TEC power input	Plug the laser head to the interface.
3	Interlock	Unplug the RJ11 plug, or cut off the shorting stub on the plug (you must cut off both of the shorting stubs unless there is only one shorting stub). The laser system will stop working. The laser system can restore to normal working status by plug in the R11 plug or resuming shorting stub at this time.
4	Fan	Dissipate heat
5	Fuse	If the power supply has no function (fan in the driver doesn't work or the red LED- "power" is off), the most possible problem is the fuse broken. Please note to replace the fuse after switching off the key switch and mains power.
6	Fan	Dissipate heat
7	Signal input	For external modulation signal connection. Use the signal input cable to connect the power supply to external signals.
8	RS232 connector	An RS232 cable is required to connect the laser system to the computer.
9	AC power jack	Supply voltage to the power supply

## B. Diode Pumped Laser Type:

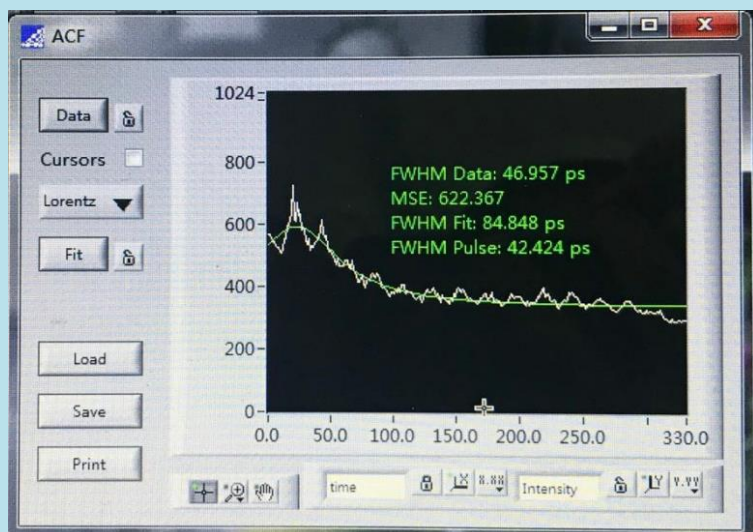


### Parameters

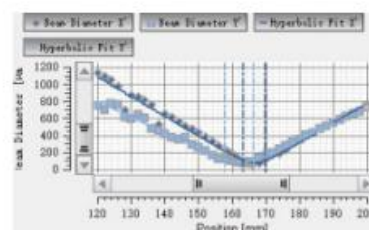
Model name	DPS-213-Pico	DPS-266-Pico	DPS-355-Pico	DPS-532-Pico	DPS-1064-Pico
Wavelength (nm)	213±1	266±1	355±1	532±1	1064±1
Operating mode	Pulsed				
Output power (mW)	1~30	100~500	100~700	2~10W	5~30W
Power stability (rms, over 4 hours)	<1%, <3%				
Pulse width (ps)	<50				
Beam divergence, full angle (mrad)	<3			/	/
Beam diameter (mm)	~2				
Repetition frequency (MHz)	5			0.1~10	
Beam height from base plate (mm)	128				
Cooled method	Air cooled				
Warm-up time (minutes)	<15				
Operating temperature (℃)	15~30				
Expected lifetime(hours)	10000				
Warranty	1 year				



## Measurements



Parameter:	Unit:	Result:
M <sup>2</sup> X		1.31
M <sup>2</sup> Y		1.13
M <sup>2</sup> mean		1.22
Beam Waist Position X	mm	166.67
Beam Waist Position Y	mm	162.12
Beam Waist Diameter X	μm	76.41
Beam Waist Diameter Y	μm	80.31
Rayleigh Length X	mm	3.28
Rayleigh Length Y	mm	4.22
Divergence Angle X	deg	1.33
Divergence Angle Y	deg	1.09
Divergence asymmetry	%	0.82



## C. Diode Laser Type:



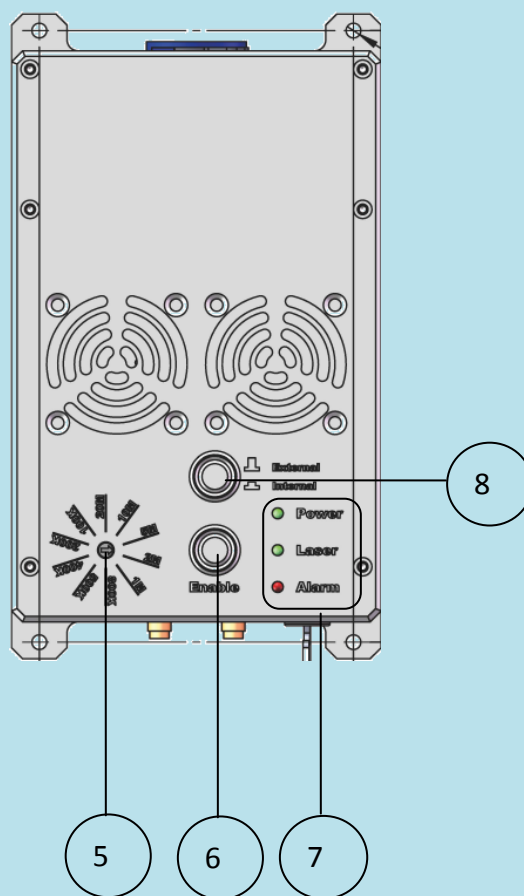
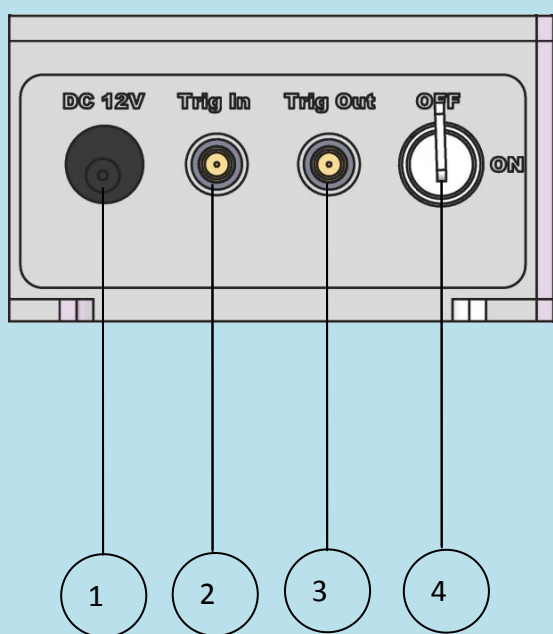
## Parameters

Model name	MDL-PS-405/450/640/655/785/808/852/940/980								
Central wavelength (nm)	405±5	450±5	640±3	655±10	785±5	808±5	852±10	940±5	980±10
Operating mode	Pulsed								
Output power	10uW-0.5mW		50uW-3.5mW	20uW-1.5mW	70uW-4.2mW	90uW-6.0mW	10uW-1.0mW	20uW-1.5mW	
Power stability (rms, over 4 hours)	<1%, <2%, <3%								
Pulse width (ps)	100~1000 (unadjustable)								
Transverse mode	Near TEM00								
User trigger frequency	0.1-80 MHz								



Beam diameter at the aperture (1/e <sup>2</sup> ,mm)	~1.2	~4	~3.5	~4.0	~3.5
Beam divergence, full angle (mrad)	~1.0	<1			
Modulation Depth (extinction ratio)	>1000000:1				
Warm-up time (minutes)	<5				
Beam height from base plate (mm)	26.5				
Operation temperature (°C)	10~35				
Operating voltage	DC12V 4A				
Warranty	1 year				

#### Power Supply Panel introductions



DPS--PS-405/450/640/655/785/808/852/940/980 power supply front panel		
1	DC12V	Connect the adapter to the DC power jack.
2	Trig In	External control signal interface, you should connect SMA when use it. There are two leads (white+, black-).
3	Trig Out	Data can be sampled by Synchronous signal output interface. You should connect SMA when use it. There are two leads (white+, black-).
4	Key switch	Check the key switch and make sure it is in “OFF” state before opening the laser.

DPS--PS-405/450/640/655/785/808/852/940/980 power supply upper panel		
5	Frequency toggle switch	Adjust internal frequency, optional :100kHz, 200kHz, 400kHz, 500kHz, 800kHz, 1MHz, 2MHz, 5MHz, 10MHz, 20MHz
6	Enable switch	Control the laser on/off. Make sure it is in “OFF” state before operating the laser.
7	Indicator	-----
8	Signal toggle switch	Press it to “Internal” position: Internal signal is available. Please change the internal frequency by adjusting the frequency toggle switch. Press it to “External” position: External control signal is available.

## Measurements

