

Manual

Pure Diode Series

Thank you for purchasing Optlaser products.
Please take some minutes to read this manual before operating
the laser show device(s).



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First of all, thanks for purchasing our PD Series Laser Projector.

These Class IV laser devices' radiation might cause hazard/harm to eyes, skin, or even cause fire if not used properly. For personal safety and correct operation, please carefully read this manual before operating and save it for future reference.

I . Packing List

After opening the package, check if all the items listed below are inside, and contact your supplier if anything is missing:

1 x PD laser projector;

1 x AC Power cord;

2 x Keys, and 2 x Interlock adapter (for RJ45);

Other customized accessories such as ILDA cable, control systems, etc.

II . Product Introduction

New PD Series units come with diode-based only laser sources and all sources have beam correction, thus have great beam show with analog FULL colors modulation.

The PD Series units can be controlled over ILDA and have a built-in memory with preset patterns, also with SD-card slot for freely programs export onto it, that can be easily triggered through DMX. They can also be operated in automatic and sound-to-light mode. The laser projector provides a master-slave-mode. Show lasers of the same series (slave projectors), connected via DMX to a main projector (master projector) project the same patterns like the master projector.

This Series will be applicable for clubs, bars, and those Small/medium venues or theater events, parties, business activities, large venues etc.

III . Safety Precautions

To use this device only according to the operating instructions, as this class IV laser device may cause danger because of the laser character of low divergence and high energy density.

*Never look to the light beam directly.

*Never project the beam to flammable and explosive materials.

*Never project the beam to any easy burning items in any distance.

*Do not use the device if there are any visible damages on housing, connector panels, power supplies or power cords

*Do not operate the device in severe conditions, such as too low/high temperature, dusty, vibrating vehicles, rainy, snowing, etc.

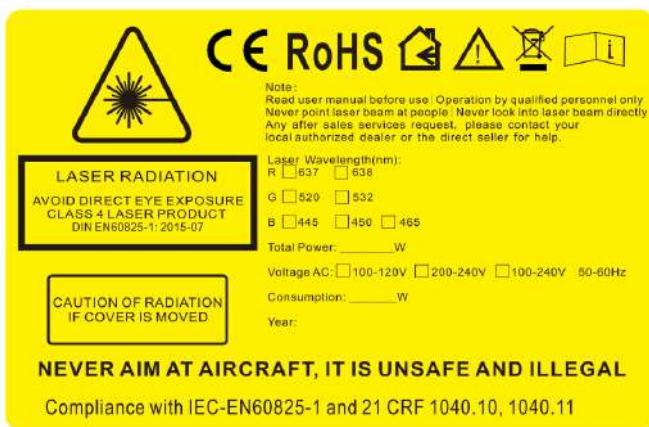
*Avoid dripping or splashing water, and do not place any liquid filled containers near the device

III -1. Caution labels

Warnings and other notices on the device(s).



Aperture labels



Production laserbels

IV . Installation Instruction

Bracket: The smaller systems(PD3 Series) bracket has two sets of mounting positions for the sake of different applications, which are corresponding to flat hanging and vertical hanging.

The other series herein won't have this mounting option.

*Reserve the power outlet at the location where the device is to be installed.

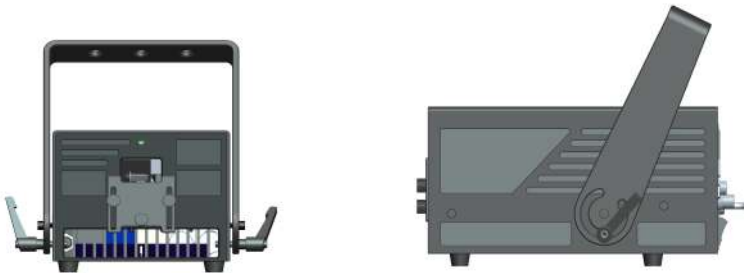
*Reserve the ILDA cable, DMX cable and remote control cable in the device installation position if necessary.

*For hanging installation, use a hook which bearing level is greater than 30Kg, project angle adjustable.

*For safety, use a safety rope which bearing level is greater than 50KG to fix the device to the steady light bracket, and make sure the safety rope is in relaxed state. Once the safety rope is stretched, it means that the device's safety ring is disable, and immediate repair is required.

*Connect the device to AC power when the power switch is on the position "OFF", then switch it on, connect the remote control cable, insert the safety key and switch it to "ON" and then the device will start on; switch off the device by the opposite operation.

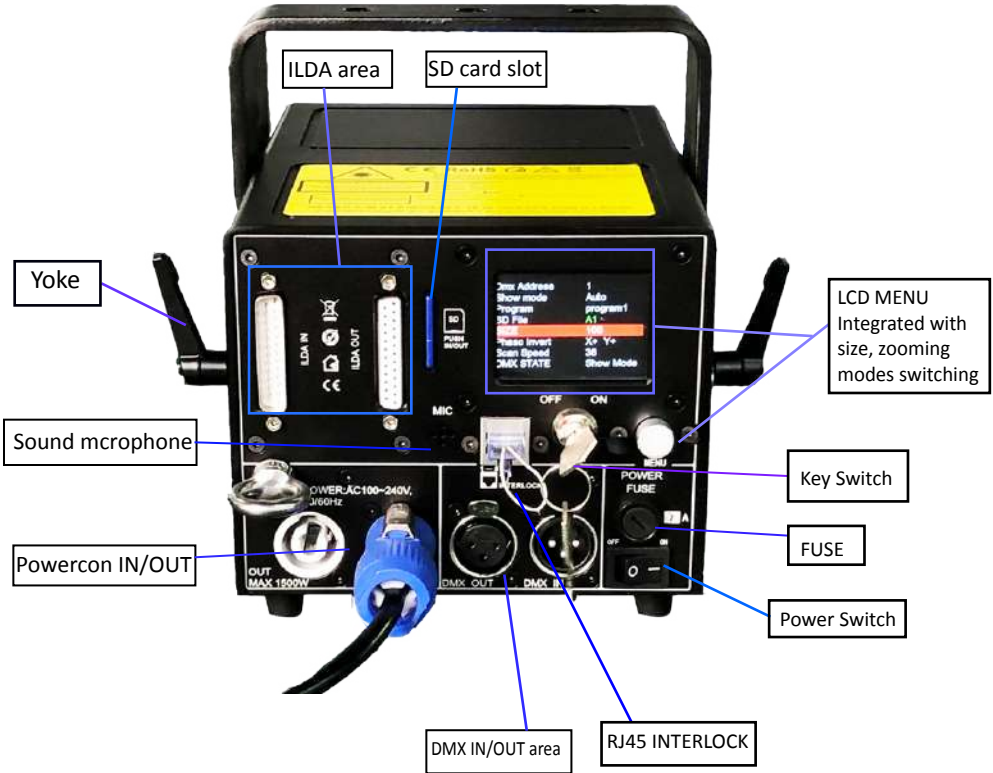
For the hanging applications, only the remote control would do help to turn on/off the device, and the switch of the power, remote control, and interlock should be on the position "ON".



PD3 Series

V. Operations

a). Back Panel of PD3 Series



LCD Display

DMX Address

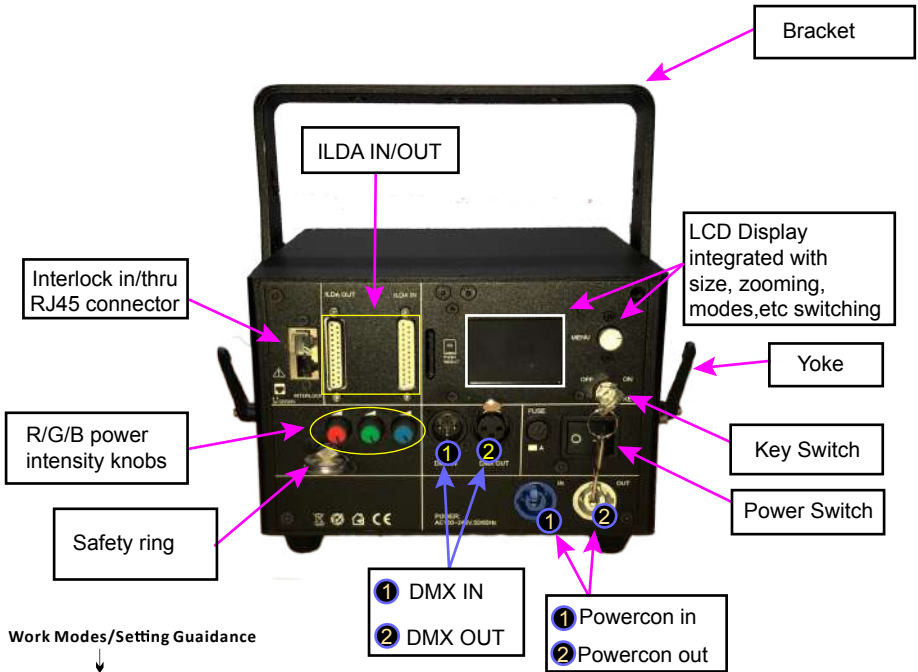
Work mode: showing current working mode

File(s): showing current working file(s)

Version: showing the edition of software being used

Menu Knob- LCD display : Press the knob to activate the display and enter the setting menu, rotate the knob to choose the subject, press the knob once to change the value, and **press the knob twice to confirm and save the settings.**

b). Back Panel of PD6 Series



Work Modes/Setting Guidance

LCD Display Operation

DMX Address	1
Show Mode	ILD
Program	program 1
SD file	No SD
SIZE	100
Phase Invert	X+ Y+
Scan Speed	28
DMX Setting	Show Mode
Slave Mode	Slave
X Phase	Positive
Y Phase	Phase
Laser Lock	Off
Sound sence	90
SD Sound	Off
Language	English

e.g. Default Status

DMX Address	2
Show Mode	ILD
Program	program 1
SD file	No SD
SIZE	100
Phase Invert	X+ Y+
Scan Speed	28
DMX Setting	Show Mode
Slave Mode	Slave
X Phase	Positive
Y Phase	Phase
Laser Lock	Off
Sound sence	90
SD Sound	Off
Language	English

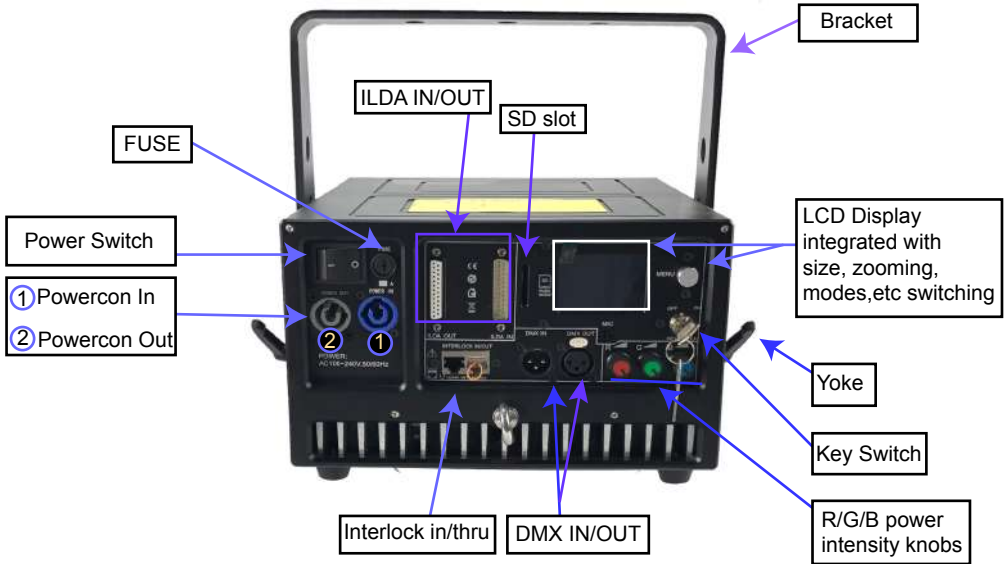
Click the DMX column once and manually rotate the menu knob to change the address(1-17 for options)

DMX Address	2
Show Mode	ILD
Program	program 1
SD file	No SD
SIZE	100
Phase Invert	X+ Y+
Scan Speed	28
DMX Setting	Show Mode
Slave Mode	Slave
X Phase	Positive
Y Phase	Phase
Laser Lock	Off
Sound sence	90
SD Sound	Off
Language	English

Double-click the menu knob to save the preferred status.(When this step done, the background of the status will turn to red)

Note:
All the contents listed on the LCD display can be freely changed to the preferable status. The most important step is "double-click" the menu knob to SAVE the prefer status when all selections/settings done. (The other settings should be operated step by step as DMX setting reference as the guidance above)

c). Back Panel of PD8 Series



Work Modes/Setting Guidance

LCD Display Operation

DMX Address	1	DMX Address	2	DMX Address	2
Show Mode	ILD	Show Mode	ILD	Show Mode	ILD
Program	program 1	Program	program 1	Program	program 1
SD file	No SD	SD file	No SD	SD file	No SD
SIZE	100	SIZE	100	SIZE	100
Phase Invert	X+ Y+	Phase Invert	X+ Y+	Phase Invert	X+ Y+
Scan Speed	28	Scan Speed	28	Scan Speed	28
DMX Setting	Show Mode	DMX Setting	Show Mode	DMX Setting	Show Mode
Slave Mode	Slave	Slave Mode	Slave	Slave Mode	Slave
X Phase	Positive	X Phase	Positive	X Phase	Positive
Y Phase	Phase	Y Phase	Phase	Y Phase	Phase
Laser Lock	Off	Laser Lock	Off	Laser Lock	Off
Sound sence	90	Sound sence	90	Sound sence	90
SD Sound	Off	SD Sound	Off	SD Sound	Off
Language	English	Language	English	Language	English

e.g. Default Status

Click the DMX column once and manually rotate the menu knob to change the address(1-17 for options)

Double-click the menu knob to save the preferred status.(When this step done, the background of the status will turn to red)

Note:

All the contents listed on the LCD display can be freely changed to the preferable status. The most important step is "double-click" the menu knob to SAVE the prefer status when all selections/settings done. (The other settings should be operated step by step as DMX setting reference as the guidance above)

VI. Settings Introductions

*DMX Address : Choose the proper DMX value for your prefer shows

*Show mode: Select a preferred work mode from Sound activation, Auto, PRG(SD-card displays in order), ILD(SD-card displays in order)

Sound Mode: play the built-in programs triggered by sound.

Auto Mode: play the built-in programs automatically.

Prg Mode : in Prg mode, display PRG files, the second line indicates the name of current prg file.

ILD Mode: play a single ILD file in cycle saved in the SD card (.ILD format only). Refer to 6.5 SD card file introduction for the ILD file format

*Program: Switch the preset programs from 1- 1- 3, the displaying flies in Sound and/or Auto mode

*SD File (folder): Switch the files which saved in SD card

*SIZE: Setting the projection angle of the preset programs/graphics, adjustable value 10-100 . Only react from the preset programs/graphics, none reaction under ILDA signal control.

*Phasic setting: Switch the projection directions of the preset programs/graphics.

Only react from the preset programs/graphics, none reaction under ILDA signal control.

*Scan Speed Adjust: Adjust scan speed. Only react from the preset programs/graphics, none reaction under ILDA signal control.

*DMX STATE: Set up the DMX mode before DMX signal input

Show mode upon the preferred setting

Black out (none reaction under ILDA signal control)

*SLAVE MODE:

Slave: (slave projectors), connected via DMX to a main projector (master projector) project the same patterns like the master projector.

Master: (master projector), output signal from master projector during playback, there can be only one master device in one signal line, otherwise the signal will be messed up.

*X Phasic/X Invert: Inverting the X axis directions(Positive or Revers). Workable to both preset programs and ILDA signal playback.

*Y Phasic/Y Invert: Inverting the Y axis directions(Positive or Revers). Workable to both preset programs and ILDA signal playback.

*Laser Lock: Manually operation via the LCD display. "On" protection started, SHUT laser down once laser single point presented ; "Off" indicates protection for the laser single point invalid. Workable to both preset programs and ILDA mode.

*Sound Intensity: Intensity adjustable from 0 to 100

*SD Sound: During SD-card playback, sound only react to preset/exported programs. PRG(SD playback in order) & ILD(SD playback loop),sound react on/off.

*COLOR: Preset accordingly to the laser system' s color configuration when released from manufacturer.

*Language selection: Optional from English and Chinese.

English

中文

VII . Display mode introduction

*Audio Mode(Sound mode): Preset programs triggered by sound, any proper sound will enable laser to output.

*Auto Mode: The preset programs automatically display in Auto mode.

*Prg Mode(SD playback in order): The preset/exported programs playback in sequence. Redact of the playlist please refer to *6.5 SD introduction*.

*ILD Mode(SD loop playback): Loop playback the single ILD file (extension named .ILD).

About .ILD format, please refer to **VIII . SD card introduction**.

Note: the ILD here refers to playing the ILD file in the SD card, not the ILDA signal though software on computer.

Note 1: DMX Mode: International standard DMX512 signal. In any of the above playback modes, the device can automatically recognize and switch to DMX mode after accessing the DMX signal. The device has 17 DMX channels. See **IX . DMX Table** for details. DMX consoles vary in different manufacturers' models. Please refer to the specific DMX console instructions.

Note 2: ILDA (PC) mode: International standard ILDA signal is under computer control. In any of the above operating modes, when an ILDA signal with an interlock function is connected, the ILDA(computer) signal control has priority and the device operates in accordance to the ILDA signal.

In ILDA mode, a control hardware will be required, the recommended one should be **FB3 controller** from Pangolin, yet we can also provide this part with fair cost when purchase laser systems from here at Optlaser.

The ILDA software has different operating methods form different manufacturers.

Please refer to the specific ILDA software instructions, to our experience the most commonly and widely being used is QuickShow from *Pangolin.com*.



Quickshow Interface

VIII . SD Card File Introduction

*The system accepts only FAT32 file, formatting the new SD card to FAT32 type is required before use it.

*Short file / File folder names , the file names is limited to 8 digits and the expanded name is limited to 3 digits, the names could only contain English letters, Arabic numbers, and underline, the others could not be recognized.

*Equipped an exclusive SD card for the device and don't save the other files inside; the quantity for the file folders is limited to 20, and each file folder is limited to contain 256 ILD files and 10 PRG files by maximum.

*PRG playlist: user could edit the playlist by text editor, the expanded name of the playlist is .PRG format.

The playlist is constituted by file name, play speed, and play times, "i" is the identification code stand for iShow, and comma "," is used to separate it.

Edit only one program each line; for example, if a program prg1.prg contains 3 files:

file1.ild,

file2.ild,

and file3.ild; play speed for file1.ild is 12K and repeated 3 times; play speed for file2.ild is 20k and play once, the file 2 was produced by iShow; play speed for file3.ild is 18K and repeated 4 times; and the contents of the prg1.prg is as below:

File1.ild,12,3

File2.ild,20,1,i

File3.ild,18,4

*After creating a file folder, do create a PRG file under this file folder by the same file name, and edit all the playing files into this PRG file, the speed edited here is the play speed in ILDA mode. For Example, create the file folder "Lasershow", and create the file "Lasershow.prg" under this folder; after adding a new ILDA file, we need to add this ILDA file to this PRG playlist, so that we could find this file correctly in the ILDA mode and play it by required speed.

IX. DMX Table

CH1	Mode selection	0-49	Auto		
		50-99	Sound		
		100-149	Play PRG files in sequence		
		150-199	Play ILD file circularly		
		200-255	Manual		
CH2	Graphics/Files Folder selection	0-255	Manual	PRG & ILD mode	
			Graphics selection	File Folder selection	
			every 3 value each graphic		
CH3	Strobe	0-10	None		
		11-199	Auto, from slow to fast		
		200-255	Sound control		
CH4	Colors selection	0-5	Off		
		6-16	White	6-10	ILD file color
				11-16	white
		17-33	Red		
		34-50	Green		
		51-67	Blue		
		68-84	Yellow		
		85-101	Purple		
		102-118	Cyan		
		119-135	White, Red, Green, and Blue in segmenting		
		136-152	Blue, Yellow, Purple, and Cyan in segmenting		
		153-169	White, red, green, blue, yellow, purple, and cyan in segmenting		
		170-186	White, red, green, blue in flowing		
		187-203	Blue, yellow, purple, and cyan in flowing		
		204-220	White, red, green, blue, yellow, purple, and cyan in flowing		
		221-237	In segmenting according to the breaking point of the graphics		
238-255	Change colors by sound				
CH5	Display Mode	0-63	Normal		
		64-127	Light dots		
		128-191	By segment		
		192-255	Dots		
CH6	X axis Movements	0-125	Manual Operation		
		126-185	Auto. left and right circularly		
		186-225	Auto jumping left and right circularly		
		226-245	Auto irregular jumping		
		246-255	Irregular jumping by sound control		
CH7	Y axis Movements	0-125	Manual		
		126-185	Auto. Up & Down circularly		
		186-225	Auto Up & Down jumping circularly		
		226-245	Auto irregular jumping		
		246-255	Irregular Jumping by sound control		

CH8	Zooming	0-10	None
		11-87	Manual zooming
		88-150	Zoom+
		151-200	Zoom-
		201-255	Circular
CH9	X axis rotation	0	None
		1-128	Manual
		129-255	Auto
CH10	Y axis rotation	0	None
		1-128	Manual
		129-255	Auto
CH11	Centre rotation	0	None
		1-128	Manual
		129-192	Auto rotation clockwise
		193-255	Auto rotation anti-clockwise
CH12	Drawing	0-10	None
		10-74	Manual adjusting
		75-104	Auto (increasing)
		105-144	Auto (decreasing)
		145-184	Auto circularly
		185-224	Loop circularly (increasing)
		225-255	Loop circularly (decreasing)
CH13	X axis Wave	0-9	None
		10-69	Low amplitude
		70-129	Medium amplitude
		130-189	Large amplitude
		190-255	Maximum amplitude
CH14	Y axis Wave	0-9	None
		10-69	Low amplitude
		70-129	Medium amplitude
		130-189	Large amplitude
		190-255	Maximum amplitude
CH15	Red modulation/Dimming	0-255	From the brightest to off
CH16	Green modulation/Dimming	0-255	From the brightest to off
CH17	Blue modulation/Dimming	0-255	From the brightest to off

X. White Balance Adjustment

To achieve the preferable white balance by adjusting the brightness of each color(red, green, and blue)through adjustments on the sotiware you use or DMX console.

6.7. Remote Control Connector (Interlock)

The device will get started working after the CAT5(RJ45 jack) is inserted to the interface. It is available to extend the wires on the CAT5 to the console for remote shutdown in any emergent situation.

XI. Safety Lock

The safety lock is designed to avoid starting the device by unqualified personnel. Only with the key inserted then the laser device will be able to start on.

Maintenance Instruction

The device is mostly installed in the location that there is dust, haze, and smoke, which are easily pollute the lens and decrease the output brightness; these particles also easily pollute the light case, fans, PCBA, block the heat dissipation, and reduce the stability of the electronic components; so the regular cleaning is very necessary and important to keep the maximum light output and increase the stability and lifetime. It is recommended to clean the window lens, outside case, and fans every 2 weeks, and clean the internal of the stage light every 4 weeks; the cleaning frequency should be higher in the severe working condition.

Note:

Only qualified & authorized personnel are allowed to clean the internal parts, improper operations for the internal cleaning could cause serious damage to the device. It is forbidden to use the corrosive chemicals to clean the device, the pure alcohol and acetone is recommended to clean the lens. Clean the lens carefully and gently, don't touch the lens by any hard and sharp materials.

After sales service and warranty

- * One year's warranty for the device.
- * The components and accessories costs are charged after the warranty period.
- *Warranty voids for the damages or injuries caused by force majeure, like, earthquake, typhoon, and so on.
- *Warranty voids for the damages or injuries caused by improper operation and projection, such as wrong input voltage, water immerse, physical shock, and so on

XII. Technical Parameters

PD3 Specifications

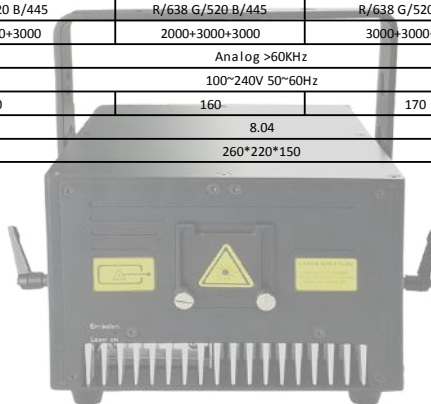
Models	PD3000A-RGB	PD3000-RGB	PD4000A-RGB	PD4000-RGB
Beam Size@Aperture	2.5*5mm	2.5*6mm	2.5*5mm	2.5*6mm
Divergence (full angle)	1.3mrad	1.1mrad	1.3mrad	1.1mrad
Controls	Mainboard (Auto+Sound+SD+DMX) +LDA, FB4(on request)			
Scanning System	DT40 40Kpps@8° ±30°MAX			
Wavelength (nm)	R/638 G/520 B/445	R/638 G/520 B/445	R/638 G/520 B/445	R/638 G/520 B/445
Laser Power (mW)	650+850+1500	650+900+1500	1200+900+1800	1300+900+1900
Modulation	Analog >60KHz			
Power Supply	100~240V 50~60Hz			
Consumption (W)	90	90	95	95
N.W. (Kg)	4.26			
Dimension (mm)	156*224*125			

PD5000-RGB	PD5500-RGB	PD6000-RGB
3.5*6mm	3.5*6mm	3.5*6mm
1.1mrad	1.1mrad	1.1mrad
Mainboard (Auto+Sound+SD+DMX) +LDA, FB4(on request)		
DT40 40Kpps@8° ±30°MAX		
R/638 G/520 B/445	R/638 G/520 B/465	R/638 G/520 B/445
1500+1000+2500	1800+1000+2800	1800+1100+3100
Analog >60KHz		
100~240V 50~60Hz		
100	105	110
4.26		
156*224*125		



PD6 Specifications

Models	PD7000-RGB	PD8000-RGB	PD9000-RGB	PD10W-RGB
Beam Size@Aperture	2.5*6.5mm	3.5*6.5mm	4*6.5mm	4*6.5mm
Divergence (full angle)	1.1mrad	1.1mrad	1.1mrad	1.1mrad
Controls	Mainboard (Auto+Sound+SD+DMX) +LDA, FB4(on request)			
Scanning System	DT40 40Kpps@8° ±30°MAX			
Wavelength (nm)	R/638 G/520 B/445	R/638 G/520 B/445	R/638 G/520 B/465	R/638 G/520 B/445
Laser Power (mW)	2000+2000+3000	2000+3000+3000	3000+3000+2600	3000+3000+4000
Modulation	Analog >60KHz			
Power Supply	100~240V 50~60Hz			
Consumption (W)	160	160	170	180
N.W. (Kg)	8.04			
Dimension (mm)	260*220*150			



PD8 Specifications

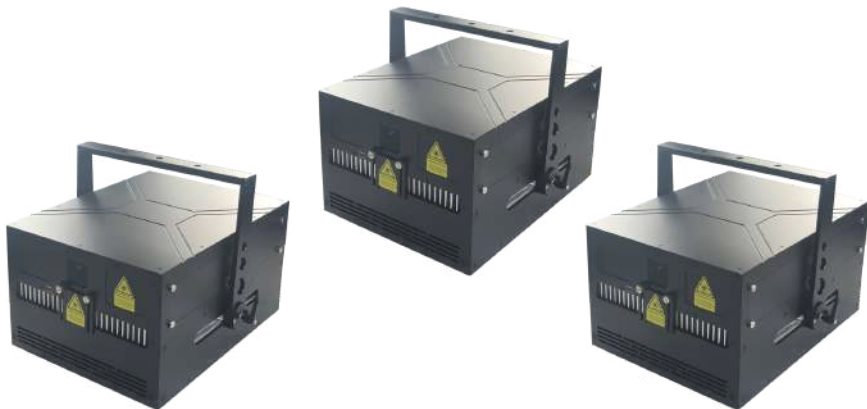
Models	PD12W-RGB	PD14W-RGB	PD15W-RGB
Beam Size@Aperture	4.5*6.5mm	4.5*6.5mm	4.5*6.5mm
Divergence (full angle)	1.1mrad	1.1mrad	1.1mrad
Controls	Mainboard (Auto+Sound+SD+DMX) +LDA , FB4(on request)		
Scanning System	DT40 40Kpps @8° ±30°MAX		
Wavelength (nm)	R/638 G/520 B/445	R/638 G/520 B/465	R/638 G/520 B/445
Laser Power (mW)	4000+4000+4000	4000+4000+5000	4000+4000+7000
Modulation	Analog >60KHz		
Power Supply	100~240V 50~60Hz		
Consumption (W)	270	280	290
N.W. (Kg)	11.62		
Dimension (mm)	320*250*160		



PD20 Specifications

Models	PD20W-RGB	PD25W-RGB	PD26W-RGB
Beam Size@Aperture	6*6.5mm	7*6.5mm	8*6.5mm
Divergence (full angle)	1mrad	1mrad	1mrad
Controls	ILDA / (FB4 on request)		
Scanning System	DT50W, 42Kpps@8°±40°MAX	DT50 40Kpps@8°±30°MAX	DT50B 35Kpps@8°±30°MAX
Wavelength (nm)	R/638 G/520 B/445	R/638 G/520 B/445	R/638 G/520 B/465
Laser Power (mW)	5600+7000+8000	7000+8000+10000	9000+8000+7500
Modulation	Analog >60KHz		
Power Supply	100~240V 50~60Hz		
Consumption (W)	400	450	470
N.W. (Kg)	25.46		
Dimension (mm)	408x351x215		

PD30W-RGB	PD33W-RGB	PD36W-RGB	PD43W-RGB
7*6.5mm	7*6.5mm	9*6.5mm	9*6.5mm
1mrad	1mrad	1mrad	1mrad
ILDA / (FB4 on request)			
DT50B 35Kpps@8°±30°MAX		DT30P 25Kpps@8°±25°MAX	
R/638 G/520 B/445	R/638 G/520 B/445	R/638 G/520 B/465	R/638 G/520 B/445
8000+10000+12000	8000+10000+15000	10000+12000+15000	10000+12000+20000
Analog >60KHz			
100~240V 50~60Hz			
500	500	550	600
25.46			
408x351x215			



PD50 Specifications

Models	PD44W-RGB	PD45W-RGB	PD50W-RGB	PD53W-G	PD67W-RGB
Beam Size@Aperture	12*6.5mm	11*6.5mm	12*6.5mm	12*6.5mm	12*6.5mm
Divergence (full angle)	0.95mrad	0.95mrad	0.95mrad	0.95mrad	0.95mrad
Controls	Mainboard (Auto+Sound+SD+DMX) +LDA, FB4(on request)				
Scanning System	DT30PB 20Kpps @8*±20*MAX				
Wavelength (nm)	R/638 G/520 B/465	R/638 G/520 B/445	R/638 G/520 B/445	R/638 G/520 B/445	R/638 G/520 B/445
Laser Power (mW)	15000+13000+15000	14000+15000+16000	15000+15000+20000	15000+18000+20000	15000+20000+32000
Modulation	Analog >60KHz			Analog >60KHz	
Power Supply	100~240V 50~60Hz			100~240V 50~60Hz	
Consumption (W)	600	650	700	700	800
N.W. (Kg)	36.86			36.86	
Dimension (mm)	560 x 314 x 237			560 x 314 x 237	

Models	PD55W-RGB	PD65W-RGB	PD72W-RGB	PD80W-G
Beam Size@Aperture	9*13mm	9*13mm	10*13mm	10*13mm
Divergence (full angle)	0.9mrad	0.9mrad	0.9mrad	0.9mrad
Controls	Mainboard (Auto+Sound+SD+DMX) +LDA, FB4(on request) .			
Scanning System	DT30PB 20Kpps @8*±20*MAX			
Wavelength (nm)	R/638 G/520 B/465	R/638 G/520 B/445	R/638 G/520 B/445	R/638 G/520 B/445
Laser Power (mW)	20000+20000+15000	20000+20000+24000	24000+24000+24000	24000+32000+24000
Modulation	Analog >60KHz			
Power Supply	100~240V 50~60Hz			
Consumption (W)	750	800	820	850
N.W. (Kg)	36.86			
Dimension (mm)	560 x 314 x 237			



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