



南京晨锐腾晶激光科技有限公司

NANJING CRD LASER TECHNOLOGY CO., LTD

CR30C Laser Operator's Manual



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Laser Safety

Dangerous Warning:

 Danger: Imminent hazards which, if not avoided, will result in death or serious injury.

 Warning: Potential hazards which, if not avoided, could result in death or serious injury.

 Caution: Potential hazards or unsafe practices which, if not avoided, may result in minor or moderate injury.

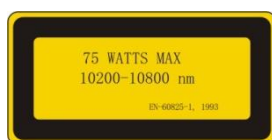
 Caution: Potential hazards or unsafe practices which, if not avoided, may result in product damage.

Possible injury:

CR30C CO₂ Lasers emit invisible infrared laser radiation at the 10.6 μm CO₂ wavelength. Since direct or diffuse laser radiation can inflict severe corneal and skin injuries, always wear eye protection when in the same area as an exposed laser beam.

CR30C Label Icon

①



②



③



④



⑤



◆ 75 WATTS MAX, Wavelength 10200-10800nm.



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-
- ◆ Class 4 laser product, Invisible laser radiation, Avoid eye or skin exposure to direct or scattered radiation
 - ◆ Laser Radiation Warning.
 - ◆ Laser label. Model: CR30C; Serial Number: 309001; Production date: January 4th, 2009
 - ◆ Anti-action label removed, damage cannot be maintained.

Safety Regulations:

Use CR Series RF CO₂ laser equipment should be consistent with The People's Republic of China National Standard GB10320 and GB7247.1.



Getting Started

Inspection the packaging:

1. Inspect all shipping containers for signs of damage, severe deformation and damp.
2. Inspect the integrity of the sealing tape.
3. Inspect the position of Laser in the box is correct after the unpacking (loose in the package of plastic bubble).

Packing List:

- ◆ Laser
- ◆ Manual
- ◆ Test Report
- ◆ Delivery note

Optional configuration:

- ◆ Direct Current power.



Operation

Fan connection and installation requirements:

- ◆ Shell on the chassis shall be fitted with exhaust devices (exhaust fan can be installed in the chassis in whole or in the middle of both sides of the chassis) and the chassis are required to have vents, Chassis to ensure the air can be recycled, heat can be promptly discharged from the chassis to ensure a good thermal performance lasers.
- ◆ Laser front and back covers are laser's mirror stand, cannot hard contact with any part of the machine frame, or the laser may be damaged. Could use soft materials contact with the front cover to seal the light path and protect the laser window lens.
- ◆ The installation of a fixed laser floor thickness shall be not less than 8MM, in order to prevent equipment working on the laser optical vibration impact.

Choice and connection of Power:

- ◆ DC switching power chose by customer will be matched to the requirements CR30C lasers, Voltage is 48V, current should be not less than 12.5A.
- ◆ The diameter of connecting wire between DC power supplier and laser tube should be larger than 2.5mm^2 . The connection cannot be reversed between the power and laser; otherwise it will damage RF Driver IV

Control signals connections:

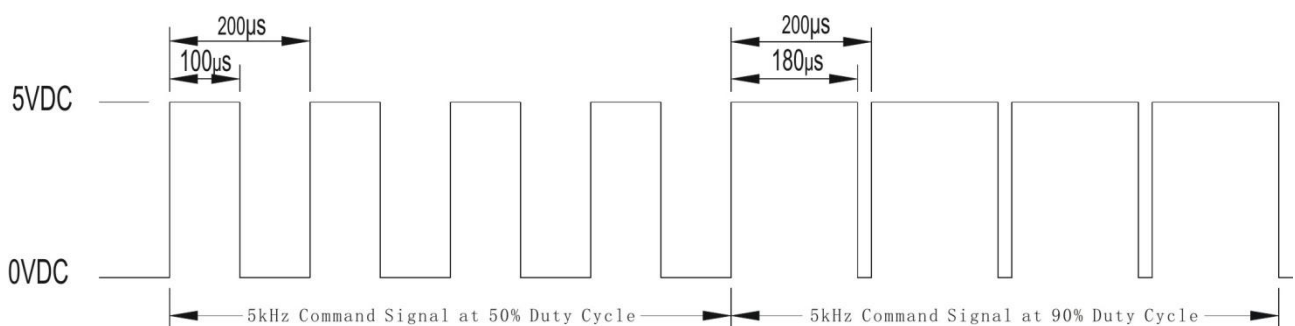


- ◆ The external control signals of CR30C Laser are accessed through the back panel BNC connector of the laser.

Pulse width modulation (PWM):

CR30C Laser is controlled laser power by Pulse width modulation (PWM). The low voltage range should be 0 to 0.5V (laser off), the high voltage, ranges should be +3.5V to +5V (laser on). Pulse width modulation or PWM, controls laser power by varying the duty cycle which is supplied by the external controller. The modulation frequency is 0-20KHZ. The duty cycle is 0-100%.

As following: Waveform shown below is a typical 0-5V for PWM signal, duty cycle (or Pulse width) and frequency is adjustable:



The Preionization Signal:

CR30C have preionization signal, do not need to add preionization signal. If add preionization signal from the external controller, it may cause laser light leak.



The back panel Description:

The panel including (see Installation Figure 1):

- Power input terminals
- Switch
- Power indicator light(green light)
- Laser indicator light(green red)
- BNC connector(signal input)

Specific steps are as follows:

1. 48VDC power access to laser power input terminal block. +connect +,-connect-.
2. The external controller signals access to laser BNC connector through Coaxial cable. The inner core of BNC connector connects with + of PWM signal. The shell of BNC connector connects with ground of PWM signal.
3. Open the DC power, at this time the green indicator should illuminate (shown that Laser has been normally powered). PWM signal is set to a certain duty cycle by Controlling card software on the computer, at this time the red indicator should illuminate (shown that it has laser output).

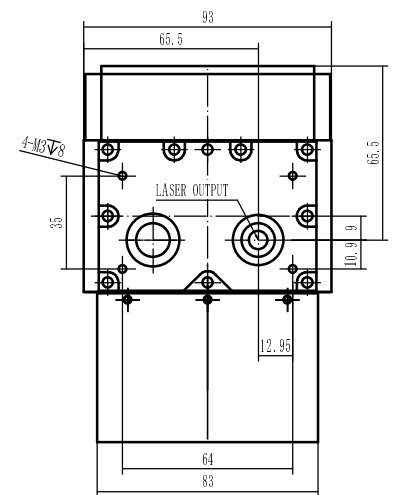
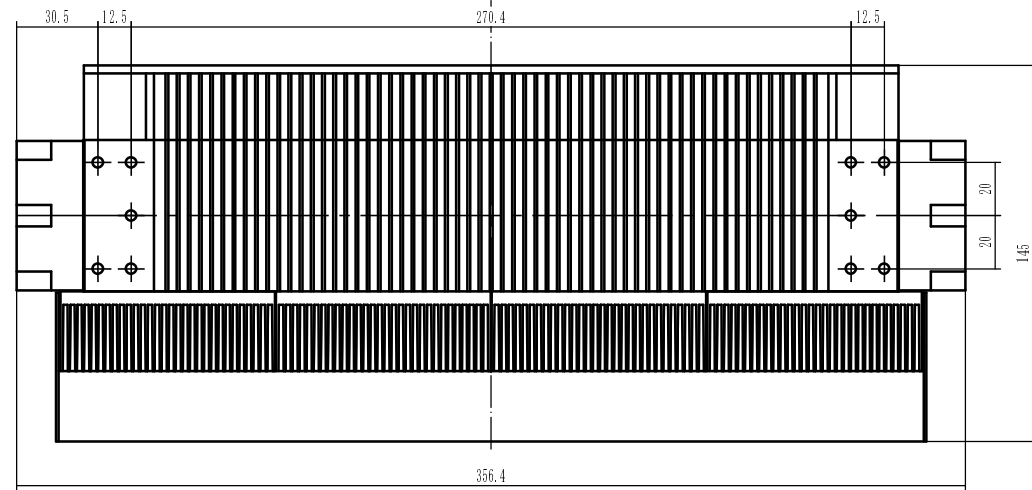


Series CR Lasers Parameters and Installation diagram

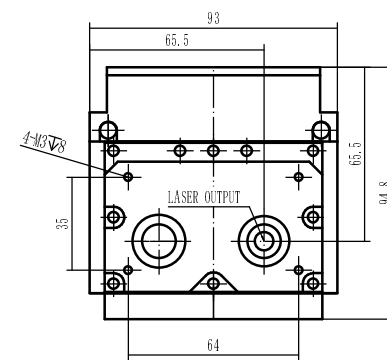
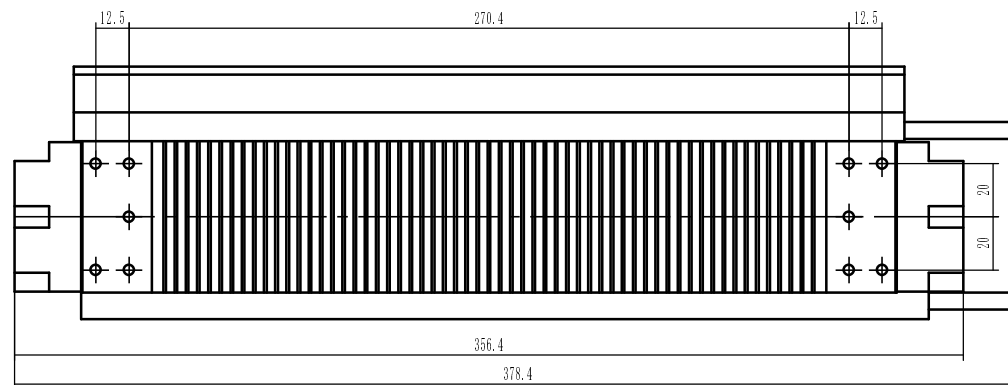
1. Series CR Lasers Parameters

Model	CR30C	CR30Ch	CR30Ci
Wavelength	10.6 μ m	10.2 μ m	9.3 μ m
Power	>40W	>40W	>30W
Power Stability	< $\pm 5\%$		
Model Quality	$M^2 < 1.2$		
Beam Waist Size	2 ± 0.2 mm		
Beam Divergence	<7mrad		
Polarization	>100: 1 Horizontal		
Modulation	0-25kHz, 0-100%		
Power Supply	48VDC/10A		
Cooling	Air cooling/water cooling 4L/M		
Heat Dissipation	500W		
Dimensions	Air cooling 357 $\times$ 93 $\times$ 145/water cooling 357 $\times$ 93 $\times$ 95		
Life	20000Hours		

2. CR30C Installation diagram



					CR30C OUTLINE	CRD		
						資料 記号	数量	単位
組立	図番	更改文番号	番号	注記	BNC	1:1		
表	注	2013.1.21				実	性	性
						CR30CWX		

[illegible]



CRD Laser after-sales service commitment

Dear customers:

Thank you for purchasing series CR lasers from Nanjing CRD Laser Technology Co., LTD, in order to relieve your worries; we will make our warranted services for you, as the following commitments:

1. Free warranty 18 months

Since you purchased this product from Nanjing CRD Laser (Subject to delivery), the product will be warranty free for 18 months.

2. Maintenance services methods

If yours the series CR laser have malfunctions, you can consult us by Web site of the Nanjing CRD Laser Company or on the telephone, and then after confirming the malfunction still cannot be eliminated, please send the laser to Nanjing CRD Laser Company by courier, Please contact with salesperson of Nanjing CRD for detailed address.

3. Disaster recovery period (5days)

When we receive your laser been repaired, we will inspect the laser as soon as possible, and repair it as the fastest speed (5days) and send to your hands by express.

We can provide temporary back-up machine according to your choice, exempting from your worries at the maximum degree.

4. Case of no belonging to free warranty obligations

Belongs to the following conditions, No matter whether the product is during the



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Belongs to the following conditions, No matter whether the product is during the period of free warranty, are not within the free warranty:

- The fault or the damage caused by without following manual request, wrongly install or use and so on.
- Maintenance by non-manufacturers, the man-made treatment of customer resulted in failure and damage.
- Warranty stickers were damaged.
- Due to majeure of natural disasters (such as earthquake, fire, etc.), that caused failure or damage.
- Other quality issues itself are not the fault or damage caused.