

ZRSUNS Laser Power Supply Service Manual

1. Dear customer:

Thank you for purchase ZRsuns power supplies, **Please read the manual before you make installation, wiring connection and operation . And keep it carefully for further operation.**

2. Open box and check

Carefully **open package** and check if **3 accessories are included** :

Control terminal 1 set, high voltage wire 1pcs operation manual 1 pcs.

3. Warning:

- Before operate power supply, be sure that the power supply's working voltage must be consistent with the local input voltage.
- **Please connect the power supply with control signals and the laser tube correctly and follow the manual's instructions in order to avoid the dangerous electric shock!**
- Do not open power supply's sell. Or it will have electric shock! **If you need repair, must let a specialized maintenance personnel to do it. When spare parts replaced, please use ZRsuns specified components or professional staff for replacement**
- **Must prevent metal objects fall into machine from power supply's cooling holes and also prevent rain and water splash. Prevent other objects' entering to block cooling fan's normal working.**
- Please do not switch the power off and on constantly and please wait about 10 seconds in between power on and power off.
- **Cooling water must be used when the laser tube is working!**
- **High voltage output terminals must not be open circuited! Positive and negative's output terminals of the high-voltage (HV+ and HV-) must be correctly connected with the positive and negative terminals of the laser tube.**
- **The power supply has discharge resistance inside. Normally when power supply is power off, the residual charge can be discharged in 10 seconds. However, for safety reasons, be careful to avoid electric shock! (Both high voltage output terminals must meet the requirement of 40kV high-voltage suspension)**
- **Three-hole socket must be used and outside shell must be connected with the ground to avoid electric shock!**

4. Main features:

the main features of the 40W laser power supply :

- **Stable performance:**
Each power supply has past multi rigorous testing process testing and full load high temperature (52~55 degrees celsius) 24 hours of aging. It ensure each power supply has stable performance.
- **Good compatibility:**
It can drive all brand of 20-40W CO2 laser tube made by many factories. It also has a strong adaptability, fast response and good engraving& cutting effect.

- Simple control:
High or low level can be selected for control. The TTL-level can be used to control laser 's start and stop. At the same time it uses protection switch to test if it has water through and ventilation externally. Laser power control is simple. It can use 0 ~ 5V analog signal or PWM (pulse width modulation) signal to control laser power.
- Protection function
Power supply has open circuit protection. Under it is a good grounding conditions, power supply can works for a short time at open circuit status,which avoid the laser tube's burst to damage laser power supply. It can enhancing the laser power supply life time.
- Special Features: (optional)
It doesn't not need to open power supply's out side shell to determine if the power supply works normally. So that it can easy find failure is on laser tube or power supply.

the main features of the 50W laser power supply :

- Stable performance:
Each power supply has past multi rigorous testing process testing and full load high temperature (52~55 degrees celsius) 24 hours of aging. It ensure each power supply has stable performance.
- Good compatibility:
It can drive all brand of 20-50W CO2 laser tube made by many factories. It also has a strong adaptability,fast response and good engraving& cutting effect.
- Simple control:
High or low level can be selected for control. The TTL-level can be used to control laser 's start and stop. At the same time it uses protection switch to test if it has water through and ventilation externally. Laser power control is simple. It can use 0 ~ 5V analog signal or PWM (pulse width modulation) signal to control laser power.
- Protection function
Power supply has open circuit protection. Under it is a good grounding conditions, power supply can works for a short time at open circuit status,which avoid the laser tube's burst to damage laser power supply. It can enhancing the laser power supply life time.
- Special Features: (Test button)
It doesn't not need to open power supply's out side shell to determine if the power supply works normally. So that it can easy find failure is on laser tube or power supply.

the main features of the 60W laser power supply :

- Stable performance:
Each power supply has past multi rigorous testing process testing and full load high temperature (52~55 degrees celsius) 24 hours of aging. It ensure each power supply has stable performance.
- Good compatibility:
It can drive all brand of 40=60W CO2 laser tube made by many factories. It also has a strong adaptability,fast response and good engraving& cutting effect.
- Simple control:
High or low level can be selected for control. The TTL-level can be used to control laser 's start and stop.

At the same time it uses protection switch to test if it has water through and ventilation externally. Laser power control is simple. It can use 0 ~ 5V analog signal or PWM (pulse width modulation) signal to control laser power.

- Protection function

Power supply has open circuit protection. Under it is a good grounding conditions, power supply can work for a short time at open circuit status, which avoid the laser tube's burst to damage laser power supply. It can enhance the laser power supply life time.

- Special Features: (optional)

It doesn't need to open power supply's outside shell to determine if the power supply works normally. So that it can easily find failure is on laser tube or power supply.

the main features of the 80W laser power supply:

- ◆ Stable performance:

Each power supply has past multi rigorous testing process testing and full load high temperature (52~55 degrees celsius) 24 hours of aging. It ensure each power supply has stable performance.

- Good compatibility:

It can drive all brand of 80W CO2 laser tube made by many factories. It also has a strong adaptability, fast response and good engraving & cutting effect.

- Simple control:

High or low level can be selected for control. The TTL-level can be used to control laser's start and stop. At the same time it uses protection switch to test if it has water through and ventilation externally. Laser power control is simple. It can use 0 ~ 5V analog signal or PWM (pulse width modulation) signal to control laser power.

- Protection function

Power supply has open circuit protection. Under it is a good grounding conditions, power supply can work for a short time at open circuit status, which avoid the laser tube's burst to damage laser power supply. It can enhance the laser power supply life time.

- Special Features: (optional)

It doesn't need to open power supply's outside shell to determine if the power supply works normally. So that it can easily find failure is on laser tube or power supply.

the main features of the 100 ~ 130W laser power supply:

* High output voltage and current . When it is input AC220V , the maximum output current up to 38mA, and voltage up to 50KV.

* Improved the laser power. It can be match with 2000mm laser tube and can make peak laser power reach 150W and the average laser power at 130W.

* Reasonable circuit design. It meets different design requirements and is best choice for high-end laser engraving machine and cutting machine. At the same time, it significantly extends CO2 laser tube's service time.

- * Stable performance:

Each power supply has past multi rigorous testing process testing and full load high temperature (52~55 degrees celsius) 24 hours of aging. It ensure each power supply has stable performance.

- Good compatibility:
It can drive all brand of 100-130W CO2 laser tube made by many factories. It also has a strong adaptability, fast response and good engraving & cutting effect.
- Simple control:
High or low level can be selected for control. The TTL-level can be used to control laser's start and stop. At the same time it uses protection switch to test if it has water through and ventilation externally. Laser power control is simple. It can use 0 ~ 5V analog signal or PWM (pulse width modulation) signal to control laser power.
- Protection function
Power supply has open circuit protection. Under it is a good grounding conditions, power supply can work for a short time at open circuit status, which avoid the laser tube's burst to damage laser power supply. It can enhance the laser power supply life time.
- Special Features: (optional)
It doesn't need to open power supply's outside shell to determine if the power supply works normally. So that it can easily find failure is on laser tube or power supply.

the main features of the 150W laser power supply:

- * High output voltage and current . When it is input AC220V , the maximum output current up to 45mA, and voltage up to 50KV.
- * Improved the laser power. It can be match with 2000mm laser tube and can make peak laser power reach 190W and the average laser power at 150W.
- * Reasonable circuit design. It meets different design requirements and is best choice for high-end laser engraving machine and cutting machine. At the same time, it significantly extends CO2 laser tube's service time.
- * Stable performance:
Each power supply has past multi rigorous testing process testing and full load high temperature (52~55 degrees celsius) 24 hours of aging. It ensure each power supply has stable performance.
- Good compatibility:
It can drive all brand of 100-130W CO2 laser tube made by many factories. It also has a strong adaptability, fast response and good engraving & cutting effect.
- Simple control:
High or low level can be selected for control. The TTL-level can be used to control laser's start and stop. At the same time it uses protection switch to test if it has water through and ventilation externally. Laser power control is simple. It can use 0 ~ 5V analog signal or PWM (pulse width modulation) signal to control laser power.
- Protection function
Power supply has open circuit protection. Under it is a good grounding conditions, power supply can work for a short time at open circuit status, which avoid the laser tube's burst to damage laser power supply. It can enhance the laser power supply life time.
- Special Features: (optional)
It doesn't need to open power supply's outside shell to determine if the power supply works normally. So that it can easily find failure is on laser tube or power supply.

5. Application Area:

Engraving and Cutting Acrylic, fabric, leather, plastic, Rubber, board, plate etc.

6. Description of every terminal :

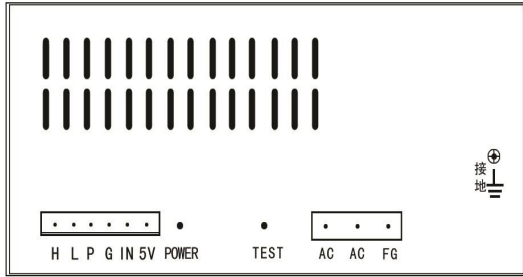


Photo 1. 50W laser power supply A

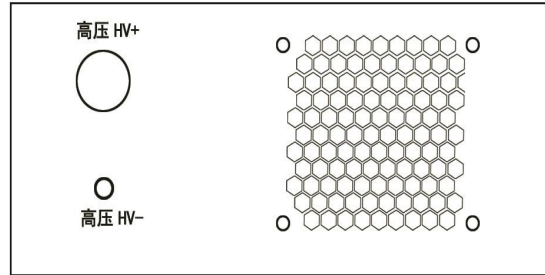


Photo 1. 50W laser power supply B

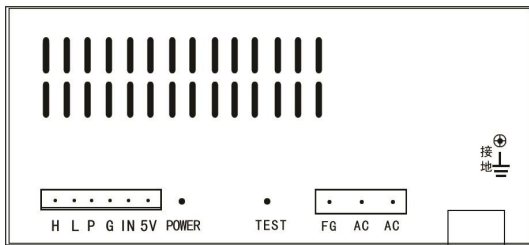


photo 2.60W laser power supply A

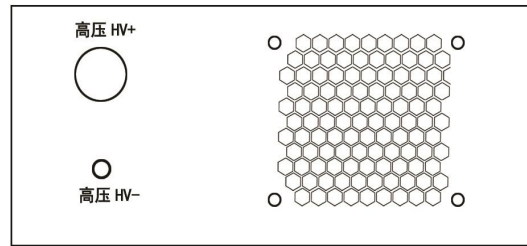


Photo 2. 60W laser power supply B

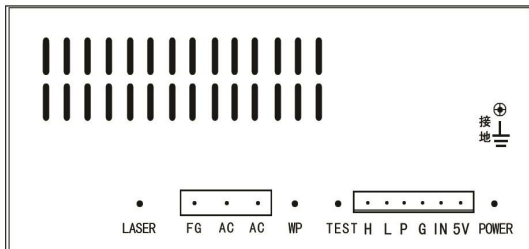


Photo 3. 80W laser power supply A

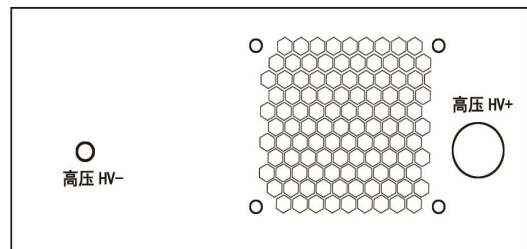


Photo 3. 80W laser power supply B

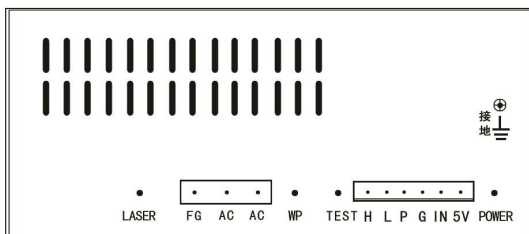


Photo 4. 100W laser power supply A

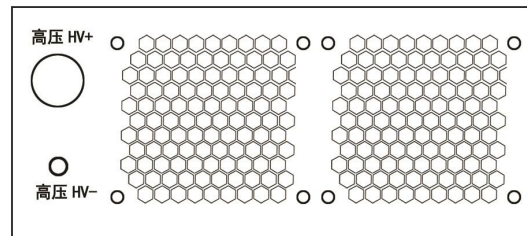


Photo 4. 100W laser power supply B

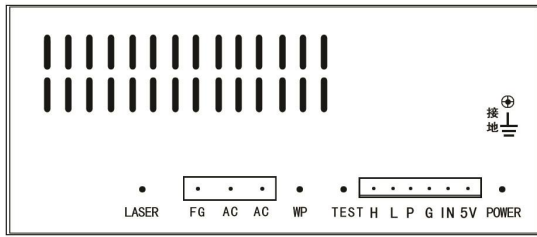


Photo 5. 130W laser power supply A

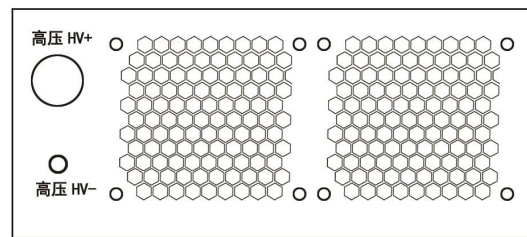


Photo 5. 130W laser power supply B

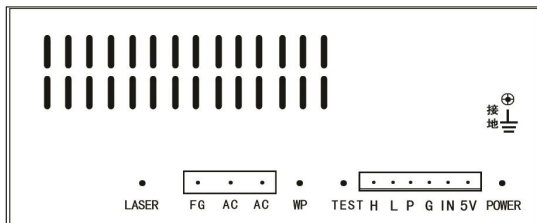


Photo 6. 150W laser power supply A

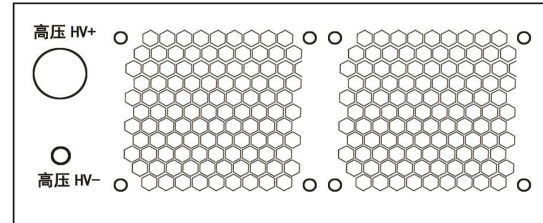


Photo 6. 150W laser power supply B

- ◆ FG: three-hole grounding terminal
- ◆ AC: AC 220V (or AC110V) input
- ◆ LASER: high voltage working indicator light
- ◆ 5V: VCC.DC 5V
- ◆ WP: Water protect indicator light
- ◆ TEST: Forced laser output detection button
- ◆ POWER: Power indicator light
- ◆ High Voltage HV +: high voltage output terminal
- ◆ High Voltage HV-: It is connected with HV+ and laser tube's two terminals to form current loop HV- is input port
- ◆ IN:control signal input
- ◆ ≡: Chassis ground
- ◆ H: High level
- ◆ L: Low level
- ◆ P: Water Protect terminals
- ◆ G: GND ground

7. the wiring connection diagram

◆ laser tube's wiring connection:

laser power supply's high-voltage(HV +) is connected with laser tube's anode(laser output side) . And its'high voltage (HV-) is connected with the laser tube's cathode(full reflect side) directly or through a DC amperemeter . (as shown in Photo 4).

◆ control signal wiring connection (as shown in Photo 4):

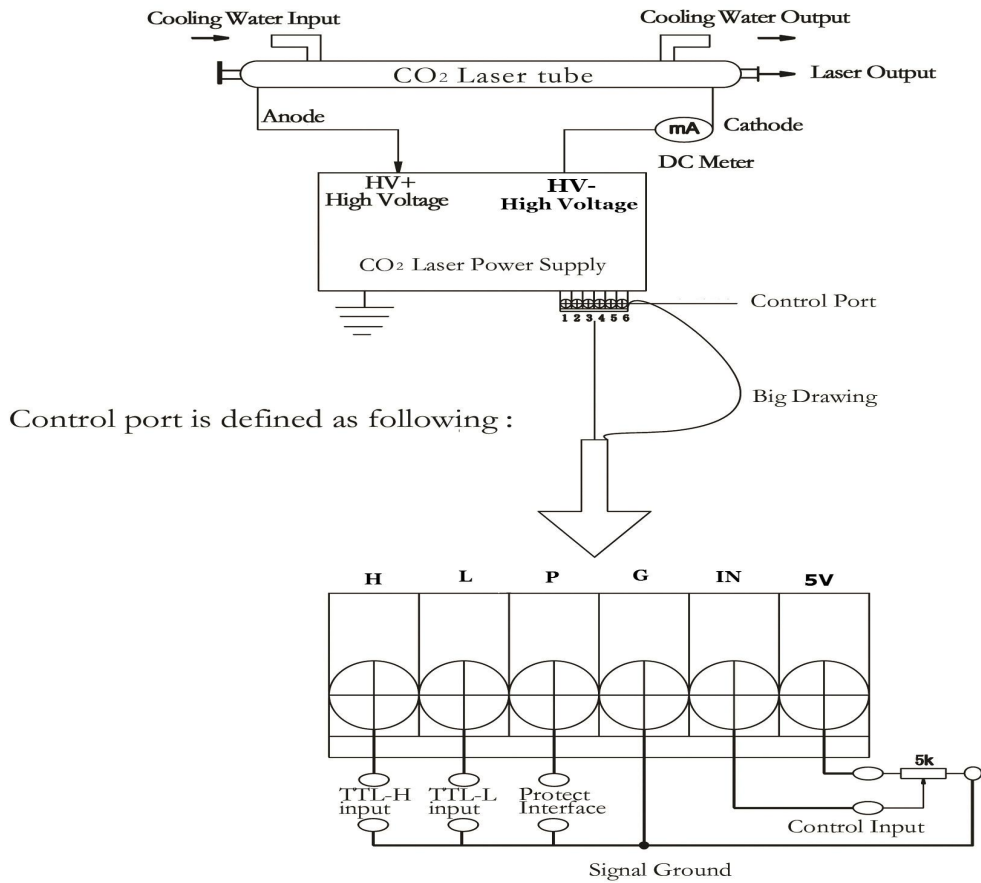
Separately connect the control signals with corresponding laser power supply's terminal firmly.

◆ Control signal input: : as shown in Photo 4:

Please input the external computer output DAC signal and TTL signal to the laser power supply as request , then it can control the laser tube's output power .

◆ Voltage Selection: AC220V±10% or AC110V (specified before order)

◆ Laser power supply and laser tube wiring connection diagram

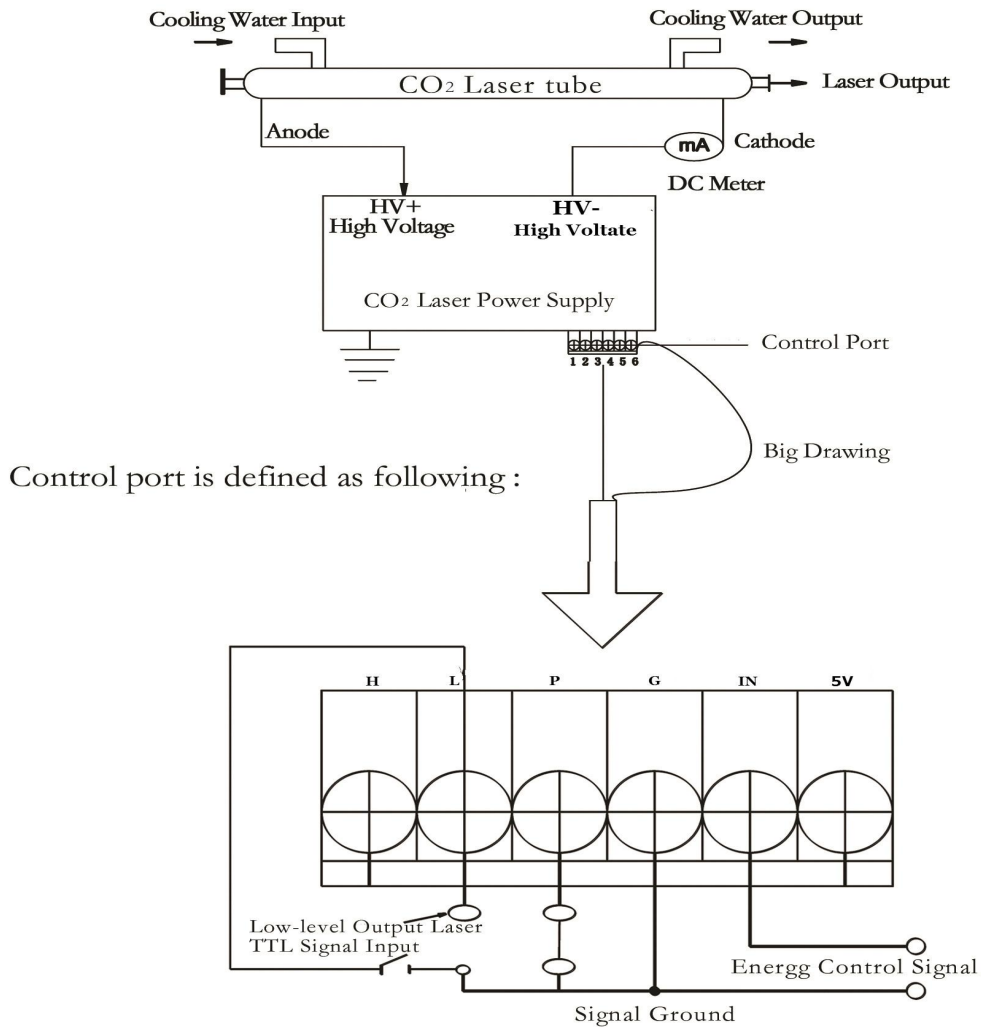


(Photo 4)

Definition and function of control port:

TTL-HIGH input	TTL-LOW input	Control input (DAC)	Laser output
Vacant	Low (<0.3V)	0-5V	Pmin-Pmax
	High (>3V)	0-5V	0
Low (<0.3V)	Vacant	0-5V	0
High (>3V)		0-5V	Pmin-Pmax
Protective port open		0-5V	0

- ◆ Laser power supply and laser tube wiring connection diagram



(Photo 5)

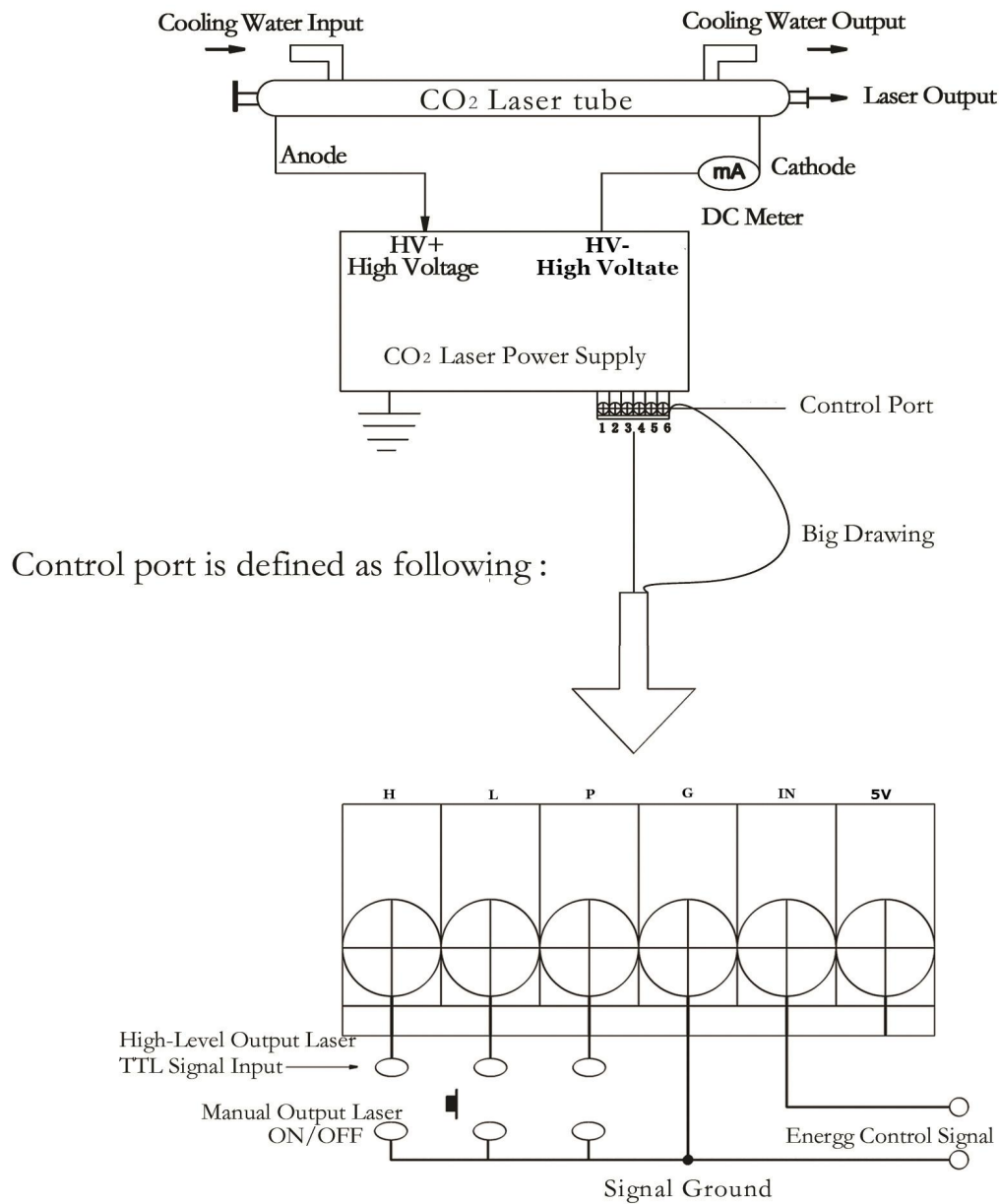
Photo 5: Low TTL signal wiring connection

Note: It has two methods for laser control signal

A: (RF laser) pulse generator: the laser intensity by the 20~50 KHZ, 5V variable duty cycle.

B :0-5V analog signals

◆ Laser power supply and laser tube's wiring connection



(Photo 6)

Photo 6: High TTL signal wiring connection