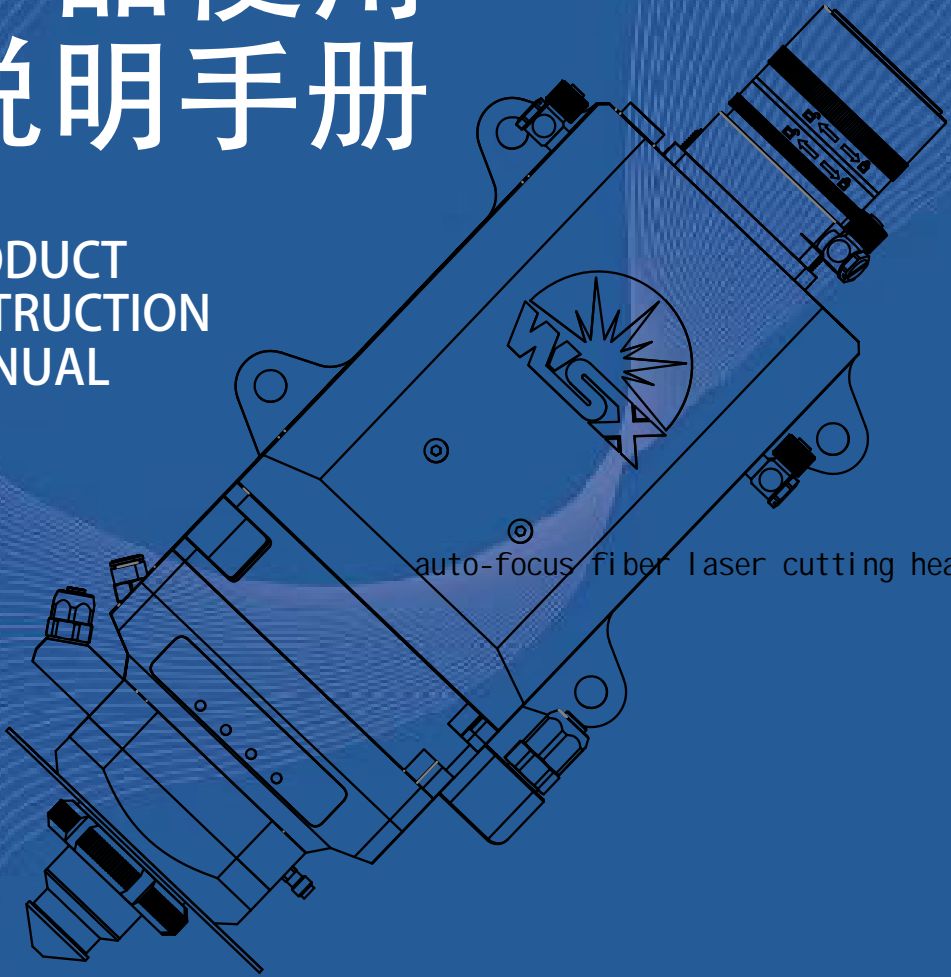


咨询热线: 400-836-8816

产品使用 说明手册

PRODUCT
INSTRUCTION
MANUAL



auto-focus fiber laser cutting head

NC210

Auto-focus Fiber Laser Cutting Head



Shenzhen Worthing Technology Co., Ltd.

www.wsxlaser.com



说明书变更履历

序号	修改时间	版本



目录

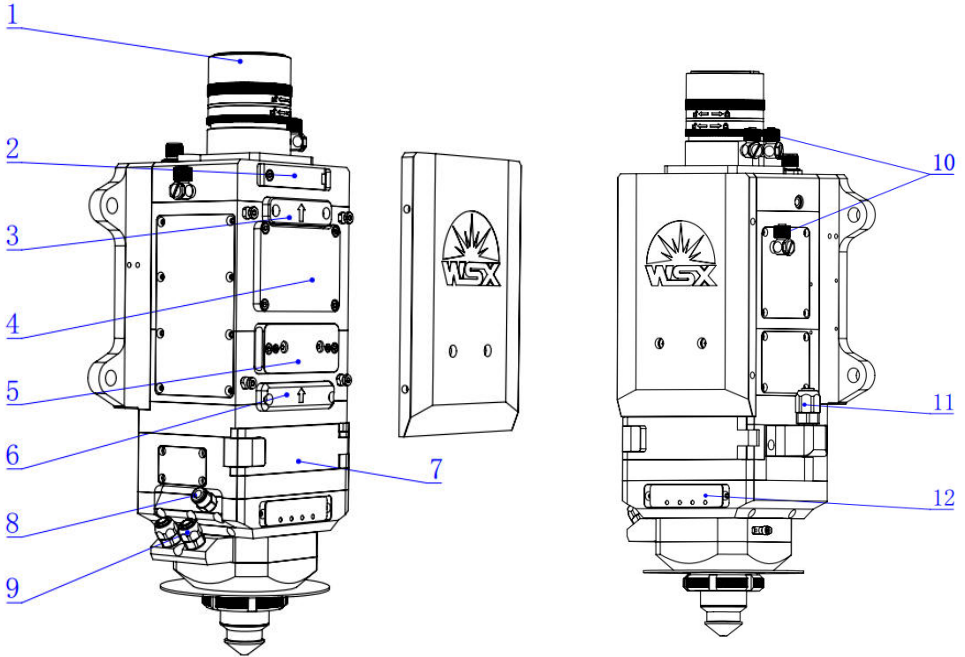
1. 产品说明	
1.1. 产品视图.....	1
1.2. 技术参数.....	2
2. 切割头安装	
2.1 准备工作.....	3
2.2 具体操作流程.....	4
2.3 洁擦拭切割头和光纤接口.....	5
2.4 检查激光器光纤端面.....	5
2.5 检撕保护膜取出保护帽.....	5
2.6 光纤接口连接Q+.....	6
2.7 LOE3.2 接口安装说明.....	7
2.8 将切割头安装在背板上.....	8
3. 切割头使用与维护	
3.1 同轴调节.....	9
3.2 陶瓷环及喷嘴更换.....	10
3.3 下保护镜更换.....	11
3.4 上保护镜更换.....	12
3.5 上二保护镜及聚焦保护镜更换.....	13
3.6 准直镜更换.....	14
3.7 聚焦镜更换.....	15
4. 切割头安装尺寸	16
5. 电气部分	
5.1 脉冲型驱动接线说明.....	17
5.2 总线型驱动接线说明.....	18
5.3 监控接线说明.....	19
5.4 电机及限位开关故障检测明.....	19
6. 柏楚系统配置说明	
6.1 柏楚系统接线说明.....	20
6.2 柏楚脉冲系统参数配置.....	21
6.3 柏楚脉冲系统报警设置.....	21
6.4 柏楚总线系统参数配置.....	22
6.5 柏楚总线系统报警设置.....	22



7. 维宏系统配置说明	
7.1 维宏系统接线说明	23
7.2 维宏系统调高板卡接线说明	24
7.3 维宏脉冲系统参数配置	25
7.4 维宏系统极性修改	26
7.5 维宏系统报警输出设置	26
7.6 维宏总线系统参数配置	27
7.7 维宏系统焦点控制选项	28
8. 绿联RS485驱动安装流程	
8.1 安装流程1	29
8.2 安装流程2	30
8.3 安装流程3	31
8.4 安装流程4	32
9. 监控使用说明	
9.1 监控软件安装流程	33
9.2 切割头状态显示灯说明	34
9.3 切割头监控界面	34
9.4 监控参数设置	35
9.5 监控参数设置	36
10. 脉冲型驱动警代码	37
11. 总线型驱动警代码	38

1.Product Description

1.1 Product Views



- | | |
|--|---------------------------|
| 1.Fiber optic connector | 2.Upper protective lens |
| 3.Upper protective lens 2 | 4.Collimation module |
| 5.Focusing center module | 6.Lower protective lens 2 |
| 7.Lower protective lens | 8.Side blowing connector |
| 9.Sensor water-cooled connector | |
| 10.Fiber optic and cutting head water-cooled connector | |
| 11.Cutting gas connector | 12.Indicator module |

Note: To avoid damage during storage and transport:

1. The cutting head should be stored in the proper temperature and humidity;
2. Avoid vibration and shock;
3. Do not put the cutting head in or near magnetic fields (such as permanent magnets or strong alternating fields).

1.2 Technical Parameters

Model: NC210

Max working power: 20kw

Laser wavelength: $1070 \pm 30\text{nm}$

Fiber types: QBH, QD, LOE 3.0, LOE 3.2, QD-F, etc.

Collimation focal length: 100mm

Focusing focal length: 200mm

Focusing adjustment range: $\pm 40\text{mm}$

Centering adjustment range: $\pm 1.5\text{mm}$

Cutting gas connector: 12, $\leq 2.5\text{Mpa}$

Cooling gas connector: 6, $\leq 0.6\text{Mpa}$

Cooling water connector: 8, Max pressure 0.5Mpa

Working temperature: 3 ~ $+55^\circ\text{C}$

Storage temperature: -20 ~ $+55^\circ\text{C}$

Weight: 10.3kg (Q+ connector)



2. Cutting Head Installation

2.1 Preparation

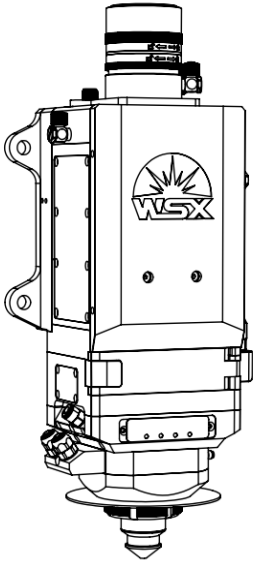
To prevent dust or dirt from entering the cutting head, refer to the following way to install the cutting head:

Preparation:

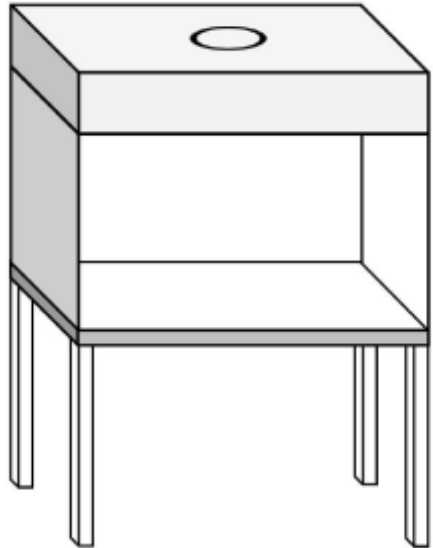
A. Cutting head;

B. Clean bench (clean bench type: vertical purification; clean class: ISO 5, 100; average wind speed: $\geq 0.4\text{m/s}$);

C. Cleaning kit: strong flashlight, anhydrous ethanol (or IPA), dust-free cleaning swab, dust-free cloth, compressed air dusting can



Cutting head



Clean bench

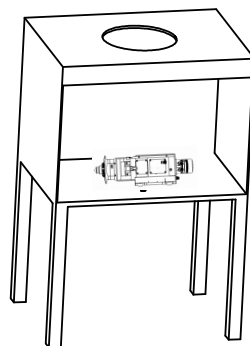
2.2 Specific Operating Procedures

A. Check the cleanliness of the equipment (dust particle counter to check the cleanliness) and make sure the FFU purification unit is within the validity period (measure the average wind speed in the working area, when the wind speed cannot reach 0.3m/s, the FFU purification unit must be replaced);

B. Checking that the switches are operating properly and that the fans are operating properly;

C. It is strictly forbidden to place unnecessary items in the clean bench to ensure that the clean air flow is not disturbed;

D. For the newly installed or long-term unused clean bench, please use a clean cloth with anhydrous ethanol to wipe clean before use.



Power on and use:

A. Turn on the power and pull the clean bench glass sliding door to the bottom position (leaving a gap of about 10 cm);

B. Turn on the fan, it is recommended to purify and clean about 30 minutes in advance;

C. After normal operation, turn on the clean bench lighting power.

Note:

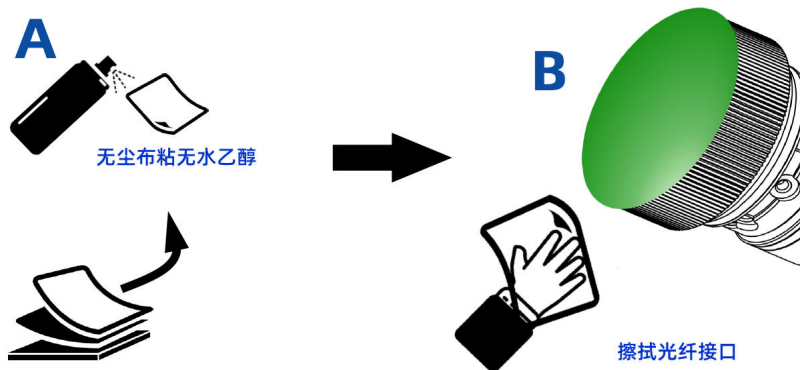
Only trained professionals are allowed to operate it.

Operators who do not follow safe work practices may pose a risk to personnel or finances.

To ensure the proper operation of the laser unit in the working environment and the safety of the operator, the relevant operating instructions must be followed and implemented.

2.3 Clean the Fiber Optic Connector

Clean the fiber optic connector with a dust free cloth and anhydrous ethanol.

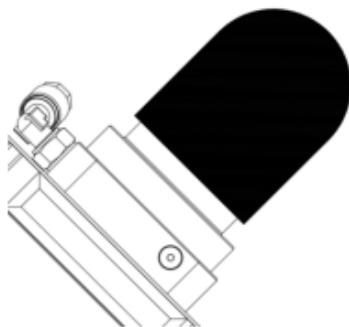


2.4 Checking the Laser Fiber Endface

Remove the laser fiber protection cap, use a strong flashlight to irradiate the fiber endface whether it is polluted. If it is clean, insert it directly; if not clean, user needs to use a cotton swab sticky anhydrous ethanol or IPA cleaning.

2.5 Remove the Protection Cap

Remove the protection cap from the fiber connector.



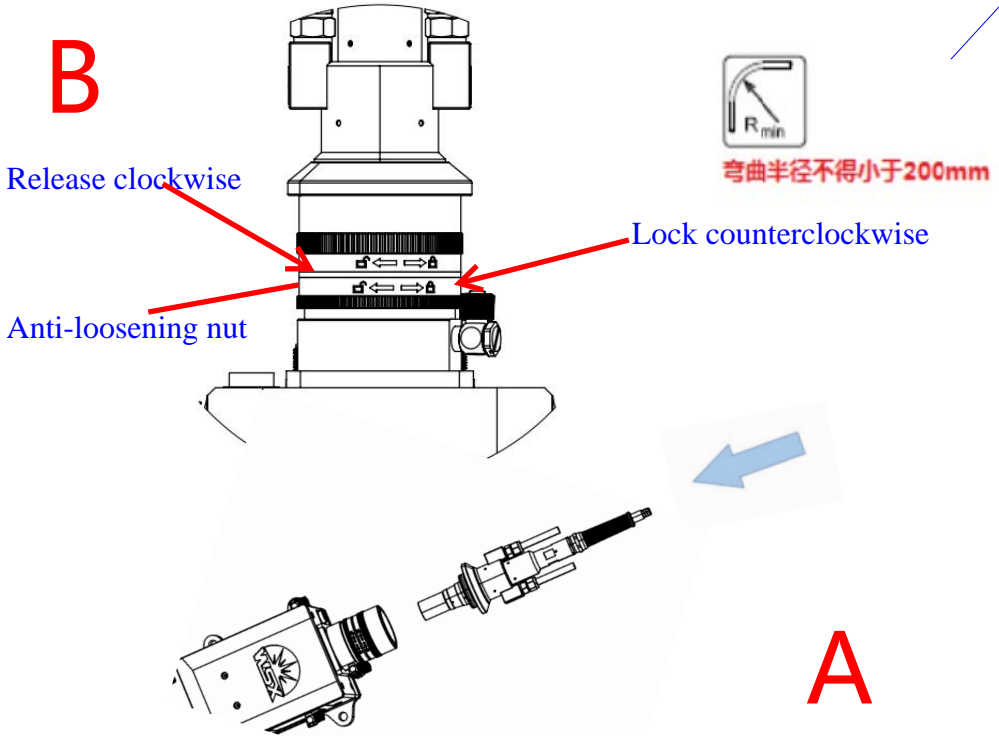
2.6 Fiber Connection (Q+)

Note: ▶Fiber insertion and removal should be on a clean work bench;

▶Before inserting the optical fiber, it is necessary to check whether the fiber end face and QD interface are polluted;

▶Insert horizontally;

▶After inserting the fiber, wrap white tape around the gap between the fiber and the cutting head interface.



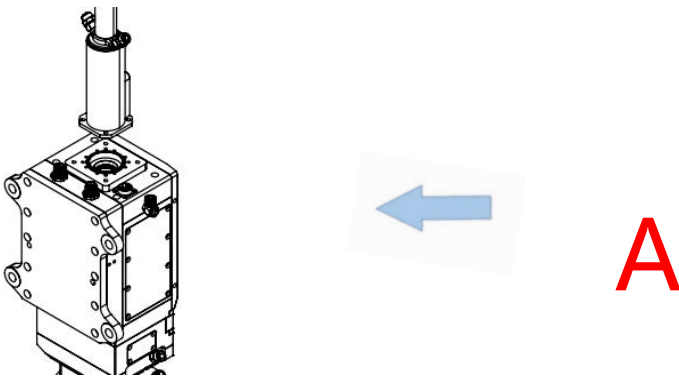
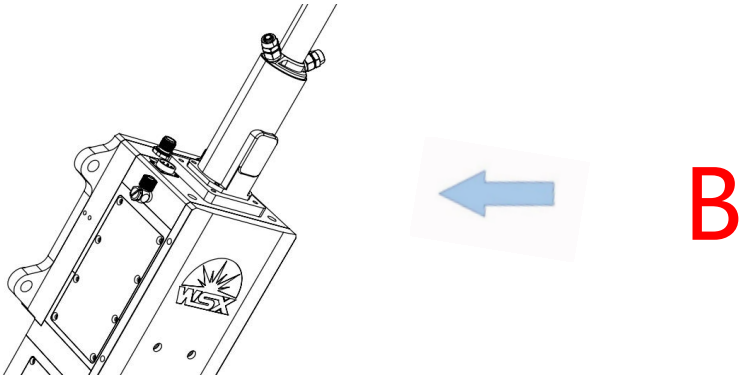
- 1.Remove the protective film/cover from the fiber optic socket.
- 2.Insert the fiber optic plug (aligned) into the unlocked fiber optic socket (sealing cap in the lowest position), noting that the pin of the fiber optic rod must be aligned with the Q+ fiber optic connector slot.
- 3.Turn the locking ring of the Q+ fiber optic connector counterclockwise to lock the fiber optic rod.
- 4.Tighten the anti-loosening nut counterclockwise to prevent the fiber optic rod from loosening.
- 5.Wrap 3-4 layers of threaded adhesive around the fiber and connector to strengthen the seal.

2.7 LOE3.2 Fiber Connection

Note: ▶Fiber insertion and removal should be on a clean work bench;

▶Before inserting the optical fiber, check whether the fiber end face and LOE interface is polluted.

▶Insert horizontally.



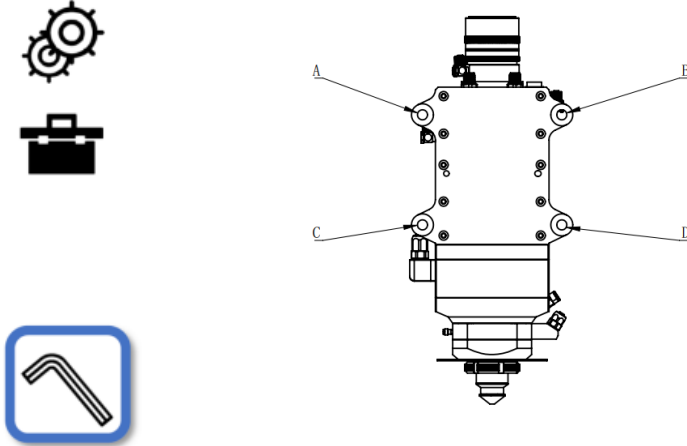
- 1.Remove the protective film/cover from the fiber optic socket.
- 2.Install the fiber optic plug on the fiber optic socket (see picture B for details).

Note: Before installation, the slot of the fiber optic plug must be aligned with the locating pin of the socket (see Picture A for details)

3. Secure it with screws with spring washers for locking (see Picture B for details).

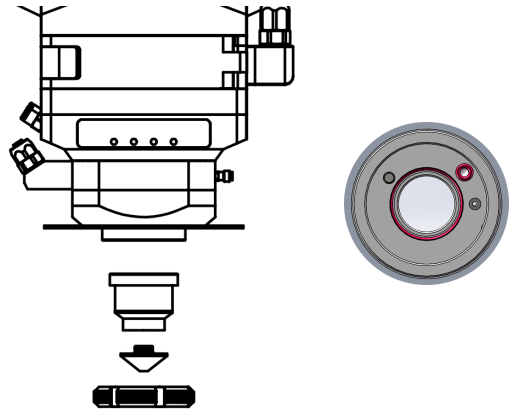
2.8.Mounting the Cutting Head on the Back Plate

Mount the cutting head to the Z-axis backplate of the machine with the four screws A, B, C and D. When securing the cutting head to the machine, make sure that the cutting head is locked in place without wobbling.



3.2.Install the Ceramic Ring and Nozzle

Install the ceramic ring and lock it in place, then install the nozzle.

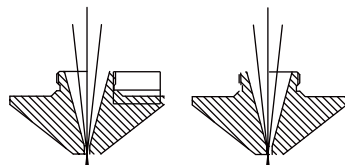
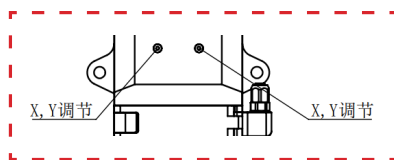
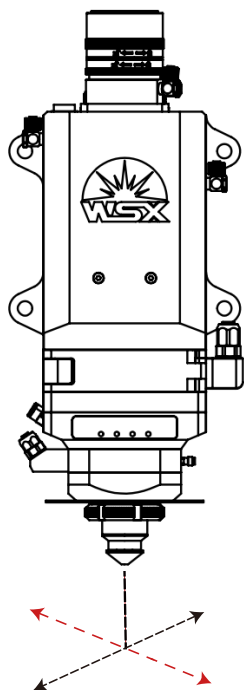


Tighten the nozzle on the ceramic ring by hand and use a wrench to tighten the ceramic locking ring.

3. Use and Maintenance of the Cutting Head

3.1 Coaxial Adjustment

1. Adjust the X/Y screw by allen wrench and make the beam pass through the center of nozzle;
2. The cutting effect is perfect when the beam pass through the center of nozzle;
3. If the beam does not pass through the center of nozzle, it may cause the beam could not be emitted out or bad cutting effect and so on.



beam pass
through the
center (correct)

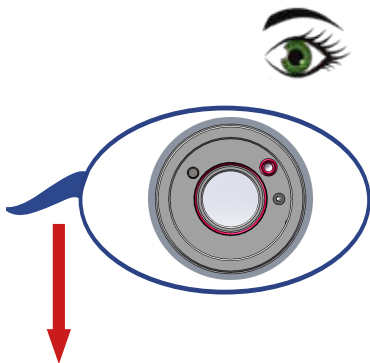
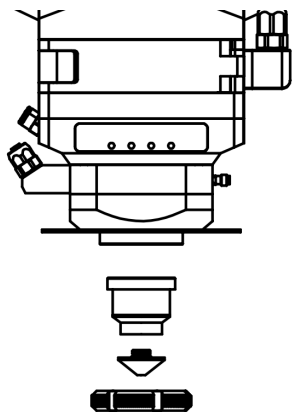


beam does not
pass through the
center (incorrect)

Methods of testing whether the beam pass through the center of nozzle :

1. Paste the transparent tape on the outlet of the nozzle (prefer to a new or undeformed nozzle);
2. Set the power of laser machine to 50W (take 500W for example, adjust the short burst power for 10%);
3. Take off the transparent tape after the beam has been emitted for 1 – 2 seconds;
4. Face the tape to light source and observe the round mark of nozzle on the tape and burning spot of laser passing through the tape.
5. If they are concentric, the testing result is good, but if not, please keep adjusting.

3.2 Ceramic Ring and Nozzle Replacement



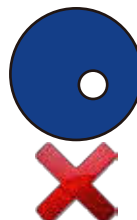
电源



冷却气体

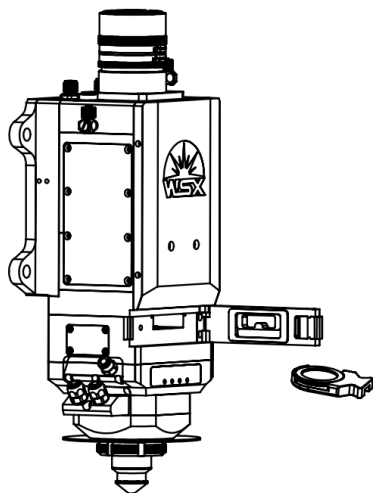


切割气体



center checking

3.3 Lower Protective Lens Replacement



Disassembling method: press the snap of the dust cover, the dust cover pops out and then take out the drawer



电源

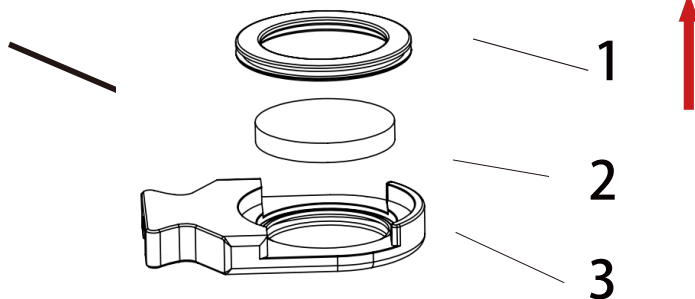


冷却气体



切割气体

Pay attention to dust prevention: wear dustproof gloves and finger cots when removing and installing lenses, which needs to be done in a clean place. (When replacing lenses in the field operation, you can seal the window with tape to prevent dust from entering the interior and causing contamination.)



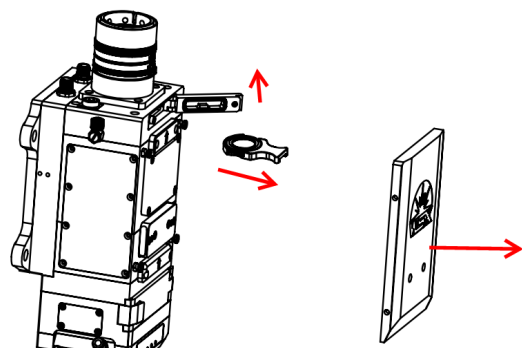
1、Gland 2、 Protective Lens 3、 Lens Holder



Disassembly: Extract the gland upwards in the direction of the arrow. Do not use wrenches, pliers or other tools, as they may damage the parts.

3.4 Upper Protective Lens Replacement

注意掉落



电源



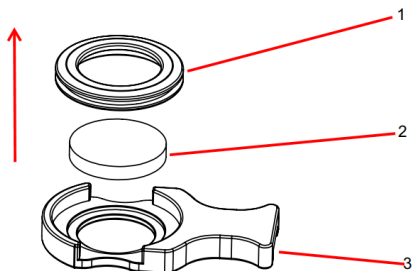
冷却气体



切割气体

Disassembly: Remove the cover, pull out the drawer horizontally and remove the gland

Pay attention to dust prevention: wear dustproof gloves and finger cots when removing and installing lenses, which needs to be done in a clean place. (When replacing lenses in the field operation, you can seal the window with tape to prevent dust from entering the interior and causing contamination.)

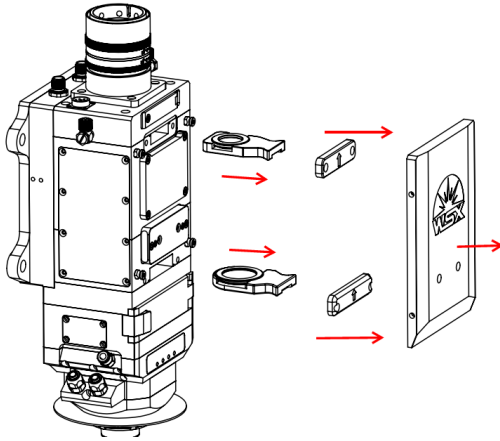


1、Gland 2、 Protective Lens 3、 Lens Holder



Disassembly: Extract the gland upwards in the direction of the arrow. Do not use wrenches, pliers or other tools, as they may damage the parts.

3.5 Upper Protective Lens 2 & Focus Protective Lens Replacement



电源

Requires operation on a clean bench



冷却气体

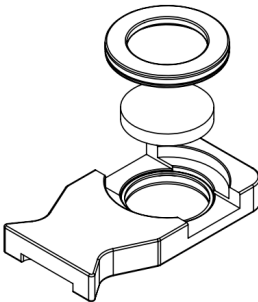


切割气体

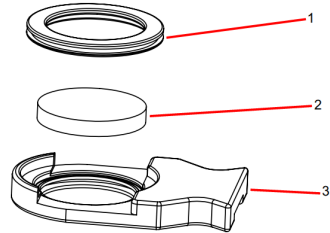
Disassembly: Remove the cover, then loosen the anti-release screws on the dust cover and pull out the drawer protection mirror horizontally.



注意掉落



上二保护镜



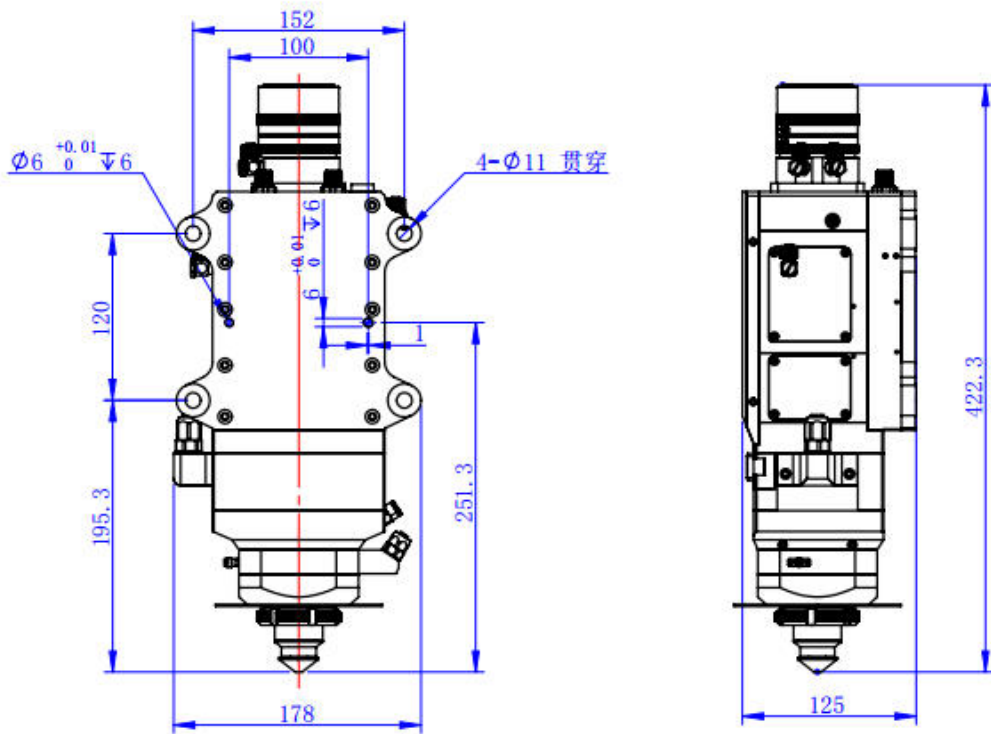
下二保护镜（聚焦保护镜）

1、Gland 2、 Protective Lens 3、 Lens Holder



Disassembly: Extract the gland upwards in the direction of the arrow. Do not use wrenches, pliers or other tools, as they may damage the parts.

4. Mounting Dimensions



5. Electricity

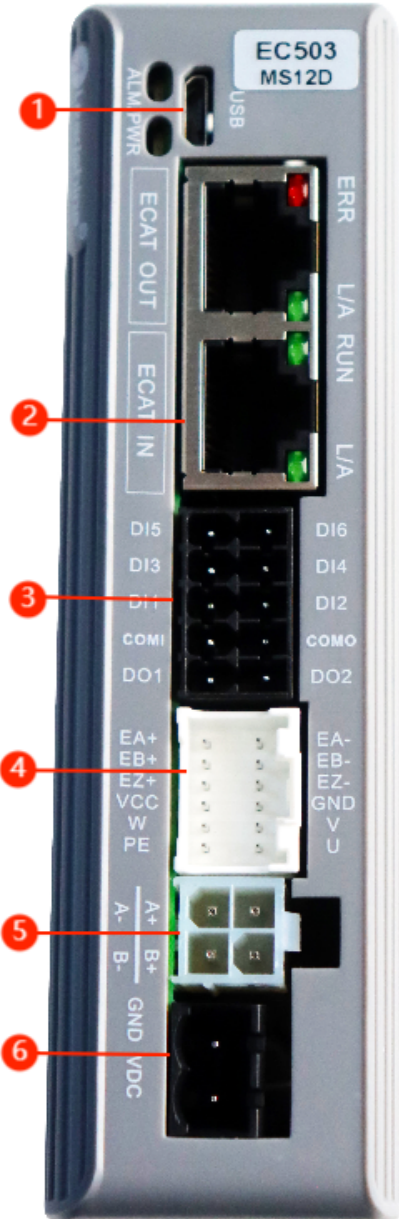
5.1 Pulse Driver Wiring Instructions



No.	Item	Description	Note
1	Subdivision	SW2、SW5:ON	Others: OFF
2	Voltage selection	5V	
3	Pulse control port	PUL+/PUL-, DIR+/DIR- ALM/COM	The rest: reserved
4	Encoder port	EB+/EB-, EA+/EA-、 VCC/EGND	Wiring with wire markers
5	Power line port	A+/A-, B+/B-	Wiring with wire markers
6	Input power port	Vdc to 24V、GND to 0V	Input power DC24V

Note:The driver iron housing must be connected to ground terminal PE.

5.2 Bus Drive Wiring Instructions



No.	Item	Description
1	Debugging Interface and Alarm Indicator	Connecting a computer to debug the drive
2	Ethere CAT Communication Port	Connecting a host or previous slave device
3	Pulse IO Port	IO control signal input and output (Wired according to actual use)
4	Encoder Port	Communication port with motor encoder
5	Motor Phase Sequence Port	A+, A-, B+, B- to the motor
6	Power Port	1. Input power supply is DC24V (VDC connects to 24V, GND connects to 0V.)

Note:

1. The input power supply for this driver is a DC24V (direct current) power supply.
2. The driver is for bus use only.
3. The driver's iron enclosure must be connected to the PE end of the ground wire.

5.3 Monitor Wiring Instructions

Marks	Description	Note
24V	DC power supply (DC24V) positive terminal	
0V	DC power supply (DC24V) negative terminal	
PE	Ground terminal	
PE Ground	Ground terminal	
GND-S	DC power supply (DC24V) negative terminal	
Alarm Output	Alarm signal	24V output in alarm
Alarm Input	Detected signal	

5.4 Motor and Limit Switch Fault Detection Instructions

Motor Measurement Process:

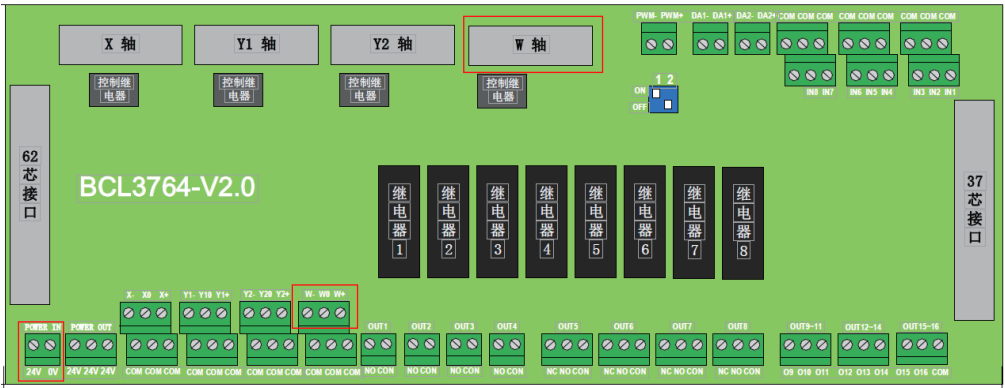
1. Instrument: multimeter.
2. The multimeter should be adjusted to the resistance 200 Ω or beep on and off gear.
3. Measurement of motor U, V, W is recommended to take in the cutting head of the aviation plug.
4. Motor A + / A -, B + / B -, each two-phase resistance of about 2.2 Ω , on and off gear beeping sound for the motor is normal. If the resistance is 0 Ω , or infinity is abnormal for the motor.
5. Motor A + / A -, B + / B - any one phase are not with PE or shell conduction, if there is an abnormal motor.

Limit switch measurement process.

1. Instrument: multimeter.
2. No special needs, limit switch is NPN type limit switch.
3. It is recommended that the focus in the 0 position for detection.
4. Connect 24V and 0V to DC24V power supply, W+ and W- are not connected.
5. Use the multimeter pen to measure 24V, and the black pen to measure W+ or W-. The output voltage is 24V when the focus is in the 0 position, and the output voltage is 0V when the focus is in the positive limit position or negative limit position.

6.Cypcut System Configuration

6.1 Wiring instructions for the Cypcut system



Note:

1. Pulse control line is connected to the W-axis port of the control card.
2. 24V, 0V, W+, W- Connect to the corresponding port of the control card.

6.2 Parameters of Cypcut Pulse System

焦点控制

启用焦点控制

第四轴电机 Precitec HighYAG Procutter-Zoom BCL4516E/BCL4508E [无]

焦点调节最大范围: 从 mm 到 mm

复位后焦点位置: mm

脉冲当量: 每运动 mm 对应 个脉冲

回原点精定位速度: mm/s 回原点方向: 正向 反向

回原点精定位速度: mm/s 回原点采样信号: [限位]

回原点后退距离: mm

点动速度: mm/s

定位速度: mm/s

加速度: mm/s²

伺服报警逻辑:

负限位逻辑:

正限位逻辑:

Note: Platform setup based on parameters

6.3 Alarm Settings for Cypcut Pulse System

报警配置

急停按钮: 常开 常闭

检修开关: 常开 常闭

检修模式最大速度: 毫米/秒

检修模式最大功率: W

龙门同步允许的最大偏差: 毫米

双驱轴位置偏差过大报警

允许偏差: 毫米

持续时间: 毫秒

最大偏差: 毫米

强制使用所有报警需要手动清除

调高器报警需确认后才能允许轴运动

机床运动时在标题栏显示警告信息:

机床运行时, 严禁将手和身体的任何部位伸进机床!

自定义输入报警:

单输入口报警 单输入口警告 4位编码报警

报警描述	端口号	电平检测	滤波时间
初割头报警	<input type="text" value="0"/>	<input type="radio"/> 常开 <input checked="" type="radio"/> 常闭	<input type="text" value="0"/>

不允许加工

不允许出光

不允许跟随

不允许回原点

不允许运动

不允许点动

不允许Z点动

选择报警项

Operation Procedure: Click Alarm>Single Input Port Alarm>Add>Enter Alarm Description>Select Corresponding Port>Select High/Low Level>Save

6.4 Parameterization of the Cypcut Bus System

6.5 Alarm Settings for the Cypcut System

Operation Procedure: Click Alarm>Single Input Port Alarm>Add>Enter Alarm Description>Select Corresponding Port>Select High/Low Level>Save

7. Weihong System Configuration

7.1 Wiring instructions for Weihong systems

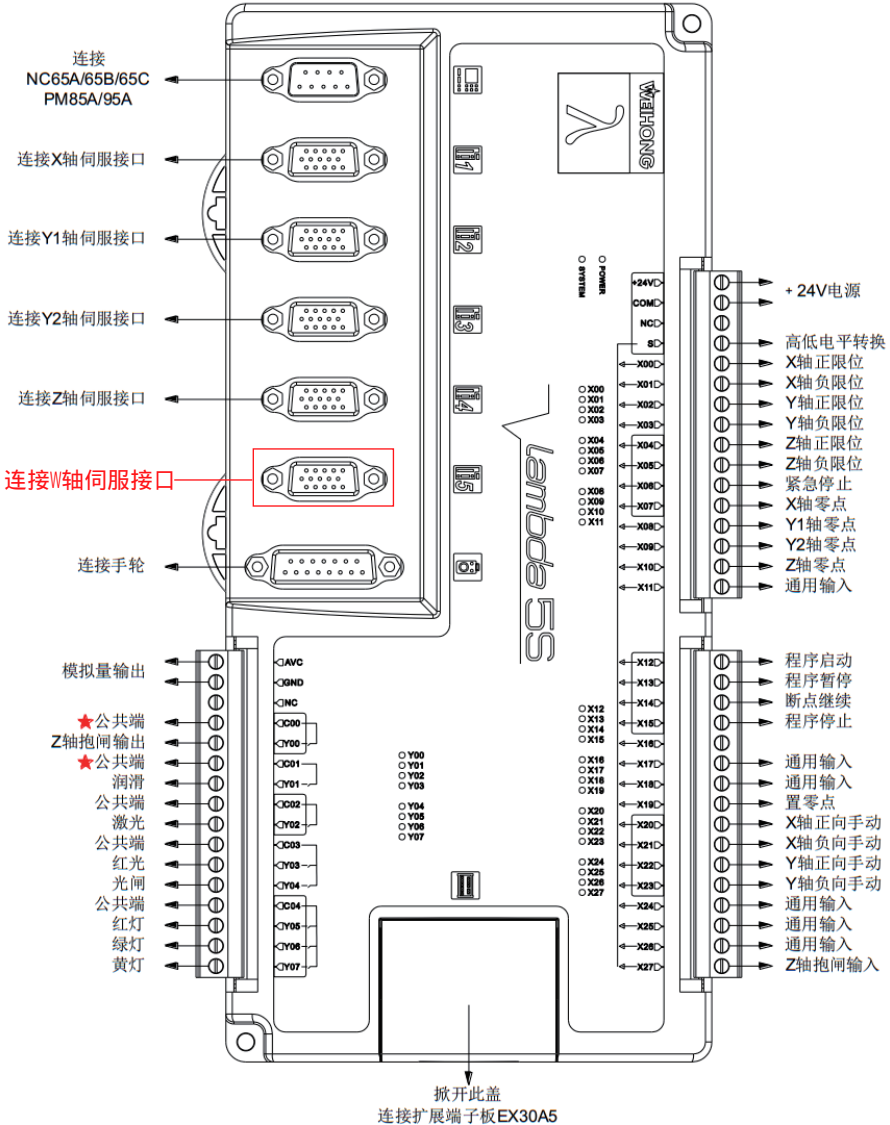


图 4-1 激光切割系统（双 Y）中朗达控制器接线示意图

7.2 Wiring Instructions for Weihong System Height Control Board

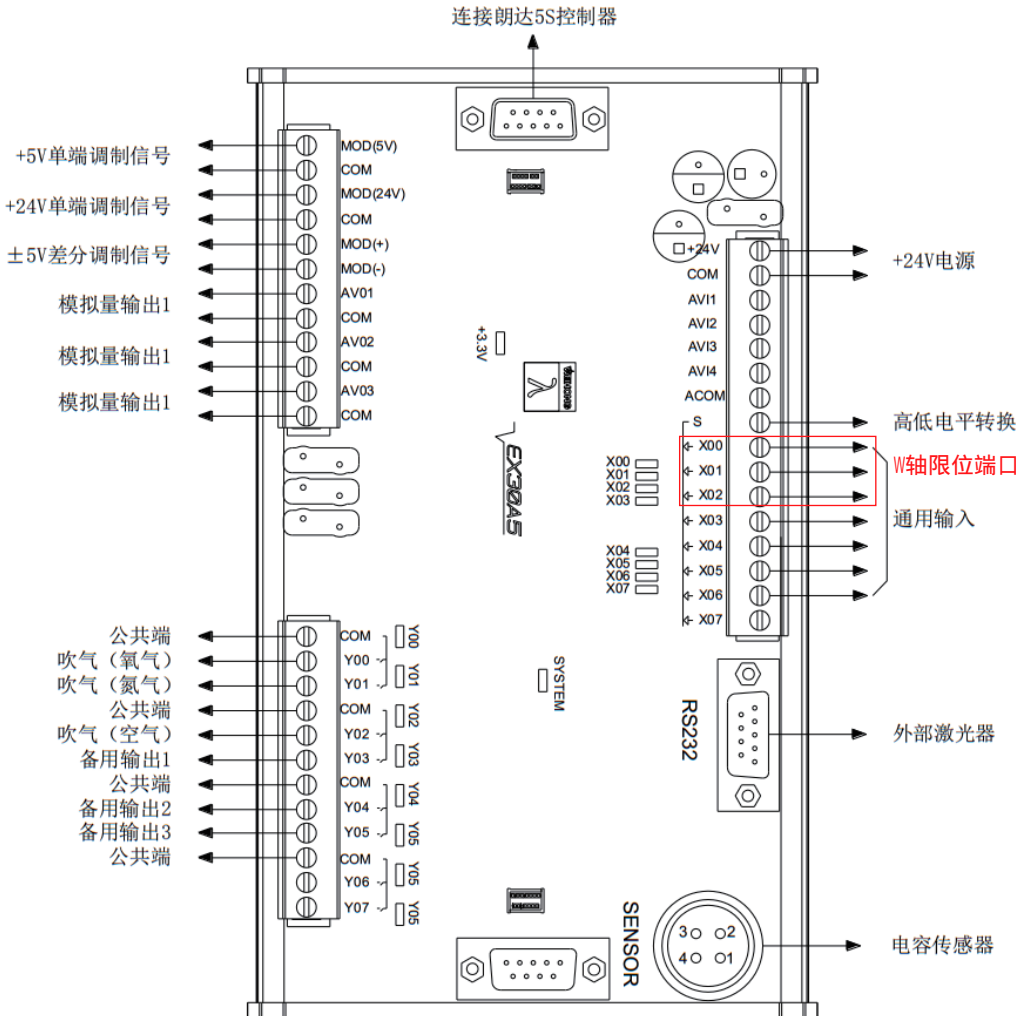


图 4-2 激光切割系统中扩展端子板 EX30A5 接线示意图

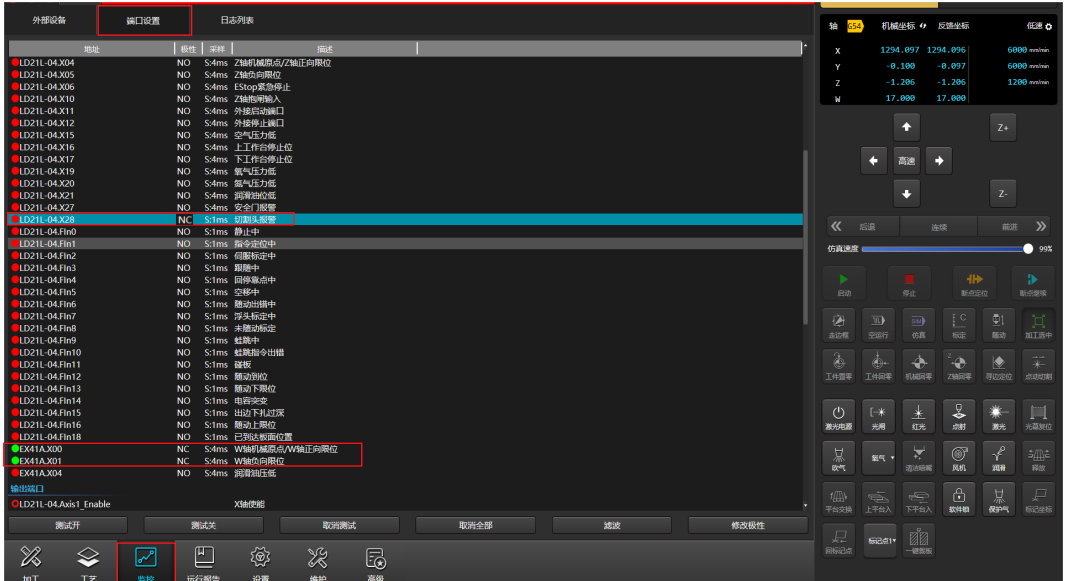
Note: 24V, 0V, connect to DC24V power port, W+ connect to X00, W- connect to X01 port.

7.3 Weihong Pulse System Parameter Configuration

常用参数	系统参数	驱动器设置	随动控制	激光器设置	机床维护定期提醒
参数总览 ▶ 机床基本参数 ▶ 速度及精度控制 ▶ 外部设备控制 ▶ 高级功能参数	名称 软限位下限值(Z) 启用软限位保护(Z) 轴最大速度(Z) 1.0.3 W轴参数 编码器方向(W) 轴方向(W) 脉冲当量(W) 每圈指令脉冲数(W) 每圈反馈脉冲数(W) 软限位上限值(W) 软限位下限值(W) 启用软限位保护(W) 轴最大速度(W)	值 -1000 是 30000 1 1 0.00105 10000 10000 50 -50 是 3000	单位 mm mm/min mm/min mm mm mm mm mm/min	生效时间 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效	
	1.1.0 通用参数 加工前回机械原点 软限位容差 1.1.1 X轴原点设置 使用Z相信号(X) 粗定位阶段方向(X) 粗定位阶段速度(X) 精定位阶段速度(X) 回退距离(X) 回退速度(X) 粗精定位信号最小距离(X) 1.1.2 Y轴原点设置 使用Z相信号(Y)	否 0.1 是 -1 6000 600 2 200 0.2	mm mm mm/min mm/min mm mm/min mm	立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效	
制造商	参数名称: 脉冲当量(W) 值: 0.00105mm/p 描述: W轴上每个控制脉冲中产生的位移或角度。				

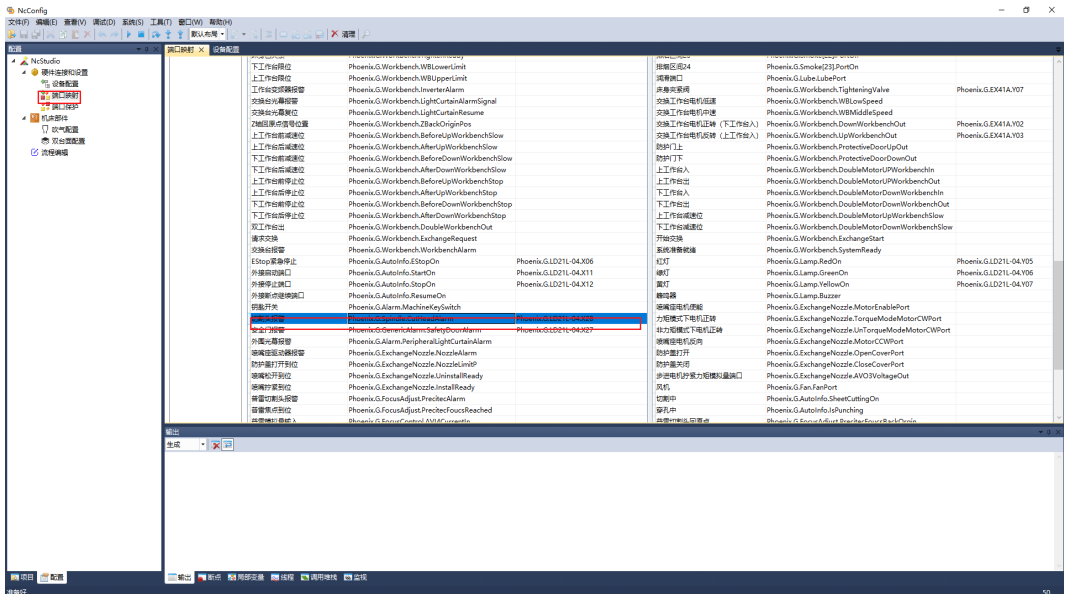
常用参数	系统参数	驱动器设置	随动控制	激光器设置	机床维护定期提醒
参数总览 ▶ 机床基本参数 ▶ 速度及精度控制 ▶ 外部设备控制 ▶ 高级功能参数	名称 粗精定位信号最小距离(X) 1.1.2 Y轴原点设置 使用Z相信号(Y) 粗定位阶段方向(Y) 粗定位阶段速度(Y) 精定位阶段速度(Y) 回退距离(Y) 回退速度(Y) 粗精定位信号最小距离(Y) 1.1.3 Z轴原点设置 粗定位阶段方向(Z) 粗定位阶段速度(Z) 回退距离(Z) 回退速度(Z) 1.1.4 W轴原点设置 使用Z相信号(W) 粗定位阶段方向(W) 粗定位阶段速度(W) 精定位阶段速度(W) 回退距离(W) 回退速度(W) 粗精定位信号最小距离(W)	0.2 是 -1 6000 600 2 200 0.2 1 1800 2 200 否 1 600 60 46 50 0.5	mm mm/min mm/min mm/min mm mm/min mm mm/min mm/min mm/min mm mm/min mm/min mm mm/min mm	立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效 立即生效	

7.4 Weihong System Polarity Modification (same settings as bus system)



Operation Procedure: Click Monitor > Port Settings > Check whether the polarity is the same or not.

7.5 Alarm Output Settings for Weihong Systems (same settings as for bus systems)

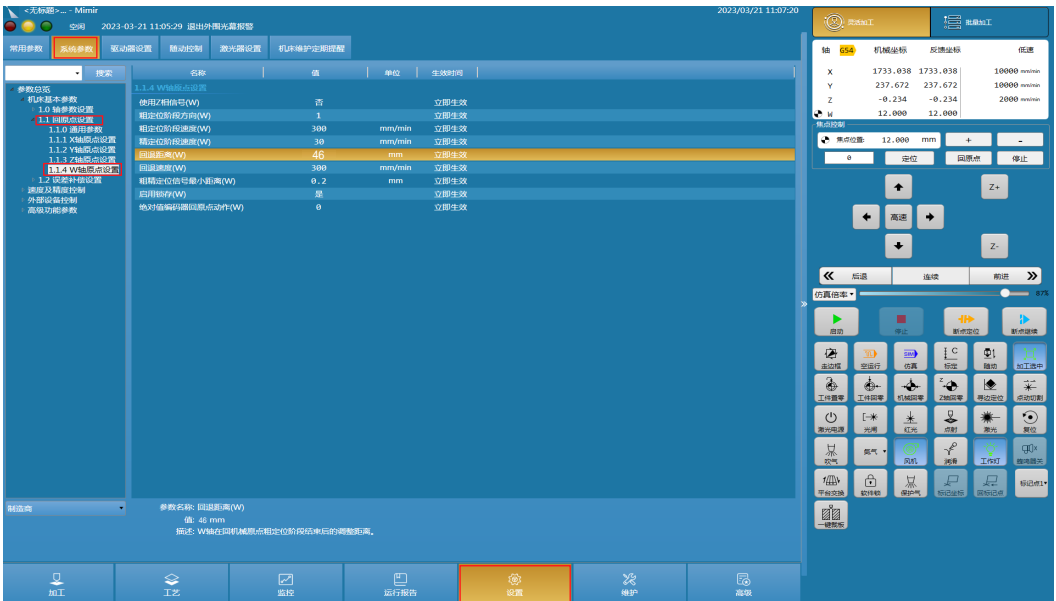


Procedure: Open NC config > Port Mapping > Cutting Head Alarm > Set corresponding input IO > Save

7.6 Weihong Bus System Parameter Configuration

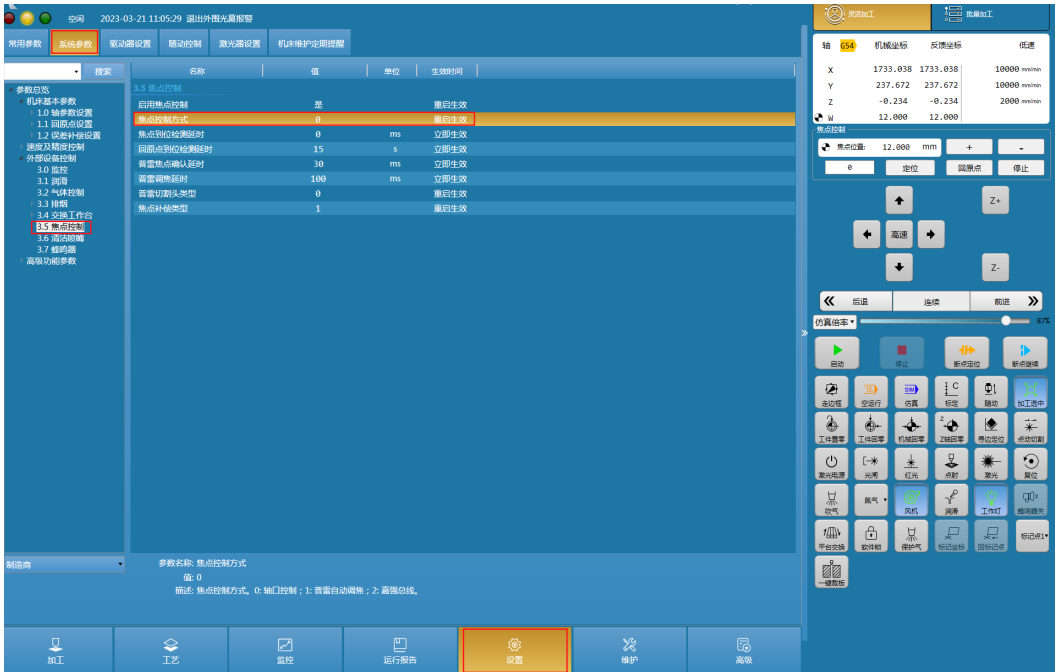


Procedure: Setup > System Parameters > 1.0 Axis Parameter Settings > 1.0.3 W Axis Parameters > Screw Pitch



Operation Procedure: Setup > System Parameters > 1.1 Return Origin Setting > 1.1.14 W-axis OriginSetting

7.7 Weihong System Focus Control Options



The screenshot displays the 'System Parameters' (系统参数) configuration screen. The left sidebar shows a tree view with '3.5 焦点控制' (3.5 Focus Control) selected. The main table lists the following parameters:

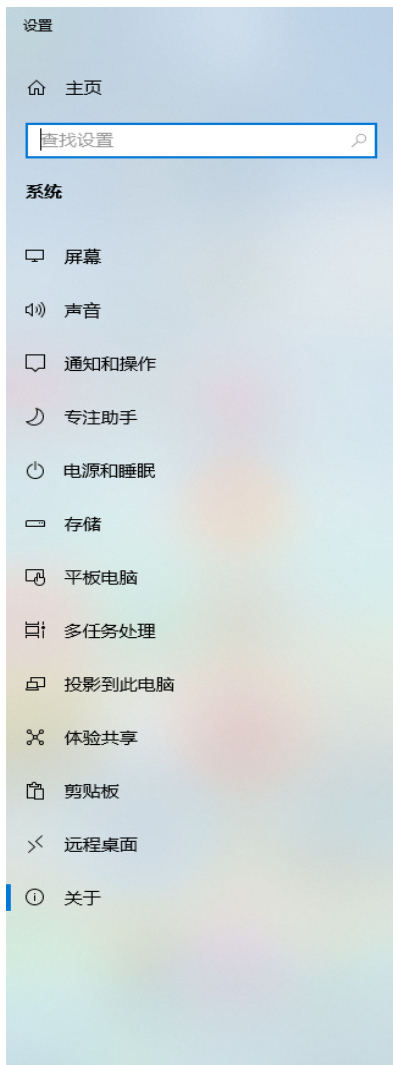
名称	值	单位	生效时间
启用焦点控制	是		重启生效
焦点控制方式	0		重启生效
焦点定位检测延时	0	ms	立即生效
回原点检测延时	15	s	立即生效
回原点检测失败延时	30	ms	立即生效
报警清除延时	100	ms	立即生效
报警清除失败类型	0		重启生效
焦点补偿类型	1		重启生效

At the bottom of the screen, the 'Settings' (设置) button is highlighted in orange. The right-hand control panel includes a coordinate display showing X: 1733.038, Y: 237.672, Z: -0.234, and a speed display of 12,000 mm/min. It also features various control buttons such as 'Start' (启动), 'Stop' (停止), 'New Position' (新位置), and 'New Memory' (新存储).

Procedure: Setup > System Parameters > 3.5 Focus Control > Focus Control Method > Select 0

8.Greenlink RS485 Driver Installation Process

8.1 Installation Process 1



关于

系统正在监控并保护你的电脑。

[在 Windows 安全中心中查看详细信息](#)

设备规格

设备名称	66L86JRVNXCX4O8
处理器	Intel(R) Core(TM) i5-10400 CPU @ 2.90GHz 2.90 GHz
机带 RAM	16.0 GB (15.8 GB 可用)
设备 ID	99A52342-C00D-4DA6-B1C5-2108DD30AF91
产品 ID	00330-80000-00000-AA748
系统类型	64 位操作系统, 基于 x64 的处理器
笔和触控	没有可用于此显示器的笔或触控输入

复制

重命名这台电脑

Windows 规格

版本	Windows 10 专业版
版本号	21H2
安装日期	2022/8/23
操作系统内部版本	19044.2604
体验	Windows Feature Experience Pack 120.2212.4190.0

复制

[更改产品密钥或升级 Windows](#)

[阅读适用于我们服务的 Microsoft 服务协议](#)

[阅读 Microsoft 软件许可条款](#)

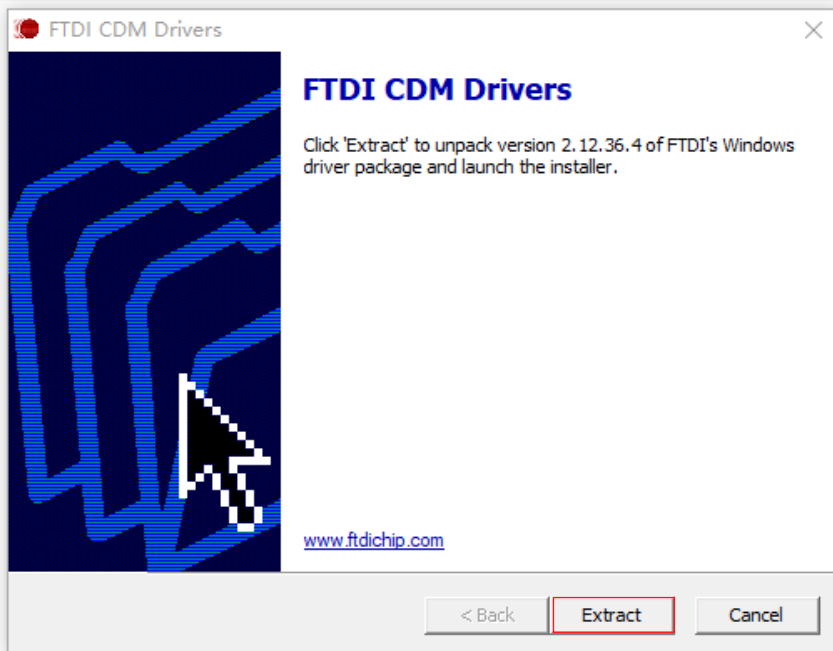
操作流程：点击电脑属性 > 系统类型 > 版本 > 安装串口驱动选择与电脑对应的文件安装

8.2 Installation Process 2

名称	修改日期	类型	大小
Android (Java D2XX)	2022/10/20 9:12	文件夹	
CDMUninstaller_v1.4-卸载工具	2022/10/20 9:13	文件夹	
Linux	2022/10/20 9:15	文件夹	
Windows	2022/10/20 9:15	文件夹	

名称	修改日期	类型	大小
ARM64 Windows 10、Windows 11及Mac M1 VM中的Windows	2022/10/20 9:15	文件夹	
Windows 7	2022/10/20 9:15	文件夹	
Windows 8 10 11、Server 08R2 2012R2	2022/10/20 9:15	文件夹	
Windows CE	2022/10/20 9:15	文件夹	
Windows RT	2022/10/20 9:15	文件夹	
Windows XP	2022/10/20 9:15	文件夹	

名称	修改日期	类型	大小
CDM212364_Setup	2022/7/22 16:48	应用程序	2,212 KB



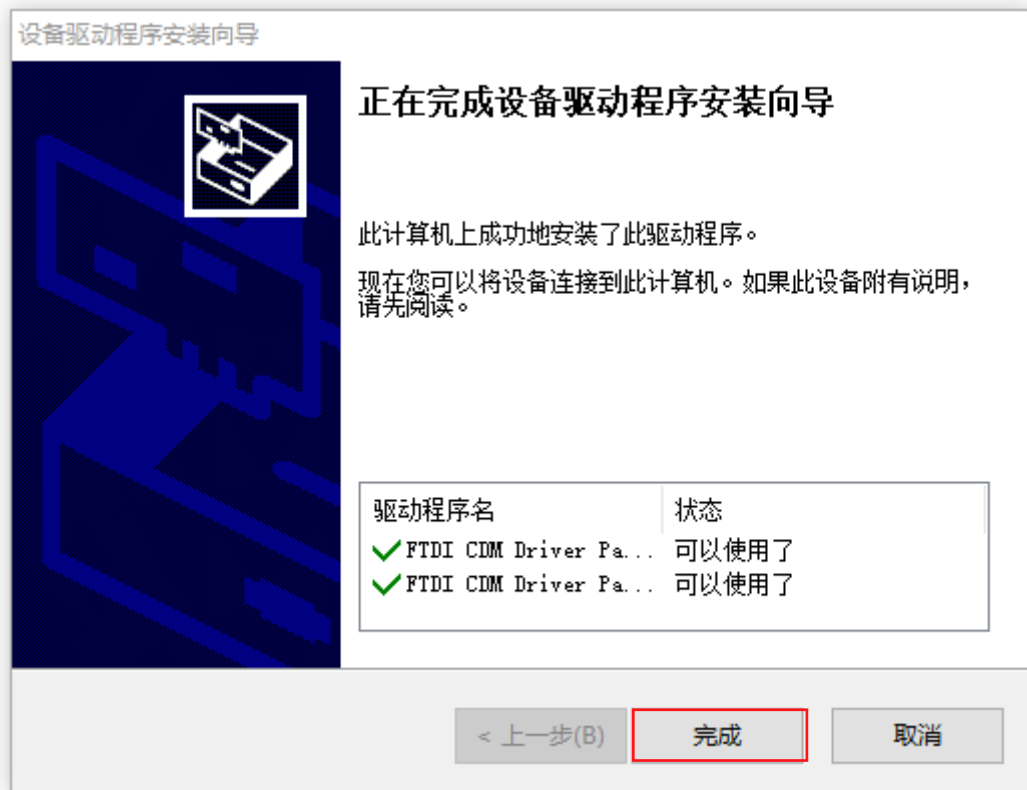
Procedure: Open the serial line FT231XS chip driver file > Windows > Windows 8 10 11 >> CDM212364_Setup > Extract

8.3 Installation Process 3



Operation Procedure : Click next page > I accept this agreement > Next page

8.4 Installation Process 4



Procedure: Click Finish

Note: 1. Click Computer Properties > Device Manager > Check whether the port is marked with an exclamation mark, no exclamation mark means the installation is successful. 2. The driver installation package can be downloaded from the official Greenlink website.

9. Monitoring Instructions

9.1 Monitoring Software Installation Process

 Microsoft.Practices.ServiceLocation	2014/5/5 11:25	XML 文档
 NC210	2023/11/20 17:30	应用程序
 NC210.exe.config	2023/11/20 8:41	CONFIG 文件

NC210

串口号: COM32
连接

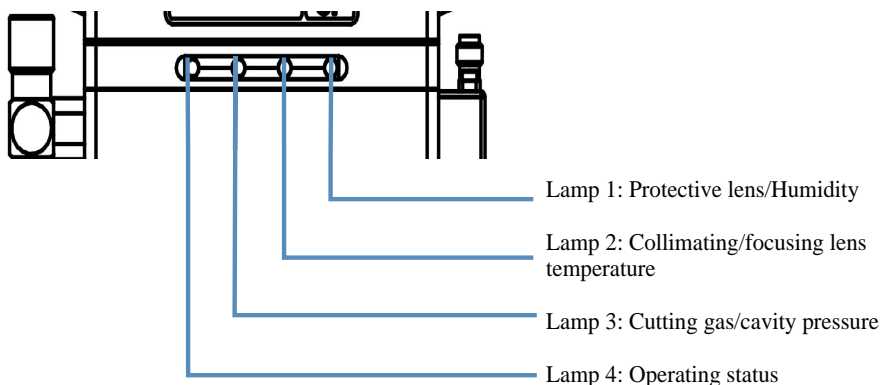
监控

传感器名称	实时值	预警阈值	报警阈值	操作
准直镜	25.1 °C	50.0	60.0	阈值设置
准直镜腔体	24.1 °C			
聚焦镜	25.0 °C	45.0	55.0	阈值设置
聚焦镜腔体	22.7 °C			
保护镜	22.4 °C	45.0	55.0	阈值设置
保护镜腔体	22.0 °C			
保护镜温升	0.4 °C	7.0	12.0	阈值设置
切割气压	1.02 Bar		1.0	阈值设置
腔压	1.03 Bar		2.0	阈值设置
湿度	44.67 %		65.0	阈值设置

固件版本: A0230C06 软件版本: V1.2.0

Operation Procedure: Open NC210 monitoring tool (V1.2.0) file > NC210 > Enter monitoring interface

9.2 Status Display Lamp Description



9.3 Cutting Head Monitoring Interface

NC210

串口号: COM32 断开连接

监控

传感器名称	实时值	预警阈值	报警阈值	操作
准直镜	24.9 °C	50.0	60.0	阈值设置
准直镜腔体	23.9 °C			
聚焦镜	22.6 °C	45.0	55.0	阈值设置
聚焦镜腔体	22.6 °C			
保护镜	22.4 °C	45.0	55.0	阈值设置
保护镜腔体	22.0 °C			
保护镜温升	0.4 °C	7.0	12.0	阈值设置
切割气压	1.02 Bar		1.0	阈值设置
腔压	1.03 Bar		2.0	阈值设置
湿度	44.52 %		65.0	阈值设置

固件版本: A0230C06 软件版本: V1.2.0

Operation Procedure: Select the corresponding serial port number > Start monitoring > Successful connection interface with temperature display

9.4 Monitoring Parameter Settings

NC210

串口号: COM32 断开连接

监控

传感器名称	实时值	预警阈值	报警阈值	操作
准直镜	24.9 °C	50.0	60.0	阈值设置
准直镜腔体	23.9 °C			
聚焦镜	22.6 °C	45.0	55.0	阈值设置
聚焦镜腔体	22.6 °C			
保护镜	22.4 °C	45.0	55.0	阈值设置
保护镜腔体	22.0 °C			
保护镜温升	0.4 °C	7.0	12.0	阈值设置
切割气压	1.02 Bar		1.0	阈值设置
腔压	1.03 Bar		2.0	阈值设置
湿度	44.52 %		65.0	阈值设置

固件版本: A0230C06 软件版本: V1.2.0

NC210

串口号: COM32 断开连接

监控

传感器名称	实时值	预警阈值	报警阈值	操作
准直镜				阈值设置
准直镜腔体				
聚焦镜				阈值设置
聚焦镜腔体				
保护镜				阈值设置
保护镜腔体				
保护镜温升				阈值设置
切割气压	1.02 bar		1.0	阈值设置
腔压	1.03 Bar		2.0	阈值设置
湿度	44.50 %		65.0	阈值设置

固件版本: A0230C06 软件版本: V1.2.0

密码

666666

确定 取消

Operation Procedure: Threshold Setting > Enter Password (666666) > OK

9.5 Monitoring Parameter Settings



Procedure: Modify temperature parameters > Setup

10. Pulse Type Drive Alarm Code

Number of ALM blinks	Name	Solution
1	Overcurrent protection	1. Connect the motor winding with the drive, restart the drive, if there is no alarm, check the motor and motor power line for any abnormality. 2. Disconnect the motor winding from the drive, restart the drive, if the country is still alarmed, the drive is damaged.
2	Overvoltage protection	1. Restart the drive. 2. If the alarm persists after restarting the drive, check that the power supply is not too high.
3	Op amp error	1. Restart the drive. 2. Reboot the drive, if the alarm persists, the drive has a hardware failure.
4	Shaft lock error	Check for disconnected motor power wires.
5	Storage error	Use the RS232 debug port to connect to the host computer, restore the drive to the factory settings, if the alarm still exists, the drive hardware failure.
6	Motor parameters Self-tuning error	1. Restart the drive. 2. If the alarm persists after restarting the drive, set the dial code SW6 to on.
7	Excessive follow error	1. Check whether the "motor resolution" in the parameter list is set incorrectly. 2. Check the wiring between the motor and the driver to see if the phase sequence is wrong (motor A+ A-, B+ B- must correspond to the driver terminal A+ A-, B+ B-).
Wrong direction of motor rotation the motor does not rotate	Wrong motor direction setting	The dial code SW5 status is set incorrectly.
Motor rotates in one direction only	No pulse signal	Check the pulse signal wire for accuracy.
	Incorrect pulse mode selection	Check that the SW7 pulse mode is set correctly.
Green light is not on	No directional signals	Check that the direction signal wires are connected correctly.
	Unpowered	Check that the drive power supply is properly connected.

11. 总线型驱动报警代码

ALM闪烁次数	名称	解决措施
1	过流保护	1. 确保驱动器输出线未短路，确保电机未损坏。 2. 调整电机的接线顺序。 3. 更换新的驱动器。
2	过压保护	1. 减小VDC/GND端子上供电电压。 2. 降低加速度，减速度。
3	指令脉冲增量过大	检查参数细分是否正确。
4	锁轴错误	1. 确保电机输出A+, A-, B+, B-端子接线正确。 2. 确保电机线没有断线。 3. 确保编码器电源电压正常，确保编码器线缆完好，确保编码器地线接触良好。
5	自整定错误	检查电机丝杆结构是否卡顿。
6	位置超差	1. 重启驱动器。 2. 重启驱动器报警依然存在，检查电机动力线是否短路。 3. 拔出电机动力线，重启驱动，报警依然存在，驱动损坏。
7	编码器断线检测	确保编码器线正确连接，接点无虚焊，错位，短路。
8	急停报警	确保输入信号接线正确。
9	正负限位报警	1. 电机的编码器分辨率不对，导致电机不能运行。 2. 电机的动力线接错。 3. 电机出力不够，适当的增大驱动器电流。 4. 若增大了电流还是不行，可排查下机械结构是否存在堵及电机选型过小导致。
10	指令超速故障	检查故障是否出现在回零完成后；检查是否使用的从站回零模式。
11	堵转报警	检查电机丝杆结构是否有卡顿。
12	拉铃错误报警	1. 电机的编码器分辨率不对，导致电机不能运行。 2. 电机的动力线接错。 3. 电机出力不够，适当的增大驱动器电流。 4. 若增大了电流还是不行，可排查下机械结构是否存在堵及电机选型过小导致。
13	电流过载报警	增大驱动器输出峰值电流值Pr4.22或0x2056的bit6置为0，可屏蔽。
常亮	硬件中断保护	确认网络连接及主站ESM转换次序。



深圳市万顺兴科技有限公司

电话：400-836-8816 网址：www.wsxlaser.com 邮箱：info@wsxlaser.com

地址：广东省深圳市龙华新区大浪街道浪口工业园青年梦工厂3栋(深圳总部)

江苏省苏州市相城区阳澄湖镇枪堂村凤阳路432号2幢301 (苏州分公司)

武汉市洪山区光谷大道108号久阳科技园401 (武汉分公司)