

C21系列物流控制卡

C21 Series Driver for Intelligent Logistics Control

使用说明书

Operation Instruction



致用户：感谢您购买使用本产品，为保证安全及正确操作，在使用前请务必仔细阅读此说明书。

To Our Clients: thank you for purchasing our products, please read this Operation Instruction in order to ensure the safe and correct operation before the usage.

使用须知 Operation Instruction

- 使用前请先检查包装是否完好，铭牌和购买的型号是否一致，配件是否完整。
- Please check whether the package is intact, whether the name plate is consistent with the purchased model, and whether the accessories are complete first.
- 配件：2pin电源端子——1个；3pin相线端子——1个；
3pin传感器端子——1个；10pin I/O端子——1个。
- Accessories: 2 pins power terminal-1 pc; 3 pins phase line terminal-1 pc;
3 pins sensor terminal-1 pc; 10 pins I/O terminal-1 pc.
- 安装、连接、检查等作业须由专业技术人员进行。
- Installation, connection, inspection and other operations must be carried out by professional and technical engineers .
- 请按照本说明书或上盖标识正确接线，否则可能会造成故障及危险。
- Please connect cables correctly according to this manual or the label on the upper cover, otherwise it may cause malfunction and danger.
- 请勿在通电状态下拆卸设备或更改接线，否则可能会造成触电。
- Please do not disassemble the device or change the wiring when the power is on, otherwise it may cause electric shock.
- 第一次使用时，请进行空转试运行，确认功能是否正常，并调整需要使用的参数。
- Please carry out no-load running before the first-time usage to confirm whether the function is normal and adjust the needed parameters.
- 请勿在潮湿环境或可燃性、腐蚀性气体环境中使用。
- Please do not use it in a humid environment or in a flammable environment or place with corrosive gas.
- 为保证使用安全，请务必将设备接地。
- Please be sure to earth the equipment to ensure safety.
- 为便于理解，本说明书中使用的图片做了一定的处理，请以实物为准。
- The pictures in this manual have been processed to a certain extent for easy understanding. Please refer to the actual product.



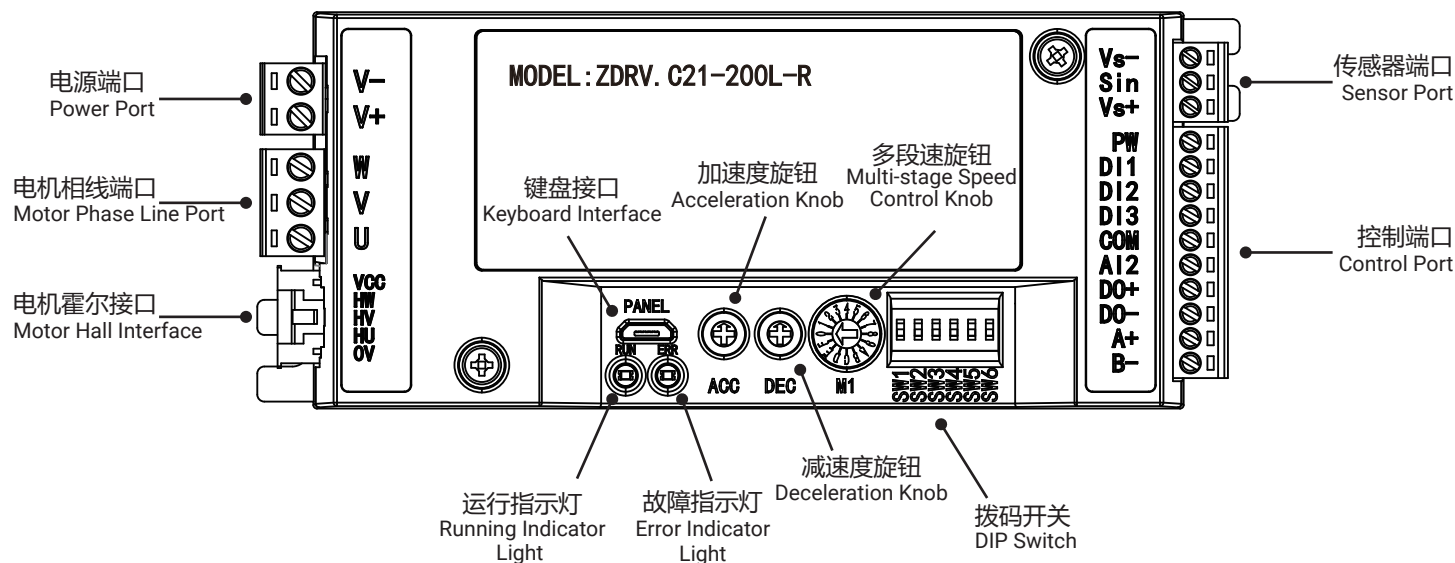
型号定义 How to Read

Z DRV. C21-200 L-R

① ② ③ ④ ⑤ ⑥

标识 Mark	字段说明 Introduction	具体内容 Content
①	公司名称缩写 Company Name	Z: 宁波中大力德智能传动股份有限公司 Z: ZD Leader
②	产品类型 Product Model	DRV: 驱动器及相关产品 DRV: Drivers and Related Products
③	产品系列 Product Series	C21: 物流控制卡系列产品 C21: C21 Series Drier for Intelligent Logistics Control
④	功率等级 Power Rating	200: 最大输出功率200W 200: Max. Output Power 200W
⑤	电源类型 Power Type	L: DC24V-48V
⑥	功能码 Function Code	R: 带485通讯 R: With 485 Communication Function

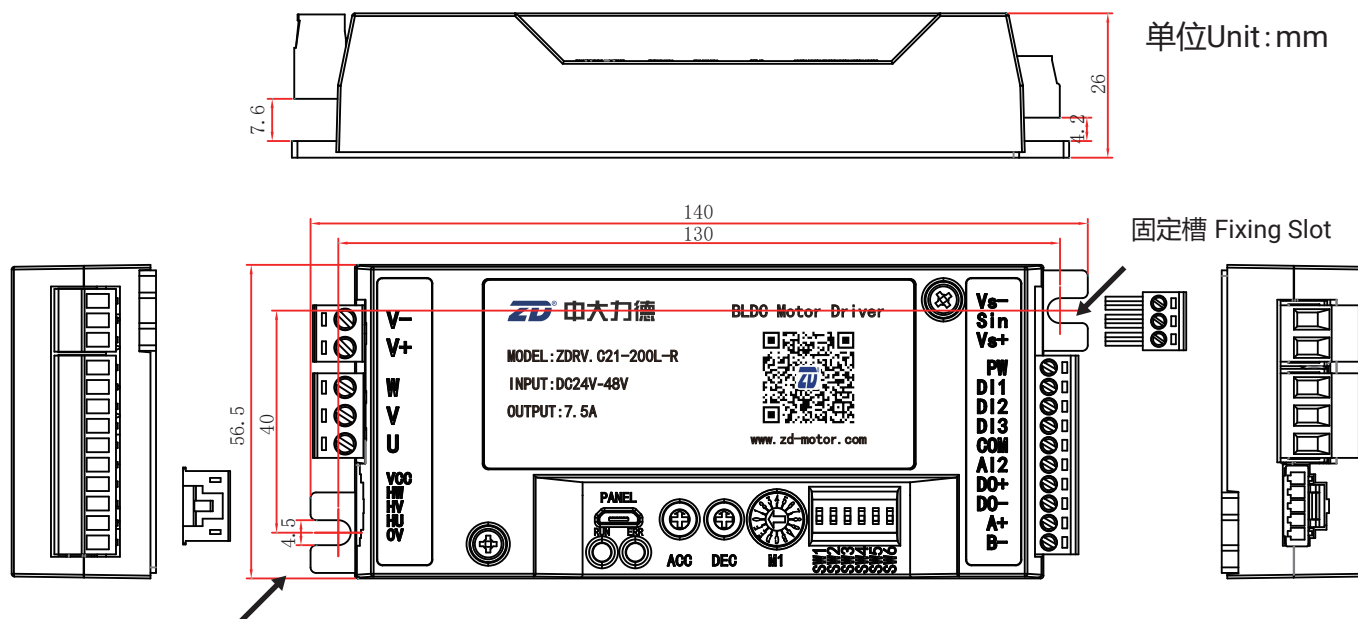
端口定义 Definitions of Ports



功能特点 Features

输入电压 Input Voltage	DC24V-48V(±20%)
输出电流 Output Current	7.5A (可通过拨码开关或键盘调节) 7.5A (Adjustable by DIP switch or keyboard)
运行方式 Operation Mode	开环、闭环 (控制精度±0.5%) Open loop, closed loop (control accuracy ±0.5%)
输出功率 Output Power	DC24V, 120W DC48V, 200W
适配电机 Adapted Motor	DC24V, 电机motor≤120W DC48V, 电机motor≤200W
命令给定 Command Setting	多功能输入端子控制 (NPN/PNP输入) 485标准Modbus RTU通讯控制 外置键盘控制 (需购买键盘配件) Multi-function input terminal control (NPN/PNP input) 485 standard Modbus RTU communication control External keyboard control (need to buy keyboard accessories)
速度给定 Speed Setting	内部多段速旋钮、外部模拟电压 (0~5V/10V)或PWM (3K~10KHz) 给定、通讯给定、键盘给定、多段速度、简易PLC控制 Internal multi-stage speed control knob, external analog voltage (0~5V/10V) or PWM (3K~10KHz) Setting, communication setting, keyboard setting, multi-stage speed control, simplified PLC control
加/减速度控制 Acceleration/Deceleration Control	0.3s~10s 可通过旋钮调节、通讯调节和键盘调节 0.3s~10s Adjustable by knob, communication and keyboard
电子刹车功能 Electronic Brake	实现快速电磁制动 Fast electromagnetic braking
多功能输入接口 Multi-function Input Interface	3个数字量输入 (NPN/PNP) 用户可通过键盘自定义为: 正转、反转、点动、自由停止、电子刹车、多段速度等多种功能输入 3 digital inputs (NPN/PNP), setting via keyboard: Forward rotating, reverse rotating, inching, free stop, electronic brake, multi-stage speed, etc.
多功能输出接口 Multi-function Output Interface	1个数字量输出 (光耦输出) 用户可通过键盘自定义为: 运行中、故障、速度输出、过载预警、虚拟端子输出等多种功能输出 1 digital output (optocoupler output), setting via keyboard: Running, error, speed output, overload warning, virtual terminal output, etc.
故障检测及保护功能 Error Indication & Protection	欠压、过压、过流、过载、堵转、短路、缺相、过温等多种故障检测, 故障发生后, 驱动器根据故障类型进行相应的保护动作; 故障信息可通过LED灯或键盘进行显示 Show the error information by LED or keyboard after the protection for the error indication, such as: under voltage, over voltage, over current, over load, locked rotor, short circuit, phase shortage, over temperature etc.

尺寸图和安装环境 Dimensions & Installation Requirements



*注：安装时请先拔出右上角和左下角的端子，露出下方固定槽，建议使用M4螺钉固定。

Note: Please unplug at the upper right and lower left corners to expose the lower fixing slot before installation. It is recommended to use M4 screws to fix.

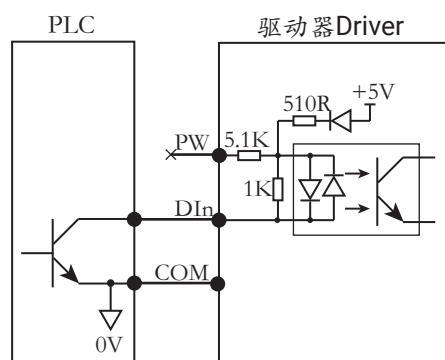
环境温度 Environment Temperature	-10℃~40℃ (非浓缩、非冷冻) -10℃~40℃ (non-concentrated, non-frozen)
环境湿度 Environment Humidity	85%以下 (无凝结水) Less than 85% (No condensation)
海拔高度 Altitude	1000米以下 (超过需降额使用) Lower than 1000 m (lower power is necessary if higher than 1000m)
环境振动 Environmental Vibration	禁止施加连续振动或过度冲击 No continuous vibration or over impact
保护等级 Protection Degree	IP20

请勿在以下场所使用：

Please do not use in the following places:

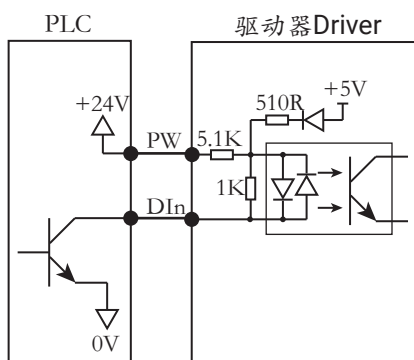
- 1.有大量发热设备的场所;
1.Places with a lot of heating equipment;
- 2.有水滴、蒸气、灰尘及油性灰尘的场所;
2.Places with water droplets, steam, dust and oily dust;
- 3.有腐蚀、易燃性的气、液体的场所;
3.Places with corrosive and flammable gas and liquid;
- 4.有漂浮性的尘埃及金属微粒的场所。
4.Places with floating dust and metal particles.

接线示意图 Wire Diagram



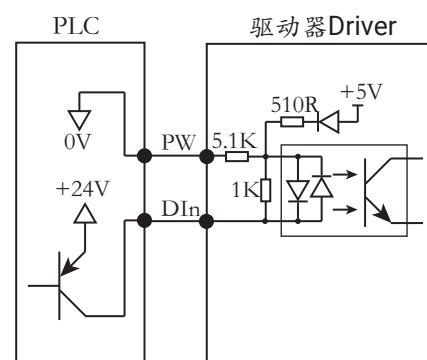
内部电源(NPN)接线示意图

Wire Diagram of Internal Power Supply(NPN)



外部电源(NPN)接线示意图

Wire Diagram of External Power Supply (NPN)



外部电源(PNP)接线示意图

Wire Diagram of External Power supply (PNP)

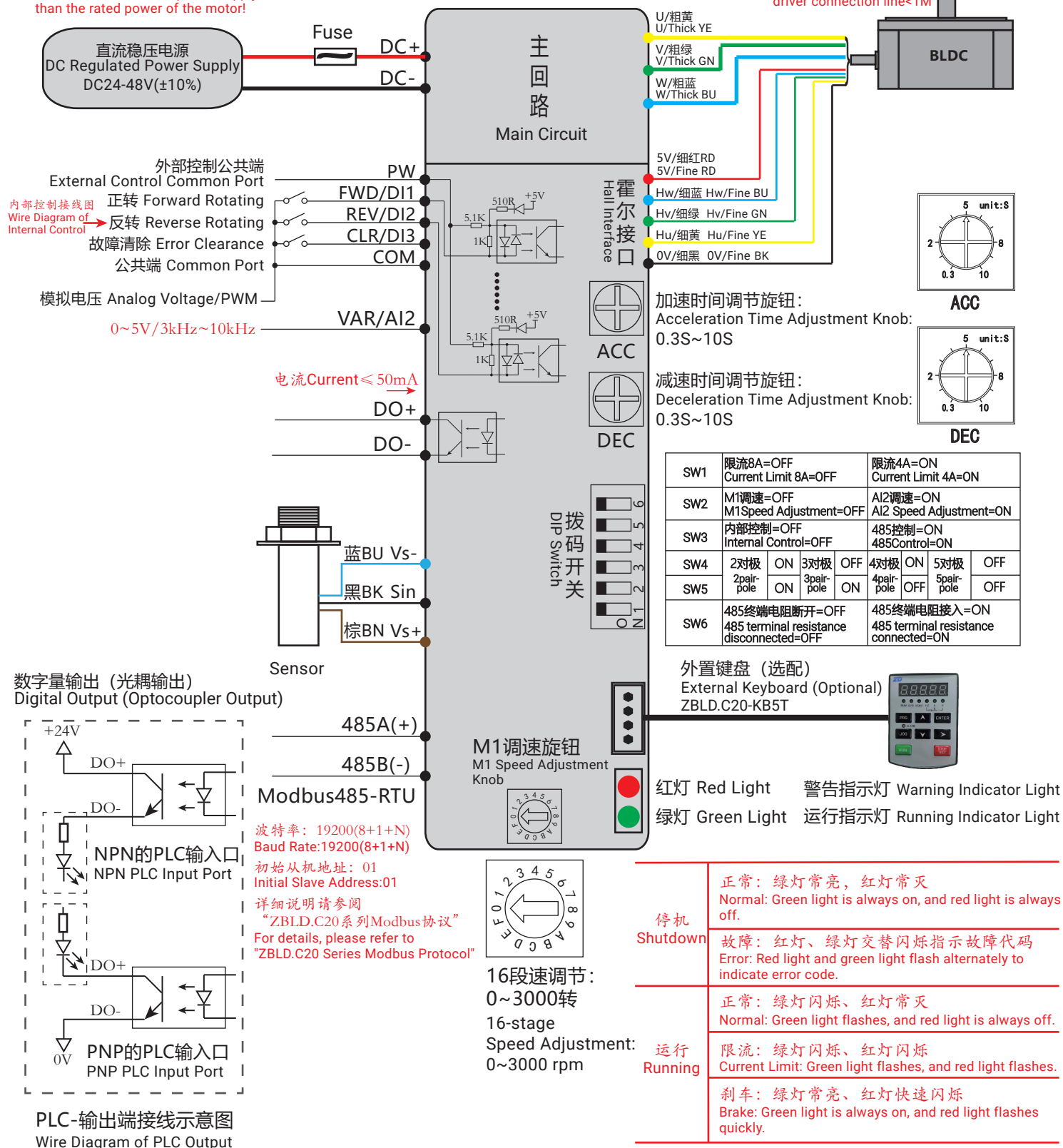
接线示意图 Wire Diagram

请确保电源功率大于电机额定功率2倍以上！

Please ensure that the power supply is over 2 times than the rated power of the motor!

建议电机与驱动器连接线
长度<1M

Recommended length of motor and
driver connection line<1M



故障与维护 Error and Maintenance

当驱动器检测到故障后，会将停机，并通过LED(红、绿) 或外置键盘指示故障代码，用户可根据故障代码进行排查检修。
The driver will stop once it detects an error and indicates the error code through LED (red, green) or external keyboard at the same time; users can make trouble-shooting according to the error code.



绿灯闪一次代表5
Green light flashes once for 5



红灯闪一次代表1
Red light flashes once for 1

故障码=绿灯闪次数*5 + 红灯闪次数
Error code = Green light flashing times*5 + Red light flashing times

故障码 Error Code	故障名称 Error Name	故障指示 Error Indication	故障原因 Cause	处理方法 How to Solve
1	硬件加速过流 Hardware Acceleration Overcurrent	0 1	1.电压偏低 1.Low Voltage	1.检查输入电压 1.Check the input voltage
2	硬件减速过流 Hardware Deceleration Overcurrent	0 2	2.驱动器功率偏小 2.Low power of Driver	2.选择大功率驱动器 2.Select driver with large power
3	硬件恒速过流 Hardware Constant Speed Overcurrent	0 3	3.突加负载 3.Shock Load	3.检查负载是否正常 3.Check if it is loaded normally
4	软件加速过流 Software Acceleration Overcurrent	0 4	4.相间短路 4.Short Circuit Between Phase	4.检查/更换电缆或电机 4.Check/Change cable or motor
5	软件减速过流 Software Deceleration Overcurrent	0 5	5.外部存在强干扰源 5.Strong Interference from outside	5.检查是否存在强干扰源 5.Check if there exists strong interference outside
6	软件恒速过流 Software Constant Speed Overcurrent	1 1		
7	加速时过压 Overvoltage during Acceleration	1 2	1.输入电压偏高 1.High Input Voltage	1.检查电源电压 1.Check the power supply voltage
8	减速时过压 Overvoltage during Deceleration	1 3	2.快速正反转切换 2.Speedy Forward and Reverse Switch	2.增加正反转切换时间 2.Increase time for forward and reverse switching
9	恒速时过压 Overvoltage during Running of Constant Speed	1 4	3.被外力拖动,处于发电状态 3.In the statue of power generation due to external force	3.增加外部制动装置 3. Add external brake
10	母线欠压故障 Busbar Undervoltage	1 5	1.电源电压偏低 1.Low Voltage 2.加速过快, 外部电源保护 2.External Power Supply Protection for Fast Acceleration 3.供电电压跌落 3.Voltage Drop 4.驱动器硬件异常 4.Driver hardware is abnormal	1.检查电源输入 1.Check the input voltage 2.增加加速时间 2.Increase acceleration time 3.故障复位 3.Error Reset 4.寻求技术支持 4.Ask for engineer assisting
11	电机过载 Motor Overload	2 1	1.电源电压过低 1.Low Voltage 2.电机功率过大 2.Motor Overpower 3.电机堵转或负载突变 3.Rotor Blocked or Load Sudden Change	1.检查电源输入 1.Check the input voltage 2.设置电机额定电流 2.Use rated current of the motor 3.减小负载检查电机及机械 3.Reduce the load and check the motor and machine
12	驱动器过载 Driver Overload	2 2	1.电源电压过低 1.Low Voltage 2.加速度时间过快 2.Fast Acceleration 3.负载过大 3.Overload	1.检查电源输入 1.Check the input voltage 2.增加加速时间 2.Increase acceleration time 3.更换大一挡控制器 3.Change to driver with larger power

13	霍尔故障 Error of Hall	2 GN 3 RD	1.霍尔断线 1.Disconnection of Hall 2.外部存在强干扰源 2.Strong Interference from Outside	1.检查霍尔连接线 1.Check the connection of Hall 2.检查是否存在强干扰源 2.Check if there exists strong interference outside
14	堵转故障 Locked	2 GN 4 RD	1.负载过大 1.Overload 2.电机卡死 2.Motor Locked	1.检查电机机械连接 1.Check the mechanical connection of motor 2.检查电机连接线 2.Check the wire diagram of motor
16	驱动器过热故障 Driver Overheating Error	3 GN 1 RD	1.负载过大 1.Overload 2.驱动器硬件异常 2.Driver hardware is abnormal	1.降温处理 1.Cooling 2.降额使用 2.Reduce the rated power
19	电流检测故障 Current Error	3 GN 4 RD	1.驱动器硬件损坏 1.Driver Hardware Broken	1.更换驱动器 1.Change the driver
27	参数存储故障 Data Storage Error	5 GN 2 RD	1.达到单次上电擦写次数 1.Reach to the MAX quantity for Power-up Clear(PUC)	1.重新上电 1.Power-on Again
29	过流反馈故障 Error of Over-current Feedback	5 GN 4 RD	1.驱动器硬件损坏 1.Driver Hardware Broken	1.更换驱动器 1.Change the driver
30	输出缺相故障 Error of Lack Input Phase	5 GN 5 RD	1.U/V/W输出缺相 1.U/V/W Lack Input Phase 2.驱动器硬件损坏 2.Driver Hardware Broken	1.检查U/V/W是否连接牢靠 1.Check if U/V/W are correctly connected 2.更换驱动器 2.Change the driver