

低压直流无刷电机驱动器

Low Voltage DC Brushless Motor Driver

ZBLD.C20-400LR



键盘(选配件)

Keyboard (Optional)

ZBLD.C20-KB5T

产品型号

Product Model

ZBLD.C20-400LR

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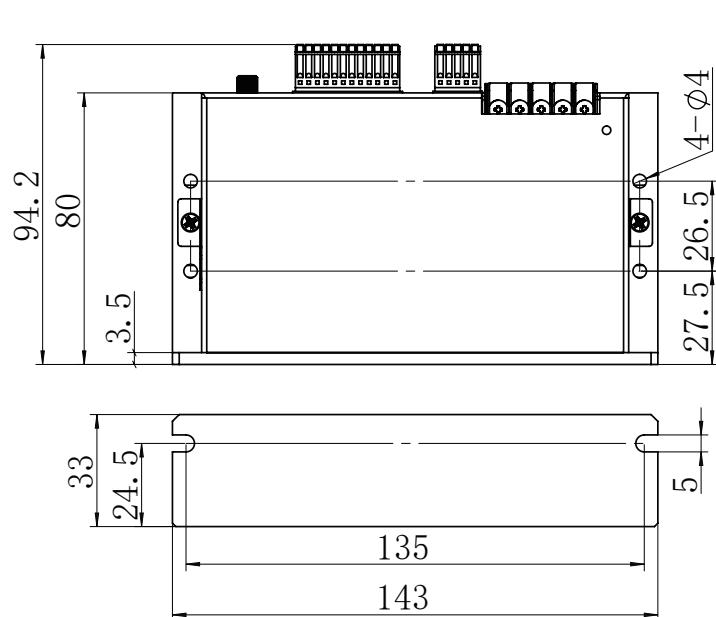
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标识 Mark	说明 Introduction	内容 Content
①	公司 Company	Z:中大力德 Z: ZD Leader
②	类型 Model	BLD:无刷电机驱动器 BLD: Brushless Motor Driver
③	版本 Version	C20:C20系列 C20:C20 Series
④	功率 Power	400:最大输出功率400W 400:Max. Output Power 400W
⑤	属性 Index	L:低压DC24V~48V L: Low Voltage DC 220V H:高压AC220V H: High Voltage AC 220V D:带数字显示 D: With Digital Display R:带485通讯 R: With 485 Communication



单位Unit:mm

安装方式
How to Install壁挂式安装
Wall-hanging

环境要求

Requirements of Environment

环境温度 Environment Temperature	-10℃~+40℃(无凝结) -10℃~+40℃(No condensation)
环境湿度 Environment Humidity	85%以下(无结露) Less than 85% (No condensation)
海拔高度 Altitude	1000米以下 Lower than 1000 m
环境振动 Environmental Vibration	不施加连续振动或过度冲击 No continuous vibration or over impact
保护等级 Protection Degree	IP20 IP20

请勿在爆炸环境、可燃性气体环境、腐蚀性环境、接触水的场所、可燃物旁使用。以防发生爆炸、受伤、火灾！

To prevent explosion, injury and fire, please do not use in explosive environments, flammable gas, corrosive environments and anywhere easy to get wet or around combustibles.

功能特点 Features

- 宽电压输入 24V~48V
Free Voltage Input 24V~48V
- 宽电流输出 3.0A~15A 可通过旋钮调节限流输出值
Free Current Output 3.0A~15A Adjusting output current limit value via the knob
- 多种运行方式 开环、闭环（控制精度±0.5%）
Operation Mode Open loop, closed loop (control accuracy ±0.5%)
- 多种命令给定 多功能输入端子控制（支持NPN、PNP输入）
Command Setting 485标准Modbus RTU通讯控制
外置键盘控制
Multi-function input terminal control (support for NPN input & PNP input)
485 standard Modbus RTU communication control
External keyboard control
- 多种速度给定 内置旋钮、外部模拟电压或PWM（0~5V）、通讯给定、键盘给定、
Speed Setting 多段速度、简易PLC控制
Internal control knob, external analog voltage or PWM (0~5V), communication setting, keyboard setting, multi-stage speed control, simplified PLC control
- 加/减速度控制 0.3s~10s 可通过旋钮调节、通讯调节和键盘调节
Acceleration/Deceleration Control 0.3s~10s Adjusting by knob, communication and keyboard
- 电子刹车功能 实现快速电磁制动
Electronic Brake Fast electromagnetic braking
- 多功能输入接口 5个数字量输入（支持NPN和PNP）用户可通过键盘自定义为：
Multi-function Input Interface 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
5 digital inputs (support for 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

2个数字量输出（开路集电极输出）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
2 digital output (open collector output), setting via keyboard:
running, error, speed output, overload warning, virtual terminal output, etc.

- 完善的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 etc.

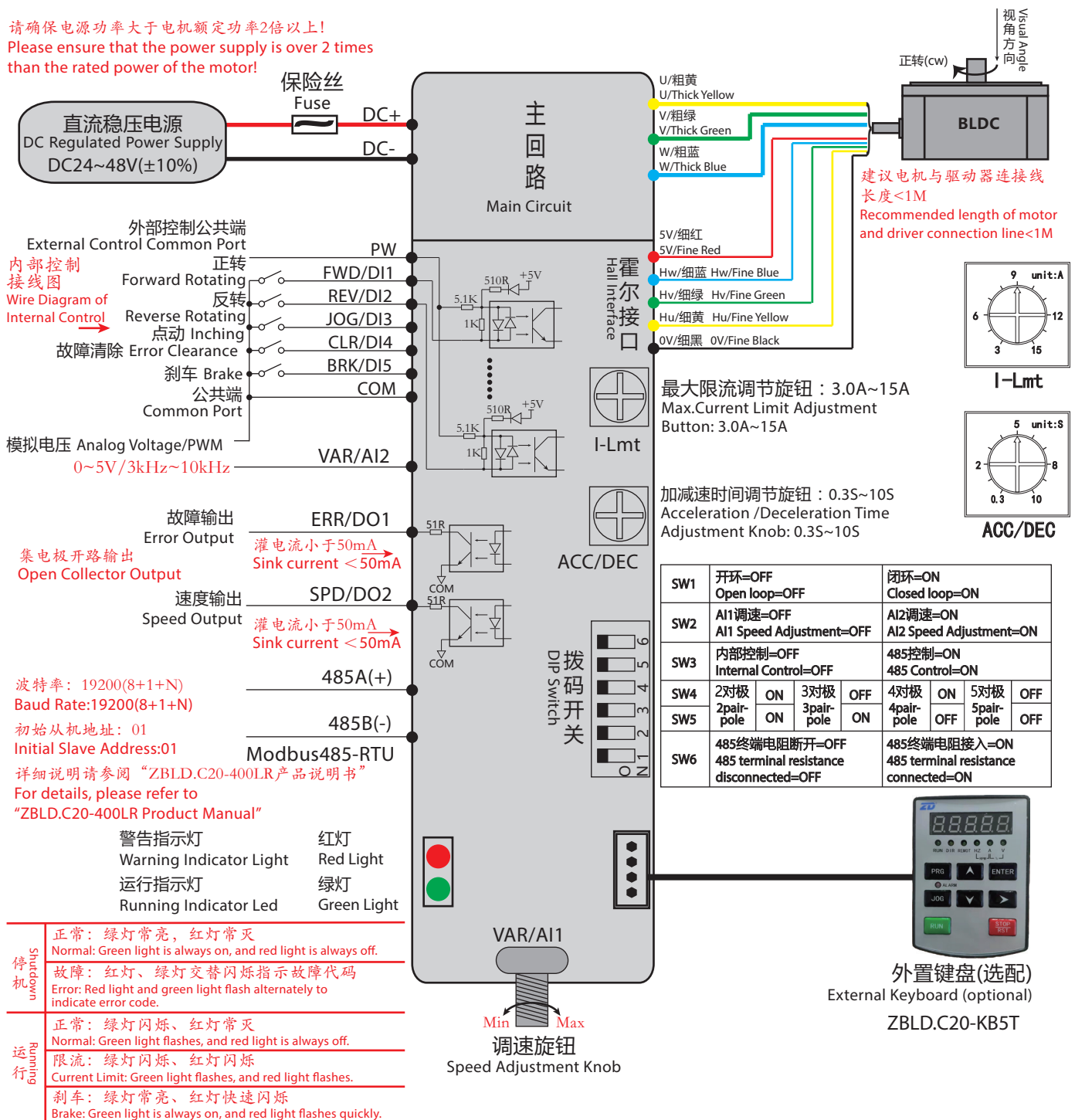
***键盘控制、多功能输入、多功能输出、多段速度、简易PLC需选购键盘配件方可使用**

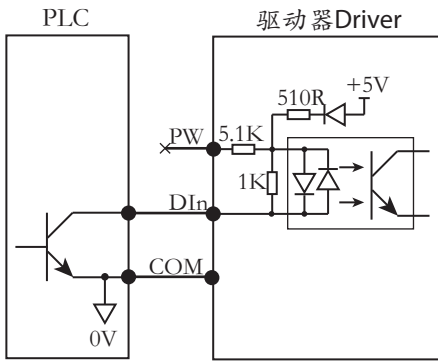
***Keyboard control, multi-function input, multi-function output, multi-stage speed control, simplified PLC control could be realized with an external keyboard.**

连接运行 Connect & Running

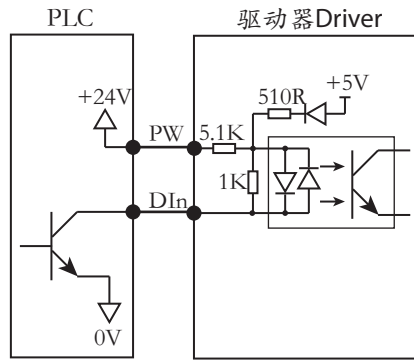
请确保电源功率大于电机额定功率2倍以上！

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

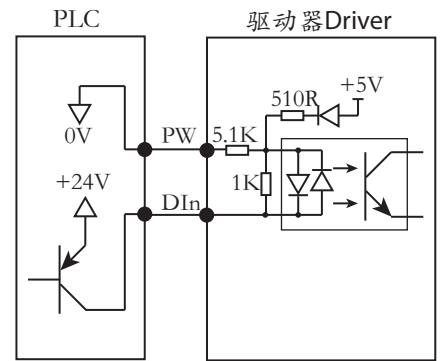




内部电源(NPN)接线示意图
Wire Diagram of Internal
Power Supply(NPN)



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)

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 GN 1 RD	1.加减速过快 1.Excessively Fast Acceleration or Deceleration	1.增大加减速时间 1.Increase Time for Acceleration & Deceleration
2	硬件减速过流 Hardware Deceleration Overcurrent	0 GN 2 RD	2.电压偏低 2.Low Voltage	2.检查输入电压 2.Check the input voltage
3	硬件恒速过流 Hardware Constant Speed Overcurrent	0 GN 3 RD	3.驱动器功率偏小 3.Low power of Driver	3.选择大功率驱动器 3.Select driver with large power
4	软件加速过流 Software Acceleration Overcurrent	0 GN 4 RD	4.突加负载 4.Shock Load	4.检查负载是否正常 4.Check if it is loaded normally
5	软件减速过流 Software Deceleration Overcurrent	0 GN 5 RD	5.相间短路 5.Short Circuit Between Phase	5.检查/更换电缆或电机 5.Check/Change cable or motor
6	软件恒速过流 Software Constant Speed Overcurrent	1 GN 1 RD	6.外部存在强干扰源 6.Strong Interference from outside	6.检查是否存在强干扰源 6.Check if there exists strong interference outside
7	加速时过压 Overvoltage during Acceleration	1 GN 2 RD	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 GN 3 RD	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 GN 4 RD	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 GN 5 RD	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 GN 1 RD	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 GN 2 RD	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.更换大一档控制器 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
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