

低压直流无刷电机驱动器

Low Voltage DC Brushless Motor Driver

ZBLD.C10-200L



驱动器本体
Driver(Body)
ZBLD.C10-200L



键盘(选配件)
Keyboard (Optional)
ZBLD.C20-KB5T-U

产品型号 Product Model

ZBLD.C10-200L

① ② ③ ④ ⑤

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	C10: C10系列 C10: C10 Series
④	功率 Power	200: 最大输出功率200W 200: Max. Output Power 200W
⑤	属性 Index	L: DC24V~48V L: DC24V~48V H:高压AC220V H: High Voltage AC 220V

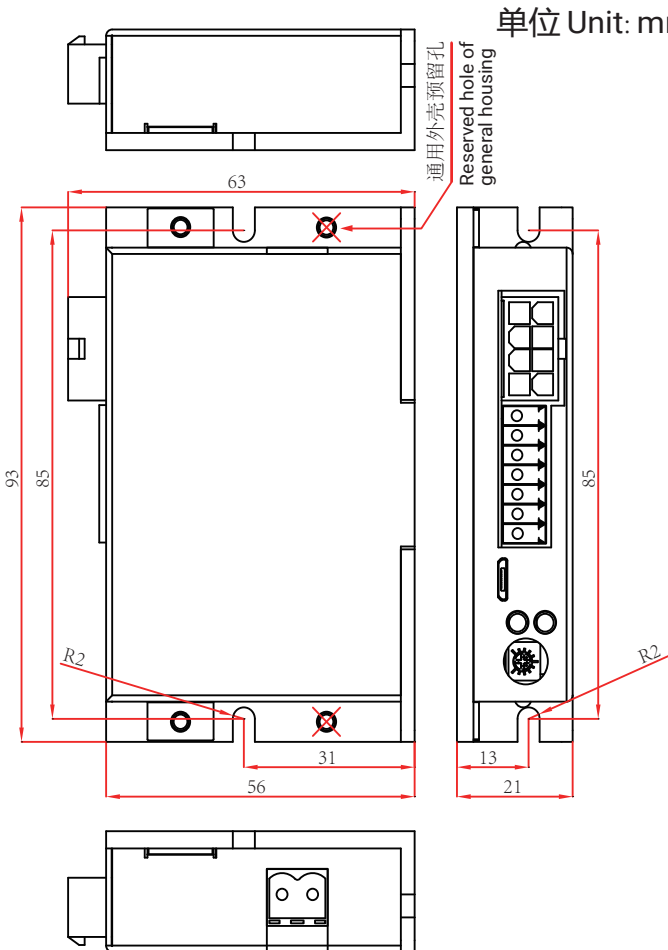
功能特点 Features

- 超小体积 Compact 93mm*56mm*21mm适合紧凑空间安装
Suitable for limited space : 93mm*56mm*21mm
- 电压电流 Voltage & Current 24V~48V(±20%)电压输入, 7A电流输出 (可通过键盘调整)
Input voltage 24V~48V(±20%), output current 7A (adjustable via keyboard)
- 多种运行方式 Operation Mode 开环、闭环 (控制精度±0.5%)
Open loop, closed loop (control accuracy ±0.5%)
- 多种命令给定 Command Setting 多功能输入端子控制 (NPN输入)
外置键盘控制
Multi-function input terminal control (NPN input)
External keyboard control

- 多种速度给定
Speed Setting
内置旋钮、外部模拟电压或PWM (0~5V/10V)、键盘给定
Built-in knob, external analog voltage or PWM (0~5V/10V), keyboard setting
- 加/减速度控制
Acceleration /Deceleration Control
0.3s~10s 可通过键盘调节
0.3s~10s Adjustable by 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) 用户可通过键盘自定义为：
正转、反转、自由停止、电子刹车等多种功能输入
3 digital inputs (NPN/PNP), setting via keyboard:
forward rotating, reverse rotating, 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 (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、过载预警等多种功能输出
1 digital output (open collector output), setting via keyboard:
running, error, speed output, overload warning, etc.
- 完善的故障检测及保护功能
Fault Indication & Protection
欠压、过压、过流、过载、堵转、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, phase shortage, over temperature etc.

*键盘控制、多功能输入、多功能输出需选购键盘配件方可使用
*Keyboard control, multi-function input, multi-function output could be realized with an external keyboard.

外形尺寸 Outline Dimension



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

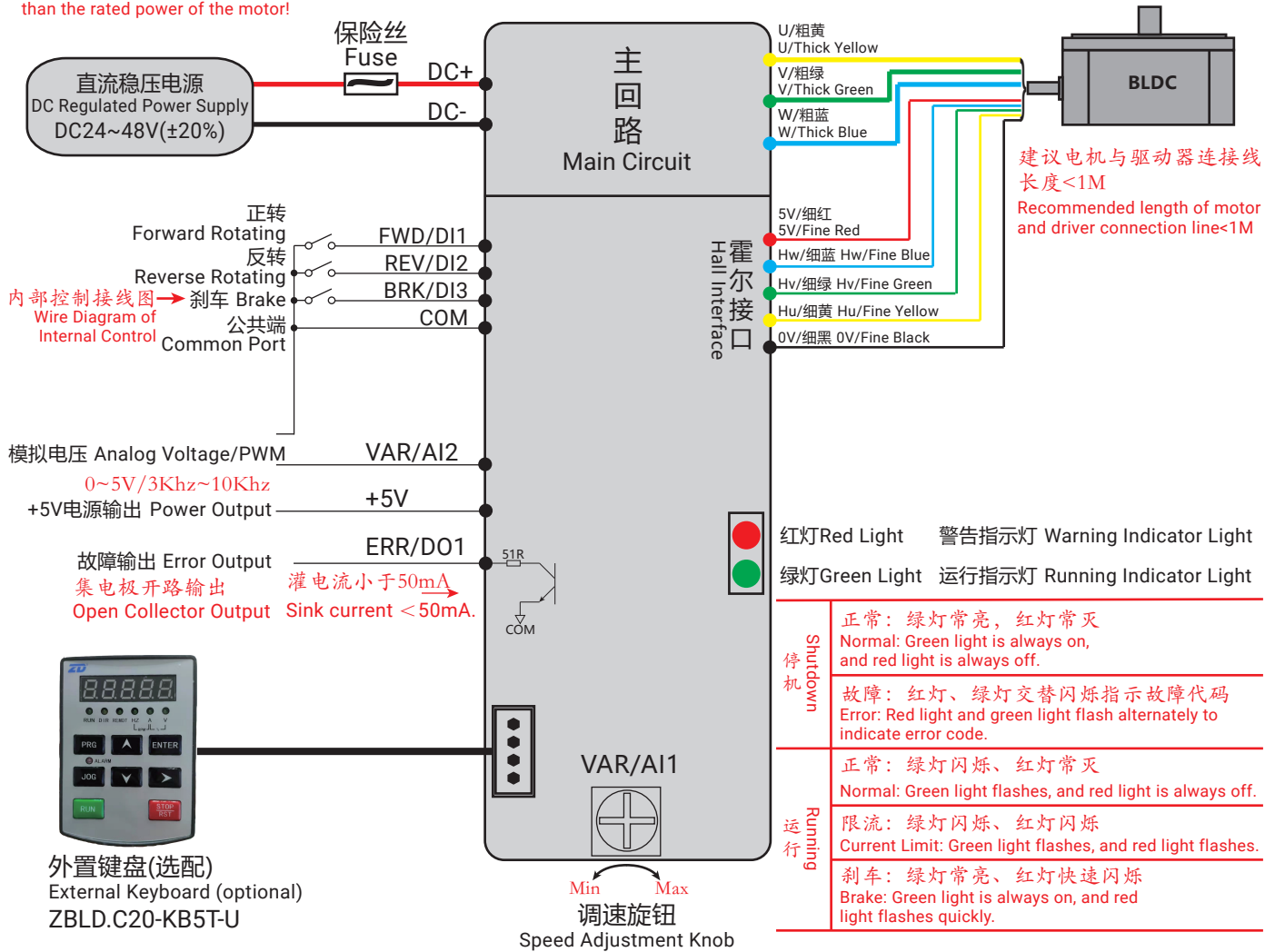
安装方式 How to Install

壁挂式安装
Wall-hanging

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.

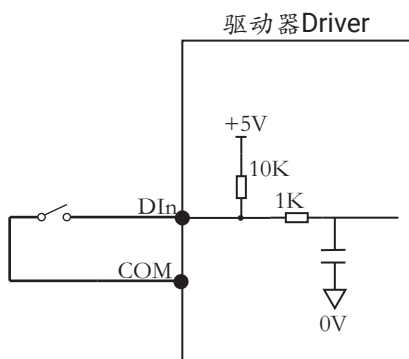
连接运行 Connect & Running

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!

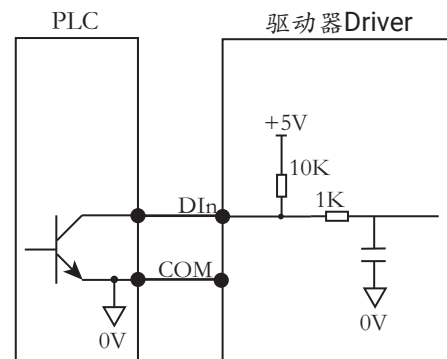


启停控制: 用户可自行外接开关(继电器)、PLC(NPN)控制启停。

Start-stop Control: External switches (relay) and PLC (NPN) could be installed for start-stop controlling.



开关(继电器)接线示意图
Wire Diagram of Switch (relay)



外接PLC(NPN)接线示意图
Wire Diagram of External PLC(NPN)

注意事项 Attention:

- 1.接线时应关掉电源，配线作业应由专业人员进行；
1.The power supply should be turned off before wire connecting, and the wiring work should be carried out by professional engineers;
- 2.电源线请勿反接，请勿接入电源端外的其他端子，否则可能会造成驱动器损坏；
2.Please do not connect the power cable reversely, and do not connect to other terminals except the power terminal, otherwise the driver may be damaged;
- 3.接地端子必须良好接地；
3.The ground terminal must be well earthed;
- 4.各连接端子与导线间的螺丝请确实锁紧，以防震动松脱；
4.Please tighten the screws between the connecting terminals and wires to avoid loosening;
- 5.完成电路配线后，请再次检查所有连接是否都正确无误；
5.Please check again if all connections are correct after circuit wiring.
- 6.请勿用作负载垂直升降运动！
6.Please do not use it for vertical lifting with load!

故障与维护 Error and Maintenance

当驱动器检测到故障后，将会停机，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  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.更换大一档控制器 3.Change to driver with larger power
13	霍尔故障 Error of Hall	2  3 	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  4 	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  1 	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  4 	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  2 	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  4 	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  5 	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