

BLD3610TC 无刷驱动器

BLD3610TC Brushless DC driver

➤ 特点

- 利用霍尔信号做速度闭环控制，低速下也可以达到最大转矩；
Closed-loop speed control by Hall signal. Maximum torque can be achieved at low speeds.
- 调速范围宽，支持 200rpm~20000rpm 的转速范围；
Wide speed adjustment range: support 200~20000 rpm speed range.(Two-pole motor)
- 提供软启停功能，启动停止更为柔和，安全性更高；
Provide soft start and stop function, softer start and stop, higher security.
- 宽电压输入范围，适应 12V~40VDC 直流电源；
Wide voltage input range, adapt to 12~40V DC power supply.
- 大电流驱动能力，持续额定电流达 10 A，峰值电流可达 20 A；
High current driving ability, continuous rated current up to 10A, the peak current up to 20A.
- 支持外部电位器，外部电压及外部 PWM 信号调速；
Support external Potentiometer, external voltage and external PWM speed control.
- 提供过压、欠压、过流、过温、霍尔信号错误等保护报警功能；
Provide over-voltage, under-voltage, over-current, over-temperature, hall sensor error protection and alarm function
- 支持 CAN2.0B 协议。
Support CAN2.0B Modbus protocol

典型应用：本产品广泛应用于针织设备、医疗设备、食品机械、电动工具、园林机械、智能家居等电气自动化控制领域。

Typical application: BLD4820TC is widely used in textile equipment, medical equipment, food machinery and equipment, power tool, garden machine, smart-home device and other electrical automation control fields.

◆ 产品概述 Product overview

本款驱动器适用于对直流无刷有霍尔电机进行转速控制，其最大的优点是在低速时总能控制电机保持最大转矩。另外还有调速方式多样，调速范围宽，功能齐全，硬软件保护完备等优势。

BLD4820TC is applied to the speed control of brushless DC hall motor. Its biggest advantage is that it can always control the motor to maintain the maximum torque at low speed. In addition, this product has advantages of diversified speed adjustment mode, wide speed adjustment range, complete functions, hardware and software full protection, etc.

调速方式多样：可提供电位器调速，外部电压调速、外部 PWM 信号调速，CAN 总线调速控制等。调速范围宽：支持调速的范围为 200rpm~20000rpm(两极电机)。功能齐全：具有使能、正反转、刹车及电机转速信号输入和报警输出等功能。硬软件保护完备：具有堵转保护，过压保护，欠压保护，过流保护，过温保护和霍尔信号故障报警功能。

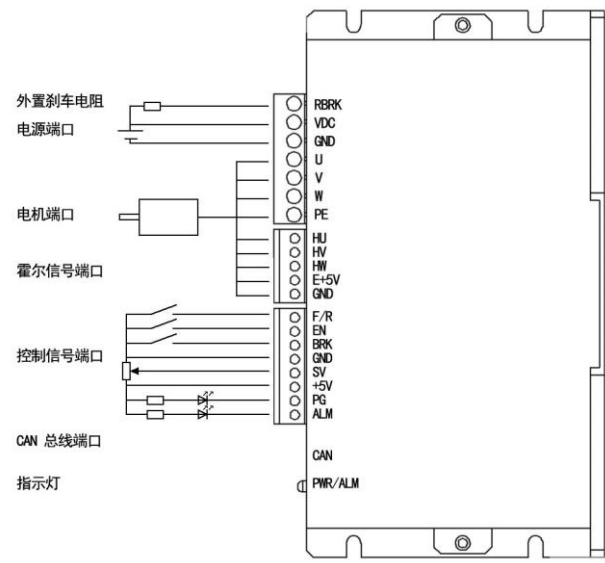
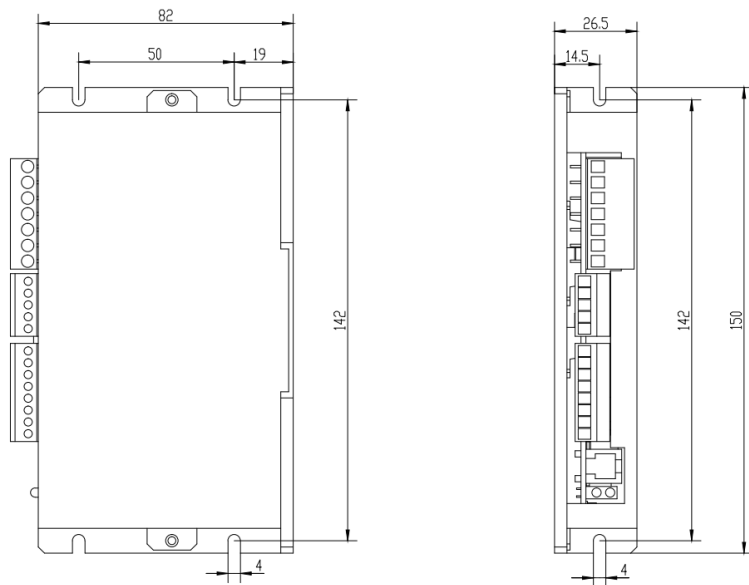
Diversified speed adjustment mode: provide potentiometer speed control, voltage speed control, external PWM speed control, CAN speed control, etc.

Wide speed adjustment range: support speed adjustment within the range of 200~20000 rpm(Two-pole motor);

Complete functions: with functions of enable, positive and negative turning, braking, motor speed signal output, alarm output, etc.

Hardware and software full protection: with functions of blocking protection, over-voltage protection, under-voltage protection, over-current protection, over-temperature protection, the hall signal fault alarm, etc.

◆ 机械结构尺寸图 Mechanical structure and dimension



◆ 功能参数 **Function and parameter**

电源电压 Supply voltage	额定工作电压: 36VDC (工作电压范围: 12VDC~40VDC) Rated operating voltage: 30VDC (operating voltage range: 12VDC ~ 40VDC)
工作电流 Operating current	电机相电流连续: 10A , 峰值电流: 20A (环境温度 25℃) Continuous current: 10A, Peak current: 20A (Ambient temperature below 25℃)
功率范围 Power range	≤400 W
调速范围 Speed range	200rpm~20000rpm(两极电机) 200rpm ~ 20000rpm (Two-pole motor)
适配电机 Adapted motor	直流无刷带霍尔电机 (120° /240°) Brushless DC hall motor (120°/240°)
转速模式 Working mode	霍尔速度闭环(默认), 开环模式(可选) Hall speed closed-loop mode(Factory Default), Open-loop mode(Optional)
调速方式 Speed adjustment mode	出厂默认为外部电位器, 外部电压(0V~5V), 如需 PWM 信号调速或通信(CAN 总线调速), 则需在出厂前进行配置为其中的一种。 Support external potentiometer speed control(Factory Default),external voltage(0 - 5 V), and if PWM speed control or CAN speed control is needed, one of them needs to be configured before delivery.
保护功能 Protective function	过压保护, 欠压保护, 过流保护, 过温保护, 软启动及霍尔信号故障报警。 Over-voltage protection, Under-voltage protection, Over-current protection, Over-temperature protection, Soft-Start and hall signal fault alarm function.

工作环境 Working environment	无腐蚀性、易燃、易爆、导电性气体、液体和粉尘。 No corrosive, flammable, explosive, conductive gas, liquid and dust.
散热方式 Heat dissipation mode	自然冷却或外加散热器。 Natural cooling or external radiator.
外型尺寸 Dimension	150 * 82 * 26.5 (单位: mm) 150mm×82mm×26.5mm

◆ 接口定义 Interface

接口 Interface	引脚名 Pin name	引脚定义 Definition	功能说明 Function description
电源接口 Power interface	VDC	直流 12VDC~40 VDC 输入 12~40V DC input	接电源正极 Connect to the positive pole of the power supply
	GND	电源地 Power Ground	接电源负极 Connect to the negative pole of the power supply
电机接口 Motor interface	U	电机 U 相 Motor phase - U	接电机动力线---U 相 Connect the motor power line - phase U
	V	电机 V 相 Motor phase - V	接电机动力线---V 相 Connect the motor power line - phase V
	W	电机 W 相 Motor phase - W	接电机动力线---W 相 Connect the motor power line - phase W
	HU	霍尔信号 U 相 Hall signal phase - U	接电机霍尔线--- 霍尔 Hu Connect the motor hall phase - U line
	HV	霍尔信号 V 相 Hall signal phase - V	接电机霍尔线--- 霍尔 Hv Connect the motor hall phase - V line
	HW	霍尔信号 W 相 Hall signal phase - W	接电机霍尔线--- 霍尔 Hw Connect the motor hall phase - W line
	E+5V	5 V 电源输出 (最大提供 200 mA) 5V power output (provide Max. 200 mA)	接霍尔电源线正极 Connect the positive pole of hall power line
	GND	5V 地 5V Ground	接霍尔电源线负极 Connect the negative pole of hall power line
控制信号 接口 Control signal interface	F/R	正反转控制 Positive and Negative turning control	控制电机运行方向 (F/R 悬空 CW 方向运行) (F/R 与 GND 短接, CCW 方向运行) (F/R remains unconnected, CW turning) (F/R is short-connected with GND, CCW turning)
	EN	使能控制 Enable Control	使能驱动器运行 (EN 悬空 驱动器不能控制电机) (EN 与 GND 短接, 驱动器使能) (EN remains unconnected, driver cannot control the motor) (EN is short-connected with GND, driver can control the motor)
	BRK	刹车控制 Brake Control	电子刹车抱死功能 (BRK 悬空 电机运行) (BRK 与 GND 短接, 电机轴立即抱死停机) Electronic brake locking function (BRK remains unconnected, motor on) (BRK is short-connected with GND, motor off)

	GND	外部调速地线 External speed controlling Ground	
	SV	0~5 V 模拟电压信号或 PWM 输入 0 ~ 5 V analog voltage signal or PWM input	调速控制端口 Speed control port
	+5V	5 V 电源输出 (最大提供 50 mA) 5 V Power output (provide Max. 50 mA)	
	PG	作为电机速度脉冲输出 Motor speed pulse output	电机转速信号输出, 需要外接上拉电阻 Motor speed signal output needs external pull-up resistor.
	ALM	作为报警输出 Alarm output	报警信号输出, 需要外接上拉电阻 Alarm output needs external pull-up resistor.
其他	CAN	CAN 总线接口 CAN port	
Others	PWR/ALM	指示灯 Indicator	<p>红灯闪烁 1 次 过压保护状态 Red flashes once: over-voltage protection</p> <p>红灯闪烁 2 次 欠压保护状态 Red flashes twice: under-voltage protection</p> <p>红灯闪烁 3 次 过流保护状态 Red flashes three times: over-current protection</p> <p>红灯闪烁 4 次 过温保护状态 (70°C) Red flashes four times: over-temperature protection(70°C)</p> <p>红灯闪烁 5 次 霍尔信号错误状态 Red flashes five times: Hall signal error</p> <p>红灯常亮 硬件错误 Red on: hardware error</p> <p>绿灯闪烁 无法达到目标速度 Green on: fail to reach target speed</p>