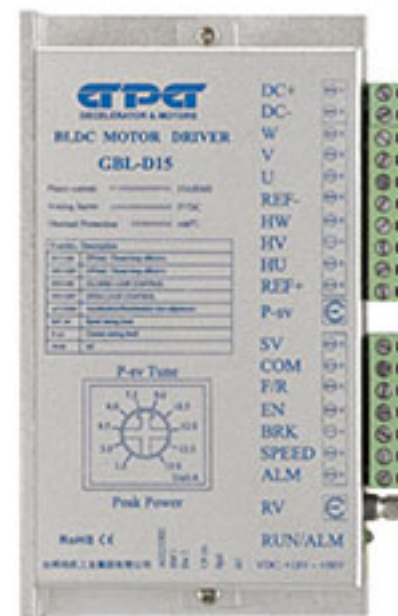


## GBL-D15 通用型直流无刷电机驱动器 GBL-D15 Universal Brushless DC Motor Driver

### 产品特点 Product Features

- 可驱动小于 300W 无刷电机
- 可进行加减速时间设定
- 拥有功率保护功能（最大电流设定）
- 可使用外部电位器调速
- 可使用 PWM 调速
- 可使用外部模拟电压调速
- Can drive brushless motor less than 300W
- Acceleration and deceleration time can be set
- Power protection (maximum current setting)
- Speed adjustment using external potentiometer
- Can use PWM speed regulation
- Adjustable speed with external analog voltage



### 产品规格 Product Specification

项目 Item	单位 Units	参数 Parameters
输入电压 Input voltage	VDC	最小值 : 12; 典型值 : 48; 最大值 : 56。 Minimum value: 12; Typical value: 48; Maximum: 56
输出电流 Output current	A	15
霍尔信号电压 Hall signal voltage	V	5
霍尔驱动电流 Hall drive current	mA	12
外接电位器 External potentiometer	kΩ	10
输入模拟量电压 Input analog voltage	VDC	5
速度控制范围 Speed control range	RPM	20000

### 功能选择设定 Function Selection Settings

#### • 电机极对数设定选择

为了更好的匹配不同极对数的直流无刷电机, 驱动器设有极对数设定选择, 通过 SW1 拨码可以设定电机极对数 4 对极或 2 对极, 出厂设置为 4 对极。

#### • PID 闭环设定选择

为了提升运行过程中的负载变动的速度稳定性, GBL-D15 驱动器设有 PID 闭环控制选择功能, 通过驱动器侧面的 SW2 拨码可以进行模式选择, 出厂设置为开环控制。

#### • 最大电流输出设定

最大电流的输出设定, 是保护直流无刷电机在处于过载运行的时候不被损坏, 通过启动驱动器过流报警并停止驱动器作业来达到此目的, 设定的电流值应与电机的额定电流值相匹配并注意实际使用的电源电压, 设定范围: 3~15A。

#### • 加 / 减速时间设定

电位器可设置电机加速度与减速度时间, 加速时间是电机从停止到达额定转速所需的时间, 减速时间是电机从额定转速到电机停止所需的时间, 通过左右旋转可以调节加减速时间, 设定范围: 0.3~ 15s。

#### • Pole logarithm setting selection of motor

In order to better match the brushless dc motor with different pole logarithm, the driver is equipped with the option of setting the pole logarithm. Through the SW1 dial code, the motor pole logarithm 4 pairs or 2 pairs can be set. The factory setting is 4 pairs.

#### • PID closed-loop setting selection

In order to improve the speed stability of load changes during operation, the GBL-D15 driver is equipped with PID closed-loop control selection function. Mode selection can be made through the SW2 dial code on the driver side, and the factory setting is open loop control.

#### • Maximum current output setting

The output setting of the maximum current is to protect the brushless dc motor from being damaged when it is in overload operation. This is achieved by starting the overcurrent alarm of the drive and stopping the operation of the drive. The set current value should match the rated current value of the motor and pay attention to the actual power supply voltage. Setting range: 3~15A.

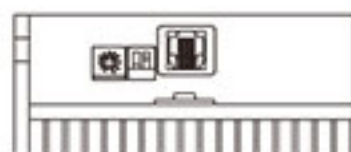
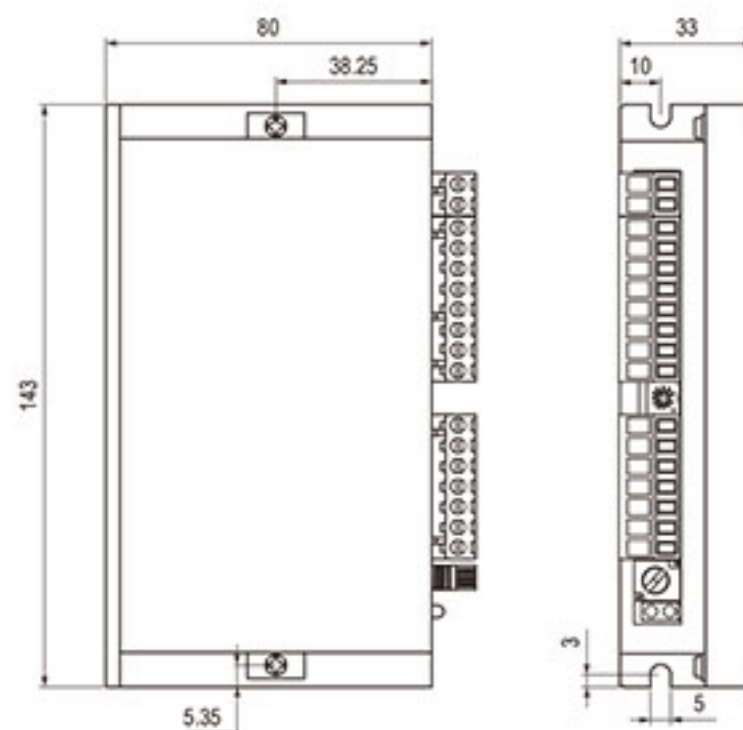
#### • Acceleration/deceleration time setting

The potentiometer can set the acceleration and deceleration time of the motor. The acceleration time is the time required for the motor to reach the rated speed from the stop, and the deceleration time is the time required for the motor to stop from the rated speed. The acceleration and deceleration time can be adjusted by rotating around. Setting range: 0.3~15s.

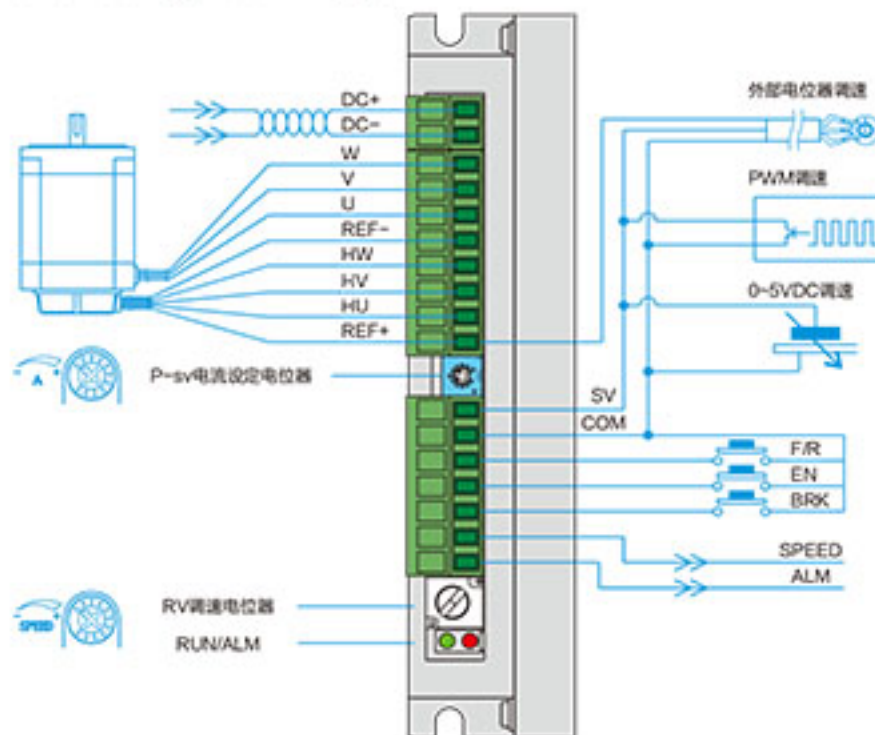
### ■ 端口信号说明 Port Signal Specification

CN5 端子编号 CN5 Terminal Number	信号种类 Signal Types	信号说明 Signal Instructions
DC+	电源连接 Power connection	直流电源接入正极 (电压范围: 12~56VDC) DC power access positive pole (voltage range: 12~56VDC)
DC-		直流电源接入负极 DC power is connected to the negative electrode
W	电机连接 Motor connection	直流无刷电机 W 相 DC brushless motor W phase
V		直流无刷电机 V 相 DC brushless motor V phase
U		直流无刷电机 U 相 DC brushless motor U phase
REF+	霍尔信号 Hall signal	直流无刷电机霍尔信号电源线 DC brushless motor hall signal power wire
HW		直流无刷电机霍尔信号 HW DC brushless motor hall signal HW
HV		直流无刷电机霍尔信号 HV DC brushless motor hall signal HV
HU		直流无刷电机霍尔信号 HU DC brushless motor hall signal HU
REF-		直流无刷电机霍尔信号接地线 DC brushless motor hall signal ground wire
SV	控制信号 Control signal	调速信号输入端口, 外部电位器调速时中间引出端连接此处, 两侧分别接 REF+ 与 COM 端口 Speed regulating signal input port. When the external potentiometer is regulating, the middle outlet end is connected here, and both sides are connected to REF+ and COM ports respectively
COM		公共端口 (0V 参考电平) Public port (0V reference level)
F/R		电机转动方向控制端口, F/R 端口与 COM 端口断开电机为顺时针转动, 短接闭合为逆时针转动 Motor rotation direction control port, F/R port and COM port disconnect motor for clockwise rotation, short connection closure for counterclockwise rotation
EN		停止信号控制端, EN 端口与 COM 端口断开为电机缓慢停止, 短接闭合为正常运行 Stop signal control end, EN port and COM port disconnect for slow motor stop, short connection closure for normal operation
BRK		电机快速刹车信号端口, BRK 端口与 COM 端口断开电机为快速刹车, 短接闭合为正常运行 Motor fast brake signal port, BRK port and COM port disconnection motor for fast brake, short closure for normal operation
SPEED	输出信号 Output signal	速度信号输出端口, 与电机的运转转速相应, 输出相对应的脉冲频率 The output port of the speed signal is corresponding to the running speed of the motor and the corresponding pulse frequency is output
ALM		报警信号输出端口, 正常为 5V, 出现故障时电平为 0V The alarm signal output port is normally 5V, and the level is 0V in case of failure

### ■ 外形尺寸 Overall Dimensions



### ■ 驱动器功能配置图 Drive Function Configuration Diagram



#### • 内置电位器调速控制 Built-in potentiometer speed control

内置电位器调速控制，使用内置电位器 RV 调速时，顺时针旋转电位器 RV，电机速度增大；逆时针旋转电位器，电机速度减小；当使用其它速度模式，请逆时针旋转 RV 至“咔”，表示已关闭至极限位置。

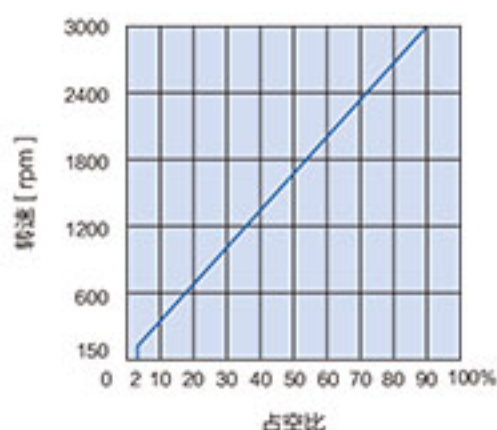
Built-in potentiometer speed control, when using built-in potentiometer RV speed control, clockwise rotation of the potentiometer RV, the motor speed increases; Rotate the potentiometer counterclockwise, the motor speed decreases; When using other speed modes, rotate RV counterclockwise to "click" to indicate that it is closed to the limit position.



#### • PWM 调速控制 PWM speed control

PWM 调速输入，当调速模式为 PWM 时，占空比在 2%~90% 范围进行转速控制，当占空比大约为 2% 时，电机转速为最高转速的 5%；当占空比大约为 90% 时，电机转速为最大值，最高速度值取决于电机规格和电源电压（占空比脉冲频率范围：1-3kHz）。

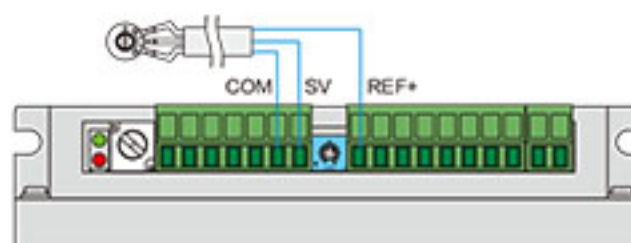
PWM speed regulation input, when the speed regulation mode is PWM, the duty cycle in the range of 2% to 90% speed control, when the duty cycle is about 2%, the motor speed is 5% of the highest speed; When the duty cycle is about 90%, the motor speed is the maximum value, and the maximum speed value depends on the motor specification and the supply voltage (duty cycle pulse frequency range: 1-3kHz).



#### • 外部电位器调速控制 External potentiometer speed control

外部电位器调速控制，使用外置电位器调速时，请使用 10kΩ 的适合电位器，电位器中间引线端连接驱动器 SV 端口，两侧引出的分别连接 REF+ 与 COM 端口。

External potentiometer speed regulation control, use the external potentiometer control, please use the 10kΩ for potentiometer, potentiometer middle pins connect drive SV port, on both sides of the draw out respectively connected REF+ and COM port.



#### • 外部模拟电压调速控制 External analog voltage speed control

当调速模式为外部模拟电压时，输入电压为 0.25~4.5V 进行转速控制，当输入电压大约为 0.25V 时，电机转速为最高转速的 5%；当输入电压大约为 4.5V 时，电机转速为最大值，最高速度值取决于电机规格和电源电压。

When the speed regulation mode is external analog voltage, the input voltage is 0.25~4.5V for speed control. When the input voltage is about 0.25V, the motor speed is 5% of the maximum speed. When the input voltage is about 4.5V, the motor speed is the maximum value, and the maximum speed value depends on the motor specification and the supply voltage.

