FASTERCNC CO,. LTD.

DDBLDV1.0

DDBLDV1.0
Brushless DC motor Driver
Product Manual
（English）

DDBLDV1.0

DDBLDV1.0 Brushless DC motor Driver

▶ 1、Introduction

DDBLDV1.0 is a High performance BL motor Driver with the chip　SCM1243MF of SANKEN inside. It appropriate to driver little and middle power Brushless DC motor. The most power is 750W. To driver the same motor, this driver can make more speed and more power to motor. It's control method is sample and reliable.
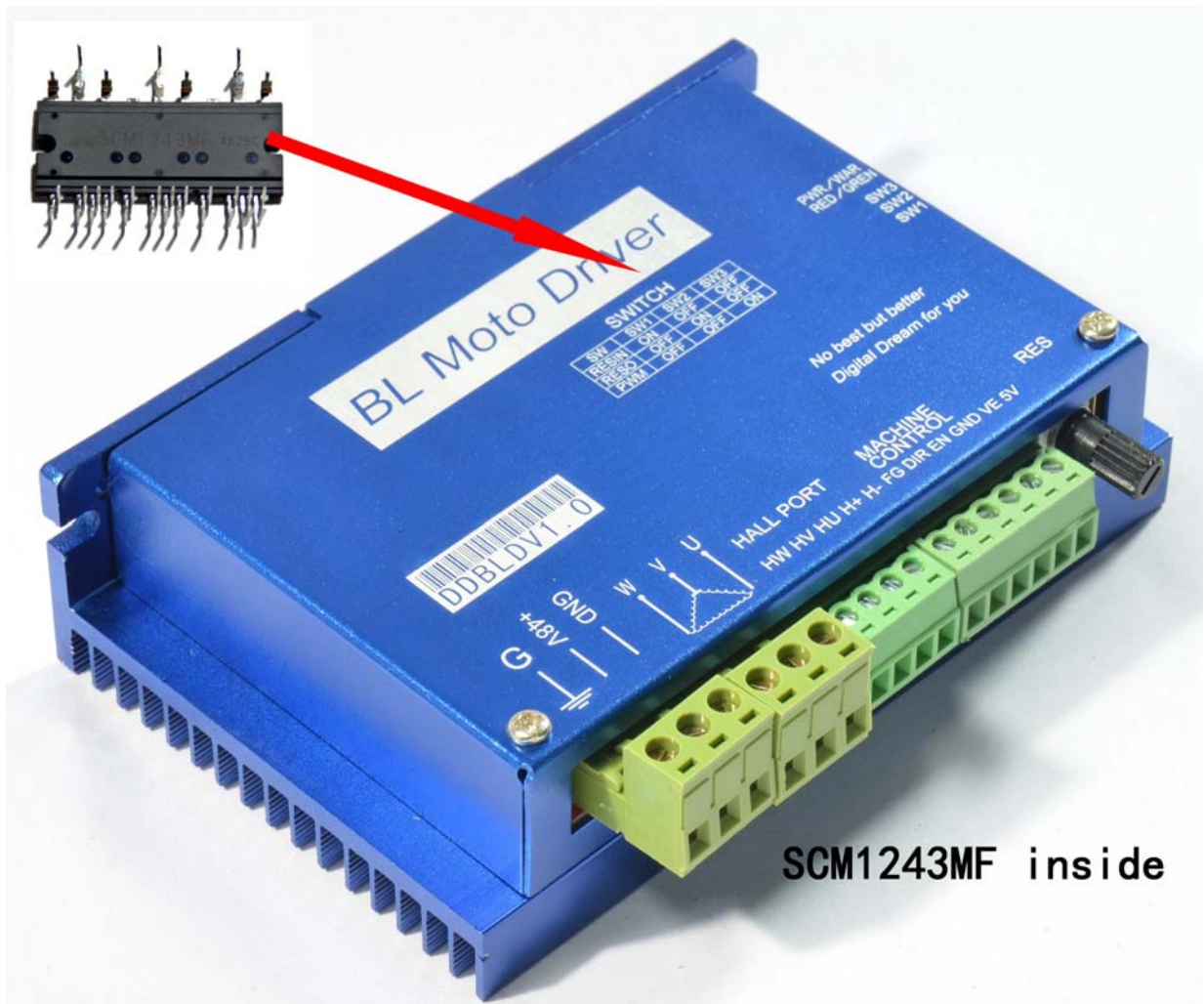
▶ 2、Specification

■ High performance, low price

■ Three-phase intelligent driver chip

■ Supply voltage24~60VDC

■ Input electrical signal TTL compatibility

■ No current when static

■ easy to install

■ The most power is 750W

■ There are 3 methord of speed control, regulation resistance inside、voltage signal 、PWM signal

■ Drive BL motor the most rotation to 12000r/min

■ There is speed port, it's easy to measure the rotation of BL motor.

■ There are overvoltage 、 overcurrent and lock rotor test inside.

■ There is IPM chip SCM1243MF inside, It's more stabilize than MOSFET.

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▶ 3、application fields

It is suitable to various kinds of small or middle size of automation equipment and instrument,

like the small size engraving machine and chip mounter.

▶ 4、Outview

IPM chip SCM1243MF inside

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Front view

work in with 400W 12000r/min BL DC motor

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▶ 5、wire connection definition

Control port（MACHINE CONTROL）

信号	功能
FG	Motor speed feedback signal, each pulse indicate half circle
DIR	Motor direction signal +. When DIR=5V, the BL motor is counter-clockwise（observe from the tail of motor）.When DIR=0V, the BL motor is clockwise（observe from the tail of motor）.This signal is High level(5V) when it's not connect.
EN	Enable +.When EN=5V, the driver is invalid　and when EN=0V,the driver is available
GND	General Ground，FG\DIR\EN\VE signal should control refer to GND
VE	Motor Speed control port, you can give a 0-5V voltage signal to this port in voltage mode. Or give a PWM signal(5~8Vpp)to this port in PWM mode.
5V	This is 5V output reference port，When you want to control motor speed with regulation resistance .5V port can be used as high voltage reference port. Please don't supply 5V power to this port.

HALL PORT(BL DC motor)

signal	function
HW	Hall signal of W port
HV	Hall signal of V port
HU	Hall signal of U port
H+	Power output port + for Hall
H-	Power output GND for Hall

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Power port

signal	function
G	Shell port. This port is connect to Shell of the product. You can connect it to the main box shell.
+48V	Main power+，The voltage of power should be in 24V-60VDC，48V is recommend
GND	Power Ground.
W	W port of BL DC motor
V	V port of BL DC motor
U	U port of BL DC motor

⚠ **CAUTION: This driver do not contain the anti-plug backward circuit, thus ye-negative reversal is prohibited!   Otherwise, the driver will be damaged**

▶ 6、electrical specificatio

Electrical specification（T=25℃）
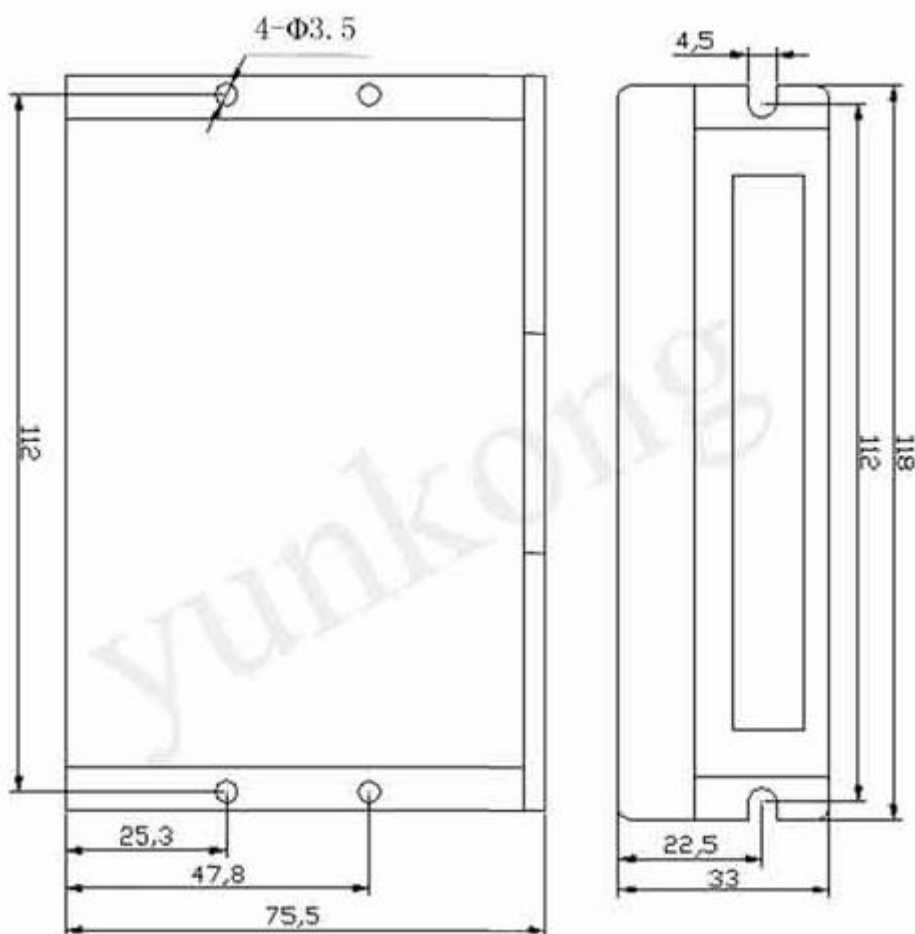
Description	DDBLDV1.0			
	Min. value	Typical value	Max. value	Unit
Output phase current	0.5	-	8	A
Input power source voltage	24	48	60	V
Logic input voltage	4.5	5	5.5	V
Logic input current	5	10	15	mA
Revolution of motor	0	-	12000	r/min
Power of driver	-	400	750	w

If power of driver is above of 500W,please use air cooling.

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▶ 7、Operating environment and parameter

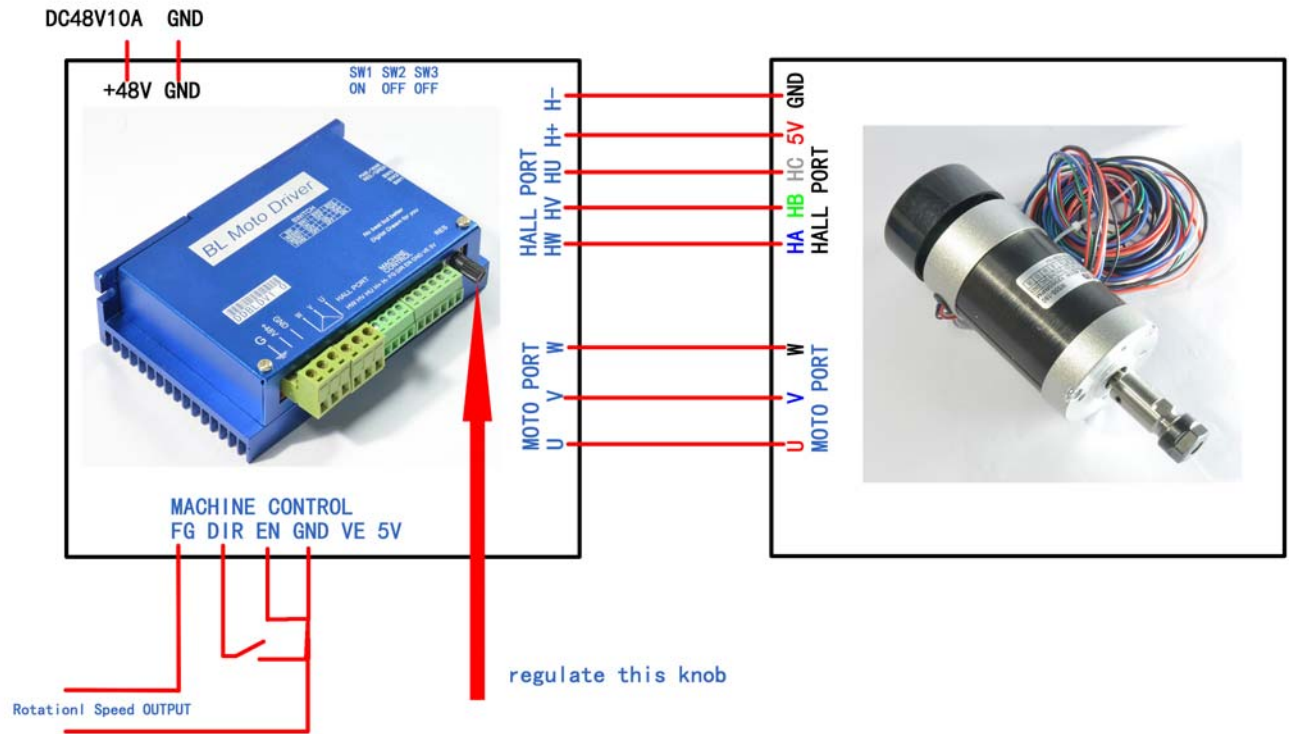| Cooling type		Natural cooling or force-air cooling
Operating environment	Circumstance	Avoid the dust, oil mist and corrosive gas
	Temperature	0℃-+50℃
	Humidity	40-90%RH
	Shake	6m/s2 MAX
Storage temperature		-20℃-+65℃
Weight		250g

▶ 8、installation size

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9、power supply

Machine could operate within the voltage of DC24V-60V. The common switch DC power supply and the transformer+bridge rectifier+capacitor filtering (capacitance range:2000U-5000U), both are allowable for the DDBLDV1.0 driver's power supply. But the voltage wave crest shall less than 50V. It is recommended that the user adopt the 36V-48V DC power supply lest the power grid fluctuation exceeds the driver's voltage range.
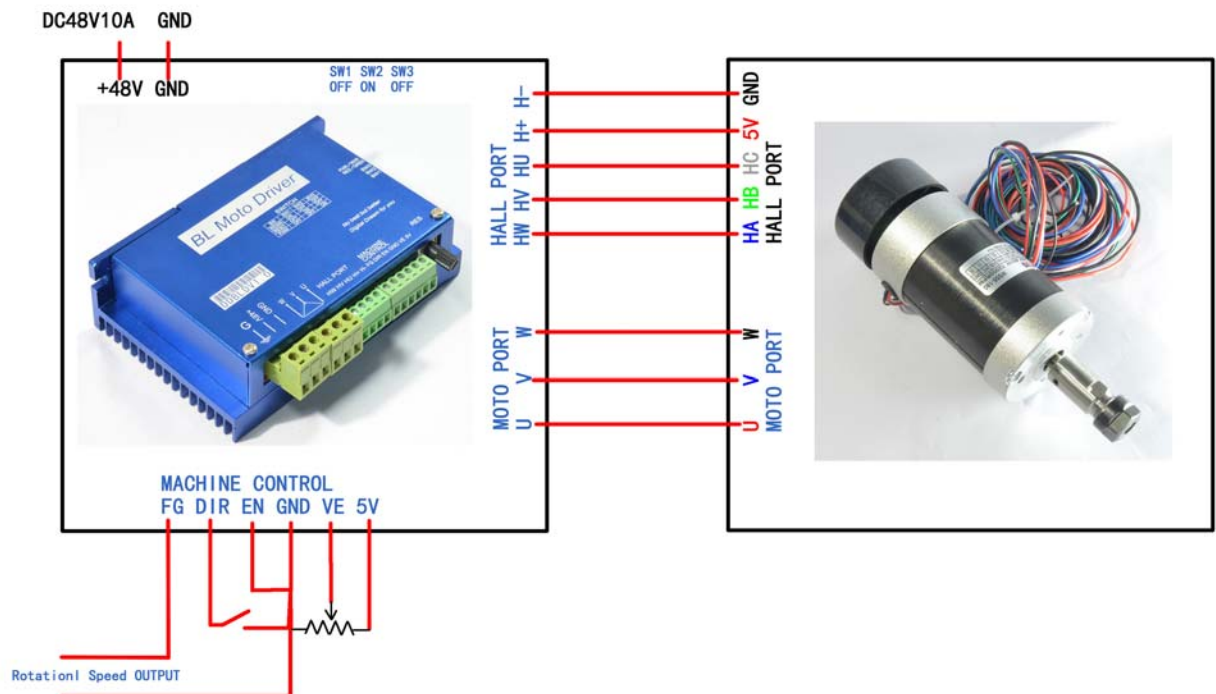
10、Speed control switch setting

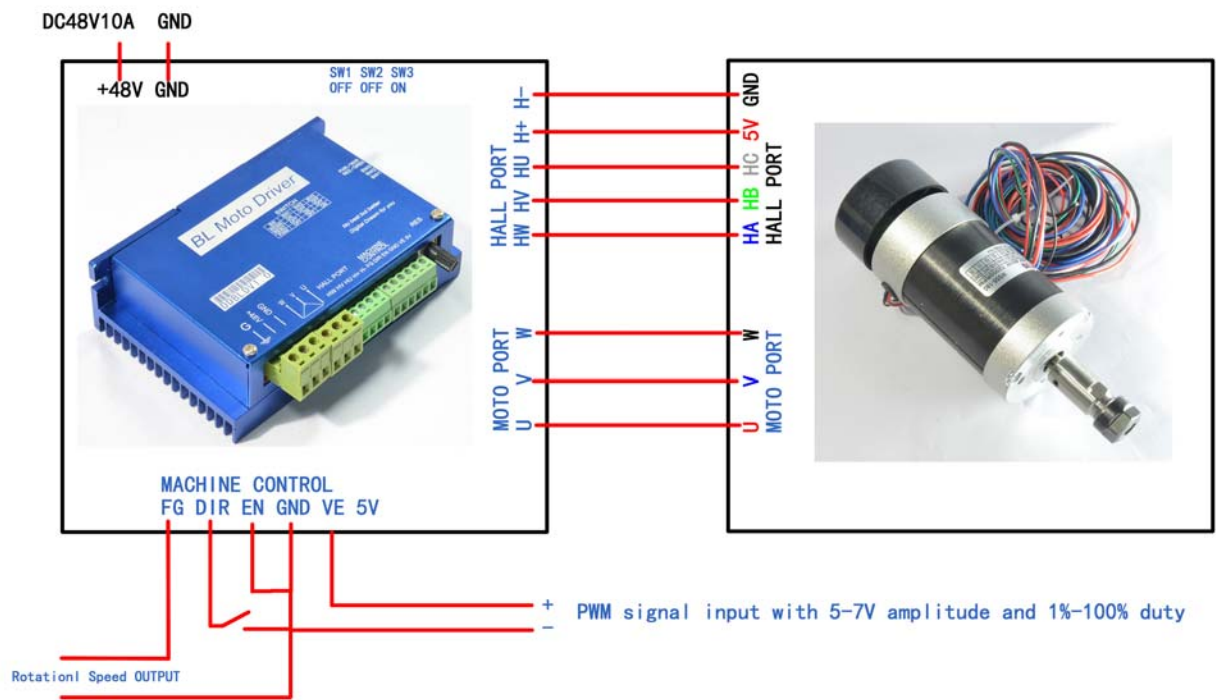| Channel	description	SW1	SW2	SW3
RESIN	RES inside	ON	OFF	OFF
RESO	RES or voltage outside	OFF	ON	OFF
PWM	PWM signal	OFF	OFF	ON
LED	description	instruction		
红色 LED	Power LED	This LED should light when power supply in, and also should light out when power cut off.		
绿色 LED	Error LED	This is locked rotor indicated LED. When the BL DC motor is locked rotor, this LED will light. Attention,Sometimes this LED will light when motor is stop in control.You can ignore it ,or restart the power of DDBLDV1.		

▶ 11、the driver,motor and controller wiring method

Change speed by Regulation resistance inside

Change speed by voltage outside or regulation resistance outside

Change speed by PWM signal outside

▶ 12、Matching with motor

DDBLDV1.0 Driver can driver most of BLDC motor below 60V 750W,which with HALL or without HALL. To make it work fine, you should choose the correct voltage.