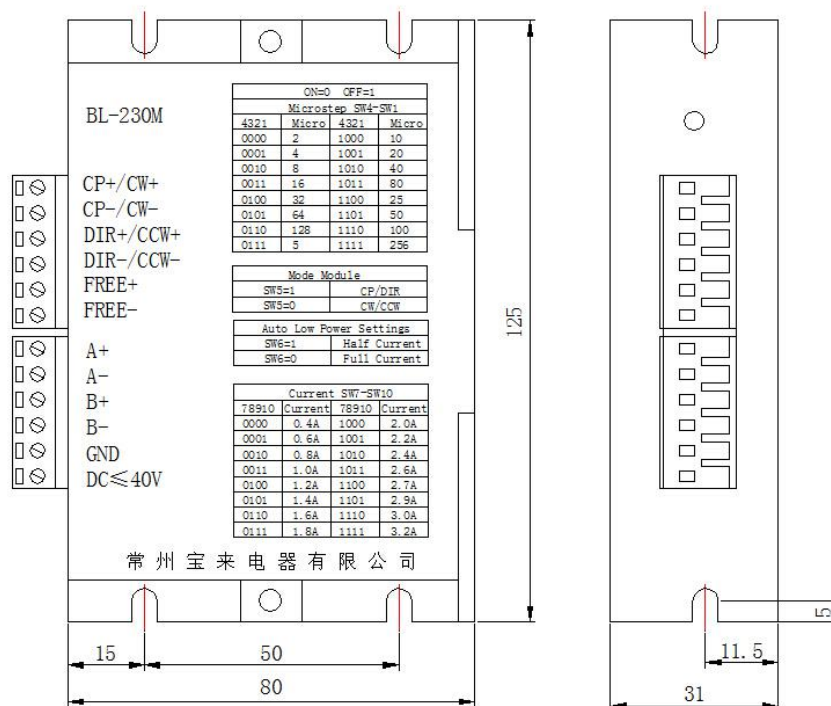


## BL-230M Stepping Motor Driver

### 1、Features

- 1.1 Suitable for wide voltage range (24-40V).
- 1.2 Constant current chopper, bipolar full bridge driver.
- 1.3 Best running performance, automatic semi current, high reliability.
- 1.4 Microstep number can be set by dial switch: 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/128, 1/256, 1/5, 1/10, 1/20, 1/40, 1/80, 1/25, 1/50, 1/100.
- 1.5 All input signals are isolated with the power amplifier part of the photoelectric, the external shell is insulated with the inner of the driver.
- 1.6 Suitable for 2 or 4 phase hybrid stepping motor under 3.2A.
- 1.7 Weight: 0.32Kg

### 2、Figure Dimensions and Wiring Diagram



### 3、Instructions

- 3.1 The operating voltage: DC 24-40V.
- 3.2 Control the input signal: (reference part 5)
  - (1) CP+(CW+): connect with external controller +5V output.
  - (2) CP-(CW-): connect with external controller pulse signal output (forward direction pulse output)
  - (3) DIR+(CCW+): connect with external controller +5V output.
  - (4) DIR-(CCW-): connect with external controller direction signal output (reverse direction pulse output).
  - (5) FREE+: connect with external controller +5V output.
  - (6) FREE-: connect with external controller reset output (When motor lose power, then low level is effecive).

### 3.3 Motor wiring connection:

- (1) A: Connected with A phase (2) A-: Connected with A- phase  
 (3) B: Connected with B phase (4) B-: Connected with B- phase

### 3.4 The operating voltage of the connection:

- (1) GND: Connected to the dc power cathode.  
 (2) DC ≤ 40V: Connected to the dc power anode.

### 3.5 Microstep (stepping angle) setting:

You can set the microstep number of driver by turning the switches SW1-SW4 ON or OFF in order to change the stepping angle of motor. Observe the operation situation of motor after power is supplied.

## 4、Setting the phase current of motor

4.1 The motor phase current is settled by the switches SW7-SW10 on the driver, to make driver output current is equal to motor phase current. The details please refer to the sheet:

SWITCH ON=0 OFF=1									
SW7	SW8	SW9	SW10	Current (A)	SW7	SW8	SW9	SW10	Current (A)
0	0	0	0	0.4	1	0	0	0	2.0
0	0	0	1	0.6	1	0	0	1	2.2
0	0	1	0	0.8	1	0	1	0	2.4
0	0	1	1	1.0	1	0	1	1	2.6
0	1	0	0	1.2	1	1	0	0	2.7
0	1	0	1	1.4	1	1	0	1	2.9
0	1	1	0	1.6	1	1	1	0	3.0
0	1	1	1	1.8	1	1	1	1	3.2

4.2 The maximum rated current of driver is 3.2A.

4.3 When the current is greater than 2A, the module should be fixed on the large metal shell, or additional axial flow fan cooling in order to make module long-term reliable operation.

## 5、Input Signal Interface

The single pulse signal in external controller is stepping signal CP(pulse signal) and directional signal DIR (level signal). The double pulse signal in external driver is forward pulse signal CW and reverse pulse signal CCW. When using, pay special attention to dial switch 6 must be set to the OFF position (SW6 = 1).

There are three input signal circuits totally, they are:

- a. Stepping pulse signal CP+, CP—
- b. Directional level signal DIR+, DIR—
- c. Off-line signal FREE+, FREE—

They have the same interface circuit of the drive inside, but independent of each other(refer to signal interface circuit diagram).

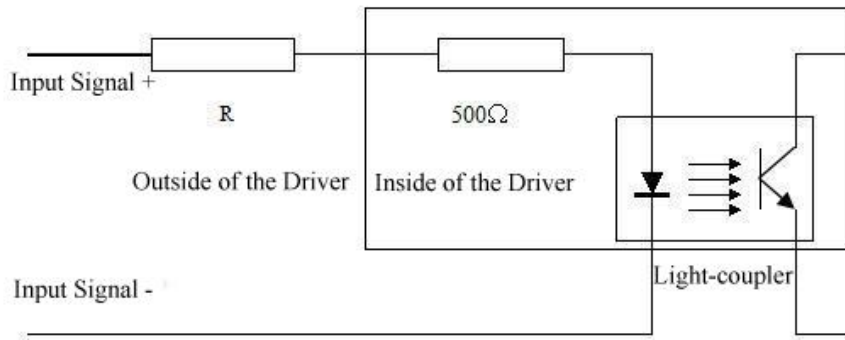
The characteristics of the input signal interface are: the user can be based on the need to adopt a common anode or common cathode connection.

(1) Common anode connection: CP+, U/D+, FREE+ respectively connected to the control system of the power supply. It can be directly connected if the power supply is + 5 v, if the power supply is higher than + 5 v,

we need a external plus current-limiting resistance R, to guarantee that the internal optical coupling to the drive to provide drive current 8~15 mA. The input signal join in through the CP - terminal. At this point, the U/D - and FREE - work at low levels.

(2) Common cathode connection: CP+, U/D+, FREE+ respectively connected to the control system of the power supply. (SGND is isolated with power supply), The input signal +5V join through the CP + terminal. At this point, the U/D+ and FREE+ work at high levels. The connection of current-limiting resistance R is same as common anode connection.

### 6、Signal Interface Circuit Diagram



### 7、Input Signal Interface Circuit

#### 7.1 Microstep Setting

The number of microstep can be settled by dial switch. You can only set according to the following table. Please as far as possible select the high microstep if the system frequency allows.

Step angle is calculated according to the following methods:

$$\text{Step angle} = \frac{\text{the natural step angle of motor}}{\text{microstep number}}$$

For example:  $1.8^\circ / 4 = 0.45^\circ$

SWITCH ON=0 OFF=1									
SW4	SW3	SW2	SW1	Microstep	SW4	SW3	SW2	SW1	Microstep
0	0	0	0	2	1	0	0	0	10
0	0	0	1	4	1	0	0	1	20
0	0	1	0	8	1	0	1	0	40
0	0	1	1	16	1	0	1	1	80
0	1	0	0	32	1	1	0	0	25
0	1	0	1	64	1	1	0	1	50
0	1	1	0	128	1	1	1	0	100
0	1	1	1	5	1	1	1	1	256

#### 7.2 Wiring Connection

Terminal A and A- are a phase winding, B and B- are another phase winding.

#### 7.3 Signal mode setting

Mode	Module	Comment
SW5=1	CP/DIR	Pulse/Directional signal
SW5=0	CW/CCW	Double pulse signal

### 8、Sales principles

Based on the principle of taking customer experience and company reputation as the first goal, our company help users solving problems in the using process.

Also, we will work together to help users have a good understanding of our products in order to use them better. It is our pleasure to work with users to discuss the questions of technical aspects during using this product. All products have one year warrant and life-long repair service.