Stepper Motor Driver CW230

1. Introduction

Descriptions

The CW230 driver is a cost-effective and high performance stepping driver. The design is based on an advanced control technology. It applies to two-phase or four-phase hybrid stepping motor below 3A,such as 57BYG,42BYG. Due to the adoption of the advanced bipolar constant-current chopper driver technology. It shows many features such as stable operation and excellent high speed torque. It has 7 kinds of micro-step, and the maximum number of micro-step is 1/64. Chopping frequency of 20000 times per second can eliminate the noise of the motor. Another unique function is that it can automatically reduce current: when the motor is stopped, the output current reduces to a lower value, thereby reducing the heating of the motor and driver.

Supply voltage range from 18VDC to 40VDC ,the output current can be set from 0.9A to 3A; with automatic idle-current reduction, self-test, over-voltage, under-voltage and over-current protection.

Features

- High-performance, low price
- micro-step
- Automatic idle-current reduction
- Optical isolating signal I/O
- Max response frequency up to 50Kpps
- Low temperature rise, smooth motion
- Online adaptive PID technology

Applications

It is suitable for a variety of small-scale automation equipments and instruments, such as labeling machine, cutting machine, packaging machine, plotter, engraving machine, CNC machine tools and so on. It always performs well when applied for equipment which requires for low-vibration, low-noise, high-precision and high-velocity.

Electrical Parameters

instructions	Min. Value	Topical Value	Max. Value
Voltage（V）	18	36	40
Output Current（A）	0.9	1.5	3
Logic Input Current（mA）	7	10	16
Step Pulse Respond Frequency（KHz）	-	-	50
Pulse Low Level Duration（ｕｓ）	5	-	-

2 .parameter setting

Current setting

Dial switch：ON=0;OFF=1

Peak Current	SW5	SW6	SW7
0.9A	0	0	0
1.2A	0	0	1
1.5A	0	1	0
1.8A	0	1	1
2.1A	1	0	0
2.4A	1	0	1
2.7A	1	1	0
3.0A	1	1	1

Standstill Current Setting

If the host controller does not send the signal in half a second step, the drive will automatically enter power-saving semi-liquid state, phase current of motor winding will be reduced to half of the set, in this state, motor and drive power can be reduced, but the motor output torque is also reduced accordingly. Recovery automatically the output current rating when next pulse arrives.

Micro-step Selection

Dial switch：ON=0;OFF=1

Micro-step	pulse/re	SW1	SW2	SW3
1	200	1	1	1
2	400	0	1	1
4	800	1	0	1
8	1600	0	0	1
16	3200	1	1	0
32	6400	0	1	0
64	12800	1	0	0

3. Connectors and Pin Assignment

Control signal Connector

Control Signal connector	
Name	Description
CP+	Pulse signal positive
CP-	Pulse signal negative
CW+	Direction signal positive
CW-	Direction signal negative
REST+	Reset signal positive, usually left unconnected(reset)
REST-	Reset signal negative, usually left unconnected(reset)

Power and Motor Connector

GND	Power Ground
+VDC	Power supply, +18~+40VDC
A+	Motor phase A
A-	
B+	Motor phase B
B-	

Control Signal Connector Interface

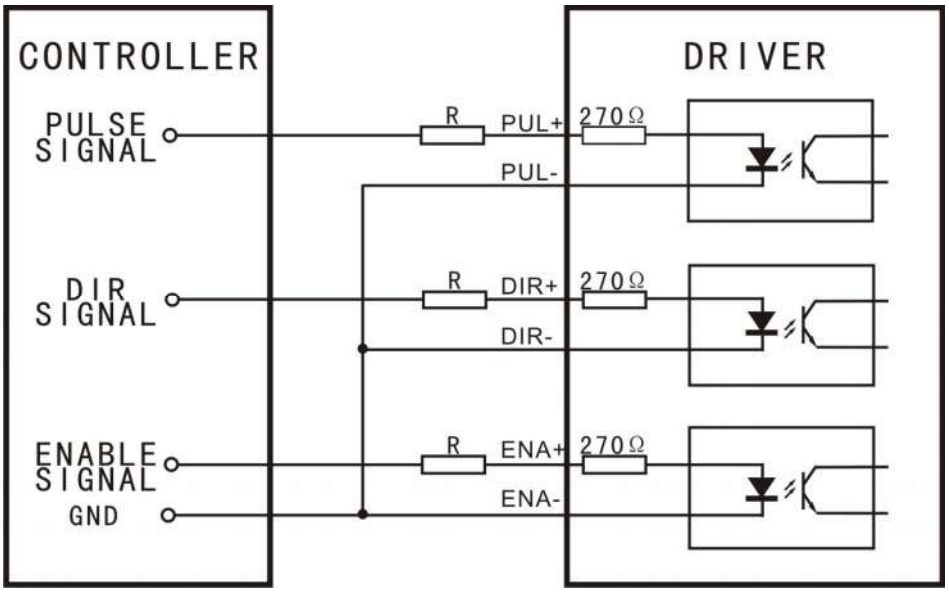

Figure1: Common-Cathode

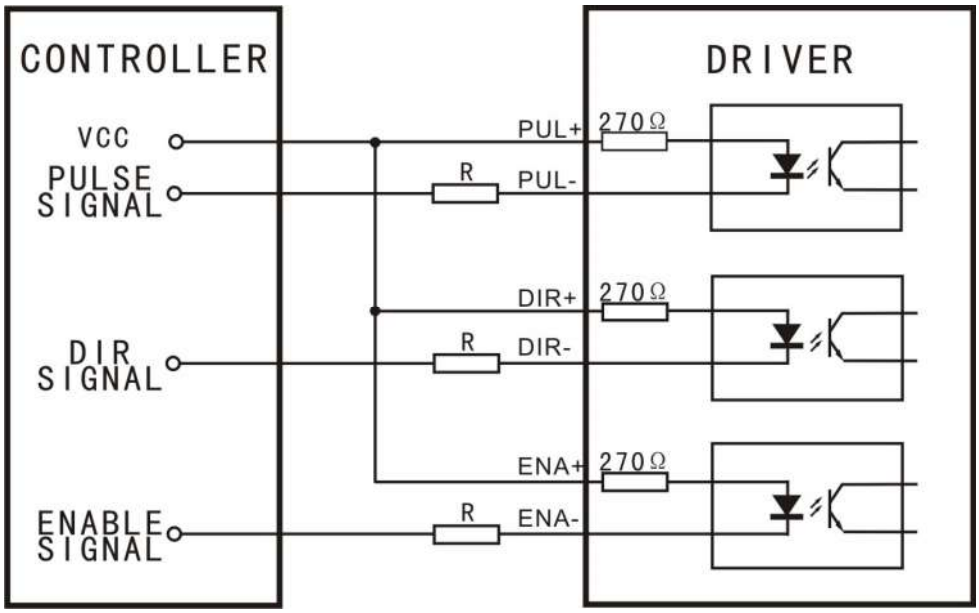

Figure2: Common-Anode

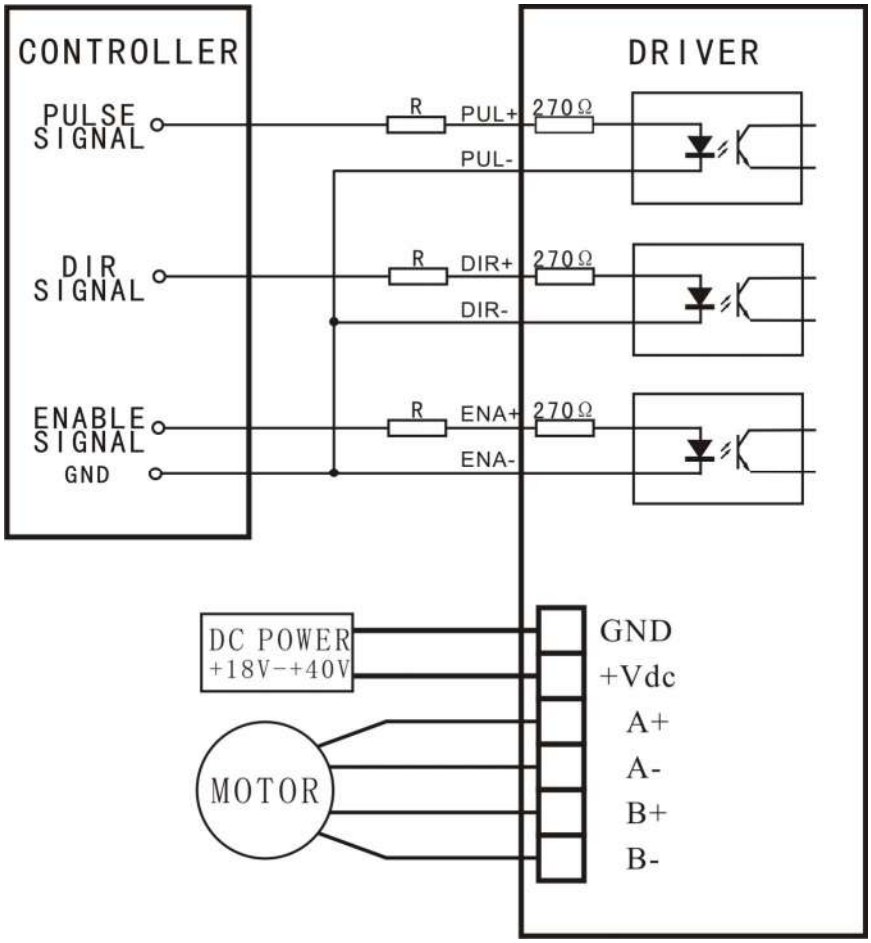

Figure 3: Typical connection

VCC	R
5V	不加
12V	680Ω
24V	1.8KΩ

Table1

4. Problems and Solutions

problems	Possible cause	solutions
Motor is not rotating	No power supply	Check the power supply
	No control signal	Check the control signal
	The driver is disabled	Don't connected the enable signal or enable the driver
ALM lights	Supply voltage is too high or too low	Check the supply voltage
	Motor line short-circuit	Check motor lines eliminate the short-circuit
	Motor line wrong connect	Check the motor wiring
	Motor or drive failure	Replace the motor or drive
Motor rotates in the wrong direction	Motor phases connected in reverse	Reverse the phases line
	Motor line break	Change the phases are connected
Inaccurate Position	The Micro steps set incorrectly.	Set the correct segments
	The motor load is too heavy.	Increasing the current
	Control signal is interfered	Eliminate interference
Motor Stalled	Power supply voltage too low	Increasing the supply voltage
	Accelerating time is too short.	Extend the acceleration time
	Current setting is too small	Increasing the current
	Motor torque is too small	Replace the motor

5. Mechanical Specifications (unit: mm(inch),1 inch = 25.4mm)