DM9082 Closed Loop Stepping System

1. Introduction

Descriptions

DM9082 is a new generation hybrid servo driver, it uses the 32-bit DSP processor, the internal integrates the technology of the anti-resonance, low noise, micro-step, low temperature rise ,so that dramatically improve the performance of the stepper motor,with some characteristics of low noise, small vibration, low temperature and high-speed torque . The driver's interior use the adaptive PID technology, without manual adjustment can automatically generate the optimal parameters for different motor, the motor runs to achieve the best performance.

Drive voltage is DC 24-90VDC, for various types of two-phase hybrid closed loop stepping motor which current is less 8.2A , with automatic semi-flow, self-test, over-voltage, under-voltage and over-current protection.

Features

- high-performance, low price ;
- Placed inside micro-step;
- Automatic semi-flow when stops;
- Optically isolated signal for input / output;
- Impulse response frequencies up to 200KHz;
- Low temperature rise, low vibration;
- online adaptive PID technology.

Applications

DM9082 is a low-cost, high-performance servo systems, suitable for a variety of large-scale automated equipments and instruments, such as low-cost, low vibration, noise, high-precision, high-speed devices, And it is ideal for applications where the equipment uses a belt-drive mechanism or otherwise has low rigidity and you don't want it to vibrate when stopping.

Electrical Specifications

Parameter	Min	Typical	Max	Unit
Input Voltage(DC)	24		90	VDC
Output Current	0	-	8.2	A
Pulse Signal Frequency	0	-	200	KHZ
Input Signal Current	7	10	16	mA

2.Parameter settings
Current setting

Switch: ON=0;OFF=1

PK current（A）	RMS（A）	SW1	SW2	SW3
1.8	1.29	1	1	1
2.7	1.93	0	1	1
3.6	2.57	1	0	1
4.6	3.29	0	0	1
5.5	3.93	1	1	0
6.4	4.57	0	1	0
7.3	5.21	1	0	0
8.2	5.86	0	0	0

Standstill Current Setting

SW4 is used for standstill current setting. OFF meaning that the standstill current is half of the dynamic current; and ON meaning that standstill current is the same as the selected dynamic current. Usually the SW4 is set to OFF, in order to reduce the heat of the motor and driver.

Subdivision Setting

Switch: ON=0;OFF=1

subdivision	SW5	SW6	SW7	SW8
400	0	0	0	0
800	1	1	0	0
1600	0	1	1	0
3200	1	0	0	1
6400	1	0	1	1
1000	0	0	0	1
4000	0	1	0	1
5000	1	1	0	1
8000	0	0	1	1
20000	0	1	1	1

3.Interface wiring instructions

Control signal Connector(CN1)

Signal	Function	
PUL+	Pulse signal positive	Pulse signal control the motor to run, each pulse make motor running one step。
PUL-	Pulse signal negative	
DIR+	Direction signal positive	Direction control signal to control the direction motor running.
DIR-	Direction signal negative	
ENA+	Enable signal positive, usually left unconnected(enable)	Motor is offline, no internal current enable signal is active。
ENA-	Enable signal negative, usually left unconnected(enable)	

Strong electrical interface

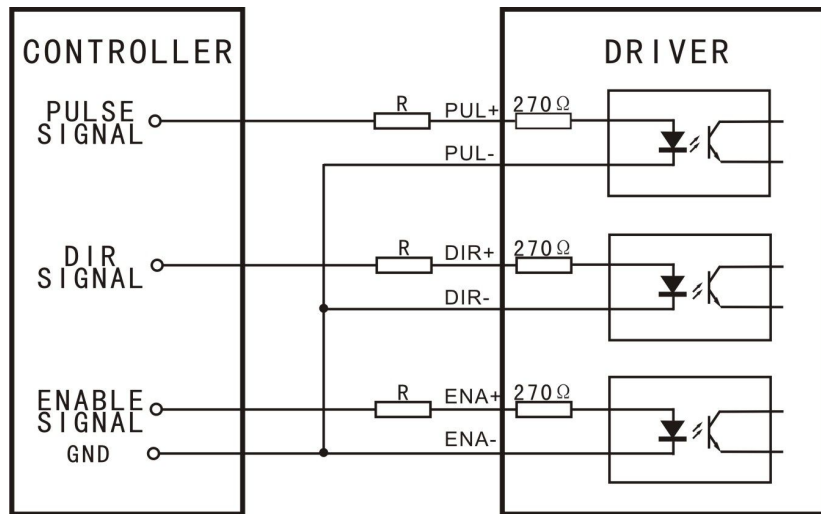|	
GND	DC power supply ground
+VDC	DC power supply positive.+24V~+90VDC.
A+	The A phase of two-phase stepper motor
A-	
B+	The B phase of two-phase stepper motor
B-	

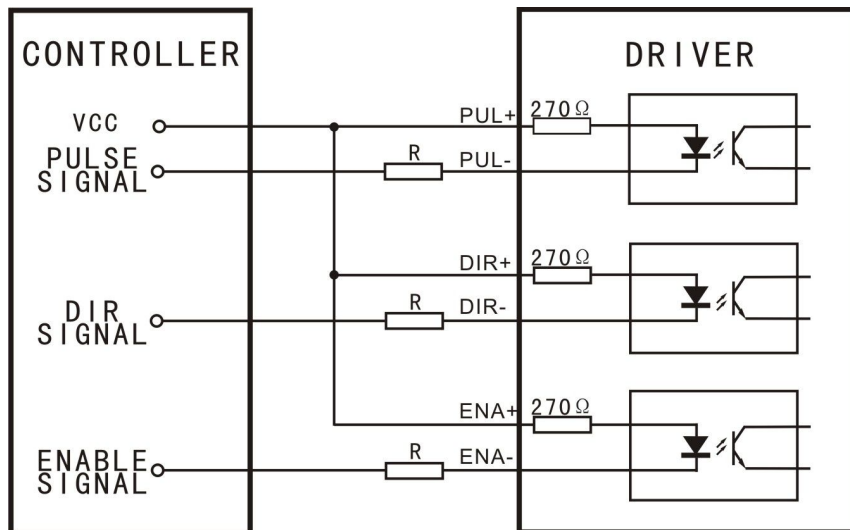# The interface circuit of control signal
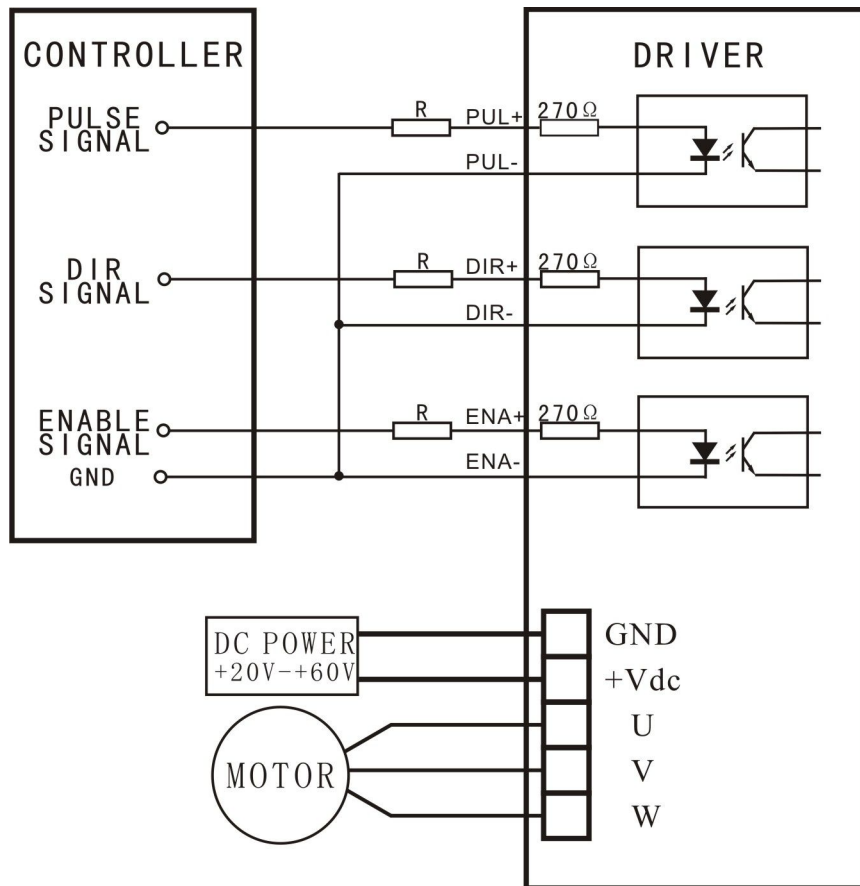

Figure1: Common-Cathode

Figure2: Common-Anode

Figure 3: Typical Connection

VCC	R
5V	0
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 flashing	Supply voltage is too high or too low	Check the supply voltage

	Motor line wrong connect	Check the motor wiring
	Encoder line wrong connect	Check the encoder wiring
	Motor line short-circuit	Check motor lines eliminate the short-circuit
	Motor or drive failure	Replace the motor or drive
	Lose step	Restart driver
Inaccurate Position	The Micro steps set incorrectly.	Set the correct segments
	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

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

100(3.94)

4X φ2.5(0.1)

33(1.299) 31.25(1.23)

158(6.22)

5(0.197)

148(5.83) 158(6.22)

44(1.732)

60(2.362)