

Digital Stepper Driver R86-IO

1. R86-IO Stepper driver port and connection

1.1 Port function description

Function	Grade	Definition	Remarks
Power supply input port	AC	Input AC power supply	DC 24~100V
	AC	Input AC power supply	AC 20~80V
Motor connection port	A+	Connect two terminals of motor's phase-A winding	
	A-		
	B+	Connect two terminals of motor's phase-B winding	
	B-		
Pulse connection	PUL+	IN1	3.3 ~ 24V level compatible
	PUL-		
	DIR+	IN2	
	DIR-		
Enable connection	ENA+	Enable control interface	
	ENA-		

1.2 Power supply input

The power supply of the driver can be both AC power and DC power, and the input voltage range is 20V~80VAC or 24V~100VDC.

Please be minded that AC power cannot exceed 80VAC. and do not connect to commercial electricity(220VAC) directly!

Power selection reference:**Voltage:**

Stepper motor has the characteristics of torque decrease with the increase of motor speed, and the input voltage will affect the amplitude of high-speed torque reduction. Properly increasing the voltage of the input power supply can increase the output torque of the motor at high speed.

Therefore, if you want to get better high-speed performance, pls increase the power supply voltage of the driver; and for low-speed applications, choosing a slightly smaller voltage can appropriately reduce the heat of the motor.

Current:

The working process of the driver is to convert the input high-voltage and low-current power supply into the low-voltage and high-current at both ends of the motor winding. In actual use, the appropriate power supply should be selected according to the motor model, load torque and other factors.

The effects of regeneration voltage:

When the stepper motor is working, it also retains the characteristics of the generator. When decelerating, the kinetic energy accumulated by the load will be converted into electrical energy and superimposed on the driver circuit and input power supply.

Pay attention to the setting of acceleration and deceleration time to protect the driver or power supply.

When the driver is powered off, you will see the driver's LED indicator on when the load is pulled to make the motor move, which is also affected by this.

2. Control signal connection

2.1 Switch port: connection for switch signal.

The signal interface of standard R-IO series driver is in the form of switching value.

The upper controller can be the pulse signal generating device, such as PLC, MCU, control card and controller.

The pulse level that R86-IO driver can be used: 3.3V-24V (no need to connect resistor)

Speed mode one	
	<ol style="list-style-type: none"> 1. At IN1 on and IN2 off, the motor is triggered to rotate forward. When IN1 is turned off, the motor decelerates and stops. 2. At IN1 on and IN2 on, the motor is triggered to rotate reverse. When IN1 is turned off, the motor decelerates and stops. 3. At IN1 off, the motor stops. (The default is this mode)
Speed mode two	
	<ol style="list-style-type: none"> 1. At IN1 on, it triggers the motor to rotate forward continuously; when it changes from on to off, the motor decelerates and stops. 2. At IN2 on, it triggers the motor to reverse continuously; when it changes from on to off, the motor decelerates and stops. 3. At IN1 on and IN2 on, the motor stops.

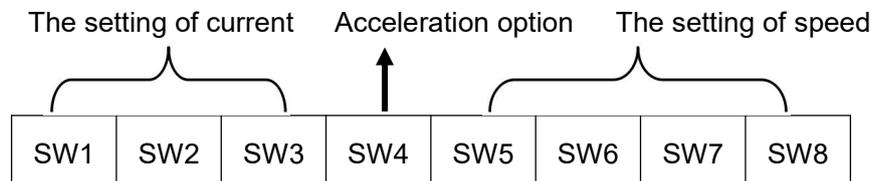
2.2 ENA port: enable/disable

When the internal optocoupler is off, the driver outputs current to the motor;

When the internal optocoupler is on, the driver will cut off the current of each phase of the motor to make the motor free, and the step pulse will not be responded.

When the motor is in an error state, the enable is automatically disconnected. The level of the ENA signal can be set to the opposite.

3. The setting of DIP switches and operating parameters



3.1 The setting of current

Peak Current	Average Current	SW1	SW2	SW3	Remarks
2.4A	2.0A	on	on	on	Other current can be customized
3.1A	2.6A	off	on	on	
3.8A	3.1A	on	off	on	
4.5A	3.7A	off	off	on	
5.2A	4.3A	on	on	off	
5.8A	4.9A	off	on	off	
6.5A	5.4A	on	off	off	
7.2A	6.0A	off	off	off	

DIP SW1, SW2, SW3 are used to set current which is output from driver to motor. In general, the current is set to not exceed the rated current of the motor (effective value)

3.2 The setting of speed level

Speed /rpm	SW5	SW6	SW7	SW8	Remarks
10	on	on	on	on	Other speed can be customized
20	off	on	on	on	
30	on	off	on	on	
50	off	off	on	on	
60	on	on	off	on	
80	off	on	off	on	
100	on	off	off	on	
150	off	off	off	on	
200	on	on	on	off	
250	off	on	on	off	
300	on	off	on	off	
400	off	off	on	off	
500	on	on	off	off	
600	off	on	off	off	
700	on	off	off	off	
800	off	off	off	off	

DIP SW5, SW6, SW7, SW8 are used to set the speed when the motor is triggered. Built-in S-type acceleration and deceleration.

When the switching value is closed, the motor accelerates to the setting speed.

When the switching value is off, the motor decelerates and stops.

3.3 Acceleration selection

DIP SW4 is used to set the acceleration when the motor is running.

The “off” means acceleration gear 1 and moderate acceleration;

The “on” means acceleration gear 2 and the acceleration is large.

※ The default acceleration for general applications is gear 1.

4. Driver installation dimensions

