

RSDV SERIES

Open-Loop Stepper Motor Driver



RSDV-556X2 5.6A 24-48VDC







Thank you for using raxoll open-loop stepper motor driver. Before using this product, please read this manual carefully to understand the necessary safety information, precautions, and operation methods. Incorrect operation can have extremely serious consequences. This product is designed and manufactured without the ability to protect personal safety from mechanical system threats. Users are advised to consider safety precautions during mechanical system design and manufacturing to prevent accidents caused by improper operation or product abnormalities. Due to product improvements, the contents of this manual are subject to change without notice. Our company will not be responsible for any modification of the product by the user. When reading, please pay attention to the following signs in the manual.

Product Introduction

RSDV-556X2 is a two-axis stepper motor driver introduced by our company. The driver has two independent control signal interfaces to control two stepper motors respectively. The driver control algorithm adopts advanced variable current technology and advanced frequency conversion technology. The driver generates less heat and the motor vibrates less, smooth operation. USERS can set 1000 ~ 12800 within the arbitrary subdivision and rated current within the arbitrary current value, to meet the needs of most applications. Due to the use of built-in micro-subdivision technology, even in the conditions of low subdivision, but also can achieve high subdivision effect, low, medium and high-speed operation is very smooth, ultra-low noise. The auto-tuning function is integrated in the driver, which can automatically generate the optimal operating parameters for different motors and maximize the performance of the motors.

Characteristics

- New 32 Bit DSP technology
- Ultra-low vibration noise
- Built-in 8 subdivision
- Automatic halving of current at rest
- Can drive two 4,6,8-wire two-phase stepping motor independently
- Photoelectric isolated differential signal input Photoelectric isolation, alarm output
- 2Mhz digital pulse filtering
- Voltage Range 24-48VDC
 The current setting is convenient and can be selected between 2.5-5.6A
- Sub-set range 1000-12800
- Automatically calculate the resonance point and inhibit the IF vibration
- Automatically detect the motor parameter when driver
- initialize, optimize the controlling performance. It has the protection functions of overvoltage, undervoltage and overcurrent.

Use Environment

Cooling Mode		Natural Cooling	
Occasion Occasion Temperature		Can not be placed to other heating equipment, to avoid dust, oil mist, corrosive gases, humidity is too large and strong vibration sites, prohibited combustible gases and conductive dust.	
Senvir	Temperature	-10°C ∼ +50°C	
ш	Humidity	40∼ 90%RH	
	Vibration	4.9m/s2MAX	
Storage Temperature		-10°C ∼ +70°C	
Use Elevation		Below 1000 meters	
Weight		0.6kg	

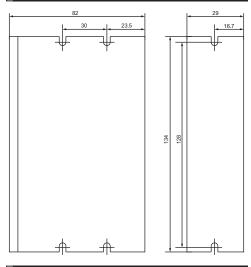
Installation Method

The reliable operating temperature of the driver is usually within 60°C, and the motor operating temperature is within 80°C. It is recommended to use the automatic semi-flow mode when using the motor. When the motor stops, the current is automatically reduced by half to reduce the heat of the motor and the drive. Install the drive with vertical side mounting so that the heat dissipating teeth form a strong air convection. Install a fan near the drive when necessary to force heat dissipation to ensure that the drive works within a reliable operating temperature range.

► Electrical Characteristics

Model Code	RSDV-860				
Explanation	Minimum Value	Typical Value	Maximal Value	Unit	
Continuous Output Current	2.5	-	5.6	Α	
Power Supply Voltage(DC/AC)	24	36	48	VDC	
Logic Input Current	6	10	16	mA	
Logic Input Voltage	24	24	24	VDC	
Pulse Frequency	0	-	2000	KHz	
Pulse High Width	1.5	-	-	US	
Insulation Resistance	100	-	-	ΜΩ	

Dimensions



LED Status Indication

No.	LED STATUS	DRIVER STATUS
1	•	Driver not enabled
2	• •	Driver working normally
3	• •	Driver overcurrent
4	• • •	Driver input power overvoltage
5	••••	The internal voltage of the driver is wrong
6	••••	Motor phase loss

Green LED Indicato

Interface Definition

Red LED Indicator

Control Signal and Ports Interface

Remark

PUL1+ Pulse Positive Input Motor 1 PUL1- Pulse Negative Input Motor 1 DIR1+ Directional Positive Input Motor 1 DIR1- Directional Negative Input Motor 1 PUL2+ Pulse Positive Input Motor 2 PUL2- Pulse Negative Input Motor 2 DIR2+ Directional Positive Input Motor 2 DIR2- Directional Positive Input Motor 2 DIR2- Directional Negative Input Motor 2 ENA1+ Enable Positive Input Motor 1 ENA1- Enable Positive Input Motor 1 ENA2+ Enable Negative Input Motor 2 ENA2- Enable Negative Input Motor 2 V+ DC Power Positive Input Motor 2 V- DC Power Negative Input V- DC Power Negative Input A+ Phase A winding Motor 1 B+ Phase B winding Motor 2 B+ Phase B winding Motor 2	Name	Delimition	Remark
PUL1- Motor 1 DIR1+ Directional Positive Input Motor 1 DIR1- Directional Negative Input Motor 1 PUL2+ Pulse Positive Input Motor 2 PUL2- Pulse Negative Input Motor 2 DIR2+ Directional Positive Input Motor 2 DIR2- Directional Negative Input Motor 2 ENA1+ Enable Positive Input Motor 1 ENA1- Enable Positive Input Motor 1 ENA2+ Enable Negative Input Motor 1 ENA2+ Enable Positive Input Motor 2 V+ DC Power Positive Input Motor 2 V+ DC Power Negative Input Motor 1 A+ Phase A winding Motor 1 B+ Phase B winding Motor 2 B+ Phase B winding Motor 2 B+ Phase B winding Motor 2	PUL1+		
DIR1+ Motor 1 DIR1- Directional Negative Input Motor 2 PUL2+ Pulse Positive Input Motor 2 DIR2+ Directional Positive Input Motor 2 DIR2- Directional Negative Input Motor 2 ENA1+ Enable Positive Input Motor 1 ENA1- Enable Positive Input Motor 1 ENA2+ Enable Positive Input Motor 1 ENA2+ Enable Negative Input Motor 2 ENA2- Enable Negative Input Motor 2 V+ DC Power Positive Input Motor 2 V+ DC Power Positive Input Motor 1 A+ Phase A winding Motor 1 B+ Phase B winding Motor 2	PUL1-		
DIR1- Motor 1 PUL2+ Pulse Positive Input Motor 2 PUL2- Pulse Negative Input Motor 2 DIR2+ Directional Positive Input Motor 2 DIR2- Directional Negative Input Motor 2 ENA1+ Enable Positive Input Motor 1 ENA1- Enable Negative Input Motor 1 ENA2+ Enable Negative Input Motor 1 ENA2- Enable Negative Input Motor 2 V+ DC Power Positive Input Motor 2 V- DC Power Negative Input Motor 1 A+ Phase A winding Motor 1 B+ Phase B winding Motor 2	DIR1+	Motor 1	
PUL2+ Motor 2 PUL2- Pulse Negative Input Motor 2 DIR2+ Directional Positive Input Motor 2 DIR2- Directional Negative Input Motor 2 ENA1+ Enable Positive Input Motor 1 ENA1- Enable Negative Input Motor 1 ENA2+ Enable Positive Input Motor 2 ENA2- Enable Negative Input Motor 2 V+ DC Power Positive Input V- DC Power Negative Input Motor 1 A+ Phase A winding Motor 1 B+ Phase B winding Motor 2	DIR1-	Motor 1	
DIR2+ Directional Positive Input Motor 2 DIR2- Directional Negative Input Motor 2 ENA1+ Enable Positive Input Motor 1 ENA1- Enable Negative Input Motor 1 ENA2+ Enable Positive Input Motor 1 ENA2+ Enable Negative Input Motor 2 ENA2- Enable Negative Input Motor 2 V+ DC Power Positive Input V- DC Power Negative Input A+ Phase A winding Motor 1 B+ Phase B winding Motor 2 B+ Phase B winding Motor 2 B+ Phase B winding Motor 2	PUL2+	Motor 2	
DIR2+ Directional Positive Input Motor 2 DIR2- Directional Negative Input Motor 2 ENA1+ Enable Positive Input Motor 1 ENA1- Enable Negative Input Motor 1 ENA2+ Enable Positive Input Motor 2 ENA2- Enable Negative Input Motor 2 V+ DC Power Positive Input V- DC Power Negative Input A+ Phase A winding Motor 1 B+ Phase B winding Motor 2 A+ Phase A winding Motor 2 B+ Phase B winding Motor 2 B+ Phase B winding Motor 2	PUL2-	Motor 2	
ENA1+ Enable Positive Input Motor 1 ENA1- Enable Negative Input Motor 1 ENA2+ Enable Positive Input Motor 2 ENA2- Enable Negative Input Motor 2 V+ DC Power Positive Input V- DC Power Negative Input A+ Phase A winding Motor 1 B+ Phase B winding Motor 1 A+ Phase A winding Motor 1 A+ Phase A winding Motor 1 B+ Phase B winding Motor 2	DIR2+	Motor 2	Level Olgilai
ENA1+ Motor 1 ENA1- Enable Negative Input Motor 1 ENA2+ Enable Positive Input Motor 2 ENA2- Enable Negative Input Motor 2 V+ DC Power Positive Input V- DC Power Negative Input A+ Phase A winding Motor 1 B+ Phase B winding Motor 1 A+ Phase A winding Motor 1 A+ Phase B winding Motor 2 B+ Phase B winding Motor 2	DIR2-		
ENA1- Motor 1 ENA2+ Enable Positive Input Motor 2 ENA2- Enable Negative Input Motor 2 V+ DC Power Positive Input V- DC Power Negative Input A+ Phase A winding Motor 1 B+ Phase B winding Motor 1 A+ Phase A winding Motor 1 A+ Phase B winding Motor 2 B+ Phase B winding Motor 2	ENA1+		
ENA2+ Motor 2 ENA2- Enable Negative Input Motor 2 V+ DC Power Positive Input V- DC Power Negative Input A+ Phase A winding Motor 1 B+ Phase B winding Motor 1 A+ Phase A winding Motor 2 B+ Phase B winding Motor 2	ENA1-		
V+ DC Power Positive Input V- DC Power Negative Input A+ Phase A winding Motor 1 B+ Phase B winding A- Motor 1 A+ Phase B winding B- Motor 1 A+ Phase B winding Motor 2	ENA2+	Motor 2	
V- DC Power Negative Input 24-48VDC	ENA2-		
V- DC Power Negative Input A+ Phase A winding A- Motor 1 B+ Phase B winding Motor 1 A+ Phase A winding A- Motor 2 B+ Phase B winding Motor 2	V+	DC Power Positive Input	24-48VDC
A- Phase A winding Motor 1 B+ Phase B winding Motor 1 A+ Phase A winding A- Motor 2 B+ Phase B winding Motor 2	V-	DC Power Negative Input	21.10120
A- B+ Phase B winding B- Motor 1 A+ Phase A winding A- Motor 2 B+ Phase B winding Motor 2	A+		
B- Motor 1 A+ Phase A winding A- Motor 2 B+ Phase B winding Motor 2	A-	Motor 1	
B- A+ Phase A winding A- Motor 2 B+ Phase B winding Motor 2	B+		
A- Motor 2 B+ Phase B winding Motor 2	B-	Motor 1	
A- B+ Phase B winding Motor 2	A+		
Phase B winding Motor 2	A-	Motor 2	
	B+		
	B-	Motor 2	

Current Setting

	MOTOR 1		МОТ	OR 2
PEAK CURRENT	SW1	SW2	SW6	SW7
2.50A	ON	ON	ON	ON
3.50A	OFF	ON	OFF	ON
4.50A	ON	OFF	ON	OFF
5.60A	OFF	OFF	ON	OFF

DIP SW1, SW2, SW6, SW7 are used to set the current value of the driver output to the motor.

Normally, the current is set to the rated current of the motor. If your system has high requirements for heat generation, you can appropriately reduce the current to reduce the heat of the motor, but the output torque of the motor will be reduced at the same time. If you do not require the motor to run continuously, you can appropriately increase the operating current to obtain a greater torque, but be careful not to exceed 1.5 times the rated current of the motor.

Microstep Setting

	MOTOR 1		
STEPS/ REVOLUTION	SW3	SW4	SW5
1600	ON	ON	ON
3200	OFF	ON	ON
6400	ON	OFF	ON
12800	OFF	OFF	ON
1000	ON	ON	OFF
3600	OFF	ON	OFF
4000	ON	OFF	OFF
8000	OFF	OFF	OFF

	MOTOR 2		
STEPS/ REVOLUTION	SW8	SW9	SW10
1600	ON	ON	ON
3200	OFF	ON	ON
6400	ON	OFF	ON
12800	OFF	OFF	ON
1000	ON	ON	OFF
3600	OFF	ON	OFF
4000	ON	OFF	OFF
8000	OFF	OFF	OFF

DIP SW3, SW4, SW5, SW6, SW7, SW8, SW9 are used to set the number of pulses required per revolution of the motor

Motor speed = command pulse frequency \div pulse per revolution Motor stroke = number of command pulses \div pulse per revolution

Notes	

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