

PSSD5042 series

Motor Characteristics

The PSSD5042 is a new digital step servo motor drive based on a 32-bit DSP with advanced control algorithm. It brings a unique level of system smoothness, provides optimum torque and nulls mid-range instability. Motor self-test and parameter auto-run technology offers optimum responses with different motors and easy-to-use. The motors can run with much smaller noise, less heat, smoother movement.



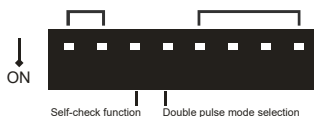
- Brand new 32-bit DSP
- 8 settings of current, 16 settings of micro-step resolution
- PID current control, provides excellent high speed torque, low noise and low vibration
- Anti-resonance, eliminates Medium Frequency instability
- Automatically set motor parameters
- Step&Direction/CW&CCW pulse
- 1Mhz digital filter for high speed inputs
- Self Test-the drive will perform a 2rev,3rps,CW/CCW move test

Electrical Specifications

Parameters	Minimum	Typical	Maximum	Unit
Supply voltage	24	-	50	VDC
Output current (Peak)	1.0	-	4.2	A
Control signal input current	6	10	15	mA
STEP/DIR Input Signal Voltage	4.0	5.0	28.0	VDC
Step Frequency	2	-	1M	Hz
STEP Minimum Pulse Width High and Low	250	-	-	Ns
DIR Minimum Pulse Width	50	-	-	μs
Drive initialization time	-	-	2	S

DIP switch setting

The PSSD5042 driver uses an 8-bit DIP switch to set the subdivision accuracy, dynamic current, self-checking function and realize pulse mode selection. The detailed description is as follows:



● Running current setting

After the drive is matched with the motor model, the running current dialing can set the actual output current to be 40%~100% of the rated current of the motor.

Rated Current	SW1	SW2
40%	ON	ON
60%	OFF	ON
80%	ON	OFF
100%	OFF	OFF

● Microstepping

step/rev	SW5	SW6	SW7	SW8
200	ON	ON	ON	ON
400	OFF	ON	ON	ON
800	ON	OFF	ON	ON
1600	OFF	OFF	ON	ON
3200	ON	ON	OFF	ON
6400	OFF	ON	OFF	ON
12800	ON	OFF	OFF	ON
25600	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
8000	ON	ON	OFF	OFF
10000	OFF	ON	OFF	OFF
20000	ON	OFF	OFF	OFF
25000	OFF	OFF	OFF	OFF

● Self-checking function

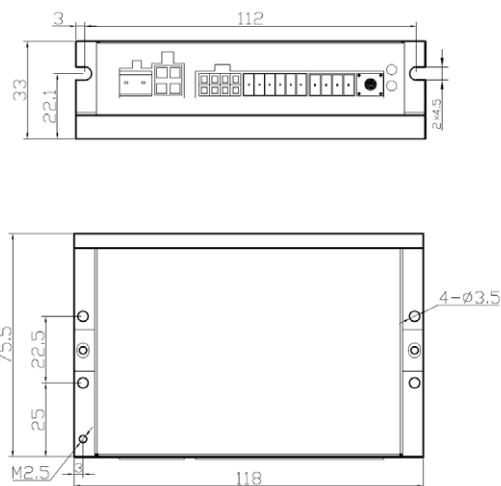
SW3 is used to set the self-checking function of the motor. Set the switch SW3 to "ON". After the controller is powered on, it will rotate clockwise and then counterclockwise for 2 turns to control the motor repeatedly. Set SW9 to "OFF" at any time to turn off this function.

SW4 can set the mode of the control signal. When SW4 is OFF, the host computer needs to provide one pulse signal and one direction signal. When SW10 is ON, two pulse signals can be used to control the forward and reverse rotation of the motor respectively. At this time, the pulse input to STEP terminal controls the movement of the motor in the CW direction, and the pulse input to DIR controls the movement of the motor in the CCW direction.

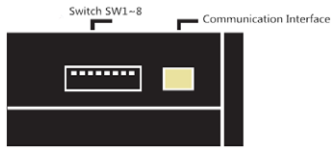
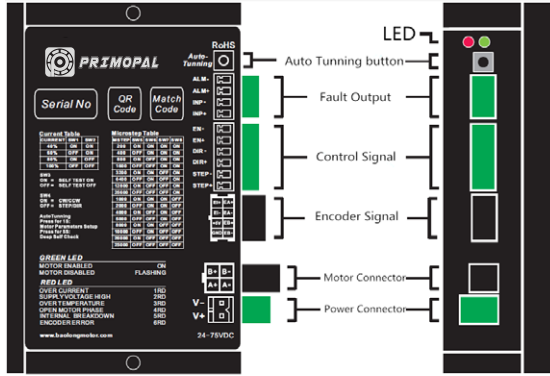
● Self-tuning function

The Auto-Tuning button is used to match the motor and drive. Under normal circumstances, the motor and drive have been matched one-to-one at the factory and the customer does not need to match the motor and drive. When the field situation requires rematch, please let the motor's shaft have no load on it and perform the self-tuning according to the following steps. Press and hold the self-tuning button for 1 second, the green light will start flashing, when the green light is on again, it means that the matching work is completed, and it needs to be energized again, that is, the matching work between the drive and the motor is completed.

Installation size



Connections



● Power terminal

Name	Explanation
V+	Input DC power 24~50VDC positive
V-	Input DC power supply 24~50VDC negative

● Motor Winding terminal

Name	Explanation
A+	Motor A-phase coil interface
A-	Motor A-phase coil interface
B+	Motor B-phase coil interface
B-	Motor B-phase coil interface

● Status Indicator

The green LED is the enable indicator. When the motor is enabled, the LED is always on; when the motor is not enabled, the LED flashes. The red LED is a fault indicator. When a fault occurs, the indicator flashes in a circular manner; when the fault is cleared by the user, the red LED is always off. The number of red LED flashes represents different fault information, and the specific relationship is shown in the following table:

Alarm code	Explanation
●	Green light is always on drive enable
● ●	green light flashing Drive is not enabled
● ● ●	Red light goes out Drive is OK
● ● ● ●	Red light flashes 1 time Drive over-current
● ● ● ● ●	Red light flashes 2 times Supply voltage too high
● ● ● ● ● ●	Red light flashes 3 times drive over temperature
● ● ● ● ● ● ●	Red light flashes 4 times Motor phase wire open circuit
● ● ● ● ● ● ● ●	Red light flashes 5 times Internal drive failure
● ● ● ● ● ● ● ● ●	Red light flashes 6 times Encoder failure

● Motor feedback terminal

Name	Explanation
+5V	Encoder power supply interface
GND	
EA+	Encoder A phase differential input
EA-	
EB+	Encoder B phase differential input
EB-	
EZ+	Encoder Z phase differential input
EZ-	

● Control terminal

Name	Explanation
STEP+	Pulse signal: valid on the rising edge of the pulse; 4.5~28VDC when PUL is high, and 0~0.5V when low. In order to respond to the pulse signal reliably, the pulse width should be greater than 1.5μs.
STEP-	
DIR+	Direction signal: high/low level signal, in order to ensure the reliable commutation of the motor, the direction signal should be established at least 2μs before the pulse signal. The initial running direction of the motor is related to the wiring of the motor. DIR is 4.5~28VDC at high level and 0~0.5V at low level.
DIR-	
EN+	Enable Signal: This input signal is used to enable or disable. When ENA+ is connected to 4.5~28VDC, and ENA- is connected to low level (or the internal optocoupler is turned on), the driver will cut off the current of each phase of the motor to make the motor in a free state, and the step pulse will not be responded at this time. When this function is not needed, the enable signal terminal can be left floating. The EN input can be used to restart the drive when the motor is in an error state. First remove the existing fault from the application system, and then input a falling edge signal to the EN terminal, the driver can restart the power part, and the motor is excited to run.
EN-	

● Output signal terminal

Name	Explanation
INP+	In-position signal, the optocoupler isolates the OC output, the maximum withstand voltage is 30VDC, and the maximum saturation current is 100mA. When the motor does not turn to the target position, the output optocoupler does not conduct.
INP-	
ALM+	Alarm signal, optocoupler isolation OC output, maximum withstand voltage 30VDC, maximum saturation current 100mA, when the driver is working normally, the output optocoupler does not conduct.
ALM-	