P3ST8082

Stepper Motor Drive

Introduction

The stepper drive P3ST8082 is a versatility fully digital 3-phase stepping drive based on a DSP with advanced control algorithm. It brings a unique level of system smoothness, providing optimum torque, nulls midrange instability and good high speed performance. Motor auto-identification and parameter auto configuration technology offers optimum response with different motors. The driven motors can run with much lower noise, lower heating, smoother movement than most stepping drives on the market.

The stepper drive P3ST8082 is suitable for a wide range of stepping motors, from NEMA 17 to NEMA 34. It can be used in various kinds of machines, such as medical machines, laser cutters, laser markers, high precision X-Y tables, labeling machines, and so on. Its unique features make the P3ST8082 an ideal solution for applications that require low-speed smoothness and good high speed performance.

Electrical Specifications

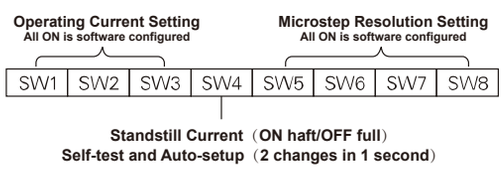
Parameters	Min	Typical	Max	Unit
Output current	0.5	-	8.2 (6.0 RMS)	A
Supply voltage	+24	+36	+75	VDC
Logic signal current	7	10	16	mA
Pulse input frequency	0	-	200	kHz
Isolation resistance	500			MΩ

Function Description

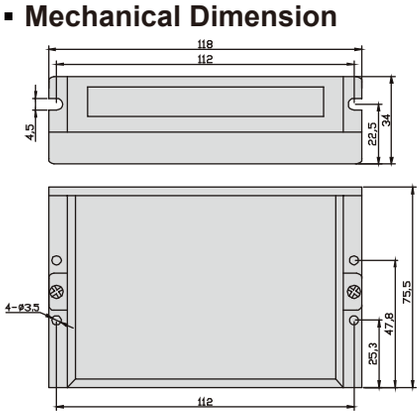
Function	Description
Micro step Setting	Micro step resolution is programmable. When not in software configured mode, micro step resolution is set by SW5, 6, 7, 8 of the DIP switch. In order to avoid losing steps, do not change the micro step resolution on the fly.
Current Setting	Output current is programmable. When not in software configured mode, operating current is set by SW1,2,3 of the DIP switch, which is Up to 8.2A.
Automatic Standstill Current Reduction	SW4 is used for the automatic standstill current reduction, self-test and auto-setup function. When the former active, the current will be automatically reduced to 60% of the selected operating current 0.4 second after the last pulse. Theoretically, this will reduce motor heating to 36% (due to P=I2*R) of the original value.
Self-test and Auto-setup	If the user changes the status/position of SW4 twice in 1 second, the drive will self-test the driving motor and auto setup control parameters, offering optimum performance with different motors.
Control Signals	PUL+ and PUL- are for the pulse command signal. DIR+ and DIR- are for the direction control signal. ENA+ and ENA are for the enable/disable control signal.
Motor Connector	A+, A- and B+, B- are for motor connections. Exchanging the connection of two wires for a coil to the drive will reverse default motion direction.
Power Connector	Recommended to use power supplies with output of +24 to 75VDC, leaving space for power fluctuation and back-EMF.
Indicators	There are two LED indicators on the drive for power and alarm signals. When the Green LED is on, the drive is powered up. When the Red LED is on, the drive is in fault status. When in fault status, the motor shaft will be free. Reset the drive by re - powering it to make it function properly after solving problem(s).

▪ Parameter Settings

Micro step resolution and output current are programmable. When not in software configured mode, the drive uses a 8-bit DIP switch to set micro step resolution and motor operating current, as shown below:



▪ Mechanical Dimension



▪ Operating Current Settings

Peak Current	RMS Current	SW1	SW2	SW3
Default/software configured (0.5-8.2A)		ON	ON	ON
4.2A	3.0A	OFF	ON	ON
4.9A	3.5A	ON	OFF	ON
5.6A	4.0A	OFF	OFF	ON
6.3A	4.5A	ON	ON	OFF
7.0A	5.0A	OFF	ON	OFF
7.8A	5.5A	ON	OFF	OFF
8.2A	6.0A	OFF	OFF	OFF

▪ Micro step Resolution Settings

Microstep	Steps/Rev.	SW5	SW6	SW7	SW8
1-512	Default/Software configured	ON	ON	ON	ON
2	400	OFF	ON	ON	ON
4	800	ON	OFF	ON	ON
8	1600	OFF	OFF	ON	ON
16	3200	ON	ON	OFF	ON
32	6400	OFF	ON	OFF	ON
64	12800	ON	OFF	OFF	ON
128	25600	OFF	OFF	OFF	ON
5	1000	ON	ON	ON	OFF
10	2000	OFF	ON	ON	OFF
20	4000	ON	OFF	ON	OFF
25	5000	OFF	OFF	ON	OFF
40	8000	ON	ON	OFF	OFF
50	10000	OFF	ON	OFF	OFF
100	20000	ON	OFF	OFF	OFF
125	25000	OFF	OFF	OFF	OFF