Innovation in Linear Motion

SD-03/48-125 Stepper Driver

Key Features:

- 20 to 50VDC Supply Voltage
- H-Bridge, 2 Phase Bi-polar Micro-stepping Drive
- Suitable for 2-phase, 4, 6 and 8 leads step motors
- Compatible with all H2W linear stepper motor models, STS-0213-R, STS-0620-R, STS-1220-A, STS-2030-A
- Compatible with standard rotary stepper motors used in H2W Belt & Screw Driven Linear Stages, Nema size 23 & 34
- Output current selectable from 1.0 ~ 4.2A peak
- Current reduction by 50% automatically, when motor standstill mode is enabled
- Pulse Input frequency up to 200 kHz
- Optically isolated differential TTL inputs for Pulse, Direction and Enable signal inputs
- Selectable resolutions up to 25000 steps (125 micro-steps)
- Over Voltage, Coil to Coil, and Coil to Ground short circuit protection.

The SD-03/48-125 is a cost effective, high performance, bi-polar, two phase micro-stepping drive which utilizes the pure-sinusoidal current control technique. It is best suited for applications which require extreme low noise and heat. It operates well in an environment where input voltage may experience instability and fluctuation.

The general pseudo-sinusoidal current control technology used by most stepper drives produces a distorted sine wave and current ripple, resulting in vibration, noise and motor heating. This results in the motor degrading over time, reducing its performance and life.

With the automatic optimization speed control technique, the SD-03-48-125 stepper drive output is very stable with almost zero vibration and noise, performing close to a servo system. This allows the motor to operate smoothly. This is useful in applications which require low noise, low heat and high performance.

Drivers will be preset to match the continuous current specifications of any H2W linear stepper motor. Available from stock for immediate shipping.

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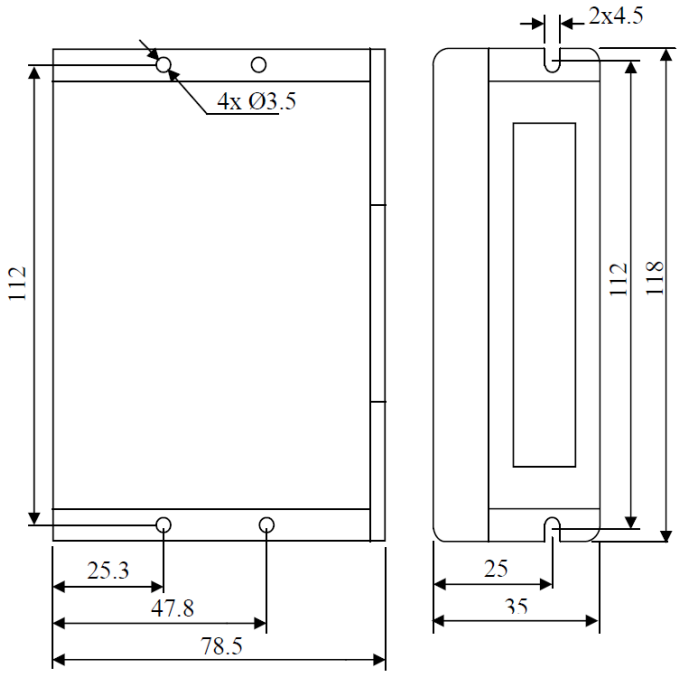
Specifications

Parameters	Min	Typical	Max	Unit
Output Current (Peak)	1.0	-	4.2	Amps
Supply voltage	20	36	50	VDC
Logic Input Current	7	10	16	mA
Pulse input frequency	0	-	200	KHz
Low Level Time	2.5			µsec

Cooling	Natural Cooling or Forced Convection	
Environment	Space	Avoid dust, oil frost and corrosive gases
	Ambient Temperature	0°C - 50°C
	Humidity	40 - 80%RH
	Vibration	5.9m/s² Max
Storage Temp.	-10°C - 80°C	
Weight	Approx. 260 gram	

Dimensions



*Dimensions in mm

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Current Setting

Current Setting (A)	SW1	SW2	SW3
1.0	ON	ON	ON
1.46	OFF	ON	ON
1.91	ON	OFF	ON
2.37	OFF	OFF	ON
2.84	ON	ON	OFF
3.31	OFF	ON	OFF
3.76	ON	OFF	OFF
4.20	OFF	OFF	OFF

Microstep Setting

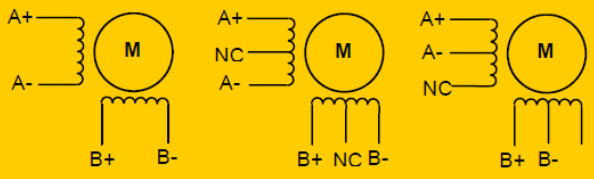
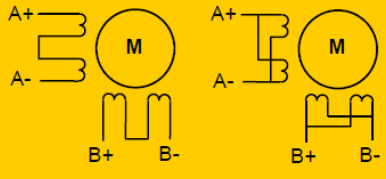
Microstep resolution	Step / Rev	SW5	SW6	SW7	SW8
2	400	OFF	ON	ON	ON
4	800	ON	OFF	ON	ON
8	1600	OFF	OFF	ON	ON
16	3200	ON	ON	OFF	ON
32	6400	OFF	ON	OFF	ON
64	12800	ON	OFF	OFF	ON
128	25600	OFF	OFF	OFF	ON
5	1000	ON	ON	ON	OFF
10	2000	OFF	ON	ON	OFF
20	4000	ON	OFF	ON	OFF
25	5000	OFF	OFF	ON	OFF
40	8000	ON	ON	OFF	OFF
50	10000	OFF	ON	OFF	OFF
100	20000	ON	OFF	OFF	OFF
125	25000	OFF	OFF	OFF	OFF

* SW4: ON=Full current, SW4 : OFF=Half current

P1 Pin Assignment

Signal	Function and Descriptions
PUL+	Pulse or Step Input TTL differential input with high-going pulse, 1µs min width. For +12V or +24V operation, a current limiting resistor has to be pulled up or connected in series from the PUL+ to the VCC.
PUL-	
DIR+	Direction Input Logic High = positive (CW) rotation—4.0 ~ 5.0V Logic Low = negative (CCW) rotation—0 ~ 0.5V The DIR signal must be stable for at least 5ms before the drive receives the first pulse.
DIR-	
ENA+	Enable Input Logic High = Drive Enabled Logic Low = Drive Disabled This input, if left unconnected is recognized as Logic High by the drive and it will be enabled.
ENA-	

P2 Pin Assignment

P2 Signal	Function and Descriptions
GND	DC Power Ground
+V	DC Power Supply, +24VDC ~ +58VDC
A+, A-	
B+, B-	

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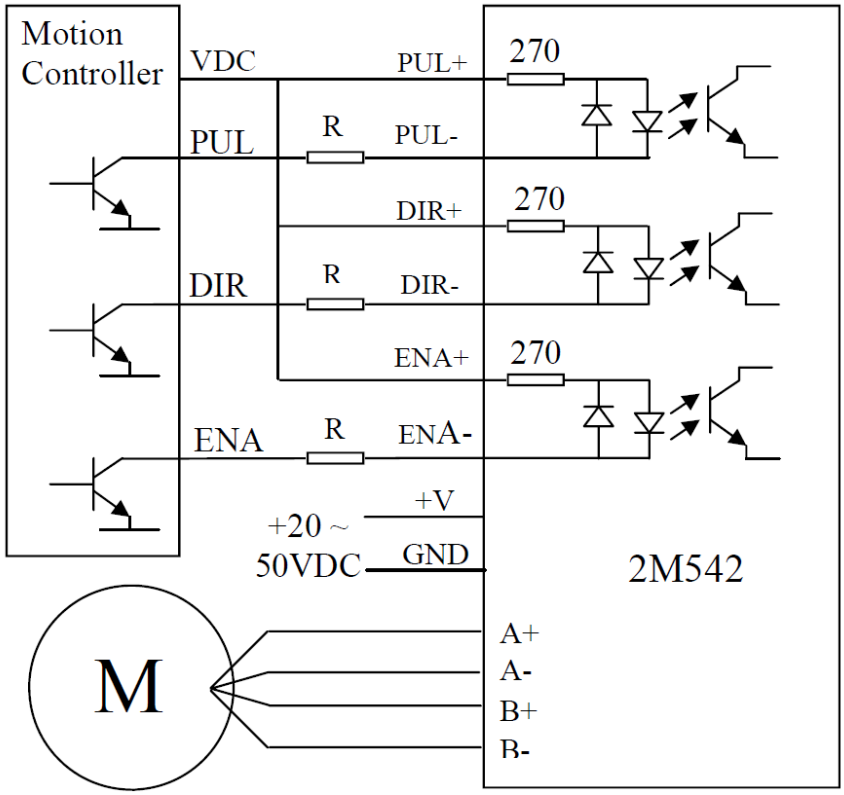
Wiring



R=0 if VDC=5V
R=1K(Power>0.125W) if VDC=12V
R=2K(Power>0.125W) if VDC=24V
R must be connected to control signal terminal

Cover

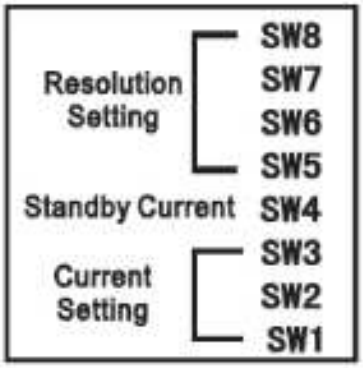
Technologies, Inc.

SD-03/48-125

Green LED = POWER
Red LED = ALARM

Current Setting			
Current Table	Switch		
	1	2	3
1.00A	ON	ON	ON
1.46A	OFF	ON	ON
1.91A	ON	OFF	ON
2.37A	OFF	OFF	ON
2.84A	ON	ON	OFF
3.31A	OFF	ON	OFF
3.76A	ON	OFF	OFF
4.2A	OFF	OFF	OFF

Peak Current=RMS 14



Microstep setting				
Steps per Revolution	Switch			
	5	6	7	8
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

Sw4: Off=half current
On=Full current