

LASD4

Two-Phase Digital Stepper Motor Driver

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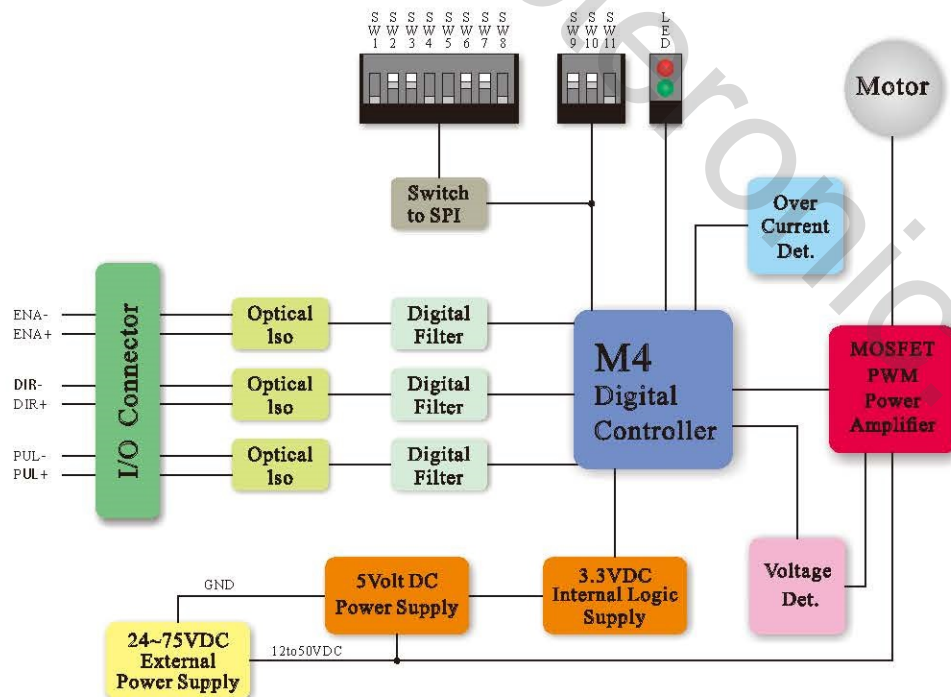
## LASD4

## Introduction

The 2015-style LASD4 two-phase digital stepper motor driver recently launched by HeTai Electrical Appliance Co., Ltd. features excellent performance, which is used to adapt to the three-phase 57 and 86 stepper motors so as to make the motors have excellent properties of high speed and large torque output, low speed, low vibration, low noise, low heat radiation, etc. Therefore, it is a product with most excellent performance in the same industry at present.

- Basic frequency: 80MHZ
- Brand new ARM core M4 technology 32-bit processor
- Pulse, direction, enable 5~24V input
- Maximum input pulse frequency: more than 2MHZ
- Maximum output current: 4.2 A
- Maximum number of subdivisions: 25000
- Maximum input voltage: 50VDC
- Maximum motor no-load running speed: 4000RPM

## Functional Diagram



## ■ Electrical properties and environmental indexes

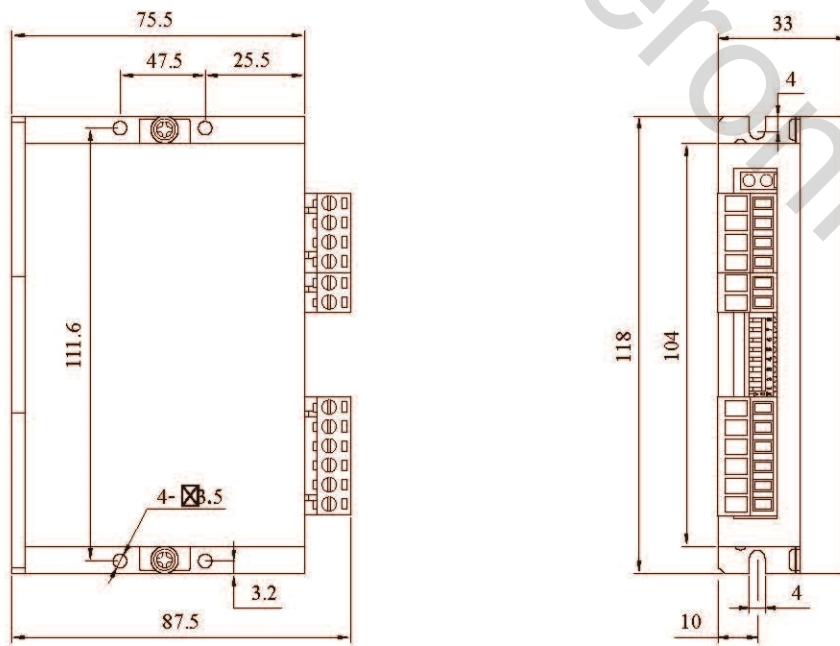
### ● Electrical parameters

Driver parameters	Minimum value	Typical value	Maximum value	Unit
Input voltage	20	48	50	VDC
Drive current	1.0	-	4.2	A
Input pulse frequency	1	-	1M	Hz

### ● Environmental indexes

Cooling mode	Natural cooling or forced cooling
Use occasion	Avoid dust, oil stain and corrosive gas
Operating environment temperature	0~40°C
Highest environment humidity	90%RH (no condensation)
Storage temperature	- 10 ~70°C
Maximum vibration	5.9m/S2 max

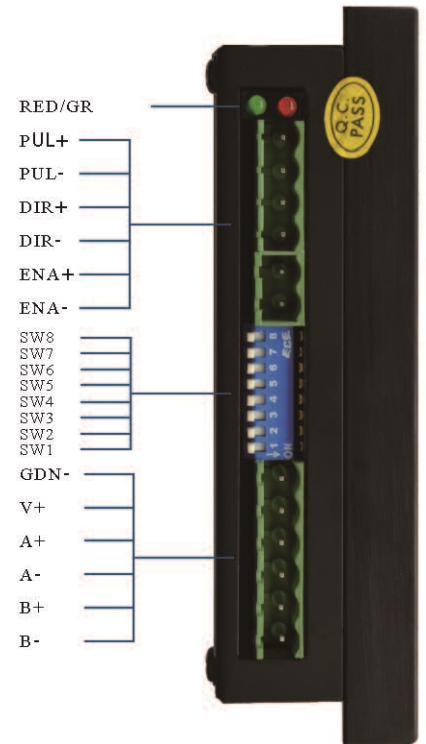
## ■ Mechanical dimensions and installation drawing



## ■ Driver interface and wiring diagram

### ● Power supply and motor wiring

Name	Function
GND-	Power supply negative electrode
V+	Power supply positive electrode: DC18V~50V
A+	Two-phase motor A phase+
A-	Two-phasemotorAphase-
B+	NameTwo-phasemotorBphase+
B-	Two-phasemotorBphase-

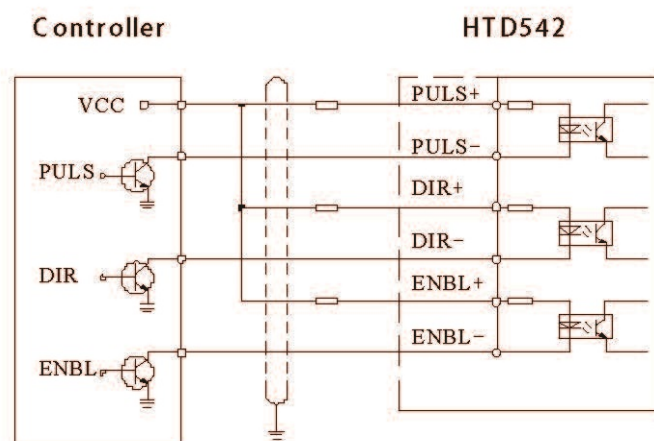


### ● Control signal interface

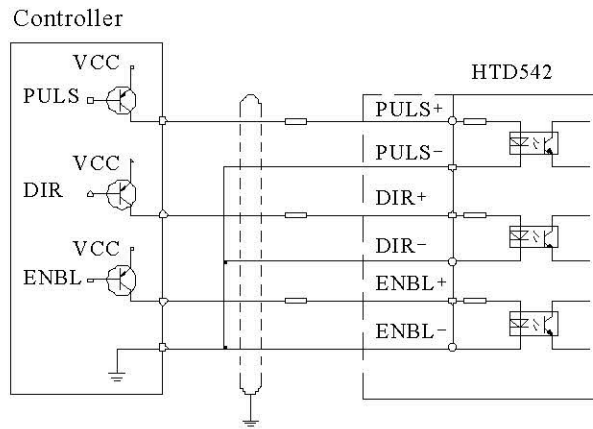
Name	Function
PUL+	Pulse control signal: effective pulse falling edge, pulse voltage of 5V~24V, maximum frequency of 2MHZ.
PUL-	
DIR+	Direction control signal: high and low level pulse signals, high level of 5V~24V.
DIR-	
ENA+	Enable control signal: ENA+ is connected to high level of 5V~24V; each phase of the motor will be in a free state, no longer be controlled by the driver and no longer respond to the pulse signal. It is mainly used for debugging the machine.
ENA-	

### ● Control signal example diagram

Common anode



Common cathode



Difference

HTD542		Controller	
EN-	Enable signal	EN-	EN-
EN+		EN+	EN+
DIR-	Direction signal	DIR-	DIR-
DIR+		DIR+	DIR+
PUL-	Pulse signal	PUL-	PUL-
PUL+		PUL+	PUL+

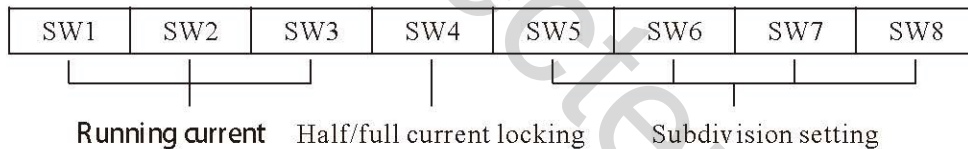
## ■ Status indication and operating parameter setting

### ● Status indication and precautions

Status/cause	Green lamp	Redlamp				
		At power-on	Normal	Not reliably connected to the motor	The motor may be damaged	Overvoltage
In operation	Normal	Over-current phenomenon occurs	The motor may be damaged	Overvoltage	Under-voltage	Over-temperature

Precautions: It is not allowed to connect the LASD4 stepper motor driver with the power supply and turn on the power switch before the stepper motor driver is not connected with the motor. It is also not allowed to connect the positive and negative ports of the power supply inversely, otherwise the red lamp of the HTD556 stepper motor driver will be on or the stepper motor driver will be damaged!

### ● Operating parameter setting



## ● Current setting

For the LASD4 two-phase stepper motor driver, the peak current outputted by the output driver is set through SW1, SW2 and SW3 dial switches, and the current value is shown in the table below. Under normal circumstances, the current shall be set as the motor rated current or the current less than the motor rated current, which will be determined according to the customer demand for output torque and motor heating value. If the demand for torque is large, the current shall be set relatively large. If the demand for heating value is small, the current shall be set relatively small.

Current	SW1	SW2	SW3
1.0A	ON	ON	ON
1.5A	OFF	ON	ON
1.9A	ON	OFF	ON
2.4A	OFF	OFF	ON
2.8A	ON	ON	OFF
3.3A	OFF	ON	OFF
3.8A	ON	OFF	OFF
4.2A	OFF	OFF	OFF

## ● Subdivision setting

For the LASD4 Two-phase stepper motor driver, the subdivision value is set through SW5, SW6, SW7 and SW8 dial switches, and a total of 16 subdivision settings are optional.

MSTEP	SW5	SW6	SW7	SW8
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