Step Motor Drive Specialist,
Ahead in Servo Technology

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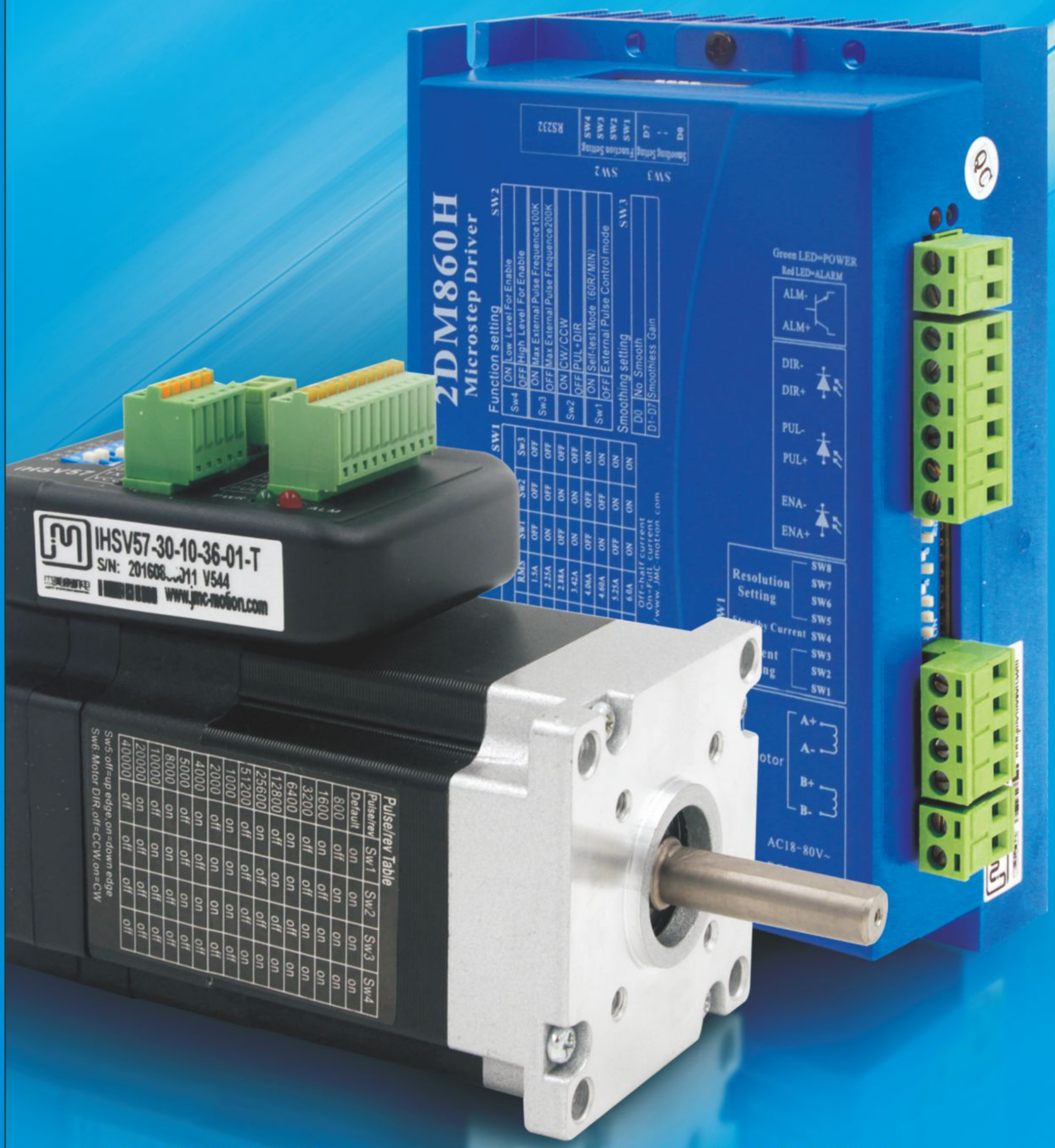


- Digital Stepper Driver
- Hybrid Stepping Motor
- Hybrid Step Servo Driver System
- Integrated Step Servo Motor
- Integrated Ac Servo Motor
- JASD Series Ac Servo Motor And Driver
- The Flow Of Ac Servo Motor And Driver
- Precision Planetary Gearbox

COMPANY PROFILE

杰美康机电
JUST MOTION CONTROL
深圳市杰美康机电有限公司

Shenzhen Just Motion Control Electromechanics Co., Ltd. was established in 2007 with the vision of developing motion control product for the industry. Our main products are stepper motor drives, stepper motors, DC brushes and brushless motors and so on. We also provide other mechanical products, such as motor couplings, and gearboxes. We hope to provide one-stop service to customers.

Our products are widely used and applied in the followings industries: semiconductor, textile, packaging, laser, woodworking, printing, advertising,clothing, engraving and ceramics, robotics, and so on.

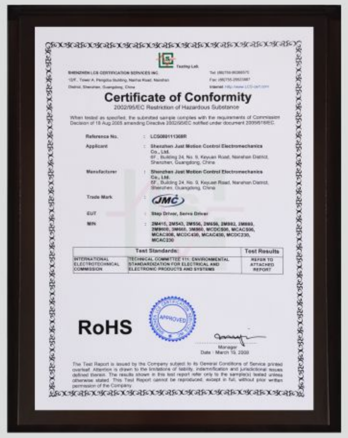
Our team is continuously seeking to acquire new skill and knowledge in order to provide a comprehensive approach to serve our customers.From customers' perspective, our objective is to provide high quality product and on-time delivery.

The success of our company relies on the commitment to product quality, culture, strong engineering capability, strict quality control, and Efficient management system.

Currently, JMC has nearly 300 employees and 10 branches in China,3 Agents in Singapore,Brazil and India with an area nearly 200 square meters.

JUST MOTION CONTROL

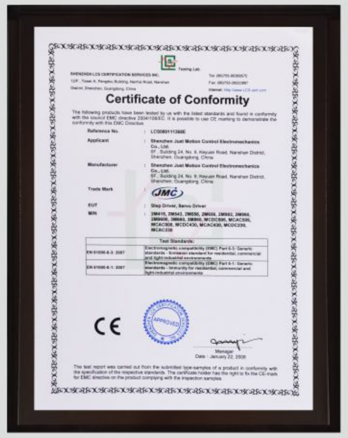
Certifications



Certificate of Conformity

2002/95/EC Restriction of Hazardous Substance

RoHS



Certificate of Conformity

CE

CORPORATE CULTURE

Product packaging area

Design

IQC checkout

High pressure assembly

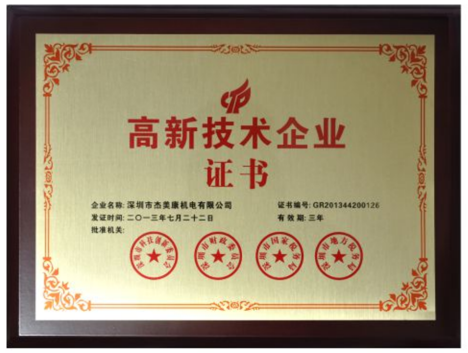
Assembling

Quality test

2M542/2M656老化线

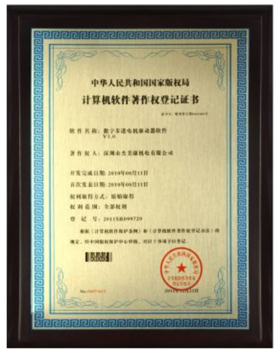
Aging room

HONOR AND QUALIFICATION



高新技术企业
证书

企业名称: 深圳市杰美康机电有限公司　证书编号: GR201344200126
发证时间: 二〇一三年七月二十二日　有效期: 三年
批准机关:



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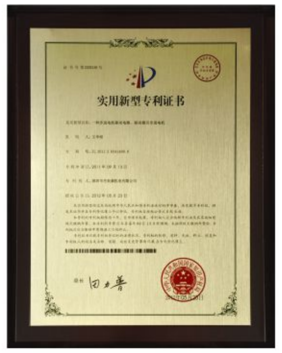
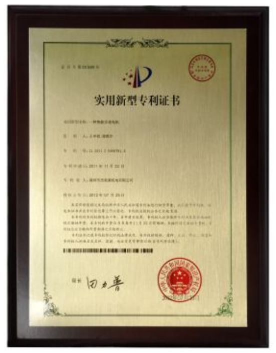


实用新型专利证书



实用新型专利证书

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DIGITAL STEPPER DRIVER

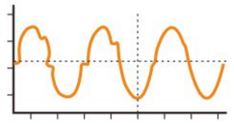
Main Features

- Advanced Current Control Technique
- Anti-vibration
- Low-speed Torque Smoothing
- Micro-step Interpolation

01>> Anti-Resonance

One of the setback in Step motor system is the Resonance.
DM Series automatically overcome the Resonance with it's Control Algorithm.
This technique provides better Mid-Frequency stability and higher Torque Output at higher Speed.

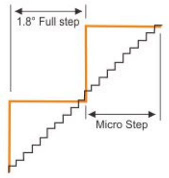
Superior adjustment performance



02>> Micro-step Interpolation

Micro-step are automatically inserted within a Full step to provide a more fine step, resulting in a smoother motion.

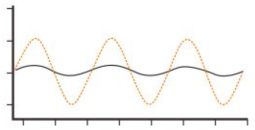
Smoother Stepping Motion



03>> Low Speed Torque Smoothing

Better Current Loop control at low speed reduce Harmonic components and improving low speed performance.

Better Low Speed Performance



04>> Input Signal Smoothing

Dynamic Acceleration and deceleration filtering provides a smooth S-Curve Start/Stop Motion,reducing mechanical wear and tear.

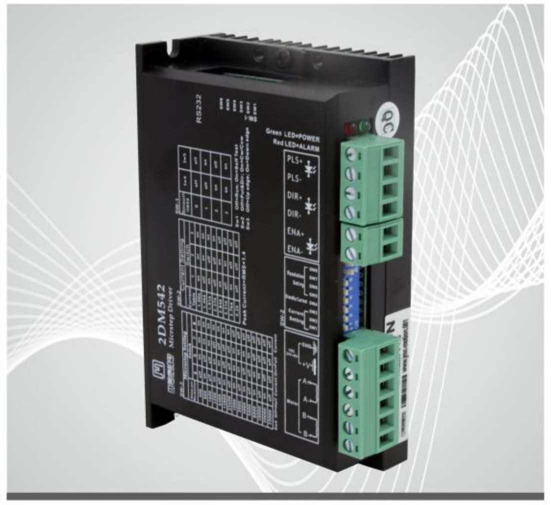
Reduce Start/Stop Jerking effect

Specifications

Phase	Model	Current(A)	Voltage(V)	Micro step	Matched Motor	Weight(kg)	Dimension(mm)
2 phase	2DM425	0.3-2.5A	DC(24-40V)	2-128 5-125	42.57	0.2	96*60.5*24.5
	2DM542	1.0-4.2A	DC(24-36V)	2-128 5-125	57.86	0.27	118*75.5*34
	2DM556	1.4-5.6A	DC(24-60V)	2-128 5-125	57.86	0.27	118*75.5*34
	2DM860H	2.1-8.4A	AC(18-80V) DC(24-110V)	2-526 5-200	57.86.110	0.6	150*97.5*53
	2DM2280	2.2-8.2A	AC(80-220V)	2-128 5-125	86.110.130	1.2	192*157*85
3 phase	3DM783	1.8-8.3A	DC(24-60V)	2-128 2.5-50	57.86	0.27	118*75.5*34
	3DM860	2.0-8.3A	AC(18-60V) DC(24-80V)	1-64 2.5-50	57.86	0.6	150*97.5*53
	3DM2080	2.0-8.0A	AC(80-220V)	2-128 2.5-50	86.110.130	1.5	192*157*85
	3DM3722	1.2-10.0A	AC(80-220V)	2-300	110.130	1.5	200*145.5*80

Key Features:

- Parameter auto-setup and motor self-test
- Multi-Stepping inside,Small noise, low heating, smooth movement
- Torque compensation in high speed
- Variable current control technology,High current efficiency
- Accelerate and decelerate control inside, Great improvement in smoothness of starting or stopping the motor
- Support PUL/DIR and CW/CCW modes
- Storage the position of motor
- Optically isolated input and compatible with 5V or 24V
- User-defined micro steps
- Micro-step resolutions and Output current programmable
- Over current and over voltage protection
- Automatic detection, flexible selection of pulse edge count mode;
- Green light means running while red light means protection or off line



Introduction

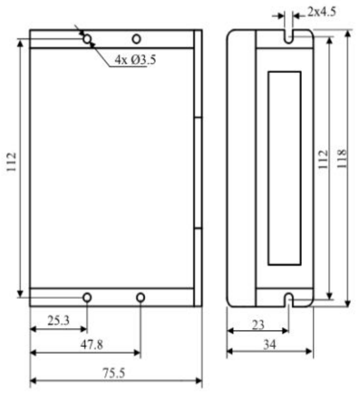
The 2DM542 is a two phase digital stepper driver based on ARM. Its Micro step resolutions and output current are programmable. And it has advanced control algorithm, which can brings a unique level of system smoothness, provides optimum torque and mid-range instability. The control algorithm of Multi-Stepping can make stepper motor has smooth system performance. The control algorithm of torque compensation can improve the torque of motor in the high speed. The control algorithm of motor self-test and parameter auto-setup technology offers optimum responses with different motors and easy-to-use. The control algorithm of smoothness can enhance the acceleration and deceleration of motor. Its unique features make the 2DM542 to be an ideal solution for applications.

Specifications

Input Voltage		DC24V-36V
Pulse Frequency max		200K
Communication rate		57.6Kbps
Over voltage value		60V
Overall Dimensions（mm）		118×75.5×34
Weight		Approximate 260g
Environment pecifications	Environment	Avoid dust, oil fog and corrosive gases
	Operating Temperature	+70℃ Max
	Storage Temperature	-20℃~+80℃
	Humidity	40~90%RH
	Cooling method	Natural cooling or forced air cooling

Dimensions

Dimensions size in mm



DIP Switch Setting

1. Introduction Of SW-2

1.1 Current setting:

The SW-2 current setting is in the following table.

Dial switch Current		SW1	SW2	SW3
Peak	RMS			
1.0A	0.71A	1	1	1
1.46A	1.04A	0	1	1
1.91A	1.36A	1	0	1
2.37A	1.69A	0	0	1
2.84A	2.03A	1	1	0
3.31A	2.36A	0	1	0
3.76A	2.69A	1	0	0
4.2A	3.0A	0	0	0

1.2 Standstill current Setting:

SW4 is used for setting the standstill current , “off” means the standstill current is set to be half of the selected dynamic current or other current, which can be set by the HISU, the details can be seen in the tenth sections. While “on” means the standstill current is set to be the same as the selected dynamic current.

1.3 Micro steps Setting:

The micro steps setting is in the following table. And the micro steps can be also setting through the HISU. The details can be seen in the tenth sections.

SW-2 micro steps setting is in the following table

Dial switch Micro steps	SW5	SW6	SW7	SW8
400	0	1	1	1
800	1	0	1	1
1600	0	0	1	1
3200	1	1	0	1
6400	0	1	0	1
12800	1	0	0	1
25600	0	0	0	1
1000	1	1	1	0
2000	0	1	1	0
4000	1	0	1	0
5000	0	0	1	0
8000	1	1	0	0
10000	0	1	0	0
20000	1	0	0	0
25000	0	0	0	0

2. Introduction Of SW-1

The SW-1 switch is mainly a number of auxiliary functions, the auxiliary functions of the first three switch are respectively motor self detection, pulse counting mode and single pulse selection;Fourth and fifth are set for the smoothing coefficient, and the last one is reserved.

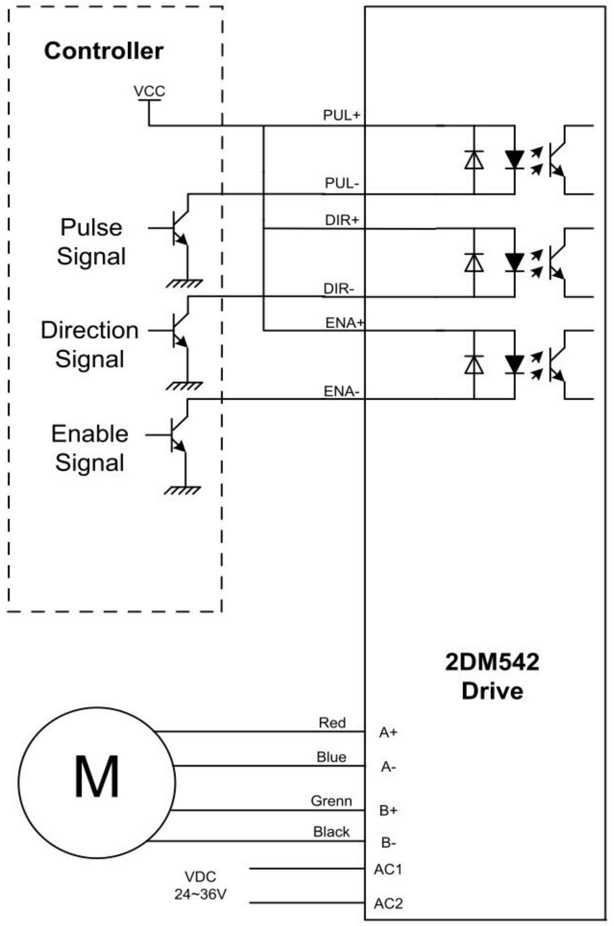
SW-1 switches auxiliary functions are shown in the following table

Selection DIP Switch	0	1
SW1	Run	Self Test
SW2	Pulls&Dir	CW/CCW
SW3	Up Edge	Down Edge

The smooth coefficients of the SW-1 switches are shown in the following table

Smoothness	SW4	SW5
0	0	0
1	0	1
2	1	0
3	1	1

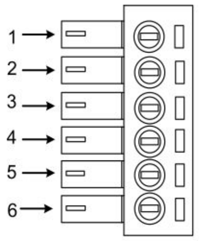
Wiring



Remark:* VCC is compatible with 5V or 24V;

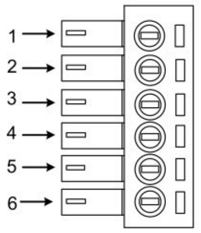
Ports Introduction

1. Control Signal Input Ports



Port	Symbol	Name	Remark
1	PLS+	Enable signal-	Compatible with 5V or 24V
2	PLS-	Enable signal +	
3	DIR+	Direction signal-	Compatible with 5V or 24V
4	DIR-	Direction signal+	
5	ENA+	Pulse signal -	Compatible with 5V or 24V
6	ENA-	Pulse signal +	

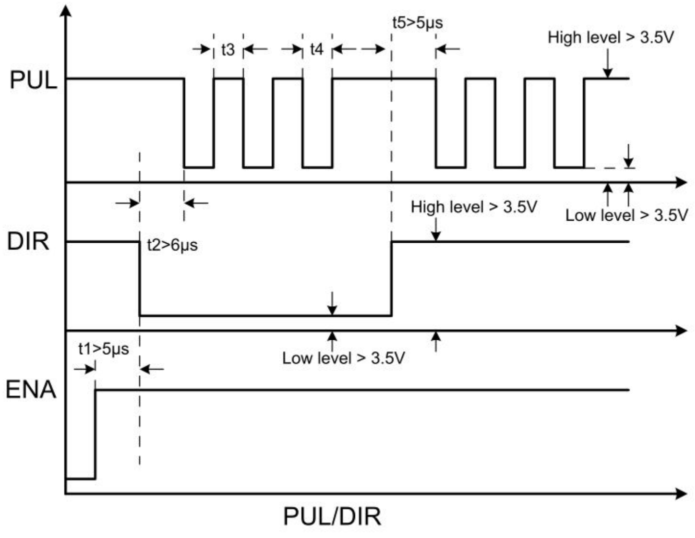
2.Power Interface Ports



1	Power Input Ports	GND	Input Power +	DC 24V-36V
2		VCC	Input Power-	
3	Motor Phase Wire Input Ports	A+	Phase A+	Motor Phase A
4		A-	Phase A-	
5		B+	Phase B+	Motor Phase B
6		B-	Phase B+	

Sequence Chart of Control Signals

In order to avoid some fault operations and deviations, PUL, DIR and ENA should abide by some rules, shown as following diagram:



Remark:

a. t1: ENA must be ahead of DIR by at least 5μs. Usually, ENA+ and ENA- are NC (not connected).

b. t2: DIR must be ahead of PUL active edge by 6μs to ensure correct direction;

c. t3: Pulse width not less than 2.5μs;

d. t4: Low level width not less than 2.5μs.

Key Features:

- Parameter auto-setup and motor self-test
- Multi-Stepping inside,Small noise, low heating, smooth movement
- Torque compensation in high speed
- Variable current control technology,High current efficiency
- Accelerate and decelerate control inside, Great improvement in smoothness of starting or stopping the motor
- Support PUL/DIR and CW/CCW modes
- Storage the position of motor
- Optically isolated input and compatible with 5V or 24V
- User-defined micro steps
- Micro-step resolutions and Output current programmable
- Over current and over voltage protection
- Green light means running while red light means protection or off line

Introduction

2DM556 is newest digital stepper motor driver launched by JMC, using the latest 32-bit DSP control technology, the user can set any segment within 25600 and multi-range current value within rated current,with built-in micro technology,2DM556 driver greatly improved stability and reduced noise under subdivision. Integrating automatic parameter tuning function inside.it also can adjust the optimal operation parameters automatically for different motors to maximize the performance of the motor.

Specifications

Parameters	Min	Typical	Max	Unit
Output Current (Peak)	1.4	-	5.6	Amps
Supply voltage	24	36	60	VDC
Logic Input Current	7	10	-	mA
Pulse input frequency	-	-	250	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—65°C
	Humidity	<80%RH
	Vibration	5.9m/s² Max
Storage Temp.	-10°C —80°C	
Weight	Approx. 0.26 Kg	

DIP Switch setting

Current Setting

Current Setting AVG(A)	Peak Value (A)	SW1	SW2	SW3
1.0	1.4	OFF	OFF	OFF
1.5	2.1	ON	OFF	OFF
1.92	2.7	OFF	ON	OFF
2.28	3.2	ON	ON	OFF
2.71	3.8	OFF	OFF	ON
3.07	4.3	ON	OFF	ON
3.5	4.9	OFF	ON	ON
4.4	4.5	ON	ON	ON

Microstep Setting

Step/Rev	SW5	SW6	SW7	SW8
400	OFF	ON	ON	ON
800	ON	OFF	ON	OFF
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

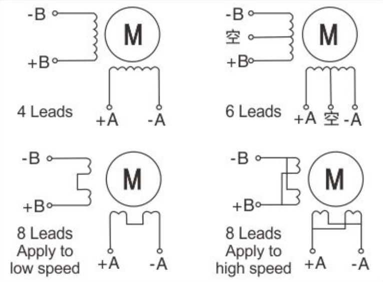
* SW4: ON=Full current, SW4 : OFF=Half current

P1 Pin Assignment

Signal	Name	Remark
PLS+	Pulse signal+	Compatible with 5v or 24v
PLS-	Pulse signal-	Compatible with 5v or 24v
DIR+	Direction control signal+	Compatible with 5v or 24v
DIR-	Direction control signal-	Compatible with 5v or 24v
ENA+	Enable signal+	Compatible with 5v or 24v
ENA-	Enable signal-	Compatible with 5v or 24v
ALM+	Alarm output positive	Open collector output
ALM-	Alarm output negative	Open collector output

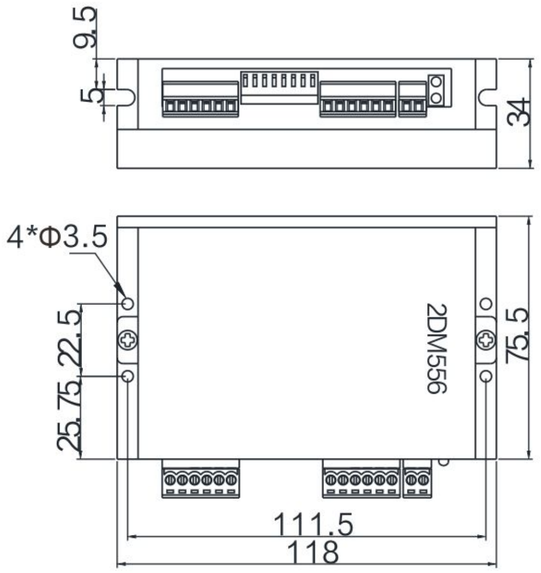
P2 Pin Assignment

The P2 I/o high voltage interface description

Name	Function	Instructions
A+、A- B+、B-	Electrical wiring	 -B +B M 4 Leads +A -A -B 空 +B M 6 Leads +A 空 -A -B +B M 8 Leads Apply to low speed +A -A -B +B M 8 Leads Apply to high speed +A -A
+V GND	DC voltage input	Between DC24~60V，More details please refer to motor specs

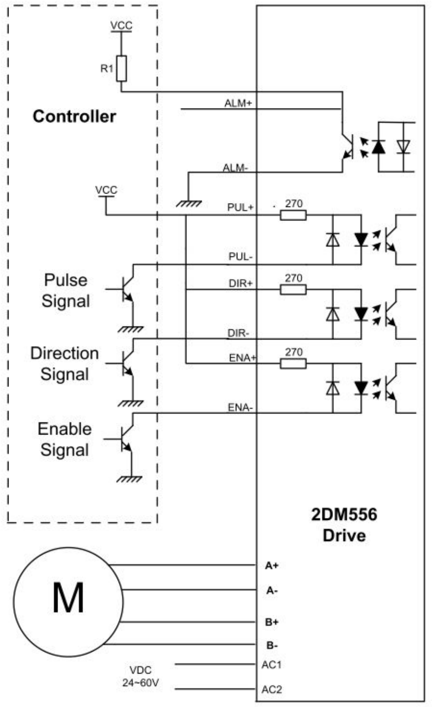
Dimensions

Dimensions size in mm



9.5
5
34
4*Φ3.5
22.5
25.75
75.5
2DM556
111.5
118

Wiring

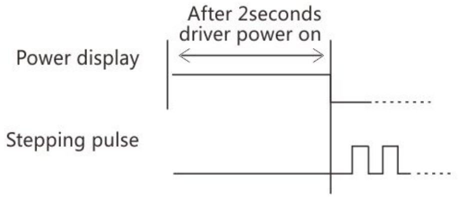


VCC
R1
Controller
ALM+
ALM-
VCC
PUL+
270
PUL-
Pulse Signal
DIR+
270
DIR-
Direction Signal
ENA+
270
ENA-
Enable Signal
2DM556 Drive
M
A+
A-
B+
B-
VDC 24~60V
AC1
AC2

Remark:* VCC is compatible with 5V or 24V;
R1(3~5K) must be connected to control signal terminal.

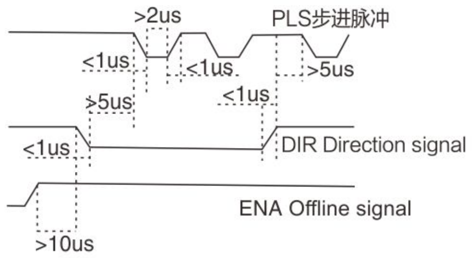
Signal waveform and timing

➡ **Power on sequence**



After 2seconds driver power on
Power display
Stepping pulse

➡ **Input signal waveform and timing**



>2us
PLS步进脉冲
<1us
<1us
>5us
>5us
<1us
<1us
DIR Direction signal
ENA Offline signal
>10us

Note:
Driver power-up time depends on the applied AC driver voltage Magnitude,under 36v power-up time need 2seconds typically.

Key Features:

- Parameter auto-setup and motor self-test
- Multi-Stepping inside,Small noise, low heating, smooth movement
- Torque compensation in high speed
- Variable current control technology,High current efficiency
- Accelerate and decelerate control inside, Great improvement in smoothness of starting or stopping the motor
- Support PUL/DIR and CW/CCW modes
- Storage the position of motor
- Optically isolated input and compatible with 5V or 24V
- User-defined micro steps
- Micro-step resolutions and Output current programmable
- Over current and over voltage protection
- Green light means running while red light means protection or off line

Introduction

2DM860H is newest digital stepper motor driver launched by JMC, using the latest 32-bit DSP control technology, the user can set any segment within 25600 and multi-range current value within rated current,with built-in micro technology,2DM860H driver greatly improved stability and reduced noise under subdivision. Integrating automatic parameter tuning function inside.it also can adjust the optimal operation parameters automatically for different motors to maximize the performance of the motor.

Specifications

Parameters	Min	Typical	Max	Unit
Output Current (Peak)	2.1	-	8.4	Amps
Supply voltage	18VAC (DC24V)	60VAC (DC80V)	80VAC (DC110V)	VAC
Logic Input Current	-	10	-	mA
Pulse input frequency	-	-	250	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—65°C
	Humidity	<80%RH
	Vibration	5.9m/s² Max
Storage Temp.	-10°C —80°C	
Weight	Approx. 0.58 Kg	

DIP Switch Setting

1. Introduction Of SW-1

1.1 Current setting:

Current Setting AVG(A)	Peak Value (A)	SW1	SW2	SW3
1.5	2.1	OFF	OFF	OFF
2.25	3.15	ON	OFF	OFF
2.88	4.03	OFF	ON	OFF
3.42	4.78	ON	OFF	ON
4.06	5.69	OFF	OFF	ON
4.60	6.44	ON	OFF	ON
5.25	7.35	OFF	ON	ON
6.0	8.4	ON	ON	ON

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

Semi-flow function means that no step pulse 200ms, the current driver outputs automatically reduced to 70% of rated output current, to prevent motor heat.

1.2 Microstep Setting:

Step/Rev	SW5	SW6	SW7	SW8
400	ON	ON	ON	ON
800	OFF	ON	ON	ON
1600	ON	OFF	ON	ON
3200	OFF	OFF	ON	ON
6400	ON	ON	OFF	ON
12800	OFF	ON	OFF	ON
25600	ON	ON	ON	OFF
51200	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
40000	OFF	OFF	OFF	OFF

2. Introduction of SW-2

Function Setting:

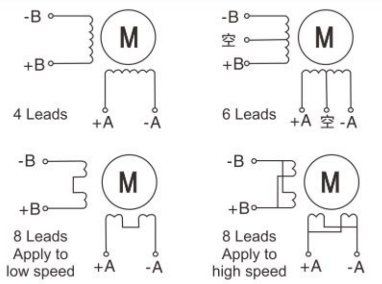
SW4	ON	Low Level for Enable
	OFF	How Level for Enable
SW3	ON	Max External Pulse Frequency 100K
	OFF	Max External Pulse Frequency 200K
SW2	ON	CW/CCW
	OFF	PUL+DIR
SW1	ON	Self-test Mode (60Rpm/Min)
	OFF	External Pulse Control Mode

P1 Pin Assignment

Signal	Name	Remark
PLS+	Pulse signal+	Compatible with 5v or 24v
PLS-	Pulse signal-	Compatible with 5v or 24v
DIR+	Direction control signal+	Compatible with 5v or 24v
DIR-	Direction control signal-	Compatible with 5v or 24v
ENA+	Enable signal+	Compatible with 5v or 24v
ENA-	Enable signal-	Compatible with 5v or 24v
ALM+	Alarm output positive	Open collector output
ALM-	Alarm output negative	Open collector output

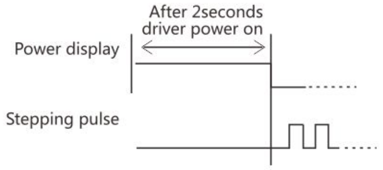
P2 Pin Assignment

The P2 I/o high voltage interface description

Name	Function	Instructions
A+、A- B+、B-	Electrical wiring	 -B +B M 4 Leads +A -A -B 空 +B M 6 Leads +A 空 -A -B +B M 8 Leads Apply to low speed +A -A -B +B M 8 Leads Apply to high speed +A -A
AC1 AC2	voltage input	Between AC18~80V, ,DC24-110V refer to motor specs

Signal waveform and timing

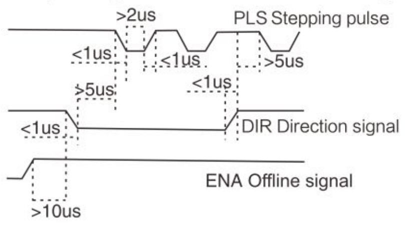
Power on sequence


After 2seconds driver power on
Power display
Stepping pulse

Note:

Driver power-up time depends on the applied AC driver voltage Magnitude,under AC60V power-up time need 2seconds typically.

Input signal waveform and timing


>2us
PLS Stepping pulse
<1us
<1us
>5us
>5us
<1us
<1us
DIR Direction signal
ENA Offline signal
>10us

3. Introduction of SW-3

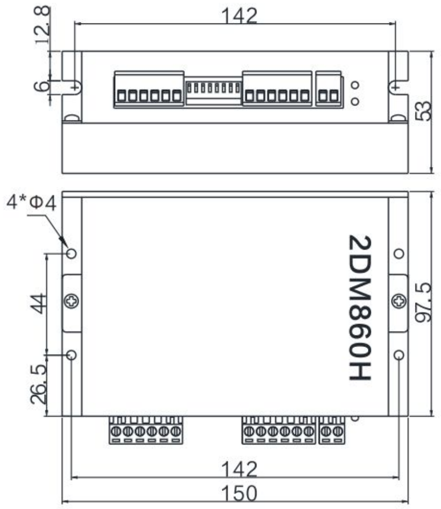
Smoothing setting:

D0	No Smooth
D1-D7	Smoothness Gain

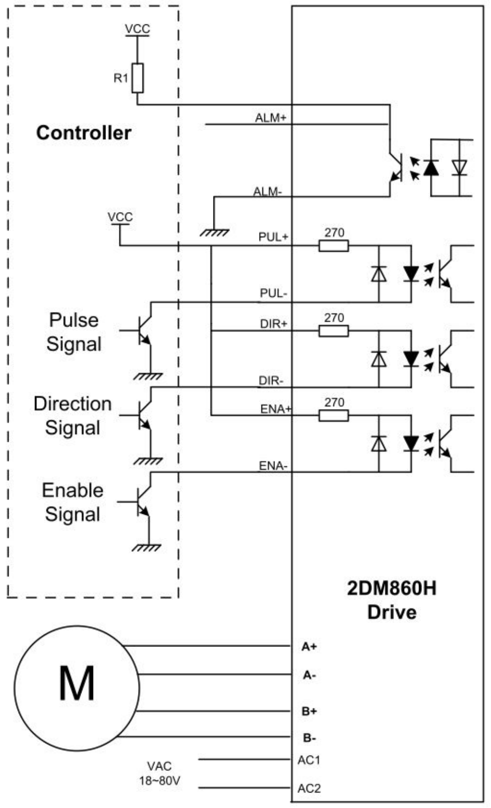
The smoothness Gain is to improve the smoothness of the speed of the motor while acceleration or deceleration.

The larger the value, the smoother the speed in acceleration or deceleration.

Dimensions (mm)


142
12.8
6
53
4*Φ4
2DM860H
44
26.5
97.5
142
150

Wiring


VCC
R1
Controller
ALM+
ALM-
VCC
PUL+
270
PUL-
Pulse Signal
DIR+
270
DIR-
Direction Signal
ENA+
270
ENA-
Enable Signal
2DM860H Drive
M
A+
A-
B+
B-
VAC 18~80V
AC1
AC2

Remark:* VCC is compatible with 5V or 24V;
R1(3~5K) must be connected to control signal terminal.

Key Features:

- Parameter auto-setup and motor self-test
- Multi-Stepping inside,Small noise, low heating, smooth movement
- Torque compensation in high speed
- Variable current control technology,High current efficiency
- Accelerate and decelerate control inside, Great improvement in smoothness of starting or stopping the motor
- Support PUL/DIR and CW/CCW modes
- Storage the position of motor
- Optically isolated input and compatible with 5V or 24V
- User-defined micro steps
- Micro-step resolutions and Output current programmable
- Over current and over voltage protection
- Green light means running while red light means protection or off line

Introduction

2DM2280 is newest digital stepper motor driver launched by JMC, using the latest 32-bit DSP control technology, the user can set any segment within 25600 and multi-range current value within rated current, with built-in micro technology, 2DM2280 driver greatly improved stability and reduced noise under subdivision. Integrating automatic parameter tuning function inside. it also can adjust the optimal operation parameters automatically for different motors to maximize the performance of the motor.

Specifications

Parameters	Min	Typical	Max	Unit
Output Current (Peak)	2.2	-	8.2	Amps
Supply voltage	80	220	240	VAC
Logic Input Current	-	15	-	mA
Pulse input frequency	-	-	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	65°C
	Humidity	<80%RH
	Vibration	5.9m/s² Max
Storage Temp.	-10°C －80°C	
Weight	Approx. 1.52 Kg	

DIP Switch setting

Current Setting

Current Setting AVG(A)	Peak Value (A)	SW1	SW2	SW3
1.6	2.2	ON	OFF	OFF
2.3	3.2	OFF	ON	OFF
3.2	4.2	ON	ON	OFF
3.7	5.2	OFF	OFF	ON
4.4	6.3	ON	OFF	ON
5.2	7.2	OFF	ON	ON
5.9	8.2	ON	ON	ON

Microstep Setting

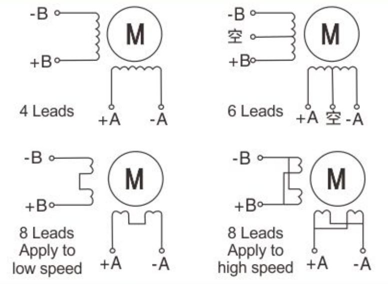
Step/Rev	SW1	SW2	SW3	SW4
400	OFF	ON	ON	ON
800	ON	OFF	ON	ON
1600	OFF	OFF	ON	ON
3200	ON	ON	OFF	ON
6400	OFF	ON	OFF	ON
12800	ON	OFF	OFF	ON
25600	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
8000	ON	ON	OFF	OFF
10000	OFF	ON	OFF	OFF
20000	ON	OFF	OFF	OFF
25000	OFF	OFF	OFF	OFF

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

P1 Pin Assignment

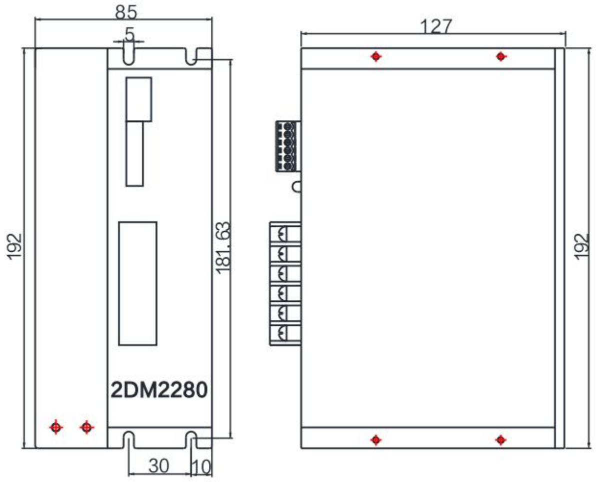
Signal	Name	Remark
PLS+	Pulse signal+	Compatible with 5v or 24v
PLS-	Pulse signal-	Compatible with 5v or 24v
DIR+	Direction control signal+	Compatible with 5v or 24v
DIR-	Direction control signal-	Compatible with 5v or 24v
ENA+	Enable signal+	Compatible with 5v or 24v
ENA-	Enable signal-	Compatible with 5v or 24v
ALM+	Alarm output positive	Open collector output
ALM-	Alarm output negative	Open collector output

P2 Pin Assignment

Name	Function	Instructions
A+、A- B+、B-	Electrical wiring	
AC1 AC2	voltage input	Between AC80~240V, refer to motor specs
PG	Ground end	With function of leakage protection and enhancement anti-interference

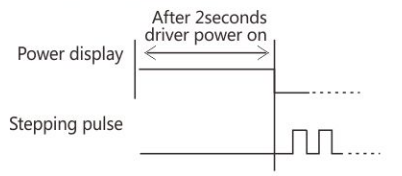
-B
+B
M
4 Leads
+A
-A
-B
空
+B
M
6 Leads
+A
空
-A
-B
+B
M
8 Leads Apply to low speed
+A
-A
-B
+B
M
8 Leads Apply to high speed
+A
-A

Dimensions (mm)


85
5
192
181.63
2DM2280
30
10
127
192

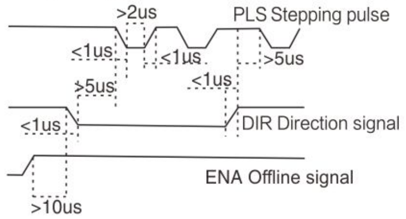
Signal waveform and timing

➡ Power on sequence

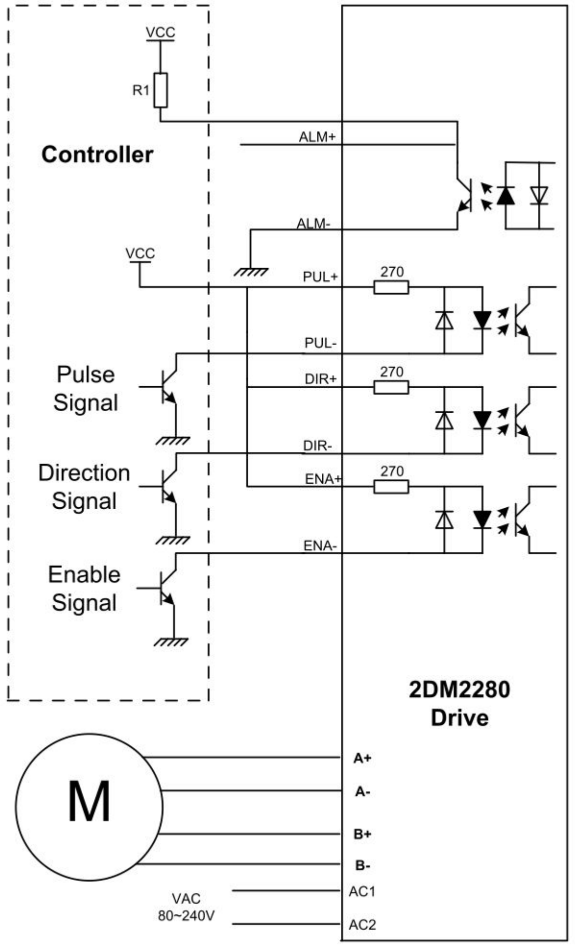

After 2seconds driver power on
Power display
Stepping pulse

Note:
Driver power-up time depends on the applied AC driver voltage Magnitude,under AC110V power-up time need 2seconds typically.

➡ Input signal waveform and timing


>2us
PLS Stepping pulse
<1us
<1us
>5us
>5us
<1us
<1us
DIR Direction signal
ENA Offline signal
>10us

Wiring


VCC
R1
Controller
ALM+
ALM-
VCC
PUL+
270
PUL-
DIR+
270
DIR-
ENA+
270
ENA-
Pulse Signal
Direction Signal
Enable Signal
2DM2280 Drive
M
A+
A-
B+
B-
VAC 80~240V
AC1
AC2

Remark:* VCC is compatible with 5V or 24V;
R1(3~5K) must be connected to control signal terminal.

3DM783

Key Features:

- Parameter auto-setup and motor self-test
- Multi-Stepping inside,Small noise, low heating, smooth movement
- Torque compensation in high speed
- Variable current control technology,High current efficiency
- Accelerate and decelerate control inside, Great improvement in smoothness of starting or stopping the motor
- Support PUL/DIR and CW/CCW modes
- Storage the position of motor
- Optically isolated input and compatible with 5V or 24V
- User-defined micro steps
- Micro-step resolutions and Output current programmable
- Over current and over voltage protection
- Green light means running while red light means protection or off line

Introduction

3DM783 is newest digital stepper motor driver launched by JMC, using the latest 32-bit DSP control technology, the user can set any segment within 25600 and multi-range current value within rated current,with built-in micro technology,3DM783driver greatly improved stability and reduced noise under subdivision. Integrating automatic parameter tuning function inside.it also can adjust the optimal operation parameters automatically for different motors to maximize the performance of the motor.

Specifications

Parameters	Min	Typical	Max	Unit
Output Current (Peak)	1.89	-	8.26	Amps
Supply voltage	24	36	70	VDC
Logic Input Current	-	15	-	mA
Pulse input frequency	-	-	250	KHz
Low Level Time	2.5	-	-	μsec

Cooling	Natural Cooling or Forced Convection	
Environment	Space	Avoid dust, oil frost and corrosive gases
	Ambient Temperature	65°C
	Humidity	<80%RH
	Vibration	5.9m/s² Max
Storage Temp.	-10°C —80°C	
Weight	Approx. 1.8 Kg	

DIP Switch setting

Current Setting

Current Setting AVG(A)	Peak Value (A)	SW1	SW2	SW3
1.35	1.89	OFF	OFF	OFF
1.86	2.6	ON	ON	OFF
2.6	3.64	OFF	ON	OFF
3.2	3.64	ON	ON	OFF
3.8	4.48	OFF	OFF	ON
4.45	6.23	ON	OFF	ON
5.2	7.28	OFF	ON	ON
5.9	8.26	ON	ON	ON

Microstep Setting

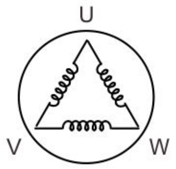
Step/Rev	SW1	SW2	SW3	SW4
400	OFF	ON	ON	ON
1600	ON	OFF	ON	ON
3200	OFF	OFF	ON	ON
6400	ON	ON	OFF	ON
12800	OFF	ON	OFF	ON
25600	ON	OFF	OFF	ON
500	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
1200	OFF	ON	ON	OFF
2000	ON	OFF	ON	OFF
4000	OFF	OFF	ON	OFF
5000	ON	ON	OFF	OFF
6000	OFF	ON	OFF	OFF
8000	ON	OFF	OFF	OFF
10000	OFF	OFF	OFF	OFF

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

P1 Pin Assignment

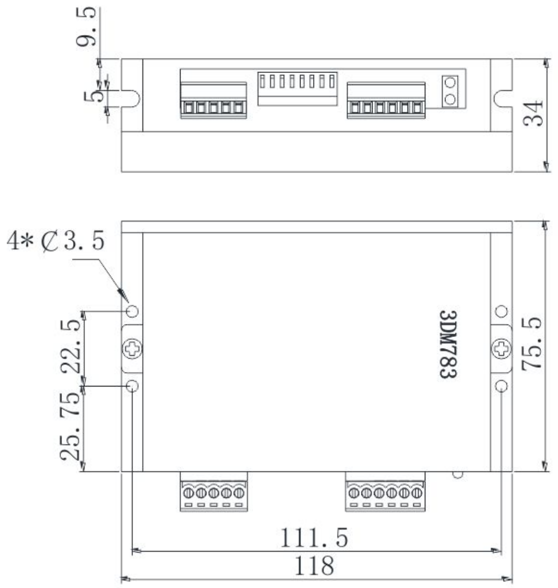
Signal	Name	Remark
PLS+	Pulse signal+	Compatible with 5v or 24v
PLS-	Pulse signal-	Compatible with 5v or 24v
DIR+	Direction control signal+	Compatible with 5v or 24v
DIR-	Direction control signal-	Compatible with 5v or 24v
ENA+	Enable signal+	Compatible with 5v or 24v
ENA-	Enable signal-	Compatible with 5v or 24v

P2 Pin Assignment

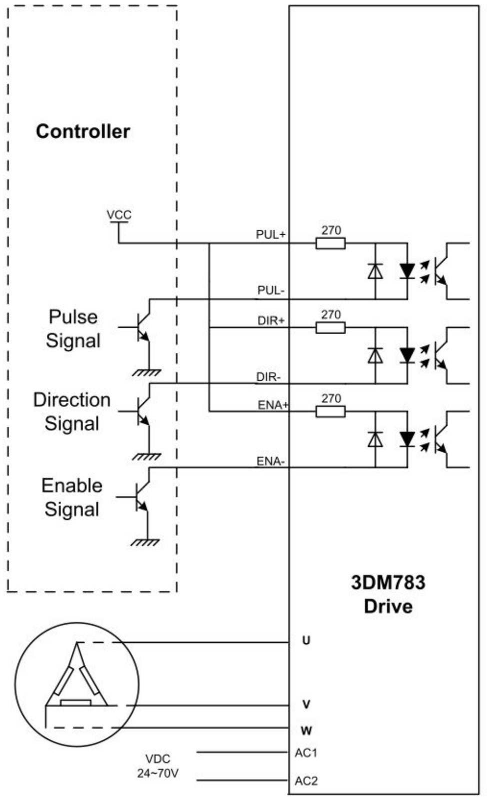
Name	Function	Instructions
U V W	Electrical wiring	 U V W
+V GND	Input DC voltage	Between DC24~70V, refer to motor specs

Dimensions

Dimensions size in mm



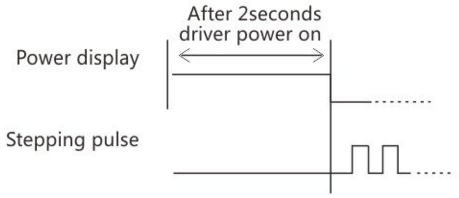
Wiring



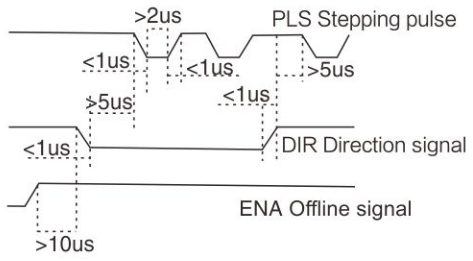
Remark:* VCC is compatible with 5V or 24V;

Signal waveform and timing

➡ Power on sequence



➡ Input signal waveform and timing



Note:

Driver power-up time depends on the applied AC driver voltage under DC36v power-up time need 2seconds typically.

Key Features:

- Parameter auto-setup and motor self-test
- Multi-Stepping inside,Small noise, low heating, smooth movement
- Torque compensation in high speed
- Variable current control technology,High current efficiency
- Accelerate and decelerate control inside, Great improvement in smoothness of starting or stopping the motor
- Support PUL/DIR and CW/CCW modes
- Storage the position of motor
- Optically isolated input and compatible with 5V or 24V
- User-defined micro steps
- Micro-step resolutions and Output current programmable
- Over current and over voltage protection
- Green light means running while red light means protection or off line

3DM2080
U
V MOTOR
W
NC
AC1
AC2
3DM2080

Introduction

3DM2080 is newest digital stepper motor driver launched by JMC, using the latest 32-bit DSP control technology, the user can set any segment within 25600 and multi-range current value within rated current,with built-in micro technology, 3DM2080 driver greatly improved stability and reduced noise under subdivision. Integrating automatic parameter tuning function inside.it also can adjust the optimal operation parameters automatically for different motors to maximize the performance of the motor.

Specifications

Parameters	Min	Typical	Max	Unit
Output Current (Peak)	2.2	-	8.2	Amps
Supply voltage	80	220	240	VAC
Logic Input Current	-	10	-	mA
Pulse input frequency	-	-	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—65°C
	Humidity	<80%RH
	Vibration	5.9m/s² Max
Storage Temp.	-10°C —80°C	
Weight	Approx. 0.27 Kg	

DIP Switch setting

Current Setting

Current Setting AVG(A)	Peak Value (A)	SW1	SW2	SW3
1.6	2.2	ON	OFF	OFF
2.3	3.2	OFF	ON	OFF
3.2	4.2	ON	ON	OFF
3.7	5.2	OFF	OFF	ON
4.4	6.3	ON	OFF	ON
5.2	7.2	OFF	ON	ON
5.9	8.2	ON	ON	ON

Microstep Setting

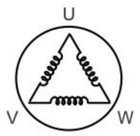
Step/Rev	SW1	SW2	SW3	SW4
400	OFF	ON	ON	ON
1600	ON	OFF	ON	ON
3200	OFF	OFF	ON	ON
6400	ON	ON	OFF	ON
12800	OFF	ON	OFF	ON
25600	ON	OFF	OFF	ON
500	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
1200	OFF	ON	ON	OFF
2000	ON	OFF	ON	OFF
4000	OFF	OFF	ON	OFF
5000	ON	ON	OFF	OFF
6000	OFF	ON	OFF	OFF
8000	ON	OFF	OFF	OFF
10000	OFF	OFF	OFF	OFF

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

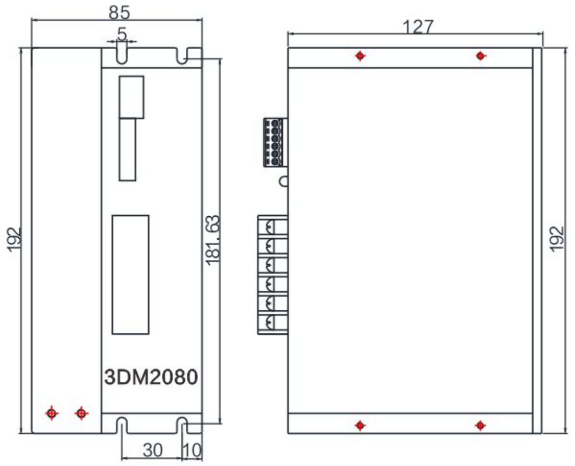
P1 Pin Assignment

Signal	Name	Remark
PLS+	Pulse signal+	Compatible with 5v or 24v
PLS-	Pulse signal-	Compatible with 5v or 24v
DIR+	Direction control signal+	Compatible with 5v or 24v
DIR-	Direction control signal-	Compatible with 5v or 24v
ENA+	Enable signal+	Compatible with 5v or 24v
ENA-	Enable signal-	Compatible with 5v or 24v
ALM+	Alarm output positive	Open collector output
ALM-	Alarm output negative	Open collector output

P2 Pin Assignment

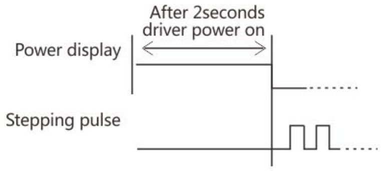
Name	Function	Instructions
U V W	Electrical wiring	
AC1 AC2	Input DC voltage	Between AC80~240V, More details Please refer to motor specs
PG	Ground end	With function of leakage protection and enhancement anti-interference

Dimensions (mm)


85
5
127
192
181.63
192
3DM2080
30
10

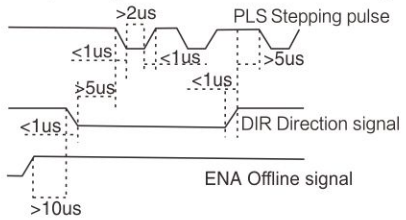
Signal waveform and timing

Power on sequence

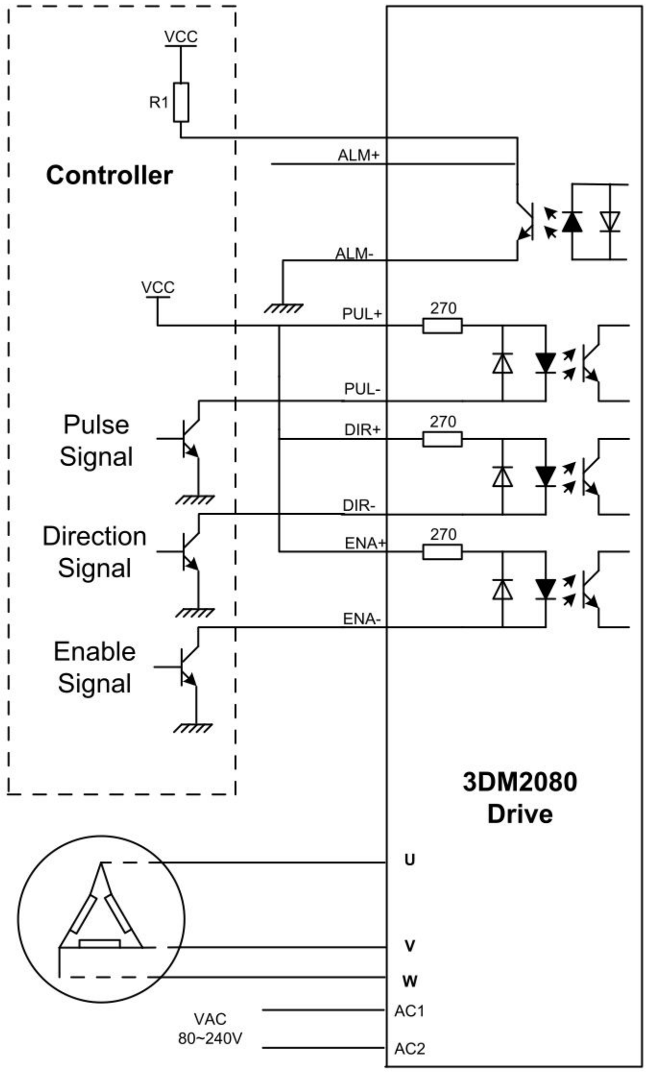

After 2seconds driver power on
Power display
Stepping pulse

Note:
Driver power-up time depends on the applied AC driver voltage
under AC110V power-up time need 2 seconds typically.

Input signal waveform and timing


>2us
PLS Stepping pulse
<1us
<1us
>5us
>5us
<1us
<1us
DIR Direction signal
ENA Offline signal
>10us

Wiring


VCC
R1
Controller
ALM+
ALM-
VCC
PUL+
270
PUL-
DIR+
270
DIR-
ENA+
270
ENA-
Pulse Signal
Direction Signal
Enable Signal
3DM2080 Drive
U
V
W
AC1
AC2
VAC 80~240V

Remark:* VCC is compatible with 5V or 24V;
R1(3~5K) must be connected to control signal terminal.

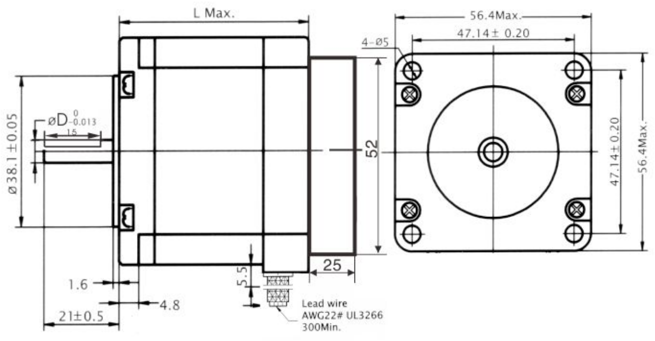
Key Features:

- Low Noise
- Smooth Operation
- High Torque
- Higher Acceleration Ability

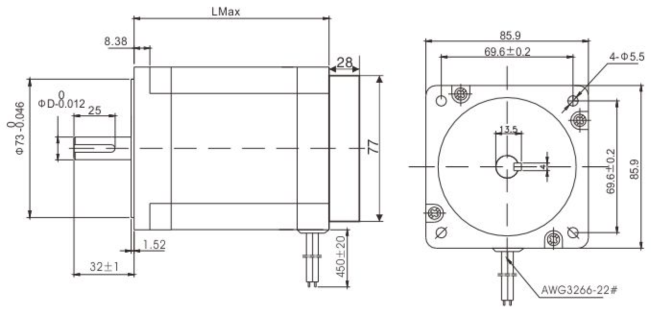
2 phase hybrid stepper motor

Model	Nema	Step Angle (deg)	Holding torque (N.m)	Current Phase (A)	Resistance phase (ohms)	Inductance phase (mH)	Detent Torque (gcm)	Rotor Inertia (g-cm²)	Insulation Class	Lead Wire Numbers (g-cm²)	Weight (kg)	Length (mm)	Shaft (mm)
42J1825-404	17	1.8	0.17	0.4	24	36	200	20	B	4	0.15	25	5
42J1840-408	17	1.8	0.4	0.8	7.5	10	150	57	B	4	0.21	40	5
42J1848-810	17	1.8	0.34	1.0	4.6	4.0	200	82	B	8	0.34	48	5
42J1848-425	17	1.8	0.5	2.5	1.3	2.7	200	82	B	4	0.34	48	5
42J1860-417	17	1.8	0.85	1.7	2.5	6.5	300	117	B	4	0.50	58	5
57J1841-420	23	1.8	0.75	2.0	1.4	3.8	220	157	B	4	0.4	43	6.35
57J1854-828	23	1.8	0.85	2.8	0.8	1.2	400	280	B	8	0.6	56	6.35
57J1876-447	23	1.8	2.0	4.7	0.37	1.75	700	480	B	4	1.05	76	8
57J1880-450	23	1.8	2.2	5.0	0.4	1.8	700	520	B	4	1.15	80	8
57J1880-830	23	1.8	2.0	3.0	0.45	1.8	700	480	B	8	1.1	80	8
86J1865-828	34	1.8	3.5	6.3	0.24	1.7	800	950	B	8	2	66	9.5
86J1880-842	34	1.8	4.5	4.2	0.58	4.0	1300	1400	B	8	2.3	78	12.7
86J1880-460	34	1.8	4.5	6.0	0.34	2.5	1300	1800	B	4	2.1	78	12.7
86J18101-450	34	1.8	6.3	6.0	0.56	6.6	1600	2300	B	4	3.25	99	12.7
86J18118-460	34	1.8	8.2	6.0	0.52	4.8	1600	3600	B	4	3.6	120	12.7
86J18118-842	34	1.8	8.5	6.0	0.56	3.0	2500	2700	B	8	3.8	118	12.7
86J18156-845	34	1.8	12	6.0	0.72	5.5	4000	4000	B	8	5.4	156	15.875
110J18115-460	42	1.8	11	6.0	0.8	10.0	3000	6000	B	4	5.8	99	19
110J18150-460	42	1.8	21	6.0	0.9	17	6000	11000	B	4	8.4	150	19
110J18165-460	42	1.8	24	6.0	0.8	14	7500	125000	B	4	9.5	165	19

Mechanical Dimension (mm)


L Max.
56.4Max.
47.14± 0.20
4-Ø5
52
47.14±0.20
56.4Max.
ø38.1±0.05
øD-0.013
1.6
21±0.5
4.8
5.5
25
Lead wire
AWG22# UL3266
300Min.

□57Series

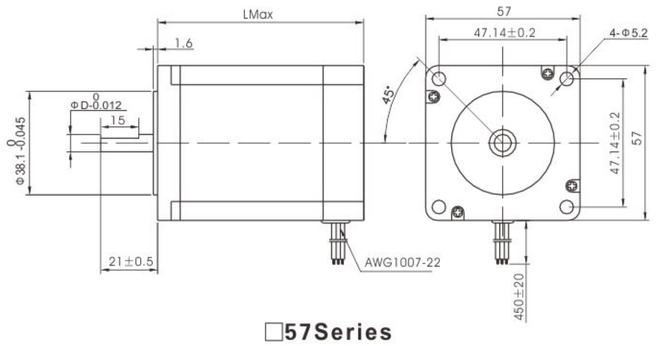

LMax
8.38
28
ΦD-0.012
25
Φ73-0.046
77
32±1
1.52
450±20
85.9
69.6±0.2
4-Φ5.5
13.5
69.6±0.2
85.9
AWG3266-22#

□86Series

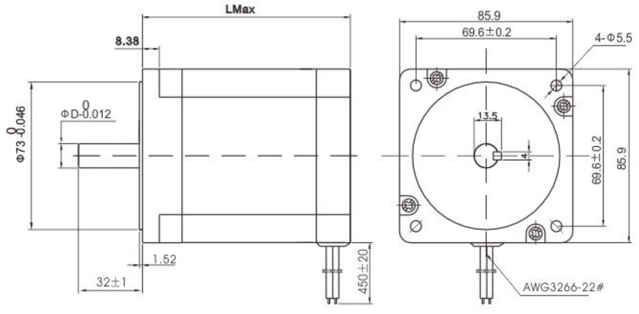
3 phase hybrid stepper motor

Model	Nema	Step Angle (deg)	Holding torque (N.m)	Current Phase (A)	Resistance phase (ohms)	Inductance phase (mH)	Detent Torque (gcm)	Rotor Inertia (g-cm²)	Insulation Class	Lead Wire Numbers (g-cm²)	Weight (kg)	Length (mm)	Shaft (mm)
57J1250-635	23	1.2	0.9	3.5	0.77	1.8	400	300	B	6	0.75	56	6.35
57J1276-658	23	1.2	1.5	5.2	0.86	2	680	480	B	6	1.1	79	8
57J1285-658	23	1.2	1.8	5.2	1.2	2	800	550	B	6	1.2	85	8
86J1270-650	34	1.2	2.8	5.0	0.75	5	1000	1100	B	6	1.7	70	12
86J12103-650	34	1.2	4.5	4.5	1.4	3.9	2000	2340	B	6	2.85	100	12
86J12126-623	34	1.2	6.8	2.3	5.8	22	3000	3500	B	6	4.0	126	14
86J12126-650	34	1.2	6.8	5.2	1.62	6	3000	3500	B	6	4.0	126	14
110J12161-360	42	1.2	12	4.5	0.76	11.5	4000	11900	B	3	7.1	161	19
110J12185-360	42	1.2	16	6.0	1.28	19	5500	14800	B	3	8.8	185	19
110J12220-360	42	1.2	20	6.8	1.24	22	6800	19600	B	3	11	220	19
130J12188-368	51	1.2	24	6.8	0.96	16.2	10000	26870	B	3	14	188	19
130J12220-368	51	1.2	28	6.8	1.17	19	16000	33970	B	3	17	220	19
130J12252-368	51	1.2	35	6.8	1.39	24	24000	41400	B	3	19	252	19
130J12280-368	51	1.2	50	6.8	1.02	18.3	28000	47300	B	3	20.5	280	19

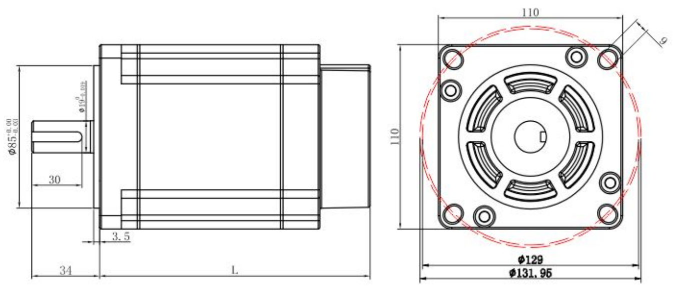
Mechanical Dimension (mm)


LMax
1.6
57
47.14±0.2
4-Φ5.2
45°
ΦD-0.012
15
Φ38.1-0.045
47.14±0.2
57
21±0.5
AWG1007-22
450±20

□57Series

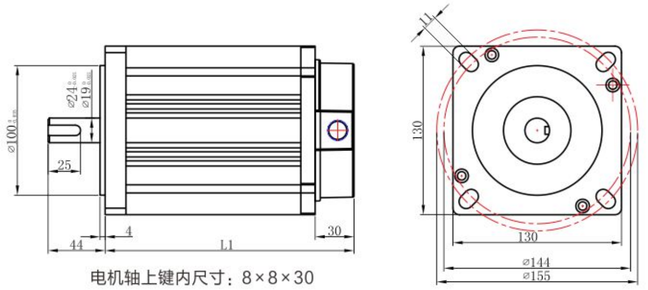

LMax
8.38
85.9
69.6±0.2
4-Φ5.5
Φ73-0.046
ΦD-0.012
13.5
69.6±0.2
85.9
1.52
32±1
450±20
AWG3266-22#

□86Series


110
110
30
3.5
34
L
ø129
ø131.96

电机轴上键内尺寸：6×6×30

□110Series


130
25
44
4
L1
30
130
ø144
ø155

电机轴上键内尺寸：8×8×30

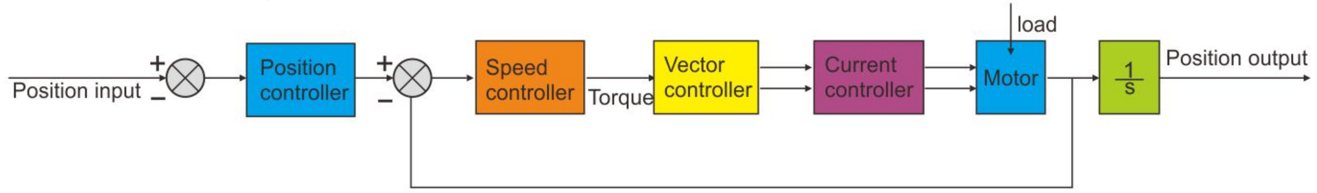
□130Series

Main Features:

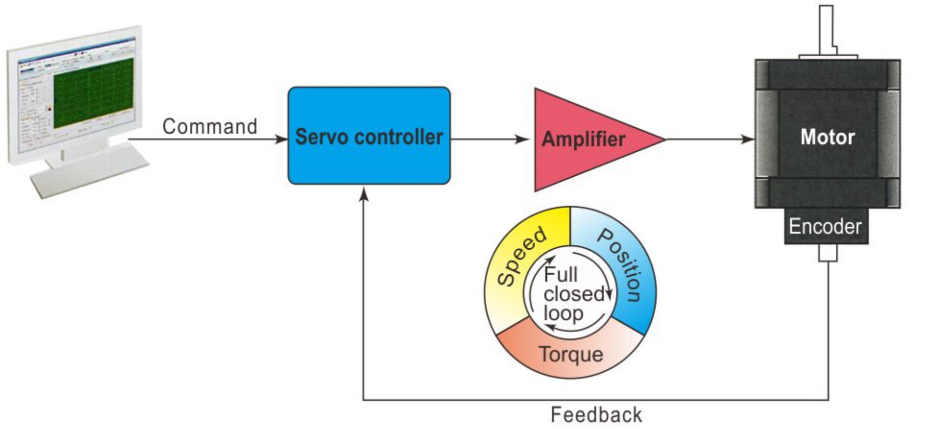
- Full closed loop
- High efficiency
- High torque
- High speed
- Low heat
- Smooth and accurate
- High speed response
- Six - digit nixie tube display, can set parameter easily
- and monitor motor running state .

Brief introduction

2HBS hybrid stepper servo drive system integrated servo control technology into the digital step driver. It adopts typical tricyclic control method which include current loop,speed loop and position loop.This product has the advantage of both step and servo system, is a highly cost-effective motion control products.



Full closed loop



1.Accurate position and speed control can achieve the most strict request of the application.

2.High robustness's servo control adapt to wide range change of inertial load and friction load.

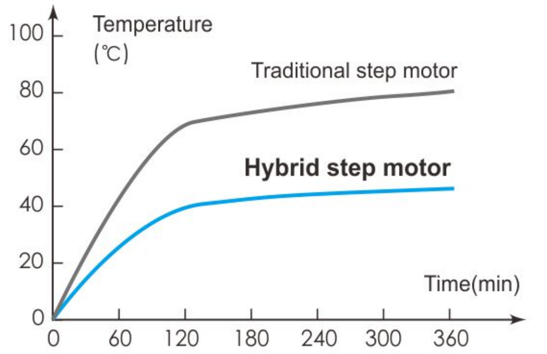
3.The motor with 1000CPR encoder,support vector closed loop control,Compare with traditional step motor,it solved the problem of lose step.

Low heat/high efficiency

1.Adjust the current according to actual load,the heat is much lower compare with traditional step motor.

2.The current is almost 0,and without heat under stop condition.

3.It save energy and can achieve nearly 100% torque output.Working smoothly and accurately.



The motor temperature in the same working condition

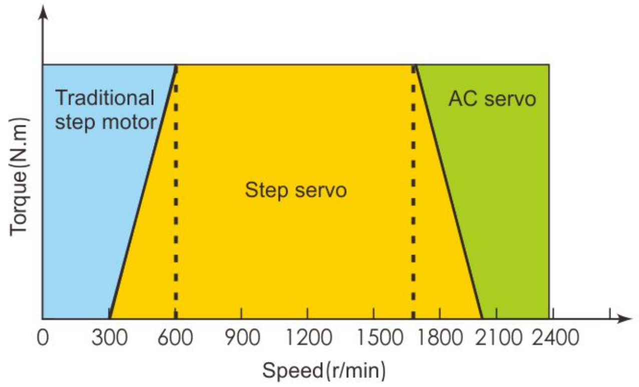
Smooth and accurate

Based on the feedback encoder's space vector current control algorithm and vector smoothing filterin technique. It can resist the "low-frequency resonance" caused by the traditional step motor. The motor can still run smoothly under low speed. This is a perfect solution to slove the problem of noise and vibration for the traditional stepper motor.

High speed response

1.Hybrid step servo system have some advantages of the traditional open-loop stepper system, position response input and output command signal are almost real-time synchronization, so very suitable for condition of short distance quickly start / stop and zero-speed stop stably.

2.In condition of point-to-point fast positioning, advanced servo control technology provides a large torque output. It makes the system has a very high dynamic response, it is far over the limit of step system.



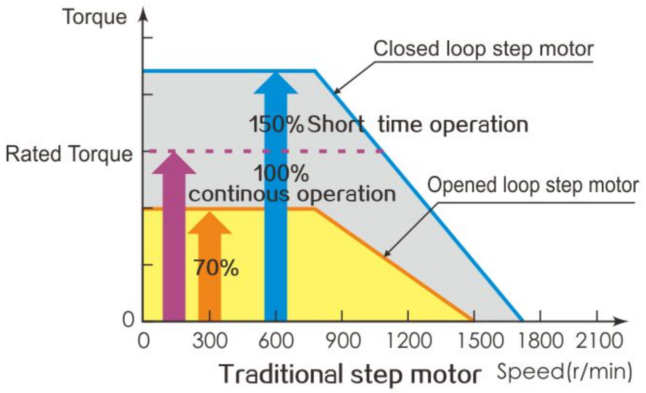
Traditional step motor:short distance,medium and low speed(300-600RPM)
Step servo:medium and short distance,medium and high speed(600-2000RPM)
AC servo:Long distance,high speed(more than 2000RPM)

High torque /high speed

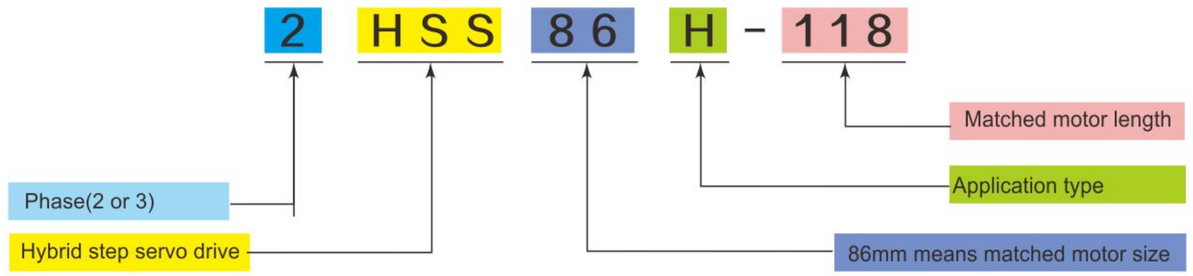
1.Hybrid servo drive system adopts the optimized current control mode, the torque of the motor can be 100% full use. There is no need to consider torque redundancy when design the machine.

2.A large torque output can simplified the complexity of the deceleration equipment in certain cases.

3.The high-speed performance of the hybrid step servo drive systems improve 30% and the effective torqued improve 70% compare with opened loop step motor. This makes the motor can maintain high-torque operation under high-speed.



Name rules of Hybrid step servo drive system



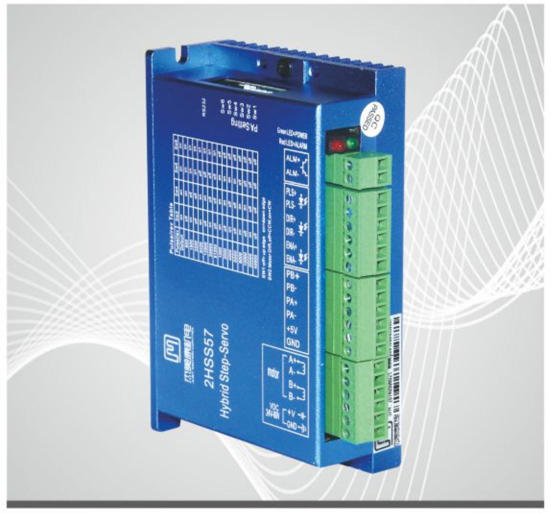
Data sheet for hybrid step servo drive

Model	current（A）	Voltage（V）	Motor	Weight（KG）	Dimension（mm）	Control signal
2HSS57	0-6A	DC(24-48V)	57,86	0.27	118*75.5*34	differential
2HSS86H	0-7A	AC(24-70V) DC(30-100V)	57,86	0.6	150*97.5*53	differential
2HSS858H	0-6A	AC(50-90)	57,86	0.27	140*70*56	differential
3HSS2208H-86	0-8A	AC(180-250V)	86	0.57	140*70*56	differential
3HSS2208H-110	0-8A	AC(180-250V)	110	1.5	140*70*56	differential

◆**Note:**The default setting for the driver's control is Step/Directtion Mode. Please inform the manufacturer, if you need CW/CCW mode.

Key Features:

- Without losing step, High accuracy in position
- 100% rated output torque
- Variable current control technology, High current efficiency
- Little vibration, Smooth and reliable moving at low speed
- Accelerate and decelerate control inside, Great improvement in smoothness of starting or stopping the motor
- User-defined micro steps
- Compatible with 1000 and 2500 lines encoder
- No adjustment in general application
- Lack of phase, over current, over voltage and over position protection
- Green light means running while red light means protection or off line



Introduction

2HSS57 two-phase hybrid stepper servo drive system integrated servo control technology into the digital step driver. It adopts typical tricyclic control method which include current loop,speed loop and position loop.This product has the advantage of both step and servo system, and it's a highly cost-effective motion control products.

Electrical Specifications

Parameters	Min	Typical	Max	Unit
Supply voltage	24V	36V	60V	VDC
Output Current (Peak)	-	-	6.0	Amps
Logic Input Current	-	10	-	mA
Pulse input frequency	-	-	200	KHz
Low Level Time	2.5	-	-	μsec

Environment

Cooling	Natural Cooling or Forced Convection	
Environment	Space	Avoid dust, oil frost and corrosive gases
	Ambient Temperature	-20°C—+80°C
	Humidity	<80%RH
	Vibration	5.9m/s² Max
Storage Temp.	-20°C—+80°C	
Weight	Approx. 300 gram	

DIP Switch setting

Microstep Resolution Setting

Step / Rev.	SW3	SW4	SW5	SW6
Default	ON	ON	ON	ON
800	OFF	ON	ON	ON
1600	ON	OFF	ON	ON
3200	OFF	OFF	ON	ON
6400	ON	ON	OFF	ON
12800	OFF	ON	OFF	ON
25600	ON	OFF	OFF	ON
51200	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
40000	OFF	OFF	OFF	OFF

Input edge settings

* SW1 : Dialing Switch checking Input edge settings .

* OFF=Rising edge effective , ON= falling edge effective

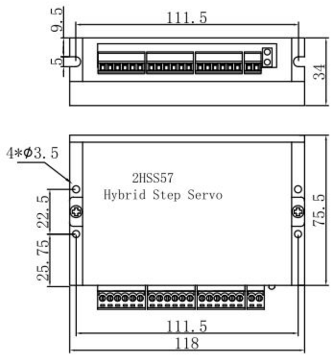
Logical direction setting

* SW2：When dialing switch SW2 switches ON or OFF , it can change the present running direction of motor

* OFF=CCW ， ON=CW

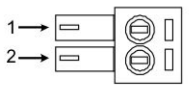
Dimensions

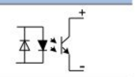
Dimensions (Unit : mm)


9.5
111.5
5
34
4*Φ3.5
2HSS57
Hybrid Step Servo
22.5
25.75
75.5
111.5
118

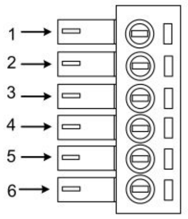
Ports Introduction

1.ALM signal output ports



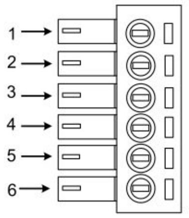
Port	Symbol	Name	Remark
1	ALM+	Alarm output +	
2	ALM-	Alarm output -	

2.Control signal input port



Port	Symbol	Name	Remark
1	PLS+	Pulse signal +	Compatible with 5V or 24V
2	PLS-	Pulse signal -	
3	DIR+	Direction signal+	Compatible with 5V or 24V
4	DIR-	Direction signal-	
5	ENA+	Enable signal +	Compatible with 5V or 24V
6	ENA-	Enable signal -	

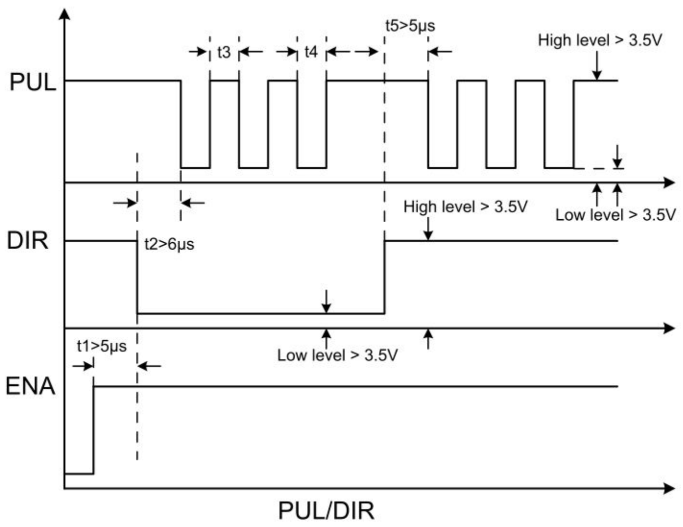
3.Power Interface Ports



1	Motor Phase Wire Input Ports	A+	Phase A+(Red)	Motor Phase A
2		A-	Phase A- (Blue)	
3		B+	Phase B+(Green)	Motor Phase B
4		B-	Phase B-(Black)	
5	Power Input Ports	VCC	Input Power +	24-50V DC
6		GND	Input Power-	

Sequence Chart of Control Signals

In order to avoid some fault operations and deviations, PUL, DIR and ENA should abide by some rules, shown as following diagram:


PUL
DIR
ENA
t3
t4
t5>5μs
High level > 3.5V
High level > 3.5V
Low level > 3.5V
t2>6μs
Low level > 3.5V
t1>5μs
PUL/DIR

Remark:

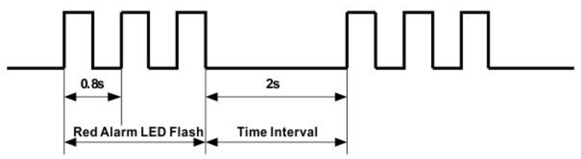
a. t1: ENA must be ahead of DIR by at least 5μs. Usually, ENA+ and ENA- are NC (not connected).

b. t2: DIR must be ahead of PUL active edge by 6μs to ensure correct direction;

c. t3: Pulse width not less than 2.5μs;

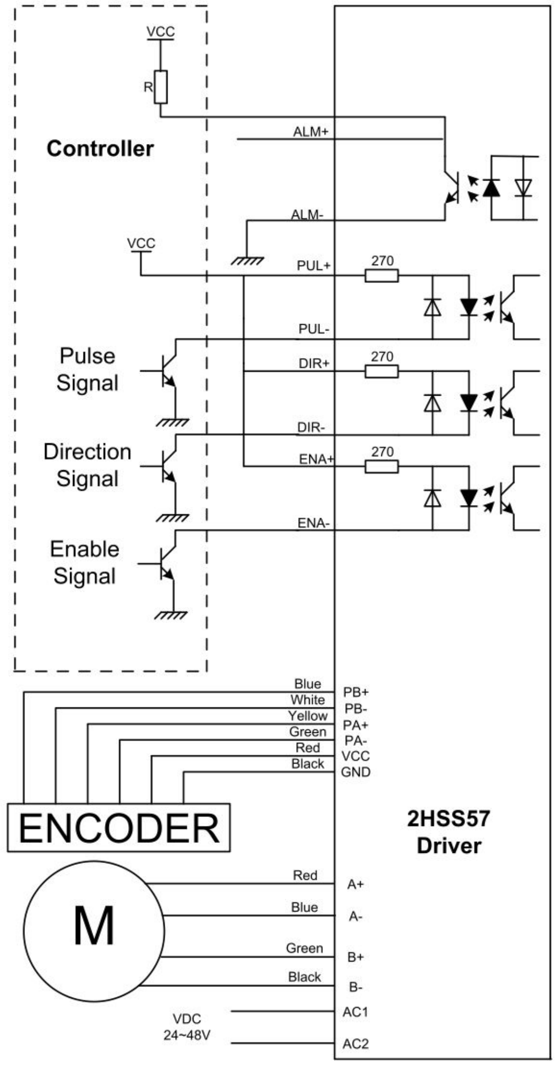
d. t4: Low level width not less than 2.5μs.

Faults alarm and LED flicker frequency


0.8s
2s
Red Alarm LED Flash
Time Interval

Flicker Frequency	Description to the Faults
1	Error occurs when the motor coil current exceeds the drive's current limit.
2	Voltage reference error in the drive
3	Parameters upload error in the drive
4	Error occurs when the input voltage exceeds the drive's voltage limit.
5	Error occurs when the actual position following error exceeds the limit which is set by the position error limit.

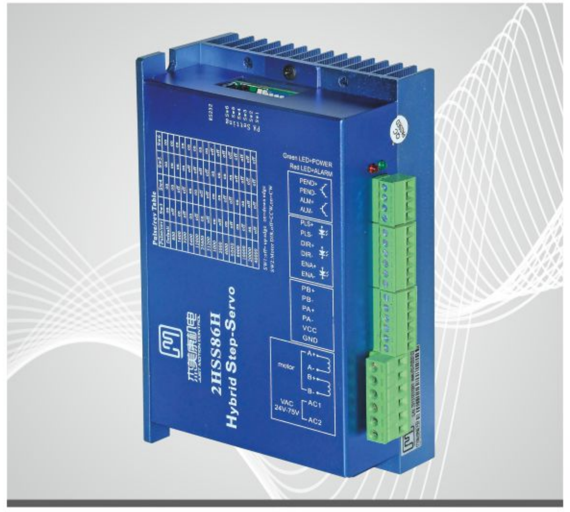
Wiring


VCC
R
Controller
ALM+
ALM-
VCC
PUL+
270
PUL-
Pulse Signal
DIR+
270
DIR-
Direction Signal
ENA+
270
ENA-
Enable Signal
Blue
White
Yellow
Green
Red
Black
PB+
PB-
PA+
PA-
VCC
GND
ENCODER
2HSS57 Driver
M
Red
Blue
Green
Black
A+
A-
B+
B-
VDC 24~48V
AC1
AC2

Remark:* VCC is compatible with 5V or 24V;
R1(3~5K) must be connected to control signal terminal.

Key Features:

- Without losing step, High accuracy in position
- 100% rated output torque
- Variable current control technology, High current efficiency
- Little vibration, Smooth and reliable moving at low speed
- Accelerate and decelerate control inside, Great improvement in smoothness of starting or stopping the motor
- User-defined micro steps
- Compatible with 1000 and 2500 lines encoder
- No adjustment in general application
- Lack of phase, over current, over voltage and over position protection
- Green light means running while red light means protection or off line


2HSS86H
Hybrid Step-Servo

Introduction

2HSS86H two-phase hybrid stepper servo drive system integrated servo control technology into the digital step driver.

It adopts typical tricyclic control method which include current loop,speed loop and position loop.This product has the advantage of both step and servo system, and it's a highly cost-effective motion control products.

Electrical Specifications

Parameters	Min	Typical	Max	Unit
Supply voltage	24V	60V	75V	VAC
Output Current (Peak)	-	-	8.0	Amps
Logic Input Current	-	10	-	mA
Pulse input frequency	-	-	200	KHz
Low Level Time	2.5	-	-	μsec

Environment

Cooling	Natural Cooling or Forced Convection	
Environment	Space	Avoid dust, oil frost and corrosive gases
	Ambient Temperature	-20°C—+80°C
	Humidity	<80%RH
	Vibration	5.9m/s² Max
Storage Temp.	-20°C—+80°C	
Weight	Approx. 580 gram	

DIP Switch setting

Microstep Resolution Setting

Step / Rev.	SW3	SW4	SW5	SW6
Default	ON	ON	ON	ON
800	OFF	ON	ON	ON
1600	ON	OFF	ON	ON
3200	OFF	OFF	ON	ON
6400	ON	ON	OFF	ON
12800	OFF	ON	OFF	ON
25600	ON	OFF	OFF	ON
51200	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
40000	OFF	OFF	OFF	OFF

Input edge settings

* SW1 : Dialing Switch checking Input edge settings .

* OFF=Rising edge effective , ON= falling edge effective

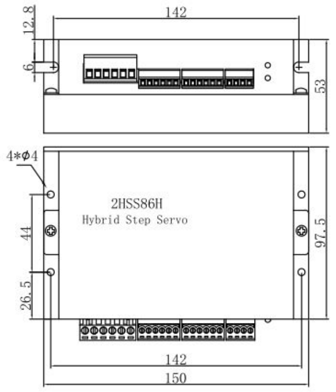
Logical direction setting

* SW2：When dialing switch SW2 switches ON or OFF , it can change the present running direction of motor

* OFF=CCW ，ON=CW

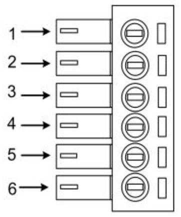
Dimensions

Dimensions (Unit : mm)


142
12.8
6
53
4*Φ4
2HSS86H
Hybrid Step Servo
44
26.5
97.5
142
150

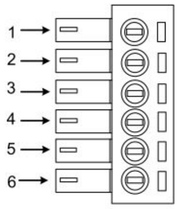
Ports Introduction

1.Control signal input port



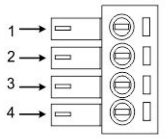
Port	Symbol	Name	Remark
1	DIR-	Pulse signal +	Compatible with 5V or 24V
2	DIR+	Pulse signal -	
3	PUL-	Direction signal+	Compatible with 5V or 24V
4	PUL+	Direction signal-	
5	ENA-	Enable signal +	Compatible with 5V or 24V
6	ENA+	Enable signal -	

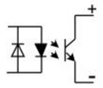
2.Power Interface Ports



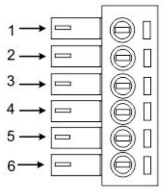
1	Motor Phase Wire Input Ports	A+	Phase A+(Red)	Motor Phase A
2		A-	Phase A- (Blue)	
3		B+	Phase B+(Green)	Motor Phase B
4		B-	Phase B-(Black)	
5	Power Input Ports	VCC	Input Power +	AC24V-75V DC30-110V
6		GND	Input Power-	

3.ALM and PEND signal output ports



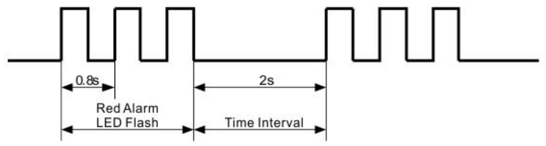
Port	Symbol	Name	Remark
1	PEND+	In position signal output +	
2	PEND-	In position signal output -	
3	ALM+	Alarm output +	
4	ALM-	Alarm output -	

4.Encoder Feedback Signal Input Ports



Port	Symbol	Name	Wiring color
1	PB+	Encoder phase B +	Blue
2	PB-	Encoder phase B -	White
3	PA+	Encoder phase A +	Yellow
4	PA-	Encoder phase A -	Green
5	VCC	Input power	Red
6	GND	Input power ground	Black

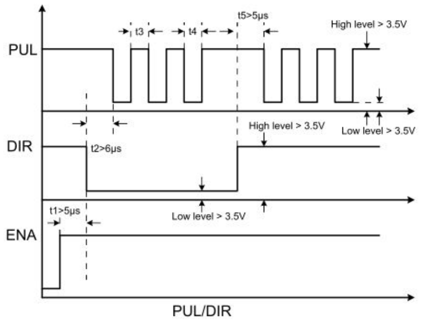
Faults alarm and LED flicker frequency


0.8s
Red Alarm
LED Flash
2s
Time Interval

Flicker Frequency	Description to the Faults
1	Error occurs when the motor coil current exceeds the drive's current limit.
2	Voltage reference error in the drive
3	Parameters upload error in the drive
4	Error occurs when the input voltage exceeds the drive's voltage limit.
5	Error occurs when the actual position following error exceeds the limit which is set by the position error limit.

Sequence Chart of Control Signals

In order to avoid some fault operations and deviations, PUL, DIR and ENA should abide by some rules, shown as following diagram:


PUL
t3
t4
t5>5μs
High level > 3.5V
DIR
t2>6μs
High level > 3.5V
Low level > 3.5V
ENA
t1>5μs
Low level > 3.5V
PUL/DIR

Remark:

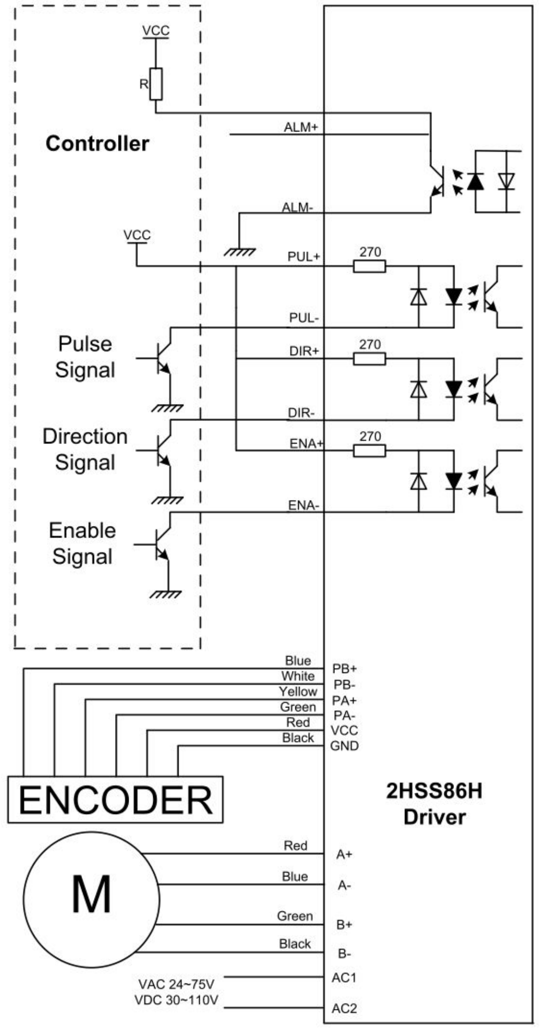
a. t1: ENA must be ahead of DIR by at least 5μs. Usually, ENA+ and ENA- are NC (not connected).

b. t2: DIR must be ahead of PUL active edge by 6μs to ensure correct direction;

c. t3: Pulse width not less than 2.5μs;

d. t4: Low level width not less than 2.5μs.

Wiring

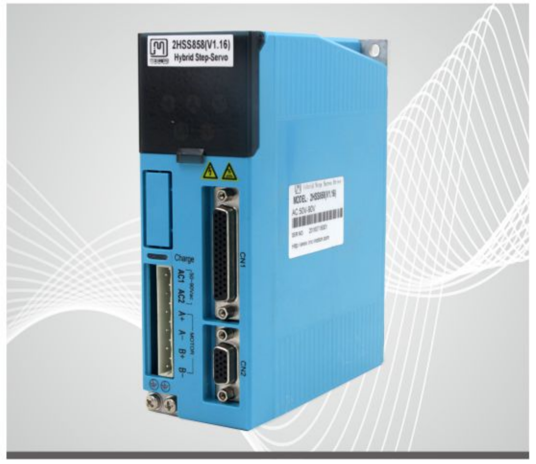

VCC
R
Controller
ALM+
ALM-
VCC
PUL+
270
PUL-
Pulse Signal
DIR+
270
DIR-
Direction Signal
ENA+
270
ENA-
Enable Signal
Blue
White
Yellow
Green
Red
Black
PB+
PB-
PA+
PA-
VCC
GND
ENCODER
2HSS86H Driver
M
Red
Blue
Green
Black
A+
A-
B+
B-
VAC 24~75V
VDC 30~110V
AC1
AC2

Remark:* VCC is compatible with 5V or 24V;

R1(3~5K) must be connected to control signal terminal.

Key Features:

- Without losing step, High accuracy in position
- 100% rated output torque
- Variable current control technology, High current efficiency
- Little vibration, Smooth and reliable moving at low speed
- Accelerate and decelerate control inside, Great improvement in smoothness of starting or stopping the motor
- User-defined micro steps
- Compatible with 1000 and 2500 lines encoder
- No adjustment in general application
- Lack of phase, over current, over voltage and over position protection
- Six digital tube display, easy to set parameters and monitor the motor running state



Introduction

The 2HSS858H stepper servo drive system integrates the servo control technology into the digital stepper drive perfectly. This stepper servo driver uses the latest 32-bit DSP and combines the advanced servo algorithm to control. Compared to the traditional step drive, this step servo driver can completely avoid the stepper motor lost step problem, and effectively restrain the temperature rise of the motor, reduce the motor vibration, greatly enhance the performance of high-speed motor. The driver is half price of the AC servo system. At the same time, the size of the adapter is compatible with the traditional step motor, which is convenient for customers to upgrade and replace. In short, the stepper servo driver set the advantages of no lost step, low temperature rise, high speed, high torque, low cost and so on in one, is a cost-effective high motion control products.

Applications

It is suitable for the automation equipment and instrumentation which require large torque, such as: engraving machine, wire-stripping machine, marking machine, cutting machine, laser photo composing machine, plotting instrument, numerical control machine tool, automatic assembly equipment and so on. The application results are especially good in the devices with little noise and high speed.

Mechanical Specifications

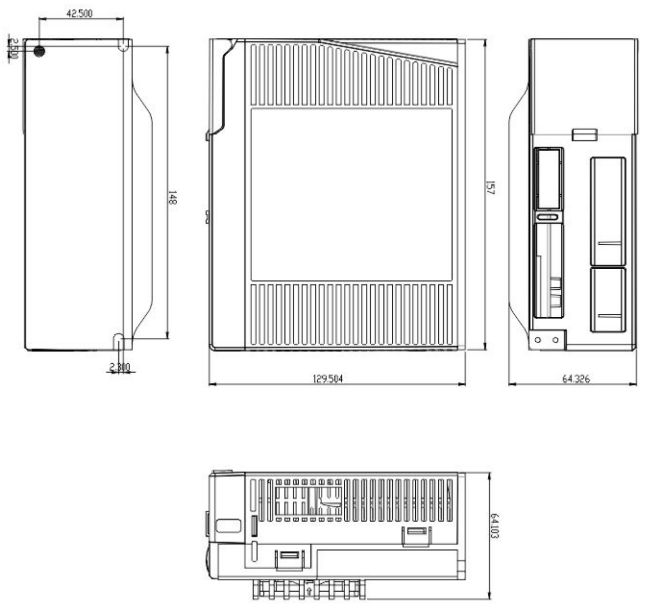


Fig. 1 Mechanical installation size (unit: mm)

Notice: Please take the terminal size and ventilation cooling while design the installation size.

Electrical and Environment Specifications

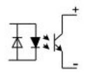
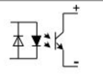
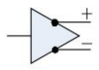
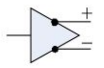
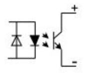
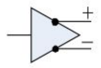
Input Voltage		50~90VAC
Continuous Current Output		6.0A
Maximum Input Frequency		Can be set through the internal parameters
Signal Input Current		7~20mA（10mA Typical）
Default Communication Rate		57.6Kbps
Protections		● Over current peak value 12A±10% ● Over voltage value 200VDC ● The range of over position error can be set by the front panel or HISU
Overall Dimensions(mm)		140×70×56
Weight		Approximate 1500g
Environment specifications	Environment	Avoid dust, oil fog and corrosive gasses
	Operating Temperature	0~70℃
	Storage Temperature	-20℃~+65℃
	Humidity	40~90%RH
	Cooling method	Natural cooling or forced air cooling

Ports Definition

1.Power Interface Ports

Port	Symbol	Definition	Remark
1	AC1	Power input port L	50~90VAC between L and N
2	AC2	Power input port N	
3	A+	Motor connection port A+	
4	A-	Motor connection port A-	
5	B+	Motor connection port B+	
6	B-	Motor connection port B-	

2.Control Signal Interface Ports (44 Pins DB)

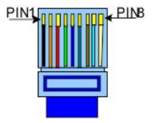
Port	Symbol	Definition	Remark
1	IN+	Input port +	Preserved function
2	IN-	Input port -	Preserved function
3	PUL+	Pulse signal input +	Compatible with 5V and 24V
4	PUL-	Pulse signal input -	
5	DIR+	Direction signal input +	Compatible with 5V and 24V
6	DIR-	Direction signal input -	
7	ALM+	Alarm signal output +	
8	ALM-	Alarm signal output -	
9	Pend+	Position signal output +	
10	Pend-	Position signal output -	
11	ENA+	Enable signal input +	ompatible with 5V and 24V
12	ENA-	Enable signal input -	
13	OUTZ+	Encoder Z phase output +	
29	OUTZ-	Encoder Z phase output -	
14	OUTB+	Encoder B phase output +	
15	OUTB-	Encoder B phase output -	
31	BRAKE+	Brake signal output +	
32	BRAKE-	Brake signal output -	
30	OUTA-	Encoder A phase output -	
44	OUTA+	Encoder A phase output +	

Fault Data Display

Data display	Fault cause
00_Err	Over current in the motor
00_Err	Current sensor alarm
00_Err	Parameters upload alarm
00_Err	Over voltage in power supply
00_Err	Over position error alarm
00_Err	Missing phase alarm
00_Err	Drive off -line

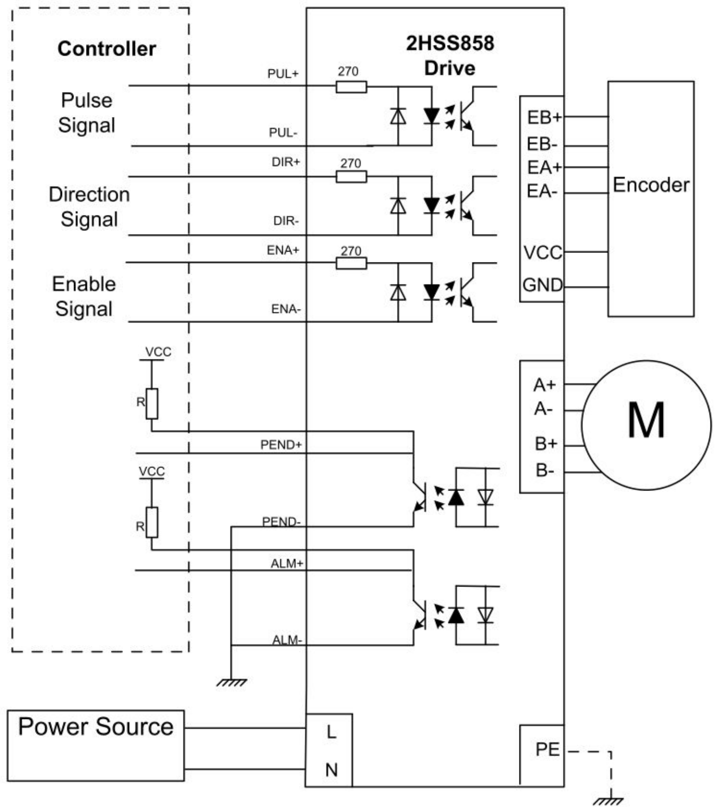
3.RS232 Communication Interface Ports

Rs232 interface ports' arrangement and definition are as follows:

Rs232	Connect to the PC or HISU adjuster with a special serial cable. Never disconnect or connect it while the power source is energized. It is suggested to use twisted-pair or shielded wire (less than 2m).		
Port	Symbol	Definition	Picture
1	GND	Power Ground	 PIN1 PIN8
2	TxD	RS232 Transmission Port	
3	5V	For external HISU	
4	RxD	RS232 Receiving Port	
5、6	NC	Not Connection	

Attention: In case of causing any damage, please confirm the connection cables between 2HSS858H and HISU before using it.

Wiring



Typical connections to 2HSS858H

Attention ：R (3~5K) must be connected to control signal terminal.VCC is compatible with 5V or 24V;

The power source grade AC50V ~ AC90V selection is based on the matching motor.

Key Features:

- Without losing step, High accuracy in position
- 100% rated output torque
- Variable current control technology, High current efficiency
- Little vibration, Smooth and reliable moving at low speed
- Accelerate and decelerate control inside, Great improvement in smoothness of starting or stopping the motor
- User-defined micro steps
- Compatible with 1000 and 2500 lines encoder
- No adjustment in general application
- Lack of phase, over current, over voltage and over position protection
- Six digital tube display, easy to set parameters and monitor the motor running state

Introduction

The 3HSS2208H stepper servo drive system integrates the servo control technology into the digital stepper drive perfectly, and fit the company 86,110,130 three-phase stepper motor. This stepper servo driver uses the latest 32-bit DSP and combines the advanced servo algorithm to control. Compared to the traditional step drive, this step servo driver can completely avoid the stepper motor lost step problem, and effectively restrain the temperature rise of the motor, reduce the motor vibration, greatly enhance the performance of high-speed motor. The driver is half price of the AC servo system. At the same time, the size of the adapter is compatible with the traditional step motor, which is convenient for customers to upgrade and replace. In short, the stepper servo driver set the advantages of no lost step, low temperature rise, high speed, high torque, low cost and so on in one, is a cost-effective high motion control products.

Applications

It is suitable for the automation equipment and instrumentation which require large torque, such as: engraving machine, wire-stripping machine, marking machine, cutting machine, laser photocomposing machine, plotting instrument, numerical control machine tool, automatic assembly equipment and so on. The application results are especially good in the devices with little noise and high speed.

Mechanical Specifications

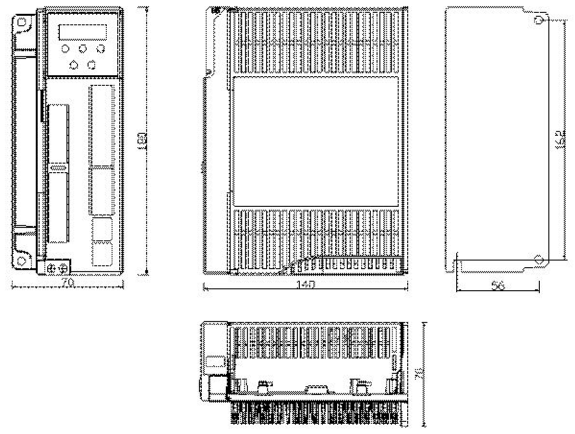


Fig. 1 Mechanical installation size (unit: mm)

Notice: Please take the terminal size and ventilation cooling while design the installation size.

Electrical and Environment Specifications

Input Voltage		180~250VAC
Continuous Current Output		4.0A
Maximum Input Frequency		200K
Signal Input Current		7~20mA（10mA Typical）
Default Communication Rate		57.6Kbps
Protections		● Over current peak value 12A±10% ● Over voltage value 400VDC ● The range of over position error can be set by the front panel or HISU
Overall Dimensions(mm)		140×70×56
Weight		Approximate 1500g
Environment specifications	Environment	Avoid dust, oil fog and corrosive gasses
	Operating Temperature	0~70℃
	Storage Temperature	-20℃~+65℃
	Humidity	40~90%RH
	Cooling method	Natural cooling or forced air cooling

Ports Definition

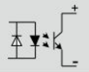
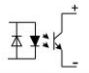
1.Power Interface Ports

Port	Symbol	Definition	Remark
1	L	Power input port L	180~250VAC between L and N
2	N	Power input port N	
3	PE	Ground port	
4	NC	Not Connected	
5	NC	Not Connected	

Power Interface Ports2

Port	Symbol	Definition	Remark
1	U	Motor connection port U	
2	V	Motor connection port V	
3	W	Motor connection port W	
4	NC	Not connected	
5	PE	Ground port	
6	NC	Not connected	

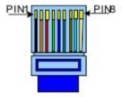
2.Control Signal Interface Ports (44 Pins DB)

Port	Symbol	Definition	Remark
3	PUL+	Pulse signal input +	Compatible with 5V and 24V
4	PUL-	Pulse signal input -	
5	DIR+	Direction signal input +	Compatible with 5V and 24V
6	DIR-	Direction signal input -	
7	ALM+	Alarm signal output +	
8	ALM-	Alarm signal output -	
9	Pend+	Position signal output +	
10	Pend-	Position signal output -	
11	ENA+	Enable signal input +	ompatible with 5V and 24V
12	ENA-	Enable signal input -	

3.RS232Communication Interface Ports

Rs232 interface ports' arrangement and definition are as follows:

Rs232	Connect to the PC or IHU adjuster with a special serial cable. Never disconnect or connect it while the power source is energized. It is suggested to use twisted-pair or shielded wire (less than 2m).

Port	Symbol	Definition	Picture
1	GND	Power Ground	
2	TxD	RS232 Transmission Port	
3	5V	For external HISU	
4	RxD	RS232 Receiving Port	
5、6	NC	Not Connection	

Attention: In case of causing any damage, please confirm the connection cables between 3HSS2208H-86 and HISU before using it.

Fault Data Display

Data display	Fault cause
00_Err	Over current in the motor
11_Err	Current sensor alarm
22_Err	Parameters upload alarm
33_Err	Over voltage in power supply
44_Err	Over position error alarm
55_Err	Missing phase alarm
En_OFF	Drive off -line

Sequence Chart of Control Signal

In order to avoid some fault operations and deviations, PUL, DIR and ENA should abide by some rules, shown as following diagram:

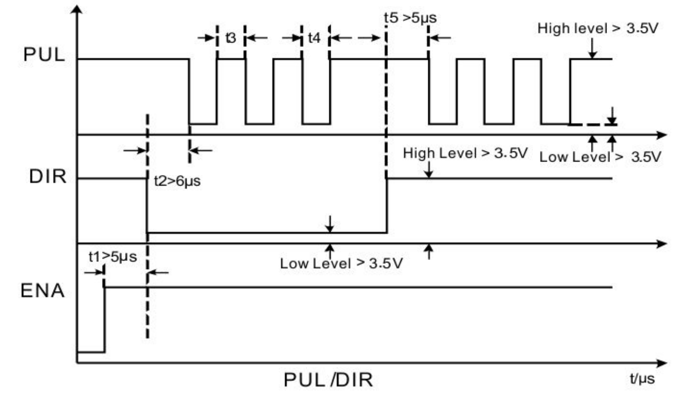


Fig. 5 Timing diagram of Control signal

Remark：

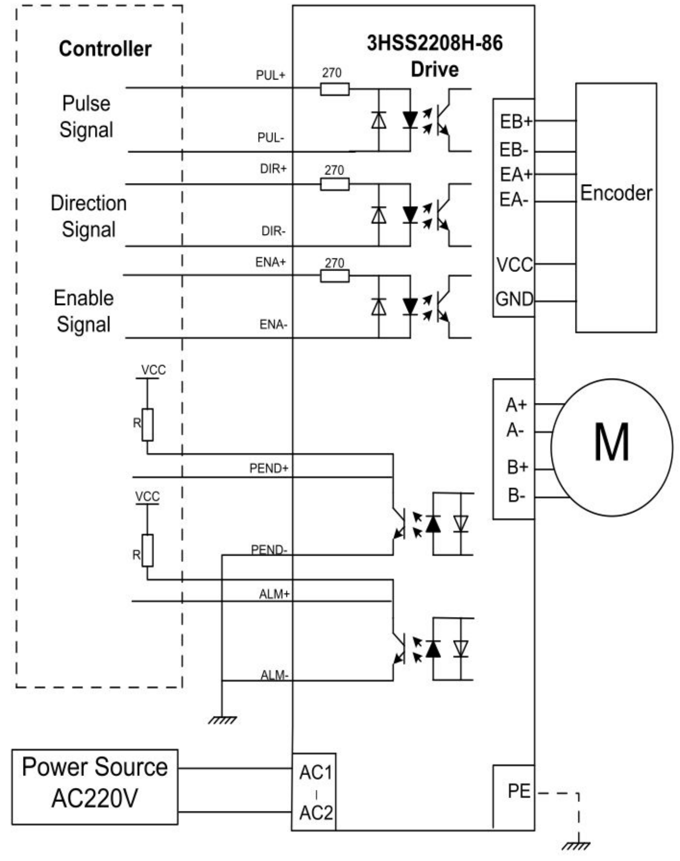
(1) t1: ENA must be ahead of DIR by at least 6 s. Usually, ENA+ and ENA- are NC (not connected). See “Connector P1 Configurations” for more information.

(2) t2: DIR must be ahead of PUL active edge by at least 5 s to ensure correct direction;

(3) t3: Pulse width not less than 2.5 s;

(4) t4: Low level width not less than 2.5 s.

Wiring

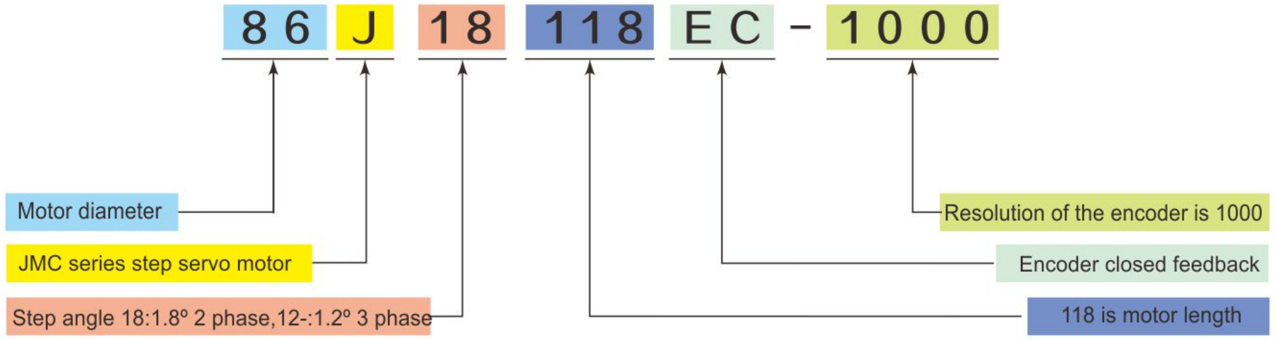


Remark:* VCC is compatible with 5V or 24V;

R1(3~5K) must be connected to control signal terminal.

Name rules of hybrid step servo motor

57:2Nm
86:8.5Nm
86:12Nm
110:16Nm
110:20Nm



Motor diameter

JMC series step servo motor

Step angle 18:1.8º 2 phase,12-:1.2º 3 phase

Resolution of the encoder is 1000

Encoder closed feedback

118 is motor length

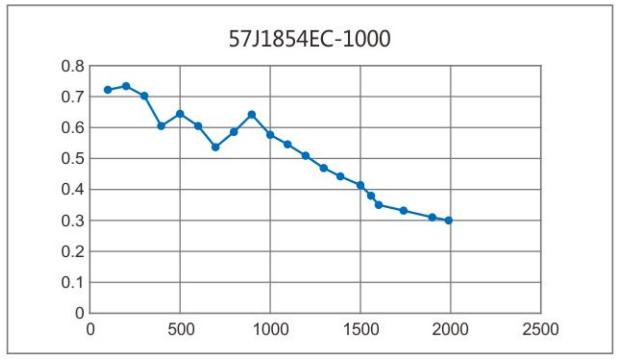
2 phase hybrid step servo motor Electrical Specification

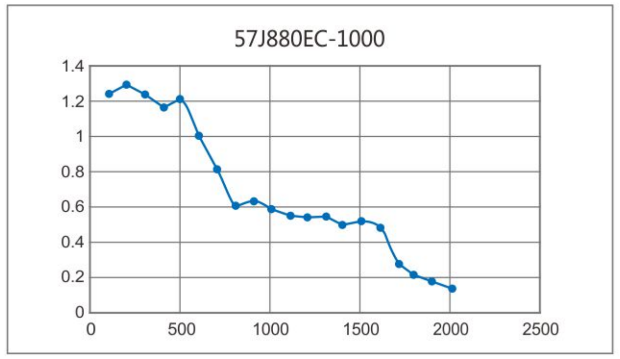
Model	Step angle (deg)	Holding torque (N.m)	Current/ phase(A)	Resistance phase (ohms)	inductance/ phase(mH)	Detent torque (gcm)	Rotor inetria (g-cm²)	lead wire numbers	Weight (kg)	Length (mm)
42J1848EC-1000	1.8	0.48	1.2	3.1	7.9	200	77	4	0.35	68
57J1854EC-1000	1.8	1.2	4.0	0.44	1.4	400	280	4	0.72	81
57J1880EC-1000	1.8	2	5.0	0.36	1.8	700	480	4	1.1	101
60J1887EC-1000	1.8	3	5.0	0.45	2.1	690	690	4	1.3	110
86J1880EC-1000	1.8	4.5	6.0	0.34	2.5	1300	1800	4	2.6	109
86J18118EC-1000	1.8	8.2	6.0	0.53	4.7	2500	3600	4	4.3	146
86J18156EC-1000	1.8	12	6.0	0.75	12	4000	4000	4	5.1	183

3 phase hybrid step servo motor Electrical Specification

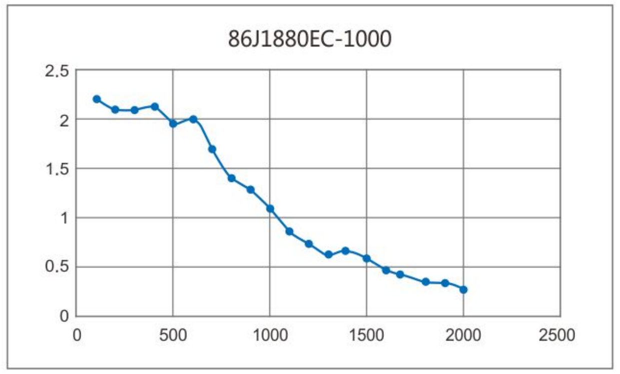
Model	Step angle (deg)	Holding torque (N.m)	Current/ phase(A)	Resistance phase (ohms)	inductance/ phase(mH)	Detent torque (gcm)	Rotor inetria (g-cm²)	lead wire numbers	Weight (kg)	Length (mm)
86J12126EC-1000	1.2	6	2.9	4.0	17	700	3000	3	4.8	161
86J12156EC-1000	1.2	7.8	2.9	4.7	24	1300	4000	3	5.3	183
110J12160EC-1000	1.2	16	6.0	1.28	19	2000	5500	3	9.0	189
110J12190EC-1000	1.2	20	6.8	1.24	22	2500	6800	3	11	223
130J12206EC-2500	1.2	28	6.8	0.8	11.3	4000	16000	3	17	257
130J12225EC-2500	1.2	35	6.8	0.92	13.8	3000	24000	3	19	277

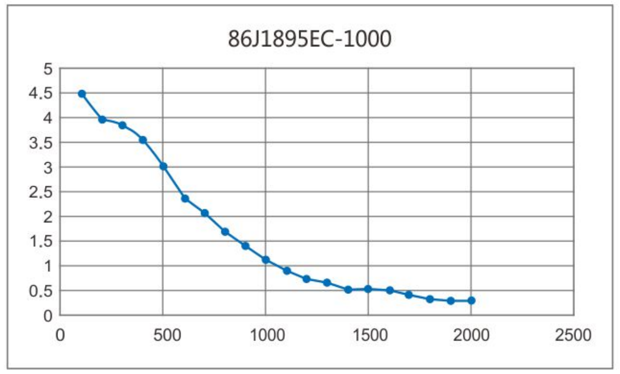
Speed Curve


57J1854EC-1000

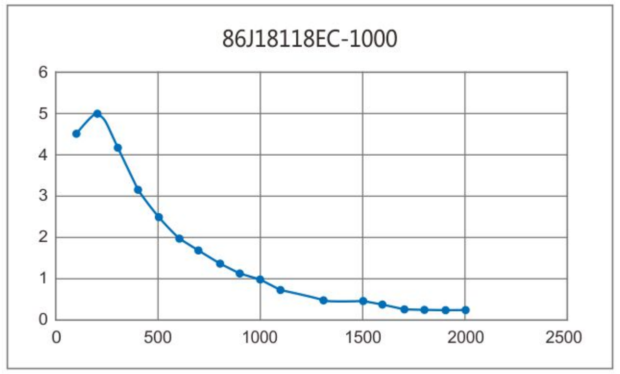

57J880EC-1000

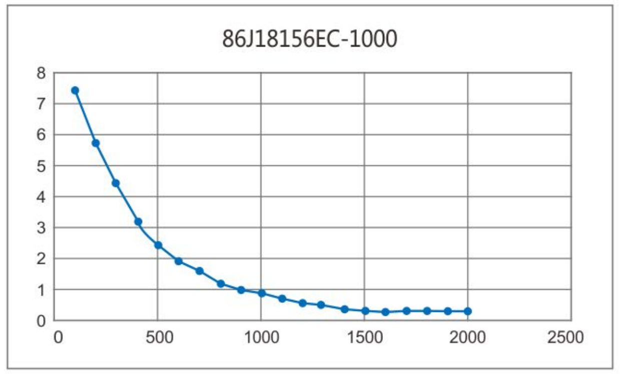
test driver：2HSS57 test voltage：48VDC


86J1880EC-1000

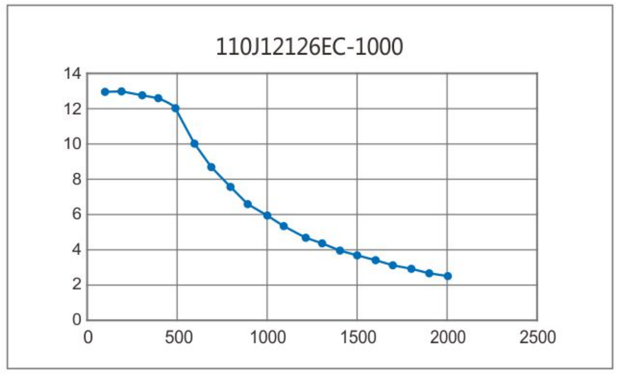

86J1895EC-1000

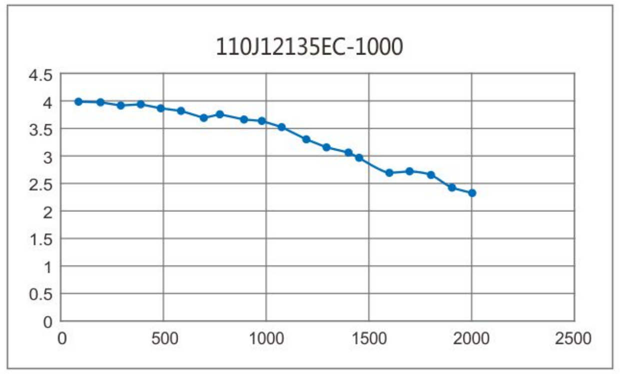
test driver：2HSS86H test voltage：70VAC


86J18118EC-1000


86J18156EC-1000

test driver：2HSS86H test voltage：70VAC


110J12126EC-1000


110J12135EC-1000

test driver：3HSS2208H test voltage：220VAC

Model Designation:

iHSS 57 – 36 – 10 – XXX

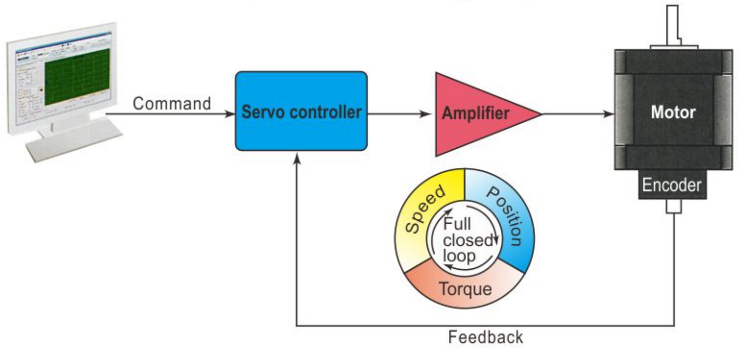
1 2 3 4 5

1.Integrated Closed Loop Stepper Motor
2.Frame size 57mm, Nema 23
3.Power supply 36VDC
4.Holding Torque:10 is 1N.M. 20 is 2N.M
5.Input Control Mode: Blank is Pulse and Signal
485 is RS485, CAN is Can-open

iHSS57-36-10
iHSS57-36-20

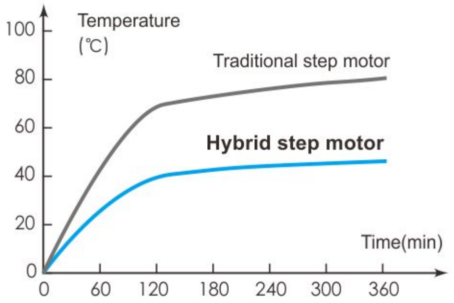
Main Features:

1.Full Closed Loop and No Losing-step



1.Accurate position and speed control can achieve the most strict requirements of applications.
2.High robustness's servo control can adapt to wide range change of inertial load and friction load.
3.The motor with 1000 CPR encoder, support vector closed loop control. Compare with traditional step motor, it solved the problem of lose step.

2.Low Heat/High Efficiency



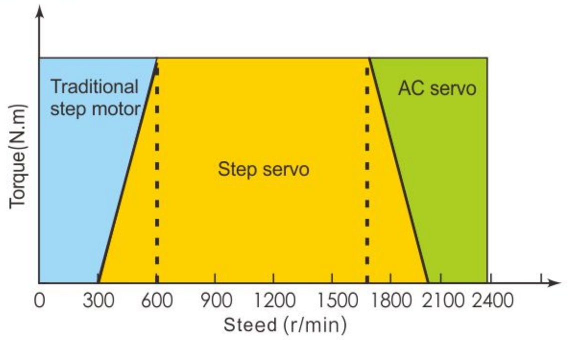
1.Adjust current according to actual load,temperature is much lower than traditional stepper motor.
2.The current is almost 0 A, no heat under stopping condition.
3. Nearly 100% torque output, energy cost-effective, can achieve the biggest energy conversion rate.

3.High Speed Response

1.Hybrid Closed loop step-servo system has advantages of traditional open-loop stepper system. Position response input signal and output command signal almost have real-time synchronization. So it is quite suitable for the application of quick start up or stop in short distance, and stop steadily at zero speed.
2.In occasion of point-to-point fast positioning, advanced servo control technology provides high torque output, also makes the system super high dynamic response, far superior to traditional stepper system.

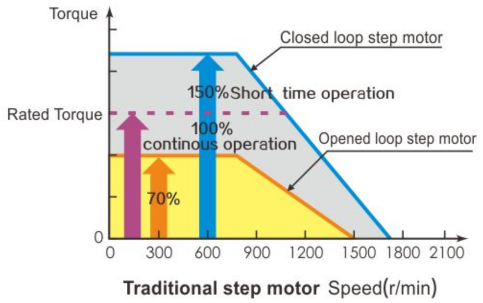
4.Smooth and Accurate

Space vector current control algorithm and vector smoothing filtering technology based on feedback encoder, can well resist low-frequency resonance on the traditional stepper motors. Motors can still run smoothly at low speed.



Traditional step motor:short distance,medium and low speed(300−600RPM)
Step servo:medium and short distance,medium and high speed(600−2000RPM)
AC servo:Long distance,high speed(more than 2000RPM)

5.High Torque / High Speed



1.Hybrid servo-step drive system adopts the optimized current control mode, torque of motor can be 100% used.
2.High torque output can simplify complexity of gearbox in certain cases.
3. The high-speed performance of the hybrid Closed loop step-servo drive system is 30% higher, effective torque can be above 70% compared with open loop stepper motor. Motors can maintain high torque operation at high speed.

System port:

Communication potr:

Model	Pulse mode	RS−485	CANopen
iHSS42 iHSS57 iHSS60	+5V TX GND RX GND	T+ T− R+ R− GND	GANH+ GANL− GANH+ GANL− GND

Input/output port:

Model	Pulse mode	RS−485/ CANopen
iHSS42	PUL+ PUL− DIR+ DIR− ENA+ ENA− PEND+ PEND− ALM+ ALM− +VDC GND	IN1 IN2 IN3 IN4 OUT1 OUT2 VIN+ VIN− COM+ COM− +VDC GND
iHSS57 iHSS60	PUL+ PUL− DIR+ DIR− ENA+ ENA− PEND+ PEND− ALM+ ALM−	IN1 IN2 IN3 IN4 OUT1 OUT2 VIN+ VIN− COM+ COM−

Switch settings:

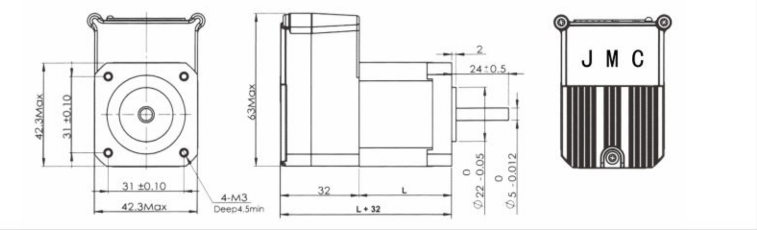
IHSS series is steps &direction control,by 6-digit toggle switch to set microsteps,Positive /negative direction,and effective signal,detailed information as following:

Pluse/rev	SW1	SW2	SW3	SW4	Pluse/rev	SW1	SW2	SW3	SW4
Default	On	On	On	On	1000	On	On	On	Off
800	Off	On	On	On	2000	Off	On	On	Off
1600	On	Off	On	On	4000	On	Off	On	Off
3200	Off	Off	On	On	5000	Off	Off	On	Off
6400	On	On	Off	On	8000	On	On	Off	Off
12800	Off	On	Off	On	10000	Off	On	Off	Off
25600	On	Off	Off	On	20000	On	Off	Off	Off
51200	Off	Off	Off	On	40000	Off	Off	Off	Off

Sw5 set motor run direction,when show OFF,the motor is counterclockwise rotation (CCW.) When show on,The motoris clockwiss rotation (CW)SW6 seting effective pulse.

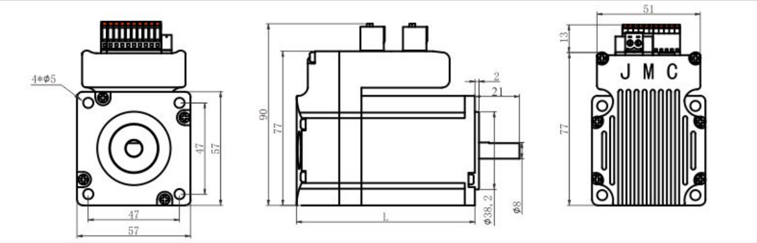
Dimension:

iHSS42



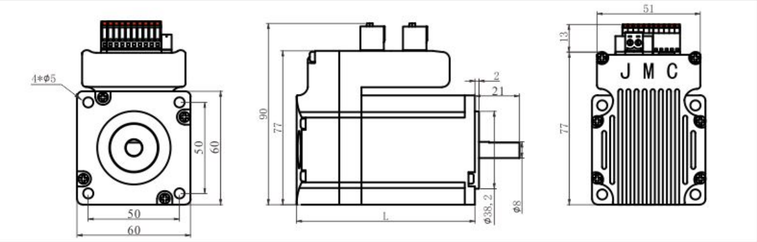
iHSS42	
Part No.	Length(mm)
iHSS42-24-03-XXX	80

iHSS57



iHSS57	
Part No.	Length(mm)
iHSS57−36−10−XXX	85
iHSS57−36−20−XXX	106

iHSS60

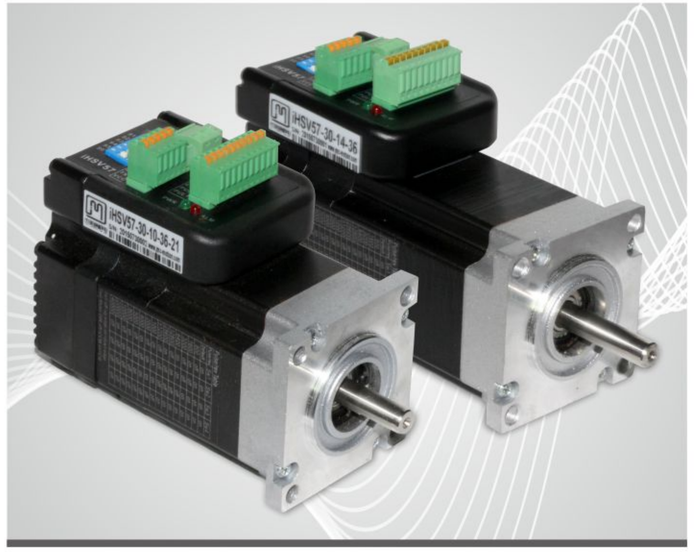


iHSS60	
Part No.	Length(mm)
iHSS57−36−30−XXX	118

Model Designation:

iHSV 57 – 30 – 10 – 24 – XXX
1 2 3 4 5 6

1.Integrated Servo Motor
2.Frame size 57mm/60mm, Nema 23/24
3.Motor Speed(unit:x100RPM)
10 is 1000RPM, 20 is 2000RPM, 30 is 3000RPM
4.Output Wattage(unit:x10W)
10 is 100W, 20 is 200W
5.Rated DC Working Voltage(unit:V)
24 is 24VDC, 36V is 36VDC.
6.Input Control Mode
Blank is Pulse+Signal; 485 is RS485; CAN is CANOPEN.



Main Features:

- High positioning accuracy
- High speed
- High torque
- Smooth and low noise
- Multi-model control
- High Response
- Cost-effective
- Compact size

IHSV series of servo motors perfectly integrated into servo control products to create a revolutionary movement with a new and high performance integrated control terminal.

Closed loop

1.Full Closed loop

1.Precise position and speed control can meet strictest requirements of applications.
2.High robustness servo control can adapt to a wide range of inertia load and friction load variations.
3.High resolution encoder provides high positional accuracy.

2.Low heat / high efficiency

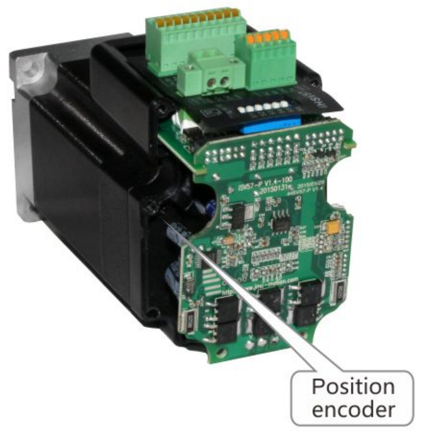
1.Can adjust current magnitude according to actual load to minimum heat.
2.Almost no current output and no heat in still state.
3.Energy-efficient. Nearly 100% torque output capacity to maximize the greatest energy conversion in most compact space.

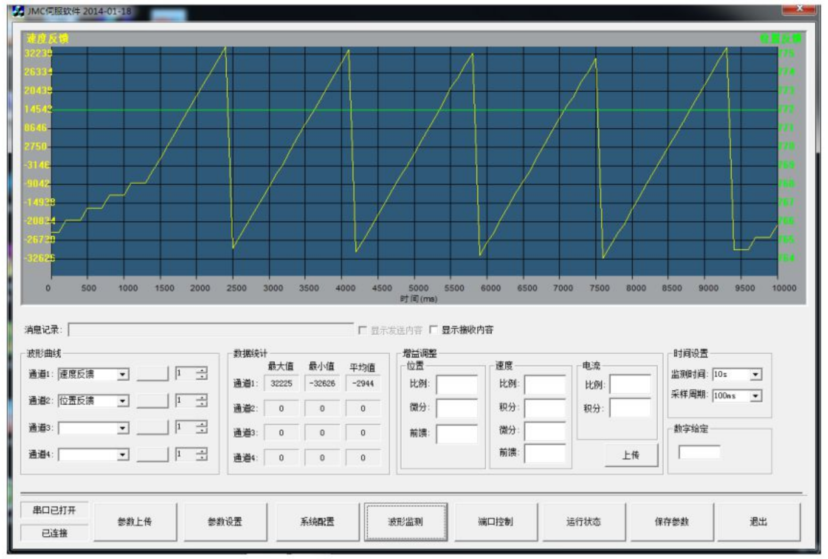
3.Smooth and Accurate

1.Based on encoder space vector current control algorithm, IHVS series have excellent performance in the whole speed range, also keeping smooth and quiet operation even in low speed application.
2.Ensure accurate positioning in both operating and still status.

4.Motion detection

1.For some applications that require very strict and accurate real-time motion, JMC servo tuning software provides simple but practical tool to monitor the actual movements track.
2.IHSV series can be used to monitor common indexes such as actual speed and position error, etc. to evaluate the actual performance of current system.
3.Interactive monitoring interface combining with tuning can access to optimal performance output in the fastest way.





通道1: 速度反馈
通道2: 位置反馈

	最大值	最小值	平均值
通道1:	32225	-32626	-2944
通道2:	0	0	0
通道3:	0	0	0
通道4:	0	0	0

监测时间: 10s
采样周期: 100ms

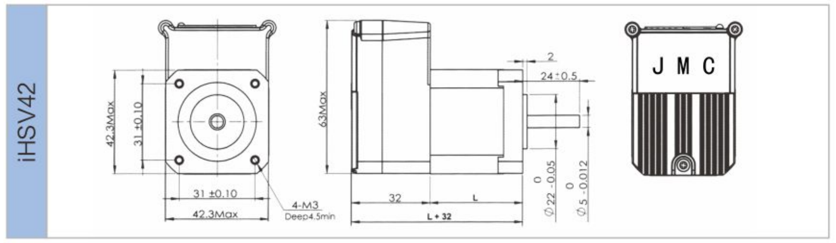
Switch settings:

IHSS series is step & direction control, by 6-digit toggle switch to set microsteps, Positive / negative direction,and effective signal.detailed information as following:

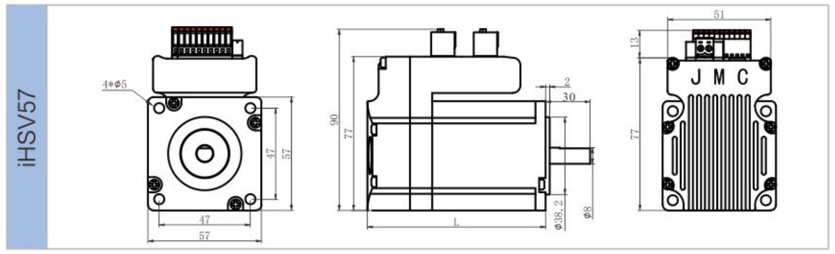
Pluse/rev	SW1	SW2	SW3	SW4	Pluse/rev	SW1	SW2	SW3	SW4
Default	On	On	On	On	1000	On	On	On	Off
800	Off	On	On	On	2000	Off	On	On	Off
1600	On	Off	On	On	4000	On	Off	On	Off
3200	Off	Off	On	On	5000	Off	Off	On	Off
6400	On	On	Off	On	8000	On	On	Off	Off
12800	Off	On	Off	On	10000	Off	On	Off	Off
25600	On	Off	Off	On	20000	On	Off	Off	Off
51200	Off	Off	Off	On	40000	Off	Off	Off	Off

Sw5 set motor run direction,when show OFF,the motor is counterclockwise rotation (CCW.) When show on,The motoris clockwiss rotation (CW)SW6 seting effective pulse.

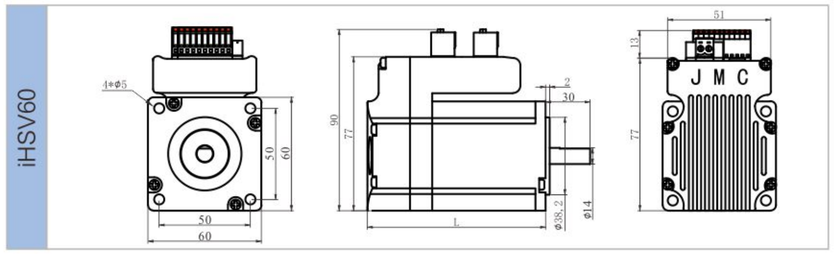
Dimension:



iHSV42	
Part No.	Length(mm)
iHSV42-24-03-XXX	80



iHSV57	
Part No.	Length(mm)
iHSV57−30−10−24−XXX	160
iHSV57−30−15−36−XXX	180



iHSV60	
Part No.	Length(mm)
iHSV60−30−20−36−XXX	125
iHSV60−30−40−36−XXX	152

Chapter 1 JASD Servo Driver

1.1 JASD series servo motor driver

1. Excellent Position compensation function to have high precision positioning control.
2. With automatic gain control module, the user can choose according to demand response level.
3. The built-in FIR filter and the multiple sets of notch filter, can automatically recognize and suppress the mechanical vibration.
4. The built-in disturbance torque observer, makes the drive with a strong ability to resist external disturbance.
5. Three control modes. position control, speed control, torque control.
6. Location input pulse frequency up to 4 MHZ, support pulse + direction, orthogonal pulse, double pulse position command a variety of ways.
7. Programmable 8-way input and 5-way output port available, users can define input, output requirements via settings, flexible application.
8. Can be matched with motors which are 17 bits, 20 bits high precision absolute encoder.
9. Complete protection functions including overvoltage, undervoltage, overspeeding, overloading, Position deviation too large, encoder errors, etc.
10. Rich monitoring items, users can choose wanted items to test running state.
11. Drive communicates with PC via connecting RS232 port to have easy, quick debug servo drive system

1.2 JASD Servo Driver And Motor

	Frame size	40mm	60mm		80mm
JASM Motor	Figure				
	Model	40JASM501230K-20B	60JASM502230K-20B	60JASM504230K-20B	80JASM507230K-20B
	Power	100W	200W	400W	750W
JASM Motor	Figure				
	Model	JASD2002-20B	JASD2002-20B	JASD4002-20B	JASD7502-20B
	Power	200W	200W	400W	750W

	Frame size	80mm	110mm		130mm
JASM Motor	Figure				
	Model	80JASM510230K-20B	110JASM513230K-20B	110JASM516220K-20B	130JASM508215K-20B
	Power	1000W	1300W	1600W	850W
JASM Motor	Figure				
	Model	JASD15002-20B	JASD15002-20B	JASD15002-20B	JASD15002-20B
	Power	1500W	1500W	1500W	1500W

	Frame size	80mm	110mm		130mm
JASM Motor	Figure				
	Model	130JASM515220K-20B 130JASM515215K-20B	130JASM520230K-20B	130JASM523215K-20B	130JASM530220K-20B
	Power	1500W	2000W	2300W	3000W
JASM Motor					
	Model	JASD20002-20B	JASD20002-20B	JASD20002-20B	JASD30002-20B
	Power	2000W	2000W	2000W	3000W

1.3 Servo Driver Model Introduction

JASM 400 – 2 – 20B – XX

① ② ③ ④ ⑤

No.	Name	Introduction
1	Series	JMC JASD servo driver series
2	Driver power	100:100W 200:200W 400:400W 750:750W 1000:1000W 1500:1500KW 2000:2000W 2500:2500W 3000:3000W
3	Input Power	1：single phase 110V 2：single phase/three phase 220V
4	Encoder line	1000:1000 line 1250:1250 line 2500:2500 line 17B:17 bit 20B:20 bit
5	Product design serial number	Product design serial number

1.4 Electrical Specifications

(1)Single/3 phase 220V servo drive

Model JASD***2-20B	200	400	750	1500
Single Phase Continuous Input Current (Arms)	1.9	3.2	6.7	8.8
Continuous Output Current (Arms)	2.1	2.8	5.5	8
Max Output Current(Arms)	5.8	9.6	16.9	19
Main Circuit Power Supply	Single Phase AC180V-240V, 50/60HZ			
Control Circuit Power Supply	Single Phase AC180V-240V, 50/60HZ			
Rengen Resistor	no		Build-in	

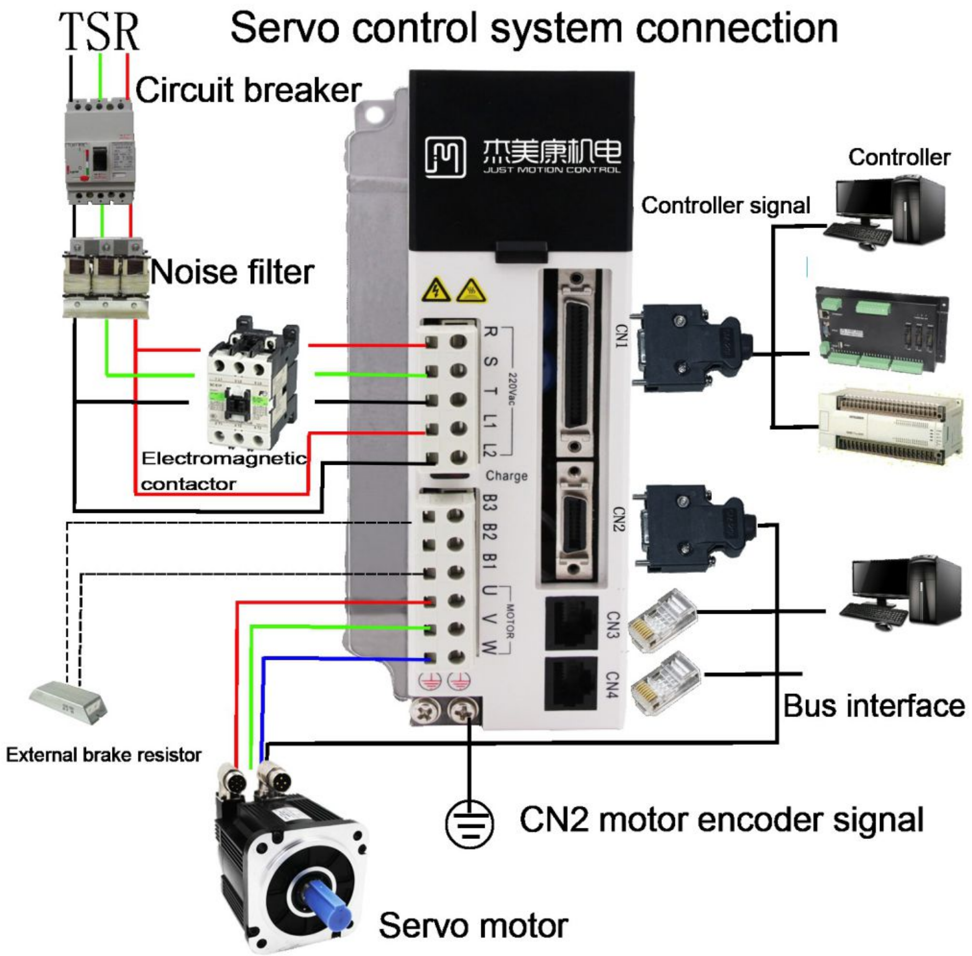
(2) 3-phase 220V servo drive

Model JASD***2-20B	750	1500	2000	3000
Three Phase Continuous Input Current (Arms)	3.6	4.6	8.7	11
Continuous Output Current (Arms)	5.5	8	14	20
Max Output Current(Arms)	16.9	19	33	50
Main Circuit Power Supply	3-Phase AC180V-240V, 50/60HZ			
Control Circuit Power Supply	Single Phase AC180V-240V, 50/60HZ			
Rengen Resistor	Build-in			

(3)Specifications

Project		Description
Control method		IGBT PWM sinusoidal wave drive
Encoder feedback		Absolute encoder Incremental encoder
Environment	temperature	Ambient temperature: 0℃to55(free from freezing) Storage temperature: -25to85
	humidity	Both operating and storage：10%~90%
	Altitude	<1000m,Lower than 1000
function	Speed regulate area	1:5000
	Speed precision	±0.01%：load fluctuation 0~100% ±0.01%：power input change±10%（220V） ±0.1%：temperature±25℃（25℃）
	Speed response frequency	1200Hz
	Toque control accuracy	±2%
Control signal	input	General purpose 8 inputs The function of general-purpose input is selected by parameters
	output	General purpose 5 outputs The function of general-purpose outputs is selected by parameters
Front panel		(1)5 keys (MODE,SET,UP,DOWN,SHIFT) (2)LED(6-digit) (3)power pilot lamp
Communication function	RS485	communication to a host
	RS232	communication to a host
Regeneration		No built-in regenerative resistor(external resistor only) and built-in Regenerative resistor(external resistor is also enabled)

Connection


TSR
Servo control system connection
Circuit breaker
Noise filter
Electromagnetic contactor
External brake resistor
Controller
Controller signal
Bus interface
CN2 motor encoder signal
Servo motor
R
S
T
L1
L2
220Vac
Charge
B3
B2
B1
U
V
W
MOTOR
CN1
CN2
CN3
CN4

Chapter 2 Servo Motor

2.1 Servo Motor Model Introduction

60	JASM	5	04	2	30	K	–	20B	–	XX
①	②	③	④	⑤	⑥	⑦		⑧		⑨

2.2 JASM Series Servo Motor

Motor	Frame size	Model	Power W	Speed（Rated/Max）rpm	Torque（Rated/Max）N.m
	40mm	40JASM501230K-20B 40JASM501230K-2500 40JASM01230K-2500	100	3000/5000	0.32/0.96
	60mm	60JASM502230K-20B 60JASM502230K-2500 60JASM02230K-2500	200	3000/5000	0.64/2.3
		60JASM504230K-20B 60JASM504230K-2500 60JASM04230K-2500	400	3000/5000	1.27/4.45
	80mm	80JASM507230K-20B 80JASM507230K-2500 80JASM07230K-2500	750	3000/5000	2.39/6
		80JASM510230K-20B 80JASM510230K-2500 80JASM10230K-2500	1000	3000/5000	3.18/8.2
	110mm	110JASM513230K-20B	1300	3000/4000	4.2/12.6
		110JASM516220K-20B	1600	2000/3000	7.5/22.5
	130mm	130JASM520230K-20B	2000	3000/4000	6.4/19.2
		130JASM515220K-20B	1500	2000/3000	7.5/22.5
		130JASM530220K-20B	3000		14.3/42.9
		130JASM508215K-20B	850	1500/3000	5.4/16.2
		130JASM515215K-20B	1500		9.6/28.8
		130JASM523215K-20B	2300		14.6/43.8

Main Feature:

- More than one kinds of pulse input mode：Pulse + direction,CW / CCW double pulse ,A / B phase pulse
- Servo reset input interface optocoupler isolation ERC
- Current loop bandwidth: (-3dB) 2KHz (the typical value)
- Speed loop bandwidth: 500Hz (the typical value)
- Position loop bandwidth: 200Hz (the typical value)
- Motor encoder inputs upright post :differential input (26LS32)
- RS232C interface parameters available to download via PC or text display
- Over-current, I2T, over-voltage, under-voltage,Over-temperature, speeding, over-differential protection
- The green light indicates running and the red light indicates that the protection or offline

MCAC806
Digital AC Servo Driver
Power
RS232
www.jmc-motion.com

Introduction

MCAC series is designed and manufactured using DSP vector control,closed loop servo drives with low-cost and all-digital AC.

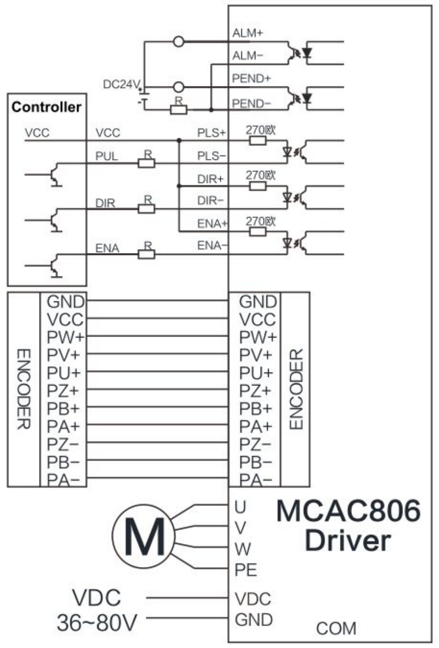
It includes three adjustable feedback loop control which are position loop, speed loop and current loop. It has stable performance which suitable for driving voltages between 36-80V and power below 600W AC servo motor.

Specifications

Parameters	Min	Typical	Max	Unit
Output Current (Peak)	-	10	-	Amps
Supply voltage	36	60	80	VAC
Logic Input Current	-	10	-	mA
Pulse input frequency	-	-	250	KHz
Low Level Time	2.5	-	-	μsec

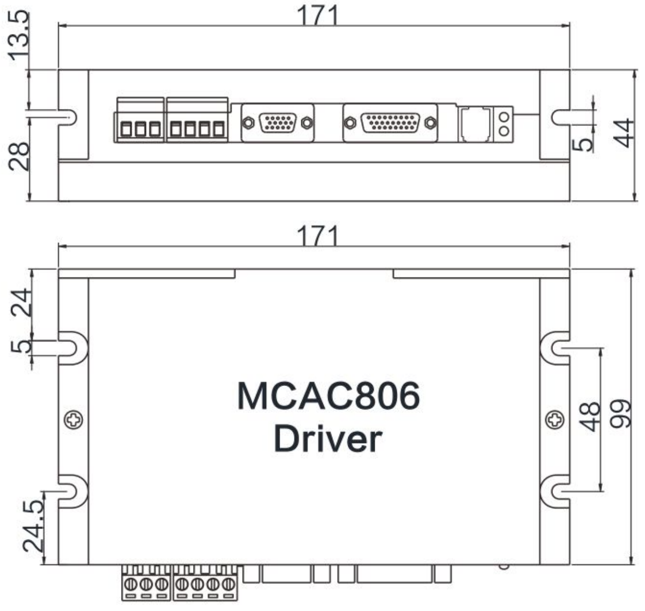
Cooling	Natural Cooling or Forced Convection	
Environment	Space	Avoid dust, oil frost and corrosive gases
	Ambient Temperature	50°C
	Humidity	<80%RH
	Vibration	5.9m/s² Max
Storage Temp.	-20°C —80°C	
Weight	Approx. 1.52 Kg	

Connection



Remark: if VCC=5V,R Short circuit
if VCC=12V,R=1K,The power of R>0.125W
if VCC=24V,R=2K,The power of R>0.125W

Dimension



Ports Description and definition

1. Digital AC Servo Driver I/O

Terminal No.	Sign	Name	Description
1	ENA+	Enable positive input	High level 4 ~ 5V effective
2	ENA-	Enable negative input	Low level 0 ~ 0.5V effective
3	PUL+	Positive input pulse	High level 4 ~ 5V effective
4	PUL-	Negative input pulse	Low level 0 ~ 0.5V effective
5	DIR+	The direction of the positive input	High level 4 ~ 5V effective
6	DIR-	The direction of the negative input	Low level 0 ~ 0.5V effective
7	FL	Result	
8	RL	Result	
9	SGND	output power ground	
10	PEND+	Place positive output	Output current 20mA
11	PEND-	Place negative output	
12	ALM+	Alarm positive output	Output current 20mA
13	ALM-	Alarm negative output	
14	REF+	Result	
15	REF-	Result	
16	NC	Result	
17	FG	Result	
18	SGND	Power ground	
19	+5V	Power	
20	EA+	A-phase Encoder positive input	differential input
21	EA-	A-phase Encoder negative input	differential input
22	EB+	B-phase Encoder positive input	differential input
23	EB-	B-phase Encoder negative input	differential input
24	EZ+	Z-phase Encoder positive input	differential input
25	EZ-	Z-phase Encoder negative input	differential input
26	SGND	Power ground	

2. HALL&Encoder (D15 female)

Terminal No.	Sign	Name	Description
1	GND	Output power ground	
2	VCC	Output power	50mA
3	PW+	W-phase pole positive input	Single-side connection
4	PV+	V-phase pole positive input	Single-side connection
5	PU+	U-phase pole positive input	Single-side connection
6	PZ+	Z-phase Encoder positve input	
7	PB+	B-phase Encoder positve input	
8	PA+	A-phase Encoder positve input	
9	NC		
10	NC		
11	NC		
12	NC		
13	PZ-	Z-phase Encoder negative input	
14	PB-	B-phase Encoder negative input	
15	PA-	A-phase Encoder negative input	

3.Motor line port

Terminal No.	Sign	Name	Description
1	W	Motor W side	
2	V	Motor V side	
3	U	Motor U side	
4	PE	Grounding	

4.Power port

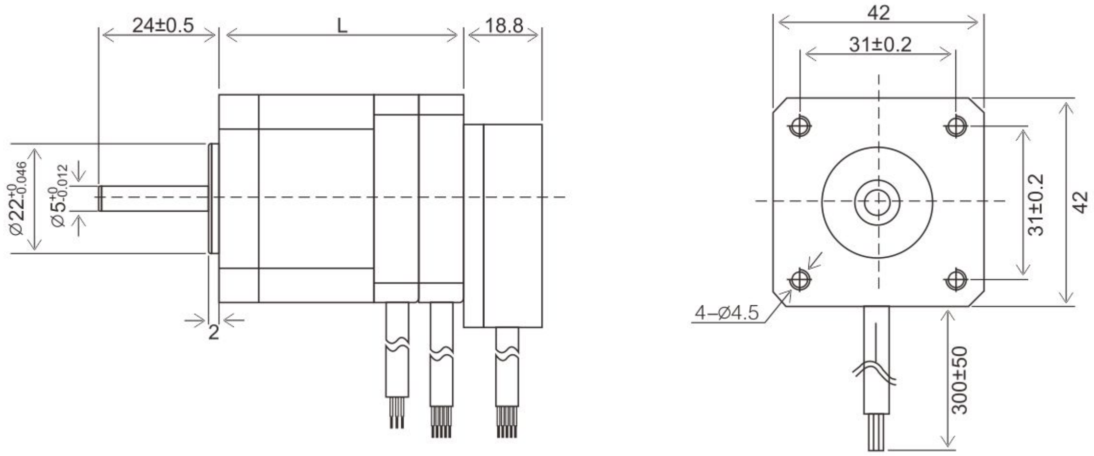
Terminal No.	Sign	Description
1	VDC	DC 36~80V
2	GND	DC ground
3	Rbrake	NC

AC servo motor series

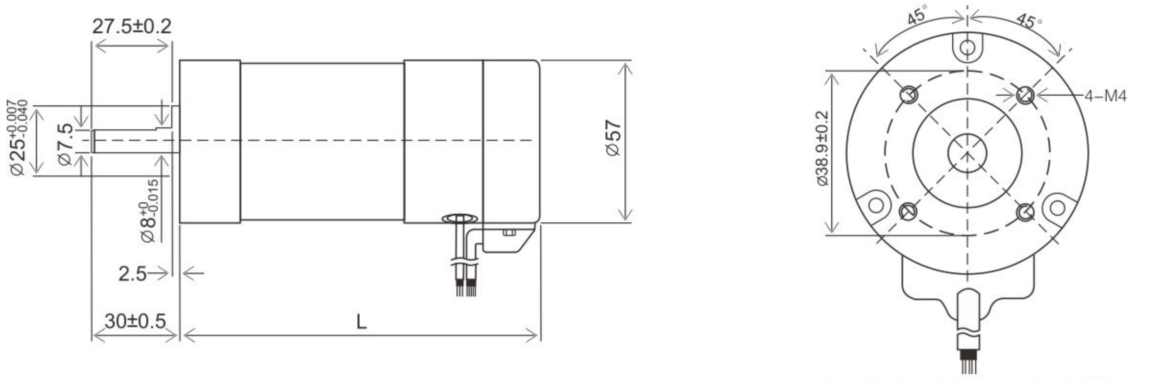
Item No	42JSF330AS	42JSF630AS	57JSF(M)1430P	57JSF1830P	60ASM200	60ASM400	80ASM600
Supply voltage(V)	24	24	36	36	36	60	80
Rated power(W)	32	62	140	180	200	400	600
rated holding torque(N.m)	0.1	0.2	0.32	0.6	0.637	1.27	1.9
Peak holding torque(N.m)	0.3	0.6	0.98	1.71	1.9	3.8	5.7
rated speed (rpm)	3000	3000	3400	3400	3000	3000	3000
Rated current(A)	1.8	4	6.4	8.8	7.5	8.5	10
Torque coefficient（N.M/A）	0.057	0.057	0.053	0.057	0.085	0.149	0.18
Resistance (V/RPM)	4.29×10^{-3}	4.13×10^{-3}	4.8×10^{-3}	8.9×10^{-3}	5.4×10^{-3}	9.2×10^{-3}	14.46×10^{-3}
Frame size(mm)	42	42	57	57	60	60	80
Flange diameter (mm)	22	22	38.1	25	50	50	70
Shaft diameter	5	5	8	8	14	14	14
Shaft length(mm)	24	24	30	30	30	30	35
Length(mm)	71	88	134	163.5	103.5	131.5	165
Pole	8	8	4	4	8	8	8
Encoder (line)	1000	1000	1000	1000	1250	1250	1250

Dimension(mm)

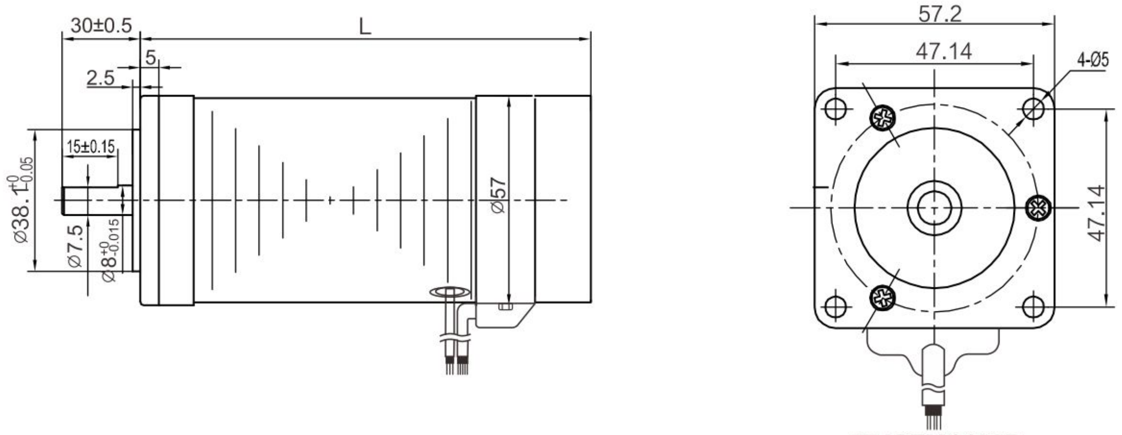
42JSF330AS/42JSF630AS


24±0.5
L
18.8
Ø22+0 -0.046
Ø5+0 -0.012
2
42
31±0.2
31±0.2
42
4–Ø4.5
300±50

57JSF1430P/ 57JSFM1430P/57JSF1830P

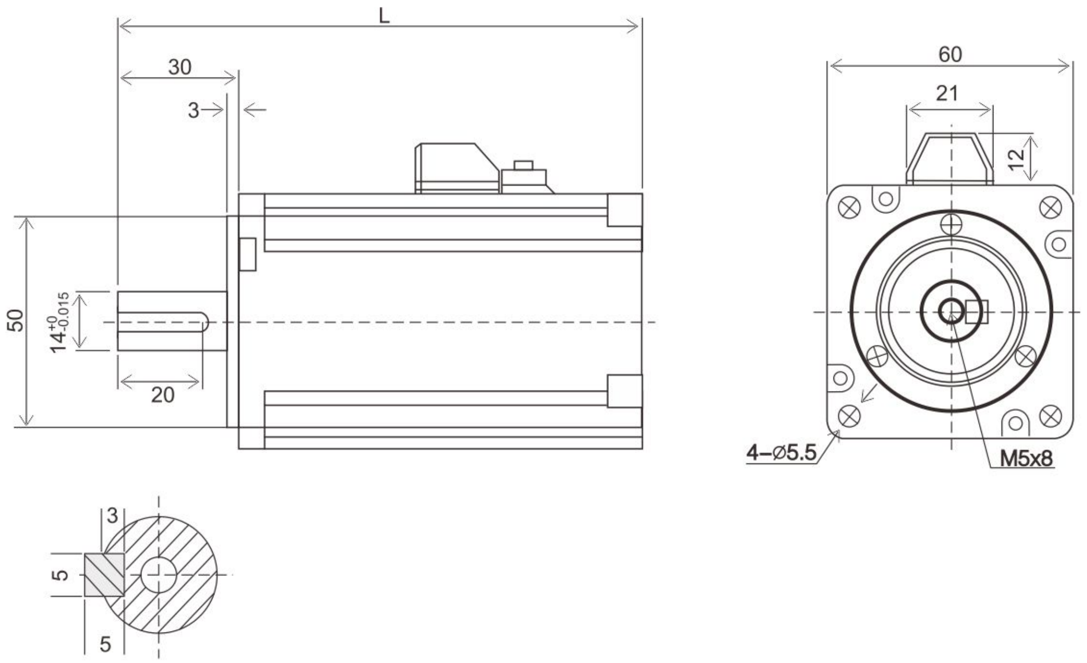

27.5±0.2
Ø25+0.007 -0.040
Ø7.5
Ø8+0 -0.015
2.5
30±0.5
L
Ø57
45°
45°
4–M4
Ø38.9±0.2

57JSF1430P/57JSF1830P


30±0.5
L
5
2.5
15±0.15
Ø38.1+0 -0.05
Ø7.5
Ø8+0 -0.015
Ø57
57.2
47.14
4-Ø5
47.14

57JSFM1430P

60ASM200/60ASM400


L
30
3
50
14+0 -0.015
20
60
21
12
4–Ø5.5
M5x8
3
5
5

PLE SERIES PRECISION PLANETARY GEARBOX

Key Features:

- Transmission smoothly, low noise, high rigidity, small space
- Gear Ratio 3-100
- Precision 5-10 arcmin
- Economy, Reliable

PLE series Technical parameters 1

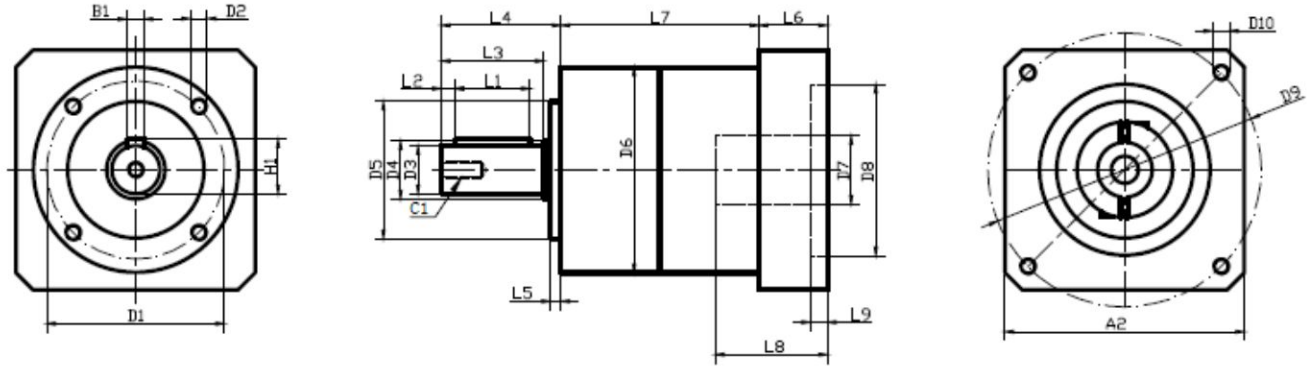
parameters			Specs	PLE60	PLE80	PLE90	PLE120	PLE140
Maximum torque			Nm	1.5 times the rated torque				
Maximum torque			Nm	2 times the rated torque				
The maximum permissible radial force			N	240	400	450	1240	2250
The maximum allowable axial force			N	220	420	430	1000	1500
Torsional rigidity			Nm/arcmin	1.8	4.7	4.85	11	22
Maximum input speed			rpm	8000	6000	6000	6000	4500
Rated input speed			rpm	4000	3500	3500	3500	3000
The noise			dB	<58	<60	<60	<65	<68
The average life span			h	20000				
Full of efficiency			%	L1≥96% L2≥94%				
Return clearance	P0	L1	arcmin	< 3	< 3	< 3	< 3	< 3
		L2	arcmin	< 5	< 5	< 5	< 5	< 5
	P1	L1	arcmin	< 6	< 6	< 6	< 8	< 8
		L2	arcmin	< 10	< 10	< 10	< 10	< 10
The moment of inertia	L1	3	Kg.cm^2	0.46	0.77	1.73	12.78	21.40
		4	Kg.cm^2	0.46	0.77	1.73	12.78	21.40
		5	Kg.cm^2	0.46	0.77	1.73	12.78	21.40
		7	Kg.cm^2	0.41	0.65	1.42	11.38	17.60
		10	Kg.cm^2	0.41	0.65	1.42	11.38	17.60
	L2	12	Kg.cm^2	0.44	0.72	1.49	12.18	17.40
		15	Kg.cm^2	0.44	0.72	1.49	12.18	17.40
		20	Kg.cm^2	0.44	0.72	1.49	12.18	17.40
		25	Kg.cm^2	0.44	0.72	1.49	12.18	17.40
		28	Kg.cm^2	0.44	0.72	1.49	12.18	17.40
		40	Kg.cm^2	0.44	0.72	1.49	12.18	17.40
		50	Kg.cm^2	0.34	0.58	1.25	11.48	15.70
		100	Kg.cm2	0.34	0.58	1.25	11.48	15.70

PLE series Technical parameters 2

Technical parameters			PLE60	PLE80	PLE90	PLE120	PLE140
	Series	Speed ratio					
Rated torque (N.m)	L1	3	27	50	161	161	392
		4	40	90	210	210	520
		5	40	90	210	210	520
		7	34	48	170	170	395
		10	16	22	86	86	265
	L2	9	27	50	161	161	392
		12	27	50	161	161	392
		15	27	50	161	161	392
		16	40	90	21	21	520
		20	40	90	210	210	520
		25	40	90	210	210	520
		28	40	90	210	210	392
		30	27	50	161	161	392
		35	40	90	210	210	520
		40	40	90	210	210	520
		50	40	90	210	210	520
		70	34	48	170	170	395
		100	16	22	86	86	265
The weight (Kg)	L1		0.93	2.35	6.15	6.15	11.30
	L2		1.15	2.70	8.00	8.00	13.50

Dimensions

Dimensions (Unit : mm)



PLF SERIES PRECISION PLANETARY GEARBOX

Key Features:

- Transmission smoothly, low noise, high rigidity, small space
- Gear Ratio 3-100
- Precision 5-10 arcmin
- Economy, Reliable

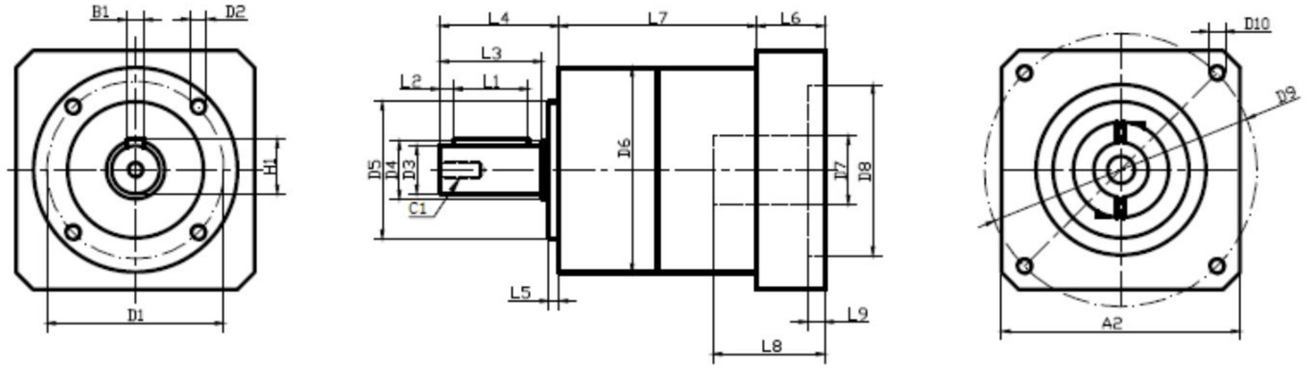
PLF series Technical parameters 1

parameters \ Specs				PLF60	PLF80	PLF90	PLF120	PLF142
Maximum torque			Nm	1.5 times the rated torque				
Maximum torque			Nm	2 times the rated torque				
The maximum permissible radial force			N	240	400	450	1240	4800
The maximum allowable axial force			N	220	420	430	1000	4500
Torsional rigidity			Nm/arcmin	1.8	4.7	4.85	11	55
Maximum input speed			rpm	8000	6000	6000	6000	4000
Rated input speed			rpm	4000	3500	3500	3500	2500
The noise			dB	<58	<60	<60	<65	<75
The average life span			h	20000				
Full of efficiency			%	L1≥96% L2≥94%				
Return clearance	P0	L1	arcmin	<3	<3	<3	<3	<3
		L2	arcmin	<5	<5	<5	<5	<5
	P1	L1	arcmin	<6	<6	<6	<8	<8
		L2	arcmin	<10	<10	<10	<10	<10
The moment of inertia	L1	3	Kg.cm^2	0.46	0.77	1.73	12.78	21.4
		4	Kg.cm^2	0.46	0.77	1.73	12.78	21.4
		5	Kg.cm^2	0.46	0.77	1.73	12.78	21.4
		7	Kg.cm^2	0.41	0.65	1.42	11.38	17.6
		10	Kg.cm^2	0.41	0.65	1.42	11.38	17.6
	L2	12	Kg.cm^2	0.44	0.72	1.49	12.18	17.4
		15	Kg.cm^2	0.44	0.72	1.49	12.18	17.4
		20	Kg.cm^2	0.44	0.72	1.49	12.18	17.4
		25	Kg.cm^2	0.44	0.72	1.49	12.18	17.4
		28	Kg.cm^2	0.44	0.72	1.49	12.18	17.4
		40	Kg.cm^2	0.44	0.72	1.49	12.18	17.4
		50	Kg.cm^2	0.34	0.58	1.25	11.48	15.7
		100	Kg.cm2	0.34	0.58	1.25	11.48	15.7

PLF series Technical parameters 2

parameters \ Specs	Series	Speed ratio	PLF60	PLF80	PLF90	PLF120	PLF142
Rated torque (N.m)	L1	3	27	50	96	161	392
		4	40	90	122	210	520
		5	40	90	122	210	520
		7	34	48	95	170	395
		10	16	22	56	86	265
	L2	9	27	50	96	161	392
		12	27	50	96	161	392
		15	27	50	96	161	392
		16	40	90	122	21	520
		20	40	90	122	210	520
		25	40	90	122	210	520
		28	40	90	122	210	392
		30	27	50	96	161	392
		35	40	90	122	210	520
		40	40	90	122	210	520
		50	40	90	122	210	520
		70	34	48	95	170	395
		100	16	22	56	86	265
The weight (Kg)	L1		1.7		4.4	12	26.5
	L2		1.9		5	14	29.6

Dimensions

Dimensions (Unit : mm)