

# STEPPING SYSTEM SELECTION MANUAL

Two-phase/Five-phase Stepping System

Absolute Value Stepping System

Closed-loop Stepping System

Bus Stepping System





DongGuan Kaifull Electronics Technology Co., Ltd is a high-tech enterprise committed to R&D, production, and sales of high-quality motion control products. The company has always adhered to the corporate philosophy and development strategy of "driven by market demand, centering on technological innovation". After 16 years of operation, the company has developed into a leading domestic manufacturer of stepper motors, drivers and related products. Kaifull Technology has such independent brands as Kaifull and YARAK, and its products include stepper motor drive systems, servo motor drive systems, brushless motor drive systems, planetary reducers, hollow rotation platforms, precision fine-tuning platforms, alignment platforms, linear motors, and other series of products. These products are widely used in high-tech industries such as 3C industry, CNC machine tools, medical equipment, laser engraving, textile printing, packaging machinery, electronic equipment, robots, lithium batteries and semiconductors.

The company has established production bases in Dongguan and Suzhou respectively, with strong research and development capabilities as well as advanced manufacturing equipment and processes, and the company adopts comprehensive testing methods to ensure product quality and stable supply. Meanwhile, the company has an experienced sales and technical team that enhances customer value through services, closely identifies customer needs, continuously tracks customer development, and provides customers with the best motion control solutions. For 16 years, Kaifu Technology has adhered to the mission of "providing global leading motion control solutions" and is committed to making every intelligent manufacturing factory trust Kaifu's products and services!

Kaifull Motors-16 years of innovation and surpassing itself! Kaifull Motors, founded in 2008, is headquartered in Dongguan, a forefront of China's reform and opening up and a modern manufacturing city of China. Adhering to its development strategy that is " market-oriented, and places technological innovation as the core" , the company has been achieving the common development of partners, employees and the company. After 16 years of unremitting efforts in technical research and development and market expansion, the company has been grown into a leading research and development manufacturer of stepper motors, drivers and related products in China, and its brand influence is constantly improving.

The company has its own brands "Kaifull" and "YARAK, and its products cover screw stepper motor, closed-loop stepper motor, deceleration integrated stepper motor, brake stepper motor, stepper driver, planetary reducer, hollow rotary platform, Motorized Stages Auto-positioning stages and so on. Setting "becoming the world's leading motion control manufacturer" as its mission, the company has set up at echnical R & D and technological breakthrough team with high caliber talents from domestic 985 colleges and universities with master and doctor degrees. entrepreneurial and industry experts from Japan, Taiwan as well as overseas cooperation and development teams from Germany as the main force, which focuses on the research and development and application of advanced motion control technologies in the industry, and it has made a number of invention patents and technical patents up to the present.

# Stepping Drive System Selection List

		Motion controller + IO terminal module										Motion control card + IO terminal module										
Control layer																						
Driver layer		Stepper driver										AC servo driver		Brushless motor driver		Drive and control integrated stepper motor						
		Open-loop stepping			5-phase stepping			Closed-loop stepping				Pulse type	Bus type	DC brushless	AC brushless	Open-loop stepping	Closed-loop stepping					
		Mini	Pulse	IO	Analog quantity	Intelligent	Bus	Multi-axis	Pulse	Bus	Multi-axis	Pulse	IO	Intelligent self-programming	Pulse	Multi-axis						
Execution layer		Rotating motion stepper motor					Linear motion stepper motor				Servo motor			Brushless motor		Drive and control integrated reduction motor	Drive and control integrated lead screw motor					
		Hybrid type	Hollow shaft	Reduction integrated type	Closed-loop stepping	Absolute value	Externally driven	Ball type	Through-type	Fixed shaft type	AC servo motor	Linear motor	DD motor	Voice coil motor	Brushless motor	Integrated brushless motor						
		Mechanism platform																				
	Miniature electric cylinder	Planetary reducer	Hollow rotating platform	Harmonic drive	Fine tuning stage	Alignment platform	Electric clamp															
INDUSTRY APPLICATIONS																						
		Medical care	Semiconductor	PV	Lithium battery	3C battery	Laser	Logistics sorting	Packing machine													

Product family

Stepper driver solution



Pulse type driver



EtherCAT driver



PN driver



Integrated stepper motor

Linear motion solution



Integrated miniature electric cylinder



Electric fine-tuning stage



XXY alignment platform



Linear motor

Alignment accuracy of  
*0.3μm*, "Core"  
upgraded

Rotating motion solution



Integrated reduction motor



Planetary reducer



Harmonic drive



Hollow rotating platform



# Overview of Product Features of Open-loop Stepping Drive System

Driver type		SS series					SD2-S series				
											
Model		Y2SS3	Y2SS3-S	Y2SS3-ECX	Y2SS3-PN	Y2SS3-CAN	Y2SD2-S40C	Y2SD2-S40A	Y2SD2-S80A	Y2SD2-80E-N2	Y2SD2-S80E-N4
Hybrid stepper motor		2 phases	2 phases	2 phases	2 phases	2 phases	2 phases	2 phases	2 phases	2-phase two-in-one	2-phase four-in-one
Control method	Double-axis	●	●	/	/	/	/	/	/	/	/
	I/O control	/	/	/	/	/	/	/	/	/	/
	Analog control	/	/	/	/	/	/	/	/	/	/
	EtherCAT communication	/	/	●	/	/	/	/	●	●	●
	profinet Communication	/	/	/	●	/	/	/	/	/	/
	CANopen communication	/	/	/	/	●	/	/	/	/	/
	RS485 communication	/	/	/	/	/	●	●	/	/	/
Electrical parameters	Input voltage	24~75VDC	24~75 VDC	24~48 VDC	24~60 VDC	24~70 VDC	24~72 VDC	24~72 VDC	24~48 VDC	24~48 VDC	12~36 VDC
	Output current (peak)	0.1~7.0A	0.1~7.0A	0.1~7.0A	0.1~7.0A	0.1~7.0A	0.1~6.5A	0.1~6.5A	0.4~6.0A	0.4~6.5A	0.4~3.0A
	Input signal voltage	5~24V	5~24V	5~24V	5~24V	5~24V	5~24V	5~24V	5~24V	5~24V	5~24V
	Input analog voltage	/	/	/	/	/	/	/	/	/	/
	Signal frequency	250KHz	250KHz	/	/	/	/	/	/	/	/
	Pulse width	2us	2us	/	/	/	/	/	/	/	/
	OUT conduction current	100mA	100mA	100mA	100mA	100mA	100mA	100mA	100mA	100mA	100mA
	OUT withstand voltage	30V	30V	30V	30V	30V	30V	30V	30V	30V	30V
	Encoder type	Incremental type	Incremental type	Incremental type	Incremental type	Incremental type	Incremental type	Incremental type	Absolute value type	Absolute value type	Incremental type
Control parameters	Pulse input method	Pulse + direction/dual pulse	Pulse + direction/dual pulse	/	/	/	/	/	/	/	/
	Subdivision	200~52100/any subdivision	200~52100/any subdivision	200~52100/any subdivision	200~52100/any subdivision	200~52100/any subdivision	200~52100/any subdivision	200~52100/any subdivision	200~52100/any subdivision	200~52100/any subdivision	200~52100/any subdivision
	Speed	/	/	/	/	/	/	/	/	/	/
	Acceleration and deceleration	/	/	/	/	/	/	/	/	/	/
Input/ Output signal	STEP (pulse/start)	●	●	/	/	/	/	/	/	/	/
	DIR (Direction)	●	●	/	/	/	/	/	/	/	/
	EN (Enable)	●	●	●	●	●	●	●	●	●	●
	Alarm	●	●	●	●	●	●	●	●	●	●
	Band type brake output	/	●	●	●	●	●	●	●	●	●
	A/B/Z-phase signal output	/	●	/	/	/	●	●	/	/	/
	I/O quantity	3 inputs, 2 outputs	3 inputs, 4 outputs	5 inputs, 4 outputs	5 inputs, 4 outputs	5 inputs, 4 outputs	7 inputs, 3 outputs	7 inputs, 3 outputs	3 inputs, 2 outputs	3 inputs, 2 outputs	3 inputs, 2 outputs

## MODEL DESCRIPTION

- KST Kaifull stepper motor identification

**K S T - X X X - X**

① ② ③ ④

①	Flange dimensions: 14, 20, 28, 35, 42, 57, 60, 86, 110, 130
②	Step angle codes: A represents five-phase 0.36°, B represents five-phase 0.72°, c represents two-phase 0.9°, D represents two-phase 1.8°, and E represents three-phase 1.2°
③	Stator core thickness: Round off to the nearest integer. If the thickness is 41.3mm, record 41; if the thickness is 120.6mm, record 121
④	④ Serial number: For the motors with the same flange and stator core thickness but different other characteristics, arrange them in sequence and take a 4-digit number, such as 0001, 0002, 0003

## PRODUCT FEATURES

The stepping motor is a small and special electric machine that converts electrical pulse signals into angular displacement to control rotor rotation. The KST series stepper motor of Kaifull Technology is a high-performance and low-vibration stepper motor manufactured using the latest design, the latest technology, and core materials of Japan. Compared with the common stepper motors on the market, the product has such advantages as higher torque, lower heat generation, lower vibration and higher stability. Due to the use of large-scale automatic production line and strict quality management systems for control and screening, this series of stepper motors is more stable and reliable, and has superior batch consistency of performance parameters!

### High torque

The latest magnetic circuit optimization design scheme is adopted to achieve small volume and high torque.

### High stability

The core components are made of imported high-quality materials to ensure stable and reliable operation of the motor.

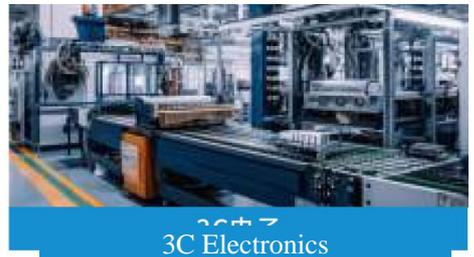
### Low heat generation

The use of high-grade and high-performance silicon steel sheets reduces the heat generation of stepper motors.

### High consistency

Large-scale automatic production line.  
Strict quality management system.  
Ensure the batch consistency of products.

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# Two-phase/three-phase stepper motor

**Standard type | Reduction integrated type | Hollow shaft type**



# Open-loop stepping drive system

## Two-phase/three-phase stepper motor

- Standard type
- Reduction integrated type
- Hollow shaft type



## Two-phase stepper motor

## Standard type

### 20mm two-phase stepper motor

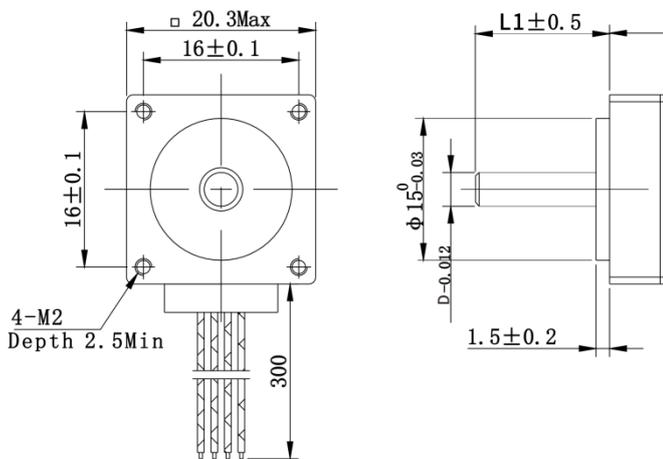


#### ■ Specification

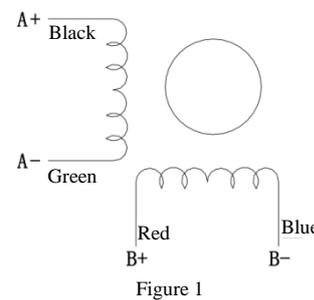
- Single output shaft

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-20D15-0001	1.8	0.6	7.00	1.9	18	2	4	17	28.5	0.05	Figure 1
KST-20D25-0001	1.8	0.4	11.0	4.0	28	3	4	17	38	0.07	Figure 1

#### ■ Dimension drawing (unit: mm)



#### ■ Wiring Diagram



### 28mm two-phase stepper motor



#### ■ Specification

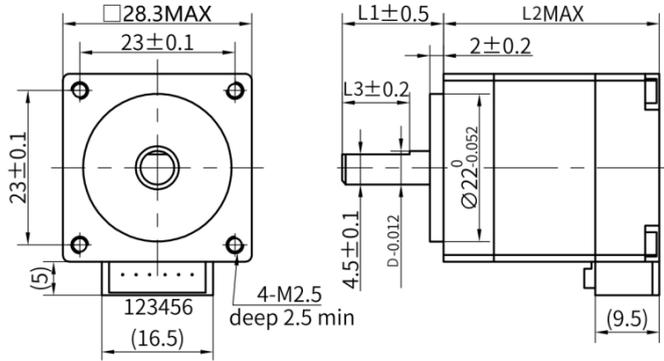
- Single output shaft

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-28D17-0001	1.8	0.7	4.50	3.2	60	8	5	15	33	0.11	Figure 1
KST-28D37-0001	1.8	1.0	3.50	2.3	100	18	5	20	51	0.20	Figure II

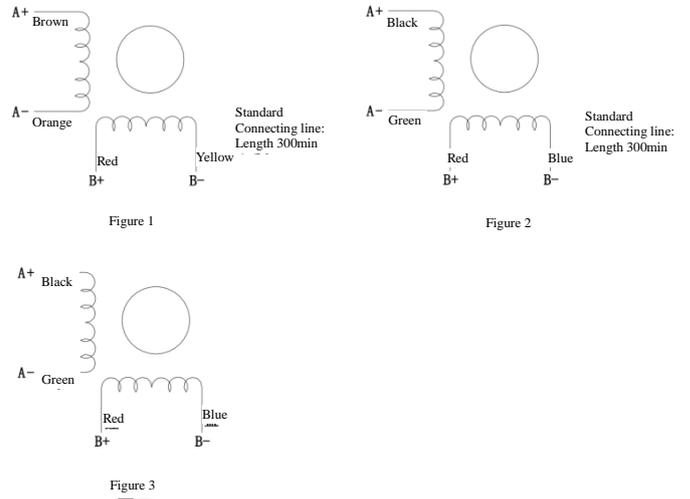
• Double output shaft

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-28D37-0002	1.8	1.0	3.50	2.3	100	18	5	20	51	0.20	Figure III

■ Dimension drawing (unit: mm)



■ Wiring Diagram



## 35mm two-phase stepper motor

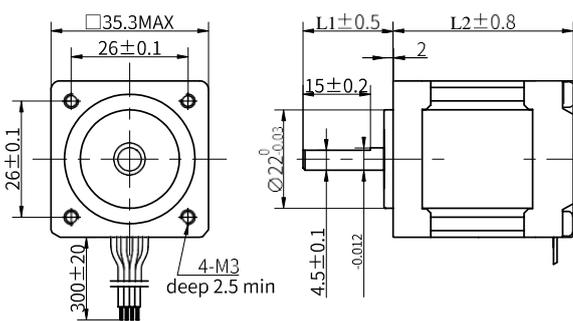


■ Specification

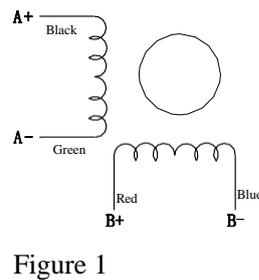
• Single output shaft

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-35D26-0001	1.8	1.0	4.30	5.5	180	20	5	20	40	0.2	Figure 1

■ Dimension drawing (unit: mm)



■ Wiring Diagram



# 42mm two-phase stepper motor



## ■ Specification

### ● Single output shaft

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-42D16-0001	1.8	0.85	5.70	8.10	260	33	5	20	34	0.23	Figure 1
KST-42D22-0002	1.8	1.6 (half winding)	1.90	1.80	310	56	5	24	40	0.29	Figure III
	1.8	1.1 (full winding)	3.80	7.20	430	56	5	24	40	0.29	Figure III
KST-42D41-0001	1.8	2.0	2.00	3.85	770	110	6.35	20	61.1	0.50	Figure II
KST-42D30-0001	1.8	2.0	1.80	4.00	540	66	5	24	49.5	0.38	Figure 1

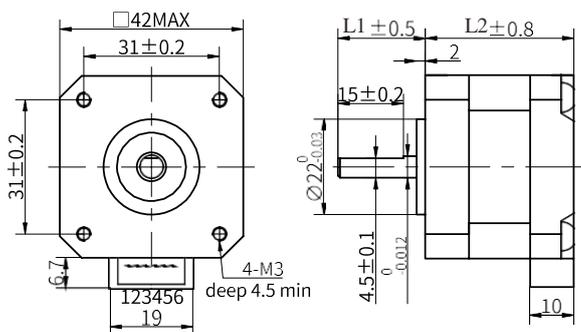
### ● Double output shaft

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-42D22-0003	1.8	1.6 (half winding)	1.90	1.80	310	56	5	22	40	0.29	Figure III
	1.8	1.1 (full winding)	3.80	7.20	430	56	5	22	40	0.29	Figure III
KST-42D41-0001D	1.8	2.0	1.82	4.24	770	110	6	21	61.1	0.60	Figure II
KST-42D30-0003	1.8	2.0	1.80	4.00	540	66	5	20	49.5	0.38	Figure 1

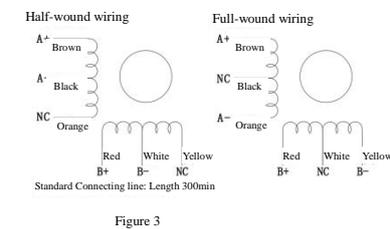
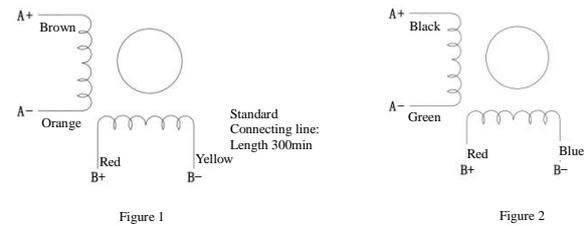
### ● Brake type

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-57D33-0012	1.8	1.6 half winding	1.9	1.8	0.31	56	5	22	74	0.41	Figure III
	1.8	1.1 full winding	3.8	7.2	0.43	56	5	22	74	0.41	Figure III
KST-42D30-0002 (band type brake)	1.8	2	1.8	4	0.65	66	5	20	83.5	0.5	Figure 1

## ■ Dimension drawing (unit: mm)



## ■ Wiring Diagram



# 57mm two-phase stepper motor



## ■ Specification

### ● Single output shaft

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-57D20-0001	1.8	3.0	0.75	1.25	0.57	150	6.35	20.6	45	0.51	Figure 1
KST-57D33-0011	1.8	4.2	0.40	1.4	1.1	280	6.35	22.6	54.5	0.71	Figure 1
KST-57D33-0002	1.8	4.2	0.40	1.4	1.1	280	8	26	54.5	0.71	Figure 1
KST-57D33-0005	1.8	4.2	0.40	1.4	1.1	280	6.35	25	54.5	0.71	Figure II
KST-57D45-0001	1.8	4.4	0.45	1.5	1.4	330	8	26	65	0.86	Figure III
KST-57D53-0006	1.8	4.2	0.65	2.0	2.0	480	6.35	21	77.5	1.11	Figure 1
KST-57D53-0003	1.8	4.2	0.65	2.0	2.0	480	8	25	77.5	1.11	Figure 1
KST-57D53-0001	1.8	4.2	0.65	2.0	2.0	480	8	30	77.5	1.11	Figure II
KST-57D89-0001	1.8	4.5	0.92	4.0	3.2	750	10	35	111	1.80	Figure II

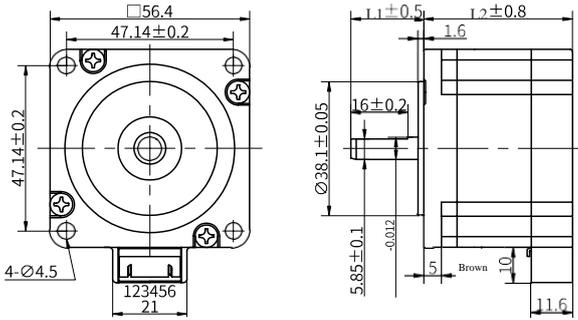
### ● Double output shaft

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-57D33-0012	1.8	4.2	0.40	1.3	1.4	245	6.35	25	54.5	0.71	Figure II
KST-57D45-0002	1.8	4.4 (parallel connection)	0.45	1.5	1.4	330	8	26	65	0.86	Figure III
KST-57D53-0010	1.8	3.0 (half winding)	1.20	2.2	1.8	470	8	20.6	77.5	1.11	Figure 1
	1.8	2.1 (full winding)	2.40	8.8	2.4	470	8	20.6	77.5	1.11	Figure 1
KST-57D53-0005	1.8	4.2	0.65	2.0	2.0	480	8	25	77.5	1.11	Figure 1

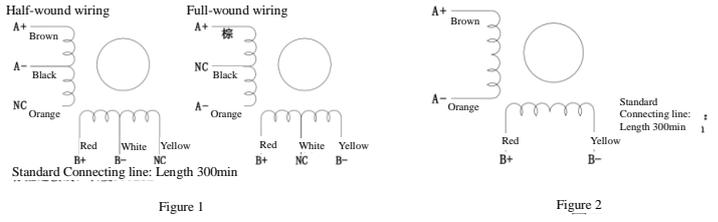
### ● Brake type

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-57D33-0022	1.8	4.2	0.4	1.3	1.4	245	6.35	25	92	1.15	Figure II
KST-57D45-0003	1.8	4.4 parallel connection	0.45	1.5	1.4	330	8	26	102	1.3	Figure III
KST-57D53-0003	1.8	4.2	0.65	2.0	2.0	480	8	25	115	1.55	Figure 1

■ Dimension drawing (unit: mm)



■ Wiring Diagram



60mm two-phase stepper motor

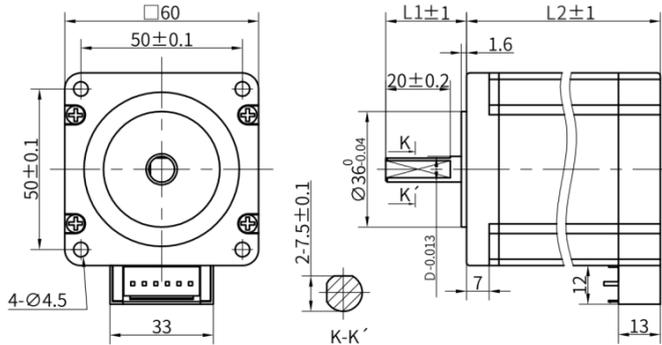


■ Specification

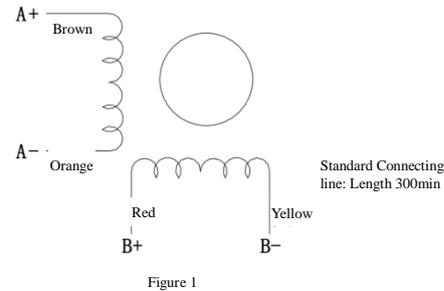
- Single output shaft

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-60D25-0001	1.8	4.2	0.39	1.1	1.0	280	8	24	24	0.62	Figure 1
KST-60D34-0001	1.8	4.2	0.47	1.8	1.4	440	8	24	24	0.88	Figure 1
KST-60D65-0002	1.8	4.5	0.80	3.7	3.0	980	8	25	25	1.40	Figure 1

■ Dimension drawing (unit: mm)



■ Wiring Diagram



60mm two-phase stepper motor (57 mounting holes)

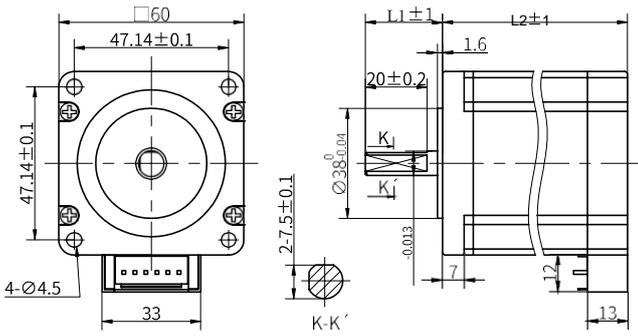


■ Specification

- Single output shaft

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-60D25-0002	1.8	4.2	0.39	1.1	1.0	280	8	24.5	46.3	0.62	Figure 1
KST-60D34-0002	1.8	4.2	0.47	1.8	1.4	440	8	24	55.8	0.88	Figure 1
KST-60D65-0001	1.8	4.2	0.80	3.7	3.0	920	8	24.5	87.8	1.40	Figure 1

■ Dimension drawing (unit: mm)



■ Wiring Diagram

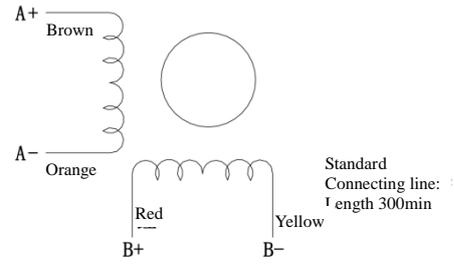


Figure 1

86mm two-phase stepper motor

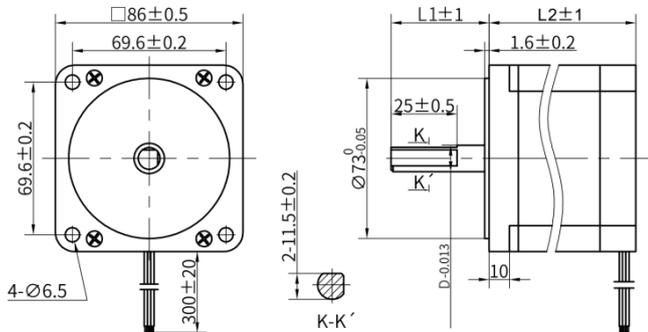


■ Specification

- Single output shaft

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-86D33-0001	1.8	6.4 (parallel connection)	0.24	1.70	2.9	1100	12.7	37	66.5	1.6	Figure 1
	1.8	3.2 (series connection)	0.96	6.80	2.9	1100	12.7	37	66.5	1.6	Figure 1
KST-86D64-0001	1.8	6 (parallel connection)	0.4	2.8	6.3	2500	12.7	37	98	2.7	Figure 1
KST-86D93-0001	1.8	6	0.52	5.40	8.9	4500	12.7	37	127	3.8	Figure 1
KST-86D123-0001	1.8	6.0	0.72	7.30	12.0	5400	14	37	157	5.0	Figure II

■ Dimension drawing (unit: mm)



■ Wiring Diagram

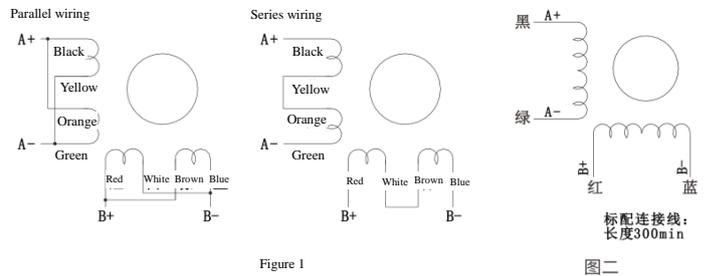


Figure 1

图二

# 86mm two-phase stepper motor



## ■ Specification

### ● Parallel DC drive

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-86D33-0003	1.8	6.0	0.27	1.5	3.3	1630	12.7	37	71.1	2.0	Figure 1
KST-86D64-0005	1.8	6.0	0.40	3.3	6.5	3200	12.7	37	101.5	2.9	Figure 1
KST-86D93-0004	1.8	6.0	0.48	4.1	9.2	4800	12.7	37	132	4.0	Figure 1

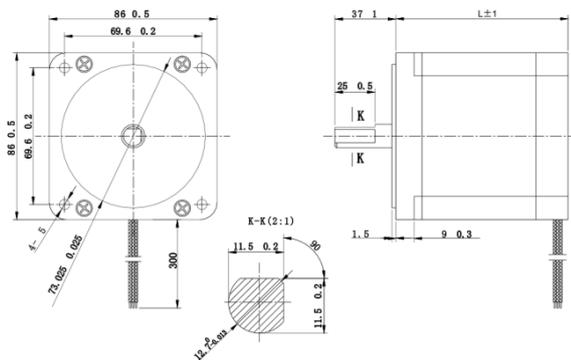
### ● Series DC drive

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-86D33-0003	1.8	3.0	1.08	6.0	3.3	1630	12.7	37	71.1	2.0	Figure II
KST-86D64-0004	1.8	3.0	1.60	13.2	6.5	3200	12.7	37	101.5	2.9	Figure II
KST-86D93-0002	1.8	3.0	1.92	16.4	9.2	4800	12.7	37	132	4.0	Figure II

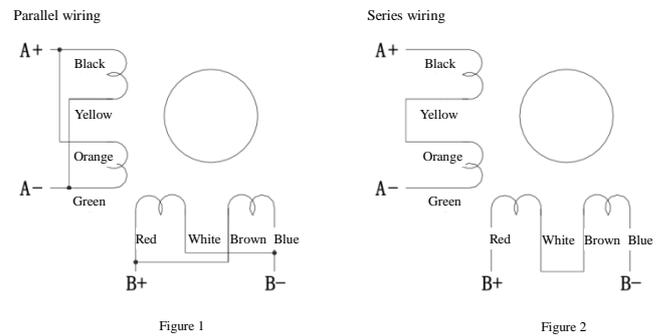
### ● Brake type

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-86D64-0002	1.8	6.0	0.4	2.8	6.3	1850	12.7	37	126	3.1	Figure 1
KST-86D85-0002	1.8	5.6 (parallel connection)	0.7	25	9	2500	14	32	152	4	Figure 1
	1.8	2.8 series connection	2.8	6.4	9	2500	14	32	152	4	Figure 1

## ■ Dimension drawing (unit: mm)



## ■ Wiring Diagram



# 60mm three-phase stepper motor

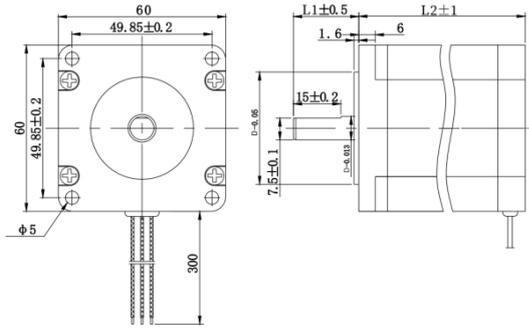


## ■ Specification

### ● Single output shaft

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-60E34-0001	1.2	5.8	0.32	0.8	0.9	260	8	21	54.5	0.8	Figure 1
KST-60E46-0001	1.2	5.8	0.50	1.3	1.5	460	8	21	76.5	1.3	Figure 1

■ Dimension drawing (unit: mm)



■ Wiring Diagram

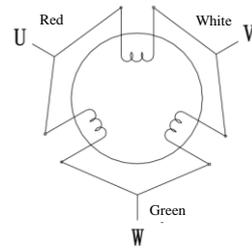


Figure 1

86mm three-phase stepper motor

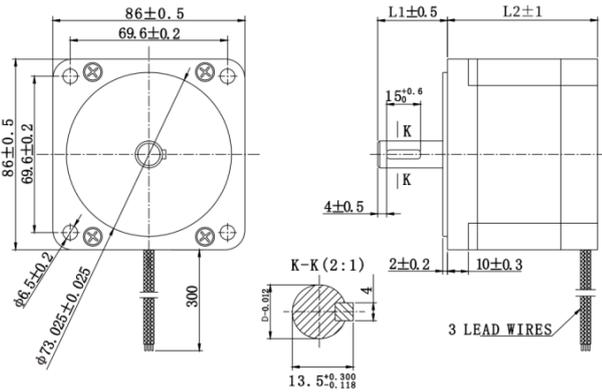


■ Specification

- Single output shaft

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
KST-86E33-0001	1.2	5.8	0.38	2.4	1.9	1100	12	30	67	1.6	Figure 1

■ Dimension drawing (unit: mm)



■ Wiring Diagram

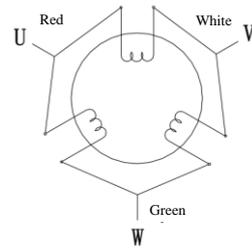
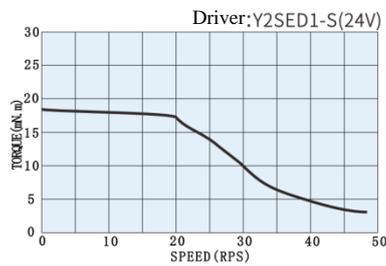


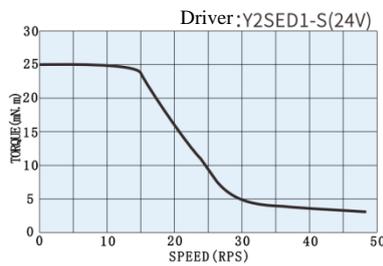
Figure 1

Torque Curve Chart

● KST-20D15-0001



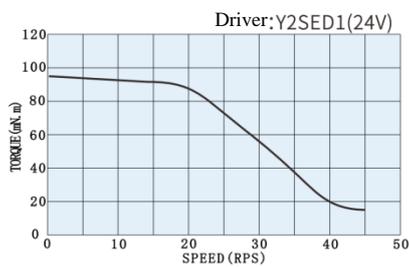
● KST-20D25-0001



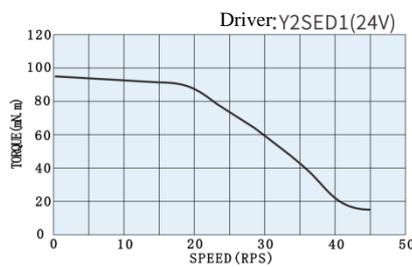
● KST-28D17-0001



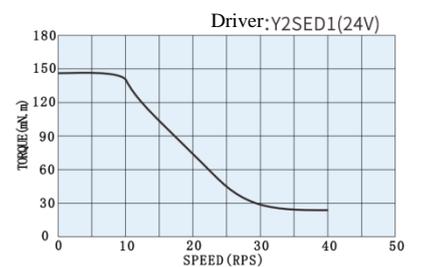
● KST-28D37-0001



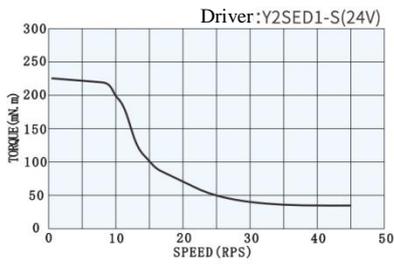
● KST-28D37-0002



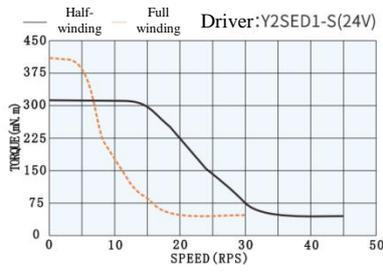
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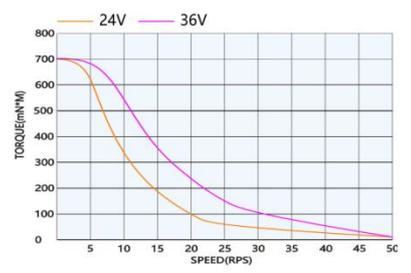
● KST-42D16-0001



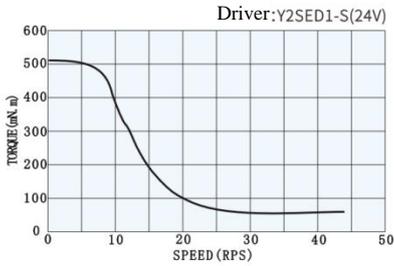
● KST-42D22-0002



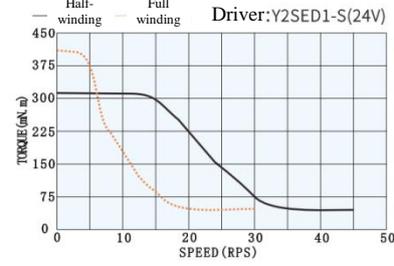
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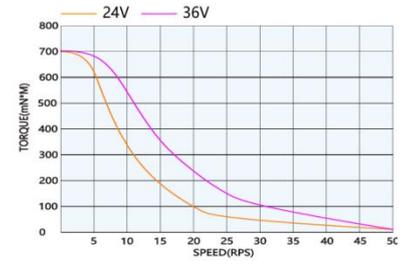
● KST-42D30-0001



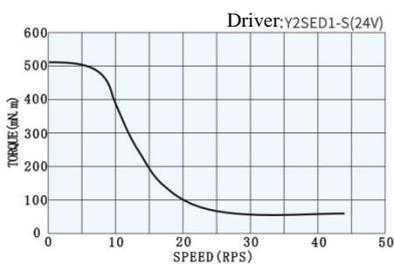
● KST-42D22-0003



● KST-42D41-00016



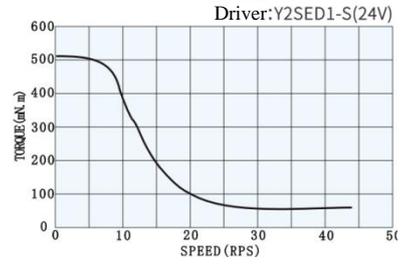
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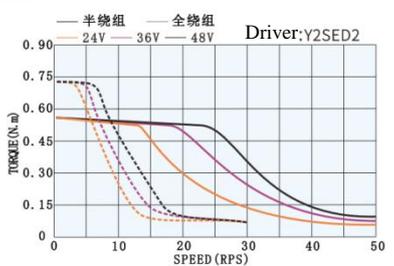
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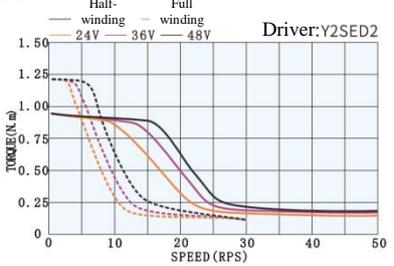
● KST-42D30-0002(Brake)



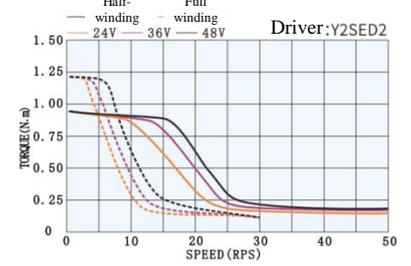
● KST-57D23-0002



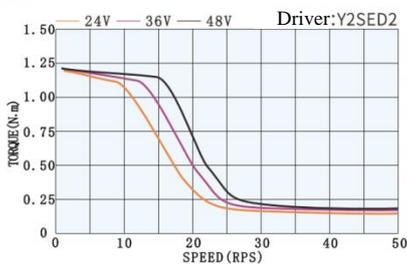
● KST-57D33-0011



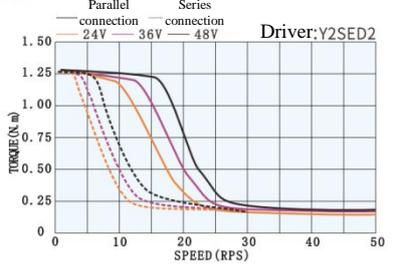
● KST-57D33-0002



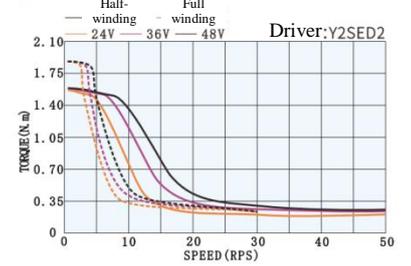
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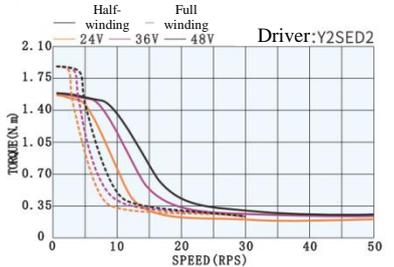
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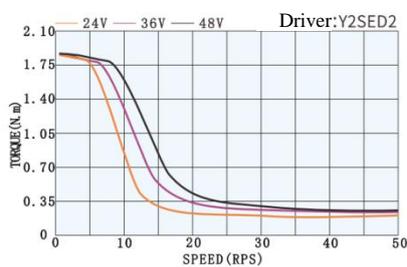
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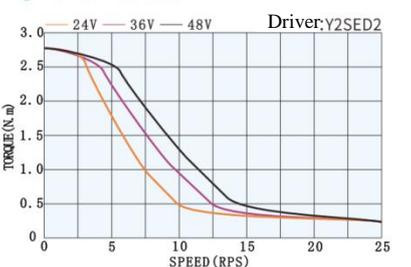
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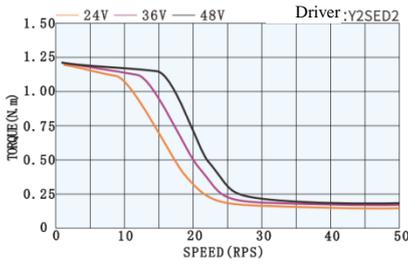
● KST-57D53-0001



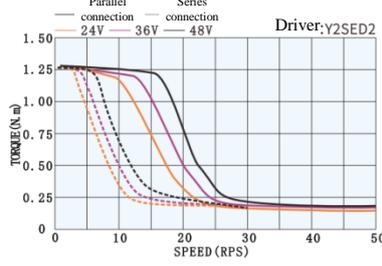
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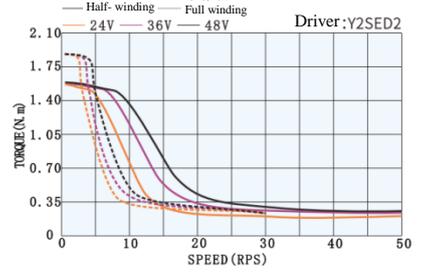
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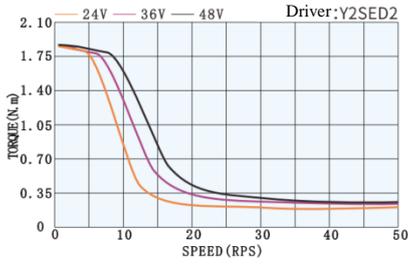
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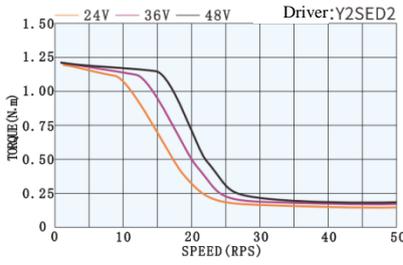
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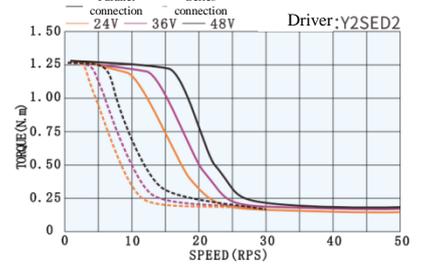
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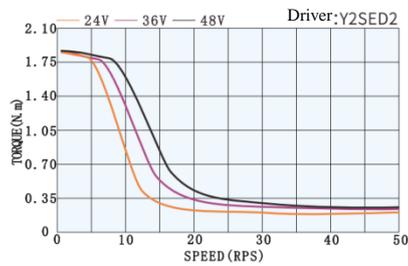
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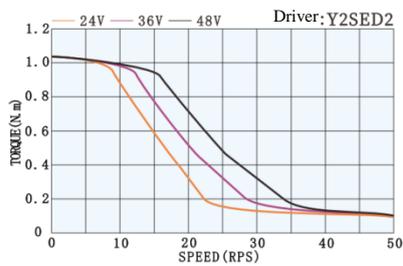
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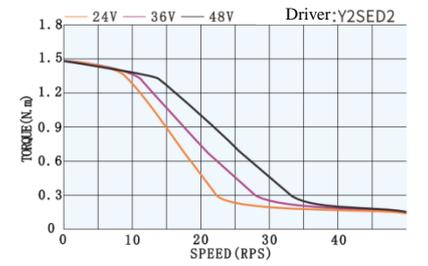
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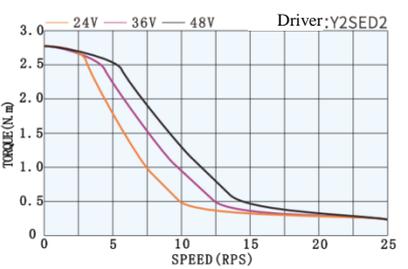
● KST-60D25-0001



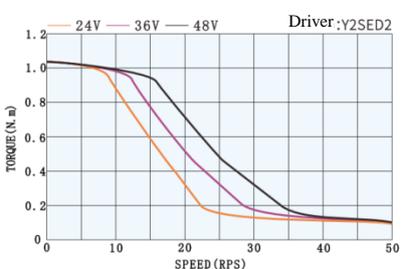
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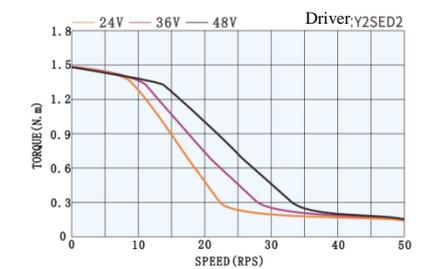
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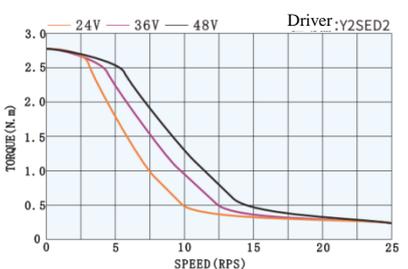
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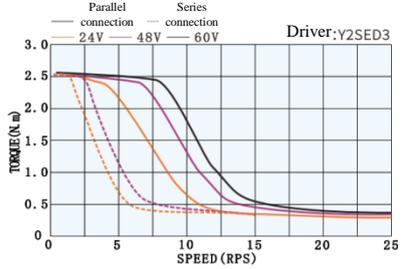
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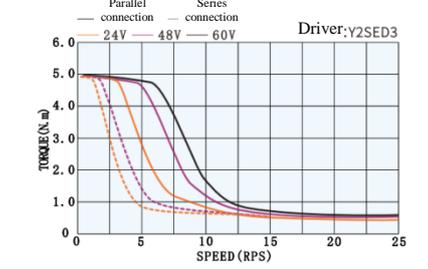
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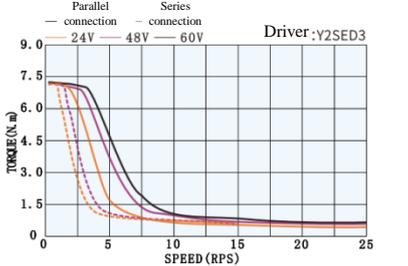
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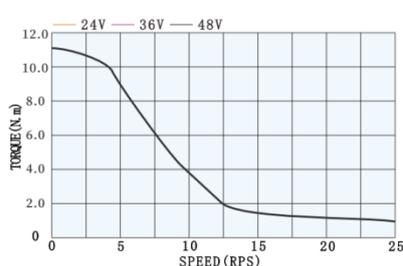
● KST-86D64-0001



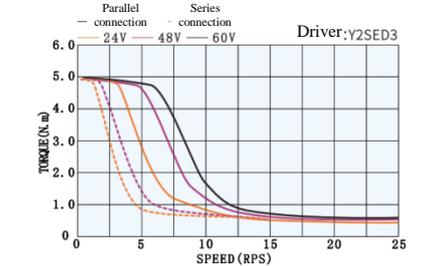
● KST-86D93-0001

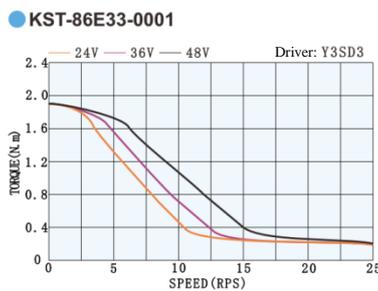
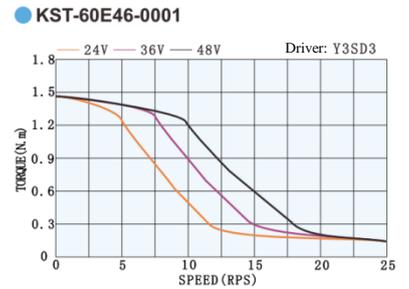
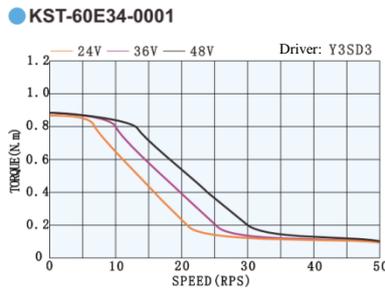
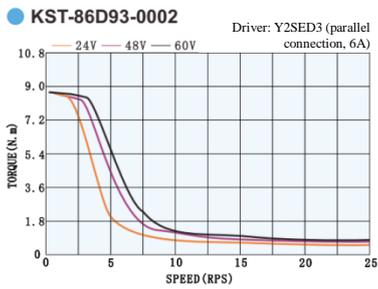
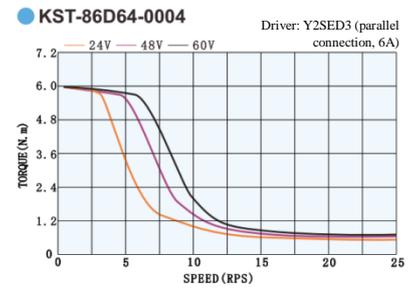
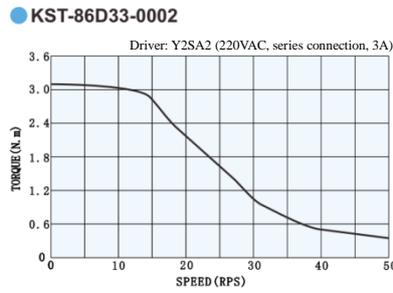
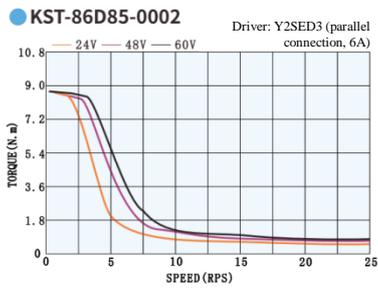


● KST-86D123-0001



● KST-86D64-0002





## Two-phase stepper motor

## Reduction integrated type

### 42mm two-phase DC integrated reducer stepper motor eccentric shaft

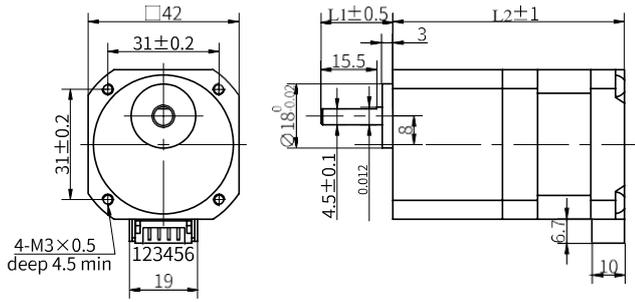


#### ■ Specification

##### ● Single output shaft

Model	Reduction ratio	Current A	Resistance $\Omega$	Inductance mH	Permissible torque	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg
S42D110A-MACR6S2	1:3.6	1.0 (half winding)/0.7 (full winding)	2.7	2.3	0.20	33	5	20	64.5	0.33
S42D110A-MAGR2S2	1:7.2	1.0 (half winding)/0.7 (full winding)	2.7	2.3	0.40	33	5	20	64.5	0.33
S42D110A-MA09S2	1:9	1.0 (half winding)/0.7 (full winding)	2.7	2.3	0.50	33	5	20	64.5	0.33
S42D110A-MAA0S2	1:10	1.0 (half winding)/0.7 (full winding)	2.7	2.3	0.56	33	5	20	64.5	0.33
S42D110A-MAA8S2	1:18	1.0 (half winding)/0.7 (full winding)	5.4	9.2	0.80	33	5	20	64.5	0.33
S42D110A-MAC6S2	1:36	1.0 (half winding)/0.7 (full winding)	5.4	9.2	0.80	33	5	20	64.5	0.33
S42D110A-MAE0S2	1:50	1.0 (half winding)/0.7 (full winding)	5.4	9.2	0.80	33	5	20	64.5	0.33
S42D110A-MAA00S2	1:100	1.0 (half winding)/0.7 (full winding)	5.4	9.2	0.80	33	5	20	64.5	0.33

■ Dimension drawing (unit: mm)



■ Wiring Diagram

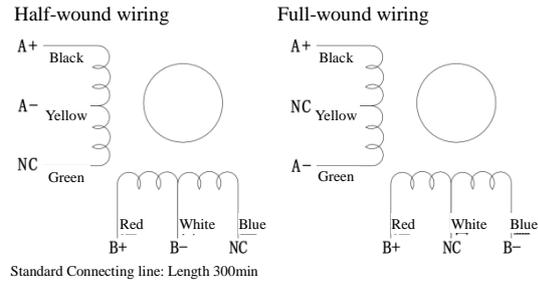


Figure 1

60mm two-phase DC integrated reducer stepper motor eccentric shaft

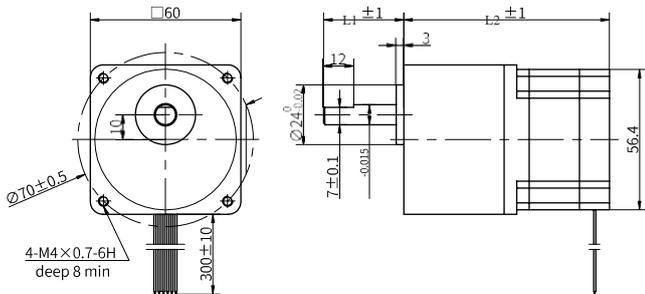


■ Specification

- Single output shaft

Model	Reduction ratio	Current A	Resistance Ω	Inductance mH	Permissible torque	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg
S60D120A-MACR6S2	1:3.6	2.0 (half winding)/1.4 (full winding)	1.1	1.1	1.0	135	8	32	82	0.8
S60D120A-MAGR2S2	1:7.2	2.0 (half winding)/1.4 (full winding)	1.1	1.1	2.0	135	8	32	82	0.8
S60D120A-MA09S2	1:9	2.0 (half winding)/1.4 (full winding)	1.1	1.1	2.5	135	8	32	82	0.8
S60D120A-MAA0S2	1:10	2.0 (half winding)/1.4 (full winding)	1.1	1.1	2.7	135	8	32	82	0.8
S60D120A-MAA8S2	1:18	2.0 (half winding)/1.4 (full winding)	2.2	4.4	3.0	135	8	32	82	0.8
S60D120A-MAC6S2	1:36	2.0 (half winding)/1.4 (full winding)	2.2	4.4	4.0	135	8	32	82	0.8
S60D120A-MAE0S2	1:50	2.0 (half winding)/1.4 (full winding)	2.2	4.4	4.0	135	8	32	82	0.8
S60D120A-MAA00S2	1:100	2.0 (half winding)/1.4 (full winding)	2.2	4.4	4.0	135	8	32	82	0.8

■ Dimension drawing (unit: mm)



■ Wiring Diagram

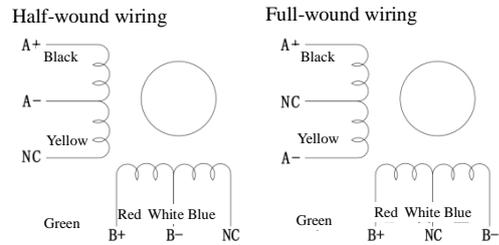


Figure 1

# 90mm two-phase DC integrated reducer stepper motor eccentric shaft

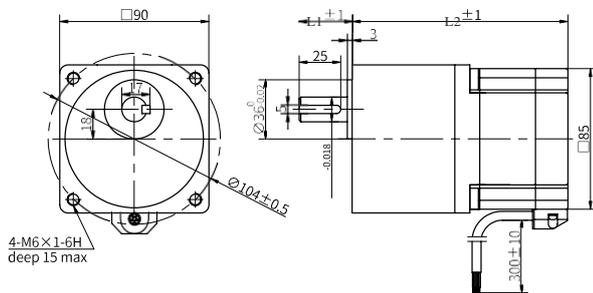


## ■ Specification

- Single output shaft

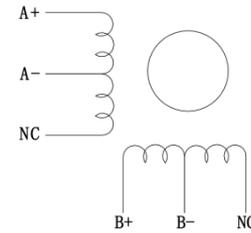
Model	Reduction ratio	Current A	Resistance $\Omega$	Inductance mH	Permissible torque	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg
S90D130A-MACR6S2	1:3.6	3.0 (half winding)/2.1 (full winding)	0.49	1.5	2.5	1400	15	32	130	3
S90D130A-MAGR2S2	1:7.2	3.0 (half winding)/2.1 (full winding)	0.49	1.5	5.0	1400	15	32	130	3
S90D130A-MA09S2	1:9	3.0 (half winding)/2.1 (full winding)	0.49	1.5	6.3	1400	15	32	130	3
S90D130A-MAA0S2	1:10	3.0 (half winding)/2.1 (full winding)	0.98	6.0	7.0	1400	15	32	130	3
S90D130A-MAA8S2	1:18	3.0 (half winding)/2.1 (full winding)	0.98	6.0	9.0	1400	15	32	130	3
S90D130A-MAC6S2	1:36	3.0 (half winding)/2.1 (full winding)	0.98	6.0	12	1400	15	32	130	3

## ■ Dimension drawing (unit: mm)



## ■ Wiring Diagram

### Half-wound wiring



### Full-wound wiring

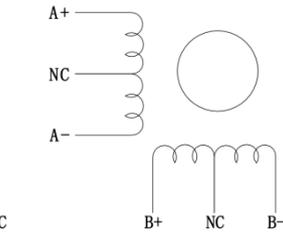


Figure 1

## Torque Curve Chart

### ● S42D110A-MACR6S2



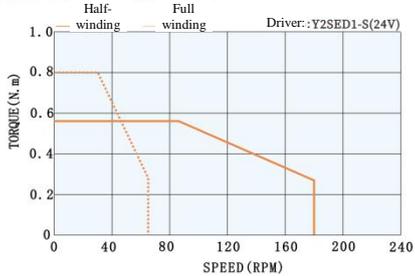
### ● S42D110A-MAGR2S2



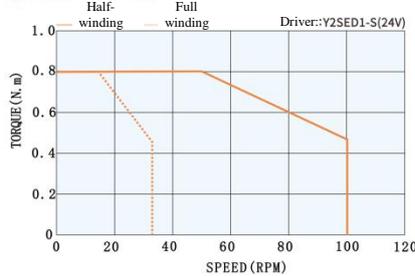
### ● S42D110A-MA09S2



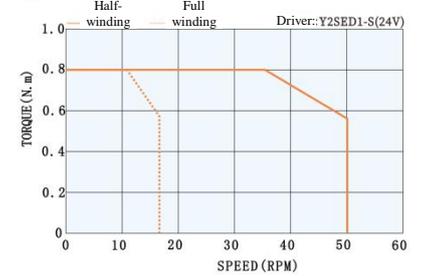
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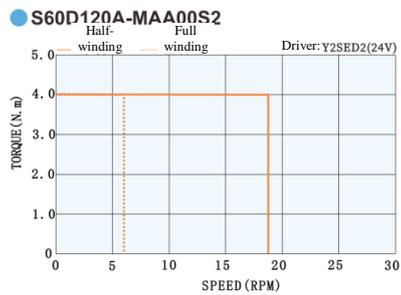
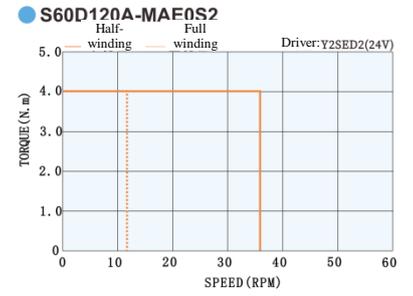
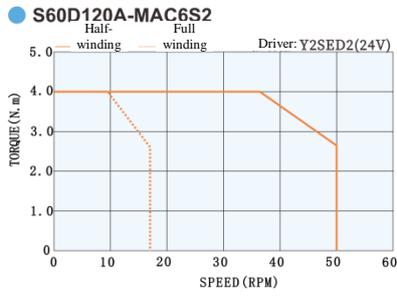
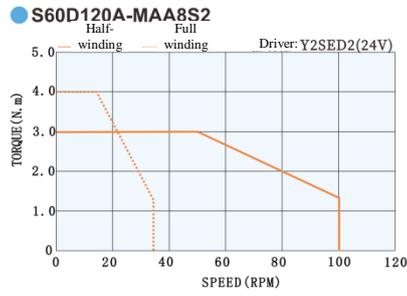
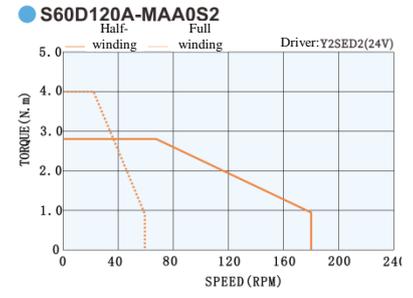
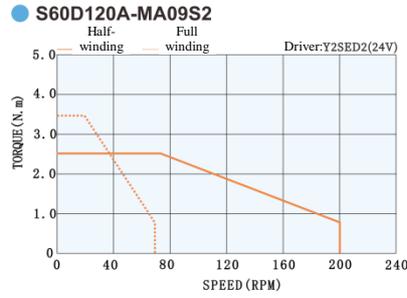
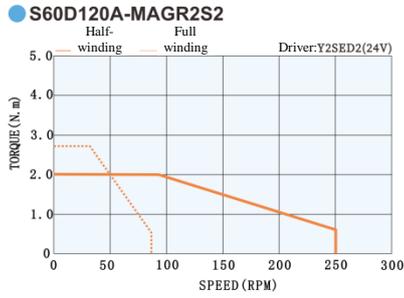
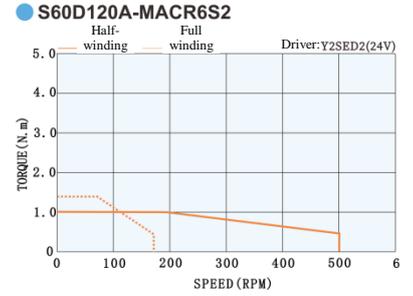
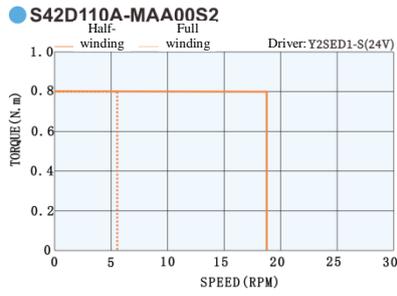
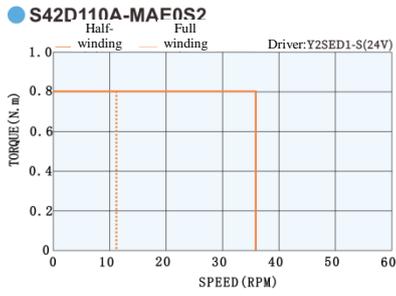


### ● S42D110A-MAA8S2



### ● S42D110A-MAC6S2





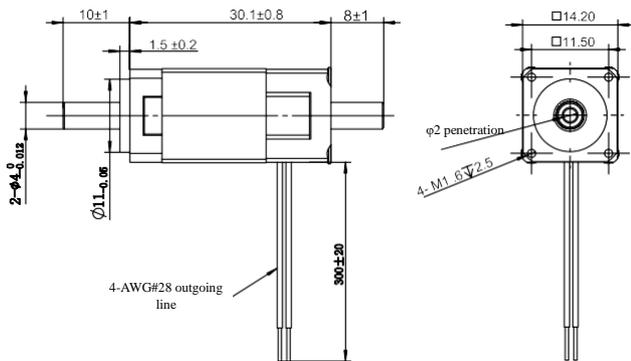
## 14mm



### ■ Specification

Model	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Hollow aperture mm	Thread specification	Body length (L2) mm	Mass kg	Connection diagram
KST-14D16-0001	0.21	22	4.2	5.8	0.8	2	None	30.1	0.2	Figure 1

### ■ Dimension drawing (unit: mm)



### ■ Wiring Diagram

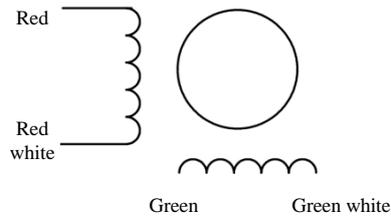


Figure 1

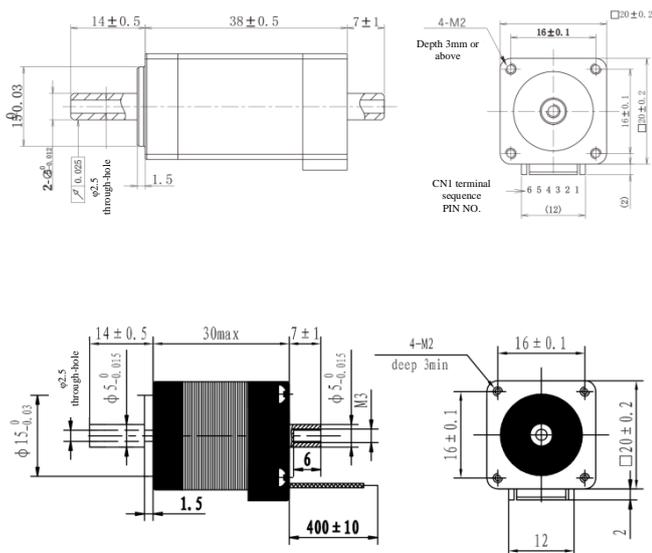
## 20mm



### ■ Specification

Model	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Hollow aperture mm	Thread specification	Body length (L2) mm	Mass kg	Connection diagram
KST-20D25-0002	0.6	9	3	17	3	2.5	None	38	0.08	Figure 1
KST-20D15-0005	0.6	6.5	1.7	18	2	2.5	M3	30	0.06	Figure II

### ■ Dimension drawing (unit: mm)



### ■ Wiring Diagram

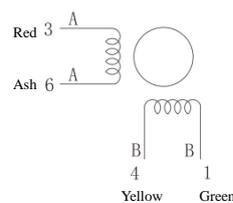


Figure 1

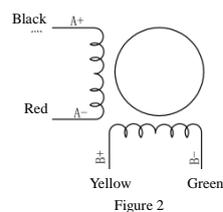


Figure 2

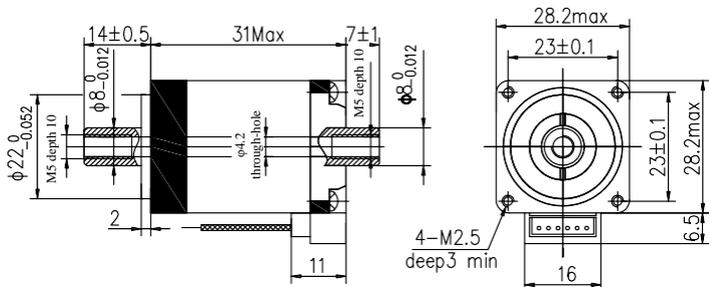
## 28mm



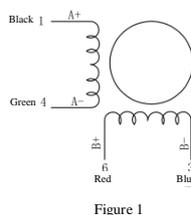
### ■ Specification

Model	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Hollow aperture mm	Thread specification	Body length (L2) mm	Mass kg	Connection diagram
KST-28D18-0004	0.8	4.8	3.9	60	9	4.2	M5	31	0.12	Figure 1
KST-28D37-0004	1.0	3.5	2.7	130	58	4.2	M5	52	0.2	Figure 1

### ■ Dimension drawing (unit: mm)



### ■ Wiring Diagram

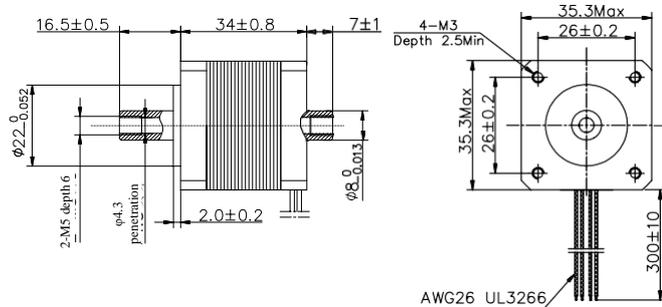


## 35mm

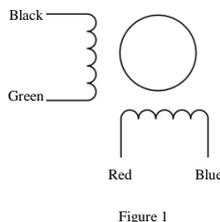
### ■ Specification

Model	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Hollow aperture mm	Thread specification	Body length (L2) mm	Mass kg	Connection diagram
KST-34D17-0001	1.0	4.30	5.5	180	20	4.3	M5	34	0.29	Figure 1

### ■ Dimension drawing (unit: mm)



### ■ Wiring Diagram



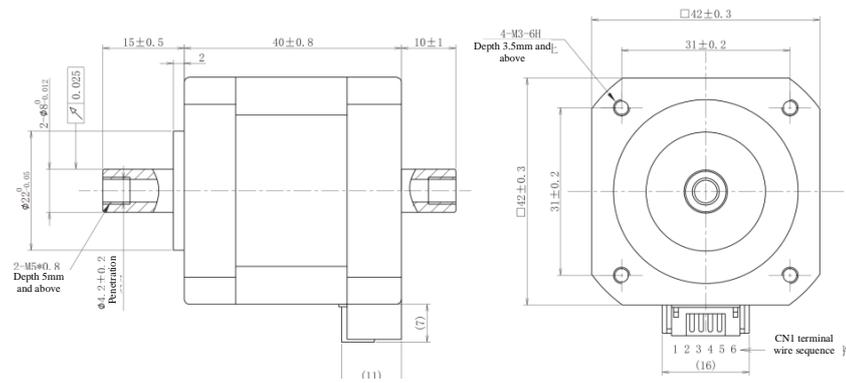
## 42mm



### ■ Specification

Model	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Hollow aperture mm	Thread specification	Body length (L2) mm	Mass kg	Connection diagram
KST-42D22-0004	1.3	3.0	5.3	0.36	58	4.2	M5	40	0.2	Figure 1
KST-42D30-0012	1.3	3.3	4.9	0.45	83	4.2	M5	48	0.2	Figure 1

### ■ Dimension drawing (unit: mm)



### ■ Wiring Diagram

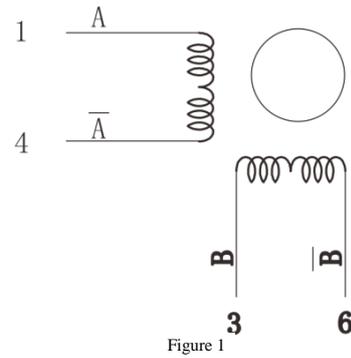


Figure 1

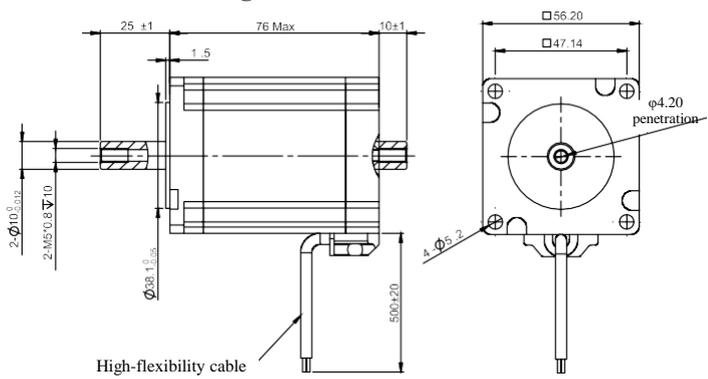


## 57mm

### ■ Specification

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Hollow aperture mm	Thread specification	Body length (L2) mm	Mass kg	Connection diagram
KST-57D23-0003	1.8	3.0	0.6	1.28	0.63	180	4.2	M5	44.4	0.2	Figure 1
KST-57D53-0012	1.8	4.0	0.9	4.3	2	470	4.2	M5	76	0.2	Figure II

### ■ Dimension drawing (unit: mm)



### ■ Wiring Diagram

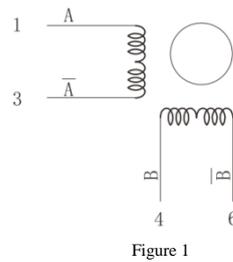


Figure 1

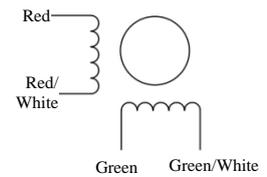
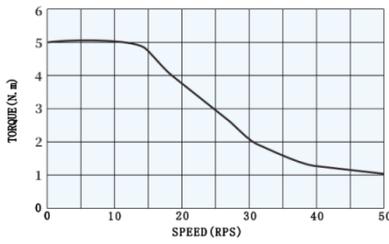


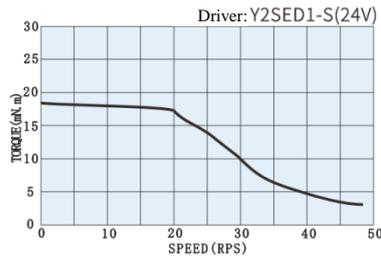
Figure 2

# Torque Curve Chart

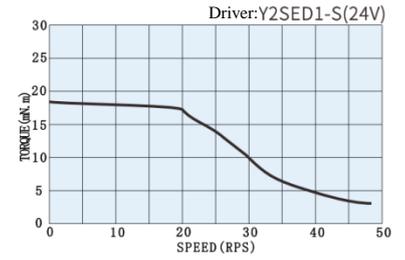
● KST-14D16-0001



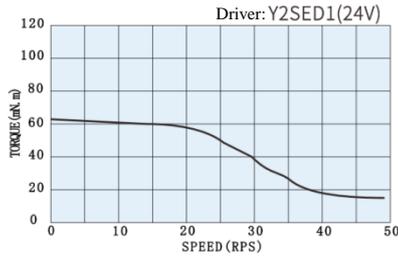
● KST-20D25-0002



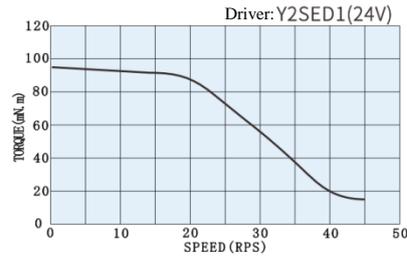
● KST-20D15-0005



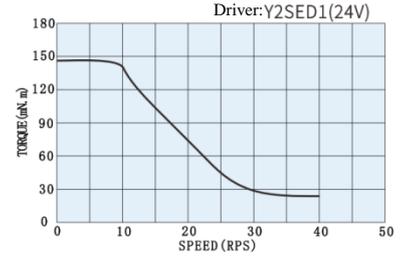
● KST-28D18-0004



● KST-28D37-0004



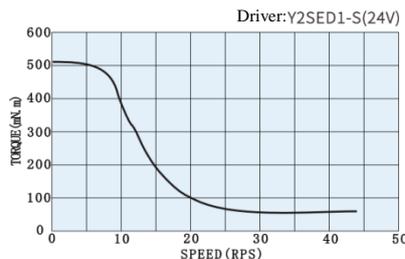
● KST-34D17-0001



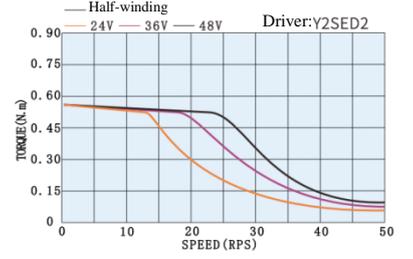
● KST-42D22-0004



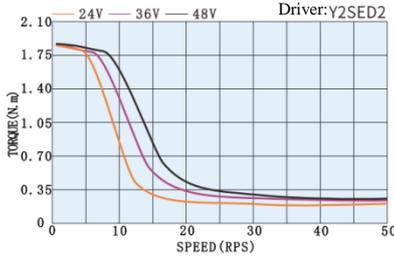
● KST-42D30-0012



● KST-57D23-0003



● KST-57D53-0012



# Stepper driver

**Pulse type stepper driver | I/O type stepper driver  
Analog type stepper driver | Bus type stepper driver  
Multi-axis stepper driver**



# Stepping drive system

## Two-phase Stepper Driver

- Pulse type
- I/O type
- Analog type
- Intelligent type
- Bus type
- Multi-axis series



## Fast Indexing of Stepper Drivers

### ■ Pulse type stepper motor driver

Model	Input voltage	Output current	Control Mode	Adaptive motor	Product dimensions (length*width*height)	Product page number
Y2SD1-mini	15~24VDC	0.4~2.5A (peak)	Pulse signal	20~42mm two-phase stepper motor	45x33x16mm	P22
Y2SD1R5-plus	16~48VDC	0.4~3.0A (peak)	Pulse signal	20~42mm two-phase stepper motor	63x46x28mm	P23
Y2SED1-S	15~48VDC	0.4~3.0A (peak)	Pulse signal	20~42mm two-phase stepper motor	93.5x5 6x21.5mm	P24
Y2SED2	24~48VDC	1.0~4.5A (peak)	Pulse signal	57~60mm Two-phase stepper motor	109x75.5x33mm	P25
Y2SED3	24~75VDC	2.4~7.8A (peak)	Pulse signal	86mm two-phase stepper motor	109x75.5x33mm	P26
Y3SD3	24~75VDC	1.5~7.8A (peak)	Pulse signal	42~86mm three-phase stepper motor	118x75.5x33mm	P27
Y2SA2	80~265VDC	0.4~4.0A (peak)	Pulse signal	57~86mm AC two-phase stepper motor	177x120.5x54mm	P28
Y3SA3	80~265VDC	0.4~8.0A (peak)	Pulse signal	60~130mm AC three-phase stepper motor	177x120.5x54mm	P29

### ■ I/O type stepper motor driver

Model	Input voltage	Output current	Control Mode	Adaptive motor	Product dimensions (length*width*height)	Product page number
Y2SED1-S-F01	15~48VDC	0.4~3.0A (peak)	I/O signal, dial-up speed regulation	20~42mm two-phase stepper motor	93.5x56x21.5mm	P31
Y2SED2-F01	24~48VDC	1.0~4.5A (peak)	I/O signal, dial-up speed regulation	57~60mm Two-phase stepper motor	109x75.5x33mm	P32
Y2SED3-F01	24~75VDC	2.4~7.8A (peak)	I/O signal, dial-up speed regulation	86mm two-phase stepper motor	109x75.5x33mm	P33
Y2SA2-F01	80~265VDC	0.4~4.0A (peak)	I/O signal, dial-up speed regulation	60~130mm AC two-phase stepper motor	177x120.5x54mm	P34

### ■ Analog type stepper motor driver

Model	Input voltage	Output current	Control Mode	Adaptive motor	Product dimensions (length*width*height)	Product page number
Y2SD2H-SA01	24~70VDC/ 18~50VAC	1.0~4.5A (peak)	I/O signal, analog speed regulation	28~86mm stepper motor	108x75.3x33mm	P36

## ■ Intelligent stepper motor driver

Model	Input voltage	Output current	Control Mode	Adaptive motor	Product dimensions (length*width*height)	Product page number
Y2SD2-U	24~70VDC	0.1~7.0A (peak)	Pulse signal, I/O signal	20~86mm two-phase stepper motor	118x75.5x33mm	P38
Y2SD2-S40	24~48VDC	0.1~6.0A (peak)	RS485 bus	20~86mm two-phase stepper motor	118x77x34mm	P42

## ■ Bus type stepper motor driver

Model	Input voltage	Output current	Control Mode	Adaptive motor	Product dimensions (length*width*height)	Product page number
Y2SS3-PN	24~60VDC	0.1~7.0A (peak)	Profinet bus	20~86mm two-phase closed-loop stepper motor	128x77.8x29.6mm	P44
Y2SS3-ECX	24~48VDC	0.1~7.0A (peak)	EtherCAT bus	20~86mm two-phase closed-loop stepper motor	118x75.5x33mm	P45
Y2SS3-CAN	24~70VDC/18~50 VAC	0.1~7.0A (peak)	CANopen bus	20~86mm two-phase closed-loop stepper motor	118x75.5x33mm	P46
Y2SD2-S40C	24~72VDC	0.1~6.5A (peak)	RS485 bus	20~86mm two-phase closed-loop stepper motor	156x97x33.5mm	P47
Y2SD2-S80E	24~48VDC	0.4~6.0A (peak)	EtherCAT bus	20~86mm two-phase closed-loop stepper motor (grating)	134x77x34mm	P48

## ■ Multi-axis stepper motor driver

Model	Input voltage	Output current	Control Mode	Adaptive motor	Product dimensions (length*width*height)	Number of axes	Product page number
Y2SDD2-F01	15~48VDC	0.1~4.5A (peak)	I/O signal	20~86mm two-phase open-loop stepper motor	73x56x21mm	Two axes	P49
Y2SDD2-F	15~48VDC	0.1~4.5A (peak)	I/O signal, dial-up speed regulation	28~60mm two-phase open-loop stepper motor	73x56x21mm	Two axes	P50
Y2SD2-S80E-N2	24~48VDC	0.4~6.5A (peak)	EtherCAT bus	20~86mm two-phase closed-loop stepper motor	156x97x33.5mm	Two axes	P51
Y2SD2-S80E-N4	12~36VDC	0.4~3.0A (peak)	EtherCAT bus	20~57mm two-phase closed-loop stepper motor	144x106x31mm	Four axes	P52

## Mini DC two-phase stepper driver

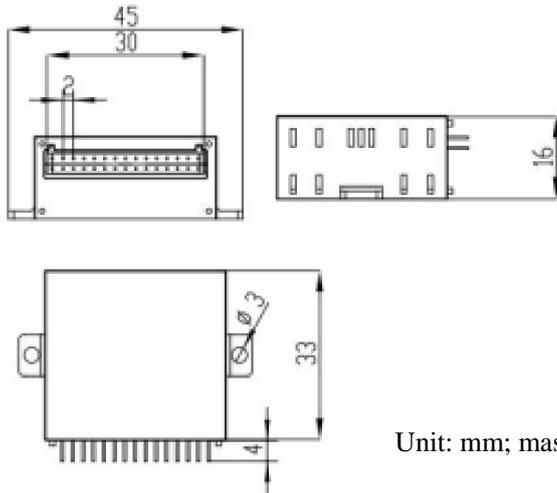


### ■ Specification

#### ● Driver parameters

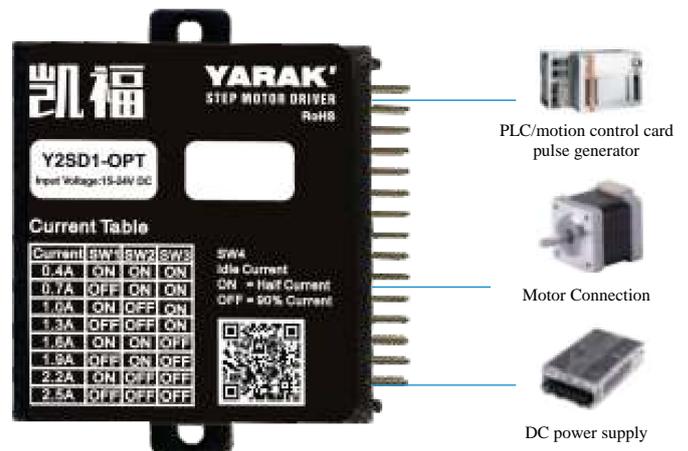
Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SD1-mini	15~24	0.4~2.5	Pulse signal	20~42mm two-phase stepper motor
Y2SD1-OPT	15~24	0.4~2.5	Pulse signal	20~42mm two-phase stepper motor

### ■ Mechanical dimensions (unit: mm)



Unit: mm; mass: 0.12kg

### ■ Wiring Diagram



### ■ Dial switch

#### Operating current

Switch setting			Current (A)
SW1	SW2	SW3	Y2SD1-mini/Y2SD1-OPT
OFF	OFF	OFF	2.5A
ON	OFF	OFF	2.2A
OFF	ON	OFF	1.9A
ON	ON	OFF	1.6A
OFF	OFF	ON	1.3A
ON	OFF	ON	1.0A
OFF	ON	ON	0.7A
ON	ON	ON	0.4A

#### Quiescent current (A)

Switch	Status	Function
SW4	ON	Set to 50% of the operating current
SW4	OFF	Set to 90% of the operating current

#### Subdivision

Switch setting				Y2SD1-mini/Y2SD1-OPT
SW5	SW6	SW7	SW8	Pulse count
OFF	OFF	OFF	OFF	20000
ON	OFF	OFF	OFF	10000
OFF	ON	OFF	OFF	8000
ON	ON	OFF	OFF	6000
OFF	OFF	ON	OFF	5000
ON	OFF	ON	OFF	4000
OFF	ON	ON	OFF	2000
ON	ON	ON	OFF	1000
OFF	OFF	OFF	ON	25600
ON	OFF	OFF	ON	12800
OFF	ON	OFF	ON	6400
ON	ON	OFF	ON	3200
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ON	ON	ON	ON	200

# Y2SD1R5-plus DC input two-phase driver

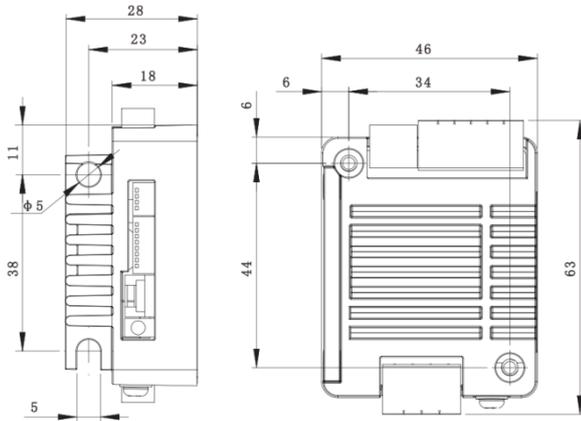


## ■ Specification

### ● Driver parameters

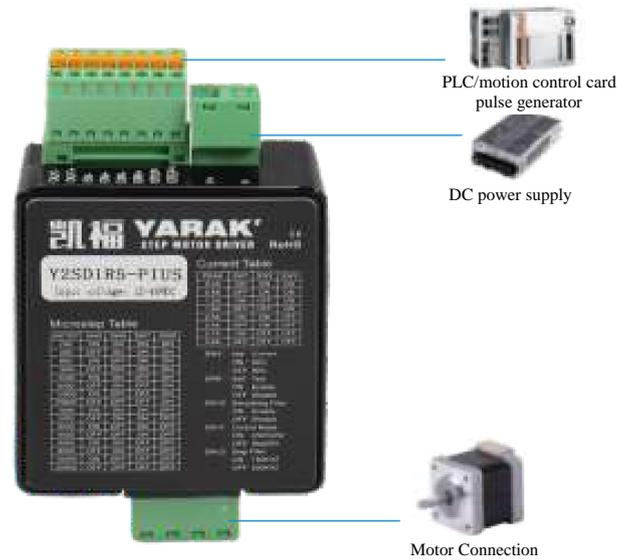
Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SD1R5-plus	16~48	0.4~3.0	Pulse signal	20~42 mm two-phase stepper motor

## ■ Mechanical dimensions (unit: mm)



Unit: mm; mass: 0.1kg

## ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting			Current (A)
SW1	SW2	SW3	Y2SD1R5-plus
OFF	OFF	OFF	3.0
ON	OFF	OFF	2.7
OFF	ON	OFF	2.4
ON	ON	OFF	2.0
OFF	OFF	ON	1.6
ON	OFF	ON	1.2
OFF	ON	ON	0.8
ON	ON	ON	0.4

### Quiescent current (A)

Switch	Status	Function
SW4	ON	Set to 50% of the operating current
	OFF	Set to 90% of the operating current

### Subdivision

Switch setting				Y2SD1R5-plus
SW5	SW6	SW7	SW8	Pulse count
OFF	OFF	OFF	OFF	20000
ON	OFF	OFF	OFF	10000
OFF	ON	OFF	OFF	8000
ON	ON	OFF	OFF	6000
OFF	OFF	ON	OFF	5000
ON	OFF	ON	OFF	4000
OFF	ON	ON	OFF	2000
ON	ON	ON	OFF	1000
OFF	OFF	OFF	ON	25600
ON	OFF	OFF	ON	12800
OFF	ON	OFF	ON	6400
ON	ON	OFF	ON	3200
OFF	OFF	ON	ON	1600
ON	OFF	ON	ON	800
OFF	ON	ON	ON	400
ON	ON	ON	ON	200

# Y2SED1-S DC input two-phase driver



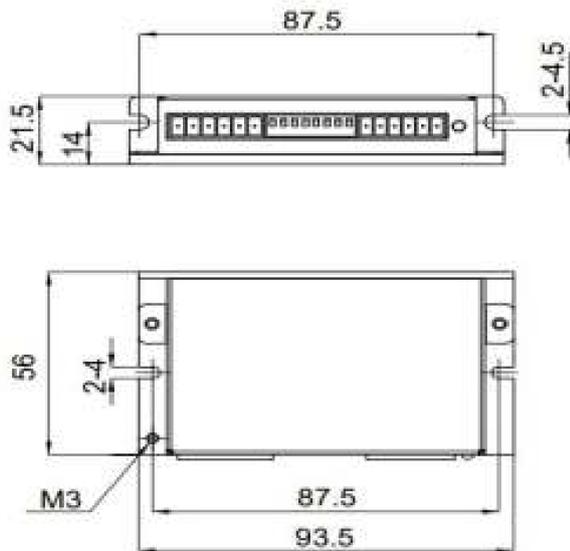
## ■ Specification

### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SED1-S	15-48	0.4-3.0	Pulse signal	20-42 mm two-phase stepper motor

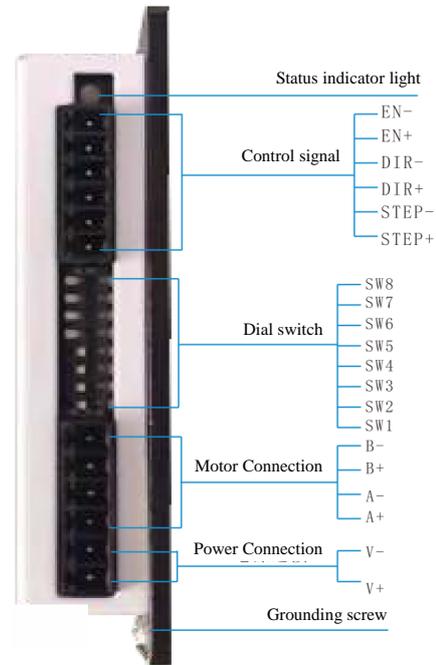
## ■ Mechanical dimensions (unit: mm)

### ● Y2SED1-S



Unit: mm; mass: 0.125kg

## ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting			Current (A)
SW1	SW2	SW3	Y2SED1-S
OFF	OFF	OFF	3.0
ON	OFF	OFF	2.7
OFF	ON	OFF	2.4
ON	ON	OFF	2.0
OFF	OFF	ON	1.6
ON	OFF	ON	1.2
OFF	ON	ON	0.8
ON	ON	ON	0.4

### Quiescent current (A)

Switch	Status	Function
SW4	ON	Set to 50% of the operating current
	OFF	Set to 90% of the operating current

### Subdivision

Switch setting				Y2SED1-S
SW5	SW6	SW7	SW8	Pulse count
OFF	OFF	OFF	OFF	20000
ON	OFF	OFF	OFF	10000
OFF	ON	OFF	OFF	8000
ON	ON	OFF	OFF	6000
OFF	OFF	ON	OFF	5000
ON	OFF	ON	OFF	4000
OFF	ON	ON	OFF	2000
ON	ON	ON	OFF	1000
OFF	OFF	OFF	ON	25600
ON	OFF	OFF	ON	12800
OFF	ON	OFF	ON	6400
ON	ON	OFF	ON	3200
OFF	OFF	ON	ON	1600
ON	OFF	ON	ON	800
OFF	ON	ON	ON	400
ON	ON	ON	ON	200

# Y2SED2 DC input two-phase driver



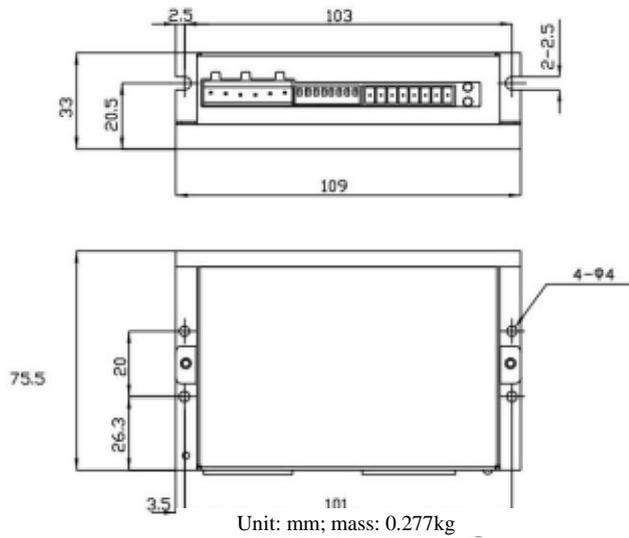
## ■ Specification

### ● Driver parameters

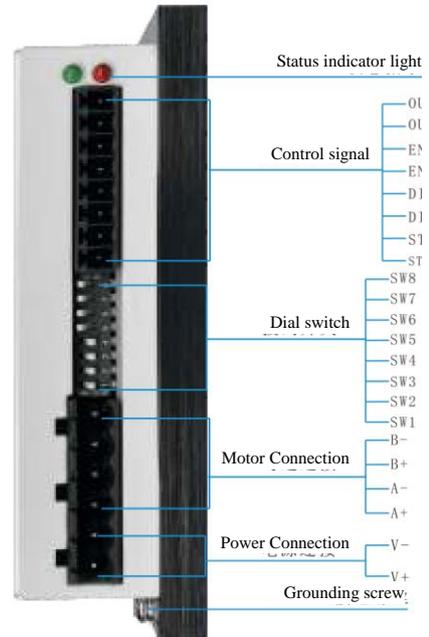
Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SED2	24-48	1.0-4.5	Pulse signal	57-60 mm two-phase stepper motor

## ■ Mechanical dimensions (unit: mm)

### ● Y2SED2



## ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting			Current (A)
SW1	SW2	SW3	Y2SED2
OFF	OFF	OFF	4.5
ON	OFF	OFF	4.0
OFF	ON	OFF	3.5
ON	ON	OFF	3.0
OFF	OFF	ON	2.5
ON	OFF	ON	2.0
OFF	ON	ON	1.5
ON	ON	ON	1.0

### Quiescent current (A)

Switch	Status	Function
SW4	ON	Set to 50% of the operating current
	OFF	Set to 90% of the operating current

### Subdivision

Switch setting				Y2SED2	
SW5	SW6	SW7	SW8	Subdivision number	Pulse count
OFF	OFF	OFF	OFF	100	20000
ON	OFF	OFF	OFF	50	10000
OFF	ON	OFF	OFF	40	8000
ON	ON	OFF	OFF	30	6000
OFF	OFF	ON	OFF	25	5000
ON	OFF	ON	OFF	20	4000
OFF	ON	ON	OFF	10	2000
ON	ON	ON	OFF	5	1000
OFF	OFF	OFF	ON	128	25600
ON	OFF	OFF	ON	64	12800
OFF	ON	OFF	ON	32	6400
ON	ON	OFF	ON	16	3200
OFF	OFF	ON	ON	8	1600
ON	OFF	ON	ON	4	800
OFF	ON	ON	ON	2	400
ON	OFF	ON	ON	1	200

# Y2SED3 DC input two-phase driver

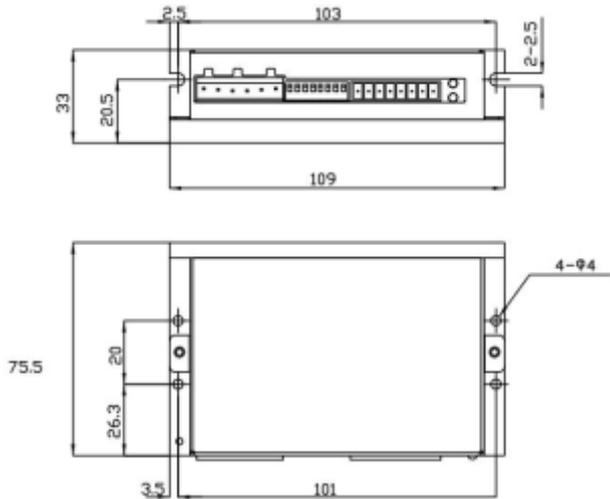


## ■ Specification

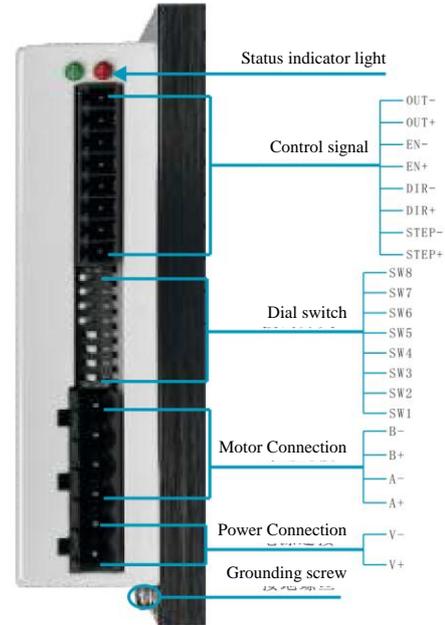
### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SED3	24-75	2.4-7.8	Pulse signal	86mm two-phase stepper motor

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting			Current (A)
SW1	SW2	SW3	Y2SED3
OFF	OFF	OFF	7.8
ON	OFF	OFF	7.0
OFF	ON	OFF	6.4
ON	ON	OFF	5.6
OFF	OFF	ON	4.8
ON	OFF	ON	4.0
OFF	ON	ON	3.2
ON	ON	ON	2.4

### Quiescent current (A)

Switch	Status	Function
SW4	ON	Set to 50% of the operating current
	OFF	Set to 90% of the operating current

### Subdivision

Switch setting				Y2SED3	
SW5	SW6	SW7	SW8	Subdivision number	Pulse count
SW5	SW6	SW7	SW8	Subdivision number	Pulse count
OFF	OFF	OFF	OFF	100	20000
ON	OFF	OFF	OFF	50	10000
OFF	ON	OFF	OFF	40	8000
ON	ON	OFF	OFF	30	6000
OFF	OFF	ON	OFF	25	5000
ON	OFF	ON	OFF	20	4000
OFF	ON	ON	OFF	10	2000
ON	ON	ON	OFF	5	1000
OFF	OFF	OFF	ON	128	25600
ON	OFF	OFF	ON	64	12800
OFF	ON	OFF	ON	32	6400
ON	ON	OFF	ON	16	3200
OFF	OFF	ON	ON	8	1600
ON	OFF	ON	ON	4	800
OFF	ON	ON	ON	2	400
ON	ON	ON	ON	1	200

# Y3SD3 DC input three-phase driver

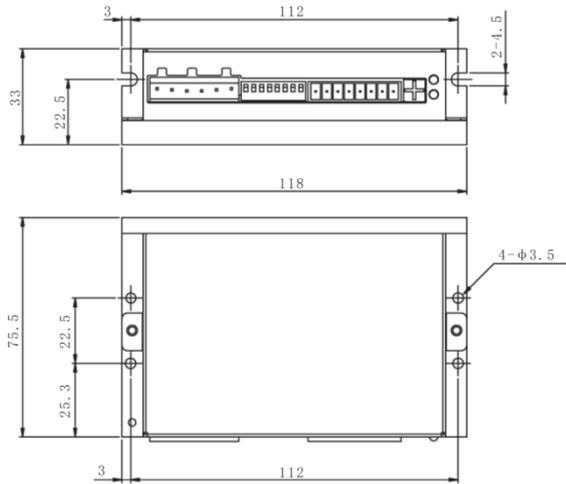


## ■ Specification

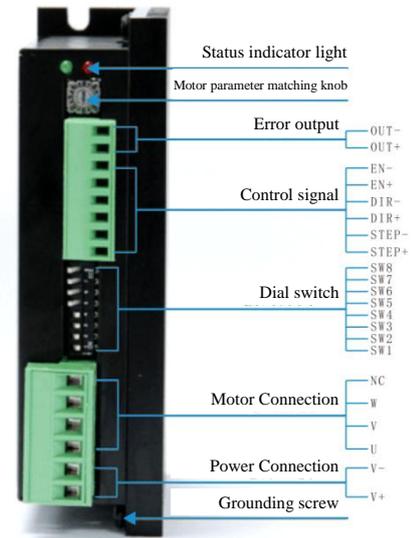
### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y3SD3	24-75	1.5-7.8	Pulse signal	48-86mm three-phase stepper motor

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting			Current (A)
SW1	SW2	SW3	Y3SD3
OFF	OFF	OFF	7.8
ON	OFF	OFF	7.0
OFF	ON	OFF	5.8
ON	ON	OFF	5.2
OFF	OFF	ON	4.0
ON	OFF	ON	3.0
OFF	ON	ON	2.0
ON	ON	ON	1.5

### Quiescent current (A)

Switch	Status	Function
SW4	ON	Set to 50% of the operating current
	OFF	Set to 90% of the operating current

### Subdivision

Switch setting				Y3SD3	
SW5	SW6	SW7	SW8	Subdivision number	Pulse count
OFF	OFF	OFF	OFF	100	20000
ON	OFF	OFF	OFF	50	10000
OFF	ON	OFF	OFF	40	8000
ON	ON	OFF	OFF	30	6000
OFF	OFF	ON	OFF	25	5000
ON	OFF	ON	OFF	20	4000
OFF	ON	ON	OFF	10	2000
ON	ON	ON	OFF	5	1000
OFF	OFF	OFF	ON	128	25600
ON	OFF	OFF	ON	64	12800
OFF	ON	OFF	ON	32	6400
ON	ON	OFF	ON	16	3200
OFF	OFF	ON	ON	8	1600
ON	OFF	ON	ON	4	800
OFF	ON	ON	ON	2	400
ON	OFF	ON	ON	1	200

# Y2SA2 AC input two-phase driver

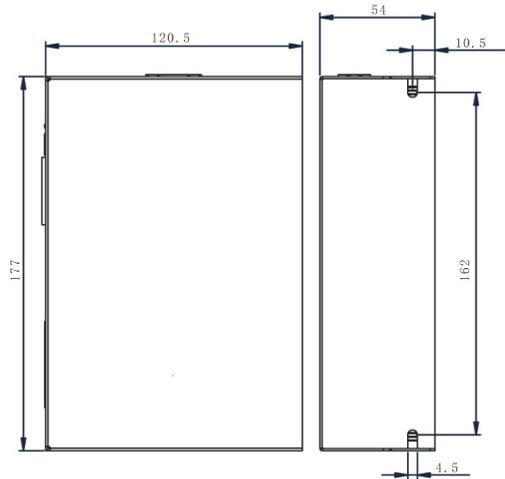


## ■ Specification

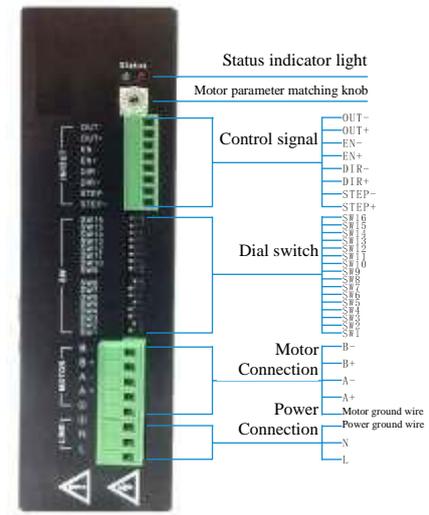
### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SA2	80~265	0.4~4.0	Pulse signal	57~86mm AC two-phase stepper motor

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting				Current (A)
SW5	SW6	SW7	SW8	Y2SA2
OFF	OFF	OFF	OFF	4.0
ON	OFF	OFF	OFF	3.8
OFF	ON	OFF	OFF	3.6
ON	ON	OFF	OFF	3.4
OFF	OFF	ON	OFF	3.2
ON	OFF	ON	OFF	3.0
OFF	ON	ON	OFF	2.8
ON	ON	ON	OFF	2.6
OFF	OFF	OFF	ON	2.4
ON	OFF	OFF	ON	2.2
OFF	ON	OFF	ON	2.0
ON	ON	OFF	ON	1.8
OFF	OFF	ON	ON	1.6
ON	OFF	ON	ON	1.2
OFF	ON	ON	ON	0.8
ON	ON	ON	ON	0.4

### Subdivision

Switch setting				Y2SA2	
SW1	SW2	SW3	SW4	Subdivision number	Pulse count
OFF	OFF	OFF	OFF	125	25000
ON	OFF	OFF	OFF	100	20000
OFF	ON	OFF	OFF	50	10000
ON	ON	OFF	OFF	40	8000
OFF	OFF	ON	OFF	25	5000
ON	OFF	ON	OFF	20	4000
OFF	ON	ON	OFF	10	2000
ON	ON	ON	OFF	5	1000
OFF	OFF	OFF	ON	128	25600
ON	OFF	OFF	ON	64	12800
OFF	ON	OFF	ON	32	6400
ON	ON	OFF	ON	16	3200
OFF	OFF	ON	ON	8	1600
ON	OFF	ON	ON	4	800
OFF	ON	ON	ON	2	400
ON	ON	ON	ON	1	200

# Y3SA3 AC input three-phase driver

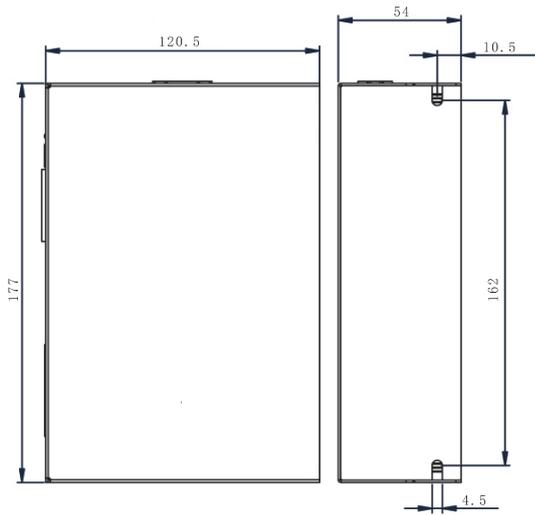


## ■ Specification

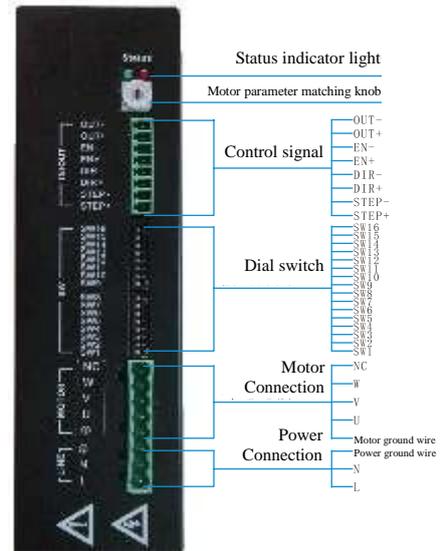
### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y3SA3	80~265	0.4~8.0	Pulse signal	60~130mm AC three-phase stepper motor

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting				Current (A)
SW5	SW6	SW7	SW8	Y3SA3
OFF	OFF	OFF	OFF	8.0
ON	OFF	OFF	OFF	7.3
OFF	ON	OFF	OFF	6.6
ON	ON	OFF	OFF	5.9
OFF	OFF	ON	OFF	5.2
ON	OFF	ON	OFF	4.5
OFF	ON	ON	OFF	4.0
ON	ON	ON	OFF	3.5
OFF	OFF	OFF	ON	3.0
ON	OFF	OFF	ON	2.5
OFF	ON	OFF	ON	2.0
ON	ON	OFF	ON	1.8
OFF	OFF	ON	ON	1.2
ON	OFF	ON	ON	0.9
OFF	ON	ON	ON	0.6
ON	ON	ON	ON	0.4

### Subdivision

Switch setting				Y3SA3
SW1	SW2	SW3	SW4	Pulse count
OFF	OFF	OFF	OFF	25000
ON	OFF	OFF	OFF	20000
OFF	ON	OFF	OFF	10000
ON	ON	OFF	OFF	8000
OFF	OFF	ON	OFF	5000
ON	OFF	ON	OFF	4000
OFF	ON	ON	OFF	2000
ON	ON	ON	OFF	1000
OFF	OFF	OFF	ON	25600
ON	OFF	OFF	ON	12800
OFF	ON	OFF	ON	6400
ON	ON	OFF	ON	3200
OFF	OFF	ON	ON	1600
ON	OFF	ON	ON	800
OFF	ON	ON	ON	400
ON	ON	ON	ON	200

#### Idle current

Display	Switch name	Function							
SW9	Quiescent current (A)	ON	25%	OFF	50%	ON	70%	OFF	90%
SW10		ON	25%	OFF	50%	ON	70%	OFF	90%

#### Rotor load inertia ratio

Display	Switch name	Function							
SW11	Rotor load inertia ratio	ON	1:1	OFF	1:2	ON	1:5	OFF	1:10
SW12		ON	1:1	OFF	1:2	ON	1:5	OFF	1:10

#### ■ Self-test function

Switch	Status	Function
SW16	OFF	Turn off self-test function (factory default)
	ON	The motor will rotate clockwise and then counterclockwise for 2 turns respectively at a speed of 1rps to repeatedly control the operation of the motor.

#### ■ Motor parameter matching

Knob position	Matching motor rotor inertia
1	Below 10kg.cm2
2	Below 13kg.cm2
3	Below 18kg.cm2
4	Below 25kg.cm2
5	Below 35kg.cm2
6	Below 45kg.cm2
7	Above 45kg.cm2
8-0	hold

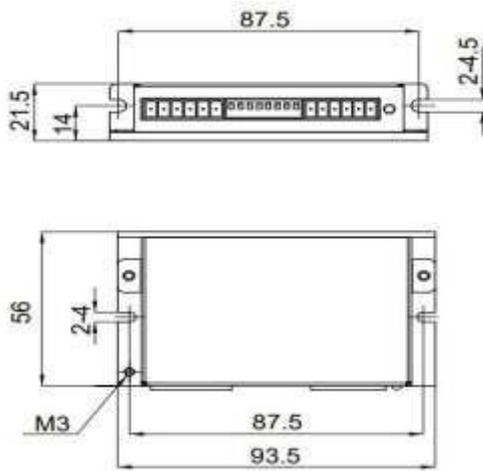
## Y2SED1-S-F01

### ■ Specification

#### ● Driver parameters

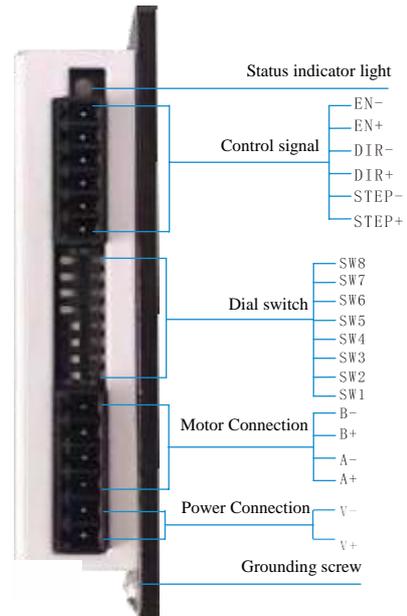
Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SED1-S-F01	15~48	0.4~3.0	I/O signal, dial-up speed regulation	20~42mm two-phase stepper motor

### ■ Mechanical dimensions (unit: mm)



Unit: mm; mass: 0.125kg

### ■ Wiring Diagram



### ■ Dial switch

#### Operating current

Switch setting			Current (A)
SW1	SW2	SW3	Y2SED1-S-F01
OFF	OFF	OFF	30
ON	OFF	OFF	27
OFF	ON	OFF	24
ON	ON	OFF	20
OFF	OFF	ON	1.6
ON	OFF	ON	1.2
OFF	ON	ON	0.8
ON	OFF	ON	0.4

#### Subdivision

Switch setting				Y2SED1-S-F01
SW5	SW6	SW7	SW8	Speed (rps)
OFF	OFF	OFF	OFF	0.5
ON	OFF	OFF	OFF	1.0
OFF	ON	OFF	OFF	1.5
ON	ON	OFF	OFF	2.0
OFF	OFF	ON	OFF	2.5
ON	OFF	ON	OFF	3.0
OFF	ON	ON	OFF	3.5
ON	ON	ON	OFF	4.0
OFF	OFF	OFF	ON	4.5
ON	OFF	OFF	ON	5.0
OFF	ON	OFF	ON	5.5
ON	ON	OFF	ON	6.0
OFF	OFF	ON	ON	7.0
ON	OFF	ON	ON	8.0
OFF	ON	ON	ON	9.0
ON	ON	ON	ON	10

# Y2SED2-F01 DC input two-phase driver (integrating drive and control)

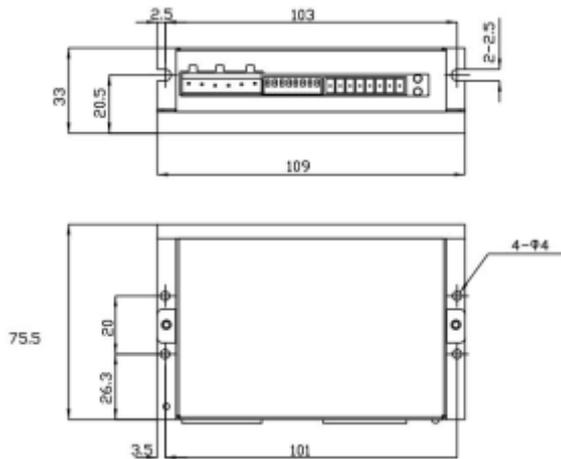


## ■ Specification

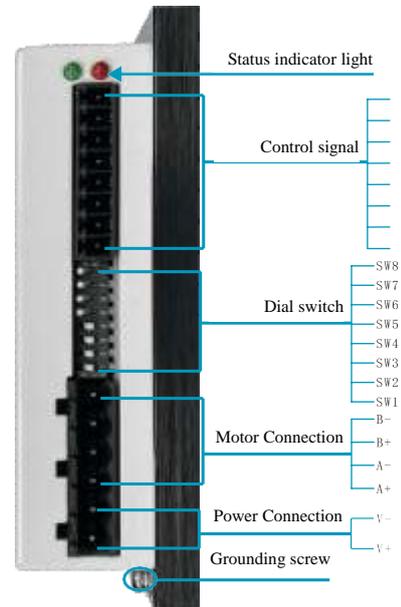
### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SED2-F01	24~48	1.0~4.5	I/O signal, dial-up speed regulation	57~60mm two-phase stepper motor

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting			Current (A)
SW1	SW2	SW3	Y2SED2-F01
OFF	OFF	OFF	7.8
ON	OFF	OFF	7.0
OFF	ON	OFF	6.4
ON	ON	OFF	5.6
OFF	OFF	ON	4.8
ON	OFF	ON	4.0
OFF	ON	ON	3.2
ON	ON	ON	2.4

### Quiescent current (A)

Switch	Status	Function
SW4	ON	Set to 50% of the operating current
	OFF	Set to 90% of the operating current

### Subdivision

Switch setting				Speed (RPS)
SW1	SW2	SW3	SW4	Y2SED1-S-F01
OFF	OFF	ON	OFF	0.5
ON	OFF	ON	OFF	1.0
OFF	ON	OFF	OFF	1.5
ON	ON	OFF	OFF	2.0
OFF	OFF	ON	OFF	2.5
ON	OFF	ON	OFF	3.0
OFF	ON	ON	OFF	3.5
ON	ON	ON	OFF	4.0
OFF	OFF	OFF	ON	4.5
ON	OFF	OFF	ON	5.0
OFF	ON	OFF	ON	5.5
ON	ON	OFF	ON	6.0
OFF	OFF	ON	ON	7.0
ON	OFF	ON	ON	8.0
OFF	ON	ON	ON	9.0
ON	ON	ON	ON	10.0

# Y2SED3-F01

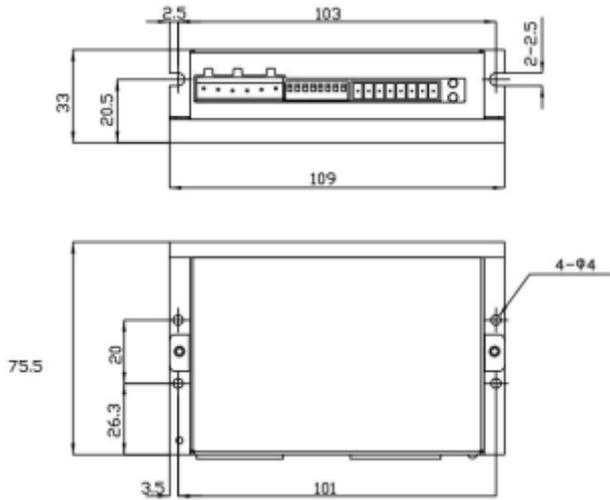


## ■ Specification

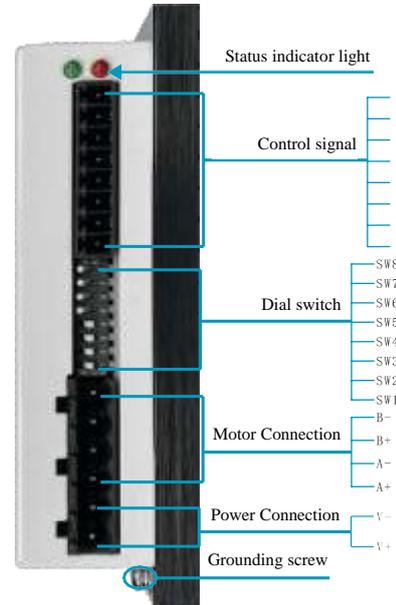
### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SED3-F01	24~75	2.4~7.8	I/O signal, dial-up speed regulation	86mm two-phase stepper motor

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting			Current (A)
SW1	SW2	SW3	Y2SED3-F01
OFF	OFF	OFF	7.8
ON	OFF	OFF	7.0
OFF	ON	OFF	6.4
ON	ON	OFF	5.6
OFF	OFF	ON	4.8
ON	OFF	ON	4.0
OFF	ON	ON	3.2
ON	ON	ON	2.4

### Quiescent current (A)

Switch	Status	Function
SW4	ON	Set to 50% of the operating current
	OFF	Set to 90% of the operating current

### Subdivision

Switch setting				Y2SED3-F01
SW5	SW6	SW7	SW8	Speed (rps)
OFF	OFF	OFF	OFF	0.5
ON	OFF	OFF	OFF	1.0
OFF	ON	OFF	OFF	1.5
ON	ON	OFF	OFF	2.0
OFF	OFF	ON	OFF	2.5
ON	OFF	ON	OFF	3.0
OFF	ON	ON	OFF	3.5
ON	ON	ON	OFF	4.0
OFF	OFF	OFF	ON	4.5
ON	OFF	OFF	ON	5.0
OFF	ON	OFF	ON	5.5
ON	ON	OFF	ON	6.0
OFF	OFF	ON	ON	7.0
ON	OFF	ON	ON	8.0
OFF	ON	ON	ON	9.0
ON	ON	ON	ON	10

# Y2SA2-F01 DC input two-phase driver (integrating drive and control)

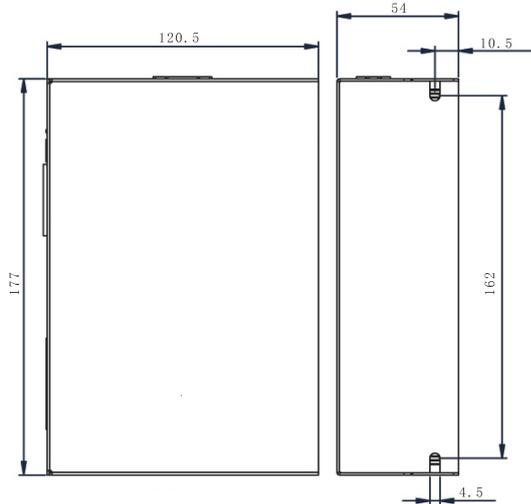


## ■ Specification

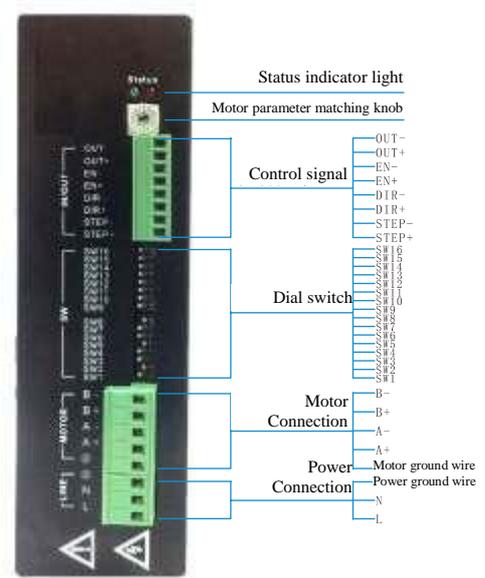
### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SA2-F01	80~265	0.4~4.0	I/O signal, dial-up speed regulation	60~130mm two-phase stepper motor

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting				Current (A)
SW5	SW6	SW7	SW8	Y2SA2-F01
OFF	OFF	OFF	OFF	4.0
ON	OFF	OFF	OFF	3.8
OFF	ON	OFF	OFF	3.6
ON	ON	OFF	OFF	3.4
OFF	OFF	ON	OFF	3.2
ON	OFF	ON	OFF	3.0
OFF	ON	ON	OFF	2.8
ON	ON	ON	OFF	2.6
OFF	OFF	OFF	ON	2.4
ON	OFF	OFF	ON	2.2
OFF	ON	OFF	ON	2.0
ON	ON	OFF	ON	1.8
OFF	OFF	ON	ON	1.6
ON	OFF	ON	ON	1.2
OFF	ON	ON	ON	0.8
ON	ON	ON	ON	0.4

### Subdivision

Switch setting				Y2SA2-F01
SW1	SW2	SW3	SW4	Speed
OFF	OFF	OFF	OFF	0.5
ON	OFF	OFF	OFF	1.0
OFF	ON	OFF	OFF	1.5
ON	ON	OFF	OFF	2.0
OFF	OFF	ON	OFF	2.5
ON	OFF	ON	OFF	3.0
OFF	ON	ON	OFF	3.5
ON	ON	ON	OFF	4.0
OFF	OFF	OFF	ON	4.5
ON	OFF	OFF	ON	5.0
OFF	ON	OFF	ON	5.5
ON	ON	OFF	ON	6.0
OFF	OFF	ON	ON	7.0
ON	OFF	ON	ON	8.0
OFF	ON	ON	ON	9.0
ON	ON	ON	ON	10.0

#### Idle current

Display	Switch name	Function							
SW9	Quiescent current (A)	ON	25%	OFF	50%	ON	70%	OFF	90%
SW10		ON	25%	OFF	50%	ON	70%	OFF	90%

#### Rotor load inertia ratio

Display	Switch name	Function							
SW11	Rotor load inertia ratio	ON	1:1	OFF	1:2	ON	1:5	OFF	1:10
SW12		ON	1:1	OFF	1:2	ON	1:5	OFF	1:10

#### ■ Self-test function

Switch	Status	Function
SW16	OFF	Turn off self-test function (factory default)
SW16	ON	The motor will rotate clockwise and then counterclockwise for 2 turns respectively at a speed of 1rps to repeatedly control the operation of the motor.

#### ■ Motor parameter matching

Knob position	Matching motor rotor inertia
0/8	Below 1500g.cm2 (motor current<2A)
1/9	Below 1500g.cm2 (motor current>2A)
2/A	Below 2000g.cm2 (motor current<2A)
3/B	Below 2000g.cm2 (motor current>2A)
4/C	Below 2000g.cm2 (motor current>2A)
5/D	Below 2000g.cm2 (motor current>2A)
6-F	hold

**Y2SD2H-SA01 DC input two-phase driver (integrating drive and control)**

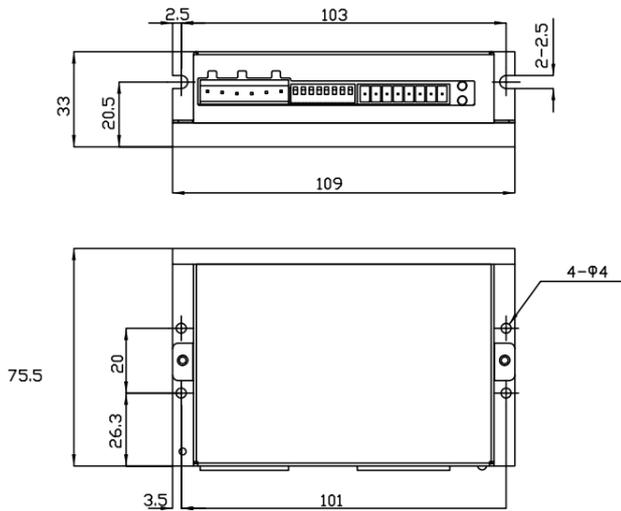


■ **Specification**

● **Driver parameters**

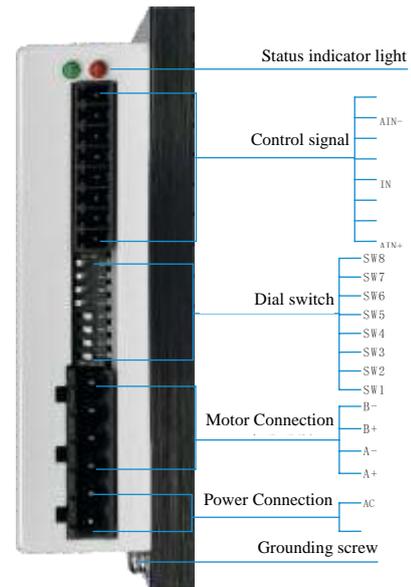
Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SD2H-SA01	DC 24~70VDC/AC 18~50VAC	1.0~4.5	I/O control, analog speed regulation	28~86mm two-phase stepper motor

■ **Mechanical dimensions (unit: mm)**



Unit: mm; mass: 0.30kg

■ **Wiring Diagram**



■ **Dial switch**

Operating current

Switch setting			Current (A)
SW1	SW2	SW3	Y2SD2H-SA01
ON	ON	ON	1.0
OFF	ON	ON	1.5
ON	OFF	ON	2.0
OFF	OFF	ON	2.5
ON	ON	OFF	3.0
OFF	ON	OFF	3.5
ON	OFF	OFF	4.0
OFF	OFF	OFF	4.5

Subdivision

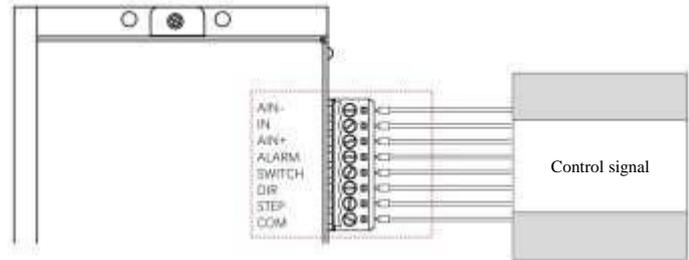
Switch setting			Speed
SW4	SW5	SW6	Y2SD2H-SA01
ON	ON	ON	15
OFF	ON	ON	30
ON	OFF	ON	45
OFF	OFF	ON	60
ON	ON	OFF	75
OFF	ON	OFF	90
ON	OFF	OFF	105
OFF	OFF	OFF	120

### Maximum speed setting in analog mode

RPM	SW	SW8
300	ON	ON
600	OFF	ON
900	ON	OFF
1500	OFF	OFF

### ■ Control signal connection

Pin	Definition
AIN-	Analog GND
IN	Analog input
AIN +	Analog 10V output
ALARM	Alarm output
SWITCH	Mode switching signal
DIR	Direction signal
STEP	Starting signal
COM	IO common terminal



### Operating current

IO signal	Definition	When disconnected	When connected
SWITCH	Mode switching signal	Analog speed regulating mode	Constant-speed mode
DIR	Direction signal	Forward	Reverse
STEP	Starting signal	Stop	Start

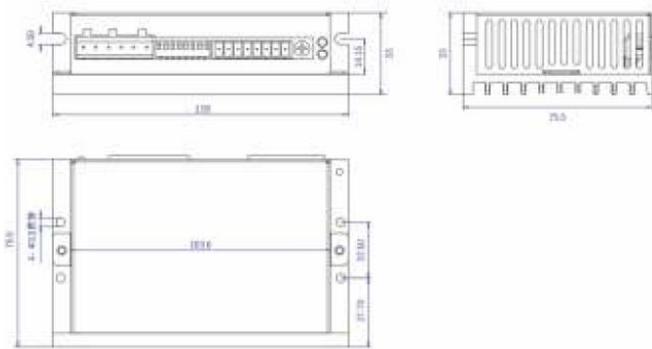
### ■ Alarm code

LED indicator light	Meaning	Resolution
Green light normally on	Motor not enabled	/
Green light flashing	Motor enabled normally	/
4 red lights and 1 green light	Excessively high bus voltage	1. Check whether the supply voltage of the driver is too high 2. In case of overvoltage during movement, the motor deceleration time can be increased
4 red LED lights and 2 green LED lights	Excessively low bus voltage	Check whether the supply voltage of the driver is too low;
5 red lights +1 green light	Motor overcurrent	1. Check whether the motor has been damaged 2. Check whether the set current of the driver is too high
6 red lights +1 green light	Motor open circuit	1. Check whether the motor wiring is correct 2. Check whether the motor has been damaged
3 red lights +2 green lights	Internal voltage error	Check whether the power of the switching power supply is sufficient

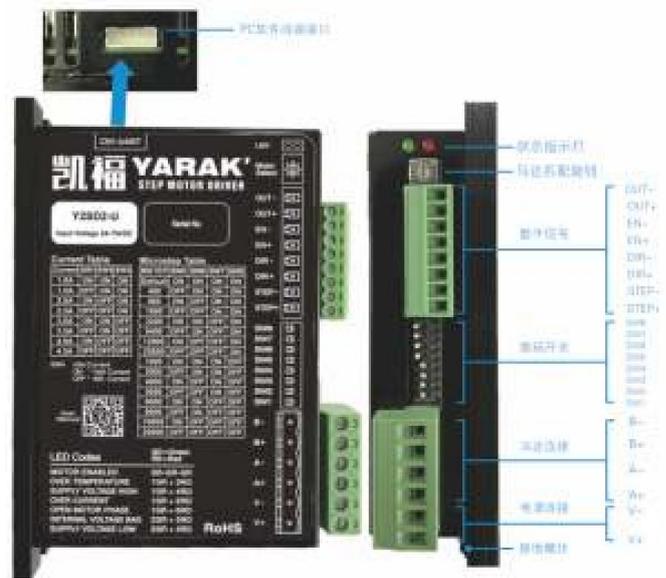
Y2SD2-U



■ Mechanical dimensions (unit: mm)



■ Wiring Diagram



■ Specification

Installation Dimensions	118x75.5x33mm	
Input power	24~70VDC(±15%)	
Current output	0.1-7A (peak)	
Adaptive motor	20~86mm, two-phase stepper motor	
Control mode	Pulse + direction (default), dual pulse, single-segment speed and two-segment speed modes, which are switched through software	
Communication interface	TTL serial port	
Digital signal	Input signal	Pulse, direction, enable signal: differential; opto-isolator; The common terminal supports 5~24VDC; maximum frequency 500Khz
	Output signal	Alarm output: open collector output; Opto-isolator; maximum output 100mA@30V
Current tap position	Dial setting	1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5A
	Software setting	0.1~7.0A
Subdivided tap positions (pulse mode)	Dial setting	400, 800, 1600, 3200, 6400, 12800, 25600, 1000, 2000, 4000, 5000, 6000, 8000, 10000, 20000
	Software setting	Any even number between 200 and 51200
Speed tap positions (speed mode)	Dial setting	0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 7.0, 8.0, 9.0, 10.0 rps
	Software setting	0.01-50.0 rps

## ■ Dial switch

### Subdivision

Subdivision***	Switch setting				Dial diagram
	SW5	SW6	SW7	SW8	Y2SD2-U
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	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	
2500	OFF	OFF	OFF	OFF	

### Speed

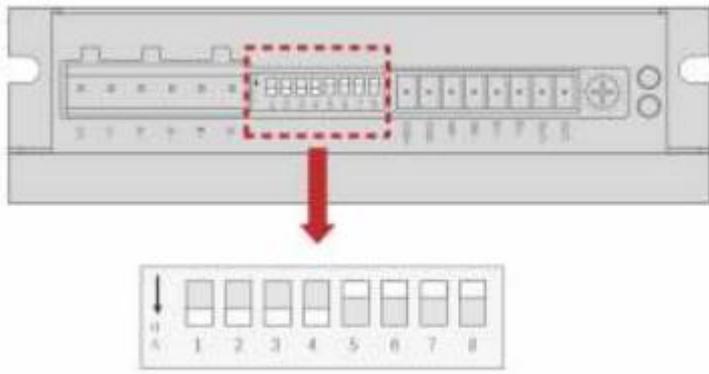
Speed***	Switch setting				Dial diagram
	SW5	SW6	SW7	SW8	Y2SD2-U
10.0	ON	ON	ON	ON	
9.0	OFF	ON	ON	ON	
8.0	ON	OFF	ON	ON	
7.0	OFF	OFF	ON	ON	
6.0	ON	ON	OFF	ON	
5.5	OFF	ON	OFF	ON	
5.0	ON	OFF	OFF	ON	
4.5	OFF	OFF	OFF	ON	
4.0	ON	ON	ON	OFF	
3.5	OFF	ON	ON	OFF	
3.0	ON	OFF	ON	OFF	
2.5	OFF	OFF	ON	OFF	
2.0	ON	ON	OFF	OFF	
1.5	OFF	ON	OFF	OFF	
1.0	ON	OFF	OFF	OFF	
0.5	OFF	OFF	OFF	OFF	

### Operating current

Switch setting			Current (A)	Dial diagram
SW1	SW2	SW3	Y2SD2-U	
ON	ON	ON	1.0A (default)	
OFF	ON	ON	1.5A	
ON	OFF	ON	2.0A	
OFF	OFF	ON	2.5A	
ON	ON	OFF	3.0A	
OFF	ON	OFF	3.5A	
ON	OFF	OFF	4.0A	
OFF	OFF	OFF	4.5A	

## ■ Idle current setting

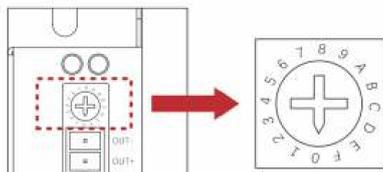
Switch setting	SW4	Dial diagram
50% (default)	ON	
90%	OFF	



Dial switch	Pulse+direction mode	Dual pulse mode	Single-segment speed mode	Two-segment speed mode
SW1	Operating Current Setting	Operating Current Setting	Operating Current Setting	Operating Current Setting
SW2	Operating Current Setting	Operating Current Setting	Operating Current Setting	Operating Current Setting
SW3	Operating Current Setting	Operating Current Setting	Operating Current Setting	Operating Current Setting
SW4	Idle Current Setting	Idle Current Setting	Idle Current Setting	Idle Current Setting
SW5	Subdivision setting	Subdivision setting	Speed setting	Speed setting
SW6	Subdivision setting	Subdivision setting	Speed setting	Speed setting
SW7	Subdivision setting	Subdivision setting	Speed setting	Speed setting
SW8	Subdivision setting	Subdivision setting	Speed setting	Speed setting

### ■ Dial switch

The Y2SD2-U driver selects the appropriate motor specifications through the knob to be used with the internal current control algorithm of the driver, in order to achieve optimal performance during operation of the motor. Users can set the knob to the corresponding tap position according to the rated current of the motor or the size of the motor flange.



Knob setting		Motor current specification	Suitable motor dimensions
0 or 8		1.0 A	Flange 20mm and below
1 or 9		1.0 A	Flange 28mm and below
2 or A		1.5A	Flange 35mm and below
3 or B		2.0 A	Flange 42mm and below
4 or C		2.5 A	Flange 42mm and below
5 or D		3.0 A	Flange 57mm and below
6 or E		4.0 A	Flange 57mm and below
7 or F		4.5A and above	Flange above 57mm

### ■ Control mode and description

Y2SD2-U has four control modes: pulse + direction, double pulse, single-segment speed, and two-segment speed modes, which can be switched by connecting to the Kaifull PC software.

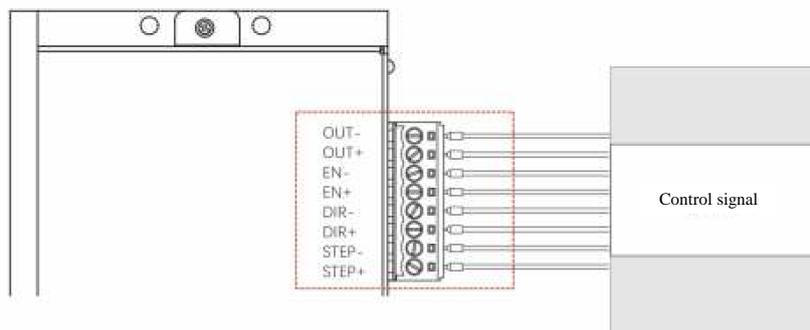
The functions of the driver dial switches and control signals vary in different control modes.

Installation Dimensions	Description
Single Pulse Mode	Position control mode; the pulse type is pulse+direction
Dual pulse mode	Position control mode; the pulse type is CW/CCW pulse
Single-speed mode	Speed mode: in this mode, a segment of operating speed can be set for the motor. The STEP interface of the driver is used for startup, the DIR interface is used for switching the operating direction, and the EN interface is used for motor enable control.
Two-segment speed mode	Speed mode: in this mode, two segments of operating speed can be set for the motor. The STEP interface of the driver is used for startup, the DIR interface is used for switching the operating direction, and the EN interface is used for switching to the second operating speed.

## ■ Control signal connection

Y2SD2-U has 3 circuits of input and 1 circuit of alarm output signal.

Applicable wires: AWG24 (0.2mm<sup>2</sup>) and above wires



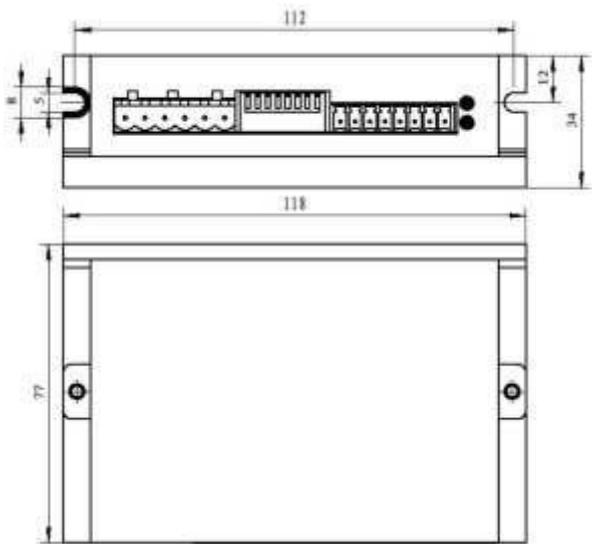
Y2SD2-U has different functions corresponding to control signals in different control modes.

Port	Pulse+direction mode	Dual pulse mode	Single-segment speed mode	Two-segment speed mode
EN	Enable control	Enable control	Enable control	Speed switching
DIR	Direction signal	CCW signal	Direction signal	Direction signal
STEP	Pulse signal	CW signal	Automatic/Stop	Start/Stop
OUT	Alarm output	Alarm output	Alarm output	Alarm output

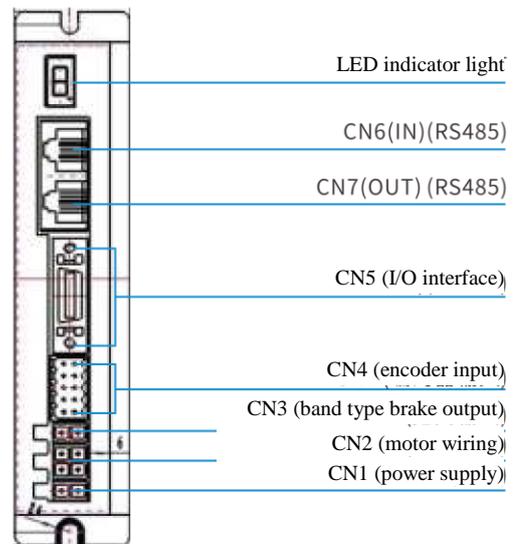
# Y2SD2-S40



## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Specification

Installation Dimensions	118×78×34 mm	
Adaptive motor	20~80mm two-phase stepper motor	
Power supply	24-48VDC	
Current output	0.1~6.0A (peak)	
Output current	Y2SD2-S40:0.1A-6.5AV phase	
Drive mode	Full bridge bipolar PWM drive	
Input signal	Pulse signal	Optocoupler input voltage H=3.5-26V, L=0-0.8V, conduction current 6-15mA
	Offline signal	
	Direction signal	
Output signal	Output signal	Alarm output: open collector output; Opto-isolator; maximum output 100mA@30V
Input signal	Scenario	Avoid dust, oil mist, and corrosive gases
	Humidity	<85% RH, without condensation
	Temperature	0°C~+70°C
	Heat dissipation	Install in a well-ventilated environment
Mass	0.3kg	

### 2.3 RS485 IN/RS485 OUT (side)

Pin.	Signal name	Pin.	Signal name
1	NC	2	GND
3	A Input (RS485)	4	NC
5	NC	6	B Input (RS485)
7	Terminal resistance (OUT)	8	Terminal resistance (OUT)

Set switch



(B)

(1)

### ■ Communication address

Dial switch		Address
SW6	SW7	Y2SD2-S40
ON	ON	4800
ON	OFF	9600
OFF	ON	19200
OFF	OFF	38400

### ■ Communication address

Dial switch					Address
SW1	SW2	SW3	SW4	SW4	Y2SD2-S40
ON	ON	ON	ON	ON	1
ON	ON	ON	ON	OFF	2
ON	ON	ON	OFF	ON	3
ON	ON	ON	OFF	OFF	4
ON	ON	OFF	ON	ON	5
ON	ON	OFF	ON	OFF	6
ON	ON	OFF	OFF	ON	7
ON	ON	ON	OFF	OFF	8
ON	OFF	ON	ON	ON	9
ON	OFF	ON	ON	OFF	10
ON	OFF	ON	OFF	ON	11
ON	OFF	ON	OFF	OFF	12
ON	OFF	OFF	ON	ON	13
ON	OFF	OFF	OFF	ON	14
ON	OFF	OFF	OFF	OFF	15
ON	OFF	OFF	OFF	OFF	16
OFF	ON	ON	ON	ON	17
OFF	ON	ON	ON	OFF	18
OFF	ON	ON	OFF	ON	19
OFF	ON	ON	OFF	OFF	20
OFF	ON	OFF	ON	ON	21
OFF	ON	OFF	ON	OFF	22
OFF	ON	OFF	OFF	ON	23
OFF	ON	OFF	OFF	OFF	24
OFF	OFF	ON	ON	ON	25
OFF	OFF	ON	ON	OFF	26
OFF	OFF	ON	OFF	ON	27
OFF	OFF	ON	OFF	OFF	28
OFF	OFF	OFF	ON	ON	29
OFF	OFF	OFF	ON	OFF	30
OFF	OFF	OFF	OFF	ON	31
OFF	OFF	OFF	OFF	OFF	Customize

Y2SS3-PN bus type stepper motor driver Profinet bus

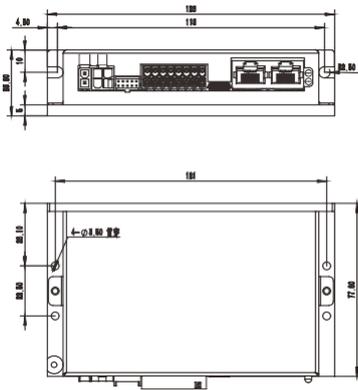


■ Specification

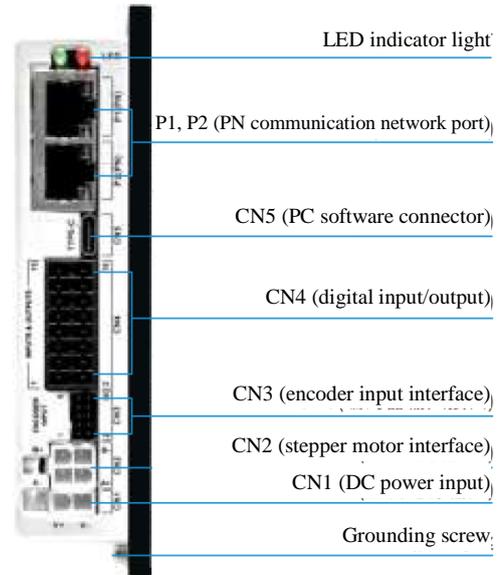
● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SS3-PN	24-60	0.1-7.0	Profinet bus	28-86mm two-phase closed-loop stepper motor

■ Mechanical dimensions (unit: mm)



■ Wiring Diagram



■ Specification

Installation Dimensions	128×77.8×29.6 mm	
Adaptive motor	20~80mm two-phase stepper motor	
Open loop/closed-loop control	Compatible with open-loop or closed-loop control	
Encoder interface	Support up to 5000-line incremental encoders (20000 pulses/revolution)	
Control mode	profinet bus communication control (message 1, 3, 111)	
Communication interface	USB-C	Connect to PC for parameter settings, status monitoring, etc.
	RJ45 network port	PROFINET communication interface
Control signal	Digital input signal	Differential: 3; single-ended: 2; opto-isolator; the common terminal supports 5-24VDC
	Digital output signal	3 open collector outputs; opto-isolator; maximum output 100mA@30V 1 brake output, maximum output 100mA@30V
Recommended service environment	Temperature	0-+55°C
	Humidity	Below 0-90% RH
	Altitude	1000 m below
	environment	No corrosive gas and no dust; the product shall not come in contact with water or oil
Dielectric strength	AC1.5KV between ground wires, capable of withstanding voltage for 1 minute	

# Y2SS3-ECX bus type stepper motor driver EtherCAT bus

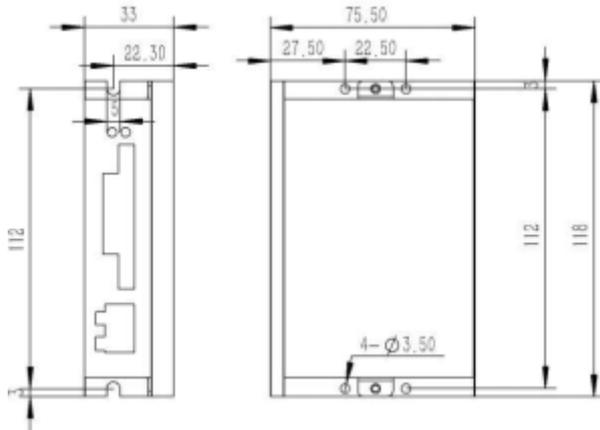


## ■ Specification

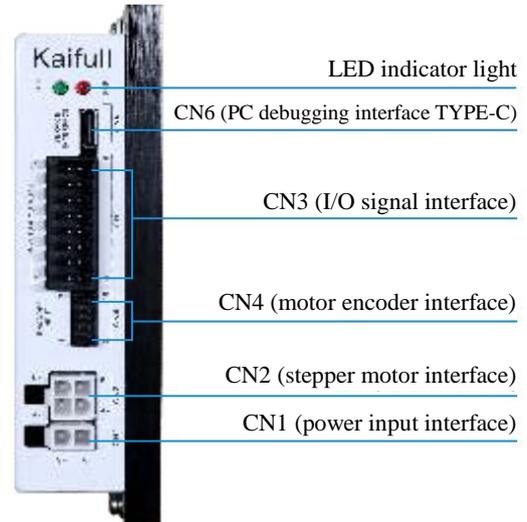
### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SS3-ECX	24~48	0.1~7.0	EtherCAT protocol	28~86mm two-phase closed-loop stepper motor

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



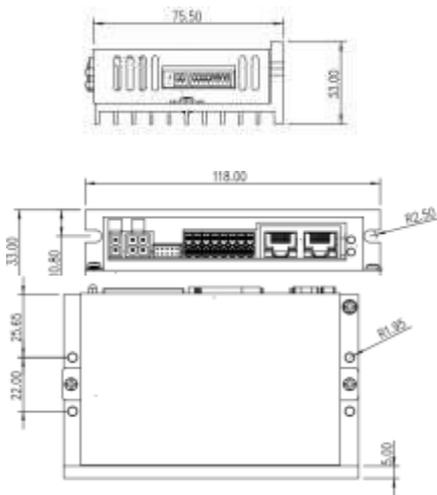
## ■ Specification

Input power voltage	24~48VDC
Output current	0.1~7A (peak)
Matching motor	20~86mm two-phase closed-loop stepper motor
Digital input signal	Optoelectronic isolation, differential, 5-24VDC high-level logic origin signal, positive limit, negative limit, emergency stop, probe
Digital output signal	Optoelectronic isolation, open collector, maximum 24V/100mA, band type brake output, alarm output, in-place output
Encoder input signal	5V differential, incremental encoder phase A/B/Z signal
Communication interface	EtherCAT (RJ45 connector) and Type-C (used for configuring parameters)
Supported protocol	CoE (CiA 402 protocol)
Operation mode	Profibus Position, Profibus Velocity, Cyclic Synchronous Position, Cyclic Synchronous Velocity, Homing mode
Supported protocol	Overvoltage protection, undervoltage protection, overtemperature protection, overcurrent protection, motor line open circuit detection, motor overload detection, etc.
Status indication	1 red light and 1 green light
Mass	0.293kg

# Y2SS3-CAN bus type stepper driver CANopen bus



## Mechanical dimensions (unit: mm)



## Wiring Diagram



SWITCH1: Terminal resistance setting  
SWITCH2: Communication address and baud rate setting

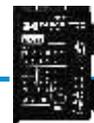


LED indicator light  
CN5: CANopen communication & PC software debugging interface  
CN4: Digital input/output  
CN3: Encoder input interface  
CN2: Motor power line interface  
CN1: DC power input  
Ground wire screw

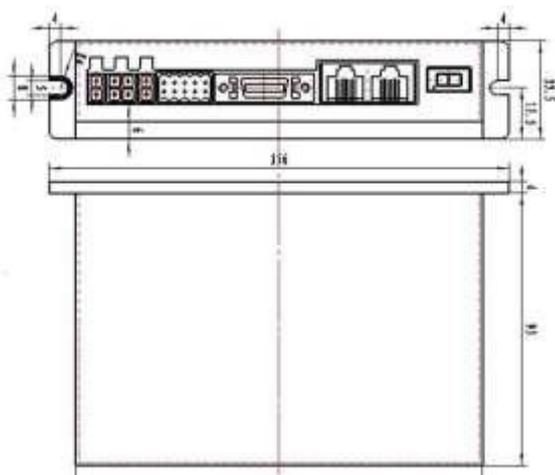
## Specification

Input power	24~70VDC/18~50VAC	
Current output	0.1-7A (peak)	
Adaptive motor	20~86mm two-phase closed-loop stepper motor	
Open loop/closed-loop control	Compatible with open-loop or closed-loop control; default: closed loop	
Encoder interface	Support up to 5000-line incremental encoders (20000 pulses/revolution)	
Control mode	CANopen bus communication control	
Communication interface	RJ45 network port	CANopen communication interface; connect to PC for parameter settings, status monitoring, etc.
Baud rate (bit/s)	Dial setting: 50K, 100K, 125K, 250K, 500K, 1M	
Control signal	Digital input signal	Differential: 3; single-ended: 2; opto-isolator; the common terminal supports 5~24VDC
	Digital output signal	3 open collector outputs; opto-isolator; maximum output 100mA@30V
		1 brake output, maximum output 100mA@30V

# Y2SD2-S40C RS485 bus

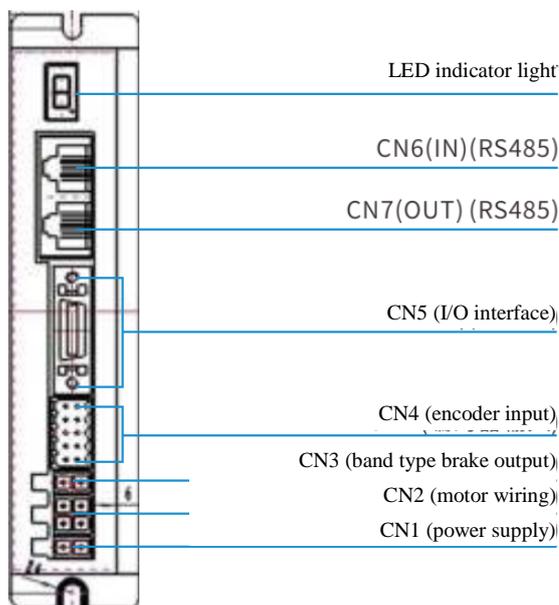


## Mechanical dimensions (unit: mm)



Unit: mm; mass: 0.293kg

## Wiring Diagram

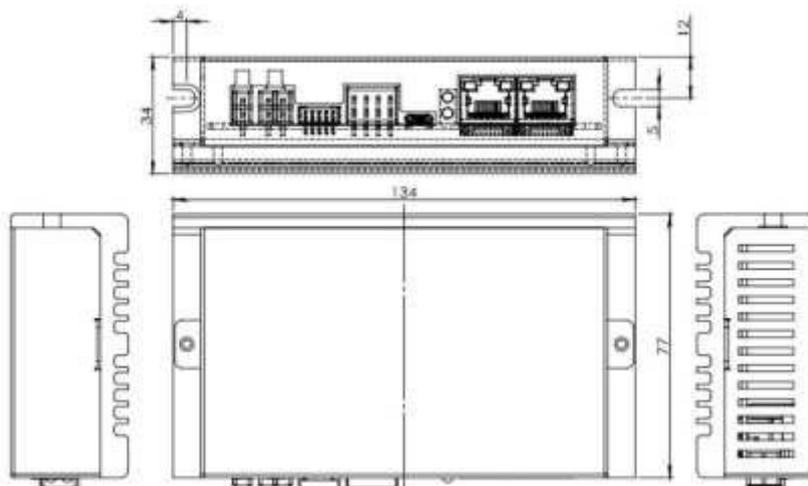


## Specification

Input power	24~72VDC±10%	/
Current output	Y2SD2-S40C 6.5A(0-peak)	Continuous current
Adaptive motor	20~86 mm two-phase closed-loop stepper motor	Instantaneous current
Control object motor	2-phase bipolar stepper motor of the encoder	/
Supported control modes	<ul style="list-style-type: none"> <li>• Internal pulse mode</li> <li>• External pulse mode</li> <li>• Torque control mode</li> <li>• Position pushing mode</li> <li>• Analog pressure mode</li> </ul>	Parameters are set through Simple Tuner Pro software Multi-segment program residency ModbusRTU Broadcasting not supported
Communication interface	<ul style="list-style-type: none"> <li>• 7 digital inputs</li> <li>• Encoder input (ABZ)</li> <li>• 3 digital outputs</li> <li>• Code signal output (Differential A, B, 2) (optional)</li> </ul>	Except that the encoder output is fixed, all other inputs/outputs can be freely configured through communication
Detailed content of digital inputs	/SV ON (Servo 0n) /RESET (alarm reset) /START (motor start/stop) /JOG (motor jog) /HOME (return to home position)	/
Detailed content of digital outputs	/IN POTISION /ALARM	/
LED indicator	Status and fault	/
Communication I/F	RS485, up to 30 nodes	MODBUS RTU protocol, Baud rate: 19200bps (preset) or as agreed
Control method	Position control mode	Based on pulse positioning and RS485 communication positioning
	Speed control mode	Digital instruction
Overall dimensions (mm)	156(L)×97(W) ×33.5(H)	Excluding wiring terminals
Weight	About 500g	Excluding wiring terminals

# Y2SD2-S80E

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Specification

Installation Dimensions	134×77×34 mm	
Input power	DC 24V~48V	
Current output	0.4A~6.0A/phase (peak)	
Adaptive motor	Adapting to two-phase hybrid stepper motors, it can adapt to the current up to 6.0A (peak)	
Drive mode	Full bridge bipolar PWM drive	
Device initialization time	2s	
Input signal	1 high-speed input signal	Optocoupler input voltage H=24V, L=0-0.8V, conduction current 5~8mA
	3 general input signals	Optocoupler input voltage H=24V, L=0-0.8V, conduction current 5~8mA
Output signal	1 general output	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
	1 band type brake output	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
Service environment	Scenario	Avoid dust, oil mist, and corrosive gases
	Humidity	<85% RH, without condensation
	Temperature	0°C~+40°C
	Heat dissipation	Install in a well-ventilated environment

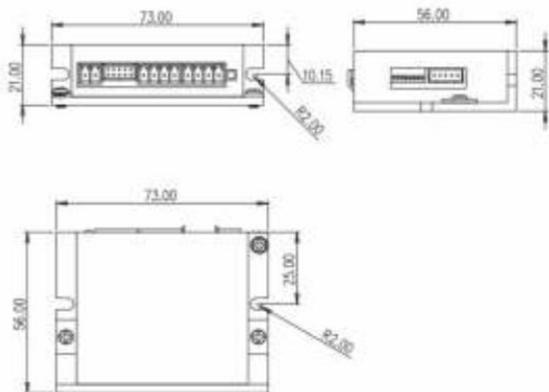
## Multi-axis series Y2SDD2-F01

### ■ Specification

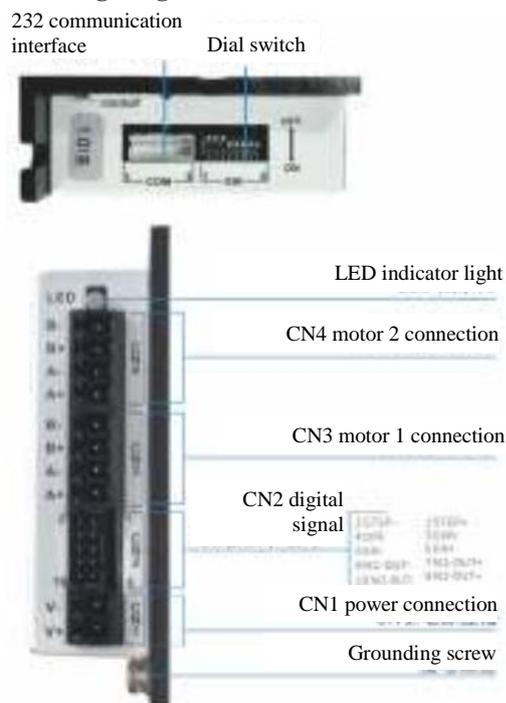
#### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SDD2-F01	15~48	1.0~4.5	I/O signal	28-86mm two-phase open-loop stepper motor

### ■ Mechanical dimensions (unit: mm)



### ■ Wiring Diagram



### ■ Dial switch

Operating current

Switch setting			Current (A)	Dial diagram
SW1	SW2	SW3	Y2SDD2-F01	
ON	ON	ON	1.0A (default)	
OFF	ON	ON	1.5A	
ON	OFF	ON	2.0A	
OFF	OFF	ON	2.5A	
ON	ON	OFF	3.0A	
OFF	ON	OFF	3.5A	
ON	OFF	OFF	4.0A	
OFF	OFF	OFF	4.5A	

### ■ Idle current setting

Switch setting	SW4	Dial diagram
50% (default)	ON	
90%	OFF	

Speed

Speed	Switch setting				Dial diagram
	SW5	SW6	SW7	SW8	
10.0	ON	ON	ON	ON	
9.0	OFF	ON	ON	ON	
8.0	ON	OFF	ON	ON	
7.0	OFF	OFF	ON	ON	
6.0	ON	ON	OFF	ON	
5.5	OFF	ON	OFF	ON	
5.0	ON	OFF	OFF	ON	
4.5	OFF	OFF	OFF	ON	
4.0	ON	ON	ON	OFF	
3.5	OFF	ON	ON	OFF	
3.0	ON	OFF	ON	OFF	
2.5	OFF	OFF	ON	OFF	

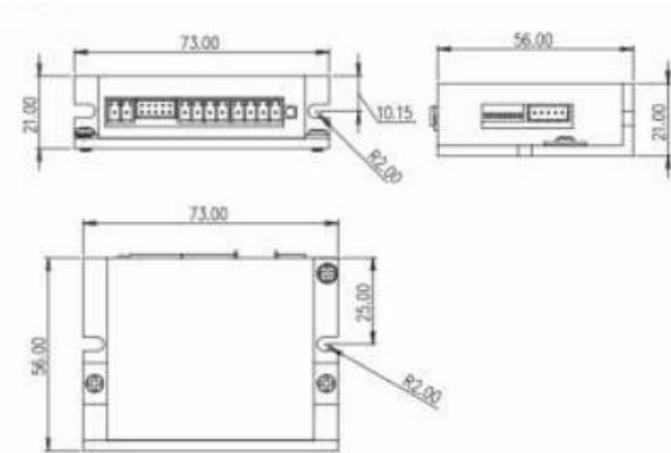
# One driving two IO Y2SDD2-F

## ■ Specification

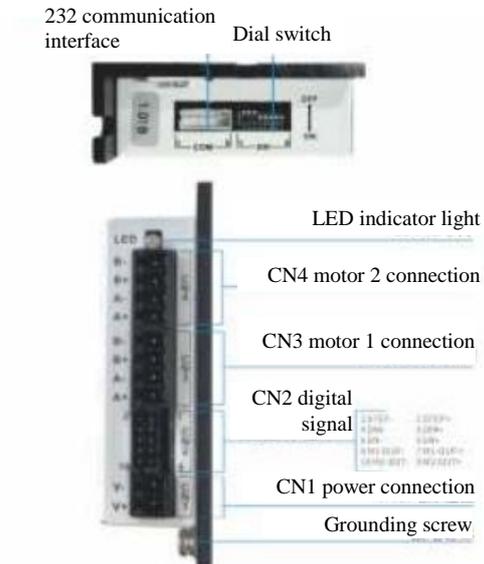
### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SDD2-F	15~48	1.0~4.5	I/O signal, dial-up speed regulation	28-60mm two-phase open-loop stepper motor

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Dial switch

### Operating current

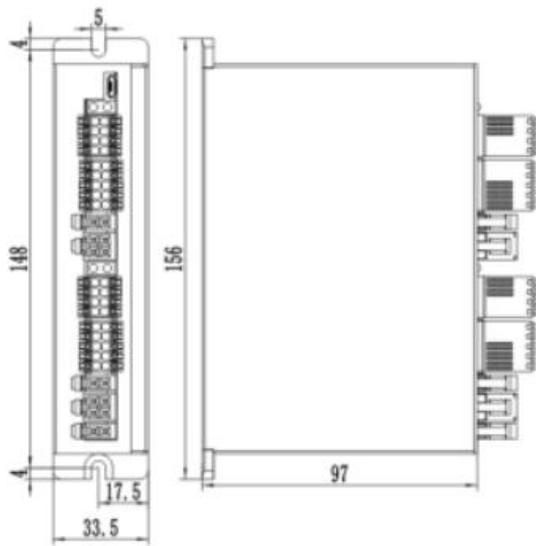
Switch setting			Current (A)	Dial diagram
SW1	SW2	SW3	Y2SDD2-F	
ON	ON	ON	1.0A (default)	
OFF	ON	ON	1.5A	
ON	OFF	ON	2.0A	
OFF	OFF	ON	2.5A	
ON	ON	OFF	3.0A	
OFF	ON	OFF	3.5A	
ON	OFF	OFF	4.0A	
OFF	OFF	OFF	4.5A	

### Subdivision

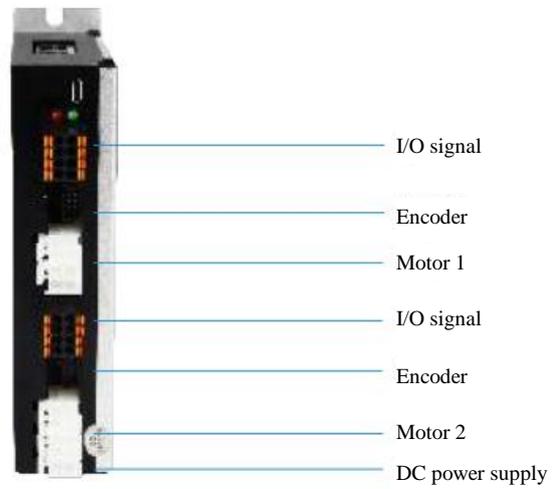
Subdivision ***	Switch setting				Dial diagram
	SW5	SW6	SW7	SW8	Y2SDD2-F
200	ON	ON	ON	ON	
400	OFF	ON	ON	ON	
800	ON	OFF	ON	ON	
1600	OFF	OFF	ON	ON	
3200	ON	ON	OFF	ON	
6400	OFF	ON	OFF	ON	
12800	ON	OFF	OFF	ON	
25600	OFF	OFF	OFF	ON	
1000	ON	ON	ON	OFF	
2000	OFF	ON	ON	OFF	
4000	ON	OFF	ON	OFF	
5000	OFF	OFF	ON	OFF	
6000	ON	ON	OFF	OFF	
8000	OFF	ON	OFF	OFF	
10000	ON	OFF	OFF	OFF	
20000	OFF	OFF	OFF	OFF	

# Two-in-one EC Y2SD2-S80E-N2

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram

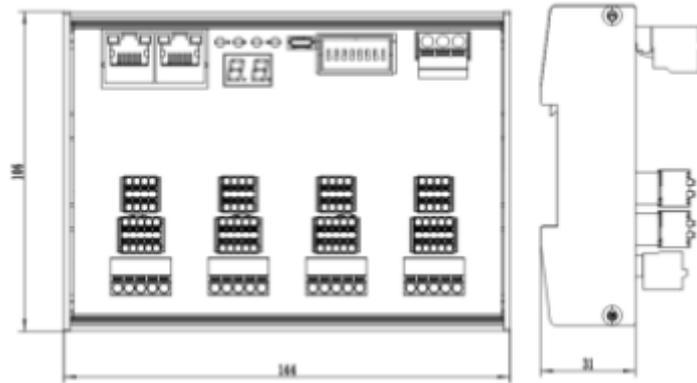


## ■ Specification

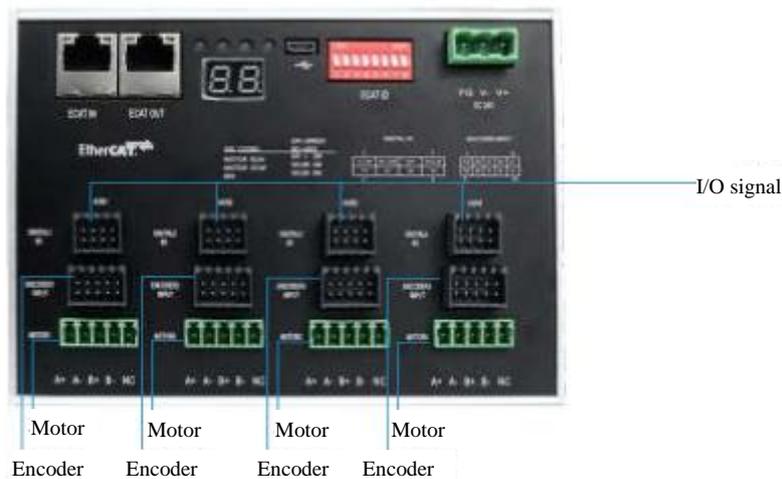
Driver model	Y2SD2-S80E-N2	
Adaptive motor	20~86 mm two-phase closed-loop stepper motor	
Power supply	DC 24V-48V	
Output current	0.4A~6.5A/phase (peak)	
Drive mode	Full bridge bipolar PWM drive	
Device initialization time	2s	
Input signal	1 probe input	Optocoupler input voltage: H=24V, L=0-0.8V Conducting current 5~8mA
	3 general input signals	
Output signal	2 general output signals	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
	1 band type brake output	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 500mA
Output current	156x97x34 meters (excluding connectors)	
Weight	About 500g	

# Four-in-one EC Y2SD2-S80E-N4

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Dial switch

Operating current

Driver model	Y2SD2-S80E-N4	
Adaptive motor	20~57mm two-phase closed-loop stepper motor	
Power supply	DC 12V-36V	
Output current	0.4A~3.0A/phase (peak)	
Drive mode	Full bridge bipolar PWM drive	
Device initialization time	2s	
Input signal	1 probe input	Optocoupler input voltage: H=24V, L=0-0.8V Conducting current 5~8mA
	3 general input signals	
Output signal	2 general output signals	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
Output current	144x106x31m (excluding connectors)	
Weight	Approximately 450g	

# Five phase stepper motor



# Open-loop stepping drive system

## Five-phase stepper motor

- MC five-phase stepper motor

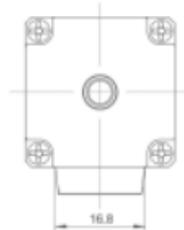
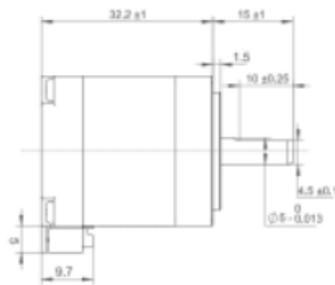
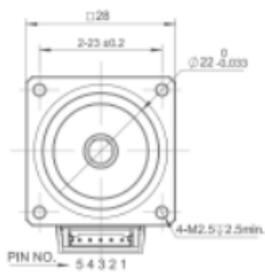


## 28mm five-phase stepper motor

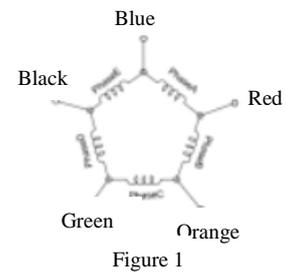
### ■ Specification

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Body length (L2) mm	Mass kg	Connection diagram
MC528K12-01	0.72°	1.2	0.56	0.2	0.05	9	5	32.2	0.11	Figure 1
MC528K12-01B	0.72°	1.2	0.56	0.2	0.05	9	5	32.7	0.11	Figure 1
MC528K12-03	0.72°	1.2	0.9	0.35	0.09	18	5	51.8	0.2	Figure 1
MC528K12-41	0.72°	1.2	1.2	0.5	0.02	9	5	30.1	0.1	Figure 1

### ■ Dimension drawing (unit: mm)



### ■ Wiring Diagram



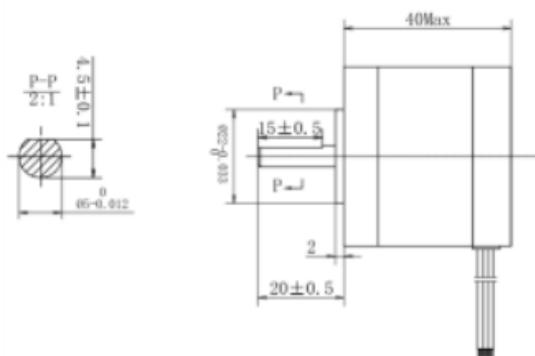
## 42mm five-phase stepper motor



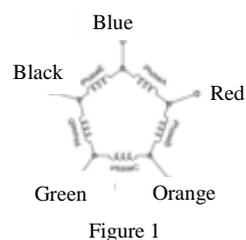
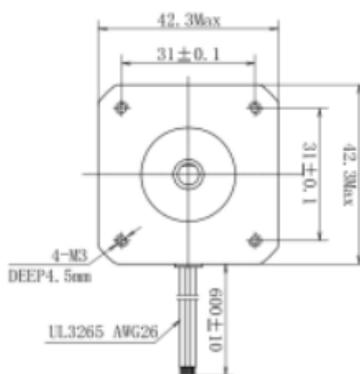
### ■ Specification

Model	Current A	Resistance $\Omega$	Inductance mH	Holding torque N.m	Rotor inertia g.cm <sup>2</sup>	Body length L mm	Mass kg	Connection diagram
MC542K07-01	0.75	1.5	1.4	0.15	54	40	0.28	Figure 1
MC542K07-01B	0.75	1.5	1.4	0.15	54	40	0.28	Figure 1
MC542K07-02	0.75	1.9	1.6	0.24	68	48	0.35	Figure 1
MC542K07-02B	0.75	1.9	1.6	0.24	68	48	0.36	Figure 1

### ■ Dimension drawing (unit: mm)



### ■ Wiring Diagram



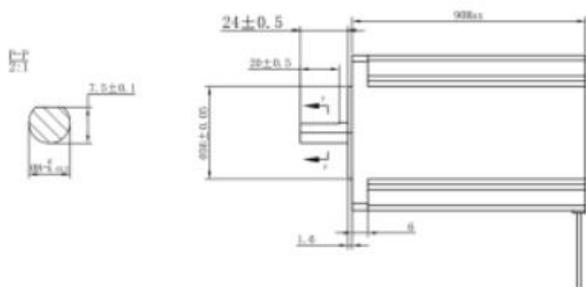
## 60mm five-phase stepper motor



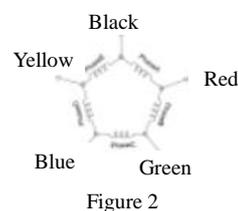
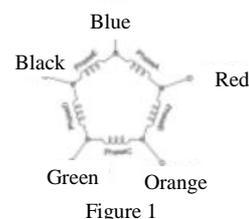
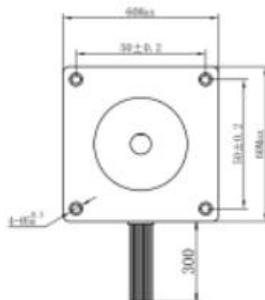
### ■ Specification

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L1) mm	Body length (L2) mm	Mass kg	Connection diagram
MC560K24-01	0.72°	2.4	0.6	2.1	1.6	580	8	24	90	1.4	Figure 1
MC560K24-11	0.72°	2.4	0.28	1.45	0.66	160	8	24	44	1.1	Figure 1
MC560K24-31	0.72°	2.4	6	30	2	505	8	24	85	1.2	Figure II
MC560K15-42B	0.72°	1.5	3	7.3	0.8	260	8	24	57.5	0.7	Figure II

### ■ Dimension drawing (unit: mm)



### ■ Wiring Diagram



# Five-phase Stepper Driver

Pulse stepper driver | Bus stepper driver | Multi-axis stepper driver



# Open-loop stepping drive system

## Five-phase Stepper Driver

- Pulse stepper driver
- Bus stepper driver
- Multi-axis stepper driver



### Five-phase Stepper Driver

### Pulse stepper driver

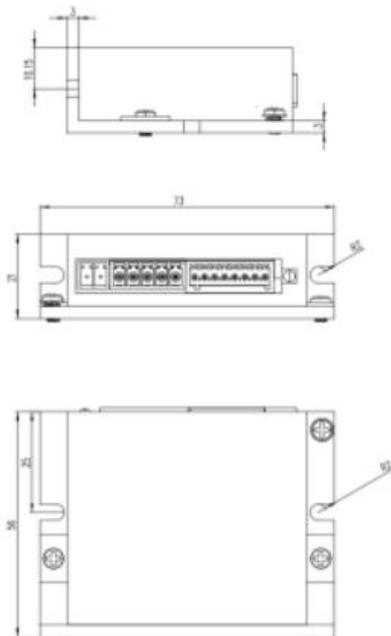
## Y5SD2



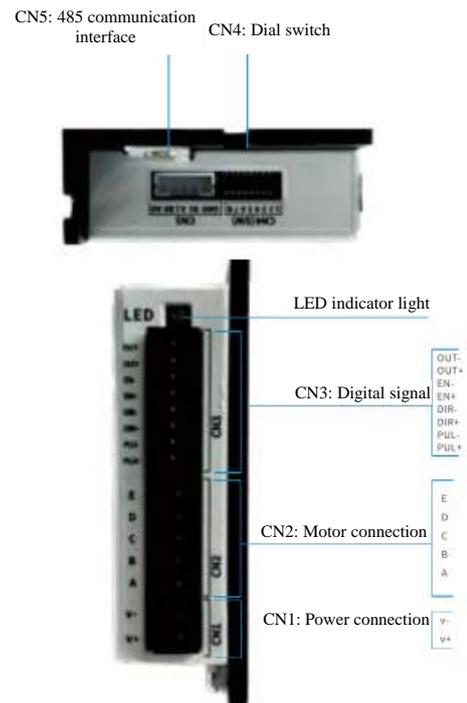
### • Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y5SD2	24~48	0.8-4.2	Pulse+direction, dual pulse, speed mode	Five-phase stepper motor

### ■ Mechanical dimensions (unit: mm)



### ■ Wiring Diagram



## ■ Dial switch

### Operating current

Switch setting			Current (A)	Dial diagram
SW1	SW2	SW3	Y5SD2	
ON	ON	ON	0.8A (default)	
OFF	ON	ON	1.3A	
ON	OFF	ON	1.8A	
OFF	OFF	ON	2.2A	
ON	ON	OFF	2.7A	
OFF	ON	OFF	3.2A	
ON	OFF	OFF	3.7A	
OFF	OFF	OFF	4.2A	

### Subdivision

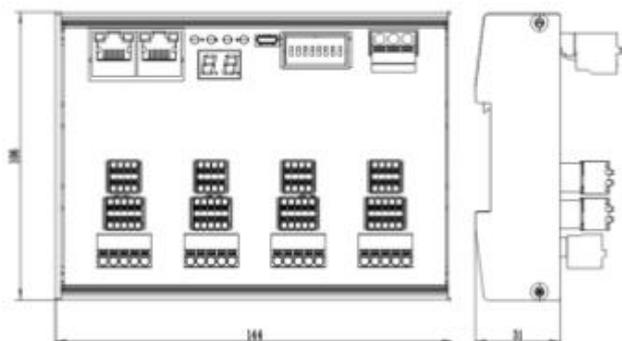
Switch setting					Dial diagram
Subdivision***	SW5	SW6	SW7	SW8	Y5SD2
200	ON	ON	ON	ON	
400	OFF	ON	ON	ON	
800	ON	OFF	ON	ON	
1600	OFF	OFF	ON	ON	
3200	ON	ON	OFF	ON	
6400	OFF	ON	OFF	ON	
12800	ON	OFF	OFF	ON	
25600	OFF	OFF	OFF	ON	
1000	ON	ON	ON	OFF	
2000	OFF	ON	ON	OFF	
4000	ON	OFF	ON	OFF	
5000	OFF	OFF	ON	OFF	
6000	ON	ON	OFF	OFF	
8000	OFF	ON	OFF	OFF	
10000	ON	OFF	OFF	OFF	
20000	OFF	OFF	OFF	OFF	

### ■ Idle current setting

Switch setting	SW4	Dial diagram
50% (default)	ON	
90%	OFF	

## Four-in-one EC Y5SD2-S80E-N4

### ■ Mechanical dimensions (unit: mm)



### ■ Wiring Diagram

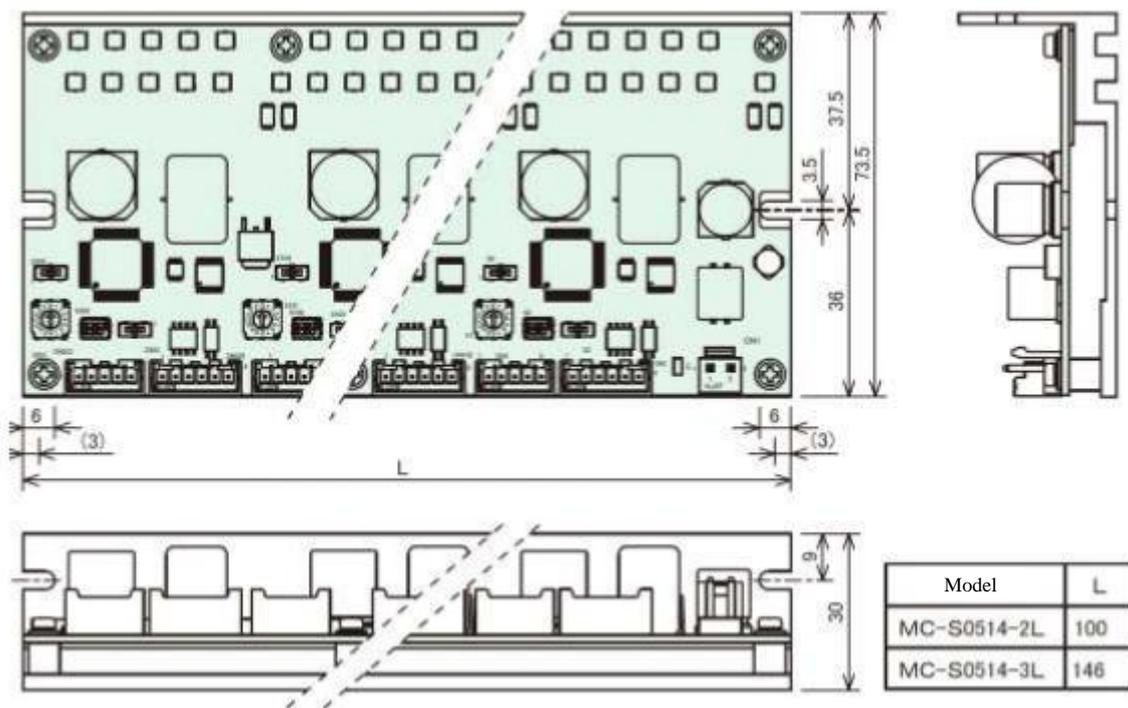


### ■ Specification

Driver model	Y5SD2-S80E-N4	
Adaptive motor	Adapting to five-phase open/closed-loop incremental stepper motors, it can adapt to the current up to 3.0A (peak)	
Power supply	DC 12V-36V	
Output current	0.4A~3.0A/phase (peak)	
Drive mode	Full bridge bipolar PWM drive	
Device initialization time	2s	
Input signal	1 probe input	Optocoupler input voltage: H=24V, L=0-0.8V Conducting current 5~8mA
	3 general input signals	
Output signal	2 general output signals	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
Dimensions	144×106×31 mm (excluding connectors)	
Weight	Approximately 450g	

## KFCM-505014-1L/2L/3L

### ■ Mechanical dimensions (unit: mm)



### ■ Specification

Driver model	KFCM-505014-1L/2L/3L	
Drive mode	Double-axis	
Factory current	0.35A	
Supply voltage	DC24V ±5%	
Input current	Maximum 1.48A	0.35A/phase, 0.75A/phase, 1.4A/phase Q switching
Maximum pulse input frequency	Pulse interval of 0.5μsec or more, pulse frequency below 500kHz	
Operating temperature and humidity	0~40 °C, maximum 85%. Below Rh	
Storage temperature and humidity	0~40 °C, maximum 85%. Below Rh	

# Closed-loop stepper motor

**Closed-loop stepper motor | Hollow shaft stepper motor  
Reduction integrated stepper motor | Absolute value stepper motor**



# Closed-loop stepping drive system

## Closed-loop stepper motor

- Hollow shaft stepper motor
- Reduction integrated stepper motor
- Absolute value stepper motor



### Motor

### Closed-loop stepper motor

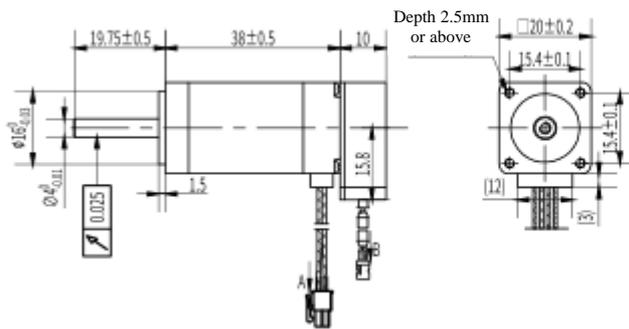
## 20mm

### ■ Specification

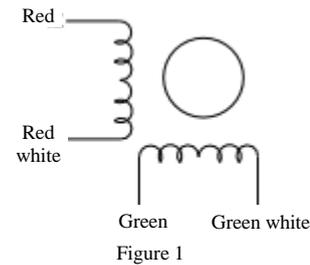
- Specification and model

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L2) mm	Body length (L1) mm	Mass kg	Connection diagram
KST-20D25-0004	1.8	0.6	9.0	3.0	22	3	4	19.75	38	0.1	Figure 1

### ■ Dimension drawing (unit: mm)



### ■ Wiring Diagram



## 28mm

### ■ Specification

- Specification and model

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L2) mm	Body length (L1) mm	Mass kg	Connection diagram
KST-28D18-0003	1.8	0.67	6.5	3.2	60	9	5	10	34	0.14	Figure 1
KST-28D37-0003	1.8	1.3	2.0	3.8	130	18	5	25	51	0.2	Figure 1

■ Dimension drawing (unit: mm)

■ Wiring Diagram

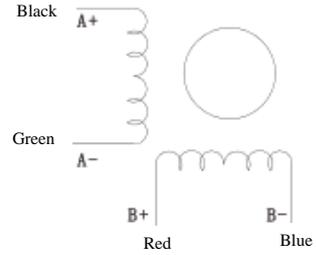
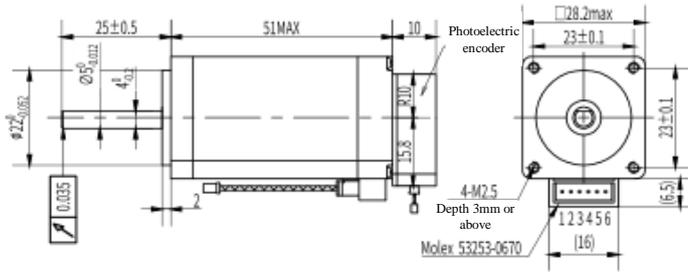


Figure 1



35mm

■ Specification

● Specification and model

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L2) mm	Body length (L1) mm	Mass kg	Connection diagram
KST-35D31-0002	1.8	1.5	1.6	2.4	0.2	50	5	24	66	0.3	Figure 1

■ Dimension drawing (unit: mm)

■ Wiring Diagram

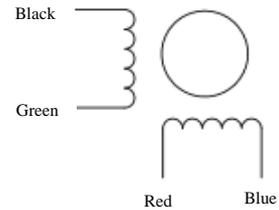
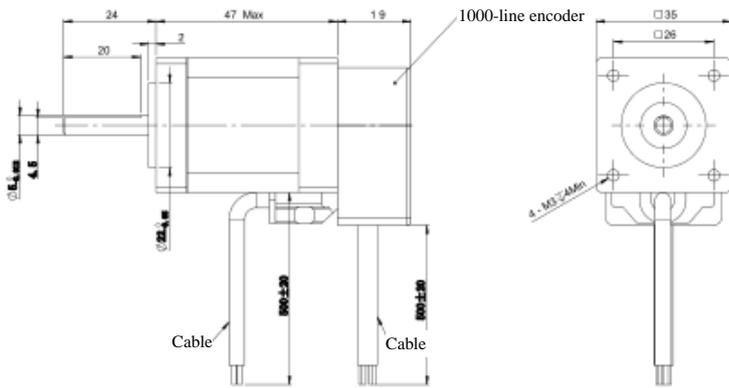


Figure 1



42mm

■ Specification

● Specification and model

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L2) mm	Body length (L1) mm	Mass kg	Connection diagram
KST-42D30-0005	1.8	2.0	1.7	2.6	0.48	82	5	24	67	0.3	Figure 1
KST-42D30-0007	1.8	2.0	1.35	2.5	0.5	82	5	24	94.5	0.45	Figure 1
KST-42D41-0007	1.8	2.0	2.0	3.8	0.72	110	5	24	81	0.5	Figure 1







## 20mm

### ■ Specification

#### ● Specification and model

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm2	Shaft diameter (D) mm	Shaft length (L2) mm	Body length (L1) mm	Mass kg	Connection diagram
KST-20D25-0003	1.8	0.60	6.0	2.0	32	3	5	11	49.45	0.08	Figure 1

### ■ Dimension drawing (unit: mm)

### ■ Wiring Diagram

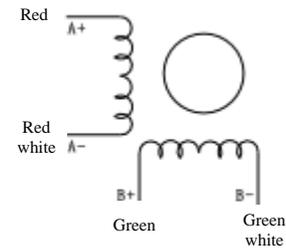
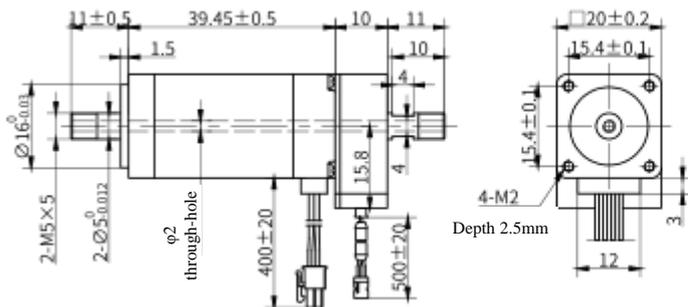


Figure 1

## 28mm



### ■ Specification

#### ● Specification and model

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm2	Shaft diameter (D) mm	Shaft length (L2) mm	Body length (L1) mm	Mass kg	Connection diagram
KST-28D18-0005	1.8	0.67	6.5	3.2	60	9	5	11	44	0.14	Figure 1

### ■ Dimension drawing (unit: mm)

### ■ Wiring Diagram

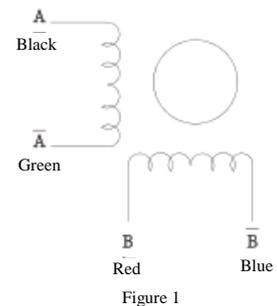
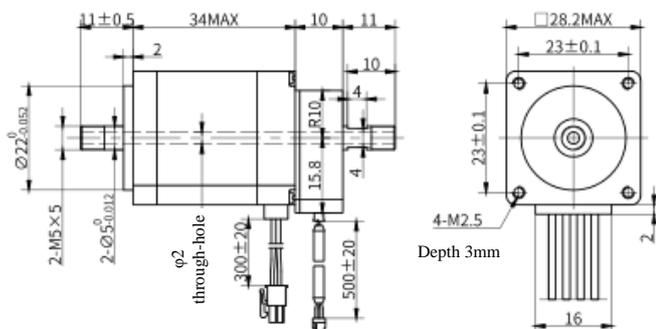


Figure 1

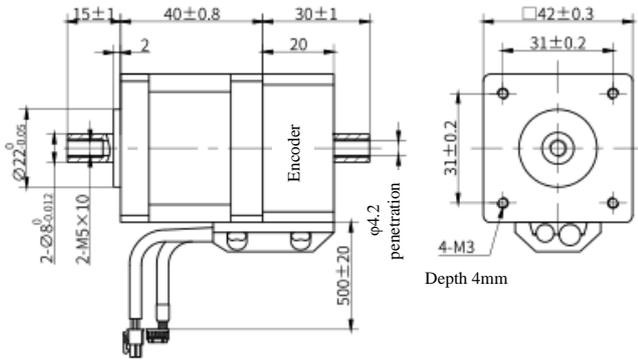


■ Specification

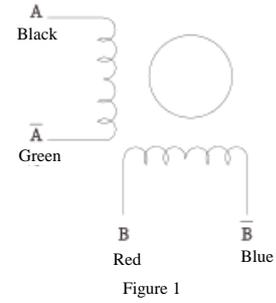
● Specification and model

Model	Step angle deg	Current A	Resistance Ω	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L2) mm	Body length (L1) mm	Mass kg	Connection diagram
KST-42D22-0005	1.8	1.50	2.1	4.8	400	43	8	15	60	0.37	Figure 1

■ Dimension drawing (unit: mm)



■ Wiring Diagram





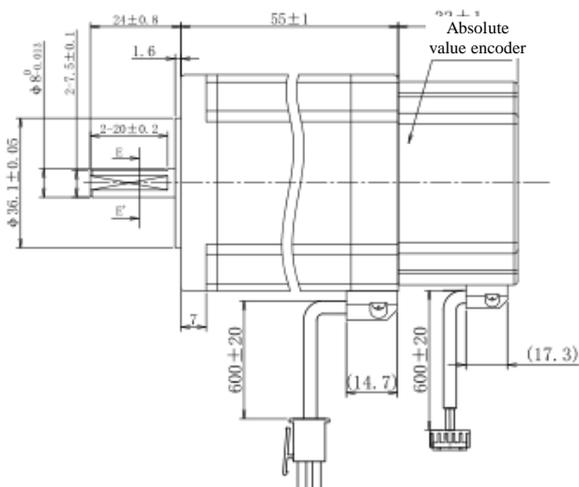
# 60mm

## ■ Specification

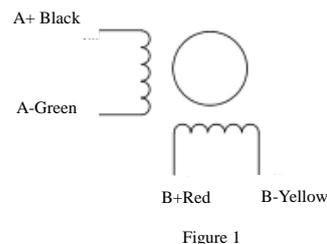
### ● Specification and model

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L2) mm	Body length (L1) mm	Mass kg	Connection diagram
KST-60D34-0003	1.8	4.0	0.5	1.5	1.6	400	8	24	88	0.8	Figure 1
KST-60D65-0004	1.8	5.0	0.45	1.7	2.6	760	8	24	116	1.3	Figure 1

## ■ Dimension drawing (unit: mm)



## ■ Wiring Diagram



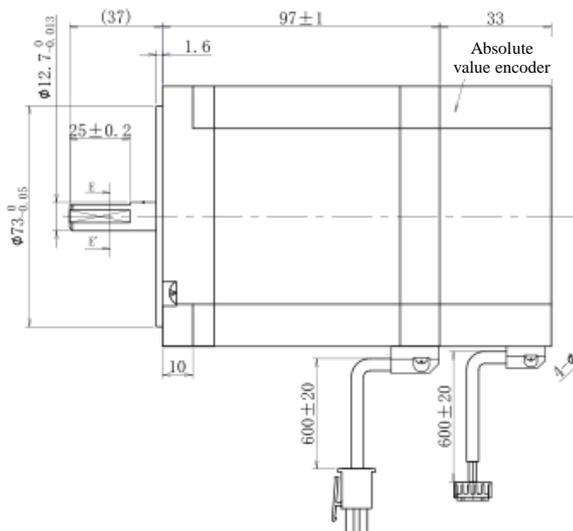
# 86mm

## ■ Specification

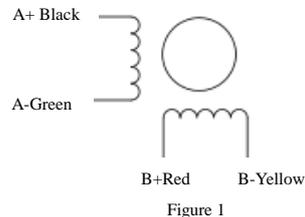
### ● Specification and model

Model	Step angle deg	Current A	Resistance $\Omega$	Inductance mH	Holding torque mN.m	Rotor inertia g.cm <sup>2</sup>	Shaft diameter (D) mm	Shaft length (L2) mm	Body length (L1) mm	Mass kg	Connection diagram
KST-86D64-0006	1.8	5.0	0.55	5.0	6.5	1750	12.7	37	133	2.7	Figure 1

## ■ Dimension drawing (unit: mm)

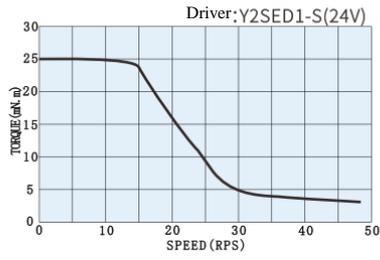


## ■ Wiring Diagram

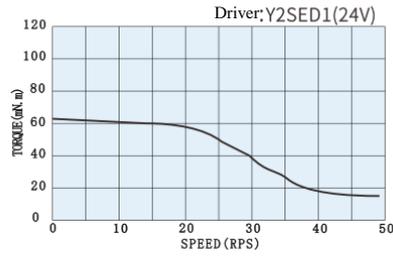


# Torque Curve Chart

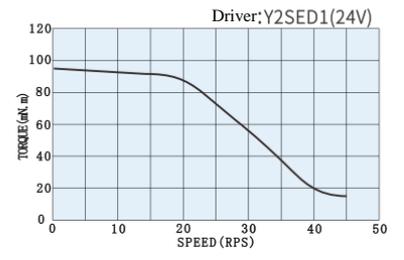
● KST-20D25-0004



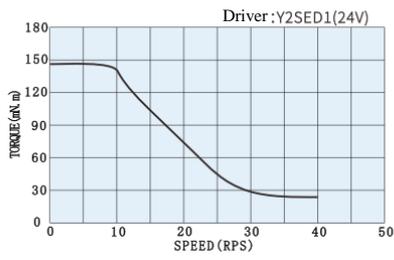
● KST-28D18-0003



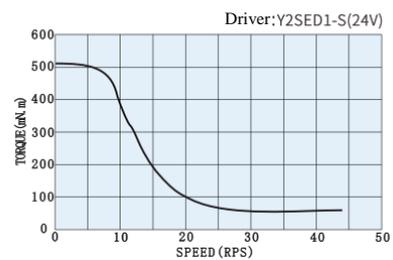
● KST-28D37-0003



● KST-35D31-0002



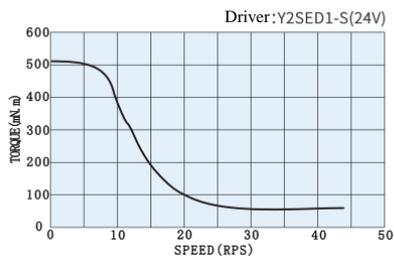
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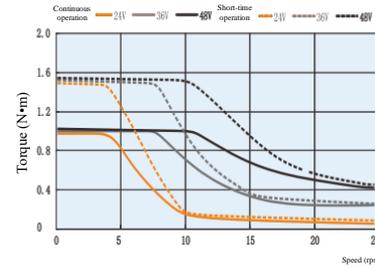
● KST-42D30-0007



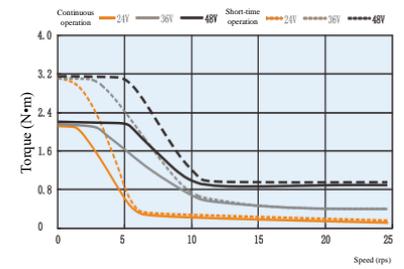
● KST-42D41-0007



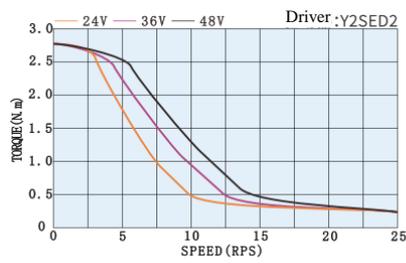
● KST-57D33-0006



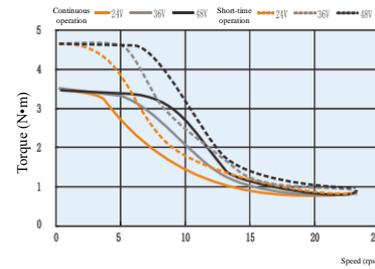
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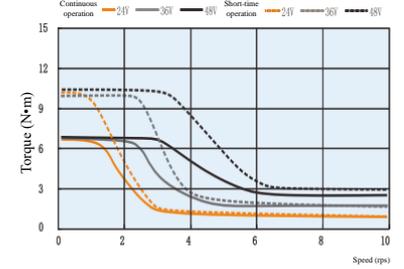
● KST-60D65-0004

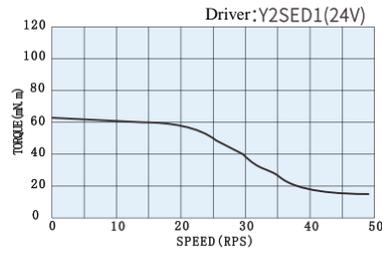
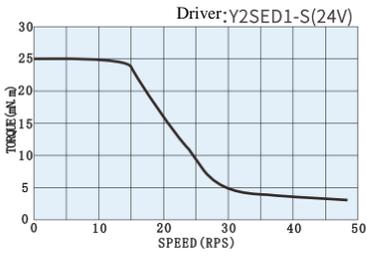


● KST-86D45-0001

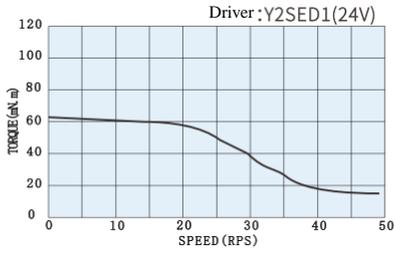


● KST-86D85-0003

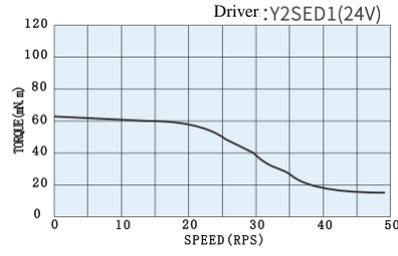




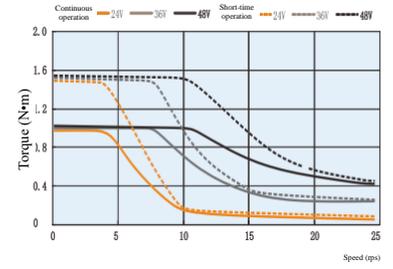
● KST-28D18-0011



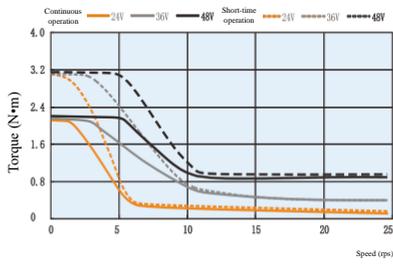
● KST-42D30-0014



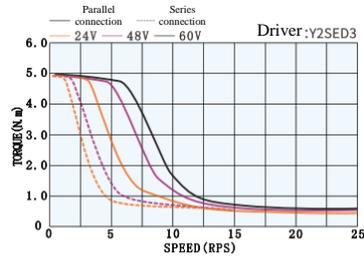
● KST-60D34-0003



● KST-60D65-0004

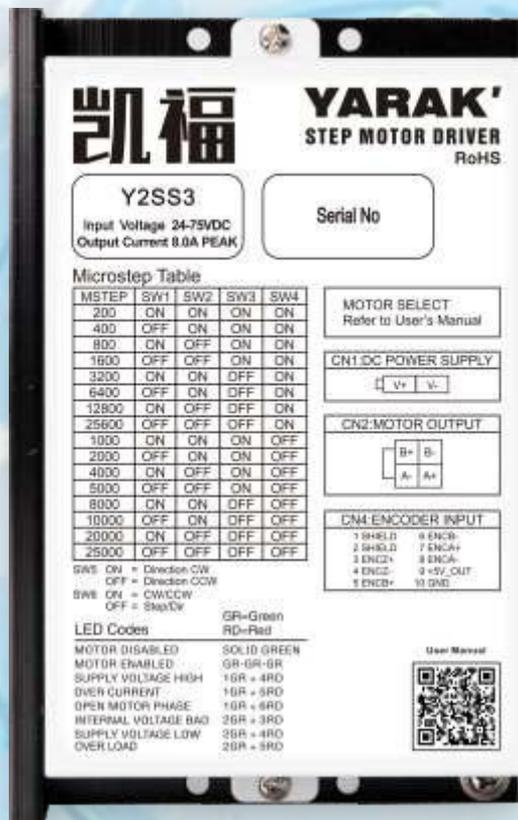


● KST-86D64-0006



# Closed-loop stepper driver

Pulse stepper driver | Intelligent stepper driver  
Multi-axis stepper driver | Bus type stepper driver



# Closed-loop stepping drive system

## Closed-loop stepper driver

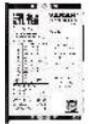
- Pulse stepper driver
- Intelligent stepper driver
- Multi-axis stepper driver
- Bus type stepper driver



### Stepper driver

### Pulse stepper driver

## Y2SS3 pulse type two-phase closed-loop stepper driver

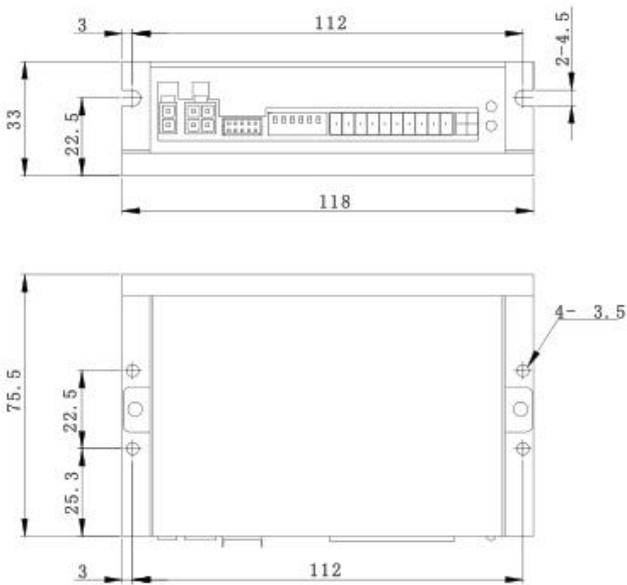


### ■ Specification

- Driver parameters

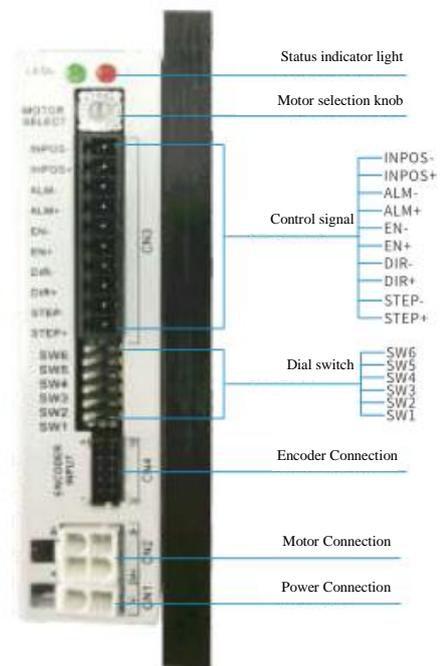
Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SS3	24-75	1.5-7.8	Pulse signal	Three-phase stepper motor

### ■ Mechanical dimensions (unit: mm)



Unit: mm; mass: 0.30kg

### ■ Wiring Diagram



## Subdivision

Switch setting				Y2SS3
SW1	SW2	SW3	SW4	Pulse count
OFF	OFF	OFF	OFF	25000
ON	OFF	OFF	OFF	20000
OFF	ON	OFF	OFF	10000
ON	ON	OFF	OFF	8000
OFF	OFF	ON	OFF	5000
ON	OFF	ON	OFF	4000
OFF	ON	ON	OFF	2000
ON	ON	ON	OFF	1000
OFF	OFF	OFF	ON	25600
ON	OFF	OFF	ON	12800
OFF	ON	OFF	ON	6400
ON	ON	OFF	ON	3200
OFF	OFF	ON	ON	1600
ON	OFF	ON	ON	800
OFF	ON	ON	ON	400
ON	ON	ON	ON	200

## ■ Motor parameter matching setting

The driver can set the corresponding motor parameters (gain, max, min current, etc.) through a 16-tap position knob, and can change the settings through software.



## ■ Pulse setting

Switch setting	Pulse mode
SW6	Y2SS3
OFF	Pulse + direction
ON	Dual pulse

## ■ Running direction setting

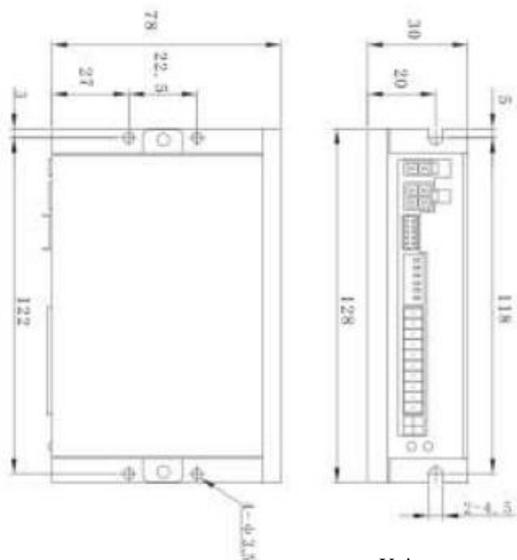
Switch setting	Pulse mode
SW5	Y2SS3
OFF	CW direction
ON	CCW direction

Knob position	Matching motor model
0	EM28-3
3	42K48-E1000
7	57K56-E1000
8	57K80-E1000
B	EM60-5
C	86K74-E1000
E	86K112-E1000
Other	hold

# Y2SS3-S pulse type two-phase closed-loop stepper driver (band brake type)

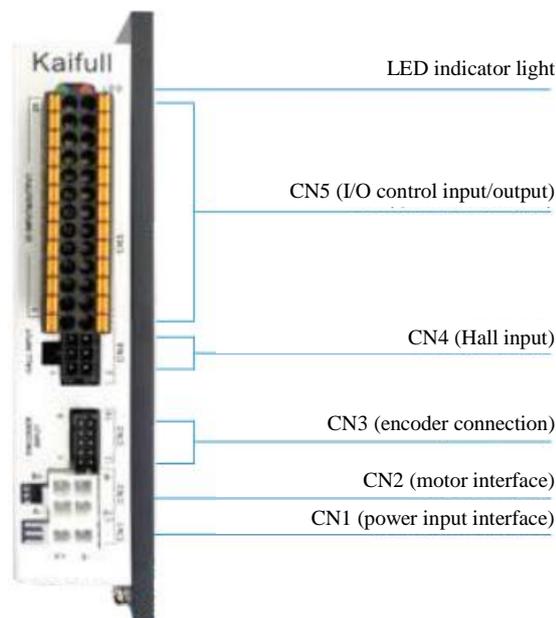


## Mechanical dimensions (unit: mm)



Unit: mm; mass: 0.31kg

## Wiring Diagram



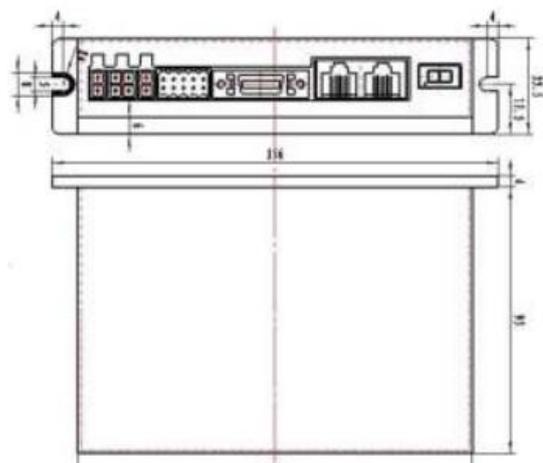
## Specification

Dimensions and specifications	128×77.8×29.7 mm	
Input power	DC: 24~75V or AC: 18~50V (±15%)	
Current output	0.1-7A (peak)	
Adaptive motor	Two-phase closed-loop stepper motors of size 86 and below	
Open loop/closed-loop control	Fully closed loop control	
Encoder interface	Support up to 5000-line incremental encoders (20000 pulses/revolution)	
Control mode	Pulse control (pulse + direction, CW/CCW)	
Communication interface	RJ45 network port	Connect to PC for parameter settings, status monitoring, etc.
Control signal	Digital input signal	4 circuits of opto-isolator input signal; support differential/single end; high level supports 5~24VDC
	Digital output signal	A/B/Z encoder differential signal output ■ Two circuits of opto-isolator output signal; supports differential/single end; maximum output 100mA@30V
		1 brake output, maximum output 100mA@30V
Recommended service environment	Temperature	0~+55°C
	Humidity	Below 0-90% RH
	Altitude	1000 m below
	environment	No corrosive gases or dust The product shall not come in contact with water and oil
Dielectric strength	AC1.5KV between ground wires, capable of withstanding voltage for 1 minute	
Protection grade	IP20	

## Y2SD2-S40C bus type stepper motor driver RS485 bus

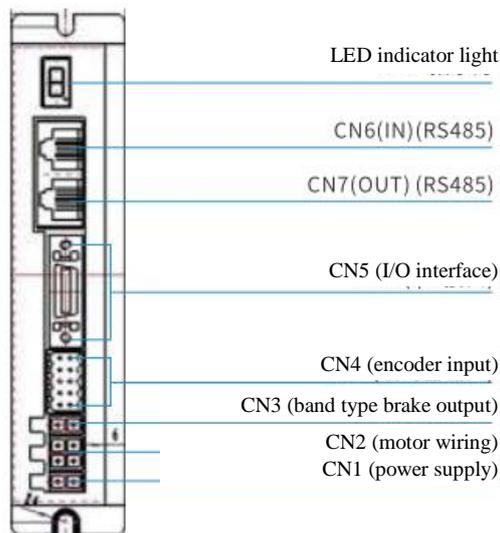


### ■ Mechanical dimensions (unit: mm)



单位:mm 质量:0.293kg

### ■ Wiring Diagram



### ■ 规格

### ■ Specification

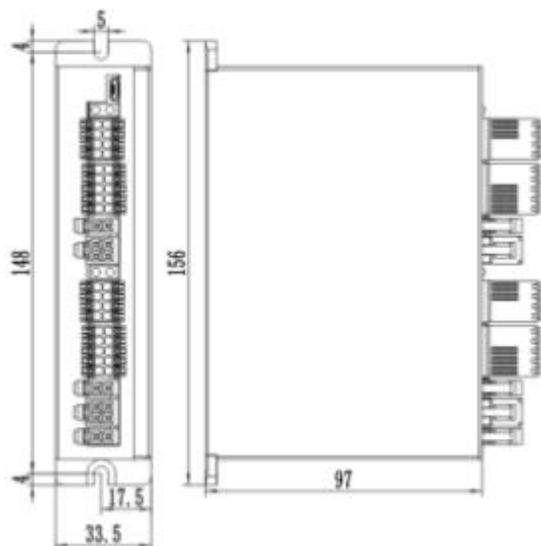
Unit: mm; mass: 0.293kg

Input power	DC 24V~72V±10%	/
Current output	Y2SD2-S40C 6.5A(0 -peak)	Continuous current
Adaptive motor	Y2SD2-S40C 7.8A(0 -peak)	Instantaneous current
Control object motor	2-phase bipolar stepper motor of the encoder	/
Supported control modes	<ul style="list-style-type: none"> <li>• Internal pulse mode</li> <li>• External pulse mode</li> <li>• Torque control mode</li> <li>• Position pushing mode</li> <li>• Analog pressure mode</li> </ul>	Parameters are set through Simple Tuner Pro software Multi-segment program residency Modbus RTU Broadcasting not supported
Communication interface	<ul style="list-style-type: none"> <li>• 7 digital inputs</li> <li>• Encoder input (ABZ)</li> <li>• 3 digital outputs</li> <li>• Code signal output (Differential A, B, 2) (optional)</li> </ul>	Except that the encoder output is fixed, all other inputs/outputs can be freely configured through communication
Detailed content of digital inputs	/SV ON (Servo On) /RESET (alarm reset) /START (motor start/stop) /JOG (motor jog) /HOME (return to home position)	/
Detailed content of digital outputs	/IN POSITION /ALARM	/
LED indicator	Status and fault	/
Communication I/F	RS485, up to 30 nodes	MODBUS RTU protocol, Baud rate: 19200bps (preset) or as agreed
Control method	Position control mode	Based on pulse positioning and RS485 communication positioning
	Speed control mode	Digital instruction
Overall dimensions (mm)	156(L)X97(W)X33.5(H)	Excluding wiring terminals
Weight	About 500g	Excluding wiring terminals

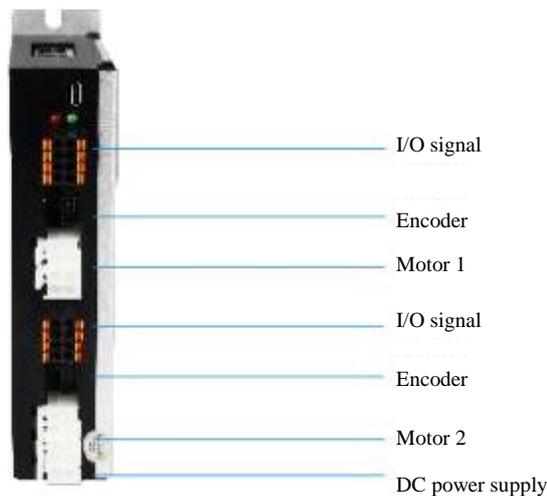
## Y2SD2-S80E-N2/Y2SD2-S80A-N2 two-in-one EtherCAT bus



### ■ Mechanical dimensions (unit: mm)



### ■ Wiring Diagram



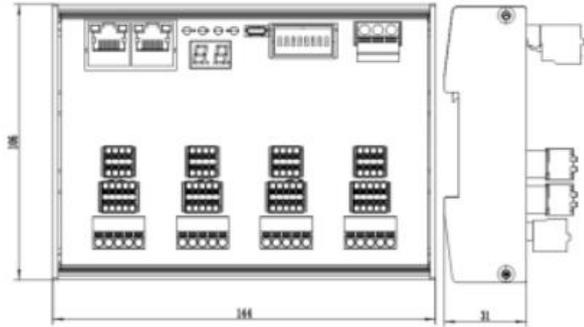
### ■ Specification

Driver model	Y2SD2-S80E-N2/Y2SD2-S80A-N2	
Adaptive motor	Two-axis 20~86mm two-phase closed-loop stepper motor	
Power supply	DC 24V-48V	
Output current	0.4A~6.5A/phase (peak)	
Drive mode	Full bridge bipolar PWM drive	
Device initialization time	2s	
Input signal	1 probe input	Optocoupler input voltage: H=24V, L=0-0.8V Conducting current 5~8mA
	3 general input signals	
Output signal	2 general output signals	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
	1 band type brake output	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 500mA
Output current	156×97×34 m (excluding connectors)	
Weight	About 500g	

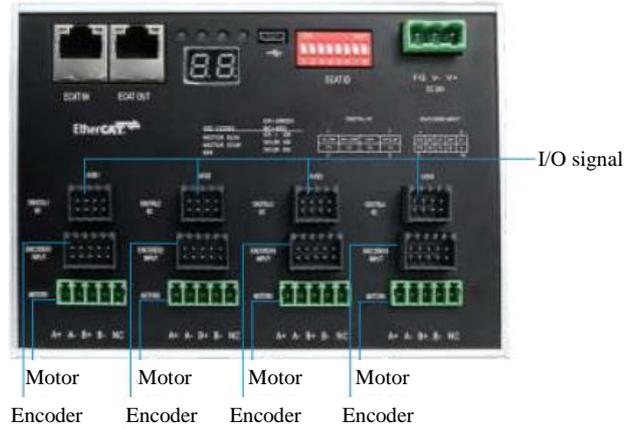
# Y2SD2-S80E-N4 EterCAT four-in-one EtherCAT bus



## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram

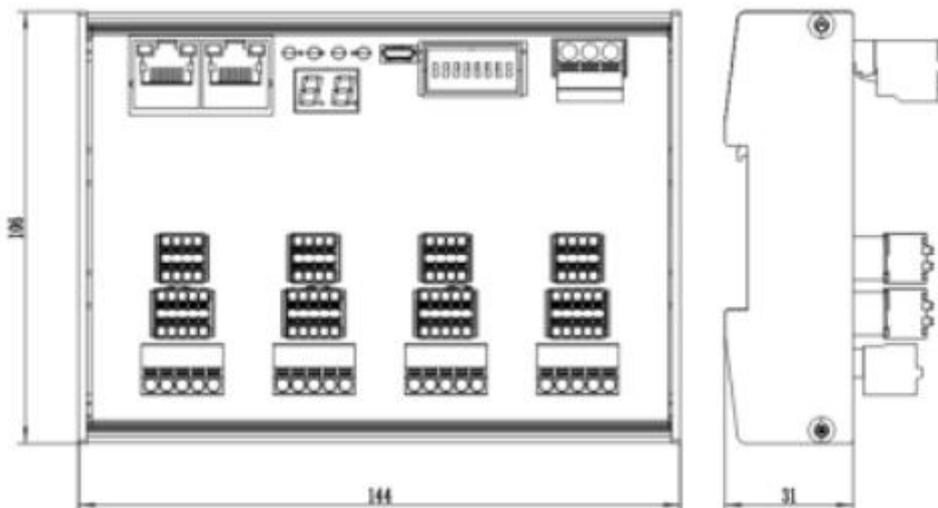


## ■ Specification

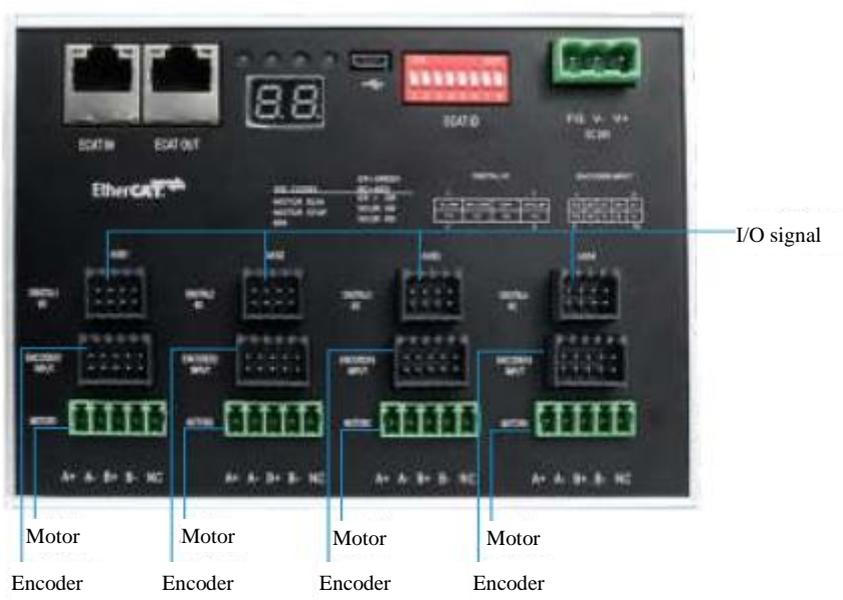
Adaptive motor	Adapting to two-phase open/closed-loop incremental stepper motors, it can adapt to the current up to 3.0A (peak)	
Power supply	DC 12V-36V	
Output current	0.4A~3.0A/phase (peak)	
Drive mode	Full bridge bipolar PWM drive	
Device initialization time	2s	
Input signal	1 probe input	Optocoupler input voltage: H=24V, L=0-0.8V Conducting current 5~8mA
	3 general input signals	
Output signal	2 general output signals	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
Dimensions	144×106×31 mm (excluding connectors)	
Weight	Approximately 450g	

# Y5SD2-S80E-N4 EterCAT four-in-one five-phase EtherCAT bus

## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram



## ■ Specification

Adaptive motor	Adapting to two-phase open/closed-loop incremental stepper motors, it can adapt to the current up to 3.0A (peak)	
Power supply	DC 12V-36V	
Output current	0.4A~3.0A/phase (peak)	
Drive mode	Full bridge bipolar PWM drive	
Device initialization time	2s	
Input signal	1 probe input	Optocoupler input voltage: H=24V, L=0-0.8V Conducting current 5~8mA
	3 general input signals	
Output signal	2 general output signals	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
Dimensions	144×106×31 mm (excluding connectors)	
Weight	Approximately 450g	

## Y2SS3-PN bus type stepper motor driver Profinet bus

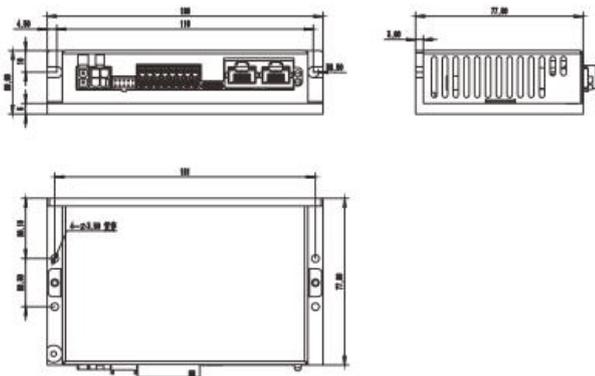


### ■ Specification

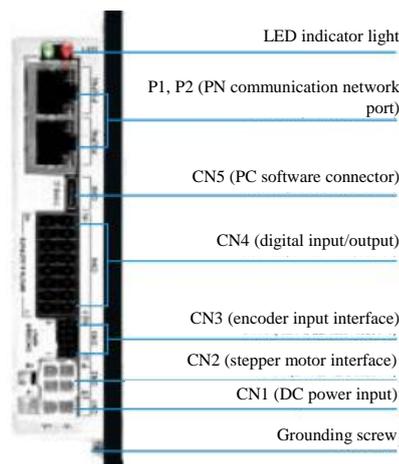
#### ● Driver parameters

Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SS3-PN	24~48	0.1~7.0	PROFINET bus	20~86mm two-phase stepper motor

#### ■ Mechanical dimensions (unit: mm)



#### ■ Wiring Diagram



### ■ Specification

Adaptive motor	Two-phase stepper motors of size 86 and below	
Installation Dimensions	128×77.8×29.6 mm	
Open loop/closed-loop control	Compatible with open-loop or closed-loop control	
Encoder interface	Support up to 5000-line incremental encoders (20000 pulses/revolution)	
Control mode	PROFINET bus communication control (message 1, 3, 111)	
Communication interface	USB-C	Connect to PC for parameter settings, status monitoring, etc.
	RJ45 network port	PROFINET communication interface
Control signal	Digital input signal	Differential: 3; single-ended: 2; opto-isolator; the common terminal supports 5-24VDC
	Digital output signal	3 open collector outputs; opto-isolator; maximum output 100mA@30V 1 brake output, maximum output 100mA@30V
Recommended service environment	Temperature	0~+55 °C
	Humidity	Below 0-90% RH
	Altitude	1000 m below
	environment	No corrosive gases or dust
Dielectric strength	The product shall not come in contact with water and oil AC1.5KV between ground wires, capable of withstanding voltage for 1 minute	

# Y2SS3-ECX bus type stepper motor driver EtherCAT bus

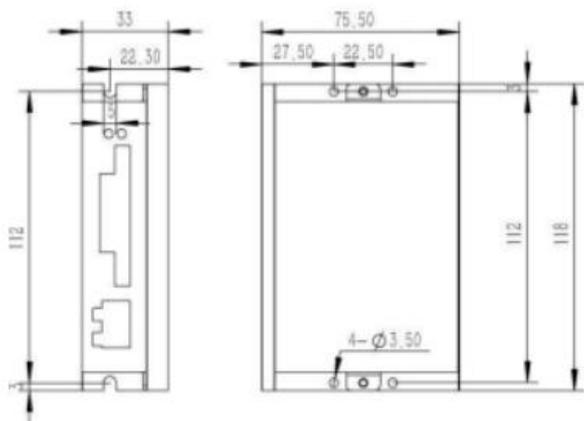


## ■ Specification

### ● Driver parameters

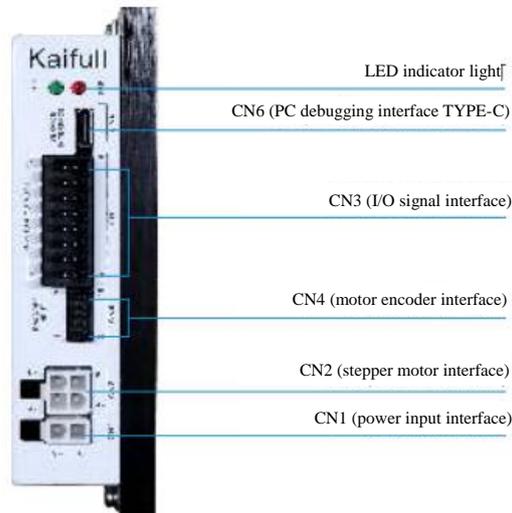
Model	Input voltage VDC	Output current A	Control Mode	Adaptive motor
Y2SS3-ECX	24~48	0.1~7.0	EtherCAT protocol	20~86mm two-phase stepper motor

## ■ Mechanical dimensions (unit: mm)



Unit: mm; mass: 0.293kg

## ■ Wiring Diagram



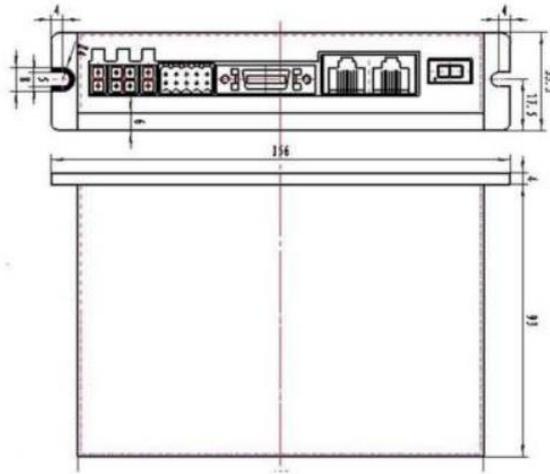
## ■ Specification

Adaptive motor	20~86 closed-loop stepper motor
Input power voltage	24~48VDC
Output current	0.1~7A (peak)
Digital input signal	Optoelectronic isolation, differential, 5-24VDC high-level logic origin signal, positive limit, negative limit, emergency stop, probe
Digital output signal	Optoelectronic isolation, open collector, maximum 24V/100mA, band type brake output, alarm output, in-place output
Encoder input signal	5V differential, incremental encoder phase A/B/Z signal
Communication interface	EtherCAT (RJ45 connector) and Type-C (used for configuring parameters)
Supported protocol	CoE (CiA 402 protocol)
Operation mode	Profibus Position, Profibus Velocity, Cyclic Synchronous Position, Cyclic Synchronous Velocity, Homing mode
Supported protocol	Overvoltage protection, undervoltage protection, overtemperature protection, overcurrent protection, motor line open circuit detection, motor overload detection, etc.
Status indication	1 red light and 1 green light
Mass	0.293Kg

# Y2SD2-S40A absolute value RS485 bus



## ■ Mechanical dimensions (unit: mm)

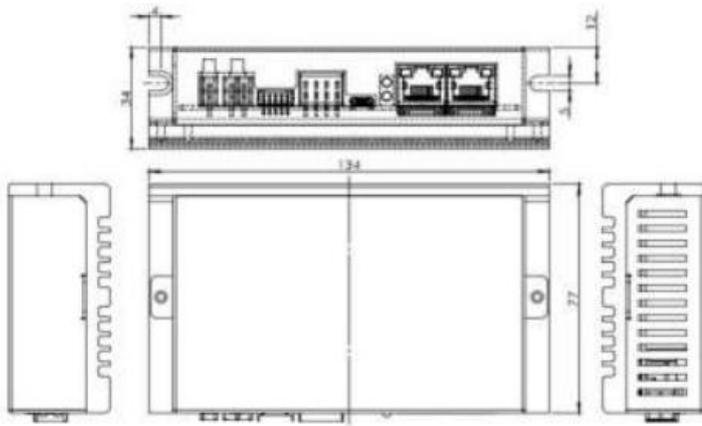


## ■ Specification

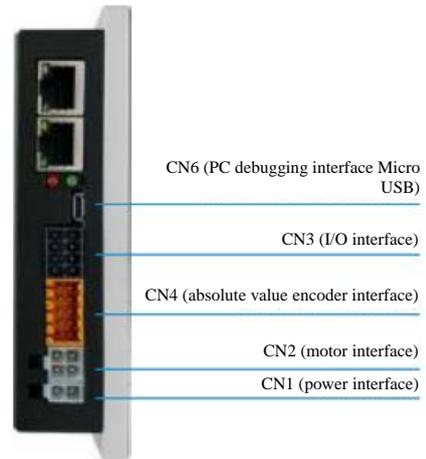
Adaptive motor	2-phase bipolar stepper motor of the encoder	
Installation Dimensions	156×97×33.5 mm	
Power supply	DC 24V~48V ±10%	
Output current	7.8A	
Drive mode	Full bridge bipolar PWM drive	
Supported control modes	Internal pulse mode	The mode is set through Simple Tuner Pro software
Communication interface	External pulse mode	
Detailed content of digital inputs	Except that the encoder output is fixed, all other inputs/outputs can be freely configured through communication	
	/SV ON (Servo 0n)	
	/RESET (alarm reset)	
	/START (motor start/stop)	/
	/JOG (motor jog)	
Detailed content of digital outputs	/HOME (return to home position)	
	/IN POSITION	/
LED indicator	/ALARM	/
	Status and fault	/
Communication I/F	RS485, up to 30 nodes	MODBUS RTU protocol, baud rate: 19200bps (preset) or as agreed
Control method	Position control mode	Based on pulse positioning and RS485 communication positioning
	Speed control mode	Digital instruction
Operating temperature/humidity	0~45°C, below 85% RH	Prevent condensation
Storage temperature	0~85°C, below 85%	Prevent condensation
Ambient gas	Prevent corrosive gases	/

# Y2SD2-S80A absolute value EtherCAT bus CANopen bus

## ■ Mechanical dimensions (unit: mm)

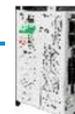


## ■ Wiring Diagram

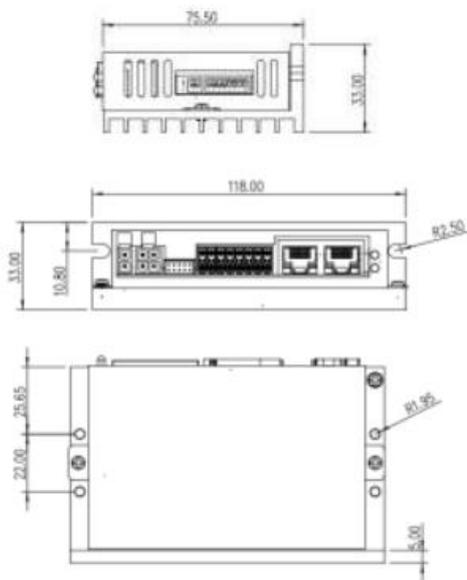


## ■ Specification

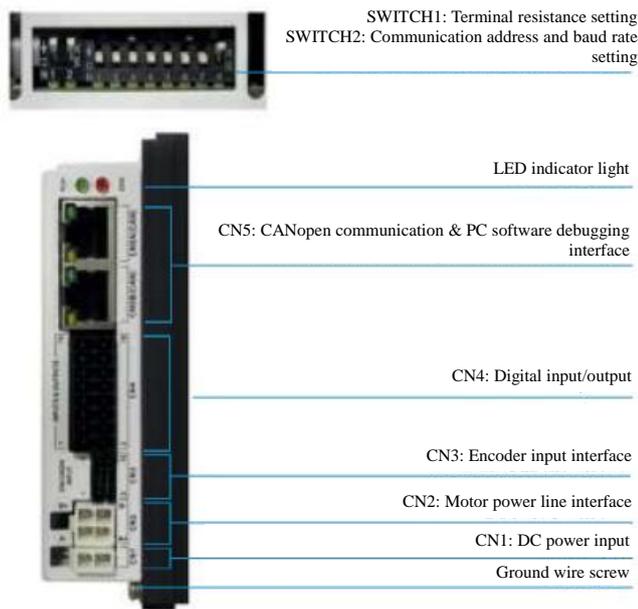
Installation Dimensions	134×77×34 mm	
Adaptive motor	Adapting to two-phase hybrid stepper motors, it can adapt to the current up to 6.0A (peak)	
Power supply	DC 24V~48V	
Output current	0.4A~6.0A/phase (peak)	
Drive mode	Full bridge bipolar PWM drive	
Output current	2s	
Input signal	1 high-speed input signal	Optocoupler input voltage H=24V, L=0-0.8V, conduction current 5~8mA
	3 general input signals	Optocoupler input voltage H=24V, L=0-0.8V, conduction current 5~8mA
Input signal	1 general output signal	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
	1 band type brake output	Optoelectronic isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
Recommended service environment	Temperature	0+ 55 ℃
	Humidity	Below 0-90% RH
	Altitude	1000 m below
	environment	No corrosive gases or dust The product shall not come in contact with water and oil



## ■ Mechanical dimensions (unit: mm)



## ■ Wiring Diagram

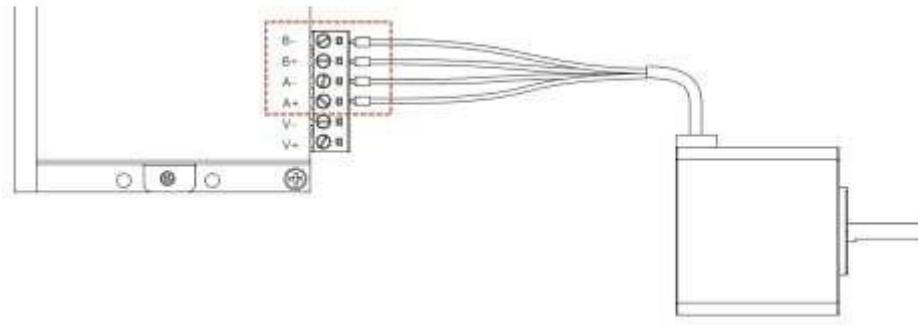


## ■ Specification

Input power	24~70VDC or 18~50VAC	
Current output	0.1-7A (peak)	
Adaptive motor	20~86 mm two-phase closed-loop stepper motor	
Open loop/closed-loop control	Compatible with open-loop or closed-loop control; default: closed loop	
Encoder interface	Support up to 5000-line incremental encoders (20000 pulses/revolution)	
Control mode	CANopen bus communication control	
Communication interface	RJ45 network port	CANopen communication interface; connect to PC for parameter settings, status monitoring, etc.
Baud rate (bit/s)	Dial setting: 50K, 100K, 125K, 250K, 500K, 1M	
Control signal	Digital input signal	Differential: 3; single-ended: 2; opto-isolator; the common terminal supports 5~24VDC
	Digital output signal	3 open collector outputs; opto-isolator; maximum output 100mA@30V
		1 brake output, maximum output 100mA@30V

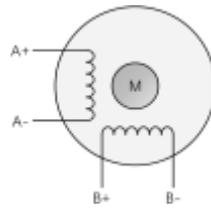
# Wiring Diagram

## ■ Motor connection



### Connecting the 4-wire motor

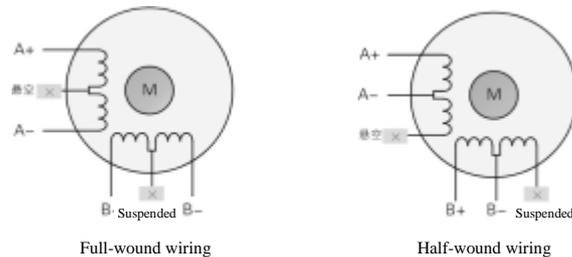
When a 4-wire motor is used, there is only one wiring method. You only need to connect the motor lead to the corresponding phase output on the driver one by one.



### Connecting the 6-wire motor

A 6-wire stepper motor is equivalent to adding a center tap at the center of each winding on the winding basis of a 4-wire motor. When a central tap wiring is used, it is called half-wound wiring. On the contrary, it is called full-wound wiring. The fully wound wiring method is suitable for scenarios where high torque is outputted at a low speed; if the motor needs to run at a high speed, it is recommended to use half-wound wiring.

- Commonly used wiring method: half winding

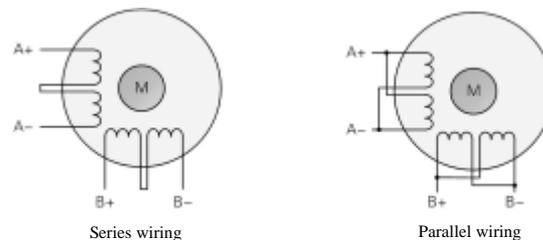


⚠ When the full-wound wiring is used, the motor needs to operate at a current which is lower than the rated current by 30% to avoid overheating

### Connecting the 8-wire motor

The 8-wire stepper motor has 4 windings. Connect each two of the windings in series. At this point, the structure is similar to the full-wound wiring of the 6-wire motor, and suitable for scenarios where high torque is outputted at a low speed; when connected in parallel, the motor can achieve high-speed operation while requiring greater current.

- Commonly used wiring method: parallel connection

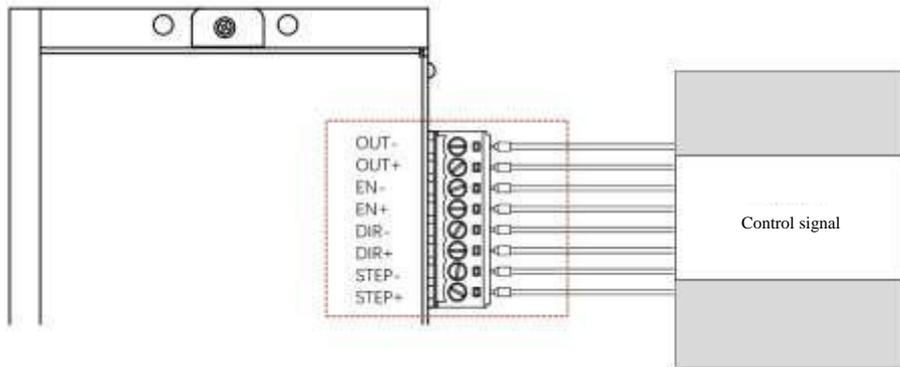


**⚠**When the series wiring is used, the motor needs to operate at a current which is lower than the rated current by 50% to avoid overheating

- The motor power wire should not be in the same conduit as the pulse control signal wire. Otherwise it may cause interference and lead to incorrect operation.
- To ensure the normal operation of the motor, please control the distance of the motor power wiring to be within 20 meters.

**■ Control signal connection**

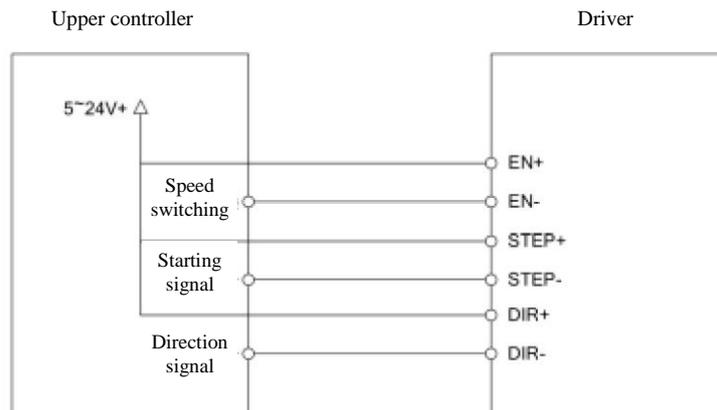
Applicable wires: AWG24 (0.2mm<sup>2</sup>) and above wires



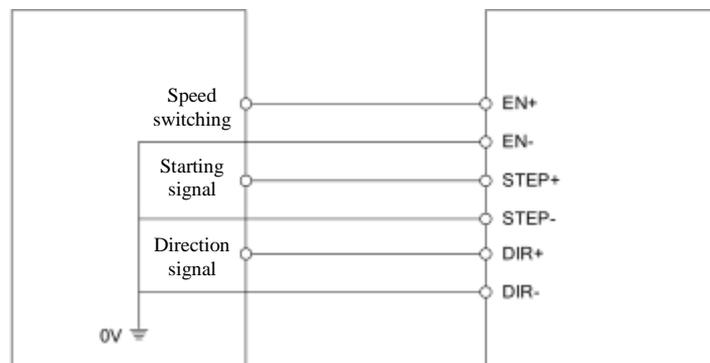
**• Input signal connection**

EN	EN, enable signal/speed switching
STEP	STEP, pulse signal/start signal
DIR	DIR, direction signal

**• NPN type connection method**



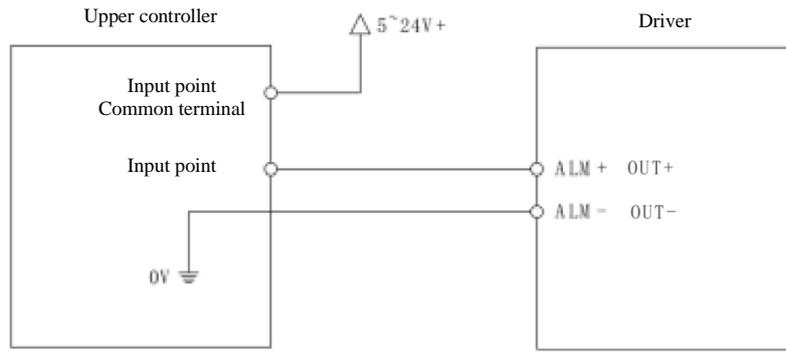
**• PNP type connection method**



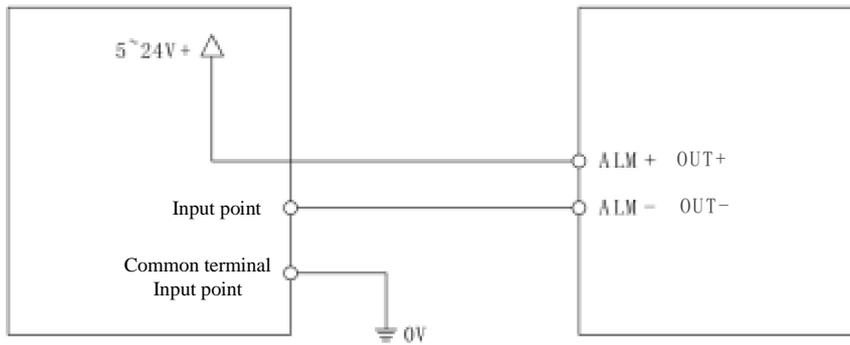
● Alarm output connection

ALM/OUT output	When the drive is normal, it is OFF; when an alarm occurs, it is ON
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● NPN output



● PNP output



■ Driver error code

LED indicator light	Meaning	Resolution
Green light normally on	Motor not enabled	-
Green light flashing	Motor enabled normally	-
4 red lights and 1 green light	Excessively high bus voltage	1. Check whether the supply voltage of the driver is too high; 2. In case of overvoltage during movement, the motor deceleration time can be increased.
4 red LED lights and 2 green LED lights	Excessively low bus voltage	Check whether the supply voltage of the driver is too low;
5 red lights +1 green light	Motor overcurrent	1. Check whether the motor has been damaged; 2. Check whether the set current of the driver is too high.
6 red lights +1 green light	Motor open circuit	1. Check whether the motor wiring is correct; 2. Check whether the motor has been damaged
5 red LED lights and 2 green LED lights	Position deviation	1. Check whether the encoder wire is connected correctly and securely 2. Check whether the encoder resolution is set correctly 3. Check whether the motor is blocked 4. Increase the acceleration and deceleration time appropriately

New Arrival in 2024

# Mechanical Operation Smoothness Detection System Kaifull A&F Vida-Rotest



## System Introduction

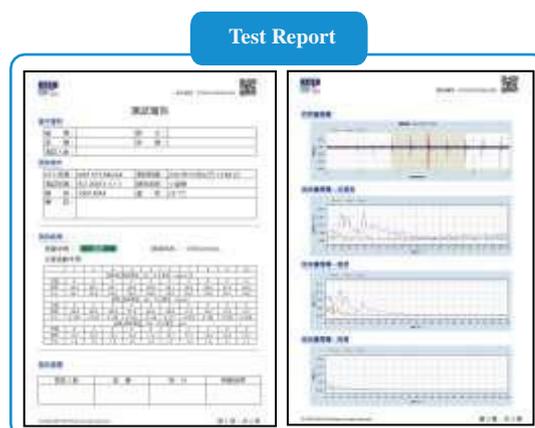
The A&F Vida-Rotest-mechanical operation smoothness detection system is based on the A&F VTS neuron sensor and is used for rapid inspection of the dynamic characteristics of the machine, equipment, and electric drive modules/mechanisms during operation (according to ISO20816). Through three simple steps, it can quickly generate inspection reports, so that you can easily and quickly grasp the machine condition, make accurate decisions, and use it for product consistency inspection, grading, and classification. It is an indispensable partner in design, assembly, warranty, product quality control, and so on.



Complete test through three simple steps

## System Features

- ◆ Easy to operate and quick to come online
- ◆ Automatic data analysis, use of multiple analysis tools
- ◆ Can switch the display of three frequency spectrums of speed, acceleration, and displacement
- ◆ Data extraction and establishment of test reports
- ◆ Automatic generation of test report numbers, easy to manage



## A&F VTS Mechanical Neuron Sensor

A&F VTS is an integrated sensor with a 32-bit built-in cell processor, and can measure such parameters as acceleration, angular velocity, vibration, levelness and inclination. It is very suitable for the adjustment, monitoring and state prediction of precision mechanical equipment, actuators, machines, equipment and structures.

VTS is lightweight, small, low-noise, portable, power-saving, plug and play, and can measure vibration levels up to VC-C. The support software with diversified functions enables VTS to be flexibly applied in various fields such as precision machinery, automotive, aviation, structural and civil engineering, and biomedicine, and assist in monitoring the performance and stability of different systems and structures. It is the best tool for monitoring, analysis, and optimization of machines, equipment, structures, and key components.

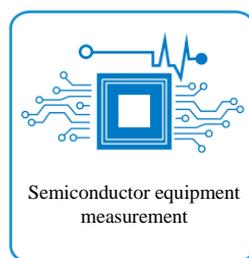
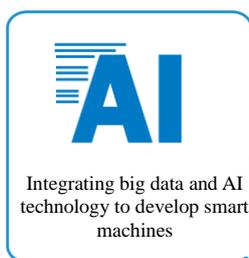
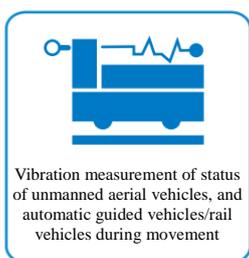
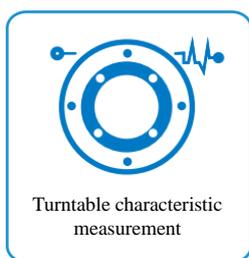
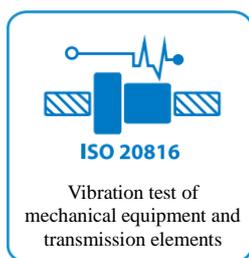
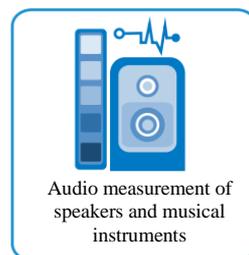
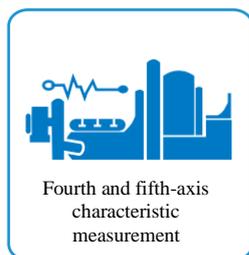
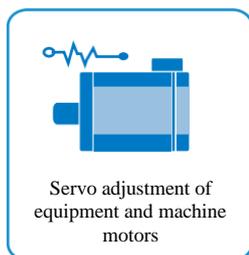
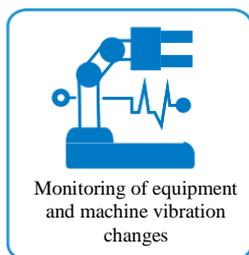


### Product specification (VTS-B)

Sensor	3-axis accelerometer + 3-axis gyroscope
Bandwidth	250 Hz
Accelerometer	Measurement range: $\pm 2g$ ; resolution: 0.061 mg/LSB noise: 90 $\mu g/\sqrt{Hz}$
Gyroscope	Measurement range: $\pm 250$ dps; resolution: 0.01 dps/LSB noise: 10 mdps/ $\sqrt{Hz}$
Measurement accuracy of $\theta_x$ and $\theta_y$ angles	$\pm 0.05^\circ$

Note 1: It needs to be equipped with CHIUAN YAN release software.

## Product Application



Semiconductor packaging	Lithography equipment	Laser processing	Wafer detection	AOI detection	Electronic element assembly
Precision dispensing	Life medicine	PCB drilling	Textile	Digital printing	Intelligent sorting
Luggage transport	High-speed bonding equipment	Food processing	Coordinate measuring machine	Precision grinding	Wire cutting
Ultra-high speed cutting	.....				



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