

P Series AC Servo Catalogue

Normal Pulse Type

EtherCAT Type



P SERIES AC SERVO SYSTEM

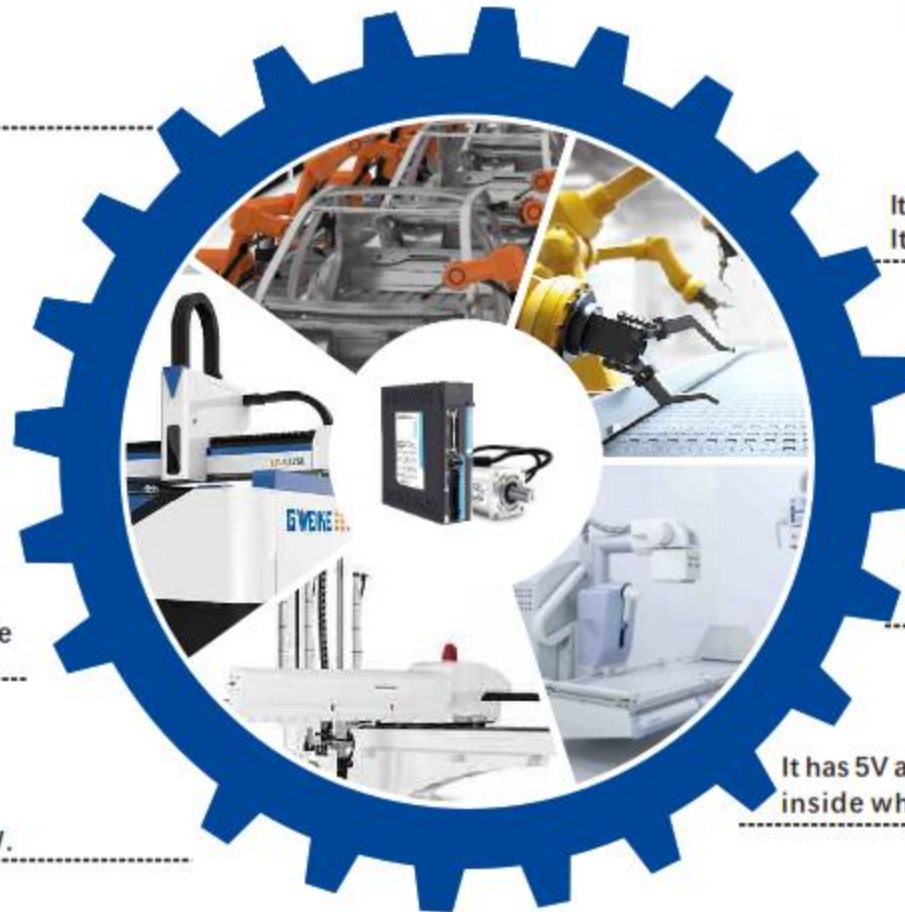
Features

It adopts DSP chip with higher precision.

It supports 2500ppr incremental encoder and 17bits~23 bits absolute encoder.

It can match servo motors automatically to make motors work better.

It supports motor power from 100W~3000W.



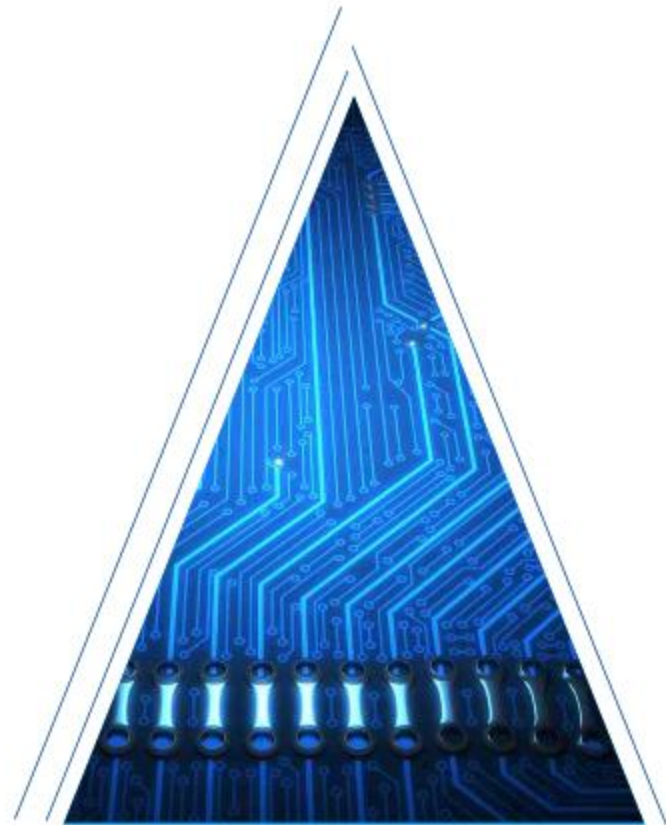
It supports pulse command and EtherCAT communication. It supports RS485 protocol.

uilt-in dynamic braking as standard, building equipment safety system

It has abundant functional terminals. In internal position mode, pulse terminal can act as programmable input terminal.

It has 5V and 24V signal terminals and is with 24V power supply inside which can resist interference effectively.

— More Reliable Motors And Drives —



CONTENT

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Pulse Type AC Servo System 01-14

B

Field Bus Type AC Servo System 15-22

C

AC Servo Motor 23-33



P Series Pulse Type AC Servos

System Description
Drive Introduction



P Series AC Servo System Description

System Features

Strong internal motion control functions which can realize position, speed, torque, homing controlling modes. It also supports I/O control and standard Modbus RTU protocol. It can replace PLC partly, which helps to save cost.



Easy To Connect With Touch Screen(HMI)

- Easy control system
- Save wirings
- Set parameters and state monitoring



Realize RS485 to make motion through PLC

- PLC with RS485 interface
- Easy controlling and programming
- Save PLC output points



Directly To Control Through Swithes

- Simple motion control case
- Low cost design
- Circular control of point movement

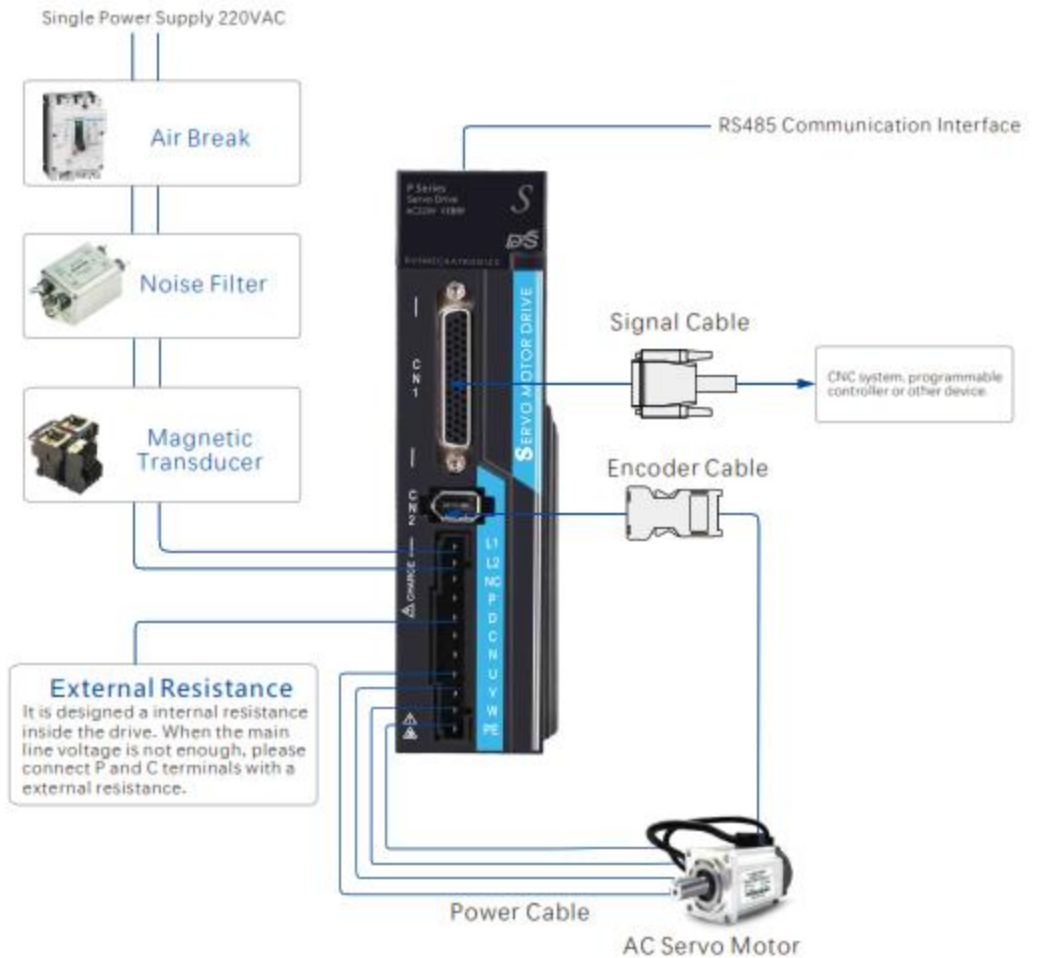


Through I/O module Of PLC

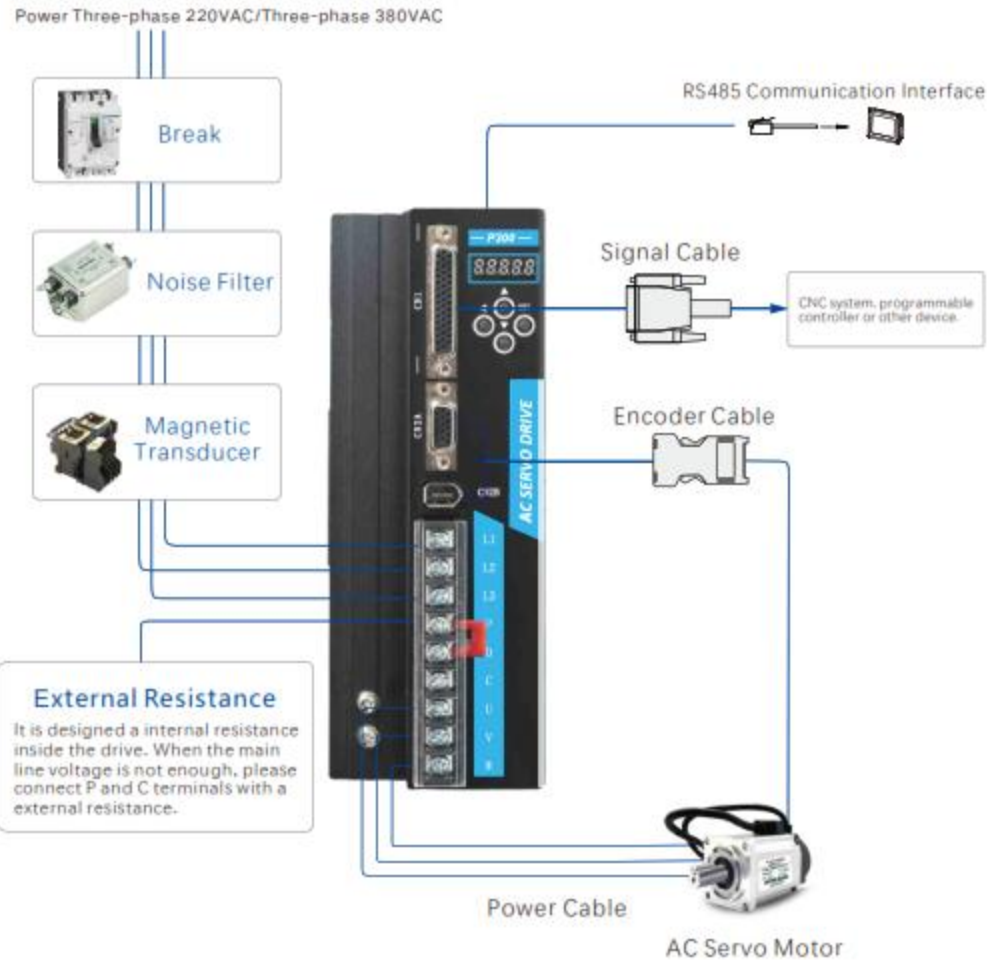
- Need PLC pulse output module
- Reduce system design cost
- Easier contro and operation

System Wiring Example

Drives Of P100 Series As Example:

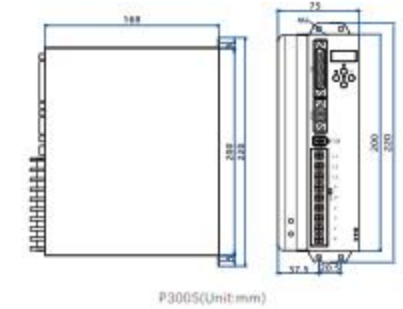
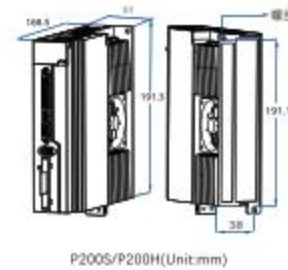
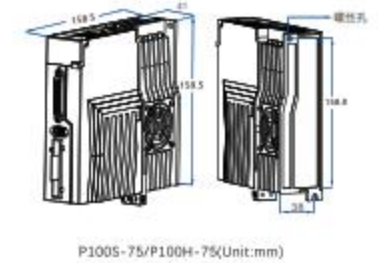
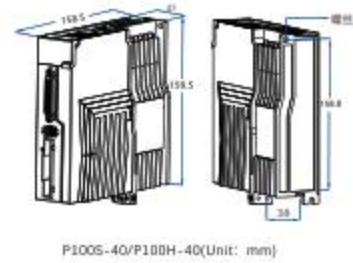


Drives Of P300 Series As Example:

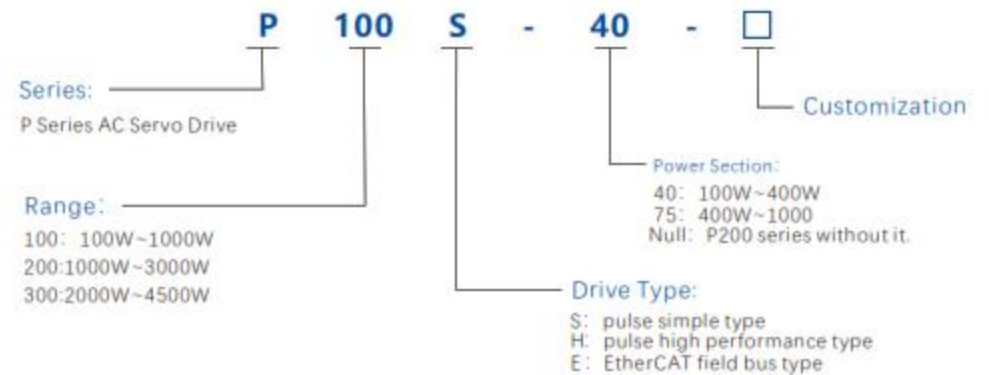


Pulse Type AC Servo Drive Introduction

Dimension



Name Ruling



Drive Specification

Model	P100S-40	P100H-40	P100S-75	P100H-75	P200S	P200H	P300S
Type	simple	high performance	simple	high performance	simple	high performance	simple
Output Power	0.1KW-0.4KW	0.1KW-0.4KW	0.75KW-1KW	0.75KW-1KW	1KW-2KW		2KW-4.5KW
Input Voltage	Single phase AC220V-15%~+10% 50/60Hz				1/3 phases AC220V-15%~+10% 50/60Hz		Three-phase AC220V/ Three-phase AC380V -15%~+10% 50/60Hz
Control Mode	0: position control. 1: speed control. 2: torque control. 3: speed and position. 4: position and torque contro. 5: speed and torque control.						
Protection	overspeed/under voltage/over current/over load/encoder error/over position etc.						
Monitoring	speed/current position/command pulse accumulation/position deviation/torque/current/working state etc.						
Control Input	1:servo enable 2: alarm clearance 3:CCW prohibition 4: CW prohibition 5:deviation counter clearing 6:command pulse suppression 7:CCW torque limit 8: CW toruqe limit						
Control Input	servo ready/servo alarm/ positioning completion/ mechanical brake etc.						
Dynamic Braking	build-in/ build-out						
Load	less than 3 times of motor load						
Display	5 digital tubes and 4 operation keys						
Communication	RS485						
Position Control	Input Mode	0: pulse+direction 1: CCW/CW pulses 2: A/B phases orthogonal pulse 3: internal position control					
	Electric Gear Ratio	gear ratio numerator: 1-32767 gear ratio denominator: 1-32767					

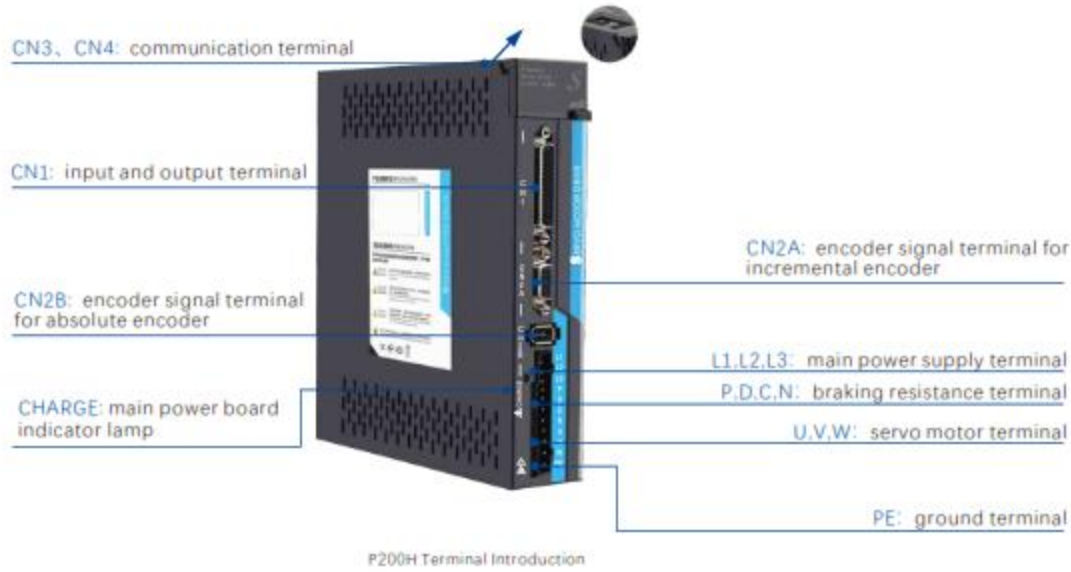
Drive Terminal Introduction

Applicable Model: ● P100S-40 ● P100H-40 ● P100S-75 ● P100H-75

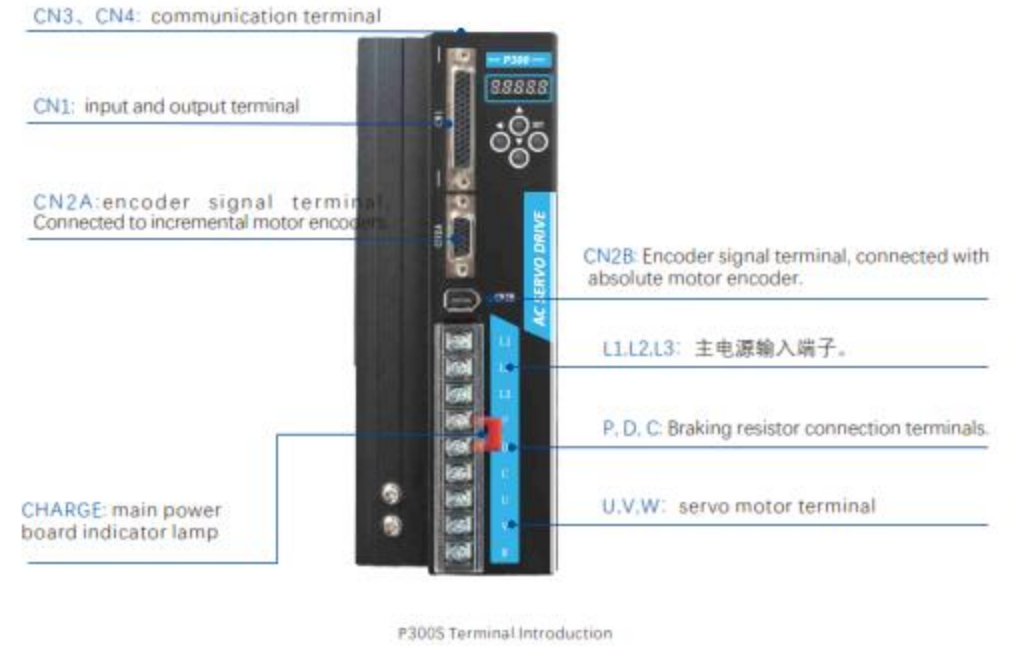


P100S/H Terminal Introduction

Applicable Model: ● P200S ● P200H



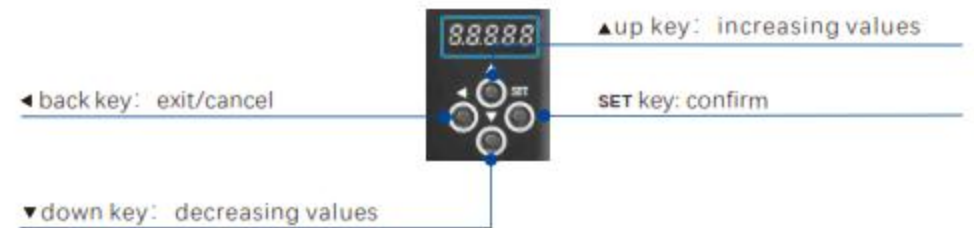
适用型号: ● P300S



Front Panel Introduction



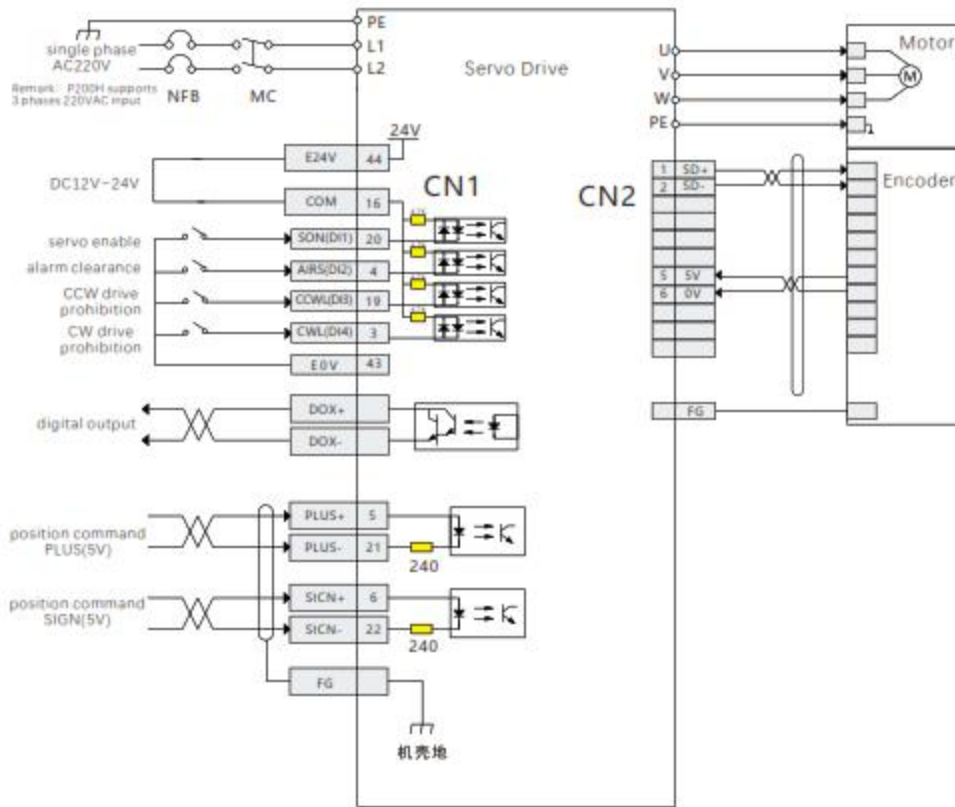
Front Panel Introduction



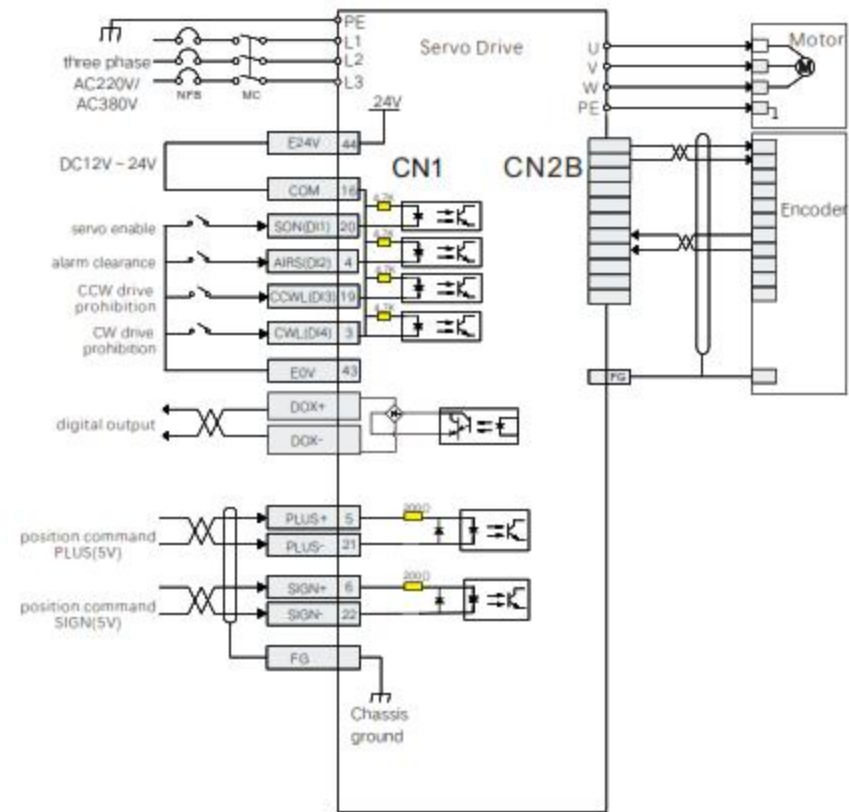
Drive Control Mode Wiring

● Position Control Mode

Applicable: ● P100S-40/P100H-40 ● P100S-75/P100H-75 ● P200S ● P200H



Applicable: ● P300S

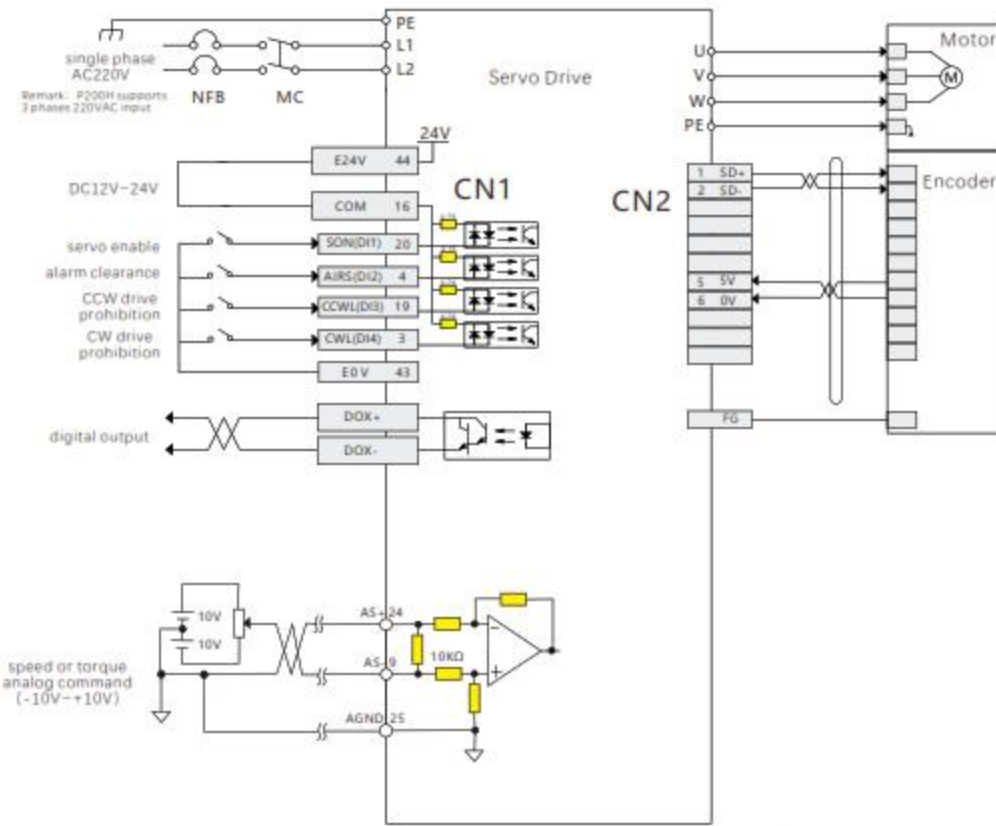


- ⚠ 1. Internal +24V power supply ranges from 20V~28V and maximum working current is 100mA. If use external 24V power supply, please connect +24V of the power supply to pin No.16(COM) and 0V to pin No.43(E0V).
- 2. The output power supply of DO should be prepared by user. The voltage ranges 5V~24V and the maximum allowable voltage for DO terminals is DC30V and current is 50mA.

Drive Control Mode Wiring

● Speed/torque control mode wiring diagram

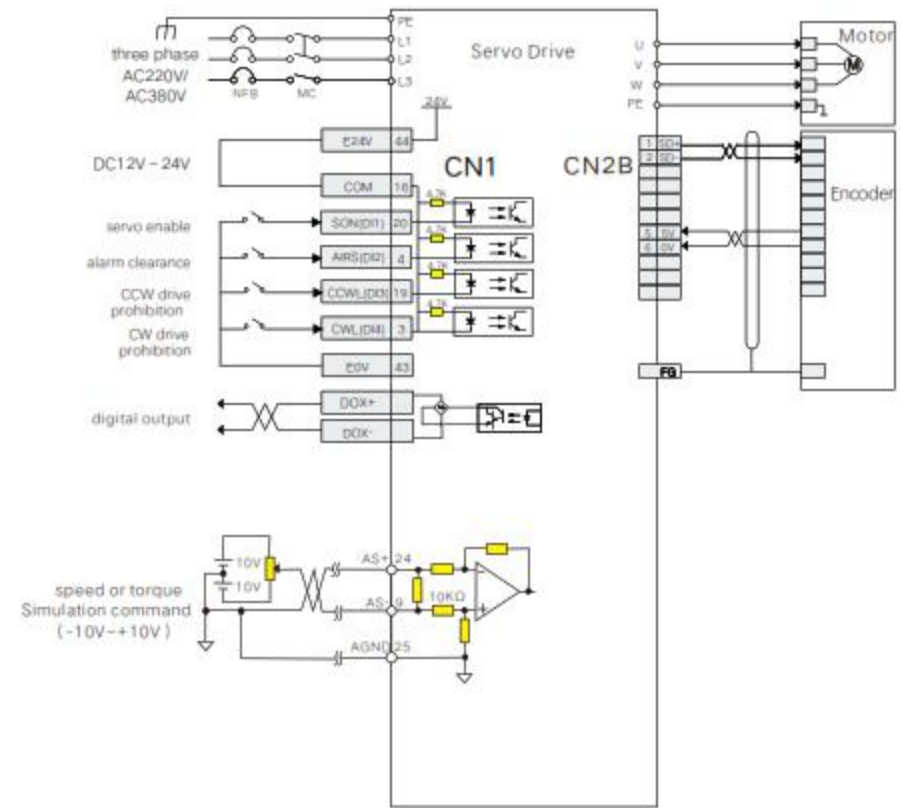
Applicable: ● P100S-40/P100H-40 ● P100S-75/P100H-75 ● P200S ● P200H



Remark: pair twisted shielded cable

- ⚠ 1. Internal +24V power supply ranges from 20V~28V and maximum working current is 100mA. If use external 24V power supply, please connect +24V of the power supply to pin No.16(COM) and 0V to pin No.43(E0V).
- 2. The output power supply of DO should be prepared by user. The voltage ranges 5V~24V and the maximum allowable voltage for DO terminals is DC30V and current is 50mA.

Applicable: ● P300S



EtherCAT®



EtherCAT Bus Field AC Servos

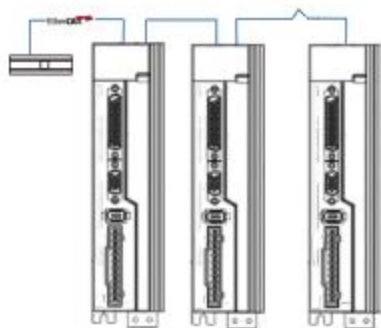
System Description
Drive Introduction



EtherCAT Type AC Servo System

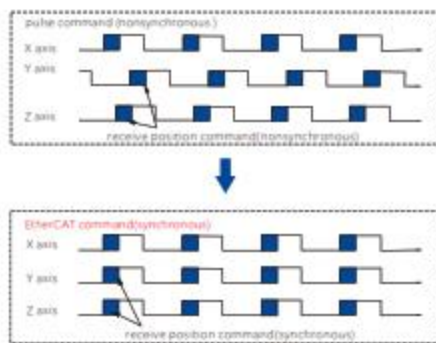
Feature Introduction

- Integrated EtherCAT Bus for Automated Industrial Ethernet Standards



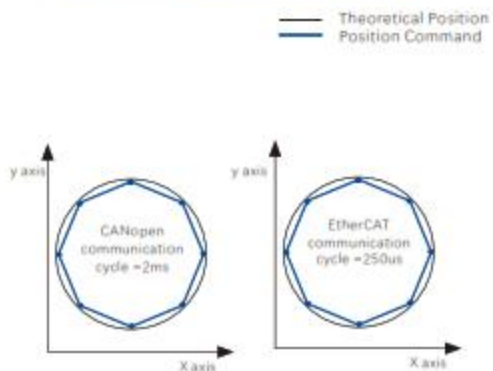
The EtherCAT bus drive uses a standard RJ45 interface and requires only one cable to realize real-time transmission of instructions, as well as status feedback of motors and drives. It provides a more reliable networking, and greatly reduces the complexity of the system.

- Precision Synchronization



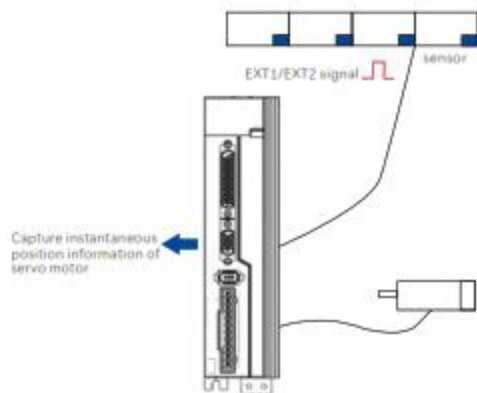
The synchronization error is less than 15 ns and shake is ± 20 ns by the accurate adjustment of the EtherCAT distributed clock, which can realize multi-axis synchronous communication and is suitable for mechanical devices with high synchronization accuracy.

- Microsecond communication cycle with more accurate and smooth position control



Data transmission is bi-directional 100Mbps supporting 1ms communication cycle. When it is less than 1ms, it supports 250us integer multiple (communication cycle related to PC specifications), with more accurate smooth position control. It is suitable for engraving machine and optical fiber machine and other real-time requirements for high occasions.

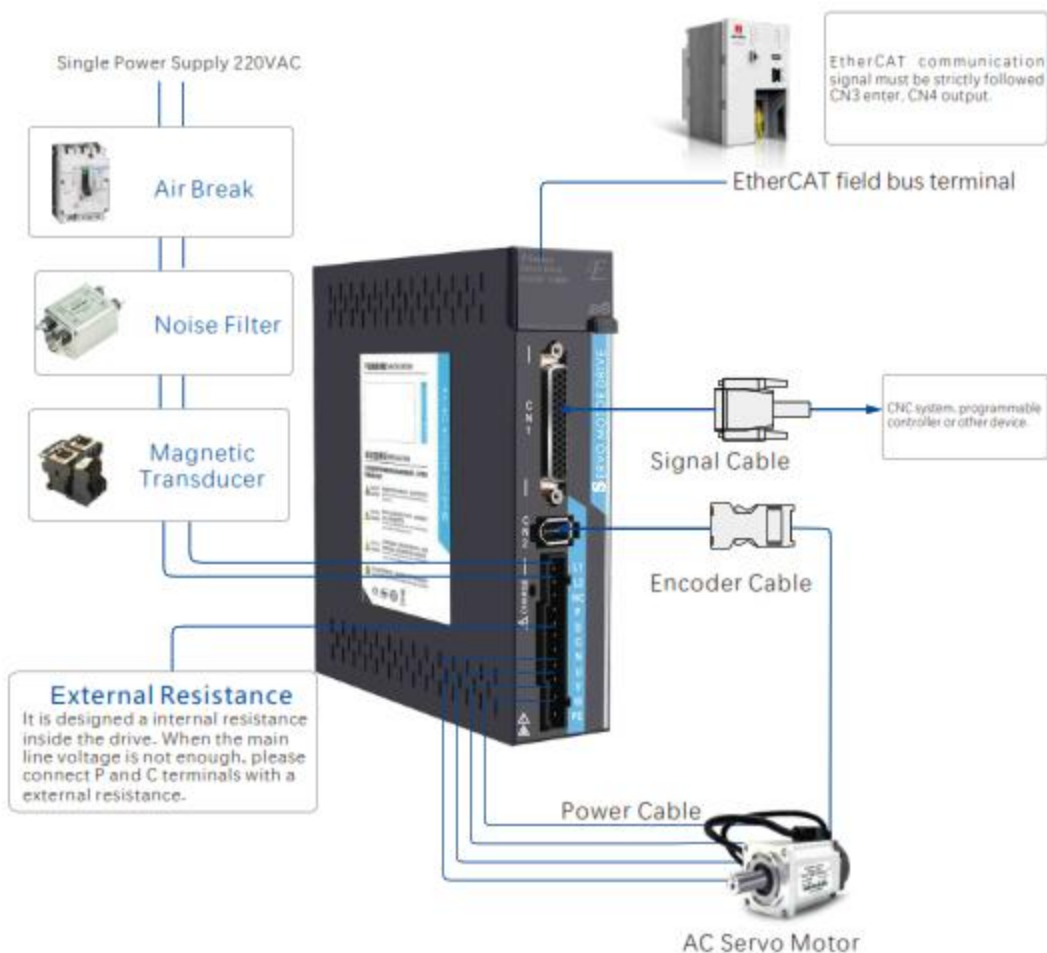
- Real-time Position Capture



The real-time position information of the motor can be acquired and recorded by instantly high speed input signal (EXT1/EXT2) with probe function.

System Wiring Example

Drives Of P100 Series As Example:



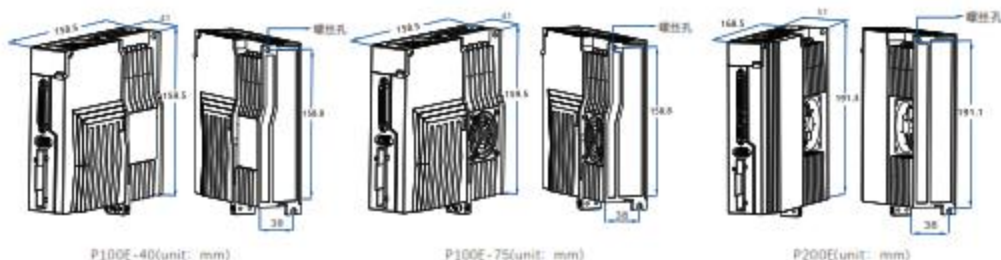
EtherCAT communication signal must be strictly followed CN3 enter, CN4 output.

CNC system, programmable controller or other device.

External Resistance
It is designed a internal resistance inside the drive. When the main line voltage is not enough, please connect P and C terminals with a external resistance.

EtherCAT AC Servo Drive Introduction

Dimension



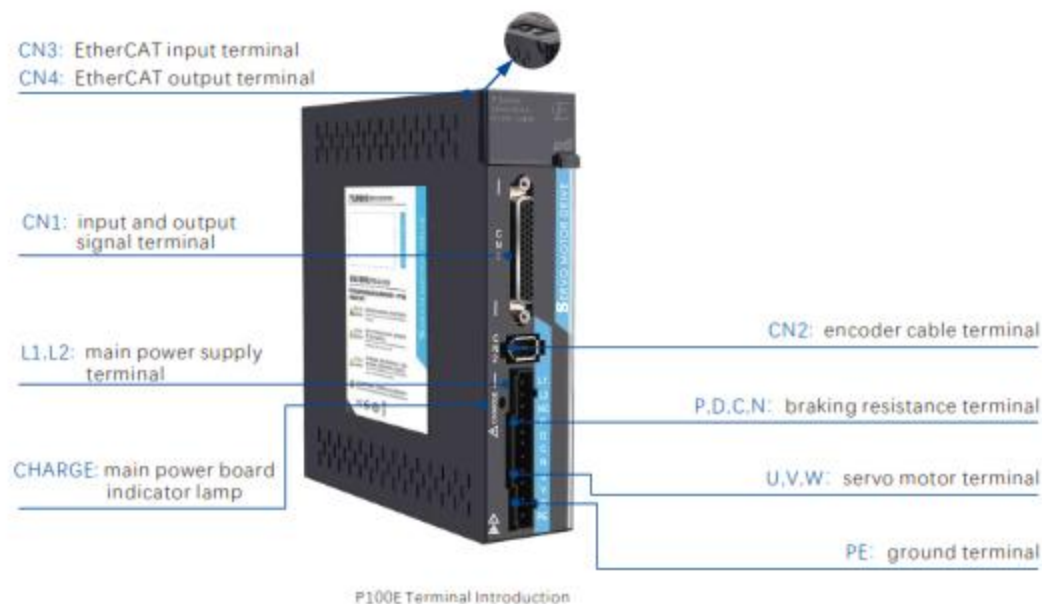
Drive Specification

1:servo enable 2: alarm clearance 3:CCW prohibition 4: CW prohibition 5:deviation counter clearing 6:command pulse suppression 7:CCW torque limit 8: CW torque limit

Model	P100E-40	P100E-75	P200E
Output Power	0.1KW~0.4KW	0.75KW~1KW	1KW~2KW
Input Voltage	Single phase AC220V-15%~-+10% 50/60Hz	1/3 phases AC220V-15%~-+10% 50/60Hz	
Monitoring	speed/position/command pulse accumulation/position deviation/torque/current/working state etc.		
Control Mode	position control/speed control/test run control/JOG control/torque control		
Protection	overspeed/under voltage/over current/over load/encoder error/over position etc.		
Control Input	1: negative limit 2: positive limit 3: origin signal 4: CCW prohibition 5: CW prohibition 6: deviation counter clearing 7: command pulse suppression 8: CCW torque limit 9: CW torque limit		
Dynamic Braking	buid-in/build-out		
Load	less than 3 times of motor load		
Display	5 digital tubes and 4 operation keys		
Input Output Signal	input signal	8 ways digital inputs: servo enable, alarm clearance, CCW/CW prohibition, zero speed clamp, zero command, command reverse, speed selection, torque selection, pulse input prohibition, homing signal, probe, positive limit, negative limit.	
	output signal	6 ways digital outputs: servo ready, alarm, zero speed, positioning completion, speed arrival, torque arrival, magnetic brake, servo working, near positioning, torque limit, speed limit.	
Position Control	input way	EtherCAT field bus communication	
	electric gear ratio	gear ratio shaft precision:1-131072	
		gear ratio motor precision:17 bits,23 bits	

Drive Terminal Introduction

Applicable Mode: ● P100E-40 ● P100E-75

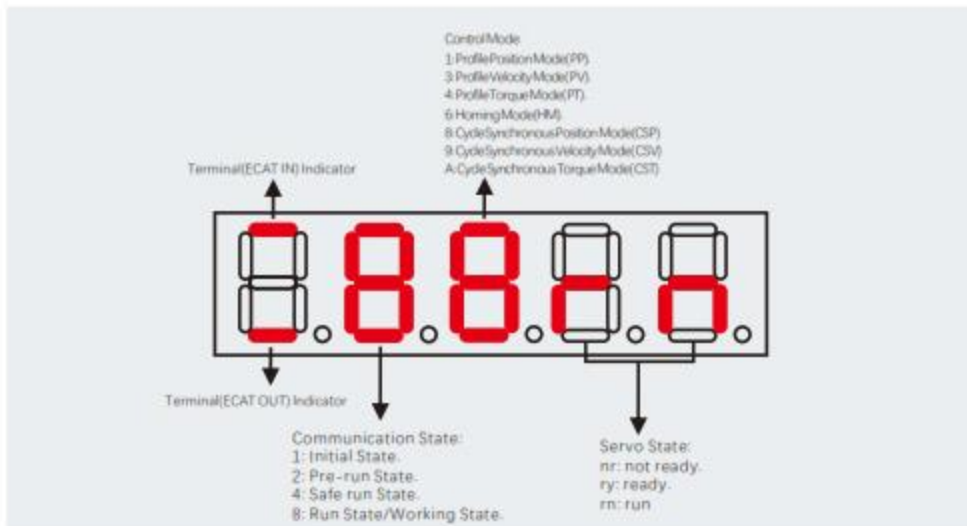


Applicable Mode: ● P200E



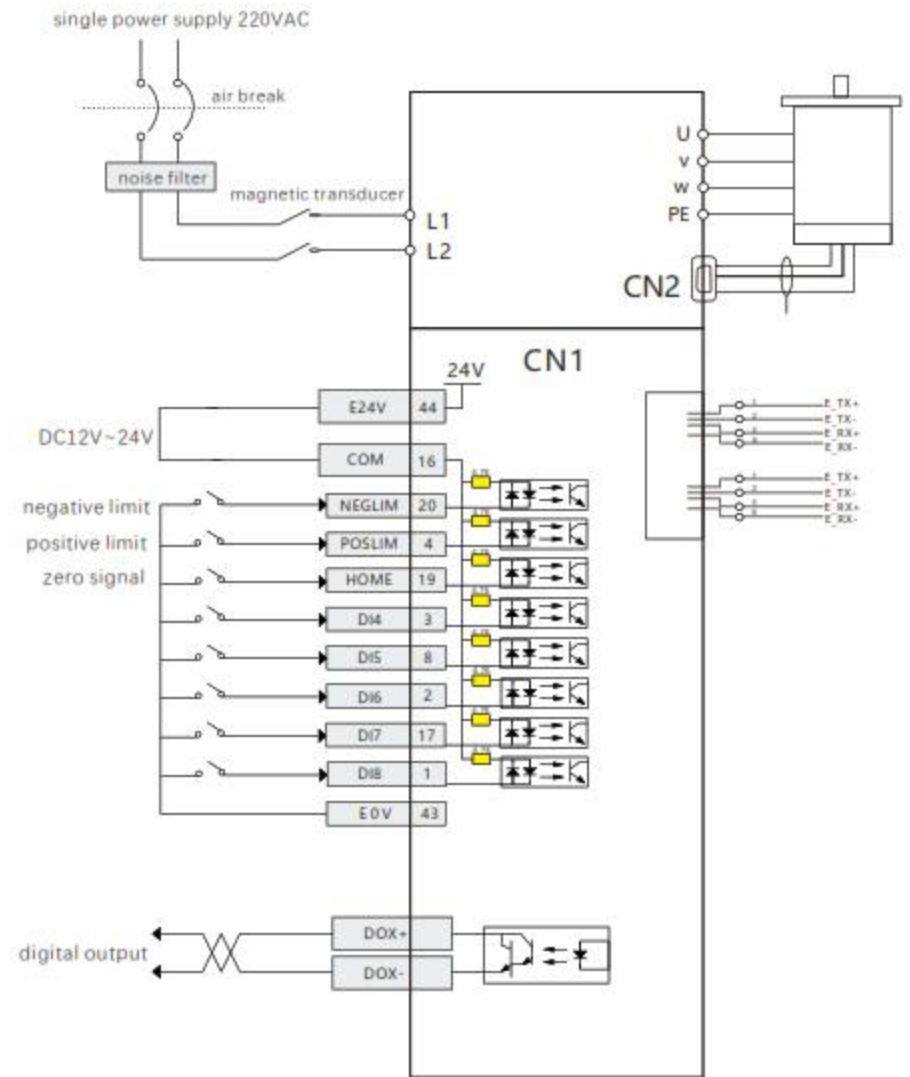
P200E Terminal Introduction

Panel Status Monitoring



EtherCAT Control Wiring

Drives Of P100E Series As Example:





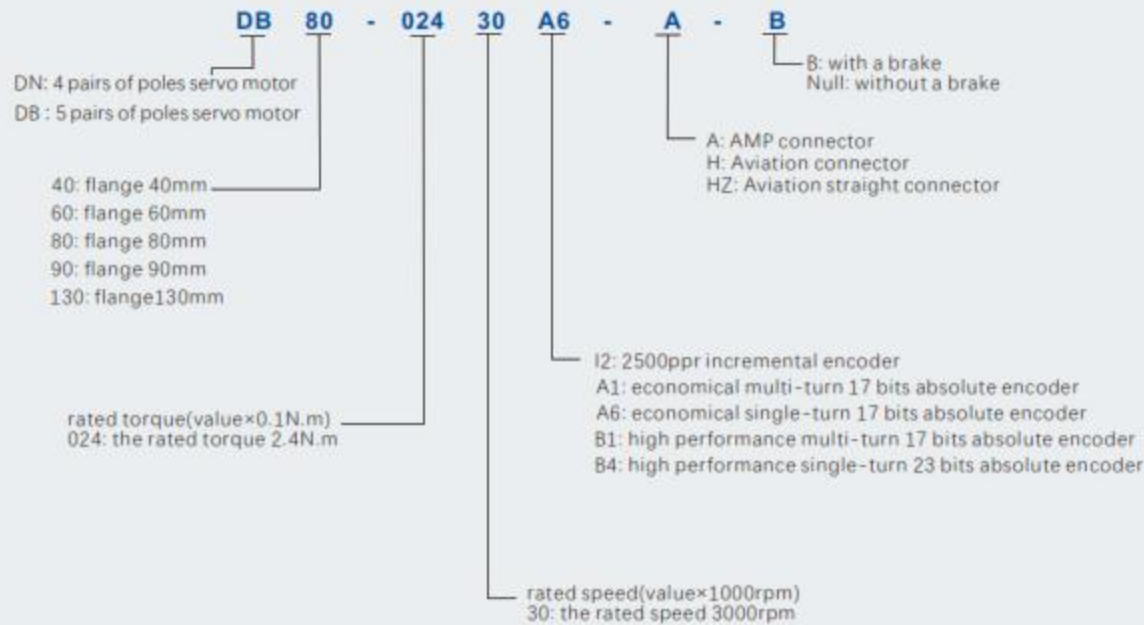
New Type AC Servo Motor

AC Servo Motor



AC Servo Motor Introduction

Name Ruling



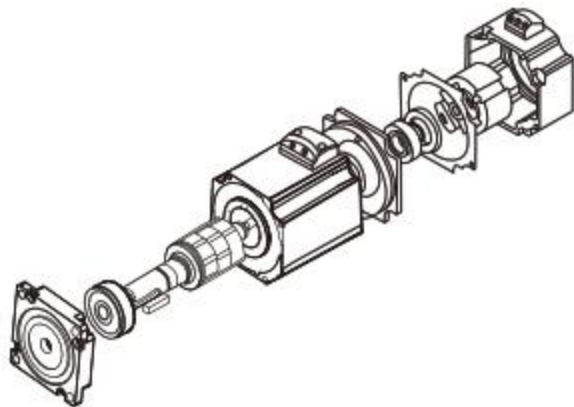
Motor Power Range

	Flange	40mm	60mm	80mm	130mm
	Rated Power	0.1KW	0.2KW 0.4KW 0.6KW	0.75KW 1.0KW	1.0KW 1.3KW 1.5KW 2.0KW 2.3KW 2.6KW

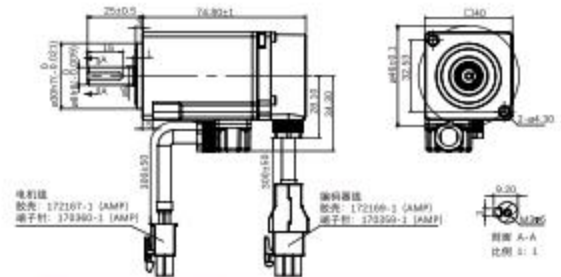
AC Servo Motor

Servo motor refers to the engine that controls the operation of the mechanical components in the servo system. It is an indirect transmission device that assists the motor. The servo motor can control speed and position with high accuracy. Meanwhile, it can convert the voltage signal into torque and speed to drive the control object. The working speed of the servo motor rotor is controlled by the input signal and can react quickly. In the automatic control system, it is used as an actuator and has the characteristics of small electro mechanical time constant and high linearity. It can convert the received electrical signal into the angular displacement or angular velocity on the motor shaft and output them. Its main feature is that there is no selfrotation when there is no signal voltage. And the speed decreases at a uniform speed with the increase of torque.

Basic Structure Of Servo Motor



DN40 Series Servo Motor



Model	DB40-00330A6-A
L without a brake(mm)	74.8

Remark: There is slightly difference from final motors.

Remark: A6 means the encoder is economical 17 bits single-turn absolute type.

Model	DB40-00330A6-A
Rated Power (KW)	0.1
Rated Voltage (V)	220
Rated Current (A)	1.0
Peak Current (A)	3.0
Rated Torque (N.m)	0.318
Peak Torque (N.m)	0.954
Rated Speed (rpm)	3000
Max speed(rpm)	6000
Constant Voltage (V/1000r.min)	22
Torque Coefficient (N.m/A)	0.32
Line-line Resistance (Ω)	18.8
Line-line Inductance (mH)	11.25
Mechanical Time Constant (Ms)	1.1
Rotor Inertia (Kg.m ²)	0.066×10 ⁻⁴
Pole Pairs	10
Insulation Class	F(155℃)

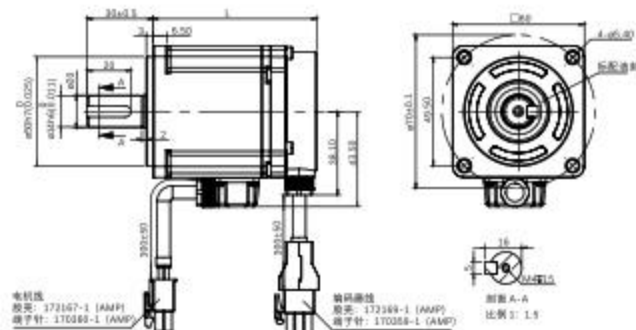
Encoder Type

Symbol	Encoder Type
A6	economical single-turn 17 bits absolute encoder
A1	economical multi-turn 17 bits absolute encoder
B4	high performance single-turn 23 bits absolute encoder
B6	Optical single-turn 17 bits absolute encoder
B9	Optical 10000ppr incremental encoder

Caution:

1. When installing/removing part to the end of the motor shaft, please do not knock the shaft to prevent the encoder at the another end of the shaft from being knocked out of order.
2. As far as possible to prevent shaft seat vibration to prevent bearing damage.

DB60 Series Servo Motor



Model	DB60-00630A6-A	DB60-01330A6-A	DB60-01930A6-A
L without a brake(mm)	75	92	109

Remark: There is slightly difference from final motors.

Remark: A6 means the encoder is economical 17 bits single-turn absolute type

Model	DB60-00630A6-A	DB60-01330A6-A	DB60-01930A6-A
Rated Power (KW)	0.2	0.4	0.6
Rated Voltage (V)	220	220	220
Rated Current (A)	1.7	2.5	4.8
Peak Current (A)	5.7	7.5	14.4
Rated Torque (N.m)	0.64	1.27	1.91
Peak Torque (N.m)	1.91	3.81	5.73
Rated Speed (rpm)	3000	3000	3000
Max speed(rpm)	6000	6000	5000
Constant Voltage (V/1000r.min)	23	31	25
Line-line Resistance (Ω)	4.57	3.24	1.8
Line-line Inductance (mH)	4.0	5.8	4.0
Rotor Inertia (Kg.m ²)	0.28×10 ⁻⁴	0.52×10 ⁻⁴	0.82×10 ⁻⁴
Pole Pairs	10		5
Insulation Class	F(155°C)		

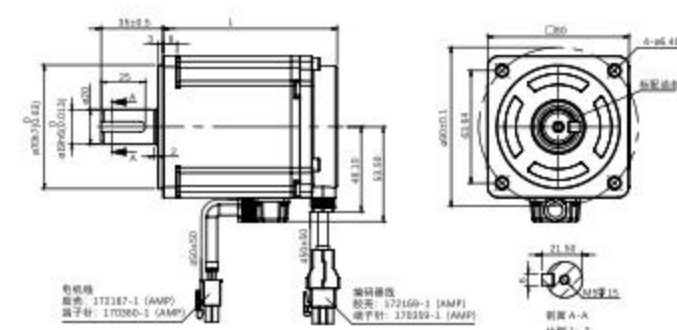
Encoder Type

Symbol	Encoder Type
A6	economical single-turn 17 bits absolute encoder
A1	economical multi-turn 17 bits absolute encoder
B4	high performance single-turn 22 bits absolute encoder
B9	Optical single-turn 17 bits absolute encoder
B5	Optical 1000ppr incremental encoder

Caution:

- When installing/removing part to the end of the motor shaft, please do not knock the shaft to prevent the encoder at the another end of the shaft from being knocked out of order.
- As far as possible to prevent shaft seat vibration to prevent bearing damage.

DB80 Series Servo Motor



Model	DB80-02430A6-A	DB80-03230A6-A
L without a brake(mm)	98.5	111.5

Remark: There is slightly difference from final motor

Remark: A6 means the encoder is economical 17 bits single-turn absolute type

电机型号	DB80-02430A6-A	DB80-03230A6-A
Rated Power (KW)	0.75	1.0
Rated Voltage (V)	220	220
Rated Current (A)	4.7	5.8
Peak Current (A)	14.5	15.6
Rated Torque (N.m)	2.39	3.18
Peak Torque (N.m)	7.17	7.96
Rated Speed (rpm)	3000	3000
Max speed(rpm)	6000	6000
Constant Voltage (V/1000r.min)	33	32.5
Torque Coefficient (N.m/A)	0.51	0.51
Line-line Resistance (Ω)	1.09	1.17
Line-line Inductance (mH)	4.6	3.9
Rotor Inertia (Kg.m ²)	1.48×10 ⁻⁴	1.55×10 ⁻⁴
Pole Pairs	10	
Insulation Class	F(155°C)	

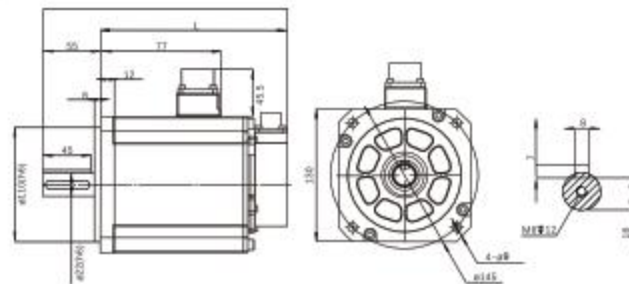
Encoder Type

Symbol	Encoder Type
A6	economical single-turn 17 bits absolute encoder
A1	economical multi-turn 17 bits absolute encoder
B4	high performance single-turn 22 bits absolute encoder
B9	Optical single-turn 17 bits absolute encoder
B5	Optical 1000ppr incremental encoder

Caution:

- When installing/removing part to the end of the motor shaft, please do not knock the shaft to prevent the encoder at the another end of the shaft from being knocked out of order.
- As far as possible to prevent shaft seat vibration to prevent bearing damage.

DB130 Series Servo Motor



Rated Torque (N.m)	130系列	
Rated Torque (N.m)	5.4	8.3
L without a brake(mm)	121	143

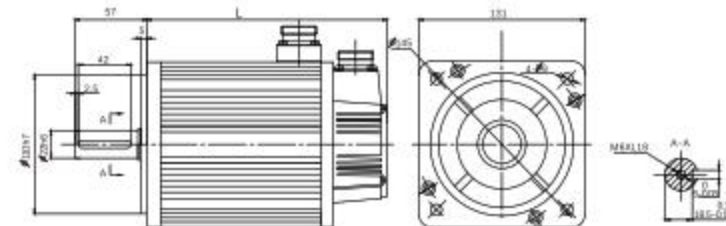
Remark: A6 means the encoder is economical 17 bits single-turn absolute type

Model	DB130-05415A6-H	DB130-08315A6-H
Rated Power (KW)	0.85	1.3
Rated Voltage (V)	220	220
Rated Current (A)	5.9	9.9
Peak Current (A)	15.6	26
Rated Torque (N.m)	5.4	8.3
Peak Torque (N.m)	13.8	20
Rated Speed (rpm)	1500	1500
Max speed(rpm)	3000	3000
Torque Coefficient (N.m/A)	0.92	0.84
Constant Voltage (V/1000r/min)	59.2	57.2
Rotor Inertia (Kg.m ²)	8.1×10 ⁻⁴	11.6×10 ⁻⁴
Line-line Resistance (Ω)	1.22	0.55
Net Weight (Kg)	4.6	5.7
Pole Pairs	10	
Encoder Type	17 bits absolute	
Insulation Class	class F	
Protection Class	IP65	
Environment	ambient temperature: -10°C~+35°C humidity: below 85%RH No dewing	
Motor Winding Plug	Signal	U V W GND
	Number	A B C D
Absolute Encoder Plug(7 holes)	Signal	A B C D E F G H I J
	Number	VB (DC+) VCC (5V) SD+ SD- GND (DC-) GND N.C (PE)

Encoder Type

Symbol	Encoder Type
A6	economical single-turn 17 bits absolute encoder
A1	economical multi-turn 17 bits absolute encoder

DB130 Series Servo Motor



Rated Torque (N.m)	130系列							
Rated Torque (N.m)	4	5	6	7.7	10	15		
					1000rpm	1500rpm	2500rpm	1500rpm
L without a brake(mm)	166	171	179	192	213	209	241	

Remark: A6 means the encoder is economical 17 bits single-turn absolute type

Model	DNT30-0023AA-H	DNT30-0023BA-H	DNT30-0023CA-H	DNT30-0773AA-H	DNT30-1003AA-H	DNT30-1003BA-H	DNT30-1003CA-H	DNT30-1003AA-H
Rated Power (KW)	1.0	1.3	1.5	2.0	1.0	1.5	2.6	2.3
Rated Voltage (V)	220	220	220	220	220	220	220	220
Rated Current (A)	4.0	5.0	6.0	7.5	4.5	6.0	10	9.5
Rated Speed (rpm)	2500	2500	2500	2500	1000	1500	2500	1500
Rated Torque (N.m)	4	5	6	7.7	10	10	10	15
Peak Torque (N.m)	12	15	18	22	20	25	25	30
Constant Voltage (V/1000r/min)	72	68	65	68	140	103	70	114
Torque Coefficient (N.m/A)	1.0	1.0	1.0	1.03	2.2	1.67	1.0	1.58
Rotor Inertia (Kg.m ²)	0.85×10 ⁻³	1.06×10 ⁻³	1.26×10 ⁻³	1.53×10 ⁻³	1.94×10 ⁻³	1.94×10 ⁻³	1.94×10 ⁻³	2.77×10 ⁻³
Line-line Resistance (Ω)	2.76	1.84	1.21	1.01	2.7	1.5	0.73	1.1
Line-line Inductance (mH)	6.42	4.9	3.87	2.94	8.8	4.37	2.45	4.45
Mechanical Time Constant (Ms)	2.32	2.66	3.26	2.91	3.26	2.91	3.36	4.05
Pole Pairs	8							
Encoder Type	17 bits absolute							

Encoder Type

Symbol	Encoder Type
A6	economical single-turn 17 bits absolute encoder
A1	economical multi-turn 17 bits absolute encoder
B4	high performance single-turn 23 bits absolute encoder
B0	Optical single-turn 17 bits absolute encoder
B5	Optical 1000ppr incremental encoder
B2	Optical 2500ppr incremental encoder

Caution:

- When installing/removing part to the end of the motor shaft, please do not knock the shaft to prevent the encoder at the another end of the shaft from being knocked out of order.
- As far as possible to prevent shaft seat vibration to prevent bearing damage.

Servo Motor And Applicable Servo Drive

Economical Absolute Encoder Series:

Servo Motor				Servo Drive			Cable	
Rated Power (KW)	Model	Flange (mm)	Rated Torque (N.m)	Pulse Type		EtherCAT	Power Cable	Encoder Cable
				Economical	High performance			
0.1	DB40-00330A6-HA	40	0.32	P100S-40	P100H-40	P100E-40	P100P-XX-G-X-4PA	E100P-XX-G-X-9PA
0.2	DB60-00630A6-TJA	60	0.64					
0.4	DB60-00130A6-TJA	60	1.27					
0.75	DB80-02430A6-TJA	80	2.39					
1.0	DB80-03230A6-TJA	80	3.18	P100S-75	P100H-75	P100E-75	P200P-XX-G-X-4PH	E200P-XX-G-X-7PH
1.3	DB130-08315A6-MH	130	8.3	P200S	P200H	P200E		
0.85	DB130-05415A6-MH	130	5.4					
1.0	DN130-04025A6-MH	130	4					
1.0	DN130-10010A6-MH	130	10					
1.3	DN130-05025A6-MH	130	5					
1.5	DN130-06025A6-MH	130	6					
1.5	DN130-10015A6-MH	130	10					
2.0	DN130-07725A6-MH	130	7.7					
2.3	DN130-15015A6-MH	130	15					
2.6	DN130-10025A6-MH	130	10					

High Performance Absolute Encoder Series:

Servo Motor				Servo Drive			Cable	
Rated Power (KW)	Model	Flange (mm)	Rated Torque (N.m)	Pulse Type		EtherCAT	Power Cable	Encoder Cable
				Economical	High performance			
0.1	DN40-00330B4-MHZ	40	0.32	P100S-40	P100H-40	P100E-40	PH100-XX-G-NA-4PHZ	EH100-XX-G-NA-7PHZ
0.2	DN60-00630B4-MHZ	60	0.637					
0.4	DN60-01330B4-MHZ	60	1.27					
0.6	DN60-01930B4-MHZ	60	1.91					
0.4	DN80-01330B4-MHZ	80	1.27					
0.75	DN80-02430B4-MHZ	80	2.39					
0.73	DN80-03520B4-MHZ	80	3.5	P100S-75	P100H-75	P100E-75	P200P-XX-G-X-4PH	E200P-XX-G-X-7PH
1.0	DN80-04025B4-MHZ	80	4					
1.0	DN130-04025B4-MH	130	4					
1.0	DN130-10010B4-MH	130	10					
1.3	DN130-05025B4-MH	130	5					
1.5	DN130-06025B4-MH	130	6					
1.5	DN130-10015B4-MH	130	10	P200S	P200H	P200E	P200P-XX-G-X-4PH	E200P-XX-G-X-7PH
2.0	DN130-07725B4-MH	130	7.7					
2.3	DN130-15015B4-MH	130	15					
2.6	DN130-10025B4-MH	130	10					

Incremental Encoder Series:

Servo Motor					Servo Drive			Cable	
Rated Power (KW)	Model	Flange (mm)	Rated Torque (N.m)	Encoder Resolution (ppr)	Pulse Type		EtherCAT	Power Cable	Encoder Cable
					Economical	High performance			
1.0	DN130-04025I2-MH	130	4	2500	P200S	P200H	P200E	P200P-XX-G-X-4PH	ES200-XX-G-NA-15PH
1.0	DN130-10010I2-MH	130	10	2500					
1.3	DN130-05025I2-MH	130	5	2500					
1.5	DN130-06025I2-MH	130	6	2500					
1.5	DN130-10015I2-MH	130	10	2500					
2.0	DN130-07725I2-MH	130	7.7	2500					
2.3	DN130-15015I2-MH	130	15	2500					
2.6	DN130-10025I2-MH	130	10	2500					