



SD300 Series

Servo drive system



FRECON ELECTRIC (SHENZHEN) CO.,LTD.



Servo control system

SD300 series AC servo system is a new generation of motion control products of our company. It has the characteristics of excellent performance, good stability and easy to use. It can be widely used in CNC machine tools, electronic processing equipment, packaging machinery, printing machinery, textile machinery, industrial robots, automated production and other industries. Realize fast and accurate position control, speed control and torque control.

Applications



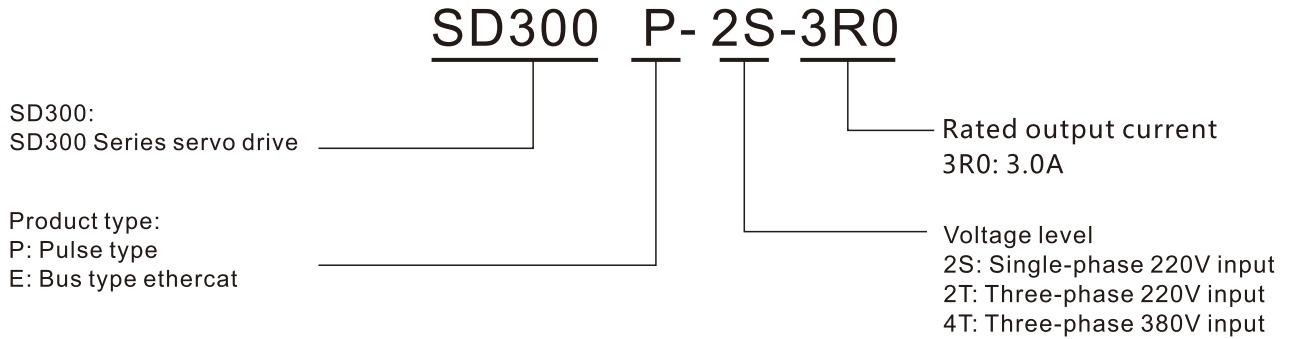
Feature

- High precision encoder
With 17bit, 23bit absolute value encoder, Significantly improve the repeated positioning accuracy and absolute positioning accuracy of the equipment
- High response bandwidth
The response bandwidth can reach 3kHz, which greatly improves the servo performance
- Inertia identification
The load inertia ratio is an important parameter of the servo system. Correct setting of load inertia ratio helps to complete commissioning quickly
- friction compensation
The friction compensation function reduces the influence of the friction force in the mechanical transmission on the operation effect, and performs different positive and negative compensation values according to the positive and negative directions of the operation
- Switch freely through the three rings of external input signal. Can switch between speed/position, speed/current, position/current
- Support three kinds of pulse form input
Pulse + direction, pulse + pulse, quadrature input
- Vibration suppression function
1: Mechanical resonance suppression:
The mechanical system has a certain resonant frequency, when the servo gain increases, Resonance may occur near the mechanical resonance frequency, making it impossible to increase the gain further. Can be suppressed by torque command filtering and notch filter

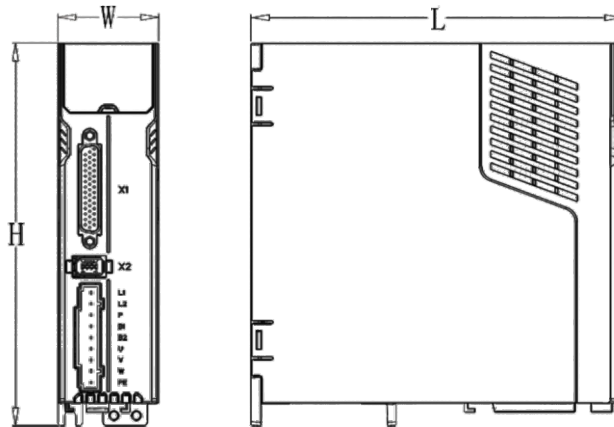
2: End low frequency suppression:
If the end of the mechanical load is long and heavy, it is easy to cause end vibration during emergency stop. This vibration can be effectively reduced by the low frequency resonance suppression function

SD300 series drive model description

Model description



Product dimensions



Model	Dimensions table (mm)		
	W	H	L
SD300P-2S-3R0-H	45	170	166
SD300P-2S-5R5-H	45	170	166
SD300P-2T-7R6-H	66	171	172
SD300P-2T-012-H	79	171	172
SD300P-4T-012-H	79	171	172
SD300P-4T-017-H	95	230	250
SD300P-4T-021-H	95	230	250

Technical parameters(Pulse version)

Model(SD300P)		2S-3R0-H	2S-5R5-H	2T-7R6-H	2T-012-H	4T-012-H	4T-017-H	4T-021-H
Rated output current (A)		3.0	5.5	7.6	12.0	12.0	17.0	21.0
Maximum output current (A)		9	14	18	32	30	40	50
Input power	Main power	Single phase AC200V-240V,-10%~+10%50/60Hz		Three phase AC200V-240V,-10%~+10%,50/60Hz		Three phase AC380V-440V, -10%~+10%, 50/60Hz		
	Control power	Take power from the bus, share power input and rectification		Single phase AC200V-240V,-10%~+10%,50/60Hz		Single phase AC380V-440V, -10%~+10%, 50/60Hz		
Environment	Temperature	Working/storage: 0°C to 55°C (the ambient temperature is above 45°C, derate by 10% for every 5°C increase) / -20°C to 70°C						
	Humidity	Work/storage: below 90%RH (no condensation)						
	Atmospheric pressure	86kPa ~ 106kPa						
Degree of protection		IP20						
Regenerative braking		Built-in/external			Built-in/external		External	
Feedback		Single-turn/multi-turn absolute encoder (Tamagawa protocol)						
Control mode		Position, speed, torque						
Digital input		7 programmable input terminals (photoelectric isolation) functions: servo enable, alarm clear, forward drive prohibition, reverse drive prohibition, forward torque limit, reverse torque limit, emergency stop, electronic gear selection 1, electronic Gear selection 2, position deviation clear, pulse input prohibition, etc.						
Digital output		5 programmable output terminals (photoelectric isolation) functions: servo ready, alarm, positioning complete, speed arrival, electromagnetic brake, torque limit, etc.						
Encoder signal output		5 programmable output terminals (photoelectric isolation) functions: servo ready, alarm, positioning complete, speed arrival, electromagnetic brake, torque limit, etc.						
Location	Input frequency	Differential input: ≤1000kHz(kpps) Single-ended input: ≤200kHz(kpps)						
	Command mode	Pulse+sign, forward/reverse pulse, quadrature pulse						
	Electronic gear ratio	1 ~ 32767/1 ~ 32767						
Speed	Analog command input	-10V~+10V, input impedance 10kΩ						
	Command acceleration deceleration	Parameter settings						
	Command source	Analog quantity, pulse frequency						
torque	Analog command input	-10V~+10V, input impedance 10kΩ						
	Speed limit	Parameter settings						
	Command source	Analog						
Monitoring function		Speed, current position, position deviation, motor torque, motor current, command pulse frequency, bus voltage, module internal temperature, etc.						
Protective function		Overspeed, overvoltage, overcurrent, overload, brake abnormality, encoder abnormality, position tolerance, etc.						
Communication		Modbus RTU						
Host computer interface		USB, support parameter reading and writing, waveform recording, online upgrade						

Technical parameters (EtherCat version)

Model(SD300E)		2S-3R0-H	2S-5R5-H	2T-7R6-H	2T-012-H	4T-012-H	4T-017-H	4T-021-H
Rated output current (A)		3.0	5.5	7.6	12.0	12.0	17.0	21.0
Maximum output current (A)		9	14	18	32	30	40	50
Input power	Main power	Single phase AC200V-240V, -10%+10%50/60Hz		Three phase AC200V-240V, -10%+10%,50/60Hz		Three phase AC380V-440V, -10%~+10%,50/60Hz		
	Control power	Take power from the bus, share power input and rectification		Single phase,AC200V-240V, -10%~+10%,50/60Hz		Single phaseAC380V-440V, -10%~+10%,50/60Hz		
Environment	Temperature	Working/storage: 0°C to 55°C (the ambient temperature is above 45°C, derate by 10% for every 5°C increase) / -20°C to 70°C						
	Humidity	Work/storage: below 90%RH (no condensation)						
	Atmospheric pressure	86kPa ~ 106kPa						
Degree of protection		Ip20						
Control mode		Vector control						
Regenerative braking		built-in/external			built-in/external		external	
Feedback		Single-turn/multi-turn absolute encoder (Tamagawa protocol)						
Control mode		CSP、CSV、CST、PP、PV、PT						
Digital input		4 programmable input terminals (photoelectric isolation), 2 high-speed optocoupler inputs						
Digital output		3 programmable output terminals (opto-isolated)						
Special features		Mechanical resonance trap, vibration suppression, optional STO						
Monitoring function		Speed, current position, position deviation, motor torque, motor current, bus voltage, module internal temperature, etc.						
Protective function		Overspeed, overvoltage, overcurrent, overload, brake abnormality, encoder abnormality, position tolerance, etc.						
Communication		Ethercat						
Host computer interface		USB, support parameter reading and writing, waveform recording, online upgrade						

Servo motor model description

F1M-40130222000-A360

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Symbol	Name
	F1	The first generation of servo motors

②	Symbol	Rotor inertia
	M	H: High inertia M: medium inertia S: Low inertia

③	Symbol	Rated power (W)
	401	$40 \times 10^1 = 400$

④	Symbol	Rated speed (rpm)
	302	$30 \times 10^2 = 3000$

⑤	Symbol	AC input voltage
	220	220:220V 380:380V

⑥	Symbol	Brake, oil seal
	00	00: No brake, no oil seal 01: No brake, with oil seal 10: With brake, no oil seal 11: With brake, with oil seal

⑦	Symbol	Encoder type
	A3	A1: 17-bit absolute value single-turn A2: 17-bit absolute value multi-turn A3: 23-bit absolute value single-turn A4: 23-bit absolute value multi-turn

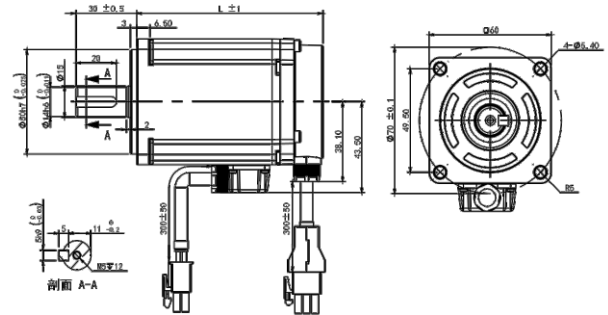
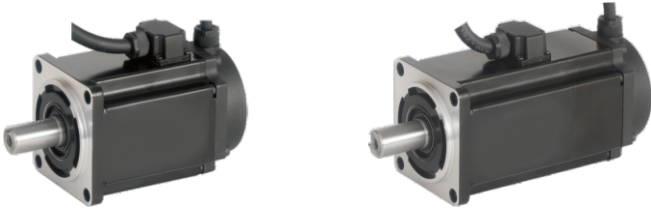
⑧	Symbol	Motor flange
	60	40:40 flange 60:60 flange 80:80 flange 13:130 flange

Adaptation table

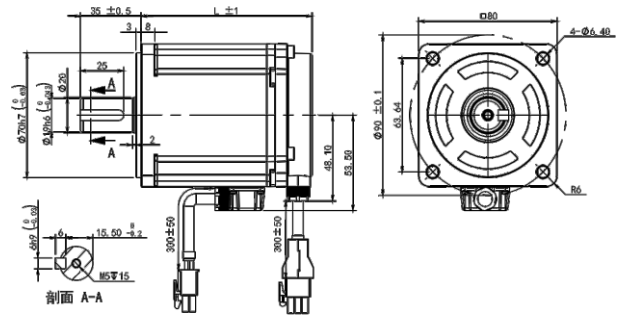
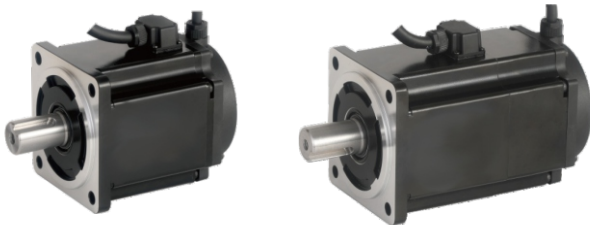
Power	Servo drive model	Servo motor model	Servo motor specifications
0.4KW	SD300P-2S-3R0-H	F1M-40130222011-A360	1.27Nm,3000rpm,0.4KW,220V
0.75KW	SD300P-2S-5R5-H	F1M-75130222001-A380	2.39Nm,3000rpm,0.75KW,220V
0.75KW	SD300P-2S-5R5-H	F1M-75130222011-A380	2.39Nm,3000rpm,0.75KW,220V
1KW	SD300P-2T-7R6-H	F1M-10215222001-A313	6.37Nm,1500rpm,1KW,220V
1.5KW	SD300P-2T-012-H	F1M-18215222001-A313	11.46Nm,1500rpm,1.8KW,220V
3KW	SD300P-4T-012-H	F1M-30215238001-A318	19.1Nm,1500rpm,3KW,380V
5KW	SD300P-4T-017-H	F1M-45215238001-A318	28.65Nm,1500rpm,4.5KW,380V
6KW	SD300P-4T-021-H	F1M-55215238001-A318	35Nm,1500rpm,5.5KW,380V

Motor dimensions

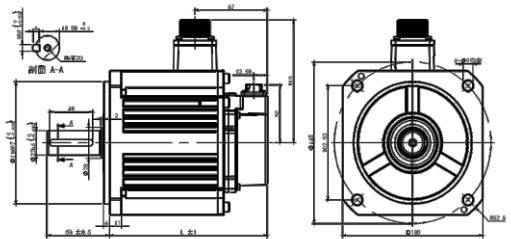
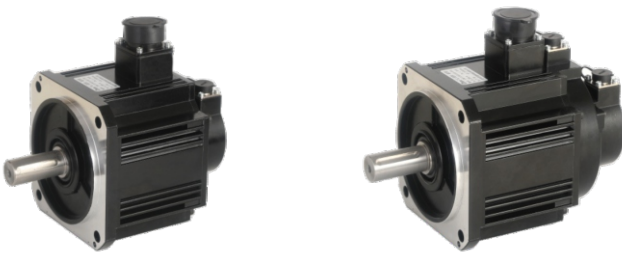
60 Motor dimensions



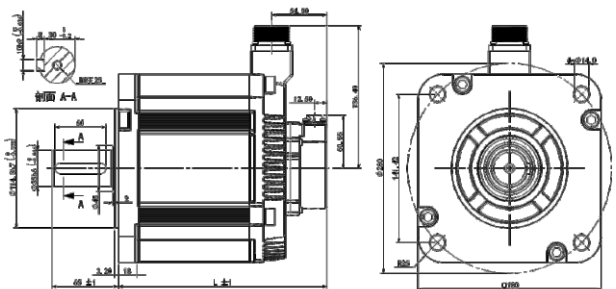
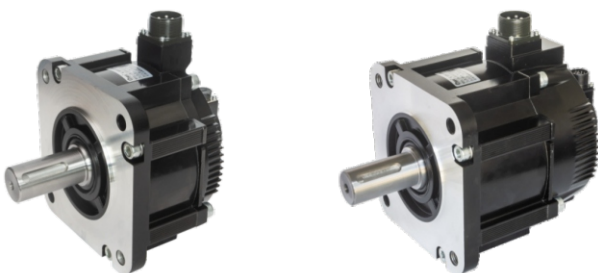
80 Motor dimensions



130 Motor dimensions



180 Motor dimensions



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FRECON

FRECON ELECTRIC (SHENZHEN) CO.,LTD

Add : 2nd, No.3 Zhenbao Industrial Zone, No.137 Shiyan
Road, Shiyan Street, Bao'an, Shenzhen, China

Tel : 0755- 88605930

Fax : 0755- 88606072

E-Mail: overseas@frecon.com.cn

Web: www.frecon.com.cn



Frecon Website



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