INNOVATION • DEDICATED • SERVICE • WIN-WIN

FRECON

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FRECON

SD1000 Series

Servo System

FRECON ELECTRIC (SHENZHEN) CO.,LTD.

Stable and Reliable Servo System

23bit ABS/INC High Accuracy Encoder

- Independent R&D of the 23 bit encoder, encoder resolution to 8388608 pulses per turn.
- Support incremental and absolute encoder.

MSL MAL Servo Motor High Acceleration Performance

- MS series: automation industry, medium and small inertia, high rotating speed, high overload speed.
- MA series: machine tool industry, medium and small inertia, medium rotate speed, high ratio of torque and current.
- Acceleration from -3000r/min to 3000r/min takes time 6-7ms.

MSL MAL Servo Motor Low Cogging Torque

Low Cogging Torque

- The best combination of motor's pole number and cogging number can significantly reduce the fluctuation range of the electric torque, positioning torque smaller, to achieve a more smoothly running.
- SD1000 Series software compensates torque ripple, to effectively improve the torque accuracy.

Differential drive connection can support 1M pulse input / single terminal drive optional

- Both instruction input and feedback output frequency can reach 1Mpps, which can achieve high resolution running.
- Special order version supports 24V NPN/PNP single terminal drive, the highest frequency 200kHz.

Notch filter can suppress high frequency vibration

Notch Filter

- Set notch filter, which can greatly reduce the noise and vibration caused by mechanical resonance of the device, to achieve quick response action.
- There are 2 notch filters, set the frequency of 50~1500Hz, can be done a deep adjustment.

Vibration filter suppresses low frequency jitter

Vibration Filter

- Vibration filter can remove the natural vibration frequency, and sharply reduce the swing of axis when stops, for the frequency 1-100Hz

MS/MA Servo motor IP65 protection grade

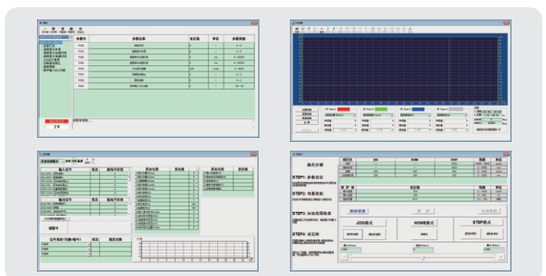
- MSL/MAL Motor featured with IP65 protection grade.
- Motor axle head with oil seal standard.

Matching modbus protocol communication/ CAN communication optional

- Matching modbus protocol: applies to robot, CNC system, automation equipment, etc.
- Matching CAN communication: Customized industry specific communication protocol on customers' requirements.
- Modbus and CAN bus using RJ45 installation; wiring is simple, stable and reliable.

Servosoft Software

- USB communication interface, plug and play.
- Support parameter reading and parameter download.
- Support real-time recording, online debugging.



SD1000 Series Servo Drive

Technical Data

※ In order to facilitate the editting operation :SD1000-L=SL SD1000-H=SH

SD1000 series		Specifications	SL0.1	SL0.2	SL0.5	SL0.8	SL1.0	SL1.5	SL2.5	SL3.5	SL5.5	SH0.6	SH1.0	SH1.5	SH2.0	SH3.0	SH5.0	SH7.5
Input Power		Single phase AC220V,-15%~+10%, 50/60Hz	●	●	●	●	●											
		Three phase AC220V,-15%~+10%, 50/60Hz				●	●	●	●	●	●							
		Three phase AC380V, -15%~+10%, 50/60Hz										●	●	●	●	●	●	●
Environment	Temperature	Operation: 0~40℃, Storage: -40~+50℃	√															
	Humidity	Operation: 40%~80% (No condensation) Storage up to 93% (No condensation)	√															
	Atmospheric Pressure	86kPa~106kPa	√															
Protection Grade		IP20	√															
Control Mode		Vector Control	√															
Regenerative Braking		External	●								●						●	●
		Internal/ External optional		●	●	●	●	●	●	●		●	●	●	●	●		
Feedback Mode		23bitINC/ABS Encoder	√															
Control Mode		Position/Speed/Torque	√															
Digital Input		5 programmable input terminals (optoelectronic isolation) Functions: servo enable, alarm clearing, forward driving prohibited, reverse drive prohibited, forward torque limit, reverse torque limit, emergency shutdown, electronic gear selection 1, electronic gear select 2, position deviation clear, pulse input prohibited.	√															
Digital Output		3 programmable input terminals (optoelectronic isolation) Functions: servo ready, alarm, positioning finished, speed arrival, electromagnetic brake, torque limit.	√															
Encoder signal output		A、B、Z differential output, Z signal open collector output position.	√															
Position	Input Mode	Differential Input: ≤ 1000kHz (kpps) Single Terminal Input: ≤ 200kHz (kpps)	√															
	Instruction Mode	Pulse + symbol, forward / reverse pulse, orthogonal pulse	√															
	Electronic gear ratio	1~32767/1~32767	√															
Monitoring Functions		Rotate speed, current position, position deviation, motor torque, motor current, instruction pulse frequency protection functions	√															
Protection functions		Over speed, over voltage, over current, over load, brake abnormal, encoder abnormal, position overproof and other characteristics.	√															
characteristics	Speed frequency response	≥ 1.2kHz	√															
	Speed fluctuation rate	< ± 0.03% (Load0%~100%) < ± 0.02% (Power-15%~+10%)	√															
	Speed ratio	1:5000	√															

Note: "●" means support, "●"means support but not recommended,"√" means SD1000 full range support.

Series Number Description

Servo Drive SD1000

SD1000 – L – 1.0 – B0S0M
① ② ③ ④⑤⑥

①	Symbol	Series No.
	SD1000	SD1000 series servo System

②	Symbol	Main power supply voltage
	L	220V
	H	380V

③	Symbol	Support rated power of motor
	0.1	0.1kW
	0.2	0.2kW
	0.5	0.5kW
	0.8	0.8kW
	1.0	1.0kW
	1.5	1.5kW
	2.5	2.5kW
	3.5	3.5kW
	5.5	5.5kW

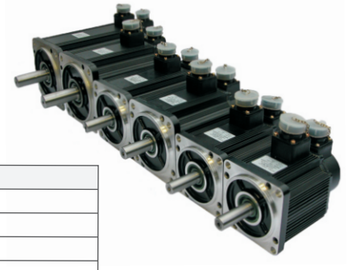
④	Symbol	Encoder
	B0	23bit Yuheng Incremental Encoder
	E3	Tamagawa 23bit absolute encoder

⑤	Symbol	Control mode
	S0	Standard 5V differential signal input
	S3	Standard 24V single terminal signal input
	S8	Special specification for Siemens CNC

⑥	Symbol	Communication protocol
	M	Support Modbus
	C	Support CAN
	O	Do not support Modbus and CAN bus

Servo Motor

110 MA L 040 30 B N O 1
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨



①	Symbol	The base number
	40	40mm
	60	60mm
	80	80mm
	110	110mm
	130	130mm
	150	150mm
	180	180mm

②	Symbol	Servo motor series
	MA	MA series servo motor
	MS	MS series servo motor

③	Symbol	Main power supply voltage
	L	220V
	H	380V

④	Symbol	Rated torque
	040	4.00N.m
	050	5.00N.m
	060	6.00N.m
	096	9.55N.m
	100	10.00N.m

⑤	Symbol	Rated speed
	10	1000rpm
	15	1500rpm
	20	2000rpm
	25	2500rpm
	30	3000rpm

⑥	Symbol	Encoder
	B0/B	23bit Yuheng Incremental Encoder
	E3/M	Tamagawa 23bit absolute encoder

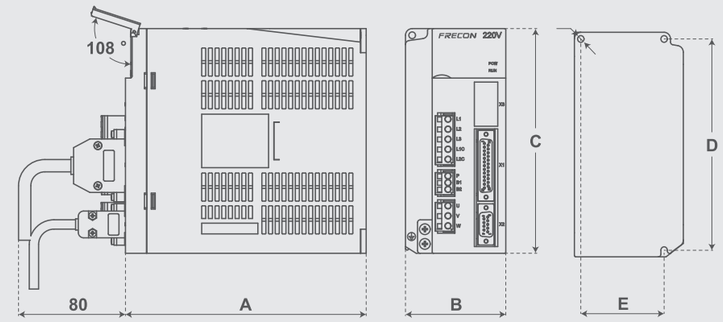
⑦	Symbol	Brake
	N	Not configured
	Z	configure electric-loss brake

⑧	Symbol	Specifications
	O	Circular shaft
	A	Closed key
	C	Forelock key

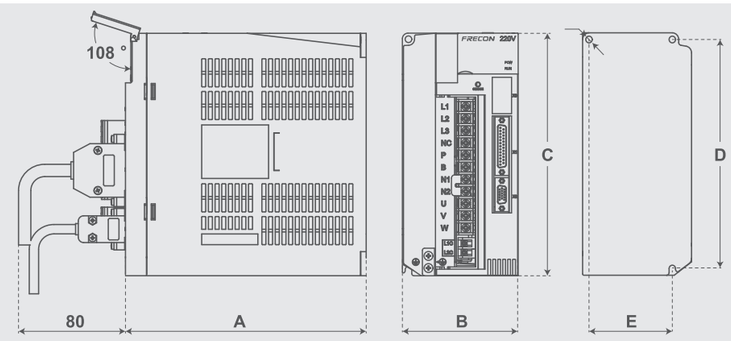
⑨	Symbol	Plug
	1	Standard plug(Can be omitted)
	2	Custom plug

SD1000 Series Servo Drive

Dimensional Drawing



Dimensional Drawing 1



Dimensional Drawing 2

※ In order to facilitate the editting operation :SD1000-L=SL SD1000-H=SH

Model Number / Dimension (mm)	Dimensional Drawing 1									Dimensional Drawing 2			
	SL0.1	SL0.2	SL0.5	SL0.8	SL1.0	SL1.5			SL2.5	SL3.5	SL5.5		
							SH0.6	SH1.0	SH1.5	SH2.0	SH3.0	SH5.0	SH7.5
A	150	150		180		180	180			180	180	210	
B	55	65		75		85	95			95	105	115	
C	168	168		168		168	168			200	220	250	
D	158	158		158		158	158			189	209	239	
E	—	55		65		65	65			84	94	104	

220V Matching table

Series	Model No.of Servo Drive	Input Voltage (Vac)	Power of motor	Model No.of Servo Motor	Parameter of Motor
23 bit Absolute Value Encoder, without Modbus Communication Card					
SD1000	SD1000-L-0.2-E3XXO	220V	0.2KW	060MSL00630MNX	0.637Nm 3000rpm 0.2KW
SD1000	SD1000-L-0.5-E3XXO	220V	0.5KW	060MSL01330MNX	1.27Nm 3000rpm 0.4KW
SD1000	SD1000-L-0.5-E3XXO	220V	0.5KW	080MSL01330MNX	1.27Nm 3000rpm 0.4KW
SD1000	SD1000-L-0.8-E3XXO	220V	0.8KW	080MSL02430MNX	2.39Nm 3000rpm 0.75KW
SD1000	SD1000-L-0.8-E3XXO	220V	0.8KW	110MSL03225MNX	3.18Nm 2500rpm 0.83KW
SD1000	SD1000-L-1.5-E3XXO	220V	1.5KW	110MSL04825MNX	4.77Nm 2500rpm 1.25KW
SD1000	SD1000-L-1.5-E3XXO	220V	1.5KW	110MSL06425MNX	6.37Nm 2500rpm 1.67KW
SD1000	SD1000-L-1.5-E3XXO	220V	1.5KW	110MAL04030MNX	4.0Nm 3000rpm 1.26KW
SD1000	SD1000-L-1.5-E3XXO	220V	1.5KW	110MAL05030MNX	5.0Nm 3000rpm 1.57KW
SD1000	SD1000-L-1.5-E3XXO	220V	1.5KW	110MAL06030MNX	6.0Nm 3000rpm 1.88KW
SD1000	SD1000-L-1.0-E3XXO	220V	1.0KW	130MSL04025MNX	4.0Nm 2500rpm 1.0KW
SD1000	SD1000-L-1.0-E3XXO	220V	1.0KW	130MSL04820MNX	4.77Nm 2000rpm 1.0KW
SD1000	SD1000-L-1.5-E3XXO	220V	1.5KW	130MSL05025MNX	5.0Nm 2500rpm 1.3KW
SD1000	SD1000-L-1.5-E3XXO	220V	1.5KW	130MSL07220MNX	7.16Nm 2000rpm 1.5KW
SD1000	SD1000-L-2.5-E3XXO	220V	2.5KW	130MSL09620MNX	9.55Nm 2000rpm 2.0KW
SD1000	SD1000-L-2.5-E3XXO	220V	2.5KW	130MSL10025MNX	10.0Nm 2500rpm 2.5KW
SD1000	SD1000-L-3.5-E3XXO	220V	3.5KW	130MSL14320MNX	14.3Nm 2000rpm 3.0KW
SD1000	SD1000-L-1.5-E3XXO	220V	1.5KW	130MAL06025MNX	6.0Nm 2500rpm 1.57KW
SD1000	SD1000-L-2.5-E3XXO	220V	2.5KW	130MAL07725MNX	7.7Nm 2500rpm 2.02KW
SD1000	SD1000-L-1.5-E3XXO	220V	1.5KW	130MAL10015MNX	10.0Nm 1500rpm 1.57KW
SD1000	SD1000-L-2.5-E3XXO	220V	2.5KW	130MAL15015MNX	15.0Nm 1500rpm 2.36KW
23 bit Incremental Encoder, without Communication Card					
SD1000	SD1000-L-0.2-B0XXO	220V	0.2KW	060MSL00630BNX	0.637Nm 3000rpm 0.2KW
SD1000	SD1000-L-0.5-B0XXO	220V	0.5KW	060MSL01330BNX	1.27Nm 3000rpm 0.4KW
SD1000	SD1000-L-0.5-B0XXO	220V	0.5KW	080MSL01330BNX	1.27Nm 3000rpm 0.4KW
SD1000	SD1000-L-0.8-B0XXO	220V	0.8KW	080MSL02430BNX	2.39Nm 3000rpm 0.75KW
SD1000	SD1000-L-0.8-B0XXO	220V	0.8KW	110MSL03225BNX	3.18Nm 2500rpm 0.83KW
SD1000	SD1000-L-1.5-B0XXO	220V	1.5KW	110MSL04825BNX	4.77Nm 2500rpm 1.25KW
SD1000	SD1000-L-1.5-B0XXO	220V	1.5KW	110MSL06425BNX	6.37Nm 2500rpm 1.67KW
SD1000	SD1000-L-1.5-B0XXO	220V	1.5KW	110MAL04030BNX	4.0Nm 3000rpm 1.26KW
SD1000	SD1000-L-1.5-B0XXO	220V	1.5KW	110MAL05030BNX	5.0Nm 3000rpm 1.57KW
SD1000	SD1000-L-1.5-B0XXO	220V	1.5KW	110MAL06030BNX	6.0Nm 3000rpm 1.88KW
SD1000	SD1000-L-1.0-B0XXO	220V	1.0KW	130MSL04025BNX	4.0Nm 2500rpm 1.0KW
SD1000	SD1000-L-1.0-B0XXO	220V	1.0KW	130MSL04820BNX	4.77Nm 2000rpm 1.0KW
SD1000	SD1000-L-1.5-B0XXO	220V	1.5KW	130MSL05025BNX	5.0Nm 2500rpm 1.3KW
SD1000	SD1000-L-1.5-B0XXO	220V	1.5KW	130MSL07220BNX	7.16Nm 2000rpm 1.5KW
SD1000	SD1000-L-2.5-B0XXO	220V	2.5KW	130MSL09620BNX	9.55Nm 2000rpm 2.0KW
SD1000	SD1000-L-2.5-B0XXO	220V	2.5KW	130MSL10025BNX	10.0Nm 2500rpm 2.5KW
SD1000	SD1000-L-3.5-B0XXO	220V	3.5KW	130MSL14320BNX	14.3Nm 2000rpm 3.0KW
SD1000	SD1000-L-1.5-B0XXO	220V	1.5KW	130MAL06025BNX	6.0Nm 2500rpm 1.57KW
SD1000	SD1000-L-2.5-B0XXO	220V	2.5KW	130MAL07725BNX	7.7Nm 2500rpm 2.02KW
SD1000	SD1000-L-1.5-B0XXO	220V	1.5KW	130MAL10015BNX	10.0Nm 1500rpm 1.57KW
SD1000	SD1000-L-2.5-B0XXO	220V	2.5KW	130MAL15015BNX	15.0Nm 1500rpm 2.36KW

380V Matching table

Series	Model No.of Servo Drive	Input VoHtage (Vac)	Power of motor	Model No.of Servo Motor	Parameter of Motor
23 bit AbsoHute VaHue Encoder, without Modbus Communication Card					
SD1000	SD1000-H-1.5-E3XXO	380V 3-phase	1.5KW	110MAH04030MN	4.0Nm 3000rpm 1.26KW
SD1000	SD1000-H-1.5-E3XXO	380V 3-phase	1.5KW	110MAH05030MN	5.0Nm 3000rpm 1.57KW
SD1000	SD1000-H-2.0-E3XXO	380V 3-phase	2KW	110MAH06030MN	6.0Nm 3000rpm 1.88KW
SD1000	SD1000-H-1.0-E3XXO	380V 3-phase	1KW	130MAH04025MN	4.0Nm 2500rpm 1.0KW
SD1000	SD1000-H-1.0-E3XXO	380V 3-phase	1KW	130MAH04820MN	4.77Nm 2000rpm 1.0KW
SD1000	SD1000-H-1.5-E3XXO	380V 3-phase	1.5KW	130MAH05025MN	5.0Nm 2500rpm 1.3KW
SD1000	SD1000-H-1.5-E3XXO	380V 3-phase	1.5KW	130MAH06025MN	6.0Nm 2500rpm 1.57KW
SD1000	SD1000-H-2.0-E3XXO	380V 3-phase	2KW	130MAH07725MN	7.7Nm 2500rpm 2.02KW
SD1000	SD1000-H-1.5-E3XXO	380V 3-phase	1.5KW	130MAH10015MN	10.0Nm 1500rpm 1.57KW
SD1000	SD1000-H-3.0-E3XXO	380V 3-phase	3KW	130MAH15015MN	15Nm 1500rpm 2.36KW
SD1000	SD1000-H-3.0-E3XXO	380V 3-phase	3KW	180MAH19015MN	19Nm 1500rpm 3KW
SD1000	SD1000-H-5.0-E3XXO	380V 3-phase	5KW	180MAH27015MN	27Nm 1500rpm 4.3KW
SD1000	SD1000-H-5.0-E3XXO	380V 3-phase	5KW	180MAH35015MN	35.0Nm 1500rpm 5.5KW
SD1000	SD1000-H-7.5-E3XXO	380V 3-phase	7.5KW	180MAH48015MN	48Nm 1500rpm 7.5KW
23 bit IncrementaH Encoder, without Communication Card					
SD1000	SD1000-H-1.5-B0XXO	380V 3-phase	1.5KW	110MAH04030BN	4.0Nm 3000rpm 1.26KW
SD1000	SD1000-H-1.5-B0XXO	380V 3-phase	1.5KW	110MAH05030BN	5.0Nm 3000rpm 1.57KW
SD1000	SD1000-H-2.0-B0XXO	380V 3-phase	2KW	110MAH06030BN	6.0Nm 3000rpm 1.88KW
SD1000	SD1000-H-1.0-B0XXO	380V 3-phase	1KW	130MAH04025BN	4.0Nm 2500rpm 1.0KW
SD1000	SD1000-H-1.0-B0XXO	380V 3-phase	1KW	130MAH04820BN	4.77Nm 2000rpm 1.0KW
SD1000	SD1000-H-1.5-B0XXO	380V 3-phase	1.5KW	130MAH05025BN	5.0Nm 2500rpm 1.3KW
SD1000	SD1000-H-1.5-B0XXO	380V 3-phase	1.5KW	130MAH06025BN	6.0Nm 2500rpm 1.57KW
SD1000	SD1000-H-2.0-B0XXO	380V 3-phase	2KW	130MAH07725BN	7.7Nm 2500rpm 2.02KW
SD1000	SD1000-H-1.5-B0XXO	380V 3-phase	1.5KW	130MAH10015BN	10.0Nm 1500rpm 1.57KW
SD1000	SD1000-H-3.0-B0XXO	380V 3-phase	3KW	130MAH15015BN	15Nm 1500rpm 2.36KW
SD1000	SD1000-H-3.0-B0XXO	380V 3-phase	3KW	180MAH19015BN	19Nm 1500rpm 3KW
SD1000	SD1000-H-5.0-B0XXO	380V 3-phase	5KW	180MAH27015BN	27Nm 1500rpm 4.3KW
SD1000	SD1000-H-5.0-B0XXO	380V 3-phase	5KW	180MAH35015BN	35.0Nm 1500rpm 5.5KW
SD1000	SD1000-H-7.5-B0XXO	380V 3-phase	7.5KW	180MAH48015BN	48Nm 1500rpm 7.5KW

Spare Parts Table

Spare Parts	Power Cable	Encoder Cable	Brake Cable
model	P□□□-04075A04	E□□□-DB09□□A09	B□□□-02050A02

Note: 1. 3 digits "□□□" reserved in adaptation table power cable order number, for cable length specification, more details please refer to the introduction of cable specification;

2. 2 digits "□□" reserved in adaptation table encoder order numbers, for encorder specification, "B0" is serial 23bit incremental encoder, "E3" is serial 23bit absolute encoder, more details please refer to the introduction of cable specification.