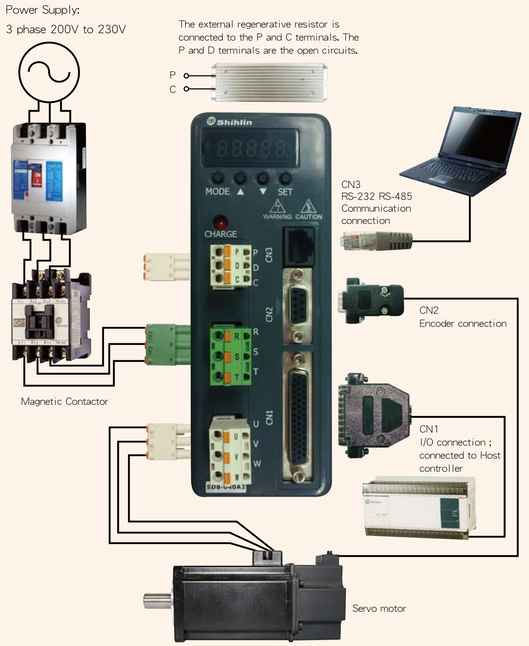
Connections with Peripheral Equipment



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Shihlin

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AC Servo System

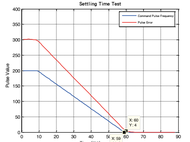
SDB Series 100W~750W

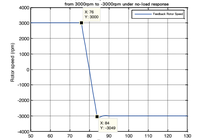
ISO 14001 BSMI REGISTERED ISO 9001 BSMI REGISTERED CE

Features

High speed and high-accuracy

- High speed frequency response Drives (400Hz) and high command settling time (less than 1.6ms).
- At no load situation, when the motor speed is between 3000rpm to -3000rpm, the acceleration time is 8ms.





Multiple control modes for various applications

- Position control mode, speed control mode, torque control mode.
- Different control modes could be set as hybrid mode via switching I/O.

Modbus communication and USB interface

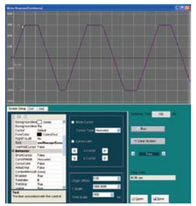
- Support Modbus communication protocol.
- RS232/RS485 interface.
- Support baud rate from 4800 to 115200 bps.

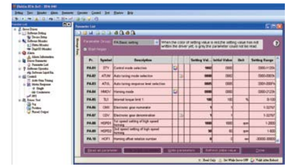
Auto tuning function

- There is an automatic on-line control theory to achieve a stable control.

Highly potent servo software

- A variety of functions are available for the customers.
- Status monitoring.
- Parameter data reading and writing; file reading and saving, output printing.
- Digital I/O monitoring and internal digital input controlling.
- Jog testing and position testing.
- Automatic inertia estimation and gain calculation.
- FFT resonance sweep function.
- Oscilloscope long-term status capturing function.

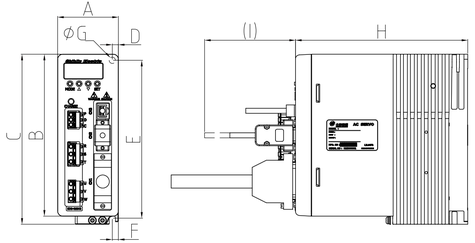




Mechanical resonance filter setup

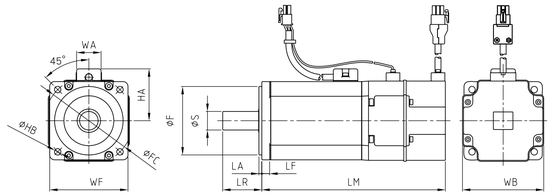
- The user can set up two mechanical resonance points to suppress mechanical vibration.

Servo Drivers Dimensions



Model＼Dimensions [Unit:mm]	A	B	C	D	E	F	G	H	I
SDB-010A2	60	160	168	6	156	6	6.2	170.2	80
SDB-020A2									
SDB-040A2									
SDB-075A2	75							185	

Servo Motors Dimensions



Models	Dimensions (mm)										
	F	S	LA	LF	LR	LM	WB	WF	WA	HA	HB
SMA-L010(B)	30	8	2.5	5	25	112.5(147.3)	43	40	25	33	2-ϕ4.5
SMA-L020(B)	50	14	3	7	30	106.3(140.3)	63	60	25	43	4-ϕ5.8
SMA-L040(B)	50	14	3	7	30	131.8(165.8)	63	60	25	43	4-ϕ5.8
SMA-L075(B)	70	19	3	8	40	151.5(187.5)	83	80	25	53	4-ϕ6.6

Servo Drives Specifications

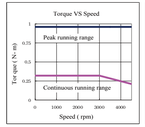
SDB-□□□A2			010	020	040	075
SMA-□□□□			L010	L020	L040	L075
Motor power			100W	200W	400W	750W
Main power	Voltage/Frequency	3ϕ	200~230VAC 50/60Hz			
		1ϕ	230VAC~230V50/60Hz			
	Voltage range	3ϕ	170~253VAC 50/60Hz			
		1ϕ	207~253VAC 50/60Hz			
	Allowable frequency range		Maximum ±5%			
Control mode			3ϕ full-wave rectification, IGBT-PWM control (SVPWM)			
Protection			Over current, over voltage, overload, fan fault, output short circuit protection, abnormal encoder protection, abnormal regeneration protection, low voltage /power interruption protection, over speed protection, error excessive			
Encoder type			2500ppr(10000 resolution) incremental type			
Communication interface			RS232/RS485, USB (Modbus protocol)			
Position mode	Input pulse frequency		Max. 500Kpps(Line driver), Max. 200Kpps(Open collector)			
	Command pulse type		Pulse + Direction, A phase + B phase, CCW pulse + CW pulse			
	Command source		External pulse train input			
	Command smoothing		Low-pass filter			
	Electronic gear ratio		Electronic gear ratio A/B; A: 1~32767, B:1~32767, 1/50 < A/B < 200			
	In-position range setting		0~±10000pulses			
	Position error excessive		±3 revolutions			
	Torque limit		Inner limit or torque analog limit (0~+10Vdc/Maximum torque)			
	Feed-forward function		Internal parameter setting: 0~200%			
Speed mode	Speed control range		Speed analog command 1:2000; Inner speed command 1:5000			
	Command source		Speed analog voltage input/ Inner register command			
	Command smoothing		Low-pass filter/S-pattern smoothing			
	Speed analog input		0~±10Vdc/Rated speed (Input impedance: 10~12kΩ)			
	Speed change rate		Load change: 0~100% ; maximum ±10%, Power source change: ±10%; maximum 0.5%, Ambient temperature 0℃~55℃; Maximum ± 0.5% (Speed analog command)			
	Torque limit		Inner limit or torque analog limit (0~+10Vdc/Maximum torque)			
	Bandwidth		Maximum 450Hz			
Torque mode	Command source		Torque analog voltage input			
	Command smoothing		Low-pass filter			
	Torque analog input		0~±10Vdc/Max torque generated(Input impedance: 10~12kΩ)			
	Speed limit		Inner limit or speed analog limit (0~+10Vdc/Maximum speed)			
I/O signal	Digital input(DI)		Servo ON, forward and reverse rotation limit switch, pulse error clear, torque direction option, speed command option, position command option, forward and reverse rotation command, proportional control switched, torque limit switched, abnormal reset, emergency stop, control mode option, electric gear ratio options, gain switching			
	Digital output(DO)		Torque limit attain, speed limit attain, ready signal, zero speed attained, position attained, speed attained, alarm signal, home moving completed			
	Analog input		Speed analog command/limit, Torque analog command/limit			
Cooling method(structure)			Nature air convention(IP20)			Fan cooling(IP20)
Environment	Temperature	operating	0~55℃ (If it is above 45℃ forced cooling will be required)			
		storage	-20~65℃ (non-freezing)			
	humidity	operating	90%RH or less (non-condensing)			
		storage	90%RH or less (non-condensing)			
	Installation site		Indoor(no direct sunlight), no corrosive or flammable gas, no oil mist or dust			
	Altitude		Max.1000m (3280ft) or lower above sea level			
	Vibration		Maximum 59m/s2			
Weight(kg)			1.4			1.7
Reference dimension figure			Page 132			Page 132
Approval			IEC/EN 61800-5-1			

Servo Motors Specifications

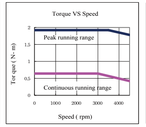
Servo Motors Series			Low Inertia			
SMA-L□□□			010	020	040	075
Capacity of power supply (kVA)			0.3	0.5	0.9	1.3
Rated output power (W)			100	200	400	750
Rated torque (N-m)			0.32	0.64	1.27	2.40
Maximum torque (N-m)			0.96	1.92	3.81	7.20
Rated speed (r/min)			3000			
Maximum speed (r/min)			4500			
Instantaneous allowable speed (r/min)			5175			
Power rating (kW/S)			18.29	19.69	46.08	47.21
Rated current (A)			0.93	1.32	2.44	4.80
Max. instantaneous current (A)			2.79	3.96	7.32	14.70
Rotor inertia J ($x10^{-4}$kg.m2)			0.056	0.208	0.350	1.380
Torque constant KT (N-m/A)			0.344	0.485	0.521	0.490
Voltage constant KE (mV/(r/min))			39.97	54.53	56.60	56.25
Armature resistance Ra(Ohm)			41.75	11.70	5.66	1.38
Armature inductance La(mH)			29.13	42.87	24.00	10.02
Mechanical constant (ms)			1.780	0.964	0.704	0.640
Electric constant (ms)			0.70	3.66	4.24	7.26
Insulation class			F			
Insulation resistance			100MΩ,DC500V			
Insulation strength			AC1500V,60Hz,60sec			
Encoder			2500ppr			
Environment	Protection structure (IP)		65			
	Temperature	operating	0~40℃			
		storage	-15~70℃			
	Humidity	operating	80%RH or less (non-condensing)			
		storage	90%RH or less (non-condensing)			
	Vibration grade (μm)		15			
	Vibration capacity		x,y direction: 49 m/ S2			
Weight (kg) [ ] with electromagnetic brake			0.55 [0.75]	1.01 [1.44]	1.46 [1.89]	2.89 [3.63]
Approval			CE			

Servo Motors Torque Characteristic

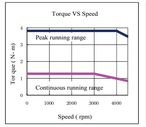
[SMA-L010]



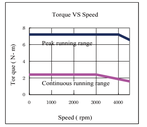
[SMA-L020]



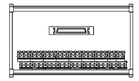
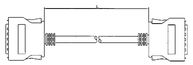
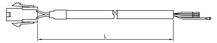
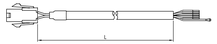
[SMA-L040]



[SMA-L075]



Optional Cables and Connectors

Name		Serial	Content
CN2: Select One only	SMA-L Encoder for low inertia motors Cable / Connector Set	SDA-ENLCBL□M-L □ The length of the cable inside 2, 5, 10 . . . M (Note 1)	
		SDA-ENLCBL□M-H □ The length of the cable inside 2, 5, 10 . . . M (Note 1)	
		SDA-ENCNL Connector set	
For CN1	I/O Connector	SDB-CN1	
	Terminal blocks and a wire set	SDB-TB44	
		SDB-TBL□M □ The length of cable inside 05, 1, 2 . . . M (Note 1)	
CN3	RS232/RS485 Communication line	SDA-RJ45-3M	
Power Connector	SMA-L Low Inertia Motor	SDA-PWCNL1	
		SDA-PWCNL1-□M-L □ The length of cable inside 2, 5, 10 . . . M (Note 1)	
		SDA-PWCNL1-□M-H □ The length of cable inside 2, 5, 10 . . . M (Note 1)	
	SMA-L Low Inertia Motor (with an electromagnetic brake)	SDA-PWCNL2	
		SDA-PWCNL2-□M-L □ The length of cable inside 2, 5, 10 . . . M (Note 1)	
		SDA-PWCNL2-□M-H □ The length of cable inside 2, 5, 10 . . . M (Note 1)	

Note 1: L and H indicate bending life, L: standard, H: long bending life