

AC SERVO DRIVES

Σ -II SERIES

Your Machinery Performance Reaches Its Full Potential



High Performance

- On line auto tuning
- Automatic motor discriminator function
- Mechanical resonance suppression filter
- Speed observer control
- Feed forward compensation
- Vibration Suppression control

More Flexible

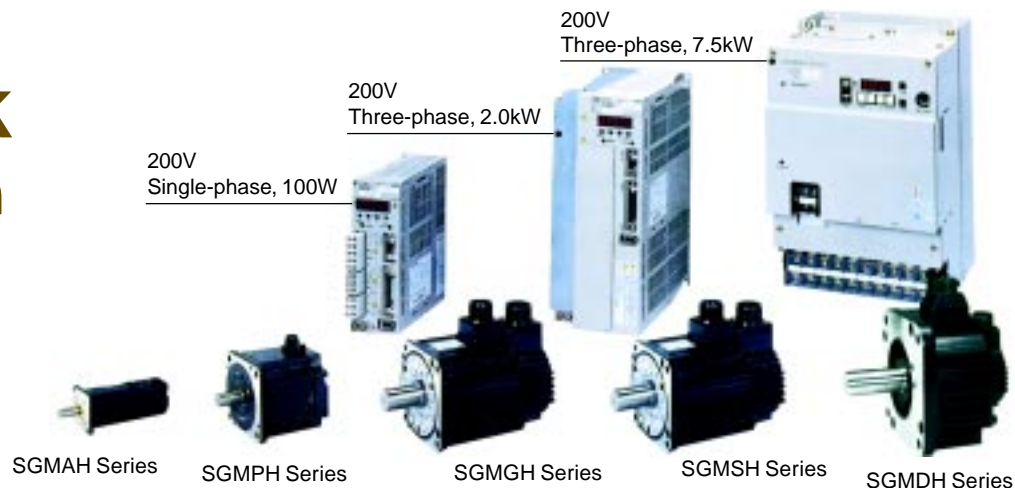
- All-in one control
Position / Speed / Torque
- Absolute encoder support
- Origin search
- Brake interlock
- Regeneration & Dynamic braking

High Reliability

- Full conformance to
CE marking, UL and cUL



Servomotor- SERVOPACK Combination



Servomotor			SERVOPACK Type SGDM - □			Applications	
Series	Outlines	Capacity	100V	200V			
			Single-phase	Single-phase	Three-phase		
Small-Capacity	SGMAH (3000min ⁻¹)	Super High Power Rate Series Large torque required at low inertia.	30W	A3BDA	A3ADA	-	Chip Mounters PCB Drilling Machines Food Processing Machines Robots Material Handling Equipment
			50W	A5BDA	A5ADA	-	
			100W	01BDA	01ADA	-	
			200W	02BDA	02ADA	-	
			400W	-	04ADA	-	
	750W	-	-	08ADA			
	SGMPH (3000min ⁻¹)	Cube Type Series Short L-length Good for narrow space installaton.	100W	01BDA	01ADA	-	
			200W	02BDA	02ADA	-	
			400W	-	04ADA	-	
			750W	-	-	08ADA	
1500W			-	-	15ADA		
Medium-Capacity	SGMGH (1500min ⁻¹)	High Speed Feed Series	0.45kW	-	-	05ADA	Transfer Machine Food Processing Machines Material Handling Equipment Machine Tool Feeds
			0.85kW	-	-	10ADA	
			1.3kW	-	-	15ADA	
			1.8kW	-	-	20ADA	
			2.9kW	-	-	30ADA	
			4.4kW	-	-	50ADA	
			5.5kW	-	-	60ADA	
			7.5kW	-	-	75ADA	
			11 kW	-	-	1 AADA	
			15 kW	-	-	1 EADA	
	SGMGH (1000min ⁻¹)		0.3kW	-	-	05ADA	
			0.6kW	-	-	08ADA	
			0.9kW	-	-	10ADA	
			1.2kW	-	-	15ADA	
			2.0kW	-	-	20ADA	
			3.0kW	-	-	30ADA	
			4.4kW	-	-	50ADA	
			6.0kW	-	-	60ADA	
	SGMSH (3000min ⁻¹)	Super High Power Rate Series Large torque required at low inertia.	1.0kW	-	-	10ADA	
			1.5kW	-	-	15ADA	
			2.0kW	-	-	20ADA	
			3.0kW	-	-	30ADA	
4.0kW			-	-	50ADA		
5.0kW			-	-	50ADA		
SGMDH (2000min ⁻¹)	Flat Series Short L-length. Good for narrow space installation.	2.2kW	-	-	30ADA		
		3.2kW	-	-	50ADA		
		4.0kW	-	-	50ADA		

Type Designation

Servomotor

SGMPH - 01 A A A 2 S

Σ-II Servomotor Series

- SGMAH: Super High Power Rate Series
- SGMPH: Cube Type Series
- SGMGH: High-speed Feed Series
- SGMSH: Super-High Power Rate Series
- SGMDH: Flat Series

Capacity (kW)

Code	SGMAH	SGMPH	SGMGH		SGMSH	SGMDH
	3000 min ⁻¹	3000 min ⁻¹	1500 min ⁻¹	1000 min ⁻¹	3000 min ⁻¹	2000 min ⁻¹
A3	0.03					
A5	0.05					
01	0.1	0.1				
02	0.2	0.2				
03				0.3		
04	0.4	0.4				
05			0.45			
06				0.6		
08	0.75	0.75				
09			0.85	0.9		
10					1.0	
12				1.2		
13			1.3			
15		1.5			1.5	
20			1.8	2.0	2.0	
22						2.2
30			2.9	3.0	3.0	
32						3.2
40					4.0	4.0
44			4.4	4.4		
50					5.0	
55			5.5			
60				6.0		
75			7.5			
1A			11			
1E			15			

Voltage

- A: 200 V
- B: 100 V

Brake, Oil Seal Specifications

1	No Brake, No Oil Seal
S	Oil Seal
B	90VDC Brake
C	24VDC Brake
D	Oil Seal, + 90VDC Brake
E	Oil Seal, + 24VDC Brake

Shaft End Specifications

Code	Specifications	SGMAH	SGMPH	SGMGH	SGMSH	SGMDH
2	Straight, No key	⊙	⊙	⊙	⊙	⊙
3	Taper 1/10, Parallel key			○	○	○
4	Straight, Key	○	○			
5	Taper 1/10, Woodruff key			○	○	
6	Straight, Key, Tap	○	○	○	○	○
8	Straight, Tap	○	○			

⊙:Standard ○:Option

Design Procedure

- A: SGMAH
- SGMPH
- SGMGH (1500min⁻¹)
- SGMSH
- SGMDH
- B: SGMGH (1000min⁻¹)
- C: SGMGH (1500min⁻¹) High Precision Machinery
- D: SGMGH (1000min⁻¹) High Precision Machinery
- E: SGMPH (IP67 water-proof specifications)

Serial Encoder Specifications

Code	Encoder	Series				
		SGMAH	SGMPH	SGMGH	SGMSH	SGMDH
1	16-bit Absolute	⊙	⊙			
2	17-bit Absolute			⊙	⊙	⊙
A	13-bit Incremental	⊙	⊙			
B	16-bit Incremental	○	○			
C	17-bit Incremental			⊙	⊙	⊙

⊙:Standard ○:Option

SERVOPACK

SGDM - 04 A D A

Σ-II SGDM SERVOPACK

Capacity

A3	30 W	15	1.5 kW
A5	50 W	20	2.0 kW
01	100 W	30	3.0 kW
02	200 W	50	5.0 kW
04	400 W	60	6.0 kW
05	500 W	75	7.5 kW
08	750 W	1A	11 kW
10	1.0kW	1E	15 kW

Design Procedure

Model

- D: Speed, Torque, Position

Source Voltage

- A: 200V (Single-/three phase)
- B: 100V (Single-phase)

Specifications

Basic Specifications	Operating Conditions	Operating/storage Temperature	0 to 55°C / -20 to +85°C	
		Operating/storage Humidity	90% RH or less (non-condensing)	
		Altitude	1000m or less	
		Vibration/shock Resistance	4.9m/s ² / 19.6m/s ²	
Speed / Torque Control Mode	Performance	Speed Control Range	1:5000	
		Speed Variance	Load Variance	During 0 to 100% load: ±0.01% max. (at rated speed)
			Voltage Variance	Rated voltage ±10%: 0% (at rated speed)
			Temperature Variance	25 ±25°C: ±0.1% max. (at rated speed)
		Frequency Characteristics	400Hz (at J _L = J _M)	
	Torque Control Accuracy (Reproducibility)	±2%		
	Soft Start Time Setting	0 to 10s (Acceleration, deceleration can each be set.)		
	Input Signal	Speed Reference Input	Reference Voltage	±6VDC (forward motor rotation if positive reference) at rated speed: set at delivery variable setting range: ±2 to ±10VDC at rated speed / max. input voltage: ±12V
			Input Impedance	Approx. 14kΩ
			Circuit Time Constant	-
Torque Reference Input		Reference Voltage	±3VDC (forward rotation torque if positive reference) at rated speed: set at delivery variable settling range: ±1 to ±10VDC at rated torque reference	
		Input Impedance	Approx. 14kΩ	
		Circuit Time Constant	Approx. 47μs	
Position Control Mode	Performance	Bias Setting	0 to 450 min ⁻¹ , (setting resolution: 1 min ⁻¹)	
		Feed Forward Compensation	0 to 100% (setting resolution: 1%)	
		Position Completed Width Setting	0 to 250 command units (Setting resolution: 1 command unit)	
	Input Signal	Command Pulse	Input Pulse Type	Sign + pulse train, 90° phase displacement 2-phase pulse (A-phase + B-phase), or or CCW / CW pulse train
			Input Pulse Form	Line driver (+5V level), open collector (+5V or + 12 level)
			Input Pulse Frequency	0 to 500kpps (200kpps max. at open collector)
Control Signal	Clear signal (input pulse is same as reference pulse)			
I/O Signal	Position Signal Output	A-phase, B-phase, C-phase, (S-phase): Line driver output S-phase is for absolute encoder only.		
	Sequence Input Signal	Servo ON, P control (or control mode switching, zero clamp, command pulse inhibit), forward/reverse run prohibit, alarm reset, forward/reverse current limit (or internal speed switching) Servo alarm, alarm codes (3-bit output): CN1 output terminal is fixed.		
	Sequence Output Signal	It is possible to output three types of signals from among: positioning complete (speed agree), motor rotation, servo ready, current limit, speed limit, brake release, warning, NEAR, and zero point pulse signal.		
Integrated Functions	Communications	Interface	Digital operator (hand-held type), RS-422A port for PCs, etc. (RS-232C ports under some conditions)	
		1:N Communications	N may equal up to 14 when an RS-422A port is used.	
		Axis Address Setting	Set by user setting.	
		Functions	Status display, user constant setting, monitor display, alarm traceback display, JOG run / autotuning operations, and graphing functions for speed/torque reference signal, etc.	
	Auto Tuning Function	Position/speed loop gain and integral time constant can be automatically set.		
	Dynamic Brake (DB)	Operates during main power OFF, servo alarm, servo OFF or overtravel		
	Regenerative Processing	Regenerative resistor externally mounted (option)		
	Overtravel (OT) Prevention Function	DB stop, deceleration stop or coast to stop during P-OT, N-OT operation		
	Encoder Divider Function	Optional division possible		
	Electronic Gearing	0.01<A/B<100		
	Internal Speed Setting Function	3 speeds may be set internally		
	Protective Functions	Overcurrent, overvoltage, insufficient voltage, overload, main circuit sensor error, heatsink overheat, power phase loss, overflow, overspeed, encoder error, runaway, CPU error, parameter error, etc.		
	Analog Monitor Functions for Supervision	Integrates analog monitor connectors for supervision of the speed and torque reference signals, etc.		
Display Functions	CHARGE, POWER, 7-segment LEDx5 (Integrated digital operator function)			
Others	Reverse connection, zero search, automatic motor discrimination function, and DC reactor connection terminal for high frequency power suppression function (except: 6kW to 15kW)			

For more details, please contact:



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