

SGMPH Gearmotors - With Incremental / Absolute Encoder

Rated Output : 100W, 200W, 400W,
750W, 1500W



Design Features

1. Compact Construction

- Easy to install - pre-engineered and pre-assembled
- Ideal for cyclic and reversing applications
- Fits in limited mounting space
- Planetary gear geometry allowing high output torques in a compact package

2. Torque

- 40.9 to 3540in • lb peak torque
- Cost-effective solution for low speed and high torque applications
- Gear ratios - 5:1 to 100:1 in some sizes
- High torsional stiffness and low backlash
- Lubrication is self-replenishing to ensure long life

3. Encoders

- 13-Bit (2,048ppr x 4) incremental encoder (standard)
- 16-Bit (16,384ppr x 4) absolute encoder (option)

4. Enclosure

- Motor is totally enclosed, self-cooled IP67 (not including shaft)

5. Application Emphasis

- PCB drilling machines
- Robots
- Conveyors
- Packaging machines

6. Certified International Standards

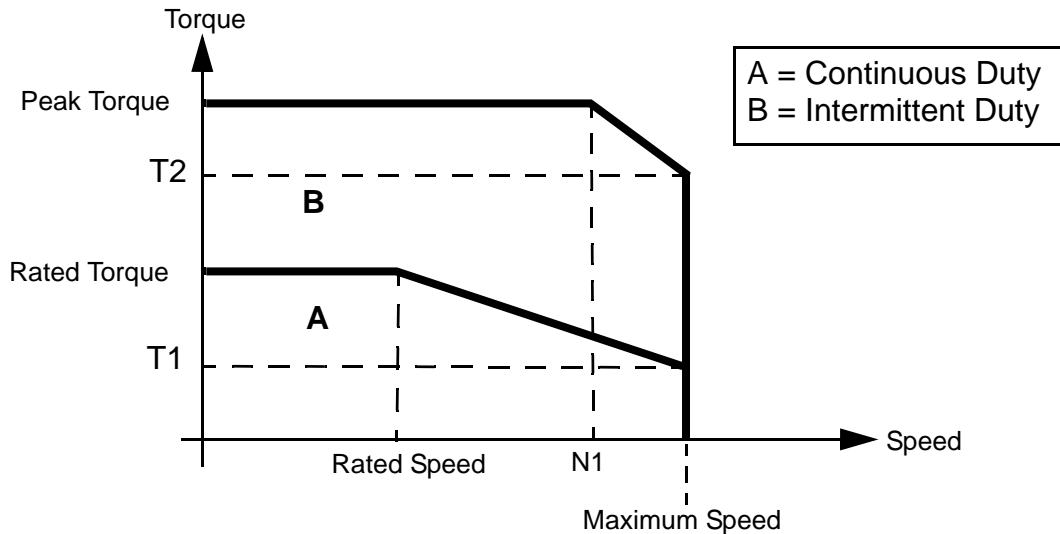
- UL, cUL recognized (File #: E165827), CE compliance

Gearmotor Ratings and Specifications

GEARMOTOR Part Number	Rated Torque (in • lb)	Peak Torque (in • lb)	Rated Speed (rpm)	Maximum Speed (rpm)	Speed N1 (rpm)	Torque T1 (in • lb)	Torque T2 (in • lb)	Amplifier Model Number
								Analog Input SGDh-
SG05SA-PE01□□	13.67	40.93	600	1000	900	8.59	34.34	01□□
SG10SA-PE01□□	27.34	81.84	300	500	450	17.17	68.68	
SG25SA-PE01□□	66.95	200.39	120	200	180	42.04	168.16	
SG50SA-PE01□□	133.89	283.00	60	100	90	84.08	336.32	
SG1ASA-PE01□□	267.78	637.00	30	50	45	168.16	672.65	
SG05SA-PE02□□	27.34	81.84	600	1000	1000/600	17.17	81.8/36.2*	02□□
SG10SA-PE02□□	54.68	163.69	300	500	500/300	34.34	163.7/72.4*	
SG25SA-PE02□□	133.89	283.00	120	200	200/120	84.08	283/177*	
SG50SA-PE02□□	267.78	708.00	60	100	100/60	168.16	708/354.7*	
SG1ASAPE02□□	535.56	1593.00	26	48	50/30	336.32	1593/704.4*	
SG05SA-PE04□□	54.81	164.42	600	1000	640	34.34	77.27	04□□
SG10SA-PE04□□	109.61	283.00	300	500	320	68.68	154.53	
SG25SA-PE04□□	268.38	708.00	120	200	128	168.16	378.36	
SG50SA-PE04□□	536.75	1610.25	52	96	64	336.32	756.73	
SG1ASA-PE04□□	1073.50	2832.00	20	36	32	672.65	1513.45	
SG05SA-PE08□□	102.34	306.04	600	1000	640	51.51	51.51	08□□
SG10SA-PE08□□	204.67	612.07	300	500	320	103.02	103.02	
SG25SA-PE08□□	501.13	1498.63	104	192	128	252.24	252.24	
SG50SA-PE08□□	1002.25	2997.25	40	72	64	504.48	504.48	
SG05SA-PE15□□	205.16	614.50	520	960	640	103.02	103.02	15□□
SG10SA-PE15□□	410.31	1228.99	260	480	320	206.04	206.04	
SG25SA-PE15□□	1004.63	3009.13	80	144	128	504.48	504.48	
SG50SA-PE15□□	2009.25	3540.00	40	72	64	1008.97	1008.97	

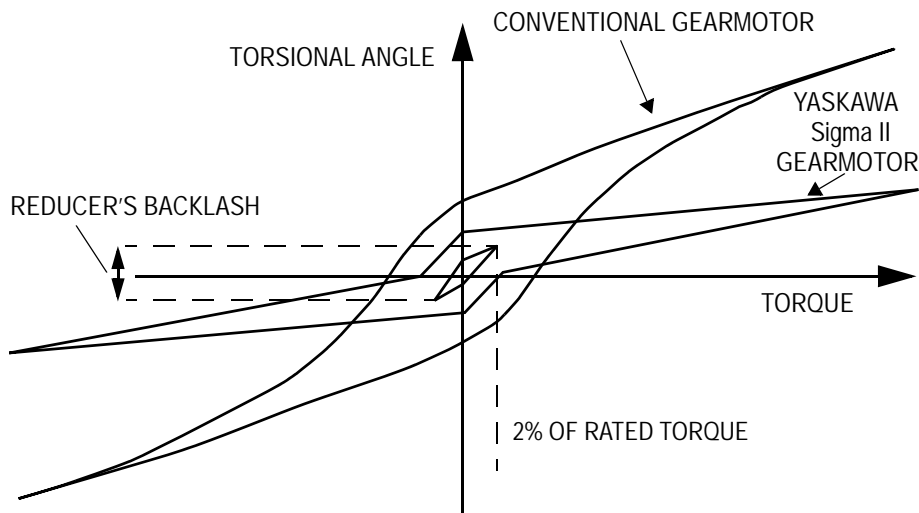
* Values for 100V Gearmotor

- Note:
1. These performance ratings apply when duty cycles are 60% or less, and when the gearmotor runs for 1,000 cycles per hour or less. Contact your Yaskawa representative when duty cycles exceed 60%, and when the gearmotor runs for more than 1,000 cycles per hour.
 2. Rated Speed is at 20°C ambient temperature. Reduce Rated Speed by 20% at 40°C ambient temperature.
 3. For right-angle gearmotors, please consult the factory for availability.



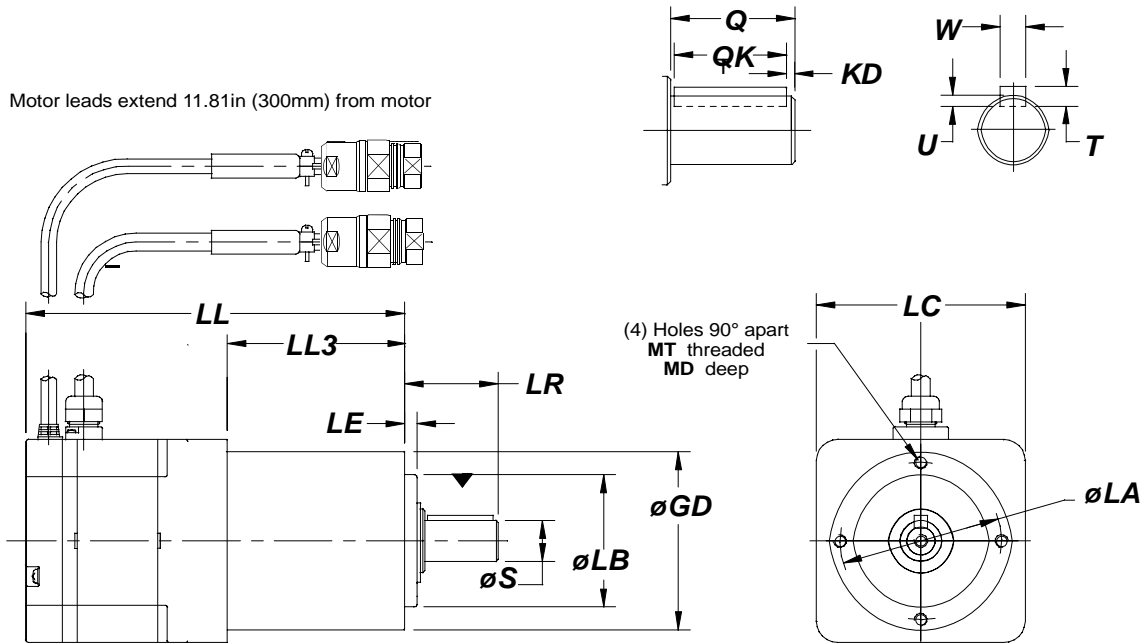
Gearmotor Mechanical Ratings

GEARMOTOR Part Number	Gearhead Backlash (arc min)	Gearhead Maximum Radial Load (lb _f)	Gearhead Maximum Axial Load (lb _f)	Gearhead Inertia (in • lb • s ²)	Gearmotor Weight (lb)
SG05SA-PE01□□	<10	146	158	0.000052	3.24
SG10SA-PE01□□					
SG25SA-PE01□□		326	349	0.00025	6.39
SG50SA-PE01□□					
SG1ASA-PE01□□					
SG05SA-PE02□□	<10	326	349	0.00025	7.28
SG10SA-PE02□□					
SG25SA-PE02□□		540	428	0.0016	14.34
SG50SA-PE02□□					
SG1ASA-PE02□□					
SG05SA-PE04□□	<10	326	349	0.00025	8.82
SG10SA-PE04□□					
SG25SA-PE04□□		540	428	0.0016	15.88
SG50SA-PE04□□					
SG1ASA-PE04□□					
SG05SA-PE08□□	<10	540	428	0.0016	19.18
SG10SA-PE08□□					
SG25SA-PE08□□		1035	900	0.0049	34.84
SG50SA-PE08□□					
SG05SA-PE15□□	<10	1035	900	0.0048	34.40
SG10SA-PE15□□					
SG25SA-PE15□□		1687	1350	0.0047	60.75
SG50SA-PE15□□					



SGMPH
Gearmotors

Dimensions in inches (mm)



GEARMOTOR	LL3	LL	LE	LR	LB	GD	S	LC	LA	MT	MD	Q	QK	KD	W	T	U		
SG05SA-PE01□A	1.988 (50)	5.177 (131.5)	0.158 (4)	0.965 (24.5)	1.378 (35)	1.969 (50)	0.472 (12)	2.362 (60)	1.732 (44)	M4 x 0.7	0.315 (8)	0.709 (18)	0.551 (14)	0.079 (2)	0.158 (4)	0.158 (4)	0.098 (2.5)		
SG10SA-PE01□A																0.197 (5)	0.197 (5)	0.118 (3)	
SG25SA-PE01□A	3.465 (88)	6.858 (174.2)	0.197 (5)	1.417 (36)	2.047 (52)	2.756 (70)	0.630 (16)	2.756 (70)	2.441 (62)	M5 x 0.8	0.394 (10)	1.102 (28)	0.984 (25)			0.236 (6)	0.236 (6)	0.138 (3.5)	
SG50SA-PE01□A				1.811 (46)	2.677 (68)	3.543 (90)	0.866 (22)	3.543 (90)	3.150 (80)	M6 x 1.0	0.472 (12)	1.417 (36)	1.260 (32)						
SG1ASA-PE01□A	4.193 (106.5)	7.500 (190.5)																	
SG05SA-PE02□A	2.677 (68)	6.181 (157)			1.417 (36)	2.047 (52)	2.756 (70)	0.630 (16)	3.150 (80)	2.441 (62)	M5 x 0.8	0.394 (10)	1.102 (28)		0.984 (25)		0.197 (5)	0.197 (5)	0.118 (3)
SG10SA-PE02□A																			
SG25SA-PE02□A	3.465 (88)	6.969 (177)			1.811 (46)	2.677 (68)	3.543 (90)	0.866 (22)	3.543 (90)	3.150 (80)	M6 x 1.0	0.472 (12)	1.417 (36)		1.260 (32)		0.236 (6)	0.236 (6)	0.138 (3.5)
SG50SA-PE02□A	4.193 (106.5)	7.697 (195.5)																	
SG1ASA-PE02□A	5.295 (134.5)	9.036 (229.5)		0.236 (6)	2.756 (70)	3.543 (90)	4.724 (120)	1.260 (32)	4.724 (120)	4.252 (108)	M8 x 1.25	0.630 (16)	2.284 (58)		1.969 (50)	0.158 (4)	0.394 (10)	0.315 (8)	0.197 (5)
SG05SA-PE04□A	2.677 (68)	6.969 (177)		0.197 (5)	1.417 (36)	2.047 (52)	2.756 (70)	0.630 (16)	3.150 (80)	2.441 (62)	M5 x 0.8	0.394 (10)	1.102 (28)	0.984 (25)	0.079 (2)	0.197 (5)	0.197 (5)	0.118 (3)	
SG10SA-PE04□A					1.811 (46)	2.677 (68)	3.543 (90)	0.866 (22)	3.543 (90)	3.150 (80)	M6 x 1.0	0.472 (12)	1.417 (36)	1.260 (32)			0.236 (6)	0.236 (6)	0.138 (3.5)
SG25SA-PE04□A	4.193 (106.5)	8.484 (215.5)																	
SG50SA-PE04□A	5.295 (134.5)	9.823 (249.5)	0.236 (6)	2.756 (70)	3.543 (90)	4.724 (120)	1.260 (32)	4.724 (120)	4.252 (108)	M8 x 1.25	0.630 (16)	2.284 (58)	1.969 (50)	0.158 (4)	0.394 (10)	0.315 (8)	0.197 (5)		
SG1ASA-PE04□A	6.024 (153)	10.551 (268.0)	0.315 (8)	3.819 (97)	4.724 (120)	6.102 (155)	1.575 (40)		5.512 (140)	M10 x 1.5	0.787 (20)	3.228 (82)	2.756 (70)	0.236 (6)	0.472 (12)				
SG05SA-PE08□A	3.150 (80)	7.815 (198.5)	0.197 (5)	1.811 (46)	2.677 (68)	3.543 (90)	0.866 (22)		3.150 (80)	M6 x 1.0	0.472 (12)	1.417 (36)	1.260 (32)	0.079 (2)	0.236 (6)	0.236 (6)	0.138 (3.5)		
SG10SA-PE08□A																			
SG25SA-PE08□A	5.295 (134.5)	9.803 (249)	0.236 (6)	2.756 (70)	3.543 (90)	4.724 (120)	1.260 (32)		4.252 (108)	M8 x 1.25	0.630 (16)	2.284 (58)	1.969 (50)	0.158 (4)	0.394 (10)	0.315 (8)	0.197 (5)		
SG50SA-PE08□A	6.024 (153)	10.532 (267.5)	0.315 (8)	3.819 (97)	4.724 (120)	6.102 (155)	1.575 (40)		5.512 (140)	M10 x 1.5	0.787 (20)	3.228 (82)	2.756 (70)	0.236 (6)	0.472 (12)				
SG05SA-PE15□A	4.016 (102)	9.626 (244.5)	0.236 (6)	2.756 (70)	3.543 (90)	4.724 (120)	1.260 (32)		4.252 (108)	M8 x 1.25	0.630 (16)	2.284 (58)	1.969 (50)	0.158 (4)	0.394 (10)				
SG10SA-PE15□A																			
SG25SA-PE15□A	6.024 (153)	11.634 (295.5)	0.315 (8)	3.819 (97)	4.724 (120)	6.012 (155)	1.575 (40)		5.512 (140)	M10 x 1.5	0.787 (20)	3.228 (82)	2.756 (70)	0.236 (6)	0.472 (12)				
SG50SA-PE15□A																			

Tolerances for standard (SG) gearmotors

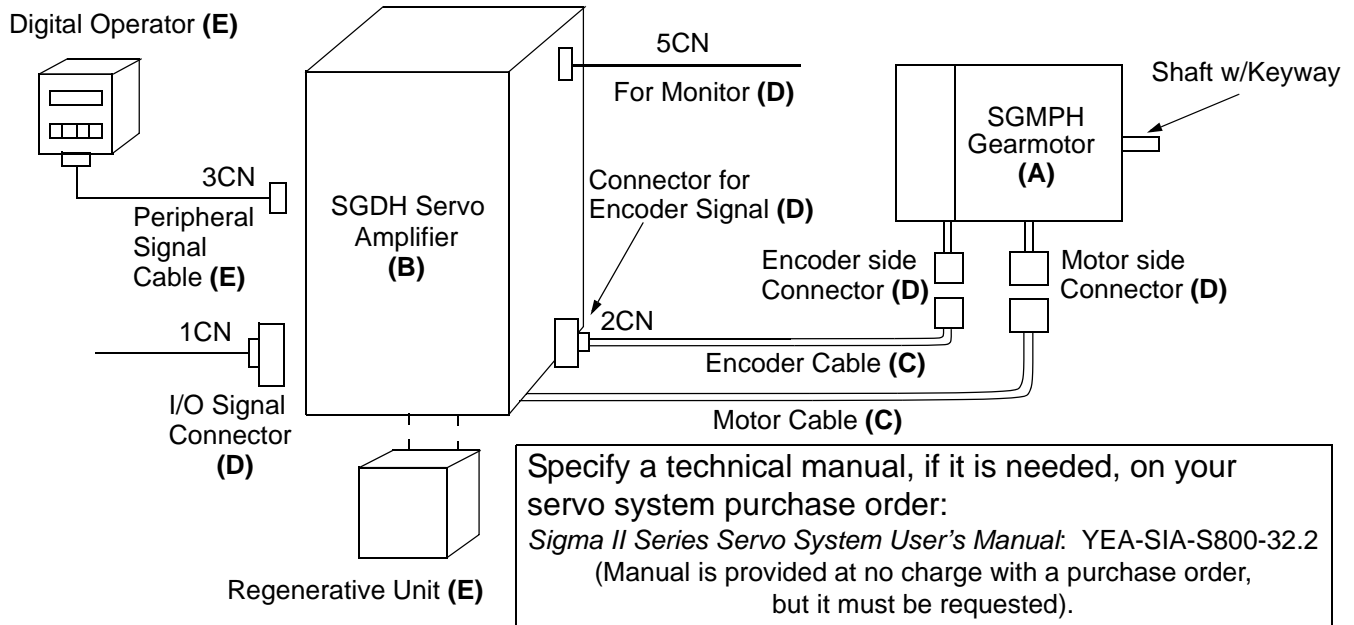
Dimension	ΦS		ΦLB		W	
Unit	Diameter	Tolerance	Diameter	Tolerance	Width	Tolerance
in	0.472, 0.630	+0.00047 +0.00004	1.378	+0.00000 -0.00063	0.158, 0.197, 0.236	+0.00000 -0.00118
	0.866	+0.00059 +0.00008	2.047, 2.677	+0.00000 -0.00075	0.39370	+0.00000 -0.00142
	1.25984, 1.57480	+0.00071 +0.00008	3.5433, 4.724	+0.00000 -0.00087	0.47244	+0.00000 -0.00169
mm	12, 26	+0.012 +0.001	35	+0.000 -0.016	4, 5, 6	+0.000 -0.030
	22	+0.015 +0.002	52, 68	+0.000 -0.019	10	+0.000 -0.036
	32, 40	+0.018 +0.002	90, 120	+0.000 -0.022	12	+0.000 -0.043

Selecting Your SGMPH Gearmotor System

First, select the Sigma II servomotor suited for your application using SigmaSize: the Yaskawa servomotor sizing software, available at no charge. (Request SigmaSize software via e-mail, at: literature@yaskawa.com).

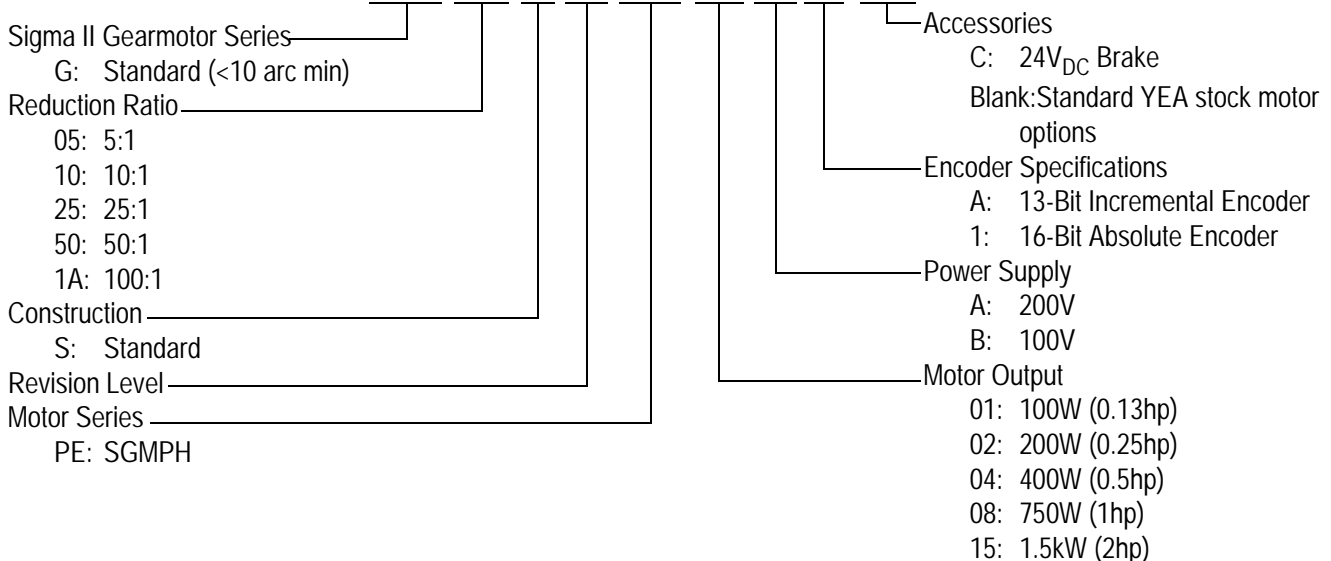
Use the diagram below to locate and identify the components of your system. Each item is letter-coded and cross-referenced in the option tables on the following pages.

System Configuration



Model Number Designation

SG 05 S A-PE 02 A A [C]



100/200V Single-phase Sigma II Servo Systems

Gearmotor & Amplifier Selection

Use the table below to select the appropriate SGMPH Sigma II gearmotor and amplifier.

(Refer to the motor model # designation on the previous page specifying the available modification to motor construction/features.)

Gearmotor (A)					Gearhead only		Amplifier MODEL # (B)* SGDH-	Gear Motor Item Class	Amplifier Item Class
MODEL #	Rated Torque (in • lb)	Peak Torque (in • lb)	Rated Speed (rpm)	Maximum Speed (rpm)	Inertia (in • lb • s ²)	Gear Ratio			
SG05SA-PE01AA	13.67	40.93	600	1000	0.000052	5:1	01A□	Normal leadtime 3 - 4 weeks for assembly	Stock
SG10SA-PE01AA	27.34	81.84	300	500		10:1			
SG25SA-PE01AA	66.95	200.39	120	200	0.00025	25:1			
SG50SA-PE01AA	133.89	283.00	60	100		50:1			
SG1ASA-PE01AA	267.78	637.00	30	50	0.0016	100:1	02A□		
SG05SA-PE02AA	27.34	81.84	600	1000	0.00025	5:1			
SG10SA-PE02AA	54.68	163.69	300	500		10:1			
SG25SA-PE02AA	133.89	283.00	120	200		25:1			
SG50SA-PE02AA	267.78	708.00	60	100	0.0016	50:1	04A□		
SG1ASA-PE02AA	535.56	1593.00	26	48	0.0049	100:1			
SG05SA-PE04AA	54.81	164.42	600	1000	0.00025	5:1			
SG10SA-PE04AA	109.61	283.00	300	500		10:1			
SG25SA-PE04AA	268.38	708.00	120	200	0.0016	25:1			
SG50SA-PE04AA	536.75	1610.25	52	96		50:1			
SG1ASA-PE04AA	1073.50	2832.00	20	36	0.0047	100:1	08A□		
SG05SA-PE08AA	102.34	306.04	600	1000	0.0016	5:1			
SG10SA-PE08AA	204.67	612.07	300	500		10:1			
SG25SA-PE08AA	501.13	1498.63	104	192	0.0049	25:1			
SG50SA-PE08AA	1002.25	2997.25	40	72	0.0047	50:1	15A□		
SG05SA-PE15AA	205.16	614.50	520	960	0.0048	5:1			
SG10SA-PE15AA	410.31	1228.99	260	480		10:1			
SG25SA-PE15AA	1004.63	3009.13	80	144	0.0047	25:1			
SG50SA-PE15AA	2009.25	3540.00	40	72	0.0047	50:1	01B□		
SG05SA-PE01BA	13.67	40.93	600	1000	0.000052	5:1			
SG10SA-PE01BA	27.34	81.84	300	500		10:1			
SG25SA-PE01BA	66.95	200.39	120	200	0.00025	25:1			
SG50SA-PE01BA	133.89	283.00	60	100		50:1			
SG1ASA-PE01BA	267.78	637.00	30	50	0.0016	100:1	02B□		
SG05SA-PE02BA	27.34	81.84	600	1000	0.00025	5:1			
SG10SA-PE02BA	54.68	163.69	300	500		10:1			
SG25SA-PE02BA	133.89	283.00	120	200		25:1			
SG50SA-PE02BA	267.78	708.00	60	100	0.0016	50:1	02B□		
SG1ASA-PE02BA	535.56	1593.00	26	48	0.0049	100:1			

**SGMPH
Gearmotors**

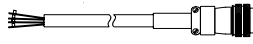
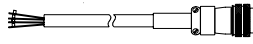
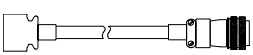
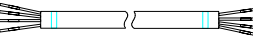
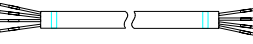
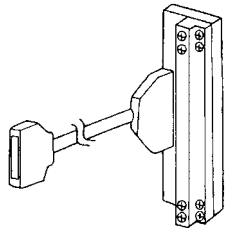
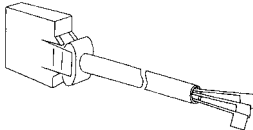
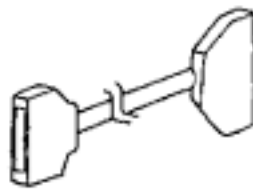
Notes: 24V_{DC} Brakes for SGMPH Sigma II gearmotors are standard. Contact a local source for 24V_{DC} power supplies.

Use the tables on the following page to specify mating connectors or pre-wired cables in different lengths.

For technical information, request Yaskawa technical bulletin number YEA-TSA-S800-16.16 and Yaskawa manual number TSE-S800-15.

Pre-wired Cable Selection

Use the table below to select pre-wired cables for your SGMPH Sigma II gearmotor.

Cable Description (C)		Motor Size (kW)	Part Number*	Comments	Item Class	
Power Cable with Interconnectron Connectors (without Brake)		0.1, 0.2, 0.4, 0.8	B4ICE-□□(A)	These UL and CE compliant cables are available in five lengths. Use the following key to specify needed cable length (last two digits of the part number): 03: 3m 05: 5m 10: 10m (standard) 15: 15m 20: 20m	Stock**	
		1.5	B5ICE-□□(A)			
Power Cable with Interconnectron Connectors (with Brake)		0.1, 0.2, 0.4, 0.8	B4IBCE-□□(A)			
		1.5	B5IBCE-□□(A)			
Encoder Cable with Interconnectron Connector (incremental or absolute)		All	A1ICE-□□(A)			
Encoder Cable (for applications up to 20m) Only for Solder Connections			FR-RMCT-SB			These cables are available in any length.
Encoder Cable (for applications from >20 to <50m) Only for Solder Connections			UL20276-SB			For example, to order one FR-RMCT-SB cable, 16m long, specify: quantity: 16 part no.: FR-RMCT-SB
Input/Output 1CN Cable & Transition Terminal Block			JUSP-TA50P			35mm DIN rail mountable; the cable length is 0.5 meters.
Input/Output 1CN Cable with Pigtail Leads			JZSP-CKI01-□(A)	Use the following key to specify required cable length (last digit of part number): 1: 1m (standard) 2: 2m 3: 3m		
Input/Output 1CN Cable Cable with Female D-Sub output Connector***			JZSP-CKI0D-□□	Use the following key to specify required cable length (last two digits of the part number): D50: 0.5m 01: 1m (standard) 02: 2m 03: 3m		

* The "(A)" at the end of the cable part number indicates the revision level. Revision level may be subject to change prior to this catalog reprinting.

** Standard cable lengths are Stock items; non-standard cable lengths are Limited Stock items.

*** 50 Pin Female D-Sub output connector mates to customer supplied third party terminal block. (e.g., Wago #289-449, Weidmuller #919658, Phoenix #2283647, Amphenol/Sine #20-51039, and many others)

Connector Selection


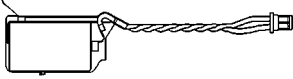
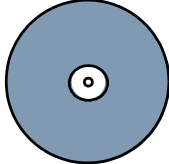
Use the table below to select mating connectors or kits for your SGMPH Sigma II gearmotor.

Connector Description (D)	Motor Size (kW)	Part Number	Comments	Item Class
Interconnectron Connector for Motor Power Cable (with or without Brake)	0.1, 0.2, 0.4, 0.8, 1.5	FIN07S-B2	IP67 Mated Solder Cup	Stock
2CN Amplifier Mating Connector		JZSP-CMP9-1	—	
Interconnectron Connector for Encoder Cable (incremental or absolute encoder)		FIN17C-A2	IP67 Mated Gauge: 24 - 18 AWG Requires Crimp Tool B150 and positioner.	
1CN Mating Connector	All	JZSP-CKI9	—	
Interconnectron Crimp Tool		B150	—	
Positioner		B055/A	—	

100/200V Single-phase Sigma II Servo Systems

Peripheral Device Selection

Use the table below to select peripheral devices for your SGMPH Sigma II gearmotor.

Component Description (E)	Part Number	Comments	Item Class	
Hand-held Digital Operator Panel 	JUSP-OP02A-1 and JZSP-CMS00-1	Portable unit with 1m adapter cable for Sigma II	Stock	
Absolute Encoder Battery 	JZSP-BA01	3.6V, 1000mAh (lithium battery)		
Software Interface Cable —	YS-12	Pre-wired 2.0m cable with 9-pin connector		
SigmaWin+ Software 	JZSP-WP0001	Minimum Recommended System Requirements Pentium 200 MHz, 64MB RAM, 200MB hard drive, CDROM Drive, RS-232 or RS-422 port, Screen resolution 800x600 w/ 256 colors, and Windows 95,98,NT4.0,2000,ME. (Windows XP planned)		
Individual External Regenerative Unit	For: SGDH-01AE SGDH-02AE SGDH-04AE SGDH-08AE SGDF-08AE-S amps	RH12050ohmJ		These are general purpose regenerative units.* Caution: Proper set-up is necessary to avoid equipment damage.
	For: SGDH-15AE SGDH-15AE-S	RH500N25_ohmK		
DC Reactor (for suppressing harmonics in the power supply)	For 200V: SGDH-01AE SGDH-02AE SGDH-04AE SGDH-08AE SGDF-08AE-S SGDH-15AE SGDH-15AE-S	X5071 X5070 X5069 X5061 X5079 X5060 X5078		— —
	For 100V: SGDH-01BE SGDH-02BE	X5063 X5062		

* For an alternate solution, specify the individual resistor part number RH500N25_OHMK in necessary series or parallel connection. Refer to *Sigma II Series Servo System User's Manual (YEA-SIA-S800-32.2)* for proper resistor sizing guidelines.