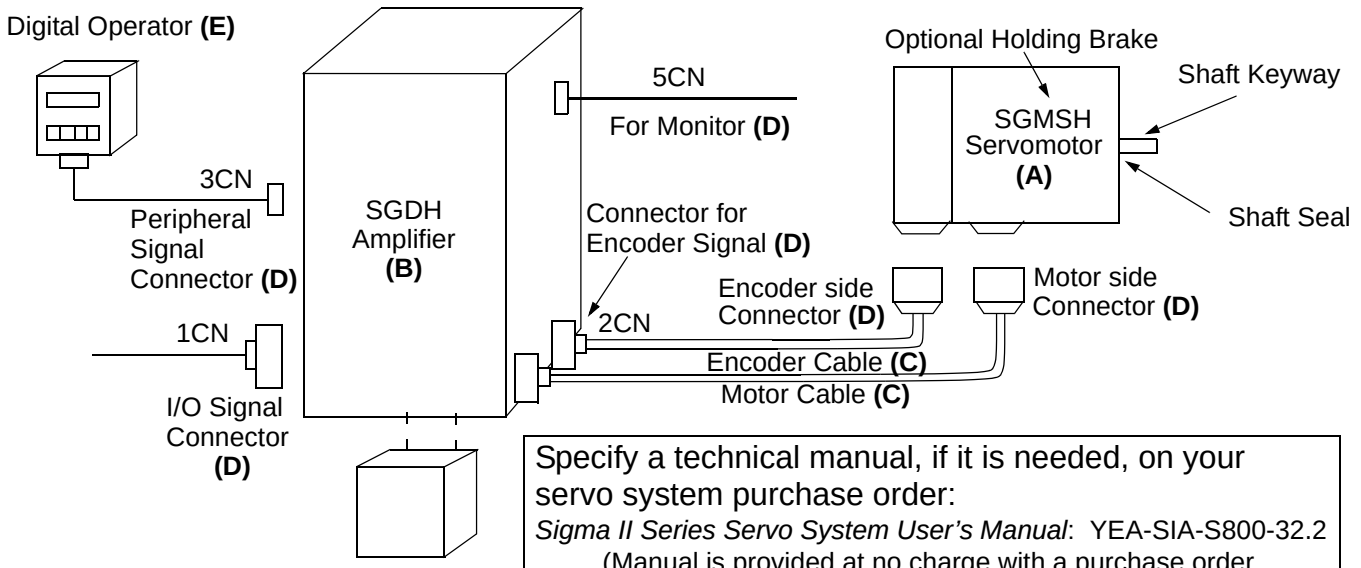
Selecting Your SGMSH Sigma II Servo System

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



Specify a technical manual, if it is needed, on your servo system purchase order:
Sigma II Series Servo System User's Manual: YEA-SIA-S800-32.2
(Manual is provided at no charge with a purchase order, but it must be requested).

Model Number Designation

SGMSH - 10 A C A 6 1

Sigma Servomotor Type

Rated Output
- 10: 1.0kW (1.3hp)
- 15: 1.5kW (2.0hp)
- 20: 2.0kW (2.7hp)
- 30: 3.0kW (4.0hp)
- 40: 4.0kW (5.4hp)
- 50: 5.0kW (6.7hp)

Power Supply
- A: 200V

Encoder Specifications
- C: 17-bit Incremental Encoder
- 2: 17-bit Absolute Encoder

Rated Speed
- A: 3000rpm

Shaft Specifications
- 6: Straight Shaft with Keyway

Accessories
- 1: Standard
- C: $24V_{DC}$ Brake
- S: Shaft Seal
- E: Shaft Seal and Brake

Servomotor & Amplifier Selection

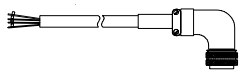
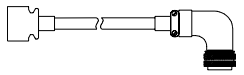
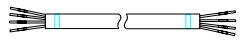
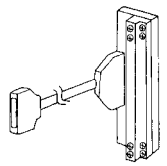
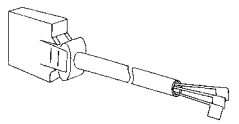
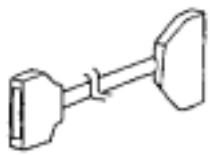
Use the table below to select the appropriate SGMSH Sigma II servomotor and amplifier.
(Refer to the motor model # designation on the previous page specifying the available modification to motor construction/features.)

Description	Peak Torque (in • lb)	Rated Torque (in • lb)	Motor Inertia (in • lb • s^2 X 10^{-3})	Motor MODEL # **(A)**	Amplifier MODEL # **(B)*** Analog/Digital Input SGDH-	Motor & Amplifier Item Class
200V, Three-Phase 17-bit Incremental Encoder Straight Shaft with Keyway 5000rpm maximum MS Connectors	84.4	28.2	1.54	SGMSH-10ACA61	10AE	Stock
			1.76	SGMSH-10ACA6C		
	130	43	2.19	SGMSH-15ACA61	15AE	
			2.41	SGMSH-15ACA6C		
	169	56.4	2.82	SGMSH-20ACA61	20AE	
			3.04	SGMSH-20ACA6C		
	260	87	6.2	SGMSH-30ACA61	30AE	
			8.1	SGMSH-30ACA6C		
	336	112	8.5	SGMSH-40ACA61	50AE	
			10.4	SGMSH-40ACA6C		
	422	140	10.9	SGMSH-50ACA61		
			12.8	SGMSH-50ACA6C		

Note: $24V_{DC}$ brakes for SGMSH Sigma II servomotors are standard. Contact a local source for $24V_{DC}$ power supplies. For technical information, request Yaskawa manual number YEA-SIA-S800-32.2.

Pre-wired Cable Selection

Use the table below to select pre-wired cables for your SGMSH Sigma II servomotor.

Cable Description **(C)**		Motor Size (kW)	Part Number*		Comments	Item Class
			without Brake	with Brake		
Power Cable with L-type Connectors (IP67)		1.0, 1.5, 2.0	B1E-□□(A)	B1BE-□□(A)	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**
		3.0	B2E-□□(A)	B2BE-□□(A)		
		4.0, 5.0	B3E-□□(A)	B3BE-□□(A)		
Encoder Cable (incremental or absolute) (IP67)		All	JZSP-CMP02-□□(B)		These cables are available in five lengths. Use two digits in the part number's last place: 03: 3m 05: 5m 10: 10m (standard) 15: 15m 20: 20m	
Encoder Cable (for applications up to 20m) Only for Solder Connections			FR-RMCT-SB		These cables are available in any length. For example, to order one FR-RMCT-SB cable, 16m long, specify: quantity: 16 part no.: FR-RMCT-SB	
Encoder Cable (for applications from >20 to <50m) Only for Solder Connections			UL20276-SB			
Input/Output 1CN Cable & Transition Terminal Block			JUSP-TA50P		35mm DIN rail mountable; the cable length is 0.5m.	
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 cable length (last two digits of the part number): D50: 0.5m 01: 1m (standard) 02: 2m 03: 3m	

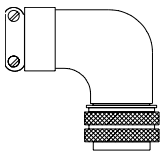
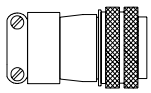
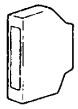
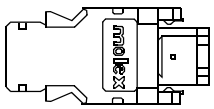
* "(A)" at the end of the cable number is the revision level. The revision level may be changed prior to this catalog's reprinting.

** 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

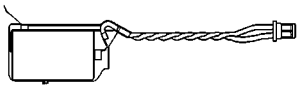
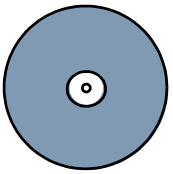
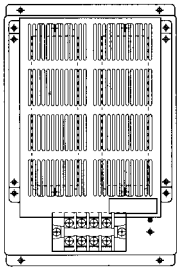
Use the table below to select mating connectors for your SGMSH Sigma II servomotor.

Connector Description **(D)**		Motor Size (kW)	Part Number		Comments	Item Class
			without Brake	with Brake		
MS Connector for Motor Power Cable *		1.0, 1.5, 2.0	MS3106B18-10S	MS3106B20-15S	Straight-type connector	Stock
			MS3108B18-10S	MS3108B20-15S	L-type connector	
			MS3057-10A	MS3057-12A	Cable clamp	
		3.0, 4.0, 5.0	MS3106B22-22S	MS3106B24-10S	Straight-type connector	
			MS3108B22-22S	MS3108B24-10S	L-type connector	
			MS3057-12A	MS3057-16A	Cable clamp	
MS Connector for Encoder Cable (incremental or absolute encoder)		All	MS3106B20-29S		Straight-type connector	
			MS3108B20-29S		L-type connector	
			MS3057-12A		Cable clamp	
1CN Mating Connector			JZSP-CKI9		—	
2CN Encoder Mating Connector			JZSP-CMP9-1		—	
3CN Peripheral Mating Connector	—		YSC-1		—	
5CN Connector and 1m Cable with Pigtails	—		DE9404559		—	

* Choose either a straight or L-type connector and the associated cable clamp for a complete assembly.

Peripheral Device Selection

Use the table below to select peripheral devices for your SGMSH Sigma II servomotor.

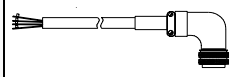
Component **(E)**		Part Number	Description	Item Class
Hand-held Digital Operator Panel		JUSP-OP02A-1 and JZSP-CMS00-1	Portable unit with adapter cable for Sigma II	Stock
Absolute Encoder Battery		JZSP-BA01	3.6V, 1000mAh (lithium battery)	
SigmaWin+ Software		JZSP-WP0001	Minimum Recommended System Requirements Pentuim 200 MHz, 64MB RAM, 200MB hard drive, CDROM Drive, RS-232 or RS-422 port, Screen rsolution 800x600 w/ 256 colors, and Windows 95,98,NT4.0,2000,ME. (Windows XP planned)	
Software Interface Cable	—	YS-12	Pre-wired 2.0m cable with 9-pin connector	
External Regenerative Unit (Optional)		JUSP-RA04	These are general purpose regenerative units.* Order the Motion document: PI#99004 for setup instructions for this unit. **Caution:** Proper set-up is necessary to avoid equipment damage	
DC Reactor (for suppressing harmonics in the power supply)	SGDH-10AE	X5061	—	Limited Stock
	SGDH-15AE SGDH-20AE	X5060		
	SGDH-30AE SGDH-50AE	X5059 X5068		

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

CE Pre-wired Cable Selection

Use the table below to select shielded pre-wired cables for your SGMSH Sigma II servomotor. These are suitable for IP67 environments.

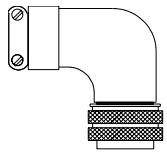
Use the standard encoder cable MS3057-12A listed on page 93.

Cable Description **(C)**		Motor Size (kW)	Part Number*		Comments	Item Class
			without Brake	with Brake		
Power Cable with Connectors (IP67)		1.0, 1.5, 2.0	B1CE-□□(A)	B1BCE-□□(A)	Use the following key to specify required cable length (last digit of part number): 03. 3m 05: 5m 10: 10m (standard) 15: 15m 20: 20m	Limited Stock
		3.0	B2CE-□□(A)	B3BCE-□□(A)		
		4.0 5.0	B3CE-□□(A)			

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

CE/IP67 Connector Selection

Use the table below to select mating connectors for your SGMSH Sigma II servomotor.

Connector Description **(D)**		Motor Size (kW)	Part Number*		Comments	Item Class
			without Brake	with Brake		
Connector for Motor Power Cable**		1.0, 1.5, 2.0	CE05-8A18-10SD-B-BAS CE3057-10A-1(D265)	CE05-8A20-15SD-B-BAS CE3057-12A-1(D265)	L-type connector Cable clamp	Limited Stock
		3.0, 4.0, 5.0	CE05-8A22-22SD-B-BAS CE3057-12A-1(D265)	CE05-8A24-10SD-B-BAS CE3057-16A-1(D265)	L-type connector Cable clamp	
Connector for Encoder Cable (incremental or absolute encoder)		All	CE02-6A20-29NSW and CE20BA-S CE3057-12A-3(D265)		L-type connector (plug and back shell) Cable clamp (for diameters 0.265 to 0.394in)	

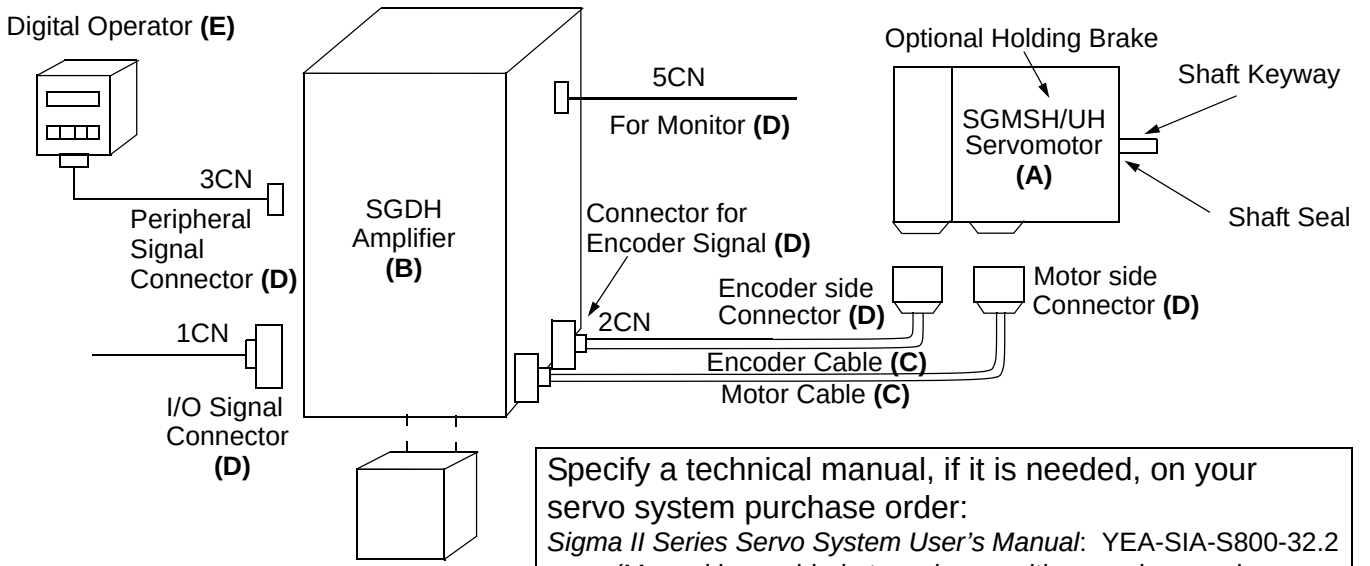
* Connectors are manufactured by DDK and listed here with the largest standard cable clamp available.

** Choose the connector and the associated cable clamp for a complete assembly. The connectors listed in the table are suitable for IP67 environments.

Selecting Your SGMSH/UH Sigma II Servo 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



Specify a technical manual, if it is needed, on your servo system purchase order:
Sigma II Series Servo System User's Manual: YEA-SIA-S800-32.2
(Manual is provided at no charge with a purchase order, but it must be requested).

Model Number Designation

SGMSH - 10 D C A 6 [1]

Sigma Servomotor Type
- SGMSH: 5000rpm
- SGMUH: 6000rpm

Rated Output
- 10: 1.0kW (1.3hp)
- 15: 1.5kW (2.0hp)
- 20: 2.0kW (2.7hp)
- 30: 3.0kW (4.0hp)
- 40: 4.0kW (5.4hp)
- 50: 5.0kW (6.7hp)

Power Supply
- D: 400V

Encoder Specifications
- C: 17-bit Incremental Encoder
- 2: 17-bit Absolute Encoder*

*SGMUH is not available with absolute encoder

Rated Speed
- A: Revision Level

Shaft Specifications
- 6: Straight Shaft with Keyway

Accessories
- 1: Standard
- C: $24V_{DC}$ Brake
- S: Shaft Seal
- E: Shaft Seal and Brake

Servomotor & Amplifier Selection

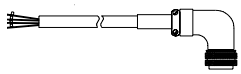
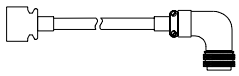
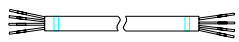
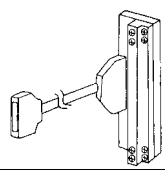
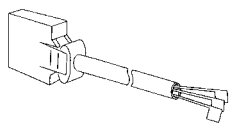
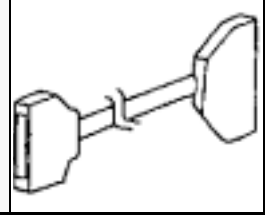
Use the table below to select the appropriate SGMSH or SGMUH Sigma II servomotor and amplifier.
(Refer to the motor model # designation on the previous page specifying the available modification to motor construction/features.)

Description	Peak Torque (in • lb)	Rated Torque (in • lb)	Motor Inertia (in • lb • s^2 X 10^{-3})	Motor MODEL # **(A)**	Amplifier MODEL # **(B)*** Analog/Digital Input SGDH-	Motor and Amplifier Item Class
400V, Three-Phase 17-bit Incremental Encoder Straight Shaft with Keyway **5000rpm** maximum MS Connectors	84.4	28.2	1.54	SGMSH-10DCA61	10DE	Stock
			1.76	SGMSH-10DCA6C		
	130	43	2.19	SGMSH-15DCA61	15DE	
			2.41	SGMSH-15DCA6C		
	169	56.4	2.82	SGMSH-20DCA61	20DE	
			3.04	SGMSH-20DCA6C		
	260	87	6.2	SGMSH-30DCA61	30DE	
			8.1	SGMSH-30DCA6C		
	336	112	8.5	SGMSH-40DCA61	50DE	
			10.4	SGMSH-40DCA6C		
	422	140	10.9	SGMSH-50DCA61		
			12.8	SGMSH-50DCA6C		
400V, Three-Phase 17-bit Incremental Encoder Straight Shaft with Keyway **6000rpm** maximum MS Connectors	57.6	14.1	1.54	SGMUH-10DCA61	10DE	
	190	43.4	6.2	SGMUH-30DCA61	30DE	

Note: $24V_{DC}$ brakes for SGMUH and SGMSH Sigma II servomotors are standard. Contact a local source for $24V_{DC}$ power supplies. For technical information, request Yaskawa manual number YEA-SIA-S800-32.2.

Pre-wired Cable Selection

Use the table below to select pre-wired cables for your SGMSH/UH–Series Sigma II servomotor.

Cable Description **(C)**		Motor Size (kW)	Part Number*	Comments	Item Class
Power Cable with L-type Connectors (IP67)		1.0, 1.5, 2.0	BAE-□□(A)	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**
		3.0 4.0, 5.0	BBE-□□(A)		
Cable with Holding Brake (IP67)		1.0, 1.5 2.0, 3.0 4.0, 5.0	B7BCE-□□(A)		
Encoder Cable (incremental or absolute) (IP67)		All	JZSP-CMP02-□□(B)	These cables are available in five lengths. Use two digits in the part number's last place: 03: 3m 05: 5m 10: 10m (standard) 15: 15m 20: 20m	
Encoder Cable (for applications up to 20m) Only for Solder Connections			FR-RMCT-SB	These cables are available in any length. For example, to order one FR-RMCT-SB cable, 16m long, specify: quantity: 16 part no.: FR-RMCT-SB	
Encoder Cable (for applications from >20 to <50m) Only for Solder Connections			UL20276-SB		
Input/Output 1CN Cable & Transition Terminal Block			JUSP-TA50P	35mm DIN rail mountable; the cable length is 0.5m.	
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	

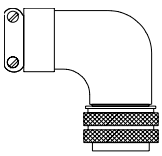
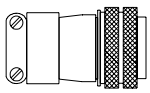
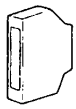
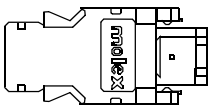
* "(A)" at the end of the cable number is the revision level. The revision level may be changed prior to this catalog's reprinting.

** 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

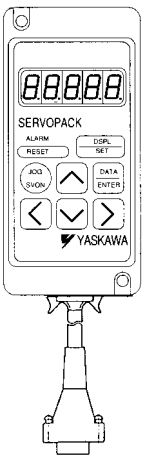
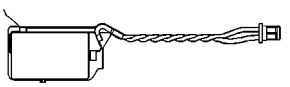
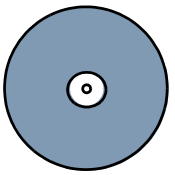
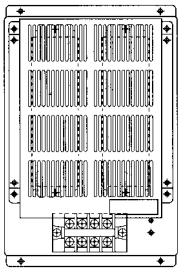
Use the table below to select mating connectors for your SGMSH/UH Sigma II servomotor.

Connector Description **(D)**		Motor Size (kW)	Part Number	Comments	Item Class
MS Connector for Motor Power Cable*		1.0, 1.5, 2.0	MS3106B18-10S	Straight-type connector	Stock
			MS3108B18-10S	L-type connector	
			MS3057-10A	Cable clamp	
		3.0, 4.0, 5.0	MS3106B22-22S	Straight-type connector	
			MS3108B22-22S	L-type connector	
			MS3057-12A	Cable clamp	
MS Connector for Brake Power Cable		All	MS3108A-10SL-3S	L-type connector	
			MS3057-4A	Cable clamp	
MS Connector for Encoder Cable (incremental or absolute encoder)		All	MS3106B20-29S	Straight-type connector	
			MS3108B20-29S	L-type connector	
			MS3057-12A	Cable clamp	
1CN Mating Connector			JZSP-CKI9	—	
2CN Encoder Mating Connector			JZSP-CMP9-1	—	
3CN Peripheral Mating Connector	—		YSC-1	—	
5CN Connector and 1m Cable with Pig-tails	—		DE9404559	—	

* Choose either a straight or L-type connector and the associated cable clamp for a complete assembly. For example, L-type connector MS3108B18-10S is compatible with cable clamp MS3057-10A. MS connectors listed in the table are non-environmental.

Peripheral Device Selection

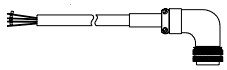
Use the table below to select peripheral devices for your SGMSH/UH Sigma II servomotor.

Component **(E)**		Part Number	Description	Item Class
Hand-held Digital Operator Panel		JUSP-OP02A-1 and JZSP-CMS00-1	Portable unit with adapter cable for Sigma II	Stock
Absolute Encoder Battery		JZSP-BA01	3.6V, 1000mAh (lithium battery)	
SigmaWin+ Software		JZSP-WP0001	Minimum Recommended System Requirements Pentuim 200 MHz, 64MB RAM, 200MB hard drive, CDROM Drive, RS-232 or RS-422 port, Screen rsolution 800x600 w/ 256 colors, and Windows 95,98,NT4.0,2000,ME. (Windows XP planned)	
Software Interface Cable	—	YS-12	Pre-wired 2.0m cable with 9-pin connector	
External Regenerative Unit (Optional)		JUSP-RA04	These are general purpose regenerative units. Order the Motion document: PI#99004 for setup instructions for this unit. **Caution:** Proper set-up is necessary to avoid equipment damage.	
DC Reactor (for suppressing harmonics in the power supply)	SGDH-10DE SGDH-15DE	X5075	—	Limited Stock
	SGDH-20DE SGDH-30DE	X5076		
	Large Capacity Amplifiers	Check factory for avialability		

CE Pre-wired Cable Selection

Use the table below to select shielded pre-wired cables for your SGMSH/UH Sigma II servomotor. These are suitable for IP67 environments.

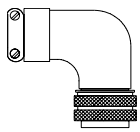
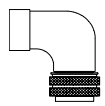
Use the standard encoder cable listed on page 11.

Cable Description **(C)**		Motor Size (kW)	Part Number*	Comments	Item Class
Power Cable with Connectors (IP67)		1.0, 1.5, 2.0	BACE-□□(A)	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	Limited Stock
		3.0,4.0, 5.0	BBCE-□□(A)		
Power Cable for Holding Brake (IP67)		All	B7BCE-□□(A)		

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

CE/IP67 Connector Selection

Use the table below to select mating connectors for your SGMSH/UH Sigma II servomotor.

Connector Description **(D)**		Motor Size (kW)	Part Number	Comments**	Item Class
Connector for Motor Power Cable*		1.0, 1.5, 2.0	CE05-8A18-10SD-B-BAS CE3057-10A-1(D265)	L-type connector Cable clamp (for diameters 0.413 to 0.555in)	Limited Stock
		3.0, 4.0, 5.0	CE05-8A22-22SD-B-BAS CE3057-12A-1(D265)	L-type connector Cable clamp (for diameters 0.492 to 0.630in)	
Connector for Holding Brake		All	CE05-8A10SL-3SC-B-BAS and CE3057-4A-1 (D265)	L-type connector for holding brake Cable clamp (for diameters 0.142 to 0.220in)	
Connector for Encoder Cable (incremental or absolute encoder)			CE02-6A20-29NSW and CE20BA-S CE3057-12A-3(D265)	L-type connector (plug and back shell) Cable clamp (for diameters 0.265 to 0.394in)	

* Choose the connector and the associated cable clamp for a complete assembly. The connectors listed in the table are suitable for IP67 environments.

** Connectors are manufactured by DDK and listed here with the largest standard cable clamp available.