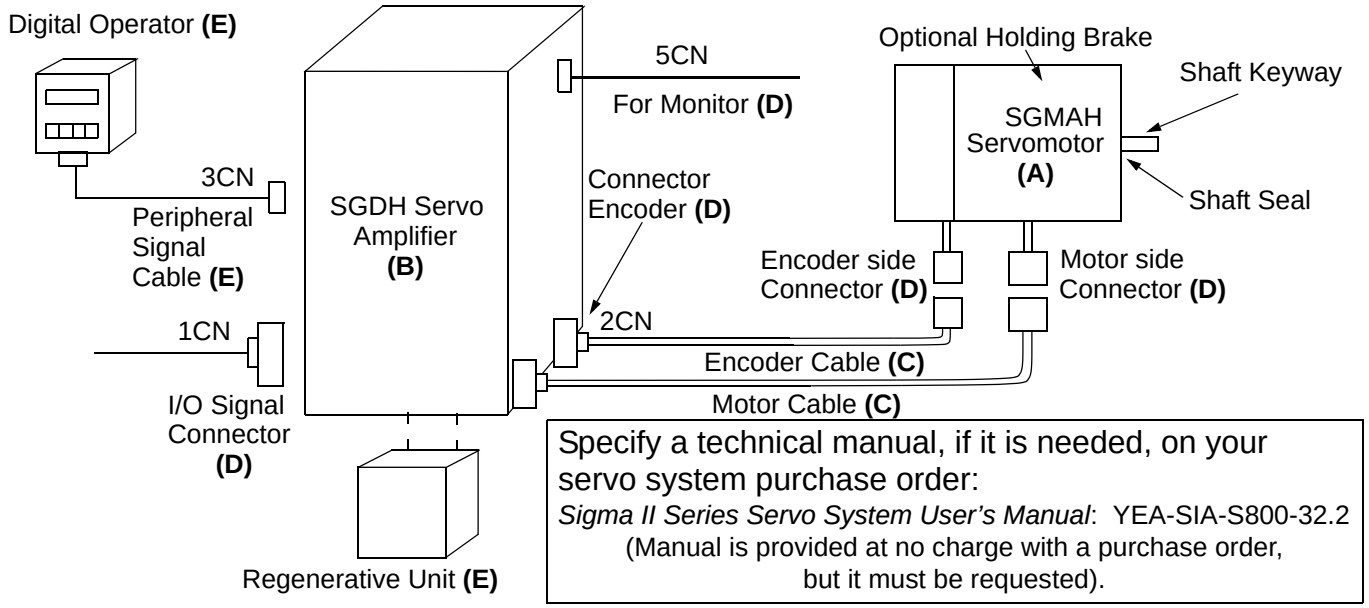
# Selecting Your SGMAH Sigma II Servo System

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

efesotomasyon.com

**SGMAH - 01 A A F 4 1**

Sigma II Servomotor Type
Rated Output
- A3: 30W (0.04hp)
- A5: 50W (0.07hp)
- 01: 100W (0.13hp)
- 02: 200W (0.25hp)
- 04: 400W (0.5hp)
- 08: 750W (1hp)

Power Supply
- A: 200V
- B: 100V

Encoder Specifications
- A: 13-bit (2048 x 4) Incremental Encoder
- 1: 16-bit (16384 x 4) Absolute Encoder

Revision Level
- F: Standard
- N: NEMA flange (200W, 400W & 800W only without holding brake)

Shaft Specifications
- 4: Straight Shaft with Keyway*
- 2: Straight Shaft without Keyway

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

* Keyways, shaft seals, and holding brakes not available on motors with NEMA flanges (revision level = N).

# Servomotor & Amplifier Selection

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

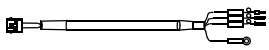
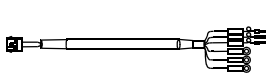
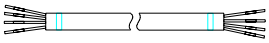
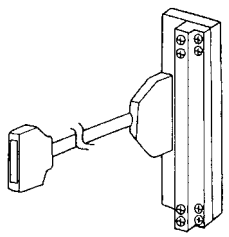
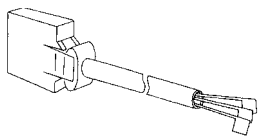
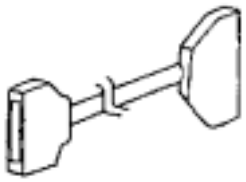
| Motors Used with 13-bit Incremental Encoders (5000rpm Maximum) | | | | | Amplifier | | |
|---|---|---|---|---|---|---|---|
| Description | Peak Torque (oz • in) | Rated Torque (oz • in) | Motor Inertia (oz • in • $s^2 \times 10^{-3}$) | Motor MODEL NUMBER **(A)** | Amplifier MODEL NUMBER **(B)*** | | Motor & Amplifier Item Class |
| | | | | | Single-Phase SGDH | 3-Phase SGDH- | |
| 200V, Single-Phase Straight Shaft without Keyway | 40.5 | 13.5 | 0.235 | SGMAH-A3AAF21 | A3AE | – | Stock |
| | | | 0.355 | SGMAH-A3AAF2C | | | |
| | 67.7 | 22.6 | 0.312 | SGMAH-A5AAF21 | A5AE | – | |
| | | | 0.432 | SGMAH-A5AAF2C | | | |
| | 135 | 45.1 | 0.515 | SGMAH-01AAF21 | 01AE | | |
| | | | 0.635 | SGMAH-01AAF2C | | | |
| 200V, Single-Phase, Straight Shaft with Keyway | | | 0.515 | SGMAH-01AAF41 | 01AE | – | |
| | | | 0.635 | SGMAH-01AAF4C | | | |
| | 270 | 90.1 | 1.50 | SGMAH-02AAF41 | 02AE | – | |
| | | | 2.321 | SGMAH-02AAF4C | | | |
| | 542 | 181 | 2.45 | SGMAH-04AAF41 | 04AE | – | |
| | | | 3.271 | SGMAH-04AAF4C | | | |
| | 1010 | 338 | 9.52 | SGMAH-08AAF41 | 08AE-S | 08AE | |
| | | | 11.5 | SGMAH-08AAF4C | | | |
| 200V, Single-Phase, Straight Shaft without Keyway NEMA flange | 135 | 45.1 | 0.515 | SGMAH-01AAF21** | 01AE | – | |
| | | | 0.635 | SGMAH-01AAF2C** | | | |
| | 270 | 90.1 | 1.50 | SGMAH-02AAN21*** | 02AE | – | |
| | 542 | 181 | 2.45 | SGMAH-04AAN21*** | 04AE | | |
| | 1010 | 338 | 9.52 | SGMAH-08AAN21**** | 08AE-S | 08AE | |
| 100V, Single-Phase, Straight Shaft without Keyway | 40.5 | 13.5 | 0.235 | SGMAH-A3BAF21 | A3BE | – | |
| | | | 0.355 | SGMAH-A3BAF2C | | | |
| | 67.7 | 22.6 | 0.312 | SGMAH-A5BAF21 | A5BE | – | |
| | | | 0.432 | SGMAH-A5BAF2C | | | |
| | 135 | 45.1 | 0.515 | SGMAH-01BAF21 | 01BE | – | |
| | | | 0.635 | SGMAH-01BAF2C | | | |
| 100V, Single-Phase, Straight Shaft with Keyway | | | 0.515 | SGMAH-01BAF41 | 01BE | – | |
| | | | 0.635 | SGMAH-01BAF4C | | | |
| | 270 | 90.1 | 1.50 | SGMAH-02BAF41 | 02BE | – | |
| | | | 2.321 | SGMAH-02BAF4C | | | |
| | 542 | 181 | 2.45 | SGMAH-04AAF41 | 04FE | – | |
| | | | 3.271 | SGMAH-04AAF4C | | | |
| 100V, Single-Phase, Straight Shaft without Keyway NEMA flange | 135 | 45.1 | 0.515 | SGMAH-01BAF21** | 01BE | – | |
| | | | 0.635 | SGMAH-01BAF2C** | | | |
| | 270 | 90.1 | 1.50 | SGMAH-02BAN21*** | 02BE | – | |
| | 542 | 181 | 2.45 | SGMAH-04AAN21*** | 04FE | – | |

Notes: $24V_{DC}$ brakes for SGMAH Sigma II servomotors are standard. Contact a local source for $24V_{DC}$ power supplies.
Motor power and encoder cables are factory pre-wired with approximately 13" lead length with amplifier mating connectors.
Use the tables on the following pages to specify mating connectors or pre-wired cables available in various lengths.
For technical information, request Yaskawa manual number YEA-SIA-S800-32.2.

** NEMA 23 adapter flange (see "Peripheral Device Selection")
*** NEMA 23 flange and pilot (see "Dimensions in inches (mm)")
**** NEMA 34 flange and pilot (see "Dimensions in inches (mm)")

## Pre-wired Cable Selection

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

| Cable Description **(C)** | | Motor Size (kW) | Part Number* | Comments | Item Class |
|---|---|---|---|---|---|
| Power Cable without Brake |  | All | JZSP-CMM00-□□(A) | These cables are available in five lengths. Use two digits in the part number's last place:<br>03: 3m<br>05: 5m<br>10: 10m (standard)<br>15: 15m<br>20: 20m | Stock** |
| Power Cable with Brake |  | | JZSP-CMM10-□□(A) | | |
| Shielded Power Cable without Brake*** |  | | BAHCE-□□(A) | | Limited Stock |
| Shielded Power Cable with Brake*** | | | BAHBCE-□□(A) | | |
| Encoder Cable (incremental and absolute) | — | | JZSP-CMP00-□□(A) | — | Stock |
| Encoder Cable (for applications up to 20m) Only for Solder Connections |  | | FR-RMCT-SB | These cables are available in any length.<br><br>For example, to order one FR-RMCT-SB cable, 16m long, specify:<br>quantity: 16<br>part no.: FR-RMCT-SB | |
| Encoder Cable (for applications from >20 to <50m maximum) Only for Solder Connections | | | UL20276-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):<br>1: 1m (standard)<br>2: 2m<br>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):<br><br>D50: 0.5m<br>01: 1m (standard)<br>02: 2m<br>03: 3m | |

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

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

*** Use these power cables where it is important to meet CE (EMC) requirements.

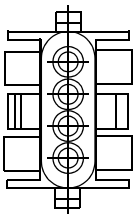
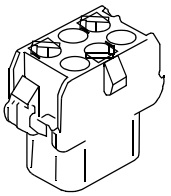
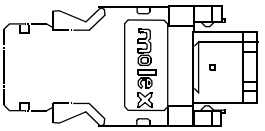
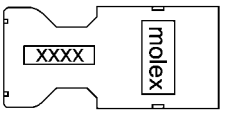
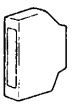
**** 50 Pin Female D-Sub output connector mates to customer supplied third party terminal block. (e.g., Wago #289-449, Weidmuller #919658, Phoenix #2283647, Amphenol/Sine #20-51039, and many others).

efesotomasyon.com



# Connector Selection

Use the table below to select mating connectors or kits for your SGMAH Sigma II servomotor.

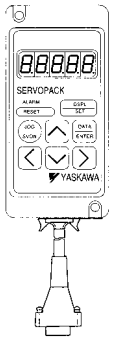
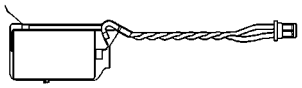
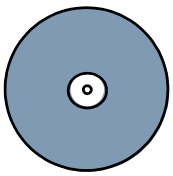
| Connector Description **(D)** | | Motor Size (kW) | Part Number | Comments | Item Class |
|---|---|---|---|---|---|
| Motor Power Mating Connector (without Brake) |  | All | JZSP-CMM9-1 | These connector kits include pin and socket. Requires use of Amp Crimp Tool (90548-1). (See below). | Stock |
| Motor Power Mating Connector (with Brake) |  | | JZSP-CMM9-2 | | |
| Amp Crimp Tool | — | | 90548-1 | Crimp tool for Motor Power Connector (JZSP-CMM9-□) | Limited Stock |
| 2CN Amplifier Mating Connector |  | | JZSP-CMP9-1 | — | Stock |
| Motor Encoder Mating Connector |  | | JZSP-CMP9-2 | — | |
| 1CN Mating Connector |  | | JZSP-CKI9 | for SGDH I/O 50-pin | |
| 3CN Peripheral Mating Connector | — | | YSC-1 | — | |
| 5CN Analog Monitor Connector | — | | DE9404559 | — | |

efesotomasyon.com



# Peripheral Device Selection

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

| 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 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) | |
| DC Reactor (for suppressing harmonics in the power supply) | For 200V: SGDH-A3AE<br>SGDH-A5AE<br>SGDH-01AE<br>SGDH-02AE<br>SGDH-04AE<br>SGDH-08AE<br>SGDH-08AE-S | —<br>—<br>X5071<br>X5070<br>X5069<br>X5061<br>X5079 | — | Limited Stock |
| | For 100V: SGDH-A3BE<br>SGDH-A5BE<br>SGDH-01BE<br>SGDH-02BE | —<br>—<br>X5063<br>X5062 | — | |
| Individual External Regenerative Unit | 50 Ω, 70W for A3, A5, 01, 02, 04, AND 08 AMPS | RH120-50ohmJ | This is a general purpose regenerative unit.*<br><br>**Caution:** Proper set-up is necessary to avoid equipment damage. | Stock |
| NEMA Flange Adapter | — | SGM-N23 | For 30, 50, and 100W SGMAH motors only. Complies to NEMA 23 mounting standard. | |

* Refer to the the *Sigma II Series Servo System User's Manual (YEA-SIA-S800-32.2) for proper resistor sizing guidelines.*