Model Number Designation

SGDH - □□ D E

- Sigma II Series
  SGDH Servo Amplifier
- Rated Output
- Power Supply
  D: 400V
- Model
  E: Speed, Torque, and Position Control

Amplifier Model	Capacity kW (HP)	AC Supply Phases
05	0.5 (.67)	
10	1.0 (1.3)	
15	1.5 (2.0)	
20	2.0 (2.7)	
30	3.0 (4.0)	
50	5.0 (6.7)	
60	6.0 (8.0)	
75	7.5 (10)	3
1A	11 (15)	
1E	15 (20)	
2B	22 (30)	
3Z	30 (40)	
3G	37 (50)	
4E	45 (60)	
5E	55 (74)	

SGDH Amplifier Ratings and Specifications

Basic Specifications	Input Power Supply	Main Circuit		Three-phase 380 to 480V_{ac} +10% to -15%, 50/60 Hz.
		Control Circuit		1. 24V_{DC} ±10% to ±15%, 1A (maximum) 2 . 24V_{DC} ±10%, 40W for 22 to 55kw units Note: For 22 to 55kW units only, the power supply for the optional dynamic brake (DB) contactor is made from the control circuit power supply. If DB operation is necessary when the power interruption occurs, maintain the DC24V while the DB operates. If 5 times inertia is attached and a standard DB resistor is used, DB operation time is approximately 2 to 5 seconds.
	Control Mode			Three-phase, full-wave rectification IGBT PWM (sinusoidal commutation)
	Feedback			Serial incremental encoder, absolute encoder
	Location	Ambient/Storage Temperature*		0 to 55°C / -20 to 85°C
		Ambient/Storage Humidity		90% or less (no-condensing)
		Vibration/Shock Resistance		1. 4.9m/s^2 / 19.6m/s^2 for 500W to 15kW units 2 . 9.8m/s^2 (1G) / 49m/s^2 (5G) for 22 to 55kW units Cyclic shock resistance is 29m/s^2 (3G)
	Structure			Base mounted (duct ventilation available as option) and flat mount type
Speed/Torque Control Mode	Performance	Speed Control Range		1 : 5000 (The lowest speed of the speed control range is the speed at which the servomotor will not stop with a rated torque load.)
		Speed Regulation**	Load Regulation	0% to 100%: 0.01% max. (at rated speed)
			Voltage Regulation	Rated voltage ±10% : 0% (at rated speed)
			Temperature Regulation	25 ± 25°C : 0.1% maximum (at rated speed)
		Frequency Characteristics		400Hz (at $J_L = J_M$) Note: 100 Hz ($J_L = J_M$) for 22 to 55kW systems
		Accel/Decel Time Setting		0 to 10s (Can be set individually for acceleration and deceleration).
	Input Signal	Speed Reference	Reference Voltage***	±6V_{DC} (variable setting range: ±2 to ±10V_{DC}) at rated speed (forward rotation with positive reference); input voltage: ±12V (maximum)
			Input Impedance	Approximately 14kΩ
			Circuit Time Constant	—
		Torque Reference	Reference Voltage***	±3V_{DC} (Variable setting range: ±1 to ±10V) at rated torque (forward rotation with positive reference), input voltage: ±12V_{DC} (maximum)
			Input Impedance	Approximately 14kΩ
			Circuit Time Constant	Approximately 47µs
		Contact Speed Reference	Rotation Direction Selection	Uses P control signal
			Speed Selection	Forward/reverse rotation current limit signals are used (first to third speed selection). When both signals are OFF, the motor stops or enters another control mode.

Notes: * Use the servo amplifier within the ambient temperature range. When enclosed, the temperatures inside the cabinet must not exceed the specified range.

** Speed regulation is defined as follows:

$$\text{Speed regulation} = \frac{(\text{no-load motor speed} - \text{full-load motor speed})}{\text{rated motor speed}} \times 100\%$$

*** Forward is clockwise viewed from the non-load side of the servomotor, (counterclockwise viewed from the load and shaft end).

Ratings and Specifications (cont'd)

Positioning Control Mode	Performance		Bias Setting	0 to 450rpm (setting resolution: 1rpm)
			Feed-forward Compensation	0 to 100% (setting resolution: 1%)
			Position Complete Width Setting	0 to 250 reference units (setting resolution: 1 reference unit)
	Input Signal	Reference Signal	Type	Sign + pulse train, 90° phase difference 2-phase pulse (phase A + phase B), or CCW + CW pulse train
			Pulse Buffer	Line driver (+5V level), open collector (+5V or +12V level)
			Pulse Frequency	Maximum 500/200kpps (line driver/open collector)
		Control SIgnal		CLEAR (input pulse form identical to reference pulse)
		Built-in Open Collector Power Supply *		+12V (With built-in 1kW resistor)
I/O Signals	Position Output	Output Form		Phases A, B and C: Line driver output Phase S: Line driver output (Only when absolute encoder is used)
		Frequency Dividing Ratio		Any
	Sequence Input			Servo ON, P control (or forward/reverse rotation in contact input speed control mode), forward rotation prohibited (P-OT), reverse rotation prohibited (N-OT), alarm reset, forward rotation current limit, and reverse rotation current limit (or contact input speed control)
	Sequence Output	—		Servo alarm, 3-bit alarm codes
		Configurable: (Any 3 of these signals)		Positioning complete (speed coincidence), servomotor rotating, servo ready, current limit, brake release, warning, and near position signals
Built-in Functions	Dynamic Brake (DB)			Activated at main power OFF, servo alarm, servo OFF or overtravel
	Regenerative Processing			Incorporated. For 6 to 55 kW units, external regenerative resistor must be mounted.
	Overtravel (OT) Prevention			Motor decelerates or coasts to a stop, or is stopped by a dynamic brake. This requires optional dynamic brakes for 22 to 55kW units.
	Protection			Overcurrent, overload, regenerative error, main circuit voltage error, heat sink overheat, power open phase, overflow, overspeed, encoder error, encoder disconnected, overrun, CPU error, parameter error.
	LED Display			POWER, CHARGE, five 7-segment LEDs (built-in digital operator functions)
	Analog Monitor (5CN)			Built-in analog monitor connector to observe speed, torque, and other reference signals Speed: 1V/1000rpm Torque 1V/rated torque Pulses remaining: 0.05V/reference units or 0.05V/100 reference units
	Communication	Interface		Digital operator (mount type or hand-held) RS422A port such as person computer (RS-232C port can be used if some conditions are met).
		1 : N Communication		N can be up to 14 when RS-422A port is used.
		Axis Address Setting		Set via user parameters
		Functions		Status display, user constant setting, monitor display, alarm traceback display, jogging, autotuning, speed/torque reference signals, other graphing functions, etc.
	Others			Reverse rotation connection, home position search, automatic servomotor ID, DC reactor connection terminal for high power supply frequency control.

Note: * The built-in open collector power supply is not electrically isolated from the control circuit in the servo amplifier.