Type designation

Servo drive

SGDV - 04 A 01 A - OY - □

Sigma-5 servo drive

Capacity

Voltage	Code	Output
230 V	A5	50 W
	01	100 W
	02	200 W
	04	400 W
	08	750 W
	15	1.5 kW
400 V	05	500 W
	10	1.0 kW
	15	1.5 kW
	20	2.0 kW
	30	3.0 kW
	50	5.0 kW
	210	6.0 kW
	260	7.5 kW
	280	11 kW
	370	15 kW

Source voltage

A: 230 V

D: 400 V

Interface

Code	Specifications
01	Analog voltage/pulse train reference type (for rotary servomotors)
05	Analog voltage/pulse train reference type (for linear servomotors)
11	MECHATROLINK-II comms reference type (for rotary servomotors)
15	MECHATROLINK-II comms reference type (for linear servomotors)

Design Revision Order: A, B...

Omron-Yaskawa Motion Control B.V.

(Note: all models except 6 to 15 kW)

Code	Specifications
Blank	Standard
008000	Servo drive 1.5 kW single-phase 230 V

Servo drive specifications

Single-phase, 230 V

Servo drive type		SGDV- □	A5A□□A-OY	01A□□A-OY	02A□□A-OY	04A□□A-OY	08A□□A-OY	15A□□A-OY-008000
Applicable servo motor		SGMAH-□	A3A□/A5A□	01A□	02A□	04A□	08A□	-
		SGMPH-□	-	01A□	02A□	04A□	08A□	15A□
		SGMJV-□	A5A□	01A□	02A□	04A□	08A□	-
		SGMAV-□	A5A□	01A□	C2A□/02A□	04A□	06A□/08A□	10A□
		SGMEV-□	-	01A□	02A□	04A□	08A□	15A□
Basic specifications	Max. applicable motor capacity W		50	100	200	400	750	1500
	Continuous output current Arms		0.66	0.91	1.6	2.8	5.5	11.6
	Max. output current Arms		2.1	2.9	6.5	9.3	16.9	28
	Input power	Main circuit	Single-phase, 200 to 230 VAC + 10 to -15% (50/60 Hz)					
	Supply	Control circuit	Single-phase, 200 to 230 VAC + 10 to -15% (50/60 Hz)					
	Control method		Single phase full-wave rectification / IGBT / PWM / sine-wave current drive method					
	Feedback		Serial encoder (incremental/absolute)					
	Conditions: Usage/storage temperature		0 to +55 °C / -20 to 85 °C					
	Conditions: Usage/storage humidity		90%RH or less (non-condensing)					
	Conditions: Altitude		1000m or less above sea level					
	Conditions: Vibration/shock resistance		4.9 m/s^2 / 19.6 m/s^2					
	Configuration		Base mounted					
	Approx. weight Kg		0.9			1.0	1.5	2.8

Three-phase, 400 V

Servo drive type		SGDV-□	05D□	10D□	15D□	20D□	30D□	50D□	210D□	260D□	280D□	370D□
Applicable servo motor		SGMAH-□	03D□	07D□	-	-	-	-	-	-	-	-
		SGMPH-□	02D□/04D□	08D□	15D□	-	-	-	-	-	-	-
		SGMGH-□	05D□	09D□	13D□	20D□	30D□	44D□	55D□	75D□	1AD□	1ED□
		SGMSH-□	-	10D□	15D□	20D□	30D□	40D□/50D□	-	-	-	-
		SGMUH-□	-	10D□	15D□	-	30D□	40D□	-	-	-	-
		SGMEV-□	02/03/04D□	07D□/08D□	15D□	-	-	-	-	-	-	-
		SGMGV-□	03D□/05D□	09D□	13D□	20D□	30D□	44D□	55D□	75D□	1AD□	1ED□
		SGMSV-□	-	10D□	15D□	20D□	25D□	40D□/50D□	-	-	-	-
Basic specifications	Max. applicable motor capacity kW		0.5	1.0	1.5	2.0	3.0	5.0	6.0	7.5	11	15
	Continuous output current Arms		1.9	3.5	5.4	8.4	11.9	16.5	20.8	25.4	28.1	37.2
	Max. output current Arms		5.5	8.5	14	20	28	42	55	65	70	85
	Input power	Main circuit	Three-phase, 380 to 480 VAC + 10 to -15% (50/60Hz)									
	Supply	Control circuit	24 VDC +/-15%									
	Control method		Three phase full-wave rectification / IGBT / PWM / sine-wave current drive method									
	Feedback		Serial encoder (incremental/absolute)									
	Conditions: Usage/storage temperature		0 to +55 °C / -20 to +85 °C									
	Conditions: Usage/storage humidity		90%RH or less (non-condensing)									
	Conditions: Altitude		1000 m or less above sea level									
	Conditions: Vibration/shock resistance		4.9 m/s^2 / 19.6 m/s^2									
	Configuration		Base mounted									
	Approx. weight Kg		2.7			3.7		5.6	11.3		16.2	

Sigma-5 Analog/Pulse Reference Servo Drive

General specifications

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		1.6 kHz
		Torque control accuracy (Repeatability)		±1%
		Soft start time setting		0 to 10 s (acceleration, deceleration can each be set.)
	Input signal	Speed reference input	Reference voltage	±6 VDC (forward motor rotation if positive reference) at rated speed: Set at delivery Variable setting range: ±2 to ±10 VDC at rated speed/ max. input voltage: ±12 V
			Input impedance	Approx. 14 kΩ
			Circuit time constant	Approx. 30 µs
		Torque reference input	Reference voltage	±3 VDC (forward rotation if positive reference) at rated torque: Set at delivery Variable setting range ±1 to ±10 VDC at rated torque reference, max. input voltage: ±12 V
			Input impedance	Approx. 14 KΩ
			Circuit time constant	Approx. 30 µs
Position control mode	performance	Feedforward compensation		0 to 100% (setting resolution: 1%)
		Position completed width setting		0 to 1073741824 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 CCW/CW pulse train
			Input pulse form	Non-insultated line driver (+5 V level) , open collector.
			Input pulse frequency	0 to 4 Mpps (200 Kpps max. at open collector)
		Control signal		Clears error pulse by external signal
I/O signal		Position signal output		A-phase, B.phase, C-phase: line driver output.
		Sequence input signal		Servo ON, P control (or control mode switching, forward/reverse motor rotation by internal speed setting, zero clamp, command pulse inhibit), forward/reverse run prohibit, forward/reverse current limit (or internal speed switching), alarm reset.
		Sequence output signal		Servo alarm, alarm codes (3-bit output): CN1 output terminal is fixed
				It is possible to output three types of signal form incl.: positioning complete, speed coincidence detection, servo-motor rotation detection, servo ready, current limit detection, speed limit detection, brake release, warning, NEAR.
Integrated functions		USB Communica-tions	Interface	Personal computer
			Communications standard	Compliant with USB1.1 standard (12 Mbps)
			Function	Status display, parameter settings, adjustment functions, utility functions, alarm traceback display, JOG run/au-totuning operations and graphing functions for speed/torque command signal, etc
		Automatic load inertia detection		Automatic motor parameter setting. One parameter rigidity setting.
		Dynamic brake (DB)		Operates during main power OFF, servo alarm, servo OFF or overtravel
		Regenerative processing		Internal resistor included in models from 500 W to 5 kW. 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 pulses possible
		Electronic gearing		0,01< Numerator/Denominator<100
		Internal speed setting function		3 speeds may be set internally
		Protective functions		Overcurrent, overvoltage, low voltage, overload, regenerative error
		Analog monitor functions for supervision		Integrates analog monitor connector for supervision of the speed and torque reference signals, etc. Number of channels: 2 (Output voltage: +/-10V DC)
		Panel operator	Display functions	CHARGE, 7-segments LEDx5
			Panel operator keys	Used to set parameters (4 keys)
		Safety functions		Hard wire base block signal and status monitor (fixed output) of safety circuit
		Others		Reverse connection, zero search, automatic motor discrimination function, and DC reactor connection terminal for high frequency power suppression function.

I/O specifications

I/O signals (CN1) - input signals

Pin No.	Signal name		Function	
40	Common	/S-ON	Servo ON: Turns ON the servo motor.	
41		/P-CON	Function selected by parameter.	
			Proportional control reference	Switches the speed control loop from PI (proportional/integral) to P (proportional) control when ON.
			Direction reference	With the internal set speed selected: switch the rotation direction.
			Control mode switching	Position ↔ speed Position ↔ torque Torque ↔ speed } Enables control mode switching
			Zero-clamp reference	Speed control with zero-clamp function: reference speed is zero when ON.
			Reference pulse block	Position control with reference pulse stop: stops reference pulse input when ON.
42 43		P-OT N-OT	Forward run prohibited Reverse run prohibited	Overtravel prohibited: Stops servo motor when movable part travels beyond the allowable range of motion.
45 46		/P-CL /N-CL	Function selected by parameter.	
			Forward external torque limit ON Reverse external torque limit ON	Current limit function enabled when ON.
			Internal speed switching	With the internal set speed selected: switches the internal speed settings.
44		/ALM-RST	Alarm reset: releases the servo alarm state.	
47		+24VIN	Control power supply input for sequence signals: users must provide the +24 V power supply. Allowable voltage fluctuation range: 11 to 25 V	
4 (2)		SEN	Initial data request signal when using an absolute encoder.	
21 22		BAT (+) BAT (-)	Connecting pin for the absolute encoder backup battery. Do not connect when the encoder cable for the battery case is used.	
5 (6)	Speed	V-REF	Speed reference input: ±2 to ±10 V/rated motor speed (Input gain can be modified using a parameter).	
9 (10)	Torque	T-REF	Torque reference input: ±1 to ±10 V/rated motor torque (Input gain can be modified using a parameter).	
7 8 11 12	Position	PULS /PULS SIGN /SIGN	Reference pulse input for line driver only	Input mode is set from the following pulses: Sign + pulse string CCW/CW pulse Two-phase pulse (90° phase differential)
15 14		CLR /CLR	Positional error pulse clear input: clears the positional error pulse during position control.	

Note: 1. Pin numbers in parentheses () indicate signal grounds.

2. The functions allocated to /S-ON, /P-CON. P-OT, N-OT, /ALM-RST, /P-CL, and /N-CL input signals can be changed by using the parameters.

3. The voltage input range for speed and torque references is a maximum of ±12 V.