

OMRON

SIGMA-5

The 5-star servo drive



- » Increases machine efficiency, performance & availability
- » Save time & cost
- » Meets demanding machine requirements

realizing

AUDIN - 8, avenue de la malle - 51370 Saint Brice Courcelles - Tel : 03.26.04.20.21 - Fax : 03.26.04.28.20 - Web : <http://www.audin.fr> - Email : info@audin.fr

Sigma-5: the 5-star servo drive...

It is a primary goal of OMRON YASKAWA to offer customers products and solutions that meet their needs. And the Sigma-5 servo drive offers exactly that. Precise positioning at the highest speed. Smooth and vibration-free operation. And the easiest possible start up. For machine builders this translates into better machine performance to meet exacting machine requirements. It also has a significant impact on increasing machine availability while reducing costs.

As Sigma-5 belongs to the product portfolio of a global leader in automation, you will have total world-wide service and support throughout the product life cycle. Moreover, ongoing technical developments by Omron will keep your machines in front, giving you an edge, both now and in the future.

...value delivered

- Meets the most demanding machine requirements
- Helps to maximize machine performance
- Minimizes total cost of ownership
- Increases machine availability





Flow wrap machine require various servo axes working in absolute synchronisation. Sigma-5 in combination with Trajexia allows synchronisation over the field proven Mechatrolink bus., greatly simplifying system wiring and reducing the chance on wiring errors.

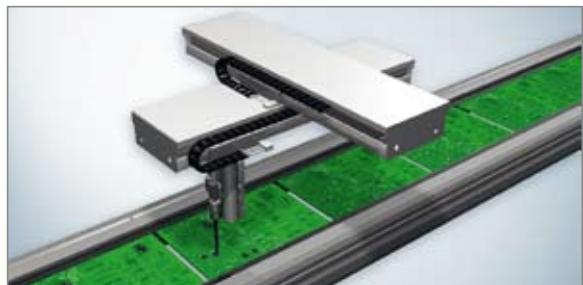
...enhance machine efficiency while saving time and costs

The Sigma-5 servo drive excels in even the most demanding axis-control operations and applications, including those in the following industries and applications:

- Electronics
- Semiconductors
- Packaging
- Printing
- Machine tools
- Injection moulding
- Metal forming



This glass cutting machine has high demands on continues and smooth movement as each misalignment is directly visible. The Sigma-5 servo in combination with the Trajexia motion control give full control of each movement.

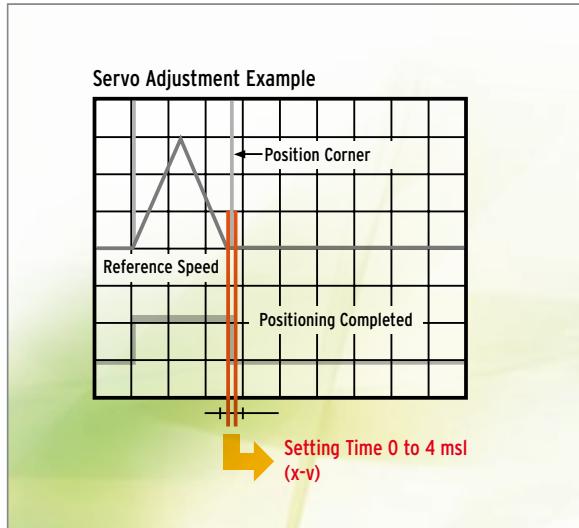


The machine uses picking techniques to place components on PCB's. The procedure must be very accurate, as the component pins must be placed at um accuracy. This is solved using the Sigma-5 series servo system because its dynamic performance.



The chip molding process is another candidate application. In this case the actual chip must be placed in high speed, but also very accurate.

Five reasons to choose Sigma-5



Outstanding performance

Sigma-5 delivers the highest performance in the industry, enabling your machinery to operate faster and with higher precision. The frequency response of 1.6 kHz combined with Sigma-5's innovative algorithm results in quicker positioning, smaller following error, very low ripple at low speed, higher accuracy and a settling time close to zero.

Moreover, the drive features mechanical vibration cancellation, which enables it to automatically cancel the vibration on the mechanics and control a huge inertia mismatch ratio range.



Space saving

The new and compact Sigma-5 design features 30 % fewer parts, which helps to save panel space and machine costs.



Proven quality

An installed base of well over six million units underlines the quality of Sigma-series servos. High reliability increases machine throughput and efficiency by reducing down-time and maintenance costs.

Quality

Motor portfolio

Performance

Motion network
Space saving



Motion network

In addition to support for the Analog/Pulse train reference series, the Mechatrolink-II embedded open field bus option offers flexible communication with motion controllers whilst reducing cabling and installation time.



Motor portfolio

A wide choice of motors from 0.1 to 15 kW – rotary, linear and direct drive, is available to match any machine requirements. Furthermore, Sigma-5 can also drive the complete rotary Sigma II motor portfolio.



Sigma-5 Key features and benefits:

- Quicker positioning and smooth control
- Safety embedded
- No manual adjustment required
- Optimized auto tuning function
- Automatic filter function to suppress vibrations
- Embedded open field-bus system
MECHATROLINK-II



Trajexia Key features and benefits:

- Standalone and CJ1 series PLC option (30 axes)
- Each axis can run complex interpolation moves, e-cams and e-gearboxes
- Advanced debugging tools including trace and oscilloscope functions
- Multi-tasking controller capable of running up to 14 tasks simultaneously
- Open-Ethernet built-in, PROFIBUS-DP and DeviceNet as options

Sigma-5 + Trajexia motion controllers The perfect choice

Offering a series of optimized servomotors, high-resolution serial encoders and new, intelligent algorithms, Sigma-5 is just the right servo drive to achieve precise and fast positioning with smooth and vibration-free motion at even the slowest speeds.

In combination with Trajexia motion controllers, Sigma-5 becomes the perfect choice for virtually any industrial application demanding precise control with positional accuracies up to 10nm. The Trajexia platform offers 4, 16 and 30-axes motion coordination over a robust and fast motion link and with a multi-tasking controller that is capable of running 14 tasks simultaneously.

The complete servo/motion control package

The intuitive and user-friendly software tool accompanying Sigma-5 minimizes commissioning time obtaining the best from the servo for your machine. Furthermore, Trajexia's advanced debugging tools ensure efficient operation and minimum downtime.



Sigma-5: the star in...

- Performance
- Space saving
- Quality
- Motor portfolio
- Motion network

SGDV-□, SGMJV-□, SGMAV-□, SGMEV-□, SGMGV-□, SGMSV-□

Sigma-5 servo system

The High performance servo family for motion control. Compact size, reduced space and integrated MECHATROLINK-II.

- Advance autotuning function
- Enhanced vibration suppression function
- Standard support for analog voltage/pulse train reference series or MECHATROLINK-II communications reference series.
- Support for direct drive servomotors, linear servomotors and linear sliders
- Integrated safety stop function
- Oscilloscope available via software tool
- Windows based configuration and commissioning software

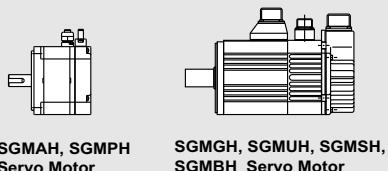
Ratings

- 230 VAC Single-phase 50 W to 1.5 kW (4.77 Nm)
- 400 VAC Three-phase 500 W to 5 kW (28.4 Nm)

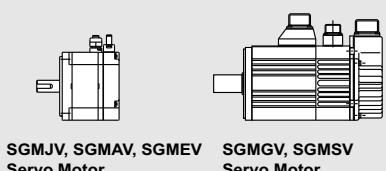


System configuration

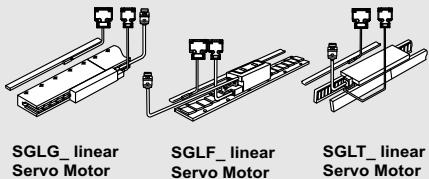
(Refer to chapter Sigma-II rotary motors)



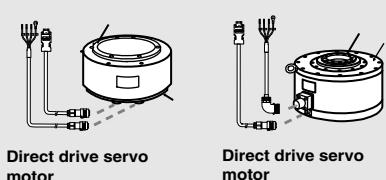
(Refer to chapter Sigma-5 rotary motors)



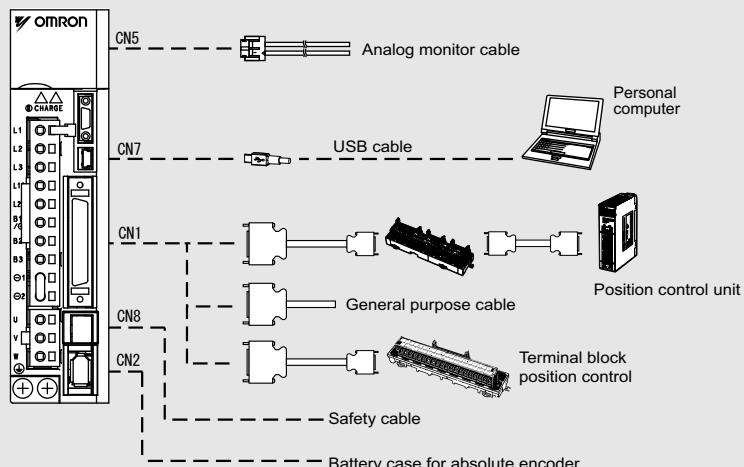
(Refer to chapter Sigma linear motors)



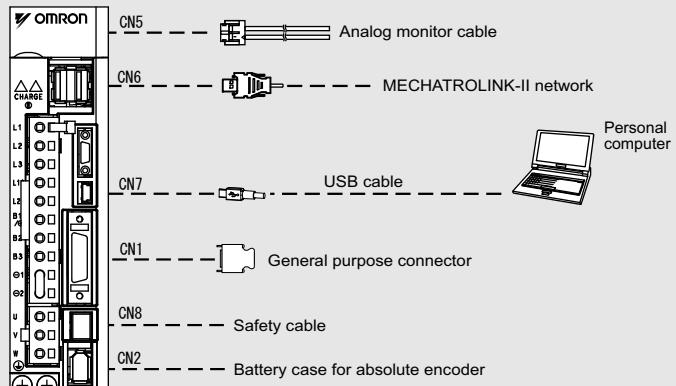
(Refer to chapter Sigma direct drive motors)



Sigma-5 Analog/Pulse Reference Servo Drive



Sigma-5 MECHATROLINK-II Servo Drive



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

Source voltage

A: 230 V

D: 400 V

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

Omron-Yaskawa Motion Control B.V.

Design Revision Order: A, B...

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)

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□						
	Max. applicable motor capacity	W	50	100	200	400	750						
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											
	Usage/storage humidity	90%RH or less (non-condensing)											
Altitude	1000m or less above sea level												
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□□A-OY	10D□□A-OY	15D□□A-OY	20D□□A-OY	30D□□A-OY	50D□□A-OY						
Applicable servo motor	SGMAH-□	03D□	07D□	-	-	-	-						
	SGMPH-□	02D□/04D□	08D□	15D□	-	-	-						
	SGMGH-□	05D□	09D□	13D□	20D□	30D□	44D□						
	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□						
	SGMSV-□	-	10D□	15D□	20D□	25D□	40D□/50D□						
Max. applicable motor capacity	kW	0.5	1.0	1.5	2.0	3.0	5.0						
Continuous output current	Arms	1.9	3.5	5.4	8.4	11.9	16.5						
Max. output current	Arms	5.5	8.5	14	20	28	42						
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											
	Usage/storage humidity	90%RH or less (non-condensing)											
Altitude	1000 m or less above sea level												
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								

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 $\pm 0.01\%$ max. (at rated speed)
	Voltage variance	Rated voltage $\pm 10\%: 0\%$ (at rated speed)
	Temperature variance	$25 \pm 25^\circ\text{C}$: $\pm 0.1\%$ max. (at rated speed)
Speed/torque control mode Input signal	Frequency characteristics	1.6 kHz
	Torque control accuracy (Repeatability)	$\pm 1\%$
	Soft start time setting	0 to 10 s (acceleration, deceleration can each be set.)
	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
Position control mode Performance	Input impedance	Approx. 14 k Ω
	Circuit time constant	Approx. 30 μ s
	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 k Ω
Position control mode Input signal	Circuit time constant	Approx. 30 μ s
	Feedforward compensation	0 to 100% (setting resolution: 1%)
	Position completed width setting	0 to 1073741824 command units (setting resolution: 1 command unit)
	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-insulated line driver (+5 V level), open collector. Input pulse frequency 0 to 4 Mpps (200 Kpps max. at open collector)
I/O signal	Control signal	Clears error pulse by external 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 Communications	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/autotuning 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	$0,01 < \text{Numerator}/\text{Denominator} < 100$
	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.

Sigma-5 MECHATROLINK-II Servo Drives

General specifications

Position/speed/torque control mode			
Performance	Speed control range	1:5000	
	Speed variance	During 0 to 100% load $\pm 0.01\%$ max. (at rated speed)	
	Voltage variance	Rated voltage $\pm 10\%$: 0% (at rated speed)	
	Temperature variance	25 ± 25 °C: $\pm 0.1\%$ max. (at rated speed)	
	Frequency characteristics	1.6 kHz	
	Torque control accuracy (Repeatability)	$\pm 1\%$	
Soft start time setting	0 to 10 s (acceleration, deceleration can each be set.)		
Command input	MECHATROLINK Communication	MECHATROLINK-II commands (for sequence, motion, data setting/reference, monitor, adjustment and other commands)	
	Position signal output	A-phase, B.phase, C-phase: line driver output.	
I/O signal	Sequence input signal	Homing deceleration limit switch, forward/reverse run prohibited, external latch signals, forward/reverse current limit.	
	Sequence output signal	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 Communications	Interface	Personal computer
		Communications standard	Compliant with USB1.1 standard (12 Mbps)
		Function	Status display, parameter setting, adjusting functions, utility functions, alarm traceback display, JOG run/autotuning operations and graphing functions for speed/torque command signal, etc
	Mechatrolink Communications	Communications protocol	MECHATROLINK-II
		Station Address	41H to 5FH (max. number of slaves: 30)
		Transmission Speed	10 Mbps
		Transmission Cycle	250 μ s, 0.5 to 4.0 ms (multiple of 0.5 ms)
		Data length	17-bytes and 32-bytes
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, regeneration error		
Analog monitor functions for supervision	Integrates analog monitor connectors 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 LEDX1	
	Switches	Rotary switch: MECHATROLINK-II station address setting (16 channels) DIP switch: MECHATROLINK-II communications setting (4 channels)	
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.		

Type designation

Servo motor

SGMJV - 01 A 1 A 6 S - OY

Sigma-5 servo motor type

SGMJV: Middle-inertia

SGMAV: Low-inertia and high dynamics

SGMEV: Flat type

SGMGV: High-torque type

SGMSV: Low-inertia and high dynamics

Capacity (kW)

Code	SGMJV 3000 min ⁻¹	SGMAV 3000 min ⁻¹	SGMEV 3000 min ⁻¹	SGMGV 1500 min ⁻¹	SGMSV 3000 min ⁻¹
A5	0.05	0.05			
01	0.1	0.1	0.1		
C2		0.15			
02	0.2	0.2	0.2		
03		0.3	0.3		
04	0.4	0.4	0.4		
05			0.45		
06	0.55				
07		0.65			
08	0.75	0.75	0.75		
09			0.85		
10		1.0		1.0	
13			1.3		
15		1.5	1.5		
20			1.8	2.0	
25				2.5	
30			2.9	3.0	
40				4.0	
44			4.4		
50				5.0	
60					
70					
75					
1A					
1E					

Voltage

Code	Voltage	Type				
		SGMJV	SGMAV	SGMEV	SGMGV	SGMSV
A	230 V	●	○	●		
D	400 V			●	●	●

Omron-Yaskawa Motion Control B.V.

Brake, oil seal specifications

Code	Options	Type				
		SGMJV	SGMAV	SGMEV	SGMGV	SGMSV
1	No brake, no oil/dust seal	●	●	●	○	○
B	90 VDC brake			○	○	○
C	24 VDC brake	○	○	○	○	○
D	Oil seal + 90 VDC brake				○	○
E	Oil seal + 24 VDC brake	○	○	○	○	○
F	Dust seal				○	●
G	Dust seal + 90 VDC brake				○	
H	Dust seal + 24 VDC brake				○	
S	Oil seal	○	○	○	○	

●: Standard ○: Option

Shaft end specifications

Code	Shaft end	Type				
		SGMJV	SGMAV	SGMEV	SGMGV	SGMSV
2	Straight, no key	○	○	○	○	○
6	Straight, key, tapped	●	●	●	●	●
8	Straight, no key, tapped	○	○	○		
B	With two flat seats	○	○	○		

●: Standard ○: Option

Design Revision Order:

A: Standard

E: IP67 (SGMEV-01, 02, 04, 08, 15)

F: Prepared for oil seal mounting (SGMEV-03, 07)

Serial encoder specifications

Code	Encoder	Type				
		SGMJV	SGMAV	SGMEV	SGMGV	SGMSV
A	13-bit incremental	○				
D	20-bit incremental	●	●	●	●	●
3	20-bit absolute	○	○	○	○	○

●: Standard ○: Option

Servo motor specifications

Type SGMJV, 230 V

Ratings and specifications

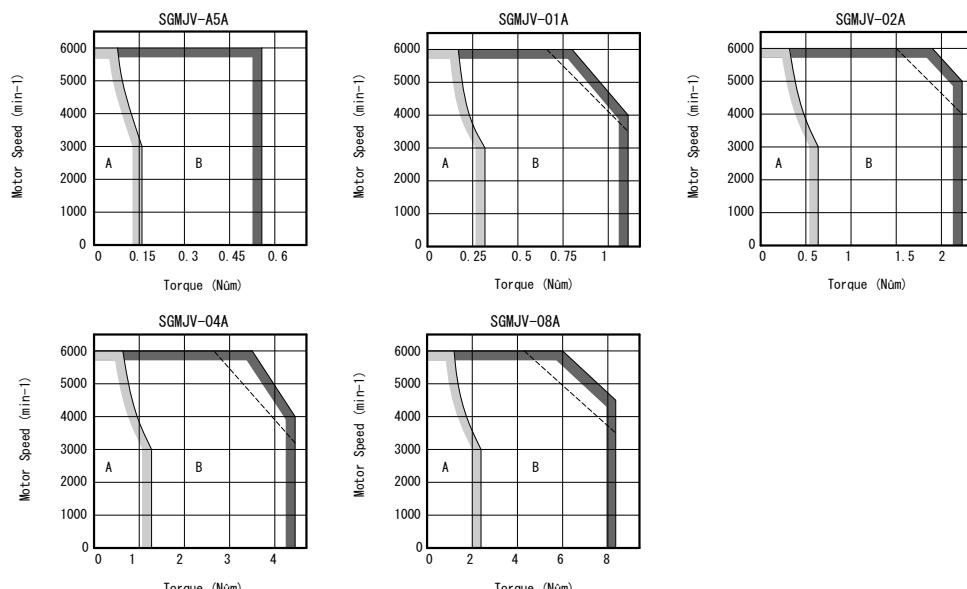
Applied voltage		230 V				
Servo motor model SGMJV-□		A5A□	01A□	02A□	04A□	08A□
Rated output ¹⁾	W	50	100	200	400	750
Rated torque ^{1,2)}	N·m	0.159	0.318	0.637	1.27	2.39
Instantaneous peak torque ¹⁾	N·m	0.557	1.11	2.23	4.46	8.36
Rated current ¹⁾	A (rms)	0.61	0.84	1.6	2.7	4.7
Instantaneous max. current ¹⁾	A (rms)	2.1	2.9	5.8	9.3	16.9
Rated speed ¹⁾	min ⁻¹			3000		
Max. speed ¹⁾	min ⁻¹			6000		
Torque constant	N·m/A (rms)	0.285	0.413	0.435	0.512	0.544
Rotor moment of inertia (JM)	kg·m ² ×10 ⁻⁴ (without brake)	0.0414	0.0665	0.259	0.442	1.57
	kg·m ² ×10 ⁻⁴ (with brake)	0.0489	0.0740	0.323	0.506	1.74
Allowable load moment of inertia (JL)	Multiple of (JM)		15			10
Rated power rate ¹⁾	kW/s	6.11	15.2	15.7	36.5	36.3
Rated angular acceleration ¹⁾	rad/s ²	38400	47800	24600	28800	15200
Encoder	Standard	Incremental encoder (20 bits)				
	Option	Incremental encoder (13 bits)/ Absolute encoder (20 bits)				
Allowable radial load	N		78		245	392
Allowable thrust load	N		54		74	147
Approx. mass	Kg (without brake)	0.3	0.4	0.9	1.3	2.7
	Kg (with brake)	0.6	0.7	1.5	1.9	3.6
Brake specifications	Rated voltage	24 VDC				
	Power consumption (at 20°C)	W	6		6.9	7.7
	Current consumption (at 20°C)	A		0.25		0.32
	Holding torque	N·m	0.159	0.318	0.637	1.27
	Rise time for holding torque	ms (max)			100	
	Release time	ms (max)			60	80
Basic specifications	Time rating	Continuous				
	Thermal class	Class B				
	Usage/ storage temperature	0 to +40 °C/ -20 to 60 °C without freezing				
	Usage/ storage humidity	20 to 80% RH (non-condensing)				
	Vibration class	15 µm or below				
	Insulation resistance	500 VDC, 10 MΩ min.				
	Withstand voltage	1500 VAC for one minute				
	Enclosure	Totally-enclosed, self-cooled, IP65 (excluding shaft opening)				
	Vibration resistance	Vibration acceleration 49 m/s ²				
	Altitude	1000 m or less above sea level				
	Mounting	Flange-mounted				

Note: *1. These items and torque/speed characteristics quoted in combination with an SGDV servo drive are at an armature winding temperature of 100°C. Other values quoted are at 20°C.

*2. The rated torques listed here are the values for the continuous allowable torque at 40°C with an aluminium heatsink of the following dimensions attached:
SGMJV-A5/01: 200 mm x 200 mm x 6 mm, SGMJV-02/04/08: 250 mm x 250 mm x 6 mm

Torque-speed characteristics

(A : Continuous duty zone B : Intermittent duty zone)



Type SGMAV, 230 V**Ratings and specifications**

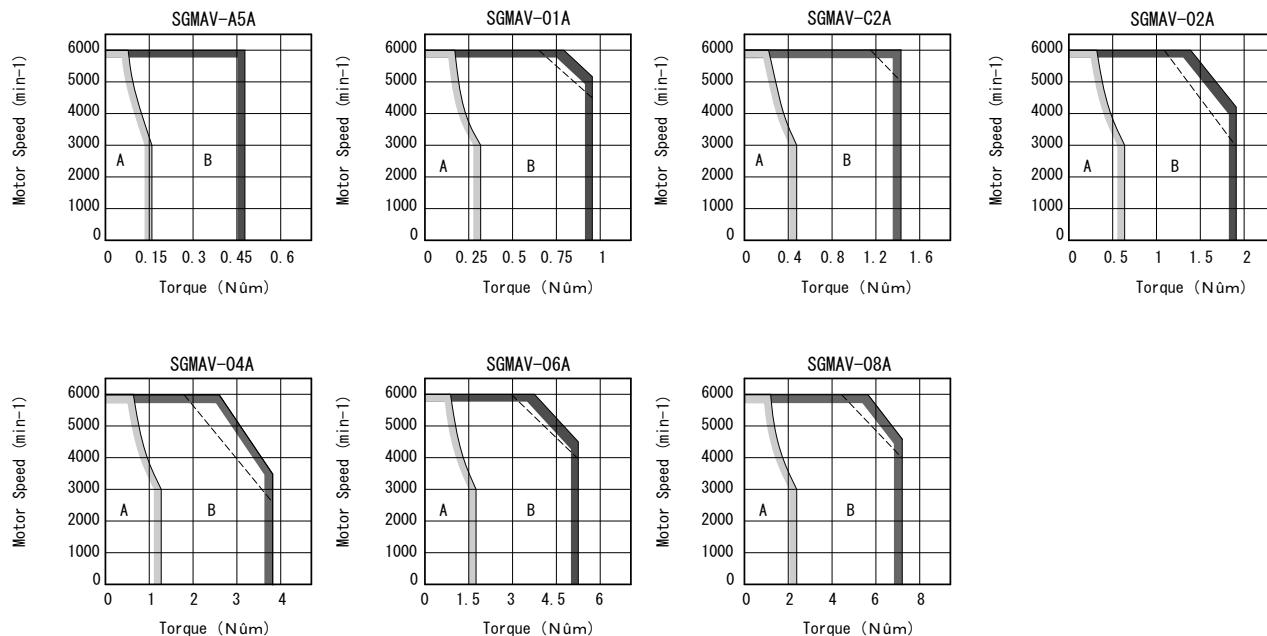
Applied voltage		230 V							
Servo motor model SGMAV- □		A5A□	01A□	C2A□	02A□	04A□	06A□	08A□	10A□
Rated output ^{*1}	W	50	100	150	200	400	550	750	1000
Rated torque ^{*1,2}	N·m	0.159	0.318	0.477	0.637	1.27	1.75	2.39	3.18
Instantaneous peak torque ^{*1}	N·m	0.477	0.955	1.43	1.91	3.82	5.25	7.16	9.55
Rated current ^{*1}	A (rms)	0.66	0.91	1.3	1.5	2.6	3.8	5.3	7.4
Instantaneous max. current ^{*1}	A (rms)	2.1	2.8	4.2	5.3	8.5	12.2	16.6	23.9
Rated speed ^{*1}	min ⁻¹					3000			
Max. speed ^{*1}	min ⁻¹					6000			
Torque constant	N·m/A (rms)	0.265	0.375	0.381	0.450	0.539	0.496	0.487	0.467
Rotor moment of inertia (JM)	kg·m ² ×10 ⁻⁴ (without brake)	0.0242	0.0380	0.0531	0.116	0.190	0.326	0.769	1.2
	kg·m ² ×10 ⁻⁴ (with brake)	0.0312	0.0450	0.0601	0.180	0.254	0.390	0.940	1.41
Allowable load moment of inertia (JL)	Multiple of (JM)			30			20		10
Rated power rate ^{*1}	kW/s	10.4	26.6	42.8	35.0	84.9	93.9	74.1	84.3
Rated angular acceleration ^{*1}	rad/s ²	65800	83800	89900	54900	67000	53700	31000	26500
Encoder	Standard	Incremental encoder (20 bits)							
	Option	Absolute encoder (20 bits)							
Allowable radial load	N	68	78			245		392	
Allowable thrust load	N		54			74		147	
Approx. mass	Kg (without brake)	0.3	0.4	0.5	0.9	1.2	1.7	2.3	3.6
	Kg (with brake)	0.6	0.7	0.8	1.5	1.8	2.4	3.2	4.6
Brake specifications	Rated voltage				24 VDC				
	Power consumption (at 20°C)	W		6		6.9	8.7	7.7	7
	Current consumption (at 20°C)	A		0.25		0.29	0.36	0.32	0.29
	Holding torque	N·m	0.159	0.318	0.477	0.637	1.27	1.75	2.39
	Rise time for holding torque	ms (max)				100			
	Release time	ms (max)				60		80	
Basic specifications	Time rating	Continuous							
	Thermal class	Class B							
	Usage/ storage temperature	0 to +40 °C / -20 to 60 °C without freezing							
	Usage/ storage humidity	20 to 80% RH (non-condensing)							
	Vibration class	15 µm or below							
	Insulation resistance	500 VDC, 10 MΩ min.							
	Withstand voltage	1500 VAC for one minute							
	Enclosure	Totally-enclosed, self-cooled, IP65 (excluding shaft opening)							
	Vibration resistance	Vibration acceleration 49 m/s ²							
Altitude	1000 m or less above sea level								
	Mounting	Flange-mounted							

Note: *1. These items and torque/speed characteristics quoted in combination with an SGDV servo drive are at an armature winding temperature of 100°C. Other values quoted are at 20°C.

*2. The rated torques listed here are the values for the continuous allowable torque at 40°C with an aluminium heatsink of the following dimensions attached (SGMJV-A5/01:200 mm x 200 mm x 6 mm, SGMJV-02/04/08:250 mm x 250 mm x 6 mm).

Torque-speed characteristics

(A : Continuous duty zone B : Intermittent duty zone)



Type SGMEV, 230 V/400 V**Ratings and specifications**

Applied voltage		230 V					400 V						
Servo motor model SGMEV-	□	01A	02A	04A	08A	15A	02D	03D	04D	07D	08D	15D	
Rated output ¹	W	100	200	400	750	1500	200	300	400	650	750	1500	
Rated torque ^{1,2}	N·m	0.318	0.637	1.27	2.39	4.77	0.637	0.955	1.27	2.07	2.39	4.77	
Instantaneous peak torque ¹	N·m	0.955	1.91	3.82	7.16	14.3	0.191	3.82	3.82	7.16	7.16	14.3	
Rated current ¹	A (rms)	0.89	2.0	2.6	4.1	7.5	1.4	1.3	1.4	2.2	2.6	4.5	
Instantaneous max. current ¹	A (rms)	2.8	6.5	8.5	13.9	23.0	4.5	5.1	4.4	8.4	7.8	13.7	
Rated speed ¹	min ⁻¹						3000						
Max. speed ¹	min ⁻¹						5000						
Torque constant	N·m/A (rms)	0.392	0.349	0.535	0.641	0.687	0.481	0.837	0.963	1.02	0.994	1.135	
Rotor moment of inertia (JM)	kg·m ² ×10 ⁻⁴ (without brake)	0.049	0.193	0.331	2.1	4.02	0.193	0.173	0.331	0.672	2.1	4.02	
	kg·m ² ×10 ⁻⁴ (with brake)	0.078	0.302	0.440	2.975	4.895	0.302	0.231	0.440	0.812	2.975	4.895	
Allowable load moment of inertia (JL)	Multiple of (JM)	25	15	7	5	15	20	7	20	5			
Rated power rate ¹	kW/s	20.6	21.0	49.0	27.1	56.7	21	52.9	49.0	63.8	27.1	56.7	
Rated angular acceleration ¹	rad/s ²	64800	33000	38500	11400	11900	33000	55300	38500	30800	11400	11900	
Encoder	Standard	Incremental encoder (20 bits)											
	Option	Absolute encoder (20 bits)											
Allowable radial load	N	78	245	392	490	245	345	245	392	490			
Allowable thrust load	N	49	68	147	68	74	68		147				
Approx. mass	Kg (without brake)	0.7	1.4	2.1	4.2	6.6	1.4	1.7	2.1	3.4	4.2	6.6	
	Kg (with brake)	0.9	1.9	2.6	5.7	8.1	1.9	2.2	2.6	4.3	5.7	8.1	
Holding brake moment of inertia J	kg·m ² ×10 ⁻⁴	0.029	0.109	0.875	0.109	0.058	0.109	0.140	0.875				
Basic specifications	Time rating	Continuous											
	Thermal class	Class B											
	Usage/ storage temperature	0 to +40 °C / -20 to 60 °C without freezing											
	Usage/ storage humidity	20 to 80% RH (non-condensing)											
	Vibration class	15 µm or below											
	Insulation resistance	500 VDC, 10 MΩ min.											
	Withstand voltage	1500 VAC for one minute											
	Enclosure	Totally-enclosed, self-cooled, IP55 ³											
	Vibration resistance	Vibration acceleration xx m/s ²											
	Altitude	1000 m or less above sea level											
	Mounting	Flange-mounted											

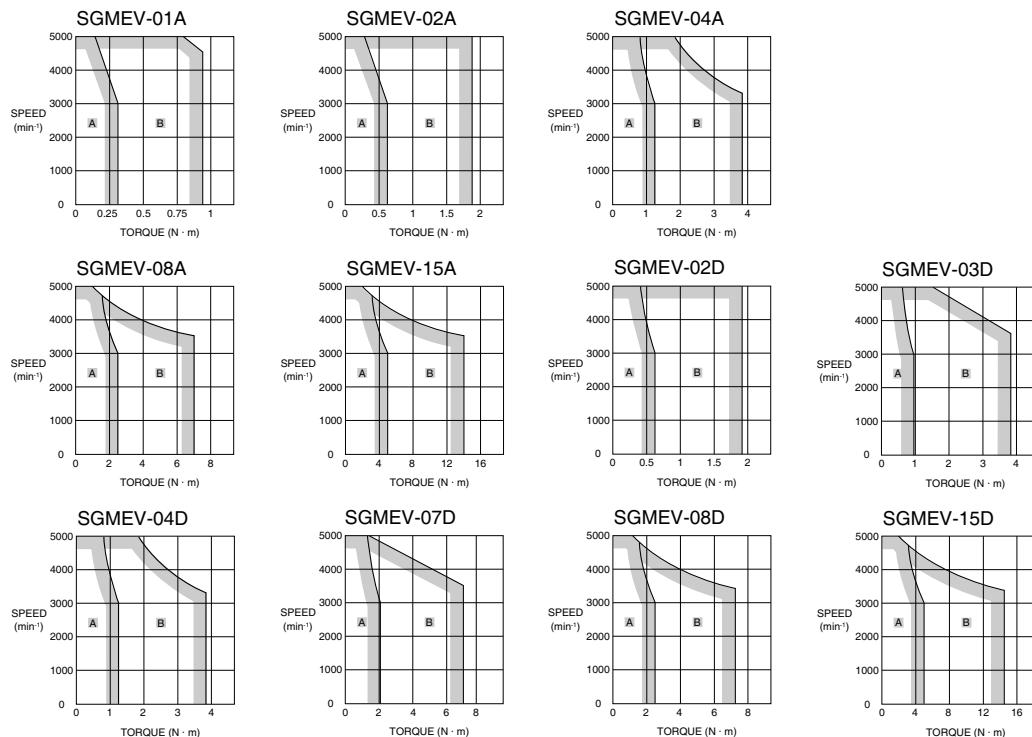
Note: *1. These items and torque/speed characteristics quoted in combination with an SGDV servo drive are at an armature winding temperature of 100°C. Other values quoted are at 20°C.

*2. The rated torques listed here are the values for the continuous allowable torque at 40°C with an aluminium heatsink of the following dimensions attached (SGMEV-01A/02A/04A/02D/03D/04D/07D: 250 mm x 250 mm x 6 mm; SGMEV-08A/15A/08D/15D: 300 mm x 300 mm x 12 mm)

*3. IP55 in case of standard cable attaching. IP67 is possible unless SGMEV-03D/07D servomotors.

Torque-speed characteristics

(A : Continuous Duty Zone B : Intermittent Duty Zone)



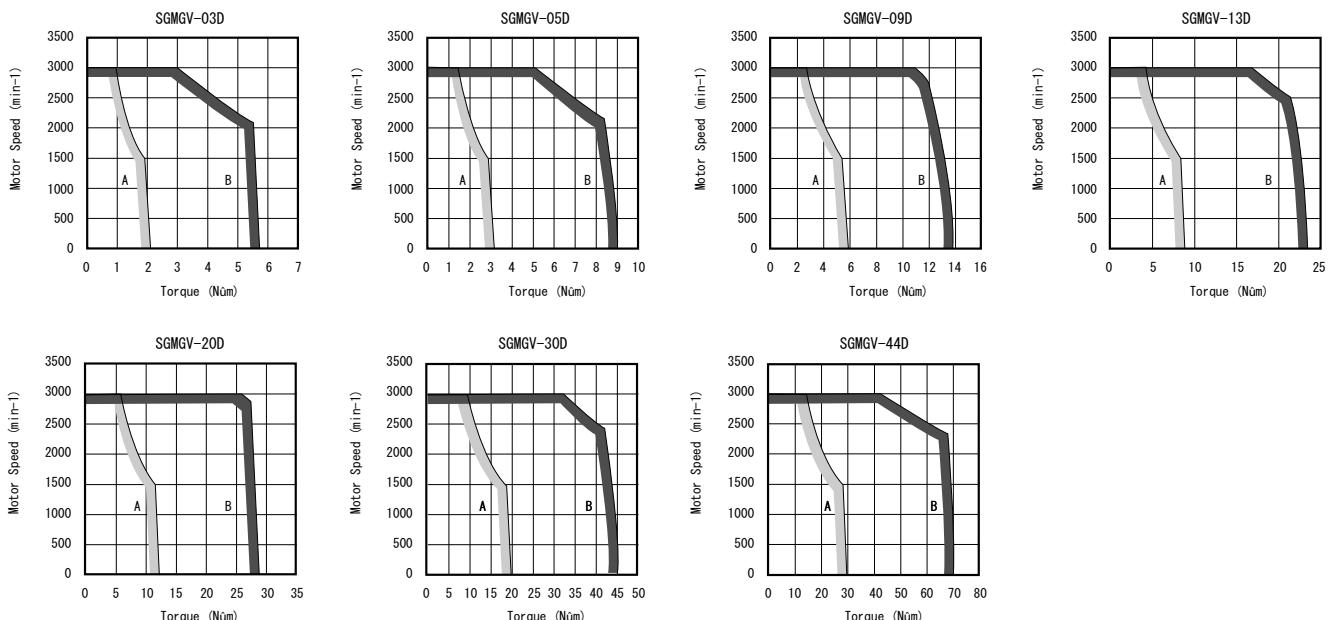
Type SGMGV, 400 V**Ratings and specifications**

Applied voltage		400 V						
Servo motor model SGMGV- □		03D□	05D□	09D□	13D□	20D□	30D□	44D□
Rated output ¹⁾	kW	0.3	0.45	0.85	1.3	1.8	2.9	4.4
Rated torque ¹⁾	N·m	1.96	2.86	5.39	8.34	11.5	18.6	28.4
Instantaneous peak torque ¹⁾	N·m	5.88	8.92	13.8	23.3	28.7	45.1	71.1
Rated current ¹⁾	A (rms)	1.4	1.9	3.5	5.4	8.4	11.9	16.5
Instantaneous max. current ¹⁾	A (rms)	4	5.5	8.5	14	20	28	40.5
Rated speed ¹⁾	min ⁻¹				1500			
Max. speed ¹⁾	min ⁻¹				3000			
Torque constant	N·m/A (rms)	1.55	1.71	1.72	1.78	1.50	1.70	1.93
Rotor moment of inertia (JM)	kg·m ² ×10 ⁻⁴ (without brake)	2.48	3.33	13.9	19.9	26	46	67.5
	kg·m ² ×10 ⁻⁴ (with brake)	2.69	3.54	16	22	28.1	54.5	76
Allowable load moment of inertia (JL)	Multiple of (JM)				5			
Rated power rate ¹⁾	kW/s (without brake)	15.5	24.6	20.9	35.0	50.9	75.2	119
	kW/s (with brake)	14.3	23.1	18.2	31.6	47.1	63.5	106
Rated angular acceleration ¹⁾	rad/s ² (without brake)	7900	8590	3880	4190	4420	4040	4210
	rad/s ² (with brake)	7290	8080	3370	3790	4090	3410	3740
Encoder	Standard	Incremental encoder (20 bits)						
	Option	Absolute encoder (20 bits)						
Allowable radial load	N		490		686	980		1470
Allowable thrust load	N		98		343	392		490
Approx. mass	Kg (without brake)	2.6	3.2	5.5	7.1	8.6	13.4	17.5
	Kg (with brake)	4.5	5.0	7.5	9.0	11.0	19.5	23.5
Rated voltage		24 /90 VDC						
Power consumption (at 20°C)	W (24 VDC)	10		9.8		18.5		
	W (90 VDC)	10		10.1		18.5		
Current consumption (at 20°C)	A (24 VDC)	0.42		0.41		0.77		
	A (90 VDC)		0.11			0.21		
Holding torque	N·m	4.5	12.7		19.6		43.1	
Rise time for holding torque	ms (max)		80			100 (24 V), 80 (90 V)		
Release time	ms (max)		100				170	
Basic specifications	Time rating	Continuous						
	Thermal class	Class F						
	Usage/ storage temperature	0 to +40 °C / -20 to 60 °C without freezing						
	Usage/ storage humidity	20 to 80% RH (non-condensing)						
	Insulation resistance	500 VDC, 10 MOhm min.						
	Withstand voltage	1500 VAC for one minute						
	Vibration class	15 µm or below						
	Enclosure	Totally-enclosed, self-cooled, IP67 (excluding shaft opening)						
	Vibration resistance	Vibration acceleration 24.5 m/s ²						
	Altitude	1000 m or less above sea level						
	Mounting	Flange-mounted						

Note: *1. These items and torque/speed characteristics quoted in combination with an SGDV servo drive are at an armature winding temperature of 20°C.

Torque-speed characteristics

(A : Continuous duty zone B : Intermittent duty zone)



Type SGMSV, 400 V**Ratings and specifications**

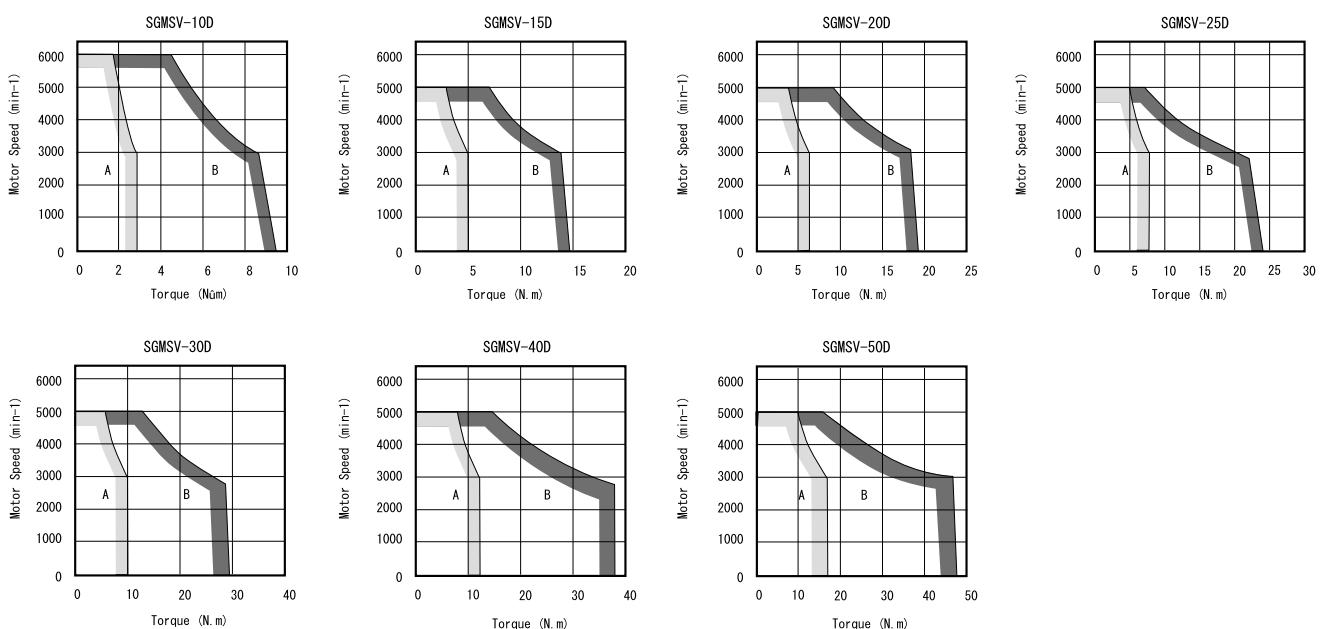
Applied voltage		400 V						
Servo motor model SGMSV- □		10D□	15D□	20D□	25D□	30D□	40D□	50D□
Rated output ^{*1}	kW	1.0	1.5	2.0	2.5	3.0	4.0	5.0
Rated torque ^{*1,2}	N·m	3.18	4.9	6.36	7.96	9.8	12.6	15.8
Instantaneous peak torque ^{*1}	N·m	9.54	14.7	19.1	23.9	29.4	37.8	47.6
Rated current ^{*1}	A (rms)	2.8	4.7	6.1	7.4	8.9	12.5	13.8
Instantaneous max. current ^{*1}	A (rms)	8.5	14	19.5	22.3	28	38	42
Rated speed ^{*1}	min ⁻¹				3000			
Max. speed ^{*1}	min ⁻¹	6000			5000			
Torque constant	N·m/A (rms)	1.27	1.15	1.12	1.15	1.16	1.06	1.21
Rotor moment of inertia (JM)	kg·m ² ×10 ⁻⁴ (without brake)	1.74	2.0	2.47	3.19	7.0	9.60	12.3
	kg·m ² ×10 ⁻⁴ (with brake)	1.99	2.25	2.72	3.44	9.2	11.8	14.5
Allowable load moment of inertia (JL)	Multiple of (JM)				5			
Rated power rate ^{*1}	kW/s	57.9	97.2	127	199	137	165	203
Rated angular acceleration ^{*1}	rad/s ²	18300	24500	25700	25000	14000	13100	12800
Encoder	Standard	Incremental encoder (20 bits)						
	Option	Absolute encoder (20 bits)						
Allowable radial load	N			686		980		1176
Allowable thrust load	N			196			392	
Approx. mass	Kg (without brake)	4.6	5.1	5.8	7.0	11	14	17
	Kg (with brake)	5.5	6	6.8	8.7	13	16	19
Basic specifications		Continuous						
Time rating		Continuous						
Thermal class		Class F						
Usage/ storage temperature		0 to +40 °C / -20 to 60°C without freezing						
Usage/ storage humidity		20 to 80% RH (non-condensing)						
Vibration class		15 µm or below						
Insulation resistance		500 VDC, 10 MΩ min.						
Withstand voltage		1500 VAC for one minute						
Enclosure		Totally-enclosed, self-cooled, IP67 (excluding shaft opening)						
Vibration resistance		Vibration acceleration xx.x m/s ²						
Altitude		1000 m or less above sea level						
Mounting		Flange-mounted						

Note: *1. These items and torque/speed characteristics quoted in combination with an SGDV servo drive are at an armature winding temperature of 20°C.

*2. The rated torques listed here are the values for the continuous allowable torque value with an aluminium heatsink of the following dimensions attached (SGMSV-10/15/20/25: 300 mm x 300 mm x 12 mm, SGMSV-30/40/50: 400 mm x 400 mm x 20 mm).

Torque-speed characteristics

A : Continuous Duty Zone B : Intermittent Duty Zone

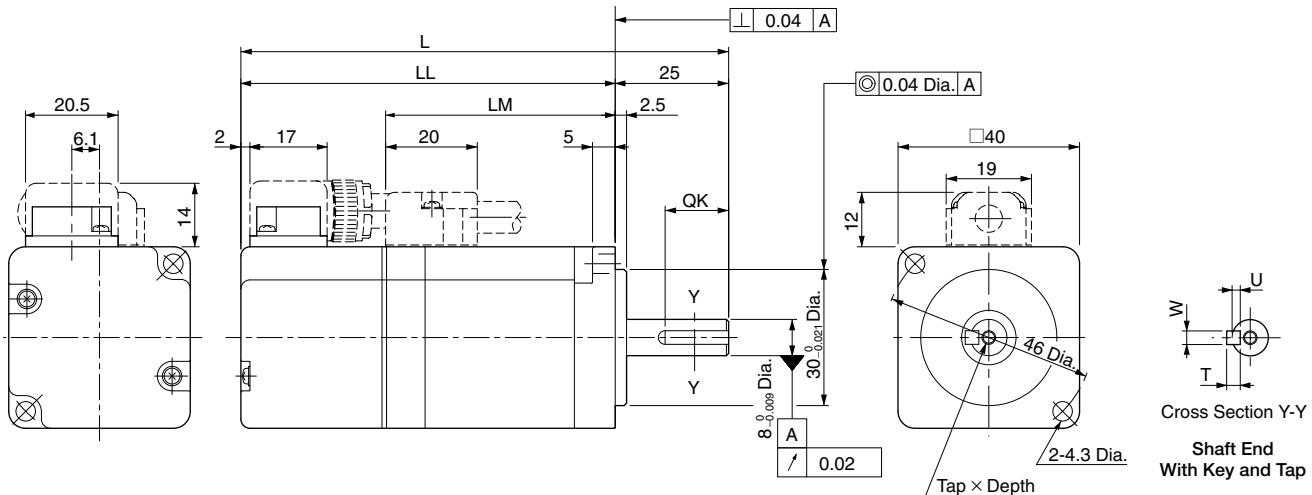


Dimensions

Servomotors

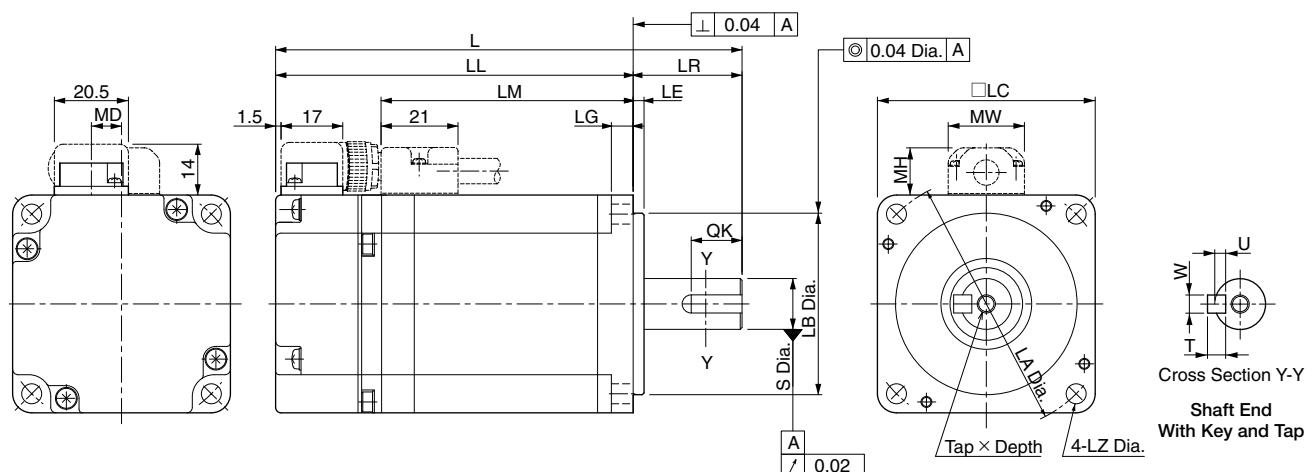
Type SGMJV (230 V, 50 - 100 W)

Dimensions (mm)	Without brake		With brake		LM	Shaft End Dimensions					Approx. Mass (Kg)	
	L	LL	L	LL		Tap × Depth	QK	U	W	T	Without brake	With brake
SGMJV-A5A□A6□-OY	94	69	139	114	37	M3 x 6L	14	1.8	3	3	0.3	0.6
SGMJV-01A□A6□-OY	107.5	82.5	152.5	127.5	50.5						0.4	0.7



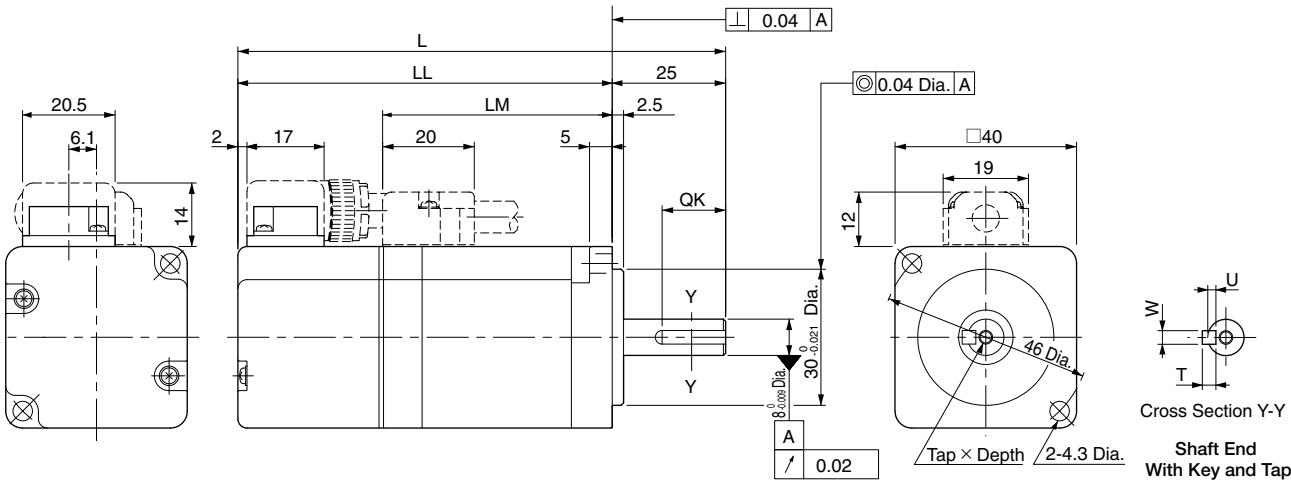
Type SGMJV (230 V, 200 - 750 W)

Dimensions (mm)	Without brake		With brake		LM	Flange Face Dimensions					Shaft End Dimensions					MD	MW	MH	Approx. Mass Kg				
	L	LL	L	LL		LR	LE	LG	LC	LA	LB	LZ	S	Tap × Depth	QK	U	W	T	Without brake	With brake			
SGMJV-02A□A6□-OY	110	80	150	120	51	30	3	6	60	70	50 ⁰ -0.025	5.5	14 ⁰ -0.011	M5x8L	14	3	5	5	8.3	21	13	0.9	1.5
SGMJV-04A□A6□-OY	128.5	98.5	168.5	138.5	69.5																1.3	1.9	
SGMJV-08A□A6□-OY	155	115	200	160	85	40		8	80	90	70 ⁰ -0.030	7	19 ⁰ -0.013	M6x10L	22	3.5	6	6	13.8	27	15	2.3	3.2



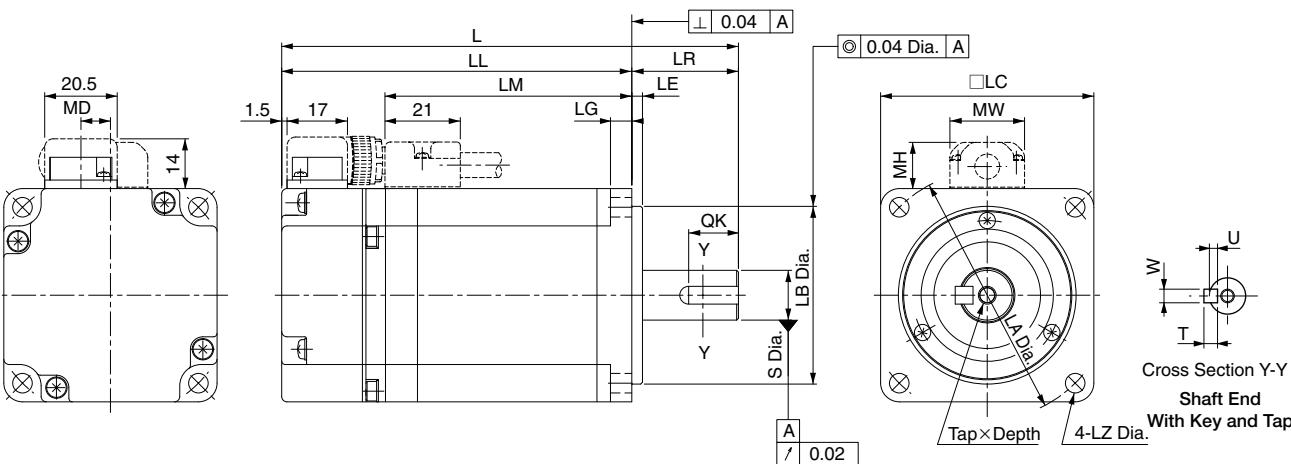
Type SGMAV (230 V, 50 - 150 W)

Dimensions (mm)		Without brake		With brake		LM	Shaft End Dimensions					Approx. Mass (Kg)	
Model		L	LL	L	LL		Tap x Depth	QK	U	W	T	Without brake	With brake
SGMAV-A5A□A6□-OY		95.5	70.5	140.5	115.5	38.5	M3x6L	14	1.8	3	3	0.3	0.6
SGMAV-01A□A6□-OY		107.5	82.5	152.5	127.5							0.4	0.7
SGMAV-C2A□A6□-OY		119.5	94.5	164.5	139.5							0.5	0.8



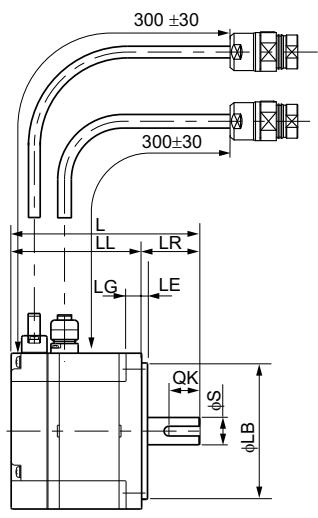
Type SGMAV (230 V, 200 - 750 W)

Dimensions (mm)	Without brake		With brake		LM	Flange Face Dimensions						Shaft End Dimensions						MD	MW	MH	Approx. Mass (Kg)						
	L	LL	L	LL		LR	LE	LG	LC	LA	LB	LZ	S	Tap x Depth	QK	U	W	T			Without brake	With brake					
Model																											
SGMAV-02A	□	A6	□	OY	110	80	150	120	51	30	3	6	60	70	50 ⁰	5.5	14 ⁰	M5x8L	20	3	5	5	8.5	21	13	0.9	1.5
SGMAV-04A	□	A6	□	OY	128.5	98.5	168.5	138.5	69.5			-0.025	-0.011	14	M5x8L	20	3	5	5	8.5	21	13	1.2	1.9			
SGMAV-06A	□	A6	□	OY	154.5	124.5	200.5	170.5	95.5			-0.011												1.7	2.4		
SGMAV-08A	□	A6	□	OY	155	115	200	160	85	40	8	80	90	70 ⁰	7	19 ⁰	M6x10L	22	3.5	6	6	13.8	27	15	2.3	3.2	
SGMAV-10A	□	A6	□	OY	185	145	235	195	115			-0.030	-0.013	14	M6x10L	22	3.5	6	6	13.8	27	15	3.6	4.6			

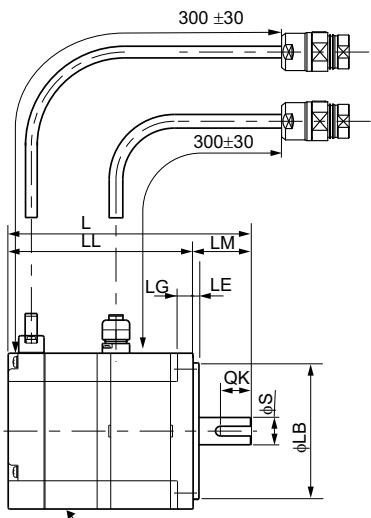


Type SGMEV (230/400 V, 100 - 1500 W)

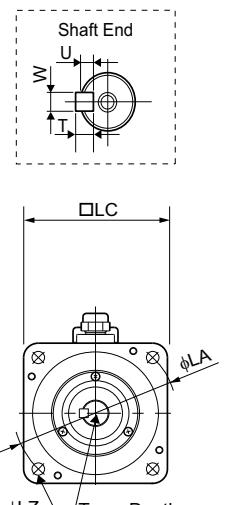
Dimensions (mm)	Without brake		With brake		LM	Flange Face Dimensions						Shaft End Dimensions						Approx. Mass (Kg)	
	L	LL	L	LL		LA	LB	LC	LE	LG	LZ	S	QK	W	T	U	Tap x Depth	Without brake	With brake
SGMEV-01A□A6□-OY	87	62	116	91	25	70	50 ⁰ _{-0.030}	60	3	6		8 ⁰ _{-0.011}	14	3	3	1.8	M3 x 6L	0.7	0.9
SGMEV-02A□A6□-OY	97	67	128.5	98.5	30	90	70 ⁰ _{-0.030}	80		8	7	14 ⁰ _{-0.011}	16	5	5	3	M5 x 8L	1.4	1.9
SGMEV-04A□A6□-OY	117	87	148.5	118.5														2.1	2.6
SGMEV-04D□A6□-OY																	4.2	4.7	
SGMEV-08A□A6□-OY	126.5	86.5	160	120	40	145	110 ⁰ _{-0.035}	120	3.5	10	10	16 ⁰ _{-0.011}	22						
SGMEV-08D□A6□-OY												19 ⁰ _{-0.013}		6	6	3.5	M6 x 10L	6.6	8.1
SGMEV-15A□A6□-OY	154.5	114.5	188	148															
SGMEV-15D□A6□-OY																			



Models without Brake

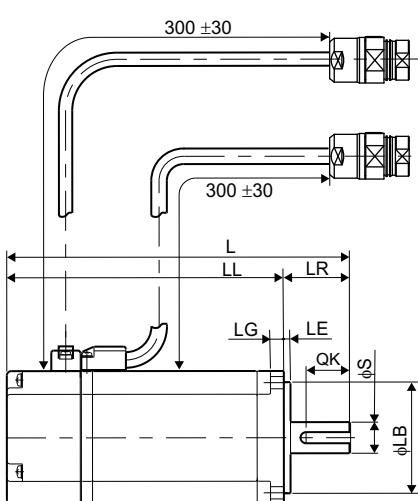


Models with Brake

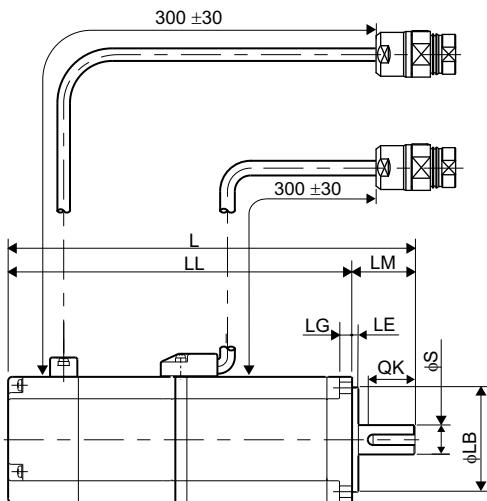


Type SGMEV (400 V, 300 - 650 W)

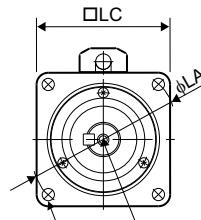
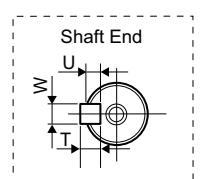
Dimensions (mm)	Without brake		With brake		LM	Flange Face Dimensions						Shaft End Dimensions						Approx. Mass (Kg)	
	L	LL	L	LL		LA	LB	LC	LE	LG	LZ	S	QK	W	T	U	Tap x Depth	Without brake	With brake
SGMEV-03D□A6□-OY	154.5	124.5	194	164	30	70	50 ⁰ _{-0.025}	60	3	6	5.5	14 ⁰ _{-0.011}	20	5	5	3	M5 x 8L	1.7	2.2
SGMEV-07D□A6□-OY	185	145	229.5	189.5	40	90	70 ⁰ _{-0.030}	80	3	8	70	16 ⁰ _{-0.011}	30					3.4	4.3



Models without Brake

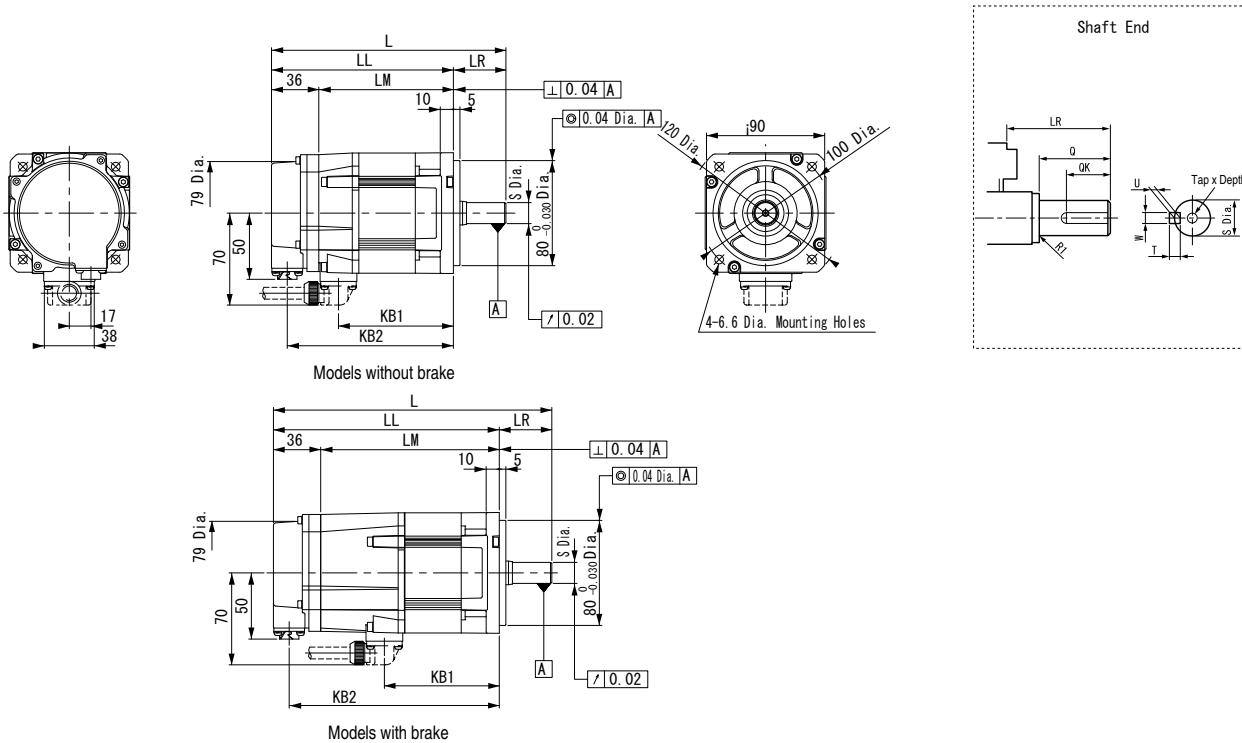


Models with Brake



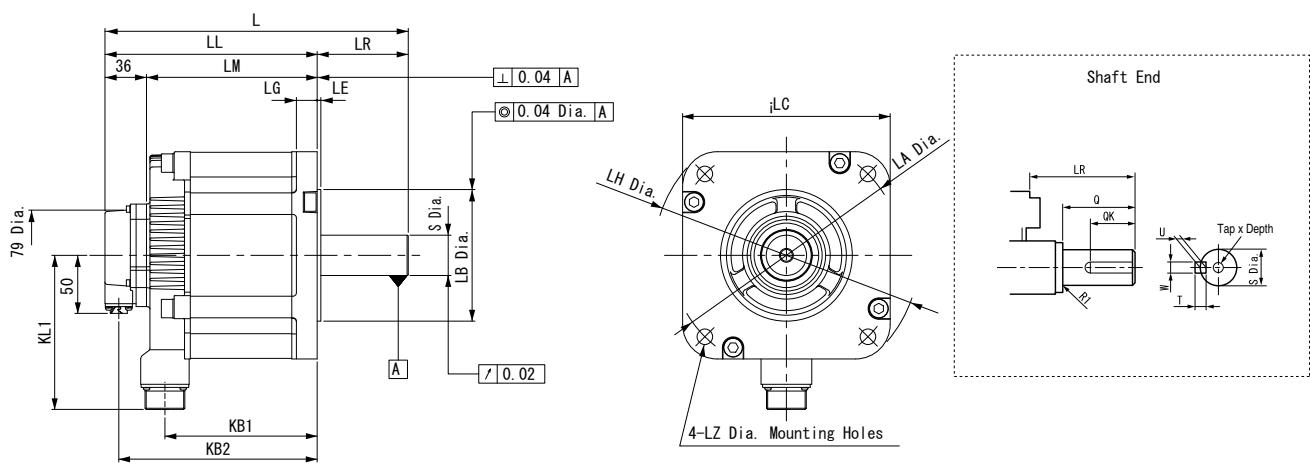
Type SGMGV (400 V, 300 - 450 W)

Dimensions (mm)	Without brake				With brake				LR	KB1	Shaft End Dimensions							Approx. Mass (Kg)	
	L	LL	LM	KB2	L	LL	LM	KB2			S	Q	QK	W	T	U	Tap x Depth	Without brake	With brake
Model																			
SGMGV-03D□A6□-OY	163	126	90	114	196	159	123	147	37	75	14 ⁰ _{-0.011}	25	15	5	5	3	M4 x 10L	2.6	4.5
SGMGV-05D□A6□-OY	179	139	103	127	212	172	136	160	40	88	14 ⁰ _{-0.011}	30	20				M4 x 12L	3.2	5.0

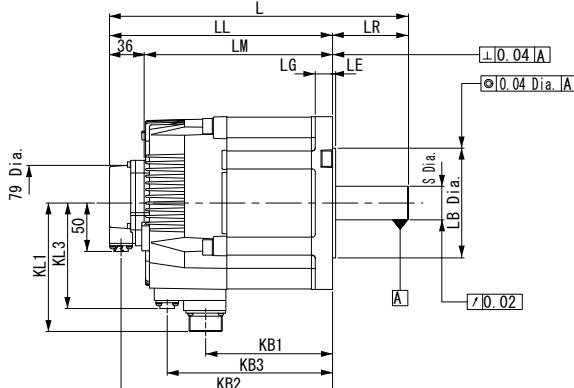


Type SGMGV (400 V, 850 W- 4.4 kW)

Dimen-sions (mm) Model	Without brake				With brake					LR	KB1	KL1	Flange Face Dimensions							Shaft End Dimensions							Approx. Mass (Kg)												
	L	LL	LM	KB2	L	LL	LM	KB2	KB3	KL3			LA	LB	LC	LE	LG	LH	LZ	S	Q	QK	W	T	U	Tap x Dept h	With- out brake	With brake											
SGMGV-09D□A6□-OY	195	137	101	125	231	173	137	161	115	80	58	83	104	145	110 ⁰ -0.035	130	6	12	165	9	19 ⁰ -0..013	40	25	5	5	3	M5 x 12L	5.5	7.5										
SGMGV-13D□A6□-OY	211	153	117	141	247	189	153	177	131					99													6	6	3.5										
SGMGV-20D□A6□-OY	229	171	135	159	265	207	171	195	149					8											7	4													
SGMGV-30D□A6□-OY	239	160	124	148	287	208	172	196	148	110	79	108	134	200	114.3 ⁰ -0.025	180	3.2	18	230	13.5	35 ^{+0.01} 0	76	60	10	8	5	M12 x 25L	13.4	19.5										
SGMGV-44D□A6□-OY	263	184	148	172	311	232	196	220	172																17.5	23.5													



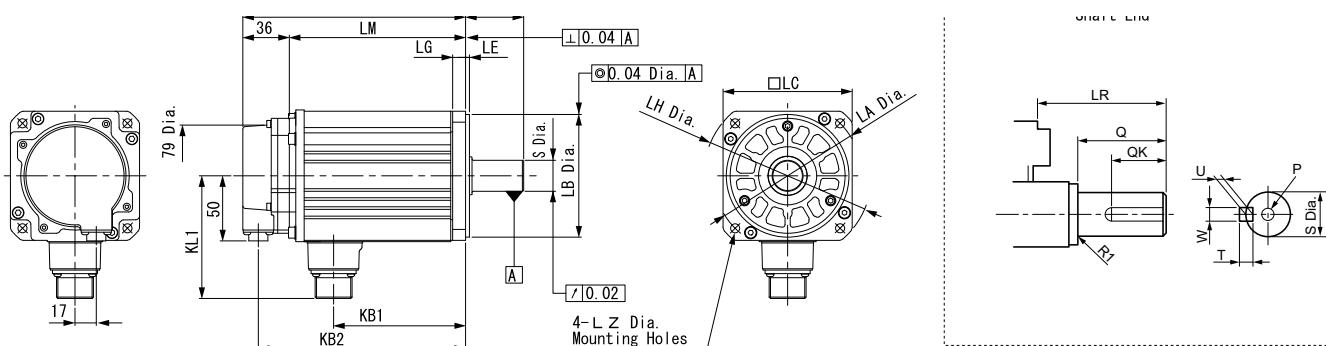
Models without brake



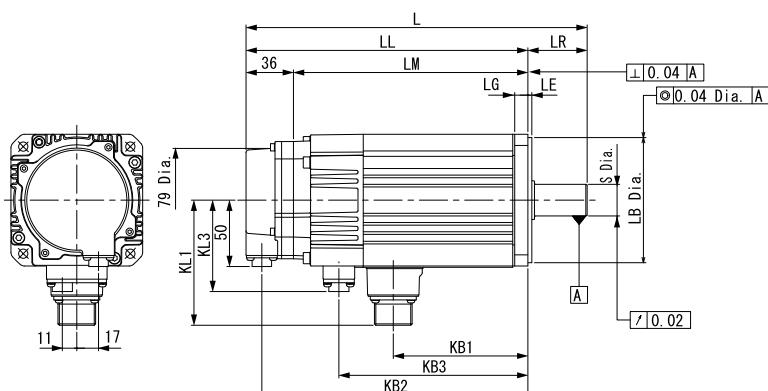
Models with brake

Type SGMSV (400 V, 1 - 5 kW)

Dimen-sions (mm)	Without brake					With brake					KB1	KL1	Flange Face Dimensions								Shaft End Dimensions						Approx. Mass (Kg)				
	L	LL	LM	LR	KB2	L	LL	LM	LR	KB2	KB3	KL2	LA	LB	LC	LE	LF	LG	LH	LZ	S	Q	QK	W	T	U	Tap x Depth	With-out brake	With brake		
SGMSV-10D□A2□-OY	192	147	111	45	135	233	188	152	45	118	176	69	96	115	95 ⁰ -0.035	100	3	3	10	130	7	24 ⁰ -0.013	40	32	8	7	4	M8 x 16L	4.1	5.5	
SGMSV-15D□A2□-OY	211	153	117	58	141	243	198	162	45	128	186			99														4.6	6		
SGMSV-20D□A2□-OY	229	171	135	58	159	259	214	178	45	144	202			117														5.4	6.8		
SGMSV-25D□A2□-OY	239	160	124	79	148	292	247	211	45	177	225			108														6.8	8.7		
SGMSV-30D□A2□-OY	259	196	160	63	184	295	232	196	63	176	220			81	124	114	145	110 ⁰ -0.035	130	6	6	12	165	9	28 ⁰ -0.013	55	50			10.5	13
SGMSV-40D□A2□-OY	296	233	197	63	221	332	269	233	63	213	257			161														13.5	16		
SGMSV-50D□A2□-OY	336	273	237	63	261	372	309	273	63	253	297			201														16.5	19		



Models without brake

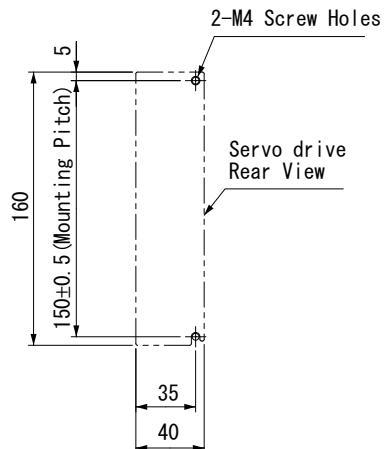
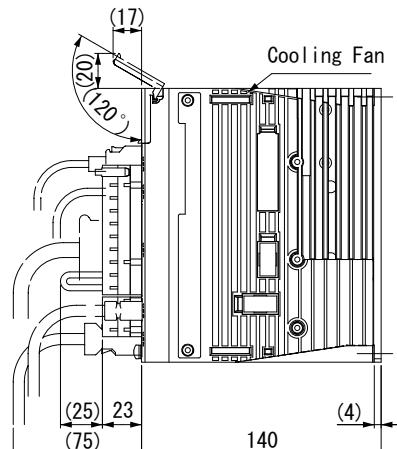
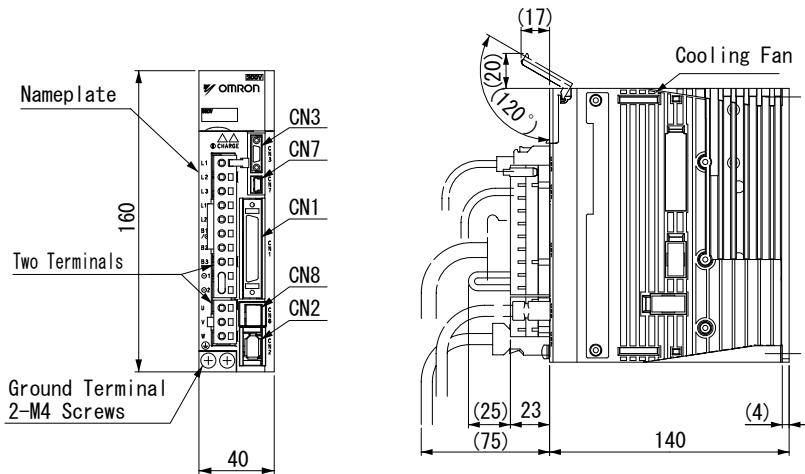


Models with brake

Dimensions

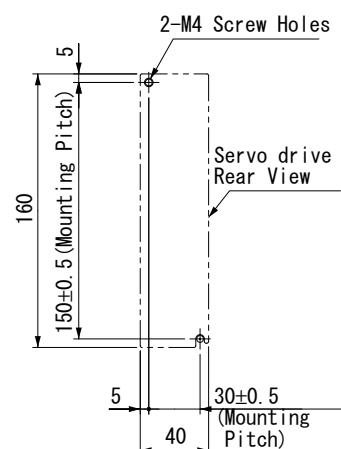
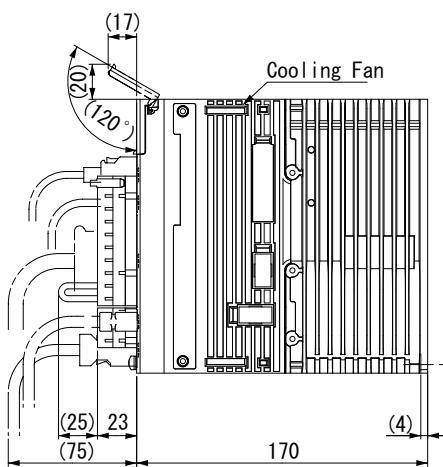
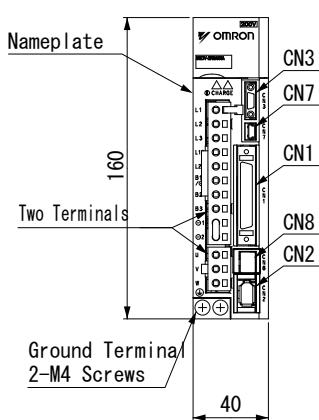
Sigma-5 Analog/Pulse Reference Servo Drive

SGDV-A5A0□A-OY to -02A0□A-OY (230 V, 50 to 200 W)



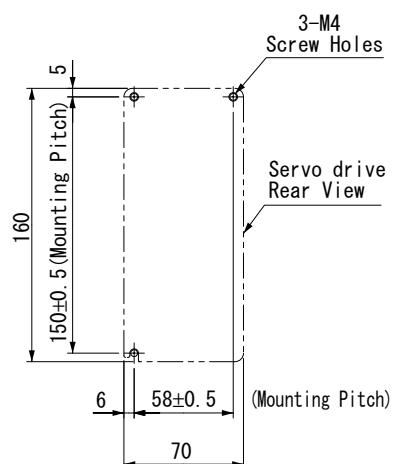
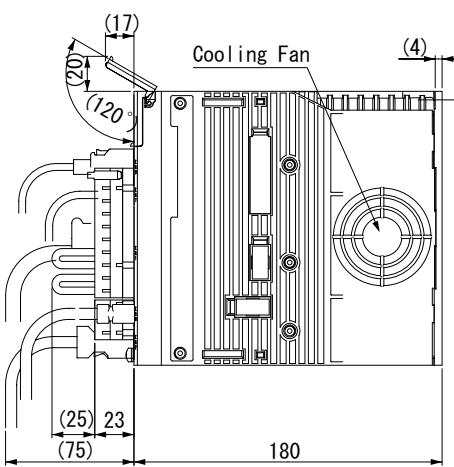
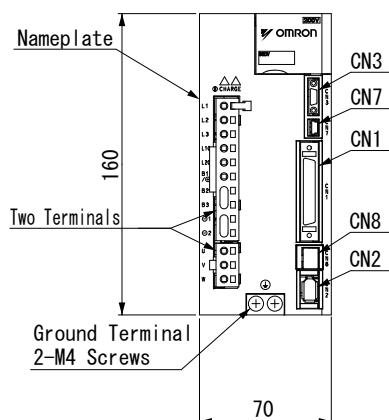
Mounting Hole Diagram

SGDV-04A0□A-OY (230 V, 400 W)

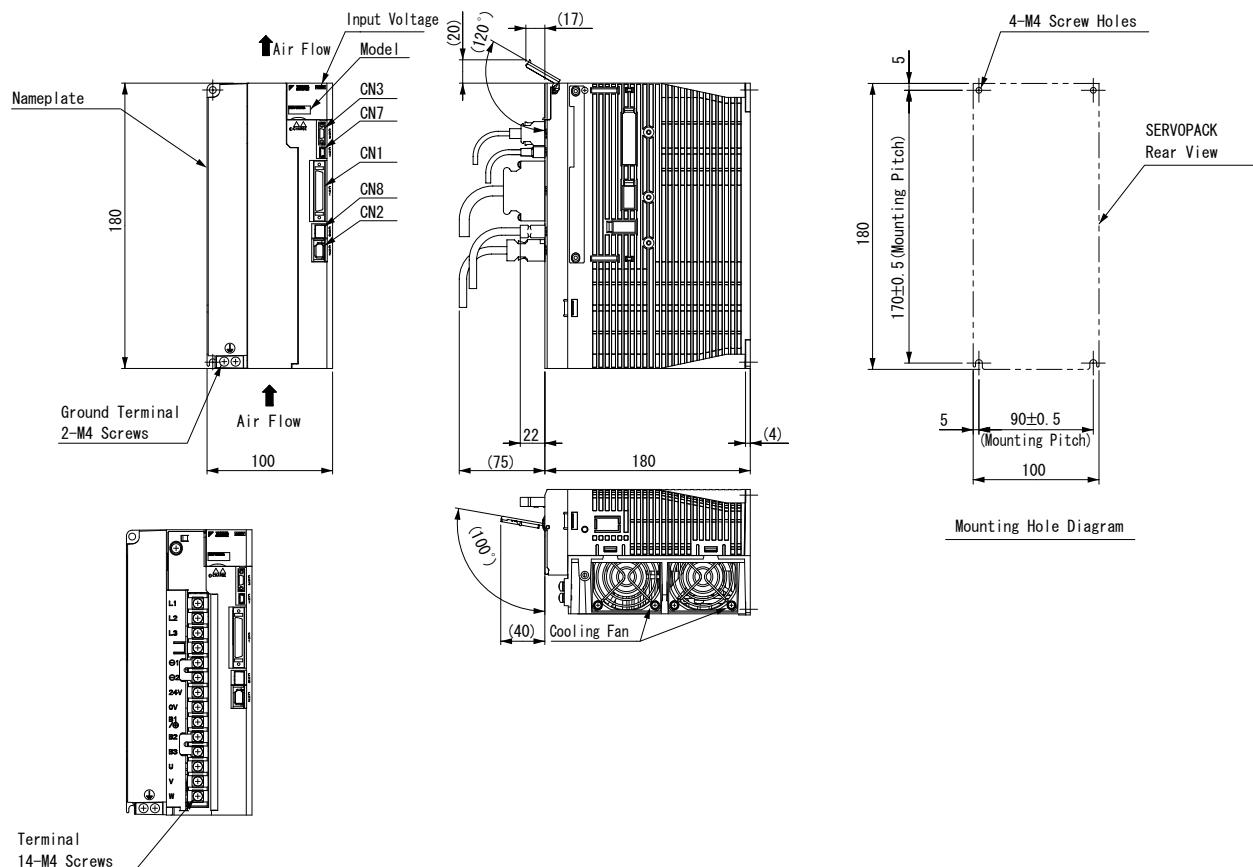
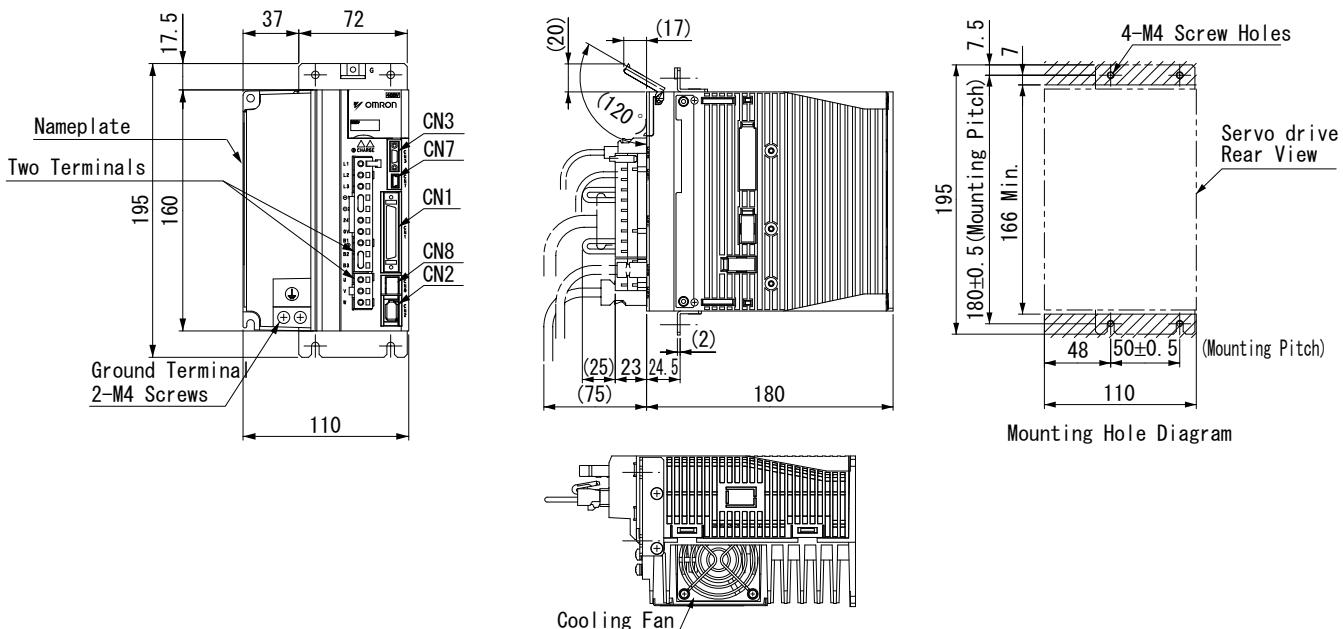


Mounting Hole Diagram

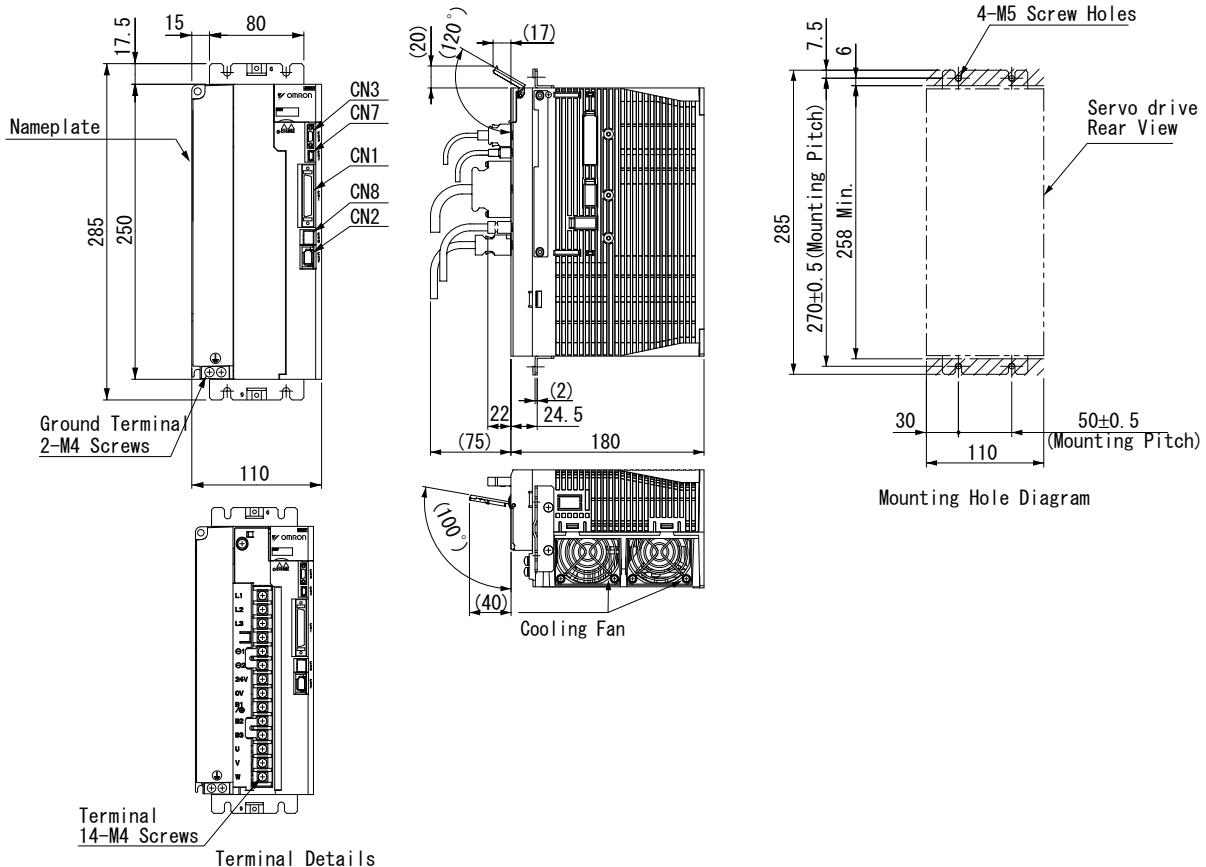
SGDV-08A0□A-OY (230 V, 750 W)



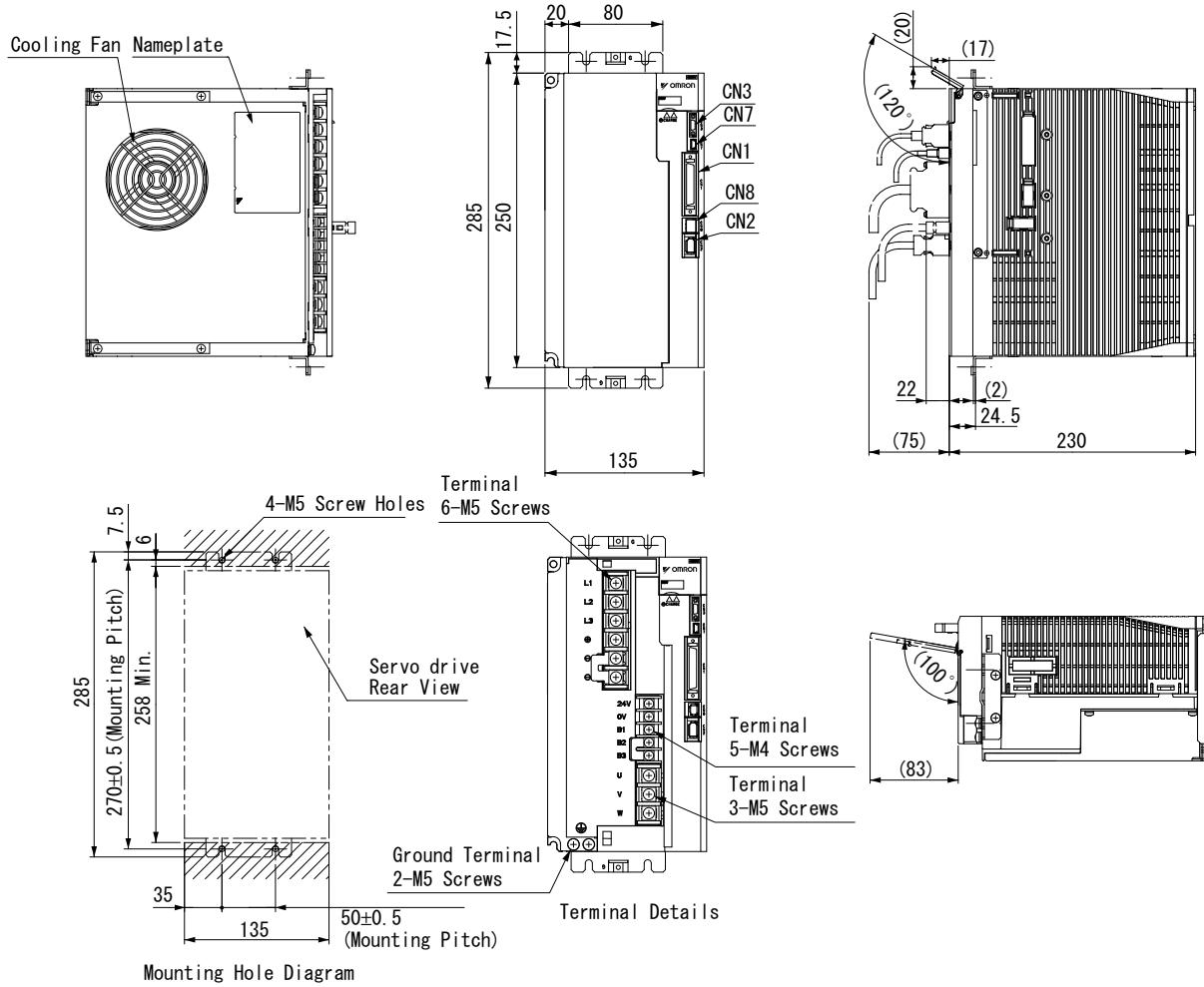
Mounting Hole Diagram

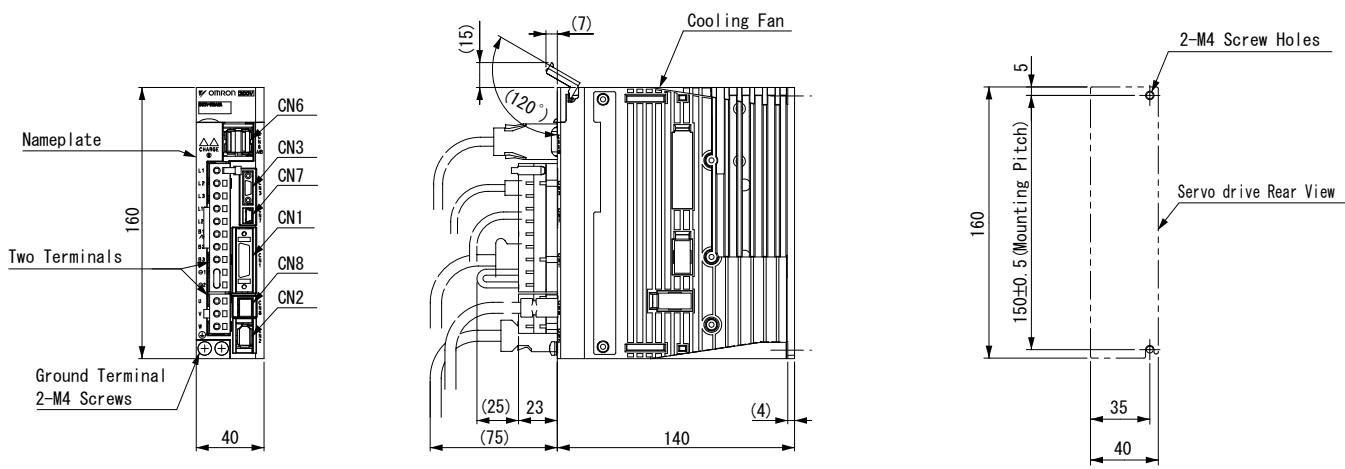
SGDV-15A0□A-OY (230 V, 1.5 kW)**SGDV-05D0□A-OY to -15D0□A-OY (400 V, 0.5 to 1.5 kW)**

SGDV-20/30D0□A-OY (400 V, 2/3 kW)

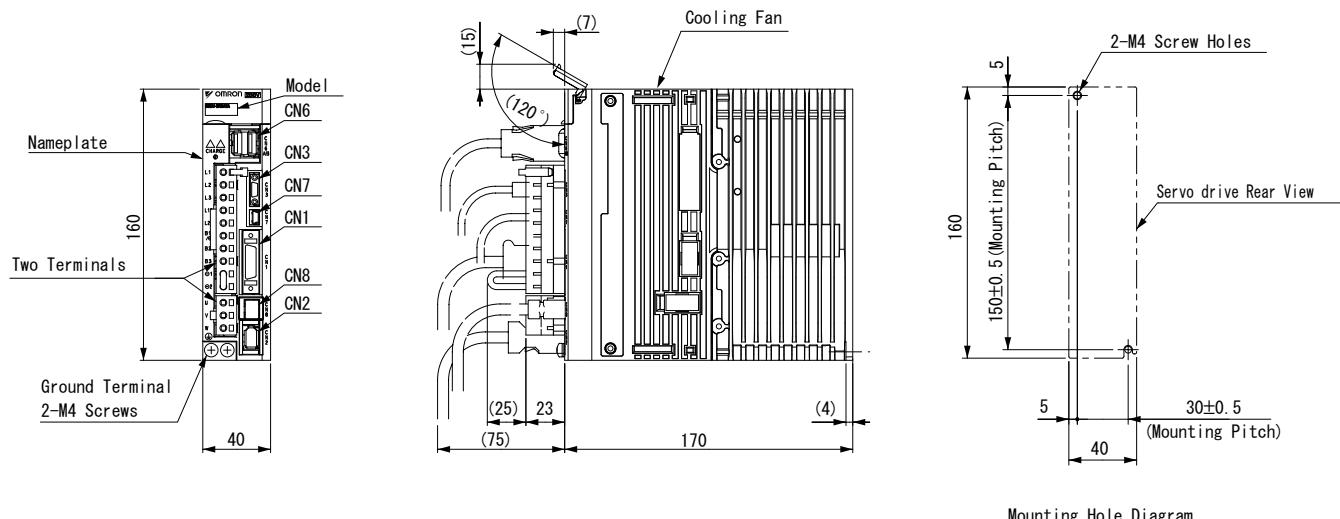


SGDV-50D0□A-OY (400 V, 5 kW)

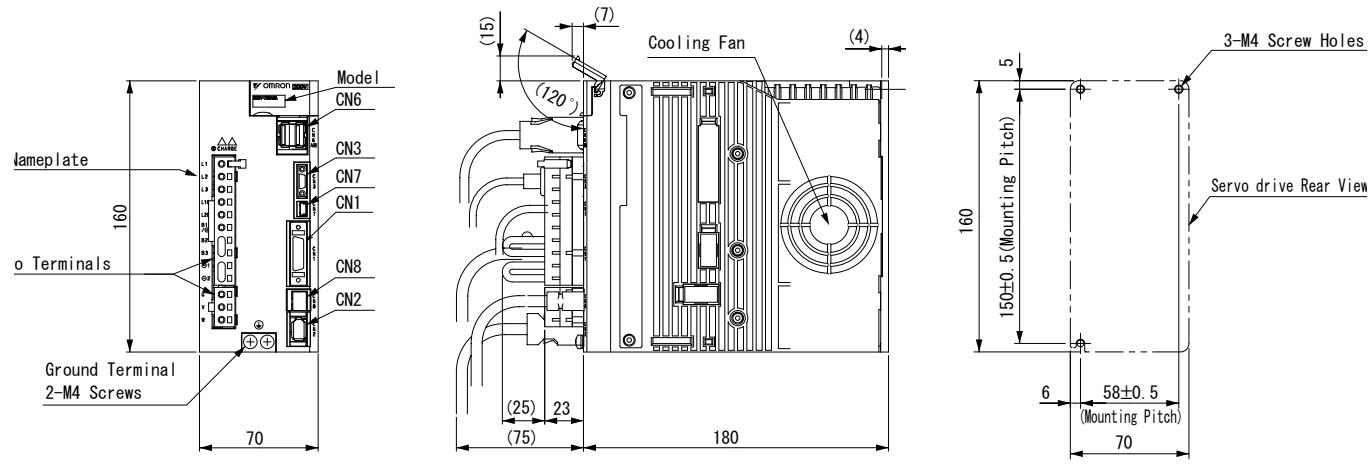


Sigma-5 MECHATROLINK-II Servo Drives**SGDV-A5A1□A-OY to -02A1□A-OY (230 V, 50 to 200 W)**

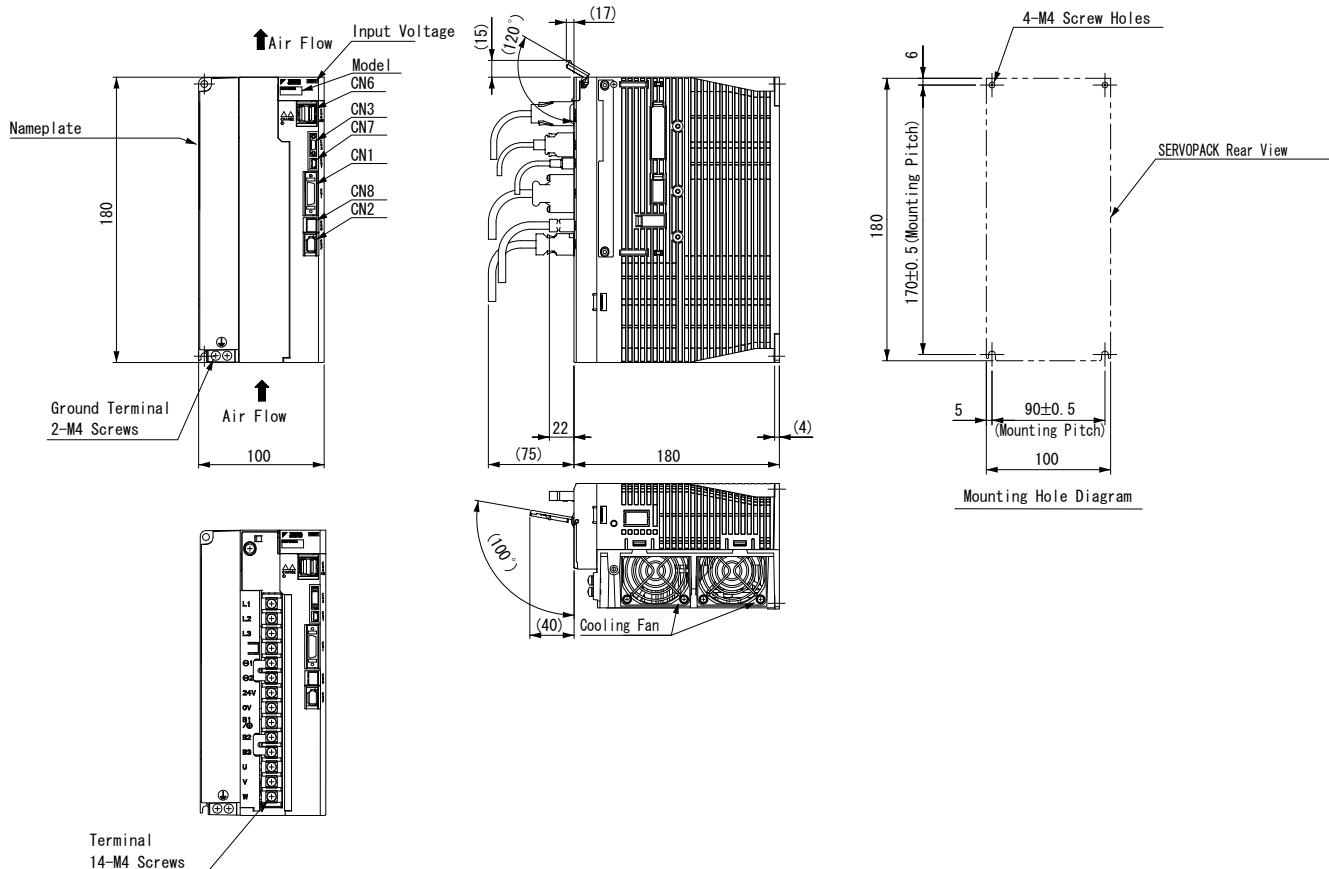
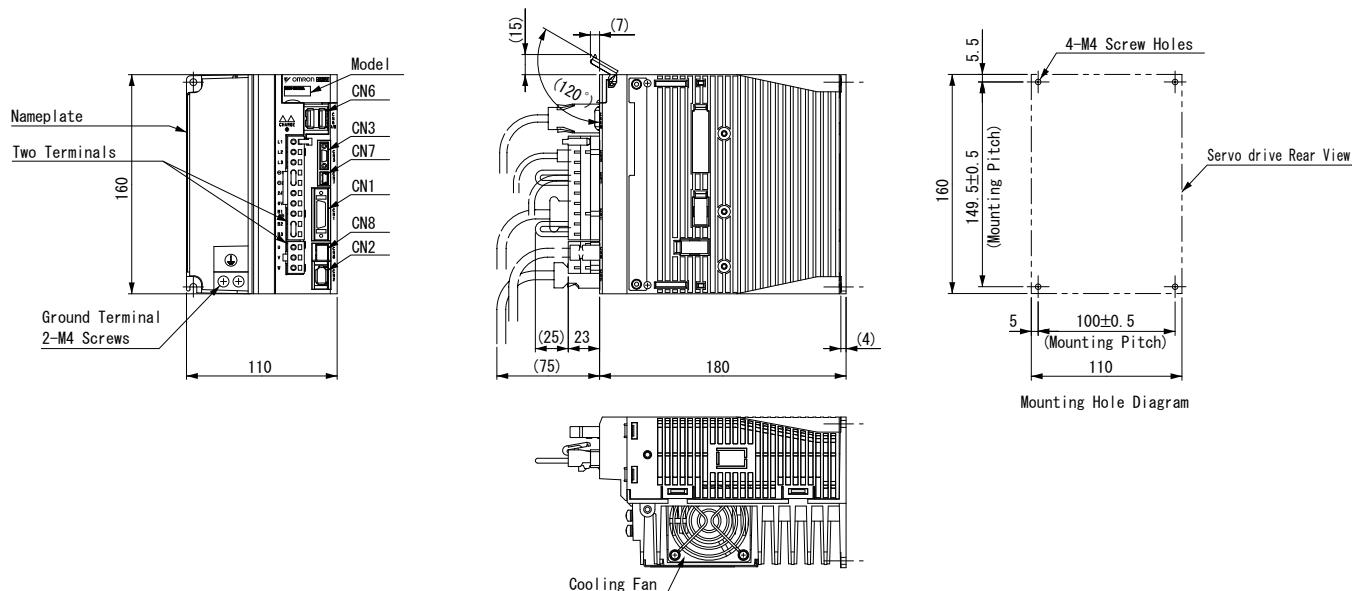
Mounting Hole Diagram

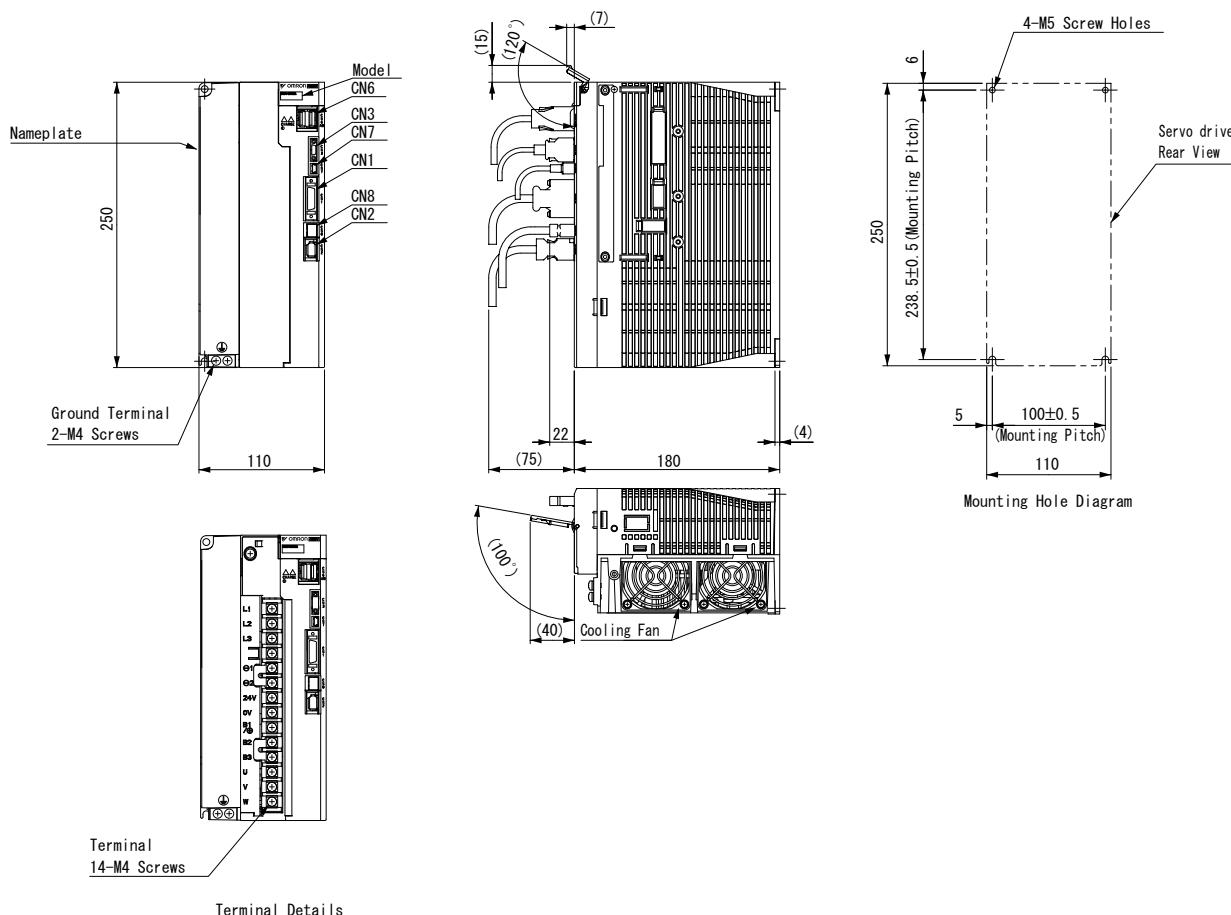
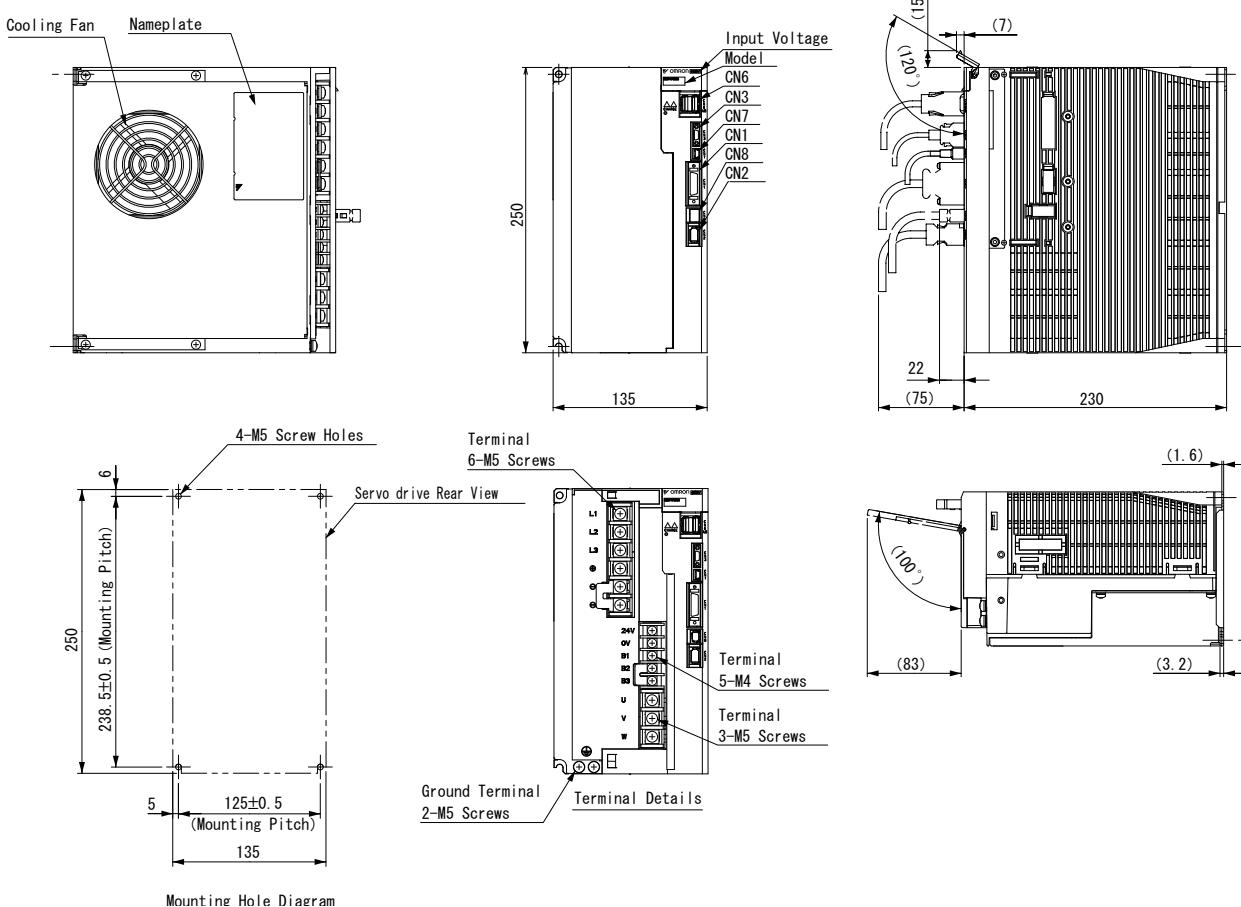
SGDV-04A1□A-OY (230 V, 400 W)

Mounting Hole Diagram

SGDV-08A1□A-OY (230 V, 750 W)

Mounting Hole Diagram

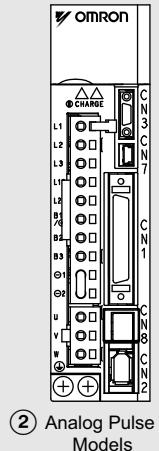
SGDV-15A1□A-OY (230 V, 1.5 kW)**SGDV-05D1□A-OY to -15D1□A-OY (400 V, 0.5 to 1.5 kW)**

SGDV-20/30D1□A-OY (400 V, 2/3 kW)**SGDV-50D1□A-OY (400 V, 5 kW)**

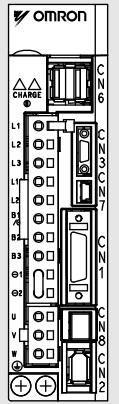
Ordering information

(Refer to servo drive chapter)

Drive options



② Analog Pulse Models



② MECHATROLINK-II Models

Power, encoder and brake cables

Servo motors



① SGMJV Servo Motor
3000 rpm (50-750 W)



① SGMAV Servo Motor
3000 rpm (50W-1kW)



① SGMEV Servo Motor
3000 rpm (100W-1.5kW)



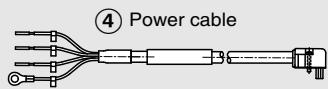
① SGMGV Servo Motor
1500 rpm (300W-4.4 kW)



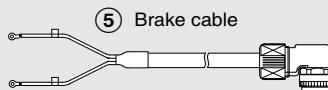
① SGMSV Servo Motor
3000 rpm (1-5kW)



③ Encoder cable



④ Power cable



⑤ Brake cable

(a separate brake cable to use only for SGMGV and SGMSV servo motors from 850W)

Note: The symbols ①②③... show the recommended sequence to select the servo motor and cables

Servo motor

① Select motor from families SGMJV, SGMAV, SGMEV, SGMGV, SGMSV using motor tables in next pages.

Servo drive

② Refer to Sigma-5 servo drive chapter for detailed drive specifications and selection of drive accessories.

SGMJV - servo motors 3000 r/min (50 - 750 W)

Symbol	Specifications					Servo motor model	Compatible servo drives (2) Sigma-5
	Voltage	Encoder and design		Rated torque	Capacity		
①	230 V	Incremental encoder (13 bit)	Without brake	0.159 Nm	50 W	SGMJV-A5AAA61-OY	SGDV-A5A□1A-OY
				0.318 Nm	100 W	SGMJV-01AAA61-OY	SGDV-01A□1A-OY
				0.637 Nm	200 W	SGMJV-02AAA61-OY	SGDV-02A□1A-OY
			With brake	1.27 Nm	400 W	SGMJV-04AAA61-OY	SGDV-04A□1A-OY
				2.39 Nm	750 W	SGMJV-08AAA61-OY	SGDV-08A□1A-OY
				0.159 Nm	50 W	SGMJV-A5AAA6C-OY	SGDV-A5A□1A-OY
		Incremental encoder (20 bit)	Without brake	0.318 Nm	100 W	SGMJV-01AAA6C-OY	SGDV-01A□1A-OY
				0.637 Nm	200 W	SGMJV-02AAA6C-OY	SGDV-02A□1A-OY
				1.27 Nm	400 W	SGMJV-04AAA6C-OY	SGDV-04A□1A-OY
			With brake	2.39 Nm	750 W	SGMJV-08AAA6C-OY	SGDV-08A□1A-OY
				0.159 Nm	50 W	SGMJV-A5ADA61-OY	SGDV-A5A□1A-OY
				0.318 Nm	100 W	SGMJV-01ADA61-OY	SGDV-01A□1A-OY
②	230 V	Absolute encoder (20 bit)	Without brake	0.637 Nm	200 W	SGMJV-02ADA61-OY	SGDV-02A□1A-OY
				1.27 Nm	400 W	SGMJV-04ADA61-OY	SGDV-04A□1A-OY
				2.39 Nm	750 W	SGMJV-08ADA61-OY	SGDV-08A□1A-OY
			With brake	0.159 Nm	50 W	SGMJV-A5ADA6C-OY	SGDV-A5A□1A-OY
				0.318 Nm	100 W	SGMJV-01ADA6C-OY	SGDV-01A□1A-OY
				0.637 Nm	200 W	SGMJV-02ADA6C-OY	SGDV-02A□1A-OY
		Straight shaft with key and tap	Without brake	1.27 Nm	400 W	SGMJV-04ADA6C-OY	SGDV-04A□1A-OY
				2.39 Nm	750 W	SGMJV-08ADA6C-OY	SGDV-08A□1A-OY
				0.159 Nm	50 W	SGMJV-A5A3A61-OY	SGDV-A5A□1A-OY
			With brake	0.318 Nm	100 W	SGMJV-01A3A61-OY	SGDV-01A□1A-OY
				0.637 Nm	200 W	SGMJV-02A3A61-OY	SGDV-02A□1A-OY
				1.27 Nm	400 W	SGMJV-04A3A61-OY	SGDV-04A□1A-OY

SGMAV - servo motors 3000 r/min (50 - 750 W)

Symbol	Specifications					Servo motor model	Compatible servo drives (2) Sigma-5
	Voltage	Encoder and design		Rated torque	Capacity		
①	230 V	Incremental encoder (20 bit)	Without brake	0.159 Nm	50 W	SGMAV-A5ADA61-OY	SGDV-A5A□1A-OY
				0.318 Nm	100 W	SGMAV-01ADA61-OY	SGDV-01A□1A-OY
				0.477 Nm	150 W	SGMAV-C2ADA61-OY	SGDV-02A□1A-OY
			With brake	0.637 Nm	200 W	SGMAV-02ADA61-OY	SGDV-02A□1A-OY
				1.27 Nm	400 W	SGMAV-04ADA61-OY	SGDV-04A□1A-OY
				1.75 Nm	550 W	SGMAV-06ADA61-OY	SGDV-08A□1A-OY
		Straight shaft with key and tap	Without brake	2.39 Nm	750 W	SGMAV-08ADA61-OY	SGDV-08A□1A-OY
				3.18 Nm	1 kW	SGMAV-10ADA61-OY	SGDV-15A□1A-OY-008000
				0.159 Nm	50 W	SGMAV-A5ADA6C-OY	SGDV-A5A□1A-OY
			With brake	0.318 Nm	100 W	SGMAV-01ADA6C-OY	SGDV-01A□1A-OY
				0.477 Nm	150 W	SGMAV-C2ADA6C-OY	SGDV-02A□1A-OY
				0.637 Nm	200 W	SGMAV-02ADA6C-OY	SGDV-02A□1A-OY
②	230 V	Absolute encoder (20 bit)	Without brake	1.27 Nm	400 W	SGMAV-04ADA6C-OY	SGDV-04A□1A-OY
				1.75 Nm	550 W	SGMAV-06ADA6C-OY	SGDV-08A□1A-OY
				2.39 Nm	750 W	SGMAV-08ADA6C-OY	SGDV-08A□1A-OY
			With brake	3.18 Nm	1 kW	SGMAV-10ADA6C-OY	SGDV-15A□1A-OY-008000
				0.159 Nm	50 W	SGMAV-A5A3A61-OY	SGDV-A5A□1A-OY
				0.318 Nm	100 W	SGMAV-01A3A61-OY	SGDV-01A□1A-OY
		Straight shaft with key and tap	Without brake	0.477 Nm	150 W	SGMAV-C2A3A61-OY	SGDV-02A□1A-OY
				0.637 Nm	200 W	SGMAV-02A3A61-OY	SGDV-02A□1A-OY
				1.27 Nm	400 W	SGMAV-04A3A61-OY	SGDV-04A□1A-OY
			With brake	1.75 Nm	550 W	SGMAV-06A3A61-OY	SGDV-08A□1A-OY
				2.39 Nm	750 W	SGMAV-08A3A61-OY	SGDV-08A□1A-OY
				3.18 Nm	1 kW	SGMAV-10A3A61-OY	SGDV-15A□1A-OY-008000

SGMEV - servo motors 3000 r/min (100 W - 1.5 kW)

Symbol	Specifications					Servo motor model	Compatible servo drives ② Sigma-5
	Voltage	Encoder and design	Rated torque	Capacity			
①	230 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	0.318 Nm	100 W	SGMEV-01ADA61-OY	SGDV-01A□1A-OY
				0.637 Nm	200 W	SGMEV-02ADA61-OY	SGDV-02A□1A-OY
				1.27 Nm	400 W	SGMEV-04ADA61-OY	SGDV-04A□1A-OY
				2.39 Nm	750 W	SGMEV-08ADA61-OY	SGDV-08A□1A-OY
				4.77 Nm	1.5 kW	SGMEV-15ADA61-OY	SGDV-15A□1A-OY-008000
			With brake	0.318 Nm	100 W	SGMEV-01ADA6C-OY	SGDV-01A□1A-OY
				0.637 Nm	200 W	SGMEV-02ADA6C-OY	SGDV-02A□1A-OY
				1.27 Nm	400 W	SGMEV-04ADA6C-OY	SGDV-04A□1A-OY
				2.39 Nm	750 W	SGMEV-08ADA6C-OY	SGDV-08A□1A-OY
				4.77 Nm	1.5 kW	SGMEV-15ADA6C-OY	SGDV-15A□1A-OY-008000
		Absolute encoder (20 bit) Straight shaft with key and tap	Without brake	0.318 Nm	100 W	SGMEV-01A3A61-OY	SGDV-01A□1A-OY
				0.637 Nm	200 W	SGMEV-02A3A61-OY	SGDV-02A□1A-OY
				1.27 Nm	400 W	SGMEV-04A3A61-OY	SGDV-04A□1A-OY
				2.39 Nm	750 W	SGMEV-08A3A61-OY	SGDV-08A□1A-OY
				4.77 Nm	1.5 kW	SGMEV-15A3A61-OY	SGDV-15A□1A-OY-008000
			With brake	0.318 Nm	100 W	SGMEV-01A3A6C-OY	SGDV-01A□1A-OY
				0.637 Nm	200 W	SGMEV-02A3A6C-OY	SGDV-02A□1A-OY
				1.27 Nm	400 W	SGMEV-04A3A6C-OY	SGDV-04A□1A-OY
				2.39 Nm	750 W	SGMEV-08A3A6C-OY	SGDV-08A□1A-OY
				4.77 Nm	1.5 kW	SGMEV-15A3A6C-OY	SGDV-15A□1A-OY-008000
	400 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	0.637 Nm	200 W	SGMEV-02DDA61-OY	SGDV-05D□1A-OY
				0.955 Nm	300 W	SGMEV-03DDA61-OY	SGDV-05D□1A-OY
				1.27 Nm	400 W	SGMEV-04DDA61-OY	SGDV-05D□1A-OY
				2.07 Nm	650 W	SGMEV-07DDA61-OY	SGDV-10D□1A-OY
				2.39 Nm	750 W	SGMEV-08DDA61-OY	SGDV-10D□1A-OY
				4.77 Nm	1.5 kW	SGMEV-15DDA61-OY	SGDV-15D□1A-OY
			With brake	0.637 Nm	200 W	SGMEV-02DDA6C-OY	SGDV-05D□1A-OY
				0.955 Nm	300 W	SGMEV-03DDA6C-OY	SGDV-05D□1A-OY
				1.27 Nm	400 W	SGMEV-04DDA6C-OY	SGDV-05D□1A-OY
				2.07 Nm	650 W	SGMEV-07DDA2C-OY	SGDV-10D□1A-OY
				2.39 Nm	750 W	SGMEV-08DDA2C-OY	SGDV-10D□1A-OY
	400 V	Absolute encoder (20 bit) Straight shaft with key and tap	Without brake	0.637 Nm	200 W	SGMEV-02D3A61-OY	SGDV-05D□1A-OY
				0.955 Nm	300 W	SGMEV-03D3A61-OY	SGDV-05D□1A-OY
				1.27 Nm	400 W	SGMEV-04D3A61-OY	SGDV-05D□1A-OY
				2.07 Nm	650 W	SGMEV-07D3A61-OY	SGDV-10D□1A-OY
				2.39 Nm	750 W	SGMEV-08D3A61-OY	SGDV-10D□1A-OY
				4.77 Nm	1.5 kW	SGMEV-15D3A61-OY	SGDV-15D□1A-OY
			With brake	0.637 Nm	200 W	SGMEV-02D3A6C-OY	SGDV-05D□1A-OY
				0.955 Nm	300 W	SGMEV-03D3A6C-OY	SGDV-05D□1A-OY
				1.27 Nm	400 W	SGMEV-04D3A6C-OY	SGDV-05D□1A-OY
				2.07 Nm	650 W	SGMEV-07D3A6C-OY	SGDV-10D□1A-OY
				2.39 Nm	750 W	SGMEV-08D3A6C-OY	SGDV-10D□1A-OY
				4.77 Nm	1.5 kW	SGMEV-15D3A6C-OY	SGDV-15D□1A-OY



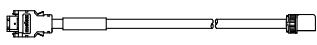
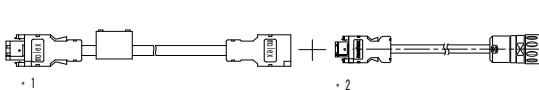
SGMGV - servo motors 1500 r/min (300 W - 4.4 kW)

Symbol	Specifications				Servo motor model	Compatible servo drives (2) Sigma-5		
	Voltage	Encoder and design	Rated torque	Capacity				
①	400 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	1.96 Nm	300 W	SGMGV-03DDA6F-OY	SGDV-05D□1A-OY	
				2.86 Nm	450 W	SGMGV-05DDA6F-OY	SGDV-05D□1A-OY	
				5.39 Nm	850 W	SGMGV-09DDA6F-OY	SGDV-10D□1A-OY	
				8.34 Nm	1.3 kW	SGMGV-13DDA6F-OY	SGDV-15D□1A-OY	
			With brake	11.5 Nm	1.8 kW	SGMGV-20DDA6F-OY	SGDV-20D□1A-OY	
				18.6 Nm	2.9 kW	SGMGV-30DDA6F-OY	SGDV-30D□1A-OY	
				28.4 Nm	4.4 kW	SGMGV-44DDA6F-OY	SGDV-50D□1A-OY	
				1.96 Nm	300 W	SGMGV-03DDA6H-OY	SGDV-05D□1A-OY	
		Absolute encoder (20 bit) Straight shaft with key and tap		2.86 Nm	450 W	SGMGV-05DDA6H-OY	SGDV-05D□1A-OY	
				5.39 Nm	850 W	SGMGV-09DDA6H-OY	SGDV-10D□1A-OY	
				8.34 Nm	1.3 kW	SGMGV-13DDA6H-OY	SGDV-15D□1A-OY	
				11.5 Nm	1.8 kW	SGMGV-20DDA6H-OY	SGDV-20D□1A-OY	
		With brake	18.6 Nm	2.9 kW	SGMGV-30DDA6H-OY	SGDV-30D□1A-OY		
			28.4 Nm	4.4 kW	SGMGV-44DDA6H-OY	SGDV-50D□1A-OY		
			1.96 Nm	300 W	SGMGV-03D3A6F-OY	SGDV-05D□1A-OY		
			2.86 Nm	450 W	SGMGV-05D3A6F-OY	SGDV-05D□1A-OY		
			5.39 Nm	850 W	SGMGV-09D3A6F-OY	SGDV-10D□1A-OY		
			8.34 Nm	1.3 kW	SGMGV-13D3A6F-OY	SGDV-15D□1A-OY		
			11.5 Nm	1.8 kW	SGMGV-20D3A6F-OY	SGDV-20D□1A-OY		
			18.6 Nm	2.9 kW	SGMGV-30D3A6F-OY	SGDV-30D□1A-OY		
			28.4 Nm	4.4 kW	SGMGV-44D3A6F-OY	SGDV-50D□1A-OY		

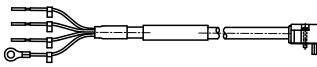
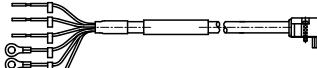
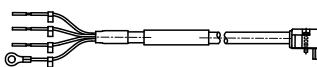
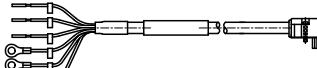
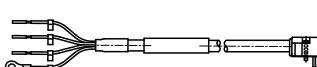
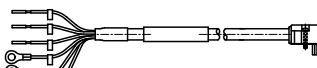
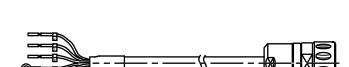
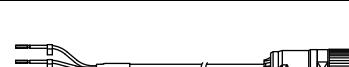
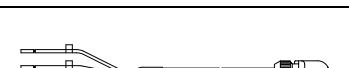
SGMSV - servo motors 6000 r/min (1 - 5 kW)

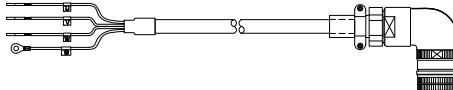
Symbol	Specifications				Servo motor model	Compatible servo drives (2) Sigma-5		
	Voltage	Encoder and design	Rated torque	Capacity				
①	400 V	Incremental encoder (20 bit) Straight shaft with key and tap	Without brake	3.18 Nm	1 kW	SGMSV-10DDA6F-OY	SGDV-10D□1A-OY	
				4.9 Nm	1.5 kW	SGMSV-15DDA6F-OY	SGDV-15D□1A-OY	
				6.36 Nm	2 kW	SGMSV-20DDA6F-OY	SGDV-20D□1A-OY	
				7.96 Nm	2.5 kW	SGMSV-25DDA6F-OY	SGDV-30D□1A-OY	
			With brake	9.8 Nm	3 kW	SGMSV-30DDA6F-OY	SGDV-30D□1A-OY	
				12.6 Nm	4 kW	SGMSV-40DDA6F-OY	SGDV-50D□1A-OY	
				15.8 Nm	5 kW	SGMSV-50DDA6F-OY	SGDV-50D□1A-OY	
				3.18 Nm	1 kW	SGMSV-10DDA6H-OY	SGDV-10D□1A-OY	
		Absolute encoder (20 bit) Straight shaft with key and tap		4.9 Nm	1.5 kW	SGMSV-15DDA6H-OY	SGDV-15D□1A-OY	
				6.36 Nm	2 kW	SGMSV-20DDA6H-OY	SGDV-20D□1A-OY	
				7.96 Nm	2.5 kW	SGMSV-25DDA6H-OY	SGDV-30D□1A-OY	
				9.8 Nm	3 kW	SGMSV-30DDA6H-OY	SGDV-30D□1A-OY	
		With brake	12.6 Nm	4 kW	SGMSV-40DDA6H-OY	SGDV-50D□1A-OY		
			15.8 Nm	5 kW	SGMSV-50DDA6H-OY	SGDV-50D□1A-OY		
			3.18 Nm	1 kW	SGMSV-10D3A6F-OY	SGDV-10D□1A-OY		
			4.9 Nm	1.5 kW	SGMSV-15D3A6F-OY	SGDV-15D□1A-OY		
			6.36 Nm	2 kW	SGMSV-20D3A6F-OY	SGDV-20D□1A-OY		
			7.96 Nm	2.5 kW	SGMSV-25D3A6F-OY	SGDV-30D□1A-OY		
			9.8 Nm	3 kW	SGMSV-30D3A6F-OY	SGDV-30D□1A-OY		
			12.6 Nm	4 kW	SGMSV-40D3A6F-OY	SGDV-50D□1A-OY		
			15.8 Nm	5 kW	SGMSV-50D3A6F-OY	SGDV-50D□1A-OY		
			3.18 Nm	1 kW	SGMSV-10D3A6H-OY	SGDV-10D□1A-OY		
			4.9 Nm	1.5 kW	SGMSV-15D3A6H-OY	SGDV-15D□1A-OY		
			6.36 Nm	2 kW	SGMSV-20D3A6H-OY	SGDV-20D□1A-OY		
			7.96 Nm	2.5 kW	SGMSV-25D3A6H-OY	SGDV-30D□1A-OY		
			9.8 Nm	3 kW	SGMSV-30D3A6H-OY	SGDV-30D□1A-OY		
			12.6 Nm	4 kW	SGMSV-40D3A6H-OY	SGDV-50D□1A-OY		
			15.8 Nm	5 kW	SGMSV-50D3A6H-OY	SGDV-50D□1A-OY		

Encoder Cables for sigma-5 servo drive

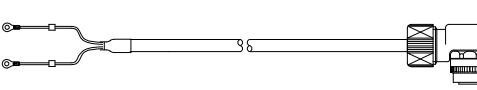
Symbol	Specifications	Model	Appearance
(3)	Sigma-5 incremental encoder cable for SGMJV/AV Servo motors SGMJV-□□ADA□□-OY, SGMJV-□□AAA□□-OY, SGMAV-□□ADA□□-OY	3 m JZSP-CSP21-03-E-G1 5 m JZSP-CSP21-05-E-G1 10 m JZSP-CSP21-10-E-G1 15 m JZSP-CSP21-15-E-G1 20 m JZSP-CSP21-20-E-G1	
	Sigma-5 absolute encoder cable (with a battery case) for SGMJV/AV Servo motors SGMJV-□□A3A□□-OY SGMAV-□□A3A□□-OY	3 m JZSP-CSP25-03-G1 5 m JZSP-CSP25-05-G1 10 m JZSP-CSP25-10-G1 15 m JZSP-CSP25-15-G1 20 m JZSP-CSP25-20-G1	
	Sigma-5 incremental encoder cable for SGMEV Servo motors	3 m R88A-CRWA003C-DE 5 m R88A-CRWA005C-DE 10 m R88A-CRWA010C-DE 15 m R88A-CRWA015C-DE 20 m R88A-CRWA020C-DE	
	Sigma-5 absolute encoder cable extension with a battery case for SGMEV Servo motors	0.3 m JZSP-CSP12-E	
	Note: *1This cable is only an extension and must be used in conjunction with incremental encoder cable *2R88A-CRWA0□□C-DE		
	Sigma-5 incremental encoder cable for SGMGV/SV Servo motors SGMGV-□□DDA□□-OY SGMSV-□□DDA□□-OY	3 m JZSP-CVP12-03-E-G1 5 m JZSP-CVP12-05-E-G1 10 m JZSP-CVP12-10-E-G1 15 m JZSP-CVP12-15-E-G1 20 m JZSP-CVP12-20-E-G1	
	Sigma-5 absolute encoder cable (with a battery case) for SGMGV/SV Servo motors SGMGV-□□D3A□□-OY SGMSV-□□D3A□□-OY	3 m JZSP-CVP27-03-G1 5 m JZSP-CVP27-05-G1 10 m JZSP-CVP27-10-G1 15 m JZSP-CVP27-15-G1 20 m JZSP-CVP27-20-G1	

Power cables

Symbol	Specifications	Model	Appearance
(4)	For 200 V servo motors without brake SGMJV-(A5/01)A□A□1-OY SGMAV-(A5/01/C2)ADA□1-OY	3 m JZSP-CSM21-03-E-G1	
		5 m JZSP-CSM21-05-E-G1	
		10 m JZSP-CSM21-10-E-G1	
		15 m JZSP-CSM21-15-E-G1	
		20 m JZSP-CSM21-20-E-G1	
	For 200 V servo motors with brake SGMJV-(A5/01)A□A□C-OY SGMAV-(A5/01/C2)A□A□C-OY	3 m JZSP-CSM31-03-E-G1	
		5 m JZSP-CSM31-05-E-G1	
		10 m JZSP-CSM31-10-E-G1	
		15 m JZSP-CSM31-15-E-G1	
		20 m JZSP-CSM31-20-E-G1	
	For 200 V servo motors without brake SGMJV-(02/04)A□A□1-OY SGMAV-(02/04/06)A□A□1-OY	3 m JZSP-CSM22-03-E-G1	
		5 m JZSP-CSM22-05-E-G1	
		10 m JZSP-CSM22-10-E-G1	
		15 m JZSP-CSM22-15-E-G1	
		20 m JZSP-CSM22-20-E-G1	
	For 200 V servo motors with brake SGMJV-(02/04)A□A□C-OY SGMAV-(02/04/06)A□A□C-OY	3 m JZSP-CSM32-03-E-G1	
		5 m JZSP-CSM32-05-E-G1	
		10 m JZSP-CSM32-10-E-G1	
		15 m JZSP-CSM32-15-E-G1	
		20 m JZSP-CSM32-20-E-G1	
	For 200 V servo motors without brake SGMJV-08A□A□1-OY SGMAV-08A□A□1-OY SGMAV-10A□A□1-OY	3 m JZSP-CSM23-03-E-G1	
		5 m JZSP-CSM23-05-E-G1	
		10 m JZSP-CSM23-10-E-G1	
		15 m JZSP-CSM23-15-E-G1	
		20 m JZSP-CSM23-20-E-G1	
	For 200 V servo motors with brake SGMJV-08A□A□C-OY SGMAV-08A□A□C-OY SGMAV-10A□A□C-OY	3 m JZSP-CSM33-03-E-G1	
		5 m JZSP-CSM33-05-E-G1	
		10 m JZSP-CSM33-10-E-G1	
		15 m JZSP-CSM33-15-E-G1	
		20 m JZSP-CSM33-20-E-G1	
	For 200 V servo motors without brake SGMEV-(01/02/04/08)A□A□1-OY	3 m R88A-CAWA003S-DE	
		5 m R88A-CAWA005S-DE	
		10 m R88A-CAWA010S-DE	
		15 m R88A-CAWA015S-DE	
		20 m R88A-CAWA020S-DE	
	For 200 V servo motors with brake SGMEV-(01/02/04/08)A□A□C-OY	3 m R88A-CAWA003B-DE	
		5 m R88A-CAWA005B-DE	
		10 m R88A-CAWA010B-DE	
		15 m R88A-CAWA015B-DE	
		20 m R88A-CAWA020B-DE	
	For 200 V servo motors without brake SGMEV-15A□A□1-OY	3 m R88A-CAWB003S-DE	
		5 m R88A-CAWB005S-DE	
		10 m R88A-CAWB010S-DE	
		15 m R88A-CAWB015S-DE	
		20 m R88A-CAWB020S-DE	
	For 200 V servo motors with brake SGMEV-15A□A□C-OY	3 m R88A-CAWB003B-DE	
		5 m R88A-CAWB005B-DE	
		10 m R88A-CAWB010B-DE	
		15 m R88A-CAWB015B-DE	
		20 m R88A-CAWB020B-DE	
	For 400 V servo motors without brake SGMEV-(02/03/04/07/08/15)D□A□1-OY	3 m R88A-CAWK003S-DE	
		5 m R88A-CAWK005S-DE	
		10 m R88A-CAWK010S-DE	
		15 m R88A-CAWK015S-DE	
		20 m R88A-CAWK020S-DE	
	For 400 V servo motors without brake SGMEV-(02/03/04/07/08/15)D□A□C-OY	3 m R88A-CAWK003B-DE	
		5 m R88A-CAWK005B-DE	
		10 m R88A-CAWK010B-DE	
		15 m R88A-CAWK015B-DE	
		20 m R88A-CAWK020B-DE	
	For 400 V servo motors without brake SGMGV-(03/05)D□A□1-OY	3 m JZSP-VVM21-03-E	
		5 m JZSP-VVM21-05-E	
		10 m JZSP-VVM21-10-E	
		15 m JZSP-VVM21-15-E	
		20 m JZSP-VVM21-20-E	
	For 400 V servo motors with brake SGMGV-(03/05)D□A□C-OY	3 m JZSP-VVM41-03-E	
		5 m JZSP-VVM41-05-E	
		10 m JZSP-VVM41-10-E	
		15 m JZSP-VVM41-15-E	
		20 m JZSP-VVM41-20-E	

Symbol	Specifications	Model	Appearance
④	For 400 V servo motors SGMGV-09D□A□□-OY SGMSV-10D□A□□-OY	3 m JZSP-CVMCA11-03-E-G1 5 m JZSP-CVMCA11-05-E-G1 10 m JZSP-CVMCA11-10-E-G1 15 m JZSP-CVMCA11-15-E-G1 20 m JZSP-CVMCA11-20-E-G1	
	For servomotors with brake, a separate cable (JZSP-CVB12-□□-E-G1) is needed	15 m JZSP-CVMCA11-15-E-G1 20 m JZSP-CVMCA11-20-E-G1	
	For 400 V servo motors SGMGV-(13/20)D□A□□-OY SGMSV-(15/20/25)D□A□□-OY	3 m JZSP-CVMCA12-03-E-G1 5 m JZSP-CVMCA12-05-E-G1 10 m JZSP-CVMCA12-10-E-G1 15 m JZSP-CVMCA12-15-E-G1 20 m JZSP-CVMCA12-20-E-G1	
	For servomotors with brake, a separate cable (JZSP-CVB12-□□-E-G1) is needed	15 m JZSP-CVMCA12-15-E-G1 20 m JZSP-CVMCA12-20-E-G1	
	For 400 V servo motors SGMGV-(30/44)D□A□□-OY SGMSV-(30/40/50)D□A□□-OY	3 m JZSP-CVMCA13-03-E-G1 5 m JZSP-CVMCA13-05-E-G1 10 m JZSP-CVMCA13-10-E-G1 15 m JZSP-CVMCA13-15-E-G1 20 m JZSP-CVMCA13-20-E-G1	
	For servomotors with brake, a separate cable (JZSP-CVB12-□□-E-G1) is needed	15 m JZSP-CVMCA13-15-E-G1 20 m JZSP-CVMCA13-20-E-G1	

Brake cable (for SGMGV-09/13/20/30/44 and SGMSV-10/15/20/25/30/40/50 Motors)

Symbol	Specifications	Model	Appearance
⑤	Brake cable only.	3 m JZSP-CVB12-03-E-G1	
	For 400 V servo motors with brake SGMGV-(09/13/20/30/44)D□A□C-OY SGMSV-(10/15/20/25/30/40/50)D□A□C-OY	5 m JZSP-CVB12-05-E-G1 10 m JZSP-CVB12-10-E-G1 15 m JZSP-CVB12-15-E-G1 20 m JZSP-CVB12-20-E-G1	

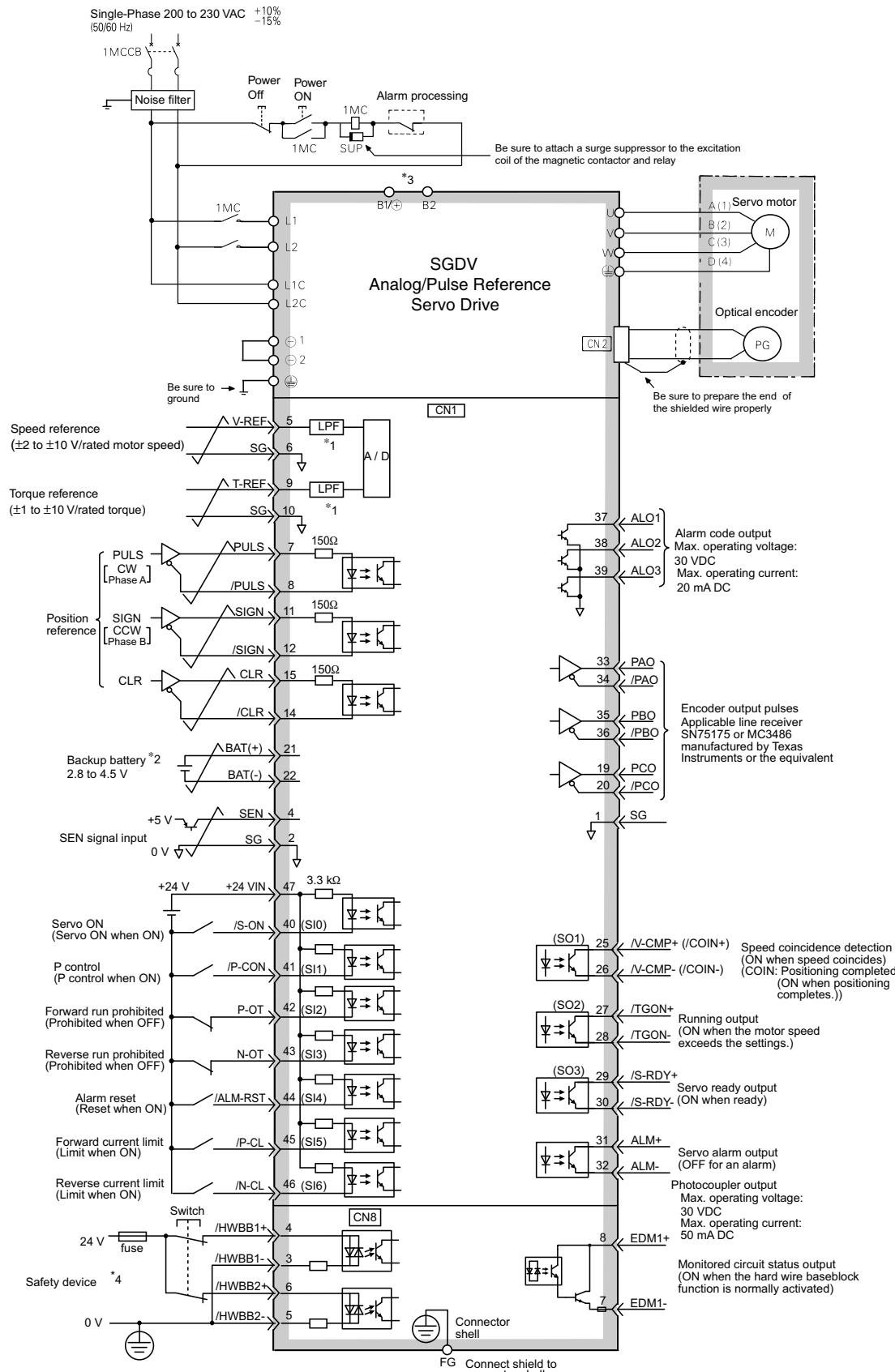
Connectors for power and encoder cables

Description		Applicable Servo motor	Manufacturer	Model	Appearance
Power connector kit	Servomotor side	SGMJV-(A5/01)□, SGMAV-(A5/01)□, SGMAV-C2□	J.S.T.	JZSP-CSM9-1-E-G1	
		SGMJV-(02/04)□, SGMAV-(02/04/06)□	J.S.T.	JZSP-CSM9-2-E-G1	
		SGMJV-08□, SGMAV-(08/10)□	J.S.T.	JZSP-CSM9-3-E-G1	
		SGMGV-(03/05)□	Japan Aviation Electronics Industry, Ltd	JZSP-VVM9-1-E	
		SGMGV-(09/13/20)□, SGMSV-(10/15/20/25)□	DDK	CE-05-8A18-10SD-D-BAS	
		SGMGV-(30/44)□, SGMSV-(30/40/50)□	DDK	CE-05-8A22-22SD-D-BAS	
		SGMEV-□□A□	Hypertac	SPOC-06K-FSDN169	
		SGMEV-□□D□	Hypertac	LPRA-06B-FRBN170	
Brake connector kit	Servomotor side	SGMGV-(09/13/20/30/44)□, SGMSV-(10/15/20/25/30/40/50)□	DDK	CM10-AP2S-S-D	
Encoder connector kit	Servo drive side	SGMJV-□, SGMAV-□, SGMGV-□, SGMEV-□	Molex	JZSP-CMP9-1-E-G1	
		SGMJV-□, SGMAV-□	Molex	JZSP-CSP9-2-E-G1	
	Servomotor side	SGMGV-□, SGMSV-□	DDK	CM10-AP10S-M-D	
		SGMEV-□	Hypertac	SPOC-17H-FRON169	
Power connector kit -spare part connector male -	Servomotor side (connector included with 200 V models SGMEV motors)	SGMEV-□□A□	Hypertac	SRUC-06J-MSCN236	
Power connector kit -spare part connector male -	Servomotor side (connector included with 400 V models SGMEV motors)	SGMEV-□□D□	Hypertac	LRRA-06A-MRPN182	
Encoder connector kit -spare part connector male -	Servomotor side (connector included with SGMEV motors)	SGMEV-□	Hypertac	SRUC-17G-MRWNO87	

Note: all connectors and cables listed have IP67 protection.

A crimping tool is required

Single-phase, 230 VAC



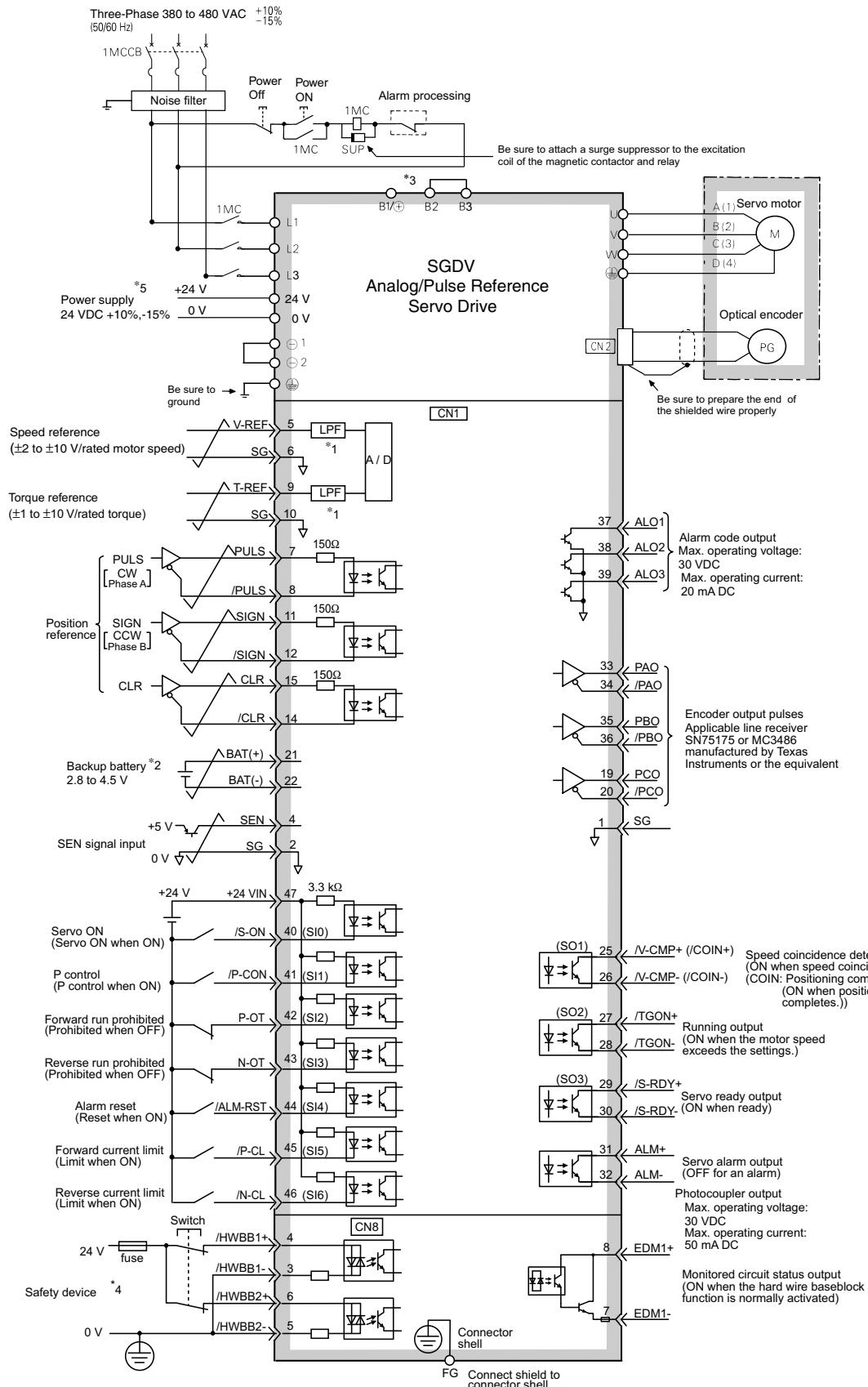
*1 The time constant for the primary filter is 30 µs.

*2 Connect when using an absolute encoder. When the encoder cable for the battery case is connected, do not connect a backup battery.

*3 Regenerative resistor can be connected between B1 and B2. For 750 W servo drives types normally short B2 and B3.

*4 For servo ON, connect to safety device and set wiring to enable safety function. When not using the safety function, use the servo drive with the plug (JZSP-CVH05-E, provided as an accessory) inserted into the CN8.

Three-phase, 400 VAC



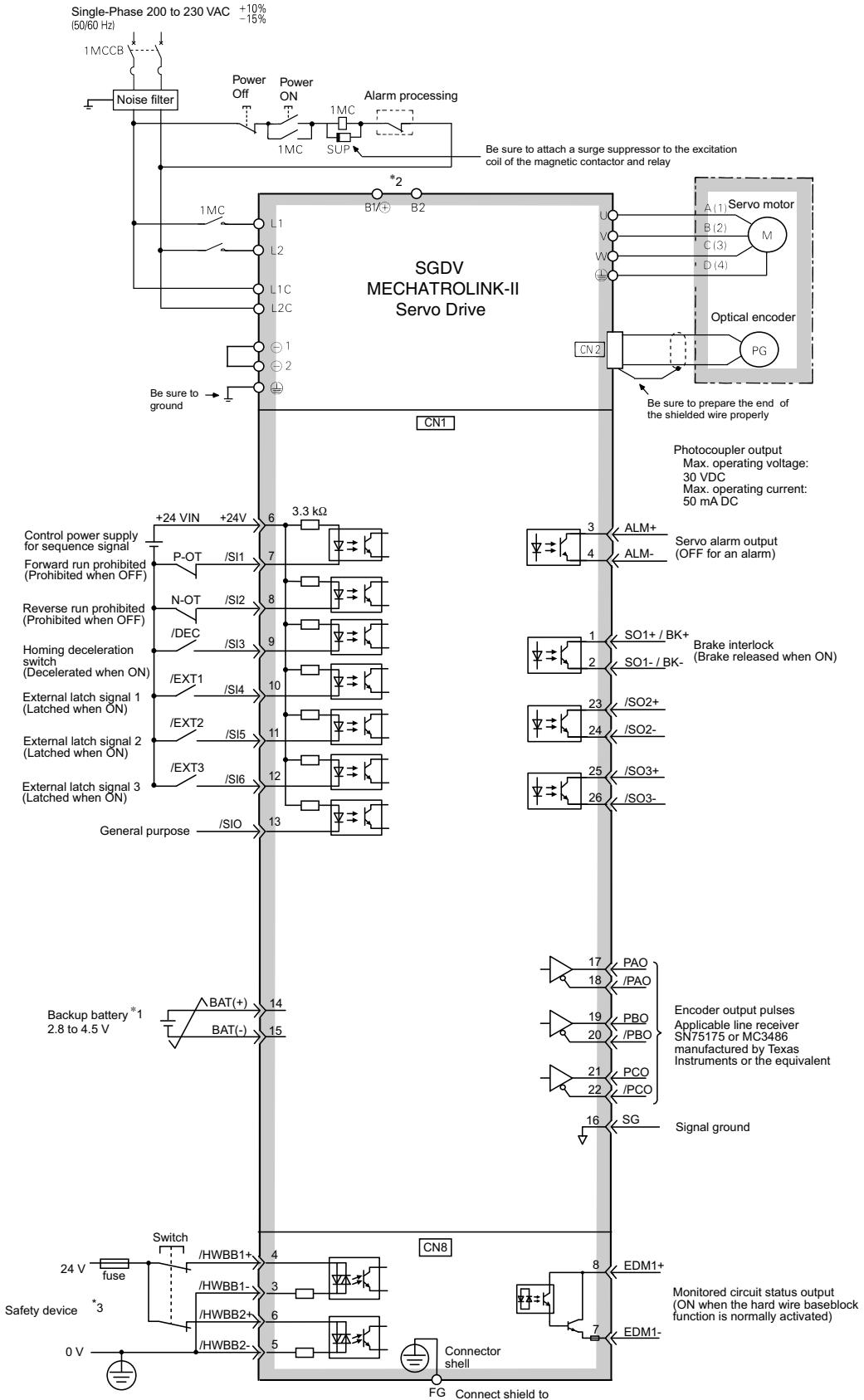
*1 The time constant for the primary filter is 30 µs.

*2 Connect when using an absolute encoder. When the encoder cable for the battery case is connected, do not connect a backup battery.

*3 Normally short B2 and B3. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.

*4 For servo ON, connect to safety device and set wiring to enable safety function. When not using the safety function, use the servo drive with the plug (JZSP-CVH05-E, provided as an accessory) inserted into the CN8.

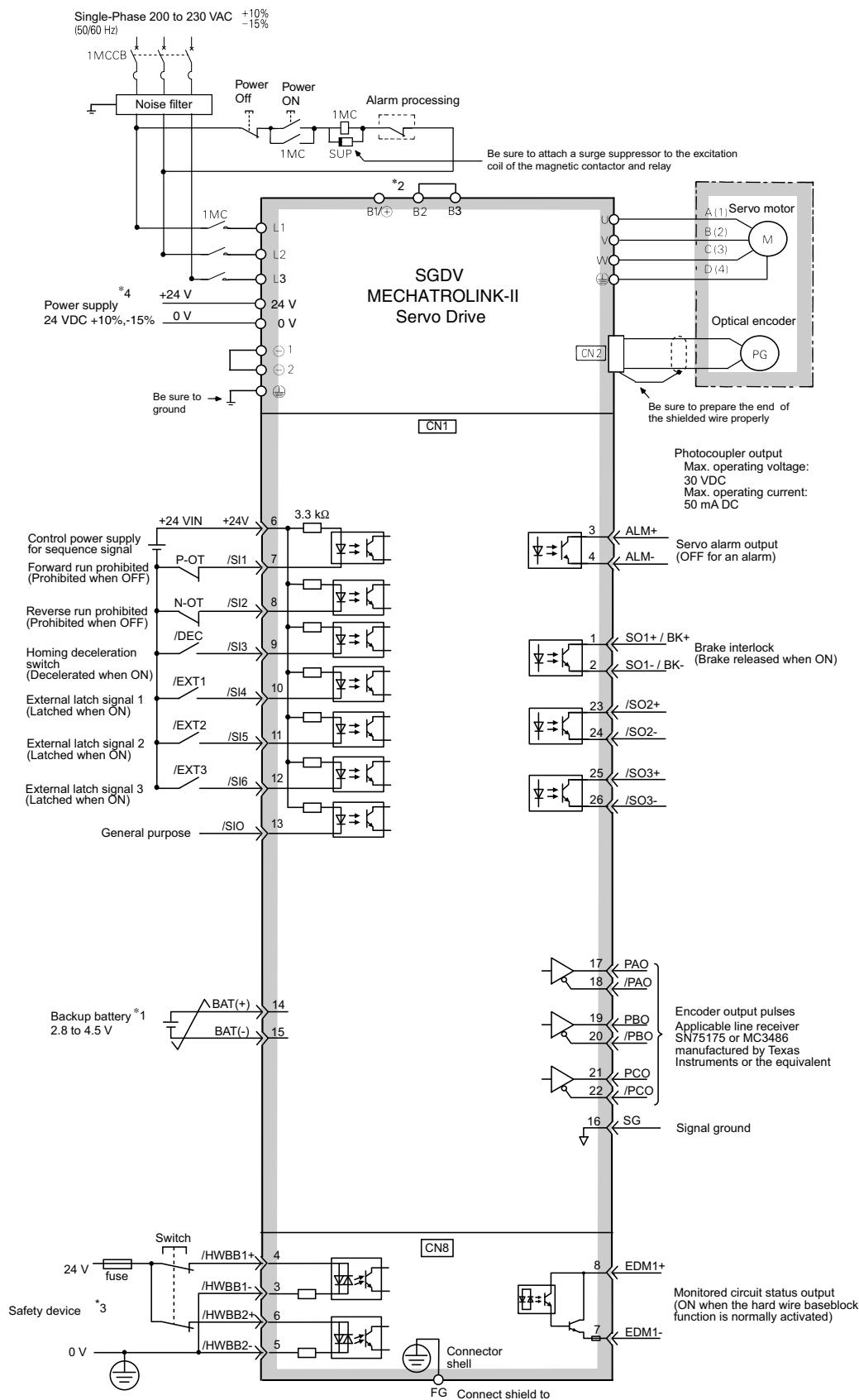
*5 It is the user's responsibility to obtain 24 VDC power supply.

Single-phase, 230 VAC

*1 Connect when using an absolute encoder. When the encoder cable for the battery case is connected, do not connect a backup battery.

*2 Regenerative resistor can be connected between B1 and B2. For 750 W servo drives types normally short B2 and B3.

*3 For servo ON, connect to safety device and set wiring to enable safety function. When not using the safety function, use the servo drive with the plug (JZSP-CVH05-E, provided as an accessory) inserted into the CN8.

Three-phase, 400 VAC

*1 Connect when using an absolute encoder. When the encoder cable for the battery case is connected, do not connect a backup battery.

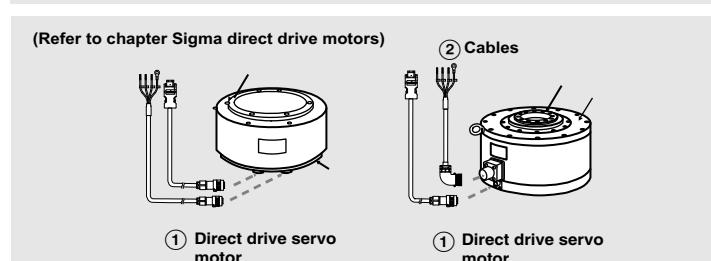
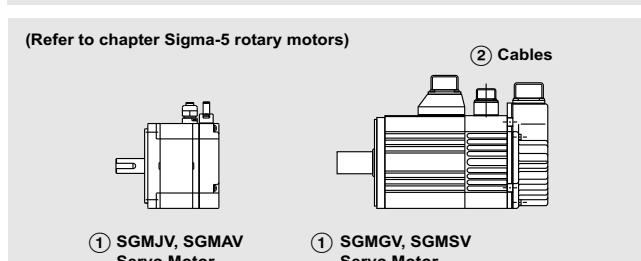
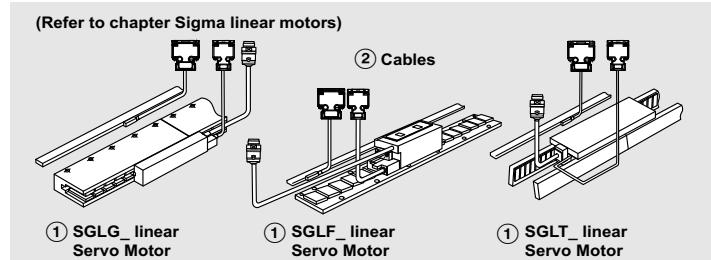
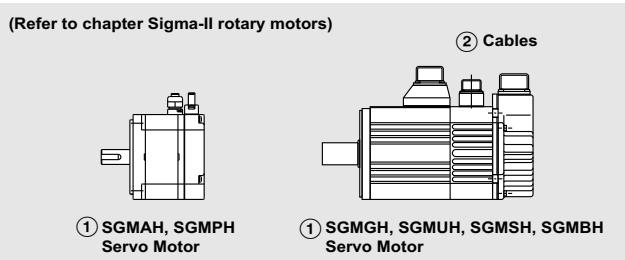
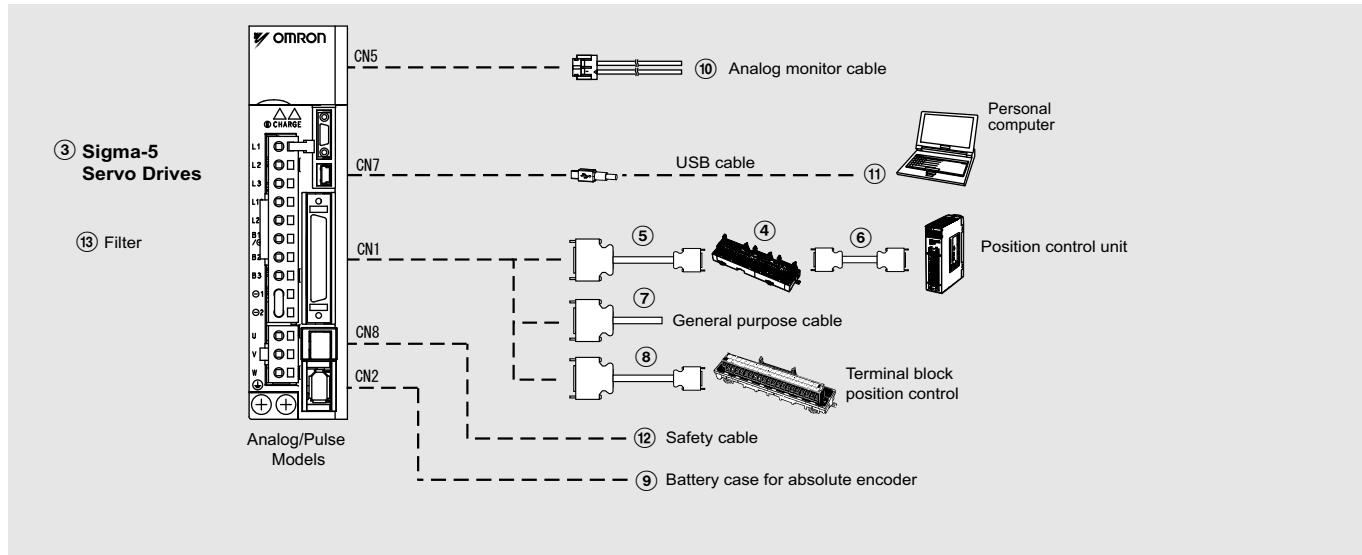
*2 Normally short B2 and B3. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.

*3 For servo ON, connect to safety device and set wiring to enable safety function. When not using the safety function, use the servo drive with the plug (JZSP-CVH05-E, provided as an accessory) inserted into the CN8.

*4 It is the user's responsibility to obtain 24 VDC power supply.

Ordering information

Sigma-5 Analog/Pulse Reference Configuration



Note: The symbols ①②③④⑤... show the recommended sequence to select the components in a Sigma-5 servo system

Servo motors, power & encoder cables

Note: ①② Refer to the servo motors chapter for detailed motor specifications and selection

Servo drives

Symbol	Specifications	Model	Compatible rotary servo motors ①	Compatible direct drive motors ①	Compatible linear motors ①
③	1 phase 230 VAC	50 W	SGDV-A5A01A-OY	SGMAH-A5D□, SGMJV-A5A□, SGMAV-A5A□	-
			SGDV-A5A05A-OY	-	SGLGW-30A050□
		100 W	SGDV-01A01A-OY	SGMAH-01A□, SGMPH-01A□, SGMJV-01A□, SGMAV-01A□, SGMEV-01A□	-
			SGDV-01A05A-OY	-	SGLGW-30A080□, SGLGW-40A140□
		200 W	SGDV-02A01A-OY	SGMAH-02A□, SGMPH-02A□, SGMJV-02A□, SGMAV-02A□, SGMEV-02A□	SGMCS-07B□
			SGDV-02A05A-OY	-	SGLGW-60A140□, SGLGW-40A253□, SGLFW-20A□, SGLFW-35A120□
		400 W	SGDV-04A01A-OY	SGMAH-04A□, SGMPH-04A□, SGMJV-04A□, SGMAV-04A□, SGMEV-04A□	SGMCS-02B□, SGMCS-05B□, SGMCS-04C□, SGMCS-10C□, SGMCS-14C□, SGMCS-08D□, SGMCS-17D□, SGMCS-25D□
			SGDV-04A05A-OY	-	SGLGW-40A365□, SGLGW-60A253A□
		750 W	SGDV-08A01A-OY	SGMAH-08A□, SGMPH-08A□, SGMJV-08A□, SGMAV-08A□, SGMEV-08A□	SGMCS-16E□, SGMCS-35E□
			SGDV-08A05A-OY	-	SGLGW-60A365A□, SGLFW-35A230□, SGLFW-50A200□
		1.5 kW	SGDV-15A01A-OY	SGMPH-15A□, SGMAV-10A□, SGMEV-15A□	SGMCS-45M□, SGMCS-80M□, SGMCS-80N□
			SGDV-15A05A-OY	-	SGLGW-90A200A□, SGLFW-50A380□, SGLFW-1ZA200□
		3 phase 400 VAC	SGDV-05D01A-OY	SGMAH-03D□, SGMPH-04D□, SGMGH-05D□, SGMEV-04D□, SGMGV-05D□	-
			SGDV-05D05A-OY	-	SGLFW-35D□
		1.0 kW	SGDV-10D01A-OY	SGMAH-07D□, SGMPH-08D□, SGMGH-09D□, SGMSH-10D□, SGMUH-10D□, SGMEV-08D□, SGMGV-09D□, SGMSV-10D□,	-
			SGDV-10D05A-OY	-	SGLFW-50D200□, SGLTW-35D170□, SGLTW-50D170□
		1.5 kW	SGDV-15D01A-OY	SGMPH-15D□, SGMGH-13D□, SGMSH-15D□, SGMUH-15D□, SGMEV-15D□, SGMGV-13D□, SGMSV-15D□	-
			SGDV-15D05A-OY	-	SGLFW-50D380□, SGLFW-1ZD200□
		2 kW	SGDV-20D01A-OY	SGMGH-20D□, SGMSH-20D□, SGMGV-20D□, SGMSV-20D□	-
			SGDV-20D05A-OY	-	SGLFW-1ED380□, SGLTW-35D320□, SGLTW-50D320□
		3 kW	SGDV-30D01A-OY	SGMGH-30D□, SGMSH-30D□, SGMUH-30D□, SGMGV-30D□, SGMGV-30D□	-
			SGDV-30D05A-OY	-	SGLFW-1ZD380□, SGLFW-1ED560□, SGLTW-40D400□
		5 kW	SGDV-50D01A-OY	SGMGH-44D□, SGMSH-50D□, SGMUH-40D□, SGMGV-44D□, SGMSV-50D□	-
			SGDV-50D05A-OY	-	SGLTW-40D60□, SGLTW-80D400□

Control cables (for CN1)

Symbol	Description	Connect to		Model
(4)	Servo relay unit	CJ1W-NC1□3		XW2B-20J6-1B (1 axis)
		CJ1W-NC2□3/4□3		XW2B-40J6-2B (2 axis)
		CJ1M-CPU22/23		XW2B-20J6-8A (1 axis) XW2B-40J6-9A (2 axis)
(5)	Cable to servo drive	Servo relay units XW2B-□0J6-□B	1 m	XW2Z-100J-B4
			2 m	XW2Z-200J-B4
(6)	Position control unit connecting cable	CJ1W-NC113	0.5 m	XW2Z-050J-A14
			1 m	XW2Z-100J-A14
		CJ1W-NC213/413	0.5 m	XW2Z-050J-A15
			1 m	XW2Z-100J-A15
		CJ1W-NC133	0.5 m	XW2Z-050J-A18
			1 m	XW2Z-100J-A18
		CJ1W-NC233/433	0.5 m	XW2Z-050J-A19
			1 m	XW2Z-100J-A19
		CJ1M-CPU22/23	0.5 m	XW2Z-050J-A27
(7)	Control cable	For general purpose controllers	1 m	R88A-CPW001S
			2 m	R88A-CPW002S
(8)	Relay terminal block cable	General purpose controller	1 m	R88A-CTW001N
			2 m	R88A-CTW002N
	Relay terminal block		-	XW2B-50G5

Battery backup for absolute encoder (for CN2 encoder cable)

Symbol	Name	Model
(9)	Battery	JZSP-BA01

Note: when the encoder cables with a battery case are used, no battery is required for CN1 (between pin 21 and 22). Battery for CN1 is ER6VCN3.

Cable (for CN5)

Symbol	Name	Model
(10)	Analog monitor cable	R88A-CMW001S
		DE9404559

USB personal computer cable (for CN7)

Symbol	Name	Note
(11)	USB Mini Connector cable	JZSP-CVS06-02-E

Note: doble shield USB cable recommended

Cable for Safety Functions (for CN8)

Symbol	Name	Model
(12)	Safety connector with 3 m cable (with Loose Wires at one End)	JZSP-CVH03-03-E

Note: when using the safety function, connect this cable to the safety devices. Even when not using the safety function, use servo drive with the Safe Jumper Connector (JZSP-CVH05-E) connected.

Filters

Symbol	Applicable servo drive	Filter model	Rated current	Rated voltage
(13)	SGDV-A5A□□A-OY, SGDV-A01□□A-OY, SGDV-01A□□A-OY, SGDV-04A□□A-OY	R88A-FI5-1005-RE	5 A	250 VAC single-phase
	SGDV-08A□□A-OY	R88A-FI5-1009-RE	9 A	
	SGDV-15A□□A-OY	R88A-FI5-1016-RE	16 A	
	SGDV-05D□□A-OY, SGDV-10D□□A-OY, SGDV-15D□□A-OY	R88A-FI5-3004-RE	4.3 A	400 VAC three-phase
	SGDV-20D□□A-OY, SGDV-30D□□A-OY	R88A-FI5-3008-RE	8.6 A	
	SGDV-50D□□A-OY	R88A-FI5-3012-RE	14.5 A	

Connectors

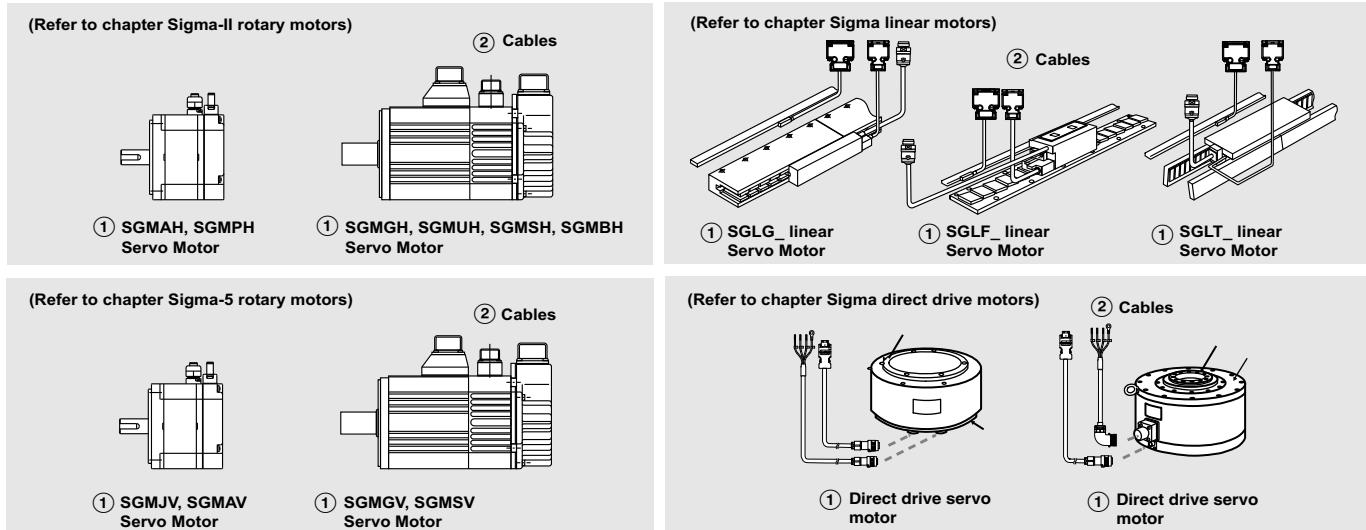
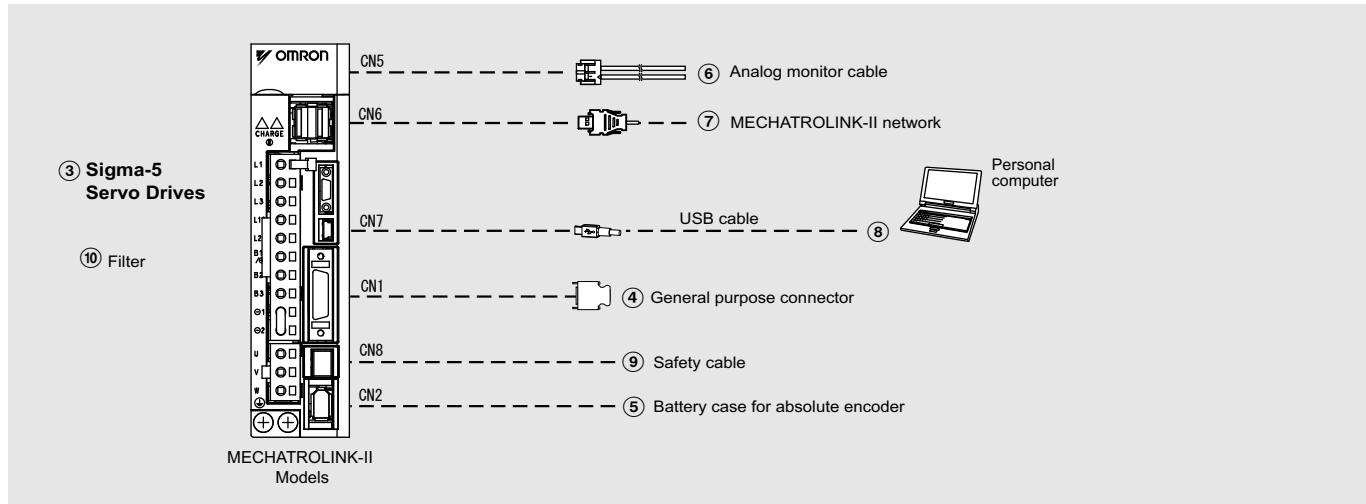
Specifications	Model
I/O connector kit (for CN1)	R88A-CNU11C
Sigma-5 drive encoder connector (for CN2)	JZSP-CMP9-1
Safe Jumper Connector	JZSP-CVH05-E

Computer software

Specifications	Model
Configuration and monitoring software tool for servo drives and inverters. (CX-drive version 1.50 or higher)	CX-drive
Complete OMRON software package including CX-drive. (CX-One version 3.0.2 or higher)	CX-One

Ordering information

Sigma-5 MECHATROLINK Servo Drive Configuration



Note: The symbols ①②③④⑤... show the recommended sequence to select the components in a Sigma-5 servo system

Servo motors, power & encoder cables

Note: ①② Refer to the servo motors chapter for detailed motor specifications and selection

Servo drives

Symbol	Specifications		Model	Compatible rotary servo motors ①	Compatible direct drive motors ①	Compatible linear motors ①
③	1 phase 230 VAC	50 W	SGDV-A5A11A-OY	SGMAH-A5D□, SGMJV-A5A□, SGMAV-A5A□	-	-
			SGDV-A5A15A-OY	-	-	SGLGW-30A050□
		100 W	SGDV-01A11A-OY	SGMAH-01A□, SGMPH-01A□, SGMJV-01A□, SGMAV-01A□, SGMEV-01A□	-	-
			SGDV-01A15A-OY	-	-	SGLGW-30A080□, SGLGW-40A140□
		200 W	SGDV-02A11A-OY	SGMAH-02A□, SGMPH-02A□, SGMJV-02A□, SGMAV-02A□, SGMEV-02A□	SGMCS-07B□	-
			SGDV-02A15A-OY	-	-	SGLGW-60A140□, SGLGW-40A253□, SGLFW-20A□, SGLFW-35A120□
		400 W	SGDV-04A11A-OY	SGMAH-04A□, SGMPH-04A□, SGMJV-04A□, SGMAV-04A□, SGMEV-04A□	SGMCS-02B□, SGMCS-05B□, SGMCS-04C□, SGMCS-10C□, SGMCS-14C□, SGMCS-08D□, SGMCS-17D□, SGMCS-25D□	-
			SGDV-04A15A-OY	-	-	SGLGW-40A365□, SGLGW-60A253A□
	750 W	SGDV-08A11A-OY	SGMAH-08A□, SGMPH-08A□, SGMJV-08A□, SGMAV-08A□, SGMEV-08A□	SGMCS-16E□, SGMCS-35E□	-	-
			SGDV-08A15A-OY	-	-	SGLGW-60A365A□, SGLFW-35A230□, SGLFW-50A200□
		SGDV-15A11A-OY	SGMPH-15A□, SGMAV-10A□, SGMEV-15A□	SGMCS-45M□, SGMCS-80M□, SGMCS-80N□	-	-
			SGDV-15A15A-OY	-	-	SGLGW-90A200A□, SGLFW-50A380□, SGLFW-1ZA200□
	3 phase 400 VAC	0.5 kW	SGDV-05D11A-OY	SGMAH-03D□, SGMPH-04D□, SGMGH-05D□, SGMEV-04D□, SGMGV-05D□	-	-
			SGDV-05D15A-OY	-	-	SGLFW-35D□
		1.0 kW	SGDV-10D11A-OY	SGMAH-07D□, SGMPH-08D□, SGMGH-09D□, SGMSH-10D□, SGMUH-10D□, SGMEV-08D□, SGMGV-09D□, SGMSV-10D□	-	-
			SGDV-10D15A-OY	-	-	SGLFW-50D200□, SGLTW-35D170□, SGLTW-50D170□
		1.5 kW	SGDV-15D11A-OY	SGMPH-15D□, SGMGH-13D□, SGMSH-15D□, SGMUH-15D□, SGMEV-15D□, SGMGV-13D□, SGMSV-15D□	-	-
			SGDV-15D15A-OY	-	-	SGLFW-50D380□, SGLFW-1ZD200□
		2 kW	SGDV-20D11A-OY	SGMGH-20D□, SGMSH-20D□, SGMGV-20D□, SGMSV-20D□	-	-
			SGDV-20D15A-OY	-	-	SGLFW-1ED380□, SGLTW-35D320□, SGLTW-50D320□
		3 kW	SGDV-30D11A-OY	SGMGH-30D□, SGMSH-30D□, SGMUH-30D□, SGMGV-30D□, SGMGV-30D□	-	-
			SGDV-30D15A-OY	-	-	SGLFW-1ZD380□, SGLFW-1ED560□, SGLTW-40D400□
		5 kW	SGDV-50D11A-OY	SGMGH-44D□, SGMSH-50D□, SGMUH-40D□, SGMGV-44D□, SGMSV-50D□	-	-
			SGDV-50D15A-OY	-	-	SGLTW-40D60□, SGLTW-80D400□

Battery backup for absolute encoder (for CN2 encoder cable)

Symbol	Name	Model
(5)	Battery	JZSP-BA01

Note: when the encoder cables with a battery case JUSP-BA01 are used, no battery is required for CN1 (between pin 21 and 22). Battery for CN1 is ER6VCN3.

Cable (for CN5)

Symbol	Name	Model
(6)	Analog monitor cable	R88A-CMW001S DE9404559

Mechatrolink-II cables (for CN6)

Symbol	Specifications	Length	Model
(7)	Mechatrolink-II Terminator resistor		JEPMC-W6022
	Mechatrolink-II Cables	0.5 m	JEPMC-W6003-A5
		1 m	JEPMC-W6003-01
		3 m	JEPMC-W6003-03
		5 m	JEPMC-W6003-05
		10 m	JEPMC-W6003-10
		20 m	JEPMC-W6003-20
		30 m	JEPMC-W6003-30

Filters

Symbol	Applicable servo drive	Filter model	Rated current	Rated voltage
(10)	SGDV-A5A□□A-OY, SGDV-A01□□A-OY, SGDV-01A□□A-OY, SGDV-04A□□A-OY	R88A-FI5-1005-RE	5 A	250 VAC single-phase
	SGDV-08A□□A-OY	R88A-FI5-1009-RE	9 A	
	SGDV-15A□□A-OY	R88A-FI5-1016-RE	16 A	
	SGDV-05D□□A-OY, SGDV-10D□□A-OY, SGDV-15D□□A-OY	R88A-FI5-3004-RE	4.3 A	400 VAC three-phase
	SGDV-20D□□A-OY, SGDV-30D□□A-OY	R88A-FI5-3008-RE	8.6 A	
	SGDV-50D□□A-OY	R88A-FI5-3012-RE	14.5 A	

Connectors

Specification	Model
I/O connector kit (for CN1)	R88A-CNW01C
Sigma-5 drive encoder connector (for CN2)	JZSP-CMP9-1
Safe Jumper Connector	JZSP-CVH05-E

Computer software

Specifications	Model
Configuration and monitoring software tool for servo drives and inverters. (CX-drive version 1.50 or higher)	CX-drive
Complete OMRON software package including CX-drive. (CX-One version 3.0.2 or higher)	CX-One

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.



OMRON EUROPE B.V. Wegalaan 67-69, NL-2132 JD, Hoofddorp, The Netherlands. Tel: +31 (0) 23 568 13 00 Fax: +31 (0) 23 568 13 88 www.industrial.omron.eu

Austria
Tel: +43 (0) 2236 377 800
www.industrial.omron.at

Belgium
Tel: +32 (0) 2 466 24 80
www.industrial.omron.be

Czech Republic
Tel: +420 234 602 602
www.industrial.omron.cz

Denmark
Tel: +45 43 44 00 11
www.industrial.omron.dk

Finland
Tel: +358 (0) 207 464 200
www.industrial.omron.fi

France
Tel: +33 (0) 1 56 63 70 00
www.industrial.omron.fr

Germany
Tel: +49 (0) 2173 680 00
www.industrial.omron.de

Hungary
Tel: +36 1 399 30 50
www.industrial.omron.hu

Italy
Tel: +39 02 326 81
www.industrial.omron.it

Netherlands
Tel: +31 (0) 23 568 11 00
www.industrial.omron.nl

Norway
Tel: +47 (0) 22 65 75 00
www.industrial.omron.no

Poland
Tel: +48 (0) 22 645 78 60
www.industrial.omron.pl

Portugal
Tel: +351 21 942 94 00
www.industrial.omron.pt

Russia
Tel: +7 495 648 94 50
www.industrial.omron.ru

South-Africa
Tel: +27 (0)11 579 2600
www.industrial.omron.co.za

Spain
Tel: +34 913 777 900
www.industrial.omron.es

Sweden
Tel: +46 (0) 8 632 35 00
www.industrial.omron.se

Switzerland
Tel: +41 (0) 41 748 13 13
www.industrial.omron.ch

Turkey
Tel: +90 216 474 00 40
www.industrial.omron.com.tr

United Kingdom
Tel: +44 (0) 870 752 08 61
www.industrial.omron.co.uk

More Omron representatives
www.industrial.omron.eu

Authorised Distributor:

Control Systems

- Programmable logic controllers • Human-machine interfaces • Remote I/O

Motion & Drives

- Motion controllers • Servo systems • Inverters

Control Components

- Temperature controllers • Power supplies • Timers • Counters • Programmable relays
- Digital panel indicators • Electromechanical relays • Monitoring products • Solid-state relays
- Limit switches • Pushbutton switches • Low voltage switch gear

Sensing & Safety

- Photoelectric sensors • Inductive sensors • Capacitive & pressure sensors
- Cable connectors • Displacement & width-measuring sensors • Vision systems
- Safety networks • Safety sensors • Safety units/relay units • Safety door/guard lock switches