

Ratings

Three-phase 200 V

SERVOPACK Model: SGD V-□□□□		121H	161H	201H
Applicable Servomotor Max.Capacity kW		22	30	37
Continuous Output Current Arms		116	160	200
Max. Output Current Arms		240	340	460
Input Power	Main Circuit P/N	270 to 310 VDC		
	Control Circuit	24 VDC ±15%		

Three-phase 400 V

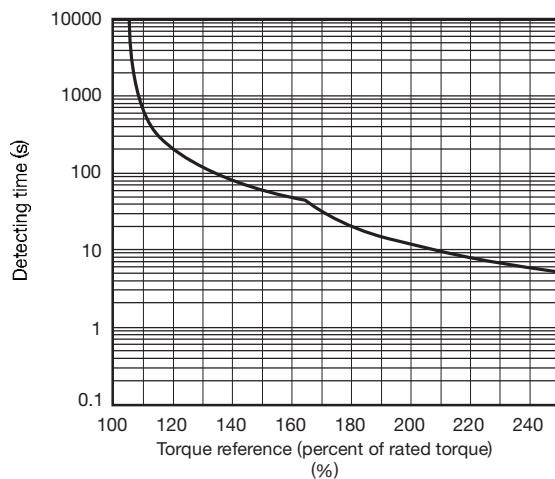
SERVOPACK Model: SGD V-□□□□		750J	101J	131J
Applicable Servomotor Max.Capacity kW		30	37	55
Continuous Output Current Arms		75	98	130
Max. Output Current Arms		170	230	340
Input Power	Main Circuit P/N	520 to 650 VDC		
	Control Circuit	24 VDC ±15%		

Note: Refer to page 5 for combinations with converters.

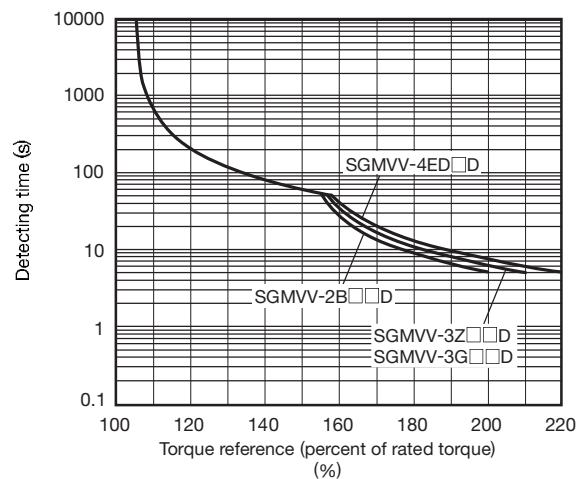
●SERVOPACK Overload Characteristics

The overload detection level is set under hot start conditions at a servomotor ambient temperature of 40°C.

Motors with Rated Speed of 1,500 min⁻¹



Motors with Rated Speed of 800 min⁻¹



Note: Overload characteristics shown above do not guarantee continuous duty of 100% or more output.
Use a servomotor with effective torque within the continuous duty zone of *Torque-Motor Speed Characteristics*.

Specifications

● Basic Specifications

Items		Specifications		
Drive Method		Sine-wave current drive with PWM control of IGBT		
Feedback		Encoder: 20-bit (incremental, absolute)		
Operating Conditions	Surrounding Air Temperature	0°C to +55°C		
	Storage Temperature	-20°C to +85°C		
	Ambient Humidity	90%RH or less	With no freezing or condensation	
	Storage Humidity	90%RH or less		
	Vibration Resistance	4.9 m/s ²		
	Shock Resistance	19.6 m/s ²		
	Protection Class	IP10	An environment that satisfies the following conditions. <ul style="list-style-type: none"> Free of corrosive or flammable gases Free of exposure to water, oil, or chemicals Free of dust, salts, or iron dust 	
	Pollution Degree	2		
	Altitude	1000 m or less		
Others	Free of static electricity, strong electromagnetic fields, magnetic fields or exposure to radioactivity			
Overvoltage Category		III		
Harmonized Standards (Application pending)		UL508C EN50178, EN55011 group 1 class A, EN61000-6-2, EN61800-3, EN61800-5-1, EN954-1, IEC61508-1 to 4		
Mounting		Standard: Base-mounted Optional: Duct-ventilated		
Performance	Speed Control Range		1:5000 (The lower limit of the speed control range must be lower than the point at which the rated torque does not cause the servomotor to stop.)	
	Speed Regulation*1	Load Regulation	0% to 100% load: ±0.01% max. (at rated speed)	
		Voltage Regulation	Rated voltage: ±10% : 0% (at rated speed)	
		Temperature Regulation	25±25°C : ±0.1% max. (at rated speed)	
	Torque Control Tolerance (Repeatability)		±1%	
Soft Start Time Setting		0 to 10 s (can be set individually for acceleration and deceleration.)		
I/O Signals	Encoder Output Pulses		Phase A, phase B, phase C: line driver output The number of dividing pulse: Any setting ratio is available.	
	Sequence Input	Fixed Input	SEN signal	
		Input Signals which can be allocated	Number of Channels	7 channels
	Functions		<ul style="list-style-type: none"> Servo ON (/S-ON) Proportional control (/P-CON) Forward run prohibited (P-OT), reverse run prohibited (N-OT) Alarm reset (/ALM-RST) Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) Internal set speed control (/SPD-D, /SPD-A, /SPD-B) Signal allocations can be performed, and positive and negative logic can be changed.	
	Control selection (/C-SEL)		Zero clamping (/ZCLAMP)	Reference pulse inhibit (/INHIBIT)
	Gain selection (/G-SEL)		Reference pulse input	multiplication switching (/PSEL)
DB answer (/DBANS)				
Sequence Output	Fixed Output	Servo alarm (ALM), alarm code (ALO1, ALO2, ALO3) outputs		
	Output Signals which can be allocated	Number of Channels	3 channels	
Functions		<ul style="list-style-type: none"> Positioning completion (/COIN) Speed coincidence detection (/W-CMP) Rotation detection (/TGON) Servo ready (/S-RDY) Torque limit detection (/CLT) Speed limit detection (/VLT) Signal allocations can be performed, and positive and negative logic can be changed.		
Brake (/BK)		Warning (/WARN)	Near (/NEAR)	
Reference pulse input		multiplication switching (/PSELA)		
Communications	RS-422A Communications (CN3)	Interface	Digital operator (JUSP-OP05A-1-E), personal computer (can be connected with SigmaWin+)	
		1:N Communications	N = Up to 15 stations possible at RS-422A	
		Axis Address Setting	Set by parameters	
	USB Communications (CN7)	Interface	Personal computer (can be connected with SigmaWin+.)	
Communications Standard		Complies with standard USB1.1. (12 Mbps)		
LED Display		CHARGE indicator		

Specifications

● Basic Specifications (Cont'd)

Items		Specifications
Panel Operator	Display Unit	Five 7-segment LEDs
	Switch	Four push switches
Analog Monitor (CN5)		Number of points: 2 Output voltage: ±10 VDC (linearity effective range ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Max. output current: ±10 mA Settling time (±1%): 1.2 ms (Typ)
Dynamic Brake (DB)		Included An external Dynamic Brake Unit is required. For information on the recommended Dynamic Brake Unit, refer to <i>Dynamic Brake Unit</i> on page 81.
Regenerative Processing		Included An external regenerative resistor is required. For information on the recommended regenerative resistor, refer to <i>Regenerative Resistor</i> on page 79.
Overtravelling (OT) Prevention		Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT
Protective Functions		Overcurrent, overvoltage, insufficient voltage, overload, regeneration error, etc.
Utility Functions		Gain adjustment, alarm history, JOG operation, origin search, etc.
Safety Functions	Input	/HWBB1, /HWBB2: Baseblock signal for power module
	Output	EDM1: Monitoring status of internal safety circuit (fixed output)
	Standards*2 (Application pending)	EN954 Category 3, IEC61508 SIL2
Option Module*3		Fully-closed module, safety module

*1 : Speed regulation by load regulation is defined as follows:

$$\text{Speed regulation} = \frac{\text{No-load motor speed} - \text{Total load motor speed}}{\text{Rated motor speed}} \times 100\%$$

*2 : Implement risk assessment and confirm that the safety requirements of the machine have been met.

*3 : Refer to page 42 for combinations with modules.

● Speed/Position/Torque Control Specifications

Control Method		Specifications		
Speed Control	Soft Start Time Setting		0 to 10 s (can be set individually for acceleration and deceleration.)	
	Input Signals	Reference Voltage	• Max. input voltage: ±12 V (forward speed reference with positive reference) • Factory setting: 6 VDC at rated speed (Input gain setting can be changed.)	
		Input Impedance	Approx. 14 kΩ	
		Circuit Time Constant	30 μs	
	Internal Set Speed Control	Rotation Direction Selection	With P control signal	
		Speed Selection	With forward/reverse external torque limit signal (speed 1 to 3 selection). Servomotor stops or another control method is used when both are OFF.	
Position Control	Feedforward Compensation		0 to 100%	
	Positioning Completed Width Setting		0 to 1073741824 reference units	
	Input Signals	Reference Pulse	Type	Select one of them: Sign + pulse train, CW + CCW pulse train, or two-phase pulse train with 90° phase differential
			Form	For line driver, open collector
		Max. Input Pulse Frequency	Line driver	Sign + pulse train, CW + CCW pulse train: 4 Mpps Two-phase pulse train with 90° phase differential: 1 Mpps
			Open collector	Sign + pulse train, CW + CCW pulse train: 200 kpps Two-phase pulse train with 90° phase differential: 200 kpps
	Reference Pulse Input Multiplication Switching	1 to 100 times		
	Clear Signal		Position error clear For line driver, open collector	
Torque Control	Input Signals	Reference Voltage	• Max. input voltage: ±12 V (forward torque reference with positive reference) • Factory setting: 3 VDC at rated torque (Input gain setting can be changed.)	
		Input Impedance	Approx. 14 kΩ	
		Circuit Time Constant	16 μs	

Power Supply Capacities and Power Losses

The following table shows SERVOPACK's power supply capacities and power losses at the rated output.

Main Circuit Power Supply Voltage	Applicable Servomotor Max. Capacity kW	Combination of SERVOPACK and Converter		Power Supply Capacity for Each SERVOPACK-Converter Set kVA	Output Current Arms	Main Circuit Power Loss W	Regenerative Resistor Power Loss W	Control Circuit Power Loss W	Total Power Loss W
		SERVOPACK Model SGDV-	Converter Model SGDV-COA						
Three-phase 200 V	22	121H	2BAA	38	116	1200	(480) *1	120	1320
	30	161H	3GAA	52	160	1540	(960) *2	120	1660
	37	201H	3GAA	64	200	1540	(960) *3	120	1660
Three-phase 400 V	30	750J	3ZDA	52	76	1020	(720) *4	96	1116
	37	101J	5EDA	64	98	1240	(960) *5	96	1336
	55	131J	5EDA	95	130	1590	(1440) *6	96	1686

*1 : For the optional JUSP-RA08-E regenerative resistor.

*2 : For the optional JUSP-RA09-E regenerative resistor.

*3 : For the optional JUSP-RA11-E regenerative resistor.

*4 : For the optional JUSP-RA13-E regenerative resistor.

*5 : For the optional JUSP-RA14-E regenerative resistor.

*6 : For the optional JUSP-RA16-E regenerative resistor.

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Continuous Output Current Arms		116	160	200
Max. Output Current Arms		240	340	460
Input Power	Main Circuit P/N	270 to 310 VDC		
	Control Circuit	24 VDC ±15%		

Three-phase 400 V

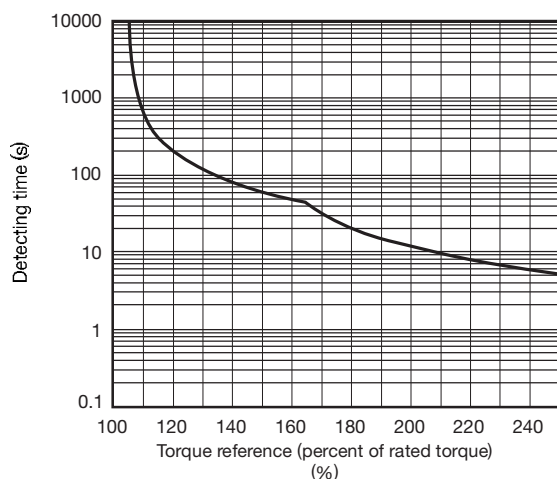
SERVOPACK Model: SGD V-□□□□		750J	101J	131J
Applicable Servomotor Max.Capacity kW		30	37	55
Continuous Output Current Arms		75	98	130
Max. Output Current Arms		170	230	340
Input Power	Main Circuit P/N	520 to 650 VDC		
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Note: Refer to page 5 for combinations with converters.

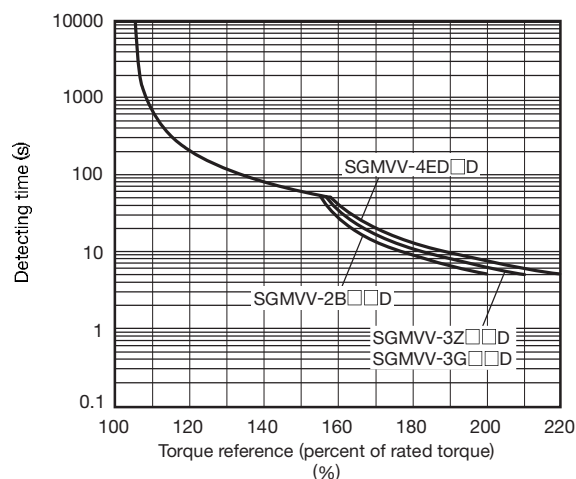
●SERVOPACK Overload Characteristics

The overload detection level is set under hot start conditions at a servomotor ambient temperature of 40°C.

Motors with Rated Speed of 1,500 min⁻¹



Motors with Rated Speed of 800 min⁻¹



Note: Overload characteristics shown above do not guarantee continuous duty of 100% or more output.
Use a servomotor with effective torque within the continuous duty zone of *Torque-Motor Speed Characteristics*.

Specifications

● Basic Specifications

Items		Specifications		
Drive Method		Sine-wave current drive with PWM control of IGBT		
Feedback		Encoder: 20-bit (incremental, absolute)		
Operating Conditions	Surrounding Air Temperature	0°C to +55°C		
	Storage Temperature	-20°C to +85°C		
	Ambient Humidity	90%RH or less	With no freezing or condensation	
	Storage Humidity	90%RH or less		
	Vibration Resistance	4.9 m/s ²		
	Shock Resistance	19.6 m/s ²		
	Protection Class	IP10	An environment that satisfies the following conditions. <ul style="list-style-type: none"> • Free of corrosive or flammable gases • Free of exposure to water, oil, or chemicals • Free of dust, salts, or iron dust 	
	Pollution Degree	2		
	Altitude	1000 m or less		
Others	Free of static electricity, strong electromagnetic fields, magnetic fields or exposure to radioactivity			
Overvoltage Category		III		
Harmonized Standards (Application pending)		UL508C EN50178, EN55011 group 1 class A, EN61000-6-2, EN61800-3, EN61800-5-1, EN954-1, IEC61508-1 to 4		
Mounting		Standard: Base-mounted Optional: Duct-ventilated		
Performance	Speed Control Range	1:5000 (The lower limit of the speed control range must be lower than the point at which the rated torque does not cause the servomotor to stop.)		
	Speed Regulation*1	Load Regulation	0% to 100% load: ±0.01% max. (at rated speed)	
		Voltage Regulation	Rated voltage: ±10% : 0% (at rated speed)	
		Temperature Regulation	25±25°C : ±0.1% max. (at rated speed)	
	Torque Control Tolerance (Repeatability)	±1%		
Soft Start Time Setting	0 to 10 s (can be set individually for acceleration and deceleration.)			
I/O Signals	Encoder Output Pulses		Phase A, phase B, phase C: line driver output The number of dividing pulse: Any setting ratio is available.	
	Sequence Input	Input Signals which can be allocated	Number of Channels	7 channels
			Function	<ul style="list-style-type: none"> • Homing deceleration switch signal (/DEC) • Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) • reverse run prohibited (/N-OT) • DB answer (/DBANS) • External latch signals (/EXT 1 to 3) Signal allocations can be performed, and positive and negative logic can be changed.
	Sequence Output	Output Signals which can be allocated	Fixed Output	Servo alarm (ALM)
			Number of Channels	3 channels
Function	<ul style="list-style-type: none"> • Positioning completion (/COIN) • Speed coincidence detection (/V-CMP) • Rotation detection (/TGON) • Servo ready (/S-RDY) • Torque limit detection (/CLT) Signal allocations can be performed, and positive and negative logic can be changed.	<ul style="list-style-type: none"> • Speed limit detection (/VLT) • Brake (/BK) • Warning (/WARN) • Near (/NEAR) 		
Communications	RS-422A Communications (CN3)	Interface	Digital operator (JUSP-OP05A-1-E), personal computer (can be connected with SigmaWin+)	
		1:N Communications	N = Up to 15 stations possible at RS-422A	
	Axis Address Setting	Set by parameters		
USB Communications (CN7)	Interface	Personal computer (can be connected with SigmaWin+.)		
	Communications Standard	Complies with standard USB1.1. (12 Mbps)		
LED Display		Panel display (seven-segment), CHARGE, POWER, and COM indicators, one 7-segment LED		
MECHATROLINK-II Communications Setting Switches		Rotary Switch (S2)	Position: 16 positions	
		DIP Switch (S3)	Number of pins: Four pins	

Specifications

● Basic Specifications (Cont'd)

Items		Specifications
Analog Monitor (CN5)		Number of points: 2 Output voltage: ±10 VDC (linearity effective range ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Max. output current: ±10 mA Settling time (±1%): 1.2 ms (Typ)
Dynamic Brake (DB)		Included An external Dynamic Brake Unit is required. For information on the recommended Dynamic Brake Unit, refer to <i>Dynamic Brake Unit</i> on page 81.
Regenerative Processing		Included An external regenerative resistor is required. For information on the recommended regenerative resistor, refer to <i>Regenerative Resistor</i> on page 79.
Overtravelling (OT) Prevention		Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT
Protective Functions		Overcurrent, overvoltage, insufficient voltage, overload, regeneration error, etc.
Utility Functions		Gain adjustment, alarm history, JOG operation, origin search, etc.
Safety Functions	Input	/HWBB1, /HWBB2: Baseblock signal for power module
	Output	EDM1: Monitoring status of internal safety circuit (fixed output)
	Standards*2 (Application pending)	EN954 Category 3, IEC61508 SIL2
Option Module*3		Fully-closed module, safety module

*1 : Speed regulation by load regulation is defined as follows:

$$\text{Speed regulation} = \frac{\text{No-load motor speed} - \text{Total load motor speed}}{\text{Rated motor speed}} \times 100\%$$

*2 : Implement risk assessment and confirm that the safety requirements of the machine have been met.

*3 : Refer to page 42 for combinations with modules.

● MECHATROLINK-II Function Specifications

Function		Specifications
MECHATROLINK-II Communication	Communication Protocol	MECHATROLINK-II
	Baud Rate	10 Mbps, 4 Mbps Can be selected by the DIP switch (S3).
	Transmission Cycle	250 μs, 0.5 ms to 4.0 ms (Multiples of 0.5 ms)
	Number of Transmission Bytes	17 bytes per station or 32 bytes per station Can be selected by the DIP switch (S3).
	Station Address	41H to 5FH (Max. number of stations: 30) Can be selected by the combination of the rotary switch (S2) and the DIP switch (S3).
Reference Method	Control Method	Position, speed, or torque control with MECHATROLINK-II communication
	Reference Input	MECHATROLINK-I, MECHATROLINK-II commands (sequence, motion, data setting/reference, monitoring, or adjustment)

Power Supply Capacities and Power Losses

The following table shows SERVOPACK's power supply capacities and power losses at the rated output.

Main Circuit Power Supply Voltage	Applicable Servomotor Max. Capacity kW	Combination of SERVOPACK and Converter		Power Supply Capacity for Each SERVOPACK-Converter Set kVA	Output Current Arms	Main Circuit Power Loss W	Regenerative Resistor Power Loss W	Control Circuit Power Loss W	Total Power Loss W
		SERVOPACK Model SGDV-	Converter Model SGDV-COA						
Three-phase 200 V	22	121H	2BAA	38	116	1200	(480) *1	120	1320
	30	161H	3GAA	52	160	1540	(960) *2	120	1660
	37	201H	3GAA	64	200	1540	(960) *3	120	1660
Three-phase 400 V	30	750J	3ZDA	52	76	1020	(720) *4	96	1116
	37	101J	5EDA	64	98	1240	(960) *5	96	1336
	55	131J	5EDA	95	130	1590	(1440) *6	96	1686

*1 : For the optional JUSP-RA08-E regenerative resistor.

*2 : For the optional JUSP-RA09-E regenerative resistor.

*3 : For the optional JUSP-RA11-E regenerative resistor.

*4 : For the optional JUSP-RA13-E regenerative resistor.

*5 : For the optional JUSP-RA14-E regenerative resistor.

*6 : For the optional JUSP-RA16-E regenerative resistor.

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Three-phase 200 V

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Continuous Output Current Arms		116	160	200
Max. Output Current Arms		240	340	460
Input Power	Main Circuit P/N	270 to 310 VDC		
	Control Circuit	24 VDC ±15%		

Three-phase 400 V

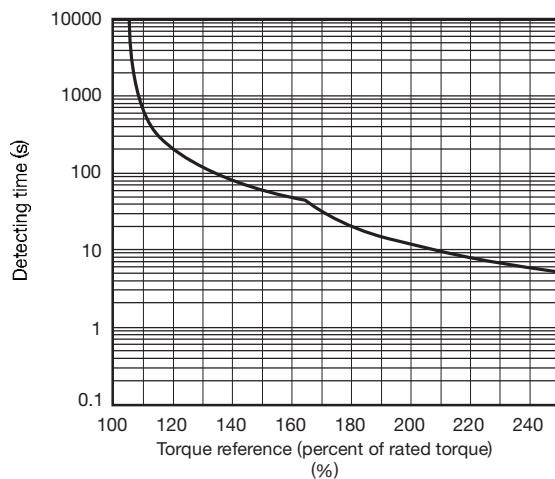
SERVOPACK Model: SGD V-□□□□		750J	101J	131J
Applicable Servomotor Max.Capacity kW		30	37	55
Continuous Output Current Arms		75	98	130
Max. Output Current Arms		170	230	340
Input Power	Main Circuit P/N	520 to 650 VDC		
	Control Circuit	24 VDC ±15%		

Note: Refer to page 5 for combinations with converters.

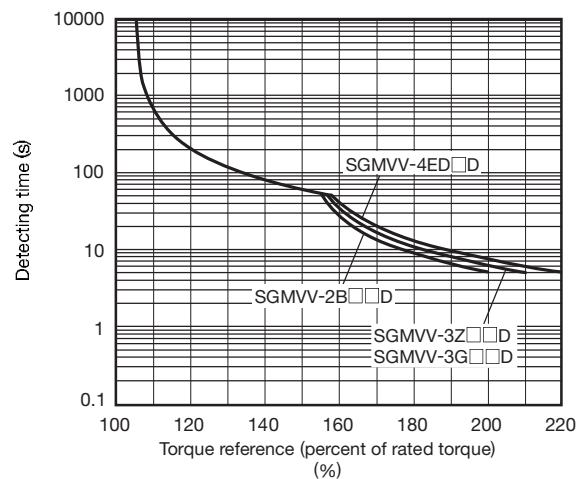
●SERVOPACK Overload Characteristics

The overload detection level is set under hot start conditions at a servomotor ambient temperature of 40°C.

Motors with Rated Speed of 1,500 min⁻¹



Motors with Rated Speed of 800 min⁻¹



Note: Overload characteristics shown above do not guarantee continuous duty of 100% or more output.
Use a servomotor with effective torque within the continuous duty zone of *Torque-Motor Speed Characteristics*.

Specifications

● Basic Specifications

Items		Specifications		
Drive Method		Sine-wave current drive with PWM control of IGBT		
Feedback		Encoder: 20-bit (incremental, absolute)		
Operating Conditions	Surrounding Air Temperature	0°C to +55°C		
	Storage Temperature	-20°C to +85°C		
	Ambient Humidity	90%RH or less	With no freezing or condensation	
	Storage Humidity	90%RH or less		
	Vibration Resistance	4.9 m/s ²		
	Shock Resistance	19.6 m/s ²		
	Protection Class	IP10	An environment that satisfies the following conditions. • Free of corrosive or flammable gases • Free of exposure to water, oil, or chemicals • Free of dust, salts, or iron dust	
	Pollution Degree	2		
	Altitude	1000 m or less		
Others	Free of static electricity, strong electromagnetic fields, magnetic fields or exposure to radioactivity			
Overvoltage Category		III		
Harmonized Standards (Application pending)		UL508C EN50178, EN55011 group 1 class A, EN61000-6-2, EN61800-3, EN61800-5-1, EN954-1, IEC61508-1 to 4		
Mounting		Standard: Base-mounted Optional: Duct-ventilated		
Performance	Speed Control Range	1:5000 (The lower limit of the speed control range must be lower than the point at which the rated torque does not cause the servomotor to stop.)		
	Speed Regulation*1	Load Regulation	0% to 100% load: ±0.01% max. (at rated speed)	
		Voltage Regulation	Rated voltage: ±10% : 0% (at rated speed)	
		Temperature Regulation	25±25°C : ±0.1% max. (at rated speed)	
	Torque Control Tolerance (Repeatability)	±1%		
Soft Start Time Setting	0 to 10 s (can be set individually for acceleration and deceleration.)			
I/O Signals	Encoder Output Pulses		Phase A, phase B, phase C: line driver output The number of dividing pulse: Any setting ratio is available.	
	Sequence Input	Input Signals which can be allocated	Number of Channels	7 channels
			Function	• Homing deceleration switch signal (/DEC) • Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) • Forward run prohibited (P-OT), reverse run prohibited (N-OT) • DB answer (/DBANS) • External latch signals (/EXT 1 to 3) Signal allocations can be performed, and positive and negative logic can be changed.
	Sequence Output	Output Signals which can be allocated	Number of Channels	3 channels
			Function	• Positioning completion (/COIN) • Speed limit detection (/VLT) • Speed coincidence detection (/V-CMP) • Brake (/BK) • Rotation detection (/TGON) • Warning (/WARN) • Servo ready (/S-RDY) • Near (/NEAR) • Torque limit detection (/CLT) Signal allocations can be performed, and positive and negative logic can be changed.
Communications	RS-422A Communications (CN3)	Interface	Digital operator (JUSP-OP05A-1-E), personal computer (can be connected with SigmaWin+)	
		1:N Communications	N = Up to 15 stations possible at RS-422A	
		Axis Address Setting	Set by parameters	
	USB Communications (CN7)	Interface	Personal computer (can be connected with SigmaWin+.)	
Communications Standard		Complies with standard USB1.1. (12 Mbps)		
LED Display		Panel display (seven-segment), CHARGE, POWER, L1, L2, and CN indicators, one 7-segment LED		
MECHATROLINK-III Communications Setting Switches		Rotary Switches (S1 and S2)	Positions: 16 positions × 2 switches	
		DIP Switch (S3)	Number of pins: Four pins	

Specifications

● Basic Specifications (Cont'd)

Items		Specifications
Analog Monitor (CN5)		Number of points: 2 Output voltage: ±10 VDC (linearity effective range ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Max. output current: ±10 mA Settling time (±1%): 1.2 ms (Typ)
Dynamic Brake (DB)		Included An external Dynamic Brake Unit is required. For information on the recommended Dynamic Brake Unit, refer to <i>Dynamic Brake Unit</i> on page 81.
Regenerative Processing		Included An external regenerative resistor is required. For information on the recommended regenerative resistor, refer to <i>Regenerative Resistor</i> on page 79.
Overtravelling (OT) Prevention		Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT
Protective Functions		Overcurrent, overvoltage, insufficient voltage, overload, regeneration error, etc.
Utility Functions		Gain adjustment, alarm history, JOG operation, origin search, etc.
Safety Functions	Input	/HWBB1, /HWBB2: Baseblock signal for power module
	Output	EDM1: Monitoring status of internal safety circuit (fixed output)
	Standards*2 (Application pending)	EN954 Category 3, IEC61508 SIL2
Option Module*3		Fully-closed module, safety module

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$$\text{Speed regulation} = \frac{\text{No-load motor speed} - \text{Total load motor speed}}{\text{Rated motor speed}} \times 100\%$$

*2 : Implement risk assessment and confirm that the safety requirements of the machine have been met.

*3 : Refer to page 42 for combinations with modules.

● MECHATROLINK-III Function Specifications

Items		Specifications
MECHATROLINK-III Communication	Communications Protocol	MECHATROLINK-III
	Baud Rate	100 Mbps
	Transmission Cycle	125 μs, 250 μs, 500 μs, 750 μs, and 1 ms to 4 ms (increments of 0.5 ms)
	Number of Transmission Bytes	16, 32, or 48 bytes per station Use the DIP switch S3 to select the number of words.
	Station Address	03H to EFH (max. number of stations: 62) Use the rotary switches S1 and S2 to set the station address.
Reference Method	Control Method	Position, speed, or torque control with MECHATROLINK-III communication
	Reference Input	MECHATROLINK commands (sequence, motion, data setting/reference, monitoring, or adjustment)
	Profile	MECHATROLINK-III standard servo profile MECHATROLINK-II compatible profile

Power Supply Capacities and Power Losses

The following table shows SERVOPACK's power supply capacities and power losses at the rated output.

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*1 : For the optional JUSP-RA08-E regenerative resistor.

*2 : For the optional JUSP-RA09-E regenerative resistor.

*3 : For the optional JUSP-RA11-E regenerative resistor.

*4 : For the optional JUSP-RA13-E regenerative resistor.

*5 : For the optional JUSP-RA14-E regenerative resistor.

*6 : For the optional JUSP-RA16-E regenerative resistor.

Ratings

Three-phase 200 V

SERVOPACK Model: SGD V-□□□□		121H	161H	201H
Applicable Servomotor Max.Capacity kW		22	30	37
Continuous Output Current Arms		116	160	200
Max. Output Current Arms		240	340	460
Input Power	Main Circuit P/N	270 to 310 VDC		
	Control Circuit	24 VDC ±15%		

Three-phase 400 V

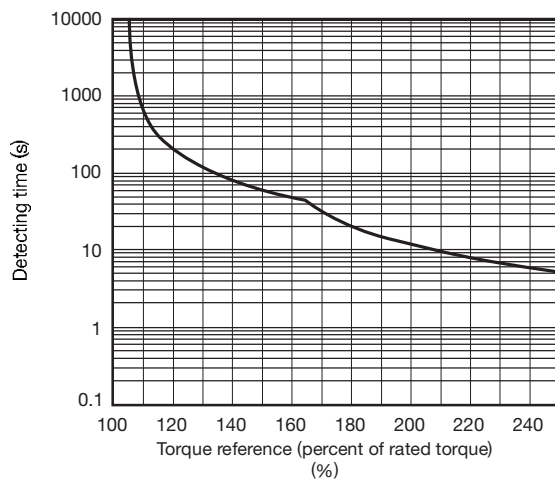
SERVOPACK Model: SGD V-□□□□		750J	101J	131J
Applicable Servomotor Max.Capacity kW		30	37	55
Continuous Output Current Arms		75	98	130
Max. Output Current Arms		170	230	340
Input Power	Main Circuit P/N	520 to 650 VDC		
	Control Circuit	24 VDC ±15%		

Note: Refer to page 5 for combinations with converters.

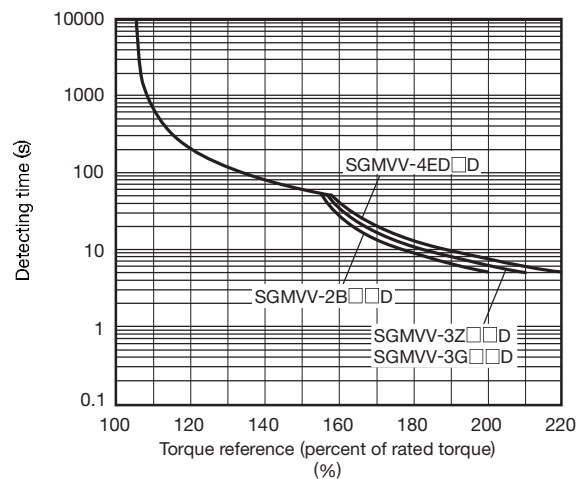
●SERVOPACK Overload Characteristics

The overload detection level is set under hot start conditions at a servomotor ambient temperature of 40°C.

Motors with Rated Speed of 1,500 min⁻¹



Motors with Rated Speed of 800 min⁻¹



Note: Overload characteristics shown above do not guarantee continuous duty of 100% or more output.
Use a servomotor with effective torque within the continuous duty zone of *Torque-Motor Speed Characteristics*.

Specifications

● Basic Specifications

Items		Specifications		
Drive Method		Sine-wave current drive with PWM control of IGBT		
Feedback		Encoder: 20-bit (incremental, absolute)		
Operating Conditions	Surrounding Air Temperature	0°C to +55°C		
	Storage Temperature	-20°C to +85°C		
	Ambient Humidity	90% RH or less	With no freezing or condensation	
	Storage Humidity	90% RH or less		
	Vibration Resistance	4.9 m/s ²		
	Shock Resistance	19.6 m/s ²		
	Protection Class	IP10	An environment that satisfies the following conditions. • Free of corrosive or flammable gases • Free of exposure to water, oil, or chemicals • Free of dust, salts, or iron dust	
	Pollution Degree	2		
	Altitude	1000 m or less		
Others	Free of static electricity, strong electromagnetic fields, magnetic fields or exposure to radioactivity			
Overvoltage Category		III		
Harmonized Standards (Application pending)		UL508C EN 50178, EN 55011 group 1 class A, EN 61000-6-2, EN 1800-3, EN 61800-5-1, EN 954-1, IEC 61508-1 to 4		
Mounting		Standard: Base-mounted Optional: Duct-ventilated		
Performance	Speed Control Range	1:5000 (The lower limit of the speed control range must be lower than the point at which the rated torque does not cause the servomotor to stop.)		
	Speed Regulation*1	Load Regulation	0% to 100% load: ±0.01% max. (at rated speed)	
		Voltage Regulation	Rated voltage ±10%: 0% (at rated speed)	
		Temperature Regulation	25±25°C: ±0.1% max. (at rated speed)	
Torque Control Tolerance (Repeatability)		±1%		
I/O Signals	Encoder Output Pulse		Phase A, B, C: line driver Encoder output pulse: any setting ratio	
	Sequence Input	Input Signals which can be allocated	Number of Channels	7 ch
			Functions	• Forward run prohibited (P-OT), reverse run prohibited (N-OT) • General-purpose signals (/SI0 to /SI6) • Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) • DB answer (/DBANS) Signal allocations can be performed, and positive and negative logic can be changed.
	Sequence Output	Output Signals which can be allocated	Fixed Output	Servo alarm (ALM) output
			Number of Channels	3 ch
	Functions	• Positioning completion (/COIN) • Speed coincidence detection (/V-CMP) • Rotation detection (/TGON) • Servo ready (/S-RDY) • Torque limit detection (/CLT) • Speed limit detection (/VLT) • Brake (/BK) • Warning (/WARN) • Near (/NEAR) Signal allocations can be performed, and positive and negative logic can be changed.		
Communications	RS-422A Communications (CN3)	Interface	Digital operator (Model: JUSP-OP05A-1-E), personal computer (can be connected with SigmaWin+)	
		1:N Communications Axis Address Setting	N = Up to 15 stations possible at RS-422A Set by parameter	
	USB Communications (CN7)	Interface Communications Standard	Personal computer (can be connected with SigmaWin+) Complies with standard USB1.1. (12 Mbps)	
LED Display		CHARGE, and POWER indicators, one 7-segment LED		
Option Module Setting Switches		Rotary Switch (S2)	Position: 16 positions	
		DIP Switch (S3)	Number of pins: Four pins	

Specifications

● Basic Specifications (Cont'd)

Items		Specifications
Analog Monitor (CN5)		Number of points: 2 Output voltage: ±10VDC (linearity effective range ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Max. output current: ±10 mA Settling time (±1%): 1.2 ms (Typ)
Dynamic Brake (DB)		Included An external dynamic brake unit is required. For information on the recommended Dynamic Brake Unit, refer to <i>Dynamic Brake Unit</i> on page 81.
Regenerative Processing		Included An external regenerative resistor unit is required. For information on the recommended regenerative resistor, refer to <i>Regenerative Resistor</i> on page 79.
Overtravel (OT) Prevention		Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT
Protective Function		Overcurrent, overvoltage, insufficient voltage, overload, regeneration error, etc.
Utility Function		Gain adjustment, alarm history, JOG operation, origin search, etc.
Safety Function	Input	/HWBB1, /HWBB2: Baseblock signal for power module
	Output	EDM1: Monitoring status of internal safety circuit (fixed output)
	Standards* ² (Application pending)	EN 954 Category 3, IEC 61508 SIL2
Optional Module* ³		Fully-closed module, safety module, command option module

*1 : Speed regulation by load regulation is defined as follows:

$$\text{Speed regulation} = \frac{\text{No-load motor speed} - \text{Total load motor speed}}{\text{Rated motor speed}} \times 100\%$$

*2 : Implement risk assessment and confirm that the safety requirements of the machine have been met.

*3 : Refer to page 42 for combinations with modules.

Power Supply Capacities and Power Losses

The following table shows SERVOPACK's power supply capacities and power losses at the rated output.

Main Circuit Power Supply Voltage	Applicable Servomotor Max. Capacity kW	Combination of SERVOPACK and Converter		Power Supply Capacity for Each SERVOPACK-Converter Set kVA	Output Current Arms	Main Circuit Power Loss W	Regenerative Resistor Power Loss W	Control Circuit Power Loss W	Total Power Loss W
		SERVOPACK Model SGDV-	Converter Model SGDV-COA						
Three-phase 200 V	22	121H	2BAA	38	116	1200	(480) *1	120	1320
	30	161H	3GAA	52	160	1540	(960) *2	120	1660
	37	201H	3GAA	64	200	1540	(960) *3	120	1660
Three-phase 400 V	30	750J	3ZDA	52	76	1020	(720) *4	96	1116
	37	101J	5EDA	64	98	1240	(960) *5	96	1336
	55	131J	5EDA	95	130	1590	(1440) *6	96	1686

*1 : For the optional JUSP-RA08-E regenerative resistor.

*2 : For the optional JUSP-RA09-E regenerative resistor.

*3 : For the optional JUSP-RA11-E regenerative resistor.

*4 : For the optional JUSP-RA13-E regenerative resistor.

*5 : For the optional JUSP-RA14-E regenerative resistor.

*6 : For the optional JUSP-RA16-E regenerative resistor.