

Analog Voltage Reference SERVOPACKs Pulse Train Reference SERVOPACKs

SGDV-□□□ES1

(Analog Voltage Reference)

SGDV-□□□EP1

(Pulse Train Reference)



Model Designations

S G D V- 2R9 E S1 A 002 00 0

Σ-V Series
SGDV
SERVOPACKs
with DC Power Input

1st+2nd+3rd digits

4th digit

5th+6th digits

7th digit

8th+9th+10th digits

11th+12th digits

13th digit

1st+2nd+3rd digits Current

Voltage	Code	Applicable Servomotor Max. Capacity kW
24 VDC/	1R7	0.011
48 VDC	2R9	0.030

4th digit Power Supply Voltage

Code	Specifications
E	48 VDC*

5th+6th digits Interface

Code	Specifications
S1	Analog Voltage Reference (For Rotary Servomotors)
P1	Pulse Train Reference (For Rotary Servomotors)

7th digit Design Revision Order

A, B...

8th+9th+10th digits Options (hardware)

Code	Specifications
002	Base-mounted, varnish(standard)

11th+12th digits Options (software)

Code	Specifications
00	Standard

13th digit Options (parameter)

Code	Specifications
0	Standard

*: Either a 24-VDC or a 48-VDC power supply can be used for the main circuit. The control power supply must be 24 VDC.
Note: If the option codes digits 8 to 13 are all zeros, they are omitted.

Features

● Compact design

With compact SERVOPACKs using less space, you can make effective use of limited space and make controller panels and systems smaller.

● Applications with DC power

These compact, high-performance SERVOPACKs can be powered by batteries so they can improve the performance of battery-operated equipment for handling & transfer systems, such as robots used in clean rooms and automated guided vehicles (AGVs).

Two different power supplies provide power for the control circuit and for the main circuit. Troubleshooting can be performed by shutting off the power to the main circuit if any alarm occurs.

Either a 24-VDC or 48-VDC power supply can be used for the main circuit. Use of a 48-VDC power supply can improve the torque-motor speed characteristics (For the control circuit, only a 24-VDC power supply can be used). Degree to which the characteristics can be improved depends on which motor is used.

● Improved usability with state-of-the-art technology

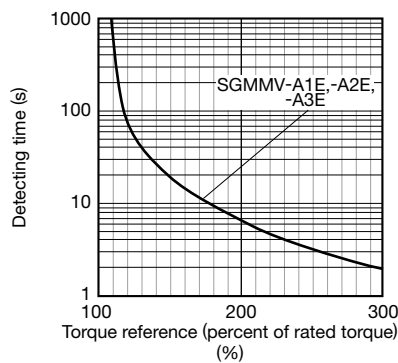
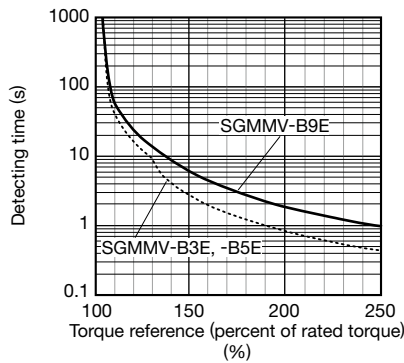
New advanced autotuning lets you adjust your system quickly for best performance. A wide variety of functions are provided: the model follow-up control function that reduces positioning time, the vibration suppression function that suppresses vibration of machines, friction compensation function that can exert its ability in applications with load fluctuations, and the new tuning-less function most suitable for systems that require a long startup time or that involve a large load fluctuation.

Ratings

SERVOPACK Model SGD□-□□□□		1R7E		2R9E	
Applicable Servomotor Max. Capacity	kW	0.011		0.030	
Continuous Output Current	Arms	1.7		2.9	
Max. Output Current	Arms	4.1		8.6	
Regenerative Resistors		None			
Main Circuit*		24 VDC±15□	48 VDC±15□	24 VDC±15□	48 VDC±15□
Control Circuit		24 VDC±15□			

*: Either a 24-VDC or a 48-VDC power supply can be used for the main circuit. When a 24-VDC power supply is used, the torque-motor speed characteristics for a 48 VDC cannot be achieved.

● SERVOPACK Overload Characteristics



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.

DC

Analog/Pulse Type SERVOPACKs

Specifications

Items		Specifications	
Control Method		PWM control, sine-wave driven	
Feedback		Serial encoder: 17-bit (incremental/absolute)	
Operating Conditions	Ambient Temperature	0 to +55°C	
	Storage Temperature	-20 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	Do not use SERVOPACKs in the following locations: <input type="checkbox"/> Locations subject to static electricity noise, strong electromagnetic/magnetic fields, radioactivity		
Applicable Standards		UL508C EN55011/A1, EN61000-6-2, EN61800-3, EN61800-5-1	
Mounting		Base-mounted	
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 Fluctuation	0% to 100% load: ±0.01% max. (at rated speed)
		Voltage Fluctuation	Rated voltage: ±10% : 0% (at rated speed)
		Temperature Fluctuation	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 Signal	Encoder Output Pulses	Phase A, phase B, phase C: line driver output The number of dividing pulse: Any setting ratio is available. ^{*2}	
	Sequence Input	Input Signals which can be allocated	<ul style="list-style-type: none"> • Servo ON (/S-ON) • Control selection(/C-SEL) • Proportional control (/P-CON) • SEN signal (/SEN) • Forward run prohibited (P-OT), reverse run prohibited (N-OT) • Zero clamping (/ZCLAMP) • Reference pulse inhibit (/INHIBIT) • Alarm reset (/ALM-RST) • Gain selection (/G-SEL) • Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) • Reference pulse input multiplication switching (/PSEL) • Internal set speed selection (/SPD-D, /SPD-A, /SPD-B) • Positive and negative logic can be changed.
		Number of Channels	
	Sequence Output	Output Signals which can be allocated	<ul style="list-style-type: none"> • Positioning completion (/COIN) • Brake (/BK) • Speed coincidence detection (/V-CMP) • Warning (/WARN) • Rotation detection (/TGON) • Near (/NEAR) • Servo ready (/S-RDY) • Reference pulse input multiplication switching output (/PSELA) • Torque limit detection (/CLT) • Speed limit detection (/VLT) • Positive and negative logic can be changed.
Fixed Output		Servo alarm (ALM)	
		Number of Channels	3 channels

*1: Speed regulation is defined as follows:

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

The motor speed may change due to voltage fluctuation or temperature fluctuation.

The ratio of speed changes to the rated speed represent speed regulation due to voltage and temperature fluctuations.

*2: For details, refer to 5.3.7 Setting Encoder Output Pulse in the AC Servo Drives DC Power Input Σ -V Series USER'S MANUAL Design and Maintenance

(Cont'd)

Specifications

Items		Specifications			
Communications	Digital Operator	Compatible with the digital operator for Σ -V SERVOPACKs (Model: JUSP-OP05A-1-E). The digital operator must be connected with the SERVOPACK via the analog monitor unit (Model: JUSP-PC001-E) or the digital operator's relay cable (Model: JZSP-CF1S00-A3-E).			
	Computer (USB)	Compatible with SigmaWin+. Compliant with the USB1.1 standard (12 Mbps)			
Display		Servo alarm (ALM): red; servo ready (RDY): green			
Analog Monitor		Number of points: 2 Output voltage: ± 10 VDC (linearity effective range: ± 8 V) Output through the analog monitor unit (model: JUSP-PC001-E)			
Dynamic Brake (DB)		Not available			
Regenerative Processing		Not available			
Overtravelling (OT) Prevention		Decelerate to a stop or coast to a stop when overtraveling is detected and an overtravel signal (P-OT or N-OT) is input.			
Protective Functions		Overcurrent, Overvoltage, low voltage, overload, etc.			
Utility Functions		Gain adjustment, alarm history, JOG operation, origin search, etc.			
Analog Voltage Reference	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	About 14 k Ω	
			Circuit Time Constant	30 μ s	
		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.	
	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	About 14 k Ω	
			Circuit Time Constant	16 μ s	
	Pulse Train Reference	Feedforward Compensation		0 to 100%	
Positioning Completed Width Setting		0 to 1073741824 reference units			
Position Control		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			

*: If the maximum reference frequency exceeds 1 Mpps, use a shielded cable for I/O signals and ground both ends of the shield.
Connect the shield at the SERVOPACK to the connector shell.

DC

Analog/Pulse Type SERVOPACKs

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	Applicable Servomotor Max. Capacity W	SERVOPACK Model SGDV-	Main Circuit Power Supply Capacity per SERVOPACK W	Output Current Arms	Main Circuit Power Loss W	Regenerative Resistor Power Loss W	Control Circuit Power Loss W	Total Power Loss W
24 VDC	11	1R7E	108	1.7	3.4	-	7.2	10.6
	30	2R9E	165	2.9	6.9			14.1
48 VDC	11	1R7E	169	1.7	3.4	-	7.2	10.6
	30	2R9E	411	2.9	6.9			14.1

Note: These power supply capacities are net values at instantaneous maximum loads.

MECHATROLINK-II Communications Reference SERVOPACKs

SGDV-□□□E11 (For Rotary Servomotors)



Model Designations

S G D V- 2R9 E 11 A 002 00 0

Σ-V Series
SGDV
SERVOPACKs
with DC Power Input

1st+2nd+3rd digits

4th digit

5th+6th digits

7th digit

8th+9th+10th digits

11th+12th digits

13th digit

1st+2nd+3rd digits Current

Voltage	Code	Applicable Servomotor Max. Capacity kW
24 VDC/	1R7	0.011
48 VDC	2R9	0.030

4th digit Power Supply Voltage

Code	Specifications
E	48 VDC*

5th+6th digits Interface

Code	Specifications
11	MECHATROLINK-II communications Reference (for rotary servomotors)

7th digit Design Revision Order

A, B...

8th+9th+10th digits Options (hardware)

Code	Specifications
002	Base-mounted, varnish(standard)

11th+12th digits Options (software)

Code	Specifications
00	Standard

13th digit Options (parameter)

Code	Specifications
0	Standard

*: Either a 24-VDC or a 48-VDC power supply can be used for the main circuit. The control power supply must be 24 VDC.
Note: If the option codes digits 8 to 13 are all zeros, they are omitted.

Features

● Real-time communications

MECHATROLINK-II communications enable high-speed control for 30 stations at a maximum transmission speed of 10 Mbps in a transmission cycle from 250 μ s to 4 ms (set by the host controller). Such a high transmission speed allows real-time transmission of various data required for control.

● Cost savings

Thirty stations can be connected to a single MECHATROLINK-II transmission line, so wiring costs and time are greatly reduced. Also, only one signal connector is required on the host controller. And, the all-digital network eliminates the need for conversion from digital to analog for speed/torque references and for a pulse generator to generate position references.

● High-precision motion control

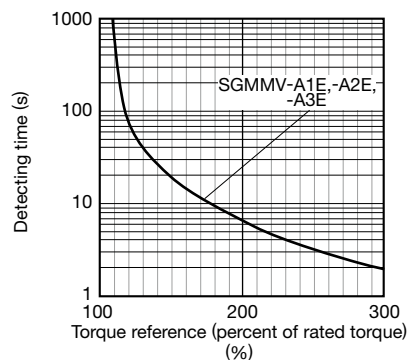
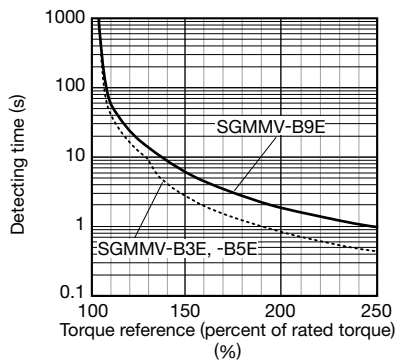
The SGD V SERVOPACK when connected to the host controller in the MECHATROLINK-II network provides not only torque, position, and speed control but also synchronized phase control that requires advanced control technology. The control mode can be changed online so that the machine can move smoothly in complex motions with great efficiency.

Ratings

SERVOPACK Model SGD V-□□□□	1R7E		2R9E	
Applicable Servomotor Max. Capacity	kW		0.030	
Continuous Output Current	Arms		2.9	
Max. Output Current	Arms		8.6	
Regenerative Resistors	None			
Main Circuit*	24 VDC \pm 15%	48 VDC \pm 15%	24 VDC \pm 15%	48 VDC \pm 15%
Control Circuit	24 VDC \pm 15%			

*: Either a 24-VDC or a 48-VDC power supply can be used for the main circuit. When a 24-VDC power supply is used, the torque-motor speed characteristics for a 48 VDC cannot be achieved. For details, refer to Torque-Motor Speed Characteristics on page 6.

● SERVOPACK Overload Characteristics



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

Items		Specifications		
Control Method		PWM control, sine-wave driven		
Feedback		Serial encoder: 17-bit (incremental/absolute)		
Operating Conditions	Ambient Temperature	0 to +55°C		
	Storage Temperature	-20 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	Do not use SERVOPACKs in the following locations: <ul style="list-style-type: none"> • Locations subject to static electricity noise, strong electromagnetic/magnetic fields, radioactivity 			
Applicable Standards		UL508C EN55011/A1, EN61000-6-2, EN61800-3, EN61800-5-1		
Mounting		Base-mounted		
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 Fluctuation	0% to 100% load: ±0.01% max. (at rated speed)	
		Voltage Fluctuation	Rated voltage: ±10% : 0% (at rated speed)	
		Temperature Fluctuation	25±25°C : ±0.1% max. (at rated speed)	
	Torque Control Tolerance (Repeatability)		±1%	
Soft Start Time Setting ^{*2}		0 to 10 s (can be set individually for acceleration and deceleration.)		
I/O Signal	Sequence Input	Input Signals which can be allocated	Number of Channels	3 channels
			Functions	<ul style="list-style-type: none"> • Homing deceleration switch signal (/DEC) • External latch signals (/EXT 1) • Forward run prohibited (P-OT), reverse run prohibited (N-OT) • Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) 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
Functions	<ul style="list-style-type: none"> • 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) Positive and negative logic can be changed.			
Communications	Computer (USB)	Compatible with SigmaWin+. Compliant with the USB1.1 standard (12 Mbps)		
Display		Servo alarm (ALM): red; servo ready (RDY): green; communications(COM): green		
DIP Switches for MECHATROLINK-II Communication Settings		DIP switches: SW1 and SW2	Number of poles: 4/DIP switch (two DIP switches)*3	
Analog Monitor		Number of points: 2 Output voltage: ±10 VDC (linearity effective range: ±8 V) Output through the analog monitor unit (model: JUSP-PC001-E)		

*1: Speed regulation is defined as follows:

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

The motor speed may change due to voltage fluctuation or temperature fluctuation.

The ratio of speed changes to the rated speed represent speed regulation due to voltage and temperature fluctuations.

*2 : For information on soft start, refer to 4.2.10 Velocity Control (VELCTRL: 3CH) in the AC Servo Drives Σ -V Series USER'S MANUAL MECHATROLINK-II Commands

*3 : For details, refer to 4.1.1 Setting Switches SW1 and SW2 in the AC Servo Drives DC Power Input Σ -V Series USER'S MANUAL Design and Maintenance

(Cont'd)

Specifications

Items	Specifications	
Dynamic Brake (DB)	Not available	
Regenerative Processing	Not available	
Overtravelling (OT) Prevention	Decelerate to a stop or coast to a stop when overtraveling is detected and an overtravel signal (P-OT or N-OT) is input.	
Protective Functions	Overcurrent, Overvoltage, low voltage, overload, etc.	
Utility Functions	Gain adjustment, alarm history, JOG operation, origin search, etc.	
MECHATROLINK-II Communications	Communications Protocol	MECHATROLINK-II
	Station Address	41H to 5FH (max. number of slaves: 30) Set station addresses with combinations of SW1 and SW2 settings.
	Transmission Speed	10 Mbps, 4 Mbps Set by using the SW2 DIP switch.
	Transmission Cycle	250 μ s or 0.5 ms to 4.0 ms (increments of 0.5 ms)
	Number of Transmission Bytes	Can be switched between 17 bytes /station and 32 bytes / station. Set by using the SW2 DIP switch.
Command Method	Performance	Position control, speed control, and torque control through MECHATROLINK-II communications
	Command Input	MECHATROLINK-II commands (for sequence, motion, data setting/reference, monitoring, adjustment, and other commands.)

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	Applicable Servomotor Max. Capacity W	SERVOPACK Model SGDV-	Main Circuit Power Supply Capacity per SERVOPACK W	Output Current Arms	Main Circuit Power Loss W	Regenerative Resistor Power Loss W	Control Circuit Power Loss W	Total Power Loss W
24 VDC	11	1R7E	108	1.7	3.4	-	7.2	10.6
	30	2R9E	165	2.9	6.9			14.1
48 VDC	11	1R7E	169	1.7	3.4	-	7.2	10.6
	30	2R9E	411	2.9	6.9			14.1

Note: These power supply capacities are net values at instantaneous maximum loads.

MECHATROLINK-III Communications Reference SERVOPACKs

SGDV-□□□E21 (For Rotary Servomotors)



Model Designations

S G D V- 2R9 E 21 A 002 00 0

Σ-V Series
SGDV
SERVOPACKs
with DC Power Input

1st+2nd+
3rd digits

4th
digit

5th+6th
digits

7th
digit

8th+9th+
10th digits

11th+12th
digits

13th
digit

1st+2nd+3rd digits Current

Voltage	Code	Applicable Servomotor Max. Capacity kW
24 VDC/	1R7	0.011
48 VDC	2R9	0.030

4th digit Power Supply Voltage

Code	Specifications
E	48 VDC*

5th+6th digits Interface

Code	Specifications
21	MECHATROLINK-III communications Reference (for rotary servomotors)

7th digit Design Revision Order

A, B...

8th+9th+10th digits Options (hardware)

Code	Specifications
002	Base-mounted, varnish(standard)

11th+12th digits Options (software)

Code	Specifications
00	Standard

13th digit Options (parameter)

Code	Specifications
0	Standard

*: Either a 24-VDC or a 48-VDC power supply can be used for the main circuit. The control power supply must be 24 VDC.
Note: If the option codes digits 8 to 13 are all zeros, they are omitted.

Features

● Real-time communications

MECHATROLINK-III communications enable high-speed control for 62 stations at a transmission speed of 100 Mbps in a transmission cycle from 125 μ s to 4 ms (set by the host controller). Such a high transmission speed allows real-time transmission of various data required for control.

● Cost savings

The 62 stations can be connected to a single MECHATROLINK-III transmission line, so wiring costs and time are greatly reduced. Also, only one signal connector is required on the host controller. And, the all-digital network eliminates the need for conversion from digital to analog for speed/torque references and for a pulse generator to generate position references.

● High-precision motion control

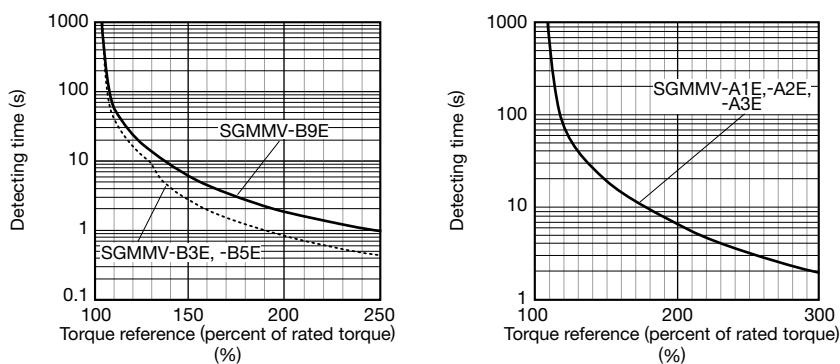
The SGD V SERVOPACK when connected to the host controller in the MECHATROLINK-III network provides not only torque, position, and speed control but also synchronized phase control that requires advanced control technology. The control mode can be changed online so that the machine can move smoothly in complex motions with great efficiency.

Ratings

SERVOPACK Model SGD V-□□□□	1R7E		2R9E	
Applicable Servomotor Max. Capacity	kW		0.030	
Continuous Output Current	Arms		2.9	
Max. Output Current	Arms		8.6	
Regenerative Resistors	None			
Main Circuit*	24 VDC \pm 15□	48 VDC \pm 15□	24 VDC \pm 15□	48 VDC \pm 15□
Control Circuit	24 VDC \pm 15□			

*: Either a 24-VDC or a 48-VDC power supply can be used for the main circuit. When a 24-VDC power supply is used, the torque-motor speed characteristics for a 48 VDC cannot be achieved.

● SERVOPACK Overload Characteristics



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

Items		Specifications		
Control Method		PWM control, sine-wave driven		
Feedback		Serial encoder: 17-bit (incremental/absolute)		
Operating Conditions	Ambient Temperature	0 to +55°C		
	Storage Temperature	-20 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	Do not use SERVOPACKs in the following locations: <ul style="list-style-type: none"> • Locations subject to static electricity noise, strong electromagnetic/magnetic fields, radioactivity 			
Applicable Standards		UL508C EN55011/A1 □ EN61000-6-2 □ EN61800-3 □ EN61800-5-1		
Mounting		Base-mounted		
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**	Load Fluctuation	0% to 100% load: ±0.01% max. (at rated speed)	
		Voltage Fluctuation	Rated voltage: ±10% : 0% (at rated speed)	
		Temperature Fluctuation	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 Signal	Sequence Input	Input Signals which can be allocated	Number of Channels	3 channels
			Functions	<ul style="list-style-type: none"> • Homing deceleration switch signal (/DEC) • External latch signals (/EXT 1) • Forward run prohibited (P-OT), reverse run prohibited (N-OT) • Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) 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
		Functions	<ul style="list-style-type: none"> • 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) Positive and negative logic can be changed.	
Communications	Computer (USB)	Compatible with SigmaWin+. Compliant with the USB1.1 standard (12 Mbps)		
Display		Servo alarm (ALM): red, servo ready (RDY): green, link 1 (LK1): green, link 2 (LK2): green, communications (COM): green		
DIP Switches for MECHATROLINK-III Communication Settings		S1 DIP switch	Number of poles: 8 ²	
		S2 DIP switch	Number of poles: 4 ²	
Analog Monitor		Number of points: 2 Output voltage: ±10 VDC (linearity effective range: ±8 V) Output through the analog monitor unit (model: JUSP-PC001-E)		

*1: Speed regulation is defined as follows:

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

The motor speed may change due to voltage fluctuation or temperature fluctuation.

The ratio of speed changes to the rated speed represent speed regulation due to voltage and temperature fluctuations.

*2: For details, refer to 4.1.1 Setting Switches S1 and S2 in the AC Servo Drives DC Power Input Σ-V Series USER'S MANUAL Design and Maintenance

(Cont'd)

Specifications

Items	Specifications	
Dynamic Brake (DB)	Not available	
Regenerative Processing	Not available	
Overtravelling (OT) Prevention	Decelerate to a stop or coast to a stop when overtraveling is detected and an overtravel signal (P-OT or N-OT) is input.	
Protective Functions	Overcurrent, Overvoltage, low voltage, overload, etc.	
Utility Functions	Gain adjustment, alarm history, JOG operation, origin search, etc.	
MECHATROLINK-III Communications	Communications Protocol	MECHATROLINK-III
	Station Address	03H to EFH (max. number of slaves: 62) Set by using the S1 DIP switch.
	Transmission Speed	100 Mbps
	Transmission Cycle	125 μ s, 250 μ s, 500 μ s, 750 μ s, 1 ms to 4 ms (increments of 0.5 ms)
	Number of Transmission Bytes	Can be switched between 16 bytes/station, 32 bytes/station, or 48 bytes/station Set by using the S2 DIP switch.
Command Method	Performance	Position control, speed control, and torque control through MECHATROLINK-III communications
	Command Input	MECHATROLINK commands (for sequence, motion, data setting/reference, monitoring, adjustment, and other commands.)
	Profile	MECHATROLINK-II compatible profile MECHATROLINK-III standard servo profile

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	Applicable Servomotor Max. Capacity W	SERVOPACK Model SGDV-	Main Circuit Power Supply Capacity per SERVOPACK W	Output Current Arms	Main Circuit Power Loss W	Regenerative Resistor Power Loss W	Control Circuit Power Loss W	Total Power Loss W
24 VDC	11	1R7E	108	1.7	3.4	-	7.2	10.6
	30	2R9E	165	2.9	6.9			14.1
48 VDC	11	1R7E	169	1.7	3.4	-	7.2	10.6
	30	2R9E	411	2.9	6.9			14.1

Note: These power supply capacities are net values at instantaneous maximum loads.