SERVOPACKs



SERVOPACKs

106

128

SERVOPACKs

SGD7S SGD7W

Model Designation

Single Axis Amplifier

SGD7S	-	1R9	D	AO	В	000	F64
Sigma-7 Series Sigma-7S Models		1st 3rd	4th	5th + 6th	7th	8th 10th	11th 13th digit

4th digit - Voltage

	1st 3rd digit - Maximum Applicable Motor Capacity					
Code	Specification					
Three-phase, 400 V						
1R9	0.5 kW					
3R5	1.0 kW					
5R4	1.5 kW					
8R4	2.0 kW					
120	3.0 kW					
170	5.0 kW					
210	6.0 kW					
260	7.5kW					
280	11.0 kW					
370	15.0 kW					

Code	Specification				
D	400 V AC				
5th + 6	th digit - Interface ^{∗2}				
Code	Specification				
A0	EtherCAT				
710	communication reference				
C0	PROFINET				
	communication reference				
30	MECHATROLINK-III *, RJ45				
	communication reference				
MO	Sigma-7Siec (with built-in				
single-axis control)					
7th dig	it - Design Revision Order				

Standard Model

	8th 10th digit - Hardware Options Specifications					
Code	Specification	Applicable Models				
000	Without Options	All models				
026*3	With relay for holding brake	All models				

11th	13th digit - FT/EX Specification
Code	Specification
F64 ^{*1}	Zone table
F50	Application function for Sigma-7Siec

Bolded options are considered standard warehouse products.

*1. Only available for EtherCAT (CoE) and MECHATROLINK-III communication references.
*2. The same SERVOPACKs are used for both rotary and linear servomotors.
*3. For specification of the internal brake relay, please refer to the hardware manual of the amplifier.

В

Ratings and Specifications

Ratings

Three-phase, 400 VAC

Model SGD7S-			1R9D	3R5D	5R4D	8R4D	120D	170D	210D	260D	280D	370D
Maximum Applicable Motor Capacity [kW]		0.5	1	1.5	2	3	5	6	7.5	11	15	
Continuous Out	out Current [A]		1.9	3.5	5.4	8.4	11.9	16	20.8	25.7	28.1	37.2
Instantaneous N	laximum Output (Current [A]	5.5	8.5	14	21	28	42	55	65	70	85
Main Circuit	Power Supply	/		Т	hree-phase	e, 380 VAC	to 480 VA	C, -15% to	+10%, 50) Hz/60 Hz		
Iviain Gircuit	Input Current	[A]*	1.4	2.9	4.3	5.8	8.6	14.5	17.4	21.7	31.8	43.4
Control Power Supply Input Current [A]*						24VDC	±15%					
		1.2						1.4		1.5		
Power Supply Capacity [kVA]*		1.1	2.3	3.5	4.5	7.1	11.7	12.4	14.4	21.9	30.6	
	Main Circuit F	ower Loss [W]	19.2	30	62.3	89.4	136.8	188.7	188.4	228.5	278.2	389.8
	Control Circui	t Power Loss [W]			21			22	2	28	3	2
Power Loss*	wer Loss* Built-in Regenerativ Power Loss [W]		14	14	28	28	28	36	(18	30)*	(24	·0)*
	Total Power L	oss [W]	54.2	65	111.3	138.4	185.5	246.7	216.4	256.5	310.2	389.8
	Built-In	Resistance $[\Omega]$	75	75	75	43	43	27		-		
Regenerative	Regenerative Resistor	Capacity [W]	70	70	140	140	140	180		-		
Resistor Minimum Allowable External Resistance [Ω]		75	75	75	43	43	27	1	8	14.	.25	
Overvoltage Cat	egory						11	I				

* This is the net value at the rated load.

540 VDC

Model SGD7S-		1R9D	3R5D	5R4D	8R4D	120D	170D	210D	260D	280D	370D	
Maximum Applicable Motor Capacity [kW]		0.5	1	1.5	2	3	5	6	7.5	11	15	
Continuous Out	out Current	[A]	1.9	3.5	5.4	8.4	11.9	16	20.8	25.7	28.1	37.2
Instantaneous Maximum Output Current [A]		5.5	8.5	14	21	28	42	55	65	70	85	
Main Circuit	Power S	Supply				513VDC	to 648 VD	C, -15% to	o +10 %			
Main Circuit Input Cur		urrent [A]*	2	3.3	5.5	6.8	11	18	19.6	26.2	38.3	47.6
Power Supply		24 VDC ±15 %										
Control Power S	uppiy	Input Current [A]*		1.2					1.4		1.5	
Power Supply C	apacity [kVA	<i>\</i>]*	1.1	2.3	3.5	4.5	7.1	11.7	12.4	14.4	21.9	30.6
	Main Cir	cuit Power Loss [W]	16.4	24.4	48.5	73.7	110.4	144.5	188.4	228.5	278.2	389.8
	Control Circuit Power Loss [W]			21			22	28		32		
Power Loss* Built-in Regenerative Resistor Power Loss [W]		14	14	28	28	28	36	(18	30)*	(24	0)*	
Total Power Loss [W]		37.4	45.4	69.5	94.7	131.4	166.5	216.4	228.5	310.2	389.8	
Overvoltage Cat	egory											

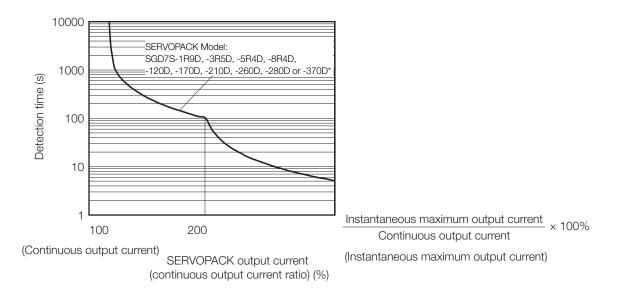
* This is the net value at the rated load.

SERVOPACK Overload Protection Characteristics

The overload detection level is set for hot start conditions with a SERVOPACK surrounding air temperature of $55^{\circ}C^{*}$.

An overload alarm (A.710 or A.720) will occur if overload operation that exceeds the overload protection characteristics shown in the following diagram (i.e., operation on the right side of the applicable line) is performed.

The actual overload detection level will be the detection level of the connected SERVOPACK or Servomotor that has the lower overload protection characteristics. In most cases, that will be the overload protection characteristics of the Servomotor.



Note:

The above overload protection characteristics do not mean that you can perform continuous duty operation with an output of 100% or higher.

For a YASKAWA-specified combination of SERVOPACK and Servomotor, maintain the effective torque within the continuous duty zone of the

torque-motor speed characteristic of the Servomotor.

* However, the range for the SGD7S-370D is -5°C to 40°C.

Specifications using EtherCAT Communication Reference

Item			Specification
Control Method			IGBT-based PWM control, sine wave current drive
	With Rotary Serve	omotor	Serial encoder: 24 bits (incremental encoder/absolute encoder)
Feedback	With Linear Serve		 Absolute linear encoder (The signal resolution depends on the absolute linear encoder.) Incremental linear encoder (The signal resolution depends on the incremental linear encoder or Serial Converter Unit.)
	Surrounding Air T	emperature*1	-5°C to 55°C (60°C with derating) However, the range for the SGD7S-370D is -5°C to 40°C.
	Storage Temperat	ture	-20°C to 85°C
	Surrounding Air H	lumidity	95% relative humidity max. (with no freezing or condensation)
	Storage Humidity		95% relative humidity max. (with no freezing or condensation)
	Vibration Resistar	nce	4.9 m/s ²
Environmental Shock Resistance		9	19.6 m/s ²
Conditions Degree of Prote	Degree of Protect	ion	IP10
	Pollution Degree		 Must be no corrosive or flammable gases. Must be no exposure to water, oil, or chemicals. Must be no dust, salts, or iron dust.
	Altitude		1,000 m or less (above 1,000 m with derating)
	Others		Do not use the SERVOPACK in the following locations: Locations subject to static electricity
Applicable Standard	ds		noise, strong electromagnetic/magnetic fields, or radioactivity Refer to the section Compliance with UL Standards, EU Directives, and Other Safety Standards (in Combination with SERVOPACK).
Mounting			Base-mounted
	Speed Control Ra	ange	1:5,000 (At the rated torque, the lower limit of the speed control range must not cause the Servomotor to stop.)
			± 0.01 % of rated speed max. (for a load fluctuation of 0 % to 100 %)
Dorformonas	Coefficient of Spe	ed Fluctuation*2	0% of rated speed max. (for a voltage fluctuation of ± 10 %)
Performance			± 0.1 % of rated speed max. (for a temperature fluctuation of 25 °C ± 25 °C)
	Torque Control Pr	ecision (Repeatability)	
	Soft Start Time Se	etting	0s to 10s (Can be set separately for acceleration and deceleration.)
	Encoder Divided	Pulse Output	Phase A, phase B, phase C: Line-driver output
Linear Servomo			Number of divided output pulses: Any setting is allowed Number of input points: 1
	Signal Input	o overneal Protection	Input voltage range: 0 V to +5 V
	olgriainipat		Allowable voltage range: 24 VDC $\pm 20\%$
	Sequence Input Signals	Input Signals that can be allocated	Number of input points: 7 Input method: Sink inputs or source inputs Input Signals P-OT (Forward Drive Prohibit) and N-OT (Reverse Drive Prohibit) signals /Probe1 (Probe 1 Latch Input) signal /Probe2 (Probe 2 Latch Input) signal /Home (Home Switch Input) signal /P-CL (Forward External Torque Limit) and /N-CL (Reverse External Torque Limit) signal /SI0 and /SI3 (General-Purpose Input) signals A signal can be allocated and the positive and negative logic can be changed.
		Fi 10 1 1	Allowable voltage range: 5 VDC to 30 VDC
		Fixed Output	Number of output points: 1 Output signal: ALM (Servio Alarm) signal
I/O Signals			Output signal: ALM (Servo Alarm) signal Allowable voltage range: 5 VDC to 30 VDC Number of output points: 5 (A photocoupler output (isolated) is used.) Output Signals • /COIN (Positioning Completion) signal
	Sequence Output Signals	Output Signals that can be allocated	 V-CMP (Speed Coincidence Detection) signal /TGON (Rotation Detection) signal /S-RDY (Servo Ready) signal /CLT (Torque Limit Detection) signal /VLT (Speed Limit Detection) signal /WLT (Speed Limit Detection) signal /WK (Brake) signal /WARN (Warning) signal /WARN (Warning) signal /ZONE0 (ZONE Signal 1 Output) signal /ZONE1 (ZONE Signal 2 Output) signal /ZONE2 (ZONE Signal 3 Output) signal /ZONE2 (ZONE Signal 4 Output) signal /ZONE (nZONE Output) signal A signal can be allocated and the positive and negative logic can be changed.
	DC 4004	Interfaces	Digital Operator (JUSP-OP05A-1-E)
	RS-422A Communications	1:N Communications	Up to N = 15 stations possible for RS-422A port
	(CN502)	Axis Address Setting	Set with parameters.
Communications		Ŭ	Personal Computer (with SigmaWin+)
	USB Communi-	Interface	The software version of the SigmaWin+ must be version 7.11 or higher.
	cations (CN7)		
	cations (CN7)	Communications	Conforms to USB 2.0 standard (12 Mbps).

Continued from previous page.

Item		Specification				
Displays/Indicators		CHARGE, PWR, RUN, ERR, and L/A (A and B) indicators, and one-digit seven-				
EtherCAT Communica	ations Setting Switches	segment display EtherCAT secondary address (S1 and S2), 16 positions				
	Applicable Communications Standards	IEC 61158 Type 12, IEC 61800-7 CiA402 Drive Profile				
	Physical Layer	100BASE-TX (IEEE 802.3)				
	Communications Connectors	CN6A (RJ45): EtherCAT signal input connector CN6B (RJ45): EtherCAT signal output connector				
	Cable	Category 5, 4 shielded twisted pairs * The cable is automatically detected with AUTO MDIX.				
	Sync Manager	SM0: Mailbox output, SM1: Mailbox input, SM2: Process data output, and SM3: Process data input				
EtherCAT	FMMU	FMMU 0: Mapped in process data output (RxPDO) area. FMMU 1: Mapped in process data input (TxPDO) area. FMMU 2: Mapped to mailbox status.				
Communications	EtherCAT Commands (Data Link Layer)	APRD, FPRD, BRD, LRD, APWR, FPWR, BWR, LWR, ARMW, and FRMW (APRW, FPRW, BRW, and LRW commands are not supported.)				
	Process Data	Assignments can be changed with PDO mapping.				
	Mailbox (CoE)	Emergency messages, SDO requests, SDO responses, and SDO information (TxPDO/RxPDO and remote TxPDO/RxPDO are not supported.)				
	Distributed Clocks	Free-Run Mode and DC Mode (Can be switched.) Applicable DC cycles: 125 µs to 4 ms in 125-µs increments				
	Slave Information Interface	256 bytes (read-only)				
CiA402 Drive Profile		EtherCAT communications in progress: Link/Activity x 2 EtherCAT communications status: RUN x 1 EtherCAT error status: ERR x 1				
		 Homing Mode Profile Position Mode Interpolated Position Mode Profile Velocity Mode Profile Torque Mode Cyclic Synchronous Position Mode Cyclic Synchronous Velocity Mode Cyclic Synchronous Torque Mode Touch Probe Function Torque Limit Function 				
Analog Monitor (CN5)		Number of points: 2 Output voltage range: ±10 VDC (effective linearity range: ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Maximum output current: ±10 mA Settling time (±1 %): 1.2 ms (Typ)				
Dynamic Brake (DB)		Activated when a servo alarm or overtravel (OT) occurs, or when the power supply to the main circuit or servo is OFF.				
Regenerative Process	ing	Built-in Refer to the catalog for details.				
Overtravel (OT) Preve	ntion	Stopping with dynamic brake, deceleration to a stop, or coasting to a stop for the P-OT (Forward Drive Prohibit) or N-OT (Reverse Drive Prohibit) signal				
Protective Functions		Overcurrent, overvoltage, low voltage, overload, regeneration error, etc.				
Utility Functions		Gain adjustment, alarm history, jogging, origin search, etc.				
	Inputs	/HWBB1 and /HWBB2: Base block signals for Power Modules				
Safety Functions	Output	EDM1: Monitors the status of built-in safety circuit (fixed output).				
	Applicable Standards*3	ISO13849-1 PLe (Category 3), IEC61508 SIL3				
Applicable Option Mc	dules	Fully-closed Modules, Option Module Safety				

*1. If you combine a Sigma-7 SERVOPACK with a Sigma-V Option Module, the surrounding air temperature specification of the Sigma-V SERVOPACKs must be used, i.e., 0 °C to 55 °C. Also, the applicable surrounding range cannot be increased by derating.

*2. The coefficient of speed fluctuation for load fluctuation is defined as follows: Coeficient of speed fluctuation = No-load motor speed - Total-load motor speed × 100%

Rated motor speed

*3. The SGD7S-210D, -260D, -280D, and -370D do not have a dynamic brake (DB). If a dynamic brake is necessary, create an external dynamic brake circuit.

*4. Always perform risk assessment for the system and confirm that the safety requirements are met.

Specifications using Sigma-7Siec Communication Reference

Item			Specification
Control Method			IGBT-based PWM control, sine wave current drive
	With Rotary Servo	motor	Serial encoder: 24 bits (incremental encoder/absolute encoder)
Feedback	With Linear Servo		 Absolute linear encoder (The signal resolution depends on the absolute linear encoder.) Incremental linear encoder (The signal resolution depends on the incremental linear encoder or Serial Converter Unit.)
	Surrounding Air Te	emperature*1	-5°C to 55°C (60°C with derating) However, the range for the SGD7S-370D is -5°C to 40°C.
	Storage Temperat	ure	-20°C to 85°C
	Surrounding Air H	umidity	95% relative humidity max. (with no freezing or condensation)
Storage	Storage Humidity	,	95% relative humidity max. (with no freezing or condensation)
	Vibration Resistar	ICE	4.9 m/s ²
Environmental Shock Resistanc)	19.6 m/s ²
Conditions	Degree of Protect	ion	IP10
Conditionio	Pollution Degree		Must be no corrosive or flammable gases.
	1 olidaon Degree		Must be no exposure to water, oil, or chemicals.Must be no dust, salts, or iron dust.
	Altitude		1,000 m or less (above 1,000 m with derating)
	Others		Do not use the SERVOPACK in the following locations: Locations subject to static electricity
Applicable Standard			noise, strong electromagnetic/magnetic fields, or radioactivity Refer to the section Compliance with UL Standards, EU Directives, and Other Safety Standards
Mounting			(in Combination with SERVOPACK). Base-mounted
	Speed Control Ra	inge	1:5,000 (At the rated torque, the lower limit of the speed control range must not cause the Servomotor to stop.)
			± 0.01 % of rated speed max. (for a load fluctuation of 0 % to 100 %)
	Coefficient of Spe	ed Eluctuation*2	0% of rated speed max. (for a voltage fluctuation of ± 10 %)
Performance	ocontoione or ope		
	Tauran Oaratual Du		±0.1 % of rated speed max. (for a temperature fluctuation of 25 °C ±25 °C)
		ecision (Repeatability)	±1%
	Soft Start Time Se	etting	0s to 10s (Can be set separately for acceleration and deceleration.)
	Encoder Divided I	Pulse Output	Phase A, phase B, phase C: Line-driver output
			Number of divided output pulses: Any setting is allowed
	Signal Input	r Overheat Protection	Number of input points: 1 Input voltage range: 0 V to +5 V
	olgridi inpat		Allowable voltage range: 24 VDC \pm 20 %
	Sequence Input Signals	Input Signals that can be allocated	Number of input points: 7 Input method: Sink inputs or source inputs Input Signals P-OT (Forward Drive Prohibit) and N-OT (Reverse Drive Prohibit) signals /Probe1 (Probe 1 Latch Input) signal /Probe2 (Probe 2 Latch Input) signal /Home (Home Switch Input) signal /P-CL (Forward External Torque Limit) and /N-CL (Reverse External Torque Limit) signal /SI0 and /SI3 (General-Purpose Input) signals A signal can be allocated and the positive and negative logic can be changed.
		F. 10.1	Allowable voltage range: 5 VDC to 30 VDC
		Fixed Output	Number of output points: 1 Output signal: ALM (Servo Alarm) signal
I/O Signals			Allowable voltage range: 5 VDC to 30 VDC Number of output points: 5 (A photocoupler output (isolated) is used.) Output Signals
	Sequence Output Signals	Output Signals that can be allocated	 /COIN (Positioning Completion) signal /V-CMP (Speed Coincidence Detection) signal /TGON (Rotation Detection) signal /S-RDY (Servo Ready) signal /CLT (Torque Limit Detection) signal /VLT (Speed Limit Detection) signal /WLT (Speed Limit Detection) signal /WLR (Brake) signal /WARN (Warning) signal /NEAR (Near) signal /ZONE0 (ZONE Signal 1 Output) signal /ZONE1 (ZONE Signal 3 Output) signal /ZONE2 (ZONE Signal 4 Output) signal /ZONE3 (ZONE Output) signal /ZONE (nZONE Output) signal A signal can be allocated and the positive and negative logic can be changed.
	DO 4004	Interfaces	Digital Operator (JUSP-OP05A-1-E)
	RS-422A Communications	1:N Communications	Up to N = 15 stations possible for RS-422A port
	(CN502)	Axis Address Setting	Set with parameters.
Communications			Personal Computer (with SigmaWin+)
	USB Communi- cations (CN7)	Interface	The software version of the SigmaWin+ must be version 7.11 or higher.
		Communications	Conforms to USB 2.0 standard (12 Mbps).
		Standard	

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Item		Specification				
Displays/Indicators		CHARGE, PWR, RUN, ERR, and L/A (A and B) indicators, and one-digit seven-				
EtherCAT Communica	ations Setting Switches	segment display EtherCAT secondary address (S1 and S2), 16 positions				
	Applicable Communications Standards	IEC 61158 Type 12, IEC 61800-7 CiA402 Drive Profile				
	Physical Layer	100BASE-TX (IEEE 802.3)				
	Communications Connectors	CN6A (RJ45): EtherCAT signal input connector CN6B (RJ45): EtherCAT signal output connector				
	Cable	Category 5, 4 shielded twisted pairs * The cable is automatically detected with AUTO MDIX.				
	Sync Manager	SM0: Mailbox output, SM1: Mailbox input, SM2: Process data output, and SM3: Process data input				
EtherCAT	FMMU	FMMU 0: Mapped in process data output (RxPDO) area. FMMU 1: Mapped in process data input (TxPDO) area. FMMU 2: Mapped to mailbox status.				
Communications	EtherCAT Commands (Data Link Layer)	APRD, FPRD, BRD, LRD, APWR, FPWR, BWR, LWR, ARMW, and FRMW (APRW, FPRW, BRW, and LRW commands are not supported.)				
	Process Data	Assignments can be changed with PDO mapping.				
	Mailbox (CoE)	Emergency messages, SDO requests, SDO responses, and SDO information (TxPDO/RxPDO and remote TxPDO/RxPDO are not supported.)				
	Distributed Clocks	Free-Run Mode and DC Mode (Can be switched.) Applicable DC cycles: 125 µs to 4 ms in 125-µs increments				
	Slave Information Interface	256 bytes (read-only)				
CiA402 Drive Profile		EtherCAT communications in progress: Link/Activity x 2 EtherCAT communications status: RUN x 1 EtherCAT error status: ERR x 1				
		 Homing Mode Profile Position Mode Interpolated Position Mode Profile Velocity Mode Profile Torque Mode Cyclic Synchronous Position Mode Cyclic Synchronous Velocity Mode Cyclic Synchronous Torque Mode Touch Probe Function Torque Limit Function 				
Analog Monitor (CN5)		Number of points: 2 Output voltage range: ±10 VDC (effective linearity range: ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Maximum output current: ±10 mA Settling time (±1 %): 1.2 ms (Typ)				
Dynamic Brake (DB)		Activated when a servo alarm or overtravel (OT) occurs, or when the power supply to the main circuit or servo is OFF.				
Regenerative Process	ing	Built-in Refer to the catalog for details.				
Overtravel (OT) Preve	ntion	Stopping with dynamic brake, deceleration to a stop, or coasting to a stop for the P-OT (Forward Drive Prohibit) or N-OT (Reverse Drive Prohibit) signal				
Protective Functions		Overcurrent, overvoltage, low voltage, overload, regeneration error, etc.				
Utility Functions		Gain adjustment, alarm history, jogging, origin search, etc.				
	Inputs	/HWBB1 and /HWBB2: Base block signals for Power Modules				
Safety Functions	Output	EDM1: Monitors the status of built-in safety circuit (fixed output).				
	Applicable Standards*3	ISO13849-1 PLe (Category 3), IEC61508 SIL3				
Applicable Option Mc	dules	Fully-closed Modules, Option Module Safety				

*1. If you combine a Sigma-7 SERVOPACK with a Sigma-V Option Module, the surrounding air temperature specification of the Sigma-V SERVOPACKs must be used, i.e., 0 °C to 55 °C. Also, the applicable surrounding range cannot be increased by derating.

*2. The coefficient of speed fluctuation for load fluctuation is defined as follows: Coeficient of speed fluctuation = No-load motor speed - Total-load motor speed × 100%

Rated motor speed

*3. The SGD7S-210D, -260D, -280D, and -370D do not have a dynamic brake (DB). If a dynamic brake is necessary, create an external dynamic brake circuit.

*4. Always perform risk assessment for the system and confirm that the safety requirements are met.

Specifications using MECHATROLINK-III Communication Reference

Item			Specification
Drive Method			IGBT-based PWM control, sine wave current drive
	With Rotary Servon	notor	Serial encoder: 24 bits (incremental encoder/absolute encoder)
Feedback			• Absolute linear encoder (The signal resolution depends on the absolute linear encoder.)
recuback	With Linear Servom	otor	Incremental linear encoder (The signal resolution depends on the incremental linear
			encoder or Serial Converter Unit.)
	Surrounding Air Ten	nperature*1	-5°C to 55°C (60°C with derating) However, the range for the SGD7S-370D is -5°C to 40°C.
	Storage Temperatu	70	-20°C to 85°C
	Surrounding Air Hu		95% relative humidity max. (with no freezing or condensation)
	Storage Humidity	Thurty	95% relative humidity max. (with no freezing or condensation)
	Vibration Resistance	2	4.9 m/s ²
Faulizanantal	Shock Resistance		19.6 m/s ²
Environmental Conditions	Degree of Protectio	n	IP10
Conditions	0		2
	Pollution Degree		 Must be no corrosive or flammable gases.
	r olidilori Boğroo		Must be no exposure to water, oil, or chemicals.
	Altitudo		Must be no dust, salts, or iron dust.
	Altitude		1,000 m or less (above 1,000 m with derating) Do not use the SERVOPACK in the following locations: Locations subject to static electricity
	Others		noise, strong electromagnetic/magnetic fields, or radioactivity
			Refer to the section Compliance with UL Standards, EU Directives, and Other Safety Standards
Applicable Standards			(in Combination with SERVOPACK).
Mounting			Base-mounted
5			1:5,000 (At the rated torque, the lower limit of the speed control range must not cause the
	Speed Control Ran	ge	Servomotor to stop.)
			±0.01 % of rated speed max. (for a load fluctuation of 0 % to 100 %)
	Coefficient of Speed	k	0% of rated speed max. (for a voltage fluctuation of $\pm 10\%$)
Performance	Fluctuation*2		
			± 0.1 % of rated speed max. (for a temperature fluctuation of 25 °C \pm 25 °C)
	Torque Control Pred	cision (Repeatability)	±1%
	Soft Start Time Set	ina	0s to 10s (Can be set separately for acceleration and deceleration.)
	Ŭ		Phase A, phase B, phase C: Line-driver output
	Encoder Divided Pu	Ilse Output	Number of divided output pulses: Any setting is allowed.
	Linear Servomotor	Overheat Protection	Number of input points: 1
	Signal Input		Input voltage range: 0 V to +5 V
			Allowable voltage range: 24 VDC ±20 %
			Number of input points: 7
		Input Signals that can be allocated	Input method: Sink inputs or source inputs
	Sequence Input		Input Signals /DEC (Origin Return Deceleration Switch) signal
	Signals		 /EXT1 to /EXT3 (External Latch Input 1 to 3) signals
	eignaio		P-OT (Forward Drive Prohibit) and N-OT (Reverse Drive Prohibit) signals
			• /P-CL (Forward External Torque Limit) and /N-CL (Reverse External Torque Limit) signals
			 /P-DET (Polarity Detection) signal
			A signal can be allocated and the positive and negative logic can be changed.
		Fixed Output	Allowable voltage range: 5 VDC to 30 VDC Number of output points: 1
		Tixed Output	Output signal: ALM (Servo Alarm) signal
I/O Signals			Allowable voltage range: 5 VDC to 30 VDC
			Number of output points: 5
			(A photocoupler output (isolated) is used.)
			Output Signals /COIN (Positioning Completion) signal
			 /V-CMP (Speed Coincidence Detection) signal
			 /TGON (Rotation Detection) signal
	Sequence Output		 /S-RDY (Servo Ready) signal
	Signals	Output Signals that	 /CLT (Torque Limit Detection) signal
		can be allocated	VLT (Speed Limit Detection) signal
			 /BK (Brake) signal (MARN (Marping) signal
			 /WARN (Warning) signal /NEAR (Near) signal
			 /NEAR (Near) signal /ZONE0 (ZONE Signal 1 Output) signal
			 /ZONE1 (ZONE Signal 2 Output) signal
			 /ZONE2 (ZONE Signal 3 Output) signal
			 /ZONE3 (ZONE Signal 4 Output) signal
			 /nZONE (nZONE output) signal
		lata da a	A signal can be allocated and the positive and negative logic can be changed.
	DS 100A Commu	Interfaces	Digital Operator (JUSP-OP05A-1-E)
	RS-422A Commu- nications (CN3)	1:N Communications	Up to N = 15 stations possible for RS-422A port
O a management a sti		Axis Address Setting	Set with parameters.
Communications			Personal Computer (with SigmaWin+)
	USB Communica-	Interface	The software version of the SigmaWin+ must be version 7.11 or higher.
	tions (CN7)	Communicationa	
	tions (CN7)	Communications	Conforms to USB 2.0 standard (12 Mbps)
	tions (CN7)	Standard	Conforms to USB 2.0 standard (12 Mbps).

Continued from previous page.

Item		Specification	
	Communications Protocol	MECHATROLINK-III	
MECHATROLINK-III	Station Address Settings	03 to EF hex (maximum number of slaves: 62) The rotary switches (S1 and S2) are used to set the station address.	
Communications	Transmission Speed	100 Mbps	
	Transmission Cycle	125 µs, 250 µs, 500 µs, 750 µs, 1.0 ms to 4.0 ms (multiples of 0.5 ms)	
	Number of Transmission Bytes	32 or 48 bytes/station A DIP switch (S3) is used to select the number of transmission bytes.	
	Performance	Position, speed, or torque control with MECHATROLINK-III communications	
Reference Method	Reference Input	MECHATROLINK-III commands (sequence, motion, data setting, data access, monitoring, adjustment, etc.)	
	Profile	MEACHATROLINK-III standard servo profile	
MECHATROLINK-III C	ommunications Setting Switches	Rotary switch (S1 and S2) positions: 16 Number of DIP switch (S3) pins: 4	
Analog Monitor (CN5)		Number of points: 2 Output voltage range: ±10 VDC (effective linearity range: ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Maximum output current: ±10 mA Settling time (±1%): 1.2 ms (Typ)	
Dynamic Brake (DB)		Activated when a servo alarm or overtravel (OT) occurs, or when the power supply to the main circuit or servo is OFF.	
Regenerative Processi	ing	Built-in Refer to the catalog for details.	
Overtravel (OT) Prever	ition	Stopping with dynamic brake, deceleration to a stop, or coasting to a stop for the P-OT (Forward Drive Prohibit) or N-OT (Reverse Drive Prohibit) signal	
Protective Functions		Overcurrent, overvoltage, low voltage, overload, regeneration error, etc.	
Utility Functions		Gain adjustment, alarm history, jogging, origin search, etc.	
	Inputs	/HWBB1 and /HWBB2: Base block signals for Power Modules	
Safety Functions	Output	EDM1: Monitors the status of built-in safety circuit (fixed output).	
	Applicable Standards*3	ISO13849-1 PLe (Category 3), IEC61508 SIL3	
Applicable Option Modules		Fully-closed Modules	

*1. If you combine a Sigma-7 SERVOPACK with a Sigma-V Option Module, the surrounding air temperature specification of the Sigma-V SERVOPACKs must be used, i.e., 0 °C to 55 °C. Also, the applicable surrounding range cannot be increased by derating.

*2. The coefficient of speed fluctuation for load fluctuation is defined as follows: Coefficient of speed fluctuation = $\frac{\text{No-load motor speed}}{\text{Rated motor speed}} \times 100\%$

*3. The SGD7S-210D, -260D, -280D, and -370D do not have a dynamic brake (DB). If a dynamic brake is necessary, create an external dynamic brake circuit.

*4. Always perform risk assessment for the system and confirm that the safety requirements are met.

Specifications using PROFINET Communication Reference

Item			Specification
Control Method			IGBT-based PWM control, sine wave current drive
	With Rotary Serve	omotor	Serial encoder: 24 bits (incremental encoder/absolute encoder)
Feedback	With Linear Serve	omotor	 Absolute linear encoder (The signal resolution depends on the absolute linear encoder.) Incremental linear encoder (The signal resolution depends on the incremental linear encoder or Serial Converter Unit.)
	Surrounding Air T	emperature*1	-5°C to 55°C (60°C with derating) However, the range for the SGD7S-370D is -5°C to 40°C.
	Storage Tempera	ture	-20°C to 85°C
	Surrounding Air F		95 % relative humidity max. (with no freezing or condensation)
	Storage Humidity		95% relative humidity max. (with no freezing or condensation)
	Vibration Resistar	nce	4.9 m/s ²
- nvironmental	Shock Resistance	Э	19.6 m/s ²
Conditions	Degree of Protect	tion	IP10
	Pollution Degree		 2 Must be no corrosive or flammable gases. Must be no exposure to water, oil, or chemicals. Must be no dust, salts, or iron dust.
	Altitude		1,000 m or less (above 1,000 m with derating)
	Others		Do not use the SERVOPACK in the following locations: Locations subject to static electricity
	0.1.0.0		noise, strong electromagnetic/magnetic fields, or radioactivity
Applicable Standar	rds		Refer to the section Compliance with UL Standards, EU Directives, and Other Safety Standards (in Combination with SERVOPACK).
Mounting			Base-mounted
	Speed Control Ra	ange	1:5,000 (At the rated torque, the lower limit of the speed control range must not cause the Servomotor to stop.)
			± 0.01 % of rated speed max. (for a load fluctuation of 0 % to 100 %)
Performance	Coefficient of Speed Fluctuation*2		0% of rated speed max. (for a voltage fluctuation of ± 10 %)
Chonnanoc			± 0.1 % of rated speed max. (for a temperature fluctuation of 25 °C ± 25 °C)
	Torque Control Precision (Repeatability)		±1%
		()))	
	Soft Start Time S	eπing	0s to 10s (Can be set separately for acceleration and deceleration.)
	Encoder Divided	Pulse Output	Phase A, phase B, phase C: Line-driver output Number of divided output pulses: Any setting is allowed
	Linear Servomoto Signal Input	or Overheat Protection	Number of input points: 1 Input voltage range: 0 V to +5 V
			Allowable voltage range: 24 VDC \pm 20 % Number of input points: 7
		Input Signals that can be allocated	Input method: Sink inputs or source inputs Input Signals
	Sequence Input Signals		 P-OT (Forward Drive Prohibit) and N-OT (Reverse Drive Prohibit) signals /EXT1 (Probe 1 Latch Input) signal /EXT2 (Probe 2 Latch Input) signal
			 /DEC (Home Switch Input) signal /P-CL (Forward External Torque Limit) and /N-CL (Reverse External Torque Limit) signal
VQ Signala			 /SI0 and /SI6 (General-Purpose Input) signals A signal can be allocated and the positive and negative logic can be changed. Allowable voltage range: 5 VDC to 30 VDC
/O Signals		Fixed Output	Number of output points: 1 Output signal: ALM (Servo Alarm) signal
			Allowable voltage range: 5 VDC to 30 VDC Number of output points: 5
			(A photocoupler output (isolated) is used.) Output Signals
	Sequence Output Signals	Output Signals that can	 /COIN (Positioning Completion) signal /V-CMP (Speed Coincidence Detection) signal /TGON (Rotation Detection) signal (S. PDV (Speed Detection)
		be allocated	 /S-RDY (Servo Ready) signal /CLT (Torque Limit Detection) signal /VLT (Speed Limit Detection) signal /BK (Brake) signal /WARN (Warning) signal /NEAR (Near) signal
			A signal can be allocated and the positive and negative logic can be changed.
	RS-422A	Interfaces	Digital Operator (JUSP-OP05A-1-E)
	Communications	1:N Communications	Up to N = 15 stations possible for RS-422A port
	(CN502)	Axis Address Setting	Set with parameters.
Communications	USB Communi-	Interface	Personal Computer (with SigmaWin+) The software version of the SigmaWin+ must be version 7.28 or higher.
	cations (CN7)	Communications	Conforms to USB 2.0 standard (12 Mbps).
	5000010 (0147)		

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tem		Specification	
Displays/Indicators		CHARGE, PWR, RUN, ERR, and L/A (A and B) indicators, and one-digit seven-segment display	
	Applicable Communications Standards	IEC 61158 Type 12, IEC 61800-7 PROFIdrive Profile, Ethernet PROFINET IO RT	
	Physical Layer	100BASE-TX (IEEE 802.3)	
		CN6A (RJ45): PROFINET signal input connector	
	Communications Connectors	CN6B (RJ45): PROFINET signal output connector Full-duplex, Auto-negotiation, Auto-crossover	
	Cable	Category 5, 4 shielded twisted pairs	
		* The cable is automatically detected with AUTO MDIX.	
	Baud Rate Setting	 100 MBit/s RTC - Real time cyclic protocol - RT class 1 (unsynchronized) 	
PROFINET	Supported Protocols	 RTA - Real time acyclic protocol DCP - Discovery and configuration protocol CL-RPC - Connectionless remote procedure call LLDP - Link layer discovery protocol SNMP - Simple network management protocol 	
Communications	Node Address Setting	DCP	
	Indentification & Maintenance Functions	1&MO-3	
	Topology Recognition	LLDP, SNMP V1, MIB2	
	Power Supply	5V±5%, 500mA(max.) supplied internal from drive CN10	
	LED Indicator	Red (ERR), Green (RUN), PROFINET communicating (L/A) \times 2	
	Node Type	Axis Drive Unit	
	Acyclic Parameter Access	Read/Write Record	
	Cyclic Messaging	Set of pre-defined standard telegram: ST1, ST2, ST7, ST8, ST9 Set of pre-defined manufacture telegram: Telegram number 100 Telegram mapping: Dynamic with max. 16 signal entries of free telegram number 999	
	Alarm Notification PDU	Optional	
	Standard	IEC 61800-7-1/2/3	
	Motor Type / Axis Type	Servo / Rotary, Linear	
	Profile Services	Cycle messaging, Acyclic parameter access mechanism, Identification & maintenance functions (I&M03), PROFIdrive parameters, Diagnostic and alarm mechanism, Fault buffer mechanism	
ROFIdrive Profile	Application Classes	1, 3	
	PROFIdrive Position and Velocity Modes	Motion profile type: Linear	
	CIA402 Homing Modes	CIA402 Supported methods: 1-6, 17-22, 35, 33, 34 Motion profile type: Linear Homing persistent in absolute motor encoder	
	CIA402 Torque Mode	Torque Profile Type: Linear	
rive Profile		 Homing Mode PROFIdrive Position Mode PROFIdrive Velocity Mode Profile Torque Mode Touch Probe Function 	
nalog Monitor (CN5)	 Torque Limit Function Number of points: 2 Output voltage range: ±10 VDC (effective linearity range: ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Maximum output current: ±10 mA Settling time (±1 %): 1.2 ms (Typ) 	
)ynamic Brake (DB)		Activated when a servo alarm or overtravel (OT) occurs, or when the power supply to the main circuit or servo is OFF.	
egenerative Process	sing	Built-in. Refer to the catalog for details.	
vertravel (OT) Preve	ntion	Stopping with dynamic brake, deceleration to a stop, or coasting to a stop for the P-OT (Forwar Drive Prohibit) or N-OT (Reverse Drive Prohibit) signal	
rotective Functions		Overcurrent, overvoltage, low voltage, overload, regeneration error, etc.	
tility Functions		Gain adjustment, alarm history, jogging, origin search, etc.	
	Inputs	/HWBB1 and /HWBB2: Base block signals for Power Modules	
afate Constitutes	Output	EDM1: Monitors the status of built-in safety circuit (fixed output).	
Safety Functions	Applicable Standards*3	ISO13849-1 PLe (Category 3), IEC61508 SIL3	

*1. If you combine a Sigma-7 SERVOPACK with a Sigma-V Option Module, the surrounding air temperature specification of the Sigma-V SERVOPACKs must be used, i.e., 0°C to 55°C. Also, the applicable surrounding range cannot be increased by derating.

*2. The coefficient of speed fluctuation for load fluctuation is defined as follows: Coeficient of speed fluctuation = No-load motor speed - Total-load motor speed × 100%

Rated motor speed

*3. The SGD7S-210D, -260D, -280D, and -370D do not have a dynamic brake (DB). If a dynamic brake is necessary, create an external dynamic brake circuit.

*4. Always perform risk assessment for the system and confirm that the safety requirements are met.

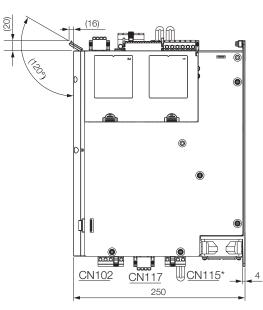
Front Cover Dimensions and Connector Specifications

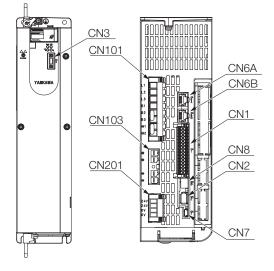
The front cover dimensions and panel connectors depend on the SERVOPACK interface. Refer to the following figures.

Front Cover Dimensions and Connector Specifications

The front cover dimensions and panel connector section are the same for all models. Refer to the following figures and table.

• Front Cover Dimensions and Connectors





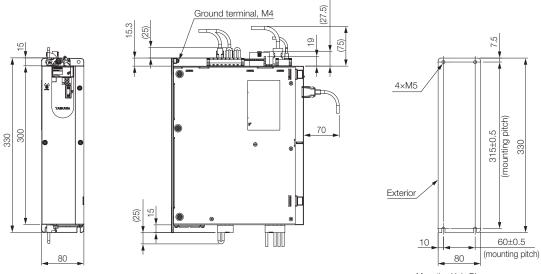
* Dynamic Brake Connector only for SGD7S-1R9D up to -170D.

• Connector Specifications

Connector No.	Function	Model	YASKAWA Order Code	Number of Pins	Manufacturer
CN1	I/O Connector	DFMC1,5/15-ST-3,5-LRBK	JUSP-7CN001	30	Phoenix Contact
CN2	Encoder Connector	-	JZSP-CMP9-1-E	6	Sumitomo 3M Ltd.
CN3	Digital Operator	-	-	14	Honda Tsushin Kogyo Co., Ltd.
CN6A/ CN6B	Fieldbus Connector	-	-	8	Tyco Electronics Japan G.K.
CN7	USB Connector for Sig- maWin	-	-	5	Tyco Electronics Japan G.K.
CN8	Safety Connector Kit	-	2013595-1	8	Tyco Electronics Japan G.K.
CN8	Safety Jumper Connector	-	JZSP-CVH05-E	8	Tyco Electronics Japan G.K.
CN101	Main Power Connector SGD7S-1R9D to -170D	BLZ 7.62HP/08/180LR SN BK BX PRT	JUSP-7CN101	8	Weidmüller
CINTUT	Main Power Connector SGD7S-210D to -370D	BUZ 10.16HP/07/180F AG BK BX LPR SO	JUSP-7CN101-1	7	Weidmüller
CN102	Motor Power Connector SGD7S-1R9D to -170D	BLZ 7.62IT/04/180MF4 SN BK BX PRT	JUSP-7CN102	4	Weidmüller
GNTUZ	Motor Power Connector SGD7S-210D to -370D	BUZ 10.16IT/04/180MF4 AG BK BX LPR SO	JUSP-7CN102-1	4	Weidmüller
CN103	DC Power Input SGD7S-1R9D to -170D	BVZ 7.62IT/04/180MF3 SN BK BX PRT	JUSP-7CN103	4	Weidmüller
CINTOS	DC Power Input SGD7S-210D to -370D	BUZ 10.16IT/04/180MF3 AG BK BX LPR SO	JUSP-7CN103-1	4	Weidmüller
CN115	Dynamic Brake Connector SGD7S-1R9D to -170D	BLZ 7.62IT/03/180MF2 SN BK BX PRT	JUSP-7CN115	3	Weidmüller
CITID	Dynamic Brake Connector SGD7S-210D to -370D	No integrated Dynamic Brake circuit.	External Dynamic Brak	e circuit is p	ossible as an option.
CN117	Holding Brake Connector	BLF 5.08HC/04/180LR SN BK BX SO	JUSP-7CN117	4	Weidmüller
CN201	24 V Control Power Input	BLF 5.08HC/04/180LR SN OR BX SO	JUSP-7CN201	4	Weidmüller

Dimensions of base-mounted SERVOPACKs

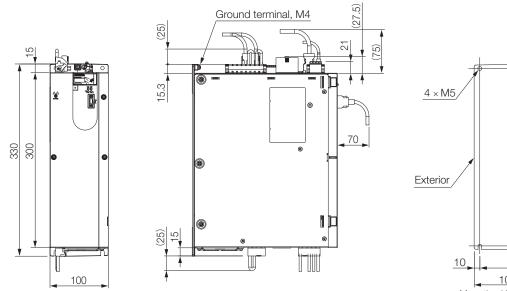
• Three-Phase, 400 VAC: SGD7S-1R9D, -3R5D, -5R4D, -8R4D, and -120D

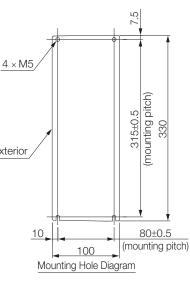


Mounting Hole Diagram

Approx. mass: SGD7S-1R9D, -3R5D, or -5R4D: 3.4 kg SGD7S-8R4D or -120D: 3.7 kg Unit: mm

• Three-Phase, 400 VAC: SGD7S-170D





Approx. mass: 5.5 kg Unit: mm

Contents

155±0.5 (mounting pitch)

6.5

(mounting pitch) 380

367±0.5

Approx. mass: 13.5 kg Unit: mm

180 Mounting Hole Diagram

12.5

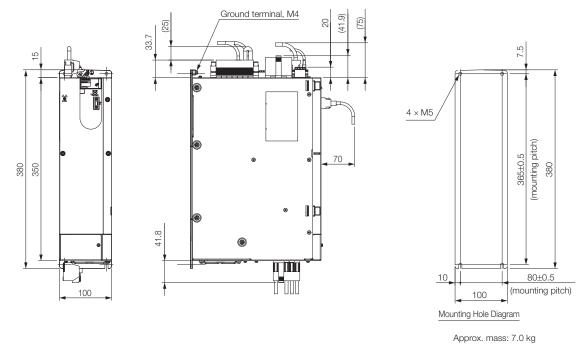
• Three-Phase, 400 VAC: SGD7S-210D and -260D

Ground terminal, M4 (25) (42) (22) 5 12 34 - 0%0 0 쏞 . <u>_</u> $4 \times M6$ 0 380 350 70 6 42 0 **T**

4

• Three-Phase, 400 VAC: SGD7S-280D and -370D

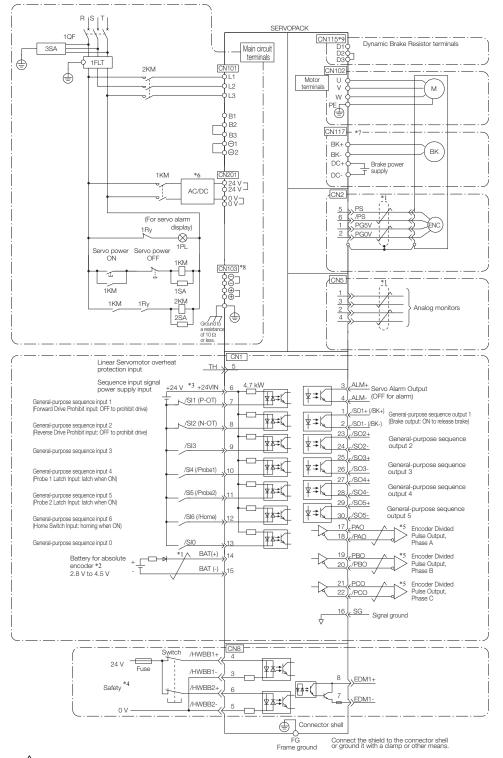
180



Unit: mm

System Configurations up to 5 kW

SGD7S Single-axis EtherCAT Reference **SERVOPACKs**

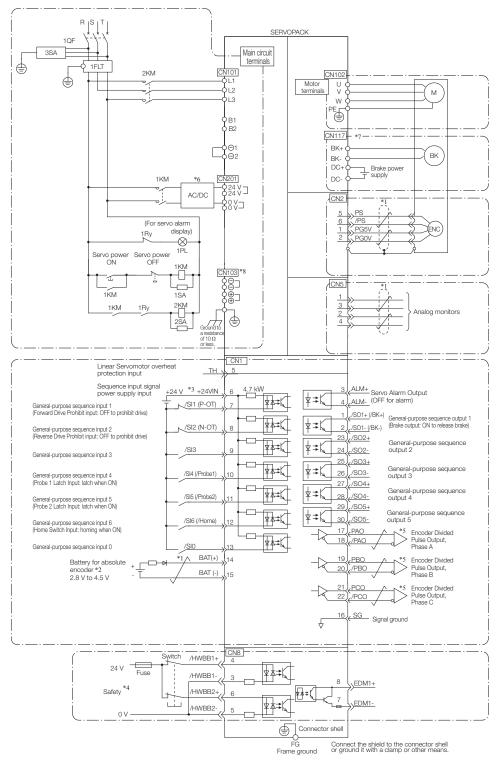


 \neq *1. repre sents twisted-pair wires

*2. Consect these when using an absolute encoder. If the Encoder Cable with a Battery Case is connected, do not connect a backup battery.
*3. The 24-VDC power supply is not provided by Yaskawa. Use a 24-VDC power supply with double insulation or reinforced insulation.
*4. Refer to the manual if you use a safety function device. If you do not use the safety function, insert the Safety Jumper Connector (provided as an accessory) into CN8 when you use the SERVOPACK.
*5. Always use line receivers to receive the output signals.
*6. Use an SELV-compilant power supply according to EN/IEC 60950-1 to input 24-VDC to the control power supply input terminals.
*7. The CN117 connector is only sup of SERVOPACKs with built-in Servemotor brake control, SGD7S-oooDooB026F64 and SGD7W-oooDooB026.
*8. If using these terminals, contact your YASKAWA representative.
*9. The CN115 Dynamic Brake Connector is only for SGD7S-1R9D up to -170D.

System Configurations with 6 kW and more

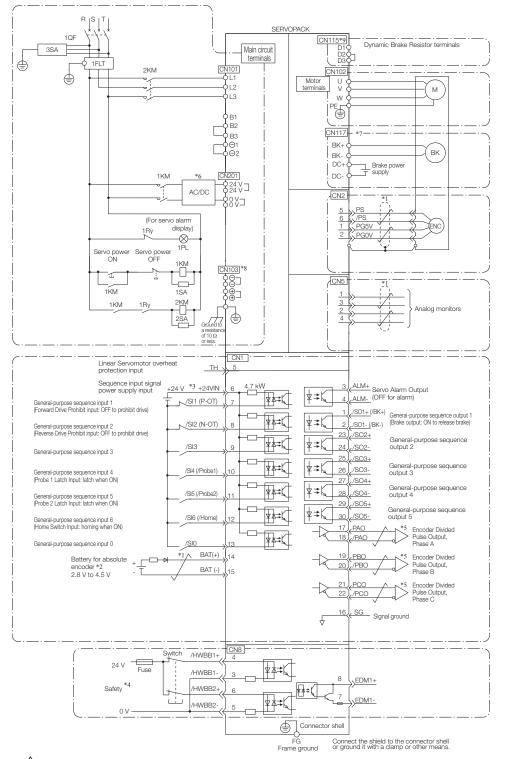
SGD7S Single-axis EtherCAT Reference **SERVOPACKs**



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 *5. Always use line receivers to receive the output signals.
 *6. Use an SELV-compliant power supply according to EN/IEC 60950-1 to input 24-VDC to the control power supply input terminals.
 *7. The CN117 connector is only used to SERVOPACKs with built-in Servomotor brake control, SGD7S-oooDooB026F64 and SGD7W-oooDooB026.
 *8. If using these terminals, contact your YASKAWA representative.

System Configurations up to 5 kW

SGD7S Single-axis PROFINET Reference **SERVOPACKs**

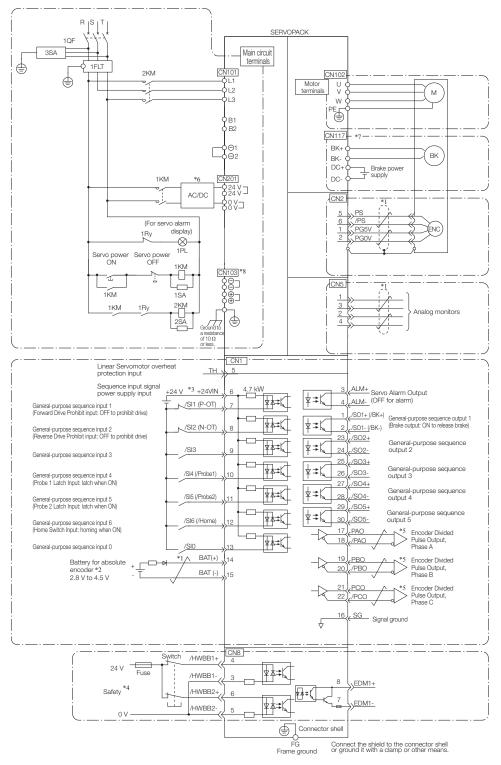


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System Configurations with 6 kW and more

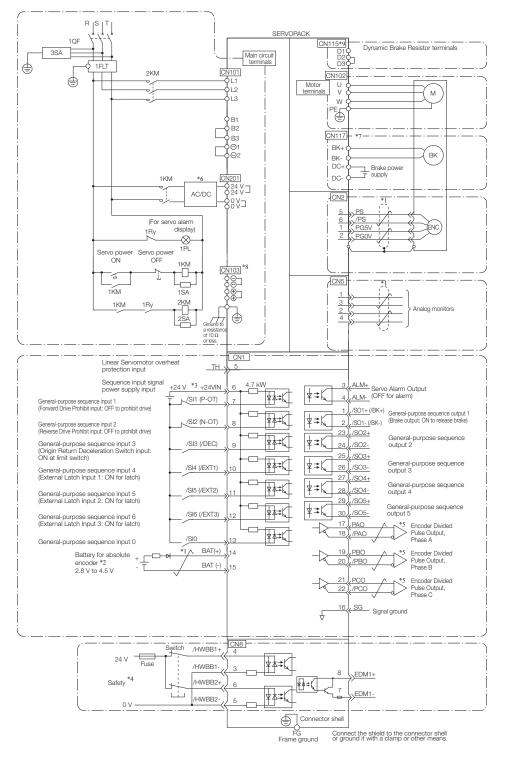
SGD7S Single-axis PROFINET Reference **SERVOPACKs**



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 *4. Refer to the manual if you use a safety function device. If you do not use the safety function, insert the Safety Jumper Connector (provided as an accessory) into CN8 when you use the SERVOPACK.
 *5. Always use line receivers to receive the output signals.
 *6. Use an SELV-compliant power supply according to EN/IEC 60950-1 to input 24-VDC to the control power supply input terminals.
 *7. The CN117 connector is only used to SERVOPACKs with built-in Servomotor brake control, SGD7S-oooDooB026F64 and SGD7W-oooDooB026.
 *8. If using these terminals, contact your YASKAWA representative.

System Configurations up to 5 kW

SGD7S Single-axis MECHATROLINK-III Reference **SERVOPACKs**

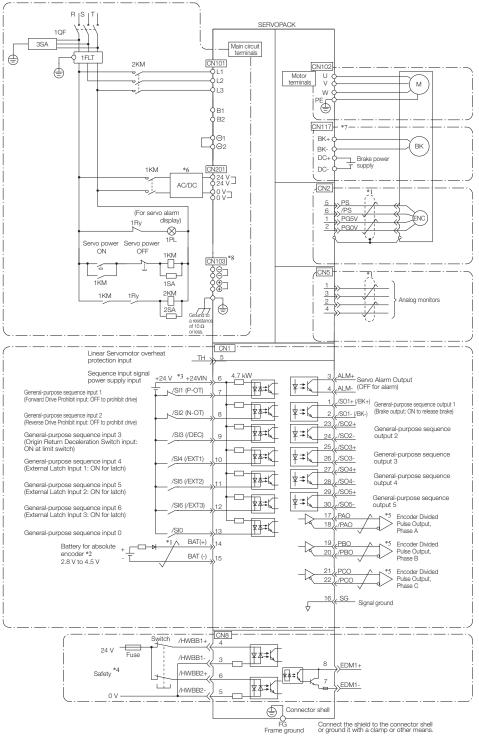


- represents twisted-pair wires.

- Connect these when using an absolute encoder. If the Encoder Cable with a Battery Case is connected, do not connect a backup battery. The 24-VDC power supply is not provided by Yaskawa. Use a 24-VDC power supply with double insulation or reinforced insulation. Refer to the manual if you use a safety function device. If you do not use the safety function, insert the Safety Jumper Connector (provided as an accessory) into CNB when you use the SERVOPACK. Always use line receivers to receive the output signals.
- www.suse time receivers to receive the output signals.
 46. Use an SELV-compliant power supply according to EN/EC 60950-1 to input 24-VDC to the control power supply input terminals.
 7. The CN117 connector is only used for SERVOPACKs with built-in Servomotor brake control, SGD7S-oooDooB026F64 and SGD7W-oooDooB026.
 *8. If using these terminals, contact your YASKAWA representative.
 *9. The CN115 Dynamic Brake Connector is only for SGD7S-1R9D up to -170D.

System Configurations with 6 kW and more

SGD7S Single-axis MECHATROLINK-III Reference **SERVOPACKs**



- *1. 🗲 represents twisted-pair wires.

- 2. Connect these when using an absolute encoder. If the Encoder Cable with a Battery Case is connected, do not connect a backup battery.
 *3. The 24-VDC power supply is not provided by Yaskawa. Use a 24-VDC power supply with double insulation or reinforced insulation.
 *4. Refer to the manual if you use a safety function device. If you do not use the safety function, insert the Safety Jumper Connector (provided as an accessory) into CN8 when you use the SERVOPACK.
 *5. Always use line receivers to receive the output signals.
 *6. Use an SELV-compliant power supply according to EN/IEC 60950-1 to input 24-VDC to the control power supply input terminals.
 *7. The CN117 connector is only used for SERVOPACK with built-in Servomotor brake control, SGD7S-oooDooB026F64 and SGD7W-oooDooB0266.
 *8. If using these terminals, contact your YASKAWA representative.

Cables for SERVOPACKs



1. Use the cable specified by YASKAWA for the computer cable. Operation may not be dependable with any other cable.

Notes:

Refer to the manual for the following information. Cable dimensional drawings and cable connection specifications. Order numbers and specifications of individual connectors for cables. Sigma-7-Series AC Servo Drive Peripheral Device Selection Manual.

Nam	ie	Length (L)	Order Number	Appearance
Analog Moni	itor Cable	1m	JZSP-CA01-E	
	Digital Operator (including 1 m cable)		JUSP-OP05A-1-E	
Digital Opera	Digital Operator Cable		JZSP-CVS07-A3-E ²	
Computer	Cable	2.5m	JZSP-CVS06-02-E	
		1m	JZSP-CVH03-01-E-G#	. L .
Safety Function	Cables with Connectors ^{*1}	3m	JZSP-CVH03-03-E-G#	■●●●
Device Cable	Connect	or Kit*²	Contact Tyco Electronics Japan Product name: Industrial Mini I/0 Model number: 2013595-1	G.K. D D-shape Type 1 Plug Connector Kit
EtherC PROFIN	MECHATROLINK-III EtherCAT PROFINET Communications Cables*3		CM3R M0-00P2-E CM3R M0-00P5-E JZSP-CM3R M0-01-E JZSP-CM3R M0-03-E JZSP-CM3R M0-05-E JZSP-CM3R M0-10-E JZSP-CM3R 00-20-E JZSP-CM3R 01-30-E JZSP-CM3R 01-40-E JZSP-CM3R 01-50-E	└ =•∲∰☐ ☐∰i==

*1. When using the safety function, connect this cable to the safety devices.

Even when not using the safety function, use SERVOPACKs with the Safe Jumper Connector (model: JZSP-CVH05-E) connected.

*2. Use the connector kit when you make cables yourself.

*3. This cable is available in two variants. The order number for these cables differs at the marked \Box , an "R" at this place is used for Cables with RJ45 Connectors on both ends, while an "M" is used for Cables with RJ45 Connector on One End and IMI Connector on the other End. "M" Variant not available for PROFINET cables.

Motor Connection Shielding Clamp

Shielding clamp mountable on Sigma-7 400 V SERVOPACKs up to 15 kW. Contact your YASKAWA representative for more information.

SERVOPACK Model	Order No.	Specification
Sigma-7 400V up to 3.0kW	KLBUE 4-13.5_SC	
Sigma-7 400V from 5kW up to 7.5kW	KLBUE 10-20_SC	B
Sigma-7 400 V for 11 kW & 15 kW	KLBUE 15-32_SC	

SGD7W Dual Axis

Model Designation

Dual Axis Amplifier

SGD7W	-	2R6	D	AO	В	-	
Sigma-7 Series Sigma-7W Models		 1st 3rd	4th	5th + 6th	7th	8th 10th	digit

1st 3rd digit - Maximum Applicable Motor Capacity				
Code	Specification			
Three-	phase, 400 V			
2R6	2 × 0.75 kW			
5R4	2 × 1.5 kW			
4th digit - Voltage				
Code	Specification			

D 400 V AC

5th + 6	th digit - Interface				
Code	Specification				
A0	EtherCAT communication reference				
30	MECHATROLINK-III, RJ45 communication reference				
7th dig	7th digit - Design Revision Order				
В	Standard Model				

8th 10th digit - Hardware Options Specifications				
Code	Specification	Applicable Models		
-	Without Options	All models		
026*	With relay for holding brake	All models		

Bolded options are considered standard warehouse products.

* For specification of the internal brake relay, please refer to the hardware manual of the amplifier.

Ratings and Specifications

Ratings

Three-phase, 400 VAC

Model SGD7W-		2R6D	5R4D		
Maximum Applical	ole Motor Capacity	0.75	1.5		
Continuous Outpu	t Current per Axis	2.6	5.4		
Instantaneous Max	kimum Output Cur	rent per Axis [A]	8.5	14	
Main Circuit	Power Supply			, 380 V AC to 480 V AC, +10 %, 50 Hz/60 Hz	
	Input Current [A]	*	4.4	8.6	
Control	Power	Supply	24 V DC ±15 %		
Control	Input C	Current [A]*	1.2		
Power Supply Cap	bacity [kVA]*		3.5	6.8	
	Main Circuit Pow	ver Loss [W]	65.4	108.6	
Power Loss*	Control Circuit P	ower Loss [W]	21		
FOWER LOSS	Built-in Regenera	ative Resistor Power Loss [W]	28	28	
	Total Power Loss	s [VV]	114.4	157.6	
	Built-In	Resistance $[\Omega]$	43	43	
Regenerative Resistor	Regenerative Resistor	Capacity [W]	140	140	
	Minimum Allowa	ole External Resistance [Ω]	43	43	
Overvoltage Categ	Jory				

* This is the net value at the rated load.

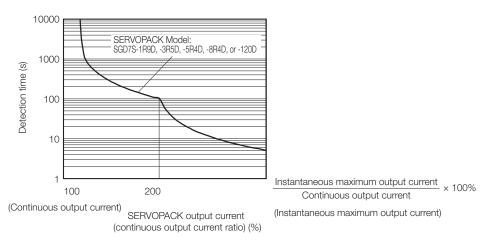
540 V DC

Model SGD7W-		2R6D	5R4D
Maximum Applica	able Motor Capacity per Axis [kW]	0.75	1.5
Continuous Outp	ut Current per Axis [A]	2.6	5.4
Instantaneous Ma	aximum Output Current per Axis [A]	8.5	14
Main Circuit	Power Supply	513VDC to 648VDC, -15% to +10%	
	Input Current [A]*	5	11
Control	Power Supply	24 V DC ±15 %	
Control	Input Current [A]*	1.2	
Power Supply Ca	pacity [kVA]*	3.5	6.8
	Main Circuit Power Loss [W]	47.4	90.6
Power Loss*	Control Circuit Power Loss [W]	2	1
Total Power Loss [W]		68.4	111.6
Overvoltage Cate	gory	I	11

* This is the net value at the rated load.

SERVOPACK Overload Protection Characteristics

The overload detection level is set for hot start conditions with a SERVOPACK surrounding air temperature of 55°C. An overload alarm (A.710 or A.720) will occur if overload operation that exceeds the overload protection characteristics shown in the following diagram (i.e., operation on the right side of the applicable line) is performed. The actual overload detection level will be the detection level of the connected SERVOPACK or Servomotor that has the lower overload protection characteristics. In most cases, that will be the overload protection characteristics of the Servomotor.



Note:

The above overload protection characteristics do not mean that you can perform continuous duty operation with an output of 100% or higher. For a YASKAWA-specified combination of SERVOPACK and Servomotor, maintain the effective torque within the continuous duty zone of the torque-motor speed characteristic of the Servomotor.

Contents

Specifications using EtherCAT Communication Reference

Item			Specification		
Control Method			IGBT-based PWM control, sine wave current drive		
	With Rotary Servomotor		Serial encoder: 24 bits (incremental encoder/absolute encoder)		
Feedback	With Linear Servo		 Absolute linear encoder (The signal resolution depends on the absolute linear encoder. Incremental linear encoder (The signal resolution depends on the incremental linear encoder or Serial Converter Unit.) 		
	Surrounding Air Temperature		-5°C to 55°C (60°C with derating)		
	Storage Tempera	ture	-20°C to 85°C		
	Surrounding Air H		95 % relative humidity max. (with no freezing or condensation)		
	Storage Humidity	,	95% relative humidity max. (with no freezing or condensation)		
	Vibration Resistar		4.9 m/s ²		
Faulia and a state	Shock Resistance	Э	19.6 m/s ²		
Environmental	Degree of Protect	tion	IP10		
Conditions	Pollution Degree		 2 Must be no corrosive or flammable gases. Must be no exposure to water, oil, or chemicals. Must be no dust, salts, or iron dust. 		
	Altitude		1,000 m or less (above 1,000 m with derating)		
	Others		Do not use the SERVOPACK in the following locations: Locations subject to static electricity		
	Others		noise, strong electromagnetic/magnetic fields, or radioactivity		
Applicable Standards	5		Refer to the section Compliance with UL Standards, EU Directives, and Other Safety Standards (in Combination with SERVOPACK).		
Mounting			Base-mounted		
	Speed Control Ra	ange	1:5,000 (At the rated torque, the lower limit of the speed control range must not cause the Servomotor to stop.)		
			± 0.01 % of rated speed max. (for a load fluctuation of 0 % to 100 %)		
Performance	Coefficient of Spe	ed Fluctuation*1	0% of rated speed max. (for a voltage fluctuation of \pm 10%)		
			± 0.1 % of rated speed max. (for a temperature fluctuation of 25 °C \pm 25 °C)		
	Torque Control Pr	recision (Repeatability)	±1%		
	Soft Start Time Setting				
		0	0s to 10s (Can be set separately for acceleration and deceleration.)		
	Linear Servomotor Overheat Protection Signal Input		Number of input points: 1 Input voltage range: 0 V to +5 V		
	Signal input		Allowable voltage range: 24 VDC \pm 20 %		
			Number of input points: 10		
			Input method: Sink inputs or source inputs Input Signals		
			 P-OT (Forward Drive Prohibit) and N-OT (Reverse Drive Prohibit) signals 		
	Sequence Input	Input Signals that can be	 /Probe1 (Probe 1 Latch Input) signal 		
	Signals	allocated	/Probe2 (Probe 2 Latch Input) signal		
			 /Home (Home Switch Input) signal (P) CL (Converse External Terrary Limit) and (N, CL (Deverse External Terrary Limit) 		
			 /P-CL (Forward External Torque Limit) and /N-CL (Reverse External Torque Limit) signals 		
			A signal can be allocated and the positive and negative logic can be changed.		
			Allowable voltage range: 5 VDC to 30 VDC		
I/O Signals		Fixed Output	Number of output points: 1		
			Output signal: ALM (Servo Alarm) signal Allowable voltage range: 5 VDC to 30 VDC		
			Number of output points: 6		
			(A photocoupler output (isolated) is used.)		
			Output Signals		
	Sequence		 /COIN (Positioning Completion) signal /V-CMP (Speed Coincidence Detection) signal 		
	Output Signals	Output Signals that can	 /TGON (Rotation Detection) signal 		
		be allocated	/S-RDY (Servo Ready) signal		
			/CLT (Torque Limit Detection) signal //LT (Speed Limit Detection) signal		
			 /VLT (Speed Limit Detection) signal /BK (Brake) signal 		
			 /WARN (Warning) signal 		
			 /NEAR (Near) signal 		
			A signal can be allocated and the positive and negative logic can be changed.		
	RS-422A	Interfaces	Digital Operator (JUSP-OP05A-1-E)		
	Communications	1: N Communications	Up to $N = 15$ stations possible for RS-422A port		
Communications	(CN502)	Axis Address Setting	Set with parameters.		
Communications		Interface	Personal Computer (with SigmaWin+)		
	USB Communi-		The software version of the SigmaWin+ must be version 7.11 or higher.		
	cations (CN7)	Communications	Conforms to USB 2.0 standard (12 Mbps).		
		Standard			

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Item		Specification		
Displays/Indicators		CHARGE, PWR, RUN, ERR, and L/A (A and B) indicators, and two, one-digit		
EtherCAT Communications Setting Switches		seven-segment display EtherCAT secondary address (S1 and S2), 16 positions		
Applicable Communications Standards		IEC 61158 Type 12, IEC 61800-7 CiA402 Drive Profile		
	Physical Layer	100BASE-TX (IEEE 802.3)		
	Communications Connectors	CN6A (RJ45): EtherCAT signal input connector CN6B (RJ45): EtherCAT signal output connector Category 5, 4 shielded twisted pairs The cable is automatically detected with AUTO MDIX. SM0: Mailbox output, SM1: Mailbox input, SM2: Process data output, and SM3 Process data input FMMU 0: Mapped in process data output (RxPDO) area. FMMU 1: Mapped in process data input (TxPDO) area. FMMU 2: Mapped to mailbox status.		
	Cable			
	Sync Manager			
EtherCAT Communi-	FMMU			
cations	EtherCAT Commands (Data Link Layer)	APRD, FPRD, BRD, LRD, APWR, FPWR, BWR, LWR, ARMW, and FRMW (APRW, FPRW, BRW, and LRW commands are not supported.)		
	Process Data	Assignments can be changed with PDO mapping.		
	Mailbox (CoE)	Emergency messages, SDO requests, SDO responses, and SDO information (TxPDO/RxPDO and remote TxPDO/RxPDO are not supported.)		
	Distributed Clocks	Free-Run Mode and DC Mode (Can be switched.) Applicable DC cycles: 125 µs to 4 ms in 125-µs increments		
	Slave Information Interface	256 bytes (read-only)		
	Indicators	EtherCAT communications in progress: Link/Activity x 2 EtherCAT communications status: RUN x 1 EtherCAT error status: ERR x 1		
CiA402 Drive Profile		 Homing Mode Profile Position Mode Interpolated Position Mode Profile Velocity Mode Cyclic Synchronous Position Mode Cyclic Synchronous Velocity Mode Cyclic Synchronous Torque Mode Cyclic Synchronous Torque Mode Touch Probe Function Torque Limit Function Number of points: 2 Output voltage range: ±10 VDC (effective linearity range: ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Maximum output current: ±10 mA Settling time (±1 %): 1.2 ms (Typ) 		
Analog Monitor (CN5)				
Dynamic Brake (DB)		Activated when a servo alarm or overtravel (OT) occurs, or when the power supply to the main circuit or servo is OFF.		
Regenerative Processi	ng	Built-in Refer to the catalog for details.		
Overtravel (OT) Prevention		Stopping with dynamic brake, deceleration to a stop, or coasting to a stop for the P-OT (Forward Drive Prohibit) or N-OT (Reverse Drive Prohibit) signal		
Protective Functions		Overcurrent, overvoltage, low voltage, overload, regeneration error, etc.		
Utility Functions		Gain adjustment, alarm history, jogging, origin search, etc.		
	Inputs	/HWBB_A1, /HWWB_A2, /HWWB_B1 and /HWBB_B2: Base block signals for Power Modules		
Safety Functions	Output	EDM_A and EDM_B: Monitor the status of built-in safety circuits (fixed outputs)		
	Applicable Standards*2	ISO13849-1 PLe (Category 3), IEC61508 SIL3		
Applicable Option Mod	dules	Option Module Safety		

*1. The coefficient of speed fluctuation for load fluctuation is defined as follows: Coeficient of speed fluctuation = No-load motor speed - Total-load motor speed × 100%

Rated motor speed

 $^{\ast}\text{2}.$ Always perform risk assessment for the system and confirm that the safety requirements are met.

Specifications using MECHATROLINK-III Communication Reference

Item			Specification		
Control Method			IGBT-based PWM control, sine wave current drive		
	With Rotary Servomotor		Serial encoder: 24 bits (incremental encoder/absolute encoder)		
Feedback	With Linear Servomotor		 Absolute linear encoder (The signal resolution depends on the absolute linear encoder.) Incremental linear encoder (The signal resolution depends on the incremental linear encoder or Serial Converter Unit.) 		
	Surrounding Air Te	emperature	-5°C to 55°C (60°C with derating)		
	Storage Temperat	ture	-20°C to 85°C		
	Surrounding Air H		95% relative humidity max. (with no freezing or condensation)		
	Storage Humidity		95% relative humidity max. (with no freezing or condensation)		
	Vibration Resistar	nce	4.9 m/s ²		
- · · · ·	Shock Resistance	9	19.6 m/s ²		
Environmental	Degree of Protect	ion	IP10		
Conditions	Pollution Degree		2Must be no corrosive or flammable gases.Must be no exposure to water, oil, or chemicals.		
			Must be no dust, salts, or iron dust.		
	Altitude		1,000 m or less (above 1,000 m with derating)		
	Others		Do not use the SERVOPACK in the following locations: Locations subject to static electricity		
			noise, strong electromagnetic/magnetic fields, or radioactivity Refer to the section Compliance with UL Standards, EU Directives, and Other Safety Standards		
Applicable Standard	S		(in Combination with SERVOPACK).		
Mounting					
Mounting			Base-mounted		
	Speed Control Ra	ange	1:5,000 (At the rated torque, the lower limit of the speed control range must not cause the Servomotor to stop.)		
	Coofficient of C	and a	± 0.01 % of rated speed max. (for a load fluctuation of 0 % to 100 %)		
	Coefficient of Spe	ea	0% of rated speed max. (for a voltage fluctuation of \pm 10%)		
Performance	Fluctuation*1		\pm 0.1 % of rated speed max. (for a temperature fluctuation of 25 °C \pm 25 °C)		
	Torque Control Pr		± 0.1 /0 of factor speed than, for a temperature inditiation of 20 O \pm 20 O/		
	(Repeatability)	60131011	±1%		
	Soft Start Time Se	ettina	0s to 10s (Can be set separately for acceleration and deceleration.)		
		or Overheat Protection	Number of input points: 1		
	Signal Input	overneal Frotection	Input voltage range: 0 V to +5 V		
	oignai input		Allowable voltage range: 24 VDC $\pm 20\%$		
			Number of input points: 10		
			Input method: Sink inputs or source inputs		
			Input Signals		
	Sequence Input	Input Signals that can be	 /DEC (Origin Return Deceleration Switch) signal /EVT1 to /EVT2 (External Later Input 1 to 2) signals 		
	Signals	allocated	 /EXT1 to /EXT3 (External Latch Input 1 to 3) signals P-OT (Forward Drive Prohibit) and N-OT (Reverse Drive Prohibit) signals /P-CL (Forward External Torque Limit) and /N-CL (Reverse External Torque Limit) signals (P) TO T (P) + (in P) + (in P) + (in P) 		
			/P-DET (Polarity Detection) signal Asimal and the positive and pagetive lagis can be shared		
			A signal can be allocated and the positive and negative logic can be changed. Allowable voltage range: 5 VDC to 30 VDC		
		Fixed Output	Number of output points: 1		
I/O Signals			Output signal: ALM (Servo Alarm) signal		
			Allowable voltage range: 5 VDC to 30 VDC		
			Number of output points: 6		
			(A photocoupler output (isolated) is used.)		
			Output Signals/COIN (Positioning Completion) signal		
	Sequence		 /V-CMP (Speed Coincidence Detection) signal 		
	Output Signals	Output Signals that can	 /TGON (Rotation Detection) signal 		
		be allocated	 /S-RDY (Servo Ready) signal 		
			/CLT (Torque Limit Detection) signal		
			/VLT (Speed Limit Detection) signal		
			• /BK (Brake) signal		
			/WARN (Warning) signal		
			/NEAR (Near) signal		
			A signal can be allocated and the positive and negative logic can be changed.		
	RS-422A	Interfaces	Digital Operator (JUSP-OP05A-1-E)		
	Communications	1:N Communications	Up to N = 15 stations possible for RS-422A port		
	(CN3)	Axis Address Setting	Set with parameters.		
Communications		, wie / louross deturing	Personal Computer (with SigmaWin+)		
	USB Communi-	Interface	The software version of the SigmaWin+ must be version 7.11 or higher.		
	cations (CN7)	Communications			
		Standard	Conforms to USB 2.0 standard (12 Mbps).		

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Item		Specification		
Displays/Indicators		CHARGE, PWR, CN, L1 and L2 indicators, and two, one-digit seven-segment display		
	Communications Protocol	MECHATROLINK-III		
MECHATROLINK-III Communications	Station Address Settings	03 to EF hex (maximum number of slaves: 62) The rotary switches (S1 and S2) are used to set the station address.		
	Extended Address Setting	Axis A: 00 hex, Axis B: 01 hex		
	Raud Rate	100 Mbps		
	Transmission Cycle	250 μs, 500 μs, 750 μs, 1.0 ms to 4.0 ms (multiples of 0.5 ms)		
	Number of Transmission Bytes	32 or 48 bytes per station A DIP switch (S3) is used to select the number of transmission bytes.		
	Performance	Position, speed, or torque control with MECHATROLINK-III communications		
Reference Method	Reference Input	MECHATROLINK-III commands (sequence, motion, data setting, data access, monitoring, adjustment, etc.)		
	Profile	MECHATROLINK-III standard servo profile		
Analog Monitor (CN5)		Number of points: 2 Output voltage range: ±10 VDC (effective linearity range: ±8 V) Resolution: 16 bits Accuracy: ±20 mV (Typ) Maximum output current: ±10 mA Settling time (±1 %): 1.2 ms (Typ)		
Dynamic Brake (DB)		Activated when a servo alarm or overtravel (OT) occurs, or when the power supply to the main circuit or servo is OFF.		
Regenerative Processi	ng	Built-in Refer to the catalog for details.		
Overtravel (OT) Prevention		Stopping with dynamic brake, deceleration to a stop, or coasting to a stop for the P-OT (Forward Drive Prohibit) or N-OT (Reverse Drive Prohibit) signal		
Protective Functions		Overcurrent, overvoltage, low voltage, overload, regeneration error, etc.		
Utility Functions		Gain adjustment, alarm history, jogging, origin search, etc.		
	Inputs	/HWBB_A1, /HWWB_A2, /HWWB_B1 and /HWBB_B2: Base block signals for Power Modules		
Safety Functions	Output	EDM_A and EDM_B: Monitor the status of built-in safety circuits (fixed outputs).		
	Applicable Standards*2	ISO13849-1 PLe (Category 3), IEC61508 SIL3		
Applicable Option Modules		Option Module Safety		

*1. The coefficient of speed fluctuation for load fluctuation is defined as follows:

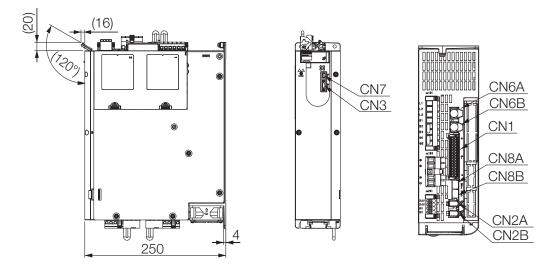
Coefficient of speed fluctuation = $\frac{\text{No-load motor speed} - \text{Total-load motor speed}}{\text{Rated motor speed}} \times 100\%$

*2. Always perform risk assessment for the system and confirm that the safety requirements are met.

Front Cover Dimensions and Connector Specifications

The front cover dimensions and panel connector section are the same for all models. Refer to the following figures and table.

• Front Cover Dimensions and Connectors



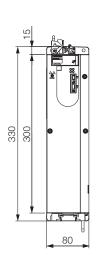


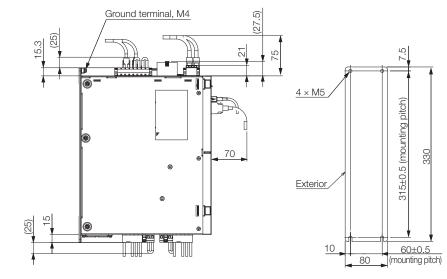
Connector Specifications

Connector No.	Function	Model	YASKAWA Order Code	Number of Pins	Manufacturer
CN1	I/O Connector	DFMC1,5/15-ST-3,5-LRBK	JUSP-7CN001	30	Phoenix Contact
CN2A/CN2B	Encoder Connector Axis A Encoder Connector Axis B	-	JZSP-CMP9-1-E	6	Sumitomo 3M Ltd.
CN3	Digital Operator	-	-	14	Honda Tsushin Kogyo Co., Ltd.
CN6A/CN6B	Fieldbus Connector	-		8	Tyco Electronics Japan G.K.
CN7	USB Connector for Sig- maWin	-	-	5	Tyco Electronics Japan G.K.
0104	Safety Connector Kit	-	2013595-1	8	Tyco Electronics Japan G.K.
CN8A	Safety Jumper Connector	-	JZSP-CVH05-E	0	
ONOD	Safety Connector Kit	-	2013595-1	8	Tyco Electronics Japan G.K.
CN8B	Safety Jumper Connector	-	JZSP-CVH05-E		
CN101	Main Power Connector	BLZ 7.62HP/08/180LR SN BK BX PRT	JUSP-7CN101	8	Weidmüller
CN102A/ CN102B	Motor Power Connector Axis A Motor Power Connector Axis B	BLZ 7.62IT/04/180MF4 SN BK BX PRT	JUSP-7CN102	4	Weidmüller
CN103	DC Power Input	BVZ 7.62IT/04/180MF3 SN BK BX PRT	JUSP-7CN103	4	Weidmüller
CN115A/ CN115B	Dynamic Brake Connector Axis A Dynamic Brake Connector Axis B	BLZ 7.62IT/03/180MF2 SN BK BX PRT	JUSP-7CN115	3	Weidmüller
CN117	Holding Brake Connector	BLF 5.08HC/04/180LR SN BK BX SO	JUSP-7CN117	4	Weidmüller
CN201	24V Control Power Input	BLF 5.08HC/04/180LR SN OR BX SO	JUSP-7CN201	4	Weidmüller

Note: The above connectors or their equivalents are used for the SERVOPACKs.

Base-mounted SERVOPACKs



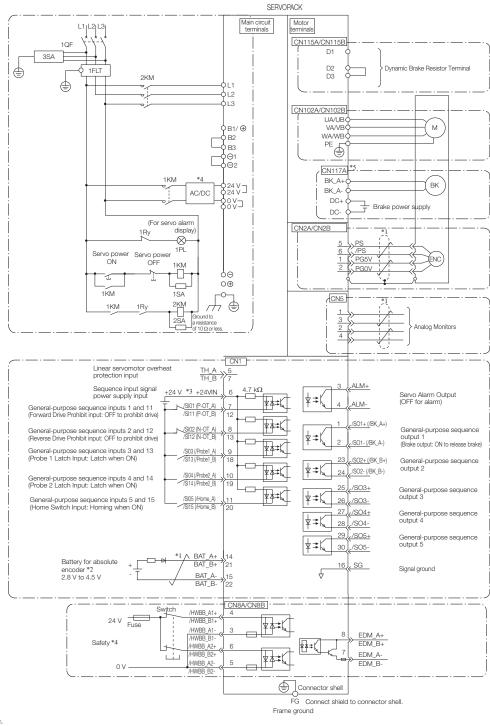


Mounting Hole Diagram

Approx. mass: 2R6D: 4.1 kg 5R4D: 4.3 kg Unit: mm

System Configurations up to 2×1.5 kW

SGD7W Dual-axis EtherCAT Reference SERVOPACKs



*1. Frepresents twisted-pair wires.

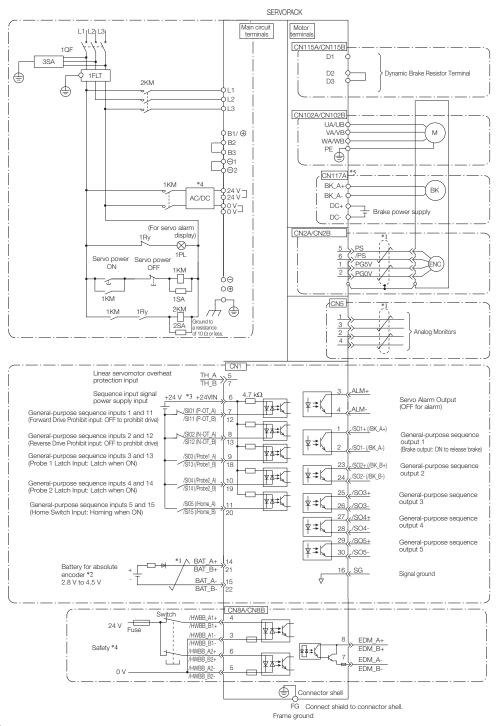
- *2. Connect these when using an absolute encoder. If the Encoder Cable with a Battery Case is connected, do not connect a backup battery.
- *3. The 24-VDC power supply is not provided by Yaskawa. Use a 24-VDC power supply with double insulation or reinforced insulation.
- *4. Use an SELV-compliant power supply according to EN/IEC 60950-1 to input 24 VDC to the control power supply input terminals.
 *5. The CN117 connector is used for SERVOPACKs with built-in Servomotor brake control. SERVOPACKs without built-in Servomotor brake control do not have the CN117 connector.

Note: 1. You can use parameter settings to change some of the I/O signal allocations.

- If you use a 24-V brake, install a separate power supply for the 24-VDC power supply from other power supplies, such as the one for the I/O signals of the CN1 connector. If the power supply is shared, the I/O signals may malfunction.
- 3. Default settings are given in parentheses.

System Configurations up to 2×1.5 kW

SGD7W Dual-axis MECHATROLINK-III Reference SERVOPACKs



*1. \checkmark represents twisted-pair wires.

- *2. Connect these when using an absolute encoder. If the Encoder Cable with a Battery Case is connected, do not connect a backup battery.
- *3. The 24-VDC power supply is not provided by Yaskawa. Use a 24-VDC power supply with double insulation or reinforced insulation.
- *4. Use an SELV-compliant power supply according to EN/IEC 60950-1 to input 24 VDC to the control power supply input terminals.
 *5. The CN117 connector is used for SERVOPACKs with built-in Servomotor brake control. SERVOPACKs without built-in Servomotor brake control do not have the CN117 connector.

Note: 1. You can use parameter settings to change some of the I/O signal allocations.

If you use a 24-V brake, install a separate power supply for the 24-VDC power supply from other power supplies, such as the one for the I/O signals of the CN1 connector. If the power supply is shared, the I/O signals may malfunction.
 Default settings are given in parentheses.

Contents

Cables for SERVOPACKs

Important

1. Use the cable specified by YASKAWA for the computer cable. Operation may not be dependable with any other cable.

Notes:

Refer to the manual for the following information. Cable dimensional drawings and cable connection specifications. Order numbers and specifications of individual connectors for cables. Sigma-7-Series AC Servo Drive Peripheral Device Selection Manual.

Nam	e	Length (L)	Order Number	Appearance
Analog Monitor Cable		1 m	JZSP-CA01-E	
Digital Operator (including 1 m cable)		1m	JUSP-OP05A-1-E	
Digital Opera	tor Cable	0.3m	JZSP-CVS07-A3-E ²	
Computer Cable		2.5 m	JZSP-CVS06-02-E	
Safety Function	Cables with Connectors ^{*1}	1 m 3 m	JZSP-CVH03-01-E-G# JZSP-CVH03-03-E-G#	└ ⊑=‡∰[[]3?
Device Cable	Connect	or Kit*²	Contact Tyco Electronics Japan Product name: Industrial Mini I/(Model number: 2013595-1	G.K. D D-shape Type 1 Plug Connector Kit
MECHATROLINK-III EtherCAT PROFINET Communications Cables* ³		0.2 m 0.5 m 1 m 3 m 5 m 10 m 20 m 30 m 40 m 50 m	CM3R M0-00P2-E CM3R M0-00P5-E JZSP-CM3R M0-01-E JZSP-CM3R M0-03-E JZSP-CM3R M0-05-E JZSP-CM3R M0-10-E JZSP-CM3R 00-20-E JZSP-CM3R 00-30-E JZSP-CM3R 01-40-E JZSP-CM3R 01-50-E	

*1. When using the safety function, connect this cable to the safety devices.

Even when not using the safety function, use SERVOPACKs with the Safe Jumper Connector (model: JZSP-CVH05-E) connected.

*2. Use the connector kit when you make cables yourself.

*3. This cable is available in two variants. The order number for these cables differs at the marked \Box , an "R" at this place is used for Cables with RJ45 Connectors on both ends, while an "M" is used for Cables with RJ45 Connector on One End and IMI Connector on the other End.

Motor Connection Shielding Clamp

Shielding clamp mountable on Sigma-7 400 V SERVOPACKs up to 15 kW. Contact your YASKAWA representative for more information.

SERVOPACK Model	Order No.	Specification
Sigma-7 400V up to 3.0kW	KLBUE 4-13.5_SC	
Sigma-7 400 V from 5 kW up to 7.5 kW	KLBUE 10-20_SC	B
Sigma-7 400V for 11 kW & 15 kW	KLBUE 15-32_SC	