YASKAWA

AC Servo Drives
Σ-7-Series SERVOPACKs

Σ-7C

Two-Axis SERVOPACKs with Built-in Controllers

- Component downsizing
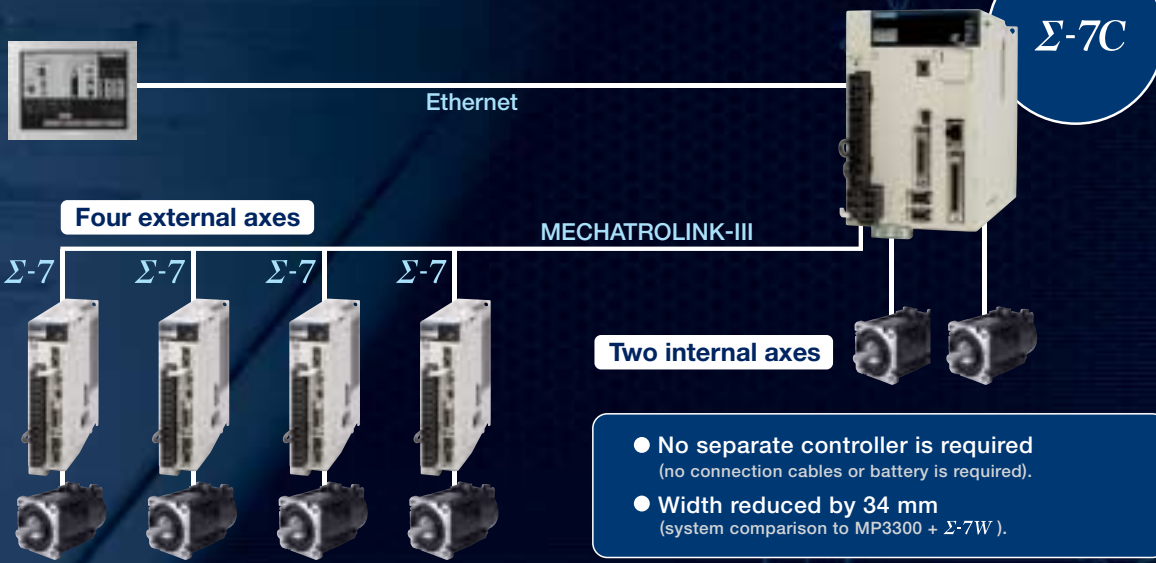- Equipment modularization
- System distribution
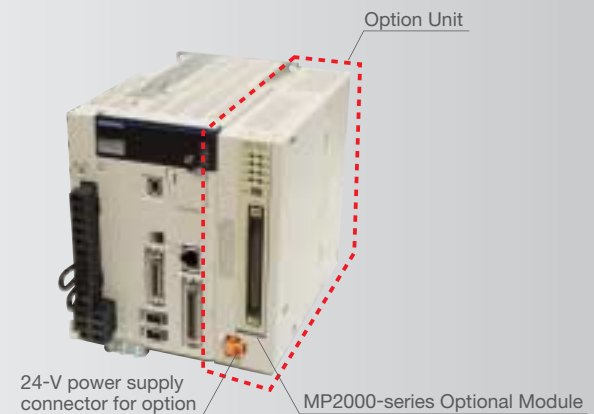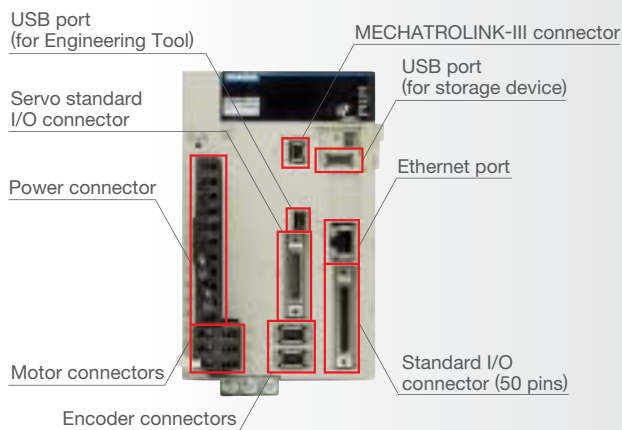
New Two-Axis SERVOPACKs with Built-in Controllers!

NEW

Simple, All-in-One System Configuration

Σ-7C

Ethernet

Four external axes

Σ-7 *Σ-7* *Σ-7* *Σ-7*

MECHATROLINK-III

Two internal axes

- No separate controller is required
  (no connection cables or battery is required).
- Width reduced by 34 mm
  (system comparison to MP3300 + *Σ-7W*).

Σ-7C Configuration

◎ Ethernet is provided as a standard feature for communications with external devices.
◎ Standard I/O provides 16 discrete inputs, 16 discrete outputs, and 1 pulse input channel
◎ An Option Unit is available to expand functionality by adding an MP2000-series Optional Module (one slot).
◎ MPE720 version 7 and SigmaWin+ are used as the Engineering Tools.

USB port
(for Engineering Tool)

MECHATROLINK-III connector

USB port
(for storage device)

Option Unit

Servo standard
I/O connector

Power connector

Ethernet port

Motor connectors

Encoder connectors

Standard I/O
connector (50 pins)

24-V power supply
connector for option

MP2000-series Optional Module

Packaging Machines

Printing Machines

Main Applications

Create Simple Systems Controlled by Servos

The performance and easy usability of Yaskawa's MP3300 Machine Controllers and Σ-7W Two-Axis SERVOPACKs have made them very popular with our customers. The Σ-7C SERVOPACKs now combine the best of both in a conceptually new type of product. These epoch-making products provide the ideal configuration to control small-scale equipment and mechanisms to meet the increasing needs of component downsizing, equipment modularization, and system distribution.

Σ-7C

Two-Axis SERVOPACKs with Built-in Controllers

AC Servo Drives Σ-7-Series SERVOPACKs

Features

● Less System Space Required

◎ Integrating a Two-Axis SERVOPACK and Controller saves 34 mm in width[1] (in comparison with the previous system). Also, a MECHATROLINK-III cable between the Controller and SERVOPACK is not required.

◎ Up to six axes can be configured (two internal axes plus four external axes[2] connected via MECHATROLINK-III).

◎ The I/O required for equipment control[3] and an Ethernet port[4] are provided as standard features to allow you to build a small-scale equipment system based around just this one unit (no PLC required).

◎ An Option Unit can be mounted to expand functionality with an MP2000-series Optional Module.[5]

● Equipment Modularization

◎ You can use Σ-7C SERVOPACKs for equipment modularization or for distributed control systems. This reduces the burden of designing software when, for example, part of the equipment changes or there are changes to some of the equipment built into a line.

● High-Speed Response

◎ High-speed response frequency of 3.1 kHz has been achieved.

◎ High-speed I/O used for the Controller Function Module.

◎ The command/response delay is minimized with the two internal axes. These axes can be synchronized with the external axes.

● Easier Maintenance

◎ No battery is required for the Controller Function Module, which reduces the time and cost of periodic replacement.

◎ Protective functions have been improved for outputs to the Controller Function Module.

∗1 : Based on comparison with a combination of an MP3300 One-slot Base Unit and a Σ-7W, 400-W SERVOPACK.
∗2 : Up to eight slave stations can be connected. Of them, four can be SERVOPACKs or AC Drives.
∗3 : Controller Function Module: 16 discrete inputs, 16 discrete outputs, and 1 pulse input channel; Servo Function Module: 14 discrete inputs and 7 discrete outputs
∗4 : Ethernet is a registered trademark of the Fuji Xerox Co., Ltd.
∗5 : Excluding the following Optional Modules: SVA-01, SVB-01, SVC-01, PO-01, MPU-01, 215AIF-01, and EXIOIF.
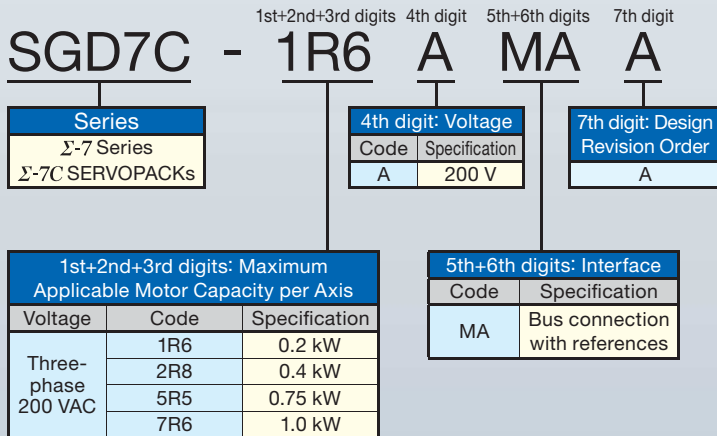
■ Specifications

Servo Function Module

Item	Specification
Number of Controlled Axes	2 axes
Capacity	200 W, 400 W, 750 W, 1 kW
I/O Voltage	200 VAC
Response Frequency	3.1 kHz
Servo I/O	12 discrete inputs and 7 discrete outputs
Safety Functions (Optional)	HWBB function (STO)
Reference Method	Position control, speed control, and torque control from built-in Controller (SVD)
Connected Motors	Σ-7 -Series Rotary Servomotors, Linear Servomotors, and Direct Drive Servomotors
Analog Monitor	None
Dynamic Brake (DB)	Mounted.
Regenerative Processing	Built-in.
Overtravel (OT) Prevention	DB stop, deceleration to a stop, or coast to a stop for P-OT or N-OT
Protective Functions	Overcurrent, overvoltage, low voltage, overload, regeneration error, etc.
Utility Functions	Gain adjustment, alarm history, jogging, origin search, etc.
Engineering Tool	SigmaWin+ (USB connection and Controller connection)

Controller Function Module

Item		Specification
Communications interface		Ethernet (100 Mbps)
Scan Time Settings	H Scan	500 μs to 32 ms (in 250- μs increments)
	L Scan	2.0 ms to 200 ms (in 0.5-ms increments)
MECHATROLINK		Built-in MECHATROLINK-III Minimum communications cycle: 125 μs
Applicable Devices		I/O, AC Drives, Servo Drives, and Stepping Motor Drives
Number of Controlled Axes	Built-in SVC	4 axes
	SVD	2 axes
	SVR (virtual axis)	4 axes
	Maximum Number of Controlled Axes	6 axes
USB Interface		Provided (for storage device).
Onboard I/O		16 discrete inputs, 16 discrete outputs, and 1 pulse input channel for Controller
Backup Memory		Non-volatile memory (No battery required.)
Memory Capacity	Data Tracing	256 Kwords
	Table Data	1 Mbyte
	M Registers	1 Mword
Memory Capacity (Flash Memory)	Program	15 Mbytes
Calendar Backup		EDLC (No external battery required.)
Engineering Tool		MPE720 version 7

■ Model Designations

SGD7C - 1R6 A MA A

1st+2nd+3rd digits 4th digit 5th+6th digits 7th digit

Series
Σ-7 Series
Σ-7C SERVOPACKs

4th digit: Voltage

Code	Specification
A	200 V

7th digit: Design Revision Order

A

1st+2nd+3rd digits: Maximum Applicable Motor Capacity per Axis

Voltage	Code	Specification
Three-phase 200 VAC	1R6	0.2 kW
	2R8	0.4 kW
	5R5	0.75 kW
	7R6	1.0 kW

5th+6th digits: Interface

Code	Specification
MA	Bus connection with references

■ External Dimensions

Model	External Dimensions (W × H × D) mm
SGD7C-1R6AMAA	100 × 168 × 180
SGD7C-2R8AMAA	
SGD7C-5R5AMAA	135 × 168 × 180
SGD7C-7R6AMAA	