

## $\Sigma$ -X Series



Feature  
1

**Best motion performance in the industry**

Feature  
2

**Digital data solutions that start with servos**

### • Maximum motor rotation speed

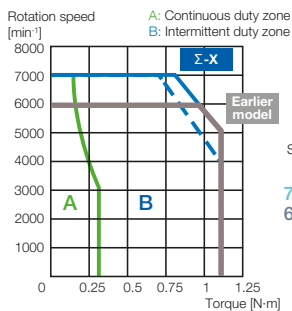
The maximum rotation speed of the motor has increased from the earlier value of 6000 min<sup>-1</sup> to 7000 min<sup>-1</sup>.



Applicable models:  
All SGMXJ, SGMXA models

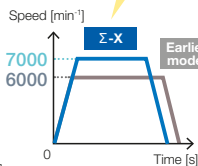
$\Sigma$ -X **7000 min<sup>-1</sup>**  
Earlier model **6000 min<sup>-1</sup>**

Torque-rotation speed characteristics (for SGMXJ-01A)



Positioning Time

Improving maximum servomotor rotation speed can reduce positioning time, which can contribute to higher productivity.



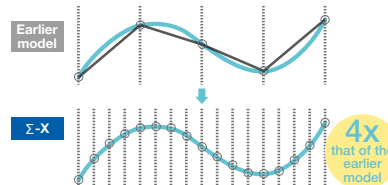
Three-phase 200V    Single-phase 200V

### • Minimum transmission period of

**31.25  $\mu$ s** (in development)

(MECHATROLINK-4 communications)

The minimum period for updating communication data has been changed from 125  $\mu$ s to 31.25  $\mu$ s, enabling faster and more fine-grained commands.



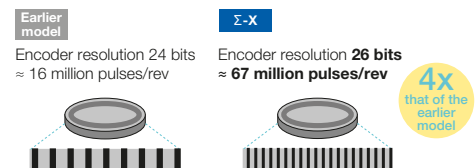
\*MECHATROLINK-III 125  $\mu$ s min. communication data updating period.  
Note: Minimum transmission periods are determined in combination with controllers.

### • Speed frequency response

Speed frequency response has changed from 3.1 kHz for the earlier model to 3.5 kHz. Maximizing the following performance for the speed reference improves equipment productivity.

### • Equipped with a high-resolution 26-bit encoder

The resolution of the encoder has been increased to 26 bits, four times that of the earlier model.



- Increased positioning resolution/stop precision  $\rightarrow$  **Precision stops**
- Decrease in speed ripples  $\rightarrow$  **Smooth movement and improved machining precision**

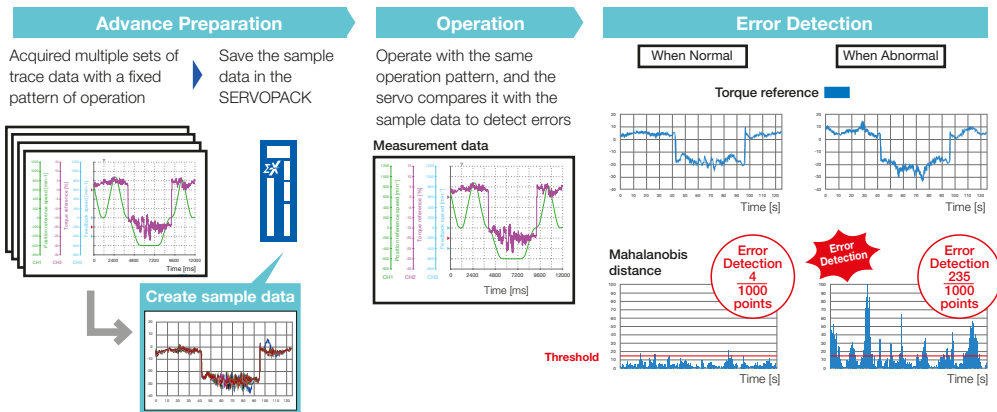


$\Sigma$ -X **3.5 kHz**  
Earlier model **3.1 kHz**

## $\Sigma$ -X Error Detection Function

$\Sigma$ -X raises the intelligence of the SERVOPACK. Its error detection function detects when equipment is operating in a way that may be "different than normal".

The  $\Sigma$ -X detects equipment errors by comparing sample data stored in the SERVOPACK with operation data. It is useful for detecting equipment errors caused by deterioration over time, judging the quality of products and confirming assembly accuracy.

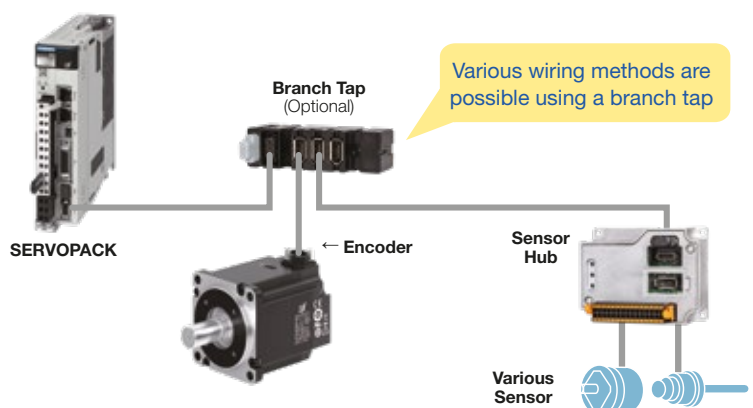


## $\Sigma$ -X + $\Sigma$ -LINK II

Motion and sensor data on same time axis is collected using  $\Sigma$ -LINK II. Along with reducing the man-hours required for data processing,  $\Sigma$ -X also enables errors to be detected by identifying changes in equipment.

### Features

- Able to connect to multiple commercially-available sensors via a sensor hub
- Able to reduce wiring inside equipment



# Product Lineup

## Servomotor

### Rotary Servomotors



**SGMXA**

50 W - 1.0 kW

- Low inertia, high speed
- 26-bit encoder
- Maximum rotation speed: 7000 min<sup>-1</sup>



**SGMXJ**

50 W - 750 W

- Medium inertia, high speed
- 26-bit encoder
- Maximum rotation speed: 7000 min<sup>-1</sup> (50 W - 200 W)



**SGMXG**

850 W - 7.5 kW

- Medium inertia, high torque
- 26-bit encoder
- For feed shaft driving (high-speed feed)

## SERVOPACKs

### Σ-XS (Single-axis)



**Analog Voltage/Pulse Train**

SGDXS-□□□A00A

- Select and use analog voltage speed/torque reference and pulse train position reference by configuring parameter settings



**MECHATROLINK-4/III**

SGDXS-□□□A40A

- Select MECHATROLINK-4 or MECHATROLINK-III from the same hardware
- Enables torque, position, and speed control as well as synchronized phase control that relies on exceptional precision



**EtherCAT**

SGDXS-□□□AA0A

- Implements the CiA 402 CANopen drive profile for EtherCAT communications (real-time Ethernet communications)
- Provides an EtherCAT interface for the Σ-X series' high-level servo control performance, advanced tuning functions, and full featured actuator control

### Σ-XW (Two-axis)



**MECHATROLINK-4/III**

SGDXW-□□□A40A

- Select MECHATROLINK-4 or MECHATROLINK-III from the same hardware
- Enables torque, position, and speed control as well as synchronized phase control that relies on exceptional precision
- Use regenerative energy from multiple axes as drive energy



**EtherCAT**

SGDXW-□□□AA0A

- Implement the CiA 402 CANopen drive profile for EtherCAT communications (real-time Ethernet communications)
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**Fully-Closed Module**

SGDV-OFA01A

- High-accuracy, high-response positioning by using feedback signals from a detector installed on the machine
- Compatible with high-resolution external encoders

## Σ-LINK II Related Products



**Sensor Hub**

JUSP-SL2HD440□AA

- Connect multiple limit switches, relays, or other devices to the encoder wiring



**Branch Tap**

JUSP-SL2J3AA

- Connect multiple encoder wirings and sensor hubs

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