

# Sigma Series Servopacks



## A “Smarter” Amplifier for Extra Productivity

Every Yaskawa servo motor has a companion SERVOPACK amplifier, with built-in control software that simplifies setup, fine tunes performance and boosts automation efficiency.

### The Yaskawa Tuning Suite

Yaskawa equips each SERVOPACK with a suite of software commissioning and tuning tools, designed to achieve full functioning right out of the box. This superior performance continues in spite of all the vibration, resonance, friction and noise that a modern automated machine can dish out.

### Get rid of effects that steal away performance

Unwanted mechanical effects rob a servo system of the quick, smooth and precise movement you need. Yaskawa SERVOPACKs are equipped with suppression features that automatically eliminate harmful artifacts.

#### Vibration

Machine vibrations are eliminated by Yaskawa Vibration Suppression, which samples your equipment’s natural oscillations and uses compensating frequencies to cancel them out.

#### Ripples

Motor cogging effects are removed by Ripple Compensation, an especially important effect for systems that require minimum settling time and exceptionally precise positioning.

#### Resonance

Sigma-7 amplifiers have twice as many anti-resonance filters to more effectively repress a servo system’s natural medium-frequency resonances.

#### Friction

Coulomb friction and viscosity-related variables are effectively addressed by Friction Model Compensation, which effectively elicits smooth start-up action in low speed or high rigidity machines.

#### Electromagnetic interference

The number of interference filters has been increased by 225% to counteract losses caused by data dropouts, EMI interference and artifacts from long cable runs.

### Tuning-Less Function

#### Get up and running quickly

From Day One, the tuning-less function automatically compensates for mismatches in load to rotor inertia up to 30:1.

Setting time:  
**40 ms**  
range

### Advanced Autotuning

#### Minimize setting time Maximize smooth motion

Advanced auto tuning automatically adjusts nearly 20 gain and filter parameters to cancel vibration, rippling, friction and resonance.

Setting time:  
**4 ms**  
range

### One Parameter Tuning

#### Precise user-driven adjustment

Improve your machine's performance even further with easy fine tuning adjustments that won't throw off your existing operating parameters.

Setting time:  
**0 to 4 ms**  
range



**SERVOPACKs with features that amp up productivity**

# Feature-Packed For Your Machine

A choice of open protocol, high speed deterministic digital networks



- Used with our full line of IEC61131-3 Motion Controllers
- Superior noise immunity in challenging industrial environments
- Retry function minimizes data drop-outs

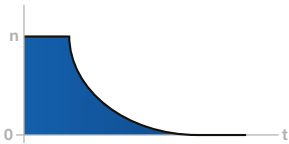
OR



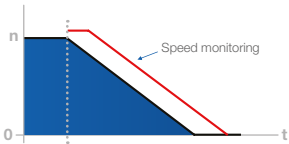
- Adheres to CoE device profile (CiA402)
- Distributed clock for synchronized operation
- Variety of system architectures (cascade, line, star, ring)

## Functional Safety

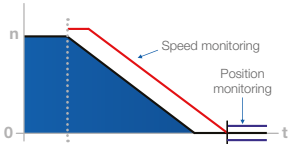
A Safe Torque Off (STO) circuit is standard equipment in every SERVOPACK. Safety functions SS1 (Safe Stop 1), SS2 (Safe Stop 2), and SLS (Safe Limited Speed) are integrated with the selection of an optional safety module.



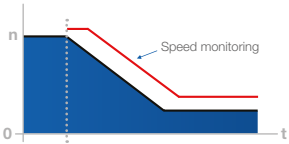
Safe Torque Off (STO)



Safe Stop 1 (SS1)



Safe Stop 2 (SS2)



Safely Limited Stop (SLS)

## Primary Feedback Option

- 20 Bit serial absolute encoder
- Motor data stored in the encoder
- Simplified cable design

## Secondary Feedback Option (Full Closed Loop Control)

- Allows user to close position loop around secondary feedback device near the load
- Helps eliminate the effects of mechanical compliance and thermal variances
- Delivers more precise control and improved machine performance

## SGD7S Single Axis Amplifier

- 100 V, 200 V and 400 V operation
- 50 W-15 kW operating range
- Control interface options: EtherCAT, MECHATROLINK, analog



## SGD7W Dual Axis Amplifier

- Control two servo axes with one amplifier
- Lower cost, component count
- 200 V or 400 V operation
- Conserves cabinet space
- Regenerative power feature conserves energy



## SigmaLogic™ and SigmaLogic7 Compact with EtherNet/IP

- Add On Instructions (AOIs) for use with Rockwell PLCs
- Dual EtherNet/IP ports onboard
- Perform automation functions without learning new software
- Basic point to point moves, blended speed moves, homing, jogging, electronic gearing



## MP2600iec Single Axis Controller

- Motion Controller and amplifier in one device
- IEC61131-3 compatibility for predictable behavior
- MotionWorks® IEC software provides scalability between single and multi-axis control
- EtherNet/IP, Modbus TCP connectivity links to most PLCs and HMI's
- A built-in web server offers diagnostic info without special software



## Wide Range

A power range from 10 W to 55 kW, with 100-480 VAC operation.

## Scalable as Needs Change

Switching from a single axis controller to a multi axis model is easier, due to the fact that programming from a single axis SERVOPACK can be used in any Yaskawa multi-axis controller without revision.

## Simple Commissioning

An automatic motor recognition function uses data resident within Yaskawa servo motors to configure a SERVOPACK for safe and effective operation.