

Sysmac general purpose servo

1S Servo System



EtherCAT

- Optimized installation and setup
- Increased machine productivity
- Global availability and global conformance

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SYSMAC
always in control

State of the art technology applied to general purpose servo

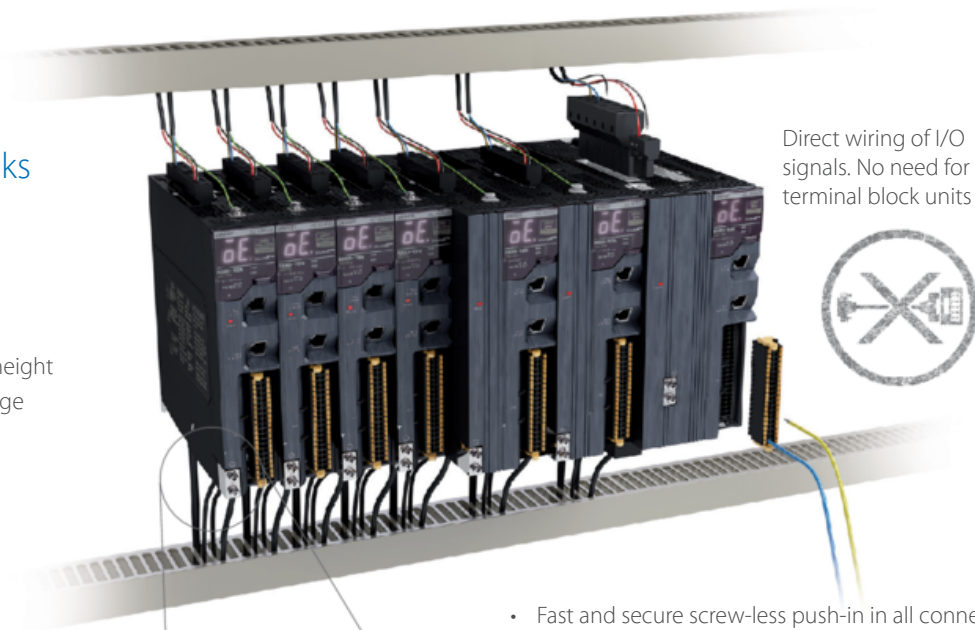
Improved machine design. Increased machine productivity

Designed to meet the machine requirements, the 1S servo technology optimizes the full cycle, through the machine design, installation and commissioning tasks and finally to the maintenance once in production. In addition to the traditional motion solution, the 1S servo offers high resolution multi-turn encoder without battery backup, safety network built-in and improved loop control allowing accurate and higher machine productivity.

Optimized installation and commissioning tasks

Cabinet size reduction:

- Compact servo drive with same height throughout the whole power range

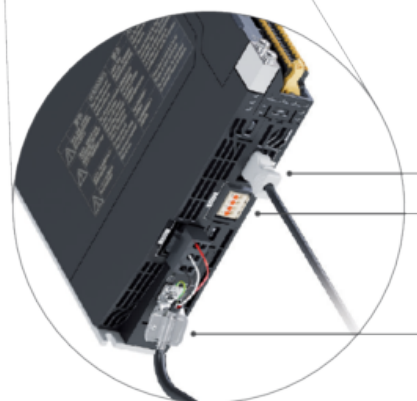


Direct wiring of I/O signals. No need for terminal block units

- Fast and secure screw-less push-in in all connectors
- Pluggable connectors for easy pre-wiring and system maintenance

Servo features

- Power range from 100 W to 3 kW - 200/400V
- 23 bit high resolution encoder
- Battery-free absolute multi-turn encoder
- Improved loop control for low overshoot and quick settling time
- Safety function built-in:
 - Network Safe Torque Off: PLd (EN ISO 13849-1), SIL2 (IEC 61508)
 - Hardwired Safe Torque Off: PLc (EN ISO 13849-1), SIL3 (IEC 61508)



- Pre-assembled motor cables
- Embedded relay for direct motor brake control
- Designed for easy EMC compliance



Simplified machine design and maintenance

- No battery, no maintenance
- No need for homing sequence improving machine uptime
- 23 bit high resolution encoder as standard
- Absolute multi-turn encoder design without mechanics: 16 bit, 65536 turns
- Compact and smaller motor size

50% setup time reduction*



Servo sizing

- Servo sizing tool for the entire machine
- Graphical environment of the kinematic chain
- Electronic CAM import from Sysmac Studio



System configuration

- NJ project auto-builder from servo sizing file
- Quick setup wizard for key parameters
- Parameters transfer in less than 400 ms



Gain tuning & test run

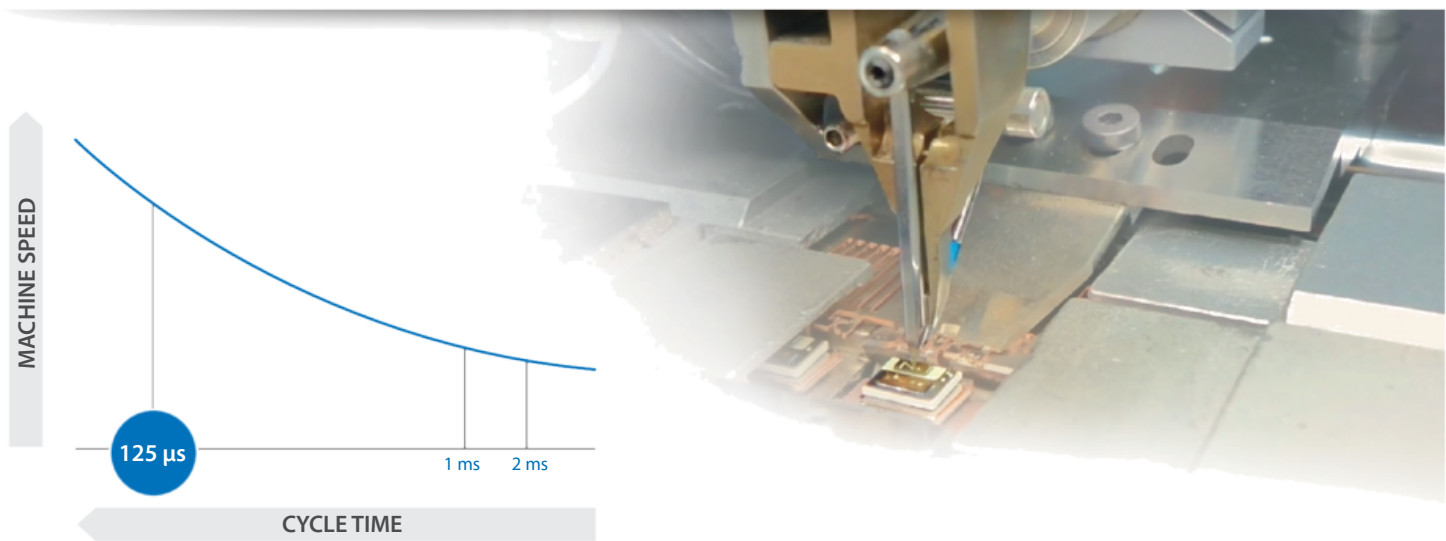
- Best effort™ feature for quick stabilization time
- Easy tuning with intelligent gain search in less than 2 minutes
- Wizard for tuning, test run & monitoring
- Advanced tuning simulation to reduce testing effort and prevent machine damage

PATENT PENDING



*Performance comparison with previous OMRON products based on OMRON investigation in March 2016.

Totally integrated, totally in control



HIGHER PRODUCTIVITY

125 μs system cycle

- Faster machine speed keeping same accuracy
- Accurate profile generation in the controller
- The 23 bit high resolution encoder in combination with the improved loop control provide an accurate following profile



TOTALLY IN CONTROL

Sysmac Studio

- Simplified servo setup: Direct use of servo sizing calculation
- Open standard IEC 61131-3 programming
- Standard PLCopen Function Blocks for Motion and Safety



- Sysmac Library for fast engineering and optimized machine availability
 - Application libraries
 - Optimized productivity
 - Predictive maintenance
 - Reduced downtime



INTEGRATED SAFETY

Safety control via EtherCAT

- Simplified safety installation
- Reduction of safety devices
- Safety function built-in: Fail Safe over EtherCAT (FSoE) Safe Torque Off
- Safety approval: PLd (EN ISO 13849-1), SIL2 (IEC 61508)
- Troubleshooter integrated with Sysmac Studio

Safety over EtherCAT



Sysmac Automation Platform

The integrated platform

Sysmac is an integrated automation platform dedicated to providing complete control and management of your automation plant. At the core of this platform, the Machine Controller series offers synchronous control of all machine devices and advanced functionality such as motion, robotics and database connectivity. This multidisciplinary concept allows you to simplify solution architecture, reduce programming and optimize productivity.



Software



Sysmac Studio, the integrated software

- One single tool for logic sequence, motion, safety, robotics, vision and HMI
- Fully compliant with open standard IEC 61131-3
- PLCopen Function Blocks for Motion and Safety
- Supports Ladder, Structured Text and In-Line ST programming with a rich instruction set
- CAM editor for easy programming of complex motion profiles
- Database Connectivity Function Block library

Sysmac Library

- The Sysmac Library is a collection of software functional components that can be used in programs for the NJ/NX Machine Automation Controllers. Sample programs and HMI screen samples are also available.



Please download it from following URL and install to Sysmac Studio. http://www.ia.omron.com/sysmac_library/

Sysmac servo family

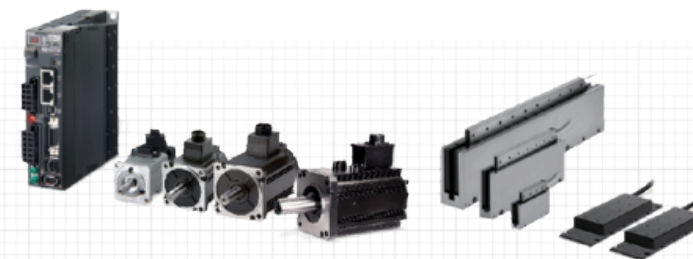
Machine Controller



NJ/NX series

- Logic sequence, Motion, Safety, Robotics and Database connection functionality Scalable motion control: CPUs from 2 up to 256 axes IEC 61131-3 controller PLCopen Function Blocks for Motion Control and Safety Advanced motion with Robotics functionality Built-in EtherCAT and EtherNet/IP ports

Motion



G5 Servo System - Wide functionality and scalability

- Servo drive for rotary or linear motors
- Rotary motor: Up to 15 kW
- Iron-core and Ironless linear motor models: Up to 2100 N peak force
- Safety function: STO
- Full closed loop control



1S Servo System - General purpose servo

- Servo drive for rotary motors
- Up to 3 kW
- Safety function: STO



Integrated Servo Motor - Cabinet-free solution

- Motor and drive integrated
- Continuous torque: 2.55 Nm to 25 Nm
- Cabinet space saving
- Less wiring and simplified installation
- Energy saving by sharing the DC Bus

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