

## State of the art technology applied to general purpose servo

### Improved machine design. Increased machine productivity

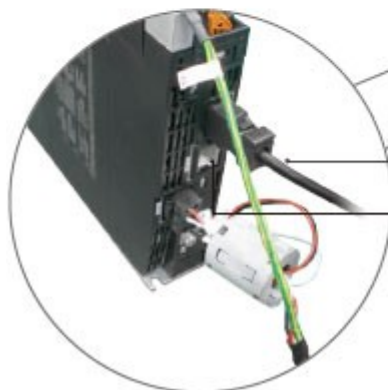
Designed to meet the machine requirements, the 1S servo technology optimizes the full cycle, through the machine design, installation and commissioning tasks and finally to the maintenance once in production. In addition to the traditional motion solution, the 1S servo offers high resolution multi-turn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

Capacity range is expanded,  
but 1S concept can be  
maintained.

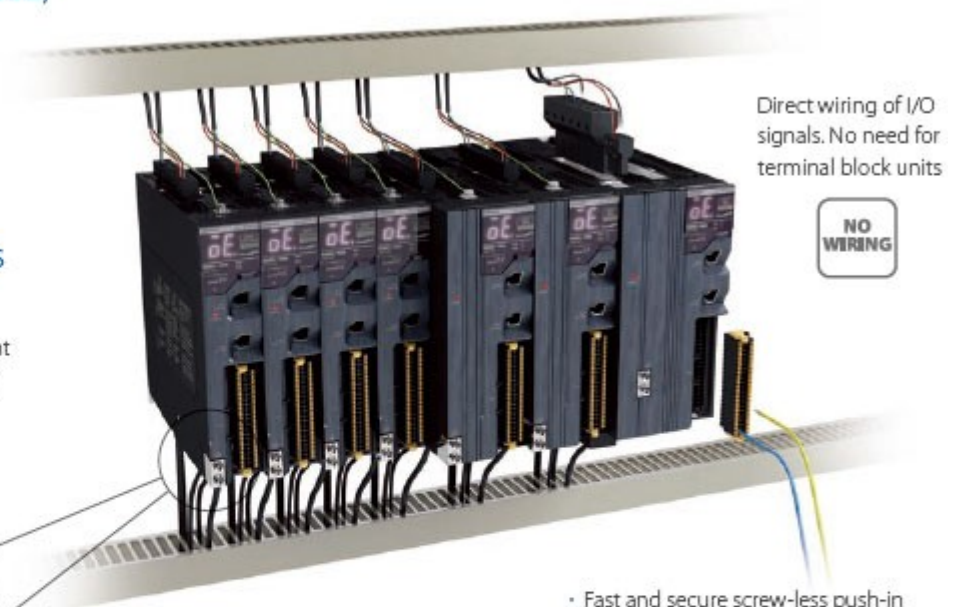
### Optimized installation and commissioning tasks

Cabinet size reduction:

- Compact servo drive with same height throughout the power range from 0.1 to 7.5 kW



Pre-assembled motor cables  
Embedded relay for direct  
motor brake control



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

NO  
WIRING

- Fast and secure screw-less push-in in all connectors
- Pluggable connectors for easy pre-wiring and system maintenance \*1

\*1. Except 15 kW (200 V)

### Servo features

- Power range from 50 W to 15 kW \*2
- 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:
  - Hardwired Safe Torque Off:  
EN ISO 13849-1(Cat.3 PLe), EN61508(SIL3), EN62061(SIL3), EN61800-5-2(STO)
  - Safety over EtherCAT(FSoE):  
EN ISO 13849-1(Cat.3 PLd), EN61508(SIL2), EN62061(SIL2), EN61800-5-2(STO)



Expanded with High Capacity  
Range: 4 - 15 kW \*2



\*2. The 3000-r/min servomotor of 5 kW (200 VAC) and 1500-r/min servomotors of 4 kW and 5.5 kW (200 VAC) will be available soon.

### 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 bits, 65536 turns
- Compact and smaller motor size

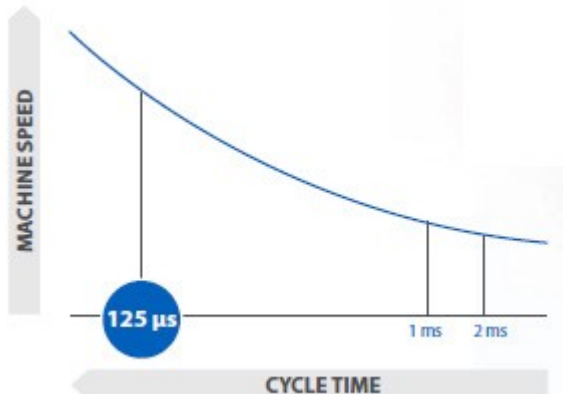
### 50% setup time reduction\*

	Servo sizing		System configuration		Gain tuning & test run
<ul style="list-style-type: none"> <li>• Servo sizing tool for the entire machine</li> <li>• Graphical environment of the kinematic chain</li> <li>• Electronic CAM import from Sysmac Studio</li> </ul>	<ul style="list-style-type: none"> <li>• NJ project auto-builder from servo sizing file</li> <li>• Quick setup wizard for key parameters</li> <li>• Parameters transfer in less than 400 ms</li> </ul>	<ul style="list-style-type: none"> <li>• "Best effort" feature for quick stabilization time</li> <li>• Easy tuning with intelligent gain search in less than 2 minutes</li> <li>• Wizard for tuning, test run &amp; monitoring</li> <li>• Advanced tuning simulation to reduce testing effort and prevent machine damage</li> </ul>			
Save 40% *		Save 60% *		Save 50% *	

**PATENT PENDING**

\* Performance comparison with previous Omron products based on Omron Investigation in July 2019.

### Totally integrated, totally in control



## HIGHER PRODUCTIVITY

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### 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

## INTEGRATED SAFETY

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### 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: EN ISO 13849-1(Cat.3 PLd), EN61508(SIL2), EN62061(SIL2), EN61800-5-2(STO)
- Troubleshooter integrated with Sysmac Studio



## TOTALLY IN CONTROL

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### Sysmac Studio

- Simplified servo setup: Direct use of servo sizing calculation
- Open standard IEC 61131-3 programming



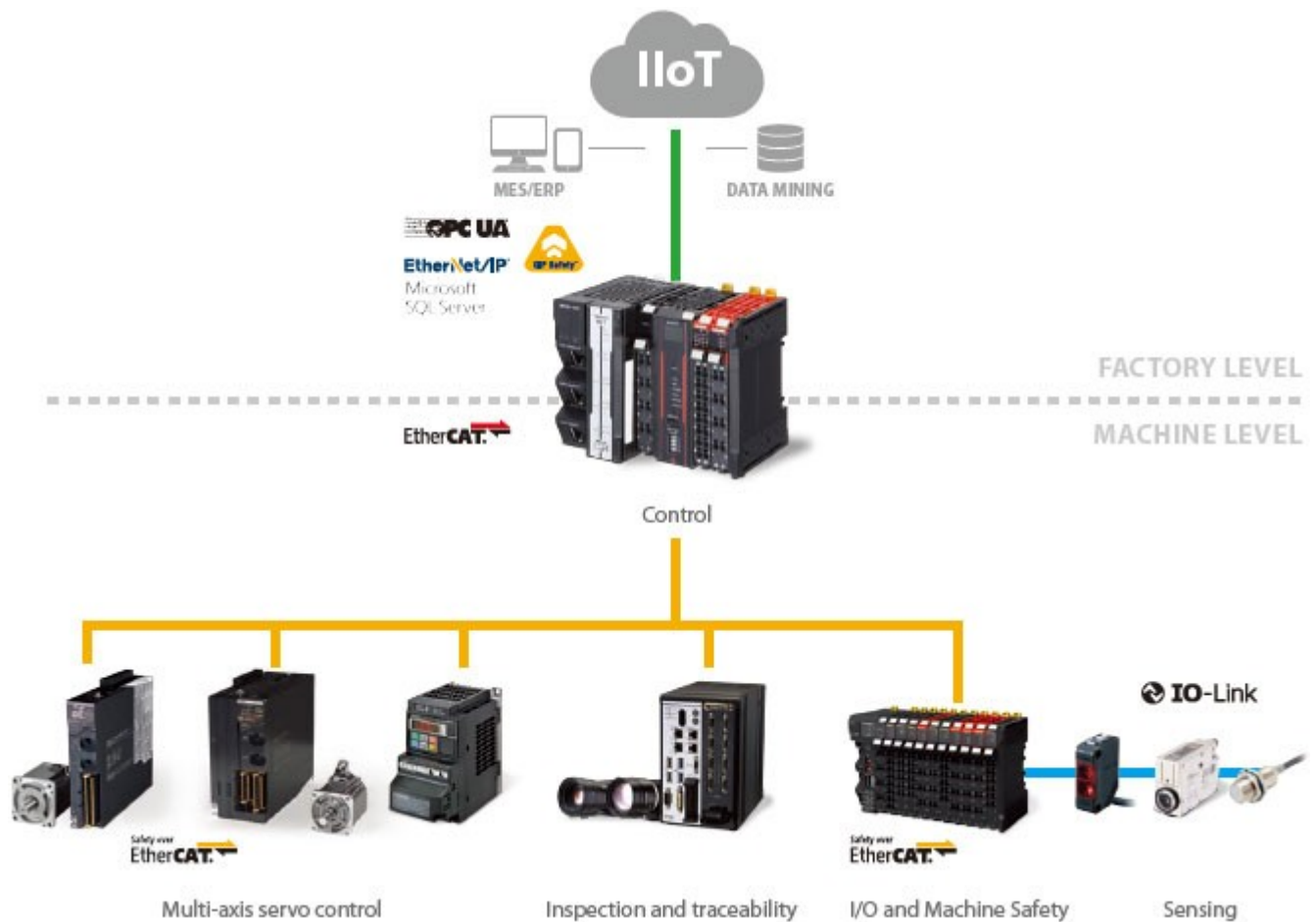
- Standard PLCopen Function Blocks for Motion and Safety



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

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## Sysmac Automation Platform



## 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/](http://www.ia.omron.com/sysmac_library/)