OMRON

Sysmac: A fully integrated platform

One connection - One software - One machine controller

FACTORY AUTOMATION

HMI · Programming · DB connection · IT systems



MACHINE CONTROL

Servo · Inverter · I/O · Safety · Vision · Robotics · Sensing

sysmac
always in control

Omron provides tailored solutions

Flexible and integrated production business models

In today's globalized manufacturing environment, diverse and complex challenges arise and need to be overcome. The global market rapidly changes, and manufacturing companies are under increasing pressure to supply products in a timely manner that satisfy a wide variety of consumer needs. Omron industrial automation makes efficient, flexible and cost effective manufacturing possible.

Innovation

- New technology for smart manufacturing
- Collaboration between humans and machines
- Environmentally safe products

Productivity

- Integrated systems for optimized manufacturing
- Production data available in real-time
- In-line quality inspection: zero defects

Flexibility

- Quick product changeovers
- Openness and third party connectivity
- Scalable systems for optimum solutions

Reliability

- Non-stop processes, 24/7 operation
- Extended product lifecycle

Globalization

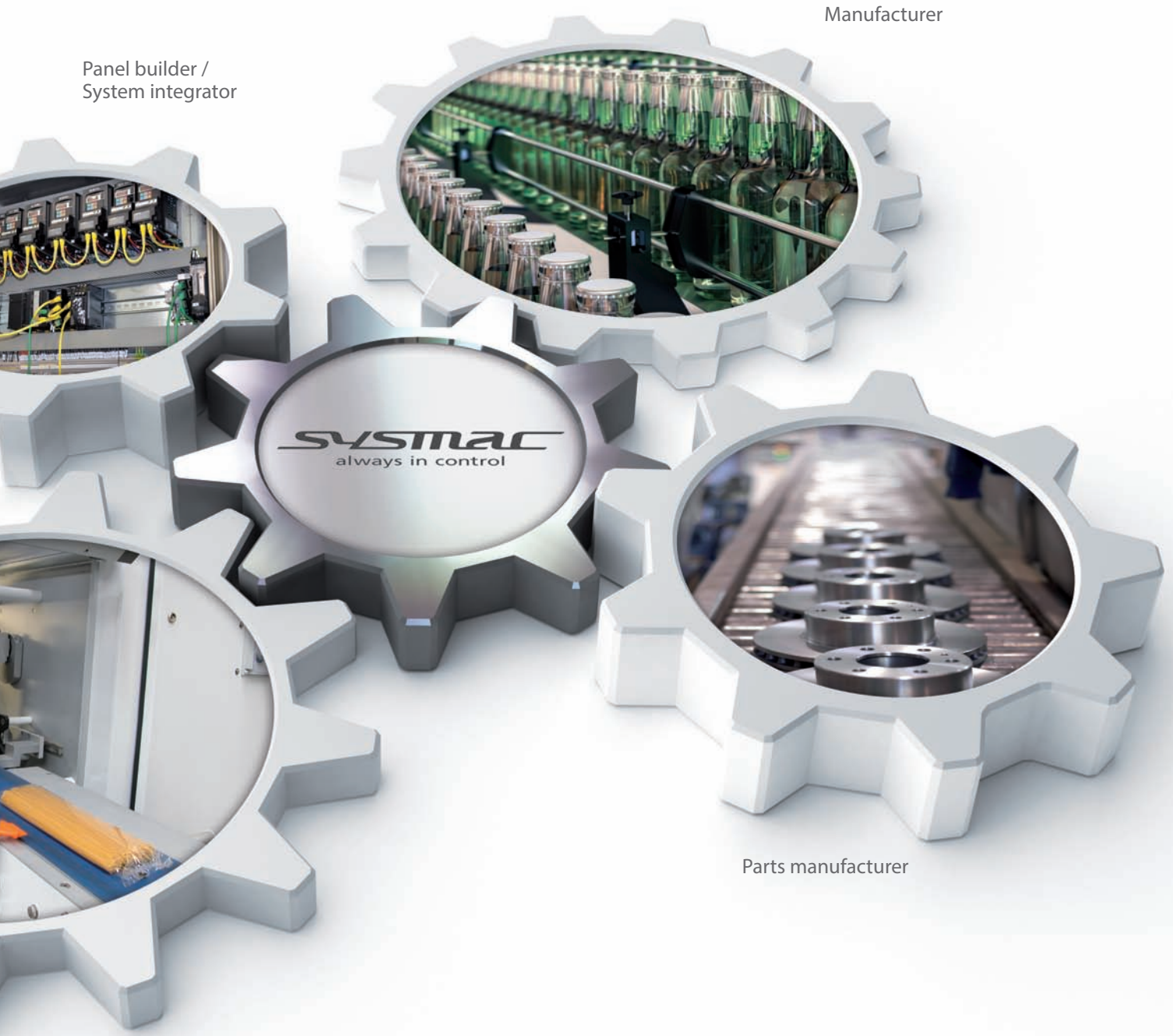
- Products meet global standards
- Local support for training, repairs and spare-parts supply
- Engineering environment compliance with global standards

✓ Through automation, **Omron** supports the advancement of manufacturing and contributes to a sustainable society by providing environmentally safe products



Machine / Equipment builder

- The **Sysmac** technology platform ensures a flexible and integrated production business model



Sysmac: A fully integrated platform

Integration and Functionality

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.

One Machine Controller

Complete integration of motion and logic sequence

FACTORY AUTOMATION



MACHINE CONTROL

Machine Automation Controller /
Industrial PC with Sysmac Machine Control

Motion



Filling line

- Motion Control: Integrated within the IDE, and operating in real-time
- Standard PLCopen Function Blocks plus Omron generated motion FB's
- Direct Synchronous control for Position, Speed and Torque

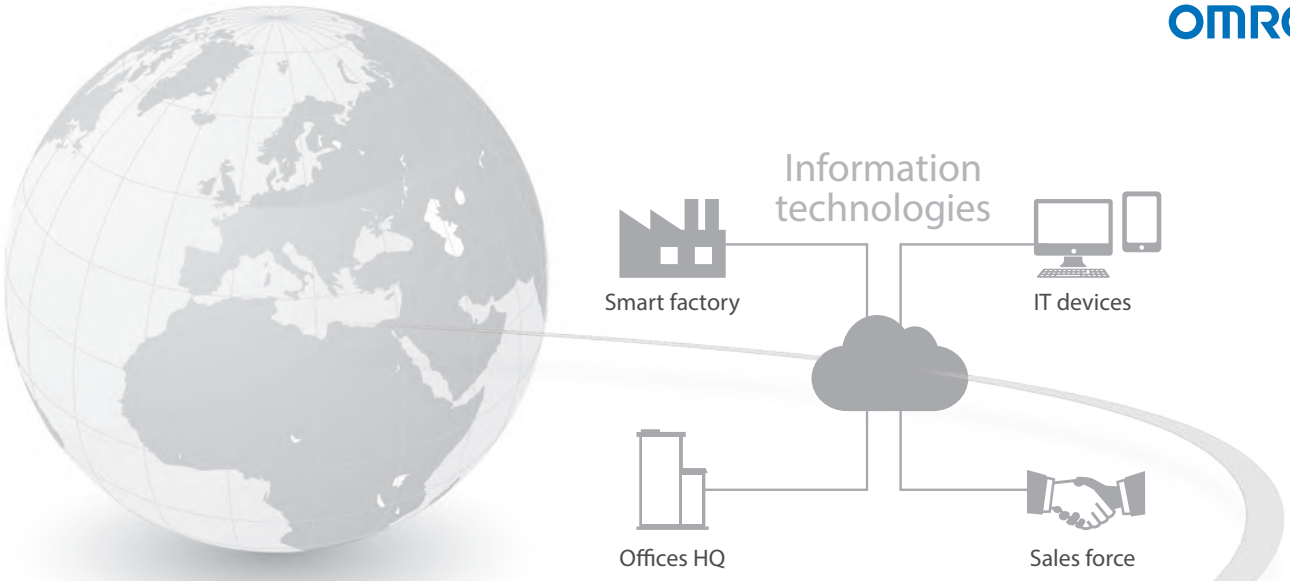
Safety



Assembly

- The simplest way to integrate safety improves productivity and safety
- The PLCopen® safety FB's simplify and accelerate the development process

One Integrated Development Environment software for Configuration, Programming, Simulation and Monitoring



Information


Pills blister packing

- Sysmac communicates in real-time with Databases such as SQL
- Secure Data: In the event of a server going down or losing communications, data is automatically stored in internal memory
- Sysmac operates with Databases at high speed [1000 table element/ 100 ms] ensuring realistic Big Data Processing to improve productivity and aid predictive maintenance etc.

Integrated Automation Control:
The Sysmac platform is scalable and provides the performance and functionality for a wide range of solutions from simple machines through to manufacturing cells

Vision


Quality inspection

- Higher resolution images available without increasing the vision processing time
- Shape search technology: Provides more stable and accurate object detection for Pick & Place projects

Robot


Pick & Place

- One controller integrates two different types of engines, one based on cyclic scanning (PLC feature) and another based on procedural programming (robot feature), providing direct control of robots

Sensing

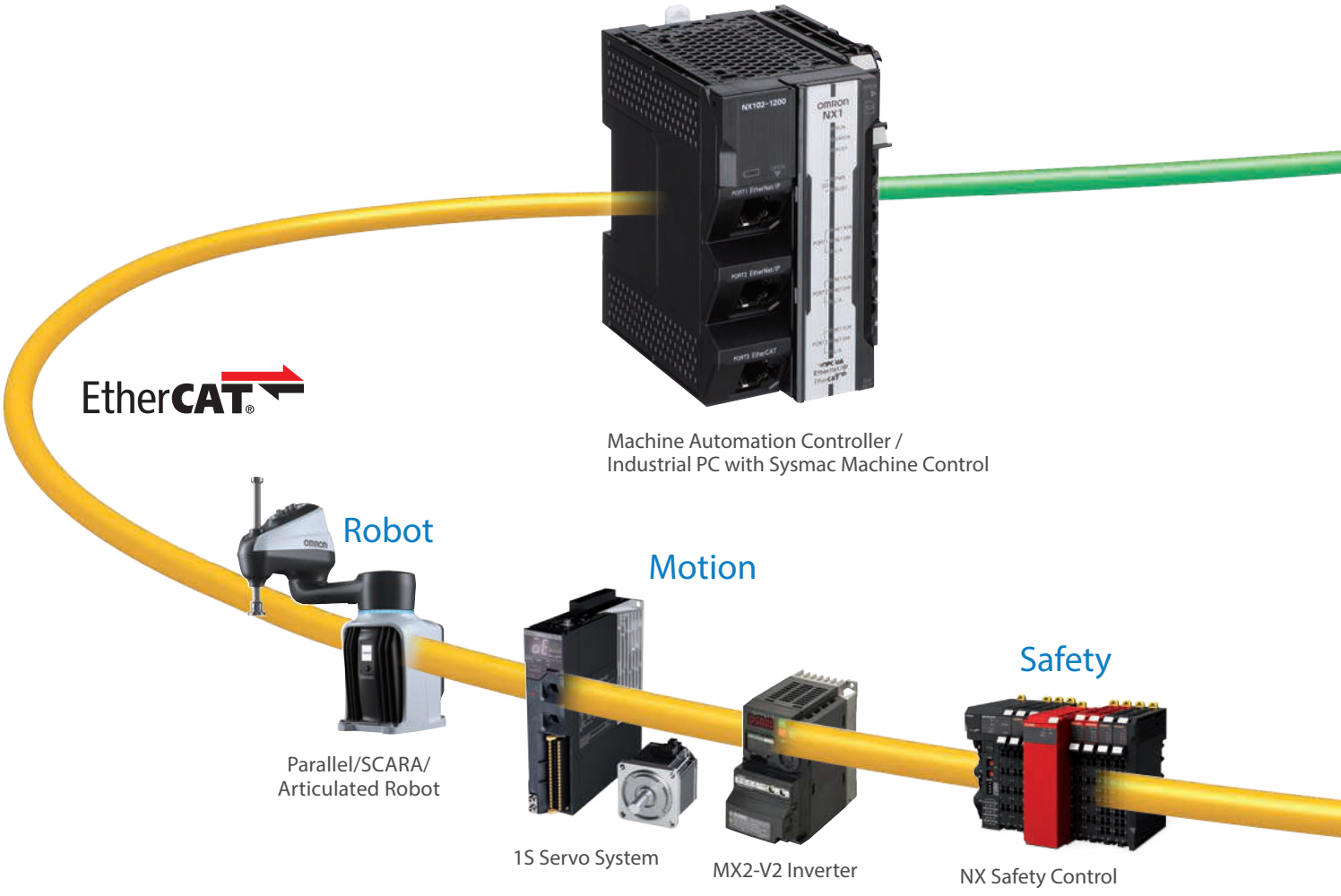

Presence detection of the rubber seal

- Full control of the process parameter setting and predictive maintenance functions
- High precision detection and positioning data synchronized on the network

One Connection

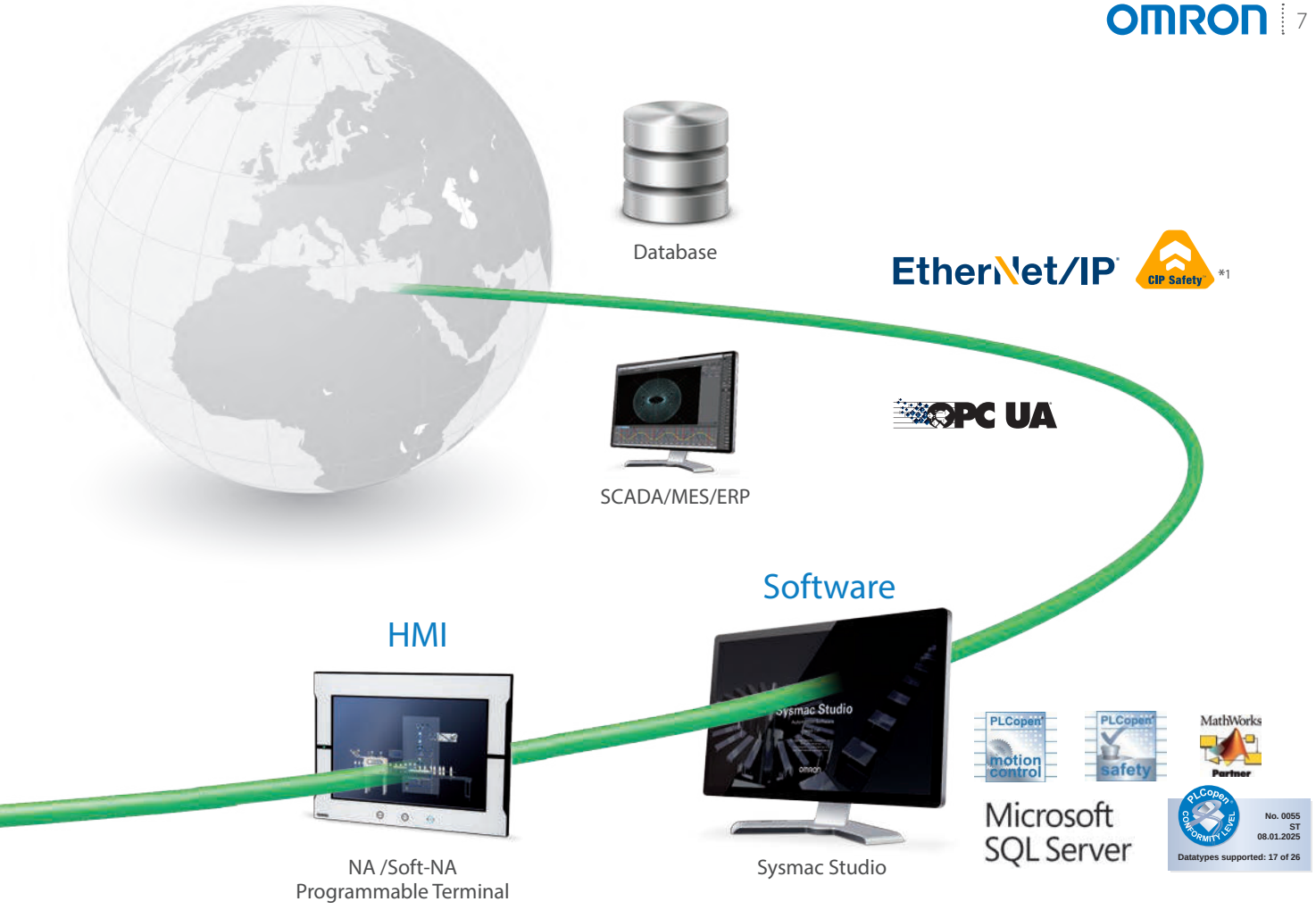
Seamless machine control and factory automation

One machine control through one connection and one software is how we define the Sysmac automation platform. The Machine Automation Controller integrates logic, motion, safety, robotics, vision, information, visualization and networking under one software: Sysmac Studio. This one software provides a true Integrated Development Environment (IDE) that also includes a custom 3D motion simulation tool. The machine controller comes standard with built-in EtherCAT and EtherNet/IP. The two networks with one connection purpose and integrated safety are the perfect match between fast real time machine control and data plant management.



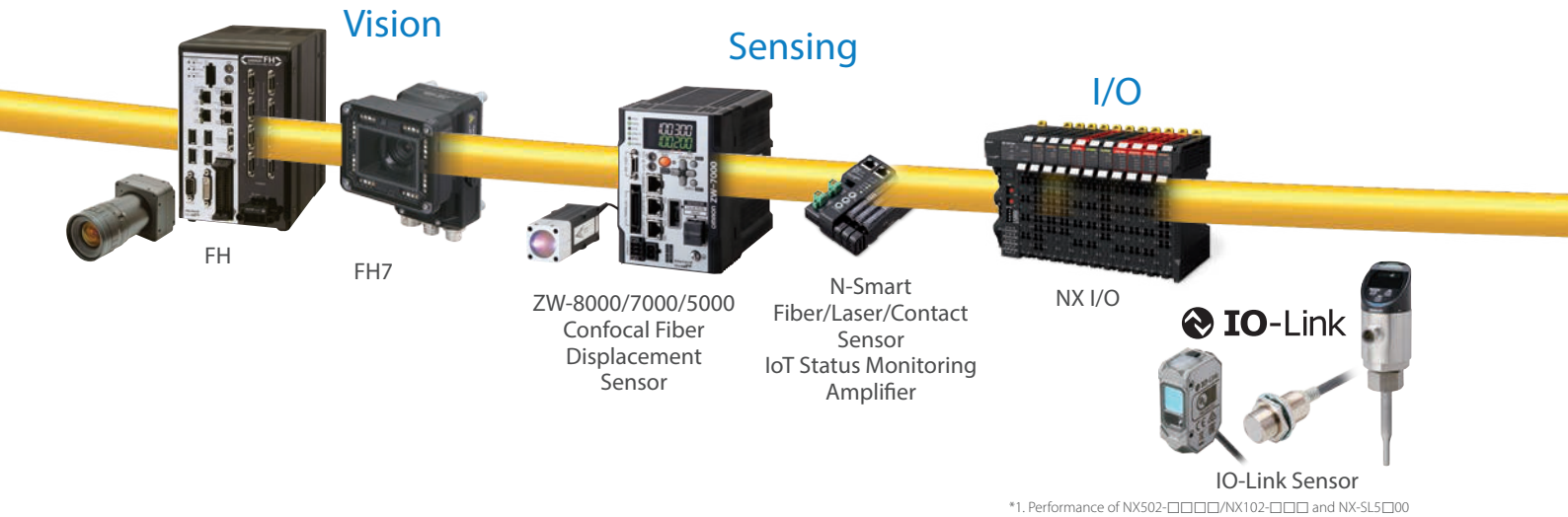
EtherCAT - Machine Control

- Redundancy minimizes downtime
- Flexible system configuration using a variety of slaves
- Fast and precise: Fastest cycle time of 125 µs, synchronization with 1 µs jitter
- 512 slaves
- Embedded in Omron servo drive, inverter, I/O, Safety, Vision and Sensing
- Uses standard STP Ethernet cable with RJ45 connectors
- One connection using Safety over EtherCAT (FSoE) protocol



Ethernet - Factory Automation

- Peer-to-Peer controller communication
- Interface with Sysmac Studio , NA HMI or SCADA software
- Database connection for Microsoft SQL Server, Oracle, IBM DB2, MySQL and Firebird
- FTP server
- Safety integrated via CIP Safety
- Secure cloud connection by MQTTS communication



*1. Performance of NX502-□□□□/NX102-□□□ and NX-SL5□00

One Software

One Integrated Development Environment Software

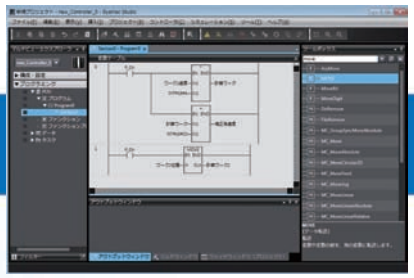
Created to give you complete control over your automation system, Sysmac Studio integrates configuration, programming and monitoring. Graphics-oriented configuration allows quick set-up of the controller, field devices and networks while machine, motion, and safety programming based on IEC standard and PLCopen® Function Blocks for Motion Control and Safety cuts programming time. Smart Editor with On-line debugging helps quick and error free programming. Advanced simulation of sequence and motion control, and data trace reduce machine tuning and set-up.



Design

Reusable programs

Programming with variables

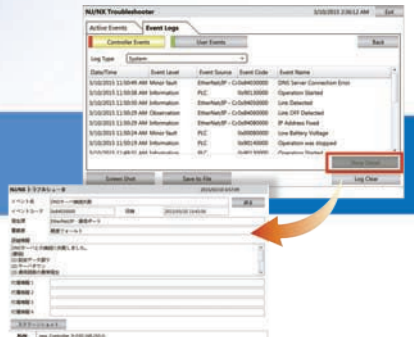


One Integrated Development Environment software Sysmac Studio is fully compliant with the open standard IEC 61131-3. Programming with variables eliminates the need to learn the internal memory map of the PLC and allows the programs to be reused.

Maintenance

Highly efficient maintenance

Troubleshooting



Troubleshooting in the Sysmac Studio and NA Programmable Terminal can manage errors across the entire system including the controller. You can check details of errors and solutions without reading manuals.

*1.This function can be used by applying the Team Development Option to Sysmac Studio version 1.20 or higher. Project version control function is supported by CPU Unit version 1.16 or later.

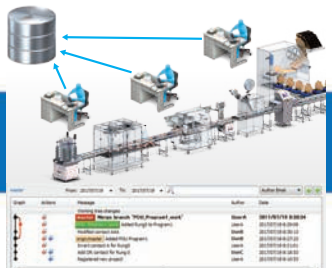
*2. Available with the Sysmac Studio 64-bit version. 3D CAD data supports STEP/IGES.

Collection of software functional components Sysmac Library

Packed with Omron's rich technical know-how, the Function Blocks in the Sysmac Library for advanced applications and motion control cut programming time.

Development by multiple developers

Project version control function*1



When you develop a project at the same time as your colleagues, the Sysmac Studio combined with the version control system (Git™) merges changes automatically and resolves conflicting changes. This makes merging easier and faster. You can even revert to the previous revision after graphically comparing the current project with a previous one.

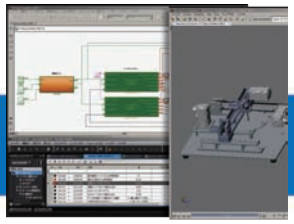
For advanced machine control

Motion programming



Advanced motion control applications can be created quickly just by combining PLCopen® Function Blocks for Motion Control.

Model-Based design

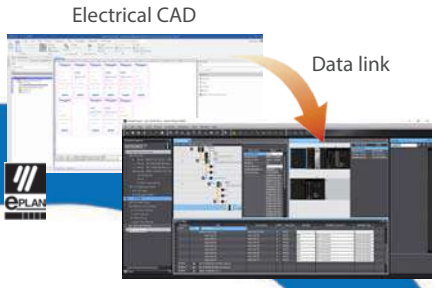


Complex feedback control that is designed with MATLAB®/Simulink® can be imported into programs.

MathWorks Partner

Efficient designing linked to electrical CAD

AutomationML import function NEW



Circuit diagrams designed using electrical CAD data (e.g., unit configurations and signal lines) can be imported to the Sysmac Studio and automatically reflected in unit configurations and settings and allocated variables. Seamless and accurate setup using electrical CAD design data speeds up the engineering process and improves design efficiency.

EPLAN

Verification

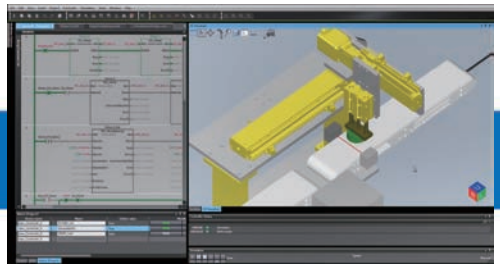
Fast system debugging

Remote maintenance



Movement of the machine connected online can be displayed on the CAD in real time, and movement can also be reproduced from the trace data. Maintenance and troubleshooting can be performed in remote locations.

Virtual mechanical debugging



Enhanced by 3D simulation option*2

Use only the Sysmac Studio with loaded 3D CAD data*2 for 3D simulations.Operation of a control program can be verified in a virtual environment, improving program accuracy during design and reducing rework during verification using physical devices.

For more information, see the video:
www.fa.omron.co.jp/3d-simulation_e



Debugging in conjunction with a third-party simulator is possible.

LATTICE TECHNOLOGY VMECH

One Machine Controller

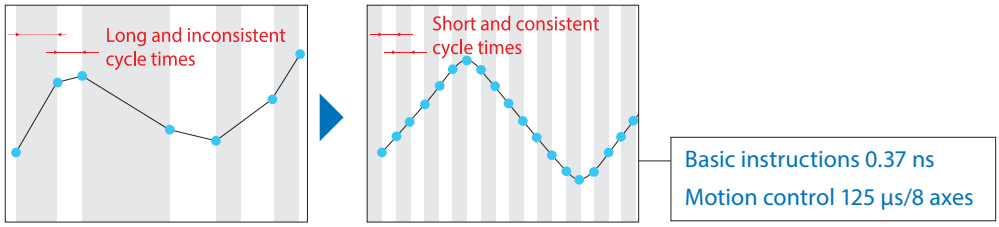
NJ/NX/NY Machine Automation Controller

Powerful, yet easy to configure

The NJ/NX/NY Controller is at the heart of the Sysmac platform. One integrated controller is designed to meet extreme requirements in terms of logic sequence and motion control speed and accuracy. Standard programming and open networks make it easy to build your automation system.

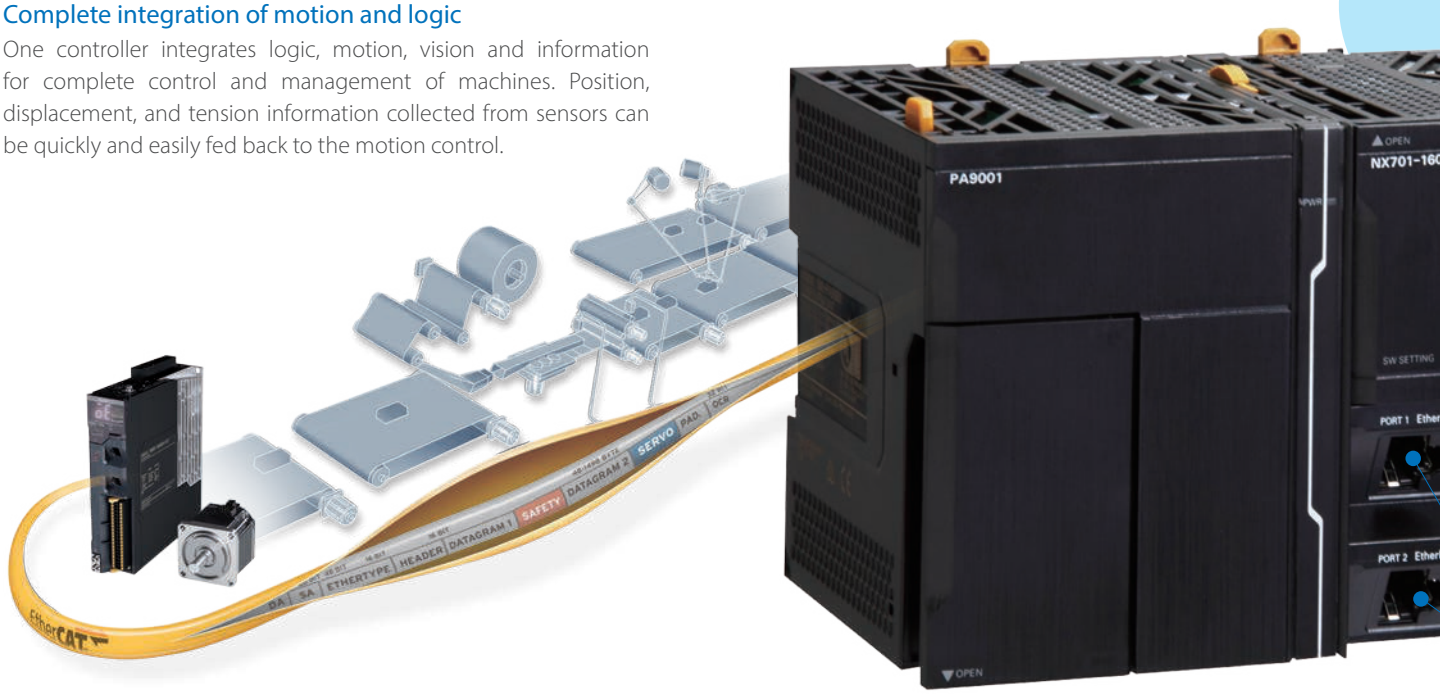
High-speed, high-precision control*1

Architecture based on Intel® Core™ processor significantly speeds up the execution of instructions (basic instructions 0.37 ns, math instructions for Long Real Data 3.2 ns). Command values to send to servomotors and stepper motors can be updated as fast as every 125 µs. This enables smooth cam motion and high-precision interpolation and phase adjustment between axes.



Complete integration of motion and logic

One controller integrates logic, motion, vision and information for complete control and management of machines. Position, displacement, and tension information collected from sensors can be quickly and easily fed back to the motion control.



Integrated safety into machine control*2

The controller integrates safety control into machine control in lines that require fast cycle times. It also integrates two different open networks: EtherNet/IP for safety control in production lines and EtherCAT for safety control in machines.

*1. Performance of NX701-1□00

*2. Performance of NX502-□□□□/NX102-□□□□ and NX-SL5□00

*3. Database connection CPU unit:
NX502-1□00/NX102-□□20/NJ□01-□□20

*4. Performance of NX701-1□□□/NX502-1□00/NX102-□□□□/
NJ501-1□00

*5. Performance of NX502-1□00/NX102-□□□□/NX1P2-□□□□

Fast machine data storage in database*3

The controller connects directly to a database without the need for a gateway. The special instructions allow easy access to the database.
Real-time data collection enables productivity improvement, predictive maintenance, and quality traceability.

Secure host connection

OPC UA is an IEC communication protocol which is listed as a recommendation for Industrie 4.0 and PackML. The controller comes equipped with an OPC UA server interface and provides a secure connection to IT systems such as MES and ERP.*4
The controllers provides a easily and secure connection to the cloud by using MQTT Communications Library.*5



Supported database

- Microsoft SQL server
- Oracle Database
- IBM DB2
- MySQL
- PostgreSQL
- Firebird

Standard programming

- Fully conforms with IEC 61131-3 standards
- PLCopen Function Blocks for Motion Control

PLCopen motion control

PLCopen CONFORMITY LEVEL
No. 0055
ST
08.01.2025
Datatypes supported: 17 of 26

Global standard networks

EtherCAT® Standard Machine Network

Safety over EtherCAT®

EtherNet/IP Standard Factory Network

CIP Safety *2

Collection of software functional components
Sysmac Library

- FB library option for advanced applications (vibration suppression, temperature control, motion control...)
- High quality products with reliable global support

Sysmac Library

Drive machine innovation by increasing speed

Case 1: High-speed alignment and vibration-free handling

Problems

1. Precisely stacking many sheets increases cycle time because retries caused by mechanical errors increase positioning time.
2. Vibration settling time is required when high-speed handling is stopped. Speed must be reduced to suppress vibration.

1. High-speed, high-precision alignment system

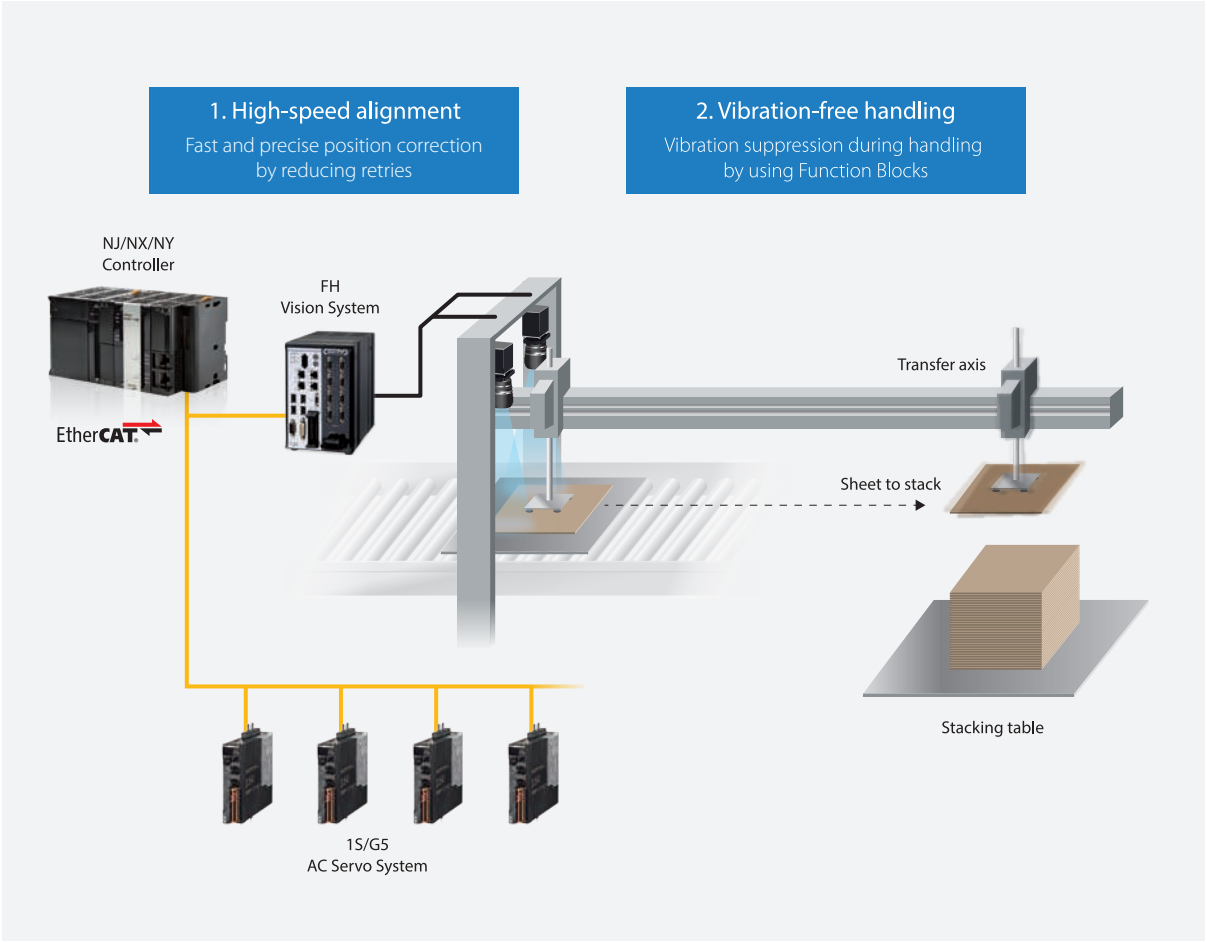
The FH Vision System provides the Shape Search function for fast and accurate shape recognition and Visual Feedback that feeds back the current position to control the motor in every measurement cycle. These increase alignment speed without sacrificing accuracy.

Sysmac Library — Visual Feedback Alignment Library

2. Software functional components for vibration suppression

The Vibration Suppression Library facilitate programming for high-speed handling while suppressing vibration. Waiting time is reduced, and positional accuracy is increased.

Sysmac Library — Vibration Suppression Library



and precision and maximizing uptime

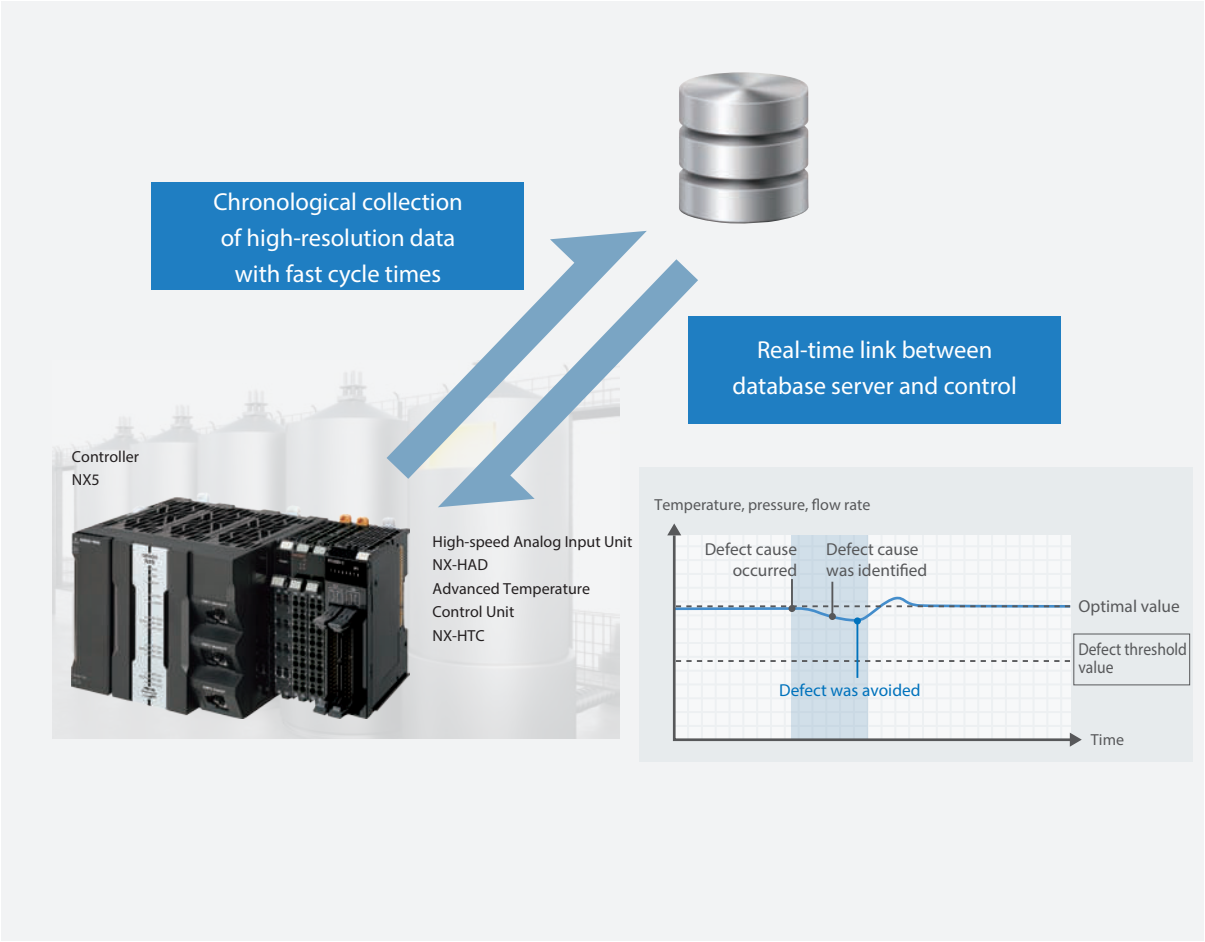
Case 2: Data utilization improves yield

Problems

The amount of equipment data to find optimal processing conditions is so large that it takes time to transfer data and feed back analysis results. This results in low yield.

Real-time feedback increases yield

With approximately four times the data transfer capability of the NJ5 Series, NX5 can transfer all of the high-resolution data to a database at high speeds.
NX5 also reflects results of database analysis in processing conditions in real time, contributing to defect prevention and yield improvement.



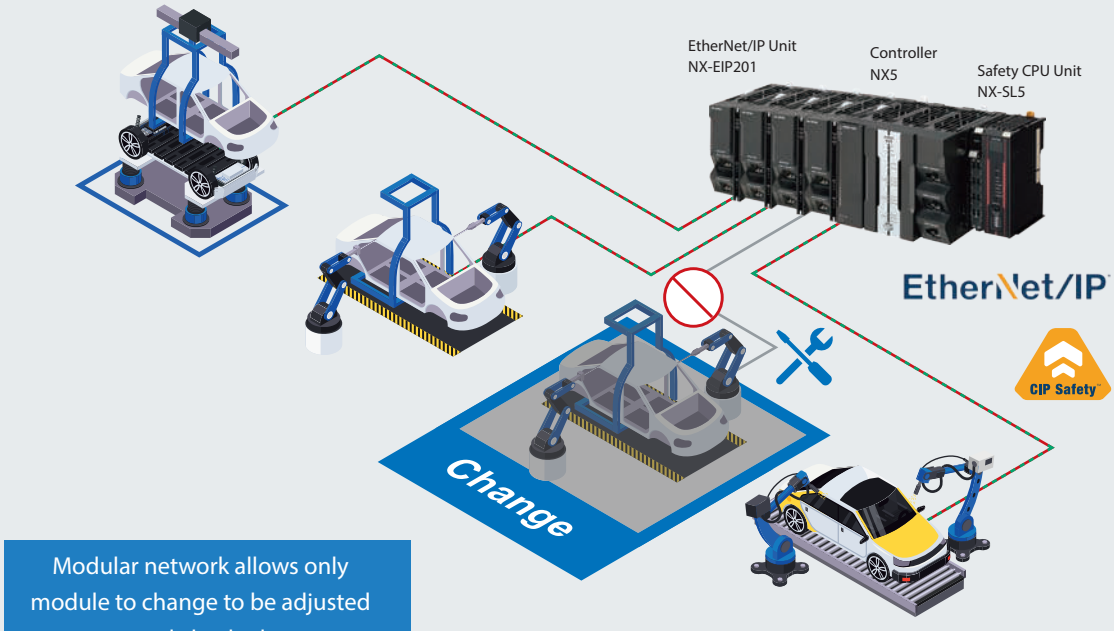
Case 3: Increase equipment availability through integrated safety

Problems

1. Manufacturers need to cope with rapid demand changes by building flexible equipment.
2. Network power supply must be turned off for changing a process because safety communications are configured within the same network segment. This results in long lead time.

Safety integrated controller enables modular safety network configuration

Control and safety integrated controller and up to 10 separate CIP Safety networks enable you to modularize network configurations including safety as well as software and hardware.
The localized process to change can be adjusted and checked without stopping the entire production line, significantly reducing lead time for line changes.



Modular network allows only module to change to be adjusted and checked

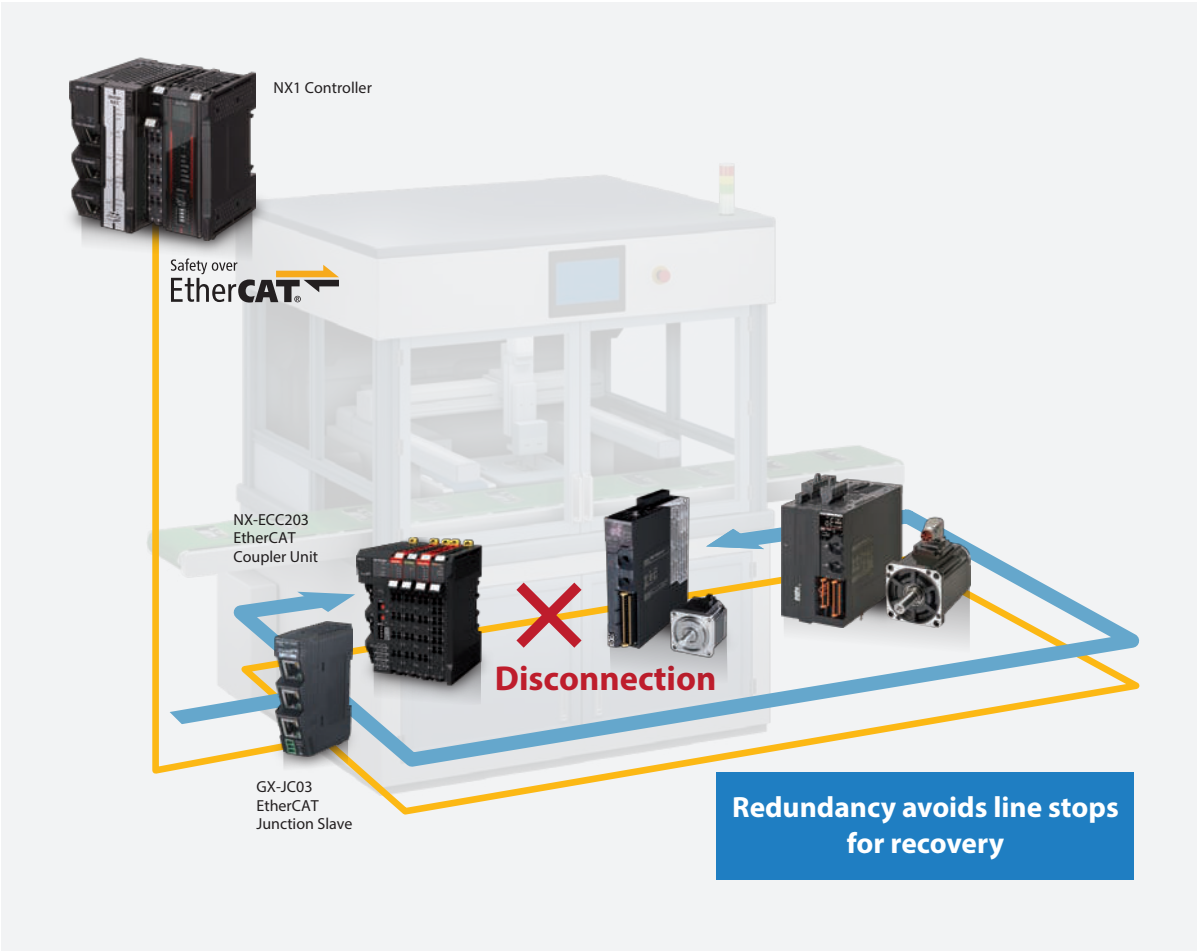
Case 4: Redundancy minimizes downtime

Problems

1. It takes time to recover from an unexpected production line stop, significantly reducing uptime.
2. The safety system stops the entire line due to disconnection or other causes even when there is no danger.

Cable Redundancy

Even if a part of the EtherCAT network is disconnected, Cable Redundancy provides continuous connectivity. This function allows you to fix disconnection without stopping the machines and production line where one controller provides both machine and safety control.
The line stops only when operators are in danger, which ensures safety.



Sysmac Family
Controller

NX5
Machine Automation Controller CPU Unit

Integrated control, information, and safety brings a new level of speed to manufacturing sites

Control for fast-cycle, high-precision processing

- Controls 32 axes with cycle time of 250 µs
- Used motion control servo axes: 256, 128, 64, 32, 16 axes
- Program capacity: 80 MB
- Memory capacity for variables: 260 MB*1

Diverse information utilization

- SQL functionality for reliable, rapid, and easy direct access to databases
- Use of MQTT for data collection directly to cloud
- OPC UA functionality for secure connection to MES and ERP
- 10 x 1 Gbps ports for high-speed, high-capacity communications*2



2 different open networks for safety control of production lines and machines

Fail Safe over EtherCAT (FSoE)
- High speed and high reliability with redundancy, suitable for safety control in machine
- 254 connections for large and flexible production line

Common Industrial Protocol Safety (CIP Safety)
- High scalability, suitable for safety control across production line
- Up to 10 separate networks for network modularization

*1. Total value of retain attribute memory and no retain attribute memory
*2. Four NX-EIP201 EtherNet/IP Units per NX5

NX1
Machine Automation Controller CPU Unit



Helps improve production efficiency of small systems

Integration of control and information into a miniaturized housing

· 3 industrial Ethernet ports and a power supply housed in a compact design with a width of 66 mm
· Multicore processor and OPC UA functionality

NX7
Machine Automation Controller CPU Unit



Offers exceptional speed without compromising on reliability

High-speed, high-precision control of large-scale systems

· Motion control axes: 256 axes
· Instruction execution times (LD instructions) 0.37 ns
· Controls 8 axes with cycle time of 125 µs

NJ501-R□□□
Robot integrated CPU unit

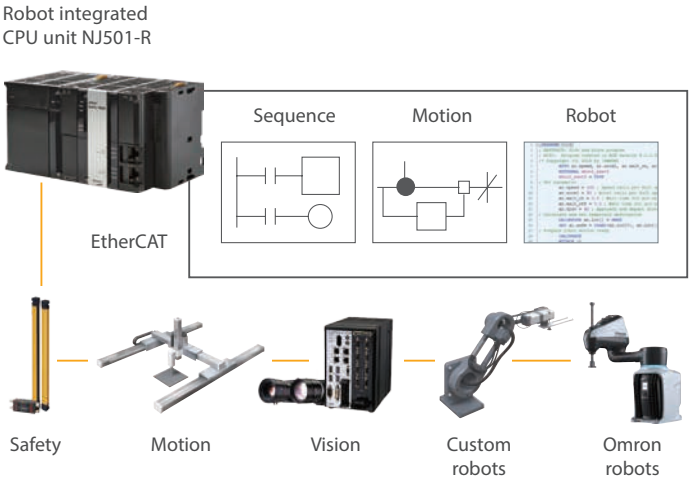
Integration of logic, motion, Omron Robot and kinematics in one CPU

Industry first*:
Integrated control of different engines

· Integrates two different types of engines, one based on cyclic scanning (PLC control) and another based on procedural programming (robot control)

Collection of trully useful data

· Synchronizes control of robots, motion, vision sensors and other devices on an EtherCAT network, ensuring data concurrency
· Direct access to a database and real-time data collection



* Based on Omron investigation in November 2019

Sysmac Family
Controller

Lineup

Series			NX Series			
Product name			NX701 CPU Units	NX502 CPU Units	NX102 CPU Units	NX1P2 CPU Units
Model			NX701-□□□□	NX502-□□□□	NX102-□□□□	NX1P2-□□□□
Appearance			OPC UA (NX701-1□00) 	OPC UA 	OPC UA 	
Specifications	CPU Unit features		Ideal for large-scale, fast, and highly-accurate control with up to 256 axes.	Ideal for large-scale, fast, and highly-accurate control with up to 256 axes. Used with NX-EIP201 to configure up to 10 EtherNet/IP networks.	Compact controller with up to 8 axes motion control.	Compact controller with up to 4 axes motion control, up to 4 axes single-axiscontrol, and built-in I/O.
	Instruction execution times	LD instructions	0.37 ns or more	0.53 ns or more	3.3 ns	3.3 ns
		Math instructions (for long real data)	3.2 ns or more	3.3 ns or more	70 ns or more	70 ns or more
	Program capacity		80 MB	80 MB	5 MB	1.5 MB
	Variable capacity		4 MB: Retained during power interruptions 256 MB: Not retained during power interruptions	4 MB: Retain attributes 256 MB: No Retain attributes	1.5 MB: Retained during power interruptions 32 MB: Not retained Zuring power interruptions	32 KB: Retained during power interruptions 2 MB: Not retained during power interruptions
	I/O capacity/maximum number of configuration Units (Expansion Racks)		—	— Up to 63 NX I/O Units connectable	— Up to 32 NX I/O Units connectable	Built-in I/O: 40 points max. Up to eight NX I/O Units connectable
	Number of motion axes		128, 256	16, 32, 64, 128, 256	0, 2, 4, 8 *1	0, 2, 4 *1
	Number of CNC axes		—	—	—	—
	EtherCAT slaves		512	256	64	16
	Number of controlled robots		—	—	—	—
	Number of controlled OMRON robots		—	—	—	—
Functions	Database connection		●NX701-1□20	●	●NX102-□□20	—
	SECS/GEM communications functions		—	—	—	—
	Numerical Control (NC) functions		—	—	—	—
External memory			Memory Cards	Memory Cards	Memory Cards	Memory Cards
Detailed specification (Datasheet)			P141	P159	P130	P116

*1. Motion control axes and 4 single-axis position control axes.
*2. The number of robots that can be controlled depends on the number of axes used in the system.
*3. With a combination of a CPU Unit with CNC version 1.03 or higher and Sysmac Studio version 1.60 or higher, up to 32 axes can be controlled. For a CPU Unit with CNC version 1.02 or lower, the maximum number of motion axes and CNC axes total is 16 axes.

	NJ Series								
	NJ501 CPU Units						NJ301 CPU Units	NJ101 CPU Units	
	NJ501-1□00	NJ501-R□□□	NJ501-4□□□	NJ501-1□20	NJ501-1340	NJ501-5300	NJ301-1□00	NJ101-□□00	NJ101-□□20
	OPC UA (NJ501-1□00) 								
	Ideal for large-scale, fast, and highly-accurate control with up to 64 axes.						Ideal for small control with up to 8 axes.	Ideal for simple machines.	
	1.1 ns (1.7 ns or less)						1.6 ns (2.5 ns or less)	3.0 ns (4.5 ns or less)	
	24 ns or more						35 ns or more	63 ns or more	
	20 MB						5 MB	3 MB	
	2 MB: Retained during power interruptions 4 MB: Not retained during power interruptions						0.5 MB: Retained during power interruptions 2 MB: Not retained during power interruptions	0.5 MB: Retained during power interruptions 2 MB: Not retained during power interruptions	
	2,560 points/40 Units (3 Expansion Racks)						2,560 points/40 Units (3 Expansion Racks)	2,560 points/40 Units (3 Expansion Racks)	
	16, 32, 64				16	16 *3	4, 8	0, 2	
	—					16 *3	—	—	
	192						192	64	
	—	8 robots max. *2	8 robots max. *2	—			—	—	
	—	8 robots max.	—	—			—	—	
	—	● NJ501-R□20	● NJ501-4320	●	—		—	—	●
	—				●	—	—	—	
	—					●	—	—	
	Memory Cards						Memory Cards	Memory Cards	
	P140								

NY series

NY5□□-1

Instruction execution times: 0.33 ns
Program capacity: 40 MB
Variables capacity (No retain attribute): 64 MB
Number of EtherCAT slaves: 192
Number of motion axes: 16, 32, 64
Catalog: P118



Sysmac Family
Software

Sysmac Studio
Automation Software

One software for programming, configuration, simulation and monitoring

- One software for motion, logic sequence, safety, motion, vision and visualization
- Fully compliant with open standard IEC 61131-3
- Supports Ladder, Structured Text, and Function Block programming with a rich instruction set
- Advanced security function with 32 digit security password



SYSMAC-XR□□□
Sysmac Library

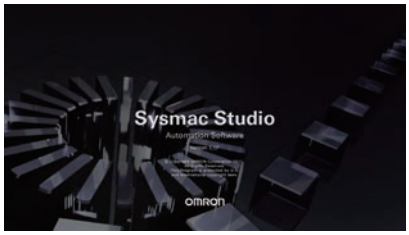
Omron's control expertise changes programming

- Advanced control such as vibration suppression and temperature control
- High-precision control of packaging machines and actuators for servo presses
- Productivity improvement by monitoring device operations and restoring parameters
- Reduction in programming time





Lineup

Series	Automation Software Sysmac Studio	Collection of software functional components Sysmac Library
Model	Sysmac Studio	SYSMAC-XR□□□
Appearance		
DVD	32-bit DVD [Supporting OS] Windows 7 (32/64-bit)/8.1 (32/64-bit)/10 (32/64-bit)/11 (64-bit) 64-bit DVD [Supporting OS] Windows 10 (64-bit)/11 (64-bit)	Download from http://www.ia.omron.com/sysmac_library/
License type / Library type	[Network Licenses] Basic License Advanced License Upgrade License for Advanced [Standalone Licenses] Standard Edition Vision Edithion Measurement Sensor Edition NX-I/O Edition Drive Edition Safety Edition [Optional Licenses for Standalone Licenses] Team Development Option 3D Simulation Option	MC Test Run Library MC Command Table Library MC Tool Box Library EtherCAT G5 Series Library EtherCAT N-Smart Series Library Vibration Suppression Library Temperature Control Library Device Operation Monitor Library Adept Robot Control Library Weighing Control Library EtherCAT 1S Series Library Packaging Machine Library Servo Press Library Dimension Measurement Library Safety System Monitor Library High-Speed Analog Inspection Library SLMP Communications Library Visual Feedback Alignment Library MQTT Communications Library RFID Communication Library OPC UA PackML Library
Detailed specification	Refer to your OMRON website.	

Sysmac Family
HMI

NA
Programmable Terminal

Make industrial machines more attractive and competitive by bringing technology to life

As part of the Sysmac automation platform, NA transforms machine data into information, shows information and controls devices based on requirements at FA manufacturing sites.

- One connection: Connectable with Sysmac products
- One software: The machine interface brings you a clear view in one integrated project.
- Rich media provide an intuitive and proactive machine management tool
- More than 16 million display colors (24-bit full color)





IAG – Intelligent Application Gadgets
The graphics collection accelerates the development process.
You can make your own collections and share them between projects.

Lineup

Series		NA Series			
Feature		More than 16 million color (24 bit full color) and wide screen for all models			
Appearance					
Display device		TFT LCD			
Screen size		15.4-inch widescreen	12.1-inch widescreen	9.0-inch widescreen	7.0-inch widescreen
Number of dots (horizontal × vertical)		WXGA 1,280×800 dots		WVGA 800×480 dots	
Colors		16,770,000 colors (24 bit full colors)			
Built-in ports		2 Ethernet ports, 2 USB host ports, 1 USB slave port			
Allowable power supply voltage range		19.2 to 28.8 VDC			
Degree of protection		Front-panel controls: IP65 oil-proof type			
Memory card		SD/SDHC memory card			
Flame colors		Black, silver			
Detailed specification	Catalog	V457			

Series		Soft-NA
Feature		NA functions work on Windows
		
OS		Windows 10 Pro Version 1903 or later 64 bit
Processor		Intel Atom® x5-E3940 equivalent or higher processor
RAM		4 GB or more
Optical disk drive		DVD-ROM drive
Detailed specification	Catalog	V457

Sysmac Family

Motion

R88M-1A□/R88D-1SAN□-ECT
1S Series with Safety Functionality

Higher Productivity and Safer Environment



Quick Installation : One Cable

· Power, encoder and brake in one pre-assembled cable with IP67 connector
· Pluggable connectors for easy pre-wiring and system maintenance
· Fast and secure screw-less push-in in all connectors

20 bit high resolution encoder

· No battery, no maintenance and compact size

Time Reduction: Integrated Programming and Testing

· Auto definition of I/F variables
· Motion safety function blocks
· Graphical GUI
· Integrated Data Trace

High adaptability for machine safety

· 8 safety functions according to SIL3/PLe
(STO, SS1, SS2,SOS, SLS, SLP, SDI, SBC)
· Safety-over-EtherCAT (FsoE)

EtherCAT Safety over EtherCAT

R88M-1□/R88D-1SN□-ECT/R88D-1SN□-ECT-51
1S-Series/1S-series with SS1/SLS Safety Sub-Functions

Improved machine design. Increased machine productivity

Optimized installation and commissioning tasks

· Cabinet size reduction: Compact servo drive with same height throughout the whole power range
· Fast and secure screw-less push-in in control I/O connector and brake interlock connector



23 bit high resolution encoder

· No battery, no maintenance and compact size

Multi-axis setup and tuning

· Configure and monitor multiple axes in one view
· Easy & fast parameter transfer among axes in the machine (up to 256 axes)
· Comprehensive gain tuning

Safety control via EtherCAT

· 1S-Series
IEC 61800-5-2 (STO)
· 1S-series with SS1/SLS Safety Sub-Functions
IEC 61800-5-2 (STO/SS1/SLS)

EtherCAT Safety over EtherCAT

Lineup

Series		1S-Series with Safety Functionality	1S-Series	1S-series with SS1/SLS Safety Sub-Functions
Model		R88M-1A□/R88D-1SAN□-ECT	R88M-1A□/R88D-1SAN□-ECT	R88M-1□/R88D-1SN□-ECT-51
Appearance				
Type		Built-in EtherCAT Communications	Built-in EtherCAT Communications	
Linear Type		No	No	
100 VAC Applicable motor capacity/ force		No	50 W to 400 W	
200 VAC Applicable motor capacity/ force		200 W to 2.7 kW	50 W to 15 kW	
400 VAC Applicable motor capacity/ force		750 W to 3 kW	600 W to 15 kW	
Applicable servomotor		1S with Safety Functionality Servomotor	1S Servomotor	
Control mode		Position, speed and torque control	Position, speed and torque control	
Safety approvals		· EN ISO 13849-1 (PLe/Cat.3) · EN 61508(SIL3) · EN 62061(SIL CL3) · EN 61800-5-2(SIL3) (STO/SS1/SS2/SOS/SLS/SLP/SDI/SBC)	· ISO 13849-1 (PL-e/PL-d) · EN61508 (SIL3/SIL2) · EN62061 (SIL3/SIL2) · IEC 61800-5-2 (STO)	· ISO 13849-1 (PL-e/PL-d) · EN61508 (SIL3/SIL2) · EN62061 (SIL3/SIL2) · IEC 61800-5-2 (STO/SS1/SLS)
Full closed loop		—	—	
Appearance				
Rated rotation speed		3,000 r/min	3,000 r/min	2,000 r/min
Momentary maximum rotation speed		5,000 to 6,000 r/min	5,000 to 6,000 r/min	3,000 r/min
Rated torque		0.637 to 9.55 N·m	0.318 to 9.55 N·m	4.77 to 14.3 N·m
Capacity		200 W to 3 kW *1	50 W to 5 kW *3	400 W to 3 kW
Applicable servo drive		1S with Safety Functionality Drive	1S Servo Drive, 1S with SS1/SLS Drive	
Encoder resolution		20-bit absolute	23-bit absolute	23-bit absolute
Protective structure		IP67	IP67	
Appearance				
Rated rotation speed		1,500 r/min	1,500 r/min	1,000 r/min
Momentary maximum rotation speed		3,000 r/min	2,000 to 3,000 r/min	2,000 r/min
Rated torque		9.55 to 19.1 N·m	25.5 to 95.5 N·m	8.59 to 28.7 N·m
Capacity		1.5 kW to 3 kW *2	4 to 15 kW	900 W to 3 kW
Applicable servo drive		1S with Safety Functionality Drive	1S Servo Drive, 1S with SS1/SLS Drive	
Encoder resolution		20-bit absolute	23-bit absolute	23-bit absolute
Protective structure		IP67	IP67	
Detailed specification	Catalog	I838/I842	1S-series (I821), 1S-series with SS1/SLS Safety Sub-Functions (I927/I928)	

*1. The maximum capacity of the 200 V model is 2.6 kW. *2. The maximum capacity of the 200 V model is 2.7 kW. *3. The maximum capacity of the 200 V model is 4.7 kW.

Sysmac Family
Motion

3G3MX2-A□□□□-V2
MX2-V2 Multi-function Compact Inverter

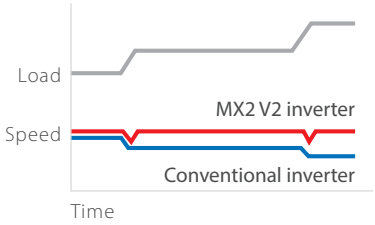
Born to drive machines

Torque control in open loop

- Ideal for low to medium torque applications
- Can replace a flux vector inverter or servo drive in suitable systems

Quick response to load fluctuation

- Stable control without decreasing machine speed improves quality and productivity



Safety inside

- Conforms to safety norm ISO 1384901 Cat. 3 performance level PLe
- 2 Safety inputs
- External device monitoring (EDM)

Other Features

- Maximum applicable motor capacity: 15 kW
- Double rating Normal Duty (ND), Low Duty (LD)
- Permanent magnet motors
- Drive Programming
- Built-in brake control function



3G3RX2-□□□□□
RX2 High-function General-purpose Inverters

Save energy and maximize performance with versatile inverter

- Triple rating: Normal Duty (ND), Low Duty (LD), and Very Low Duty (VLD)
- PM motor control helps save energy
- Safety function IEC 61800-5-2 "Safe Torque Off (STO)" Conforms to machinery directive with ISO13849-1 (Category 4/PLe)
- DriveProgramming allows simple sequence control without a PLC
- EtherCAT communication using an optional communication unit provides high-speed communication for running and stopping, monitoring operating status, and changing various settings



Lineup

Series		MX2 Series V2 type	RX2 Series
Model		3G3MX2-V2	3G3RX2
Appearance			
Power supply and capacity	Three-phase 200 V	0.1 to 15 kW(ND)	0.4 to 55 kW(ND)
	Three-phase 400 V	0.4 to 15 kW(ND)	0.4 to 132 kW(ND)
	Single-phase 200 V	0.1 to 2.2 kW(ND)	No
Control methods		· V/F control · Sensorless vector control	· V/F control · Sensorless vector control · Vector control with a PG
Input/ output	No. of multi-function I/O points	· 7 inputs · 2 transistor outputs · 1 relay output	· 11 inputs · 5 transistor outputs · 2 relay outputs
	Analog I/O	· 2 inputs (0 to 10 V, 4 to 20 mA) · 1 output (0 to 10 V)	· 3 inputs (1)/(2) 0 to 10 V or 0 to 20 mA (3) -10 to 10 V · 2 outputs 0 to 10 V or 0 to 20 mA · 1 PWM voltage output
Braking		· Braking resistor connection · Regenerative Braking Unit connection · Regenerative Braking Unit + braking resistor connection	· Braking resistor connection 200V (22 kW max.) 400V (37 kW max.) · Regenerative Braking Unit connection · Regenerative Braking Unit + braking resistor connection
Frequency	Frequency setting range	0.01 to 590 Hz	0.1 to 400 Hz
	Frequency output method	Line-to-line sine wave PWM	Line-to-line sine wave PWM
Installation and wiring	Side-by-side mounting	Yes	No
	Removable terminal block	No	Yes
	Power supply and motor wiring	Bottom wiring	Bottom wiring
Main functions	Multistep speed control	16 steps + jog	16 steps + jog
	Carrier frequency setting	2 to 15 kHz (default setting: 5 kHz)	2 to 15 kHz (default setting: 5 kHz)
	Torque assist function	Auto/manual torque assist	Auto/manual torque assist
	PID function	Yes	Yes
	Absolute value positioning	No	Yes
	Emergency shutoff	Yes	Yes
	0-Hz domain sensorless vector control	No	Yes
	Tripless function	Yes	Yes
	Momentary power interruption restart	Yes	Yes
	Multiple rating	Double ratings	Triple ratings
	Permanent magnet motor control	Yes	—
	Starting torque	200% at 0.5 Hz	· 200% at 0.3 Hz in open loop · Full torque at 0 Hz in closed loop
	PLC functionality (Drive Programming)	Provided	Provided
Communications		Optional EtherCAT communication unit	Optional EtherCAT communication unit
Safety approvals		· ISO 13849-1 (Cat.3/PLe) · IEC 60204-1 Stop Category 0	· ISO13849-1 (Cat.4/PLe) · IEC 61800-5-2
Detailed specification	Catalog	Refer to your OMRON website.	I921

Sysmac Family
I/O

NX
I/O-System

Speed and accuracy for machine performance and information

Based on an internal high-speed bus running in synchronization with the EtherCAT network and using the time-stamp function, the NX I/O can be controlled with microsecond accuracy and with nanosecond resolution. The I/O range consists of over 100 models including position control, temperature inputs, and integrated safety. The EtherNet/IP unit with X Bus*1 connectivity enables data transfer via EtherNet/IP as fast as 1 Gbps, achieving data utilization between machines or processes.



X Bus*1 connection

NX bus connection

EtherNet/IP Unit (For NX502)
Up to 8 EtherNet/IP networks (using 4 units)

Communications coupler
- EtherCAT
- EtherNet/IP

IO-Link master
- Up to 4 IO-Link devices with one master

Serial communications
- RS-232C or RS-422A/485 interface

EtherCAT slave
- Available as subsystem controller on EtherCAT

RFID
- Direct connection to V680 RFID System

Digital I/O
- 4, 8, 16, or 32 channels per input unit
- 2, 4, 8, 16, or 32 channels per output unit (8 channels per relay output unit)
- 16 channels per mixed I/O unit
- Standard, high-speed, and time-stamp models
- Units with Push-In Plus/MIL/Fujitsu/M3 Screw connector

Analog I/O
- +/-10V voltage and 4-20 mA current signals
- 2, 4 or 8 channels per input unit
- 2 or 4 channels per output unit
- Standard and high-performance models
- Single-ended input and differential input models

High-speed analog input
- 4 channels per input unit
- Differential input
- Sampling as fast as every 5 µs

Load cell inputs
- One load cell with one unit
- Fastest conversion cycle of 125 µs

Safety CPU
- EN ISO13849-1(PLe/Category 4), IEC 61508 (SIL3) certified

Safety I/O
- 4 or 8 safety input points per unit
- 2 or 4 safety output points per unit
- Free allocation of the safety I/O its on the internal high speed bus

Temperature inputs
- Thermocouple or RTD inputs, 2 or 4 per unit
- Conversion time of 10 ms, 60 ms or 250 ms

Heater burnput detection
- 4 CT sensor inputs and 4 trigger outputs to drive SSRs

Temperature control
- 2 or 4 multi-input (thermocouple and resistance thermometer) channels per unit
- Conversion time of 50 ms
- Voltage output (for driving SSR) or linear current output
- 1 CT input per channel

Advanced temperature control
- 4 or 8 universal inputs (thermocouple, platinum resistance thermometer, analog voltage, analog current) channels per unit

Position interface
- Incremental and absolute encoder support
- Pulse output unit (line driver output model)

*1. The X Bus connector is located on the left side of the NX502 CPU Unit.

Lineup

Series		NX Series
Features		· Over 100 models including digital I/O, analog I/O, position interface, temperature inputs, temperature control, RFID, safety CPU, and safety I/O · NsynX technology provides I/O response with less than 1 µs jitter · Screwless terminal block, connector, and M3 screw types · Up to 32 channels per digital input unit or output unit
Appearance		
Type		Modular I/O
Communications interface		EtherCAT
Number of connectable units		· 63 units max. · Input: 1,024 bytes max., output: 1,024 bytes max.
Unit types		Communications coupler, IO-Link master, serial communication, RFID, digital I/O, analog I/O, high-speed analog input, load cell input, safety I/O, safety CPU, temperature input, heater burnout detection, temperature control, position interface
Mounting		DIN track
Detailed specification	Catalog	R183

* See page 27 for more information on safety I/O.

Series	GX Series
Features	· Detachable screw terminal block and e-CON connector types · Easy set-up: automatic and manual address setting
Appearance	 
Type	Block I/O
Communications interface	EtherCAT
Number of connectable units	One expansion unit can be connected with one digital I/O terminal (16 inputs + 16 outputs)
I/O types	Digital I/O, analog I/O, encoder input, IO-Link master, expansion unit
Mounting	DIN track
Detailed specification	Refer to your OMRON website.

Sysmac Family
Safety

NX-SL5/SL3/SI/SO
Safety Control Unit

Integrated safety into machine automation

Modular machines with individual CPU units

Safety is integrated via EtherNet/IP for safety communication between machines and EtherCAT for high-speed, high-precision fieldbus communication in a machine.
It is easy to set up motion or a robot, which are the key to quality and productivity enhancement, via one cable.



Simple and flexible integration of safety

Flexible system lets you freely mix safety I/O units with standard NX I/O.



Integration in One software, Sysmac Studio

Safety I/O wiring diagrams, safety circuit programs, and user-defined Function Blocks can be automatically generated, minimizing safety design errors.
Simple Automatic Test using Offline Simulation is available.
Online Functional Test ensures and maintains safety during machine commissioning and operation.



Lineup

Safety Controller

Product name	Safety CPU Unit	
Model	**NX-SL5500/5700**	**NX-SL3300/3500**
Features	Two different networks, Safety over EtherCAT (FSoE) and EtherNet/IP (CIP Safety), in a single system	Integrated safety into machine automation through the use of Safety over EtherCAT (FSoE) protocol.
Appearance		
Network	Safety over EtherCAT (FSoE), EtherNet/IP (CIP Safety)	Safety over EtherCAT (FSoE)
Applicable standards	EN ISO 13849-1 (PLe/Category 4), EN ISO 13849-2, IEC 61508(SIL3), IEC/EN 61131-2 , IEC 61326-3-1, IEC 61131-6	EN ISO 13849-1 (PLe/Category 4), EN ISO 13849-2, IEC 61508 (SIL3), IEC/EN 61131-2, IEC 61326-3-1
Programming	· IEC 61131-3 standard · PLCopen Function Blocks for Safety	
Program capacity	2048 KB, 4096 KB	512 KB, 2048 KB
Safety I/O connection	128/254	32/128
Maximum number of safety I/O points	1024, 2032	256, 1024
Units that can connect	NX502 CPU Unit, NX102 CPU Unit, Communication Control Unit	NX502 CPU Unit, NX102 CPU Unit, EtherCAT Coupler Unit, EtherNet/IP Coupler Unit
Detailed specification	Catalog: F104, F124	F100, F101, F109

Product name	Safety Input Unit	Safety Output Unit
Model	**NX-SIH400/SID800**	**NX-SOH200/SOD400**
Appearance		
Applicable standards	EN ISO 13849-1 (PLe/Category 4), EN ISO 13849-2, IEC 61508(SIL3), IEC/EN 61131-2, IEC 61326-3-1	
Number of safety input/ output points	4, 8	2, 4
Detailed specification	F123	

Sysmac Family
Vision

FH
Vision System

Flexible solution for machine vision

The FH Vision System is optimized to detect the position and orientation of any object at high speed and with high accuracy. The built-in EtherCAT communications enable reliable and easy networking with motion control, increasing the overall machine performance. A flexible machine vision tailored for quality inspection.

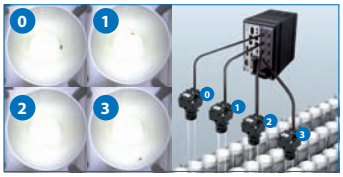
Unique lineup

- The camera lineup includes up to 20.4 Mpix camera
- The MDMC light flexibly changes illumination colors and angles according to items to inspect



Multiple inspection

- Powerful 4-core i7 parallel processor
- Up to 8 cameras per controller



Advanced shape search technology

High-precision and robust positioning is possible even under the adverse conditions, such as changes in environments and materials.



Focal shift | Contrast | Chips | Hidden | Overlapping

AI Scratch Detect Filter (Software sold separately)

The AI Scratch Defect Filter learns by means of images in which human inspectors noticed defects.Where as previous inspection methods found the unexpected size, shape or color of a particular defect to be a barrier to automation, AI successfully extracts abnormalities.



Captured image | Extracted scratch (internal image)

FHV7 Smart Camera

Designed for pre-alignment and appearance inspection

The FHV7 Smart Camera is an all-in-one camera with the functionalities of the high-spec FH Vision System packed in its compact, robust body that is easy to deploy.
It offers the same operability as the FH Series, allowing for easy integration into even processes where it was previously difficult to install advanced vision systems.

Robust all-in-one camera for easy integration into machines



IP67 waterproof structure

IP67 protection allows use in wet conditions, such as regular wash-downs at the sites where the cameras are installed.



Advanced shape search technology

The shape search technology that provides the same level of performance as the FH Series has been implemented.

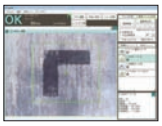
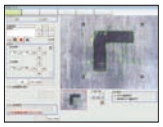
Autofocus lens

The autofocus lens covers a focal length range from 59 to 2,000 mm*. Even when products in different sizes are produced, the focus range can be changed easily by parameters. This feature eliminates mechanical operation for changeover during product replacement, leading to a simpler system with higher productivity.



* Differs depending on the lens type.

Lineup

Product name		Vision System		Smart Camera	
Series		FH Series		FHV7 Series	
Appearance					
Hardware	Processing speed *1	★★★		★★	
	No. of connectable cameras	8 max.		1	
	Resolution	0.4 million-pixel/2 million-pixel/4 million-pixel/5 million-pixel/12 million-pixel	5 million-pixel/20.4 million-pixel	0.4 million-pixel/1.6 million-pixel/3.2 million-pixel/5 million-pixel	6.3 million-pixel/12 million-pixel
	Shutter method	Global shutter	Rolling shutter	Global shutter	Rolling shutter
	Lens	Interchangeable (C mount, M42 mount)		Interchangeable (C mount)/autofocus (mechanical, liquid lens)	
	Light	External light connectivity/special light connectivity (MDMC *2, PS *3)		Built-in light (white, red, infrared, multi-color)/external light connectivity/special light connectivity (MDMC *2)	
Software	User interface	Flexible interface	 Main screen	 Measurement flow setting screen	 Measurement condition setting screen
Detailed specification	Catalog	Q197		Q264	

*1. The more starts, the higher the performance.

*2. Multi-Direction Multi-Color. The MDMC light can be adjusted to defects by freely combining the illumination directions, colors, and light intensities.

*3. Photometric Stereo.

Sysmac Family
Sensing

ZW-8000/7000
Confocal Fiber Displacement Sensor

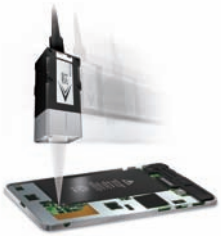
Measure anything from anywhere The most reliable in-line measurements

The ZW-8000 Series provides high-precision in-line measurements of rattling or inclined shiny, thin, or minute parts.The ZW-7000 Series provides ultra-high-speed, stable measurements of diffuse reflective objects during movement.These sensors help increase quality inspection accuracy and reduce inspection time.



Reliable measurements for any material and surface types

The white light confocal principle allows a continuous measurement of object in any mixed conditions such as mirror, coarse, transparent, curved, or narrow areas without stopping the sensor head.



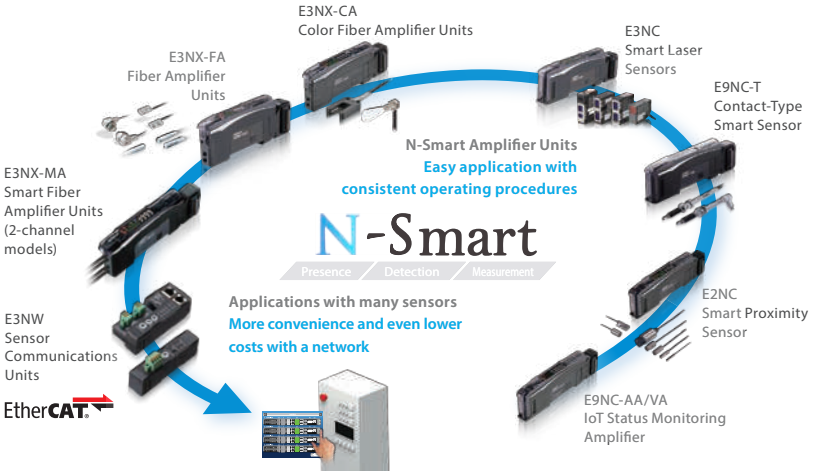
- Angle characteristic: ±25° for shiny surfaces
- Linearity for different materials: ±0.3 µm
- Minimum sampling period: 20 µs
- Minimum spot diameter: 4 µm

Note: Specifications differ among models. Please ask Omron sales representative for details.

E3NX/E3NC/E9NC Series
N-Smart Series

Various sensors connected over EtherCAT

The N-Smart lineup of next-generation fiber sensors, laser sensors and contact sensors will quickly solve your problems and therefore maximize uptime and minimize downtime with optimum cost performance.



Features

- Ultra-easy Advanced Smart Tuning with the push of a button
- More stable detection of high-speed workpieces
- Predictive maintenance to reduce downtime
- Highly visible white LED display
- E3NX-FA has 1.5x the sensing distance of conventional amplifiers*

* Compared with E3X-HD

Lineup

Product name		Confocal Fiber Displacement Sensor		
Series		**ZW-8000 Series**	**ZW-7000 Series**	**ZW-5000 Series**
Feature		For measurements of rattling or inclined "transparent objects or mirror surfaces" such as thin film sheets or glass	For accurate shape measurements of "coarse surfaces" while the sensor head is moving	Bring the benefits of the white light confocal principle to production lines
Appearance				
Measurement method		White light confocal principle		
Measuring range		Min: 7±0.3 mm, Max: 30±2 mm		
Static resolution		0.002 to 0.016 µm		
Linearity		±0.3 to ±3.0 µm		
Spot diameter		4 to 11 µm	50 to 190 µm	9 to 20 µm
Measurement cycle		60 to 7500 µs	20 to 400 µs	80 to 1600 µs
Detailed specification	Catalog	Q250		
	Web	Refer to your OMRON website.		

Product name		Fiber Sensor/Laser Sensor/Proximity Sensor/Contact Sensor
Series		**N-Smart Series**
Feature		Connect fiber, laser and contact sensors to EtherCAT at low initial cost
Appearance		
Network specification		EtherCAT communication unit
Sensor Communications Units		E3NW-ECT/DS
Connectable sensor amplifier units		Fiber Sensor E3NX-FA0 E3NX-CA0 Laser Sensor E3NC-LA0 E3NC-SA0 Contact Sensor E9NC-TA0 IoT Status Monitoring Amplifier E9NC-AA0/VA0
Maximum number of connectable sensors		30
Detailed specification	Catalog	E3NW: E418 E3NX-FA: E418 E3NX-CA: Y216 E9NC-T: E434 E9NC-AA/VA: E474
	Web	Refer to your OMRON website.

Sysmac Family
Robot

iX3/iX4, eCobra/i4H/i4L, Viper
Parallel Robot, SCARA Robot, Articulated Robot with EtherCAT (Connectable to NJ501-R)

Robots for flexible production lines

Omron's parallel, SCARA, and articulated robots are designed to be directly controlled by the NJ501-R Robot Integrated Controller that is connected to the robots via EtherCAT.

Parallel robots

The Hornet and Quattro are parallel robots ideal for use in the food and beverage, pharmaceutical, and healthcare industries.
The iX4 that is a four-axis parallel robot with a high payload capacity achieves high speed and high precision for Pick&Place.

· Fast and high-precision conveyance and assembly
· Supports fast Pick & Place on a fast conveyor
· Maximum working range: iX3 (1130 mm)
iX4 (1300 mm, 1600 mm)



iX3
iX4

SCARA robots

High-performance four-axis SCARA robots are ideal for mechanical assembly, material handling, packaging, machine tending, and screw driving.
Table/floor or Inverted mounting models are available.

· Diagnostics display enables faster trouble shooting (i4H)
· High repeatability suitable for material handling and precision assembly
· Reach: i4L (350 mm, 450 mm, 550 mm)
i4H (650 mm, 750 mm, 850 mm)
eCobra (600 mm, 800 mm)



i4L
i4H
eCobra

Articulated robots

Six-axis articulated robots are ideal for mechanical assembly, material handling, packaging, and palletizing.

· High accuracy, superior slow-speed following, and easy calibration
· Reach: 653 and 855 mm models

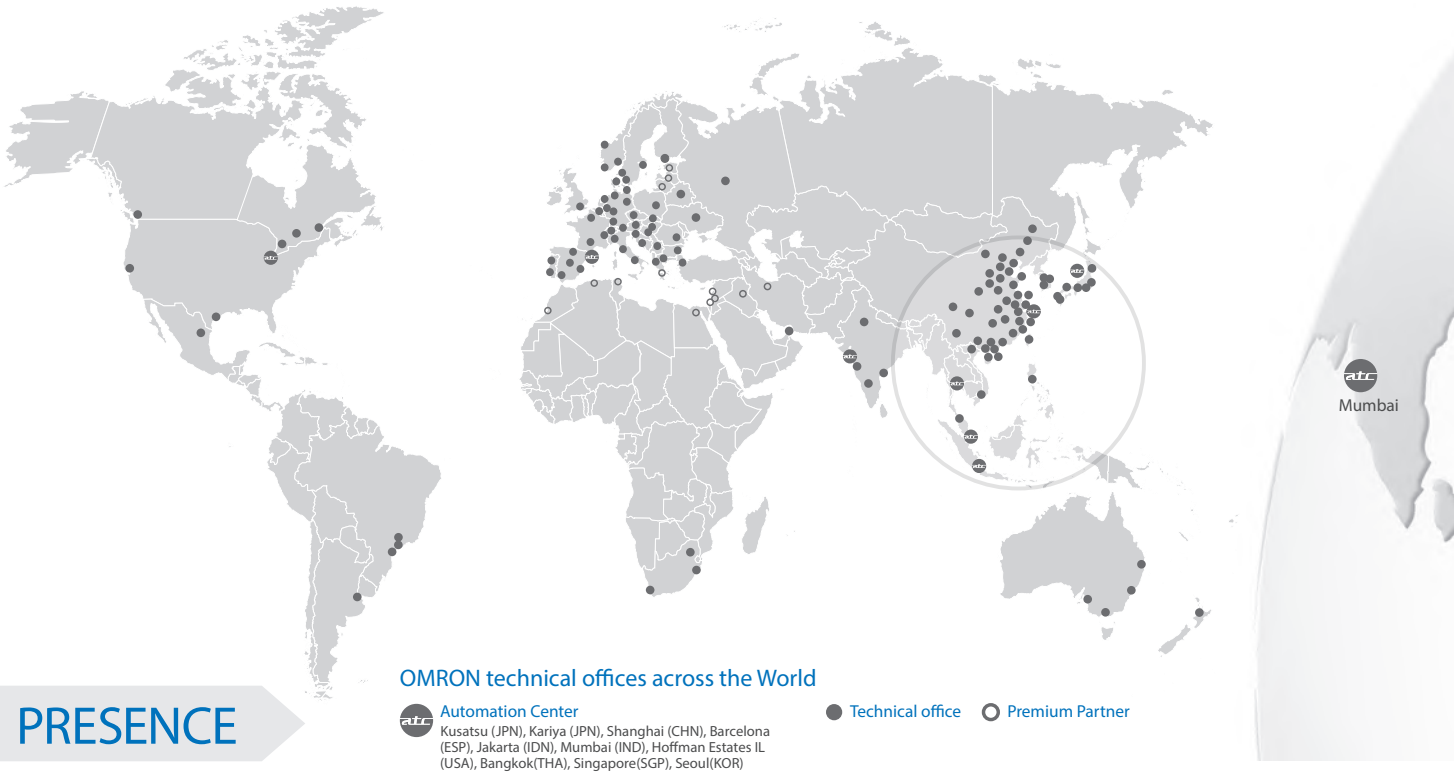

Viper

Lineup

Series		iX3	iX4	i4L	eCobra
Feature		Parallel robot ideal for use in the food and beverage, pharmaceutical, and healthcare industries	Four-axis parallel robot achieves high speed and high precision	Small-size SCARA robot for precision machining, assembly, and material handling	Mid-size/large SCARA robot for precision machining, assembly, and material handling
Appearance					
Robot type		Parallel robot	Parallel robot	SCARA robot	SCARA robot
Number of axes		3, 4	4	4	4
Mounting		Inverted	Inverted	Table/Floor	Table/Floor
Payload capacity		3 kg (8 kg: without rotation axis)	· 650 6 kg (No rotation: 15 kg) · 800 4 kg (No rotation: 10 kg)	5 kg	5.5 kg
Working volume (radius)		565 mm	650 to 800 mm	—	—
Reach		—	—	350, 450, 550 mm	600 to 800 mm
Position repeatability		±0.10 mm	±0.10 mm	XY: ±0.01 mm Z: ±0.01 mm Θ: ±0.01°	±0.017 mm
Protection/ Cleanroom classes	Specifications	IP67: arms and platform IP65: underside of robot IP20: topside of robot	· H type IP67: arms and platform IP65: underside of robot IP20: topside of robot · HS type IP67: arms and platform IP66: robot base	IP20	IP20
	Option	IP65: topside of robot (with optional cover)	H type IP65: topside of robot (with optional cover)	—	· eCobra 600 Class10 Cleanroom model · eCobra 800 IP65, Class10 Cleanroom model
Detailed specification	Catalog	I822			

Series		i4H	i4H Inverted	Viper
Feature		Mid-size/large SCARA robot for precision machining, assembly, and material handling	Overhead-mount mid-size/large SCARA robot for precision machining, assembly, and material handling	Articulated robot for machining, assembly, and material handling
Appearance				
Robot type		SCARA robot	SCARA robot	Articulated robot
Number of axes		4	4	6
Mounting		Table/Floor	Inverted	Table/Floor/Inverted
Payload capacity		15 kg	15 kg	5 kg
Working volume (radius)		—	—	—
Reach		650 to 850 mm	650 to 850 mm	635 to 855 mm
Position repeatability		XY: i4H 650 ±0.015 mm, i4H 750/850 ±0.025 mm Z: ±0.015 mm θ: ±0.005°		±0.02 to 0.03 mm
Protection/ Cleanroom classes	Specifications	IP20	IP20	IP40
	Option	ISO4, IP65, Class10 Cleanroom model	ISO4, IP65, Class10 Cleanroom model	IP54: robot main body IP65: robot joints (J4, J5, J6) Class10 Cleanroom model
Detailed specification	Catalog	I822		

Service and support



PRESENCE

OMRON technical offices across the World

Automation Center
Kusatsu (JPN), Kariya (JPN), Shanghai (CHN), Barcelona (ESP), Jakarta (IDN), Mumbai (IND), Hoffman Estates IL (USA), Bangkok(THA), Singapore(SGP), Seoul(KOR)

Technical office

Premium Partner

COMPETENCE

OMRON





Design

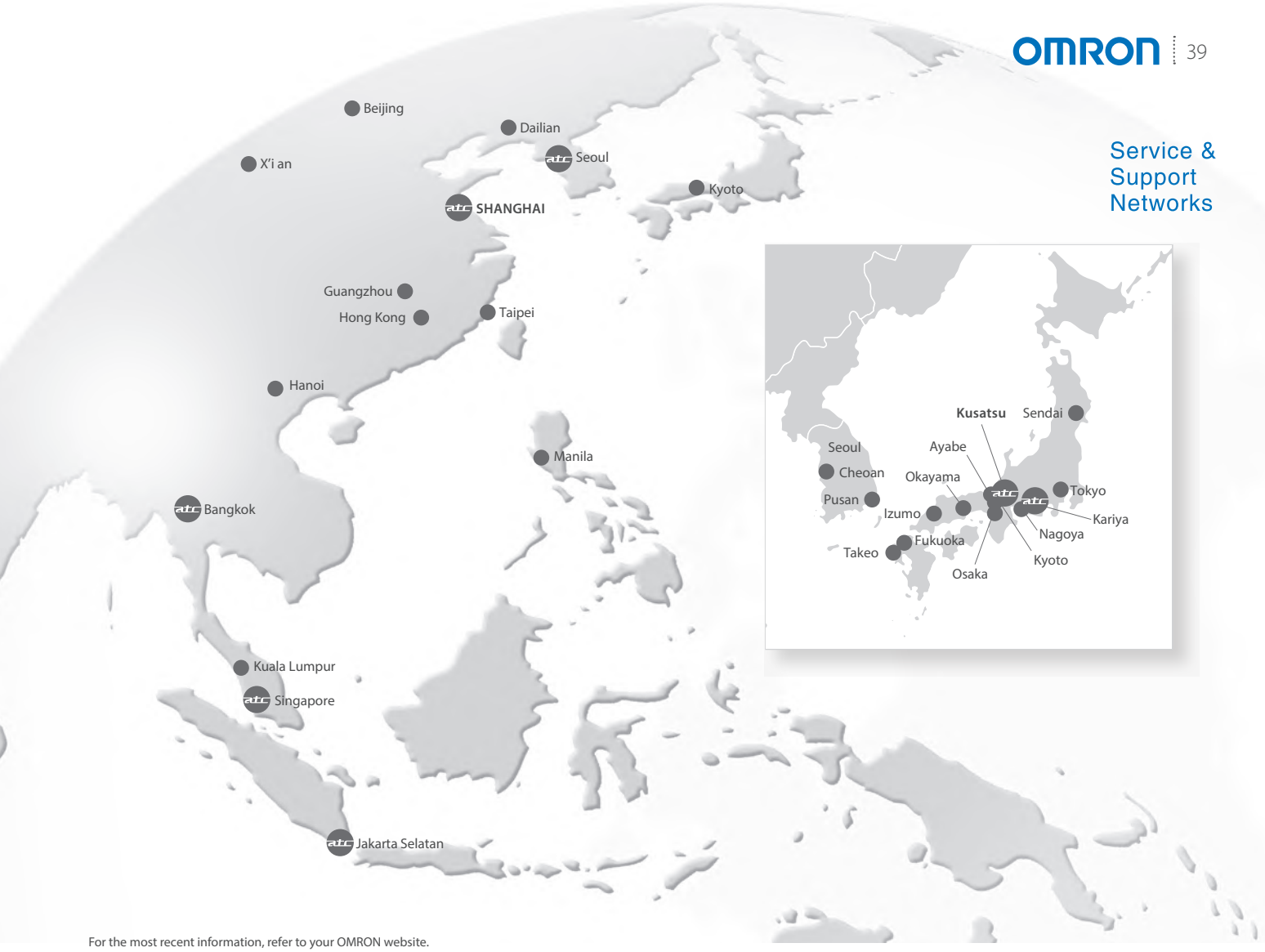
Our wi de net work of machine automation specialists will help you to select the right automation architecture and products to meet your requirements. Our flat structure based on expert-to-expert contact ensures that you will have ONE accountable and responsible expert to deal with on your complete project.

Proof of concept

As your project matures make use of our Automation centers to test and catch-up with technology trends in motion, robotics, networking, safety, quality control etc. and to interface, test and validate your complete system with our new machine network (EtherCAT) and factory network (EtherNet/IP).

We will assign a dedicated application engineer to assist with initial programming and proof testing of the critical aspects of your automation system. Our application engineers have in-depth expertise in and knowledge of networks, PLCs, motion, safety and HMIs when applied to machine automation.

Service & Support Networks



For the most recent information, refer to your OMRON website.

CONFIDENCE

ASSURANCE



Development

During your prototyping phase you will need flexibility in technical support, product supply and exchange. We will assign an inside sales contact to help you source the correct products fast during your prototyping phase.



Commissioning

With our world-wide network for service and support the export of your product is made simple, we will support you on-site with your customer, anywhere in the world. We can arrange a liaison sales engineer to facilitate training, spare parts supply or even machine commissioning. All this in a localised language with localised documentation - giving you complete peace of mind.



Serial production

As your production increases we will engage in supplying you within 24hrs and repairing within 3 days. All our products are global products meeting global standards - CE, cULus, NK, LR -

· Sysmac is a trademark or registered trademark of OMRON Corporation in Japan and other countries for OMRON factory automation products.
· Celeron, Intel is trademark of Intel Corporation in the U.S. and/or other countries.
· Microsoft, Windows, SQL Server and Visual Basic are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
· Oracle and Oracle Database are trademarks or registered trademarks of Oracle Corporation and/or its affiliates in the United States and other countries.
· IBM and DB2 are trademarks or registered trademarks of International Business Machines Corp., registered in the United States and other countries.
· Intel, Atom are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.
· EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.
· Safety over EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.
· EtherNet/IP™, CompoNet™, DeviceNet™ and CIP Safety™ are the trademarks of ODVA.
· OPC UA and OPC Certified logo are trademarks of the OPC Foundation.
· This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/)
· This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).
· Git and the Git logo are either registered trademarks or trademarks of Software Freedom Conservancy, Inc., corporate home of the Git Project, in the United States and/or other countries.
· Microsoft product screen shot(s) used with permission from Microsoft.
· The CAD data in inCAD Library is used with permission from MISUMI Corporation. Copyright of any of information in CAD data belongs to MISUMI Corporation or its respective manufacturer.
MISUMI Corporation may not offer all parts in each application design. Available parts can only be purchased separately not as a unit shown in each application design.
MISUMI Corporation does not guarantee quality, accuracy, functionality, safety or reliability for the combination of the parts in each application example.
· Other company names and product names in this document are the trademarks or registered trademarks of their respective companies.
· The product photographs and figures that are used in this catalog may vary somewhat from the actual products.

Note: Do not use this document to operate the Unit.

OMRON Corporation **Industrial Automation Company**

Kyoto, JAPAN **Contact : www.ia.omron.com**

Regional Headquarters

OMRON EUROPE B.V.
Wegalaan 67-69, 2132 JD Hoofddorp
The Netherlands
Tel: (31) 2356-81-300 Fax: (31) 2356-81-388

OMRON ELECTRONICS LLC
2895 Greenspoint Parkway, Suite 200
Hoffman Estates, IL 60169 U.S.A.
Tel: (1) 847-843-7900 Fax: (1) 847-843-7787

OMRON ASIA PACIFIC PTE. LTD.
438B Alexandra Road, #08-01/02 Alexandra
Technopark, Singapore 119968
Tel: (65) 6835-3011 Fax: (65) 6835-3011

OMRON (CHINA) CO., LTD.
Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-6023-0333 Fax: (86) 21-5037-2388

Authorized Distributor:

©OMRON Corporation 2011-2025 All Rights Reserved.
In the interest of product improvement,
specifications are subject to change without notice.

CSM_8_12
Cat. No. P079-E1-34 0225 (0711)