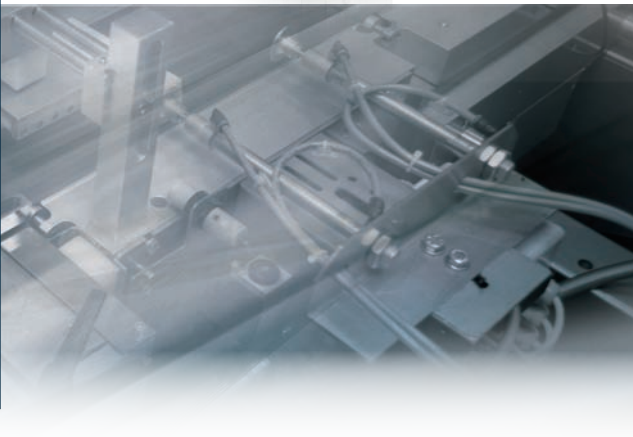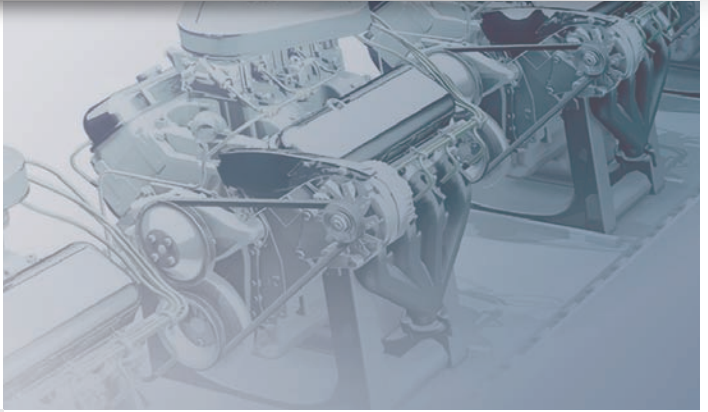# OMRON

FA Controller Catalog

Controllers ideal for all machines

Controllers ideal for all machines

- New technology for smart manufacturing
- Collaboration between humans and machines

Innovation

- Environmentally safe products

Innovation

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

Productivity

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

Reliability

Omron has developed automation technology through the development of sensors, switches, PLC, programmable terminals, servo drives, inverters and other products. Now devices connected via standard networks change into new solutions for various machine environments.

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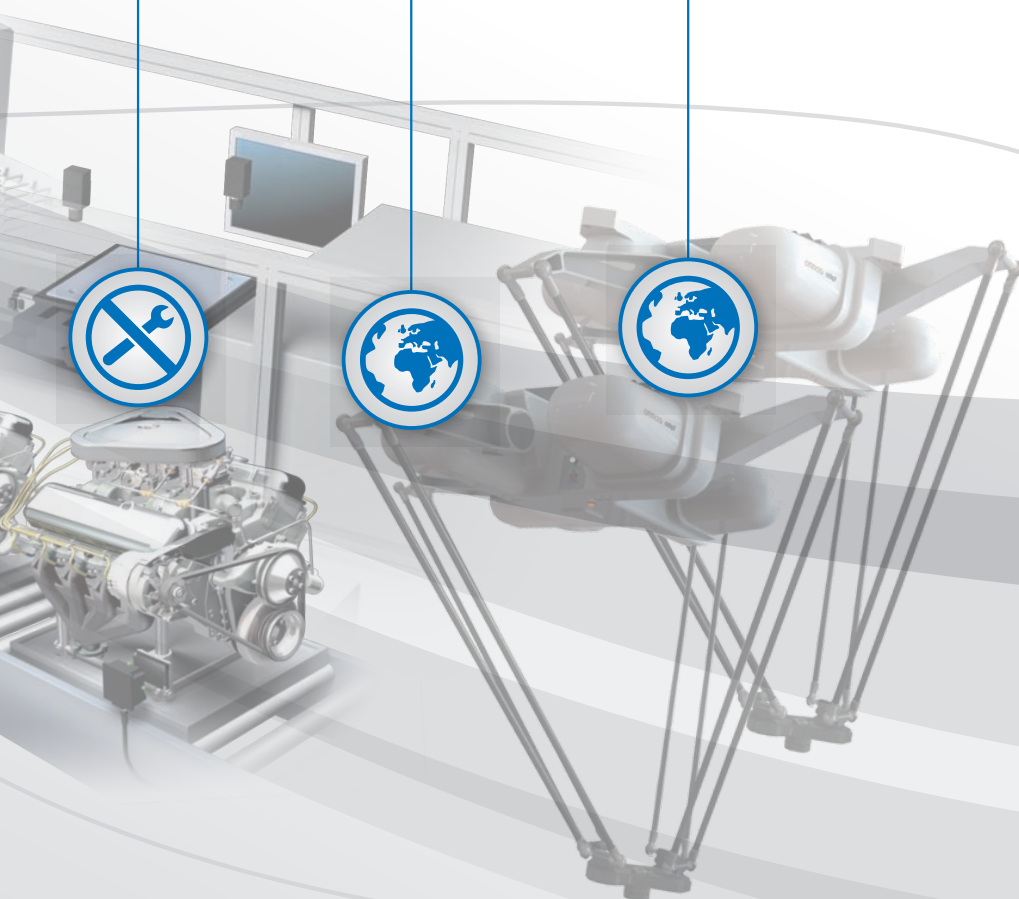• Scalable systems for optimum solutions

Flexibility

• Products meet global standards
• Local support for training, repairs and spare-parts supply

Globalization

• Engineering environment compliance with global standards

Globalization

Controllers ideal for all machines

The cost-effective CP Series and complete, robust NJ/NX/NY Series support from simple machine control through to large production line control and plant management.
The controllers not only help reduce programming, set-up and maintenance times, but also enable fast and accurate fine-tuning control, quality traceability, predictive maintenance, preventive maintenance, and remote maintenance.

NJ/NX series

The Machine Automation Controller integrates logic, motion, safety, 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 is the perfect match between fast real time machine control and data plant management.

NY series

Omron's Industrial PC Platform includes the Industrial Box PC, Industrial Panel PC, and Industrial Monitor.
Choose from four different types of products to suit your system:
- Industrial PC comes equipped with Windows operating systems
- IPC Machine Controller combines the precision and utility of the Sysmac platform with the versatility and range of Windows programs
- IPC RTOS Controller comes equipped with real-time operating systems for realtime control
- IPC Programmable Multi-Axis Controller performs predictable motion control while running intensive data-handling applications

Programmable Multi-Axis Controller

The Programmable Multi-Axis Controller was developed by combining Omron ILO+R+S (Input, Logic, Output, Robot, and Safety) control technology with proven technology from Omron's Delta Tau Data Systems, Inc., delivering world-beating* output speeds allied to exceptional precision.

Providing the high-speed processing capability to perform precise linear motor drive control and nanometer positioning that require ultra fast responses, it is appreciated by manufacturers of semiconductor manufacturing equipment and other products employing leading-edge technologies.

CS/CJ series

This series supports a wide variety of communication interface including Ether-Net/IP™.

The FA Integrated Tool Package CX-One makes programming and debugging faster and easier. The PLC is suitable for small to medium machines - from simple stand-alone applications up to networked, high-speed machines. It is built to give you innovation without growing pains.

CP series

The CP Series provides a complete product line-up to automate compact machines and perform any other simple automation tasks, quickly and easily. Connect the HMI, servo drives, inverters, temperature controllers and other devices to create a more cost-effective system.

*1. Motion control performance of 16.6 µs/1 axis or 50 µs/8 axes (Omron survey as of July 2016)

A fully integrated platform

The Machine Automation Controller integrates logic, motion, safety, vision, information, visualization and networking under one software: Sysmac Studio.

Features
▮ Complete integration of motion and logic
▮ A large selection of CPU Units for up to 256 axes
▮ Fully conforms with IEC 61131-3 standards
▮ PLCopen Function Blocks for Motion Control
▮ Linear and circular interpolation
▮ Electronic gear and cam synchronization
▮ Integrated Development Environment provided by Sysmac Studio

N-Smart Sensor

SQL-Database

Information technologies

Smart factory   IT devices
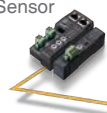
Offices HQ   Sales force

Standard networks
▮ NX102-□□□□ and NJ501-1□00 CPU Units with built-in international standard (IEC 62541) OPC UA communication functionality
▮ Built-in EtherCAT and EtherNet/IP ports
▮ EtherCAT: High-speed network to connect a wide range of machine automation devices such as I/O, sensors and drives. Fast, highly accurate control in synchronization with the EtherCAT cycle. Up to 512 slaves
▮ EtherNet/IP: Based on standard protocols (TCP/IP and UDP/IP). Allows for mixing Ethernet devices and Ethernet applications

Safety integration
▮ Flexible system lets you integrate safety into machine automation through the use of Safety over EtherCAT (FSoE). Sysmac Studio reduces programming time

CPU Unit with advanced functionality
▮ Database Connection: Logs real-time data from production lines directly into SQL Databases. This enables predictive/preventive maintenance and quality traceability
▮ Robotics: Controls parallel link robots
▮ SECS/GEM: Built-in SECS/GEM communications functions
▮ NC Integrated Controller: Realize high-accuracy synchronization motion control (MC) and numerical control (NC) functions by ONE controller. G-Code available.

NX1P Machine Automation Controller
▮ Advanced motion control and networks for onsite IoT in a compact entry model
▮ Built-in I/O. Up to 8 NX Units can be mounted

Make
Flexible & Innovative

Blistar packaging machines

Filling and capping

Delta robot picking system

ZW-7000 Displacement Sensor

FH Vision System

Linear motors

I/O-Link Sensor

I/O-Link Master

NX I/O

Servo drives

Inverters

EtherCAT

NX Safety Control Unit

NJ/NX Machine Automation Controller

Robot

NA Programmable Terminal

EtherNet/IP
Ethernet

Sysmac Studio
Integrates configuration of the NJ/NX Machine Automation Controller and EtherCAT slaves, programming, debugging, and monitoring

Sysmac Studio

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

Sysmac Library

What's new

Compact size controller that integrates production line and IT systems NX1
- Fast and accurate control by synchronizing all machine devices with the PLC and Motion Engines
- Three built-in industrial Ethernet ports
- OPC UA server functionality
- Up to 12 axes of control via EtherCAT
- Up to 32 local NX I/O Units
- Built-in power supply in compact size

NJ/NX Series Controller Catalog
· P089

NX1 Catalog
· P129

NX1P Catalog
· P115

Openness meets Automation Control
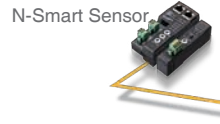
N-Smart Sensor

Omron's Industrial PC Platform includes the Industrial Box PC, Industrial Panel PC, and Industrial Monitor.Choose from four different types of products to suit your system.

Features
▍ Industrial Box PC: Powerful, reliable, scalable
▍ Industrial Panel PC: Combines the functionality of the Industrial Box PC and Industrial Monitor
▍ Industrial Monitor: Display and touch interface for the industrial PC platform
▍ Powerful performance – maximize output
▍ Rock-solid build – improve uptime
▍ Real-time OS inside – reliable machine control

Information technologies

Smart factory   IT devices

Offices HQ   Sales force

Robot

Industrial PC
▍ Windows IPC. Powerful, reliable, scalable - and tough as they come

IPC Machine Controller
▍ Combines the precision and utility of the Sysmac platform with the versatility and range of Windows programs
▍ Automation Software Sysmac Studio: Integrates configuration of the machine automation controller and EtherCAT slaves, programming, debugging, and monitoring
▍ NC integrated models: Integrate NY-series IPC Machine Controller with Numerical Control (NC) functions.
▍ Collection of software functional components Sysmac Library: Simplicity for advanced control. Available to download from Omron website and install to the Sysmac Studio
   http://www.ia.omron.com/sysmac_library/

Sysmac Library

IPC RTOS Controller
▍ Real-time operating systems. Enables you to program own real-time control of your machine functionality and at the same time executing advanced data processing tasks

IPC Programmable Multi-Axis Controller
▍ Offers exceptionally precise motion control, with proven technology from Omron's Delta Tau Data Systems, Inc., delivering world-beating*1 output speeds. It comes equipped with Windows real-time operating systems which, combined with powerful control capability, provides exceptional flexibility. It also enables the creation of high-resolution graphics as well as customized applications for high-end production requirements.
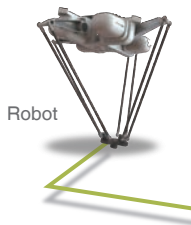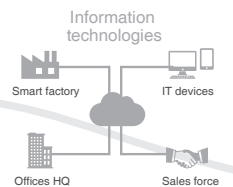
What's new
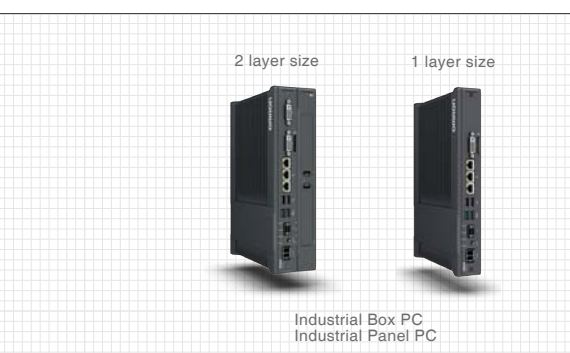
Based on Intel® Xeon® processors

Industrial Box PC

*1. Motion control performance of 16.6 µs/1 axis or 50 µs/8 axes (Omron survey as of July 2016)

Make
Flexible & Innovative

ZW-7000 Displacement Sensor

FH Vision System

Linear motors

I/O-Link Sensor

I/O-Link Master

NX I/O

Servo drives

Inverters

EtherCAT®

NX Safety Control Unit

IPC Machine Controller

SQL-Database

Industrial Monitor

EtherNet/IP
Ethernet

Blistar packaging machines

Filling and capping

Delta robot picking system

2 layer size   1 layer size

Industrial Box PC
Industrial Panel PC

Industrial PC Platform Catalog
·P118

NY Series with Intel® Xeon® processor Flyer
·P133

High-speed, high-precision motion controller

Programmable
Multi-Axis Controller

Programmable
Multi-Axis Controller
CK3M

Programmable
Multi-Axis Controller
CK3E

Industrial PC Platform
IPC Programmable
Multi-Axis Controller
NY51☐-A

OMRON and OMRON's Delta Tau Data Systems, Inc. (DT) worked together to develop the multi-axis controllers with global leading motion control technology from DT. The multi-axis controller achieves sophisticated fine-tuning control, including high-speed synchronous control of various factory automation (FA) devices, thanks to built-in EtherCAT connectivity which is used for production lines and equipment all over the world.

Features
▌ CAD/CAM for easy motion control
▌ Flexible function development capability enables high-precision curve machining
▌ G-Code/ANSI C/original programming language
▌ EtherCAT for flexible system configuration
▌ Advanced motion control

CK3M Programmable Multi-Axis Controller
▌ A next generation motion controller CK3M provides PMAC's superior motion control capability, multi-vendor connectivity, and flexible development capability.The modular design allows you to freely combine the CK3M with expansion units to enable a variety of applications.

CK3E Programmable Multi-Axis Controller
▌ You can build a system capable of controlling up to 32 axes of motion and incorporate customized control algorithms into the system. The compact design saves space in machines and control panels. EtherCAT® connects servo drives, I/O, and other devices to the CK3E, reducing the number of cables.

Industrial PC Platform IPC Programmable Multi-Axis Controller
▌ Comes equipped with Windows real-time operating systems which, combined with powerful control capability, provides exceptional flexibility. It also enables the creation of high-resolution graphics as well as customized applications for high-end production requirements.

What's new

Programmable Multi-Axis Controller
The Programmable Multi-Axis Controller has been developed by US-based Delta Tau Data Systems, Inc. to deliver the world's highest level* of motion control performance.Providing the high-speed processing capability to perform precise linear motor drive control and nanometer positioning that require ultra fast responses, the Programmable Multi-Axis Controller is appreciated by manufacturers of semiconductor manufacturing equipment and other products employing leading-edgetechnologies.Through working together with Delta Tau Data Systems which joined the Omron Group on September 1 2015, Omron will further advance automation technologies in an ever-changing manufacturing environment to help manufacturers improve productivity and manufacturing quality.

Make
Flexible & Innovative

NX I/O

EtherCAT

Servo drives

Servo drives

CK3M

Analog (+/-10V)

Modbus-TCP

IDE (Integrated Development Environment)
Develop, debug, and test programs
developed in original programming
language or in C language.

NS Programmable Terminal

SCARA robot pick and place

Electronic manufacturing equipment

CK3M Programmable Multi-Axis Controller Catalog
R196

CK3E Programmable Multi-Axis Controller Flyer
R188

Industrial PC Platform Catalog
P118

PMAC Series Catalog
R192

* Motion control performance of 16.6 µs/1 axis or 50 µs/8 axes (Omron survey as of July 2016)

A wide range of PLC and I/O brings innovation to your machines and reduces costs

Faster and larger networks, a wide variety of communication interfaces

CS/CJ series

Temperature controller

Remote I/O terminal

DeviceNet
CompoNet

The PLC is suitable for small to medium machines - from simple stand-alone applications up to networked, high-speed machines. It is built to give you innovation without growing pains.

Features
▌ Supports open networks including EtherNet/IP, EtherCAT, FL-net, DeviceNet and CompoNet
▌ Efficient programming with variables and EtherNet/IP setting with variable names make the configuration more flexible
▌ A wide range of CPU units and I/O units to suit your needs

Open to the world
▌ Data communication via standard Ethernet port with EtherNet/IP Data Link function
▌ Increased EtherNet/IP performance to 12,000 pps*1
▌ High-speed I/O link based on EtherCAT enables distributed control using multiple CPU units

Advanced motion control
▌ Multi-axes synchronous control
▌ Can replace expensive motion controllers

High-speed
▌ Faster program execution and immediate I/O refreshing for flexible machine control

Highly flexible
▌ Adapt the PLC unit to your needs with the wide variety of compatible CJ1 I/O Units

Main conveyor

Film Feeder

Pick up

CJ-series EtherCAT Slave Unit
High-speed I/O link
EtherCAT enables distributed control using multiple controllers. The modularized system facilitates design and installation.

NJ Controller
or EtherCAT master controller from other company

EtherCAT

CJ2 Controllers

CJ-series EtherCAT Slave Units CJ1W-ECT21
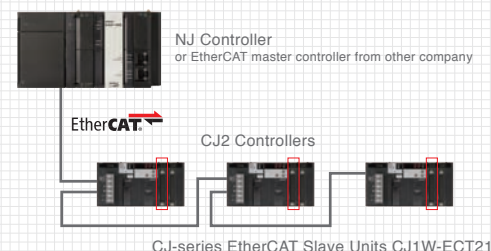
*1. CJ2H (built-in EtherNet/IP) and CJ/CS-series EtherNet/IP Unit

**Make
Complex Machine Easy**

Safety network controller

Linear motors

Servo drives

EtherCAT

Inverters

Remote I/O terminal

NS Programmable Terminal

CJ2 PLC

NX EtherNet/IP
Coupler Unit
NX-I/O

EtherNet/IP
Ethernet

Longitudinal Sealer

Transversal Sealer

CJ2/CS1 with NX EtherNet/IP Coupler Unit
Flexible system with a variety of NX I/O

Flexible distributed I/O system can be built using NX I/O in the CJ2/CS1 system. This allows you to save space and to flexibly respond to changes in machine specifications.

CJ2/CS1 Controller

EtherNet/IP NX I/O

EtherNet/IP Coupler Units NX-EIC202
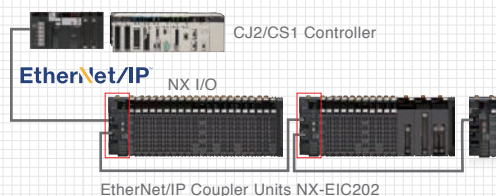
CS/CJ/CP-series CPU Unit
16-character password to keep your assets secure

The number of characters in each password for UM read protection and task read protection is increased from 8 to 16. This improves the security of your design assets.
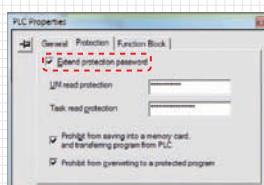
CJ2 Catalog
・P059

CS1 Catalog
・P047

More cost-effective automation for compact machines

Simple, Compact, Economical

The CP Series provides a complete product line-up to automate compact machines and perform any other simple automation tasks, quickly and easily.

Features

❚ 10 to 60 I/O base models, expandable to 320 I/O points
❚ Digital, analog and temperature sensor I/O expansion units
❚ Up to 4 high-speed pulse outputs and up to 6 high-speed counter inputs
❚ Excellent communication capabilities for both serial and Ethernet networking
Powerful instructions common within the CJ Series

Easy positioning, quick results

❚ Easy control: Speed control, positioning, origin search and interrupt feeding
❚ Modbus Master feature for easy inverter control

Saving programming time

❚ Ladder diagram, Function Blocks[1] or Structured Text[1] programming

Versatile communication

❚ USB or Ethernet port[2] – no special cables needed
❚ Communication with Temperature Controller E5□C without special programs
❚ Optional boards for RS-232C, RS-485 or Ethernet

More options – greater possibilities!

❚ Analog I/O unit with a resolution of 1/12,000 for high-accuracy inspections
❚ One multi-input unit for both temperature and analog control of a packaging machine or molding machine
❚ Analog option boards helps save space
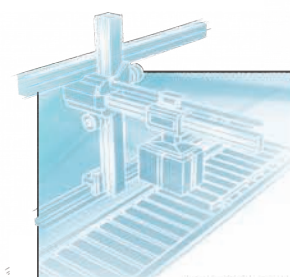
Palletizer

Pick up

Analog I/O Unit
Improve control/inspection accuracy
High-accuracy analog I/O control with a resolution of 1/12,000.
CP1W-AD042/DA042/MAD42/MAD44
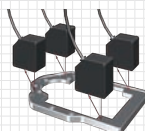
Previous model
(Resolution: 1/6,000)

New model
(Resolution: 1/12,000)

Applications
・Inspection machines
・Tension control

Twice higher resolution

*1. CP1H and CP1L only
*2. CP1L-EM/EL only.

Make
Complex Machine Easy

Inverters

Temperature controller

Modbus-RTU

Servo drives

Pulse output

CP1 PLC

Serial or Ethernet

NB Programmable Terminal

Single head labelling

Non continuous Form, Fill and Seal

Conveyor diverter
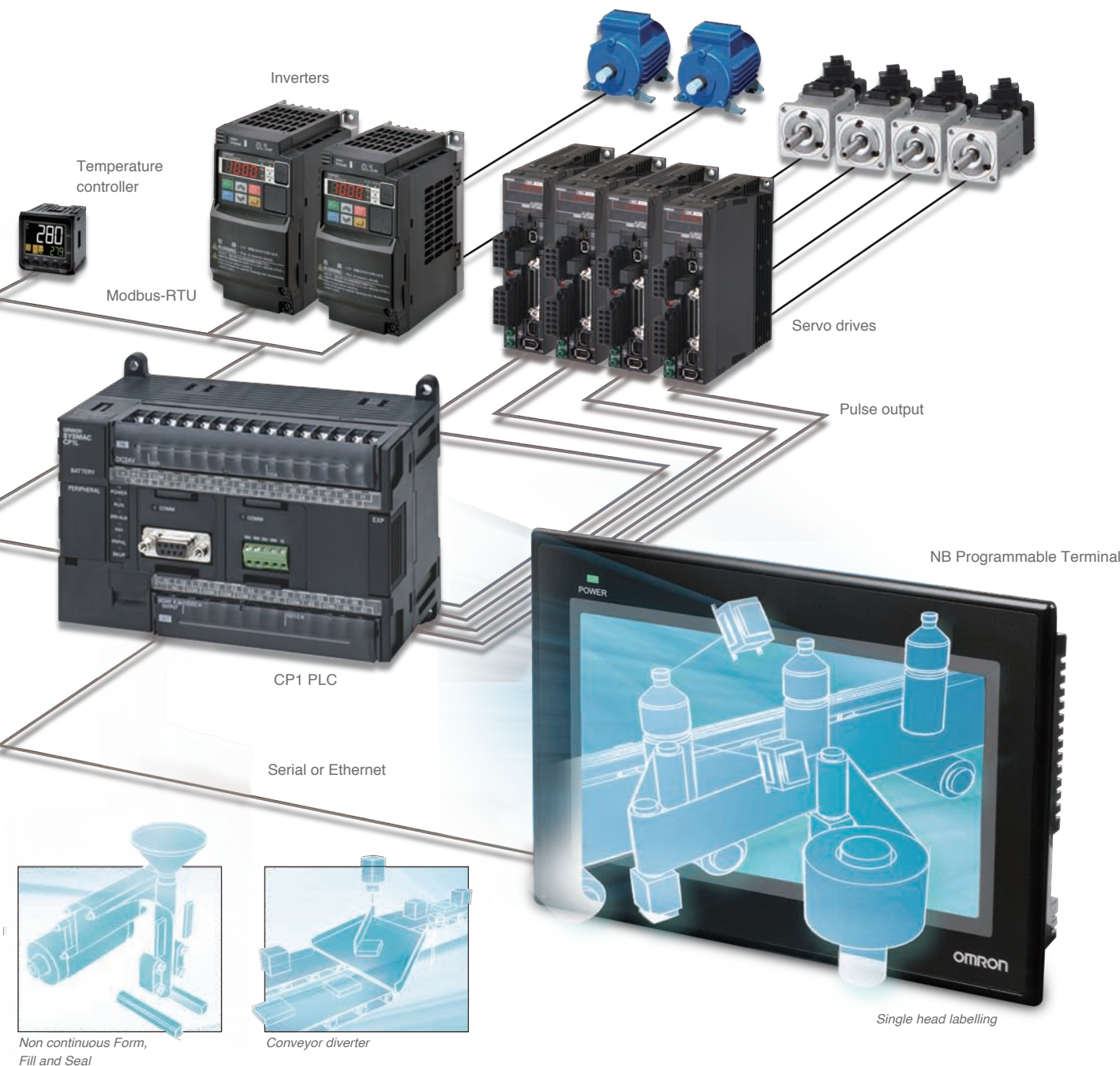
Temperature Sensor Unit
Multi-inputs: thermocouple/analog inputs

The CP1W-TS003 has two inputs that can be used for temperature sensor or analog inputs. Both temperature sensor and analog inputs can be achieved with only one unit.

CP1W-TS003
CH1:Temperature sensor input
CH2:Temperature sensor input
CH3:Temperature sensor/analog input
CH4:Temperature sensor/analog input

Temperature sensors   Analog sensors

Applications
· Vacuum packaging machines
· Sterilization equipment
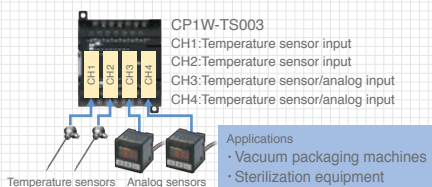
Analog I/O Unit/Temperature Sensor Unit
For a wide variety of applications

The unit with multiple analog I/O or with multiple temperature sensor inputs provides more scalability and flexibility.

4 analog inputs
4 analog outputs
CP1W-MAD44

Up to 24 I/O can be added

12 thermocouple inputs
CP1W-TS004

Up to 36 inputs can be added

Applications
· Molding machines · Ovens
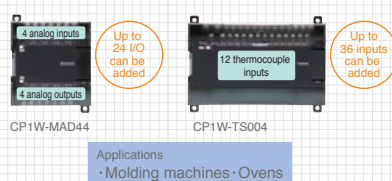
CP1 Catalog
· P082

CP1E Catalog
· P060

Controllers Selection

Omron offers a wide range of FA Controllers to suit your automation applications - from simple control to complex, highly accurate control.

NJ/NX series

Series	NX Series		
Product name	NX701 CPU Units	NX102 CPU Units	NX1P2 CPU Units
Model	NX701-□□□□	NX102-□□□□	NX1P2 -□□□□
Appearance			
Specifications — CPU Unit features	Ideal for large-scale, fast, and highly-accurate control with up to 256 axes	Compact controller with up to 8 axes motion control.	Compact package-type machine automation controller
Support software	Sysmac Studio		
Instruction execution times — LD instructions	0.37 ns or more	3.3 ns	3.3 ns
Math instructions (for long real data)	3.2 ns or more	70 ns or more	70 ns or more
Program capacity	80 MB	5 MB	1.5 MB
Variables capacity	4 MB: Retained during power interruptions / 256 MB: Not retained during power interruptions	4 MB: Retained during power interruptions / 256 MB: Not retained during 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 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	0, 2, 4, 8 *2	0, 2, 4 *2
EtherCAT slaves	512	64	16
Number of controlled robots	---	---	---
Functions — Database connection	Provided (NX701-1□20)	Provided (NX102-□□20)	---
SECS/GEM communications functions	---		
Numerical Control (NC) functions	---		
External memory	Memory Cards		
CJ Special I/O Units and CPU Bus Units	---		

Industrial PC Platform

Product name	Industrial PC		IPC Machine Controller	
Type	Industrial Box PC	Industrial Panel PC	Industrial Box PC	Industrial Panel PC
Model	NYB	NYP	NY51□-1	NY53□-1/NY53□-5
Appearance				
Features	Compact design that offers flexibility, expandability and easy maintenance for applications in factory automation environments	Combines the functionality of the Industrial Box PC and Industrial Monitor	Two operating systems: Windows and Real-Time OS	
Operating system	No operating system / Windows Embedded Standard 7 - 32 bit *3 / Windows Embedded Standard 7 - 64 bit *3	Windows 10 IoT Enterprise 2016 LTSB - 64 bit / Windows 10 IoT Enterprise 2019 LTSC - 64 bit	Windows Embedded Standard 7 - 32 bit *2 / Windows Embedded Standard 7 - 64 bit	
Function module	---		Machine Automation Control Software or Machine Automation Control Software + NC	
Number of axes	---		16, 32, 64	
CPU type	Intel® Xeon® E3-1515M v5 Processor 6th generation CPU with Fan Unit for active cooling / Intel® Core™ i5-7300U Processor 7th generation CPU with fanless cooling / Intel® Celeron® 3965U Processor 7th generation CPU with fanless cooling / Intel® Core™ i7-4700EQ Processor 4th generation CPU with Fan Unit for active cooling / Intel® Core™ i5-4300U Processor 4th generation CPU with fanless cooling *3 / Intel® Celeron® 2980U Processor 4th generation CPU with fanless cooling *3 / Intel® Atom® Apollo Lake x5-E3940 Processor	Intel® Core™ i5-7300U Processor 7th generation CPU with fanless cooling / Intel® Celeron® 3965U Processor 7th generation CPU with fanless cooling / Intel® Core™ i7-4700EQ Processor 4th generation CPU with Fan Unit for active cooling / Intel® Core™ i5-4300U Processor 4th generation CPU with fanless cooling *3 / Intel® Celeron® 2980U Processor 4th generation CPU with fanless cooling *3 / Intel® Atom® Apollo Lake x5-E3940 Processor	Intel® Core™ i7-4700EQ Processor 4th generation CPU with Fan Unit for active cooling	
RAM memory	8GB, 16GB, 32GB (ECC supported) *1 / 2GB, 4GB, 8GB, 16GB (non ECC)		8 GB (non-ECC type)	
Storage	HDD, SSD, CFast, SD memory card		HDD, SSD, SD memory card	
Display size	---	12.1 inches, 15.4 inches, 18.5 inches	---	12.1 inches, 15.4 inches
Built-in ports	Ethernet, USB 2.0/3.0, DVI		Ethernet, EtherNet/IP, EtherCAT, USB 2.0/3.0, DVI	
Interface option	RS-232C, DVI-D, NY Monitor Link, GigE LAN	RS-232C, DVI-D, NY Monitor Link	RS-232C, DVI-D, NY Monitor Link	
Expansion slots	1 PCIe slot		1 PCIe slot	

Note. Not all combination are possible, please visit the product selector on the global website to make your selection.
*1. Only for models with Intel® Xeon® Processor.　*2. For the 32 bit version, consult your OMRON sales representative.　*3. Not recommended for new projects.

NJ Series

	NJ501 CPU Units					NJ301 CPU Units	NJ101 CPU Units	
	NJ501-1□□□	NJ501-4□□□	NJ501-1□20	NJ501-1340	NJ501-5300	NJ301-1□□□	NJ101-□□□	NJ101-□□20
	Ideal for large-scale, fast, and highly-accurate control with up to 64 axes					Ideal for small-scale control with up to eight axes	Ideal for simple machines	
	Sysmac Studio					Sysmac Studio	Sysmac Studio	
	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		
	2,560 points/40 Units (3 Expansion Racks)					2,560 points/40 Units (3 Expansion Racks)		
	16, 32, 64			16	16 *4	4, 8	0, 2	
	192					192	64	
	---	8 robots max. *3	---			---	---	
	---	Provided (NJ501-4320)	Provided	---		---	---	Provided
	---			Provided	---	---		
	---				Provided	---		

	Memory Cards							
	Mountable *5							

*1. Available by running your application on Windows
*2. Motion control axes and 4 single-axis position control axes.
*3. The number of robots that can be controlled depends on the number of axes used in the system.
*4. The number of controlled axes of the MC Control Function Module is included.
*5. For the details of mountable Units, refer to the user's manuals.

IPC Programmable Multi Axis Controller
Industrial Box PC
NY51□-A

Provides flexibility in the creation of high-resolution graphics and applications and the development of motion control for high-end applications

Windows Embedded Standard 7 - 32 bit
Windows Embedded Standard 7 - 64 bit

Programmable Multi Axis Controller

128

Intel® Core™ i7-4700EQ Processor 4th generation CPU with Fan Unit for active cooling

8 GB (non-ECC type)

SSD, SD memory card

Ethernet, EtherCAT, USB 2.0/3.0, DVI

RS-232C

1 PCIe slot

Product name	Industrial Monitor		
Model	NYM12	NYM15	NYM19
Appearance			
Description	Display and touch interface for the Industrial PC Platform		
Display device	TFT LCD		
Screen size	12.1 inches	15.4 inches	18.5 inches *
Resolution	Up to 1,280 x 800 pixels at 60 Hz		Up to 1,920 x 1,080 pixels at 60 Hz
Colors	16,770,000 colors		
Connectors	1 Power Connector, 1 DVI-D Connector, 2 USB Type-A Connector, 1 USB Type-B Connector		
Built-in options	NY Monitor Link		
Allowable power supply voltage range	19.2 to 28.8 VDC		

* 18.5 also available with Nickel Plated front.

CK3M series

Series	CK3M Series
Model	CK3M
Appearance	
Features	Controls analog servo drives at high speeds of up to 50 µs/5 axes, enabling high-precision processing
Support software	Power PMAC IDE
Memory	RAM: 1 GB, Built-In flash memory: 1 GB
Built-in ports	Ethernet, EtherCAT, USB
Number of motion axes	24 (4 axes/axial interface unit x 4 units: 16, EtherCAT: 8)
Number of EtherCAT slaves	32

CK3E series

Series	CK3E Series
Model	CK3E
Appearance	
Features	You can build a system capable of controlling up to 32 axes of motion and incorporate customized control algorithms into the system.
Support software	Power PMAC IDE
Memory	DDR3 memory: 1GB, Flash memory: 1GB
Built-in ports	Ethernet, EtherCAT
Number of motion axes	8, 16 or 32
Number of EtherCAT slaves	32

CS/CJ series

Series		CJ Series		CS Series	
Model		CJ2H	CJ2M	CS1H/G	CS1D
Appearance					
CPU Unit features *1		A large data memory capacity, multi-function Ethernet port, tag access functionality, and a USB port. Ideal for high-speed, high-precision machines	Based on the long track record of the CJ1M and adds greater cost performance and flexibility. Ideal for general-purpose machine control	From machine control to information management multiple-application Controllers with a wide range of functions	Redundant CPU Units, Power Supply Units, Communications Units, and Expansion I/O Cables
		High-speed I/O Units, synchronized control, USB port, built-in EtherNet/IP port, data structures and arrays, Function Blocks (Ladder diagrams/Structured Text)	High-speed I/O Units, USB port, built-in EtherNet/IP port, data structures and arrays, FB Program Area, Function Blocks (Ladder diagrams/Structured Text), Serial Communications Option Boards	Up to 5,120 points of I/O, Inner Board capability, Function Blocks (Ladder diagrams/Structured Text)	Up to 5,120 points of I/O, redundant CPU Units and Power Supply Units, Inner Board capability
Support software		CX-One	CX-One	CX-One	CX-One
Instruction execution times (basic instructions)		0.016 µs	0.04 µs	CS1G: 0.04 µs CS1H: 0.02 µs	0.02 µs
Max. no. of I/O points		2,560	2,560	960 to 5,120	960 to 5,120
Program capacity		50K to 400K steps	5K to 60K steps	10K to 250K steps	10K to 400K steps
Data memory capacity		160K to 832K words	64K to 160K words	64K to 448K words (EM Area: 1 to 13 banks)	64K to 832K words (EM Area: 1 to 25 banks)
Built-in features	Built-in I/O	▯	32 points *2	▯	▯
	Interrupt inputs	▯	8 inputs *2	▯	▯
	High-speed counter	▯	4 inputs *2	▯	▯
	Pulse outputs *1	▯	4 outputs *2	▯	▯
External memory		Memory Cards	Memory Cards	Memory Cards	Memory Cards
CJ Special I/O Units and CPU Bus Units		Mountable	Mountable	Mountable (units for CS series)	Mountable (units for CS series)

*1. These features are not supported by all of the CPU Unit models in the relevant series. Refer to specific product catalogs for details.
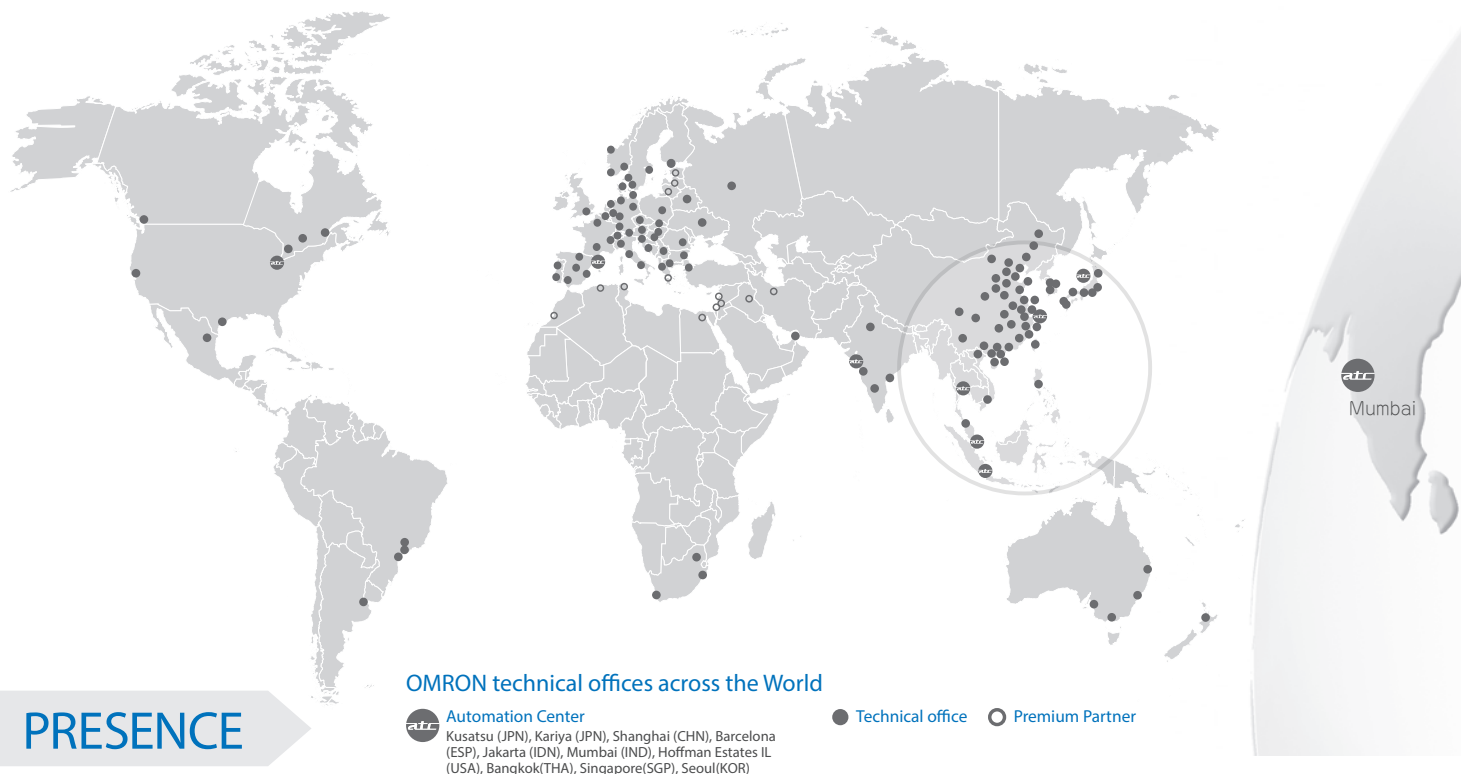*2. Applicable when a Pulse I/O Block is mounted.

CP series

Series	CP Series			
Model	CP1H	CP1L	CP1E-N/NA Type	CP1E-E Type
Appearance				
CPU Unit features *	Four axis position control and comprehensive model	High performing model with embedded Ethernet for two axis position control	Standard model for HMI connection, two axes position control, and inverter connection	Cost effective performance and easy application with only basic functionality
	Pulse outputs for up to 4 axes, CP1W Expansion Units can be mounted, easy Modbus-RTU, Serial Communications Option Boards, Ethernet Option Board, CJ-series Special I/O Units and CPU Bus Units can be mounted, Function Blocks (Ladder diagrams/Structured Text), LCD Option Board, analog adjuster, seven-segment LED display (2 digits)	Pulse outputs for up to 2 axes, models with USB port, models with Ethernet communications port, CP1W Expansion Units can be mounted, easy Modbus-RTU, Serial Communications Option Boards, Ethernet Option Board, Function Blocks (Ladder diagrams/Structured Text), LCD Option Board, analog adjuster, Analog I/O Option Boards	Pulse outputs for up to 2 axes, USB port, RS-232C port, CP1W Expansion Units can be mounted, easy Modbus-RTU, Serial Communications Option Boards, Ethernet Option Board, 2 analog adjusters	USB port, CP1W Expansion Units can be mounted, 2 analog adjusters
Support software	CX-One	CX-One	CX-One	CX-One
Instruction execution times (basic instructions)	0.10 μs	0.55 μs	1.19 μs	1.19 μs
Max. no. of I/O points	320 points (40 built in + 280 expansion)	180 points (60 built in + 120 expansion)	180 points (60 built in + 120 expansion)	180 points (60 built in + 120 expansion)
Program capacity	20K steps	5K or 10K steps	8K steps	2K steps
Data memory capacity	32K words	10K or 32K words	8K words	2K words
Built-in features — Built-in I/O	20 or 40 points	10 or 60 points	14 or 60 points	10 or 60 points
Built-in features — Interrupt inputs	6 or 8 inputs	2, 4 or 6 inputs	6 inputs	4 or 6 inputs
Built-in features — High-speed counter	4 inputs	4 inputs	4 inputs	5 or 6 inputs
Built-in features — Pulse outputs *	4 outputs	2 outputs	2 outputs	⬚
External memory	Memory Cassettes	Memory Cassettes	⬚	⬚
CJ Special I/O Units and CPU Bus Units	Mountable	⬚	⬚	⬚

* These features are not supported by all of the CPU Unit models in the relevant series. Refer to specific product catalogs for details.

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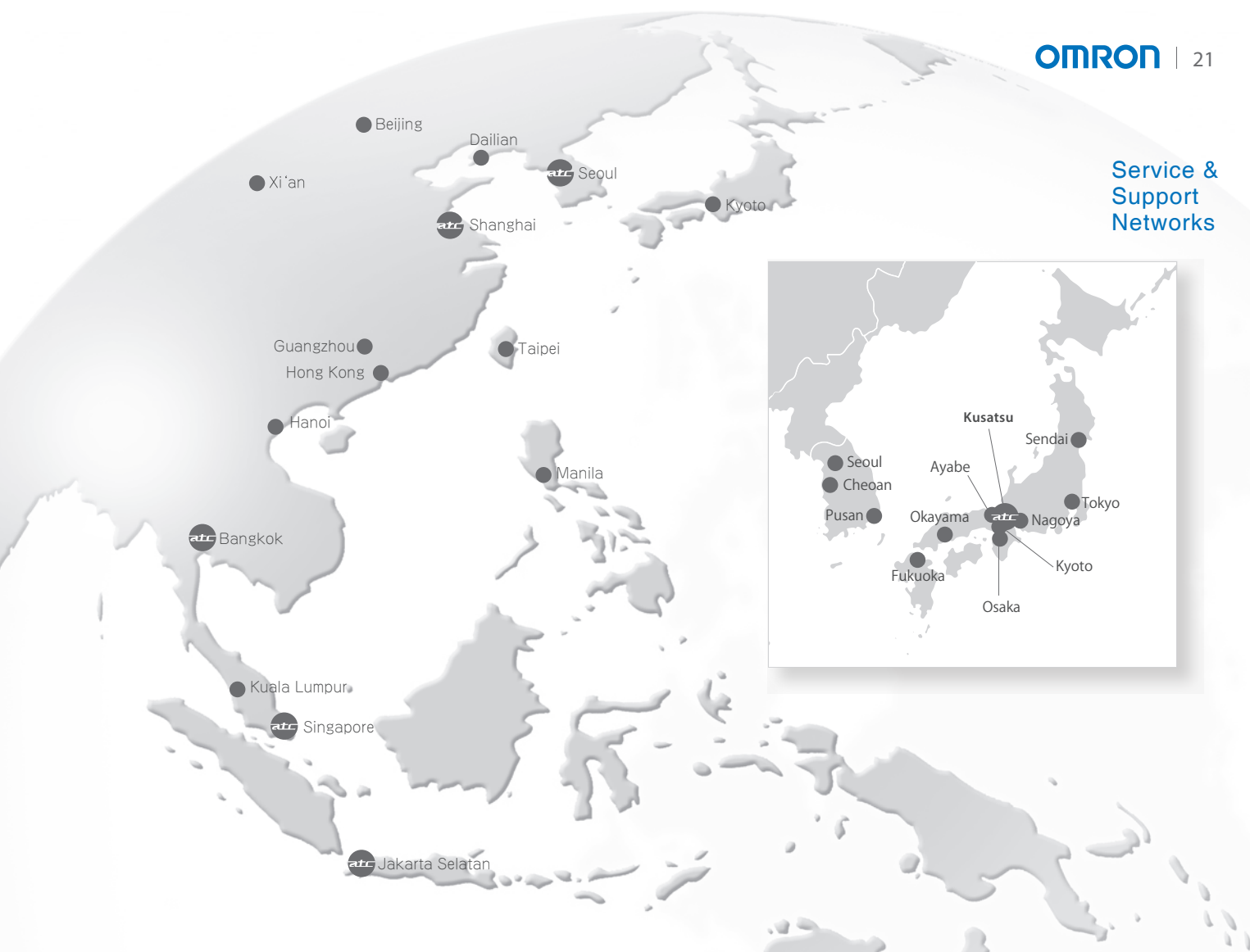
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   Kyoto, JAPAN

   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.
No. 438A Alexandra Road # 05-05/08 (Lobby 2),
Alexandra Technopark,
Singapore 119967
Tel: (65) 6835-3011/Fax: (65) 6835-2711

OMRON (CHINA) CO., LTD.
Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

Authorized Distributor:

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