

## EtherNet/IP™

NJ/NX/NY Series, CS/CJ Series



High-speed High-capacity Industrial Ethernet  
Global Standard  
Integration of Controls and Information  
Convenience of the Universal Ethernet

# The Global Standard Network controls and information.

Data links between PLCs, between PLCs and multivendor devices, and communications between PTs and PLCs are realized with Universal Ethernet.

The global-standard network EtherNet/IP™ integrates controls and information using the latest Universal Ethernet technology and is supported by a wide range of OMRON products: PLCs, Machine Automation Controllers, HMIs, Vision sensors, Displacement Sensors, and Safety. The CJ2/NJ/NX CPU Units and NY Industrial PC Platform provide a built-in EtherNet/IP port.

**Convenience of the Universal Ethernet Right in Your Hands**

## Global Standard

- Highly open global standard for the FA industry with high future potential.
- No need for separate information and control networks.
- Improved efficiency with common Support Software operations.
- Safety systems can be monitored.

**Global Standard**

**EtherNet/IP™**

# that integrates

## Ethernet Technology

- Data communications with higher capacity, **9 times** higher than previous OMRON models.
- Low cost expansion for each line.
- Reduced network construction cost.
- Easy mobile communications with FA wireless LAN.

### Integration of Controls and Information

- High-speed data links at optimal cycle, **30 times** faster than previous OMRON models
- FTP communications, data links, and Support Software can be used simultaneously with a single port.
- Memory map management is not required with the NJ/NX/NY-Series and CJ CPU Units.

## Industrial Protocol

## EtherNet/IP™

EtherNet/IP is a Global Standard for Industrial Ethernet promoted by the ODVA(ODVA,Inc.).

### Open Standard

Many companies around the world, including the main manufacturers of control devices, are marketing compatible devices.

### Independence

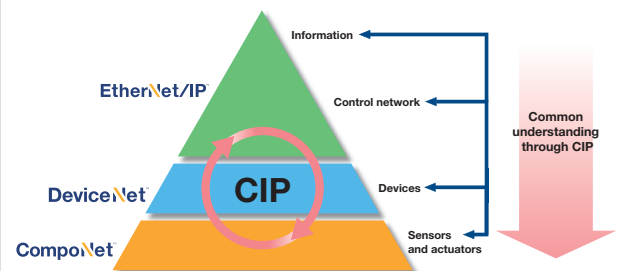
EtherNet/IP specifications are managed by the independent organization ODVA, which promotes the world-wide spread of open networks such as DeviceNet and CompoNet. It does not belong to a specific manufacturer.

### High Future Potential

EtherNet/IP has already been implemented in many places internationally. Its use is expected to spread further as the number of compatible devices increases.

## What Is CIP?

CIP is a Common Industrial Protocol in the OSI application layer. Routing between networks that use CIP as their base is easy. For this reason, transparent networks from sensors to host devices can be constructed easily.



# Global Standard

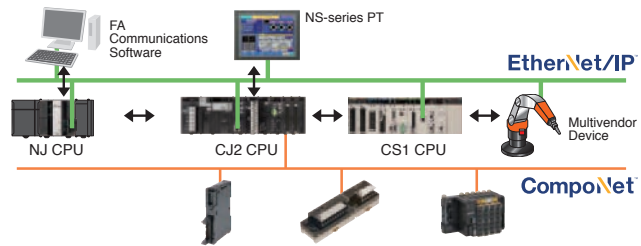
FA Industry Standard Ethernet

## Global Standard

### Highly Open Global Standard for FA Industry with High Future Potential

The ODVA promotes the spread of Industrial Ethernet all over the world.

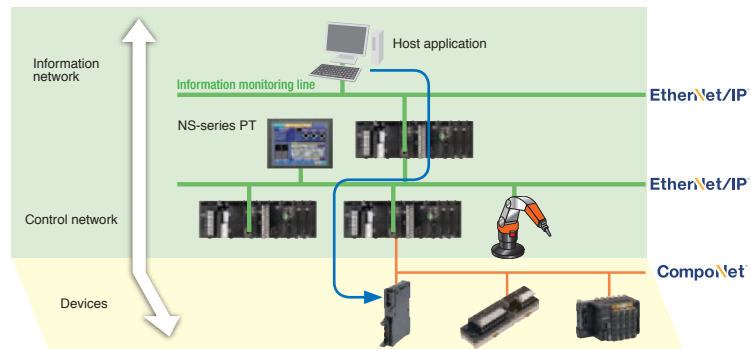
EtherNet/IP can be used to communicate with many devices from various companies around the world in addition to OMRON components (such as Temperature Controllers and Sensors). The use of EtherNet/IP will rapidly increase the development of an EtherNet/IP multivendor environment (including robots and safety devices).



### Integrated Information and Control Network

Seamless communications on the control line and information monitoring line with EtherNet/IP

Using the global standard open protocol (CIP), an independent network system can be created with seamless data flow between the control line and the information monitoring line. OMRON FINS message communications can also be used on the same network because it is a standard LAN.



### Improved operation efficiency with common Support Software operation

Use the same operating procedures for both EtherNet/IP and DeviceNet Support Software.

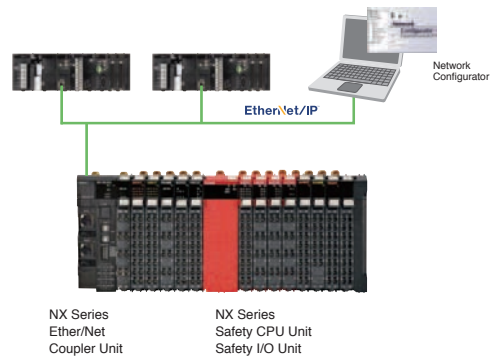
The same Support Software procedures can be used from a remote location for device configuration, monitoring, and program transfer for the DeviceNet and EtherNet/IP networks.



### Monitor Safety Systems

Safety systems can be monitored through the EtherNet/IP.

The safety system can be monitored from a PLC by using a modular designed Safety Control Unit with a EtherNet/IP Coupler Unit.



# → Ethernet

Flexibility System Construction and Easy Expansion

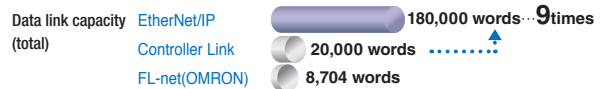
## Convenience of the Universal Ethernet Right in Your Hands

### Higher Data Link Capacity

9 times the capacity of previous OMRON models

High-capacity communications with high-speed high-capacity bus

All types of data, from process interlocks and manufacturing recipes to production data, can be exchanged at high speed and with optimal timing. The ability to communicate is incomparably better than previous networks, such as the Controller Link and FL-net.



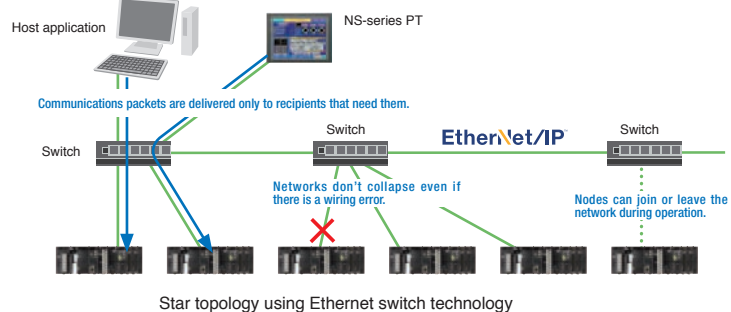
Note: Using a built-in EtherNet/IP port on C.J2H and EtherNet/IP Units.

### Low Cost Expansion for Each Line

Flexible topology with the Ethernet switch

Flexible wiring and expansion are possible with Ethernet switches. This means that there will be no total network crashes caused by communications path errors, ensuring high network performance and security.

- Joining and leaving the network is possible during communications.
- Nodes can leave the network during operation, enabling easy maintenance for error detection, separation, and restoration.
- Unpredictable delays caused by data collisions are minimum.
- Problems caused by wiring errors are minimized to each line.



### Reduced Network Facility and Wiring Costs

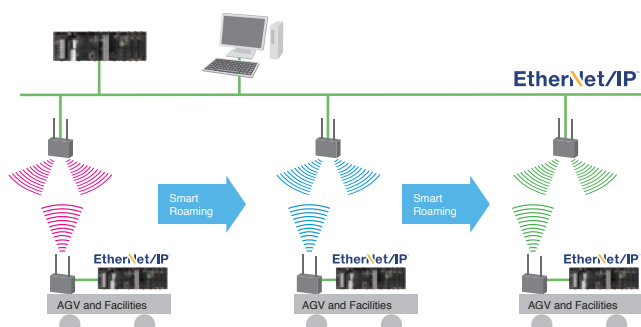
Generic LAN cables can be used.

- Metal cables of category 5, 5e, or higher can be used as LAN cables.
- Generic RJ-45 connectors can be used.

### Standard wireless LAN can be used because EtherNet/IP is also Universal Ethernet.

There is no need to rewire even when layout has been changed.

- EtherNet/IP can be made wireless using the standard wireless LAN.
- High-speed Smart Roaming communications can be used for mobile units with the WE70 FA Wireless LAN. The communications range can be expanded by relaying communications between access points.



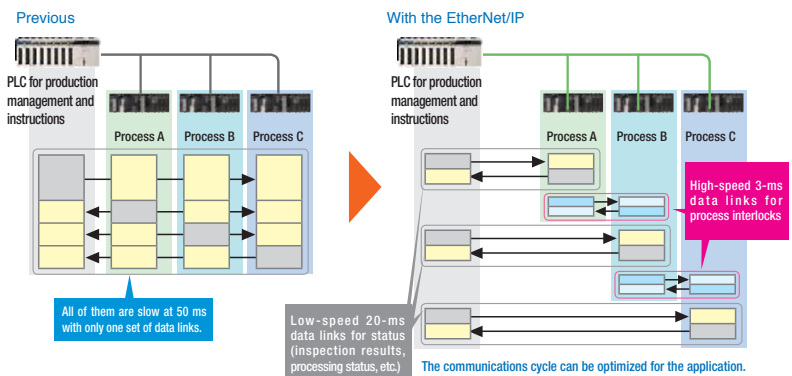
From Host to Field Level over Ethernet

## Integration of Control and Information Networks

### High-speed Data Links with Optimal Cycles for Applications

#### Flexible and high-speed cyclic communications

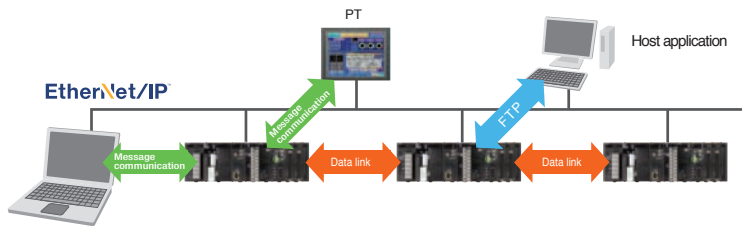
- Grouping can be used in data link tables to create multiple sections.
  - Data link table can be divided up to 256 groups (= connections).
  - The optimum communications cycle for the application can be set for each group.
- Cyclic synchronization can be set for each group.
  - The communications cycle can be set to between 0.5 ms and 10 s in 0.5-ms increments.
  - Data concurrency is maintained for each connection. The communications cycle does not change even if the number of nodes increases. The communications performance is 30 times better than that of the Controller Link.
  - Example: Data link refresh cycle for 25 linked Unit and 20,000 words/network is reduced from 300 ms to 10 ms.
- Facilities can be easily expanded.
  - When expanding facilities, all you need to do is make additions to the tables. Expansion is possible with little time and low cost.
  - Note: Using a built-in EtherNet/IP port on CJ2H and EtherNet/IP Units.



### FTP, Data Links, and Support Software Can Be Used Simultaneously with One Port

With the multipurpose EtherNet/IP port, an Ethernet Unit is not required for expansion.

Using the multipurpose EtherNet/IP port built into a CJ/NJ/NX/NY Unit, a single port can be used for data link communications between PLCs, messages between PLCs, and Universal Ethernet communications, such as FTP transfers while connecting Support Software. An EtherNet/IP Unit can be added to any CS/CJ-series PLC to achieve the same functions.



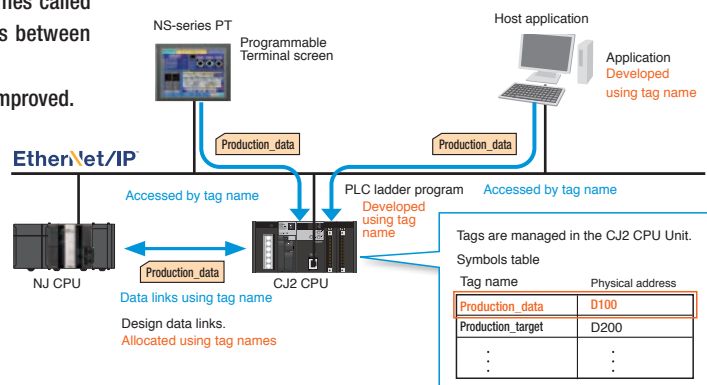
Using a CJ/NJ/NX/NY CPU Unit...

### Memory Map Management Becomes Unnecessary.

Freed from memory map by tags

The transmission/reception area can be specified with normal names called tag names instead of addresses for communication on data links between devices or when communication with the host application. The efficiency of design, startup, maintenance, and upgrading are improved.

- PT and host applications can be developed in parallel.
  - Network symbols defined in CJ/NJ/NX/NY Units can be used as tags when designing the PT screen.
  - Design is easy: Just decide on the tag names for the information and control departments.
  - Changes to allocated addresses is not needed later in development.
- Easier facility upgrading and maintenance
  - Even if physical addresses change in the PLC, there is no need to make any changes in the data link settings, in the PT, or in the host application.



# EtherNet/IP Communications Specifications (CS/CJ/NJ/NX/NY Series)

| Item Model              | Machine Automation Controller Built-in EtherNet/IP port on NX701-□□□□ | Machine Automation Controller Built-in EtherNet/IP port on NJ501-□□□□ or NJ301-□□□□ or NJ101-□□□□ | Machine Automation Controller Built-in EtherNet/IP port on NX1P2 | Industrial PC Platform IPC Machine Controller Built-in EtherNet/IP port on NY5□□-1 | Programmable Controller Built-in EtherNet/IP port on CJ2H-CPU□□-EIP CS/CJ EtherNet/IP Unit CJ1W-EIP21/CS1W-EIP21 | Programmable Controller Built in EtherNet/IP Port on CJ2M-CPU3□ |   |                                  |
|-------------------------|---|---|--|--|--|---|---|----------------------------------|
| Number of port          | 2   | 1   | 1  | 1  | 1  | 1   |   |                                  |
| Transfer Specifications | Media access Method   | CSMA/CD   |  |  |  |   |   |                                  |
|                         | Modulation method   | Baseband  |  |  |  |   |   |                                  |
|                         | Transmission paths  | Star form   |  |  |  |   |   |                                  |
|                         | Baud rate   | 1G bit/s (1000BASE-T)   | 100M bit/s (100BASE-TX)  |  | 1G bit/s (1000BASE-T)  | 100M bit/s (100BASE-TX)   |   |                                  |
|                         | Transmission media  | Shielded twisted-pair (STP) cable Category: 5, 5e or higher                                       |  |  |  |   |   |                                  |
|                         | Transmission distance   | 100 m (distance between hub and node)   |  |  |  |   |   |                                  |
| CIP service             | Tag data links (Cyclic communications)                                | Number of connections   | 256 / port total 512   | 32   | 32   | 128   | 256   | 32                               |
|                         |   | Packet interval (refresh cycle)   | 0.5 to 10,000 ms (in 0.5-ms units)                               | 1 to 10,000 ms *1 (in 1-ms units)  | 2 to 10,000 ms (in 1-ms units)   | 1 to 10,000 ms (in 1-ms units)                                  | 0.5 to 10,000 ms (in 0.5-ms units)                  | 1 to 10,000 ms (in 0.5-ms units) |
|                         |   | Maximum allowed communications bandwidth per Unit   | 40,000 pps *2 *3   | 3,000 pps *1 *2  |  | 20,000 pps*2  | 6,000 to 12,000 pps *2 *4                           | 3,000 pps *2                     |
|                         |   | Maximum link data size per Node (total size of all tags)  | 369,664 bytes (Total in 2 ports 739,328 byte)                    | 19,200 bytes (9,600 words)   |  | 184,832 bytes (92,416 words)                                    | 369,664 bytes (184,832 words)                       | 1,280 bytes (640 words)          |
|                         |   | Maximum data size per connection  | 1,444 bytes (722 words) *5                                       | 600 bytes (300 words) *5   |  | 1,444 bytes (722 words) *5                                      | 1,444 bytes (722 words) or 504 bytes (252 words) *5 | 1,280 bytes (640 words) *4 *6    |
|                         |   | Changing tag data link parameters during operation  | Supported. *7  |  |  |   |   |                                  |
|                         | Explicit Messaging  | Multicast packet filter function *8   | Supported.   |  |  |   |   |                                  |
|                         |   | Class 3 (connected)   | Supported.   |  |  |   |   |                                  |
|                         |   | UCMM (unconnected)  | Supported.   |  |  |   |   |                                  |
|                         | FINS service  | CIP routing   | Supported.   |  |  |   |   |                                  |
| FINS/UDP                |   | Not supported.  |  |  | Supported.   |   |   |                                  |
|                         | FINS/TCP  | Not supported.  |  |  | Supported.   |   |   |                                  |

\*1. Use NJ-series CPU Unit with version 1.03 or later and Sysmac Studio with version 1.04 or later.  
When using the CPU Unit version 1.02 or earlier, the Packet interval is 10 to 10,000 ms in 1.0-ms increments and the Maximum allowed communications bandwidth per Unit is 1,000 pps.

\*2. In this case, pps means “packets per second” and indicates the number of packets that can be processed in one second.

\*3. If the two built-in EtherNet/IP ports are used simultaneously, the maximum communications data size for two ports in total will be reached.

\*4. When using the EtherNet/IP Unit with version 3.0 or later. When using the EtherNet/IP Unit with version 2.1 or earlier, the maximum allowed communications bandwidth per Unit is 6,000 pps. When using the EtherNet/IP Unit with version 3.0 or later, the Network Configurator with version 3.57 or higher is required.

\*5. To use 505 to 1,444 bytes as the data size, the system must support the Large Forward Open standard (an optional CIP specification).  
NJ/NX/NY-series, CS/CJ-series Units support this standard, but other companies’ devices may not support it.

\*6. Unit version 2.0 of built-in EtherNet/IP section: 20 words.

\*7. If parameters are changed, the target EtherNet/IP Unit will restart. When other nodes communicating with the target node, the affected data will temporarily timeout and automatically recover later.

\*8. Since the EtherNet/IP Unit is equipped with an IGMP client, unnecessary multicast packets can be filtered by using a switching hub that supports IGMP snooping.

# Ordering Information

International Standards

- The standards are abbreviated as follows: U: UL, U1: UL(Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus, UC1: cULus(Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, CE: EU Directives, RCM: Regulatory Compliance Mark and KC: KC Registration.
- Contact your OMRON representative for further details and applicable conditions for these standards.

## NX-series CPU Units

| Product name    | Specifications   |  |                       | Current (Power) consumption                   | Model      | Standards        |
|-----------------|------------------|--|-----------------------|---|------------|------------------|
|                 | Program capacity | Memory capacity for variables                  | Number of motion axes |   |            |                  |
| NX701 CPU Units | 80 MB            | 4 MB: Retained during power interruption       | 256                   | 40 W (including SD Memory Card and End Cover) | NX701-1700 | UC1, RCM, CE, KC |
|                 |                  | 256 MB: Not retained during power interruption | 128                   |   |            |                  |

## NJ-series CPU Units

| Product name                            | Specifications   |                  |  |  |                              |                                 |                             | Current consumption (A) |        | Model      | Standards              |            |
|---|--|------------------|--|--|------------------------------|---------------------------------|-----------------------------|-------------------------|--------|------------|------------------------|------------|
|   | I/O capacity / maximum number of configuration Units (Expansion Racks) | Program capacity | Memory capacity for variables                | Number of motion axes                        | Database Connection function | SECS/GEM Communication function | Number of controlled robots | 5 VDC                   | 24 VDC |            |                        |            |
| NJ501 CPU Units                         | 2,560 points / 40 Units (3 Expansion Racks)                            | 20MB             | 2 MB: Retained during power interruption     | 64   | No                           | No                              | —                           | 1.90                    | —      | NJ501-1500 | UC1, N, L, CE, RCM, KC |            |
| NJ301 CPU Units                         |  |                  | 5MB  | 4 MB: Not retained during power interruption |                              |                                 |                             |                         |        | 32         |                        | NJ501-1400 |
|   |  |                  |  | 0.5 MB: Retained during power interruption   |                              |                                 |                             |                         |        | 16         |                        | NJ501-1300 |
| NJ101 CPU Units                         |  | 3MB              | 2 MB: Not retained during power interruption | 8  |                              |                                 |                             |                         |        | NJ301-1200 |                        |            |
|   |  |                  | 0  | 4  |                              |                                 |                             |                         |        | NJ301-1100 |                        |            |
| NJ-series Database Connection CPU Units |  | 20MB             | 2 MB: Retained during power interruption     | 2  |                              |                                 |                             |                         |        | Yes        |                        | No         |
|   |  |                  | 4 MB: Not retained during power interruption | 0  | NJ101-9000                   |                                 |                             |                         |        |            |                        |            |
|   |  |                  | 0.5 MB: Retained during power interruption   | 2  | NJ501-1520                   |                                 |                             |                         |        |            |                        |            |
| NJ-series SECS/GEM CPU Unit             |  | 3MB              | 2 MB: Not retained during power interruption | 0  | No                           | Yes                             | —                           | 1.90                    | —      | NJ101-1020 |                        |            |
|   |  |                  | 0  | NJ101-9020                                   |                              |                                 |                             |                         |        |            |                        |            |
| NJ-series NJ Robotics CPU Units         |  | 20MB             | 2 MB: Retained during power interruption     | 16   | No                           | No                              | 8 max.*                     | 1.90                    | —      | NJ501-1340 |                        |            |
|   |  |                  |  | 64   |                              |                                 |                             |                         |        | NJ501-4500 |                        |            |
|   |  |                  |  | 32   |                              |                                 |                             |                         |        | NJ501-4400 |                        |            |
|   |  |                  |  | 16   | Yes                          | No                              | 1                           | NJ501-4300              |        |            |                        |            |
|   | 8 max.*  |                  |  | NJ501-4310                                   |                              |                                 |                             |                         |        |            |                        |            |
|   |  |                  |  |  |                              |                                 |                             | NJ501-4320              |        |            |                        |            |

\* The number of controlled robots varies according to the number of axes used for the system.

## NX-series NX1P2 CPU Units

| Product name         | Specifications   |   |                                  |                                   |                          |         | Model | Standards            |               |                  |
|----------------------|------------------|---|----------------------------------|-----------------------------------|--------------------------|---------|-------|----------------------|---------------|------------------|
|                      | Program capacity | Memory capacity for variables             | Maximum number of used real axes |                                   | Total of built-in Inputs |         |       |                      |               |                  |
|                      |                  |   | Number of motion axes            | Single-axis position control axes | Inputs                   | Outputs |       |                      |               |                  |
| NX1P2 CPU Units      | 1.5 MB           | 32 kB: Retained during power interruption | 8                                | 4                                 | 4                        | 40      | 24    | 16, NPN transistor   | NX1P2-1140DT  | UC1, CE, RCM, KC |
|                      |                  |   |                                  |                                   |                          |         |       | 16, PNP transistor * | NX1P2-1140DT1 |                  |
|                      |                  |   | 6                                | 2                                 | 4                        |         |       | 16, NPN transistor   | NX1P2-1040DT  |                  |
|                      |                  |   |                                  |                                   |                          |         |       | 16, PNP transistor * | NX1P2-1040DT1 |                  |
|                      |                  |   | 4                                | 0                                 | 4                        |         |       | 10, NPN transistor   | NX1P2-9024DT  |                  |
| 10, PNP transistor * | NX1P2-9024DT1    |   |                                  |                                   |                          |         |       |                      |               |                  |

Note: NX1P2 includes 1 End Cover (NX-END02).

\* With load short-circuit protection.



## Industrial PC Platform NY-series IPC Machine Controller

The industrial PC Platform has extended configuration possibilities to meet your requirements, below an overview of the most used and recommended models. Selecting one of the models below will bring the benefit of faster delivery times.

In case your preferred model is not listed below, please contact your Omron representative to discuss the possibilities.

| Product name        | Specifications                      |                        |                       |                           |                |                  | Model                | Standards   |                      |                      |                      |
|---------------------|-------------------------------------|------------------------|-----------------------|---------------------------|----------------|------------------|----------------------|-------------|----------------------|----------------------|----------------------|
|                     | OS                                  | CPU type               | Number of motion axes | RAM memory (non-ECC type) | Storage size   | Interface option |                      |             |                      |                      |                      |
| Industrial Box PC   | Windows Embedded Standard 7 - 64bit | Intel® Core™ i7-4700EQ | 64                    | 8 GB                      | 64GB SSD (SLC) | RS-232C          | NY512-1500-1XX21391X | CE, KC, RCM |                      |                      |                      |
|                     |                                     |                        |                       |                           | 320GB HDD      |                  | NY512-1500-1XX213C1X |             |                      |                      |                      |
|                     |                                     |                        |                       |                           | 32             |                  | 64GB SSD (SLC)       |             | NY512-1400-1XX21391X |                      |                      |
|                     |                                     |                        |                       |                           |                |                  | 320GB HDD            |             | NY512-1400-1XX213C1X |                      |                      |
|                     |                                     |                        |                       |                           | 16             |                  | 64GB SSD (SLC)       |             | NY512-1300-1XX21391X |                      |                      |
|                     |                                     |                        |                       |                           |                |                  | 320GB HDD            |             | NY512-1300-1XX213C1X |                      |                      |
| Industrial Panel PC |                                     |                        | 64                    |                           | 32             |                  | 16                   |             | 64GB SSD (SLC)       | NY532-1500-111213910 |                      |
|                     |                                     |                        |                       |                           |                |                  |                      |             | 320GB HDD            | NY532-1500-111213C10 |                      |
|                     |                                     |                        |                       |                           |                |                  |                      |             | 32                   | 64GB SSD (SLC)       | NY532-1400-111213910 |
|                     |                                     |                        |                       |                           |                |                  |                      |             |                      | 320GB HDD            | NY532-1400-111213C10 |
|                     |                                     |                        |                       |                           |                |                  |                      |             | 16                   | 64GB SSD (SLC)       | NY532-1300-111213910 |
|                     |                                     |                        |                       |                           |                |                  |                      |             |                      | 320GB HDD            | NY532-1300-111213C10 |

## CJ2H CPU Units (with Built-in EtherNet/IP)

| Product name                               | I/O capacity/No. of Configuration Units (maximum No. of Expansion Racks) | Program capacity | Data memory capacity                                    | LD instruction execution time | Current consumption (A) |     | Model          | Standards     |
|--|--|------------------|---|-------------------------------|-------------------------|-----|----------------|---------------|
|  |  |                  |   |                               | 5V                      | 24V |                |               |
| CJ2H CPU Units (with Built-in EtherNet/IP) | 2560 points/40 Units (3 Expansion Racks max.)                            | 400 Ksteps       | 832 K words (DM: 32 K words, EM: 32 K words × 25 banks) | 0.016 μs                      | 0.82 *                  | —   | CJ2H-CPU68-EIP | UC1, N, L, CE |
|  |  | 250 Ksteps       | 512 K words (DM: 32 K words, EM: 32 K words × 15 banks) |                               |                         |     | CJ2H-CPU67-EIP |               |
|  |  | 150 Ksteps       | 352 K words (DM: 32 K words, EM: 32 K words × 10 banks) |                               |                         |     | CJ2H-CPU66-EIP |               |
|  |  | 100 Ksteps       | 160 K words (DM: 32 K words, EM: 32 K words × 4 banks)  |                               |                         |     | CJ2H-CPU65-EIP |               |
|  |  | 50 Ksteps        | 160 K words (DM: 32 K words, EM: 32 K words × 4 banks)  |                               |                         |     | CJ2H-CPU64-EIP |               |

\* Add 0.15 A per Adapter when using NT-AL001 RS-232C/RS-422A Adapters. Add 0.04 A per Adapter when using CJ1W-CIF11 RS-422A Adapters. Add 0.20A/Unit when using NV3W-M□20L(-V1) Programmable Terminals. Refer to the CJ2 CPU Unit Catalog (Cat. No. P059) for details.

## CJ2M CPU Units (with Built-in EtherNet/IP)

| Product name                               | Specifications                                 |                  |   |                               |                      |                   | Current consumption (A) |      | Model      | Standards     |
|--|--|------------------|---|-------------------------------|----------------------|-------------------|-------------------------|------|------------|---------------|
|  | I/O capacity/Mountable Units (Expansion Racks) | Program capacity | Data memory capacity                                | LD instruction execution time | EtherNet/IP function | Option board slot | 5 V                     | 24 V |            |               |
| CJ2M (with Built-in EtherNet/IP) CPU Units | 2,560 points/40 Units (3 Expansion Racks max.) | 60K steps        | 160K words (DM: 32K words, EM: 32K words × 4 banks) | 0.04 μs                       | YES                  | YES               | 0.7*                    | —    | CJ2M-CPU35 | UC1, N, L, CE |
|  |  | 30K steps        |   |                               |                      |                   |                         |      | CJ2M-CPU34 |               |
|  |  | 20K steps        | 64K words (DM: 32K words, EM: 32K words × 1 bank)   |                               |                      |                   |                         |      | CJ2M-CPU33 |               |
|  |  | 10K steps        |   |                               |                      |                   |                         |      | CJ2M-CPU32 |               |
|  |  | 5K steps         |   |                               |                      |                   |                         |      | CJ2M-CPU31 |               |


\* Add 0.005A, 0.030A, and 0.075A when using Serial Communications Option Boards (CP1W-CIF01/11/12), respectively. Add 0.15A/Unit when using NT-AL001 RS-232C/RS-422A Adapters. Add 0.04A/Unit when using CJ1W-CIF11 RS-422A Adapters. Add 0.20A/Unit when using NV3W-M□20L(-V1) Programmable Terminals. Refer to the CJ2 CPU Unit Catalog (Cat. No. P059) for details.

## EtherNet/IP Units

| Unit type       | Product name     | Specifications  |   |                                   |                               | Current consumption (A) |     |     | Model           | Standards     |
|-----------------|------------------|---|---|-----------------------------------|-------------------------------|-------------------------|-----|-----|-----------------|---------------|
|                 |                  | Communications cable  | Communications type                       | Max. Units mountable per CPU Unit | No. of unit numbers allocated | 5V                      | 24V | 26V |                 |               |
| CJ CPU Bus Unit | EtherNet/IP Unit | Shielded twisted-pair cable (STP), category 5, 5e or higher | Tag data links and message communications | 8 *1                              | 1                             | 0.41                    | —   | —   | CJ1W-EIP21 *2*3 | UC1, N, L, CE |
| CS CPU Bus Unit | EtherNet/IP Unit |   |   | 8                                 | 1                             | 0.41                    | —   | —   | CS1W-EIP21 *4   |               |

- \*1. Up to four EtherNet/IP Units can be connected to a NJ CPU Unit. Up to seven EtherNet/IP Units can be connected to a CJ2H-CPU6□-EIP. Up to two EtherNet/IP Units can be connected to a CJ2M CPU Unit.
- \*2. The EtherNet/IP Units can be used in C-J-series (CJ1 and CJ2), CP1H, NSJ-series and NJ-series PLCs. EtherNet/IP Unit with unit version 2.1 or later is required to connect C1JW-EIP21 to NJ-series CPU Unit. Use NJ-series CPU Unit with version 1.01 or later and Sysmac Studio with version 1.02 or later.
- \*3. You cannot use the following functions if you connect to the NJ-series CPU Unit through an EtherNet/IP Unit.
  - Going online with a CPU Unit from the Sysmac Studio. (However, you can go online from the Network Configurator.)
  - Troubleshooting from an NS-series PT.
- \*4. The EtherNet/IP Units can be used in CS-series PLCs.

## NX-series EtherNet/IP Coupler Unit

| Unit type                            | Product name  | Current consumption | Maximum I/O power supply current | Model            | Standards        |
|--------------------------------------|---|---------------------|----------------------------------|------------------|------------------|
| NX Series Communication Coupler Unit | EtherNet/IP Coupler Unit<br> | 1.60 W or lower     | 10 A                             | <b>NX-EIC202</b> | UC1, CE, RCM, KC |

**Note:** For details, refer to the NX-EIC202 datasheet, visit our Web site ([www.ia.omron.com/](http://www.ia.omron.com/)).

## Programmable Terminals

| Product name | Specifications   | Model                |
|--------------|--|----------------------|
| NA Series    | 15.4 inch wide screen TFT, 1280 x 800 dots, Frame color: Black *1  | <b>NA5-15W101B</b>   |
|              | 12.1 inch wide screen TFT, 1280 x 800 dots, Frame color: Black *1  | <b>NA5-12W101B</b>   |
|              | 9 inch wide screen TFT, 800 x 480 dots, Frame color: Black *1      | <b>NA5-9W001B</b>    |
|              | 7 inch wide screen TFT, 800 x 480 dots, Frame color: Black *1      | <b>NA5-7W001B</b>    |
| NS Series    | 15-inch TFT, 1,024 x 768 dots, Frame color: Silver                 | <b>NS15-TX01S-V2</b> |
|              | 15-inch TFT, 1,024 x 768 dots, Frame color: Black *2               | <b>NS15-TX01B-V2</b> |
|              | 12.1-inch TFT, 800 x 600 dots, Frame color: Black *2               | <b>NS12-TS01B-V2</b> |
|              | 10.4-inch TFT, 640 x 480 dots, Frame color: Black *2               | <b>NS10-TV01B-V2</b> |
|              | 8.4-inch TFT, 640 x 480 dots, Frame color: Black *2                | <b>NS8-TV01B-V2</b>  |
|              | 5.7-inch High-luminance TFT, 320 x 240 dots, Frame color: Black *2 | <b>NS5-TQ11B-V2</b>  |
|              | 5.7-inch TFT, 320 x 240 dots, Frame color: Black *2                | <b>NS5-SQ11B-V2</b>  |

\*1. The PTs are also available with silver colored frames. For details, refer to the NA Series Catalog (Cat. No. V413).

\*2. The PTs are also available with ivory colored frames. For details, refer to the NS Series Catalog (Cat. No. V405).

## FA Wireless LAN Units

| Product name          | Applicable area | Type                  | Model          | Standards |
|-----------------------|-----------------|-----------------------|----------------|-----------|
| FA Wireless LAN Units | Japan           | Access point (master) | <b>WE70-AP</b> | —         |
|                       |                 | Client (slave)        | <b>WE70-CL</b> |           |

**Note:** 1. Includes Pencil Antenna, Mounting Magnet, and Mounting Screws.

2. Always use a model applicable for your area.

There are applicable products for other areas, such as Europe, USA, Canada, and China. For details, refer to the FA Wireless LAN Unit Datasheet (Cat. No. N154).

## Vision Sensor

| Product name                                       | Specifications                  | Model                  | Standards |
|--|---------------------------------|------------------------|-----------|
| Vision System FH Series                            | High-speed Controllers (4 core) | <b>FH-3050(-□□)</b>    | CE        |
|  | Standard Controllers (2 core)   | <b>FH-1050(-□□)</b>    |           |
|  | Lite Controllers (2 core)       | <b>FH-L550(-□□)</b>    |           |
| Vision System FZ5 Series                           | High-speed Controllers          | <b>FZ5-110□(-10)</b>   |           |
|  | Standard Controllers            | <b>FZ5-60□(-10)</b>    |           |
|  | Lite Controllers                | <b>FZ5-L35□(-10)</b>   |           |
| PC Vision System FJ Series                         | Core i5 2.4GHZ CPU Controllers  | <b>FJ-(H)300□(-10)</b> | CE        |
| Smart Camera FQ2 Series                            | All Sensors                     | <b>FQ2-S□</b>          | CE        |
| Optical Character Recognition Sensor FQ2-CH Series | All Sensors                     | <b>FQ2-CH□</b>         | CE        |

**Note:** For detail, refer to the Vision System FH Series Catalog (Cat. No. Q197), Vision System FZ5 Series Catalog (Cat. No. Q203), PC Vision System FJ Series Datasheet (Cat. No. Q184), Smart Camera FQ2 Series Catalog (Cat. No. Q193).

## Displacement Sensor

| Product name                       | Type                                     | Model           | Standards |
|------------------------------------|--|-----------------|-----------|
| Displacement Sensor ZW-7000 Series | All Controllers                          | <b>ZW-7000T</b> | CE        |
| Displacement Sensor ZW Series      | Controller with EtherCAT and EtherNet/IP | <b>ZW-CE1□T</b> | CE        |

\* For detail, refer to the Confocal Fiber Displacement Sensor with White LED ZW-7000 Series Catalog (Cat. No. Q250), the Confocal Fiber Displacement Sensor ZW Series Catalog (Cat. No. E421).

## Safety Network Controller

| Product name              | No. of I/O points |              |                | Model                  | Unit version |
|---------------------------|-------------------|--------------|----------------|------------------------|--------------|
|                           | Safety inputs     | Test outputs | Safety outputs |                        |              |
| Safety Network Controller | 16                | 4            | 8              | <b>NE1A-SCPU01-EIP</b> | Ver. 1.1     |
|                           | 40                | 8            | 8              | <b>NE1A-SCPU02-EIP</b> | Ver. 1.1     |

**Note:** For detail, refer to the website at: <http://www.ia.omron.com/>.

## Safety Laser Scanner

| Product name         | Specifications   | Model                              |
|----------------------|--|------------------------------------|
|                      |  | Max. Operating Range (Safety Zone) |
| Safety Laser Scanner | OS32C with EtherNet/IP and back location cable entry   | 3m                                 |
|                      |  | 4m                                 |
|                      | OS32C with EtherNet/IP and side location cable entry * | 3m                                 |
|                      |  | 4m                                 |

\* For OS32C-SP1(-DM), each connector is located on the left as viewed from the back of the I/O block.

**Note1:** CD-ROM (Configuration tool)

OS supported: Windows 2000, Windows XP (32-bit version, Service Pack 3 or later) Windows Vista (32-bit version), Windows 7 (32-bit version/ 64-bit version)

**Note2:** For details, Refer to the Safety Laser Scanner OS32C Catalog (Cat. No. Z298).

## RFID System

| Product name                                 | Size              | Model           |
|--|-------------------|-----------------|
| RFID System<br>V680S series<br>Reader/Writer | 50 × 50 × 30 mm   | V680S-HMD63-EIP |
|  | 75 × 75 × 40 mm   | V680S-HMD64-EIP |
|  | 120 × 120 × 40 mm | V680S-HMD66-EIP |

Note: For details, Refer to the RFID System V680S Series Catalog (Cat. No. Q196)

## Industrial Switching Hubs

| Product name              | Specifications   |              |                   | Accessories   | Current consumption (A) | Model    | Standards |
|---------------------------|--|--------------|-------------------|---|-------------------------|----------|-----------|
|                           | Functions  | No. of ports | Failure detection |   |                         |          |           |
| Industrial Switching Hubs | Quality of Service (QoS): EtherNet/IP control data priority<br>Failure detection: Broadcast Storm and LSI error detection<br>10/100Base-TX, Auto-negotiation | 3            | No                | •Power supply connector                                   | 0.22                    | W4S1-03B | UC, CE    |
|                           |  | 5            | No                |   | 0.22                    | W4S1-05B |           |
|                           |  | 5            | Yes               | •Power supply connector<br>•Connector for informing error | 0.22                    | W4S1-05C | CE        |

## Software

### How to Select Required Support Software for Your Controller

The required Support Software depends on the Controller to connect. Please check the following table when purchasing the Support Software.

| Controller                   | Software                          |
|------------------------------|-----------------------------------|
| NJ/NX/NY-series              | Automation Software Sysmac Studio |
| CS, CJ, CP, and other series | FA Integrated Tool Package CX-One |

### Automation Software Sysmac Studio

Please purchase a DVD and required number of licenses the first time you purchase the Sysmac Studio. DVDs and licenses are available individually. Each model of licenses does not include any DVD.

| Product name | Specifications | Number of licenses                            | Media   | Model         | Standards |
|--------------|----------------|---|---|---------------|-----------|
|              |                | Sysmac Studio<br>Standard Edition<br>Ver.1.□□ | The Sysmac Studio is the software that provides an integrated environment for setting, programming, debugging and maintenance of machine automation controllers including the NJ/NX-series CPU Units, NY-series Industrial PC, EtherCAT Slave, and the HMI.<br><br>Sysmac Studio runs on the following OS.<br>Windows 7 (32-bit/64-bit version)/Windows 8 (32-bit/64-bit version)/<br>Windows 8.1 (32-bit/64-bit version)/Windows 10(32-bit/64-bit version)<br><br>The Sysmac Studio Standard Edition DVD includes Support Software to set up EtherNet/IP Units, DeviceNet slaves, Serial Communications Units, and Support Software for creating screens on HMIs (CX-Designer).<br>For details, refer to the Sysmac Integrated Catalogue (P072). |               |           |
| 1 license *  | —              |   |   | SYSMAC-SE201L | —         |

\* Multi licenses are available for the Sysmac Studio (3, 10, 30, or 50 licenses).

### FA Integrated Tool Package CX-One

| Product name | Specifications | Number of licenses                            | Media   | Model | Standards |
|--------------|----------------|---|---|-------|-----------|
|              |                | FA Integrated Tool Package<br>CX-One Ver. 4.□ | The CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components.<br><br>CX-One runs on the following OS.<br>Windows XP (Service Pack 3 or higher, 32-bit version)/<br>Windows Vista (32-bit/64-bit version)/Windows 7 (32-bit/64-bit version)/<br>Windows 8 (32-bit/64-bit version)/Windows 8.1 (32-bit/64-bit version)/<br>Windows 10 (32-bit/64-bit version)<br>CX-One Ver. 4.□ includes Network-Configurator.<br>For details, refer to the CX-One Catalog (Cat. No. R134). |       |           |

\* Multi licenses are available for the CX-One (3, 10, 30, or 50 licenses). Site licenses are available for users who will run CX-One on multiple computers.

### FA Communications Software (EtherNet/IP Compatible)

| Name             | Specifications  | Model      | Standards |
|------------------|---|------------|-----------|
| CX-Compolet *    | Software components that can make it easy to create programs for communications between a computer and controllers. This packaged product bundles CX-Compolet and SYSMAC Gateway with 1 license each.<br>Supported execution environment: .NET Framework (2.0, 3.0, 3.5, 4.0 or 4.5.1)<br>Development environment: Visual Studio 2005/2008/2010/2012/2013/2015<br>Development languages: Visual Basic, C#<br>Supported communications: Equal to SYSMAC Gateway. | WS02-CPLC1 | —         |
| SYSMAC Gateway * | Communications middleware for personal computers running Windows. Supports CIP communications and tag data links (EtherNet/IP) in addition to FinsGateway functions. This package includes SYSMAC Gateway with 1 licence. (Fins Gateway is also included.)<br>Supported communications: RS-232C, USB, Controller Link, SYSMAC LINK, Ethernet, EtherNet/IP   | WS02-SGWC1 | —         |

Supported OS: Microsoft Windows XP (32bit)/Windows Vista (32bit)/Windows 7 (32bit/64bit)/Windows 8 (32bit/64bit)/Windows 8.1 (32bit/64bit)/Windows 10 (32-bit/64-bit version)  
Windows Server 2003 (32bit)/Windows Server 2008 (32bit/64bit)/Windows Server 2008 R2 (64bit)/  
Windows Server 2012 (64bit)/Windows Server 2012 R2 (64bit)

\* One license is required per computer.

Note: 1. When .NET Framework version 1.1 (Visual Studio 2003) is used for development, only the specifications of CX-Compolet version 1.5 are available.

Note: 2. For details, Refer to the FA Communications Software Catalog (Cat. No. V302).

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## Read and Understand this Catalog

Please read and understand this catalog before purchasing the product. Please consult your OMRON representative if you have any questions or comments.

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

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