

NEW

Programmable Controllers

SYSMAC CJ2

CJ2H-CPU6 □ -EIP



Introducing the Flagship CJ2 CPU Units,
with Built-in Multifunctional Ethernet Port.

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

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realizing

Enhanced Performance and Functionality Over the SYSMAC CJ1.

New and Versatile CJ-series CPU Units

For Cell Control and Machine Control

The SYSMAC CJ Series now provides greater capacity, new communications capabilities, a new programming style, and a superior Support Software environment.

CJ2 CPU Units provide all of this:
Higher data memory capacity
Multifunctional Ethernet port
Tag access
USB port

Improve Basic Performance

The CPU Units are faster and have a greater capacity.

Built-in EtherNet/IP Port: Standard Equipment

Networks are more open.

Access Tags

Memory map control is no longer required.

Using Popular Networks for Support Software Interface

Connecting Support Software is now easier and safer.

Improved Debugging and Tracing

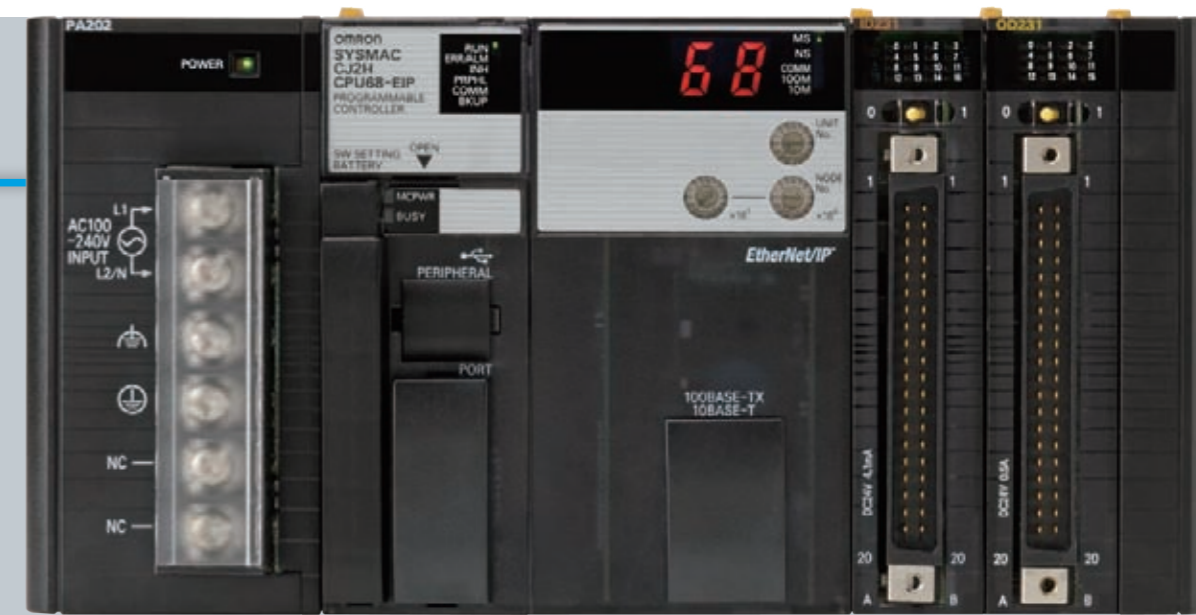
On-site debugging has been made easier.

Programming

Programming is now more flexible.

A Programmable Controller that Inherits All the Features of the SYSMAC CJ1

SYSMAC CJ2



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Better-than-ever Basic Performance

Faster and Higher-capacity CPU Units

Data Memory: 832 Kwords, Basic Instructions: 0.016 μs

High-capacity data memory is in demand to meet the need for quality control for equipment and products and to provide real-time processing and collection of measurement data. Large program capacity is also in demand due to the need for improving program reusability through modularization and structured programming.

NEW

Greatly Expanded Program Capacity and Data Memory Capacity

Ample capacity is provided for the data required for control operations

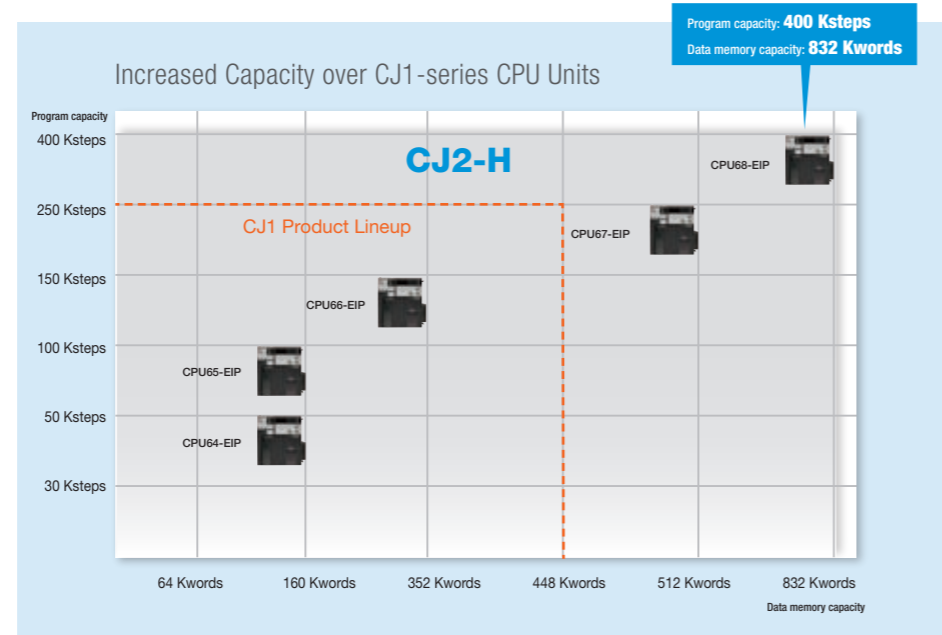
The High-capacity CJ2H-CPU68-EIP Is Now Available.

- Program capacity: 400 Ksteps (1.6 times larger than before)
- Data memory capacity: 832 Kwords (2 times larger than before)



And, All CJ2 Models Have more Capacity than CJ1 Models.

In addition, all models have more capacity than the equivalent CJ1-series models to meet needs for structured programming and increasing amounts of data.



Program capacity: 400 Ksteps
Data memory capacity: 832 Kwords

For Cell Control and Machine Control

NEW

High-speed System I/O Throughput

Improved basic performance enables flexible machine control.

Ample Instruction Execution Performance for Machine Control.

The CJ2 Series fully responds to customer requests for improved tact time and increased information.

Fast	System Overhead	Fast	Floating-point Math
	Common processing: 200 μs Interrupt response: 30 μs		SIN calculation: 0.59 μs Floating-point decimal addition and subtraction: 0.24 μs
Fast	Basic Instructions		
	LD instruction execution: 0.016 μs OUT instruction execution: 0.016 μs		

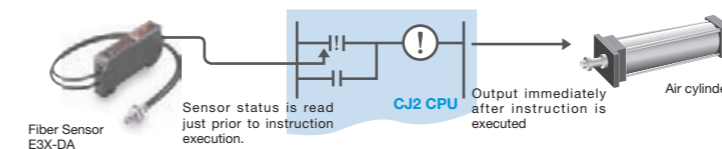
Faster I/O Refreshing Using the Burst Transfer Method 2.4 Times

I/O refreshing between an EtherNet/IP Unit and the CPU Unit is now performed at high speed using the even faster and higher-capacity data links for EtherNet/IP. This method is standard for the CJ2 CPU Units. I/O refreshing is now performed at up to 2.4 times the speed of previous Communications Units.

Fast	I/O Refreshing	
	16-point Basic I/O Unit: 1.4 μs 8-point Analog Input Unit: 50 μs	

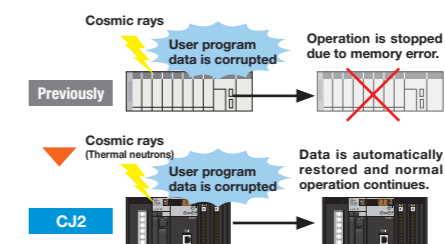
Faster Immediate I/O Refreshing 20 Times

Immediate refreshing of basic I/O is also faster. Real-time inputs and outputs while instructions are being executed are up to 20 times faster than before.
(Example: !LD instruction speed improved from 20 μs to 1 μs)



Automatic User Memory Recovery

Finer memory production processes have been accompanied by problems such as bit corruption caused by cosmic rays. With the CJ2 CPU Units, corruption in the user program is detected and the program recovered in real time before program execution. This reduces equipment down time by minimizing the number of times that operation is stopped due to memory errors.



**Built-in
EtherNet/IP
Port**

Networks Are More Open

Built-in EtherNet/IP Port

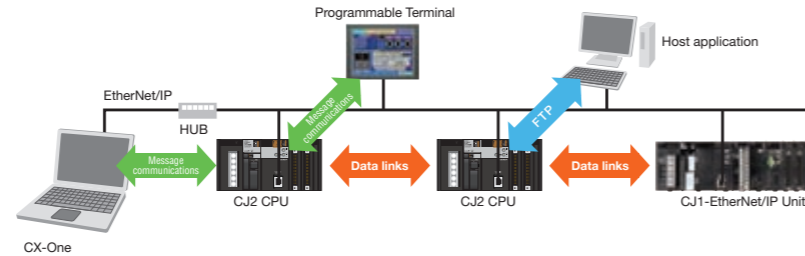
EtherNet/IP is an open network that uses the TCP/IP protocol on Ethernet networks, which are widely used in offices and factories throughout the world. The CJ2 CPU Units support EtherNet/IP as a standard feature. Because EtherNet/IP uses TCP/IP, it provides the many advantages of Ethernet technology.

NEW
Universal Ethernet and FA Data Links Can Be Used at the Same Time.

With EtherNet/IP, One Port Is Enough

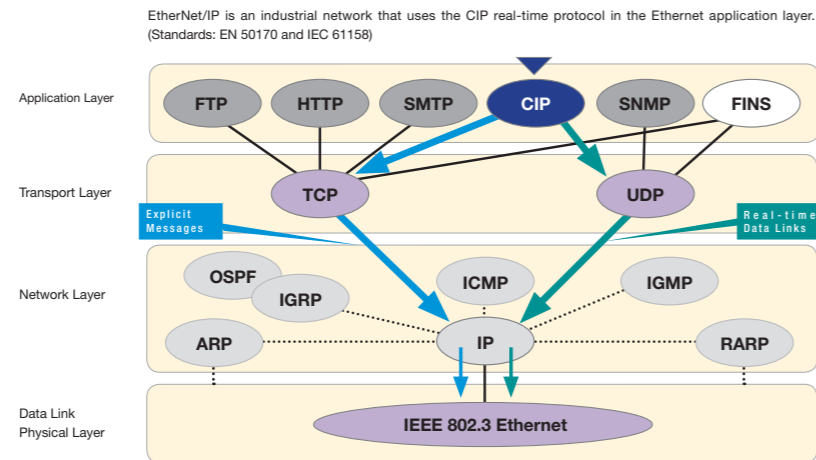
FTP Communications, Data Links, and Support Software Can Be Used Simultaneously through a Single Port.

The CJ2 CPU Units provide as standard equipment a multifunctional Ethernet port that supports EtherNet/IP. There is no need to add an Ethernet Unit, because universal Ethernet communications, such as data links between PLCs, message communications between PLCs, and FTP transfers, are all enabled simultaneously through this one port while Support Software is connected.



Create a Seamless Data Flow in a Single Network System.

Because it is based on the world-standard CIP open protocol, a seamless data flow can be achieved between control lines and information monitoring lines in a single network system. From here on, EtherNet/IP will be increasingly used in multi-vendor environments (such as robotics and safety devices).



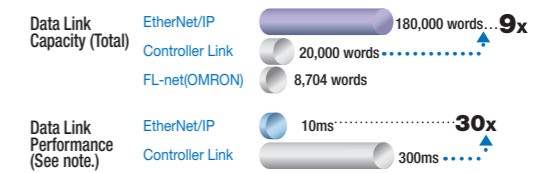
For Cell Control and Machine Control

NEW
Extremely Fast and High-capacity Data Links Compared to Previous FA Networks

Large Data Transfers with High Reliability

High-speed 30 Times and High-capacity 9 Times Data Links

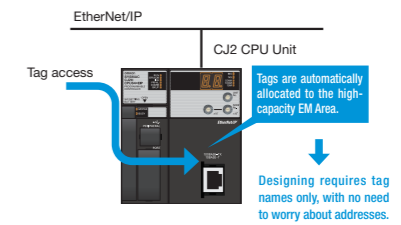
From manufacturing recipes and information on interlocks between processes to production data, any type of data can be exchanged at high speed and at the optimal timing. Communications performance is vastly improved over OMRON's Controller Link and FL-net networks.



Note: Communications cycle time

Automatic Address Allocation Is Expanded to Up to 240 Kwords, Enabling Allocation of Large Amounts of Data.

The memory size of the EM Area for automatic address allocation in CX-Programmer symbol tables has been expanded to a maximum of 240 Kwords. When a tag is automatically allocated, data link design and access from the host are enabled with no need to be conscious of addresses. Moreover, bits can be force-set/reset in the areas in which data is automatically allocated.

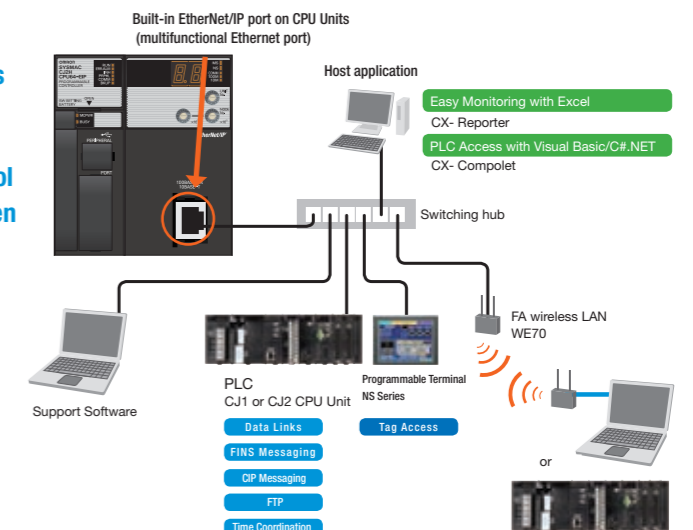


NEW
Peripheral Devices (such as Cables, Hubs, and Wireless Devices) Can Be Used With Universal Ethernet Technology.

The convenience of a global standard at your fingertips.

Using Universal Ethernet Reduces Network Installation and Wiring Costs.

FA Wireless LAN Makes Mobile Control Easy, with No Need for Rewiring when Changing Layout.



No Need for Memory Map

Control. Tags Allow Freedom from Memory Maps.

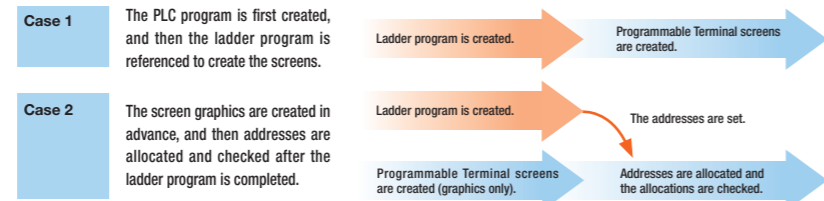
The CJ2 CPU Units introduce a new feature called tag access, to reduce your TCO for systems that use Programmable Terminals, multiple PLCs, and host applications.

Simultaneous Development Takes the Stress Out of Short Deadlines.

No Need for Address Allocation Adjustments in Post-processing

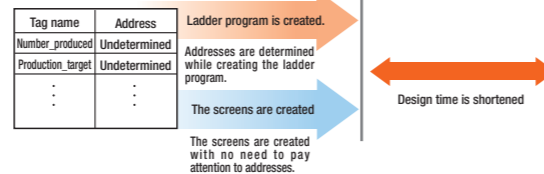
The various Controllers do not depend on addresses, so parallel development at each Controller is enabled by first simply determining the tag names. There is no need for subsequent address allocation. Example: Programmable Terminal and CJ2 Development

Previously



CJ2

By simply setting tag names, PLC and Programmable Terminal programming can be performed in parallel.



Simultaneous Development for Programmable Terminal and CJ2 CPU Unit

Programmable Terminal screens can be designed using tag names defined in the CJ2 CPU Unit. There is no need to adjust address allocations in post-processing

Data Links between CJ2 CPU Units

Simply setting tag names allows development to proceed simultaneously among multiple designers and multiple vendors. It is then easy to subsequently change the sizes of data links.

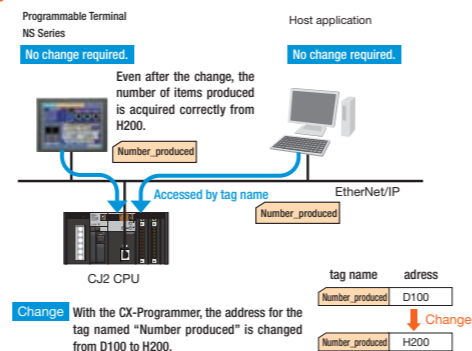
Simultaneous Development for Host Application and CJ2 CPU Unit

Designing can be carried out simply by setting tag names in the information section and the control design section. There is no need for physical addresses in the network interface specifications.

The Ease of Changing Designs Makes It Simple to Add or Upgrade Equipment.

There Is Little Effect on Address Changes.

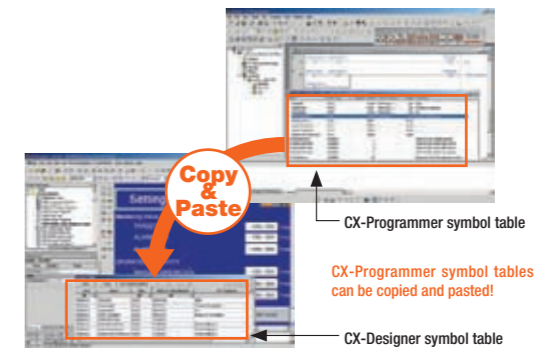
Previously, when data was exchanged by address specification and addresses were changed, the program had to be changed at other Controllers and various operations, such as memory checks, had to be performed. Now, tag names eliminate the dependence on a memory map and the need for checking items affected by changes. This allows equipment to be easily added or upgraded.



Assurance of Quality, Free from Mistakes.

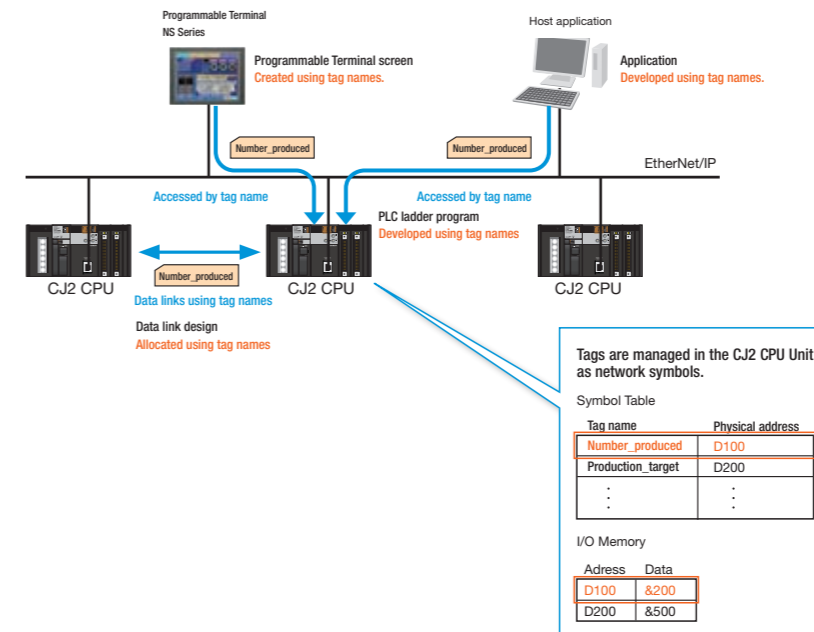
Tags Can Be Shared Among the CJ2 CPU Units, NS-series PTs, and Middleware.

Tag names can be shared among Controllers that exchange data using the CX-One or Excel import/export functions. Because redundant address entry and address allocation are not needed, checking is also not required. This makes it easy to construct high-quality systems.



What Is Tag Access? NEW

A tag is a name given to an address. Tags are managed in the CJ2 CPU Unit, where they are defined as network symbols. The common user-defined tag names are used from Programmable Terminals and host applications to access memory in a CJ2 CPU Unit without knowing the actual memory address.



Using General-purpose Networks for Support Software Interface

Connecting Support Software Is Now Easier and Safer.

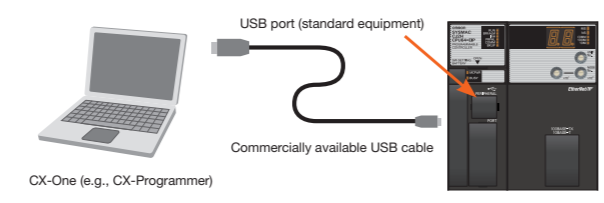
Connecting Support Software via a General-purpose Network

Connecting to a USB or EtherNet/IP port is easy, by commercially available cable used around the world.

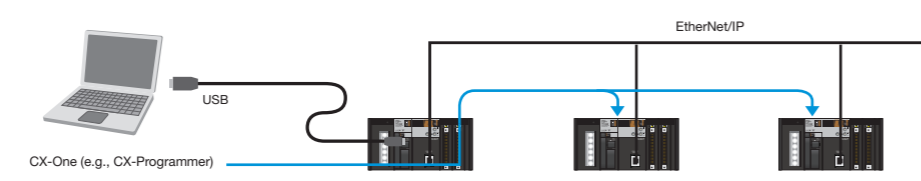
Easy Connection by USB NEW

Commercially available cable can be connected to a USB port on the front panel of the CPU Unit.

- Simply Connect the Cable, with No Settings Required.



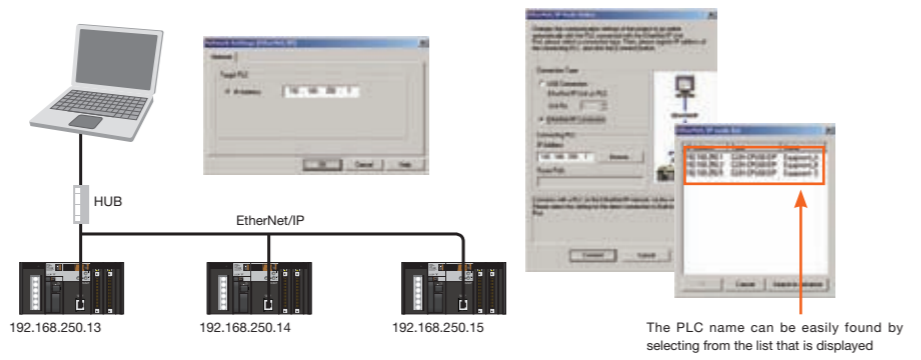
- A CJ2 CPU Unit on an EtherNet/IP Network Can Be Accessed Via USB, with No Need for Routing Tables.



Easy Connection by EtherNet/IP NEW

The built-in EtherNet/IP port enables smooth on-site remote debugging and maintenance.

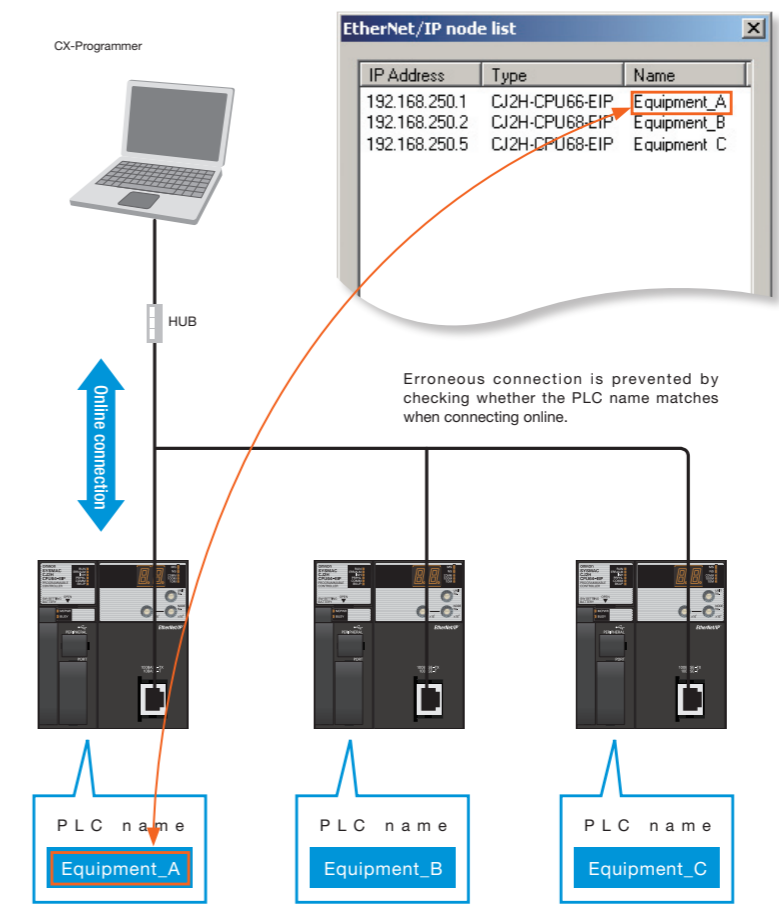
- EtherNet/IP Can Be Easily Connected with Simply an IP Address.
- Even if the IP Address Is Not Known, It Is Easy to Connect by Searching the PLCs on the EtherNet/IP Network and Selecting from a List.



For Cell Control and Machine Control

Prevention of Erroneous Connection by PLC Name Verification NEW

A user-set PLC name can be recorded in the CPU Unit. When connecting online to a PLC, it can be checked whether the project file matches the name of the PLC that is to be connected, making it possible to connect with confidence to a PLC installed in a location that cannot be seen.



Improved Debugging and Tracing

Easier On-site Debugging

Improved Data Tracing and Online Editing

Superior debugging functions reduce the time required for debugging and shorten the total lead time for system startup and trouble countermeasures.

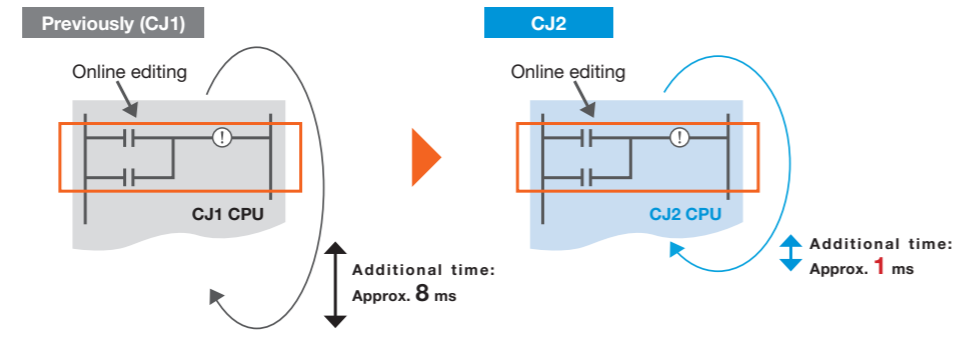
NEW

Stress-free Online Debugging

Effects on Machinery Operation Are Reduced.

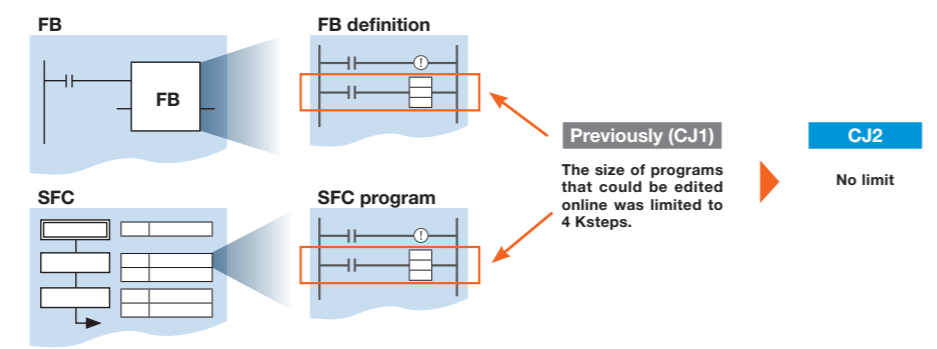
The Additional Cycle Time Due to Online Editing Has Been Reduced to Approx. 1 ms

The previous additional cycle time of 8 ms has been shortened to 1 ms.



Unlimited FB and SFC Online Editing

Function blocks and sequential function charts can be edited online with no limitation on program size.



For Cell Control and Machine Control

Greatly Improved Debugging Efficiency Through Superior Data Tracing

High-speed, High-capacity Data Tracing Is Now Possible.

High-capacity Data Tracing **8 Times More capacity** **NEW**

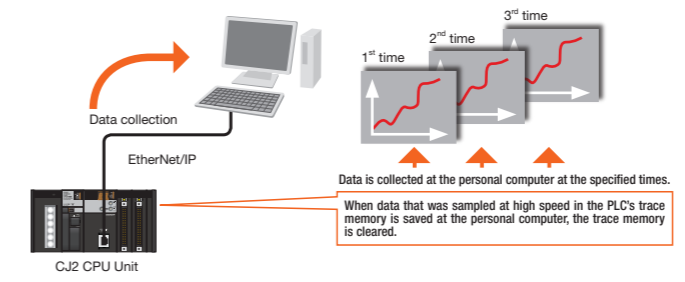
32 Kwords of data can be traced, and the EM Area can also be used as trace memory.

Ample Sampling Date type and Trigger Conditions **NEW**

One, two, or four words of data and comparison conditions can be specified. For example, a trigger can be set for when double-precision data is larger than a specified value.

Continuous Data Tracing **NEW**

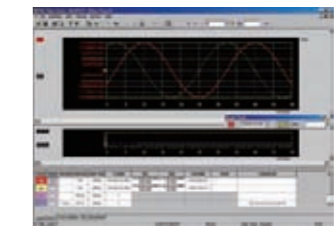
Sampled data in the trace memory of the CPU Unit can be regularly collected at the personal computer to enable sampling for long periods or time. CSV files can be saved at the personal computer.



CX-One Data Trace Is Also Upgraded. **Ver.up**

The improved CJ2 trace function is fully utilized.

- A function has been added for superimposing trace waveforms
- Trace results can be printed or saved as bit maps.
- The measurement times for two selected points can be checked.



Programming Functions

More Flexible Programming

The Greatest Program Diversity in the Industry.

A programming environment has been created that is highly readable and can flexibly support changes in specifications, to enable efficient design and program entry with few mistakes.

Highly Readable Programming

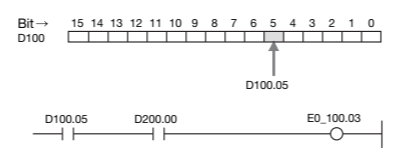
Programs Are Easy to See and Easy to Understand

Bit Addresses Can Be Used in the DM Area and EM Area. **NEW**

DM and EM Area bits could not be specified with the previous SYSMAC PLCs, but they can with the CJ2 CPU Units.

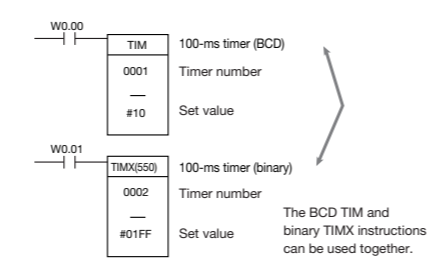
Examples

- D100.05: Bit 05 of D100
- E0_100.05: Bit 03 of E0_100



BCD and Binary Timer Instructions Can Be Used Together. **NEW**

With the CJ1 CPU Units, it was necessary to select in the initial setup of the CPU Unit whether BCD or binary was to be used as the data format for timer instructions. With the CJ2 CPU Units, BCD or binary can be selected individually for each instruction by setting the data format of the timer set value.

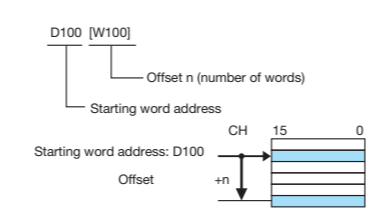


Address Offsets Can Be Specified **NEW**

An offset can be specified in brackets after a starting address to offset the starting address. If an address in I/O memory is specified as the offset, the final address can be dynamically specified according to the contents of the specified memory address.

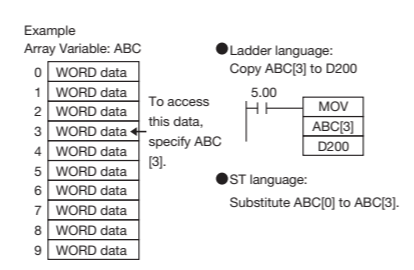
Example

D100[W100]: D100 is the starting address and the contents of W100 is the offset. If W100 is &5, then D105 is specified.



Array Variables Make Data Specification Easier to Understand.

By using array variables, any data in a string of data can be expressed using a subscript, making programming easy to understand. Array variables can also be used for data stacks and function block I/O variables. Because they can be set for network symbols, the exchange of multiple data items with external devices can be easily programmed (Usable languages: Ladder, ST, SFC)

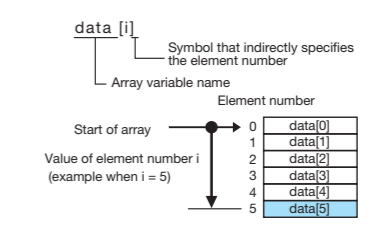


A Symbol Can Be Used for an Array Variable Subscript. **NEW**

A physical address or symbol can be specified for an array subscript, so data can be dynamically specified.

Example

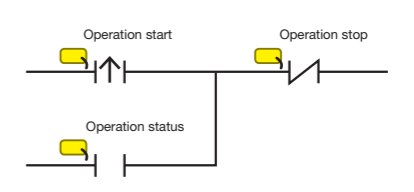
Data[i]: An element number is indirectly specified by the value of symbol i. If the value of symbol i is &5, data[5] is specified for element number 5.



Memory Attributes in the Ladder Editor Can Be Understood at a Glance. **Ver.up**

Tag (network symbols) memory attributes can be understood at a glance in the Ladder Editor Window, enabling an easily understandable program to be created.

Example :Published :Input :Output



New Instructions Are Supported. **NEW**

New instructions such as tracking, sorting, and floating-point decimal maximum/minimum value search instructions are supported.

The Number of Communications Logic Ports Has Increased to 64 **NEW**

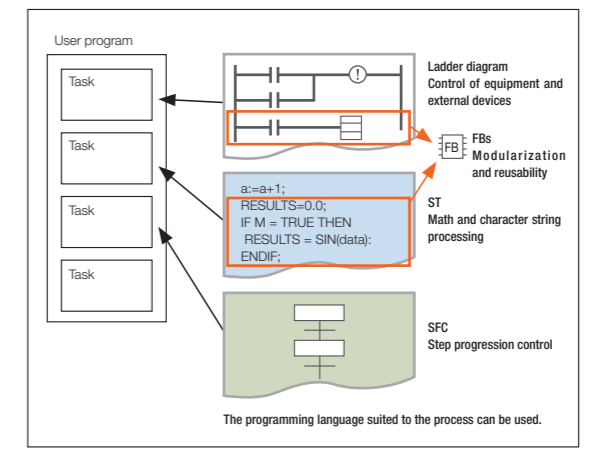
Programming can be performed with no need to pay attention to the number of logic ports.

Program Structuring and Reusability

Highly Independent Programs Can Be Easily Created.

Up to 128 Cyclic Tasks (4 Times More than Before) Are Supported. **NEW**

The user program can be divided into up to 128 tasks. Using smaller task programs makes it easier to structure programs. This also contributes to shorter cycle times by controlling the tasks that are being executed or not executed in smaller units.



Languages Conforming to IEC Are Supported.

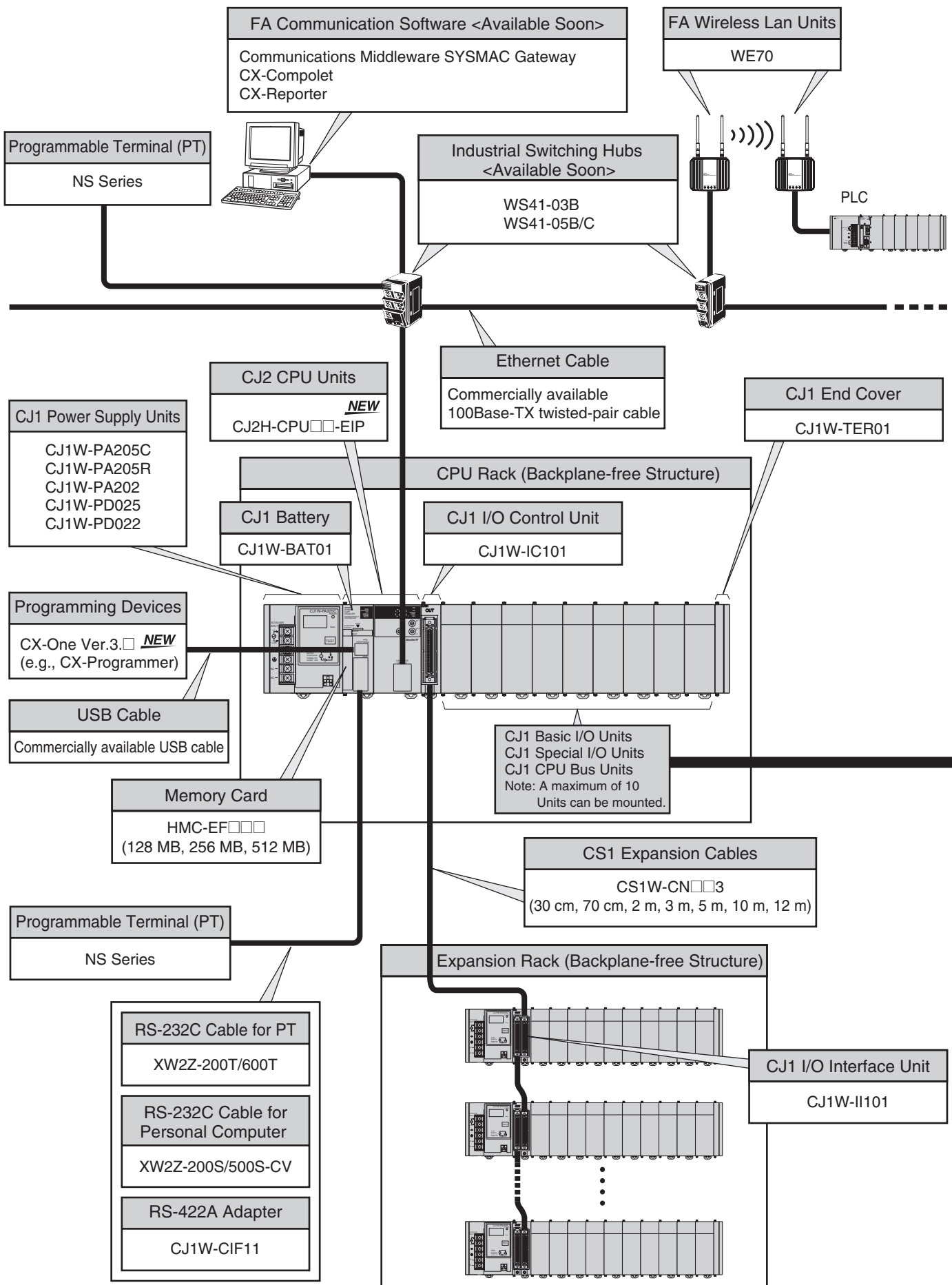
Ladder diagrams and ST languages can be freely combined and made into components as function blocks (FBs), allowing programs to be created in the optimum language for the particular process.

System Design Guide

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System Configuration

Basic System



■ Configuration Units

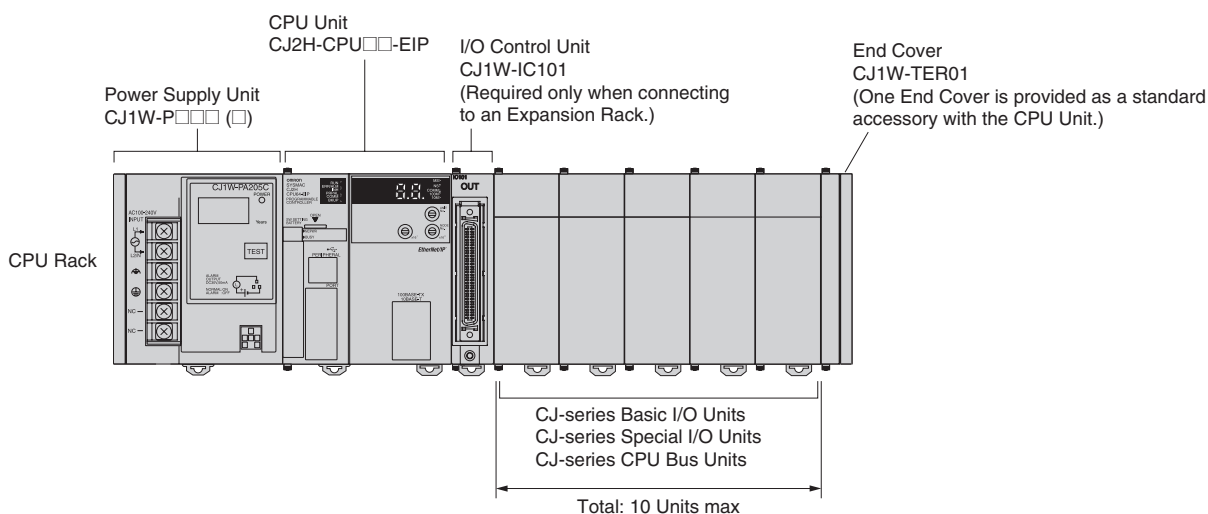
CJ1 Basic I/O Units			
8-point Units	16-point Units	32-point Units	64-point Units
Input Units			
<ul style="list-style-type: none"> ● DC Input Unit CJ1W-ID201 ● AC Input Unit CJ1W-IA201 	<ul style="list-style-type: none"> ● DC Input Unit CJ1W-ID211 ● AC Input Unit CJ1W-IA111 	<ul style="list-style-type: none"> ● DC Input Unit CJ1W-ID231 CJ1W-ID232 	<ul style="list-style-type: none"> ● DC Input Unit CJ1W-ID261 CJ1W-ID262
Output Units			
<ul style="list-style-type: none"> ● Transistor Output Units CJ1W-OD201 CJ1W-OD202 CJ1W-OD203 CJ1W-OD204 ● Triac Output Unit CJ1W-OA201 ● Relay Contact Output Unit (independent commons) CJ1W-OC201 	<ul style="list-style-type: none"> ● Transistor Output Units CJ1W-OD211 CJ1W-OD212 ● Relay Contact Output Unit CJ1W-OC211 	<ul style="list-style-type: none"> ● Transistor Output Units CJ1W-OD231 CJ1W-OD232 CJ1W-OD233 	<ul style="list-style-type: none"> ● Transistor Output Units CJ1W-OD261 CJ1W-OD262 CJ1W-OD263
I/O Units			
---	---	(16 inputs, 16 outputs) <ul style="list-style-type: none"> ● DC Input/Transistor Output Units CJ1W-MD231 CJ1W-MD232 CJ1W-MD233 	32 inputs, 32 outputs <ul style="list-style-type: none"> ● DC Input/Transistor Output Units CJ1W-MD261 CJ1W-MD263 32 inputs, 32 outputs ● TTL I/O Unit CJ1W-MD563
Other Units			
---	<ul style="list-style-type: none"> ● Interrupt Input Unit CJ1W-INT01 ● High-speed Input Unit CJ1W-IDP01 	---	<ul style="list-style-type: none"> ● B7A Interface Units (64 inputs) CJ1W-B7A14 (64 outputs) CJ1W-B7A04 (32 inputs, 32 outputs) CJ1W-B7A22

CJ1 Special I/O Units and CPU Bus Units			
<ul style="list-style-type: none"> ■ Process I/O Units ● Isolated-type Units with Universal Inputs CJ1W-PH41U <i>NEW</i> CJ1W-AD04U <i>NEW</i> ● Isolated-type Thermocouple Input Units CJ1W-PTS15 CJ1W-PTS51 ● Isolated-type Resistance Thermometer Input Units CJ1W-PTS16 CJ1W-PTS52 ● Isolated-type DC Input Unit CJ1W-PDC15 ■ Analog I/O Units ● Analog Input Units CJ1W-AD081-V1 CJ1W-AD041-V1 ● Analog Output Units CJ1W-DA08V CJ1W-DA08C CJ1W-DA041 CJ1W-DA021 ● Analog I/O Units CJ1W-MAD42 ■ Temperature Control Units CJ1W-TC001, CJ1W-TC002 CJ1W-TC003, CJ1W-TC004 CJ1W-TC101, CJ1W-TC102 CJ1W-TC103, CJ1W-TC104 	<ul style="list-style-type: none"> ■ High-speed Counter Units CJ1W-CT021 ● Position Control Units CJ1W-NC113 CJ1W-NC213 CJ1W-NC413 CJ1W-NC133 CJ1W-NC233 CJ1W-NC433 ■ MECHATROLINK II-compatible Position Control Unit CJ1W-NCF71 ■ MECHATROLINK II-compatible Motion Control Unit CJ1W-MCH71 	<ul style="list-style-type: none"> ■ Serial Communications Units CJ1W-SCU21-V1 CJ1W-SCU31-V1 CJ1W-SCU41-V1 ■ EtherNet/IP Unit CJ1W-EIP21 ■ Ethernet Unit CJ1W-ETN21 ■ Controller Link Units CJ1W-CLK23 <i>NEW</i> ■ FL-net Unit CJ1W-FLN22 ■ DeviceNet Unit CJ1W-DRM21 ■ CompoNet Master Unit CJ1W-CRM21 ■ CompoBus/S Master Unit CJ1W-SRM21 	<ul style="list-style-type: none"> ■ ID Sensor Units CJ1W-V680C11 <i>NEW</i> CJ1W-V680C12 <i>NEW</i> CJ1W-V600C11 CJ1W-V600C12 ■ High-speed Data Storage Unit CJ1W-SPU01-V2 <i>NEW</i>

Note: MECHATROLINK II is a registered trademark of the MECHATROLINK Members Association.

■ CJ-series CPU Racks

A CJ-series CPU Rack consists of a CPU Unit, Power Supply Unit, Configuration Units (Basic I/O Units, Special I/O Units, and CPU Bus Units), and an End Cover.

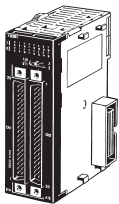
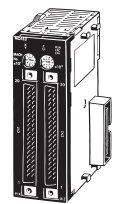
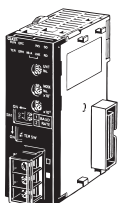


● Required Units

Rack	Unit name	Required number of Units
CPU Rack	Power Supply Unit	1
	CPU Unit	1
	I/O Control Unit	Required only for mounting to an Expansion Rack.
	Number of Configuration Units	10 max. (Same for all models of CPU Unit.) (The number of Basic I/O Units, Special I/O Units, and CPU Bus Units can be varied. The number does not include the I/O Control Unit.)
	End Cover	1 (Included with CPU Unit.)

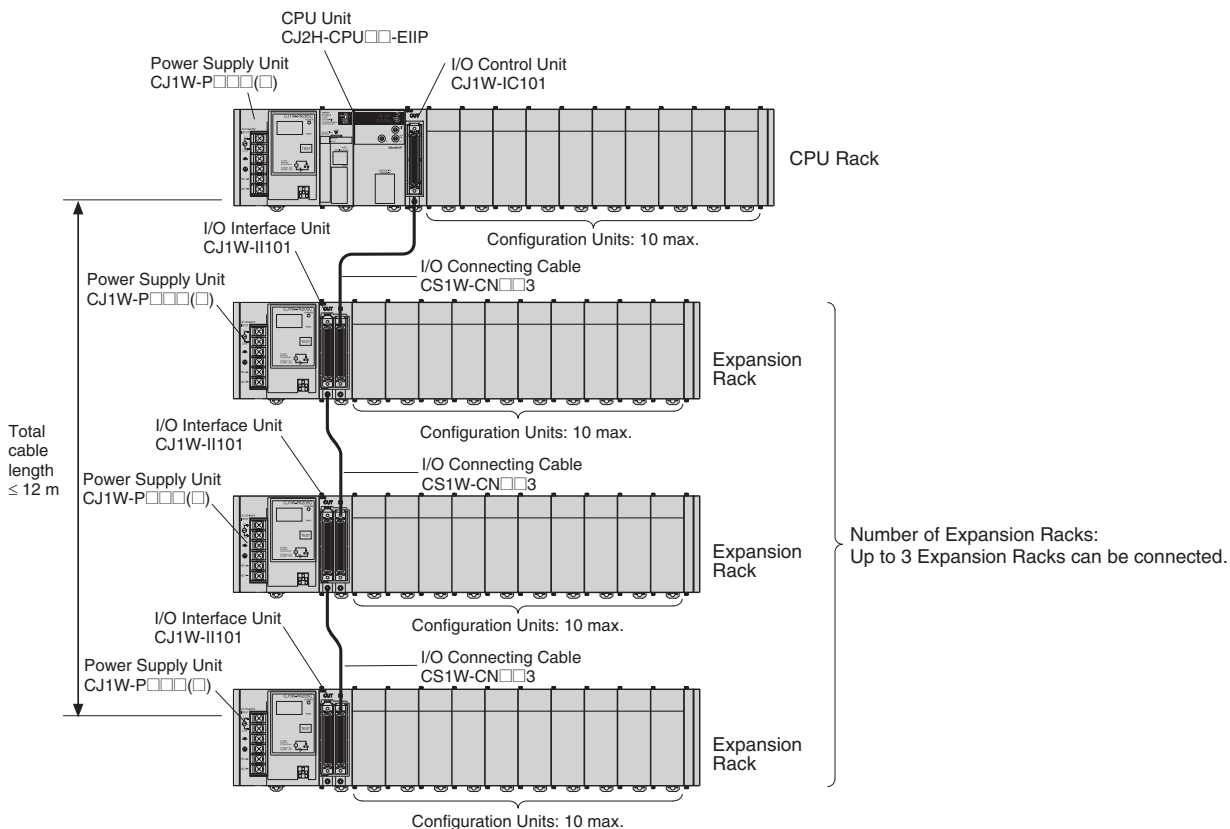
● Types of Units

In the SYSMAC CJ Series, Units are classified into the following three types. The number of Racks differs depending on the type.

Type	Appearance (example)	Description	Unit recognition method	No. of Units
Basic I/O Units		Units with contact inputs and contact outputs.	Recognized by the CPU Unit according to the position of the Rack and slot.	No restrictions.
Special I/O Units		Special I/O Units provide more advanced functions than do Basic I/O Units, including I/O other than contact inputs and contact outputs. Examples of Special I/O Units are Analog I/O Units and High-speed Counter Units. They differ from CPU Bus Units (including Network Communications Units) in having a smaller area for exchanging data with the CPU Unit.	Recognized by the CPU Unit according to the unit number (0 to 95) set with the rotary switches on the front panel.	A maximum of 96 Units can be connected. (Multiple unit numbers are allocated per Unit, depending on the model and settings.)
CPU Bus Units		CPU Bus Units exchange data with the CPU Unit via the CPU Bus. Examples of CPU Bus Units are Network Communications Units and Serial Communications Units. They differ from Special I/O Units in having a larger area for exchanging data with the CPU Unit.	Recognized by the CPU Unit according to the unit number (0 to F) set with the rotary switch on the front panel.	A maximum of 15 Units can be mounted. (The built-in EtherNet/IP port on the CPU Unit must be couted as one of the CPU Bus Units.)

■ CJ-series Expansion Racks

A CJ-series Expansion Rack consists of a Power Supply Unit, an I/O Interface Unit, Configuration Units (Basic I/O Units, Special I/O Units, and CPU Bus Units), and an End Cover.



● Required Units

Rack	Unit name	Required number of Units
CPU Rack	I/O Control Unit	One Unit. Required only when an Expansion Rack is used. Mount the I/O Control Unit immediately to the right of the CPU Unit. (See note 1.)
Expansion Rack	Power Supply Unit	One Unit
	I/O Interface Unit	One Unit. Mount the I/O Interface Unit immediately to the right of the Power Supply Unit. (See note 2.)
	Number of Configuration Units	Ten Units max. (The number of Basic I/O Units, Special I/O Units, and CPU Bus Units can be varied. This number does not include the I/O Interface Unit.)
	End Cover	One (Included with the I/O Interface Unit.)

Note 1. Mounting the I/O Control Unit in any other location may cause faulty operation.
Note 2. Mounting the I/O Interface Unit in any other location may cause faulty operation.

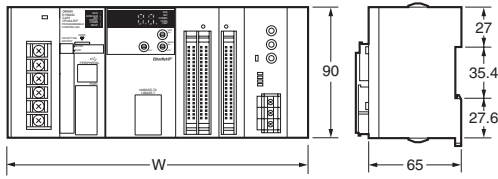
● Maximum Number of Configuration Units That Can Be Mounted

CPU Unit	Model	Total Units	No. of Units on CPU Rack	No. of Expansion Racks
CJ2H	CJ2H-CPU68-EIP	40	10 per Rack	3 Racks x 10 Units
	CJ2H-CPU67-EIP			
	CJ2H-CPU66-EIP			
	CJ2H-CPU65-EIP			
	CJ2H-CPU64-EIP			

Dimensions

Note: Units are in mm unless specified otherwise.

Product Dimensions



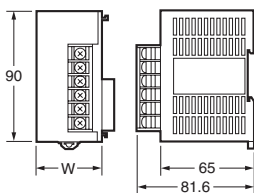
Example Rack Widths using CJ1WPA202 Power Supply Unit (AC, 14 W)

No. of Units mounted with 31-mm width	Rack width (mm)	
	With CJ2H-CPU□□-EIP	<Reference> With CJ1H-CPU□□H-R, CJ1H-CPU□□H, or CJ1G-CPU□□H
1	170.5	152.7
2	201.5	183.7
3	232.5	214.7
4	263.5	245.7
5	294.5	276.7
6	325.5	307.7
7	356.5	338.7
8	387.5	369.7
9	418.5	400.7
10	449.5	431.7

Power Supply Units, CPU Units, and End Covers

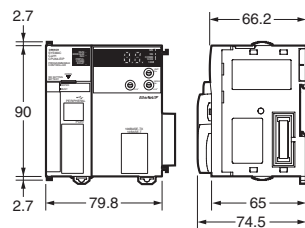
Unit/product	Model	Width
Power Supply Unit	CJ1W-PA205C	80
	CJ1W-PA205R	80
	CJ1W-PA202	45
	CJ1W-PD025	60
	CJ1W-PD022	27
CPU Unit	CJ2H-CPU□□-EIP	79.8
End Cover	CJ1W-TER01	14.7

● Power Supply Units

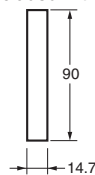


W=27: CJ1W-PD022
 W=45: CJ1W-PA202
 W=80: CJ1W-PA205R
 CJ1W-PA205C
 W=60: CJ1W-PD025

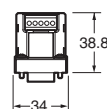
● CPU Units
 CJ2H-CPU□□-EIP



● End Cover
 (included with CPU Units)



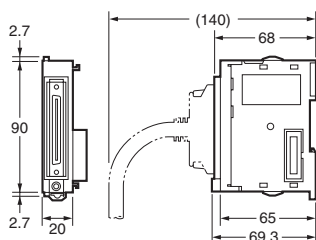
● RS-422A Adapter
 CJ1W-CIF11



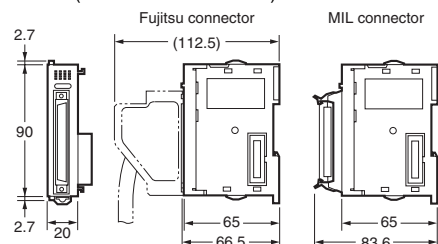
● Units of Width 20 mm

Unit/product	Model	Width
I/O Control Unit	CJ1W-IC101	20
32-point Basic I/O Units	CJ1W-ID231/232	
	CJ1W-OD231/232/233	
B7A Interface Unit	CJ1W-B7A22	
	CJ1W-B7A14	
	CJ1W-B7A04	
CompoBus/S Master Unit	CJ1W-SRM21	
Space Unit	CJ1W-SP001	

● I/O Control Unit



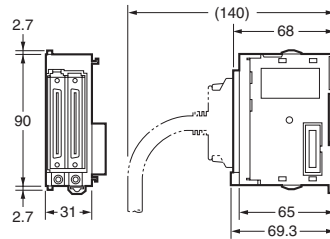
● 32-Point I/O Units (CJ1W-ID223□/OD23□)



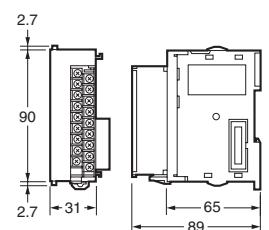
● Units of Width 31 mm

Unit	Model	Width
I/O Interface Unit	CJ1W-II101	31
8/16-point Basic I/O Units	CJ1W-ID201	
	CJ1W-ID211	
	CJ1W-IA111/201	
	CJ1W-OD20□	
	CJ1W-OD211/212	
	CJ1W-OC201/211	
CJ1W-OA201		
32-point Basic I/O Units	CJ1W-MD231	
	CJ1W-MD232/233	
64-point Basic I/O Units	CJ1W-ID261	
	CJ1W-OD261	
	CJ1W-MD261	
	CJ1W-ID262	
64-point Basic I/O Units	CJ1W-OD262/263	
	CJ1W-MD263	
	CJ1W-MD563	
	Interrupt Input Unit	
High-speed Input Unit	CJ1W-IDP01	
Analog I/O Units	CJ1W-AD□□□□-V1	
	CJ1W-DA□□□□	
	CJ1W-MAD42	
Process Input Units	CJ1W-PH41U	
	CJ1W-AD04U	
	CJ1W-PTS51/52/15/16	
	CJ1W-PDC15	
Temperature Control Units	CJ1W-TC□□□□	
Position Control Units	CJ1W-NC113/133	
	CJ1W-NC213/233	
	CJ1W-NC413/433	
MECHATROLINK-II compatible Position Control Unit	CJ1W-NCF71	
High-speed Counter Unit	CJ1W-CT021	
ID Sensor Units	CJ1W-V680C11	
	CJ1W-V680C12	
	CJ1W-V600C11	
	CJ1W-V600C12	
Controller Link Units	CJ1W-CLK23	
Serial Communications Units	CJ1W-SCU41-V1	
	CJ1W-SCU21-V1	
	CJ1W-SCU31-V1	
EtherNet/IP Unit	CJ1W-EIP21	
Ethernet Unit	CJ1W-ETN21	
DeviceNet Unit	CJ1W-DRM21	
CompoNet Master Unit	CJ1W-CRM21	
FL-net Unit	CJ1W-FLN22	

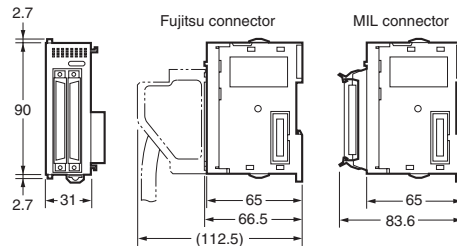
● I/O Interface Unit



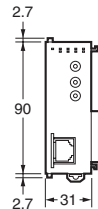
● 8/16-point Basic I/O Units, Interrupt Input Unit, and High-speed Input Unit



● 64-point Basic I/O Units and 32-point Basic I/O Units (CJ1W-MD23□)



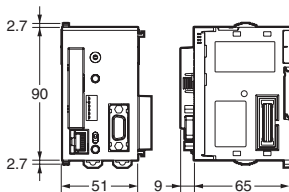
● Special I/O Units and CPU Bus Units



● Unit of Width 51 mm

Unit	Model	Width
SYSMAC SPU (High-speed Data Storage Unit)	CJ1W-SPU01-V2	51

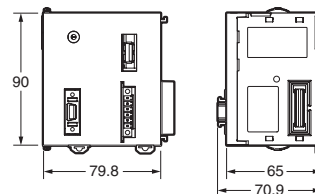
● SYSMAC SPU (High-speed Data Storage Unit) CJ1W-SPU01-V2



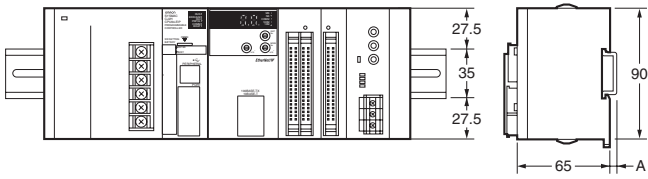
● Unit of Width 79.8 mm

Unit	Model	Width
MECHATROLINK-II compatible Motion Control Unit	CJ1W-MCH71	79.8

● MECHATROLINK-II compatible Motion Control Unit CJ1W-MCH71



■ Mounting Dimensions

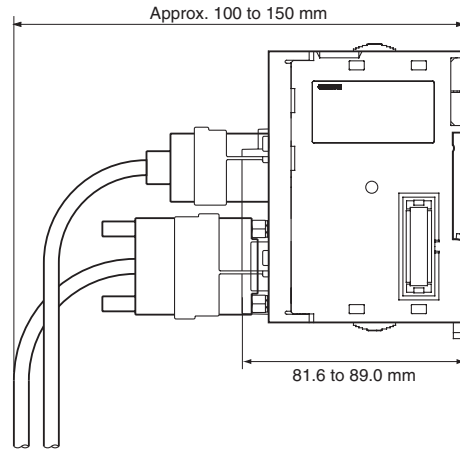


DIN Track model number	A
PFP-100N2	16 mm
PFP-100N	7.3 mm
FPP-50N	7.3 mm

■ Mounting Height

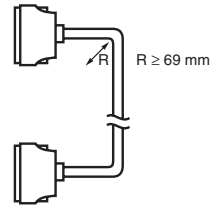
The mounting height of CJ-series CPU Racks and Expansion Racks is from 81.6 to 89.0 mm depending on the Units that are mounted.

Additional height is required to connect Programming Devices (e.g., CX-Programmer) and Cables. Be sure to allow sufficient mounting height.



Note: Consider the following points when expanding the configuration:
 The total length of I/O Connecting Cable must not exceed 12 m.
 I/O Connecting Cables require the bending radius indicated below.

● CJ-series Connecting Cable



Note: Outer diameter of cable: 8.6 mm.

General Specifications

Item		CJ2H-				
		CPU64-EIP	CPU65-EIP	CPU66-EIP	CPU67-EIP	CPU68-EIP
Enclosure		Mounted in a panel				
Grounding		Less than 100 Ω				
CPU Rack Dimensions		90 mm × 65 mm × 80 mm (W × H × D)				
Weight		280 g or less				
Current Consumption		5 VDC, 0.82 A				
Use Environment	Ambient Operating Temperature	0 to 55°C				
	Ambient Operating Humidity	10% to 90%				
	Atmosphere	Must be free from corrosive gases.				
	Ambient Storage Temperature	-20 to 70°C (excluding battery)				
	Altitude	2,000 m or less				
	Pollution Degree	2 or less: Conforms to JIS B3502 and IEC 61131-2.				
	Noise Immunity	2 kV on power supply line (Conforms to IEC 61000-4-4.)				
	Overvoltage Category	Category II: Conforms to JIS B3502 and IEC 61131-2.				
	EMC Immunity Level	Zone B				
	Vibration Resistance	Conforms to JIS C60068-2-6. 5 to 8.4 Hz with 3.5-mm amplitude, 8.4 to 150 Hz Acceleration of 9.8 m/s ² for 100 min in X, Y, and Z directions (10 sweeps of 10 min each = 100 min total)				
Shock Resistance	Conforms to JIS C60068-2-27. 147 m/s ² , 3 times in X, Y, and Z directions (100 m/s ² for Relay Output Units)					
Battery	Life	5 years at 25°C				
	Model	CJ1W-BAT01				
Applicable Standards		Conforms to cULus and EC Directives.				

Performance Specifications

Item		CJ2H-				
		CPU64-EIP	CPU65-EIP	CPU66-EIP	CPU67-EIP	CPU68-EIP
User Memory		50K steps	100K steps	150K steps	250K steps	400K steps
I/O Bits		2,560 bits				
Processing Speed	Overhead Processing Time	Normal Mode: 200 μs (If tag data links are used with EtherNet/IP, add the following to the above time: 100 μs + Number of transferred words × 0.33 μs)				
	Execution Time	Basic Instructions: 0.016 μs min.; Special Instructions: 0.048 μs min.				
	Interrupt Task Start Time	30 μs				
Maximum Number of Connectable Units		Total per CPU Rack or Expansion Rack: 10 Units max.; Total per PLC: 40 Units max.				
Maximum Number of Expansion Racks		3 max.				
CIO Area	I/O Area	2,560 bits (160 words): Words CIO 0000 to CIO 0159				
	Link Area	3,200 bits (200 words): Words CIO 1000 to CIO 1199				
	CPU Bus Unit Area	6,400 bits (400 words): Words CIO 1500 to CIO 1899				
	Special I/O Unit Area	15,360 bits (960 words): Words CIO 2000 to CIO 2959				
	DeviceNet Area	9,600 bits (600 words): Words CIO 3200 to CIO 3799				
	Internal I/O Area	3,200 bits (200 words): Words CIO 1300 to CIO 1499 37,504 bits (2,344 words): Words CIO 3800 to CIO 6143 Cannot be used for external I/O.				
Work Area		8,192 bits (512 words): Words W000 to W511 Cannot be used for external I/O.				
Holding Area		8,192 bits (512 words): Words H000 to H511 Bits in this area maintain their ON/OFF status when PLC is turned OFF or operating mode is changed. Words H512 to H1535: These words can be used only for function blocks. They can be used only for function block instances (i.e., they are allocated only for internal variables in function blocks).				
Auxiliary Area		Read-only: 31,744 bits (1,984 words) • 7,168 bits (448 words): Words A0 to A447 • 24,576 bits (1,536 words): Words A10000 to A11535 Read/write: 16,384 bits (1,024 words) in words A448 to A1471				
Temporary Area		16 bits: TR0 to TR15				
Timer Area		4,096 timer numbers (T0000 to T4095 (separate from counters))				
Counter Area		4,096 counter numbers (C0000 to C4095 (separate from timers))				
DM Area		32k words (Bits in the DM Area can be addressed either by bit or by word.) DM Area words for Special I/O Units: D20000 to D29599 (100 words × 96 Units) DM Area words for CPU Bus Units: D30000 to D31599 (100 words × 16 Units)				
EM Area		32k words/bank × 25 banks max.: E00_00000 to E18_32767 max. (Bits in the EM Area can be addressed either by bit or by word.)				
		32K words × 4 banks	32K words × 4 banks	32K words × 10 banks	32K words × 15 banks	32K words × 25 banks
Force-set/reset Enabled Banks		EM3	EM3	EM6 to EM9	EM7 to EME	EM11 to EM18
		Force-setting/resetting is enabled only for areas specified for automatic address allocation.				
Index Registers		IR0 to IR15 These are special registers for storing PLC memory addresses for indirect addressing. (Index Registers can be set so that they are unique in each task or so that they are shared by all tasks.)				
Cyclic Task Flag Area		128 flags				
Memory Card		128 MB, 256 MB, or 512 MB				
Operating Modes		PROGRAM Mode: Programs are not executed. Preparations can be executed prior to program execution in this mode. MONITOR Mode: Programs are executed, and some operations, such as online editing, and changes to present values in I/O memory, are enabled in this mode. RUN Mode: Programs are executed. This is the normal operating mode.				
Execution Mode		Normal Mode				

Item		CJ2H-					
		CPU64-EIP	CPU65-EIP	CPU66-EIP	CPU67-EIP	CPU68-EIP	
Programming Languages		Ladder Logic (LD), Sequential Function Charts (SFC), Structured Text (ST), and Instruction Lists (IL)					
Function Blocks	Maximum number of definitions	2,048					
	Maximum number of instances	2,048					
Tasks	Type of Tasks	Cyclic tasks Interrupt tasks (Power OFF interrupt tasks, scheduled interrupt tasks, I/O interrupt tasks, and external interrupt tasks)					
	Number of Tasks	Cyclic tasks: 128 Interrupt tasks: 256 (Interrupt tasks can be defined as cyclic tasks to create extra cyclic tasks. Therefore, the total number of cyclic tasks is actually 384 max.)					
Symbols (Variables)	Type of Symbols	<ul style="list-style-type: none"> Local symbols: Can be used only within a single task in the PLC. Global symbols: Can be used in all tasks in the PLC. Network symbols (tags): I/O memory in the CPU Unit can be externally accessed using symbols, depending on parameter settings. 					
	Data Type of Symbols	<ul style="list-style-type: none"> BOOL (bit) UINT (one-word unsigned binary) UDINT (two-word unsigned binary) ULINT (four-word unsigned binary) UINT BCD (one-word unsigned BCD) INT (one-word signed binary) DINT (two-word signed binary) LINT (four-word signed binary) UDINT BCD (two-word unsigned BCD) ULINT BCD (four-word unsigned BCD) REAL (two-word floating-point) LREAL (four-word floating-point) CHANNEL (word) NUMBER (constant or number) WORD (one-word hexadecimal) DWORD (two-word hexadecimal) LWORD (four-word hexadecimal) TIMER COUNTER 					
	Maximum Size of Symbol	32k words					
	Array Symbols (Array Variables)	One-dimensional arrays					
	Number of Array Elements	32,000 elements max.					
	Number of Registrable Network Symbols (Tags)	20,000 max.					
	Length of Network Symbol (Tag) Name	255 bytes max.					
	Encoding of Network Symbols (Tags)	UTF-8					
	Data Tracing	Memory Capacity	8,000 words	16,000 words	32,000 words	(Up to 32k words x 25 banks when EM is specified in CX-Programmer)	
		Number of Samplings	Bits = 31, one-word data = 16, two-word data = 8, four-word data = 4				
Sampling Cycle		1 to 2,550 ms (Unit: 1 ms)					
Trigger Conditions		ON/OFF of specified bit Data comparison of specified word Data size: 1 word, 2 words, 4 words Comparison Method: Equals (=), Greater Than (>), Greater Than or Equals (≥), Less Than (<), Less Than or Equals (≤), Not Equal (≠)					
Delay Value		-32,768 to +32,767 ms					
File Memory		Memory Card (128, 256, or 512 Mbytes) (Use the Memory Cards provided by OMRON.) EM file memory (Part of the EM Area can be converted for use as file memory.)					
Source/Comment Memory	Function block program memory, comment file, program index file, symbol tables	Capacity: 3.5 Mbytes					

Item		CJ2H-				
		CPU64-EIP	CPU65-EIP	CPU66-EIP	CPU67-EIP	CPU68-EIP
Communications	Logical Ports for Communications	Logical Ports	8 ports (Used for SEND, RECV, CMND, PMCR, TXDU, and RXDU instructions.)			
		Extended Logical Ports	64 ports (Used for SEND2, RECV2, CMND2, and PMCR2 instructions.)			
	CIP Communications Specification	Class 3 (Number of Connections)	Number of connections: 64			
		UCMM (Non-connection Type)	Maximum number of clients that can communicate at the same time: 32 Maximum number of servers that can communicate at the same time: 40			
	Peripheral (USB) Port		USB 2.0-compliant B-type connector			
	Baud Rate		12 Mbps max.			
	Transmission Distance		5 m max.			
	Serial Port		Interface: Conforms to EIA RS-232C.			
	Communications Method		Half-duplex			
	Synchronization Method		Start-stop			
	Baud Rate		0.3, 0.6, 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, or 115.2 (kbps)			
	Transmission Distance		15 m max.			
	EtherNet/IP Port		---			
	Transmission Specifications	Media Access Method		CSMA/CD		
		Modulation		Baseband		
		Transmission Paths		Star		
		Baud Rate		100 Mbps (100Base-TX)		
		Transmission Media		Shielded twisted-pair (STP) cable; Categories: 5, 5e		
		Transmission Distance		100 m (between hub and node)		
		Number of Cascade Connections		No restrictions if switching hub is used.		
	Communications Specifications	CIP Communications: Tag Data Links		---		
		Number of Connections		256		
		Packet Interval (Refresh period)		0.5 to 10,000 ms (Unit: 0.5 ms) Can be set for each connection. (Data will be refreshed at the set interval, regardless of the number of nodes.)		
		Permissible Communications Band		6,000 pps (See note 1.)		
		Number of Tag Sets		256		
		Type of Tags		CIO, DM, EM, HR, and WR		
		Number of Tags per Connection		8 (Seven tags if PLC status is included in the segment.)		
		Maximum Link Data Size per Node		184,832 words		
		Maximum Data Size per Connection		252 or 722 words (See note 2.) (Data is synchronized within each connection.)		
		Number of Registrable Tag Set		256 (1 connection = 1 segment)		
		Maximum Tag Set Size		722 words (One word is used when PLC status is included in the segment.)		
		Maximum Number of Tags Refreshable in a Single Cycle of CPU Unit (See note 3.)		Output/send (CPU Unit to EtherNet/IP): 256 Input/receive (EtherNet/IP to CPU Unit): 256		
		Data Size Refreshable in a Single Cycle of CPU Unit (See note 3.)		Output/send (CPU to EtherNet/IP): 6,432 words Input/receive (EtherNet/IP to CPU): 6,432 words		
Change of Tag Data Link Parameter Settings during Operation		OK (See note 4.)				
Multi-cast Packet Filter (See note 5.)		OK				
CIP Communications: Explicit Messages		---				
Class 3 (Number of Connections)		Number of connections: 128				
UCMM (Non-connection Type)		Maximum number of clients that can communicate at the same time: 32 Maximum number of servers that can communicate at the same time: 32				
CIP Routing		OK (CIP routing is enabled for the following remote Units: CJ1W-EIP21 and CJ2H-CPU6□-EIP.)				
FINS Communications		---				
FINS/UDP		OK				
FINS/TCP		16 connections max.				
EtherNet/IP Conformance Test		Conforms to A5.				
EtherNet/IP Interface		10Base-T/100Base-TX Auto Negotiation/Fixed Setting				

- Note 1.** "Packets per second" is the number of communications packets that can be processed per second.
- Large Forward Open (CIP optional specification) must be supported in order for 505 to 1,444 bytes to be used as the data size. Application is supported between CS/CJ-series PLCs. When connecting to devices from other manufacturers, make sure that the devices support the Large Forward Open specification.
 - If the maximum number is exceeded, refreshing will require more than one CPU Unit cycle.
 - When changing parameters, however, the EtherNet/IP port where the change is made will be restarted. In addition, a timeout will temporarily occur at the other node that was communicating with that port, and it will then recover automatically.
 - The EtherNet/IP port supports an IGMP client, so unnecessary multicast packets are filtered by using a switching hub that supports IGMP snooping.

Function Specifications

Functions			Description	
Cycle Time Management	Minimum Cycle Time		A minimum cycle time can be set. (0.2 to 32,000 ms; Unit: 0.1 ms)	
	Cycle Time Monitoring		The cycle time is monitored. (0.01 to 40,000 ms; Unit: 0.01 ms)	
	Background Processing		Instructions with long execution times can be executed over multiple cycles to prevent fluctuations in the cycle time.	
Unit (I/O) Management	Basic I/O Units, Special I/O Units, and CPU Bus Units	I/O Refreshing	Cyclic Refreshing	Cyclic refreshing of Basic I/O Units, Special I/O Units, and CPU Bus Units
			Immediate Refreshing	I/O refreshing by immediate refreshing instructions
			Refreshing by IORF	I/O refreshing by IORF instruction
		Unit Recognition at Startup		The number of units recognized when the power is turned ON is displayed.
	Basic I/O Units	Input Response Time Setting		The input response times can be set for Basic I/O Units. The response time can be increased to reduce the effects of chattering and noise at input contacts. The response time can be decreased to enable detecting shorter input pulses.
		Load OFF Function		All of the outputs on Basic I/O Units can be turned OFF when an error occurs in RUN or MONITOR mode.
		Basic I/O Unit Status Monitoring		Alarm information can be read from Basic I/O Units and the number of Units recognized can be read.
	Special I/O Units and CPU Bus Units	Unit Restart Bits to Restart Units		A Special I/O Unit or CPU Bus Unit can be restarted.
	Configuration Management	Automatic I/O Allocation at Startup		I/O words can be automatically allocated to the Basic I/O Units that are connected in the PLC to start operation automatically without registering Units into I/O tables.
		I/O Table Creation		The current unit configuration can be registered in I/O tables to prevent it from being changed, to reserve words, and to set words.
Rack/Slot First Word Settings		The first words allocated to a Units on the Racks can be set.		
Memory Management	Holding I/O Memory when Changing Operating Modes		The status of I/O memory can be held when the operating mode is changed or power is turned ON. The forced-set/reset status can be held when the operating mode is changed or power is turned ON.	
	File Memory		Files (such as program files, data files, and symbol table files) can be stored in Memory Card, EM File Memory, or Comment Memory.	
	Built-in Flash Memory		The user program and Parameter Area can be backed up to an internal flash memory when they are transferred to the CPU Unit.	
	EM File Function		Parts of the EM Area can be treated as file memory.	
	Storing Comments		I/O comments can be stored as symbol table files in a Memory Card, EM file memory, or comment memory.	
	EM Configuration		EM Area can be set as trace memory or EM file memory.	
Memory Cards	Automatic File Transfer at Startup		A program file and parameter files can be read from a Memory Card when the power is turned ON.	
	Program Replacement during PLC Operation		The whole user program can be read from a Memory Card to CPU Unit during operation.	
	Function for Reading and Writing Data from a Memory Card		Data in I/O memory in the CPU Unit can be written to a Memory Card in CSV/TXT format. Data in CSV/TXT format in the Memory Card can be read to I/O memory in the CPU Unit.	
Communications			---	
Peripheral (USB) Port	Peripheral Bus		Bus for communications with various kinds of Support Software running on a personal computer. High-speed communications are supported.	
	Serial Port		---	
	Host Link (SYSWAY) Communications		Host Link commands or FINS commands placed between Host Link headers and terminators can be sent from a host computer or PT to read/write I/O memory, read/control the operating mode, and perform other operations for PLC.	
	No-protocol Communications		I/O instructions for communications ports (such as TXD/RXD instructions) can be used for data transfer with peripheral devices such as bar code readers and printers.	
	NT Link Communications		I/O memory in the PLC can be allocated and directly linked to various PT functions, including status control areas, status notification areas, touch switches, lamps, memory tables, and other objects.	
	Peripheral Bus		Bus for communications with various kinds of Support Software running on a personal computer. High-speed communications are supported.	
	Serial Gateway		This gateway enables receiving and automatically converting FINS to the CompoWay/F.	
	EtherNet/IP Port		100Base-TX/10Base-T Protocols: TCP/IP, UDP, ARP, ICMP (ping only), BOOTP Applications: FINS, CIP, POP3, SMTP, SNMP, DNS (Client), FTP (Server)	
	CIP Communications Service	Tag Data Links	Programless cyclic data exchanges with the devices on the EtherNet/IP network.	
		Message Communications	Any CIP commands can be received from the devices on the EtherNet/IP network.	
FINS Communications Service	Message Communications	Any FINS commands can be transferred with the devices on the EtherNet/IP network.		

Functions		Description
Interrupt	Scheduled Interrupts	Tasks can be executed at a specified interval (0.2 ms min., Unit: 0.1 ms).
	Power OFF Interrupts	A task can be executed when CPU Unit's power turns OFF.
	I/O Interrupt Tasks	A task can be executed when an input signal is input to an Interrupt Input Unit.
	External Interrupt Tasks	A task can be executed when interrupts are requested from a Special I/O Unit or a CPU Bus Unit.
Clock	Clock Function	Clock data is stored in memory. Accuracy (Accuracy depends on the temperature.) Ambient temperature of 55°C: -3.5 to +0.5 min error per month Ambient temperature of 25°C: -1.5 to +1.5 min error per month Ambient temperature of 0°C: -3 to +1 min error per month
	Operation Start Time Storage	The time when operating mode was last changed to RUN mode or MONITOR mode is stored.
	Operation Stop Time Storage	The last time a fatal error occurred or the last time the operating mode was changed to PROGRAM mode is stored.
	Startup Time Storage	The time when the power was turned ON is stored.
	Power Interruption Time Storage	The time when the power is turned OFF is stored.
	Total Power ON Time Calculation	The total time that the PLC has been ON is stored in increments of 10 hours.
	Power ON Clock Data Storage	A history of the times when the power was turned ON is stored.
	User Program Overwritten Time Storage	The time that the user program was last overwritten is stored.
	Parameter Date Storage	The time when the Parameter Area was overwritten is stored.
	Power Supply Management	Memory Protection
Power OFF Detection Time Setting		The detection time for power interruptions can be set. AC power supply: 10 to 25 ms (variable) DC power supply: 2 to 5 ms (CJ1W-PD022) or 2 to 20 ms (CJ1W-PD025)
Power OFF Detection Delay Time		The detection of power interruptions can be delayed: 0 to 10 ms (Not supported by the CJ1W-PD022.)
Number of Power Interruptions Counter		The number of times power has been interrupted is counted.
Function Blocks		Standard programming can be encapsulated as function blocks. Ladder programming or structured text
Debugging	Online Editing	The program can be changed during operation (in MONITOR or PROGRAM mode), except for block programming areas.
	Force-Set/Reset	Specified bits can be set or reset.
	Differentiate Monitoring	ON/OFF changes in specified bits can be monitored.
	Data Tracing	The specified I/O memory data can be stored in the trace memory in the CPU Unit. The triggers can be set. <ul style="list-style-type: none">The trace data can be uploaded during data tracing using CX-Programmer, which enables continuously logging the data by constantly uploading the trace data (trace data uploading during tracing).Data tracing can be automatically started when operation is started (i.e., when the operating mode is changed from PROGRAM mode to MONITOR or RUN mode).
	Storing Location of Error when an Error Occurs	The location and task number where execution stopped for a program error is recorded.
	Program Check	The programs can be checked for items such as no END instruction and FALS/FAL errors at startup.
	Self-diagnosis and Restoration	Error Log
CPU Error Detection		CPU Unit WDT errors are detected.
User-defined Failure Diagnosis		Errors can be generated for user-specified conditions: Non-fatal errors (FAL) and fatal errors (FALS). Program section time diagnosis and program section logic diagnosis are supported (FPD instruction).
Load OFF Function		This function turns OFF all outputs from Output Units when an error occurs.
RUN Output		The RUN output from the CJ1W-PA205R turns ON while CPU Unit is in RUN mode or MONITOR mode.
Basic I/O Load Short-circuit Detection		This function provides alarm information from Basic I/O Units that have load short-circuit protection.
Failure Point Detection		The time and logic of an instruction block can be analyzed using the FPD instruction.
CPU Standby Detection		This function indicates when the CPU Unit is on standby because all Special I/O Units and CPU Bus Units have not been recognized at the startup in RUN or MONITOR mode.

Functions		Description		
Self-diagnosis and Restoration (Continued from previous page)	Non-fatal Error Detection	System FAL Error Detection (User-defined non-fatal error)	This function generates a non-fatal (FAL) error when the user-defined conditions are met in program.	
		Duplicated Refreshing Error Detection	This function detects an error when an immediate refreshing Instruction in an interrupt task is competing with I/O refreshing of a cyclic task.	
		Basic I/O Unit Error Detection	This function detects the errors in Basic I/O Units.	
		Backup Memory Error Detection	This function detects errors in the memory backup of the user programs and parameter area (backup memory).	
		PLC Setup Error Detection	This function detects setting errors in the PLC Setup.	
		CPU Bus Unit Error Detection	This function detects an error when there is an error in data exchange between the CPU Unit and a CPU Bus Unit.	
		Special I/O Unit Error Detection	This function detects an error when there is an error in data exchange between the CPU Unit and a Special I/O Unit.	
		Tag Memory Error Detection	This function detects errors in tag memory.	
		Battery Error Detection	This function detects an error when a battery is not connected to the CPU Unit or when the battery voltage drops.	
		CPU Bus Unit Setting Error Detection	This function detects an error when the model of a CPU Bus Unit in the registered I/O tables does not agree with the model that is actually mounted in the PLC.	
		Special I/O Unit Setting Error Detection	This function detects an error when the model of a Special I/O Unit in the registered I/O tables does not agree with the model of Unit that is actually mounted.	
		Memory Error Detection	This function detects errors that occur in memory of the CPU Unit.	
		I/O Bus Error Detection	This function detects when an error occurs in data transfers between the Units mounted in Rack slots and the CPU Unit and detects when the End Cover is not connected to the CPU Rack or an Expansion Rack.	
		Unit/Rack Number Duplication Error	This function detects an error when the same unit number is set for two or more Units, the same word is allocated to two or more Basic I/O Units, or the same rack number is set for two or more Racks.	
		Too Many I/O Points Error Detection	This function detects an error when the total number of I/O points set in the I/O tables or the number of Units per Rack exceeds the specified range.	
	I/O Setting Error Detection	This function detects an error when the number of Units in the registered I/O tables does not agree with the actual number of Units that is mounted, or an Interrupt Unit has been connected in the wrong position, i.e., not in slot 0 to 3.		
	Fatal Error Detection	Program Error Detection	Program Error Detection	This function detects errors in programs.
			Instruction Processing Error Detection	This function detects an error when the given data value is invalid when executing an instruction, or execution of instruction between tasks was attempted.
			Indirect DM/EM BCD Error Detection	This function detects an error when an indirect DM/EM address in BCD mode is not BCD.
			Illegal Area Access Error Detection	This function detects an error when an attempt is made to access an illegal area with an instruction operand.
No END Error Detection			This function detects an error when there is no END instruction at the end of the program.	
Task Error Detection			This function detects an error when there are no tasks that can be executed in a cycle, there is no program for a task, or the execution condition for an interrupt task was met but there is no interrupt task with the specified number.	
Differentiation Overflow Error Detection			This function detects an error when too many differentiated instructions are entered or deleted during online editing (131,072 times or more).	
Invalid Instruction Error Detection			This function detects an error when an attempt is made to execute an instruction that is not defined in the system.	
User Program Area Overflow Error Detection			This function detects an error when instruction data is stored after the last address in user program area.	
Cycle Time Exceeded Error Detection			This function monitors the cycle time (10 to 40,000 ms) and stops the operation when the set value is exceeded.	
System FALS Error Detection (User-defined Fatal Error)		This function generates a fatal (FALS) error when the user-defined conditions are met in program.		
Version Error Detection	This function detects an error when a user program includes a function that is not supported by the current unit version.			
Memory Card Error Detection	This function detects an error when the automatic file transfer from Memory Card fails at startup.			
Memory Self-restoration Function	This function performs a parity check on the user program area and self-restoration data.			

Functions		Description	
Maintenance	Simple Backup Function	This function collectively backs up the data in CPU Unit (user programs, parameters, and I/O memory) and internal backup data in the I/O Units.	
	Unsolicited Communications	A function that allows the PLC to use Network Communications Instruction to send required FINS commands to a computer connected via a Host Link	
	Remote Programming and Monitoring	Host Link communications can be used for remote programming and remote monitoring through a Controller Link, Ethernet, DeviceNet, or SYSMAC LINK Network. Communications across network layers can be performed. Controller Link or Ethernet: 8 layers DeviceNet or SYSMAC LINK: 3 layers	
	Automatic Online Connection via Network	Direct Serial Connection	This function enables automatically connecting to the PLC online when the CX-Programmer is directly connected by a serial connection (peripheral (USB) port or serial port).
		Via Networks	This function enables connecting the CX-Programmer online to a PLC that is connected via an EtherNet/IP network.
Security	Read Protection using Password	This function protects reading and displaying programs and tasks using passwords. Write protection: Set using the DIP switch. Read protection: Set a password using the CX-Programmer.	
	FINS Write Protection	This function prohibits writing by using FINS commands sent over the network.	
	Unit Name Function	This function allows the users to give any names to the Units. Names are verified at online connection to prevent wrong connection	
	Hardware ID Using Lot Numbers	This function sets operation protection by identifying hardware using the user programs according to lot numbers stored in the Auxiliary Area.	

■ Unit Versions

Units	Models	Unit Version
CJ2H CPU Units	CJ2H-CPU□□-EIP	CPU : Unit version 1.0 EIP : Unit version 2.0

■ Unit Versions and Programming Devices

The following tables show the relationship between unit versions and CX-Programmer versions.

CPU Unit	Functions	CX-Programmer		Programming Console
		Ver.7.1 or lower	Ver.8.0 or higher	
CJ2H-CPU□□-EIP CPU : Unit version 1.0	Functions for unit version 1.0	×	○ (See note 1.)	×

- Note 1.** CX-Programmer version 8.0 or higher is required to use CJ2H CPU Units.
Note 2. The Programming Console cannot be used for CJ2H CPU units.

Checking Current Consumption and Power Consumption

After selecting a Power Supply Unit based on considerations such as the power supply voltage, calculate the current and power requirements for each Rack.

Condition 1: Current Requirements

There are two voltage groups for internal power consumption: 5 V and 24 V.

Current consumption at 5 V (internal logic power supply)

Current consumption at 24 V (relay driving power supply)

Condition 2: Power Requirements

For each Rack, the upper limits are determined for the current and power that can be provided to the mounted Units. Design the system so that the total current consumption for all the mounted Units does not exceed the maximum total power or the maximum current supplied for the voltage groups shown in the following tables.

The maximum current and total power supplied for CPU Racks and Expansion Racks according to the Power Supply Unit model are shown below.

Note 1. For CPU Racks, include the CPU Unit current and power consumption in the calculations. When expanding, also include the current and power consumption of the I/O Control Unit in the calculations.

2. For Expansion Racks, include the I/O Interface Unit current and power consumption in the calculations.

Power Supply Units	Max. current supplied		Max. total power supplied
	5 V	24 V (relay driving current)	
CJ1W-PA205C	5.0 A	0.8 A	25 W
CJ1W-PA205R	5.0 A	0.8 A	25 W
CJ1W-PA202	2.8 A	0.4 A	14 W
CJ1W-PD025	5.0 A	0.8 A	25 W
CJ1W-PD022	2.0 A	0.4 A	19.6 W

Conditions 1 and 2 below must be satisfied.

Condition 1: Maximum Current

(1) Total Unit current consumption at 5 V \leq (A) value

(2) Total Unit current consumption at 24 V \leq (B) value

Condition 2: Maximum Power

(1) \times 5 V + (2) \times 24 V \leq (C) value

Example: Calculating Total Current and Power Consumption

Example: When the Following Units are Mounted to a CJ-series CPU Rack Using a CJ1W-PA205R Power Supply Unit

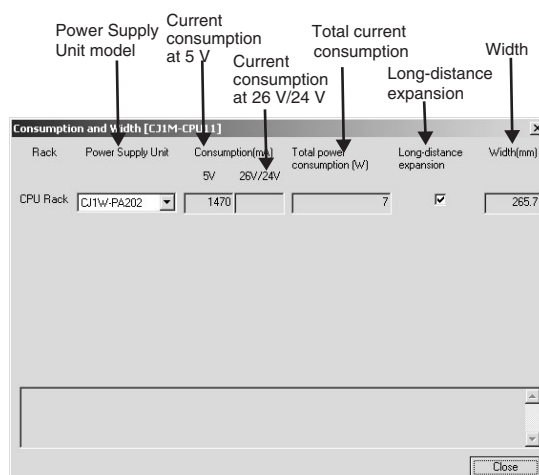
Unit type	Model	Quantity	Voltage group	
			5 V	24 V
CPU Unit	CJ2H-CPU68-EIP	1	0.820 A	---
I/O Control Unit	CJ1W-IC101	1	0.020 A	---
Basic I/O Units (Input Units)	CJ1W-ID211	2	0.080 A	---
	CJ1W-ID231	2	0.090 A	---
Basic I/O Units (Output Units)	CJ1W-OC201	2	0.090 A	0.048 A
Special I/O Unit	CJ1W-DA041	1	0.120 A	---
CPU Bus Unit	CJ1W-CLK23	1	0.350 A	---
Current consumption	Total		$0.820 + 0.020 + 0.080 \times 2 + 0.090 \times 2 + 0.090 \times 2 + 0.120 + 0.350$	$0.048 \text{ A} \times 2$
	Result		1.83 A ($\leq 5.0 \text{ A}$)	0.096 A ($\leq 0.8 \text{ A}$)
Power consumption	Total		$1.83 \times 5 \text{ V} = 9.15 \text{ W}$	$0.096 \text{ A} \times 24 \text{ V} = 2.30 \text{ W}$
	Result		$9.15 + 2.30 = 11.45 \text{ W} (\leq 25 \text{ W})$	

Note: For details on Unit current consumption, refer to *Ordering Information*.

Using the CX-Programmer to Display Current Consumption and Width

CPU Rack and Expansion Rack current consumption and width can be displayed by selecting Current Consumption and Width from the Options Menu in the CJ2 Table Window. If the capacity of the Power Supply Unit is exceeded, it will be displayed in red characters.

Example:



Ordering Information

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International Standards

- The standards indicated in the "Standards" column are those current for UL, CSA, cULus, cUL, NK, and Lloyd standards and EC Directives as of the end of May 2008. The standards are abbreviated as follows: U: UL, U1: UL Class 1 Division 2 Products for Hazardous Locations, C: CSA, UC: cULus, UC1: cULus Class 1 Division 2 Products for Hazardous Locations, CU: cUL, N: NK, L: Lloyd, and CE: EC Directives.
- Ask your OMRON representative for the conditions under which the standards were met.

● EC Directives

The EC Directives applicable to PLCs include the EMC Directives and the Low Voltage Directive. OMRON complies with these directives as described below.

● EMC Directives

Applicable Standards

EMI: EN61000-6-4, EN61131-2

EMS: EN61000-6-2, EN61131-2

PLCs are electrical devices that are incorporated in machines and manufacturing installations. OMRON PLCs conform to the related EMC standards so that the devices and machines into which they are built can more easily conform to EMC standards. The actual PLCs have been checked for conformity to EMC standards. Whether these

standards are satisfied for the actual system, however, must be checked by the customer.

EMC-related performance will vary depending on the configuration, wiring, and other conditions of the equipment or control panel in which the PLC is installed. The customer must, therefore, perform final checks to confirm that the overall machine or device conforms to EMC standards.

● Low Voltage Directive

Applicable Standard:EN61131-2

VDC must satisfy the appropriate safety requirements. With PLCs, this applies to Power Supply Units and I/O Units that operate in these voltage ranges.


These Units have been designed to conform to EN61131-2, which is the applicable standard for PLCs.

Ordering Information

Basic Configuration Units

CPU Units

■ CJ2 CPU Units

Product name	Specifications				Current consumption (A)		Model	Standards
	I/O capacity/ Mountable Units (Expansion Racks)	Program capacity	Data memory capacity	LD instruction execution time	5 V	24 V		
CJ2 CPU Units 	2,560 points/ 40 Units (3 Expansion Racks max.)	400K steps	832K words (DM: 32K words, EM: 32K words × 25 banks)	0.016 μs	0.82 (See note.)	---	^{NEW} CJ2H-CPU68H-EIP	UC1, N, L, CE
		250K steps	512K words (DM: 32K words, EM: 32K words × 15 banks)				^{NEW} CJ2H-CPU67H-EIP	
		150K steps	352K words (DM: 32K words, EM: 32K words × 10 banks)				^{NEW} CJ2H-CPU66H-EIP	
		100K steps	160K words (DM: 32K words, EM: 32K words × 4 bank)				^{NEW} CJ2H-CPU65H-EIP	
		50K steps	160K words (DM: 32K words, EM: 32K words × 4 bank)				^{NEW} CJ2H-CPU64H-EIP	






Note: Add 0.15 A per Adapter when using NT-AL001 RS-232C/RS-222A Adapters.
Add 0.04 A per Adapter when using CJ1W-CIF11 RS-422A Adapters.

The following accessories are included with the CPU Unit.

Item	Specifications
Battery	CJ1W-BAT01
End Cover	CJ1W-TER01(The End Cover must be connected to the right end of the CPU Rack.)
End Plate	PFP-M(2 stoppers)
Serial Port (RS-232C) Connector	Serial Port Connector Set (Plug: XM2A-0901, Hood: XW2S-0911-E, D-sub 9-pin male connector)

■ Power Supply Units


One Power Supply Unit is required for each Rack.

Product name	Power supply voltage	Output capacity			Options			Model	Standards
		5-VDC output capacity	24-VDC output capacity	Total power consump- tion	24-VDC service power supply	RUN output	Maintenance forecast monitor		
AC Power Supply Unit   	100 to 240 VAC	5 A	0.8 A	25 W		No	Yes	CJ1W-PA205C	UC1, N, L, CE
						Yes	No	CJ1W-PA205R	
		2.8 A	0.4 A	14 W		No	No	No	
DC Power Supply Unit  	24 VDC	5A	0.8 A	25 W		No	No	CJ1W-PD025	UC1, CE
		2 A	0.4 A	19.6 W		No	No	CJ1W-PD022	

Expansion Racks


Select the I/O Control Unit, I/O Interface Unit, Expansion Connecting Cable, and CJ-series Power Supply Unit.

■ CJ-series I/O Control Unit (Mounted on CPU Rack when Connecting Expansion Racks)

Product name	Specifications	Current consumption (A)		Model	Standards
		5 V	24 V		
CJ-series I/O Control Unit 	Mount one I/O Control Unit on the CJ-series CPU Rack when connecting one or more CJ-series Expansion Racks. Connecting Cable: CS1W-CN□□3 Expansion Connecting Cable Connected Unit: CJ1W-II101 I/O Interface Unit Mount to the right of the CPU Unit.	0.02	---	CJ1W-IC101	UC1, N, L, CE


Note: Mounting the I/O Control Unit in any other location may cause faulty operation.

■ CJ-series I/O Interface Unit (Mounted on Expansion Rack)

Product Name	Specifications	Current consumption (A)		Model	Standards
		5 V	24 V		
CJ-series I/O Interface Unit 	One I/O Interface Unit is required on each Expansion Rack. Connecting Cable: CS1W-CN□□3 Expansion Connecting Cable Mount to the right of the CPU Unit.	0.13	---	CJ1W-II101	UC1, N, L, CE

Note: Mounting the I/O Interface Unit in any other location may cause faulty operation.

■ I/O Connecting Cables

Product name	Specifications	Model	Standards
I/O Connecting Cable 	<ul style="list-style-type: none"> Connects an I/O Control Unit on CJ-series CPU Rack to an I/O Interface Unit on a CJ-series Expansion Rack. or Connects an I/O Interface Unit on CJ-series Expansion Rack to an I/O Interface Unit on another CJ-series Expansion Rack. 	Cable length: 0.3 m	CS1W-CN313
		Cable length: 0.7 m	CS1W-CN713
		Cable length: 2 m	CS1W-CN223
		Cable length: 3 m	CS1W-CN323
		Cable length: 5 m	CS1W-CN523
		Cable length: 10 m	CS1W-CN133
		Cable length: 12 m	CS1W-CN133-B2
			N, L, CE

Programming Devices

Support Software

Product name	Specifications	Media		Model	Standards			
		Number of licenses						
FA Integrated Tool Package CX-One Ver. 3.0	The CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components. CX-One runs on the following OS. Windows 2000 (Service Pack 3 or higher), XP, or Vista CX-One Version 3.0 includes CX-Programmer Ver.8.0 and CX-Simulator Ver. 1.0. For details, refer to the CX-One catalog (Cat. No. R134).	1 license	CD	CXONE-AL01C-V3 <i>NEW</i>	---			
			DVD	CXONE-AL01D-V3 <i>NEW</i>				
		3 licenses	CD	CXONE-AL03C-V3 <i>NEW</i>				
			DVD	CXONE-AL03D-V3 <i>NEW</i>				
		10 licenses	CD	CXONE-AL10C-V3 <i>NEW</i>				
			DVD	CXONE-AL10D-V3 <i>NEW</i>				
		30 licenses	CD	CXONE-AL30C-V3 <i>NEW</i>				
			DVD	CXONE-AL30D-V3 <i>NEW</i>				
		50 licenses	CD	CXONE-AL50C-V3 <i>NEW</i>				
			DVD	CXONE-AL50D-V3 <i>NEW</i>				
		CX-Programmer and CX-Simulator can still be ordered individually in the following model numbers.						
		CX-Programmer Ver.8.0	PLC programming software OS: Windows 2000 (Service Pack 3 or higher), XP, or Vista	1 license		CD	WS02-CXPC1-V8 <i>NEW</i>	---
3 licenses	CD			WS02-CXPC1-V8L03 <i>NEW</i>				
10 licenses	CD			WS02-CXPC1-V8L10 <i>NEW</i>				

Note 1. Site licenses are available for users who will run CX-One on multiple computers. Ask your OMRON sales representative for details.

Note 2. Before ordering the software on a DVD, be sure that your computer and drive are compatible with the DVD format.

Support Software in CX-One Ver.3.0

The following tables lists the Support Software that can be installed from CX-One.

Support Software in CX-One	Outline
CX-Programmer Ver.8.0	Application software to create and debug programs for SYSMAC CS/CJ/CP/NSJ-series, C-series, and CVM1/C-series CPU Units.
CX-Integrator Ver.2.0	Application software to build and set up FA networks, such as Controller Link, DeviceNet, CompoNet, CompoWay, and Ethernet networks. The Routing Table Component and Data Link Component can be started from here. DeviceNet Configuration functionality is also included.
Switch Box Utility Ver.1.0	Utility software that helps you to debug PLCs. It helps you to monitor the I/O status and to monitor/change present values within the PLC you specify.
CX-Protocol Ver.1.0	Application software to create protocols (communications sequences) between SYSMAC CS/CJ/CP/NSJ-series or C200HX/HG/HE Serial Communications Boards/Units and general-purpose external devices.
CX-Simulator Ver.1.0	Application software to simulate SYSMAC CS/CJ/CP/NSJ-series CPU Unit operation on the computer to debug PLC programs without a CPU Unit.
CX-Position Ver.2.0	Application software to create and monitor data for SYSMAC CS/CJ-series Position Control Units.
CX-Motion-NCF Ver.1.0	Application software to monitor and set parameters for SYSMAC CS/CJ-series Position Control Units and Servo Drivers that support MECHATROLINK-II communications.
CX-Motion-MCH Ver.2.0	Application software to create data for SYSMAC CS/CJ-series MCH Units, create motion programs, and perform monitoring.
CX-Motion Ver.2.0	Application software to create data for SYSMAC CS/CJ-series, C200HX/HG/HE, and CVM1/CV-series Motion Control Units, and to create and monitor motion control programs.
CX-Drive Ver.1.0	Application software to set and control data for Inverters and Servos.
CX-Process Tool Ver.5.0	Application software to create and debug function block programs for SYSMAC CS/CJ-series Loop Controllers (Loop Control Units/Boards, Process Control CPU Units, and Loop Control CPU Units).
Faceplate Auto-Builder for NS Ver.3.0	Application software that automatically outputs screen data as project files for NS-series PTs from tag information in function block programs created with the CX-Process Tool.
CX-Designer Ver.3.0	Application software to create screen data for NS-series PTs.
CX-Configurator FDT Ver.1.0	Application software for setting various units by installing its DTM module.
CX-Thermo Ver.4.0	Application software to set and control parameters in components such as Temperature Control Units.
CX-FLnet Ver.1.0	Application software for system setting and monitoring of SYSMAC CS/CJ-series FL-net Units
Network Configurator Ver.3.0	Application software for setting the tag datalink at the built-in EtherNet/IP port.
CX-Server Ver.4.0	Middleware necessary for CX-One applications to communicate with OMRON components, such as PLCs, Display Devices, and Temperature Control Units.
PLC Tools (Installed automatically.)	A group of components used with CX-One applications, such as the CX-Programmer and CX-Integrator. Includes the following: I/O tables, PLC memory, PLC Setup, Data Tracing/Time Chart Monitoring, PLC Error Logs, File Memory, PLC clock, Routing Tables, and Data Link Tables.

Note: If the complete CX-One package is installed, approximately 2.5 GB of Hard disk space will be required.

Programming Device Connecting Cable

■ Peripheral (USB) Port

Use commercially available USB cable.


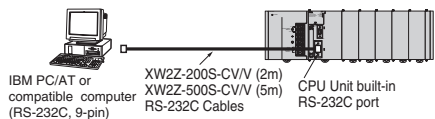
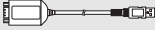
Specifications: USB 1.1 or 2.0 cable (A connector - B connector), 5.0 m max.

■ EtherNet/IP Port

Support Software can also be connected via the built-in EtherNet/IP port. Use commercially available 100Base-TX twisted-pair cable with the same specifications as for an EtherNet/IP Unit.

Specifications: Twisted-pair cable with RJ45 modular connectors at both ends. Connect between EtherNet/IP Unit or built-in EtherNet/IP port and switching hub. Use STP (shielded twisted-pair) cable of category 5 or 5e.

■ Serial Port

Product Name	Specifications				Model	Standards
	Applicable computers	Connection configuration	Cable length	Remarks		
Programming Device Connecting Cables for RS-232C Port 	Connects IBM PC/AT or compatible computers, D-Sub 9-pin	IBM PC/AT or compatible computer + XW2Z-200S-CV/V or XW2Z-500S-CV/V + RS-232C port of CPU Unit or Serial Communications Board or Unit	2 m	Used for Peripheral Bus or Host Link. Anti-static connectors	XW2Z-200S-CV	---
			5 m		XW2Z-500S-CV	
			2 m	Used for Host Link only.	XW2Z-200S-V	
			5 m	Peripheral Bus not supported.	XW2Z-500S-V	
USB-Serial Conversion Cable and PC driver (on a CD-ROM disk)  Complies with USB Specification 1.1.	IBM PC/AT or compatible computer (USB port)	IBM PC/AT or compatible computer + CS1W-CIF31 + XW2Z-200S-CV/500S-CV + RS-232C port of CPU Unit or Serial Communications Unit	0.5 m	Used for Peripheral Bus or Host Link.	CS1W-CIF31	N
		IBM PC/AT or compatible computer + CS1W-CIF31 + XW2Z-200S-V/500S-V + RS-232C port of CPU Unit or Serial Communications Unit		Used for Host Link only. Peripheral Bus not supported.		

FA Communications Software

■SYSMAC Gateway (FINS/CIP Communications Middleware)

Product name	Specifications	Model	Standards
Communications Middleware SYSMAC Gateway	Communications middleware for personal computers running Windows. Supports CIP communications and tag data links (EtherNet/IP) in addition to FinsGateway functions. Supported communications: RS-232C, USB, Controller Link, SYSMAC LINK, Ethernet, EtherNet/IP	Available soon WS02-SGWC1	---
	10 additional licenses (This product provides only additional licenses.)	Available soon WS02-SGWC1-L10	
SYSMAC Gateway SDK	Software development kit for creating communications programs using SYSMAC Gateway. Development languages: C, C++, Visual Basic.NET, Visual C#.NET	Available soon WS02-SGWC1S	

Supported OS: Microsoft Windows Vista, XP, 2000, and 2003 Server

■CX-Compolet

Product 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 SYSMAC Gateway. Development languages: Visual Basic .NET, Visual C#.NET, Visual Basic Ver. 5/6 (See note.) Supported communications: Equal to SYSMAC Gateway.	Available soon WS02-CPLC1	---
	3 additional licenses (This product provides only additional licenses.)	Available soon WS02-CPLC1-L3	
	5 additional licenses (This product provides only additional licenses.)	Available soon WS02-CPLC1-L5	
	10 additional licenses (This product provides only additional licenses.)	Available soon WS02-CPLC1-L10	
	Software components only. This package doesn't include SYSMAC Gateway as communications drivers.	Available soon WS02-CPLC2	

Supported OS: Microsoft Windows Vista, XP, 2000, and 2003 Server


Note: Only functions provided by Compolet V2 as ActiveX controls are supported for Visual Basic version 5 or 6.




■CX-Reporter


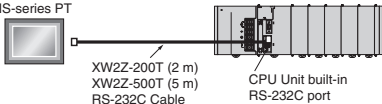
Product name	Specifications	Model	Standards
CX-Reporter	Software for easy collection of PLC data for transfer to Excel on a computer without programming. This packaged product bundles SYSMAC Gateway. Supported Excel versions: Microsoft Excel 2002, 2003, and 2007 Supported communications: Equal to SYSMAC Gateway.	Available soon WS02-RPTC1	---

Supported OS: Microsoft Windows Vista, XP, and 2000

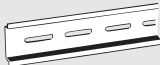

Optional Products and Maintenance Products

Product name	Specifications	Model	Standards
Memory Cards 	Flash memory, 128 MB	HMC-EF183	N, L, CE
	Flash memory, 256 MB	HMC-EF283	
	Flash memory, 512 MB	HMC-EF583	
	Memory Card Adapter (for computer PCMCIA slot)	HMC-AP001	CE

Product name	Specifications	Model	Standards
Battery Set 	Battery for CJ2H-CPU□□-EIP and CJ1M-CPU□□CPU Unit maintenance Note 1. The battery is included as a standard accessory with the CPU Unit. 2. The battery service life is 5 years at 25°C. (The service life depends on the ambient operating temperature and the power conditions.) 3. Use batteries within two years of manufacture.	CJ1W-BAT01	CE
End Cover 	Mounted to the right-hand side of CJ-series CPU Racks or Expansion Racks. One End Cover is provided as a standard accessory with each CPU Unit and I/O Interface Unit.	CJ1W-TER01	UC1, N, L, CE
RS-422A Adapter 	Converts RS-232C to RS-422A/RS-485. (Application example: With a CJ1M CPU Unit, the Adapter is used for Serial PLC Link at the built-in RS-232C port of the CPU Unit.)	CJ1W-CIF11	UC1, N, L, CE



Product name	Specifications		Model	Standards
	Connection configuration	Cable length		
NS-series PT Connecting Cables 	Cable for connecting between an NS-series PT and the RS-232C port on the CPU Unit or Serial Communications Board  <p>NS-series PT</p> <p>XW2Z-200T (2 m) XW2Z-500T (5 m) RS-232C Cable</p> <p>CPU Unit built-in RS-232C port</p>	2 m	XW2Z-200T	---
		5 m	XW2Z-500T	

DIN Track Accessories

Product name	Specifications	Model	Standards
DIN Track 	Length: 0.5 m; Height: 7.3 mm	PFP-50N	---
	Length: 1 m; Height: 7.3 mm	PFP-100N	
	Length: 1 m; Height: 16 mm	PFP-100N2	
End Plate 	There are 2 stoppers provided with CPU Units and I/O Interface Units as standard accessories to secure the Units on the DIN Track.	PFP-M	






Basic I/O Units

Input Units

Unit classification	Product name	Specifications						Current consumption (A)		Model	Standards
		I/O points	Input voltage and current	Commons	Additional functions	External connection	No. of words allocated	5 V	24 V		
CJ1 Basic I/O Units	DC Input Units 	8 inputs	12 to 24 VDC, 10 mA	Independent contacts	---	Removable terminal block	1 word	0.09	---	CJ1W-ID201	UC1, N, L, CE
		16 inputs	24 VDC, 7 mA	16 points, 1 common		Removable terminal block	1 word	0.08	---	CJ1W-ID211	
		32 inputs	24 VDC, 4.1 mA	16 points, 1 common		Fujitsu connector	2 words	0.09	---	CJ1W-ID231 (See note.)	
		32 inputs	24 VDC, 4.1 mA	16 points, 1 common		MIL connector	2 words	0.09	---	CJ1W-ID232 (See note.)	
		64 inputs	24 VDC, 4.1 mA	16 points, 1 common		Fujitsu connector	4 words	0.09	---	CJ1W-ID261 (See note.)	
		64 inputs	24 VDC, 4.1 mA	16 points, 1 common		MIL connector	4 words	0.09	---	CJ1W-ID262 (See note.)	
	AC Input Units 	16 inputs	100 to 120 VAC, 7 mA (100 V, 50 Hz)	16 points, 1 common		Removable Terminal Block	1 words	0.09	---	CJ1W-IA111	
		8 inputs	200 to 24 VAC, 10 mA (200 V, 50 Hz)	8 points, 1 common		Removable Terminal Block	1 words	0.08	---	CJ1W-IA201	



Note: Connectors are not provided with these connector models. Either purchase one of the following 40-pin Connectors, or use an OMRON XW2□ Connector-Terminal Block Conversion Unit or a G7□ I/O Relay Terminal.

■ Output Units

Unit classification	Product name	Specifications					No. of words allocated	Current consumption (A)		Model	Standards
		I/O points	Maximum switching capacity	Commons	Additional functions	External connection		5 V	24 V		
CJ1 Basic I/O Units	Relay Contact Output Units 	8 outputs	250 VAC/24 VDC, 2 A	Independent contacts	---	Removable terminal block	1 words	0.09	0.048 max.	CJ1W-OC201	UC1, N, L, CE
		16 outputs	250 VAC/24 VDC, 2 A	16 points, 1 common		Removable terminal block	1 words	0.11	0.096 max.	CJ1W-OC211	
		8 outputs	12 to 24 VDC, 2 A, sinking,	4 points, 1 common		Removable terminal block	1 words	0.09	---	CJ1W-OD201	
	Transistor Output Units   	8 outputs	24 VDC, 2 A, sourcing	4 points, 1 common	Short-circuit protection, disconnection detection	Removable terminal block	1 words	0.11	---	CJ1W-OD202	
		8 outputs	12 to 24 VDC, 0.5 A, sinking	8 points, 1 common	---	Removable terminal block	1 words	0.10	---	CJ1W-OD203	
		8 outputs	24 VDC, 0.5 A, sourcing	8 points, 1 common	Short-circuit protection	Removable terminal block	1 words	0.10	---	CJ1W-OD204	
		16 outputs	12 to 24 VDC, 0.5 A, sinking	16 points, 1 common	---	Removable terminal block	1 words	0.10	---	CJ1W-OD211	
		16 outputs	24 VDC, 0.5 A,	16 points, 1 common	Short-circuit protection	Removable terminal block	1 words	0.10	---	CJ1W-OD212	
		32 outputs	12 to 24 VDC, 0.5 A, sinking	16 points, 1 common	---	Fujitsu connector	2 words	0.14	---	CJ1W-OD231 (See note.)	
		32 outputs	24 VDC, 0.5 A, sourcing	16 points, 1 common	Short-circuit protection	MIL connector	2 words	0.15	---	CJ1W-OD232 (See note.)	
		32 outputs	12 to 24 VDC, 0.5 A, sinking	16 points, 1 common	---	MIL connector	2 words	0.14	---	CJ1W-OD233 (See note.)	
		64 outputs	12 to 24 VDC, 0.3 A, sinking	16 points, 1 common	---	Fujitsu connector	4 words	0.17	---	CJ1W-OD261 (See note.)	
		64 outputs	12 to 24 VDC, 0.3 A, sourcing	16 points, 1 common	---	MIL connector	4 words	0.17	---	CJ1W-OD262 (See note.)	
		64 outputs	12 to 24 VDC, 0.3 A, sinking	16 points, 1 common	---	MIL connector	4 words	0.17	---	CJ1W-OD263 (See note.)	
Triac Output Unit 	8 outputs	250 VAC, 0.6 A	8 points, 1 common	---	Removable terminal block	1 words	0.22	---	CJ1W-OA201		

Note: Connectors are not provided with these connector models. Either purchase one of the following 40-pin Connectors, or use an OMRON XW2□ Connector-Terminal Block Conversion Unit or a G7□ I/O Relay Terminal.

■ I/O Units

Unit classification	Product name	Specifications						Current consumption (A)		Model	Standards
		I/O points	Input voltage, Input current	Commons	Additional functions	External connection	No. of words allocated	5 V	24 V		
			Maximum switching capacity								
CJ1 Basic I/O Units	DC Input/Transistor Output Units 	16 inputs	24 VDC, 7 mA	16 points, 1 common	---	Fujitsu connector	2 words	0.13	---	CJ1W-MD231 (See note 2.)	UC1, N, CE
		16 outputs	250 VAC/24 VDC, 0.5 A, sinking	16 points, 1 common	---						
		16 inputs	24 VDC, 7 mA	16 points, 1 common	---	MIL connector	2 words	0.13	---	CJ1W-MD232 (See note 2.)	UC1, N, L, CE
		16 outputs	24 VDC, 0.5 A, sourcing	16 points, 1 common	Short-circuit protection						
		16 inputs	24 VDC, 7 mA	16 points, 1 common	---	MIL connector	2 words	0.13	---	CJ1W-MD233 (See note 2.)	UC1, N, CE
	16 outputs	12 to 24 VDC, 0.5 A, sinking	16 points, 1 common	---							
	32 inputs	24 VDC, 4.1 mA	16 points, 1 common	---	Fujitsu connector	4 words	0.14	---	CJ1W-MD261 (See note 1.)		
	TTL I/O Units 	32 outputs	12 to 24 VDC, 0.3 A, sinking	16 points, 1 common	---						UC1, N, CE
			32 inputs	24 VDC, 4.1 mA	16 points, 1 common	---	MIL connector	4 words	0.14	---	
		32 outputs	12 to 24 VDC, 0.3 A, sinking	16 points, 1 common	---						UC1, N, CE
32 inputs			5 VDC, 35 mA	16 points, 1 common	---	MIL connector	4 words	0.19	---	CJ1W-MD563 (See note 1.)	
32 outputs		5 VDC, 35 mA	16 points, 1 common	---							

Note 1. Connectors are not provided with these connector models. Either purchase one of the following 40-pin Connectors, or use an OMRON XW2□ Connector-Terminal Block Conversion Unit or a G7□ I/O Relay Terminal.

2. Connectors are not provided with these connector models. Either purchase one of the following 20-pin or 24-pin Connectors, or use an OMRON XW2□ Connector-Terminal Block Conversion Unit or a G7□ I/O Relay Terminal.

● Applicable Connectors


Fujitsu Connectors for 32-input, 32-output, 64-input, 64-output, 32-input/32-output, and 16-input/16-output Units

Name	Connection	Remarks	Applicable Units	Model	Standards
40-pin Connectors	Soldered	FCN-361J040-AU Connector FCN-360C040-J2 Connector Cover	Fujitsu Connectors: CJ1W-ID231 (32 inputs): 1 per Unit CJ1W-ID261 (64 inputs) 2 per Unit CJ1W-OD231 (32 outputs): 1 per Unit CJ1W-OD261 (64 outputs): 2 per Unit CJ1W-MD261 (32 inputs, 32 outputs): 2 per Unit	C500-CE404	---
	Crimped	FCN-363J040 Housing FCN-363J-AU Contactor FCN-360C040-J2 Connector Cover		C500-CE405	
	Pressure welded	FCN-367J040-AU/F		C500-CE403	
24-pin Connectors	Soldered	FCN-361J024-AU Connector FCN-360C024-J2 Connector Cover	Fujitsu Connectors: CJ1W-MD231 (16 inputs, 16 outputs): 2 per Unit	C500-CE241	---
	Crimped	FCN-363J024 Housing FCN-363J-AU Contactor FCN-360C024-J2 Connector Cover		C500-CE242	
	Pressure welded	FCN-367J024-AU/F		C500-CE243	

MIL Connectors for 32-input, 32-output, 64-input, 64-output, 32-input/32-output, and 16-input/16-output Units


Name	Connection	Remarks	Applicable Units	Model	Standards
40-pin Connectors	Pressure welded	FRC5-AO40-3TOS	MIL Connectors: CJ1W-ID232 (32 inputs): 1 per Unit CJ1W-OD232/233 (32 outputs): 1 per Unit CJ1W-ID262 (64 inputs): 2 per Unit CJ1W-OD262/263 (64 outputs): 2 per Unit CJ1W-MD263/563 (32 inputs, 32 outputs): 2 per Unit	XG4M-4030-T	---
20-pin Connectors	Pressure welded	FRC5-AO20-3TOS	MIL Connectors: CJ1W-MD232/233 (16 inputs, 16 outputs): 2 per Unit	XG4M-2030-T	

Interrupt Input Units

Unit classification	Product name	Specifications						No. of words allocated	Current consumption (A)		Model	Standards
		I/O points	Input voltage current	Commons	Input pulse width conditions	Max. Units mountable per Unit	External connection		5 V	24 V		
CJ1 Basic I/O Units	Interrupt Input Unit 	16 inputs	24 VDC, 7 mA	16 points, 1 common	ON time: 0.05 ms max. OFF time: 0.5 ms max.	2	Removable terminal block	1 word	0.08	---	CJ1W-INT01	UC1, N, L, CE

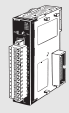
- Note 1.** Can be used only on CPU Racks, and not on Expansion Racks.
2. The locations where the Units can be mounted depend on the CPU Rack and the CPU Unit model.
 CJ1G, CJ1H: From the slot next to the CPU Unit until the fifth slot.
 CJ1M: From the slot next to the CPU Unit until the third slot.

High-speed Input Units

Unit classification	Product name	Specifications					No. of words allocated	Current consumption (A)		Model	Standards
		I/O points	Input voltage, Input current	Commons	Input pulse width conditions	External connection		5 V	24 V		
CJ1 Basic I/O Units	High-speed Input Unit 	16 inputs	24 VDC, 7 mA	16 points, 1 common	ON time: 0.05 ms max. OFF time: 0.5 ms max.	Removable terminal block	1 word	0.08	---	CJ1W-IDP01	UC1, N, L, CE

Note: There are no restrictions on the mounting position or number of Units.


B7A Interface Units

Unit classification	Product name	Specifications		No. of words allocated	Current consumption (A)		Model	Standards
		I/O points	External connection		5 V	24 V		
CJ1 Basic I/O Units	B7A Interface Units 	64 inputs	Removable terminal block	4 words	0.07	---	CJ1W-B7A14	UC1, CE
		64 outputs			0.07	---	CJ1W-B7A04	
		32 inputs/outputs			0.07	---	CJ1W-B7A22	

Special I/O Units and CPU Bus Units


■ Process I/O Units

● Isolated-type Units with Universal Inputs

Unit classification	Product name	Input points	Signal range selection	Signal range	Conversion speed (resolution)	Accuracy (at ambient temperature of 25°C)	External connection	No. of unit numbers allocated	Current consumption (A)		Model	Standards
									5 V	24 V		
CJ1 Special I/O Units	Process Input Units (Isolated-type Units with Universal Inputs) 	4 inputs	Set separately for each input	Universal inputs: Pt100 (3-wire), JPt100 (3-wire), Pt1000 (3-wire), Pt100 (4-wire), K, J, T, E, L, U, N, R, S, B, WRe5-26, PL II, 4 to 20 mA, 0 to 20 mA, 1 to 5 V, 0 to 1.25 V, 0 to 5 V, 0 to 10 V, ±100 mV selectable range -1.25 to 1.25 V, -5 to 5 V, -10 to 10 V, ±10 V selectable range, potentiometer	Resolution (conversion speed): 1/256,000 (conversion cycle: 60 ms/ 4 inputs) 1/64,000 (conversion cycle: 10 ms/ 4 inputs) 1/16,000 (conversion cycle: 5 ms/ 4 inputs)	Standard accuracy: ±0.05% of F.S.	Removable terminal block	1	0.30	---	CJ1W-PH41U NEW	---
		4 inputs	Set separately for each input	Universal inputs: Pt100, JPt100, Pt1000, K, J, T, L, R, S, B, 4 to 20 mA, 0 to 20 mA, 1 to 5 V, 0 to 5 V, 0 to 10 V	Conversion speed: 250 ms/ 4 inputs	Accuracy: Platinum resistance thermometer input: (±0.3% of PV or ±0.8°C, whichever is larger) ±1 digit max. Thermocouple input: (±0.3% of PV or ±1.5°C, whichever is larger) ±1 digit max. (See note.) Voltage or current input: ±0.3% of F.S. ±1 digit max.			0.32	---	CJ1W-AD04U NEW	---

Note: L and -100°C or less for K and T are ±2°C±1 digit max., and 200°C or less for R and S is ±3°C±1 digit max. No accuracy is specified for 400°C or less for B.

● Isolated-type Thermocouple Input Units


Unit classification	Product name	Input points	Signal range selection	Signal range	Conversion speed (resolution)	Accuracy (at ambient temperature of 25°C)	External connection	No. of unit numbers allocated	Current consumption (A)		Model	Standards
									5 V	24 V		
CJ1 Special I/O Units	Process Input Units (Isolated-type Thermocouple Input Units) 	2 inputs	Set separately for each input	Thermocouple: B, E, J, K, L, N, R, S, T, U, WRe5-26, PLII DC voltage: ±100 mV	Conversion speed: 10 ms/ 2 inputs, Resolution: 1/64,000	Standard accuracy: ±0.05% of F.S. (See note 1.)	Removable terminal block	1	0.18	0.06 (See note 2.)	CJ1W-PTS15	UC1, CE
		4 inputs	Thermocouple: R, S, K, J, T, L, B	Conversion speed: 250 ms/ 4 inputs	Accuracy: (±0.3% of PV or ±1°C, whichever is larger) ±1 digit max. (See note 3.)	0.25			---	CJ1W-PTS51		

Note 1. The accuracy depends on the sensors used and the measurement temperatures. For details, refer to the user's manual.

2. This is for an external power supply, and not for internal current consumption.


3. L and -100°C or less for K and T are ±2°C±1 digit max., and 200°C or less for R and S is ±3°C±1 digit max. No accuracy is specified for 400°C or less for B.

● Isolated-type Resistance Thermometer Input Units

Unit classification	Product name	Input points	Signal range selection	Signal range	Conversion speed (resolution)	Accuracy (at ambient temperature of 25°C)	External connection	No. of unit numbers allocated	Current consumption (A)		Model	Standards
									5 V	24 V		
CJ1 Special I/O Units	Process Analog Input Units (Isolated-type Resistance Thermometer Input Units) 	2 inputs	Set separately for each input	Resistance thermometer: Pt100, JPt100, Pt50, Ni508.4	Conversion speed: 10 ms/2 inputs, Resolution: 1/64,000	Accuracy: ±0.05% of F.S. or ±0.1°C, whichever is larger.	Removable terminal block	1	0.18	0.07 (See note.)	CJ1W-PTS16	UC1, CE
		4 inputs	Common inputs	Resistance thermometer: Pt100, JPt100	Conversion speed: 250 ms/4 inputs	Accuracy: ±0.3°C of PV or ±0.8°C, whichever is larger, ±1 digit max.			0.25	---	CJ1W-PTS52	

Note: This is for an external power supply, and not for internal current consumption.


● Isolated-type DC Input Units

Unit classification	Product name	Input points	Signal range selection	Conversion speed (resolution)	Accuracy (at ambient temperature of 25°C)	External connection	No. of unit numbers allocated	Current consumption (A)		Model	Standards
								5 V	24 V		
CJ1 Special I/O Units	Isolated-type DC Input Units 	2 inputs	DC voltage: 0 to 1.25 V, -1.25 to 1.25 V, 0 to 5 V, 1 to 5 V, -5 to 5 V, 0 to 10 V, -10 to 10 V, ±10 V selectable range DC current: 0 to 20 mA, 4 to 20 mA	Conversion speed: 10 ms/2 inputs Resolution: 1/64,000	Standard accuracy: ±0.05% of F.S.	Removable terminal block	1	0.18	0.09 (See note.)	CJ1W-PDC15	UC1, CE

Note: This is for an external power supply, and not for internal current consumption.


■ Analog I/O Units

● Analog Input Units

Unit classification	Product name	Input points	Signal range selection	Signal range	Resolution	Conversion speed	Accuracy (at ambient temperature of 25°C)	External connection	No. of unit numbers allocated	Current consumption (A)		Model	Standards
										5 V	24 V		
CJ1 Special I/O Units	Analog Input Units 	8 inputs	Set separately for each input	1 to 5 V, 0 to 5 V, -10 to 10 V, 4 to 20 mA	1/8000, (Settable to 1/4000) (See note 1.)	250 μs/point max. (Settable to 1 ms/point) (See note 1.)	Voltage: ±0.2% of F.S. Current: ±0.4% of F.S. (See note 2.)	Removable terminal block	1	0.42	---	CJ1W-AD081-V1	UC1, N, L, CE
		4 inputs								0.42	---	CJ1W-AD041-V1	


Note 1. The resolution and conversion speed cannot be set independently. If the resolution is set to 1/4,000, then the conversion speed will be 1 ms/point.
2. At 23 ±2°C

● Analog Output Units

Unit classification	Product name	Output points	Signal range selection	Signal range	Resolution	Conversion speed	Accuracy (at ambient temperature of 25°C)	External connection	External power supply	No. of unit numbers allocated	Current consumption (A)		Model	Standards
											5 V	24 V		
CJ1 Special I/O Units		8 outputs	Set separately for each input	1 to 5 V, 0 to 5 V, 0 to 10 V, -10 to 10 V	1/4,000 (Settable to 1/8,000)	1 ms/point max. (Settable to 250 µs/point)	±0.3% of F.S.	Removable terminal block	24 VDC +10% -15% , 140 mA max.	1	0.14	0.14 (See note.)	CJ1W-DA08V	UC1, N, L, CE
		8 outputs		4 to 20 mA					24 VDC +10% -15% , 170 mA max.		0.14	0.17 (See note.)	CJ1W-DA08C	UC1, N, CE
		4 outputs	1 to 5 V, 0 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA	1/4000	1 ms/point max.	Voltage output: ±0.3% of F.S. Current output: ±0.5% of F.S.	24 VDC +10% -15% , 200 mA max.	0.12	0.2 (See note.)		CJ1W-DA041	UC1, N, L, CE		
		2 outputs					24 VDC +10% -15% , 140 mA max.	0.12	0.14 (See note.)		CJ1W-DA021			


Note: This is for an external power supply, and not for internal current consumption

● Analog I/O Units


Unit classification	Product name	No. of points	Signal range selection	Signal range	Resolution (See note.)	Conversion speed (See note.)	Accuracy (at ambient temperature of 25°C)	External connection	No. of unit numbers allocated	Current consumption (A)		Model	Standards
										5 V	24 V		
CJ1 Special I/O Units		4 inputs	Set separately for each input	1 to 5 V, 0 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA	1/4,000 (Settable to 1/8,000)	1 ms/point (Settable to 500 µs/point max.)	Voltage input: ±0.2% of F.S.	Removable terminal block	1	0.58	---	CJ1W-MAD42	UC1, N, L, CE
	2 outputs	Voltage output: ±0.3% of F.S.					Current output: ±0.3% of F.S.						

Note: The resolution and conversion speed cannot be set independently. If the resolution is set to 1/4,000, then the conversion speed will be 1 ms/point.

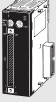
■ Temperature Control Units

Unit classification	Product name	Specifications			No. of unit numbers allocated	Current consumption (A)		Model	Standards
		No. of loops	Temperature sensor inputs	Control outputs		5 V	24 V		
CJ1 Special I/O Units	Temperature Control Units 	4 loops	Thermocouple input (R, S, K, J, T, B, L)	Open collector NPN outputs (pulses)	2	0.25	---	CJ1W-TC001	UC1, N, L, CE
		4 loops		Open collector PNP outputs (pulses)		0.25	---	CJ1W-TC002	
		2 loops, heater burnout detection function		Open collector NPN outputs (pulses)		0.25	---	CJ1W-TC003	
		2 loops, heater burnout detection function		Open collector PNP outputs (pulses)		0.25	---	CJ1W-TC004	
		4 loops	Platinum resistance thermometer input (JPt100, Pt100)	Open collector NPN outputs (pulses)		0.25	---	CJ1W-TC101	
		4 loops		Open collector PNP outputs (pulses)		0.25	---	CJ1W-TC102	
		2 loops, heater burnout detection function		Open collector NPN outputs (pulses)		0.25	---	CJ1W-TC103	
		2 loops, heater burnout detection function		Open collector PNP outputs (pulses)		0.25	---	CJ1W-TC104	

■ High-speed Counter Unit


Unit classification	Product name	Specifications			No. of unit numbers allocated	Current consumption (A)		Model	Standards
		Countable channels	Encoder A and B inputs, pulse input Z signals	Max. counting rate		5 V	24 V		
CJ1 Special I/O Units	High-speed Counter Unit 	2	Open collector Input voltage: 5 VDC, 12 V, or 24 V (5 V and 12 V are each for one axis only.)	50 kcps	4	0.28	---	CJ1W-CT021	UC1, N, L, CE
			RS-422 line driver	500 kcps					

■ Position Control Units


Unit classification	Product name	Specifications		No. of unit numbers allocated	Current consumption (A)		Model	Standards	
		No. of axes	Control output interface		5 V	24 V			
CJ1 Special I/O Units	Position Control Units 	1 axis	Pulse train, open collector output	1	0.25	---	CJ1W-NC113	UC1, CE	
		2 axes	Pulse train, open collector output		0.25	---	CJ1W-NC213		
		4 axes	Pulse train, open collector output (See note.)	2	0.36	---	CJ1W-NC413		
		1 axis	Pulse train, line driver output		1	0.25	---		CJ1W-NC133
		2 axes	Pulse train, line driver output	0.25		---	CJ1W-NC233		
		4 axes	Pulse train, line driver output (See note.)	2	0.36	---	CJ1W-NC433		
	Space Unit	Use a CJ1W-SP001 Space Unit if the operating temperature is 0 to 55°C.					CJ1W-SP001	UC1, CE	
	Servo Relay Units	For 1-Axis Position Control Unit (without communications support) (CJ1W-CN113/133)					XW2B-20J6-1B		---
		For 2- or 4-Axis Position Control Unit (without communications support) (CJ1W-NC213/233/413/433)					XW2B-40J6-2B		
		For 2- or 4-Axis Position Control Unit (with communications support) (CJ1W-NC213/233/413/433)					XW2B-40J6-4A		
	Position Control Unit Cables	For CJ1W-NC113: Pulse train, open collector output, 1 axis	Connecting Servo Drives: OMNUC G/W Series, SMARTSTEP2	Cable length: 0.5 m	XW2Z-050J-A14		---		
				Cable length: 1 m	XW2Z-100J-A14				
			Connecting Servo Drives: SMARTSTEP Junior/A Series	Cable length: 0.5 m	XW2Z-050J-A16				
				Cable length: 1 m	XW2Z-100J-A16				
		For CJ1W-NC213/413: Pulse train, open collector output, 2 axes	Connecting Servo Drives: OMNUC G/W Series, SMARTSTEP2	Cable length: 0.5 m	XW2Z-050J-A15				
				Cable length: 1 m	XW2Z-100J-A15				
			Connecting Servo Drives: SMARTSTEP Junior/A Series	Cable length: 0.5 m	XW2Z-050J-A17				
				Cable length: 1 m	XW2Z-100J-A17				
		For CJ1W-NC133: Pulse train, line-driver output, 1 axis	Connecting Servo Drives: OMNUC G/W Series, SMARTSTEP2	Cable length: 0.5 m	XW2Z-050J-A18				
				Cable length: 1 m	XW2Z-100J-A18				
Connecting Servo Drives: SMARTSTEP Junior/A Series			Cable length: 0.5 m	XW2Z-050J-A20					
			Cable length: 1 m	XW2Z-100J-A20					
For CJ1W-NC233/433: Pulse train, line driver output, 2 axes	Connecting Servo Drives: OMNUC G/W Series, SMARTSTEP2	Cable length: 0.5 m	XW2Z-050J-A19						
		Cable length: 1 m	XW2Z-100J-A19						
	Connecting Servo Drives: SMARTSTEP Junior/A Series	Cable length: 0.5 m	XW2Z-050J-A21						
		Cable length: 1 m	XW2Z-100J-A21						

Note: The ambient operating temperature for 4-Axis Position Control Units is 0 to 50°C; the allowable voltage fluctuation on the external 24-VDC power supply is 22.8 to 25.2 VDC (24 V ±5%).

■ MECHATROLINK-II-compatible Position Control Units


Unit classification	Product name	Specifications	No. of unit numbers allocated	Current consumption (A)		Model	Standards
				5 V	24 V		
CJ1 CPU Bus Units	MECHATROLINK-II-compatible Motion Control Units 	Control commands executed by MECHATROLINK-II synchronous communications. 16 axes max. Direct operation by ladder programming. Control mode: Position control, speed control, or torque control	1	0.36	---	CJ1W-NCF71	UC1, CE
	MECHATROLINK-II Interface Unit	R88D-WT□ OMNUC W-series AC Servo Driver (Yaskawa Electric Corporation) Use the model numbers provided in this catalog when ordering from OMRON.				FNY-NS115	---
	MECHATROLINK-II Cables	Connects MECHATROLINK-II-compatible devices (Yaskawa Electric Corporation) Use the model numbers provided in this catalog when ordering from OMRON.	Cable length: 0.5 m		FNY-W6003-A5		---
			Cable length: 1 m		FNY-W6003-01		
			Cable length: 3 m		FNY-W6003-03		
Cable length: 5 m			FNY-W6003-05				
Cable length: 10 m			FNY-W6003-10				
Cable length: 20 m		FNY-W6003-20					
Cable length: 30 m		FNY-W6003-30					
MECHATROLINK-II Terminating Resistors	Terminating Resistor for MECHATROLINK-II (Yaskawa Electric Corporation) Use the model numbers provided in this catalog when ordering from OMRON.				FNY-W6022	---	

■ MECHATROLINK-II-compatible Motion Control Units

Unit classification	Product name	Specifications	No. of unit numbers allocated	Current consumption (A)		Model	Standards	
				5 V	24 V			
CJ1 CPU Bus Units	MECHATROLINK-II-compatible Motion Control Units 	Position, speed, and torque commands by MECHATROLINK-II 32 axes max. (Physical axes: 30, Virtual axes: 2) Motion control language	1	0.6	---	CJ1W-MCH71	UC1, CE	
	MECHATROLINK-II Unit	Refer to the section on <i>MECHATROLINK-II-compatible Position Control Units</i> above on page 35.						
	MECHATROLINK-II Cables	Refer to the section on <i>MECHATROLINK-II-compatible Position Control Units</i> above on page 35.						
	MECHATROLINK-II Terminating Resistors	Refer to the section on <i>MECHATROLINK-II-compatible Position Control Units</i> above on page 35.						
	MECHATROLINK-II Repeater	For more than 15 slaves/30 m				FNY-REP2000	---	
	MECHATROLINK-II 24-VDC I/O Module	Inputs: 64 Outputs: 64				FNY-IO2310		
	MECHATROLINK-II Counter Module	Reversible counter, 2 words				FNY-PL2900		
	MECHATROLINK-II Pulse Output Module	Pulse train positioning, 2 words				FNY-PL2910		


Note: The CJ1W-MCH71 requires the space of three Units (but just one unit number). A maximum of 10 Units can be mounted on a single CJ-series Rack, up to three CJ1W-MCH71 Motion Control Units plus one other Unit can be mounted per Rack.

■ Serial Communications Units

Unit classification	Product name	Specifications		No. of unit numbers allocated	Current consumption (A)		Model	Standards
		Communications Interface	Communications functions		5 V	24 V		
CJ1 CPU Bus Units		1 RS-232C port and 1 RS-422A/485 port	The following functions can be selected for each port: Protocol macro Host Link NT Links (1:N mode) Serial Gateway (See note 1.) No-protocol (See note 2.) Modbus-RTU Slave (See note 3.)	1	0.38 (See note 4.)	---	CJ1W-SCU41-V1	UC1, N, L, CE
		2 RS-232C ports			0.28 (See note 4.)	---	CJ1W-SCU21-V1	
		2 RS-422A/485 ports			0.38	---	CJ1W-SCU31-V1	


- Note 1.** The Serial Gateway function is enabled only for Serial Communications Units of unit version 1.2 and later.
Note 2. The no-protocol function is enabled only for Serial Communications Units of unit version 1.2 and later (and a CPU Unit of unit version 3.0 or later is also required).
Note 3. The Modbus-STU Slave function is enabled only for Serial Communications Units of unit version 1.3 and later.
Note 4. When an NT-AL001 RS-232C/RS-422A Conversion Unit is used, this value increases by 0.15 A/Unit. When a CJ1W-CIF11 RS-422A Conversion Unit is used, it increases by 0.04 A/Unit.

■ EtherNet/IP Unit



Unit classification	Product name	Specifications			No. of unit numbers allocated	Current consumption (A)		Model	Standards
		Communications cable	Communications functions	Max. Units mountable per CPU Unit		5 V	24 V		
CJ1 CPU Bus Unit		STP (shielded twisted-pair) cable of category 5, 5e, or higher.	Tag data link message service	8 (See note)	1	0.41	---	CJ1W-EIP21 NEW	UC1, N, L, CE

Note: Up to seven EtherNet/IP Units can be connected to a CJ2H-CPU□□-EIP CPU Unit.


■ Ethernet Unit

Unit classification	Product name	Specifications			No. of unit numbers allocated	Current consumption (A)		Model	Standards
		Communications cable	Communications functions	Max. Units mountable per CPU Unit		5 V	24 V		
CJ1 CPU Bus Unit		100Base-TX	FINS communications service (TCP/IP, UDP/IP), FTP server functions, socket services, mail transmission service, mail reception (remote command receive), automatic adjustment of PLC's built-in clock, server/host name specifications	4	1	0.37	---	CJ1W-ETN21	UC1, N, L, CE

● Industrial Switching Hubs

Product name	Appearance	Specifications			Model	Standards
		Functions	No. of ports	Failure detection		
Industrial Switching Hubs	 	Quality of Service (QoS): EtherNet/IP control data priority Failure detection: Broadcast storm and LSI error detection 10/100BASE-TX, Auto-Negotiation	3	×	W4S1-03B NEW	U, CE
			5	×	W4S1-05B NEW	
			5	○	W4S1-05C NEW	

● WE70 FA WIRELESS LAN UNITS


Product name	Applicable region	Type	Model	Standards
WE70 FA WIRELESS LAN UNITS 	Japan	Access Point (Master)	WE70-AP	---
		Client (Slave)	WE70-CL	
	Europe	Access Point (Master)	WE70-AP-EU	CE
		Client (Slave)	WE70-CL-EU	
	U.S.	Access Point (Master)	WE70-AP-US	UC
		Client (Slave)	WE70-CL-US	
	Canada	Access Point (Master)	WE70-AP-CA <i>NEW</i>	
		Client (Slave)	WE70-CL-CA <i>NEW</i>	
	China	Access Point (Master)	WE70-AP-CN	---
		Client (Slave)	WE70-CL-CN	

Note 1. A Pencil Antenna, mounting magnet, and screw mounting bracket are included as accessories.

2. Always use a model that is applicable in your region. For example, using the WE70-AP-US outside of the United States is illegal in terms of the usage of electromagnetic waves. Refer to the *WE70 Catalog* (Cat. No. N154).

■ Controller Link Units


● Controller Link Units

Unit classification	Product name	Specifications				No. of unit numbers allocated	Current consumption (A)		Model	Standards
		Communications cable	Communications type	Duplex support	Max. Units mountable per CPU Unit		5 V	24 V		
CJ1 CPU Bus Unit	Controller Link Unit 	Wired shielded twisted-pair cable (See note.)	Data links and message service	No	8	1	0.35	---	CJ1W-CLK23 <i>NEW</i>	UC1, N, L, CE

Note: Use the following special cable for shielded, twisted-pair cable.

- ESVC0.5 × 2C-13262 (Bando Electric Wire: Japanese Company)
- ESNC0.5 × 2C-99-087B (Nihon Electric Wire & Cable Corporation: Japanese Company)
- ESPC 1P × 0.5 mm² (Nagaoka Electric Wire Co., Ltd.: Japanese Company)
- Li2Y-FCY2 × 0.56qmm (Kromberg & Schubert, Komtec Department: German Company)
- 1 × 2 × AWG-20PE+Tr.CUSN+PVC (Draka Cables Industrial: Spanish Company)
- #9207 (Belden: US Company)
- Li2Y-FCY2×0.56qmm (Kromberg & Schubert, Komtec Department: German Company)
- 1×2×AWG-20PE+Tr.CUSN+PVC (Draka Cables Industrial: Spanish Company)
- #9207 (Belden: US Company)


● Controller Link Support Boards

Unit classification	Specification		Accessories	Model	Standards
	Communications cable	Communications type			
Controller Link Support Board for PCI Bus 	Wired shielded twisted-pair cable	Data link and message service	<ul style="list-style-type: none"> • CD-ROM × 1 (See note.) • INSTALLATION GUIDE (W467) × 1 • Communications connector × 1 	3G8F7-CLK23-E <i>NEW</i>	CE

Note: The CD-ROM contains the following software.

- Controller Link (PCI) Driver
- FinsGateway Version 2003 (PCI-CLK Edition)
- FinsGateway Version 3 (PCI-CLK Edition)
- Setup Diagnostic Utility
- C Library

● Repeater Units


Unit classification	Specifications	Model	Standards
Controller Link Repeater Unit 	Wire-to-wire Model	CS1W-RPT01	UC1, CE
	Wire-to-Optical (H-PCF) Model (See note 2.)	CS1W-RPT02	
	Wire-to-Optical (GI) Model (See note 3.)	CS1W-RPT03	

Note 1. Using Repeater Units enables T-branches and long-distance wiring for Wired Controller Link networks. 62-node configurations, and converting part of the network to optical cable.

2. When using wire-to-optical (H-PCF) cable, use a H-PCF cable (for both Controller Link and SYSMAC LINK) or a H-PCF optical fiber cable with connector.

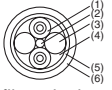

3. When using wire-to-optical (GI) cable, use a GI optical cable (for Controller Link).

● Relay Terminal Block

Unit classification	Specifications	Model	Standards
Relay Terminal Block for Wired Controller Link Unit 	Use for Wired Controller Link Units (set of 5).	CJ1W-TB101	---

Note: Controller Link Units can be replaced without stopping the communications of the entire network if a Relay Terminal Block is installed in advance on the Unit in a Wired Controller Link network. Relay Blocks cannot be used on Controller Link Support Boards.

● H-PCF Cables and Optical Connectors

Name	Application/construction		Specifications	Model	Standards	
Optical Fiber Cables	Controller Link, SYSMAC LINK, SYSBUS	 <p>(1) Optical fiber single-core cord (2) Tension member (plastic-sheathed wire) (3) Filler (plastic) (4) Filler surrounding signal wires (plastic, yarn, or fiber) (5) Holding tape (plastic) (6) Heat-resistant PV sheath</p>	Two-core optical cable with tension member	Black 10 m	S3200-HCCB101	---
				Black 50 m	S3200-HCCB501	
				Black 100 m	S3200-HCCB102	
				Black 500 m	S3200-HCCB502	
				Black 1,000 m	S3200-HCCB103	
				Orange 10 m	S3200-HCCO101	
				Orange 50 m	S3200-HCCO501	
				Orange 100m	S3200-HCCO102	
				Orange 500 m	S3200-HCCO502	
				Orange 1,000 m	S3200-HCCO103	
Optical Connectors (Crimp-cut) 	CS1W-RPT02		Half lock	S3200-COCF2571	---	
			Full lock	S3200-COCF2071		

● **H-PCF Optical Fiber Cables with Connectors (Black Composite Cables with Two-Optical Lines and Two Power Supply Lines)**

Application	Appearance	Model	Standards
Controller Link, SYSMAC Link		S3200-CN□□□□-20-20	---
		S3200-CN□□□□-20-25	
		S3200-CN□□□□-25-25	

● **Cable Length**

The following cable lengths are available: 2 m, 5 m, 15 m, 20 m. For lengths of 21 m or more, contact your OMRON sales representative.

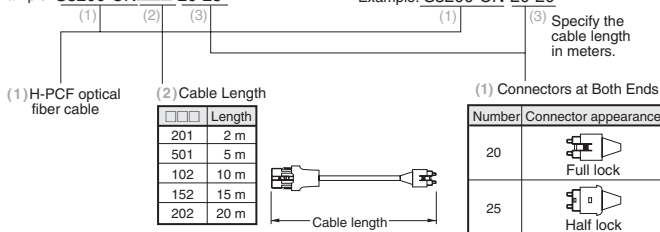
● **Model Numbers**

Lengths of 2 m, 5 m, 10 m, 15 m, and 20 m

Example: S3200-CN□□□□-20-25

Length of 21 m or more

Example: S3200-CN-20-20



● **Optical Connector Assembly Tool**

Name	Applicable Unit	Model	Manufacturer	Standards
Optical Fiber Assembly Tool (See note.)	This tool is used on site for mounting crimp-cut connectors and hard plastic-clad silica optical fiber for optical transmission systems of SYSMAC C-series SYSBUS, SYSMAC LINK, and Controller Link.	CAK-0057	Sumitomo Electric Industries, Ltd.	---

Note: There is a risk of quality problems when using cables assembled by typical users, so we recommend purchasing cables with preattached connectors or having a qualified technician assemble the cables. Optical connectors for H-PCF Optical Cables with Connectors are adhesive polished.

● **GI Optical Cables**

A qualified technician must select, assemble, and install GI Optical Fiber Cable, so always let an optical cable specialist handle the GI cable.

Usable Optical Cables and Optical Connectors

- Optical fiber types: Graded, indexed, multi-mode, all quartz glass, fiber (GI-type AGF cable)
- Optical fiber construction (core diameter/clad diameter): 62.5/125 μm or 50/125 μm
- Optical fiber optical characteristics of optical fiber: Refer to the tables.
- Optical connector: ST connector (IEC-874-10)

● **50/125 μm AGF Cable**

Item	Minimum	Standard	Maximum	Remarks
Numerical Aperture (N.A)	---	0.21	---	---
Transmission loss (dB)	---	---	3.0 Lf	0.5 km ≤ Lf
			3.0 Lf + 0.2	0.2 km ≤ Lf ≤ 0.5 km
			3.0 Lf + 0.4	Lf ≤ 0.2 km
Connection loss (dB)	---	---	1.0	λ = 0.8 μm, one location
Transmission bandwidth (MHz-km)	500	---	---	λ = 0.85 μm (LD)


Lf is fiber length in km, Ta is ambient temperature, and λ: is the peak wavelength of the test light source.

● **62.5/125 μm AGF Cable**


Item	Minimum	Standard	Maximum	Remarks
Numerical Aperture (N.A)	---	0.28	---	---
Transmission loss (dB)	---	---	3.5 Lf	0.5 km ≤ Lf
			3.5 Lf + 0.2	0.2 km ≤ Lf ≤ 0.5 km
			3.5 Lf + 0.4	Lf ≤ 0.2 km
Connection loss (dB)	---	---	1.0	λ = 0.8 μm, one location
Transmission bandwidth (MHz-km)	200	---	---	λ = 0.85 μm (LD)

Lf is fiber length in km, Ta is ambient temperature, and λ is the peak wavelength of the test light source.


■ FL-net Unit

Unit classification	Product name	Specifications			No. of unit numbers allocated	Current consumption (A)		Model	Standards
		Communications interface	Communications functions	Max. Units mountable per CPU Units		5 V	24 V		
CJ1 CPU Bus Units	 FL-net Unit	100Base-TX	With FL-net Ver. 2.0 specifications (OPCN-2) Data links and message service	4	1	0.37	---	CJ1W-FLN22	UC1, CE


■ DeviceNet Unit

Unit classification	Product name	Specifications	Communications type	No. of unit numbers allocated	Current consumption (A)		Model	Standards
					5 V	24 V		
CJ1 CPU Bus Units	 DeviceNet Unit	Functions as master and/or slave; allows control of 32,000 points max. per master.	<ul style="list-style-type: none"> Remote I/O communications master (fixed or user-set allocations) Remote I/O communications slave (fixed or user-set allocations) Message communications 	1	0.29	---	CJ1W-DRM21	UC1, N, L, CE


■ CompoNet Master Unit

Unit classification	Product name	Specifications		No. of unit numbers allocated	Current consumption (A)		Model	Standards
		Communications functions	No. of I/O points per Master Unit		5 V	24 V		
CJ1 Special I/O Units	 CompoNet Master Unit	<ul style="list-style-type: none"> Remote I/O communications Message communications 	Word Slaves: 2,048 max. (1,024 inputs and 1,024 outputs) Bit Slaves: 512 max. (256 inputs and 256 outputs)	1, 2, 4, or 8	0.4	---	CJ1W-CRM21	U1, CE, UC1 certification pending

■ CompoBus/S Master Unit



Unit classification	Product name	Specifications			No. of unit numbers allocated	Current consumption (A)		Model	Standards
		Communications functions	No. of I/O points	Max. Units mountable per CPU Unit		5 V	24 V		
CJ1 Special I/O Units	 CompoBus/S Master Unit	Remote I/O communications	256 max. (128 inputs and 128 outputs) 128 max. (64 inputs and 64 outputs)	40	1 or 2 (variable)	0.15	---	CJ1W-SRM21	UC1, N, L, CE,

■ ID Sensor Units

Unit classification	Product name	Specifications			No. of unit numbers allocated	Current consumption (A)		Model	Standards
		Connected ID Systems	No. of connected R/W heads	External power supply		5 V	24 V		
CJ1 CPU Bus Units	 ID Sensor Units	V680 Series RFID System	1	Not required.	1	0.26 (See note.)	0.13 (See note.)	CJ1W-V680C11 ^{NEW}	UC, CE certification pending
			2		2	0.32	0.26	CJ1W-V680C12 ^{NEW}	
		V600 Series RFID System	1	Not required.	1	0.26	0.12	CJ1W-V600C11	UC, CE
			2		2	0.32	0.24	CJ1W-V600C12	

Note: To use a V680-H01 Antenna, refer to the V680 Series RFID System Catalog (Cat. No. Q151).

■SYSMAC SPU (High-speed Data Storage Unit)

Unit classification	Product name	Specifications		No. of unit numbers allocated	Current consumption (A)		Model	Standards
		PC Card slot	Ethernet (LAN) port		5 V	24 V		
CJ1 CPU Bus Units	SYSMAC SPU Ver. 2 (High-speed Data Storage Unit) 	CF Card Type I/II × 1 slot Use an OMRON HMC-EF□□□ Memory Card.	1 port (10/100Base-TX)	1	0.56	---	CJ1W-SPU01-V2 ^{NEW}	UC1, CE
	SPU-Console Ver. 2.0	Functions: Unit settings, sampling settings, etc., for High-speed Data Collection Units (required for making settings for this Unit) OS: Windows 2000 or XP					WS02-SPTC1-V2 ^{NEW}	---
	Ver. 2.0 SYSMAC SPU Data Management Middleware Ver. 2.0	Function: Data files collected by SYSMAC SPU Data Management Middleware are automatically acquired at the personal computer, and can be registered in a database. OS: Windows 2000 or XP			1 license	WS02-EDMC1-V2		
	Memory Cards 	Flash memory, 128 MB			Note: Memory Card is required for data collection.	HMC-EF183	N, L, CE	
Flash memory, 256 MB (SYSMAC SPU only)			HMC-EF283					
Flash memory, 512 MB (SYSMAC SPU only)			HMC-EF583					

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