OMRON



» Flexibility in communication

» Faster machine development

» Innovation through evolution

Innovation without growing pains

As a modern machine manufacturer you need to continuously increase the intelligence and flexibility of your product to remain competitive. But you also need to be absolutely certain that it all works perfectly, first time, every time.

The CJ2 is the result of years of experience as market leader in the field of modular controllers and represents a logical next step in controller design. It offers greater performance and faster I/O response as well as extreme scalability - so you will only need one family. In addition, programming, debugging and networking are faster and easier. Welcome to the new CJ2 Family: built to give you innovation without growing pains.

Although CJ2 is a can directly replace any CJ1 CPU, it offers the following additional significant advantages:

Open to the world

Data communication is via standard Ethernet port with EtherNet/IP Data Link function.

Advanced motion control

CJ2 units offer multi-axes synchronous control, and can replace expensive motion controllers.

High-speed

Faster program execution and immediate I/O refreshing enables flexible machine control.

Learn one, know them all

Thanks to the wide variety of CPUs with consistent architecture across all PLC families, you only need to learn one, and you will know them all.

Highly flexible

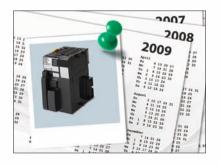
Adapt the PLC to your needs with the wide variety of compatible CJ1 Family I/O units (nearly 100).





The wide range of CPUs means you need only to get familiar with one PLC family for use in everything from simple stand-alone applications up to networked, high-speed machines.

Inspired by proven technology



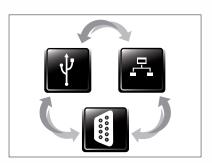
Proved track record

The CJ2 Family is based on the highly popular CJ1, which after its launch in 2001 is operating in an extraordinary variety of applications all over the world. Now, as the natural successor, the CJ2 combines that field-proven technology with a wider choice of CPUs, more speed and memory, and a wider variety of communication interfaces.



Faster development

Tag-based communications technology will simplify the interfacing of the PLC to the outside world. On-line debugging improvements also help to accelerate software development so you can change the code and test the results quickly. The added function block memory will allow you improve to program structure and reuse of code even in the the entry-level models.



Talks to all

The CJ2 Family supports major open networking technologies including:

- Ethernet-based communication based on open industrial standards
- Serial communications over RS-232 C, RS-422, RS-485 and USB
- $\bullet \ \ \text{The major open Fieldbus standards}$
- Fast and accurate motion control networks.

00000











Built to answer your needs

Omron has used its long experience as a specialist machine automation supplier to develop CJ2. The result is an extremely reliable PLC that is also a powerful example of our commitment to continuous improvement. The CJ2 Family is a major opportunity to innovate and simultaneously reduce cost now and in the future. It's the obvious choice for modern machine builders.



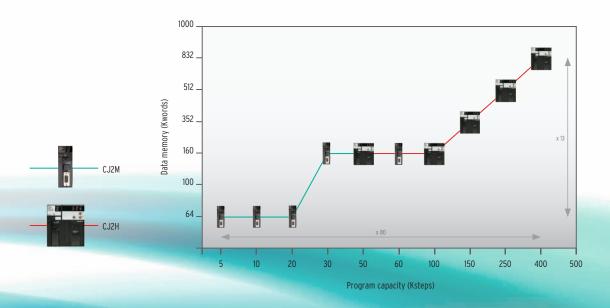
Power supply

Pulse I/0

CPUs

Wide range CPU capacity

To stay ahead in the machine-building business, you need to grow with your end-user's needs. Faster production, better quality control and better traceability require more speed and more memory. That's why the CJ2 Family offers a wide range of CPUsto suit any task. From 5 Ksteps program capacity and 64 Kwords memory, right up to 500 Ksteps capacity and 832 Kwords.





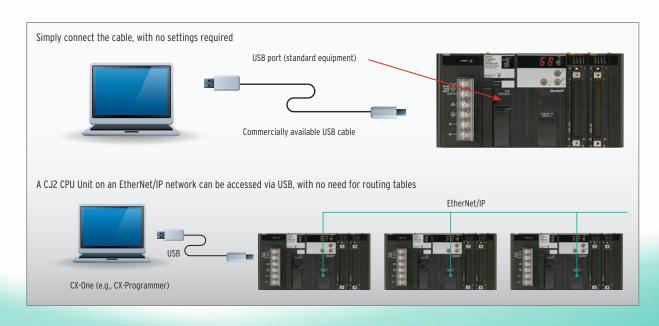
Higher precision

In addition to the greater CPU processing performance, Omron has also added new high-speed I/O units, such as analog input units with 20 μ s conversion time, while new PLC instructions provide immediate access to fast I/O data. The result is even more real-time reliability.

Select what you need

With CJ2 you can also still connect to the existing CJ1 I/O units. You can benefit from CJ2's improvements without redesigning the entire system.

Easy connection by USB



One family - two performance classes

CJ2M for basic machine automation

The CJ2M Series is ideal for packaging and general machine automation needs. Connectivity is assured thanks to the built-in USB port and the choice of Ethernet and RS-232C/422/485 interfaces on the CPU.

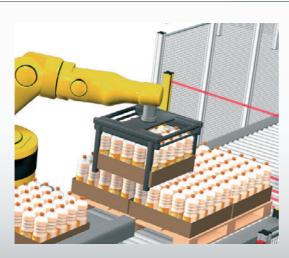
Always accessible through standard USB port Standard Ethernet port with EtherNet/IP Data Link function Wide range of program capacities, from 5 Ksteps to 60 Ksteps

Pulse I/O add-on modules have a special connection to the CPU and are controlled by convenient positioning instructions

Serial option board for CJ2M-CPU3*

Dedicated function block memory ensures efficient execution of function block software modules





Pulse I/O modules

By mounting optional pulse I/O modules, you can extend the functionality of any CJ2M CPU with:

- interrupt inputs
- quick-response inputs
- high-speed counters
- incremental encoder inputs
- pulse frequency control outputs
- pulse width control outputs

Up to two modules can be mounted per CPU, allowing direct control of four motion axes. Using dedicated instructions, these axes can be controlled directly by the PLC program, without communication delays.

* Supported by the CJ2M CPU Unit with version 2.0 or later.

CJ2H for high speed, high capacity

The CJ2H Series is ideal for advanced machine automation needs such as those required in image processing inspection of electrical components and high speed sorting on conveyors.

Advanced motion control - made simple

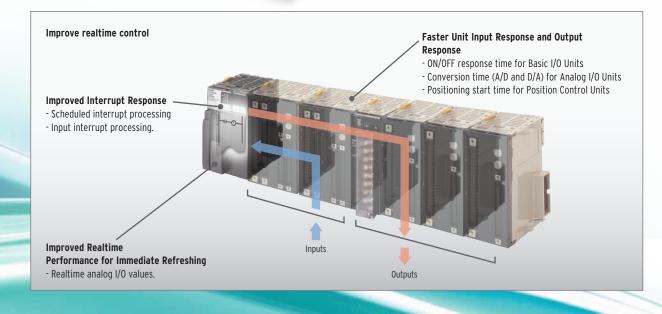
The CJ2H's advanced motion control avoids the use of expensive motion controllers. Synchronized control is possible on up to 20 axes by using just five Position Control units (High-speed type). And, programming is easy – simply paste an electronic cam function block into a synchronized interrupt task.



Always accessible through standard USB port
Standard Ethernet port with EtherNet/IP Data Link function
High program capacity of up to 400K Steps
Higher precision for machine operation and processing quality

Immediate refreshing of basic I/O ensures real-time processing Faster response means higher precision and better quality

High data memory capacity of up to 832 Kwords



The CJ2 Provides a Complete Lineup

The complete lineup provides high-performance features from machine control to information processing.

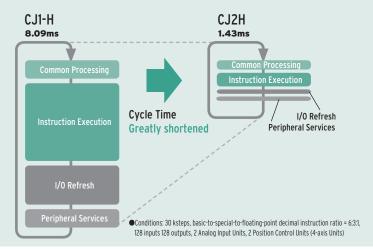
Units		CJ	2M	CJ2H			
Туре		Simple Types	Standard Types	High - end Types	Flagship Types		
Models		CJ2M-CPU1□	CJ2M-CPU3□	СЈ2Н-СРИ6□	CJ2H-CPU6□-EIP		
Appearance		NEW NEW					
Progra	m Capacity	Up to 6	O Ksteps	Up to 40	00 Ksteps		
Data M	emory Capacity	Up to 16	0 Kwords	Up to 832 Kwords			
I/O Bits	5		2,!	560			
Basic II	nstructions(LD)	40	Ons	16ns			
Special	instruction (MOV)	120	Ons	48ns			
Floatin instruc	g-point decimal tions (SIN)	0.8	6μs	0.59µs			
System	n overhead time	160μs	270μs 100μs		200μs		
FB Pro	gram Area		ES to 20K steps.)	_			
Comm	USB Port		Υ	ES			
munications Port	Serial Port	YES (RS-232C)	One Serial Option Board can be mounted (RS-232C or RS-422A/485)		ES 232C)		
ns Port	EtherNet/IP Port	_	YES	_	YES		
Serial F	PLC Links	YES YES (A Serial Option Board is required)		<u>-</u>			
High-sp	peed Interrupt Function	-	_	YES			
Synchr	onous Unit Operation	-	_	YES (In combination with a CJ1W-NC□□4 Position Control Unit)			
Pulse I	/O Modules*		ES odules can be mounted)	_			

^{*}A Pulse I/O Module must be mounted for CJ2M CPU Units with unit version 2.0 or later.

The Pursuit of High-speed Performance as a Controller

CJ2H)

All processes that affect the cycle time have been made faster.



300 μ s > 100 μ s 3 times faster -Common Processing -Instruction Execution LD 20ns ▶ 16ns 1.2 times faster SIN 42 μ s > 0.59 μ s 71 times faster

-Refresh

Basic I/O Unit: $3\mu s > 1.4\mu s$ 2 times faster Immediate refreshing 20µs ► 1µs 20 times faster

-Interrupt Response

Minimum Interval for **200** μ s > 100 μ s 2 times faster Scheduled Interrupts

Interrupt Response Time for Input Interrupts

30 μ s > 17 μ s 1.8 times faster

Ample Instruction Execution Performance for Machine Control.

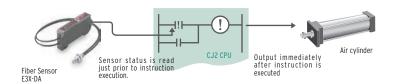
The CJ2 Series fully responds to customer requests for improved tact time and increased information.



Faster Immediate I/O Refreshing

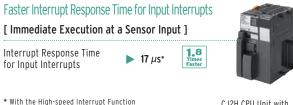
Realtime I/O during Instruction Execution

Immediate refreshing(!LD)



Improved Interrupt Response

For Finer Control



CJ2H CPU Unit with unit version 1.1 or later is used.

Shorter Minimum Interval for Scheduled Interrupts

[Ideal for Processing at a Fixed Interval]

Minimum Interval for Scheduled Interrupts







*1 Supported only for one scheduled interrupt task. The peripheral (USB) port or serial port of the CPU Unit

CJ2H CPU Unit with unit version 1.1 or can not be used at the same time. later is used.

*2 According to February 2010 OMRON survey in Japan.

Pulse I/O Modules expand the applicable positioning applications



Easily execute the position control of up to four axes

Either one or two Pulse I/O Modules can be connected to a CJ2M CPU Unit. The programming is as easy as pasting OMRON Function Blocks for positioning, or special instructions.

Pulse I/O Functions (for Two Pulse I/O Modules)

Input interrupts

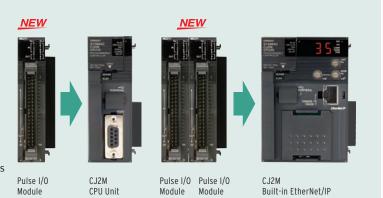
8 points

High-speed counter inputs:

Single-phase, 100 kHz, 4 CHs

or Phase-different input, 50 kHz, 4 CHs Pulse outputs:

100 kHz, 4 axes or four PWM outputs



Note. A Pulse I/O Module must be mounted for CJ2M CPU Units with unit version 2.0 or later.

Input Interrupts

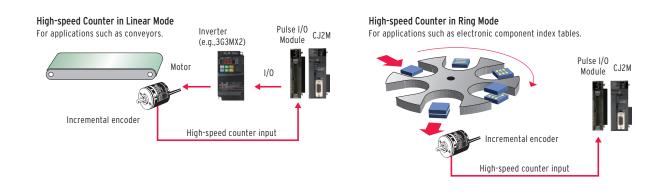
Up to eight interrupt inputs or quick-response inputs can be used.

- Pulse width as short as 30µs can be input with quick-response inputs.
- High-speed processing and interrupt response time of 33µs (in Direct Mode).
- Interrupts can be created for both of rising and falling edges.

High-speed Counters

Up to four high-speed counter inputs can be used by connecting rotary encoders to Pulse inputs.

•High-speed counting at 100 kHz for single-phase and 50 kHz for phase-different input.



- •The ring counter maximum value of a high-speed counter can be changed temporarily during operation.
- Start Interrupt Tasks using Target Value Comparison or Range Comparison for high-speed processing.
- •The frequency (speed) can be easily measured by executing HIGH-SPEED COUNTER PV READ (PRV(881)) instruction. Ideal for applications such as measuring the speed of rotating bodies for inspections or detecting conveyer speeds. Can also be used for monitoring accumulated motor rotations.

Pulse Outputs

From stepping motors to servos, positioning control can be easily achieved using pulse outputs for up to four axes.

Faster and easier

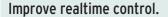
- ullet Pulse control cycle of 1 ms (1/4 of OMRON's CJ1M). Achieve smoother acceleration and deceleration.
- Faster starting of position control (twice as fast as OMRON's CJ1M). Helps reduce machine takt time.
- •INTERRUPT FEED instruction (IFEED(892)). Execute high-precision feeding from interrupt inputs with just one instruction.
- •Close integration with the data trace function of the CX-Programmer for easy monitoring of positioning operations.

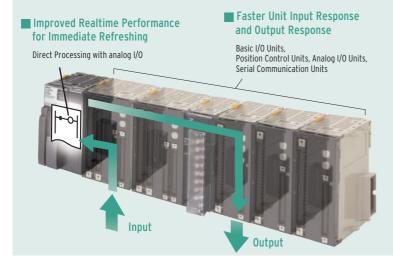
■ Complete positioning functions

Positioning control variations	Operation patterns	Application examples	Special instructions, OMRON Function Blocks
Trapezoidal Acceleration/ Deceleration Positioning Acceleration/deceleration time can be shortened with Trapezoidal Acceleration/ Deceleration Positioning function and Triangular control. Detailed functions are provided for reducing out-of-step operation for stepping motors and eliminating error downtime.	*Basic Form *Start frequency *Sectified number of travel pulses *Setting Acceleration and Deceleration *Separately -S-curve acceleration S-curve Acceleration -S-curve Acceleration	PCB Conveyor Rail Width Positioning	Achieved with a single OMRON Function Blocks for specifying absolute (or relative) travel.
Changing the Target Position during Positioning The target position can be changed during positioning. It is also possible to reverse direction when changing the target position.	Trapezoidal control (PLS2 instruction) Target position (frequency, acceleration) deceleration) changed	Position Control Using Data Measured after Startup Controller Controller Servo Driver (e.g., SMARTSIEP 2) Servomotor	While position control is being executed by a PLS2 instruction, another PLS2 instruction can be used to override the first PLS2 instruction. *Starting Trapezoidal Control
Interrupt Feeding It is possible to change to positioning control during speed control. Interrupt feeding can be executed after the interrupt for a specified number of pulses. Setting and starting interrupt feeding is possible with one instruction without using an interrupt task.	Speed control (IFEED instruction) A specified number of pulses are output and then positioning stops. Travel start	High-precision Interrupt for Positioning Sheet feeding direction Constant sheet length from detection of mark until heat welding.	Achieved with a single OMRON Function Block for interrupt feeding. IFEED C1 C2 S
Sequential Positioning Travel to multiple preset points can be executed. This is effective for applications such as positioning loaders and unloaders at multiple points.		PCB Rack Positioning	Achieved with a single OMRON Function Block for specifying sequential positioning. REAL PROPERTY REAL PRO

Flexible Machine Control with Refined I/O Perform







In addition to the greater processing performance of the CPU Unit, OMRON has also improved the response performance of each Unit. Faster throughput from inputs and processing to outputs helps to improve equipment tact time and work processing quality.

Faster Unit I/O Response

Lineup of High-speed Units

Faster ON/OFF response time

[Improved Basic Response]

ON response time OFF response time **15** μs

90 μs



Basic I/O Units: High-speed type CJ1W- ID212 ID233

High-speed Positioning

[High-speed All the Way to Pulse Output]





* Starting time for first axis when all axes are stopped.

High-speed type CJ1W-NC□□4

High-speed Analog I/O

[Improved Basic Response]

A/D, D/A conversion period \triangleright 20 μ s / 1 point ~ to 35 μ s / 4 point

* According to February 2010 OMRON survey in Japan







High-speed Serial Communications (No-protocol)

[Data Reception in Microseconds]

Consistent high speed is achieved from data reception to storage in CPU Unit memory.

> 210 μs*

800 μs*







Serial Communication High-speed type CJ1W-SCU□2

Continuous reception is possible on a high-speed cycle.

> 230 kbps

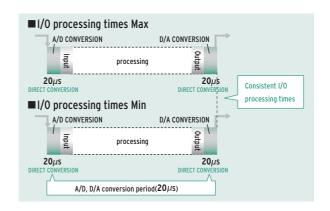
* CJ2H CPU Unit with unit version 1.1 or later is used. 230kbps,10bytes,The DRXDU instruction is used in an interrupt task.

Direct Processing with Enhanced Immediate Refreshing

Analog Input and Output with no jitter

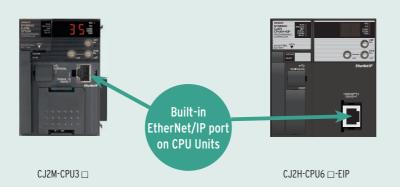
Consistency is achieved from input to processing and output with direct conversion functions for High-speed Units.*

 * The analog-digital or digital-analog conversion and refreshing of converted values and set values are performed when the Direct Conversion Instruction (AIDC/APDC) is executed. Supported only by the CJ2H CPU Units with unit version 1.1 or later and CJ2M CPU Units.



EtherNet/IP Is User Friendly in Three Ways

An open industrial network that implements a control protocol on general-purpose Ethernet technology.



CJ2 CPU Units are available with multifunctional Ethernet ports that are compatible with EtherNet/IP. Peripheral Devices for universal Ethernet Technology (such as Cables, Hubs, and Wireless Devices) can be used with CJ2 CPU Units.

Reduces network installation and wiring costs.

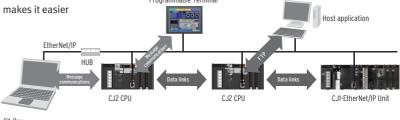


Multiple functions can be executed simultaneously on one port.



Support Software, Data Links, Message communications between PLCs, FTP Communications

The port connection does not need to be changed, which makes it easier to build the system.



Extremely Fast and High-capacity Data Links



Large Data Transfers with High Reliability

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.



Using the CJ2H built-in EtherNet/IP port (Functionality differs when using the CJ2M built-in EtherNet/IP port)

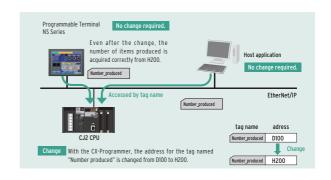
Efficient Programming with Tag Symbols



There Is Little Effect on Address Changes.

Previously, when data was exchanged by specifying address 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 reduce the dependence on a memory map and the need for checking items affected by changes. This allows equipment to be easily added or upgraded.

CJ2H-CPU6 \square -EIP: 20,000 max., CJ2M-CPU3 \square : 2,000 max.



Network Solutions for Control Automation Technology

Simplified system on the integration of network

Expanding applications, not limited for motion control.

Flexible communication specification allows a wide variety of devices to join the same network. The connectable devices involve drive devices such as Servo Drives and Inverters, I/O devices, and other intelligent devices, including Vision Sensors.



You Get Both the Easy Startup of Networks and the High-speed Starting





Superior Performance and Easy Operation

100Mbps

[High-speed communications]

With EtherCAT, you can improve the performance of overall system from PLCs to servo system, as well as stand-alone Servo performance.

0.4ms (when starting 4 axes)

[High-speed starting]

High-speed starting and control performance equivalent to those of pulse-train systems are achieved through network connections.

Starting time

0.4 ms

Starting times
Faster









f * A CJ2H CPU Unit with unit version 1.3 or higher or a CJ2M CPU Unit is required.

1 connection

[Simple wiring]

EtherCAT devices can be easily connected with Ethernet cables, which reduces wiring works.

1 port

[Simple startup]

Without reconnecting the computer, you can configure both the Position Control Units and EtherCAT communications setting via CPU unit. You can also directly connect the CX-Drive to set the Servo Drives.

Share the Same Programming

Common programming enables easy introduction into existing systems

The Position Control Units with EtherCAT interface use the same positioning functions* as High-speed Pulse-train Position Control Units, and the programming interface is also the same. You can easily switch the unit type between the Position Control Units depending on the application.







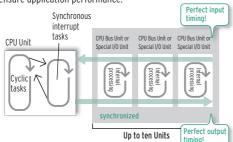


Achieve High-speed, Low-cost Synchronized Multi-axis Control with Pulse Outputs (CJ1W-NCDD4)

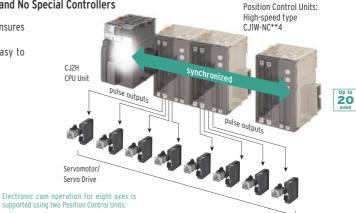




concurrency from input to processing and output. A consistent, high-speed synchronous control cycle of 1 ms makes it easy to ensure application performance.



Fully synchronized operation between CPI Unit and CPU Bus Units/Special I/O Units



Supported only by the CJ2H CPU Units with unit version 1.1 or later.

^{*} Except Synchronized control function

More Flexible Programming, Easier Debugging



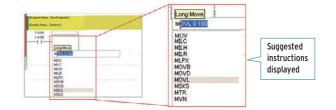
Changes to specifications can be handled easily and total lead time is reduced for system startup and troubleshooting.

A Smart Input Function greatly reduces the work required to input programs 50%

Easy, Intuitive Programming Software

A complete range of intuitive programming functions is provided, including instruction and address input assistance, address incrementing, and address incremental copy.

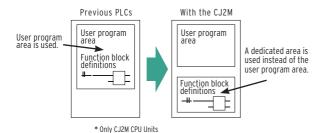
These functions enable waste-free programming with minimal effort.



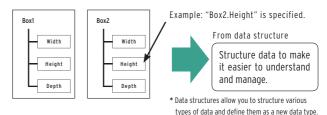
Highly Readable Programming

The Greatest Program Diversity in the Industry.

- -Bit Addresses can be used in the DM Area and EM Area.
- -BCD and Binary Timer instructions can be used Together.
- -Function blocks make units of processing easy to understand.
- -Function block definitions do not take up user program memory capacity.*



- -Address offsets can be specified
- -Array variables are supported, A symbol can be used for an array variable subscript.
- -Structure symbols st make it easier to create data structures and data bases.



* CJ2M: 2.000 data structures max.. CJ2H: 4.000 data structures max.

Stress-free Online Debugging

Effects on Machinery Operation Are Reduced.

- -The additional cycle time due to online editing has been reduced to approx. ${\tt 1}\,{\tt ms}$
- -Unlimited ST and SFC online editing

Greatly Improved Debugging Efficiency Through Superior Data Tracing

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

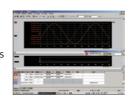
Ample Trigger Conditions

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.

CX-One Data Trace Is Also Upgraded.

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.



Data Trace

High-capacity Data Tracing

Maximum 32 Kwords (CJ2H) of data can be traced, and the EM Area can also be used as trace memory.

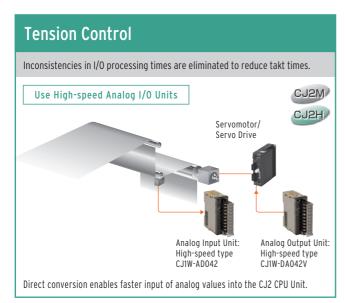
Continuous Data Tracing

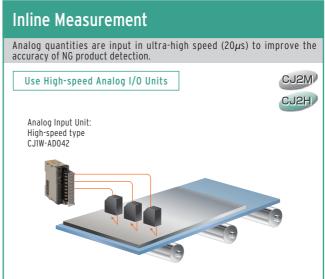
Sampled data in the trace memory of the CPU Unit can be regularly collected at the personal computer to enable sampling for long periods or time. Data can be saved in the CSV files in personal computer.

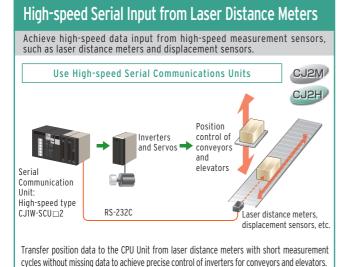
^{*} In comparison to CX-Programmer version 8.

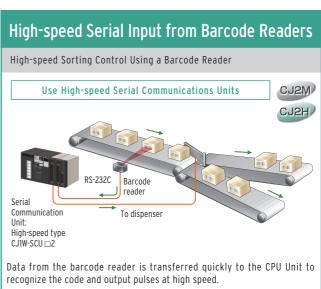
Ideal for Applications Requiring High Speed, Synchronization, and Multiple Axes

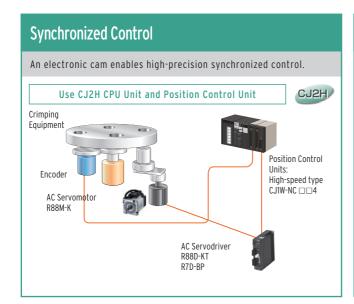
Helps Improve Machine I/O Throughput

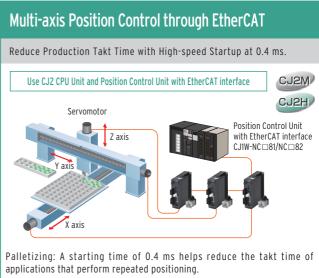








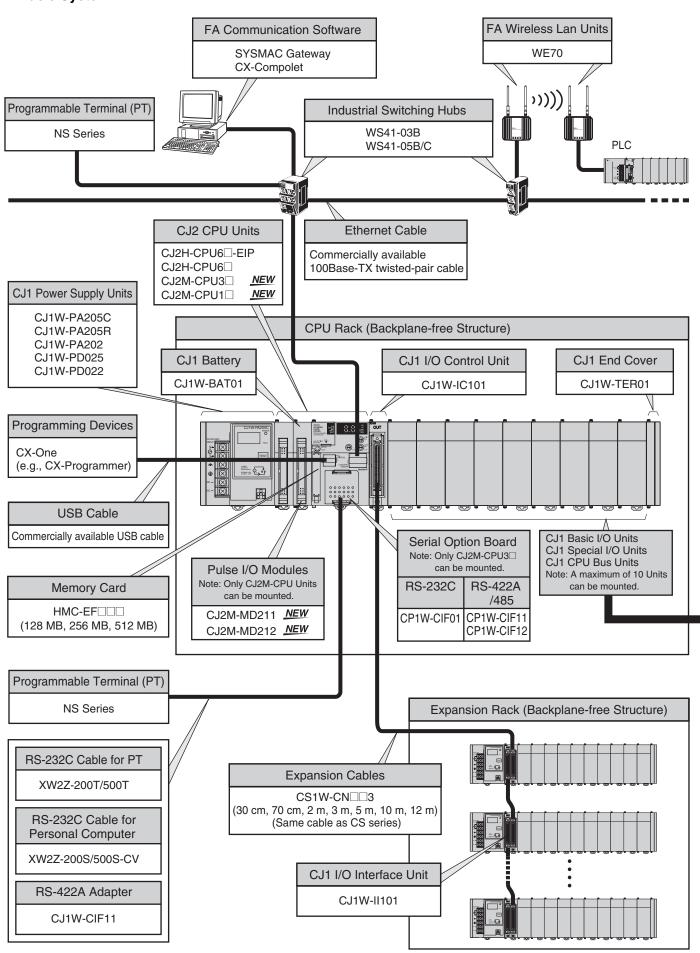




System Design Guide

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Specifications for Pulse I/O Functions	24

■ Basic System



■ Configuration Units

CJ1 Basic I/O Units								
8-point Units	16-point Units	32-point Units	64-point Units					
Input Units								
● DC Input Unit CJ1W-ID201 ● AC Input Unit CJ1W-IA201	● DC Input Unit CJ1W-ID211 CJ1W-ID212 (High-speed type) ● AC Input Unit CJ1W-IA111	● DC Input Unit CJ1W-ID231 CJ1W-ID232 CJ1W-ID233 (High-speed type)	DC Input Unit CJ1W-ID261 CJ1W-ID262					
	Outpu	t Units						
● Relay Contact Output Unit (independent commons) CJ1W-OC201 ● Triac Output Unit CJ1W-OA201 ● Transistor Output Units CJ1W-OD201 CJ1W-OD203 CJ1W-OD202 CJ1W-OD204	● Relay Contact Output Unit CJ1W-OC211 ● Transistor Output Units CJ1W-OD211 CJ1W-OD213 High-speed type CJ1W-OD212	● Transistor Output Units CJ1W-OD231 CJ1W-OD233 CJ1W-OD234 High-speed type CJ1W-OD232	Transistor Output Units CJ1W-OD261 CJ1W-OD263 CJ1W-OD262					
	1/0 (Jnits						
		(16 inputs, 16 outputs) ● DC Input/Transistor Output Units CJ1W-MD231 CJ1W-MD233 CJ1W-MD232	32 inputs, 32 outputs ● DC Input/Transistor Output Units CJ1W-MD261 CJ1W-MD263 32 inputs, 32 outputs ● TTL I/O Unit CJ1W-MD563					
	Other	Units						
	Interrupt Input Unit CJ1W-INT01 Quick-response Input Unit CJ1W-IDP01		● 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								
■ Process I/O Units Isolated-type Units with Universal Inputs CJ1W-PH41U CJ1W-AD04U 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 I/O Units CJ1W-AD042 CJ1W-AD042 CJ1W-AD081-V1	■ High-speed Counter Units CJ1W-CT021 ■ Position Control Units CJ1W-NC214 High-speed type CJ1W-NC414 High-speed type CJ1W-NC434 High-speed type CJ1W-NC434 High-speed type CJ1W-NC113 CJ1W-NC113 CJ1W-NC133 CJ1W-NC433 ■ Position Control Unit with EtherCAT interface CJ1W-NC281	■ Serial Communications Units CJ1W-SCU22 (High-speed type) CJ1W-SCU32 (High-speed type) CJ1W-SCU42 (High-speed type) CJ1W-SCU21-V1 CJ1W-SCU31-V1 CJ1W-SCU41-V1 ■ EtherNet/IP Unit CJ1W-EIP21 ■ Ethernet Unit CJ1W-ETN21 ■ Controller Link Units CJ1W-CLK23 ■ FL-net Unit CJ1W-FLN22 ■ DeviceNet Unit	■ ID Sensor Units CJ1W-V680C11 CJ1W-V680C12 CJ1W-V600C11 CJ1W-V600C12					
CJ1W-AD041-V1 ■ Analog Output Units CJ1W-DA042V High-speed type 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	CJ1W-NC481 CJ1W-NC881 CJ1W-NC881 CJ1W-NC882 CJ1W-NCF82 NEW Position Control Unit with MECHATROLINK-II interface CJ1W-NC71 CJ1W-NC71 CJ1W-NC71 CJ1W-NCF71-MA Motion Control Unit with MECHATROLINK-II interface CJ1W-MCH71	■ CompoNet Master Unit CJ1W-CRM21 ■ CompoBus/S Master Unit CJ1W-SRM21	■ High-speed Data Storage Unit CJ1W-SPU01-V2					

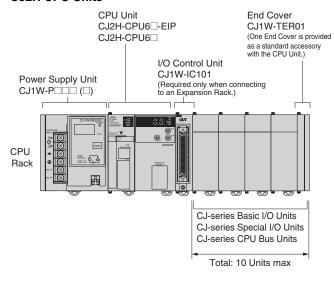
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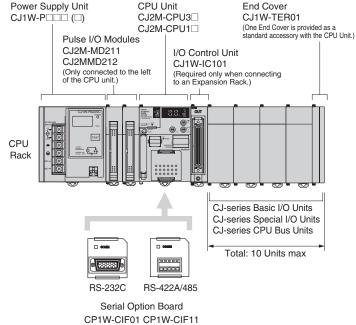
■ CJ-series CPU Racks

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.

CJ2H CPU Units



CJ2M CPU Units



CP1W-CIF12 (CJ2M-CPU3□ Only.)

Required Units

Rack	Unit name	Required number of Units
	Power Supply Unit	1
	CPU Unit	1
	Pulse I/O Modules	Required only for using Pulse I/O. Up to two Pulse I/O Modules can be connected to a CJ2M CPU Unit. They must be connected immediately to the left of the CPU Unit.
CPU Rack	Serial Option Board	One Serial Option Board can be mounted in the CJ2M-CPU3□.
	I/O Control Unit	Required only for mounting to an Expansion Rack. Mount the I/O Control Unit immediately to the right of the CPU Unit.
	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.)

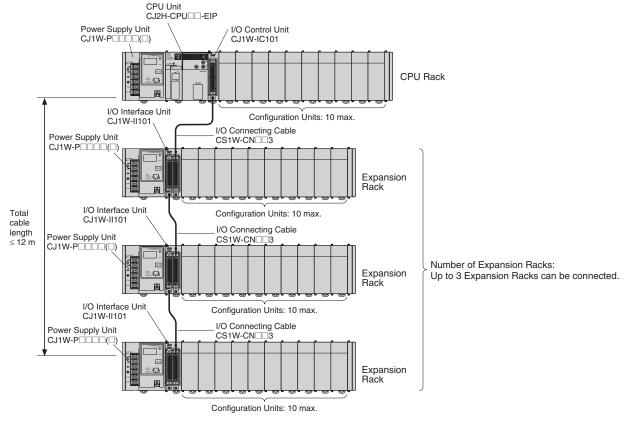
Types of Units

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

Туре	Appearance (example)	Description	Unit recognition method	Max. Units mountable per CPU Unit
Basic I/O Units	200	Units with contact inputs and contact outputs.	Recognized by the CPU Unit according to the position of the Rack and slot.	A maximum of 40 Units can be mounted.
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 40 Units can be connected. (Multi- ple unit numbers are allo- cated per Unit, depending on the model and settings.)
CPU Bus Units	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	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 16 Units can be mounted.

■ 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.)				
	Power Supply Unit	One Unit				
Expansion	I/O Interface Unit	One Unit. Mount the I/O Interface Unit immediately to the right of the Power Supply Unit. (See note 2.)				
Rack	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.

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)			
CJ2M	CJ2M-CPU35			
	CJ2M-CPU34			
	CJ2M-CPU33			
	CJ2M-CPU32			
	CJ2M-CPU31			
	CJ2M-CPU15			
	CJ2M-CPU14			
	CJ2M-CPU13			
	CJ2M-CPU12			
	CJ2M-CPU11			

Note: It may not be possible to mount the maximum number of configuration Units depending on the specific Units that are mounted. Refer to the next page for details.

^{2.} Mounting the I/O Interface Unit in any other location may cause faulty operation.

Configuration Units

CJ-series Special I/O Units

Туре	Name	Specifications	Model	Number of words allocated (CIO 2000 to	(D20000 to	Unit No.	Number of mountable Units	consu	rrent imption (A)	Weight
				CIO 2959)	D29599)		Onits	5 VDC	24 VDC	
Special I/O Units	General- purpose Universal Analog Input Unit	4 inputs, fully universal	CJ1W-AD04U	10 words	100 words	0 to 95	40 Units	0.32		150 g max.
	Analog Input	8 inputs (4 to 20 mA,	CJ1W-AD081-V1	10 words	100 words	0 to 95	40 Units	0.42		140 g max.
	Units	1 to 5 V, etc.) 4 inputs (4 to 20 mA, 1 to 5 V, etc.)	CJ1W-AD041-V1	10 words	100 words	0 to 95	40 Units	0.42		140 g max.
		4 inputs (4 to 20 mA, 1 to 5 V, etc.)	CJ1W-AD042	10 words	100 words	0 to 95	40 Units	0.52		150 g max.
	Analog Output Units	4 outputs (1 to 5 V, 4 to 20 mA, etc.)	CJ1W-DA041	10 words	100 words	0 to 95	40 Units	0.12		150 g max.
		2 outputs (1 to 5 V, 4 to 20 mA, etc.)	CJ1W-DA021	10 words	100 words	0 to 95	40 Units	0.12		150 g max.
		8 outputs (1 to 5 V, 0 to 10 V, etc.)	CJ1W-DA08V	10 words	100 words	0 to 95	40 Units	0.14		150 g max.
		8 outputs (4 to 20 mA)	CJ1W-DA08C	10 words	100 words	0 to 95	40 Units	0.14		150 g max.
		4 outputs (1 to 5 V, 0 to 10 V, etc.)	CJ1W-DA042V	10 words	100 words	0 to 95	40 Units	0.40		150 g max.
	Analog I/O Unit	4 inputs (1 to 5 V, 4 to 20 mA, etc.) 2 outputs (1 to 5 V, 4 to 20 mA, etc.)	CJ1W-MAD42	10 words	100 words	0 to 95	40 Units	0.58		150 g max.
	Isolated-type High-resolution Universal Input Unit	4 inputs, fully universal Resolution: 1/256,000, 1/64,000, 1/16,000	CJ1W-PH41U	10 words	100 words	0 to 95	40 Units	0.30		150 g max.
	Isolated-type	4 thermocouple inputs	CJ1W-PTS51	10 words	100 words	0 to 95	40 Units	0.25		150 g max.
	Thermocouple Input Units	2 thermocouple inputs	CJ1W-PTS15	10 words	100 words	0 to 95	40 Units	0.18		150 g max.
	Isolated-type Resistance	4 resistance thermometer inputs	CJ1W-PTS52	10 words	100 words	0 to 95	40 Units	0.25		150 g max.
	Thermometer Input Units	2 resistance thermometer inputs	CJ1W-PTS16	10 words	100 words	0 to 95	40 Units	0.18		150 g max.
	Direct Current Input Unit	DC voltage or DC current, 2 inputs	CJ1W-PDC15	10 words	100 words	0 to 95	40 Units	0.18		150 g max.
	Temperature Control Units	4 control loops, thermocouple inputs, NPN outputs	CJ1W-TC001	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.25		150 g max.
		4 control loops, thermocouple inputs, PNP outputs	CJ1W-TC002	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.25		150 g max.
		2 control loops, thermocouple inputs, NPN outputs, heater burnout detection	CJ1W-TC003	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.25		150 g max.
		2 control loops, thermocouple inputs, PNP outputs, heater burnout detection	CJ1W-TC004	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.25		150 g max.
		4 control loops, temperature- resistance thermometer inputs, NPN outputs	CJ1W-TC101	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.25		150 g max.
		4 control loops, temperature- resistance thermometer inputs, PNP outputs	CJ1W-TC102	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.25		150 g max.
		2 control loops, temperature-resistance thermometer inputs, NPN outputs, heater burnout detection	CJ1W-TC103	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.25		150 g max.
		2 control loops, temperature-resistance thermometer inputs, PNP outputs, heater burnout detection	CJ1W-TC104	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.25		150 g max.

Туре	Name	Name	Specifications	Model	Number of words allocated (CIO 2000 to	(D20000 to	Unit No.	Number of mountable Units	consu (/	rent mption A)	Weight
				CIO 2959)	D29599)		Ullits	5 VDC	24 VDC		
Special I/O Units	Position Control Units	1 axis, pulse output; open collector output	CJ1W-NC113	10 words	100 words	0 to 95	40 Units	0.25		100 g max.	
		2 axes, pulse outputs;	CJ1W-NC213	10 words	100 words	0 to 95	40 Units	0.25		100 g max.	
		open collector outputs	CJ1W-NC214 *1, *2	18 words *3	None	0 to 94 (uses words for 2 unit numbers)	5 Units/ Rack	0.27		170 g max.	
		4 axes, pulse outputs; open collector outputs	CJ1W-NC413	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.36		150 g max.	
			CJ1W-NC414 *1, *2	18 words * 3	None	0 to 94 (uses words for 2 unit numbers)	5 Units/ Rack	0.31		220 g max.	
		1 axis, pulse output; line driver output	CJ1W-NC133	10 words	100 words	0 to 95	40 Units	0.25		100 g max.	
		2 axes, pulse outputs;	CJ1W-NC233	10 words	100 words	0 to 95	40 Units	0.25		100 g max.	
		line driver outputs	CJ1W-NC234 *1, *2	18 words *3	None	0 to 94 (uses words for 2 unit numbers)	5 Units/ Rack	0.27		170 g max.	
		4 axes, pulse outputs; line driver outputs	CJ1W-NC433	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.36		150 g max.	
			CJ1W-NC434 *1, *2	18 words *3	None	0 to 94 (uses words for 2 unit numbers)	5 Units/ Rack	0.31		220 g max.	
		Space Unit *4	CJ1W-SP001	None	None					50 g max.	
	ID Sensor Units	V600-series single- head type	CJ1W-V600C11	10 words	100 words	0 to 95	40 Units	0.26	0.12	120 g max.	
		V600-series two-head type	CJ1W-V600C12	20 words	200 words	0 to 94 (uses words for 2 unit numbers)	40 Units	0.32	0.24	130 g max.	
		V680-series single- head type	CJ1W-V680C11	10 words	100 words	0 to 95	40 Units	0.26	0.13	120 g max.	
		V680-series two-head type	CJ1W-V680C12	20 words	200 words	0 to 94	40 Units	0.32	0.26	130 g max.	
	High-speed Counter Unit	Number of counter channels: 2, Maximum input frequency: 500 kHz, line driver compatible \$5	CJ1W-CT021	40 words	400 words	0 to 92 (uses words for 4 unit numbers)	24 Units	0.28		100 g max.	
	CompoBus/S Master Units	CompoBus/S remote I/O, 256 bits max.	CJ1W-SRM21	10 words or 20 words	None	0 to 95 or 0 to 94	40 Units	0.15		66 g max. *6	

^{*1.} With a CJ2 CPU Unit, up to 10 Configuration Units can be connected in the CPU Rack and in each Expansion Rack. The CJ1W-NC□□4, however, must be counted as two Units. Configure the Units to satisfy the following formula.

Number of CJ1W-NC \square 4 Units × 2 + Number of other Units \leq 10

For example, if five CJ1W-NC 4 Units are connected to one Rack, no other Units can be connected.

- CJ2H-CPU6□-EIP: Slots 0 to 3
- \bullet CJ2H-CPU6 \square or CJ2M-CPU \square : Slots 0 to 4
- ***6.** Includes the weight of accessory connectors.

^{*2.} The Units must be mounted on the CPU Rack to use synchronous unit operation.

^{*3.} In addition to the words allocated in the Special I/O Unit Area, up to 144 words are allocated according to the number of axes and functions uses. Word allocations are set using the CX-Programmer.

^{*4.} The Space Unit is for Position Control Units.

^{*5.} If interrupts to the CPU Unit are used, mount the Interrupt Input Unit in one of the following slots on the CPU Rack.

Туре	Name	Specifications	Model	Number of words allocated (CIO 2000 to Number of words allocated (D20000 to		Unit No.	Number of mountable Units	consumption		Weight
				CIO 2959)	D29599)		Units	5 VDC	DC 24 VDC	
Special I/O Units	CompoNet Master Unit	CompoNet remote I/O Communications mode No. 0: 128 inputs/ 128 outputs for Word Slaves		20 words	None	0 to 94 (uses words for 2 unit numbers)	40 Units	0.40		130 g max.
		Communications mode No. 1: 256 inputs/ 256 outputs for Word Slaves		40 words	None	0 to 92 (uses words for 4 unit numbers)	24 Units	0.40		
	Slaves Communications mode No. 3: 256 inputs/ 256 outputs for Wo Slaves and 128 inputs/ 128 outputs for Bit Slaves Communications mode No. 8: 1,024 inputs/ 1,024 output for Word Slaves an 256 inputs/	mode No. 2: 512 inputs/ 512 outputs for Word	CJ1W-CRM21	80 words	None	0 to 88 (uses words for 8 unit numbers)	12 Units	0.40		
		mode No. 3: 256 inputs/ 256 outputs for Word Slaves and 128 inputs/ 128 outputs for Bit		80 words	None	0 to 88 (uses words for 8 unit numbers)	12 Units	0.40		
			mode No. 8: 1,024 inputs/1,024 outputs for Word Slaves and 256 inputs/ 256 outputs for Bit		10 words	Depends on setting	0 to 95 uses words for 1 unit number)	40 Units	0.40	

CJ-series CPU Bus Units

Туре	Name	Specifications	Model	Number of words allocated (CIO 1500 to CIO 1899)	Unit No.	Maximum number of Units *1	consum	rrent option (A)	Weight
CPU Bus	High-speed Analog	4 inputs: 80 μs/2 inputs,		25 words	0 to F	16 Units	5 VDC 0.65	24 VDC	150 g max.
Units * 1	Input Unit	160 μs/4 inputs	CJ1W-ADG41 *2			*3			, and the second
	Controller Link Units	Wired data links	CJ1W-CLK23	25 words	0 to F	8 Units	0.35		110 g max.
		One RS-232C port and one RS-422A/485 port	CJ1W-SCU41-V1	25 words	0 to F	16 Units * 3	0.38 *4		110 g max.
	Units	Two RS-232C ports	CJ1W-SCU21-V1				0.28 *4		
		Two RS-422A/485 ports	CJ1W-SCU31-V1				0.38		
		Two RS-232C ports High-speed models	CJ1W-SCU22			16 Units *3	0.28 *4		160 g max.
		Two RS-422A/485 ports High-speed models	CJ1W-SCU32				0.4		120 g max.
		One RS-232C port and one RS-422A/485 port High-speed models	CJ1W-SCU42				0.36 *4		140 g max.
	Ethernet Units	100Base-TX, FINS communications, socket service, FTP server, and mail communications	CJ1W-ETN21	25 words	0 to F	4 Units	0.37		100 g max.
	EtherNet/IP Unit	Tag data links, FINS communications, CIP message communications, FTP server, etc.	CJ1W-EIP21	25 words	0 to F	*5	0.41		94 g max.
	FL-net Unit	100Base-TX cyclic transmissions and message transmissions	CJ1W-FLN22	25 words	0 to F	4 Units	0.37		100 g max.
	DeviceNet Unit	DeviceNet remote I/O, 2,048 points; Both Master and Slave functions, Automatic allocation possible without Configurator	CJ1W-DRM21	25 words *6	0 to F	16 Units *3	0.29		118 g max. *7
	Position Control	2 servo axes	CJ1W-NC281	25 words	0 to F	to F 16 Units *3	0.46		110 g max.
	EtherCAT interface *8 8 servo ax 16 servo ax	4 servo axes	CJ1W-NC481						
		8 servo axes	CJ1W-NC881						
		16 servo axes 4 servo axes and 64 I/O	CJ1W-NCF81						
		slaves 8 servo axes and 64 I/O	CJ1W-NC482	_					
	slaves	slaves 16 servo axes and 64 I/O	CJ1W-NC882						
		slaves	CJ1W-NCF82						
	Position Control Units supporting MECHATROLINK-II communications	MECHATROLINK-II, 16 axes max.	CJ1W-NCF71(-MA)	25 words	0 to F	16 Units *3	0.36		95 g max.
	Motion Control Units supporting MECHATROLINK-II communications	MECHATROLINK-II, Real axes: 30 max., Virtual axes: 2 max., Special motion control language	CJ1W-MCH71	25 words	0 to F	3 Units/ Rack *9	0.60		210 g max.
	SYSMAC SPU Unit (High-speed Storage and Processing Unit)	One CF card type I/II slot (used with OMRON HMC-EF _ _ Memory Card), one Ethernet port	CJ1W-SPU01-V2 *10	Not used.	0 to F	16 Units *3	0.56		180 g max.

- *1. Some CJ-series CPU Bus Units are allocated words in the CPU Bus Unit Setup Area. The system must be designed so that the number of words allocated in the CPU Bus Unit Setup Area does not exceed its capacity. Refer to 4-6-2 CPU Bus Unit Setup Area in CJ2 CPU Unit Software User's Manual (Cat. No. W473). There may also be limits due to the capacity of the Power Supply Unit that you are using or the maximum number of Units to which memory can be allocated in the CPU But Unit Setup Area.
- *2. If interrupts to the CPU Unit are used, mount the Interrupt Input Unit in one of the following slots on the CPU Rack.
 - CJ2H-CPU6□-EIP: Slots 0 to 3
 - CJ2H-CPU6□ or CJ2M-CPU□□: Slots 0 to 4
- ***3.** Up to 15 Units can be connected for a CJ2H-CPU6□-EIP or CJ2M-CPU3□ CPU Unit.
- Increases by 0.15 A/Unit when an NT-AL001 RS-232C/RS-422A Link Adapter is used. Increases by 0.04 A/Unit when a CJ1W-CIF11 RS-422A Converter is used. ***4.** Increases by 0.20 A/Unit when an NV3W-M 20L Programmable Terminal is used.
- *5. Up to seven Units can be connected for a CJ2H-CPU6□-EIP CPU Unit, up to eight Units can be connected for a CJ2H-CPU6□ CPU Unit, and up to two Units can be connected for a CJ2M CPU Unit.
- ***6**. Slave I/O are allocated in DeviceNet Area (CIO 3200 to CIO 3799).
- Includes the weight of accessory connectors.
- Only OMNUC G5-series Servo Drives with Built-in EtherCAT can be connected. ***8**.
- *9. When mounting to a CJ-series CPU Rack or a CJ-series Expansion Rack, one of these Units uses the space of three Units.
 *10. Use version 2 or higher of the SYSMAC SPU Unit with a CJ2 CPU Unit.

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.

	Max. current supplied		Max. total	
Power Supply Units	5 V	24 V (relay driv- ing current)	power sup- plied	
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 ≤ (B) value

Condition 2: Maximum Power

 $(1) \times 5 \text{ V} + (2) \times 24 \text{ V} \leq (C) \text{ value}$

■ 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

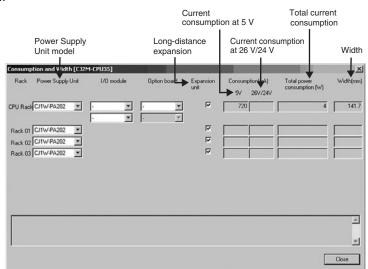
Unit type	Model	Quantity	Voltage group	
Onit type	woder		5 V	24 V
CPU Unit	CJ2H-CPU68-EIP	1	0.820 A	
I/O Control Unit	CJ1W-IC101	1	0.020 A	
Basic I/O Units (Input Units)	CJ1W-ID211	2	0.080 A	
	CJ1W-ID231	2	0.090 A	
Basic I/O Units (Output Units)	CJ1W-OC201	2	0.090 A	0.048 A
Special I/O Unit	CJ1W-DA041	1	0.120 A	
CPU Bus Unit	CJ1W-CLK23	1	0.350 A	
Current consumption	Total		0.820 + 0.020 + 0.080 × 2 + 0.090 × 2 + 0.090 × 2 + 0.120 + 0.350	0.048 A × 2
	Result		1.83 A (≤ 5.0 A)	0.096 A (≤ 0.8 A)
Power consumption	Total		1.83 × 5 V = 9.15 W	0.096 A × 24 V = 2.30 W
	Result		9.15 + 2.30 = 11.	45 W (≤ 25 W)

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

■ Using the CX-Programer 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.

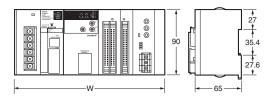
Example:



Dimensions

Note: Units are in mm unless specified otherwise.

■ Product Dimensions

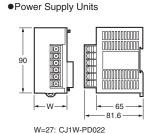


Example Rack Widths using CJ1WPA202 Power Supply Unit (AC, 14 W)

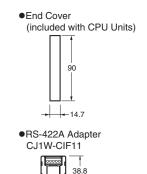
No. of Units	Rack width (mm)			
mounted with 31-mm width	With CJ2H-CPU6□-EIP	With CJ2H-CPU6□	With CJ2M-CPU3□	With CJ2M-CPU1□
1	170.5	139.5	152.7	121.7
2	201.5	170.5	183.7	152.7
3	232.5	201.5	214.7	183.7
4	263.5	232.5	245.7	214.7
5	294.5	263.5	276.7	245.7
6	325.5	294.5	307.7	276.7
7	356.5	325.5	338.7	307.7
8	387.5	356.5	369.7	338.7
9	418.5	387.5	400.7	369.7
10	449.5	418.5	431.7	400.7

● Power Supply Units, CPU Units, and End Covers

Unit/product	Model	Width
	CJ1W-PA205C	80
	CJ1W-PA205R	80
Power Supply Unit	CJ1W-PA202	45
	CJ1W-PD025	60
	CJ1W-PD022	27
	CJ2H-CPU6□-EIP	79.8
CPU Unit	CJ2H-CPU6□	48.8
CFO OIIII	CJ2M-CPU3□	62
	CJ2M-CPU1□	31
End Cover	CJ1W-TER01	14.7



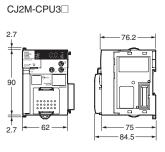
W=27: CJ1W-PD022 W=45: CJ1W-PA202 W=80: CJ1W-PA205R CJ1W-PA205C W=60: CJ1W-PD025

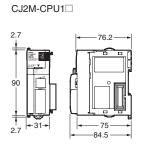






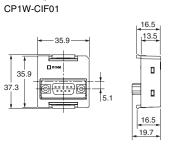


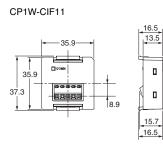


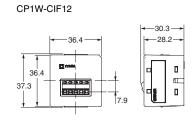


● Option Boards (CJ2M-CPU3□ only)

Serial Option Boards



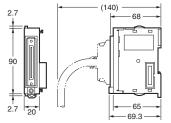


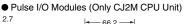


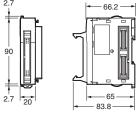
Units of Width 20 mm

Unit/product	Model	Width
I/O Control Unit	CJ1W-IC101	
Pulse I/O Modules	CJ2M-MD211/212	
32-point Basic I/O Units	CJ1W-ID231/232/233	
02-point basic i/O onits	CJ1W-OD231/232/233/234	
	CJ1W-B7A22	20
B7A Interface Unit	CJ1W-B7A14	
	CJ1W-B7A04	
CompoBus/S Master Unit	CJ1W-SRM21	
Space Unit	CJ1W-SP001	

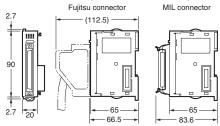








\bullet 32-Point I/O Units (CJ1W-ID223 \square /OD23 \square)

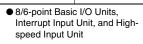


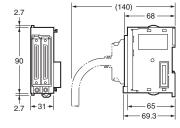
● Units of Width 31 mm

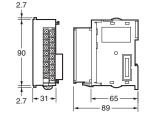
Unit	Model	Width
I/O Interface Unit	CJ1W-II101	
8/16-point Basic I/O Units	CJ1W-ID201 CJ1W-ID211/212 CJ1W-IA111/201 CJ1W-OD20 CJ1W-OD211/212/213 CJ1W-OC201/211 CJ1W-OA201	
32-point Basic I/O Units	CJ1W-MD231 CJ1W-MD232/233	
	CJ1W-ID261 CJ1W-OD261 CJ1W-MD261	
64-point Basic I/O Units	CJ1W-ID262 CJ1W-OD262/263 CJ1W-MD263 CJ1W-MD563	
Interrupt Input Unit	CJ1W-INT01	
Quick-response Input Unit	CJ1W-IDP01	
Analog I/O Units	CJ1W-AD□□□ (-V1) CJ1W-DA□□□ (□) CJ1W-MAD42	31
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	
Position Control Unit with EtherCAT interface	CJ1W-NC281 CJ1W-NC481 CJ1W-NC881 CJ1W-NCF81 CJ1W-NC482 CJ1W-NC882 CJ1W-NCF82	
Position Control Unit with MECHATROLINK-II interface	CJ1W-NCF71	
High-speed Counter Unit	CJ1W-CT021	
ID Sensor Units	CJ1W-V680C11 CJ1W-V680C12 CJ1W-V600C11 CJ1W-V600C12	

Unit	Model	Width
Controller Link Units	CJ1W-CLK23	
Serial Communications Units	CJ1W-SCU22 CJ1W-SCU32 CJ1W-SCU42 CJ1W-SCU41-V1 CJ1W-SCU21-V1 CJ1W-SCU31-V1	
EtherNet/IP Unit	CJ1W-EIP21	
Ethernet Unit	CJ1W-ETN21	
DeviceNet Unit	CJ1W-DRM21	31
CompoNet Master Unit	CJ1W-CRM21	
FL-net Unit	CJ1W-FLN22	

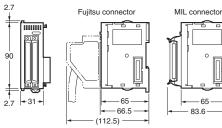
● I/O Interface Unit



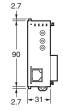




● 64-point Basic I/O Units and 32-point Basic I/O Units (CJ1W-MD23□)



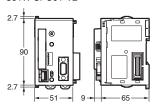
Special I/O Units and CPU Bus Units



● Units of Width 51 mm

Unit	Model	Width
SYSMAC SPU (High-speed Data Storage Unit)	CJ1W-SPU01-V2	51
Position Control Units (High-speed type)	CJ1W-NC214/234	

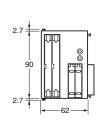
 SYSMAC SPU (High-speed Data Storage Unit) CJ1W-SPU01-V2

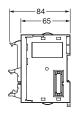


• Unit of Width 62 mm

Unit	Model	Width
Position Control Units (High-speed type)	CJ1W-NC414/434	62

 Position Contorol Unit (High-speed model) CJ1W-NC414/434

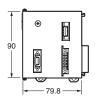




● Unit of Width 79.8 mm

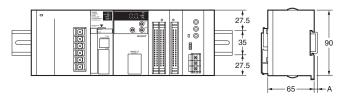
Unit	Model	Width
Motion Control Unit with MECHATROLINK-II interface	CJ1W-MCH71	79.8

 Motion Control Unit with MECHATROLINK-II interface CJ1W-MCH71





■ Mounting Dimensions

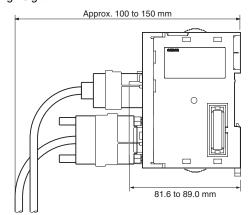


DIN Track model number	Α
PFP-100N2	16 mm
PFP-100N	7.3 mm
FPP-50N	7.3 mm

■ Mounting Height

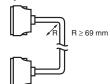
The mounting height of CJ-series CPU Racks and Expansion Racks is from 81.6 to 89.0 mm depending on the Units that are mounted.

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.

Expansion Cable



Note: Outer diameter of cable: 8.6 mm.

General Specifications

	tom			CJ2H-			CJ2M-				
	tem	CPU64 (-EIP)	CPU65 (-EIP)	CPU66 (-EIP)	CPU67 (-EIP)	CPU68 (-EIP)	CPU1□	CPU3□			
Enclosure		Mounted in a pane	el					•			
Grounding		Less than 100 Ω									
CPU Unit Dim $(H \times D \times W)$	ensions	CJ2H-CPU6□-EIF CJ2H-CPU6□ :	90 mm × 65 mi 90 mm × 65 mi				90 mm × 75 mm × 31 mm	90 mm × 75 mm × 62 mm			
Weight		CJ2H-CPU6□-EIF CJ2H-CPU6□ :	2: 280 g or less 190 g or less				130 g or less	190 g or less (See note.)			
Current Consumption		CJ2H-CPU6□-EIF CJ2H-CPU6□ :	P: 5 VDC, 0.82 A 5 VDC, 0.42 A				5 VDC, 0.5 A	5 VDC, 0.7 A			
Operation Environment	Ambient Operating Temperature	0 to 55°C						1			
	Ambient Operating Humidity	10% to 90% (with no condensation)									
	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 IEC6 5 to 8.4 Hz with 3. Acceleration of 9.8	5-mm amplitude, 8	00 min total)							
	Shock Resistance	Conforms to IEC6 147 m/s², 3 times									
Battery	Life	5 years at 25°C									
	Model	CJ1W-BAT01									
Applicable Sta	andards	Conforms to cULu	s, NK, LR and EC	Directives.							

Note: Without a Serial Option Board.

Performance Specifications

Speed Example Speed Maximum Number Speed Final Information Speed Property Speed And Speed Speed Property Speed Speed Speed CIO Area I/O Speed	er of Conne Basic I/O Un Special I/O U	ocessing Time *1 me I/O Interrupts and External Interrupts Scheduled Interrupts ctable Units its Juits dules th interrupts can be used	Basic Inst Special In Interrupt ta Return tim Minimum (set in 0.1 Interrupt ta (27 µs for Return tim (15 µs for Total per C Total per G No limit However, Units for u (Unit num CJ2M-CP CJ2M-CP 2 Units ma	CJ2H ructions: 0. structions: 0. structions: usk startup to the st	I-CPU6 : .016 μs mir 0.048 μs m time: 17 μs (30 μs tasks: 8 μs nents) Itime: 13 μ n 1.0)	nin. *2 or 26 µs s for unit ver *2 or 11 µ µs for unit ve	s rsion 1.0) s ersion 1.0) μs μs υ Units max Interrupt In	Basic Ins Special Ir Interrupt Return tir Minimum (set in 0.1 Interrupt Return tir	tructions: 0 nstructions: 1 nstructions: task startup mes to cycli time interval -ms incren task startup me to cyclic an be mour	M-CPU1 :: 0.04 μs min. 0.06 μs m o time: 31 μ ic tasks: 10 ral: 0.4 ms ments) o time: 30 μ c task: 11 μ otal: 0.4 ms	in. us) μs						
Maximum Numbe Bi Si Maximum Numbe CIO Area I/O Bits Processing O E: In	er of Conne Basic I/O Un Special I/O U CPU Bus Un Pulse I/O Mo Blots for which	I/O Interrupts and External Interrupts Scheduled Interrupts ctable Units its Juits ch interrupts can be used	steps 2,560 bits Normal M Basic Inst Special In Interrupt ta Return tim Minimum (set in 0.1 Interrupt ta (27 µs for Return tim (15 µs for Total per C Total per C Total per C Units for u (Unit num CJ2M-CP CJ2M-CP 2 Units ma	steps ode: CJ2H- CJ2H ructions: 0. structions: 0. structions: isk startup to the sto cyclic time intervalues to cyclic ask startup unit version cPU Rack (PLC: 40 Un a maximum p to 96 uni bers run fro U3@: 15 U U1@: 16 U ax. *3	steps -CPU6 -E -CPU6 : -CPU6	steps	steps s s s sison 1.0) s ersion 1.0)	Normal M Basic Ins Special Ir Interrupt Return tir Minimum (set in 0.1 Interrupt Return tir	fode: CJ2M CJ2N tructions: 0 nstructions: task startup mes to cycli time intervi 1-ms increm task startup me to cyclic	M-CPU3□: M-CPU1□: 0.04 μs min. 0.06 μs m o time: 31 μ ic tasks: 10 ral: 0.4 ms nents) o time: 30 μ c task: 11 μ nted.	270 µ 160 µ ;; in. us	steps					
Processing Speed E: In Maximum Number Si Maximum Number CIO Area Iv Si Ci Si Pr	er of Conne Basic I/O Un Special I/O U CPU Bus Un Pulse I/O Mo Blots for which	I/O Interrupts and External Interrupts Scheduled Interrupts ctable Units its Juits ch interrupts can be used	Normal M Basic Inst Special In Interrupt ta Return tim Minimum (set in 0.1 Interrupt ta (27 µs for Return tim (15 µs for Total per C Total per G No limit However, Units for u (Unit num) CJ2M-CP CJ2M-CP 2 Units ma Slots 0 to	CJ2H ructions: 0. structions: 0. structions: usk startup to the st	I-CPU6 : .016 μs mir 0.048 μs m time: 17 μs (30 μs tasks: 8 μs nents) Itime: 13 μ n 1.0)	100 µm.; n.; nin. *2 or 26 µm. *2 or 11 µm. *2 or 11 µm. *2 s *2 or 22 s *2 or 11 on Rack: 10 11W-INT01 can be mou	s rsion 1.0) s ersion 1.0) μs μs υ Units max Interrupt Injunted.	Basic Ins Special Ir Interrupt Return tir Minimum (set in 0.1 Interrupt Return tir	CJ2M tructions: 0 nstructions: task startup mes to cycli time interv. 1-ms increm task startup me to cyclic an be mour	M-CPU1 :: 0.04 μs min. 0.06 μs m o time: 31 μ ic tasks: 10 ral: 0.4 ms ments) o time: 30 μ c task: 11 μ otal: 0.4 ms	160 μ;;inus						
Speed E: In Maximum Numbe B: Specification Pression Signature CIO Area	er of Conne Basic I/O Un Special I/O U CPU Bus Un Pulse I/O Mo Blots for which	I/O Interrupts and External Interrupts Scheduled Interrupts ctable Units its Juits ch interrupts can be used	Basic Inst Special In Interrupt ta Return tim Minimum (set in 0.1 Interrupt ta (27 µs for Return tim (15 µs for Total per C Total per G No limit However, Units for u (Unit num CJ2M-CP CJ2M-CP 2 Units ma	CJ2H ructions: 0. structions: 0. structions: usk startup to the st	I-CPU6 : .016 μs mir 0.048 μs m time: 17 μs (30 μs tasks: 8 μs nents) Itime: 13 μ n 1.0)	100 µm.; n.; nin. *2 or 26 µm. *2 or 11 µm. *2 or 11 µm. *2 s *2 or 22 s *2 or 11 on Rack: 10 11W-INT01 can be mou	s rsion 1.0) s ersion 1.0) μs μs υ Units max Interrupt Injunted.	Basic Ins Special Ir Interrupt Return tir Minimum (set in 0.1 Interrupt Return tir	CJ2M tructions: 0 nstructions: task startup mes to cycli time interv. 1-ms increm task startup me to cyclic an be mour	M-CPU1 :: 0.04 μs min. 0.06 μs m o time: 31 μ ic tasks: 10 ral: 0.4 ms ments) o time: 30 μ c task: 11 μ otal: 0.4 ms	160 μ;;inus						
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Maximum Numbe Ba Sp Ci Pr Si Maximum Numbe CIO Area I/C Li Sp Cc Sp	per of Conne Basic I/O Un Special I/O U CPU Bus Un Pulse I/O Mo Blots for which per of Expan	External Interrupts Scheduled Interrupts ctable Units its Jinits idules th interrupts can be used	Minimum (set in 0.1 Interrupt to (27 µs for Return tim (15 µs for Total per For Total per For Who limit However, Units for u (Unit num) CJ2M-CP CJ2M-CP 2 Units ma Slots 0 to	es to cyclic time interva -ms increm ask startup unit version es to cyclic unit version CPU Rack (PLC: 40 Un a maximun p to 96 uni bers run fro U3@: 15 U U1@: 16 U ax. *3	(30 μs tasks: 8 μs (15 μs lents) al: 0.2 ms sheents) to time: 13 μn 1.0) c tasks: 8 μn 1.0) or Expansionits max. In of two CJ to numbers om 0 to 95. Inits max.	s for unit ver *2 or 11 µ µs for unit ve *2 s *2 or 22 s *2 or 11 on Rack: 10 11W-INT01 can be mou	usion 1.0) s persion 1.0) μs μs Units max Interrupt Injunted.	Return tir Minimum (set in 0.1 Interrupt Return tir	mes to cyclic time intervi- I-ms increm task startup me to cyclic	ral: 0.4 ms nents) o time: 30 μ task: 11 μ nted.) μs						
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Basin Signature	Basic I/O Un Special I/O U CPU Bus Un Pulse I/O Mo Slots for which er of Expan	Inits	(27 µs for Return tim (15 µs for Total per C Total per F No limit However, Units for u (Unit num) CJ2M-CP CJ2M-CP 2 Units ma Slots 0 to	unit versiones to cyclic unit version CPU Rack of PLC: 40 Un a maximun p to 96 uni bers run fro U3@: 15 U U1@: 16 U ax. *3	n 1.0) c tasks: 8 µ n 1.0) or Expansion its max. n of two CJ it numbers om 0 to 95. Inits max. inits max.	on Rack: 10 I1W-INT01 can be mou	μs Units max Interrupt In	Return tir	me to cyclic	task: 11 μ							
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Si Ci Pri Si Maximum Number CIO Area //Ci Si Ci Si	Special I/O L CPU Bus Un Pulse I/O Mo Slots for white oer of Expans	Inits its idules th interrupts can be used	However, Units for u (Unit num) CJ2M-CP CJ2M-CP 2 Units ma	p to 96 uni bers run fro U3@: 15 U U1@: 16 U ax. *3	it numbers om 0 to 95. Inits max. Inits max.	can be mou	unted.										
Pro SI Maximum Number CIO Area //C Li Si Ci Si	CPU Bus Un Pulse I/O Mo Slots for which per of Expans	its dules th interrupts can be used	(Unit num CJ2M-CP CJ2M-CP 2 Units ma Slots 0 to	bers run fro U3@: 15 U U1@: 16 U ax. *3	om 0 to 95. Inits max. Inits max.			tween 1 ar	nd 8 unit nu	ımbers.)							
Maximum Number CIO Area I/C Li S: C C S	Pulse I/O Mo Slots for which per of Expan	dules	CJ2M-CP 2 Units ma Slots 0 to	U1@: 16 U ax. *3	nits max.												
Maximum Number CIO Area I/C S: C: S; P: C	Slots for which	ch interrupts can be used	Slots 0 to					CJ2M-CPU3@: 15 Units max. CJ2M-CPU1@: 16 Units max.									
Maximum Number CIO Area I/C S: C: S: S: P: C: S: P: C: C: S: C:	er of Expan	·		2 Units max. *3 Slots 0 to 4 on CPU Rack													
CIO Area I//CI Li Sy C C Sy Pri	•	SIOTITIACKS	3 max.														
Li S: C: SI Pi	/O Alea			(160 words	e). Worde (CIO 0000 to	CIO 0150										
St C St Pt	_ink Area	-	•	•	CIO 1000 to												
Ci S _I Pı		Data Refresh Area		•	•												
S _I	CPU Bus Un		1,536 bits (96 words): Words CIO 1200 to CIO 1295 6,400 bits (400 words): Words CIO 1500 to CIO 1899														
Pi	Special I/O U		15,360 bits (960 words): Words CIO 2000 to CIO 2959														
	Pulse I/O Are								12 outputs	c (CIO 206)	0 to CIO 29	63) * 3					
	Serial PLC L							•		•		•					
	DeviceNet A		1,440 bits (90 words): Words CIO 3100 to CIO 3189 9,600 bits (600 words): Words CIO 3200 to CIO 3799														
	nternal I/O A		3,200 bits	(200 words	s): Words C	CIO 1300 to	CIO 1499										
Work Area			37,504 bits (2,344 words): Words CIO 3800 to CIO 6143 (Cannot be used for external I/O.) 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 *4 Read/write: 16,384 bits (1,024 words) in words A448 to A1471 *4														
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 \$5 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 32767 max	x.:	2 10 20 109	32k word	s/bank × 4 00 to E3_32	banks max							
				32K words × 4 banks	32K words × 10 banks	32K words × 15 banks	32K words × 25 banks		ls × 1 bank		_	s × 4 banks					

^{*1.} The following times are added if EtherNet/IP data tag links are used for the CJ2H-CPU6□-EIP. 100 μs + Number of transfer words x 0.33 μs

Normal operation: High-speed interrupt enabled: 100 µs + Number of transfer words x 0.87 µs

The following time must be added when using EtherNet/IP tag data links for the CJ2M-CPU3.

- ***2**.
- *3.
- 100 μs + (No. of words transferred x 1.8 μs)

 The following time must be added when using Pulse I/O Modules with a CJ2M CPU Unit: 10 μs x Number of Pulse I/O Modules.

 This applies when High-speed interrupt function is used.

 Supported only by CJ2M CPU Units with unit version 2.0 or later. A Pulse I/O Module must be mounted.

 A960 to A1471 and A10000 to A11535 cannot be accessed by CPU Bus Units, Special I/O Units, PTs, and Support Software that do not specifically support the ***4**. CJ2 CPU Units.
- Bits in the EM Area can be addressed either by bit or by word. These bits cannot be addressed by CPU Bus Units, Special I/O Units, PTs, and Support Software that do not specifically support the CJ2 CPU Units.

 *6. EM banks D to 18 cannot be accessed by CPU Bus Units, Special I/O Units, PTs, and Support Software that do not specifically support the CJ2 CPU Units.

	CJ2H-					CJ2M-						
	Item	CPU64 (-EIP)		CPU66 (-EIP)	CPU67 (-EIP)	CPU68 (-EIP)	CPU 11/31	CPU 12/32	CPU 13/33	CPU 14/34	CPU 15/35	
Banks for which bits	Using EM Area force-setting/resetting	Banks 0 to 3 hex	Banks 0 to 3 hex	Banks 0 to 9 hex	Banks 0 to E hex	Banks 0 to 18 hex	Bank 0 he	ex		Banks 0 to	3 hex	
can be force- set/reset *7	Using automatic address allocation specifications	Bank 3 hex	Bank 3 hex	Banks 6 to 9 hex	Banks 7 to E hex	Banks 11 to 18 hex						
Index Register	s		special re			memory a				(Index Regi	isters can	
Cyclic Task Fla	ag Area	128 flags										
Memory Card		128 MB, 2	256 MB, or	512 MB								
Operating Mod	des		th R Mode: P p	nis mode. rograms ar resent valu	re executed les in I/O m	•	operations enabled in	, such as o this mode.	online editir	orogram exe		
Execution Mod	de	Normal M						- · · · · · · ·				
Programming	Ladder Lo Sequentia	gic (LD), Il Function Il Text (ST),		FC),								
Function	Maximum number of definitions	2,048					256			2,048		
Blocks	Maximum number of instances	2,048					256			2,048		
FB Program A	rea						20K steps	i				
Tasks	Type of Tasks	Cyclic tasks Interrupt tasks (Power OFF interrupt tasks, scheduled interrupt tasks, I/O interrupt tasks, and external interrupt tasks, and input interrupt tasks *3)										
	Number of Tasks		asks: 256		•	sks to creat	e extra cycl	lic tasks. Ti	herefore, th	ne total num	ber of	
Symbols (Variables)	Type of Symbols	Global s Network	symbols: C	an be used (tags) * 8: I	d in all tasks /O memory	a single tas in the PLC in the CPU) .		y accessed	l using symb	ools,	
	Data Type of Symbols	• UDINT • ULINT (• INT (on • DINT (h • LINT (fc • UINT B • UDINT E • REAL (I • LREAL (I • LREAL (I • LREAL (I • LREAL (I • LYORE • WORD • DWORE • STRING • TIMER • COUNT	ne-word ur (two-word i four-word i e-word sig bur-word sig CD (one-w BCD (two-w BCD (four-v BCD (four-v BCD (four-v Court (our-word EL (word) ER (constar (one-word O (two-word EL (wo-word EL (wo-word EL (wo-word EL (word) ER (constar (one-word O (tou-word EL (wo-word EL (wo-wo-wo-wo-wo-wo-wo-wo-wo-wo-wo-wo-wo-w	unsigned b unsigned b unsigned binary gned binary gned binary ord unsign word unsign word unsign oating-poin floating-po *9 nt or numbe hexadecin d hexadecin d hexadecin ASCII cha	inary) inary) inary) y yy yed BCD) * ned BCD) * ned BCD) * int) int) er) *9 nal) mal) mal) racters)	<9 <9						
	Maximum Size of Symbol	user-defined data types (delta structures) *11 32k words										
	Array Symbols (Array Variables)	One-dimensional arrays										
	Number of Array Elements		ements ma	-								
	Number of Registrable Network Symbols (Tags) *8	20,000 ma					2,000 max	C .				
	Length of Network Symbol (Tag)	255 bytes max.										
	Name *8											

^{*7.} With CJ2H CPU Units with unit version 1.2 or later, force-setting/resetting bits in the EM Area is possible either for banks that have been specified for automatic address assignment or for banks specified for the EM Area force-set/reset function. With CJ2M CPU Units, force-setting/resetting bits in the EM Area is possible only for banks specified for the EM Area force-set/reset function. With CJ2M CPU Units, force-setting/resetting bits in the EM Area is possible only for banks specified for the EM Area force-set/reset function. With CJ2M CPU Units, force-setting/resetting bits in the EM Area is possible only for banks specified for the EM Area is possible only for banks specified for automatic address assignment or for banks that have been specified for automatic address assignment or for banks that have been specified for automatic address assignment or for banks that have been specified for automatic address assignment or for banks that have been specified for automatic address assignment or for banks that have been specified for automatic address assignment or for banks that have been specified for automatic address assignment or for banks that have been specified for automatic address assignment or for banks that have been specified for automatic address assignment or for banks that have been specified for automatic address assignment or for banks assignment or for banks assignment or for banks and the EM Area force-set/reset function. With CJ2M CPU Units, force-setting/re

						CJ2H-		CJ2M-						
		Ite	m	CPU64 (-EIP)	CPU65 (-EIP)	CPU66 (-EIP)	CPU67 (-EIP)	CPU68 (-EIP)	CPU 11/31	CPU 12/32	CPU 13/33	CPU 14/34	CPU 15/35	
Data Tra	Data Tracing Memory Capacity			8,000 wor	ds	16,000 words	32,000 wo	ords	8,000 wor	rds				
	Number of Samplings Sampling Cycle									k words x 4 ammer)	l banks whe	n EM is sp	ecified in	
					one-word	data =16, tv	wo-word dat	ta = 8, four-	word data	= 4				
					ms (Unit:	1 ms)								
		Trigger C	Conditions	Data com Data size: Comparis	1 word, 2	specified w words, 4 w Equals (=)	ords	han (>), Gr	eater Than	or Equals	(≥), Less Th	nan (<), Les	ss Than or	
		Delay Va	alue		5 +32,767 i	. ,								
File Mei	mory				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/ Comme Memory	mment comment file, program index fi		t file, program index file,	Capacity:	Capacity: 3.5 Mbytes Capacity: 1 Mbytes									
Comm		Logical Ports for Communications		8 ports (U	sed for SE	ND, RECV,	CMND, PM	ICR, TXDL	, and RXD	U instructio	ons.)			
unicati	Con			64 ports (Used for S	END2, REC	CV2, CMND	2, and PM	CR2 instruc	ctions.)				
ons	CIP Con	CIP Class 3 (Connection Type) Specification UCMM (Non-connection Type)		Number of connections: 64										
	Spe			Maximum number of clients that can communicate at the same time: 32 Maximum number of servers that can communicate at the same time: 40										
	Peri	pheral (USB)	Port	USB 2.0-compliant B-type connector										
		Baud Rate		12 Mbps max.										
		Transmission	Distance	5 m max.										
	Seri	Serial Port		CJ2M-CPU1□ interface: Conforms to EIA RS-232C. CJ2M-CPU3□: No serial ports with cone of the following Serial Option Board mounted. CP1W-CIF01 RS-232C Option Board (not isolated, max. transmission distance) CP1W-CIF12 RS-422A/485 Option E (isolated, max. transmission distance)					s with defail on Boards on Board Option Boar on distance Option Boar	ult system can be d e: 50 m) d				
		Communicati	ons Method	Half-duplex										
		Synchronizat	ion 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			15 m max.							

					CJ2H-					CJ2M-					
				Item	CPU64 (-EIP)	CPU65 (-EIP)	CPU66 (-EIP)	CPU67 (-EIP)	CPU68 (-EIP)	CPU 11/31	CPU 12/32	CPU 13/33	CPU 14/34	CPU 15/35	
Comm	Eth	erNe	et/IP	Port *12											
unicati ons		Suc	Med	dia Access Method	CSMA/CD										
00		catic	Mod	dulation	Baseband										
		Specifications	Trai	nsmission Paths	Star										
			Вац	ud Rate	100 Mbps	(100Base-	·TX)								
		sion	Trai	nsmission Media	Shielded t	wisted-pair	(STP) cab	le; Categor	ies: 5, 5e						
		miss	Trai	nsmission Distance	Shielded twisted-pair (STP) cable; Categories: 5, 5e 100 m (between ethernet switch and node)										
		Transmission	Nur	mber of Cascade Connections	No restric	tions if ethe	ernet switch	n is used.							
	İ		CIP	Communications: Tag Data Links											
				Number of Connections	256					32					
				Packet Interval (Refresh period)	Can be se		onnection. (Data will be		Can be se		onnection. (ents) Data will be ne number c		
				Permissible Communications Band	6,000 pac	kets per se	cond *13			3,000 pag	ckets per se	econd *13			
				Number of Tag Sets 256											
				Type of Tags CIO, DM, EM, HR, WR, and network symbols											
				Number of Tags per Connection	8 (Seven tags if PLC status is included in the segmen 184.832 words					,					
				Maximum Link Data Size per Node (total size of all tags)	252 or 722 words * 14					640 word					
				Maximum Data Size per Connection				ch connecti	on)	640 word		a is synchro	nized withi	n each	
				Number of Registrable Tag Set		nection =			011.)		nection = 1	seament)			
		SL		Maximum Tag Set Size	722 words		d is used w	hen PLC st	atus is	640 word		word is us	ed when Pl	_C status	
		Specifications		Maximum Number of Tags Refreshable in a Single Cycle of CPU Unit *16				Net/IP): 250 PU Unit): 25			end (CPU U eive (EtherN		Net/IP): 32 PU Unit): 32	2	
				Data Size Refreshable in a Single Cycle of CPU Unit *16		IP): 6,432 w PU): 6,432 v					Net/IP): 640 PU Unit): 64				
		Communications		Change of Tag Data Link Parameter Settings during Operation	OK *17										
		E O		Multi-cast Packet Filter *18	OK										
		0	CIP Communications: Explicit Messages												
				Class 3 (Connection Type)	Number of connections: 128										
				UCMM (Non-connection Type)	the same Maximum	time: 32 number of		t can comm at can comr		the same Maximum	time: 16	servers that	t can comm at can comr		
			at the same time: 32 CIP Routing OK (CIP routing is enabled for the following remote Unit								21, CJ2H-0		; CJ2M-CP	U3□ and	
			FIN	IS Communications											
				FINS/UDP	OK										
				FINS/TCP		tions max.									
				erNet/IP Conformance Test	Conforms										
			Eth	erNet/IP Interface	10Base-T/100Base-TX Auto Negotiation/Fixed Setting										

- ***12.** The EtherNet/IP port is built into the CJ2H-CPU6□-EIP and CJ2M-CPU3□ only.
- $\pmb{*13.} \ \ \text{``Packets per second''} \ \text{is the number of communications packets that can be processed per second.}$
- *14. 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.
- ***15.** Unit version 2.0 of built-in EtherNet/IP section: 20 words.
- ***16.** If the maximum number is exceeded, refreshing will require more than one CPU Unit cycle.
- *17. 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.
- *18. The EtherNet/IP port supports an IGMP client, so unnecessary multicast packets are filtered by using an ethernet switch that supports IGMP snooping.

Function Specifications

	Fi	unctions		Description				
Cycle Time Management	Minimum Cycle Tir	ne		A minimum cycle time can be set. (0.2 to 32,000 ms; Unit: 0.1 ms) The minimum cycle time setting can be changed in MONITOR mode. *1				
	Cycle Time Monito	ring		The cycle time is monitored. (0.01 to 40,000 ms; Unit: 0.01 ms)				
	Background Proces	ssing		Instructions with long execution times can be executed over multiple cycles to prevent fluctuations in the cycle time.				
Unit (I/O)	Basic I/O Units,	I/O Refreshing	Cyclic Refreshing	Cyclic refreshing of Basic I/O Units, Special I/O Units, and CPU Bus Unit				
Management	Special I/O Units,		Immediate Refreshing	I/O refreshing by immediate refreshing instructions				
	and CPU Bus Units		Refreshing by IORF	I/O refreshing by IORF instruction				
	Office	Unit Recognition at Startup		The number of units recognized when the power is turned ON is displayed.				
	Basic I/O Units	Input Response Tin	ne 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 Statu	s Monitoring	Alarm information can be read from Basic I/O Units and the number of Units recognized can be read.				
		Reading/writing dat specific Units *1	a using instructions for	Special instructions can be used to read/write required data for specific Unit high speed.				
	Special I/O Units	Unit Restart Bits to	Restart Units	A Special I/O Unit or CPU Bus Unit can be restarted.				
	and CPU Bus Units	Synchronous Unit (Operation *2	The start of processing for all the specified Units can be synchronized at a fixed interval. Maximum number of Units: 10 Units (Only Units that support Synchronous Operation Mode can be used.) Synchronous operation cycle: 0.5 to 10 ms (default: 2 ms) Maximum number of words for synchronous data refreshing: 96 words (total of all Units)				
	Configuration Management	Automatic I/O Alloca	ation 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 frobeing changed, to reserve words, and to set words.				
		Rack/Slot First Wor	d Settings	The first words allocated to a Units on the Racks can be set.				
Memory Management	Holding I/O Memor	ry when Changing Op	erating Modes	The status of I/O memory can be held when the operating mode is changed power is turned ON. The forced-set/reset status can be held when the operamode 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 Mem	ory		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 Tran	nsfer at Startup		A program file and parameter files can be read from a Memory Card when the power is turned ON.				
	Program Replacem	nent during PLC Oper	ation	User programs can be transferred from a Memory Card to CPU Unit during operation.				
	Function for Readin	ng and Writing Data fi	rom 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.				

^{*1.} Supported only by the CJ2H CPU Units with unit version 1.1 or later and CJ2M CPU Units.
*2. Position Control Units (High-speed type) CJ1W-NC□□4 supported by the CJ2H CPU Units with unit version 1.1 or later.
Position Control Units with EtherCAT interface CJ1W-NC□82 are supported by the CJ2H CPU Units with unit version 1.4 or later.

	Fu	nctions	Description					
Communication	าร							
	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 *3							
	Host Link (SYS)	WAY) 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 Cor	mmunications	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.					
	Serial PLC Links *4		Data is exchanged between CPU Units using serial ports without communications programming. PTs set to the 1:N NT Link protocol can be included in the network.					
	EtherNet/IP Port *	5	100Base-TX/10Base-T Protocols: TCP/IP, UDP, ARP, ICMP (ping only), BOOTP Applications: FINS, CIP, SNTP, DNS (Client), FTP (Server)					
	CIP	Tag Data Links	Programless cyclic data exchanges with the devices on the EtherNet/IP network.					
	Communicatio ns Service	Message Communications	Any CIP commands can be received from the devices on the EtherNet/IP network.					
	FINS Communicatio ns Service	Message Communications	Any FINS commands can be transferred with the devices on the EtherNet/IP network.					
Interrupt	Scheduled Interrupt	ts	Tasks can be executed at a specified interval					
	Resetting and re	estarting with MSKS(690) *6	When MSKS(690) is executed, the internal timer is restarted and the time to fir interrupt is set to a fixed value.					
	Reading presen	t value of internal timer with MSKS(690)	MSKS(690) can be used to read the time that has elapsed until the schedule interrupt is started or since the previous scheduled interrupt.					
	Power OFF Interrup	ots	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 Ta	asks	A task can be executed when interrupts are requested from a Special I/O L a CPU Bus Unit.					
	High-speed Interrup	ot Function *7	Improves performance for executing interrupt tasks with certain restrictions.					
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 Tim	ne Storage	The time when operating mode was last changed to RUN mode or MONITOR mode is stored.					
	Operation Stop Tim	e Storage	The last time a fatal error occurred or the last time the operating mode was changed to PROGRAM mode is stored.					
	Startup Time Storag	ge	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 Tim	ne Calculation	The total time that the PLC has been ON is stored in increments of 10 hours.					
	Power ON Clock Da	ata Storage	A history of the times when the power was turned ON is stored.					
		written Time Storage	The time that the user program was last overwritten is stored.					
	Parameter Date Sto	orage	The time when the Parameter Area was overwritten is stored.					

^{★3.} A Serial Option Board is required to use a serial port for the CJ2M-CPU3□ CJ2M CPU Unit.
★4. A Serial Option Board is required to use the CJ2M-CPU3□ CJ2M CPU Unit in Serial PLC Links.
★5. Supported only by the CJ2H-CPU6□-EIP and CJ2M-CPU3□.
★6. Supported only by the CJ2M CPU Units.
★7. Supported only by the CJ2H CPU Units with unit version 1.1 or later.

Power Supply	Functions Memory Protection		Description Holding Area data, DM Area data, EM Area data, Counter Completion Flags, and						
Power Supply Management	Memory Protection		counter present values are held even when power is turned OFF. CIO Area, Work Area, some Auxiliary Area data, and Timer Completion Flags, timer present values, index registers, and data registers can be protected by turning ON the IOM Hold Bit in the Auxiliary Area, and by also setting the IOM Hold Bit to "Hold" in the PLC Setup.						
	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 Dela	y Time	The detection of power interruptions can be delayed: 0 to 10 ms (Not supported by the CJ1W-PD022.)						
	Number of Power Interrupti	ons Counter	The number of times power has been interrupted is counted.						
Function Blocks	Languages in Function Pla	als Definitions	Standard programming can be encapsulated as function blocks.						
Debugging	Languages in Function Bloo Online Editing	CR Definitions	Ladder programming or structured text 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. A parameter can be set to enable force-setting/resetting bits in EM Area banks. Force-setting/resetting is enabled for the specified bank and all the banks after it. *8						
	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.						
	Continuous Tracing Automatically starting tr	acing when operation starts	The trace data can be uploaded during data tracing using CX-Programmer, whenables 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., whe the operating mode is changed from PROGRAM mode to MONITOR or RUN						
	Storing Location of Error w	hen an Error Occurs	mode). 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		A function is provided to store predefined error codes in CPU Unit, error information, and time at which the error occurred.						
	CPU Error Detection User-defined Failure Diagn	osis	CPU Unit WDT errors are detected. 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).						
	RUN Output		This function turns OFF all outputs from Output Units when an error occurs. The RUN output from the CJ1W-PA205R turns ON while CPU Unit is in RUN mode or MONITOR mode.						
	Basic I/O Load Short-circui	t 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 analyzes 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.						
	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. This function detects the errors in Basic I/O Units.						
		Basic I/O Unit Error Detection Backup Memory Error Detection	This function detects the errors in basic i/O offits. This function detects errors in the memory backup of the user programs and parameter area (backup memory).						
		PLC Setup Error Detection CPU Bus Unit Error Detection	This function detects setting errors in the PLC Setup. This function detects an error when there is an error in data exchange between						
		Special I/O Unit Error Detection	the CPU Unit and a CPU Bus Unit. 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 *9	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.						

^{*8.} Supported only by CJ2H CPU Units with unit version 1.2 or later and CJ2M CPU Units. Supported only by CJ2H-CPU6 EIP and CJ2H-CPU3. Supported only by CJ2M-CPU3.

	Functions			Description					
Self-diagnosis	Fatal Error Detection	Memory E	rror Detection	This function detects errors that occur in memory of the CPU Unit.					
and Restoration (Continued from previous page)		I/O Bus Er	ror 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 Error	Number Duplication	This function detects an error when the same unit number is set for two or mo 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. 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.					
		Detection	I/O Points Error						
		I/O Setting	Error Detection	The registered I/O tables are used to detect errors if the number of Units in the registered I/O tables does not agree with the actual number of Units that are connected or an Interrupt Unit has been connected in the wrong position, i.e., not in the following slots. • CJ2H-CPU6□-EIP: Slots 0 to 3 • CJ2H-CPU6□: Slots 0 to 4 • CJ2M-CPU3□: Slots 0 to 4 • CJ2M-CPU1□: Slots 0 to 4					
		Program E	rror 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 No END Error	This function detects an error when an attempt is made to access an illegal area with an instruction operand. This function detects an error when there is no END instruction at the end of the					
			Detection	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 User Program Area	This function detects an error when an attempt is made to execute an instruction that is not defined in the system. This function detects an error when instruction data is stored after the last					
			Overflow Error Detection	address in user program area.					
		Detection	e Exceeded Error	This function monitors the cycle time (10 to 40,000 ms) and stops the operation when the set value is exceeded. This function generates a fatal (FALS) error when the user-defined conditions at met in program.					
		(Úser-defir	LS Error Detection ned Fatal Error)						
			ror Detection	This function detects an error when a user program includes a function that is not supported by the current unit version.					
	M 0 K 1 K 5	Detection	ard Transfer Error	This function detects an error when the automatic file transfer from Memory Card fails at startup.					
	Memory Self-restoration Fur	nction		This function performs a parity check on the user program area and self- restoration data. *11					
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 M	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 Connectio Network	n via	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 Pass	word		This function protects reading and displaying programs and tasks using passwords. Write protection: Set using the DIP switch.					
	FINS Write Protection			Read protection: Set a password using the CX-Programmer. 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					
	Hardware ID Using Lot Num	bers		at online connection to prevent wrong connection This function sets operation protection by identifying hardware using the user programs according to lot numbers stored in the Auxiliary Area.					

*11. Supported only by CJ2H CPU Units.

■ Unit Versions

Units	Models	Unit Version				
CJ2H CPU Unit	CJ2H-CPU6□-EIP	Unit version 1.0 (Built-in EtherNet/IP section: Unit version 2.0)				
		Unit version 1.1 (Built-in EtherNet/IP section: Unit version 2.0)				
		Unit version 1.2 (Built-in EtherNet/IP section: Unit version 2.0)				
		Unit version 1.3 (Built-in EtherNet/IP section: Unit version 2.0)				
		Unit version 1.4 (Built-in EtherNet/IP section: Unit version 2.0)				
	CJ2H-CPU6□	Unit version 1.1				
		Unit version 1.2				
		Unit version 1.3				
		Unit version 1.4				
CJ2M CPU Unit	CJ2M-CPU3□	Unit version 1.0 (Built-in EtherNet/IP section: Unit version 2.0) Unit version 2.0 (Built-in EtherNet/IP section: Unit version 2.0) Unit version 2.0 (Built-in EtherNet/IP section: Unit version 2.1)				
	CJ2M-CPU1□	Unit version 1.0 Unit version 2.0				

■ Unit Versions and Programming Devices

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

				Required Programming Device								
	CPU Unit	Eun	ctions		CX-Programmer							
	Cro onit	ruii	Ver.7.1 or lower	Ver.8.0	Ver.8.2	Ver.9.0	Ver.9.1	Ver.9.12	Ver.9.3 or higher	Programming Console		
CJ2H	CJ2H-CPU6□-EIP Unit version 1.0	Functions for unit ve	ersion 1.0		OK	OK	OK	OK	OK	OK	*3	
	CJ2H-CPU6□-EIP	Functions added	Using new functions			OK *2	OK	OK	OK	OK		
	Unit version 1.1	for unit version 1.1	Not using new functions		OK *1	OK	OK	OK	OK	OK		
	CJ2H-CPU6□	Functions added	Using new functions			OK *2	OK	OK	OK	OK		
	Unit version 1.1	for unit version 1.1	Not using new functions			OK	OK	OK	OK	OK		
	CJ2H-CPU6□-EIP	Functions added	Using new functions				OK	OK	OK	OK		
	Unit version 1.2 CJ2H-CPU6□	for unit version 1.2	Not using new functions		OK *1	OK *1	ОК	ОК	OK	OK		
		Functions added	Using new functions				OK	OK	OK	OK		
	Unit version 1.2	for unit version 1.2	Not using new functions		OK *1	OK *1	OK	OK	OK	OK		
	CJ2H-CPU6□-EIP	Functions added for unit version 1.3	Using new functions					OK	OK	OK		
	Unit version 1.3		Not using new functions		OK *1	OK *1	OK	OK	OK	OK		
	CJ2H-CPU6□	Functions added for unit version 1.3	Using new functions					OK	OK	OK		
	Unit version 1.3		Not using new functions		OK *1	OK *1	OK	OK	OK	OK		
	CJ2H-CPU6□-EIP	Functions added	Using new functions							OK		
	Unit version 1.4	for unit version 1.4	Not using new functions		OK *1	OK *1	OK	OK	OK	OK		
	CJ2H-CPU6□	Functions added	Using new functions							OK		
	Unit version 1.4	for unit version 1.4	Not using new functions		OK *1	OK *1	OK	OK	OK	OK		
CJ2M	CJ2M-CPU□□ Unit version 1.0	Functions for unit ve	ersion 1.0					ОК	OK	OK		
	CJ2M-CPU□□	Functions added	Using new functions						OK	OK		
	Unit version 2.0	for unit version 2.0	Not using new functions					OK *1	ОК	OK		

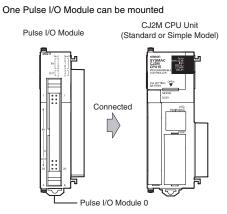
^{*1.} It is not necessary to upgrade the version of the CX-Programmer if functionality that was enhanced for the upgrade of the CPU Unit will not be used.
*2. CX-Programmer version 8.2 or higher is required to use the functions added for unit version 1.1. The high-speed interrupt function and changing the minimum cycle time setting in MONITOR mode, however, are also supported by CX-Programmer version 8.02.

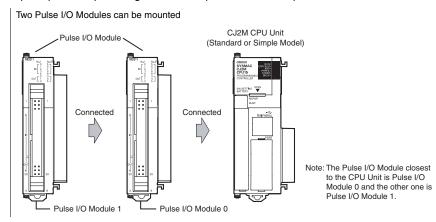
^{*3.} A Programming Console cannot be used with a CJ2 CPU Unit.

Specifications for Pulse I/O Functions

The following functions of CJ2M can be used by installing one or two Pulse I/O Module. Each module has 10 high-speed inputs and 6 high-speed outputs. Pulse I/O Modules can be installed on CJ2M CPU Units with Unit Version 2.0 or Later.

- The inputs can be used as general-purpose inputs, interrupt inputs, quick-response inputs, high-speed counters, or origin search inputs.
- The outputs can be used as general-purpose outputs, pulse outputs, origin search outputs, or PWM outputs.





■Performance Specifications

	Item	Description							
	Model of Pulse I/O Modules	CJ2M-MD211 (Sinking-type) CJ2M-MD212 (Sourcing-type)							
	External interface	40-pin MIL connector							
	Pulse Inputs	Can be used as normal inputs, interrupt inputs, quick-response inputs, or high-speed counter inputs. (Function of each input must be selected in the PLC Setup.) Input method: Line-driver input or 24-VDC input (selected by via wiring)							
	Normal Inputs	20 max. (10 per Pulse I/O Module) Input constants: Set in the PLC Setup (0, 0.5, 1, 2, 4, 8, 16, or 32 ms). Default: 8 ms							
	Interrupt inputs and quick-response inputs	8 max. (4 per Pulse I/O Module) Input signal minimum ON pulse width: 30 μs							
Pulse I/O	High-speed counter inputs	4 max. (2 per Pulse I/O Module) Input method: Differential-phase (x4) pulses, pulse + direction, up/down pulses, or increment pulse Maximum response frequency: 50 kHz for differential phases or 100 kHz for single phase Counting mode: Linear mode or circular (ring) mode Count value: 32 bits Counter reset: Phase Z + software reset or software reset Control method: Target-value comparison or range comparison Gate function: Supported							
	Pulse Outputs	Can be used as normal outputs, pulse outputs, or PWM outputs. (Function of each output must be selected in the PLC Setup.) Output method: Sinking or sourcing transistor outputs (The method is determined by Pulse I/O Module model.)							
	Normal Outputs	12 max. (6 per Pulse I/O Module)							
	Pulse Outputs	4 max. (2 per Pulse I/O Module) Output method: CW/CCW or pulse + direction (The method is determined by the I/O wiring and the instructions used in the ladder program.) Output frequency: 1 pps to 100 kpps (in increments of 1 pps) Output Mode: Continuous mode (for speed control) or independent mode (for position control) Output pulses: Relative coordinates: 0000 0000 to 7FFF FFFF hex (0 to 2,147,483,647 pulses) Absolute coordinates: 8000 0000 to 7FFF FFFF hex (-2,147,483,648 to 2,147,483,647) Acceleration/deceleration curves: Linear or S-curve Origin search function: Supported							
	PWM Outputs	4 max. (2 per Pulse I/O Module) Output frequency: 0.1 to 6,553.5 Hz (in 0.1-Hz increments) or 1 to 32,800 Hz (in 1-Hz increments) Duty ratio: 0.0% to 100.0% (in 0.1% increments)							

■Function Specifications

	Func	tions	Description						
		Normal Inputs	Input signals are read during I/O refreshing and stored in I/O memory.						
	Pulse Input	Interrupt Inputs	An interrupt task can be started when an input signal turns ON or turns OFF.						
	Functions	Quick-response Inputs	Input signals that are shorter than the cycle time are read and stored in I/O memory.						
Pulse I/O		High-speed Counter Inputs	High-speed pulse signals are counted. Interrupt tasks can also be started.						
Functions	Pulse	Normal Outputs	The status of I/O memory is output during I/O refreshing.						
	Output	Pulse Outputs	A pulse signal is output with the specified frequency and number of pulses at a fixed duty ratio (50%).						
	Functions	PWM Outputs	A pulse signal is output at the specified duty ratio.						
	Origin Searc	hes	The origin point of the machine is determined according to the specified origin search parameters while actually outputting pulses and using the origin and origin proximity input signals as conditions. (Pulse inputs and outputs are also used for this function.)						
	Input Interru	ot Function	A task is started for an interrupt input from a Pulse I/O Module or for a high-speed counter input.						
Interrupt	Input Inter	rupts	Interrupt tasks are executed when the interrupt input turns ON or turns OFF. Direct Mode: An interrupt task is executed each time an input signal changes. Counter Mode: Changes in the input signal are counted up or down and the interrupt task is executed when the counter counts out. (The maximum response frequency is 3 kHz.)						
	High-spee	d Counter Interrupts	An interrupt task is executed when preset comparison conditions for a high-speed counter are met. Target-value comparison: The interrupt task is executed when the count matches a specified value. Range comparison: The interrupt task is executed when the count enters or leaves a specified range of values.						

■Allocating Functions to I/O signals Pulse I/O Module 0 (on the right)

Ter	minal s	symbol	IN 00	IN 01	IN 02	IN 03	IN 04	IN 05	IN 06	IN 07	IN 08	IN 09	OUT 00	OUT 01	OUT 02	OUT 03	OUT 04	OUT 05
Address		2960										2961						
Bit			0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5
	Norma	al inputs	Normal input 0	Normal input 1	Normal input 2	Normal input 3	Normal input 4	Normal input 5	Normal input 6	Normal input 7	Normal input 8	Normal input 9						
	(Direc	upt inputs t Mode/ ter Mode)	Interrupt input 0	Interrupt input 1	Interrupt input 2	Interrupt input 3												
Inputs	Quick	response	Quick response input 0	Quick response input 1	Quick response input 2	Quick response input 3												
	High-speed counters				High- speed counter 1 (phase- Z/reset)	High- speed counter 0 (phase- Z/reset)			High- speed counter 1 (phase-A, incre- ment, or count input)	High- speed counter 1 (phase-B, decre- ment, or direction input)	High- speed counter 0 (phase-A, incre- ment, or count input)	High- speed counter 0 (phase-B, decre- ment, or direction input)						
	Normal outputs												Normal output 0	Normal output 1	Normal output 2	Normal output 3	Normal output 4	Normal output 5
		CW/CCW outputs											Pulse output 0 (CW)	Pulse output 0 (CCW)	Pulse output 1 (CW)	Pulse output 1 (CCW)		
Out- puts	Pulse out- puts	Pulse + direction outputs											Pulse output 0 pulse)	Pulse output 1 (pulse)	Pulse output 0 (direction)	Pulse output 1 (direction)		
	puts	Variable duty ratio outputs															PWM output 0	PWM output 1
Origin :	search		Origin search 0 (Origin Input Signal)	Origin search 0 (Origin Proxim- ity Input Signal)	Origin search 1 (Origin Input Signal)	Origin search 1 (Origin Proxim- ity Input Signal)	Origin search 0 (Posi- tioning Com- pleted Signal)	Origin search 1 (Posi- tioning Com- pleted Signal)									Pulse output 0 error counter reset output (operatio n modes 1 and 2)	Pulse output 1 error counter reset output (operatio n modes 1 and 2)

Pulse I/O Module 1 (on the left)

Ter	minal s	symbol	IN 10	IN 11	IN 12	IN 13	IN 14	IN 15	IN 16	IN 17	IN 18	IN 19	OUT 10	OUT 11	OUT 12	OUT 13	OUT 14	OUT 15
Addres	Address		2962										2963					
Bit			0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5
	Norma	al inputs	Normal input 10	Normal input 11	Normal input 12	Normal input 13	Normal input 14	Normal input 15	Normal input 16	Normal input 17	Normal input 18	Normal input 19						
	(Direc	upt inputs et Mode/ ter Mode)	Interrupt input 4	Interrupt input 5	Interrupt input 6	Interrupt input 7												
Inputs	Quick	response	Quick response input 4	Quick response input 5	Quick response input 6	Quick response input 7												
inputs	High-speed counters				High- speed counter 3 (phase- Z/reset)	High- speed counter 2 (phase- Z/reset)			High- speed counter 3 (phase-A, incre- ment, or count input)	High- speed counter 3 (phase-B, decre- ment, or direction input)	High- speed counter 2 (phase-A, incre- ment, or count input)	High- speed counter 2 (phase-B, decre- ment, or direction input)						
	Norma	al outputs											Normal output 6	Normal output 7	Normal output 8	Normal output 9	Normal output 10	Normal output 11
		CW/CCW outputs											Pulse output 2 (CW)	Pulse output 2 (CCW)	Pulse output 3 (CW)	Pulse output 3 (CCW)		
Out- puts	Pulse out- puts	Pulse + direction outputs											Pulse output 2 pulse)	Pulse output 3 (pulse)	Pulse output 2 (direction)	Pulse output 3 (direction)		
	puis	Variable duty ratio outputs															PWM output 2	PWM output 3
Origin :	search		Origin search 2 (Origin Input Signal)	Origin search 2 (Origin Proxim- ity Input Signal)	Origin search 3 (Origin Input Signal)	Origin search 3 (Origin Proxim- ity Input Signal)	Origin search 2 (Posi- tioning Com- pleted Signal)	Origin search 3 (Posi- tioning Com- pleted Signal)									Pulse output 2 error counter reset output (operatio n modes 1 and 2)	Pulse output 3 error counter reset output (operatio n modes 1 and 2)

■Specifications of Pulse Input Functions

• Interrupt Inputs

Item	Direct Mode	Counter Mode				
Number of interrupt inputs	Max. 8 inputs					
Allocated bit	CIO 2960 and CIO 2962, bits 00 to 03					
Interrupt detection method	ON-to-OFF or OFF-to-ON transitions					
Interrupt task numbers	140 to 147 (fixed)					
Counting method		Incrimenting or decrementing (Set with the MSKS(690) instruction.)				
Counting range		0001 to FFFF hex (16 bits) (Set in A532 to A535 and A544 to A547.)				
Response frequency		Single-phase: 3 kHz x 8 inputs				
Storage locations for PVs for interrupt inputs in Counter Mode		A536 to A539 and A548 to A551				

● Quick-response inputs

Item	Specifications
Number of Quick-response inputs	Max. 8 inputs
Quick-response inputs	Signals that are shorter than the cycle time are latched for one PLC cycle, so they can be detected in the PLC program. Minimum detectable pulse width is 30 µs.

● High-speed Counter Inputs

	Item	Description							
Number of High-	speed Counter Inputs	Max. 4 inputs							
Pulse input meth	od (counting mode)	Incremental pulse inputs	ncremental pulse inputs Differential phase input (4x) Up/down inputs						
Input signals		Increment pulse	Phase A	Up pulse	Pulse				
			Phase B	Down pulse	Direction				
			Phase Z	Reset	Reset				
Frequency and n counters	umber of high-speed	100 kHz, 2 inputs × 2 I/O Modules	50 kHz, 2 inputs × 2 I/O Modules	100 kHz, 2 inputs × 2 I/O Modules	100 kHz, 2 inputs × 2 I/O Modules				
Counting mode		Linear mode or ring mode							
Count value		Linear mode: 8000 0000 to 7FFF FFFF hex 0000 0000 to FFFF FFFF hex (for increment pulse) Ring mode: 0000 0000 to Max. ring value							
High-speed coun	ter PV storage locations	High-speed counter 0: A271 (upper 4 digits) and A270 (lower 4 digits) High-speed counter 1: A273 (upper 4 digits) and A272 (lower 4 digits) High-speed counter 2: A317 (upper 4 digits) and A316 (lower 4 digits) High-speed counter 3: A319 (upper 4 digits) and A318 (lower 4 digits) Refreshed during overseeing processing. Use PRV(881) to read the most recent PVs. Data format: 8 digit hexadecimal • Linear mode: 8000 0000 to FFFF FFFF hex 0000 0000 to FFFF FFFF hex (for increment pulse) • Ring mode: 0000 0000 to Max. ring value							
Control method	Target value comparison	Up to 48 target values and	o 48 target values and corresponding interrupt task numbers can be registered.						
Range Comparison Up to 8 or up to 32 ranges can be registered, with a separate upper limit, lower limit, and interrupt task num each range.									
Counter reset method		Phase-Z + Software reset The counter is reset when the phase-Z input goes ON while the Reset Bit (A531.00 to A531.03) is ON. Software reset The counter is reset when the Reset Bit (A531.00 to A531.03) is turned ON. Operation can be set to stop or continue the comparison operation when the high-speed counter is reset.							

■ Specifications of Pulse Output Functions • Position Control and Speed Control

Item	Specifications
Number of Pulse Outputs	Max. 4 outputs (Pulse Output 00 to 03)
Output mode	Continuous mode (for speed control) or independent mode (for position control)
Positioning (independent mode) instructions	PULS (886) and SPED (885), PULS (886) and ACC (888), or PULS2 (887) instruction
Speed control (continuous mode) instructions	SPED(885) and ACC (888) instructions
Origin (origin search and origin return) instructions	ORG (889) instruction
Interrupt feeding instruction	IFEED (892) instruction
Output frequency	1 pps to 100 kpps (1 pps units), two pulse outputs × 2 Pulse I/O Modules
Frequency acceleration and deceleration rates	Set in increments of 1 pps for acceleration/deceleration rates from 1 to 65,535 pps (every 4 ms). The acceleration and deceleration rates can be set independently only with the PLS2 (887) instruction.
Changing SVs during instruction execution	The target frequency, acceleration/deceleration rate, and target position can be changed.
Pulse output method	CW/CCW or pulse + direction
Number of output pulses	Relative coordinates: 0000 0000 to 7FFF FFFF hex (Accelerating or decelerating in either direction: 2,147,483,647) Absolute coordinates: 8000 0000 to 7FFF FFFF hex (-2,147,483,648 to 2,147,483,647)
Relative/absolute coordinate specifications for pulse output PVs	Absolute coordinates are specified automatically when the origin location has been defined by changing the pulse output PV with the INI (880) instruction or performing an origin search with the ORG(889) instruction. Relative coordinates must be used when the origin is undefined.
Relative pulse/absolute pulse specifications	The pulse type can be specified with an operand in the PULS (886) or PLS2 (887) instruction. Absolute pulses can be used when absolute coordinates are specified for the pulse output PV, i.e. the origin location has been defined. Absolute pulse cannot be used when relative coordinates are specified, i.e., when the origin location is undefined. An instruction error will occur.
Pulse output PV's storage location	The following Auxiliary Area words contain the pulse output PVs Pulse output 0: A277 (leftmost 4 digits) and A276 (rightmost 4 digits) Pulse output 1: A279 (leftmost 4 digits) and A278 (rightmost 4 digits) Pulse output 2: A323 (leftmost 4 digits) and A322 (rightmost 4 digits) Pulse output 3: A325 (leftmost 4 digits) and A324 (rightmost 4 digits) The PVs are refreshed during regular I/O refreshing.

● Variable-duty Pulse Outputs (PWM)

Item	Specifications
Number of PWM Outputs	Max. 4 outputs (PWM Output 00 to 03)
Duty ratio	0.0% to 100.0% in 0.1% increments
Frequency	0.1 Hz to 6,553.5 Hz (Set in 0.1-Hz increments.) 1 Hz to 32,800 Hz (Set in 1-Hz increments.)
Output mode	Continuous Mode
Instruction	PWM (891) instruction

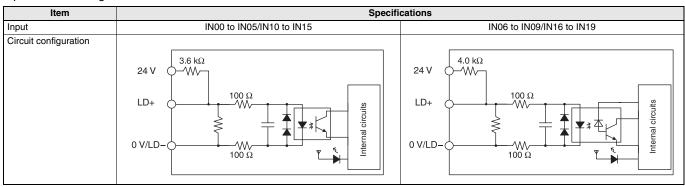
■Specifications of Pulse I/O Modules

● Input Specifications (IN00 to IN09/IN10 to IN19)

Normal Inputs

Inputs	IN00 to IN05 and IN10 to IN15	IN06 to IN09 and IN16 to IN19	IN00 to IN05 and IN10 to IN15	IN06 to IN09 and IN16 to IN19		
Input form	24-VDC inputs		Line driver inputs			
Input current	6.0 mA typical	5.5 mA typical	13 mA typical	10 mA typical		
Input voltage range	24 VDC +10%/-15%		RS-422A or RS-422 line driver (conforming to AM26LS31), Power supply voltage of 5 V \pm 5%			
Input impedance	3.6 kΩ	4.0 kΩ				
Number of circuits	1 common, 1 circuit					
ON voltage/current	17.4 VDC min., 3 mA min.					
OFF voltage/current	1 mA max. at 5 VDC max.					
ON response time	8 ms max. (The input time constant can be set to 0, 0.5, 1, 2, 4, 8, 16, or 32 ms in the PLC Setup.)					
OFF response time	8 ms max. (The input time co	onstant can be set to 0, 0.5, 1,	2, 4, 8, 16, or 32 ms in the PL	_C Setup.)		

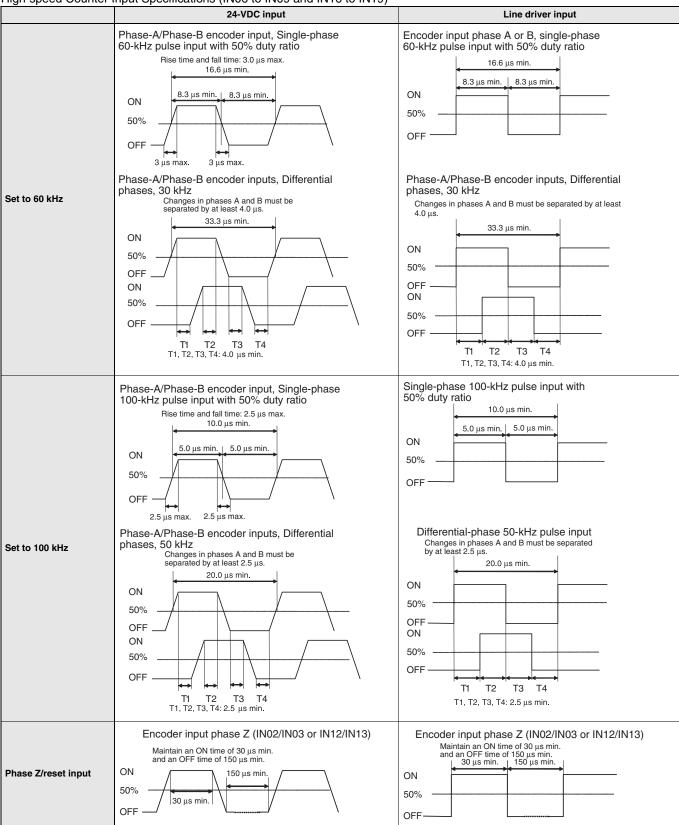
Input Circuit Configuration



Interrupt Input and Quick-response Input Specifications (IN00 to IN03 and IN10 to IN13)

Item	Specifications
ON response time	30 μs max.
OFF response time	150 μs max.
Response pulse	ON

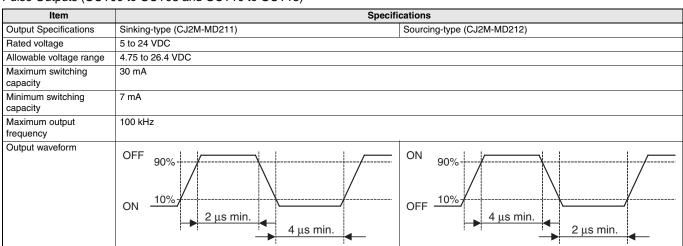
High-speed Counter Input Specifications (IN06 to IN09 and IN16 to IN19)



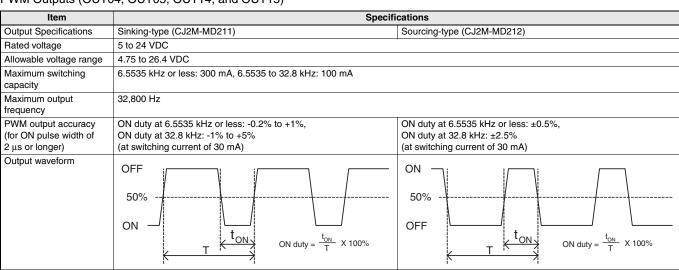
Output Specifications (OUT00 to OUT05 and OUT10 to OUT15)

Item	Specifications					
Output Specifications	Sinking-type (CJ2M-MD211)	Sourcing-type (CJ2M-MD212)				
Rated voltage	5 to 24 VDC					
Allowable voltage range	4.75 to 26.4 VDC					
Maximum switching current	0.3 A/output, 1.8 A/Unit					
Number of circuits	6 outputs (6 outputs/common)					
Maximum inrush current	3.0 A/output, 10 ms max.	2.0 A/output, 10 ms max.				
Leakage current	0.1 mA max.					
Residual voltage	0.6 V max.					
ON response time	0.1 ms max.					
OFF response time	0.1 ms max.					
Fuse	None					
External supply power (power supply input for outputs)	10.2 to 26.4 VDC, 20 mA min.					
Circuit configuration	Rated voltage circuit OUT Solation circuit COM	COM Isolation circuit Rated voltage circuit -V				

Pulse Outputs (OUT00 to OUT03 and OUT10 to OUT13)



PWM Outputs (OUT04, OUT05, OUT14, and OUT15)



Ordering Information

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International Standards

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

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 Standards

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

■ CJ2H (Built-in EtherNet/IP) CPU Units

		Specifications				nsumption A)			
Product name	I/O capacity/ Mountable Units (Expansion Racks) Program capacity		Data memory capacity	LD instruction execution time	5 V 24 V		Model	Standards	
	2,560 points/ 40 Units (3 Expansion Racks max.)	400K steps	832K words (DM: 32K words, EM: 32K words × 25 banks)	0.016 μs				CJ2H-CPU68-EIP	
CJ2H (Built-in EtherNet/IP) CPU		250K steps	512K words (DM: 32K words, EM: 32K words × 15 banks)				CJ2H-CPU67-EIP		
Units		150K steps	352K words (DM: 32K words, EM: 32K words × 10 banks)		0.82 (See note.)		CJ2H-CPU66-EIP	UC1, N, L, CE	
		100K steps	160K words (DM: 32K words, EM: 32K words × 4 bank)				CJ2H-CPU65-EIP		
		50K steps	160K words (DM: 32K words, EM: 32K words × 4 bank)				CJ2H-CPU64-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. Add 0.20A/Unit when using NV3W-M□20L Programmable Terminals.

■ CJ2H CPU Units

		Spe	cifications			nsumption A)		
Product name	I/O capacity/ Mountable Units (Expansion Racks)	Mountable Units Program Data memory capacity		LD instruction execution time	5 V 24 V		Model	Standards
		400K steps	832K words (DM: 32K words, EM: 32K words × 25 banks)				CJ2H-CPU68	
CJ2H CPU Units	2,560 points/ 40 Units (3 Expansion Racks max.)	250K steps	512K words (DM: 32K words, EM: 32K words × 15 banks)	0.016 μs			CJ2H-CPU67	
		150K steps	352K words (DM: 32K words, EM: 32K words × 10 banks)		0.42 (See note.)		CJ2H-CPU66	UC1, N, L, CE
		100K steps	160K words (DM: 32K words, EM: 32K words × 4 bank)				CJ2H-CPU65	
		50K steps	160K words (DM: 32K words, EM: 32K words × 4 bank)				CJ2H-CPU64	

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. Add 0.20A/Unit when using NV3W-M□20L Programmable Terminals.

■ CJ2M CPU Units (Built-in EtherNet/IP)

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

Note: Add 0.005A, 0.030A, and 0.075A when using Serial Communications Option Boards (CP1W-CIF01/11/12), respectively. Add 0.15A/Unit when using NT-AL001 RS-232C/RS-422A Adapters.

Add 0.04A/Unit when using CJ1W-CIF11 RS-422A Adapters.
Add 0.20A/Unit when using NV3W-M□20L Programmable Terminals.

■ CJ2M CPU Units

		Specifications					Current consumption (A)			
Product name	I/O capacity/ Mountable Units (Expansion Racks)	Program capacity	Data memory capacity	LD instruction execution time	EtherNet/IP function	Option board slot	5 V	24 V	Model	Standards
	2,560 points/ 40 Units (3 Expansion Racks max.)	60K steps	160K words (DM: 32K words, EM: 32K words × 4 banks)	0.04 μs					CJ2M-CPU15 NEW	
CJ2M CPU Units		30K steps						0.5		CJ2M-CPU14 <u>NEW</u>
		20K steps					(See note.)	ee	CJ2M-CPU13 <u>NEW</u>	UC1, N, L, CE
		10K steps	(DM: 32K words, EM: 32K words ×						CJ2M-CPU12 <u>NEW</u>	
		5K steps	1 bank)						CJ2M-CPU11 NEW	

Note: Add 0.15A/Unit when using NT-AL001 RS-232C/RS-422A Adapters.
Add 0.04A/Unit when using CJ1W-CIF11 RS-422A Adapters.
Add 0.20A/Unit when using NV3W-M□20L Programmable Terminals.

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 (See note.)	Serial Port Connector Set (Plug: XM2A-0901, Hood: XW2S-0911-E, D-sub 9-pin male connector)				

Note: Connector is provided with CJ2M-CPU1□.

■ Serial Communications Option Boards (Only CJ2M-CPU3□)

Product name	Specifications	Serial communications	Current consumption (A)		Model	Standards
		mode 5 V 24 V				
RS-232C Option Board	One RS-232C port Connector: D-Sub, 9 pin, female Maximum transmission distance: 15m One RS-232C connector (D-Sub, 9 pin, male) is included. (Plug: XM2A-0901, Hood: XM2S-0911-E)	Add 0.15A/Unit when using NT-AL001 RS-232C/RS-422A Adapters. Add 0.04A/Unit when using	0.005		CP1W-CIF01	
RS-422A/485 Option Board	One RS-422A/485 port Terminal block: using ferrules Maximum transmission distance: 50m		0.030		CP1W-CIF11	UC1, N, L, CE
RS-422A/485 Isolated-type Option Board	One RS-422A/485 port (Isolated) Terminal block: using ferrules Maximum transmission distance: 500m	NV3W-M□20L Programmable Terminals.	0.075		CP1W-CIF12	

Note: It is not possible to use a CP-series Ethernet Option Board (CP1W-CIF41), LCD Option Board (CP1W-DAM01) with a CJ2M CPU Unit. The following modes cannot be used: 1:1 NT Link, Serial Gateway converted to Host Link FINS, 1:1 Link Master, and 1:1 Link Slave.

■Pulse I/O Modules (Only CJ2M CPU Unit with Unit Version 2.0 or Later)

Optional Pulse I/O Modules can be mounted to enable pulse I/O. Up to two Pulse I/O Modules can be mounted to the left side of a CJ2M CPU Unit.

Product name	Specifications		rent ption (A)	Model	Standards
			24 V		
Pulse I/O Module	Sinking outputs, MIL connector 10 inputs (including four interrupt/quickresponse inputs and two high-speed counter inputs) 6 outputs (including two pulse outputs and two PWM outputs)	0.08		CJ2M-MD211 <u>NEW</u>	UC1, N, L,
	Sourcing outputs, MIL connector 10 inputs (including four interrupt/quickresponse inputs and two high-speed counter inputs) 6 outputs (including two pulse outputs and two PWM outputs)	0.08		CJ2M-MD212 <u>NEW</u>	CE

Note: Connectors are not provided with Pulse I/O Modules. Purchase the following Connector, an OMRON Cable with Connectors for Connector Terminal Block Conversion Units, or an OMRON Cable with Connectors for Servo Relay Units.

■Connecting to Pulse I/O Modules

On wiring, refer to Pulse I/O Modules Connector Wiring Methods.

Product name	Specifications	Model	Standards
Applicable Connector	MIL Flat Cable Connectors (Pressure-fitted Connectors)	XG4M-4030-T	
	Slim type (M3 screw terminals, 40-pin)	XW2D-40G6	
Connector-Terminal Block Conversion Units	Through type (M3 screw terminals, 40-pin)	XW2B-40G4	
	Through type (M3.5 screw terminals, 40-pin)	XW2B-40G5	
	Cable length: 1 m	XW2Z-100K	
	Cable length: 1.5 i	n XW2Z-150K	
Cable for Connector-Terminal Block Conversion Unit	Cable length: 2 m	XW2Z-200K	
version onit	Cable length: 3 m	XW2Z-300K	
	Cable length: 5 m	XW2Z-500K	
	Servo Relay Unit for 1 axis	XW2B-20J6-8A	
Servo Relay Units	Servo Relay Unit for 2 axes	XW2B-40J6-9A	

Product name		Specifications		Model	Standards
		Cable for Pulse I/O Modules	Cable length: 0.5 m	XW2Z-050J-A33	
	OMNUC G5/G Series		Cable length: 1 m	XW2Z-100J-A33	
	OWINGO GO/G GENES	Servo Driver Connecting Cables	Cable length: 1 m	XW2Z-100J-B31	
			Cable length: 2 m	XW2Z-200J-B31	
		Cable for Pulse I/O Modules	Cable length: 0.5 m	XW2Z-050J-A33	
	SMARTSTEP2		Cable length: 1 m	XW2Z-100J-A33	
	OWN TOTAL 2	Servo Driver Connecting Cables	Cable length: 1 m	XW2Z-100J-B32	
			Cable length: 2 m	XW2Z-200J-B32	
Cables for Servo Relay Units	SMARTSTEP Junior	Cable for Pulse I/O Modules	Cable length: 1 m	XW2Z-100J-A26	
Cables for Servo nelay Utilis		Servo Driver Connecting Cables	Cable length: 1 m	XW2Z-100J-B17	
			Cable length: 2 m	XW2Z-200J-B17	
		Cable for Pulse I/O Modules	Cable length: 1 m	XW2Z-100J-A26	
	SMARTSTEP A Series	Servo Driver Connecting Cables	Cable length: 1 m	XW2Z-100J-B5	
			Cable length: 2 m	XW2Z-200J-B5	
		Cable for Pulse I/O Modules	Cable length: 0.5 m	XW2Z-050J-A27	
	0.000		Cable length: 1 m	XW2Z-100J-A27	
	OMNUC W Series	Servo Driver Connecting Cables	Cable length: 1 m	XW2Z-100J-B4	
			Cable length: 2 m	XW2Z-200J-B4	

■ Power Supply Units

One Power Supply Unit is required for each Rack.

			0	utput capac	ity		Options			
Pro	duct name	Power supply voltage	5-VDC output capacity	24-VDC output capacity	Total power consump-tion	24-VDC service power supply	RUN output	Maintenance forecast monitor	Model	Standards
			5 A	0.8 A	25 W		No	Yes	CJ1W-PA205C	
AC Power Supply Unit		100 to 240 VAC		0.0 A	23 VV		Yes	No	CJ1W-PA205R	UC1, N, L,
	anneae		2.8 A	0.4 A	14 W	No	No	No	CJ1W-PA202	CE
DC Power		24 VDC	5A	0.8 A	25 W		No	No	CJ1W-PD025	
Supply Unit		24 VDC 2 A 0.4 A 19.6 W		No	No	CJ1W-PD022	UC1, CE			

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		rent ption (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

 $\textbf{Note:} \ \ \text{Mounting the I/O Control Unit in any other location may cause faulty operation}.$

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

Product Name	Specifications	Cur	rent ption (A)	Model	Standards
			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 Power Supply 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	
	Cable length: 0.3 m	CS1W-CN313		
I/O Connecting		Cable length: 0.7 m	CS1W-CN713	
Cable Interface Unit on a CJ-series Expansion Rack.	Cable length: 2 m	CS1W-CN223		
	Cable length: 3 m	CS1W-CN323	N, L, CE	
	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: 5 m	CS1W-CN523	
an i/O interlace officion another		Cable length: 10 m	CS1W-CN133	
		Cable length: 12 m	CS1W-CN133-B2	

Programming Devices

■ Support Software

Product name	Specifications	Number of licenses	Media	Model	Standards
Support Software for OMRON PLCs CX-One runs on the following OS.	The CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components.	1 license		CXONE-AL01D-V4	
	CX-One runs on the following OS. Windows XP (Service Pack 3 or higher), Vista or 7 Note: Except for Windows XP 64-bit version. CX-One Version 4.□ includes CX-Programmer Ver.9.□ and CX-Simulator Ver. 1.□.	3 licenses		CXONE-AL03D-V4	
FA Integrated Tool Package CX-One		10 licenses	DVD	CXONE-AL10D-V4	
Ver. 4.□		30 licenses		CXONE-AL30D-V4	
		50 licenses		CXONE-AL50D-V4	

Note: The CX-One is also available on CD (CXONE-AL C-V4).

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

Support Software in CX-One Ver.4.□

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

Support Software in CX-One	Outline
CX-Programmer Ver.9.□	Application software to create and debug programs for SYSMAC CS/CJ/CP/NSJ-series, C-series, and CVM1/C-series CPU Units. Data can be created and monitored for high-speed-type Position Control Units and Position Control Units with EtherCAT interface.
CX-Integrator Ver.2.□	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.□	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.□	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.□	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.□	Application software to create and monitor data for SYSMAC CS/CJ-series Position Control Units. (except for High-speed type)
CX-Motion-NCF Ver.1.□	Application software to create and monitor data for SYSMAC CS/CJ-series Position Control Units with MECHATROLINK-II interface (NC□71).
CX-Motion-MCH Ver.2.□	Application software to create data and monitor program and monitor data SYSMAC CS/CJ-series Motion Control Units with MECHATROLINK-II interface (MCH71).
CX-Motion Ver.2.□	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.2.□	Application software to set and control data for Inverters and Servos.
CX-Process Tool Ver.5.□	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.	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.□	Application software to create screen data for NS-series PTs.
NV-Designer Ver.1.1	Application software to create screen data for NV-series small PTs.
CX-Configurator FDT Ver.1.□	Application software for setting various units by installing its DTM module.
CX-Thermo Ver.4.□	Application software to set and control parameters in components such as Temperature Control Units.
CX-FLnet Ver.1.□	Application software for system setting and monitoring of SYSMAC CS/CJ-series FL-net Units
Network Configurator Ver.3.□	Application software for set up and monitor tag datalink for CJ2 (Built-in EtherNet/IP) CPU Units and EtherNet/IP Units.
CX-Server Ver.4.□	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 2.8 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

	Specifications						
Product Name	Applicable computers	Connection configuration			Remarks	Model	Standards
		IBM PC/AT or compatible computer + XW2Z-		2 m	Used for	XW2Z-200S-CV	
Programming Device Connecting Cables for RS-232C Port	Connects IBM PC/AT or compatible	XW2Z-500S-CV/V + RS-232C port of CPU L Communications Board or Unit		5 m	Peripheral Bus or Host Link. Anti-static connectors	XW2Z-500S-CV	
	computers, D-Sub 9-pin	IBM PC/AT or XW2Z-2003-CV/V (2111)	Unit built-in		Used for Host	XW2Z-200S-V	
	D-Sub 9-piii	compatible computer (RS-232C, 9-pin) RS-232C Cables RS-232C port		5 m	Link only. Peripheral Bus not supported.	XW2Z-500S-V	
USB-Serial Conver- sion Cable and PC driver (on a CD-ROM disk)	IBM PC/AT or compatible	IBM PC/AT or compatible computer + CS1W-CIF31 + XW2Z-200S-CV/500S-CV + RS-232C port of CPU Unit or Serial Communications Unit	Connect USB Serial Conversion Cable to Serial	0.5	Used for Peripheral Bus or Host Link.	- CS1W-CIF31	N
Complies with USB Specification 1.1.	computer (USB port)	IBM PC/AT or compatible computer + CS1W-CIF31 + XW2Z-200S-V/500S-V + RS-232C port of CPU Unit or Serial Communications Unit	Connecting Cable, and connect to the PLC RS-232C port.	0.5 m	Used for Host Link only. Peripheral Bus not supported.	- 031W-0IF31	IV

FA Communications Software

■SYSMAC Gateway (Communications Middleware)

Product name	Specifications	Model	Standards
SYSMAC Gateway (See note 1.	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	WS02-SGWC1	
See note 2.)	10 additional licenses (This product provides only additional licenses. The software must be purchased in advance.)	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	WS02-SGWC1S	

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

Note 1. One license is required per computer.

2. This packaged product bundles Fins Gateway.

■CX-Compolet

Product name	Specifications	Model	Standards
CX-Compolet (See note 1.)	Software components that can make it easy to create programs for communications between a computer and controllers. This packaged product bundles SYSMAC Gateway. Development environment: Visual Studio .NET 2003/.NET 2005/.NET 2008 Development languages: Visual Basic .NET, Visual C#.NET, Visual Basic Ver. 5/6 (See note 2.) Supported communications: Equal to SYSMAC Gateway.	WS02-CPLC1	
	3 additional licenses (This product provides only additional licenses. The software must be purchased in advance.)	WS02-CPLC1-L3	
	5 additional licenses (This product provides only additional licenses. The software must be purchased in advance.)	WS02-CPLC1-L5	
	10 additional licenses (This product provides only additional licenses. The software must be purchased in advance.)	WS02-CPLC1-L10	
	Software components only. This package doesn't include SYSMAC Gateway as communications drivers.	WS02-CPLC2	

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

Note 1. One license is required per computer.
2. Only functions provided by Compolet V2 as ActiveX controls are supported for Visual Basic version 5 or 6.

Optional Products and Maintenance Products

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

Product name	Sp	ecifications	Model	Standards
Battery Set	Battery for CJ2H-CPU□□(-EIP) and CJ2M-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	
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 Converter	Converts RS-233C to RS-422A/RS-485. (Application example: With a CJ2M-CPU1□ the built-in RS-232C port of the CPU Unit.)	CPU Unit, the Adapter is used for Serial PLC Link at	CJ1W-CIF11	UC1, N, L, CE

Product name	Specifications		Model	Standards	
Product manne	Connection configuration	Cable length	Model	Standards	
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 NS-series PT	2 m	XW2Z-200T		
	XW2Z-200T (2 m) XW2Z-500T (5 m) RS-232C Cable CPU Unit built-in RS-232C port	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			Specif	ications				nt con- ion (A)															
classification	Product name	I/O points	Input voltage and current	Commons	External connection	No. of words allocated	5 V	24 V	Model	Standards													
		8 inputs	12 to 24 VDC, 10 mA	Independent contacts	Removable terminal block	1 word	0.08		CJ1W-ID201														
	DC Input Units	16 inputs	24 VDC, 7 mA	16 points, 1 common	Removable terminal block	1 word	0.08		CJ1W-ID211														
		16 inputs High-speed type	24 VDC, 7 mA	16 points, 1 common	Removable terminal block	1 word	0.13		CJ1W-ID212														
		32 inputs	24 VDC, 4.1 mA	16 points, 1 common	Fujitsu connector	2 words	0.09		CJ1W-ID231 (See note.)														
CJ1		32 inputs	24 VDC, 4.1 mA	16 points, 1 common	MIL connector	2 words	0.09		CJ1W-ID232 (See note.)														
Basic I/O Units				32 inputs High-speed type	24 VDC, 4.1 mA	16 points, 1 common	MIL connector	2 words	0.20		CJ1W-ID233 (See note.)	UC1, N, L, CE											
															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	8 inputs	200 to 24 VAC, 10 mA (200 V, 50 Hz)	8 points, 1 common	Removable Terminal Block	1 word	0.08		CJ1W-IA201														
		16 inputs	100 to 120 VAC, 7 mA (100 V, 50 Hz)	16 points, 1 common	Removable Terminal Block	1 word	0.09		CJ1W-IA111														

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 1/0 Relay Terminal.

■ Output Units

Unit classification	Product name			Specifications			No. of words	consu	rent mption A)	Model	Standards	
classification		Output type	I/O points	Maximum switching capacity	Commons	External connection	allocated	5 V	24 V			
	Relay Contact Output Units	-	8 outputs	250 VAC/24 VDC, 2 A	Independent contacts	Removable terminal block	1 word	0.09	0.048 max.	CJ1W-OC201		
	A CONTRACTOR OF THE PARTY OF TH	-	16 outputs	250 VAC/24 VDC, 2 A	16 points, 1 common	Removable terminal block	1 word	0.11	0.096 max.	CJ1W-OC211		
	Triac Output Unit	-	8 outputs	250 VAC, 0.6 A	8 points, 1 common	Removable terminal block	1 word	0.22	-	CJ1W-OA201		
	Transistor Output Units		Sinking	8 outputs	12 to 24 VDC, 2 A	4 points, 1 common	Removable terminal block	1 word	0.09	-	CJ1W-OD201	
		Sinking	8 outputs	12 to 24 VDC, 0.5 A	8 points, 1 common	Removable terminal block	1 word	0.10	-	CJ1W-OD203		
		Sinking	16 outputs	12 to 24 VDC, 0.5 A	16 points, 1 common	Removable terminal block	1 word	0.10	-	CJ1W-OD211		
CJ1 Basic		Sinking	16 outputs High-speed type	24 VDC, 0.5 A	16 points, 1 common	Removable terminal block	1 word	0.15	-	CJ1W-OD213	UC1, N, L,	
I/O Units		Sinking	32 outputs	12 to 24 VDC, 0.5 A	16 points, 1 common	Fujitsu connector	2 words	0.14	_	CJ1W-OD231 (See note.)		
		Sinking	32 outputs	12 to 24 VDC, 0.5 A	16 points, 1 common	MIL connector	2 words	0.14	_	CJ1W-OD233 (See note.)		
		Sinking	32 outputs High-speed type	24 VDC, 0.5 A	16 points, 1 common	MIL connector	2 words	0.22	-	CJ1W-OD234 (See note.)		
		Sinking	64 outputs	12 to 24 VDC, 0.3 A	16 points, 1 common	Fujitsu connector	4 words	0.17	-	CJ1W-OD261 (See note.)		
		Sinking	64 outputs	12 to 24 VDC, 0.3 A	16 points, 1 common	MIL connector	4 words	0.17	-	CJ1W-OD263 (See note.)		
		Sourcing	8 outputs	24 VDC, 2 A Short-circuit protection	4 points, 1 common	Removable terminal block	1 word	0.11	-	CJ1W-OD202		
		Sourcing	8 outputs	24 VDC, 0.5 A Short-circuit protection	8 points, 1 common	Removable terminal block	1 word	0.10	-	CJ1W-OD204		
		Sourcing	16 outputs	24 VDC, 0.5 A Short-circuit protection	16 points, 1 common	Removable terminal block	1 word	0.10	_	CJ1W-OD212		
		Sourcing	32 outputs	24 VDC, 0.5 A Short-circuit protection	16 points, 1 common	MIL connector	2 words	0.15	-	CJ1W-OD232 (See note.)		
		Sourcing	64 outputs	12 to 24 VDC, 0.3 A	16 points, 1 common	MIL	4 words	0.17	-	CJ1W-OD262 (See note.)		

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

				Specification	ons			consu	rent mption A)		
Unit classification	Product name	Output	I/O points	Input voltage, Input current	Commons	External	No. of	5 V	24 V	Model	Standards
		type	livo points	Maximum switching capacity	Commons	connection	allocated		24 (
		Sinking	16 inputs	24 VDC, 7 mA	16 points, 1 common	Fujitsu	2 words	0.13		CJ1W-MD231	UC1, N,
		Siriking	16 outputs	250 VAC/24 VDC, 0.5 A	16 points, 1 common	connector	2 Words	0.13		(See note 2.)	CE
	DC Input/ Transis-	Sinking	16 inputs	24 VDC, 7 mA	16 points, 1 common	MIL	2 words	0.13		CJ1W-MD233	
	tor Output Units	Siriking	16 outputs	12 to 24 VDC, 0.5 A	16 points, 1 common	connector	2 Words	0.13		(See note 2.)	
		Sinking	32 inputs	24 VDC, 4.1 mA	16 points, 1 common	i ujitsu	4 words	0.14		CJ1W-MD261	UC1, N, CE
			32 outputs	12 to 24 VDC, 0.3 A	16 points, 1 common	connector		0.14		(See note 1.)	
CJ1 Basic		Cinking	32 inputs	24 VDC, 4.1 mA	16 points, 1 common	MIL connector 4 words	4 words	0.14		CJ1W-MD263	
I/O Units	8.5	Sinking	32 outputs	12 to 24 VDC, 0.3 A	16 points, 1 common		0.14		(See note 1.)		
		Sourcing	16 inputs	24 VDC, 7 mA	16 points, 1 common	MIL		0.13		CJ1W-MD232	UC1, N, L,
		Sourcing	16 outputs	24 VDC, 0.5 A Short-circuit protection	16 points, 1 common	connector	2 words	0.13		(See note 2.)	CE
-	TTL I/O Units		32 inputs	5 VDC, 35 mA	16 points, 1 common	6 points, common MIL connector 4 1	4 words	0.10		CJ1W-MD563	UC1, N,
		3	32 outputs	5 VDC, 35 mA	16 points, 1 common		4 words	0.19		(See note 1.)	CE, N,

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

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.

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-ID232/233 (32 inputs): 1 per Unit CJ1W-OD232/233/234 (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 clas-	Product		Specifications					No. of	Current con- sumption (A)			
sification		I/O points	Input voltage current	Commons	Input pulse width conditions	Max. Units mountable per Unit	External connection	words allocated	5 V	24 V		Standards
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	Remov- able termi- nal block	1 word	0.08		CJ1W-INT01	UC1, N, L,

Note 1. Can be used only on CPU Racks, and not on Expansion Racks.

■ Quick-response Input Units

		Specifications					No. of	Current con- sumption (A)			
Unit clas- sification			Input voltage, Input current Commons		Input pulse width Extern conditions connect		words allocated	5 V	24 V	Model	Standards
CJ1 Basic I/O Units	Quick- response 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

	Product name	Specifications	No. of words	Current con- sumption (A)		Model	Standards	
Silication	name	I/O points	External connection	anocateu	5 V	24 V		
	B7A Inter- face Units	64 inputs			0.07		CJ1W-B7A14	
CJ1 Basic I/O Units		64 outputs	Removable terminal block	4 words	0.07		CJ1W-B7A04	UC1, CE
		32 inputs/outputs			0.07		CJ1W-B7A22	

^{2.} The locations where the Units can be mounted depend on the CPU Rack and the CPU Unit model. CJ2H-CPU6□-EIP: From the slot next to the CPU Unit until the forth slot. CJ2H-CPU6□, CJ2M: From the slot next to the CPU Unit until the fifth slot.

Special I/O Units and CPU Bus Units

■ Process I/O Units

● Isolated-type Units with Universal Inputs

			Signal		Conversion	Accuracy	External	No. of unit	Current con- sumption (A)			Standards
Unit classification	Product name	Input points	range selection	Signal range	speed (resolution)	(at ambient tem- perature of 25°C)	connec- tion	num- bers allo- cated	5 V	24 V	Model	Standards
Input Ui (Isolate type Ur		4 inputs	Set sepa- rately for each input	Universal inputs: Pt100 (3-wire), JPt100 (3-wire), Pt1000 (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.	Remov- able ter-	1	0.30		CJ1W-PH41U (See note 1.)	UC1, CE
		4 inputs	Set sepa- rately 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 2.) Voltage or current input: ±0.3% of F.S. ±1 digit max.	block		0.32		CJ1W-AD04U	UC1, L, CE

Note 1. Do not connect a Relay Output Unit to the same CPU Rack or to the same Expansion Rack as the CJ1W-PH41U.

2. 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 clas-		Input	Signal range	Signal range	Conversion speed	(at ambient	External	No of linit		nt con- ion (A)		Standards
sification	name	points	selection		(resolution)	temperature of 25°C)	connection	allocated	5 V	24 V		
CJ1	Process Input Units (Isolated- type Ther- mocouple Input	2 inputs	Set sep- arately 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		0.18	0.06 (See note 2.)	CJ1W- PTS15	
Special I/O Units	Units)	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.)	terminal block	1	0.25		CJ1W- PTS51	UC1, CE

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

			Signal		Conversion	Accuracy	External	No. of unit		nt con- ion (A)		
Unit classification		Input points	range	Signal range	speed (resolution)	(at ambient temperature of 25°C)	connec- tion	num- bers allo- cated	5 V	24 V	Model	Standards
CJ1	Process Analog Input Units (Isolated- type Resis-	2 inputs	Set sep- arately for each input	Resistance ther- mometer: 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		0.18	0.07 (See note.)	CJ1W-PTS16	
Special I/O Units	tance Thermometer Input Units)	4 inputs	Com- mon inputs	Resistance thermometer: Pt100, JPt100	Conversion speed: 250 ms/ 4 inputs	Accuracy: ±0.3°C of PV or ±0.8°C, which- ever is larger, ±1 digit max.		1	0.25		CJ1W-PTS52	UC1, CE

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

● Isolated-type DC Input Units

Unit clas-		Input	Signal range selection	Conversion speed	(at ambient	External connec-	No. of unit	Currer sumpt	nt con- ion (A)	Model	Standards
sification	name	points	3	(resolution)	temperature of 25°C)	tion	numbers allocated	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.	Remov- able 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 clas- sification	Product name	Input points	Signal range selec-	Signal range	Resolution	Conversion speed	Accuracy (at ambient temperature of	External connection	No. of unit numbers	cons	rent ump- ı (A)	Model	Standards
			tion				25°C)	lion	allocated	5 V	24 V		
CJ1 Special	Analog Input Units High-speed type	4 inputs	Set sepa- rately for	-5 to 5 V (-10 to 10 and	/10,000), (1/20,000), (1/20,000), V (1/40,000), A (1/10,000)	20 μs/1 point, 25 μs/2 points, 30 μs/3 points, 35 μs/4 points The Direct conversion is provided.	Voltage: ±0.2% of F.S. Current: ±0.4% of F.S.	Remov- able termi-	1	0.52		CJ1W-AD042	UC1, CE
I/O Units	Analog Input Units	8 inputs 4 inputs	each input	1 to 5 V, 0 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA	1/4000, (Settable to 1/8000) (See note 1.)	1 ms/point max. (Settable to 250 µs/point) (See note 1.)	Voltage: ±0.2% of F.S. Current: ±0.4% of F.S. (See note 2.)			0.42		CJ1W-AD081-V1	UC1, N, L, CE

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 clas-	Product	0	Signal	Ci	Resolu-	Conver-	Accuracy	External	External	unit		nt con- tion (A)		
sification	name	Output points	range selec- tion	Signal range	tion	sion speed	(at ambient temperature of 25°C)	connec- tion	power supply	num- bers allo- cated	5 V	24 V	Model	Standards
	Analog Output Units High-speed type	4 outputs		1 to 5 V (1/10 0 to 10 V (1/20 and -10 to 10 V (20,000),	20 μ s/ 1 point, 25 μ s/ 2 points, 30 μ s/ 3 points, 35 μ s/ 4 points The Direct conver- sion is provided.	±0.3% of F.S.				0.40		CJ1W-DA042V	UC1, CE
		8 outputs	Set sepa- rately for each	1 to 5 V, 0 5 to 5 V, 0 to 10 V, -10 to 10 V	1/4,000 (Settable	1 ms/ point max.		Remov- able termi- nal	24 VDC +10% -15% , 140 mA max.	1	0.14	0.14 (See note.)	CJ1W-DA08V	UC1, N, L, CE
	Analog Output Units	8 outputs	each input	4 to 20 mA	(Settable to 1/8,000)	(Settable to 250 μs/point)		block	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.	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,
		2 outputs		-10 to 10 V, -10 to 10 V, 4 to 20 mA	1/4000				24 VDC +10% -15%, 140 mA max.		0.12	0.14 (See note.)	CJ1W-DA021	CE

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

● Analog I/O Units

Unit clas-		No. of points		Signal range	Resolu- tion (See	Conversion speed (See note.)	Accuracy (at ambient temperature	External connection	No. of unit numbers allocated	cons	rent ump- ı (A)	Model	Standards
			tion		note.)	(occ note.)	of 25°C)	uon	anocatea	5 V	24 V		
CJ1 Special I/O Units	Analog I/O Units	4 inputs 2 outputs	Set sepa- rately 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. Current input: ±0.2% of F.S. Voltage output: ±0.3% of F.S. Current output: ±0.3% of F.S.	Remov- able termi- nal block	1	0.58		CJ1W-MAD42	UC1, N, L, CE

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 clas-	Product		Specificat	ions	No. of unit	Currer	nt con- ion (A)	Model	Standards
sification	name	No. of loops	Temperature sensor inputs	Control outputs	allocated	5 V	24 V	Model	Standards
		4 loops		Open collector NPN outputs (pulses)		0.25		CJ1W-TC001	
		4 loops	Thermocouple	Open collector PNP outputs (pulses)		0.25		CJ1W-TC002	
	Temper-	2 loops, heater burnout detection function	input (R, S, K, J, T, B, L)	Open collector NPN outputs (pulses)		0.25		CJ1W-TC003	
	ature Control Units	2 loops, heater burnout detection function		Open collector PNP outputs (pulses)	2	0.25		CJ1W-TC004	UC1, N,
Units		4 loops		Open collector NPN outputs (pulses)	2	0.25		CJ1W-TC101	L, CE
		4 loops	Platinum	Open collector PNP outputs (pulses)		0.25		CJ1W-TC102	
		2 loops, heater burnout detection function	resistance thermometer	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 classifi-	Product		Specifications		No. of unit	Current con- sumption (A)		Model	Standards
cation	name	Countable channels	Encoder A and B inputs, pulse input Z signals	Max. counting rate	cated	5 V	24 V	Wodel	Standards
CJ1 Spe-	High- speed Counter Unit		Open collector Input voltage: 5 VDC, 12 V, or 24 V (5 V and 12 V are each for one axis only.)	50 kHz					UC1, N,
cial I/O Units		2	RS-422 line driver	500 kHz	4	0.28		CJ1W-CT021	L, CE

■ Position Control Units

● Position Control Units (High-speed type)

Unit classifi- cation	Product name		Spe	ecifications		No. of unit numbers	cons	rent sump- n (A)	Model	Standards
Cation			Control outp	ut interface	No. of axes	allocated	5 V	24 V		
	Position Control	Pulse-train ope	en-collector outp	ut with	2 axes	2	0.27		CJ1W-NC214	
	Units	Pulse Counter	Function		4 axes	2	0.31		CJ1W-NC414	UL1, CE
	High-speed type		-driver output wi	ith	2 axes	2	0.27		CJ1W-NC234	OL1, OL
		Pulse Counter	Function	T	4 axes	_	0.31		CJ1W-NC434	
				Connecting Servo Drives: OMNUC G Series R88D-GT OMNUC G5 Series R88D-KT		Cable lengt	h: 1 m		XW2Z-100J-G13	
				Connecting Servo Drives: SMARTSTEP2 R7D-BP		Cable lengt	h: 3 m		XW2Z-300J-G13	
				Connecting Servo Drives: OMNUC W Series R88D-WT		Cable lengt	h: 1 m		XW2Z-100J-G16	
				Connecting Servo Drives: SMARTSTEP R7D-AP	1 axis	Cable lengt	h: 3 m		XW2Z-300J-G16	
				Connecting Servo Drives: OMNUC G Series R88D-GT OMNUC G5 Series R88D-KT		Cable lengt	h: 1 m		XW2Z-100J-G14	
				Connecting Servo Drives: SMARTSTEP2 R7D-BP		Cable lengt	h: 3 m		XW2Z-300J-G14	
			For CJ1W-NC214/	Connecting Servo Drives: OMNUC W Series R88D-WT		Cable lengt	h: 1 m		XW2Z-100J-G15	
		Open-collector		Connecting Servo Drives: SMARTSTEP R7D-AP		Cable lengt	h: 3 m		XW2Z-300J-G15	
		output	NC414	Connecting Servo Drives: OMNUC G Series R88D-GT OMNUC G5 Series R88D-KT		Cable lengt	h: 1 m		XW2Z-100J-G5	
CJ1 Special				Connecting Servo Drives: SMARTSTEP2 R7D-BP		Cable lengt	h: 3 m		XW2Z-300J-G5	
I/O Units	Position Control			Connecting Servo Drives: OMNUC W Series R88D-WT		Cable lengt	h: 1 m		XW2Z-100J-G8	
	Unit Cables			Connecting Servo Drives: SMARTSTEP R7D-AP	2 axes	Cable length: 3 m		XW2Z-300J-G8		
				Connecting Servo Drives: OMNUC G Series R88D-GT OMNUC G5 Series R88D-KT		Cable lengt	h: 1 m		XW2Z-100J-G6	
				Connecting Servo Drives: SMARTSTEP2 R7D-BP		Cable lengt	h: 3 m		XW2Z-300J-G6	
				Connecting Servo Drives: OMNUC W Series R88D-WT		Cable lengt	h: 1 m		XW2Z-100J-G7	
				Connecting Servo Drives: SMARTSTEP R7D-AP		Cable lengt	h: 3 m		XW2Z-300J-G7	
				Connecting Servo Drives:		Cable lengt	h: 1 m		XW2Z-100J-G9	
				OMNUC G Series R88D-GT		Cable lengt	h: 5 m		XW2Z-500J-G9	
				OMNUC G5 Series R88D-KT		Cable lengt	h: 10 n	n	XW2Z-10MJ-G9	
				Connecting Serve Drives:		Cable lengt	h: 1 m		XW2Z-100J-G12	
			_	Connecting Servo Drives: SMARTSTEP2 R7D-BP		Cable lengt	h: 5 m		XW2Z-500J-G12	
		Line-driver	For CJ1W-NC234/		1 axis	Cable lengt	h: 10 n	n	XW2Z-10MJ-G12	
		output	NC434	Connecting Serve Drives:	I dais	Cable lengt	h: 1 m		XW2Z-100J-G10	
				Connecting Servo Drives: OMNUC W Series R88D-WT		Cable lengt	h: 5 m		XW2Z-500J-G10	
						Cable lengt	h: 10 n	n	XW2Z-10MJ-G10	
				Connecting Serve Drives:		Cable lengt			XW2Z-100J-G11	
				Connecting Servo Drives: SMARTSTEP R7D-AP		Cable lengt			XW2Z-500J-G11	
						Cable lengt	h: 10 n	n	XW2Z-10MJ-G11	

Unit classifi-	Product name		Spe	ecifications		No. of unit numbers			Model	Standards
Cation			Control outp	ut interface	No. of axes	allocated	5 V	24 V		
				Applicable Servo Drive:		Cable lengt	h: 1 m		XW2Z-100J-G1	
				OMNUC G Series R88D-GT		Cable lengt	h: 5 m		XW2Z-500J-G1	
			OMNUC G5 Series R88D-KT				Cable length: 10 m		XW2Z-10MJ-G1	
				Cable lengt	h: 1 m		XW2Z-100J-G4			
		Applicable Servo Drive: SMARTSTEP2 R7D-BP Cable length		h: 5 m		XW2Z-500J-G4				
CJ1 Special	Position Control	Line-driver	For CJ1W-NC234/	Cable length: 10 m XV				XW2Z-10MJ-G4		
I/O Units	Unit Cables	output	NC434		2 axes	Cable lengtl	h: 1 m		XW2Z-100J-G2	
				Applicable Servo Drive: OMNUC W Series R88D-WT		Cable lengtl	h: 5 m		XW2Z-500J-G2	
				OMITOO TI CONCOTICOD TI		Cable lengtl	h: 10 n	1	XW2Z-10MJ-G2	
					Cable length: 1 m		XW2Z-100J-G3			
				Applicable Servo Drive:		Cable lengtl	h: 5 m		XW2Z-500J-G3	
				SMARTSTEP R7D-AP		Cable lengt	h: 10 n	1	XW2Z-10MJ-G3	

Position Control Units

Unit classifi-	Product name		Spe	ecifications		No. of unit numbers	cons	rent ump- ı (A)	Model	Standards
cation			Control outp	ut interface	No. of axes	allocated	5 V	24 V		
	Position Control	Pulse train, op	en collector outp	ut	1 axis	1	0.25		CJ1W-NC113	
	Units	Pulse train, op	en collector outp	ut	2 axes	'	0.25		CJ1W-NC213	
		Pulse train, op	en collector outp	ut (See note.)	4 axes	2	0.36		CJ1W-NC413	UC1, CE
	9 /	Pulse train, line	e driver output		1 axis	1	0.25		CJ1W-NC133	001, OL
		Pulse train, line	e driver output		2 axes		0.25		CJ1W-NC233	
		Pulse train, lin	e driver output (S	See note.)	4 axes	2	0.36		CJ1W-NC433	
	Space Unit	Use a CJ1W-S	SP001 Space Un	it if the operating temperature	is 0 to 55°	°C.			CJ1W-SP001	UC1, CE
	Oamas Balan	For 1-Axis Pos	sition Control Uni	t (without communications sup	port) (CJ	1W-CN113/1	33)		XW2B-20J6-1B	
	Servo Relay Units	For 2- or 4-Axe	s Position Control	Unit (without communications s	support) (C	CJ1W-NC213/	233/41	3/433)	XW2B-40J6-2B	
	· · · · · ·	For 2- or 4-Axe	s Position Contro	I Unit (with communications sup	pport) (CJ	1W-NC213/2	33/413	/433)	XW2B-40J6-4A	
				Connecting Servo Drives: OMNUC G5/G/W Series,		Cable lengt	h: 0.5 ı	n	XW2Z-050J-A14	
			For	SMARTSTEP2	1 axis	Cable lengt	h: 1 m		XW2Z-100J-A14	
				Connecting Servo Drives: SMARTSTEP Junior/A	i axis	Cable lengt	h: 0.5 ı	m	XW2Z-050J-A16	
		Open-collector output	r	Series		Cable lengt	h: 1 m		XW2Z-100J-A16	
CJ1 Special				Connecting Servo Drives: OMNUC G5/G/W Series,		Cable lengt	h: 0.5 ı	n	XW2Z-050J-A15	
I/O Units			For CJ1W-NC213/	SMARTSTEP2	2 axes	Cable lengt	h: 1 m		XW2Z-100J-A15	
			413	Connecting Servo Drives: SMARTSTEP Junior/A	2 axoo	Cable lengt	h: 0.5 ı	n	XW2Z-050J-A17	
	Position Control			Series		Cable lengt	h: 1 m		XW2Z-100J-A17	
	Unit Cables			Connecting Servo Drives: OMNUC G5/G/W Series,		Cable lengt	h: 0.5 ı	n	XW2Z-050J-A18	
			For	SMARTSTEP2	1 axis	Cable lengt	h: 1 m		XW2Z-100J-A18	
			CJ1W-NC133	Connecting Servo Drives: SMARTSTEP Junior/A		Cable lengt	h: 0.5 ı	m	XW2Z-050J-A20	
		Line-driver		Series		Cable lengt	h: 1 m		XW2Z-100J-A20	
		output		Connecting Servo Drives: OMNUC G5/G/W Series,		Cable lengt	h: 0.5 ı	n	XW2Z-050J-A19	
			For CJ1W-NC233/	SMARTSTEP2	2 axes	Cable lengt	h: 1 m		XW2Z-100J-A19	
			433	Connecting Servo Drives: SMARTSTEP Junior/A		Cable length: 0.5 m		n	XW2Z-050J-A21	
				SMARTSTEP Junior/A Series		Cable lengt	h: 1 m		XW2Z-100J-A21	

Note: The ambient operating temperature for 4-Axes 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%).

■ Position Control Unit with EtherCAT interface

Unit classi-	Product name	Specifications		No. of unit		nt con- ion (A)	Model	Standards
fication	r roduct name	Control output interface	No. of axes	allocated	5 V	24 V	Wode	Standards
			2 axes				CJ1W-NC281	
		communications. Positioning functions: Memory operation, Direct operation by ladder programming Control commands executed by EtherCAT communications. • Positioning functions: Memory operation,	4 axes	4	0.40		CJ1W-NC481	
	Position Control Unit with EtherCAT interface		8 axes	es	0.46		CJ1W-NC881	
CJ1 CPU Bus Units	331		16 axes				CJ1W-NCF81	UC1, CE
			4 axes				CJ1W-NC482	
			8 axes	1	0.46		CJ1W-NC882	
		Direct operation by ladder programming • I/O communication : 64 nodes					CJ1W-NCF82 <u>NEW</u>	

Note: Use Category 5 or higher cables with double shield of aluminium tape and braid shield for connection with EtherCAT Slaves. We also recommend you to use Category 5 or higher modular connectors.

Recommended EtherCAT Communications Cables

Category 5 or higher (100BASE-TX) straight cable with double shielding (aluminum tape and braided shielding) is recommended.

Cabel with Connectors

Wire Gauge and Number of Pairs: AWG22, 2-pair Cable

Item	Appearance	Recommended manufacturer	Cable length(m)	Model
Cable with Connectors on Both Ends (RJ45/RJ45)		OMRON	0.3	XS5W-T421-AMD-K
	~		0.5	XS5W-T421-BMD-K
	20		1	XS5W-T421-CMD-K
Cable with Connectors on Both Ends (M12/RJ45)	- 40	OMRON	2	XS5W-T421-DMC-K
	-0		5	XS5W-T421-GMC-K
			10	XS5W-T421-JMC-K

 $\textbf{Note:} \ \ \text{The cable length 0.3, 0.5, 1, 2, 3, 5, 10 and 15m are available. For details, refer to Cat.No.G019.$

Cables / Connectors

Wire Gauge and Number of Pairs: AWG24, 4-pair Cable

Item	Appearance	Recommended manufacturer	Model
Cables		Tonichi Kyosan Cable, Ltd.	NETSTAR-C5E SAB 0.5 x 4P
		Kuramo Electric Co.	KETH-SB
		SWCC Showa Cable Systems Co.	FAE-5004
RJ45 Connectors		Panduit Corporation	MPS588

Wire Gauge and Number of Pairs: AWG22, 2-pair Cable

Item	Appearance	Recommended manufacturer	Model
Cables		Kuramo Electric Co.	KETH-PSB-OMR *
RJ45 Assembly Connector	19350	OMRON	XS6G-T421-1 *

^{*} We recommend you to use above cable and connector together.

■Position Control Unit with MECHATROLINK-II interface

Unit classi-	Product name	Specifications		No. of unit		nt con- ion (A)	Model	Standards	
fication	Product name	Control output interface	No. of axes	allocated	5 V	24 V	Wodel	Standards	
	Position Control Unit with MECHATROLINK-II	Control commands executed by MECHATROLINK-II synchronous communications.	2 axes				CJ1W-NC271		
i	interface		4 axes				CJ1W-NC471	UC1. CE	
		Direct operation by ladder programming. Control mode: Position control, speed	16 axes	-	0.36		CJ1W-NCF71	UCI, CE	
		control, or torque control	16 axes				CJ1W-NCF71-MA		
	MECHATROLINK-II Interface Unit	R88D-WT□ OMNUC W-series AC Servo Driv Use the model numbers provided in this cata					FNY-NS115		
		MECHATROLINK-II Cables	Cable length: 0.5 m				FNY-W6002-A5		
		both ends) Note: Can be connected to R88D-GN and	Cable ler	ngth: 1 m			FNY-W6002-01		
CJ1 CPU			Cable length: 3 m				FNY-W6002-03		
Bus Units			Cable length: 5 m				FNY-W6002-05		
	MECHATROLINK-II		Cable length: 0.5 m				FNY-W6003-A5		
	Cables	MECHATROLINK-II Cables	Cable length: 1 m				FNY-W6003-01		
		(with ring core and USB connector on both ends)	Cable ler	ngth: 3 m			FNY-W6003-03		
		(Yaskawa Electric Corporation)	Cable ler	•			FNY-W6003-05		
		Use the model numbers provided in this		ngth: 10 m			FNY-W6003-10	_	
		catalog when ordering from OMRON.		ngth: 20 m			FNY-W6003-20		
				ngth: 30 m			FNY-W6003-30		
	MECHATROLINK-II Terminating Resistors	Terminating Resistor for MECHATROLINK-II Use the model numbers provided in this cata					FNY-W6022		
	MECHATROLINK-II Repeater	Repeater					FNY-REP2000		

■ Motion Control Unit with MECHATROLINK-II interface

Unit classi-	Product name	Specifications		No. of unit		nt con- ion (A)	Model	Standards
fication	Product name	Specifications	Max.Units mountable per CPU Unit	allocated	5 V	24 V	Wiodei	Statiuatus
	Motion Control Unit with MECHATROLINK-II interface	Position, speed, and torque commands by MECHATROLINK-II 32 axes max. (Physical axes: 30, Virtual axes: 2) Motion control language	3 (See note)	1	0.6		CJ1W-MCH71	UC1, CE
	MECHATROLINK-II Interface Unit	R88D-WT OMNUC W-series AC S Use the model numbers provided in			•	FNY-NS115		
			Cable length	: 0.5 m		FNY-W6002-A5		
	MECHATROLINK-II	MECHATROLINK-II Cables (without ring core and USB connector)	Cable length: 1 m			FNY-W6002-01	ı <u></u>	
		Note: Can be connected to R88D-GN and R88D-KN only.		Cable length	: 3 m		FNY-W6002-03	
			Cable length	: 5 m		FNY-W6002-05	1	
			Cable length	: 0.5 m		FNY-W6003-A5		
CJ1 CPU		MECHATROLINK-II Cables	Cable length: 1 m			FNY-W6003-01	<u> </u>	
Bus Units		(with ring core and USB connector o	Cable length: 3 m			FNY-W6003-03		
		(Yaskawa Electric Corporation)		Cable length: 5 m			FNY-W6003-05	
		Use the model numbers provided in ordering from OMRON.	this catalog when	Cable length: 10 m			FNY-W6003-10	
		ordering from Civil Civ.		Cable length: 20 m			FNY-W6003-20	
				Cable length			FNY-W6003-30	
	MECHATROLINK-II Terminating Resistors	Terminating Resistor for MECHATRO Use the model numbers provided in					FNY-W6022	
	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 CH					FNY-PL2900	
	MECHATROLINK-II Pulse Output Module	Pulse train positioning, 2 CH					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 clas-	Product name	S	Specifications	No. of unit	Currer sumpti		Model	Standards
sification	r roudet name	Communications Interface	Communications functions	allocated	5 V	24 V	Widdel	Standards
	Serial Communications Units High-speed type	2 RS-232C ports	The following functions can be		0.28 (See note 1.)		CJ1W-SCU22	
		2 RS-422A/485 ports	The following functions can be selected for each port: Protocol macro Host Link NT Links (1:N mode) Serial Gateway	1	0.40		CJ1W-SCU32	
CJ1 CPU Bus Units		1 RS-232C port and 1 RS-422A/485 port	No-protocol Modbus-RTU Slave		0.36 (See note 1.)		CJ1W-SCU42	UC1, N, L, CE
	Serial Com- munications Units	2 RS-232C ports	The following functions can be selected for each port: Protocol macro		0.28 (See note 1.)		CJ1W-SCU21-V1	
		2 RS-422A/485 ports	Host Link NT Links (1:N mode)	1	0.38		CJ1W-SCU31-V1	
		1 RS-232C port and 1 RS-422A/485 port	Serial Gateway (See note 2.) No-protocol (See note 3.) Modbus-RTU Slave (See note 4.)		0.38 (See note 1.)		CJ1W-SCU41-V1	

Note 1. When an NT-AL001 RS-232C/RS-422A Conversion Unit is used, this value increases by 0.15 A/Unit. Add 0.20A/Unit when using NV3W-M□20L Programmable Terminals. Add 0.04A/Unit when using CJ1W-CIF11 RS-422A Adapters.

- 2. The Serial Gateway function is enabled only for Serial Communications Units of unit version 1.2 and later.
- 3. 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).
- 4. The Modbus-RTU Slave function is enabled only for Serial Communications Units of unit version 1.3 and later.

■ EtherNet/IP Unit

Unit classification	Product name	Specifications			No. of unit		nt con- ion (A)		
		Communica- tions cable	Communications functions	Max.Units mountable per CPU Unit	numbers allocated	5 V	24 V	* * * *	Standards
CJ1 CPU Bus Unit	EtherNet/IP 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	UC1, N, L, CE

Note: Up to seven EtherNet/IP Units can be connected to a CJ2H-CPU —-EIP. Up to two EtherNet/IP Units can be connected to a CJ2M CPU Unit.

■ Ethernet Unit

			No. of unit	Current con- sumption (A)					
Unit classification		Communica- tions cable	Communications functions	Max.Units mountable per CPU Unit	numbers allocated	5 V	24 V		Standards
CJ1 CPU Bus Unit	Ethernet 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

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

WE70 FA WIRELESS LAN UNITS

Product name	Applicable region	Туре	Model	Standards
	lonon	Access Point (Master)	WE70-AP	
	Japan	Client (Slave)	WE70-CL	
	Europo	Access Point (Master)	WE70-AP-EU	CE
WE70 FA WIRELESS LAN UNITS	Europe	Client (Slave)	WE70-CL-EU	OE .
	U.S	Access Point (Master)	WE70-AP-US	
		Client (Slave)	WE70-CL-US	UC
		Access Point (Master)	WE70-AP-CA	00
33	Canada	Client (Slave)	WE70-CL-CA	
	China	Access Point (Master)	WE70-AP-CN	
	Cillia	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	Specifications			No. of unit	Curr				
		Communications cable	Communica- tions type	Duplex support	Max. Units mountable per CPU Unit	numbers allocated	5 V	24 V	Model	Standards
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	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)
- \bullet ESPC 1P \times 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)

Controller Link Support Boards

Unit	Specifi	cation	Accessories	Model	Standards
classification	Communications cable	Communications type	Accessories	Wodei	
Controller Link Support Board for PCI Bus	Wired shielded twisted-pair cable	Data link and message service	CD-ROM × 1 (See note.) INSTALLATION GUIDE (W467) × 1 Communications connector × 1	3G8F7-CLK23-E	CE

Note: The CD-ROM contains FinsGateway Version 2003 (PCI-CLK Edition) and FinsGateway Version 3 (PCI-CLK Edition).

Install the software from CD Ver 3.10 or higher if the operating system is Windows 7 (32bit) or Windows Vista.

Install FinsGateway version 3 if the operating system is Windows NT 4.0 (Service pack 3 or higher), Windows ME, or Windows 98SE.

Repeater Units

Unit classification	Specifications	Model	Standards
Controller Link Repeater Unit	Wire-to-wire Model	CS1W-RPT01	
	Wire-to-Optical (H-PCF) Model (See note 2.)	CS1W-RPT02	UC1, CE
	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	Ap	plication/construction	Spe	ecifications		Model	Standards
				Black	10 m	S3200-HCCB101	
		(4)		Black	50 m	S3200-HCCB501	
			Two-core optical cable with tension member	Black	100 m	S3200-HCCB102	
Optical Fiber Cables		(5)		Black	500 m	S3200-HCCB502	
	Controller Link, SYSMAC	 (1) Optical fiber single-core cord (2) Tension member (plastic-sheathed wire) (3) Filler (plastic) (4) Filler surrounding signal wires (plastic, yarn, or fiber) 		Black	1,000 m	S3200-HCCB103	
	LINK, SYSBUS			Orange	10 m	S3200-HCCO101	
				Orange	50 m	S3200-HCCO501	
				Orange	100 m	S3200-HCCO102	
		(5) Holding tape (plastic)		Orange	500 m	S3200-HCCO502	
		(6) Heat-resistant PV sheath		Orange	1,000 m	S3200-HCCO103	
	nec- 🖆 🖂			Half lock			
tors (Crimp- cut)	C31W-RP102		Full lock			S3200-COCF2071	

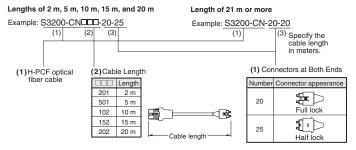
H-PCF Optical Fiber Cables with Connectors (Black Composite Cables with Two-Optical Lines and Two Power Supply Lines)

Application	Appearance	Model	Stan- dards
	5	S3200-CN□□□-20-20	
Controller Link, SYSMAC Link		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



• Optical Connector Assembly Tool

Name	Applicable Unit	Model	Manufacturer	Stan- dards
Optical Fiber Assem- bly 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	Rem	arks	
Numerical Aperture (N.A)		0.21		-		
			3.0 Lf	0.5 km ≤ Lf		
Transmis- sion loss			3.0 Lf + 0.2	0.2 km ≤ Lf ≤ 0.5 km	λ = 0.8 μm Ta = 25°C	
(dB)			3.0 Lf + 0.4		Lf ≤ 0.2 km	
Connection loss (dB)			1.0	$\lambda = 0.8 \ \mu m,$ one location		
Transmission bandwidth (MHz-km)	500			$\lambda = 0.85 \mu m$	(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	Rem	arks
Numerical Aperture (N.A)		0.28			
			3.5 Lf	$0.5 \text{ km} \leq Lf$	
Transmis- sion loss			3.5 Lf + 0.2	0.2 km ≤ Lf ≤ 0.5 km	λ = 0.8 μm Ta = 25°C
(dB)			3.5 Lf + 0.4	Lf ≤ 0.2 km	== -
Connection loss (dB)			1.0	λ = 0.8 μ m, one location	
Transmission bandwidth (MHz-km)	200			$\lambda = 0.85 \ \mu m$	(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 classifi- cation	Product name	Specifications			No. of unit	Current con- sumption (A)			
		Communica- tions interface	Communications functions	Max. Units mountable per CPU Units	numbers allocated	5 V	24 V	Model	Standards
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 classifi- cation	Product name	Specifications	Communications type	No. of unit numbers	Current con- sumption (A)		Model	Standards
Cation				allocated	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.	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 classifi- cation	Product name	Specifications			Sumption (A)		Model	Standards
		Communications functions	No. of I/O points per Master Unit	numbers allocated	5 V	24 V	Wodel	Standards
CJ1 Special I/O Units	CompoNet Master Unit	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	U, U1, N, L, CE

■ CompoBus/S Master Unit

Unit classifi- cation	Product name	Specifications			No. of unit	Current con- sumption (A)			
		Communications functions	No. of I/O points	Max. Units mountable per CPU Unit	numbers allocated	5 V	24 V	Model	Standards
	CompoBus/S Master Unit	Remote I/O	256 max. (128 inputs and 128 outputs)		1 or 2				UC1, N, L,
		communications	128 max. (64 inputs and 64 outputs)	40	(variable)	0.15	.15	CJ1W-SRM21	CE

■ ID Sensor Units

Unit classification	Product name	Specifications			No. of unit	Current consumption (A)			
		Connected ID Systems	No. of con- nected R/W heads	External power supply	numbers allocated	5 V	24 V	Model	Standards
	ID Sensor	V680 Series RFID System	1	Not required.	1	0.26 (See note.)	0.13 (See note.)	CJ1W-V680C11	
CJ1 CPU	Units		2		2	0.32	0.26	CJ1W-V680C12	UC, CE
Bus Units		V600 Series RFID System	1	Not required.	1	0.26	0.12	CJ1W-V600C11	
			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	anocated	5 V	24 V		
CJ1 CPU Bus Units	SYSMAC SPU (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	UC1, CE
	SPU- Console	Functions: Unit settings, sampling settings, etc., for High-speed Data Collection Units (required for making settings for this Unit) OS: Windows 2000, XP, or Vista				WS02-SPTC1-V2		
	SYSMAC SPU Data	Function: Data files collected by SYSMAC SPU Data Management Middleware are automatically acquired at the personal			1 license		WS02-EDMC1-V2	
	Manage- ment Mid- dleware	computer, and can be registered in a database. S: Windows 2000, XP, or Vista			5 licenses		WS02-EDMC1-V2L05	
	Memory Cards	Flash memory, 128 MB			Note: Memory Card		HMC-EF183	
	Calus	Flash memory, 256 MB			is requi	required for	HMC-EF283	
		Flash memory, 512 MB			data collectio		HMC-EF583	

Read and Understand this Catalog

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Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON *Warranty and Limitations of Liability.*

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

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