

## Main Specifications of CJ1M CPU Units

| Model                               | Standard CPU Units                  |            |  | CPU Units with Pulse I/O  |  |   |
|-------------------------------------|-------------------------------------|------------|--|---|--|---|
|                                     | NEW CJ1M-CPU11                      | CJ1M-CPU12 | CJ1M-CPU13   | NEW CJ1M-CPU21  | CJ1M-CPU22   | CJ1M-CPU23  |
| I/O points                          | 160 points                          | 320 points | 640 points   | 160 points  | 320 points   | 640 points  |
| Expansion Rack                      | Not supported.                      |            | One Rack   | Not supported.  |  | One Rack  |
| Maximum number of connectable Units | 10 Units                            |            | 20 Units (CPU Rack: 10 Units, Expansion Rack: 10 Units)  | 10 Units  |  | 20 Units (CPU Rack: 10 Units, Expansion Rack: 10 Units) |
| Program capacity                    | 5 Ksteps                            | 10 Ksteps  | 20 Ksteps  | 5 Ksteps  | 10 Ksteps  | 20 Ksteps   |
| Data memory capacity                | 32 Kwords (DM only, no EM)          |            |  |   |  |   |
| LD instruction execution time       | 100 ns                              |            |  |   |  |   |
| MOV instruction execution time      | 0.3 μs                              |            |  |   |  |   |
| Overhead time                       | 0.7 ms                              | 0.5 ms     |  | 0.7ms   | 0.5 ms   |   |
| Pulse start time                    | —                                   |            | 63 μs (without acceleration/deceleration)<br>100 μs (with acceleration/deceleration)   | 46 μs (without acceleration/deceleration)<br>70 μs (with acceleration/deceleration) |  |   |
| Built-in ports                      | One peripheral port<br>RS-232C port |            |  |   |  |   |
| Mountable options                   | Memory Card (Compact Flash)         |            |  |   |  |   |
| Number of subroutines and jumps     | 256                                 | 1024       |  | 256   | 1024   |   |
| Number of scheduled interrupts      | 1                                   | 2          |  | 1   | 2  |   |
| Built-in inputs                     | —                                   |            | 10inputs<br>•4 interrupt inputs (quick-response inputs)<br>•2 high-speed counter inputs (50-kHz phase-differential or 100-kHz single-phase inputs) |   |  |   |
| Built-in outputs                    | —                                   |            | 6 outputs<br>•2 pulse outputs, 100 kHz<br>•1 PWM output  |   | 6 outputs<br>•2 pulse outputs, 100 kHz<br>•2 PWM outputs |   |

### Warranty and Limitations of Liability

#### WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

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This catalog mainly provides information that is necessary for selecting suitable models, and does not contain precautions for correct use. Always read the precautions and other required information provided in product operation manuals before using the product.

- The application examples provided in this catalog are for reference only. Check functions and safety of the equipment before use.
- Never use the products for any application requiring special safety requirements, such as nuclear energy control systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, or other application involving serious risk to life or property, without ensuring that the system as a whole has been designed to address the risks, and that the OMRON products are properly rated and installed for the intended use within the overall equipment or system.

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

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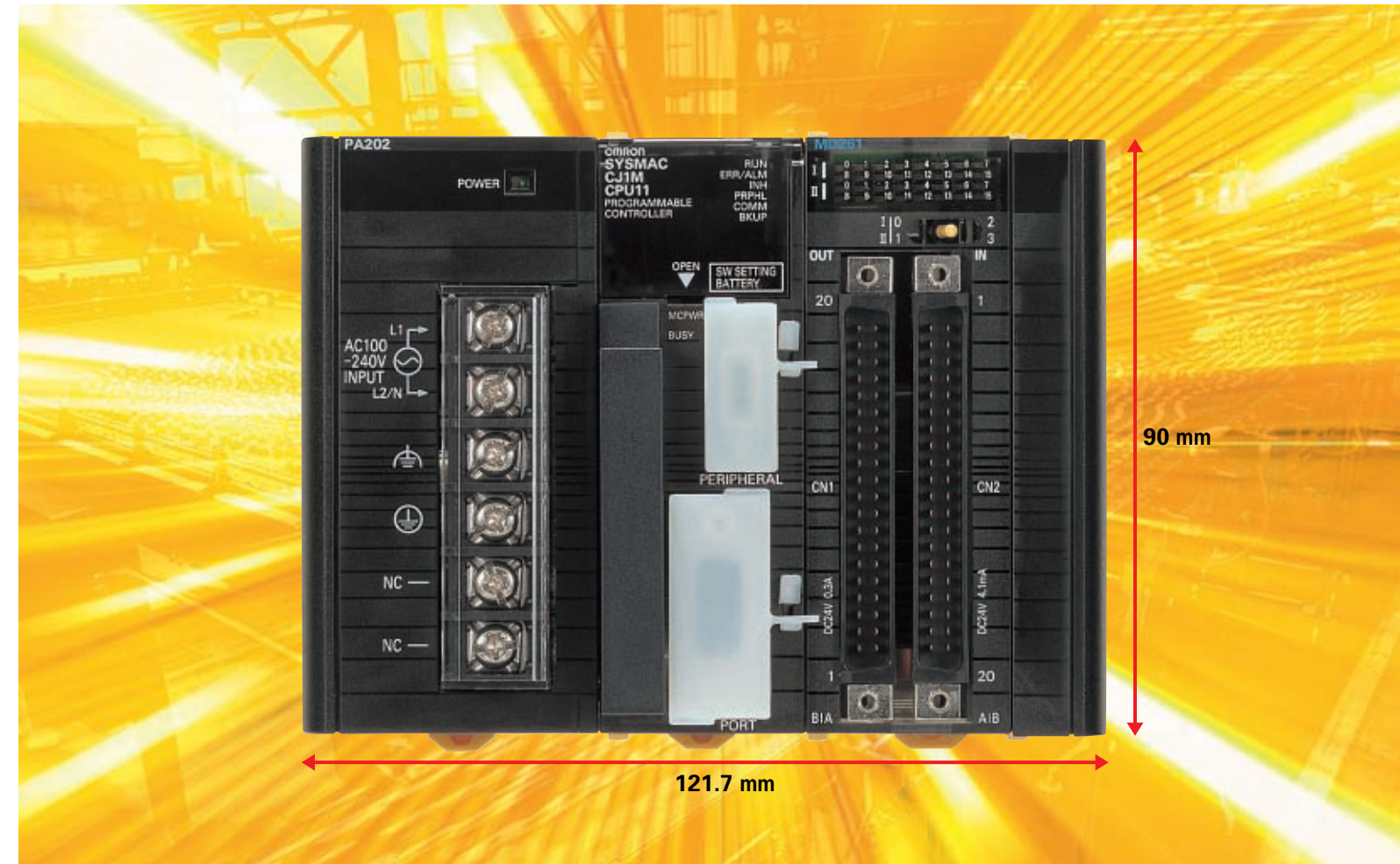
**New!**  
New Product News

Programmable Controllers

**SYSMAC**  
**CJ1M**

Low-end Models

Lineup of Low-end Models with 160 I/O Points and 5-Kstep Capacity  
CJ1M-CPU11/21 Added to Series  
Providing Greater Added Value for Small-scale Machines



A PLC with a 64-point Mixed I/O Unit is shown above (121.7 x 90.0 x 65.0 mm, W x H x D) (Refer to the next page for configuration details.)



**Innovation**  
**in the Solution Age**

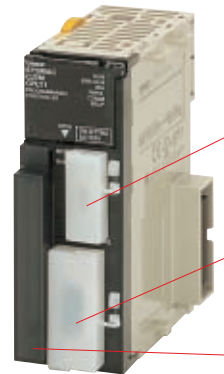
OMRON INDUSTRIAL AUTOMATION

**OMRON**

# CJ1M CPU Units: Small yet Powerful, and Now in More Cost-efficient Models

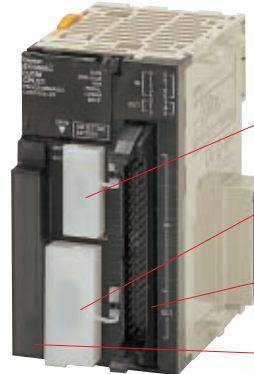
## Lineup of Low-end CPU Units with Basic Functions Plus High Added Value

Program capacity of 5 Ksteps and up to 160 I/O points: For small-scale machine control yet including all the basic functions of the CJ Series.  
 Standard features include a Memory Card interface and RS-232C port for serial communications.  
 CPU Units with Pulse I/O have built-in high-speed counter inputs and pulse outputs for greater added value for machines.



- **Peripheral Port**  
Connect a Programming Device, PT, etc.
- **RS-232C Port**  
Connect a PT, Bar Code Reader, Programming Device, etc.
- **Memory Card Interface**

Standard CPU Unit  
**CJ1M-CPU11**  
 160 I/O points, program capacity: 5 Ksteps



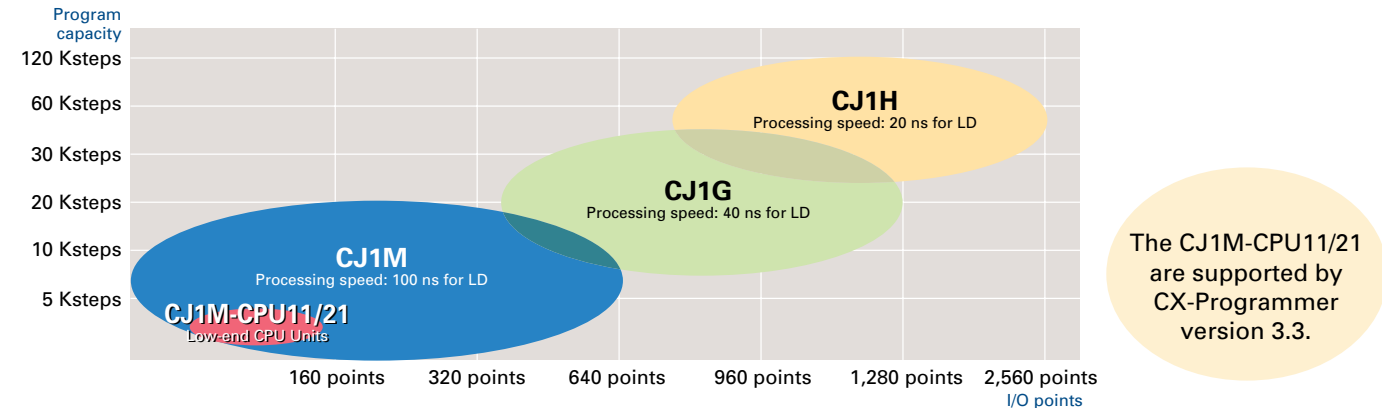
- **Peripheral Port**  
Connect a Programming Device, PT, etc.
- **RS-232C port**  
Connect a PT, Bar Code Reader, Programming Device, etc.
- **CPU Unit's Built-in I/O**  
10 inputs (pulse inputs)  
6 outputs (pulse/PWM outputs)
- **Memory Card Interface**

CPU Unit with Pulse I/O  
**CJ1M-CPU21**  
 160 I/O points, program capacity: 5 Ksteps, 16 built-in I/O points

Choose the optimum Units to suit the application.



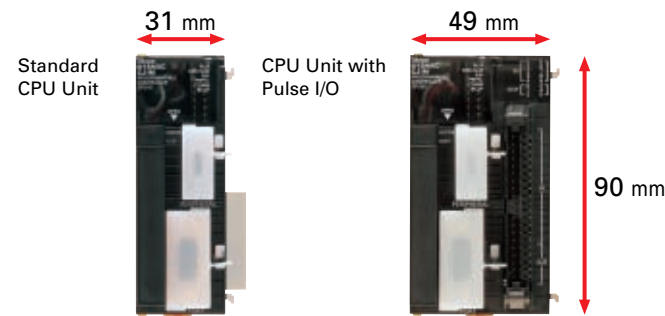
Select the optimum PLC from a complete lineup of low- to high-end CJ-series CPU Units to match your machine application needs.



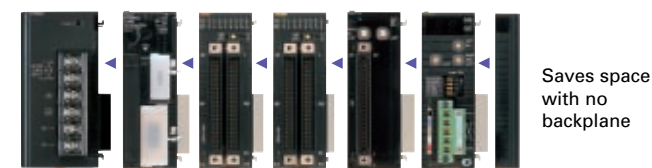
## CJ1M-CPU11/21 Features

### Save Space

Compact, with No Backplane



### Backplane-free Configuration



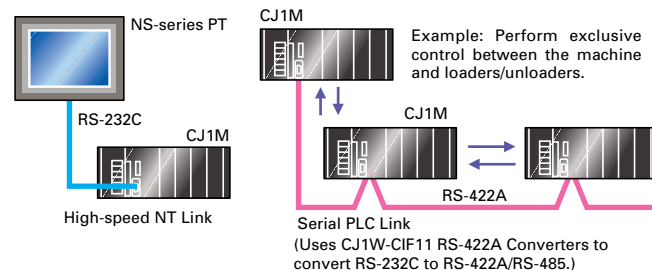
### Improve Machine Speed

Reduced tact time, improved productivity.

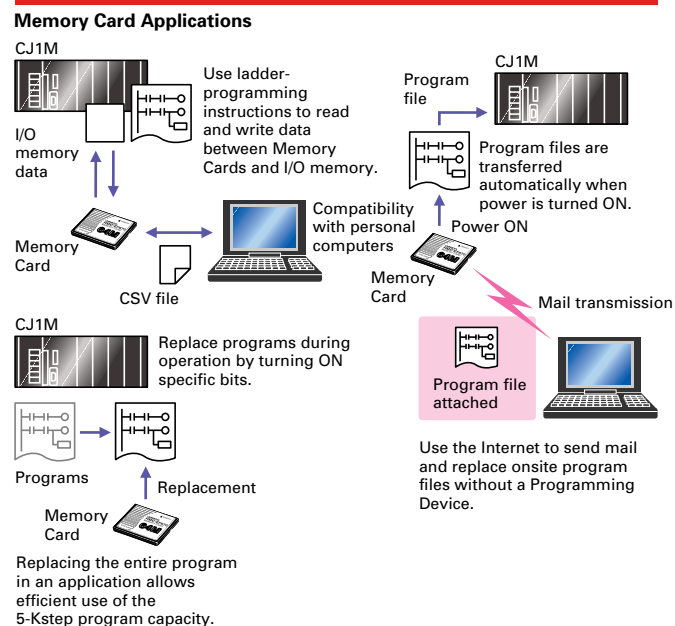
Execute LD instructions at 100 ns and MOV instructions at 0.3 μs for higher machine speed.

### Broad Range of Communications with RS-232C Port without Special Programming

Linking to a PT or between CJ1M CPU Units is supported as a standard feature.



### Flexible Data Handling with Memory Cards

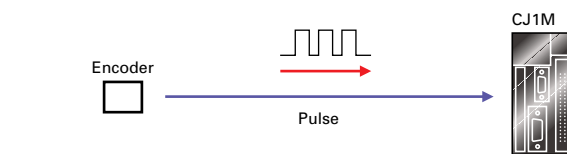


The front page shows the following products:  
 CJ1W-PA202 Power Supply Unit  
 CJ1M-CPU11 CPU Unit  
 CJ1W-MD261 64-point Mixed I/O Unit

## Features of the CJ1M-CPU21 CPU Unit with Pulse I/O

### Encoder Inputs for Two Axes

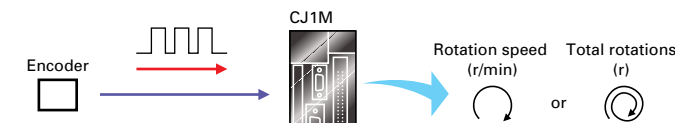
100-kHz single phase, or 50-kHz phase-differential pulse inputs



### Measure Rotation Data

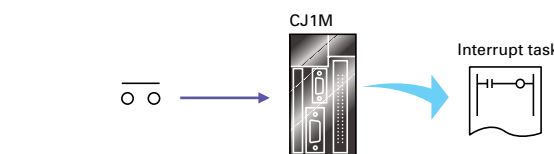
**NEW**

Convert from high-speed counter input pulses to rotation speeds (or total rotations) (new PRV2 instruction).



### Four Interrupt or Quick-response Inputs

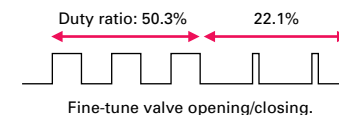
Quick-response inputs do not require a special Interrupt Input Unit.



### High-precision Pulse with Variable Duty Factor (PWM) Output

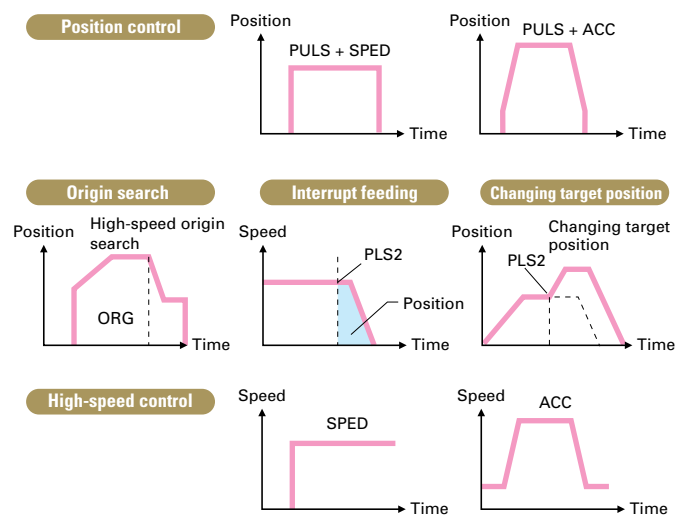
**NEW**

The duty ratio can be set in 0.1% units.



### High-speed Pulse Outputs for Two Axes

Wide variety of pulse output functions, such as 100-kHz isokinetic or trapezoidal acceleration/deceleration for speed control, origin searches, trapezoidal positioning with acceleration/deceleration, interrupt feeding, and changing the target position during positioning.

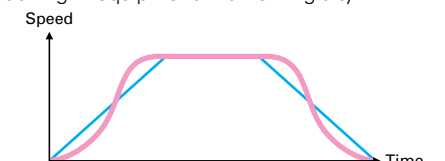


### Acceleration/Deceleration with Shock Suppression

**NEW**

S-curve Acceleration/Deceleration

S-curve acceleration/deceleration decreases vibration during high-speed positioning in equipment with low rigidity.



**NEW** Functions indicated as new are supported by CX-Programmer version 4.0 (available soon) or later. (Compatible with CPU Unit Ver.2.0)