CJ-series CJ1M CPU Units

CJ1M-CPU1□

CSM_CJ1M-CPU_DS_E_6_2

- Small! Fast! Flexible!
  These machine controllers provide flexible control for all kinds of applications.



CJ1M-CPU12

Features

- Compact 90 × 65 mm (H × D) dimensions are first class in the industry.
- Provides excellent high-speed control performance, with high-speed processing of 0.1 μs for LD instructions and 13.3 μs for floating-point calculations.
- Other models are available with special functions such as the CJ1M-CPU2□, which provides positioning functions and built-in I/O, and the CJ1G-CPU4□P.
- High-capacity Memory Cards up to 128 MB can be installed, and used to backup the program and system settings, or log customer data.
- The large instruction set can support diverse applications. Four types of programming are supported (ladder, structured text, sequential function charts, and instruction lists), with approximately 400 instructions and 800 instruction variations.
- These CJ-series CPU Units support structured programming using function blocks, which can improve the customer's program development resources.
- The various protection functions provide improved security to protect valuable software resources and property.
- The CPU Units are compatible with the CX-One Integrated Tool Package. Information for each component can be linked, and the system's data can be integrated into one database. The software can provide total support from PLC settings to network startup.

Ordering Information

Applicable standards

Refer to the OMRON website (www.ia.omron.com) or ask your OMRON representative for the most recent applicable standards for each model.

Name	Specifications				Current consumption(A)		Model number
	Maximum number of I/O points and mountable Units (No. of Expansion Racks)	Program capacity	Data area memory capacity	LD execution time	5 V system	24 V system	
CJ1M CPU Units 	640 I/O points and 20 Units max. (1 Expansion Rack max.)	20K steps	32K words DM: 32K words EM: None	0.1 μs	0.58 (See note.)	–	CJ1M-CPU13
	320 I/O points and 10 Units max. (No Expansion Racks)	10K steps					CJ1M-CPU12
	160 I/O points and 10 Units max. (No Expansion Racks)	5K steps					CJ1M-CPU11

Note: These values include the current consumption of a Programming Console. When using an NT-AL001 RS-232C/RS-422A Adapter, add 0.15A/ per Adapter.
When using a CJ1W-CIF11 RS-422A Adapter, add 0.04A per Adapter.

Accessories

The following accessories come with CPU Unit:

Item	Specification
Battery	CJ1M: CJ1W-BAT01
End Cover	CJ1W-TER01 (necessary to be mounted at the right end of CPU Rack)
End Plate	PFP-M (2 pcs)

Note: A serial port (RS-232C) connector is not provided. Purchase a connector separately for serial port connection.
Plug : XM3A-0921 (manufactured by OMRON) or equivalent
Hood : XM2S-0911-E (manufactured by OMRON) or equivalent

Specifications

Common Specifications

<table>
<tr><th colspan="2">Item</th><th>Specifications</th><th></th></tr>
<tr><td colspan="2">Control method</td><td>Stored program</td><td></td></tr>
<tr><td colspan="2">I/O control method</td><td>Cyclic scan and immediate processing are both possible.</td><td></td></tr>
<tr><td colspan="2">Programming</td><td>LD (Ladder), SFC (Sequential Function Chart), ST (Structured Text), Mnemonic</td><td></td></tr>
<tr><td colspan="2">CPU processing mode</td><td>CJ1M CPU Units: Normal Mode or Peripheral Servicing Priority Mode</td><td></td></tr>
<tr><td colspan="2">Instruction length</td><td>1 to 7 steps per instruction</td><td></td></tr>
<tr><td colspan="2">Ladder instructions</td><td>Approx. 400 (3-digit function codes)</td><td></td></tr>
<tr><td colspan="2">Execution time</td><td>• CJ1M CPU Units (CPU12/13/22/23):
Basic instructions: 0.10 μs min.
Special instructions: 0.15 μs min.
• CJ1M CPU Units (CPU11/21):
Basic instructions: 0.10 μs min.
Special instructions: 0.15 μs min.</td><td></td></tr>
<tr><td colspan="2">Overhead time</td><td>• CJ1M CPU Units (CPU12/13/22/23): 0.5 ms min.
• CJ1M CPU Units (CPU11/21): 0.7 ms min.</td><td></td></tr>
<tr><td colspan="2">Unit connection method</td><td>No Backplane: Units connected directly to each other.</td><td></td></tr>
<tr><td colspan="2">Mounting method</td><td>DIN Track (screw mounting not possible)</td><td></td></tr>
<tr><td colspan="2">Maximum number of connectable Units</td><td>CJ1M CPU Units:
Total of 20 Units in the System, including 10 Units on CPU Rack and 10 Units on one Expansion Rack.</td><td></td></tr>
<tr><td colspan="2">Maximum number of Expansion Racks</td><td>• CJ1M CPU Units (CPU 13/23 only):
1 max. (An I/O Control Unit is required on the CPU Rack and an I/O Interface Unit is required on the Expansion Rack.)
• CJ1M CPU Units (CPU11/12/21/22):
Expansion is not possible.</td><td></td></tr>
<tr><td colspan="2">Number of tasks</td><td>288 (cyclic tasks: 32, interrupt tasks: 256)
With CJ1M CPU Units, interrupt tasks can be defined as cyclic tasks called "extra cyclic tasks." Including these, up to 288 cyclic tasks can be used.
Note: 1. Cyclic tasks are executed each cycle and are controlled with TKON(820) and TKOF(821) instructions.
2. The following 4 types of interrupt tasks are supported.
Power OFF interrupt tasks: 1 max.
Scheduled interrupt tasks: 2 max.
I/O interrupt tasks: 32 max.
External interrupt tasks: 256 max.</td><td></td></tr>
<tr><td colspan="2">Interrupt types</td><td>Scheduled Interrupts:
Interrupts generated at a time scheduled by the CPU Unit's built-in timer. (See note. 1)
I/O Interrupts: Interrupts from Interrupt Input Units.
Power OFF Interrupts (See note 2.): Interrupts executed when the CPU Unit's power is turned OFF.
External I/O Interrupts: Interrupts from the Special I/O Units or CPU Bus Units.
Note: 1. CJ1M CPU Units: Scheduled interrupt time interval is 0.5 ms to 999.9 ms (in increments of 0.1 ms), 1 ms to 9,999 ms (in increments of 1 ms), or 10 ms to 99,990 ms (in increments of 10 ms)
2. Not supported when the CJ1W-PD022 Power Supply Unit is mounted.</td><td></td></tr>
<tr><td colspan="2">Function blocks (CPU Unit with unit version 3.0 or later only)</td><td>Languages in function block definitions: ladder programming, structured text</td><td></td></tr>
<tr><td rowspan="6">CIO (Core I/O) Area</td><td>I/O Area</td><td>1,280: CIO 000000 to CIO 007915 (80 words from CIO 0000 to CIO 0079)
The setting of the first word can be changed from the default (CIO 0000) so that CIO 0000 to CIO 0999 can be used.
I/O bits are allocated to Basic I/O Units.</td><td rowspan="6">The CIO Area can be used as work bits if the bits are not used as shown here.</td></tr>
<tr><td>Link Area</td><td>3,200 (200 words): CIO 10000 to CIO 119915 (words CIO 1000 to CIO 1199)
Link bits are used for data links and are allocated to Units in Controller Link Systems.</td></tr>
<tr><td>CPU Bus Unit Area</td><td>6,400 (400 words): CIO 150000 to CIO 189915 (words CIO 1500 to CIO 1899)
CPU Bus Unit bits store the operating status of CPU Bus Units.
(25 words per Unit, 16 Units max.)</td></tr>
<tr><td>Special I/O Unit Area</td><td>15,360 (960 words): CIO 200000 to CIO 295915 (words CIO 2000 to CIO 2959)
Special I/O Unit bits are allocated to Special I/O Units. (10 words per Unit, 96 Units max.)
Note: Special I/O Units are I/O Units that belong to a special group called "Special I/O Units."
Example:CJ1W-AD081 Analog Input Unit</td></tr>
<tr><td>Serial PLC Link Area (CJ1M CPU Units only)</td><td>1,440 (90 words): CIO 310000 to CIO 318915 (words CIO 3100 to CIO 3189)</td></tr>
<tr><td>DeviceNet Area</td><td>9,600 (600 words): CIO 320000 to CIO 379915 (words CIO 3200 to CIO 3799)
DeviceNet bits are allocated to Slaves for DeviceNet Unit remote I/O communications when the Master function is used with fixed allocations.
<table>
<tr><td>Fixed allocation setting 1</td><td>Outputs: CIO 3200 to CIO 3263
Inputs: CIO 3300 to CIO 3363</td></tr>
<tr><td>Fixed allocation setting 2</td><td>Outputs: CIO 3400 to CIO 3463
Inputs: CIO 3500 to CIO 3563</td></tr>
<tr><td>Fixed allocation setting 3</td><td>Outputs: CIO 3600 to CIO 3663
Inputs: CIO 3700 to CIO 3763</td></tr>
</table>
The following words are allocated to the Master function even when the DeviceNet Unit is used as a Slave.
<table>
<tr><td>Fixed allocation setting 1</td><td>Outputs: CIO 3370 (Slave to Master)
Inputs: CIO 3270 (Master to Slave)</td></tr>
<tr><td>Fixed allocation setting 2</td><td>Outputs: CIO 3570 (Slave to Master)
Inputs: CIO 3470 (Master to Slave)</td></tr>
<tr><td>Fixed allocation setting 3</td><td>Outputs: CIO 3770 (Slave to Master)
Inputs: CIO 3670 (Master to Slave)</td></tr>
</table></td></tr>
</table>

Item		Specifications
CIO (Core I/O) Area	Internal I/O Area	4,800 (300 words): CIO 120000 to CIO 149915 (words CIO 1200 to CIO 1499) 37,504 (2,344 words): CIO 380000 to CIO 614315 (words CIO 3800 to CIO 6143) These bits in the CIO Area are used as work bits in programming to control program execution. They cannot be used for external I/O.
Work Area		8,192 bits (512 words): W00000 to W51115 (W000 to W511) Controls the programs only. (I/O from external I/O terminals is not possible.) **Note:** When using work bits in programming, use the bits in the Work Area first before using bits from other areas.
Holding Area		8,192 bits (512 words): H00000 to H51115 (H000 to H511) Holding bits are used to control the execution of the program, and maintain their ON/OFF status when the PLC is turned OFF or theoperating mode is changed. **Note:** The Function Block Holding Area words are allocated from H512 to H1535. These words can be used only for the function block instance area (internally allocated variable area).
Auxiliary Area		Read only: 7,168 bits (448 words): A00000 to A44715 (words A000 to A447) Read/write: 8,192 bits (512 words): A44800 to A95915 (words A448 to A959) Auxiliary bits are allocated specific functions.
Temporary Area		16 bits (TR0 to TR15) Temporary bits are used to temporarily store the ON/OFF execution conditions at program branches.
Timer Area		4,096: T0000 to T4095 (used for timers only)
Counter Area		4,096: C0000 to C4095 (used for counters only)
DM Area		32 Kwords: D00000 to D32767 Used as a general-purpose data area for reading and writing data in word units (16 bits). Words in the DM Area maintain their status when the PLC is turned OFF or the operating mode is changed. Internal Special I/O Unit DM Area: D20000 to D29599 (100 words × 96 Units) Used to set parameters for Special I/O Units. CPU Bus Unit DM Area: D30000 to D31599 (100 words × 16 Units) Used to set parameters for CPU Bus Units.
Index Registers		IR0 to IR15 Store PLC memory addresses for indirect addressing. Index registers can be used independently in each task. One register is 32 bits (2words). • CJ1M CPU Units: Setting to use index registers either independently in each task or to share them between tasks.
Task Flag Area		32 (TK0000 to TK0031) Task Flags are read-only flags that are ON when the corresponding cyclic task is executable and OFF when the corresponding task is not executable or in standby status.
Trace Memory		4,000 words (trace data: 31 bits, 6 words)
File Memory		Memory Cards: Compact flash memory cards can be used (MS-DOS format).

Function Specifications

Item	Specifications	
Constant cycle time	1 to 32,000 ms (Unit: 1 ms)	
Cycle time monitoring	Possible (Unit stops operating if the cycle is too long): 10 to 40,000 ms (Unit: 10 ms)	
I/O refreshing	Cyclic refreshing, immediate refreshing, refreshing by IORF(097). IORF(097) refreshes I/O bits allocated to Basic I/O Units and Special I/O Units. With the CJ1M CPU Units, the CPU BUS UNIT I/O REFRESH (DLNK(226)) instruction can be used to refresh bits allocated to CPU Bus Units in the CIO and DM Areas whenever required.	
Timing of special refreshing for CPU Bus Units	Data links for Controller Link Units and SYSMAC LINK Units, remote I/O for DeviceNet Units, and other special refreshing for CPU Bus Units is performed at the following times: • CJ1M CPU Units: I/O refresh period and when the CPU BUS UNIT I/O REFRESH (DLNK(226)) instruction is executed.	
I/O memory holding when changing operating modes	Depends on the ON/OFF status of the IOM Hold Bit in the Auxiliary Area.	
Load OFF	All outputs on Output Units can be turned OFF when the CPU Unit is operating in RUN, MONITOR, or PROGRAM mode.	
Timer/Counter PV refresh method	CJ1M CPU Units: BCD or binary (CX-Programmer Ver. 3.0 or higher).	
Input response time setting	Time constants can be set for inputs from Basic I/O Units. The time constant can be increased to reduce the influence of noise and chattering or it can be decreased to detect shorter pulses on the inputs.	
Mode setting at power-up	Possible (By default, the CPU Unit will start in RUN mode if a Programming Console is not connected.)	
Flash memory (CJ1M CPU Units only)	The user program and parameter area data (e.g., PLC Setup) are always backed up automatically in flash memory. (automatic backup and restore.) • CPU Units with unit version 3.0 or later only: When downloading projects from CX-Programmer Ver. 5.0 or higher, symbol table files (including CX-Programmer symbol names, I/O comments), comment files (CX-Programmer rung comments, other comments), and program index files (CX-Programmer section names, section comments, or program comments) are stored in comment memory within the flash memory.	
Memory Card functions	Automatically reading programs (autoboot) from the Memory Card when the power is turned ON.	Possible
	Program replacement during PLC operation	Possible
	Format in which data is stored in Memory Card	User program: Program file format PLC Setup and other parameters: Data file format I/O memory: Data file format (binary format), text format, or CSV format
	Functions for which Memory Card read/write is supported	User program instructions, Programming Devices (including CX-Programmer and Programming Consoles), Host Link computers, AR Area control bits, easy backup operation
Filing	Memory Card data and the EM (Extended Data Memory) Area can be handled as files.	
Debugging	Control set/reset, differential monitoring, data tracing (scheduled, each cycle, or when instruction is executed), instruction error tracing, storing location generating error when a program error occurs.	

Item	Specifications
Online editing	When the CPU Unit is in MONITOR or PROGRAM mode, multiple program sections ("circuits") of the user program can be edited together. This function is not supported for block programming areas. (With the CX-Programmer is used, multiple program sections of the user program can be edited together. When a Programming Console is used, the program can be edited in mnemonics only.)
Program protection	Overwrite protection: Set using DIP switch. Copy protection: Password set using CX-Programmer or Programming Consoles.
Error check	User-defined errors (i.e., user can define fatal errors and non-fatal errors) The FPD(269) instruction can be used to check the execution time and logic of each programming block. FAL and FALS instructions can be used with the CJ1M CPU Units to simulate errors.
Error log	Up to 20 errors are stored in the error log. Information includes the error code, error details, and the time the error occurred. A CJ1M CPU Unit can be set so that user-defined FAL errors are not stored in the error log.
Serial communications	Built-in peripheral port: Programming Device (including Programming Console) connections, Host Links, NT Links Built-in RS-232C port: Programming Device (excluding Programming Console) connections, Host Links, no-protocol communications, NT Links, Serial Gateway (Compoway/F master)
	Serial Communications Unit (sold separately): Protocol macros, Host Links, NT Links, Modbus-RTU slave, No-protocol, Serial Gateway (Compoway/F master, Modbus master)
Clock	Provided on all models. Accuracy: Ambient temperature / Monthly error 55°C: −3.5 min to +0.5 min 25°C: −1.5 min to +1.5 min 0°C: −3 min to +1 min **Note:** Used to store the time when power is turned ON and when errors occur.
Power OFF detection time	AC Power Supply Unit: 10 to 25 ms (not fixed) DC Power Supply Unit PD025: 2 to 5 ms; PD022: 2 to 10 ms
Power OFF detection delay time	0 to 10 ms (user-defined, default: 0 ms) **Note:** Not supported when the CJ1W-PD022 Power Supply Unit is mounted.
Memory protection	Held Areas: Holding bits, contents of Data Memory and Extended Data Memory, and status of the counter Completion Flags and present values. **Note:** If the IOM Hold Bit in the Auxiliary Area is turned ON, and the PLC Setup is set to maintain the IOM Hold Bit status when power to the PLC is turned ON, the contents of the CIO Area, the Work Area, part of the Auxiliary Area, timer Completion Flag and PVs, Index Registers, and the Data Registers will be saved for up to 20 days.
Sending commands to a Host Link computer	FINS commands can be sent to a computer connected via the Host Link System by executing Network Communications Instructions from the PLC.
Remote programming and monitoring	Host Link communications can be used for remote programming and remote monitoring through a Controller Link, Ethernet, DeviceNet, or SYSMAC LINK network.
Communicating across network levels	Remote programming and monitoring from Support Software and FINS message communications can be performed across different network levels, even for different types of network. Pre-Ver. 2.0: Three levels Version 2.0 or later: Eight levels for Controller Link and Ethernet networks (See note.), three levels for other networks. **Note:** To communicate across eight levels, the CX-Integrator or the CX-Net in CX-Programmer version 4.0 or higher must be used to set the routing tables.
Storing comments in CPU Unit	I/O comments can be stored as symbol table files in the Memory Card, EM file memory, or comment memory (see note). **Note:** Comment memory is supported for CX-Programmer version 5.0 or higher and CS/CJ-series CPU Units with unit version 3.0 or later only.
Program check	Program checks are performed at the beginning of operation for items such as no END instruction and instruction errors. CX-Programmer can also be used to check programs.
Control output signals	RUN output: The internal contacts will turn ON (close) while the CPU Unit is operating (CJ1W-PA205R).
Battery life	Battery Set for CJ1M CPU Units: CJ1W-BAT01
Self-diagnostics	CPU errors (watchdog timer), I/O bus errors, memory errors, and battery errors.
Other functions	Storage of number of times power has been interrupted. (Stored in A514.)

Unit Versions

Units	Models	Unit version
CJ1M CPU Units	CJ1M-CPU12/13 CJ1M-CPU22/23	Unit version 4.0
		Unit version 3.0
		Unit version 2.0
		Pre-Ver. 2.0
	CJ1M-CPU11/21	Unit version 4.0
		Unit version 3.0
		Unit version 2.0

Function Support by Unit Version

Functions Supported for Unit Version 4.0 or Later

CX-Programmer 7.0 or higher must be used to enable using the functions added for unit version 4.0.
Additional functions are supported if CX-Programmer version 7.2 or higher is used.

CJ1M CPU Units

Function		CJ1M-CPU□□	
		Unit version 4.0 or later	Other unit versions
Online editing of function blocks **Note:** This function cannot be used for simulations on the CX-Simulator.		OK	–
Input-output variables in function blocks		OK	–
Text strings in function blocks		OK	–
New application instructions	Number-Text String Conversion Instructions: NUM4, NUM8, NUM16, STR4, STR8, and STR16	OK	–
	TEXT FILE WRITE (TWRIT)	OK	–
ST programming in task programs		OK with CX-Programmer version 7.2 or higher	–
SFC programming in task programs		OK with CX-Programmer version 7.2 or higher	–

User programs that contain functions supported only by CPU Units with unit version 4.0 or later cannot be used on CS/CJ-series CPU Units with unit version 3.0 or earlier. An error message will be displayed if an attempt is made to download programs containing unit version 4.0 functions to a CPU Unit with a unit version of 3.0 or earlier, and the download will not be possible.
If an object program file (.OBJ) using these functions is transferred to a CPU Unit with a unit version of 3.0 or earlier, a program error will occur when operation is started or when the unit version 4.0 function is executed, and CPU Unit operation will stop.

Functions Supported for Unit Version 3.0 or Later

CX-Programmer 5.0 or higher must be used to enable using the functions added for unit version 3.0.

CJ1M CPU Units

Function		CJ1M-CPU□□	
		Unit version 3.0 or later	Other unit versions
Function blocks		OK	–
Serial Gateway (converting FINS commands to CompoWay/F commands at the built-in serial port)		OK	–
Comment memory (in internal flash memory)		OK	–
Expanded simple backup data		OK	–
New application instructions	TXDU(256), RXDU(255) (support no-protocol communications with Serial Communications Units with unit version 1.2 or later)	OK	–
	Model conversion instructions: XFERC(565), DISTC(566), COLLC(567), MOVBC(568), BCNTC(621)	OK	–
	Special function block instructions: GETID(286)	OK	–
Additional instruction functions	PRV(881) and PRV2(883) instructions: Added high-frequency calculation methods for calculating pulse frequency. (CJ1M CPU Units only)	OK	–

User programs that contain functions supported only by CPU Units with unit version 3.0 or later cannot be used on CS/CJ-series CPU Units with unit version 2.0 or earlier. An error message will be displayed if an attempt is made to download programs containing unit version 3.0 functions to a CPU Unit with a unit version of 2.0 or earlier, and the download will not be possible.
If an object program file (.OBJ) using these functions is transferred to a CPU Unit with a unit version of 2.0 or earlier, a program error will occur when operation is started or when the unit version 3.0 function is executed, and CPU Unit operation will stop.

Functions Supported for Unit Version 2.0 or Later

CX-Programmer 4.0 or higher must be used to enable using the functions added for unit version 2.0.

CJ1M CPU Units

Function		CJ1M CPU Units		
		CJ1M-CPU12/13/22/23		CJ1M-CPU11/21
		Unit version 2.0 or later	Other unit versions	Unit version 2.0 or later
Downloading and Uploading Individual Tasks		OK	–	OK
Improved Read Protection Using Passwords		OK	–	OK
Write Protection from FINS Commands Sent to CPU Units via Networks		OK	–	OK
Online Network Connections without I/O Tables		OK	– (Supported if I/O tables are automatically generated at startup.)	OK
Communications through a Maximum of 8 Network Levels		OK	–	OK
Connecting Online to PLCs via NS-series PTs		OK	OK from lot number 030201	OK
Setting First Slot Words		OK for up to 64 groups	OK for up to 8 groups	OK for up to 64 groups
Automatic Transfers at Power ON without a Parameter File		OK	–	OK
Automatic Detection of I/O Allocation Method for Automatic Transfer at Power ON		OK	–	OK
Operation Start/End Times		OK	–	OK
New Application Instructions	MILH, MILR, MILC	OK	–	OK
	=DT, <>DT, <DT, <=DT, >DT, >=DT	OK	–	OK
	BCMP2	OK	OK	OK
	GRY	OK	OK from lot number 030201	OK
	TPO	OK	–	OK
	DSW, TKY, HKY, MTR, 7SEG	OK	–	OK
	EXPLT, EGATR, ESATR, ECHRD, ECHWR	OK	–	OK
	Reading/Writing CPU Bus Units with IORD/IOWR	OK	–	OK
	PRV2	OK, but only for CPU Units with built-in I/O	–	OK, but only for CPU Units with built-in I/O

User programs that contain functions supported only by CPU Units with unit version 2.0 or later cannot be used on CS/CJ-series Pre-Ver. 2.0 CPU Units. An error message will be displayed if an attempt is made to download programs containing unit version s.0 functions to a Pre-Ver. 2.0 CPU Unit, and the download will not be possible.

If an object program file (.OBJ) using these functions is transferred to a Pre- Ver. 2.0 CPU Unit, a program error will occur when operation is started or when the unit version 2.0 function is executed, and CPU Unit operation will stop.

Unit Versions and Programming Devices

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

Unit Versions and Programming Devices

CPU Unit	Functions (See note 1.)		CX-Programmer				Programming Console
			Ver. 3.3	Ver. 4.0	Ver. 5.0 Ver. 6.0	Ver. 7.0 or higher	
CS/CJ-series unit Ver. 4.0	Functions added for unit version 4.0	Using new functions	–	–	–	OK (See note 2.)	No restrictions
		Not using new functions	OK	OK	OK	OK	
CS/CJ-series unit Ver. 3.0	Functions added for unit version 3.0	Using new functions	–	–	OK	OK	
		Not using new functions	OK	OK	OK	OK	
CS/CJ-series unit Ver. 2.0	Functions added for unit version 2.0	Using new functions	–	OK	OK	OK	
		Not using new functions	OK	OK	OK	OK	

Note: 1. As shown above, there is no need to upgrade to CX-Programmer version as long as the functions added for unit versions are not used.
2. CX-Programmer version 7.0 or higher is required to use the functional improvements made for unit version 4.0 of the CS/CJ-series CPU Units. With CX-Programmer version 7.2 or higher, you can use even more expanded functionality.

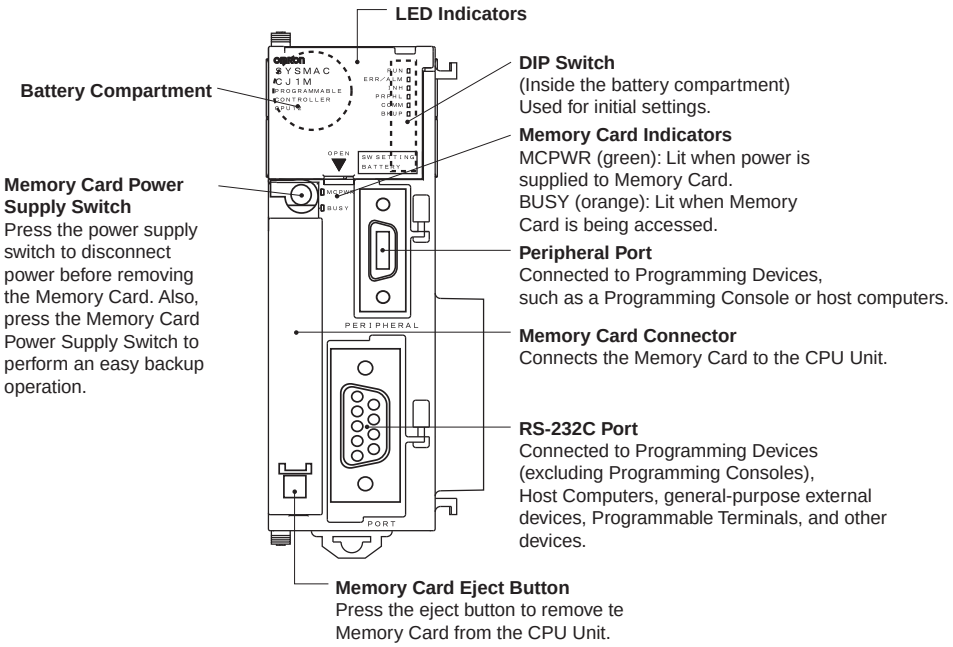
Device Type Setting

The unit version does not affect the setting made for the device type on the CX-Programmer. Select the device type as shown in the following table regardless of the unit version of the CPU Unit.

Series	CPU Unit group	CPU Unit model	Device type setting on CX-Programmer Ver. 4.0 or higher
CJ Series	CJ1M CPU Units	CJ1M-CPU□□	CJ1M

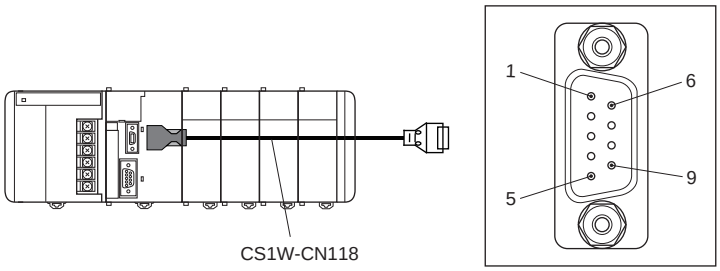
External Interface

A CJ1-series CPU Unit provides two communications ports for external interfaces: a peripheral port and an RS-232C port.



Peripheral port

The peripheral port is used to connect a Programming Device (including a Programming Console) or a host computer. It can also be used as an RS-232C port by connecting a suitable cable, such as the CS1W-CN118 or CS1W-CN□26. The connector pin arrangement when using a connecting cable for an RS-232C port is shown below.

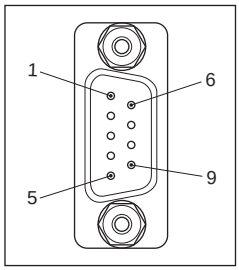


Pin No.	Signal	Name	Direction
1	–	–	–
2	SD (TXD)	Send data	Output
3	RD (RXD)	Receive data	Input
4	RS (RTS)	Request to send	Output
5	CS (CTS)	Clear to send	Input
6	Reserved	None	–
7	–	–	–
8	–	–	–
9	SG (0V)	Signal ground	–
Connector hood	FG	Protection earth	–

RS-232C Port

Item	Specification
Communications method	Half duplex
Synchronization	Start-stop
Baud rate	0.3/0.6/1.2/2.4/4.8/9.6/19.2/38.4/57.6/115.2 kbps (See note.)
Transmission distance	15 m max.
Interface	EIA RS-232C
Protocol	Host Link, NT Link, 1:N, No-protocol, or Peripheral Bus

Note: Baud rates for the RS-232C are specified only up to 19.2 kbps. The CJ Series supports serial communications from 38.4 kbps to 115.2 kbps, but some computers cannot support these speeds. Lower the baud rate if necessary.



Pin No.	Signal	Name	Direction
1	FG	Protection earth	–
2	SD (TXD)	Send data	Output
3	RD (RXD)	Receive data	Input
4	RS (RTS)	Request to send	Output
5	CS (CTS)	Clear to send	Input
6	5V	Power supply	–
7	DR (DSR)	Data set ready	Input
8	ER (DTR)	Data terminal ready	Output
9	SG (0V)	Signal ground	–
Connector hood	FG	Protection earth	–

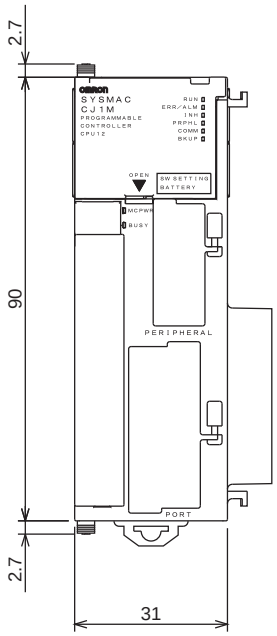
Note: Do not use the 5-V power from pin 6 of the RS-232C port for anything but the NT-AL001-E Link Adapter. Using this power supply for any other external device may damage the CPU Unit or the external device.

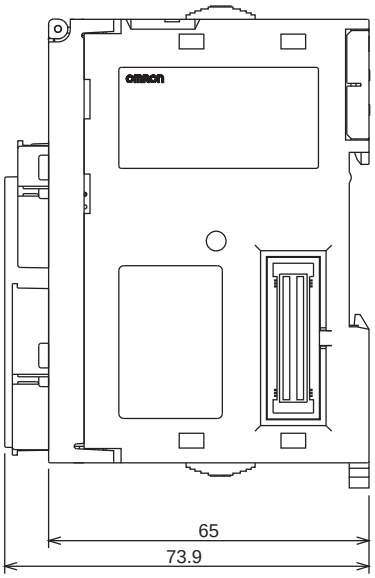
Dimensions

(Unit : mm)

CJ1M CPU Units







About Manuals

Name	Cat. No.	Contents
SYSMAC CJ/NSJ Series CJ1H-CPU□□H-R, CJ1G-CPU□□, CJ1M-CPU□□, CJ1G-CPU□□P, CJ1G/H-CPU□□H Programmable Controllers Operation Manual	W393	Provides an outlines of and describes the design, installation, maintenance, and other basic operations for the CJ-series PLCs.
SYSMAC CS/CJ/NSJ Series CS1G/H-CPU□□-EV1, CS1G/H-CPU□□H, CS1D-CPU□□HA, CS1D-CPU□□SA, CS1D-CPU□□H, CS1D-CPU□□S, CJ1H-CPU□□H-R, CJ1G-CPU□□, CJ1M-CPU□□, CJ1G-CPU□□P, CJ1G/H-CPU□□H, NSJ□-□□□□(B)-G5D, NSJ□-□□□□(B)-M3D Programmable Controllers Programming Manual	W394	This manual describes programming and other methods to use the functions of the CS/CJ-series and NSJ-series PLCs.
SYSMAC CS/CJ/NSJ Series CS1G/H-CPU□□-EV1, CS1G/H-CPU□□H, CS1D-CPU□□HA, CS1D-CPU□□SA, CS1D-CPU□□H, CS1D-CPU□□S, CJ1H-CPU□□H-R, CJ1G-CPU□□, CJ1M-CPU□□, CJ1G-CPU□□P, CJ1G/H-CPU□□H, NSJ□-□□□□(B)-G5D, NSJ□-□□□□(B)-M3D Programmable Controllers Instructions Reference Manual	W474	Describes the ladder diagram programming instructions supported by CS/CJ-series and NSJ-series PLCs
SYSMAC CS/CJ Series CQM1H-PRO01-E, C200H-PRO27-E, CQM1-PRO01-E Programming Consoles Operation Manual	W341	Provides information on how to program and operate CS/CJ-series PLCs using a Programming Console.
SYSMAC CS/CJ/NSJ Series CS1G/H-CPU□□-EV1, CS1G/H-CPU□□H, CS1D-CPU□□HA, CS1D-CPU□□SA, CS1D-CPU□□H, CS1D-CPU□□S, CJ1G-CPU□□, CJ1M-CPU□□, CJ1G-CPU□□P, CJ1G/H-CPU□□H, CS1W-SCB□□-V1, CS1W-SCU□□-V1, CJ1W-SCU□□-V1, CP1H-X□□□□-□, CP1H-XA□□□□-□, CP1H-Y□□□□-□, NSJ□-□□□□(B)-G5D, NSJ□-□□□□(B)-M3D Communications Commands Reference Manual	W342	Describes the C-series (Host Link) and FINS communications commands used with CS/CJ-series PLCs.
SYSMAC WS02-CX□□-V□ CX-Programmer Operation Manual	W446	Provides information on how to use the CX-Programmer for all functionality except for function blocks.
SYSMAC WS02-CX□□-V□ CX-Programmer Operation Manual Function Blocks (CS1G-CPU□□H, CS1H-CPU□□H, CJ1G-CPU□□H, CJ1H-CPU□□H, CJ1M-CPU□□, CP1H-X□□□□-□, CP1H-XA□□□□-□, CP1H-Y□□□□-□ CPU Units)	W447	Describes the functionality unique to the CX-Programmer Ver. 7.0 and CP-series CPU Units or CS/CJ-series CPU Units with unit version 3.0 or later based on function blocks. Functionality that is the same as that of the CX-Programmer is described in W446 (enclosed).
CXONE-AL□□D-V□ CX-Integrator Operation Manual	W464	Describes operating procedures for the CX-Integrator Network Configuration Tool for CS-, CJ-, CP-, and NSJ-series Controllers.
CXONE-AL□□D-V□ CX-One FA Integrated Tool Package Setup Manual	W463	Installation and overview of CX-One FA Integrated Tool Package.

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