

A Micro CJ1M CPU Unit with Built-in Ethernet Newly Released!

- SYSMAC CJ-series CPU Unit with the functionality of an Ethernet Unit.



CJ1M-CPU11-ETN


Features

- Compact 90 × 65 mm (H × D) dimensions are first class in the industry.
- SYSMAC CJ-series CPU Unit with the functionality of an Ethernet Unit.
- The CPU functional element has the same functionality as a CJ1M-CPU11/12/13. The enables effective usage of legacy applications.
- 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

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.

| Product name | | Specifications | | | | | Current consumption (A) | | Model | Standards |
|----------------|---|---|------------------|--|-------------------------------|----------------------|-------------------------|------|----------------------------------|---------------|
| | | I/O capacity/ Mountable Units (Expansion Racks) | Program capacity | Data memory capacity | LD instruction execution time | Ethernet function | 5 V | 24 V | | |
| CJ1M CPU Units |  | 640 points/ 20 Units (1 Expansion Racks max.) | 20K steps | 32K words (DM: 32K words, EM: None) | 0.1 μs | YES (See note 1.) | 0.95 (See note 2.) | — | CJ1M-CPU13-ETN | UC1, N, L, CE |
| | | 320points/ 10 Units (No Expansion Rack) | 10K steps | | | | 0.95 (See note 2.) | — | CJ1M-CPU12-ETN | |
| | | 160 points/ 10 Units (No Expansion Rack) | 5K steps | | | | 0.95 (See note 2.) | — | CJ1M-CPU11-ETN (See notes 3.) | |

Note: 1. Ethernet function

The Ethernet functional element provides the main functions of the CJ1W-ETN21 Ethernet Unit.

| Physical layer | Maximum number of nodes in FINS network | Communications service |
|----------------------|---|---|
| 100BASE-TX, 10BASE-T | 254 | <ul style="list-style-type: none"> FINS communications service FTP server Automatically adjusted clock information. Web functions |

Socket services and sending/receiving mail are not supported.

- Current consumptions include current for a Programming Console. Add 0.15 A per Adapter when using NT-AL001 RS-232C/RS-232A Adapters.
Add 0.04 A per Adapter when using CJ1W-CIF11 RS-422A Adapters.
 - The CJ1M low-end models (CJ1M-CPU11(-ETN)/CPU21) have different specifications for the overhead processing time, number of subroutines, number of jumps, and number of scheduled interrupts than the other CJ1M models (CJ1M-CPU12(-ETN)/CPU13(-ETN)/CPU22/CPU23).
- For details, refer to the SYSMAC CJ-series Operation Manual (Cat. No. W474).

Accessories

The following accessories come with CPU Unit:

| Item | Specification |
|---------------------------------|---|
| Battery | CJ1W-BAT01 |
| End Cover | CJ1W-TER01 (necessary to be mouned at the right end of CPU Rack) |
| End Plate | PFP-M (2 pcs) |
| Serial Port (RS-232C) Connector | Connector set for serial port connection (D-SUB 9-pin male connector) |

Common Specifications

| Item | | Specifications | | | | | | | | | | | | |
|---|---|---|--|----------------------------|---|----------------------------|---|----------------------------|---|----------------------------|---|----------------------------|---|----------------------------|
| Control method | | Stored program | | | | | | | | | | | | |
| I/O control method | | Cyclic scan and immediate processing are both possible. | | | | | | | | | | | | |
| Programming Languages | | Ladder Logic (LD), Sequential Function Charts (SFC), Structured Text (ST), and Mnemonic. | | | | | | | | | | | | |
| CPU processing mode | | Normal Mode or Peripheral Servicing Priority Mode | | | | | | | | | | | | |
| Instruction length | | 1 to 7 steps per instruction | | | | | | | | | | | | |
| Ladder instructions | | Approx. 400 (3-digit function codes) | | | | | | | | | | | | |
| Execution time | Basic instructions | 0.10 μs min. | | | | | | | | | | | | |
| | Special instructions | 0.15 μs min. | | | | | | | | | | | | |
| Overhead time | | CJ1M-CPU12-ETN/CPU13-ETN : 0.5 ms min. CJ1M-CPU11-ETN : 0.7 ms min. | | | | | | | | | | | | |
| Unit connection method | | No Backplane: Units connected directly to each other. | | | | | | | | | | | | |
| Mounting method | | DIN Track (screw mounting not possible) | | | | | | | | | | | | |
| Maximum number of connectable Units | | Total of 19 Units, including 9 Units on CPU Rack and 10 Units on one Expansion Rack. (The built-in Ethernet port on the CPU Unit must be allocated to a slots 0, and is counted as one Unit. | | | | | | | | | | | | |
| Maximum number of Expansion Racks | | • CJ1M-CPU13-ETN: 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-CPU11-ETN/12-ETN: Expansion is not possible. | | | | | | | | | | | | |
| Number of tasks | | 288 (cyclic tasks: 32, interrupt tasks: 256) With CJ1-H or 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. | | | | | | | | | | | | |
| Interrupt types | | Scheduled Interrupts: Interrupts generated at a time scheduled by the CPU Units built-in timer. I/O Interrupts: Interrupts from Interrupt Input Units. Power OFF Interrupts (See note): Interrupts executed when the CPU Units power is turned OFF. External I/O Interrupts: Interrupts from the Special I/O Units or CPU Bus Units. Note: Not supported when the CJ1W-PD022 Power Supply Unit is mounted. | | | | | | | | | | | | |
| Calling subroutines from more than one task | | Supported (called global subroutines). | | | | | | | | | | | | |
| CIO (Core I/O) Area | I/O Area | 2,560: CIO 000000 to CIO 015915 (160 words from CIO 0000 to CIO 0159) 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. | | | | | | | | | | | | |
| | Link Area | 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. | | | | | | | | | | | | |
| | CPU Bus Unit Area | 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.) | | | | | | | | | | | | |
| | Special I/O Unit Area | 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.) | | | | | | | | | | | | |
| | Serial PLC Link Area (CJ1M CPU Units only) | 1,440 (90 words): CIO 310000 to CIO 318915 (words CIO 3100 to CIO 3189) | | | | | | | | | | | | |
| | DeviceNet Area | 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> | | Fixed allocation setting 1 | Outputs: CIO 3200 to CIO 3263 Inputs: CIO 3300 to CIO 3363 | Fixed allocation setting 2 | Outputs: CIO 3400 to CIO 3463 Inputs: CIO 3500 to CIO 3563 | Fixed allocation setting 3 | Outputs: CIO 3600 to CIO 3663 Inputs: CIO 3700 to CIO 3763 | Fixed allocation setting 1 | Outputs: CIO 3370 (Slave to Master) Inputs: CIO 3270 (Master to Slave) | Fixed allocation setting 2 | Outputs: CIO 3570 (Slave to Master) Inputs: CIO 3470 (Master to Slave) | Fixed allocation setting 3 |
| Fixed allocation setting 1 | Outputs: CIO 3200 to CIO 3263 Inputs: CIO 3300 to CIO 3363 | | | | | | | | | | | | | |
| Fixed allocation setting 2 | Outputs: CIO 3400 to CIO 3463 Inputs: CIO 3500 to CIO 3563 | | | | | | | | | | | | | |
| Fixed allocation setting 3 | Outputs: CIO 3600 to CIO 3663 Inputs: CIO 3700 to CIO 3763 | | | | | | | | | | | | | |
| Fixed allocation setting 1 | Outputs: CIO 3370 (Slave to Master) Inputs: CIO 3270 (Master to Slave) | | | | | | | | | | | | | |
| Fixed allocation setting 2 | Outputs: CIO 3570 (Slave to Master) Inputs: CIO 3470 (Master to Slave) | | | | | | | | | | | | | |
| Fixed allocation setting 3 | Outputs: CIO 3770 (Slave to Master) Inputs: CIO 3670 (Master to Slave) | | | | | | | | | | | | | |

The CIO Area can be used as work bits if the bits are not used as shown here.

| Item | | Specifications |
|-------------------------|--|--|
| CIO (Core I/O) Area | Internal I/O Area | 4,800 bits (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 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 the operating 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. |
| EM Area | | None |
| 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 (2 words). 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 | | <ul style="list-style-type: none"> Memory Cards: Compact flash memory cards can be used (MS-DOS format). OMRON Memory Cards can be used. |
| Function 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). Note: ORF(097) refreshes I/O bits allocated to Basic I/O Units and Special I/O Units. |
| | Timing of special refreshing for CPU Bus Units | Data links for Controller Link Units remote I/O for DeviceNet Units, and other special refreshing for CPU Bus Units is performed at the following times: 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 | 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. Note: By default, the CPU Unit will start in RUN mode if a Programming Console is not connected. |
| | Flash memory (CJ1-H and CJ1M CPU Units only) | <ul style="list-style-type: none"> 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. |

| Item | | Specifications | |
|-------------------------|--|--|---|
| Function Specifications | 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. | |
| | Online editing | User programs can be overwritten in program-block units when the CPU Unit is in MONITOR or PROGRAM mode. This function is not available for block programming areas. With the CX-Programmer, more than one program block can be edited at the same time. | |
| | 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. Note: FAL and FALS instructions can be used with the CJ1-H and 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. Note: 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, Serial Gateway (CompoWay/F master) Built-in RS-232C port: Programming Device (excluding Programming Console) connections, Host Links, no-protocol communications, NT Links, Modbus-RTU Slave, Serial Gateway (CompoWay/F master or Modbus master) | |
| | | Serial Communications Unit (sold separately): Protocol macros, Host Links, NT Links | |
| | 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 System or Ethernet 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 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.) | |

Ethernet Functional Element Transfer Specifications

| Item | | Specifications | | |
|---|------------|--|----------------|----------------|
| Model | | CJ1M-CPU11-ETN | CJ1M-CPU12-ETN | CJ1M-CPU13-ETN |
| Media access method | | CSMA/CD | | |
| Modulation method | | Baseband | | |
| Transmission paths | | Star form | | |
| Baud rate | | 100 Mbit/s (100Base-TX), 10 Mbit/s (10Base-T) | | |
| Transmission media | 100 Mbit/s | Unshielded twisted-pair (UDP) cable Categories: 5, 5e Shielded twisted-pair (STP) cable Categories: 100 Ω at 5, 5e | | |
| | 10 Mbit/s | Unshielded twisted-pair (UDP) cable Categories: 3, 4, 5, 5e Shielded twisted-pair (STP) cable Categories: 100 Ω at 3, 4, 5, 5e | | |
| Transmission distance | | 100 m (distance between hub and node) | | |
| Number of cascade connections | | There are no restrictions with the use of switching hubs. | | |
| CPU Bus Unit System Setup Area capacity | | 994 bytes | | |

Note: The system settings for Ethernet are in the CPU Bus Unit System Setup Area in the CPU Unit.

Comparison between Ethernet Functional Elements and Ethernet Units

The following table shows the differences between CJ1M CPU Units with Ethernet Functions and CJ-series Ethernet Units.

| Item | | CJ-series Ethernet Unit | CJ1M CPU Units with Ethernet |
|--------------------------------------|--|--|--|
| Model number | | CJ1W-ETN21 | CJ1M-CPU11-ETN CJ1M-CPU12-ETN CJ1M-CPU13-ETN |
| Physical layer | | 100BASE-TX, 10BASE-T | Same |
| Number of nodes on FINS network | | 254 | Same |
| Removing Ethernet functional element | | Possible | Not possible |
| Server specification | | Specification by IP address or host name specifications (DNS client function) | Same |
| Communications service | FINS communications service | FINS/UDP FINS/TCP | Same |
| | FTP server function | The CPU Unit's file memory (Memory Card or EM file memory) can be read/written. | The CPU functional element's file memory (Memory Card only) can be read/written. |
| | Automatic clock information adjustment | The CPU Unit's internal clock data can be automatically adjusted to the clock data received from the SNTP server | Same |
| | Web functions | The Unit settings can be made and status can be read from a Web browser using the Web server. | Same |
| | Mail functions | Mail send functions Mail receive functions | Not possible |
| | Socket service function | TCP socket services UDP socket services | Not possible |
| | FINS commands | RESET | Same |
| | | CONTROLLER DATA READ | Same Responds to CJ1W-ETN21 |
| | | CONTROLLER STATUS READ | Same |
| | | ECHOBACK TEST | Same |
| | | BROADCAST TEST (READ RESULTS) | Same |
| | | BROADCAST TEST (SEND TEST DATA) | Same |
| | | ERROR LOG READ | Same |
| | | ERROR LOG CLEAR | Same |
| | | REQUEST TO OPEN UDP SOCKET | Not possible |
| | | REQUEST TO RECEIVE UDP SOCKET | Not possible |
| | | REQUEST TO SEND UDP SOCKET | Not possible |
| | | REQUEST TO CLOSE UDP SOCKET | Not possible |
| | | REQUEST TO OPEN TCP SOCKET (PASSIVE) | Not possible |
| | | REQUEST TO OPEN TCP SOCKET (ACTIVE) | Not possible |
| | | REQUEST TO RECEIVE TCP SOCKET | Not possible |
| | | REQUEST TO SEND TCP SOCKET | Not possible |
| | | REQUEST TO CLOSE TCP SOCKET | Not possible |
| | | EXECUTE PING COMMAND | Same |
| | | REQUEST TO CHANGE REMOTE NODE FOR FINS/TCP CONNECTION | Same |
| | | REQUEST TO READ STATUS FOR FINS/TCP CONNECTION | Same |
| | | IP ADDRESS TABLE WRITE | Same |
| | | IP ADDRESS WRITE | Same |
| | | IP ADDRESS TABLE READ | Same |
| | | IP ROUTING TABLE READ | Same |
| | | PROTOCOL STATUS READ | Same |
| | | MEMORY STATUS READ | Same |
| | | SOCKET STATUS READ | Same |
| | | ADDRESS DATA READ | Same |
| | | IP ADDRESS READ | Same |

Unit Versions

| Units | Models | Unit Version | |
|---|----------------|------------------------|-----------------------------|
| | | CPU Functional element | Ethernet Functional element |
| CJ1M CPU Unit (with Ethernet Function) | CJ1M-CPU1□-ETN | Unit Version 4.0 | Unit Version 1.4 |
| | | | Unit Version 1.5 |

Functions Supported for Unit Versions of CJ1M CPU Units with Ethernet

Functions Supported for Unit Version 4.0 or Later

CX-Programmer version 7.0 or higher must be used to enable using the functions added for unit version 4.0.

More functions will be supported if you use CX-Programmer version 7.2 or higher.

| CPU Unit | | CJ1M CPU Unit with Ethernet | |
|---|---|---|---------------------|
| Models | | CJ1M-CPU1□-ETN | |
| Unit version | | Unit version 4.0 or later | Other unit versions |
| Function | | | |
| Online editing of function blocks Note: Online editing is not supported by CX-Simulator. | | OK | — |
| Input-output variables for function blocks | | OK | — |
| Text strings (STRING data type) for function blocks | | OK | — |
| New application instructions | Number-Text String Conversion Instructions: NUM4, NUM8, NUM16, STR4, STR8, and STR16 | OK | — |
| | TEXT FILE WRITE (TWRIT) | OK | — |
| Using ST language in task programs | | OK with CX-Programmer Ver.7.2 or later | — |
| Using SFC language in task programs | | OK with CX-Programmer Ver.7.2 or later | — |

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 Version 1.5 or Later of the Ethernet Functional Element

CX-Programmer version 8.2 or higher must be used to enable using the functions added for Ethernet functional element version 1.5.

| CPU Unit type | | CJ1M CPU Unit (with Ethernet function) | |
|---|--|--|---------------------|
| Model | | CJ1M-CPU1□-ETN | |
| Unit version | | Ethernet Functional Element with unit version 1.5 or later | Other unit versions |
| Function | | | |
| Using subnet mask settings to enable CIDR | | OK with CX-Programmer Ver.8.2 or later | — |

Unit Versions and Programming Devices

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

Unit Versions and Programming Devices

| CPU Functional Element | Functions | | CX-Programmer | | | | Programming Console |
|-----------------------------|--------------------------------------|-------------------------|---------------|----------|----------------------|-------------------|---------------------|
| | | | Ver. 3.3 | Ver. 4.0 | Ver. 5.0 Ver. 6.0 | Ver. 7.0 or later | |
| Unit Ver.4.0 | Functions added for unit version 4.0 | Using new functions | — | — | — | OK | No restrictions |
| | | Not using new functions | OK | OK | OK | OK | |
| Ethernet Functional Element | Functions | | CX-Programmer | | | | Programming Console |
| | | | Ver. 8.1 | | Ver. 8.2 or later | | |
| Unit Ver.1.5 | Functions added for unit version 1.5 | Using new functions | — | | OK | | No restrictions |
| | | Not using new functions | OK | | OK | | |

Device Type Setting

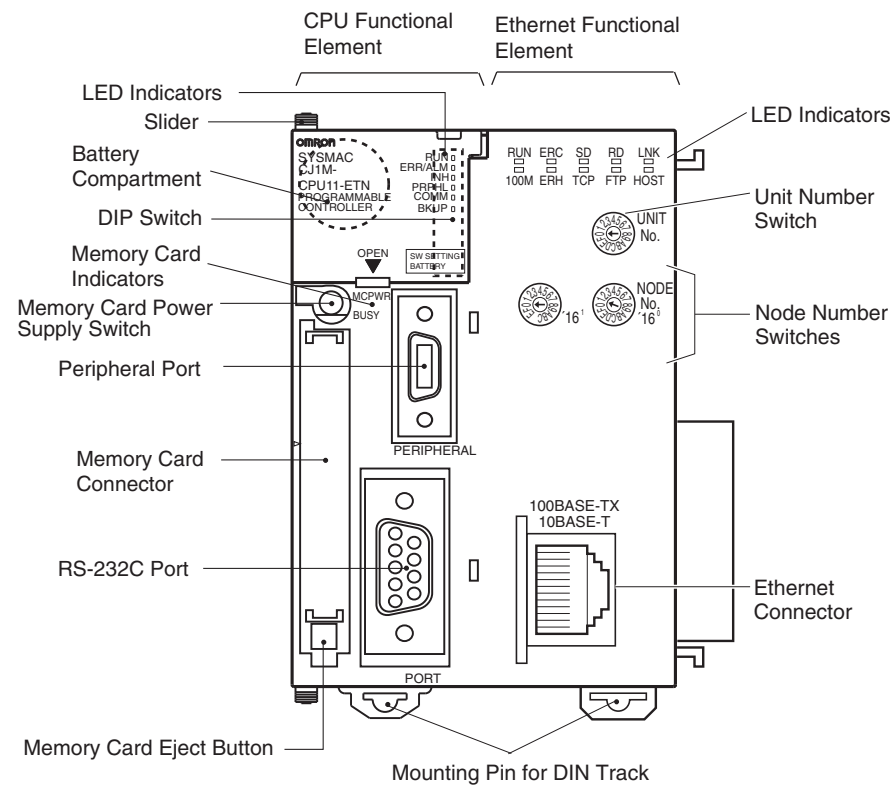
The unit version does not affect the setting made for the device type on the CX-Programmer. Select the device type as shown in the following table regardless of the unit version of the CPU Unit.

| Series | CPU Unit group | CPU Unit model | Device type setting on CX-Programmer Ver. 4.0 or higher |
|-----------|--|----------------|---|
| CJ-Series | CJ1M CPU Units (with Ethernet function) | CJ1M-CPU1□-ETN | CJ1M |

Note: Select the CPU type either CPU11, CPU12, or CPU13 as the CPU type for CJ1M.

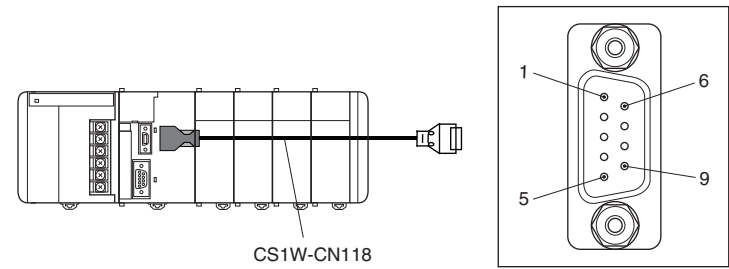
External Interface

A CJ-series CJ1M CPU Unit (with Ethernet function) provides three communications ports (a peripheral port, an RS-232C port and Ethernet connectors).



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.

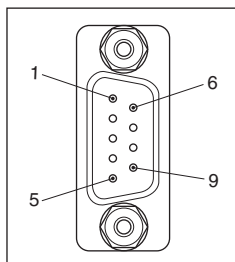


| Pin No. | Signal | Name | Direction |
|----------------|----------|------------------|-----------|
| 1 | — | — | — |
| 2 | SD (TXD) | Send data | Output |
| 3 | RD (RXD) | Receive data | Input |
| 4 | RS (RTS) | Request to send | Output |
| 5 | CS (CTS) | Clear to send | Input |
| 6 | Reserved | None | — |
| 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.



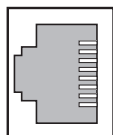
| Pin No. | Signal | Name | Direction |
|----------------|----------|---------------------|-----------|
| 1 | FG | Protection earth | — |
| 2 | SD (TXD) | Send data | Output |
| 3 | RD (RXD) | Receive data | Input |
| 4 | RS (RTS) | Request to send | Output |
| 5 | CS (CTS) | Clear to send | Input |
| 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.

Ethernet Connectors

The following standards and specifications apply to the connectors for the Ethernet twisted-pair cable.

- Electrical specifications: Conforming to IEEE802.3 standards.
- Connector structure: RJ45 8-pin Modular Connector (conforming to ISO 8877)



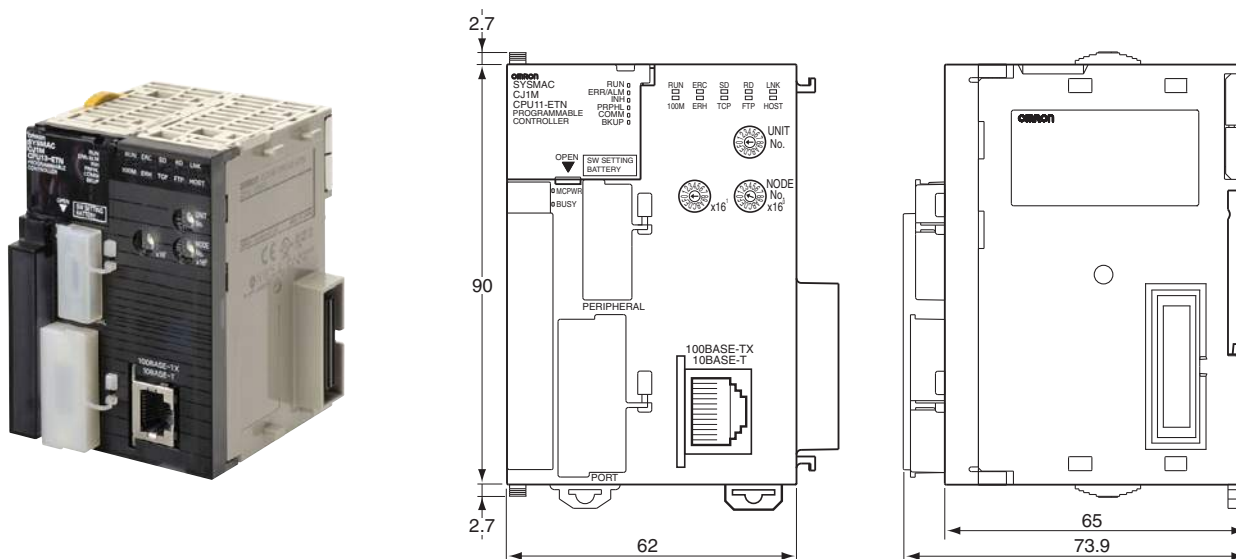
| Pin No. | Signal | Name | Direction |
|---------|--------|---------------------|-----------|
| 1 | TD+ | Transmission data + | Output |
| 2 | TD- | Transmission data - | Output |
| 3 | RD+ | Reception data + | Input |
| 4 | — | Not used. | — |
| 5 | — | Not used. | — |
| 6 | RD- | Reception data - | Input |
| 7 | — | Not used. | — |
| 8 | — | Not used. | — |
| Hood | FG | Frame ground | — |

Dimensions

(Unit : mm)

CJ1M CPU Unit (with Ethernet function)

CJ1M-CPU11-ETN/CPU12-ETN/CPU13-ETN



Related Manuals

| Cat. No. | Model | Manual | Application | Description |
|----------|--|---|---|---|
| W441 | CJ1M-CPU1□-ETN | CJ-series CJ1M CPU Unit (with Ethernet function) Operation Manual | Information on CPU Units with Ethernet, including an overview, specifications, and maintenance | Describes the following for CJ1M CPU Units with Ethernet function <ul style="list-style-type: none"> • Overview and features • Basic system configuration Also refer to the Operation Manual (W393) and Ethernet Units Operation Manual (W420 and W421) |
| W393 | CJ1H-CPU□□H-R CJ1G-CPU□□ CJ1M-CPU□□ CJ1G-CPU□□P CJ1G/H-CPU□□H | SYSMAC CJ/NSJ Series Operation Manual | Basic specifications on CJ-series PLCs, including an overview, designing, installation, and maintenance | Describes the following for CJ-series CPU Units <ul style="list-style-type: none"> • Overview and features • System configuration • Mounting and setting procedure • Remedies for errors Also refer to the Programming Manual (W394) |
| W394 | CS1G/H-CPU□□H CS1G/H-CPU□□-EV1 CS1D-CPU□□H CS1D-CPU□□S CJ1H-CPU□□H-R CJ1G/H-CPU□□H CJ1G-CPU□□ CJ1G-CPU□□P CJ1M-CPU□□ NSJ□□-□□□□-□□□ | SYSMAC CS/CJ/NSJ Series Programming Manual | Information on all of the PLCs in the CS/CJ Series | This manual describes programming and other methods to use the functions of the CS/CJ-series and NSJ-series PLCs. |
| W474 | CS1□-CPU□□□-□□ CJ1□-CPU□□□-□□ CJ2□-CPU□□□-□□□ NSJ□□-□□□□□-□□□ | CS/CJ/NSJ-series Instructions Reference Manual | Information on instructions | Describes each programming instruction in detail. Also refer to the Software User's Manual for the CPU Units when you do programming. |
| W342 | CJ2H-CPU6□-EIP CJ2H-CPU6□ CS1G/H-CPU□□H CS1G/H-CPU□□-V1 CS1D-CPU□□H CS1D-CPU□□S CS1W-SCU□□-V1 CS1W-SCB□□-V1 CJ1H-CPU□□H-R CJ1G/H-CPU□□H CJ1G-CPU□□P CJ1M-CPU□□ CJ1G-CPU□□ CJ1W-SCU□□-V1 CP1H-X□□□□-□ CP1H-XA□□□□-□ CP1H-Y□□□□-□ CP1E-□□□□□-□ NSJ□□-□□□□□-□□□ | CS/CJ/CP/NSJ-series Communications Command Reference Manual | Information on communications for CS/CJ/CP-series CPU Units and NSJ-series Controllers | Describes C-mode commands and FINS commands Refer to this manual for a detailed description of commands for communications with the CPU Unit using C mode commands or FINS commands. Note: This manual describes the communications commands that are addressed to CPU Units. The communications path that is used is not relevant and can include any of the following: serial ports on CPU Units, communications ports on Serial Communications Units/Boards, and Communications Units. For communications commands addressed to Special I/O Units or CPU Bus Units, refer to the operation manual for the related Unit. |
| W341 | CQM1H-PRO01-E CQM1-PRO01-E C200H-PRO27-E | SYSMAC CS/CJ Series Programming Consoles Operation Manual | Programming Console operating procedure | Provides information on how to program and operate CS/CJ-series PLCs using a Programming Console. |
| W420 | CS1W-ETN21 CJ1W-ETN21 | Ethernet Units Operation Manual Construction of Networks | Information when using an Ethernet Unit | Provides information on operating and installing 100Base-TX Ethernet Units, including details on basic settings and FINS communications. Refer to the Communications Commands Reference Manual (W342) for details on FINS commands that can be sent to CS-series and CJ-series CPU Units when using the FINS communications service. |
| W421 | CS1W-ETN21 CJ1W-ETN21 | Ethernet Units Operation Manual Construction of Applications | | Provides information on constructing host applications for 100Base-TX Ethernet Units, including functions for sending/receiving mail, socket service, automatic clock adjustment, FTP server functions, and FINS communications. |
| W446 | WS02-CXPC□-V□ | CX-Programmer Operation Manual | Support Software for Windows computers CX-Programmer operating procedure | Describes operating procedures for the CX-Programmer. Also refer to the Software User's Manual (W473) and Instructions Reference Manual (W474) when you do programming. |
| W447 | | CX-Programmer Operation Manual Functions Blocks | | |
| W464 | CXONE-AL□□D-V□ | CS/CJ/CP/NSJ-series CX-Integrator Network Configuration Software Operation Manual | Network setup and monitoring | Describes the operating procedures for the CX-Integrator. |
| W463 | CXONE-AL□□D-V□ | CX-One Setup Manual | Installing software from the CX-One | Provides an overview of the CX-One FA Integrated Tool Package and describes the installation procedure. |

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