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MORE POWER. MORE FLEXIBILITY. MORE SPEED.

Like our popular C200H/HS mid-size PLC series, Omron's new C200Hα series offers the advantages of large PLC performance and I/O versatility in a mid-size PLC package and price range. But there's more to the new C200Hα series—a lot more.

Improvements to the existing series, such as greater memory capacity and faster processing speed, strengthen the C200Hα series' capabilities as a controller. Newly added features, such as a protocol macro and an optional PCMCIA Card Module, transform the C200Hα series into a powerful on-site data processing system—and transforms your workplace into a highly responsive, information-based operation.

► More I/O Points

C200HS	880
C200Hα	1,184 maximum

► More Special I/O Modules

C200HS	10
C200Hα	16

► Increased Processing Speed

C200HS	0.375 μs LD execution
C200Hα	0.1 μs LD execution speed

► Increased Memory Capacity

C200HS	15.2k words
C200Hα	31.2k words maximum

► Increased Data Memory

C200HS	6K words
C200Hα	24K words maximum

► Enlarged SYSMAC LINK Data Link Area

C200HS	918 words
C200Hα	2,966 words

► Increased Local Expansion

C200HS	2 expansion backplanes max.
C200Hα	3 expansion backplanes max.

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NOTE: Specifications to change without notice.

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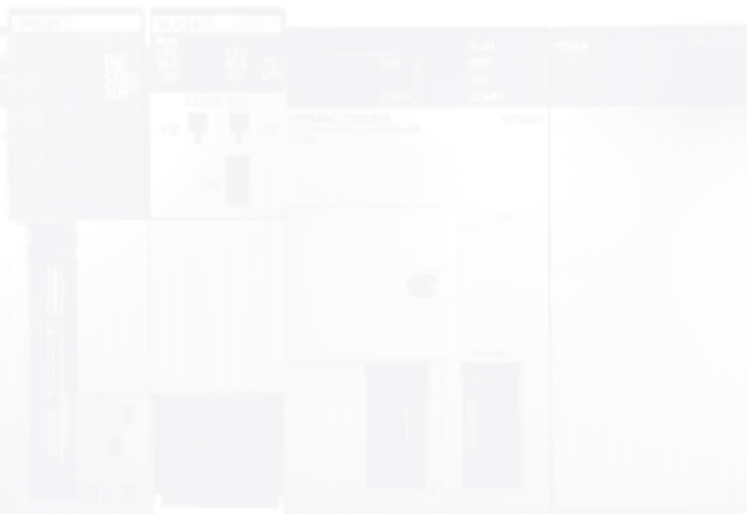
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SYSTEM COMPONENTS

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The New C200H α Series:

Powerful Mid-Sized Machine Control, Powerful Onsite Data Processing

Migrate Easily

While the functions and capabilities of the C200H α series have been dramatically enhanced, common languages and I/O units allow smooth migration from C200H/HS PLCs.

Improved Special I/O Modules

The maximum number of Special I/O Modules that can be mounted on the CPU has been increased from 10 to 16 modules. You can easily manage a control system with the right combination of Special I/O Modules.

The intelligent I/O read and intelligent I/O write instructions can be executed to transfer more than one word of data. All of the C200HS Special I/O Modules can be used without any modification. In addition, a PC Card Module, Motion Control Module, and Two-axis High-speed Counter Module have been added.

Interface to Memory or Ethernet via PC Card Module

The **PC Card Module** provides two PCMCIA interface slots. Either two type I or II or one type III PC card can be installed. The system accepts SRAM, FLASH and ATA cards.

PC File Operations: C200HX/HG/HE memory contents may be written to memory cards as files using ladder-diagram instructions. File contents can be compared and searched and word data can be separated by commas in the file format so that commercially available spreadsheets may be used.

Ethernet Connection: Using an Ethernet PCMCIA card, data may be exchanged using Omron's FINS protocol via UDP/IP.

A Built-in Protocol Macro Function

Previously, it was necessary to write a communications program for the ASCII Module or BASIC Module whenever a measurement device or component was connected to the PLC. The C200H Alpha PLCs are equipped with the Protocol Macro Function which incorporates these communications programs into the ladder program with just a few ladder instructions. A variety of workplace data can be processed in real-time improving quality and reducing total product cost. System development time can be reduced substantially.

Build Networks Easily with the Alpha's Built-in Features.

Using built-in Host Link function of the C200H Alpha, connect directly to operator interface terminals using a cable as an interface, or use a One-to-One data links between alpha PLCs are just as easy to make.

When networking with a PC, the TXD and RXD instructions can be used to carry out RS-232C communications from the PLC, and the STUP instruction can be used to switch between Host Link and RS-232C, communications.

Open up Your Communications Possibilities in All Three Automation Network Levels

DEVICE LEVEL NETWORKS: The new C200HW-DRM21 Module supports DeviceNet open multi-vendor network communications. DeviceNet makes it possible to connect devices that have a wide variety of parameters or data, such as inverters or analog devices. It also allows other DeviceNet products to be connected as well.

CONTROL LEVEL NETWORKS: Omron's SYSMAC Link and SYSMAC Net networks provide high-speed real-time data transfer. SYSMAC Link's data link capacity has been increased from 918 words to 2,966 words.

INFORMATION LEVEL NETWORKS: The C200HW-PCS01 PCMCIA Module allows data exchange with CV Ethernet units, PCs and workstations using Omron's FINS protocol via Ethernet UDP/IP.

Connect to a Variety of Serial Devices

The C200H α CPU's can be equipped with one of six communication boards. By installing the appropriate communication board, the CPU can communicate with SYSMAC Link / SYSMAC Net modules, a PC Card module or serial devices. Using the Protocol Macro Function built into the C200HW-COM04-E, C200HW-COM05-E or C200HW-COM06-E communications boards, communications sequences for one of seven types of installed Omron protocols may be used or customized for a modem, operator interface, bar code reader, temperature controller, or any kind of RS-232C, RS-422 or RS-485 device.



BUILD YOUR OWN CONTROL AND DATA PROCESSING SYSTEM

CPU

- Choose from 11 CPU models
- Separate CPU and power supply

CPU and Expansion Backplanes

- CPU and power supply mount on a dedicated CPU backplanes
- Local expansion may be done with the new space-saving C200H α expansion backplanes or current C200H backplanes
- Connect up to 5 remote I/O backplanes

Special I/O

- Take full advantage of the C200H α 's power with any combination of 20 Special I/O Modules

Communications

- All CPUs include a multifunctional peripheral port to communicate to programming peripherals
- Standard Host Link port is built into selected CPUs
- One of six communications boards can also be installed in the CPU. When used with the protocol macro function, these boards provide a simple way to connect with a SYSMAC Link or SYSMAC Net Link module, to communicate with a Modem, operator interface, bar code reader, Process Controller or any kind of RS-232C, RS-422 or RS-485 device.

Software Support

- Supported by both SYSMAC Support Software Version 1.2 or greater and SYSWIN version 3.0 or greater

CPU RACK



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CPU BACKPLANE

C200HW-BC031 C200HW-BC051
C200HW-BC081 C200HW-BC101



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EEPROM MEMORY CASSETTES

4K words C200HW-ME04K
8K words C200HW-ME08K
16K words C200HW-ME16K
32K words C200HW-ME32K

EEPROM MEMORY CASSETTES

16/32K words C200HS-MP16K



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CPUs

C200HE-CPU11-E C200HE-CPU32-E
C200HG-CPU33-E C200HX-CPU34-E
C200HG-CPU43-E C200HX-CPU44-E
C200HG-CPU53-E C200HX-CPU54-E
C200HG-CPU63-E C200HX-CPU64-E



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POWER SUPPLY MODULE

C200HW-PA204
C200HW-PA204S
C200HW-PD024

EXPANSION I/O RACK



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I/O CONNECTING CABLE
C200H-CN□□1
(30cm, 70cm, 2m, 5m, 10m)



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POWER SUPPLY MODULE
C200HW-PA204
C200HW-PA204S
C200HW-PD024



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EXPANSION I/O BACKPLANE

C200HW-BI031
C200HW-BI051
C200HW-BI081
C200HW-BI101

SLAVE RACKS



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REMOTE I/O SLAVE MODULE
Fiber-optic, 100/200 VAC C200H-RT001-P
Fiber-optic, 24 VDC C200H-RT002-P
Wired, 100/200 VAC C200H-RT201
Wired, 24 VDC C200H-RT202



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SLAVE I/O BACKPLANE
C200H-BC031-V2
C200H-BC051-V2
C200H-BC081-V2
C200H-BC101-V2

COMMUNICATIONS BOARDS (cannot be mounted to the CPUH-CPU11-E)



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C200HW-COM01



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C200HW-COM02



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C200HW-COM03



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C200HW-COM04-E



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C200HW-COM05-E



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C200HW-COM06-E

COMMUNICATIONS MODULES



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DEVICENET SCANNER
C200HW-DRM21



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HOST LINK
C200H-LK202-V1
C200H-LK101-PV1
C200H-RM201-V1



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PC LINK
C200H-LK401



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PC CARD*
C200HW-PCU01
Ethernet Set*
C200HW-PCS01-E



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REMOTE I/O MASTER
Fiber-optic
C200H-RM001-V1
Wired
C200H-RM201-V1



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SYSMAC LINK*
Coaxial
C200HW-SLK23/24
Fiber-optic
C200HW-SLK13/14



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SYSMAC NET LINK*
C200HS-SNT32

*Use these modules together with communications boards (C200H-COM01/04-E) in the CPU Rack.

SPECIAL I/O MODULES



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ANALOG INPUT
C200H-AD001
C200H-AD002



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ANALOG OUTPUT
C200H-DA001
C200H-DA002



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ASCII/BASIC
C200H-ASC02



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CAM POSITIONER
C200H-CP114



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FUZZY LOGIC
C200H-FZ001



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HIGH-SPEED COUNTER
C200H-CT□□□



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RFID SENSOR
C200H-IDS□□



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DUAL-AXIS MOTION CONTROL
C200H-MC221



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PID CONTROL
C200H-PID0□



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POSITION CONTROL
C200H-NC211
C200H-NC112



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TEMPERATURE SENSOR
C200H-TS□□□



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TEMPERATURE CONTROL
C200H-TC□□□
C200H-TV□□□



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VOICE
C200H-OV001



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B7A INTERFACE
16 points
C200H-B7A□1



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B7A INTERFACE
32 points/64 points
C200H-B7A□□
(cannot be used on Slave rack)



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HIGH DENSITY INPUT
C200H-ID□□□□
Group 2 C200H-ID21□



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HIGH DENSITY OUTPUT
C200H-OD□□□□
Group 2 C200H-OD21□



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ANALOG TIMER
C200H-TM001



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MIXED I/O
16 inputs/16 outputs
C200H-MD□□□□



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INTERRUPT INPUT
C200HS-INT01
(CPU Backplane ONLY)

DISCRETE I/O MODULES



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8 POINT INPUT
C200H-I□□□□□



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16/32 POINT INPUT
C200H-I□□□□□



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5/8/16 POINT OUTPUT
C200H-O□□□□□



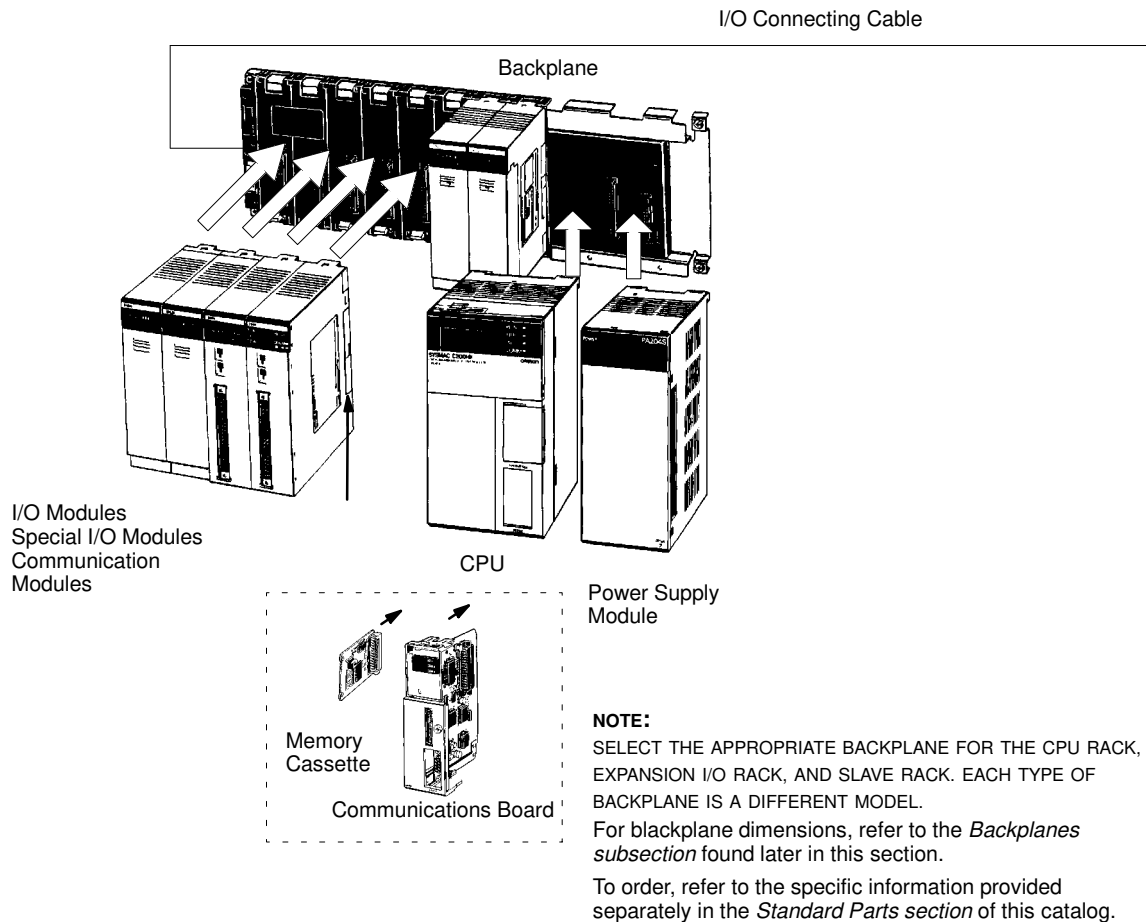
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12/32 POINT OUTPUT
C200H-O□□□□□

SYSTEM OVERVIEW

BASIC CONFIGURATION - C200HX/HG/HE

CPU Rack



CPU Rack

The CPU Rack is the master controller rack for the control systems and contains the system communications ports. It may be expanded using Expansion Racks and Slave Racks.

A fully configured C200H α CPU Rack includes a CPU, Backplane, Power Supply Module, I/O Modules, Special I/O Modules and Communication Modules, as appropriate for the application.

A complete system may also include connecting cables and programming software or hardware.

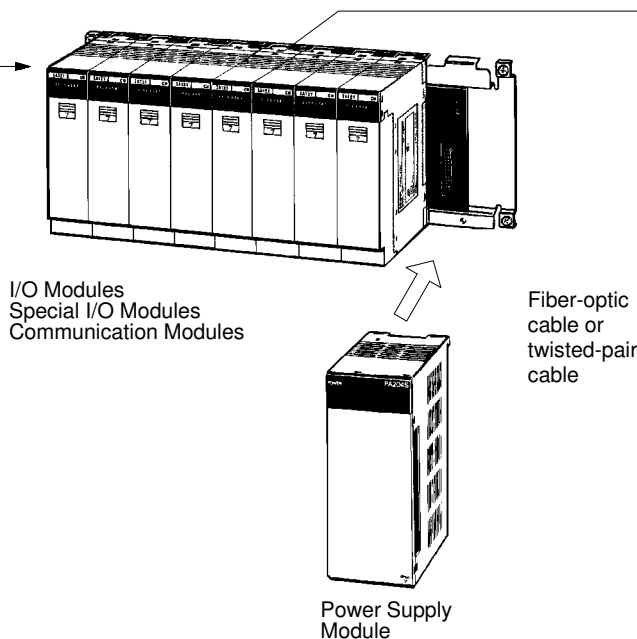
A total of two SYSMAC LINK or SYSMAC NET Link Modules can be mounted to the CPU if the C200HW-COM01 or C200HW-COM04-E Communications Board is connected to the CPU.

Only two C200HS-INT01 Interrupt Input Modules can be mounted on a CPU Rack.

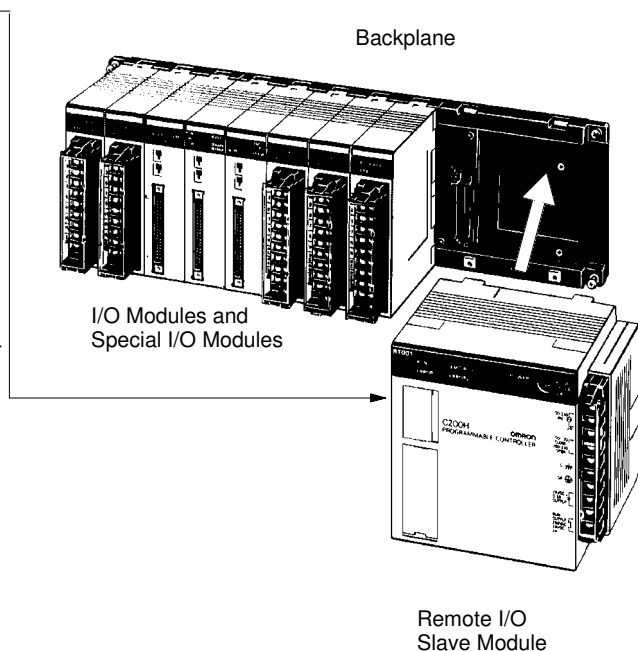
SYSTEM OVERVIEW

BASIC CONFIGURATION – C200HX/HG/HE

Expansion I/O Racks



Slave Racks



Fiber-optic cable or twisted-pair cable

Local Expansion Racks

The configuration of an Expansion I/O Rack includes a Power Supply Module, an Expansion Backplane, and appropriate I/O Modules, Special I/O Modules, and Communication Modules.

The number of allowable Expansion Racks varies with CPU model.

Up to three Expansion I/O Racks can be connected to the C200HX-CPU54-E, C200HX-CPU64-E, C200HG-CPU53-E, or C200HG-CPU63-E.

Up to two Expansion I/O Racks can be connected to any other CPU for the C200HX, C200HG, and C200HE.

Different types of Backplanes are necessary for the CPU, Expansion I/O Rack, and the Slave Rack.

Slave Racks

To expand a system and minimize wiring costs, you may connect a maximum of five Slave Racks per system.

The Configuration of a Slave Rack includes a Remote I/O Slave Module, a Backplane (for the C200HX/HG/HE Slave Rack), I/O Modules, and Special I/O Modules.

To mount a High-density I/O Module to a Slave Rack, use a C200H-RM001-PV1/RM201.

Note: C200H-RM001-P Master Modules cannot be used.

Group-2 High-density I/O Modules, Communications I/O Modules, and Interrupt Input Modules cannot be mounted in Slave Racks.

You can connect a Maximum of two Expansion I/O Racks to Slave Racks using I/O Connecting Cable.

Always count the Expansion I/O Racks (connected in this way) against the maximum of five Slave Racks that can be connected.

SYSTEM OVERVIEW

C200HX/HG/HE SPECIFICATIONS

C200H α PLC – System Specifications

ITEM	SPECIFICATIONS
Supply voltage	AC power supply: 100 to 120/200 to 240 VAC selectable 50/60 Hz DC power supply: 24 VDC
Operating voltage range	AC power supply: 85 to 132/170 to 264 VAC DC power supply: 19.2 to 28.8 VDC
Power consumption	AC power supply: 120 VA max. DC power supply: 50 W max.
Surge current	30 A max.
Output capacity	4.6 A, 5 VDC; 0.6 A, 26 VDC; 0.8 A, 24 VDC ^{+10%/-20%} (C200HW-PA204S only)
Insulation resistance	20 M Ω between AC terminals and the GR terminal at 500 VDC (see note 1)
Dielectric strength	2,300 VAC at 50/60 Hz for 1 minute between AC terminals and housing; 1,000 VAC at 50/60 Hz for 1 minute between DC terminals and housing. Leakage current: 10 mA max. (see note 1)
Noise immunity	1,500 Vp-p, pulse width: 100 ns to 1 μ s, rise time: 1 ns pulse (by noise simulator)
Vibration	10 to 57 Hz; 0.075 mm amplitude, 57 to 150 Hz; acceleration: 1 G, in X, Y, and Z directions, for 80 minutes each (sweep time 8 min x 10 sweeps = 80 min); (When mounted on DIN track, 2 to 55 Hz, 0.3 G, in X, Y, and Z directions for 20 minutes each)
Shock	15G (147 m/s ²) in X, Y, and Z directions, 3 times each
Ambient temperature	Operating: 0 to 55°C (32° to 131.0°F) Storage: -20 to 75°C (-4.0 to 167.0°F) without battery
Humidity	10% to 90% (without condensation)
Atmosphere	Must be free of corrosive gases
Grounding	Less than 100 Ω
Enclosure rating	IEC IP30 (mounted in a panel)
Weight	6 kg max. (CPU: 315 g max., Power Supply Module: 510 g max., Backplane: 445 g to 1040 g)

Note: Be sure to disconnect the LG and GR terminals when conducting insulation resistance tests or dielectric strength tests. Internal components might be damaged if insulation resistance tests are repeated many times with the LG and GR terminals connected.

Features

Select from Eleven C200H α CPUs within Alpha's Three Basic Model Types

Each model has different program capacities, processing speeds, I/O capabilities, communications connections and features. (The C200H α CPU Selection Table is provided later in this section.)

Optional Back-up Memory Cassettes

For program back-up or rewrite option, each CPU has a special Memory Cassette compartment.

Multifunctional Peripheral Port

Directly connect to programming peripherals or communicate to Omron's Operator Interface Terminals and other third party devices using an optional CIF Convertor Cable.

Built-in RS-232C Port

Direct Host Link communications to the CPU or interface with other devices through serial communications. Available on selected models only.

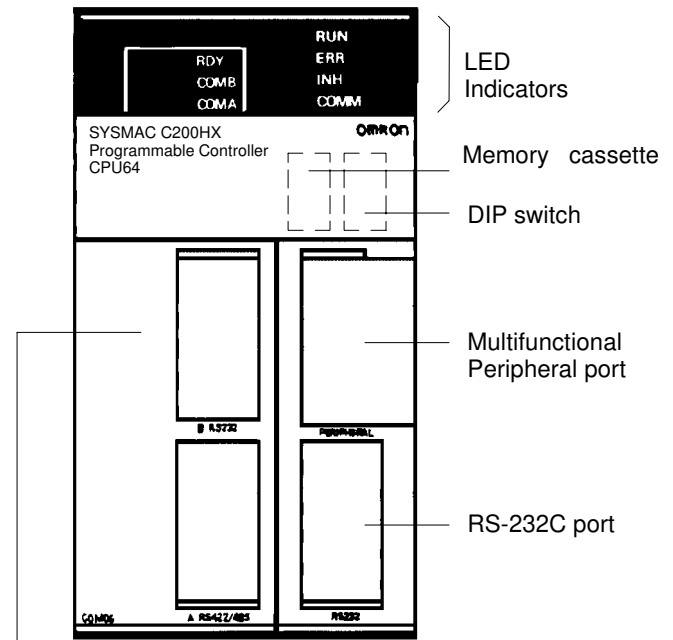
Versatile Communications

Install one of six C200H α Communications Boards to have additional communications ports. The boards fit into the communications slot in the CPU and enable communication with SYSMAC LINK or SYSMAC NET modules, a PC card module or a variety of serial devices – including Operator Interfaces. Order the Communications Board and Memory Cassette separately (not provided with the CPU).

Protocol Macro

Three C200H α Communications Boards offer the Protocol Macro Instruction that controls data transfer with various communications devices and components equipped with RS-232C or RS-422/-485 ports. With the Protocol Macro Function built into the C200HW-COM04, C200HW-COM05-E and C200HW-COM06-E Communications Boards, communications sequences (data transfer procedures) may be modified with Omron's Protocol Support Software.

Although seven Omron Communications sequences are built-in, you can use the Protocol Support Software to create other communications sequences. For more details, refer to the *Communication Board section* that follows.



Communications Board (C200HW-COM06-E shown here)

Indicators

INDICATOR ON THE CPU	FUNCTION
RUN (green)	Lit when the PLC is operating normally.
ERR (red)	Flashes if the PLC in operation detects any non-fatal error. (The PLC will continue operating.) Lit if the PLC in operation detects any fatal error. (The PLC will stop operating.) After the PLC stops operating, the RUN indicator will be off, and all output signals of the Output Modules will be interrupted.
INH (orange)	Lit when the Load OFF flag (AR bit) is ON. (All output signals of the Output Modules will be interrupted.)
COMM (orange)	Flashes when the CPU is communicating with the device connected to the peripheral port or RS-232C port.

CPU

C200HX/HG/HE CPU SELECTION GUIDE

Consider these Application Needs when Selecting the C200H α CPU

1. What is the required program capacity?
2. Determine total standard I/O (with expansion rack) and Special I/O requirements.
3. What communications interfaces are required?

C200H α CPU Selection Table

PROGRAM CAPACITY (WORDS)	DM (WORDS)	EM (WORDS)	BASIC INSTRUCTION PROCESSING TIME	NO. I/O PTS.	MAX. NO. EXPANSION I/O RACKS	MAX. NO. HIGH-DENSITY I/O MODULES (GROUP 2) NO. BELOW = TOTAL NO. OF MODULES	MAX. NO. OF SPECIAL I/O MODULES (GROUP 1) NO. = TOTAL NO. OF MODULES	RS-232C	CLOCK FUNCTION	COMMUNICATIONS BOARD AVAILABLE	PART NUMBER
3.2K	4K	None	0.3 μ s min.	640	2	Unavailable	10	No	No	No	C200HE-CPU11-E
7.2K	6K			880		10		Yes	Yes	C200HE-CPU32-E C200HE-CPU42-E	
15.2K	6K	6K	0.15 μ s min.	880	2	10	10	No	Yes	Yes	C200HG-CPU33-E C200HG-CPU43-E
				1,184		3		16 (10) <i>See Note</i>			
				1,184	3	16 (10) <i>See Note</i>	16 (10) <i>See Note</i>	Yes			
31.2K	6K	6K x 3 (18K)	0.1 μ s min.	880	2	10	10	No	Yes	Yes	C200HX-CPU34-E C200HX-CPU44-E
				1,184		3		16 (10) <i>See Note</i>			
				1,184	3	16 (10) <i>See Note</i>	16 (10) <i>See Note</i>	Yes			

Note: When the table indicates a selection total of 16 High-density I/O Modules or Special I/O Modules – the total of 16 is applicable only if you select from the Modules in this list:

- High-density I/O Modules: C200H-ID216 (32 inputs) and C200H-OD218 (32 outputs).
- Special I/O Modules: C200H-AD002, C200H-DA002, C200H-NC211, and C200H-CT021

If your selections are not in the list above: you may be limited to only 10 modules – as indicated in the table.

An exception: A total of only 8 can be used if you select C200H-OD219, C200H-ID217, or C200H-ID111 High-density I/O Modules.

C200H α CPU Characteristics

ITEM	SPECIFICATIONS
Control method	Stored program
I/O control method	Cyclic scan with direct output and immediate interrupt processing are both possible.
Programming method	Ladder diagram
Instruction length	1 address/instruction, 1 to 4 words/instruction
Number of instructions	14 basic instructions, 231 special instructions
Execution time	Basic instructions: e.g., LD C200HE-CPU□□-E:0.3 μ s C200HG-CPU□□-E:0.15 μ s C200HX-CPU□□-E:0.1 μ s Special instructions: e.g., MOV(21) C200HE-CPU□□-E:1.2 μ s C200HG-CPU□□-E:0.6 μ s C200HX-CPU□□-E:0.4 μ s
Program capacity	C200HE-CPU11-E: 3.2K words max. C200HE-CPU32-E/CPU42-E: 7.2K words max. C200HG-CPU□□-E: 15.2K words max. C200HX-CPU□□-E: 31.2K words max.
I/O bits	640 (00000 to 02915, 30000 to 30915)
IR bits	6,464 (03000 to 23115, 31000 to 51115)
SR bits	1,080 (23200 to 25507, 25600 to 29915)
TR bits	8 (TR 0 to 7)
HR bits	1,600 (HR 0000 to 9915)
AR bits	448 (AR 0000 to 2715)
LR bits	1,024 (LR 0000 to 6315)
Timers/Counters	512 (TIM/CNT 000 to 511)
DM words	Read/Write: 6,144 (DM 0000 to 6143) Read-only: 512 (DM 6144 to 6655) Expansion: Up to 3,000 words max. (DM 7000 to 9999)
EM words	Read/Write: C200HE-CPU□□-E: None C200HG-CPU□□-E: 6,144 (EM 0000 to EM 6143) C200HX-CPU□□-E: 6,144 \times 3 banks (EM 0000 to EM 6143)
Power failure backup function	Holds HR, AR, CNT, DM, and EM and clock (RTC) contents.
Memory backup time	The battery service life is five years at 25°C (77°F). The service life will be shortened if the battery is used at higher temperatures. Replace the battery within one week after the battery alarm indicator starts flashing. When replacing the battery, install the new battery within five minutes after removing the old one.
Self-diagnostic function	CPU errors (watchdog timer), I/O verification errors, host link errors, memory errors, battery errors, I/O bus errors, remote I/O errors, etc.
Program check function	Checks the program from the time the program starts running and checks the omission of the END instruction or any other improper instruction. This function allows three-level checking of programs through the Programming Console.

CPU

SPECIFICATIONS, CHARACTERISTICS

Comparing C200H α CPU Specifications

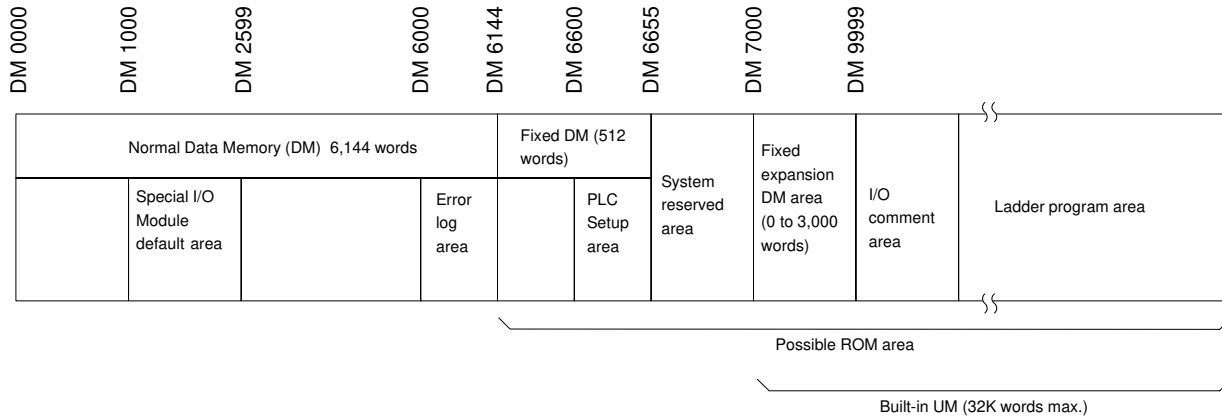
Use the following table to compare the functions of the C200HX, C200HG, and C200HE with those of the C200HS and C200H.

FUNCTION		C200HX/HG/HE	C200HS	C200H
Memory	User Memory (UM)	3.2K words (C200HE-CPU11-E) 7.2K words (C200HE-CPU□2-E) 15.2K words (C200HG-CPU□3-E) 31.2K words (C200HX-CPU□4-E)	15.2K words	3.2K words/7.2K words
	Normal Data Memory (DM)	C200HX/G: 6,144 words (DM 0000 to DM 6143) (DM 4000 to DM 5999 do not exist in the C200HE-CPU11-E) C200HE-CPU16: 4000 words (DM0000-3999)	6,144 words (DM 0000 to DM 6143)	1,000 words (DM 0000 to DM 0999)
	Fixed Data Memory	512 words (DM 6144 to DM 6655)	512 words (DM 6144 to DM 6655)	1,000 words (DM 1000 to DM 1999)
	Fixed Expansion Data Memory	0 to 3,000 words (DM 7000 to DM 9999)	0 to 3,000 words (DM 7000 to DM 9999)	None
	Extended Data Memory (EM)	C200HE: No EM C200HG: 6,144 words x 1 bank C200HX: 6,144 words x 3 banks	None	None
I/O	Expansion Racks	3 max. (2 max. for C200HE-CPU□□-E and C200HG/HX-CPU-3□-E/4□-E)	2 max.	2 max.
	Group-2 High-density I/O Modules	0 to 9 and A to F Modules per PLC C200HE-CPU11-E: No Group-2 Modules connected C200HE-CPU□2-E, C200HG/HX-CPU-3□-E/CPU4□-E: 0 to 9 Units per PLC	0 to 9 Modules per PLC	0 to 9 Modules per PLC
	Special I/O Modules	0 to 9 and A to F Modules per PLC C200HE-CPU□□-E, C200HG/HX-CPU-3□-E/CPU4□-E: 0 to 9 Modules per PLC	0 to 9 Modules per PLC	0 to 9 Modules per PLC
Execution time	Basic instructions (LD)	0.1 μ s (C200HX) 0.15 μ s (C200HG) 0.3 μ s (C200HE)	0.375 μ s	0.75 μ s
	Special instructions (MOV)	0.4 μ s (C200HX) 0.6 μ s (C200HG) 1.2 μ s (C200HE)	19 μ s	88 μ s
	Other special instructions	C200HX and C200HG: Approx. 1/3 to 2/3 of the time required by the C200HS. C200HE: Approx. 3/4 to 4/5 of the time required by the C200HS.	---	---
	END processing time	0.7 ms (C200HX/HE-CPU□2-E) 2.1 ms (C200HE-CPU11-E)	0.7 ms	2.8 to 3.5 ms
CPU	RS-232C port	C200HX/HG/HE-CPU2□-E/4□-E/6□-E	C200HS-CPU2□-E/3□-E	None
	Clock function	All models except the C200HE-CPU11-E.	All models	Incorporated by the Memory Module
	SYSMAC LINK Module and SYSMAC NET Link Module connection	C200HW-COM01 and C200HW-COM04-E Communications Boards available for connection except the C200HE-CPU11-E.	C200HS-CPU3□-E	C200H-CPU11-E/31-E
Communications Board		The Communications Board can be mounted to all CPUs except the C200HE-CPU11-E. The following are possible with the Communications Board: Use of the SYSMAC LINK Module and SYSMAC NET Link Module expansion of up to 2 communications ports, and use of a protocol macro function	None	None
Interrupts	Interrupt Input Modules	2 (16 points)	1 (8 points)	None
	Interruption with Communications Board	Possible	---	---
	Response time	Same as the C200HS. 1 ms if the C200HW-SLK□□ is used.	C200H-compatible mode: 10 ms C200H mode: 1 ms The C200HS in any mode connected to the SYSMAC LINK Module or SYSMAC NET Link Module 10 ms	---
SYSMAC LINK	Service time	3.5 ms max. (1 system)	10.8 ms max. (1 system)	11.5 ms max. (1 system)
	Remote programming	Via the peripheral port, RS-232C port, and Communications Board	Via the peripheral port only	---
	Influence on interrupt response performance	None	10 ms is required by the C200HS in any mode.	---

User Memory Area

The C200HX, C200HG, and C200HE have a User Memory (UM) area allocation function. This function allows the use of the ladder program area of the UM as a fixed expansion DM area and I/O comment area. The function is enabled with the SYSMAC Support Software (SSS), SYSWIN, or the Programming Console. Only SSS can be used to designate any part of the ladder program area as an I/O comment area (i.e., the Programming Console cannot be used to designate any part of the ladder program area as an I/O comment area).

C200HX/HG/HE Memory Area Structure

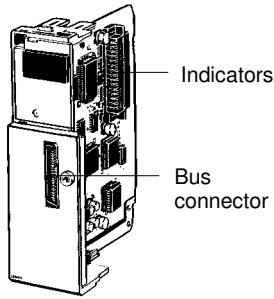


Ladder program area	A user program is stored in the ladder program area. If part of the UM is used as a fixed expansion DM area or I/O comment area, the capacity of the ladder program area storing the user program will be reduced accordingly.
I/O comment area	I/O comments are stored in the I/O comment area. The I/O comments can be stored with a program. The I/O comments can be monitored <i>without</i> loading the comment, just as with conventional comments.
Fixed expansion DM area	The default values of the Special I/O Module, Programmable Terminal, the character string of the Programmable Terminal, and operation data are stored in the fixed expansion DM area. By changing the I/O monitor present value of the Programming Console or using the DM edit transfer operation of the Ladder Support Software, the default values can be written to DM 7000 to DM 9999.
System reserved area	The system reserved area is used by the system only.
PLC Setup area	The settings required for the operation of the PLC are stored in the PLC Setup area.
Normal DM area	The user can freely use the normal DM as a data area for arithmetic operations. If the Special I/O Module is used, DM 1000 to DM 2599 will be a Special I/O Module default area.

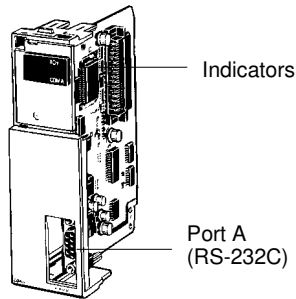
- DM 1000 to DM 2599 can be used as a normal DM if DM 7000 to DM 8599 are set as a Special I/O Module default area with the PLC Setup. DM 6000 to DM 6030 are used exclusively as an error log area.
- Unlike the normal DM area, nothing can be written to the fixed expansion DM area using ladder programming.
- The capacity of a ladder program will decrease if the size of the fixed expansion DM area and the total capacity of the I/O comments increase.
- The C200HX, C200HG, and C200HE do not have a fixed expansion DM area or I/O comment area before shipping. The user must allocate these areas in the UM according to the application.

COMMUNICATIONS BOARDS

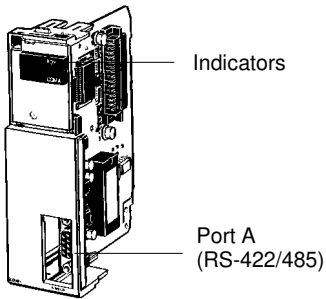
SPECIFICATIONS, SELECTION GUIDE



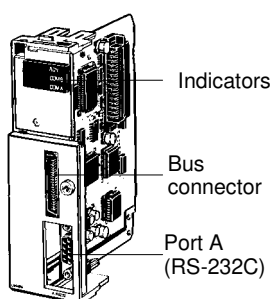
C200HW-COM01



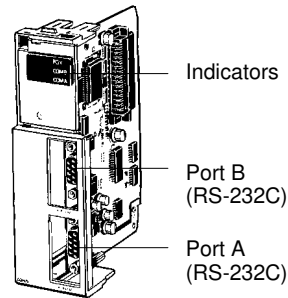
C200HW-COM02



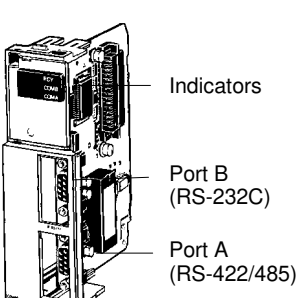
C200HW-COM03



C200HW-COM04-E



C200HW-COM05-E



C200HW-COM06-E

The C200H α offers the industry's most versatile PLC communications options. With six Communications Board options, you can select just the right communications for your application. The boards fit into the communications slot in the CPU and let you expand the PLC functionality by connecting to other PLCs or computers with Omron's SYSMAC LINK, SYSMAC NET or, a PC Card Module. A variety of serial ports let you connect to Operator Interfaces, PCs, or other serial communication devices.

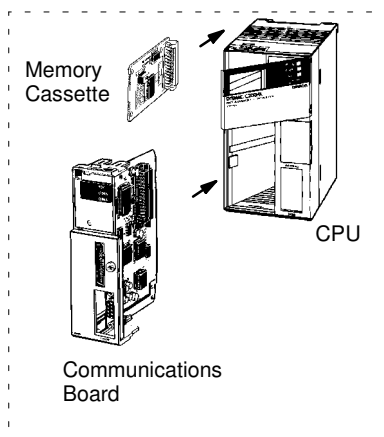
Specifications

PART NUMBER	DESCRIPTION
C200HW-COM01	CPU connection when using SYSMAC LINK or SYSMAC NET Link Communications Modules
C200HW-COM02	One RS-232C port
C200HW-COM03	One RS-422/485 port
C200HW-COM04-E	CPU connection for the SYSMAC LINK Module or SYSMAC NET Link Module, and an RS-232C port, with a protocol macro function
C200HW-COM05-E	Two RS-232C ports with a protocol macro function
C200HW-COM06-E	One RS-422/485 port, and one RS-232C port, with a protocol macro function

Communications Board Indicators

INDICATOR	COLOR	STATUS	MEANING	FUNCTION
RDY	Green	Not lit	Board not ready for use	Hardware error
		Flashes	Setting error	System setting or protocol data error
		Lit	Board ready for use	Normal operation
COMB	Orange	Flashes	Communicating	Port B is in use for communication
COMA				Port A is in use for communication

Note: Order the Communications Board and Memory Cassette separately (not provided with the CPU).



COMMUNICATION BOARDS

PROTOCOL MACRO

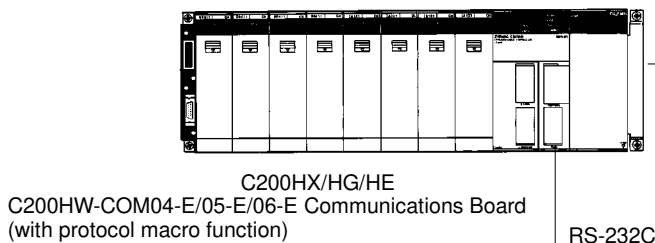
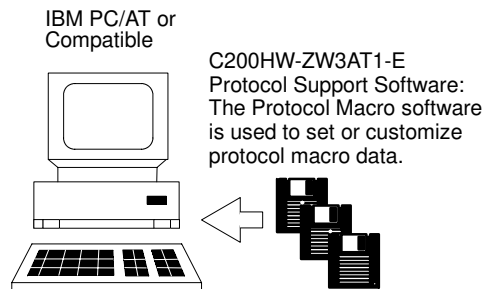
The Protocol Macro instruction permits easy interfacing of C200H α CPUs with peripheral devices. In cases where ASCII/BASIC Modules have been used to interface with peripheral devices, the Protocol Macro instruction now offers an extremely automated method. The Protocol Macro instruction is a communications protocol that controls data transfer using various devices and components equipped with RS-232C or RS-422/485 ports – thus, replacing ASCII/BASIC Modules and the difficult associated programming procedures. The C200H α Communications Boards COM04-E, COM05-E, and COM06-E have a built-in Protocol Macro capability, providing seven Omron communications protocols. The data transfer procedures may be modified with Omron's Protocol Support Software. Communications sequences are executed from the ladder program with the Protocol Macro Instruction (PMCR).

Features

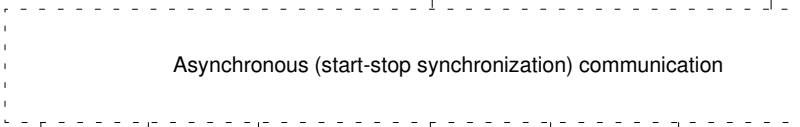
The C200H α Communications Boards COM04-E, COM05-E, and COM06-E (with protocol macro capability built-in) offer these seven standard communications sequences:

1. Temperature Controller Sequence E5□J, E5□K, ES100□, and E5ZE
2. Intelligent Signal Processor Sequence K3TH, K3TR, K3TX, and K3TC
3. Bar Code Reader Sequence V500 and V520
4. Laser Micrometer Sequence 3Z4L
5. Visual Inspection System Sequence F200, F300, and F350
6. ID Controller Sequence V600
7. Hayes AT Command (Modem) Sequence ME 1414BZ, MD 24FB10V, and MD 144FB5V

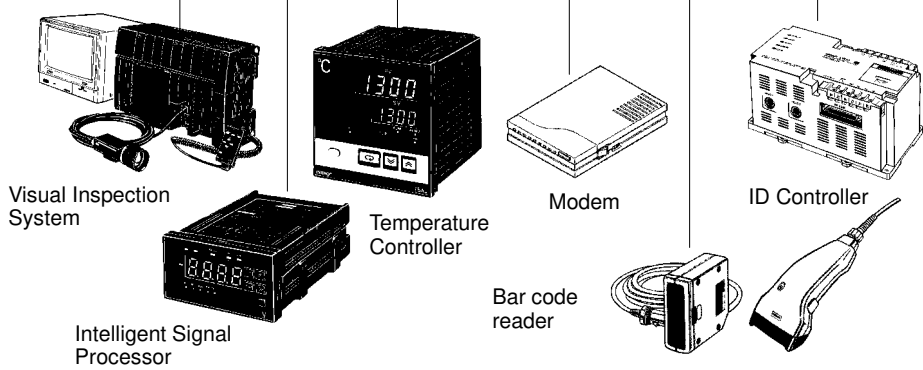
Or, use the Protocol Support Software to create Communications sequences other than those listed.



Standard measuring devices, components, and personal computers



OMRON's peripheral devices (equipped with standard communications sequences)



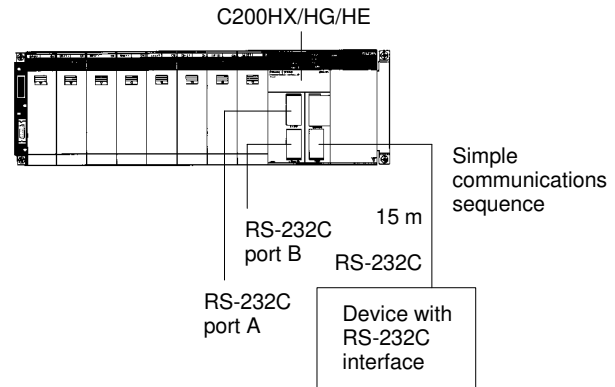
COMMUNICATION BOARDS

PROTOCOL MACRO

System Configuration Examples

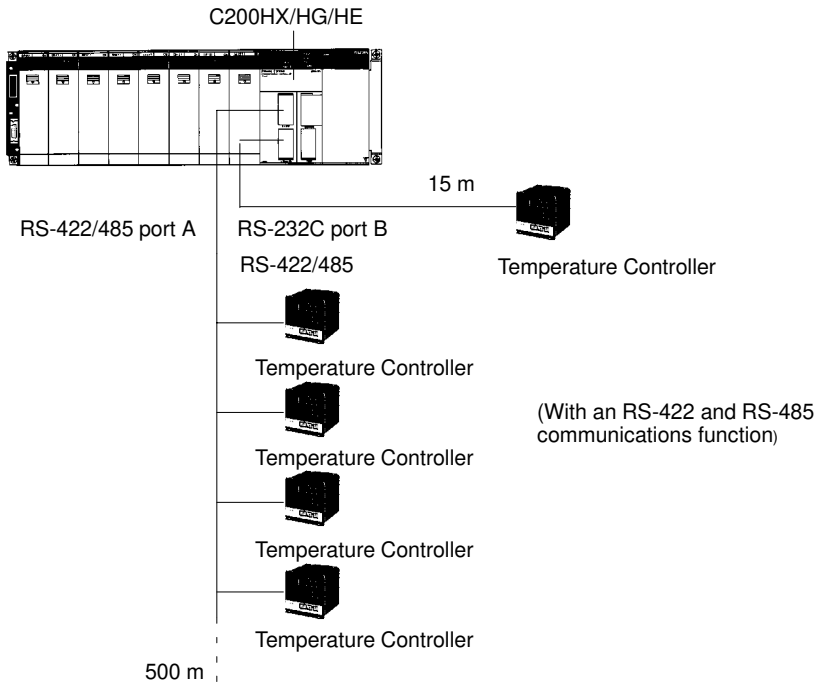
RS-232C (C200HW-COM05-E)

An RS-232C line connects the C200HW-COM05-E and a device, allowing the RS-232C line to be a maximum of 15 m.



RS-422/485 (C200HW-COM06-E)

The C200HW-COM06-E connects to one or more devices through the RS-422 and RS-485 port provided the RS-422 or RS-485 line between the C200HW-COM06-E and the farthest device is a maximum of 500 m.



MEMORY CASSETTES

SPECIFICATIONS

**EEPROM or EPROM
Memory Cassettes**

Each C200H α CPU can accept a Memory Cassette to provide back-up or downloading of programs and data. EEPROM models allow the program to be downloaded to and from the CPU memory. EPROM models allow the user to write to an EPROM and insert it into the memory cassette.

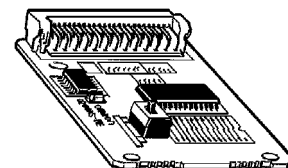
**EEPROM Memory Cassette –
No Back-up Power Supply Required**

The EEPROM Memory Cassette can be installed in the C200HX, C200HG, and C200HE CPUs to write and read programs and I/O data to the CPU.

Because the EEPROM Memory Cassette does not require any backup power supply, it will retain its data even after it is disconnected from the CPU.

EEPROM Memory Cassette Capacity

CAPACITY	PART NUMBER
4K words	C200HW-ME04K
8K words	C200HW-ME08K
16K words	C200HW-ME16K
32K words	C200HW-ME32K



**EEPROM
Memory Cassette**

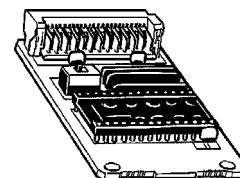
**EPROM Memory Cassette –
Use a Standard PROM Writer to Write a Program**

Connect an EPROM to the EPROM Memory Cassette before installing the EPROM Memory Cassette into the CPU.

An EPROM Memory Cassette will lose its data if it is disconnected from the CPU.

EPROM Memory Cassette Capacity

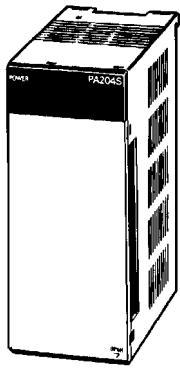
DESCRIPTION	CAPACITY	PART NUMBER
Cassette	16K words/32K words	C200HS-MP16K
EPROM (Order ROM Separately)	Equivalent to 27256	ROM-JD-B
	Equivalent to 27512	ROM-KD-B



**EPROM
Memory Cassette**

POWER SUPPLY MODULES

CAPACITIES AND SPECIFICATIONS



C200HW-P□□□

All CPU Racks and Expansion Racks feature separate Power Supplies that may be replaced individually to meet system requirements without having to replace the other components. The Power Supply provides power for the CPU and Modules on the Rack. Choose an AC or DC version. Model C200HW-PA204S comes with built-in 24 VDC Power Supply that may be used to power Special I/O Modules, Sensors, or other devices, eliminating the need for a separate Power Supply.

Power Supply Modules Available

SUPPLY VOLTAGE	COMMENTS	PART NUMBER
100 to 120 VAC 200 to 240 VAC	---	C200HW-PA204
	With 24-VDC service power supply	C200HW-PA204S
24 VDC	---	C200HW-PD024

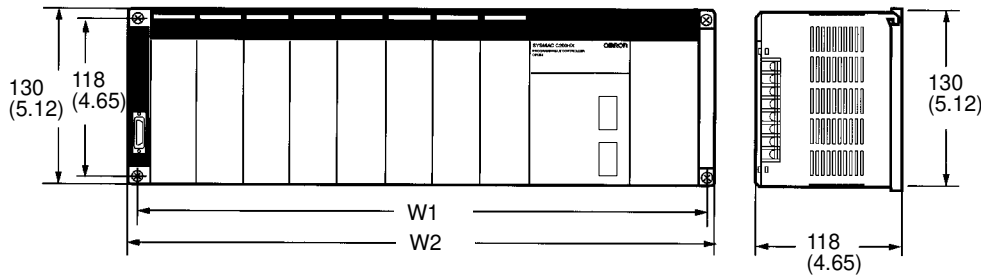
Select the Appropriate Backplane for the CPU with its I/O Modules

When selecting Backplanes for the CPU, the Expansion I/O, and the Slave Rack(s), each type of Backplane is a different model number. To order, refer to the specific information provided separately in the *Standard Parts* section of this catalog.

Dimensions

**CPU I/O Backplane
C200HW-BC□□□**

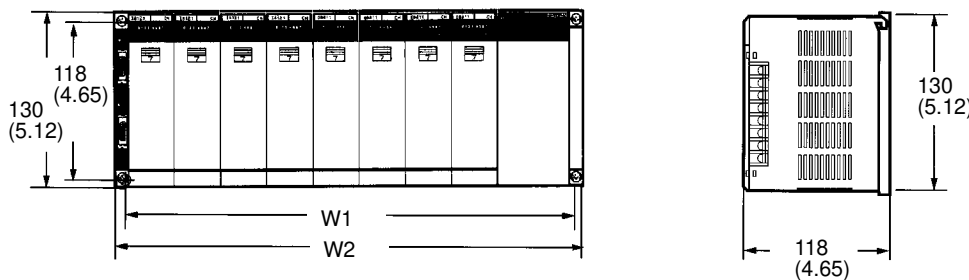
Unit: mm (inch)



NO. OF SLOTS	W1	W2	PART NUMBER
3 slots	246 (9.69)	260 (10.24)	C200HW-BC031
5 slots	316 (12.44)	330 (12.99)	C200HW-BC051
8 slots	421 (16.57)	435 (17.13)	C200HW-BC081
10 slots	491 (19.33)	505 (19.88)	C200HW-BC101

**Expansion I/O Backplane
C200HW-BI□□□**

Unit: mm (inch)



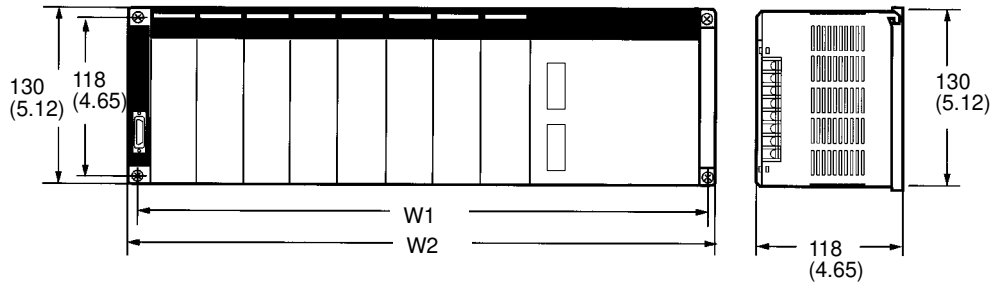
NO. OF SLOTS	W1	W2	PART NUMBER
3 slots	175 (6.89)	189 (7.44)	C200HW-BI031
5 slots	245 (9.65)	259 (10.20)	C200HW-BI051
8 slots	350 (13.78)	364 (14.33)	C200HW-BI081
10 slots	420 (16.54)	434 (17.09)	C200HW-BI101

BACKPLANES

SPECIFICATIONS

Slave Rack Backplane C200H-BC□□□-V2

Unit: mm (inch)

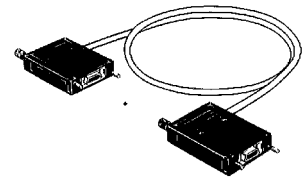


NO. OF SLOTS	W1	W2	PART NUMBER
3 slots	246 (9.69)	260 (10.24)	C200H-BC031-V2
5 slots	316 (12.44)	330 (12.99)	C200H-BC051-V2
8 slots	421 (16.57)	435 (17.13)	C200H-BC081-V2
10 slots	491 (19.33)	505 (19.88)	C200H-BC101-V2

CONNECTING I/O CABLES
FEATURES, CAPACITIES AND SPECIFICATIONS

I/O Connecting Cables connect a CPU Rack to an Expansion I/O Rack or an Expansion I/O Rack to another Expansion I/O Rack. The following five types of I/O Connecting Cables are available. The total length of the I/O Connecting Cables used in a configuration must be 12 m maximum.

Note: Count the Expansion I/O Racks (connected in this way) against the maximum of five Slave Racks that can be connected.



I/O Connecting Cables

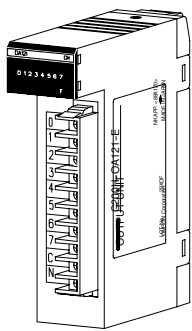
Select from Five I/O Connecting Cables

CABLE LENGTH (CM)	PART NUMBER
30	C200H-CN311
70	C200H-CN711
200	C200H-CN221
500	C200H-CN521
1,000	C200H-CN131

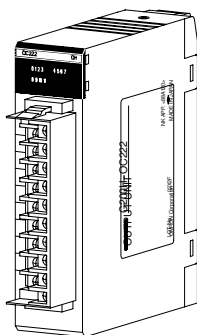
Note: The total length of the I/O Connecting Cables used in a network must not exceed 12 m.

DISCRETE I/O MODULES

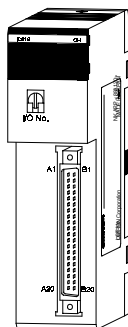
OVERVIEW



Connector Style A



Connector Style B

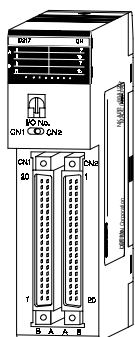


Connector Style C

Discrete I/O modules are available in a number of voltages, densities, terminal block, and connector types. Connector-style high-density I/O modules with 32 or 64 discrete I/O points per module have solder connectors included with the module. Optional wiring methods are available using Omron's I/O blocks, screw terminal, crimp and ribbon connectors, and pre-terminated cables. These versatile high-density configuration options minimize rack space and wiring time. The Omron I/O Blocks provide single-point isolation and up to 5 A current capacity per point. Replaceable relays and solid-state plug-in modules allow easy maintenance. There are five styles of discrete I/O modules in the C200H family. The profiles of each are shown here. Each module in the following pages is cross-referenced to the module style. Modules include the appropriate connectors.

Features

- Versatile high-density configuration options minimize rack space and wiring time
- Replaceable relays and solid-state plug-in modules mean easy maintenance



Connector Style D



Connector Style E

Discrete I/O Modules – Varying Connector Types