Basic System Configuration



CPU Rack

A CPU Rack consists of a CPU Unit, Power Supply Unit, CPU Backplane, Basic I/O Units, Special I/O Units, and CPU Bus Units. The Serial Communications Board and Memory Cards are optional.

Note: The Backplane depends on the type of CPU Rack, Expansion I/ O Racks, and Slave Racks that are used.

Expansion Racks

Both C200H and CS1 Expansion Racks can be used.

- C200H Expansion I/O Racks can be connected to CPU Racks, CS1 Expansion Racks, or other C200H Expansion I/O Racks.
- CS1 Expansion Racks can be connected to CPU Racks or other CS1 Expansion Racks.

An Expansion Rack consists of a Power Supply Unit, a CS1 or C200H Expansion I/O Backplane, Basic I/O Units, Special I/O Units, and a CS1 CPU Bus Units.

Long-distance Expansion Racks

An I/O Control Unit and I/O Interface Units can be used to extend the normal limit of 12 m to 50 m for each of two series of CS1 Expansion Racks. The following Units can be mounted to Long-distance Expansion Racks: CS1 Basic I/O Units, CS1 Special I/O Units, and CS1 CPU Bus Units. (C200H Units cannot be mounted to Long-distance Expansion Racks.)

CPU Rack

Configuration

Name	Configuration	Remarks
CPU Back	CPU Backplane	One of each Unit required for every CPU Rack.
	CPU Unit	Refer to the following table for model number.
	Power Supply Unit	
	Memory Card	Install as required.
	Serial Communications Board	Refer to the following table for model number.

Products Used in CPU Racks

Name	Model	Specifications		
	CS1H-CPU67H	I/O bits: 5,120, Program capacity: 250 kSteps		
		Data Memory: 448 kWords (DM: 32 kWords, EM: 32 kWords x 13 banks)		
	CS1H-CPU66H	I/O bits: 5,120, Program capacity: 120 kSteps		
		Data Memory: 256 kWords (DM: 32 kWords, EM: 32 kWords x 7 banks)		
	CS1H-CPU65H	I/O bits: 5,120, Program capacity: 60 kSteps		
CPU Units		Data Memory: 128 kWords (DM: 32 kWords, EM: 32 kWords x 3 banks)		
	CS1H-CPU64H	I/O bits: 5,120, Program capacity: 30 kSteps		
		Data Memory: 64 kWords (DM: 32 kWords, EM: 32 kWords x 1 bank)		
	CS1H-CPU63H	I/O bits: 5,120, Program capacity: 20 kSteps		
		Data Memory: 32 kWords (DM: 32 kWords, EM: 32 kWords x 1 bank)		
	CS1G-CPU45H	I/O bits: 5,120, Program capacity: 60 kSteps		
		Data Memory: 128 kwords (DM: 32 kwords, EM: 32 kwords x 3 banks)		
	CSIG-CP044H	I/O bits: 1,280, Program capacity: 30 kSteps		
	CC1C CPU42U	Data Memory. 04 KWOIds (DM. 32 KWOIds, EM. 32 KWOIds & T Datiks)		
	CSTG-CP043H	I/O bits: 960, Program capacity: 20 KSteps Data Memory: 64 kWords (DM: 32 kWords, EM: 32 kWords x 1 bank)		
		U/O bits: 960. Program canacity: 10 kSteps		
	0010 01 04211	Data Memory: 64 kWords (DM: 32 kWords, EM: 32 kWords x 1 bank)		
CPU Backplanes	CS1W-BC022	2 slots (Connection to Expansion Back- These Backplanes are for CS1 Units only		
		plane is not possible.) Use CS1W-BC 3 Backplanes if C200H		
	CS1W-BC032	3 slots Units are to be installed.		
	CS1W-BC052	5 slots		
	CS1W-BC082	8 slots		
	CS1W-BC102	10 slots		

Name	Model	Specifications	
Power Supply Units	C200HW-PA204	100 to 120 V AC or 200 to 240 V AC, Output capacity: 4.6 A, 5 V DC	
	C200HW-PA204S	100 to 120 V AC or 200 to 240 V AC (0.8 A 24 V DC service power) Output capacity: 4.6 A, 5 V DC	
	C200HW-PA204R	100 to 120 V AC or 200 to 240 V AC (with RUN output) Output capacity: 4.6 A, 5 V DC	
	C200HW-PD024	24 V DC, Output capacity: 4.6 A, 5 V DC	
	C200HW-PA209R	100 to 120 V AC or 200 to 240 V AC (with RUN output) Output capacity: 9 A, 5 V DC	
I/O Control Unit	CS1W-IC102	Connects to CS1 Expansion Racks (two Terminating Resistors included). Must be used together with I/O Interface Units to connect Long-distance Expansion Racks (50 m max.). Not required to connect CS1 Expansion Racks within 12 m.	
Memory Cards	HMC-EF372	Flash memory, 30 MB	
	HMC-EF672	Flash memory, 64 MB	
	HMC-AP001	Memory Card adapter	
Serial Communications Boards	CS1W-SCB21-V1	2 x RS-232C ports, protocol macro function	
	CS1W-SCB41-V1	1 x RS-232C port + 1 x RS-422/485 port, protocol macro function	
Programming Consoles	CQM1-PRO01-E	An English Keyboard Sheet (CS1W-KS001-E) is required.	
	C200H-PRO27-E		
Programming Console Connection	CS1W-CN114	Connects the CQM1-PRO01-E Programming Console. (Length: 0.05 m)	
Cables	CS1W-CN224	Connects the C200H-PRO27-E Programming Console. (Length: 2.0 m)	
	CS1W-CN624	Connects the C200H-PRO27-E Programming Console. (Length: 6.0 m)	
CX-One	CX-ONE-AL##C-E ^{*1}	Omron's integrated software for programming and configuration of all control system components, including PLCs, HMI, drives, temperature controllers and advanced sen- sors.	
Programming Device Connecting	CS1W-CN118	Connects DOS computer, D-Sub 9-pin receptacle (Length: 0.1 m)	
Cables (for peripheral port)	CS1W-CN226	Connects DOS computer, D-Sub 9-pin (Length: 2.0 m)	
	CS1W-CN626	Connects DOS computer, D-Sub 9-pin (Length: 6.0 m)	
	XW2Z-200S-CV	Connects DOS computer, D-Sub 9-pin (Length: 2.0 m)	
	XW2Z-500S-CV	Connects DOS computer, D-Sub 9-pin (Length: 5.0 m)	
Programming Device Connecting	XW2Z-200S-V	Connects DOS computer, D-Sub 9-pin (Length: 2.0 m) (For Host Link connection)	
Cable (for RS-232C port)	XW2Z-500S-V	Connects DOS computer, D-Sub 9-pin (Length: 5.0 m) (For Host Link connection)	
Battery Set	CS1W-BAT01	For CS1 Series only. Note: Use a replacement battery that is no more than 2 years old from the date of man- ufacture.	

^{*1} ## = Number of licences; 01, 03, 10

Expansion Racks

Expansion Rack Configuration

Rack	Configuration	Remarks	
CS1 Expansion Rack	CS1 Expansion I/O Backplane	One of each Unit is required.	
	Power Supply Unit		
	For connection to a CPU Backplane or CS1 Expansion I/O Backplane: CS1 I/O Connecting Cable		
	For connection to a C200H Expansion I/O Backplane: CS1 to C200H I/O Con- necting Cable		
C200H Expansion I/O Rack	C200H Expansion I/O Backplane	One of each Unit is required.	
	Power Supply Unit	A CS1 Expansion Rack cannot be connected after a C200H Expansion I/O Rack.	
	For connection to a CPU Backplane or CS1 Expansion I/O Backplane: CS1 to C200H I/O Connecting Cable		
	For connection to a C200H Expansion I/O Backplane: C200H I/O Connecting Ca- ble		

Products Used in Expansion Racks

Name	Model	Specifications		Cable Length
CS1 Expansion I/O Back- planes	CS1W-BI032	3 slots	These Backplanes are for CS1 Units only. Use CS1W-BI 3 Backplanes if C200H Units are to be installed.	
	CS1W-BI052	5 slots		
	CS1W-BI082	8 slots		
	CS1W-BI102	10 slots		
C200H Expansion I/O Back-	C200HW-BI031	3 slots		
planes	C200HW-BI051	5 slots		
	C200HW-BI081-V1	8 slots		
	C200HW-BI101-V1	10 slots		
Power Supply Units	C200HW-PA204	100 to 120 V AC or 200 to 240 V AC Output capacity: 4.6 A, 5 V DC		
	C200HW-PA204S	100 to 120 V AC or 200 to 240 V AC (with power output terminal: 0.8 A, 24 V DC) Output capacity: 4.6 A, 5 V DC		
	C200HW-PA204R	100 to 120 V AC or 200 to 240 V AC (with RUN output) Output capacity: 4.6 A, 5 V DC		
	C200HW-PA209R	100 to 120 V AC or 200 to 240 V AC (with RUN output) Output capacity: 9 A, 5 V DC		
	C200HW-PD024	24 V DC		

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Name	Model	Specifications	Cable Length
I/O Interface Unit	ace Unit CS1W-II102 Connects CS1 Expansion Backs, Must be used together with I/O Control		
		Unit to connect Long-distance Expansion Racks (50 m max.). Not required	
		to connect CS1 Expansion Racks within 12 m.	
CS1 I/O Connecting	CS1W-CN313	Connects CS1 Expansion I/O Backplanes to CPU Backplanes or other	0.3 m
Cables		CS1 Expansion I/O Backplanes.	
	CS1W-CN713		0.7 m
		When using a CS1W-CN313 or CS1W-CN713 I/O Connecting Cable	
	CS1W-CN223	with a CS1 -CPU H CPU Unit, use only Cables produced on or after	2 m
	00111 01120	September 20, 2001 (production number 2091). Cables with no	
	CC1W/ CN202	production number, a 6-digit production number, or produced before	0
	CSTW-CN323	September 20, 2001, cannot be used.	3 m
	CS1W CN522		5 m
	00110-010325	Reading the production number	511
			10
	CS1W-CN133		10 m
		Year (e.g., 1997=7)	
	CS1W-CN133-B2	Month (1 to 9, X (10), Y (11), Z (12))	12 m
		Day (01 to 31)	
Long-distance	CV500-CN312	For Long-distance Expansion Racks	0.3 m
Connecting Cables	CV500-CN612	Connects the I/O Control Unit to I/O Interface Units or connects one I/O In-	0.6 m
	CV500-CN122	terface Unit to the next I/O Interface Unit.	1 m
	CV500-CN222		2 m
	CV500-CN322		3 m
	CV500-CN522		5 m
	CV500-CN132		10 m
	CV500-CN232		20 m
	CV500-CN332		30 m
	CV500-CN432		40 m
	CV500-CN532		50 m
CS1-C200H I/O	CS1W-CN311	Connects C200H Expansion I/O Backplanes to CPU Backplanes or CS1 Ex-	0.3 m
Connecting Cables	CS1W-CN711	pansion I/O Backplanes.	0.7 m
	CS1W-CN221		2 m
	CS1W-CN321		3 m
	CS1W-CN521		5 m
	CS1W-CN131		10 m
	CS1W-CN131-B2		12 m
C200H I/O Connecting Cables	C200H-CN311	Connects C200H Expansion I/O Backplanes to other C200H Expansion I/O	0.3 m
	C200H-CN711	Backplanes.	0.7 m
	C200H-CN221		2 m
	C200H-CN521		5 m
	C200H-CN131		10 m

Programmable Controllers

Expansion Rack Patterns

The following diagrams show the 5 possible patterns of Expansion Racks.



CPU Rack with C200H Expansion I/O Racks



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CPU Rack with CS1 Expansion Rack and CS1 Long-Distance Expansion Racks



Terminating Resistor

Note: C200H Units cannot be mounted to Long-distance Expansion Racks. (They can be mounted to the CS1 Expansion Rack with the I/O Control Unit mounted.)

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System Configuration (Duplex Systems)



CPU Rack

A CPU Rack consists of a Duplex CPU Backplane to which CPU Units, Power Supply Units, a Duplex Unit, CS1-series Basic I/O Units, CS1series Special I/O Units, and CS1-series CPU Bus Units are mounted. Memory Cards and Inner Boards to mount in the CPU Units are optional. (Inner Board cannot be mounted to the CS1D-CPU H/P) The CPU Units, Power Supply Units, Duplex CPU Backplane, and Duplex Unit are all designed specifically for CS1D PLCs.

Note: Different Backplanes are used for the CPU Rack and Expansion Racks. Be sure to use the correct Backplane.

Expansion Racks

An Expansion Rack consists of an Expansion Backplane to which Power Supply Units, CS1-series Basic I/O Units, CS1-series Special I/ O Units, and CS1-series CPU Bus Units are mounted.

The Power Supply Units and Expansion Backplane are designed specifically for CS1D PLCs.

CS1-series Expansion Backplanes and C200H Backplanes cannot be connected.

Long-distance Expansion Racks

A Long-distance Expansion Rack consists of an Expansion Backplane to which an I/O Interface Unit, CS1-series Basic I/O Units, CS1-series Special I/O Units, and CS1-series CPU Bus Units are mounted. An I/O Control Unit is used to connect to the Long-distance Expansion Racks. Using Long-distance Expansion Rack increases the normal limit of 12 m for the Rack to 50 m.

CS1D PLCs

With a CS1D Duplex-CPU System, two CPU Units can be mounted to the CPU Rack for Duplex Mode operation (Duplex Mode), or just one CPU Unit can be mounted for Simplex Mode operation. In either case, a Duplex Unit is required.

With a CS1D Single-CPU System, just one CPU Unit is mounted and a Duplex Unit is not required.

Also, two Power Supply Units can be mounted to any Rack to increase redundancy. (Racks can also be operated with only one Power Supply Unit.) With any of these combinations, there are no further restrictions if the system configuration, e.g., the same number of Expansion Racks can be used as with the other CS1-series PLCs.

Note: C200H Basic I/O Units, C200H Special I/O Units, and C200H CPU Bus Units cannot be mounted on any Rack.

Programmable Controllers

Expansion Patterns for CS1D PLCs

CS1D CPU Rack + CS1D Expansion Rack

CS1D CPU Rack + CS1D Long-distance Expansion Racks

CS1W-CN221

CS1W-CN321

CS1W-CN521

CS1W-CN131

C200H-CN311

C200H-CN711

C200H-CN221

C200H-CN521

C200H-CN131

CS1W-CN131-B2



Connects C200H Expansion I/O Backplanes to other C200H Expansion

I/O Backplanes.

C200H I/O Connecting

Cables

2 m

3 m

5 m

10 m

12 m

0.3 m

0.7 m

2 m

5 m

10 m