

Specifications

Model	CS1W-DA041	CS1W-DA08V	CS1W-DA08C	C200H-DA001	C200H-DA002	C200H-DA003	C200H-DA004	DRT2-DA02	GT1-DA04MX	
Classification	CS1 Special I/O Units			C200H Special I/O Units				DeviceNet Slaves	MULTIPLE I/O TERMINAL or DeviceNet Slaves	
Unit numbers	0 to 95	0 to 95	0 to 95	0 to 9	0 to F	0 to F	0 to F	---	---	
Outputs	4 pts	8 pts	8 pts	2 pts	4 pts	8 pts	8 pts	2 pts	4 pts	
Signal range	Voltages	1 to 5 V	Yes	Yes	---	Yes	---	Yes	---	Yes
		0 to 10 V	Yes	Yes	---	Yes	---	Yes	---	Yes
		0 to 5 V	Yes	Yes	---	---	---	---	---	Yes
		-10 to 10 V	Yes	Yes	---	---	Yes	Yes	---	Yes
	Currents	4 to 20 mA	Yes	---	Yes	Yes	---	Yes	Yes	---
0 to 20 mA		---	---	---	---	---	---	Yes	---	
Signal range settings	4 settings (one for each point)	8 settings (one for each point)	8 settings (one for each point)	2 setting (for both points)	4 settings (one for each point)	8 settings (one for each point)	8 settings (one for each point)	2 settings (one for each point)	2 pts at a time	
Resolution	1/4000	1/4000	1/4000	1/4095	Voltages: 1/8190 Currents: 1/4095	1/4000	1/4000	1/6000	1/6000	
Conversion speed	1.0 ms/pt max.	1.0 ms/pt max.	1.0 ms/pt max.	2.5 ms/pt max.	2.5 ms/pt max.	1.0 ms/pt max.	1.0 ms/pt max.	4 ms/pt	4 ms/4 pts	
Overall accuracy (at 25 °C)	Voltages: ±0.3%FS Currents: ±0.5%FS	±0.3% FS	±0.5% FS	±0.5% FS	Voltages: ±0.3%FS Currents: ±0.5%FS	±0.3% FS	±0.5% FS	±0.4% FS	±0.4% FS	
Connections	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Connector	
Features	Output limit	---	---	---	Yes	---	---	---	---	
	Upper/lower limit alarm	---	---	---	Yes	---	---	---	---	
	Pulse outputs	---	---	---	Yes	---	---	---	---	
	Output hold function	---	Yes	Yes	---	---	Yes	Yes	Yes	

- Note:**
1. Process I/O Units are also available for analog I/O. Refer to page 113.
 2. Analog I/O Terminals are also available as DeviceNet Slaves and in MULTIPLE I/O TERMINALS. Refer to pages 213 to 217.

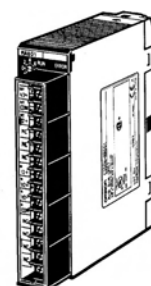
Analog I/O Units C200H-MAD01/CS1W-MAD44

Analog Inputs and Outputs with One Unit

- Mean function
- Peak hold function
- Wire burnout detection
- Output hold function
- Ratio conversions



CS1W-MAD44

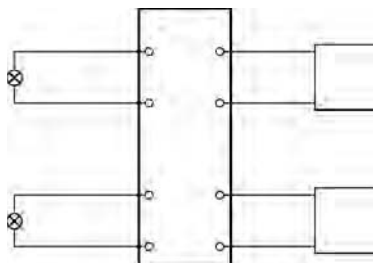


C200H-MAD01

Function

One Unit performs both analog input and analog output operations. The Unit can also be used for ratio and bias processing, which can be performed on analog inputs to output the results as analog outputs.

Circuit Configuration



Specifications

Model		CS1W-MAD44	C200H-MAD01
Classification		CS1 Special I/O Unit	C200H Special I/O Unit
Unit numbers		0 to 95	0 to F
Inputs		4 pts	2 pts
Outputs		4 pts	2 pts
Input signal ranges	Voltages	1 to 5 V	Yes
		0 to 5 V	Yes
		0 to 10 V	Yes
		-10 to 10 V	Yes
		4 to 20 mA	Yes
Output signal ranges	Currents	1 to 5 V	Yes
		0 to 5 V	Yes
		0 to 10 V	Yes
		-10 to 10 V	Yes
		4 to 20 mA	---
Resolution		1/4000 (inputs/outputs)	1/4000 (inputs/outputs)
Conversion speed		1.0 ms/pt max (inputs/outputs)	1.0 ms/pt max (inputs/outputs)
Overall accuracy	Inputs	Voltage: $\pm 0.2\%$ Current: $\pm 0.4\%$	Voltage: $\pm 0.2\%$ Current: $\pm 0.4\%$
	Outputs	Voltage: $\pm 0.3\%$ Current: $\pm 0.5\%$	Voltage: $\pm 0.3\%$ Current: $\pm 0.5\%$
Connections		Terminal block	Terminal block
Features	Mean function	Yes	Yes
	Peak hold	Yes	Yes
	Wire burnout detection	Yes	Yes
	Output hold	Yes	Yes
	Ratio conversion	Yes	Yes

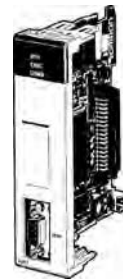
CS1 Unit Descriptions

Loop Control Board/Unit
CS1W-LCB□□/CS1D-CPU□□P/CS1W-LC001

Loop Control Board/Unit CS1W-LCB□□/CS1D-CPU□□P/CS1W-LC001

Perform Loop Control for Temperatures, Flow Rates, Pressures, and Other Analog Values; Create Monitoring and Data Logging Systems

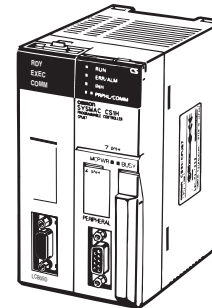
- Systems can be designed according to the scale of the applications, from several loops of instrumentation to large-scale systems with hundreds of loops.
- A total of 70 different types of function block are provided for loop control, such as PID control, segment programming, and square roots.
- Programming and setup are easy with the CX-Process Tool Support Software.
- You can also change parameters from the CX-Process Tool while monitoring on tuning screens.
- Process control system redundancy is easily achieved by mounted CS1D Process-control CPU Units, which contain Duplex Loop Control Boards.
- Faceplate Auto Builder for NS-series PTs can also be used to easily create touch-panel screens to monitor operating status.



CS1W-LCB01/05

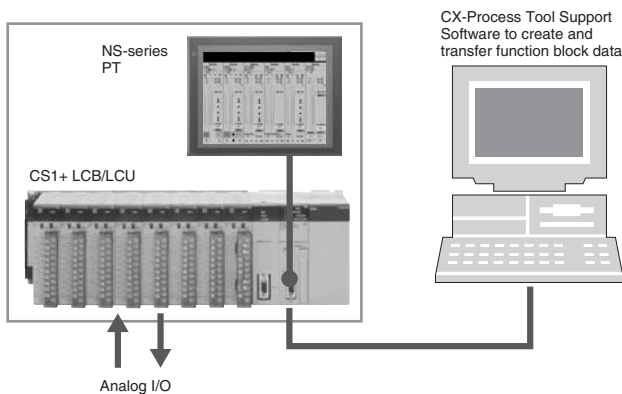


CS1W-LC001



CS1D-CPU65P/67P
CPU Unit with Built-in CS1D-LCB05D

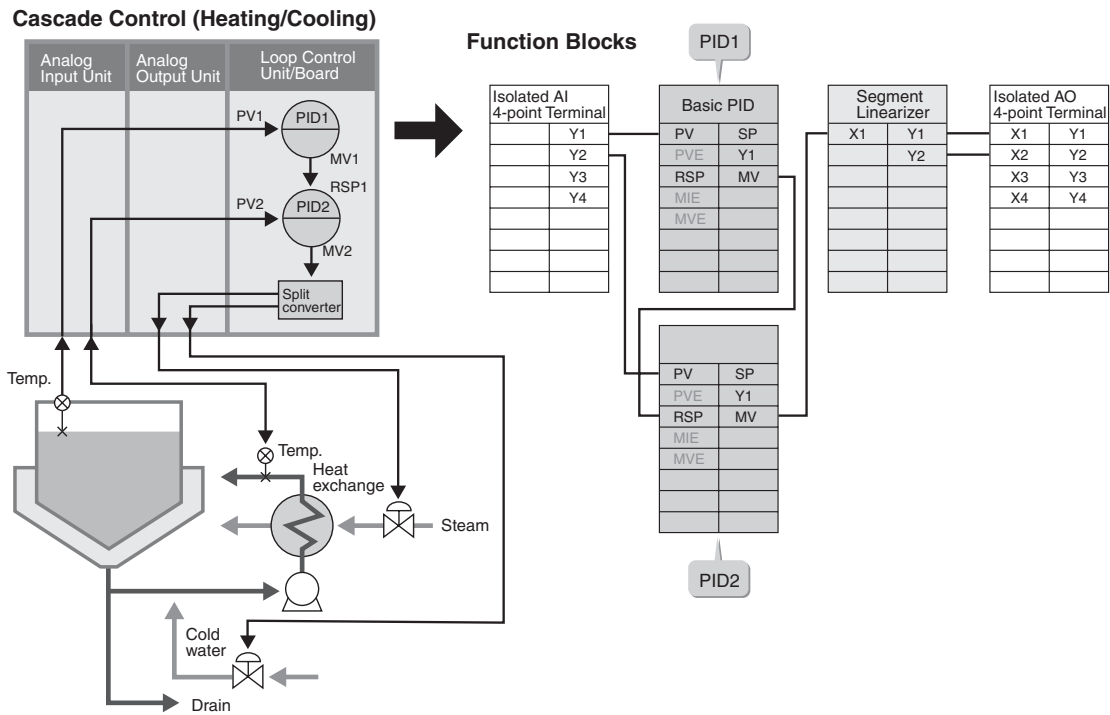
System Configuration Example



Function

Packed with complete DCS functionality, the LCBs/LCUs are programmed with function blocks designed specifically for process control. Paste function blocks in a window, and then connect the blocks with the mouse to program graphically. A wide array of control methods, from basic PID control to cascade and feed-forward control, are possible.

Function Block Example



Note: Refer to the *PLC-based Process Control Catalog* (Cat. No. P051) for details on the Loop Control Board/Unit.

CS1 Unit Descriptions

Loop Control Board/Unit
CS1W-LCB□□/CS1D-CPU□□P/CS1W-LC001

Specifications

Item		Specifications			
Name		Loop Control Board		Loop Control Unit (See note 1.)	
Unit classification		CS-series Inner Board		CS-series CPU Bus Unit	
Model number		CS1W-LCB01 (Standard model)	CS1W-LCB05 (Standard model)	CS1W-LCB05D (Duplex model, see note 2.)	CS1W-LC001
Applicable PLCs		CS1G/H-CPU□□H	CS1G/H-CPU□□H	Built into CS1G/H-CPU□□P	CS-series PLCs
Mounting location		Inner Board slot in CPU Unit		CPU Rack only	
Number of Units		1 max. per CPU Unit		3 max. per PLC	
Data exchange with CPU Unit	User allocations in I/O memory	User memory tables used to allocate function block ITEM data for user-specified memory in CPU Unit (CIO, Work, HR, DM, or EM (bank 0) Area).		CPU Unit Terminal Blocks used to allocate function block ITEM data in specified words in CPU Unit memory.	
	Batch allocation of all data	HMI function used allocate function block ITEM data for Control, Operation, External Controller, and System Common blocks in the specified bank of the EM Area in the CPU Unit. (Default EM Area bank: Bank 0)		Send/Receive All Blocks is used to allocate data in specified CPU Unit memory (no default settings).	
Setting switches		None		Rotary switch on front panel: Unit number (0 to F)	
Indicators		3 LEDs:RUN, ready, and communications port send/receive		5 LED indicators: RUN operation, CPU Unit errors, and Unit errors	
Front panel connections		One RS-232C port (for connection to ES100X Digital Temperature Controller)			
Data backup		Super capacitor: All function block data (including Step Ladder Program commands), stored error log data		Battery: All function block data (including step ladder instructions) and error log data	
Backup super capacitor/Battery life		24 hours at 25°C (life shortened by use at higher temperatures)		5 years at 25°C (Lifetime will be shorter if used at higher temperatures.)	
Data storage in flash memory		Function block data backed up from or restored to RAM for user operation, Error log data		Function block data backed up from or restored to RAM for user operation, Error log data	
Effect on CPU Unit cycle time		0.8 ms max.	25 ms max. (See note 3.)	0.2 ms	
Current consumption (supplied from the Power Supply Unit)		220 mA max. at 5 VDC (When the NT-AL001 Link Adapter is used, the current consumption increases by 1.5 A.)		360 mA max. at 5 VDC (When the NT-AL001 Link Adapter is used, the current consumption increases by 1.5 A.)	
External dimensions		34.5 × 130 × 100.5 mm (WxHxD)			
Weight		100 g max.		220 g max.	
Standard accessories		None		C200H-BAT09 Battery (mounted at time of shipment)	

Note: 1. The functions listed are for Loop Control Unit version 2.5.

2. This is the Inner Board that is built into a CPU Unit and sold as the CS1D-CPU6□P Process-control CPU Unit.

3. The duplex initialization time is 2.1 s max.

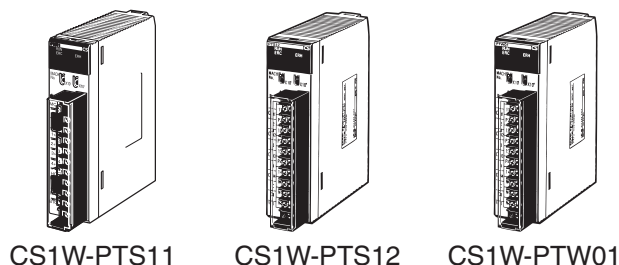
Function Specifications

Item		Specifications	Specifications	Specifications
Model numbers		CS1W-LCB01	CS1W-LCB05 CS1D-LCB05D	CS1W-LC001
Operation method		Function block method		
Operation cycle		Settable cycles: 0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1, or 2 s (default: 1 s) Can be set for each function block. (See note 1.)		Settable cycles: 0.1, 0.2, 0.5, 1, or 2 s (default: 1 s) Can be set for each function block.
Number of function blocks	Analog operation	Control blocks (See note 2.) Operation blocks (See note 3.)	50 blocks max.	500 blocks max.
				32 blocks max.
		External controller blocks	32 blocks max. (CS1D-LCB05D not included).	
Sequence control	Sequence tables	None	200 tables max. 32 conditions and 32 actions per table max. (expandable to 64 conditions and 64 actions per table) 6,400 rules total max.	None
	Step ladder program blocks	20 blocks max. 2,000 commands total 100 commands max. per block Separable into a 100 steps max.	200 blocks max. 4,000 commands total 100 commands max. per block Separable into a 100 steps max.	
I/O blocks	Field terminal blocks	80 blocks max		
	User link tables	2,400 data items max.		None
	All data	HMI functions 2,040 words max. Allocated 1 EM Area bank	HMI functions 20,040 words max. Allocated 1 EM Area bank	Send/Receive All Blocks: 1 block each max.
	CPU terminal blocks	None		16 blocks max.
	Node terminal blocks	None		100 blocks max.
System common blocks		1 block max.		
Method for creating and transferring function blocks		Created and transferred using CX-Process Tool (purchased separately).		
Control methods	PID control method	PID with 2 degrees of freedom (with auto-tuning)		
	Control combinations	Any of the following function blocks can be combined: Basic PID control, cascade control, feed-forward control, sample PI control, Smith dead time compensation control, PID control with differential gap, override control, program control, time-proportional control, etc.		
Alarms	PID block internal alarms	4 PV alarms (upper upper-limit, upper limit, lower limit, lower lower-limit) and 1 deviation alarm per PID block		
	Alarm blocks	High/low alarm blocks, deviation alarm blocks		

- Note:**
1. Operation cycles of 0.01, 0.02, and 0.05 s cannot be set for the CS1D-LCB05D.
 2. Control blocks such as those for PID control.
 3. Operation blocks for process control such as those for alarms, square roots, time/date calculations, and pulse-train computations.

Process I/O Units CS1W-P□□□□

- Major savings in installation expenses, space, and labor, because setting devices and conversion devices are no longer required.
- Reads temperature and other analog inputs, enabling process value alarms and rate-of-change calculations and alarms.
- The control output enables the setting output rate-of-change limits and high/low limits.
- Peak/bottom hold and top/valley hold functions can be used for process values (CS1W-P□□1□ only).
- Zero-span adjustment can be performed for the process value within any range, and the time and date of implementation can be automatically saved. The valid and invalid dates can also be set, and notification on the set time and date is also possible (CS1W-P□□1□ only).
- Counts the number of times changes occur that exceed the set threshold and accumulates the analog input values (CS1W-P□□1□ only).



Overview

A total of 24 models of Analog I/O Unit are available, including 16 with isolated-type I/O. Using the Analog I/O Units, essentially any type of processing application can be performed.

High-speed (10-ms) and high-resolution (1/64,000) models are also included in the series, and a wide range of applications are supported, from data logging to high-speed temperature control.

Process I/O Units

Name	Model	Number of I/O	Field I/O isolation	I/O type	Main specifications (See note 1.)	Main functions
Isolated-type Thermocouple Input Unit (high-resolution)	CS1W-PTS11	4 inputs	All inputs are isolated.	B, E, J, K, L, N, R, S, T, U, WRe5-26, PLII, ±100 mV	Standard accuracy: ±0.05% full scale Temp. coefficient: ±0.01%/°C (See note 1.) Resolution: 1/64,000 Conversion cycle: 20 ms/4 pts, 10 ms/2 pts	Scaling (±32,000) Process value alarms (HH, H, L, LL) Rate-of-change calculation and alarm Input disconnection detection Top, bottom, valley hold Variable range zero-span adjustment
Isolated-type Resistance Thermometer Input Unit (high-resolution)	CS1W-PTS12	4 inputs	All inputs are isolated.	Pt100 Ω (JIS, IEC), JPt100 Ω, Pt50 Ω, Ni508.4 Ω	Standard accuracy: The larger of ±0.05% full scale or ±0.01°C Temp. coefficient: ±0.009%/°C (See note 1.) Resolution: 1/64,000 Conversion cycle: 20 ms/4 pts, 10 ms/2 pts	Scaling (±32,000) Process value alarms (HH, H, L, LL) Rate-of-change calculation and alarm Input disconnection detection Top, bottom, valley hold Variable range zero-span adjustment
Isolated-type DC Input Unit (high-resolution)	CS1W-PDC11	4 inputs	All inputs are isolated.	4 to 20 mA, 0 to 20 mA, 0 to 10 V, ±10 V, 0 to 5 V, ±5 V, 1 to 5 V, 0 to 1.25 V, ±1.25 V	Standard accuracy: ±0.05% full scale Temp. coefficient: ±0.008%/°C Resolution: 1/64,000 Conversion cycle: 20 ms/4 pts, 10 ms/2 pts	Scaling (±32,000) Process value alarms (HH, H, L, LL) Rate-of-change calculation and alarm Input disconnection detection Top, bottom, valley hold Accumulated value output Variable range zero-span adjustment

CS1 Unit Descriptions

Process I/O Units

Name	Model	Number of I/O	Field I/O isolation	I/O type	Main specifications (See note 1.)	Main functions
NEW Isolated-type Thermocouple Input Units (Economical type)	CS1W-PTS51	4 inputs	All inputs are isolated.	B, J, K, R, S, T, L	Overall accuracy: $\pm 0.3\%$ of PV or $\pm 1^\circ\text{C}$, whichever is larger, ± 1 digit max. Conversion cycle: 250 ms/4 pts	Process value alarms (H, L) Process value alarm DO output Input disconnection detection
	CS1W-PTS55	8 inputs				
NEW Isolated-type Resistance Thermometer Input Unit (Economical type)	CS1W-PTS52	4 inputs	All inputs are isolated.	Pt100 (JIS, IEC), JPt100	Overall accuracy: $\pm 0.3\%$ of PV or $\pm 0.8^\circ\text{C}$, whichever is larger, ± 1 digit max. Conversion cycle: 250 ms/4 pts	Process value alarms (H, L) Process value alarm DO output Input disconnection detection
	CS1W-PTS56	8 inputs				
NEW Isolated-type DC Input Unit (Economical type)	CS1W-PDC55	8 inputs	All inputs are isolated.	4 to 20 mA, 0 to 10 V, 0 to 5 V, 1 to 5 V	Standard accuracy: $\pm 0.3\%$ full scale Resolution: 1/16,000 Conversion cycle: 250 ms/8 pts,	Process value alarms (H, L) Input disconnection detection
Isolated-type Thermocouple Input Unit	CS1W-PTS01-V1	4 inputs	All inputs are isolated.	B, E, J, K, N, R, S, T Variable range: ± 80 mV DC	Standard accuracy: $\pm 0.1\%$ Temp. coefficient: $\pm 0.015\%/^\circ\text{C}$ Resolution: 1/4,096 Conversion cycle: 150 ms/4 pts	Scaling ($\pm 32,000$) Process value alarms (HH, H, L, LL) Rate-of-change calculation and alarm Input disconnection detection
Isolated-type Resistance Thermometer Input Unit	CS1W-PTS02	4 inputs	All inputs are isolated.	Pt100 (JIS, IEC), JPt100	Standard accuracy: The larger of $\pm 0.1\%$ or $\pm 0.1^\circ\text{C}$ Temp. coefficient: $\pm 0.015\%/^\circ\text{C}$ Resolution: 1/4,096 Conversion cycle: 100 ms/4 pts	Scaling ($\pm 32,000$) Process value alarms (HH, H, L, LL) Rate-of-change calculation and alarm Input disconnection detection
Isolated-type Resistance Thermometer Input Unit (Ni508.4 Ω)	CS1W-PTS03	4 inputs	All inputs are isolated.	Ni508.4 Ω	Standard accuracy: The larger of $\pm 0.2\%$ or $\pm 0.2^\circ\text{C}$ Temp. coefficient: $\pm 0.015\%/^\circ\text{C}$ Resolution: 1/4,096 Conversion cycle: 100 ms/4 pts	Scaling ($\pm 32,000$) Process value alarms (HH, H, L, LL) Rate-of-change calculation and alarm Input disconnection detection
Isolated-type 2-Wire Transmitter Input Unit	CS1W-PTW01	4 inputs	All inputs are isolated.	4 to 20 mA, 1 to 5 V	Standard accuracy: $\pm 0.2\%$ Temp. coefficient: $\pm 0.015\%/^\circ\text{C}$ Resolution: 1/4,096 Conversion cycle: 100 ms/4 pts	Built-in power supply for 2-wire transmitter Scaling ($\pm 32,000$) Process value alarms (HH, H, L, LL) Rate-of-change calculation and alarm Square root Input error detection
Isolated-type Analog Input Unit	CS1W-PDC01	4 inputs	All inputs are isolated.	-10 to 10 V, 0 to 10 V, -5 to 5 V, 0 to 5 V, 1 to 5 V, ± 10 V DC variable range, 4 to 20 mA, 0 to 20 mA	Standard accuracy: $\pm 0.1\%$ Temp. coefficient: $\pm 0.015\%/^\circ\text{C}$ Resolution: 1/4,096 Conversion cycle: 100 ms/4 pts	Process value alarms (HH, H, L, LL) Scaling ($\pm 32,000$) Square root Rate-of-change calculation and alarm Input error detection
Isolated-type Pulse Input Unit	CS1W-PPS01	4 inputs	All inputs are isolated.	No-voltage semiconductor; voltage input: 0 to 20,000 pulses/s Contact input: 0 to 20 pulses/s	---	Built-in sensor power supply Contact bounce filter Unit pulse conversion Accumulated value output Instantaneous value output and four alarms

CS1 Unit Descriptions

Process I/O Units

Name	Model	Number of I/O	Field I/O isolation	I/O type	Main specifications (See note 1.)	Main functions
Isolated-type Analog Output Unit	CS1W-PMV01	4 outputs	All outputs are isolated.	4 to 20 mA, 1 to 5 V	Standard accuracy: $\pm 0.1\%$ (4 to 20 mA) $\pm 0.2\%$ (1 to 5 V) Temp. coefficient: $\pm 0.015\%/^{\circ}\text{C}$ 4,000 (output) Conversion cycle: 100 ms/4 pts	Output disconnection alarm Control output answer input Output rate-of-change limit Output high/low limits
	CS1W-PMV02	4 outputs	All outputs isolated	0 to 10 V, ± 10 V, 0 to 5 V, ± 5 V, 0 to 1 V, ± 1 V	Standard accuracy: $\pm 0.1\%$ Temp. coefficient: $\pm 0.015\%/^{\circ}\text{C}$ Resolution: ± 10 V, ± 1 V: 1/16,000 (full scale) 0 to 10 V, 0 to 1 V, ± 5 V: 1/8,000 (full scale) 0 to 5 V: 1/4,000 (full scale) Conversion cycle: 40 ms/4 pts	Output rate-of-change limit Output high/low limits Scaling ($\pm 32,000$)
Power Transducer Input Unit	CS1W-PTR01	8 inputs	Inputs and PLC signals isolated.	-1 to 1 mA, 0 to 1 mA	Standard accuracy: $\pm 0.2\%$ Temp. coefficient: $\pm 0.015\%/^{\circ}\text{C}$ Resolution: 1/4,096 Conversion cycle: 200 ms/8 pts	Anti-overshooting at motor startup Process value alarms (H, L) Scaling ($\pm 32,000$)
Analog Input Unit (100 mV)	CS1W-PTR02	8 inputs	Inputs and PLC signals isolated.	-100 to 100 mV, 0 to 100 mV	Standard accuracy: $\pm 0.2\%$ Temp. coefficient: $\pm 0.015\%/^{\circ}\text{C}$ Resolution: 1/4,096 Conversion cycle: 200 ms/8 pts	Process value alarms (H, L) Scaling ($\pm 32,000$)

Note: 1. The temperature coefficient depends on the application conditions. Refer to the *SYSMAC CS Series Analog I/O Units Operation Manual* (W368) for details.

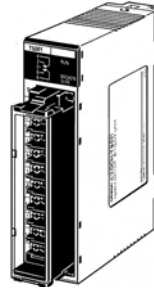
2. Refer to pages 103 to 108 for an overview of CS1W-AD0□□, CS1W-DA0□□, and CS1W-MAD44 Analog I/O Unit functions.

- Lineup of Units
- CPU Unit Overview
- Basic System Configuration
- Better Basic Performance
- Peripheral Devices
- CPU Unit Overview
- I/O Allocations
- Current Consumption
- Instructions
- Replacing C200H I/O Units
- ORDERING GUIDE
- Wiring Devices for High-density I/O Units
- Connector Cables
- Peripheral Devices

Temperature Sensor Units CS1W-PTS/C200H-TS

Directly Input from Eight Temperature Sensors

- Input directly from up to eight temperature sensors with one Unit. (The types of temperature sensor and temperature ranges can be set separately for each input for the CS1W-PTS5□.)
- Models available with isolated inputs to prevent unwanted current flow between temperature sensor inputs (CS1W-PTS□□ only).
- Provided with measured value alarms (4 points each) (CS1W-PTS□□ only).
- Line disconnection detection provided.

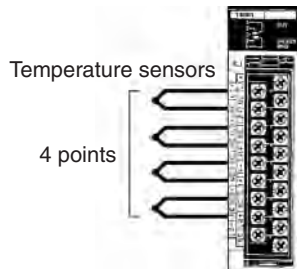


CS1W-PTS11
CS1W-PTS12
CS1W-PTS51
CS1W-PTS55
CS1W-PTS52
CS1W-PTS56
CS1W-PTS01-V1
CS1W-PTS02
CS1W-PTS03
C200H-TS001
C200H-TS002
C200H-TS101
C200H-TS102

Function

Using input from thermocouples or resistance thermometers (up to 4 or 8 inputs), the Unit converts the measured temperatures into BCD or binary data and stores them in the allocated relay area every cycle. The data can be transferred to the DM Area or other memory locations using the ladder program.

Circuit Configuration



Specifications

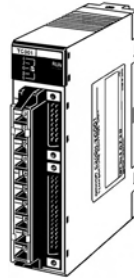
Model			CS1W-PTS11	CS1W-PTS12	CS1W-PTS51/55	CS1W-PTS52/56	CS1W-PTS01-V1	CS1W-PTS02	CS1W-PTS03	C200H-TS001	C200H-TS002	C200H-TS101	C200H-TS102	
Classification			CS1 Special I/O Units						C200H Special I/O Units					
Unit numbers			0 to 95	0 to 95	0 to 95	0 to 95	0 to 95	0 to 95	0 to 95	0 to 9	0 to 9	0 to 9	0 to 9	
Inputs			4 pts (CS1W-PTS5□: 8 pts)						4 pts					
Input signal	Thermocouples	K	Yes	---	Yes	---	Yes	---	---	Yes	Yes	---	---	
		J	Yes	---	Yes	---	Yes	---	---	Yes	---	---	---	
		L	Yes	---	Yes	---	---	---	---	---	Yes	---	---	
		R	Yes	---	Yes	---	Yes	---	---	---	---	---	---	
		S	Yes	---	Yes	---	Yes	---	---	---	---	---	---	
		T	Yes	---	Yes	---	Yes	---	---	---	---	---	---	
		E	Yes	---	---	---	Yes	---	---	---	---	---	---	
		B	Yes	---	Yes	---	Yes	---	---	---	---	---	---	
		N	Yes	---	---	---	Yes	---	---	---	---	---	---	
		W	Yes (WRe5-26)	---	---	---	---	---	---	---	---	---	---	
	U	Yes	---	---	---	---	---	---	---	---	---	---		
	PLII	Yes	---	---	---	---	---	---	---	---	---	---		
	± mV	±100 mV	---	---	---	±80 mV	---	---	---	---	---	---		
Resistance thermometers	JPt100	---	Yes	Yes	---	---	---	Yes	---	---	---	Yes	---	
	PT50	---	Yes	---	---	---	---	---	---	---	---	---	---	
	PT100	---	Yes	Yes	---	---	---	Yes	---	---	---	---	Yes	
	Ni508.4 Ω	---	Yes	---	Yes	---	---	---	Yes	---	---	---	---	
Input signal range settings			4 pts set individually						One setting for all 4 pts					
A/D conversion output data			4-digit binary			4-digit binary or BCD		4-digit binary		4-digit BCD				
Conversion speed			20 ms/4 pts 10 ms/2 pts		250 ms/Unit		150 ms/4 pts		100 ms/4 points		4.8 s max. (when 4 pts are set for Unit)			
Overall accuracy (See note 2.)			Standard accuracy: ±0.05% of FS Temp coefficient: ±0.01%/°C		Standard accuracy: Larger of ±0.05% of FS or ±0.1°C Temp coefficient: ±0.001%/°C		±0.3% of PV or ±1°C, whichever is larger, ±1 digit max.		±0.3% of PV or ±0.8°C, whichever is larger, ±1 digit max.		Standard accuracy: ±0.1% Temp coefficient: ±0.015%/°C (not including cold contact compensation error)		Standard accuracy: Larger of ±0.1% or ±0.1°C Temp coefficient: ±0.015%/°C	±1% + 1°C
Connections			Terminal block						Terminal block					

- Note:** 1. Refer to page 113 for information on CS1W-PTS□□ Process I/O Units.
2. Accuracy depends on application conditions. Refer to the *Analog I/O Unit Operation Manual* (Cat. No. W368) for details.

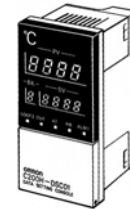
Temperature Control Units C200H-TC□□

One Unit Functions as Two Temperature Controllers

- Supports 2-loop PID control (two degrees of freedom) or ON/OFF control.
- Input directly from two temperature sensors (thermocouples: R, S, K, J, T, E, B, N, L, or U) or platinum resistance thermometers (JPt100, Pt100).
- Open-collector, voltage, or current outputs
- Sampling period: 500 ms
- Run/start control.
- Two internal alarms per loop.
- Detects heater burnout through current detectors for both loops.
- Record up to eight sets of target values, alarm values, and PID parameters.
- Connects to Data Setting Console.



C200H-TC□□□□

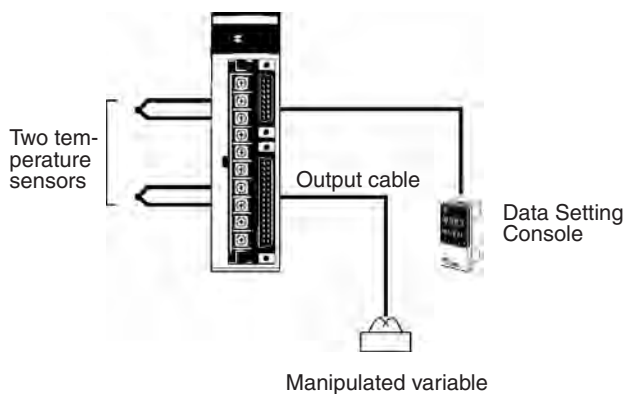


C200H-DSC01
Data Setting Console

Function

Perform 2-loop PID control (two degrees of freedom) based on inputs from thermocouples or platinum resistance thermometers to control a transistor, voltage, or current output. Words allocated to the Unit in memory can be manipulated from the ladder diagram to start/stop operation, set the target value, read the process value, or perform other operations.

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Specifications

Classification	Temperature sensor inputs	Control outputs	Unit numbers	Model
C200H Special I/O Unit	Thermocouples (R, S, K, J, T, E, B, N, L, or U)	Open-collector (pulse)	0 to 9	C200H-TC001
		Voltage (pulse)		C200H-TC002
		Current (linear)		C200H-TC003
	Platinum resistance thermometers (JPt00, Pt100)	Open-collector (pulse)		C200H-TC101
		Voltage (pulse)		C200H-TC102
		Current (linear)		C200H-TC103

■ Data Setting Console

Specifications	Model
Monitoring, setting, and changing present values, set points, alarm values, PID parameters, bank numbers, etc.	C200H-DSC01

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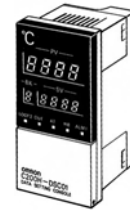
Peripheral Devices

Heat/Cool Control Units C200H-TV□□□

- Supports 2-loop PID control (two degrees of freedom) or ON/OFF control.
- Input directly from two temperature sensors (thermocouples: R, S, K, J, T, E, B, N, L, or U) or platinum resistance thermometers (JPt100, Pt100).
- Open-collector, voltage, or current outputs
- Sampling period: 500 ms
- Run/start control.
- Two internal alarms per loop.
- Detects heater burnout through current detectors for both loops.
- Record up to eight sets of set points, alarm values, and PID parameters.
- Connects to Data Setting Console.



C200H-TV□□□

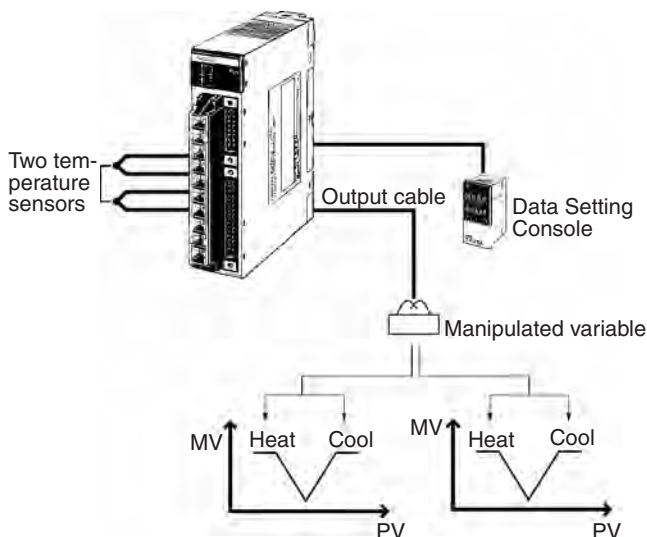


C200H-DSC01
Data Setting Console

Function

Perform 2-loop PID control (two degrees of freedom) based on inputs from thermocouples or platinum resistance thermometers to control heating and cooling through transistor, voltage, or current outputs. Words allocated to the Unit in memory can be manipulated from the ladder diagram to start/stop operation, set the set point, read the process value, or perform other operations.

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Specifications

Classification	Temperature sensor inputs	Heating control output	Cooling control output	Unit numbers	Model
C200H Special I/O Unit	Thermocouples (R, S, K, J, T, E, B, N, L, or U)	Open-collector (pulse)	Open-collector (pulse)	0 to 9	C200H-TV001
		Voltage (pulse)			C200H-TV002
		Current (linear)			C200H-TV003
	Platinum resistance thermometers (JPt00, Pt100)	Open-collector (pulse)			C200H-TV101
		Voltage (pulse)			C200H-TV102
		Current (linear)			C200H-TV103

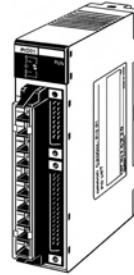
■ Data Setting Console

Specifications	Model
Monitoring, setting, and changing present values, set points, alarm values, PID parameters, bank numbers, etc.	C200H-DSC01

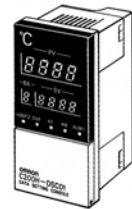
PID Control Units C200H-PID□□

Ideal for Analog Control of Pressures, Flows, and other Variables

- Supports 2-loop PID control (two degrees of freedom) or ON/OFF control.
- Directly input analog signal.
- Open-collector, voltage, or current outputs
- Sampling period: 100 ms
- Run/start control.
- Manual outputs supported.
- Set two internal alarms for each loop.
- Record up to eight sets of set points, alarm values, and PID parameters.
- Digital filters can be set to dampen rapid changes in inputs.
- Connects to Data Setting Console.



C200H-PID01/PID02/PID03

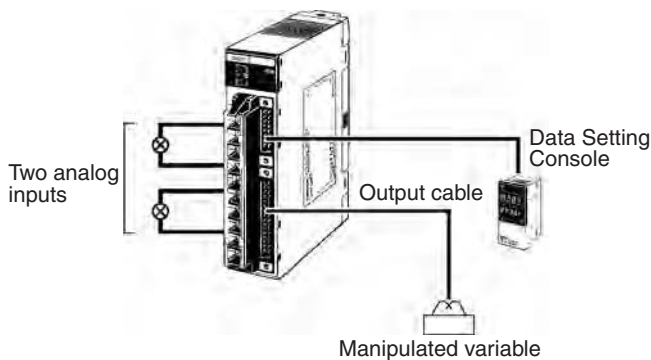


C200H-DSC01
Data Setting Console

Function

Perform 2-loop PID control (two degrees of freedom) based on input ranges such as 4 to 20 mA or 1 to 5 V to control transistor, voltage, or current outputs. Words allocated to the Unit in memory can be manipulated from the ladder diagram to start/stop operation, set the set point, read the process value, or perform other operations.

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Specification

Classifications	Temperature sensor input	Control output	Unit numbers	Model
C200H Special I/O Unit	4 to 20 mA, 1 to 5 V, 0 to 5 V or 0 to 10 V	Open-collector (pulse)	0 to 9	C200H-PID01
		Voltage (pulse)		C200H-PID02
		Current (linear)		C200H-PID03

■ Data Setting Console

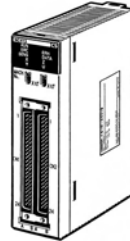
Specifications	Model
Monitoring, setting, and changing present values, set points, alarm values, PID parameters, bank numbers, etc.	C200H-DSC01

Position Control Units

CS1W-NC/C200HW-NC

High-speed, High-precision Positioning with 1, 2, or 4 Axes

- Simple positioning systems can be created by directly specifying operation from the CPU Unit when required.
- Positioning data is saved in internal flash memory, eliminating the need to maintain a backup battery.
- Use Windows-based Support Software to easily create positioning data and store data and parameters in files. (Use WS01-NCTF1-E with C200HW-NC□ models and WS02-NCTC1-E with CS1W-NC□□ models.)
- Interrupt feeding, forced starting, and other features also supported.
- The following functions are supported for CS1W-NC113, CS1W-NC213, CS1W-NC413, CS1W-NC133, CS1W-NC233, and CS1W-NC433.
 - Speed and acceleration can be changed during direct operation.
 - Speed and acceleration can be changed during JOG operation.
 - Parameters and data can be backed up at once to the Memory Card in the CPU Unit using the CPU Unit's simple backup operation.

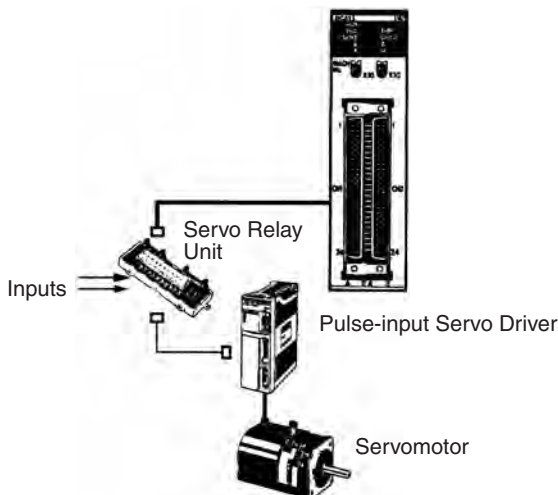


CS1W-NC113/213/413/133/233/433
C200HW-NC113/213/413

Function

These Position Control Units support open-loop control with pulse-train outputs. Position using automatic trapezoid or S-curve acceleration and deceleration. Models available with 1, 2, or 4 axes. Use in combination with servomotors or stepping motors that accept pulse-train inputs.

System Configuration



CS1 Unit Descriptions

Position Control Units
CS1W-NC/C200HW-NC

Specifications

Model	CS1W-NC113 CS1W-NC133	CS1W-NC213 CS1W-NC233	CS1W-NC413 CS1W-NC433	C200HW-NC113	C200HW-NC213	C200HW-NC413
Unit name	Position Control Unit					
Classification	CS1 Special I/O Units			C200H Special I/O Units		
Unit numbers	0 to 95		0 to 94	0 to 15 (0 to F)		
Control method	Open-loop, automatic trapezoid acceleration/deceleration					
Control output signals	CS1W-NC□13: Open-collector outputs CS1W-NC□33: Line-driver outputs			Open-collector		
Controlled axes	1	2	4	1	2	4
Operating modes	Direct operation or memory operation					
Data format	Binary (hexadecimal)			BCD		
Affect on scan time for end refresh	0.29 to 0.41 ms max./unit			2.6 to 4.5 ms max./unit		
Affect on scan time for IOWR/IORD	0.6 to 0.7 ms max./instructions			2.6 to 5.5 ms max./instructions		
Startup time	2 ms min. (Refer to operation manual for conditions.)			7.51 ms min. (Refer to operation manual for conditions.)		
Position data	-1,073,741,823 to +1,073,741,823 pulses			-9,999,999 to +9,999,999 pulses		
No. of positions	100 per axis (transferable from CPU Unit)					
Speed data	1 to 500 kpps (in 1-pps units)			1 to 500 kpps (specified as factor)		
No. of speeds	100 per axis (transferable from CPU Unit)					
Acceleration/deceleration times	0 to 250 s (time to max. speed)					
Acceleration/deceleration curves	Trapezoidal or S-curve					
Saving data in CPU	Flash memory					
Windows-based Support Software	CX-Position (WS02-NCTC1-E)			SYSMAC-NCT (WS01-NCTF1-E)		

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Motion Control Units

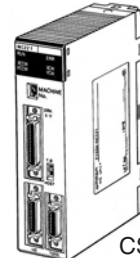
CS1W-MC421/-MC221

High-precision, Two-axis Motion Control with Multi-tasking G-language Programming

- High-speed control of up to 4 axes with one Unit and up to 76 axes with one PLC (19 Units x 4 axes) (assumes that Power Supply Unit capacity is not exceeded).
- Winding operations easily controlled at high-speed using traverse positioning control.
- High-speed response to commands from CPU Unit (8 ms for 2 axes, 13 ms for 4 axes).
- Encoder response of 2 Mpps possible with 4x frequency multiplication for applications with high-speed, high-precision servomotors.
- D interrupt code outputs to CPU Unit at end of positioning or at specified positions (D code output time: 3.3 ms max.).
- CX-Motion Windows-based Support Software
Define user mnemonics to use in place of G codes to simplify MC program development and analysis.
- Servo trace function from CX-Motion to trace error counter changes or motor speeds.
- Automatic Loading Function
MC programs and positioning data can be automatically downloaded from computer memory when required by the MC Unit.
- Synchronous Control
Synchronous control can be performed easily using the electronic shaft (electronic gear), electronic cam, virtual axis, resist, and add axis travel functions.



CS1W-MC421-V1

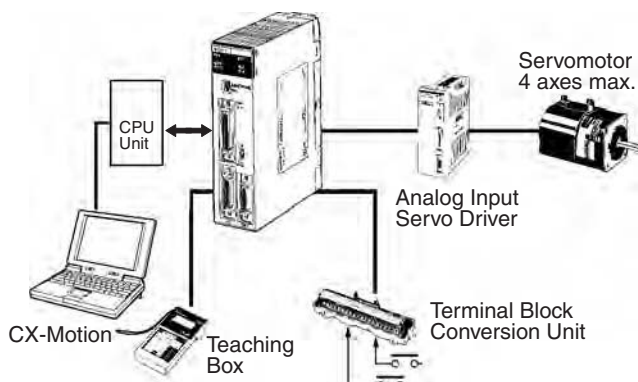


CS1W-MC221-V1

Function

The Motion Controller provides semiclosed-loop control with analog outputs for up to 2 or 4 axes, and supports the G language for advanced, high-speed, high-precision position control, such as traverse operation. Multi-tasking allows you to run the two axes independently for a wider range of application.

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Specifications

Model		CS1W-MC421-V1	CS1W-MC221-V1
Classification		CS1 Special I/O Unit	
Control method		Semiclosed loop with automatic trapezoid or S-curve acceleration/deceleration	
Control output signals		Analog	
Internal programming language		G language (Program started by command sent from CPU Unit's ladder program.)	
Controlled axes		4 axes max.	2 axes max.
Maximum position value		-39,999,999 to 39,999,999 (for minimum setting unit of 1)	
Synchronous axis control		4 axes max.	2 axes max.
Positioning	Linear interpolation	4 axes max.	2 axes max.
	Arc interpolation	2 axes max. in a plane	
	Helical interpolation	2-axis arc interpolation in a plane + feed axis	---
	Traverse	2-axis traverse feeding	
	Infinite feed	Infinite feeding of one or more axes	
	Interrupt feed	Interrupt feeding for specified axes (Positioning can be specified for when there is no interrupt.)	
Task programming capacity	Number of tasks	4 tasks max.	2 tasks max.
	Number of programs	25 programs when using 4 tasks	50 programs when using 2 tasks
	Program capacity	500 blocks per task when using 4 tasks	1,000 blocks per task when using 2 tasks

■ CX-Motion: Windows-based Support Software

Model	WS02-MCTC1-EV2
Supported MC Units	CS1W-MC221-V1/421-V1, C200H-MC221, and CV500-MC221/421
Applicable computer	DOS, OS: Windows 95/98 or Windows NT Version 4.0
Functions	Functions required for MC Unit control: Creating/editing/saving/printing system parameters, positioning data, and MC programs; monitoring MC Unit operation

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Motion Control Unit CS1W-MCH71

Achieves a Wide Range of Motion Control Using Internal Motion Programming

Easy System Construction

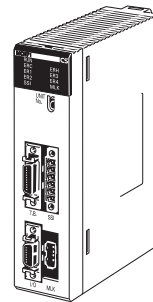
- Easily control multiple axes in flexible combinations. Control up to 30 physical axes, or 32 axes including virtual axes. Physical and virtual axes can be set for individual axes. Achieve various forms of motion control from individual axis control to interpolation and simultaneous axis operation.
- MECHATROLINK-II high-speed servo communications from Yaskawa used with the servo driver and distributed modules. (MECHATROLINK-II is a registered trademark of Yaskawa Electric.) Construct a multi-axis control system with less wiring. Limit switch, origin sensor, and other signals required for control are input to the servo driver, greatly aiding multi-axis system distribution.

Easy Information Management

- High-speed servo communications enable setting and reading motion program and system parameters and data, as well as servo driver parameters all from the support software running on a personal computer.
- All parameters and variables can be read from the Motion Control Unit, including system parameters, global variables, and local variables.
- The device control status and servo system operating status can be monitored.
- Programs and data can be backed up in Memory Cards in the CPU Unit.

Easy Motion Control

- Position, synced, speed, and torque control are all supported, including electronic gear/cam and follow-up synced control.
- The servo communications cycle can be as short as 1 ms.
- Scheduled processing between the Motion Control Unit, servo driver, and distributed modules to achieve exceptionally high-precision control.
- The motion programs in up to eight motion tasks can be executed simultaneously. Also, branching is possible within programs so that independent control, synced control, interpolation, and other interaxis operations can be implemented in the same group of programs.
- Global variables enable easily sharing data between tasks. System variables enable monitoring and utilizing servo status in programming.

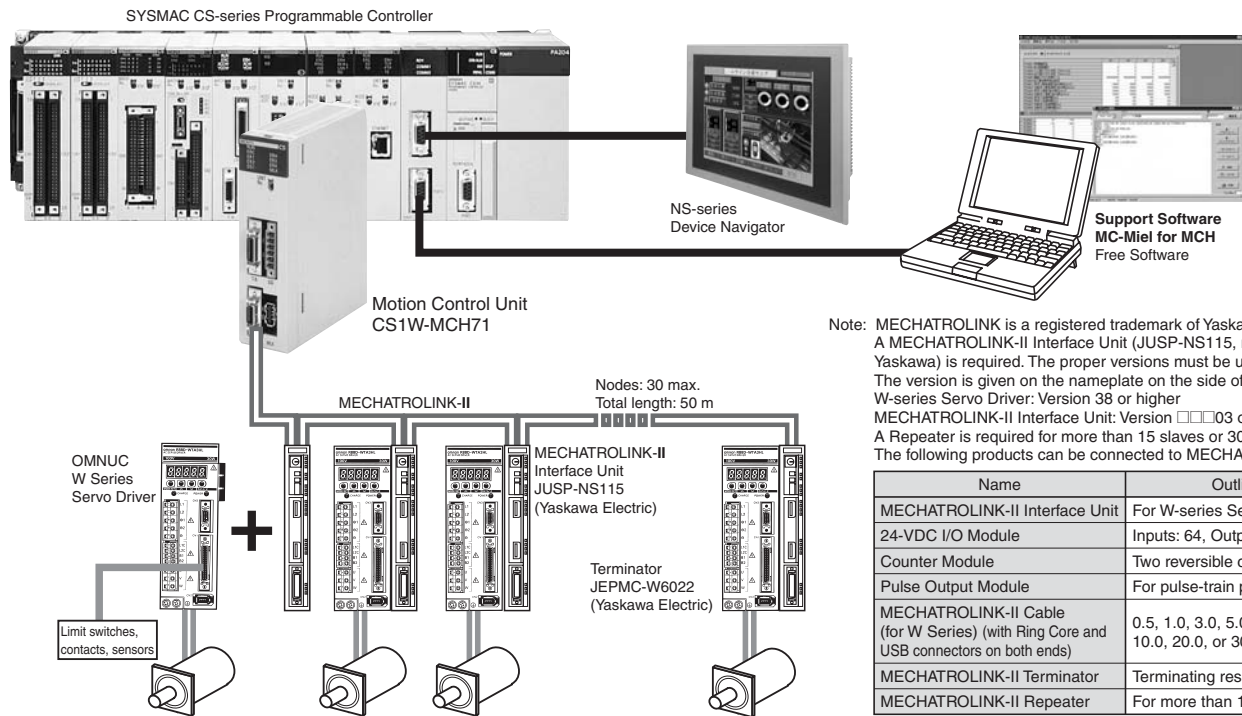


CS1W-MCH71

Function

This Motion Control Unit can control up to 30 axes with internal motion programs. It can be used to achieve a wide range of motion control.

System Configuration



Specifications

Item	Specification	
Applicable PLCs	SYSMAC CS-series PLCs (CPU Unit: CS1□-CPU□□H)	
Classification	CS1 CPU Bus Unit	
Data transmitters with CPU Unit	CIO Area words allocated to Unit	Allocated words for one unit number (25 words). Allocated 11 to 25 words for Unit and tasks (depends on number of motion tasks).
	DM Area words allocated to Unit	Allocated words for one unit number (100 words). Allocated 32 to 74 words for Unit and tasks (depends on number of motion tasks).
	User-allocated bits	Allocated 0 to 64 words for axes (depends on highest axis number used).
	User-allocated words	Allocated 0 to 128 words for axes (depends on highest axis number used). Allocated 0 to 1,280 words for general I/O (depends on parameter setting).
Applicable servo drivers	W-series Servo Driver (from OMRON) with MECHATROLINK-II Interface Unit (from Yaskawa)	
Internal programming language	Special motion control language	
Control	Control modes	Position, speed, or torque control via MECHATROLINK-II
	Control axes	32 axes max. (30 physical/virtual axes (physical or virtual selected by axis) and 2 virtual axes)
Operating modes	RUN Mode, CPU Mode, Tool Mode/System (set from Support Software)	
Control unit	Minimum command unit	1, 0.1, 0.01, 0.001, or 0.001 (unit: millimeters, inches, degrees, or pulses)
Maximum position value	-2147483648 to 2147483647 pulses (36 bits with sign bit), Infinite feed mode also supported.	
Motion program control functions	Positioning (simultaneous: 8 axes/block max., 32 blocks/Unit max.), linear interpolation (simultaneous: 8 axes/block max., 32 blocks/system max.), circular interpolation (simultaneous: 2 or 3 axes/block max., 16 blocks/system max.), positioning (simultaneous: 8 axis/block max., 32 blocks/Unit max.), origin searches, interrupt feeding, time-specified feeding, transverse feeding, independent electronic cams, simultaneously electronic cams, linked operation, follow-up synchronization, speed references, and torque references	
Feed speeds	High-speed feeding	1 to 2147483647 command units/min
	Interpolation feeding	1 to 2147483647 command units/min
	Overrides	0.00% to 327.67% (Setting unit: 0.01%, specified by axis or by task.)

Item		Specification
Acceleration/deceleration control		Acceleration/deceleration times: 60,000 ms max (trapezoid or S-curve), S-curve constant: 30,000 ms max.
Programming	Number of tasks	8 max. (number of parallel branches inside task: 8 max.)
	Number of programs	256 programs/Unit max.
	Program capacity	8,000 blocks/Unit (2 MB) max. figured as motion programming
	Number of blocks	800 blocks/program
	Data capacity	Position data: 10,240 points/Unit, Cam data: 32 sheets, 16,000 points/Unit
Subroutine nesting		Up to 5 levels

Peripheral Device Module Numbers and Specifications

■ Support Software

Name	Model	Remarks
MC-Miel for MCH	---	Support Software for the CS1W-MCH71

■ MECHATROLINK Devices and Cables (Made by Yaskawa)

Name	Yaskawa model	OMRON model	Remarks
MECHATROLINK-II Interface Unit	JUSP-NS115	FNY-NS115	For W-series Servo Driver
24-VDC I/O Module	JEPMC-IO2310	FNY-IO2310	Inputs: 64, Outputs: 64
Counter Module	JEPMC-PL2900	FNY-PL2900	Two reversible counters
Pulse Output Module	JEPMC-PL2910	FNY-PL2910	Pulse-train positioning, 2 channels
MECHATROLINK-II Cables for W-series Servo Drivers (Ring cores and USB connectors attached to both ends.)	JEPMC-W6003-A5	FNY-W6003-A5	0.5 m
	JEPMC-W6003-01	FNY-W6003-01	1.0 m
	JEPMC-W6003-03	FNY-W6003-03	3.0 m
	JEPMC-W6003-05	FNY-W6003-05	5.0 m
	JEPMC-W6003-10	FNY-W6003-10	10.0 m
	JEPMC-W6003-20	FNY-W6003-20	20.0 m
	JEPMC-W6003-30	FNY-W6003-30	30.0 m
MECHATROLINK-II Terminator	JEPMC-W6022	FNY-W6022	Terminating resistance
MECHATROLINK-II Repeater	JEPMC-REP2000	FNY-REP2000	Required for more than 15 slaves or 30 m.

Note: MECHATROLINK Devices and Cables are made by Yaskawa Electric. These can be order from OMRON using the OMRON model numbers given above. OMRON will deliver the Yaskawa-brand products in response to orders for these products.

Customizable Counter Units CS1W-H□□□□

Programming Functions and Various I/O Capabilities in a Single Unit. Programmable High-speed Feedback, including Electronic Cams.

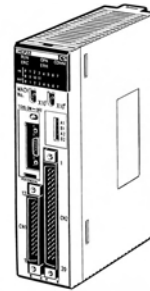
- Ladder programming and various types of I/O in one Unit. Programmable I/O control without going through the CPU Unit.

Applications

- Electronic cams (CS1W-HCP22-V1): Wrapping machines
- Feedback control (CS1W-HCA12-V1): Forming machines and presses
- Tension control (CS1W-HCA12-V1): Winding machines

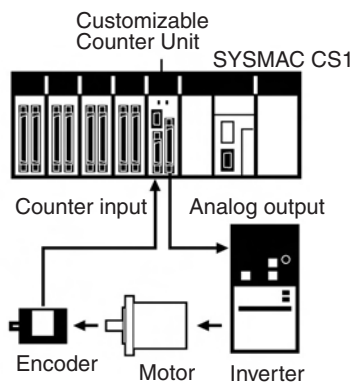
Other Features

- High-speed counters (0.1 ms from set value match)
- Ladder libraries to make program contents inaccessible from unauthorized persons.
- Backing up of programs and data in Memory Cards in CPU Unit.



CS1W-HCP22-V1
CS1W-HCA12-V1
CS1W-HCA22-V1
CS1W-HIO01-V1

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Model number		CS1W-HCP22-V1	CS1W-HCA12-V1	CS1W-HCA22-V1	CS1W-HIO01-V1
Type		Counter inputs, pulse outputs	Analog inputs, counter inputs, analog outputs	Counter inputs, pulse outputs	Basic type
Inputs	12 DC inputs	Yes	Yes	Yes	Yes
	Counter inputs	2	1	2	None
	Analog inputs	None	1	None	None
Outputs	8 transistor outputs	Yes	Yes	Yes	Yes
	2 pulse outputs	Yes	No	No	No
	2 analog outputs	No	Yes	Yes	No

Programming Functions

Programming language	Ladder programming
Basic instruction execution speed	200 ns (1 Kword) or 400 ns (4 Kwords), switchable
Program capacity	1 Kword or 4 Kwords, switchable
Data memory capacity	6 Kwords + 2 Kwords of expanded data memory
Backup functions	10-day capacitor backup and flash memory storage
CS1 CPU Unit data exchange	132-channel data link (maximum)
Programming Device	CX-Programmer (versions 1.2. or later) or Programming Console
Programming Device Connecting Cable	CS1 Connecting Cable or Programming Console Cable

Counter Inputs (CS1W-HCP22-V1/CS1W-HCA12-V1/HCA22-V1)

Operating modes	Linear and ring
Signal level	5, 12, or 24 V, or line driver (only one input each for 5 and 12 V)
Input method	Phase difference (×1, ×2, or ×4), up/down, or pulse with direction
Counting speed	Voltage: 50 kcps Line driver: 50/200 kcps
Other functions	Compatible with servo drivers for absolute encoders (e.g., OMRON's OMNUC W-series Servo Drivers). Virtual axes are supported.

Pulse Outputs (CS1W-HCP22-V1)

Output signal	Clockwise/counterclockwise
Signal level	5 to 24 V
Output speed	200 kpps

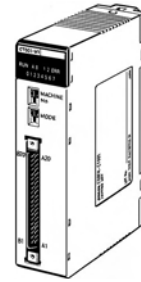
Analog Outputs (CS1W-HCA21-V1/HCA22-V1)

Output signal	-10 to 10 V, 0 to 10 V, 1 to 5 V, 0 to 5 V
Resolution	1/4,000, 1/10,000 (for -10 to 10 V only)
Accuracy	±0.3% of FS (23±2°C), ±0.5% of FS (0 to 55°C)
Conversion speed	0.5 ms max.

High-speed Counter Units CS1W-CT/C200H-CT

Two External Inputs and Eight External Outputs with Many Operating Modes

- Max. input frequency = 500 kHz for line-driver input.
- 32-bit counting range.
- 2- and 4-axis operation available.
- Digital variable noise filter provided.
- 5-, 12-, and 24-V line driver inputs available. (5- and 12-V line driver input is only available, however, for 1 axis with the CS1W-CT021 and 2 axes with the CS1W-CT041.)
- Supports simple, ring, and linear counting modes.
- Supports offset phase input, up and down pulse input, and pulse+direction input.
- Supports 4 external control inputs, and a total of 16 functions can be set including open gate, close gate, preset, reset, capture, stop/capture/reset combinations, and reset enable.
- One Unit supports 4 external outputs and 28 internal outputs with counter value zone comparisons, target comparisons, delays, holds, programmable outputs, and hysteresis settings.
- Pulse rate measurement function and data logging.
- Counter outputs and external control inputs can be used to trigger interrupt tasks in the CPU Unit.
- Settings can be changed during Unit operation.

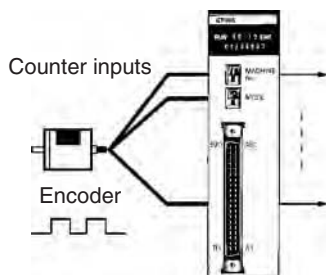


CS1W-CT041
CS1W-CT021
C200H-CT021
C200H-CT001-V1
C200H-CT002

Function

The High-speed Counter Units count pulse signal inputs that are too fast to be detected by normal Input Units. The Units can be programmed to produce outputs according to counter values for specified conditions, and many other functions are supported.

System Configuration



CS1 Unit Descriptions

High-speed Counter Units
CS1W-CT/C200H-CT

Specifications

Classification	Number of counters	Encoder A and B input, pulse input, Z signal	Maximum counting speed	Unit numbers	Model
CS1 Special I/O Unit	2	Open-collector Input voltage: 5 VDC, 12 VDC, or 24 VDC (5- and 12-VDC input only possible for 1 axis.)	50 kcps	0 to 92 (4 unit numbers per Unit)	CS1W-CT021
		RS-422 line driver	500 kcps		
	4	Open-collector Input voltage: 5 VDC, 12 VDC, or 24 VDC (5- and 12-VDC input only possible up to 2 axes.)	50 kcps		CS1W-CT041
		RS-422 line driver	500 kcps		
C200H Special I/O Unit	1	Open-collector Input voltage: 5 VDC, 12 VDC, or 24 VDC	50 kcps	0 to 9	C200H-CT001-V1
		RS-422 line driver	75 kcps		C200H-CT002
	2	Open-collector Input voltage: 12 VDC or 24 VDC	50 kcps	0 to F	C200H-CT021
		RS-422 line driver	75 kcps		

Cam Positioner Unit C200H-CP114

One Unit Functions as 48 Mechanical Cams

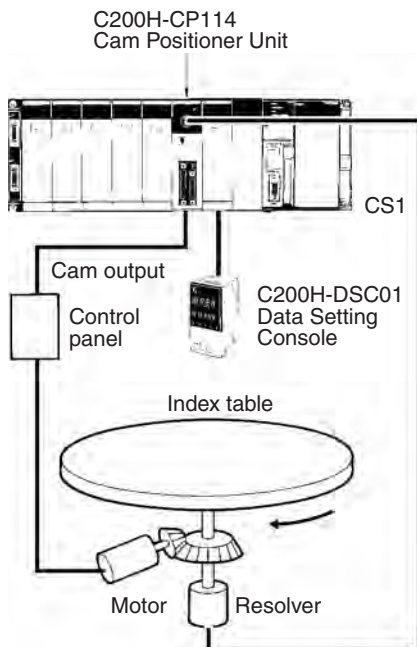
- Supports 16 external outputs and 32 internal outputs for a total of 48 cam outputs.
- Set up to seven ON/OFF data for each cam.
- The Data Setting Console allows easy monitoring of cam data settings, present cam angles, or etc.
- An Adjustment Operation function enables setting cam outputs while actually operating the controlled machine.



Function

Angles are detected through an externally connected resolver (3F88L-RS□□ angle detector) and cam outputs are produced for preset ON/OFF angle data.

System Configuration



CS1 Unit Descriptions

Cam Positioner Unit
C200H-CP114

Specifications

Classification	Model	No. of cam outputs	Control unit	Resolver response speed	Unit numbers	Resolver response time
Cam Positioner Unit	C200H-CP114	48 (external outputs: 16, internal outputs: 32)	360 division per rotation	800 r/min max.	0 to 9	200 μ s (sampling frequency: 5 KHz)

■ Data Setting Console

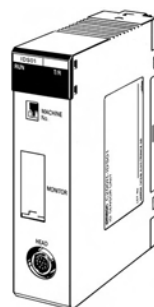
Specifications	Model
Monitoring, setting, and changing present values, set points, alarm values, PID parameters, bank numbers, etc.	C200H-DSC01

ID Sensor Units

CS1W-V600□□□/C200H-IDS01-V1

Connect an ID System to the PLC. Easily Started with a Programming Console.

- Connects and ID System to the Programmable Controller.
- Read data from Data Carriers simply by sending a read command.
- Read/write up to 1,024 bytes for the C200H-IDS01-V1 and up to 2,048 bytes for the CS1W-V600C11/12.

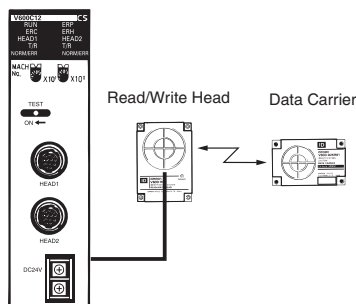


CS1W-V600C11
CS1W-V600C12
C200H-IDS01-V1

Function

Read/write data in Data Carrier memory by sending read/write commands from the CPU Unit to the Read/Write Head. The CS1W-V600C11 connects to one Read/Write Head; the CS1W-V600C12 connects to two. Data transmission speed has also been increased.

System Configuration



Specifications

Classification	Connectable ID System	Read/Write Heads	External power supply	Unit numbers	Model
CS1 Special I/O Unit	V600 Series (electromagnetic, for short distances)	1 max.	Not required.	0 to 95	CS1W-V600C11
		2 max.	24 VDC	0 to 94	CS1W-V600C12
C200H Special I/O Unit		---	Not required.	0 to 9	C200H-IDS01-V1

Serial Communications Features

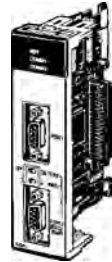
Unit	Model	Ports	Serial communications mode							BASIC programming	Message communications
			Protocol macros	Host Link	NT Links	No-protocol	Peripheral bus	Programming Console bus	Serial Gateway (See note.) ^{NEW}		
			General-purpose external devices	Host computers	OMRON PTs	General-purpose external devices	Programming Devices	Programming Console	CompoWay/F-compatible models	General-purpose external device	
CPU Units	All models	Port 1: Peripheral	No	Yes	Yes	No	Yes	Yes	No	No	No
		Port 2: RS-232C	No	Yes	Yes	Yes	Yes	No	Yes	No	No
Serial Communications Boards/Units	CS1W-SCB21-V1	Port 1: RS-232C	Yes	Yes	Yes	Yes (See note.)	No	No	Yes	No	No
		Port 2: RS-232C	Yes	Yes	Yes	Yes (See note.)	No	No	Yes	No	No
	CS1W-SCB41-V1	Port 1: RS-232C	Yes	Yes	Yes	Yes (See note.)	No	No	Yes	No	No
		Port 2: RS-422A/485	Yes	Yes	Yes	Yes (See note.)	No	No	Yes	No	No
	CS1W-SCU21-V1	Port 1: RS-232C	Yes	Yes	Yes	Yes (See note.)	No	No	Yes	No	No
		Port 2: RS-232C	Yes	Yes	Yes	Yes (See note.)	No	No	Yes	No	No
ASCII Units	C200H-ASC02	Port 1: RS-232C	No	No	No	No	No	No	No	Yes	No
		Port 2: RS-232C	No	No	No	No	No	No	No	Yes	No
	C200H-ASC11	Port 1: RS-232C	No	No	No	No	No	No	No	Yes	No
		Port 2: RS-232C	No	No	No	No	No	No	No	Yes	No
	C200H-ASC21	Port 1: RS-232C	No	No	No	No	No	No	No	Yes	No
		Port 2: RS-422A/485	No	No	No	No	No	No	No	Yes	No
	C200H-ASC31	Port 1: RS-232C	No	No	No	No	No	No	No	Yes	No
		Port 2: RS-232C	No	No	No	No	No	No	No	Yes	No
DeviceNet RS-232C Unit	DRT1-232C2	Port 1: RS-232C Port 2: RS-232C	No	No	No	No	No	No	No	No	Yes

Note: CPU Unit Ver. 3.0 and Serial Communications Board/Unit Ver. 1.2 or later only.

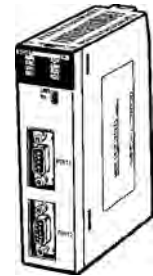
Serial Communications Units/Boards CS1W-SCU/SCB

Support Protocol Macros, Host Link Communications, 1:N NT Links, Serial Gateway, and No-protocol Mode

- Serial Communications Board
 - Increase the number of serial ports without using I/O slots.
 - Connect general-purpose external devices 1:N using RS-422A/485.
 - Generate interrupts in CPU Unit when data is received.
- Serial Communications Unit
 - Mount up to 16 Unit (including all other CPU Bus Units) on CPU or Expansion Racks. Ideal for systems that required many serial ports.



Serial Communications Boards
CS1W-SCB21-V1
CS1W-SCB41-V1



Serial Communications Unit
CS1W-SCU21-V1

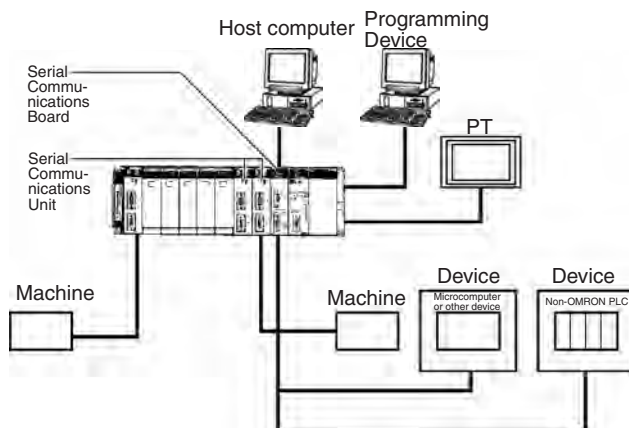
Function

Either an Inner Board or CPU Bus Unit can be used to increase the number of serial ports (RS-232C or RS-422A/485) two at a time. Specify Protocol Macros, Host Link Communications, 1:N NT Links,

Serial Gateway (see note), or no-protocol serial communications (see note) separately for each port. With the CS1 Series, you can easily provide the right number of serial ports for your system.

Note: Unit Ver. 1.2 or later only.

System Configuration



Specifications

Unit	Classification	Serial communications modes	Serial	Unit numbers	Model
Serial Communications Board	Inner Board	Set separately for each port: Protocol Macro, Host Link, 1:N NT Links, Serial Gateway, or no-protocol communications	RS-232C x 2	---	CS1W-SCB21-V1
			RS-232C x 1, RS-422A/485 x 1		CS1W-SCB41-V1
Serial Communications Unit	CS1 CPU Bus Unit		RS-232C x 2	0 to F	CS1W-SCU21-V1

GP-IB Interface Unit CS1W-GPI01

- Enables communications between SYSMAC CS-series PLCs and GP-IB instruments.
- Conforms to the standard interface IEEE-488-1978 (GP-IB).
- Usable in either Master Mode (controller) or Slave Mode (talker, listener).
- Communications with GP-IB instruments are easily implemented simply by using the INTELLIGENT I/O READ and INTELLIGENT I/O WRITE (IORD/IOWR) instruction in the ladder program in the CPU Unit to read and write buffer memory in the GP-IB Interface Unit.



CS1W-GPI01

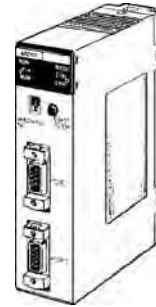
Specifications

Item	Specification
Name	SYSMAC CS-series GP-IB Interface Unit
Model number	CS1W-GPI01
Unit type	CS1 Special I/O Unit
Mounting location	CS1 CPU Rack or CS1 Expansion Rack
Max. number of GP-IB Interface Units	Up to 4 GP-IB Interface Units per CPU Unit
Unit number setting range	0 to 95
GP-IB Interface Unit settings when editing the I/O tables offline with the CX-Programmer	Number of unit numbers used: 1 Number of input words allocated: 5 Number of output words allocated: 5
Transmission method	8-bit parallel data transfer
Communications method	Half duplex
Interface	Conforms to IEEE-489-1978 (24-pin) standards
Handshaking method	Three-line handshaking
Functional specifications (GP-IB interface functions)	Master mode: SH1, AH1, T6, TE0, LE0, C1 to C4, and C28 Slave mode: SH1, AH1, T6, TE0, L4, LE0, SR1, RL0, PP0, DC1, and DT0
Connection configurations	Star configuration or daisy-chain configuration
Transmission distance	Limits on the length of cables in the system (All three of these conditions must be satisfied simultaneously.) Total cable length ≤ Number of devices in the system × 2 m Total cable length ≤ 20 m Length of a single cable ≤ 4 m (for a 1:1 connection)
Max. number of connected devices	15 devices max. including the GP-IB Interface Unit
GP-IB device address	0 to 30
Delimiters	Select from the following: CR + LR, CR, LF, EOI, or user-set code.
Max. data transfer size	512 bytes max. in a single reception or transmission
Max. number of connectors	2 (connectors can be stacked)
Current consumption	5 VDC, 330 mA
Dimensions	35×130×101 mm (W×H×D)
Weight	258 g max.

ASCII Units C200H-ASC□□

Easily Perform ASCII Data Communications with All Types of General-purpose External Devices. An ASCII Unit Can Also Be Used as a Special Processing Unit.

- Perform ASCII communications with a wide range of external devices.
- The C200H-ASC11/ASC21/ASC31 function as special processing units with BASIC programming.
- Large-capacity user memory: 200 Kbytes
- Model available with RS422A/485 port.
- Various forms of data exchanges with CPU Unit: Select the best method for the read/write trigger and timing.
- High-speed data exchanges possible with shared memory (not dependant on I/O refresh).
- A wide range of interrupt processes: Interrupts fro CPU to ASCII Unit, communications interrupt, key interrupts, timer interrupts, error interrupts, etc.
- Easy control of transmission control signals.
- Calculation instructions for error check codes.
- Many BASIC debugging functions (break points, 1-step execution, execution stop monitoring, etc.)
- Error log supported with up to 30 error records.



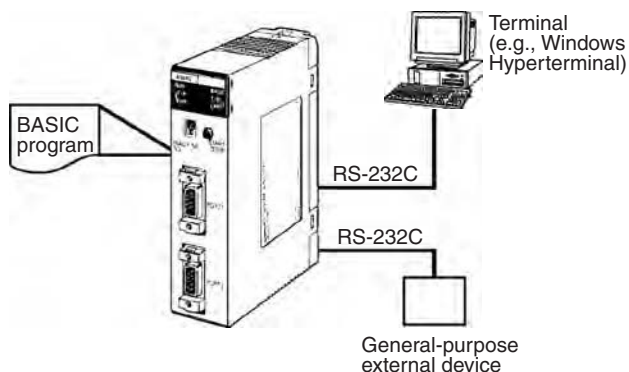
C200H-ASC11
C200H-ASC21
C200H-ASC31

Function

The ASCII Units support BASIC language programming and RS-232C and RS422A/485 serial communications. BASIC programming enables ASCII communications with essential any external device. It can also be used as a special processing unit to aid the CPU Unit without using external communications.

The C200H-ASC21/ASC21/ASC31 provided shared memory with the CPU Unit, and both the ASCII Unit and the CPU Unit can access the shared memory asynchronously, providing for high-speed data exchanges between the two Units without using interrupts.

System Configuration



Lineup of Units
CPU Unit Overview
Basic System Configuration
Better Basic Performance
Peripheral Devices
CPU Unit Overview
I/O Allocations
Current Consumption
Instructions
Replacing C200H I/O Units
ORDERING GUIDE
Wiring Devices for High-density I/O Units
Connector Cables
Peripheral Devices

CS1 Unit Descriptions

ASCII Units
C200H-ASC□□

Specifications

Classification	User memory	Shared memory	Serial communications ports	Unit numbers	Model
C200H Special I/O Unit	200 Kbytes	Provided (90 words in I/O memory)	RS-232C x 2	0 to F	C200H-ASC11
			RS-232C x 1, RS-422A/485 x 1		C200H-ASC21
			RS-232C x 2, RS-232C x 1 for terminal		C200H-ASC31

Note: The C200H-ASC02 can also be used with CS1 PLCs.

Protocol Macros

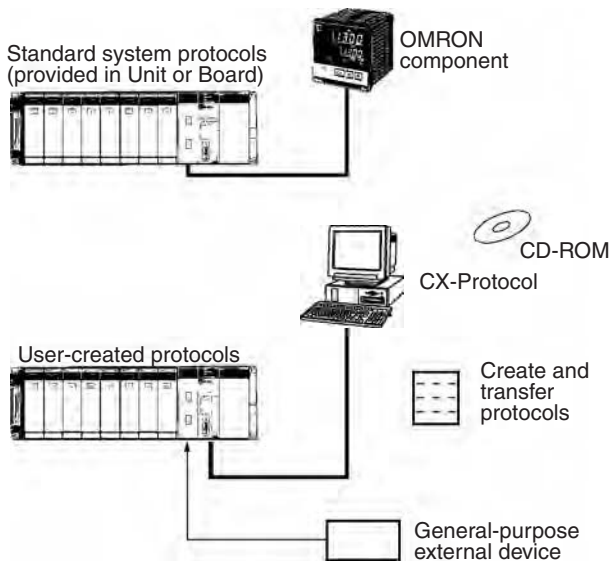
Easily Create Protocols for Data Exchange with External Devices; Execute with One Instruction

Function

Protocols for communications with external devices can be easily created according to the communications standards required by the external device. Protocol macros enable communications with essentially any external device with an RS-232C or RS-422A/485 port without programming communications in the PLC.

Standard system protocols are provided as a standard feature for communications with OMRON components, such as Temperature Controllers, Panel Meters, Bar Code Readers, and Modems. A Windows-based tool called CX-Protocol is also available to enable creation of protocols for most any external device.

System Configuration



Types of Protocol

Protocols	External devices	Required products
Standard system protocols	OMRON components	Serial Communications Board or Unit
User-created protocols	General-purpose external device	Serial Communications Board or Unit + CX-Protocol (Windows-based protocol support software)

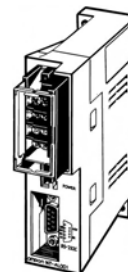
Standard System Protocols

Component		Model	Send/receive sequences
CompoWay/F-compatible components		OMRON CompoWay/F slave components	CompoWay/F command send/response receive
Digital Controllers and Temperature Controllers	Small Digital Controller with Communications (53 x 53 mm)	E5CK	Present value read, set point read, manipulated variable read, etc. Set point write, alarm write, PID parameter write, etc.
	Temperature Controllers with Digital Indications (Thermac J with communications) (96 x 96 mm or 48 x 96 mm)	E5□J-A2H0	
	Digital Controllers with Communications (96 x 96 mm)	ES100□	
	High-density Temperature Controller with communications (8 control points)	E5ZE	
Intelligent Signal Processors (special specifications)		K3T□	Display value read, comparison value read, write, etc.
Bar Code Readers	Laser Scanner type	V500	Read start, data read, read stop, etc.
	CCD type	V520	
Laser Micrometer		3Z4L	Measurement condition set, continuous measurement start, etc.
Visual Inspection Systems	High speed, high precision, low cost	F200	Measurement, continuous measurement, etc.
	High-precision inspection/positioning	F300	
	Character inspection software/positioning software	F350	
ID Controllers	Electromagnetic coupling (for short distances)	V600	Carrier data read, autoread, write, etc.
	Microwave (for long distances)	V620	
Hayes Modem AT Command		---	Modem initialize, dial, send, etc.
C-series PLCs (See note.)		PLC with Host Link (C mode) protocol	---
CS/CJ-series PLCs (See note.) CVM1/CV-series PLCs (See note.)		PLC with Host Link (FINS) protocol	
Mitsubishi PLCs (Sequencer CPU Modules) (See note.)		PLC with Computer Link (A-compatible, 1C frame, model 1) slave functions.	

Note: Serial Communications Board/Unit Ver. 1.2 or later only.

RS-232C/RS-422A Adapter Unit NT-AL001

- Long-distance transmissions are possible through an RS-422A interface. By converting from RS-232C to RS-422A and then back to RS-232C, a transmission distance of up to 500 m can be achieved.
- No power supply is required. If the 5-V terminal (150 mA max.) is connected from the RS-232C device, a separate power supply is not required to drive the Adapter Unit.
- Duct wiring can be used. The removable terminal block enables wiring not possible with D-sub connectors. (The RS-232C interface is 9-pin D-sub.)



NT-AL001

Function

The NT-AL001 is used to connect a PT or other device with an RS-232C terminal to a device with an RS-422A terminal.

Communications Specifications

■ RS-232C Interface

Item	Specification
Baud rate	64 Kbps max.
Transmission distance	2 m max.
Connector	9-pin, D-sub connector (female)

■ RS-422A Interface

Item	Specification
Baud rate	64 Kbps max. (depends on RS-232C baud rate)
Transmission distance	500 m max.
Terminal block	8 terminals, M3.0; detachable

Communications Networks

Overview

Level	Network	Functions	Communications	Unit/Board
Information networks	Ethernet	Host computer to PLC	FINS messages	Ethernet Unit
		PLC to PLC		
		Host computer to CPU Unit memory card	FTP server	
		UNIX computer or other socket service to PLC	Socket services	
	Controller Link and SYSMAC LINK	Computers connected directly to network and PLC	FINS messages Data links (offsets and automatic setting)	Controller Link Support Board and Unit SYSMAC LINK Support Board and Unit
Control networks	Controller Link and SYSMAC LINK	PLC to PLC	FINS messages	Controller Link Unit SYSMAC LINK Unit
			Data links (offsets and automatic setting)	
	PC Link		Simple data links	PC Link Unit
	DeviceNet		FINS messages on open network	DeviceNet Master Unit and Configurator
	DeviceNet	PLC to components (slaves)	High-capacity remote I/O on open network (fixed or user allocations)	DeviceNet Master Unit and Configurator
CompoBus/S	High-speed remote I/O with OMRON network (fixed allocations)		CompoBus/S Master Unit	

Communications Specifications

Network	Ethernet	Controller Link	SYSMAC LINK	DeviceNet	CompoBus/S
Messages	Yes	Yes	Yes	Yes	---
Data links	---	Yes	Yes	---	---
Remote I/O	---	---	---	Yes	Yes
Maximum speed	100 Mbps	2 Mbps Comm cycle: Approx. 34 ms (Wired: 32 nodes, 2-Kbits + 2-Kword data links)	2 Mbps Comm cycle: Approx. 34 ms (Wired: 32 nodes, 2-Kbits + 2-Kword data links)	500 Kbps Comm cycle: Approx. 5 ms (128 inputs and 128 outputs)	750 Kbps (See note 1.) Comm cycle: Approx. 1 ms (128 inputs and 128 outputs)
Total distance	2.5 km	Twisted-pair: 1 km at 500 Kbps H-PCF cable: 20 km GI cable: 30 km	Coaxial: 1 km Optical: 10 km	500 m at 125 Kbps	Trunk line: 500 m (See note 2.) Communications cycle: 6 ms max.
Maximum nodes	254	32/62	62	63	32
Communications media	Coaxial cable (10Base-5), twisted-pair (100Base-TX), or twisted-pair (10Base-T)	Special twisted-pair cable or optical cable	Coaxial cable or optical cable	DeviceNet cable	2-core or 4-core VCTF cable, special flat cable (See note 3.)
Network data link capacity	---	32,000 words	2,966 words	---	---
Remote I/O capacity	---	---	---	32,000 pts (with Configurator) 16,000 pts (without Configurator)	256 pts
Supporting PLCs	CS, CJ, CVM1, CV, C200HX/HG/HE (See note 4.)	CS, CJ, CVM1, CV, C200HX/HG/HE, CQM1H (Twisted-pair cable only for C200HX/HG/HE and CQM1H.)	CS, CVM1, CV, C200HX/HG/HE, C200HS, C1000H, C2000H	CS, CJ, CVM1, CV, C200HX/HG/HE, CQM1H (with I/O Link)	CS, CJ, C200HX/HG/HE, CQM1H, SRM1; CPM1A/CPM2C (with I/O Link)

- Note:**
- For high-speed communications mode. Trunk line length is 100 m (30 m max. for 4-core VCTF or special flat cable).
 - For long-distance communications mode (200 m max. for 4-core VCTF or special flat cable).
 - Different types of cables cannot be mixed.
 - For CVM1, CV, or C200HX/HG/HE: Max. speed: 10 Mbps, Max. nodes: 100, Communications media: Coaxial or twisted-pair cable (10Base-T).

Ethernet Units CS1W-ETN□□

Immediate Remote Access to PLCs Via Ethernet

Improved FINS Message Communications

- Conforms to TCP/IP.
- Increased number of nodes. (Previously 126 nodes max. increased to 254 nodes max.)
- Communications are still possible even if IP address of host computer changes.
- Multiple FINS applications can be connected online in the personal computer.
- FINS message communications response is up to four times faster than previous models.

Improved Mail

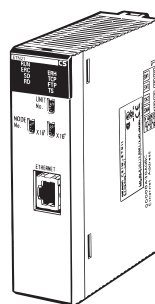
- Mail can be sent containing commands to the PLC (e.g., mail can be used to read I/O memory in the CPU Unit and send commands to backup memory).
- Files can be sent as mail attachments (a data file can be automatically generated and sent as an attachment when specified conditions are met).
- More advanced mail send conditions (e.g., sending mail when values in the CPU Unit's I/O memory change to specified values)

Specify Host Name for Server (DNS Client Function)

Automatically Adjusted Built-in Clock (SNTP Client Function)

FTP Server Function, and Socket Services Are Also Supported (Same as Previous 10-Mbps Ethernet Unit)

Mail, DNS client, SNTP client, FTP server, and socket service are not supported for the CS1D-ETN21D.

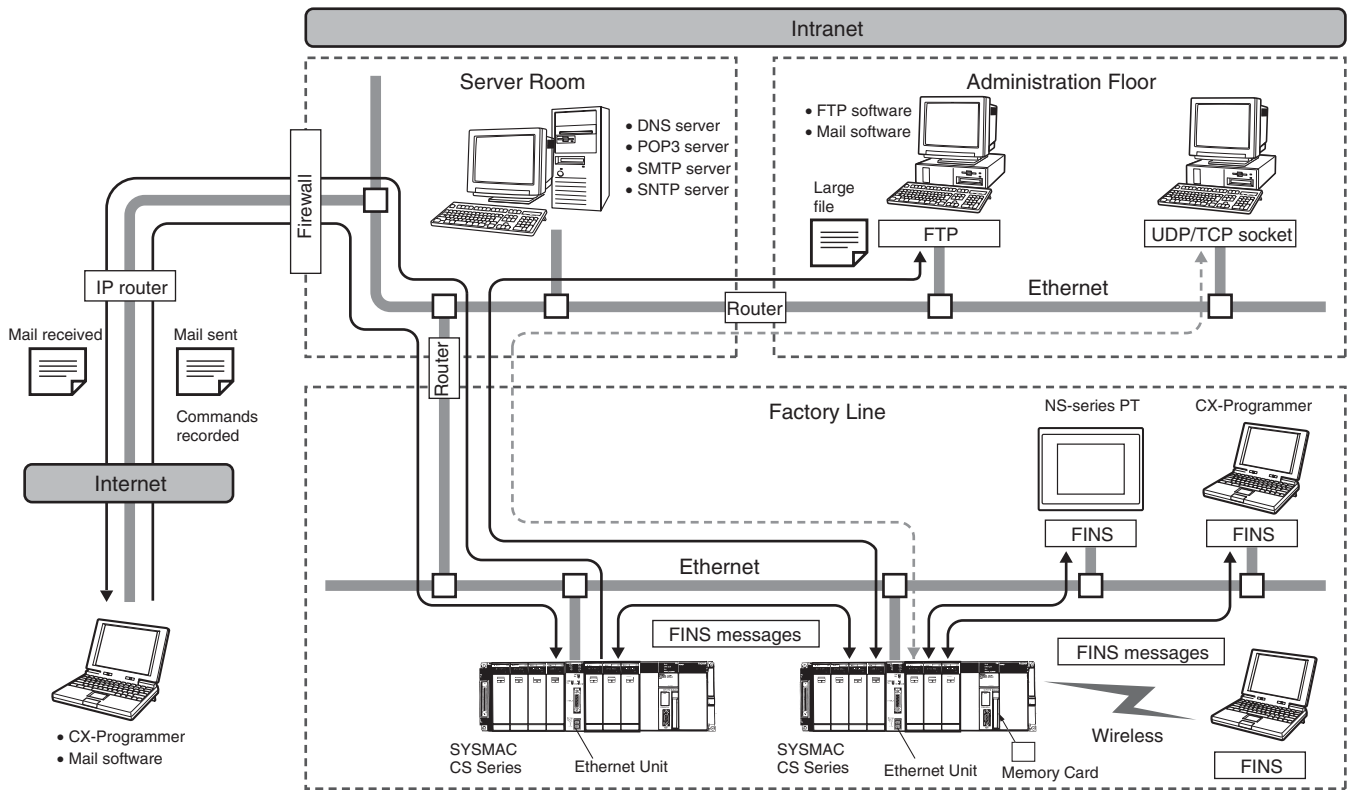


100Base-TX Ethernet Unit
CS1W-ETN21
CS1D-ETN21D

Function

The same functionality and application interfaces as previous CS1W-ETN01 and CJ1W-ETN11 Ethernet Units are provided, while using 100Base-TX as the transmission media. Robust FINS communications enable Ethernet connections using the Intranet. Mail functions have been improved to enable PLC remote access via the Internet.

System Configuration

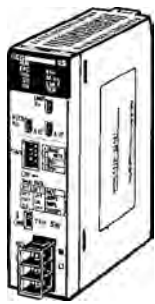


Specifications

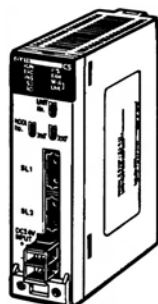
Unit name	Type	Communications service	Connector	Model
Ethernet Unit (100Base-TX)	CS CPU Bus Unit	FINS communications service (TCP/IP, UDP/IP), FTP server functions, socket services, mail transmission service, mail receive (remote command receive), automatically adjusted PLC built-in clock, server/host name specification	100Base-TX (10Base-T)	CS1W-ETN21
				CS1D-ETN21D

Controller Link Units and Controller Link Support Boards CS1W-CLK/3G8F7-CLK

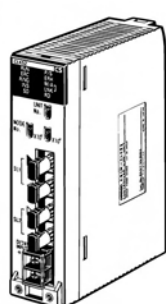
Simpler Controller Link Wiring, Startup, and Construction Provides Larger-capacity Data Links, Greater Flexibility in Area Control, and Supports Multiple Sub-networks



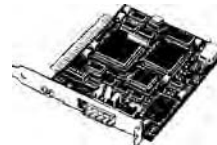
CS1W-CLK21-V1
Wired Controller Link Unit



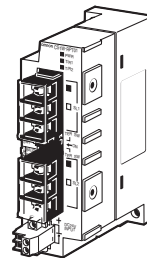
CS1W-CLK12-V1
Optical Controller Link Unit (H-PCF Cable)



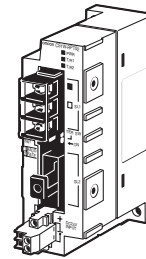
CS1W-CLK52-V1
Optical Controller Link Unit (GI Cable)



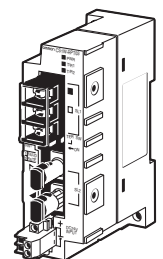
Personal Computer Boards (for PCI bus)
3G8F7-CLK21-EV1 (for wired systems)
3G8F7-CLK12-EV1 (for optical, H-PCF-cable systems)
3G8F7-CLK52-EV1 (for optical, GI-cable systems)



CS1W-RPT01
Wire-to-Wire Repeater Unit



CS1W-RPT02
Wire-to-H-PCF Repeater Unit



CS1W-RPT03
Wire-to-GI Quartz Repeater Unit

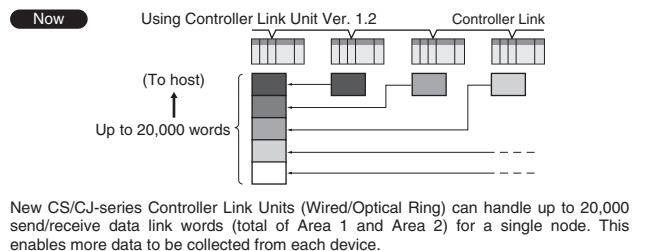
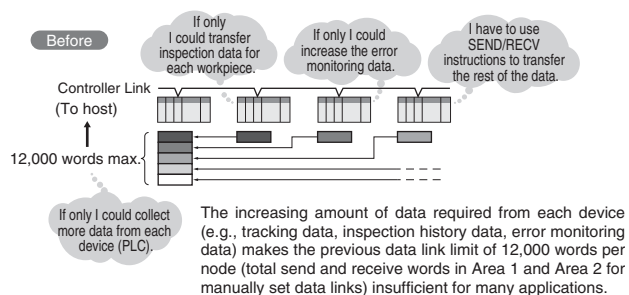
Function

The data link capacity is 20,000 words per node. Allocate both Data Link Area 1 and Area 2 in the same area. Connect up to 8 Units under a single CPU Unit (Unit Ver. 1.2 only).

Using Wired Controller Link Units together with Repeater Units allows network configurations for essentially any application, including T-branching, long-distance applications, applications with up to 62 nodes, or applications with optical sections in a wired network. Models are also available that enable changes in configurations and automatic 1:N communications while data links are active.

Huge increase in amount of data that can be collected from devices.

Number of data link send/receive words (total of Area 1 and Area 2) for a single Controller Link Unit increased from 12,000 to 20,000 words.

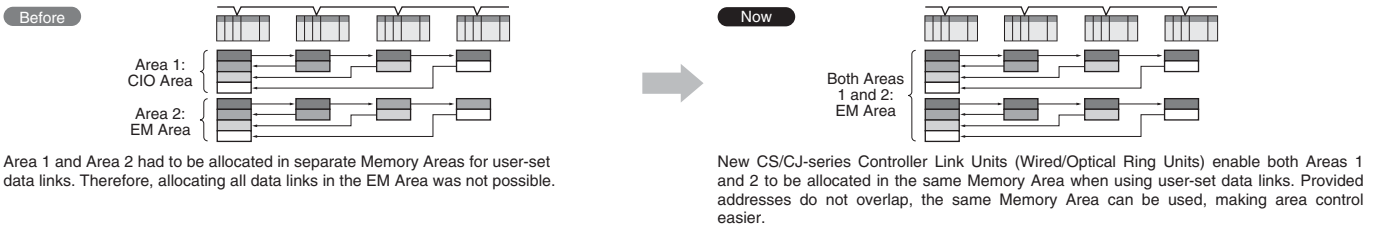


Lineup of Units
CPU Unit Overview
Basic System Configuration
Better Basic Performance
Peripheral Devices
CPU Unit Overview
I/O Allocations
Current Consumption
Instructions
Replacing C200H I/O Units
ORDERING GUIDE
Wiring Devices for High-density I/O Units
Connector Cables
Peripheral Devices

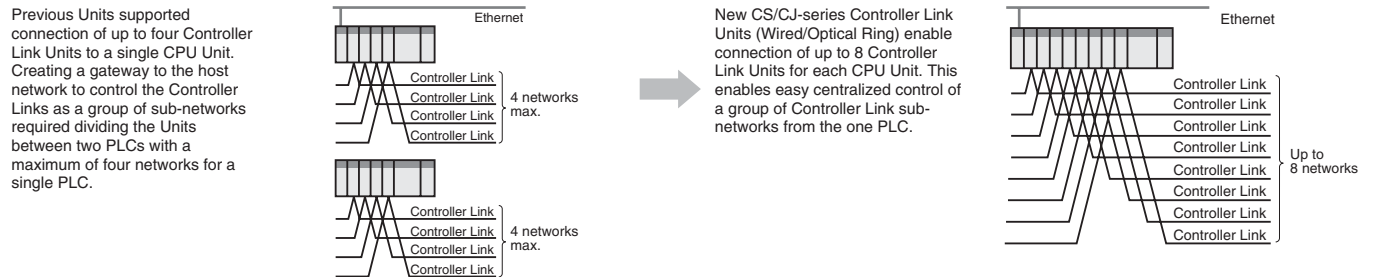
CS1 Unit Descriptions

Controller Link Units and Controller Link Support Boards CS1W-CLK/3G8F7-CLK

The same Memory Area can be used for the Data Link Areas. For example, Data Link Areas 1 and 2 can be both allocated and managed in EM Bank 0.



Control up to 8 Controller Link sub-networks as a group from the host network.

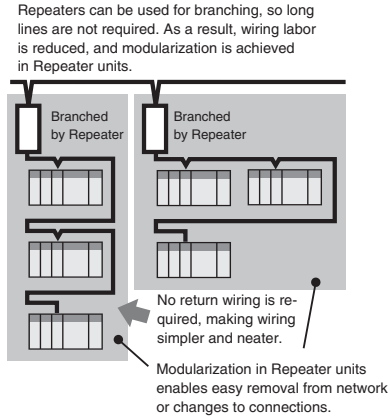


- Lineup of Units
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- Wiring Devices for High-density I/O Units
- Connector Cables
- Peripheral Devices

System Configuration

Use Repeater Units for T-branch Wiring, Extension, Expansion, and Optical Sections

T-branching Enables More Flexible Wiring Solutions for Layout, Building, and Expansion of Networks



Wired Types Support Long-distance Extension

The total extended length that was previously 500 m at 2 Mbps can be extended to up to 1.5 km by using two Repeater Units.

Connect up to 64 Nodes Using Wired Types

Networks can be constructed with up to 62 nodes when Controller Link Units/Support Boards with -V1 suffix are combined with Repeater Units.

Wiring with Optical Cables Increases Noise Immunity

Using two Repeater Units for optical ring enables wiring with optical cables in parts of the network subject to noise.

Simpler, More Flexible Data Links

Change Data Link Tables While Data Links Are Active

- When data link tables are changed due to additional nodes or other networking changes, data link tables can be transferred without stopping any data link communications.
- Flexible system configurations can be changed by combining node expansion using Repeater Units.

Specifications

Unit/Board	Classification	Compatible PLC	Media	Model	Connections
Controller Link Units	CPU Bus Unit	CS Series	Wired	CS1W-CLK21-V1	Can be mounted together with previous Controller Link Units/Support Boards.
			Optical ring (H-PCF cable)	CS1W-CLK12-V1 (See note.)	
			Optical ring (GI cable)	CS1W-CLK52-V1 (See note.)	
Controller Link Support Boards	Personal computer board (for PCI bus)	---	Wired	3G8F7-CLK21-EV1	
			Optical ring (H-PCF cable)	3G8F7-CLK12-EV1	
			Optical ring (GI cable)	3G8F7-CLK52-EV1	
Controller Link Repeater Units	---	Not mounted to PLC	Twisted-pair cable	CS1W-RPT01	Unit mounted independently using either DIN Track or screws.
			Optical ring (H-PCF cable)	CS1W-RPT02	
			Optical ring (GI cable)	CS1W-RPT03	

Note: Lot numbers for the CS1W-CLK12-V1 and CS1W-CLK52-V1 are 030602 or later (June 2003 or later).

Main Specifications Related to Version Upgrade for Unit Ver. 1.2

Item	Unit Ver. 1.2 or later	Pre-Ver. 1.2
Number of data link words	Number of send/receive words per Unit Total of Area 1 and Area 2: 20,000 words max.	Number of send/receive words per Unit Total of Area 1 and Area 2: 12,000 words max.
Data Link Area allocations	User-set allocations	Areas 1 and 2: CIO Area (including data link words), DM Area, and EM Area
	Automatically set equal allocations	Both Area 1 and Area 2 can be allocated in the same area (provided there is no address duplication).
	Automatically set 1:N allocations	Both Area 1 and Area 2 cannot be allocated in the same area.
Maximum number of Controller Link Units connected to a single CPU Unit	8 Units max.	4 Units max.

Note: CX-Programmer Ver. 5.0 or higher is required to set a data link area with a maximum number of send and receive words of 20,000 words per Controller Unit, or to allocate the same area for Area 1 and Area 2.

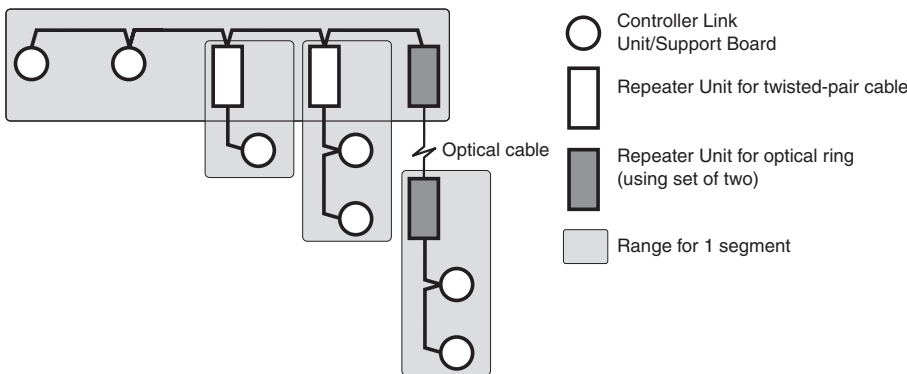
CS1 Unit Descriptions

Controller Link Units and Controller Link Support Boards
CS1W-CLK/3G8F7-CLK

Specifications for Networks Using Repeaters

Item	Segment (See note 1.)	Total network
Transmission path configuration	Multi-drop	Tree (using Repeaters to connect each segment)
Baud rate/maximum transmission distance (See note 2.)	2 Mbps: 500 m 1 Mbps: 800 m 500 kbps: 1 km	2 Mbps: 1.5 km 1 Mbps: 2.4 km 500 kbps: 3.0 km
Maximum number of nodes	Controller Link Unit + Repeater Unit Total number of nodes: 32	Controller Link Unit: 62 nodes (using a Controller Link Unit that supports 62 nodes)
Maximum number of Repeater levels (See note 3.)	---	2 levels

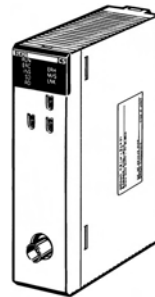
- Note:**
- Specifications for each segment are the same as for Wired Controller Link networks.
 - Maximum transmission distance: Total wired cable length between the two nodes separated by the longest total wired cable length.
 - Maximum number of Repeater levels: Maximum number of Repeaters in a path linking any two nodes. For optical ring types, one set of two Units comprises one level.



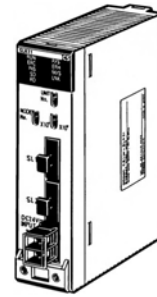
SYSMAC LINK Units and Support Boards CS1W-SLK/3G8F7-SLK

OMRON's Main FA Networks

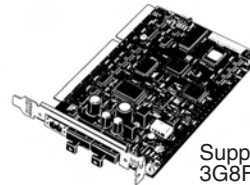
- Large-capacity, flexible data links.
- Large-capacity data transfers with message service.
- Use coaxial cable or optical fiber to meet system requirements.
- Connect different series of PLCs: CS1, C200HX/HG/HE, CVM1, CV, C200HS and C1000H.
- Complete troubleshooting measures.
- Communications settings with CX-Programmer.



CS1W-SLK21
Coaxial SYSMAC LINK Unit



CS1W-SLK11
Optical SYSMAC LINK Unit



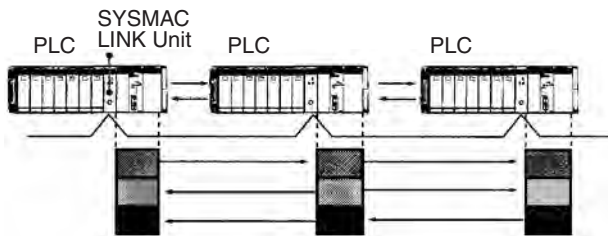
Support Boards (for PCI bus)
3G8F7-SLK21-E (for coaxial systems)
3G8F7-SLK11-E (for optical systems)

Function

The SYSMAC LINK is a core FA network between PLCs. Both automatic data links and as-needed message services can be set up between PLCs or between PLCs and factory computers. You can exchange large volumes of data between up to 62 nodes for large-scale networks, or create a smaller network to suit the application.

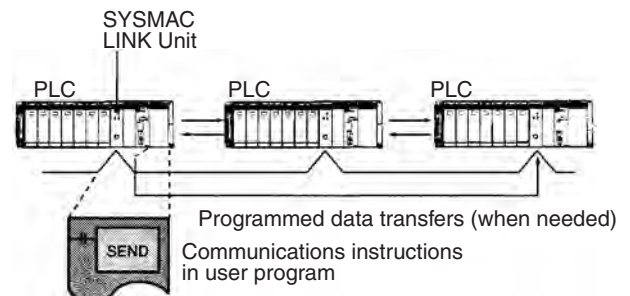
System Configuration

■ Data Links



Cyclic transfer with shared memory data areas
I/O bits, LR Area bits, DM Area words, etc.

■ Message Service



Programmed data transfers (when needed)
Communications instructions
in user program

CS1 Unit Descriptions

SYSMAC LINK Units and Support Boards
CS1W-SLK/3G8F7-SLK

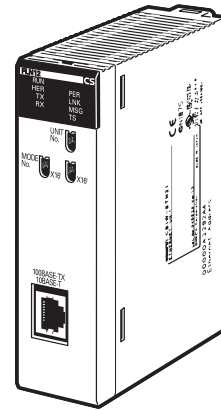
Specifications

Unit	Unit classification	Communications	Transmission media	Specifications	Unit numbers	Model
SYSMAC LINK Unit	CS1 CPU Bus Unit	Data links and message service	Coaxial cable	Up to 4 Units can be mounted to CPU Rack or CS1 Expansion Racks.	0 to F (4 Unit max.)	CS1W-SLK21
			Optical cable			CS1W-SLK11
SYSMAC LINK Support Board	Computer board		Coaxial cable	Computer: Windows-compatible Computer with PCI bus	---	3G8F7-SLK21-E
			Optical cable			3G8F7-SLK11-E

FL-net Unit CS1W-FLN22

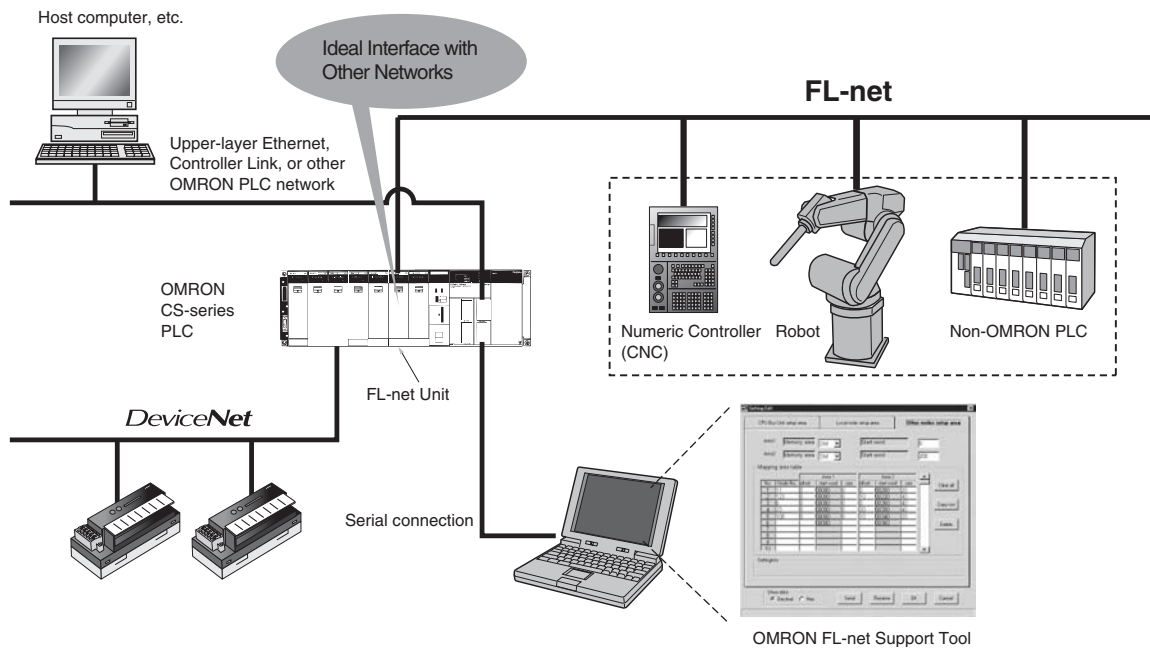
100Base-TX-compatible CS/CJ-series FL-net Unit Easily Enables High-speed Communications with Multi-vendor Controllers

- Functions as Interface with Various Networks
The CS/CJ Series is compatible with upper-layer Ethernet, OMRON's PLC Controller Link communications protocol, and DeviceNet fieldbus systems, enabling interfacing with each of these networks.
- Supports Baud Rate of 100 Mbps
A baud rate of 100 Mbps is supported. The baud rate can be automatically selected or a fixed baud rate of 10 Mbps can be set.
- Specify the Order of Data Link Data
The order of link data bytes can be specified for each node according to the needs of the connected device, eliminating the need for upper/lower byte conversion (SWAP) processing in the ladder program.
- Supports Simple Backup Function
The setting data (such as the FA Link table) stored in the FL-net Unit can be backed up to the Memory Card in the CPU Unit, making Unit replacement easy.



CS1W-FLN22 **NEW**

System Configuration



What is FL-net?

FL-net is an open FA network that was standardized by the Special Committee for Network Promotion organized by the Japan Electrical Manufacturer's Association (JEMA). FL-net is based on Ethernet and enables interconnection of programmable controllers (PLCs) and other FA devices by different manufacturers. FL-net has the following features.

Ethernet-based FA network.

- Defines a new Ethernet-based FA Link protocol.
- Uses Ethernet's standard UDP/IP communications protocol.
- Cables, hubs, and other networking components are readily available.

Supports cyclic and message transmissions.

- Interlocks between devices, production instructions, and production results collection can all be implemented on the same network.

Uses token passing without a master.

- Prevents data collision and ensures transmission within a fixed period of time.
- Nodes can be automatically added to or removed from the network.
- Communications are maintained between all nodes that are capable of communicating even if a power interruption occurs, or a fault occurs in network devices or cables.

Specifications

■ FL-net Unit

Item	Model Type	CJ1W-FLN22	
		100Base-TX	10Base-T
Applicable PLCs	CJ-series PLCs		
Unit classification	CPU Bus Unit		
Mounting location	CPU Rack or Expansion Rack		
Number of Units that can be mounted	4 max. (including Expansion Racks)		
Transfer specifications	Media access method	CSMA/CD	
	Modulation	Baseband	
	Transmission paths	Star	
	Baud rate	100 Mbps	10 Mbps
	Transmission media	Unshielded twisted-pair (UTP) cable Categories: 5, 5e Shielded twisted-pair (UTP) cable Categories: 100 Ω at 5, 5e	Unshielded twisted-pair (UTP) cable Categories: 3, 4, 5, 5e Shielded twisted-pair (UTP) cable Categories: 100 Ω at 3, 4, 5, 5e,
	Transmission distance	100 m (distance between hub and node)	
	Number of cascade connections	2	4
Communications	Cyclic transmission	<ul style="list-style-type: none"> • Data link capacity: 8 KB max (512 words) + 8,192 words • Maximum size per node: 8 KB max (512 words) + 8,192 words (Note: Earlier CJ1W-FLN01/02/12 versions were restricted to a maximum of 7,677 words.) • Maximum number of data links: 128 • The byte order for data transfer between the Common Memory and CPU Unit's Data Link Area can be selected for each node, according to the needs of the data link-compatible device. <p>Note: Earlier CJ1W-FLN01/02/12 versions supported specifying only the order of data allocated data between the Common Memory and Data Link Area, but the direction can now be reversed.</p>	
	Message communications	Supported messages (client function): Read word block, write word block, send transparent message frame (send/read), vendor message (FINS message) Supported instructions: SEND(090)/RECV(098)/CMND(490) (executes sends between OMRON PLCs) or CMND(490) (executes sends between OMRON and non-OMRON PLCs)	

Note: FL-net Support Tool (Ver. 1.60 or higher) is required to make the FL-net settings.
Contact your OMRON sales representative for details on purchasing FL-net Support Tool.

■ FL-net Support Tool

OS	Windows XP, 2000, NT 4.0, Me, 98, or 95
Connection to PLC	Serial connection to CPU Unit's peripheral port or RS-232C port (serial communications mode: Peripheral Bus) Connection cables for IBM PC/AT or compatible: Peripheral port: CS1W-CN226/626 RS-232C port: XW2Z-200S/500S-CV
Function	FL-net Unit initial settings, data link settings, monitor function (Unit status, network status, node status, data link status, participating node status, message sequence status, FA Link network status) With version 1.6 or higher, FL-net Unit settings of other nodes on the FL-net can be made and monitoring of FL-net Units can be performed.

Data Link Status

Displays the data link status of other nodes participating in the FL-net network.



Participating node status

Displays the status of other nodes participating in the FL-net network.



DeviceNet Units

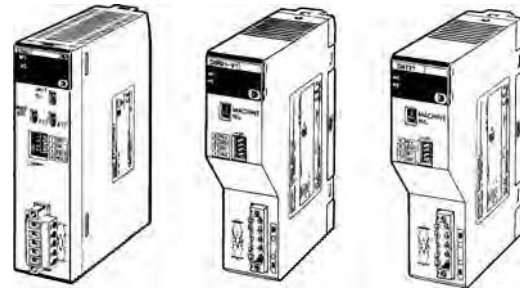
CS1W-DRM21-V1/C200HW-DRM21-V1/C200HW-DRT21

Multivendor, Multibit Network

- The following functionality is available without a Configurator (for the CS1-DRM21-V1):
- Remote I/O communications can be allocated in any area using the DM Area settings.
- More than one DeviceNet Unit can be mounted for each CPU Unit (3 max. for fixed allocations).
- More than one DeviceNet Unit can be connected as a master in a single network. When using the Configurator (see note), remote I/O can be allocated in an order independent of node address.

Note: The Configurator is allocated 1 node if connected using a special board or card. It is not allocated a node if connected using serial communications.

- DeviceNet Units can be used as both masters and slaves, and master and slave functionality can be used simultaneously.
- DeviceNet Units allow DeviceNet networks to be handled with the same seamless transparency as Controller Link, Ethernet, or other networks when using message communications or CX-Programmer remote programming and monitoring.



CS1W-DRM21-V1 DeviceNet Unit

C200HW-DRM21-V1 Master Unit

C200HW-DRT21 I/O Link Unit

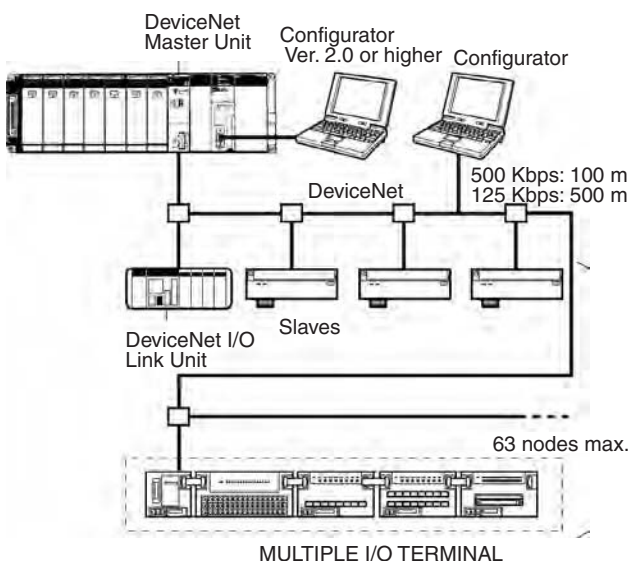
Function

This is OMRON's implementation of the DeviceNet open field network, a multibit, multivendor network for machine/line control and information. The following types of communications are possible.

1. Remote I/O communications for automatic data transfers between the CPU Unit and Slaves (with no programming in the CPU Unit).

2. Message communications that, using specific instructions (IOWR and CMND), can be programmed in a CPU Unit equipped with DeviceNet Unit to send read/write message to slaves or other CPU Units equipped with DeviceNet Units and control operation.

System Configuration



Specifications

■ DeviceNet Unit

Classification		Types of communications	Specifications	Unit numbers	Model
CS1 CPU Bus Unit	Master functions	Remote I/O communications master (fixed or user-set allocations) Remote I/O communications slave (fixed or user-set allocations) Message communications	Up to 16 Units can be mounted when a Configurator is used.	0 to F (A Configurator is required to mount 16 Units.)	CS1W-DRM21-V1
	Slave functions				
C200H Special I/O Unit	Master functions				Remote I/O communications master
	Slave functions	Remote I/O communications slave	C200HW-DRT21		

■ DeviceNet Configurator

Model number	Specifications
WS02-CFDC1-E	Software only (Windows 95, 98, NT 4.0, 2000, or XP)
3G8E2-DRM21-EV1	PC card with software (Windows 95, 98, Me, 2000, or XP)

■ Setting/Monitoring Software

Name	Model number	Specifications
NX-Server	WS02-NXD1-E	DDE edition (Windows 95, 98, NT 4.0, 2000, or XP)

■ DeviceNet Slaves

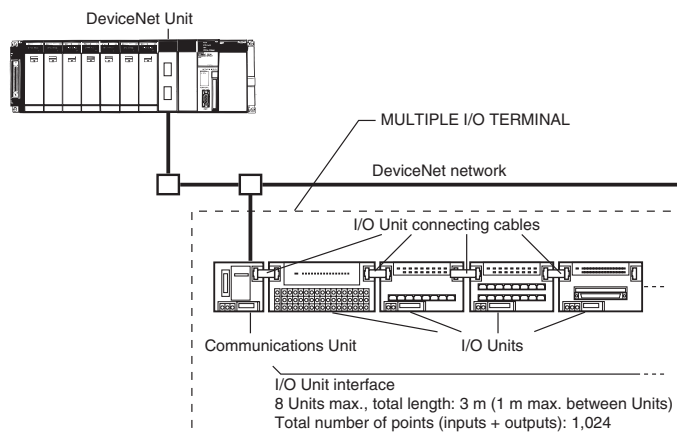
Note: Refer to *Ordering Information* in this manual for details.

MULTIPLE I/O TERMINALS

Multibit Building-block DeviceNet Slaves

- Expand I/O simply by adding I/O Units to the I/O interface.
- Create a low-cost multibit I/O system.
- Connect up to eight Multiple I/O Units to a single Communications Unit.
- Mix Digital and Analog Units.
- Select from a broad range of I/O Units.

System Configuration



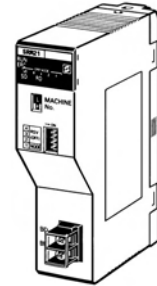
Function

A Communications Unit can be connected to DeviceNet to create an I/O interface for connecting various types of I/O Units. Allocations and address settings are not required for the I/O Units, enabling flexible distributed I/O with ease.

CompoBus/S Master Unit C200HW-SRM21-V1

High-speed ON/OFF Bus for Distributed Machine Control and Reduced Wiring

- Select either long-distance or high-speed communications.
 - High-speed: 750 Kbps, communications distance: 100 m (30 m for 4-core VCTF or special flat cable)
 - Long-distance: 93.75 Kbps, communications distance: 500 m (Total distance is 200 m max. for 4-core VCTF or special flat cable)
- Easy expansions at any location with T-branches.
- Reduce wiring with either VCTF cable or a special flat cable.
- Sensor connectors for easy wiring.

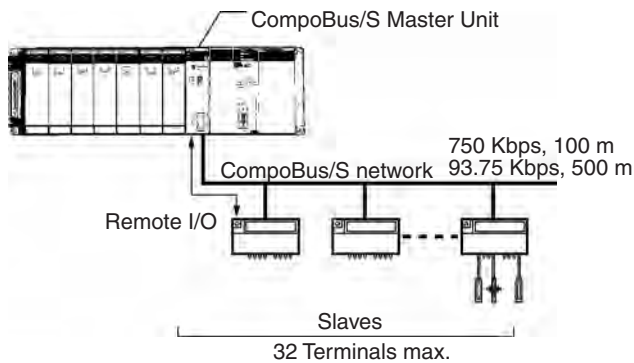


C200HW-SRM21-V1

Function

A high-speed ON/OFF bus that automatically transfers remote I/O status to the CPU Unit without any programming in the CPU Unit. High-speed remote I/O is supported by a communications cycle time of 1 ms maximum for 256 I/O points.

System Configuration



Specifications

■ CompoBus/S Master Unit

Classification	Communications	Specifications	Unit number	Model
C200H Special I/O Unit	Remote I/O	No. of mountable Units: 16	0 to F	C200HW-SRM21-V1

■ CompoBus/S Slave Units

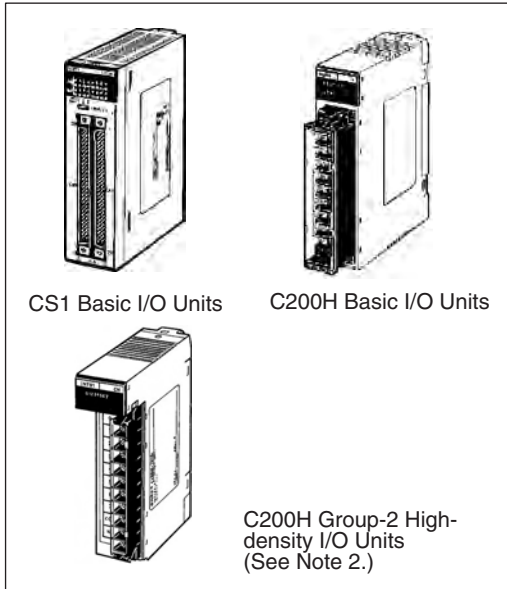
Note: Refer to *Ordering Information* in this manual for details.

I/O Allocations

In CS1 PLCs, part of the I/O memory is allocated to each Unit. Units are divided into the following 3 groups for allocations.

- Basic I/O Units
- Special I/O Units
- CS1 CPU Bus Units

Basic I/O Units

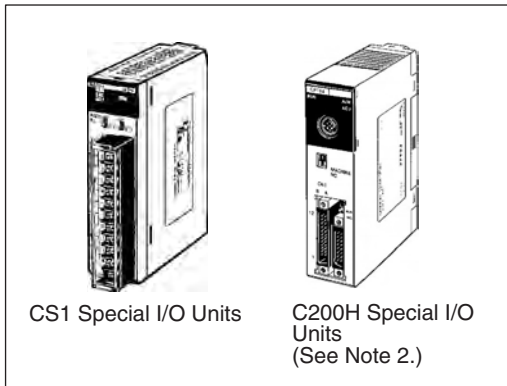


➔ CIO Area:
CIO 0000 to CIO 0319 (See Note 1.)
(Memory is allocated in word (16-bit) units in the order Units are mounted on the Rack.)

Allocations

- Note 1. The Rack's first word setting can be changed from the default setting (CIO 0000) to any word from CIO 0000 to CIO 9999. The first word setting can be changed only with a Programming Device other than a Programming Console.
2. The unit number setting on the front of C200H Group-2 High-density I/O Units is ignored. Words are allocated to these Units based on their location in the Rack.

Special I/O Units

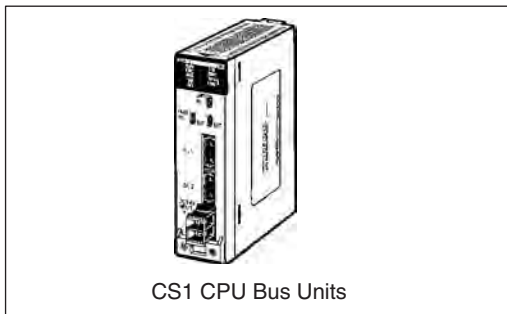


➔ Special I/O Unit Area:
CIO 2000 to CIO 2959
(Each Unit is allocated ten words based on its unit number.)

Allocations

- Note 1. Although there are 80 unit number settings, a maximum of 80 Units can actually be mounted to a PLC because that is the maximum number of slots possible.
2. Some Units classified as I/O Units (namely C200H High-density I/O Units) are actually treated as Special I/O Units.

CS1 CPU Bus Units



➔ CS1 CPU Bus Unit Area:
CIO 1500 to CIO 1899
(Each Unit is allocated 25 words based on its unit number.)

Allocations

■ Allocations to Basic I/O Unit Groups

Basic I/O Units include CS1 Basic I/O Units, C200H Basic I/O Units, and C200H Group-2 High-density I/O Units.

Allocated words in the CIO Area: CIO 0000 to CIO 0319

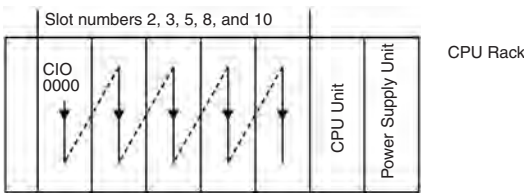
Basic I/O Units can be mounted to the CPU Rack, CS1 Expansion Racks, and C200HX/HG/HE Expansion I/O Racks.

Note: CS1 Basic I/O Units cannot be mounted to C200HX/HG/HE Expansion I/O Racks.

Allocation Methods

1. CPU Rack

Basic I/O Units on the CPU Rack are allocated words left to right (i.e., from the Unit farthest from the CPU Unit) starting from CIO 0000. Units are allocated as many words as required in word units (16 bits). The CX-Programmer can also be used to specify the first slot words and to reserve words.

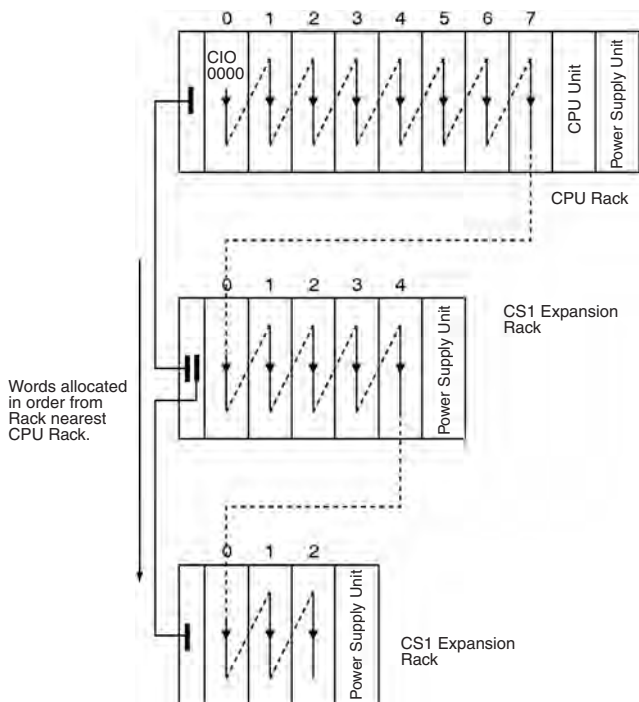


Example

0	1	2	3	4		
IN 8 CIO 0000	IN 16 CIO 0001	IN 64 CIO 0002 to 0005	OUT 8 CIO 0006	OUT 32 CIO 0007 to 0008	CPU Unit	Power Supply Unit

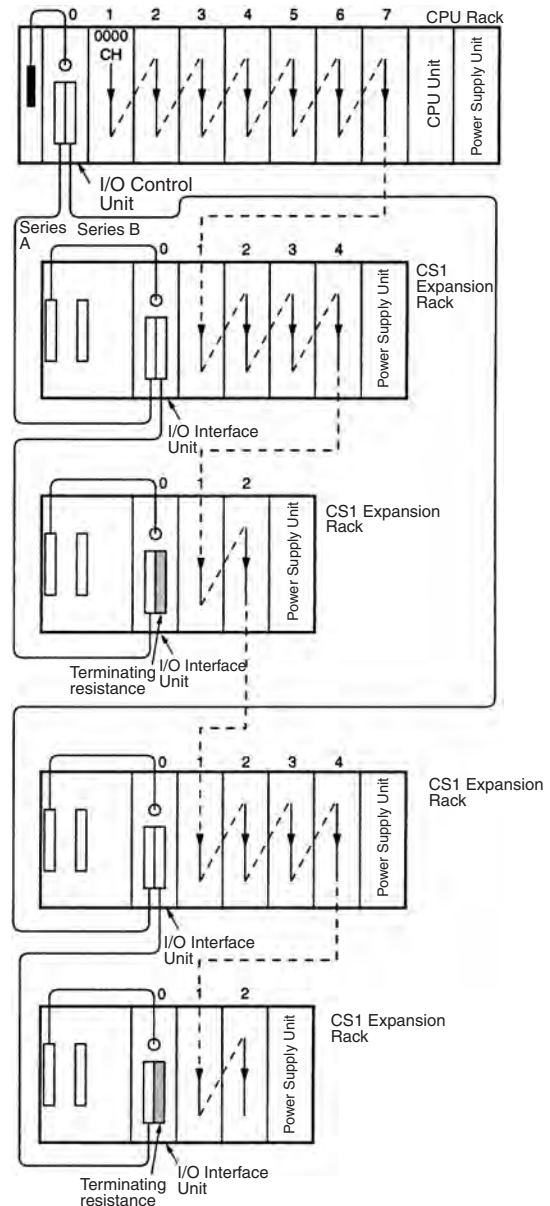
2. Allocations to CS1 Expansion and C200H Expansion I/O Racks

I/O allocation to Basic I/O Units continues from the CPU Rack to the Expansion Racks. Words are allocated from left to right and each Unit is allocated as many words as it requires in word units, just like Units in the CPU Rack. A Rack's first word setting can be changed set to any word from CIO 0000 to CIO 9999 using a Programming Device.



3. CS1 Long-distance Expansion Racks

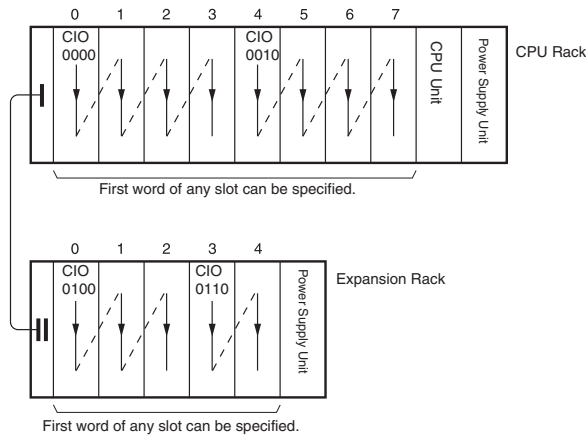
Words are allocated to series A and then series B. Otherwise, allocations are the same as for other Racks.



CS1 Unit Descriptions

Specifying First Slot Words (Unit Ver. 2.0 or Later with CX-Programmer Ver. 4.0 or Higher)

CX-Programmer version 4.0 can be used to specify the first word of specific slots on specific Racks. Up to 64 groups consisting of a corresponding Rack/slot number and first word can be specified, allowing, for example, Input Units and Output Units to be allocated in separate locations or allowing allocations to be specified in user-set groups.



With CX-Programmer version 3.2, up 3 first slot words can be specified.

Allocations to Special I/O Units

Special I/O Units include CS1 Special I/O Units and C200H Special I/O Units.

Each of these Units is allocated ten words in the Special I/O Unit Area (CIO 2000 to CIO 2959).

Special I/O Units can be mounted to the CPU Rack, CS1 Expansion Racks, and C200H Expansion I/O Racks*.

Note: *CS1 Special I/O Units cannot be mounted to C200H Expansion I/O Racks.

Each Unit is allocated 10 words in the Special I/O Unit Area, as shown in the following table.

Unit number	Words allocated
0	CIO 2000 to CIO 2009
1	CIO 2010 to CIO 2019
2	CIO 2020 to CIO 2029
:	:
15	CIO 2150 to CIO 2159
:	:
95	CIO 2950 to CIO 2959

Note: Special I/O Units are ignored during I/O allocation to Basic I/O Units. Slots containing Special I/O Units are treated as empty slots.

Allocations to CS1 CPU Bus Units

Each CS1 CPU Bus Unit is allocated 25 words in the CS1 CPU Bus Unit Area (CIO 1500 to CIO 1899).

CS1 CPU Bus Units can be mounted to the CPU Rack or CS1 Expansion Racks.

Each Unit is allocated 25 words in the CPU Bus Unit Area, as shown in the following table.

Unit number	Words allocated
0	CIO 1500 to CIO 1524
1	CIO 1525 to CIO 1549
2	CIO 1550 to CIO 1574
:	:
F	CIO 1875 to CIO 1899

Note: CS1 CPU Bus Units are ignored during I/O allocation to Basic I/O Units. Slots containing CS1 CPU Bus Units are treated as empty slots.

Current Consumption

The amount of current/power that can be supplied to the Units mounted in a Rack is limited by the capacity of the Rack's Power Supply Unit. The system must be designed so that the total current consumption of the Units does not exceed the maximum current for each voltage group and the total power consumption does not exceed the maximum for the Power Supply Unit.

■ CPU Racks and Expansion Racks

The following table shows the maximum currents and power that can be supplied by Power Supply Units on CPU Racks and Expansion Racks (both CS1 Expansion Racks and C200H Expansion I/O Racks).

- Note:**
1. When calculating current/power consumption in a CPU Rack, be sure to include the power required by the CPU Backplane and CPU Unit themselves.
 2. Likewise, be sure to include the power required by the Expansion Backplane itself when calculating current/power consumption in an Expansion Rack.

Power Supply Unit	Max. Current Consumption			Max. Total Power Consumption
	5-V group	26-V group	24-V group	
C200HW-PA204	4.6 A	0.6 A	None	30 W
C200HW-PA204S	4.6 A	0.6 A	0.8 A	30 W
C200HW-PA204R	4.6 A	0.6 A	None	30 W
C200HW-PD204	4.6 A	0.6 A	None	30 W
C200HW-PA209R	9 A	1.3 A	None	45 W
C200HW-PD106R	6 A	1.0 A	None	30 W
CS1D-PA207R	7 A	1.3 A	None	35 W
CS1D-PD024	4.3 A	0.56 A	None	28 W

Be sure both Condition 1 and Condition 2 are met.

Condition 1: Maximum Current Supply

1. Current required at 5 VDC by all Units (A) ≤ Max. Current shown in table
2. Current required at 26 VDC by all Units (B) ≤ Max. Current shown in table
3. Current required at 24 VDC by all Units (C) ≤ Max. Current shown in table

Condition 2: Maximum Total Current Supply

1. $A \times 5 \text{ VDC} + B \times 26 \text{ VDC} + C \times 24 \text{ VDC} \leq \text{Max. Power shown in table}$

■ Example Calculations

Example 1

In this example, the following Units are mounted to a CPU Rack with a C200HW-PA204S Power Supply Unit.

Unit	Model	Quantity	5-VDC	26-VDC	24-VDC
CPU Backplane (8 slots)	CS1W-BC083	1	0.11 A	---	---
CPU Unit	CS1H-CPU67H	1	0.82 A	---	---
Input Units	C200H-ID216	2	0.10 A	---	---
	CS1W-ID291	2	0.20 A	---	---
Output Units	C200H-OC221	2	0.01 A	0.075 A	---
Special I/O Unit	C200H-NC213	1	0.30 A	---	---
CPU Bus Unit	CS1W-CLK21	1	0.50 A	---	---
Service Power Supply Unit		0.3 A used	---	---	0.3 A
Current consumption	Calculation		$0.11 \text{ A} + 0.82 \text{ A} + 0.10 \text{ A} \times 2 + 0.20 \text{ A} \times 2 + 0.01 \text{ A} \times 2 + 0.30 \text{ A} + 0.50 \text{ A}$	$0.075 \text{ A} \times 2$	0.3 A
	Result		2.35 A (≤4.6 A)	0.15 A (≤0.6 A)	0.3 A (≤0.8 A)
Power consumption	Calculation		$2.35 \text{ A} \times 5 \text{ V} = 11.75 \text{ W}$	$0.15 \text{ A} \times 26 \text{ V} = 3.9 \text{ W}$	$0.3 \text{ A} \times 24 \text{ V} = 7.2 \text{ W}$
	Result		$11.75 + 3.9 + 7.2 = 22.85 \text{ W} (\leq 30 \text{ W})$		

CS1 Unit Descriptions

Current Consumption

■ Current Consumption Tables

5-VDC Voltage Group

Name	Model	Consumption (A)
CPU Units (These values include current consumption by a Programming Console.)	CS1H-CPU67H	0.82 (See note.)
	CS1H-CPU66H	0.82 (See note.)
	CS1H-CPU65H	0.82 (See note.)
	CS1H-CPU64H	0.82 (See note.)
	CS1H-CPU63H	0.82 (See note.)
	CS1G-CPU45H	0.78 (See note.)
	CS1G-CPU44H	0.78 (See note.)
	CS1G-CPU43H	0.78 (See note.)
	CS1G-CPU42H	0.78 (See note.)
CS1D CPU Units for Single-CPU Systems supporting Online Unit Replacement	CS1D-CPU67S	0.82 (See note.)
	CS1D-CPU65S	
	CS1D-CPU44S	0.78 (See note.)
	CS1D-CPU42S	
Serial Communication Boards	CS1W-SCB21-V1	0.28 (See note.)
	CS1W-SCB41-V1	0.36 (See note.)
Loop Control Boards	CS1W-LCB01	0.22 (See note.)
	CS1W-LCB05	
CPU Backplanes (for CS1 Units only)	CS1W-BC022	0.11
	CS1W-BC032	0.11
	CS1W-BC052	0.11
	CS1W-BC082	0.11
	CS1W-BC102	0.11
CPU Backplanes	CS1W-BC023	0.11
	CS1W-BC033	0.11
	CS1W-BC053	0.11
	CS1W-BC083	0.11
	CS1W-BC103	0.11
I/O Control Unit	CS1W-IC102	0.92
CS1 Expansion Backplanes (for CS1 Units only)	CS1W-BI032	0.23
	CS1W-BI052	0.23
	CS1W-BI082	0.23
	CS1W-BI102	0.23
CS1 Expansion Backplanes	CS1W-BI033	0.23
	CS1W-BI053	0.23
	CS1W-BI083	0.23
	CS1W-BI103	0.23
I/O Interface Unit	CS1W-II102	0.23
C200H Expansion I/O Backplanes	C200HW-BI031	0.15
	C200HW-BI051	0.15
	C200HW-BI081-V1	0.15
	C200HW-BI101-V1	0.15
CS1D CPU Units (These values include current consumption by a Programming Console.)	CS1D-CPU65H	0.82 (See note.)
	CS1D-CPU67H	
CS1D Process-control CPU Units	CS1D-CPU65P	1.04
	CS1D-CPU67P	

Name	Model	Consumption (A)
Duplex Backplane	CS1D-BC052	Total: 0.55
Duplex Unit	CS1D-DPL01	
CS1D Backplane for Single-CPU System	CS1D-BC1082S	0.17
CS1D Expansion Backplane with Online Replacement Capability	CS1D-BI092	0.28

Note: Add 0.15 A per port when the NT-AL001-E is connected.

Basic I/O Units

Category	Name	Model	Consumption (A)
C200H Input Units	DC Input Units	C200H-ID211	0.01
		C200H-ID212	0.01
	AC Input Units	C200H-IA121	0.01
		C200H-IA122	0.01
		C200H-IA122V	0.01
		C200H-IA221	0.01
		C200H-IA222	0.01
		C200H-IA222V	0.01
	AC/DC Input Units	C200H-IM211	0.01
		C200H-IM212	0.01
	B7A Interface Units	C200H-B7A11	0.10
		C200H-B7A12	0.10
	Interrupt Input Unit	C200HS-INT01	0.02
CS1 Input Units	DC Input Units	CS1W-ID211	0.10
		CS1W-ID231	0.15
		CS1W-ID261	0.15
		CS1W-ID291	0.20
	AC Input Units	CS1W-IA111	0.11
		CS1W-IA211	0.11
	Interrupt Input Unit	CS1W-INT01	0.10
	High-speed Input Unit	CS1W-IDP01	0.10
	Safety Relay Unit	CS1W-SF200	0.10
	C200H Group-2 High-density Input Units	DC Input Units	C200H-ID216
C200H-ID217			0.12
C200H-ID218			0.10
C200H-ID219			0.12
C200H-ID111			0.12

Lineup of Units
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