

Programmable Controller C200HX/HG/HE

Replacement Guide

From C200HX/HG/HE to CS1

C200HE-CPU□□(-Z)

C200HG-CPU□3(-Z)

C200HX-CPU□□(-Z)

CS1G-CPU4□H



Replace
Guide

About this document

This document provides the reference information for replacing C200H PLC systems with CS1 series PLC.

This document does not include precautions and reminders ;please read and understand the important precautions and reminders described on the manuals of PLCs (both of PLC used in the existing system and PLC you will use to replace the existing PLC) before attempting to start operation.

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Related Manuals

CPU Units

Man.No.	Model	Manual
W394	CS1G/H-CPU□□H CS1G/H-CPU□□-V1 CS1D-CPU□□H CS1D-CPU□□S CJ1H-CPU□□H-R CJ1G/H-CPU□□H CJ1G-CPU□□P CJ1M/G-CPU□□ NSJ□-□□□□(B)-□□□	CS/CJ/NSJ Series PROGRAMMING MANUAL
W474	CS1G/H-CPU□□H CS1G/H-CPU□□-V1 CS1D-CPU□□H CS1D-CPU□□S CJ1H-CPU□□H-R CJ1G/H-CPU□□H CJ1G-CPU□□P CJ1M/G-CPU□□ NSJ□-□□□□(B)-□□□	CS/CJ/NSJ Series INSTRUCTIONS REFERENCE MANUAL
W342	CS1G/H-CPU□□H CS1G/H-CPU□□-V1 CS1D-CPU□□H CS1D-CPU□□S CS1W-SCU□□-V1 CS1W-SCB□□-V1 CJ1H-CPU□□H-R CJ1G/H-CPU□□H CJ1G-CPU□□P CJ1M/G-CPU□□ CJ1W-SCU□□-V1 CP1H-X□□□□-□ CP1H-XA□□□□-□ CP1H-Y□□□□-□ NSJ□-□□□□(B)-□□□	CS/CJ/CP/NSJ Series Communications Commands REFERENCE MANUAL
W341	CQM1H-PRO01 CQM1-PRO01 C200H-PRO27 CS1W-KS001	CS/CJ Series Programming Consoles OPERATION MANUAL
W339	CS1G/H-CPU□□H CS1G/H-CPU□□-V1	CS Series OPERATION MANUAL
W302	C200HX/HG/HE -CPU□□/CPU□□-Z	SYSMAC α INSTALLATION GUIDE
W303	C200HX/HG/HE	SYSMAC α OPERATION MANUAL
W322	C200HX-CPU□□-ZE C200HG-CPU□□-ZE C200HE-CPU□□-ZE	SYSMAC α OPERATION MANUAL
W227	CV500/CV1000 C200H/C1000H/C2000H/ 3G8F5	FINS Commands Reference Manual

Special I/O Units

Man.No.	Model	Manual
W426	CS1W-NC□71 CJ1W-NC□71(-MA)	CS/CJ Series Position Control Units OPERATION MANUAL
W435	CS1W-MCH71 CJ1W-MCH71	CS/CJ series Motion Control Units OPERATION MANUAL
W440	CS1W-FLN22 CJ1W-FLN22(100BASE-TX)	CS/CJ Series FL-net Units OPERATION MANUAL
W336	CS1W-SCB□□-V1 CS1W-SCU□□-V1 CJ1W-SCU□□-V1	CS/CJ Series Serial Communications Boards Serial Communications Units OPERATION MANUAL
W345	CS1W-AD0□□-V1/-AD161 CS1W-DA0□□ CS1W-MAD44 CJ1W-AD0□□-V1/-AD042 CJ1W-DA0□□/-DA042V CJ1W-MAD42	CS/CJ Series Analog I/O Units OPERATION MANUAL
W368	CS1W-PTS□□ CS1W-PTW□□ CS1W-PDC□□ CS1W-PTR□□ CS1W-PPS□□ CS1W-PMV□□ CJ1W-PTS□□ CJ1W-PDC□□ CJ1W-PH41U	CS/CJ Series Analog I/O Units OPERATION MANUAL
W902	CS1W-CT021/041	CS Series High-speed Counter Units OPERATION MANUAL
W378	CS1W-HIO01-V1 CS1W-HCP22-V1 CS1W-HCA22-V1 CS1W-HCA12-V1	CS Series Customizable Counter Units OPERATION MANUAL
W384	CS1W-HIO01 CS1W-HCP22 CS1W-HCA22	CS Series Customizable Counter Units PROGRAMMING MANUAL
W376	CS1W-NC□□□	CS Series Position Control Units OPERATION MANUAL
W359	CS1W-MC□□□-V1	CS Series Motion Control Units OPERATION MANUAL
W124	C200H-TS001/002/101/102	C200H Temperature Sensor Units OPERATION MANUAL
W127	C200H-AD001/-DA001	C200H Analog I/O Units OPERATION GUIDE
W229	C200H-AD002/-DA002	C200H Analog I/O Units OPERATION MANUAL
W325	C200H-AD003 C200H-DA003/-DA004 C200H-MAD01	C200H Analog I/O Units OPERATION MANUAL
W225	C200H-TC001/002/003 C200H-TC101/102/103	C200H Temperature Control Units OPERATION MANUAL
W240	C200H-TV001/002/003 C200H-TV101/102/103	C200H Heat/Cool Temperature Control Units OPERATION MANUAL
W241	C200H-PID01/02/03	C200H PID Control Unit OPERATION MANUAL
W141	C200H-CT001-V1 C200H-CT002	C200H High-speed Counter Units OPERATION MANUAL
W311	C200H-CT021	C200H High-speed Counter Units OPERATION MANUAL
W224	C200H-CP114	C200H Cam Positioner Units OPERATION MANUAL
W334	C200HW-NC113/213/413	C200HW Position Control Units OPERATION MANUAL
W137	C200H-NC111	C200H Position Control Units OPERATION MANUAL
W128	C200H-NC112	C200H Position Control Units OPERATION MANUAL
W166	C200H-NC211	C200H Position Control Units OPERATION MANUAL
W314	C200H-MC221	C200H Motion Control Units OPERATION MANUAL:INTRODUCTION
W315	C200H-MC221	C200H Motion Control Units OPERATION MANUAL:DETAILS
W165	C200H-ASC02	C200H ASCII Units OPERATION MANUAL
W306	C200H-ASC11/21/31	C200H ASCII Units OPERATION MANUAL

Man.No.	Model	Manual
W304	C200HW-COM01 C200HW-COM02-V1 to C200HW-COM06-EV1	C200HW Communication Boards OPERATION MANUAL
W257	CVM1-PRS71	Teaching Box OPERATION MANUAL

Network Communications Units

Man.No.	Model	Manual
W309	CS1W-CLK23 CS1W-CLK21-V1 CJ1W-CLK23 CJ1W-CLK21-V1 C200HW-CLK21 CVM1-CLK21 CQM1H-CLK21 CS1W-RPT0□	Controller Link Units OPERATION MANUAL
W370	CS1W-CLK13 CS1W-CLK12-V1 CVM1-CLK12(H-PCF Cable) CS1W-CLK53 CS1W-CLK52-V1 CVM1-CLK52(GI Cable)	Optical Ring Controller Link Units OPERATION MANUAL
W465	CS1W-EIP21 CJ1W-EIP21 CJ2H-CPU6□-EIP CJ2M-CPU3□	CS/CJ Series EtherNet/IP Units OPERATION MANUAL
W420	CS1W-ETN21 CJ1W-ETN21 (100Base-TX)	CS/CJ Series Ethernet Units OPERATION MANUAL Construction of Networks
W421	CS1W-ETN21 CJ1W-ETN21(100Base-TX)	CS/CJ Series Ethernet Units OPERATION MANUAL Construction of Applications
W456	CS1W-CRM21 CJ1W-CRM21	CS/CJ Series CompoNet Master Units OPERATION MANUAL
W457	CRT1	CRT1 Series CompoNet Slave Units and Repeater Unit OPERATION MANUAL
W380	CS1W-DRM21-V1 CJ1W-DRM21	CS/CJ Series DeviceNet Units OPERATION MANUAL
W267	CS1W/CJ1W/C200HW DRT1/DRT2 GT1 CVM1	DeviceNet OPERATION MANUAL
W266	C200HW-SRM21-V1 CS1W-SRM21 CJ1W-SRM21 CQM1-SRM21-V1 SRT1/SRT2	CompoBus/S OPERATION MANUAL
W136	C500-RM001-(P)V1 C120-RM001(-P) C500-RT001/RT002-(P)V1 C500/C120-LK010(-P) C200H-RM001-PV1 C200H-RT001/002-P B500-I/O	C series Rack PCs Optical Remote I/O SYSTEM MANUAL
W308	C200HW-ZW3DV2/ZW3PC2 3G8F5-CLK11/21 3G8F6-CLK21	Controller Link Support Software OPERATION MANUAL

Man.No.	Model	Manual
W120	C500-RM201/RT201 C200H-RM201/RT201/202 G71-IC16/OD16 G72C-ID16/OD16 S32-RS1	C series Rack PCs Wired Remote I/O SYSTEM MANUAL
W379	CVM1-DRM21-V1 C200HW-DRM21-V1	DeviceNet Master Units OPERATION MANUAL
W347	C200HW-DRT21 CQM1-DRT21 DRT1	DeviceNet Slaves OPERATION MANUAL
W135	C200H-LK401 C500-LK009-V1	C Series PC Link SYSTEM MANUAL

Support Software

Man.No.	Model	Manual
W463	CXONE-AL□□C-V4 CXONE-AL□□D-V4	CX-One FA Integrated Tool Package SETUP MANUAL
W446		CX-Programmer OPERATION MANUAL
W447		CX-Programmer OPERATION MANUAL : Function Blocks/Structured Text
W464		CX-Integrator OPERATION MANUAL
W344		CX-Protocol OPERATION MANUAL

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C200HX/HG/HE Replacement Guide

From C200HX/HG/HE to CS1

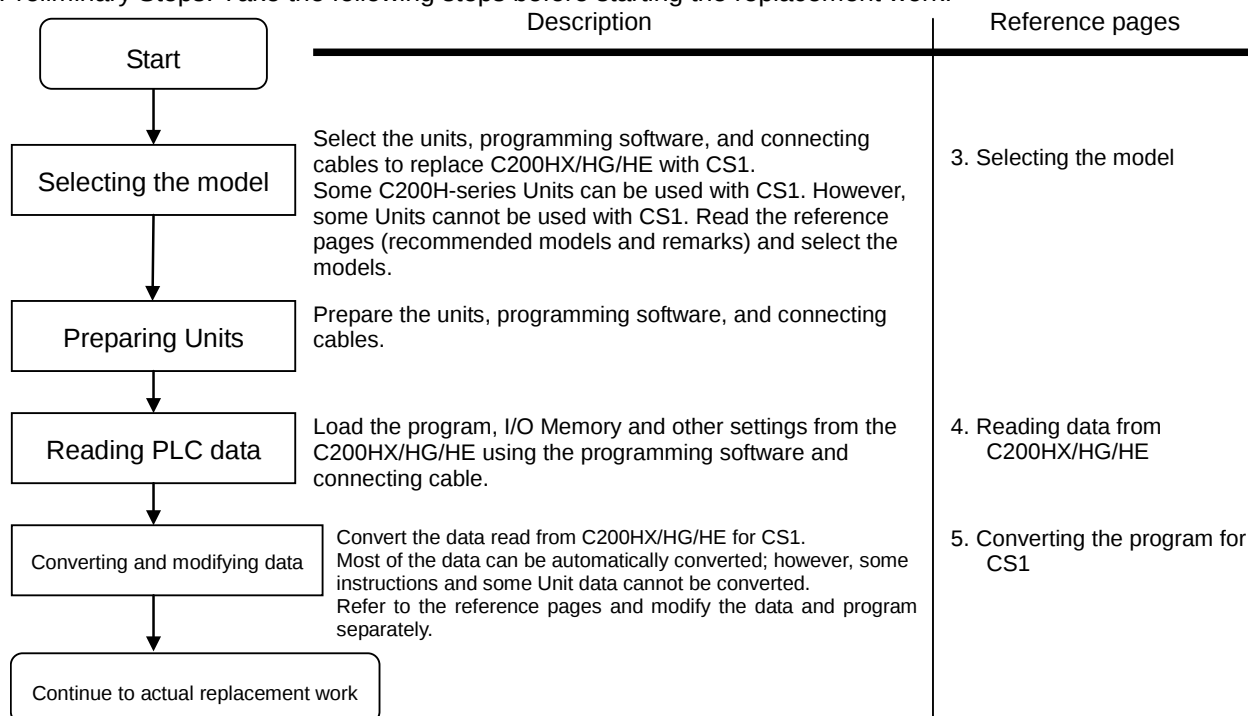
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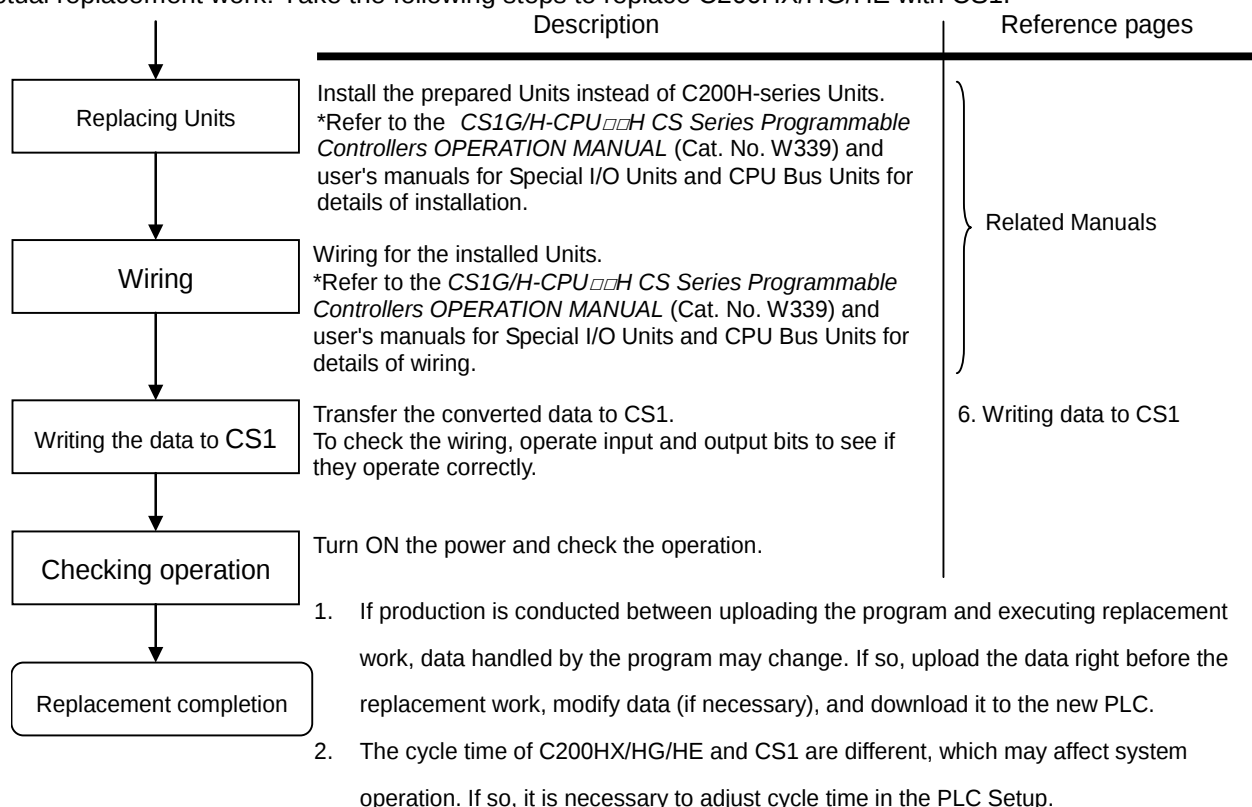
This replacement guide describes the procedure to rebuild the system which uses the C200HX/HG/HE PLC by introducing the CS1-series PLC instead. The CS1-series PLC has functions which can replace the functions and operation of the C200HX/HG/HE PLC. Follow the below work flow to replace your system. Refer to the reference pages for details.

1. Work flow

1) Preliminary Steps: Take the following steps before starting the replacement work.



2) Actual replacement work: Take the following steps to replace C200HX/HG/HE with CS1.



2. Selecting the replacement method

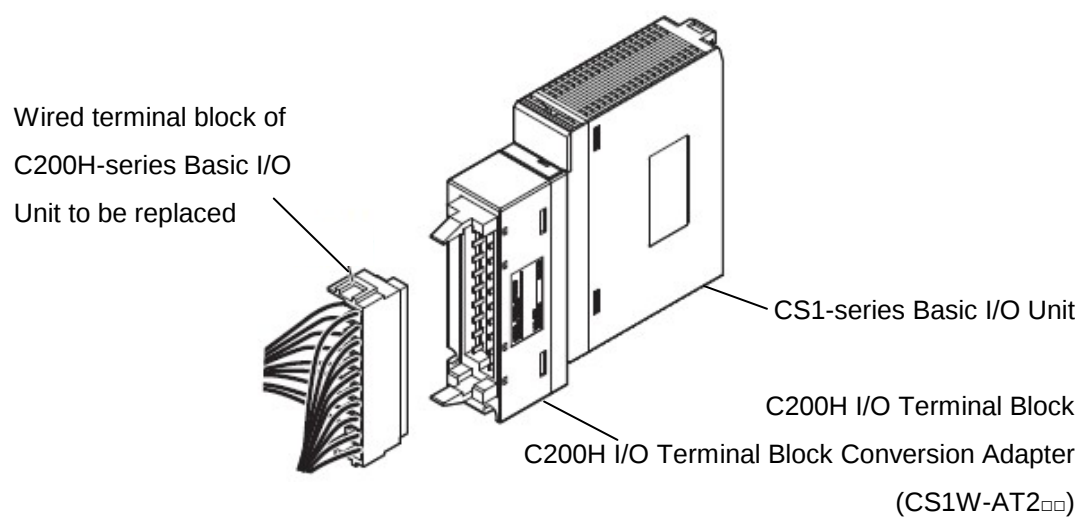
When C200H-series Basic I/O Units are replaced with CS1-series Basic I/O Units, rewiring is required. The C200H I/O Terminal Block Conversion Adapter that allows the terminal block of the C200H-series Basic I/O Unit to be reused for the CS1-series Basic I/O Unit is available. This enables efficient replacement by eliminating rewiring and wiring check times.

Replacement method	Description	
(1) Replacing all C200H-series Units with CS1-series Units	Replace all C200H-series Units with CS1-series Units. Cons: Rewiring of Basic I/O Units is required. Reference It takes about 1 hour to rewire all Basic I/O Units (8 to 10 Units) mounted to a Backplane.	
(2) Using C200H I/O Terminal Block Conversion Adapter	Replace all C200H-series Units with CS1-series Units, and mount the C200H I/O Terminal Block Conversion Adapters to CS1-series Units. Pros: Rewiring of Basic I/O Units is not required, which reduces replacement time. Cons: The installation depth is increased. For details, refer to the <i>C200H I/O Terminal Block Conversion Adapter Data Sheet</i>.	
(3) Using Conversion Cables for C200H High-density I/O Units	Replace C200H-ID215 with CS1W-ID231, and connect CS1W-ID231 using the same connecting cables used for C200H-ID215. In the same way, replace C200H-OD215 with CS1W-OD231, and connect CS1W-OD231 using the same cable used for C200H-OD215. Pros: Rewiring of I/O Units is not required, which reduces replacement time.	

Note 1. Depending on the type of Basic I/O Unit, there may be some restrictions (e.g. change in I/O specifications or wiring) or some models cannot be used.

- When you reuse a terminal block with wiring, confirm that there is no problem in the terminal block and wiring conditions.
 - The screws are securely tightened.
 - The cables are not damaged.
 - There is no rust or corrosion.
 - The terminal block is not damaged. (The terminal block is securely inserted and fixed.)

- Image of replacement using C200H I/O Terminal Block Conversion Adapter

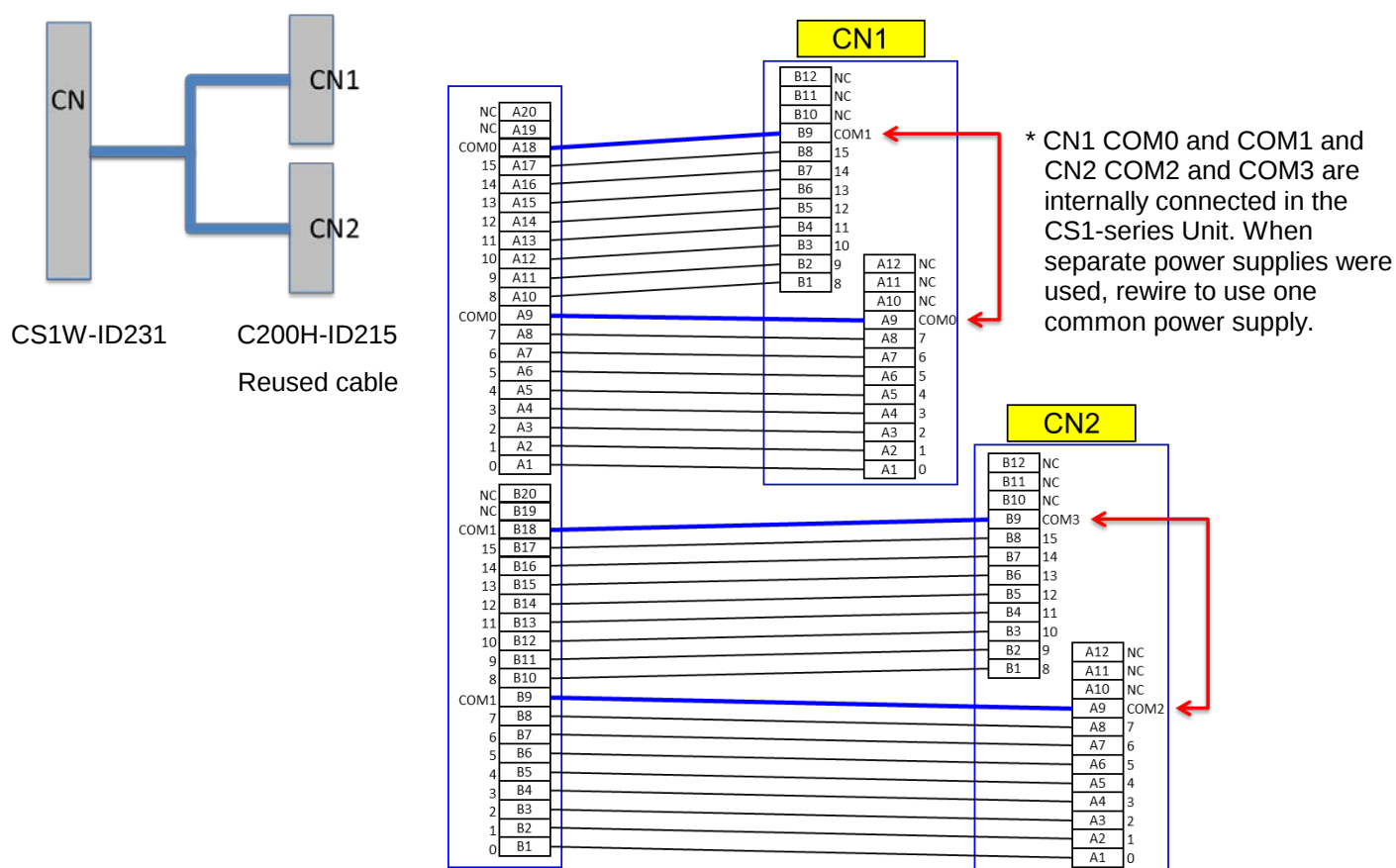


- Replacement of C200H-ID215 and C200H-OD215 using Conversion Cables

The same connecting cables that were connected to C200H-ID215 and C200H-OD215 can be used to replace them with CS1W-ID231 and CS1W-OD231.

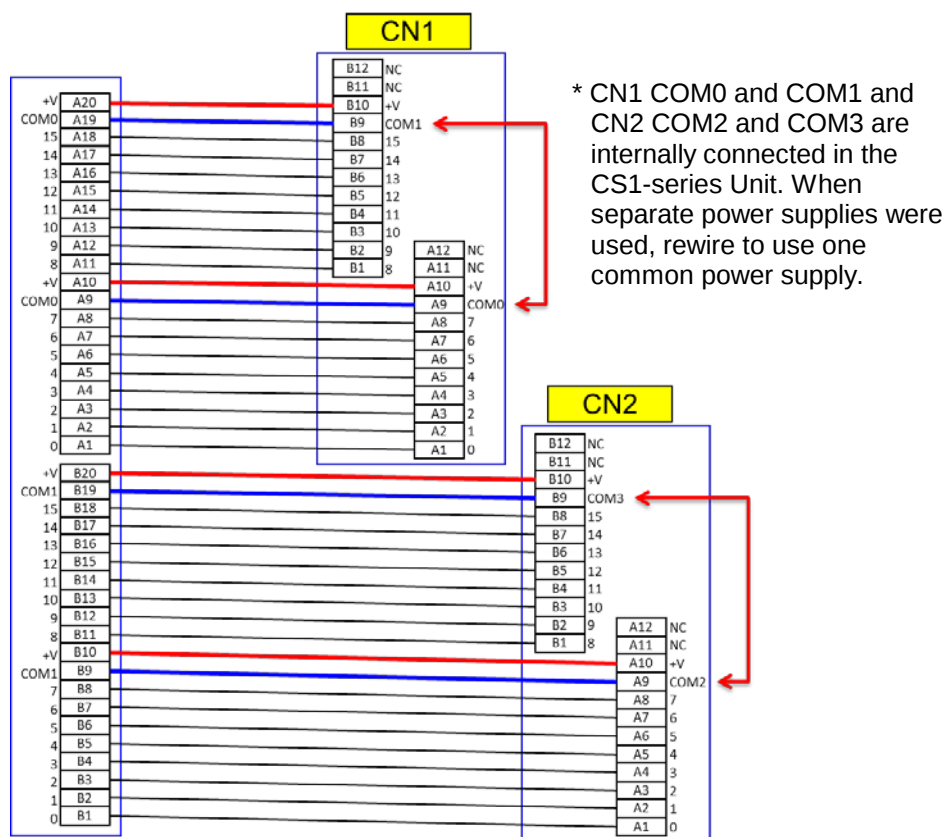
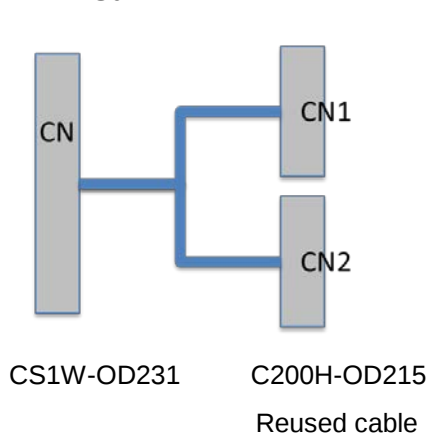
C200H-series Unit	CS1-series Unit	Conversion Cable
C200H-ID215	CS1W-ID231	XW2Z-S010
C200H-OD215	CS1W-OD231	XW2Z-S011

XW2Z-S010



	C200H-ID215	CS1W-ID231	Remarks
Rated input voltage	24 VDC	24 VDC	
Operating input voltage	20.4 to 26.4 VDC	20.4 to 26.4 VDC	
Input impedance	5.6 kΩ	3.6 kΩ	Make sure that the connected device operates correctly.
Input current	4.1 mA typical (at 24 VDC)	6 mA typical (at 24 VDC)	Make sure that the connected device operates correctly.
ON voltage	14.4 VDC min.	15.4 VDC min.	Make sure that the connected device operates correctly.
OFF voltage	5 VDC max.	5 VDC max.	
ON response time	2.5 ms max./15 ms max. (switchable)	8 ms max. (switchable)	Can be set to between 0 and 32 ms in the PLC Setup.
OFF response time	2.5 ms max./15 ms max. (switchable)	8 ms max. (switchable)	Can be set to between 0 and 32 ms in the PLC Setup.
No. of circuits	8 points/common x 4 circuits (32 inputs)	16 points/common x 2 circuits (32 inputs)	The number of circuits decreased from 4 to 2. Rewire if separate power supplies are used.
High-speed inputs	8 points (when pin 2 of the DIP switch is ON)	Not supported	Use CS1W-IDP01 for high-speed inputs.

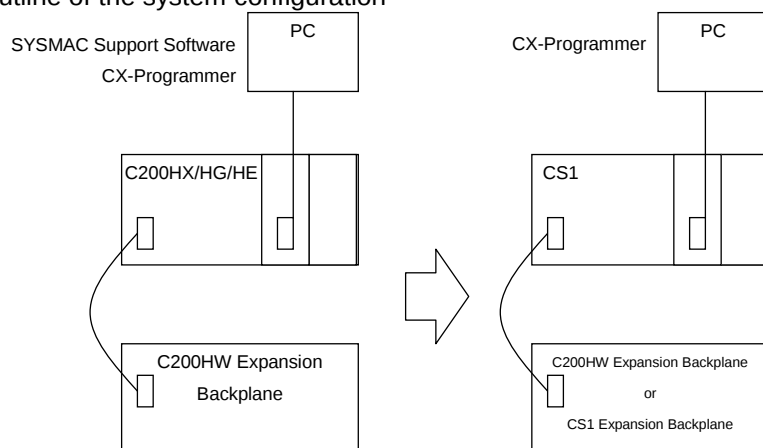
XW2Z-S011



	C200H-OD215	CS1W-OD231	Remarks
Rated voltage	5 to 24 VDC	12 to 24 VDC	Use CS1W-MD561 when using 5 VDC.
Max. switching capacity	16 mA/4.5 VDC to 100 mA/26.4 VDC 0.8 A/common, 3.2 A/Unit	0.5 A/point, 2.5 A/common, 5 A/Unit	
Leakage current	0.1 mA max.	0.1 mA max.	
Residual voltage	0.7 V max.	1.5 V max.	Make sure that the connected device operates correctly.
ON response time	0.2 ms max.	0.5 ms max.	Make sure that the connected device operates correctly.
OFF response time	0.6 ms max.	1 ms max.	Make sure that the connected device operates correctly.
No. of circuits	8 points/common x 4 circuits (32 outputs)	16 points/common x 2 circuits (32 outputs)	The number of circuits decreased from 4 to 2. Rewire if separate power supplies are used.
Fuses	4 (1 fuse/common)	None	When protection is required, connect a protective device externally.
External power supply	5 to 24 VDC±10%, 90 mA min. 2.8 mA x no. of ON outputs	10.2 to 26.4 VDC	
Dynamic outputs	30 mA min.	Not supported	Dynamic outputs are not supported.

3. Selecting the model

Outline of the system configuration



The table below lists the C200H-series Units and each corresponding CS1-series Unit. Select the CS1-series Unit which is compatible with the C200H-series Unit or which has similar specifications to the C200H-series Unit.

Refer to the following manuals for details:

CS1: *CS1G/H-CPU□□H CS Series Programmable Controllers OPERATION MANUAL* (Cat. No. W339)

C200HX/HG/HE: *C200HX/C200HG/C200HE-CPU□□E/-ZE INSTALLATION GUIDE* (Cat. No. W302)

< CPU Rack >

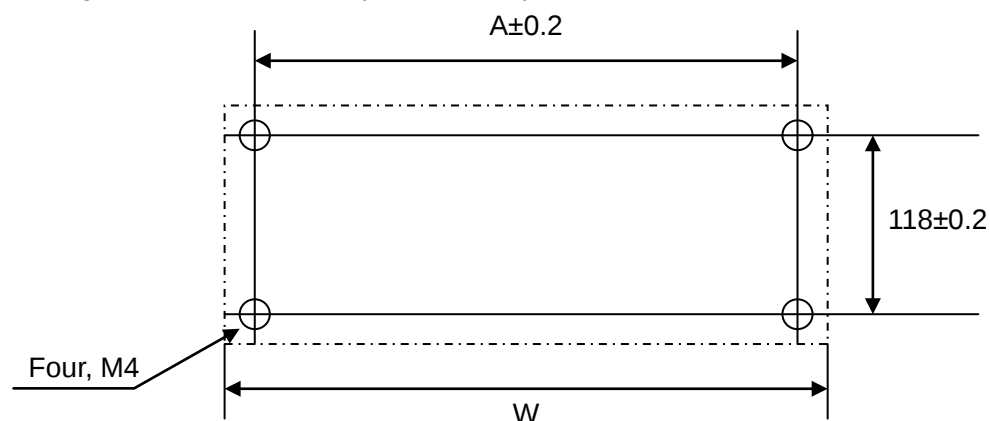
Unit name	C200H-series Unit	CS1-series Unit	Description
CPU Unit (*)	C200HE-CPU11(-Z) C200HE-CPU32(-Z) C200HE-CPU42(-Z)	CS1G-CPU42H	UM 10K steps
	C200HG-CPU33(-Z) C200HG-CPU43(-Z) C200HG-CPU53(-Z) C200HG-CPU63(-Z)	CS1G-CPU43H	UM 20K steps
	C200HX-CPU34(-Z) C200HX-CPU44(-Z) C200HX-CPU54(-Z) C200HX-CPU64(-Z)	CS1G-CPU44H	UM 30K steps
	C200HX-CPU65-Z C200HX-CPU85-Z	CS1G-CPU45H	UM 60K steps
Memory Cassette	C200HW-ME□□K C200HS-MP16K	HMC-EF□□□	
Power Supply Unit	C200HW-PA□□□ C200HW-PD□□□	C200HW-PA□□□ C200HW-PD□□□	The C200H-series Power Supply Units can be used with the CS1-series CPU Unit if its capacity is larger enough for the total current consumption.
CPU Backplane	C200HW-BC031 C200HW-BC051 C200HW-BC081-V1 C200HW-BC101-V1	CS1W-BC033/BC032 CS1W-BC053/BC052 CS1W-BC083/BC082 CS1W-BC103/BC102	The mounting hole dimensions are the same. Note: CS1W-BC□□2 cannot be used with C200H-series Units.
Communications Board	C200HW-COM01	Unnecessary*	*The Communication Board for SYSMAC LINK and SYSMAC NET Link Unit is not required.
	C200HW-COM02(-V1)	CS1W-SCB21-V1	
	C200HW-COM03(-V1)	CS1W-SCB41-V1	
	C200HW-COM04(-V1)	CS1W-SCB21-V1	
	C200HW-COM05(-V1)	CS1W-SCB21-V1	
	C200HW-COM06(-V1)	CS1W-SCB41-V1	
Insulation Plate for CPU Backplane	C200H-ATT31 C200H-ATT51 C200H-ATT81 C200H-ATTA1	Unnecessary*	*The CS1-series Backplane has an installation structure to be insulated from the control panel. The Insulation Plate for CPU Backplane is not required.

(*) The built-in serial port of the CS1-series CPU Unit has the same functionality as that of C200HX/HG/HE-series CPU Unit. Refer to the related manuals for details because specifications differ between the two series. Use the communications board/unit if required for the application where the built-in port is used.

< Expansion Rack >

Unit name	C200H-series Unit	CS1-series Unit	Description
Power Supply Unit	C200HW-PA□□□ C200HW-PD□□□	C200HW-PA□□□ C200HW-PD□□□	The C200H-series Power Supply Units can be used with the CS1-series CPU Unit if its capacity is larger enough for the total current consumption.
Backplane (Expansion Backplane)	C200HW-BI031 C200HW-BI051 C200HW-BI081-V1 C200HW-BI101-V1	C200HW-BI031 C200HW-BI051 C200HW-BI081-V1 C200HW-BI101-V1 or CS1W-BI033/Bi032 CS1W-BI053/Bi052 CS1W-BI083/Bi082 CS1W-BI103/Bi102	The C200H I/O Expansion Backplane can be used with the CS1-series CPU Unit. When the CS1-series Unit is used, use the CS1W-BI□□□ CS1-series Expansion Backplane instead. Note: The mounting hole dimensions of the CS-series Expansion Backplane vary depending on the number of slots (3, 5, 8 or 10 slots). CS1W-BC□□2 cannot be used with C200H-series Units.
Connecting Cable for Expansion Backplane	C200H-CN□□1	CS1W-CN□□3	Connects a CS1-series Expansion Backplane to a CPU Backplane or another CS1-series Expansion Backplane.
		CS1W-CN□□1	Connects a C200HW-BI□□1 Expansion I/O Backplane to a CPU Backplane or CS-series Expansion Backplane.
		C200H-CN□□1	Connects two C200HW-BI□□1 Expansion I/O Backplanes.
Backplane Insulation Plate	C200HW-ATT32 C200HW-ATT52 C200HW-ATT82 C200HW-ATTA2	[For C200H Expansion I/O Backplanes] C200HW-ATT32 C200HW-ATT52 C200HW-ATT82 C200HW-ATTA2 [For CS1 Expansion Backplanes] Unnecessary*	*The CS1-series Backplane has an installation structure to be insulated from the control panel. The Insulation Plate for Backplane is not required.

Mounting hole dimensions of Expansion Backplane



Model	A/W		Model	A/W
C200HW-BI031	175 / 189	→	CS1W-BI033	246 / 260
C200HW-BI051	245 / 259	→	CS1W-BI053	316 / 330
C200HW-BI081-V1	350 / 364	→	CS1W-BI083	421 / 435
C200HW-BI101-V1	420 / 434	→	CS1W-BI103	491 / 505

< I/O Units and CPU Bus Units>

Unit name	C200H-series Unit	CS1-series Unit	Description
Basic I/O Unit	C200H-I□□□ C200H-O□□□ C200H-M□□□	C200H-I□□□ C200H-O□□□ C200H-M□□□ or CS1W-I□□□ CS1W-O□□□ CS1W-M□□□	C200H-series Basic I/O Units can be used with CS1-series CPU Units. Refer to <i>Appendix E. Table of Input/Output Units</i> for CS1-series Basic I/O Units corresponding to C200H-series Basic I/O Units. To facilitate maintenance, we recommend you to use CS-series Basic I/O Units instead.
Special I/O Unit	C200H-□□□□	C200H-□□□□ or CS1W-□□□□	C200H-series Special I/O Units can be used with CS1-series CPU Units. However, there are some remarks to be followed. To improve the system performance and to facilitate maintenance, we recommend you to use the CS-series Special I/O Units instead.
Communication Unit	[SYSMAC LINK] Coaxial: C200HW-SLK23/24 Optical: C200HW-SLK13/14	[SYSMAC LINK] Coaxial: CS1W-SLK21 Optical: CS1W-SLK11 or [Controller Link] Wired: CS1W-CLK23 Optical: CS1W-CLK13/53	C200HW-SLK□□ cannot be used with the CS1-series CPU Unit. Refer to the <i>SYSMAC CS1W-SLK11/21 SYSMAC LINK Units OPERATION MANUAL</i> (Cat. No. W367) for details about SYSMAC LINK. We recommend you to use Controller Link instead. Refer to the <i>Controller Link Units Operation Manual</i> (Cat. No. W309) and <i>Optical Ring Controller Link Units Operation Manual</i> (Cat. No. W370) for details.
	[SYSMAC NET] C200HS-SNT32	[SYSMAC NET] None [Controller Link] Wired: CS1W-CLK23 Optical: CS1W-CLK13/53	SYSMAC NET cannot be used with the CS1-series CPU Unit. We recommend you to use Controller Link instead. Refer to the <i>Controller Link Units Operation Manual</i> (Cat. No. W309) and <i>Optical Ring Controller Link Units Operation Manual</i> (Cat. No. W370) for details.
	[Controller Link] Wired: C200HW-CLK21	[Controller Link] Wired: CS1W-CLK23	C200HW-CLK21 cannot be used with the CS1-series CPU Unit. To use the CS1-series Unit, change the related areas including the Status Area. Refer to the <i>Controller Link Units Operation Manual</i> (Cat. No. W309) for details.
	[Host Link]	[Serial Communications]	C200H-series Host Link Units cannot be used with the CS1-series CPU Unit. Refer to the <i>SYSMAC CS/CJ Series Serial Communications Boards/Units OPERATION MANUAL</i> (Cat. No. W336) for details.
	C200H-LK101-PV1	None CS1W-SCU21-V1 (+ optical link module)	The CS1 Series does not have an Optical-type Serial Communications Board/Unit. Use the wired type instead or use an external optical link module.
	C200H-LK201-V1	CS1W-SCU21-V1 CS1W-SCB21-V1 CS1W-SCB41-V1 Host Link port built in the CPU Unit	Use one of the left CS1-series Units/Boards.
	C200H-LK202-V1	CS1W-SCU31-V1 CS1W-SCB41-V1	Use one of the left CS1-series Units/Boards.
	[PC Link] C200H-LK401	[PC Link] C200H-LK401 [Controller Link] Wired: CS1W-CLK23 Optical: CS1W-CLK13/53	The PC Link Unit can be used with the CS1-series CPU Unit. However, the Link Area allocation must be changed. We recommend you to use Controller Link instead. Refer to the <i>Controller Link Units Operation Manual</i> (Cat. No. W309) and <i>Optical Ring Controller Link Units Operation Manual</i> (Cat. No. W370) for details.

< I/O Units and CPU Bus Units>

Unit name	C200H-series Unit	CS1-series Unit	Description
Communication Unit	[CompoBus/S] C200HW-SRM21(-V1)	[CompoBus/S] C200HW-SRM21(-V1) or CS1W-SRM21	C200HW-SRM21(-V1) can be used with the CS1-series CPU Unit. However, I/O allocation must be changed. There are also some remarks to be followed when CS1W-SRM21 is used. Refer to the <i>C200HW/CS1W/CJ1W/CQM1/SRT1/SRT2 CompoBus/S OPERATION MANUAL</i> (Cat. No. W266) for details.
	[DeviceNet] C200HW-DRM21(-V1)	[DeviceNet] C200HW-DRM21(-V1) or CS1W-DRM21-V1	C200HW-DRM21 (-V1) can be used with the CS1-series CPU Unit. However, I/O allocation must be changed. There are also some remarks to be followed when CS1W-DRM21-V1 is used. Refer to the <i>CS1W-DRM21(-V1),CJ1W-DRM21 CS/CJ SERIES DeviceNet UNITS OPERATION MANUAL</i> (Cat. No. W380) for details
	[SYSMAC BUS] Wired: C200H-RM201 Optical: C200H-RM001-PV1	[SYSMAC BUS] Wired: C200H-RM201 Optical: C200H-RM001-PV1 [CompoNet] CS1W-CRM21 [DeviceNet] CS1W-DRM21-V1 [CompoBus/S] CS1W-SRM21	SYSMAC BUS can be used with the CS1-series CPU Unit. However, area allocation must be changed. To improve the system performance and to facilitate maintenance, we recommend you to use left networks instead. Refer to the <i>CS/CJ series CompoNet Master Units OPERATION MANUAL</i> (Cat. No. W456) and <i>CompoNet Slave Units and Repeater Unit OPERATION MANUAL</i> (Cat. No. W457) for details of CompoNet. Refer to the <i>CS1W-DRM21(-V1),CJ1W-DRM21 CS/CJ SERIES DeviceNet UNITS OPERATION MANUAL</i> (Cat. No. W380) for details of DeviceNet. Refer to the <i>C200HW/CS1W/CJ1W/CQM1/SRT1/SRT2 CompoBus/S OPERATION MANUAL</i> (Cat. No. W266) for details of CompoBus/S.
	[PC Card Unit] C200HW-PCU01 C200HW-PCS01-V1	[PC Card Unit] None [Memory card] HMC-EF□□□ [Ethernet] CS1W-ETN21 [EtherNet/IP] CS1W-EIP21	The PC Card Unit cannot be used with the CS1-series CPU Unit. Insert the memory card into the CS1-series CPU Unit to transfer data in PLC memory between the CPU Unit and memory card. Moreover, communications can be made with the Ethernet Unit or EtherNet/IP Unit.

< Support Software and Peripheral Devices >

Name	C200H-series Unit	CS1-series Unit	Description
Support Software	SYSMAC Support Software CX-Programmer	CX-One CXONE-AL□□C-V□/ AL□□D-V□ (CX-Programmer Ver.3.0 or higher)	SYSMAC Support Software cannot be used with the CS1-series CPU Unit.
Peripheral Interface Unit, Connecting Cable	CQM1-CIF02	CS1W-CN226/626	
Programming Console	C200H-PRO27 (+C200H-CN□□2) CQM1-PRO01	C200H-PRO27 (+CS1W-CN□□4) CQM1-PRO01 (+CS1W-CN114)	CS1W-CN□□4 is a Programming Console Connecting Cable.

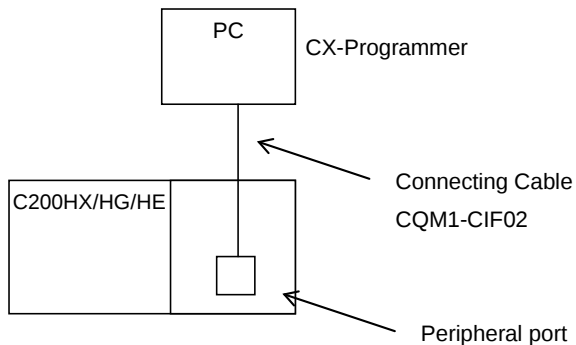
Other remarks

- (1) The PFP-50N/100N/100N2 DIN Track and C200H-DIN01 Mounting Bracket can be used for the CS1-series Backplane.
- (2) The I/O Unit Mounting Bracket cannot be used with the CS1-series Backplane. CS1-series Units can be secured with screws. They do not require brackets.

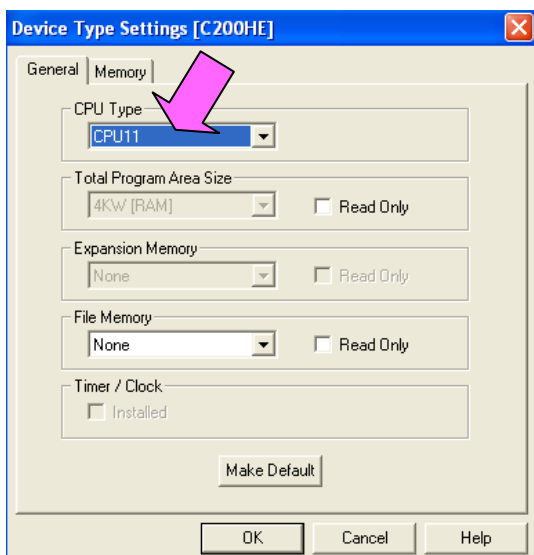
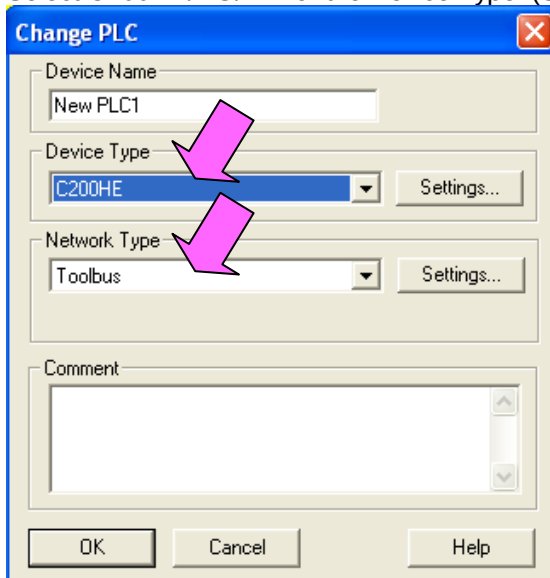
4. Reading data from C200HX/HG/HE

Load the ladder program, PLC settings, and Data Memory from 200HX/HG/HE using the CX-Programmer.

Required items	Support Software (PC)	CX-One (CXONE-AL□□C-V□, CXONE-AL□□D-V□) or CX-Programmer (WS02-CXPC□-V□)
	Connecting Cable	CQM1-CIF02

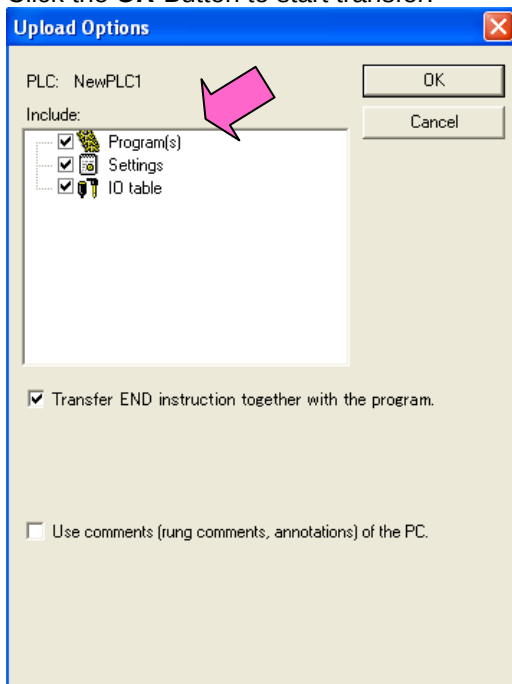


- (1) Connect C200HX/HG/HE and a PC using a connecting cable.
- (2) Start up the CX-Programmer. (Select **All Program - OMRON - CX-One - CX-Programmer - CX-Programmer** from the Windows Start Menu.)
- (3) Select C200HX/HG/HE for the Device Type. (Select **New** from the File Menu to display the below dialog box.)

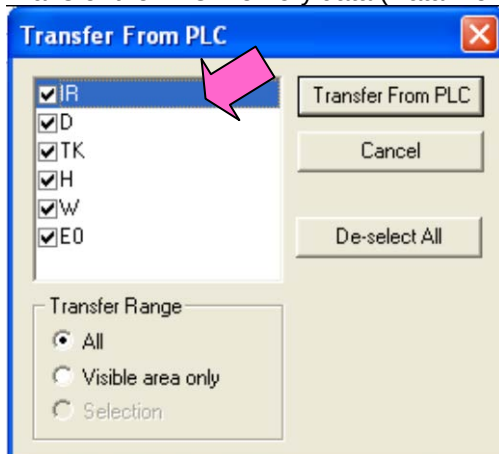


- (4) Select **Work Online** from the PLC Menu to go online.
- (5) Transfer the ladder program, PLC settings, and I/O Table. (Select **Transfer - From PLC** from the PLC Menu.)

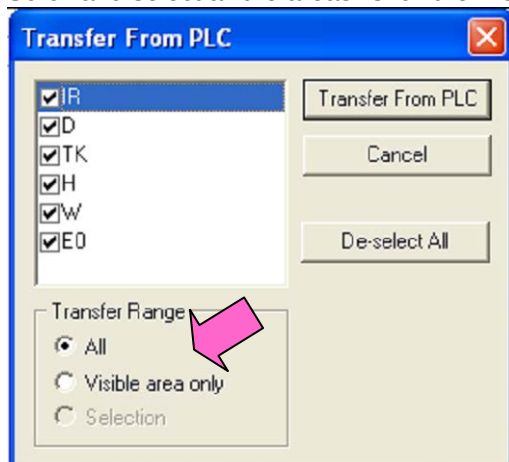
Click the **OK** Button to start transfer.



- (6) Transfer the PLC memory data (Data Memory). (Select **Edit - Memory** from the PLC Menu.)



Scroll and select all the areas. Click the **Transfer from PLC** Button to start transfer.

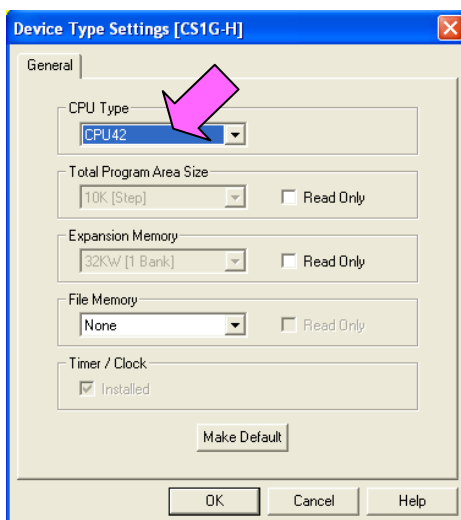
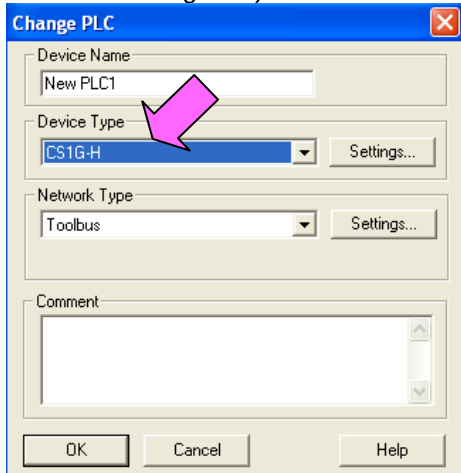


- (7) Select **Work Online** from the PLC Menu to go offline.
- (8) Save the program with a new project name. (Select **Save As** from the File Menu.)

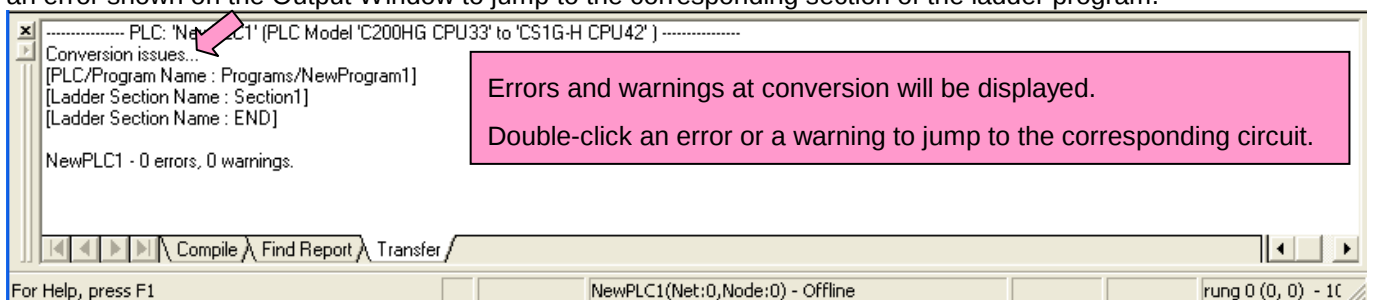
5. Converting the program for CS1

On the CX-Programmer, convert the program for CS1.

- (1) Start the CX-Programmer and open the saved program file for C200HX/HG/HE. (Select **Open** from the File Menu.)
- (2) Change the Device Type from C200HX/HG/HE to CS1. (Select **Change Model** from the PLC Menu to display the below dialog box.)



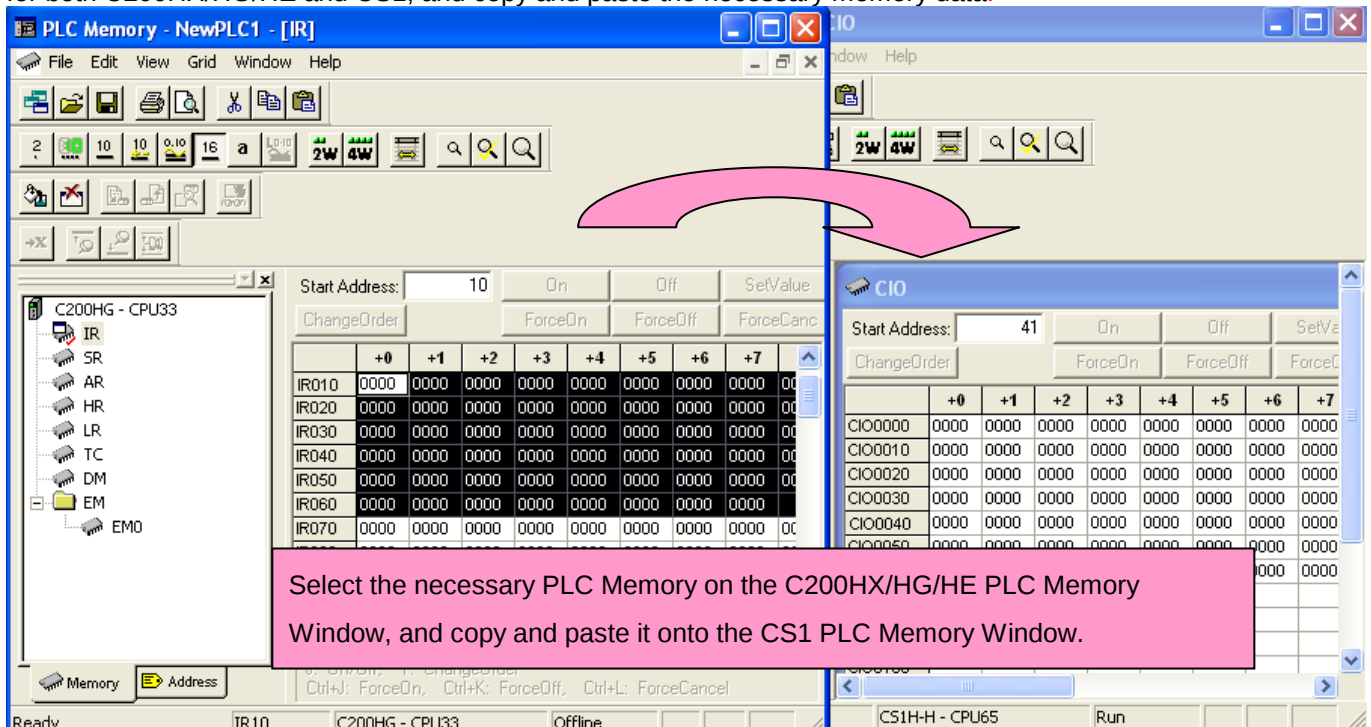
- (3) The instructions are automatically converted. The Output Window shows the conversion results. Double-click an error shown on the Output Window to jump to the corresponding section of the ladder program.



Some instructions cannot be converted. Modify the ladder program by referring to *Appendix A. Instructions converted by Change Model on CX-Programmer*.

You can check the program by selecting **Compile** from the Program Menu. The Output Window shows the checking results.

- (4) The PLC memory data cannot be maintained when the PLC model is changed. Open the PLC Memory Window for both C200HX/HG/HE and CS1, and copy and paste the necessary memory data.

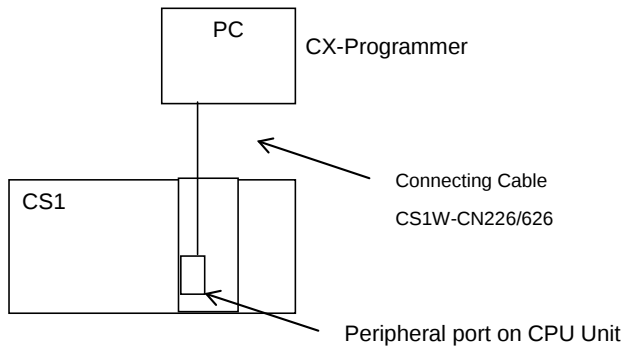


- (5) The I/O allocation of C200HX/HG/HE is partly different from that of CS1. Refer to *Appendix B. Change of unit area allocation* and modify the ladder program.
- (6) The PLC settings of C200HX/HG/HE are partly different from those of CS1. Refer to *Appendix C. Change in PLC settings* and change the PLC settings.
- (7) Select **Compile** from the Program Menu to check the program. If an error is detected, correct it.
- (8) Save the program with a new project name. (Select **Save As** from the File Menu.)

6. Writing data to CS1

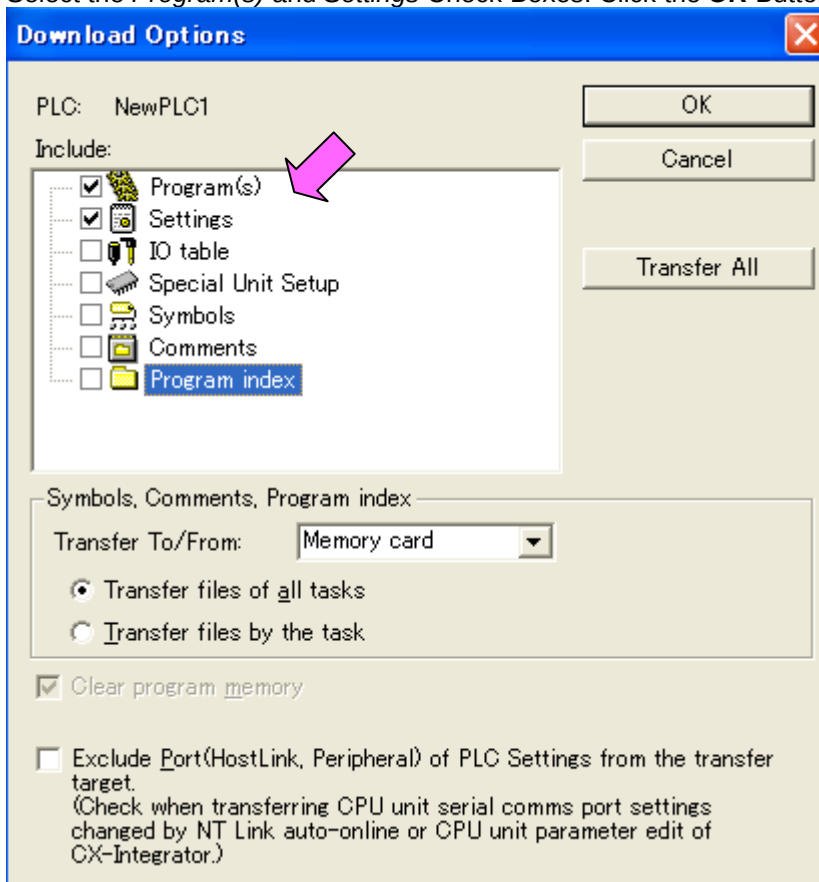
Transfer the converted and modified program, PLC settings, and Data Memory to CS1.

Required items	Support Software (PC)	CX-One CXONE-AL□□C-V□/ AL□□D-V□ (CX-Programmer)
	Connecting Cable	CS1W-CN226/626

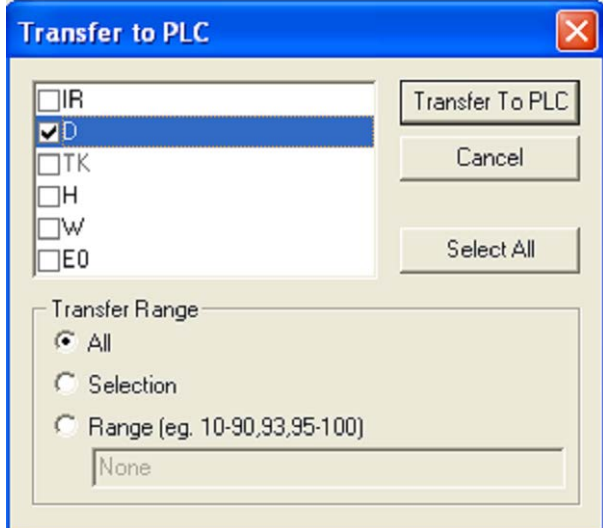


- (1) Connect CS1 with a PC.
- (2) Start the CX-Programmer and open the converted program file for CS1.
- (3) Go online with CS1.
- (4) Transfer the ladder program and PLC settings to the CS1. (Select **Transfer - To PLC** from the PLC Menu.)

Select the *Program(s)* and *Settings* Check Boxes. Click the **OK** Button to start transfer.



- (5) Select **Edit - Memory** from the PLC Menu to display the below dialog box. Select the PLC memory (Data Memory Area: D and Holding Area: HR) and click the **Transfer to PLC** Button to start transfer.



- (6) Select **Work Online** from the PLC Menu to go offline.

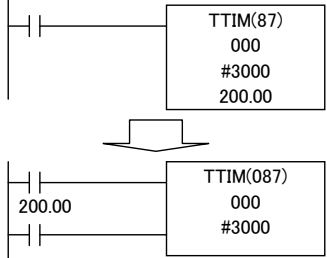
7. Appendix

Appendix A. Instructions converted by Change Model on CX-Programmer

- (1) The data type of operand is changed from BCD to binary for some instructions.
- (2) The number of operands is changed for some instructions.
- (3) Interrupt control instructions must be changed. (Use MSKS, MSKR, CLI, DI, and EI).

Refer to the list below for details. The table lists the instructions which differ between before and after conversion. The other instructions remain unchanged after conversion.

Instruction for C200HX/HG/HE	Instruction for CS1	Operand	Number of operands
JMP(04)	JMP(004) or JMP0(515)	When #0 is set to the operand, JMP is converted to JMP0 and the operand is deleted. If a value other than #0 is set, the operand is the same.	#0: Changed from 1 to 0 <> #0: Same
JME(05)	JME(005) or JME0(516)	When #0 is set to the operand, JME is converted to JME0 and the operand is deleted. If a value other than #0 is set, the operand is the same.	#0: Changed from 1 to 0 <> #0: Same
FAL(06)	FAL(006)	#0 is added to the second operand. FAL N → FAL N #0	Changed from 1 to 2.
FALS(07)	FALS(007)	#0 is added to the second operand. FALS N → FALS N #0	Changed from 1 to 2.
STEP(08)	STEP(008)	The Work Area (WR) or Index Register (indirect) can be used to specify the operand. Change the operand.	Same
SNXT(09)	SNXT(009)	The Work Area (WR) or Index Register (indirect) can be used to specify the operand. Change the operand.	Same
SCAN(18)	Not supported	Set a minimum cycle time in the PLC Setup.	
ADD(30)	+BC(406)	Same as C200HX/HG/HE	Same
SUB(31)	-BC(416)	Same as C200HX/HG/HE	Same
MUL(32)	*B(424)	Same as C200HX/HG/HE	Same
DIV(33)	/B(434)	Same as C200HX/HG/HE	Same
INC(38)	++B(452)	Same as C200HX/HG/HE	Same
DEC(39)	--B(454)	Same as C200HX/HG/HE	Same
MSG(46)	MSG(046)	#0 is added to the first operand. MSG FM → MSG #0 M The number of characters (words) to be registered from the first message word is changed from 16 characters (8 words) to 32 characters (16 words).	Changed from 1 to 2.
LMSG(47)	Not supported	Use MSG (046) instead.	
TERM(48)	Not supported	To execute the keyboard mapping function, use the function on the touch panel.	
ADB(50)	+C(402)	Same as C200HX/HG/HE	Same
SBB(51)	-C(412)	Same as C200HX/HG/HE	Same
MLB(52)	*U(422)	Same as C200HX/HG/HE	Same
DVB(53)	/U(432)	Same as C200HX/HG/HE	Same
ADDL(54)	+BCL(407)	Same as C200HX/HG/HE	Same
SUBL(55)	-BCL(417)	Same as C200HX/HG/HE	Same
MULL(56)	*BL(425)	Same as C200HX/HG/HE	Same
DIVL(57)	/BL(435)	Same as C200HX/HG/HE	Same
MPRF(61)	Not supported	Use IORF (097) instead.	
LINE(63)	LINE(063)	The data type of the second operand is changed from BCD to binary. When a constant is specified, "#" is automatically converted to "&". When a word address is specified, change the data type of the word from BCD to binary.	Same
COLM(64)	COLM(064)	The data type of the third operand is changed from BCD to binary. When a constant is specified, "#" is automatically converted to "&". When a word address is specified, change the data type of the word from BCD to binary.	Same

Instruction for C200HX/HG/HE	Instruction for CS1	Operand	Number of operands
BCNT(67)	BCNTC(621)	Same as C200HX/HG/HE	Same
XFER(70)	XFERC(565)	Same as C200HX/HG/HE	Same
DIST(80)	DISTC(566)	Same as C200HX/HG/HE	Same
COLL(81)	COLLC(567)	Same as C200HX/HG/HE	Same
MOVB(82)	MOVBC(568)	Same as C200HX/HG/HE	Same
TTIM(87)	TTIM(087)	The third operand (reset bit) is deleted. Add the reset input. (See the figure below). 	Changed from 3 to 2.
INT(89)	Not supported	Use the following instructions for each function: SET INTERRUPT MASK: MSKS(690) CLEAR INTERRUPT: CLI(691) READ INTERRUPT MASK: MSKR(692) DISABLE INTERRUPTS: DI(693) ENABLE INTERRUPTS : EI(694) Scheduled Interrupt Interval: Set in the PLC Setup	
SEND(90)	SEND(090)	The specification of the first control word (third operand) is changed. Refer to the manual to change the settings.	Same
WDT(94)	WDT(094)	The specification of the operand is changed. Refer to the manual to change the settings.	Same
RECV(98)	RECV(098)	The specification of the first control word (third operand) is changed. Refer to the manual to change the settings.	Same
BXFR(125)	Not supported	Use XFER(070) or XFERC(565) instead.	
FCS(180)	FCS(180)	The specification of the first control word (first operand) is changed. Refer to the manual to change the settings.	Same
SRCH(181)	SRCH(181)	The specification of the first control word (first operand) is changed. Refer to the manual to change the settings.	Same
MAX(182)	MAX(182)	The specification of the first control word (first operand) is changed. Refer to the manual to change the settings.	Same
MIN(183)	MIN(183)	The specification of the first control word (first operand) is changed. Refer to the manual to change the settings.	Same
SUM(184)	SUM(184)	The specification of the first control word (first operand) is changed. Refer to the manual to change the settings.	Same
PID(190)	PID(190)	The specification of the first parameter word (second operand) is changed. Refer to the manual to change the settings.	Same
AVG(195)	AVG(195)	The data type of the second operand is changed from BCD to binary. When a constant is specified, "#" is automatically converted to "&". When a word address is specified, change the data type of the word from BCD to binary.	Same
DSW(210)	DSW(210)	The fourth and fifth operands are added. The fourth operand specifies the number of digits that will be read. Check if the number of digits after conversion is the same as the number specified by this operand. The fifth operand specifies a work word used by this instruction. As this word cannot be used for any other purpose, change to another area when the area assigned by conversion is the area used for another purpose.	Changed from 3 to 5.
HKY(212)	HKY(212)	The fourth operand is added. The fourth operand specifies a work word used by this instruction. As this word cannot be used for any other purpose, change to another area when the area assigned by conversion is the area used for another purpose.	Changed from 3 to 4.

Instruction for C200HX/HG/HE	Instruction for CS1	Operand	Number of operands
MTR(213)	MTR(213)	The fourth operand is added. The fourth operand specifies a work word used by this instruction. As this word cannot be used for any other purpose, change to another area when the area assigned by conversion is the area used for another purpose.	Changed from 3 to 4.
7SEG(214)	7SEG(214)	The fourth operand is added. The fourth operand specifies a work word used by this instruction. As this word cannot be used for any other purpose, change to another area when the area assigned by conversion is the area used for another purpose.	Changed from 3 to 4.
IORD(222)	IORD(222)	The specifications of the operands are changed.	Same
IOWR(223)	IOWR(223)	The specifications of the operands are changed.	Same
RXD(235)	RXD(235)	This instruction cannot specify the peripheral port. The data type of the number of bytes to store (third operand) is changed from BCD to binary. When a constant is specified, "#" is automatically converted to "&". When a word address is specified, change the data type of the word from BCD to binary.	Same
TXD(236)	TXD(236)	This instruction cannot specify the peripheral port. The data type of the number of bytes (third operand) is changed from BCD to binary. When a constant is specified, "#" is automatically converted to "&". When a word address is specified, change the data type of the word from BCD to binary.	Same
STUP(237)	STUP(237)	The specification of the control word (port) (first operand) is changed. Refer to the manual to change the settings.	Same
PMCR(260)	PMCR(260)	The specification of the control word 1 (first operand) is changed. Refer to the manual to change the settings.	Changed from 3 to 4.
CMCR(261)	Not supported	Insert the memory card into the CPU Unit and use FREAD(700) or FWRITE(701) instead.	
FPD(269)	FPD(269)	The data types of the FAL number of the control word (first operand) and monitoring time (second operand) are changed from BCD to binary.	Same
XDMR(280)	Not supported	Use XFER(070) or XFERC(565) instead.	
EMBC(281)	EMBC(281)	The data type of the operand is changed from BCD to binary. When a constant is specified, "#" is automatically converted to "&". When a word address is specified, change the data type of the word from BCD to binary.	Same
TST(350)	TST(350)	The data type of the second operand is changed from BCD to binary. When a constant is specified, "#" is automatically converted to "&". When a word address is specified, change the data type of the word from BCD to binary.	Same
TSTN(351)	TSTN(351)	The data type of the second operand is changed from BCD to binary. When a constant is specified, "#" is automatically converted to "&". When a word address is specified, change the data type of the word from BCD to binary.	Same
ADBL(480)	+CL(403)	Same as C200HX/HG/HE	Same
SBB(481)	-CL(413)	Same as C200HX/HG/HE	Same
MBSL(482)	*L(421)	Same as C200HX/HG/HE	Same
DBSL(483)	/L(431)	Same as C200HX/HG/HE	Same
MBS(484)	*(420)	Same as C200HX/HG/HE	Same
DBS(485)	/ (430)	Same as C200HX/HG/HE	Same
BXF2	Not supported	Use XFER(070) or XFERC(565) instead.	
XFR2	Not supported	Use XFER(070) or XFERC(565) instead.	
IEMS	Not supported	Specify another address by using an Index Register.	

Appendix B. Change of unit area allocation

This section describes the differences in unit area allocation between C200HX/HG/HE and CS1.

Refer to related manuals for details.

Item	C200HX/HG/HE	CS1	Description
I/O allocation Basic I/O	"Free location and fixed word allocation"	"Free location and free word allocation" Change the word and bit addresses used in the program.	For CS1, it is necessary to register the I/O table.
I/O allocation Special I/O	IR 100 to IR 199 IR 400 to IR 459 (10 words allocated for each Unit No.) DM 1000 to DM 2599 (100 words allocated for each Unit No.)	CIO 2000 to CIO 2199 (10 words allocated for each Unit No.) D20000 to D21999 (100 words allocated for each Unit No.) Change the word and bit addresses used in the program.	Refer to the <i>CS1G/H-CPU□□H CS Series Programmable Controllers OPERATION MANUAL</i> (Cat. No. W339) for details on I/O allocation.
I/O allocation Group-2 High-density I/O	IR 030 to IR 049 IR 330 to IR 341 (2 or 4 words allocated for each I/O word)	The allocation is decided in the same way as Basic I/O Units depending on the installed position (rack and slot). Change the word and bit addresses used in the program.	
Link Relay Area (LR)	LR 00 to LR 63	CIO 1000 to CIO 1199	In CS1, operation flags and condition flags are specified by labels.
Special Relay Area (SR)	SR 236 to SR 255 SR 256 to SR 299	(1) Auxiliary Area and bits Change the word and bit addresses used in the program.	
Auxiliary Relay Area (AR)	AR 00 to AR 27	(2) Condition flags and clock pulses Change the arithmetic flags in the program to the condition flags. Clock pulses are specified using global symbols, such as "P_0.1ms" and "P_1ms".	
PLC Link Words	SR 247 to SR 250 (In SR Area)	CIO 0247 to 0250 A442	
Optical I/O Unit and I/Terminal Area	IR 200 to IR 231	CIO 3100 to CIO 3131	
DeviceNet Area and SYSMAC BUS Area	IR 050 to IR 099 IR 350 to IR 399	[DeviceNet Area] CIO 0050 to CIO 0099 CIO 0350 to CIO 0399 [SYSMAC BUS Area] CIO 3000 to CIO 3079 Change the word and bit addresses used in the program.	
Work/Internal I/O Area	IR 310 to IR 329 IR 342 to IR 349 IR 460 to IR 511	CIO 1200 to CIO 1499 CIO 3800 to CIO 6143 W000 to W511	
Temporary Relay Area (TR)	TR 00 to TR 07	TR 00 to TR 15	
Holding Relay Area (HR)	HR 00 to HR 99	H 000 to H 511	
Error Log Area	DM 6000 to DM 6030	A100 to A199	Change the program if the Error Log Area is read in the program.

Appendix C. Change in PLC Settings

Item	C200HX/HG/HE	CS1	Description
PLC Setup	Always uses the DM Area (DM 6600 to DM 6655)	Uses dedicated area for PLC settings (there is no address for setting by users).	Refer to related manuals for details.

Appendix D. Change of execution timing etc.

Item	C200HX/HG/HE	CS1	Description
Interrupt execution method and execution timing	Write interrupt programs in subroutines.	Write interrupt programs in interrupt tasks.	In CS1, interrupt tasks are executed even when an instruction is being executed or I/O is being refreshed.
I/O table registration	Not required	Required I/O tables must be created with the CX-Programmer or other programming device.	
Cycle time	-	The cycle time is shortened with CS1. If the system operation is affected by cycle time, check the operation after conversion.	To keep the same cycle time as C200HX/HG/HE, set Minimum Cycle Time in the PLC Setup.

■ Input Unit

- (1) If a different type of terminal block or connector is used, change the wiring.
- (2) If the input specifications differ, make sure that the system operates correctly.
- (3) If the number of circuits increases, rewire the terminals to each common terminal.
- (4) If internal current consumption is different, make sure the power supply capacity is large enough.
- (5) C200H-series Units can be used with CS1-series CPU Units.
- (6) Refer to the related manuals for details. Although CS-series Units have basic functions of C200H-series Units, some specifications may differ.

< DC Input Units >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-ID211 12 to 24 VDC, 10 mA, Terminal block, 8 inputs	CS1W-ID211 24 VDC, 7 mA, Terminal block, 16 inputs	DC Input Unit with terminal block for 8 inputs. Replace this unit with a DC Input Unit with 16 inputs.	1) Terminal block 2) Input points (8 points → 16 points) 3) Input circuit specifications Input voltage range (12 to 24 VDC → 24VDC) Input impedance (2 kΩ → 3.3 kΩ) ON voltage (10.2 VDC → 14.4 VDC) OFF voltage (3 VDC → 5 VDC) 4) Internal current consumption (5 VDC: 10 mA → 100 mA)
C200H-ID212 24 VDC, 7 mA, Terminal block, 16 inputs	CS1W-ID211 24 VDC, 7 mA, Terminal block, 16 inputs	DC Input Unit with terminal block for 16 inputs.	1) Terminal block 2) No. of circuits (16 points/common x 1 circuit → 8 points/common x 2 circuits) 3) Input circuit specification Input impedance (3 kΩ → 3.3 kΩ) 4) Internal current consumption (5 VDC: 10 mA → 100 mA)
C200H-ID215 24 VDC, 4.1 mA, Connector, 32 inputs (Special I/O)	CS1W-ID231 24 VDC, 6 mA, Connector, 32 inputs	DC Input Unit with connector for 32 inputs.	1) Connector Use the XW2Z-S010 Conversion Cable to reuse the connecting cable. 2) No. of circuits (8 points/common x 4 circuits → 16 points/common x 2 circuits) 3) Input circuit specifications Input impedance (5.6 kΩ → 3.9 kΩ) ON voltage (14.4 VDC → 15.4 VDC) 4) Internal current consumption (5 VDC: 130 mA → 150 mA)
C200H-ID216 24 VDC, 4.1 mA, Connector, 32 inputs (Group-2)	CS1W-ID231 24 VDC, 6 mA, Connector, 32 inputs	DC Input Unit with connector for 32 inputs.	1) No. of circuits (32 points/common x 1 circuit → 16 points/common x 2 circuits) 2) Input circuit specifications Input impedance (5.6 kΩ → 3.9 kΩ) ON voltage (14.4 VDC → 15.4 VDC) 3) Internal current consumption (5 VDC: 100 mA → 150 mA)
C200H-ID218 24 VDC, 6 mA, Connector, 32 inputs (Group-2)	CS1W-ID231 24 VDC, 6 mA, Connector, 32 inputs	DC Input Unit with connector for 32 inputs.	1) No. of circuits (32 points/common x 1 circuit → 16 points/common x 2 circuits) 2) Internal current consumption (5 VDC: 100 mA → 150 mA)
C200H-ID111 12 VDC, 4.1 mA, Connector, 64 inputs (Group-2)	CS1W-ID261 24 VDC, 6 mA, Connector, 64 inputs	DC Input Unit with connector for 64 inputs.	1) No. of circuits (32 points/common x 2 circuits → 16 points/common x 4 circuits) 2) Input circuit specifications Input voltage (12 VDC → 24 VDC) Input impedance (2.7 kΩ → 3.9 kΩ) ON voltage (8 VDC → 15.4 VDC) OFF voltage (3 VDC → 5 VDC) 3) Internal current consumption (5 VDC: 120 mA → 150 mA)
C200H-ID217 24 VDC, 4.1 mA, Connector, 64 inputs (Group-2)	CS1W-ID261 24 VDC, 6 mA, Connector, 64 inputs	DC Input Unit with connector for 64 inputs.	1) No. of circuits (32 points/common x 2 circuits → 16 points/common x 4 circuits) 2) Input circuit specifications Input impedance (5.6 kΩ → 3.9 kΩ) ON voltage (14.4 VDC → 15.4 VDC) 3) Internal current consumption (5 VDC: 120 mA → 150 mA)
C200H-ID219 24 VDC, 6 mA, Connector, 64 inputs (Group-2)	CS1W-ID261 24 VDC, 6 mA, Connector, 64 inputs	DC Input Unit with connector for 64 inputs.	1) No. of circuits (32 points/common x 2 circuits → 16 points/common x 4 circuits) 2) Internal current consumption (5 VDC: 120 mA → 150 mA)

< TTL Input Unit >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-ID501 5 VDC, 3.5 mA, Connector, 32 inputs (Special I/O)	No replacement model	TTL Input Unit with connector for 32 inputs. The CS Series does not have the same type of Unit. Use C200H-ID501 with CS1 or use the CS1W-ID231 24-VDC Input Unit or CS1W-MD561 TTL I/O Unit instead.	

< AC Input Units >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-IA121 100 to 120 VAC/10 mA, Terminal block, 8 inputs	CS1W-IA111 100 to 120 VAC/10 mA, 100 to 120 VDC/1.5 mA, Terminal block, 16 inputs	100 VAC Input Unit with terminal block for 8 inputs. Replace this unit with a 100 VAC Input Unit with 16 inputs.	1) Terminal block 2) Input points (8 points → 16 points) 3) Input circuit specifications Input impedance (9.7 kΩ/50 Hz → 10 kΩ/50 Hz) ON voltage (60 VAC → 65 VAC) 4) Internal current consumption (5 VDC: 10 mA → 110 mA)
C200H-IA221 200 to 240 VAC, 10 mA, Terminal block, 8 inputs	CS1W-IA211 200 to 240 VAC, 10 mA, Terminal block, 16 inputs	200 VAC Input Unit with terminal block for 8 inputs. Replace this unit with a 200 VAC Input Unit with 16 inputs.	1) Terminal block 2) Input points (8 points → 16 points) 3) Internal current consumption (5 VDC: 10 mA → 110 mA)
C200H-IA122/IA122V 100 to 120 VAC/10 mA, Terminal block, 16 inputs, IA122V: Complying with EC Directive	CS1W-IA111 100 to 120 VAC/10 mA, 100 to 120 VDC/1.5 mA, Terminal block, 16 inputs	100 VAC Input Unit with terminal block for 16 inputs.	1) Terminal block 2) No. of circuits (16 points/common x 1 circuit → 8 points/common x 2 circuits) 3) Input circuit specifications Input impedance (9.7 kΩ/50 Hz → 10 kΩ/50 Hz) ON voltage (60 VAC → 65 VAC) 4) Internal current consumption (5 VDC: 10 mA → 110 mA)
C200H-IA222/IA222V 200 to 240 VAC, 10 mA, Terminal block, 16 inputs, IA222V: Complying with EC Directive	CS1W-IA211 200 to 240 VAC, 10 mA, Terminal block, 16 inputs	200 VAC Input Unit with terminal block for 16 inputs.	1) Terminal block 2) No. of circuits (16 points/common x 1 circuit → 8 points/common x 2 circuits) 3) Internal current consumption (5 VDC: 10 mA → 110 mA)

< AC/DC Input Units >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-IM211 12 to 24 VAC/VDC, Terminal block, 8 inputs	CS1W-ID211 24 VDC, 7 mA, Terminal block, 16 inputs	AC/DC Input Unit with terminal block for 8 inputs. Replace this unit with a DC Input Unit with 16 inputs. *The CS Series does not have an AC/DC Input Unit. If this Unit is used with AC inputs, use this C200H-series Unit with CS1 or change the wiring for DC inputs.	1) Terminal block 2) Input points (8 points → 16 points) 3) Input circuit specifications Input voltage range (12 to 24 VAC/VDC → 24 VDC) Input impedance (2 kΩ → 3.3 kΩ) ON voltage (10.2 VDC → 14.4 VDC) OFF voltage (3 VDC → 5 VDC) 4) Internal current consumption (5 VDC: 10 mA → 100 mA)
C200H-IM212 24 VAC/VDC, Terminal block, 16 inputs	CS1W-ID211 24 VDC, 7 mA, Terminal block, 16 inputs	AC/DC Input Unit with terminal block for 16 inputs. Replace this unit with a DC Input Unit with 16 inputs. *The CS Series does not have an AC/DC Input Unit. If this Unit is used with AC inputs, use this C200H-series Unit with CS1 or change the wiring for DC inputs.	1) Terminal block 2) No. of circuits (16 points/common x 1 circuit → 8 points/common x 2 circuits) 3) Input circuit specifications Input voltage range (24 VAC/VDC → 24 VDC) Input impedance (3 kΩ → 3.3 kΩ) 4) Internal power consumption (5 VDC: 10 mA → 100 mA)

■ Output Unit

- (1) If a different type of terminal block or connector is used, change the wiring.
- (2) If the number of circuits increases, rewire the terminals to each common terminal.
- (3) If the output specifications differ, make sure that the system operates correctly.
- (4) The relay lifetime may vary depending on usage when the different relay is used. Refer to *About Contact Output Units* under *Appendix A Specifications of Basic I/O Units and High-density I/O Units* in the *CS1G/H-CPU□□H CS Series Programmable Controllers OPERATION MANUAL* (Cat. No. W339) for details.
- (5) If internal current consumption is different, make sure the power supply capacity is large enough.
- (6) If the voltage and current consumption of the external power supply differ, make sure the power supply capacity is large enough.
- (7) C200H-series Units can be used with CS1-series CPU Units.
- (8) Refer to the related manuals for details. Although CS-series Units has basic functions of C200H-series Units, some specifications may differ.

< Relay Output Units >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-OC223 250 VAC/24 VDC, 2 A, Terminal block, 5 outputs (independent contacts)	CS1W-OC201 250 VAC/120 VDC, 2 A, Terminal block, 8 outputs (independent contacts)	Relay Output Unit with terminal block for 5 outputs (independent contacts). Replace this unit with a Relay Output Unit with 8 outputs (independent contacts).	1) Terminal block 2) Output points (independent contacts 5 points → 8 points) 3) Output circuit specifications ON/OFF response time (10 ms → 15 ms) Used relay 4) Internal current consumption (5 VDC: 10 mA → 100 mA, 26 VDC: 46 mA → 48 mA)
C200H-OC224 250 VAC/24 VDC, 2 A, Terminal block, 8 outputs (independent contacts)	CS1W-OC201 250 VAC/120 VDC, 2 A, Terminal block, 8 outputs (independent contacts)	Relay Output Unit with terminal block for 8 outputs (independent contacts).	1) Terminal block 2) Output circuit specifications ON/OFF response time (10 ms → 15 ms) Used relay 3) Internal current consumption (5 VDC: 10 mA → 100 mA, 26 VDC: 75 mA → 48 mA)
C200H-OC224V, OC224N 250 VAC/24 VDC, 2 A, Terminal block, 8 outputs (independent contacts)	CS1W-OC201 250 VAC/120 VDC, 2 A, Terminal block, 8 outputs (independent contacts)	Relay Output Unit with terminal block for 8 outputs (independent contacts).	1) Terminal block 2) Output circuit specification Used relay 3) Internal current consumption (5 VDC: 10 mA → 100 mA, 26 VDC: 90 mA → 48 mA)
C200H-OC221 250 VAC/24 VDC, 2 A, Terminal block, 8 outputs	CS1W-OC211 250 VAC/120 VDC, 2 A, Terminal block, 16 outputs	Relay Output Unit with terminal block for 8 outputs. Replace this unit with a Relay Output Unit with 16 outputs.	1) Terminal block 2) Output points (8 points → 16 points) 3) Output circuit specifications ON/OFF response time (10 ms → 15 ms) Used relay 4) Internal current consumption (5 VDC: 10 mA → 100 mA, 26 VDC: 75 mA → 96 mA)
C200H-OC222 250 VAC/24 VDC, 2 A, Terminal block, 12 outputs	CS1W-OC211 250 VAC/120 VDC, 2 A, Terminal block, 16 outputs	Relay Output Unit with terminal block for 12 outputs. Replace this unit with a Relay Output Unit with 16 outputs.	1) Terminal block 2) Output points (12 points → 16 points) 3) No. of circuits (12 points/common x 1 circuit → 8 points/common x 2 circuits) 4) Output circuit specifications ON/OFF response time (10 ms → 15 ms) Used relay 5) Internal current consumption (5 VDC: 10 mA → 100 mA, 26 VDC: 75 mA → 96 mA)
C200H-OC222V, OC222N 250 VAC/24 VDC, 2 A, Terminal block, 12 outputs	CS1W-OC211 250 VAC/120 VDC, 2 A, Terminal block, 16 outputs	Relay Output Unit with terminal block for 12 outputs. Replace this unit with a Relay Output Unit with 16 outputs.	1) Terminal block 2) Output points (12 points → 16 points) 3) No. of circuits (12 points/common x 1 circuit → 8 points/common x 2 circuits) 4) Output circuit specification Used relay 5) Internal current consumption (5 VDC: 10 mA → 100 mA, 26 VDC: 90 mA → 96 mA)

< Relay Output Units >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-OC225 250 VAC/24 VDC, 2 A, Terminal block, 16 outputs	CS1W-OC211 250 VAC/120 VDC, 2 A, Terminal block, 16 outputs	Relay Output Unit with terminal block for 16 outputs.	1) Terminal block 2) No. of circuits (16 points/common x 1 circuit → 8 points/common x 2 circuits) 3) Output circuit specifications ON/OFF response time (10 ms → 15 ms) Used relay 4) Internal current consumption (5 VDC: 10 mA → 100 mA, 26 VDC: 75 mA → 96 mA)
C200H-OC226, OC226N 250 VAC/24 VDC, 2 A, Terminal block, 16 outputs	CS1W-OC211 250 VAC/120 VDC, 2 A, Terminal block, 16 outputs	Relay Output Unit with terminal block for 16 outputs.	1) Terminal block 2) No. of circuits (16 points/common x 1 circuit → 8 points/common x 2 circuits) 3) Output circuit specification Used relay 4) Internal current consumption (5 VDC: 10 mA → 100 mA, 26 VDC: 90 mA → 96 mA)

< Transistor Output Units >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-OD411 12 to 48 VDC, 1 A, Sinking, Terminal block, 8 outputs	CS1W-OD211 12 to 24 VDC, 0.5 A, Sinking, Terminal block, 16 outputs	Transistor Output Unit with terminal block for 8 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (8 points → 16 points) 3) Output circuit specifications Output capacity (1 A/point, 3 A/Unit → 0.5 A/point, 8 A/Unit) Voltage range (12 to 48 VDC → 12 to 24VDC) Residual voltage (1.4 V → 1.5 V) ON response time (0.2 ms → 0.5 ms) OFF response time (0.3 ms → 1.0 ms) 4) Internal current consumption (5 VDC: 140 mA → 170 mA)
C200H-OD213 24 VDC, 2.1 A, Sinking, Terminal block, 8 outputs	CS1W-OD211 12 to 24 VDC, 0.5 A, Sinking, Terminal block, 16 outputs	Transistor Output Unit with terminal block for 8 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (8 points → 16 points) 3) Output circuit specifications Output capacity (2.1 A/point, 5.2 A/Unit → 0.5 A/point, 8 A/Unit) Residual voltage (1.4 V → 1.5 V) ON response time (0.2 ms → 0.5 ms) OFF response time (0.3 ms → 1.0 ms) 4) Internal current consumption (5 VDC: 140 mA → 170 mA)
C200H-OD214 24 VDC, 0.8 A, Sourcing, Terminal block, Load short circuit protection, 8 outputs	CS1W-OD212 12 to 24 VDC, 0.5 A, Sourcing, Terminal block, Load short circuit protection, 16 outputs	Transistor Output Unit with terminal block for 8 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (8 points → 16 points) 3) Output circuit specifications Output capacity (0.8 A/point, 2.4 A/Unit → 0.5 A/point, 5 A/Unit) ON response time (1 ms → 0.5 ms) 4) Internal current consumption (5 VDC: 140 mA → 170 mA)
C200H-OD216 5 to 24 VDC, 0.3 A, Sourcing, Terminal block, 8 outputs	CS1W-OD212 12 to 24 VDC, 0.5 A, Sourcing, Terminal block, Load short circuit protection, 16 outputs	Transistor Output Unit with terminal block for 8 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (8 points → 16 points) 3) Output circuit specification Output voltage range (5 to 24 VDC → 24 VDC) 4) Internal current consumption (5 VDC: 10 mA → 170 mA, 26 VDC: 75 mA → 0 mA) 5) External power supply (Not required → 24 VDC/40 mA)
C200H-OD211 24 VDC, 0.3 A, Sinking, Terminal block, 12 outputs	CS1W-OD211 12 to 24 VDC, 0.5 A, Sinking, Terminal block, 16 outputs	Transistor Output Unit with terminal block for 12 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (12 points → 16 points) 3) No. of circuits (12 points/common x 1 circuit → 8 points/common x 2 circuits) 4) Output circuit specifications Residual voltage (1.4 V → 1.5 V) ON response time (0.2 ms → 0.5 ms) OFF response time (0.3 ms → 1.0 ms) 5) Internal current consumption (5 VDC: 160 mA → 170 mA)

< Transistor Output Units >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-OD217 5 to 24 VDC, 0.3 A, Sourcing, Terminal block, 12 outputs	CS1W-OD212 12 to 24 VDC, 0.5 A, Sourcing, Terminal block, Load short circuit protection, 16 outputs	Transistor Output Unit with terminal block for 12 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (12 points → 16 points) 3) No. of circuits (12 points/common x 1 circuit → 8 points/common x 2 circuits) 4) Output circuit specification Output voltage range (5 to 24 VDC → 24 VDC) 5) Internal current consumption (5 VDC: 10 mA → 170 mA, 26 VDC: 75 mA → 0 mA) 6) External power supply (Not required → 24 VDC: 40 mA)
C200H-OD212 24 VDC, 0.3 A, Sinking, Terminal block, 16 outputs	CS1W-OD211 12 to 24 VDC, 0.5 A, Sinking, Terminal block, 16 outputs	Transistor Output Unit with terminal block for 16 outputs.	1) Terminal block 2) No. of circuits (16 points/common x 1 circuit → 8 points/common x 2 circuits) 3) Output circuit specifications Residual voltage (1.4 V → 1.5 V) ON response time (0.2 ms → 0.5 ms) OFF response time (0.3 ms → 1.0 ms)
C200H-OD21A 24 VDC, 1.0 A, Sourcing, Terminal block, Load short circuit protection, 16 outputs	CS1W-OD212 12 to 24 VDC, 0.5 A, Sourcing, Terminal block, Load short circuit protection, 16 outputs	Transistor Output Unit with terminal block for 16 outputs.	1) Terminal block 2) No. of circuits (16 points/common x 1 circuit → 8 points/common x 2 circuits) 3) Output circuit specifications Output capacity (1 A/point, 4 A/Unit → 0.5 A/point, 5 A/Unit) Residual voltage (0.8 V → 1.5 V) ON response time (0.1 ms → 0.5 ms) OFF response time (0.3 ms → 1.0 ms) 4) Internal current consumption (5 VDC: 160 mA → 170 mA) 5) External power supply (24 VDC: 35 mA → 40 mA) 6) Alarm output (Supported → Not supported)
C200H-OD218 4.5 to 26.3 VDC, 0.1A, Sinking, Connector, 32 outputs (Group-2)	CS1W-OD231 12 to 24 VDC, 0.5A, Sinking, Connector, 32 outputs	Transistor Output Unit with connector for 32 outputs.	1) No. of circuits (32 points/common x 1 circuit → 16 points/common x 2 circuits) 2) Output circuit specifications Output voltage range (5 to 24 VDC → 12 to 24 VDC) Residual voltage (0.8 V → 1.5 V) ON response time (0.1 ms → 0.5 ms) OFF response time (0.4 ms → 1.0 ms) 3) Internal current consumption (5 VDC: 180 mA → 270 mA) 4) External power supply (5 to 24 VDC: 110 mA → 12 to 24 VDC: 50 mA)
C200H-OD215 4.5 to 26.3 VDC, 0.1 A, Sinking, Connector, 32 outputs (Special I/O)	CS1W-OD231 12 to 24 VDC, 0.5A, Sinking, Connector, 32 outputs	Transistor Output Unit with connector for 32 outputs. *The CS1-series Unit does not support dynamic outputs. Use this C200H-series Unit with CS1 or change the wiring for static outputs.	1) Connector Use the XW2Z-S011 Conversion Cable to reuse the connecting cable. 2) Output method (Dynamic or static mode → Static mode only) Based on specifications in static output mode 3) No. of circuits (8 points/common x 4 circuits → 16 points/common x 2 circuits) 4) Output circuit specifications Output voltage range (5 to 24 VDC → 12 to 24 VDC) Residual voltage (0.7 V → 1.5 V) ON response time (0.2 ms → 0.5 ms) OFF response time (0.6 ms → 1.0 ms) 5) Internal current consumption (5 VDC: 220 mA → 270 mA) 6) External power supply (5 to 24 VDC: 90 mA → 12 to 24 VDC: 50 mA)
C200H-OD21B 24 VDC, 0.5 A, Sourcing, Connector, Load short circuit protection, 32 outputs (Group-2)	CS1W-OD232 12 to 24 VDC, 0.5 A, Sourcing, Connector, Load short circuit protection, 32 outputs	Transistor Output Unit with connector for 32 outputs.	1) No. of circuits (32 points/common x 1 circuit → 16 points/common x 2 circuits) 2) Output circuit specifications Output capacity (0.5 A/point, 5 A/Unit → 0.5 A/point, 2.5 A/common, 5 A/Unit) Residual voltage (0.8 V → 1.5 V) ON response time (0.1 ms → 0.5 ms) OFF response time (0.3 ms → 1.0 ms) 3) Internal current consumption (5 VDC: 180 mA → 270 mA)

< Transistor Output Units >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-OD219 4.5 to 26.3 VDC, 0.1 A, Sinking, Connector, 64 outputs (Group-2)	CS1W-OD261 12 to 24 VDC, 0.3 A, Sinking, Connector, 64 outputs	Transistor Output Unit with connector for 64 outputs..	1) No. of circuits (32 points/common x 2 circuits → 16 points/common x 4 circuits) 2) Output circuit specifications Output voltage range (5 to 24 VDC → 12 to 24 VDC) Residual voltage (0.8 V → 1.5 V) ON response time (0.1 ms → 0.5 ms) OFF response time (0.4 ms → 1.0 ms) 3) Internal current consumption (5 VDC: 270 mA → 390 mA)

< TTL Output Unit >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-OD501 5 VDC, 35 mA, Connector, 32 outputs (Special I/O)	No replacement model	TTL Output Unit with connector for 32 outputs. The CS Series does not have the same type of Unit. Use C200H-OD501 with CS1 or use the CS1W-OD231 Transistor Output Unit or CS1W-MD561 TTL I/O Unit instead.	

< Triac Output Units >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-OA223 250 VAC, 1.2 A, Terminal block, 8 outputs	CS1W-OA201 250 VAC, 1.2 A, Terminal block, 8 outputs	Triac Output Unit with terminal block for 8 outputs.	1) Terminal block 2) Output circuit specification Max. inrush current (15 A: Pulse width 100 ms, 30 A: Pulse width 10 ms → 10 A: Pulse width 100 ms, 20 A: Pulse width 10 ms) 3) Internal current consumption (5 VDC: 180 mA → 230 mA)
C200H-OA221 250 VAC, 1.2 A, Terminal block, 8 outputs	CS1W-OA201 250 VAC, 1.2 A, Terminal block, 8 outputs	Triac Output Unit with terminal block for 8 outputs.	1) Terminal block 2) Output circuit specifications Max. inrush current (No regulation → 10 A: Pulse width 100 ms, 20 A: Pulse width 10 ms) Residual voltage (1.2 VAC → 50 to 1200 mA: 1.5 VAC, 10 to 50 mA: 5 VAC) OFF response time (1/2 of load frequency or less → 1/2 of load frequency + 1 ms or less) 3) Internal current consumption (5 VDC: 140 mA → 230 mA)
C200H-OA224 250 VAC, 0.5 A, Terminal block, 12 outputs	CS1W-OA211 250 VAC, 0.5 A, Terminal block, 16 outputs	Triac Output Unit with terminal block for 12 outputs. Replace this unit with a Triac Output Unit with 16 outputs.	1) Terminal block 2) Output points (12 points → 16 points) 3) No. of circuits (12 points/common x 1 circuit → 8 points/common x 2 circuits) 4) Output circuit specifications Max. switching capacity (250 VAC 0.5 A/point, 2 A/Unit → 0.5 A/point, 2 A/common, 4 A/Unit) Max. inrush current (10A: Pulse width 100 ms, 20A: Pulse width 10 ms → 15A: Pulse width 10 ms) Min. switching capacity (10 VAC: 100 mA, 24 VAC: 50 mA, 100 VAC: 10 mA → 75 VAC: 50 mA) Residual voltage (50 to 500 mA: 1.5 VAC, 10 to 50 mA: 5 VAC → 1.6 VAC 5) Internal current consumption (5 VDC: 270 mA → 406 mA)
C200H-OA222V 250 VAC, 0.3 A, Terminal block, 12 outputs (CE marked)	CS1W-OA211 250 VAC, 0.5 A, Terminal block, 16 outputs	Triac Output Unit with terminal block for 12 outputs. Replace this unit with a Triac Output Unit with 16 outputs.	1) Terminal block 2) Output points (12 points → 16 points) 3) No. of circuits (12 points/common x 1 circuit → 8 points/common x 2 circuits) 4) Output circuit specifications Max. inrush current (No regulation → 15 A: Pulse width 10 ms) Min. switching capacity (10 VAC: 10 mA (resistive load)/40 mA (inductive load) → 75 VAC: 50 mA) Residual voltage (1.2 VAC → 1.6 VAC) ON response time (1/2 of load frequency or less → 1 ms or less) OFF response time (1/2 of load frequency or less → 1/2 of load frequency + 1 ms or less) 5) Internal current consumption (5 VDC: 200 mA → 406 mA)

■ I/O Unit

- (1) The CS Series has two I/O Units: CS1W-MD261 and CS1W-MD561. The word allocation of the CS-series Unit is different from that of the C200H-series Unit since the number of inputs and outputs of the CS-series unit is 32 points each.
- (2) C200H-series Units can be used with CS1-series CPU Units.
- (3) Refer to the related manuals for details. Although CS-series Units have basic functions of C200H-series Units, some specifications may differ.

< DC Input/Transistor Output Units >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-MD115 12 VDC/16 inputs, 12 VDC/16 outputs (Sinking), Connector (Special I/O)	No replacement model	I/O Unit with connector for 16 inputs and 16 outputs. The CS Series does not have the same type of Unit. Use this Unit with CS1 or use CS1W-MD261 or CS1W-MD561 instead.	
C200H-MD215 24 VDC/16 inputs, 5 to 24 VDC/16 outputs (Sinking), Connector (Special I/O)	No replacement model	I/O Unit with connector for 16 inputs and 16 outputs. The CS Series does not have the same type of Unit. Use this Unit with CS1 or use CS1W-MD261 or CS1W-MD561 instead.	

< TTL I/O Unit >

C200H-series Unit	Corresponding CS-series Unit	Description	Difference
C200H-MD501 5 VDC/16 inputs, 5 VDC/16 outputs, Connector (Special I/O)	No replacement model	I/O Unit with connector for 16 inputs and 16 outputs. The CS Series does not have the same type of Unit. Use this Unit with CS1 or use CS1W-MD261 or CS1W-MD561 instead.	

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