P071-E1-04

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

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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	CX-One FA Integrated Tool Package SETUP MANUAL
W446	CXONE-AL□□D-V4	CX-Programmer OPERATION MANUAL
W447		CX-Programmer OPERATION MANUAL : Function Blocks/Structured Text
W464		CX-Integrator OPERATION MANUAL
W344		CX-Protocol OPERATION MANUAL

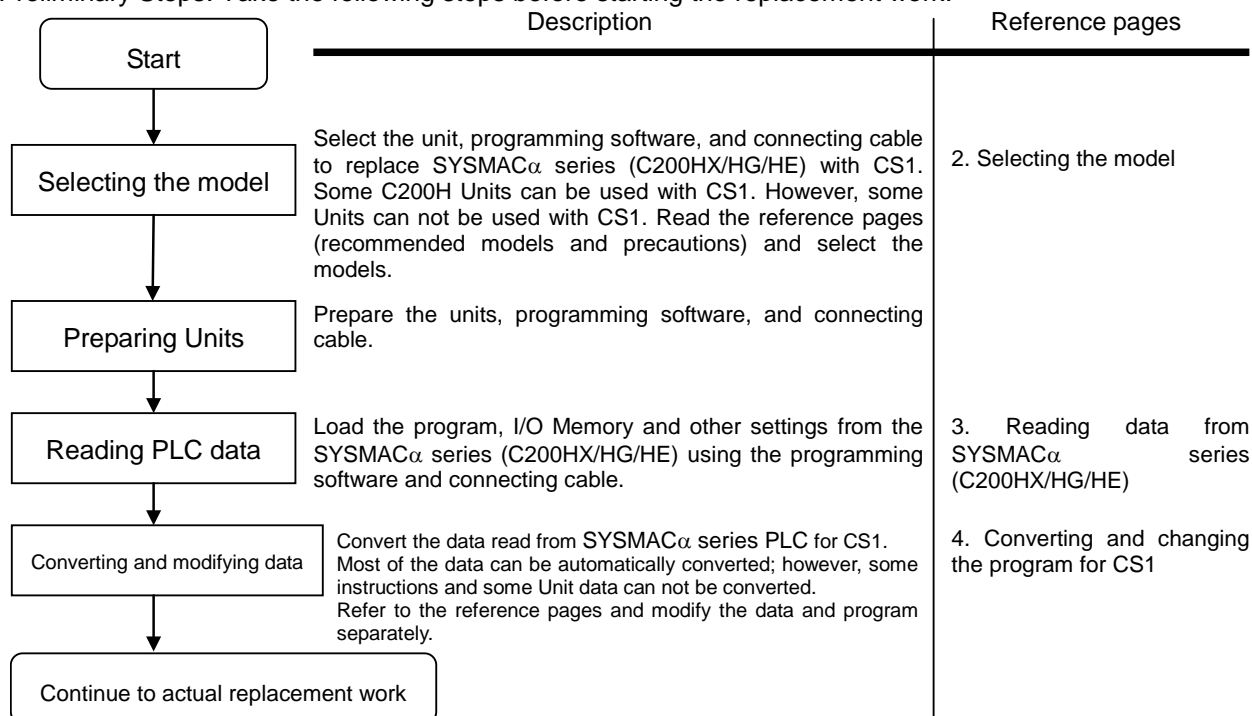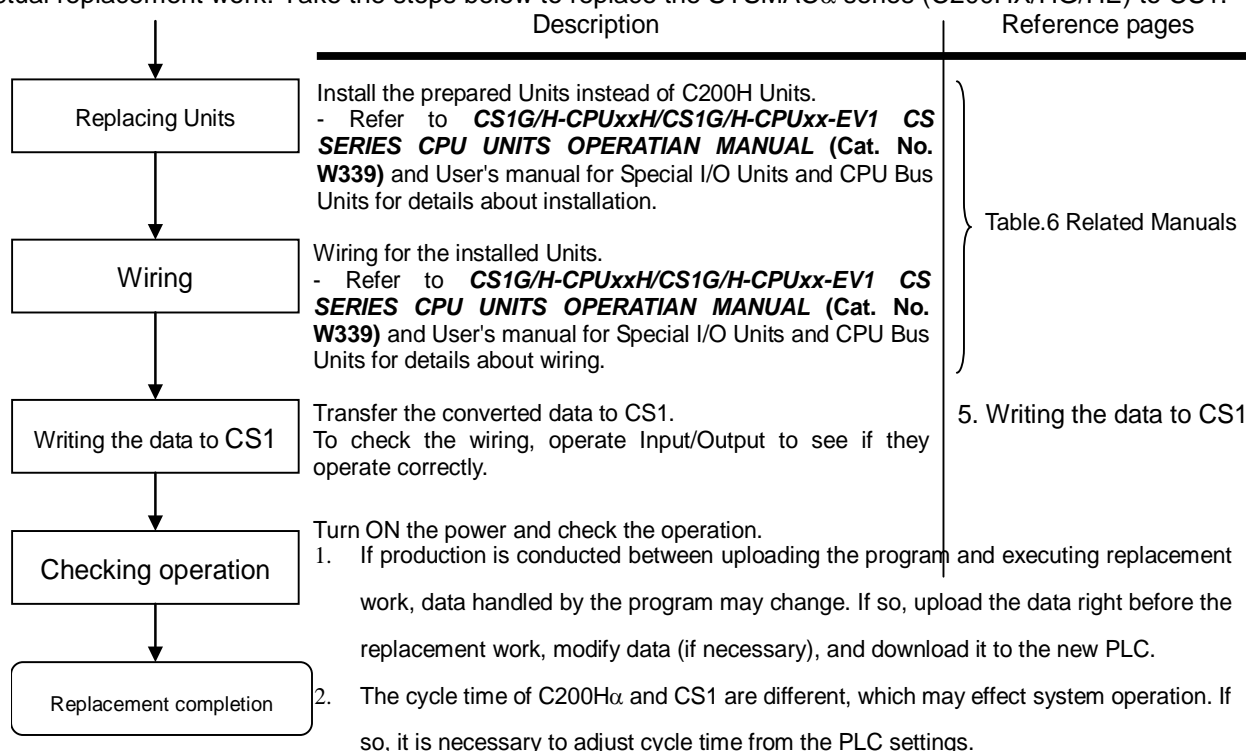# C200HX/HG/HE Replacement Guide
From C200HX/HG/HE to CS1

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

1.	Work flow

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

	Description	Reference pages
Start		
Selecting the model	Select the unit, programming software, and connecting cable to replace SYSMACα series (C200HX/HG/HE) with CS1. Some C200H Units can be used with CS1. However, some Units can not be used with CS1. Read the reference pages (recommended models and precautions) and select the models.	2. Selecting the model
Preparing Units	Prepare the units, programming software, and connecting cable.	
Reading PLC data	Load the program, I/O Memory and other settings from the SYSMACα series (C200HX/HG/HE) using the programming software and connecting cable.	3. Reading data from SYSMACα series (C200HX/HG/HE)
Converting and modifying data	Convert the data read from SYSMACα series PLC for CS1. Most of the data can be automatically converted; however, some instructions and some Unit data can not be converted. Refer to the reference pages and modify the data and program separately.	4. Converting and changing the program for CS1
Continue to actual replacement work		

2) Actual replacement work: Take the steps below to replace the SYSMACα series (C200HX/HG/HE) to CS1.

	Description	Reference pages
Replacing Units	Install the prepared Units instead of C200H Units. - Refer to *CS1G/H-CPUxxH/CS1G/H-CPUxx-EV1 CS SERIES CPU UNITS OPERATIAN MANUAL* **(Cat. No. W339)** and User's manual for Special I/O Units and CPU Bus Units for details about installation.	
Wiring	Wiring for the installed Units. - Refer to *CS1G/H-CPUxxH/CS1G/H-CPUxx-EV1 CS SERIES CPU UNITS OPERATIAN MANUAL* **(Cat. No. W339)** and User's manual for Special I/O Units and CPU Bus Units for details about wiring.	Table.6 Related Manuals
Writing the data to CS1	Transfer the converted data to CS1. To check the wiring, operate Input/Output to see if they operate correctly.	5. Writing the data to CS1
Checking operation	Turn ON the power and check the operation.	
Replacement completion		

1. If production is conducted between uploading the program and executing replacement work, data handled by the program may change. If so, upload the data right before the replacement work, modify data (if necessary), and download it to the new PLC.

2. The cycle time of C200Hα and CS1 are different, which may effect system operation. If so, it is necessary to adjust cycle time from the PLC settings.

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 Adapter 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 *C200H I/O Terminal Block Conversion Adapter Data Sheet*.	 C200H I/O Terminal Block Conversion Adapter (CS1W-AT2[][])

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.

2. 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

Wired terminal block of C200H-series Basic I/O Unit to be replaced

CS1-series Basic I/O Unit

C200H I/O Terminal Block Conversion Adapter (CS1W-AT2[][])
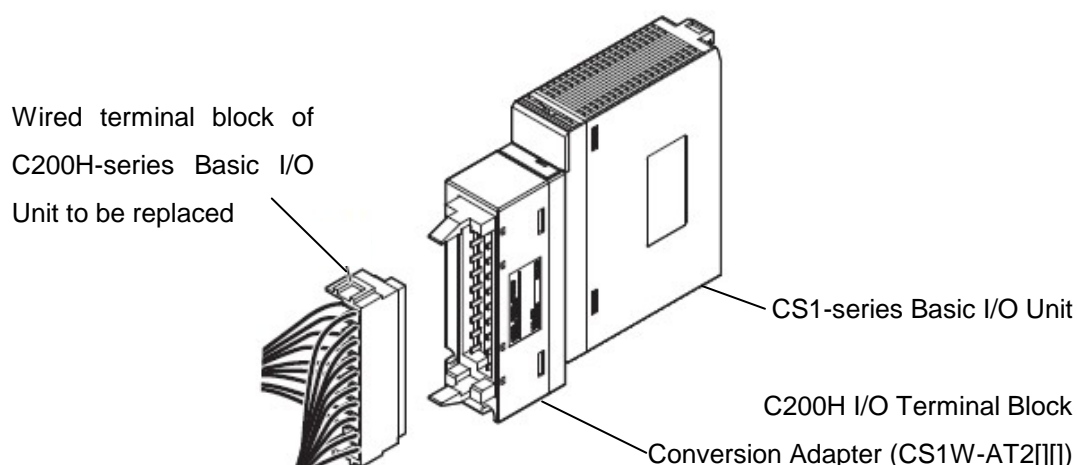
3.	Selecting the model

Outline of the system configuration
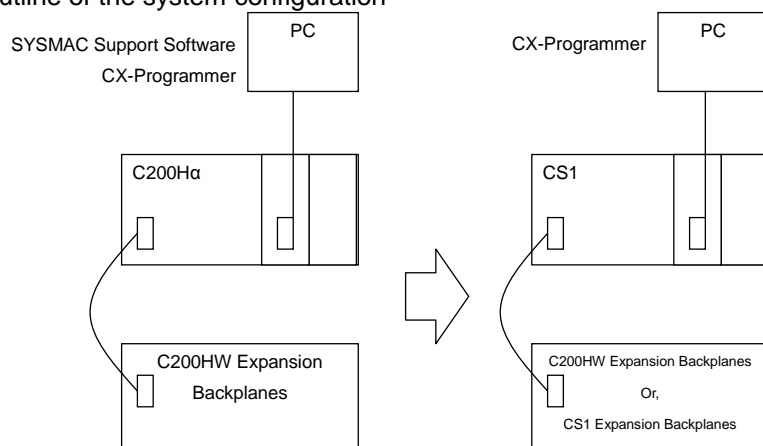
The table below lists the models of SYSMACα series units and each corresponding models of CS1-series. Select the CS1-series model which is compatible with the C200H Series model. Or, select the CS1-series model with similar specification to the C200H Series Unit.

Refer to the manuals below for details.

· CS1-series: CS1G/H-CPU**H/CS1G/H-CPU**-EV1 CS SERIES CPU UNITS OPERATIAN MANUAL (Cat. No. W339)

· C200Hα series: Programmable Controllers C200HX-CPU□□-E/-ZE, C200HG-CPU□□-E/-ZE, C200HE-CPU□□-E/-ZE INSTALLATION GUIDE (Cat. No. W302)

< CPU Units and Power Supply Units >

Unit name	SYSMACα Series	CS1-series	Description
CPU Units	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 Casette	C200HW-ME□□K C200HS-MP16K	HMC-EF□□□	
Power Supply Units	C200HW-PA□□□ C200HW-PD□□□	C200HW-PA□□□ C200HW-PD□□□	The Power Supply Units of SYSMACα series can be used with CS1-series, if its capacity is larger than the total current consumption of the new PLC.
Backplanes (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 installation hole position is the same. **Note:** CS1W-BC□□2 can not be used with C200H Units.
Communication Boards	C200HW-COM01	Unnecessary*	*It is not necessary to mount the communication unit for networks such as SYSMAC LINK and SYSNET.
	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	
CPU Backplane Insulation Plates	C200H-ATT31 C200H-ATT51 C200H-ATT81 C200H-ATTA1	Unnecessary*	* The backplane of the CS1-series has an installation structure to be insulated from the control board etc., CPU Backplane Insulation Plates are unnecessary.

<I/O Expansion System>

Unit name	SYSMACα Series	CS1-series	Description
Power Supply Units	C200HW-PA□□□ C200HW-PD□□□	C200HW-PA□□□ C200HW-PD□□□	The Power Supply Units of SYSMACα series can be used with CS1-series, if its capacity is larger than the total current consumption of the new PLC.
Backplanes (Expansion Backplanes)	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	C200HW Expansion Backplane can be used with CS1-series. When the unit of the CS1-series is used, use the CS1 Expansion Backplane (CS1W-BI□□□), instead of C200HW Backplane. **Attention:** The installation hole position of CS1 Expansion Backplane changes with the number of slot (3, 5, 8 and 10 slots). CS1W-BI□□2 can not be used with C200H Units.
Connecting Cables for Expansion Backplanes	C200H-CN□□1	CS1W-CN□□3	This cable connect a CS1 CPU Backplane and a CS1 Expansion Backplanes.
		CS1W-CN□□1	This cable connetcts a CS1 Backplane (CPU/Expansion) and an Expansion I/O Backplanes (C200HW-BI□□1).
		C200H-CN□□1	This cable connetcts two CS1 Expansion Backplanes (C200HW-BI□□1).
Backplane Insulation Plates	C200HW-ATT32 C200HW-ATT52 C200HW-ATT82 C200HW-ATTA2	[When using C200HW Expansion Backplanes] C200HW-ATT32 C200HW-ATT52 C200HW-ATT82 C200HW-ATTA2 [When using CS1 Expansion Backplanes] Unnecessary*	*The backplane of the CS1-series has an installation structure to be insulated from the control board etc., Backplane Insulation Plates are unnecessary.

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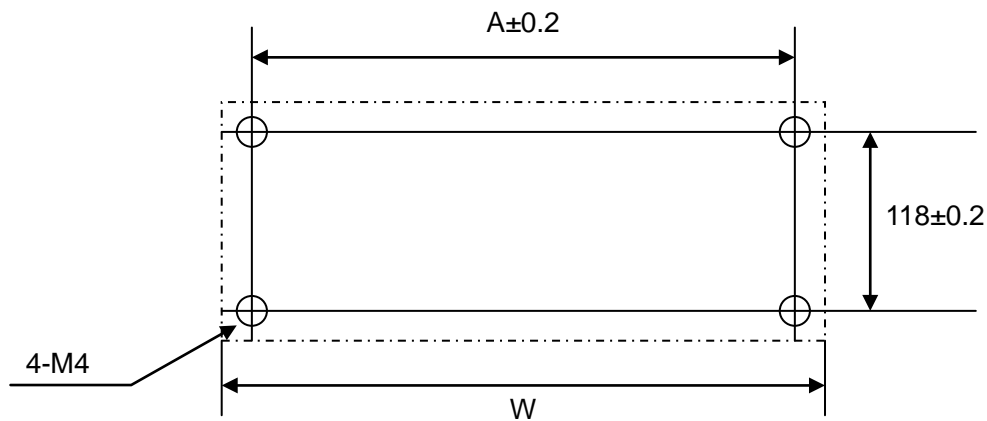
Model	A/W		Model	A/W
C200HW-BI031	175 / 189	->	CS1W-BI033	246 / 260
C200HW-BI051	245 / 259	->	CS1W-BI053	316 / 330
C200HW-BI081-V1	350 / 364	->	CS1W-BI083	421 / 435
C200HW-BI101-V1	420 / 434	->	CS1W-BI103	491 / 505

<I/O Units, CPU Bus Units>

Unit name		SYSMACα Series	CS1-series	Description
Basic I/O Units		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. Refer to *Appendix E. Table of Input/Output Units* for CS1 Basic Input/Output Units corresponding to C200H Basic Input/Output Units. We recommend replacing the C200H-series Basic Units with CS1-series Basic I/O Units for maintenance purpose.
Special I/O Units		C200H-□□□□	C200H-□□□□ Or, CS1W-□□□□	C200H-series Special I/O Units can be used with CS1-series Units. However, there are some remarks to be followed. To improve the system performance and to facilitate maintenance, we recommend you to use the CS1-series Unit instead.
Communications Units		[SYSMAC LINK] Coaxial cable type: C200HW-SLK23/24 Optical Fiber Cable type: C200HW-SLK13/14	[SYSMAC LINK] Coaxial cable type: CS1W-SLK21 Optical Fiber Cable type: CS1W-SLK11 Or, [Controller Link】 Wire type:CS1W-CLK23 Optical Fiber Cable type: CS1W-CLK13/53	C200HW-SLK□□ can not be used with CS1-series. Refer to the *SYSMAC CS1W-SLK11/21 SYSMAC LINK Units OPERATIAN MANUAL* (Cat. No. W367) for details about SYSMAC LINK. We recommend you to use the Controller Link instead. Refer to the *Controller Link Units (Wire type) Operation Manual* (Cat, No. W309) and *Controller Link Units (H-PCF Optical Fiber Cable ring connection) Operation Manual* (Cat, No. W370)
		[SYSNET] C200HS-SNT32	[SYSNET] None [Controller Link] Wire type: CS1W-CLK23 Optical Fiber Cable type: CS1W-CLK13/53	SYSNET can not be used with CS1-series. We recommend you to renewal the system with Controller Link. Refer to the *Controller Link Units (Wire type) Operation Manual* (Cat, No. W309) and *Controller Link Units (H-PCF Optical Fiber Cable ring connection) Operation Manual* (Cat, No. W370)
		[Controller Link] Wire type: C200HW-CLK21	[Controller Link] Wire type: CS1W-CLK23	C200HW-CLK21 can not be used with CS1-series. To use the CS1-series, change the related area, including status area. Refer to the *Controller Link Units (Wire type) Operation Manual* (Cat, No. W309).
		[Host Link]	[Serial Communication]	C200H Host Link Unit can not be used with CS1-series. Refer to the *SYSMAC CS/CJ Series Serial Communications Boards/Units OPERATIAN MANUAL* (Cat. No. W336) for details.
	C200H-LK101-PV1		None CS1W-SCU21-V1 (+ optical link module)	The CS1-series does not have the Optical-type Serial Communications Board/Unit. Use the wire-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 Unit/Board.
	C200H-LK202-V1		CS1W-SCU31-V1 CS1W-SCB41-V1	This Unit can not be used with CS1-series. Use one of the left CS1-series Unit/Board.
		[PC Link] C200H-LK401	[PC Link] C200H-LK401 [Controller Link] Wire type: CS1W-CLK23 Optical Fiber Cable type: CS1W-CLK13/53	PC Link Unit can be used with CS1-series. The link area allocation, etc. must be modified. We recommend you to use the Controller Link instead. Refer to the *Controller Link Units (Wire type) Operation Manual* (Cat, No. W309) and *Controller Link Units (H-PCF Optical Fiber Cable ring connection) Operation Manual* (Cat, No. W370)

Unit name	SYSMACα Series	CS1-series	Description
Communications Units	[CompoBus/S] C200HW-SRM21(-V1)	[CompoBus/S] C200HW-SRM21(-V1) Or, CS1W-SRM21	C200HW-SRM21(-V1) can be used with CS1-series; however, I/O allocation must be changed. There are also some points to follow, when CS1W-SRM21 is replaced. Refer to the **C200HW-SRM21-V1, CS1W-SRM21, CJ1W-SRM21, CQM1-SRM21-V1, SRT1 Series, SRT2 Series CompoBus/S OPERATIAN MANUAL (Cat. No. W226)** for details about CompoBus/S.
	[DeviceNet] C200HW-DRM21(-V1)	[DeviceNet] C200HW-DRM21(-V1) Or, CS1W-DRM21-V1	C200HW-DRM21 (-V1) can be used with CS1-series; however, program including I/O allocation must be changed. Refer to the **SYSMAC CS/CJ SeriesCS Series: CS1W-DRM21(-V1) CJ-Series: CJ1W-DRM21 DeviceNet Units OPERATIAN MANUAL (Cat. No. W380)** for details.
	[SYSBUS] Wire type: C200H-RM201 Optical Fiber Cable type: C200H-RM001-PV1	[SYSBUS] Wire type: C200H-RM201 Optical Fiber Cable type: C200H-RM001-PV1 [CompoNet] CS1W-CRM21 [DeviceNet] CS1W-DRM21-V1 [CompoBus/S] CS1W-SRM21	SYSBUS Unit can be used with CS1-series. However, relay area allocation, etc. must be modified. To improve the system performance and to facilitate maintenance, we recommend you to use left networks instead. Refer to the **CS/CJ-series CompoNet Master Units Operation Manual (Cat. No. W456)** and **CompoNet Slave Units and Repeater Unit OPERATION MANUAL (Cat. No. W457)** for details of CompoNet. Refer to the **SYSMAC CS/CJ SeriesCS Series: CS1W-DRM21(-V1) CJ-Series: CJ1W-DRM21DeviceNet Units OPERATIAN MANUAL (Cat. No. W380)** for details about DeviceNet. Refer to the **C200HW-SRM21-V1, CS1W-SRM21, CJ1W-SRM21, CQM1-SRM21-V1, SRT1 Series, SRT2 Series CompoBus/S OPERATIAN MANUAL (Cat. No. W226)** for details about 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	PC Card Unit can not be used with CS1-series. Insert the memory card into the CS1-series CPU Unit to save and retrieve PLC memory area contents between the CPU Unit and the memory card. Moreover, the communication can be made with the Ethernet Unit and the EtherNet/IP Unit.

<Support software and peripheral devices>

Name	SYSMACα Series	CS1-series	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 can not be used with CS1-series.
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 DIN track (PFP-50N/100N/100N2) and mounting bracket (C200H-DIN01) can be used for the CS1 backplane, too.

(2) I/O Unit blacket can not be used with CS1-series. The Units of CS1-series can be secured with screws. They do not require brackets.

4.   Reading data from SYSMACα series (C200HX/HG/HE)

Load the ladder program, PLC settings, and Data Memory from the 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

PC — CX-Programmer

Connecting cable
CQM1-CIF02

C200Hα

Peripheral port
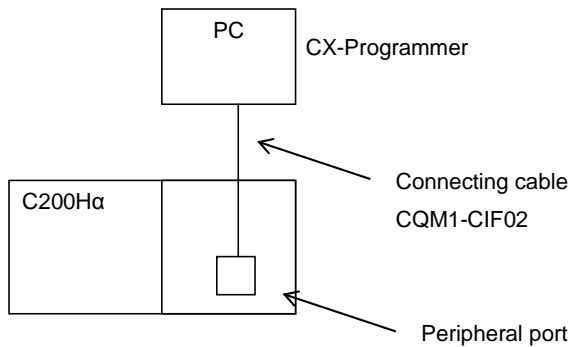
(1) Connect a SYSMACα series (C200HX/HG/HE) and PC using the connecting cable.

(2) Start up the CX-Programmer. (On the Start menu, select **All Program - OMRON - CX-One - CX-Programmer - CX-Programmer**.)

(3) Select C200HE/HG/HX for the Device Type. (Select **File - New** to display below dialog.)

Change PLC

Device Name
New PLC1

Device Type
C200HE   ▼ Settings...

Network Type
Toolbus   ▼ Settings...

Comment

OK   Cancel   Help

Device Type Settings [C200HE]

General | Memory

CPU Type
CPU11   ▼

Total Program Area Size
4KW [RAM]   ▼   □ Read Only

Expansion Memory
None   ▼   □ Read Only

File Memory
None   ▼   □ Read Only

Timer / Clock
□ Installed

Make Default

OK   Cancel   Help
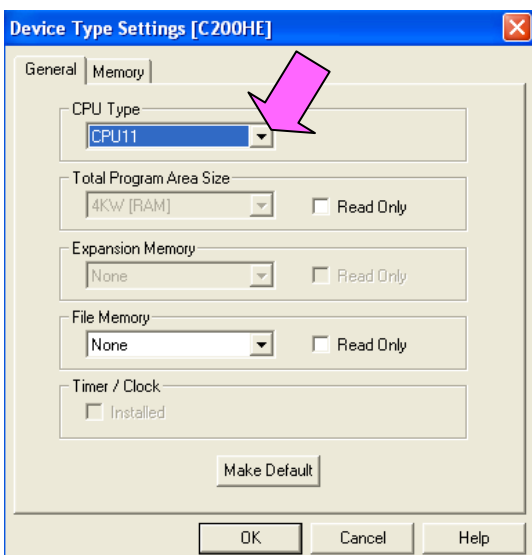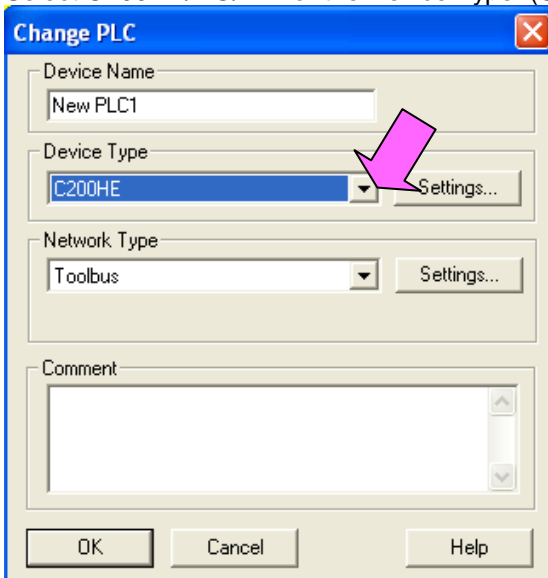
(4) Connect the PLC and the PC online. (Select **PLC** - **Work Online**.)

(5) Transfer the ladder program, PLC settings and I/O Table to the PC. (Select **PLC** - **Transfer** - **From PLC**.)

Press the **OK** button to start transfer on the below dialog.
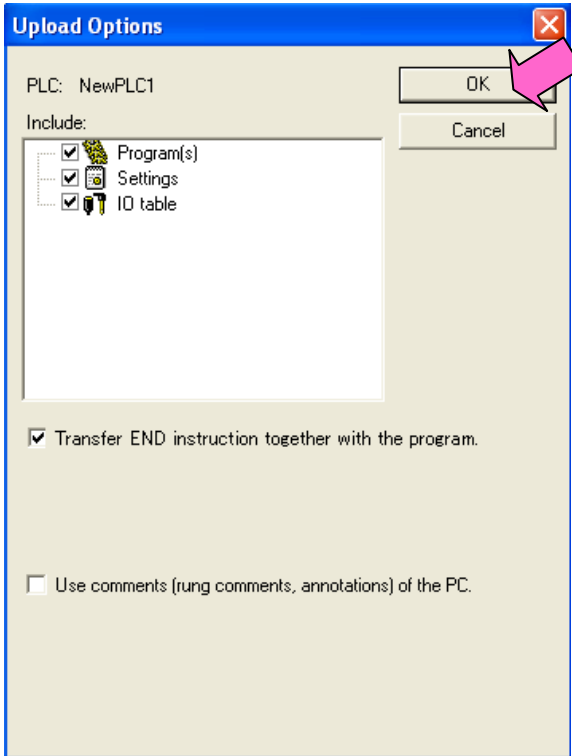
(6) Load the PLC memory data (Data Memory). (Select **PLC** on the menu bar and then click **Edit** - **Memory**.)
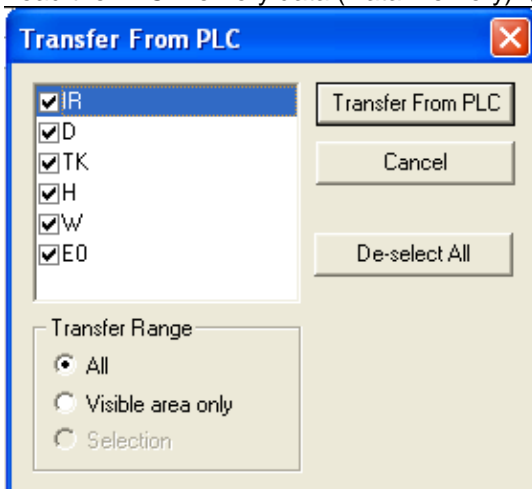
Scroll and check all the areas. Press the **Transfer from PLC** button to start loading.
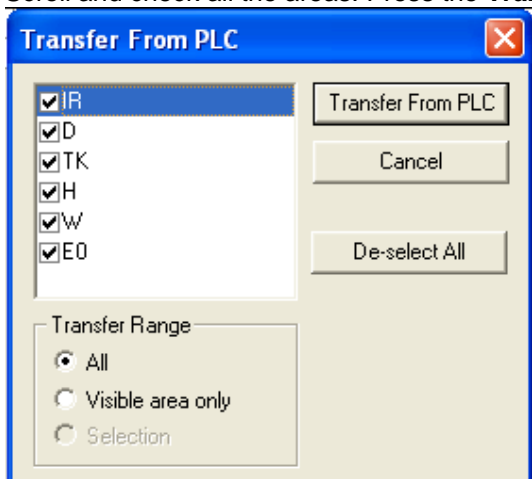
(7) Make the CX-Programmer offline. (Select *PLC* - *Work Online*.)

(8) Save the program by specifiyng the project name. (Select *File* - *Save As*.)

5.	Converting and changing the program for CS1

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

1) Start the CX-Programmer and open the program file for SYSMACα. (Select *File* - *Open*.)

2) Change the Device Type from SYSMACα to CS1. (Select *PLC* - *Change Model.*)
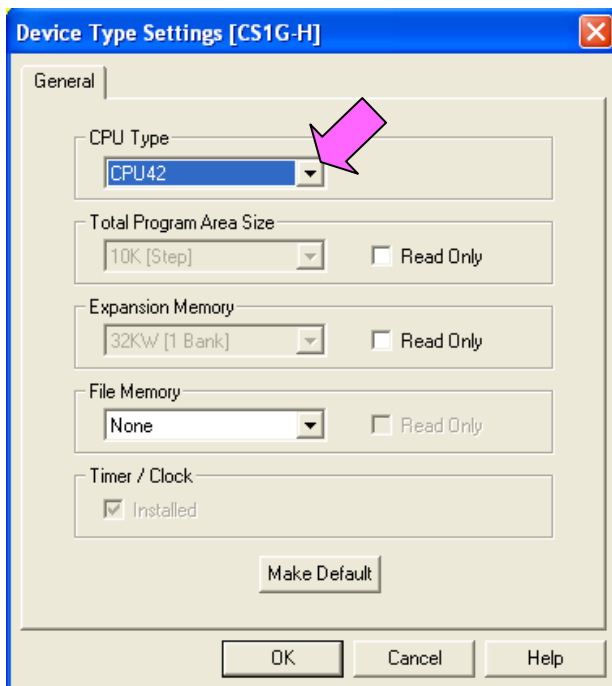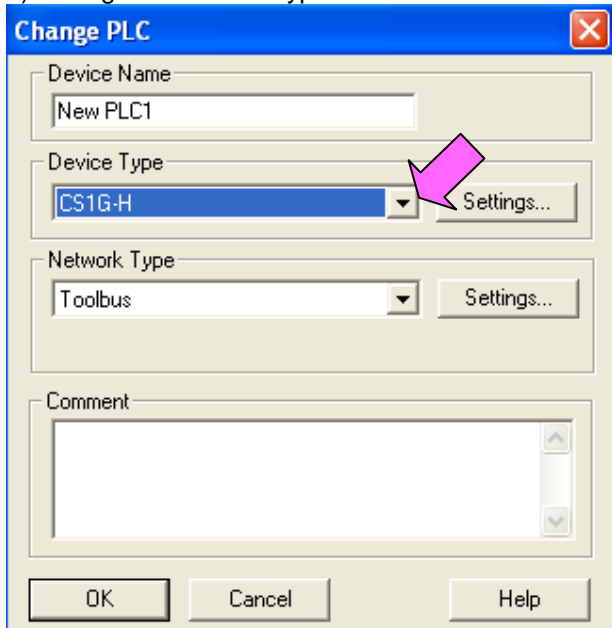
3) The instructions are automatically converted. The Output Window shows the conversion results. Double-click an error shown on the Output Window to jump to the corresponding section of the ladder program.
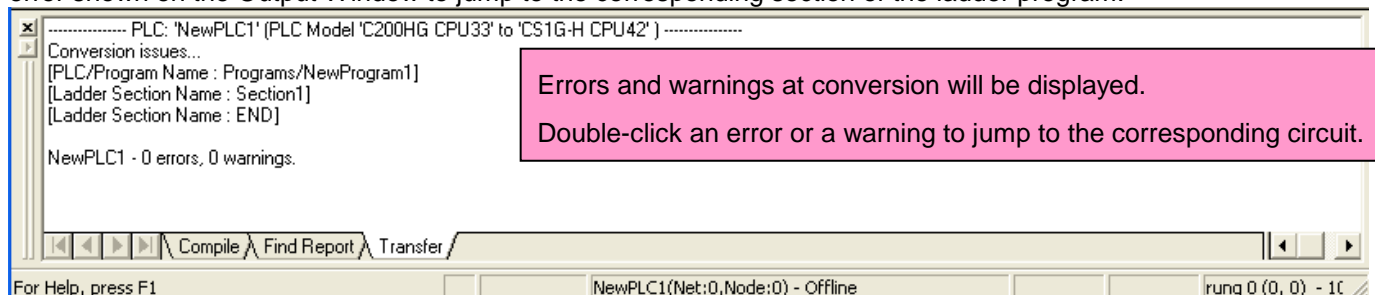
Some instructions can not be converted. Modify the ladder program by refferring to *Appendix A. Instructions converted by Change Model on CX-Programmer*.

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You can check the program by selecting **Program - Compile** (Program Check). The Output Window shows the checking results.

4) The PLC memory data cannot be maintained when PLC model is changed. Open the PLC Memory window for both SYSMACα and CS1-series PLCs and copy and paste the necessary memory data after conversion.

Select the necessary PLC Memory data on the Memory window of SYSMACα and copy and paste it onto the PLC Memory of the CS1-series PLC.
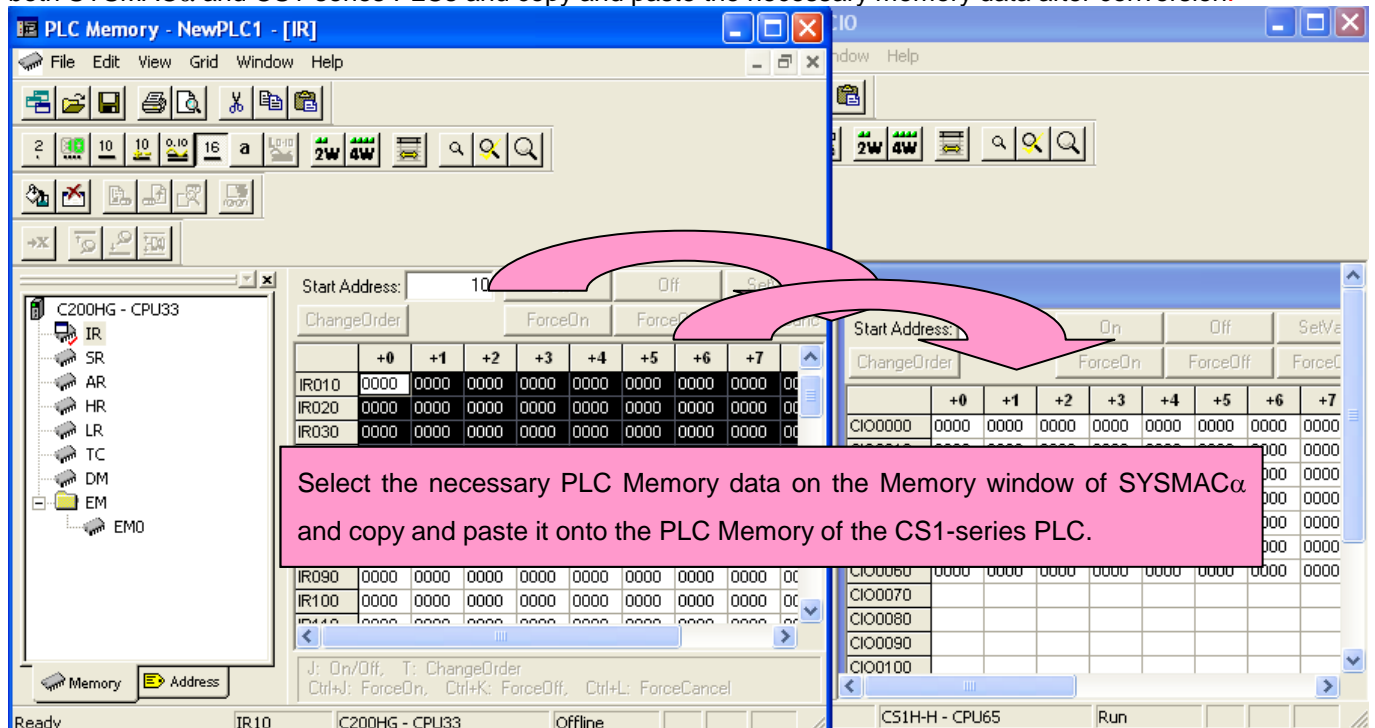
5) The I/O allocation of SYSMACα series is partly different from that of CS1-series. Refer to *Appendix B. Change of data area allocation* and modify the ladder program.

6) The PLC settings of SYSMACα series are partly different from that of CS1-series. Refer to *Appendix C. Change in PLC settings* and change the PLC settings.
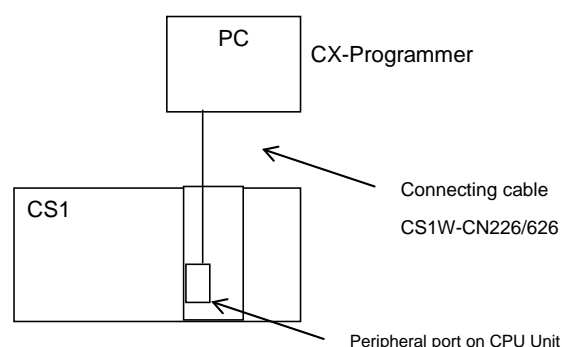
7) Select **Program - Compile** to check the program. If an error is detected, correct it.

8) Save the program by specifiyng the project name. (Select **File - Save As**.)

6.	Writing data to CS1

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

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

(1) Connect the CS1 and the PC using the connecting cable.

(2) Start the CX-Programmer and open the converted program file.

(3) Connect the CS1 and the CX-Programmer online.

(4) Transfer the ladder program and PLC settings to the CS1. (Select *PLC* - *Transfer* - *To PLC*.)

Click the check boxes for Program and PLC Settings. Press the *OK* button to start transfer.
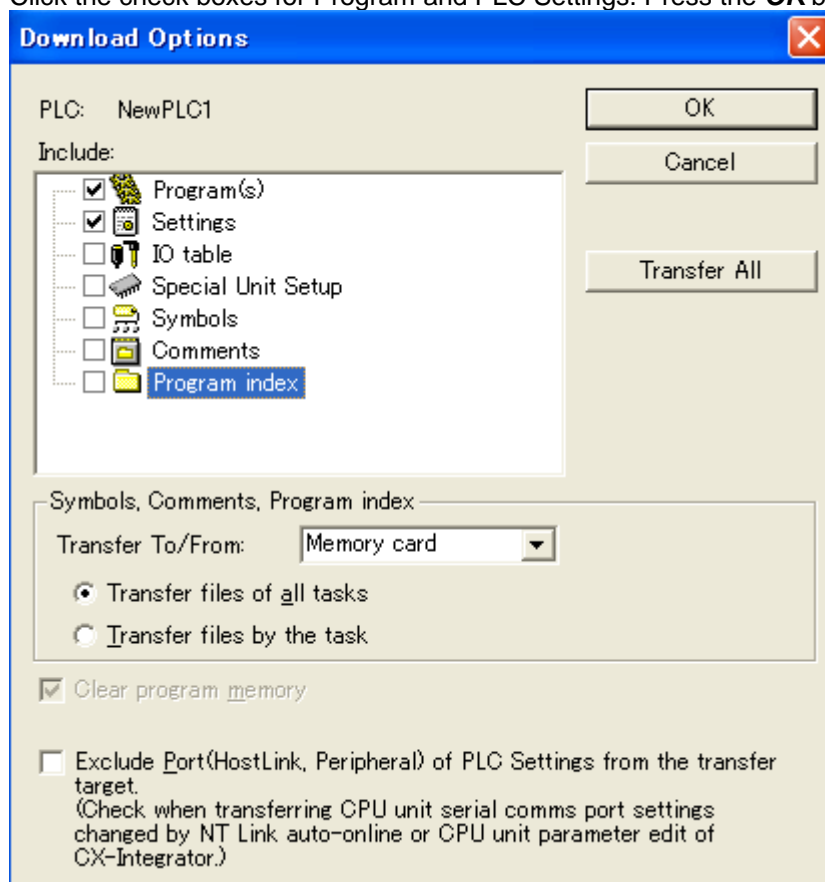
(5) Select **PLC** on the menu bar and then click **Edit - Memory** to display below dialog. Transfer the PLC memory (Data Memory: D and Holding Relay: HR) after selecting the transfer data. Click the **Transfer to PLC** button.
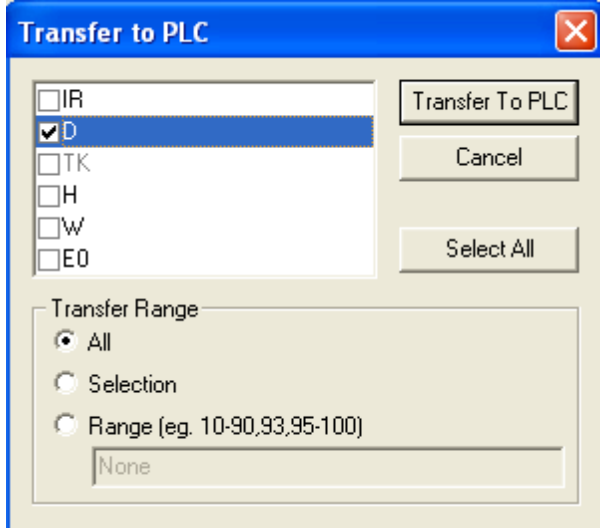
(6) Make the CX-Programmer offline.

7.	Appendix

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

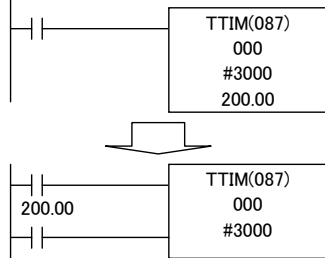(1) The data type of operand is changed from BCD data to BIN data for some instructions.

(2) The number of operand is changed for some instructions.

(3) Interrupt control instructions must be changed. (Use MSKS, MSKR, CLI, DI, and EI).

Refer to the table below for detail. The table lists the instructions which are automatically converted producing some difference between instructions before and after conversion. The other instructions are automatically converted.

Instruction for SYSMACα	Instruction for CS1	Operand	Number of Operand
JMP(4)	JMP(4) or, JMP0(515)	If the operand data is #0, this instruction is automatically converted into JMP0 instruction and the operand data is deleted. The instruction is not changed if the operand data is not #0.	1->0 Same
JME(5)	JME(5) or, JME0(516)	If the operand data is #0, this instruction is automatically converted into JME0 instruction and the operand data is deleted. The instruction is not changed if the operand data is not #0.	1->0 Same
FAL(6)	FAL(6)	#0 data is added to the second operand. FAL N -> FAL N #0	1->2
FALS(7)	FALS(7)	#0 data is added to the second operand. FALS N -> FALS N #0	1->2
STEP(8)	STEP(8)	The operand data must be set by Work Area (WR) or Index Resistors (indirect). Change the operand.	Same
SNXT(9)	SNXT(9)	The operand data must be set by Work Area (WR) or Index Resistors (indirect). Change the operand.	Same
SCAN(18)	None	Enter the value in the "Constant Cycle Time" from PLC settings.	
ADD(30)	+BC(406)	Same as SYSMACα	Same
SUB(31)	-BC(416)	Same as SYSMACα	Same
MUL(32)	*B(424)	Same as SYSMACα	Same
DIV(33)	/B(434)	Same as SYSMACα	Same
INC(38)	++B(452)	Same as SYSMACα	Same
DEC(39)	--B(454)	Same as SYSMACα	Same
MSG(46)	MSG(46)	#0 data is added to the first operand. MSG S -> MSG #0 S The number of character (words) to be registered is changed. 16 characters (8ch) -> 32 characters (16ch)	1->2
LMSG(47)	None	Use MSG (46) instead.	
TERM(48)	None	To execute keyboard mapping function, use the function on Touch Panels.	
ADB(50)	+C(402)	Same as SYSMACα	Same
SBB(51)	-C(412)	Same as SYSMACα	Same
MLB(52)	*U(422)	Same as SYSMACα	Same
DVB(53)	/U(432)	Same as SYSMACα	Same
ADDL(54)	+BCL(407)	Same as SYSMACα	Same
SUBL(55)	-BCL(417)	Same as SYSMACα	Same
MULL(56)	*BL(425)	Same as SYSMACα	Same
DIVL(57)	/BL(435)	Same as SYSMACα	Same
MPRF(61)	None	Use IORF (97) instead.	
LINE(63)	LINE(63)	The data type of second operand is changed from BCD data to BIN data. For a constant data, "#" is automatically changed to "&".。 To use word data, change the data type of the word from BCD to BIN.	Same
COLM(64)	COLM(64)	The data type of third operand is changed from BCD data to BIN data. For a constant data, "#" is automatically changed to "&" To use word data, change the data type of the word from BCD to BIN.	Same

Instruction for SYSMACα	Instruction for CS1	Operand	Number of Operand
BCNT(67)	BCNTC(621)	Same as SYSMACα	Same
XFER(70)	XFERC(565)	Same as SYSMACα	Same
DIST(80)	DISTC(566)	Same as SYSMACα	Same
COLL(81)	COLLC(567)	Same as SYSMACα	Same
MOVB(82)	MOVBC(568)	Same as SYSMACα	Same
TTIM(87)	TTIM(87)	There is not third operand (reset input contact No.). Add the reset input. (Refer to figure below). TTIM(087) / 000 / #3000 / 200.00 ⇩ 200.00 — TTIM(087) / 000 / #3000	3->2
INT(89)	None	Select and use the instruction below, depending on the 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: Enter the settings from PLC Settings	
SEND(90)	SEND(90)	The control data type (third operand) is different. Refer to the manual to change the settings.	Same
WDT(94)	WDT(94)	The control data type is different. Refer to the manual to change the settings.	Same
RECV(98)	RECV(98)	The control data type (third operand) is different. Refer to the manual to change the settings.	Same
BXFR(125)	None	Use XFER(70) or XFERC(565) instead.	
FCS(180)	FCS(180)	The control data type (first operand) is different. Refer to the manual to change the settings.	Same
SRCH(181)	SRCH(181)	The control data to specify table length (first operand) is different. Refer to the manual to change the settings.	Same
MAX(182)	MAX(182)	The control data type (first operand) is different. Refer to the manual to change the settings.	Same
MIN(183)	MIN(183)	The control data type (first operand) is different. Refer to the manual to change the settings.	Same
SUM(184)	SUM(184)	The control data type (first operand) is different. Refer to the manual to change the settings.	Same
PID(190)	PID(190)	The PID parameter (second operand) is different. Refer to the manual to change the settings.	Same
AVG(195)	AVG(195)	The data type of second operand is changed from BCD data to BIN data. For a constant data, "#" is automatically changed to "&" To use word data, change the data type of word from BCD to BIN.	Same
DSW(210)	DSW(210)	The fourth and fifth operand is added. The fourth operand specifies the number of digits that will be read. Check if the number of digits after convertion is the same as the number specified by this operand. The fifth operand uses one word for work word. It is not possible to use this work word for another purpose; change to another area when the area assigned by conversion is an area used by another purpose.	3->5
HKY(212)	HKY(212)	The fourth operand is added. The fourth operand uses one word for work word. It is not possible to use this work word for another purpose; change to another area when the area assigned by conversion is an area used by another purpose.	3->4

Instruction for SYSMACα	Instruction for CS1	Operand	Number of Operand
MTR(213)	MTR(213)	The fourth operand is added. The fourth operand uses one word for work word. It is not possible to use this work word for another purpose; change to another area when the area assigned by conversion is an area used for another purpose.	3->4
7SEG(214)	7SEG(214)	The fourth operand is added. The fourth operand uses one word for work word. It is not possible to use this work word for another purpose; change to another area when the area assigned by conversion is an area used for another purpose.	3->4
IORD(222)	IORD(222)	The operand data is different.	Same
IOWR(223)	IOWR(223)	The operand data is different.	Same
RXD(235)	RXD(235)	It is not possible to specify the Peripheral Port on this instruction. The data type of third operand (Number of bytes to store) is changed from BCD data to BIN data. For a constant data, "#" is automatically changed to "&" To use word data, change the data type of word from BCD to BIN.	Same
TXD(236)	TXD(236)	It is not possible to specify the Peripheral Port on this instruction. The data type of third operand (Number of bytes to store) is changed from BCD data to BIN data. For a constant data, "#" is automatically changed to "&" To use word data, change the data type of word from BCD to BIN.	Same
STUP(237)	STUP(237)	The port selection (first operand) data is different. Refer to the manual to change the settings.	
PMCR(260)	PMCR(260)	The control data type (first operand) is different. Refer to the manual to change the settings.	3->4
CMCR(261)	None	Insert the memory card into CPU Unit and use FREAD(700) or FWRIT(701) instead.	
FPD(269)	FPD(269)	The data type of control data for FAL number (first operand) and error monitoring time setting (second operand) is different. They are changed from BCD to BIN.	
XDMR(280)	なし	Use XFER(70) or XFERC(565) instead.	
EMBC(281)	EMBC(281)	The data type of operand is changed from BIN data to BCD data. For a constant data, "#" is automatically changed to "&" To use word data, change the data type of word from BCD to BIN.	Same
TST(350)	TST(350)	The data type of second operand is changed from BCD data to BIN data. For a constant data, "#" is automatically changed to "&" To use word data, change the data type of word from BCD to BIN.	Same
TSTN(351)	TSTN(351)	The data type of second operand is changed from BCD data to BIN data. For a constant data, "#" is automatically changed to "&" To use word data, change the data type of word from BCD to BIN.	Same
ADBL(480)	+CL(403)	Same as SYSMACα	Same
SBBL(481)	-CL(413)	Same as SYSMACα	Same
MBSL(482)	*L(421)	Same as SYSMACα	Same
DBSL(483)	/L(431)	Same as SYSMACα	Same
MBS(484)	*(420)	Same as SYSMACα	Same
DBS(485)	/(430)	Same as SYSMACα	Same
BXF2	None	Use XFER(70) or XFERC(565) instead.	
XFR2	None	Use XFER(70) or XFERC(565) instead.	
IEMS	None	Specify another address by using index register.	

Appendix B. Change of unit area allocation

This section describes the difference of unit area allocation in C200Hα and CS1-series. Refer to related manuals for details.

Item	SYSMACα Series	CS1-series	Description
I/O allocation Basic I/O	"Free location and fixed channel"	"Free location and free channel" Change the channel and bit address used in the program.	For CS1-series, it is necessary to register I/O table.
I/O allocation Special I/O Units	IR 100 to 199 IR 400 to 459 (10 words allocated for each Unit No.) DM1000 to 2599 (100 words allocated for each Unit No.)	CIO 2000 to 2199 (10 words allocated for each Unit No.) DM20000 to 21999 (100 words allocated for each Unit No.) Change the channel and bit address used in the program.	Refer to the *CS1G/H-CPU**H/CS1G/H-CPU**-EV 1 CS SERIES CPU UNITS OPERATIAN MANUAL* (Cat. No. W339) for details on I/O allocation.
I/O allocation Special I/O Units (Group-2)	IR 30 to 49 IR 330 to 341 (2 or 4 words allocated for each Unit)	The allocation is decided in the same way as a Basic I/O Units depending on the installed position (rack and slot). Change the channel and bit address used in the program.	
Link Relay Area (LR)	LR00 to 63	CIO 1000 to 1199	
Auxiliary Relay Area Auxiliary Relay Area (AR)	SR 236 to 255 SR 256 to 299 AR 00 to 27	(1)AR Area and Bit Change the channel and bit address used in the program. (2)Condition flags and Clock pulse Change the operation flag and the clock pulse in the program to the condition flag and the clock pulse, respectively.	Operation flags and condition flags of CS1 can be specified by label.
Auxiliary Relay Area for PC Link	SR 247 to 250 (In Auxiliary Relay Area)	CIO 247 to 250 and A442	
Optical I/O Unit and I/OTerminal Area	IR 200 to 231	CIO 3100 to 3131	
DeviceNet SYSBUS Remote I/O	IR 50 to 99 IR 350 to 399	[C200H DeviceNet Relay Area] CIO 50 to 99 CIO 350 to 399 [SYSBUS Relay Area] CIO 3000 to 3079 Change the channel and bit address used in the program.	
Work Area	IR 310 to 329 IR 342 to 349 IR 460 to 511	CIO 1200 to 1499 CIO 3800 to 6143 WR 000 to 511	
Temporary Relay Area (TR)	TR0 to 7	TR0 to 15	
Holding Relay Area(HR)	HR00 to 99	HR 000 to 959	
History Log Area	DM 6000 to 6030	AR 100 to A199	Change the program if the Error History Area is read in the program.

Appendix C. Change in PLC Settings

Item	SYSMACα Series	CS1-series	Description
PLC settings	Always uses DM area (DM6600 to 6655) for PLC settings.	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	SYSMACα Series	CS1-series	Description
Interrupt execution method and execution timing	Write the interrupt program in subroutine.	Write the interrupt program in interrupt task.	For CS1, an Interrupt Task is executed even when an instruction is being executed or I/O refreshing.
I/O Table Creation	Unnecessary	Necessary For CS1-series, it is necessary to register I/O table with a peripheral devices, such as CX-Programmer.	
Cycle Time	-	The cycle time is shortened with CS1. If the system operation is affected by cycle time, check the operation with the converted program.	To obtain the same cycle time as C200H, set the time from the "Constant Cycle Time" in the PLC settings.

Appendix E. Table of Input/Output Units

- Input Unit

(1)If different terminal block or connector is used, you have to change the wiring.

(2)If the input circuit specification is not the same, check if there is no problem in operation.

(3)If the number of circuit is different (increased), wire and connect the terminals and each common terminals.

(4)If the current consumption is different, check if enough power supply capacity is provided.

(5)C200H-series Units can be used with CS1-series CPU Units.

(6)Refer to related manuals for details, even if functions of C200H-series are supported by CS1-series Units, since a part of specifications may differ.

DC Input Unit

C200H Series Unit	Corresponding CS1-series Unit	Description	Difference
C200H-ID211 12 to 24 VDC,10mA, Terminal block, 8 inputs	**CS1W-ID211** 24VDC, 7mA, 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 -> 16 points) 3) Input circuit specification Input voltage range (12 to 24 VDC -> 24VDC) Input impedance (2kΩ-> 3.3kΩ) ON Voltage(10.2VDC->14.4VDC) OFF Voltage(3VDC->5VDC) 4) Internal current consumption(5VDC: 10mA->100mA)
C200H-ID212 24 VDC, 7mA, Terminal block, 16 inputs	**CS1W-ID211** 24VDC, 7mA, Terminal block, 16 inputs	DC Input Unit with terminal block for 16 inputs.	1) Terminal block 2) Number of circuit (16 points/common x1 circuit -> 8 points/common x2 circuits) 3) Input circuit specification Input impedance(3kΩ->3.3kΩ) 4) Internal current consumption (5VDC:10mA->100mA)
C200H-ID215 24 VDC, 4.1mA, Connector 32 inputs (Special I/O G)	**CS1W-ID231** 24VDC, 6mA, Connector, 32 inputs	DC Input Unit with connector for 32 inputs.	1) Connector 2) (8 points/common x4 circuits->16 points/common x2 circuits) 3) Input circuit specification Input impedance(5.6kΩ->3.9kΩ) ON Voltage(DC14.4V->DC15.4V) 4)Internal current consumption (5VDC:130mA->150mA)
C200H-ID216 24 VDC, 4.1mA, Connector, 32 inputs (Group-2)	**CS1W-ID231** 24VDC, 6mA, Connector, 32 inputs	DC Input Unit with connector for 32 inputs.	1) Number of circuit(32 points/common x1 circuit ->16 points/common x2 circuits) 2) Input circuit specification Input impedance(5.6kΩ->3.9kΩ) ON Voltage(DC14.4V->DC15.4V) 3) Internal current consumption (5VDC:100mA->150mA)
C200H-ID218 24 VDC, 6.0mA, Connector, 32 inputs (Group-2)	**CS1W-ID231** 24VDC, 6mA, Connector, 32 inputs	DC Input Unit with connector for 32 inputs.	1) Number of circuit (32 points/common x1 circuit ->16 points/common x2 circuits) 2) Internal current consumption (5VDC:100mA->150mA)
C200H-ID111 12 VDC, 4.1mA, Connector, 64 inputs (Group-2)	**CS1W-ID261** 24VDC, 6mA, Connector, 64 inputs	DC Input Unit with connector for 64 inputs.	1) Number of circuit (32 points/common x2 circuit->16 points/common x4 circuits) 2) Input circuit specification Input voltage(12VDC->24VDC) Input impedance (2.7kΩ->3.9kΩ) ON Voltage(8VDC->15.4VDC) OFF Voltage(3VDC->5VDC) 3) Internal current consumption (5VDC:120mA->150mA)
C200H-ID217 24 VDC, 4.1mA, Connector, 64 inputs (Group-2)	**CS1W-ID261** 24VDC, 6mA, Connector, 64 inputs	DC Input Unit with connector for 64 inputs.	1) Number of circuit (32 points/common x2 circuit ->16 points/common x4 circuits) 2) Input circuit specification Input impedance (5.6kΩ->3.9kΩ) ON Voltage (14.4VDC->15.4VDC) Internal current consumption (5VDC:120mA->150mA)
C200H-ID219 24 VDC, 6.0mA, Connector, 64 inputs (Group-2)	**CS1W-ID261** 24VDC, 6mA, Connector, 64 inputs	DC Input Unit with connector for 64 inputs.	1) Number of circuit (32 points/common x2 circuit ->16 points/common x4 circuits) 2) Internal current consumption (5VDC:120mA->150mA)

<TTL Input Unit>

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

<AC Input Unit>

C200H Series Unit	Corresponding CS1-series Unit	Description	Difference
C200H-IA121 100-120VAC/10mA, and Terminal block, 8 inputs	**CS1W-IA111** 100-120VAC/10mA, 100 to 120VDC/1.5mA, Terminal block, 16 inputs	100VAC Input Unit with terminal block for 8 inputs. Replace this unit with a 100VAC Input Unit with 16 inputs.	1) Terminal block 2) Input points (8 -> 16 points) 3) Input circuit specification Input impedance (9.7kΩ/50Hz->10kΩ/50Hz) ON Voltage (60V->65V) 4) Internal current consumption (5VDC:10mA->110mA)
C200H-IA221 200-240VAC/10mA, and Terminal block, 8 inputs	**CS1W-IA211** 200-240VAC/10mA, Terminal block, 16 inputs	200VAC Input Unit with terminal block for 8 inputs. Replace this unit with a 200VAC Input Unit with 16 inputs.	1) Terminal block 2) Input points (8 -> 16 points) 3) Internal current consumption (5VDC:10mA->110mA)
C200H-IA122/IA122V 100-120VAC/10mA, Terminal block, 16 inputs, IA122V: Complying with EC Directive	**CS1W-IA111** 100-120VAC/10mA, 100 to 120VDC/1.5mA, Terminal block, 16 inputs	100VAC Input Unit with terminal block for 16 inputs.	1) Terminal block 2) Number of circuit (16 points/common x1 circuit ->8 points/common x2 circuits) 3) Input circuit specification Input impedance (9.7kΩ/50Hz->10kΩ/50Hz) ON Voltage (60VAC->65VAC) Internal current consumption (5VDC:10mA->110mA)
C200H-IA222/IA222V 200-240VAC/10mA, Terminal block, 16 inputs, IA222V: Complying with EC Directive	**CS1W-IA211** 200-240VAC/10mA, Terminal block, 16 inputs	200VAC Input Unit with terminal block for 16 inputs.	1) Terminal block 2) Number of circuit (16 points/common x1 circuit ->8 points/common x2 circuits) 3) Internal current consumption (5VDC:10mA->110mA)

<AC/DC Input Unit>

C200H Series Unit	Corresponding CS1-series Unit	Description	Difference
C200H-IM211 12-24 VAC/VDC , Terminal block, 8 inputs	**CS1W-ID211** 24 VDC, 7mA, 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 CS1-series does not have the AC/DC Input Unit. If this Unit is used with AC inputs, continue using this Unit or change the wiring for DC inputs	1) Terminal block 2) Input points (8 -> 16 points) 3) Input circuit specification Input voltage range(12 to 24 VAC/VDC->24VDC) Input impedance(2kΩ->3.3kΩ) ON Voltage (10.2VDC->14.4VDC) OFF Voltage (3VDC->5VDC) Internal current consumption (5VDC:10mA->100mA)
C200H-IM212 24 VAC/VDC , Terminal block, 16 inputs	**CS1W-ID211** 24 VDC, 7mA, 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 CS1-series does not have the AC/DC Input Unit. If this Unit is used with AC inputs, continue using this Unit or change the wiring for DC inputs.	1) Terminal block 2) Number of circuit (16 points/common x1 circuit ->8 points/common x2 circuits) 3) Input circuit specification Input voltage range (24VAC/VDC->24VDC), and input impedance (3kΩ->3.3kΩ) 4) Internal power consumption (5VDC:10mA->100mA)

■ Output Unit

(1) If different terminal block or connector is used, you have to change the wiring.

(2) If the number of circuit is different (increased), wire and connect the terminals and each common terminals.

(3) If the output specification is not same, check if there is no problem in operation.

(4) The relay lifetime might change depending on the usage, when the used relay is different. Refer to the *Appendix F Restrictions in Using C200H Special I/O Units* of *CS1G/H-CPU**H/CS1G/H-CPU**-EV1 CS SERIES CPU UNITS OPERATIAN MANUAL* (Cat. No. W339) for details of the Output Units.

(5) If the current consumption is different, check if enough power supply capacity is provided

(6) If the voltage and current consumption of external power supply is different, check if enough power supply capacity is provided.

(7) C200H-series Units can be used with CS1-series CPU Unit.

(8) Refer to related manuals for details, even if functions of C200H-series are supported by CS1-series Units, since a part of specifications may differ.

<Relay Output Units>

C200H Series Unit	Corresponding CS1-series Unit	Description	Difference
C200H-OC223 250VAC/24VDC, 2A, Terminal block, 5 outputs (independent contacts)	**CS1W-OC201** 250 VAC or 120 VDC, 2 A max., terminal block, 8 outputs (Independent contacts)	Relay Output Units 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 specification ON/OFF response time(10ms->15ms) Used relay 4) Internal current consumption (5VDC:10mA->100mA, 26VDC:46mA->48mA)
C200H-OC224 250VAC/24VDC, 2A, Terminal block, 8 outputs (independent contacts)	**CS1W-OC201** 250 VAC or 120 VDC, 2 A max., terminal block, 8 outputs (Independent contacts)	Relay Output Units with terminal block for 8 outputs (independent contacts).	1) Terminal block 2) Output circuit specification ON/OFF response time(10ms->15ms) Used relay 3) Internal current consumption (5VDC:10mA->100mA, 26VDC:75mA->48mA)
C200H-OC224V, OC224N 250VAC/24VDC, 2A, Terminal block, 8 outputs (independent contacts)	**CS1W-OC201** 250 VAC or 120 VDC, 2 A max. , terminal block, 8 outputs (Independent contacts)	Relay Output Units with terminal block for 8 outputs (independent contacts).	1) Terminal block 2) Output circuit specification Used relay 3) Internal current consumption (5VDC:10mA->100mA, 26VDC:90mA->48mA)
C200H-OC221 250VAC/24VDC, 2A, Terminal block, 8 outputs	**CS1W-OC211** 250 VAC or 120 VDC, 2 A max., terminal block, 16 outputs	Relay Output Units with terminal block for 8 outputs. Replace this unit with a Relay Output Unit with 16 outputs.	1) Terminal block 2) Output points(8 -> 16 points) 3) Output circuit specification ON/OFF response time(10ms->15ms) Used relay 4) Internal current consumption (DC5V：10mA->100mA, DC26V：75mA->96mA)
C200H-OC222 250VAC/24VDC, 2A, Terminal block, 12 outputs	**CS1W-OC211** 250 VAC or 120 VDC, 2 A max., terminal block, 16 outputs	Relay Output Units with terminal block for 12 outputs. Replace this unit with a Relay Output Unit with 16 outputs.	1) Terminal block 2) Output points(12 -> 16 points) 3) Number of circuit(12 points/common x1 circuit -> 8 points/common x2 circuits) 4) Output circuit specification ON/OFF response time(10ms->15ms) Used relay 5) Internal current consumption (5VDC:10mA->100mA, 26VDC:75mA->96mA)
C200H-OC222V, OC222N 250 VAC/24VDC, 2A, Terminal block, 12 outputs	**CS1W-OC211** 250 VAC or 120 VDC, 2 A max. 16 outputs	Relay Output Units with terminal block for 12 outputs. Replace this unit with a Relay Output Unit with 16 outputs.	1) Terminal block 2) Output points (12 -> 16 points) 3) Number of circuit (12 points/common x1 circuit ->8 points/common x2 circuits) 4) Output circuit specification Used relay 5) Internal current consumption (5VDC:10mA->100mA, 26VDC:90mA->96mA)

<Relay Output Units>

C200H Series Unit	Corresponding CS1-series Unit	Description	Difference
C200H-OC225 250VAC/24VDC, 2A, Terminal block, 16 outputs	**CS1W-OC211** 250VAC/120VDC, 2A, Terminal block, 16 outputs	Relay Output Units with terminal block for 16 outputs.	1) Terminal block 2) Number of circuit (16 points/common x1 circuit ->8 points/common x2 circuits) 3) Output circuit specification ON/OFF response time (10ms->15ms) Used relay 4) Internal current consumption (5VDC: 10mA->100mA, 26VDC: 75mA->96mA)
C200H-OC226, OC226N 250VAC/24VDC, 2A, Terminal block, 16 outputs	**CS1W-OC211** 250VAC/120VDC, 2A, Terminal block, 16 outputs	Relay Output Units with terminal block for 16 outputs.	1) Terminal block 2) Number of circuit (16 points/common x1 circuit ->8 points/common x2 circuits) 3) Output circuit specification Used relay 4) Internal current consumption (5VDC:10mA->100mA, 26VDC:90mA->96mA)

<Transistor Output Units>

C200H Series Unit	Corresponding CS1-series Unit	Description	Difference
C200H-OD411 12-48 VDC, 1A, Sinking, Terminal block, 8 outputs	**CS1W-OD211** 12-24 VDC, 0.5A, Sinking, Terminal block, 16 outputs	Transistor Output Units with terminal block for 8 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (8 -> 16 points) 3) Output circuit specification Output capacity (1A/point, 3A/Unit -> 0.5A/point, 8A/Unit) Voltage range(12 to 48 VDC-> 12 to 24VDC) Residual voltage(1.4V->1.5V) ON response time(0.2ms->0.5ms) OFF response time(0.3ms->1.0ms) 4) Internal current consumption(5VDC:140mA->170mA)
C200H-OD213 24 VDC, 2.1A, Sinking, Terminal block, 8 outputs	**CS1W-OD211** 12-24 VDC, 0.5A, Sinking, Terminal block, 16 outputs	Transistor Output Units with terminal block for 8 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (8 -> 16 points) 3) Output circuit specification Output capacity (2.1A/point, 5.2A/Unit -> 0.5A/point, 8A/Unit) Residual voltage(1.4V->1.5V) ON response time(0.2ms->0.5ms) OFF response time(0.3ms->1.0ms) 4) Internal current consumption(5VDC:140mA->170mA)
C200H-OD214 24 VDC, 0.8A, Sourcing, Terminal block, load short circuit protection, 8 outputs	**CS1W-OD212** 12-24 VDC, 0.5A, Sourcing, Terminal block, load short circuit protection, 16 outputs	Transistor Output Units with terminal block for 8 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (8 -> 16 points) 3) Output circuit specification Output capacity(0.8A/point, 2.4A/Unit -> 0.5A/point, 5A/Unit) ON response time(1ms->0.5ms) 4) Internal current consumption (5VDC:140mA->170mA)
C200H-OD216 5 - 24 VDC, 0.3A, Sourcing, Terminal block, 8 outputs	**CS1W-OD212** 12-24 VDC, 0.5A, Sourcing, Terminal block, load short circuit protection, 16 outputs	Transistor Output Units with terminal block for 8 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (8 -> 16 points) 3) Output circuit specification Output voltage range(5 to 24 VDC->24VDC) 4) Internal current consumption (5VDC:10mA->170mA,26VDC:75mA->0mA) 5) External power supply (Not required -> DC24V/40mA)
C200H-OD211 24 VDC, 0.3A, Sinking, Terminal block, 12 outputs	**CS1W-OD211** 12-24 VDC, 0.5A, Sinking, Terminal block, 16 outputs	Transistor Output Units with terminal block for 12 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (12 -> 16 points) 3) Number of circuit (12 points/common x1 circuit -> 8 points/common x2 circuits) 4) Output circuit specification Residual voltage(1.4V->1.5V) ON response time(0.2ms->0.5ms) OFF response time(0.3ms->1.0ms) 5) Internal current consumption(5VDC:160mA->170mA)

<Transistor Output Units>

C200H Series Unit	Corresponding CS1-series Unit	Description	Difference
C200H-OD217 24 VDC, 0.3A, Sourcing, Terminal block, 12 outputs	**CS1W-OD212** 12-24 VDC, 0.5A, Sourcing, Terminal block, load short circuit protection, 16 outputs	Transistor Output Units with terminal block for 12 outputs. Replace this unit with a Transistor Output Unit with 16 outputs.	1) Terminal block 2) Output points (12-> 16 points) 3) Number of circuit (12 points/common x1 circuit ->8 points/common x2 circuits) 4) Output circuit specification Output voltage range (5 to 24 VDC -> 24VDC) 5) Internal current consumption (5VDC:10mA->170mA, 26VDC:75mA-> 0mA) 6) External power supply (Not required -> 24VDC:40mA)
C200H-OD212 24 VDC, 0.3A, Sinking, Terminal block, 16 outputs	**CS1W-OD211** 12-24 VDC, 0.5A, Sinking, Terminal block, 16 outputs	Transistor Output Units with terminal block for 16 outputs.	1) Terminal block 2) Number of circuit (16 points/common x1 circuit ->8 points/common x2 circuits) 3) Output circuit specification Residual voltage (1.4V->1.5V) ON response time(0.2ms->0.5ms) OFF response time(0.3ms->1.0ms)
C200H-OD21A 24 VDC, 1.0A, Sourcing, Terminal block, load short circuit protection, 16 outputs	**CS1W-OD212** 12-24 VDC, 0.5A, Sourcing, Terminal block, load short circuit protection, 16 outputs	Transistor Output Units with terminal block for 16 outputs.	1) Terminal block 2) Number of circuit (16 points/common x1 circuit ->8 points/common x2 circuits) 3) Output circuit specification Output capacity (1A/point, 4A/Unit -> 0.5A/point, 5A/Unit) Residual voltage (0.8V->1.5V) ON response time (0.1ms->0.5ms) OFF response time (0.3ms->1ms) 4) Internal current consumption (5VDC:160mA-> 170mA) 5) External power supply (24 VDC: 35mA-> 40mA) 6) Alarm output (Supported -> Not supported)
C200H-OD218 4.5 to 26.3 VDC, 0.1A, Sinking, Connector, 32 outputs (Group-2)	**CS1W-OD231** 12-24 VDC, 0.5A, Sinking, Connector, 32 outputs	Transistor Output Units with connector for 32 outputs.	1) Number of circuit (32 points/common x1 circuit ->16 points/common x2 circuits) 2) Output circuit specification Output voltage range (5 to 24 VDC-> 12 to 24VDC) Residual voltage (0.8V->1.5V) ON response time (0.1ms->0.5ms) OFF response time(0.4ms->1ms) 3) Internal current consumption(DC5V: 180mA->270mA) 4) External power supply (5 to 24 VDC:110mA -> 12 to 24VDC:50mA)
C200H-OD215 4.5 to 26.3 VDC, 0.1A, Sinking, Connector, 32 outputs (Special I/O)	**CS1W-OD231** 12-24 VDC, 0.5A, Sinking, Connector, 32 outputs	Transistor Output Units with connector for 32 outputs. *The CS1-series does not have Unit which supports Dynamic Output. Continue using this C200H Unit or change the wiring for static mode.	1) Connector 2) Output method (Dynamic or Static mode -> Static only) The specification of static is as follows. 3) Number of circuit (8 points/common x 4 circuits ->16 points/common x2 circuits) 4) Output circuit specification Output voltage range(5 to 24 VDC -> 12 to 24VDC) Residual voltage (0.7V->1.5V) ON response time (0.2ms->0.5ms) OFF response time (0.6ms->1ms) 5) Internal current consumption (5VDC:220mA->270mA) 6) External power supply (5 to 24 VDC:90mA -> 12 to 24VDC:50mA)
C200H-OD21B 24 VDC, 0.5A, Sourcing, Connector, load short circuit protection, 32 outputs (Group2)	**CS1W-OD232** 12 - 24 VDC, 0.5A, Sourcing, Connector, load short circuit protection, 32 outputs	Transistor Output Units with connector for 32 outputs.	1) Number of circuit (32 points/common x1 circuit ->16 points/common x2 circuits) 2) Output circuit specification Output capacity (0.5A/point, 5A/Unit -> 0.5A/point, 2.5A/Common, 5A/Unit) Residual voltage (0.8V->1.5V) ON response time (0.1ms->0.5ms) OFF response time (0.3ms->1ms) 3) Internal current consumption (5VDC:180mA -> 270mA)

<Transistor Output Units>

C200H Series Unit	Corresponding CS1-series Unit	Description	Difference
C200H-OD219 4.5 to 26.3 VDC, Sinking, 0.1A, Connector, 64 outputs (Group2)	**CS1W-OD261** 12-24 VDC, 0.3A, Sinking, Connector, 64 outputs	Transistor Output Units with connector for 64 outputs..	1) Number of circuit (32 points/common x2 circuit ->16 points/common x4 circuits) 2) Output circuit specification Output voltage range (5 to 24 VDC-> 12 to 24VDC) Residual voltage (0.8V->1.5V) ON response time (0.1ms->0.5ms) OFF response time(0.4ms->1ms) 3) Internal current consumption (5VDC:270mA->390mA)

<TTL Output Unit>

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

<Triac Output Unit>

C200H Series Unit	Corresponding CS1-series Unit	Description	Difference
C200H-OA223 250VAC, 1.2A, Terminal block, 8 outputs	**CS1W-OA201** 250VAC, 1.2A, Terminal block, 8 outputs	Triac Output Units with terminal block for 8 outputs.	1) Terminal block 2) Output circuit specification Max. Inrush Current (15A: Pulsewidth 100ms, 30A: Pulsewidth 10ms->10A: Pulsewidth 100ms and 20A: Pulsewidth 10ms) 3) Internal current consumption (5VDC:180mA->230mA)
C200H-OA221 250VAC, 1.2A, Terminal block, 8 outputs	**CS1W-OA201** 250VAC, 1.2A, Terminal block, 8 outputs	Triac Output Units with terminal block for 8 outputs.	1) Terminal block 2) Output circuit specification Max. Inrush Current (No regulation ->10A: Pulsewidth 100ms and 20A: Pulsewidth 10ms) Residual voltage (1.2VAC-> 50 to 1200mA: 1.5VAC 10 to 50mA: 5VAC) OFF response time (1/2 of load frequency or less -> 1/2 of load frequency+1 ms or less) 3) Internal current consumption (5VDC:140mA->230mA)
C200H-OA224 0.5 A 250 V AC, 0.5A, Terminal block, 12 outputs	**CS1W-OA211** 0.5 A 250 V AC, 0.5A, Terminal block, 16 outputs	Triac Output Units with terminal block for 12 outputs. Replace this unit with a Triac Output Unit with 16 outputs.	1) Terminal block 2) Output points (12 -> 16 points) 3) Number of circuit (12 points/common x1 circuit ->8 points/common x2 circuits) 4) Output circuit specification Max. Switching Capacity (0.5 A 250 V AC, 2 A/Unit -> 0.5 A 250 V AC, 2 A/common, 4 A/Unit) Max. Inrush Current (10A: pulse width: 100 ms, 20A: pulse width: 10 ms-> 15A: pulse width: 10ms) Min. Switching Capacity (10VAC: 100mA, 24VAC: 50mA, 100VAC: 10mA->75VAC: 50mA) Residual voltage (1.5 V AC max. (50 to 500 mA)/5 -> 1.6 VAC (10 to 50 mA) 5) Internal current consumption (5VDC:270mA->406mA)
C200H-OA222V 250 V AC, 0.3A, Terminal block, 12 outputs (CE)	**CS1W-OA211** 0.5 A 250 V AC, 0.5A, Terminal block, 16 outputs	Triac Output Units with terminal block for 12 outputs. Replace this unit with a Triac Output Unit with 16 outputs.	1) Terminal block 2) Output points (12 -> 16 points) 3) Number of circuit (12 points/common x1 circuit ->8 points/common x2 circuits) 4) Output circuit specification Max. Inrush Current (No regulation ->15A: Pulsewidth 10ms) Min. Switching Capacity (10 VAC: 10 mA (resistive load)/40 mA (inductive load) -> 75VAC:50mA Residual voltage(1.2VAC->1.6VAC) 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 (5VDC:200mA->406mA)

■Input/Output Units

(1) The CS1-series has two Input/Output Units: CS1W-MD261 and MD561. The unit area allocation is different from C200H-series input/output units, since the number of input/output of CS1-series unit is 32 points each.

(2) C200H-series Units can be used with CS1-series CPU Unit.

(3) Refer to related manuals for details, even if functions of C200H-series are supported by CS1-series Units, since a part of specifications may differ.

<DC Input/Transistor Output Unit>

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

<TTL Input/Output Units>

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

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