

# OMRON Corporation PLC

# SYSMAC CJ Series Connection

### Selecting PLC Type

Start up GP-PRO /PBIII.

Select the following PLC Type when creating the project file.



## **Communication Setting Sample**

■ SYSMAC CS1/CJ/CJ1M Series < RS-232C Port on CPU Unit>

GP Setup		PLC Setup	
Baud Rate	19200bps	Baud Rate 19200bps	
Data Length	7 bits	Data Length	7 bits
Stop Bit	2 bits	Stop Bit	2 bits
Parity Bit	Even	Parity Bit	Even
Data Flow Control	ER Control		
Communication Format	RS-232C		
Unit No.	0	Station No.	0
		Dip Switch	SW1: OFF SW5: OFF SW7: OFF SW8: OFF
		Mode Setup	Host Link

Setup		PLC Setup		
Baud Rate	19200bps	Baud Rate	19200bps	
Data Length	7 bits	Data Length	7 bits	
Stop Bit	2 bits	Stop Bit	2 bits	
Parity Bit	Even	Parity Bit	Even	
Data Flow Control	ER Control			
Communication Format (Using RS-232C)	RS-232C			
Communication Format (Using RS-422)	4-Wire Type	WIRE (2-Wire/ 4-Wire Type Switch)	4-Wire Type	
		TERM (Termination Resistance Switch)Terminati Resistance		
Unit No.	0	Host Link Station No.	0	
		Serial Communication Mode Host Link		
		Communication Delay Time	0	
		CTS Control	None	

#### ■ SYSMAC CS1/CJ/CJ1M Series <Communication Board/Unit>

#### ■ SYSMAC CS1/CJ/CJ1M Series <Peripheral Port on CPU Unit>

GP Setup		PLC Setup	
Baud Rate	19200bps	Baud Rate 19200bps	
Data Length	7 bits	Data Length	7 bits
Stop Bit	2 bits	Stop Bit	2 bits
Parity Bit	Even	Parity Bit	Even
Data Flow Control	ER Control		
Communication Format	RS-232C		
Unit No.	0	Station No.	0
		Dip Switch	SW1: OFF SW4: ON SW7: OFF SW8: OFF
		Mode Setup	Host Link



## Communication Settings [GP]

1. [GP-PRO/PB C-Package Setting]

Select [GP Setup] on Project Manager.

1) Communication Settings	1) Communication Settings
GP Statings       (A) Settings       Mixed Settings         GP Statings       (A) Settings       Conversion Speed         F 195-2320       Transmission Speed       15200         A Live       Pasky B#       Same B#         Pasky B#       Conversion Speed       15200         Basy Reads Control       Other Control       Conversion         P DTH / EP       Advanced         BAACC       P       Advanced         P       Other Control       Other Control         OP       DTH / EP       Advanced         DOM       OP       Defaults	Transmission Speed: 19200bps Data Length: 7 Bits Stop Bit: 2 Bits Parity Bit: Even Busy Ready Control: DTR / ER RS-232C/ RS-422 RS-232C Connection: RS-232C RS-422 Connection: 4 Line * Select one in .
2) Mode Settings	2) Mode Settings
GP Settings + sangdal gove	System Start Address: Arbitrary Address Machine Number: 0 Link Protocol Type: 1:1
OK. Carcel Defaults Help	



Select [Transfer]> [Setup] -	> [Transfer Settings].
3) Transfer Settings	
Send Information	Communications Port
GP System Screen	© COM
Fjing Data(CF card)     Data Trans Func CSV Data(CF card)	Comm Port COM1 Retry Count 5
	Baud Rate 115.2K (bps)
Send All Screens	IP Address 0. 0. 0. 0 Port 8000
Automatically Send Changed Screens     Send User Selected Screens	C Ethernet: Auto Acquistion
	C Memory Loader
Transfer Mode	
<u>Preparation for a transfer and a transfer are made simultan</u> <u>It is transferred after preparation for a transfer is finished</u>	eous.
Setup C Automatic Setup Use Extended	ed Program :
C Eorce System Setup	tion
System	) Screen
Setup CFG file :	
O Japanese	
C Selection C:\Program Files\pro-face\ProPBWin\pro	tocol\ Browse
OK	Cancel Help
2) Transfer Settings CD System Setting	re: Chaolrad
<u>5) manster settings</u> Or system setting	s. Checked

Transfer to GP after settings completed.



- 2. [GP Settings]
- Displaying Setting Screen -

Touch the top left of the screen within 10 second after powering on.

Or touch the top right and the bottom right of the screen at the same time. Keep 2 points touched and touch the bottom left. The menu bar will display on the bottom of the screen. Then touch [Offline].

1) Checking GP Type	<u>1) Checking GP Type</u>
MAIN MENU 1 INITIALIZE 2 SCREEN DATA TRANSFER 3 SELF-DIAGNOSIS 4 RLN 2000 V4-10 SYSMAC-CSI V1.44	If you have selected OMRON SYSMAC - CS1 Series, following will be shown. "SYSMAC-CS1"

2) Communication Settings	2) Communication Settings
MAIN MENU INITIALIZE SET UP SIO 2 SET UP FRINTER 3 SET UP TOUCH PANEL 4 COMMUNICATION SETUP 5 SOUND SETTINGS	$[MAIN MENU]  \downarrow  [INITIALIZE]  \downarrow  [SET UP I/O]  \downarrow  [SET UP SIO]$
SET UP SI0       SET       CANCEL         COMMUNICATION RATE       2400       4800       9600       19200       38400       57800       115200         DATA LENGTH       7       8       5       5       7       8       1       2       9       1       15200         DATA LENGTH       7       8       5       7       8       1       2       1       2       1       2       1       2       1       2       1       2       1       2       1       2       1       2       3       4       5       6       7       8       9       1       4       1       2       3       4       5       6       7       8       9       1       4       1       1       2       3       4       5       6       7       8       9       1       4       1       1       1       2       3       4       5       6       7       8       9       1       4       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1 <td>Communication Rate: 19200bps Data Length: 7 Bits Stop Bit: 2 Bits Parity: Even Control: ER Cntrl Communication Format RS-232C Connection: RS-232C RS-422 Connection: 4 Line * Select one in .</td>	Communication Rate: 19200bps Data Length: 7 Bits Stop Bit: 2 Bits Parity: Even Control: ER Cntrl Communication Format RS-232C Connection: RS-232C RS-422 Connection: 4 Line * Select one in .



3) Setting up Operation Surroundings	3) Setting up Operation Surroundings
MAIN MENU INITIALIZE SYSTEM ENVIRONMENT SETUP SET UP 1/0 3 PLC SETUP 4 INITIALIZE MEMORY 5 SET UP TIME 6 SET UP SCREEN	$[MAIN MENU]  \downarrow  [INITIALIZE]  \downarrow  [PLC SETUP]  ↓  [PLC SETUP]$
SET UP OPERATION SURROUNDINGS MENU 1:1 n:1 1 SET UP OPERATION SURROUNDINGS	SET UP OPERATION SURROUNDINGS MENU: 1:1
SET UP OPERATION SURROUNDINGS STARTING ADDRESS OF SYSTEM DATA AREA [ 000000 ] UNIT NO. [0 ] SYSTEM AREA READING AREA SIZE (0-256) [0 ] RESET GP ON DATA HRITE ERROR ON OFF 1 2 3 4 5 8 7 8 8 0 1 4 85 CANCEL	Starting Address of System Data Area: Arbitrary Address Unit No.: 0



### Communication Settings [PLC]

Set the communication settings of each structure by using the OMRON ladder software CX-Programmer.

To communicate the ladder software to the PLC, first of all, set the dipswitches SW4 and SW5 on the front of the CPU unit to the transmission conditions, which are suitable for the environment.

Switch No.	Setting	Detail	
SW1	ON	Disables to write in User Memory (UM)	
	OFF	Enables to write in User Memory (UM)	
SW2	ON	Executes automatic transfer at startup	
	OFF	Not execute automatic transfer at startup	
S	W3	Unused	
SW4		Transmission Condition of Peripheral Port:	
	ON	* Available with CX-Programmer by other connection than tool bus	
		* Available with other programs than CX-Programmer	
	OFF	Transmission Condition of Peripheral Port:	
	OFF	* Available with CX-Programmer by tool bus	
SW5	ON	Transmission Condition of RS-232C Port:	
	UN	* Available with CX-Programmer by tool bus	
		Transmission Condition of RS-232C Port:	
	OFF	* Available with CX-Programmer by other connection than tool bus	
		* Available with other programs than CX-Programmer	
SW6		Dipswitch for Customizing	
	ON	The state of this dipswitch is reflected on the special auxiliary relay	
		A39512 (Dipswitch 6 State Flag) and it turns ON.	
		Dipswitch for Customizing	
	OFF	The state of this dipswitch is reflected on the special auxiliary relay	
		A39512 (Dipswitch 6 State Flag) and it turns OFF.	
SW7	OFF	Specifying a Type of Simple Backup Operation	
S	W8	Always OFF	

#### 1. [Transmission Condition Settings by Dipswitch]

\* To communicate with the GP, set SW4 ON and SW5 OFF.

You can also communicate with the GP when other switches are set to default value (OFF) or



ON. However, when the memory card is not inserted, set SW2 to OFF. If you set it ON, you cannot communicate with the GP. A host communication error (02:00:80) will occur on the GP.

- 2. [Transmission Settings by CX-Programmer]
- 2-1 Settings of Peripheral Port on CPU Unit

To set the transmission settings of the peripheral port on the CPU unit, follow the procedures below.

Start up the ladder tool, CX-Programmer. Double-click [Settings] to execute.



Select the [Peripheral Port] tab on the [PLC Settings] dialog box and set the items as below.

🐨 PLC Settings - NewPLC1	
<u>Eile Options</u> <u>H</u> elp	
Startup   Settings   Timings   SIOU Refresh   Unit Settings   Host Link Port   Periphera	al Port
Communication Settings C Standard (9600 ; 7,2,E)	
Custom         Baud         Format         Mod           19200         ▼         7.2,E         ▼         Host Lir	de nk 💌
Unit Number NT Link M	ax
	Set Host Link
	for Mode.
	CS1G-CPU42 Offline



#### 2-2 Settings of RS-232C Port on CPU Unit

To set the transmission settings of the RS-232C port on the CPU unit, follow the procedures below.

Start up the ladder tool, CX-Programmer. Double-click [Settings] to execute.



Select the [Host Link] tab on the [PLC Settings] dialog box and set the items as below.

🐨 PLC Settings - NewPLC1					
<u>F</u> ile <u>O</u> ptions <u>H</u> elp					
Startup   Settings   Timings   SIOU R	efresh   Unit Setti	ngs Host Link Port	Peripheral Port		
Communication Settings					
Standard (9600 ; 1,7,2,E)					
Custom Baud	Format	Mode			
19200 💌	7,2,E 💌	Host Link	▼		
Start Code	End Code				
Disable	Received B	Bytes 256 🕂			
C Set 0x0000 🛨	C ORLF				
	C Set End Co	ode IUXUUUU 🚍		<b>G</b> • <b>T</b>	X
- Unit Number	- Delay		-NT/PO	Set Host	Link
0 -	0	*10 ms		for Mode.	
,	·				
P			0.00	0.00000	Deres :
			CS1	IG-CPU42	Offline

2-3 Settings of COM Port 1 and COM Port 2 on Serial Communication Unit

To set the transmission settings of the serial communication unit, follow the procedures below.

The settings of COM Port 1 are for RS422, and those of COM Port 2 are for RS-232C.

< Settings of RS422 Port on Serial Communication Unit>

Pro-face<sup>®</sup>

Double-click [IO Table] to open the [PLC IO Table] window. Right-click the assigned serial communication unit and select [Software Switches].

🖣 PLC IO Table	- NewPLG1 📃 🗖 🔀
<u>F</u> ile <u>O</u> ptions <u>H</u> elp	
CS1G/CJ1G CS1G/CJ1G (0000) Main 00 (1500) 1 01 (0000) 1 02 (0000) 1 04 (0000) 1 05 (0000)	-CPU45 Rack Serial Communications Unit (SC) (0) 8pt Unit 16pt Unit 32pt Unit 48pt Unit 64pt Unit
106 [0000]     107 [0000]     108 [0000]     108 [0000]     109 [0000]     1000] Rack     10000] Rack	96pt Unit 128pt Unit C200H High Speed Counter Unit (C) C200H Numerical Control Unit (N) SIOU/C200H ASCII Unit (A) SYSMAC BUS Master SYSMAC BUS Master SYSMAC LINK Unit (SL) Interrupt Unit (8 Bit) Interrupt Unit (16 Bit) Controller Link Unit (NS) Ethernet Unit (ET) PC Link Unit LK401 Loop Controller (LC) CompoBus/D Master Unit (DN) ONO (OS1 Bug JE (O1))
	ONC/CS1 Bus IF (01) FL-Net Unit (FL) PLK Unit (PP) High Function MC Unit (HM) MP920 I/F Unit (YE) Software Switches Unit Setup Unit Setup Unit Manufacturing information C200H SIOU Setup Hot Swap Delete



Select the [Port1] tab on the [Serial Communication Unit Software Switch] setting window.

Set the items as below.

Serial	Serial Communication Unit Software Switches 🔹 👔								? ×
<u>F</u> ile	<u>O</u> ptions	<u>H</u> elp							
Gene	eral Port1	Port2							
	Commun F Defau Unit No.	ication Se It Baud 19200	ettings Format	▼ Host Delay 0	Mode Link X10r	ns	CS Control © Disable © Enable Set Host for Mode	NT Link	Max
							CS1G/CJ1G-	CPU45	Monitor

\* For RS-422 communication, set the 2-wire/4-wire type switch on the serial communication unit to 4-wire. The GP does not support the 2-wire type. Also, the termination resistance on the PLC can be added by turning the termination resistance switch ON. Please set it ON.

< Settings of RS-232C Port on Serial Communication Unit>

Double-click [IO Table] to open the [PLC IO Table] window. Right-click the assigned serial communication unit and select [Software Switches].

PLC IO Table	- NewPLC1
<u>F</u> ile <u>O</u> ptions <u>H</u> elp	)
Eile       Options       Help         CS1G/CJ1G       [0000] Main         00       01       [0000]         1       01       [0000]         1       01       [0000]         1       02       [0000]         1       03       [0000]         1       04       [0000]         1       05       [0000]         1       05       [0000]         1       06       [0000]         1       07       [0000]         1       08       [0000]         1       09       [0000]         1       08       [0000]         1       09       [0000]         1       09       [0000]         1       00000       Rack         0       [00000]       Rack	
	Loop Controller (LC) CompoBus/D Master Unit (DN) ONC/CS1 Bus IF (O1) FL-Net Unit (FL) PLK Unit (PP) High Function MC Unit (HM) MP920 I/F Unit (YE) Software Switches Unit Setup Unit Setup Unit Manufacturing information C200H SIOU Setup Hot Swap
	Delete



Select the [Port2] tab on the [Serial Communication Unit Software Switches] setting window.

Set the items as below.

Serial Communication Unit Software Switches 🛛 👔 🛛							
<u>File Options H</u> elp							
General Port1 Port2							
Communication Settings Default Baud Format Mode 19200 1,7,2,E Host Link Unit No. 0 1 X10ms Set Host Link for Mode.	nk Max						
CS1G/CJ1G-CPU45	Monitor						

## NOTE

Details that you have set on CX-Programmer or Programming Console will be reflected in the allocated DM Area. On the other way, when you change the settings of the allocated DM Area, the communication settings on CX-Programmer or Programming Console will be changed.



Settings of the software switch of the serial communication unit can be set only when the PLC and the PC are online. Please get the PLC and the PC online to make the settings.



#### 3. [Writing from CX-Programmer to PLC]

To write data from CX-Programmer to the PLC, you need to get the communication between the PC and the PLC online.

Select [PLC]  $\rightarrow$  [Work Online] to get the communication between the PC and the PLC online.





Next, double-click [Settings] to open the window, and select [Options]  $\rightarrow$  [Transfer to PLC].

🐨 Pi	🐨 PLC Settings - NewPLC1								
<u>F</u> ile	Options <u>H</u> elp								
Sta	Always On <u>T</u> op <u>S</u> et Defaults	SIOU Refresh   Unit Settings	s   Host Link Port   Peripheral Port	1					
	Transfer to <u>P</u> LO Trans <u>f</u> er from PLO Verify								
	Write Protection	Status Hold Bit	C Program						
	<u>D</u> uplex Settings		C Run						
Transf	Transfer the settings to the PLC CS1G/CJ1G-CPU45 Offline								

The checking items of the selected contents will be shown, and click [Yes] and write the set parameter information to the PLC.

When writing is completed, turn OFF the PLC and start it up again.