

# OMRON Corporation PLC

SYSMAC CJ1M 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 Se	etup	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

Se	tup	PLC Setu	ıp
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)	RS-232C		
Communication Format (RS-422)	4-Wire Type	WIRE (2-Wire/ 4-Wire Type Switch)	4-Wire Type
		TERM (Termination Resistance Switch)	Termination Resistance ON
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 Se	etup	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	<u>1) Communication Settings</u>
CIP Settings     sample.priv       SP Settings     I/O Settings     Mode Settings       R5 2202 / RS 422     Transmission Speed     19200       R IS 2202 / RS 422     Transmission Speed     19200       C 7 Ris     Parky B#     Seco B#       C 7 Ris     Parky B#     Seco B#       C 7 Ris     Parky B#     C 2 Ris       Bury Ready Control     Noter     TIR       RIACC     C 1011 / EB     Advanced       RIACC     C     C       C     Distance     Detaile	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
CitP-Settings     Extended Settings     Continueucation Settings       Initial Scienceri Settings     L/D Settings     Continueucation Settings       PLC Type     OMPION SYSBAAC CST SETUES       System Start Address     D00000       Machiere Number     D       PLA Type     OMPION SYSBAAC CST SETUES       System Start Address     D00000       Machiere Number     D       Placed Area Start     C       Taruministion Status     C       Transmission Status     D00000	System Start Address: Arbitrary Address Machine Number: 0 Link Protocol Type: 1:1



Send Information	⊂ Communications Port
	© <u>C</u> OM
IV System Corean Filing Data(CF card)	Comm Port COM1  Retry Count 5
Data Trans Func CSV Data(CF card)	Baud Rate 115.2K  (bps)
- Transfer Method	
Send All Screens	IP Address 0. 0. 0. Port 8000
C Automatically Send Changed Screens	<ul> <li>Ethernet: Auto Acquistion</li> </ul>
C Send User Selected Screens	
Transfer Mode	O Memory Loader
	Extended Program : Sigulation System Screen Win\protocol\
ОК	Cancel Help

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	1) Checking GP Type
MAIN MENU         *03/00/00         00:00           1         INITIALIZE         2         SCREEN DATA TRANSFER           3         SELF-DIAGNOSIS         SELF-DIAGNOSIS	If you have selected Omron SYSMAC-CS1 Series, following will be shown. "SYSMAC-CS1"
4 RUN 2000 V4.10 SYSMAC-CS1 V1.44	STSMAC-CST

2) Communication Settings	2) Communication Settings
MAIN MENU INITIALIZE SET UP SIO 2 SET UP PRINTER 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       57600       115200         DATA LENSTH       2       8       2       1       2       3       4       5       6       7       8       9       0       1       4       5       6       7       8       9       0       1       4       5       6       7       8       9       0       1       4       5       6       7       8 <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]
MAIN MENU INITIALIZE	↓ [INITIALIZE]
SYSTEM ENVIRONMENT SETUP	$\downarrow$
T PLC SETUP	$[PLC SETUP] \downarrow$
4 INITIALIZE MEMORY 5 SET UP TIME	[PLC SETUP]
6 SET UP SOREEN	
SET UP OPERATION SURROUNDING NEW	SET UP OPERATION SURROUNDINGS MENU:
1:1 n:1	1:1
	Stating Address of Sectors Data Assoc
SET UP OPERATION SURROUNDINGS	Starting Address of System Data Area: Arbitrary Address
STARTING ADDRESS OF SYSTEM DATA AREA [ 000000 ] UNIT NO. [0 ]	Unit No.: 0
SYSTEM AREA READING AREA SIZE (0-256) [0 ]	
RESET GP ON DATA WRITE ERROR ON OFF	
1 2 3 4 5 6 7 8 9 0 1 <b>1</b> 4 BS	



### Communication Settings [PLC]

Set all 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:
	ON	* 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 - New	PLC1		
<u>F</u> ile <u>O</u> ptions <u>H</u> elp			
Communic	mines   SIOU Refresh   Unit Settings   Hos ation Settings dard (9600 : 7.2,E) tom 19200 ▼ 7.2,E ▼ Unit Number	Mode Host Link	Set Host Link
		CJ1M-CPU22	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 Port] 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		
Communication Settings C Standard (9600 ; 1,7,2,E) C Oustom Baud	U Refresh   Unit Settings   Host Link Port   Pe Format Mode 2,E I Host Link	Link Words
Start Code	End Code  Received Bytes CRLF CRLF CSet End Code  Delay  *10 ms	Set Host Link for Mode.
·		CJ1M-CPU22 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>

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 - I	NewPLC1	<
<u>F</u> ile <u>O</u> ptions <u>H</u> elp		
👘 🗊 CJ1M-CPU22		٦
🖻 🔩 [0000] Main R		
	rial Communications Unit (SC) (0)	
1 01 [0000] E 1 02 [0000] E	8pt Unit 16pt Unit	
1 02 [0000] E	32pt Unit	1
1 04 [0000] E	48pt Unit	
1 05 [0000] E	64pt Unit	
- 👖 06 [0000] E	96pt Unit	
🚽 🦷 07 [0000] E	128pt Unit	•
🚽 👖 08 [0000] E	C200H High Speed Counter Unit (C)	
🔤 🦷 🧃 09 [0000] E	C200H Numerical Control Unit (N)	
🕀 🦦 [0000] Rack	SIOU/C200H ASCII Unit (A)	
🗄 👞 [0000] Rack	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)	
	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 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	Communi	cation Uni	it Software Swi	tches					? ×
<u>F</u> ile	<u>O</u> ptions	<u>H</u> elp							
Gene	eral Port1	] Port2							
	Unit No.	Baud 19200	ettings Format	▼ Host Delay 0	Mode Link	10ms	CS Control	NT Link M	ax
							CS1G/CJ1G-CP	U45	Monitor

\* For RS-422 communication, set the 2-wire/4-wire type switch on the serial communication unit with 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								
🖻 4 [0000] Main Rack								
	rial Communications Unit (SC) (0)							
	Spt Unit							
	16pt Unit							
1 03 [0000] E	32pt Unit							
1 04 [0000] E 1 05 [0000] E	48pt Unit  64pt Unit							
1 05 (0000) E	96pt Unit							
1 00 [0000] E	128pt Unit							
<b>1</b> 08 [0000] E	C200H High Speed Counter Unit (C)							
09 [0000] E	C200H Numerical Control Unit (N)							
🛨 🅁 [0000] Rack	SIOU/C200H ASCII Unit (A)							
🗄 👞 [0000] Rack	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)							
	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 Manufacturing information							
	C200H SIOU Setup							
_	Hot Swap							
	Delete							



Select the [Port2] 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	General   Port1   Port2								
	Commur Defau	Baud 19200	ettings Format	▼ Host Delay 0	Mode Link	10ms	CS Control Disable Enable Set Host I for Mode.	Link	
							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 transmission settings on CX-Programmer or Programming Console will be changed.



Settings of the software switch on 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].

🐨 Pl	.C Settings - NewP	101					
<u>F</u> ile	Options <u>H</u> elp						
Star	Always On <u>T</u> op <u>S</u> et Defaults	nes   SIOU Refresh   Unit Settines   Host Link Port   Peripheral Port   Peripheral Service   E					
	Transfer to <u>P</u> LC						
	Trans <u>f</u> er from PLC <u>V</u> erify						
	Write Protection	lold Mode Status Hold Bit C Program					
	<u>D</u> uplex Settings	Status Hold Bit C Program					
		C Run					
		Use programming console					
	L						
Execution Setting							
Start running program when initialising Unit/Inner board recognition							
Start peripheral service when Inner board is being recognised							
Transfer the settings to the PLC 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.