OMRON Industrial Automation
SYSMAC CS/CJ/CP Series
HOST LINK Driver

Compatible version	OS	Over 4.0
	XDesignerPlus	Over 4.0.0.0

CONTENTS

Thank you for using M2I's °Touch Operation Panel(M2I TOP) Series". Please read out this manual and make sure to learn connection method and process of TOP – External device"

1. System configuration   Page 2

It explains device for connection, setup of, cable and structural system.
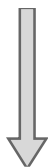Please choose proper system referring to this point.

2. Selecting TOP model and external devices   Page 4
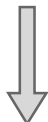
Select TOP model and external device..

3. Example of system settings   Page 5

It explains setup example for communication connection between the device and external terminal.
Select example according to the system you choose in "1. System structure"

4. Communication settings details   Page 21

It explains the way of configuring TOP communication.
If external setup is changed, make sure to have same setup of TOP with external device by referring to this chapter.

5. Cable diagram   Page 25

Explains cable specifications required for access.
Select proper cable specifications according to the system you chose in "1. System configuration".

6. Support address   Page 28

Check available addresses to communicate with external devices referring to this chapter.

1. System configuration

System configuration of TOP and "OMRON Industrial Automation - SYSMAC CS/CJ/CP Series HOST Link"" is as below.

Series	CPU * caution1)	Link I/F	Method	System settings	Cable
CS1	CS1G-CPU45 CS1G-CPU44 CS1G-CPU43 CS1G-CPU42 CS1G-CPU45□ CS1G-CPU44□ CS1G-CPU43□ CS1G-CPU42□ CS1H-CPU67 CS1H-CPU66 CS1H-CPU65 CS1H-CPU64 CS1H-CPU63 CS1H-CPU67□ CS1H-CPU66□ CS1H-CPU65□ CS1H-CPU64□ CS1H-CPU63□	CPU Port	RS-232C	3.1 설정 예제 13.1 Setting Example 1 (Page 6)	5.1 Cable Table 1 (Page 25)
		CS1W-SCU21	RS-232C	3.4 설정 예제 43.4 Setting Example 1 (Page 14)	5.1 Cable Table 1 (Page 25)
		CS1W-SCB21	RS-232C	3.2 설정 예제 23.2 Setting Example 2 (Page 8)	
		CS1W-SCB41	RS-232C	3.2 설정 예제 23.2 Setting Example 2 (Page 8)	
			RS-422 (4 wire)	3.3 설정 예제 33.3 Setting Example 3 (Page 10)	5.2 Cable Table 2 (Page 26)
			RS-422 (4 wire) Multilink		
CJ1	CJ1G-CPU45 CJ1G-CPU44 CJ1M-CPU23 CJ1M-CPU22 CJ1M-CPU21 CJ1M-CPU13 CJ1M-CPU12 CJ1M-CPU11 CJ1H-CPU66H CJ1H-CPU65H CJ1G-CPU45H CJ1G-CPU44H CJ1G-CPU43H CJ1G-CPU42H	CPU Port	RS-232C	3.1 설정 예제 13.1 Setting Example 1 (Page 6)	5.1 Cable Table 1 (Page 25)
		CS1W-SCU41	RS-232C	3.4 설정 예제 43.4 Setting Example 4 (Page 12)	5.1 Cable Table 1 (Page 25)
			RS-422 (4 wire)	3.5 설정 예제 53.5 Setting Example 5 (Page 14)	5.2 Cable Table 2 (Page 26)
			RS-422 (4 wire) Multilink		
CJ2	CJ2H-CPU64-EIP CJ2H-CPU65-EIP CJ2H-CPU66-EIP CJ2H-CPU67-EIP CJ2H-CPU68-EIP	CPU Port	RS-232C	3.6 설정 예제 63.6 Setting Example 6 (Page 16)	5.1 Cable Table 1 (Page 25)
		CJ1W-SCU21 CJ1W-SCU21-V1	RS-232C	3.4 설정 예제 43.4 Setting Example 4 (Page 12)	
		CJ1W-SCU31-V1	RS-422 (4 wire)	3.5 설정 예제 53.5 Setting Example 5 (Page 14)	5.2 Cable Table 2 (Page 26)
			RS-422 (4 wire) Multilink		
		CJ1W-SCU41 CJ1W-SCU41-V1	RS-232C	3.4 설정 예제 43.4 Setting Example 4 (Page 12)	5.1 Cable Table 1 (Page 25)
			RS-422 (4 wire)	3.5 설정 예제 53.5 Setting Example 5 (Page 14)	5.2 Cable Table 2 (Page 26)
			RS-422 (4 wire)		

			Multilink		

*Caution1) □ is either one of H, or -V1.

*Caution2) Please turn the DIP switch 4 on the front face of CPU module.

Series	CPU	Link I/F	Method	System settings	Cable
CP1	CP1L-M□□DR-A CP1L-M□□DR-D CP1L-M□□T-D CP1L-M□□T1-D CP1L-M□□T-A CP1L-L□□R-A CP1L-L□□R-D CP1L-L□□T-D CP1L-L□□T1-D CP1L-L□□T-A	CP1W-CIF01 (Option board)	RS-232C	3.7 설정 예제 73.7 Setting Example 7 (Page 18)	5.1 Cable Table 1 (Page 25)
		CP1W-CIF11 (Option board)	RS-422 (4 wire)	3.8 설정 예제 83.8 Setting Example 8 (Page 20)	5.2 Cable Table 2 (Page 26)
			RS-422 (4 wire) Multilink		
	CP1H-X□□R-A CP1H-X□□T-D CP1H-X□□T1-D CP1H-XA□□R-A CP1H-XA□□T-D CP1H-XA□□T1-D CP1H-Y□□T-D	CP1W-CIF01 (Option board)	RS-232C	3.7 설정 예제 73.7 Setting Example 7 (Page 18)	5.1 Cable Table 1 (Page 25)
		CP1W-CIF11 (Option board)	RS-422 (4 wire)	3.8 설정 예제 83.8 Setting Example 8 (Page 20)	5.2 Cable Table 2 (Page 26)
			RS-422 (4 wire) Multilink		
		CJ1W-SCU21 CJ1W-SCU21-V1	RS-232C	3.4 설정 예제 43.4 Setting Example 4 (Page 12)	5.1 Cable Table 1 (Page 25)
		CJ1W-SCU41 CJ1W-SCU41-V1	RS-232C	3.4 설정 예제 43.4 Setting Example 4 (Page 12)	5.1 Cable Table 1 (Page 25)
			RS-422 (4 wire)	3.5 설정 예제 53.5 Setting Example 5 (Page 14)	5.2 Cable Table 2 (Page 26)
			RS-422 (4 wire) Multilink		
		CJ1W-SCU31-V1	RS-422 (4 wire)		
			RS-422 (4 wire) Multilink		

■ Connection configuration

・1 : 1(1 TOP and 1 External Device) Connection - it is for RS232C/422 communication.
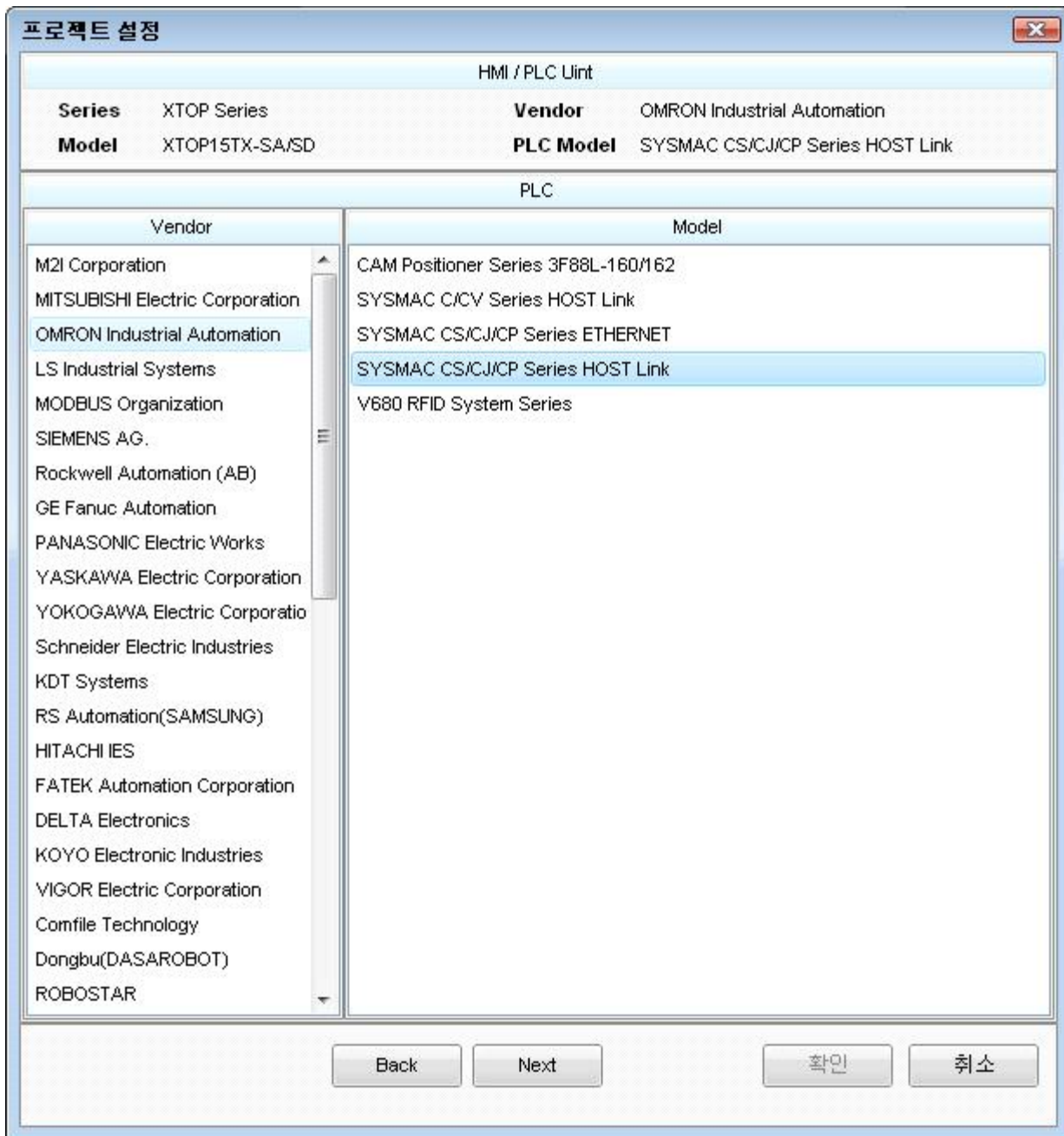
・1 : N(1 TOP and Several External Devices) Connection - It is for RS422 Communication.
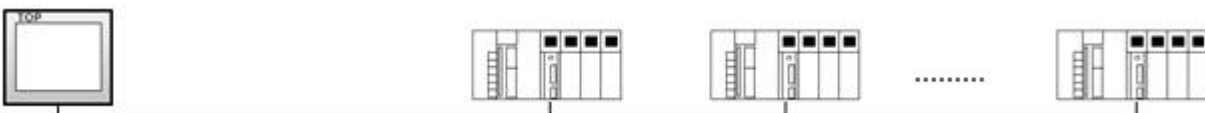
2. Selecting TOP model and external devices

Select the external devices to connect to TOP.

Setting details		Contents
TOP	Series	Select the name of a TOP series that is to be connected to PLC. Before downloading the settings, install the OS version specified in the table below according to TOP series.
		<table><tr><td>Series</td><td>Version name</td></tr><tr><td>XTOP / HTOP</td><td>V4.0</td></tr></table>
	Name	Select the model name of TOP product.
Communication Device	Manufacturer	Select the manufacturer of external devices to be connected to TOP. Please select "OMRON Industrial Automation".
	PLC	Select the model series of external devices to be connected to TOP. Please select "SYSMAC CS/CJ/CP Series Ethernet". Please check, in the "1. System configuration", if the relevant external device is available to set a

| | | system configuration. |

3. Example of system settings

Regarding of communication interface settings in TOP and external devices, we suggest as below.

■ Dip Switch of CPU Module

CJ1	CS1	CP1

■ Toggle Switch of Communication Module

Image	Name
	Terminating resistance switch
	2-wire/4wire switch

■ Communication Module Rotary Switch

Image	Name
	Unit Number Switch : Set the slot number from 0-F reflecting by slots based on the location of CPU.

3.1 Example of settings 1

The system is set as below.

Details		TOP	"SYSMAC CS/CJ/CP Series"	Remark
Serial level (port/channel)		RS-232C (COM2)	RS-232C	User settings
Address(PLC Address)		—	0	User settings
Serial baud rate	[BPS]	115200		User settings
Serial data bit	[Bit]	7		User settings
Serial stop bit	[Bit]	2		User settings
Serial parity bit	[Bit]	EVEN		User settings
Mode		Host Link		User settings

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.

■ [Project > Project property > Project > Settings > TOP Name]

Set the communication interface of TOP tool.

- From right window [HMI Setup > check Use HMI Setup > Device Manager]

■ External device settings

This sets the communication driver of "SYSMAC CS/CJ/CP SERIES".

- PLC address (PLC) : External device setting address

- Block process method : Choose protocol method.

- Show right away after input data.

(2) External device settings

Please set as below using "SYSMAC CS/CJ/CP SERIES"Ladder Software CX-One. Please refer the PLC user manual for more detailed information if you need.
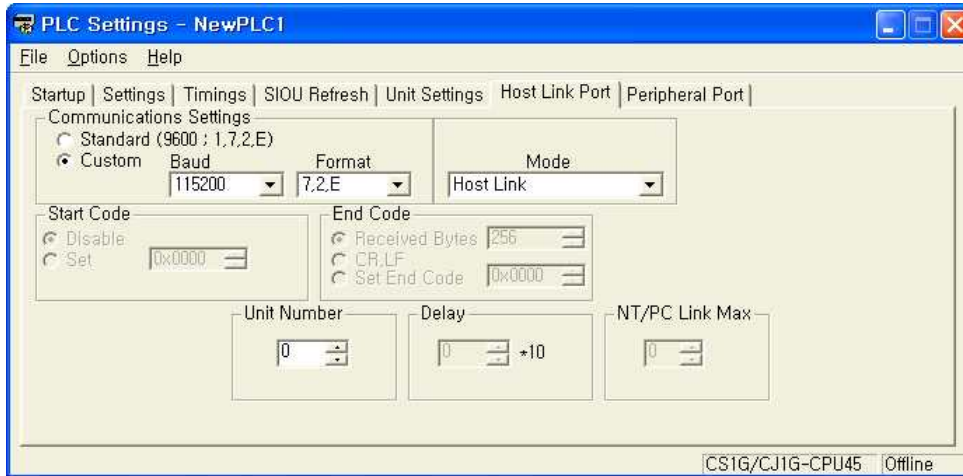
⚠ Please do not use the same address of OMRON CS/CJ series twice in the unit network.

■ Ladder Software setting

Execute progress below after connecting with PLC by clicking [PLC] - [Auto Online] - [Auto Online] from the main menu.

1. Pop up [PLC Setups] window by double clicking [Settings] from the [CX-Programmer] project window.

2. Set as below by selecting [Host Link Port] from [PLC Setups] window.

Details			Contents	
Communications Settings	Custom	Baud	115200	Sets the Serial Communication Speed of Host Link Port.
		Format	7, 2, E	Sets the Serial Communication Parameter of Host Link Port.
Mode			Host Link	Selects the Serial Communication Protocol Method of Host Link Port. **(Fixed)**
Unit Number			0	Sets the Serial Communication Address of Host Link Port.

3. Transmitting [Setting] information to PLC through [PLC] - [Transfer] - [To PLC].

■ Switch Setting

1. Set the Dip Switch of CPU module as below.

Switch	Settings
Switch 1	OFF
Switch 5	OFF
Switch 7	OFF
Switch 8	OFF

3.2 Example of Settings 2

The system is set as below.

Details		TOP	"SYSMAC CS/CJ/CP SERIES"	Remark
Serial level (port/channel)		RS-232C (COM2)	RS-232C	User settings
Address(PLC Address)		—	0	User settings
Serial baud rate	[BPS]	115200		User settings
Serial data bit	[Bit]	7		User settings
Serial stop bit	[Bit]	2		User settings
Serial parity bit	[Bit]	EVEN		User settings
Mode		Host Link		User settings

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.

■ [Project > Project property > Project > Settings > TOP Name]

Set the communication interface of TOP tool.

- From right window [HMI Setup > check Use HMI Setup > Device Manager]

■ External device settings

This sets the communication driver of "SYSMAC CS/CJ/CP SERIES".

- PLC address (PLC) : External device setting address
- Block process method : Choose protocol method.
- Show right away after input data.

(2) External device settings

Please set as below using "SYSMAC CS/CJ/CP SERIES"Ladder Software CX-One. Please refer the PLC user manual for more detailed information if you need.
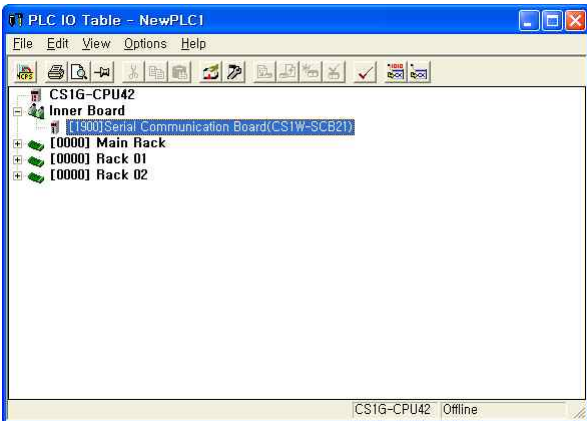
⚠️ Please do not use the same address of OMRON CS/CJ series twice in the unit network.

■ Ladder Software setting

Execute progress below after connecting with PLC by clicking [PLC] - [Auto Online] - [Auto Online] from the main menu.

1. Pop up [PLC I/O Table] window by double clicking [I/O Table and Unit Setup] on the [CX-Programmer] project window.

2. Pop up [Edit Parameter] window by double clicking the name of serial communication board that is included in [Inner Board] Menu.

3. Set as below from the [Edit Parameters] window by double clicking communication module that is installed at PLC on [PLC I/O Table] setting window.

Port 1	Port 2

Details	Setting Information
Port settings	User settings
Serial communications mode	host Link(default)
Baud rate	115200bps
parameter	7, 2, Even
Send delay	0
CTS control	No
Host Link unit number	0

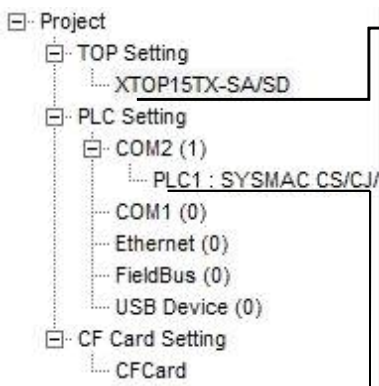**4.** Transmitting [Setting] information to PLC through [PLC] - [Transfer] - [To PLC].

3.3 Examples of Setting 3

The system is set as below.

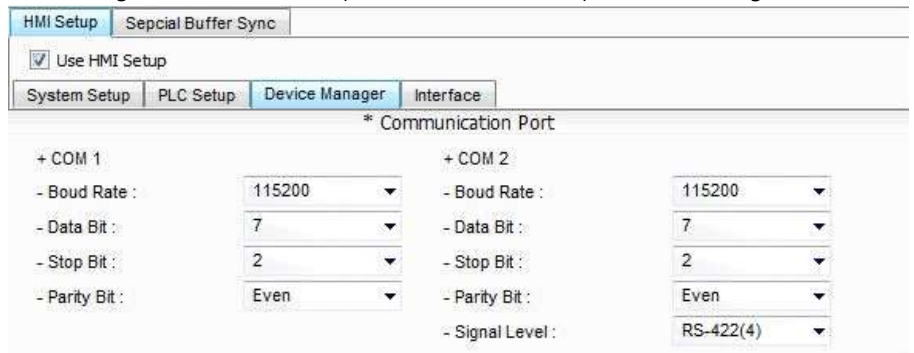| Details		TOP	"SYSMAC CS/CJ/CP SERIES"	Remark
Serial level (port/channel)		RS-422 (4 wire, COM2)	RS-422	User settings
Address(PLC Address)		—	0	User settings
Serial baud rate	[BPS]	115200		User settings
Serial data bit	[Bit]	7		User settings
Serial stop bit	[Bit]	2		User settings
Serial parity bit	[Bit]	EVEN		User settings
Mode		Host Link		User settings

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.

■ [Project > Project property > Project > Settings > TOP Name]

Set the communication interface of TOP tool.

- From right window [HMI Setup > check Use HMI Setup > Device Manager]

■ External device settings

This sets the communication driver of "SYSMAC CS/CJ/CP SERIES".

- PLC address (PLC) : External device setting address
- Block process method : Choose protocol method.
- Show right away after input data.

(2) External device settings

Please set as below using "SYSMAC CS/CJ/CP SERIES"Ladder Software CX-One. Please refer the PLC user manual for more detailed information if you need.

⚠ Please do not use the same address of OMRON CS/CJ series twice in the unit network.
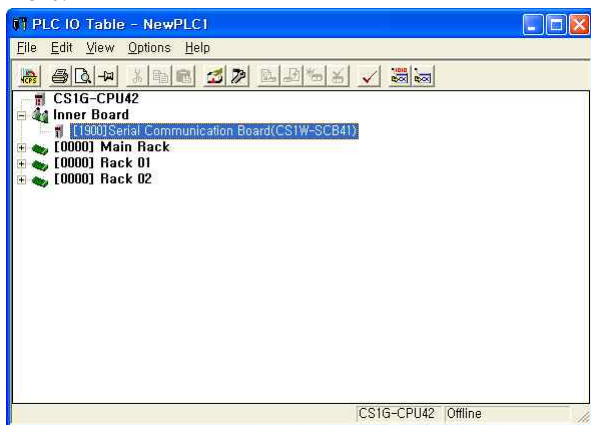
■ Ladder Software setting

Execute progress below after connecting with PLC by clicking [PLC] - [Auto Online] - [Auto Online] from the main menu.

1. Set the Toggle Switch setting on front part of communication module as below.

Details	Setting Information
WIRE (2wire/4wire switch)	4 wire
TERM(Termination resistance switch)	ON

2. Pop up [PLC I/O Table] window by double clicking [I/O Table and Unit Setup] on the [CX-Programmer] project window.

3. Pop up [Edit Parameter] window by double clicking the name of serial communication board that is included in [Inner Board] Menu.

4. Set as below from the [Edit Parameters] window by double clicking communication module that is installed at PLC on [PLC I/O Table] setting window.

Port 1	Port 2

Details	Setting Information
Port settings	User settings
Serial communications mode	host Link(default)
Baud rate	115200bps
parameter	7, 2, Even
Send delay	0
CTS control	No
Host Link unit number	0

5. Transmitting [Setting] information to PLC through [PLC] - [Transfer] - [To PLC].

3.4 Examples of Setting 4

The system is set as below.

Details		TOP	"SYSMAC CS/CJ/CP SERIES"	Remark
Serial level (port/channel)		RS-232C (COM2)	RS-232C	User settings
Address(PLC Address)		—	0	User settings
Serial baud rate	[BPS]	115200		User settings
Serial data bit	[Bit]	7		User settings
Serial stop bit	[Bit]	2		User settings
Serial parity bit	[Bit]	EVEN		User settings
Mode		Host Link		User settings

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.

■ [Project > Project property > Project > Settings > TOP Name]

Set the communication interface of TOP tool.

- From right window [HMI Setup > check Use HMI Setup > Device Manager]

■ External device settings

This sets the communication driver of "SYSMAC CS/CJ/CP SERIES".

- PLC address (PLC) : External device setting address
- Block process method : Choose protocol method.
- Show right away after input data.

(2) External device settings

Please set as below using "SYSMAC CS/CJ/CP SERIES"Ladder Software CX-One. Please refer the PLC user manual for more detailed information if you need.

⚠️   Please do not use the same address of OMRON CS/CJ series twice in the unit network.

■ Ladder Software setting

Execute progress below after connecting with PLC by clicking [PLC] - [Auto Online] - [Auto Online] from the main menu.

1. Pop up [PLC I/O Table] window by double clicking [I/O Table and Unit Setup] on the [CX-Programmer] project window.

2. Set the same value on serial communication module and the unit number of module information in [PLC IO Table] window.
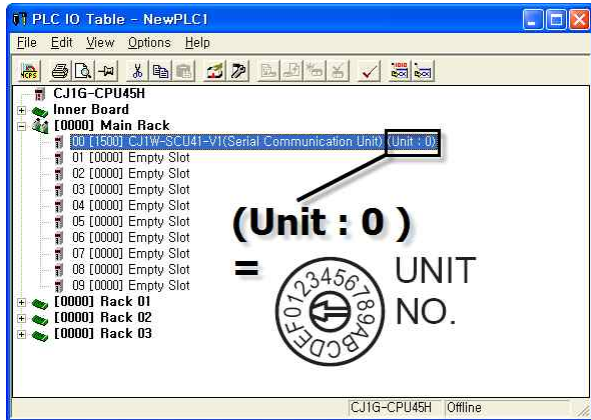
3. Set as below from the [Edit Parameters] window by double clicking communication module that is installed at PLC on [PLC I/O Table] setting window.

Port 1	Port 2
Displayed Parameter Port1: Host Link Settings	Displayed Parameter Port2: Host Link Settings

Item	Set Value	Unit
Port1: Port settings	User settings	
Port1: Serial communications mode	Host Link(default)	
Port1: Data length	7 bits	
Port1: Stop bits	2 bits	
Port1: Parity	Even	
Port1: Baud rate	115200bps	
Port1: Send delay	Default (0 ms)	
Port1: Send delay (user-specified)	0	ms
Port1: CTS control	No	
Port1: Host Link unit number	0	

Item	Set Value	Unit
Port2: Port settings	User settings	
Port2: Serial communications mode	Host Link(default)	
Port2: Data length	7 bits	
Port2: Stop bits	2 bits	
Port2: Parity	Even	
Port2: Baud rate	115200bps	
Port2: Send delay	Default (0 ms)	
Port2: Send delay (user-specified)	0	ms
Port2: CTS control	No	
Port2: Host Link unit number	0	

Details	Setting Information
Port settings	User settings
Serial communications mode	host Link(default)
Baud rate	115200bps
parameter	7, 2, Even
Send delay	0
CTS control	No
Host Link unit number	0

4. Transmitting [Setting] information to PLC through [PLC] - [Transfer] - [To PLC].
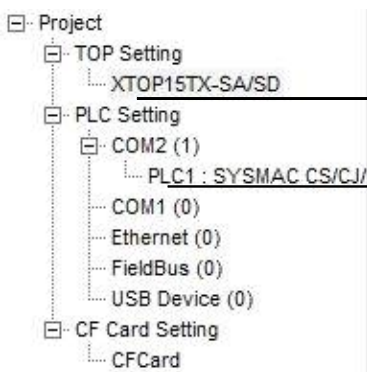
3.5 Examples of Setting 5

The system is set as below.

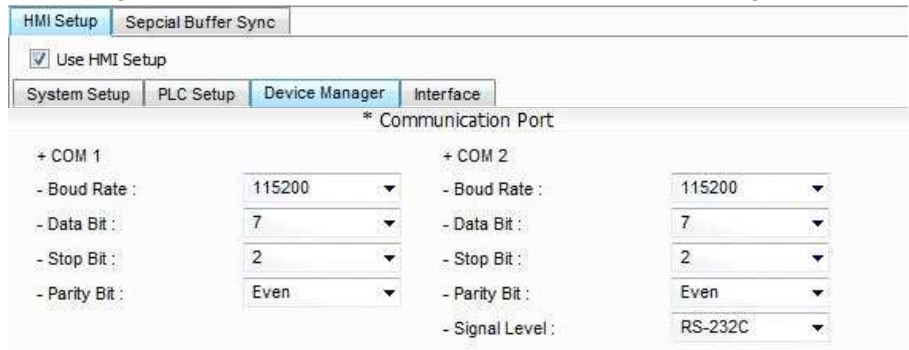| Details		TOP	"SYSMAC CS/CJ/CP SERIES"	Remark
Serial level (port/channel)		RS-422 (4 wire, COM2)	RS-422	User settings
Address(PLC Address)		—	0	User settings
Serial baud rate	[BPS]	115200		User settings
Serial data bit	[Bit]	7		User settings
Serial stop bit	[Bit]	2		User settings
Serial parity bit	[Bit]	EVEN		User settings
Mode		Host Link		User settings

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.

■ [Project > Project property > Project > Settings > TOP Name]

Set the communication interface of TOP tool.

- From right window [HMI Setup > check Use HMI Setup > Device Manager]

■ External device settings

This sets the communication driver of "SYSMAC CS/CJ/CP SERIES".

- PLC address (PLC) : External device setting address
- Block process method : Choose protocol method.
- Show right away after input data.

(2) External device settings

Please set as below using "SYSMAC CS/CJ/CP SERIES"Ladder Software CX-One. Please refer the PLC user manual for more detailed information if you need.

⚠️ Please do not use the same address of OMRON CS/CJ series twice in the unit network.

■ Ladder Software setting

Execute progress below after connecting with PLC by clicking [PLC] - [Auto Online] - [Auto Online] from the main menu.

1. Set the Toggle Switch setting on front part of communication module as below.

Details	Setting Information
WIRE (2wire/4wire switch)	4 wire
TERM(Termination resistance switch)	ON

2. Pop up [PLC I/O Table] window by double clicking [I/O Table and Unit Setup] on the [CX-Programmer] project window.

3. Set the same value on serial communication module and the unit number of module information in [PLC IO Table] window.

4. Set as below from the [Edit Parameters] window by double clicking communication module that is installed at PLC on [PLC I/O Table] setting window.

Port 1	Port 2

Details	Setting Information
Port settings	User settings
Serial communications mode	host Link(default)
Baud rate	115200bps
parameter	7, 2, Even
Send delay	0
CTS control	No
Host Link unit number	0

5. Transmitting [Setting] information to PLC through [PLC] - [Transfer] - [To PLC].
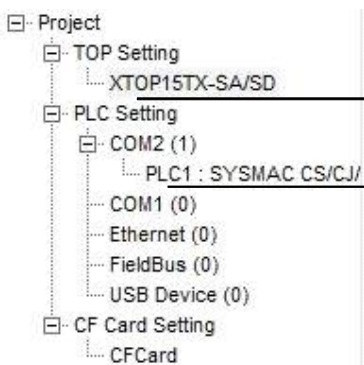
3.6 Examples of Setting 6

The system is set as below.

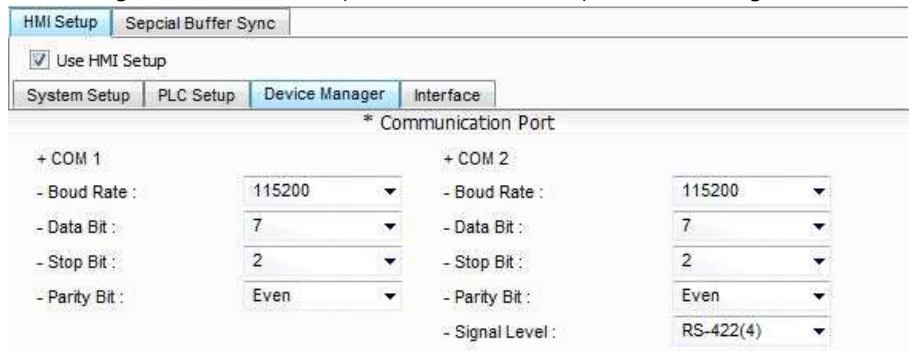| Details		TOP	"SYSMAC CS/CJ/CP SERIES"	Remark
Serial level (port/channel)		RS-232C (COM2)	RS-232C	User settings
Address(PLC Address)		—	0	User settings
Serial baud rate	[BPS]	115200		User settings
Serial data bit	[Bit]	7		User settings
Serial stop bit	[Bit]	2		User settings
Serial parity bit	[Bit]	EVEN		User settings
Mode		Host Link		User settings

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.

■ [Project > Project property > Project > Settings > TOP Name]

Set the communication interface of TOP tool.

- From right window [HMI Setup > check Use HMI Setup > Device Manager]

■ External device settings

This sets the communication driver of "SYSMAC CS/CJ/CP SERIES".

- PLC address (PLC) : External device setting address
- Block process method : Choose protocol method.
- Show right away after input data.

(2) External device settings

Please set as below using "SYSMAC CS/CJ/CP SERIES"Ladder Software CX-One. Please refer the PLC user manual for more detailed information if you need.

⚠ Please do not use the same address of OMRON CS/CJ series twice in the unit network.
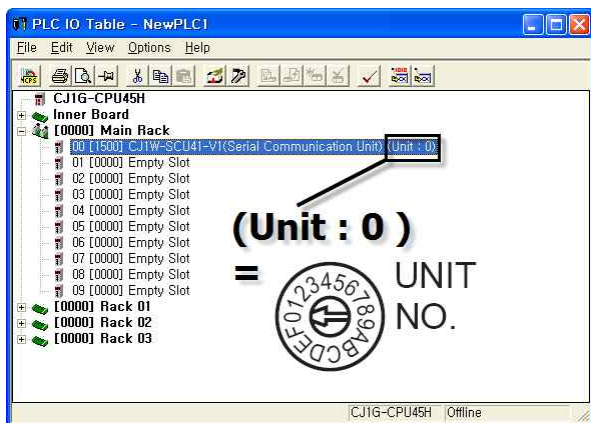
■ Ladder Software setting

Execute progress below after connecting with PLC by clicking [PLC] - [Auto Online] - [Auto Online] from the main menu.

1. Set the RS-232C port of CPU module as below after selecting [Serial Port] Tab in the [PLC Setups] of [CX-Programmer].

2. Set as below by selecting [Host Link Port] from [PLC Setups] window.

Details	Settings
Baud Rate	115200bps
Parameter	7, 2, E
Mode	Host link

3. Transmitting [Setting] information to PLC through [PLC] - [Transfer] - [To PLC].

■ Switch Setting

1. Set the DIP Switch of CPU module as below.

Switch	Settings
Switch 1	OFF
Switch 5	OFF
Switch 7	OFF
Switch 8	OFF

3.7 Examples of Setting 7

The system is set as below.

Details		TOP	"SYSMAC CS/CJ/CP SERIES"	Remark
Serial level (port/channel)		RS-232C (COM2)	RS-232C	User settings
Address(PLC Address)		—	0	User settings
Serial baud rate	[BPS]	115200		User settings
Serial data bit	[Bit]	7		User settings
Serial stop bit	[Bit]	2		User settings
Serial parity bit	[Bit]	EVEN		User settings
Mode		Host Link		User settings

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.

■ [Project > Project property > Project > Settings > TOP Name]

Set the communication interface of TOP tool.

- From right window [HMI Setup > check Use HMI Setup > Device Manager]

■ External device settings

This sets the communication driver of "SYSMAC CS/CJ/CP SERIES".

- PLC address (PLC) : External device setting address
- Block process method : Choose protocol method.
- Show right away after input data.

(2) External device settings

Please set as below using "SYSMAC CS/CJ/CP SERIES"Ladder Software CX-One. Please refer the PLC user manual for more detailed information if you need.

⚠ Please do not use the same address of OMRON CS/CJ series twice in the unit network.

■ Ladder Software setting

Execute progress below after connecting with PLC by clicking [PLC] - [Auto Online] - [Auto Online] from the main menu.

1. Pop up [PLC Setups] window by double clicking [Settings] from the [CX-Programmer] project window.

2. Set as below by selecting [Host Link Port] from [PLC Setups] window.

Details			Contents	
Communications Settings	Custom	Baud	115200	Sets the Serial Communication Speed of Host Link Port.
		Format	7, 2, E	Sets the Serial Communication Parameter of Host Link Port.
Mode			Host Link	Selects the Serial Communication Protocol Method of Host Link Port. **(Fixed)**
Unit Number			0	Sets the Serial Communication Address of Host Link Port.

3. Transmitting [Setting] information to PLC through [PLC] - [Transfer] - [To PLC].

■ Switch Setting

1. Set the Dip Switch of CPU module as below.

Switch	Settings
Switch 1	OFF
Switch 2	OFF
Switch 3	OFF
Switch 4	OFF
Switch 5	OFF
Switch 6	OFF

3.8 Examples of Setting 8

The system is set as below.

Details		TOP	"SYSMAC CS/CJ/CP SERIES"	Remark
Serial level (port/channel)		RS-422 (4 wire, COM2)	RS-422	User settings
Address(PLC Address)		—	0	User settings
Serial baud rate	[BPS]	115200		User settings
Serial data bit	[Bit]	7		User settings
Serial stop bit	[Bit]	2		User settings
Serial parity bit	[Bit]	EVEN		User settings
Mode		Host Link		User settings

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.

■ [Project > Project property > Project > Settings > TOP Name]
Set the communication interface of TOP tool.
- From right window [HMI Setup > check Use HMI Setup > Device Manager]

■ External device settings
This sets the communication driver of "SYSMAC CS/CJ/CP SERIES".

- PLC address (PLC) : External device setting address
- Block process method : Choose protocol method.
- Show right away after input data.

(2) External device settings

Please set as below using "SYSMAC CS/CJ/CP SERIES"Ladder Software CX-One. Please refer the PLC user manual for more detailed information if you need.

⚠ Please do not use the same address of OMRON CS/CJ series twice in the unit network.

■ Ladder Software setting

Execute progress below after connecting with PLC by clicking [PLC] - [Auto Online] - [Auto Online] from the main menu.

1. Pop up [PLC Setups] window by double clicking [Settings] from the [CX-Programmer] project window.

2. Set as below by selecting [Host Link Port] from [PLC Setups] window.

Details			Contents	
Communications Settings	Custom	Baud	115200	Sets the Serial Communication Speed of Host Link Port.
		Format	7, 2, E	Sets the Serial Communication Parameter of Host Link Port.
Mode			Host Link	Selects the Serial Communication Protocol Method of Host Link Port. **(Fixed)**
Unit Number			0	Sets the Serial Communication Address of Host Link Port.

3. Transmitting [Setting] information to PLC through [PLC] - [Transfer] - [To PLC].

■ Switch Setting

1. Set the DIP Switch of CPU module as below.

Switch	Settings
Switch 1	OFF
Switch 2	OFF
Switch 3	OFF
Switch 4	OFF
Switch 5	OFF
Switch 6	OFF

4. Communication settings details

Communication settings are available at XDesignerPlus or TOP main menu. Communication settings must be identical with the external devices.

4.1 XDesignerPlus settings details

Select [Project > Project property] to show the below window.
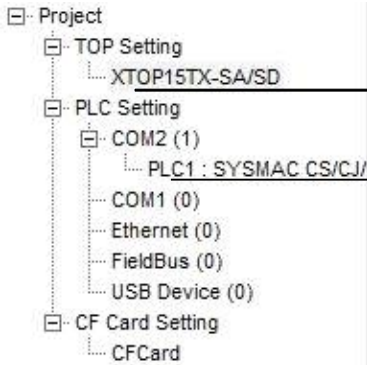
- Project
  - TOP Setting
    - XTOP15TX-SA/SD
  - PLC Setting
    - COM2 (1)
      - PLC1 : SYSMAC CS/CJ/
    - COM1 (0)
    - Ethernet (0)
    - FieldBus (0)
    - USB Device (0)
  - CF Card Setting
    - CFCard

■ [Project > Project property > Project > Settings > TOP Name]
Set the communication interface of TOP tool.
- From right window [HMI Setup > check Use HMI Setup > Device Manager]

| HMI Setup | Sepcial Buffer Sync |

☑ Use HMI Setup

| System Setup | PLC Setup | Device Manager | Interface |

* Communication Port

+ COM 1		+ COM 2	
- Boud Rate :	115200	- Boud Rate :	115200
- Data Bit :	7	- Data Bit :	7
- Stop Bit :	2	- Stop Bit :	2
- Parity Bit :	Even	- Parity Bit :	Even
		- Signal Level :	RS-232C
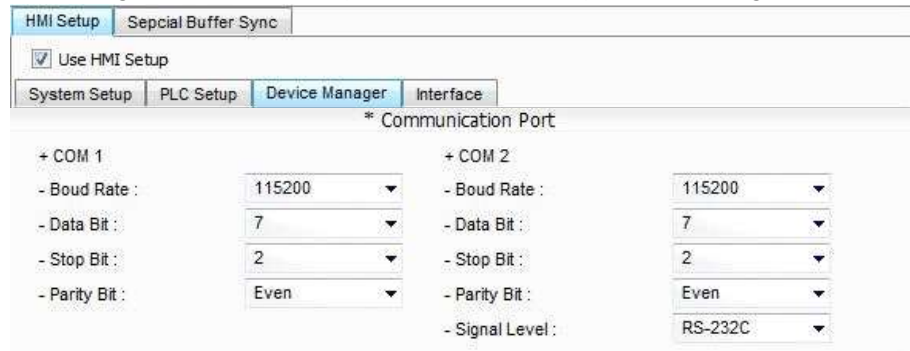
- From right window [HMI Setup > check Use HMI Setup > PLC Setup]
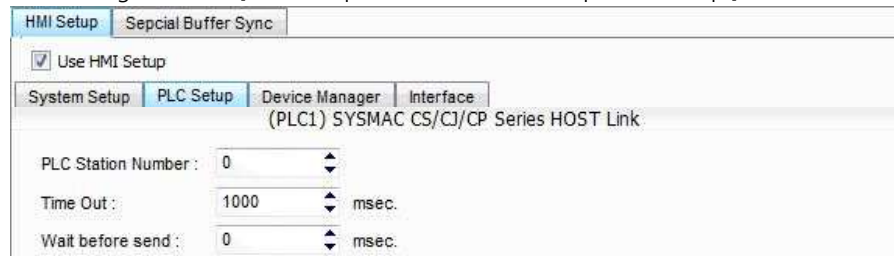
| HMI Setup | Sepcial Buffer Sync |

☑ Use HMI Setup

| System Setup | PLC Setup | Device Manager | Interface |

(PLC1) SYSMAC CS/CJ/CP Series HOST Link

PLC Station Number :	0	
Time Out :	1000	msec.
Wait before send :	0	msec.

■ External device settings
This sets the communication driver of "SYSMAC CS/CJ/CP SERIES".

PLC Comm Info

Station Number(PLC)	0
BlockOption	Discrete
Immediately Display (InputData	No

■ Communication Interface Settings

Details	Contents
Signal level	External device – select serial communication method between TOPs. (COM1 supplies RS-232C only)
Baud rate	External device – select serial communication speed between TOPs.
Data bit	External device – select serial communication data bit between TOPs.
Stop bit	External device – select serial communication stop bit between TOPs.
Parity bit	External device – select serial communication parity bit check method between TOPs.
Time out [x100 mSec]	Set up TOP's waiting time from external device at [0 - 5000] x 1mSec.
Transmitting Delay Time [x10 mSec] Receiving Wait Time	Set up TOP's waiting time between response receiving – next command request transmission from external device at [0 – 5000] x 1 mSec.

[x10 mSec]	
PLC address [0~65535]	Address of other device. Select between [0 - 65535].

4.2 TOP main menu setup item

- When a buzzer is on during the power reset, touch 1 spot at the upper LCD to move to "TOP Management Main" display.
- Set up driver interface at TOP according to below **Step1 → Step2**.
  (Press "TOP COM 2/1 setup" in **Step 1** to change setup at **Step 2**.)
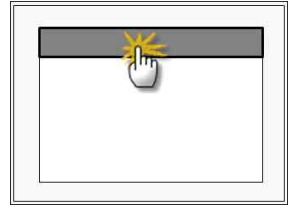
Step 1. [PLC setup] .Setup driver interface.

PLC setup	
PLC Address : 00 Timeout : 1000 [mSec] Delay time of transmission : 0 [mSec] TOP COM 2/1 : RS − 232C , 115200 , 7 , 2 , EVEN TOP COM 2/1 setup communication test	Communication Interface Settings

Step 1–Reference.

Details	Contents
PLC address [0~65535]	Address of other device. Select between [0 - 65535].
Timeout [x1 mSec]	Set up TOP's waiting time from external device at [0 - 5000] x 1mSec.
Delay time of transmission [x1 mSec]	Set up TOP's waiting time between response receiving − next command request transmission from external device at [0 − 5000] x 1 mSec.
TOP COM 2/1	TOP's Interface setup to external device.

Step 2. [PLC setup] >[TOP COM2/COM1 setup] − Setup relevant port's serial parameter.

Port Settings	

* Serial communication
 	
  + COM-1 Port
 	
  - Baud Rate : 115200 [BPS]
 	
  - Data bit : 7 [BIT]
 	
  - Stop bit : 2 [BIT]
 	
  - Parity bit : EVEN [BIT]
 	
  - Signal level : RS − 232C
	COM 1 Port
	
	Communication Interface
	
	Settings

+ COM-2 Port
 	
  - Baud Rate : 115200 [BPS]
 	
  - Data bit : 7 [BIT]
 	
  - Stop bit : 2 [BIT]
 	
  - Parity bit : EVEN [BIT]
 	
  - Signal level : RS − 232C
	COM-2 Port
	
	Communication Interface
	
	Settings

Step 2–Reference.

Details	Contents
Baud rate	External device − select serial communication speed between TOPs.
Data bit	External device − select serial communication data bit between TOPs.
Stop bit	External device − select serial communication stop bit between TOPs.
Parity bit	External device − select serial communication parity bit check method between TOPs.
Signal level	External device − select serial communication method between TOPs.

4.3 Communication diagnosis

■ TOP - Confirming interface setting condition between external devices

- Move to Menu by clicking the top side of LCD screen as resetting the power of TOP.

- Confirms if Port [COM 2 or COM 1] setting that is willing to use in [Communication Settings] matches with the setting of external devices.

■ Port Communication Issue Diagnosis

- PLC Setup > TOP [COM 2 or COM 1] click "Communication Diagnosis" button.

- Diagnosis dialog box will pop up on the screen, you can judge by following information that are shown on box no. 3 section.

OK!	Communication setting succeeded
Time Out Error!	Communication setting error - Error in the setting situation of Cable and TOP / External device **(reference : Communication Diagnosis sheet)**

■ Communication Diagnosis Sheet

- Please refer to the information below if you have a problem between external devices and communication connection.

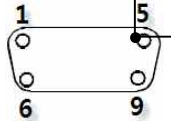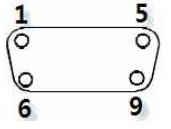| Designer Version				O.S Version			
Details	Contents					Confirm	
System configuration	Name of CPU					OK	NG
	Name of confront port that is communicating					OK	NG
	System Connection Method	1:1	1:N		N:1	OK	NG
Connect Cable	Name of Cable					OK	NG
PLC setup	Setup address					OK	NG
	Serial baud rate			[BPS]		OK	NG
	Serial data bit			[BIT]		OK	NG
	Serial Stop bit			[BIT]		OK	NG
	Serial parity bit			[BIT]		OK	NG
	Assigned Address Limit					OK	NG
TOP setup	Setup port	COM 1		COM 2		OK	NG
	Name of Driver					OK	NG
	Confront Address	Project Property Setup				OK	NG
		Communication Diagnosing				OK	NG
	Serial baud rate			[BPS]		OK	NG
	Serial data bit			[BIT]		OK	NG
	Serial Stop bit			[BIT]		OK	NG
	Serial parity bit			[BIT]		OK	NG

5. Cable diagram

This Chapter is to introduce the Cable diagram for regular communication between TOP and relative devices. (The cable diagram that is introduced in this chapter might be different than suggested for OMRON Industrial Automation)
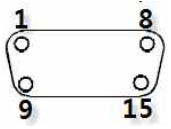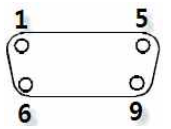
5.1 Cable diagram 1

■ 1 : 1 Connection

(A) XTOP COM 2 Port (9 pin)

XTOP COM2			Cable Connection	PLC		
pin arangement * caution 1)	Name of Signal	Pin Number		Pin Number	Name of Signal	pin arangement * caution 1)
	CD	1		1	FG	
	RD			2	SD	
	SD	3		3	RD	
	DTR	4		4	RTS	
Front View of D-SUB 9 Pin male (Male, convex)	SG	5		5	CTS	Front View of D-SUB 9 Pin male (Male, convex)
	DSR	6		6	+5V	
	RTS	7		7	DR	
	CTS	8		8	ER	
		9		9	SG	

2*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.22
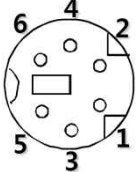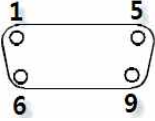
(B) XTOP COM 2 Port (15 pin)

XTOP COM2			Cable Connection	PLC		
pin arangement * caution 1)	Name of Signal	Pin Number		Pin Number	Name of Signal	pin arangement * caution 1)
	CD	1		1	FG	
	RD			2	SD	
	SD	3		3	RD	
	DTR	4		4	RTS	
Front View of D-SUB 15Pin male(male, convex)	SG	5		5	CTS	Front View of D-SUB 9 Pin male (Male, convex)
	DSR	6		6	+5V	
	RTS	7		7	DR	
	CTS	8		8	ER	
		9		9	SG	

*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.

(C) XTOP/ATOP COM 1 Port (6 Pin)

XTOP/ATOP COM 1 Port			Cable Connection	PLC		
pin arangement * caution 1)	Name of Signal	Pin Number		Pin Number	Name of Signal	pin arangement * caution 1)

		1		1	FG	
	RD			2	SD	
	SG	3		3	RD	
		4		4	RTS	
		5		5	CTS	
	SD	6		6	+5V	
				7	DR	
				8	ER	
				9	SG	
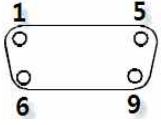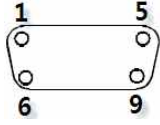
Front View of
D-SUB 6 Pin male
(Male, convex)

Front View of
MINI-DIN 6 Pin
male(Male, convex)

*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.

5.2 Cable diagram 2
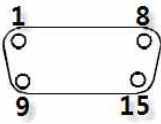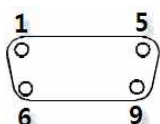
■ 1 : 1 Connection

(A) XTOP COM 2 Port (9 pin)

XTOP COM2			Cable Connection	PLC		
pin arangement * caution 1)	Name of Signal	Pin Number		Pin Number	Name of Signal	pin arangement * caution 1)
	RDA	1		1	SDB	
	RDB	4		2	SDA	
	SG	5				
	SDA	6		6	RDB	
	SDB	9		8	RDA	
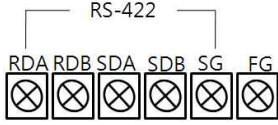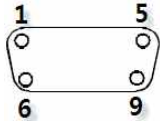
Front View of D-SUB 9 Pin male (Male, convex) — Front View of D-SUB 9 Pin male (Male, convex)

*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.

(B) XTOP COM 2 Port (15 pin)

XTOP COM2			Cable Connection	PLC		
pin arangement * caution 1)	Name of Signal	Pin Number		Pin Number	Name of Signal	pin arangement * caution 1)
	-	1				
	(2~9)					
	-	10				
	RDA	11		1	SDB	
	RDB	12		2	SDA	
	SDA	13		6	RDB	
	SDB	14		8	RDA	
	SG	15				

Front View of D-SUB 15Pin Male (male, convex) — Front View of D-SUB 9 Pin male (Male, convex)

*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.

(C) ATOP COM 2 Port (5 Pin Terminal)

XTOP COM2		Cable Connection	PLC		
pin arangement * caution 1)	Name of Signal		Pin Number	Name of Signal	pin arangement * caution 1)
	RDA		1	SDB	
	RDB		2	SDA	
	SDA		6	RDB	
	SDB		8	RDA	

RS-422
RDA RDB SDA SDB SG FG
Front View of Terminal Block 5 Pin — Front View of D-SUB 9 Pin male

	SG				
					(Male, convex)

*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.

■ 1 : N Connection - Please connect referring to 1:1 connection as below.

TOP	Cable Connection and Signal Direction	PLC	Cable Connection and Signal Direction	PLC
Name of Signal		Name of Signal		Name of Signal
RDA		SDA		
				SDA
RDB		SDB		SDB
SDA		RDA		RDA
SDB		RDB		RDB
SG		SG		SG

■ RS-422 Multilink (N : 1 Connection) - Please connect referring to 1:1 connection as below.

TOP	Cable Connection and Signal Direction	TOP	Cable Connection and Signal Direction	PLC
Name of Signal		Name of Signal		Name of Signal
RDA		RDA		
				SDA
RDB		RDB		SDB
SDA		SDA		RDA
SDB		SDB		RDB
SG		SG		SG

6. Support address

Devices that are usable with TOP is as below.

There might be difference in the range of device (address) by type / series of CPU module TOP series supports the maximum address range that external device series use Please refer each CPU module user manual carefully for devices that you desired to use to prevent not getting out of range.

6.1 CS1/CJ1 Series

Device	Bit Address	Word Address	32 Bits	Remarks
Channel I/O	CIO0000.00 –CIO6143.15	CIO0000 –CIO6143	L/H	
Internal Auxiliary Relay	W000.00 – W511.15	W000 – W511		
Special Auxiliary Relay	A000.00 – A959.15	A000 – A959		* caution1)
Latch Relay	H000.00 – H511.15	H000 – H511		
Timer (Time up flag)	T0000 – T4095	——		* caution2)
Counter (Count up flag)	C0000 – C4095	——		
Timer (Current value)	——	T0000 – T4095		
Counter (Current value)	——	C0000 – C4095		
Data Memory	D00000.00 – D32767.15	D00000 – D32767		* caution3)
Extension Data Memory (E0 – EC)	E00000.00 – EC32767.15	E00000 – EC32767		*caution4caution5)
Extension Data Memory (Current Bank)	——	EM00000 – EM32767		*caution5caution6)

*caution1) A000 - A447 Range : Not authorized writing.

*caution2) Not authorized writing

*caution3) Do not use it because "D device" range is utilized as a system setting range depends on which communication card that the user uses.

Types of Communication Card	Not authorized Using Range
Communication Unit : CS1W-SCU21	D30000 – D31599
Communication Board : CS1W-SCU21/41	D32000 – D32767

*caution4) Depends on CPU type, the range of address is different and it is possible to use up to 13 Bank(E0 - EC) x 32767 word max.

*caution5) CJM1 series does not contain Extension data memory part.

caution6) CJ1 series does not contain Current Bank EM part.

6.2 CJ2 Series

Device	Bit Address	Word Address	32 Bits	Remarks
Channel I/O	CIO0000.00 –CIO6143.15	CIO0000 –CIO6143	L/H	* caution1)
Internal Auxiliary Relay	W000.00 – W511.15	W000 – W511		
Special Auxiliary Relay	A000.00 – A1471.15 A10000.00 – A11535.15	A000 – A1471 A10000 – A11535		* caution2)
Latch Relay	H000.00 – H511.15	H000 – H511		
Timer (Time up flag)	T0000 – T4095	——		* caution3)
Counter (Count up flag)	C0000 – C4095	——		* caution3)
Timer (Current value)	——	T0000 – T4095		
Counter (Current value)	——	C0000 – C4095		
Data Memory	D00000.00 – D32767.15	D00000 – D32767		* caution1)
Extension Data Memory (E0 – EC)	E00000.00 – EC32767.15	E00000 – EC32767		* caution4)
Extension Data Memory (Current Bank)	——	EM00000 – EM32767		

*caution1) Do not use it because it is utilized as a system setting range depends on which communication card that the user uses.

Types of Communication Card	Not authorized Using Range
Select Channel	CIO1500 – CIO1899
Data Memory	D30000 – D31599

*caution2) A000 - A447 and A10000 - A11535 Range : Not authorized writing

*caution3) Not authorized writing

*caution4) Depends on CPU type, the range of address is different and it is possible to use up to 13 Bank(E0 - EC) x 32767 word max.

6.3 CP1 Series

Device	Bit Address	Word Address	32 Bits	Remarks
Channel I/O	CIO0000.00 –CIO6143.15	CIO0000 –CIO6143	L/H	
Internal Auxiliary Relay	W000.00 – W511.15	W000 – W511		
Special Auxiliary Relay	A000.00 – A959	A000 – A959		* caution1)
Latch Relay	H000.00 – H511.15	H000 – H511		
Timer (Time up flag)	T0000 – T4095	——		* caution2)
Counter (Count up flag)	C0000 – C4095	——		* caution2)
Timer (Current value)	——	T0000 – T4095		
Counter	——	C0000 – C4095		

(Current value)				
Data Memory	D00000.00 – D32767.15	D00000 – D32767		

*caution1) A000 - A447 Range : Not authorized writing

*caution2) Not authorized writing