OMRON Corporation

CS/CJ Series Ethernet Driver

Introduction

This manual describes how to connect the Display and the External Device (target PLC).

In this manual, the connection procedure will be described by following the below sections:

| 1 | System Configuration
This section shows the types of External Device which can be connected and SIO type. | ☞ "1 System Configuration" (page 3) |

| 2 | Selection of External Device
Select a model (series) of the External Device to be connected and connection method. | ☞ "2 Selection of External Device" (page 7) |

| 3 | Example of Communication Settings
This section shows setting examples for communicating between the Display and the External Device. | ☞ "3 Example of Communication Setting" (page 8) |

| 4 | Setup Items
This section describes communication setup items on the display.
Set communication settings of the Display with GP-Pro Ex or in offline mode. | ☞ "4 Setup Items" (page 56) |

Operation

1 System Configuration

The system configuration in the case when the External Device and the Display are connected is shown.

Series	CPU[*1]	Link I/F	Communication Method	Setting Example
CS Series	CS1H-CPU67 CS1H-CPU66 CS1H-CPU65 CS1H-CPU64 CS1G-CPU45 CS1G-CPU44 CS1G-CPU43 CS1G-CPU42 CS1H-CPU67H CS1H-CPU66H CS1H-CPU65H CS1H-CPU64H CS1H-CPU63H CS1G-CPU45H CS1G-CPU44H CS1G-CPU43H CS1G-CPU42H CS1H-CPU67-V1 CS1H-CPU66-V1 CS1H-CPU65-V1 CS1H-CPU64-V1 CS1H-CPU63-V1 CS1G-CPU45-V1 CS1G-CPU44-V1 CS1G-CPU43-V1 CS1G-CPU42-V1	CS1W-ETN01	Ethernet (UDP)	Setting Example 1 (page 8)
		CS1W-ETN11		
		CS1W-ETN21	Ethernet (UDP)	Setting Example 3 (page 14)
			Ethernet (TCP)	Setting Example 4 (page 17)
CJ1 Series	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	CJ1W-ETN11	Ethernet (UDP)	Setting Example 2 (page 11)
		CJ1W-ETN21	Ethernet (UDP)	Setting Example 3 (page 14)
			Ethernet (TCP)	Setting Example 4 (page 17)

| Series	CPU[*1]	Link I/F	Communication Method	Setting Example
CJ2 Series	CJ2H-CPU68-EIP CJ2H-CPU67-EIP CJ2H-CPU66-EIP CJ2H-CPU65-EIP CJ2H-CPU64-EIP	EtherNet/IP port on CPU	Ethernet (UDP)	Setting Example 5 (page 20)
			Ethernet (TCP)	Setting Example 6 (page 24)
	CJ2M-CPU35 CJ2M-CPU34 CJ2M-CPU33 CJ2M-CPU32 CJ2M-CPU31	CJ1W-ETN21	Ethernet (UDP)	Setting Example 7 (page 28)
			Ethernet (TCP)	Setting Example 8 (page 32)
	CJ2H-CPU68 CJ2H-CPU67 CJ2H-CPU66 CJ2H-CPU65 CJ2H-CPU64 CJ2M-CPU15 CJ2M-CPU14 CJ2M-CPU13 CJ2M-CPU12 CJ2M-CPU11	CJ1W-ETN21	Ethernet (UDP)	Setting Example 7 (page 28)
			Ethernet (TCP)	Setting Example 8 (page 32)
CP1 Series	CP1H-X□□DR-A CP1H-X□□DT-D CP1H-X□□DT1-D CP1H-XA□□DR-A CP1H-XA□□DT-D CP1H-XA□□DT1-D CP1H-Y□□DT-D	CJ1W-ETN21	Ethernet (UDP)	Setting Example 9 (page 36)
			Ethernet (TCP)	Setting Example 10 (page 40)
CP2E Series	CP2E-N□□□D□-□	Built-in LAN port on CPU unit	Ethernet (UDP)	Setting Example 13 (page 50)
			Ethernet (TCP)	Setting Example 14 (page 53)
NX1 Series	NX102-9020	Built-in EtherNet/IP Port (PORT2) on CPU unit	Ethernet (UDP)	Setting Example 11 (page 44)
			Ethernet (TCP)	Setting Example 12 (page 47)

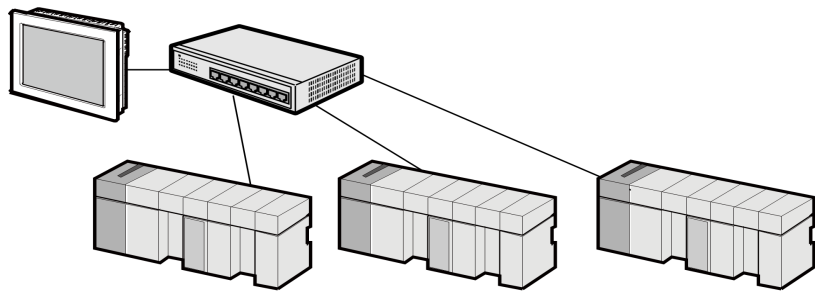*1   □ differs depending on the number of CPU input-output points.

NOTE   • The time of GP4000 series can be automatically updated in [Clock Update Settings] of GP-Pro EX. For details on [Clock Update Settings], refer to GP-Pro EX Reference Manual.
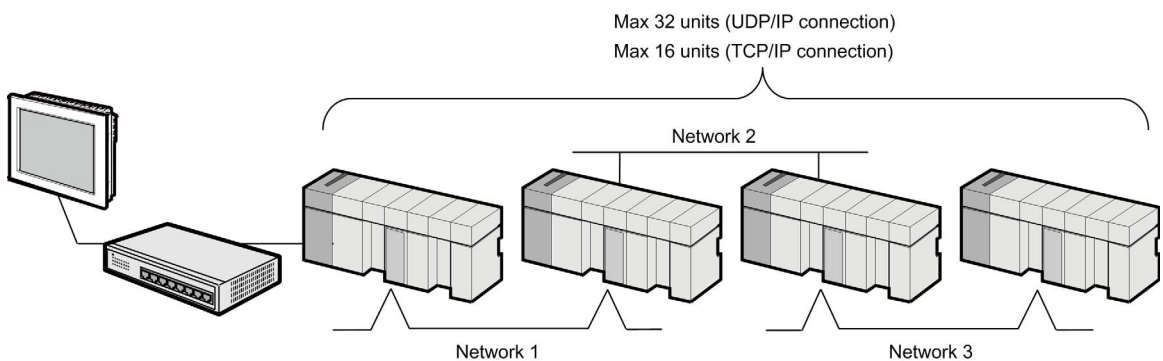
Device Configuration
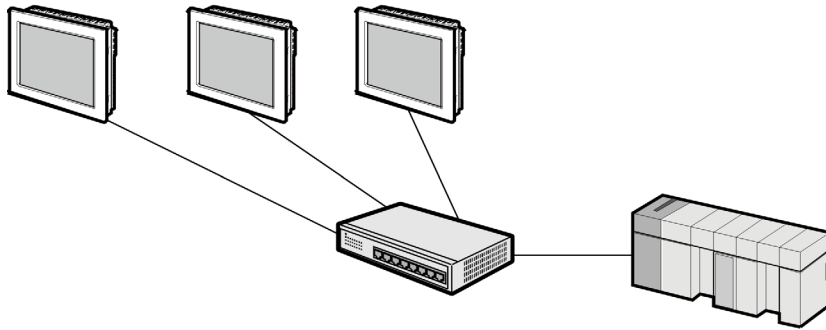
- 1:1 Connection
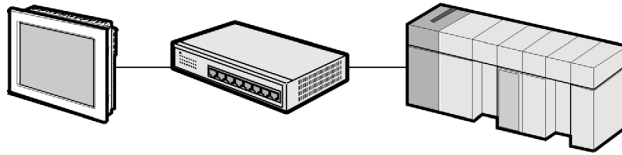
- 1:n Connection

Max 32 units (UDP/IP connection)
Max 16 units (TCP/IP connection)

- 1:n Connection (access beyond network)

Set the relay node between networks to allow you to access the External Device with the different network address. You can access beyond maximum 3 levels of network.
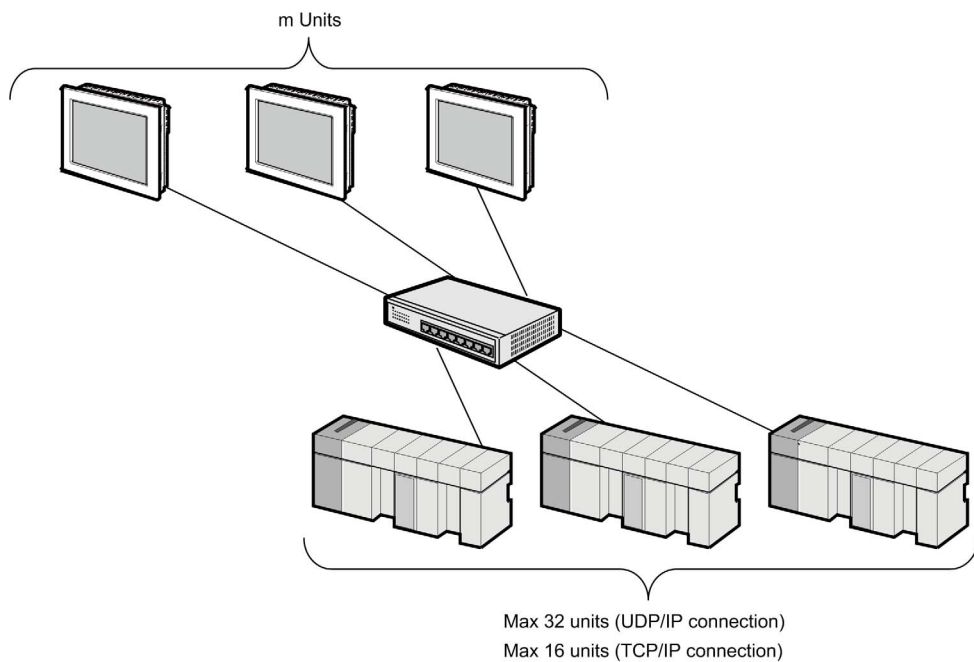
Max 32 units (UDP/IP connection)
Max 16 units (TCP/IP connection)

Network 2

Network 1

Network 3

• m:1 Connection

NOTE • The number of Display units has no limit. Note that more number of connecting units will result in increasing the communication load.

• m:n Connection

m Units

Max 32 units (UDP/IP connection)
Max 16 units (TCP/IP connection)

NOTE • The number of Display units has no limit. Note that more number of connecting units will result in increasing the communication load.

2 Selection of External Device

Select the External Device to be connected to the Display.

Setup Items	Setup Description
Number of Devices/PLCs	Enter an integer from 1 to 4 to define the number of Devices/PLCs to connect to the display.
Manufacturer	Select the maker of the External Device to be connected. Select "OMRON Corporation".
Series	Select a model (series) of the External Device to be connected and connection method. Select "CS/CJ Series Ethernet". Check the External Device which can be connected in "CS/CJ Series Ethernet" in system configuration. ☞ "1 System Configuration" (page 3)
Port	Select the Display port to be connected to the External Device.

Use System Area	Check this option when you synchronize the system data area of Display and the device (memory) of External Device. When synchronized, you can use the ladder program of External Device to switch the display or display the window on the Display.
	    Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"
	This can also be set in GP-Pro EX or in the Display's offline mode.
	    Cf. GP-Pro EX Reference Manual "Display Unit (System Area) Settings Guide"
	    Cf. Maintenance/Troubleshooting Guide "Main Unit - System Area Settings"

3 Example of Communication Setting

Examples of communication settings of the Display and the External Device, recommended by Pro-face, are shown.

3.1 Setting Example 1

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device/PLC 1						
Summary						Change Device/PLC
Manufacturer	OMRON Corporation		Series	CS/CJ Series Ethernet	Port	Ethernet (UDP)

Text Data Mode   1   Change

Communication Settings
Port No.   9600
Timeout   3   (sec)
Retry   2
Wait To Send   0   (ms)

Source Address
Network   0
Node   2   Default

Device-Specific Settings
Allowable Number   Add Device
of Devices/PLCs   32

Add Indirect Device

No.	Device Name	Settings	
1	PLC1	Series=CS/CJ/CP/NX Series,IP Address=192.168.000	

NOTE
• Set the optional network address of the Display in [Network].
• If you do not access beyond network, set "0" for [Network].
• Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click 🔲 ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click 🔲 from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

NOTE	• Set the IP address you set for the External Device in [IP address].
	• Set the network address you set for the External Device in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the node address you set for the External Device in [Node].

Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the offline mode of the Display.
- The default port No. of the External Device is 9600. Always perform the same settings for the port No. of the Display and the External Device.
- Set the different node addresses between the Display and the External Device.

Setting of External Device

Double-click [I/O Table] in the project window to display the [PC I/O Table] window. Select [Unit Settings] from the menu displayed by right-clicking on the Ethernet unit in the window to select the Ethernet Unit Setting Screen.

Setup Items	Settings
IP Address Conversion	IP Address Table Method
IP Address Table	Node address and IP address you set in the Display.
IP Address Setting Rotary Switch[*2]	192.168.0.1
Source Network Address[*1]	0
Node Address Setting Rotary Switch[*2]	1
Unit No. Setting Rotary Switch[*2]	0
FINS/UDP Port	9600

*1 Parameter used when you access beyond network.
Set in the routing table of "CX-Net Network Configuration". Please refer to the manual of the External Device for more details.

*2 Set with the rotary switch on the front of the Ethernet unit.

NOTE
• For the Unit No., set the External Device unit number.
• For the Node Address, set the External Device node number. Enter the same value in the Device-specific settings dialog box's [Node] field.

Notes

• Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.

• Do not set the duplicate Node number.

• Always perform the same settings for the port No. of the Display and the External Device.

3.2   Setting Example 2

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

NOTE	• Set the optional network address of the Display in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

NOTE	• Set the IP address you set for the External Device in [IP address].
	• Set the network address you set for the External Device in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the node address you set for the External Device in [Node].

Notes

• Check with a network administrator about IP address. Do not set the duplicate IP address.

• Set IP address on the External Device for IP address in Device-specific settings.

• You need to set IP address on the Display in the offline mode of the Display.

• The default port No. of the External Device is 9600. Always perform the same settings for the port No. of the Display and the External Device.

• Set the different node addresses between the Display and the External Device.

Setting of External Device

Double-click [I/O Table] in the project window to display the [PC I/O Table] window. Select [Unit Settings] from the menu displayed by right-clicking on the Ethernet unit in the window to select the Ethernet Unit Setting Screen.

Setup Items	Settings
IP Address Conversion	IP Address Table Method
IP Address Table	Node address and IP address you set in the Display.
IP Address	192.168.0.1
Source Network Address[*1]	0
Node Address Setting Rotary Switch[*2]	1
Unit No. Setting Rotary Switch[*2]	0
FINS/UDP Port	9600

*1 Parameter used when you access beyond network.
Set in the routing table of "CX-Net Network Configuration". Please refer to the manual of the External Device for more details.

*2 Set with the rotary switch on the front of the Ethernet unit.

NOTE
- For the Unit No., set the External Device unit number.
- For the Node Address, set the External Device node number. Enter the same value in the Device-specific settings dialog box's [Node] field.

Notes

- Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.
- Do not set the duplicate Node number.
- Always perform the same settings for the port No. of the Display and the External Device.

3.3   Setting Example 3

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

NOTE

• Set the optional network address of the Display in [Network].

• If you do not access beyond network, set "0" for [Network].

• Set the optional node address of the Display in [Node].

Device Setting

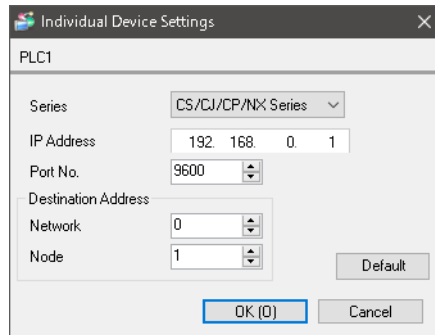To display the setting screen, click [icon] ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click [icon] from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

NOTE • Set the IP address you set for the External Device in [IP address].
• Set the network address you set for the External Device in [Network].
• If you do not access beyond network, set "0" for [Network].
• Set the node address you set for the External Device in [Node].

Notes

• Check with a network administrator about IP address. Do not set the duplicate IP address.
• Set IP address on the External Device for IP address in Device-specific settings.
• You need to set IP address on the Display in the offline mode of the Display.
• The default port No. of the PLC is 9600. For UDP connection, always perform the same settings for the port No. of the Display and the External Device.
• Set the different node addresses between the Display and the External Device.

Setting of External Device

Double-click [I/O Table] in the project window to display the [PC I/O Table] window. Select [Unit Settings] from the menu displayed by right-clicking on the Ethernet unit in the window to select the Ethernet Unit Setting Screen.

Setup Items	Settings
IP Address Conversion	Auto Creation Method (dynamic)
Line Speed	Auto Detection
IP Address	192.168.0.1
Source Network Address[1]	0
Node Address Setting Rotary Switch[2]	1
Unit No. Setting Rotary Switch[2]	0
FINS/UDP Port	9600

*1 Parameter used when you access beyond network.
Set in the routing table of "CX-Net Network Configuration". Please refer to the manual of the External Device for more details.

*2 Set with the rotary switch on the front of the Ethernet unit.

NOTE
- For the Unit No., set the External Device unit number.
- For the Node Address, set the External Device node number. Enter the same value in the Device-specific settings dialog box's [Node] field.

Notes

- Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.
- Do not set the duplicate Node number.
- For UDP connection, always perform the same settings for the port No. of the Display and the External Device.

3.4 Setting Example 4

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device/PLC 1		

Summary   Change Device/PLC

Manufacturer OMRON Corporation   Series CS/CJ Series Ethernet   Port Ethernet (TCP)

Text Data Mode   [1] Change

Communication Settings

Port No.   Auto

Timeout   3   (sec)

Retry   2

Wait To Send   0   (ms)

Source Address

Network   0

Node   2   Default

Device-Specific Settings

Allowable Number   Add Device
of Devices/PLCs   16
                                                              Add Indirect
No. Device Name   Settings   Device

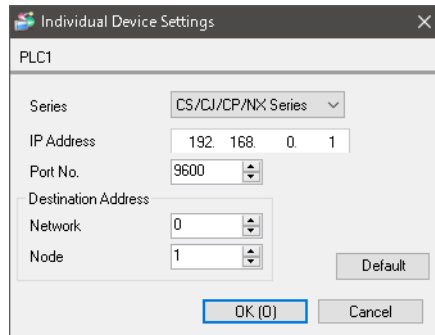1   PLC1   Series=CS/CJ/CP/NX Series,IP Address=192.168.000

NOTE
- Set the optional network address of the Display in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

NOTE
- Set the IP address you set for the External Device in [IP address].
- Set the network address you set for the External Device in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the node address you set for the External Device in [Node].

Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the offline mode of the Display.
- The default port No. of the External Device is 9600. For UDP connection, always perform the same settings for the port No. of the Display and the External Device.
- Set the different node addresses between the Display and the External Device.

Setting of External Device

To communicate GP and SYSMAC-CS1 Series (EtherNet Unit: CS1W-ETN21), CJ Series (EtherNet Unit: CJ1W-ETN21), you need to set the EtherNet Unit of PLC.

Double-click [I/O Table] in the project window to display the [PC I/O Table] window. Select [Unit Settings] from the menu displayed by right-clicking on the Ethernet unit in the window to select the Ethernet Unit Setting Screen.

Setup Items	Settings
IP Address Conversion	Auto Creation Method (dynamic)
Line Speed	Auto Detection
IP Address	192.168.0.1
Source Network Address[*1]	0
Node Address Setting Rotary Switch[*2]	1
Unit No. Setting Rotary Switch[*2]	0
FINS/TCP Port	9600

*1   Parameter used when you access beyond network.
Set in the routing table of "CX-Net Network Configuration". Please refer to the manual of the External Device for more details.

*2   Set with the rotary switch on the front of the Ethernet unit.

NOTE
- For the Unit No., set the External Device unit number.
- For the Node Address, set the External Device node number. Enter the same value in the Device-specific settings dialog box's [Node] field.

Notes

- Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.
- Do not set the duplicate Node number.

3.5 Setting Example 5

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

NOTE
- Set the optional network address of the Display in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click [Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].
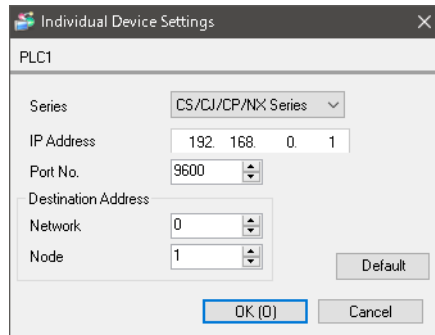When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

NOTE	• Set the IP address you set for the External Device in [IP address].
	• Set the network address you set for the External Device in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the node address you set for the External Device in [Node].

Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the offline mode of the Display.
- The default port No. of the PLC is 9600. For UDP connection, always perform the same settings for the port No. of the Display and the External Device.
- Set the different node addresses between the Display and the External Device.

Setting of External Device

For External Device communication settings, use the DIP switch and rotary switch of the External Device and ladder software (CX-Programmer). For IP address settings, with Auto (dynamic).

Refer to your External Device manual for details.

DIP Switch Setting

Dip Switch	Setting	Description
SW1	OFF	Set whether the user memory is writable or not. ON: Write disable OFF: Write enable
SW2	OFF	Set whether data is loaded from a memory card or not when the power is on. ON: Load enable OFF: Load disable
SW3	OFF	Not used.
SW4	OFF	Not used.
SW5	OFF	Set communication speed of serial port. ON: Communication speed of ladder software (Toolbus) is automatically recognized. OFF: Accordance with communication setting of ladder software.
SW6	OFF	Switch the status of special auxiliary relay (A395.12).
SW7	OFF	Set the type of simplified backup.
SW8	OFF	Always OFF.

Rotary Switch Setting

Setup Items	Setting Value
Unit No.	0

Setup Items		Setting Value
NODE No.	x 16^1	0
	x 16^0	1

NOTE
- For the Unit No., set the External Device unit number.
- For the NODE No., set the External Device node number. Enter the same value in the Device-specific settings dialog box's [Node] field.

Ladder Software Setting

1 Start up the ladder software.

2 Select [New] in the [File] menu to display [Change PLC] dialog box.

3 Select External Device in the [Device Type].

4 Click [Settings...] in the [Device Type] to display the [Device Type Settings] dialog box.

5 Select CPU type in the [CPU Type] and click [OK].

6 Select connection type in the [Network Type].

7 Click [OK].

8 Double-click [IO Table and Unit Setup] in the tree view of the work space to display the [PLC IO Table].

9 Double-click built-in EtherNet/IP port in the [Built-in Port/Inner-Board] of the tree view to display the [Edit Parameters] dialog box.

10 Set [IP Address] and [Sub-net Mask] in the [TCP/IP] tab as below.

Setup Items	Setting Value
IP Address	192.168.0.1
Sub-net Mask	255.255.255.0

11 Set [FINS/UDP port] and [Conversion] in the [FINS/UDP] tab as below.

Setup Items	Setting Value
FINS/UDP port	Default (9600)
Conversion	Auto (Dynamic)

12 Click [OK]

13 Transfer the communication settings to External Device.

14 Reboot the External Device.

Notes

- Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.
- Do not set the duplicate Node number.
- For UDP connection, always perform the same settings for the port No. of the Display and the External Device.

3.6　　　　Setting Example 6

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

NOTE

- Set the optional network address of the Display in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the optional node address of the Display in [Node].

Device Setting

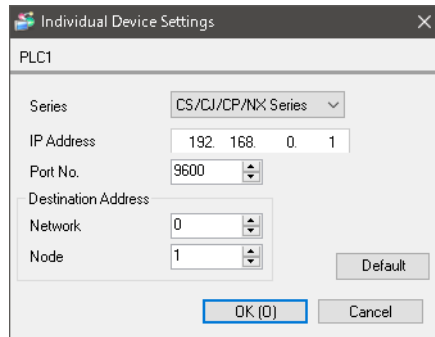To display the setting screen, click 🔛 ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click 📲 from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

NOTE	• Set the IP address you set for the External Device in [IP address].
	• Set the network address you set for the External Device in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the node address you set for the External Device in [Node].

Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the offline mode of the Display.
- The default port No. of the External Device is 9600.
- Set the different node addresses between the Display and the External Device.

Setting of External Device

For External Device communication settings, use the DIP switch and rotary switch of the External Device and ladder software (CX-Programmer). For IP address settings, with Auto (dynamic).

Refer to your External Device manual for details.

DIP Switch Setting

Dip Switch	Setting	Description
SW1	OFF	Set whether the user memory is writable or not. ON: Write disable OFF: Write enable
SW2	OFF	Set whether data is loaded from a memory card or not when the power is on. ON: Load enable OFF: Load disable
SW3	OFF	Not used.
SW4	OFF	Not used.
SW5	OFF	Set communication speed of serial port. ON: Communication speed of ladder software (Toolbus) is automatically recognized. OFF: Accordance with communication setting of ladder software.
SW6	OFF	Switch the status of special auxiliary relay (A395.12).
SW7	OFF	Set the type of simplified backup.
SW8	OFF	Always OFF.

Rotary Switch Setting

Setup Items	Setting Value
Unit No.	0

Setup Items		Setting Value
NODE No.	x 16^1	0
	x 16^0	1

NOTE
- For the Unit No., set the External Device unit number.
- For the NODE No., set the External Device node number. Enter the same value in the Device-specific settings dialog box's [Node] field.

Ladder Software Setting

1 Start up the ladder software.

2 Select [New] in the [File] menu to display [Change PLC] dialog box.

3 Select External Device in the [Device Type].

4 Click [Settings...] in the [Device Type] to display the [Device Type Settings] dialog box.

5 Select CPU type in the [CPU Type] and click [OK].

6 Select connection type in the [Network Type].

7 Click [OK].

8 Double-click [IO Table and Unit Setup] in the tree view of the work space to display the [PLC IO Table].

9 Double-click built-in EtherNet/IP port in the [Built-in Port/Inner-Board] of the tree view to display the [Edit Parameters] dialog box.

10 Set [IP Address] and [Sub-net Mask] in the [TCP/IP] tab as below.

Setup Items	Setting Value
IP Address	192.168.0.1
Sub-net Mask	255.255.255.0

11 Set [FINS/TCP port] in the [FINS/TCP] tab as below.

Setup Items	Setting Value
FINS/TCP port	Default (9600)

12 Click [OK]

13 Transfer the communication settings to External Device.

14 Reboot the External Device.

Notes

• Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.

• Do not set the duplicate Node number.

3.7   Setting Example 7

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

NOTE	• Set the optional network address of the Display in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

NOTE	• Set the IP address you set for the External Device in [IP address].
	• Set the network address you set for the External Device in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the node address you set for the External Device in [Node].

Notes

• Check with a network administrator about IP address. Do not set the duplicate IP address.

• Set IP address on the External Device for IP address in Device-specific settings.

• You need to set IP address on the Display in the offline mode of the Display.

• The default port No. of the PLC is 9600. For UDP connection, always perform the same settings for the port No. of the Display and the External Device.

• Set the different node addresses between the Display and the External Device.

Setting of External Device

For External Device communication settings, use the rotary switch of the External Device and ladder software (CX-Programmer). For IP address settings, with Auto (dynamic).

Refer to your External Device manual for details.

Rotary Switch Setting

Setup Items	Setting Value
Unit No.	1

Setup Items		Setting Value
NODE No.	x 16^1	0
	x 16^0	1

NOTE
- For the Unit No., set the External Device unit number.
- For the NODE No., set the External Device node number. Enter the same value in the Device-specific settings dialog box's [Node] field.

Ladder Software Setting

1 Start up the ladder software.

2 Select [New] in the [File] menu to display [Change PLC] dialog box.

3 Select External Device in the [Device Type].

4 Click [Settings...] in the [Device Type] to display the [Device Type Settings] dialog box.

5 Select CPU type in the [CPU Type] and click [OK].

6 Select connection type in the [Network Type].

7 Click [OK].

8 Double-click [IO Table and Unit Setup] in the tree view of the work space to display the [PLC IO Table] dialog box.

9 Double-click the slot number that connects to the link I/F from the [Main rack] of the tree view to display the [Select Unit] dialog box.

10 Select a link I/F to be registered from the [Communications Adapter] of the tree view.

11 Click [OK] to display the [Add Unit] dialog box.

12 Enter "1" in the [Unit].

13 Click [OK].

14 Double-click the link I/F that was registered in the [PLC IO Table] dialog box to display the [Edit Parameters] dialog box.

15 Set the communication settings in the [Setting] tab as below.

Setup Items	Setting Value
IP Address	192.168.0.1
Sub-net Mask	255.255.255.0
FINS/UDP port	Default (9600)
Conversion	Auto (Dynamic)

16 Click [OK]

17 Transfer the communication settings to External Device.

18 Reboot the External Device.

Notes

- Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.

- Do not set the duplicate Node number.

- For UDP connection, always perform the same settings for the port No. of the Display and the External Device.

3.8　　　Setting Example 8

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

NOTE
- Set the optional network address of the Display in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

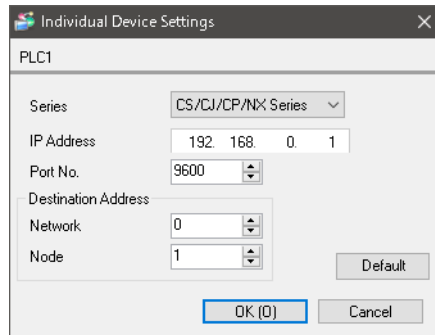| NOTE	• Set the IP address you set for the External Device in [IP address].
	• Set the network address you set for the External Device in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the node address you set for the External Device in [Node].

Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the offline mode of the Display.
- The default port No. of the External Device is 9600.
- Set the different node addresses between the Display and the External Device.

Setting of External Device

For External Device communication settings, use the rotary switch of the External Device and ladder software (CX-Programmer). For IP address settings, with Auto (dynamic).

Refer to your External Device manual for details.

Rotary Switch Setting

Setup Items	Setting Value
Unit No.	1

Setup Items		Setting Value
NODE No.	x 16^1	0
	x 16^0	1

NOTE
- For the Unit No., set the External Device unit number.
- For the NODE No., set the External Device node number. Enter the same value in the Device-specific settings dialog box's [Node] field.

Ladder Software Setting

1 Start up the ladder software.

2 Select [New] in the [File] menu to display [Change PLC] dialog box.

3 Select External Device in the [Device Type].

4 Click [Settings...] in the [Device Type] to display the [Device Type Settings] dialog box.

5 Select CPU type in the [CPU Type] and click [OK].

6 Select connection type in the [Network Type].

7 Click [OK].

8 Double-click [IO Table and Unit Setup] in the tree view of the work space to display the [PLC IO Table] dialog box.

9 Double-click the slot number that connects to the link I/F from the [Main rack] of the tree view to display the [Select Unit] dialog box.

10 Select a link I/F to be registered from the [Communications Adapter] of the tree view.

11 Click [OK] to display the [Add Unit] dialog box.

12 Enter "1" in the [Unit].

13 Click [OK].

14 Double-click the link I/F that was registered in the [PLC IO Table] dialog box to display the [Edit Parameters] dialog box.

15 Set the communication settings in the [Setting] tab as below.

Setup Items	Setting Value
IP Address	192.168.0.1
Sub-net Mask	255.255.255.0
FINS/TCP port	Default (9600)
Conversion	Auto (Dynamic)

16 Click [OK]

17 Transfer the communication settings to External Device.

18 Reboot the External Device.

Notes

- Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.

- Do not set the duplicate Node number.

3.9 Setting Example 9

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device/PLC 1

Summary   Change Device/PLC

| Manufacturer | OMRON Corporation | Series | CS/CJ Series Ethernet | Port | Ethernet (UDP) |

Text Data Mode   1   Change

Communication Settings

Port No.	9600
Timeout	3 (sec)
Retry	2
Wait To Send	0 (ms)

Source Address

| Network | 0 |
| Node | 2 |

Default

Device-Specific Settings

Allowable Number   Add Device
of Devices/PLCs   32

Add Indirect
Device

No.	Device Name	Settings
1	PLC1	Series=CS/CJ/CP/NX Series,IP Address=192.168.000

NOTE

- Set the optional network address of the Display in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click ▦ ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

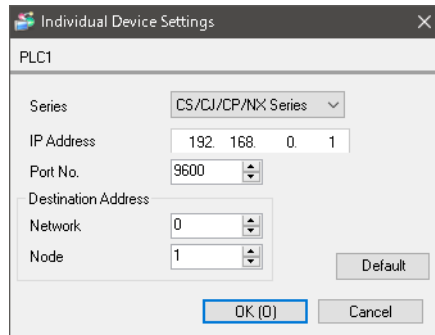When you connect multiple External Device, click ▦ from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

NOTE	• Set the IP address you set for the External Device in [IP address].
	• Set the network address you set for the External Device in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the node address you set for the External Device in [Node].

Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the offline mode of the Display.
- The default port No. of the PLC is 9600. For UDP connection, always perform the same settings for the port No. of the Display and the External Device.
- Set the different node addresses between the Display and the External Device.

Setting of External Device

For External Device communication settings, use the rotary switch of the External Device and ladder software (CX-Programmer). For IP address settings, with Auto (dynamic).

Refer to your External Device manual for details.

Rotary Switch Setting

Setup Items	Setting Value
Unit No.	1

Setup Items		Setting Value
NODE No.	x 16^1	0
	x 16^0	1

NOTE
- For the Unit No., set the External Device unit number.
- For the NODE No., set the External Device node number. Enter the same value in the Device-specific settings dialog box's [Node] field.

Ladder Software Setting

1 Start up the ladder software.

2 Select [New] in the [File] menu to display [Change PLC] dialog box.

3 Select External Device in the [Device Type].

4 Click [Settings...] in the [Device Type] to display the [Device Type Settings] dialog box.

5 Select CPU type in the [CPU Type] and click [OK].

6 Select connection type in the [Network Type].

7 Click [OK].

8 Double-click [IO Table and Unit Setup] in the tree view of the work space to display the [PLC Type Selection] dialog box.

9 select the External Device.

10 Click [OK] to display the [PLC IO Table] dialog box.

11 Double-click the slot number that connects to the link I/F from the [Main rack] of the tree view to display the [Select Unit] dialog box.

12 Select a link I/F to be registered from the [Communications Adapter] of the tree view.

13 Click [OK] to display the [Add Unit] dialog box.

14 Enter "1" in the [Unit].

15 Click [OK].

16 Double-click the link I/F that was registered in the [PLC IO Table] dialog box to display the [Edit Parameters] dialog box.

17 Set [IP Address] and [Sub-net Mask] in the [Setting] tab as below.

Setup Items	Setting Value
IP Address	192.168.0.1
Sub-net Mask	255.255.255.0

18 Click [OK]

19 Transfer the communication settings to External Device.

20 Reboot the External Device.

Notes

- Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.
- Do not set the duplicate Node number.
- For UDP connection, always perform the same settings for the port No. of the Display and the External Device.

3.10 Setting Example 10

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device/PLC 1						
Summary						Change Device/PLC
Manufacturer	OMRON Corporation		Series	CS/CJ Series Ethernet	Port	Ethernet (TCP)
Text Data Mode	1	Change				

Communication Settings

Port No.	Auto	
Timeout	3	(sec)
Retry	2	
Wait To Send	0	(ms)

Source Address

Network	0	
Node	2	

Default

Device-Specific Settings

Allowable Number of Devices/PLCs 16   Add Device

Add Indirect Device

No.	Device Name	Settings	
1	PLC1	Series=CS/CJ/CP/NX Series,IP Address=192.168.000	

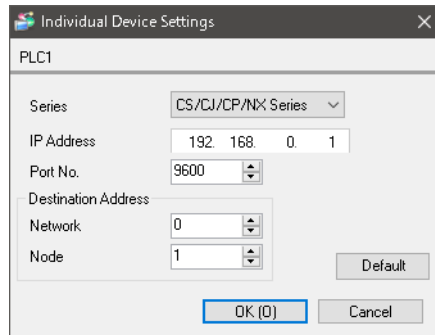
NOTE

- Set the optional network address of the Display in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

NOTE	• Set the IP address you set for the External Device in [IP address].
	• Set the network address you set for the External Device in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the node address you set for the External Device in [Node].

Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the offline mode of the Display.
- The default port No. of the External Device is 9600. For UDP connection, always perform the same settings for the port No. of the Display and the External Device.
- Set the different node addresses between the Display and the External Device.

Setting of External Device

For External Device communication settings, use the rotary switch of the External Device and ladder software (CX-Programmer). For IP address settings, with Auto (dynamic).

Refer to your External Device manual for details.

Rotary Switch Setting

Setup Items	Setting Value
Unit No.	1

Setup Items		Setting Value
NODE No.	x 16^1	0
	x 16^0	1

NOTE
- For the Unit No., set the External Device unit number.
- For the NODE No., set the External Device node number. Enter the same value in the Device-specific settings dialog box's [Node] field.

Ladder Software Setting

1 Start up the ladder software.

2 Select [New] in the [File] menu to display [Change PLC] dialog box.

3 Select External Device in the [Device Type].

4 Click [Settings...] in the [Device Type] to display the [Device Type Settings] dialog box.

5 Select CPU type in the [CPU Type] and click [OK].

6 Select connection type in the [Network Type].

7 Click [OK].

8 Double-click [IO Table and Unit Setup] in the tree view of the work space to display the [PLC Type Selection] dialog box.

9 select the External Device.

10 Click [OK] to display the [PLC IO Table] dialog box.

11 Double-click the slot number that connects to the link I/F from the [Main rack] of the tree view to display the [Select Unit] dialog box.

12 Select a link I/F to be registered from the [Communications Adapter] of the tree view.

13 Click [OK] to display the [Add Unit] dialog box.

14 Enter "1" in the [Unit].

15 Click [OK].

16 Double-click the link I/F that was registered in the [PLC IO Table] dialog box to display the [Edit Parameters] dialog box.

17 Set [IP Address] and [Sub-net Mask] in the [Setting] tab as below.

Setup Items	Setting Value
IP Address	192.168.0.1
Sub-net Mask	255.255.255.0

18 Click [OK]

19 Transfer the communication settings to External Device.

20 Reboot the External Device.

Notes

  • Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.

  • Do not set the duplicate Node number.

3.11 Setting Example 11

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device/PLC 1	

Summary   Change Device/PLC

Manufacturer | OMRON Corporation | Series | CS/CJ Series Ethernet | Port | Ethernet (UDP)

Text Data Mode   1   Change

Communication Settings

Port No.   9600

Timeout   3   (sec)

Retry   2

Wait To Send   0   (ms)

Source Address

Network   0

Node   2   Default

Device-Specific Settings

Allowable Number   Add Device
of Devices/PLCs   32

                                      Add Indirect
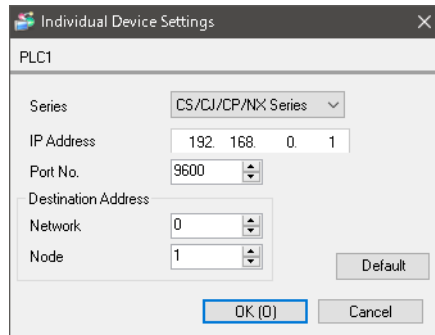   Device

No.   Device Name   Settings

1   PLC1   Series=CS/CJ/CP/NX Series,IP Address=192.168.000

NOTE

• Set the optional network address of the Display in [Network].

• If you do not access beyond network, set "0" for [Network].

• Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click 　　 ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click 　　 from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

Individual Device Settings		
PLC1		
Series	CS/CJ/CP/NX Series	
IP Address	192. 168. 0. 1	
Port No.	9600	
Destination Address		
Network	0	
Node	1	Default
	OK (O)	Cancel

NOTE
• Set the IP address you set for the External Device in [IP address].
• Set the network address you set for the External Device in [Network].
• If you do not access beyond network, set "0" for [Network].
• Set the node address you set for the External Device in [Node].

Notes

• Check with a network administrator about IP address. Do not set the duplicate IP address.
• Set IP address on the External Device for IP address in Device-specific settings.
• You need to set IP address on the Display in the offline mode of the Display.
• The default port No. of the PLC is 9600. For UDP connection, always perform the same settings for the port No. of the Display and the External Device.
• Set the different node addresses between the Display and the External Device.

Setting of External Device

Use the ladder software (Sysmac Studio) to configure communication settings for the External Device.

Refer to your External Device manual for details.

1 Start up the ladder software.

2 From [Multiviewer Explorer], click [Configuration].

3 Double click [Controller Setup].

4 Double click [Built-in EtherNet/IP Port Setings] to display the setup screen.

5 From [IP Address - Port2], select [Use the Port2] check box.

6 Select [Fixed settings] to set the IP address as follows.

Setup Items	Setting Value
IP address	192.168.0.1
Subnet mask	255.255.255.0

NOTE
- Port 2 must be configured to a different network than port 1. When the IP address for Port 2 is 198.168.0.1, set Port 1 to 192.168.1.1.

7 Click the [FINS setting] button to display the setup screen.

8 Set [FINS/UDP] as follows.

Setup Items	Setting Value
FINS/UDP port number	9600
IP address FINS address conversion method	Automatic generation

9 Transfer the communication settings to the External Device.

Notes

- Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.
- Do not set the duplicate Node number.
- For UDP connection, always perform the same settings for the port No. of the Display and the External Device.

3.12 Setting Example 12

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device/PLC 1

Summary   Change Device/PLC

Manufacturer | OMRON Corporation | Series | CS/CJ Series Ethernet | Port | Ethernet (TCP)

Text Data Mode | 1 | Change

Communication Settings

Port No. | Auto

Timeout | 3 | (sec)

Retry | 2

Wait To Send | 0 | (ms)

Source Address

Network | 0

Node | 2   Default

Device-Specific Settings

Allowable Number of Devices/PLCs | 16   Add Device   Add Indirect Device
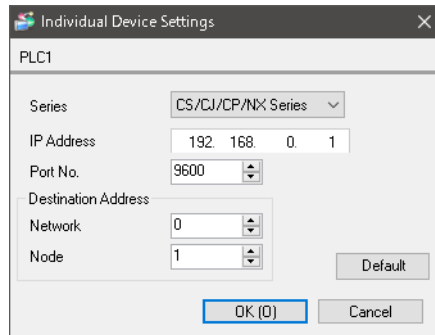
No. | Device Name | Settings

1 | PLC1 | Series=CS/CJ/CP/NX Series,IP Address=192.168.000

NOTE

- Set the optional network address of the Display in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click 　 ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click 　 from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

Individual Device Settings

PLC1

Series	CS/CJ/CP/NX Series
IP Address	192. 168. 0. 1
Port No.	9600

Destination Address

| Network | 0 |
| Node | 1 |

Default

OK (O)　　Cancel

NOTE
• Set the IP address you set for the External Device in [IP address].
• Set the network address you set for the External Device in [Network].
• If you do not access beyond network, set "0" for [Network].
• Set the node address you set for the External Device in [Node].

Notes

• Check with a network administrator about IP address. Do not set the duplicate IP address.
• Set IP address on the External Device for IP address in Device-specific settings.
• You need to set IP address on the Display in the offline mode of the Display.
• The default port No. of the External Device is 9600. For UDP connection, always perform the same settings for the port No. of the Display and the External Device.
• Set the different node addresses between the Display and the External Device.

Setting of External Device

Use the ladder software (Sysmac Studio) to configure communication settings for the External Device.

Refer to your External Device manual for details.

1 Start up the ladder software.

2 From [Multiviewer Explorer], click [Configuration].

3 Double click [Controller Setup].

4 Double click [Built-in EtherNet/IP Port Setings] to display the setup screen.

5 From [IP Address - Port2], select the [Use the Port2] check box.

6 Select [Fixed settings] to set the IP address as follows.

Setup Items	Setting Value
IP address	192.168.0.1
Subnet mask	255.255.255.0

NOTE • Port 2 must be configured to a different network than port 1. When the IP address for Port 2 is 198.168.0.1, set Port 1 to 192.168.1.1.

7 Click the [FINS setting] button to display the setup screen.

8 Set [FINS/TCP] as follows.

Setup Items	Setting Value
FINS/TCP port number	9600
Server/Client	Client
Connected IP Address	192.168.0.2
Automatic assignment	Select
Automatically assigned FINS node address	239

9 Transfer the communication settings to the External Device.

Notes

• Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.

• Do not set the duplicate Node number.

3.13 Setting Example 13

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device/PLC 1	

Summary   Change Device/PLC

Manufacturer OMRON Corporation   Series CS/CJ Series Ethernet   Port Ethernet (UDP)

Text Data Mode [1] Change

Communication Settings

Port No.   9600
Timeout   3   (sec)
Retry   2
Wait To Send   0   (ms)

Source Address
Network   0
Node   2   [Default]

Device-Specific Settings

Allowable Number   Add Device
of Devices/PLCs   32
                                                            Add Indirect
No. Device Name   Settings   Device
1   PLC1   Series=CP2E Series,IP Address=192.168.000.001,Port

---

NOTE
- Set the optional network address of the Display in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

Individual Device Settings	×
PLC1	

Series	CP2E Series
IP Address	192. 168. 0. 1
Port No.	9600
Destination Address	
Network	0
Node	1

OK (O)   Cancel

NOTE
- Set the IP address you set for the External Device in [IP address].
- Set the network address you set for the External Device in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the node address you set for the External Device in [Node].

Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the offline mode of the Display.
- The default port No. of the External Device is 9600. For UDP connection, always perform the same settings for the port No. of the Display and the External Device.
- Set the different node addresses between the Display and the External Device.

Setting of External Device

Use the ladder software (CX-Programmer) to configure communication settings for the External Device. Refer to your External Device manual for details.

1 From the Start menu, select [OMRON] - [Communications Middleware Utilities] - [DirectEthernetUtility].

2 From [Slect a nework card], select the network card to use.

3 Start up the ladder software.

4 From the [PLC] menu, click [Auto Online] - [CP1/CP2 built-in Ethernet Online] to display the [CP1/CP2 Ethernet Online] dialog box.

5 From [Connection Type] select [Hub Connection] and click [Browse].

NOTE • If connecting the Display and the External Device directly, select [Direct Connection].

6 Select the External Device to connect, and click [OK].

7 Click [Connect].

8 From the tree view, double click [Settings] to display the [PLC Settings] window.

9 Set the following setup items on the [Built-in Ethernet] tab.

Setup Items	Setting Value
IP address	192.168.0.1
Subnet mask	255.255.255.0
Node	1

NOTE • In the [FINS/UDP Setting], when [Conversion] is set to [Auto (Dynamic)], set the fourth octet of the IP address as the node number.

10 Click [FINS/UDP Setting], and set the following setup items.

Setup Items	Setting Value
FINS/UDP Port	Default (9600)
Conversion	Auto (Dynamic)

11 Click [OK].

12 Transfer the communication settings to the External Device.

13 Restart the External Device.

Notes

- Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.
- Do not set the duplicate Node number.
- For UDP connection, always perform the same settings for the port No. of the Display and the External Device.

3.14 Setting Example 14

Setting of GP-Pro EX

Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.
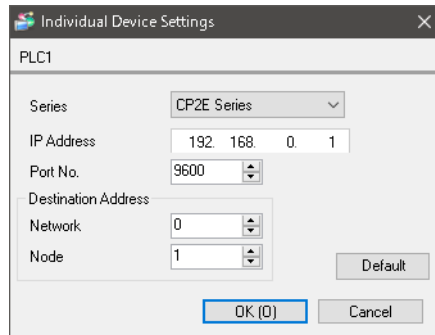

NOTE	• Set the optional network address of the Display in [Network].
	• If you do not access beyond network, set "0" for [Network].
	• Set the optional node address of the Display in [Node].

Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

Individual Device Settings	
PLC1	
Series	CP2E Series
IP Address	192. 168. 0. 1
Port No.	9600
Destination Address	
Network	0
Node	1

NOTE
- Set the IP address you set for the External Device in [IP address].
- Set the network address you set for the External Device in [Network].
- If you do not access beyond network, set "0" for [Network].
- Set the node address you set for the External Device in [Node].

Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the offline mode of the Display.
- The default port No. of the External Device is 9600. For UDP connection, always perform the same settings for the port No. of the Display and the External Device.
- Set the different node addresses between the Display and the External Device.

Setting of External Device

Use the ladder software (CX-Programmer) to configure communication settings for the External Device.

Refer to your External Device manual for details.

1 From the Start menu, select [OMRON] - [Communications Middleware Utilities] - [DirectEthernetUtility].

2 From [Slect a nework card], select the network card to use.

3 Start up the ladder software.

4 From the [PLC] menu, click [Auto Online] - [CP1/CP2 built-in Ethernet Online] to display the [CP1/CP2 Ethernet Online] dialog box.

5 From [Connection Type] select [Hub Connection] and click [Browse].

NOTE • If connecting the Display and the External Device directly, select [Direct Connection].

6 Select the External Device to connect, and click [OK].

7 Click [Connect].

8 From the tree view, double click [Settings] to display the [PLC Settings] window.

9 Set the following setup items on the [Built-in Ethernet] tab.

Setup Items	Setting Value
IP address	192.168.0.1
Subnet mask	255.255.255.0
Node	1

10 Click [FINS/TCP Setting], and set the following setup items.

Setup Items	Setting Value
FINS/TCP Port	Default (9600)

11 Click [OK].

12 Transfer the communication settings to the External Device.

13 Restart the External Device.

Notes

• Check with a network administrator about IP address and subnet mask. Do not set the duplicate IP address.

• Do not set the duplicate Node number.

4 Setup Items

Set communication settings of the Display with GP-Pro EX or in offline mode of the Display.

The setting of each parameter must be identical to that of External Device.

)"3 Example of Communication Setting" (page 8)

NOTE	• Set the Display's IP address in offline mode.
	Cf. Maintenance/Troubleshooting Guide "Ethernet Settings"

4.1 Setup Items in GP-Pro EX

Communication Settings
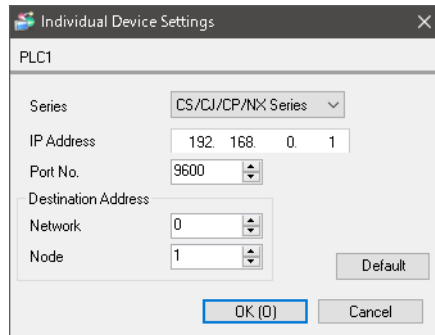
To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Setup Items		Setup Description
Port No.		For UDP connection, use an integer from 1024 to 65535 to enter the port No. of the Display. For TCP connection, the port No. of the Display is fixed to "Auto Assign", and it will be automatically assigned.
Timeout		Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.
Retry		In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
Wait To Send		Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.
Source Address	Network	Enter the network address of the Display, using 0 to 127.
	Node	Enter the node address of the Display, using 1 to 254.

Device Setting

To display the setting screen, click [Setting icon] ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click [Add icon] from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

Setup Items		Setup Description
Series		Select a series of the External Device.
IP Address		Set IP address of the External Device. **NOTE** • Check with a network administrator about IP address. Do not set the duplicate IP address.
Port No.		Enter the port No. of the External Device, using 1 to 65535. **NOTE** • UDP connection: Do not use the port No. 53/123, which are reserved in the system. • TCP connection: Do not use the port No. 20/21/25/53/110, which are reserved in the system.
Destination Address	Network	Enter the network address of the External Device, using 0 to 127.
	Node	Enter the node address of the External Device, using 1 to 254.

4.2 Setup Items in Offline Mode

NOTE • Refer to the Maintenance/Troubleshooting Guide for information on how to enter offline mode or about the operation.

Cf. Maintenance/Troubleshooting Guide "Offline Mode"

Communication Settings

To display the setting screen, touch [Device/PLC Settings] from [Peripheral Settings] in offline mode. Touch the External Device you want to set from the displayed list.

Comm.	Device			

CS/CJ Series Ethernet   [UDP]   Page 1/1

Port No.   9600 ▼ ▲
(Case of TCP: Allocated Automatically)

Timeout(s)   3 ▼ ▲
Retry   2 ▼ ▲
Wait To Send(ms)   0 ▼ ▲

Network Address   0 ▼ ▲
Node Address   2 ▼ ▲

| | Exit | | Back | 2005/09/02 12:45:50 |

Setup Items	Setup Description
Port No.	For UDP connection, use an integer from 1024 to 65535 to enter the port No. of the Display. For TCP connection, the port No. of the Display will be automatically assigned regardless of the entered value.
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
Wait To Send	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.
Network Address	Enter the network address of the Display, using 0 to 127.
Node Address	Enter the node address of the Display, using 1 to 254.

Device Setting

To display the setting screen, touch [Device/PLC Settings] from [Peripheral Settings]. Touch the External Device you want to set from the displayed list, and touch [Device].

Comm.	Device			

CS/CJ Series Ethernet   [UDP]   Page 1/1

Device/PLC Name   PLC1 ▼

Series   CS/CJ/CP/NX Series
IP Address   0   0   0   0
Port No.   9600 ▼ ▲

Network Address   0 ▼ ▲
Node Address   1 ▼ ▲

	Exit		Back	2020/10/05 15:41:00
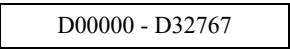
Setup Items	Setup Description
Device/PLC Name	Select the External Device to set. Device/PLC name is a title of the External Device set with GP-Pro EX. (Initial value [PLC1])
Series	Display the External Device series.
IP Address	Set IP address of the External Device. **NOTE** • Check with a network administrator about IP address. Do not set the duplicate IP address.
Port No.	Enter the port No. of the External Device, using 1 to 65535.
Network Address	Enter the network address of the External Device, using 0 to 127.
Node Address	Enter the node address of the External Device, using 1 to 254.

5　Supported Device

Range of supported device address is shown in the table below. Please note that the actually supported range of the devices varies depending on the External Device to be used. Please check the actual range in the manual of your External Device.

5.1　CS/CJ1 Series

☐☐☐☐ This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Channel I/O	0000.00 - 6143.15	0000 - 6143		*1
Internal Auxiliary Relay	W000.00 - W511.15	W000 - W511		
Special Auxiliary Relay	A000.00 - A959.15	A000 - A959		*2
Latch Relay	H000.00 - H511.15	H000 - H511		
Timer (Time Up Flag)	T0000 - T4095	-		*3
Counter (Count Up Flag)	C0000 - C4095	-		*3
Timer (Current Value)	-	T0000 - T4095		
Counter (Current Value)	-	C0000 - C4095		
Data Memory	D00000.00 - D32767.15	D00000 - D32767	⌐L/H⌐	*1
Extension Data Memory (E0-EC)	E000000.00 - EC32767.15	E000000 - EC32767		*4 *5
Extension Data Memory (Current Bank)	-	EM00000 - EM32767	Bit**15**	*5*6
Task Flag (Bit)	TKB00 - TKB31	-		*3
Task Flag (Status)	TK00.00 - TK31.07	TK00 - TK30	÷**2**	*3
Index Register	-	IR00 - IR15	Bit**31**	*7
Data Register	-	DR00 - DR15	Bit**15**	*7

*1　Do not write in Channel I/O address 1500-1899 and Data Memory address D30000-D31599 from the Display. Because those address are used for setting the system on the External Device.

*2　Write disable in A000 to A447.

*3　Write disable

*4　Max 13 bank (E0 to EC) can be used. 1 bank is 32768 words. Available bank number is different depending on the CPU unit.

*5　CJM1 Series does not include the extension data memory (E0 to EC, current bank EM).

*6　CJ1 Series does not include the extension data memory (Current bank EM).

*7　Write disable during RUN

NOTE

- Please refer to the GP-Pro EX Reference Manual for system data area.

  Cf.   GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"
- Please refer to the precautions on manual notation for icons in the table.

)"Manual Symbols and Terminology"

5.2 CJ2 Series

This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Channel I/O	0000.00 - 6143.15	0000 - 6143		*1
Internal Auxiliary Relay	W000.00 - W511.15	W000 - W511		
Special Auxiliary Relay	A0000.00 - A1471.15 A10000.00 - A11535.15	A0000 - A1471 A10000 - A11535		*2
Latch Relay	H000.00 - H511.15	H000 - H511		
Timer (Time Up Flag)	T0000 - T4095	-		*3
Counter (Count Up Flag)	C0000 - C4095	-		*3
Timer (Current Value)	-	T0000 - T4095		
Counter (Current Value)	-	C0000 - C4095	$\lceil$L/H$\rceil$	
Data Memory	D00000.00 - D32767.15	D00000 - D32767		*1
Extension Data Memory (E0-E18)	E0 00000.00 - E18 32767.15	E0 00000 - E18 32767		*4
Extension Data Memory (Current Bank)	-	EM00000 - EM32767		Bit **15**
Task Flag (Bit)	TKB000 - TKB127	-		*3
Task Flag (Status)	TK000.00 - TK127.07	TK000 - TK126		÷ **2** *3
Index Register	-	IR00 - IR15		Bit **31** *5
Data Register	-	DR00 - DR15		Bit **15** *5

*1 Do not write in Channel I/O address 1500-1899 and Data Memory address D30000-D31599 from the Display. Because those address are used for setting the system on theExternal Device.

*2 Write disable in A000 - A447 and A10000 - A11535.

*3 Write disable

*4 Max 24 bank (E0 to E18) can be used. 1 bank is 32768 words. Available bank number is different depending on the CPU unit.
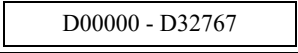
*5 Write disable during RUN

NOTE
• Please refer to the GP-Pro EX Reference Manual for system data area.

　　Cf.　GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"

• Please refer to the precautions on manual notation for icons in the table.

　　☞ "Manual Symbols and Terminology"

5.3 CP1 Series

This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Channel I/O	0000.00 - 6143.15	0000 - 6143		
Internal Auxiliary Relay	W000.00 - W511.15	W000 - W511		
Special Auxiliary Relay	A000.00 - A959.15	A000 - A959		*1
Latch Relay	H000.00 - H511.15	H000 - H511		
Timer (Time Up Flag)	T0000 - T4095	-		*2
Counter (Count Up Flag)	C0000 - C4095	-		*2
Timer (Current Value)	-	T0000 - T4095	[L / H]	
Counter (Current Value)	-	C0000 - C4095		
Data Memory	D00000.00 - D32767.15	D00000 - D32767		
Task Flag (Bit)	TKB00 - TKB31	-		*2
Task Flag (Status)	TK00.00 - TK31.07	TK00 - TK30	÷ 2	*2
Index Register	-	IR00 - IR15	Bit 31	*3
Data Register	-	DR00 - DR15	Bit 15	*3

*1   Write disable in A000 - A447.

*2   Write disable

*3   Write disable during RUN

NOTE
- Please refer to the GP-Pro EX Reference Manual for system data area.
  Cf.   GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"
- Please refer to the precautions on manual notation for icons in the table.
  ☞ "Manual Symbols and Terminology"

5.4 CP2E Series

⬜▭⬜ This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Channel I/O	000.00 - 289.15	000 - 289		
Internal Auxiliary Relay	W000.00 - W127.15	W000 - W127		
Special Auxiliary Relay	A000.00 - A959.15	A000 - A959		*1
Latch Relay	H000.00 - H127.15	H000 - H127		
Timer (Time Up Flag)	T000 - T255	-		*2
Counter (Count Up Flag)	C000 - C255	-	⌈L / H⌉	*2
Timer (Current Value)	-	T000 - T255		
Counter (Current Value)	-	C000 - C255		
Data Memory	D00000.00 - D16383.15	D00000 - D16383		
Index Register	-	IR00 - IR15		[Bit 31] *3
Data Register	-	DR00 - DR15		[Bit 15] *3

*1   Write disable in A000 - A447.

*2   Write disable

*3   Write disable during RUN

NOTE
- Please refer to the GP-Pro EX Reference Manual for system data area.

  Cf.   GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"
- Please refer to the precautions on manual notation for icons in the table.

  ☞ "Manual Symbols and Terminology"

5.5 NX1 Series

☐▭☐ This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Channel I/O	0000.00 - 6143.15	0000 - 6143	⌐L/H⌐	
Internal Auxiliary Relay	W000.00 - W511.15	W000 - W511		
Latch Relay	H000.00 - H511.15	H000 - H511		
Data Memory	D00000.00 - D32767.15	D00000 - D32767		
Extension Data Memory (E0-EC)	E000000.00 - EC32767.15	E000000 - EC32767		*1

*1   Max 13 bank (E0 to EC) can be used. 1 bank is 32768 words. Available bank number is different depending on the CPU unit.

The device descriptions used in GP-Pro EX and the External Device are different. Please be aware of these differences when setting up devices.

Device	GP-Pro EX	External Device
Channel I/O	...	CIO
Internal Auxiliary Relay	W	WR
Latch Relay	H	HR
Data Memory	D	DM
Extension Data Memory (E0-EC)	En	EMn

NOTE • Please refer to the GP-Pro EX Reference Manual for system data area.

Cf.   GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"

• Please refer to the precautions on manual notation for icons in the table.

☞ "Manual Symbols and Terminology"

6   Device Code and Address Code

Use device code and address code when you select "Device Type & Address" for the address type in data displays.

6.1   CS/CJ1 Series, CJ2 Series, CP1 Series, NX1 Series

Device	Device Name	Device Code (HEX)	Address Code
Channel I/O	-	0080	Word Address
Internal Auxiliary Relay	W	0082	Word Address
Special Auxiliary Relay	A	0085	Word Address
Latch Relay	H	0084	Word Address
Timer (Current Value)	T	0060	Word Address
Counter (Current Value)	C	0061	Word Address
Data Memory	D	0000	Word Address
Extension Data Memory (E0-E18)	E0	0010	Word Address
	E1	0011	Word Address
	E2	0012	Word Address
	E3	0013	Word Address
	E4	0014	Word Address
	E5	0015	Word Address
	E6	0016	Word Address
	E7	0017	Word Address
	E8	0018	Word Address
	E9	0019	Word Address
	EA	001A	Word Address
	EB	001B	Word Address
	EC	001C	Word Address
	ED	001D	Word Address
	EE	001E	Word Address
	EF	001F	Word Address
	E10	0020	Word Address
	E11	0021	Word Address
	E12	0022	Word Address
	E13	0023	Word Address

Device	Device Name	Device Code (HEX)	Address Code
Extension Data Memory (E0-E18)	E14	0024	Word Address
	E15	0025	Word Address
	E16	0026	Word Address
	E17	0027	Word Address
	E18	0028	Word Address
Extension Data Memory (Current Bank)	EM	0001	Word Address
Task Flag (Status)	TK	0002	Word Address
Index Register	IR	0003	Word Address
Data Register	DR	0004	Word Address

6.2   CP2E Series

Device	Device Name	Device Code (HEX)	Address Code
Channel I/O	-	0080	Word Address
Internal Auxiliary Relay	W	0082	Word Address
Special Auxiliary Relay	A	0085	Word Address
Latch Relay	H	0084	Word Address
Timer (Current Value)	T	0060	Word Address
Counter (Current Value)	C	0061	Word Address
Data Memory	D	0000	Word Address
Index Register	IR	0003	Word Address
Data Register	DR	0004	Word Address

7   Error Messages

Error messages are displayed on the screen of Display as follows: "No. : Device Name: Error Message (Error Occurrence Area)". Each description is shown below.

Item	Description
No.	Error No.
Device Name	Name of External Device where error occurs. Device name is a title of External Device set with GP-Pro EX.(Initial value [PLC1])
Error Message	Displays messages related to the error which occurs.
Error Occurrence Area	Displays IP address or device address of External Device where error occurs, or error codes received from External Device. **NOTE** • IP address is displayed as "IP address (Decimal): MAC address (Hex)". • Device address is displayed as "Address: Device address". • Received error codes are displayed as "Decimal [Hex]".

Display Examples of Error Messages

"RHAA036: PLC1: Error has been responded for device read command (Error Code: 4355[1103h] There are out of range devises)"

NOTE
- Device specific error codes (2 bytes) are structured as "Main Response Code (1 byte)" and "Sub Response Code (1 bytes)". If the Main Response Code is 0x11 and the Sub Response Code is 0x03, then the received error code is 0x1103.
- Refer to your External Device manual for details on received error codes.
- Please refer to "Display-related errors" of "Maintenance/Troubleshooting Guide" for a common error message to the driver.

■ Error Code Peculiar to External Device

Device specific error codes (2 bytes) are displayed as "Main Response Code (1 byte)" and "Sub Response Code (1 bytes)".

When received the error code from the external device, add to the below message. "Main Response Code" is displayed continuously "Main Response" and "Sub Response Code" is displayed continuously "Sub Response".

For details of the error code, please refer to the manual of the external device.

The error code peculiar to the external device is as follows.

Message ID	Error Message	Description
RHxx130	(Node Name): Error has been responded for device read command (Main Response: [Hex], Sub Response: [Hex])	Display the error message, when the error occurred by the reading demand.

Message ID	Error Message	Description
RHxx131	(Node Name): Error has been responded for device write command (Main Response: [Hex], Sub Response: [Hex])	Display the error message, when the error occurred by the write demand.