Rockwell Automation, Inc.

EtherNet/IP 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 Devices 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 6) |

| 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 7) |

| 4 | Setup Items
This section describes communication setup items on the Display.
Set communication settings of the Display with GP-Pro EX or in off-line mode. |)"4 Setup Items" (page 22) |

Operation

1 System Configuration

The system configuration in the case when the External Device of Rockwell Automation, Inc. and the Display are connected is shown.

Series Name	CPU	Link I/F	SIO Type	Setting Example
SLC500	SLC 5/05	CPU Direct (channel1)[*1]		Setting Example 1 (page 7)
	SLC 5/03 SLC 5/04 SLC 5/05	1761-NET-ENI		Setting Example 2 (page 9)
PLC-5	All CPUs that support the link I/F on the right	1761-NET-ENI		Setting Example 3 (page 10)
ControlLogix	All CPUs that support the link I/F on the right	1756-ENET/B 1756-ENET 1756-ENBT		Setting Example 4 (page 11)
		1761-NET-ENI		Setting Example 5 (page 12)
ControlLogix Native[*2]	All CPUs that support the link I/F on the right	1756-ENET/B 1756-ENET 1756-ENBT	Ethernet (TCP)	Setting Example 9 (page 16)
		1761-NET-ENI[*3]		Setting Example 10 (page 18)
MicroLogix	MicroLogix 1000 MicroLogix 1100 MicroLogix 1200 MicroLogix 1500	1761-NET-ENI		Setting Example 6 (page 13)
	MicroLogix 1100	CPU Direct (channel1)		Setting Example 7 (page 14)
CompactLogix	All CPUs that support the link I/F on the right	1761-NET-ENI		Setting Example 5 (page 12)
	1769-L32E 1769-L35E	CPU Direct		Setting Example 8 (page 15)
CompactLogix Native[*2]	All CPUs that support the link I/F on the right	1761-NET-ENI[*3]		Setting Example 10 (page 18)
	1769-L32E 1769-L35E	CPU Direct		Setting Example 11 (page 20)

*1 Rockwell EtherNet/IP driver for GP uses the CIP protocol. Old revision of SLC 5/05 CPU does not support it.Upgrade CPU Series A to the firmware revision of OS501, FRN5 or later.CPU Series B and C support the CIP protocol.

*2 Select when using the Native tag names from RSLogix5000 software.

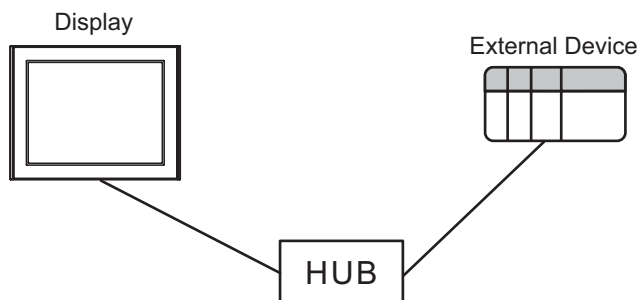*3 To use the 1761-ENT-ENI with the "ControlLogix/CompactLogix Series Native", the module must be Series B or later.

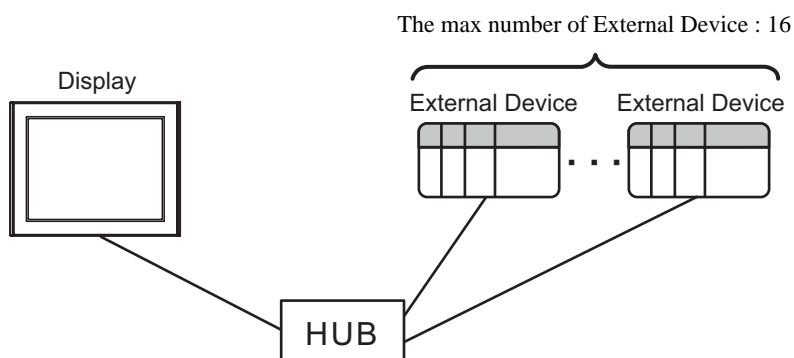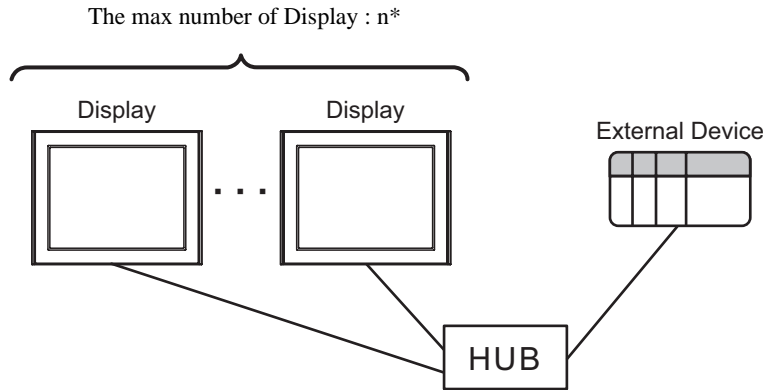| IMPORTANT	• Data made using EtherNet/IP driver version V1.12.06 or later cannot be used in an application with a version prior to V1.12.06 installed.
	Always update the driver for applications that use this driver such as GP-Pro EX or Pro-Server EX.
	• If the driver version is prior to V1.12.06, download the latest driver from the support site, "otasuke Pro!"
	      Digital Electronics Corporation Service & Support "otasuke Pro!"
	      http://www.pro-face.com/otasuke/

■ Connection Configuration

• 1:1 Connection

• 1:n Connection

• n:1 Connection

The max number of Display : n*

• n:mConnection

n* Displays maximum per 1 External Device
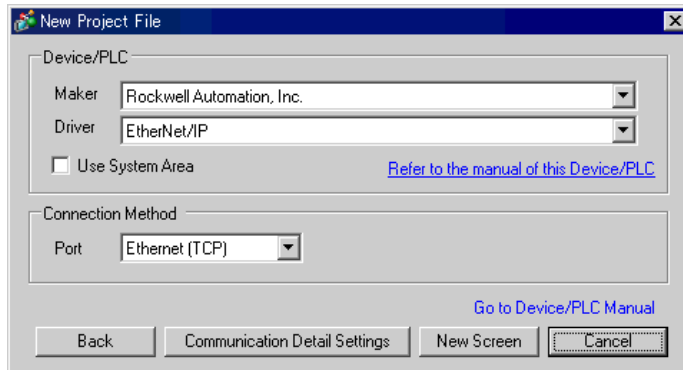
16 External Devices maximum per 1 Display
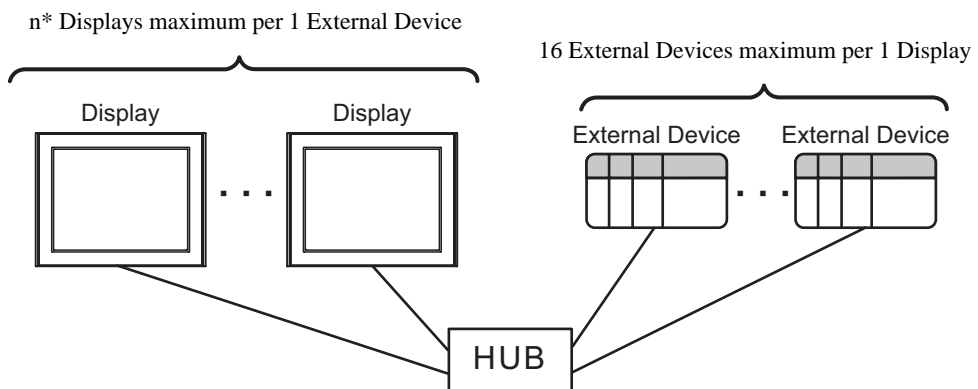
* The maximum number of sustainable units differs depending on its series and the link I/F. Refer to the table below for the maximum number of sustainable units for each series and link I/F.

Series Name	Link I/F	The max number of Display
SLC500	CPU Direct	8
	1761-NET-ENI	4
PLC-5	1761-NET-ENI	4
ControlLogix CompactLogix	Ethernet module	12
	1761-NET-ENI	4
MicroLogix	CPU Direct	16
	1761-NET-ENI	4

2   Selection of External Device

Select the External Device to be connected to the Display.

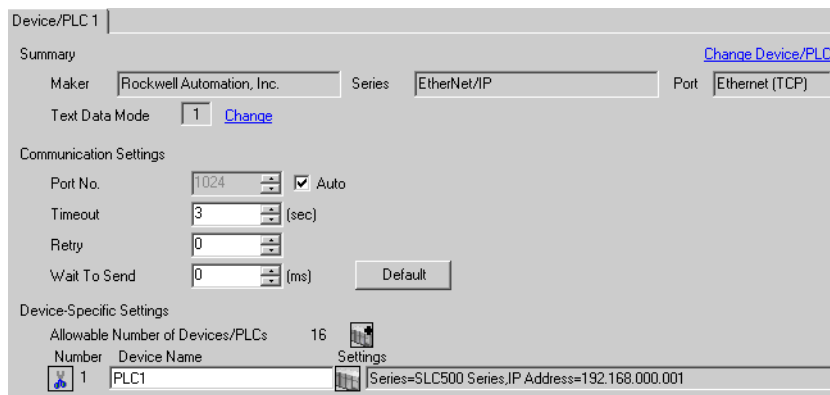| Setup Items	Setup Description
Maker	Select the maker of the External Device to be connected. Select "Rockwell Automation, Inc.".
Series	Select a model (series) of the External Device to be connected and connection method. Select "EtherNet/IP". Check the External Device which can be connected in "EtherNet/IP" in system configuration.)"1 System Configuration" (page 3)
Use System Area	Check this option when you synchronize the system data area of the Display and the device (memory) of the External Device. When synchronized, you can use the ladder program of the External Device to switch the display or display the window on the Display. Cf. GP-Pro EXReference Manual "Appendix 1.4 LS Area (Direct Access Method)" This can be also set with GP-Pro EX or in off-line mode of the Display. Cf. GP-Pro EX Reference Manual " 5.17.6 Setting Guide of [System Setting Window]■[Main Unit Settings] Settings Guide◆System Area Setting" Cf. Maintenance/Troubleshooting "2.15.1 Settings common to all Display models◆System Area Settings"
Port	Select the Display port to be connected to the External Device.

3　　　　Example of Communication Setting

Examples of communication settings of the Display and the External Device, recommended by Digital Electronics Corp., are shown.

3.1　　　　Setting Example 1
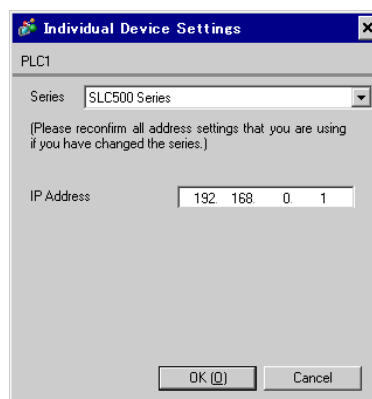
■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ Device Setting

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

■ Settings of External Device

Use RSLogix500 for communication setting.

Please refer to the manual of RSLogix500 for more details.

1. Start up RSLogix500 and create the new project. Select the CPU to be used when creating the new project.
2. Select [Channel Configuration] from [Controller] in the displayed Project tree.
3. Select [Open] from the menu displayed by right-clicking [Channel Configuration] and display the Channel setting screen.

4. Use the [Chan.1 - System] tab to set IP address and other items.

5. Download the setting in the External Device and restart the External Device.

◆ 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 off-line mode of the display.

3.2 Setting Example 2

■ Settings 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

Maker   Rockwell Automation, Inc.   Series   EtherNet/IP   Port   Ethernet (TCP)

Text Data Mode   1   Change

Communication Settings

    Port No.   1024   ☑ Auto

    Timeout   6   (sec)

    Retry   0

    Wait To Send   0   (ms)   Default

Device-Specific Settings

    Allowable Number of Devices/PLCs   16

    Number   Device Name   Settings

    1   PLC1   Series=SLC500 Series,IP Address=192.168.000.001

> **NOTE** • When using 1761-NET-ENI, you need to set the timeout to 6sec or more.

◆ Device Setting

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

Individual Device Settings   **✕**

PLC1

Series   SLC500 Series

(Please reconfirm all address settings that you are using if you have changed the series.)

IP Address   192. 168. 0. 1

               OK (O)   Cancel

■ Settings of External Device

Use the ENI/ENIW Utility for communication setting.

Please refer to the ENI/ENIW Utility manual for more details.

1. Start up the ENI/ENIW Utility.

2. Use the [ENI IP Addr] tab to set IP address and other items.

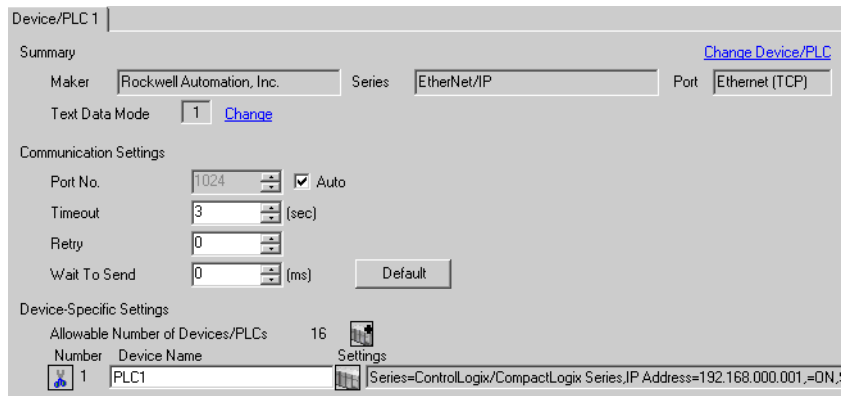3. Download the settings in 1761-NET-ENI and restart the External Device.

◆ 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 off-line mode of the display.

3.3 Setting Example 3
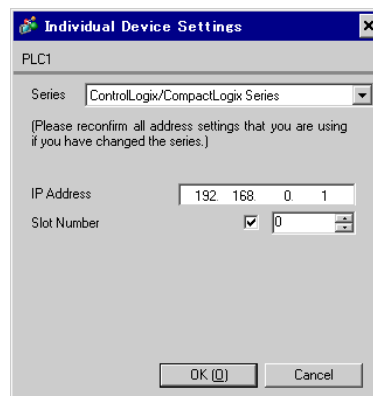
■ Settings of GP-Pro EX

◆ Communication Settings

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

NOTE • When using 1761-NET-ENI, you need to set the timeout to 6sec or more.

◆ Device Setting

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

■ Settings of External Device

Use the ENI/ENIW Utility for communication setting.

Please refer to the ENI/ENIW Utility manual for more details.

1. Start up the ENI/ENIW Utility.

2. Use the [ENI IP Addr] tab to set IP address and other items.

3. Download the settings in 1761-NET-ENI and restart the External Device.

◆ 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 off-line mode of the display.

3.4 Setting Example 4

■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ Device Setting

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

■ Settings of External Device

Use RSLogix5000 for communication setting.

Please refer to the manual of RSLogix5000 for more details.

1. Select [New Module] from the menu displayed by right-clicking [I/O Configuration] in the Project tree of RSLogix5000.

2. Select [Properties] from the menu displayed by right-clicking the module added in the Project tree.

3. Use the [General] tab to set IP address and other items.

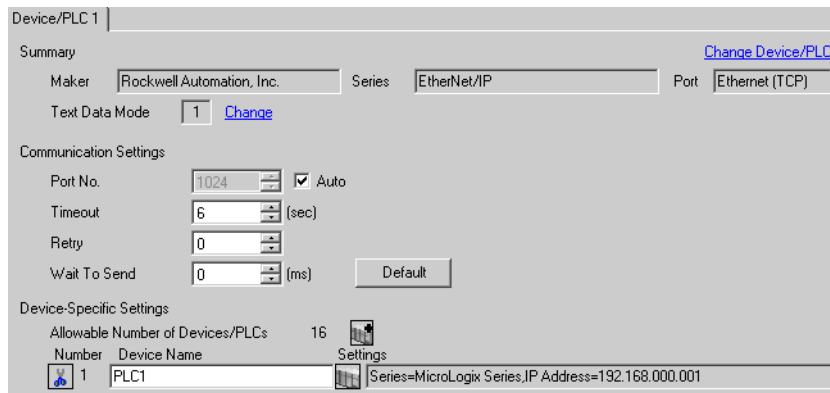4. Download the setting in the External Device and restart the External Device.

◆ 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 off-line mode of the display.

3.5 Setting Example 5

■ Settings of GP-Pro EX
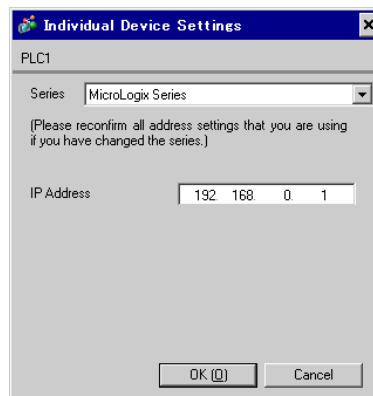
◆ Communication Settings

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

NOTE • When using 1761-NET-ENI, you need to set the timeout to 6sec or more.

◆ Device Setting

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

■ Settings of External Device

Use the ENI/ENIW Utility for communication setting.

Please refer to the ENI/ENIW Utility manual for more details.

1. Start up the ENI/ENIW Utility.

2. Use the [ENI IP Addr] tab to set IP address and other items.

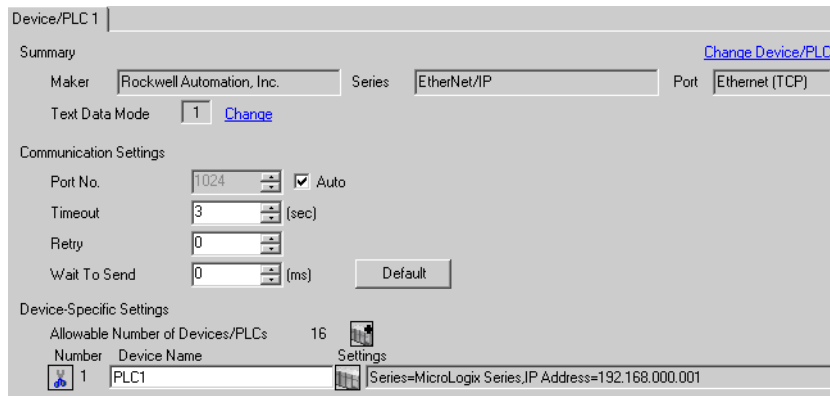3. Download the settings in 1761-NET-ENI and restart the External Device.

◆ 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 off-line mode of the display.

3.6 Setting Example 6

■ Settings of GP-Pro EX

◆ Communication Settings

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

> **NOTE** • When using 1761-NET-ENI, you need to set the timeout to 6sec or more.

◆ Device Setting

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

■ Settings of External Device

Use the ENI/ENIW Utility for communication setting.

Please refer to the ENI/ENIW Utility manual for more details.

1. Start up the ENI/ENIW Utility.

2. Use the [ENI IP Addr] tab to set IP address and other items.

3. Download the settings in 1761-NET-ENI and restart the External Device.

◆ 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 off-line mode of the display.

3.7　　　　Setting Example 7
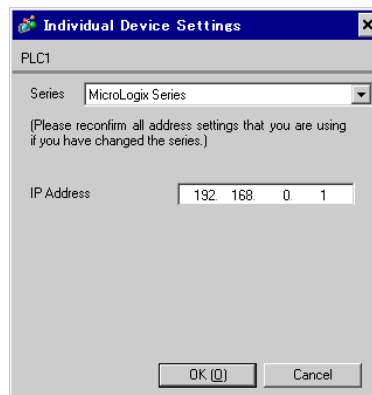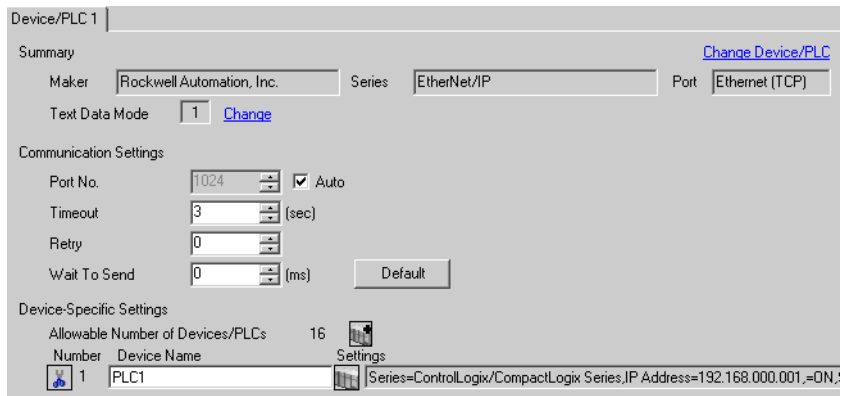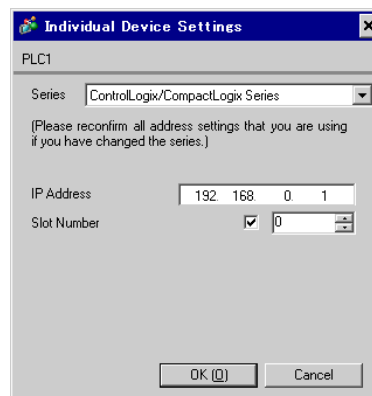
■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ Device Setting

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

■ Settings of External Device

Use RSLogix500 for communication setting.

Please refer to the manual of RSLogix500 for more details.

1. Start up RSLogix500 and create the new project. Select the CPU to be used when creating the new project.

2. Select [Channel Configuration] from [Controller] in the displayed Project tree.

3. Select [Open] from the menu displayed by right-clicking [Channel Configuration] and display the Channel setting screen.

4. Use the [Chan.1 - System] tab to set IP address and other items.

5. Download the setting in the External Device and restart the External Device.
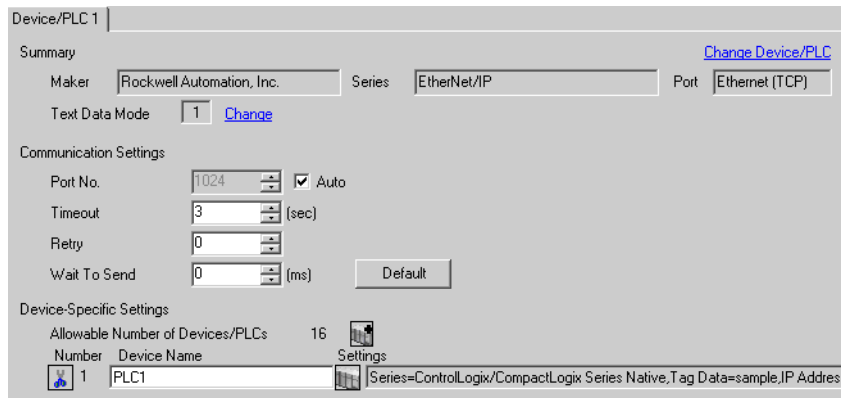
◆ Notes

- 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 off-line mode of the display.

3.8　　　Setting Example 8

■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ Device Setting

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

■ Settings of External Device

Use RSLogix5000 for communication setting.

Please refer to the manual of RSLogix5000 for more details.

1. Use RSLogix5000 to create the new project. Select the CPU to be used when creating the new project.

2. Select the Ethernet port from [I/O Configuration] in the Project tree.

3. Select [Properties] from the menu displayed by right-clicking the Ethernet port.

4. Use the [General] tab to set IP address and other items.

5. Download the setting in the External Device and restart the External Device.

◆ 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 off-line mode of the display.
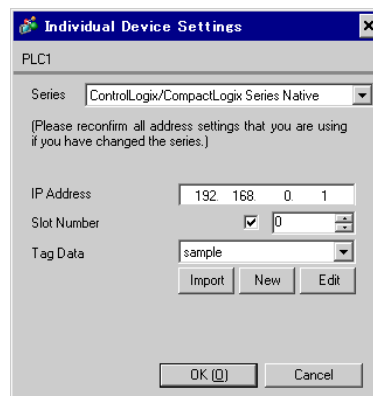
3.9 Setting Example 9

■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ Device Setting

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

■ Settings of External Device

Use RSLogix5000 for communication setting.

Please refer to the manual of RSLogix5000 for more details.

1. Select [New Module] from the menu displayed by right-clicking [I/O Configuration] in the Project tree of RSLogix5000.

2. Select [Properties] from the menu displayed by right-clicking the module added in the Project tree.

3. Use the [General] tab to set IP address and other items.

4. Download the setting in the External Device and restart the External Device.

◆ Notes

- When selecting "ControlLogix/CompactLogix Series Native", you need to create the Tag Data Block.

  ☞ 5.5ControlLogix/CompactLogix Series Native

- 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 off-line mode of the display.

3.10   Setting Example 10

■ Settings of GP-Pro EX

◆ Communication Settings

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

NOTE

- When using 1761-NET-ENI, you need to set the timeout to 6sec or more.

◆ Device Setting

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

■ Settings of External Device

Use the ENI/ENIW Utility for communication setting.

Please refer to the ENI/ENIW Utility manual for more details.

1. Start up the ENI/ENIW Utility.

2. Use the [ENI IP Addr] tab to set IP address and other items.

3. Download the settings in 1761-NET-ENI and restart the External Device.
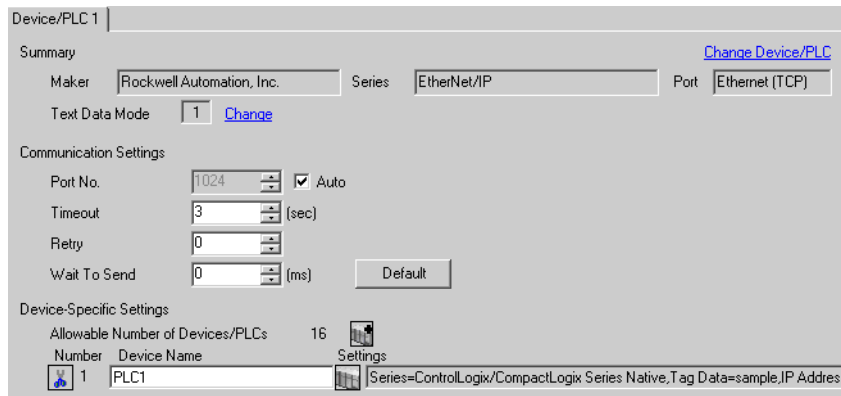
◆ Notes

- When selecting "ControlLogix/CompactLogix Series Native", you need to create the Tag Data Block.

  ☞ 5.5ControlLogix/CompactLogix Series Native

- 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 off-line mode of the display.

3.11 Setting Example 11
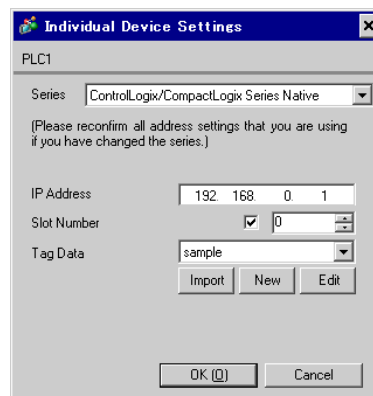
■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ Device Setting

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

■ Settings of External Device

Use RSLogix5000 for communication setting.

Please refer to the manual of RSLogix5000 for more details.

1. Use RSLogix5000 to create the new project. Select the CPU to be used when creating the new project.

2. Select the Ethernet port from [I/O Configuration] in the Project tree.

3. Select [Properties] from the menu displayed by right-clicking the Ethernet port.

4. Use the [General] tab to set IP address and other items.

5. Download the setting in the External Device and restart the External Device.

◆ Notes

- When selecting "ControlLogix/CompactLogix Series Native", you need to create the Tag Data Block.

  ☞ 5.5ControlLogix/CompactLogix Series Native

- 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 off-line mode of the display.

4 Setup Items

Set communication settings of the Display with GP-Pro Ex or in off-line mode of the Display.

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

)"3 Example of Communication Setting" (page 7)

NOTE
- Set the Display's IP address in off-line mode.

    Cf.   Maintenance/Troubleshooting Manual "2.5 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.
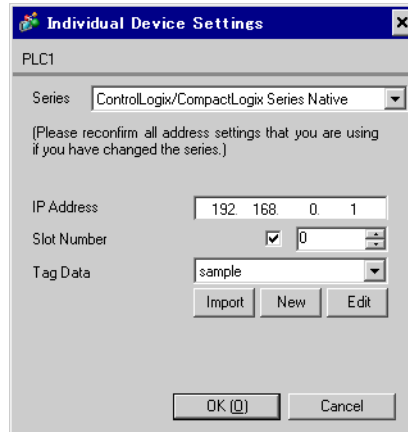
Setup Items	Setup Description
Port No.	Use an integer from 1024 to 65535 to enter the port No. of the Display. When you check the option of [Auto Assign], the port No. will be automatically set.
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from 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.

■ Device Setting

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

When connecting multiple External Devices, you can click from [Device-Specific Settings] of [Device/PLC Settings] to add the External Device which is available to set.

Setup Items	Setup Description
Series	Select a model 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.
Slot No.	When connecting to ControlLogix or CompactLogix, use "0 to 20" to set the slot No. of the External Device. Communication is not available without checking this option.
Tag Data	Select Tag Data Block to define the Tag in the External Device when selecting "ControlLogix/ConpactLogix Series Native" for [Series]. Click [New] to make new Tag Data Block. ☞ 5.5ControlLogix/CompactLogix Series Native

4.2　Settings in Off-Line Mode

NOTE　• Refer to the Maintenance/Troubleshooting manual for information on how to enter off-line mode or about the operation.

　　Cf.　Maintenance/Troubleshooting Manual "2.2 Off-line Mode"

■ Communication Settings

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

Setup Items	Setup Description
Port No.	Set the Port No. of the Display. Select either [Fixed] or [Auto]. When you select [Fixed], use an integer from 1024 to 65535 to enter the port No. of the Display. When you select [Auto], the port No. 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.

■ Device Setting

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

Comm.	Device			

EtherNet/IP   [TCP]   Page 1/1

      Device/PLC Name   PLC1   ▼

          Series   ControlLogix Native
          IP Address   192   168   0   1
          Slot Number   ○ Disable   ● Enable
                                      0   ▼   ▲
          TagData   sample

	Exit		Back	2007/07/23 11:13:34

Setup Items	Setup Description
Device name	Select the device name for device setting. Device name is a title of the External Device set with GP-Pro EX. (Initial value[PLC1])
Series	Displays a model 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.
Slot Number	When connecting to ControlLogix or CompactLogix, use "0 to 20" to set the slot No. of the External Device. Communication is not available when setting [Disable].
TagData	Displays TagData which is set to define the Tag in the External Device. When any other option than "ControlLogix/CompactLogix Series Native" is selected in [Series], TagData name will not be displayed.

5 Supported Device

Range of supported device address is shown in the table below.

5.1 SLC500 Series

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

Device		Bit Address		Word Address		32 bit	Remarks
Input File		I:00.000/00-I:63.255/15		I:00.000-I63.255			
Output File		O:00.000/00-O:63.255/15		O:00.000-O:63.255			
Status File		S:000/00-S:163/15		S:000-S:163			
Bit File		B003:000/00-B003:255/15 B009:000/00-B255:255/15		B003:000-B003:255 B009:000-B255:255			
Timer File	Enable	T004:000/-T004:255/ T009:000/-T255:255/	EN	T004:000.-T004:255. T009:000.-T255:255.	-		
	Timing		TT		-		
	Done		DN		-		
	Preset		-		PRE		
	Accumulated		-		ACC		
Counter File	Up Enable	C005:000/-C005:255/ C009:000/-C255:255/	CU	C005:000.-C005:255. C009:000.-C255:255.	-	[L / H]	
	Down Enable		CD		-		
	Done		DN		-		
	Overflow		OV		-		
	Underflow		UN		-		
	Update Acc.		UA		-		
	Preset		-		PRE		
	Accumulated		-		ACC		

Device		Bit Address		Word Address		32 bit	Remarks
Control File	Enable	R006:000/-R006:255/ R009:000/-R255:255/	EN	R006:000.-R006:255. R009:000.-R255:255.	-	L / H	
	Enable Unload		EU		-		
	Done		DN		-		
	Empty		EM		-		
	Error		ER		-		
	Unload		UL		-		
	Inhibit Comp.		IN		-		
	Found		FD		-		
	Length		-		LEN		
	Position		-		POS		
Integer File		-		N007:000-N007:255 N009:000-N255:255			Bit 15
Floating Point File		-		F008:000-F008:255 F009:000-F255:255		-	32 Bit Access Only
String File		-		ST009:000-ST255:255		L / H	*1
ASCII File		-		A009:000-A255:255			Bit 15

*1   String File device is not compatible with the device monitor.

NOTE

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

Cf.   GP-Pro EXReference Manual "Appendix 1.4 LS Area (Direct Access Method)"

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

☞ "Manual Symbols and Terminology"

5.2 PLC-5 Series

This address can be specified as system data area.

Device		Bit Address		Word Address		32 bit	Remarks
Input File		I:000/00-I:377/17		I:000-I:377			
Output File		O:000/00-I:377/17		O:000-I:377			
Status File		S:000/00-S:163/15		S:000-S:163			
Bit File		B003:000/00-B999:999/15		B003:000-B999:999			
Timer File	Enable	T003:000/-T999:999/	EN	T003:000.-T999:999.	-		
	Timing		TT		-		
	Done		DN		-		
	Preset		-		PRE		
	Accumu-lated		-		ACC		
Counter File	Up Enable	C003:000/-C999:999/	CU	C003:000.-C999:999.	-	[L / H]	
	Down Enable		CD		-		
	Done		DN		-		
	Overflow		OV		-		
	Underflow		UN		-		
	Update Acc.		UA		-		
	Preset		-		PRE		
	Accumu-lated		-		ACC		

Device		Bit Address		Word Address		32 bit	Remarks
Control File	Enable	R003:000/-R999:999/	EN	R003:000.-R999:999.	-	L / H	
	Enable Unload		EU		-		
	Done		DN		-		
	Empty		EM		-		
	Error		ER		-		
	Unload		UL		-		
	Inhibit Comp.		IN		-		
	Found		FD		-		
	Length		-		LEN		
	Position		-		POS		
Integer File		-		N003:000-N999:999			Bit 15
Floating Point File		-		F003:000-F999:999		-	32 Bit Access Only
String File		-		ST003:000-ST999:999			*1
ASCII File		-		A003:000-A999:999		L / H	Bit 15
BCD File		-		D003:000-D999:999			Bit 15

*1   String File device is not compatible with the device monitor.

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

Cf.   GP-Pro EXReference Manual "Appendix 1.4 LS Area (Direct Access Method)"

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

☞ "Manual Symbols and Terminology"

5.3 MicroLogix Series

This address can be specified as system data area.

Device		Bit Address	Word Address		32 bit	Remarks
Input File		I:00.000/00-I:08.255/15	I:00.000-I08.255			
Output File		O:00.000/00-O:08.255/15	O:00.000-O:08.255			
Status File		S:000/00-S:163/15	S:000-S:163			
Bit File		B003:000/00-B003:255/15 B009:000/00-B255:255/15	B003:000-B003:255 B009:000-B255:255			
Timer File	Enable	T004:000/-T004:255/ T009:000/-T255:255/	EN	T004:000.-T004:255. T009:000.-T255:255.	-	
	Timing		TT		-	
	Done		DN		-	
	Preset		-		PRE	
	Accumu-lated		-		ACC	
Counter File	Up Enable	C005:000/-C005:255/ C009:000/-C255:255/	CU	C005:000.-C005:255. C009:000.-C255:255.	-	L / H
	Down Enable		CD		-	
	Done		DN		-	
	Overflow		OV		-	
	Underflow		UN		-	
	Update Acc.		UA		-	
	Preset		-		PRE	
	Accumu-lated		-		ACC	

Device		Bit Address		Word Address		32 bit	Remarks
Control File	Enable	R006:000/-R006:255/ R009:000/-R255:255/	EN	R006:000.-R006:255. R009:000.-R255:255.	-	[L / H]	
	Enable Unload		EU		-		
	Done		DN		-		
	Empty		EM		-		
	Error		ER		-		
	Unload		UL		-		
	Inhibit Comp.		IN		-		
	Found		FD		-		
	Length		-		LEN		
	Position		-		POS		
Integer File		-		N007:000-N007:255 N009:000-N255:255		Bit 15	
Floating Point File		-		F008:000-F008:255 F009:000-F255:255		-	32 Bit Access Only
String File		-		ST009:000-ST255:255		[L / H]	*1
Long Word File		-		L009:000-L255:255		-	Bit 31

*1   String File device is not compatible with the device monitor.

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

   Cf.   GP-Pro EXReference Manual "Appendix 1.4 LS Area (Direct Access Method)"

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

   ☞ "Manual Symbols and Terminology"

5.4　　　ControlLogix/CompactLogix Series

 This address can be specified as system data area.

Device	Bit Address	Word Address	32bits	Remarks
BOOL	BOOL000:000/00 - BOOL999:999/31	BOOL000:000 - BOOL999:999	-	*1
INT	-	INT000:000 - INT999:999	L / H	[Bit 15] *1
REAL	-	REAL000:000 - REAL999:999	-	*1
DINT	-	DINT000:000 - DINT999:999	-	[Bit 31] *1
SINT	-	SINT000:000 - SINT999:998	L / H	[Bit 7] ÷ 2 *1

*1　To access those addresses and use them in the program of the External Device, you need to set the External Device first.

The following procedure shows how to assign the device in the RSLogix5000 software and specify the address in GP-Pro EX.

1) Tag setting of External Device

Create the Tag Name in the RSLogix5000 software, and set the Type. Map the created Tag Name to a File Number.

Tag Name	Set optionally.
Type	Select the data type among below to set the Element. Match the device name of GP-Pro EX 　　BOOT(32bit data type) 　　INT(word data type) 　　DINT(dword data type) 　　SINT(byte data type) 　　REAL(float data type)

Set the range used in GP-Pro EX for the Element. Maximum Element GP-Pro EX can access is 999.

When you do not define the Element, only 1 item is available to use.

(Example) Tag Name: When you set INT8, Type: INT, you can use only 1 word for INT8.

<Example 1>

Tag Name	Type
INT7	INT[200]
DINT1	DINT[100]
DATA2	SINT[50]

1st line: Tag Name "INT7" is INT data type with Element 200

2 nd line: Tag Name "DINT1" is DINT data type with Element 100

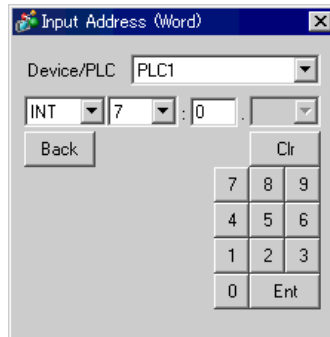3 rd line: Tag Name "DATA2" is SINT data type with Element 50

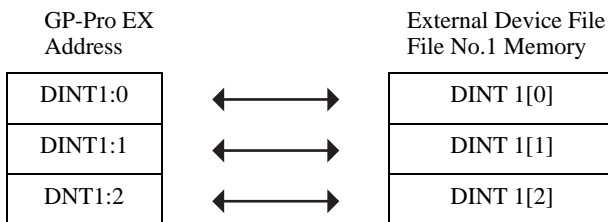| File Number	Assign the Tag Name created by RSLogix5000 to the optional File Number. You can not assign the different Tag Names to the same File Number.

<Example2>

File Number	Name
2	DATA2
1	DINT1
7	INT7

2) Address Specification in GP-Pro EX

When you access the External Device from GP-Pro EX, specify Type, File Number and Element.

<Example of address mapping of GP-Pro EX and External Device>

GP-Pro EX
Address

External Device File
File No.1 Memory

| DINT1:0 | ←→ | DINT 1[0] |
| DINT1:1 | ←→ | DINT 1[1] |
| DNT1:2 | ←→ | DINT 1[2] |

NOTE

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

   Cf.   GP-Pro EXReference Manual "Appendix 1.4 LS Area (Direct Access Method)"

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

)☞ "Manual Symbols and Terminology"

5.5 ControlLogix/CompactLogix Series Native

▭ This address can be specified as system data area.

Device		Bit Address	Word Address	32bits	Remarks
BOOL	Single Tag	<TAGNAME>	-	-	*1 *2 *3
	1D Array	<TAGNAME>[0]-<TAGNAME>[x-1]			
INT	Single Tag	<TAGNAME>.00-<TAGNAME>.15	<TAGNAME>	[L/H]	*1 *2
	1D Array	<TAGNAME>[0].00-<TAGNAME>[x-1].15	<TAGNAME>[0]-<TAGNAME>[x-1]		
	2D Array	<TAGNAME>[0,0].00-<TAGNAME>[x-1,y-1].15	<TAGNAME>[0,0]-<TAGNAME>[x-1,y-1]		
	3D Array	<TAGNAME>[0,0,0].00-<TAGNAME>[x-1,y-1,z-1].15	<TAGNAME>[0,0,0]-<TAGNAME>[x-1,y-1,z-1]		
REAL	Single Tag	-	<TAGNAME>	-	*1 *2
	1D Array		<TAGNAME>[0]-<TAGNAME>[x-1]		
	2D Array		<TAGNAME>[0,0] <TAGNAME>[x-1,y-1]		
	3D Array		<TAGNAME>[0,0,0]-<TAGNAME>[x-1,y-1,z-1]		
DINT	Single Tag	<TAGNAME>.00-<TAGNAME>.31	<TAGNAME>		*1 *2
	1D Array	<TAGNAME>[0].00-<TAGNAME>[x-1].31	<TAGNAME>[0]-<TAGNAME>[x-1]		
	2D Array	<TAGNAME>[0,0].00-<TAGNAME>[x-1,y-1].31	<TAGNAME>[0,0] <TAGNAME>[x-1,y-1]		
	3D Array	<TAGNAME>[0,0,0].00-<TAGNAME>[x-1,y-1,z-1].31	<TAGNAME>[0,0,0]-<TAGNAME>[x-1,y-1,z-1]		
SINT	Single Tag	<TAGNAME>.0-<TAGNAME>.7	<TAGNAME>	[L/H]	[Bit 7] [÷2] *1 *2 *4
	1D Array	<TAGNAME>[0].0-<TAGNAME>[x-1].7	<TAGNAME>[0]-<TAGNAME>[x-1]		
	2D Array	<TAGNAME>[0,0].0-<TAGNAME>[x-1,y-1].7	<TAGNAME>[0,0]-<TAGNAME>[x-1,y-1]		
	3D Array	<TAGNAME>[0,0,0].0-<TAGNAME>[x-1,y-1,z-1].7	<TAGNAME>[0,0,0]-<TAGNAME>[x-1,y-1,z-1]		

*1   <TAGNAME>: Tag Name including structure name in case of structure. Maximum number of characters for Tag Name is 255 including delimiters and element number.

       Ex.)   BOOL type single tag: "BOOLTAG"
             BOOL array element: "BOOLARRAY[0012]"
             INT type single tag: "INTTAG"
             DINT type single address: "DINTTAG.30"
             REAL type 3Darray: "REALARRAY[1,2,3]"
             DINTfrom TIMER structure: "TIMERTAG.PRE"
             SINTfrom STRING structure: "STRINGTAG.DATA[00]"
             BOOL from User Defined Structure: "USERSTRUCTURE_A.USERSTRUCTURE_B.MYTIMER.EN

*2   Array Element Number: Number of array element is included in the controller tag information. Since the element number starts from 0, maximum element number is [Element Number - 1].

       Ex.) INTARRAY   INT[256,256] can be used in the range of INTARRAY[0-255,0-255].

*3   BOOL type array: Available to define only 1 dimension. Number of array element can be specified by multiples of 32.

*4   SINT : Handled as 8-bit devices in the External Device, but as 16-bit devices in GP-Pro EX.When using the SINT type array as word, only even element number can be specified. When it is not an array or used for the last element in an odd array, the upper byte will be set to 0

> **NOTE**
> • Maximum 65535 Tags can be created in each PLC.
>
>   When a Tag is a structure, calculate Tags used using the following formula:
>
>   <Number of Tags> = (1 + <Number of Members>) x <Number of Array Elements>
>
>   Ex: Timer[16]
>
>   Number of Tags = (1 + 9) x 16

To use controller tags set up in the RSLogix5000 software on GP-Pro EX, the L5K file needs to be imported. The L5K file is exported by the RSLogix5000 software. The L5K data imported into GP-Pro EX is saved as a Tag Data Block.

> **IMPORTANT**
> • Please export the L5K file using the RSLogix5000 software version13.
> The L5K file that has been exported by other version than the RSLogix5000 software version13 cannot be imported to GP-Pro EX.

■ Setting Items of the Tag Data Dialog Box

• Controller Tag List

The controller Tag List is displayed when "Tag/Alias" is selected in the [Mode] of the tag data dialog box.

Input the file name to save the controller tag and data type/structure.

Narrow down tags that are displayed in the list using an arbitrary string. Filtering by data type can be achieved by selecting the data type from the pull down menu.

These are operation buttons for making new tags, editing and deleting tags.
[View] displays the configuration of the selected tag.
[Import] opens the dialog box to import an L5K or CSV file.

If a cursor is moved over a controller tag, the data type and size are displayed.

Displays controller tags that are registered in the Tag Data Block.

Displays the total number of controller tags registered in the Tag Data Block, and the number selected.

• Data Type/Structure List

Data Type/Structure List is displayed when "Data Type/Structure" is selected in the [Mode] of the tag data dialog box.

Input the file name to save the controller tag and data type/structure.

Narrow down data types/structures displayed by entering an arbitrary string.

These are the operation buttons for making new data types/structures, editing and deleting data types/structures.
[View] displays the content of the selected data type/structure.
[Import] opens the dialog box to import an L5K or CSV file.

Data types or structures registered in the tag data are displayed.
Displayed Text Colors mean:
Light Gray: Data type/structure that is defined in the system. Cannot be deleted.
Dark Gray: Data type/structure in use by other tags or structures. Can be deleted after the tags or structures using it are deleted.
Black: Can be deleted.

The total number of data type/structures registered in the Tag Data Block and the number currently selected.

■ Importing Tag Data Block

1) Make a TagName using RSLogix5000 software and set the data type.

2) Select [Export] from the [Tools] menu and save the controller tag setting in the L5K file.

NOTE
• Import can also use CSV file. To export CSV from RSLogix5000, select [Controller] with [Tags] in the export dialog box.

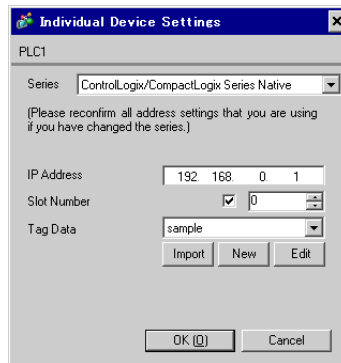• CSV only includes tag information. Data type information is not included.

3) Go to the [Individual Device Settings] dialog box using GP-Pro EX and select "ControlLogix/CompactLogix Series Native" from [Series].

4) Click [Import]. Select the L5K file to be imported and click [Open].
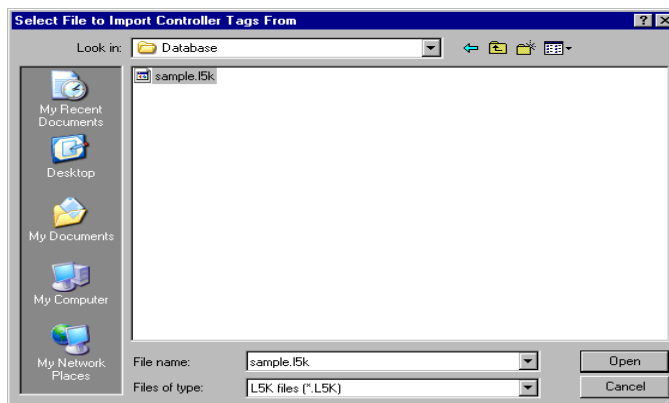
5) Import is executed and Tag Data Block is generated.

NOTE

• If CSV file that uses structure is imported, there is a case that an error message, "An unknown Data Type was found." appears. When this error is displayed, after setting the structure, implement import again clicking [Import] of [Controller Tag List].

☞ " ■ Making a New Data Type" (page 41)

• If any unsupported types or tags are found during import, a log file can be generated. Using the dialog box displayed, set the name and the location of the log file to be saved. Import results can be confirmed in the log file.
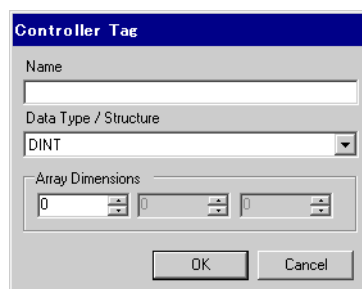
■ Making a New Tag

1) Go to the [Individual Device Settings] dialog box using GP-Pro EX, select "ControlLogix/CompactLogix Series Native" from [Series].
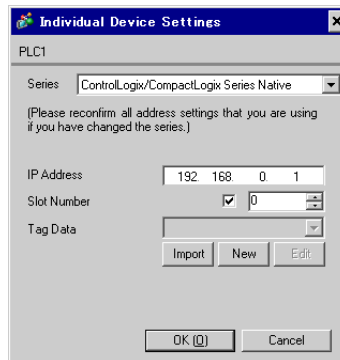
2) Click [New]. Input the tag data name to be made in [Tag Data Name].
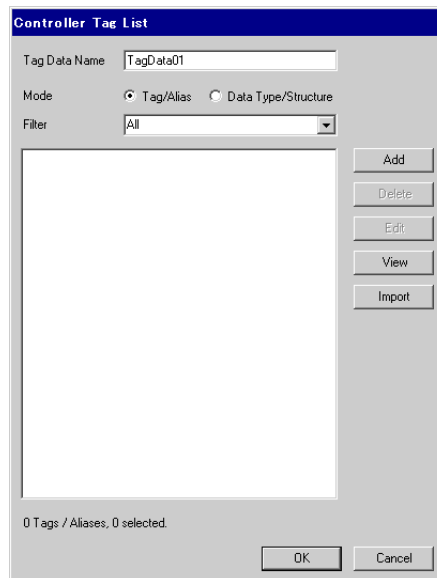
3) Select [Tag/Alias] from [Mode].

4) Click [Add] to display the [Controller Tag] dialog box.

5) Input the Name, Data Type/Structure, and Array Dimensions, then click [OK].

NOTE • Only registered data types can be selected at [Data Type/Structure]. Register data types as
necessary.

)" ■ Making a New Data Type" (page 41)

The newly created controller tag is displayed in the list.

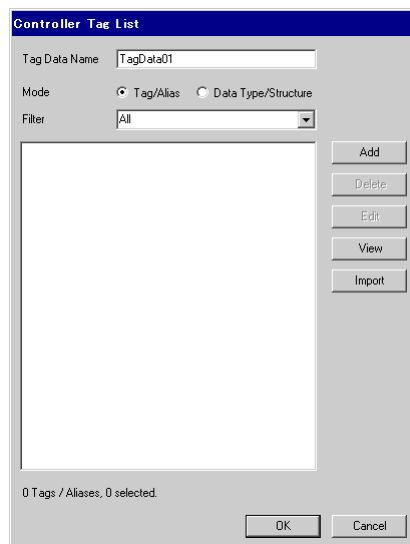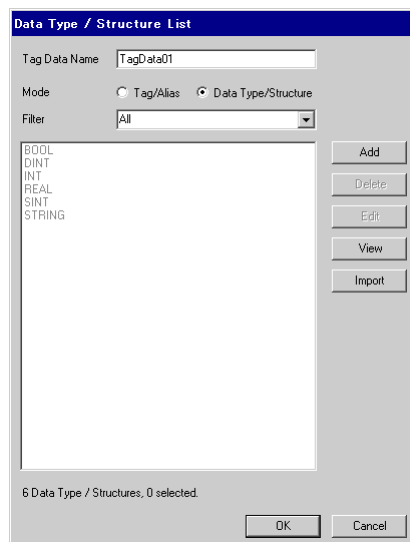### ■ Making a New Data Type

1) Go to the [Individual Device Settings] using GP-Pro EX, and select "ControlLogix/CompactLogix Series Native" from [Series].
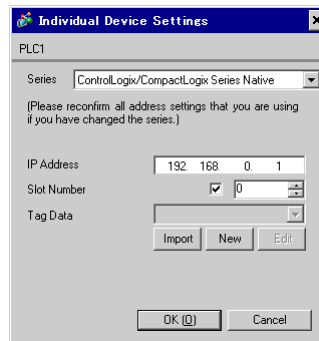
2) Click [New]. Input the tag data name to be made in [Tag Data Name].

3) Select [Data Type/Structure] for the [Mode].

4) Click [Add] to display [Data Type/Structure Edit] dialog box.

5) Input the name of Data Type/Structure and members desired, then click [OK].

NOTE

• Select the desired structure in RSLogix5000 software. Copy the [Name] and [Data Type] columns. Paste these members into a structure in GP-Pro EX using the [Paste Structure Data] button.

• For using Predefined structures, select the structure to be used from the [Structure Name] drop-down list, and click [OK].

• Only one-dimensional arrays can be used as structure members.

The newly created data type/structure is displayed in the list. Registered data type/structures can be used for importing, adding and editing controller tags.

NOTE
• A warning message " Display Unit Illigal address. Define a correct address." may appear during Error Check if no non-BOOL tags exist in the Tag Data Block. This indicates that the default value assignment for one or more system settings were not made since there were no suitable tags available. This is not related to screen settings and system settings made by the user.

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

Cf.   GP-Pro EXReference Manual "Appendix 1.4 LS Area (Direct Access Method)"

• 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.

NOTE • When [ControlLogix/CompactLogix Series Native] is selected for the Series of External Device, the device code and address code must not be used.

Device	Device Name		Device Code (HEX)	Address Code
Integer File	N		0000	(File No.*0x10000) + Word Address
Floating Point File	F		0001	(File No.*0x10000) + Word Address
String File	ST		0002	(File No.*0x10000) + Word Address*0x40
ASCII File	A		0003	(File No.*0x10000) + Word Address
BCD File	D		0004	(File No.*0x10000) + Word Address
Long Word File	L		0005	(File No.*0x10000) + Word Address
INT	INT		0010	(File No.*0x10000) + Word Address
REAL	REAL		0011	(File No.*0x10000) + Word Address
DINT	DINT		0012	(File No.*0x10000) + Word Address
SINT	SINT		0013	(File No.*0x10000) + Word Address/2
Input File	I		0080	0x10000+(Slot Number*0x100) + Word Address
Output File	O		0081	(Slot No.*0x100) + Word Address
Bit File	B		0082	(File No.*0x10000) + Word Address
Status File	S		0083	0x20000 + Word Address
BOOL	BOOL		0090	(File No.*0x10000) + Word Address
Timer File	T	PRE	0060	(File No.*0x10000) + Word Address
		ACC	0061	
Counter File	C	PRE	0062	(File No.*0x10000) + Word Address
		ACC	0063	
Control File	R	LEN	0064	(File No.*0x10000) + Word Address
		POS	0065	

7   Error Messages

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

Item	Requirements
No.	Error No.
Device Name	Name of the External Device where error occurs. Device name is a title of the 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 the External Device where error occurs, or error codes received from the External Device. **NOTE** • IP address is displayed such as "IP address(Decimal): MAC address(Hex)". • Device address is displayed such as "Address: Device address". • Received error codes are displayed such as "[Hex]".

Display Examples of Error Messages

"RHAA130:PLC1: Error has been responded for device write command(EncapsulationError Code:[00000002H])"

NOTE
• Refer to your External Device manual for details on received error codes.
• Refer to "When an error is displayed (Error Code List)" in "Maintenance/Troubleshooting Manual" for details on the error messages common to the driver.

Driver-Specific Error Messages

Driver-specific error messages are shown below.

Code (HEX)	Error Message	Description
RHxx128	(External Device Name): Error has been responded for initial communication command (EncapsulationError Code: [(Hex)])	Displayed when error occurs by device initial command.
RHxx129	(External Device Name): Error has been responded for device read command (Encapsulation (Error Code: [(Hex)])	Displayed when error occurs by device read command.
RHxx130	(External Device Name): Error has been responded for device write command (Encapsulation Error Code: [(Hex)])	Displayed when error occurs by device write command.
RHxx131	(External Device Name): Error has been responded for device read command (CIP Error Code: [(Hex)])	Displayed when error occurs by device read command.
RHxx132	(External Device Name): Error has been responded for device write command (CIP Error Code: [(Hex)])	Displayed when error occurs by device write command.
RHxx133	(External Device Name):Error has been responded for device read command (STSResponse: [(Hex)]), EXT Response: [(Hex)])	Displayed when error occurs by device read command.
RHxx134	(External Device Name):Error has been responded for device write command (STSResponse: [(Hex)], EXT Response: [(Hex)])	Displayed when error occurs by device write command.