



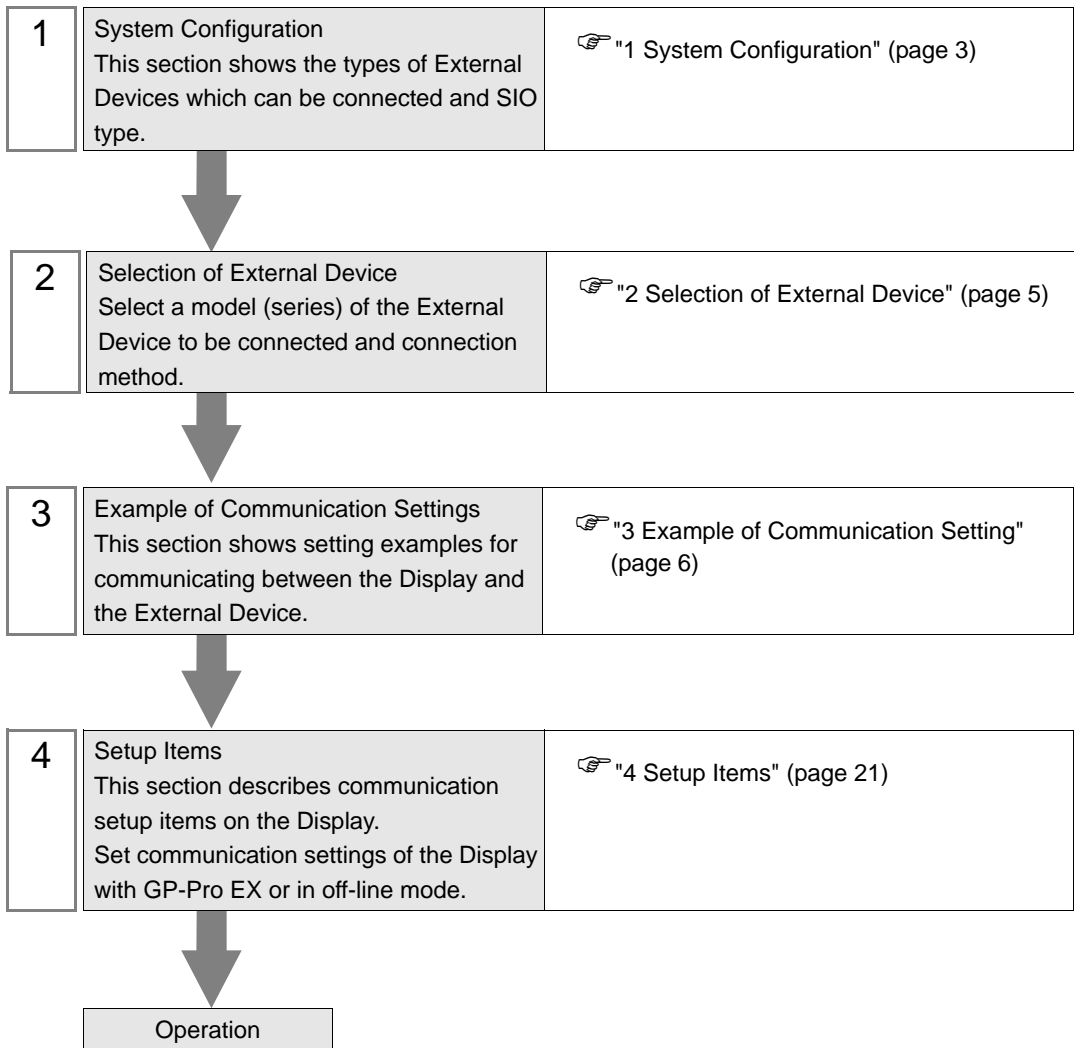
EtherNet/IP Driver

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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

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	Ethernet (TCP)	Setting Example 1 (page 6)
	SLC 5/03 SLC 5/04 SLC 5/05	1761-NET-ENI		Setting Example 2 (page 8)
PLC-5	All CPUs that support the link I/F on the right	1761-NET-ENI		Setting Example 3 (page 9)
ControlLogix	All CPUs that support the link I/F on the right	1756-ENET/B 1756-ENET 1756-ENBT		Setting Example 4 (page 10)
		1761-NET-ENI		Setting Example 5 (page 11)
ControlLogix Native*2	All CPUs that support the link I/F on the right	1756-ENET/B 1756-ENET 1756-ENBT		Setting Example 9 (page 15)
		1761-NET-ENI*3		Setting Example 10 (page 17)
MicroLogix	MicroLogix 1000 MicroLogix 1100 MicroLogix 1200 MicroLogix 1500	1761-NET-ENI		Setting Example 6 (page 12)
	MicroLogix 1100	CPU Direct (channel1)		Setting Example 7 (page 13)
CompactLogix	All CPUs that support the link I/F on the right	1761-NET-ENI		Setting Example 5 (page 11)
	1769-L32E 1769-L35E	CPU Direct		Setting Example 8 (page 14)
CompactLogix Native*2	All CPUs that support the link I/F on the right	1761-NET-ENI*3		Setting Example 10 (page 17)
	1769-L32E 1769-L35E	CPU Direct		Setting Example 11 (page 19)

- *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/>

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 EX Reference Manual "Appendix 1.4 LS Area (only for 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 " 5.14.6 Setting Guide of [System Setting Window]■[Main Unit Settings] Settings Guide◆System Area Setting" Cf. Maintenance/Troubleshooting "2.14.1 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

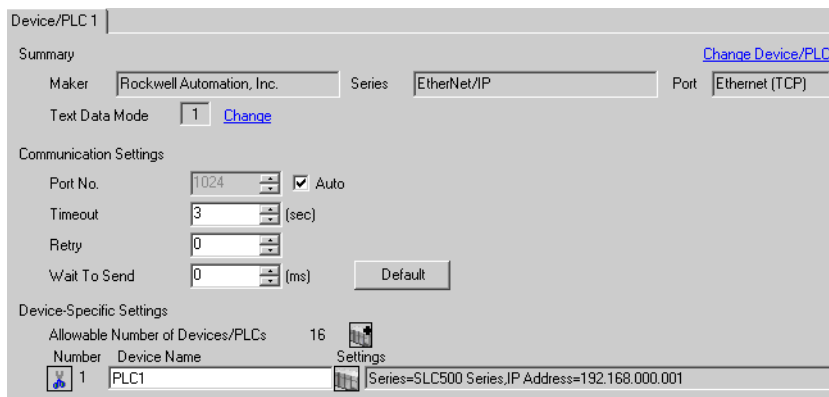
Examples of communication settings of the Display and the External Device, recommended by Digital Electronics Corp., are shown.

3.1 Setting Example 1


■ Settings of GP-Pro EX

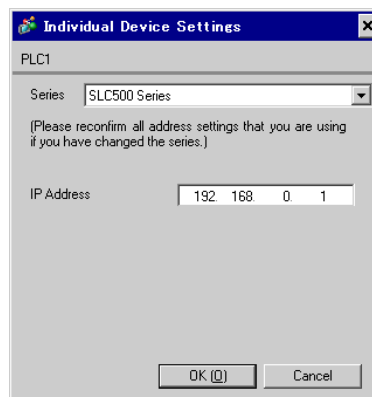
◆ Communication Settings

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.

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.

3.3 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

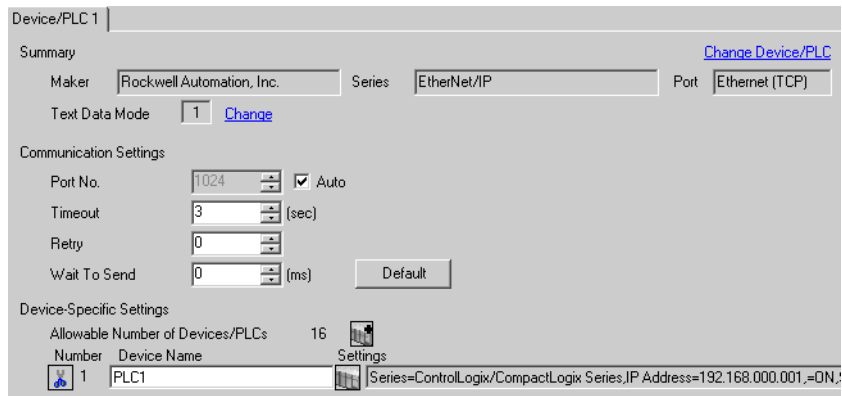
- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

3.4 Setting Example 4


■ Settings of GP-Pro EX

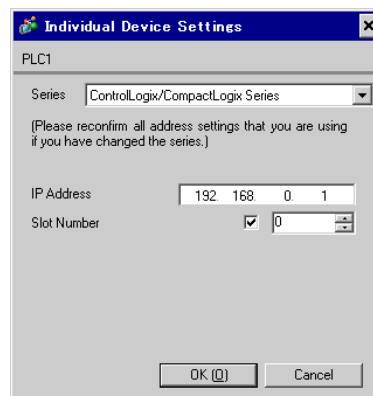
◆ Communication Settings

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



◆ Device Setting

To display the setting screen, click  ([Setting]) 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.

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=ControlLogix/CompactLogix Series, IP Address=192.168.000.001, =0N.

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: ControlLogix/CompactLogix Series

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

IP Address: 192.168.0.1

Slot Number: 0

[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

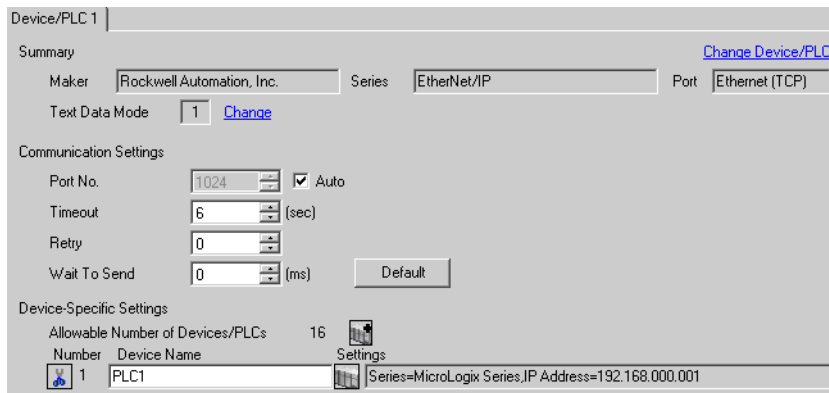
- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

3.6 Setting Example 6

■ Settings of GP-Pro EX


◆ Communication Settings

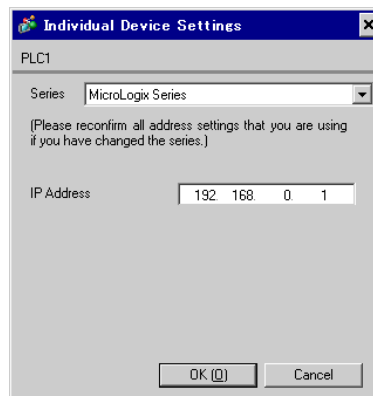
To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



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

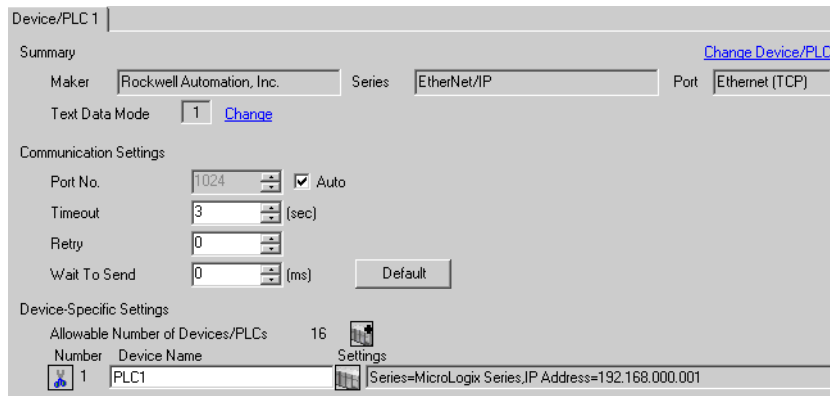
- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

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

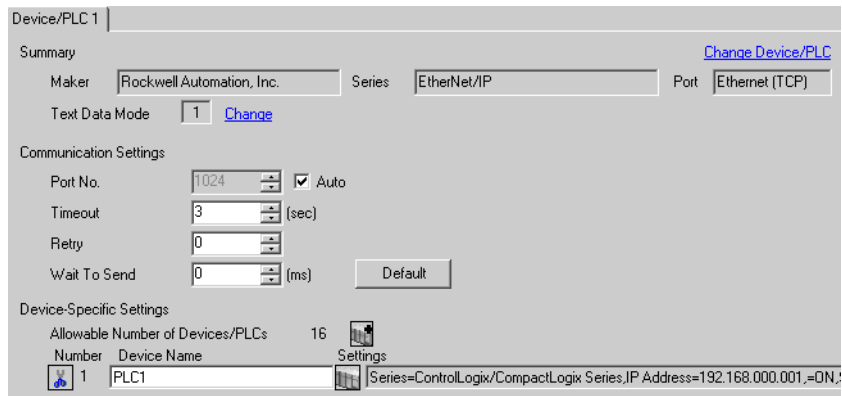
- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

3.8 Setting Example 8


■ Settings of GP-Pro EX

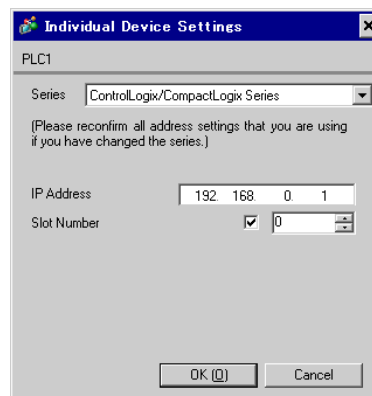
◆ Communication Settings

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

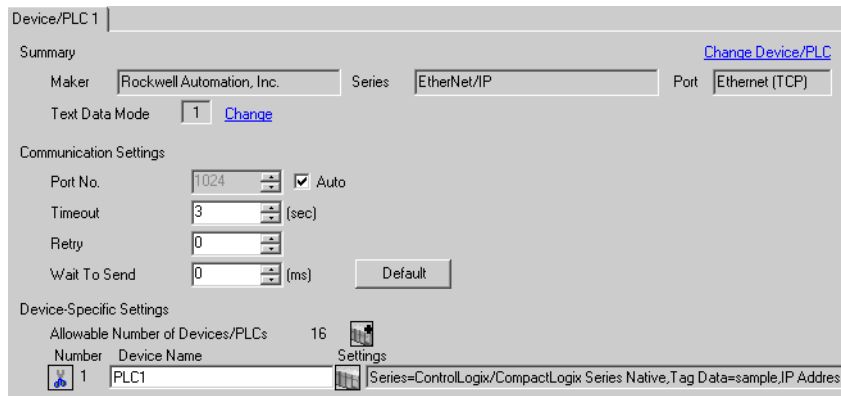
- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

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.

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=ControlLogix/CompactLogix Series Native, Tag Data=sample.IP Address

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: ControlLogix/CompactLogix Series Native

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

IP Address: 192.168.0.1

Slot Number: 0

Tag Data: sample

[Import](#) [New](#) [Edit](#)

[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

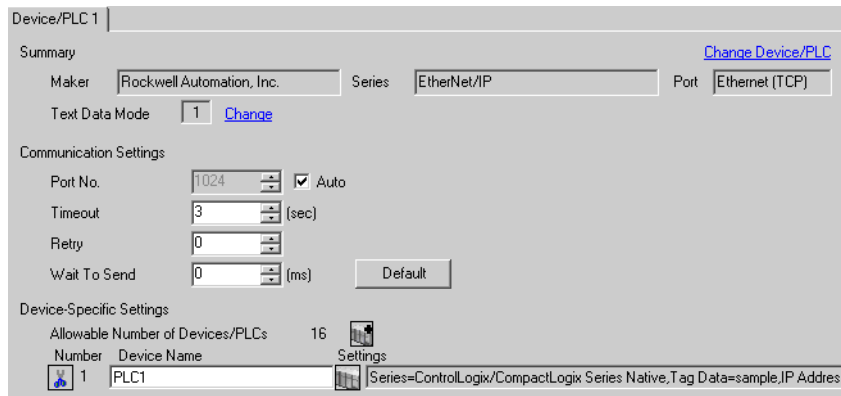
- When selecting "ControlLogix/CompactLogix Series Native", you need to create the Tag Data Block.
 5.5ControlLogix/CompactLogix Series Native
- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device for IP address in Device-specific 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

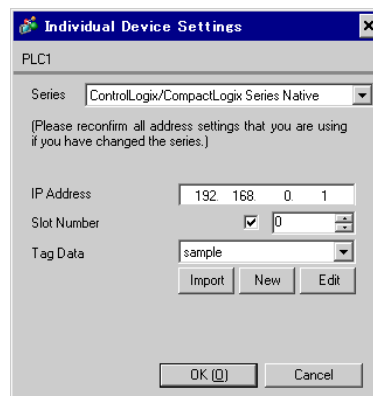
◆ Communication Settings

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.

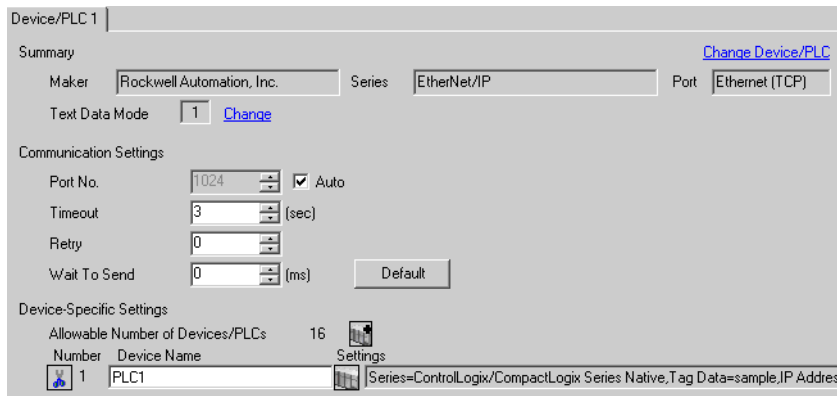
The setting of each parameter must be identical to that of External Device.

 "3 Example of Communication Setting" (page 6)

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.



Device/PLC 1

Summary [Change Device/PLC](#)

Maker Series Port

Text Data Mode [Change](#)

Communication Settings


Port No. Auto

Timeout (sec)

Retry

Wait To Send (ms)


Device-Specific Settings


Allowable Number of Devices/PLCs 16 

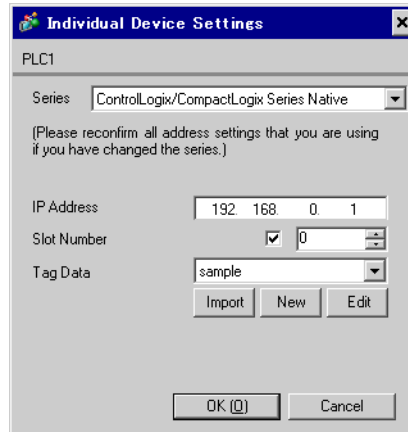
Number	Device Name	Settings
1	PLC1	Series=ControlLogix/CompactLogix Series Native, Tag Data=sample, IP Address


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. <div style="border: 1px solid black; padding: 2px; display: inline-block;">NOTE</div> <ul style="list-style-type: none"> 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/CompactLogix 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

- Please refer to Maintenance/Troubleshooting for more information on how to enter off-line mode or about operation.

Cf. Maintenance/Troubleshooting "2.2 Offline 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.

Comm.	Device			
EtherNet/IP			[TCP]	Page 1/1
Port No.	<input type="radio"/> Fixed <input checked="" type="radio"/> Auto			
			1024	▼ ▲
Timeout(s)			3	▼ ▲
Retry			0	▼ ▲
Wait To Send(ms)			0	▼ ▲
	Exit		Back	2007/07/23 11:13:29

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	<input type="radio"/> Disable <input checked="" type="radio"/> Enable		<input type="text" value="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. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">NOTE</div> <ul style="list-style-type: none"> 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.	-	[L/H]	
	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.	-		
	Down Enable		CD		-		
	Done		DN		-		
	Overflow		OV		-		
	Underflow		UN		-		
	Update Acc.		UA		-		
	Preset		-		PRE		
	Accumulated		-		ACC		


continued to next page

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					
ASCII File	-	A009:000-A255:255			[L/H]	[Bit 15]	

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

Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for 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

L/H 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.	-	L/H	
	Timing		TT		-		
	Done		DN		-		
	Preset		-		PRE		
	Accumulated		-		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		
	Accumulated		-		ACC		

continued to next page

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				
ASCII File		-	A003:000-A999:999		[L/H]	[Bit 15]	
BCD File		-	D003:000-D999:999			[Bit 15]	


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

Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for 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.	-	[L/H]	
	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		


continued to next page







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]		
Long Word File		-	L009:000-L255:255		-	[Bit 31]	

NOTE

- Please refer to the GP-Pro EX Reference Manual for system data area.
Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for 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		 *1
REAL	-	REAL000:000 - REAL999:999	-	*1
DINT	-	DINT000:000 - DINT999:999	-	 *1
SINT	-	SINT000:000 - SINT999:998		 *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

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

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

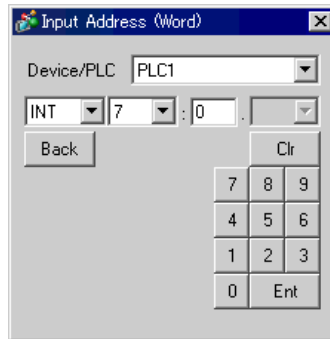
File Number	Assign the Tag Name created by RSLogix5000 to the optional File Number. You can not assign the different Tag Names to the same File Number.
-------------	---

<Example2>

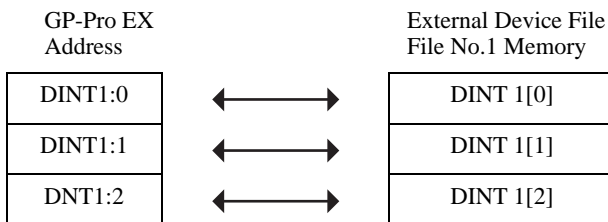
File Number	Name
2	DATA2
1	DINT1
7	INT7

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>





NOTE

- Please refer to the GP-Pro EX Reference Manual for system data area.
Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for 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]	  *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:

$$\langle \text{Number of Tags} \rangle = (1 + \langle \text{Number of Members} \rangle) \times \langle \text{Number of Array Elements} \rangle$$

Ex: Timer[16]

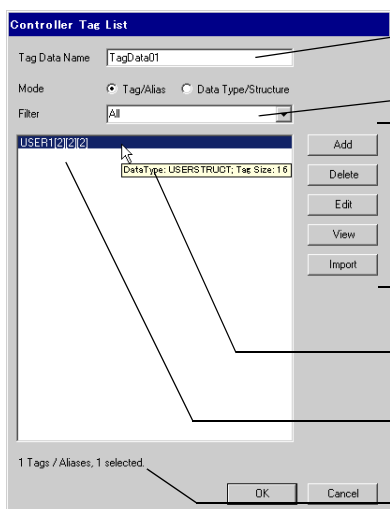
$$\text{Number of Tags} = (1 + 9) \times 16$$

To use the control tag that was set using the RSLogix5000 software on the GP-Pro EX, the L5K file needs to be imported. The L5K file is exported by the RSLogix5000 software. Imported data is saved as Tag Data Block.

■ 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.



The screenshot shows the "Controller Tag List" dialog box. It has a title bar "Controller Tag List". Inside, there is a "Tag Data Name" field with "TagData01" entered. Below that is a "Mode" section with two radio buttons: "Tag/Alias" (selected) and "Data Type/Structure". A "Filter" field contains "All". A list box shows "USER1[0] [2] [2]" selected, with a tooltip showing "Data Type: USERSTRUCT; Tag Size: 16". To the right of the list box are buttons: "Add", "Delete", "Edit", "View", and "Import". At the bottom left, it says "1 Tags / Aliases, 1 selected." and at the bottom right are "OK" and "Cancel" buttons.

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 in data type can be implemented by selecting the data type form the pull down menu.

These are operation buttons for making a new tag, editing and deleting tag. [View] displays the configuration of the selected tag. [Import] imports the L5K file or the CSV file.

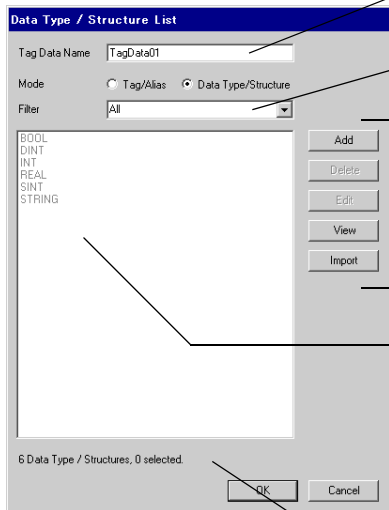
If a cursor is moved over a controller tag, the data type and size are displayed.

A controller tag that is registered in the tag data is displayed.

The total number of controller tags registered in tag data and the number of selected controller tags are displayed.

- 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 the tag and data type/structure.

Narrow down data type/structure that are displayed in the list using an arbitrary string.

These are the operation buttons for making new data type/structure, editing and deleting data type/structure.

[View] displays the content of the selected data type/structure.

[Import] opens the dialog to import an L5K or CSV file.

Data types or structures registered in the tag data are displayed. Displayed colors mean as follows.

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.

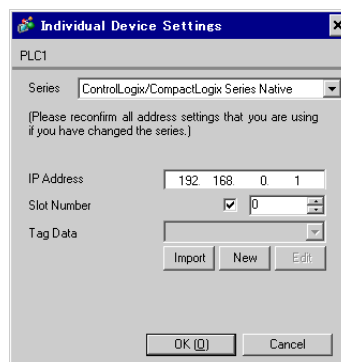
■ Importing Tag Data Block

- 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.

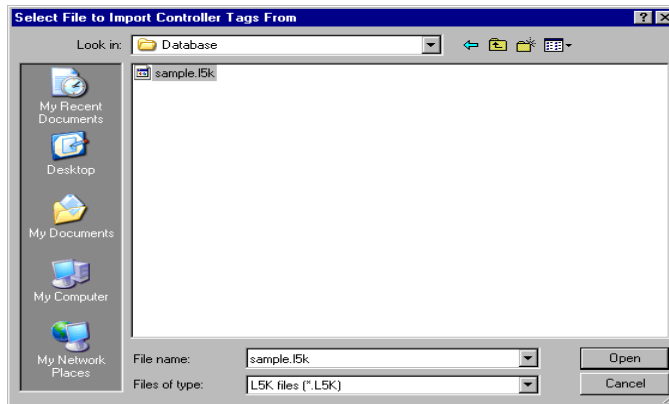
NOTE

- Import can be executed in CSV file. To export CSV file, select [Controller] with [Tags] of the export dialog box.
- CSV only includes tag information. Data type information is not included.

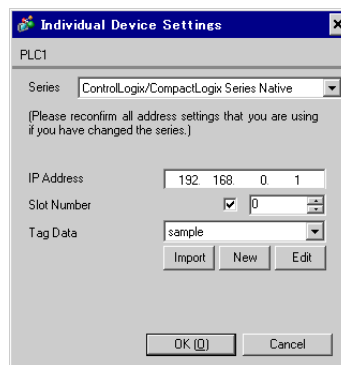
- 3) Go to the [Individual Device Settings] dialog box using GP-Pro EX and select "ControlLogix/CompactLogix Series Native" from [Series].



- 4) Click [Import]. Select the L5K file to be imported and click [Open].



- 5) Import is executed and tag data is made.

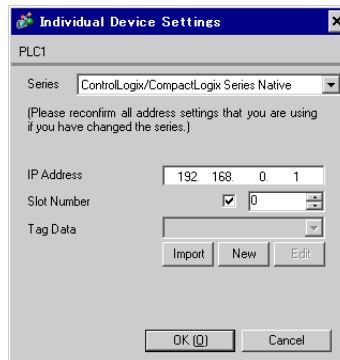


NOTE

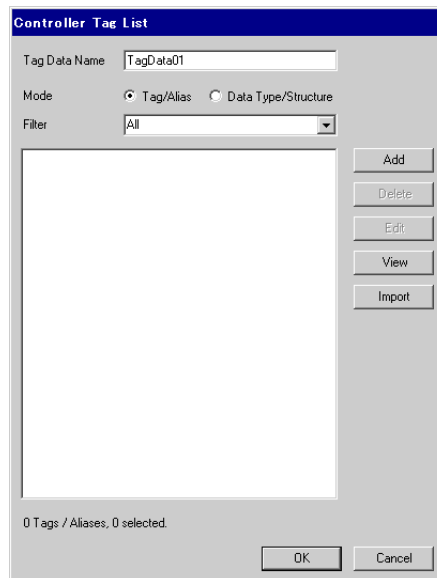
- If CSV file that uses structure is imported, there is a case that an error message, "An unknown Data Type was found." appears. When this error is displayed, after setting the structure, implement import again clicking [Import] of [Controller Tag List].
 ☞ " ■ Making a New Data Type" (page 39)
- If any unsupported types or tags are found during import, a log file can be made. 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

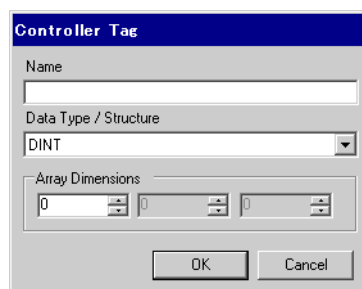
- 1) Go to the [Individual Device Settings] dialog box using GP-Pro EX, select "ControlLogix/CompactLogix Series Native" from [Series].



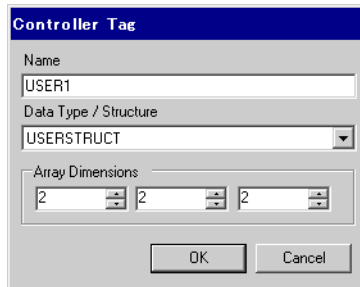
- 2) Click [New]. Input the tag data name to be made in [Tag Data Name].



- 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, and click [OK].



Controller Tag

Name
USER1

Data Type / Structure
USERSTRUCT

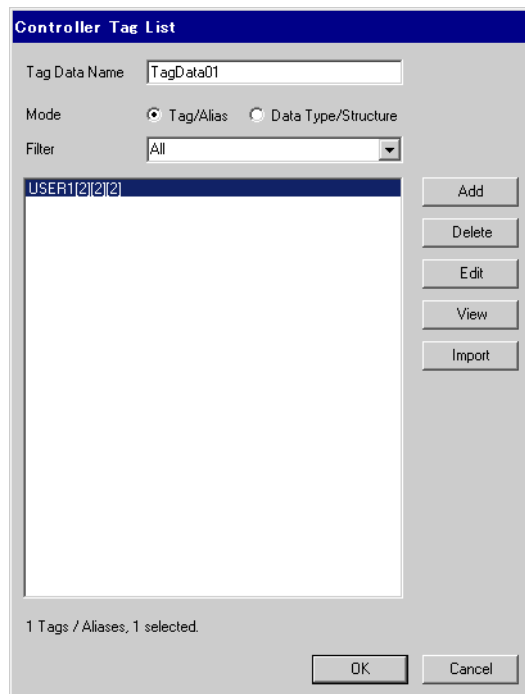
Array Dimensions
2 2 2

OK Cancel

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

☞ " ■ Making a New Data Type" (page 39)

The newly created controller tag is displayed in the list.



Controller Tag List

Tag Data Name TagData01

Mode Tag/Alias Data Type/Structure

Filter All

USER1[2][2][2]

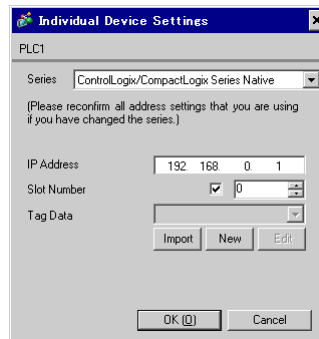
Add
Delete
Edit
View
Import

1 Tags / Aliases, 1 selected.

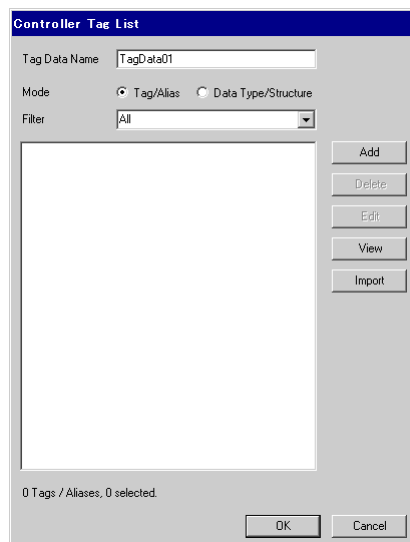
OK Cancel

■ Making a New Data Type

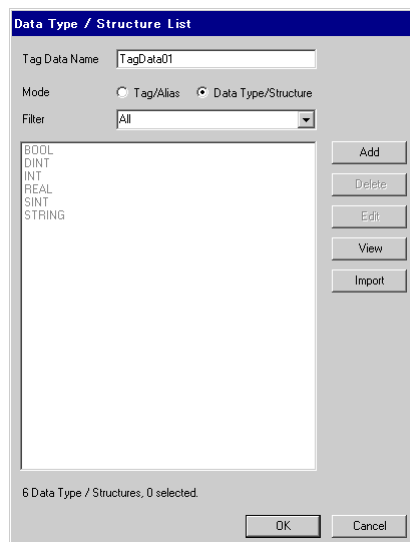
- 1) Go to the [Individual Device Settings] using GP-Pro EX, and select "ControlLogix/CompactLogix Series Native" from [Series].



- 2) Click [New]. Input the tag data name to be made in [Tag Data Name].



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



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

Data Type / Structure Edit

Structure Name

Members

Name	Data Type	Array
*		

Paste Structure Data OK Cancel

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

Data Type / Structure Edit

Structure Name
 USERSTRUCT

Members

Name	Data Type	Array
PARA1	INT	0
▶ PARA2	STRING	0
*		

Paste Structure Data OK Cancel

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.

Data Type / Structure List

Tag Data Name: TagData01

Mode: Tag/Alias Data Type/Structure

Filter: All


BOOL
 DINT
 INT
 REAL
 SINT
 STRING
USERSTRUCT

Add
 Delete
 Edit
 View
 Import

7 Data Type / Structures, 1 selected.

OK Cancel

NOTE

-
- In case that any devices excepting BOOL type do not exist in the created Tag Data Block, a warning message "Display Unit Illegal address. Define a correct address." may display by error check. This warning message displays because the suitable device address (excepting BOOL type) which are set in the system area of the display unit does not exist in the Tag Data Block. It is not especially because of the screen settings or the display unit settings.
 - Please refer to the GP-Pro EX Reference Manual for system data area.
- Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for 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. <div style="border: 1px solid black; padding: 2px; margin: 5px 0;">NOTE</div> <ul style="list-style-type: none"> 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

- Please refer to the manual of the External Device for more detail of received error codes.
- Please refer to "When an error message is displayed (Error code list)" of "Maintenance/Troubleshooting" for a common error message 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.

