



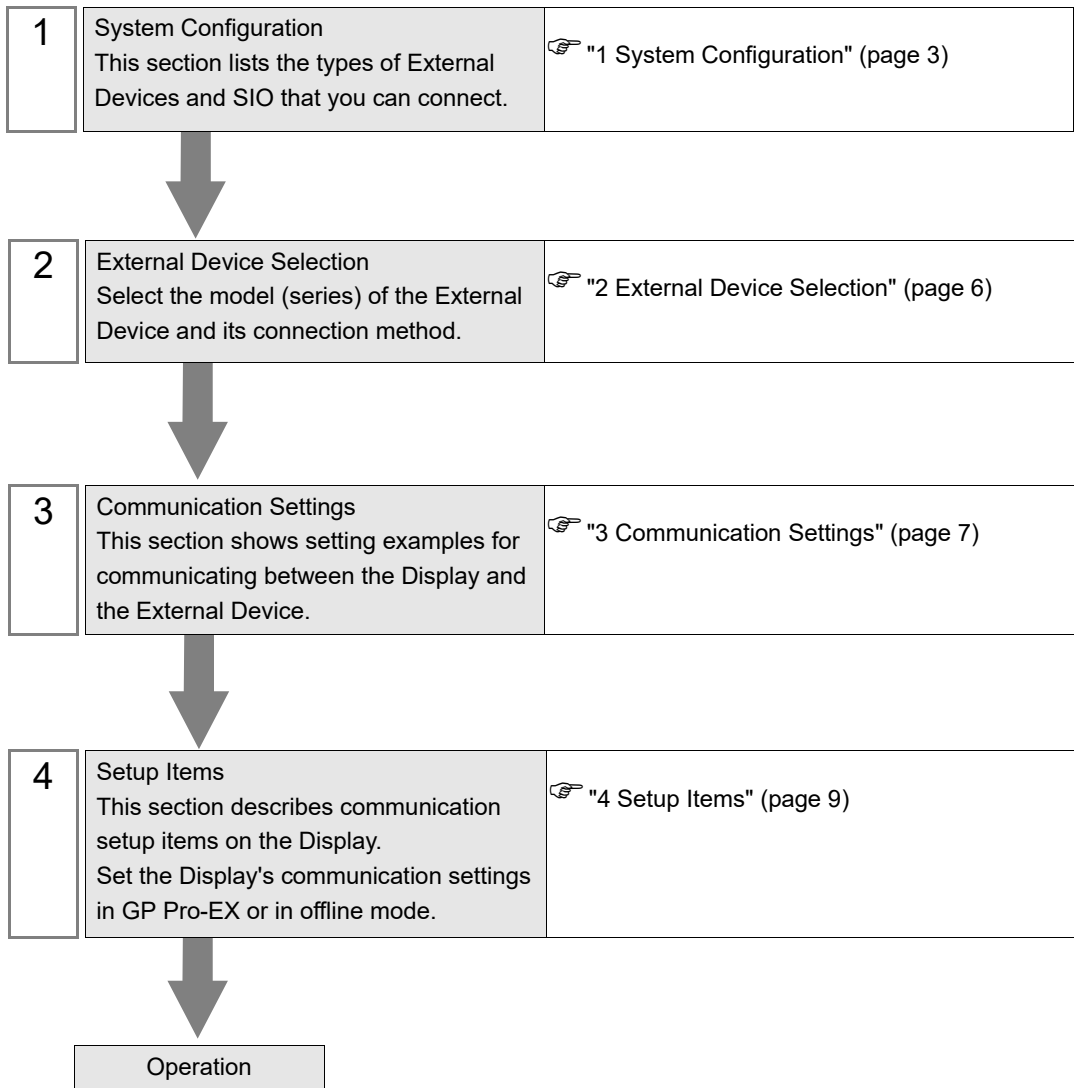
EtherNet/IP Target Driver

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Introduction

This manual describes how to connect the Display and the External Device.

In this manual, the connection procedure is described in the sections identified below:



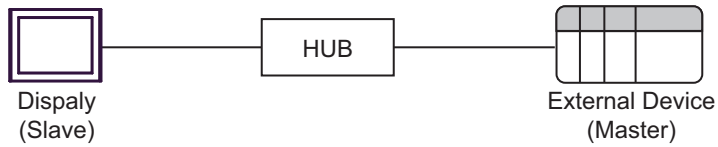
1 System Configuration

The following table lists system configurations for connecting External Devices and the Display.

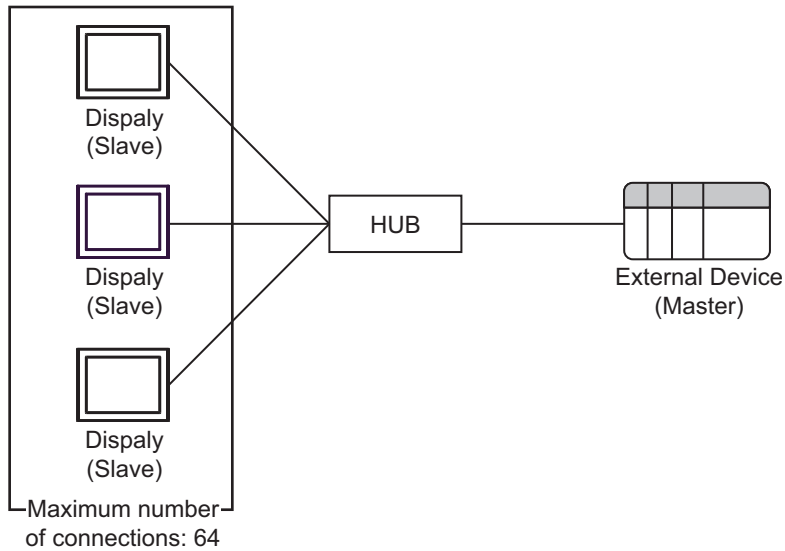
Driver	CPU	Link I/F	SIO Type	Setting Example
EtherNet/IP	Various EtherNet/IP devices “Originator”, “Scanner”, “Master”	Ethernet port on the External Device	Ethernet (TCP)	Setting Example 1 (page 7)

Connection Configuration

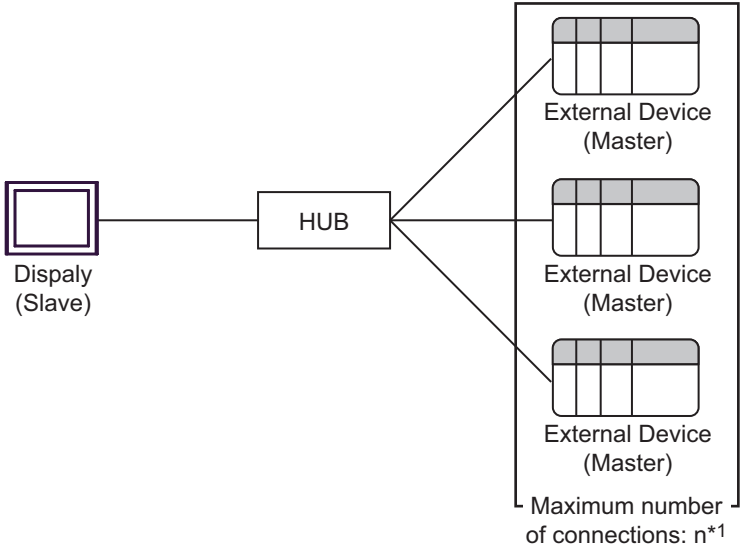
- 1 : 1 Connection



- m : 1 Connection



• 1 : n Connection

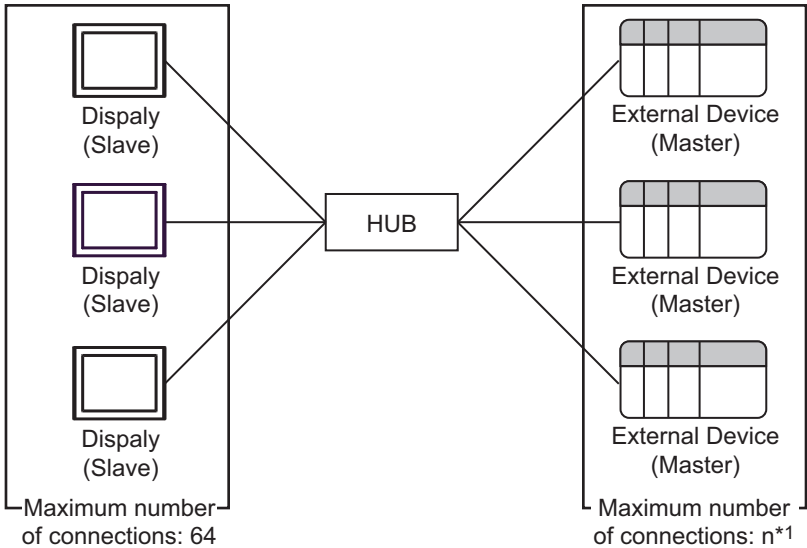


*1 The number of Displays (Slave) you can connect depends on the External Device. Check the specifications of the External Device.

NOTE

- Input, Output and Configuration Instance IDs can be registered for each Implicit message connection.
- When connecting multiple Originators, the response of the connected device may not be in time, so adjust the "Requested Packet Interval" and communication timeout setting on the Originator side.

• m : n Connection



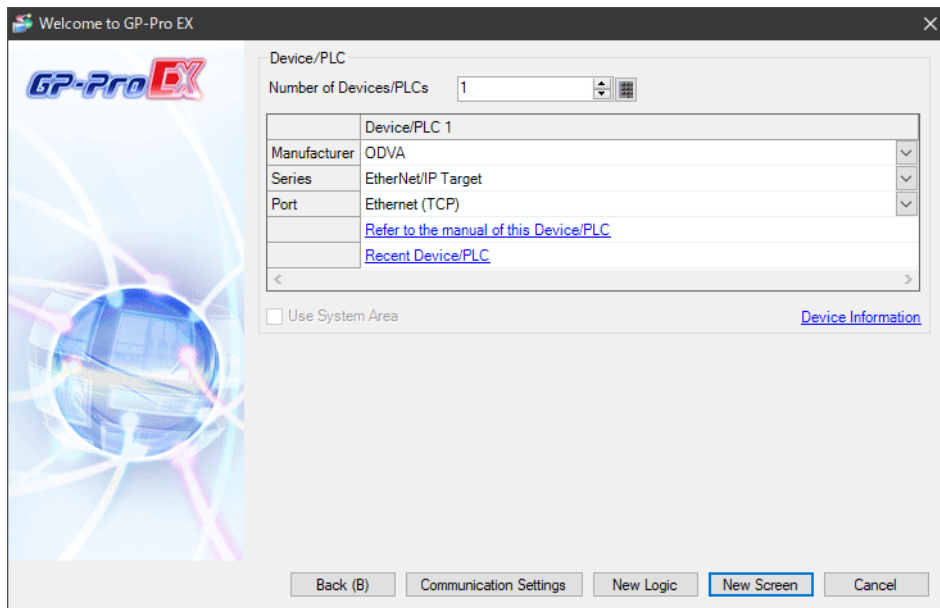
*1 The number of Displays (Slave) you can connect depends on the External Device. Check the specifications of the External Device.

NOTE

- When using this driver, the ODVA EtherNet/IP Explicit Messaging driver, and the Rockwell Automation Inc. EtherNet/IP driver at the same time, the following restrictions apply.
 - Use ODVA EtherNet/IP Explicit Messaging driver version 1.16.20 or later.
 - Use Rockwell Automation Inc. EtherNet/IP driver version 1.19.39 or later.
-

2 External Device Selection

Select the External Device to be connected to the Display.



Setup Items	Setup Description
Number of Devices/PLCs	Enter an integer from 1 to 4 to define the number of Devices/PLCs to connect to the display.
Manufacturer	Select the manufacturer of the External Device to connect. Select "ODVA".
Series	Select the External Device model (series) and the connection method. Select "EtherNet/IP Target". In System configuration, make sure the External Device you are connecting is supported by "EtherNet/IP Target". "1 System Configuration" (page 3)
Port	Select the Display port to connect to the External Device.
Use System Area	Check this option to synchronize the system data area of the Display and the device (memory) of the External Device. When synchronized, you can use the External Device's ladder program to switch the display or display the window on the Display. Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)" This feature can also be set in GP-Pro EX or in the Display's offline mode. Cf. GP-Pro EX Reference Manual "System Settings [Display Unit] - [System Area] Settings Guide" Cf. Maintenance/Troubleshooting Guide "Main Unit - System Area Settings"

3 Communication Settings

This section provides examples of communication settings recommended by Pro-face for the Display and the External Device.

3.1 Setting Example 1

■ GP-Pro EX Settings

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer Series Port

Text Data Mode [Change](#)

Communication Settings

Implicit Messaging Port (UDP)

Device-Specific Settings

Allowable Number of Devices/PLCs 16 [Add Device](#) [Increase Allowable Number of Devices/PLCs](#)

No.	Device Name	Settings
1	PLC1	Connection No.=1,Input Size=250,Output Size=248,Cc

◆ Device Setting

To display the [Individual Device Settings] dialog box, select the External Device and click [Settings] from [Device-Specific Settings] in the [Device/PLC] window.

Individual Device Settings

PLC1

Implicit Messaging Configuration

Connection No.

		Size (16-Bit)	Assembly Instance	Address
Input	(T->O)	<input type="text" value="250"/>	<input type="text" value="1"/>	I000.00 - I249.15
Output	(O->T)	<input type="text" value="248"/>	<input type="text" value="101"/>	O000.00 - O247.15
Configuration	(O->T)	<input type="text" value="0"/>	<input type="text" value="201"/>	

NOTE

- Click [Create EDS (All Connections)] or [Create EDS File (This Connection)] to create an EDS file.

" ■ Create the EDS File" (page 11)

■ Notes

- Check with your network administrator about the IP address you want to use. Do not duplicate IP addresses on the same network.
- In [Individual Device Settings], set the IP address of the External Device.
- Set the Display's IP address in offline mode.

■ External Device Settings

The communication settings vary depending on the External Device.

Refer to your External Device manual for details.

4 Setup Items

Set up the Display's communication settings in GP Pro-EX or in the Display's offline mode.

The setting of each parameter must match that of the External Device.

☞ "3 Communication Settings" (page 7)

NOTE

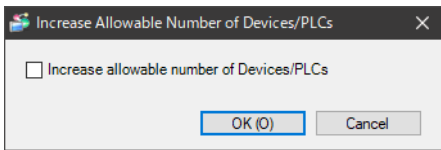
- You need to set the Display's IP address in offline mode.

Cf. Maintenance/Troubleshooting Guide "Ethernet Settings"

4.1 Setup Items in GP-Pro EX

■ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].


Setup Items	Setup Description
Implicit Messaging Port (UDP)	Use an integer from "1024 to 65535" to enter the port number of the Implicit Messaging.
Create EDS (All Connections)	Create the EDS file for all connection numbers. ☞ " ■ Create the EDS File" (page 11)
Increase Allowable Number of Devices/PLCs	When clicked, the [Increase Allowable Number of Devices/PLCs] dialog box is displayed. When you check [Increase allowable number of Devices/PLCs], the settings for [Allowable Number of Devices/PLCs] can be extended to "64". 

NOTE

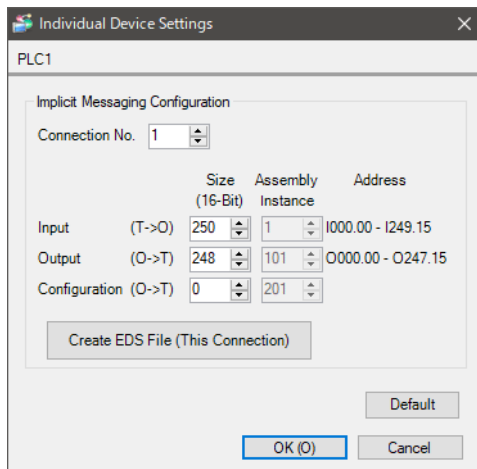
- Refer to the GP-Pro EX Reference Manual for Indirect Device.


Cf. GP-Pro EX Reference Manual "Changing the Device/PLC at Runtime (Indirect Device)"

■ Device Settings

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings]  .

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

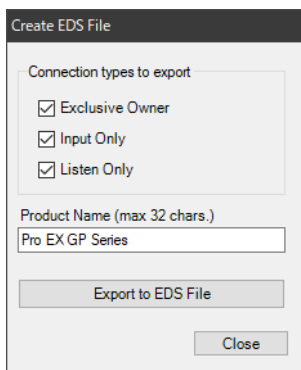


Setup Items	Setup Description
Connection No.	Use an integer from "1 to 64" to enter the connection number of the External Device. Enter an unused connection number.
Input (T->O)	<ul style="list-style-type: none"> • Size Set the Input data size. • Assembly Instance/Address The instance and the corresponding address are displayed.
Output (O->T)	<ul style="list-style-type: none"> • Size Set the Output data size. • Assembly Instance/Address The instance and the corresponding address are displayed.
Configuration (O->T)	<ul style="list-style-type: none"> • Size Set the Configuration data size. • Assembly Instance/Address The instance and the corresponding address are displayed. <p>NOTE</p> <ul style="list-style-type: none"> • Set [Size (8-bit)] to "0" to not use configuration. • In the command for opening a connection (Forward_Open), if you do not include any parameters of the Configuration Instance in the Connection_Path, set the [Assembly Instance] to 0.
Create EDS File (This Connection)	Create the EDS file for the connection number during setting.  " ■ Create the EDS File" (page 11)

■ Create the EDS File

- 1 Click [Create EDS (All Connection)] or [Create EDS File (This Connection)].

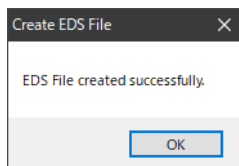
The Create EDS File dialog box is displayed.



- 2 Select a connection type and enter a product name, then click [Export to EDS File].

Setup Items	Setup Description
Connection types to export	<p>Select the connection type of the External Device. Select from the following items.</p> <ul style="list-style-type: none"> • Input/Output Reads input data from the External Device. And, writes output data to the External Device. • Input Only Reads input data from the External Device. Sends a heartbeat every 250 milliseconds. • Listen Only Reads input data from the External Device. This option is available only when other External Devices are connected using [Input/Output] or [Input Only].
Product Name (max 32 chars.)	Enter a product name with a maximum of 32 characters.

- 3 Save the EDS file in the dialog box that appears.
- 4 Click [OK] when a message appears indicating that the save was successful.



4.2 Setup Items in Offline Mode

NOTE

- Refer to the Maintenance/Troubleshooting guide for information on how to enter offline mode or about the operation.

Cf. Maintenance/Troubleshooting Guide "Offline Mode"

- The number of the setup items to be displayed for 1 page in the offline mode depends on the Display in use. Please refer to the Reference manual for details.

■ Communication Settings

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

Comm.	Device			
EtherNet/IP Target			[TCP]	Page 1/1
Implicit Port		2222 ▼ ▲		
	Exit		Back	2022/04/11 18:05:52

Setup Items	Setup Description
Implicit Port	Use an integer from "1024 to 65535" to enter the port number of the Implicit Messaging.

■ Device Settings


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].



Comm.	Device			
EtherNet/IP Target		[TCP]	Page 1/1	
Device/PLC Name <input type="text" value="PLC1"/>				
Connection No. 0				
Input Size 250				
Output Size 250				
Configuration Size 0				
Exit		Back		2022/04/11 18:06:16

Setup Items	Setup Description
Device/PLC Name	Shows the External Device to set.
Connection No.	Shows the connection number of the External Device.
Input Size	Shows the output data size from the External Device.
Output Size	Shows the output data size from the Display.
Configuration Size	Shows the configuration data size.

5 Supported Device Addresses

The following section shows the range of supported device addresses. Please note that the actual supported range of the devices varies depending on the External Device to be used. Please check the actual range in the manual of your External Device.

 : This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
 Input	I000.00 - I249.15	I000 - I249		*1
Output	O000.00 - O249.15	O000 - O249		*1 *2
Configuration	C000.00 - C199.15	C000 - C199		*1 *2 *3

*1 The maximum range is listed. It can be used within the range set in the device settings.

*2 Read only

*3 Sent only from the originator at initialization.

NOTE

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

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

- Refer to the precautions on manual notation for icons in the table.

 "Manual Symbols and Terminology"

- Information on Explicit Communication

The following information is required to access this driver using Explicit communication.

Class ID: 0x65 (101): "Target Internal Memory"

Instance ID: "Memory Area"

1: LS0000 ~ 8191

2: LS8192 ~ 9999

3: USR00000 ~ USR08191

4: USR08192 ~ USR16383

5: USR16384 ~ USR24575

6: USR24576 ~ USR29999

Attribute: "Address Offset"

0x000 ~ 0x1FFF (0 ~ 8191)

Service: "Command"

GetAttributeSingle (0x0E): "Read 16-bit Register"

SetAttributeSingle (0x10): "Write 16-bit Register"

6 Device Code and Address Code

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

Device	Device Name	Device Code (HEX)	Address Code
Input	I	0080	Word Address
Output	O	0081	Word Address
Configuration	C	0082	Word Address

7 Error Messages

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

Item	Description
No.	Error number
Device Name	Name of the External Device where an error has occurred. Device/PLC name is the title of the External Device set with GP-Pro EX. (Initial value [PLC1])
Error Message	Displays messages related to an error that has occurred.
Error Occurrence Area	<p>Displays the IP address or device address of the External Device where an error has occurred, or error codes received from the External Device.</p> <p>NOTE</p> <ul style="list-style-type: none"> • Received error codes are displayed as "Decimal [Hex]". • Device addresses are displayed as "Address: Device address". • IP addresses are displayed as "IP address (Decimal): MAC address (Hex)".

Example of an Error Message

"RHAA035: PLC1: Error has been responded for device write command (Error Code: 1[01H])"

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- NOTE**
- Refer to your External Device manual for details on received error codes.
 - Refer to "Display-related errors" in "Maintenance/Troubleshooting Guide" for details on the error messages common to the driver.
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