



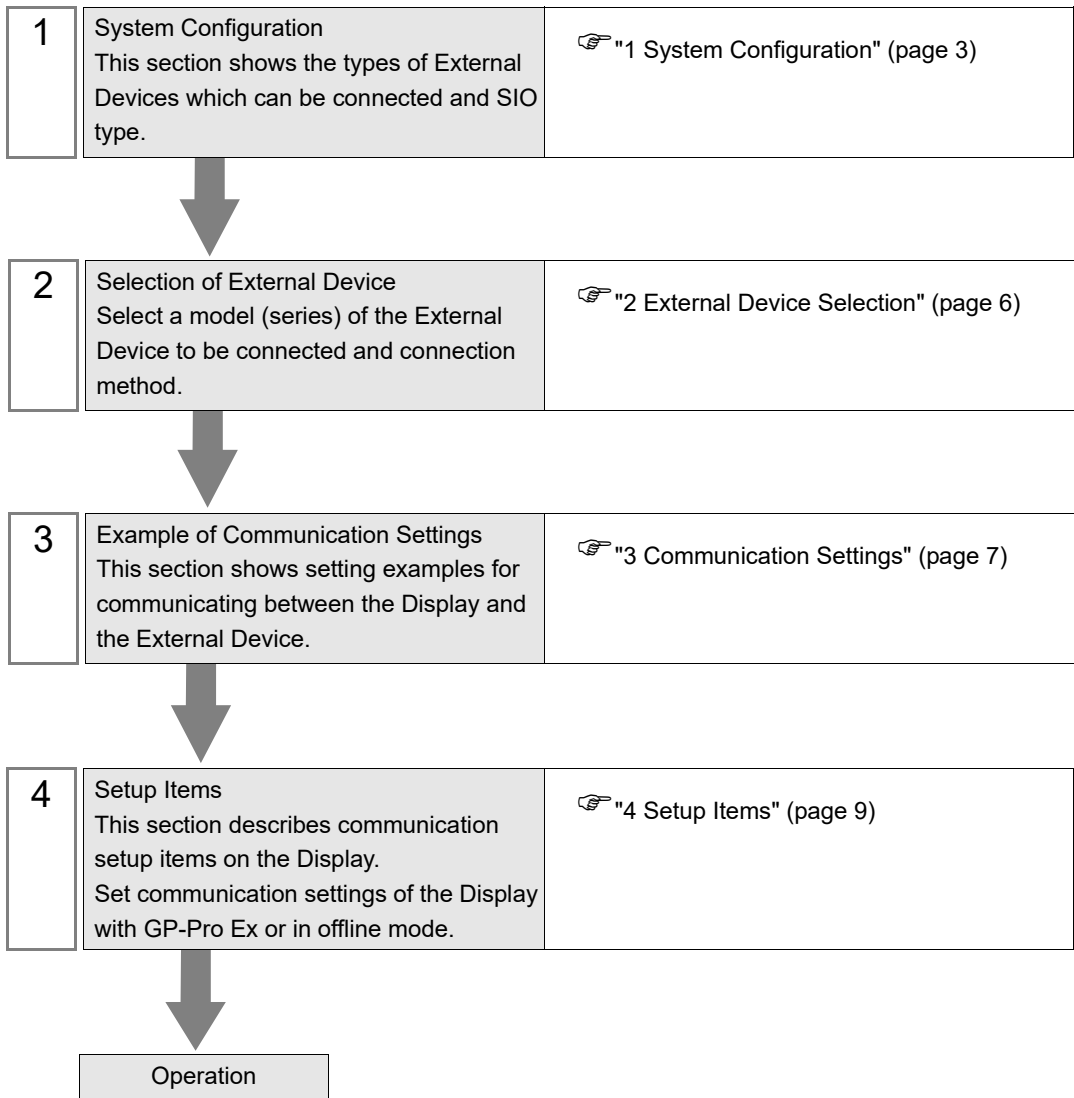
# TIA Portal Ethernet Driver

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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 and the Display are connected is shown.

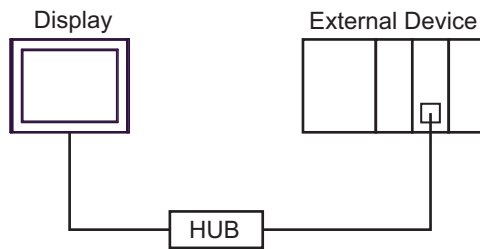
| Series                 | CPU  | Link I/F             | SIO Type       | Setting Example            |
|------------------------|--|----------------------|----------------|----------------------------|
| SIMATIC S7-1200 Series | CPU 1211C □/□/□<br>CPU 1212C □/□/□<br>CPU 1214C □/□/□<br>CPU 1215C □/□/□<br>CPU 1217C □/□/□<br>CPU 1212FC □/□/□<br>CPU 1214FC □/□/□<br>CPU 1215FC □/□/□  | Built-in port on CPU | Ethernet (TCP) | Setting Example 1 (page 7) |
| SIMATIC S7-1500 Series | CPU 1511-1 PN<br>CPU 1511C-1 PN<br>CPU 1512C-1 PN<br>CPU 1513-1 PN<br>CPU 1515-2 PN<br>CPU 1516-3 PN/DP<br>CPU 1517-3 PN/DP<br>CPU 1518-4 PN/DP<br>CPU 1518-4 PN/DP ODK<br>CPU 1518-4 PN/DP MFP<br>CPU 1511F-1 PN<br>CPU 1513F-1 PN<br>CPU 1515F-2 PN<br>CPU 1516F-3 PN/DP<br>CPU 1517F-3 PN/DP<br>CPU 1518F-4 PN/DP<br>CPU 1518F-4 PN/DP ODK<br>CPU 1518F-4 PN/DP MFP<br>CPU 1511T-1 PN<br>CPU 1515T-2 PN<br>CPU 1516T-3 PN/DP<br>CPU 1517T-3 PN/DP<br>CPU 1511TF-1 PN<br>CPU 1515TF-2 PN<br>CPU 1516TF-3 PN/DP<br>CPU 1517TF-3 PN/DP | Built-in port on CPU | Ethernet (TCP) | Setting Example 1 (page 7) |

**NOTE**

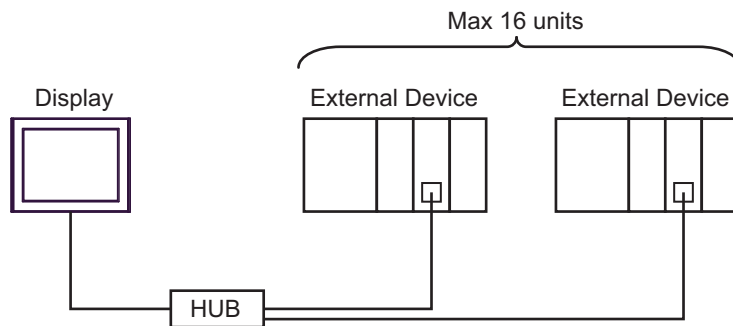
- GP-Pro EX versions that can use this driver differ depending on the display.
  - IPC, PC/AT compatible machines, or SP5000 Series Open Box  
Ver.4.05.100 or later
  - Other models  
Ver.4.06.300 or later
- This driver does not support GP3000 Series, LT3000 Series, GP-4100 Series (Monochrome Model), GP-4\*01TM, GP-Rear Module, LT-4\*01TM, and LT-Rear Module.
- When using this driver on models other than IPC, PCAT compatible machines, or SP5000 Series Open Box, the startup time on the display is slower by about 7 seconds when compared to other drivers.

## ■ Connection Configuration

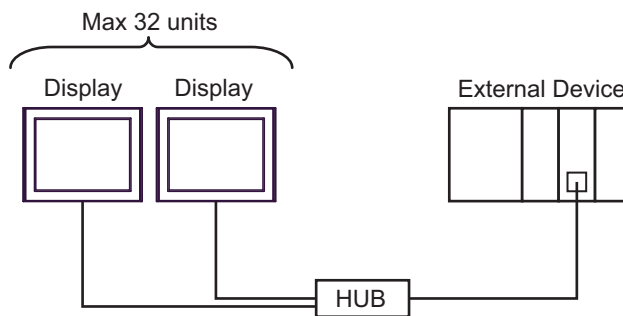
- 1:1 Connection



- 1:n Connection



- n:1 Connection.

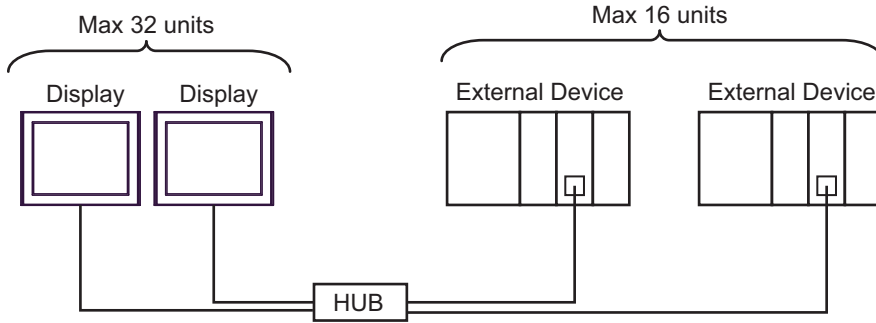



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**NOTE** • The number of connectable Display depends on the External Device.  
Please refer to the External Device manual for more details.

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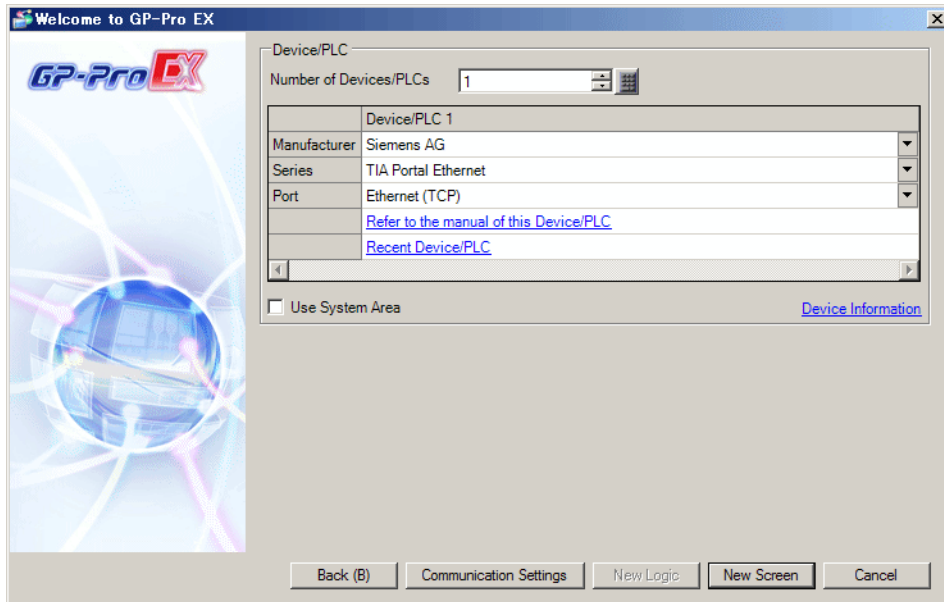
- m:n Connection.

**NOTE**

- The number of connectable Display depends on the External Device.  
Please refer to the External Device manual for more details.

## 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 for the number of series to set.   |
| Manufacturer           | Select the manufacturer of the External Device to be connected. Select "Siemens AG".  |
| Series                 | Select a model (series) of the External Device to be connected and connection method. Select "TIA Portal Ethernet".<br>Check the External Device which can be connected in "TIA Portal Ethernet" in system configuration.<br>☞ "1 System Configuration" (page 3)  |
| Port                   | Select the Display port to be connected to the External Device.   |
| Use System Area        | Check this option when you synchronize the system data area of Display and the device (memory) of External Device. When synchronized, you can use the ladder program of External Device to switch the display or display the window on the display.<br>Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"<br>This can also be set in GP-Pro EX or in the Display's offline mode.<br>Cf. GP-Pro EX Reference Manual "Display Unit (System Area) Settings Guide"<br>Cf. Maintenance/Troubleshooting Manual "Main Unit - System Area Settings" |

## 3 Communication Settings

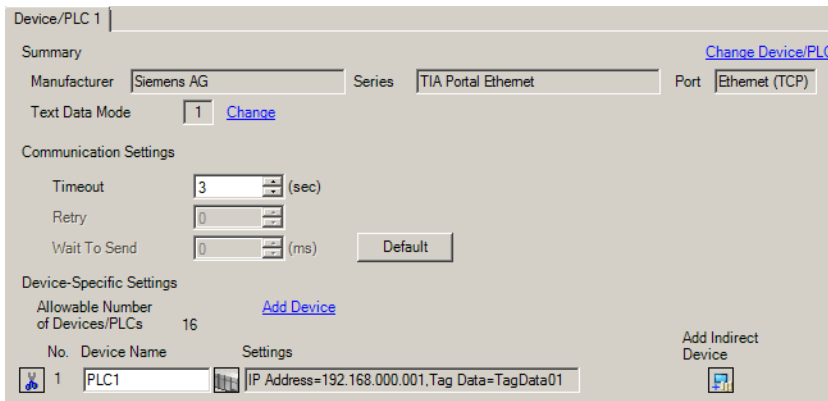
Examples of communication settings of the Display and the External Device, recommended by Pro-face, are shown.

### 3.1 Setting Example 1

#### ■ GP-Pro EX Settings

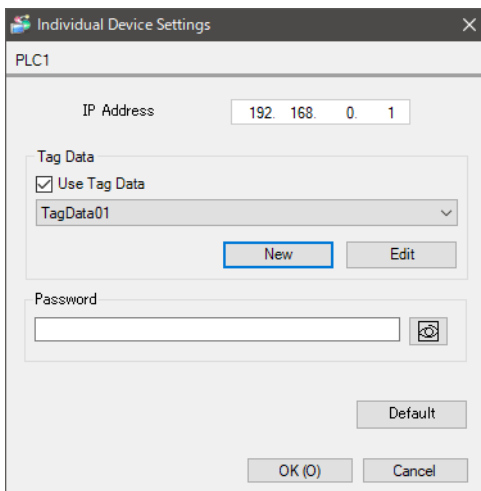
#### ◆ Communication Settings

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



#### ◆ Device 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.



#### ◆ Notes

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

## ■ External Device Settings

Use the ladder software (TIA Portal [STEP7 V11-V18]) to configure the External Device communication settings. Please refer to the External Device manual for details.

- (1) Start up the ladder software.
- (2) From the [Start] menu, select [Create new project] to create the project.
- (3) From [Devices & networks], select [Add new device].
- (4) Select the External Device, and enter the correct version of the firmware. Click [OK]. You can check for the firmware version of the External Device in online mode.

### NOTE

- You can check the External Device firmware version in online mode.
- Check that the External Device firmware version is supported by TIA Portal (STEP7 V11-V18). If you connect an External Device with a firmware version that is not supported by TIA Portal (STEP7 V11-V18), communication may not be possible. If that happens, change the firmware to a version supported by TIA Portal (STEP7 V11-V18).
- If the firmware of the External Device is a certain version or later, the [Only allow secure PG/PC and HMI communication] setting becomes enabled and communication with the Display is disabled. To resolve, go to [General]-> [Protection & Security]->[Connection mechanisms] and clear the [Only allow secure PG/PC and HMI communication] check box.

- (5) In the [Project tree], from the External Device select [Device configuration].
- (6) Click [Device view] tab, and from the External Device select [PROFINET interface\_1].
- (7) Click [Add new subnet] and enter the following settings for the network.

| Setup Items | Setting Value |
|-------------|---------------|
| IP address  | 192.168.0.1   |
| Subnet mask | 255.255.255.0 |

- (8) Add data block.
- (9) Select the appropriate device and click the [Compile] icon.
- (10) Save the project and then download to the External Device.

### ◆ Notes

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



## 4 Setup Items

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

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

☞ "3 Communication Settings" (page 7)

**NOTE** • Set the Display's IP address in offline mode.

Cf. Maintenance/Troubleshooting Guide "Ethernet Settings"

### 4.1 Setup Items in GP-Pro EX

#### ■ Communication Settings

To display the 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

Timeout  (sec)

Retry

Wait To Send  (ms)

Device-Specific Settings


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

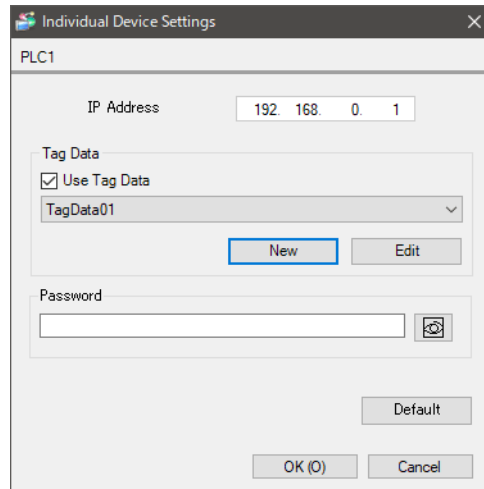
| No. | Device Name | Settings                                      | Add Indirect Device                                |
|-----|-------------|---|--|
| 1   | PLC1        | IP Address=192.168.000.001,Tag Data=TagData01 | <input type="button" value="Add Indirect Device"/> |


| Setup Items  | Setup Description  |
|--------------|--|
| 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 display how many times the Display retransmits the command. |
| Wait To Send | Use an integer from 0 to 255 to display standby time (ms) for the Display from receiving packets to transmitting next commands.              |

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

## ■ Device Setting

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  |
|--------------|--|
| IP Address   | Set IP address of the External Device.<br><b>NOTE</b> <ul style="list-style-type: none"> <li>• Check with a network administrator about IP address. Do not set the duplicate IP address.</li> </ul>  |
| Use Tag Data | Select the check box when using tag data (symbol addresses). This will enable you to select the tags you want to use.<br>Select [New] when you want to create new tag data, or update existing tag data.<br>[Edit] only allows you to delete tags or reimport. If tags are deleted from the project file (.ap**) that is reimported, then those same tags are also deleted from the existing tag data.<br> "■ Tag File Importing" (page 17) |
| Password     | Enter Optional password for the Access level.  |

## 4.2 Setup Items in Offline Mode

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

Cf. Maintenance/Troubleshooting Guide "Offline Mode"

### ■ Communication Settings

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

| Comm.               | Device |  |       |                        |
|---------------------|--------|--|-------|------------------------|
| TIA Portal Ethernet |        |  | [TCP] | Page 1/1               |
| Timeout(s)          |        |  | 3     |                        |
| Retry               |        |  | 0     |                        |
| Wait To Send(ms)    |        |  | 0     |                        |
|                     | Exit   |  | Back  | 2016/06/01<br>13:26:43 |

| Setup Items  | Setup Description  |
|--------------|--|
| 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 display how many times the Display retransmits the command. |
| Wait To Send | Use an integer from 0 to 255 to display 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 Settings]. Touch the External Device you want to set from the displayed list, and touch [Device].


|                     |               |       |          |                        |
|---------------------|---------------|-------|----------|------------------------|
| Comm.               | Device        |       |          |                        |
| TIA Portal Ethernet |               | [TCP] | Page 1/1 |                        |
| Device/PLC Name     | [PLC1]        |       |          |                        |
| IP Address          | [192 168 0 1] |       |          |                        |
|                     | Exit          |       | Back     | 2016/06/01<br>13:26:59 |


| Setup Items     | Setup Description  |
|-----------------|--|
| Device/PLC Name | Select the External Device for device setting. Device name is a title of External Device set with GP-Pro EX.(Initial value [PLC1])   |
| IP Address      | Set IP address of the External Device.<br><div style="border: 1px solid black; padding: 2px; display: inline-block;"><b>NOTE</b></div> <ul style="list-style-type: none"> <li>Check with a network administrator about IP address. Do not set the duplicate IP address.</li> </ul> |

## 5 Supported Device Addresses

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

### 5.1 S7-1200/1500 Series

 This address can be specified as system data area.

| Device                |            | Bit Address   | Word Address  | 32bits  | Remarks  |
|-----------------------|------------|---|---|---|----------|
| BOOL                  | Single Tag | <TAGNAME>   |   |   |          |
|                       | 1D Array   | <TAGNAME>[x1]-<br><TAGNAME>[xh]                                     |   |   |          |
|                       | 2D Array   | <TAGNAME>[x1,y1]-<br><TAGNAME>[xh,yh]                               |   |   |          |
|                       | 3D Array   | <TAGNAME>[x1,y1,z1]-<br><TAGNAME>[xh,yh,zh]                         | -   | -   | *1 *2    |
|                       | 4D Array   | <TAGNAME>[x1,y1,z1,w1]-<br><TAGNAME>[xh,yh,zh,wh]                   |   |   |          |
|                       | 5D Array   | <TAGNAME>[x1,y1,z1,v1,w1]-<br><TAGNAME>[xh,yh,zh,vh,wh]             |   |   |          |
|                       | 6D Array   | <TAGNAME>[x1,y1,z1,u1,v1,w1]-<br><TAGNAME>[xh,yh,zh,uh,vh,wh]       |   |   |          |
| BYTE<br>SINT<br>USINT | Single Tag | <TAGNAME>.00 -<br><TAGNAME>.07                                      | <TAGNAME>   |   |          |
|                       | 1D Array   | <TAGNAME>[x1].00-<br><TAGNAME>[xh].07                               | <TAGNAME>[x1]-<br><TAGNAME>[xh]                               |   |          |
|                       | 2D Array   | <TAGNAME>[x1,y1].00-<br><TAGNAME>[xh,yh].07                         | <TAGNAME>[x1,y1]-<br><TAGNAME>[xh,yh]                         |   |          |
|                       | 3D Array   | <TAGNAME>[x1,y1,z1].00-<br><TAGNAME>[xh,yh,zh].07                   | <TAGNAME>[x1,y1,z1]-<br><TAGNAME>[xh,yh,zh]                   |  | *1<br>*2 |
|                       | 4D Array   | <TAGNAME>[x1,y1,z1,w1].00-<br><TAGNAME>[xh,yh,zh,wh].07             | <TAGNAME>[x1,y1,z1,w1]-<br><TAGNAME>[xh,yh,zh,wh]             |   |          |
|                       | 5D Array   | <TAGNAME>[x1,y1,z1,v1,w1].00-<br><TAGNAME>[xh,yh,zh,vh,wh].07       | <TAGNAME>[x1,y1,z1,v1,w1]-<br><TAGNAME>[xh,yh,zh,vh,wh]       |   |          |
|                       | 6D Array   | <TAGNAME>[x1,y1,z1,u1,v1,w1].00-<br><TAGNAME>[xh,yh,zh,uh,vh,wh].07 | <TAGNAME>[x1,y1,z1,u1,v1,w1]-<br><TAGNAME>[xh,yh,zh,uh,vh,wh] |   |          |

| Device                 |            | Bit Address   | Word Address  | 32bits     | Remarks        |
|------------------------|------------|---|---|------------|----------------|
| WORD<br>INT<br>UINT    | Single Tag | <TAGNAME>.00 -<br><TAGNAME>.15                                | <TAGNAME>   | <b>H/L</b> | *1<br>*2<br>*3 |
|                        | 1D Array   | <TAGNAME>[x].00-<br><TAGNAME>[xh].15                          | <TAGNAME>[x]-<br><TAGNAME>[xh]                          |            |                |
|                        | 2D Array   | <TAGNAME>[x,y].00-<br><TAGNAME>[xh,yh].15                     | <TAGNAME>[x,y]-<br><TAGNAME>[xh,yh]                     |            |                |
|                        | 3D Array   | <TAGNAME>[x,y,z].00-<br><TAGNAME>[xh,yh,zh].15                | <TAGNAME>[x,y,z]-<br><TAGNAME>[xh,yh,zh]                |            |                |
|                        | 4D Array   | <TAGNAME>[x,y,z,w].00-<br><TAGNAME>[xh,yh,zh,wh].15           | <TAGNAME>[x,y,z,w]-<br><TAGNAME>[xh,yh,zh,wh]           |            |                |
|                        | 5D Array   | <TAGNAME>[x,y,z,v,w].00-<br><TAGNAME>[xh,yh,zh,vh,wh].15      | <TAGNAME>[x,y,z,v,w]-<br><TAGNAME>[xh,yh,zh,vh,wh]      |            |                |
|                        | 6D Array   | <TAGNAME>[x,y,z,u,v,w].00-<br><TAGNAME>[xh,yh,zh,uh,vh,wh].15 | <TAGNAME>[x,y,z,u,v,w]-<br><TAGNAME>[xh,yh,zh,uh,vh,wh] |            |                |
| DWORD<br>DINT<br>UDINT | Single Tag | <TAGNAME>.00 -<br><TAGNAME>.31                                | <TAGNAME>   | <b>H/L</b> | *1<br>*2       |
|                        | 1D Array   | <TAGNAME>[x].00-<br><TAGNAME>[xh].31                          | <TAGNAME>[x]-<br><TAGNAME>[xh]                          |            |                |
|                        | 2D Array   | <TAGNAME>[x,y].00-<br><TAGNAME>[xh,yh].31                     | <TAGNAME>[x,y]-<br><TAGNAME>[xh,yh]                     |            |                |
|                        | 3D Array   | <TAGNAME>[x,y,z].00-<br><TAGNAME>[xh,yh,zh].31                | <TAGNAME>[x,y,z]-<br><TAGNAME>[xh,yh,zh]                |            |                |
|                        | 4D Array   | <TAGNAME>[x,y,z,w].00-<br><TAGNAME>[xh,yh,zh,wh].31           | <TAGNAME>[x,y,z,w]-<br><TAGNAME>[xh,yh,zh,wh]           |            |                |
|                        | 5D Array   | <TAGNAME>[x,y,z,v,w].00-<br><TAGNAME>[xh,yh,zh,vh,wh].31      | <TAGNAME>[x,y,z,v,w]-<br><TAGNAME>[xh,yh,zh,vh,wh]      |            |                |
|                        | 6D Array   | <TAGNAME>[x,y,z,u,v,w].00-<br><TAGNAME>[xh,yh,zh,uh,vh,wh].31 | <TAGNAME>[x,y,z,u,v,w]-<br><TAGNAME>[xh,yh,zh,uh,vh,wh] |            |                |
| LWORD<br>LINT<br>ULINT | Single Tag | <TAGNAME>.00 -<br><TAGNAME>.63                                | <TAGNAME>   | <b>H/L</b> | *1<br>*2<br>*4 |
|                        | 1D Array   | <TAGNAME>[x].00-<br><TAGNAME>[xh].63                          | <TAGNAME>[x]-<br><TAGNAME>[xh]                          |            |                |
|                        | 2D Array   | <TAGNAME>[x,y].00-<br><TAGNAME>[xh,yh].63                     | <TAGNAME>[x,y]-<br><TAGNAME>[xh,yh]                     |            |                |
|                        | 3D Array   | <TAGNAME>[x,y,z].00-<br><TAGNAME>[xh,yh,zh].63                | <TAGNAME>[x,y,z]-<br><TAGNAME>[xh,yh,zh]                |            |                |
|                        | 4D Array   | <TAGNAME>[x,y,z,w].00-<br><TAGNAME>[xh,yh,zh,wh].63           | <TAGNAME>[x,y,z,w]-<br><TAGNAME>[xh,yh,zh,wh]           |            |                |
|                        | 5D Array   | <TAGNAME>[x,y,z,v,w].00-<br><TAGNAME>[xh,yh,zh,vh,wh].63      | <TAGNAME>[x,y,z,v,w]-<br><TAGNAME>[xh,yh,zh,vh,wh]      |            |                |
|                        | 6D Array   | <TAGNAME>[x,y,z,u,v,w].00-<br><TAGNAME>[xh,yh,zh,uh,vh,wh].63 | <TAGNAME>[x,y,z,u,v,w]-<br><TAGNAME>[xh,yh,zh,uh,vh,wh] |            |                |

| Device  |               | Bit Address | Word Address  | 32bits     | Remarks  |
|---|---------------|-------------|---|------------|----------|
| REAL<br>TIME<br>DATE* <sup>5</sup><br>TIME_<br>OF_DAY<br>DT<br>STRING* <sup>6</sup> | Single<br>Tag |             | <TAGNAME>   | <b>H/L</b> | *1<br>*2 |
|   | 1D<br>Array   |             | <TAGNAME>[x1]-<br><TAGNAME>[xh]                               |            |          |
|   | 2D<br>Array   |             | <TAGNAME>[x1,y1]-<br><TAGNAME>[xh,yh]                         |            |          |
|   | 3D<br>Array   | -           | <TAGNAME>[x1,y1,z1]-<br><TAGNAME>[xh,yh,zh]                   |            |          |
|   | 4D<br>Array   |             | <TAGNAME>[x1,y1,z1,w1]-<br><TAGNAME>[xh,yh,zh,wh]             |            |          |
|   | 5D<br>Array   |             | <TAGNAME>[x1,y1,z1,v1,w1]-<br><TAGNAME>[xh,yh,zh,vh,wh]       |            |          |
|   | 6D<br>Array   |             | <TAGNAME>[x1,y1,z1,u1,v1,w1]-<br><TAGNAME>[xh,yh,zh,uh,vh,wh] |            |          |

\*1 <TAGNAME>: For structures, the Tag Name includes the structure name. The maximum length of the Tag Name is 255 characters, including delimiters and the element number.  
If using UNICODE text, the maximum number for each element is 80 characters.

#### Example

BOOL type single tag: "BOOLSYPMBOL"  
 BOOL type 1D array: "BOOL1D[10]"  
 WORD type 2D array: "WORD2D[10,10]"  
 UDINT type 3D array: "UDINT[0,1,2]"  
 User-defined structure: "STRUCT001.STRINGSYM"

For tag names and element names, you can use alphanumeric characters (upper and lower case), underscore, space, and multi-byte characters (such as Japanese). Note the following input limitations.

- The last character in the name cannot be the underscore symbol.
- The pound symbol (#) can be used as the first character only.
- Names cannot include any of the following symbols:  
., ! " \$ % ^ & \* ( ) - + = { } [ ] / \ ? # @ ~ : ; < > ' ` |
- You cannot start names with any of the following text:  
LS, USR, SCR, PRT

- \*2 The number of elements for each dimension is from "l" (minimum number of elements) to "h" (maximum number of elements).
- \*3 By default, the system data area is set up with 16 words. Even if you want to use less than 16 words for the system data area, you have to map a 16 word (or larger) array tag, and then select the items to include in the system data area.
- \*4 64-bit device. Because GP-Pro EX does not support the LONG data type, the top 4 bytes are invalid.
- \*5 Handled as 16-bit devices in the External Device, but as 32-bit devices on the display unit.
- \*6 The maximum number of characters for the STRING device is 254 characters.

**IMPORTANT**

- To use tags, you need to import Tag Data (symbol addresses).  
For information about how to import and the limits for tag data capacity, please refer to the GP-Pro EX Reference Manual.
- GP-Pro EX Reference Manual, "Using Device/PLC Tags"
- To import a TIA Portal project file, use one of the following versions of the driver.

| TIA Portal Version |       | TIA Portal Ethernet Driver Version |
|--------------------|-------|------------------------------------|
| V11 - V13          |       | V1.10.00 or later                  |
| V14                |       | V1.12.02 or later                  |
| V15                | V15   | V1.13.02 or later                  |
|                    | V15.1 | V1.14.05 or later                  |
| V16                |       | V1.15.09 or later                  |
| V17                |       | V1.16.11 or later                  |
| V18                |       | V1.17.18 or later                  |

- When tags for the following data types are imported, the data type is converted as shown.

| TIA Portal data type | Converted data type |
|----------------------|---------------------|
| S5_TIME              | WORD                |
| CHAR                 | BYTE                |
| WCHAR                | WORD                |
| TIMER                | WORD                |
| COUNTER              | WORD                |
| IEC_TIMER            | STRUCT              |
| IEC_SCOUNTER         | STRUCT              |
| IEC_USCOUNTER        | STRUCT              |
| IEC_COUNTER          | STRUCT              |
| IEC_UCOUNTER         | STRUCT              |
| IEC_DCOUNTER         | STRUCT              |
| ERROR_STRUCT         | STRUCT              |
| NREF                 | STRUCT              |
| CREF                 | STRUCT              |

**NOTE**

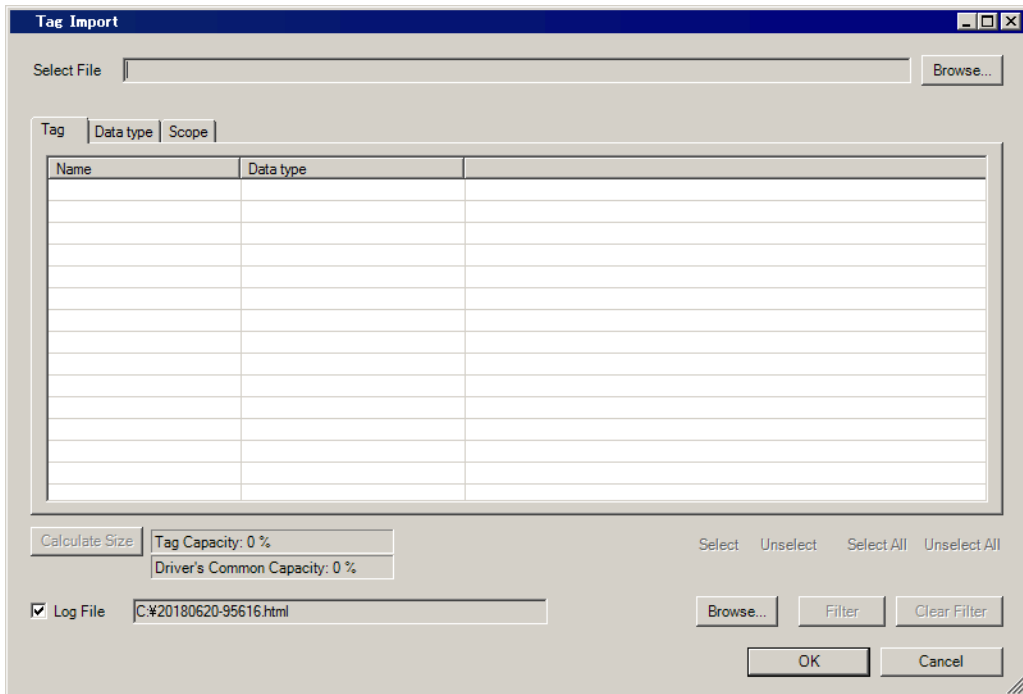
- To use a different TIA Portal project file, first rename the folder where the current project file resides. Next, in the [Individual Device Settings] dialog box click [New], and select the new project file.
- Please refer to the GP-Pro EX Reference Manual for system data area.  
Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"
- Please refer to the precautions on manual notation for icons in the table.

 "Manual Symbols and Terminology"





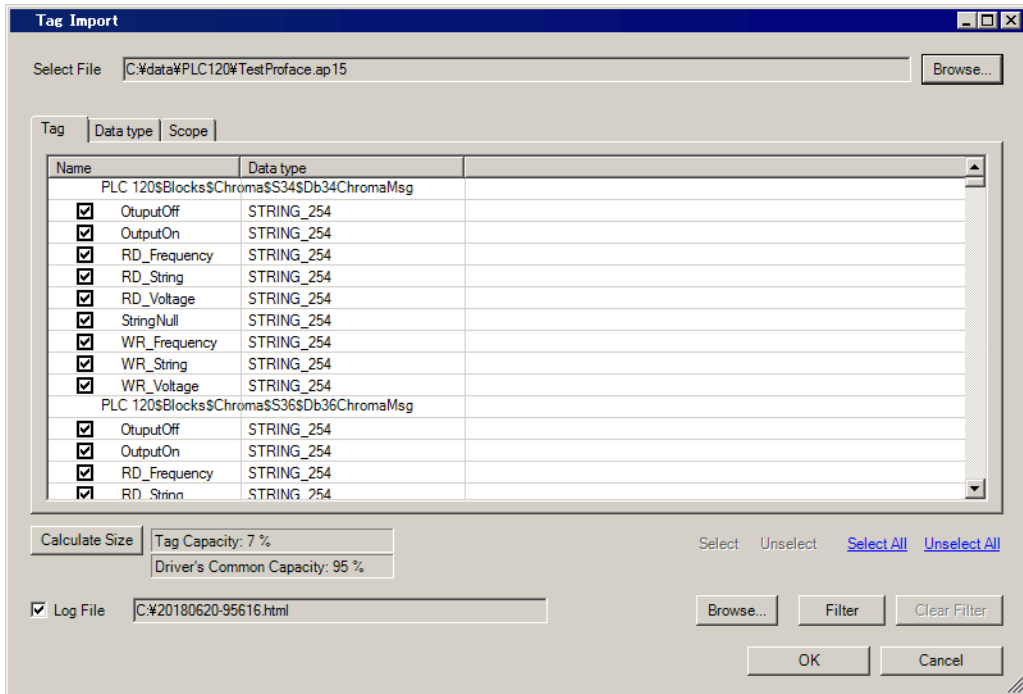
### 3 Click [Import].



### 4 Click [Browse...] of [Select File], and select the project file of the TIA Portal

- NOTE**
- When two or more programs are included in a project file, the selection dialog box of a program is displayed.  
The program to import is select and click [OK].
  - You can import only one project file (.ap\*\*) to GP-Pro EX. When importing tags into multiple External Devices, select the same project file for all the External Devices.

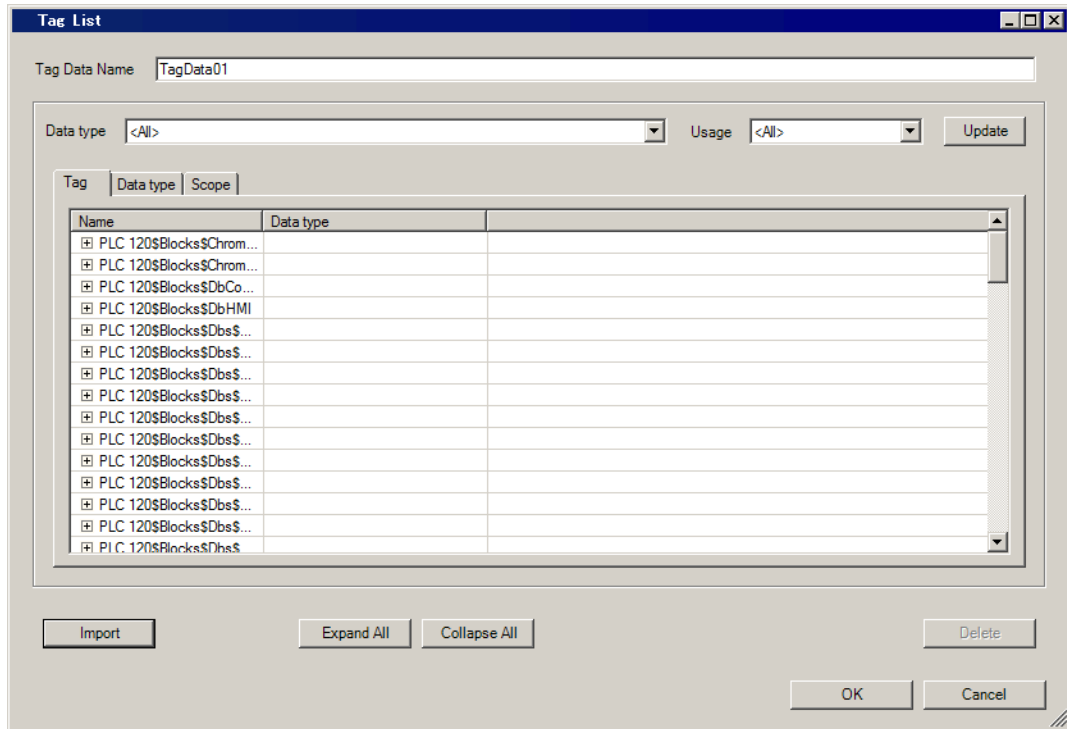
5 Check the tags to import, and click [OK].



**NOTE**

- When tag names include symbols that are not allowed in GP-Pro EX, the tag is not imported. Before importing, please change the tag name.
- When using a unit other than an IPC, PC/AT compatible machine, or SP5000 Series Open Box, and the [Driver's Common Capacity] exceeds 100%, the RHxx130 error will occur. To reduce the [Driver's Common Capacity] below 100%, adjust the number of tags and PLC devices (PLC nodes) used in TIA Portal.

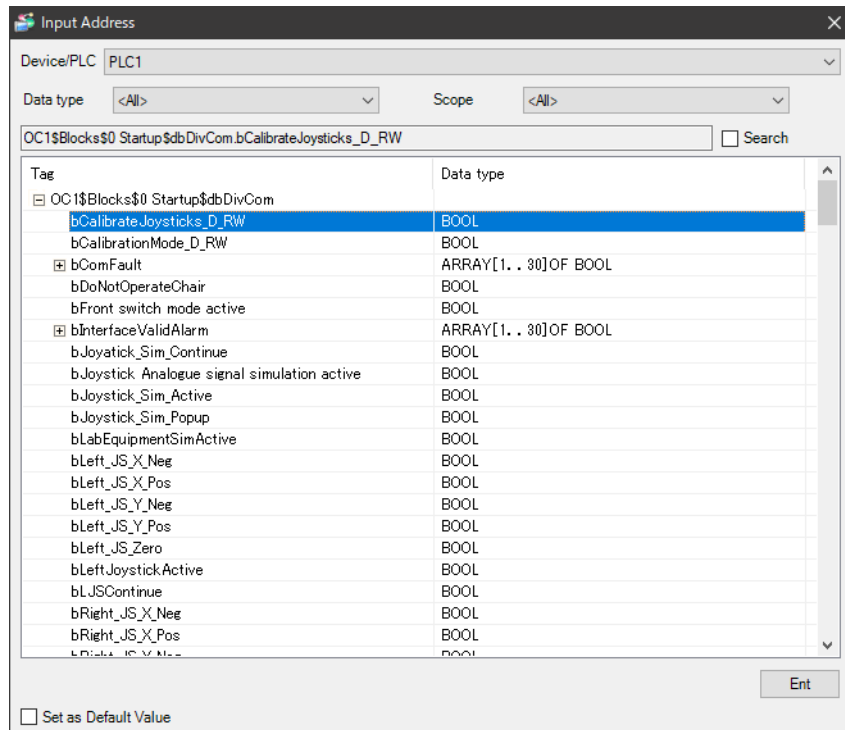
## 6 Check the imported tags, and click [OK]



- NOTE**
- For details on importing tags, refer to the GP-Pro EX Reference Manual, "Using Device/PLC Tags".
  - You cannot edit imported tag data. Please import again if you change the tag data.
  - This driver uses the tag data included in a TIA Portal project.
  - For error messages in the import log, refer to the following.
    - ☞ "7 Error Messages" (page 23)

## ■ Address Inputting

Click the calculator icon on the right side of the address field to display the following input address dialog box.



| Setup Items                      | Setup Description   |
|----------------------------------|---|
| Device/PLC                       | Select the External Device.   |
| Data type                        | As the data type used by the tag is registered and displayed, select the data type. Tags with the selected data type are displayed in tree list view.   |
| Scope                            | Select the scope of the tag.  |
| Tag name text box                | Display the address of the tag selected in the tree list view.  |
| Search                           | <p>If you select the [Search] check box, the search function becomes enabled and only tags that contain the string entered in the text box are sorted and displayed.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>If there are too many tags registered, it may not be possible to search for strings that exceed the upper limit.</li> </ul>  |
| Tree list view<br>Tag, Data type | <p>Click the title to sort in ascending or descending order.</p> <p>Click the plus [+] on a structure tag to display members in the structure and so you can select a member.</p> <p>Click the plus [+] on an array tag to display array element numbers, and so you can select an element.</p> <p>For bit addresses, click the plus [+] of data types that support bit tags to display bit numbers.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>In word address mode, the bit type (BOOL) is grayed out and cannot be selected.</li> <li>In bit address mode, data types where bits cannot be selected are grayed out and cannot be selected. However, struct tags and array tags are not grayed out.</li> </ul> |
| Set as Default Value             | Sets the address of the selected tag as the default value.  |
| Ent                              | Click to enter the address of the selected tag.   |

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## 6 Device Code and Address Code

Device code and address code can not be used.

## 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 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 | <p>Displays IP address or device address of the External Device where error occurs, or error codes received from the External Device.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• IP address is displayed such as "IP address (Decimal): MAC address (Hex)".</li> <li>• Device address is displayed such as "Address: Device address".</li> <li>• Received error codes are displayed such as "Decimal [Hex]".</li> </ul> |

Display Examples of Error Messages

"RHAA035: PLC1: Error has been responded for device write command (Error Code: 2 [02H])"

- 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.

### ■ Error Code Peculiar to External Device

| Error Code  | Description                            | Comment  |
|-------------|--|--|
| 0xFFFF000C  | No free connections available          | The defined External Device has already reached its maximum number of node connections. Please reduce the number of nodes connected on the External Device to open a connection. |
| 0xFFFF000D  | Device not configured or not supported | The defined External Device may not support TIA Portal. Check the External Device.   |
| 0xFFFF50001 | Invalid packet                         | Packet received by AGLink library may be corrupted or may contain invalid data. Check the External Device connection status and the communication settings.                      |
| 0xFFFF50002 | No connection to External Device       | Check the External Device connection.  |
| 0xFFFF50003 | Connection closed                      | The connection was closed during communication with the External Device. Check if communication is still active with other nodes.  |
| 0xFFFF50004 | Timeout                                | Check the External Device connection.  |
| 0xFFFF5000A | No data available e.g. DB is missing   | Some symbols imported from the TIA project are missing from the defined External Device. Please import again.  |

| Error Code   | Description      | Comment  |
|--------------|------------------|--|
| 0xFFFF900000 | TIA read error   | Error occurred during read process. Tag data between the External Device and display may not match. Check the tag data.              |
| 0xFFFF900001 | TIA write error  | Error occurred during write process. Tag data between the External Device and display may not match. Check the tag data.             |
| 0xFFFF900016 | TIA portal error | Error occurred during TIA Portal processing. There may have been an attempt to access an invalid array element. Check the addresses. |

### ■ Error Messages Peculiar to External Device

| Message ID | Error Message  | Description   |
|------------|--|---|
| RHxx128    | (Node Name): %s:Out of range value in write request. (Tag name:%s) | Displays when the write value is out of range. Please write a value that is within the defined range. |
| RHxx129    | The version of this system is unsupported.                         | The run time you are using does not support this driver. Please transfer the project file again.      |
| RHxx130    | No TIA Portal project data is available.                           | The TIA Portal project data has not been imported into the GP-Pro EX project. Please import again.    |

### ■ Import Log Error Messages

- Analysis Log

| Error Message                | Description  | Solution                         |
|------------------------------|--|----------------------------------|
| Unsupported data type. (***) | GP-Pro EX cannot use the data type shown in the message. | Change to a supported data type. |


- Import Log

| Error Message                                | Description  | Solution  |
|--|--|---|
| ***: The Structure has invalid name member.  | The message identifies either the data type or tag that has a structure name with unsupported characters.    | Check if the name of the structure conforms to the naming rules.      |
| ***: Unknown Scope Name is used for the Tag. | The message identifies either the data type or tag that has a scope name with unsupported characters.        | Check if the name included in the scope conforms to the naming rules. |
| ***: The name is invalid.                    | The message identifies the data type or tag name with unsupported characters.                                | Check if the data type or tag name conforms to the naming rules.      |
| ***: Unknown Data type is used for the Tag.  | The message identifies either the data type or tag that has a data type name that is unsupported or invalid. | The error may be resolved by correcting other errors.                 |



**NOTE**

- When importing a TIA Portal project, a project analysis log and import log are generated. As log messages are output in the order when errors occurred, correct issues in order, from the top.
- For information on supported data types and supported characters for names, refer to "Supported Device Addresses".

 "5 Supported Device Addresses" (page 13)

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