32 Symbol Registration

| 32.1 | Symbol and Symbol Sheet | |
|------|---|-------|
| 32.2 | Registering Symbols on a Symbol Sheet | 32-5 |
| 32.3 | Sharing Symbols on the Entire Network | 32-26 |
| 32.4 | Copying to a Symbol Sheet in Another Network Project File | 32-28 |
| 32.5 | Checking Registered Symbols | 32-33 |
| 32.6 | Setting Guide | 32-35 |
| 32.7 | Restrictions | |

32.1 Symbol and Symbol Sheet

32.1.1 What is a Symbol?

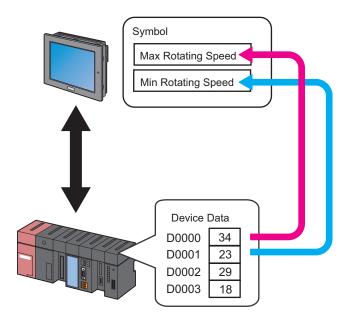
You can collectively register each device data used inside the display unit and Device/PLC, or variable information used in the logic program as "Symbol".

A symbol is a "Variable" to control all data at once such as device address and data type, etc. and 'Pro-Server EX' reads and writes each device data through the registered symbol.

Since you can set the device address directly on 'Pro-Studio EX', symbol registration is not essential. When you wish to change all device data at once, however, it is recommended to use symbols as much as possible for easier maintenance.

The data included in a symbol are: Symbol name, Device address, Data type, Number of data etc.

NOTE • The contents can be confirmed easily if a symbol has a concrete symbol name ("Maximum number of rotation", "Minimum number of rotation", etc.)



• You can use the system variables (HMI system variables and logic system variables) that is predefined in 'GP-Pro EX'. For details, refer to the GP-Pro EX Reference Manual.

'GP-Pro EX' Variables

- ◆ Variables created with a logic program
 - Variable format

Variables registered by a user with optional names. To use these variables, import a screen project file (*.PRX) created with 'GP-Pro EX'.

For details on importing, refer to "31.3 Getting Data from a Screen Project File (PRX)".

Address format

Variables automatically assigned to a device in the 'GP-Pro EX'. You do not need to import a screen project file (*.PRX) of 'GP-Pro EX', because 'Pro-Server EX' prepares these variables in advance.

• When defining logic addresses, in 'GP-Pro EX' you would set [Device/PLC] to [#LOGIC], however, in 'Pro-Server EX' you set [Device Name] to [#INTERNAL].

For restrictions of the variables created with the logic program, refer to "32.7 Restrictions".

System variables

Variables having the predefined functions on the 'GP-Pro EX'. You do not need to import a screen project file (*.PRX) of 'GP-Pro EX', because 'Pro-Server EX' prepared these variables in advance.

When setting up ACTION or trigger condition, system variables on 'GP-Pro EX' are displayed when you select "#INTERNAL", which is the internal device of a display unit, in [Device Name] and click the list button of [Device Address].

| Device Name | Turn OFF the Specified Device Address after | |
|--------------------------|---|--|
| #INTERNAL | Processing. | |
| Device Address | | |
| | Local:Sheet2 | |
| Data Type [16Bit(Signed) | Global:#HMI_SYSTEM Global:#LOGIC_SYSTEM | |

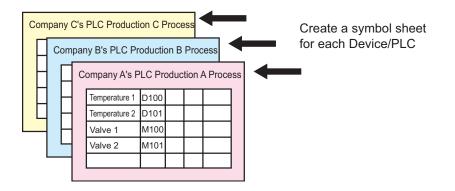
NOTE

• For details about variables on the 'GP-Pro EX', refer to the "GP-Pro EX Reference Manual".

• In Pro-Server EX, you cannot use 'GP-Pro EX' system variables with names that begin with "[PLC*]H#_".

32.1.2 What is a Symbol Sheet?

Symbols are controlled collectively on each Device/PLC. This control unit is called a "Symbol Sheet". You can create more than one symbol sheet, and symbol control is possible per sheet in accordance with the intended use.



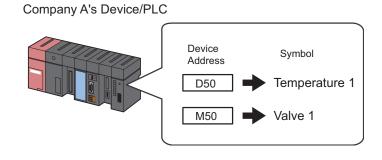
NOTE

You can register 1500 symbols at maximum, in one symbol sheet. When the number of symbols exceed 1500, add a new symbol sheet to register.

"32.2.5 Adding Symbol Sheets"

32.2 Registering Symbols on a Symbol Sheet

32.2.1 Registering Symbols



This section describes how to register symbols taking the above case as an example.

1 Click the [Symbol] icon on the status bar.

| 💱 Pro-Studio EX 🛛 ?.npx | |
|---|---|
| File Edit Tool Programming Assist Start >> Start Node | Setting Help Symbol Node Type C Pro-Server EX © GP3000 Series |
| Delete Node | Node Name |
| | Link between Device Info and Symbol Info Project File Read Info Online Update |

2 Select the Device/PLC in which you want to register symbols, from the tree display on the left of the screen.

| A | | | | | | |
|--------------------------|--|---------------------------------|---------|-----|-----------|-----------------|
| 饕 Pro-Studio | | | | | | |
| File Edit Tool | Program | ning Assist | Setting | Hel | P | _ |
| 💋 Start | » | Node | >> | | Symbol | >> |
| Symbol | | | | N | ode Name | AGP |
| Group | Group Ungroup | | | | neet Name | Sher |
| Insert | Insert Delete | | | | | 10.000 |
| Сору | Cut | Paste | | | Symbo | ol |
| Symbol Sheet | | | | | | |
| Add | | Delete | | F | | |
| Check Duplic Global C | cation/List U onstant Setti | | ses | | | |
| | 1 (198.168.0 #INTERNA 0 Series P1 (192.168 #INTERNA PLC1:Shee | L:Sheet1 .0.100) L:Sheet2 | PUT | | | |

The symbol registration screen of the selected Device/PLC appears on the right of the screen. The area surrounded by red line is a "Symbol sheet" where symbols are registered.

| Pro-Studio EX ?.npx le Edit Tool Programming Assist Sett | ng Help | | | | | |
|---|-------------------------------------|---------------|-----------------|-----------------------------------|---------------|---------------|
| 对 Start ≫ 🟹 Node ≫ | 녿 Symbol ⋗ 葇 | ≷ Feature ン 📔 | 🚹 Sa | ave 渊 🆄 Ti | ransfer | Monit Stat |
| Symbol Group Ungroup | Node Name AGP1 Sheet Name Sheet3 | | | Name PLC1 a global symbol shee | ət. | |
| Insert Delete Copy Cut Paste | Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Symbol Sheet Add Delete | | | | | 1 | |
| Check Duplication/List Used Addresses | | | | | 1 | |
| Global Constant Setting Screen | | | | | 1 1 1 | |
| | | | | | 1 | |
| GP1 (192.168.0.100) GP1 (192.168.0.100) GP HINTERNAL:Sheet2 GP PLC1:Sheet3 A Series CPU [| | | | | 1 | |
| WinGP LT3000 | | | | | 1 | |
| > Global Symbol | | | | | 1 | |
| | | | | | 1 | |

3 Enter "Temperature 1" as a symbol name in the [Symbol] field on the symbol sheet.

| - | Pro-St | udio I | X ? | .пря | | | | | | | |
|------|----------|--------|----------|-----------|------------|-----------------|-------|------------|----------|-----|---------|
| File | e Edit | Tool | Pro | igrammi | ng Assist | Settin | ig He | lp | | | |
| P | 2 | Start | » | | Node | >> | Þ | Symbol | » | * | Feature |
| | Symbol | | | | | | ٨ | lode Name | AGF | 7 | |
| | 0 | àroup | | 1 | Jngroup | | 6 | heet Name | She | et3 | |
| | I | nsert | | | Delete | | ľ | neeritani | | | |
| | Сор | y | 0 | Cut | Paste | | | Symb | ol | | Data Ty |
| | Symbol : | Sheet | | | | | Ter | mperature1 | | | |
| | | Add | | | Delete | | | | | | |
| | | | | · · · · · | | | | | | | |
| | Check | Duplic | ation/ | 'List Us | ed Address | ses | | | | | |
| | | | | | | _ | | | | | |
| | Glo | bal Co | onstan | it Settin | g Screen | | | | | | |

4 Click the [Data Type] field and select the data type from the displayed list.

| 🕨 Symbol 🌺 🥃 | Feature ン [| Sa Sa | ive ≫ [| Tr | ansfer | V | Moni Stat |
|-------------------|-------------|---------------------------------|--------------------------|-------------------------------|----------------------|------------|--------------|
| Node Name AGP1 | 10 Kr. | Device | Name PLC | 92325 | 23 | <u>198</u> | 8 |
| Sheet Name Sheet3 | | 🗌 🗖 Seti | t as a global | symbol s | heet. | | |
| Symbol | Data Type | Consec | Device A | ddress | No. of Dat | | Comment |
| 2,11001 | 3753 | utive | | | | .u. | commone |
| Temperature1 | | Data T | | | | | |
| <u>. R</u> | | Data T Deselect 16Bit(Sit | ype | 32Bit(| ianed) | Bit | |
| <u>. R</u> | | Data T Deselect 16Bit(Sit | уре | 32Bit(1 | ianed) | | Common |
| <u>. R</u> | | Data T Deselect 16Bit(Sit | ype gned) psigned) | 32Bit(1 22Bit(1 32Bit(1 | Signed) Jnsigned) | Bit | |

5 Click the button that appears by clicking the [Device Address] field, and enter "D50" as a device address to be registered as a symbol. Then click the [Ent] button.

| Help Symbol | 襆 Feature 渊 [| - Sa | ve 🔉 🏠 Tr | ansfer | Monitor Status |
|-----------------|---------------|-----------------|----------------------|---------------|-------------------|
| Node Name AGP | 1 | Device | Name PLC1 | | 1000 |
| Sheet Name Shee | 13 | 🗌 🗖 Setit | as a global symbol : | sheet. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Temperature1 | 16Bit(Signed) | | (| Input Address | |
| | _ | | | D | i0 |
| | | | | Back | Clr |
| | | | | A B C | 7 8 9 |
| | - | | | DEF | 4 5 6 |
| [| - | | | | 1 2 3 |
| | | | | | Ent |
| | _ | | | F | |

NOTE

You can also enter the device address directly.

• When the variable created with a logic program (#I_****, #Q_****) it inputs, after selecting "#internal" sheet of Device/PLC which uses variable in tree indication on the right screen input.

6 Repeat the above steps (Step 1 to 5) to register the symbol "Valve 1" in the same way.

| g Help | | | | | _ 🗆 > |
|-----------------|---------------|-----------------|----------------------|-------------|-----------------|
| ≽ Symbol ≫ | ≷ Feature ≫ [| 📔 Sa | ave 渊 🆄 T | ransfer | Monito Statu |
| Node Name AGP1 | | Device | Name PLC1 | | |
| Sheet Name Shee | 3 | Set it as | a global symbol shee | et. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Temperature1 | 16Bit(Signed) | | D0050 | 1 | |
| Valve1 | Bit | | M0050 | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |

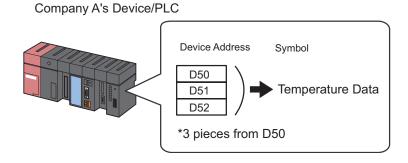
This is the end of the symbol registration to the symbol sheet.

 • You can edit the contents of the registered symbols. Click [Symbol], [Consecutive] or [Device Address] and edit the contents on the "Edit Symbol" screen.
 * "32.6.2 "Edit Symbol" Screen"

32.2.2 Registering Sequential Devices

Registering sequential addresses individually as symbols

To perform symbol registration continuously for sequential device addresses, you can register these addresses together without specifying each address individually.



This section describes how to register the symbols of sequential addresses taking the above case as an example.

1 Register the device address "D50" with the symbol name "Temperature 1".

| ng | Help Symbol ⋗ 🦂 | Feature ⋗ [| - Sa | ave > 🔖 Ti | ransfer | Monitor Status |
|----|-------------------------------------|---------------|-----------------|-----------------------------------|-------------|-------------------|
| | Node Name AGP1 Sheet Name Sheet3 | | | Name PLC1 a global symbol shee | | |
| | Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| | Temperature1 | 16Bit(Signed) | | D0050 | 1 | <u> </u> |
| L | | | | | 1 | |
| L | | | | | 1 | |
| | | | | | 1 | |

For the detailed procedure, please refer to Step 1 to 5 in "32.2.1 Registering Symbols".

2 Then, register the device address "D51" as a symbol.

Click the [Symbol] field in the next row of "Temperature 1", and enter "Temperature 2" as a symbol name.

| ing | Help > Symbol >> 🦂 | 🍖 Feature ン 📑 | Sa | ave 🔉 🔖 Ti | ransfer | Monitor Status |
|-----|-------------------------------------|---------------|-----------------|-----------------------------------|-------------|-------------------|
| I | Node Name AGP1 Sheet Name Sheet3 | | | Name PLC1 a global symbol shee | et. | |
| I | Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| | Temperature1 | 16Bit(Signed) | | D0050 | 1 | |
| | Temperature2 | | | | 1 | |
| | | | | | 1 | |
| | | | | | 1 | |
| н | | | | <u> </u> | 1 | |
| | | | | | 1 | |

3 Click the [Consecutive] field.

A panel to specify the continuous attribute appears.

The next device address "D0051" to the symbol "Temperature 1" is indicated on the left of this panel.

| Help | Feature 🔉 | . <mark></mark> Sa | ave ≫ 🄖 T | ransfer | Monitor Status |
|------------------|---------------|--------------------|---|---|-------------------|
| Node Name AGP1 | | Device | Name PLC1 | | . 980 |
| Sheet Name Sheet | 3 | 🗌 🗖 Seti | t as a global symbol | sheet. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Temperature1 | 16Bit(Signed) | | D0050 | 1 | |
| Temperature2 | | | Consecutive Release + D0051 Cancel | 0 D0050.00 1 D0050.01 2 D0050.02 3 D0050.03 4 D0050.04 5 D0050.05 1 6 D0050.05 1 | |

4 Select [+ D0051] as a sequential device address.

| Symbol Symbol Node Name AGP | Feature >> | | we » 🏹 Ti Name PLC1 | ransfer | Monito Status |
|-----------------------------|---------------|-----------------|------------------------------|--|------------------|
| Sheet Name Shee | 43 | E Set i | t as a global symbol : | sheet. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Temperature1 | 16Bit(Signed) | | D0050 | 1 | |
| Temperature2 | 16Bit(Signed) | 1. 25 | Consecutive | | × |
| | | | Release + D0051 Cancel | 0 D0050.00 1 D0050.01 2 D0050.02 3 D0050.03 4 D0050.04 5 D0050.05 1 6 D0050.06 | |

"+", indicating the device continuance, appears in the [Consecutive] field and the device address "D51" is displayed in gray.

| ng Help | | | | | |
|------------------------|----------------------------|-----------------|----------------------|---|-------------------|
| 🌔 Symbol ⋗ 🍦 | ≷ Feature ン [| - Sa | ave 🔉 🆄 T | ransfer | Monitor Status |
| Node Name AGP1 | | Device | Name PLC1 | | |
| Sheet Name Sheet3 | | Set it as | a global symbol shee | et. | |
| | | 0 | | | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Symbol Temperature1 | Data Type 16Bit(Signed) | | Device Address | No. of Data 1 | Comment |
| | | | | No. of Data 1 1 | Comment |
| Temperature1 | 16Bit(Signed) | utive | D0050 | No. of Data 1 1 1 | Comment |
| Temperature1 | 16Bit(Signed) | utive | D0050 | No. of Data 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | |
| Temperature1 | 16Bit(Signed) | utive | D0050 | No. of Data 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Comment |
| Temperature1 | 16Bit(Signed) | utive | D0050 | No. of Data 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Comment |

NOTE • When symbols are continuously registered, the symbol data type specified at the first setting is automatically input in the [Data Type] field.

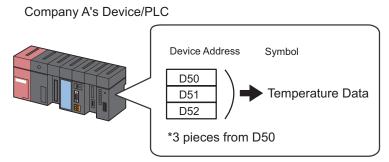
5 Repeat Step 2 to 4 to set the next symbol.

| i Help Symbol > | ≷ Feature 🔉 [|] Sរ | ave 🔉 🔖 T | ransfer | L D X |
|-------------------------------------|---------------|-----------------|-----------------------------------|-------------|---------|
| Node Name AGP1 Sheet Name Sheet3 | | | Name PLC1 a global symbol shee | ət. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Temperature1 | 16Bit(Signed) | | D0050 | 1 | ▲ |
| Temperature2 | 16Bit(Signed) | + | D0051 | 1 | |
| Temperature3 | 16Bit(Signed) | + | D0052 | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |

Now, the sequential devices addressed "D50", "D51" and "D52" have been registered individually as symbols.

Registering sequential addresses collectively as a symbol

You can register sequential device addresses as one symbol by specifying the number of devices.



This section describes how to register the symbols of sequential addresses taking the above case as an example.

1 Enter "Temperature Data" as a symbol name in the [Symbol] field on the symbol sheet.

| | | | | | | _ 🗆 × |
|----|-------------------|---------------|-------------|----------------------|-------------|-------------------|
| ng | Help | | | | | S |
| | ≽ Symbol 🌺 🚄 | 🍷 Feature ン 📑 | Sa Sa | ive 꽏 🆄 Ti | ransfer | Monitor Status |
| | Node Name AGP1 | | Device | Name PLC1 | | |
| I | Sheet Name Sheet3 | | Set it as a | a global symbol shee | et. | |
| I | | | Consec | | | |
| | Symbol | Data Type | utive | Device Address | No. of Data | Comment |
| | TemperatureData | | | | 1 | <u> </u> |
| T | | | | | 1 | |
| н | l | | | | 1 | |
| н | | | | | 1 | |
| н | ļļ | | | | 1 | |
| 1 | | | | | 1 | |
| | | | | | 1 | |

2 Click the [Data Type] field and select the data type from the displayed list.

| Help Symbol >> 🥥 | Feature 🔉 | Sa | ive 🔉 🖄 | Tra | ansfer | | Monit Stati |
|---------------------|-----------|-----------------|------------------------|---------------|-----------|------------------|----------------|
| Node Name AGP1 | | Device | Name PLC1 | 19 <u>0</u> 0 | | 2 ¹ 2 | -0.745 |
| Sheet Name Sheet3 | | 🗌 🗖 Setit | t as a global sj | ymbol si | heet. | | |
| Symbol | Data Type | Consec utive | Device Add | lress | No. of Da | ita | Comment |
| TemperatureData | | Data T | уре | | | | |
| | l | Decelee | and the state | | | 14 | |
| | | 16Bit(Sig | | 32Bit(9 | (igned) | Bit | |
| | | 16Bit(Ur | nsigned) ^{VS} | 32Bit(L | Jnsigned) | Float | |
| | | 16Bit(HE | | 32Bit(H | IEX) | Double | 9 |
| | | 16Bit(BC | CD) | 32Bit(E | BCD) | String | |
| | , [| | | 1 | 1 | | |

3 Click the button that appears by clicking the [Device Address] field, and enter "D50" as a start device address to be registered as a symbol. Then click the [Ent] button.

| Help Symbol >> | Feature 🔊 | 📑 Sa | ve 🔉 🏠 Ti | ransfer | | a y | Moni Stat | |
|-------------------|---------------|-----------------|----------------------|------------|----------------|------------|--------------|----|
| Node Name AGP1 | | Device | Name PLC1 | | 9 0 | | | |
| Sheet Name Sheel | 3 | Setit | as a global symbol : | sheet. | | | | |
| Symbol | Data Type | Consec utive | Device Address | No. of Da | ta | Com | nment | 8 |
| TemperatureData | 16Bit(Signed) | | (₂ 2) | Input Addr | ess | | n | |
| | | _ | | D | • 50 |) | | _ |
| | | | | Back | | | С | lr |
| | | | | A B | С | 7 | 8 | ્ |
| | | _ | | DE | F | 4 | 5 | 6 |
| | - | | | 26 | | 2 | 2 | |
| | | | | | | D | E | nt |
| | | | | 22 | | 100 | | _ |

4 Enter the number of sequential device addresses "3" in [No. of Data].

|) Help Symbol >> | Feature ン 📑 | - Sa | ave 🔉 🏠 T | ransfer | Monitor Status |
|---------------------|---------------|-----------------|----------------------|-------------|-------------------|
| Node Name AGP1 | | Device | Name PLC1 | | |
| Sheet Name Sheet3 | | Set it as | a global symbol shee | et. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| TemperatureData | 16Bit(Signed) | | D0050 | 3 🕨 | <u> </u> |
| | | <u> </u> | | | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |

Now, the sequential devices addressed "D50", "D51" and "D52" have been registered collectively as one symbol.

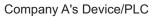
When you register the next symbol, the address following the last address input in Step 4 (in this case, "+D0053") is displayed on the continuous attribute panel that is displayed by clicking the [Consecutive] field.

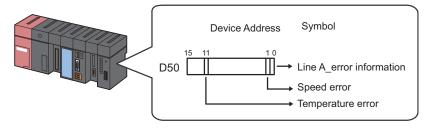
| Help Symbol >> | Feature 🔉 | . <mark></mark> Sa | ive 💙 🆄 Ti | ansfer | Monito Statu: |
|------------------|---------------|--------------------|---|--|------------------|
| Node Name AGP1 | | Device | Name PLC1 | | |
| Sheet Name Sheet | 3 | 🗌 🗖 Seti | t as a global symbol : | sheet. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| TemperatureData | 16Bit(Signed) | | D0050 | 1 | |
| | | | Consecutive Release + D0051 Cancel | 0 D0050.00 1 D0050.01 2 D0050.02 3 D0050.03 1 4 D0050.04 5 D0050.05 1 6 D0050.06 | |

32.2.3 Registering Bit Offset Symbols

When "Word type" is specified as a symbol data type, you may find a symbol of which word device is specified as a word-type symbol first, and the bit of the particular position among such word devices is specified with the offset number beginning with 0. This symbol is called "Bit offset symbol".

For instance, the device address "D50" in the figure below has the error information of Line A. (This device address is the "Parent device".) When the first bit has the "Speed Error" information and the 11th bit has the "Abnormal Temperature" information as further information, you can symbolize particular bits by specifying the bit offset.





• When you specify the bit offset, the symbol data type is "Bit" type.
• 32-bit device (Integer_Variables) can be accessed in bit unit. Add "single space + Xm" following the variable to allow you to access it in bit unit. Example) When accessing the 7th bit of Integer_Variables Integer_Variables .X6
• When the data type of the parent device is BCD or String type, bit offset symbols cannot be used.

This section describes how to register bit offset symbols taking the above case as an example.

1 Specify "Line A_Error Information" as a device address of "Parent Device".

| g Help Symbol >> | Feature > | Sa | ive 🔉 🖄 Ti | ansfer | - 🗆 🗙 Monitor Status |
|-----------------------|---------------|-----------------|----------------------|-------------|----------------------------|
| Node Name AGP1 | | Device | Name PLC1 | | |
| Sheet Name Sheet3 | | Set it as | a global symbol shee | et. | |
| | | | | | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| LineAErrorInformation | 16Bit(Signed) | | D0050 | 1 | <u> </u> |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |

For the detailed procedure, please refer to Step 1 to 5 in "32.2.1 Registering Symbols".

2 Enter the bit offset symbol name "Speed Error" in the [Symbol] field.

| | Feature 🔉 📔 | | | ransfer | Monitor Status |
|-----------------------|---------------|-----------------|----------------------|-------------|-------------------|
| Node Name AGP1 | | Device | Name PLC1 | | |
| Sheet Name Sheet3 | | Set it as - | a global symbol shee | et. | |
| | | | | | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| LineAErrorInformation | 16Bit(Signed) | | D0050 | 1 | |
| SpeedError | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | 1 | 11 | |

3 Click the [Consecutive] field.

A panel to specify the continuous attribute appears.

| Symbol >> Node Name AGP1 | Feature ➤ | | ave » 🆄 T Name PLC1 | ransfer | Mon Sta |
|---------------------------|---------------|-----------------|---|--|------------|
| Sheet Name Sheet3 | - | 700 | t as a global symbol | sheet. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Commer |
| LineAErrorInformation | 16Bit(Signed) | | D0050 | 1 | |
| SpeedError | | | Consecutive Release + D0051 Cancel | 0 D0050.00 1 D0050.01 2 D0050.02 3 D0050.03 1 4 D0050.04 5 D0050.05 1 6 D0050.06 | |

4 Double-click the target offset (in this case "D0050.01") from the list on the right of the continuous attribute panel.

| Node Name AGP1 | | Device | Name PLC1 | | |
|-----------------------|---------------|-----------------|----------------------|--------------------------|---------|
| Sheet Name Sheet3 | | 🗌 🗖 Seti | t as a global symbol | sheet. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| LineAErrorInformation | 16Bit(Signed) | | D0050 | 1 | |
| SpeedError | | - 20 Ki - 2 | Consecutive | | × |
| | | | Release | 0 D0050.00 | |
| | | | + D0051 | 1 D0050.01 2 D0050.02 | |

"01" indicating "Offset" is entered in the [Consecutive] field.

| J Help J Help Symbol Symbol | | | | | | |
|---|--|-----------------|----------------|-------------|---------|--|
| Node Name AGP1 | | Device | Name PLC1 | | | |
| Sheet Name Sheet3 | Sheet Name Sheet3 Steet it as a global symbol sheet. | | | | | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment | |
| LineAErrorInformation | 16Bit(Signed) | | D0050 | 1 | | |
| SpeedError | Bit | 01 | D 0050.01 | 1 | | |
| | | | | 1 | | |
| | | | | 1 | | |
| | | | | 1 | | |
| | | | | 1 | | |
| | | | | 1 | | |
| | | | <u> </u> | 1 | | |

5 Repeat the above steps (Step 2 to 4) to register the symbol "Abnormal Temperature" in the same way.

|) | Help > Symbol >> 🪄 | 🍖 Feature ン 📑 | Sa | ive 🔉 🖄 Ti | ransfer | Monitor Status |
|-------|-----------------------|---------------|-----------------|----------------------|-------------|-------------------|
| | Node Name AGP1 | | Device | Name PLC1 | | |
| | Sheet Name Sheet3 | | Set it as | a global symbol shee | et. | |
| | Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| | LineAErrorInformation | 16Bit(Signed) | | D0050 | 1 | ▲ |
| | SpeedError | Bit | 01 | D0050.01 | 1 | |
| (| AbnormalTemperature | Bit | 11 | D0050.11 | 1 | |
| | | | | | 1 | |
| | | | | | 1 | |
| | | | | | 1 | |
| | | | | | 1 | |
| | | | | | 1 | |

This is the end of the registration of bit offset symbols into the symbol sheet.

32.2.4 Inserting and Deleting Rows on a Symbol Sheet

Row Insertion

1 Select the row just below the place where you want the new one inserted.

| 1 Help Symbol >> ≷ Feature >> 📄 Save >> 🆄 Transfer Monitor Status | | | | | |
|---|-------------------|-----------------|----------------|-------------|---------|
| Node Name AGP1 | | Device | Name PLC1 | | |
| Sheet Name Sheet3 | Sheet Name Sheet3 | | | | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Temperature1 | 16Bit(Signed) | | D0050 | 1 | |
| Temperature2 | 16Bit(Signed) | + | D0051 | 1 | |
| Temperature3 | 16Bit(Signed) | + | D0052 | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |



• To insert more than one row, select the number of rows you want to insert by dragging the mouse.

2 Click [Insert] button in [Symbol].

| 📚 Pro-Studio EX 🛛 te | st.npx | | | | |
|---------------------------------------|-------------------|------------------------------|--|--|--|
| <u>File Edit Tool F</u> | rogramming Assist | <u>S</u> etting <u>H</u> elp | | | |
| 💋 Start 🔉 | Node > | Symbol 2 | | | |
| Symbol | | Node Name | | | |
| Group | Ungroup | Sheet Name | | | |
| Insert | Insert Delete | | | | |
| | at Paste | Symbol | | | |
| Symbol Sheet | | LineAErrorInform | | | |
| Add | Delete | SpeedError | | | |
| Check Duplication/List Used Addresses | | | | | |
| Global Constant | Setting Screen | | | | |

The selected row(s) is displaced by the newly inserted row(s) and shifted down.

| → Help Symbol ≫ Reature ≫ 📄 Save ≫ 🏠 Transfer Status | | | | | |
|---|---------------|-----------------|----------------------|-------------|---------|
| Node Name AGP1 | | Device | Name PLC1 | | |
| Sheet Name Sheet3 | N | Set it as | a global symbol shee | ıt. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Temperature1 | 16Bit(Signed) | | D0050 | 1 | |
| Temperature2 | 16Bit(Signed) | + | D0051 | 1 | |
| | | | | 1 | |
| Temperature3 | 16Bit(Signed) | + | D0052 | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |

Deleting Specified Rows on a Symbol Sheet

1 Select the row you wish to delete.

| Image: Peakure in the second secon | | | | | |
|---|--------------------------------|------------|----------------|---|---------|
| Node Name A 21 | | Device | Name PLC1 | | |
| Sheet Name Sheet3 | Sheet Name Sheet3 | | | | |
| Symbol | | Consec | | | |
| Jymbor | Data Type | utive | Device Address | No. of Data | Comment |
| Jemperature1 | Data Type 16Bit(Signed) | | Device Address | No. of Data | Comment |
| - | | | | No. of Data | |
| Jemperature1 | 16Bit(Signed) | utive | D.0050 | No. of Data | |
| Temperature1 | 16Bit(Signed) 16Bit(Signed) | utive + | D0050 D0051 | No. of Data 1 1 1 1 1 | |
| Temperature1 | 16Bit(Signed) 16Bit(Signed) | utive + | D0050 D0051 | No. of Data 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | |
| Temperature1 | 16Bit(Signed) 16Bit(Signed) | utive + | D0050 D0051 | No. of Data | |

2 Click [Delete] button in [Symbol].

| 🎨 Pro-Studio EX 👘 | test.npx | |
|--------------------------------|-----------------------|------------------------------|
| <u>File E</u> dit <u>T</u> ool | Programming Assist | <u>S</u> etting <u>H</u> elp |
| 对 Start > | Node > | Symbol 2 |
| Symbol | | Node Name |
| Group | Unaroup | Sheet Name |
| Insert | Delete | Sheet Manlej |
| Сору | | Symbol |
| Symbol Sheet | | LineAErrorInfom |
| Add | Delete | SpeedError |
| | | |
| Check Duplication | n/List Used Addresses | |
| Global Consta | nt Setting Screen | |
| | | |

3 The "Delete Symbol" screen appears. Click [Yes] button.



The specified row is deleted.

| Help Symbol Symbol Feature Save Transfer Monitor | | | | | | |
|--|--|-----------------|----------------|-------------|---------|--|
| Node Name AGP1 | | Device | Name PLC1 | | | |
| Sheet Name Sheet3 | Sheet Name Sheet3 Set it as a global symbol sheet. | | | | | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment | |
| Temperature1 | 16Bit(Signed) | | D0050 | 1 | | |
| Temperature3 | 16Bit(Signed) | + | D0051 | 1 | | |
| | | | | 1 | | |
| | | | | 1 | | |
| | | | | | | |
| | | | | | | |
| | | | | 1 | | |
| | | | | 1 | | |

32.2.5 Adding Symbol Sheets

You can create multiple symbol sheets for one entry node.

Registering symbols for purposes allows you to smooth the handling of symbol information.

This section describes addition of symbol sheets.

| NOTE | You can add 140 sheets at maximum, for one entry node. |
|------|--|
|------|--|

1 Click [Add] button in [Symbol Sheet].

| 黎 Pro-Studio E | X test.np> | < | |
|--------------------------------------|-------------------|--------------|------------------------------|
| <u>F</u> ile <u>E</u> dit <u>T</u> o | ol <u>P</u> rogra | mming Assist | <u>S</u> etting <u>H</u> elp |
| 💋 Start | » | Node 🔉 | Symbol > |
| Symbol | | | Node Name |
| Group | | Ungroup | Sheet Name |
| Insert | | Delete | oncorright |
| Сору | Cut | Paste | Symbol |
| | | | LineAErrorInfom |
| Add | SpeedError | | |
| Check Duplic | | | |
| Global Co | onstant Settin | ng Screen | |

2 The "Add Symbol Sheet" screen appears. Click the list button of [Node Name] or [Device Name] to select the node or device where you want to add a symbol sheet.

| Add Symbol Sheet | | × |
|------------------------------|----|--------|
| Node Name AGP1 | | • |
| Device Name PLC1 | | - |
| #INTERNAL Sheet Name PLC1 | | |
| | OK | Cancel |

3 Enter a symbol sheet name to be added in [Sheet Name]. (By default, the sheet name is "Sheet [No.]").

| Add Symbol Sheet | | × |
|-------------------|----|--------|
| Node Name AGP1 | | • |
| Device Name PLC1 | | • |
| Sheet Name Sheet4 | | |
| | ОК | Cancel |

4 Click [OK] button.

A new symbol sheet is now added with its sheet name displayed in the list on the left of the screen.

| 💱 Pro-Studio EX 🛛 ?.npx | | | | | | _ 🗆 🗙 |
|--|-------------------|---------------|-----------------|----------------------|-------------|-------------------|
| File Edit Tool Programming Assist Settin | g Help | | | | | |
| Start >> 🔪 Node >> | ≽ Symbol ≫ 🚄 | ≷ Feature ン 🛛 | 📑 Sa | ive ≫ 🆄 Ti | ransfer | Monitor Status |
| Symbol | Node Name AGP1 | | Device | Name PLC1 | | |
| Group Ungroup | Sheet Name Sheet4 | | Set it as | a global symbol shee | et. | |
| Insert Delete | | | | | | |
| Copy Cut Paste | Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Symbol Sheet | | | | | 1 | |
| Add Delete | | | | | 1 | |
| | | | | | 1 | |
| Check Duplication/List Used Addresses | | | | | 1 | |
| | | | <u> </u> | | 1 | |
| Global Constant Setting Screen | | | <u> </u> | | 1 | |
| FI▼ Pro-Server EX | | | <u> </u> | | 1 | |
| 🖻 🚚 PC1 (198.168.0.1) | | | | | 1 | II |
| INTERNAL:Sheet1 | | | | | 1 | |
| | | | | | 1 | II |
| GP1 (192.168.0.100) | | | | | 1 | III |
| PLC1-Sheet3 A Series CPLU | | | | | 1 | III |
| PLC1:Sheet4 A Series CPU [|) | | | | 1 | |
| - • WinuP | | | | | 1 | |
| LT3000 GP Series | | · | | | 1 | |
| Global Symbol | | | | | 1 | |
| | | | | | 1 | · II |
| | | | - <u> </u> | | 1 | · |
| | | | <u> </u> | | 1 | · · · · |
| | • | | | | | <u> </u> |

Deleting Symbol Sheets

1 Select the symbol sheet you wish to delete from the list on the left of the screen.

| 🎕 Pro-Studio EX | ?.npx | | |
|--|----------------------------|-------------|----------------|
| File Edit Tool P | rogramming As: | ist Setting | Help |
| Start 🔉 | | ode » 🗍 | Symbol > |
| Symbol | | | Node Name AGF |
| Group | Ungrou | φ | Sheet Name She |
| Insert | Delet | | onocritanoj |
| Сору | Cut P | aste | Symbol |
| Symbol Sheet - | | | |
| Add | Delet | • | L |
| | | | |
| Check Duplicatio | n/List Used Add | lresses | |
| Global Const | ant Setting Scre | en | |
| | | | |
| E - ▼ Pro-Server | | | |
| E- 📲 PC1 (19 | 8.168.0.1) TERNAL:Sheel | | |
| GP3000 Se | | ' II | <u></u> |
| E ♥ GP3000 Selles E [] AGP1 (192.168.0.100) | | | |
| #INTERNAL:Sheet2 | | | i |
| PLC1:Sheet3 & Series CPLU | | | |
| | PLC1:Sheet4 A Serie: CPU [| | |
| → WinGP | • WindP | | |
| ► LT3000 | | | |
| GP Series | | | |
| 👘 🕨 🖌 Global Symi | bol | | |
| | | | |

2 Click [Delete] button in [Symbol Sheet].

| 黎 Pro-Studio EX | test.np> | ¢ | | | |
|--|---------------|-----------|------------|-----|--|
| <u>File Edit T</u> ool <u>P</u> rogramming Assist <u>S</u> etting <u>H</u> elp | | | | | |
| 💋 Start 🔉 | > | Node ン | Symbol | 2 | |
| Symbol | | | Node Name | •[/ | |
| Group | | Ungroup | Sheet Name | R | |
| Insert | Insert Delete | | | 1 | |
| Сору | Cut | Paste | Symbo | ol | |
| Symbol Sheet - | | | | | |
| Add | - Free | Delete N | SpeedError | _ | |
| | | _ | | | |
| Check Duplicatio | J | _ | | | |
| Global Const | ant Settir | ig Screen | | | |

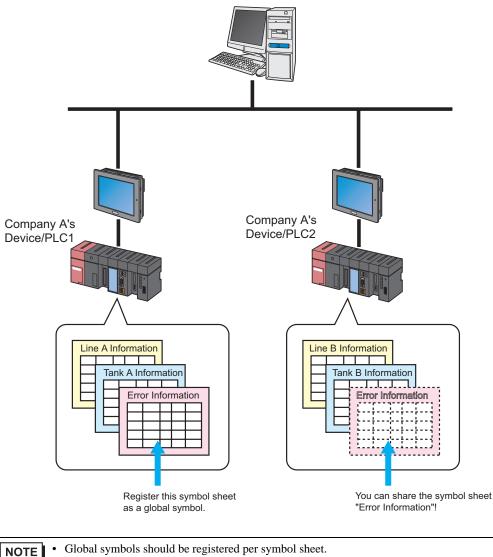
The selected symbol sheet is now deleted.

32.3 Sharing Symbols on the Entire Network

32.3.1 What is a Global Symbol?

'Pro-Server EX' allows the same type of Device/PLC to share a symbol. This symbol is called a "Global symbol". Also, a symbol sheet consisting of such global symbols is called a "Global symbol sheet". You can commonly use a same global symbol sheet in all the registered Device/PLCs.

When you register the symbol sheet "Error Information" of "Manufacturer A_Device/PLC 1" as a global symbol sheet, for instance, this "Error Information" symbol is also registered for multiple same Device/PLCs. Thus, even if many entry nodes are registered on the network, preparing one global symbol sheet saves you creating new symbol sheets as long as the contents are the same.



Global symbols should be registered per symbol sheet.

You can use global symbols commonly between different entry nodes, but the Device/PLCs should be of the same type.

32.3.2 Registering as a Global Symbol

This section describes how to register a global symbol.

- 1 Register a symbol on the symbol sheet.
- 2 Check [Set it as a global symbol sheet] on the right of the screen.

| g Help | Feature ン 📑 | Sa | ave 🔉 🔖 Tr | ansfer | Monitor Status |
|-------------------------------------|---------------|-----------------|-----------------------------------|-------------|-------------------|
| Node Name AGP1 Sheet Name Sheet3 | | | Name PLC1 a global symbol shee | | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Temperature1 | 16Bit(Signed) | | D0050 | 1 | |
| Temperature2 | 16Bit(Signed) | | D0051 | 1 | |
| Temperature3 | 16Bit(Signed) | | D0052 | 1 | |
| | | | | 1 | |

The created symbol sheet is now registered as a global symbol sheet, with the name displayed in "Global symbol" in the tree display on the left of the screen.

| 物 Pro-Studio I | Х ?.пря | | | |
|--------------------------------|---------------------------------------|-----------|-----------------|---------------|
| File Edit Tool | Programmi | ng Assist | Setting | Help |
| 💋 Start | » | Node | >> | ≽ Symbol 🔉 |
| Symbol | | | | Node Name A(|
| Group | l | Jngroup | | Sheet Name Si |
| Insert | | Delete | | oncorriginoj |
| Сору | Cut | Paste | | Symbol |
| Symbol Sheet | | | | Temperature1 |
| Add | 1 | Delete | | Temperature2 |
| L | | | | Temperature3 |
| Check Duplic | Check Duplication/List Used Addresses | | | |
| Global Constant Setting Screen | | | | |
| | | | | |

NOTE

• To cancel the registration of the global symbol sheet, uncheck [Set it as a global symbol sheet].

32.4 Copying to a Symbol Sheet in Another Network Project File

You can copy the contents of the created symbol sheet to the symbol sheet in another network project file. This section describes how to copy all the symbols registered in the symbol sheet.

1 Move the mouse pointer on the symbol sheet, and press the [Ctrl] and [A] keys to select the copy-source symbol sheet.

|) Help | | | | | |
|-------------------|---------------|-----------------|----------------------|-------------|-------------------|
| ┝ Symbol 🌺 🧹 | ≷ Feature ン [| Sa Sa | ave 🔉 🔯 Ti | ransfer | Monitor Status |
| Node Name AGP1 | | Device | Name PLC1 | | |
| Sheet Name Sheet3 | | Set it as | a global symbol shee | et. | |
| Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| Temperature1 | 16Bit(Signed) | | D0051 | 1 | |
| Temperature2 | 16Bit(Signed) | | D0052 | 1 | |
| Temperature3 | 16Bit(Signed) | | D0053 | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | <u> </u> | | 1 | |
| | | | | 1 | |
| | | <u> </u> | | 1 | |
| | | | | 1 | |
| | | <u> </u> | | 1 | <u> </u> |
| | | <u> </u> | | 1 | |
| | | <u> </u> | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| | | | | 1 | |
| • | | | | 11 | |

NOTE • You can also select symbols partially by dragging the mouse.

2 Click the [Copy] button in [Symbol].

| Group Ungroup Insert Delete Copy Cut Paste Symbol Sheet Add Delete | 🎕 Pro-Studio EX | (?.прх | | | |
|--|---------------------------|------------------------|-----------------|--------------|--|
| Symbol Node Nam Group Ungroup Insert Delete Copy Cut Symbol Sheet Temperature Add Delete | File Edit Tool | Programming Assist | Setting | ; Help | |
| Group Ungroup Insert Delete Copy Cut Paste Symbol Symbol Sheet Add Delete | ጆ Start | >> 🔪 Node | >> | ≽ Symbol | |
| Insert Delete Copy Cut Paste Symbol Sheet Add Delete | Symbol | | | Node Name | |
| Copy Cut Paste Symbol Symbol Sheet Temperature: Temperature: Temperature: Add Delete Temperature: Temperature: | Group | | | Sheet Name | |
| Symbol Sheet Add Delete Temperature Temperature | Insert | Delete | | | |
| Add Delete Temperature: | | Cut Paste | | Symbo | |
| Add Delete Temperature: | Sumbol Sheet Temperature1 | | | | |
| | | Delete | | Temperature2 | |
| Check Duplication/List Used Addresses | | | | Temperature3 | |
| | Check Duplica | tion/List Used Address | es | | |
| Global Constant Setting Screen | | | | | |

NOTE

• You can also select it from the menu list displayed by right-clicking the mouse.

3 Select [Open] from [File] menu.

| | 🏷 Pro-Studio EX 🛛 ?.npx | | | |
|---|--|--------------|-------------------|----------------------|
| | File Edit Tool Programming A | ssist Settir | ng Help | |
| ſ | New Open | ode ン | 🌔 Symbol ᆇ | è Fe |
| | Save Save As V Input History at Save Time | pup | Node Name AGP1 | |
| | Print | te | Sheet Name Sheet3 | |
| | Export Nodes and Symbols Import Nodes and Symbols | Paste | Symbol | |
| | 2.npx | ite | Temperature1 | 16Bit(\$ 16Bit(\$ |
| | | | | |

The "Open File" screen appears.

| Save As | | | | ? × |
|--------------|---------------|---------------------------|----------|-------------------|
| Save in: | 🔁 NPXDataBas | e | • | ← 🗈 📸 📰 - |
| | Name | Size | Туре | Modified |
| | 💱1.npx | 316 KB | NPX File | 4/3/2006 11:36 AM |
| History | 2.npx | 316 KB | NPX File | 4/3/2006 11:36 AM |
| 7 | 😻 004.npx | 316 KB | NPX File | 4/3/2006 11:36 AM |
| Desktop | 😻 003.npx | 316 KB | NPX File | 4/3/2006 11:36 AM |
| My Documents | | | | |
| My Computer | | | | |
| wy compater | • | | | |
| My Network P | File name: | 003.npx | | ▼ Save |
| Wy NetWOIK F | Save as type: | Network Project File (*.n | рх) | ▼ Cancel |

4 Select a copy-destination network project file, and click the [Open] button.

| Save As | | | | ? × |
|--------------|-------------------|-------------------------|----------|-------------------|
| Save in: | NPXD ataB ase | | • | 🗢 🗈 📸 🎫 |
| | Name | Size | Туре | Modified |
| | 💱1.npx | 316 KB | NPX File | 4/3/2006 11:36 AM |
| History | 💱 2.npx | 316 KB | NPX File | 4/3/2006 11:36 AM |
| | 💱i003.npx | 316 KB | NPX File | 4/3/2006 11:36 AM |
| Desktop | 1004.npx | 316 KB | NPX File | 4/3/2006 11:36 AM |
| My Documents | | | | |
| | | | | |
| My Computer | • | | | |
| | File name: 004. | npx | | ▼ Save |
| My Network P | Save as type: Net | work Project File (*.np | ж) | Cancel |

The selected network project file opens.

5 Click [Symbol] on the status bar.

| Service Studio EX 2.npx | |
|-----------------------------------|---|
| File Edit Tool Programming Assist | |
| Start >> 🟹 Node | Symbol N Feature X |
| Add Node | |
| Find Node | Node |
| | In order to read and write the data information of the PC and the GPs beforehand. The PC and the GPs re |

6 Select the copy-destination symbol sheet.

| * | .прх | |
|--|--|---------------|
| File Edit Tool Pro | gramming Assist Settir | ng Help |
| 💋 Start ン | Node ≫ | 🌔 Symbol ≫ |
| Symbol | ((| Node Name AG |
| Group | Ungroup | Sheet Name Sh |
| Insert | Delete | |
| Сору (| Cut Paste | Symbol |
| Symbol Sheet | | |
| Add | Delete | |
| | | |
| Check Duplication/ | List Used Addresses | |
| Global Constar | t Setting Screen | |
| GP3000 Serie GP3000 Serie GP3000 Serie GP3000 Serie GP3000 GPSries GP Series Global Symbol | 168.0.1) ERNAL:Sheet1 ^{is} 2168.0.100) ERNAL:Sheet2 Sheet3 A Series CPU (| |
| • | | • |

7 Click the [Paste] button in [Symbol].

| Pro-Studio EX 004.npx File Edit Tool Programming Assist Setting | Help | | | | | |
|---|------------|--|--|--|--|--|
| Start >> Node >> / | > Symbol | | | | | |
| Symbol | Node Name | | | | | |
| Group Ungroup | Sheet Name | | | | | |
| Insert Delete | onoornam | | | | | |
| Copy Cut Paste | Symb | | | | | |
| Symbol Sheet | | | | | | |
| Add Delete | <u> </u> | | | | | |
| | | | | | | |
| Check Duplication/List Used Addresses | | | | | | |
| Global Constant Setting Screen | | | | | | |

NOTE • You can also select it from the menu list displayed by right-clicking the mouse.

The symbol sheet or symbols selected in Step 1 are now pasted.

| g | Help | | | | | _ 🗆 × |
|---|-------------------|---------------|-----------------|---------------------|-------------|-------------------|
| P | > Symbol >> ≷ | 🕈 Feature ン 📑 | Sav | re 🔉 🆄 Tra | insfer | Monitor Status |
| I | Node Name AGP1 | | Device | Name PLC1 | | |
| I | Sheet Name Sheet2 | | Setitasa | global symbol sheet | | |
| I | Symbol | Data Type | Consec utive | Device Address | No. of Data | Comment |
| L | Temperature1 | 16Bit(Signed) | | D0050 | 1 | |
| L | Temperature2 | 16Bit(Signed) | | D0051 | 1 | |
| L | Temperature3 | 16Bit(Signed) | | D0052 | 1 | |
| L | | | | | 1 | |
| L | | | | | 1 | |
| L | | | | | 1 | |
| н | | | | | 1 | |
| L | | | | | 1 | |
| н | <u></u> | | | | 1 | |
| L | | | | | 1 | |
| L | | | | | 1 | |
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| L | | | | | 1 | |
| L | | | | | 1 | |
| | | | | | 1 | |
| I | | | | | 1 | |
| | <u> </u> | | | | 1 | |
| | <u> </u> | | | | 1 | |
| | <u> </u> | | | | 1 | |
| | 4 | I | | I | 1 | |
| | | | | | | |

NOTE

When the Device/PLCs are not of the same type, error may occur due to the difference of their device addresses. (Error will be displayed in red.)

In this case, please change device addresses after copying.

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32.5 Checking Registered Symbols

When many symbols are registered in a symbol sheet, you might register the symbol names or device addresses mistakenly in duplication. In this case, 'Pro-Server EX' does not operate properly.

Thus 'Pro-Studio EX' has a function to check the registration duplication in advance. This function also displays/ outputs the results of duplication check in a CSV file.

This section describes how to check duplication of symbol names or device addresses.

1 Display the symbol sheet you wish to check.

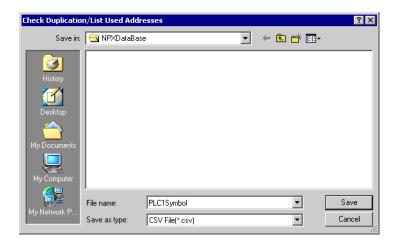
2 Click [Check Duplication/List Used Addresses] button.

| Ŷ | Pro-Studio | EX O | 04.np | × | | | |
|----|---------------------------------------|---------------------|-----------|------------|-----------------|-----------|------------|
| Fi | ile Edit Tool | Pro | gramm | ing Assist | Settin | ng Hel | Þ |
| | 🗾 Start | >>> | | Node | >> | 1 | Symbol 4 |
| Г | Symbol | | | | | N | ode Name |
| | Group | | Ungroup | | SI SI | neet Name | |
| | Insert | Delete | | | loochidhioj | | |
| | Сору | 0 | Cut Paste | | | | Symbol |
| | -Symbol Sheet | | | | | Ten | nperature1 |
| | Add | | | Delete | | Ten | nperature2 |
| | | | | | | | nperature3 |
| | Check Duplication/List Used Addresses | | | | | | |
| | Global Constant Setting Screen | | | | | | |
| - | | | | | | | |

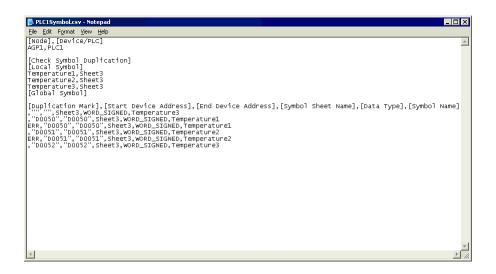
The "Check Duplication/List Used Addresses" screen appears.

| Check Duplication | on/List Used Addr | esses | | | ? × |
|-------------------|-------------------|-----------------|-----|----------|--------|
| Save in: | 🔁 NPXD ataBas | e | • + | - 🗈 💣 🎟- | |
| History | | | | | |
| Desktop | | | | | |
| My Documents | | | | | |
| My Computer | | | | | |
| My Network P | File name: | | | • | Save |
| My Network P | Save as type: | CSV File(*.csv) | | • | Cancel |

3 Specify the storage location and enter the file name to which the results are output. Then click [Save] button.



The check results are now displayed and saved as a CSV file into the specified storage location.



The check results are output in the following format:

[Node Name] and [Device/PLC]

Displays the names of the entry node and Device/PLC having the symbol sheet that has been checked.

[Symbol Duplication Check]

Displays the overlapped symbol names.

Will be blank if there is no name overlapped.

[Duplication Mark], [Start Address], [End Address], [Symbol Sheet Name], [Data Type] and [Symbol Name] Symbol check data is displayed in the order above. The symbols are sorted by [Start Address]. The overlapped symbols are indicated in [Duplication Mark] as "ERR".

32.6 Setting Guide

32.6.1 Symbol Registration Screen

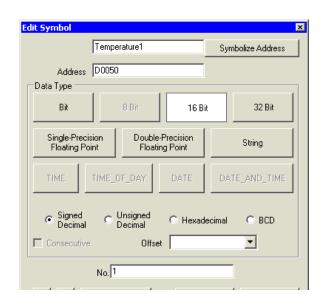
| Edit Tool Prog | ramming Assist Sett | ing Help | | | | | | |
|---------------------------------|-----------------------|----------|----------------|-------------|-----------------|----------------------|-------------|------------|
| 🔰 Start ン | Node > | <u> </u> | Symbol ⋗ 🍦 | Feature 🔉 [| 📑 Sa | ave 🔉 🆄 T | ransfer | Mor Sta |
| iymbol | | Noc | le Name AGP1 | | Device | Name PLC1 | | |
| Group | Ungroup | She | et Name Sheet2 | | Setitas | a global symbol shee | * | |
| Insert | Delete | 0.1.0 | or reality | | 0011100 | | | |
| Copy Cu | it Paste | | Symbol | Data Type | Consec utive | Device Address | No. of Data | Commer |
| ymbol Sheet | | | | | | | 1 | |
| Add | Delete | | | | | | 1 | |
| | | | | | | | 1 | |
| Check Duplication/L | ist Used Addresses | | | | | | 1 | |
| | | | | | | | 1 | |
| Global Constant | Setting Screen | | | | | | 1 | |
| - ▼ Pro-Server EX | | | | | | | 1 | |
| 🖻 🐺 PC1 (192.1 | 68.0.1) | | | | | | 1 | |
| | RNAL:Sheet3 | | | | | | | <u> </u> |
| GP4000/LT40 | | | | | - | | 1 | |
| ▼ GP3000 Series ⊡⊡ AGP1 (192 | | | | | | | 1 | |
| | RNAL:Sheet1 | | | | | | 1 | |
| | Sheet2 A Series CPU I | | | | | | 1 | <u> </u> |
| → WinGP | | | | · | - | | 1 | |
| ► LT 3000 ► GP Series | | | | | | | 1 | |
| ► Global Symbol | | | | | | | 1 | |
| 0.000.000 | | | | | | | 1 | |
| | | | | | | | 1 | |
| | | | | | | | 1 | <u> </u> |

| Sett | ting item | Setting content |
|--|--------------------|--|
| | Group | Group registered symbols. Refer to "29.3 Grouping Symbols" for more details. |
| | Ungroup | Ungroup grouped symbols. |
| | Insert | Insert a row directly above a selected row on a symbol sheet. |
| | Delete | Delete selected rows on a symbol sheet. |
| Symbol | Сору | Copy selected rows on a symbol sheet. |
| | Cut | Cut selected rows on a symbol sheet. |
| | Paste | Paste to a symbol sheet the contents being copied or cut. When one row is selected, the copied or cut contents are inserted in the row directly above the specified row. When multiple rows are selected, the copied or cut contents are displaced with the selected cells deleted. |
| Symbol Add Sheet | | Add symbol sheets to the registered Device/PLCs. Clicking this button displays the "Add symbol sheet" dialog box. Specify [Node Name], [Device Name] and [Sheet Name]. |
| | Delete | Delete a specified symbol sheet. |
| Check Duplication/List Used Addresses | | Check duplication of symbol names and device addresses. Refer to "32.5 Checking Registered Symbols" for more details. |
| Global Consta | int Setting Screen | Displays the "Global Constant Setting" screen. Refer to "32.6.3 Global Constant Setting" for more details. |

| Setting item | Setting content | | | | | | |
|---------------------------------|--|--|--|--|--|--|--|
| Node Name | Displays the node name holding the symbol sheet currently displayed. | | | | | | |
| Device Name | Displays the device name holding the symbol sheet currently displayed. | | | | | | |
| Sheet Name | Displays the name of the symbol sheet currently displayed. You can change the sheet name. | | | | | | |
| Set it as a global symbol sheet | Regard the symbol sheet currently displayed as a global symbol sheet. Refer to "32.3 Sharing Symbols on the Entire Network" for more details. | | | | | | |
| Symbol | Enter the symbol you wish to register. NOTE Must be entered at maximum 32 Unicode characters. Cannot begin with a number. | | | | | | |
| Data Type | Select the type of the symbol to be registered. Clicking the [Data Type] field displays a data type list. The following data types are available. • Bit • 8 bits (Signed decimal, unsigned decimal, hexadecimal, BCD) • 16 bits (Signed decimal, unsigned decimal, hexadecimal, BCD) • 32 bits (Signed decimal, unsigned decimal, hexadecimal, BCD) • Single-precision floating point • Double-precision floating point • Character string • TIME • TIME_OF_DAY • DATE • DATE_AND_TIME • You can set 8 bits, TIME, TIME_OF_DAY, or DATE when using tags. • When using a tag, when you select a [Device Address], the [Data Type] is automatically set. • When using a tag, you cannot specify the data type. | | | | | | |
| Consecutive | You cannot register text string tags as a symbol. Displays a continuous attribute panel if symbols have been already set. Select sequential device address or offset of bit type. When a sequential device address is selected, "+" appears indicating the device continuance; when the offset is selected, offset value appears. Sequential specification <u>Symbol Data Type Consec Device Address No. of Data Type Interpetature1 16Bit(Signed) 100050 1</u> Temperature2 16Bit(Signed) + 100051 1 Offset specification Offset specification <u>Symbol Data Type Consec Device Address No. of Data 1</u> Offset specification | | | | | | |

| Setting item | Setting content |
|----------------|---|
| Device Address | Specify the start address of the device to be specified as a symbol. When [Consecutive] is selected, the address is automatically displayed. |
| No. of Data | Specify the number of devices to be specified as symbols. (The default value is "1".) You can enter the preset global constant by clicking the list button. Refer to "32.6.3 Global Constant Setting" about global constants. NOTE • You can set the number of data up to 2040. |
| Comment | You can enter necessary information like the meanings of symbols as comments, if any. |

32.6.2 "Edit Symbol" Screen



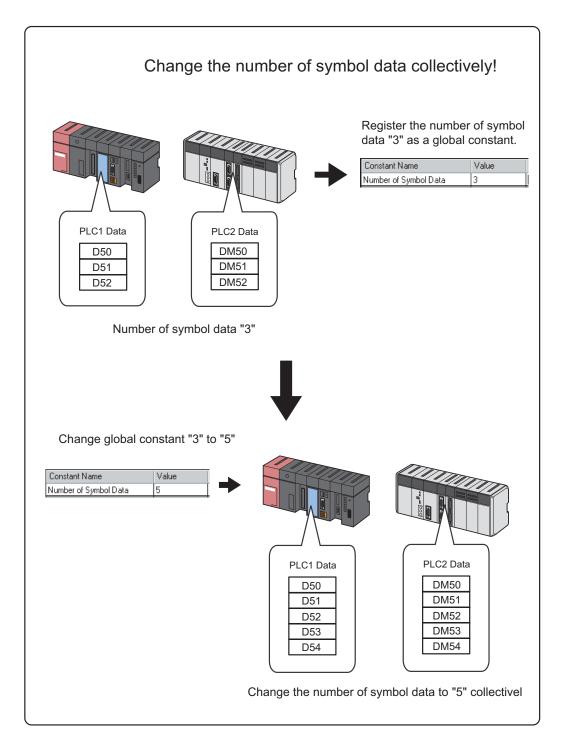
| Setting item | Setting content | | |
|--|--|--|--|
| Symbol Name | Enter the symbol name you wish to register. NOTE Must be entered at maximum 32 Unicode characters. Cannot begin with a number. | | |
| Symbolize Address Input a symbol name automatically from the device address and data type. A symbol name is to be input as follows: Ex.) In the case of the device address "D50" and the data type "Word": _D50_WORD | | | |
| Address | Enter the (start) device address. | | |
| Data Type | Select the data type of device: If [8 bits],[16 bits] or [32 bits] is selected, specify the attribute: [Signed Decimal], [Unsigned Decimal], [Hexadecimal], [BCD]. NOTE You can set 8 bits, TIME, TIME_OF_DAY, or DATE when using tags. When using a tag, when you select a [Device Address], the [Data Type] is automatically set. When using a tag, you cannot specify the data type. You cannot register text string tags as a symbol. | | |
| Consecutive | Check this if the device addresses are sequential. | | |
| Offset | Select an offset value by clicking the list button.16 bits: from 0 to 1532 bits: from 0 to 31 | | |
| No. | Specify the number of devices to be specified as symbols. (The default value is "1".) You can enter the preset global constant by clicking the list button. Refer to "32.6.3 Global Constant Setting" about global constants. NOTE • You can set the number up to 2040. | | |

Pro-Server EX Reference Manual

| Setting item | Setting content |
|----------------------|---|
| < | Displays the symbol setting of the upper row. |
| > | Displays the symbol setting of the lower row. |
| Continuous Insertion | Set the sequential device address or offset address-added symbol in the next row of the symbol sheet with the current set contents. NOTE When the symbol name is specified in [Symbolization of Address], the values following the device address and data type are automatically changed. "+" appears in the [Consecutive] field on the symbol sheet. |

32.6.3 Global Constant Setting

By registering the data number of symbols as a "Global constant", you can change all the data numbers at once by changing the constant when such a change has been made to the system as changing a symbol data number.



To set a global constant, click the [Global Constant Setting Screem] button on the symbol registration screen.

| Global Constant Setting | | | | × |
|--|-----------------|-------|----------|--------|
| Copy Cut | Global Constant | List | | |
| Paste | Constant Name | Value | Comment | |
| Insert | | | | |
| Delete | | | | |
| The constants defined in this list can be used as the No. of data or arrays in a symbol sheet. | | | <u> </u> | Cancel |

| Setting item | Setting content |
|---------------|---|
| Constant Name | Enter the name of the constant to be set. |
| Value | Enter a constant. NOTE • The valid values range from 1 to 4096. |
| Comment | You can enter necessary information like the meanings of constants as comments, if any. |
| Сору | Copy the global constant in a selected row. |
| Cut | Cut the global constant in a selected row. |
| Paste | Insert a copied or cut global constant to the row directly above a selected one. |
| Insert | Insert a row directly above a selected row on a symbol sheet. |
| Delete | Delete a selected row. |

32.7 Restrictions

Symbol whose data type is undefined

When you import a screen project file of 'GP-Pro EX' or 'GP-PRO/PBIII for Windows', the word symbols in the project file are to be imported as an undefined data type of symbol.

• Use with 'Pro-Studio EX'

To use an undefined data type of symbol with 'Pro-Studio EX', you are requested to input the data type. (When you use a defined symbol, data type entry is not available.)

• Use with Pro-Server API

There are 2 types of Pro-Server API: API requiring separate specification of data type and that requiring no specification.

| API type | Description |
|-----------------------------|---|
| With separate specification | This API prioritizes the data type separately specified over the symbol data type. |
| Without specification | When the specified symbol is a 16-bit device, the symbol becomes 16-bit signed; when the specified symbol is a 32-bit device, it becomes 32-bit signed. |

• When MES ACTION is specified

If you select a symbol where the data type is undefined when MES ACTION is specified, the data type and the number of data are fixed to [16Bit(Signed)] and [No.: 1], respectively.

Maximum number of data

The following table shows the maximum number of data settable according to the symbol type.

| Symbol type | No. of data |
|--|-------------|
| Bit symbol | 255 |
| Bit offset symbol | 1 |
| 8-bit signed symbol | 1020 |
| 8-bit unsigned symbol | 1020 |
| 8-bit BCD symbol | 1020 |
| 8-bit HEX symbol | 1020 |
| 16-bit signed symbol | 1020 |
| 16-bit unsigned symbol | 1020 |
| 16-bit BCD symbol | 1020 |
| 16-bit HEX symbol | 1020 |
| 32-bit signed symbol | 510 |
| 32-bit unsigned symbol | 510 |
| 32-bit BCD symbol | 510 |
| 32-bit HEX symbol | 510 |
| Single-precision floating point symbol | 510 |
| Double-precision floating point symbol | 255 |
| Character string symbol | 255 |
| TIME | 510 |
| TIME_OF_DAY | 510 |
| DATE | 510 |
| DATE_AND_TIME | 255 |
| (Data type is "Undefined") | 1 |

Symbol whose data number is undefined

The data number of the following symbols is regarded as "Undefined".

- Symbols created by importing a screen project file of 'GP-Pro EX' or 'GP-PRO/PBIII for Windows'.
- Symbols created by converting a network project file made by the old version of 'Pro-Server'.
- Symbols whose data number has not been specified in the symbol setting.
- Use with 'Pro-Studio EX'

To use an undefined data type of symbol with 'Pro-Studio EX', you are requested to input the data type. (When you use a defined symbol, data type entry is not available.)

• Use with Pro-Server EX API

Such symbols are regarded as a symbol of which data number is "1".

■ About the system variables of "GP-Pro EX"

The device quantity of one system variable of 'GP-Pro EX' basically as 1 is handled even with 'Pro-Server EX', but "#L_IOInfo" and "#L_IOStatus" is handled as 4.

Global Symbol Sheets Settings

If you specify any of the following protocol devices in a global symbol sheet, the project file specified on the entry nodes setting screen for the node must meet the requirements below:

- Manufacture: Rockwell Automation, Inc
- Device Type: EtherNet/IP
- Device Setting: ControlLogix/CompactLogix Series Native

*Requirements

The same IOI file (Data tag definition file) must be set for both the node where the global symbol sheet is specified and the node that references that global symbol sheet. You specify the IOI file in the 'GP-Pro EX' Device/PLC setting.