30 Symbol Registration

30.1	Symbol and Symbol Sheet	
30.2	Registering Symbols on a Symbol Sheet	
30.3	Sharing Symbols on the Entire Network	
30.4	Copying to a Symbol Sheet in Another Network Project File	
30.5	Checking Registered Symbols	
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30.1 Symbol and Symbol Sheet

30.1.1 What is a Symbol?

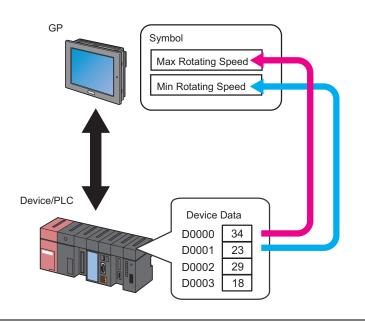
You can collectively register each device data used inside the GP and Device/PLC as "Symbol".

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.

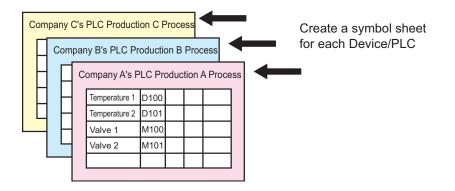
The data included in a symbol are: Symbol name, Device address, Data type, Number of data etc.

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



30.1.2 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.



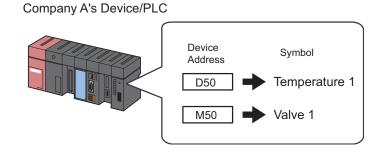
NOTE

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.

"30.2.5 Adding Symbol Sheetsî"

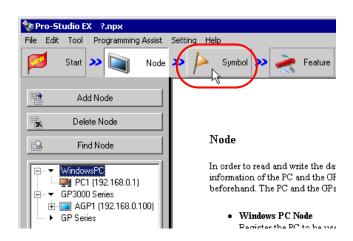
30.2 Registering Symbols on a Symbol Sheet

30.2.1 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.



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

🎕 Pro-Studio I	ЕХ ?.пря		
File Edit Tool	Programn	ning Assist Se	tting Help
💋 Start	» 🐚	Node 🔉	Symbol -
Symbol			Node Name
Group		Ungroup	Sheet Name
Insert		Delete	
Сору	Cut	Paste	Symbol
Symbol Sheet			
Add		Delete	[]]
· · ·	ation/List U: onstant Settin	sed Addresses ng Screen	
	#INTERNA) Series P1 (192.168. #INTERNA PLC1:Sheet es	L:Sheet1 0.100)	

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 ?. Edit Tool Prog	gramming Assist Se	ting	Help					
🔰 Start ン	Node 🔉	P	🕨 Symbol 🌺 🦂	Feature ン [🚽 Sa	ive ᠉ 🆄 Ti	ansfer	Monit Statu
iymbol		1	Node Name AGP1		Device	Name PLC1		
Group	Ungroup		Sheet Name Sheet3		Set it as	a global symbol shee	t.	
Insert	Delete							
Copy C	ut Paste	K	Symbol	Data Type	Consec utive	Device Address	No. of Data	Comment
ymbol Sheet							1	<u> </u>
Add	Delete						1	
							1	
Check Duplication/L	ist Used Addresses						1	
		11					1	
Global Constant	Setting Screen	J. F			<u> </u>		1	
··▼ WindowsPC		l ik					1	
🖻 🖳 PC1 (192.)		Hł					1	
GP3000 Serie: → GP3000 Serie:	RNAL:Sheet1	Hit					1	
- GP3000 Serie: ⊡- 🗔 AGP1 (192		ll i			<u> </u>		1	
- 🖾 #INTE	RNAL:Sheet2	ll i		·			1	
	Sheet3 A Series CPU	4 i					1	
 GP Series Global Symbol 		l î					1	
	Series CPU Direct	Í					1	
E SHOOD III		ſ					1	
							1	
							1	
							1	
							1	

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

🎕 Pro-Studio E	X ?.npx							
File Edit Tool	Programm	ing Assist	Settin	g Hel	р			
Start	»	Node	>>		Symbol	>>	1	Feature
Symbol				N	ode Name	AGP1		
Group		Ungroup		Sheet Name Sh		Sheet?	}	
Insert		Delete		oneer trainej				
Сору	Cut	Paste			Symbo	ol	Γ	Data Ty
Symbol Sheet			_ (Ten	nperature1			
Add		Delete					╞	
Check Duplic	Check Duplication/List Used Addresses						È	
Global Co	Global Constant Setting Screen							

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

									×
ist Setting	; Help								
de >	녿 Symbol ≫ 🚄	Feature ン 📑	Sa	ve እ [т 💕	ansfer		Monite Statu	
	Node Name AGP1 Device Name PLC1								
p	P Sheet Name Sheet3 Set it as a global symbol sheet.								
									_
iste	Symbol	Data Type	Consec utive	Device A	Address	No. of	Data	Comment	
	Temperature1				<u>`</u>		С	ancel 🔄	
. 1			16Bit(Sig		32Bit(Sig		Bit		
		U	16Bit(Un	Signed	2Bit(Un	Signed)	Float		
resses			16Bit(HE	X)	32Bit(HE	X)	Double		
			16Bit(BC	D)	32Bit(BC	D)	String		
en						1			
						1			

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 [OK] button.

	Help Symbol >> 2 Node Name AGP1 Sheet Name Sheet3	Feature 🕨 📄		ve » 🔯 Ti Name PL 🔀	ransfer	Monitor Status Set it as a global symb
I	Symbol Temperature1	Data Type 16Bit(Signed)	Consec utive	Device Address	No. of Data	Comment
I					Back A B C	Cir 7 8 9
I					DEF	4 5 6 1 2 3 0 Ent
					ОК	

NOTE

• You can also enter the device address directly.

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

					_ 🗆 ×
ng Help					
🌔 Symbol ≫ 🧳	Feature ⋗ 📑	Sa 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
Temperature1	16Bit(Sianed)		D0050	1	
Valve1	Bit		м0050	1	
4			1	4	
				1	
				1	
				1	

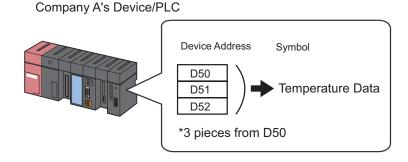
This is the end of the symbol registration to the symbol sheet.

 You can edit the contents of the registered symbols. Click [Symbol], [Sequential] or [Device Address] and edit the contents on the "Edit Symbol" screen.
 "30.6.2 "Edit Symbol" Screen"

30.2.2 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	 t.	
I	Symbol	Data Type	Consec utive	Device Address	No. of Data	Comment
K	Temperature1	16Bit(Signed)		D0050	1	
L					1	
L					1	
I					1	

For the detailed procedure, please refer to Step 1 to 5 in "30.2.1 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 🔉 [Sa	ave 🔉 🔖 T	ransfer	Monitor Status		
I	Node Name AGP1 Device Name PLC1 Sheet Name Sheet3 Set it as a global symbol sheet.							
I	Symbol	Data Type	Consec utive	Device Address	No. of Data	Comment		
K	Temperature1 Temperature2	16Bit(Signed)		D0050	1 1 1			
I					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.

ning Assist Setting		Feature ン [📔 Save ン 🆄	Transfer	Monitor Status
	Node Name AGP1		Device Name PLC1		
Ungroup Delete	Sheet Name Sheet3		Set it as a global symbol s	heet.	
Paste	Symbol	Data Type	Consec utive Device Addres	ss No. of Data	Comment
	Temperature1	16Bit(Signed)	D0050	1	
Delete	Temperature2		+ D0051 Cancel	0 D0050.00 1 D0050.01 2 D0050.02	
sed Addresses				3 D0050.03 4 D0050.04 5 D0050.05	
ng Screen				6 D0050.06 1 1	

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

a Assist Settina	1 Help					_ 🗆 🗵
Node >>	Symbol >> 🧳	Feature 🔉 📔	Sa	ave 渊 🆄 Ti	ransfer	Monitor Status
ngroup	Node Name AGP1 Sheet Name Sheet3			Name PLC1 a global symbol shee	at.	
Paste	Symbol	Data Type	Consec utive	Device Address	No. of Data	Comment
)elete	Temperature1	16Bit(Signed)		D0050 + D0051 Cancel	1 0 D0050.00 1 D0050.01 2 D0050.02 2 D0050.02	
d Addresses Screen					3 D0050.03 4 D0050.04 5 D0050.05 6 D0050.06	
		l		 r	[] [.	

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

ng Help									
🌔 Symbol ⋗ 🍦	≷ Feature ン [- Sa	ive 🔉 🆄 Ti	ansfer	Monitor Status				
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					
Temperature2	16Bit(Signed)	+	D0051	1					
				1					
				1					
				1					
				1 1 1					

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

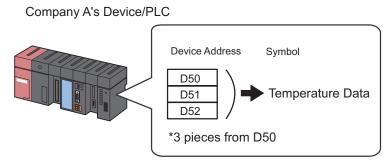
5 Repeat Step 2 to 4 to set the next symbol.

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.

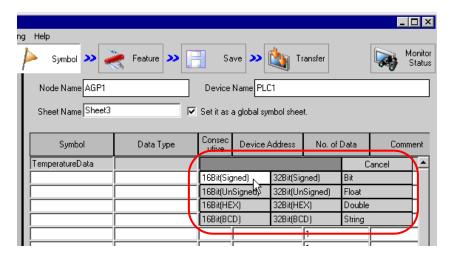


This section describes how to register the symbols of sequential addresses taking the above case as an example.

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

					_ 🗆 ×
ng Help					Monitor
/> Symbol >>	≷ Feature ン 📄	Sa Sa	ive 꽏 🎑 Ti	ransfer	Status
Node Name AGP1		Device	Name PLC1		
Sheet Name Sheet3		Set it as a	a global symbol shee	et.	
		Consec			
Symbol	Data Type	utive	Device Address	No. of Data	Comment
TemperatureData	<u>)</u>			1	<u> </u>
				1	
				1	
				1	
				1	
				1	
				1	

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



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 [OK] button.

							_	
ng Help					1			
🜔 Symbol 🌺 🏹	Feature ン [Sa	ive ນ 🆄 T	ransfer				onitor Status
Node Name AGP1		Device	Name PLC1				_	
Sheet Name Sheet3		Set it as a	a global symbol shee	et.				
Symbol	Data Type	Consec utive	Device Address	No.	of Data		Comm	ient
TemperatureData	16Bit(Signed)		7	D		50		
				Back	<	_		Clr
				А	B C	7	8	9
				D	E F	4	5	6
						1	2	3
						0	I	Ent
					ОК	c	ancel	
				1				- 11

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

a Help	Feature ン [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
TemperatureData	16Bit(Signed)		D0050	3 🕨	<u> </u>
L				1	
L				1	
	 			1	
				1	
				1	

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

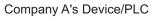
When you register the next symbol, the address following the last address input in Step 4 (in this case, "+D0053") is displayed on the continuous attribute panel that is displayed by clicking the [Sequential] field.

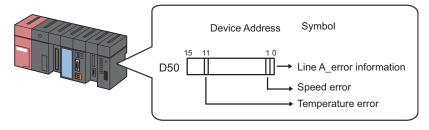
Node Symbol Feature Save Transfer Monitor group Node Name AGP1 Device Name PLC1 group elete Sheet Name Sheet3 Set it as a global symbol sheet. Paste Symbol Data Type Consec Device Address No. of Data Comment Temperature1 16Bit(Signed) D0050 3 Image: Cancel of the time of time of the time of time of the time of ti	Assist Settin	g Help					_ 🗆 🗵
group Sheet Name Sheet3 Set it as a global symbol sheet. Paste Symbol Data Type Consec utive Device Address No. of Data Comment Temperature1 16Bit(Signed) D0050 3 Image: Consec utive 0 D0050.00 Image: Consec utive Image: Consec utive Image: Consec utive 0 D0050.00 Image: Consec utive			Feature ⋗ [Save 2	• 🖄 Tr	ansfer	Monitor Status
Symbol Data 1 ype utive Device Address N8. or Data Comment Temperature1 16Bit(Signed) D0050 3 •						t.	
elete 0 D0050.00 Addresses - D0053 D0050.01 1 D0050.01 Cancel 3 D0050.03 4 D0050.04 - D0050.04 5 D0050.05 - D0050.05	Paste	-		utive Dev			Comment
			IbBit[Signed]	+ D	0053 Cancel	0 D0050.00 1 D0050.01 2 D0050.02 3 D0050.03 4 D0050.04 5 D0050.05	

30.2.3 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) of GLC 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".

a Help Symbol >>	Feature ➤ [a Sa	ive > 🆄 Ti	ansfer	L □ × 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 "30.2.1 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	

3 Click the [Sequential] field.

A panel to specify the continuous attribute appears.

<u>5</u> e	tting <u>H</u> elp > Symbol >> Q	≷ Feature ン [- Sa	ave 🔉 🔖 T	ransfer	× Monitor Status
	Node Name AGP1 Sheet Name Sheet3			Name PLC1 a global symbol shee	ət.	
	Symbol	Data Type	Consec utive	Device Address	No. of Data	Comment
l	LineAErrorInfomation	16Bit(Signed)	· ·	D 0050	1	
	SpeedError			+ D0051 Cancel	0 D0050.00 1 D0050.01 2 D0050.02 3 D0050.03 4 D0050.04 5 D0050.05 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.

r Help					_ 🗆 🗙 Monitor
Node Name AGP1	Feature 🍑 📑		Name PLC1	ransfer	Status
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			+ D0051 Cancel	0 D0050.00 1 D0050.01 2 D0050.02 3 D0050.02 4 D0050.04 5 D0050.05 6 D0050.06 1 1	

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

) Help	Feature 🔉 📔	- Sa	ive ➤ 🄖 T	ransfer	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			
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 🔊 [- Sa	ave 🔉 🖄 Ti	ansfer	× Monitor Status
	Node Name AGP1		Device	Name PLC1		
	Sheet Name Sheet3		Set it as	a global symbol shee	ıt.	
	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	
		J				
					1	
					1	

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

30.2.4 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.

3 Help Symbol Symbol Node Name AGP1	Feature ➤ [ave 💙 🔯 T Name PLC1	ransfer	Monitor Status		
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 the [Insert] button in [Symbol].

🐲 Pro-Studio EX 🛛 ti		
~	est.npx	
<u>F</u> ile <u>E</u> dit <u>T</u> ool	<u>P</u> rogramming Assist	<u>S</u> etting <u>H</u> elp
💋 Start ン	Node >	Symbol 2
Symbol		Node Name
Group	Ungroup	Sheet Name
Insert	Delete	Sheet Name j-
	Hat Paste	Symbol
Symbol Sheet		LineAErrorInform
Add	Delete	SpeedError
Check Duplication/	List Used Addresses	
Global Constan	t Setting Screen	

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

; Help	≷ Feature 🔉 [] Sa	ave 🔉 🔖 Ti	ransfer	Monitor Status
Node Name AGP1		Device	Name PLC1		
Sheet Name Sheet	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	
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.

3 Help Symbol >>	Feature 🔊 [Sa	ave ᠉ 🄖 T	ransfer	Monitor Status
Node Name A 21		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)		D0050	1	
Temperature2	16Bit(Signed)	+	D0051	1	
Temperature3	16Bit(Signed)	+	D0052	1	
				1	
				1	
				1	
				1	

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

🎕 Pro-Studio EX 🛛 te	est.npx	
<u>File Edit T</u> ool <u>F</u>	Programming Assist	<u>S</u> etting <u>H</u> elp
💋 Start ン	Node 🌺	🌔 Symbol 2
Symbol		Node Name
Group	Unaroup	Sheet Name
Insert	Delete	onecritane
Сору		Symbol
Symbol Sheet		LineAErrorInfom
Add	Delete	SpeedError
Check Duplication/L	List Used Addresses	
Global Constant	Setting Screen	

The "Delete Symbol" screen appears.

Delete Sy	mbol		\times
?		erature2 e deleted. t OK?	
Yes	;	No	

 ${\bf 3} \ {\rm Click} \ {\rm the} \ [{\rm Yes}] \ {\rm button}.$



The specified row is deleted.

) Help Symbol Symbol Node Name AGP1	Feature >> [ave ン 🖄 T Name PLC1	ransfer	Monitor Status
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)		D0050	1	
Temperature3	16Bit(Signed)	+	D0051	1	
				1	
				1	
				1	
				1	
				1	
				1	

30.2.5 Adding Symbol Sheetsî

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 the [Add] button in [Symbol Sheet].

黎 Pro-Studio E	X test.np	x	
<u>F</u> ile <u>E</u> dit <u>T</u> o	ol <u>P</u> rogr	amming Assis	t <u>S</u> etting <u>H</u> elp
💋 Start	»	🕴 Node >	» 🌔 Symbol 🔉
Symbol			Node Name
Group		Ungroup	Sheet Name
Insert		Delete	
Сору	Cut	Paste	Symbol
Sumbel Sheet			LineAErrorInfom
Add		Delete	
Check Duplic	ation/List U	sed Addresses	
Global Co	onstant Sett	ing Screen	

The "Add Symbol Sheet" screen appears.

Add Symbol Sheet	X
Node Name AGP1	
Device Name PLC1	•
Sheet Name Sheet4	
	OK Cancel

2 Click the list button of [Node Name] or [Deice Name] to select the node or device where you want to add a symbol sheet.

Add Symbol Sheet		X
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 the [OK] button.

Add Symbol Sheet					×
					_
Node Name AGP1					•
Device Name PLC1	 				•
Sheet Name Sheet4	 				
	0	ĸ)	Cancel	

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 e Edit Tool Programming Assist Setti	ng Help					
🗾 Start ン 🟹 Node ン	≽ Symbol ≫ 🥃	≷ Feature ン [- Sa	ve 🔉 🆄 T	ransfer	Mon Sta
Symbol	Node Name AGP1		Device	Name PLC1		
Group Ungroup Insert Delete	Sheet Name Sheet4		Set it as	a global symbol shee	et.	
Copy Cut Paste	Symbol	Data Type	Consec utive	Device Address	No. of Data	Commen
Symbol Sheet					1	
Add Delete			<u> </u>		1	
					1	
Check Duplication/List Used Addresses					1	
Global Constant Setting Screen			<u> </u>		1	
					1	
					1	
INTERNAL:Sheet1					1	
GP3000 Series					1	
General AGP1 (192.168.0.100)					1	
PLC1-Sheet3 & Series CPLL					1	
PLC1:Sheet4 A Series CPU I	D			I	1	
► GP Series ▼ Global Symbol			<u> </u>		1	
Sheet3 A Series CPU Direct					1	
-					1	
					1	
	l				1	
					1	

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	Programm	ning Assist	Setting	Help				
对 Start	» 🐚	Node	>>	Symbol				
Symbol				Node Name				
Group		Ungroup		Sheet Name				
Insert		Delete						
Сору	Cut	Paste		Symbo				
 Symbol Sheet								
Add	Add Delete							
	Check Duplication/List Used Addresses Global Constant Setting Screen							

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

黎 Pro-Studio E	X tes	t.npx				
<u>F</u> ile <u>E</u> dit <u>T</u> o	ol <u>P</u> r	ogram	ming As	sist	<u>S</u> ettir	ng <u>H</u> elp
💋 Start	»		Node	»		Symbol 🎝
Symbol						Node Name
Group		Ungroup			9	Sheet Name
Insert		Delete				neet rane [
Сору	Cut	Cut Paste				Symbol
Symbol Sheet				_	Lir	neAErrorInfom
Add	Add Delete					
Check Duplic	ation/Lis	st Used	Address	ies -		
Global Co	onstant S	etting	Screen			

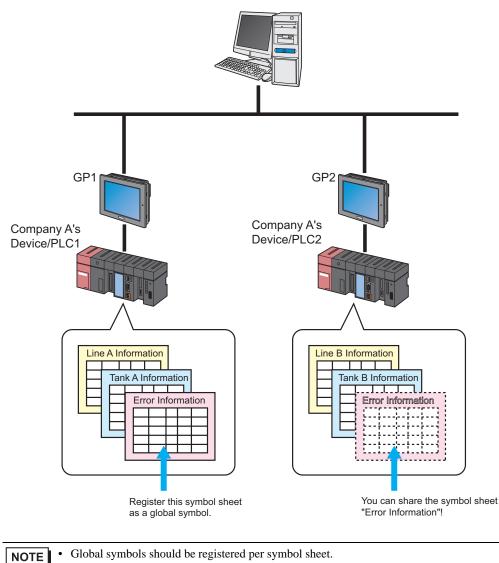
The selected symbol sheet is now deleted.

30.3 Sharing Symbols on the Entire Network

30.3.1 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.



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

30.3.2 Registering as a Global Symbol

This section describes how to register a global symbol.

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

g Help P Symbol >> 🛃	Feature 🔉 📔	Sa	ave ➤ 🆄 Ti	ansfer	L I X		
Node Name AGP1 Device Name PLC1 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			

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.

🎕 Pro-Studio I	EX ?.npx							
File Edit Tool	Programm	ing Assist	Setting	g Help				
Start	»	Node	>>	Symbol				
Symbol				Node Name				
Group		Ungroup		Sheet Name				
Insert		Delete		Sheet Name				
Сору	Cut	Paste		Symbo				
				Temperature1				
Add		Delete	Temperature2					
	Temperature3							
Check Duplic	ation/List Us	ed Address	es					
Global Co	Global Constant Setting Screen							
Global Lonstant Setting Screen								

NOTE	•	To cancel the r	egistration	of the global	symbol sheet	uncheck [Mg	ake global sv	mbol sheet]
NOIE		to cancer the r	egistiation	of the global	symbol sheet,	unencek [wit	ike global sy	moor sneetj.

30.4 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	ave ᠉ 🄖 Ti	ransfer	Monitor Status
Node Name AGP1		Device	Name PLC1		
Sheet Name Sheet3	V	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	
				1	
				1	
				1	
				1	
				1	
				1	
				1	
				1	
				1	
				1	
				1	
				1	
				1	<u> </u>

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

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

🎕 Pro-Studio EX 🛛 ?	лрх					
File Edit Tool Pro	gramming Assist – Set	ting Help				
对 Start ≫	Node >>	Symbol				
Symbol		Node Name				
Group	Ungroup	Sheet Name				
Insert	Delete	Sheet Hame				
	Cut Paste	Symbol				
Symbol Sheet		Temperature1				
Add						
	Temperature3					
Check Duplication/						
Global Constar						

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

3 Select [Open] from the [File] menu.

饕 Pro-Studio EX 🛛 ?.npx	
File Edit Tool Programming	Assist Setting Help
Open Save As Save As Input History at Save Time Print Export Nodes and Symbols	bup Node Name bup Sheet Name te Symb
Import Nodes and Symbols Exit Check Duplication/List Used	Addresses
Global Constant Setting S → ✓ WindowsPC → 및 PC1 (192.168.0.1) → ∭ #INTERNAL:SI □ → ✓ GP3000 Series	
GP3000 Series GP300	heet2

The "Open File" screen appears.

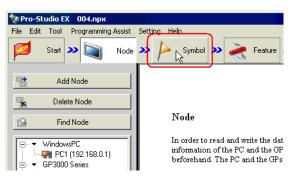
Save in:	: 🔁 NPXDataBa	ise		-	(† 🖻 🔿	•••	
	Name		Size	Туре		Modified	
<u></u>	😻1.npx		316 KB	NPX File		4/3/2006	11:36 AM
History	2.npx		316 KB	NPX File		4/3/2006	11:36 AM
7	😻 004.npx		316 KB	NPX File		4/3/2006	11:36 AM
Desktop	💱003.npx		316 KB	NPX File		4/3/2006	11:36 AM
My Documents							
My Computer	•						
		003.npx				1	Save

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

Save in:	: 🔁 NPXDataBase	9	•	(- 🔁 🔿	·	
	Name	Size	Туре		Modified	
	💱1.npx	316 KB	NPX File		4/3/2006	11:36 AM
	💱 2.npx	316 KB	NPX File		4/3/2006	11:36 AM
~	😻003.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
vly Network P	Save as type:	Network Project File (*.n	່		1	Cancel

The selected network project file opens.

5 Click [Symbol] on the status bar.



6 Select the copy-destination symbol sheet.

	ng Assist Node Jngroup	Sett	1	p Symbol			
		»	Node	Symbol			
1	Ingroup		Node				
<u> </u>	Ingroup	_	nouc	NameAG			
	Singroup		Sheet	Name She			
	Delete			,			
Cut	Paste		:	Symbol			
	Delete						
Check Duplication/List Used Addresses Global Constant Setting Screen							
es 2.168.0 ERNAL :Sheet2	100) :Sheet1	IPI I					
	nt Settin; .168.0.1 es 92.168.0 ERNAL	List Used Address List Used Address at Setting Screen Li68.0.1) 25 12.168.0.100) ERNAL:Sheet1 (Sheet2 A Series (I	Cut Paste Delete List Used Addresses at Setting Screen 168.0.1) 22.168.0.100) ERNAL:Sheet1 Sheet2 A Series CPI	List Used Addresses List Used Addresses t Setting Screen Listel 1 State 2 A Series CPT			

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

A				
💱 Pro-Studio E	Х 004.прх			
File Edit Tool	Programmin	ng Assist – Se	etting	Help
💋 Start	»	Node 🔾	»	Symbol
Symbol				Node Name
Group	U	Ingroup		Sheet Name
Insert		Delete		
Сору	Cut	\mathbb{D}	Symb	
Symbol Sheet		hi		
Add		Delete		
			-	
Check Duplic	ation/List Use	d Addresses		
Global Co	onstant 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	
L					1	
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.

٠

30.5 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.

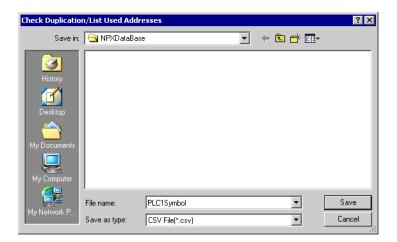
- 1 Display the symbol sheet you wish to check.
- 2 Click the [Check Duplication/List Used Addresses] button.

Ŷ	Pro-Studio	EX 0	04.np	×				J
Fi	ile Edit To	ol Pro	gramm	ing Assist	Settir	ng He	lp	
	🗾 Sta	t 🔉		Node	>>		Symbol	-
Г	Symbol						lode Name	
	Group)		Ungroup		s	heet Name	ſ
	Inser	Delete		ľ	neeritamo			
	Сору С		Cut	iut Paste			Symbo	1
	-Symbol Shee	:t				Ter	nperature1	
	Add		1	Delete		Ter	mperature2	
				2010(0		Ter	nperature3	
ſ	Check Duplication/List Used Addresses							
	Global Constant Setting Screen							

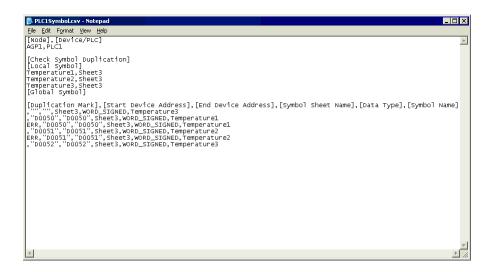
The "Check Duplication/List Used Addresses" screen appears.

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 the [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".

30.6 Setting Guide

30.6.1 Symbol Registration Screen

🂱 Pro-Studio EX 004.npx						_ 🗆 ×
File Edit Tool Programming Assist Settin	g Help					
Start 🌺 🕅 Node ≫	🜔 Symbol ≫ 类	🕈 Feature ン 📑	Sav	re 🔉 🆄 Tra	ansfer	Monitor Status
Symbol	Node Name AGP1		Device	Name PLC1		
Group Ungroup	Sheet Name Sheet3		Set it as a	global symbol sheet		
Insert Delete	Chockritanoj		00111 00 0	giobal of moor of look		
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			<u> </u>		1	
	I		<u> </u>		1	
Global Constant Setting Screen					1	·
▼ WindowsPC			<u> </u>		1	
PC1 (192.168.0.1) #INTERNAL:Sheet1					1	
GP3000 Series					1	
🖻 🖅 AGP1 (192.168.0.100)					1	
INTERNAL:Sheet2					1	
GP Series					1	
Global Symbol			<u> </u>	<u> </u>	1	
		 	<u> </u>		1	
			<u> </u>		1	
		 		I	1	·
			<u> </u>		1	
			<u> </u>		1	
	I					

Set	ting item	Setting content
	Group	Group registered symbols. Refer to "28.2 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 Sheet	Add	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 "30.5 Checking Registered Symbols" for more details.
Global Constant Setting Screen		Displays the "Global Constant Setting" screen. Refer to "30.6.3 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 "30.3 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 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 				
 Displays a continuous attribute panel if symbols have been alres sequential device address or offset of bit type. When a sequential device address is selected, "+" appears indic continuance; when the offset is selected, offset value appears. Sequential specification 					
Consecutive	Temperature1 16Bit(Signed) D0050 1 Temperature2 16Bit(Signed) + D0051 1				
	Offset specification				
	Symbol Data Type Consec utive Device Address No. of Data LineA_Error 16Bit(Signed) D0050 1 SpeedError Bit 01 D0050.01 1 Image: Device Address Image: Device Address Image: Device Address Image: Device Address				
Device Address	Specify the start address of the device to be specified as a symbol. When [Sequential] 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 "30.6.3 Global Constant Setting" about global constants. NOTE • You can set the number of data up to 1020.				
Comment	You can enter necessary information like the meanings of symbols as comments, if any.				

30.6.2 "Edit Symbol" Screen

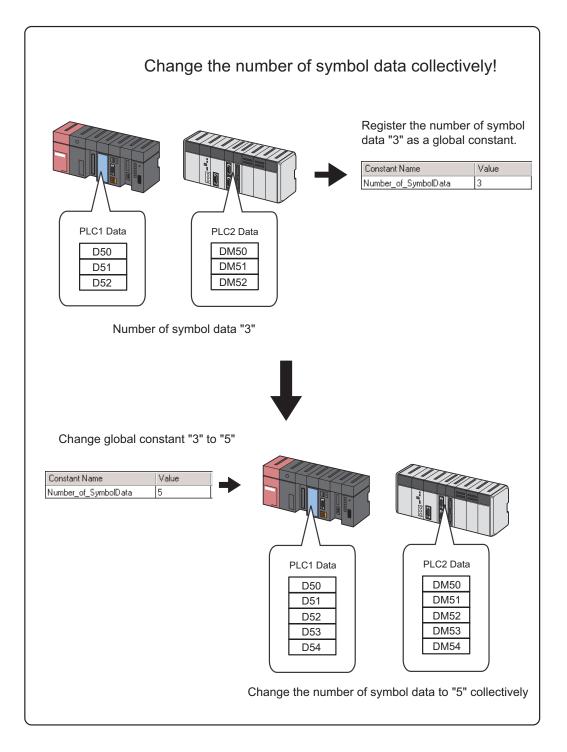


Setting item	Setting content
Symbol Name	 Enter the symbol name you wish to register. NOTE Must be entered at maximum 32 Unicode characters. Cannot begin with a number.
Symbolize Address	Input a symbol name automatically from the device address and data type. A symbol name is to be input as follows: 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: [Bit], [16 bits], [32 bits], [Single-Precision Floating Point], [Double-Precision Floating Point], and [String]. If [16 bits] or [32 bits] is selected, specify the attribute: [Signed Decimal], [Unsigned Decimal], [Hexadecimal], [BCD].
Consecutive	Check this if the device addresses are sequential.
Offset	Select an offset value by clicking the list button. 16 bits: from 0 to 15 32 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 "30.6.3 Global Constant Setting" about global constants. NOTE • You can set the number up to 1020.
<	Displays the symbol setting of the upper row.
>	Displays the symbol setting of the lower row.

Setting item	Setting content
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 [Symbolize Address], the values following the device address and data type are automatically changed. "+" appears in the [Consecutive] field on the symbol sheet.

30.6.3 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				×	
Сору		. 1 :			
Cut	Global Constant	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.
	Enter a constant.
Value	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.

30.7 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.

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
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

Symbol type	No. of data
(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".