CoDeSys Automation Alliance

CoDeSys V3 Ethernet Driver

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Introduction

This manual describes how to connect the Display and the External Device (target PLC).

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



1 System Configuration

The system configuration for the Display connected to the CoDeSys Automation Alliance External Device is shown below.

Series	CPU	Link I/F	Communication Method	Setting Example
3S-Smart Software Solutions GmbH CODESYS Control Win V3	PC/AT	Ethernet Interface	Ethernet (TCP)	"Setting Example 1" (page 7)
Hitachi Industrial Equipment Systems Co., Ltd. EHV+	1006 1025 1051 1102	Ethernet Interface	Ethernet (TCP)	"Setting Example 1" (page 7)
Hitachi Industrial Equipment Systems Co., Ltd. HX	HX-CP1S08 HX-CP1H16 HX-CP1S08M HX-CP1H16M HXC-CP1H16	Ethernet Interface	Ethernet (TCP)	"Setting Example 2" (page 10)
Lenze Vertrieb GmbH Controller 3200C	3200C	Ethernet Interface	Ethernet (TCP)	"Setting Example 1" (page 7)
Schneider Electric SA	M241 M251	Ethernet Interface	Ethernet (TCP)	"Setting Example 3" (page 13)
Modicon	M262	Ethernet Interface	Ethernet (TCP)	"Setting Example 4" (page 16)

NOTE

• Please refer to the latest list of the External Device to be supported by this driver on the Proface's website.

http://www.pro-face.com/product/soft/gpproex/driver/driver.html

• This driver does not support GP3000 Series, LT3000 Series, GP-4100 Series (Monochrome Model), GP-4*01TM and GP-Rear Module.

Connection Configuration

• 1:1 Connection



• 1:n Connection

Maximum number of connections: 16



• 1:n Connection (Gateway connection)



• n:1 Connection

Maximum number of connections: n*



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

• n:m Connection



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

2 External Device Selection

Select the External Device to be connected to the Display.

Welcome to GP-Pro EX		×
67-7ro E X	Device/PLC Number of Devi	ices/PLCs
		Device/PLC 1
	Manufacturer	CoDeSys Automation Alliance
	Series	CoDeSys V3 Ethernet
	Port	Ethernet (TCP)
		Refer to the manual of this Device/PLC
		Recent Device/PLC
	4	
	🔲 Use System	Area Device Information
	D 1 (D	
	Back (B	Communication Settings New Logic New Screen Cancel

Setup Items	Setup Description
Number of Devices/PLCs	Use an integer from 1 to 2 to enter the number of Devices/PLCs to connect to the display. NOTE • When you set up the CoDeSys Automation Alliance CoDeSys V3 Ethernet driver, you can connect simultaneously up to two drivers (models that support four drivers) or one driver (models that support two drivers).
Manufacturer	Select the manufacturer of the External Device to be connected. Select "CoDeSys Automation Alliance".
Series	Select a model (series) of the External Device to be connected and connection method. Select "CoDeSys V3 Ethernet". Check the External Device which can be connected in "CoDeSys V3 Ethernet" in system configuration.
Port	Select the Display port to be connected to the External Device. Select [Ethernet (TCP)].
Use System Area	 Check this option to synchronize the system data area of the Display and the device (memory) of the External Device. When synchronized, you can use the External Device's ladder program to switch the display or display the window on the Display. Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)" This feature can also be set in GP-Pro EX or in the Display's offline mode. Cf. GP-Pro EX Reference Manual "System Settings [Display Unit] - [System Area] Settings Guide" Cf. Maintenance/Troubleshooting Guide "Main Unit - System Area Settings"

3 Communication Settings

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

3.1 Setting Example 1

Settings of GP-Pro EX

Communication Settings

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

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer CoDeSys Automation Alliance Series CoDeSys V3 Ethernet	Port Ethernet (TCP)
Text Data Mode 2 Change	
Communication Settings	
Port No. 1024 💌 🔽 Auto	
Timeout 10 👘 (sec)	
Retry 0	
Wait To Send 0 拱 (ms) Default	
Device-Specific Settings	
Allowable Number <u>Add Device</u> of Devices/PLCs 16	Addition
No. Device Name Settings	Device
1 PLC1 IN Node Name (or) Address=NodeName,Use Tcp/Ip=OFI	-

Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the External Device and click [Settings] III . To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

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0.	0. 0.	0	
11740		A V	
t			
			\bigcirc
way			
0.	0. 0.	0	
1217		A V	
			~
	New		Edit
High word first	t(H/L)		\sim
l arrav eleme	nts allowed	to be ar	
	way 0. 1217 High word first	Way O. O. O. 1217 New High word first(H/L)	way 0. 0. 0. 0 1217 ↓ New High word first(H/L)

NOTE

- When using a gateway, select the [Connect via Gateway] check box and set the gateway's IP address and port number.
- While using a display unit other than IPC, PC/AT compatible machine, or SP5000 Series Open Box and the gateway restarts, communication may not be restored. If that happens, restart the display unit.
- Use the programming software for the External Device to check the gateway's node name, node address and IP address.
- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set up the External Device's IP address and Port Number in the [Individual Device Settings] dialog box.
- Set up the Display's IP address in offline mode.

Settings of External Device

Use the programming software for the External Device to define its communication settings. Please refer to the manual of the External Device for more details.

- 1 In the programming software, create a project.
- 2 Select [Device] from the [Devices] tree view.
- **3** Click [Scan network] and search for the External Device to use.

• When searching for External Devices, the External Device and host must exist on the same network. Please refer to the manual of the External Device for more details.

4 Select the added External Device, and confirm the [Node Name] or [Node Address].

• When using a gateway, check the gateway's IP address and port number.

3.2 Setting Example 2

Settings of GP-Pro EX

♦ Communication Settings

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

Device/PLC 1	
Summary	Change Device/PLC
Manufacturer CoDeSys Automation Alliance Series CoDeSys V3 Ethemet	Port Ethemet (TCP)
Text Data Mode 2 Change	
Communication Settings	
Port No. 1024 Auto	
Timeout 10 (sec)	
Retry 0	
Wait To Send 0 💼 (ms) Default	
Device-Specific Settings	
Allowable Number <u>Add Device</u> of Devices/PLCs 16	
No. Device Name Settings	Add Indirect Device
1 PLC1 International Node Name (or) Address= ,Use Tcp/lp=ON,Node IP A	5

Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the External Device and click [Settings] III . To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

Node Name (or) Address ✓ Use Tcp/lp IP Address Port No. 11740 ↓	PLC Settings			
✓ Use Tcp/lp IP Address 192. 168. 0. 1 Port No. 11740 ♀ Ouse User Management ♀ User ♀ Password ∞ Gateway Settings ○ Connect via Gateway ○ IP Address 0. 0. 0 Port No. 1217 Tag Data ○ ✓ Use Tag Data ✓ TagData01 ✓ New Edit Word Order Ouble Word word order High word first(H/L) ✓ ote: he total number of variables and array elements allowed to be accessed in Nova flace.	Node Name (or) Address			
IP Address 192. 168. 0. 1 Port No. 11740 Use User Management User Password Sateway Settings Connect via Gateway IP Address 0.0.0.0 Port No. 1217 \$ Tag Data Quse Tag Data TagData01 New Edit Nord Order Double Word word order High word first(H/L) ote: he total number of variables and array elements allowed to be accessed in Normal first (Houting a fibre conting of this controp of the conting of this controp of the conting of the	Use Tcp/lp			
Port No. 11740 Port No. 11740 Use User Management User Password Gateway Settings Connect via Gateway IP Address O. O. O. O Port No. 1217 Tag Data Port No. 1217 Tag Data Vuse Tag Data TagData01 New Edit Nord Order Double Word word order High word first(H/L) ote: he total number of variables and array elements allowed to be accessed in Newere Picture of the openner during the power lower	IP Address	192. 168.	0. 1	
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User Password Gateway Settings Connect via Gateway IP Address Port No. Port No. Port No. 1217 Tag Data Use Tag Data TagData01 New Edit Nord Order Double Word word order High word first(H/L) ote: he total number of variables and array elements allowed to be accessed in Newser Pierre and the comparised during allowed to be accessed in Newser Pierre allowed to be accessed in	Use User Manageme	nt		
Password Image: Connect via Gateway Gateway Settings Connect via Gateway IP Address 0.0.0.0 Port No. 1217 Tag Data Image: Connect via Gateway J Use Tag Data Image: Connect via Gateway Image: Connect via Gateway Image: Connect via Gateway IP Address 0.0.0.0 Port No. 1217 Image: Connect via Gateway Image: Connect via Gateway Image: Connect via Gateway Image: Connect via Gatewa	User			
Gateway Settings	Password			\odot
Connect via Gateway IP Address O.O.O.O. Port No. 1217 Port No. 1217	Gateway Settings			
IP Address 0. 0. 0. 0 Port No. 1217 ↓ Tag Data ☐ Use Tag Data ☐ Use Tag Data ☐ Use Tag Data ☐ Wew Edit New Edit Nord Order Double Word word order High word first(H/L) ↓ tote: he total number of variables and array elements allowed to be accessed in Norder Landow of the common during the common during the common of the common during the common of the common of the common during the common of the common during the common of the common during the common during the common during the common of the common during the common during the common of the common during the common during the common of the common during	Connect via Gat	eway		
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Use Tag Data TagData01 Vew Edit Nord Order Double Word word order High word first(H/L) v ote: he total number of variables and array elements allowed to be accessed in Nord Process Prior the accessed in the second during alwayd to be accessed in the total number of variables and array elements allowed to be accessed in	Tag Data			
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Word Order Double Word word order High word first(H/L) ✓ ote:		New		Edit
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ote: he total number of variables and array elements allowed to be accessed in Naccon Bindus" acting of the connected dovice should be \$0,000 or lose	Double Word word order	High word first(H/L)		\sim
	ote: he total number of variables and Picture of the setting of the set	nd array elements all	owed to be a	ccessed in

NOTE

- When using a gateway, select the [Connect via Gateway] check box and set the gateway's IP address and port number.
- While using a display unit other than IPC, PC/AT compatible machine, or SP5000 Series Open Box and the gateway restarts, communication may not be restored. If that happens, restart the display unit.
- Use the programming software for the External Device to check the gateway's node name, node address and IP address.
- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set up the External Device's IP address and Port Number in the [Individual Device Settings] dialog box.
- Set up the Display's IP address in offline mode.

Settings of External Device

Use the programming software for the External Device to define its communication settings. Please refer to the manual of the External Device for more details.

- 1 Create a project in the programming software.
- **2** From the [Devices] tree view double-click [Device].
- **3** Click [Scan network] to find the External Device.

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NOTE
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• To search for External Devices, the External Device must be on the same network as the host. For information, refer to the manual of the External Device.

- 4 Select the External Device, and click [OK].
- 5 Click [PLC Parameters] and set up the communication port as follows.

Setup Items	Setup Description
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
Change IP information	Yes

NOTE

• ETH1, ETH2, and ETH3 cannot be set to the same network.

• When changing the IP address, set [Change IP information] to [Yes].

- 6 From the [Online] menu select [Login], and log in to the External Device.
- 7 Download the project and restart the External Device.

3.3 Setting Example 3

Settings of GP-Pro EX

Communication Settings

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

Device/PLC 1	
Summary Change Device/PLC	
Manufacturer CoDeSys Automation Alliance Series CoDeSys V3 Ethernet Port Ethernet (TCP)	
Text Data Mode 2 Change	
Communication Settings	
Port No. 1024 🗮 🔽 Auto	
Timeout 10 (sec)	
Retry 0 💼	
Wait To Send 0 👘 (ms) Default	
Device-Specific Settings	
Allowable Number <u>Add Device</u> of Devices/PLCs 16	
No. Device Name Settings Device	
1 PLC1 IN Node Name (or) Address=NodeName,Use Tcp/Ip=OFI	

Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the External Device and click [Settings] III . To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

LC Settings		
Node Name (or) Address	NodeName	
Use Tcp/Ip		
IP Address	0. 0. 0.	0
Port No.	11740	
Use User Manageme	nt	
User		
Password		Ø
ateway Settings		
Connect via Ga	teway	
IP Address	0. 0. 0.	0
Port No.	1217	A V
ag Data		
🛛 Use Tag Data		
TagData01		~
	New	Edit
Vord Order		
Double Word word order	High word first(H/L)	~
ote: ne total number of variables a	nd array elements allowed	I to be accessed in

NOTE

- When using a gateway, select the [Connect via Gateway] check box and set the gateway's IP address and port number.
- While using a display unit other than IPC, PC/AT compatible machine, or SP5000 Series Open Box and the gateway restarts, communication may not be restored. If that happens, restart the display unit.
- Use the programming software for the External Device to check the gateway's node name, node address and IP address.
- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- In the [Node Name (or) Address] field, set the device name of the External Device. You cannot use the IP address for communication.
- Set up the Display's IP address in offline mode.

Settings of External Device

Use the programming software for the External Device to define its communication settings. Please refer to the manual of the External Device for more details.

- 1 In the programming software, create a project.
- 2 From the [View] menu, select [Navigators]-[Devices tree].
- **3** From the [Devices tree], double-click the [MyController].
- 4 Click [Controller selection].
- 5 Right-click the External Device, and select [Change device name].
- 6 Input the [Device name].

NOTE	• The setting of Device name have to be identical to that of GP-Pro EX.	

7 Click [OK].



• When communicating with GP-Pro EX, set the Device name for the External Device. IP addresses cannot be used for communication.

3.4 Setting Example 4

Settings of GP-Pro EX

Communication Settings

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

Device/PLC 1	
Summary Change Device/PLC	
Manufacturer CoDeSys Automation Alliance Series CoDeSys V3 Ethernet Port Ethernet (TCP)	
Text Data Mode 2 Change	
Communication Settings	
Port No. 1024 🗮 🔽 Auto	
Timeout 10 (sec)	
Retry 0 💼	
Wait To Send 0 👘 (ms) Default	
Device-Specific Settings	
Allowable Number <u>Add Device</u> of Devices/PLCs 16	
No. Device Name Settings Device	
1 PLC1 IN Node Name (or) Address=NodeName,Use Tcp/Ip=OFI	

Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the External Device and click [Settings] III . To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

0.	0. 0.	0	
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11740		A V	
t			
			\bigcirc
way			
0.	0. 0.	0	
1217		A V	
			~
	New		Edit
High word first	t(H/L)		\sim
l arrav eleme	nts allowed	to be ar	
	way 0. 1217 High word first	Way O. O. O. 1217 New High word first(H/L)	way 0. 0. 0. 0 1217 ↓ New High word first(H/L)

NOTE

- When using a gateway, select the [Connect via Gateway] check box and set the gateway's IP address and port number.
- While using a display unit other than IPC, PC/AT compatible machine, or SP5000 Series Open Box and the gateway restarts, communication may not be restored. If that happens, restart the display unit.
- Use the programming software for the External Device to check the gateway's node name, node address and IP address.
- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set up the External Device's IP address and Port Number in the [Individual Device Settings] dialog box.
- Set up the Display's IP address in offline mode.

Settings of External Device

Use the programming software for the External Device to define its communication settings. Please refer to the manual of the External Device for more details.

- 1 In the programming software, create a project.
- 2 From the [View] menu, select [Navigators]-[Devices tree].
- **3** From the [Devices tree], double-click the [MyController].
- 4 Click [Controller selection].
- 5 Right-click the External Device, and select [Change device name].
- 6 Input the [Device name].

• The setting of Device name have to be identical to that of GP-Pro EX.

7 Click [OK].

4 Setup Items

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

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

"3 Communication Settings" (page 7)

NOTE

• Set the Display's IP address in off-line mode.

Cf. Maintenance/Troubleshooting Guide "Ethernet Settings"

4.1 Setup Items in GP-Pro EX

Communication Settings

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

Device/PLC 1		
Summary		Change Device/PLC
Manufacturer CoDeS	Sys Automation Alliance Series CoDeSys V3 Ethernet	Port Ethernet (TCP)
Text Data Mode	2 Change	
Communication Settings		
Port No.	1024 🚔 🗹 Auto	
Timeout	10 芸 (sec)	
Retry	0	
Wait To Send	0 (ms) Default	
Device-Specific Settings		
Allowable Number of Devices/PLCs	Add Device 16	
No. Device Name	Settings	Add Indirect Device
👗 1 PLC1	Node Name (or) Address=NodeName,Use Tcp/Ip=OFI	5

Setup Items	Setup Description
Port No.	Displays the port number of the Display, from 1024 to 65535. The port number is set automatically.
Timeout	Time (in seconds) that the Display waits for a response from the External Device, from 1 to 127.
Retry	Number of times, from 0 to 255, the Display will re-transmit a command when it does not receive a response from the External Device.
Wait To Send	Amount of time, from 0 to 255 milliseconds, the Display waits after receiving a communication packet before transmitting the next command.
	Refer to the GP-Pro EX Reference Manual for information on Indirect Devices.
Cf	GP-Pro FX Reference Manual "Changing the Device/PLC at Runtime (Indirect

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

Device Setting

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

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

LC Settings		
Node Name (or) Address	NodeName	
Use Tcp/lp		
IP Address	0. 0. 0. 0	
	117/0	
Port No.	▼ T1/40	
Use User Manageme	ent	
User		
Password		\odot
ateway Settings		
Connect via Ga	teway	
IP Address	0. 0. 0. 0	
Port No.	1217	
ag Data		
🛛 Use Tag Data		
TagData01		~
	New	Edit
Vord Order		
Double Word word order	High word first(H/L)	\sim
ote:		

	Setup Items	Setup Description
Nod Add	e Name (or) ress	Enter the node name or node address of the connected External Device. When you enter the node name or node number, settings such as the IP address become unnecessary.
Use	Тср/Ір	Select this check box to specify the External Device's IP address and port number.
	IP Address	Set the External Device's IP address. NOTE • Check with a network administrator about IP address. Do not set the duplicate IP address.
	Port No.	Enter the External Device's port number.
Use Mar	User agement	Select this check box when the connected External Device performs user management.
	User	Enter the user name.
	Password	Enter the password.

	Setup Items	Setup Description
Connect via Gateway		When using a gateway, select this check box.
	IP Address	Set the gateway's IP address. NOTE • Check with a network administrator about IP address. Do not set the duplicate IP address.
	Port No.	Enter the gateway's port number.
Use Tag Data		Select this check box. Click [New], and import the tag data to use. ☞ " ■ Importing Tag File" (page 28)
Double Word word order		Select the data storage order of word units for 32-bit data. When most significant word is first: High word first (H/L) When least significant word is first: Low word first (L/H)

4.2 Setup Items in Offline Mode

NOTE

- Please refer to Maintenance/Troubleshooting Guide for more information on how to enter offline mode or about operation.
 - Cf. Maintenance/Troubleshooting Guide "Offline Mode"
 - The number of the setup items to be displayed for 1 page in the offline mode depends on the Display in use. Please refer to the Reference manual for details.

Communication Settings

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

Comm.	Device		-	
			-	
CoDeSys V3 Ethe	rnet		[TCP]	Page 1/1
	Port No.	Auto 1024		
	Timeout(s) Retry Wait To Send(ms)	10 0 0		
1	Exit		Back	2013/04/03 16:57:22

Setup Items	Setup Description
Port No.	Displays the port number of the Display, from 1024 to 65535. The port number is set automatically.
Timeout	Time (in seconds) that the Display waits for a response from the External Device, from 1 to 127.
Retry	Number of times, from 0 to 255, the Display will re-transmit a command when it does not receive a response from the External Device.
Wait To Send	Amount of time, from 0 to 255 milliseconds, the Display waits after receiving a communication packet before transmitting the next command.

Device Setting

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

Comm.	Device			
CoDeSys V3 Ethe Devic	rnet e/PLC Name PL Node Address TCP Connection IP Address(Tcp) Tcp Port UserManagement Gateway Gateway IP Gateway Port Double Word word	C1	[TCP] le Enable 0 0 11740 ▼ - le Enable le Enable 0 0 1217 ▼ - d first(H/L)	Page 1/1
	Exit		Back	2022/05/24 13:42:54

Setup Items	Setup Description		
Device/PLC Name	Select the External Device to set up. The device name is the name of the External Device defined in GP-Pro EX. The initial value is [PLC1].		
Node Address	Displays the node name or node address of the connected External Device.		
TCP Connection	Select [Enable] to specify the External Device's IP address and port number. When you select [Disable], the [IP Address (Tcp)] and [Tcp Port] properties are disabled.		
	Set the External Device's IP Address.		
IP Address(Tcp)	NOTE		
	Check with a network administrator about IP address. Do not set the duplicate IP address.		
Tcp Port	Enter the External Device's port number.		
UserManagement	Select [Enable] when the connected External Device performs user management. Use the user name and password set in GP-Pro EX.		
-	☞ " ◆ Device Setting" (page 20)		
Gateway	When using a gateway, select [Enable]. When you select [Disable], the [Gateway IP] and [Gateway Port] properties are disabled.		
	Set the gateway's IP address.		
Gateway IP	NOTE		
	Check with a network administrator about IP address. Do not set the duplicate IP address.		
Gateway Port	Enter the gateway's port number.		

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Setup Items	Setup Description
Double Word word order	Display the data storage order of word units for 32-bit data. When most significant word is first: High word first (H/L) When least significant word is first: Low word first (L/H)

5 Supported Devices

Range of supported device addresses is shown in the table below. Please note that the actual supported range of devices varies on the External Device in use. Please check the actual range in the manual for your connected equipment.

You can import tag data from the project created by your programming software.

This address can be specified as system data area.

Device		Bit Address	Word Address	32 bit	Notes
	Single	<tagname></tagname>	-		
	1D Array	<tagname>[xl] - <tagname>[xh]</tagname></tagname>			
BOOL	2D Array	<tagmname>[xl,yl] - <tagname>[xh,yh]</tagname></tagmname>		-	*1
	3D Array	<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>			
	Single	<tagname>.00 - <tagname>.07</tagname></tagname>	<tagname></tagname>		
BYTE	1D Array	<tagname>[xl].00 - <tagname>[xh].07</tagname></tagname>	<tagname>[xl] - <tagname>[xh]</tagname></tagname>		*1*2
USINT	2D Array	<tagname>[xl,yl].00 - <tagname>[xh,yh].07</tagname></tagname>	<tagname>[xl,yl] - <tagname>[xh,yh]</tagname></tagname>		
	3D Array	<tagname>[xl,yl,zl].00 - <tagname>[xh,yh,zh].07</tagname></tagname>	<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>		
	Single	<tagname>.00 - <tagname>.15</tagname></tagname>	<tagname></tagname>		
	1D Array	<tagname>[xl].00 - <tagname>[xh].15</tagname></tagname>	<tagname>[xl] - <tagname>[xh]</tagname></tagname>	[H/L]	*1*2*3
WORD	2D Array	<tagname>[xl,yl].00 - <tagname>[xh,yh].15</tagname></tagname>	<tagname>[xl,yl] - <tagname>[xh,yh]</tagname></tagname>	[L/H]	
	3D Array	<tagname>[xl,yl,zl].00 - <tagname>[xh,yh,zh].15</tagname></tagname>	<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>		
	Single	<tagname>.00 - <tagname>.31</tagname></tagname>	<tagname></tagname>		
	1D Array	<tagname>[xl].00 - <tagname>[xh].31</tagname></tagname>	<tagname>[xl] - <tagname>[xh]</tagname></tagname>		*1*2
DWORD	2D Array	<tagname>[xl,yl].00 - <tagname>[xh,yh].31</tagname></tagname>	<tagname>[xl,yl] - <tagname>[xh,yh]</tagname></tagname>		
	3D Array	<tagname>[xl,yl,zl].00 - <tagname>[xh,yh,zh].31</tagname></tagname>	<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>		

Dev	ice	Bit Address	Word Address	32 bit	Notes
	Single		<tagname></tagname>		
REAL	1D Array		<tagname>[xl] - <tagname>[xh]</tagname></tagname>	[H/L]	
TOD	2D Array	-	<tagname>[xl,yl] - <tagname>[xh,yh]</tagname></tagname>	[L/H]	*1*2
DAY	3D Array		<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>		
	Single		<tagname></tagname>		
DATE_AND	1D Array		<tagname>[xl] - <tagname>[xh]</tagname></tagname>		
_TIME DT	2D Array	-	<tagname>[xl,yl] - <tagname>[xh,yh]</tagname></tagname>	-	*1*4
	3D Array		<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>		
	Single		<tagname></tagname>		
	1D Array		<tagname>[xl] - <tagname>[xh]</tagname></tagname>		
STRING	2D Array	-	<tagname>[xl,yl] - <tagname>[xh,yh]</tagname></tagname>	-	*1
	3D Array		<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>		
	Single	<tagname>.00 - <tagname>.63</tagname></tagname>	<tagname></tagname>		
	1D Array	<tagname>[xl].00 - <tagname>[xh].63</tagname></tagname>	<tagname>[xl] - <tagname>[xh]</tagname></tagname>		*5
ULINT	2D Array	<tagname>[xl,yl].00 - <tagname>[xh,yh].63</tagname></tagname>	<tagname>[xl,yl] - <tagname>[xh,yh]</tagname></tagname>	-	
	3D Array	<tagname>[xl,yl,zl].00 - <tagname>[xh,yh,zh].63</tagname></tagname>	<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>		
	Single		<tagname></tagname>		
	1D Array		<tagname>[xl] - <tagname>[xh]</tagname></tagname>		
LREAL	2D Array	-	<tagname>[xl,yl] - <tagname>[xh,yh]</tagname></tagname>	-	*5
	3D Array		<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>		
	Single		<tagname></tagname>		
	1D Array		<tagname>[xl] - <tagname>[xh]</tagname></tagname>		
LTIME	2D Array	-	<tagname>[xl,yl] - <tagname>[xh,yh]</tagname></tagname>	-	*5
	3D Array		<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>		

Dev	ice	Bit Address	Word Address	32 bit	Notes
	Single		<tagname></tagname>		
	1D Array		<tagname>[xl] - <tagname>[xh]</tagname></tagname>		
WSTRING	2D Array	-	<tagname>[xl,yl] - <tagname>[xh,yh]</tagname></tagname>	-	*6
	3D Array		<tagname>[xl,yl,zl] - <tagname>[xh,yh,zh]</tagname></tagname>		

*1 <TAGNAME>: When referring to structures, the TagName includes the structure name. The maximum number of characters for the Tag Name is 255, which includes delimiters and elements. Example)

BOOL type single symbol	"BOOLSYMBOL"
BOOL type 1D Array	"BOOL1D[10]
WORD type 2D Array	"WORD2D[10,10]
UDINT type 3D Array	"UDINT3D[0,1,2]
STRING in User Defined Structure [STRUCT001]	"STRUCT001.STRINGSYM"

- *2 Set the data storage order of word units for 32-bit data in the Device Setting dialog box.
- *3 Initially, 16 words of items are selected for the system data area. When selecting less than 16 words, set up a tag array with more than 16 words, allocate it to the system data area, and select the items.
- *4 64-bit data type on the Display, 32-bit data type on the External Device.
- *5 64-bit data type on the External Device, 32-bit data type on the Display. (The Display uses just the bottom 4 bytes and the top 4 bytes are ignored.)
 When a bit is specified, normal writing cannot be performed for 31-bit to 63-bit.
- *6 Tag data can be imported. Do not use it, however, since it is the data type which is not supported by the Display.

IMPORTANT	When connecting with EHV+ Series, arrays cannot be used for the Display.
NOTE	• Sub-Scope is shown on the Display as 'Scope'\$'Sub-Scope'. ('\$' is delimiter)
	• When importing ENUM data types, the member name is converted to ENUM0. The value "0"
	is assigned to ENUM0.
	Naming rules for the Tag Name, Data type name and Scope name are as follows:
	Special characters are not allowed.
	• Consecutive underscore '_' are not allowed.
	• You cannot start names with any of the following text:
	LS, USR, SCR, PRT
	Maximum 255 characters.
	• Imported BIT type variables are converted to BOOL devices. To import BIT type variables,
	you need to output a symbol file from the configuration software for CoDeSys Runtime
	version 3.5 SP6 or later.
	Please refer to the GP-Pro EX Reference Manual on the system data area.
	Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"
	• Please refer to the precautions on manual notation for icons in the table.
	"Manual Symbols and Terminology"

Importing Tag File

- ♦ 3S-Smart Software Solutions, Lenze Vertrieb, Hitachi Industrial Equipment Systems EHV+ Series
- 1 Use the programming software to create symbols.
- 2 In the [Devices] tree view, right-click [Application].
- **3** From the menu select [Add Object]-[Symbol configuration].
- **4** Move symbols you want to use on the Display to the [Selected variables] area.
- 5 Build the project and download to the External Device. Symbol data (xml file) is created when downloading.
- 6 In GP-Pro EX, display the [Individual Device Settings] dialog box and select the [Use Tag Data] check box.

≨ Individual Device Settings						×
PLC1						
PLC Settings						
Node Name (or) Address						1
Use Tco/lo						
IP Address	0.	0.	0.	0		
	11740					
Port No.	11/40			Ŧ		
Use User Management						
User						
Password					\odot	
Gateway Settings						
Connect via Gatew	ау					
IP Address	0.	0.	0.	0		
Port No.	1217			*		
Tag Data						
🗹 Use Tag Data						
					\sim	
		New			Edit	
Word Order				_		
Double Word word order H	ligh word fi	rst(H/L)		\sim	
Note: The total number of variables and a "Access Rights" setting of the conn	array elem ected devi	ients a ice sho	llowed ould be	to be a 60,000	accessed in t) or less. Default	he
			OK (O)		Cancel	

7 Click [New] to display the [Tag List] window.

l ist)ata Name Tagl	Data01			
a type <all></all>			▼ Usage <all></all>	▼ Update
ag Data type	Scope Data type			
Import	Export Expand All	Collapse All	Add	Edit Delete
				OK Cancel

8 Click [Import].

Tag Import Select File				Browse
Tag Data	type Scope			1
Name	Data type			
			Select Unselect Select All	Unselect All
🔽 Log File	C:¥Documents and Settings¥Apex#My Documents¥20	D130416-164156.html	Browse Filter	Clear Filter
			ОК	Cancel

9 From [Select File] click [Browse..], and select the symbol data (xml file).

Tag Impor Select File	t C:¥Documents and	d Setting\$¥Apex¥デスクトップ¥code	sys弹資料¥SoftPLC001.DevTest001.4	App.xml	Browse
Tag Da	ata type Scope				
Name		Data type			<u> </u>
A	.pp\$GLOBALVAR				
	G_BOOL	BOOL			
	G_BYTE	BYTE			
	G_DATE	DATE			
	G_DATEANDTI	DATE_AND_TIME			
	G_DINT	DINT			
	G_DT	DATE_AND_TIME			
	G_DWORD	DWORD			
	G_INT	INT			
	G_LINT	LINT			
	G_LREAL	LREAL			
	G_LTIME	LTIME			
	G_LWORD	LWORD			
	G_REAL	REAL			
	G SINT	SINT			<u> </u>
Log File	C#Documents a	nd Setting:¥Ape:¥My Documents	420130416-164156.html	Select Unselect Select All Browse Filter OK	Unselect All Clear Filter Cancel

 $10\,$ Select the symbols you want to import, and click [OK].

Tag List Tag Data Name TagData01					
Data type <all></all>		<u>•</u>	Usage <all></all>	_	Update
Name	Data type				
App\$GLOBALVAR					
App\$HMISYS App\$HMISYS					
Import Export	Expand All Collap	se All	Add 1	Edit	Dielete
					e chore
				OK	Cancel
					1

• Please refer to "Using Device/PLC Tags" of the GP-Pro EX Reference Manual for the importing tag.

- Hitachi Industrial Equipment Systems HX Series
- 1 In the programming software, create symbols in PLC_PRG.
- 2 From the [Devices] tree view, right-click [Application].
- **3** From the menu select [Add Object]-[Symbol configuration].
- 4 Select the check box of symbols that will be used on the display unit.
- 5 Build the project and download to the External Device. A symbol data file (xml file) is created at download.
- 6 In GP-Pro EX, from the [Individual Device Settings] dialog box, select the [Use tag data] check box.

Individual Device Settings						×
LC1						
PLC Settings						
Node Name (or) Address						
	0.	0.	0.	0		
II Address						
Port No.	11740			Ŧ		
Use User Management						
User						
Password					¢	>
Gateway Settings						
Connect via Gate	way					
IP Address	0.	0.	0.	0		
Port No.	1217			×		
Tag Data						
🗸 Use Tag Data						
						\sim
		New	/			
Word Order						
Double Word word order	High word f	rst(H/l	_)		~	
Note: The total number of variables and "Access Rights" setting of the cor	d array elen inected dev	ice sh	allowed ould be OK (O)	to be 60,00	accessed) or less. Defaul Canc	in the t

7 Click [New] to display the [Tag List] window.

l ist)ata Name Tagl	Data01			
a type <all></all>			▼ Usage <all></all>	▼ Update
ag Data type	Scope Data type			
Import	Export Expand All	Collapse All	Add	Edit Delete
				OK Cancel

8 Click [Import].

Tag Import Select File			Browse
Tag Data type So Name	ope		
☑ Log File C.¥Doc	uments and Settings¥Apex#My Docu	ments¥20130416-164156.html	Select Unselect Select All Unselect All Browse Filter Clear Filter
			OK Cancel

9 From [Select File] click [Browse..], and select the symbol data (xml file).

Tag Impor	t C#Documents and	d Settings¥Apex#デスクトップ¥code	sys溌浴料¥SoftPLC001.DevTest001.A	App.xml	Browse
Tag Da	ata type Scope				
Name		Data type			<u> </u>
A	pp\$GLOBALVAR	2.			
	G_BOOL	BOOL			
	G_BYTE	BYTE			
	G_DATE	DATE			
	G_DATEANDTI	DATE_AND_TIME			
	G_DINT	DINT			
	G_DT	DATE_AND_TIME			
	G_DWORD	DWORD			
	G_INT	INT			
	G_LINT	LINT			
	G_LREAL	LREAL			
	G_LTIME	LTIME			
	G_LWORD	LWORD			
	G_REAL	REAL			
	G SINT	SINT			
Select Unselect Select All Unselect All Log File C#Documents and Settings#Apex#My Documents#20130416-164156.html Browse Filter Clear Filter OK Cancel					

10 Select the symbols you want to import, and click [OK].

Disks how a locally						
Tag Data type Scope		<u>•</u>	Usage (All>	•	Update	
Name	Data type					
App\$GLOBALVAR						
App\$HMISYS A==#IOCONFIG_CLOP						
App\$IUCUNFIG_GLUB App\$IUCUNFIG_GLUB App\$IUCUNFIG_GLUB App\$IUCUNFIG_GLUB						
H App\$POU						
Innert Enget				E-8	Dialata	
Import Expand All Collapse All Add Edit Delete						
				OK	Cancel	
					/	

• Please refer to "Using Device/PLC Tags" of the GP-Pro EX Reference Manual for the importing tag.

♦ Schneider Electric SA

- **1** In the configuration tool, create a symbol.
- 2 Build the project. On build, symbol data (xml file) is generated.
- **3** In GP-Pro EX, display the [Individual Device Settings] dialog box and select the [Use Tag Data] check box.

I C Settings				
Node Name (or) Address				
Node Name (or) Address				
Use Tcp/lp	0	0 0	0	
IP Address	0.	U. U.	U	
Port No.	11740		* *	
Use User Manageme	ent			
User				
Password				Ô
ateway Settings				
Connect via Ga	teway			
IP Address	0.	0. 0.	0	
Port No.	1217			
TOR NO.	1217		Ŧ	
ag Data				
Use Tag Data				
		New		
Vord Order				
Double Word word order	High word fi	rst(H/L)		\sim
ote: ne total number of variables a cress Rights" setting of the c	ind array elem connected devi	nents allow ice should	ed to be a be 60,000	ccessed in or less.

4 Click [New] to display the [Tag List] window.

Tag List	gData01				
Data type All>	Scope	•	Usage <all></all>	•	Jpdate
Name	Data type				
	Export Expand All Co	illapse All	Add	Edit D	elete

5 Click [Import].

Tag Import				Browse
Tag Data	type Scope			1
Name	Data type			
			Select Unselect Select All	Unselect All
🔽 Log File	Log File C#Documents and Setting#Ape#My Document#20130416-164156.html Browse Filter			
			ОК	Cancel

6 From [Select File] click [Browse..], and select the symbol data (xml file).

Tag Impor Select File	t C.¥Documents and	d Settings¥Ape⋇デスクトップ¥code	sys淨資料¥SoftPLC001.DevTest001.¢	App.xml	Browse
Tag Da	ata type Scope	Data tura			
Name	on\$GLOBALVAB	Diala lype			
	G 8001	BOOL			
	G BYTE	BYTE			
	G DATE	DATE			
N N	G DATEANDTI	DATE AND TIME			
	G DINT	DINT			
	G DT	DATE AND TIME			
	G DWORD	DWORD			
	G_INT	INT			
	G_LINT	LINT			
	G_LREAL	LREAL			
	G_LTIME	LTIME			
	G_LWORD	LWORD			
	G_REAL	REAL			
	G SINT	SINT			•
Select Unselect Select All Unselect All C*Documents and Settings*Apex*My Documents*20130416-164156.html Browse Filter Clear Filter					

 $7\,$ Select the symbols you want to import, and click [OK].

ata tune					Undate
Tag Data type Scope					
Name	Data type				
App\$PLC_PRG					
App\$POU					
					D.L.
Import Export	Expand All	Lollapse All	Add	Edit	Uelete

• Please refer to "Using Device/PLC Tags" of the GP-Pro EX Reference Manual for the importing tag.

6 Device Code and Address Code

Device code and address code cannot be used.

7 Error Messages

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

Item	Description			
No.	Error No.			
Device Name	Name of External Device where error occurs. Device name is a title of External Device set with GP-Pro EX. (Initial value [PLC1])			
Error Message	Displays messages related to the error which occurs.			
	Displays IP address or device address of External Device where error occurs, or error codes received from External Device.			
Error Occurrence Area	 NOTE IP address is displayed such as "IP address (Decimal): MAC address (Hex)". Device address is displayed such as "Address: Device address". Received error codes are displayed such as "Decimal [Hex]". 			

Display Examples of Error Messages

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

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

Error Messages Unique to External Device

Message ID	Error Message	Description
RHxx128	(Node Name): Connection open error (Node: %s)	This message appears when the Display cannot communicate with the External Device, or when communication is interrupted. Check the External Device settings. (This message appears when using the node address or the node name for communication with the External Device.)
RHxx129	(Node Name): %s:Symbol mismatch with Device/PLC. Please update TagData in the project.	This message appears when accessing a symbol that does not exist. Make sure the tag data matches the symbol file.
RHxx130	(Node Name): %s:Out of range value in write request (Address:%s)	This message appears when writing an out of range value. Check the write values.