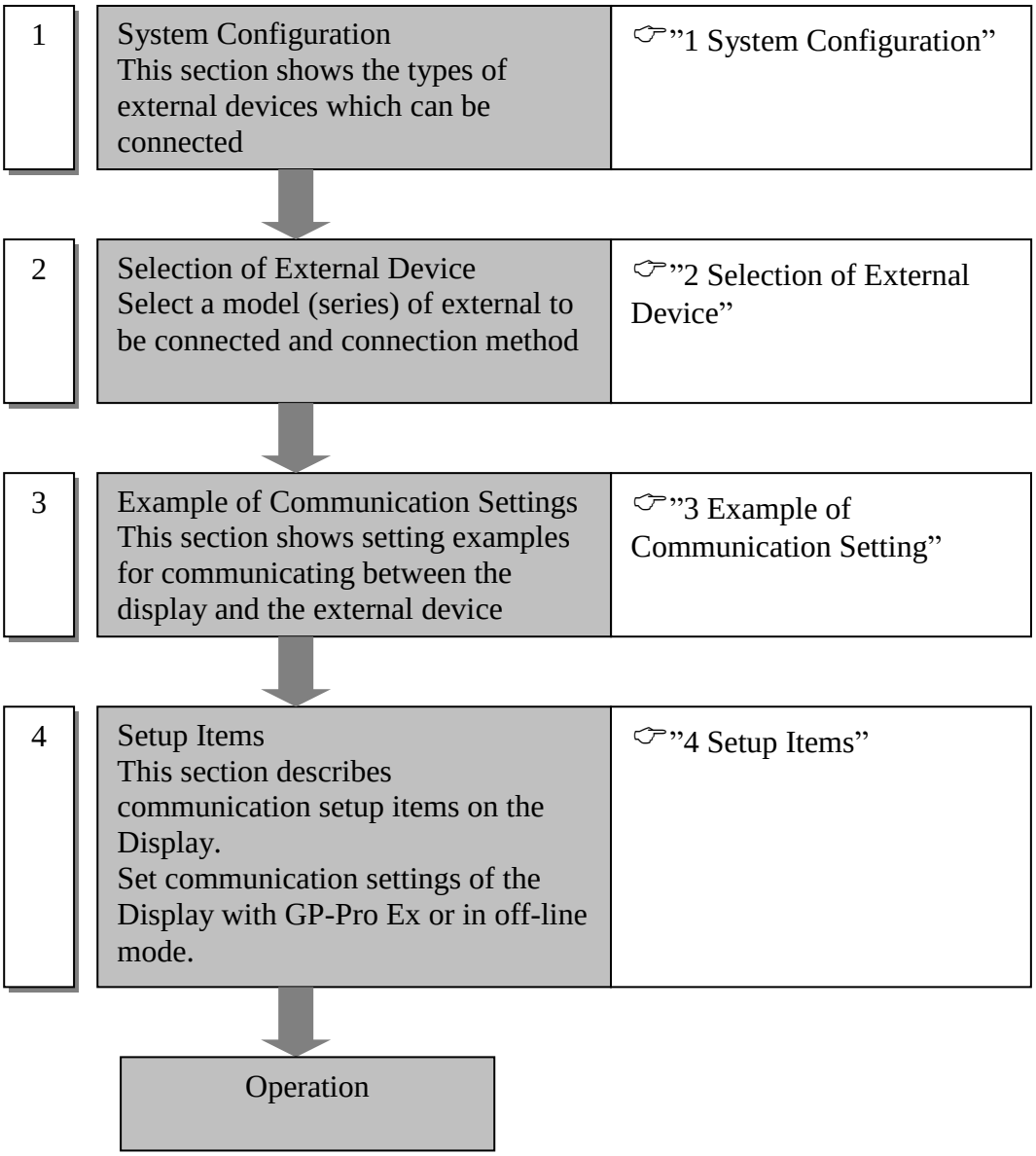
CoDeSys SIO Driver

Introduction

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

In this manual, the connection procedure will be described by the following sections:



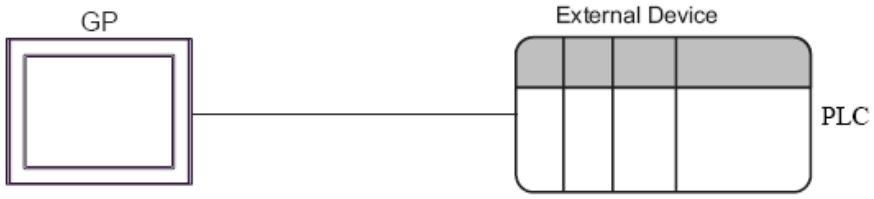
1. System Configuration

The system configuration for CoDeSys Automation Alliance devices and the display connected are shown as follows.

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
BOSCH Rexroth	Indra Control L20 CML20.1-NP-120-NA-NNNN-NW	X3C (RS232)	RS-232C	Setting Example 1 (page 8)	Cable Diagram 1 (page 15)
	Indra Control L40	X31	RS-232C	Setting Example 1 (page 8)	Cable Diagram 1 (page 15)
	Indra Control PPC-R22	SIO Port	RS-232C	Setting Example 1 (page 8)	Cable Diagram 1 (page 15)
3S SoftPLC	Windows NT	SIO Port	RS-232C	Setting Example 1 (page 8)	Cable Diagram 1 (page 15)

■ Connection Configuration

- 1:1 Connection



■ IPC COM Port

When connecting IPC with an External Device, the COM port used depends on the series and SIO type. Please refer to the IPC manual for details.

Usable port

Series	Usable Port		
	RS-232C	RS-422/485(4 wire)	RS-422/485(2 wire)
PS-2000B	COM1[*1], COM2, COM3[*1], COM4	-	-
PS-3450A, PS-3451A, PS3000-BA, PS3001-BD	COM1, COM2[*1*2]	COM2[*1*2]	COM2[*1*2]
PS-3650A (T41 model), PS-3651A (T41 model)	COM1[*1]	-	-
PS-3650A (T42 model), PS-3651A (T42 model)	COM1[*1*2], COM2	COM1[*1*2]	COM1[*1*2]
PS-3700A (Pentium®4-M) PS-3710A	COM1[*1], COM2[*1], COM3[*2], COM4	COM3[*2]	COM3[*2]
PS-3711A	COM1[*1], COM2[*2]	COM2[*2]	COM2[*2]
PS4000[*3]	COM1, COM2	-	-
PL3000	COM1[*1*2], COM2[*1], COM3, COM4	COM1[*1*2]	COM1[*1*2]
PE-4000B Atom N270	COM1, COM2	-	-
PE-4000B Atom N2600	COM1, COM2	COM3[*4], COM4[*4], COM5[*4], COM6[*4]	COM3[*4], COM4[*4], COM5[*4], COM6[*4]
PS5000 (Slim Panel Type Core i3 Model)[*5*6]	COM1, COM2[*4]	COM2[*4]	COM2[*4]
PS5000 (Slim Panel Type Atom Model) [*5*6]	COM1, COM2[*7]	COM2[*7]	COM2[*7]
PS5000 (Enclosed Panel Type) [*8]	COM1	--	
PS5000 (Modular Type PFXPU/PFXPP)[*5*6] PS5000 (Modular Type PFXPL2B5-6)	COM1[*7]	COM1[*7]	COM1[*7]
PS5000 (Modular Type PFXPL2B1-4)	COM1, COM2[*7]	COM2[*7]	COM2[*7]
PS6000 (Advanced Box) PS6000 (Standard Box)	COM1[*9]	*10	*10
PS6000 (Basic Box)	COM1[*9]	COM1[*9]	COM1[*9]

*1 The RI/5V can be switched. Use the IPC's switch to change if necessary.

*2 Set up the SIO type with the DIP Switch. Please set up as follows according to SIO type to be used.

*3 When making communication between an External Device and COM port on the Expansion slot, only RS-232C is supported. However, ER (DTR/CTS) control cannot be executed because

of the specification of COM port.
For connection with External Device, use user-created cables and disable Pin Nos. 1, 4, 6 and 9. Please refer to the IPC manual for details of pin layout.

*4 Set up the SIO type with the BIOS. Please refer to the IPC manual for details of BIOS.

*5 When setting up communication between an External Device and the RS-232C/422/485 interface module, use the IPC (RS-232C) or PS5000 (RS-422/485) cable diagrams. However, when using PFXZPBMPR42P2 in a RS-422/485 (4-wire) configuration with no flow control, connect 7.RTS+ and 8.CTS+, and connect 6.RTS- and 9.CTS-.
When using RS-422/485 communication with External Devices, you may need to reduce the transmission speed and increase the TX Wait time.

*6 To use RS-422/485 communication on the RS-232C/422/485 interface module, the DIP Switch setting is required. Please refer to "Knowledge Base" (FAQs) on the support site. (http://www.pro-face.com/trans/en/manual/1001.html)

Settings	FAQ ID
PFXZPBMPR42P2, RS422/485 change method	FA263858
PFXZPBMPR42P2 termination resistor setting	FA263974
PFXZPBMPR44P2, RS422/485 change method	FA264087
PFXZPBMPR44P2 termination resistor setting	FA264088

*7 Set up the SIO type with the DIP Switch. Please refer to the IPC manual for details of DIP Switch.
The BOX Atom has not a switch to set the RS-232C, RS-422/485 mode. Use the BIOS for the setting.

*8 For the connection with the External Device, on the user-created cable read as if the connector on the Display-side is a M12 A-coding 8 pin socket. The pin assignment is the same as described in the cable diagram. For the M12 A-coding connector, use PFXZPSCNM122.

*9 In addition to COM1 on the main unit, you can also use the COM port on the optional interface.

*10 Install the optional interface in the expansion slot.

DIP Switch settings (PL3000 / PS3000 Series)

RS-232C

DIP Switch	Setting	Description
1	OFF[*1]	Reserved (always OFF)
2	OFF	SIO type: RS-232C
3	OFF	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220Ω) insertion to RD (RXD): None
7	OFF	Short-circuit of SDA (TXA) and RDA (RXA): Not available
8	OFF	Short-circuit of SDB (TXB) and RDB (RXB): Not available
9	OFF	RS (RTS) Auto control mode: Disabled
10	OFF	

*1 When using PS-3450A, PS-3451A, PS3000-BA and PS3001-BD, turn ON the set value.

RS-422/485 (4 wire)

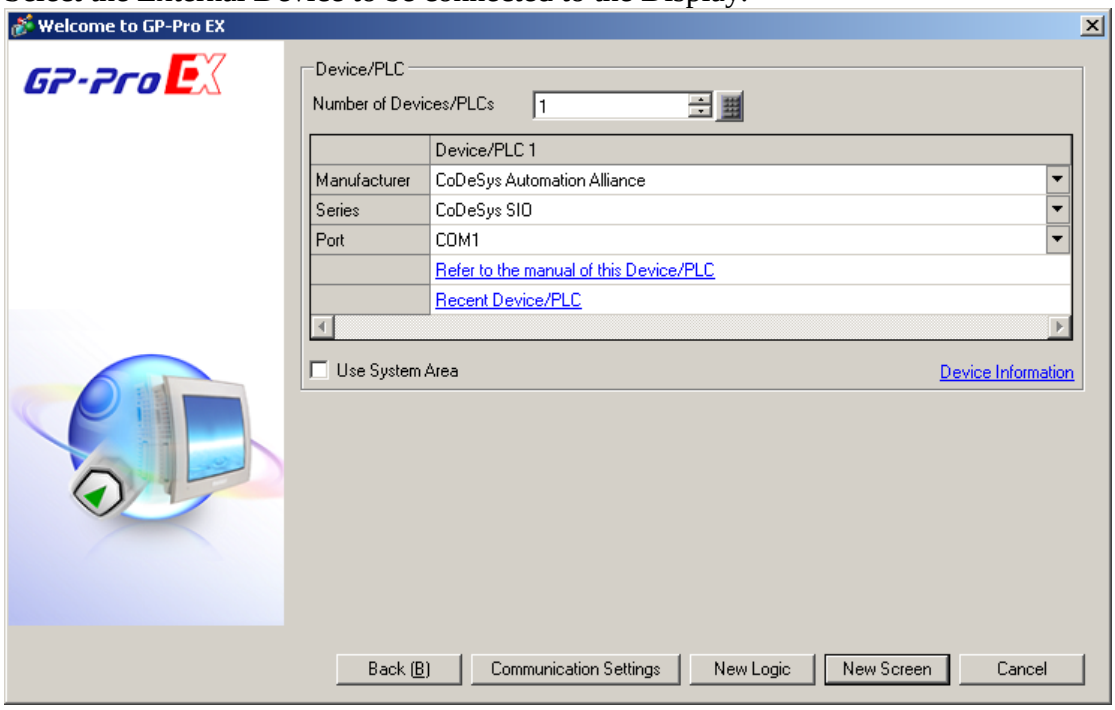
DIP Switch	Setting	Description
1	OFF	Reserved (always OFF)
2	ON	SIO type: RS-422/485
3	ON	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220 Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220 Ω) insertion to RD (RXD): None
7	OFF	Short-circuit of SDA (TXA) and RDA (RXA): Not available
8	OFF	Short-circuit of SDB (TXB) and RDB (RXB): Not available
9	OFF	RS (RTS) Auto control mode: Disabled
10	OFF	

RS-422/485 (2 wire)

DIP Switch	Setting	Description
1	OFF	Reserved (always OFF)
2	ON	SIO type: RS-422/485
3	ON	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220 Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220 Ω) insertion to RD (RXD): None
7	ON	Short-circuit of SDA (TXA) and RDA (RXA): Available
8	ON	Short-circuit of SDB (TXB) and RDB (RXB): Available
9	ON	RS (RTS) Auto control mode: Enabled
10	ON	

2. Selection of External Device

Select the External Device to be connected to the Display.



Setup Items	Setup Description
Manufacturer	Select the maker 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 SIO". Check the External Device which can be connected in system configuration. ☞"System Configuration"
Port	Select the Display port to be connected to the External Device. (Select COM1)
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. Example of Communication Setting

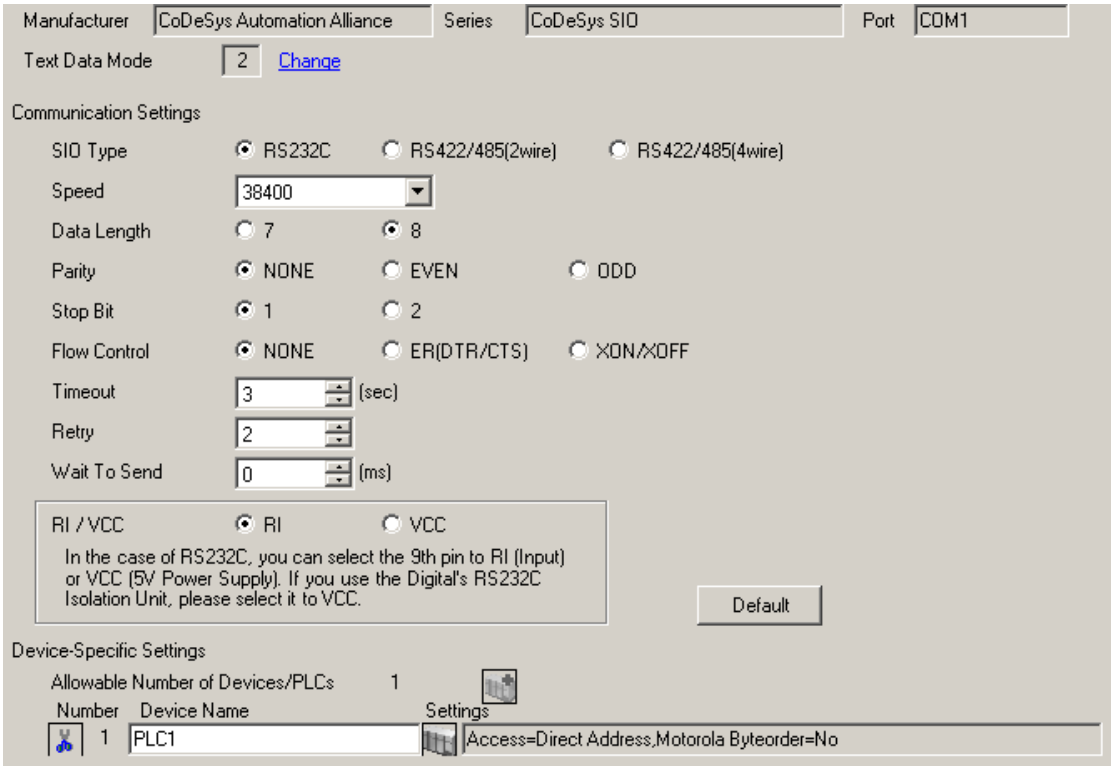
Examples of communication settings of the display and the external device recommended by Pro-face are shown.

3.1. Setting Example 1

- **Setting of GP-Pro EX**

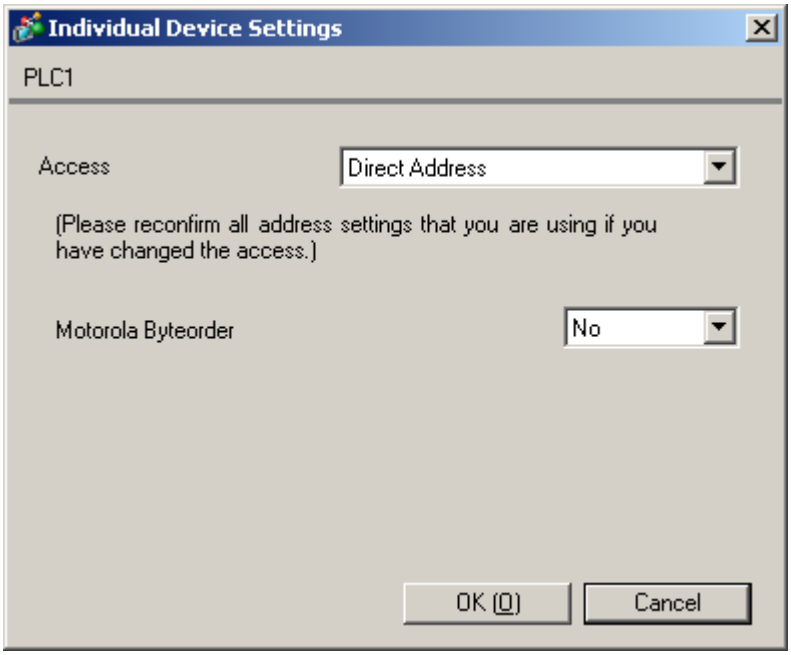
  - **Communication Settings**

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



  - **Device Settings**

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



- **Setting of External Device**

  Please refer to CoDeSys software and/or external Device user manual for more details about how to setup serial parameters (speed, data length etc.) of External Device.

NOTE Please refer to "6.2 Symbolic Address" for Symbol access.

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4. Setup Items

Set communication settings of the Display with GP-Pro Ex or in off-line mode of the Display.

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

☞"3 Example of Communication Setting" (page 7)

NOTE

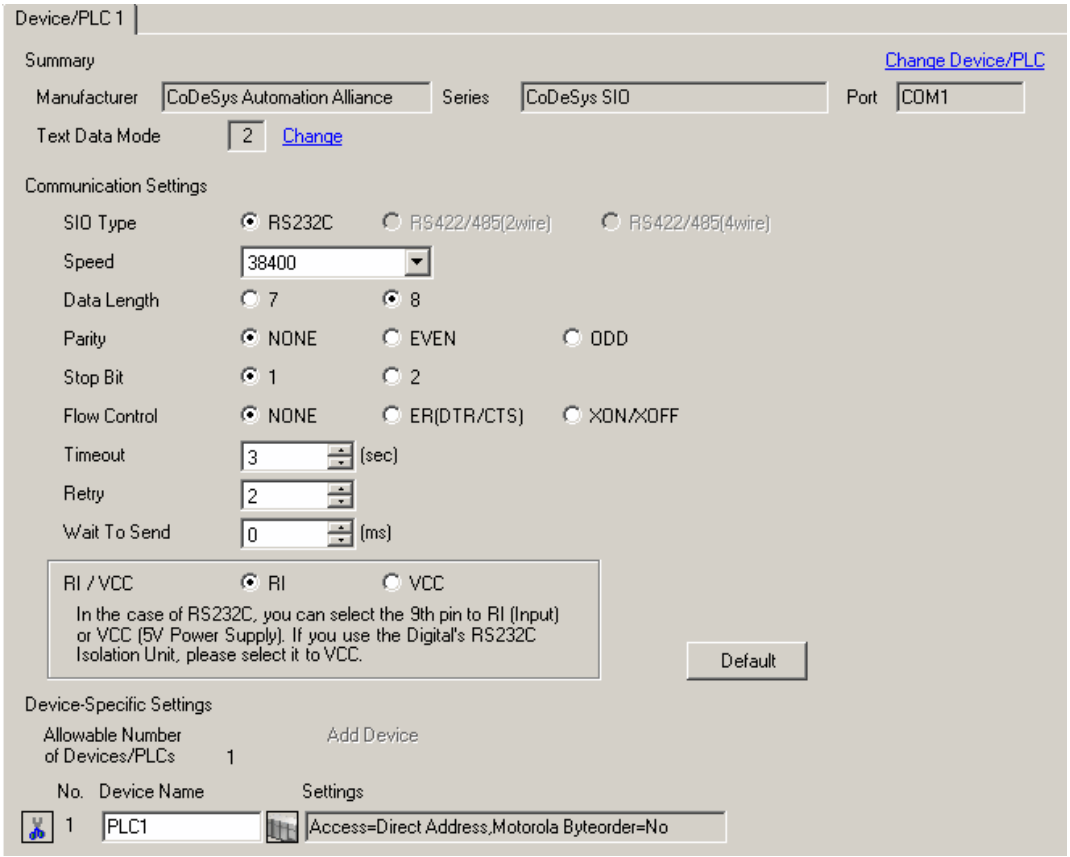
- Set the Display's IP address in off-line mode.

  Cf. Maintenance/Troubleshooting Manual "2.5 Ethernet Settings"

4.1. Setup Items in GP-Pro EX

Communication Settings

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



Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device.
Speed	Select communication speed between the External Device and the Display.
Data Length	Select a data length.
Parity	Select how to check parity.

Setup Items	Setup Description
Stop Bit	Select stop bit length.
Flow Control	Select the communication control method to prevent overflow of transmission and reception data.
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
Wait To Send	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type. It is necessary to change RI/5V by changeover switch of IPC when connect with IPC. Please refer to the manual of the IPC for more detail.

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] .

Setup Items	Setup Description
Access	Select displays access type (Direct Address) of the External Device.
Motorola Byteorder	Set the Motorola Byteorder of the External Device.

NOTE Please make sure the above settings match with “Online – Communication Parameters” of Device/PLC programming software, otherwise communication error will occur.

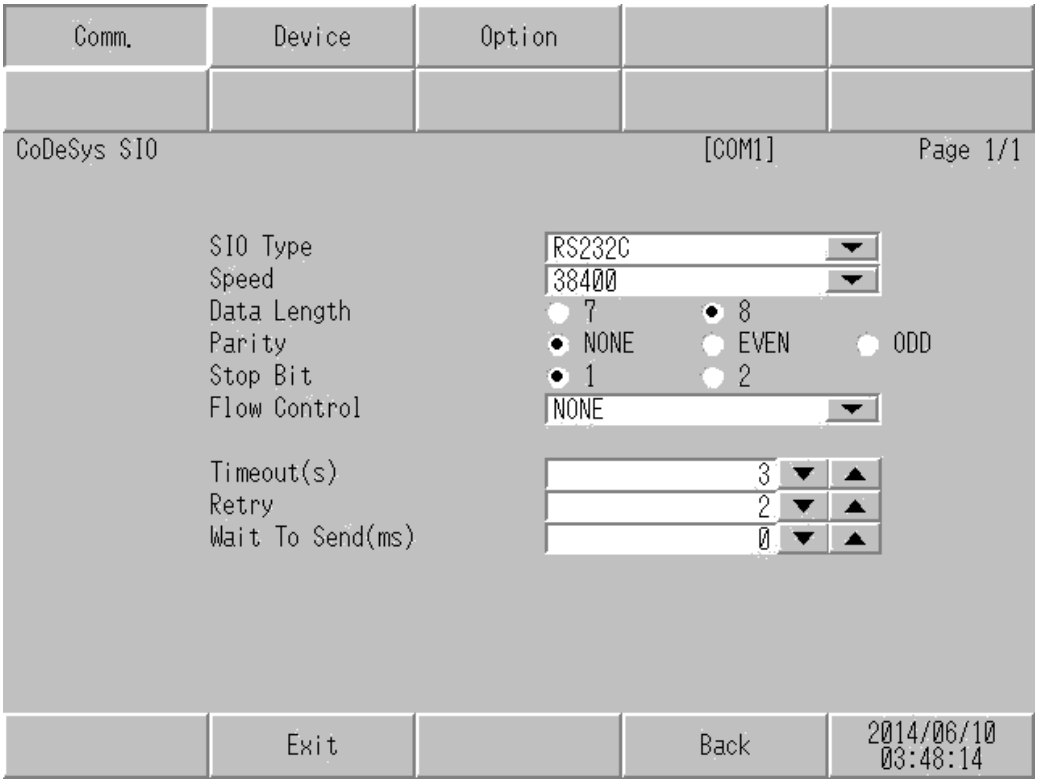
4.2. Settings in Off-Line Mode

NOTE • Refer to the Maintenance/Troubleshooting manual for information on how to enter off-line mode or about the operation.

Cf. Maintenance/Troubleshooting Manual "2.2 Off-line Mode"

■ Communication Settings

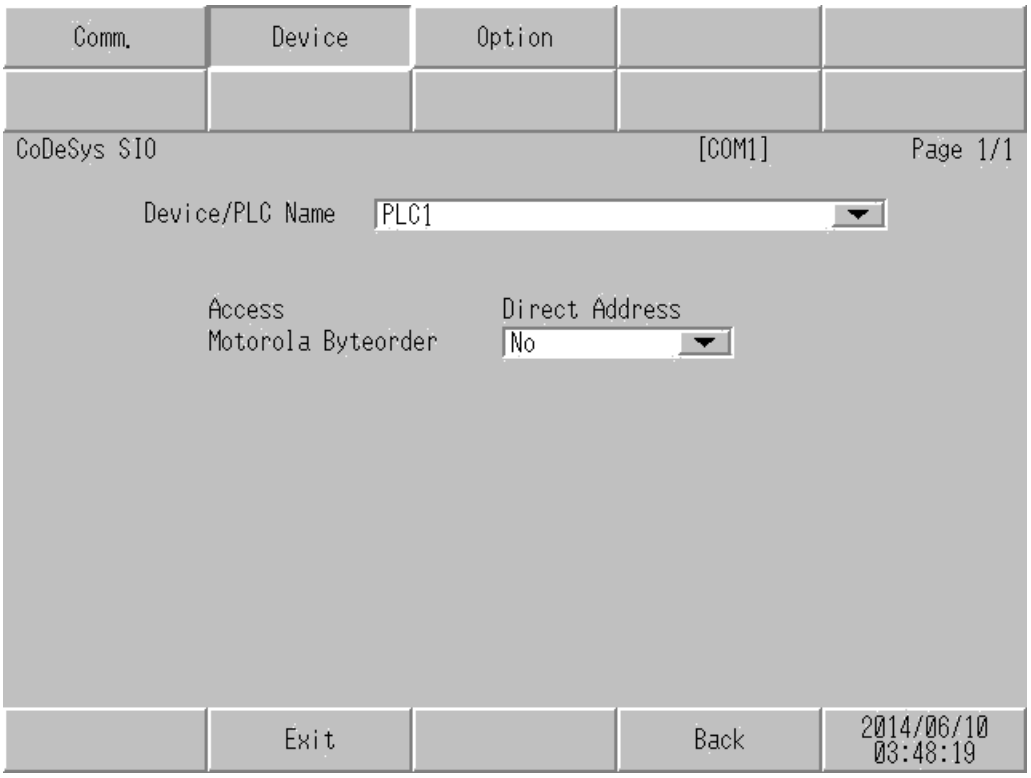
To display the setting screen, touch [Device/PLC Settings] from [Peripheral Equipment Settings] in the off-line mode. Touch the External Device you want to set from the displayed list.



Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device.
Speed	Select communication speed between the External Device and the Display.
Data Length	Select a data length.
Parity	Select how to check parity.
Stop Bit	Select stop bit length.
Flow Control	Select the communication control method to prevent overflow of transmission and reception data.
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
Wait To Send(ms)	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.

■ Device Setting

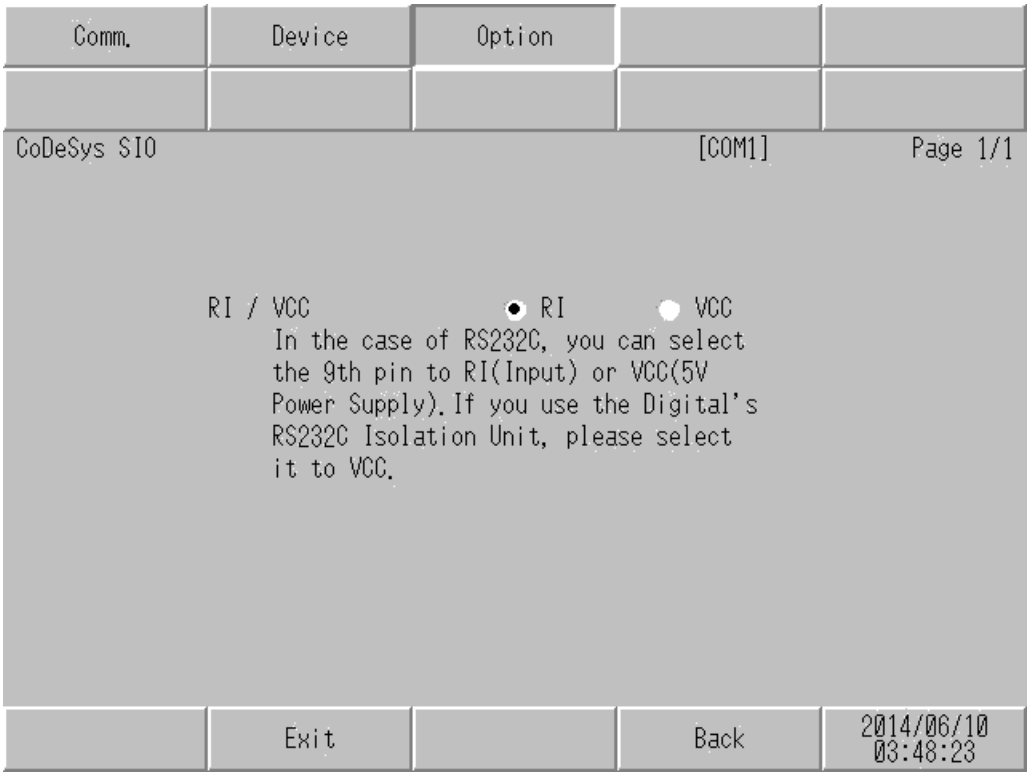
To display the setting screen, touch [Device/PLC Settings] from [Peripheral Equipment Settings]. Touch the External Device you want to set from the displayed list, and touch [Device Settings].



Setup Items	Setup Description
Device Name	Select the device name for device setting. Device name is a title of the External Device set with GP-Pro EX. (Initial value[PLC1])
Access	Displays access type (Direct Address) of the External Device
Motorola Byteorder	Set the Motorola Byteorder of the External Device

■ Option

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



Setup Items	Setup Description
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type. It is necessary to change RI/5V by changeover switch of IPC when connect with IPC. Please refer to the manual of the IPC for more detail.

NOTE GP-4100 series, GP-4*01TM, GP-Rear Module, LT-4*01TM and LT-Rear Module do not have the [Option] setting in the offline mode.

5. Cable Diagrams

The following cable diagrams may be different from cable diagrams recommended by Control Techniques. Please be assured there is no operational problem in applying the cable diagrams shown in this manual.

- Please ground the FG pin of the External Device body. Use a grounding resistance of 100Ω 2 mm^2 or thicker wire, or your country's applicable standard. Refer to your External Device manual for more details.
- The SG and FG are connected inside the Display. When connecting the External Device to the SG, design your system to avoid short-circuit loops.
- Connect an isolation unit if the communication is not stable due to noise or other factors.
- The connector type or signal name may vary depending on the External Device. Connect correctly corresponding to the External Device interface specifications.

5.1. Cable Diagram 1

Display (Connection Port)	Cable		Remarks
GP3000 (COM1) GP4000*1 (COM1) SP5000*2 (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC*3 PC/AT	1A	User created cable (ER (DTR/CTS) control)	The cable length must be 15m maximum.
	1B	User created cable (No Flow Control)	
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	1C	User created cable (ER (DTR/CTS) control)	The cable length must be 15m maximum.
	1D	User created cable (No Flow Control)	
LT-4*01TM (COM1) LT-Rear Module (COM1)	1E	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	The cable length must be 5m maximum.

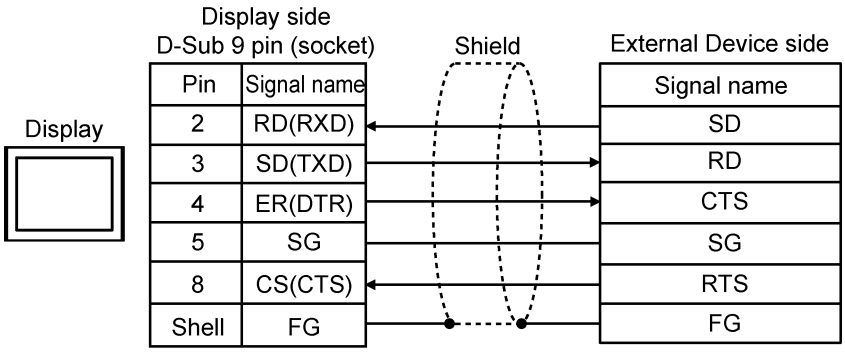
*1 All GP4000 models except GP-4100 series and GP-4203T

*2 Except SP-5B00

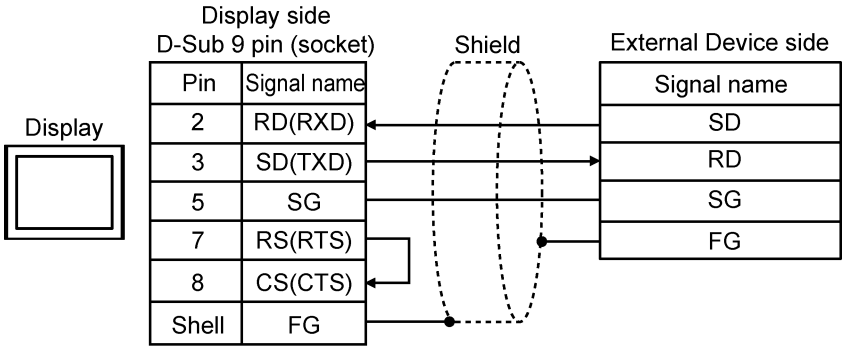
*3 Only the COM port which can communicate by RS-232C can be used.

☞ ■IPC COM Port (page 4)

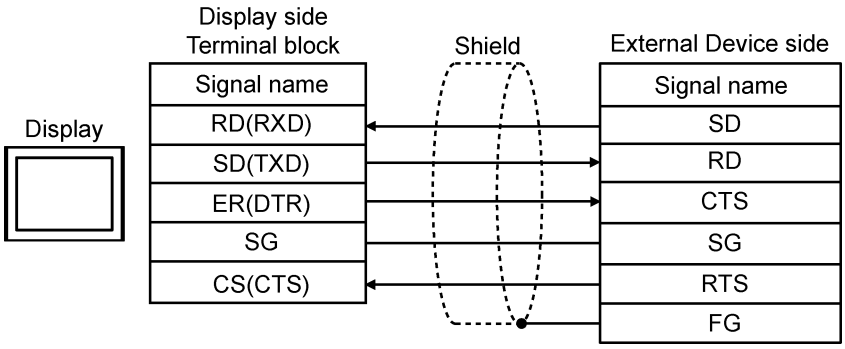
1A)


Display side
D-Sub 9 pin (socket)
Shield
External Device side
Display
Pin
Signal name
2
RD(RXD)
3
SD(TXD)
4
ER(DTR)
5
SG
8
CS(CTS)
Shell
FG
Signal name
SD
RD
CTS
SG
RTS
FG

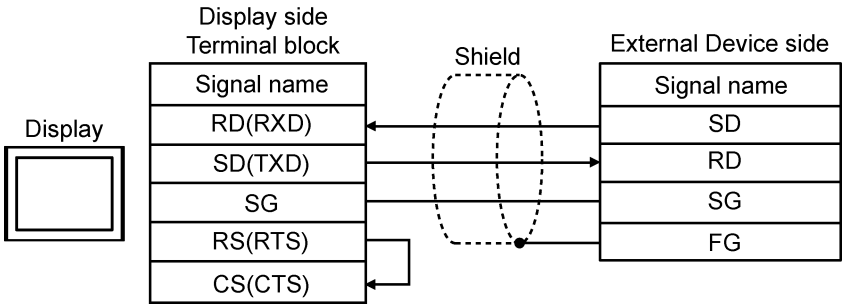
1B)


Display side
D-Sub 9 pin (socket)
Shield
External Device side
Display
Pin
Signal name
2
RD(RXD)
3
SD(TXD)
5
SG
7
RS(RTS)
8
CS(CTS)
Shell
FG
Signal name
SD
RD
SG
FG

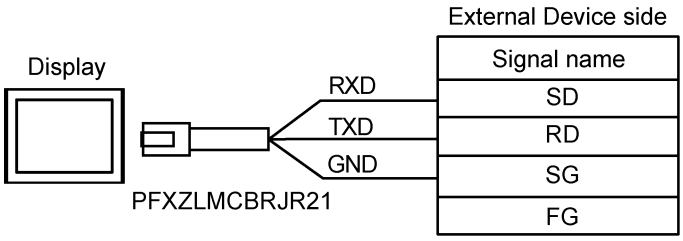
1C)


Display side
Terminal block
Shield
External Device side
Display
Signal name
RD(RXD)
SD(TXD)
ER(DTR)
SG
CS(CTS)
Signal name
SD
RD
CTS
SG
RTS
FG

1D)


Display side
Terminal block
Shield
External Device side
Display
Signal name
RD(RXD)
SD(TXD)
SG
RS(RTS)
CS(CTS)
Signal name
SD
RD
SG
FG

1E)


External Device side
Signal name
Display
RXD
SD
TXD
RD
GND
SG
FG
PFXZLMCBRJR21

6. Supported Device Address

Range of supported device address is shown in the table below

6.1. Direct Address

Device	Bit Address	Word Address	32bits
Input	%IX00000.00 ~ %IX65535.15	%IW00000 ~ %IW65535	L/H
Output	%QX00000.00 ~ %QX65535.15	%QW00000 ~ %QW65535	
Marker	%MX00000.00 ~ %MX65535.15	%MW00000 ~ %MW65535	

This address can be specified for System data area.

NOTE

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

  Cf. GP-Pro EXReference Manual "Appendix 1.4 LS Area (Direct Access Method)"

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

  ☞ "Manual Symbols and Terminology"

6.2. Symbolic Address

This address can be specified for System data area.

Data Type		Bit Address	Word Address	32 Bits	Notes
BOOL	Single	<SYMNAME>	-	-	*1
	1D Array	<SYMNAME>[xl] ~ <SYMNAME>[xh]			
	2D Array	<SYMNAME>[xl,yl] ~ <SYMNAME>[xh,yh]			
	3D Array	<SYMNAME>[xl,yl,zl] ~ <SYMNAME>[xh,yh,zh]			
BYTE SINT USINT	Single	<SYMNAME>.00 ~ <SYMNAME>.07	<SYMNAME>	L/H	*1 *2
	1D Array	<SYMNAME>[xl].00 ~ <SYMNAME>[xh].07	<SYMNAME>[xl] ~ <SYMNAME>[xh]		
	2D Array	<SYMNAME>[xl,yl].00 ~ <SYMNAME>[xh,yh].07	<SYMNAME>[xl,yl] ~ <SYMNAME>[xh,yh]		
	3D Array	<SYMNAME>[xl,yl,zl].00 ~ <SYMNAME>[xh,yh,zh].07	<SYMNAME>[xl,yl,zl] ~ <SYMNAME>[xh,yh,zh]		
INT UINT WORD	Single	<SYMNAME>.00 ~ <SYMNAME>.15	<SYMNAME>	L/H	*1 *5
	1D Array	<SYMNAME>[xl].00 ~ <SYMNAME>[xh].15	<SYMNAME>[xl] ~ <SYMNAME>[xh]		
	2D Array	<SYMNAME>[xl,yl].00 ~ <SYMNAME>[xh,yh].15	<SYMNAME>[xl,yl] ~ <SYMNAME>[xh,yh]		

Data Type		Bit Address	Word Address	32 Bits	Notes
	3D Array	<SYMNAME>[xl,yl,zl].00 ~ <SYMNAME>[xh,yh,zh].15	<SYMNAME>[xl,yl,zl] ~ <SYMNAME>[xh,yh,zh]		
ENUM	Single	-	<SYMNAME>	-	*1
	1D Array		<SYMNAME>[xl] ~ <SYMNAME>[xh]		
	2D Array		<SYMNAME>[xl,yl] ~ <SYMNAME>[xh,yh]		
	3D Array		<SYMNAME>[xl,yl,zl] ~ <SYMNAME>[xh,yh,zh]		
DINT DWORD UDINT	Single	<SYMNAME>.00 ~ <SYMNAME>.31	<SYMNAME>	-	*1
	1D Array	<SYMNAME>[xl].00 ~ <SYMNAME>[xh].31	<SYMNAME>[xl] ~ <SYMNAME>[xh]		
	2D Array	<SYMNAME>[xl,yl].00 ~ <SYMNAME>[xh,yh].31	<SYMNAME>[xl,yl] ~ <SYMNAME>[xh,yh]		
	3D Array	<SYMNAME>[xl,yl,zl].00 ~ <SYMNAME>[xh,yh,zh].31	<SYMNAME>[xl,yl,zl] ~ <SYMNAME>[xh,yh,zh]		
DATE DT POINTER REAL TIME TOD	Single	-	<SYMNAME>	-	*1
	1D Array		<SYMNAME>[xl] ~ <SYMNAME>[xh]		
	2D Array		<SYMNAME>[xl,yl] ~ <SYMNAME>[xh,yh]		
	3D Array		<SYMNAME>[xl,yl,zl] ~ <SYMNAME>[xh,yh,zh]		
LWORD LINT ULINT	Single	<SYMNAME>.00 ~ <SYMNAME>.31	<SYMNAME>	-	*1*4
	1D Array	<SYMNAME>[xl].00 ~ <SYMNAME>[xh].31	<SYMNAME>[xl] ~ <SYMNAME>[xh]		
	2D Array	<SYMNAME>[xl,yl].00 ~ <SYMNAME>[xh,yh].31	<SYMNAME>[xl,yl] ~ <SYMNAME>[xh,yh]		
	3D Array	<SYMNAME>[xl,yl,zl].00 ~ <SYMNAME>[xh,yh,zh].31	<SYMNAME>[xl,yl,zl] ~ <SYMNAME>[xh,yh,zh]		
LREAL	Single	-	<SYMNAME>	-	*1*4
	1D Array		<SYMNAME>[xl] ~ <SYMNAME>[xh]		
	2D Array		<SYMNAME>[xl,yl] ~ <SYMNAME>[xh,yh]		
	3D Array		<SYMNAME>[xl,yl,zl] ~ <SYMNAME>[xh,yh,zh]		
STRING	Single	-	<SYMNAME>	-	*1*3
	1D Array		<SYMNAME>[xl] ~ <SYMNAME>[xh]		
	2D Array		<SYMNAME>[xl,yl] ~ <SYMNAME>[xh,yh]		
	3D Array		<SYMNAME>[xl,yl,zl] ~ <SYMNAME>[xh,yh,zh]		

This address can be specified for System data area.

*1 <SYMNAME>: Symbol Name including structure name in case of structure. The maximum number of characters for Symbol Name is 255 including delimiters and element number. The maximum number of characters when using D-Script is limited to 54.
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"

- You cannot start names with any of the following text:
  LS, USR, SCR, PRT

*2 Handled as 8 bit data type in the External Device, but as 16-bit data type in GP-Pro EX. Upper byte is set to 0 in GP-Pro EX. Strings cannot be used because the Upper byte cannot be used.

*3 For automatic address increment during screen part duplication, please set the number of address increment to the half of the character length of the string. Last character of a STRING can not be displayed / changed if STRING size is odd number of characters.
If number of Display Characters is set higher than STRING size, Runtime Error will occur. (Unknown/illegal Address)

*4 Handled as 64 bit data type in the External Device, but as 32-bit data type in GP-Pro EX. Upper 32 bit information is discarded in GP-Pro EX.

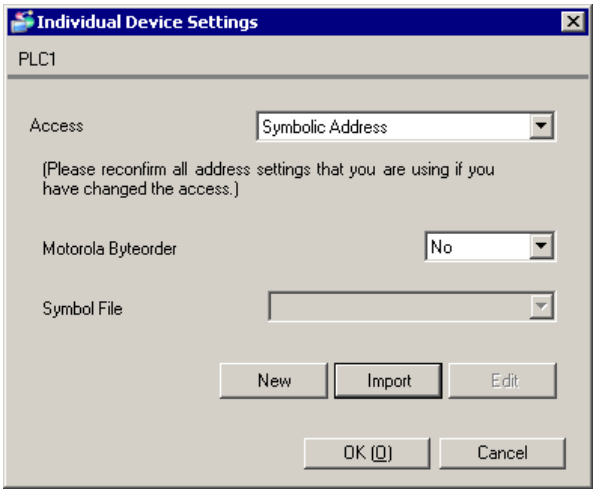
*5 The system data area is initially set up with 16 words of items. If you set up less than 16 words of items, after allocating a 16 word or larger array of tags in the system data area, select only the necessary items.

NOTE

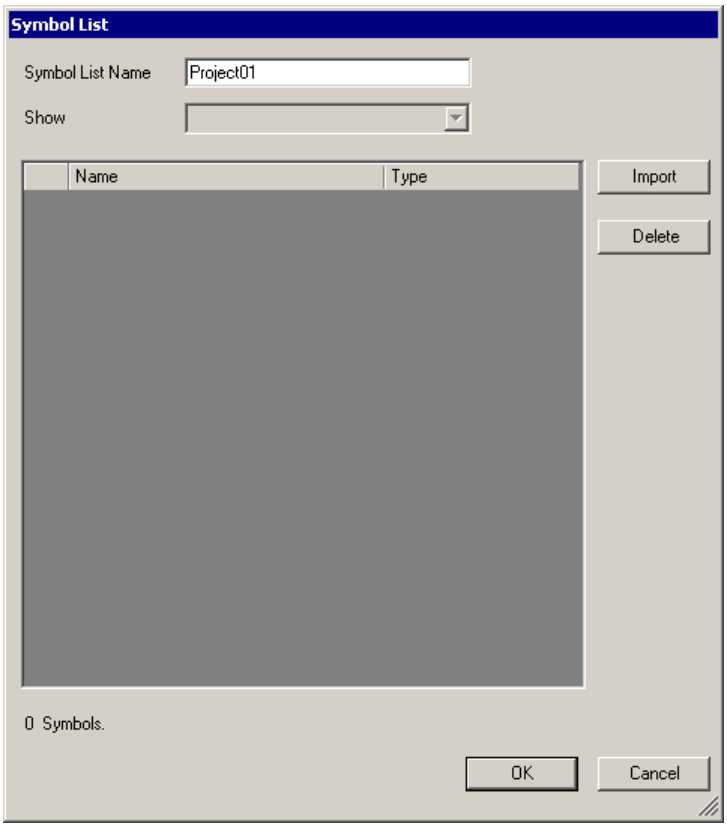
- This driver cannot use the array of structure.
- Please refer to the GP-Pro EX Reference Manual for system data area.
  Cf. GP-Pro EX Reference Manual “LS Area (Direct Access Method Area)”
- Please refer to the precautions on manual notation for icons in the table.
  “Manual Symbols and Terminology”

■ Importing Symbols

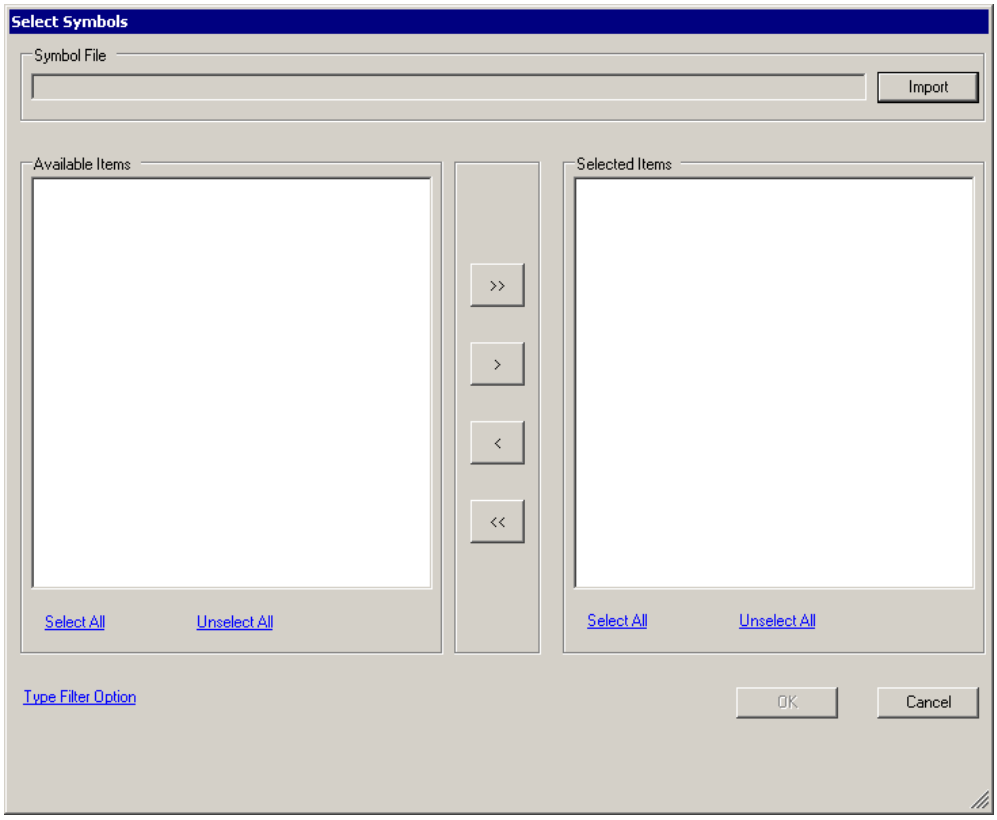
1 In GP-Pro EX, open the [Individual Device Settings] dialog box, and from the [ACCESS] drop-down list, select "Symbolic Address".



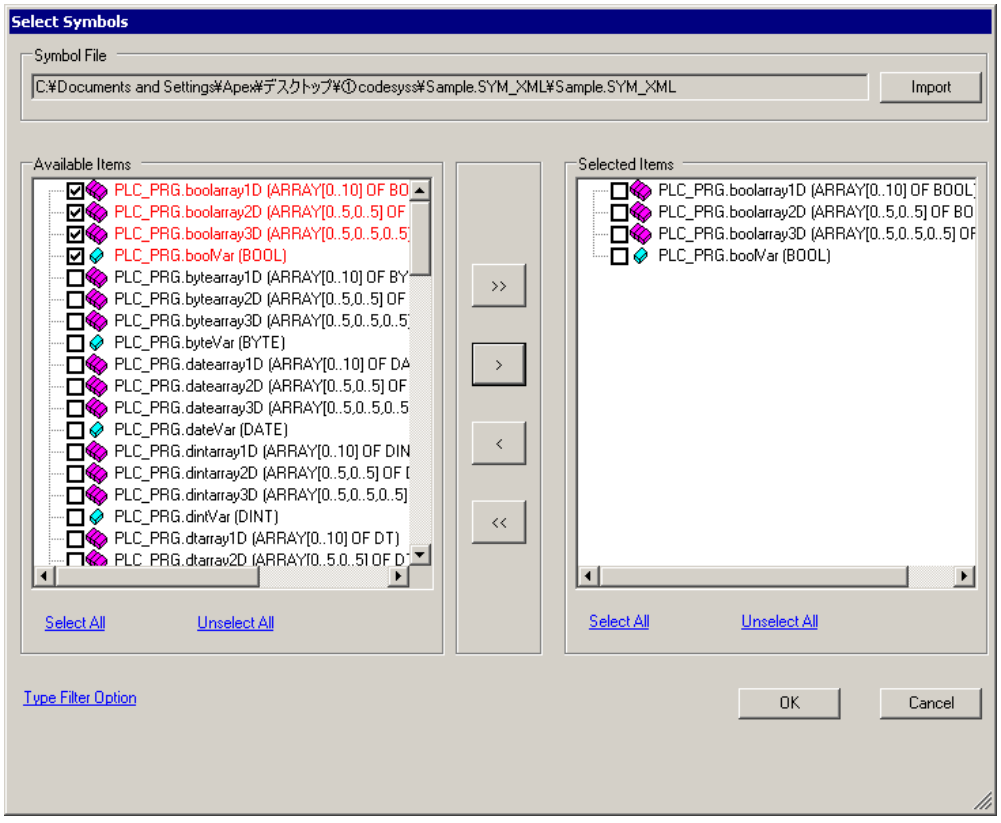
2 Click [New].



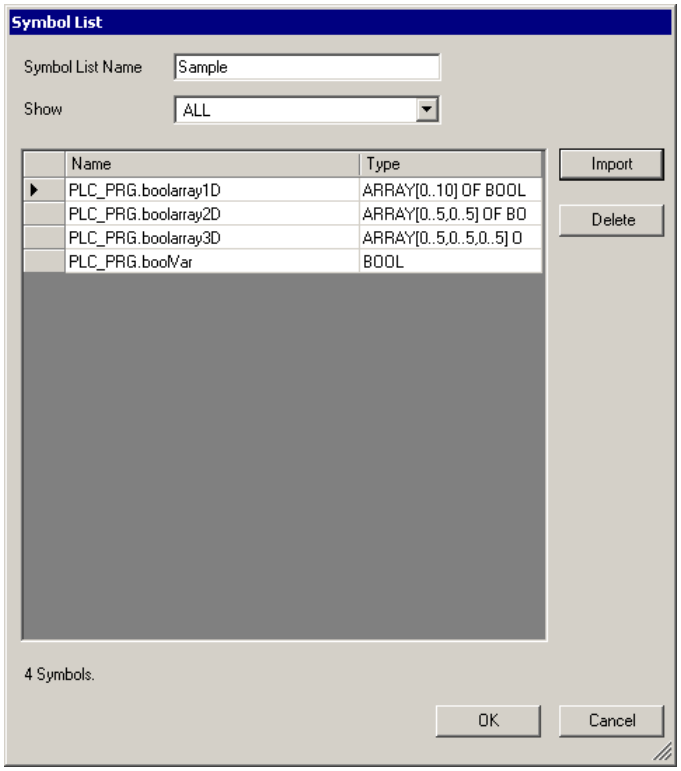
3 Click [Import].



4 From the [Symbol File] field, click [Import].
5 Select the Symbol File to import.
6 In the [Available Items] area, select the symbols to import and click [>]. The symbols to import are added to the [Selected Items] area.



7 Click [OK] to import. Import results appear in the [Symbol List].



NOTE When there are symbols that failed to import, you can save the generated error log.

7. Device Code and Address Code

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

NOTE When select [Symbolic Address] in series of the External Device, cannot use a device cord and the address code.

Direct Address:

Device	Device Name	Device Code
Input	%I	0x0080
Output	%Q	0x0081
Marker	%M	0x0083

8. Error Messages

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

Item	Requirements
No.	Error No.
Device Name	Name of the External Device where error occurs. Device name is a title of the External Device set with GP-Pro EX.(Initial value[PLC1])
Error Message	Displays messages related to the error which occurs.
Error Occurrence Area	Displays IP address or device address of the External Device where error occurs, or error codes received from the External Device. 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 "[Hex]".

NOTE
- Refer to your External Device manual for details on received error codes.
- Refer to "When an error is displayed (Error Code List)" in "Maintenance/Troubleshooting Manual" for details on the error messages common to the driver.