Rockwell Automation, Inc.

DF1 Driver

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Introduction

This manual describes how to connect the Display (GP3000 series) and the External Device (target PLC).

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

1	System Configuration This section shows the types of External Devices which can be connected and SIO type.	☞ "1 System Configuration" (page 3)
2	Selection of External Device Select a model (series) of the External Device to be connected and connection method.	☞ "2 Selection of External Device" (page 4)
3	Example of Communication Settings This section shows setting examples for communicating between the Display and the External Device.	☞ "3 Example of Communication Setting" (page 5)
4	Communication Settings This section describes communication setup items on the Display. Set communication settings of the Display with GP-Pro EX or in off-line mode.	☞ "4 Setup Items" (page 21)
5	Communication Settings This section shows cables and adapters for connecting the Display and the External Device.	☞ "5 Cable Diagram" (page 27)

Operation

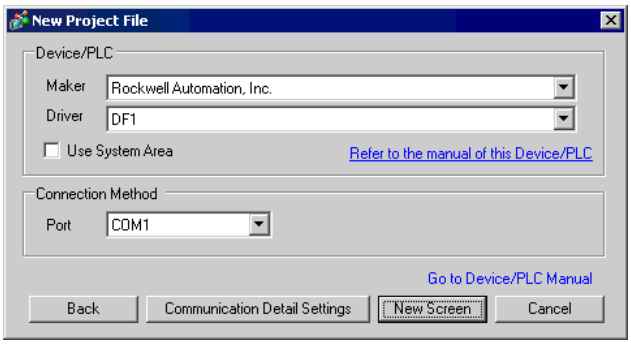
1 System Configuration

The system configuration in the case when the External Device of Rockwell Automation, Inc. and the Display are connected is shown.

Series	CPU Module	Link I/F	SIO Type	Setting Example	Cable Diagram
SLC500	SLC 5/03 SLC 5/04 SLC 5/05	Channel 0	RS232C	Setting Example 1 (page 5)	Cable Diagram 1 (page 27)
		1770-KF3 2760-RB 1775-KA 5130-RM	RS232C		Cable Diagram 2 (page 28)
		1771-KGM	RS232C		Cable Diagram 3 (page 29)
PLC-5	PLC-5/11 PLC-5/20 PLC-5/30 PLC-5/40 PLC-5/40L PLC-5/60 PLC-5/60L	Channel 0	RS232C	Setting Example 2 (page 8)	Cable Diagram 2 (page 28)
			RS422/485 (4wire)	Setting Example 3 (page 11)	Cable Diagram 6 (page 32)
ControlLogix	Logix5550	CPU Direct	RS232C	Setting Example 4 (page 14)	Cable Diagram 1 (page 27)
MicroLogix	MicroLogix 1500 (1764-LRP)	Channel 1	RS232C	Setting Example 5 (page 18)	Cable Diagram 1 (page 27)
	MicroLogix 1000 MicroLogix 1200 MicroLogix 1500 (1764-LSP,1764-LRP)	Channel 0	RS232C		Cable Diagram 4 (page 30)
		AIC + Advanced Interface Converter 1761-NET-AIC	RS232C		Cable Diagram 5 (page 31)
CompactLogix	1769-L20 1769-L30 1769-L31 1769-L32E 1769-L35E	Channel 0	RS232C	Setting Example 4 (page 14)	Cable Diagram 1 (page 27)

2 Selection of External Device

Select the External Device to be connected to the Display.



Setup Items	Setup Description
Maker	Select the maker of the External Device to be connected. Select "Rockwell Automation, Inc.".
Driver	Select a model (series) of the External Device to be connected and connection method. Select "DF1". Check the External Device which can be connected in "DF1" in system configuration. ☞"1 System Configuration" (page 3)
Use System Area	Check this option when you synchronize the system data area of the Display and the device (memory) of the External Device. When synchronized, you can use the ladder program of the External Device to switch the display or display the window on the Display. Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for direct access method)" This can be also set with GP-Pro EX or in off-line mode of the Display. Cf. GP-Pro EX Reference Manual "System Area Setting, 6.13.6 Setting Guide of [System Setting Window]" Cf. GP3000 Series User Manual "4.3.6 System Area Setting"
Port	Select the Display port to be connected to the External Device.

3 Example of Communication Setting

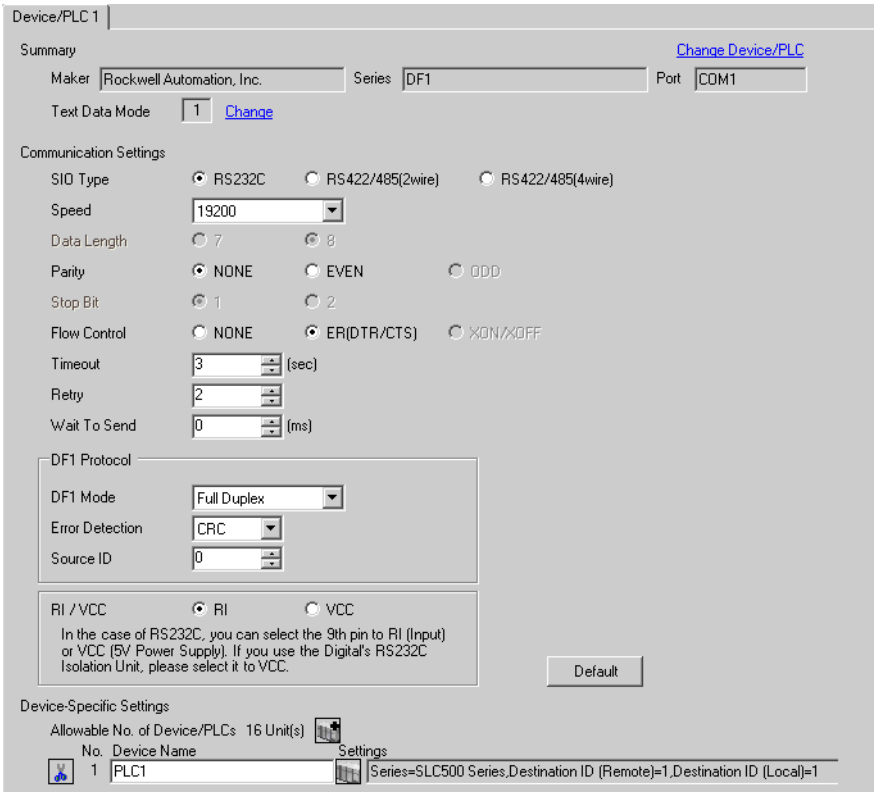
Examples of communication settings of the Display and the External Device, recommended by Pro-face, are shown.

3.1 Setting Example 1

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



MEMO

- For [DF1 Mode], select [Full Duplex] or [Half Duplex Mster] according to your driver.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.



MEMO

- For Full Duplex, "Destination ID (Local)" is not used.

■ Settings of External Device

Use the ladder software "RSLogix 500" for communication settings.

Open "Channel Configuration" of "RSLogix 500" to perform the settings in the "Chan. 0 - System" tab.

◆ For Full Duplex

Setup Items	Setup Description
Driver	DF1 Full Duplex
Baud	19200
Parity	NONE
Stop Bits	1
Control Line	No Handshaking
Error Detection	CRC
Embedded Responses	Auto-detect
Duplicate Packet Detect	Disabled
ACK Timeout	50
NAK Retries	3
ENQ Retries	3
Source ID	0

◆ For Half Duplex

Setup Items	Setup Description
Driver	DF1 Half Duplex Slave
Baud	19200
Parity	NONE
Stop Bits	1
Control Line	No Handshaking
Error Detection	CRC
EOT Suppression	Disabled
Duplicate Packet Detect	Disabled
Poll Timeout	3000
Message Retries	3
Pre Transmit Delay	0
Node Address	0

◆ Notes

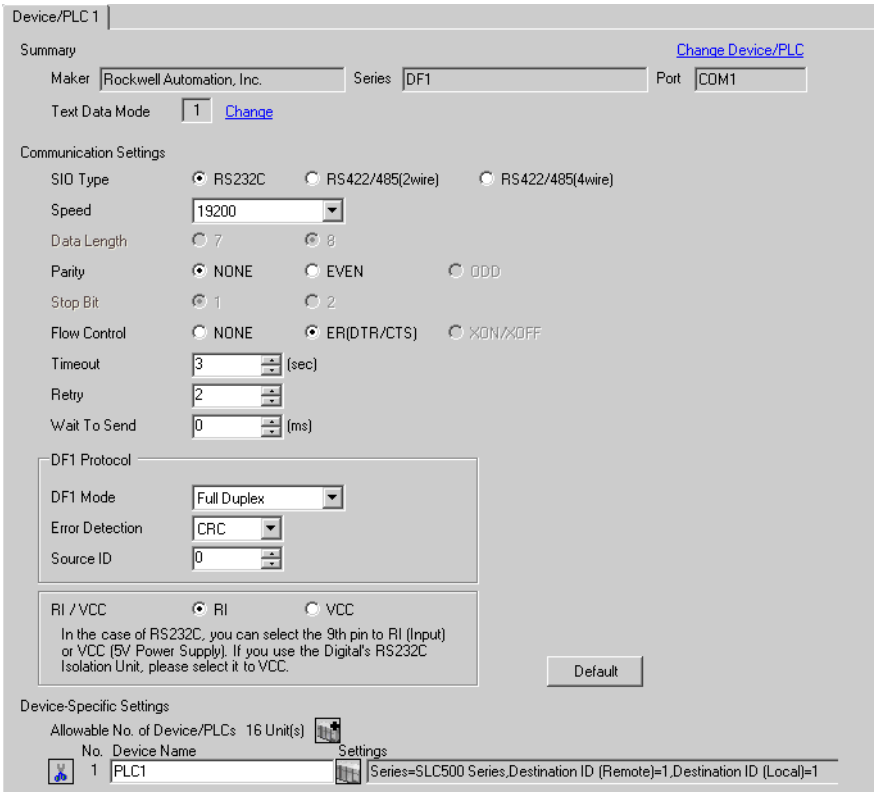
- Please refer to the manual of the ladder software for more detail on other setting description.

3.2 Setting Example 2

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



MEMO

- For [DF1 Mode], select [Full Duplex] or [Half Duplex Mster] according to your driver.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.



MEMO

- For Full Duplex, "Destination ID (Local)" is not used.

■ Settings of External Device

Use the ladder software "RSLogix 5" for communication settings.

Open "Channel Configuration" of "RSLogix 5" to perform the settings in the "Chan. 0" tab.

◆ For Full Duplex

Setup Items	Setup Description
Communication Mode	System (Point-To-Point)
Baud Rate	19200
Parity	NONE
Bits per Char	8
Stop Bits	1
Control Line	No Handshaking
Error Detection	CRC
Embedded Responses	Auto-detect
Detect Duplicate Messages	Disabled
ACK Timeout	50
NAK Receive	3
DF1 ENQs	3
MSG Application Timeout	30 seconds
Station Address	0

◆ For Half Duplex

Setup Items	Setup Description
Communication Mode	System (Slave)
Baud Rate	19200
Parity	NONE
Bits per Char	8
Stop Bits	1
Control Line	No Handshaking
Error Detection	CRC
Detect Duplicate Messages	Disabled
RTS Send Delay	0
RTS Off Delay	0
ACK Timeout	50
DF1 Retries	3
MSG Application Timeout	30 seconds
Station Address	0

◆ Notes

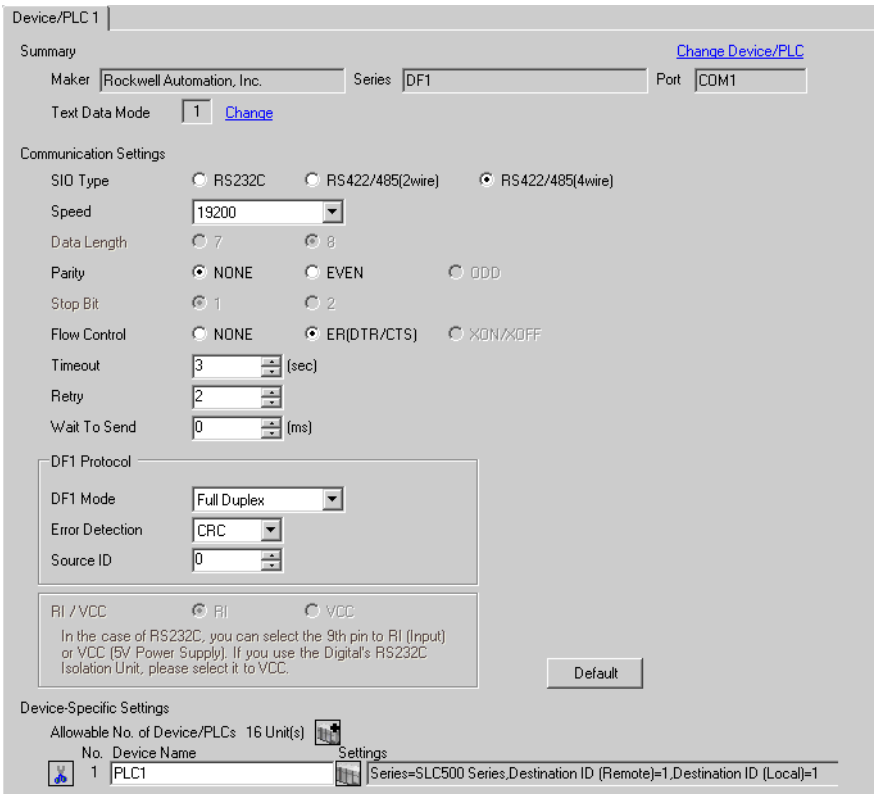
- Please refer to the manual of the ladder software for more detail on other setting description.

3.3 Setting Example 3

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



MEMO

- For [DF1 Mode], select [Full Duplex] or [Half Duplex Mster] according to your driver.

◆ Device Setting

To display the setting screen, click  ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.



MEMO

- For Full Duplex, "Destination ID (Local)" is not used.

■ Settings of External Device

Use the ladder software "RSLogix 5" for communication settings.

Open "Channel Configuration" of "RSLogix 5" to perform the settings in the "Chan. 0" tab.

◆ For Full Duplex

Setup Items	Setup Description
Communication Mode	System (Point-To-Point)
Baud Rate	19200
Parity	NONE
Bits per Char	8
Stop Bits	1
Control Line	No Handshaking
Error Detection	CRC
Embedded Responses	Auto-detect
Detect Duplicate Messages	Disabled
ACK Timeout	50
NAK Receive	3
DF1 ENQs	3
MSG Application Timeout	30 seconds
Station Address	0

◆ For Half Duplex

Setup Items	Setup Description
Communication Mode	System (Slave)
Baud Rate	19200
Parity	NONE
Bits per Char	8
Stop Bits	1
Control Line	No Handshaking
Error Detection	CRC
Detect Duplicate Messages	Disabled
RTS Send Delay	0
RTS Off Delay	0
ACK Timeout	50
DF1 Retries	3
MSG Application Timeout	30 seconds
Station Address	0

◆ Notes

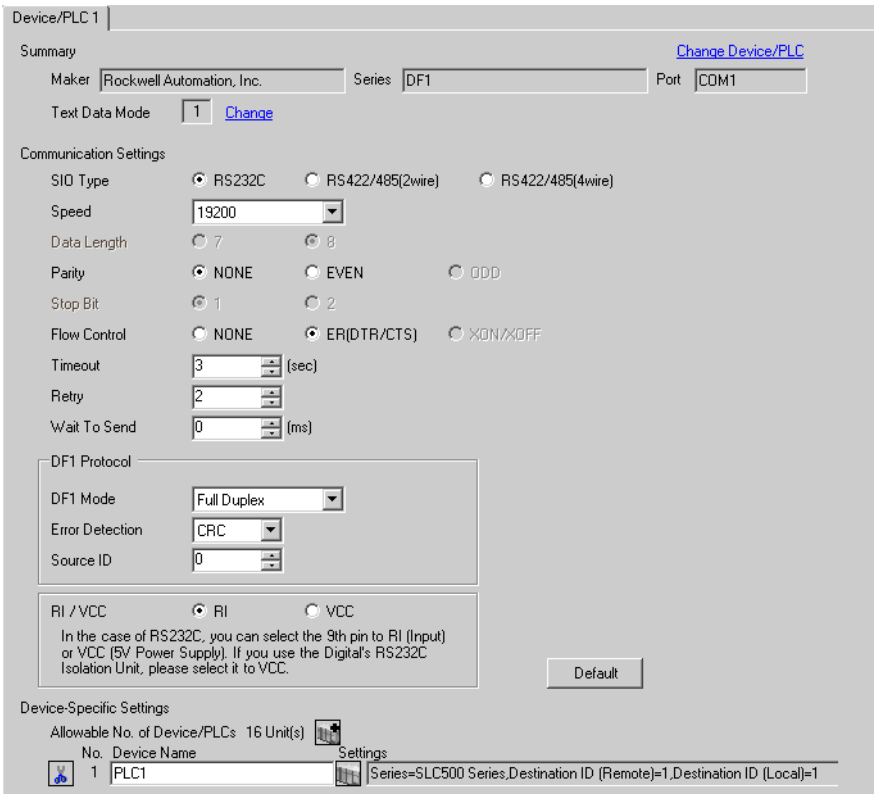
- Please refer to the manual of the ladder software for more detail on other setting description.

3.4 Setting Example 4

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



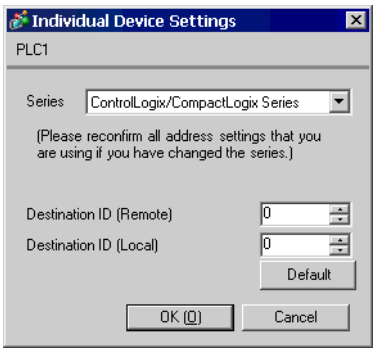
MEMO

- For [DF1 Mode], select [Full Duplex] or [Half Duplex Mster] according to your driver.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.



MEMO

- For Full Duplex, "Destination ID (Local)" is not used.

■ Settings of External Device

Use the ladder software "RSLogix 5000" for communication settings.

Open "Channel Configuration" of "RSLogix 5000" to perform the settings in the "Serial Port Protocol" tab.

◆ For Full Duplex

Setup Items	Setup Description
Protocol	Point to Point
Baud	19200
Parity	NONE
Data Bits	8
Stop Bits	1
Control Line	No Handshaking
RTS Send Delay	0
RTS Off Delay	0
Error Detection	CRC
Embedded Response	Autodetect
Enable Duplicate Detection	Disabled
ACK Timeout	50
NAK Receive Limit	3
ENQ Transmit Limit	3
Station Address	0

◆ For Half Duplex

Setup Items	Setup Description
Protocol	DF1 Slave
Baud	19200
Parity	NONE
Data Bits	8
Stop Bits	1
Control Line	No Handshaking
RTS Send Delay	0
RTS Off Delay	0
Error Detection	CRC
EOT Suppression	Disabled
Enable Duplicate Detection	Disabled
Transmit Retries	3
Slave Poll Timeout	3000
Station Address	0

◆ Notes

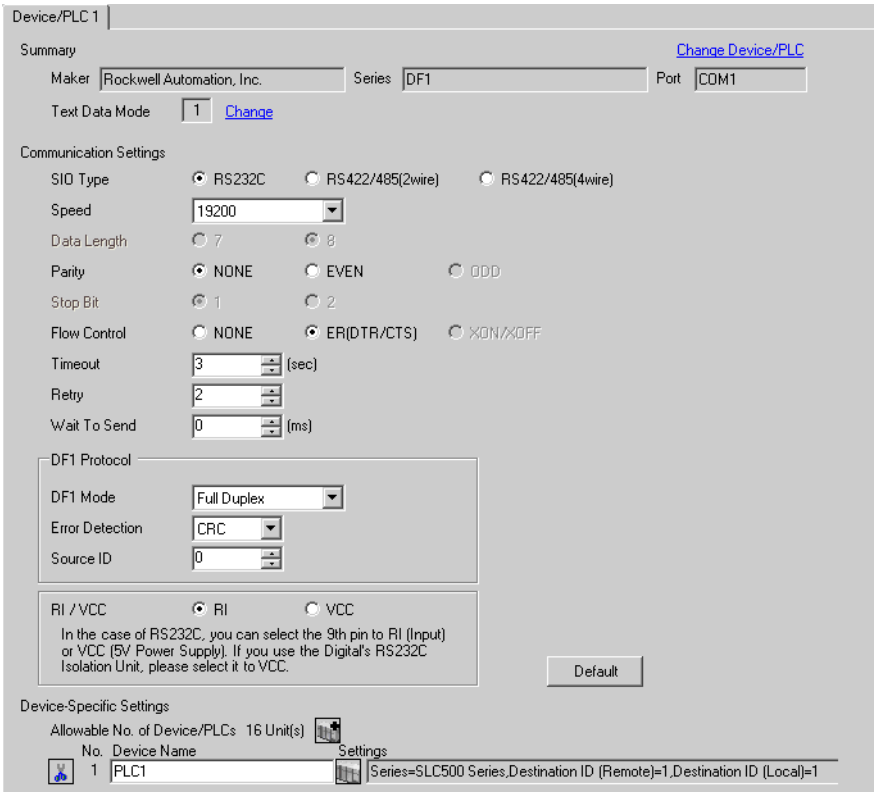
- Please refer to the manual of the ladder software for more detail on other setting description.

3.5 Setting Example 5

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



MEMO

- For [DF1 Mode], select [Full Duplex] or [Half Duplex Mster] according to your driver.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.



MEMO

- For Full Duplex, "Destination ID (Local)" is not used.

■ Settings of External Device

Use the ladder software "RSLogix 500" for communication settings.

Open "Channel Configuration" of "RSLogix 500" to perform the settings in the "Chan. 0 - System" tab.

◆ For Full Duplex

Setup Items	Setup Description
Primary Protocol	DF1 Full Duplex
Baud	19200
Parity	NONE (Fixed)
Stop Bits	1 (Fixed)
Control Line	No Handshaking (Fixed)
Error Detection	CRC
Embedded Responses	Auto-detect
Enable Duplicate Detection	Disabled
ACK Timeout	50
DLE NAK Retries	3
DLE ENQ Retries	3
Node Address	1

◆ For Half Duplex

Setup Items	Setup Description
Primary Protocol	DF1 Half Duplex Slave
Baud	19200
Parity	NONE (Fixed)
Stop Bits	1 (Fixed)
Control Line	No Handshaking (Fixed)
Error Detection	CRC
EOT Suppression	Disabled
Poll Timeout	3000
RTS On Delay	0
RTS Send Delay	0
Message Retries	3
Pre-Transmit Delay	0
Node Address	1

◆ Notes

- Please refer to the manual of the ladder software for more detail on other setting description.

4 Setup Items

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

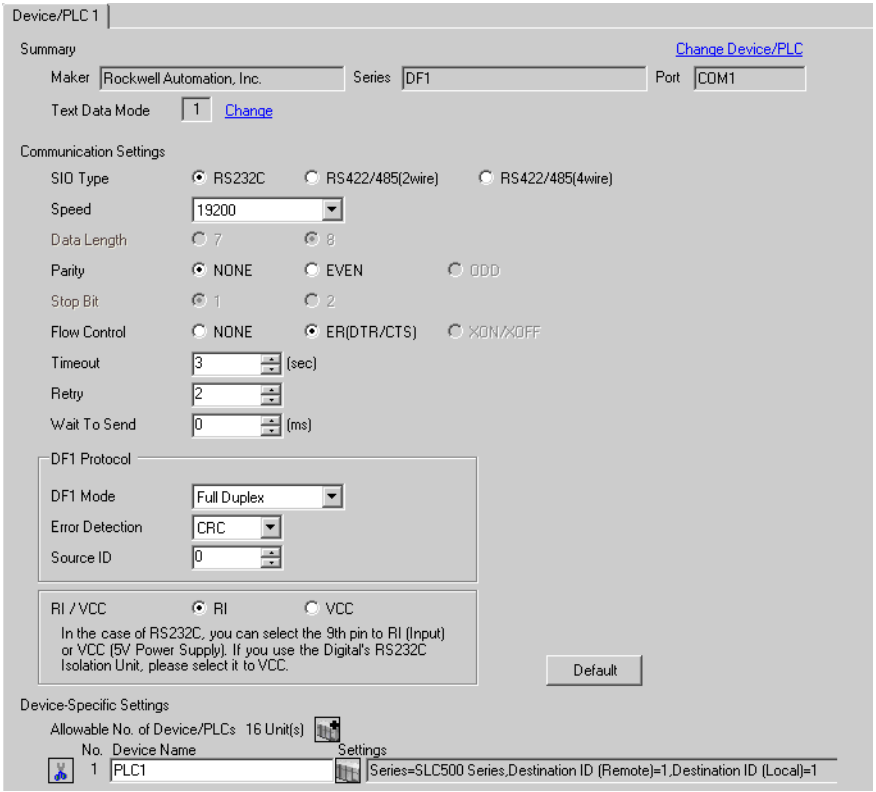
The setting of each parameter must be identical to that of External Device.

☞"3 Example of Communication Setting" (page 5)

4.1 Communication Setting with GP-Pro EX

■ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device.
Speed	Select speed (bps) between the External Device and the Display.
Data Length	Select 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	Enter the number of seconds (sec) before the reception timeout error occurs in the Display when communicating with the External Device, using "an integer from 1 to 127".
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.

Setup Items	Setup Description
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.
DF1 Mode	Set the type of DF1 protocol. Select either "Full Duplex" or "Half Duplex Master".
Error Detection	Set how to check error. Select either "CRC" or "BCC".
Source ID	Set the Display ID.
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type.

■ Device Setting

To display the setting screen, click ([Setting]) of the External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When [Allowable No. of Device/PLCs] is multiple, you can click from [Device-Specific Settings] of [Device/PLC Settings] to add the External Device which is available to set.



Setup Items	Setup Description
Series	Select any of "SLC500 Series", "PLC-5 Series", "ControlLogix Series", "MicroLogix Series" and "CompactLogix Series" for the driver series name.
Destination ID (Remote)	Use an integer from 0 to 254 to enter the Destination ID.
Destination ID (Local)	Use an integer from 0 to 254 to enter the Destination (local) ID.

4.2 Setting on Off-line Screen

MEMO

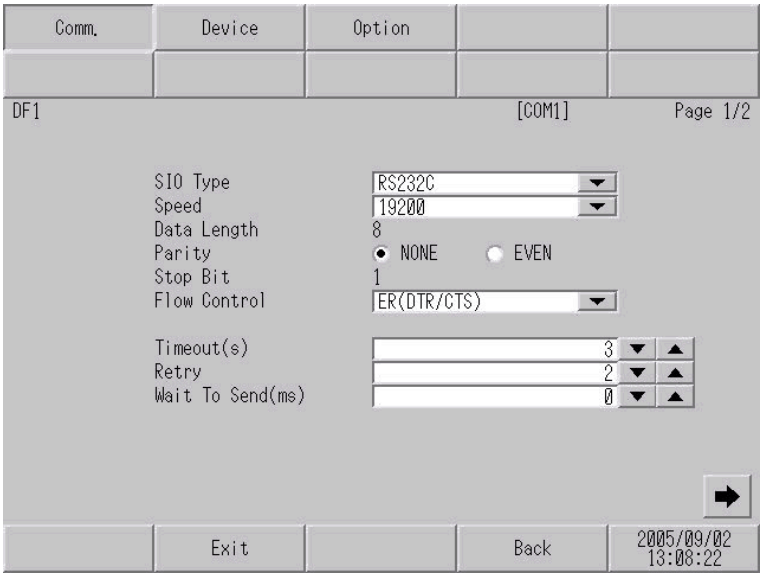
- Please refer to GP3000 Series User Manual for more information on how to enter off-line mode or about operation.

  Cf. GP3000 Series User Manual "Chapter 4 Setting"

■ Communication Settings

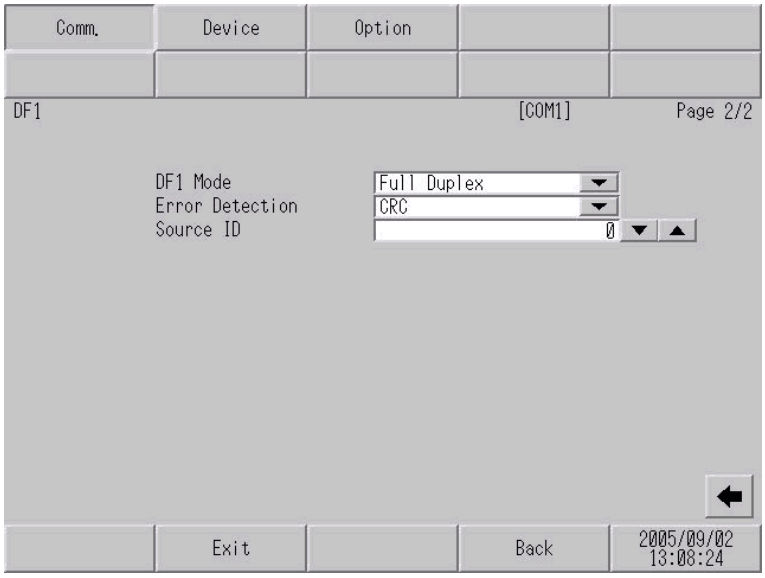
To display the setting screen, touch [Device/PLC Settings] from [Peripheral Settings] in off-line mode. Touch the External Device you want to set from the displayed list, and touch [Communication Settings].

(Page 1/2)



Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device.
Speed	Select speed (bps) between the External Device and the Display.
Data Length	Select 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	Enter the number of seconds (sec) before the reception timeout error occurs in the Display when communicating with the External Device, using "an integer from 1 to 127".
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.

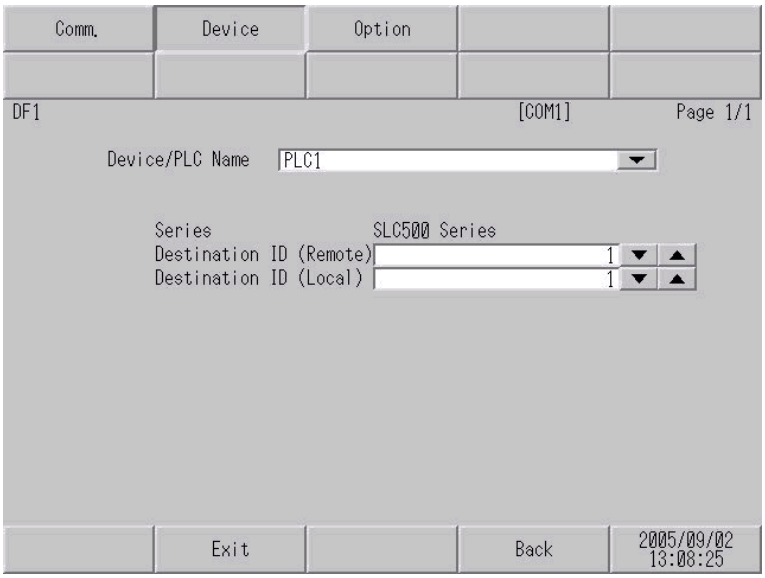
(Page 2/2)



Setup Items	Setup Description
DF1 Mode	Set the type of DF1 protocol. Select either "Full Duplex" or "Half Duplex Master".
Error Detection	Set how to check error.
Source ID	Set the Display ID.

■ 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 Settings].

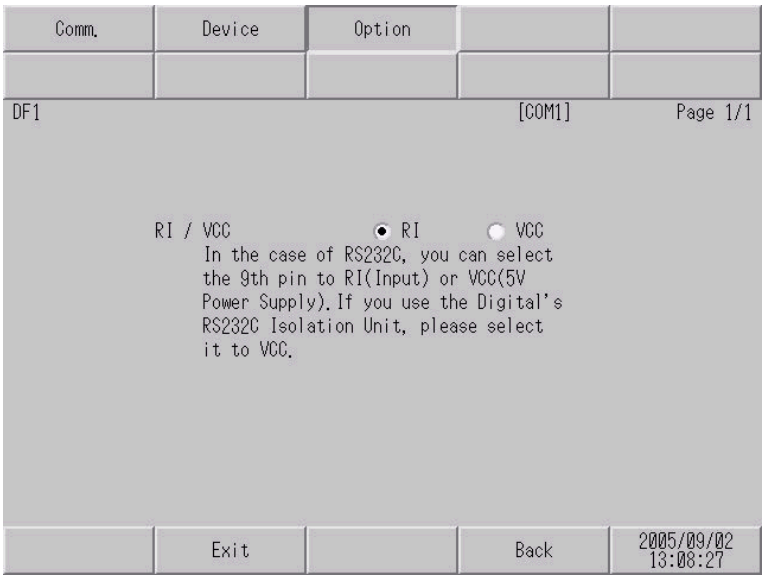


Setup Items	Setup Description
Device/PLC Name	Select the External Device for device setting. Device name is a title of External Device set with GP-Pro EX.(Initial value [PLC1])
Series	Select any of "SLC500 Series", "PLC-5 Series", "ControlLogix Series", "MicroLogix Series" and "CompactLogix Series" for the driver series name.
Destination ID (Remote)	Use an integer from 0 to 254 to enter the recipient ID.
Destination ID (Local)	Use an integer from 0 to 254 to enter the recipient (local) ID.

■ Option

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 [Option].



Setup Items	Setup Description
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type.

5 Cable Diagram

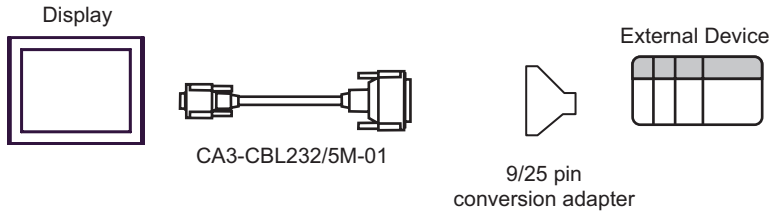
The cable diagram shown below may be different from the cable diagram recommended by Rockwell Automation, Inc. Please be assured there is no operational problem in applying the cable diagram shown in this manual.

- The FG pin of the main body of the External Device must be D-class grounded. Please refer to the manual of the External Device for more details.
- SG and FG are connected inside the Display. When connecting SG to the External Device, design the system not to form short-circuit loop.

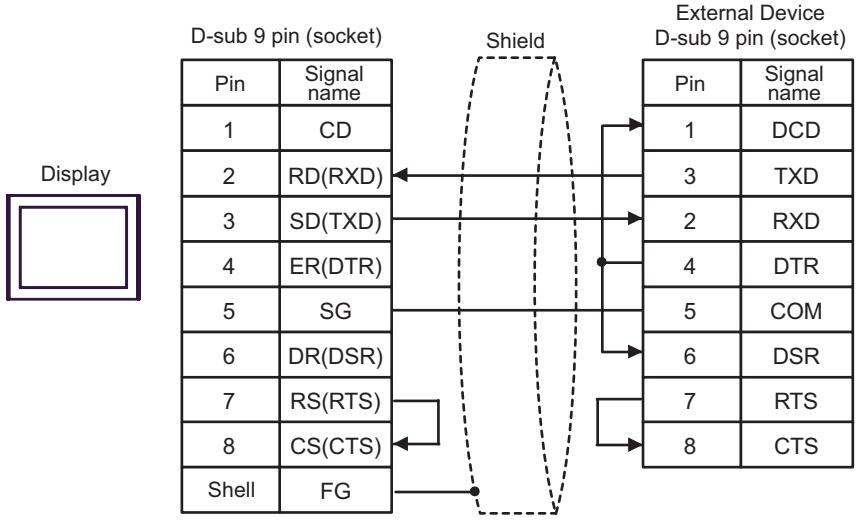
Cable Diagram 1

Display (Connection Port)	Cable		Remarks
GP (COM1)	A	RS232C cable by Pro-face CA3-CBL232/5M-01 (5m)	9/25 pin conversion adapter is required.
	B	Your own cable	The cable length must be 15m or less.

A) When using the RS232C cable (CA3-CBL232/5M-01) by Pro-face



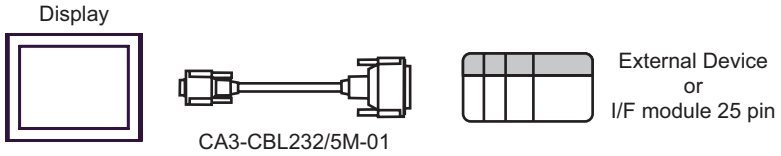
B) When using your own cable



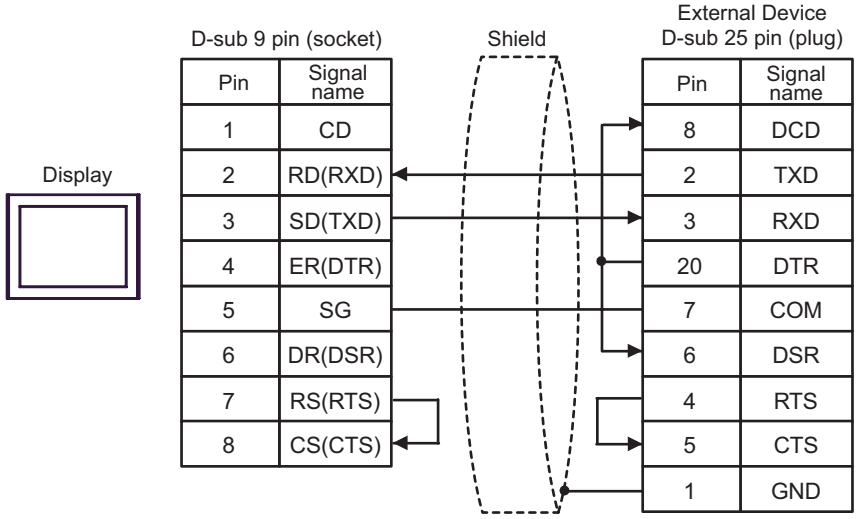
Cable Diagram 2

Display (Connection Port)	Cable		Remarks
GP (COM1)	A	RS232C cable by Pro-face CA3-CBL232/5M-01 (5m)	
	B	Your own cable	The cable length must be 15m or less.

A) When using the RS232C cable (CA3-CBL232/5M-01) by Pro-face

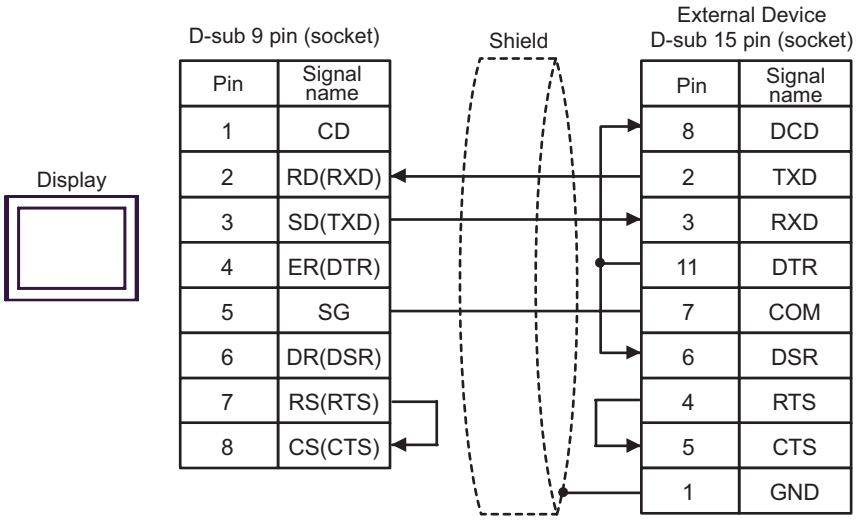


B) When using your own cable



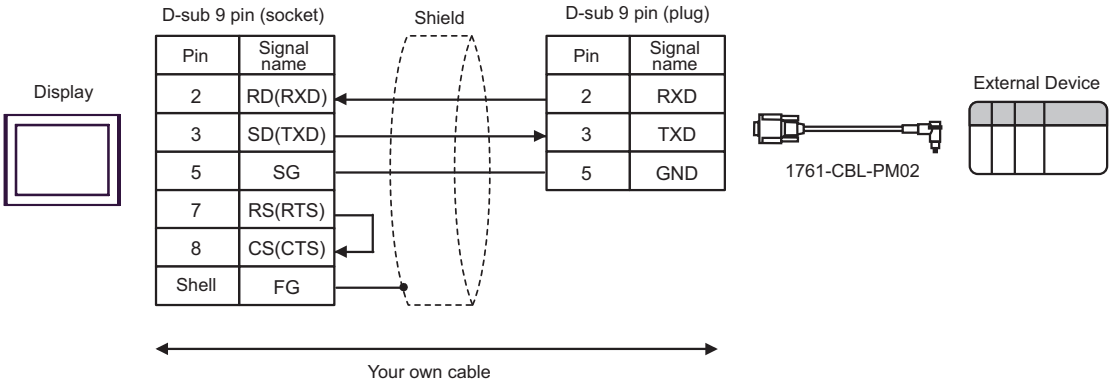
Cable Diagram 3

Display (Connection Port)	Cable	Remarks
GP (COM1)	Your own cable	The cable length must be 15m or less.



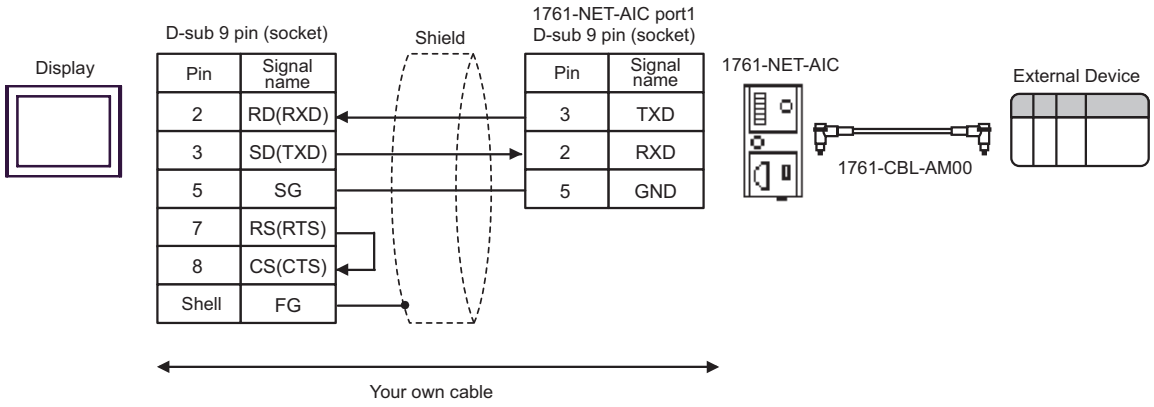
Cable Diagram 4

Display (Connection Port)	Cable	Remarks
GP (COM1)	Your own cable + RS232C cable by Rockwell Automation 1761-CBL-PM02	The cable length must be 15m or less.



Cable Diagram 5

Display (Connection Port)	Cable	Remarks
GP (COM1)	Your own cable	The cable length must be 15m or less.

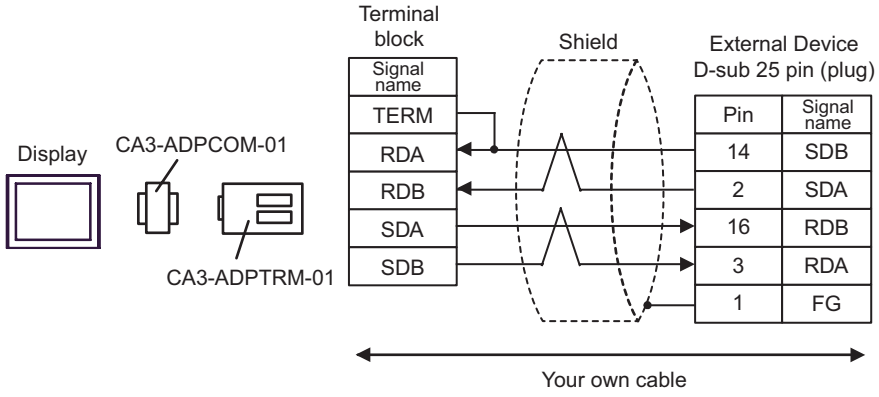


Cable Diagram 6

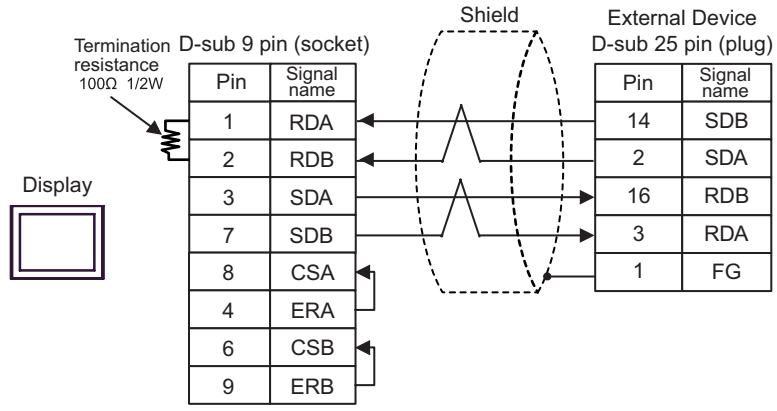
Display (Connection Port)	Cable		Remarks
GP*1 (COM1) AGP-3302 (COM2)	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 61m or less.
	B	Your own cable	
GP*1 (COM2)	C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable	

*1 All GP models except AGP-3302

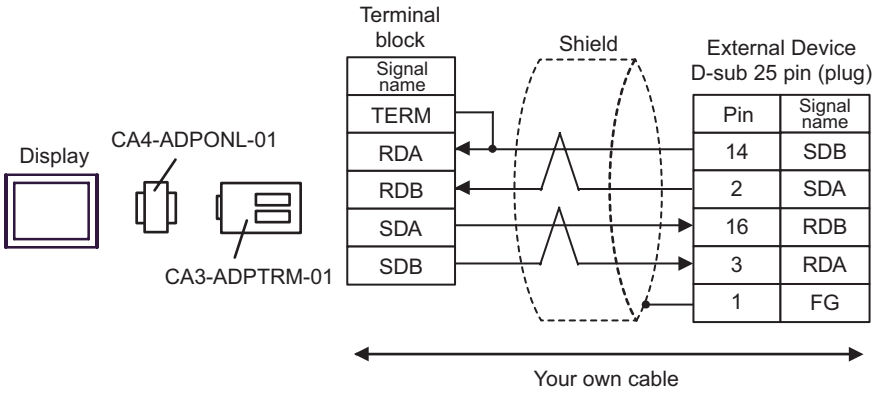
A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable



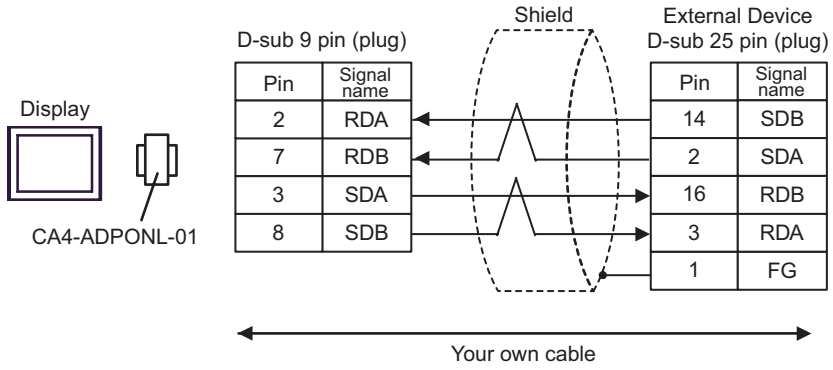
B) When using your own cable



C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable



D) When using your own cable



6 Supported Device

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

6.1 SLC500 Series

This address can be specified as system data area.

Device		Bit Address[*1]		Word Address		32bits	Remarks
Input File		I:00.000/00 - I:63.255/15		I:00.000 - I63.255			
Output File		O:00.000/00 - O:63.255/15		O:00.000 - O:63.255			
Status File		S:0/0 - S:163/15		S:0 - S:163			
Bit File		B3:0/0 - B3:255/15 B9:0/0 - B255:255/15		B3:0 - B3:255 B9:0 - B255:255			
Timer File	Enable	T4:0/ - T4:255/ T9:0/ - T255:255/	EN	T4:0. - T4:255. T9:0. - T255:255.	-	L/H	
	Timing		TT		-		
	Done		DN		-		
	Preset		-		PRE		
	Accumulated		-		ACC		
Counter File	Up Enable	C5:0/ - C5:255/ C9:0/ - C255:255/	CU	C5:0. - C5:255. C9:0. - C255:255.	-		
	Down Enable		CD		-		
	Done		DN		-		
	Overflow		OV		-		
	Underflow		UN		-		
	Update Acc		UA		-		
	Preset		-		PRE		
	Accumulated		-		ACC		

Device		Bit Address*1		Word Address		32bits	Remarks
Control File	Enable	R6:0/ - R6:255/ R9:0/ - R255:255/	EN	R6:0. - R6:255. R9:0. - R255:255.	-	L / H	
	Enable Unload		EU		-		
	Done		DN		-		
	Empty		EM		-		
	Error		ER		-		
	Unload		UL		-		
	Inhibit Comp.		IN		-		
	Found		FD		-		
	Length		-		LEN		
	Position		-		POS		
Integer File		N7:0/0 - N7:255/15 N9:0/0 - N255:255/15		N7:0 - N7:255 N9:0 - N255:255			
Floating Point File		------		F8:0 - F8:255 F9:0 - F255:255			32-bit address only
String File		------		ST9:0 - ST255:255			
ASCII File		A9:0/0 - A255:255/15		A9:0 - A255:255			

*1 When you write the bit address, the Display reads the word address corresponding to that of the External Device first. Change only the target bit address among the word data once read, and write the word data to the External Device.
Note that the correct data may not be written if you change the word address value in the ladder program while the Display reads the data of the External Device and writes it to the External Device.

MEMO

- Please refer to the GP-Pro EX Reference Manual for system data area.
  Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for direct access method)"
- Please refer to the precautions on manual notation for icons in the table.
  ☞ "Manual Symbols and Terminology"

6.2 PLC-5 Series

This address can be specified as system data area.

Device		Bit Address		Word Address		32bits	Remarks
Input File		I:0/0 - I:377/17		I:0 - I:377			OCT
Output File		O:0/0 - I:377/17		O:0 - I:377			OCT
Status File		S:0/0 - S:163/15		S:0 - S:163			
Bit File		B3:0/0 - B3:999/15		B3:0 - B3:999			
Timer File	Enable	T3:0/ - T999:999/	EN	T3:0. - T999:999.	-	L/H	
	Timing		TT		-		
	Done		DN		-		
	Preset		-		PRE		
	Accumulated		-		ACC		
Counter File	Up Enable	C3:0/ - C999:999/	CU	C3:0. - C999:999.	-		
	Down Enable		CD		-		
	Done		DN		-		
	Overflow		OV		-		
	Underflow		UN		-		
	Update Acc		UA		-		
	Preset		-		PRE		
	Accumulated		-		ACC		
Control File	Enable	R3:0/ - R999:999/	EN	R3:0. - R999:999.	-		
	Enable Unload		EU		-		
	Done		DN		-		
	Empty		EM		-		
	Error		ER		-		
	Unload		UL		-		
	Inhibit Comp.		IN		-		
	Found		FD		-		
	Length		-		LEN		
	Position		-		POS		
Integer File		N3:0/0 - N999:999/15		N3:0 - N999:999			

Device	Bit Address	Word Address	32bits	Remarks
Floating Point File	------	F3:0 - F999:999	L/H	32-bit address only
String File	------	ST3:0 - ST999:999		
ASCII File	A3:0/0 - A999:999/15	A3:0 - A999:999		
BCD File	D3:0/0 - D999:999/15	D3:0 - D999:999		

MEMO

- Please refer to the GP-Pro EX Reference Manual for system data area.
  Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for direct access method)"
- Please refer to the precautions on manual notation for icons in the table.
  ☞ "Manual Symbols and Terminology"

6.3 MicroLogix Series

This address can be specified as system data area.

Device		Bit Address[*1]		Word Address		32bits	Remarks
Input File		I:00.000/00 - I:08.255/15		I:00.000 - I08.255			
Output File		O:00.000/00 - O:08.255/15		O:00.000 - O:08.255			
Status File		S:0/0 - S:163/15		S:0 - S:163			
Bit File		B3:0/0 - B3:255/15 B9:0/0 - B255:255/15		B3:0 - B3:255 B9:0 - B255:255			
Timer File	Enable	T4:0/ - T4:255/ T9:0/ - T255:255/	EN	T4:0. - T4:255. T9:0. - T255:255.	-		
	Timing		TT		-		
	Done		DN		-		
	Preset		-		PRE		
	Accumulated		-		ACC		
Counter File	Up Enable	C5:0/ - C5:255/ C9:0/ - C255:255/	CU	C5:0. - C5:255. C9:0. - C255:255.	-	L/H	
	Down Enable		CD		-		
	Done		DN		-		
	Overflow		OV		-		
	Underflow		UN		-		
	Update Acc		UA		-		
	Preset		-		PRE		
	Accumulated		-		ACC		
Control File	Enable	R6:0/ - R6:255/ R9:0/ - R255:255/	EN	R6:0. - R6:255. R9:0. - R255:255.	-		
	Enable Unload		EU		-		
	Done		DN		-		
	Empty		EM		-		
	Error		ER		-		
	Unload		UL		-		
	Inhibit Comp.		IN		-		
	Found		FD		-		
	Length		-		LEN		
	Position		-		POS		
Integer File		N7:0/0 - N7:255/15 N9:0/0 - N255:255/15		N7:0 - N7:255 N9:0 - N255:255			

Device	Bit Address*1	Word Address	32bits	Remarks
Floating Point File	------	F8:0 - F8:255 F9:0 - F255:255	L / H	32-bit address only
String File	------	ST9:0 - ST255:255		
Long Word File	L9:0/0 - A255:255/31	L9:0 - L255:255		

*1 When you write the bit address, the Display reads the word address corresponding to that of the External Device first. Change only the target bit address among the word data once read, and write the word data to the External Device.
Note that the correct data may not be written if you change the word address value in the ladder program while the Display reads the data of the External Device and writes it to the External Device.

MEMO

- Please refer to the GP-Pro EX Reference Manual for system data area.
  Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for direct access method)"
- Please refer to the precautions on manual notation for icons in the table.
  ☞ "Manual Symbols and Terminology"

6.4 ControlLogix/CompactLogix Series

This address can be specified as system data area.

Device	Bit Address*1	Word Address	32bits	Remarks
BOOL	BOOL0:0/0 - BOOL999:999/31	BOOL0:000 - BOOL999:999	L/H	*2
INT	INT0:0/0 - INT999:999/15	INT0:000 - INT999:999		*2
REAL	------	REAL0:000 - REAL999:999		*2
DINT	DINT0:0/0 - DINT999:999/31	DINT0:000 - DINT999:999		*2
SINT	SINT0:0/0 - SINT999:999/7	SINT0:000 - SINT999:998		Bit 7 ÷ 2 *2

*1 When you write the bit address, the Display reads the word address corresponding to that of the External Device first. Change only the target bit address among the word data once read, and write the word data to the External Device.
Note that the correct data may not be written if you change the word address value in the ladder program while the Display reads the data of the External Device and writes it to the External Device.

*2 To access those addresses and use them in the program of the External Device, you need to set the External Device first.

The following procedure shows how to assign the device in the RSLogix5000 software and specify the address in GP-Pro EX.

1) Tag setting of External Device
Create the Tag Name in the RSLogix5000 software, and set the Type. Map the created Tag Name to a File Number.

Tag Name	:Set optionally.
Type	:Select the data type among below to set the Element. Match the device name of GP-Pro EX BOOT(32bit data type) INT(word data type) DINT(dword data type) SINT(byte data type) REAL(float data type)

Set the range used in GP-Pro EX for the Element. Maximum Element GP-Pro EX can access is 999.
When you do not define the Element, only one item is available to use.
(Example) Tag Name: N8, Type: When INT is set, only one word of N8 can be used.

<Example 1>

Tag Name	Type
N7	INT[200]
DINT1	DINT[100]
DATA2	SINT[50]

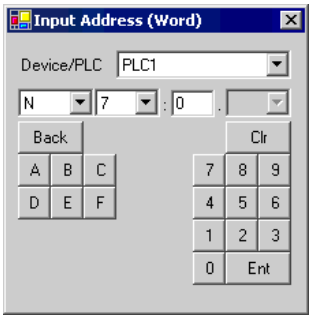
1st line: Tag Name"N7" is INT data type with Element 200
2nd line:Tag Name "DINT1" is DINT data type with Element 100
3rd line: Tag Name "DATA2" is SINT data type with Element 50

File Number	: Assign the Tag Name created by RSLogix5000 to the optional File Number. You can not assign different Tag Names to the same File Number.

<Example2>

File Number	Name
2	DATA2
1	DINT1
7	N7

2) Address Specification in GP-Pro EX
When you access the External Device from GP-Pro EX, specify Type, File Number and Element.



<Example of address mapping of GP-Pro EX and External Device>

Address of GP-Pro EX		File No.1 Memory of the External Device
DINT1:0	⟷	DINT 1[0]
DINT1:1	⟷	DINT 1[1]
DNT1:2	⟷	DINT 1[2]

MEMO

- Please refer to the GP-Pro EX Reference Manual for system data area.
  Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for direct access method)"
- Please refer to the precautions on manual notation for icons in the table.
  ☞ "Manual Symbols and Terminology"

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.

7.1 SLC500 Series

Device	Device Name		Device Code (HEX)	Address Code
Integer File	N		0000	(FileNumber x 0x10000) + Word Address
Floating Point File	F		0001	(FileNumber x 0x10000) + Word Address
String File	ST		0002	(FileNumber x 0x10000) + (Word Address x 0x40)
ASCII File	A		0003	(FileNumber x 0x10000) + Word Address
Input File	I		0080	0x10000 + (Slot Number x 0x100) + Word Address
Output File	O		0081	(SlotNumber x 0x100) + Word Address
Bit File	B		0082	(FileNumber x 0x10000) + Word Address
Status File	S		0083	0x20000 + Word Address
Timer File	T	EN	00E0	(FileNumber x 0x10000) + Word Address
		TT	00E1	(FileNumber x 0x10000) + Word Address
		DN	00E2	(FileNumber x 0x10000) + Word Address
		PRE	0060	(FileNumber x 0x10000) + Word Address
		ACC	0061	(FileNumber x 0x10000) + Word Address
Counter File	C	CU	00E3	(FileNumber x 0x10000) + Word Address
		CD	00E4	(FileNumber x 0x10000) + Word Address
		DN	00E5	(FileNumber x 0x10000) + Word Address
		OV	00E6	(FileNumber x 0x10000) + Word Address
		UN	00E7	(FileNumber x 0x10000) + Word Address
		UA	00E8	(FileNumber x 0x10000) + Word Address
		PRE	0062	(FileNumber x 0x10000) + Word Address
		ACC	0063	(FileNumber x 0x10000) + Word Address

Device	Device Name		Device Code (HEX)	Address Code
Control File	R	EN	00F0	(FileNumber x 0x10000) + Word Address
		EU	00F1	(FileNumber x 0x10000) + Word Address
		DN	00F2	(FileNumber x 0x10000) + Word Address
		EM	00F3	(FileNumber x 0x10000) + Word Address
		ER	00F4	(FileNumber x 0x10000) + Word Address
		UL	00F5	(FileNumber x 0x10000) + Word Address
		IN	00F6	(FileNumber x 0x10000) + Word Address
		FD	00F7	(FileNumber x 0x10000) + Word Address
		LEN	0064	(FileNumber x 0x10000) + Word Address
		POS	0065	(FileNumber x 0x10000) + Word Address

7.2 PLC-5 Series

Device	Device Name		Device Code (HEX)	Address Code
Integer File	N		0000	(FileNumber x 0x10000) + Word Address
Floating Point File	F		0001	(FileNumber x 0x10000) + Word Address
String File	ST		0002	(FileNumber x 0x10000) + (Word Address x 0x40)
ASCII File	A		0003	(FileNumber x 0x10000) + Word Address
BCD File	D		0004	(FileNumber x 0x10000) + Word Address
Input File	I		0080	0x10000 + (Slot Number x 0x100) + Word Address
Output File	O		0081	(SlotNumber x 0x100) + Word Address
Bit File	B		0082	(FileNumber x 0x10000) + Word Address
Status File	S		0083	0x20000 + Word Address
Timer File	T	EN	00E0	(FileNumber x 0x10000) + Word Address
		TT	00E1	(FileNumber x 0x10000) + Word Address
		DN	00E2	(FileNumber x 0x10000) + Word Address
		PRE	0060	(FileNumber x 0x10000) + Word Address
		ACC	0061	(FileNumber x 0x10000) + Word Address
Counter File	C	CU	00E3	(FileNumber x 0x10000) + Word Address
		CD	00E4	(FileNumber x 0x10000) + Word Address
		DN	00E5	(FileNumber x 0x10000) + Word Address
		OV	00E6	(FileNumber x 0x10000) + Word Address
		UN	00E7	(FileNumber x 0x10000) + Word Address
		UA	00E8	(FileNumber x 0x10000) + Word Address
		PRE	0062	(FileNumber x 0x10000) + Word Address
		ACC	0063	(FileNumber x 0x10000) + Word Address

Device	Device Name		Device Code (HEX)	Address Code
Control File	R	EN	00F0	(FileNumber x 0x10000) + Word Address
		EU	00F1	(FileNumber x 0x10000) + Word Address
		DN	00F2	(FileNumber x 0x10000) + Word Address
		EM	00F3	(FileNumber x 0x10000) + Word Address
		ER	00F4	(FileNumber x 0x10000) + Word Address
		UL	00F5	(FileNumber x 0x10000) + Word Address
		IN	00F6	(FileNumber x 0x10000) + Word Address
		FD	00F7	(FileNumber x 0x10000) + Word Address
		LEN	0064	(FileNumber x 0x10000) + Word Address
		POS	0065	(FileNumber x 0x10000) + Word Address

7.3 ControlLogix Series

Device	Device Name	Device Code (HEX)	Address Code
INT	INT	0010	(FileNumber x 0x10000) + Word Address
REAL	REAL	0011	(FileNumber x 0x10000) + Word Address
DINT	DINT	0012	(FileNumber x 0x10000) + Word Address
SINT	SINT	0013	(FileNumber x 0x10000) + (Address divided by 2)
BOOL	BOOL	0090	(FileNumber x 0x10000) + Word Address

7.4 MicroLogix Series

Device	Device Name		Device Code (HEX)	Address Code
Integer File	N		0000	(FileNumber x 0x10000) + Word Address
Floating Point File	F		0001	(FileNumber x 0x10000) + Word Address
String File	ST		0002	(FileNumber x 0x10000) + (Word Address x 0x40)
Long Word File	L		0005	(FileNumber x 0x10000) + Word Address
Input File	I		0080	0x10000 + (Slot Number x 0x100) + Word Address
Output File	O		0081	(SlotNumber x 0x100) + Word Address
Bit File	B		0082	(FileNumber x 0x10000) + Word Address
Status File	S		0083	0x20000 + Word Address
Timer File	T	EN	00E0	(FileNumber x 0x10000) + Word Address
		TT	00E1	(FileNumber x 0x10000) + Word Address
		DN	00E2	(FileNumber x 0x10000) + Word Address
		PRE	0060	(FileNumber x 0x10000) + Word Address
		ACC	0061	(FileNumber x 0x10000) + Word Address
Counter File	C	CU	00E3	(FileNumber x 0x10000) + Word Address
		CD	00E4	(FileNumber x 0x10000) + Word Address
		DN	00E5	(FileNumber x 0x10000) + Word Address
		OV	00E6	(FileNumber x 0x10000) + Word Address
		UN	00E7	(FileNumber x 0x10000) + Word Address
		UA	00E8	(FileNumber x 0x10000) + Word Address
		PRE	0062	(FileNumber x 0x10000) + Word Address
		ACC	0063	(FileNumber x 0x10000) + Word Address

Device	Device Name		Device Code (HEX)	Address Code
Control File	R	EN	00F0	(FileNumber x 0x10000) + Word Address
		EU	00F1	(FileNumber x 0x10000) + Word Address
		DN	00F2	(FileNumber x 0x10000) + Word Address
		EM	00F3	(FileNumber x 0x10000) + Word Address
		ER	00F4	(FileNumber x 0x10000) + Word Address
		UL	00F5	(FileNumber x 0x10000) + Word Address
		IN	00F6	(FileNumber x 0x10000) + Word Address
		FD	00F7	(FileNumber x 0x10000) + Word Address
		LEN	0064	(FileNumber x 0x10000) + Word Address
		POS	0065	(FileNumber x 0x10000) + Word Address

7.5 CompactLogix Series

Device	Device Name	Device Code (HEX)	Address Code
INT	INT	0010	(FileNumber x 0x10000) + Word Address
REAL	REAL	0011	(FileNumber x 0x10000) + Word Address
DINT	DINT	0012	(FileNumber x 0x10000) + Word Address
SINT	SINT	0013	(FileNumber x 0x10000) + (Address divided by 2)
BOOL	BOOL	0090	(FileNumber x 0x10000) + Word Address

8 Error Messages

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

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

Display Examples of Error Messages

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

MEMO
• Please refer to the manual of the External Device for more detail of received error codes.

Memo