



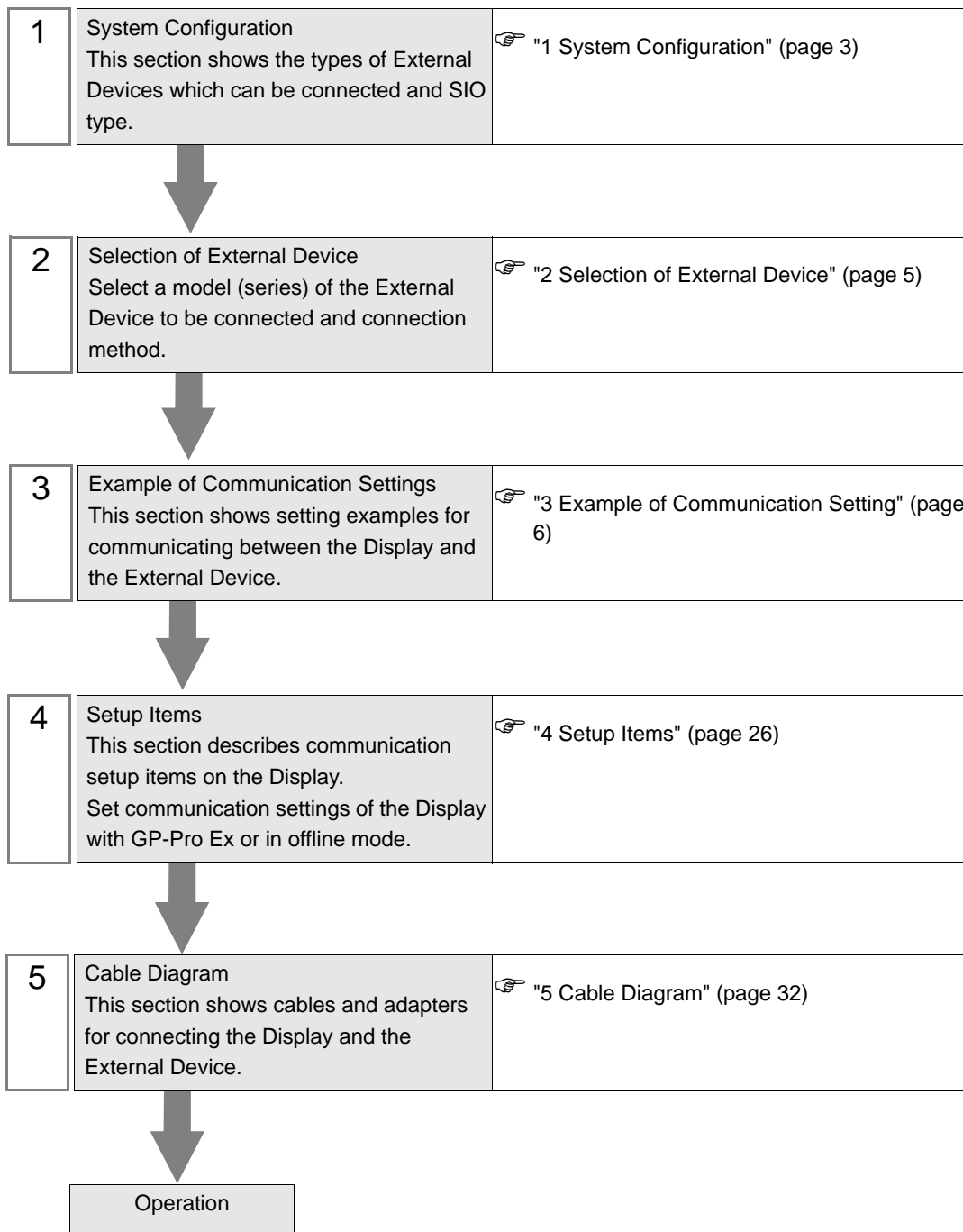
# DH-485 Driver

1	System Configuration.....	3
2	Selection of External Device .....	5
3	Example of Communication Setting.....	6
4	Setup Items.....	26
5	Cable Diagram .....	32
6	Supported Device.....	39
7	Device Code and Address Code.....	45
8	Error Messages.....	47

## Introduction

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

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



# 1 System Configuration

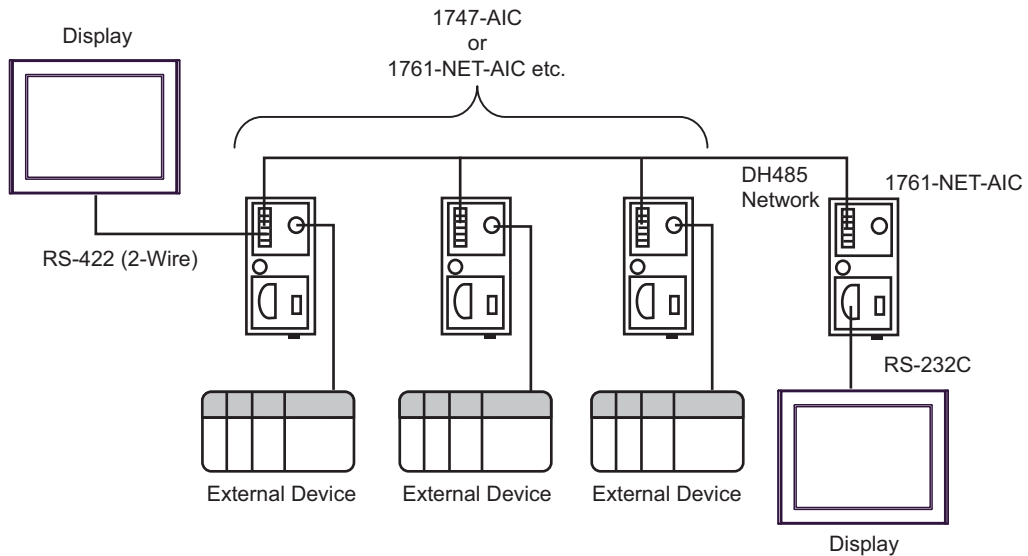
The system configuration in the case when the External Device of Rockwell Automation, Inc. and the Display are connected is shown.

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
SLC500	SLC 5/01 SLC 5/02	DH-485 port	RS232C	Setting Example 1 (page 6)	Cable Diagram 1 (page 32)
			RS422/485 (2wire)	Setting Example 3 (page 10)	Cable Diagram 2 (page 34)
	RS232C		Setting Example 2 (page 8)	Cable Diagram 1 (page 32)	
	RS422/485 (2wire)		Setting Example 4 (page 12)	Cable Diagram 2 (page 34)	
	SLC 5/03 SLC 5/04 SLC 5/05	Channel 0	RS232C	Setting Example 2 (page 8)	Cable Diagram 1 (page 32)
			RS422/485 (2wire)	Setting Example 4 (page 12)	Cable Diagram 2 (page 34)
ControlLogix	Logix5550	CPU Direct	RS232C	Setting Example 5 (page 14)	Cable Diagram 1 (page 32)
			RS422/485 (2wire)	Setting Example 6 (page 16)	Cable Diagram 2 (page 34)
MicroLogix	MicroLogix 1500 (1764-LRP)	Channel 1	RS232C	Setting Example 8 (page 20)	Cable Diagram 1 (page 32)
			RS422/485 (2wire)	Setting Example 10 (page 24)	Cable Diagram 2 (page 34)
	MicroLogix 1000 (1764-LSP, 1764-LRP)	Channel 0	RS232C	Setting Example 7 (page 18)	Cable Diagram 1 (page 32)
			RS422/485 (2wire)	Setting Example 9 (page 22)	Cable Diagram 2 (page 34)
			RS232C	Setting Example 8 (page 20)	Cable Diagram 1 (page 32)
			RS422/485 (2wire)	Setting Example 10 (page 24)	Cable Diagram 2 (page 34)
MicroLogix 1200 MicroLogix 1500 (1764-LSP, 1764-LRP)	Channel 0	RS232C	Setting Example 8 (page 20)	Cable Diagram 1 (page 32)	
		RS422/485 (2wire)	Setting Example 10 (page 24)	Cable Diagram 2 (page 34)	
CompactLogix	1769-L20 1769-L30 1769-L31 1769-L32E 1769-L35E	Channel 0	RS232C	Setting Example 5 (page 14)	Cable Diagram 1 (page 32)
			RS422/485 (2wire)	Setting Example 6 (page 16)	Cable Diagram 2 (page 34)

## ■ Connection Configuration

### IMPORTANT

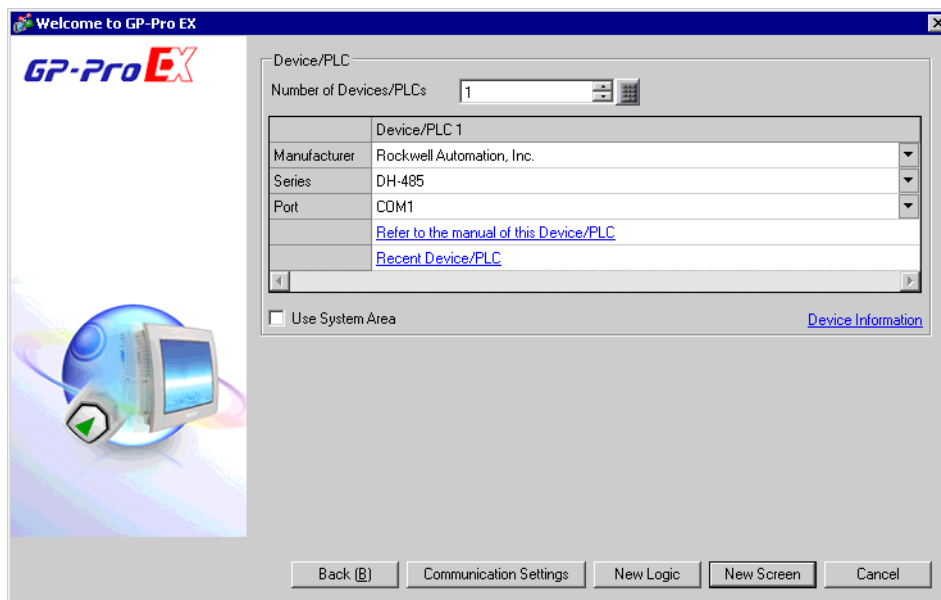
- When using more than one driver with one Display, there are the following limitations as listed below.
  - The MODBUS slave driver (communication speed: 38400 or more) of Schneider Electric SA cannot be used simultaneously.
  - SIMATIC S7 MPI direct driver of Siemens AG cannot be used simultaneously.
  - This driver cannot be used with both COM1 and COM2.



- The maximum length (distance from the first node to the last node) of the DH-485 network is 1219m (4000ft).
- You can connect total 32 units of the Display and the External Device in the DH-485 network at maximum.
- You can communicate from 1 unit of the Display to maximum 16 units of the External Device.

## 2 Selection of External Device

Select the External Device to be connected to the Display.



Setup Items	Setup Description
Number of Devices/PLCs	Enter an integer from 1 to 4 to define the number of Devices/PLCs to connect to the display.
Manufacturer	Select the manufacturer of the External Device to connect. Select "Rockwell Automation, Inc.".
Series	Select the External Device model (series) and the connection method. Select "DH-485". In System configuration, make sure the External Device you are connecting is supported by "DH-485". ☞ "1 System Configuration" (page 3)
Port	Select the Display port to connect to the External Device.
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.

When you connect to the DH485 network, use GP-Pro EX and the ladder software to set as below.

#### 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  Series  Port

Text Data Mode  [Change](#)

Communication Settings

RS232C   
  RS422/485(2wire)   
  RS422/485(4wire)

Speed

Data Length  7     8

Parity  NONE     EVEN     ODD

Stop Bit  1     2

Flow Control  NONE     ER(DTR/CTS)     XON/XOFF

Timeout  (sec)

Retry

Wait To Send  (ms)

DH485 Protocol

Source ID

Maximum ID

RI / VCC  RI     VCC


In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.

Device-Specific Settings

Allowable Number of Devices/PLCs 16 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Series=SLC500 Series, Destination ID=1

### ◆ 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.



### ■ Setting of External Device

Open the DH485 configuration dialog box from the ladder software and set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setup Description
Baud	19200
Node Address	1

## 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 [Change Device/PLC](#)

Summary  
 Manufacturer  Series  Port

Text Data Mode  [Change](#)

Communication Settings

RS232C   
  RS422/485(2wire)   
  RS422/485(4wire)

Speed

Data Length  7     8

Parity  NONE     EVEN     ODD

Stop Bit  1     2

Flow Control  NONE     ER(DTR/CTS)     XON/XOFF

Timeout  (sec)

Retry

Wait To Send  (ms)

DH485 Protocol

Source ID

Maximum ID

RI / VCC  RI     VCC

In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.


Device-Specific Settings

Allowable Number of Devices/PLCs  [Add Device](#)

No.	Device Name	Settings
1	PLC1	Series=SLC500 Series, Destination ID=1



### ◆ 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.



### ■ Setting of External Device

Open the DH485 configuration dialog box from the ladder software and set in the [Chan.1-System] tab as below. Please refer to the manual of the External Device for more details.

Setup Items	Setup Description
Driver	DH485
Baud	19200
Max.Node Address	31
Token Hold Factor	1
Node Address	1

- 
- NOTE** • There are also such cases that above settings are performed in the [Chan.0-System] tab depending on the connecting port.
-

### 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  Series  Port

Text Data Mode  [Change](#)

Communication Settings

RS232C   
 RS422/485(2wire)   
 RS422/485(4wire)

Speed

Data Length  7     8

Parity  NONE     EVEN     ODD

Stop Bit  1     2

Flow Control  NONE     ER(DTR/CTS)     XON/XOFF

Timeout  (sec)

Retry

Wait To Send  (ms)

DH485 Protocol

Source ID

Maximum ID

RI / VCC  RI     VCC


In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.

Device-Specific Settings

Allowable Number of Devices/PLCs  [Add Device](#)

No.	Device Name	Settings
<input type="button" value="1"/>	<input type="text" value="PLC1"/>	<input type="text" value="Series=SLC500 Series, Destination ID=1"/>

### ◆ 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.



### ■ Setting of External Device

Open the DH485 Configuration dialog box from the ladder software and set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setup Description
Baud	19200
Node Address	1

### 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  Series  Port

Text Data Mode  [Change](#)

Communication Settings

RS232C   
 RS422/485(2wire)   
 RS422/485(4wire)

Speed

Data Length  7     8

Parity  NONE     EVEN     ODD

Stop Bit  1     2

Flow Control  NONE     ER(DTR/CTS)     XON/XOFF

Timeout  (sec)

Retry

Wait To Send  (ms)

DH485 Protocol

Source ID

Maximum ID

RI / VCC     RI     VCC


In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.

Device-Specific Settings

Allowable Number of Devices/PLCs  [Add Device](#)

No.	Device Name	Settings
<input type="button" value="1"/>	<input type="text" value="PLC1"/>	<input type="text" value="Series=SLC500 Series, Destination ID=1"/>

### ◆ 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.



### ■ Setting of External Device

Open the DH485 configuration dialog box from the ladder software and set in the [Chan.1-System] tab as below. Please refer to the manual of the External Device for more details.

Setup Items	Setup Description
Driver	DH485
Baud	19200
Max.Node Address	31
Token Hold Factor	1
Node Address	1

- 
- NOTE** • There are also such cases that above settings are performed in the [Chan.0-System] tab depending on the connecting port.
-

## 3.5 Setting Example 5

### ■ 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  Series  Port

Text Data Mode  [Change](#)

Communication Settings

SID Type  RS232C  RS422/485(2wire)  RS422/485(4wire)

Speed

Data Length  7  8

Parity  NONE  EVEN  ODD

Stop Bit  1  2

Flow Control  NONE  ER(DTR/CTS)  XON/XOFF

Timeout  (sec)

Retry

Wait To Send  (ms)

DH485 Protocol

Source ID

Maximum ID

RI / VCC  RI  VCC


In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.

Device-Specific Settings

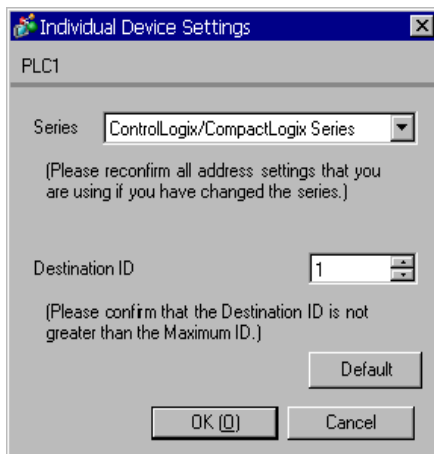
Allowable Number of Devices/PLCs  [Add Device](#)

No.	Device Name	Settings	<input type="button" value="Add Indirect Device"/>
<input type="button" value="1"/>	<input type="text" value="PLC1"/>	<input type="text" value="Series=ControlLogix/CompactLogix Series, Destination"/>	<input type="button" value="+"/>

### ◆ 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.



### ■ Setting of External Device

Open the controller properties dialog box from the ladder software and set in the [Serial Port] tab, then in the [System Protocol] tab as below. Please refer to the manual of the External Device for more details.

#### ◆ [Serial Port] tab

Setup Items	Setup Description
Mode	System
Control	No Handshake
Baud Rate	19200

#### ◆ [System Protocol] tab

Setup Items	Setup Description
Protocol	DH485
Max Station Address	31
Token Hold Factor	1
Station Address	1

## 3.6 Setting Example 6

### ■ 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  Series  Port

Text Data Mode  [Change](#)

Communication Settings

SID Type  RS232C  RS422/485(2wire)  RS422/485(4wire)

Speed

Data Length  7  8

Parity  NONE  EVEN  ODD

Stop Bit  1  2

Flow Control  NONE  ER(DTR/CTS)  XON/XOFF

Timeout  (sec)

Retry

Wait To Send  (ms)

DH485 Protocol

Source ID

Maximum ID

RI / VCC  RI  VCC

In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.


Device-Specific Settings

Allowable Number of Devices/PLCs 16 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Series=ControlLogix/CompactLogix Series, Destination



### ◆ 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.



### ■ Setting of External Device

Open the Controller Properties dialog box from the ladder software and set in the [Serial Port] tab, then in the [System Protocol] tab as below. Please refer to the manual of the External Device for more details.

#### ◆ [Serial Port] tab

Setup Items	Setup Description
Mode	System
Control	No Handshake
Baud Rate	19200

#### ◆ [System Protocol] tab

Setup Items	Setup Description
Protocol	DH485
Max Station Address	31
Token Hold Factor	1
Station Address	1

## 3.7 Setting Example 7

### ■ 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  Series  Port

Text Data Mode  [Change](#)

Communication Settings

SID Type  RS232C  RS422/485(2wire)  RS422/485(4wire)  
 Speed   
 Data Length  7  8  
 Parity  NONE  EVEN  ODD  
 Stop Bit  1  2  
 Flow Control  NONE  ER(DTR/CTS)  XON/XOFF  
 Timeout  (sec)  
 Retry   
 Wait To Send  (ms)

DH485 Protocol

Source ID   
 Maximum ID


RI / VCC  RI  VCC  
In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.

Device-Specific Settings

Allowable Number of Devices/PLCs  [Add Device](#)

No.	Device Name	Settings
1	PLC1	Series=MicroLogix Series, Destination ID=1

### ◆ 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.



### ■ Setting of External Device

Open the DF1/485 configuration dialog box from the ladder software and set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setup Description
Primary Protocol	DH485
Baud	19200
Node Address	1

## 3.8 Setting Example 8

### ■ 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 [Change Device/PLC](#)

Summary

Manufacturer  Series  Port

Text Data Mode  [Change](#)

Communication Settings

SID Type  RS232C  RS422/485(2wire)  RS422/485(4wire)  
 Speed   
 Data Length  7  8  
 Parity  NONE  EVEN  ODD  
 Stop Bit  1  2  
 Flow Control  NONE  ER(DTR/CTS)  XON/XOFF  
 Timeout  (sec)  
 Retry   
 Wait To Send  (ms)

DH485 Protocol

Source ID   
 Maximum ID

RI / VCC  RI  VCC

In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.


Device-Specific Settings

Allowable Number of Devices/PLCs  [Add Device](#)

No.	Device Name	Settings
1	PLC1	Series=MicroLogix Series, Destination ID=1

[Add Indirect 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.



### ■ Setting of External Device

Open the channel configuration dialog box from the ladder software and set in the [Chan.0] tab as below. Please refer to the manual of the External Device for more details.

Setup Items	Setup Description
Driver	DH485
Baud	19200
Max.Node Address	31
Token Hold Factor	1
Node Address	1

- 
- NOTE** • There are also such cases that above settings are performed in the [Chan.1] tab depending on the connecting port.
-

## 3.9 Setting Example 9

### ■ 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  Series  Port

Text Data Mode  [Change](#)

Communication Settings

SID Type  RS232C  RS422/485(2wire)  RS422/485(4wire)

Speed

Data Length  7  8

Parity  NONE  EVEN  ODD

Stop Bit  1  2

Flow Control  NONE  ER(DTR/CTS)  XON/XOFF

Timeout  (sec)

Retry

Wait To Send  (ms)

DH485 Protocol

Source ID

Maximum ID

RI / VCC  RI  VCC


In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.

Device-Specific Settings

Allowable Number of Devices/PLCs 16 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Series=MicroLogix Series, Destination ID=1

### ◆ 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.



### ■ Setting of External Device

Open the DF1/485 configuration dialog box from the ladder software and set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setup Description
Primary Protocol	DH485
Baud	19200
Node Address	1

### 3.10 Setting Example 10

#### ■ 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 [Change Device/PLC](#)

Summary  
 Manufacturer  Series  Port

Text Data Mode  [Change](#)

Communication Settings

SID Type  RS232C  RS422/485(2wire)  RS422/485(4wire)  
 Speed   
 Data Length  7  8  
 Parity  NONE  EVEN  ODD  
 Stop Bit  1  2  
 Flow Control  NONE  ER(DTR/CTS)  XON/XOFF  
 Timeout  (sec)  
 Retry   
 Wait To Send  (ms)

DH485 Protocol

Source ID   
 Maximum ID

RI / VCC  RI  VCC  
In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.

Device-Specific Settings


Allowable Number of Devices/PLCs 16 [Add Device](#)  
 No. Device Name Settings  

No.	Device Name	Settings
1	PLC1	Series=MicroLogix Series, Destination ID=1

Add Indirect 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.



### ■ Setting of External Device

Open the channel configuration dialog box from the ladder software and set in the [Chan.0] tab as below. Please refer to the manual of the External Device for more details.

Setup Items	Setup Description
Driver	DH485
Baud	19200
Max. Node Address	31
Token Hold Factor	1
Node Address	1

- 
- NOTE** • There are also such cases that above settings are performed in the [Chan.1] tab depending on the connecting port.
-

## 4 Setup Items

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

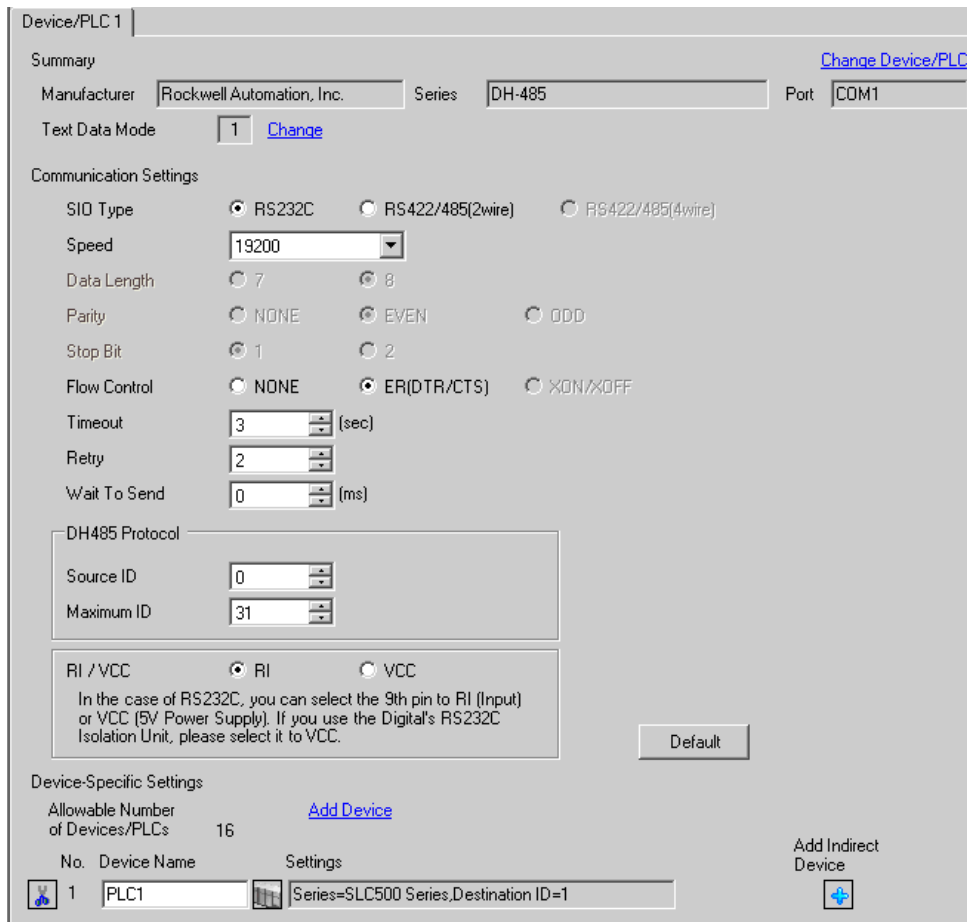
The setting of each parameter must be identical to that of External Device.

 "3 Example of Communication Setting" (page 6)

### 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  Series  Port

Text Data Mode  [Change](#)

Communication Settings

SIO Type  RS232C  RS422/485(2wire)  RS422/485(4wire)

Speed

Data Length  7  8

Parity  NONE  EVEN  ODD

Stop Bit  1  2

Flow Control  NONE  ER(DTR/CTS)  XON/XOFF

Timeout  (sec)

Retry

Wait To Send  (ms)

DH485 Protocol

Source ID


Maximum ID

RI / VCC  RI  VCC

In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.

Device-Specific Settings

Allowable Number of Devices/PLCs  [Add Device](#)

No.	Device Name	Settings
 1	<input type="text" value="PLC1"/>	<input type="text" value="Series=SLC500 Series, Destination ID=1"/>

Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device.
Speed	Select speed 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	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.


Setup Items	Setup Description
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.
Source ID	Use an integer from 0 to 31 to enter the unit ID of the Display.
Maximum ID	Use an integer from 0 to 31 to enter the maximum number of unit ID of the Display.
RI/VCC	Switches RI/VCC of the 9th pin when you select RS232C for SIO type.

**NOTE**

- Refer to the GP-Pro EX Reference Manual for Indirect Device.

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



Setup Items	Setup Description
Series	Select any of "SLC500 Series", "ControlLogix Series" and "MicroLogix Series" for the driver series name.
Destination ID	Use an integer from 0 to 31 to enter the unit ID of the External Device.

## 4.2 Setup Items in Offline Mode

- NOTE** • Refer to the Maintenance/Troubleshooting guide for information on how to enter offline mode or about the 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 the offline mode. Touch the External Device you want to set from the displayed list.

(Page 1/2)

Comm.	Device	Option		
DH-485			[COM1]	Page 1/2
SIO Type		RS232C		
Speed		19200		
Data Length		8		
Parity		EVEN		
Stop Bit		1		
Flow Control		ER(DTR/CTS)		
Timeout(s)		3	▼ ▲	
Retry		2	▼ ▲	
Wait to Send(ms)		0	▼ ▲	
				➔
Exit		Back		2005/09/02 13:09:56

Setup Items	Setup Description
SIO Type	<p>Select the SIO type to communicate with the External Device.</p> <p><b>IMPORTANT</b></p> <p>To make the communication settings correctly, confirm the serial interface specifications of Display unit for [SIO Type].</p> <p>We cannot guarantee the operation if a communication type that the serial interface does not support is specified.</p> <p>For details concerning the serial interface specifications, refer to the manual for Display unit.</p>
Speed	Select speed 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 (s)	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.

Setup Items	Setup Description
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.

(Page 2/2)

Comm.	Device	Option		
DH-485			[COM1]	Page 2/2
Source ID <input type="text" value="0"/> <input type="button" value="▼"/> <input type="button" value="▲"/> Maximum ID <input type="text" value="31"/> <input type="button" value="▼"/> <input type="button" value="▲"/> (Please confirm that the Source ID is not greater than the Maximum ID.)				
				<input type="button" value="←"/>
Exit		Back		2005/09/02 13:09:58

Setup Items	Setup Description
Source ID	Use an integer from 0 to 31 to enter the unit ID of the Display.
Maximum ID	Use an integer from 0 to 31 to enter the maximum number of unit ID of the Display.

## ■ Device Setting

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

Comm.	Device	Option		
DH-485			[COM1]	Page 1/1
Device/PLC Name <input type="text" value="PLC1"/>				
Series <input type="text" value="SLC-500 Series"/>				
Destination ID <input type="text" value="1"/>				
(Please confirm that the Destination ID is not greater than the Maximum ID.)				
Exit		Back		2005/09/02 13:10:00

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	Displays the selected series name.
Destination ID	Use an integer from 0 to 31 to enter the unit ID of the External Device.

## ■ 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].

Comm.	Device	Option		
DH-485			[COM1]	Page 1/1
RI / VCC <input checked="" type="radio"/> RI <input type="radio"/> VCC In the case of RS232C, you can select the 9th pin to RI(Input) or VCC(5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.				
Exit		Back		2005/09/02 13:10:02

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

### NOTE

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

## 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.

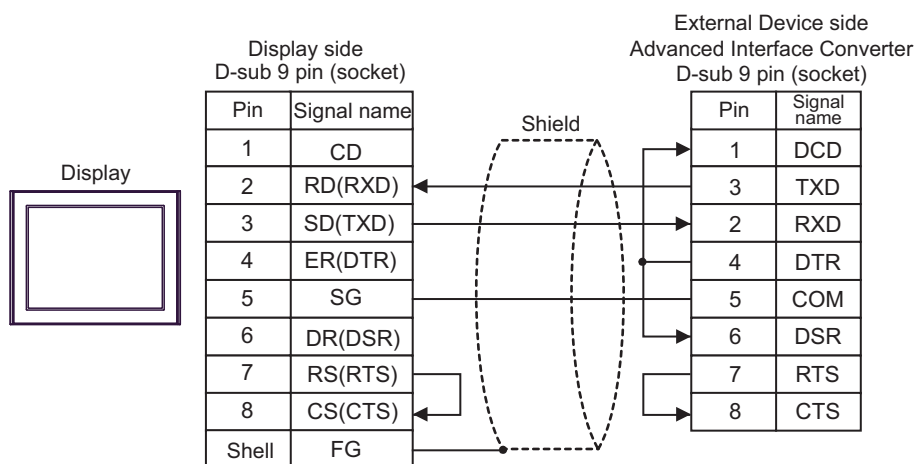
- The FG pin of the External Device body must be D-class grounded. Please refer to the manual of the External Device for more details.
- SG and FG are connected inside the Display. When connecting SG to the External Device, design the system not to form short-circuit loop.
- Connect the isolation unit, when communication is not stabilized under the influence of a noise etc.

Cable Diagram 1

Display (Connection Port)	Cable		Remarks
GP3000 (COM1) GP4000 <sup>*1</sup> (COM1) SP-5B10 (COM1/2) ST (COM1) LT3000 (COM1)	1A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1)	1B	User-created cable	The cable length must be 15m or less.
LT-4*0ITM (COM1) LT-Rear Module (COM1)	1C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBJR21	The cable length must be 5m or less.

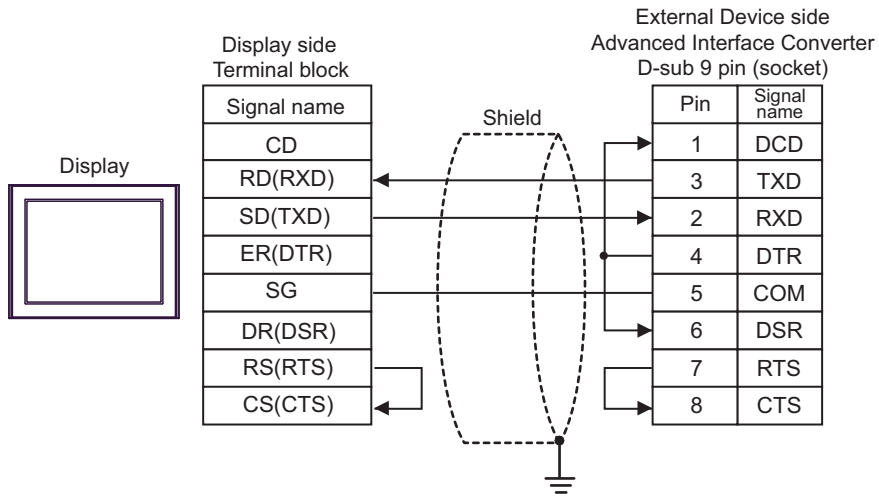
\*1 All GP4000 models except GP-4100 Series and GP-4203T

1A)

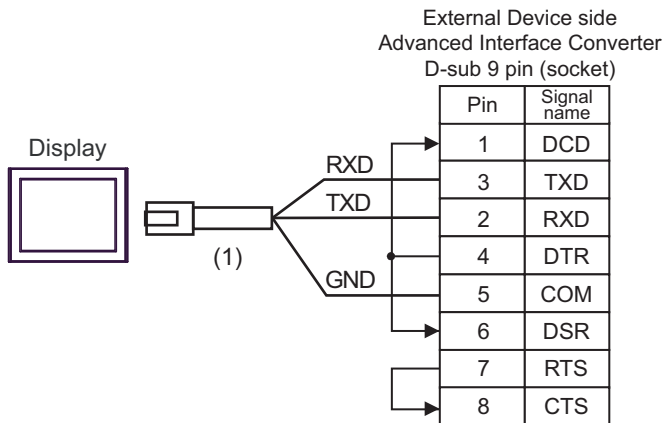




1B)



1C)



Number	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBJR21	

Cable Diagram 2

Display (Connection Port)	Cable		Remarks
GP3000* <sup>1</sup> (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) ST* <sup>2</sup> (COM2) LT3000 (COM1)	2A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1000m or less.
	2B	User-created cable	
GP3000* <sup>3</sup> (COM2)	2C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1000m or less.
	2D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
GP-4106 (COM1)	2E	User-created cable	The cable length must be 1000m or less.
GP-4107 (COM1) GP-4*03T* <sup>4</sup> (COM2) GP-4203T (COM1)	2F	User-created cable	The cable length must be 1000m or less.
GP4000* <sup>5</sup> (COM2) GP-4201T (COM1) SP-5B10 (COM1/2)	2G	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1* <sup>6</sup> + User-created cable	The cable length must be 1000m or less.
	2B	User-created cable	
LT-4*01TM (COM1) LT-Rear Module (COM1)	2H	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBJR81	The cable length must be 200m or less.

\*1 All GP3000 models except AGP-3302B

\*2 All ST models except AST-3211A and AST-3302B

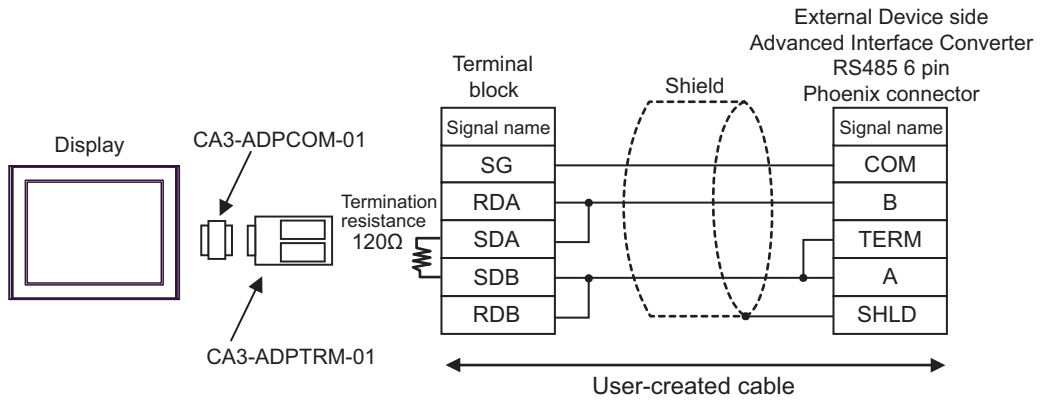
\*3 All GP3000 models except GP-3200 series and AGP-3302B

\*4 Except GP-4203T

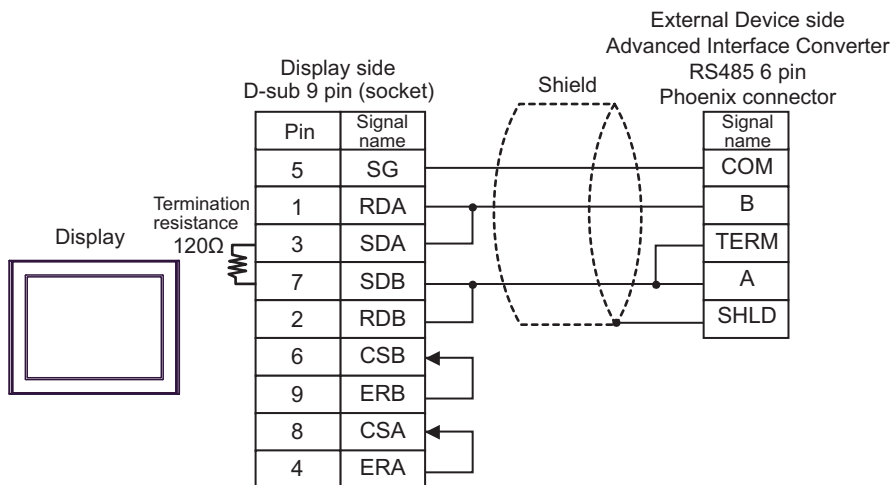
\*5 All GP4000 models except GP-4100 series, GP-4\*01TM, GP-4201T and GP-4\*03T

\*6 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 2A.

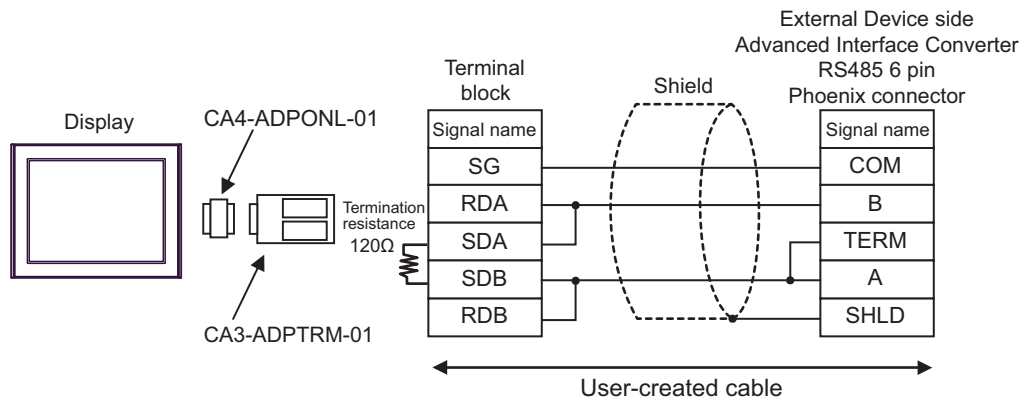
2A)



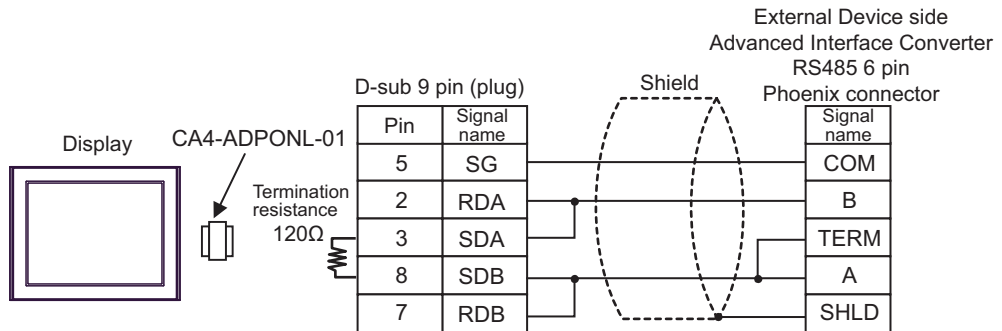
2B)



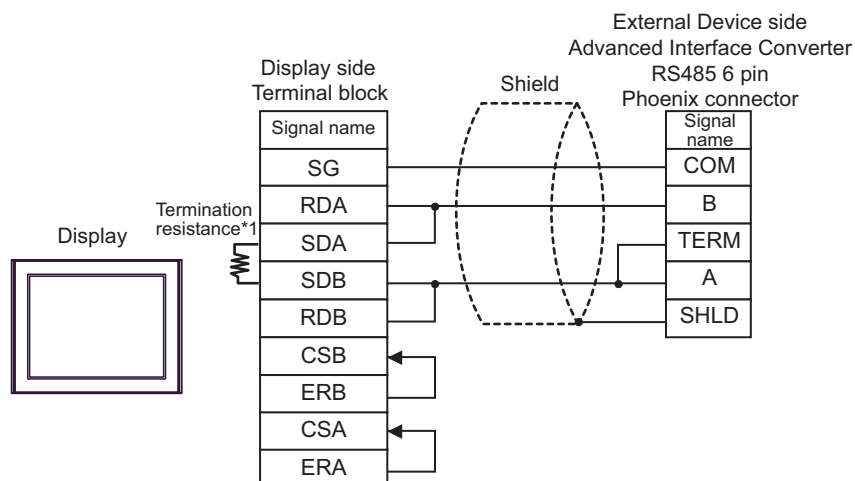
2C)



2D)



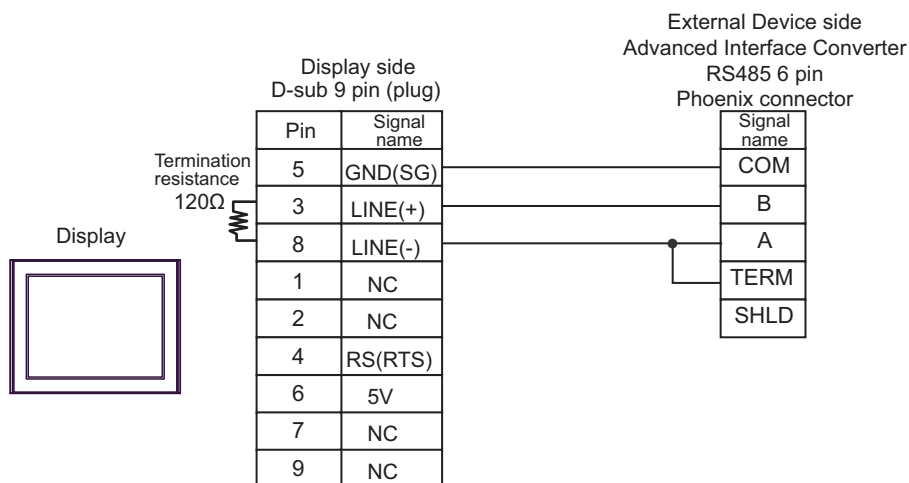
2E)



- \*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	ON
2	ON
3	OFF
4	OFF

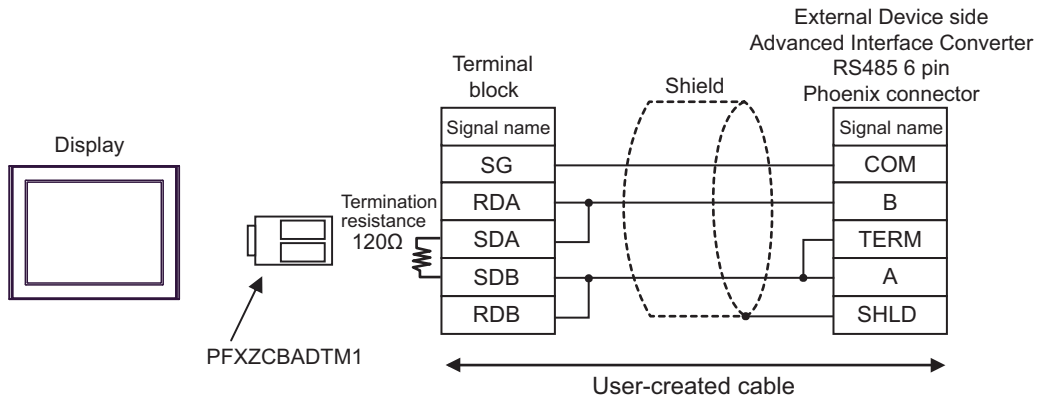
2F)



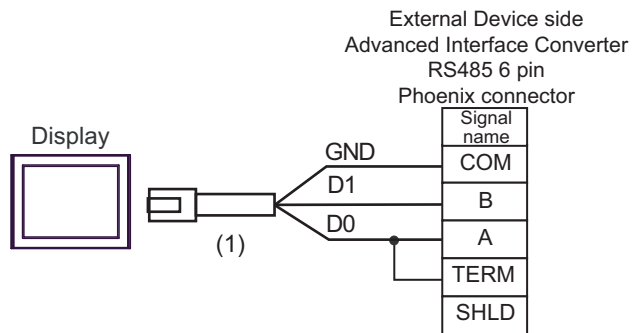
**IMPORTANT** • The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

**NOTE** • In COM on the GP-4107, the SG and FG terminals are isolated.

2G)



2H)



Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

## 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

L/H This address can be specified as system data area.

Device		Bit Address *1		Word Address		32 bits	Remarks		
Input File		I:00.000/00 - I:63.255/15		I:00.000 - I:63.255		<span style="border: 1px solid black; padding: 2px;">L/H</span>	*2 *3		
Output File		O:00.000/00 - O:63.255/15		O:00.000 - O:63.255			*2 *3		
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.	---		<span style="border: 1px solid black; padding: 2px;">L/H</span>		
	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.	---				<span style="border: 1px solid black; padding: 2px;">L/H</span>
	Down Enable		CD		---				
	Done		DN		---				
	Overflow		OV		---				
	Underflow		UN		---				
	Updated Acc.		UA		---				
	Preset		---		PRE				
	Accumulated		---		ACC				

Device		Bit Address *1		Word Address		32 bits	Remarks
Control File	Enable	R6:0/ - R6:255/ R9:0/ - R255:255/	EN	R6:0 - R6:255. R9:0 - R255:255.	---	<b>L / H</b>	
	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				*4
String File		-----	ST9:0 - ST255:255				*5
ASCII File		A9:0/0 - A255:255/15	A9:0 - A255:255				

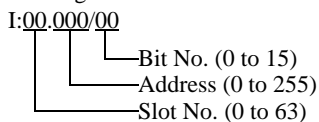
\*1 When you write the bit address, the Display reads the word address corresponding to that of the External Device first. Change only the target bit address among the word data once read, and write the word data to the External Device.

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.

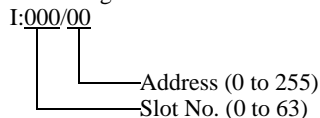
\*2 Only the SLC 5/03 (Series C or later), SLC 5/04 and SLC 5/05 can be used.

\*3 Input/Output File Address Designation is as shown below.

• Bit Designation



• Word Designation



\*4 32-bit access only

\*5 String File device is not compatible with the device monitor.


**NOTE**

- 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"



## 6.2 MicroLogix Series

 This address can be specified as system data area.

Device		Bit Address *1		Word Address		32 bits	Remarks
Input File		I:00.000/00 - I:08.255/15		I:00.000 - I:08.255			*2
Output File		O:00.000/00 - O:08.255/15		O:00.000 - O:08.255			*2
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.	---	<b>L/H</b>	
	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		---		
	Updated 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		

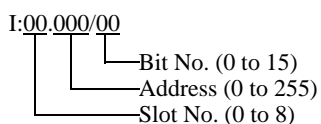
Device	Bit Address *1	Word Address	32 bits	Remarks
Integer File	N7:0/0 - N7:255/15 N9:0/0 - N255:255/15	N7:0 - N7:255 N9:0 - N255:255	[L/H]	
Floating Point File	-----	F8:0 - F8:255 F9:0 - F255:255		*3
String File	-----	ST9:0 - ST255:255		*4
Long Word File	L9:0/0 - A255:255/31	L9:0 - L255:255		

\*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.

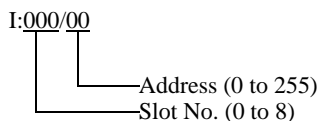
Note that the correct data may not be written if you change the word address value in the ladder program while the Display reads the data of the External Device and writes it to the External Device.

\*2 Input/Output File Address Designation is as shown below.

• Bit Designation



• Word Designation



\*3 32-bit access only


\*4 String File device is not compatible with the device monitor.

**NOTE**

- 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"

## 6.3 ContorlLogix/CompactLogix Series

 This address can be specified as system data area.


Device	Bit Address *1	Word Address	32 bits	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.

### NOTE

- 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"

## 6.4 Setting Procedure of External Device

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

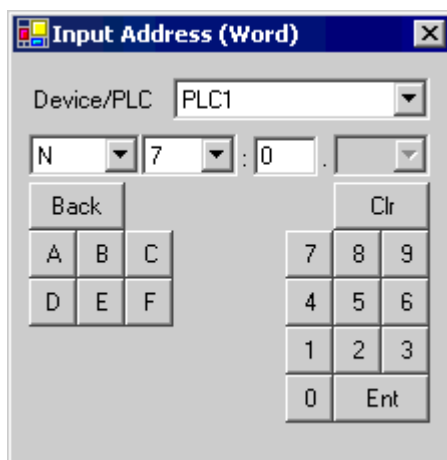
- File Number: Assign the Tag Name created by RSLogix5000 to the optional File Number. You can not assign different Tag Names to the same File Number.

<Example2>

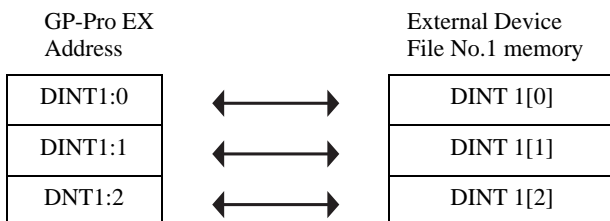
File Number	Tag Name
2	DATA2
1	DINT1
7	N7

## 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>



## 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.

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 0x10)
ASCII File	A	0003	(FileNumber x 0x10000) + Word Address
Long Word File	L	0005	(FileNumber x 0x10000) + Word Address
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)
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
BOOL	BOOL	0090	(FileNumber x 0x10000) + Word Address
Timer File	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	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	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

## 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	<p>Displays IP address or device address of the External Device where error occurs, or error codes received from the External Device.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• IP address is displayed such as "IP address(Decimal): MAC address( Hex)".</li> <li>• Device address is displayed such as "Address: Device address".</li> <li>• Received error codes are displayed such as "Decimal[Hex]".</li> </ul>

Display Examples of Error Messages

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

- NOTE**
- 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 Specific to the External Device

Error No.	Error Message	Description
RHxx128	A Station with the same ID as the Source ID was detected(Station ID: xx)	Duplicate ID was detected.
RHxx129	A Station with an ID greater than the Maximum ID was detected(Maximum ID:xx)	Illegal ID was detected.
RHxx130	(Node Name):Error has been responded for device read command (STS Response:[(Hex)], EXT Response:[(Hex)])	An error response has been received from the PLC for a read command.
RHxx131	(Node Name):Error has been responded for device write command (STS Response:[(Hex)], EXT Response:[(Hex)])	An error response has been received from the PLC for a write command.
RHxx132	DH-485 driver can not be used with COM1 and COM2 at the same time	DH-485 driver can not be used with COM1 and COM2 at the same time.
RHxx133	The driver(in COM%d) can not be used together with DH-485	The driver(in COM%d) can not be used together with DH-485.

