ODVA

DeviceNet Slave Driver

PREFACE

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
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 7) |

| 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 8) |

| 4 | Setup Items
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 10) |

Operation

1 System Configuration

The system configuration in the case when the Display and the DeviceNet master are connected is shown.

Maker	Series	CPU	Link I/F	Setting Example	SIO Type
Rockwell Automation, Inc.	SLC500	SLC 5/03 SLC 5/04 SLC 5/05	1747-SDN		
	PLC-5	PLC-5/20	1771-SDN		
	ControlLogix	All CPUs that support the link I/F on the right	1756-DNB		
	MicroLogix	MicroLogix 1500	1769-SDN		
	CompactLogix	All CPUs that support the link I/F on the right	1769-SDN		
OMRON Corporation	SYSMAC α	C200HE-CPU11 C200HE-CPU32 C200HE-CPU42 C200HG-CPU33 C200HG-CPU43 C200HG-CPU53 C200HG-CPU63 C200HX-CPU32 C200HX-CPU33 C200HX-CPU34 C200HX-CPU44 C200HX-CPU53 C200HX-CPU54 C200HX-CPU64 C200HE-CPU11-Z C200HE-CPU32-Z C200HE-CPU42-Z C200HG-CPU33-Z C200HG-CPU43-Z C200HG-CPU53-Z C200HG-CPU63-Z C200HX-CPU32-Z C200HX-CPU33-Z C200HX-CPU34-Z C200HX-CPU44-Z C200HX-CPU53-Z C200HX-CPU54-Z C200HX-CPU64-Z C200HX-CPU65-Z C200HX-CPU85-Z	C200HW-DRM21-V1	"3.1 Setting Example 1" (page 8)	Device Net

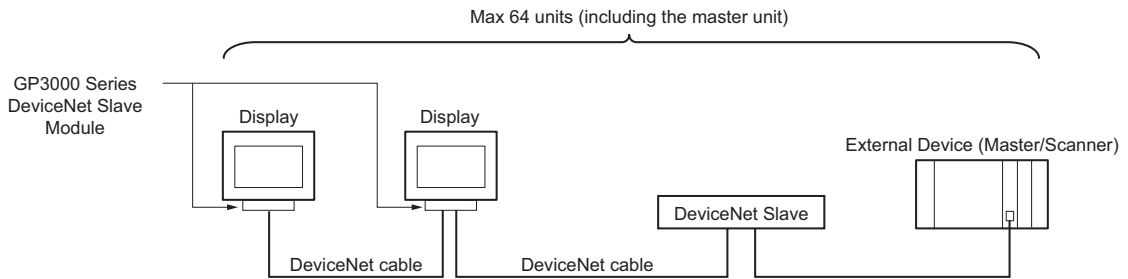| Maker	Series	CPU	Link I/F	Setting Example	SIO Type
OMRON Corporation	SYSMAC CS1	CS1G-CPU42 CS1G-CPU43 CS1G-CPU44 CS1G-CPU45 CS1H-CPU63 CS1H-CPU64 CS1H-CPU65 CS1H-CPU66 CS1H-CPU67	CS200HW-DRM21-V1	"3.1 Setting Example 1" (page 8)	Device Net
		CS1G-CPU42 CS1G-CPU43 CS1G-CPU44 CS1G-CPU45 CS1H-CPU63 CS1H-CPU64 CS1H-CPU65 CS1H-CPU66 CS1H-CPU67 CS1G-CPU42H CS1G-CPU43H CS1G-CPU44H CS1G-CPU45H CS1H-CPU63H CS1H-CPU64H CS1H-CPU65H CS1H-CPU66H CS1H-CPU67H	CS1W-DRM21		
	SYSMAC CJ	CJ1M-CPU11 CJ1M-CPU12 CJ1M-CPU13 CJ1M-CPU21 CJ1M-CPU22 CJ1M-CPU23 CJ1G-CPU44 CJ1G-CPU45 CJ1G-CPU42H CJ1G-CPU43H CJ1G-CPU44H CJ1G-CPU45H CJ1H-CPU65H CJ1H-CPU66H	CJ1W-DRM21		
Hitachi, Ltd.	S10mini	LQP800 LQP000 LQP010 LQP011 LQP120	LQE070		
			LQE575		
	S10V	LQP510	LQE575		

Maker	Series	CPU	Link I/F	Setting Example	SIO Type
YOKOGAWA Electric Corporation	FA-M3	F3SP20-0N F3SP21-0N F3SP25-2N F3SP28-3N F3SP30-0N F3SP35-5N F3SP38-6N F3SP53-4H F3SP58-6H F3SP36-3N F3SP28-3S F3SP38-6S F3SP53-4S F3SP58-6S F3SP59-7S	F3LD01-0N	"3.1 Setting Example 1" (page 8)	Device Net

IMPORTANT • To use a DeviceNet slave driver, you need a DeviceNet slave unit (CA6-DNSALL/EX-01) from Digital Electronics Corp. For more information about the cable diagram between the Display (DeviceNet slave unit) and the DeviceNet master and about the DeviceNet slave unit, please refer to "DeviceNet Slave Unit Hardware Manual".

■ Connection Configuration

◆ Connection Image

Max 64 units (including the master unit)

GP3000 Series
DeviceNet Slave
Module

Display

Display

External Device (Master/Scanner)

DeviceNet Slave

DeviceNet cable

DeviceNet cable

■ Data Transfer Through DeviceNet

Slave I/O communication allows the Display to communicate with the DeviceNet master.

◆ Slave I/O communication

Slave I/O communication is the feature that converts I/O data automatically between the External Device installed with the master unit and the Display.

Slave I/O uses a special link method that does not allow a user to access an External Device directly.

The master's output area is allocated to the Display's output area, and the master's input area is allocated to the Display's input area.
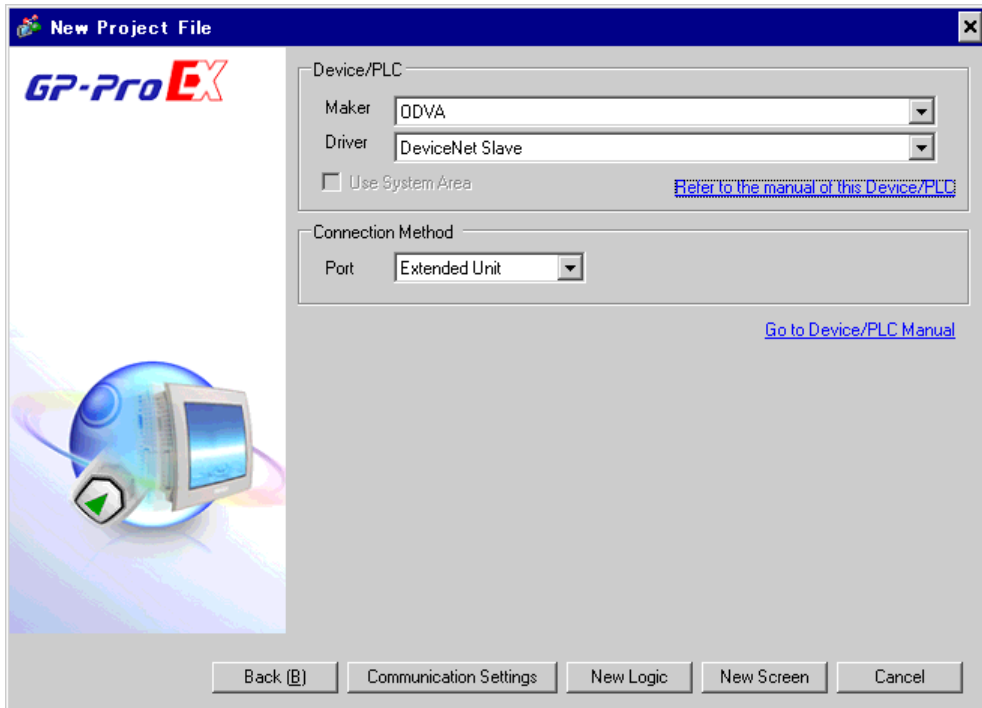
Master (External Device)   Slave (Display)

Input Area

Input Area
I 000

Output Area

Output Area
O 000
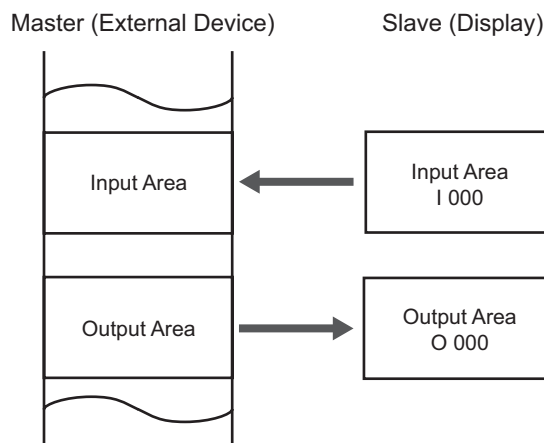
NOTE

• The Display is used as a slave unit.

• Explicit message communication is not supported.

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 "ODVA".
Driver	Select a model (series) of the External Device to be connected and connection method. Select "DeviceNet Slave". Check the External Device which can be connected in "DeviceNet Slave" in system configuration. ☞ "1 System Configuration" (page 3)
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 Digital Electronics Corp., 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.

◆ Device Setting

There is no setting on the External Device.

◆ Notes

- The input and output area sizes must be identical to the settings on the DeviceNet master.

■ Settings of External Device

With the External Device to be used as a DeviceNet master, register the Display (DeviceNet slave unit) as a DeviceNet slave, and then conform the DiveceNet master's input and output area sizes to the settings on the Display.

Please refer to the maker's manual of the External Device for more details on how to register as a slave.

| NOTE | • You can use an EDS file when registering the Display as a slave. The EDS file for the Display is stored in the [\Fieldbus\DeviceNet] folder on the CD-ROM of GP-Pro EX. Please refer to the manual of the External Device (master) for more details on how to use EDS files. |

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 the External Device.

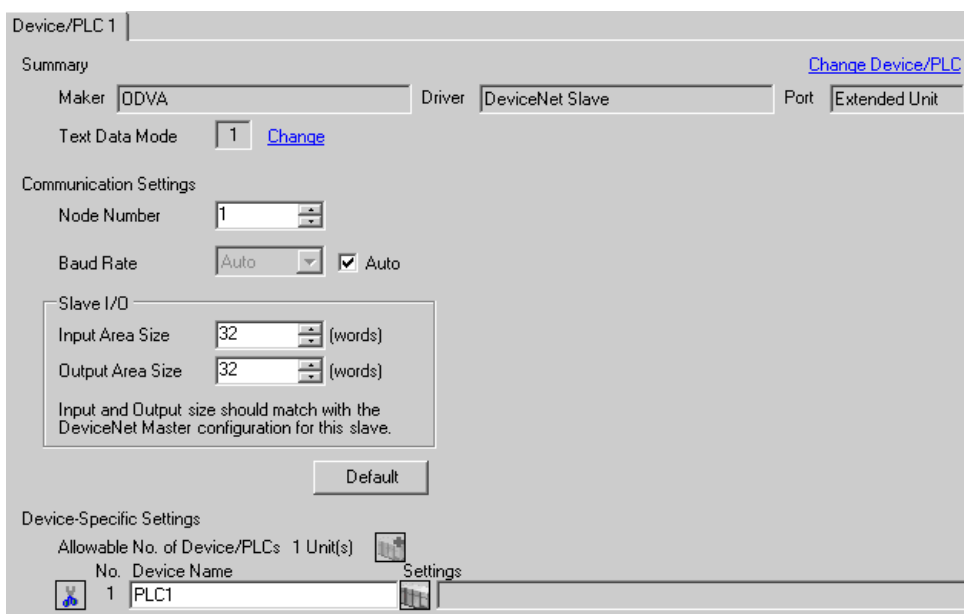☞ "3 Example of Communication Setting" (page 8)

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

Setup Items	Setup Description
Node Number	Use an integer from "0 to 63" to enter the node No.
Baud Rate	Select the communication speed between the External Device and the Display. If you check [Auto], the port will be automatically set.
Slave I/O Input Area Size	Set the input area size from "0" to "128" in word unit.
Slave I/O Output Area Size	Set the output area size from "0" to "128" in word unit.

4.2　　　Setup Items 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.

Comm.				

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```
Node Number              1  ▼ ▲
Baud Rate          ○ Fixed  ● Auto
                125Kbps  ▼
Input Size              32  ▼ ▲
Output Size             32  ▼ ▲
```

	Exit		Back	2006/11/30 19:21:05

Setup Items	Setup Description
Node Number	Use an integer from "0 to 63" to enter the node No.
Baud Rate	Select the communication speed between the External Device and the Display. Select either "Fixed" or "Auto". If you select "Fixed", select the communication speed. If you select "Auto", the communication speed will be automatically set, regardless of the set value.
Input Area Size	Set the input area size from "0" to "128" in word unit.
Output Area Size	Set the output area size from "0" to "128" in word unit.

5   Supported Device

Range of supported device address is shown in the table below. 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.

■ Slave I/O

Device	Bit Address	Word Address	32 bits	Remarks
Input	I000.00 - I127.15	I000 - I127	⌐L / H¬	*1 *3
Output	O000.00 - O127.15	O000 - O127		*2 *3

*1   Indicates Display's input area in the DeviceNet master (External Device). Write data to this area of the DeviceNet master (External Device) with the application on the Display.

*2   Indicates Display's output area in the DeviceNet master (External Device). Read data from this area of the DeviceNet master (External Device) with the application on the Display. Data cannot be written to but can be read from this area with the application on the Display.

*3   The above indicates the maximum range supported by DeviceNet slave unit. Actual maximum values depend on the input and output area sizes assigned to the Display by the DeviceNet master (External Device).

NOTE   • System area is not supported.

6   Device Code and Address Code

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

Device	Word Address	Device Code (HEX)	Address Code
Input	I	0084	Word Address
Output	O	0085	Word Address

7 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. **NOTE** • IP address is displayed such as "IP address (Decimal): MAC address (Hex)". • Device address is displayed such as "Address: Device address". • Received error codes are displayed such as "Decimal [Hex]".

Display Examples of Error Messages

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

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.

■ Error Messages Specific to the External Device

Error No.	Message	Solution
RHxx128	Error During Initialization of Interface Module	This is a hardware problem. Check the module.
RHxx129	Illegal Initialization Parameter	Reduce the size of the input or output area.
RHxx130	Incorrect Interface Module Detected	Connect the correct module.
RHxx131	Network Communication Error, LED Status: [0x%x]	Check the cable, baud rate settings, input and output sizes, master (scanner) settings. Check the LED status for more details.[*1]

*1 For more information about the LED status, please refer to "DeviceNet Slave Unit Hardware Manual".