



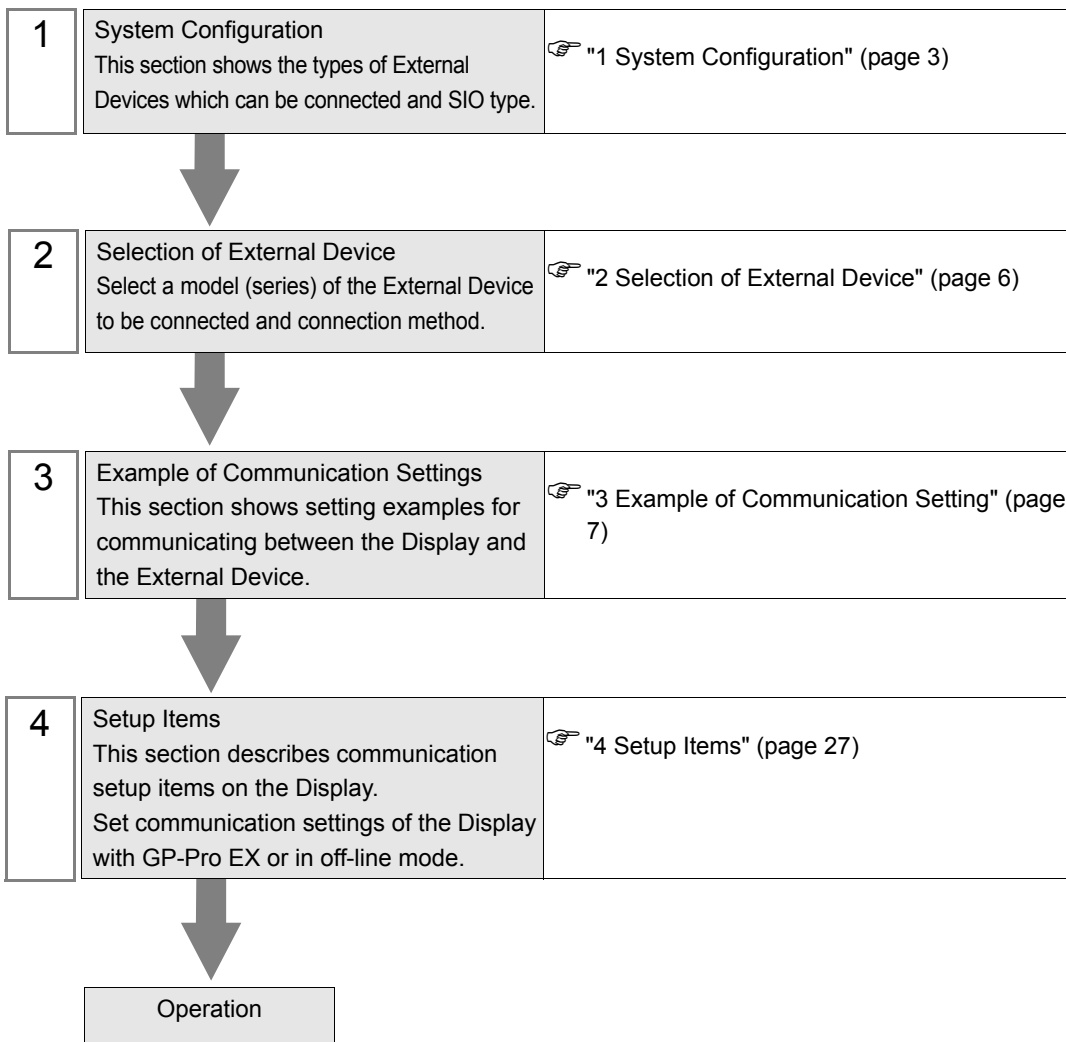
H Series Ethernet Driver

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PREFACE

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

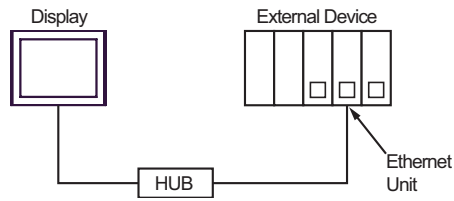
The system configuration in the case when the External Device of Hitachi IES Co., Ltd. and the Display are connected is shown.

| Series Name | CPU | Link I/F | SIO Type | Setting Example |
|----------------|---|----------------------|----------------|------------------------------|
| H | H-4010(CPU3-40H) H-2002(CPU2-20H) H-1002(CPU2-10H) H-702(CPU2-07H) H-302(CPU2-03H) | LAN_ETH2 LAN_ETH | Ethernet (TCP) | Setting Example 1 (page 7) |
| | | | Ethernet (UDP) | Setting Example 2 (page 9) |
| EH-150 | EH-150(EH-CPU548) EH-150(EH-CPU516) EH-150(EH-CPU448A) EH-150(EH-CPU448) EH-150(EH-CPU316A) EH-150(EH-CPU308A) | EH-ETH*1 | Ethernet (TCP) | Setting Example 3 (page 11) |
| | | | Ethernet (UDP) | Setting Example 4 (page 13) |
| Web Controller | EH-WD10DR EH-WA23DR | Ethernet port on CPU | Ethernet (TCP) | Setting Example 5 (page 15) |
| | | | Ethernet (UDP) | Setting Example 6 (page 17) |
| EHV | EHV-CPU128 EHV-CPU64 EHV-CPU32 EHV-CPU16 | Ethernet port on CPU | Ethernet (TCP) | Setting Example 7 (page 19) |
| | | | Ethernet (UDP) | Setting Example 8 (page 21) |
| | | EH-ETH*1 | Ethernet (TCP) | Setting Example 9 (page 23) |
| | | | Ethernet (UDP) | Setting Example 10 (page 25) |

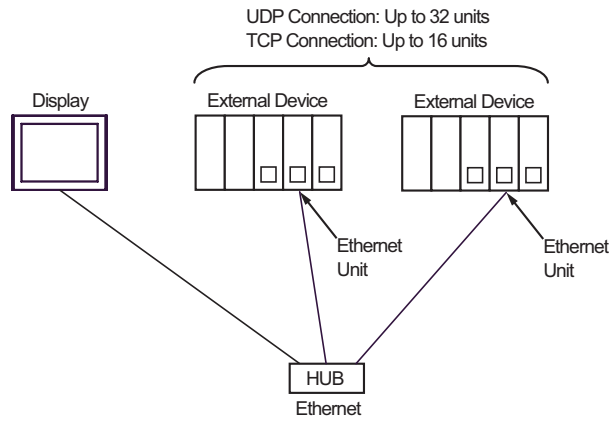
*1 When connecting with Display, EH-ETH with SOFTWARE VER.06 or later is required. (Check the label of EH-ETH main body for the version.)

■ Connection Configuration

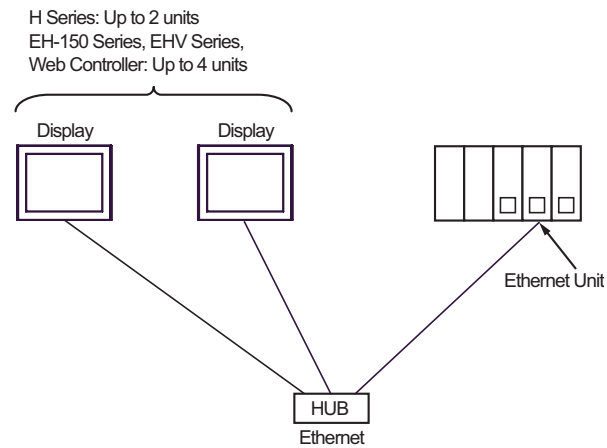
[1:1 Connection]



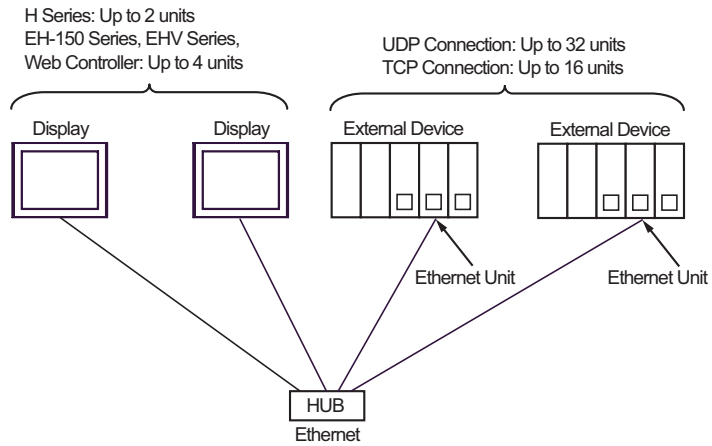
[1:n Connection]



[n :1 Connection]

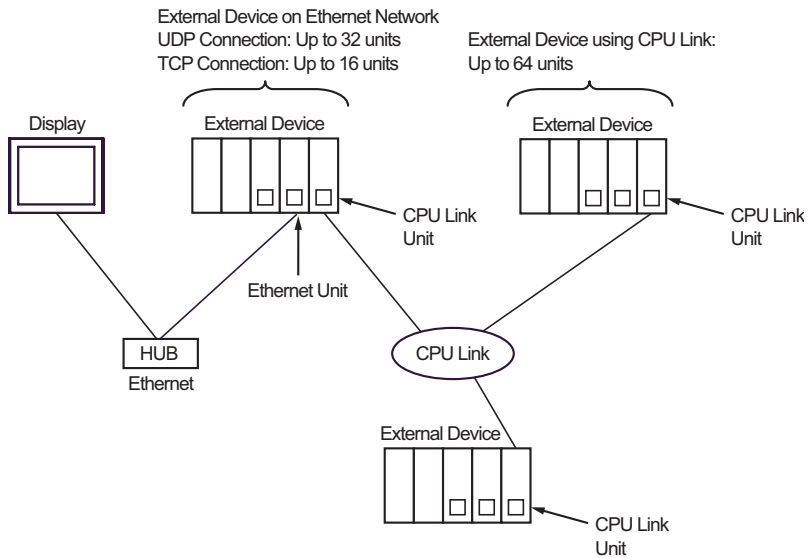


[n:m Connection]



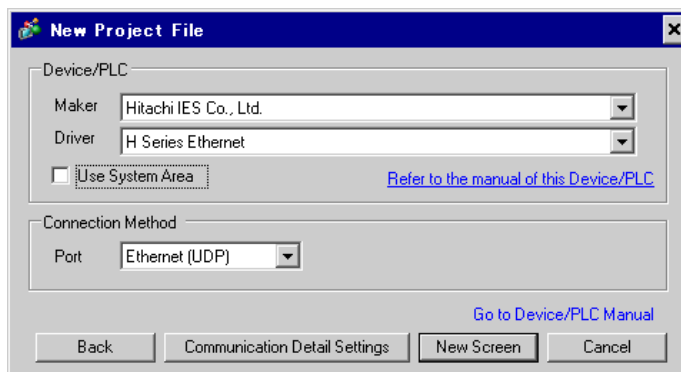
[Multiple CPU link]

Web Controller does not support this pattern.



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 "Hitachi IES Co., Ltd." |
| Series | Select a model (series) of the External Device to be connected and connection method. Select "H Series Ethernet". Check the External Device which can be connected in " H Series Ethernet" 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 "6.13.6[Setting Guide of [System Setting Window], Setting Guide of [Main Unit Settings], System Area Setting" Cf. GP3000 Series User's Manual "4.3.6 System Area Setting" |
| Port | Select the port of the display to be connected to the External Device from "Ethernet (UDP)" and "Ethernet (TCP)". |

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

To display the setting screen, click  ([Setting]) of the External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings]. Select [H/EH-150 Series] from [Series].

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set IP address and Port Number on the External Device for IP address and Port Number in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

■ Settings of External Device (LAN-ETH, LAN-ETH2)

Use the ladder software (Ladder Editor for Windows) to enter the value for appointed I/O No. for communication setting.

Please refer to the manual of the ladder software for more details.

1. Assign the Ethernet unit in the CPU unit.

Perform the environmental setting to allow the CPU unit to communicate with the ladder software.

2. Use the [I/O assign] of the ladder software to assign the Ethernet unit to I/O.
3. Use [CPU Write] in the ladder software to write the I/O assignment setting in the External Device.

That completes the environmental setting of the External Device.

4. Next, perform the communication settings of the External Device.

Set the DIP switch of the Ethernet unit as shown below.

The setting below enables to set the IP address of the Ethernet unit.

| DIP Switch | Settings | Requirements |
|------------|------------------|---|
| 1 | OFF | Mode Selection (Always OFF) |
| 2 | ON ^{*1} | 10BASE-T(ON)/10BASE-5(OFF) Switch |
| 3 | OFF | Reservation (Always OFF) |
| 4 | OFF | IP address rewrite setting (OFF: Rewritable) |
| 5 | OFF | Selection by function type You can set IP address at the status on the left. |
| 6 | ON | |
| 7 | ON | |
| 8 | OFF | |

*1 For LAN-ETH2, always set OFF (10BASE-T only).

5. Enter IP address or port No. for appointed I/O No. in the I/O monitor of the ladder software.
I/O No. to be entered varies depending on the slot position to which the Ethernet unit is assigned.
Please refer to the manual of the External Device for more details.
6. Write the communication setting in the Ethernet unit.
Display the address "R0" in I/O monitor of the ladder software and enter 1 for the setting value in the [Force Set/Reset] dialog box.
7. Turn OFF the power of the External Device. After turning OFF DIP switches 5 to 8 in the Ethernet unit, turn ON the power of the External Device

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.


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.

◆ 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]. Select [H/EH-150 Series] from [Series].

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set IP address and Port Number on the External Device for IP address and Port Number in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

■ Settings of External Device (LAN-ETH, LAN-ETH2)

Use the ladder software (Ladder Editor for Windows) to enter the value for appointed I/O No. for communication setting.

Please refer to the manual of the ladder software for more details.

1. Assign the Ethernet unit in the CPU unit.

Perform the environmental setting to allow the CPU unit to communicate with the ladder software.

2. Use the [I/O assign] of the ladder software to assign the Ethernet unit to I/O.
3. Use [CPU Write] in the ladder software to write the I/O assignment setting in the External Device.

That completes the environmental setting of the External Device.

4. Next, perform the communication settings of the External Device.

Set the DIP switch of the Ethernet unit as shown below.

The setting below enables to set the IP address of the Ethernet unit.

| DIP Switch | Settings | Requirements |
|------------|------------------|---|
| 1 | OFF | Mode Selection (Always OFF) |
| 2 | ON ^{*1} | 10BASE-T(ON)/10BASE-5(OFF) Switch |
| 3 | OFF | Reservation (Always OFF) |
| 4 | OFF | IP address rewrite setting (OFF: Rewritable) |
| 5 | OFF | Selection by function type You can set IP address at the status on the left. |
| 6 | ON | |
| 7 | ON | |
| 8 | OFF | |

*1 For LAN-ETH2, always set OFF (10BASE-T only).

5. Enter IP address or port No. for appointed I/O No. in the I/O monitor of the ladder software.
I/O No. to be entered varies depending on the slot position to which the Ethernet unit is assigned.
Please refer to the manual of the External Device for more details.
6. Write the communication setting in the Ethernet unit.
Display the address "R0" in I/O monitor of the ladder software and enter 1 for the setting value in the [Force Set/Reset] dialog box.
7. Turn OFF the power of the External Device. After turning OFF DIP switches 5 to 8 in the Ethernet unit, turn ON the power of the External Device

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.


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.

◆ 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]. Select [H/EH-150 Series] from [Series].

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set IP address and Port Number on the External Device for IP address and Port Number in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

■ Settings of External Device (EH-ETH)

Use the Web Browser to access the Ethernet unit for communication setting.

Note that the ladder software (Ladder Editor for Windows) is used for environmental setting of the External Device.

Please refer to the manual of the EH-ETH for more details.

1. Assign the Ethernet unit to CPU unit by using the [I/O assign] of the ladder software.
2. Turn ON the DIP switch 1 and 6 of the Ethernet unit, and turn ON the power. Then, a temporary address (192.168.0.4) for accessing the Ethernet unit will be set.

| Bit No.*1 | | | | | | | | Operation Mode |
|-----------|-----|-----|-----|-----|----|-----|-----|-----------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| ON | OFF | OFF | OFF | OFF | ON | OFF | OFF | Ethernet Information Setting Mode |

*1 Use Bit No.3 to No.8 to set the lowest byte of IP address. The upper 3 bytes are fixed to 192.168.0..

3. Connect the PC's Ethernet port and the EH-ETH's Ethernet port by LAN cable. (Connect via HUB or connect directly by a crossing cable.)
4. Enter "http://192.168.0.4/" in the address input box of the Web Browser to access the Ethernet unit.
To access, you need to set the upper 3 bytes of PC's IP address to 192.168.0.. (ex. 192.168.0.10)
5. Select [IP Address] from the menu frame in the displayed screen and set IP address.
6. Similarly, select [Task Code] from the menu frame and set [Port No.] and [Protocol].
Also, please set the IP Address, [Port No.] and [Protocol] as the same value as those set on the Display side.
7. Turn OFF the power of the External Device. After turning OFF all DIP switches, turn ON the power of the External Device.

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.


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.

◆ 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]. Select [H/EH-150 Series] from [Series].

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set IP address and Port Number on the External Device for IP address and Port Number in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

■ Settings of External Device (EH-ETH)

Use the Web Browser to access the Ethernet unit for communication setting.

Note that the ladder software (Ladder Editor for Windows) is used for environmental setting of the External Device.

Please refer to the manual of the EH-ETH for more details.

1. Assign the Ethernet unit to CPU unit by using the [I/O assign] of the ladder software.
2. Turn ON the DIP switch 1 and 6 of the Ethernet unit, and turn ON the power. Then, a temporary address (192.168.0.4) for accessing the Ethernet unit will be set.

| Bit No.*1 | | | | | | | | Operation Mode |
|-----------|-----|-----|-----|-----|----|-----|-----|-----------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| ON | OFF | OFF | OFF | OFF | ON | OFF | OFF | Ethernet Information Setting Mode |

*1 Use Bit No.3 to No.8 to set the lowest byte of IP address. The upper 3 bytes are fixed to 192.168.0..

3. Connect the PC's Ethernet port and the EH-ETH's Ethernet port by LAN cable. (Connect via HUB or connect directly by a crossing cable.)
4. Enter "http://192.168.0.4/" in the address input box of the Web Browser to access the Ethernet unit.
To access, you need to set the upper 3 bytes of PC's IP address to 192.168.0.. (ex. 192.168.0.10)
5. Select [IP Address] from the menu frame in the displayed screen and set IP address.
6. Similarly, select [Task Code] from the menu frame and set [Port No.] and [Protocol].
Also, please set the IP Address, [Port No.] and [Protocol] as the same value as those set on the Display side.
7. Turn OFF the power of the External Device. After turning OFF all DIP switches, turn ON the power of the External Device.

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.


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.

◆ 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]. Select [Web Controller Series] from [Series].

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set IP address and Port Number on the External Device for IP address and Port Number in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

■ Settings of External Device (Web Controller)

Use the Web Browser to access the External Device for communication setting.

Please refer to the manual of the Web Controller for more details.

1. By setting up the Operation Mode Setting Switch of the External Device as shown below, the temporary IP address of the Ethernet port will be set to "192.168.0.1".

<Operation Mode Setting Switch>

EH-WD10DR: Set the Rotary switch to "2".

EH-WA23DR: Turn ON the DIP switch 4 only.

2. Connect the PC's Ethernet port and the Web Controller's Ethernet port by LAN cable. (Connect via HUB or connect directly by a crossing cable.)

3. Enter "http://192.168.0.1/mwconfig.cgi" in the address input box of the Web Browser to access the External Device.

To access, you need to set the upper 3 bytes of PC's IP address to 192.168.0..(ex. 192.168.0.10)

4. Login in the displayed System Configuration Login screen.

5. Select [Ethernet Protocol]-[Passive HIProtocol] from [System Configuration] and set [Task Code Port] and [Port No.].

6. Similarly, select [IP Address] from [System Configuration] in the displayed screen and set IP address.

Also, please set [Task Code Port], [Port No.] and the IP Address as the same value as those set on the Display side.

MEMO

- The Web Controller will be rebooted after IP address settings.

Enter "http://192.168.0.1/mwconfig.cgi" in the address input box of the Web Browser, and login on the System Configuration Login screen. Then, check the settings.

7. Setup the Operation Mode Setting Switch of the External Device as shown below, and turn the power ON again.

<Operation Mode Setting Switch>

EH-WD10DR: Set the Rotary switch to "0".

EH-WA23DR: Turn OFF the all DIP switches.

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.


3.6 Setting Example 6

■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ 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]. Select [Web Controller Series] from [Series].

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set IP address and Port Number on the External Device for IP address and Port Number in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

■ Settings of External Device (Web Controller)

Use the Web Browser to access the External Device for communication setting.

Please refer to the manual of the Web Controller for more details.

1. By setting up the Operation Mode Setting Switch of the External Device as shown below, the temporary IP address of the Ethernet port will be set to "192.168.0.1".

<Operation Mode Setting Switch>

EH-WD10DR: Set the Rotary switch to "2".

EH-WA23DR: Turn ON the DIP switch 4 only.

2. Connect the PC's Ethernet port and the Web Controller's Ethernet port by LAN cable. (Connect via HUB or connect directly by a crossing cable.)

3. Enter "http://192.168.0.1/mwconfig.cgi" in the address input box of the Web Browser to access the External Device.

To access, you need to set the upper 3 bytes of PC's IP address to 192.168.0..(ex. 192.168.0.10)

4. Login in the displayed System Configuration Login screen.

5. Select [Ethernet Protocol]-[Passive HIProtocol] from [System Configuration] and set [Task Code Port] and [Port No.].

6. Similarly, select [IP Address] from [System Configuration] in the displayed screen and set IP address.

Also, please set [Task Code Port], [Port No.] and the IP Address as the same value as those set on the Display side.

MEMO

- The Web Controller will be rebooted after IP address settings.

Enter "http://192.168.0.1/mwconfig.cgi" in the address input box of the Web Browser, and login on the System Configuration Login screen. Then, check the settings.

7. Setup the Operation Mode Setting Switch of the External Device as shown below, and turn the power ON again.

<Operation Mode Setting Switch>

EH-WD10DR: Set the Rotary switch to "0".

EH-WA23DR: Turn OFF the all DIP switches.

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.


3.7 Setting Example 7

■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ 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]. Select [EHV Series] from [Series].

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set IP address and Port Number on the External Device for IP address and Port Number in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

■ Settings of External Device (Ethernet Port on EHV-CPU)

Use the programming software (Control Editor) for communication setting.

Please refer to the manual of the EHV for more details.

1. Start the programming software and create the project. The project is displayed in the offline mode.
2. Select [Editor Communication Setting] from the [Tool] menu to display the communication setting dialog box.
3. Select the communication method to transfer the External Device between "USB" and "Serial", and then click [Setting].
4. Connect the PC and the External Device by a USB cable or a serial cable (Hitachi IES Co., Ltd.).
5. Select [Mode Change] - [Online] from the [Online] menu to move to the online mode.
6. Select [CPU Setting] - [IP Address Setting] from the [Tool] menu to set IP address.
7. Select [CPU Setting] - [Ethernet Communication (Task Code) Setting] from the [Tool] menu to set [Port No.] and [Protocol].

Also, please set the IP Address, [Port No.] and [Protocol] as the same value as those set on the Display side.

8. Turn ON the power of the External Device again.

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.


3.8 Setting Example 8

■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ 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]. Select [EHV Series] from [Series].

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set IP address and Port Number on the External Device for IP address and Port Number in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

■ Settings of External Device (Ethernet Port on EHV-CPU)

Use the programming software (Control Editor) for communication setting.

Please refer to the manual of the EHV for more details.

1. Start the programming software and create the project. The project is displayed in the offline mode.
2. Select [Editor Communication Setting] from the [Tool] menu to display the communication setting dialog box.
3. Select the communication method to transfer the External Device between "USB" and "Serial", and then click [Setting].
4. Connect the PC and the External Device by a USB cable or a serial cable (Hitachi IES Co., Ltd.).
5. Select [Mode Change] - [Online] from the [Online] menu to move to the online mode.
6. Select [CPU Setting] - [IP Address Setting] from the [Tool] menu to set IP address.
7. Select [CPU Setting] - [Ethernet Communication (Task Code) Setting] from the [Tool] menu to set [Port No.] and [Protocol].

Also, please set the IP Address, [Port No.] and [Protocol] as the same value as those set on the Display side.

8. Turn ON the power of the External Device again.

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.

3.9 Setting Example 9

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Hitachi IES Co., Ltd. Driver H Series Ethernet Port Ethernet (TCP)

Text Data Mode 1 [Change](#)

Communication Settings

Port No. 1024 Auto

Timeout 3 (sec)

Retry 0

Wait To Send 0 (ms) [Default](#)

Device-Specific Settings

Allowable No. of Device/PLCs 16 Unit(s)

| No. | Device Name | Settings |
|-----|-------------|--|
| 1 | PLC1 | Series=EHV Series, IP Address=192.168.0.001, Port No.=3004 |

◆ 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]. Select [EHV Series] from [Series].

Individual Device Settings

PLC1

Series EHV Series

Please reconfirm all of address settings that you are using if you have changed the series.

IP Address 192.168.0.1

Port No. 3004

[Default](#)

[OK \(O\)](#) [Cancel](#)

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set IP address and Port Number on the External Device for IP address and Port Number in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

■ Settings of External Device (EH-ETH)

Use the Web Browser to access the Ethernet unit for communication setting.

Note that the ladder software (Ladder Editor for Windows) is used for environmental setting of the External Device.

Please refer to the manual of the EH-ETH for more details.

1. Assign the Ethernet unit to CPU unit by using the [I/O assign] of the ladder software.
2. Turn ON the DIP switch 1 and 6 of the Ethernet unit, and turn ON the power. Then, a temporary address (192.168.0.4) for accessing the Ethernet unit will be set.

| Bit No.*1 | | | | | | | | Operation Mode |
|-----------|-----|-----|-----|-----|----|-----|-----|-----------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| ON | OFF | OFF | OFF | OFF | ON | OFF | OFF | Ethernet Information Setting Mode |

*1 Use Bit No.3 to No.8 to set the lowest byte of IP address. The upper 3 bytes are fixed to 192.168.0..

3. Connect the PC's Ethernet port and the EH-ETH's Ethernet port by LAN cable. (Connect via HUB or connect directly by a crossing cable.)
4. Enter "http://192.168.0.4/" in the address input box of the Web Browser to access the Ethernet unit.
To access, you need to set the upper 3 bytes of PC's IP address to 192.168.0.. (ex. 192.168.0.10)
5. Select [IP Address] from the menu frame in the displayed screen and set IP address.
6. Similarly, select [Task Code] from the menu frame and set [Port No.] and [Protocol].
Also, please set the IP Address, [Port No.] and [Protocol] as the same value as those set on the Display side.
7. Turn OFF the power of the External Device. After turning OFF all DIP switches, turn ON the power of the External Device.

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.


3.10 Setting Example 10

■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ 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]. Select [EHV Series] from [Series].

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.
- Set IP address and Port Number on the External Device for IP address and Port Number in Device-specific settings.
- You need to set IP address on the Display in the off-line mode of the display.

■ Settings of External Device (EH-ETH)

Use the Web Browser to access the Ethernet unit for communication setting.

Note that the ladder software (Ladder Editor for Windows) is used for environmental setting of the External Device.

Please refer to the manual of the EH-ETH for more details.

1. Assign the Ethernet unit to CPU unit by using the [I/O assign] of the ladder software.
2. Turn ON the DIP switch 1 and 6 of the Ethernet unit, and turn ON the power. Then, a temporary address (192.168.0.4) for accessing the Ethernet unit will be set.

| Bit No.*1 | | | | | | | | Operation Mode |
|-----------|-----|-----|-----|-----|----|-----|-----|-----------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| ON | OFF | OFF | OFF | OFF | ON | OFF | OFF | Ethernet Information Setting Mode |

*1 Use Bit No.3 to No.8 to set the lowest byte of IP address. The upper 3 bytes are fixed to 192.168.0..

3. Connect the PC's Ethernet port and the EH-ETH's Ethernet port by LAN cable. (Connect via HUB or connect directly by a crossing cable.)
4. Enter "http://192.168.0.4/" in the address input box of the Web Browser to access the Ethernet unit.
To access, you need to set the upper 3 bytes of PC's IP address to 192.168.0.. (ex. 192.168.0.10)
5. Select [IP Address] from the menu frame in the displayed screen and set IP address.
6. Similarly, select [Task Code] from the menu frame and set [Port No.] and [Protocol].
Also, please set the IP Address, [Port No.] and [Protocol] as the same value as those set on the Display side.
7. Turn OFF the power of the External Device. After turning OFF all DIP switches, turn ON the power of the External Device.

◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address in the same network.

4 Setup Items

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

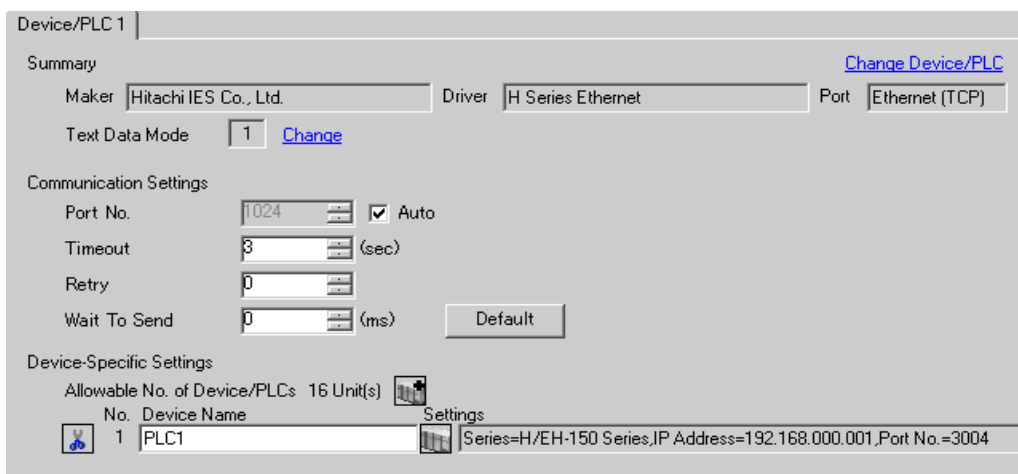
The setting of each parameter must be identical to that of External Device.

 "3 Example of Communication Setting" (page 7)

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 |
|--------------|--|
| Port No. | Use an integer from 1024 to 65535 to enter the port No. of the Display. When you check the option of [Auto], the port No. will be automatically set. MEMO • [Auto] option is available to set only when you select "Ethernet (TCP)" in [Connecting Method]. |
| Timeout | Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device. |
| Retry | In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command. |
| Wait To Send | Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands. |

■ 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 connecting multiple External Devices, 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 a model of the External Device. |
| IP Address | Set IP address of the External Device. <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">MEMO</div> <ul style="list-style-type: none"> Check with a network administrator about IP address. Do not set the duplicate IP address. |
| Port No. | Use an integer from 1024 to 65535 to enter the port No. of the External Device. |

4.2 Settings in Off-Line Mode

MEMO

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

Cf. GP3000 Series User's Manual "Chapter 4 Setting"

■ 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. | Device | | | |
|-------------------|---|---|----------|------------------------|
| H Series Ethernet | | [UDP] | Page 1/1 | |
| Port No. | <input type="radio"/> Fixed <input checked="" type="radio"/> Auto | <input type="text" value="1024"/> <input type="button" value="▼"/> <input type="button" value="▲"/> | | |
| Timeout(s) | | <input type="text" value="3"/> <input type="button" value="▼"/> <input type="button" value="▲"/> | | |
| Retry | | <input type="text" value="2"/> <input type="button" value="▼"/> <input type="button" value="▲"/> | | |
| Wait To Send(ms) | | <input type="text" value="0"/> <input type="button" value="▼"/> <input type="button" value="▲"/> | | |
| Exit | | Back | | 2006/05/15 11:33:02 |

| Setup Items | Setup Description |
|--------------|--|
| Port No. | Set the Port No. of the display. In UDP connection, entered port No. will be assigned regardless of whether you select [Fixed] or [Auto]. In TCP connection, select either of [Fixed] or [Auto]. When you select [Fixed], use an integer from 1024 to 65535 to enter the port No. of the display. When you select [Auto], the port No. will be automatically assigned regardless of the entered value. |
| Timeout | Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device. |
| Retry | In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command. |
| Wait To Send | Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands. |

■ Device Setting

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


| Comm. | Device | | | |
|-------------------|-----------------|--------|----------|------------------------|
| H Series Ethernet | | [UDP] | Page 1/1 | |
| Device/PLC Name | | [PLC1] | | |
| Series | H/EH-150 Series | | | |
| IP Address | 192 168 0 1 | | | |
| Port No. | 3004 | | | |
| Exit | | Back | | 2006/05/15 11:33:05 |

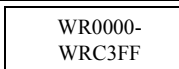


| Setup Items | Setup Description |
|-----------------|--|
| Device/PLC Name | Select the External Device for device setting. Device name is a title of External Device set with GP-Pro EX.(Initial value [PLC1]) |
| Series | Display a model of the External Device. |
| IP Address | Set IP address of the External Device. MEMO Check with a network administrator about IP address. Do not set the duplicate IP address. |
| Port No. | Use an integer from 1024 to 65535 to enter the port No. of the External Device. |

5 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.

5.1 H / EH-150 Series

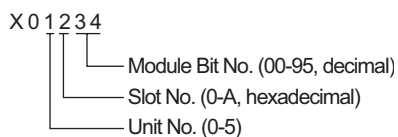
 This address can be specified as system data area.

| Device | Bit Address | Word Address | Double Word Address | 32 bit | Remarks |
|----------------------------------|-------------------|---|---------------------|---|---|
| External Input | X00000-X05A95 | WX0000- WX05A7 | DX0000-DX05A6 | [L / H] | *1 *2 |
| External Output | Y00000-Y05A95 | WY0000- WY05A7 | DY0000-DY05A6 | | *2 |
| Remote Input Relay | X10000-X49995 | WX1000-WX4997 | DX1000-DX4996 | | *1 *3 |
| Remote Output Relay | Y10000-Y49995 | WY1000-WY4997 | DY1000-DY4996 | | *3 |
| Inner Output | R000-R7BF | - | - | | |
| Special Inner Output | R7C0-R7FF | - | - | | |
| Data Area | M0000-M3FFF | WM000-WM3FF | DM000-DM3FE | | |
| First CPU Link | L00000-L03FFF | WL0000-WL03FF | DL0000-DL03FE | | |
| Second CPU Link | L10000-L13FFF | WL1000-WL13FF | DL1000-DL13FE | | |
| On Delay Timer | TD000 -TD255 | - | - | | |
| Single-shot Timer | SS000-SS255 | - | - | | |
| Watchdog Timer | WDT000- WDT255 | - | - | | |
| Mono Stable Timer | MS000-MS255 | - | - | | |
| Retentive Timer | TMR000-TMR255 | - | - | | |
| Up Counter | CU000-CU511 | - | - | | |
| Ring Counter | RCU000-RCU511 | - | - | | |
| Up-down Counter | CT000-CT511 | - | - | | |
| Timer Counter (Elapsed Value) | - | TC000-TC511 | - | | |
| Word Inner Output | - |  WR0000- WRC3FF | DR0000-DRC3FE | |  |
| Network Link Area | - | WN0000- WN7FFF | DN0000-DN7FFE |  | |

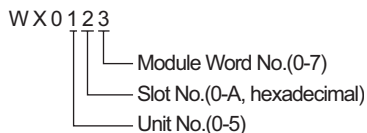
*1 Write disable

*2 Specify as shown below.

(Example) External input unit No.1, Slot No.2, Inner Module Bit No.34

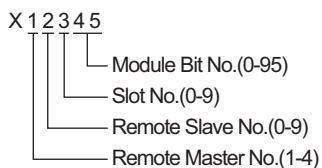


(Example) External input unit No.1, Slot No.2, Inner Module Word No.3

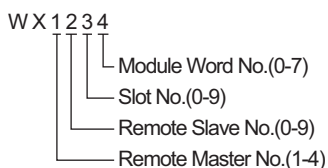


*3 Specify as shown below.

(Example) Remote External Input Remote Master No.1, Remote Slave No.2, Slot No.3, Inner Module Bit No.45



(Example) Remote External Input Remote Master No.1, Remote Slave No.2, Slot No.3, Inner Module Word No.4



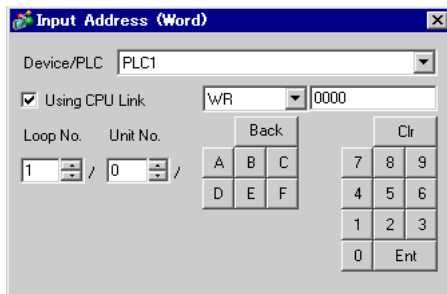
MEMO

- Available type and range of device vary depending on CPU. Be sure to check them in each CPU manual before using.

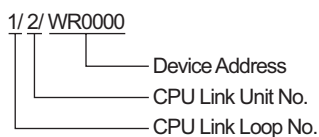
■ CPU How to set address when using the link

Set the check box of "Use CPU Link" to ON.

When using CPU Link, loop No. and unit No. are added to the address.




(Example) Loop No.1, Unit No.2

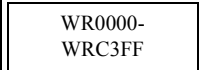





MEMO

- 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"

5.2 Web Controller Series

 This address can be specified as system data area.

| Device | Bit Address | Word Address | Double Word Address | 32 bits | Remarks |
|----------------------------------|---|---|---|---|---------|
| External Input | X0000-X0012 X1000-X1015 X2000-X2015 X3000-X3015 X4000-X4015 | WX030-WX031 WX100-WX104 WX200-WX204 WX300-WX304 WX400-WX404 | DX030 DX100-DX103 DX200-DX203 DX300-DX303 DX400-DX403 | [L/H] | *1 |
| External Output | Y0100-Y0109 Y1016-Y1031 Y2016-Y2031 Y3016-Y3031 Y4016-Y4031 | WY40 WY105-WY107 WY205-WY207 WY305-WY307 WY405-WY407 | DY105-DY106 DY205-DY206 DY305-DY306 DY405-DY406 | | |
| Inner Output | R000-R7BF | - | - | | |
| Special Inner Output | R7C0-R7FF | - | - | | |
| Data Area | M0000-M3FFF | WM000-WM3FF | DM000-DM3FE | | |
| On Delay Timer | TD000-TD255 | - | - | | *2 |
| Single-shot Timer | SS000-SS255 | - | - | | *2 |
| Up Counter | CU000-CU255 | - | - | | *2 |
| Up-down Counter | CT000-CT255 | - | - | | *2*3 |
| Timer Counter (Elapsed Value) | - | TC000-TC255 | - | | |
| Word Inner Output | - |  WR0000- WRC3FF | DR0000-DR3FE | *4  | |
| Word Special Inner Output | |  WRF000- WRF1FF | DRF000-DRF1FE |  | |

*1 Write disable

*2 Each timer or counter needs to be defined on the ladder program.

*3 Both the Up-down counter Up input and Down input are defined by CT, however, the device names of the External Device are CTU, CTD respectively.


To access CTU, define the corresponding address as CTU on the ladder program of the External Device. Similarly, to access CTD, define the corresponding address as CTD on the ladder program of the External Device.

*4 For EH-WD10DR, the address range is [WR0000-WR3FFF] for Word Address and [DR0000-DR3FFE] for Double Word Address.

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"

5.3 EHV Series

 This address can be specified as system data area.

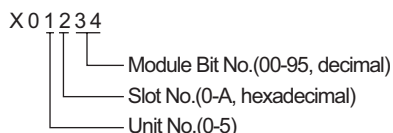
| Device | Bit Address | Word Address | Double Word Address | 32 bit | Remarks |
|---------------------------|---------------------|---------------------|---------------------|--------|---------|
| External Input | X00000-X05A95 | WX0000- WX05A7 | DX0000-DX05A6 | [L/H] | *1 *2 |
| External Output | Y00000-Y05A95 | WY0000- WY05A7 | DY0000-DY05A6 | | *2 |
| Remote Input Relay | X10000-X45A95 | WX1000- WX45A7 | DX1000-DX45A6 | | *1 *3 |
| Remote Output Relay | Y10000-Y45A95 | WY1000- WY45A7 | DY1000-DY45A6 | | *3 |
| Extension External Input | EX00000- EX5A7FF | WEX0000- WEX5A7F | DEX0000- DEX5A7E | | *1 |
| Extension External Output | EY00000- EY5A7FF | WEY0000- WEY5A7F | DEY0000- DEY5A7E | | |
| Inner Output | R000-R7BF | - | - | | |
| Data Area | M00000-M7FFFF | WM0000- WM7FFF | DM0000- DM7FFE | | |
| First CPU Link | L00000-L03FFF | WL0000-WL03FF | DL0000-DL03FE | | |
| Second CPU Link | L10000-L13FFF | WL1000-WL13FF | DL1000-DL13FE | | |
| Third CPU Link | L20000-L23FFF | WL2000-WL23FF | DL2000-DL23FE | | |
| Fourth CPU Link | L30000-L33FFF | WL3000-WL33FF | DL3000-DL33FE | | |
| Fifth CPU Link | L40000-L43FFF | WL4000-WL43FF | DL4000-DL43FE | | |
| Sixth CPU Link | L50000-L53FFF | WL5000-WL53FF | DL5000-DL53FE | | |
| Seventh CPU Link | L60000-L63FFF | WL6000-WL63FF | DL6000-DL63FE | | |
| Eighth CPU Link | L70000-L73FFF | WL7000-WL73FF | DL7000-DL73FE | | |
| On Delay Timer | TD0000-TD2559 | - | - | | |
| Off Delay Timer | TDN0000- TDN2559 | - | - | | |
| Single-shot Timer | SS0000-SS2559 | - | - | | |
| Watchdog Timer | WDT0000- WDT2559 | - | - | | |
| Mono Stable Timer | MS0000-MS2559 | - | - | | |
| Retentive Timer | TMR0000- TMR2559 | - | - | | |
| Up-down Counter | CT000-CT511 | - | - | | |
| Up Counter | CU000-CU511 | - | - | | |
| Ring Counter | RCU000-RCU511 | - | - | | |

| Device | Bit Address | Word Address | Double Word Address | 32 bit | Remarks |
|----------------------------------|------------------------|---------------------|---------------------|---------|---------|
| Timer Counter (Elapsed Value) | - | TC0000-TC2559 | - | [L / H] | |
| Word Inner Output | WR00000- WREFFFF | WR0000- WREFFF | DR0000-DREFFE | | |
| Data Area | WN000000- WN1FFFFFF | WN00000- WN1FFFF | DN00000- DN1FFFE | | |

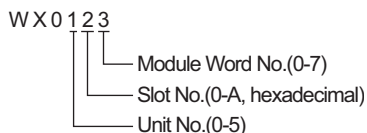
*1 Write disable

*2 Specify as shown below.

(Example) External input unit No.1, Slot No.2, Inner Module Bit No.34

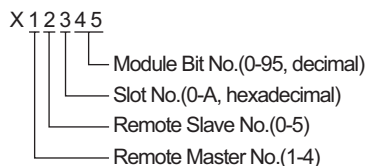


(Example) External input unit No.1, Slot No.2, Inner Module Word No.3

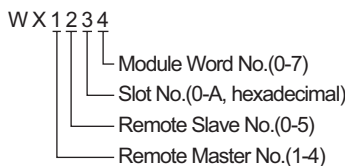


*3 Specify as shown below.

(Example) Remote External Input Remote Master No.1, Remote Slave No.2, Slot No.3, Inner Module Bit No.45



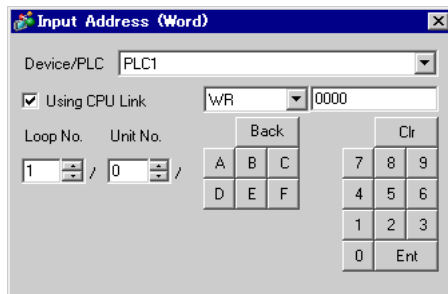
(Example) Remote External Input Remote Master No.1, Remote Slave No.2, Slot No.3, Inner Module Word No.4



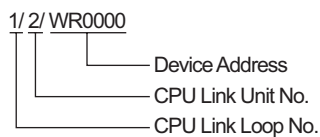
■ When using CPU Link

Set the check box of "Use CPU Link" to ON.

When using CPU Link, loop No. and unit No. are added to the address.



(Example) Loop No.1, Unit No.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"

6 Device Code and Address Code

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

6.1 H / EH-150 Series

| Device | Device Name | Device Code (HEX) | Address Code |
|-------------------------------|-------------|-------------------|--------------|
| Input Relay | X | 0080 | Word Address |
| | WX | | Word Address |
| | DX | 0020 | Word Address |
| Output Relay | Y | 0081 | Word Address |
| | WY | | Word Address |
| | DY | 0021 | Word Address |
| Data Area | M | 0082 | Word Address |
| | WM | | Word Address |
| | DM | 0022 | Word Address |
| CPU Link | L | 0083 | Word Address |
| | WL | | Word Address |
| | DL | 0023 | Word Address |
| Timer Counter (Elapsed Value) | TC | 0060 | Word Address |
| Word Inner Output | WR | 0000 | Word Address |
| | DR | 0024 | Word Address |
| Network Link Area | WN | 0001 | Word Address |
| | DN | 0025 | Word Address |

6.2 Web Controller Series

| Device | Device Name | Device Code (HEX) | Address Code |
|--|-------------|-------------------|--------------|
| External Input | X | 0080 | Word Address |
| | WX | | Word Address |
| | DX | 0020 | Word Address |
| External Output | Y | 0081 | Word Address |
| | WY | | Word Address |
| | DY | 0021 | Word Address |
| Inner Output | M | 0082 | Word Address |
| | WM | | Word Address |
| | DM | 0022 | Word Address |
| Timer Counter (Elapsed Value) | TC | 0060 | Word Address |
| Word Inner Output Word Special Inner Output | WR | 0000 | Word Address |
| | DR | 0024 | Word Address |

6.3 EHV Series

| Device | Device Name | Device Code (HEX) | Address Code |
|-------------------------------|-------------|-------------------|--------------|
| External Input | X | 0080 | Word Address |
| | WX | | Word Address |
| | DX | 0020 | Word Address |
| External Output | Y | 0081 | Word Address |
| | WY | | Word Address |
| | DY | 0021 | Word Address |
| Extension External Input | EX | 0084 | Word Address |
| | WEX | | Word Address |
| | DEX | 0026 | Word Address |
| Extension External Output | EY | 0085 | Word Address |
| | WEY | | Word Address |
| | DEY | 0027 | Word Address |
| Data Area | M | 0082 | Word Address |
| | WM | | Word Address |
| | DM | 0022 | Word Address |
| CPU Link | L | 0083 | Word Address |
| | WL | | Word Address |
| | DL | 0023 | Word Address |
| Word Inner Output | WR | 0000 | Word Address |
| | DR | 0024 | Word Address |
| Data Area | WN | 0001 | Word Address |
| | DN | 0025 | Word Address |
| Timer Counter (Elapsed Value) | TC | 0060 | Word Address |

7 Error Messages

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

| Item | Requirements |
|-----------------------|--|
| No. | Error No. |
| Device Name | Name of the External Device where error occurs. Device name is a title of the External Device set with GP-Pro EX.(Initial value[PLC1]) |
| Error Message | Displays messages related to the error which occurs. |
| Error Occurrence Area | Displays IP address or device address of the External Device where error occurs, or error codes received from the External Device. <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-top: 5px;">MEMO</div> <ul style="list-style-type: none"> • IP address is displayed such as "IP address(Decimal): MAC address(Hex)". • Device address is displayed such as "Address: Device address". • Received error codes are displayed such as "[Hex, Hex]". |

Display Examples of Error Messages

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

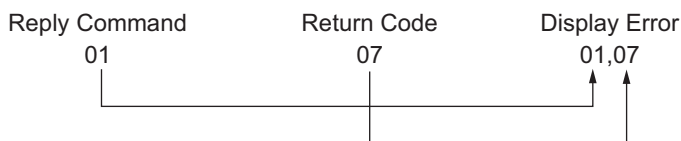
MEMO

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

■ Driver-Specific Error Codes

Error codes are sent as separated 2 bytes codes

Example:



| Error Code | Description |
|------------|--|
| 01,05 | The requested number of points is beyond the designated range. |
| 01,06 | Designated device does not exist. |
| 01,07 | Designated device address is beyond the range. |

MEMO

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

