



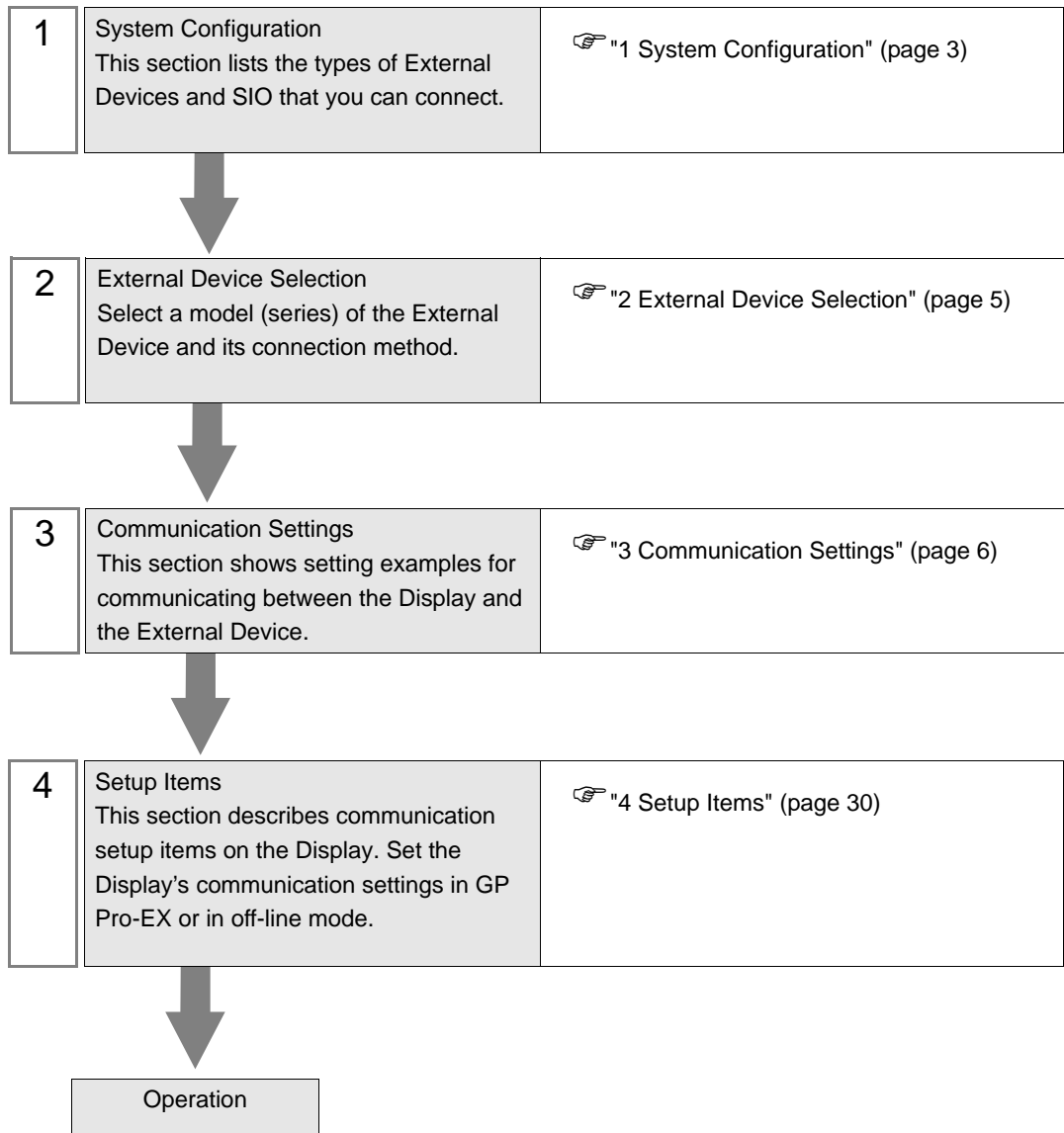
# MP/SERVO Ethernet Driver

1	System Configuration.....	3
2	External Device Selection .....	5
3	Communication Settings .....	6
4	Setup Items .....	30
5	Supported Device.....	34
6	Device Code and Address Code .....	41
7	Error Messages.....	42

## Introduction

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

In this manual, the connection procedure will be described in the sections identified below:



# 1 System Configuration

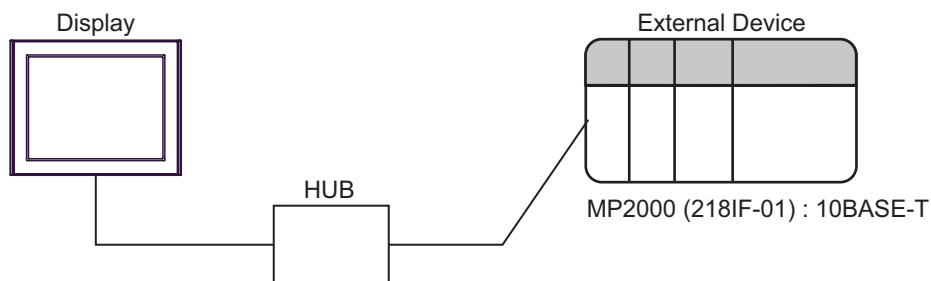
The system configuration in the case when the External Device of YASKAWA Electric Corporation and the Display are connected is shown.

## 1.1 MP Series

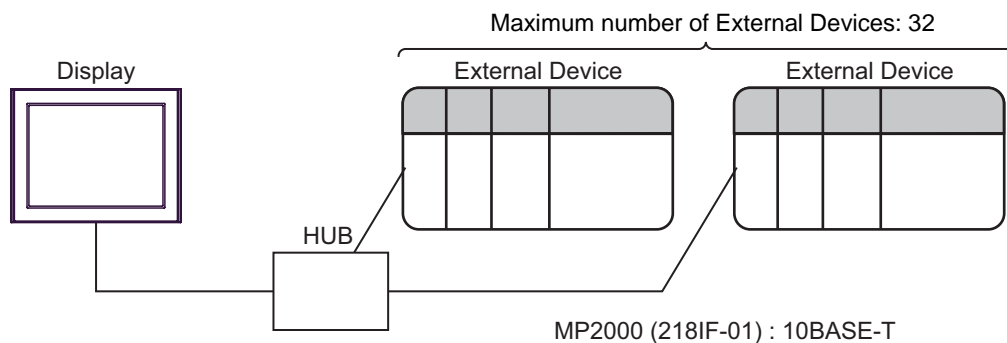
Series	CPU	Link I/F	SIO Type	Setting Example
MP2000	MP2300 MP2200	Ethernet port on 218IF-01	Ethernet (UDP)	"3.1 Setting Example 1" (page 6)
		Ethernet port on 218IF-02	Ethernet (UDP)	"3.4 Setting Example 4" (page 15)
	MP2310 MP2300S	Ethernet Connector on CPU unit	Ethernet (UDP)	"3.2 Setting Example 2" (page 9)
		Ethernet port on 218IF-01	Ethernet (UDP)	"3.3 Setting Example 3" (page 12)
		Ethernet port on 218IF-02	Ethernet (UDP)	"3.4 Setting Example 4" (page 15)
	MP2400	Ethernet Connector on CPU unit	Ethernet (UDP)	"3.2 Setting Example 2" (page 9)

### ■ Connection Configuration

- 1:1 Connection



- 1:n Connection

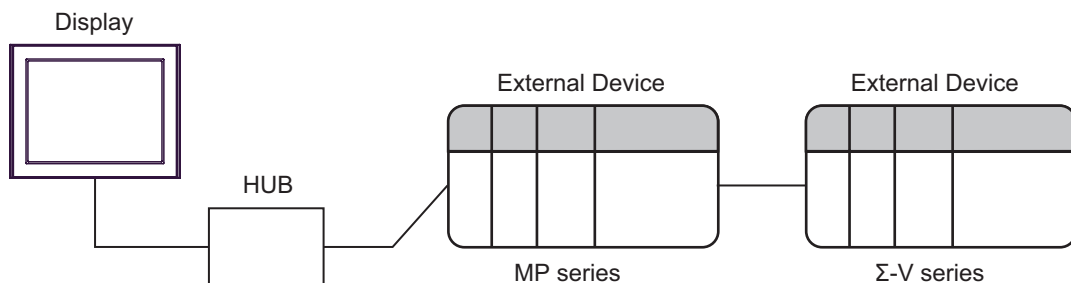


1.2  $\Sigma$ -V Series

Series	CPU	Link I/F	SIO Type	Setting Example
$\Sigma$ -V Series Rotary Motors (M-II)	SGDV-□□□□11 □□□□□□	MECHATROLINK Communications Connectors (CN6A/CN6B)	Ethernet (UDP) and MECHATROLINK-II	"3.5 Setting Example 5" (page 18)
$\Sigma$ -V Series Linear Motors (M-II)	SGDV-□□□□15 □□□□□□	MECHATROLINK Communications Connectors (CN6A/CN6B)	Ethernet (UDP) and MECHATROLINK-II	"3.6 Setting Example 6" (page 21)
$\Sigma$ -V Series Rotary Motors (M-III)	SGDV-□□□□21 □□□□□□	MECHATROLINK Communications Connectors (CN6A/CN6B)	Ethernet (UDP) and MECHATROLINK-III	"3.7 Setting Example 7" (page 24)
$\Sigma$ -V Series Linear Motors (M-III)	SGDV-□□□□25 □□□□□□	MECHATROLINK Communications Connectors (CN6A/CN6B)	Ethernet (UDP) and MECHATROLINK-III	"3.8 Setting Example 8" (page 27)

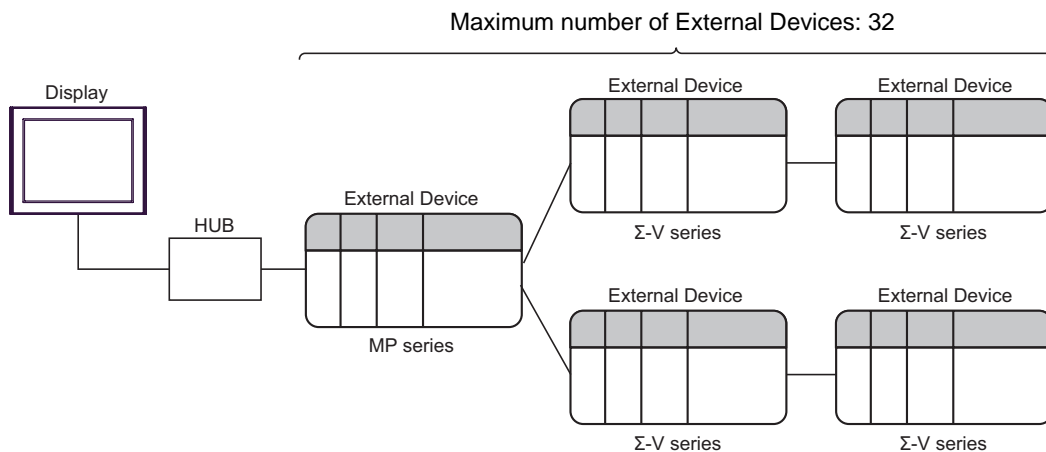
### ■ Connection Configuration

- 1:1 Connection



Between Display and MP series: Ethernet connection  
Between MP series and  $\Sigma$ -V series: MECHATROLINK connection

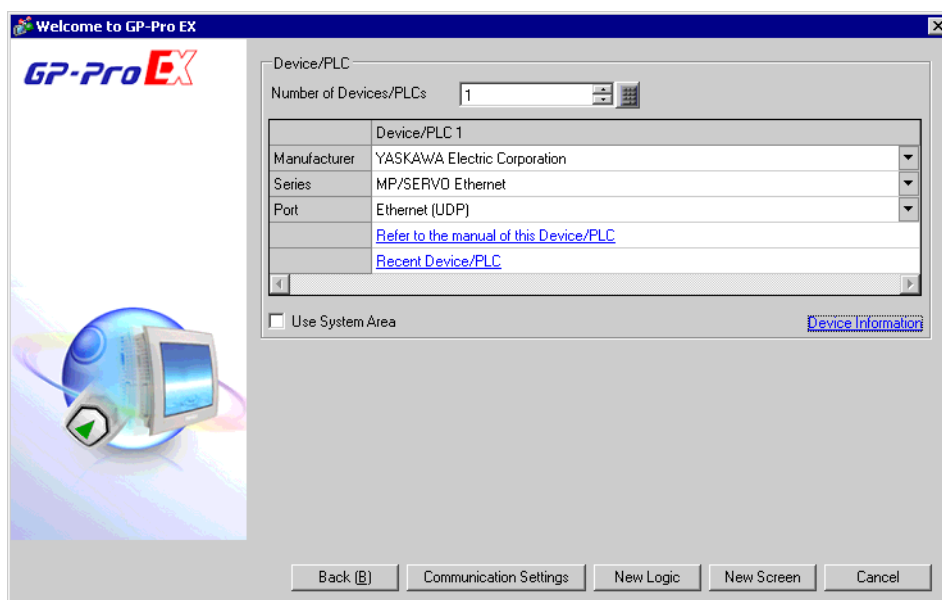
- 1:n Connection



Between Display and MP series: Ethernet connection  
Between MP series and  $\Sigma$ -V series: MECHATROLINK connection  
 $\Sigma$ -V series and  $\Sigma$ -V series: MECHATROLINK connection

## 2 External Device Selection

Select the External Device to be connected to the Display.



Setup Items	Setup Description
Number of Devices/PLCs	Use an integer from 1 to 4 to enter the number of Devices/PLCs to connect to the display.
Manufacturer	Select the manufacturer of the External Device to be connected. Select "YASKAWA Electric Corporation".
Series	Select a model (series) of the External Device to be connected and connection method. Select "MP/SERVO Ethernet". Check the External Device which can be connected in "MP/SERVO Ethernet" in system configuration. ☞ "1 System Configuration" (page 3)
Port	Select the Display port to be connected to the External Device.
Use System Area	Check this option when you synchronize the system data area of Display and the device (memory) of External Device. When synchronized, you can use the ladder program of External Device to switch the display or display the window on the Display. Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)" This can also be set in GP-Pro EX or in the Display's offline mode. Cf. GP-Pro EX Reference Manual "Display Unit (System Area) Settings Guide" Cf. Maintenance/Troubleshooting Guide "Main Unit - System Area Settings"

### 3 Communication Settings

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

#### 3.1 Setting Example 1

##### ■ Settings of GP-Pro EX

##### ◆ Communication Settings

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

Device/PLC 1

Summary

Manufacturer: YASKAWA Electric Corporation Series: MP/SERVO Ethernet Port: Ethernet (UDP) [Change Device/PLC](#)

Text Data Mode: 1 [Change](#)

Communication Settings

Port No.: 1024 ☒ Auto

Timeout: 3 (sec)

Retry: 2

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

Device-Specific Settings

Allowable Number of Devices/PLCs: 32 [Settings](#)

Number	Device Name	Settings
1	PLC1	Series=MP Series, IP Address=192.168.0.001

##### ◆ 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 [+](#) to add another External Device.

Individual Device Settings

PLC1

Product: MP Series

If you change the product or series, please reconfirm all address settings.

IP Address: 192 168 0 1

[Default](#)

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

##### ◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device address in the [Individual Device Settings] dialog box.
- You need to set IP address on the Display in the off-line mode of the Display.

## ■ Settings of External Device

Use the ladder software (MPE720) to set up communication settings for the communication module 218IF-01.

For details on communication settings, please refer to the manual of the External Device.

The setup procedure differs depending on the version of your ladder software.

### ◆ Ladder Software Setting (for MPE720 Ver.5)

- 1 Start the ladder software, and in the root folder make the order and PLC folders.
- 2 Right-click the generated External Device, and from the shortcut menu select Logon.

#### NOTE

- In the shortcut menu, please confirm there is no check mark beside the [Online] command before logging on.
- For methods on logging on, refer to the User's Manual of the External Device.

- 3 From the PLC folder, double-click the [Definition folder]'s [Module Configuration] to display the [Engineering Manager].
- 4 In the [Engineering Manager]'s [Controller], use the pull-down menu to select the rack classification and communication module.  
Set the number associated with the slot number used by the communication module.  
When you select the communication module, its setting information is displayed in the [Engineering Manager]'s [Module details].
- 5 In the [Module details], double-click the No. field's numeric portion.  
Double-click the number associated with the slot number connected to the Ethernet unit.

Setup Items		Setup Description
Transmission parameter	This Station IP address	PLC IP address

#### IMPORTANT

- Please make the connection parameter blank.  
Communication is not possible when a connection parameter is set.

- 6 Double-click "No.1" and set up serial communication.  
Serial communication is used to transfer communication settings to the PLC.
- 7 Save the settings and exit [Engineering Manager].
- 8 After turning ON the communication module's "INIT" DIP Switch, turn ON the power supply.
- 9 Transfer the settings to the communication module.
- 10 While online, logon to the External Device. Write the transferred data to FLASH memory.
- 11 Turn OFF the External Device's power supply, turn OFF the "INIT" DIP Switch, and turn the External Device's power back ON.

### ◆ Ladder Software Setting (for MPE720 Ver.6)

- 1 Start the ladder software.
- 2 Make a project file.
- 3 From the tree view, double-click [Module Configuration].  
[Engineering Manager] starts.
- 4 In the [Engineering Manager]'s [Controller], use the pull-down menu to select the rack classification and communication module.  
Set the number associated with the slot number used by the communication module.  
When you select the communication module, its setting information is displayed in the [Engineering Manager]'s [Module details].
- 5 In the [Module details], double-click the No. field's numeric portion.  
Double-click the number associated with the slot number connected to the Ethernet unit.

Setup Items		Setup Description
Transmission parameter	This Station IP address	PLC IP address

#### **IMPORTANT**

- Please make the connection parameter blank.  
Communication is not possible when a connection parameter is set.

- 6 Double-click "No.1" and set up serial communication.  
Serial communication is used to transfer communication settings to the PLC.
- 7 Save the settings and exit [Engineering Manager].
- 8 After turning ON the communication module's "INIT" DIP Switch, turn ON the power supply.
- 9 Write the settings to the communication module.

#### **IMPORTANT**

- To write the settings, select the [Save to flash after transferring to the controller] check box.  
If the data is transferred without selecting the check box, the transferred data is deleted when restarting the External Device.

- 10 Turn OFF the External Device's power supply, turn OFF the "INIT" DIP Switch, and turn the External Device's power back ON.

### ◆ Notes

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



## 3.2 Setting Example 2

### ■ Settings of GP-Pro EX

#### ◆ Communication Settings

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

Device/PLC 1

Summary

Manufacturer: YASKAWA Electric Corporation Series: MP/SERVO Ethernet Port: Ethernet (UDP)

Text Data Mode: 1 [Change](#)

Communication Settings

Port No.: 1024 ☒ Auto

Timeout: 3 (sec)

Retry: 2

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

Device-Specific Settings

Allowable Number of Devices/PLCs: 32

Number	Device Name	Settings
1	PLC1	Series=MP Series, IP Address=192.168.0.001

#### ◆ 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 to add another External Device.

Individual Device Settings

PLC1

Product: MP Series

If you change the product or series, please reconfirm all address settings.

IP Address: 192.168.0.1

[Default](#)

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

#### ◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device address in the [Individual Device Settings] dialog box.
- You need to set IP address on the Display in the off-line mode of the Display.

## ■ Settings of External Device

Use the ladder software (MPE720) to set up communication settings for the communication module CPU unit.

For details on communication settings, please refer to the manual of the External Device.

The setup procedure differs depending on the version of your ladder software.

### ◆ Ladder Software Setting (for MPE720 Ver.5)

1 Start the ladder software, and in the root folder make the order and PLC folders.

2 Right-click the generated External Device, and from the shortcut menu select Logon.

#### NOTE

- In the shortcut menu, please confirm there is no check mark beside the [Online] command before logging on.
- For methods on logging on, refer to the User's Manual of the External Device.

3 From the PLC folder, double-click the [Definition folder]'s [Module Configuration] to display the [Engineering Manager].

4 In the [Engineering Manager]'s [Controller], use the pull-down menu to select the rack classification and communication module.

Set the number associated with the slot number used by the communication module.

When you select the communication module, its setting information is displayed in the [Engineering Manager]'s [Module details].

5 In the [Module details], double-click the No. field's numeric portion.

Double-click the number associated with the slot number connected to the Ethernet unit.

Setup Items		Setup Description
Transmission parameter	This Station IP address	PLC IP address

#### IMPORTANT

- Please make the connection parameter blank.  
Communication is not possible when a connection parameter is set.

6 Save the settings and exit [Engineering Manager].

7 After turning ON the communication module's "INIT" DIP Switch, turn ON the power supply.

8 Transfer the settings to the communication module.

9 While online, logon to the External Device. Write the transferred data to FLASH memory.

10 Turn OFF the External Device's power supply, turn OFF the "INIT" DIP Switch, and turn the External Device's power back ON.

◆ Ladder Software Setting (for MPE720 Ver.6)

- 1 Start the ladder software.
- 2 Make a project file.
- 3 From the tree view, double-click [Module Configuration].  
[Engineering Manager] starts.
- 4 In the [Engineering Manager]'s [Controller], use the pull-down menu to select the rack classification and communication module.  
Set the number associated with the slot number used by the communication module.  
When you select the communication module, its setting information is displayed in the [Engineering Manager]'s [Module details].
- 5 In the [Module details], double-click the No. field's numeric portion.  
Double-click the number associated with the slot number connected to the Ethernet unit.

Setup Items		Setup Description
Transmission parameter	This Station IP address	PLC IP address

**IMPORTANT**

- Please make the connection parameter blank.  
Communication is not possible when a connection parameter is set.

- 6 Save the settings and exit [Engineering Manager].
- 7 After turning ON the communication module's "INIT" DIP Switch, turn ON the power supply.
- 8 Write the settings to the communication module.

**IMPORTANT**

- To write the settings, select the [Save to flash after transferring to the controller] check box.  
If the data is transferred without selecting the check box, the transferred data is deleted when restarting the External Device.

- 9 Turn OFF the External Device's power supply, turn OFF the "INIT" DIP Switch, and turn the External Device's power back ON.

◆ Notes

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

### 3.3 Setting Example 3

#### ■ Settings of GP-Pro EX

##### ◆ Communication Settings

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

##### ◆ 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 to add another External Device.

##### ◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device address in the [Individual Device Settings] dialog box.
- You need to set IP address on the Display in the off-line mode of the Display.

## ■ Settings of External Device

Use the ladder software (MPE720) to set up communication settings for the communication module 218IF-01.

For details on communication settings, please refer to the manual of the External Device.

The setup procedure differs depending on the version of your ladder software.

### ◆ Ladder Software Setting (for MPE720 Ver.5)

1 Start the ladder software, and in the root folder make the order and PLC folders.

2 Right-click the generated External Device, and from the shortcut menu select Logon.

#### NOTE

- In the shortcut menu, please confirm there is no check mark beside the [Online] command before logging on.
- For methods on logging on, refer to the User's Manual of the External Device.

3 From the PLC folder, double-click the [Definition folder]'s [Module Configuration] to display the [Engineering Manager].

4 In the [Engineering Manager]'s [Controller], use the pull-down menu to select the rack classification and communication module.

Set the number associated with the slot number used by the communication module.

When you select the communication module, its setting information is displayed in the [Engineering Manager]'s [Module details].

5 In the [Module details], double-click the No. field's numeric portion.

Double-click the number associated with the slot number connected to the Ethernet unit.

Setup Items		Setup Description
Transmission parameter	This Station IP address	PLC IP address

#### IMPORTANT

- Please make the connection parameter blank.  
Communication is not possible when a connection parameter is set.

6 Save the settings and exit [Engineering Manager].

7 After turning ON the communication module's "INIT" DIP Switch, turn ON the power supply.

8 Transfer the settings to the communication module.

9 While online, logon to the External Device. Write the transferred data to FLASH memory.

10 Turn OFF the External Device's power supply, turn OFF the "INIT" DIP Switch, and turn the External Device's power back ON.

◆ Ladder Software Setting (for MPE720 Ver.6)

- 1 Start the ladder software.
- 2 Make a project file.
- 3 From the tree view, double-click [Module Configuration].  
[Engineering Manager] starts.
- 4 In the [Engineering Manager]'s [Controller], use the pull-down menu to select the rack classification and communication module.  
Set the number associated with the slot number used by the communication module.  
When you select the communication module, its setting information is displayed in the [Engineering Manager]'s [Module details].
- 5 In the [Module details], double-click the No. field's numeric portion.  
Double-click the number associated with the slot number connected to the Ethernet unit.

Setup Items		Setup Description
Transmission parameter	This Station IP address	PLC IP address

**IMPORTANT**

- Please make the connection parameter blank.  
Communication is not possible when a connection parameter is set.

- 6 Save the settings and exit [Engineering Manager].
- 7 After turning ON the communication module's "INIT" DIP Switch, turn ON the power supply.
- 8 Write the settings to the communication module.

**IMPORTANT**

- To write the settings, select the [Save to flash after transferring to the controller] check box.  
If the data is transferred without selecting the check box, the transferred data is deleted when restarting the External Device.

- 9 Turn OFF the External Device's power supply, turn OFF the "INIT" DIP Switch, and turn the External Device's power back ON.

◆ Notes

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

### 3.4 Setting Example 4

#### ■ Settings of GP-Pro EX

##### ◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer: YASKAWA Electric Corporation Series: MP/SERVO Ethernet Port: Ethernet (UDP)

Text Data Mode: 1 [Change](#)

Communication Settings

Port No.: 1024 ☒ Auto

Timeout: 3 (sec)

Retry: 2

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

Device-Specific Settings

Allowable Number of Devices/PLCs: 32 [Settings](#)

Number	Device Name	Settings
1	PLC1	Series=MP Series, IP Address=192.168.0.001

##### ◆ 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 [\[Add\]](#) to add another External Device.

Individual Device Settings

PLC1

Product: MP Series

If you change the product or series, please reconfirm all address settings.

IP Address: 192.168.0.1

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

##### ◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device address in the [Individual Device Settings] dialog box.
- You need to set IP address on the Display in the off-line mode of the Display.

## ■ Settings of External Device

Use the ladder software (MPE720) to set up communication settings for the communication module 218IF-01.

For details on communication settings, please refer to the manual of the External Device.

The setup procedure differs depending on the version of your ladder software.

### ◆ Ladder Software Setting (for MPE720 Ver.5)

- 1 Start the ladder software, and in the root folder make the order and PLC folders.
- 2 Right-click the generated External Device, and from the shortcut menu select Logon.

#### NOTE

- In the shortcut menu, please confirm there is no check mark beside the [Online] command before logging on.
- For methods on logging on, refer to the User's Manual of the External Device.

- 3 From the PLC folder, double-click the [Definition folder]'s [Module Configuration] to display the [Engineering Manager].
- 4 In the [Engineering Manager]'s [Controller], use the pull-down menu to select the rack classification and communication module.  
Set the number associated with the slot number used by the communication module.  
When you select the communication module, its setting information is displayed in the [Engineering Manager]'s [Module details].
- 5 In the [Module details], double-click the No. field's numeric portion.  
Double-click the number associated with the slot number connected to the Ethernet unit.

Setup Items		Setup Description
Transmission parameter	This Station IP address	PLC IP address

#### IMPORTANT

- Please make the connection parameter blank.  
Communication is not possible when a connection parameter is set.

- 6 Save the settings and exit [Engineering Manager].
- 7 After turning ON the communication module's "INIT" DIP Switch, turn ON the power supply.
- 8 Transfer the settings to the communication module.
- 9 While online, logon to the External Device. Write the transferred data to FLASH memory.
- 10 Turn OFF the External Device's power supply, turn OFF the "INIT" DIP Switch, and turn the External Device's power back ON.



◆ Ladder Software Setting (for MPE720 Ver.6)

- 1 Start the ladder software.
- 2 Make a project file.
- 3 From the tree view, double-click [Module Configuration].  
[Engineering Manager] starts.
- 4 In the [Engineering Manager]'s [Controller], use the pull-down menu to select the rack classification and communication module.  
Set the number associated with the slot number used by the communication module.  
When you select the communication module, its setting information is displayed in the [Engineering Manager]'s [Module details].
- 5 In the in [Module details], double-click the No. field's numeric portion.  
Double-click the number associated with the slot number connected to the Ethernet unit.

Setup Items		Setup Description
Transmission parameter	This Station IP address	PLC IP address

**IMPORTANT**

- Please make the connection parameter blank.  
Communication is not possible when a connection parameter is set.

- 6 Save the settings and exit [Engineering Manager].
- 7 After turning ON the communication module's "INIT" DIP Switch, turn ON the power supply.
- 8 Write the settings to the communication module.

**IMPORTANT**

- To write the settings, select the [Save to flash after transferring to the controller] check box.  
If the data is transferred without selecting the check box, the transferred data is deleted when restarting the External Device.

- 9 Turn OFF the External Device's power supply, turn OFF the "INIT" DIP Switch, and turn the External Device's power back ON.

◆ Notes

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

### 3.5 Setting Example 5

#### ■ Settings of GP-Pro EX

##### ◆ Communication Settings

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

#### IMPORTANT

- To connect  $\Sigma$ -V Series using a 1:n connection, [Wait To Send] must be 100ms or more.

##### ◆ 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 to add another External Device.

##### ◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device address in the [Individual Device Settings] dialog box.
- You need to set IP address on the Display in the off-line mode of the Display.

## ■ Settings of External Device

Set communication settings for both MP and  $\Sigma$ -V Series.

### ◆ MP Series Setting

Use the ladder software (MPE720) to set up communication settings.

For details on communication settings, please refer to the manual of the External Device.

1 Start the ladder software.

2 Make a project file.

3 From the tree view, double-click [Module Configuration].

[Engineering Manager] starts.

4 In the [Create new file] dialog box, click [OK].

5 In the [Engineering Manager]'s [Controller], use the pull-down menu to select MECHATROLINK connection module.

Select the number associated with the slot number used by the module.

When you select the MECHATROLINK connection module, its setting information is displayed in the [Engineering Manager]'s [Module details].

6 In the [module Details]'s [Circuit Number] field, enter "01".

Set up the same value as the Display's circuit number.

7 In [Details], double-click [MECHATROLINK].

8 Click the [Link Assignments] tab, and then set [ST#]'s [01] field as follows.

Setup Items	Setup Description
TYPE	Select the type of $\Sigma$ -V Series you are using.

#### NOTE

- [ST#] is defined based on the  $\Sigma$ -V Series station address.  
When the station address is 41H, define "ST#01".

9 In the [Engineering Manager]'s [Controller], select CPU.

10 In the [Module details], double-click the communication module's No. field.

11 Set [Transmission Parameters] as follows.

Setup Items	Setup Description
IP Address	192.168.0.1
Subnet Mask	255.255.255.0

12 From the [File] menu select [Save] to save your settings, and exit [Engineering Manager].

13 Write the settings to the MP Series.

#### IMPORTANT

- To write the settings, select the [Save to flash after transferring to the controller] check box.  
If the data is transferred without selecting the check box, the transferred data is deleted when restarting the External Device.

### ◆ $\Sigma$ -V Series Setting

Set up communication settings with the DIP Switch (SW2) and the rotary switch (SW1). For example, when the SW2-3 is OFF and SW1 is 1, the station address is 41H.

For details on communication settings, please refer to the manual for the External Device.

- DIP Switch (SW2) Setting

DIP Switch	Settings	Setup Description
1	ON	Communication speed: 10Mbps (MECHATROLINK-II)
2	Optional	Data transfer size. ON: 32-byte data transfer OFF: 17-byte data transfer
3	OFF	Define the station address in combination with the rotary switch (SW1). ON: Tenth's position of station address is 0x5 OFF: Tenth's position of station address is 0x4
4	OFF	Always OFF

- Rotary Switch (SW1) Setting

Set the station address in combination with the DIP Switch (SW2), number 3.

Rotary Switch	Settings	Setup Description
SW1	1	Ones place of the station address

### ◆ Notes

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

### 3.6 Setting Example 6

#### ■ Settings of GP-Pro EX

##### ◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer: YASKAWA Electric Corporation Series: MP/SERVO Ethernet Port: Ethernet (UDP)

Text Data Mode: 1 [Change](#)

Communication Settings

Port No.: 1024 ☒ Auto

Timeout: 3 (sec)

Retry: 2

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

Device-Specific Settings

Allowable Number of Devices/PLCs: 32

Number	Device Name	Settings
1	PLC1	Series=Sigma-V Series Linear Motor(M-II) Relay IP Address=192.168.0.001

#### IMPORTANT

- To connect  $\Sigma$ -V Series using a 1:n connection, [Wait To Send] must be 100ms or more.

##### ◆ 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 to add another External Device.

Individual Device Settings

PLC1

Product: Servo

Series: Sigma-V Series Linear Motor(M-II)

If you change the product or series, please reconfirm all address settings.

Relay IP Address: 192.168.0.1

Device Type: MECHATROLINK-II

Circuit No.: 1

Station No.: 65

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

##### ◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device address in the [Individual Device Settings] dialog box.
- You need to set IP address on the Display in the off-line mode of the Display.

## ■ Settings of External Device

Set communication settings for both MP and  $\Sigma$ -V Series.

### ◆ MP Series Setting

Use the ladder software (MPE720) to set up communication settings.

For details on communication settings, please refer to the manual of the External Device.

- 1 Start the ladder software.
- 2 Make a project file.
- 3 From the tree view, double-click [Module Configuration].  
[Engineering Manager] starts.
- 4 In the [Create new file] dialog box, click [OK].
- 5 In the [Engineering Manager]'s [Controller], use the pull-down menu to select MECHATROLINK connection module.  
Select the number associated with the slot number used by the module.  
When you select the MECHATROLINK connection module, its setting information is displayed in the [Engineering Manager]'s [Module details].
- 6 In the [module Details]'s [Circuit Number] field, enter "01".  
Set up the same value as the Display's circuit number.
- 7 In [Details], double-click [MECHATROLINK].
- 8 Click the [Link Assignments] tab, and then set [ST#]'s [01] field as follows.

Setup Items	Setup Description
TYPE	Select the type of $\Sigma$ -V Series you are using.

#### NOTE

- [ST#] is defined based on the  $\Sigma$ -V Series station address.  
When the station address is 41H, define "ST#01".

- 9 In the [Engineering Manager]'s [Controller], select CPU.
- 10 In the [Module details], double-click the communication module's No. field.
- 11 Set [Transmission Parameters] as follows.

Setup Items	Setup Description
IP Address	192.168.0.1
Subnet Mask	255.255.255.0

- 12 From the [File] menu select [Save] to save your settings, and exit [Engineering Manager].
- 13 Write the settings to the MP Series.

#### IMPORTANT

- To write the settings, select the [Save to flash after transferring to the controller] check box.  
If the data is transferred without selecting the check box, the transferred data is deleted when restarting the External Device.

### ◆ $\Sigma$ -V Series Setting

Set up communication settings with the DIP Switch (SW2) and the rotary switch (SW1). For example, when the SW2-3 is OFF and SW1 is 1, the station address is 41H.

For details on communication settings, please refer to the manual for the External Device.

- DIP Switch (SW2) Setting

DIP Switch	Settings	Setup Description
1	ON	Communication speed: 10Mbps (MECHATROLINK-II)
2	Optional	Data transfer size. ON: 32-byte data transfer OFF: 17-byte data transfer
3	OFF	Define the station address in combination with the rotary switch (SW1). ON: Tenth's position of station address is 0x5 OFF: Tenth's position of station address is 0x4
4	OFF	Always OFF

- Rotary Switch (SW1) Setting

Set the station address in combination with the DIP Switch (SW2), number 3.

Rotary Switch	Settings	Setup Description
SW1	1	Ones place of the station address

### ◆ Notes

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

### 3.7 Setting Example 7

#### ■ Settings of GP-Pro EX

##### ◆ Communication Settings

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

Device/PLC 1

Summary

Manufacturer: YASKAWA Electric Corporation Series: MP/SERVO Ethernet Port: Ethernet (UDP)

Text Data Mode: 1 [Change](#)

Communication Settings

Port No.: 1024 ☒ Auto

Timeout: 3 (sec)

Retry: 2

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

Device-Specific Settings

Allowable Number of Devices/PLCs: 32

Number	Device Name	Settings
1	PLC1	Series=Sigma-V Series Rotational Motor(M-III),Relay IP Address=192.168.000.00

#### IMPORTANT

- To connect  $\Sigma$ -V Series using a 1:n connection, [Wait To Send] must be 100ms or more.

##### ◆ 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 to add another External Device.

Individual Device Settings

PLC1

Product: Servo

Series: Sigma-V Series Rotational Motor(M-III)

If you change the product or series, please reconfirm all address settings.

Relay IP Address: 192.168.0.1

Device Type: MECHATROLINK-III

Circuit No.: 1

Station No.: 3

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

##### ◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device address in the [Individual Device Settings] dialog box.
- You need to set IP address on the Display in the off-line mode of the Display.



## ■ Settings of External Device

Set communication settings for both MP and  $\Sigma$ -V Series.

### ◆ MP Series Setting

Use the ladder software (MPE720) to set up communication settings.

For details on communication settings, please refer to the manual of the External Device.

- 1 Start the ladder software.
- 2 Make a project file.
- 3 From the tree view, double-click [Module Configuration].  
[Engineering Manager] starts.
- 4 In the [Create new file] dialog box, click [OK].
- 5 In the [Engineering Manager]'s [Controller], use the pull-down menu to select MECHATROLINK connection module.  
Select the number associated with the slot number used by the module.  
When you select the MECHATROLINK connection module, its setting information is displayed in the [Engineering Manager]'s [Module details].
- 6 In the [module Details]'s [Circuit Number] field, enter "01".  
Set up the same value as the Display's circuit number.
- 7 In [Details], double-click [MECHATROLINK].
- 8 Click the [Link Assignments] tab, and then [ST#]'s [01] as follows.

Setup Items	Setup Description
ADR	03H
ExADR	00
VENDOR	Yaskawa Electric co.
DEVICE	$\Sigma$ -V Series type

#### NOTE

- [PROFILE], [BYTE] and [SCAN] are defined automatically.

- 9 In the [Engineering Manager]'s [Controller], select CPU.
- 10 In the [Module details], double-click the communication module's No. field.
- 11 Set [Transmission Parameters] as follows.

Setup Items	Setup Description
IP Address	192.168.0.1
Subnet Mask	255.255.255.0

- 12 From the [File] menu select [Save] to save your settings, and exit [Engineering Manager].
- 13 Write the settings to MP Series.

#### IMPORTANT

- To write the settings, select the [Save to flash after transferring to the controller] check box.  
If the data is transferred without selecting the check box, the transferred data is deleted when restarting the External Device.

◆  $\Sigma$ -V Series Setting

Set up communication settings with rotary switches (S1 and S2).

For details on communication settings, please refer to the manual of the External Device.

Rotary Switch	Settings	Setup Description
S1 (x16)	0	Station address
S2 (x1)	3	

## ◆ Notes

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

### 3.8 Setting Example 8

#### ■ Settings of GP-Pro EX

##### ◆ Communication Settings

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

Device/PLC 1

Summary

Manufacturer: YASKAWA Electric Corporation Series: MP/SERVO Ethernet Port: Ethernet (UDP) [Change Device/PLC](#)

Text Data Mode: 1 [Change](#)

Communication Settings

Port No.: 1024 ☒ Auto

Timeout: 3 (sec)

Retry: 2

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

Device-Specific Settings

Allowable Number of Devices/PLCs: 32

Number	Device Name	Settings
1	PLC1	Series=Sigma-V Series Linear Motor(M-III), Relay IP Address=192.168.000.001.D

#### IMPORTANT

- To connect  $\Sigma$ -V Series using a 1:n connection, [Wait To Send] must be 100ms or more.

##### ◆ 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 to add another External Device.

Individual Device Settings

PLC1

Product: Servo

Series: Sigma-V Series Linear Motor(M-III)

If you change the product or series, please reconfirm all address settings.

Relay IP Address: 192.168.0.1

Device Type: MECHATROLINK-III

Circuit No.: 1

Station No.: 3

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

##### ◆ Notes

- Check with a network administrator about IP address. Do not set the duplicate IP address.
- Set IP address on the External Device address in the [Individual Device Settings] dialog box.
- You need to set IP address on the Display in the off-line mode of the Display.

## ■ Settings of External Device

Set communication settings for both MP and  $\Sigma$ -V Series.

### ◆ MP Series Setting

Use the ladder software (MPE720) to set up communication settings.

For details on communication settings, please refer to the manual of the External Device.

- 1 Start the ladder software.
- 2 Make a project file.
- 3 From the tree view, double-click [Module Configuration].  
[Engineering Manager] starts.
- 4 In the [Create new file] dialog box, click [OK].
- 5 In the [Engineering Manager]'s [Controller], use the pull-down menu to select MECHATROLINK connection module.  
Select the number associated with the slot number used by the module.  
When you select the MECHATROLINK connection module, its setting information is displayed in the [Engineering Manager]'s [Module details].
- 6 In the [module Details]'s [Circuit Number] field, enter "01".  
Set up the same value as the Display's circuit number.
- 7 In [Details], double-click [MECHATROLINK].
- 8 Click the [Link Assignments] tab, and then [ST#]'s [01] as follows.

Setup Items	Setup Description
ADR	03H
ExADR	00
VENDOR	Yaskawa Electric co.
DEVICE	$\Sigma$ -V Series type

#### NOTE

- [PROFILE], [BYTE] and [SCAN] are defined automatically.

- 9 In the [Engineering Manager]'s [Controller], select CPU.
- 10 In the [Module details], double-click the communication module's No. field.
- 11 Set [Transmission Parameters] as follows.

Setup Items	Setup Description
IP Address	192.168.0.1
Subnet Mask	255.255.255.0

- 12 From the [File] menu select [Save] to save your settings, and exit [Engineering Manager].
- 13 Write the settings to MP Series.

#### IMPORTANT

- To write the settings, select the [Save to flash after transferring to the controller] check box.  
If the data is transferred without selecting the check box, the transferred data is deleted when restarting the External Device.

**◆  $\Sigma$ -V Series Setting**

Set up communication settings with rotary switches (S1 and S2).

For details on communication settings, please refer to the manual of the External Device.

Rotary Switch	Settings	Setup Description
S1 (x16)	0	Station address
S2 (x1)	3	

**◆ Notes**

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

## 4 Setup Items

Set up the Display's communication settings in GP Pro-EX or in the Display's off-line mode.

The setting of each parameter must match that of the External Device.

☞ "3 Communication Settings" (page 6)

### NOTE

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

Cf. Maintenance/Troubleshooting Guide "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.

Device/PLC 1

Summary

Manufacturer: YASKAWA Electric Corporation Series: MP/SERVO Ethernet Port: Ethernet (UDP) [Change Device/PLC](#)

Text Data Mode: 1 [Change](#)

Communication Settings

Port No.: 1024 ☒ Auto

Timeout: 3 (sec)

Retry: 2

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


Device-Specific Settings


Allowable Number of Devices/PLCs: 32

Number	Device Name	Settings
1	PLC1	Series=MP Series, IP Address=192.168.0.001

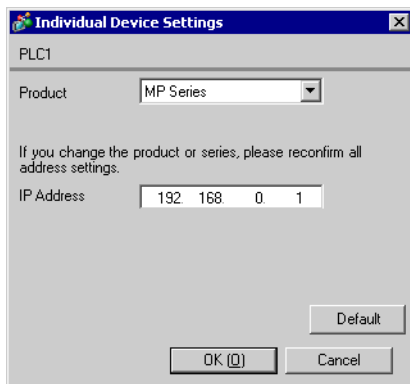
Setup Items	Setup Description
Port No.	Enter a port number of the External Device, using 1024 to 65535. Check into [Auto], and a port number is set automatically.
Timeout	Use an integer from 1 to 127 to enter the time (s) for which Display waits for the response from External Device.
Retry	In case of 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

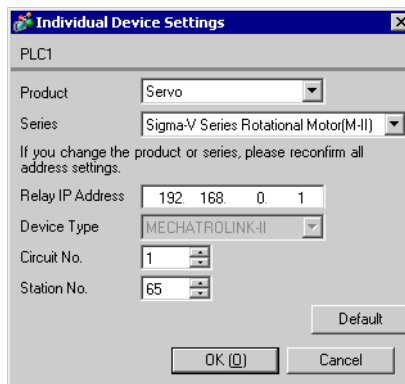
To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the External Device and click  [Settings].

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click  to add another External Device.

MP Series



The dialog box is titled "Individual Device Settings" and has a tab labeled "PLC1". The "Product" dropdown menu is set to "MP Series". Below this, a note states: "If you change the product or series, please reconfirm all address settings." The "IP Address" field is set to "192. 168. 0. 1". At the bottom right is a "Default" button, and at the bottom are "OK (O)" and "Cancel" buttons.

 $\Sigma$ -V Series


The dialog box is titled "Individual Device Settings" and has a tab labeled "PLC1". The "Product" dropdown menu is set to "Servo". The "Series" dropdown menu is set to "Sigma-V Series Rotational Motor(M-II)". Below this, a note states: "If you change the product or series, please reconfirm all address settings." The "Relay IP Address" field is set to "192. 168. 0. 1". The "Device Type" dropdown menu is set to "MECHATROLINK-II". The "Circuit No." field is set to "1" and the "Station No." field is set to "65". At the bottom right is a "Default" button, and at the bottom are "OK (O)" and "Cancel" buttons.

Setup Items	Setup Description
Product	Select the product name of the External Device.
Series	Select the series of the External Device.
IP Address / Relay IP Address	Set IP address of the External Device. <b>NOTE</b> <ul style="list-style-type: none"> <li>Check with a network administrator about IP address. Do not set the duplicate IP address.</li> </ul>
Circuit No.	Enter the circuit No. of the MECHATROLINK, from 1 to 16.
Station No.	Enter the station No. of the $\Sigma$ -V Series. MECHATROLINK-II: "65 to 79" and "80 to 95" MECHATROLINK-III: "3 to 239"

**IMPORTANT** • When communicating with the  $\Sigma$ -V Series, up to the third octet in the subnet mask should be set to 255.  
e.g.: 255.255.255.0 etc.

## 4.2 Setup Items in Off-Line Mode

**NOTE**

- Please refer to Maintenance/Troubleshooting Guide for more information on how to enter off-line mode or about operation.

Cf. Maintenance/Troubleshooting Guide "Offline Mode"

### ◆ Communication Settings

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

Comm.	Device			
MP/SERVO Ethernet			[UDP]	Page 1/1
Port No.	<input type="radio"/> Fixed <input checked="" type="radio"/> Auto	<input type="text" value="1024"/> ▼ ▲		
Timeout(s)		<input type="text" value="3"/> ▼ ▲		
Retry		<input type="text" value="2"/> ▼ ▲		
Wait To Send(ms)		<input type="text" value="0"/> ▼ ▲		
Exit		Back		2010/05/31 13:26:56

Setup Items	Setup Description
Port No.	Enter a port number of the Display. Select either of "Fixed" "Auto". Enter a port number of the Display with "1024-65535", when select "Fixed". Assign automatically without affecting the input value, when select "Auto".
Timeout	Use an integer from 1 to 127 to enter the time (s) for which Display waits for the response from 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 Settings] in off-line mode. Touch the External Device you want to set from the displayed list, and touch [Device].

Comm.	Device			
MP/SERVO Ethernet		[UDP]	Page 1/1	
Device/PLC Name		PLC1		
Series	MP Series			
IP Address	192 168 0 1			
INVERTER/SERVO Setting				
Device Type	MECHATROLINK-III			
Circuit No.	1			
Station No.	3			
Exit		Back		2010/05/31 13:27:04

Setup Items	Setup Description
Device/PLC Name	Select the External Device for device setting. Device name is a title of the External Device set with GP-Pro EX. (Initial value [PLC1])
Series	Display the series of the External Device.
IP Address	Set IP address of the External Device. <b>NOTE</b> <ul style="list-style-type: none"> <li>Check with a network administrator about IP address. Do not set the duplicate IP address.</li> </ul>
Device Type	Select the device type.
Circuit No.	Enter the circuit No. of the MECHATROLINK, from 1 to 16.
Station No.	Enter the station No. of the $\Sigma$ -V Series. MECHATROLINK-II: "65 to 79" and "80 to 95" MECHATROLINK-III: "3 to 239"


**NOTE**


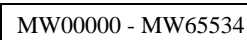
- [Device Type], [Circuit No.] and [Station No.] are available when [Series] is set to  $\Sigma$ -V Series. Please define the [Series] in GP-Pro EX.

## 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 connecting equipment.


### 5.1 MP Series

 This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
System registers	SB000000 - SB08191F	SW00000 - SW08191	 L/H	
Input registers	IB00000 - IBFFFFFF	IW0000 - IWFFFF		*1
Output registers	OB00000 - OBFFFFFF	OW0000 - OWFFFF		*1
Data registers	MB000000 - MB65534F	 MW00000 - MW65534		

\*1 As for Input and Output registers, device 0x9000-0xFFFF cannot be written.

#### 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"

5.2  $\Sigma$ -V Series

This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Normal Parameters Area	0000.0 - 0FFF.F	0000 - 0FFF	<div style="border: 1px solid black; padding: 2px; display: inline-block;">L/H</div>	*1 *2
Temporary Parameters Area	1000.0 - 1FFF.F	1000 - 1FFF		*1 *2
Monitor Area	E000.0 - EFFF.F	E000 - EFFF		*1 *2

\*1 When you write to the bit address, the Display reads the entire word, sets the defined bit, then returns the new word value to the External Device. If the ladder program writes data to this word address during the bit write process, the resulting data may be incorrect.

\*2 The following addresses are 32 bit parameters. Please use two words when reading or writing.

- Normal Parameters Area

020AH / 020EH / 0210H / 0212H / 0282H / 051BH / 0520H / 0522H / 0524H / 0526H / 0531H /  
 0804H / 0806H / 0808H / 0814H / 0819H / 0820H / 0822H / 0834H / 0836H / 0838H / 083AH /  
 083CH / 083EH / 0840H / 0890H / 0892H / 0894H / 0896H / 0898H / 089AH / 089CH / 089EH /  
 08A0H / 08A2H / 08A4H / 08A6H / 08A8H / 08AAH / 08ACH / 08AEH / 08B0H / 08B2H / 08B4H /  
 08B6H / 08B8H / 08BAH / 08BCH / 08BEH / 0A02H / 0A04H / 0A06H / 0A08H / 0A0AH / 0A0CH /  
 0A0EH / 0A10H / 0A12H / 0A14H / 0A16H / 0A18H / 0A42H / 0A44H / 0A46H / 0A48H / 0A4AH /  
 0A4CH / 0A4EH / 0A50H / 0A52H / 0A82H / 0A84H / 0A86H / 0A88H / 0A8AH / 0A8CH / 0A8EH /  
 0A90H / 0A92H / 0AC2H / 0AC4H / 0AC6H / 0AC8H / 0ACAH / 0ACCH / 0ACEH / 0B02H / 0B04H /  
 0B06H / 0B08H / 0B0AH / 0B0CH / 0B0EH / 0B10H / 0B12H / 0B14H / 0B16H / 0B18H / 0B1AH /  
 0B1CH / 0B1EH / 0B20H / 0B22H / 0B24H / 0B26H /

- Temporary Parameters Area

120AH / 120EH / 1210H / 1212H / 1282H / 151BH / 1520H / 1522H / 1524H / 1526H / 1531H /  
 1804H / 1806H / 1808H / 1814H / 1819H / 1820H / 1822H / 1834H / 1836H / 1838H / 183AH /  
 183CH / 183EH / 1840H / 1890H / 1892H / 1894H / 1896H / 1898H / 189AH / 189CH / 189EH /  
 18A0H / 18A2H / 18A4H / 18A6H / 18A8H / 18AAH / 18ACH / 18AEH / 18B0H / 18B2H / 18B4H /  
 18B6H / 18B8H / 18BAH / 18BCH / 18BEH / 1A02H / 1A04H / 1A06H / 1A08H / 1A0AH / 1A0CH /  
 1A0EH / 1A10H / 1A12H / 1A14H / 1A16H / 1A18H / 1A42H / 1A44H / 1A46H / 1A48H / 1A4AH /  
 1A4CH / 1A4EH / 1A50H / 1A52H / 1A82H / 1A84H / 1A86H / 1A88H / 1A8AH / 1A8CH / 1A8EH /  
 1A90H / 1A92H / 1AC2H / 1AC4H / 1AC6H / 1AC8H / 1ACAH / 1ACCH / 1ACEH / 1B02H / 1B04H /  
 1B06H / 1B08H / 1B0AH / 1B0CH / 1B0EH / 1B10H / 1B12H / 1B14H / 1B16H / 1B18H / 1B1AH /  
 1B1CH / 1B1EH / 1B20H / 1B22H / 1B24H / 1B26H /

- Monitor Area

E003H / E009H / E00EH / E010H / E012H / E016H / E01BH / E084H / E52AH / E52CH / E52EH /  
 E530H / E532H / E534H / E536H / E538H / E53AH / E53CH / E601H / E603H / E605H / E707H

**NOTE**

- You can only set the Read Area Size for the system area available to use in the External Device. Please refer to the GP-Pro EX Reference Manual for Read Area Size.
  - 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"

## ■ Normal Parameters Area

This area is used to map the External Device's user constant parameters. The register number is defined by adding the Pn number and the offset value. The normal parameters area offset value is 0000H.

For details on the Pn number and register mapping, please refer to the manual of the External Device.

Operation	Description
Read	Reads volatile memory such as RAM for values. Unable to read values from non-volatile memory such as EEPROM.
Write	Writes values to volatile memory such as RAM, and non-volatile memory such as EEPROM.

### NOTE

- You cannot run consecutive reads from, or consecutive writes to, different register groups.  
Example: When consecutively reading from or writing to 07FFH to 0800H, the message "Data Consistency Error (33H)" or "Access Denied Error (31H)" is displayed.
- If you specify a nonexistent register number, the message "Access Denied Error (31H)," is displayed.

## ■ Temporary Parameters Area

This area is used to map the External Device's user constant parameters. The register number is defined by adding the Pn number and the offset value. The temporary parameters area offset value is 1000H.

For details on the Pn number and register mapping, please refer to the manual of the External Device.

Operation	Description
Read	Reads volatile memory such as RAM for values.
Write	Writes values to volatile memory such as RAM.

Since writing to Temporary Parameters Area is run in volatile memory (such as RAM), values are cleared when the External Device is turned OFF.

If there is an operation, such as servo tuning, that requires an extreme number of write operations to memory, running the operation in the Temporary Parameters Area generates the following advantages.

- You can increase the life of non-volatile memory.
- You can reduce processing time.

### NOTE

- You cannot run consecutive reads from, or consecutive writes to, different register groups.  
Example: When consecutively reading from or writing to 07FFH to 0800H, the message "Data Consistency Error (33H)" or "Access Denied Error (31H)" is displayed.
- If you specify a nonexistent register number, the message "Access Denied Error (31H)," is displayed.

## ■ Monitor Area

This area is used to reference internal information (such as operating condition, alarm status, and various status flags) on the External Device. By referring to the value of a register number, you can check the status of the External Device. While the External Device is running, register values change constantly.

Register No.	Name	Unit	No. of Registers	Sign	Remarks
E000H	Motor Rotational/Translational Speed	Rotary: $\text{min}^{-1}$	1	S	Un000
		Linear: mm/s			
E001H	Reference Speed	Rotary: $\text{min}^{-1}$	1	S	Un001
		Linear: mm/s			
E002H	Internal Torque/Thrust Force Reference	%	1	S	Un002
E003H	Rotational Angle 1 (Number of Pulses from the Origin)	Pulse	2	U	Un003
E005H	Rotational Angle 2 (Angle from the Origin)	deg	1	U	Un004
E006H	Input Signal Monitor	-	1	-	Un005
E007H	Output Signal Monitor	-	1	-	Un006
E008H	Input Reference Pulse Speed	Rotary: $\text{min}^{-1}$	1	S	Un007
		Linear: mm/s			
E009H	Position Error Counter	Reference unit	2	S	Un008
E00BH	Accumulated Load Rate	%(10s cycle)	1	U	Un009
E00CH	Regenerative Load Rate	%(10s cycle)	1	U	Un00A
E00DH	Dynamic Break Consumption Power	%(10s cycle)	1	U	Un00B
E00EH	Input Reference Pulse Counter (32bit)	Pulse	2	S	Un00C
E010H	Feedback Pulse Counter (32bit)	Pulse	2	S	Un00D
E012H	Fully-closed Feedback Pulse Counter (32bit)	Pulse	2	S	Un00E
E016H	Total Operation Time	100ms	2	U	Un012
E018H	Upper Limit of Maximum Motor Speed	mm/s	1	U	Un010 (Available only in linear motor)
E019H	Upper Limit of Divided Pulse Output Setting	Pulse/Pitch	1	U	Un010 (Available only in linear motor)
E01AH	Magnetic Pole Sensor Information	-	1	-	Un011
E01BH	Feedback Pulse Counter	Reference unit	2	S	Un013
E01DH	Effective Gain Set Number	-	1	U	Un014
E01EH	Safety I/O Signal Monitor	-	1	-	Un015
E084H	Linear Scale Pitch	pm	2	U	Un084
E086H	Linear Scale Pitch Scaling Exponent	Power of Ten	1	S	Un085

Register No.	Name	Unit	No. of Registers	Sign	Remarks
E500H	Alarm History Alarm Code No. = 0	Code	1	U	Fn000-0
E501H	Alarm History Alarm Code No. = 1	Code	1	U	Fn000-1
E502H	Alarm History Alarm Code No. = 2	Code	1	U	Fn000-2
E503H	Alarm History Alarm Code No. = 3	Code	1	U	Fn000-3
E504H	Alarm History Alarm Code No. = 4	Code	1	U	Fn000-4
E505H	Alarm History Alarm Code No. = 5	Code	1	U	Fn000-5
E506H	Alarm History Alarm Code No. = 6	Code	1	U	Fn000-6
E507H	Alarm History Alarm Code No. = 7	Code	1	U	Fn000-7
E508H	Alarm History Alarm Code No. = 8	Code	1	U	Fn000-8
E509H	Alarm History Alarm Code No. = 9	Code	1	U	Fn000-9
E50AH	Current Alarm Information	Code	1	U	
E51BH	Servo Running Status	-	1	U	
E51CH	Control Mode Status	-	1	U	
E52AH	Alarm History Time Stamp No. = 0	100ms	2	U	
E52CH	Alarm History Time Stamp No. = 1	100ms	2	U	
E52EH	Alarm History Time Stamp No. = 2	100ms	2	U	
E530H	Alarm History Time Stamp No. = 3	100ms	2	U	
E532H	Alarm History Time Stamp No. = 4	100ms	2	U	
E534H	Alarm History Time Stamp No. = 5	100ms	2	U	
E536H	Alarm History Time Stamp No. = 6	100ms	2	U	
E538H	Alarm History Time Stamp No. = 7	100ms	2	U	
E53AH	Alarm History Time Stamp No. = 8	100ms	2	U	
E53CH	Alarm History Time Stamp No. = 9	100ms	2	U	

- Input Signal Monitor (E006H)

MECHATROLINK Interface Type

Bit	Status Signal	Logic	Un No.
0	SI0(CN1-13)	0 = Lo (Close) 1 = Hi (Open)	Un005
1	SI1(CN1-7)	0 = Lo (Close) 1 = Hi (Open)	
2	SI2(CN1-8)	0 = Lo (Close) 1 = Hi (Open)	
3	SI3(CN1-9)	0 = Lo (Close) 1 = Hi (Open)	
4	SI4(CN1-10)	0 = Lo (Close) 1 = Hi (Open)	
5	SI5(CN1-11)	0 = Lo (Close) 1 = Hi (Open)	
6	SI6(CN1-12)	0 = Lo (Close) 1 = Hi (Open)	
7	Reserved		

- Output Signal Monitor (E007H)

MECHATROLINK Interface Type

Bit	Status Signal	Logic	Un No.
0	ALM(CN1-3,4)	0 = Lo (Close) 1 = Hi (Open)	Un006
1	SO1(CN1-1,2)	0 = Lo (Close) 1 = Hi (Open)	
2	SO2(CN1-23,24)	0 = Lo (Close) 1 = Hi (Open)	
3	SO3(CN1-25,26)	0 = Lo (Close) 1 = Hi (Open)	
4	Reserved		
5	Reserved		
6	Reserved		
7	Reserved		

- Safety I/O Signal Monitor (E01EH)

Bit	Status Signal	Logic	Un No.
0	/HWBB1(CN8-3,4)	0 = Lo (Close) 1 = Hi (Open)	Un015
1	/HWBB2(CN8-5,6)	0 = Lo (Close) 1 = Hi (Open)	
2 to 7	Reserved		

**NOTE**

- /HWBB1 and /HWBB2 are valid only when the safety option card is not connected. When the safety option card is connected, they become indefinite.

- Servo Running Status (E51BH)

Reading	Description
0000H	Reserved (Initial State)
0001H	Alarm Occurred (A.***)
0002H	Hardwired Base Blocked (HWBB)
0003H	Forward / Reverse Run Prohibited (PTNT)
0004H	Forward Run Prohibited (P-OT)
0005H	Reverse Run Prohibited (N-OT)
0006H	Base Blocked (BB)
0007H	Base Enabled (RUN)
0008H	Magnetic Pole Detecting (PDET)

- Control Mode Status (E51CH)

Reading	Description
0000H	Speed Control Mode
0001H	Position Control Mode
0002H	Torque Control Mode

**NOTE**

- JOG Drive Mode, Origin Search Mode, and Internally Set Speed Control Mode become Speed control mode.
- Programmed JOG Drive Mode, Advanced Auto-Tuning Mode, and Easy FFT Mode become Position Control Mode.



## 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 MP Series

Device	Device Name	Device Code (HEX)	Address Code
System registers	SW/SB	0080	Word address
Input registers	IW/IB	0001	Word address
Output registers	OW/OB	0081	Word address
Data registers	MW/MB	0000	Word address

### 6.2 $\Sigma$ -V Series

Device	Device Name	Device Code (HEX)	Address Code
Normal Parameters Area	0	0000	Word address
Temporary Parameters Area	1	0001	Word address
Monitor Area	E	0009	Word address

## 7 Error Messages

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

Item	Description
No.	Error No.
Device Name	Name of External Device where error occurs. Device name is a title of 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 External Device where error occurs, or error codes received from External Device.</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;"><b>NOTE</b></div> <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**

- Please refer to the manual of External Device for more detail of received error codes.
- Please refer to "Display-related errors" of "Maintenance/Troubleshooting Guide" for a common error message to the driver.

## 7.1 MP Series

### ◆ Error Code Peculiar to PLC

Error code	Description
0x90	Transfer error.
0x92	Illegal parameter.
0x96	Register No. over.
0x9C	File is modified.
0x9D	Data access error.

### ◆ Error Messages Specific to the External Device

Message ID	Error Message	Description
RHxx128	"(Node Name):PLC is busy now(Error Code: [Hex])"	PLC is "Busy"
RHxx129	"(Node Name):Option module is not mounted(Error Code: [Hex])"	Option module not mount.
RHxx130	"(Node Name):Module is not ready(Error Code: [Hex])"	Module is not ready
RHxx131	"(Node Name):CPU is stopped(Error Code: [Hex])"	CPU is stopped
RHxx132	"(Node Name): Write protected(Error Code: [Hex])"	Write protected

## 7.2 $\Sigma$ -V Series

### ◆ PLC Error Codes

Error code	Description
0x01	Function Code Error <ul style="list-style-type: none"> <li>Unsupported function code or sub function code.</li> </ul>
0x02	Faulty Register Number <ul style="list-style-type: none"> <li>Accessing register number that is not registered.</li> </ul>
0x03	Faulty Quantity <ul style="list-style-type: none"> <li>The number of read or write data for reading is not between one and the maximum quantity (as defined per model).</li> <li>In write mode, the number of data in the message is not the specified quantity.</li> </ul>
0x30	Faulty Register Number (High Level) <ul style="list-style-type: none"> <li>Accessing register number that is not registered.</li> </ul>
0x31	Access Limit Error <ul style="list-style-type: none"> <li>Access to the specified register is not permitted.</li> </ul>
0x32	Outside Setting Range Error <ul style="list-style-type: none"> <li>The write data value is outside the maximum and minimum limit.</li> </ul>
0x33	Data Matching Error <ul style="list-style-type: none"> <li>Tried to access only a portion of registers in the multiple register unit.</li> <li>Tried to access multiple registers that exceed the register group.</li> </ul>
0x34	Condition Error <ul style="list-style-type: none"> <li>Command message content cannot be processed due to the condition defined by the register.</li> </ul>
0x35	Process Conflict Error <ul style="list-style-type: none"> <li>Cannot be processed due to priority issues with other channels.</li> </ul>

### ◆ Error Messages Specific to the External Device

Message ID	Error Message	Description
RHxx133	"(Node Name): The Series and Device Type is not correct. Connecting via (MECHATROLINK-II or MECHATROLINK-III)"	This message is displayed when the connected Device Type does not match the $\Sigma$ -V Series selected in off-line mode. Check the Device Type.