

# 24



# Connecting with Factory Gateway

|      |   |       |
|------|---|-------|
| 24.1 | Try to connect with Factory Gateway ..... | 24-2  |
| 24.2 | Setting Guide .....                       | 24-11 |
| 24.3 | Restrictions .....                        | 24-17 |

## 24.1 Try to connect with Factory Gateway

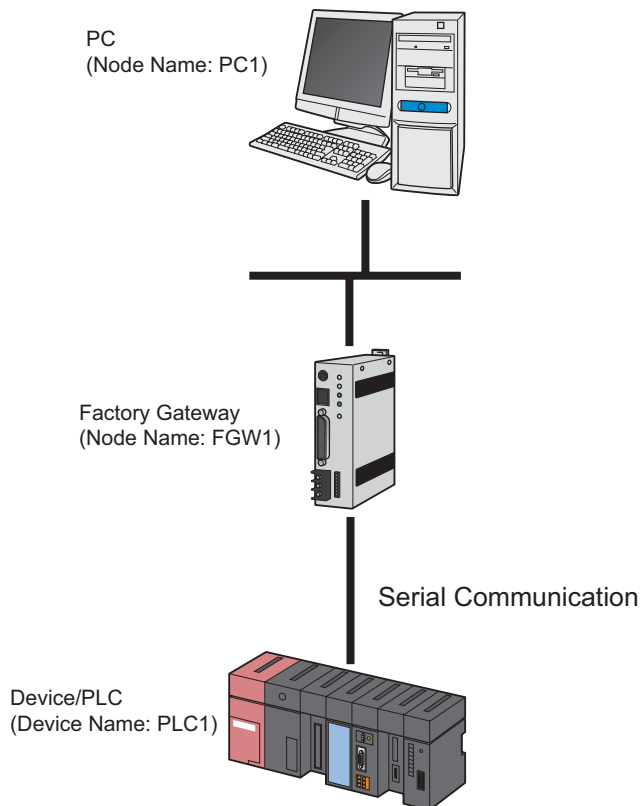
To use the Factory Gateway, it is necessary to transfer protocols of Device/PLC in advance from 'Factory Gateway Configuration Tool' or 'GP-PRO/PB III for Windows'.

After protocol transfer, you can register nodes in the same way as display unit.

- 
- |             |   |
|-------------|---|
| <b>NOTE</b> | • Once protocols have been transferred, it is unnecessary to activate 'Factory Gateway Configuration Tool' unless you change them |
|-------------|---|
- 

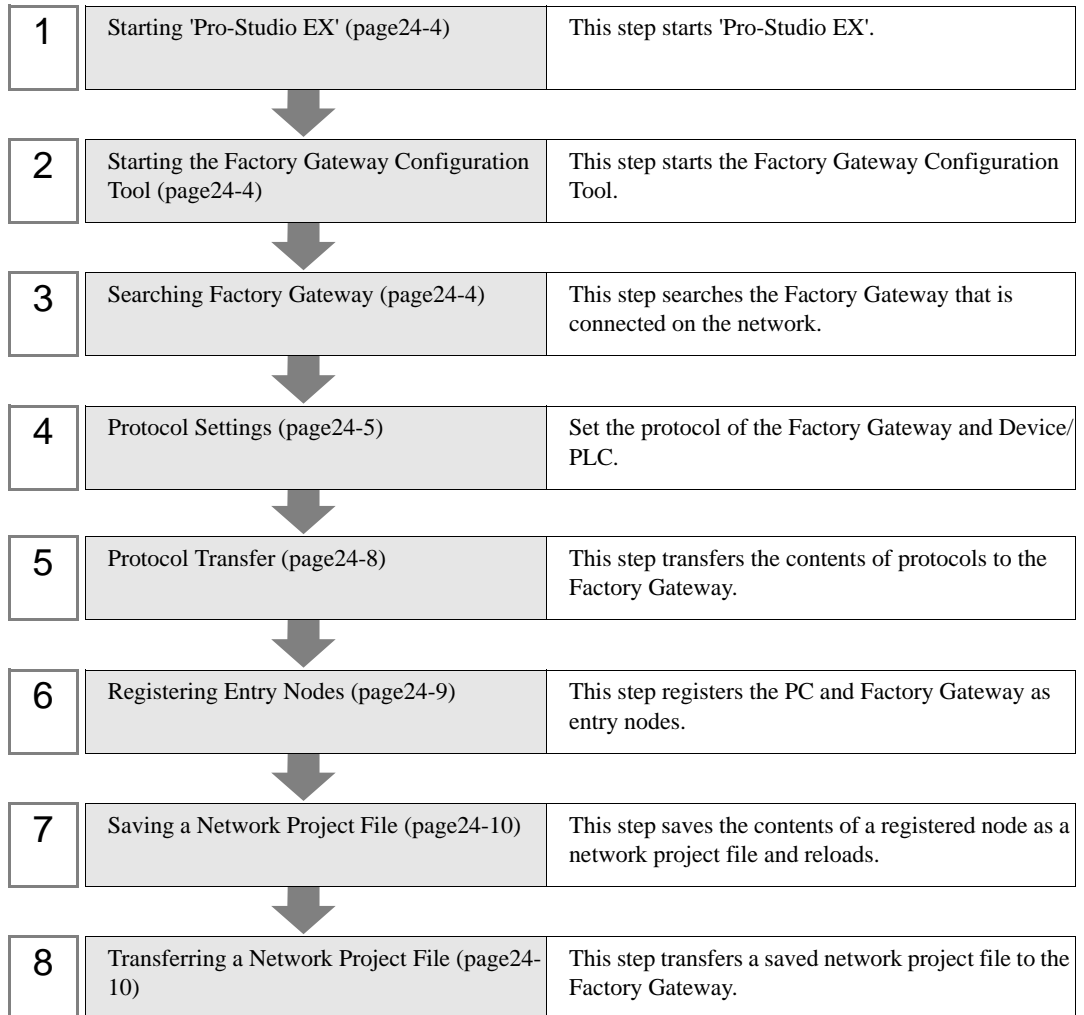
### [Connection Sample]

To connect the Factory Gateway (FGW) which is under serial communication, to Device/PLC.



This section describes the setting procedures for making the above connection as an example.

[Setting Procedure]



### 24.1.1 Starting 'Pro-Studio EX'

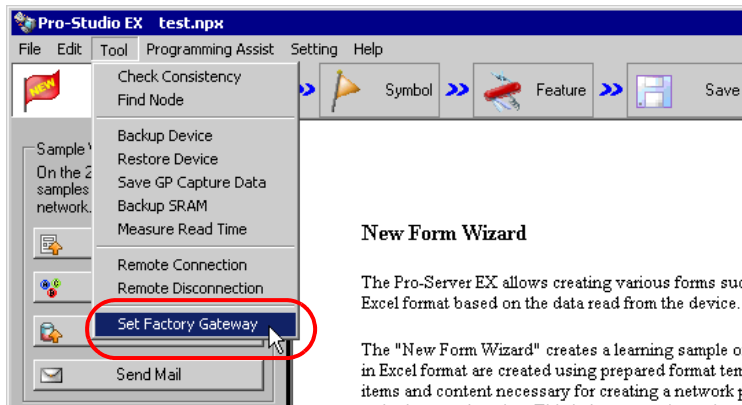
This step starts 'Pro-Studio EX'.

Refer to "3 Trial of Pro-Server EX" for details about starting method.

### 24.1.2 Starting the Factory Gateway Configuration Tool

This step starts the Factory Gateway Configuration Tool from 'Pro-Server EX'.

- 1 Click [Set Factory Gateway] of [Tool] on the menu bar.



#### New Form Wizard

The Pro-Server EX allows creating various forms such as Excel format based on the data read from the device.

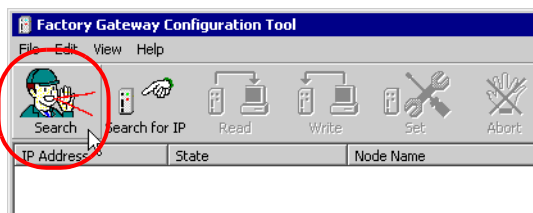
The "New Form Wizard" creates a learning sample of in Excel format are created using prepared format templates and content necessary for creating a network protocol.

The Factory Gateway Configuration Tool starts.

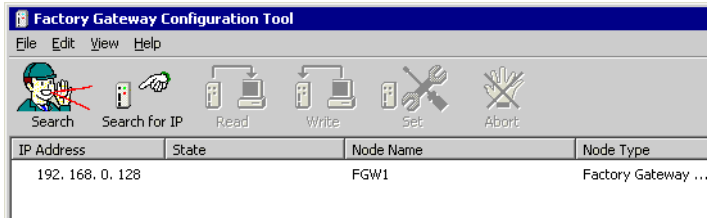
### 24.1.3 Searching Factory Gateway

This step searches the Factory Gateway that is connected on the network.

- 1 Click the [Search] button.



The connected Factory Gateway will appear.



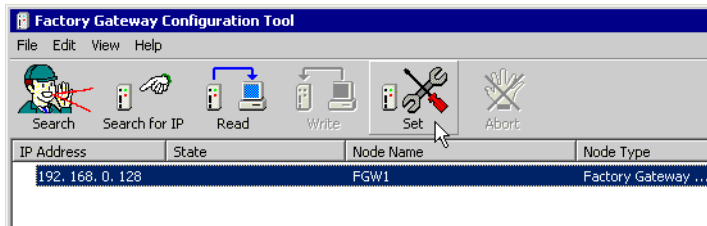
**NOTE**

- When you know the IP address set for the Factory Gateway in advance, click the [Search for IP] button to search.
- In addition to the Factory Gateway, GP and the PC where 'Pro-Server EX' is running are displayed in the list, but this configuration tool is available only for protocol setting of the Factory Gateway.
- When a protocol has not been transferred to the Factory Gateway, [PLC Type] will be blank.
- If the Factory Gateway and the PC executing 'Pro-Server EX' is not located in the same subnet mask, searching the Factory Gateway will not be carried out properly.

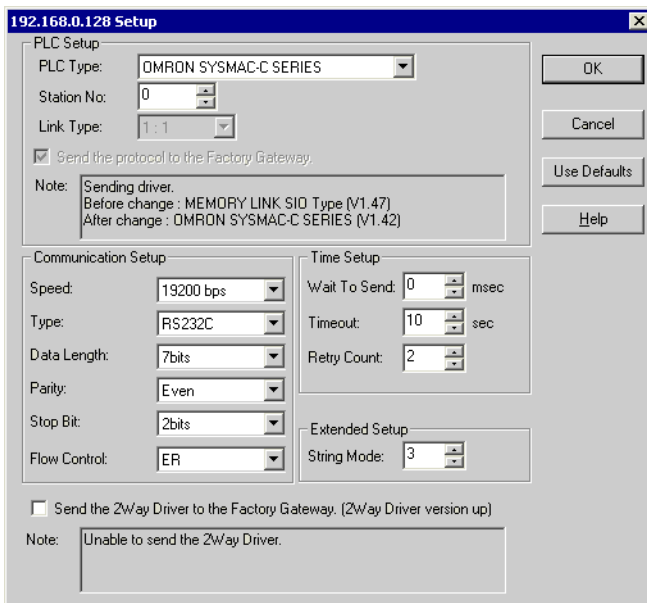
### 24.1.4 Protocol Settings

This step sets the protocol of the Factory Gateway and Device/PLC.

- 1 Select the Factory Gateway to which a protocol is transferred and click the [Set] button.

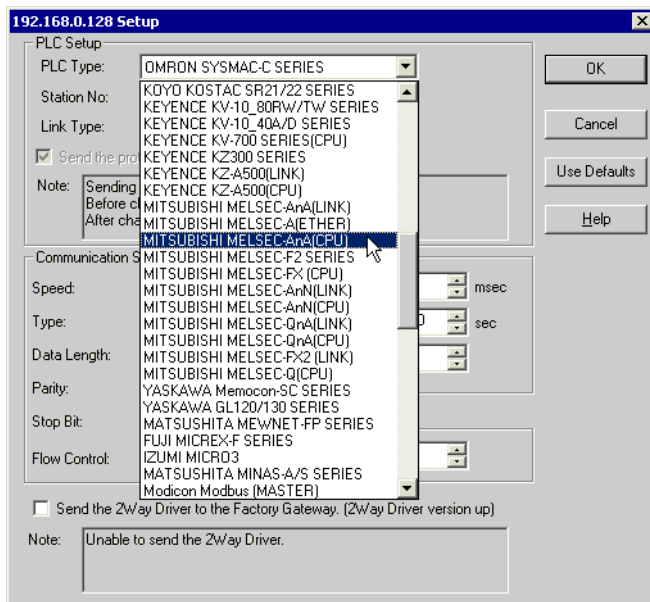


Protocol setup information of Device/PLC is read out, and the setup screen of communication protocol appears.

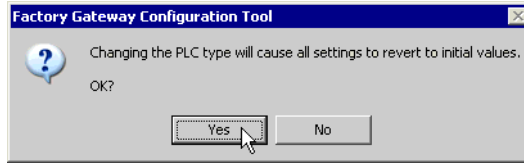


**NOTE** • When the protocol setup information has been already read out by clicking the [Read] button, the setup screen appears without reading.

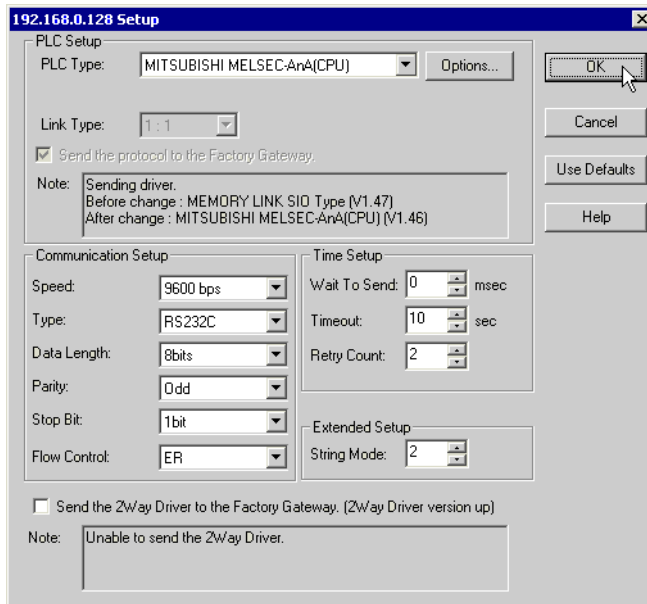
2 Select the Device/PLC connected to the Factory Gateway in [PLC Type].



- 3 All the set items will turn to the default values when the [PLC] type is changed.  
Check if the PLC type is correct and click the [Yes] button.



- 4 Set the protocol on the protocol setup screen, and click the [OK] button.



---

**NOTE** • The setup items displayed vary according to the PLC type selected.

- ☞ "■ Protocol Setup Screen (Serial)"
  - ☞ "■ Protocol Setup Screen (Ethernet)"
-

## 24.1.5 Protocol Transfer

This step transfers the contents of the set protocol to the Factory Gateway.

- 1 The protocol transfer confirmation dialog box will appear. Click the [Yes] button.



The "Now performing data write" message is displayed in the [State] field.

| IP Address         | State                     | Node Name | Node Type           |
|--------------------|---------------------------|-----------|---------------------|
| ↓ 192. 168. 0. 128 | Now performing data write | FGW1      | Factory Gateway ... |

When the writing is completed, a status icon indicating completion appears.

| IP Address         | State | Node Name | Node Type           |
|--------------------|-------|-----------|---------------------|
| 🟢 192. 168. 0. 128 |       | FGW1      | Factory Gateway ... |

Now, the protocol has been written to the Factory Gateway.

### NOTE

- During protocol transfer, the Factory Gateway cuts communication with Device/PLC. When the transfer is completed, the Factory Gateway is reset and becomes ready to communicate with Device/PLC.
- If you click the [No] button, the protocol setup is established but not transferred to the Factory Gateway. Click the [Write] button if you wish to transfer the setup contents (not transferred at this step) later.
- If multiple Factory Gateways are connected, repeat the steps of Protocol Settings and of Protocol Transfer.

- 2 Click [Exit] from [File] on the menu bar.

The Factory Gateway Configuration Tool exits.

### NOTE

- You can save the set contents by selecting [Save] or [Save as] of the [File] menu. The contents possible to be saved are the searched node information and protocol setup contents.



## 24.1.6 Registering Entry Nodes

This step registers the PC and Factory Gateway connected with a network, as nodes.  
 Refer to "31 Node Registration" for details about entry nodes.



Node Name :PC1  
 IP Address :192.168.0.1  
 Subnet Mask :255.255.255.0



Node Name :FGW1  
 IP Address :192.168.0.100  
 Subnet Mask :255.255.255.0

Device/PLC Information

Ex.

| Entry node      | Setting item | Setting example |
|-----------------|--------------|-----------------|
| PC              | Node Name    | PC1             |
|                 | IP Address   | 192.168.0.1     |
|                 | Subnet Mask  | 255.255.255.0   |
| Factory Gateway | Type         | GP Series       |
|                 | Node Name    | FGW1            |
|                 | IP Address   | 192.168.0.100   |
|                 | Subnet Mask  | 255.255.255.0   |

**NOTE**

- You can set the IP address of the Factory Gateway with the rotary switch located on the right side of the Factory Gateway unit. Refer to 'Factory Gateway User's Manual' about the setting method.
- The Ethernet related setting available on the Factory Gateway is IP address only. The "Node Name", "Subnet Mask" and "Gateway" settings can be made on the entry node setting screen.

### 24.1.7 Saving a Network Project File

This step saves the current settings as a network project file and reloads to 'Pro-Server EX'.

Refer to "25 Saving" for details about saving a network project file.

- 
- IMPORTANT**
- 'Pro-Server EX' reads a created network project file, and then executes ACTION according to the settings in the file. The settings therefore need be saved in the network project file.
  - Be sure to reload the network project file to 'Pro-Server EX' If not, ACTION will not work.
- 

#### Ex.

- Path of network project file : Desktop\FGWconnect
- Title : FGW connection

### 24.1.8 Transferring a Network Project File

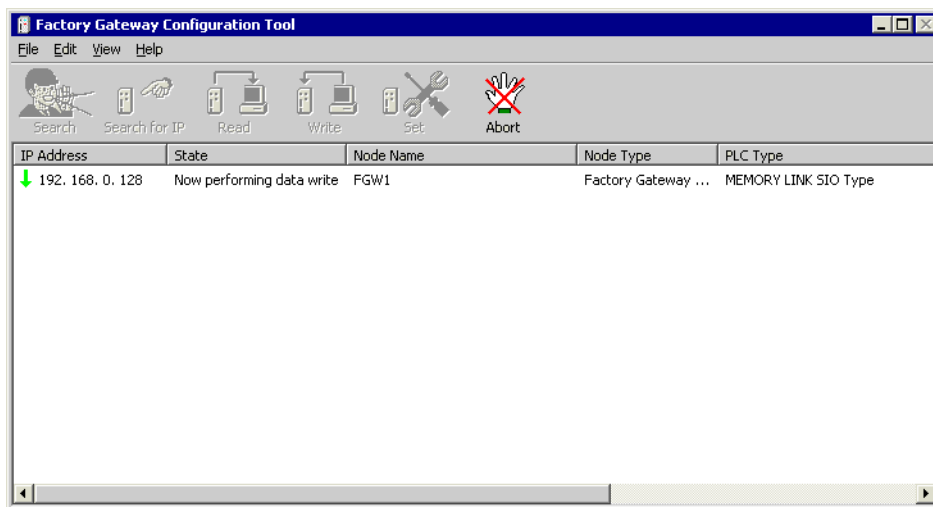
This step transfers a saved network project file to the Factory Gateway.






Refer to "26 Transferring" for details about transferring a network project file.


- 
- NOTE**
- Be sure to transfer a network project file. If not, ACTION will not work.
-

## 24.2 Setting Guide

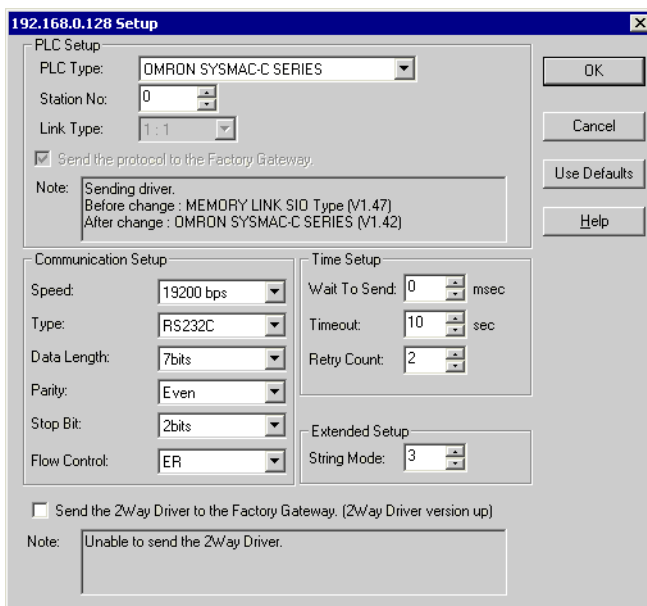
This section describes the names and functions of the main screen of the Factory Gateway Configuration Tool.



| Setting item |  | Setting content   |
|--------------|--|---|
| Icon         | Search   | Search the Factory Gateway connected on the network.                      |
|              | Search for IP  | Specify the IP address of the Factory Gateway to search.                  |
|              | Read   | Read the setup information of the protocol of a selected Factory Gateway. |
|              | Write  | Write a protocol and its setup information to a selected Factory Gateway. |
|              | Set  | Open the window to set the protocol of a selected Factory Gateway.        |
|              | Abort  | Cancel searching, reading and writing processing.                         |
| IP Address   | <p>Displays the IP address of a searched Factory Gateway. "Status Icon" indicating the status appears on the left side of the IP address.</p> <p>The details of "Status Icon" are as follows:</p> <p>(Blank): Searched only</p> <p> :In the process of reading protocol setup information</p> <p> :Protocol setup information has been read.</p> <p> :Protocol and its setup information have been set (changed).</p> <p> :In the process of writing (changing) protocol and its setup information</p> <p> :Protocol and its setup information have been written (changed).</p> |   |

| Setting item         | Setting content   |
|----------------------|---|
| State                | Displays Factory Gateway status.<br>(Blank): Not operated<br>Search waiting: Waiting for the order to read node information.<br>Now searching: In the process of reading node information.<br>Read waiting: Waiting for reading protocol setup information.<br>Now reading: In the process of reading protocol setup information.<br>Write waiting: Waiting for writing protocol setup information.<br>Now writing: In the process of writing protocol setup information.<br>Now setting up: In the process of setting up the protocol.<br>Transfer available: In the status that the transfer is possible<br>(Other errors): Error is displayed.<br> "36 Error Information" |
| Node Name            | Displays the node name on the Factory Gateway.  |
| Node Type            | Displays the Factory Gateway type.  |
| PLC Type             | Displays the protocol specified for the Factory Gateway.  |
| 2-Way Driver Version | Displays the version of the 2-way driver installed on the Factory Gateway.  |

■ Protocol Setup Screen (Serial)

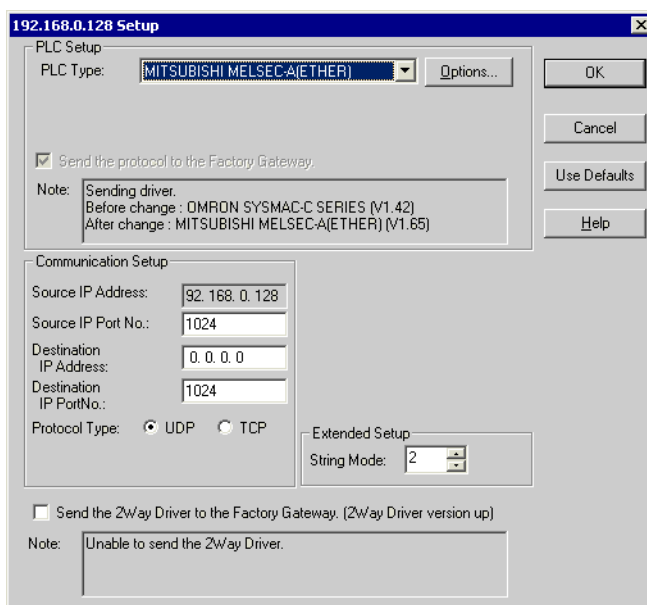


| Setting item        |  | Setting content   |
|---------------------|--|---|
| PLC Setting         | PLC Type                                 | Specifies a PLC type.<br><b>NOTE</b><br><ul style="list-style-type: none"> <li>The [Option] button may appear according to the PLC type selected. You can specify the optional items by clicking this button.</li> </ul>                      |
|                     | Station No.                              | Specifies the device No. of PLC (Link unit).  |
|                     | Link Type                                | Displays the link type of the Factory Gateway, either 1:1 connection or n:1 (multi-link) connection.  |
|                     | Send the protocol to the Factory Gateway | Checks if the protocol is transferred to the Factory Gateway.<br><b>NOTE</b><br><ul style="list-style-type: none"> <li>When the PLC type is changed, this set content becomes invalid and the protocol is essentially transferred.</li> </ul> |
|                     | Note                                     | Displays if the protocol is changed during the writing process. Displays the protocol name and version before and after change if the protocol is transferred.  |
| Communication Setup | Speed                                    | Specifies the transmission speed of serial communication.   |
|                     | Type                                     | Specifies the method of serial communication.   |
|                     | Data Length                              | Specifies the data length (bit configuration) for data transfer.  |
|                     | Parity                                   | Specifies the parity check method.  |
|                     | Stop Bit                                 | Specifies the bit number of stop bits.  |
|                     | Flow Control                             | Specifies the communication control method to prevent the overflow of sent or received data.  |

| Setting item                                |              | Setting content   |
|---|--------------|---|
| Time Setup                                  | Wait To Send | Specifies the waiting time to send the next command after receiving response from PLC.  |
|   | Timeout      | Specifies the receiving timeout span of the Factory Gateway during the communication with PLC.  |
|   | Retry Count  | Specifies the number of retry times (to send the command again) of the Factory Gateway in the case of PLC communication error.  |
| Extended Setup                              | String Mode  | <p>Specifies the text mode.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>Particular change is not required since the text mode is automatically selected according to the PLC type.</li> </ul>                                   |
| Send the 2Way Driver to the Factory Gateway |              | <p>Checks if you transfer the 2-way driver to the Factory Gateway.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>When the 2-way driver is transferred, the set contents of [Communication Setup] are also transferred.</li> </ul> |
| Note  |              | <p>Displays whether or not the 2-way driver is transferred in the process of writing. If the driver is transferred, displays the version of the 2-way driver before and after change.</p>   |

- 
- NOTE** • The above explanation is just an example. The setup items displayed vary according to the PLC type selected.
-

## ■ Protocol Setup Screen (Ethernet)



| Setting item        |  | Setting content   |
|---------------------|--|---|
| PLC Setup           | PLC Type                                 | Specifies a PLC type.<br><b>NOTE</b><br>• The [Options] button may appear according to the PLC type selected. You can specify the optional items by clicking this button.                     |
|                     | Send the protocol to the Factory Gateway | Checks if the protocol is transferred to the Factory Gateway.<br><b>NOTE</b><br>• When the PLC type is changed, this set content becomes invalid and the protocol is essentially transferred. |
|                     | Note                                     | Displays if the protocol is changed during the writing process. Displays the protocol name and version before and after change if the protocol is transferred.                                |
| Communication Setup | Source IP Address                        | Specifies the IP address of the Factory Gateway.  |
|                     | Source IP Port No.                       | Specifies the port number of the Factory Gateway.   |
|                     | Destination IP Address                   | Specifies the IP address of the PLC.  |
|                     | Destination IP Port No.                  | Specifies the PLC port number.  |
|                     | Protocol Type                            | Selects the protocol type.  |

| Setting item                                |             | Setting content   |
|---|-------------|---|
| Extended Setup                              | String Mode | <p>Specifies the text mode.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>Particular change is not required since the text mode is automatically selected according to the PLC type.</li> </ul>                                     |
| Send the 2Way Driver to the Factory Gateway |             | <p>Checks if you transfer the 2-way driver to the Factory Gateway.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>When the 2-way driver is transferred, the set contents of [Communication Setting] are also transferred.</li> </ul> |
| Note  |             | <p>Displays whether or not the 2-way driver is transferred in the process of writing.</p> <p>If the driver is transferred, displays the version of the 2-way driver before and after change.</p>  |

---

**NOTE** • The above explanation is just an example. The setup items displayed vary according to the PLC type selected.

---



## 24.3 Restrictions

### 24.3.1 PLC Type Compatible with the Factory Gateway

The PLC types compatible with the Factory Gateway are listed below.

| Manufacturer              | PLC Type                          |
|---------------------------|-----------------------------------|
| Mitsubishi Electric Corp. | MELSEC-AnN(LINK)                  |
|                           | MELSEC-AnN(CPU)                   |
|                           | MELSEC-AnA(LINK)                  |
|                           | MELSEC-AnA(CPU)                   |
|                           | MELSEC-A(ETHER)                   |
|                           | MELSEC-F2 series                  |
|                           | MELSEC-FX(CPU)                    |
|                           | MELSEC-FX2(LINK)                  |
|                           | MELSEC-QnA(LINK)                  |
|                           | MELSEC-QnA(CPU)                   |
|                           | MELSEC-Q(CPU)                     |
|                           | MELSEC-Q(ETHER)                   |
|                           | FREQROL series                    |
|                           | MELSEC-FX 1:n communication (CPU) |
| MELSEC-FX(CPU2)           |                                   |
| Omron Corp.               | SYSMAC-C series                   |
|                           | SYSMAC-C 1:n communication        |
|                           | SYSMAC-CV series                  |
|                           | SYSMAC-CS1 series                 |
|                           | THERMAC NEO series                |
| Sharp Corp.               | SHARP New Satellite JW Series     |
| Yokogawa Electric Corp.   | FACTORY ACE 1:1 communication     |
|                           | FACTORY ACE 1:n communication     |
|                           | FA-M3(ETHER)                      |
| Fuji Electric Co., Ltd.   | MICREX-F series                   |
|                           | MICREX-F series (FLT)             |
|                           | FLEX-PC(LINK)                     |
|                           | FLEX-PC(CPU)                      |
|                           | FUJI INVERTER                     |
|                           | FUJI TEMPERATURE PXR              |

| Manufacturer                                   | PLC Type                       |
|--|--------------------------------|
| Toyoda Machine Works, Ltd.                     | TOYOPUC-PC2 series             |
|  | TOYOPUC-PC2 1:n communication  |
|  | TOYOPUC-PC3J series            |
|  | TOYOPUC-PC3J 1:n communication |
| Yaskawa Electric Corp.                         | Memocon-SC series              |
|  | GL120/130 series               |
|  | PROGIC8 series                 |
|  | MP900/CP9200SH series          |
|  | MP2000/920(ETHER)              |
|  | Inverter                       |
| Hitachi, Ltd.                                  | HIDIC-S10 $\alpha$ series      |
|  | HIZAC-EC series                |
| Hitachi Industrial Equipment Systems Co., Ltd. | HIDIC-H series                 |
|  | HIDIC-H2 series                |
|  | SJ300/L300P series             |
| Toshiba Corp.                                  | PROSEC-EX2000 series           |
|  | PROSEC-T series                |
|  | PROSEC-T(ETHER)                |
|  | SCHNEIDER inverter             |
| Matsushita Electric Works, Ltd.                | MEWNET-FP series               |
| Koyo Electronics Industries Co., Ltd           | KOSTAC-SG8 series              |
|  | KOSTAC SR21/22 series          |
|  | DL-305 series                  |
|  | DL-205/405 series              |
| Toshiba Machine Co., Ltd                       | TC200 series                   |
|  | TC200-S series                 |
| GE FANUC Automation                            | 90SNP-X                        |
|  | 90-30/70 SNP                   |
| Fanuc Ltd.                                     | Power Mate series              |
| IDEC Izumi Corp.                               | IDEC_1                         |
|  | IDEC_2                         |
|  | IDEC_3                         |
|  | MICRO3                         |
|  | FC3/FC4A series                |

| Manufacturer                             | PLC Type                  |
|--|---------------------------|
| SIEMENS AG                               | S5 90-115 series          |
|  | S5 135-155 series         |
|  | S5 3964(R) protocol       |
|  | S7-200PPI                 |
|  | S7-300/400 via MPI        |
|  | S7 via 3964/RK512         |
|  | 545/555 CPU               |
| Rockwell (Allen Bradley)                 | PLC-5 series              |
|  | SLC500 series             |
|  | Control Logix DF1         |
| Keyence Corp.                            | KZ300 series              |
|  | KZ-A500(CPU)              |
|  | KZ-A500(LINK)             |
|  | KZ-10_80R/T series        |
|  | KV-10_80A/D series        |
|  | KV-700 series (CPU)       |
| Shinko Electric Co., Ltd.                | SELMART series            |
| Matsushita Electric Industrial Co., Ltd. | MINAS-A/S series          |
|  | Panadac 7000 series       |
| Modicon Corp.                            | Modbus(MASTER)            |
|  | Modbus(SLAVE)             |
| FACON                                    | FACON FB                  |
| ORIM VEXTA                               | ORIM VEXTA E1 series      |
| Azbil Corporation                        | YAMATAKE SDC SERIES       |
| Toho Electronics Inc.                    | TTM series                |
| RKC Instrument Inc.                      | CB/SR-Mini(MODBUS)        |
|  | CB/REX-F/LE100(RKC)       |
| Shinko Technos Co., Ltd.                 | SHINKO TECHNOS INDICATING |
| Fenwal Controls of Japan, Ltd.           | FENWALI AL SERIES         |
| JT Engineering Inc.                      | JTE Analyzer              |
| SHIMADEN Co., Ltd.                       | CONTROLLER                |
| CHINO Corp.                              | CONTROLLER (MODBUS)       |
| Meidensha Corp.                          | Ethernet                  |
| Ubon                                     | UPZ series                |
| Others                                   | Memory link Ethernet type |
|  | Memory link SIO type      |

## 24.3.2 Restrictions on the Use of the Factory Gateway

There are some restrictions on Factory Gateway use with 'Pro-Server EX' in comparison with display unit use.

### ■ Restrictions related to the Factory Gateway unit

- Setting date and time

You cannot change the date and time set inside the Factory Gateway with the Factory Gateway unit. Please change these set contents from the device monitor of 'Pro-Studio EX'. (The time information cannot be specified in seconds. When the setting is changed, the second becomes "0".)

The storage location of these data differs according to the protocol that has been transferred.

- Protocol restrictions

The Factory Gateway does not apply to a protocol that requires the communication expansion unit.

### ■ Restrictions related to the 'Pro-Server EX' functions

Among the 'Pro-Server EX' functions, the followings are not available on the Factory Gateway:

- Saving backup data in SRAM

The Factory Gateway has no backup SRAM function. Contents are not saved though a new file is created.

- Saving GP screens

The Factory Gateway does not save GP screens, as it has no screen. In addition, the Factory Gateway has no CF card I/F where the data is temporarily saved.

- Changing port numbers (TCP/UDP port No.)

You cannot change the port number (that the Factory Gateway uses on 'Pro-Server EX') by 'Pro-Server EX' or the Factory Gateway Configuration Tool. Please change such a port number by transferring a network project file from 'Pro-Server EX'.

It is recommended to use the default port number "8000" for 'Pro-Server EX' unless there is inconvenience.

## ■ Restrictions related to ACTION contents

Among the 'Pro-Server EX' ACTION contents, the followings are not available on the Factory Gateway:

- Upload of GP log data
- Automatic upload of GP filing data
- Automatic download of GP filing data
- Upload of GP JPEG data

These 4 ACTIONS are the functions requiring a backup SRAM or CF card, and unavailable on the Factory Gateway.

## ■ Restrictions related to the Factory Gateway Configuration Tool

The Factory Gateway Configuration Tool has the following functional restrictions:

- Setting protocols of multi-link (n:1) type

You can neither set nor transfer protocols of multi-link (n:1) type from the Factory Gateway Configuration Tool. Please set and transfer them from 'GP-Pro EX'.

However, it is possible to transfer another protocol to the Factory Gateway in which a protocol of multi-link (n:1) type is specified.

- Password setting

You cannot set a password for the protocol to be transferred with the Factory Gateway Configuration Tool. It is possible to obtain a password for protecting possible protocol overwriting by setting (from the [Transfer] screen, [Settings (S)], and [Password (P)]) and transferring with 'C-Package'.

When you attempt to read password-protected protocol data of the Factory Gateway, a dialog box appears asking the password. By entering the password, you can set up, change and transfer the protocol. The password set in the Factory Gateway will be deleted by transferring the protocol again from the Factory Gateway Configuration Tool.

- Provider information at protocol change

You cannot delete the provider information in the Factory Gateway by changing and transferring the protocol. Please create and transfer a network project file for a new protocol with 'Pro-Studio EX'.

- Display Help Menu

The Help menu does not display on the following operating systems.

- Windows VISTA
- Windows 7
- Windows Server 2008
- Windows Server 2008 R2

Please go to Microsoft's home page and download "WinHlp32.exe".

