

iO-GRID™
and Yaskawa PLC
Modbus TCP Connection
Operating Manual



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1. Remote I/O Module System Configuration List

| Part No. | Specification | Description |
|------------|--|------------------|
| GFGW-RM01N | Modbus TCP-to-Modbus RTU/ASCII, 4 Ports | Gateway |
| GFMS-RM01S | Master Modbus RTU, 1 Port | Main Controller |
| GFDI-RM01N | Digital Input 16 Channel | Digital Input |
| GFDO-RM01N | Digital Output 16 Channel / 0.5A | Digital Output |
| GFAI-RM11 | Analog Input 4 Channel | Analog Input |
| GFAO-RM11 | Analog Output 4 Channel | Analog Output |
| GFPS-0202 | Power 24V / 48W | Power Supply |
| GFPS-0303 | Power 5V / 20W | Power Supply |
| 0170-0101 | 8 pin RJ45 female connector/RS-485 Interface | Interface Module |

1.1 Product Description

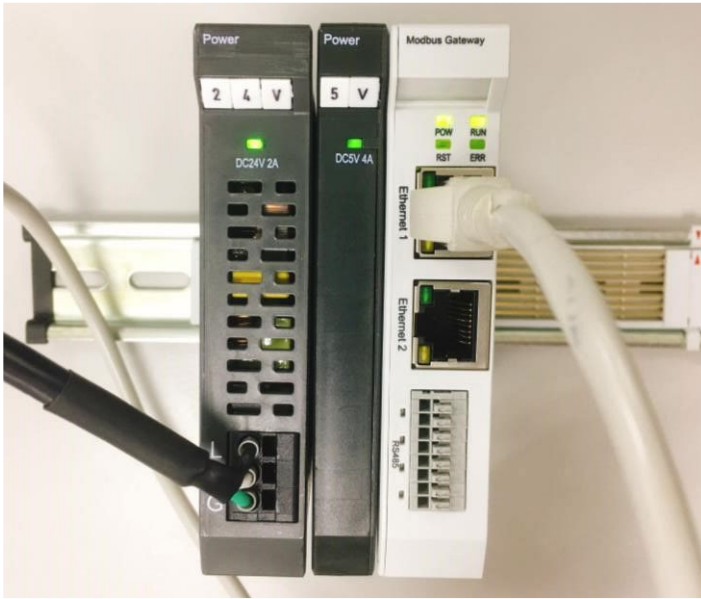
- I. The gateway is used externally to connect with Yaskawa MP3300's communication port (Modbus TCP)**
- II. The main controller is in charge of the management and dynamic configuration of I/O parameters and so on.**
- III. The power module is standard for remote I/Os and users can choose the model or brand of power module they prefer.**

2. Gateway Parameter Settings

This section details how to connect a gateway to Yaskawa MP3300. For detailed information regarding **iO-GRID^M**, please refer to the [iO-GRID^M-Series Product Manual](#)

2.1 i-Designer Program Setup

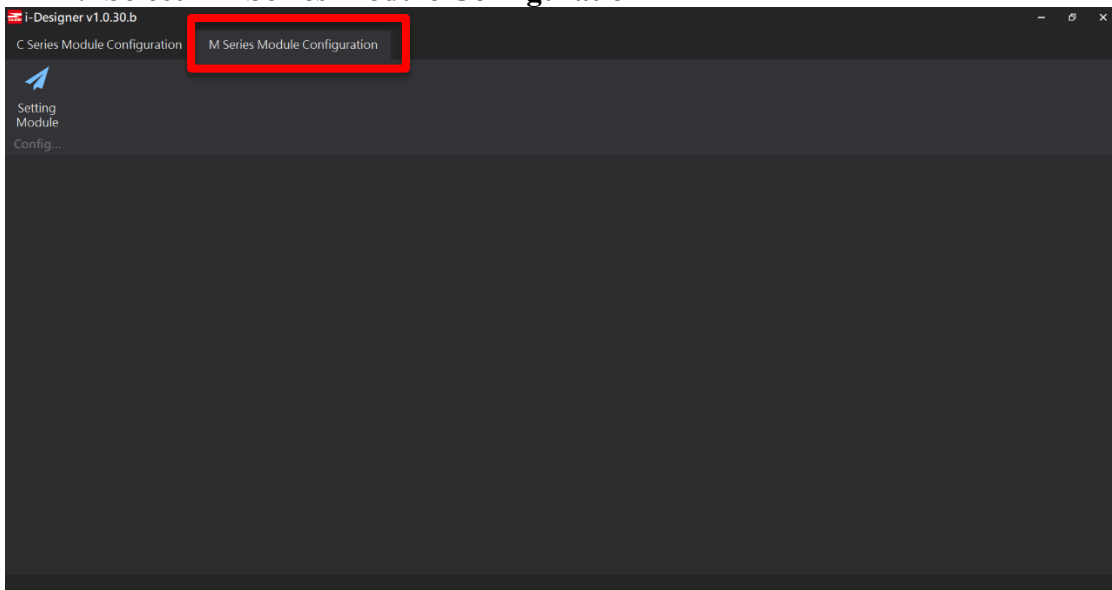
- I. Make sure that the module is powered and connected to the gateway module using an Ethernet cable



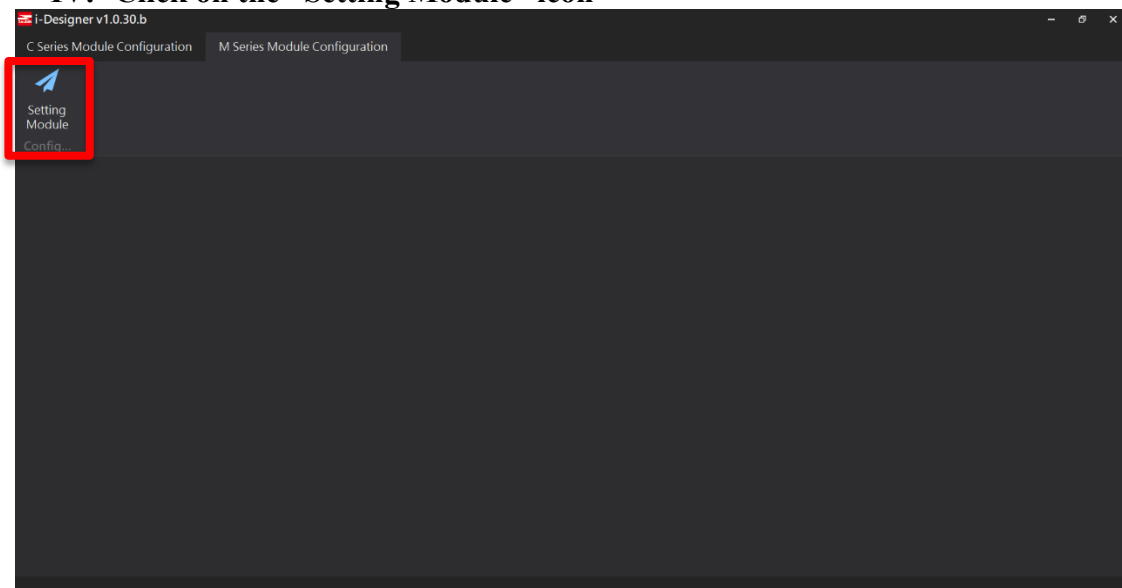
- II. Click to launch the software



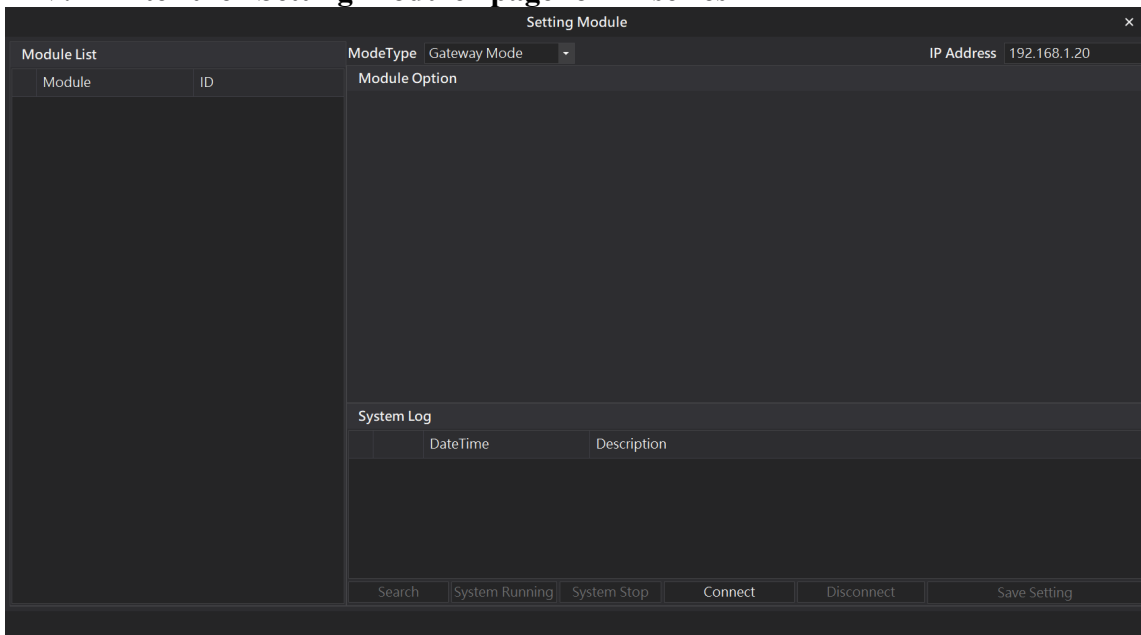
III. Select “M Series Module Configuration”



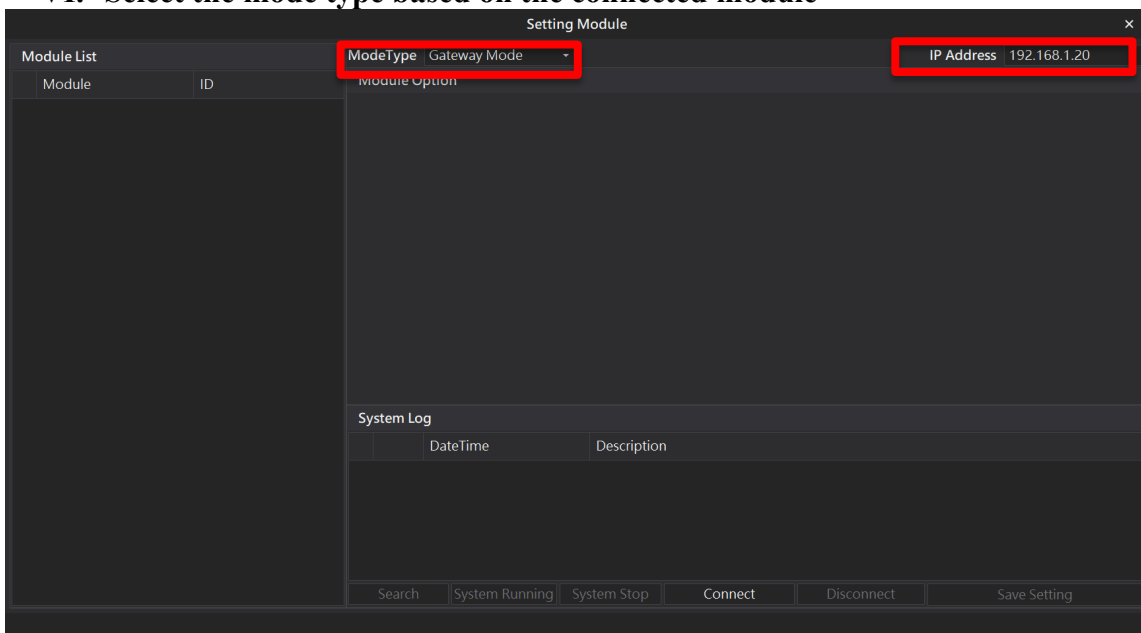
IV. Click on the “Setting Module” icon



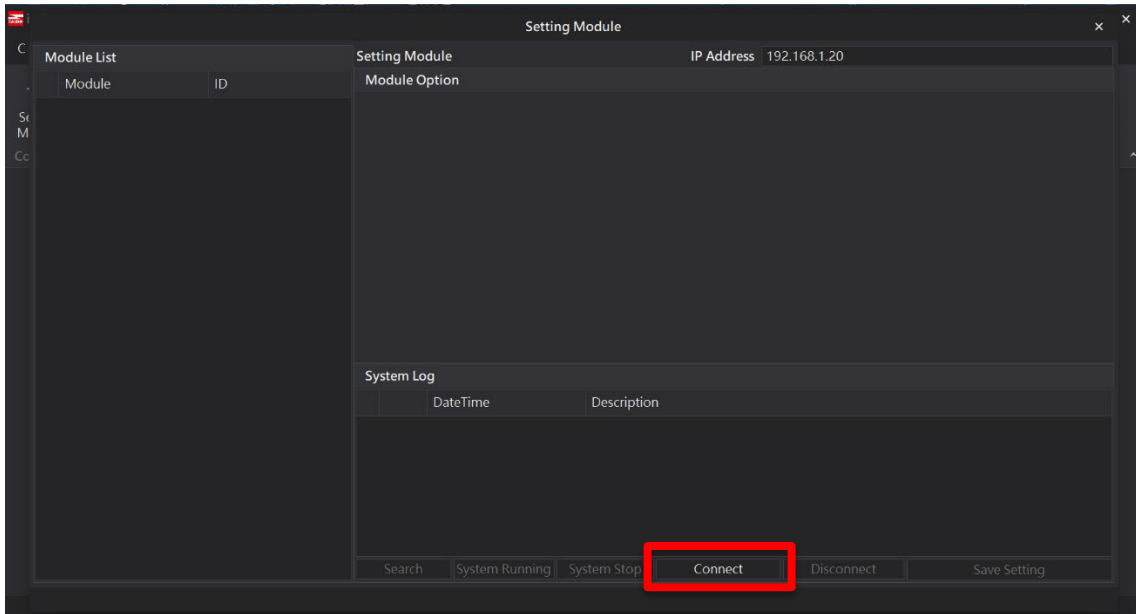
V. Enter the “Setting Module” page for M-series



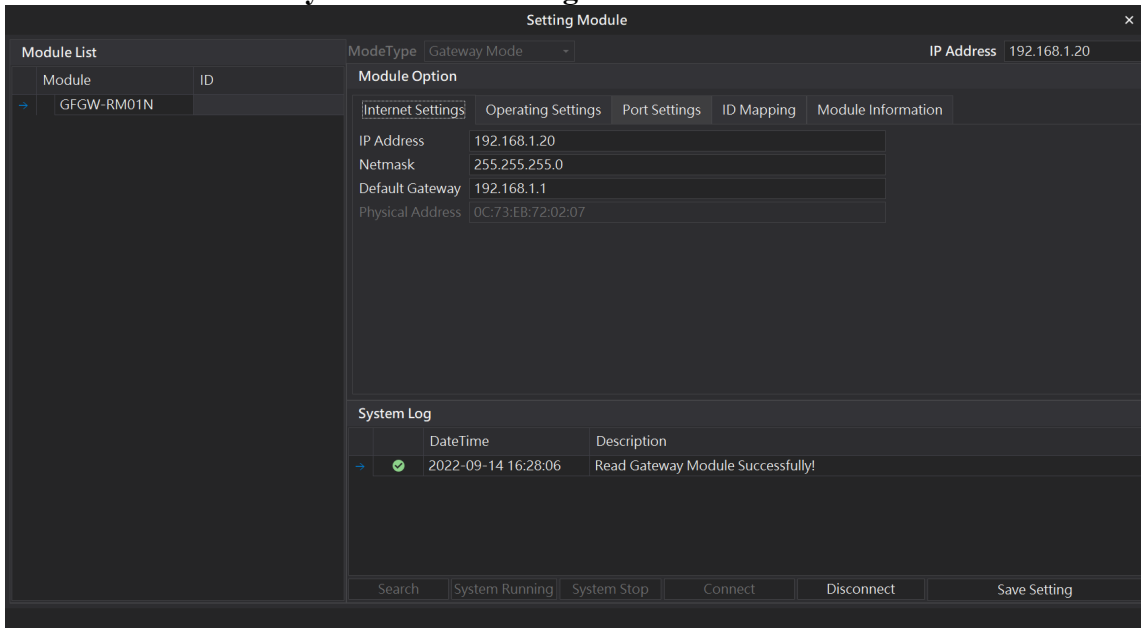
VI. Select the mode type based on the connected module



VII. Click on “Connect”

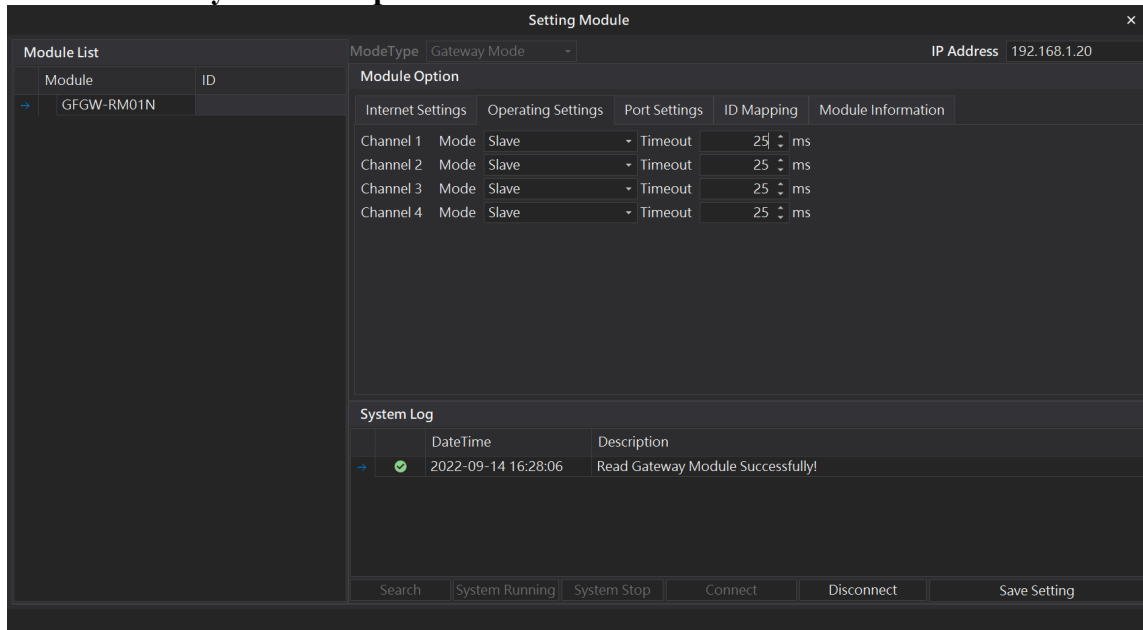


VIII. Gateway Module IP Settings



Note: The IP address must be in the same domain as the controller equipment

IX. Gateway Module Operational Modes



The screenshot shows the 'Setting Module' window with the following details:

- Module List:**

| Module | ID |
|------------|----|
| GFGW-RM01N | |
- ModeType:** Gateway Mode
- IP Address:** 192.168.1.20
- Module Option:**

| Channel | Mode | Operating Settings | Port Settings | ID Mapping | Module Information |
|-----------|-------|--------------------|---------------|------------|--------------------|
| Channel 1 | Slave | Timeout | 25 ms | | |
| Channel 2 | Slave | Timeout | 25 ms | | |
| Channel 3 | Slave | Timeout | 25 ms | | |
| Channel 4 | Slave | Timeout | 25 ms | | |
- System Log:**

| DateTime | Description |
|---------------------|-----------------------------------|
| 2022-09-14 16:28:06 | Read Gateway Module Successfully! |
- Buttons:** Search, System Running, System Stop, Connect, Disconnect, Save Setting

Note:

Set Group 1 as Slave and set the gateway to use the first set of RS485 port to connect to the main controller (GFMS-RM01N)

3. Yaskawa MP3300 Connection Setup

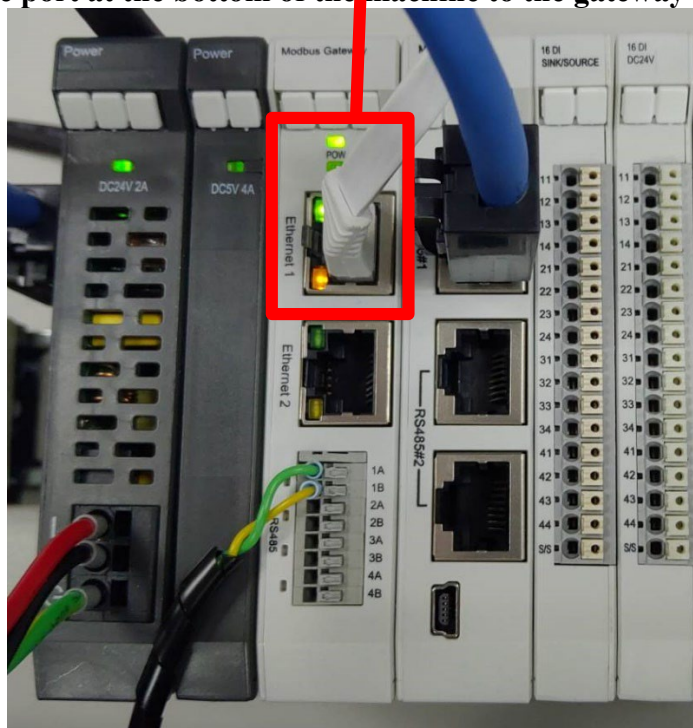
This chapter explains how to use the MPE720 program to connect MP3300 to a gateway and add a remote I/O module. For detailed information, please refer to the *MP3000 Communication Function User Manual*

3.1 Yaskawa MP3300 Hardware Connection

I. The connection port is at the bottom of the middle section of the machine

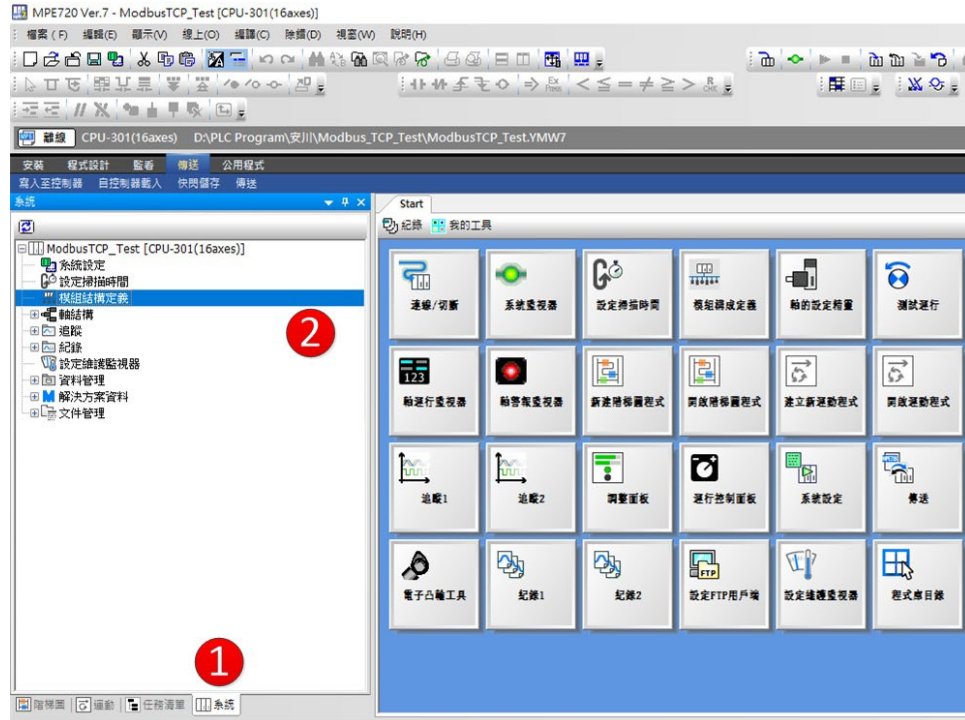


II. Connect the port at the bottom of the machine to the gateway's port



3.2 Yaskawa MP3300 IP Address and Connection Setup

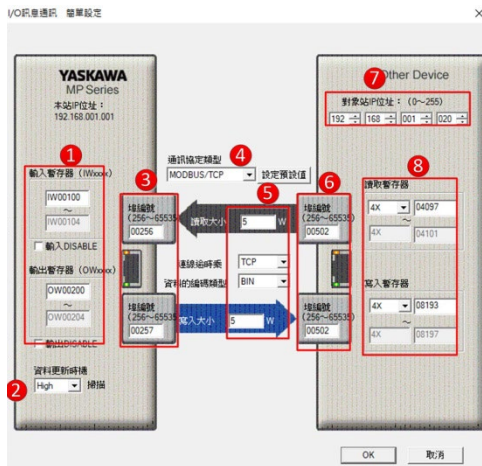
- I. Launch the MPE720 program and select “System” on the left and then click on “Module Structure Definition”



II. Click on “218IFD” settings to enter the “Detailed Definition” section. Set up the controller IP at the IP Address field (must be the same as the gateway domain). Next, initiate I/O message communication and then click on “Simple Settings”



III. For the “Simple Settings”, please refer to the procedure below. Once this is set up, you can start writing your program. You can refer to the sample program in section 3.3.



1. Define your input and output register addresses
2. Set “資料更新時機” to “High”
3. Set up the port numbers (input and output ports must not share the same number)
4. For the protocol, select “MODBUS/TCP”
5. Set up the number of data bytes for the register to read/write;
For digital module, 1 piece of data is 1Word; for analog module, 1 piece of data is 4Word
6. Gateway port number: 502
7. Set up gateway IP; the factory default IP address is 192.168.1.20
8. The starting address for the register to be read is 4097
and the starting address for the register to be written is 8193

Notes:

- ※ iO-GRID[™]'s first GFDI-RM01N has the register address at 1000(HEX) converted to 4096(DEC)+1 and the starting address at 4097
- ※ iO-GRID[™]'s first GFDO-RM01N has the register address at 2000(HEX) converted to 8192(DEC)+1 and the starting address at 8193
- ※ MP3300 controller can only connect to 1 Slave IP and the Slave's station number must remain at 1

3.3 Sample Program

Connect AO's first channel to AI's first channel;

When the first point of DI(IB01000) is triggered, it will also trigger the first point of DO(OB02000);

When the second point of DI(IB01001) is triggered, AO(OW0201) will start output and read the first channel of AI(IW0101)

