

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



Table of Contents

1.	Remote I/O Module System Configuration List.....	3
1.1	Product Description.....	3
2.	Schneider TM241 Connection Setup	4
2.1	i-Designer Program Setup.....	5
2.2	Schneider TM241 Hardware Connections.....	10
2.3	Schneider TM241 Connection Setup	11

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
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 interface module can convert the gateway's RS485 port into a RJ45 connection.
- II. The main controller is in charge of the management and dynamic configuration of I/O parameters and so on.
- III. The power module and interface module are standard for remote I/Os and users can choose the model or brand they prefer.



2. Schneider TM241 Connection Setup

This section details how to connect a gateway to Schneider TM241. For detailed information regarding **iO-GRID^M**, please refer to the ***iO-GRID^M-Series Product Manual***

2.1 i-Designer Program Setup

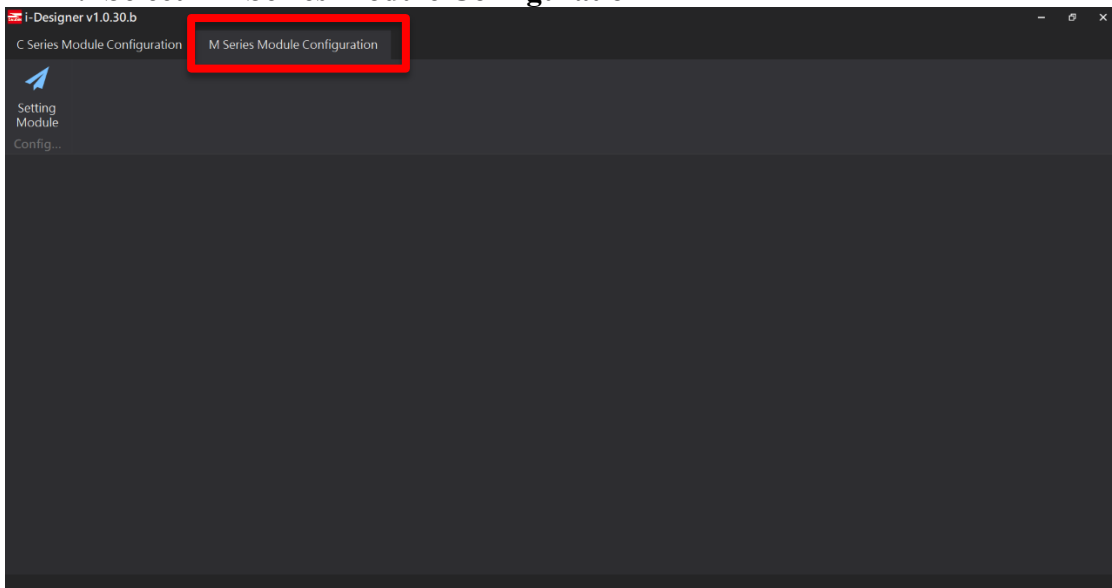
- I. Make sure that the module is powered and connected to the gateway module using an Ethernet cable



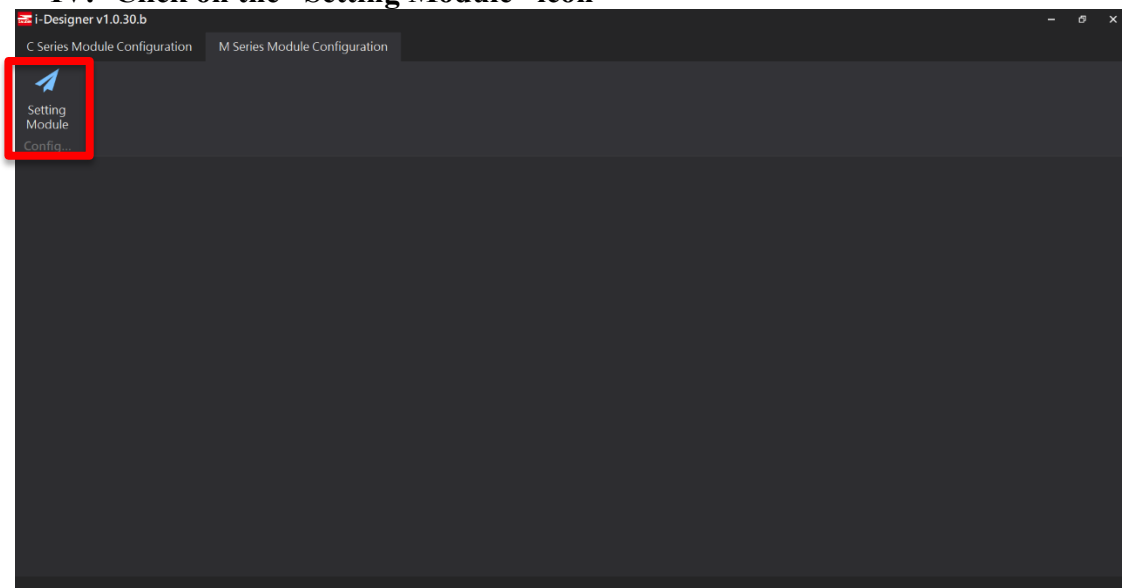
- II. Click to launch the software



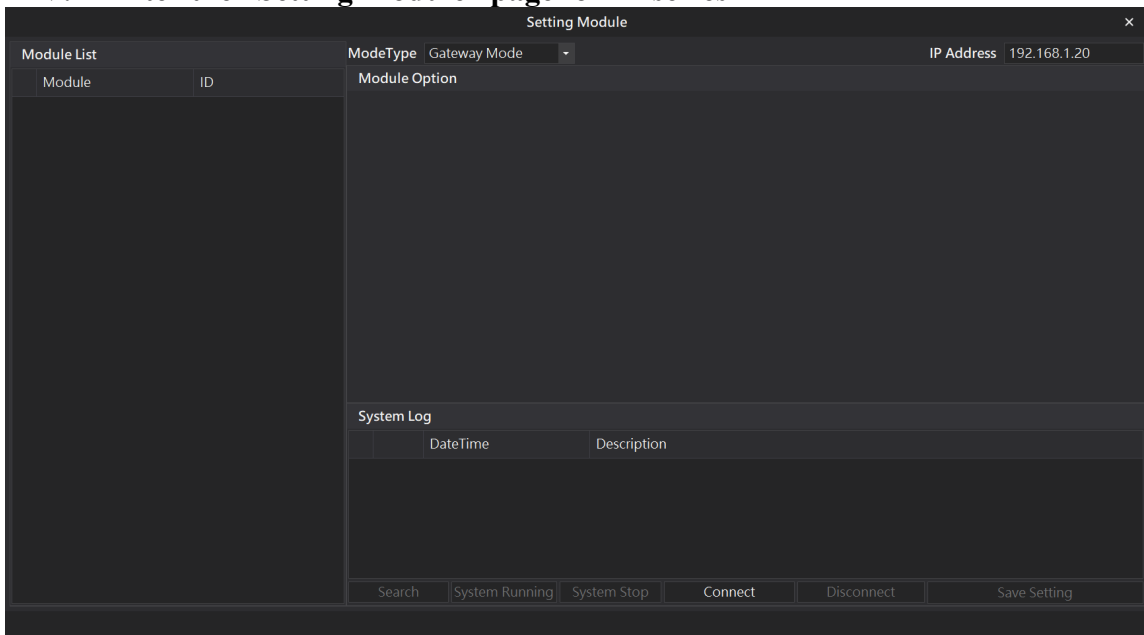
III. Select “M Series Module Configuration”



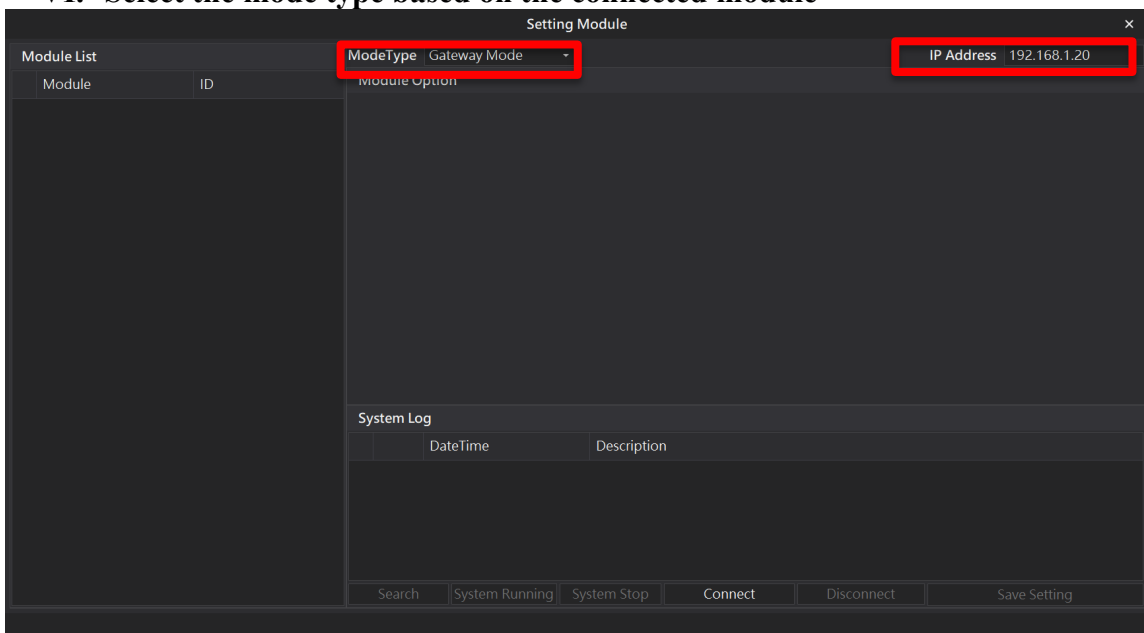
IV. Click on the “Setting Module” icon



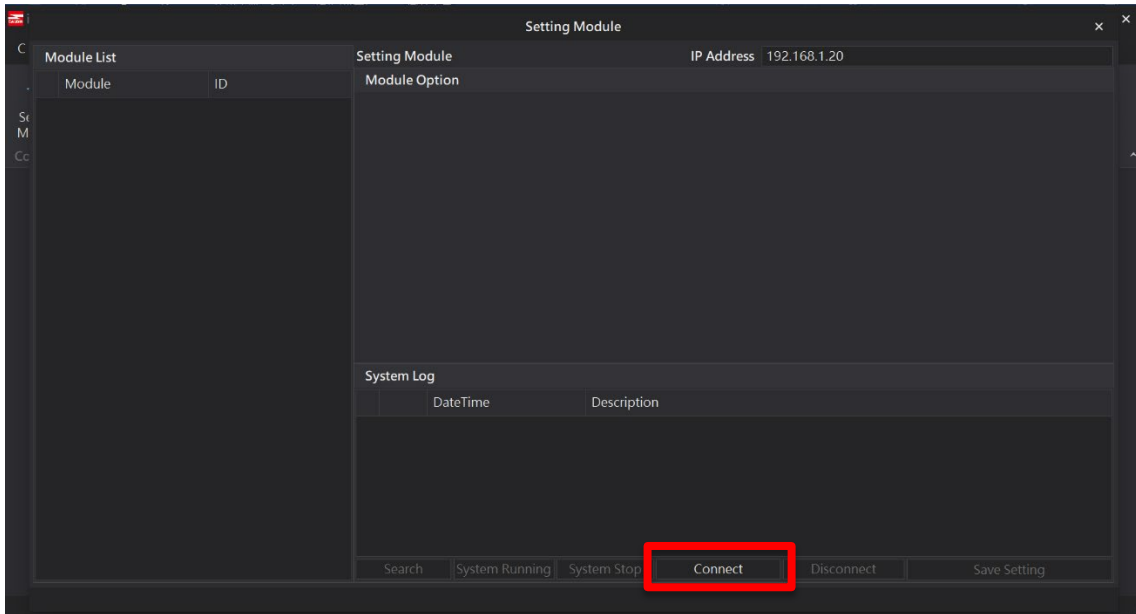
V. Enter the “Setting Module” page for M-series



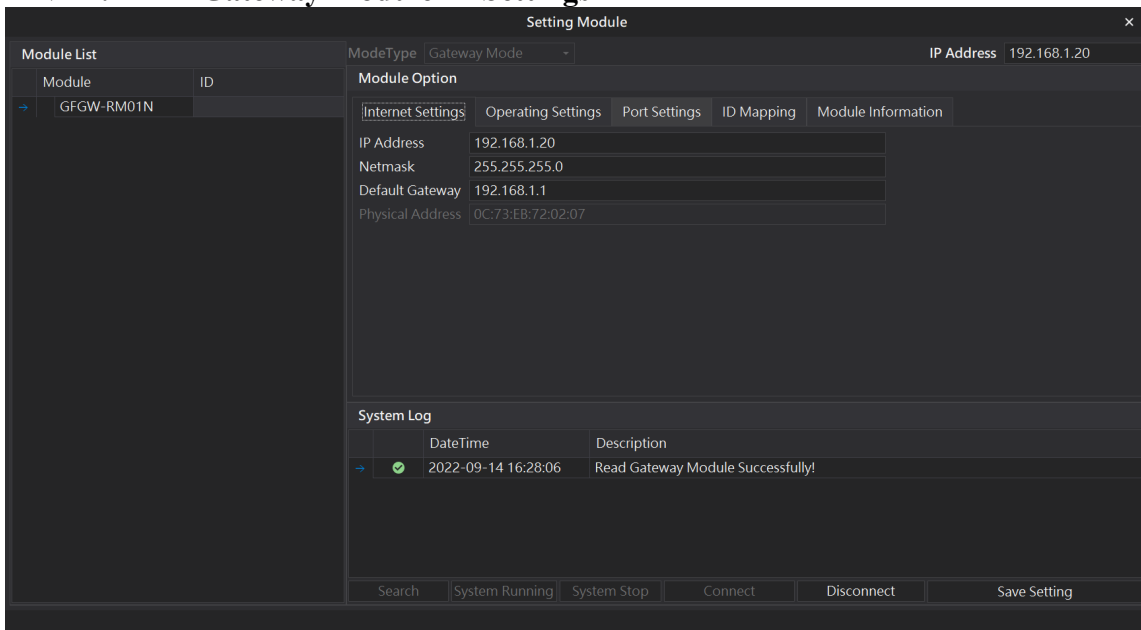
VI. Select the mode type based on the connected module



VII. Click on “Connect”

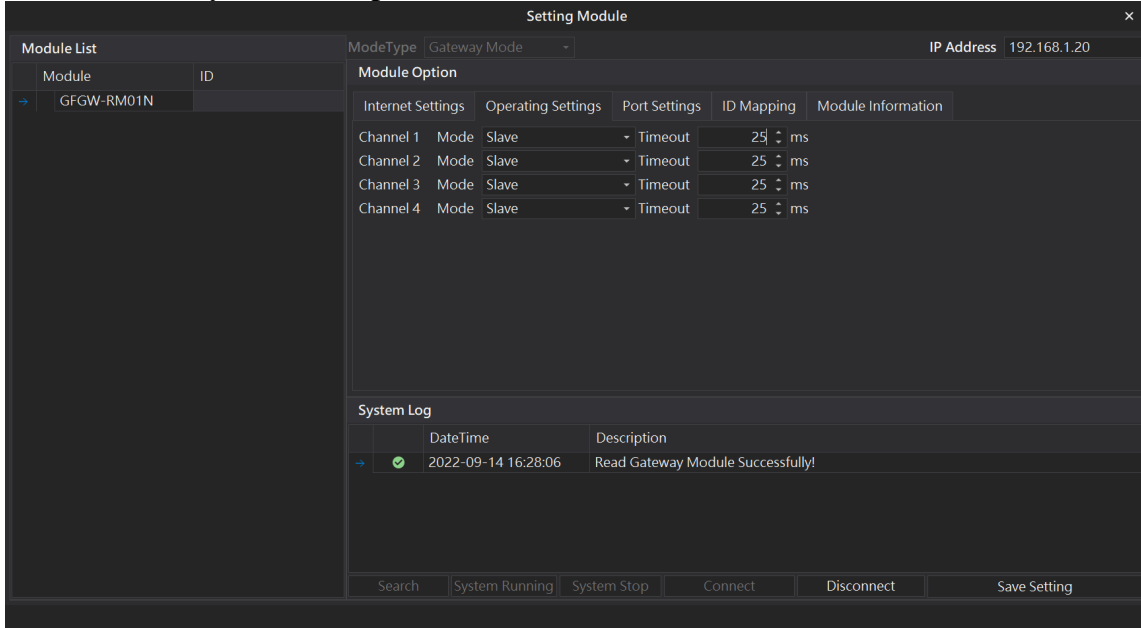


VIII. Gateway Module IP Settings



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)

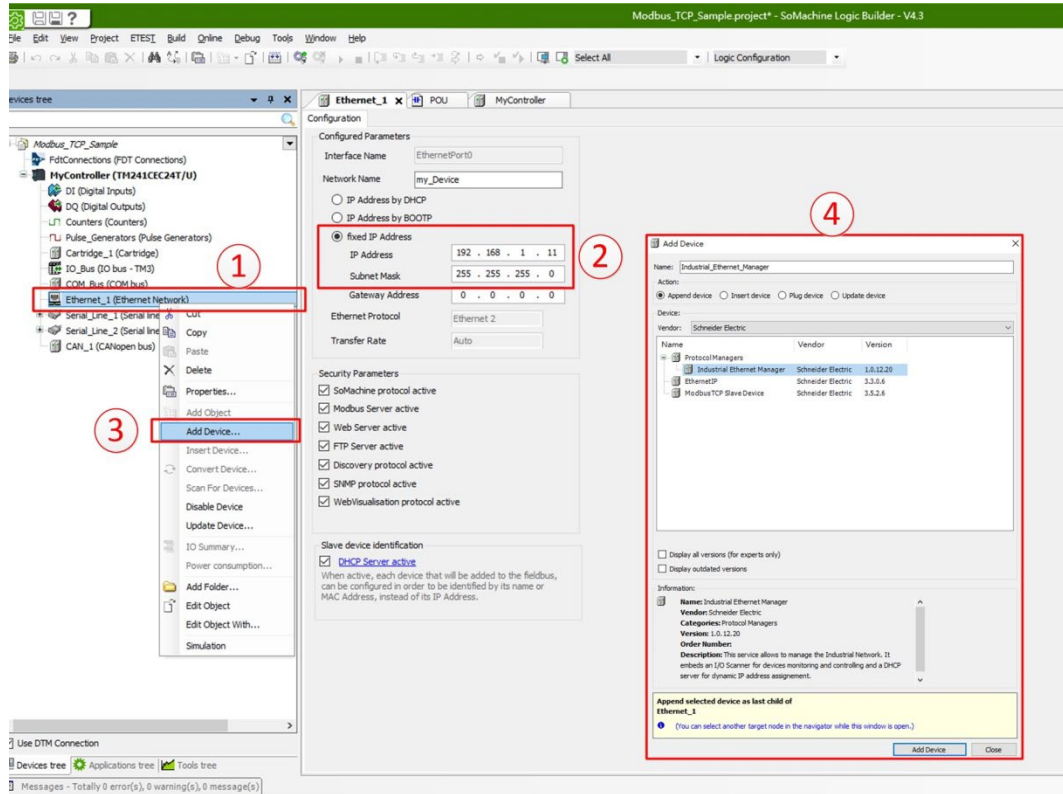
2.2 Schneider TM241 Hardware Connections

This section details how to use the SoMachine program to connect TM241 and **iO-GRID^M**

- I. **Modbus TCP connects with the gateway via the Ethernet cable going through the Ethernet port on the TM241**

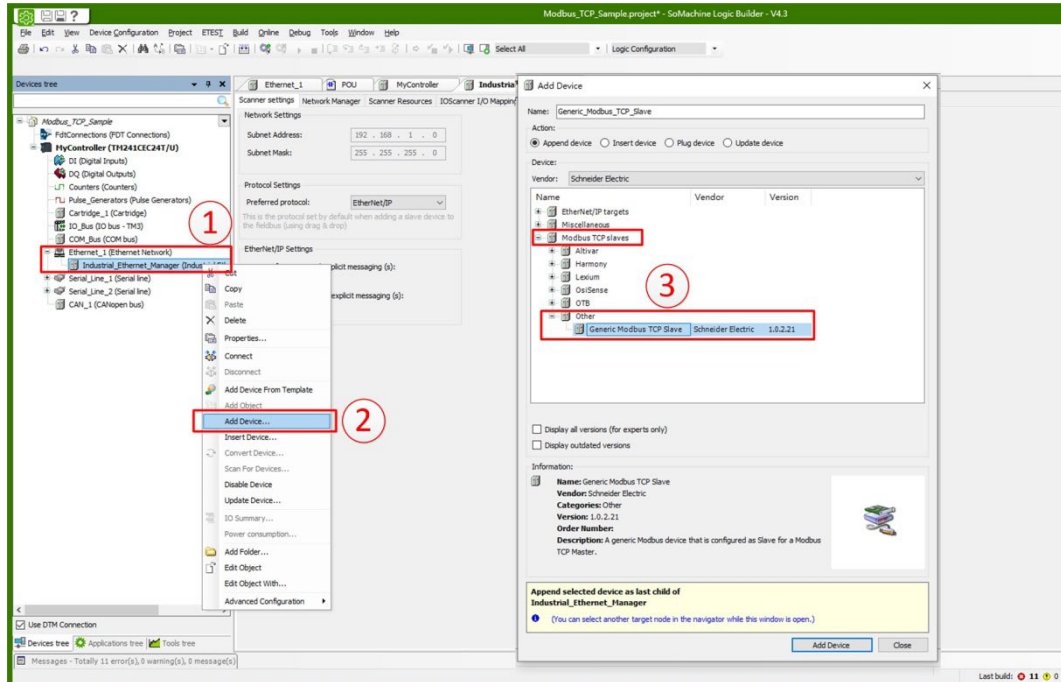
2.3 Schneider TM241 Connection Setup

I. Launch SoMachine and click on “指令” on the right side of the program



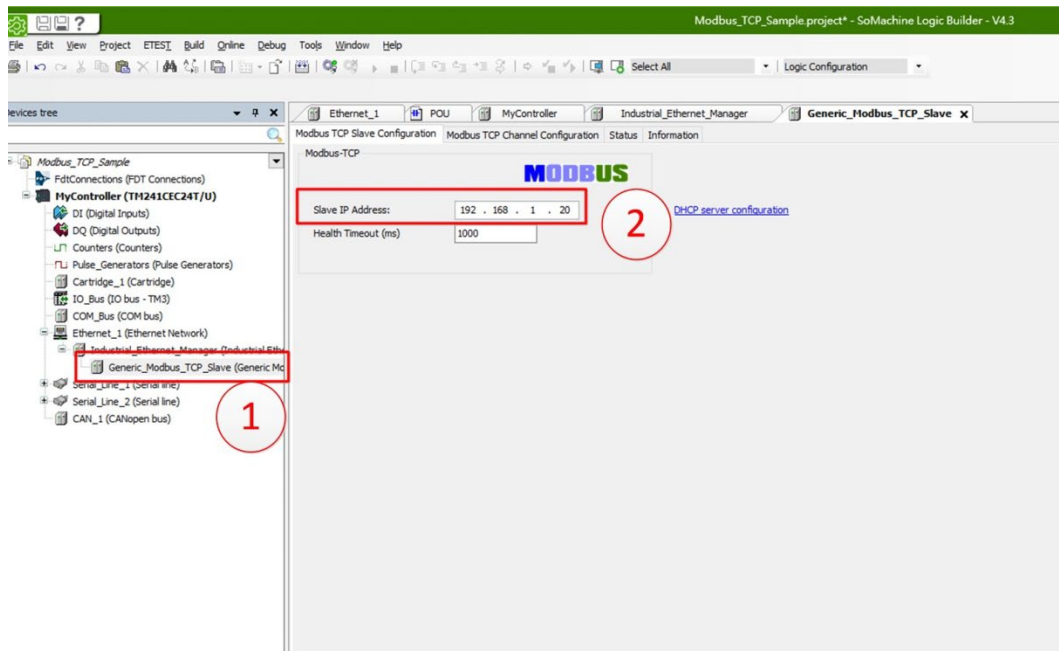
1. Click on “Ethernet_1 (EthernetNetwork)”
2. Under “fixed IP Address”, set up the controller’s IP Address and Subnet Mask
3. Right-click on “Ethernet_1 (EthernetNetwork)” and then click on “Add Device...”
4. In “ProtocolManagers”, click to add a new “Industrial Ethernet Manager”

II. Add New Devices



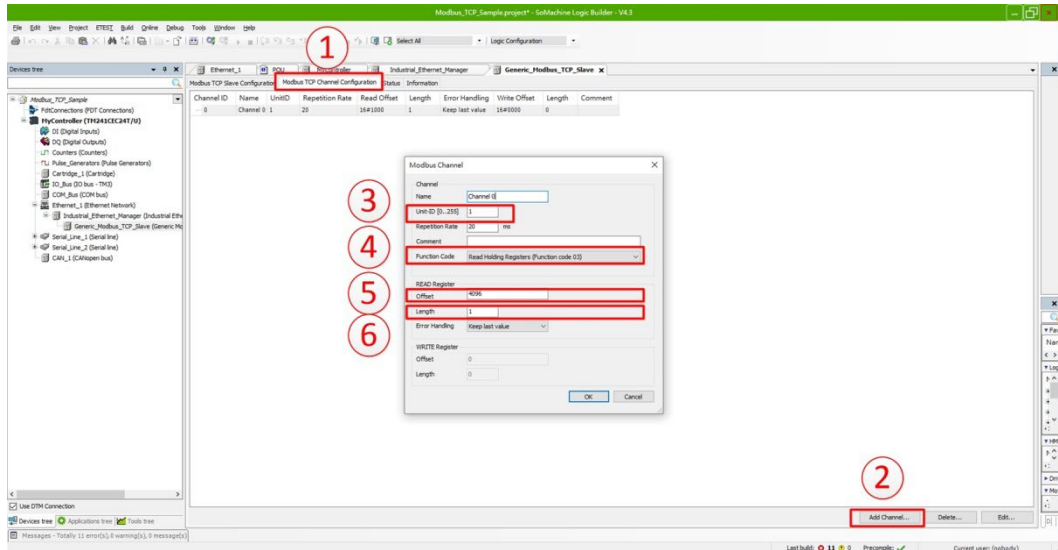
1. Right-click on “Industrial Ethernet Manager” and then select “Add Device...”
2. Under “Modbus TCP Slaves”, click to add a new “Generic Modbus TCP Slave”

III. Set up gateway IP address



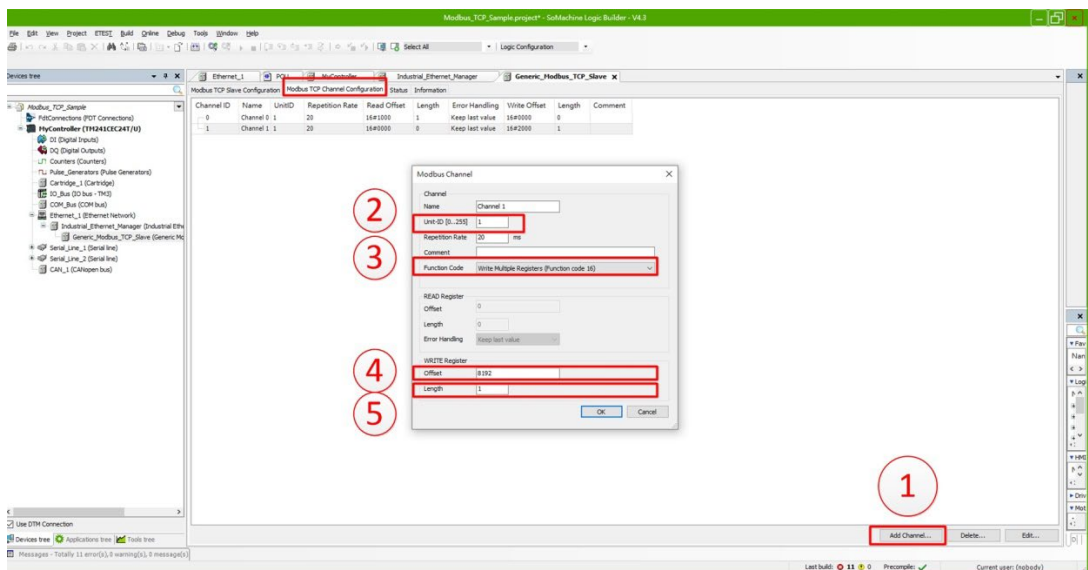
1. Select “Generic Modbus TCP Slave”
2. Select “Modbus TCP Slave Configuration” and set up the gateway IP address under “Slave IP Address”

IV. Reading Register Setup



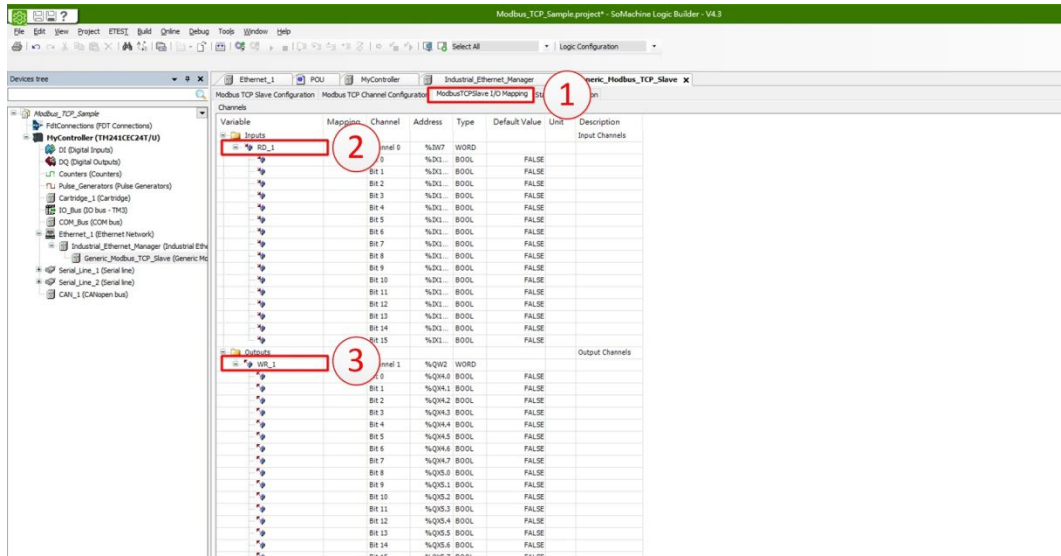
1. Select “Modbus TCP Channel Configuration”
2. Select “Add Channel...”
3. Set up the Master ID under “Unit ID”
4. Under “Function Code”, select “Read Holding Registers (Function Code 03)”
5. In the “Offset” field, enter “4096” for the read register's IP address
6. In the “Length” field, set up the data amount for reading

V. Write Register Setup



1. Select “Add Channel...”
2. Set up the Master ID under “Unit ID”
3. Under “Function Code”, select “Write Multiple Registers (Function Code 16)”
4. In the “Offset” field, enter “8192” for the Write register's IP address
5. In the “Length” field, set up the data amount for writing

VI. Command Address Mapping



1. Select “Modbus TCP Slave I/O Mapping”
2. Enter the I/O mapping name in “Input”
3. Enter the I/O mapping name in “Output”

Notes:

- ※ **iO-GRID[™]**'s first GFDI-RM01N has the register address at 1000(HEX) converted to (DEC) with the starting address at 4096
- ※ **iO-GRID[™]**'s first GFDO-RM01N has the register address at 2000(HEX) converted to (DEC) with the starting address at 8192

VII. Sample Program

Control with one GFDI-RM01N and one GFDO-RM01N

When the first point of DI has received a signal and is triggered, the first point of DO will output a signal as it is connected

