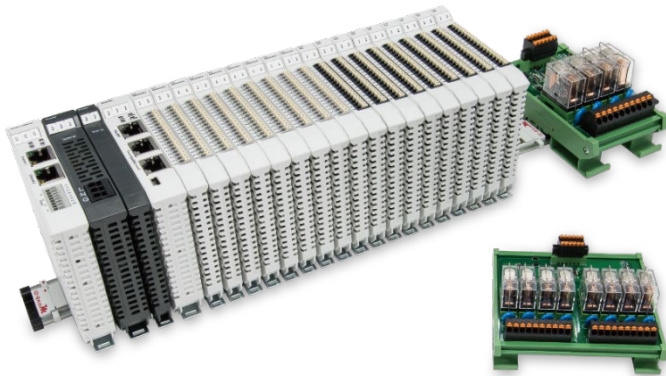




iO-GRIDTM
and Schneider PLC
Modbus TCP
Connection Operating Manual



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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
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.**

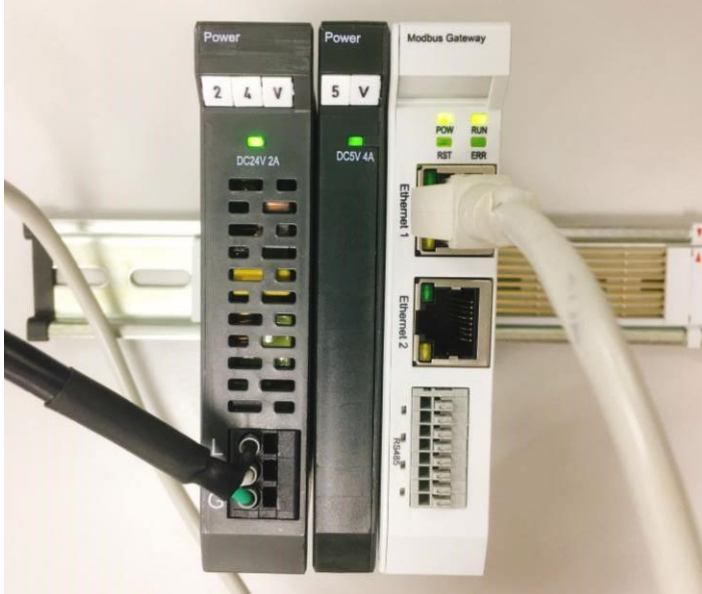


2. Schneider TM241 Connection Setup

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

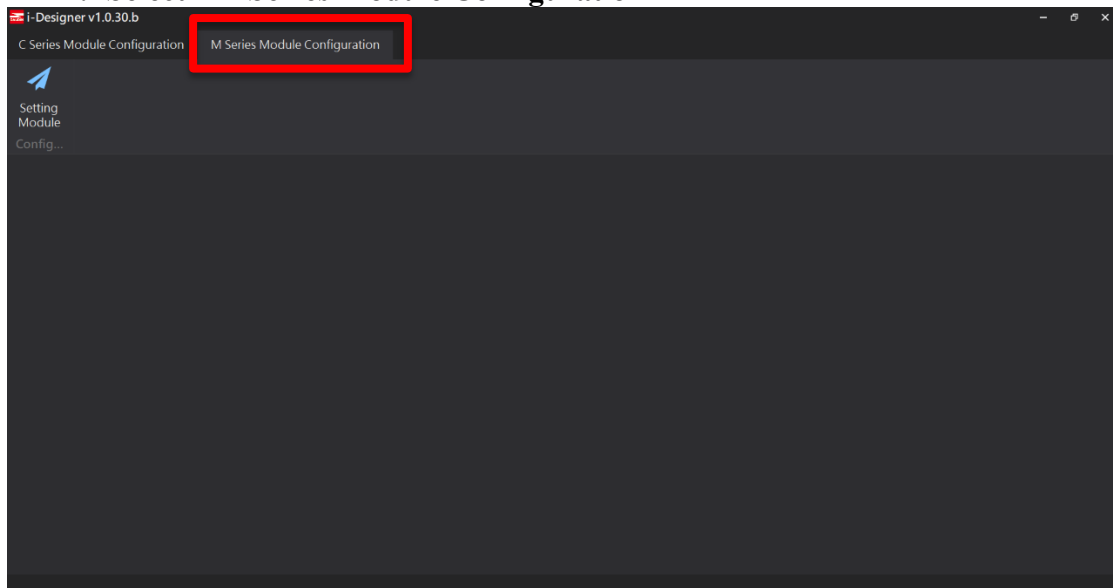
- I. Make sure that the module is powered and connected to the gateway module using an Ethernet cable



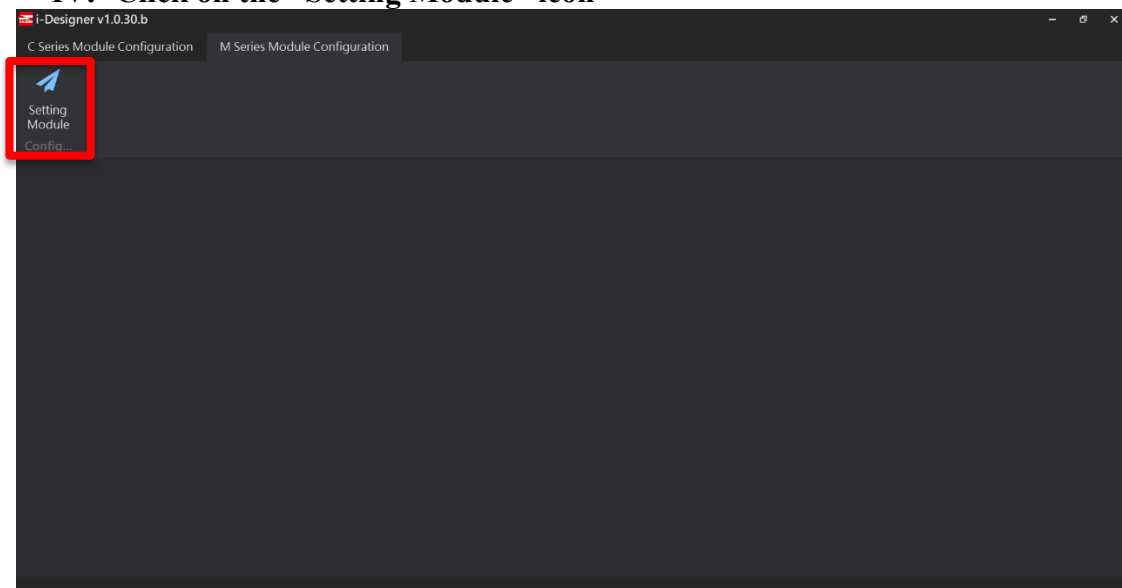
- II. Click to launch the software



III. Select “M Series Module Configuration”



IV. Click on the “Setting Module” icon



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

The screenshot displays the 'Setting Module' window, which is a dark-themed interface. The window's title bar includes the text 'Setting Module' and a close button (X). The interface is organized into three primary panels:

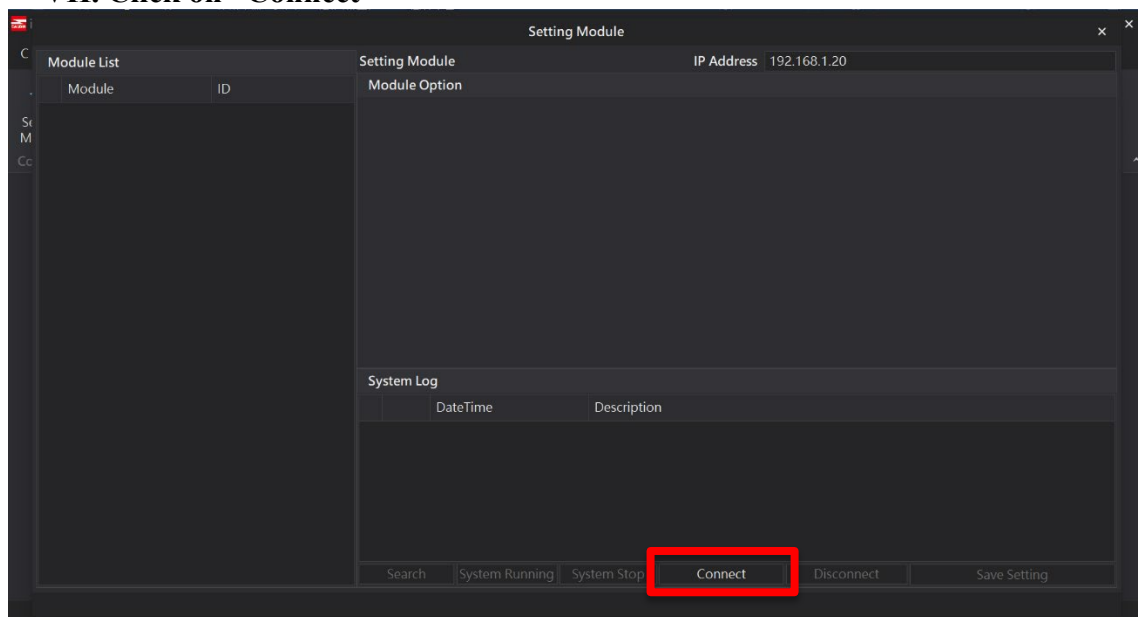
- Module List (Left Panel):** This panel features a table with two columns, 'Module' and 'ID'. The table is currently empty.
- Module Option (Top Right Panel):** This panel contains configuration settings. It includes a 'ModeType' dropdown menu currently set to 'Gateway Mode', and an 'IP Address' text field containing the value '192.168.1.20'.
- System Log (Bottom Right Panel):** This panel displays a log table with two columns, 'DateTime' and 'Description'. The table is currently empty.

At the bottom of the window, there is a search bar and a row of five buttons: 'System Running', 'System Stop', 'Connect', 'Disconnect', and 'Save Setting'.

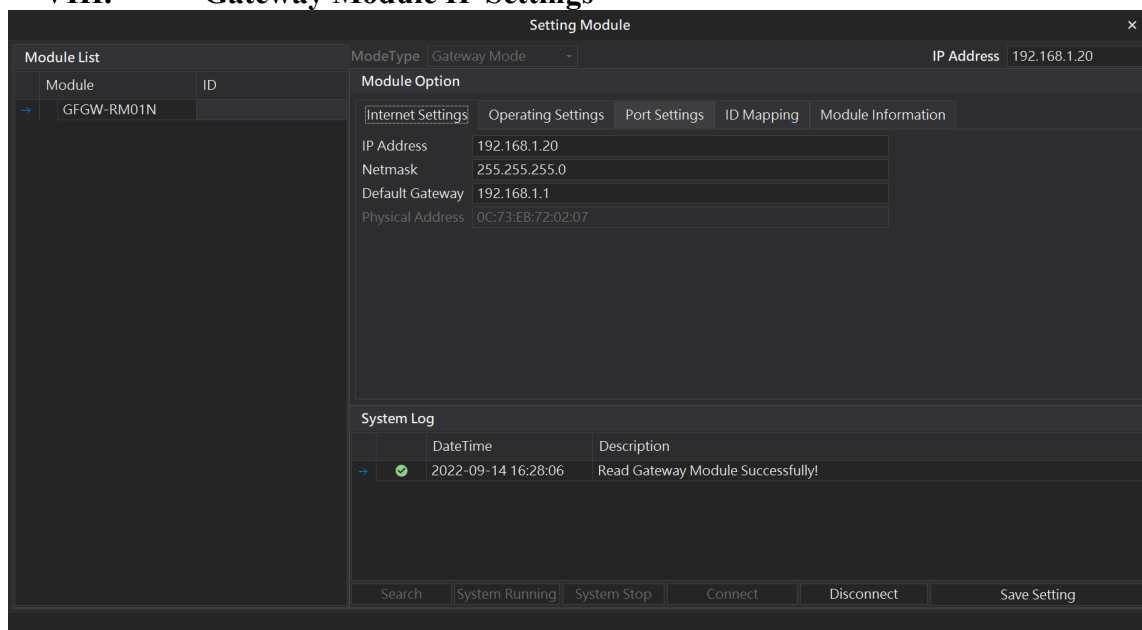
VI. Select the mode type based on the connected module

The screenshot shows the 'Setting Module' window. The 'Module List' table is empty. The 'Module Option' section shows 'ModeType' as 'Gateway Mode' and 'IP Address' as '192.168.1.20'. The 'System Log' table is also empty. The bottom bar contains buttons for 'Search', 'System Running', 'System Stop', 'Connect', 'Disconnect', and 'Save Setting'.

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

Setting Module

Module List

Module	ID
→ GFGW-RM01N	

ModeType Gateway Mode

IP Address 192.168.1.20

Module Option

Internet Settings

Operating Settings

Port Settings

ID Mapping

Module Information

Channel 1	Mode	Slave	Timeout	25	ms
Channel 2	Mode	Slave	Timeout	25	ms
Channel 3	Mode	Slave	Timeout	25	ms
Channel 4	Mode	Slave	Timeout	25	ms

System Log

	DateTime	Description
→	2022-09-14 16:28:06	Read Gateway Module Successfully!

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)

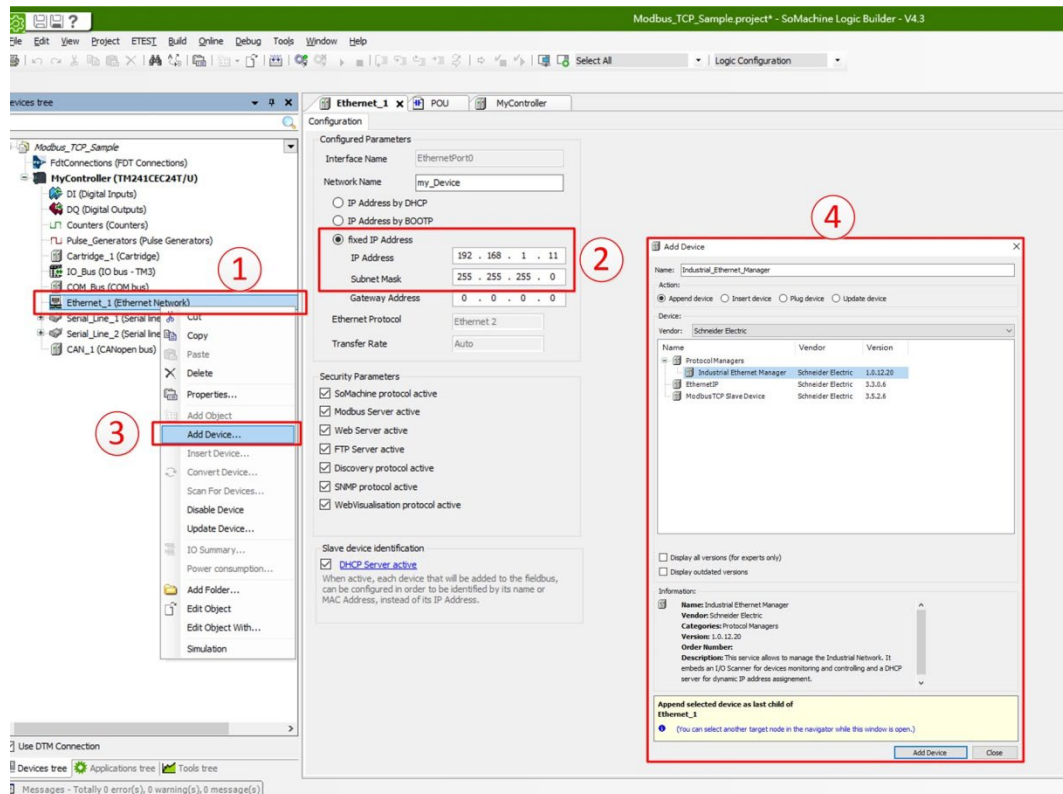
2.2 Schneider TM241 Hardware Connections

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

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

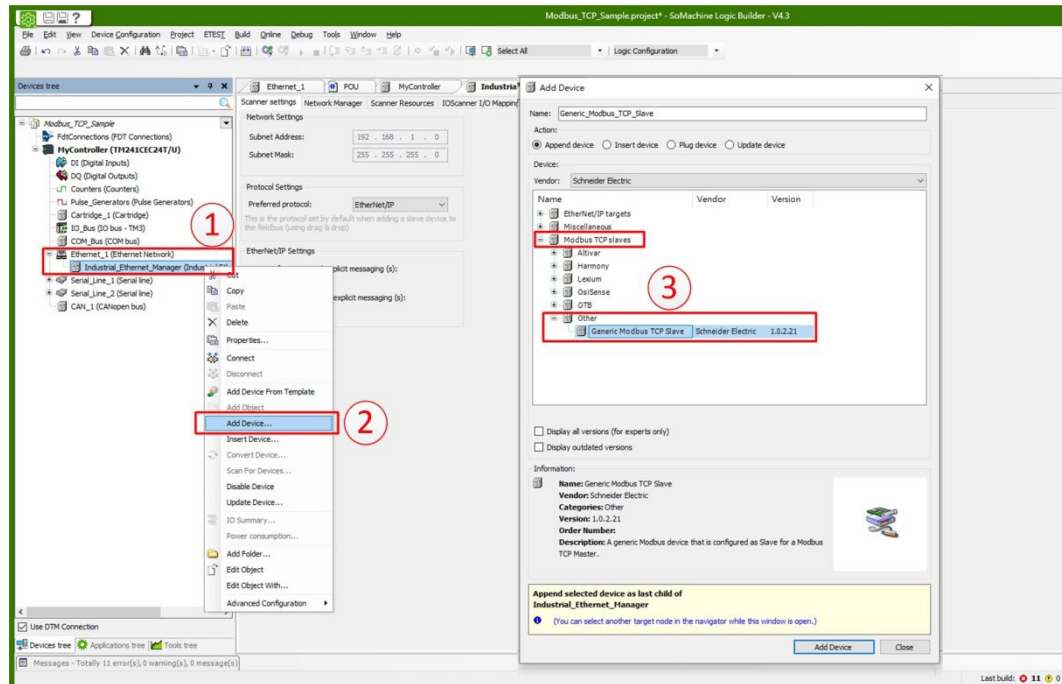
2.3 Schneider TM241 Connection Setup

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



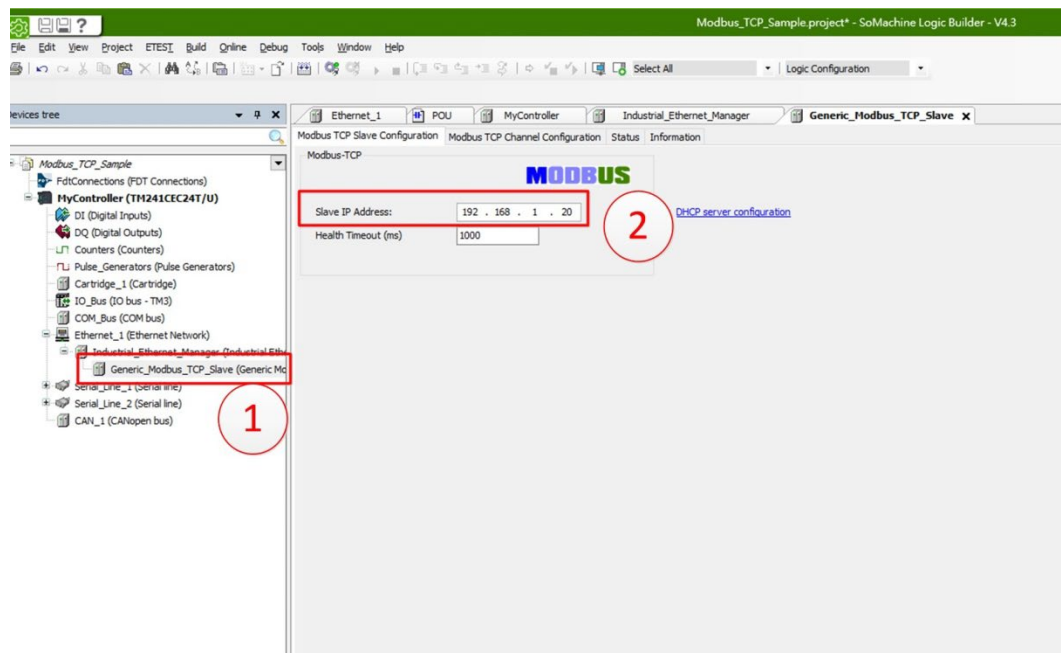
1. Click on “Ethernet_1 (EthernetNetwork)”
2. Under “fixed IP Address”, set up the controller’s IP Address and Subnet Mask
3. Right-click on “Ethernet_1 (EthernetNetwork)” and then click on “Add Device...”
4. In “Protocol Managers”, click to add a new “Industrial Ethernet Manager”

II. Add New Devices



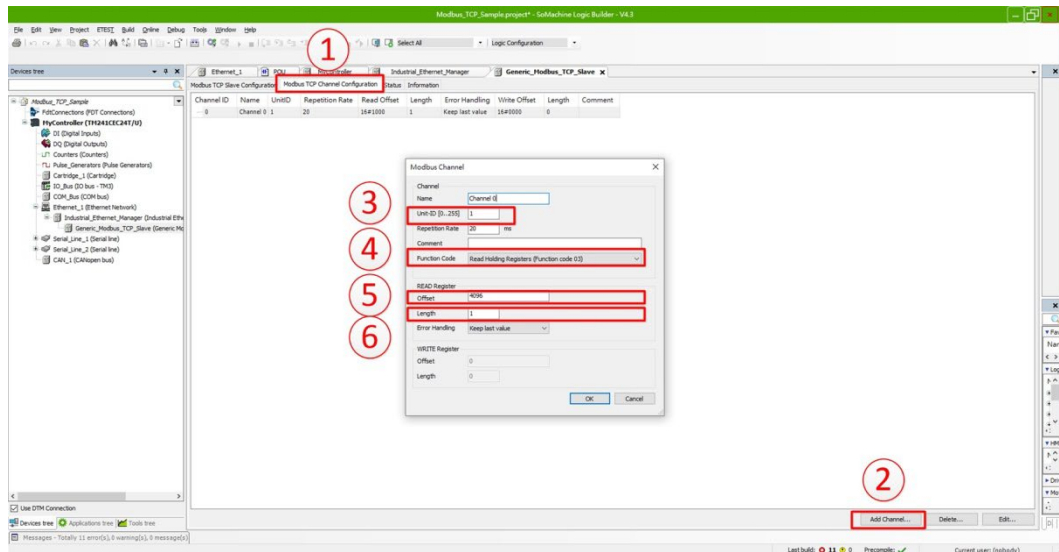
1. Right-click on “Industrial Ethernet Manager” and then select “Add Device...”
2. Under “Modbus TCP Slaves”, click to add a new “Generic Modbus TCP Slave”

III. Set up gateway IP address



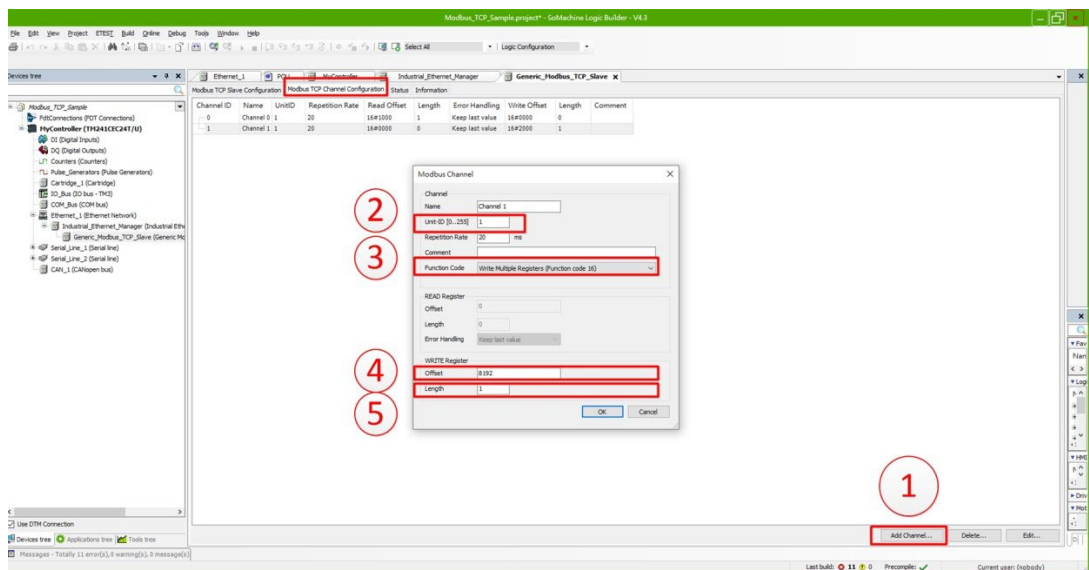
1. Select “Generic Modbus TCP Slave”
2. Select “Modbus TCP Slave Configuration” and set up the gateway IP address under “Slave IP Address”

IV. Reading Register Setup



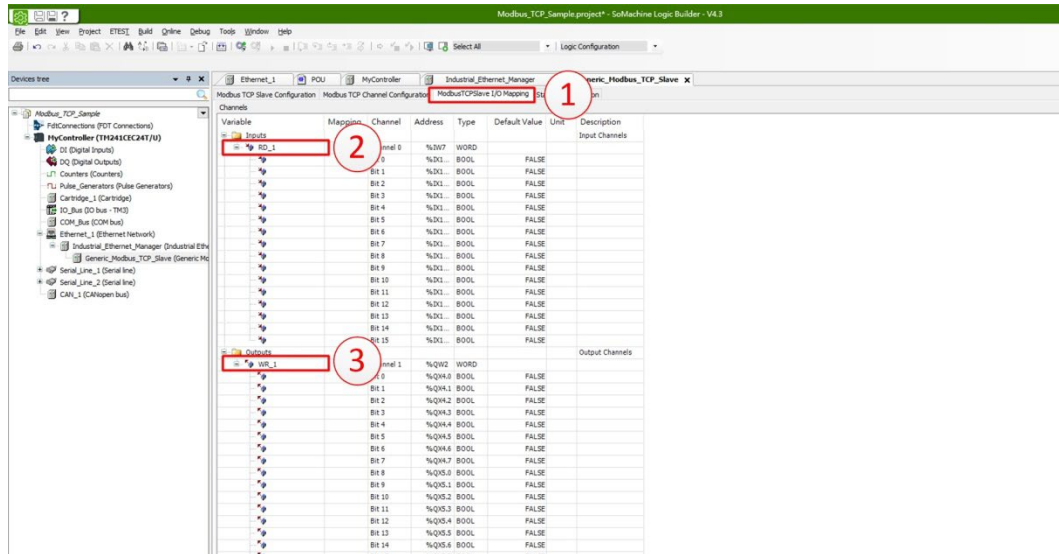
1. Select “Modbus TCP Channel Configuration”
2. Select “Add Channel...”
3. Set up the Master ID under “Unit ID”
4. Under “Function Code”, select “Read Holding Registers (Function Code 03)”
5. In the “Offset” field, enter “4096” for the read register's IP address
6. In the “Length” field, set up the data 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-GRIDTM**'s first GFDI-RM01N has the register address at 1000(HEX) converted to (DEC) with the starting address at 4096
- ※ **iO-GRIDTM**'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

