

Modbus TCP / EtherNet/IP Gateway GT200-MT-EI

User Manual

V2.1

Rev A



SST Automation

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Important Information

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1 Product Overview

1.1 Product Introduction

GT200-MT-EI is a gateway that can provide a seamless connection between multiple Modbus TCP Clients/Servers and an EtherNet/IP Scanner. This gateway functions as either a Client (Master) or Server (Slave) on the Modbus TCP side, and as an Adapter (Slave) on the EtherNet/IP side. It supports data exchange between the Modbus TCP network and the EtherNet/IP network.

Additionally, it supports the interconnection between Schneider PLC and AB PLC and connects the Modbus TCP server devices to the EtherNet/IP network.

1.2 Product Features

- Supports functionality as a Modbus TCP Client (Master) or Modbus TCP Server (Slave).
- Functions as an EtherNet/IP Adapter (Slave).
- Two redundant power interfaces.
- Supports network status monitor function to monitor Modbus TCP devices.
- Supports I/O data monitor function for debugging.
- Provide easy-to-use configuration software SST-EE-CFG.



1.3 Technical Specifications

EtherNet/IP Interface Features	
Ethernet Interface	One (1) half-duplex/full-duplex auto-negotiation RJ45 Ethernet port shared by Modbus TCP and EtherNet/IP
IP Address Assignment Modes Supported	Static IP Addressing (Manual Configuration) DHCP (Auto IP)
EtherNet/IP Operation Mode	Functions as an EtherNet/IP Adapter (Slave) Supports the ODVA standard EtherNet/IP communication protocol.
EtherNet/IP Communication Modes Supported	Implicit Messaging (I/O Messaging) Explicit Messaging (MSG Instruction Blocks)
Max Input Bytes	492 Bytes
Max Output Bytes	492 Bytes
Byte Swap Modes	No swap Double-byte swap (0x1234 => 0x3412) Four-byte swap (0x12345678 => 0x78563412)

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Modbus TCP Interface Features	
Ethernet Interface	One (1) half-duplex/full-duplex auto-negotiation RJ45 Ethernet port shared by Modbus TCP and EtherNet/IP
IP Address Assignment Modes Supported	Static IP Addressing (Manual Configuration) DCHP (Auto IP)
Modbus TCP Operation Modes Supported	Modbus TCP Client (Master) Modbus TCP Server (Slave)
Maximum Modbus TCP Server Devices in Modbus TCP Client Mode	Up to 36 Modbus TCP Server connections
Maximum Modbus TCP Client Connections in Modbus TCP Server Mode	Up to 36 Modbus TCP Client connections
Modbus TCP Function Codes Supported in Modbus TCP Client Mode	01H: Read Coils 0x 02H: Read Discrete Inputs 1x 03H: Read Holding Registers 4x 04H: Read Input Registers 3x 05H: Single Coil Write 0x 06H: Single Register Write 4x 0FH: Multiple Coil Write 0x 10H: Multiple Register Write 4x
Modbus TCP Function Codes Supported in Modbus TCP Server Mode	03H: Read Holding Registers 4x 04H: Read Input Registers 3x 06H: Single Register Write 4x 10H: Multiple Register Write 4x
Electrical/Environmental	
Power Supply	24VDC Nominal
Operating temperature	-4°F - 140°F (-20°C - 60°C)
Humidity:	5% - 95% (non-condensing)
Certification	CE Compliant



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Hardware	
Dimensions (W xH x D)	1.33 in x 4.56 in x 4.21 in (34mm x 116mm x 107mm)
Mounting	35mm DIN rail
Enclosure Rating	IP20
Ethernet Port	One (1) 10/100 Base-T, RJ45 Connector
Power Interfaces	Two (2) 3-Pin Terminal Blocks
Mounting	35mm DIN rail

1.4 Related Products

The related products include GT200-MT-RS485, GT200-MT-2RS485, GT200-MT-2R232, GT200-MT-2RS, GT200-MT-EI, GT200-MT-CA, and GT200-MT-CO.

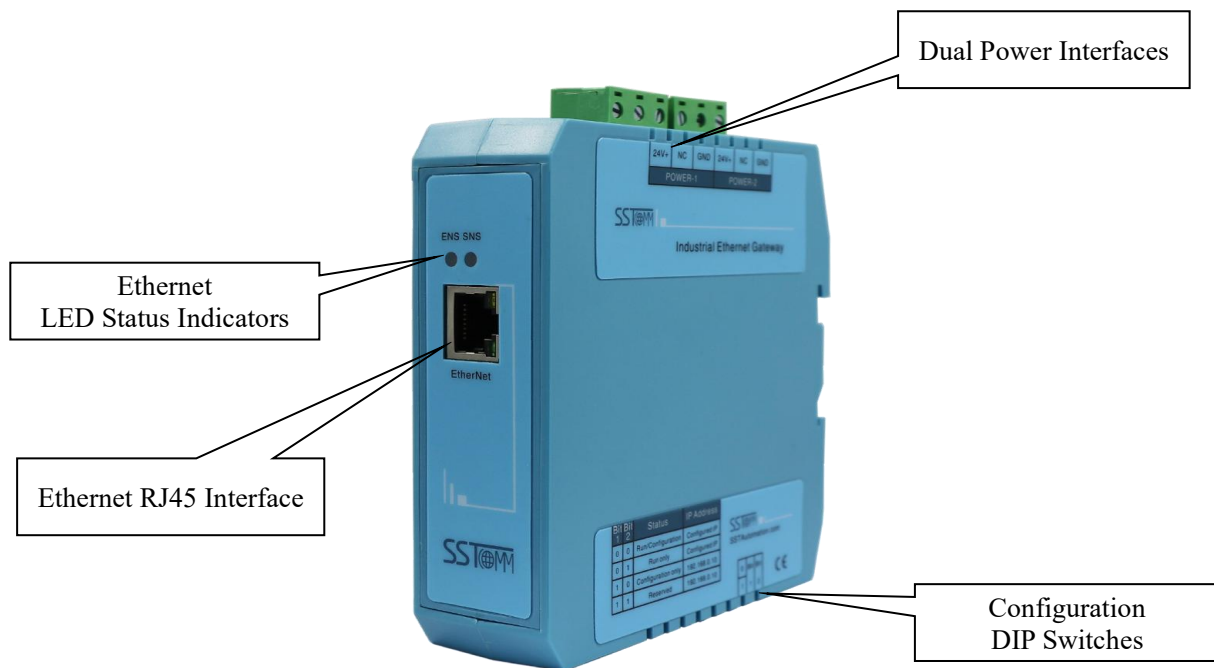
For more information about related products, please visit SST Automation's website: www.sstautomation.com.

1.5 Revision History

Revision	Date	Chapter	Description
V2.1, Rev A	11/20/2024	Chapters 6, 7	Added tables to explain the data mapping between Modbus TCP and EtherNet/IP. Updated the EtherNet/IP connection instructions to use with Studio 5000 Logix Designer.
V2.1	5/17/2023	PART	Updated the product picture, dimensions
V1.7, Rev A	12/28/2021	ALL	Update format

2 Hardware Overview

2.1 Product Layout



Note: This picture is for reference only and the appearance of the product is subject to change in the actual product.



2.2 LED Status Indicators

Indicators	Status	Description
ENS (EtherNet/IP network status indicator)	Solid Green	EtherNet/IP connection is established.
	Flashing Green	EtherNet/IP connection is not established.
	Solid Red	IP address conflict.
	Flashing Red	EtherNet/IP connection is off or in DHCP mode.
SNS (Modbus TCP network status indicator)	Solid Green	At least one Modbus TCP connection has been established.
	Flashing Green	Modbus TCP connection is not established.
	Flashing Red	Modbus TCP connection lost.
	Flashes Red for 3 seconds, then turns Solid Green	Modbus TCP node disconnected.
ENS and SNS (Orange: Red and Green on at the same time)	Both Solid Orange Simultaneously	Start-up state.
	Flashes Orange Alternately	Configuration Mode.

2.3 DIP Switches

The DIP switches are located at the bottom of the gateway: Bit 1 is the Mode Bit, and Bit 2 is the Function Bit.



Mode Bit (Switch 1)	Function Bit (Switch 2)	Operating Mode	Description
OFF	OFF	Run Mode	Enables protocol communications between EtherNet/IP and Modbus TCP. Allows reading and writing configuration data.
OFF	ON	Run Mode with Configuration Lock	Enables protocol communications between EtherNet/IP and Modbus TCP. Prohibits reading and writing configuration data.
ON	OFF	Configuration Mode	Disables protocol communications between EtherNet/IP and Modbus TCP. Allows reading and writing configuration data. In configuration mode, the IP address is set to 192.168.0.10 (fixed).
ON	ON	Reserved	Reserved

Note: To implement the configuration changes, the user must power cycle the GT200-MT-EI (power off and power on) to ensure that the new configuration takes effect.

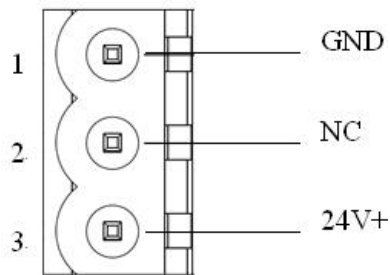


2.4 Interfaces

2.4.1 Power Interfaces

This GT200-MT-EI gateway has two power interfaces that operate at 24 VDC. In an event of one power failure, the other power source will continue to supply power. This interface has 2 detachable 3-pin terminal block connectors that are located at the top of the unit. It is recommended to use a 24V DC power supply

Pin	Function
1	GND
2	NC, not connected
3	24V+ , DC 24V

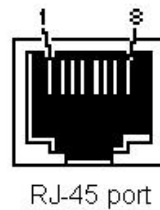




2.4.2 Ethernet Interface

The Ethernet interface is used for both Modbus TCP and EtherNet/IP protocol communications, and for configuring the gateway via the SST-HE-CFG configuration software. The interface follows the IEEE802.3u 100BASE-T standard (10/100M), and uses an RJ-45 connector. The pinout assignments for the Ethernet interface are shown below:

Pin	Signal Description
S1	TXD+, Transmit Data+
S2	TXD-, Transmit Data-
S3	RXD+, Receive Data+
S4	Bi-directional Data+
S5	Bi-directional Data-
S6	RXD-, Receive Data-
S7	Bi-directional Data+
S8	Bi-directional Data-



RJ-45 port



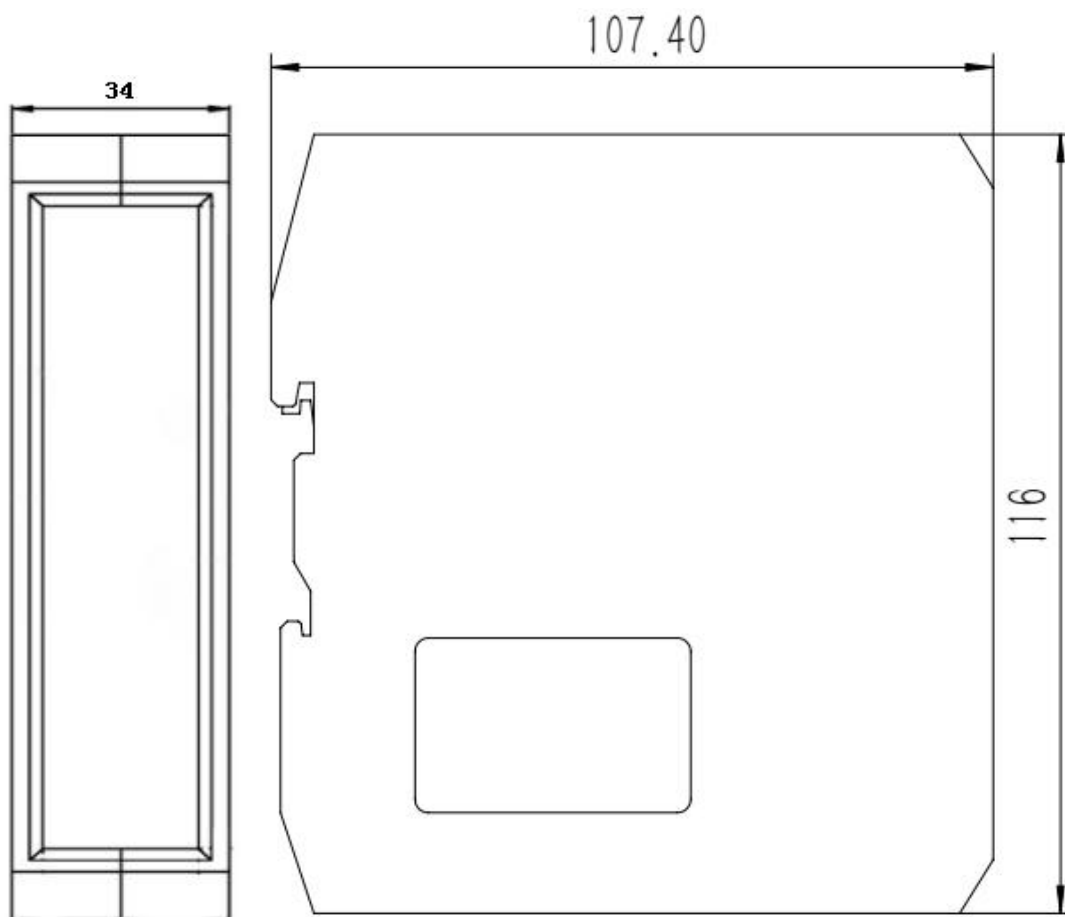
3 Hardware Mounting

3.1 Mechanical Dimensions

Size (Width x Height x Depth):

1.33in x 4.56in x 4.21in

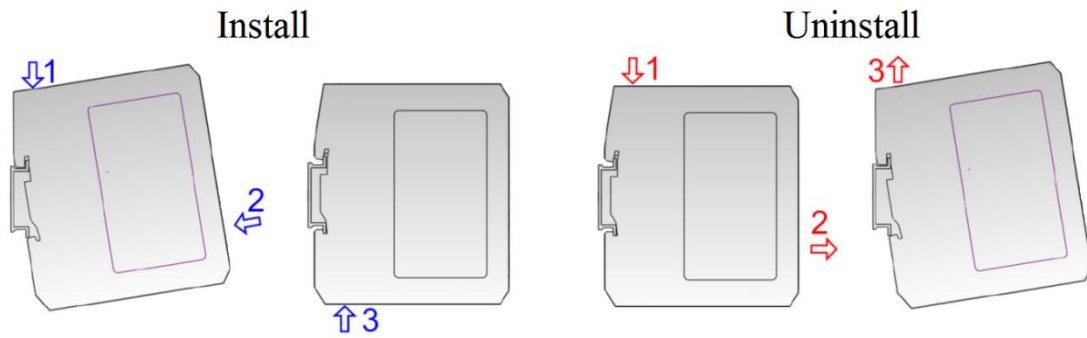
(34mm x 116mm x 107.4mm)





3.2 Installation Method

Using 1.4 in (35mm) DIN Rail.

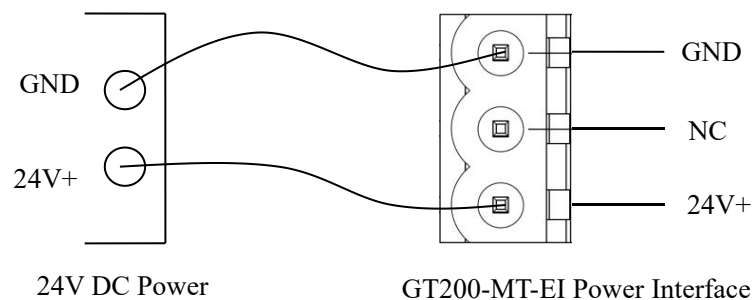


4 Quick Start Guide

4.1 Hardware Connection

Note: Before configuring the GT200-MT-EI, please verify the hardware connection. Follow these steps to ensure proper configuration:

1. Set the gateway to Configuration Mode by settings the DIP switches to 1-ON, 2-OFF while the gateway is powered off.
2. Connect the Ethernet port of the gateway to the network port of the computer with a network cable. For details about the Ethernet interface, refer to [Chapter 2.4.2](#).
3. Connect the power supply to the gateway as shown in the figure below. Please note this gateway has two power interfaces that connects to a 24V DC power supply. The user can connect one or both.



4. Power on the gateway, the gateway will be in Configuration Mode at this time. The IP address of GT200-MT-EI will now be 192.168.0.10 (fixed), the subnet mask will be 255.255.255.0, and the IP of the connected computer should be set to a static IP within the 192.168.0.X subnet.

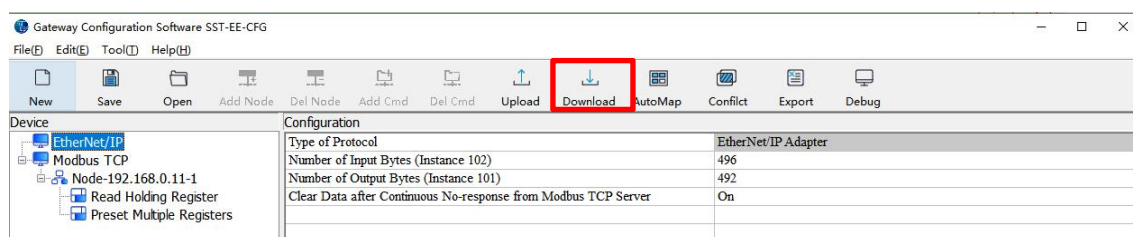
4.2 Software Configuration

4.2.1 Setup

1. Download and install the latest version of the SST-EE-CFG configuration software available from SST Automation's website via <https://www.sstautomation.com/Download1/>.
2. Verify the gateway is connected to the host computer via the Ethernet port (RJ45 interface) and powered on.

4.2.2 Configuration

1. Open the SST-EE-CFG configuration software and configure the parameters of Ethernet IP and Modbus TCP respectively (Refer to [Chapter 5](#) for Software Instructions).
2. Download the configuration by clicking "Download" and then select the gateway to be configured. For more details about downloading or uploading configurations, please refer to [Chapter 5.3.2](#).



Note: If no gateways are discovered, please test the network connection by pinging the gateway. Refer to the note "[How to Use the Ping Command](#)" located on our Support page on the sstautomation.com website. If is unable to be pinged, please verify that the computer's IP address is set within the same network subnet as the gateway.

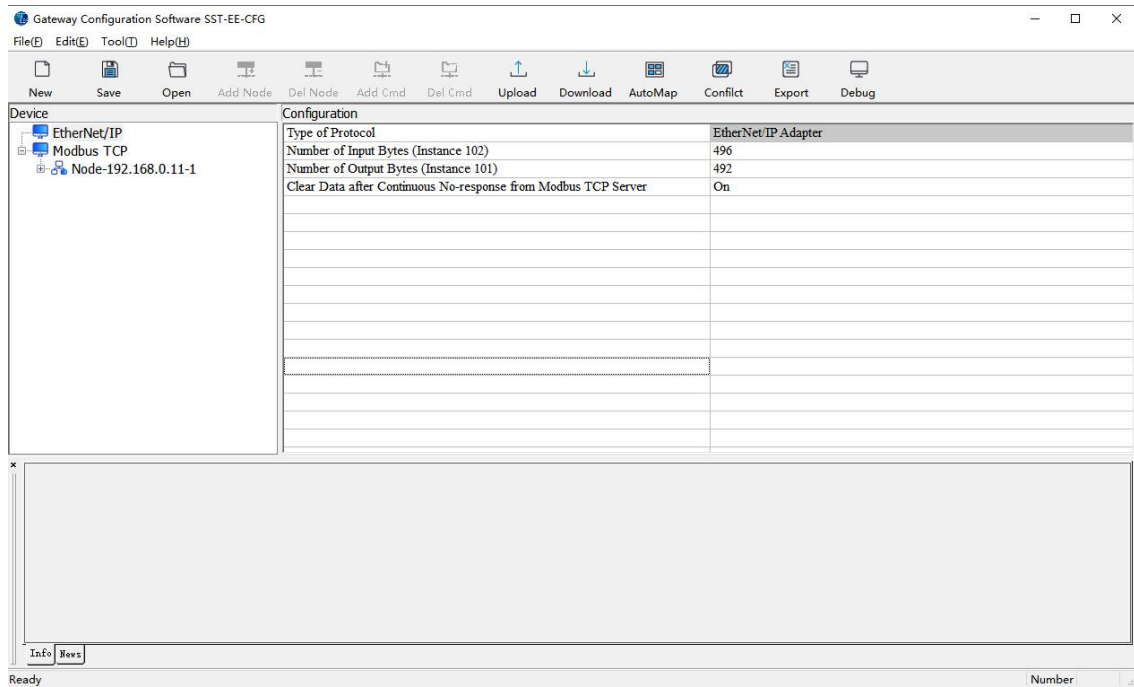
3. Turn off the gateway, set the DIP switches to 1-OFF and 2-OFF (Run Mode), and then power on the gateway to ensure the configuration has taken effect
4. Configure the EtherNet IP network as required and ensure that the configuration matches the configuration set in the GT200-MT-EI (Refer to the instructions in [Chapters 7](#) and [7.1](#)).



5 Software Instructions

SST-EE-CFG is a software that runs on Windows operating systems. It is used to configure GT200-MT-EI gateway and set the relevant parameters for the two different industrial Ethernet interfaces.

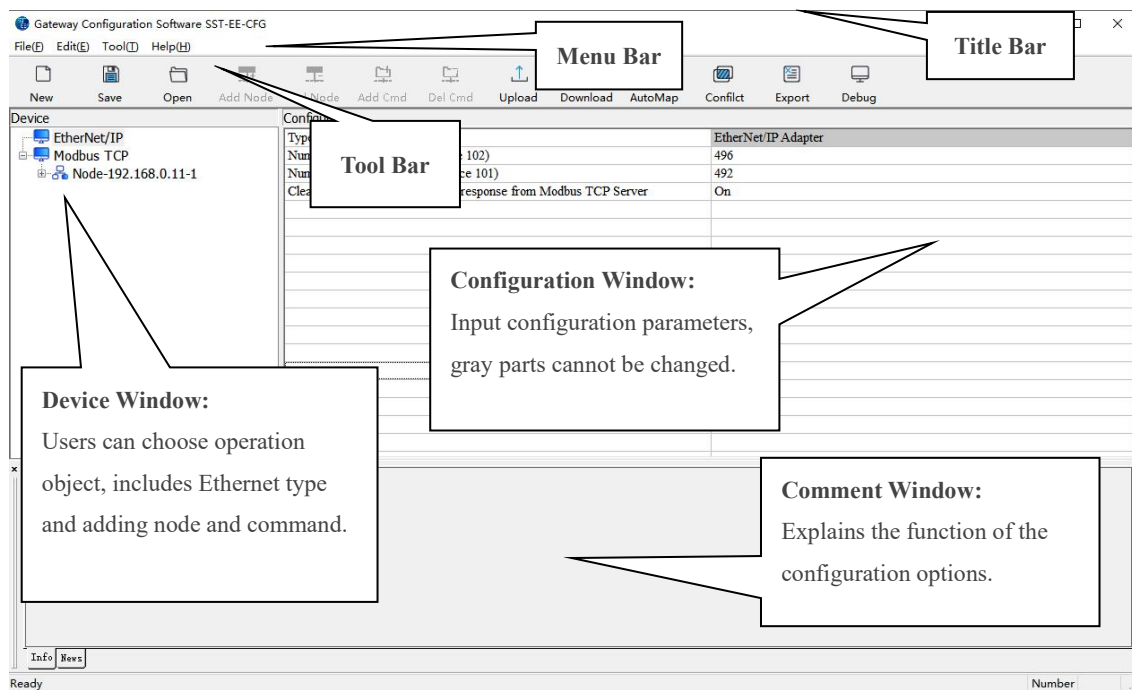
Double-click the icon to enter the main interface of the software, as shown below:



5.1 Software Interface

The main interface of SST-EE-CFG includes the following: Title bar, Menu bar, Tool bar, Device window, Configuration window, and Comment window.

Note: In this configuration software, the grayed out fields cannot be changed.



5.1.1 Tool Bar

The toolbar interface is presented as follows:



The functions, from left to right, are: New, Save, Open, Add Node, Delete Node, Add Command, Delete Command, Upload Config, Download Config, Auto Mapping, Conflict Detect, Export XLS, and Debug.

Toolbar function table:

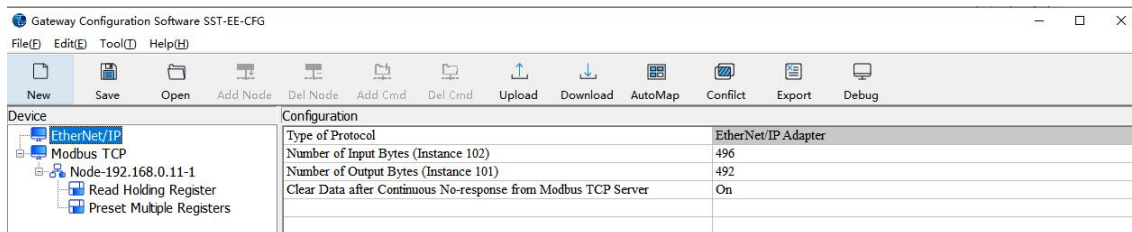
	New:	Create a new configuration project.
	Save:	Save the current configuration.
	Open:	Open a configuration project.
	Add Node:	Add a Modbus TCP server node.
	Del Node:	Delete a Modbus TCP server node.
	Add Command:	Add a Modbus command.
	Delete Command:	Delete a Modbus command.
	Upload Config:	Read the configuration information from the module and shown in the software.
	Download Config:	Download the configuration file to the gateway.
	Auto Mapping:	Used to automatically calculate the mapped memory address without conflict by each command.
	Conflict Detect:	Checks whether there are some conflicts with configured commands in the gateway memory data buffer.
	Export XLS:	Export current configuration to the local hard disk, save it as an .xls file.
	Debug:	Monitor the gateway memory buffer data.



5.2 Device View

5.2.1 EtherNet/IP

Click "EtherNet/IP" inside the "Device" area to view the configuration interface as shown below.



The configurable parameters are as follows:

Type of Fieldbus: EtherNet/IP Adapter.

Number of input bytes (Instance 102): Input byte range of EtherNet IP is 5-496, with a default value of 496.

Number of output bytes (Instance 101): Output byte range of EtherNet/IP is 1-492, with a default value of 492.

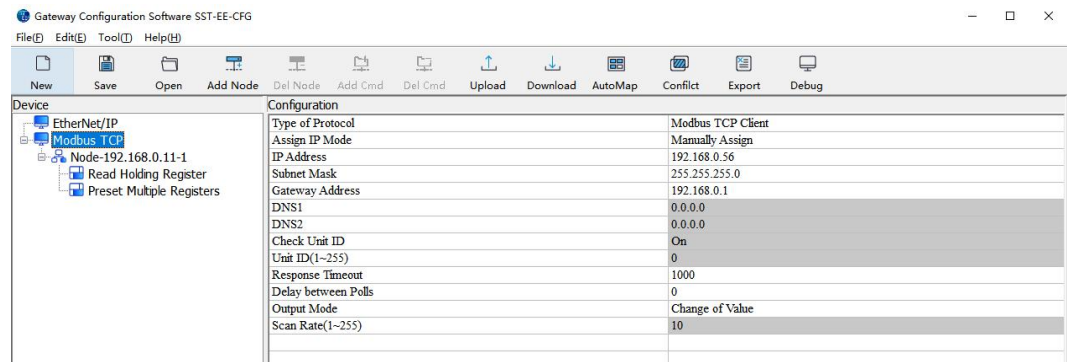
Clear Data after Continuous No-response from Modbus TCP Server: When this field is set to "On" then when there are three consecutive request timeouts for the Modbus TCP server, the gateway will clear corresponding input data of this server. This only takes effect when the gateway acts as Modbus TCP Master.

The available options are "On" and "Off".

5.2.2 Modbus TCP

5.2.2.1 Modbus TCP Client Configuration

Click "Modbus TCP" inside the "Device" area to view the configuration interface as shown below:



The configurable parameters are as follows:

Type of Protocol:	Modbus TCP Client
Assign IP Mode:	Manually Assign and DHCP.
IP Address:	The IP Address of the device.
Subnet Mask:	The Subnet Mask of the device
Gateway Address:	The Gateway Address of the device.
DNS1:	DNS1 of the device.
DNS2:	DNS2 of the device.



Response Timeout:	When the Modbus TCP master sends out commands, it waits for the response from server. The range is 300-60000ms, with a default of 1000 ms.
Delay between Polls:	Receive the correct response after one Modbus command has been sent or send the next Modbus command after response timeout. The range is 0-2500 ms, with a default of 0 ms.
Output Mode:	Three options are available: Cycle, Forbidden, Change of Value: Cycle: The write command will be sent periodically. Forbidden: The write command won't be sent. Change of Value: When the output data change, the write command will be sent
Scan Rate:	Scan Rate is a ratio of fast scan to slow scan. Every Modbus command can be set to fast scan or slow scan. If this parameter value is set to 10, then every fast scan command will be sent 10 times and those slow commands will be sent once.

5.2.2.1.1 Node Configuration

The Configuration view supports three types of operations: Edit Menu, Edit Toolbar and Right click edit Menu.

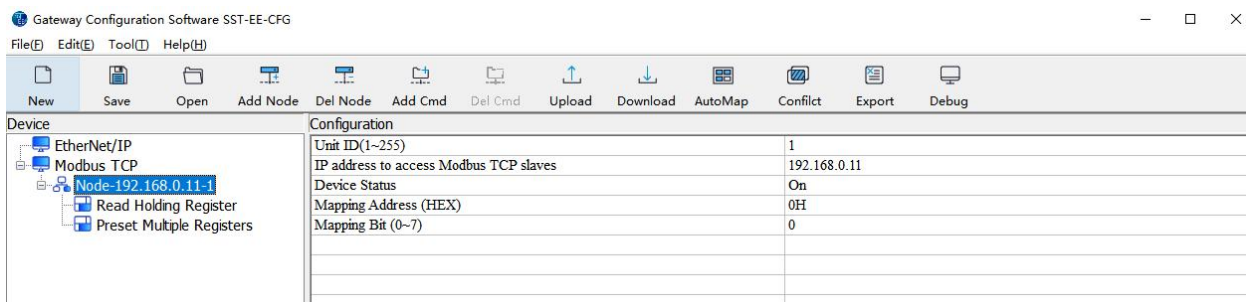
- | | |
|-------------------------|--|
| [1] Add Node: | Right-click on Modbus TCP or an existing node, and then select the option "Add Node". This will create a new node named "New node" under Modbus TCP. |
| [2] Delete Node: | Right-click on the node the user wants to delete and select the option "Del Node". This will remove the node and all associated commands. |
| [3] Copy Node: | Right-click on the node the user wants to copy and select the option "Copy Node". This will copy a new node with the same parameters, including all the commands under the node. |
| [4] Paste Node: | Right-click and choose any existing node, then select the option of "Paste Node". This will create a node (including all commands under the node) under Modbus TCP or other Nodes. The parameters of new node are set to default and need to be reset. |

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The node interface is shown below:



The configurable parameters are as follows:

Unit ID: The server address of Modbus TCP is configurable and can be between 1-255.

Modbus TCP Server IP Address: Enter the IP address of the Modbus TCP server to connect to.

Device Status: On and Off are the options available. When this feature is enabled the "mapping address" and "mapping bit" fields become available. This feature allows the user to view the communication state between this node and gateway in EtherNet/IP input data.

Mapping Address: This refers to the address range in which the equipment state is mapped in the module memory, which ranges from 0x0000 to 0x01EB. This can be calculated by clicking "Auto mapping".

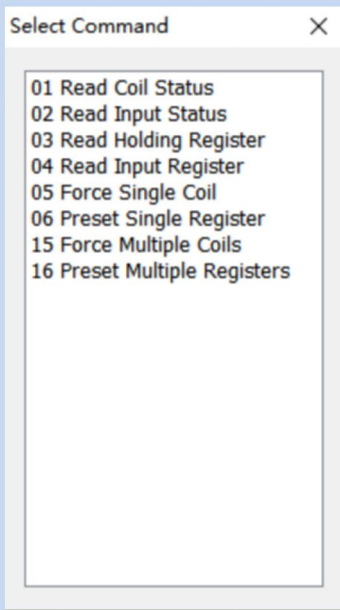
Mapping Bit: This refers to bit x of device status located in memory mapping bytes, which ranges from 0 to 7.

5.2.2.1.2 Modbus Command Configuration

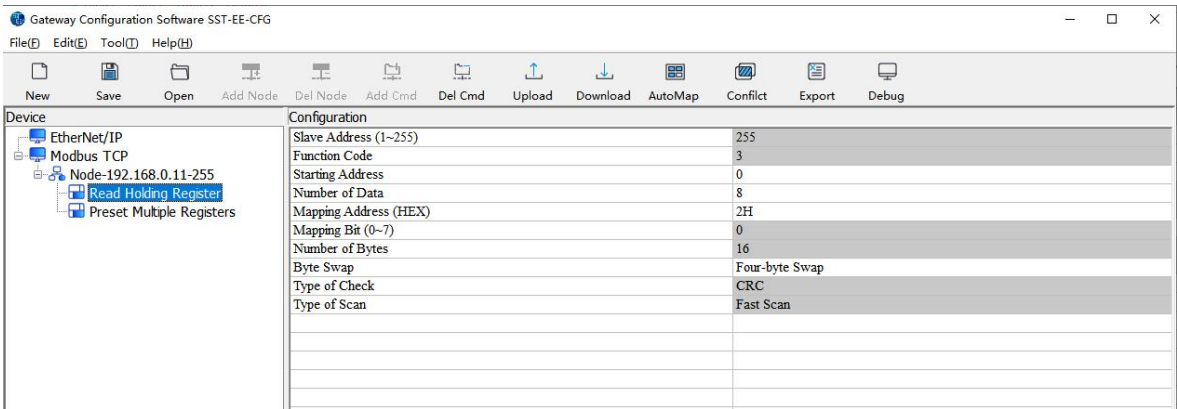
The Configuration view supports three types of operations: Edit Menu, Edit Toolbar and, Right-click Edit Menu.

- [1] **Add command:** Right-click on the node the user wants to add a command to, select the option "Adding command", and then select the type of command.
- [2] **Delete command:** Right-click on the command the user wants to delete and then select "Del Command".

Note: The commands supported are Function Codes 01, 02, 03, 04, 05, 06, 15, and 16 as shown below:



The command interface is shown below:



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The configurable parameters are as follows:

Server (Slave) Address: Modbus Server address.

Function Code: Represents the Modbus Function Code to be used for the command.

Starting Address: The starting modbus address of the corresponding status or register, ranging from 0 to 65535.

Note: The GT200-MT-EI uses Base-0 modbus address notation. The following table shows the relationship between Base-1 PLC addresses and their corresponding Base-0 protocol addresses.

Command	PLC Address Notation (Base-1)	Protocol Address Notation (Base-0)
Coil Status Function Code 01	0x00001-0x65536	00000-65535
Input Status Function Code 02	1x00001-1x65536	00000-65535
Holding Register Function Code 03	4x00001-4x65536	00000-65535
Input Register Function Code 04	3x00001-3x65536	00000-65535

When the Modbus command is configured as 03H (read holding register), and the users input 40001 in this item (Modbus register starting address), a dialog box will pop up the after confirming. After clicking OK, the PLC address 40001 will be converted into 0.

Number of Data: The total number of modbus addresses.

For modbus function code commands 03, 04, and 16, this field represents the total number of 16-bit modbus registers in the range. Range: 1 - 112.

For modbus function code commands 01, 02, and 15, this field represents the total number of 1-bit modbus status inputs or coils. Range: 1 - 400.

Mapping Address (HEX):

The starting address of the data in the module's internal memory buffer. The EtherNet/IP mapping addresses correspond to the internal memory buffer mapping address.

When the device status feature is disabled, the data is mapped in the module memory within the following address range:

Read command Input Buffer: 0x0000 - 0x01EB

Write command Output Buffer : 0x4000 - 0x41EB

When the device status feature is enabled, it is recommended to use "Auto Mapping" to automatically calculate the mapping address through software.

The user can also assign write commands to the Input Buffer (0x0000 - 0x01EB) to exchange data locally between Modbus TCP devices.

Mapping Bit (0-7):

When reading/writing a coil or reading input status, its value will be mapped into bits of input or output buffer.

Number of Bytes:

The total size of the data in bytes.

Byte Swap:

This feature swaps the byte order of the data between Modbus TCP and EtherNet/IP. There are three options available to modify byte order:

No swap

Double-byte swap (0x1234 => 0x3412)

Four-byte swap (0x12345678 => 0x78563412)

Default: No swap.

Type of Check:

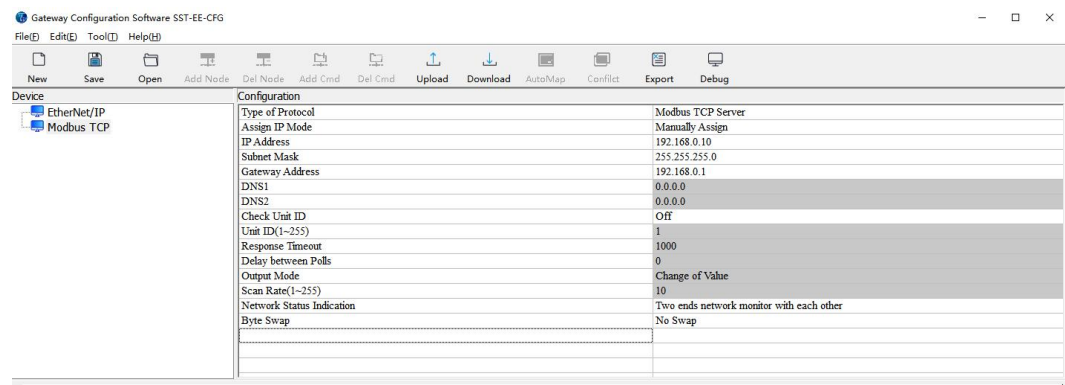
Indicates the type of data communication error check.

Type of Scan:

Every Modbus command can be set to fast scan or slow scan. The gateway will send a Modbus command based on the Scan Rate, which is the ratio of fast-scan commands to slow-scan commands.

5.2.2.2 Modbus TCP Server Configuration

The Modbus TCP interface is displayed as follows:



The configurable parameters are as follows:

Check Unit ID: Two options are available: "On" and "Off"

Unit ID (1-255): When "Check unit ID" is "On", the Unit ID ranges from 1 to 255.

Network Status Indication: Four options are available: Two ends network monitor with each other, EtherNet/IP end monitors Modbus TCP network status, Modbus TCP end monitors EtherNet/IP network status, and No Indication.

Byte Swap: This feature swaps the byte order of the data between Modbus TCP and EtherNet/IP. There are three options available to modify byte order:

- No swap
- Double-byte swap (0x1234 => 0x3412)
- Four-byte swap (0x12345678 => 0x78563412)

Default: No swap.

Please refer to [Chapter 5.2.2.1](#) for additional details.



5.3 Tools Menu

The "Tools" option on the menu bar contains the following functions:

- Config Ethernet
- Upload Config
- Download Config
- Conflict Detect
- Export Excel
- Monitor I/O Data

5.3.1 Config Ethernet

"Config Ethernet" has two options.

- (1) The default option has "Use the search function" checked, allowing the user to search for all GT200-MT-EI gateways on the network.
- (2) When "use the search function" is not checked, the user can search for a gateway with the specified IP address. Simply fill in the IP address of the gateway the user wants to search and click "OK" button to confirm the search.

Ethernet configuration

☐ Use the search function

IP address to connect to:

192 . 168 . 0 . 10

OK Cancel

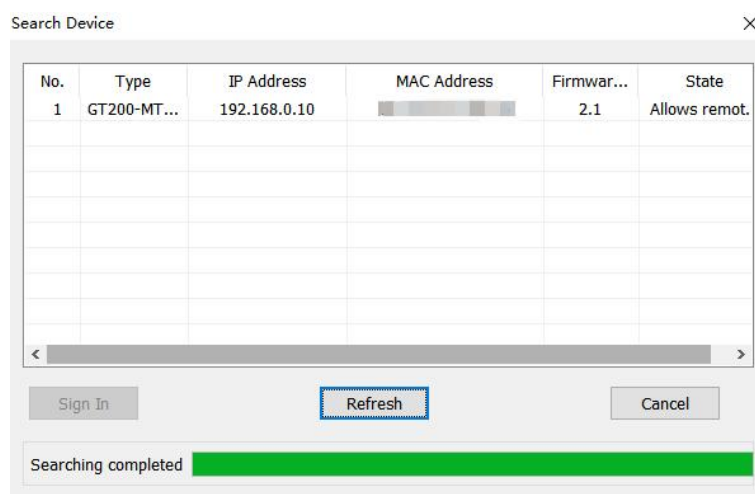


5.3.2 Upload/Download Config

5.3.2.1 Upload Config

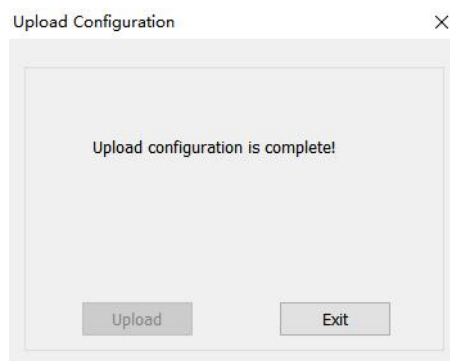
To upload the gateway configuration information from the device to the software, select "Upload".

When uploading the configuration from the gateway to the software, a pop-up window will appear as shown below:



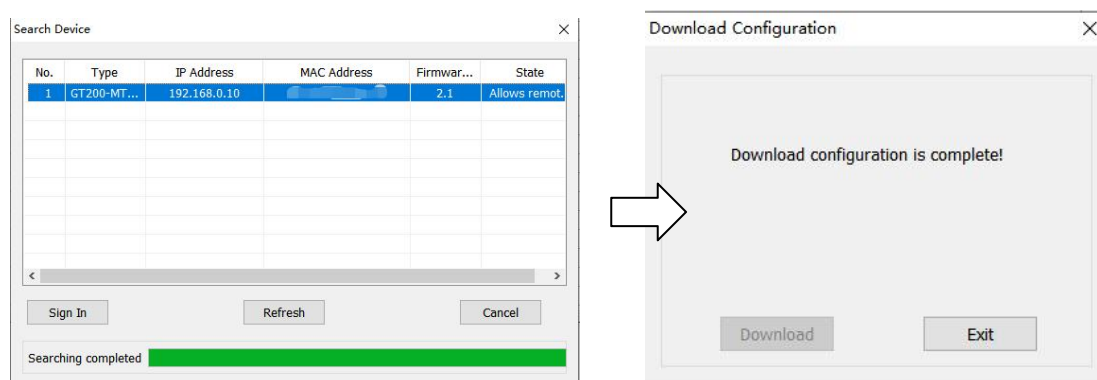
Clicking the "refresh" button will search for equipment on the Ethernet again.

Select the equipment the user wants to configure and click "Sign In" to enter into the upload dialog box as shown below:



5.3.2.2 Download Config

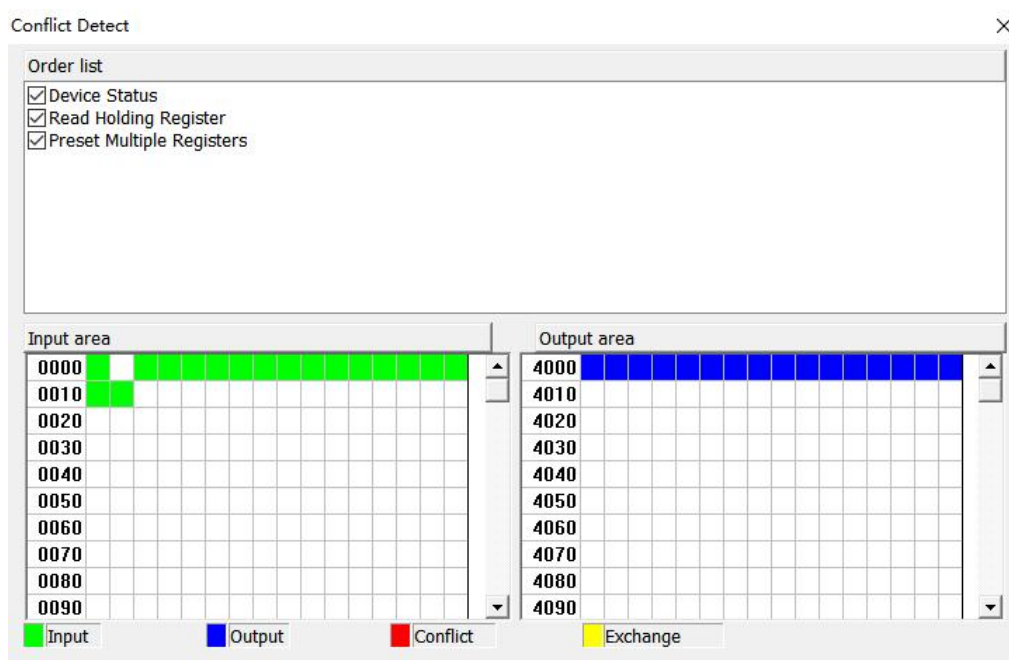
To download the configured gateway information to the gateway device, select "Download". The operation of download configuration is the same as upload configuration:



Note: Before downloading, please confirm the configuration is completed and correct.

5.3.3 Memory Conflict Detection

It is used to identify conflicts in the "memory mapping data". If the users find conflicts, it can be adjusted with time. The interface is shown below:





5.3.3.1 Command List

This shows a list of commands that have been configured. A checkbox preceding each command allows the user to determine the position within the in memory mapping area. By selecting one command and checking the box, the relevant position that the commands occupies in the memory mapping area will be displayed. Deselecting the box, will remove the command from in the mapping area. This feature is useful for detecting conflicts among commands in memory mapping area.



5.3.3.2 Memory Mapping

The GT200-MT-EI internal memory buffer is divided into an input area and an output area, with the following address ranges:

- Input Range:

0x0000-0x3FFF
- Output Range:

0x4000-0x7FFF

Each grid represents one byte address, and different colors are used to indicate the different types of commands:

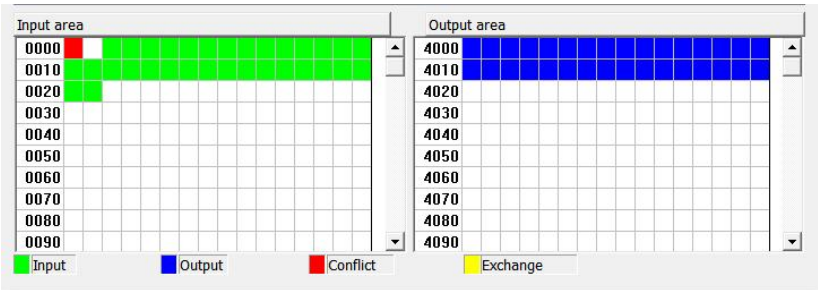
- Green:

Indicates input data. Data received from Modbus TCP devices using a read command will be displayed in the input mapping area in green.
- Yellow:

Indicates Modbus TCP exchange data. Data that is read from one Modbus TCP device and written to another Modbus TCP device using a write command will be displayed in the input mapping area in yellow.
- Blue:

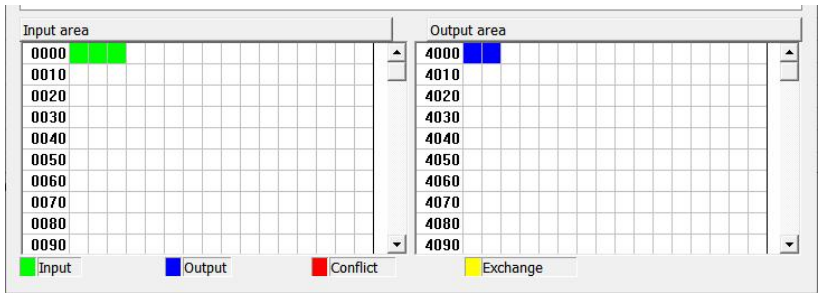
Indicates output data. Data received from EtherNet/IP and written to Modbus TCP devices using a write command will be displayed in the output mapping area in blue.
- Red:

Indicates a data conflict. If different commands are assigned to the same byte in the input or output area, that byte area will be in red.



For the bit operation command, the above grid displays the meaning in the same way.

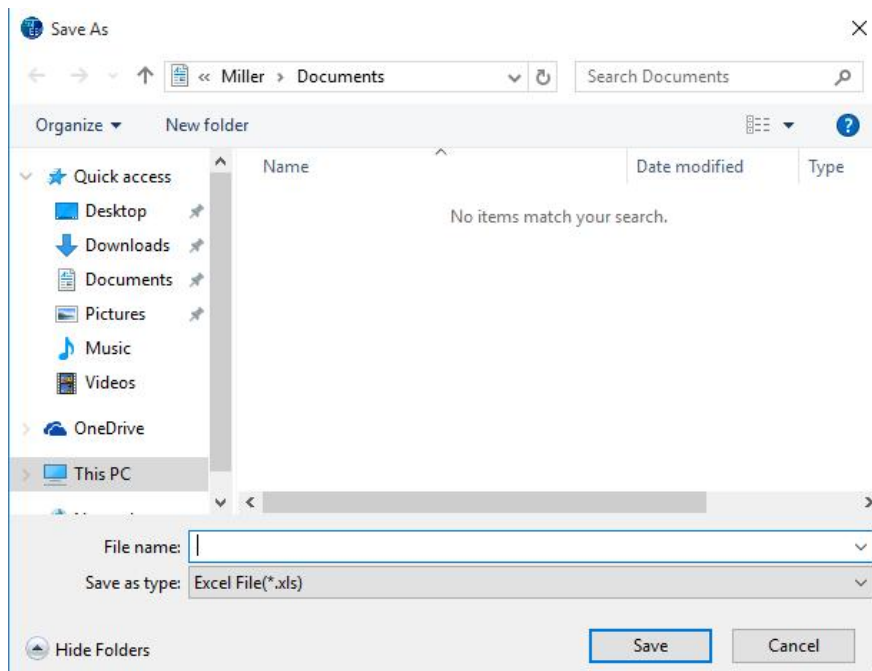
When clicking on input/output area grids, each bit of relevant byte in the grid will show whether it is occupied, as shown below:



5.3.4 Export Excel

This feature exports the configuration in an Excel file, which will help users to check the relevant configuration.

To do this, simply select the export xls icon , export the configuration information to Excel, and save the file to the appropriate path, as shown below:





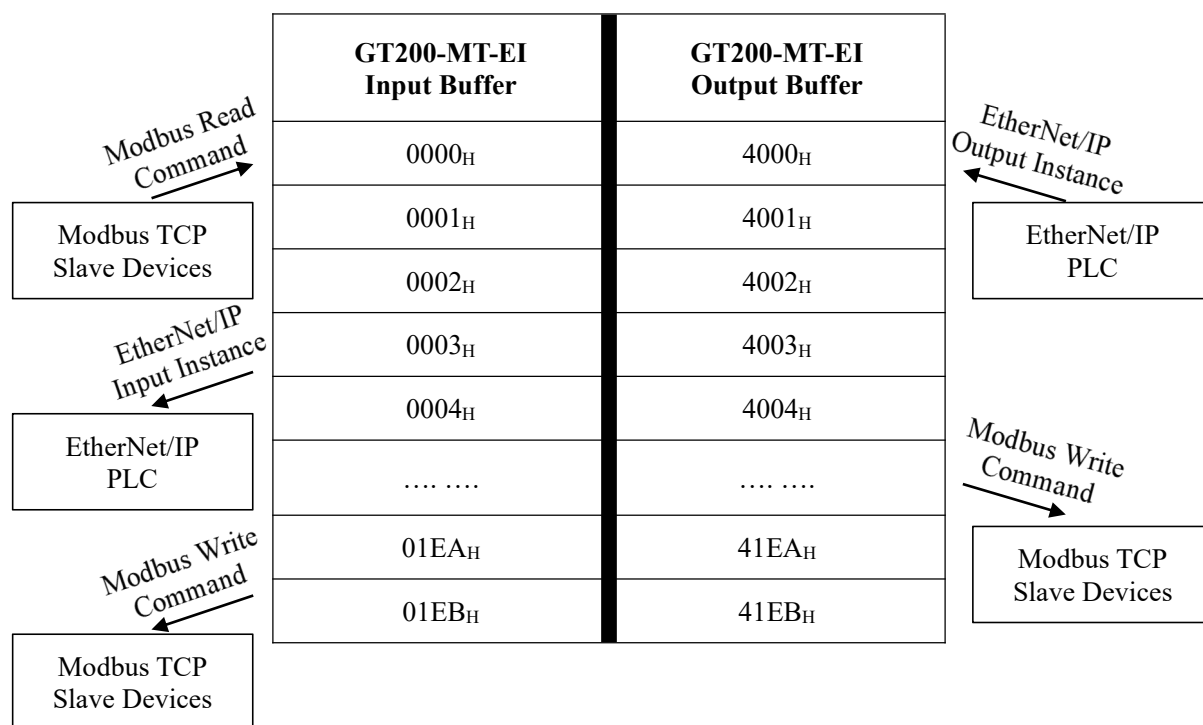
6 Interface Design Description

6.1 Modbus TCP Client (Master)

6.1.1 Data Exchange

The ethernet side of the gateway supports Modbus TCP function, as described below:

Data exchange of Modbus TCP and EtherNet/IP of GT200-MT-EI is set up through "mapping". There are two data buffer areas, one is EtherNet/IP network input buffer and the other is EtherNet/IP network output buffer. Network input and output buffer is all for EtherNet/IP master. When the gateway is a Modbus TCP master, the Modbus read command will write the read data to the network input buffer for EtherNet/IP accessing. The Modbus write register command gets the data from the network output buffer and exports it to the Modbus TCP server equipment through the write command.



As shown above, the Network input buffer range is from 0000H to 01EBH. It supports function codes 01H, 02H, 03H, and 04H as data input, and function codes 05H, 06H, 15H, and 16H for local data exchange. The network output buffer range is from 4000H to 41EBH, supporting function codes 05H, 06H, 15H, and 16H as data output.

The ethernet can support at maximum of 48 commands, with each command capable of reading a group of continuous Modbus registers.



6.1.2 Device Status Monitor

When the gateway functions as a Modbus TCP Client, it has a device status monitor feature as described below:

- On the EtherNet/IP side of the connection, the first word (2 bytes) of input data following the gateway status bytes (4 bytes) monitors the connection status of each Modbus TCP Server (Slave) node that is connected to the gateway. If the node status monitor function is disabled, then the gateway will not show this data.

GT200-MT-EI Input Buffer	EtherNet/IP Input Data			Description																
	32-Bit	16-Bit	8-Bit																	
	Input.Data[0]	Input.Data[0]	Input.Data[0]	GT200-MT-EI Status Bytes: 00 00 00 00 _H = Disconnected 01 00 00 00 _H = Connected																
			Input.Data[1]																	
		Input.Data[1]	Input.Data[2]																	
			Input.Data[3]																	
0000 _H	Input.Data[1]	Input.Data[2]	Input.Data[4]	Node 1-8 Status Monitor Bits: <table><tr><th colspan="8">Mapping Bit</th></tr><tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> 0 _B = Connected 1 _B = Disconnected	Mapping Bit								7	6	5	4	3	2	1	0
Mapping Bit																				
7				6	5	4	3	2	1	0										
0001 _H		Input.Data[3]	Input.Data[5]	Node 9-16 Status Monitor Bits: <table><tr><th colspan="8">Mapping Bit</th></tr><tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr></table> 0 _B = Connected 1 _B = Disconnected	Mapping Bit								7	6	5	4	3	2	1	0
Mapping Bit																				
7	6	5	4	3	2	1	0													
0002 _H	Input.Data[4]	Input.Data[6]	Modbus Address 4x0001 (Holding Register 0)																	
0003 _H	Input.Data[5]	Input.Data[7]	Modbus Address 4x0002 (Holding Register 1)																	
.... ..																				

Note: To enable the node status monitor function, set the "Device Status" field to "On" in the SST-EE-CFG configuration software. To disable the node status monitor function, set this field to "Off".

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- b. On the Modbus TCP side of the connection, the EtherNet/IP monitor data is located on Modbus register address 3x5001 (Base-0 Input Register address 5000). When EtherNet/IP network fails, this register is set to 0, and set to 1 if network is normal.
- c. Regardless if the EtherNet/IP monitor function is enabled or disabled, Modbus Clients can still get the EtherNet/IP network status by reading Modbus register address 3x5001 (Base-0 Input Register address 5000).
- d. If the EtherNet/IP monitor function is enabled, it will map the register at address 3x5001 (Input Register 5000) to the register at address 3x0001 (Input Register 0), and the EtherNet/IP output data will be mapped to the Modbus register address starting from 3x0002 (Input Register 1).

GT200-MT-EI Output Buffer	Modbus TCP Register Address	Description		
4000 _H	3x0001 Input Register 0	EtherNet/IP Monitor Bytes: 00 00H = EtherNet/IP Disconnected 00 01H = EtherNet/IP Connected		
4001 _H				
4002 _H	3x0002 Input Register 1	EtherNet/IP 32-Bit Index Output.Data[0]	EtherNet/IP 16-Bit Index Output.Data[0]	EIP 8-Bit Index Output.Data[0]
4003 _H				EIP 8-Bit Index Output.Data[0]
4004 _H	3x0003 Input Register 2	Output.Data[0]	EtherNet/IP 16-Bit Index Output.Data[1]	EIP 8-Bit Index Output.Data[0]
4005 _H				EIP 8-Bit Index Output.Data[0]
4006 _H	3x0004 Input Register 3	EtherNet/IP 32-Bit Index Output.Data[1]	EtherNet/IP 16-Bit Index Output.Data[2]	EIP 8-Bit Index Output.Data[0]
4007 _H				EIP 8-Bit Index Output.Data[0]
4008 _H	3x0005 Input Register 4	Output.Data[1]	EtherNet/IP 16-Bit Index Output.Data[3]	EIP 8-Bit Index Output.Data[0]
4009 _H				EIP 8-Bit Index Output.Data[0]
.... ..				
	3x5001 Input Register 5000	EtherNet/IP Monitor Bytes: 00 00H = Disconnected 00 01H = Connected		



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- e. If the EtherNet/IP monitor function is disabled, the EtherNet/IP output data will be mapped to the Modbus register address starting from 3x0001 (Input Register 0).

GT200-MT-EI Output Buffer	Modbus TCP Register Address	Description		
4000 _H	3x0001	EtherNet/IP 32-Bit Index Output.Data[0]	EtherNet/IP 16-Bit Index	EIP 8-Bit Index Output.Data[0]
4001 _H	Input Register 0		Output.Data[0]	EIP 8-Bit Index Output.Data[1]
4002 _H	3x0002		EtherNet/IP 16-Bit Index	EIP 8-Bit Index Output.Data[2]
4003 _H	Input Register 1		Output.Data[1]	EIP 8-Bit Index Output.Data[3]
4004 _H	3x0003	EtherNet/IP 32-Bit Index Output.Data[1]	EtherNet/IP 16-Bit Index	EIP 8-Bit Index Output.Data[4]
4005 _H	Input Register 2		Output.Data[2]	EIP 8-Bit Index Output.Data[5]
4006 _H	3x0004		EtherNet/IP 16-Bit Index	EIP 8-Bit Index Output.Data[6]
4007 _H	Input Register 3		Output.Data[3]	EIP 8-Bit Index Output.Data[7]
.... .				
	3x5001 Input Register 5000	EtherNet/IP Monitor Bytes: 00 00 _H = Disconnected 00 01 _H = Connected		

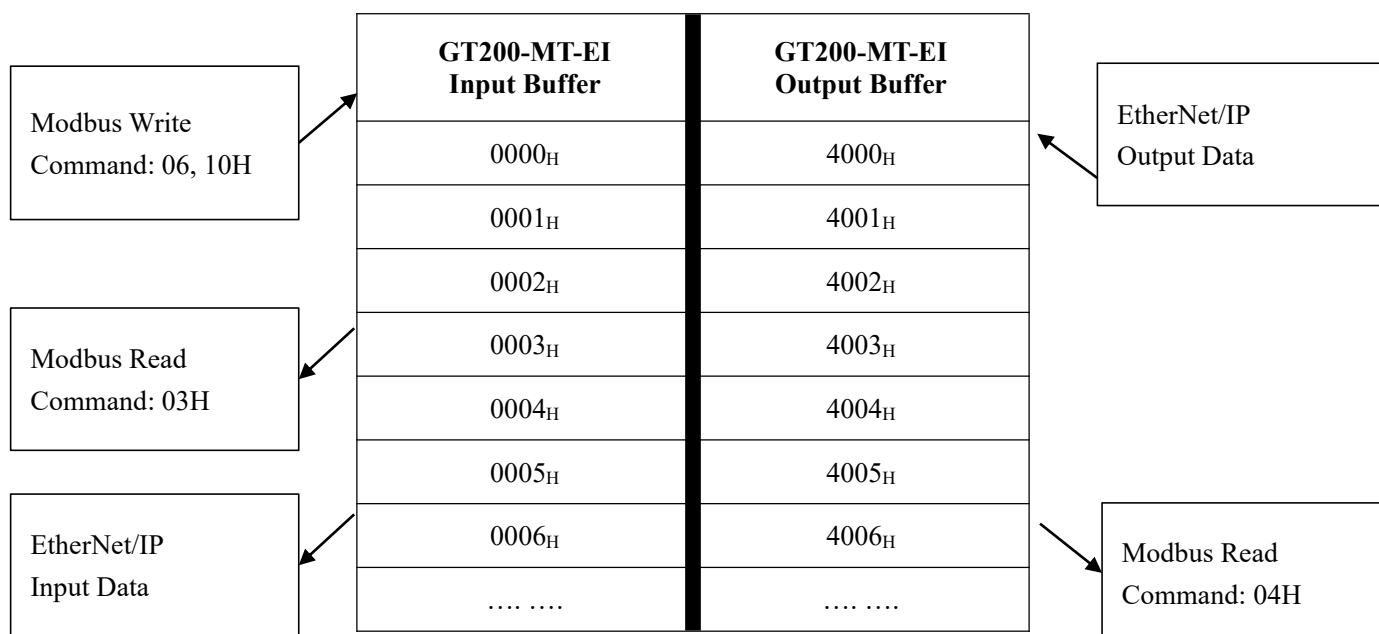
Note: To enable the EtherNet/IP monitor function, set the "Network Status Indication" field to either "Two ends network monitor with each other" or "Modbus TCP end monitors EtherNet/IP network status" in the SST-EE-CFG configuration software. To disable the EtherNet/IP monitor function, set this field to either "EtherNet/IP end monitors Modbus TCP network status" or "No Indication".



6.2 Modbus TCP Server (Slave)

6.2.1 Data Exchange

Data exchange of Modbus TCP and EtherNet/IP of GT200-MT-EI is set up through "mapping". There are two data buffer areas, one is the EtherNet/IP network input buffer and the other is the EtherNet/IP network output buffer. The network input and output buffer are all for EtherNet/IP. When the gateway is set to Modbus TCP server, the Modbus write register command will write the read data to the network input buffer for EtherNet/IP access. The Modbus read command retrieves data from the network output buffer and exports it to the Modbus TCP master equipment through a response message.



This gateway functions as a Modbus TCP Server and supports Function Codes 03H, 04H, 06H, and 10H.

The GT200-MT-EI Input Buffer is used to process output data from the Modbus TCP Master and is mapped to the Modbus Holding Registers. Function Code 03 is used to read this data back. The Input Buffer supports Function Codes 03H, 06H, and 10H. The starting address register is 4x0001 (Holding Register 0).

The GT200-MT-EI Output Buffer is used to process input data to the Modbus TCP Master and is mapped to the Modbus Input Registers. Function Code 04 is used to read this data. The Output Buffer only supports Function Code 04H. The starting address register is 3x0001 (Input Register 0).



6.2.2 Network Status Monitor

When the gateway functions as a Modbus TCP Server, it has a network status monitor feature as described below:

- a. On the EtherNet/IP side of the connection, the first word (2 bytes) of input data following the gateway status bytes (4 bytes) monitors the number of Modbus TCP Clients (Masters) that are connected to the gateway. If the Modbus TCP monitor function is disabled, then the gateway will not show this data.

GT200-MT-EI Input Buffer	EtherNet/IP Input Data			Description
	32-Bit	16-Bit	8-Bit	
	Input.Data[0]	Input.Data[0]	Input.Data[0]	GT200-MT-EI Status Bytes: 00 00 00 00 _H = Disconnected 01 00 00 00 _H = Connected
			Input.Data[1]	
		Input.Data[1]	Input.Data[2]	
			Input.Data[3]	
0000 _H	Input.Data[1]	Input.Data[2]	Input.Data[4]	Modbus TCP Monitor Bytes: Total number of Modbus TCP Clients connected
0001 _H			Input.Data[5]	
0002 _H		Input.Data[3]	Input.Data[6]	Modbus Address 4x0001 (Holding Register 0)
0003 _H			Input.Data[7]	
0004 _H	Input.Data[2]	Input.Data[4]	Input.Data[8]	Modbus Address 4x0002 (Holding Register 1)
0005 _H		Input.Data[5]	Input.Data[9]	
0006 _H		Input.Data[6]	Input.Data[10]	Modbus Address 4x0003 (Holding Register 2)
0007 _H		Input.Data[7]	Input.Data[11]	
.... .				

Note: To enable the Modbus TCP monitor function, set the "Network Status Indication" field to either "Two ends network monitor with each other" or "EtherNet/IP end monitors Modbus TCP network status" in the SST-EE-CFG configuration software. To disable the Modbus TCP monitor function, set this field to either "Modbus TCP end monitors EtherNet/IP network status" or "No Indication".

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- b. On the Modbus TCP side of the connection, the EtherNet/IP monitor data is located on Modbus register address 3x5001 (Base-0 Input Register address 5000). When EtherNet/IP network fails, this register is set to 0, and set to 1 if network is normal.
- c. Regardless if the EtherNet/IP monitor function is enabled or disabled, Modbus Clients can still get the EtherNet/IP network status by reading Modbus register address 3x5001 (Base-0 Input Register address 5000).
- d. If the EtherNet/IP monitor function is enabled, it will map the register at address 3x5001 (Input Register 5000) to the register at address 3x0001 (Input Register 0), and the EtherNet/IP output data will be mapped to the Modbus register address starting from 3x0002 (Input Register 1).

GT200-MT-EI Output Buffer	Modbus TCP Register Address	Description		
4000 _H	3x0001 Input Register 0	EtherNet/IP Monitor Bytes: 00 00H = EtherNet/IP Disconnected 00 01H = EtherNet/IP Connected		
4001 _H				
4002 _H	3x0002 Input Register 1	EtherNet/IP 32-Bit Index Output.Data[0]	EtherNet/IP 16-Bit Index Output.Data[0]	EIP 8-Bit Index Output.Data[0]
4003 _H				EIP 8-Bit Index Output.Data[1]
4004 _H	3x0003 Input Register 2		EtherNet/IP 16-Bit Index Output.Data[1]	EIP 8-Bit Index Output.Data[2]
4005 _H				EIP 8-Bit Index Output.Data[3]
4006 _H	3x0004 Input Register 3	EtherNet/IP 32-Bit Index Output.Data[1]	EtherNet/IP 16-Bit Index Output.Data[2]	EIP 8-Bit Index Output.Data[4]
4007 _H				EIP 8-Bit Index Output.Data[5]
4008 _H	3x0005 Input Register 4		EtherNet/IP 16-Bit Index Output.Data[3]	EIP 8-Bit Index Output.Data[6]
4009 _H				EIP 8-Bit Index Output.Data[7]
.... .				
	3x5001 Input Register 5000	EtherNet/IP Monitor Bytes: 00 00 _H = Disconnected 00 01 _H = Connected		



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- e. If the EtherNet/IP monitor function is disabled, the EtherNet/IP output data will be mapped to the Modbus register address starting from 3x0001 (Input Register 0).

GT200-MT-EI Output Buffer	Modbus TCP Register Address	Description		
4000 _H	3x0001 Input Register 0	EtherNet/IP 32-Bit Index Output.Data[0]	EtherNet/IP 16-Bit Index Output.Data[1]	EIP 8-Bit Index Output.Data[0]
4001 _H				EIP 8-Bit Index Output.Data[1]
4002 _H	3x0002 Input Register 1		EtherNet/IP 16-Bit Index Output.Data[2]	EIP 8-Bit Index Output.Data[2]
4003 _H				EIP 8-Bit Index Output.Data[3]
4004 _H	3x0003 Input Register 2		EtherNet/IP 16-Bit Index Output.Data[3]	EIP 8-Bit Index Output.Data[4]
4005 _H				EIP 8-Bit Index Output.Data[5]
4006 _H	3x0004 Input Register 3		EtherNet/IP 16-Bit Index Output.Data[4]	EIP 8-Bit Index Output.Data[6]
4007 _H				EIP 8-Bit Index Output.Data[7]
.... .				
	3x5001 Input Register 5000	EtherNet/IP Monitor Bytes: 00 00 _H = Disconnected 00 01 _H = Connected		

Note: To enable the EtherNet/IP monitor function, set the "Network Status Indication" field to either "Two ends network monitor with each other" or "Modbus TCP end monitors EtherNet/IP network status" in the SST-EE-CFG configuration software. To disable the EtherNet/IP monitor function, set this field to either "EtherNet/IP end monitors Modbus TCP network status" or "No Indication".

7 EtherNet/IP Connection Parameters

The EtherNet/IP connection parameters for the GT200-MT-EI gateway are as follows:

Parameters	Instance Number	Data Size (Bytes)
Input	102	Range: 5-496 Default: 496
Output	101	Range: 1-492 Default: 492
Configuration	113	10 (Fixed)

The data size of input instance 102 can be configured within the range of 5 to 496 bytes using the SST-EE-CFG configuration software, where the first 4 bytes are reserved for the real-time frame header.

The data size of output instance 101 can be configured within the range of 1 to 492 bytes using the SST-EE-CFG configuration software.

Note: The following example shows how to enter the configuration parameters in Studio 5000 Logix:

New Module

Type: ETHERNET-MODULE Generic Ethernet Module
 Vendor: Rockwell Automation/Allen-Bradley
 Parent: ENET
 Name: SSTGateway
 Description:
 Comm Format: Data - DINT
 Address / Host Name
☒ IP Address: 192 . 168 . 0 . 10
☐ Host Name:
☒ Open Module Properties

Connection Parameters

	Assembly Instance:	Size:	
Input:	102	124	(32-bit)
Output:	101	123	(32-bit)
Configuration:	113	10	(8-bit)
Status Input:			
Status Output:			

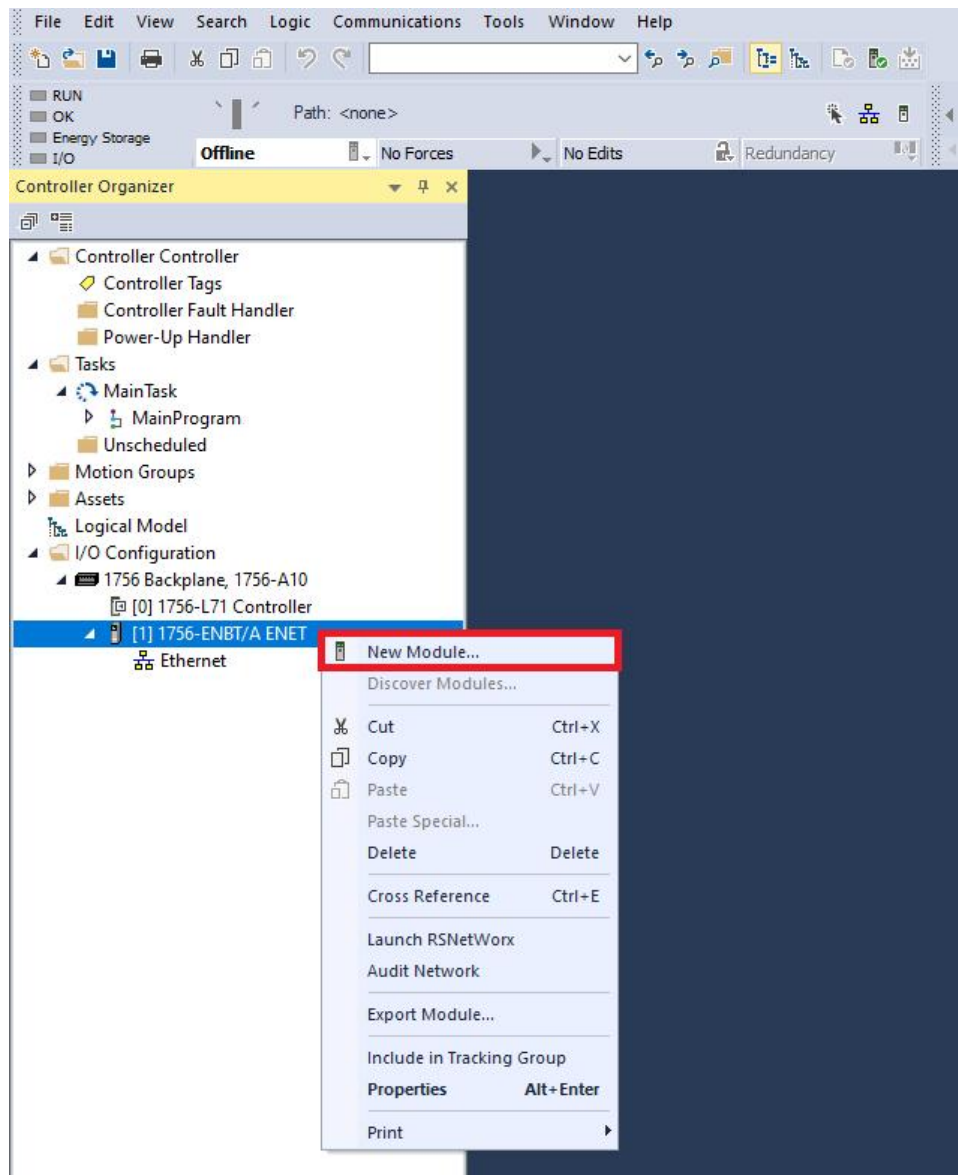
OK Cancel Help

The data size configured in Studio 5000 Logix must match the data size configured in the SST-EE-CFG configuration software. For example, if the input data size configured in the SST software is 496 bytes, and if Studio 5000 Logix is using DINT (32-bit), then the input data size must be set to 124 ($496 \times 8/32 = 124$).

7.1 Implicit I/O Messaging Connection Method (Recommended)

The following Studio 5000 Logix example will show how to connect using Implicit I/O Messaging.

First, right click on the EtherNet/IP scanner module and click "New Module", as shown below:

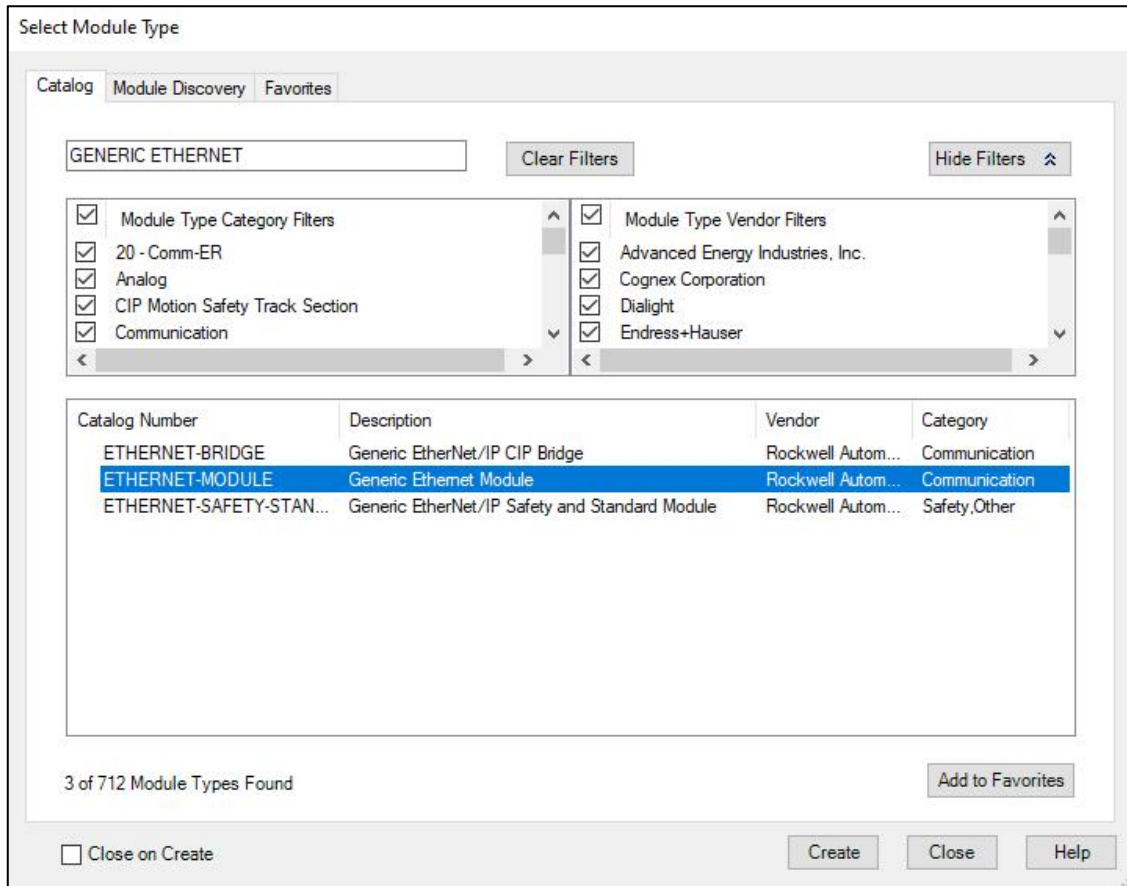


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In the pop-up dialog box, search for "GENERIC ETHERNET", choose "ETHERNET-MODULE", and click "Create" as shown below:



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Configure relevant information in the pop-up window, as shown below:

The screenshot shows the 'New Module' configuration window. It includes the following fields and sections:

- Type:** ETHERNET-MODULE Generic Ethernet Module
- Vendor:** Rockwell Automation/Allen-Bradley
- Parent:** ENET
- Name:** SSTGateway (Callout: Set the device name.)
- Description:** (Empty text box)
- Comm Format:** Data - DINT
- Address / Host Name:**
 - ☒ IP Address: 192 . 168 . 0 . 10 (Callout: IP address of the SST gateway.)
 - ☐ Host Name: (Empty text box)
- Connection Parameters:** (Callout: Set the Connection Parameters. Please refer to Chapter 7.)
 - Assembly Instance:**
 - Input:** 102
 - Output:** 101
 - Configuration:** 113
 - Status Input:** (Empty text box)
 - Size:**
 - 124 (32-bit)
 - 123 (32-bit)
 - 10 (8-bit)

At the bottom, there is a checkbox for 'Open Module Properties' and buttons for 'OK', 'Cancel', and 'Help'.

In the image above, the module information needs to be configured, which includes the following:

- Name:** The name of the added EtherNet/IP device module.
- Comm Format:** Configure data types such as DINT, INT, SINT, REAL and etc. After confirmation, this cannot be changed. To change data types, a new module must be created.
- IP Address:** Set the IP address of the added EtherNet/IP device module (The IP address of GT200-MT-EI, which is configured by the software SST-EE-CFG).
- Connection Parameters:** Set the Connection Parameters for communication. For more details, please refer to the beginning of [Chapter 7](#).

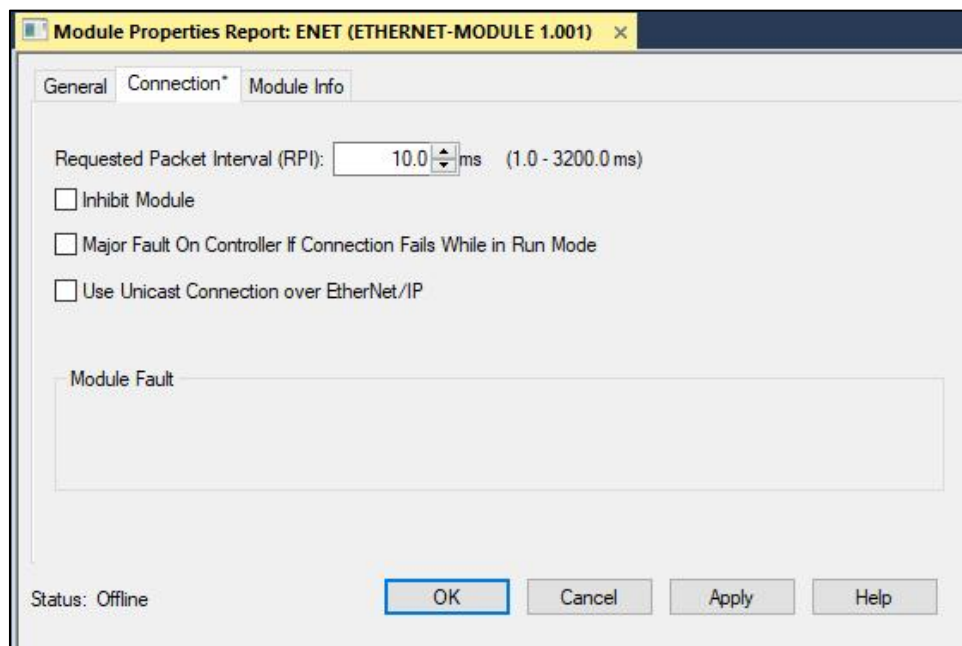
Note: "Size" (configured bytes) in the image above should be the consistent with relevant input and output bytes of the instance in the above chapter.

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Click "OK", and set the scanner polling time interval in the pop-up dialog box. The default is 10ms, as shown below:



After setting this interval, click "OK" to save.

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To view the output data, first double click the "Controller Tags" tree. Then expand the "SSTGateway:O" tag as shown below:

The screenshot shows the SST Automation software interface. On the left, the 'Controller Organizer' tree is expanded to show the 'Controller tags' section. Under 'Controller tags', the 'SSTGateway:O' tag is expanded, showing a list of data tags from 'SSTGateway:O.Data[0]' to 'SSTGateway:O.Data[28]'. The main window displays a table of these tags with columns for Name, Value, Force Mask, Style, Data Type, Description, and Constant. The 'SSTGateway:O.Data' tag is selected, and its data type is 'DINT[124]'. The 'Monitor Tags' tab is active at the bottom.

Name	Value	Force Mask	Style	Data Type	Description	Constant
SSTGateway:C	{...}	{...}	{...}	AB:ETHERNET_MODU...		☐
SSTGateway:I	{...}	{...}	{...}	AB:ETHERNET_MODU...		☐
SSTGateway:O	{...}	{...}	{...}	AB:ETHERNET_MODU...		☐
SSTGateway:O.Data	{...}	{...}	{...}	DINT[124]		
SSTGateway:O.Data[0]	0			Decimal	DINT	
SSTGateway:O.Data[1]	0			Decimal	DINT	
SSTGateway:O.Data[2]	0			Decimal	DINT	
SSTGateway:O.Data[3]	0			Decimal	DINT	
SSTGateway:O.Data[4]	0			Decimal	DINT	
SSTGateway:O.Data[5]	0			Decimal	DINT	
SSTGateway:O.Data[6]	0			Decimal	DINT	
SSTGateway:O.Data[7]	0			Decimal	DINT	
SSTGateway:O.Data[8]	0			Decimal	DINT	
SSTGateway:O.Data[9]	0			Decimal	DINT	
SSTGateway:O.Data[10]	0			Decimal	DINT	
SSTGateway:O.Data[11]	0			Decimal	DINT	
SSTGateway:O.Data[12]	0			Decimal	DINT	
SSTGateway:O.Data[13]	0			Decimal	DINT	
SSTGateway:O.Data[14]	0			Decimal	DINT	
SSTGateway:O.Data[15]	0			Decimal	DINT	
SSTGateway:O.Data[16]	0			Decimal	DINT	
SSTGateway:O.Data[17]	0			Decimal	DINT	
SSTGateway:O.Data[18]	0			Decimal	DINT	
SSTGateway:O.Data[19]	0			Decimal	DINT	
SSTGateway:O.Data[20]	0			Decimal	DINT	
SSTGateway:O.Data[21]	0			Decimal	DINT	
SSTGateway:O.Data[22]	0			Decimal	DINT	
SSTGateway:O.Data[23]	0			Decimal	DINT	
SSTGateway:O.Data[24]	0			Decimal	DINT	
SSTGateway:O.Data[25]	0			Decimal	DINT	
SSTGateway:O.Data[26]	0			Decimal	DINT	
SSTGateway:O.Data[27]	0			Decimal	DINT	
SSTGateway:O.Data[28]	0			Decimal	DINT	

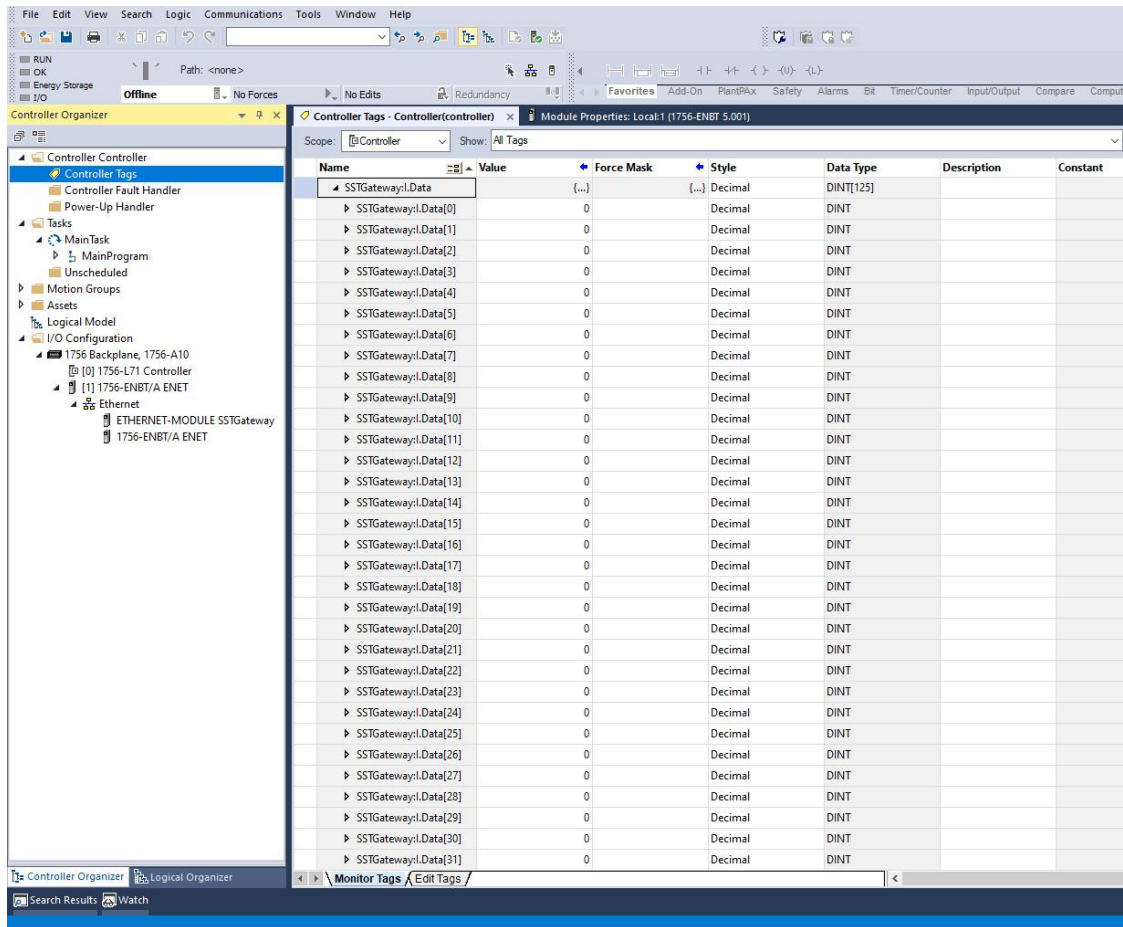
The SSTGateway:O data tag represents the corresponding output data addresses of the SST Gateway.

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To view the input data, expand the "SSTGateway: I" tag as shown below:



The SSTGateway:I data tag represents the corresponding input data addresses of the SST Gateway.

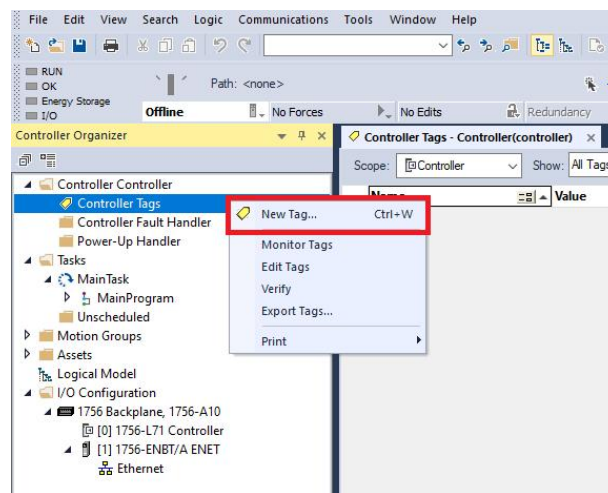
Please note that the first 4 input bytes are used to display the status bytes of the SST Gateway. See [Chapter 6](#) for more details.

7.2 Explicit MSG Connection Method

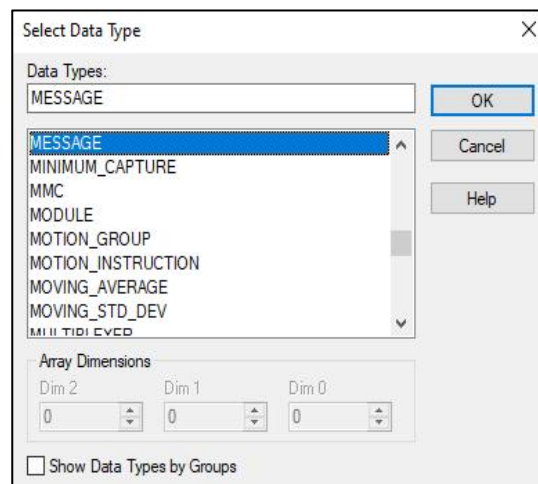
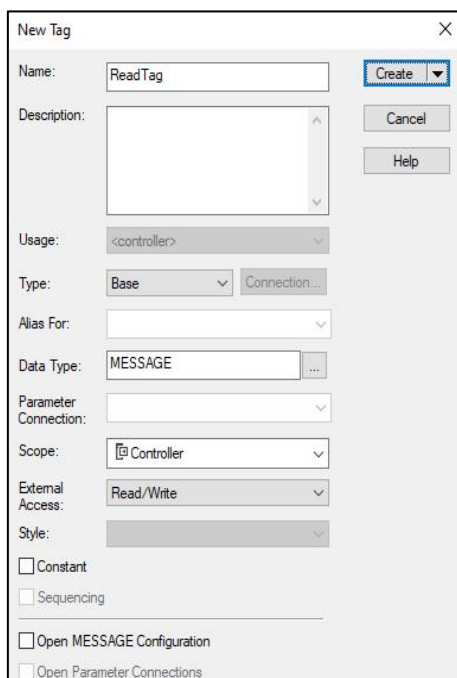
The following Studio 5000 Logix example will describe how to read/write EtherNet/IP data using explicit MSG messaging.

7.2.1 Read MSG Instruction Block

To start, create a new project in "Offline" mode. Then under "Controller Tags", add two new tags named "ReadTag" and "ReadData" as shown below:



Set the data type of "ReadTag" as "MESSAGE":

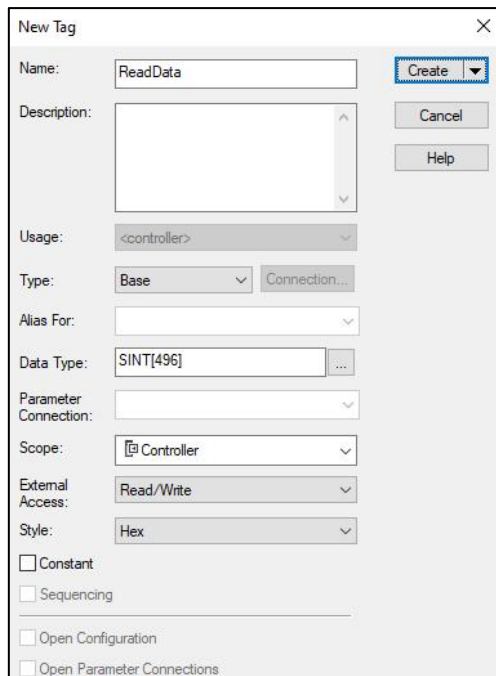


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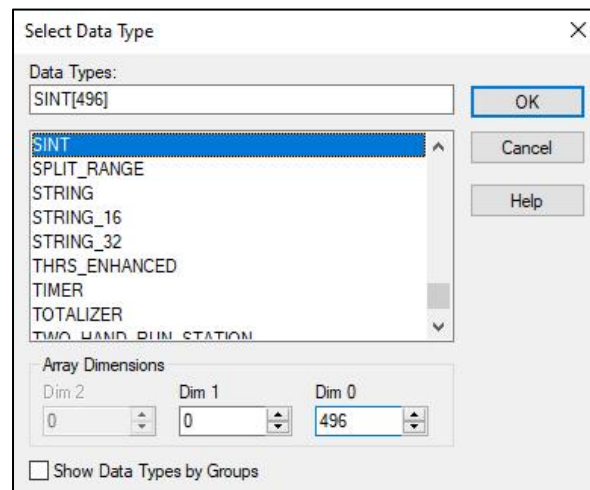
User Manual

Set the data type of "ReadData" as "SINT", then set the Array Dimension "Dim 0" to match the Input Data Size. Refer to the connection parameters from the beginning of [Chapter 7](#):



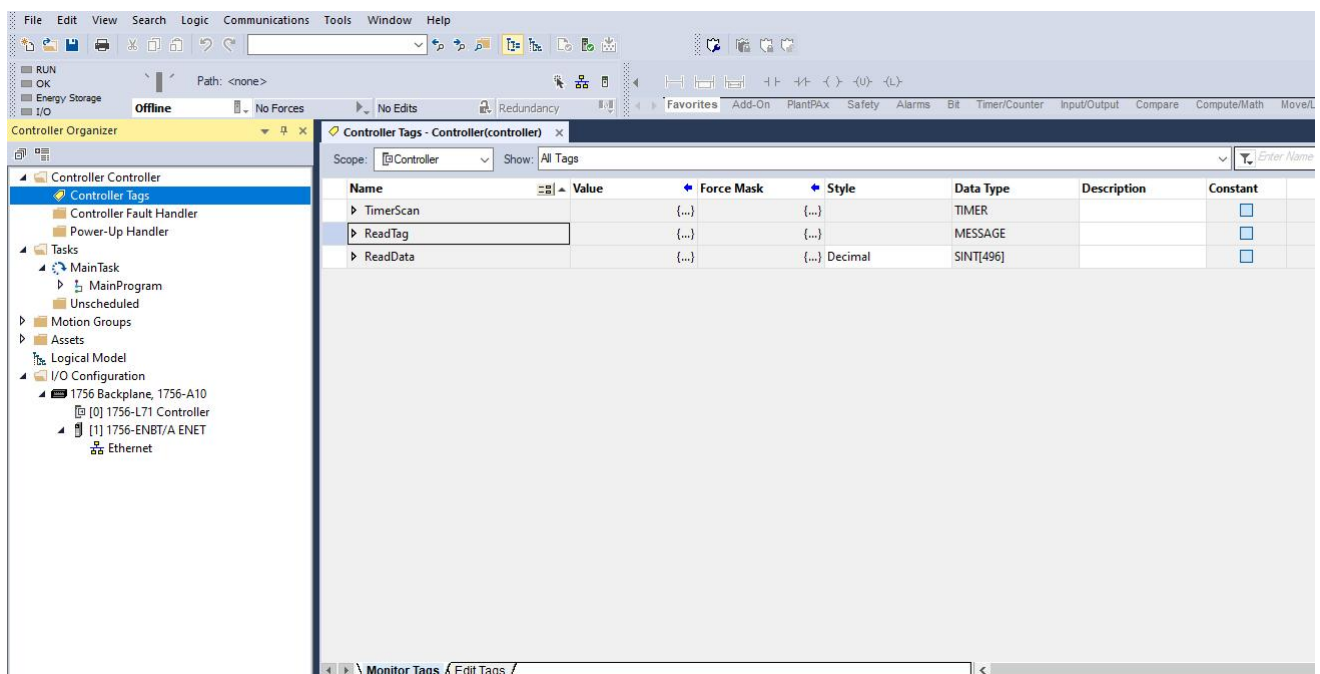
The "New Tag" dialog box is shown with the following settings:

- Name: ReadData
- Description: (empty)
- Usage: <controller>
- Type: Base
- Alias For: (empty)
- Data Type: SINT[496]
- Parameter Connection: (empty)
- Scope: Controller
- External Access: Read/Write
- Style: Hex
- Constant: ☐
- Sequencing: ☐
- Open Configuration: ☐
- Open Parameter Connections: ☐



The "Select Data Type" dialog box is shown with the following settings:

- Data Types: SINT[496]
- Array Dimensions: Dim 2: 0, Dim 1: 0, Dim 0: 496
- Show Data Types by Groups: ☐



The screenshot shows the SST Automation software interface. The "Controller Organizer" on the left lists the project structure, including "Controller Tags". The "Controller Tags" table in the center lists the tags and their properties:

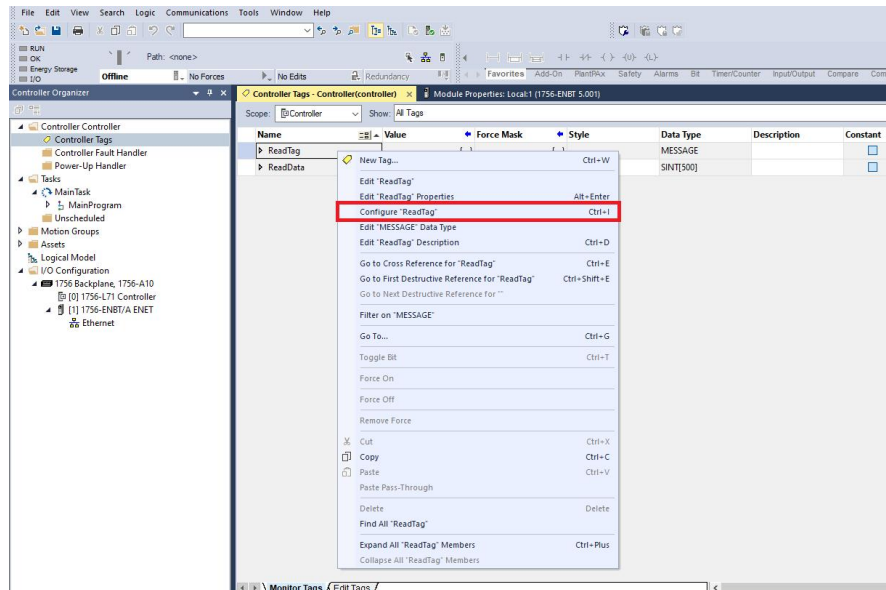
Name	Value	Force Mask	Style	Data Type	Description	Constant
TimerScan	{...}	{...}	{...}	TIMER		☐
ReadTag	{...}	{...}	{...}	MESSAGE		☐
ReadData	{...}	{...}	{...} Decimal	SINT[496]		☐

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Modbus TCP/EtherNet IP Gateway

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Right click on "ReadTag", select "Configure 'ReadTag'" as shown below:



In pop-up window, configure the following settings:

Message Type: CIP Generic.

Service Type: Select "Get Attribute Single". The relevant service code will become "e (Hex)".

Class: 4 (Hex)

Instance: 102

Attribute: 3 (Hex)

Destination: Select the "ReadData" tag. The obtained data will be saved in this tag.

GT200-MT-EI

Modbus TCP/EtherNet IP Gateway

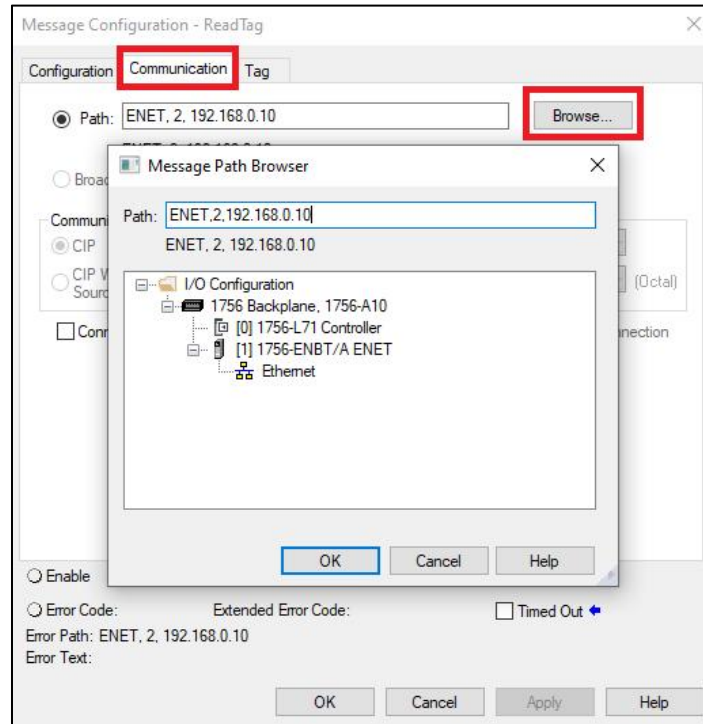
User Manual

Select the "Communication" tab and click the "Browse" button. Then input the network path to connect to the GT200-MT-EI.

Enter the network path in the following format:

[EtherNet/IP Interface Name], 2 (Ethernet Communication), [GT200-MT-EI IP Address]

Then click "OK" to confirm:



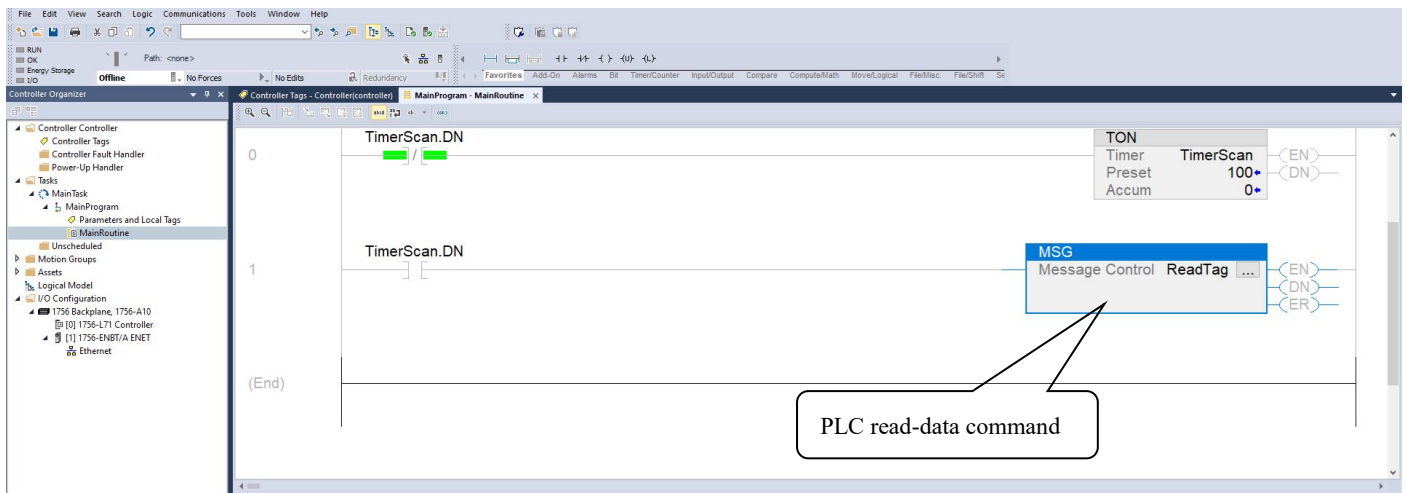
GT200-MT-EI

Modbus TCP/EtherNet IP Gateway

User Manual

Add a "MSG" command and select "ReadTag" as "Message Control" in the "MainRoutine" of "MainProgram" as shown in the image below. This is a simple command which can send a read request. The user still needs to add some logic commands to trigger this command in common program. For further details, please refer to Studio 5000 Logix reference material.

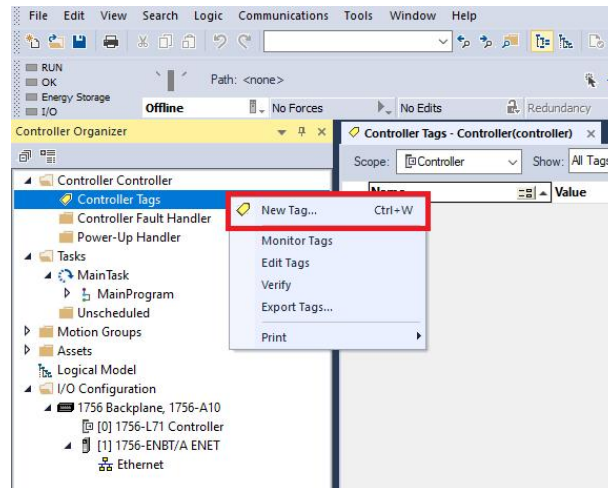
Download the program to the PLC and set PLC into "Online" state.



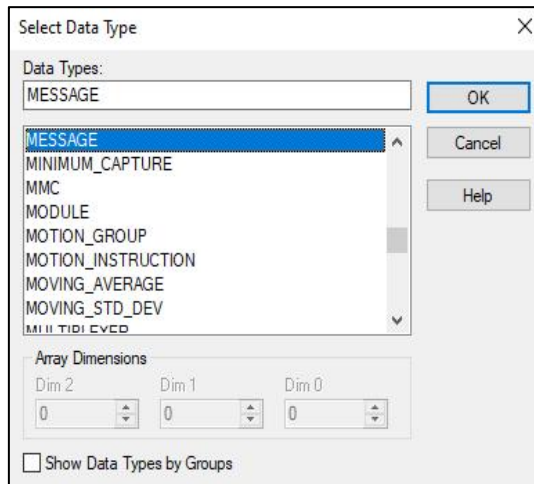
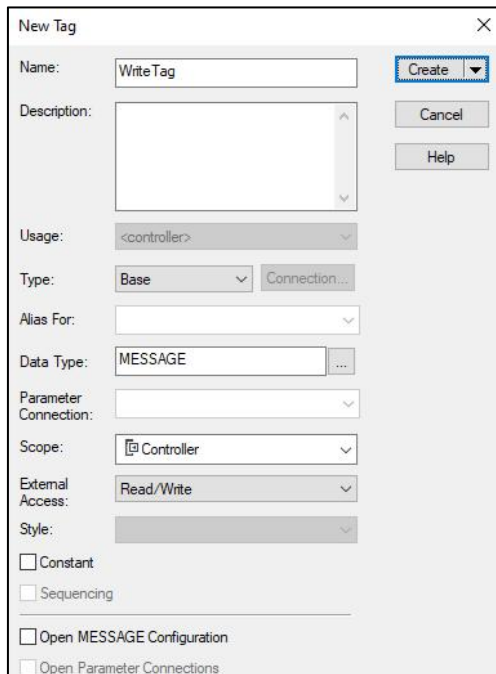
Click "Control Tags" and select "Monitor Tags". Expand "ReadData" to see that PLC can read Modbus TCP data through the GT200-MT-EI gateway.

7.2.2 Write MSG Instruction

Switch to "Offline" mode and add two new tags "WriteTag" and "WriteData", under the "Controller Tags". Define the type of "WriteTag" as "MESSAGE" and "WriteData" as "SINT[500]" as shown below:



Set the data type of "WriteTag" as "MESSAGE":

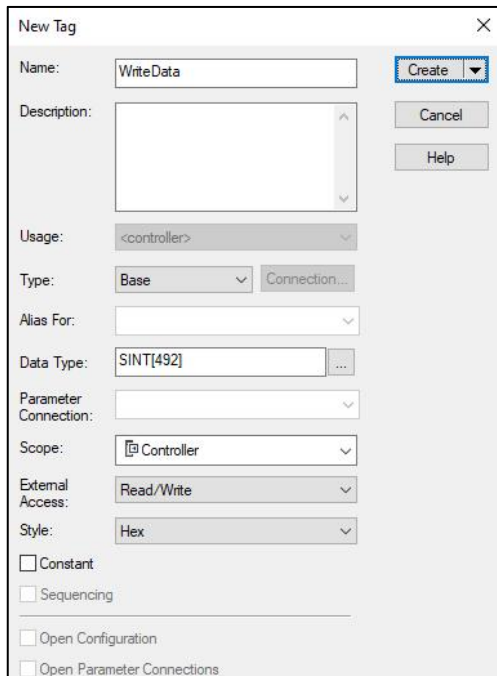


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Modbus TCP/EtherNet IP Gateway

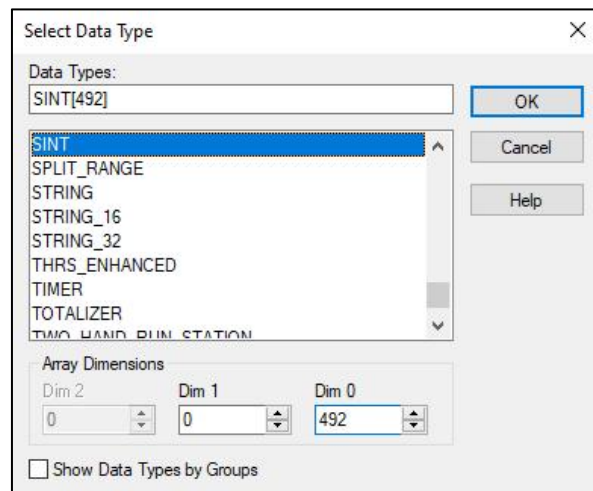
User Manual

Set the data type of "WriteData" as "SINT", then set the Array Dimension "Dim 0" to match the Output Data Size. Refer to the connection parameters from the beginning of [Chapter 7](#):



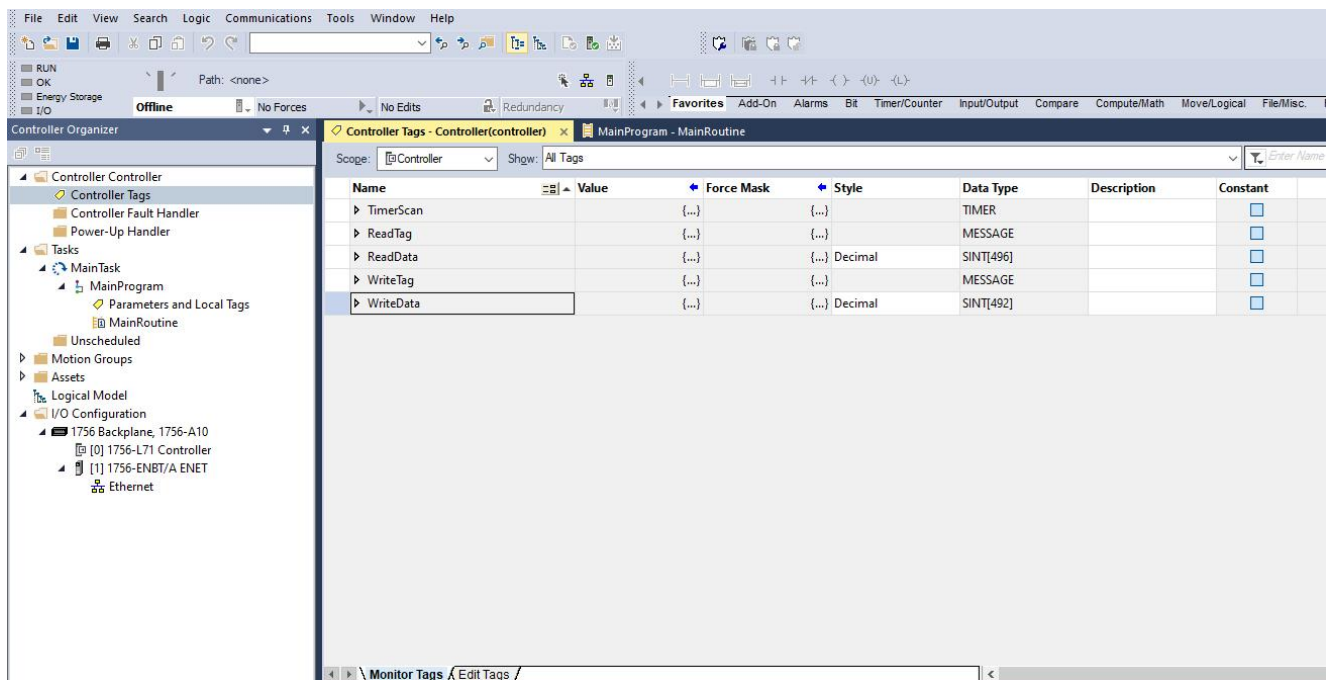
The "New Tag" dialog box is shown with the following settings:

- Name: WriteData
- Description: (empty)
- Usage: <controller>
- Type: Base
- Alias For: (empty)
- Data Type: SINT[492]
- Parameter Connection: (empty)
- Scope: Controller
- External Access: Read/Write
- Style: Hex
- Constant: ☐
- Sequencing: ☐
- Open Configuration: ☐
- Open Parameter Connections: ☐



The "Select Data Type" dialog box is shown with the following settings:

- Data Types: SINT[492]
- Array Dimensions: Dim 2: 0, Dim 1: 0, Dim 0: 492
- Show Data Types by Groups: ☐



The screenshot shows the SST Automation software interface with the following components:

- File Edit View Search Logic Communications Tools Window Help
- Path: <none>
- Controller Organizer: Controller Controller, Controller Tags, Controller Fault Handler, Power-Up Handler, Tasks, MainTask, MainProgram, Parameters and Local Tags, MainRoutine, Unscheduled, Motion Groups, Assets, Logical Model, I/O Configuration, 1756 Backplane, 1756-A10, [0] 1756-L71 Controller, [1] 1756-ENBT/A ENET, Ethernet
- Controller Tags - Controller(controller) x MainProgram - MainRoutine
- Scope: Controller Shw: All Tags
- Table with columns: Name, Value, Force Mask, Style, Data Type, Description, Constant

Name	Value	Force Mask	Style	Data Type	Description	Constant
TimerScan		{...}	{...}	TIMER		☐
ReadTag		{...}	{...}	MESSAGE		☐
ReadData		{...}	{...} Decimal	SINT[496]		☐
WriteTag		{...}	{...}	MESSAGE		☐
WriteData		{...}	{...} Decimal	SINT[492]		☐

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Enter into the "Monitor Tags" interface and input some data in the "WriteData" tag. This data will be outputted to GT200-MT-EI through PLC. As shown in the image below, 0x10, 0x20, 0x30, 0x40, 0x50, 0x60, 0x70, 0x80 and 0x90 are the data that will be outputted.

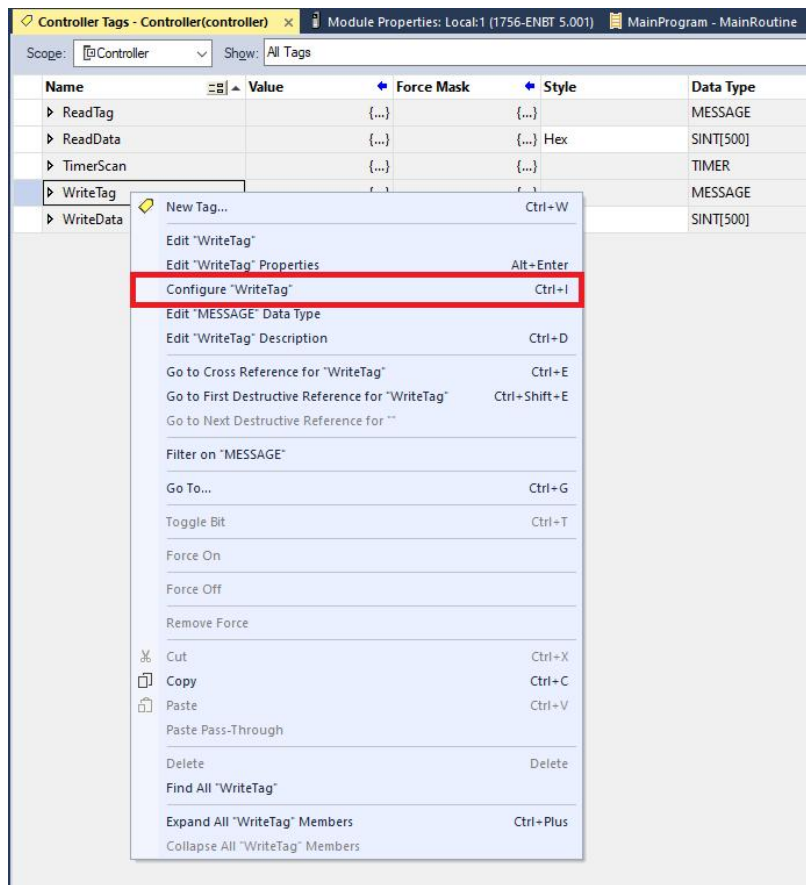
Controller Tags - Controller(controller) x MainProgram - MainRoutine						
Scope: @Controller		Show: All Tags				
Name	Value	Force Mask	Style	Data Type	Description	
▶ TimerScan	{...}	{...}	{...}	TIMER		
▶ ReadTag	{...}	{...}	{...}	MESSAGE		
▶ ReadData	{...}	{...}	{...} Hex	SINT[496]		
▶ WriteTag	{...}	{...}	{...}	MESSAGE		
▲ WriteData	{...}	{...}	{...} Hex	SINT[492]		
▶ WriteData[0]	16#10		Hex	SINT		
▶ WriteData[1]	16#20		Hex	SINT		
▶ WriteData[2]	16#30		Hex	SINT		
▶ WriteData[3]	16#40		Hex	SINT		
▶ WriteData[4]	16#50		Hex	SINT		
▶ WriteData[5]	16#60		Hex	SINT		
▶ WriteData[6]	16#70		Hex	SINT		
▶ WriteData[7]	16#80		Hex	SINT		
▶ WriteData[8]	16#90		Hex	SINT		
▶ WriteData[9]	16#00		Hex	SINT		
▶ WriteData[10]	16#00		Hex	SINT		

GT200-MT-EI

Modbus TCP/EtherNet IP Gateway

User Manual

Right click "WriteTag" and select "Configure "WriteTag" as shown below:



In the new pop-up window, configure the following settings:

Message Type:	CIP Generic
Service Type:	Select "Set Attribute Single", and the relevant Service Code will become "10 (Hex)"
Class:	4 (Hex)
Instance:	101
Attribute:	3 (Hex)
Source Element:	Select "WriteData" tag, indicating that the data in the "WriteData" tag will become the data PLC outputs.
Source Length:	Use byte as unit, and this value should be less than or equal to the currently selecting bytes which instance represents (Configured bytes number in SST-EE-CFG).

Message Configuration - WriteTag

Configuration* Communication Tag

Message Type: CIP Generic

Service Type: Set Attribute Single

Service Code: 10 (Hex) Class: 4 (Hex) Instance: 101 Attribute: 3 (Hex)

Source Element: WriteData

Source Length: 492 (Bytes)

Destination Element: [Empty]

New Tag...

☐ Enable
 ☐ Enable Waiting
 ☐ Start
 ☐ Done
 Done Length: 0

☐ Error Code:
 Extended Error Code:
 ☐ Timed Out

Error Path:

Error Text:

OK Cancel Apply Help

GT200-MT-EI

Modbus TCP/EtherNet IP Gateway

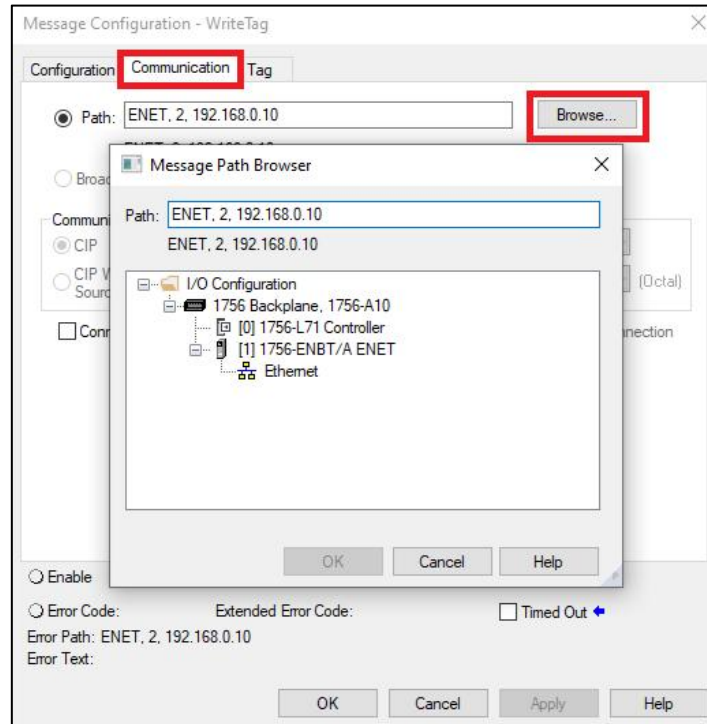
User Manual

Select the "Communication" tab and click the "Browse" button. Then input the network path to connect to the GT200-MT-EI.

Enter the network path in the following format:

[EtherNet/IP Interface Name], 2 (Ethernet Communication), [GT200-MT-EI IP Address]

Then click "OK" to confirm:



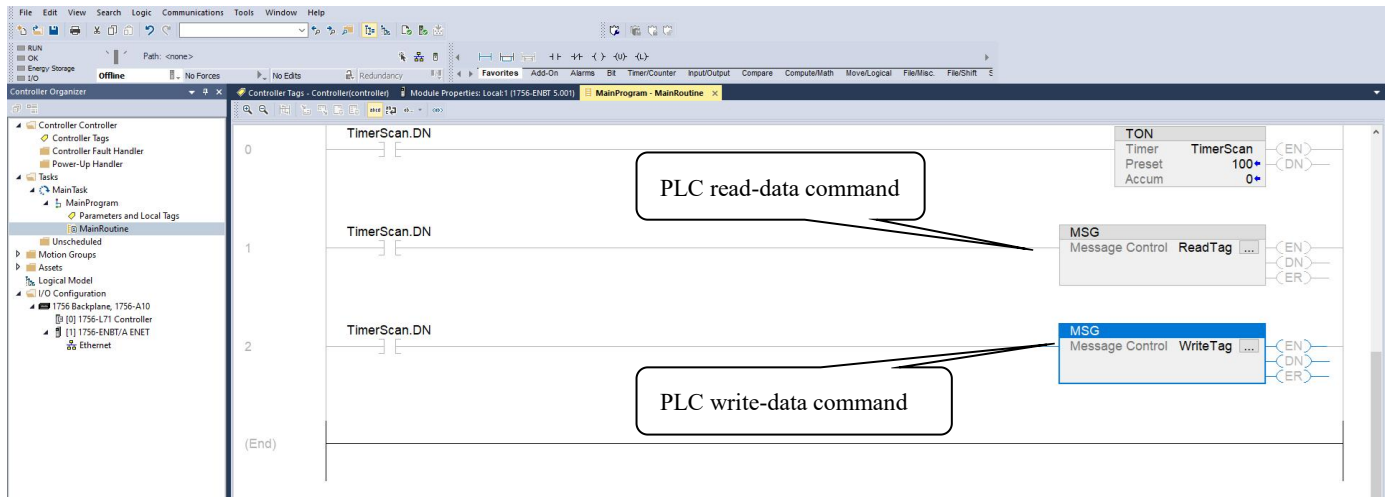
GT200-MT-EI

Modbus TCP/EtherNet IP Gateway

User Manual

Add a "MSG" command in the "MainRoutine" of "MainProgram" and select "WriteTag" as "Message Control" as shown below.

Download the PLC program to the PLC and set PLC to "Online" state,. The data in "WriteData" will be outputted to Modbus TCP master or server through GT200-MT-EI.

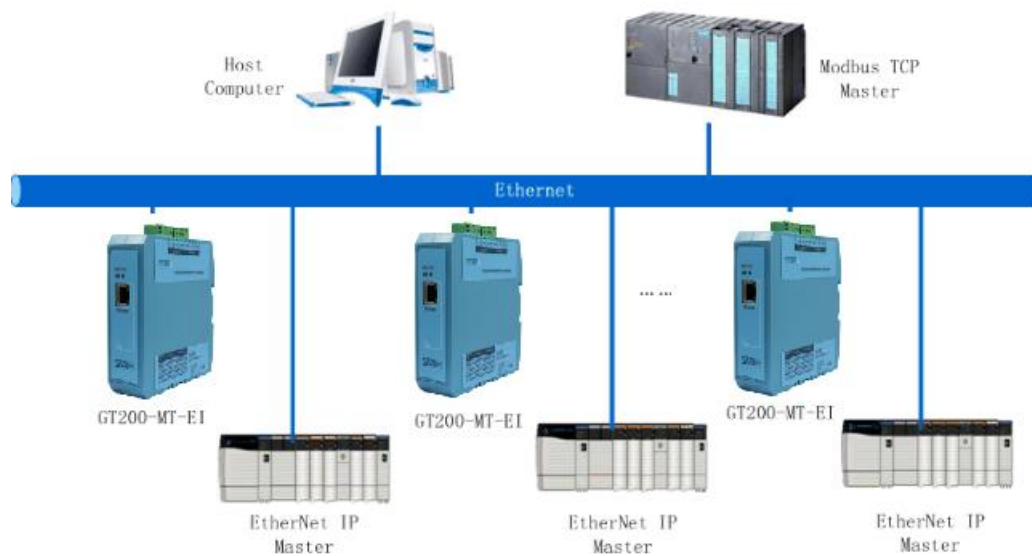


8 Typical Application

GT200-MT-EI can connect Modbus TCP server equipment to the EtherNet/IP network. It can also connect with Schneider Modbus TCP master PLC and AB EtherNet master PLC.

Below are some typical applications of GT200-MT-EI.

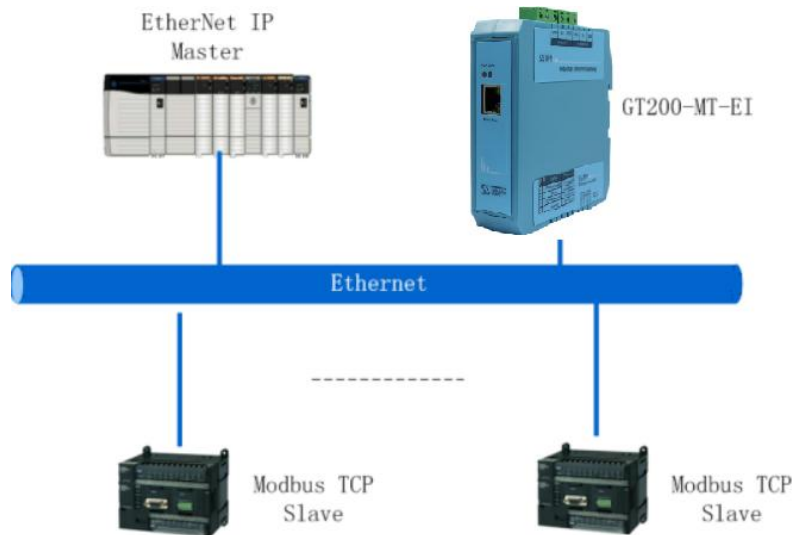
8.1 Connect EtherNet/IP Master PLCs to Modbus TCP Master PLCs



In this case, different EtherNet/IP masters are connected to the same Modbus TCP master PLC through multiple GT200-MT-EI gateways using an Ethernet switch machine. This setup enables multiple EtherNet/IP master PLCs to communicate with Modbus TCP master PLC.

Note: The GT200-MT-EI requires configuration for both EtherNet/IP adapter and Modbus TCP server.

8.2 Connect Modbus TCP Server Devices to an EtherNet/IP Network



In this case, the GT200-MT-EI gateway must be configured as EtherNet/IP adapter and Modbus TCP master. EtherNet/IP master devices, Modbus TCP server devices, and industrial Ethernet gateway GT200-MT-EI connected to each other through an Ethernet switch machine. This allows data uploading from Modbus TCP server to the EtherNet/IP master through the data mapping of GT200-MT-EI.