Modbus TCP / PROFIBUS DP Gateway
GT200-DP-MT

User Manual

V 4.4

SST Automation

Email: support@sstautomation.com

www.SSTAutomation.com

Important Information

Disclaimer

No part of this document may be reproduced without the express written permission of SST Automation. SST Automation reserves the right to make changes to the product described within this manual at any time without notice.

The examples and diagrams in this manual are included solely for illustrative purposes and are not intended as a substitute for determining the suitability of the product for specific user applications. It is the responsibility of any such user to ensure that all operations, evaluations, and testing comply with all safety requirements such as laws, rules, codes and standards applicable to the relevant fields. SST Automation shall not be responsible or liable for misuse of the information contained herein.

Copyright

Trademark

SSTCOMM is the registered trade mark of SST Automation.

Technical Support Contact Information

www.sstautomation.com
Email: support@sstautomation.com

Table of Content

1 Product Overview 3
1.1 Product Function 3
1.2 Product Features 3
1.3 Technical Specification 3
1.4 Revision History 4
2 Hardware Description 5
2.1 Product Appearance 5
2.2 Indicators 6
2.3 Button 6
2.4 Interface 7
2.4.1 Power Interface 7
2.4.2 PROFIBUS DP Interface 7
2.4.3 Ethernet Interface 7
3 Hardware Installation 9
3.1 Mechanical Dimension 9
3.2 Installation Method 10
4 Quick Start Guide 11
4.1 Connection 11
4.2 Configuration 12
5 Working Principle 16
5.1 As Modbus TCP Client 16
5.2 As Modbus TCP Server 17
5.3 Data Mapping in Software Configuration Mode 18
6 Instructions of Configuration Software 19
6.1 Notes before Configuration 19
6.2 User Interface 19
6.3 Equipment View Operation 21
6.3.1 Modbus Node and Command Operations 22
6.4 The Operation of Configuration Interface 23
6.4.1 PROFIBUS DP Configuration 23
6.4.2 Modbus TCP Client Configuration View 24
6.4.3 Modbus TCP Server Configuration View 26
6.4.4 Node Configuration 29
6.4.5 Command Configuration 29
6.5 Conflict Detection 30
6.6 Hardware Communication 31
6.6.1 Upload Configuration 31
6.6.2 Download Configuration 33
6.7 Load and Save Configuration 34
6.7.1 Save Configuration Project 34

6.7.2 Load Configuration Project 34
6.7.3 Export Excel 35
6.8 Monitor I/O Data 35
7 PROFIBUS DP Modules 37
Appendix: Configure GT200-DP-MT in STEP7 39

1 Product Overview

1.1 Product Function

The GT200-DP-MT is a gateway that can provide a seamless connection between Modbus TCP and PROFIBUS DP. It can connect up to 36 Modbus TCP client/server devices to a PROFIBUS DP. and establishes a reliable communication channel between them.

1.2 Product Features

- Easy to Use: Users can refer to the product manual to quickly configure a data connection that meets their needs.
- Wide Applications: Any device with a Modbus TCP interface can be connected to a PROFIBUS DP network through the GT200-DP-MT gateway. For example, Variable-Frequency Drives (VFDs) with a Modbus TCP interface, motor starting protectors, and transmitters can all be connected to PROFIBUS DP.
- Supports standard Modbus TCP client and slave protocol.
- Efficient communication mode: Provides two output command modes, serial and parallel, to meet diverse communication needs and improve the over all communication efficiency of the system.
- Real-time network monitoring: Built-in network status monitoring function, real-time monitoring of the device connection status on the PROFIBUS DP or Modbus TCP side to ensure the continuity of device online and data transmission.
- Flexible access device: Modbus TCP port configuration is flexible, supports more devices access, meets large-scale system integration needs, and improves interoperability between devices.

1.3 Technical Specification

[1] Supports PROFIBUS DP V0 protocol.

[2] PROFIBUS DP slave, automatic baud rate detection, maximum baud rate 12Mbps.

[3] PROFIBUS DP max input data bytes is 244 bytes and output data bytes is 244 bytes. Combined max

input + output data bytes is 488 bytes.

[4] Modbus TCP side:

◆ Supports byte swap function: no swap, two-byte swap, four-byte swap.

◆ Supports server port setting, the default is 502.

[5] Modbus TCP act as client:

◆ Supports access to up to 36 Modbus TCP servers.

◆ Supports function codes: 01H, 02H, 03H, 04H, 05H, 06H, 0FH, 10H.

◆ Supports 2 command output modes: serial output and parallel output.

[6] Modbus TCP act as server:

◆ Support connect up to 36 modbus TCP devices.

◆ Supports function code: 03H, 04H, 06H, 16H.

[7] PROFIBUS DP interface: 1KV photoelectric isolation.

[8] Power supply 24VDC (11V to 30V), 160mA (24VDC).

[9] Operating temperature: -4 ° F to 140 ° F (-20℃-60℃), relative humidity 5% - 95% (no condensation).

[10] External Dimensions (W*H*D): 1.33 in*4.56 in*4.21 in (34mm*116mm*107.4mm).

[11] Installation: 35 mm DIN RAIL.

[12] Protection class: IP20.

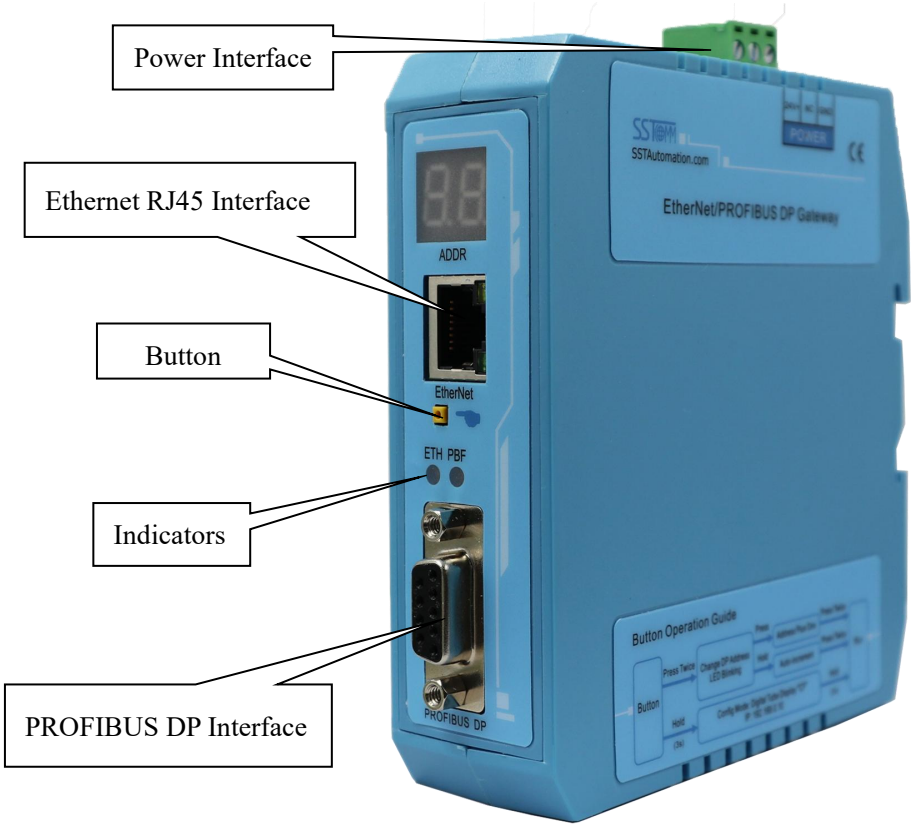
[13] Test standard: Complies with EMC test standards.

1.4 Revision History

Revision	Date	Chapter	Description
V4.4	8/22/2024	Chapters 1, 6.4.2-6.4.4	Add new parameters of Control Word, Command Output Mode under Modbus Client and TCP Port
V4.3	12/26/2022	ALL	New release
V2.2, Rev B	12/2/2022	ALL	Revision
V2.2, Rev A	7/6/2021	ALL	Revision
V2.2	12/15/2017	ALL	New release

2 Hardware Description

2.1 Product Appearance



Note: This picture is for reference only. Product appearance is subject to the actual product.

2.2 Indicators

Indicators	Status	Description
STA(green)	Blinking	PROFIBUS DP bus data is communicating
	Off	No data communicating
PBF (red)	On	PROFIBUS DP bus data communication failure
	Off	Communication established
MS	Blinking (red)	DHCP or BOOTP status
	On (red)	IP address conflict
	OFF (red)	Normal communication
NS	On (green)	Modbus TCP connection established
	Blinking (green)	Modbus TCP connection is not established or disconnected
	OFF (green)	Modbus TCP has not started
MS, NS, and STA flashes once		Boot up
MS and NS ON		Configuration mode

2.3 Button

The function is as below：

Operation	Function	Descriptions
Hold for 3s	Enter/Exit Config Mode	Config mode, digital tube display "CF", IP address is fixed 192.168.0.10
Press Twice	Enter/Exit changing PROFIBUS DP slave address mode	Press: Address Plus One
		Hold: Auto-increment

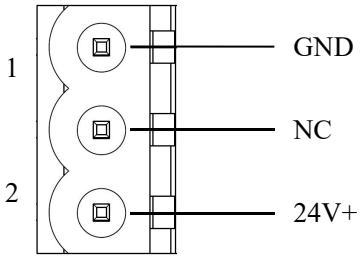
Note:

1. PROFIBUS DP and Modbus TCP communication cannot be performed in configuration mode.

2. Changing the DP address will not affect PROFIBUS DP and Modbus TCP communication, and the DP slave address will take effect only after exiting the modification.

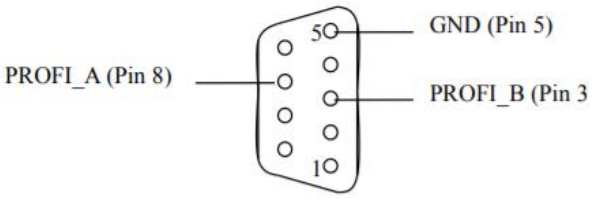
2.4 Interface

2.4.1 Power Interface



Pin	Description
1	GND, Power ground
2	NC, not connected
3	24V+, DC+24V

2.4.2 PROFIBUS DP Interface



Pin	Description
3	PROFI_B, Data+
4	RTS(Request to send)
5	GND
6	+5 V for terminating resistors
8	PROFI_A, Data-
Others	Not Connected

2.4.3 Ethernet Interface

The Ethernet interface uses RJ45 interface, follows the IEEE802.3u 100BASE-T standard, with 10/100M autonegotiation. Its pinout (standard Ethernet signal) is defined as below:

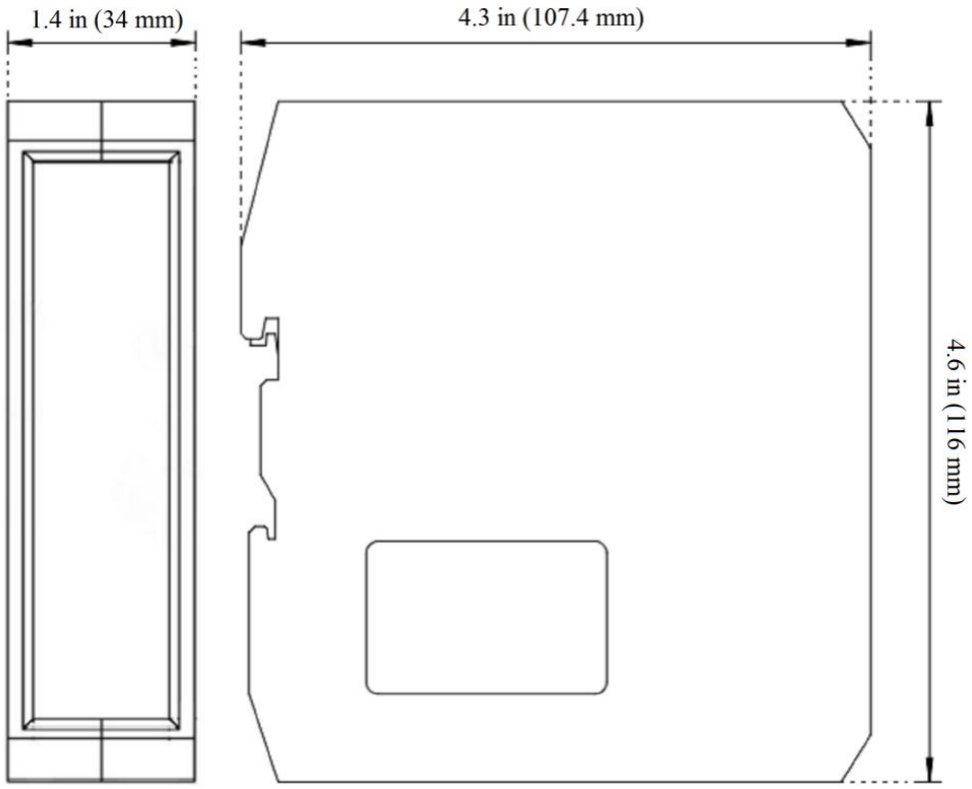
Pin	Signal description
S1	TXD+, Tranceive Data+, Output
S2	TXD-, Tranceive Data-, Output
S3	RXD+, Receive Data+, Input
S4	Bi-directional Data+
S5	Bi-directional Data-
S6	RXD-, Receive Data-
S7	Bi-directional Data+
S8	Bi-directional Data-

3 Hardware Installation

3.1 Mechanical Dimension

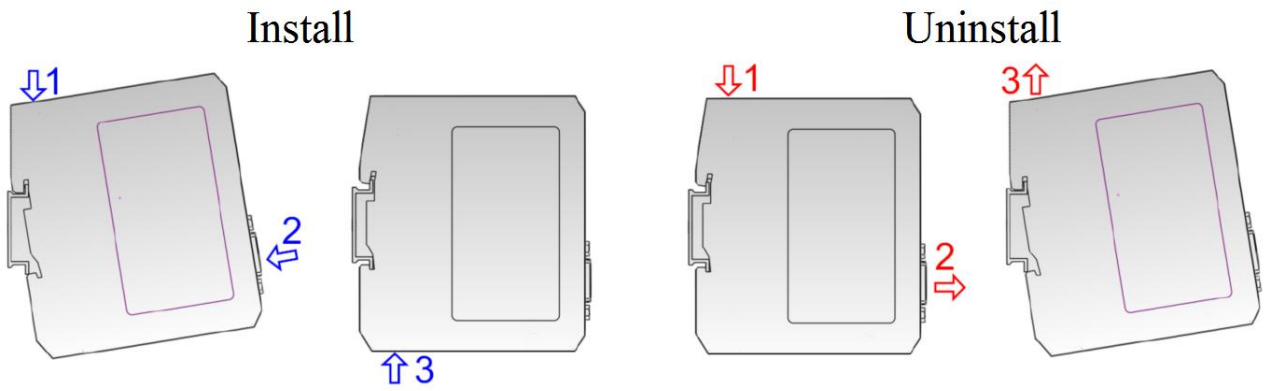
Size (width * height * depth):

1.4 in * 4.6 in * 4.3 in (34 mm * 116 mm * 107.4 mm)



3.2 Installation Method

Using 1.4 in (35 mm) DIN RAIL.

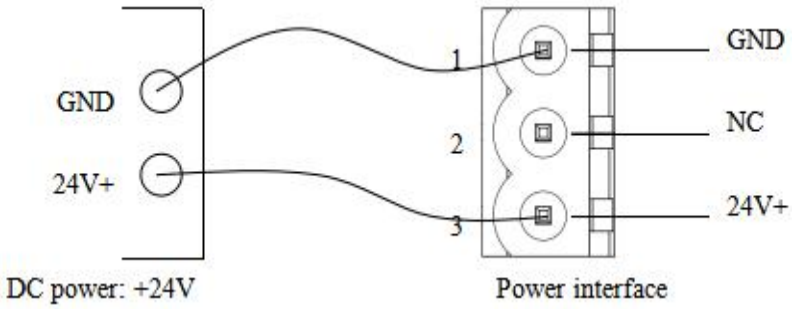


4 Quick Start Guide

The following steps will help in successfully setting up the GT200-DP-MT with your system. For detailed information for the configuration, refer to Chapter 6.

4.1 Connection

1. Connect the power supply to the gateway.



2. Connect to the computer by using an Ethernet cable to connect to the computer directly or by connecting the gateway to a router and finding it over the TCP/IP network.

***Note: Ensure that the network segment of Ethernet port is the same as the gateway segment to establish connection**

3. Hold the button for 3s and this will set the gateway to configuration mode and fix the IP address of the gateway to 192.168.0.10.

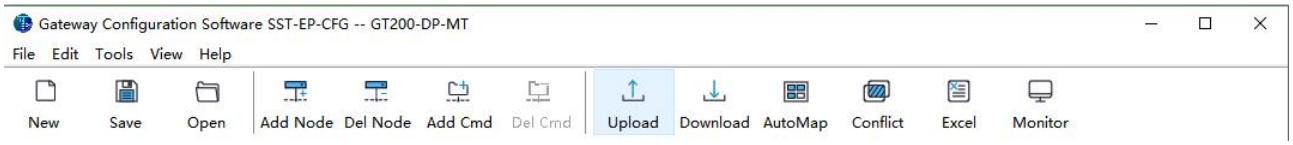
4. Connect GT200-DP-MT to PROFIBUS DP PLC or control system. It is suggested to use the standard PROFIBUS DP connector, refer to Chapter 2.4.2.

4.2 Configuration

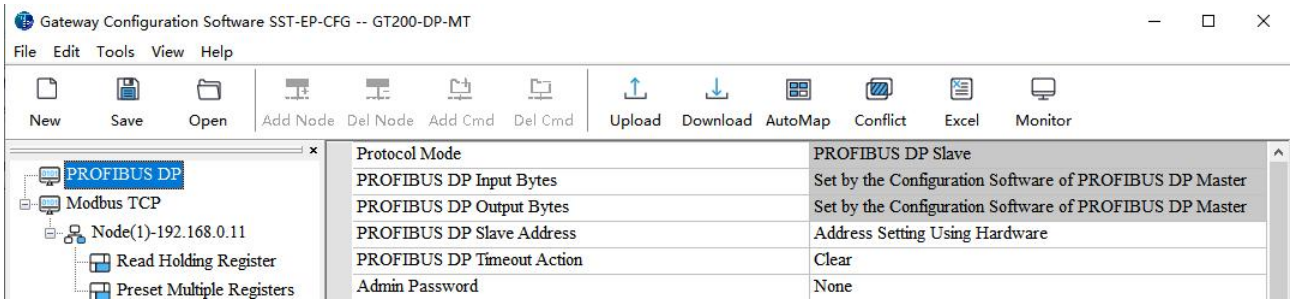
1. Download, install, and run the configuration software, SST-EP-CFG, which can be found on the GT200-DP-MT product page at sstautomation.com. For more details of SST-EP-CFG, please see Chapter 6.

2. Click the upload button on the tool bar. The Upload Configuration will pop up, in this window select the GT200-DP-MT gateway you wish to configure and click "Upload."

Note: This will upload the default configuration in the software. This is also how you can edit your configuration after downloading your configuration to the gateway. If you cannot find the gateway, check your connections and network settings.

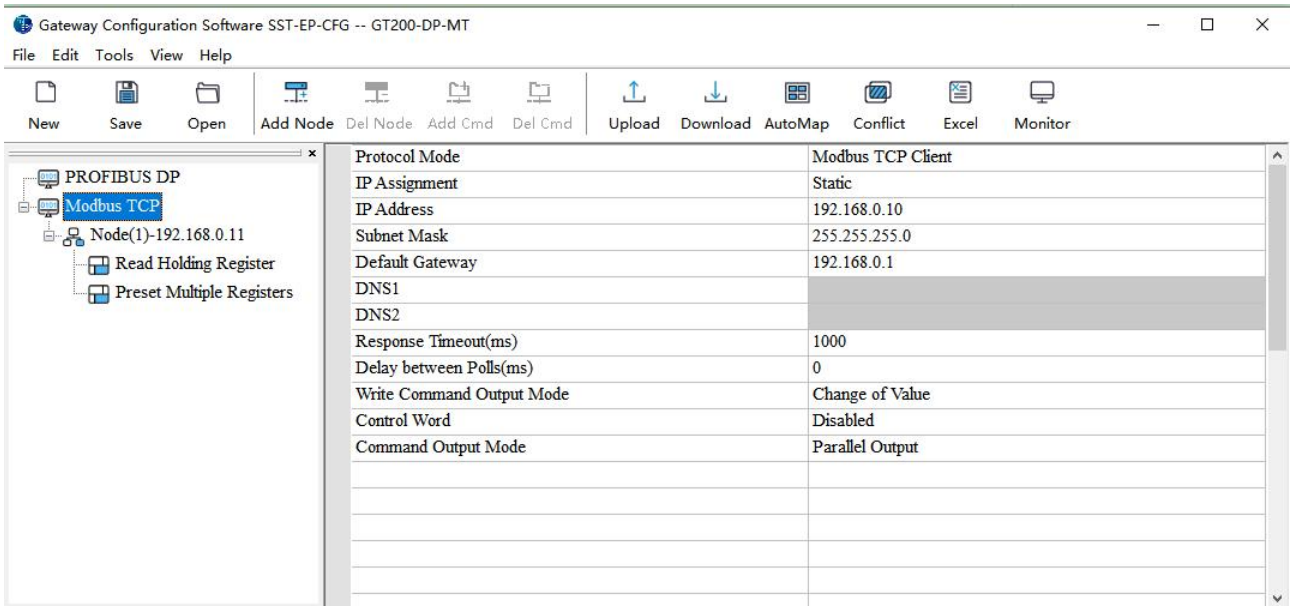


3. Click "Field Bus". Configure the parameters to meet the needs of your project. Use the Button (Chapter 2.3) to set the address of the device.

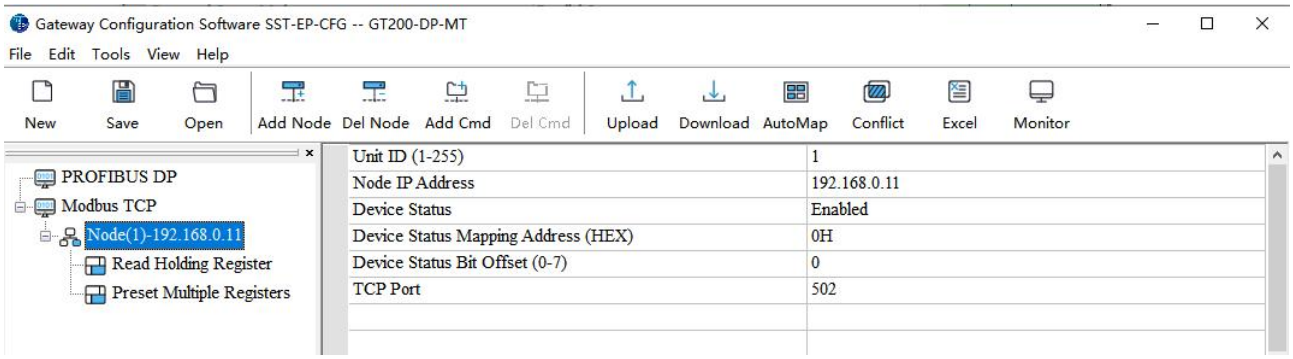


4. Click "Ethernet". Configure the parameters located in the Configuration Section to meet the needs of your project.

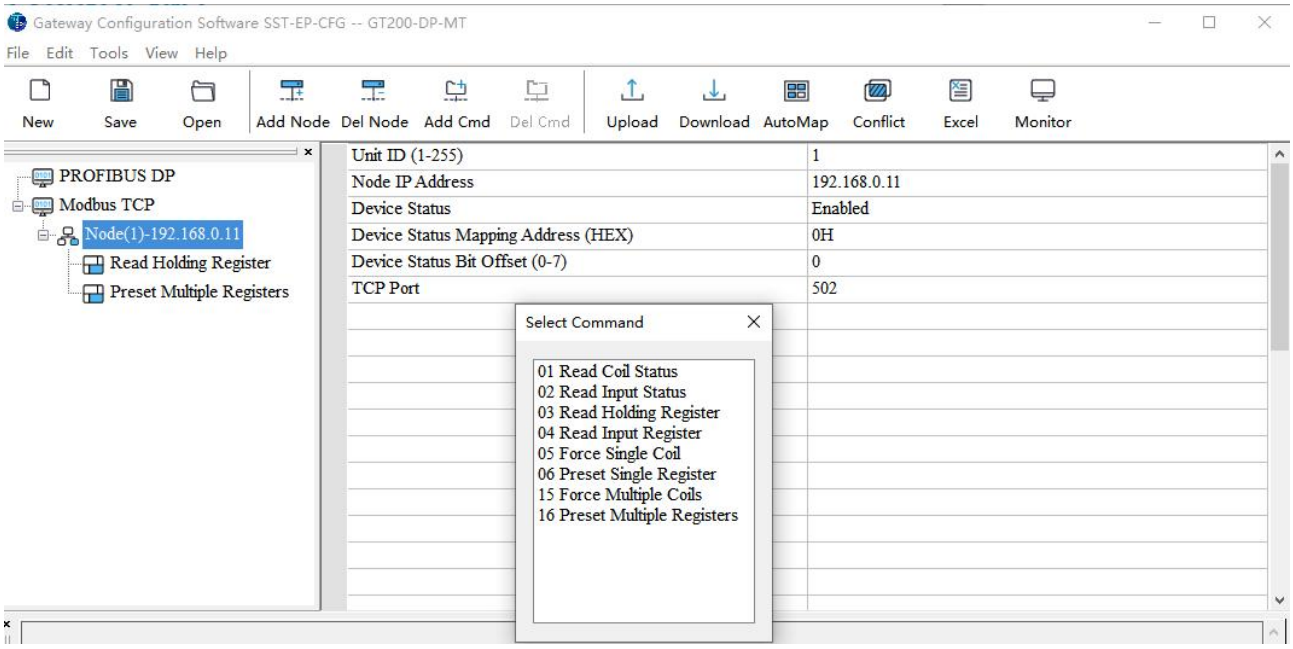
Note: If you select "Modbus TCP Master" for the Ethernet configuration, the GT200-DP-MT will act as a Modbus TCP Master. The following steps will be for that scenario.



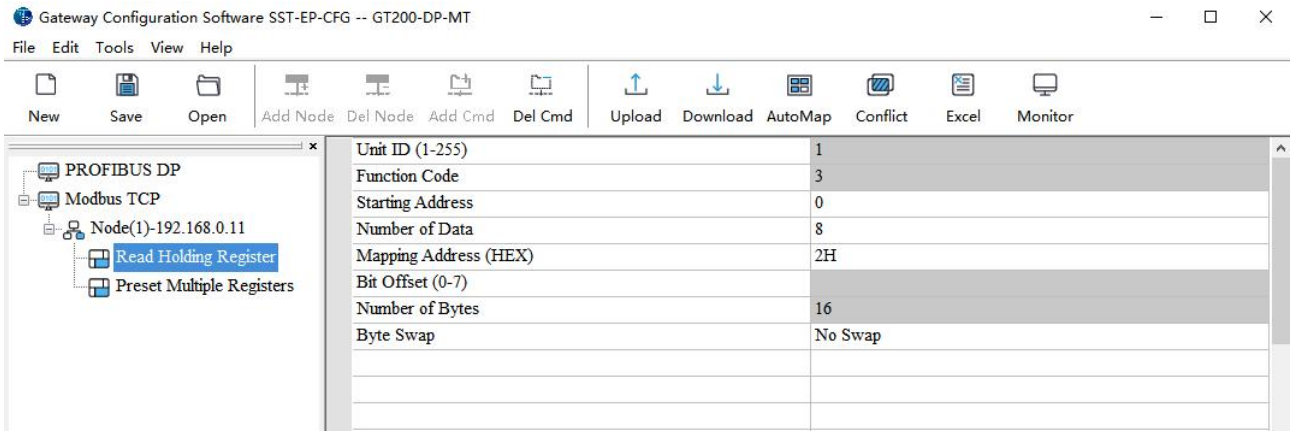
5. Right Click “Ethernet” and Select “Add Node”. Click the newly created node and configure the Server parameters.



6. Right Click “New node”. Select “Add Command”. In the Select Command window, double click the command you wish to add.

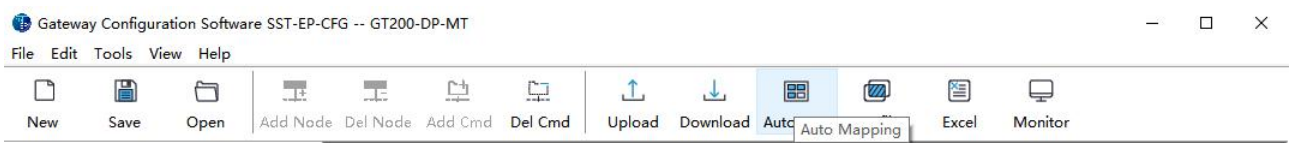


7. Click the Command you wish to configure and configure the parameters in the Configuration Section to meet the needs of your project.

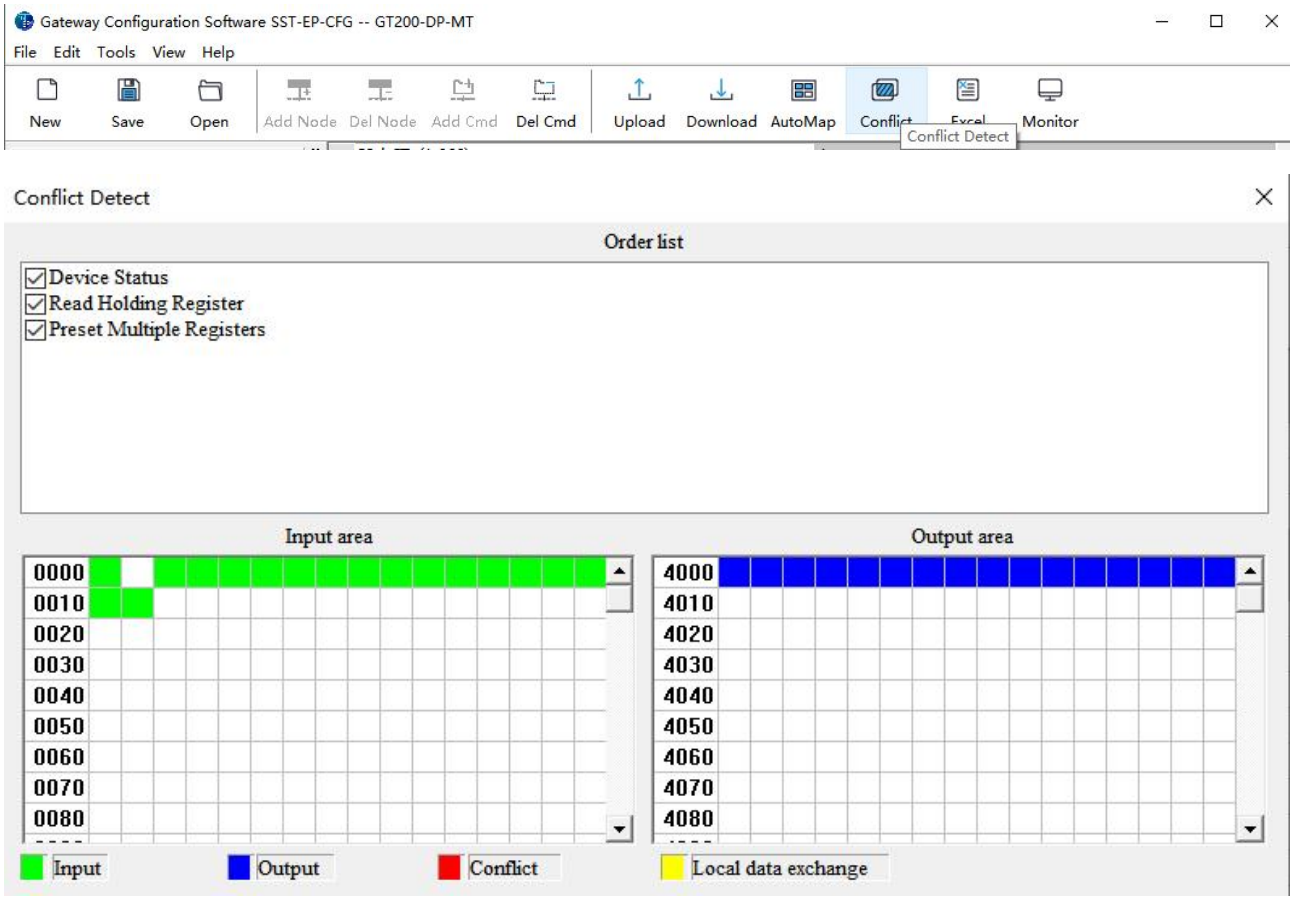


8. Once the “Fieldbus”, “Ethernet”, Node(s), and Command(s) are configured, click the “AutoMap” icon on the toolbar to map the Modbus data to the PROFIBUS DP network.

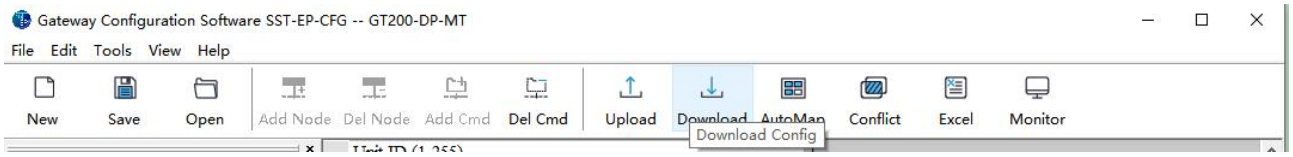
Note: If you set the memory mapping address for the node, it will be remapped by the “AutoMap” function.



9. Check the mapping address in the Conflict Detection window, to confirm that there is no conflict.



10. Click “Download” to download your configurations into the GT200-DP-MT.



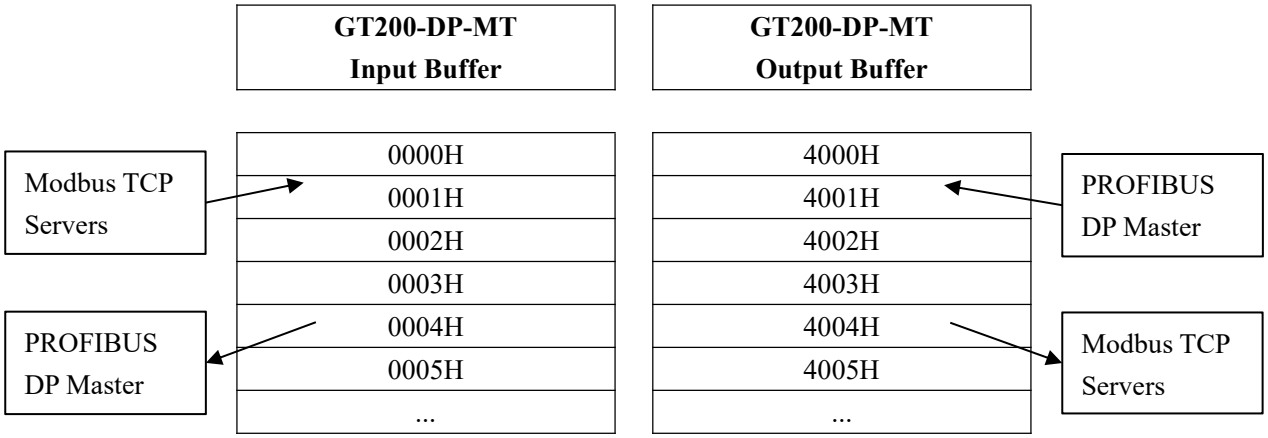
Note: The GT200-DP-MT will apply the new configuration after restarting. After downloading the software will ask to restart the gateway remotely.

11. Configure the GT200-DP-MT into the PROFIBUS DP system. Please refer to Chapter 7 and Appendix: Configure GT200-DP-MT in STEP7. The GSD file can be downloaded at sstautomation.com.

5 Working Principle

5.1 As Modbus TCP Client

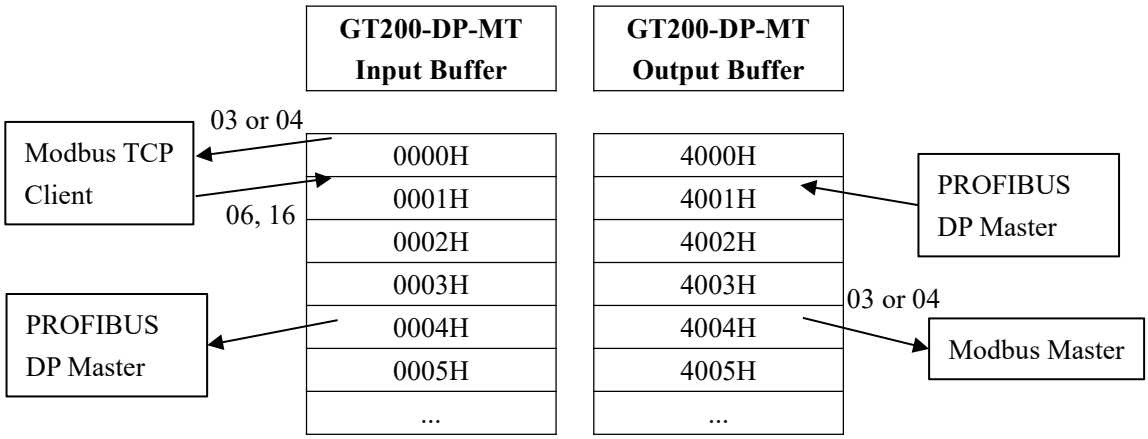
When the GT200-DP-MT is configured as a Modbus TCP client, the data transmission between the Modbus TCP servers and the PROFIBUS DP master through the GT200-DP-MT is established by mapping address. The GT200-DP-MT has an input buffer and an output buffer. The data read from Modbus servers by function code 01, 02, 03 or 04 is stored in the input buffer then transmitted to PROFIBUS DP master. The data written by PROFIBUS DP master is stored in the output buffer, then sent to the Modbus servers by function code 05, 06, 15 or 16.



5.2 As Modbus TCP Server

When the serial interface of the GT200-DP-MT is configured as a Modbus slave, it allows a Modbus master to communicate with the user's PROFIBUS DP master.

The data is stored in GT200-DP-MT's input buffer and output buffer first.



The Modbus TCP client writes the data to the GT200-DP-MT input buffer for PROFIBUS DP master accessing. The PROFIBUS DP master outputs data to the GT200-DP-MT output buffer and then exports to the Modbus TCP client.

The gateway acts as a Modbus TCP slave, supporting function: 03, 04, 06 and 16. Users can select 03 or 04 function code in order to read the data in the GT200-DP-MT input buffer or output buffer.

5.3 Data Mapping in Software Configuration Mode

In the “Software Configuration” mode, the data mapping address can be manually configured. The data mapping relationship between GT200-DP-MT buffer and PROFIBUS DP is shown below. The addresses N and M (or X and Y) can be discontinuous numbers.

PROFIUS DP Input Address		GT200-DP-MT Input Buffer
Module 1	N	0000H
	N+1	0001H
Module 2	M	0002H
	M+1	0003H
	M+2	0004H
	M+3	0005H
...	...	...

PROFIUS DP Output Address		GT200-DP-MT Output Buffer
Module 3	X	4000H
	X+1	4001H
	X+2	4002H
	X+3	4003H
Module 4	Y	4004H
	Y+1	4005H
...	...	...

6 Instructions of Configuration Software

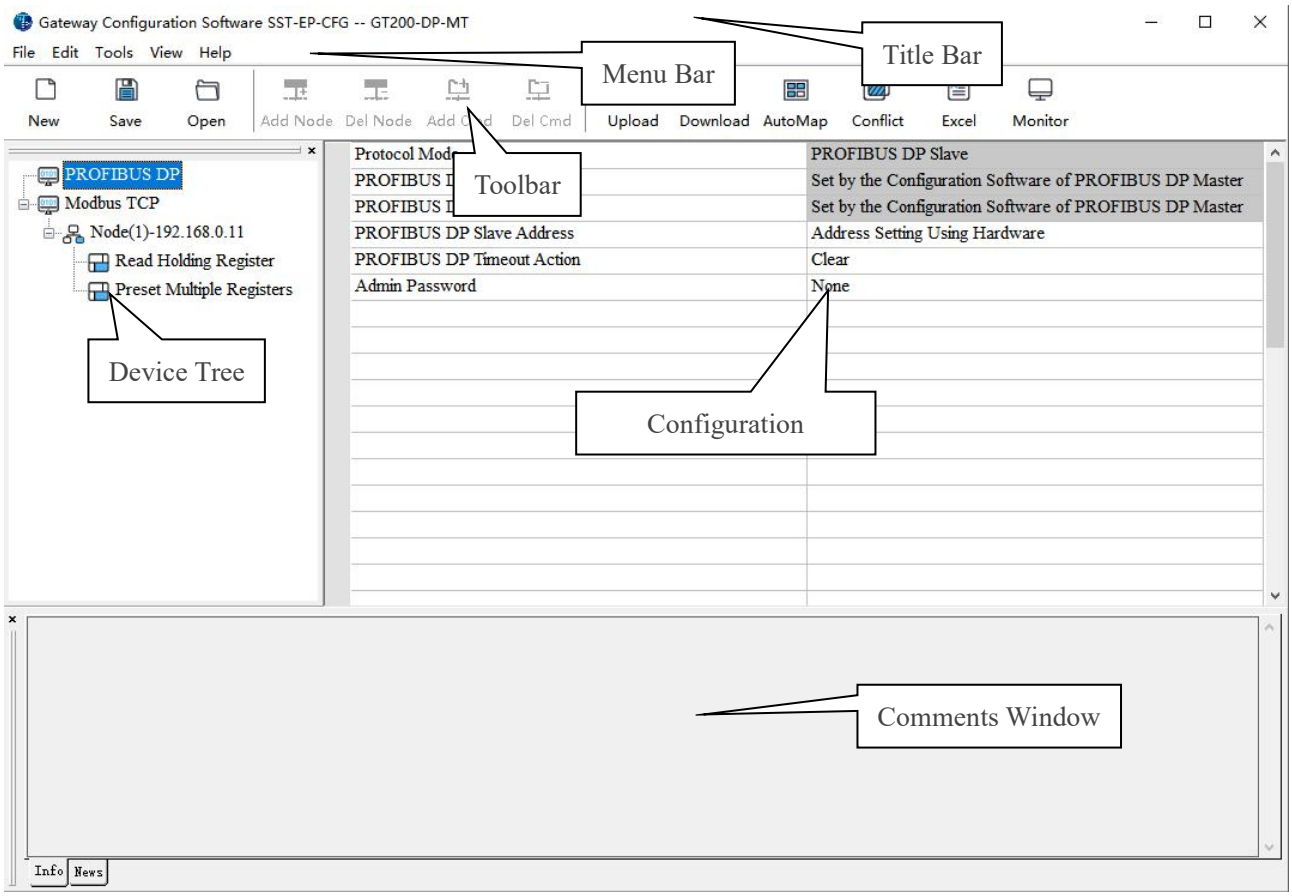
6.1 Notes before Configuration

SST-EP-CFG is a Windows-based platform, used to configure GT200-DP-MT and GT200-DP-EI.

Run the SST-EP-CFG, select GT200-DP-MT then click OK.

6.2 User Interface

Note: Gray parts cannot be modified.



The toolbar is shown as bellow:

The toolbar provides icon shortcuts to major functions.

New: Create a new configuration project.

Save: Save the current configuration.

Open: Open a configuration project.

Add Node: Add a Modbus node.

Delete Node: Delete a Modbus node.

Add Command: Add a Modbus command.

Delete Command: Delete a Modbus command.

Upload: Upload the configuration from the gateway.

Download: Download the configuration to the gateway.

Auto Map: Automatically calculate the mapped data address of each command.

Conflict：Check the mapping address in the Conflict Detection window.

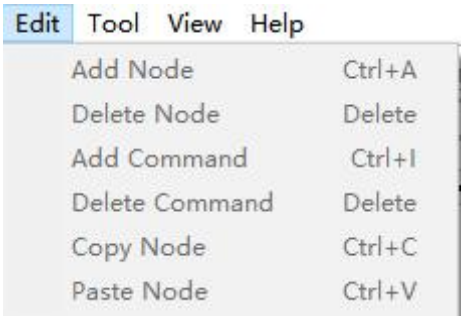
Export Excel: Export current configuration as a table and save it as *.xls file.

Monitor: Monitor I/O Data.

6.3 Equipment View Operation

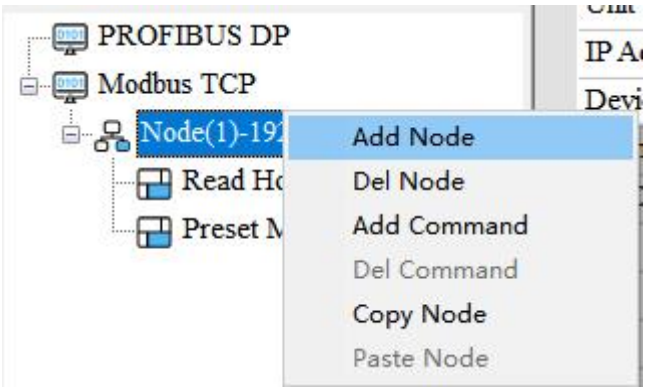
Users can edit the items in the left tree view three different ways:

Edit with the commands in the menu.



Edit with the icon in the toolbar. Please see "Toolbar" chapter for details.

Right click on the item.



6.3.1 Modbus Node and Command Operations

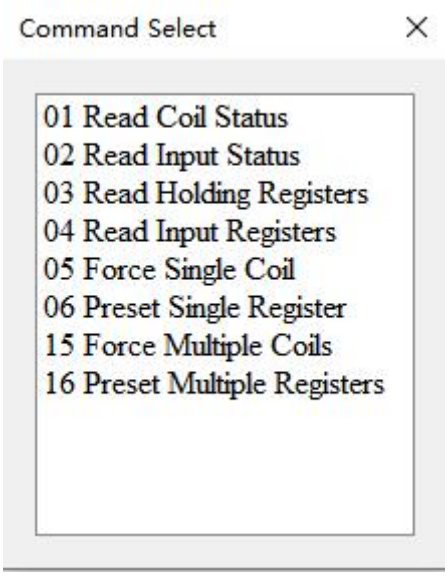
Users can edit Modbus nodes and commands by three operation ways in the "Tree View Operations" chapter.

Add node: Select the "Subnet" and add a new node. A new node named "Node-X" will be added under the Modbus TCP. The maximum number of nodes is 36.

Delete node: When deleting a node, all commands under the node will be deleted.

Add command: Select a node and add a command. The pop-up window shows the Modbus command list. Double click on the command and the new command will be added under the node. The maximum command number is 100.

Supports 01, 02, 03, 04, 05, 06, 16 and 16 function codes.



Delete command: Select a command and then delete it.

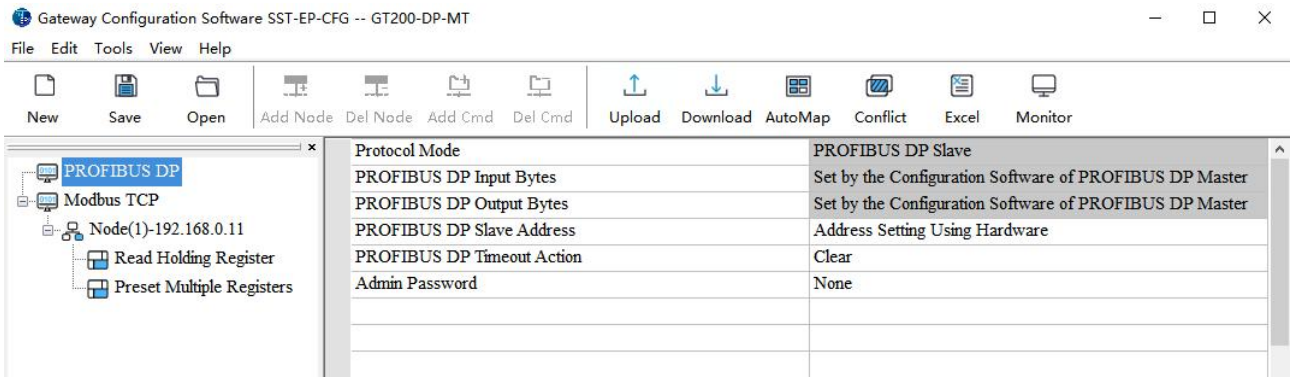
Copy node: Select an existing node and copy the node. The commands under the node will be copied at the same time.

Paste node: Select the Modbus TCP or an existing node and paste the node. The pasted node has the same parameters with the copied node.

6.4 The Operation of Configuration Interface

6.4.1 PROFIBUS DP Configuration

Click the PROFIBUS DP in the equipment view interface, this will display the configuration view interface as follows:



Protocol Mode: PROFIBUS DP.

PROFIBUS DP Input Bytes: Set through the Hardware Configuration of PROFIBUS DP.

PROFIBUS DP Output Byte: Set through the Hardware Configuration of PROFIBUS DP.

PROFIBUS DP Slave Address: Choose the mode to set PROFIBUS address.

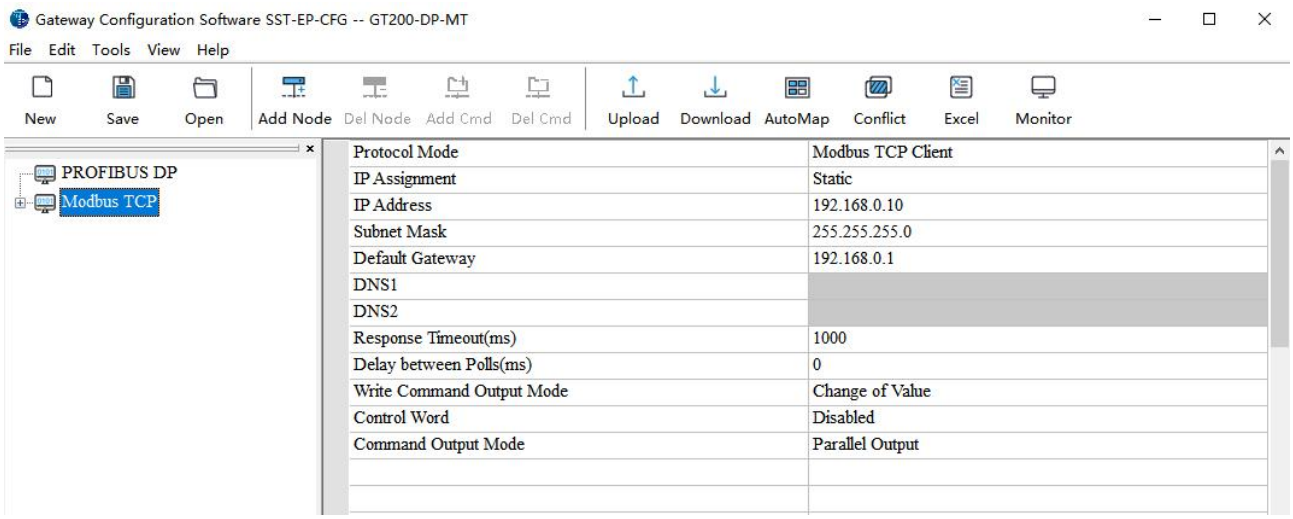
PROFIBUS DP Clear after Timeout: On and Off options

Admin Password: You can set a password. If you set it, uploading and downloading require this password.

6.4.2 Modbus TCP Client Configuration View

Click Modbus TCP in configuration view interface.

Type of Protocol: Modbus TCP Master and Modbus TCP Slave are optional.



Protocol Mode: Sets the Modbus TCP operation mode of the gateway.

Modbus TCP Client: The gateway functions as a Modbus TCP Client (Master) to connect to Modbus TCP Server (Slave) devices.

Modbus TCP Server: The gateway functions as a Modbus TCP Server (Slave) to connect to Modbus TCP Client (Master) controllers.

IP Assignment: Sets how the IP address of the gateway's Modbus TCP interface is configured.

Static: Manually assign a static IP address.

DHCP: Automatically receive an IP address from a DHCP server on the network.

IP Address: Sets the IP address of the gateway's Modbus TCP interface.

Note: This setting is only available in Static IP Configuration mode.

Subnet Mask: Sets the subnet mask of the gateway's Modbus TCP interface.

Note: This setting is only available in Static IP Configuration mode.

Default Gateway: Sets the network default gateway IP address for the Modbus TCP interface.

Note: This setting is only available in Static IP Configuration mode.

DNS1/ DNS2: Reserved.

Response Timeout (ms): The amount of time, measured in milliseconds (ms), that the gateway should wait to receive a response from a Modbus TCP Server for a command before issuing a response timeout error.

Range: 300-60000ms. Default Value: 1000ms.

Delay between Polls (ms): The amount of time, measured in milliseconds (ms), the gateway should wait after receiving a response from a Modbus TCP Server before sending the next request.

Range: 0-2500ms. Default Value: 0ms.

Write Command Output Mode: Sets the output mode for Modbus write commands sent from the gateway to Modbus TCP Clients. There are four types of output modes supported:

Cyclic: Write commands are sent cyclically in the same way that Modbus read commands are sent.

Disabled: The gateway will not send any write commands.

Change of Value: Write commands are only sent when the output data changes.

Control Word Trigger: The behavior of this mode will depend on whether the Control Word parameter is enabled or disabled.

If the Control Word parameter is disabled, the gateway will only send a single write command when the output data value changes. After sending the write command once, it will no longer send any more write commands until the gateway is power cycled or restarted. When there is a change in the output data corresponding to the write command, it will only output onceand will not be output again (until it is repowered on or restarted).

If the Control Word parameter is enabled, the gateway will send out a write command to a specified node

whenever the corresponding bit in the Control Word parameter for that node is toggled from 0 to 1. After the command is sent, the corresponding Control Word bit will need to be toggled from 0 to 1 again before the next one can be sent out.

Control Word: When this setting is enabled, a block of data will be reserved at the beginning of the PROFIBUS DP output data buffer to function as the Control Word. Each bit in the Control Word parameter corresponds to an individual Modbus command. The Control Word functions like a switch, allowing each Modbus command in the Control Word to be toggled ON or OFF. When a bit in the Control Word is set to 1, the the corresponding command is enabled. When a bit is set to 0, the corresponding command is disabled.

When the Write Command Ouput Mode is set to "Disabled", the Control Word will do nothing. Write commands will be disabled. Read commands will not be affected by the Control Word and will communicate normally.

The Control Word setting supports the following options: "Disabled", "All Commands" and "Only Write Commands".

Disabled: Disables the Control Word parameter.

All Commands: Every Modbus read command and write command will correspond to 1 bit in the Control Word parameter.

Only Write Commands: Every Modbus write command will correspond to 1 bit in the Control Word parameter. Read commands will not be affected by the Control Word and will communicate normally.

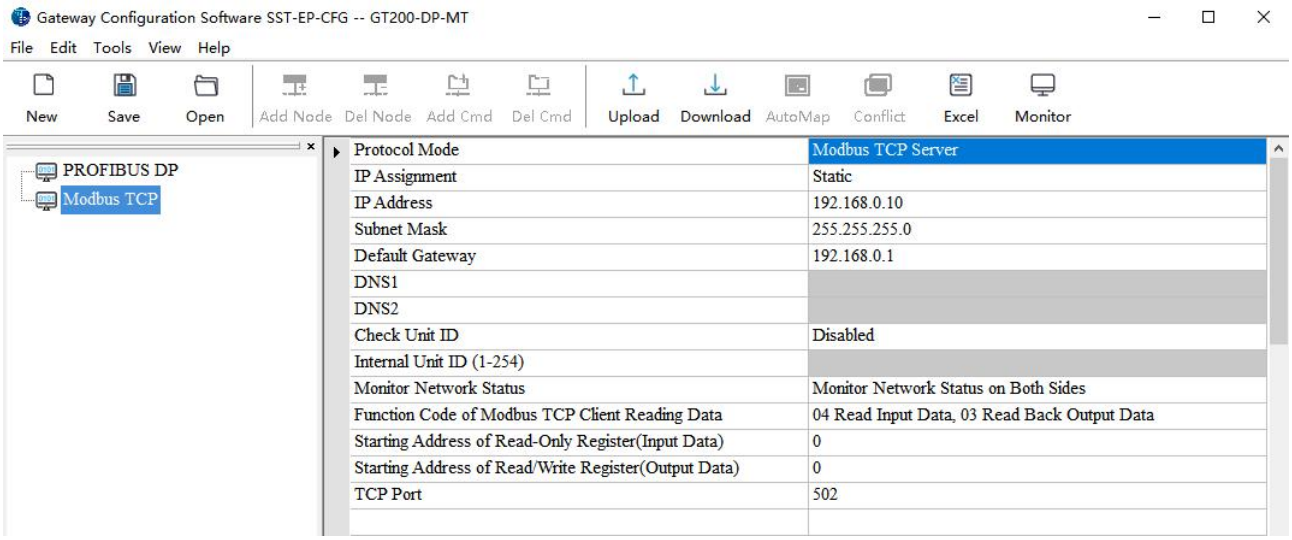
Default Value: Disabled

Command Output Mode: Sets how commands are sent from the gateway to Modbus TCP Server devices.

Serial Output: All commands for a single Modbus TCP Server device are sent one by one. The next command is sent only after a response is received or a timeout occurs.

Parallel Output: All commands for a single Modbus TCP Server device are sent simultaneously.

6.4.3 Modbus TCP Server Configuration View



Protocol Mode: Sets the Modbus TCP operation mode of the gateway.

Modbus TCP Client: The gateway functions as a Modbus TCP Client (Master) to connect to Modbus TCP Server (Slave) devices.

Modbus TCP Server: The gateway functions as a Modbus TCP Server (Slave) to connect to Modbus TCP Client (Master) controllers.

IP Assignment: Sets how the IP address of the gateway's Modbus TCP interface is configured.

Static: Manually assign a static IP address.

DHCP: Automatically receive an IP address from a DHCP server on the network.

IP Address: Sets the IP address of the gateway's Modbus TCP interface.

Note: This setting is only available in Static IP Configuration mode.

Subnet Mask: Sets the subnet mask of the gateway's Modbus TCP interface.

Note: This setting is only available in Static IP Configuration mode.

Default Gateway: Sets the network default gateway IP address for the Modbus TCP interface.

Note: This setting is only available in Static IP Configuration mode.

DNS1/ DNS2: Reserved.

Check Unit ID: Sets whether the gateway responds to all Modbus commands or only to those that match its internal Unit ID (Slave ID).

Enabled: As a Modbus TCP Server device, the gateway will only respond to Modbus commands that match its internal Unit ID (Slave ID).

Disabled: As a Modbus TCP Server device, the gateway will respond to any Modbus command from the Modbus TCP Client.

Internal Unit ID (1-254): Sets the gateway's Unit ID address (Slave ID) when the gateway functions as a Modbus TCP Server (Slave) device.

Note: This setting is only available when "Check Unit ID" is Enabled. Range: 1-254.

Monitor Network Status: When this setting is enabled, the gateway will monitor the connection status of the PROFIBUS DP/Modbus TCP networks.

Monitor Modbus TCP Network Status on PROFIBUS DP Side: The first two bytes of the PROFIBUS DP input data buffer are reserved to function as the Modbus TCP Status bytes. The data indicates the number of connections that the gateway has established with the Modbus TCP Client.

Monitor PROFIBUS DP Network Status on Modbus TCP Side: The first two bytes of the Modbus TCP input side will be reserved to function as the PROFIBUS DP Status bytes. The data content indicates the PROFIBUS DP communication fault status, where 1 indicates fault, and 0 indicates normal.

Function Code of Modbus TCP Client Reading Data: Modbus TCP Client equipment can choose to use 04 or 03 function code to read the PROFIBUS DP device data (input data) collected through the gateway.

It can also read back the data output to PROFIBUS DP (output data).

Starting Address of Read-Only Register (Input Data):

The gateway is used as Modbus TCP server to support the client to read the starting address of the input data using the 04/03 function code.

It is necessary to fill in the protocol address (base 0) format here, and displayed in decimal. Range 0-65414.

For example:

04 function code: The PLC address format is 30001, then you need to fill in it as the protocol address format 0.

03 function code: The PLC address format is 40001, then you need to fill in it as the protocol address format 0.

Starting Address of Read/Write Register (Output Data):

The gateway is used as Modbus TCP server to support the client to write the starting address of the input data using the 06/16 function code. Using the 03/04 function code to read the starting address of the output data.

It is necessary to fill in the protocol address (base 0) format here, and the decimal number is displayed. Range : 0-65414.

For example:

04 function code: The PLC address format is 30001, then you need to fill in it as the protocol address format 0.

03 function code: The PLC address format is 40001, then you need to fill in it as the protocol address format 0.

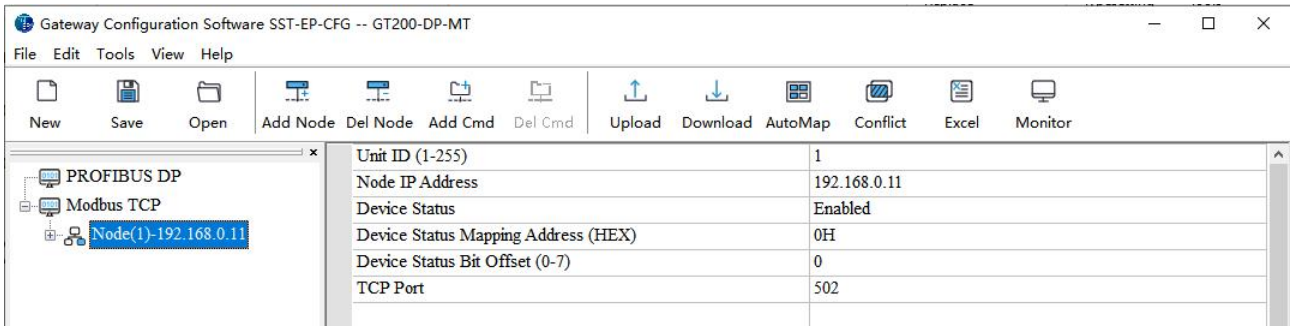
TCP Port: Sets the TCP port number for the gateway to use as a Modbus TCP Server device.

Range: 1-65535. Default Value: 502.

Note: The TCP port cannot be configured as 18800, 18801, 18802.

6.4.4 Node Configuration

In the Modbus TCP Master mode, after adding a node, select the node:



Unit ID: Modbus TCP slave address, 1 to 255 optional.

Node IP Address: IP address to access Modbus TCP slave.

Device Status: Open and Close optional. When it is opened, the memory-mapped address and memory-mapped bits offset is available.

Device Status Mapping address (HEX): Address range that the equipment state is mapped to in the module memory, 0x0000-0x00F3. Calculate by clicking “Auto mapping”.

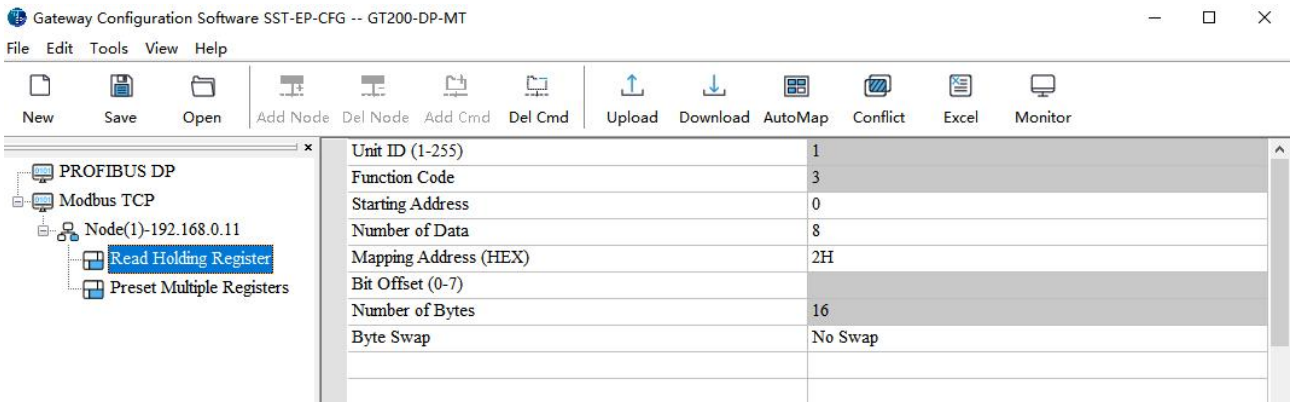
Device Status Mapping Offset: Bit x where the equipment state is in memory mapping byte, 0-7.

TCP Port: The TCP port number used by the target Modbus TCP Server node. Range: 1-65535.

Default Value: 502

6.4.5 Command Configuration

After adding commands under a node, select the command:



Starting Address: The starting address for register/coil/status of Modbus slave device. Range: 0-65535.

Number of Data: The number of data.

Function code (3, 4, 16): The number of registers 1-122.

Function code (1, 2, 15): The number of switching value or coil 1-400.

Mapping Address (HEX): The mapping address range of data in the memory module, users can click "Auto Mapping" to calculate the mapping address by software.

Bit Offset (0-7): Modbus function codes 01, 02, 05, 15 can set the position of the bit address in bytes through this parameter. Range: 0-7.

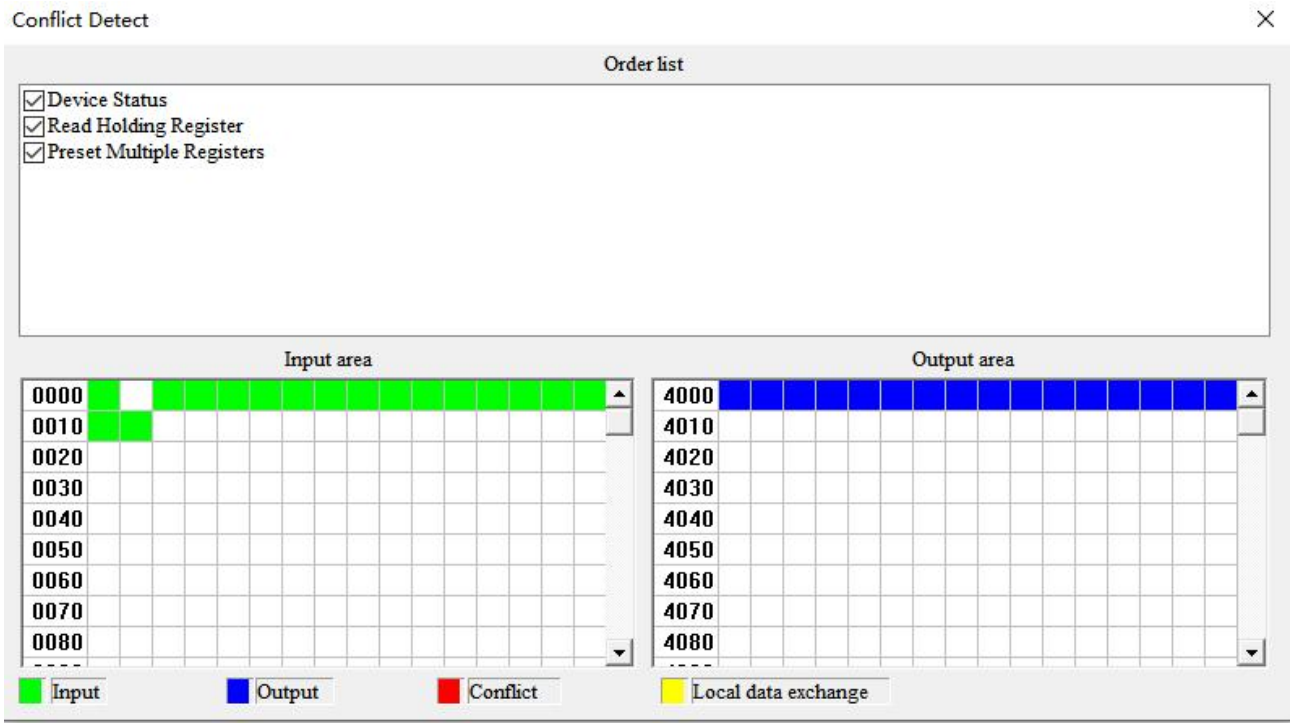
Users can click [AutoMap] to automatically fill in after software calculation, or manually input.

Number of Bytes: The number of bytes of data. Displayed in decimal.

Byte Swap: There are three types: no swap, double-byte swap, four-byte swap.The byte order of Modbus, PROFIBUS DP is the most significant byte (MSB) first. Users may need to swap the byte order to get the right value.

6.5 Conflict Detection

The data is stored in the gateway's buffer. To check if there are conflicts in the data mapping address, open the conflict detection window by clicking the "Conflict" icon.



Input mapping address range: 0x0000-0x3FFFF.

Output mapping address range: 0x4000-0x7FFFF.

Each grid represents one byte address.

Green: Read command is shown in input mapping area, it will be in green without conflict.

Yellow: Write command: When the address mapping area is located in the input area, it will be in yellow without conflict.

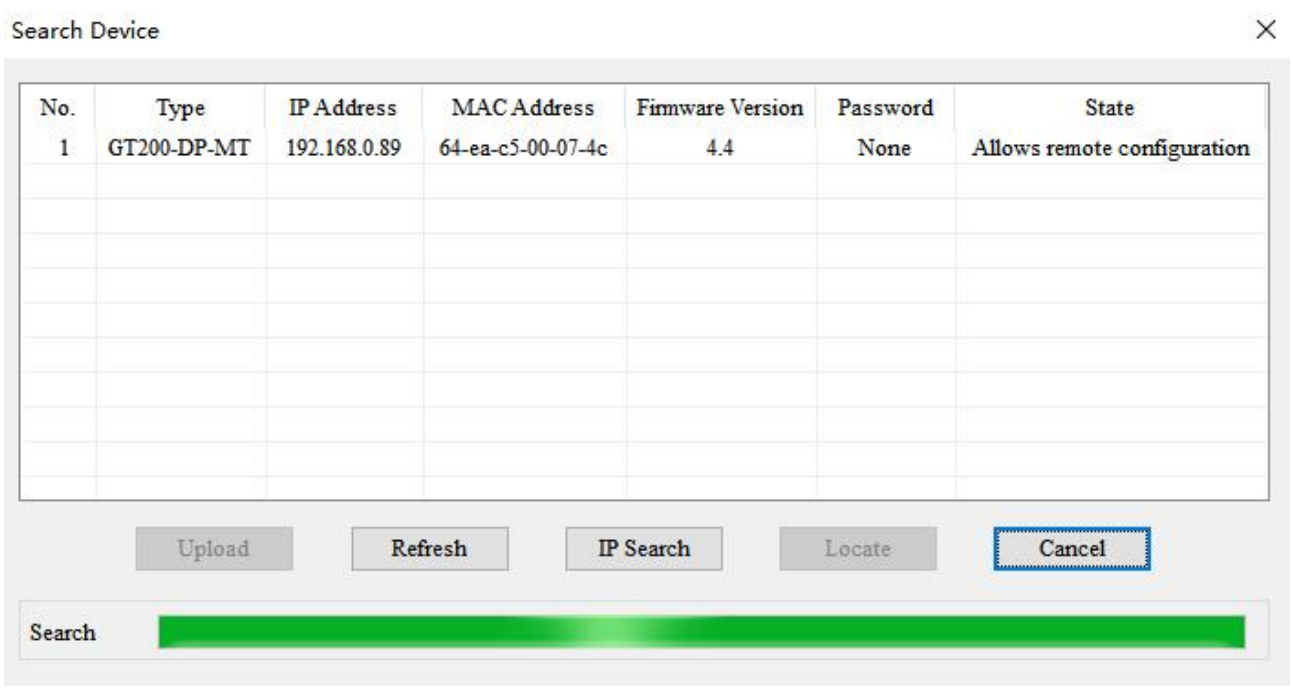
Blue: When the address mapping area is located in the output area, it will be in blue without conflict.

Red: In the input area or output area, when different commands occupy the same byte, this byte area will be in red.

6.6 Hardware Communication

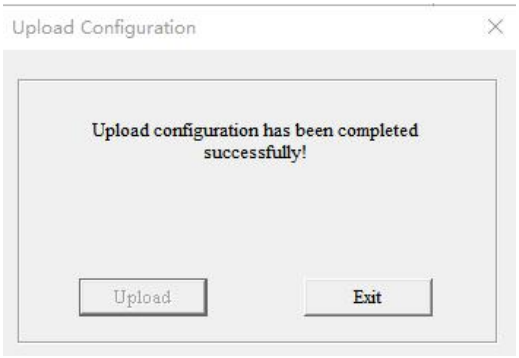
6.6.1 Upload Configuration

Choose upload configuration, it will pop up the dialog box of searching equipment:



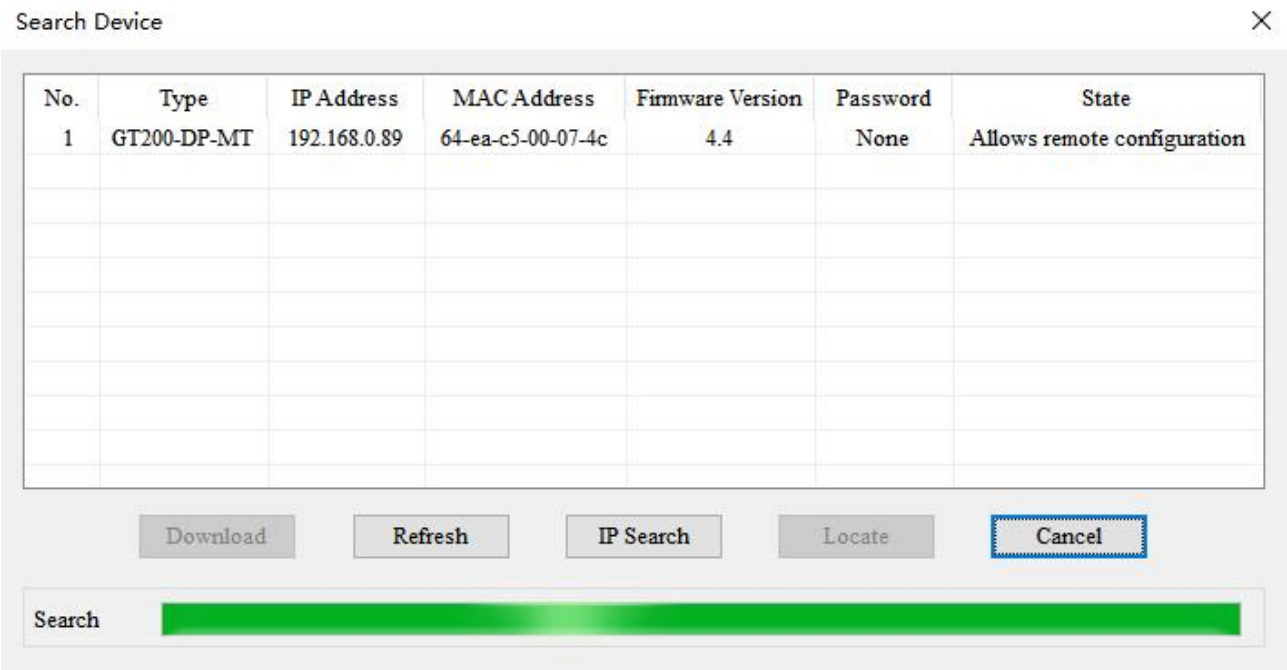
Select the equipment you want to configure and click “Sign In” to enter into the upload dialog box. Upload the configuration information from the equipment to the software, the interface is shown below:

When you have set Administrator Password in the software, you should input the correct password to finish uploading.

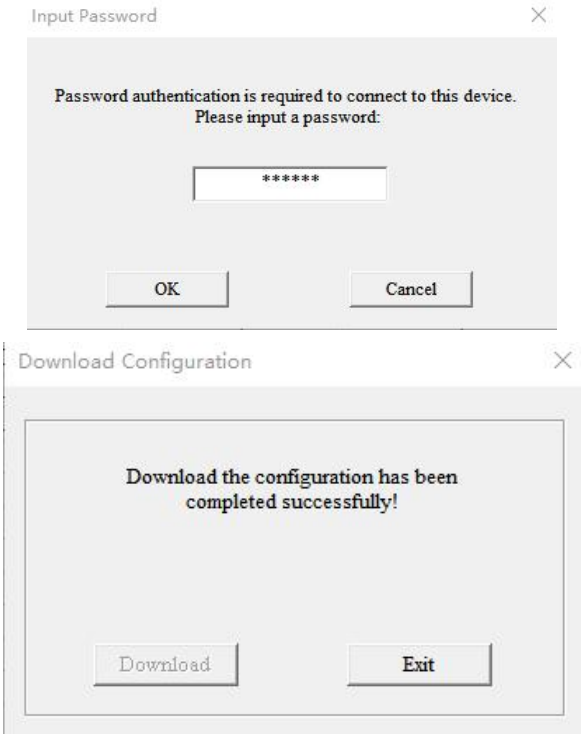


6.6.2 Download Configuration

The operation of download configuration is the same as upload configuration:



When you have set Administrator Password in the software, you should input the correct password to finish downloading.

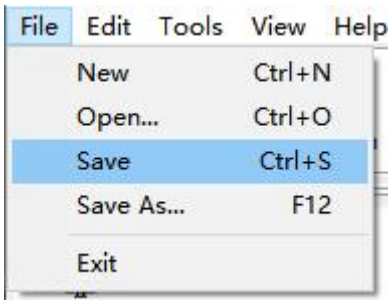


Note: Before downloading, please confirm all configurations have been completed and right.

6.7 Load and Save Configuration

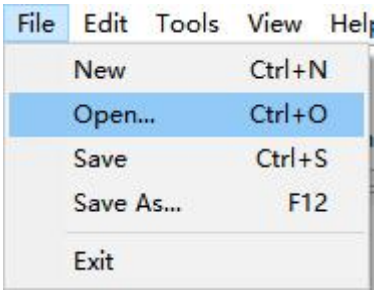
6.7.1 Save Configuration Project

Select “Save” and save the configured project as .chg file.



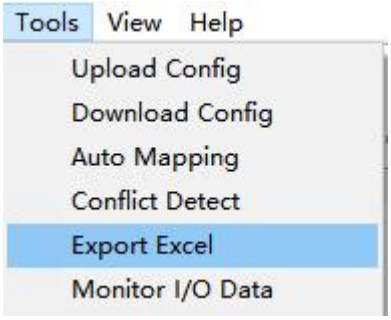
6.7.2 Load Configuration Project

Select “Open” and open the saved .chg file.



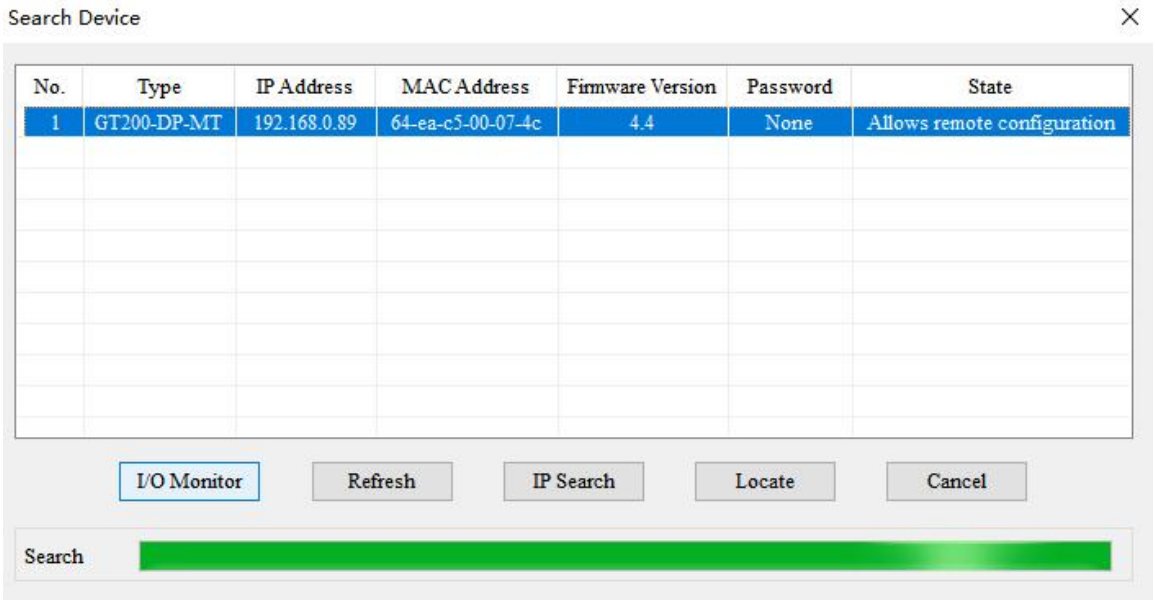
6.7.3 Export Excel

Excel configuration Excel file will help users to check the relevant configuration.

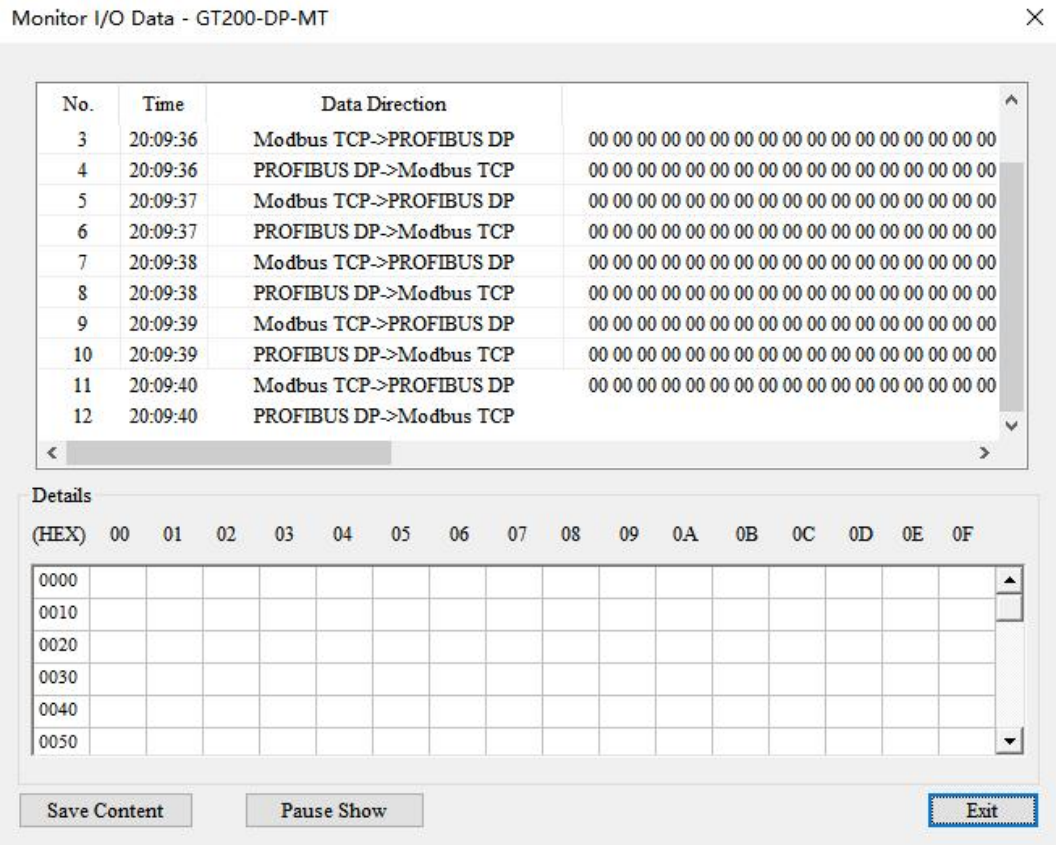


6.8 Monitor I/O Data

This function is used to monitor the buffer data, click “Monitor” button on the toolbar and the dialog box of searching equipment will pop up:



Click “Sign In”, it will pop up the I/O data monitor dialog box below:



Clicking the “Save Content” button can save relevant content to the PC hard disk. This button becomes “Stop saving”. If you want to finish saving, you can press “Stop saving” button. It can pause displaying buffer data by clicking “Pause Show”.

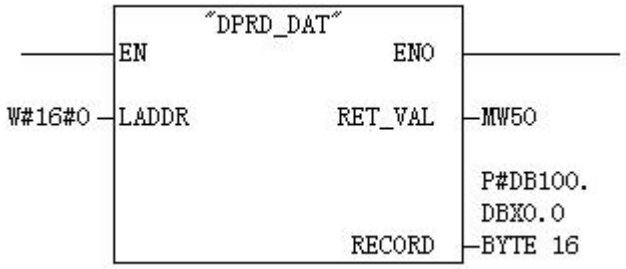
7 PROFIBUS DP Modules

The GT200-DP-MT supports different consist modules.

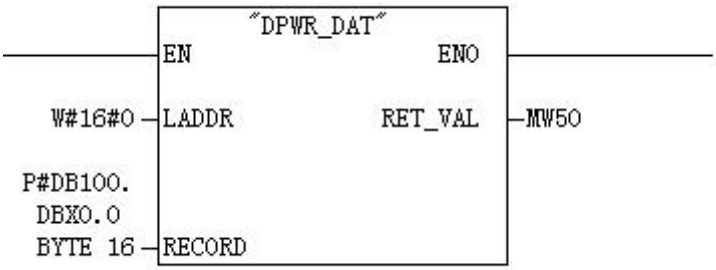
Module	Integrity
4 Words Input, 4 Words Output	Word Integrity
8 Words Input, 8 Words Output	Word Integrity
24 Words Input, 24 Words Output	Word Integrity
56 Words Input, 56 Words Output	Word Integrity
1 Byte Input	Byte Integrity
1 Word Input	Word Integrity
2 Words Input	Word Integrity
4 Words Input	Word Integrity
8 Words Input	Word Integrity
16 Words Input	Word Integrity
32 Words Input	Word Integrity
64 Words Input	Word Integrity
2 Words Input Consistent	length Integrity
4 Words Input Consistent	length Integrity
8 Words Input Consistent	length Integrity
16 Words Input Consistent	length Integrity
1 Byte Output	Byte Integrity
1 Word Output	Word Integrity
2 Words Output	Word Integrity
4 Words Output	Word Integrity
8 Words Output	Word Integrity
16 Words Output	Word Integrity
32 Words Output	Word Integrity
64 Words Output	Word Integrity
2 Words Output Consistent	Total length Integrity
4 Words Output Consistent	Total length Integrity
8 Words Output Consistent	Total length Integrity
16 Words Output Consistent	Total length Integrity

For the data modules of word/byte integrity, the data can be used by the “MOVE” command in STEP7 or other general programs.

For the data modules of length integrity, the data should be compressed and sent. In STEP, it mainly uses “SFC 14” and “SFC 15”. Please refer to the appropriate documents of the PROFIBUS DP PLC program.



SFC14 (Receive)

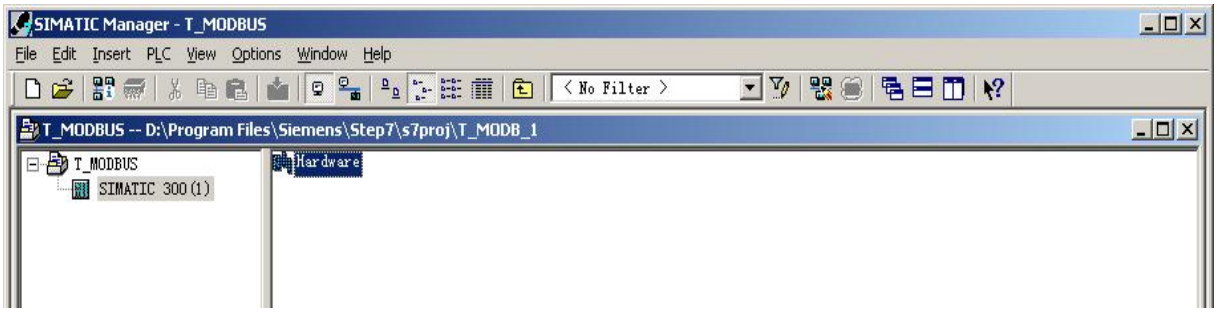


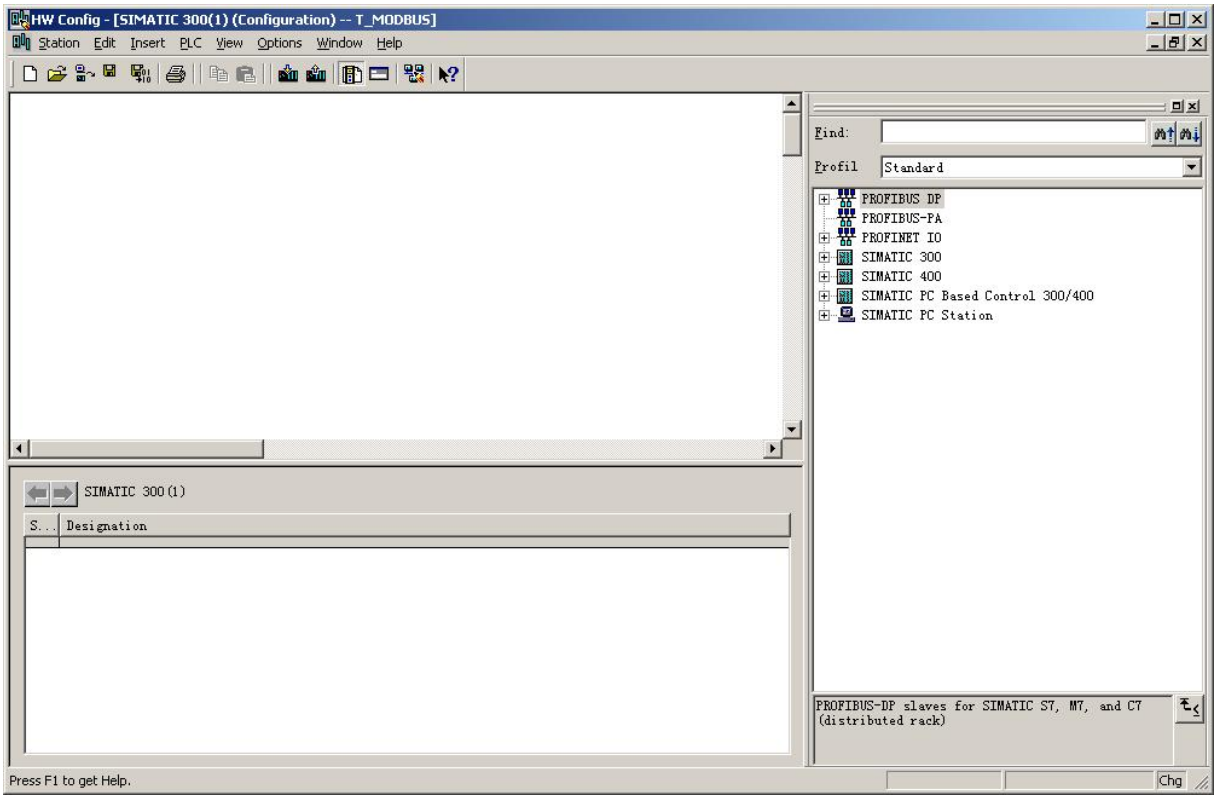
SFC15 (Send)

Appendix: Configure GT200-DP-MT in STEP7

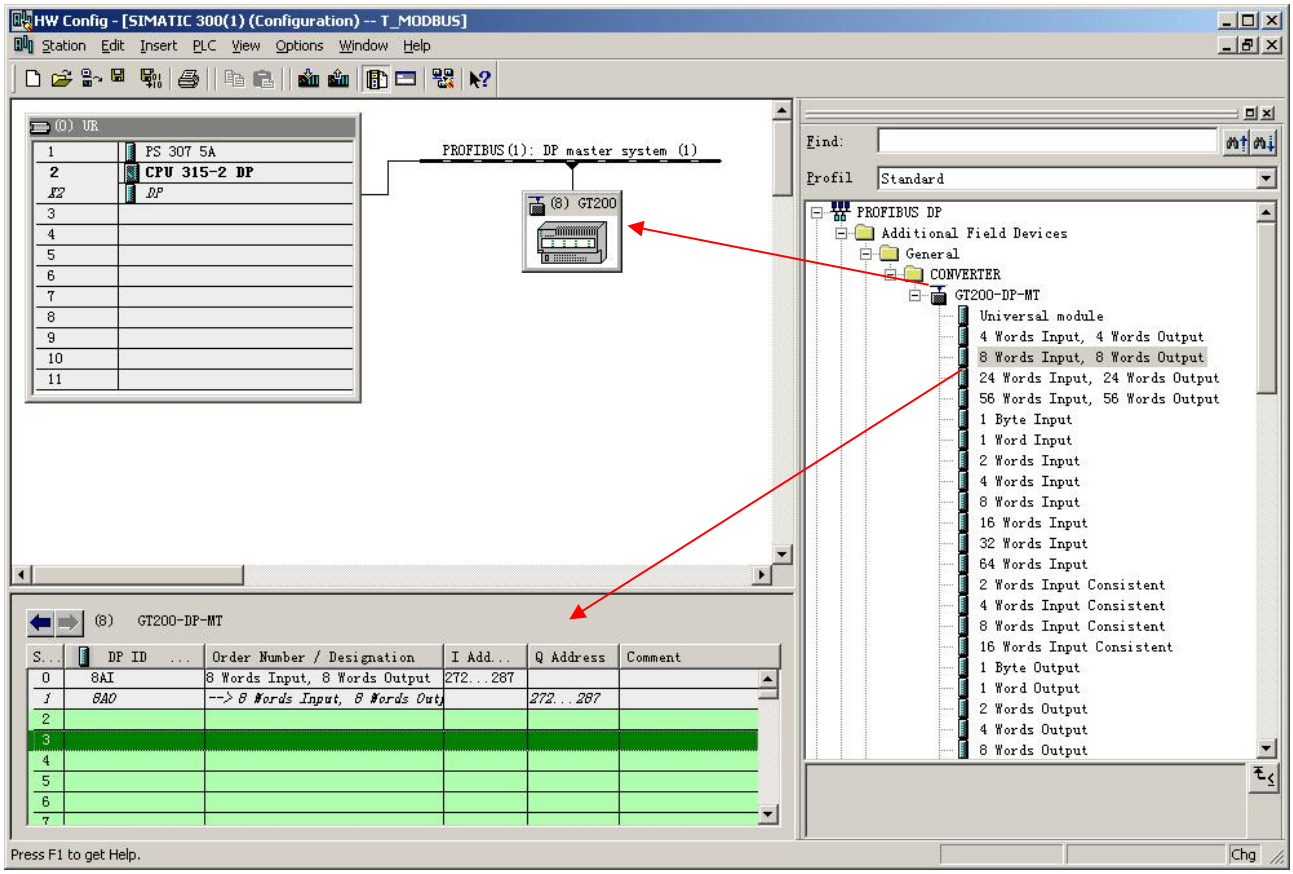
Before the configuration, the GSD file should be imported in the STEP7. Please refer to the appropriate documents of the STEP7.

1. Open the S7 PLC hardware configuration of your project. For example, double click on "SIMATIC 300(1)" >> "Hardware" to enter HW Config window as shown below.





2. Find the GT200-DP-MT in the device catalog and drag a GT200-DP-MT onto the PROFIBUS DP bus. Add some modules on the slot.



3. Double click on the GT200-DP-MT device and the modules to set the DP parameters.

4. Compile and download the configuration into PLC.