

DeviceNet/PROFIBUS DP Gateway GT200-DP-DM

User Manual

V5.5

Rev A



SST Automation

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Important Information

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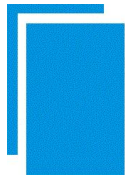
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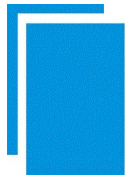
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1 Product Overview

1.1 Product Function

GT200-DP-DM exchanges data between DeviceNet and PROFIBUS DP. It acts as an adapter at DeviceNet side and a device at PROFIBUS DP side.

1.2 Product Features

- **Wide Application:** Achieve the direct connection between DeviceNet network and PROFIBUS DP network. Such as, establish the communication between Rockwell, Omron PLC and Siemens S7 PLC.
- **Easy to Use:** Referring to the manual and the examples provided, users can establish the connection quickly.
- **Transparent Communication:** Users can accord to the mapping relationship between PROFIBUS DP communication data area and DeviceNet communication data area to achieve the transparent communication between PROFIBUS DP and DeviceNet.

1.3 Technical Specifications

A. Pre-operation Mode (DIP Switch 1-ON, 2-OFF)

- [1] Supports device search, namely online scanning DeviceNet adapter through SST-DNET-COM software.
- [2] Supports one-click application of the scanned DeviceNet adapter I/O parameter configuration.
- [3] Supports reading and writing DeviceNet adapter parameters with SST-PD-CFG.
- [4] Supports switching to the operation mode after writing configuration.
- [5] Supports DeviceNet baud rate: 125K, 250K, 500K.
- [6] Support reading and writing DeviceNet adapter parameters.
- [7] Supports reading and writing DeviceNet I/O data(polling).
- [8] Supports reading cos commands (COS) (up to 14 bytes).
- [9] Supports reading and writing product information.
- [10] The maximum number of input/output bytes supported by DeviceNet adapter: 244 bytes.

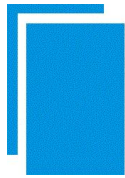
- [11] The Maximum number of input and output bytes supported by single DeviceNet adapter: 128 byte and 112 bytes.
- [12] Supports the communication up to 63 nodes.
- [13] Supports reading and writing configuration for 63 nodes.

B. Operation Mode (DIP Switch 1-OFF, 2-OFF)

- [1] Supports DeviceNet baud rate: 125K, 250K, 500K.
- [2] Supports powering on and off with DeviceNet adapter.
- [3] Supports PROFIBUS DP communication.
- [4] Supports changing DP address using button.
- [5] Supports changing DeviceNet address using button.
- [6] The maximum number of input/output bytes supported by DeviceNet adapter: 244 bytes.
- [7] The Maximum number of input and output bytes supported by single DeviceNet adapter: 128 byte and 128 bytes.
- [8] Supports the communication up to 63 nodes.
- [9] The module is powered from the DeviceNet network, and the power supply voltage is DC 11~30V.
- [10] Working circumstance temperature: -4°F~140°F (-20°C~60°C), Humidity: 5%~ 95%;
- [11] External dimensions (W*H*D): 1.0 in*4.0 in *3.6in (25mm*100mm*90mm).
- [12] Installation : 35mm DIN RAIL.
- [13] Protection level: IP20.

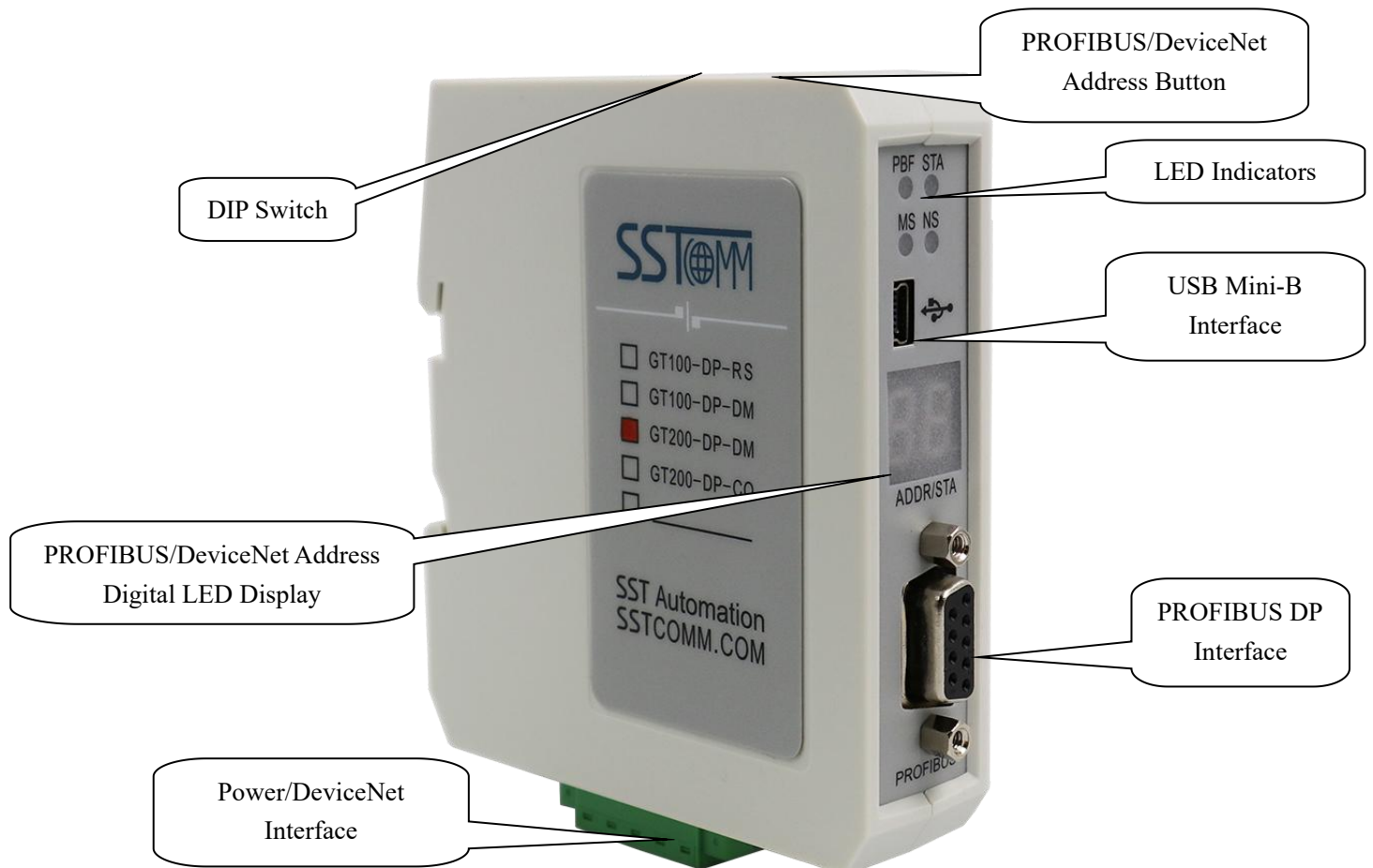
1.4 Revision History

Revision	Date	Chapter	Description
V5.5, Rev A	07/31/2023	Chapters 2.2 2.4.1, 2.4.3, 2.5, 2.6, and 4.1	Added wiring diagrams for the DeviceNet Interface. Added troubleshooting steps in the LED Indicator chapter. Added chapters for the USB Mini-B interface, Digital LED Display, PROFIBUS/DeviceNet address button. Added configuration steps to the quick start guide chapters.
V5.5	07/17/2023	ALL	New release



2 Hardware Description

2.1 Product Appearance



2.2 LED Indicators

DeviceNet Pre-operational Mode Indicators:

MS	NS	Description	Recommended Action
Flashing Green	OFF	Waiting to be searched by SST-DNET-COM	Status after power on - Connect using SST-DNET-COM
Flashing Green	Flashing Green	Browsing DeviceNet network	Normal operation - No action is required
OFF	Flashing Green	DeviceNet connection could not be established	1. Verify that all DeviceNet adapters are powered on. 2. Verify the DeviceNet baud rate. 3. Verify that all DeviceNet cables are properly connected. 4. Verify the DeviceNet wiring terminal resistance.
ON	Flashing Green	Unknown DeviceNet adapter found on network	1. Verify the DeviceNet baud rate.
Solid Green	Solid Green	DeviceNet connection established	DeviceNet scanner is communicating with the adapter - No action is required
Flashing Green	Solid Red	DeviceNet connection is not established	Disconnected between DeviceNet scanner and adapter - Reconnect using SST-DNET-COM
Solid Green	Flashing Red	DeviceNet connection lost	1. Verify that all DeviceNet adapters are powered on. 2. Verify that all DeviceNet cables are properly connected. 3. Verify the DeviceNet wiring terminal resistance.

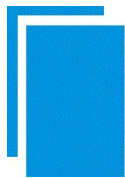
Note: When the PBF indicator is Solid Red and STA is OFF in DeviceNet pre-operational mode, the LED Display shows the DeviceNet address.

DeviceNet Operational Mode Indicators:

MS	NS	Description	Recommended Action
Solid Green	Flashing Green	Initializing DeviceNet connection	Status after power on - No action is required
Solid Green	Solid Green	DeviceNet connection established	Normal operation - No action is required
Solid Green	Solid Red	DeviceNet network error	1. Verify that all DeviceNet adapters are powered on. 2. Verify the DeviceNet baud rate. 2. Verify the DeviceNet adapter EDS file input/output sizes. 3. Verify that all DeviceNet cables are connected properly. 4. Verify the DeviceNet wiring terminal resistance.

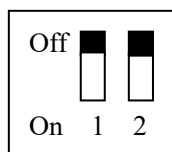
PROFIBUS DP Indicators:

STA	PBF	Description	Recommended Action
Flashing Green	OFF	PROFIBUS DP communication established	Normal Operation - No action is required
OFF	Solid Red	PROFIBUS DP port communication fault	1. Verify that the PROFIBUS DP Master is powered on and that there are no offline devices on the PROFIBUS network. 2. Verify that the GT200-DP-DM *.GSD file is loaded into the PLC configuration software. 3. Verify that the GT200-DP-DM PROFIBUS address matches the configuration on the PLC. See Chapter 2.6. 4. Verify that all PROFIBUS DP cables are properly connected. 5. Verify the PROFIBUS DP wiring terminal resistance.



2.3 DIP Switch

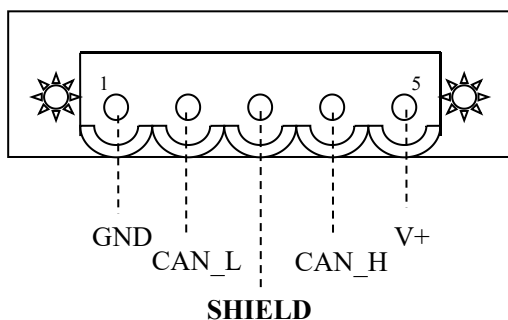
The configuration DIP switch is used to set the operating mode of the GT200-DP-DM and is located on the top of the of the gateway. Bit 1 is the Mode Bit, and Bit 2 is the Function Bit.



DIP Switch Position	Mode (Bit 1)	Function (Bit 2) (Keep OFF)
OFF	Pre-operational Mode (Configuration Mode)	Operational Mode: Digital LED Display shows PROFIBUS DP address Pre-operational Mode: Digital LED Display shows DeviceNet address
ON	Operational Mode	Digital LED Display shows DeviceNet address

2.4 Interfaces

2.4.1 Power and DeviceNet Interface



Pin	Description
1	GND
2	CAN_L
3	Shield
4	CAN_H
5	+24V

Note: The GT200-DP-DM is powered through the DeviceNet interface.

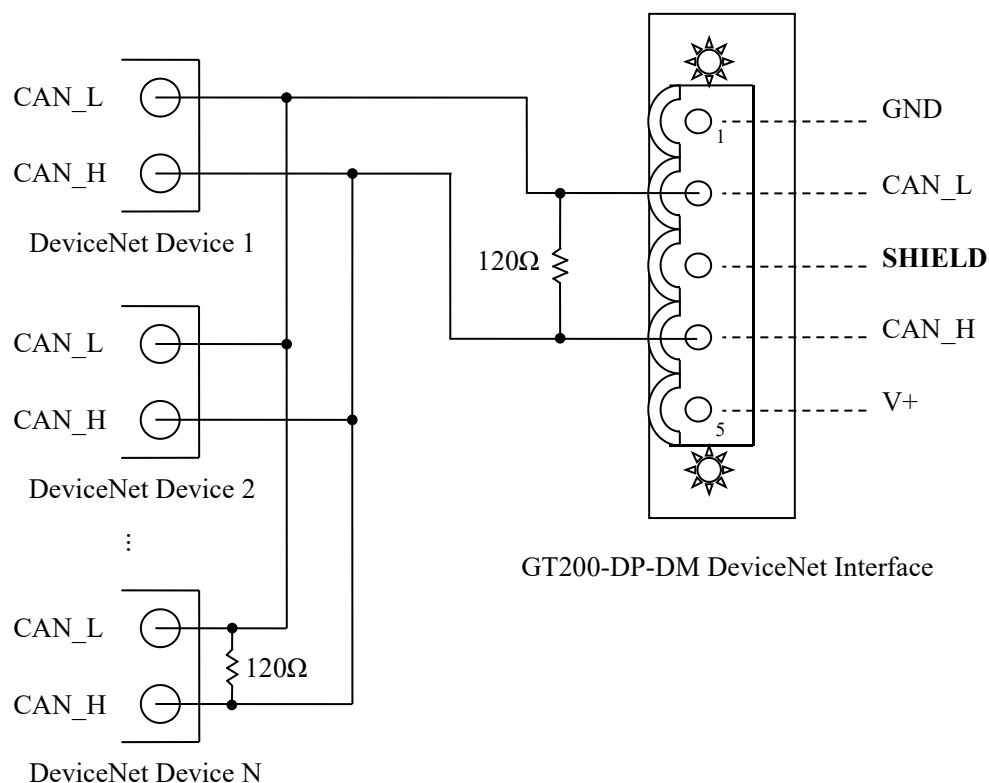
GT200-DP-DM

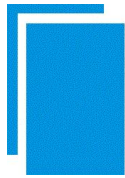
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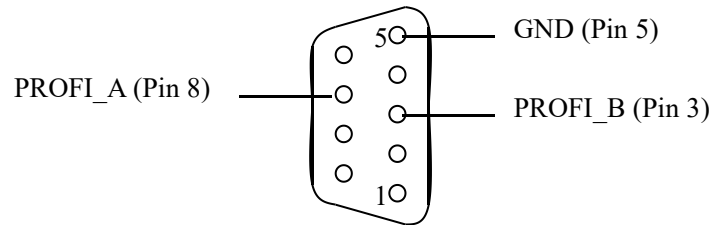
DeviceNet Installation:

1. Connect all DeviceNet nodes together to the CAN bus as shown in the figure below. It is recommended to connect them together using a “Daisy Chain” configuration to minimize the risk of signal reflection.
2. Up to 63 nodes can be connected together.
3. For high CAN baud rates (500kbps, 1Mbps), connect a terminal resistor (120Ω, 1/2W) in parallel at both ends of the communication lines to ensure a stable connection.





2.4.2 PROFIBUS DP Interface

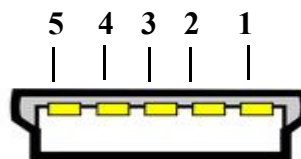


The PROFIBUS DP interface uses a DB9 male connector, with the pins are designated as follows:

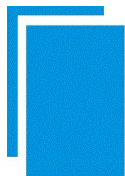
Pin	Description
3	PROFI_B, Data+
4	RTS (Request to send)
5	GND
6	+5 V for terminating resistors
8	PROFI_A, Data-
Others	Not Connected

2.4.3 USB Mini-B Interface

The USB port is used to configure the gateway. The USB Mini Type B interface is defined as below:



Pin	Description
1	VBUS, +5V
2	D-, Data Negative
3	D+, Data Positive
4	ID, Not Connected
5	GND, Signal Ground



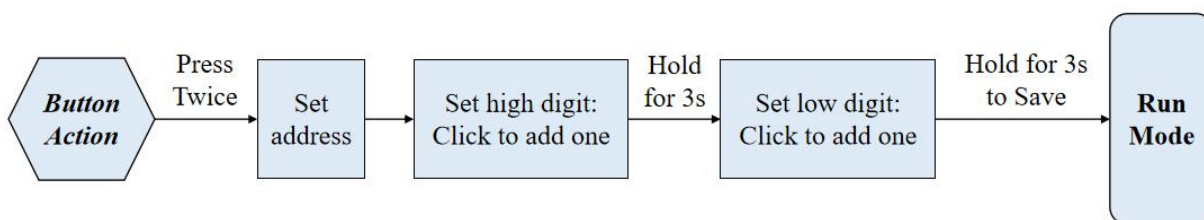
2.5 Digital LED Display

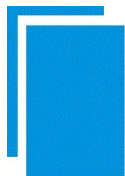
The digital LED display is located in the front of the product and displays the PROFIBUS/DeviceNet address based on the DIP switch position. Please refer to [Chapter 2.6](#) to change the PROFIBUS/DeviceNet address.

Function (Bit 1)	Mode (Bit 2)	Digital LED Display Description
OFF	OFF	PROFIBUS DP Address
OFF	ON	DeviceNet Address
ON	OFF	
ON	ON	

2.6 PROFIBUS and DeviceNet Address Button

The PROFIBUS DP and DeviceNet address setting button is located on the front panel of the GT200-DP-DM. This button is used to set the PROFIBUS DP and DeviceNet addresses. Please refer to [Chapter 2.3](#) to toggle between PROFIBUS DP and DeviceNet.



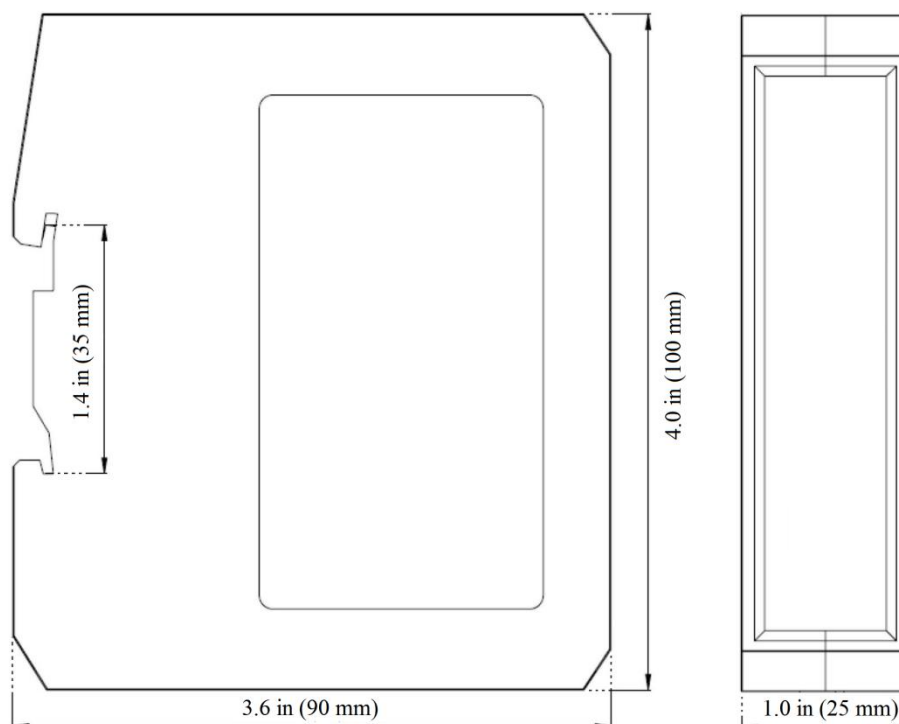


3 Hardware Installation

3.1 Mechanical Dimensions

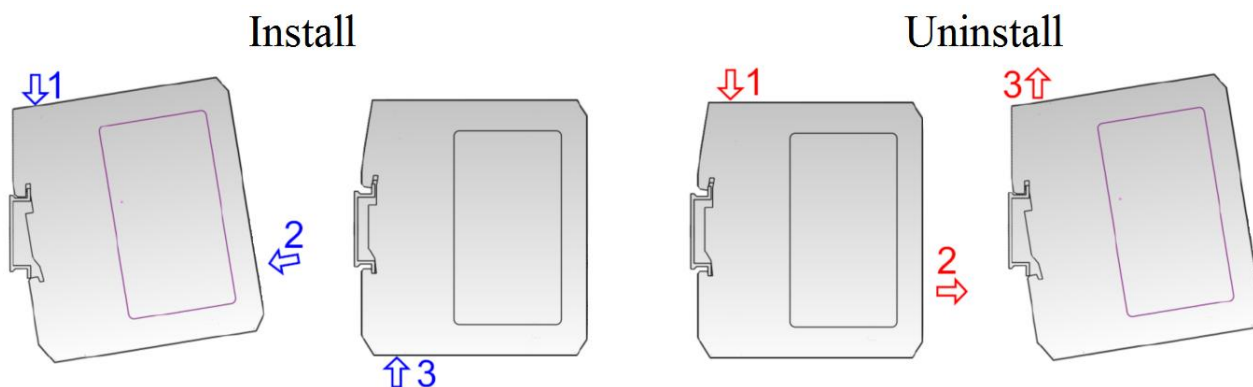
Size (width * height * depth):

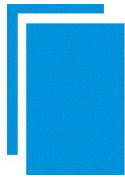
1.0 in * 4.0 in * 3.6 in (25 mm * 100 mm * 90 mm)



3.2 Installation Method

Using 35mm DIN RAIL.



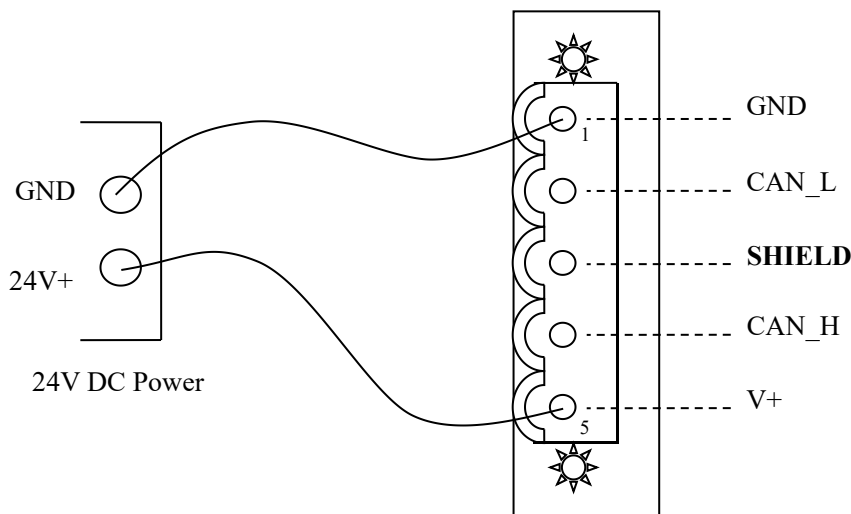


4 Quick Start Guide

Use the following steps to set up and configure your GT200-DP-DM:

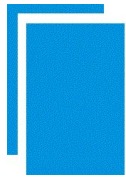
4.1 Gateway Setup

1. Make sure the GT200-DP-DM is in the appropriate configuration mode that allows for configuration. Set the DIP switch to 1-ON before powering it on to put the gateway into pre-operational mode.
2. Use a USB Mini cable to connect the GT200-DP-DM to the PC.
3. Connect the DeviceNet nodes by connecting pins 2 and 4 of the DeviceNet interface at minimum. Refer to [Chapter 2.4.1](#) for more details.
4. Connect the PROFIBUS DP nodes by connecting pins 3 and 8 of the PROFIBUS DP interface at minimum. Refer to [Chapter 2.4.2](#) for more details.
5. Connect the power supply as shown in the figure below, then power on the gateway.



GT200-DP-DM Power/DeviceNet Interface

6. The digital LED display will show the DeviceNet address. Open the SST-DNET-COM software to review and modify the DeviceNet configuration parameters. Refer to [Chapter 4.2](#) for more details.
7. After the gateway has been configured, set the DIP switch to 1-OFF to put the gateway in operational mode. If the function bit 2 of the DIP switch is OFF, the digital LED display will show the PROFIBUS DP address. Users can change the address using the address setting button (See [Chapter 2.6](#)). If the function bit 2 is set to ON, the digital LED display will show the DeviceNet address. Users can also change the DeviceNet address using the button.
8. Input the GSD file into PROFIBUS modelling software (for example, STEP 7), map the PROFIBUS input/output to PLC, please refer to [Chapter 7](#).



4.2 Software Setup

1. Import your DeviceNet adapter EDS files using the EDS Wizard. Refer to [Chapter 5.3](#) for more details.
2. Use the "Network Connection" function to connect to the GT200-DP-DM and scan the DeviceNet network. Refer to [Chapter 5.4.1](#) for more details.
3. Configure the DeviceNet Adapter settings. See [Chapter 5.4.2](#).
4. Configure the GT200-DP-DM DeviceNet Scanner settings. See [Chapter 5.4.3](#).

5 Software Configuration

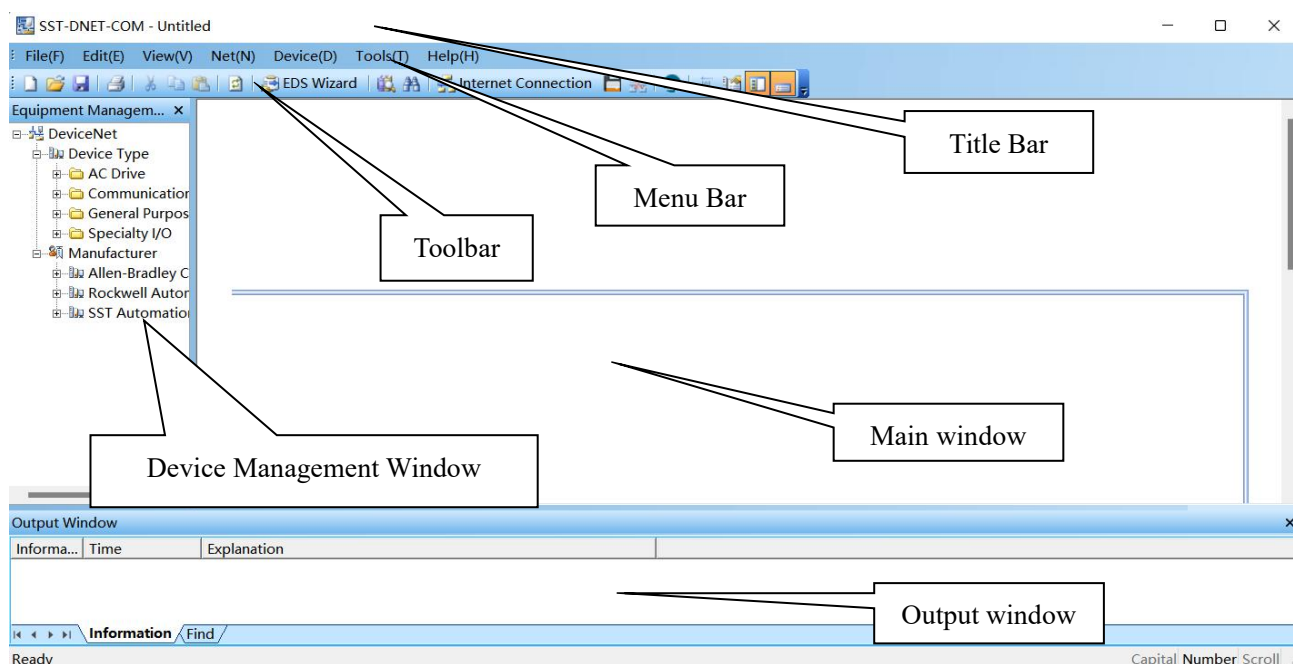
SST-DNET-COM is a configuration software that runs on Windows platforms. SST-PD-CFG is embedded in SST-DNET-COM software. It is used to configure part PROFIBUS and DeviceNet parameters of GT200-DP-DM.

5.1 Notes before Configuration

When the DIP switch is set to 1-ON, that means the gateway is under the pre-operation mode. In this way, you can configure the gateway through SST-DNET-COM.

5.2 Software Interface Description

After installing the software, double-click the icon  to enter the main interface of the SST-DNET-COM software:



Main window: After establishing the internet connection, display the online device and modify the address and parameters of the device online, check the input and output data. In the offline state, you can view device properties by dragging the device icon to the window.

Device Management Window: Displays registered DeviceNet devices in different ways: device type, manufacture. Under different manufacturers, different devices are displayed separately according to the device type.

Output window: Dynamic display of network scanning information, registered device information, delete device information, etc. display the results of "find devices", "find next".

5.2.1 Tool Bar

Tool bar interface is shown as below:



Functions separately from left to right are: New, Open, Save, Print, Cut, Copy, Paste, Refresh Viewport, EDS Wizard, Find Devices in the Device Library, Find Next, Network Connection, One-Click Save, Disconnect, Configure, Send Explicit Message, Property, Device management, Output.



New: Create a new configuration project.



Open: Open an existing configuration project.



Save: Save active configuration.



Print: Print active window.



Cut: Cut the selected DeviceNet node and place it on the clipboard.



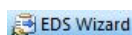
Copy: Copy the selected DeviceNet node and place it on the clipboard.



Paste: Insert the DeviceNet node from the clipboard to the main window.



Refresh Viewport: Refresh viewport content.



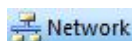
EDS Wizard: Import DeviceNet EDS files into the device library.



Find Devices in the Device Library: Find devices with the specified device name in the device library.



Find Next: Cycle through the devices in the library found through the search function.



Network Connection: Connect to the GT200-DP-DM to scan for online DeviceNet nodes on the network. The GT200-DP-DM must be in pre-operational mode in order to use this function (See [Chapter 2.3](#)).



One-Click Save: Save configuration information of all devices currently searched.



Disconnect: Disconnect the GT200-DP-DM from the network.



Configure: Open the SST-TD-CFG configuration software for GT100-PN-DM. Does not apply to GT200-DP-DM.



Send Explicit Message: Send an explicit message to the specified device.



Property: Opens the property configuration window for the selected DeviceNet node.



Device Management: Toggles the device management window.



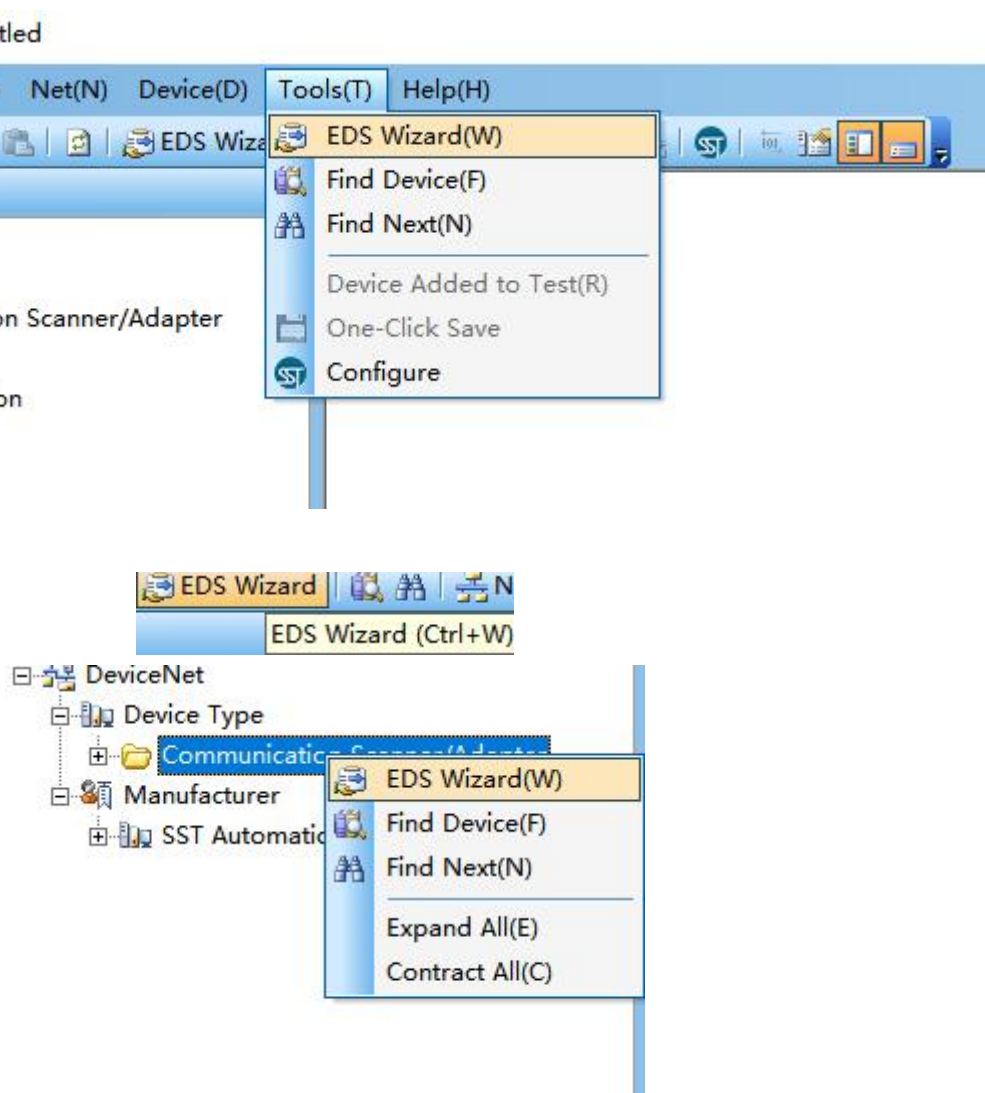
Output: Toggles the output window.

5.3 EDS File Import for DeviceNet Devices

Users can configure different DeviceNet devices by registering a new EDS file. To register a new EDS file, follow one the of the methods below:

1. Click "Tools" -> "EDS Wizard".
2. Directly click the "EDS Wizard" button on the toolbar.
3. Right click on the Device Management window and select "EDS Wizard".

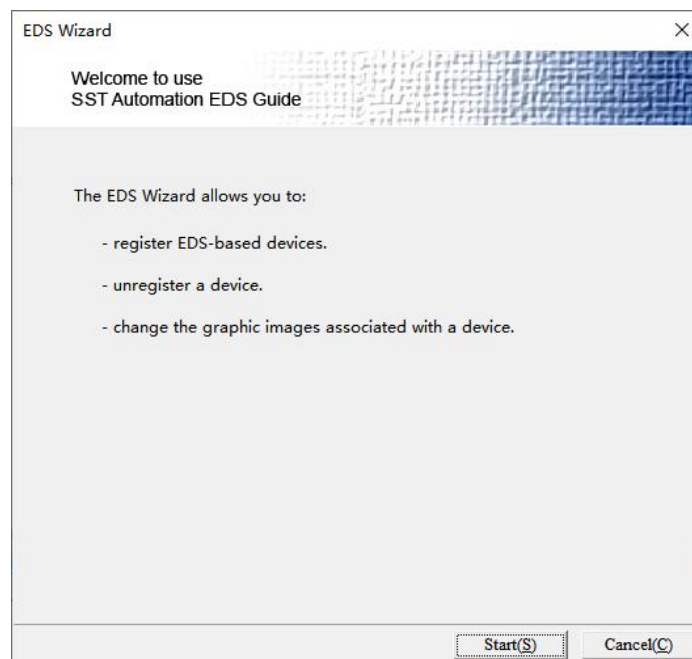
Any of the above methods will bring up the EDS Wizard interface:



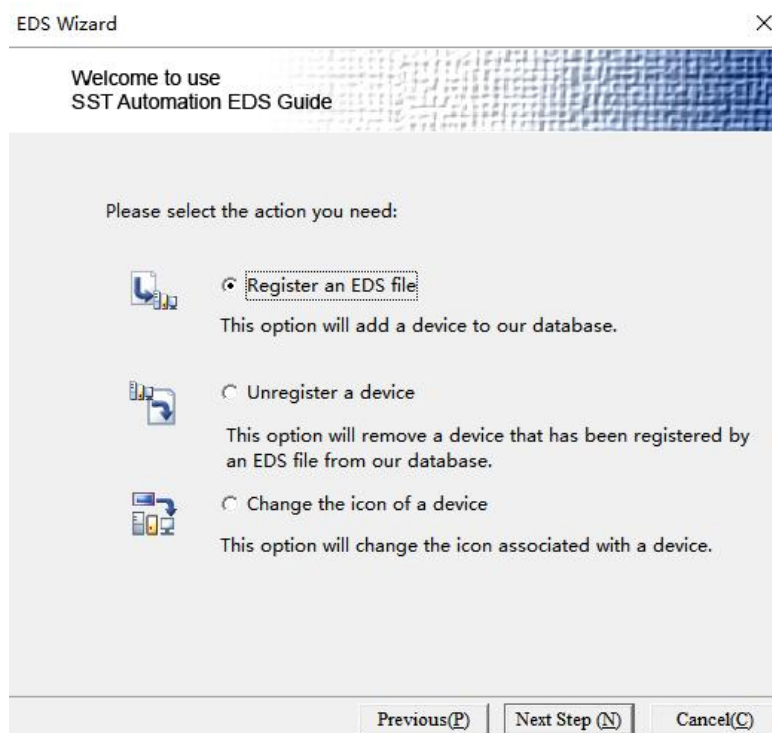
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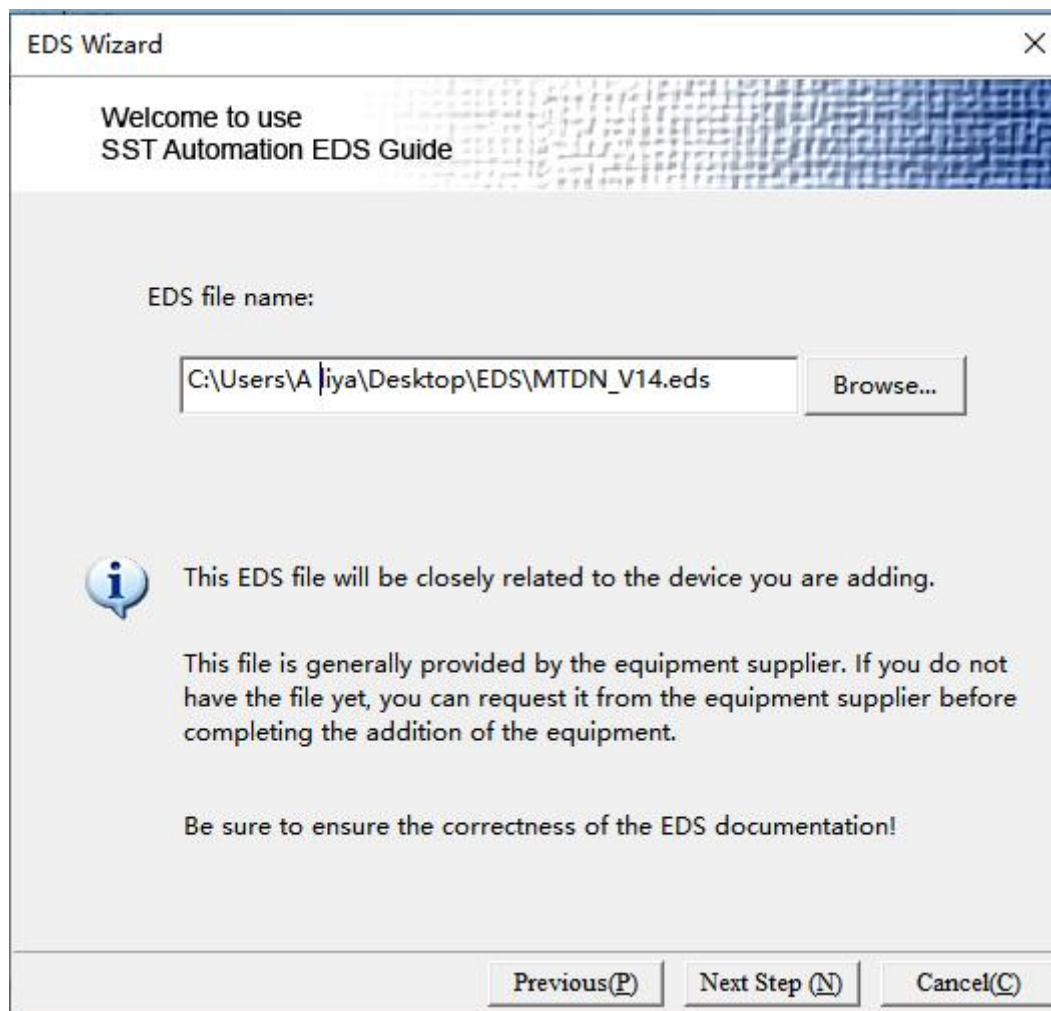
Select "Start" and the following screen will pop up:



In this interface, users can register an EDS file, unregister an existing device, and change the device icon.

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After selecting "Register an EDS file", click "Next", and then select the path of the EDS file in the pop-up interface, as shown in the following figure:

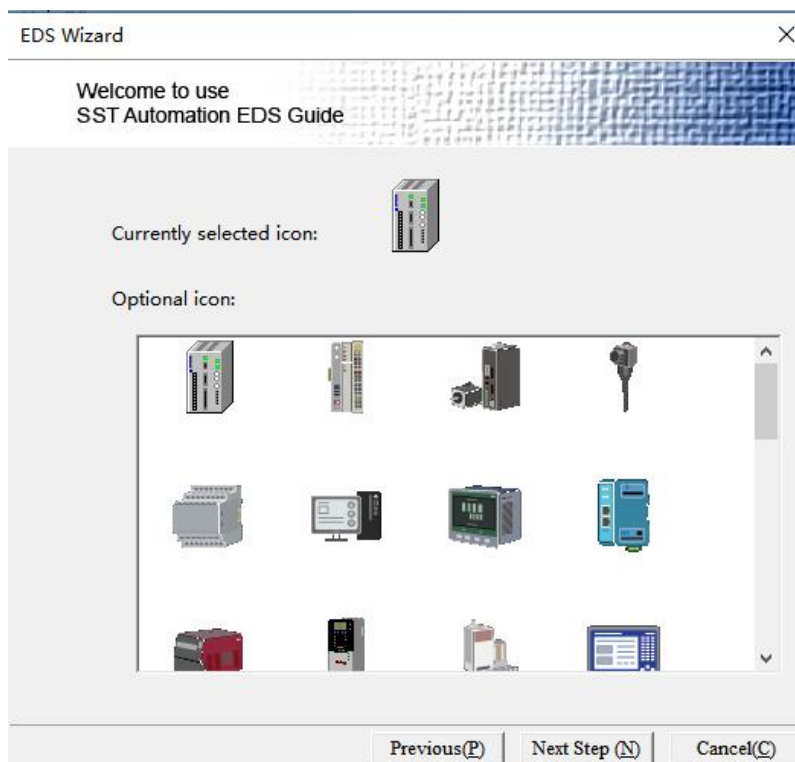
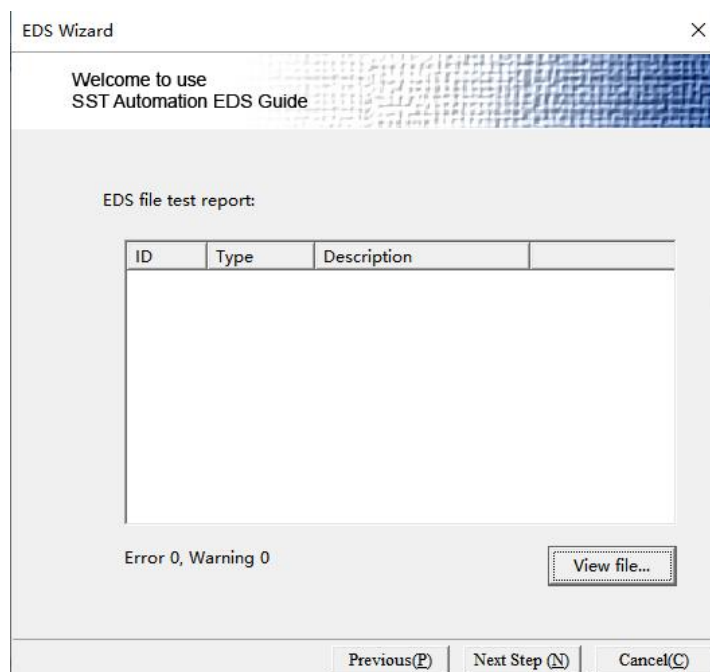


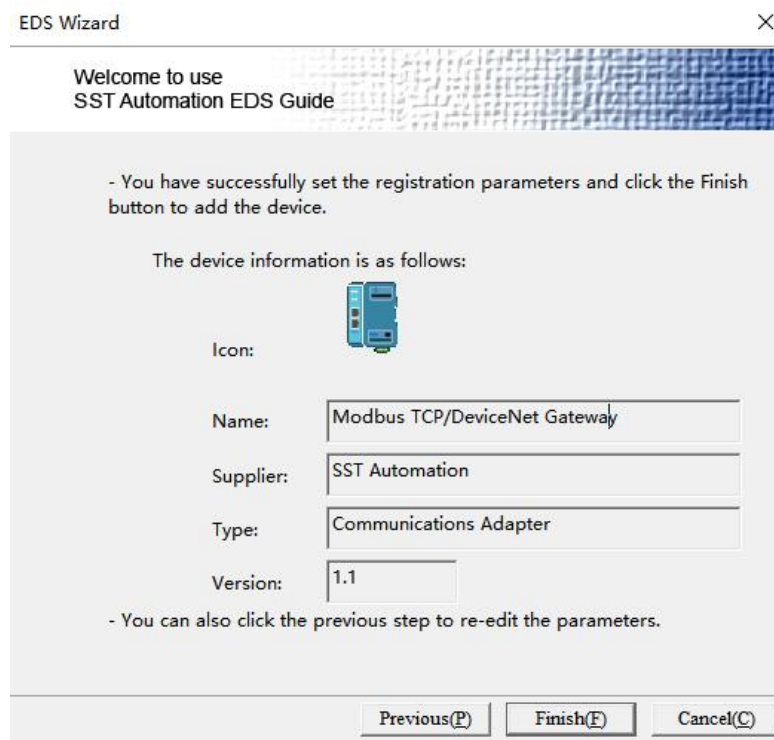
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After clicking "Next Step", the EDS file test report interface will pop up. If there is an error in the EDS file, the "Next Step" button will not be available. If there are no errors, you can click "Next Step" to proceed to the screen for selecting the device icon:





After the registration is completed, the registered devices can be viewed in the device management window. If the EDS file of the same device of the user has been modified, please find the device in the device management library first, right click on it, select logout and then re-register the new EDS file.

5.4 DeviceNet Network Configuration

5.4.1 DeviceNet Network Scan

The SST-DNET-COM software needs to be used in conjunction with the GT200-DP-DM to scan for other DeviceNet adapter modules on the network. To use the SST-DNET-COM software to scan the DeviceNet network, follow these steps:

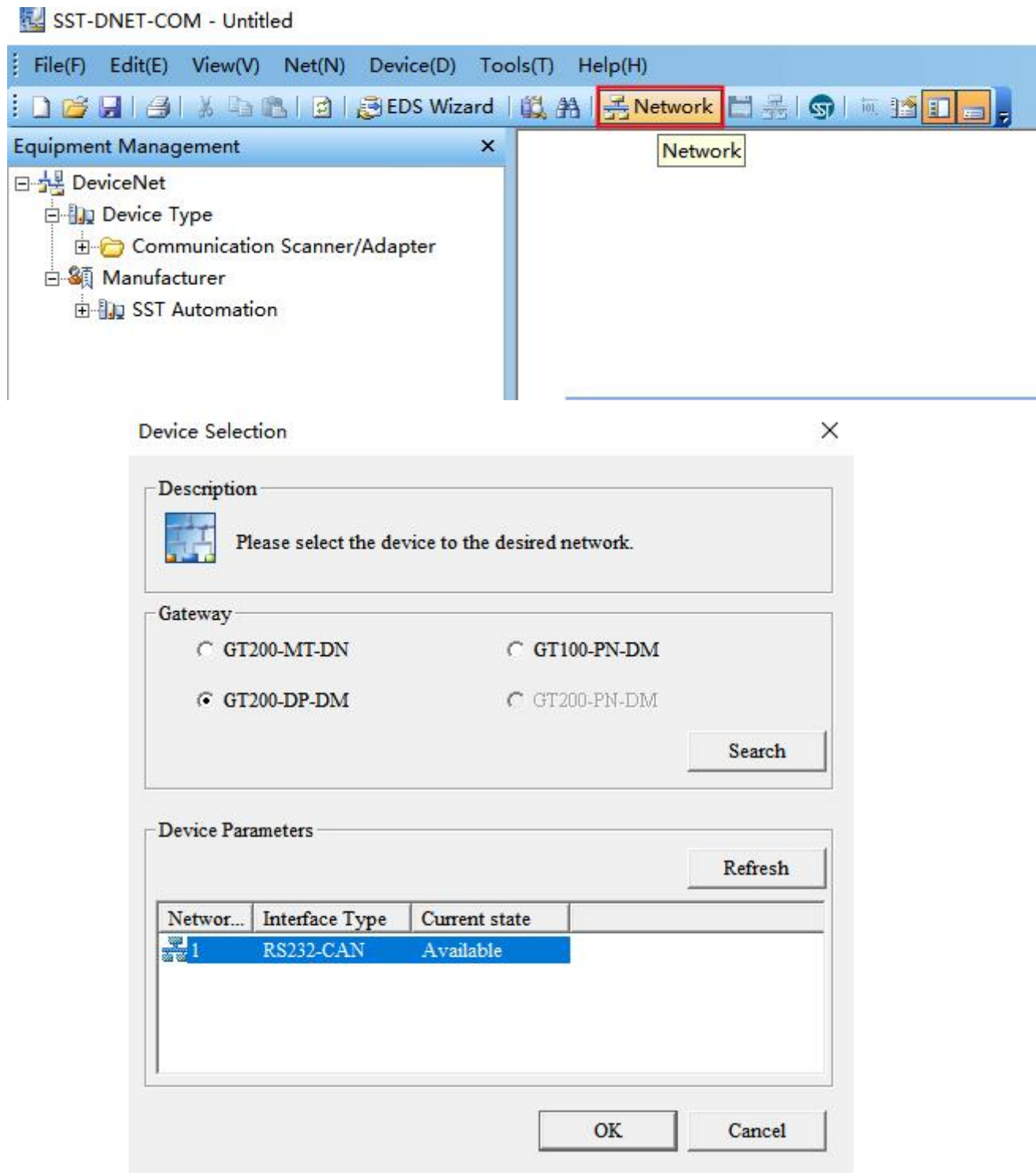
1. Firstly, connect the GT200-DP-DM's USB port to your PC.
2. Connect the GT200-DP-DM's DeviceNet port to your DeviceNet adapter device to access the DeviceNet network.

Note: At least one terminating resistor should be connected to the network.

3. Set DIP switch 1 of the gateway is set to "ON" and power up the gateway through the DeviceNet port. At this time, the gateway will enter pre-operational mode, indicated by the blinking MS green light.

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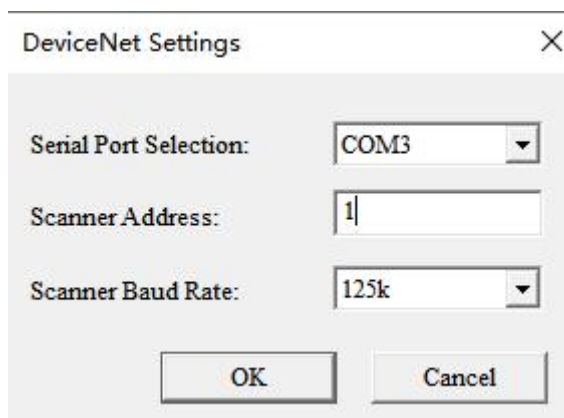
- Click the "Network" option in the menu bar or toolbar to open the path selection interface for the DeviceNet network scan. Select "GT200-DP-DM" and click "Search" to open the DeviceNet interface settings configuration window as shown in the following figure:



GT200-DP-DM

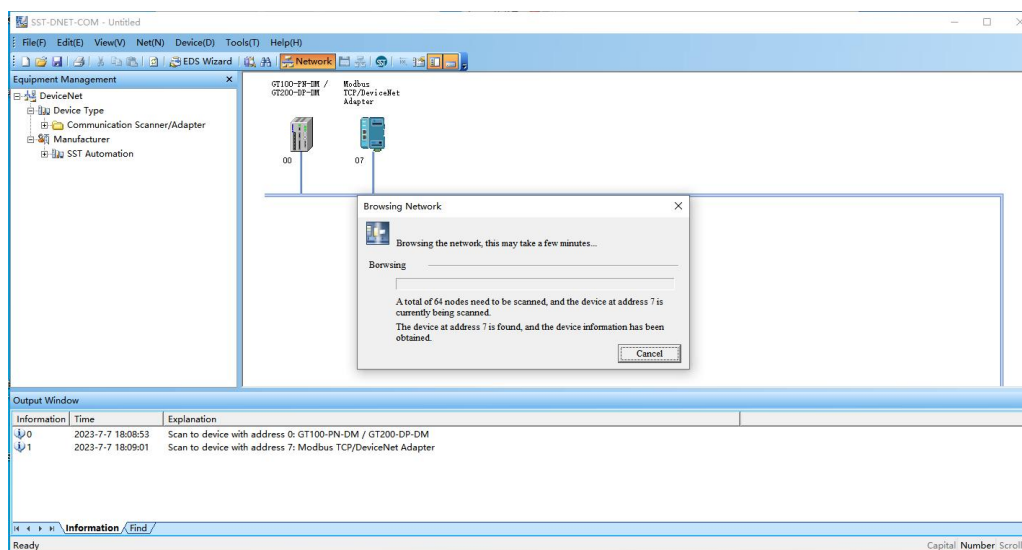
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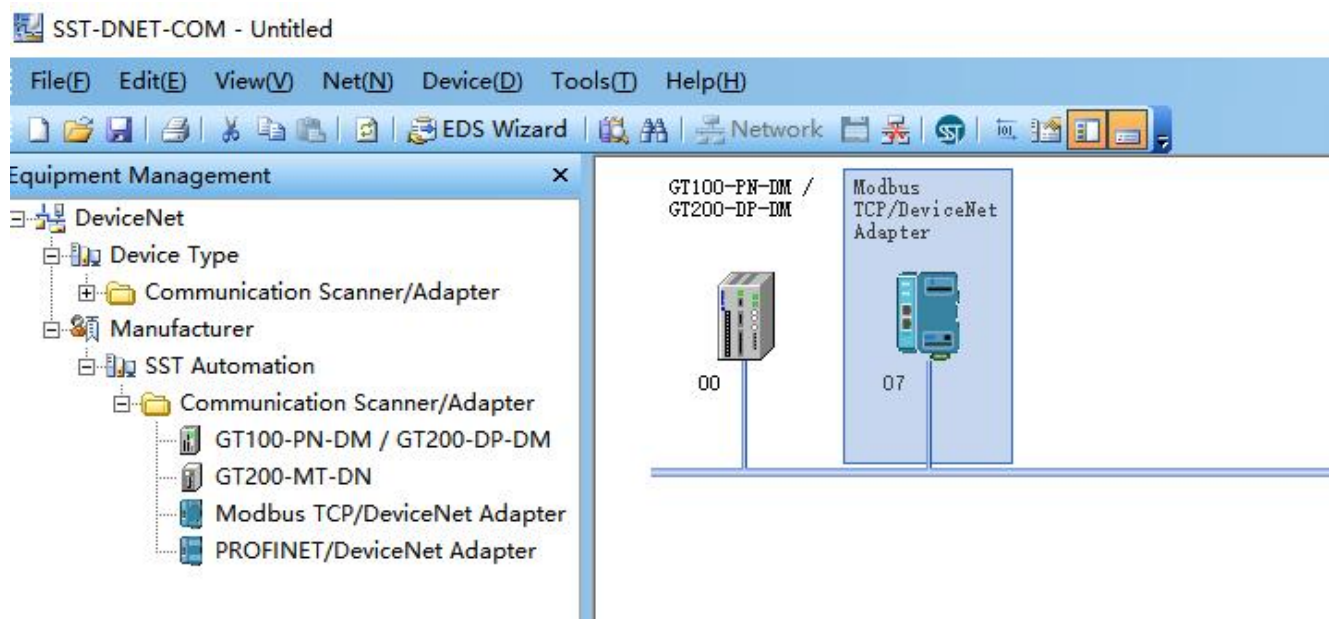
5. In the "Serial Port Selection" field, choose the serial port assigned by the PC for the USB connection.
6. In the "Scanner Address" field, select the DeviceNet node address for the GT200-DP-DM, ranging from 1 to 63 without conflicting with other nodes on the bus.
7. In the "Scanner Baud Rate" field, set the baud rate for GT200-DP-DM, choosing from 125K, 250K, or 500K, ensuring it matches the device's baud rate.

After the interface is set up, the network scanning interface will pop up:

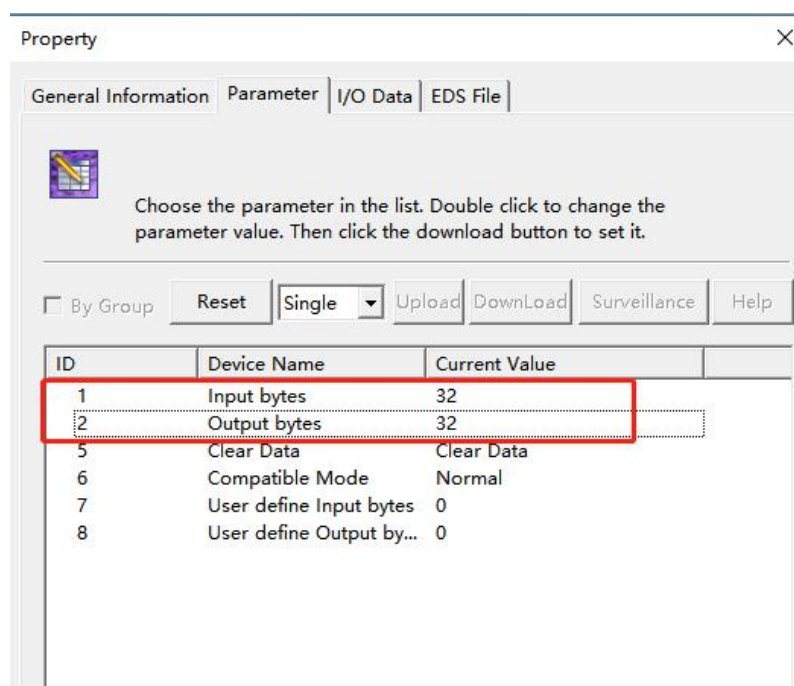


5.4.2 DeviceNet Adapter Configuration

After the SST-DNET-COM software scans for devices on the DeviceNet network, the adapter devices will populate in the main window. Follow these steps to configure each DeviceNet adapter device:



1. Double-click the DeviceNet adapter device icon to open the Device Properties interface. In the Device Properties interface, click on the "Parameters" tab to view the I/O parameters for the device. The following example shows the input/output as 32 bytes, as shown in the following figure:

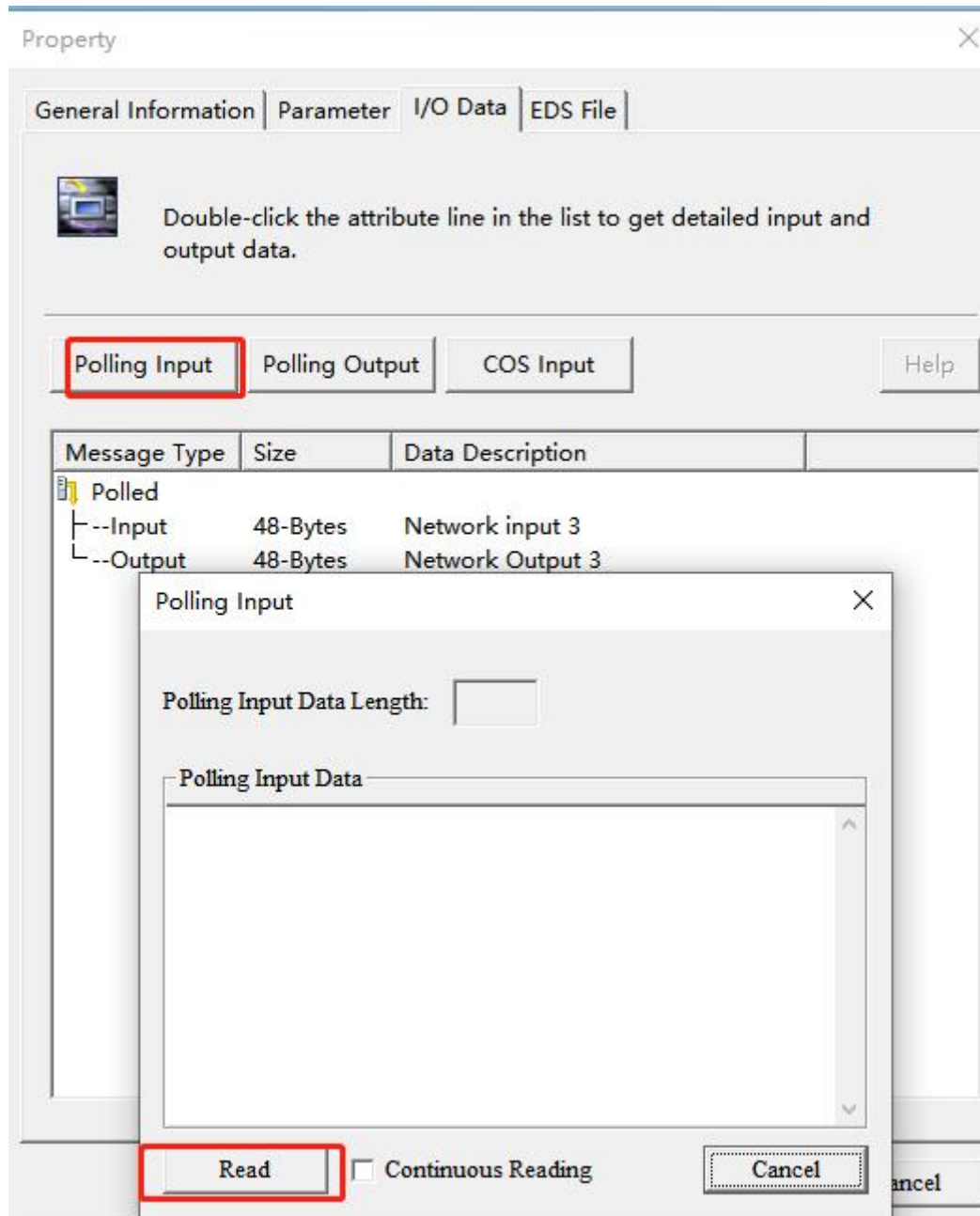


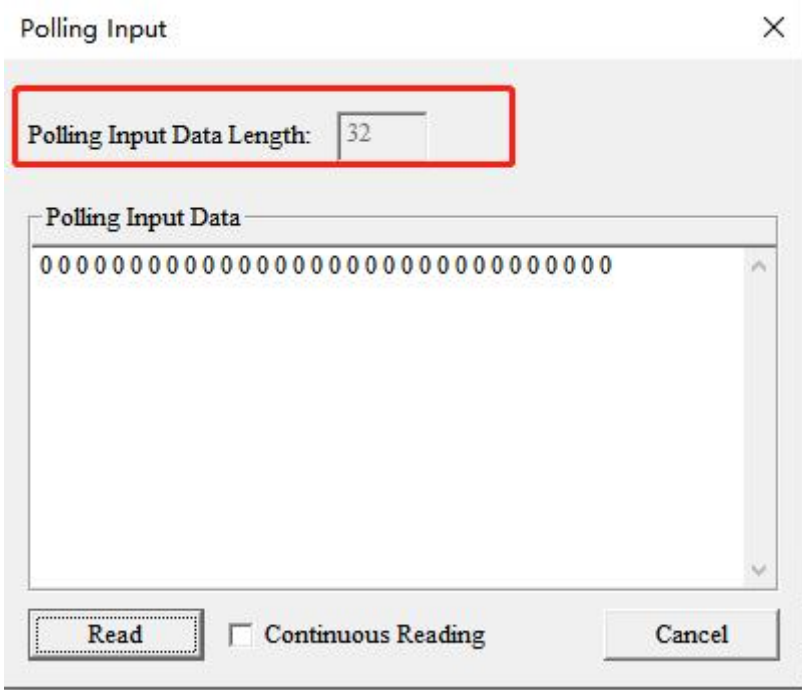
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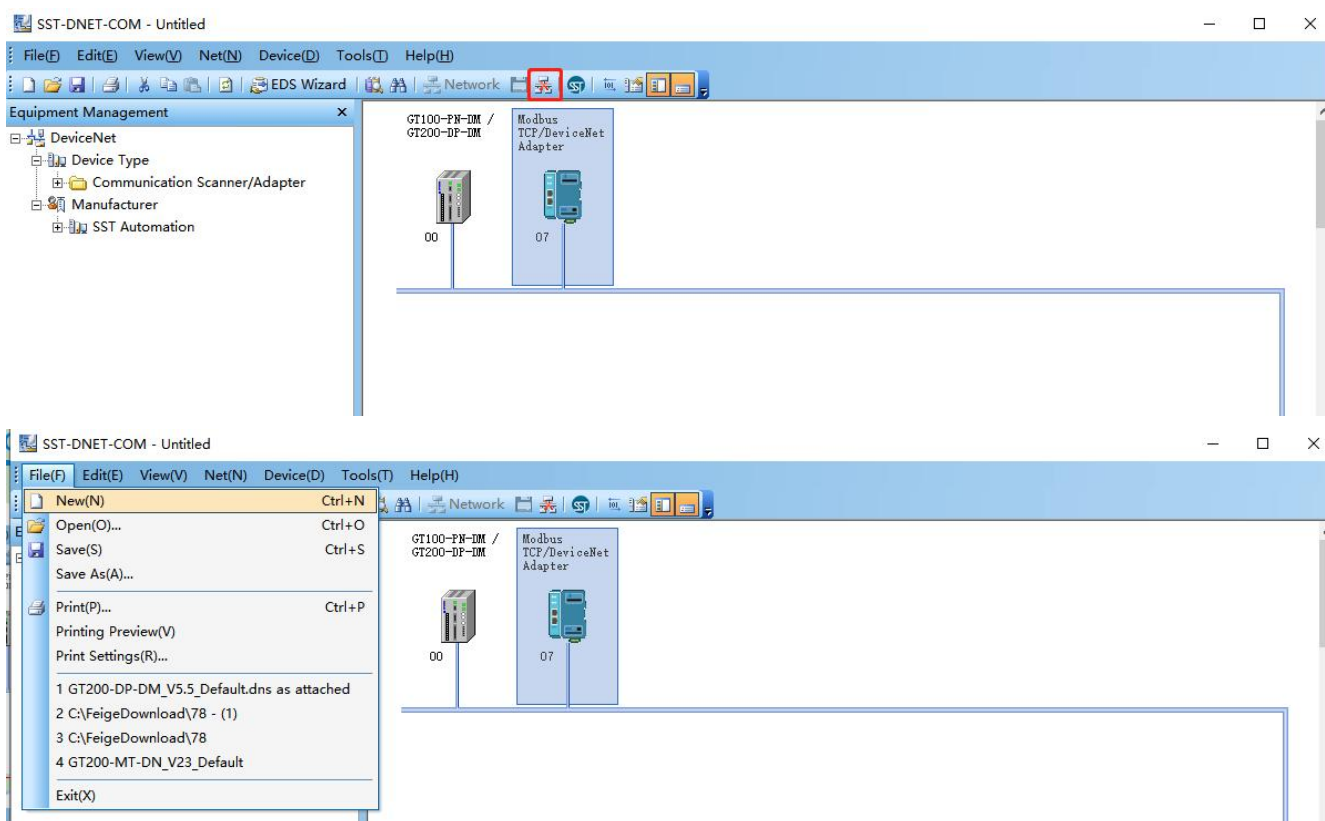
- If there are no I/O parameters in the pop-up interface, click on the "I/O Data" tab. Click "Polling Input", and the Polling Input dialog box will pop-up. Click "Read" to get the actual input data length of the device. Similarly for the actual output length of the device, click "Polling Output" to obtain the actual output data length of the device. This function can also read the I/O data of the devices online, as shown in the following figure:





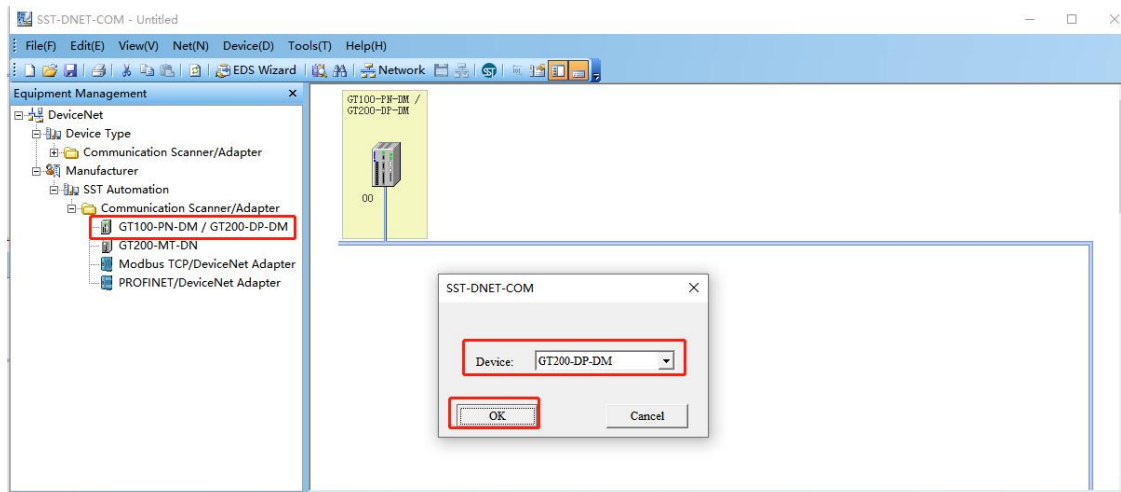
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3. After obtaining the I/O data length for the DeviceNet devices online, click the "Disconnect" button on the toolbar to disconnect from the network.
4. Click "File", then select "New" to create a new configuration file. Configure the I/O parameters for the DeviceNet devices in the offline configuration, as shown in the following figure:

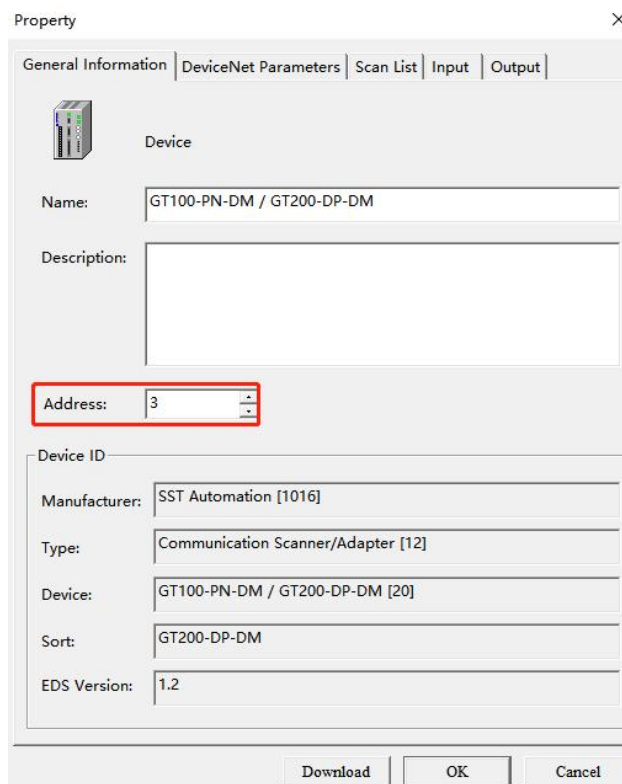


5.4.3 DeviceNet Scanner Configuration

1. Select the "GT100-PN-DM / GT200-DP-DM" device from the left side device management window and drag it to the right side main window. Double click the "GT100-PN-DM / GT200-DP-DM" gateway icon, and select the product model "GT200-DP-DM". Click "OK" to confirm and to open the property configuration window as shown in the following figure.

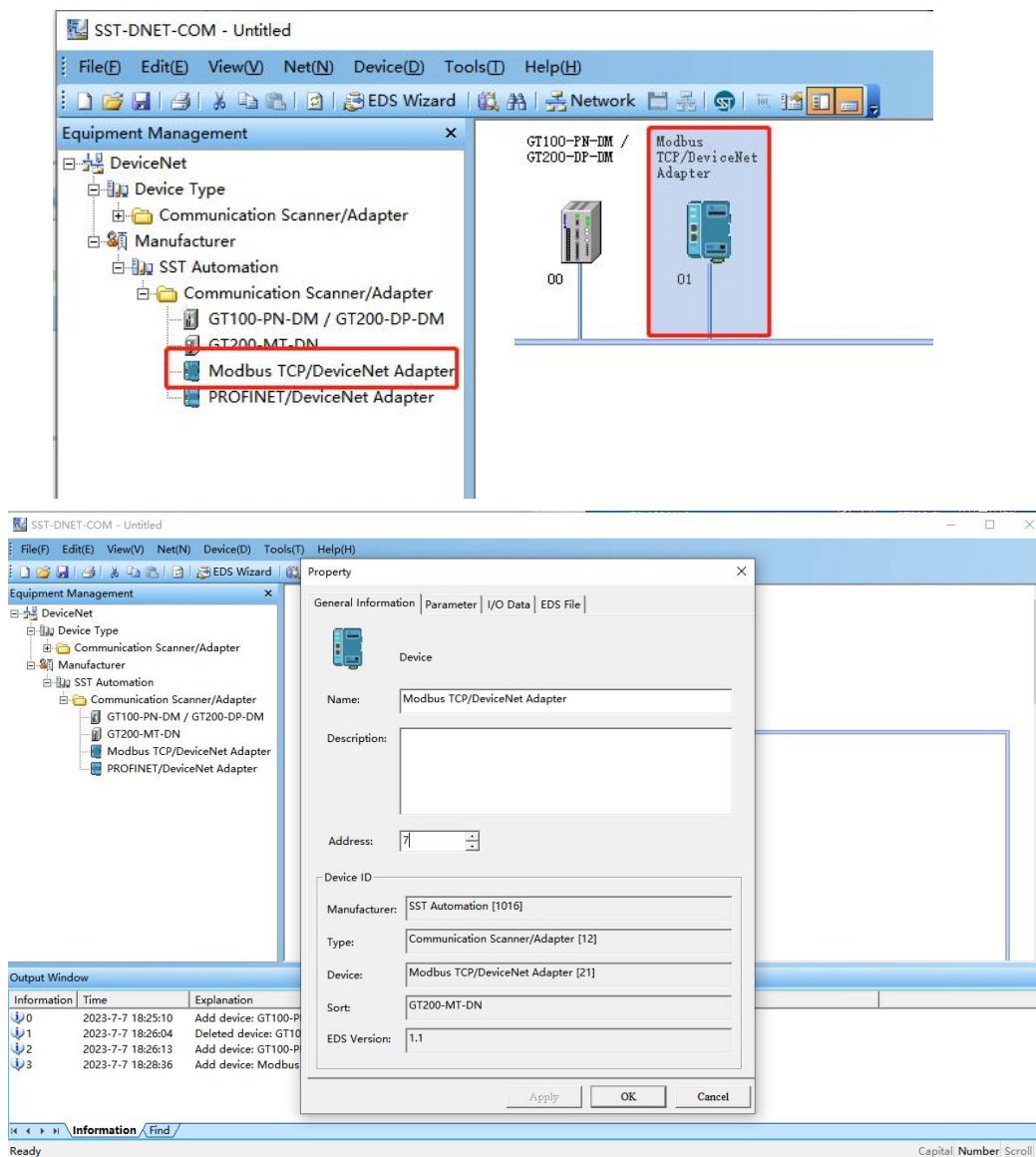


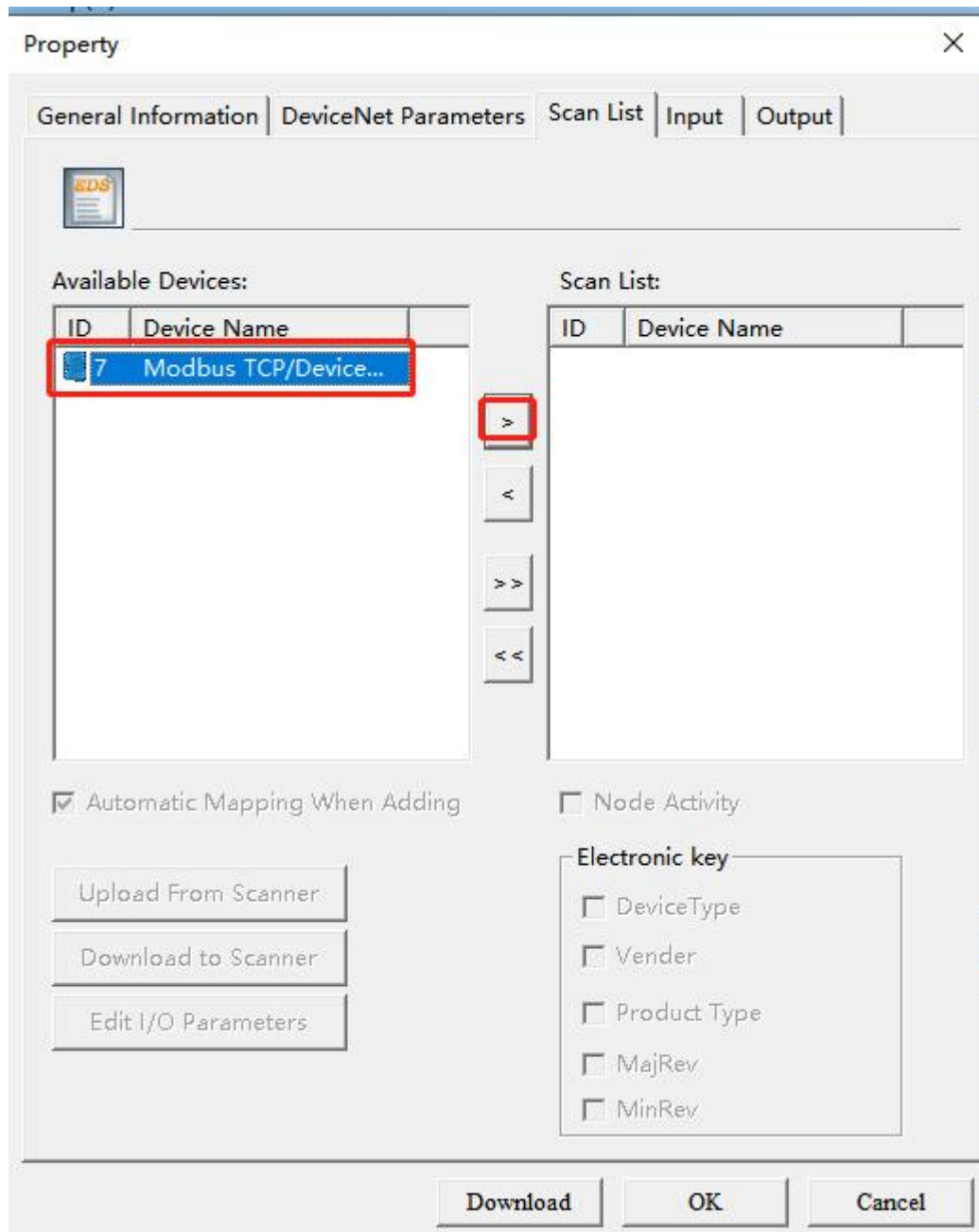
2. In the "Address" field, set the DeviceNet address of the gateway.



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- Similarly, drag the DeviceNet adapter device to the right side main window, and modify the DeviceNet device address to be consistent with the actual device, as shown in the following figure:



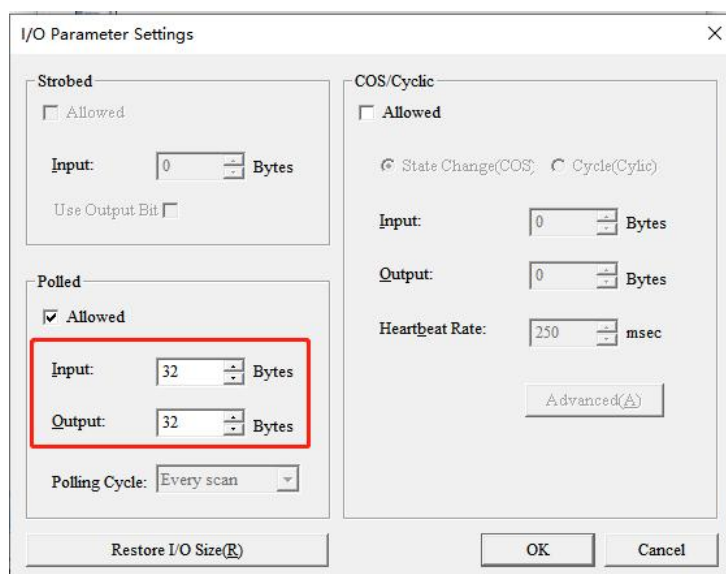
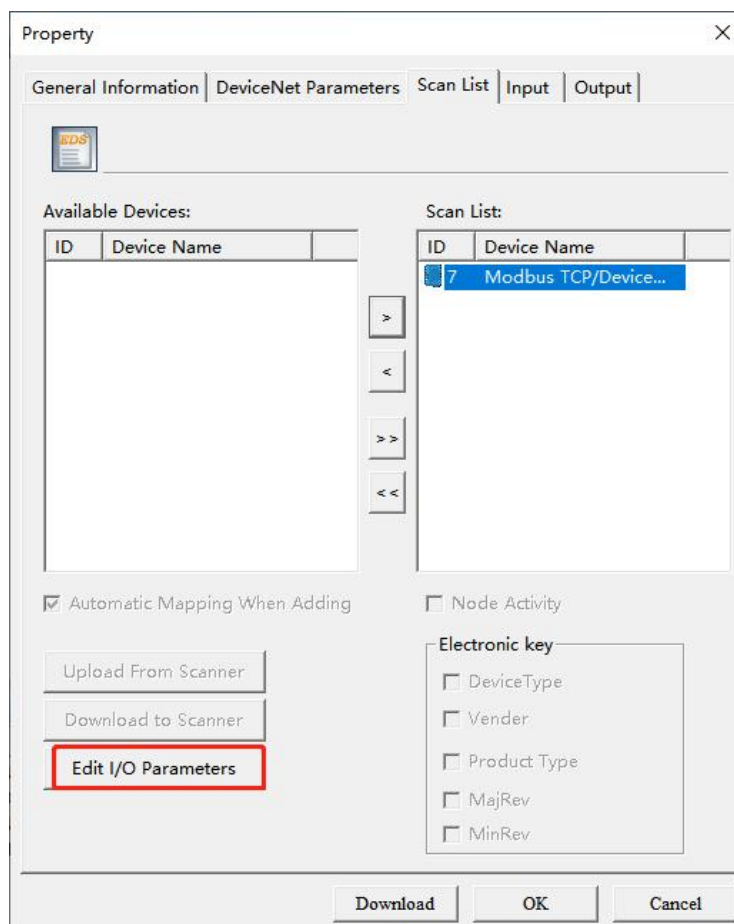


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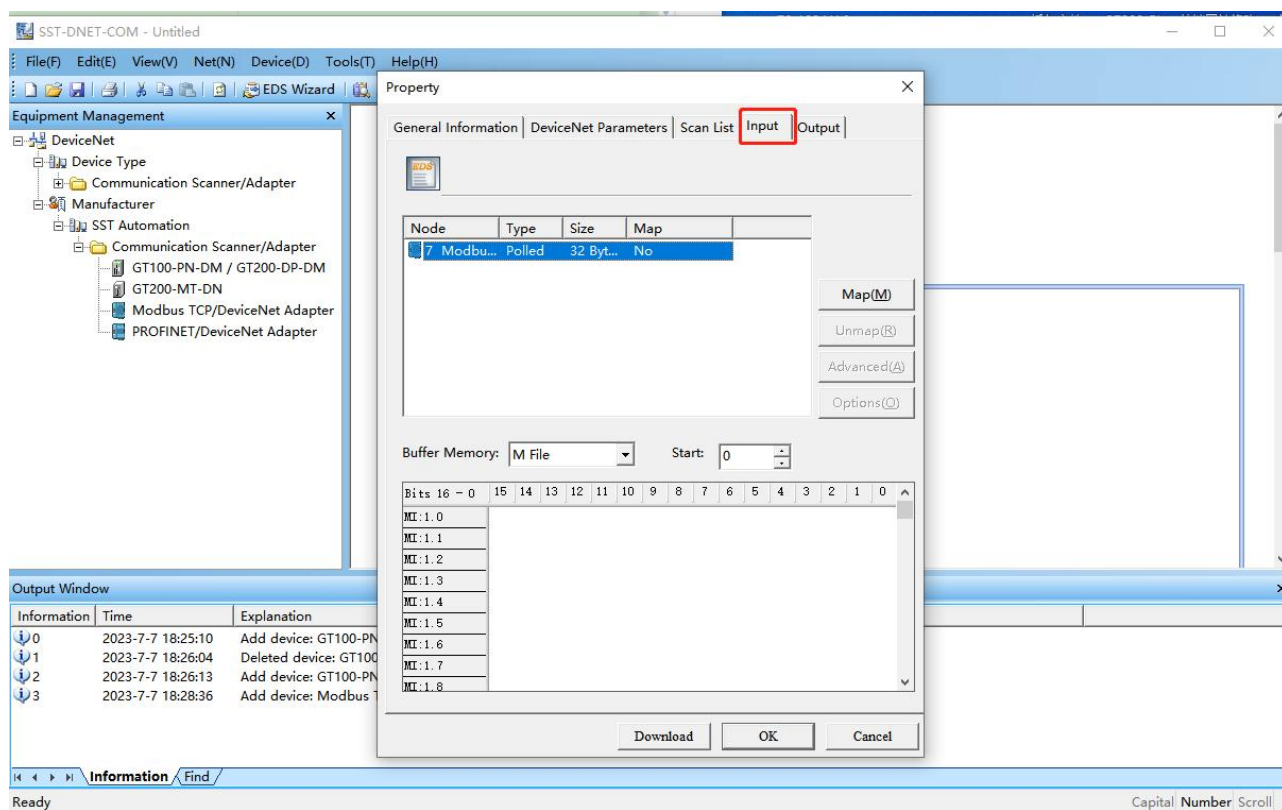
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- Double click the GT200-DP-DM gateway icon to access the property configuration window.
In the property configuration window, click the "Scan List" tab. From the "Available Devices" list, select DeviceNet device you want to add to the "Scan List" side. Click the "Edit I/O Parameters" button to set the actual I/O data length of the device, as shown in the following figure:



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- After DeviceNet device I/O data length is configured, click the on the "Input" and "Output" tabs to map the data between DeviceNet and PROFIBUS DP. Select the device and click "Map" to map the input/output data, as shown in the following figure:



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Property

General Information | DeviceNet Parameters | Scan List | **Input** | Output



Node	Type	Size	Map
7	Modbus...	Polled	32 Byt... MI:1.0.0

Map(M)
Unmap(R)
Advanced(A)
Options(O)

Buffer Memory: M File Start: 0

Bits	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
MI:1.0																	
MI:1.1																	
MI:1.2																	
MI:1.3																	
MI:1.4																	
MI:1.5																	
MI:1.6																	
MI:1.7																	
MI:1.8																	

Download OK Cancel

Property

General Information | DeviceNet Parameters | Scan List | Input | **Output**



Node	Type	Size	Map
7	Modbus...	Polled	32 Byt... MO:1.0.0

Map(M)
Unmap(R)
Advanced(A)
Options(O)

Buffer Memory: M File Start: 0

Bits	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
MO:1.0																	
MO:1.1																	
MO:1.2																	
MO:1.3																	
MO:1.4																	
MO:1.5																	
MO:1.6																	
MO:1.7																	
MO:1.8																	

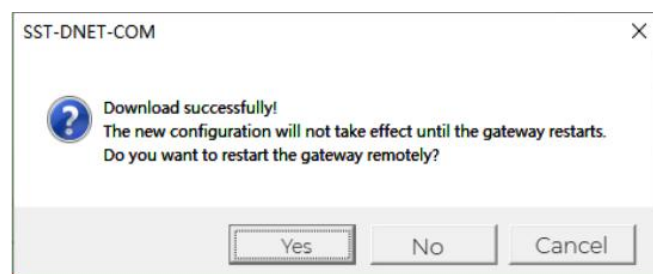
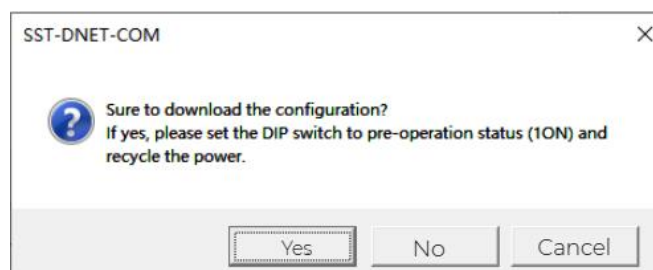
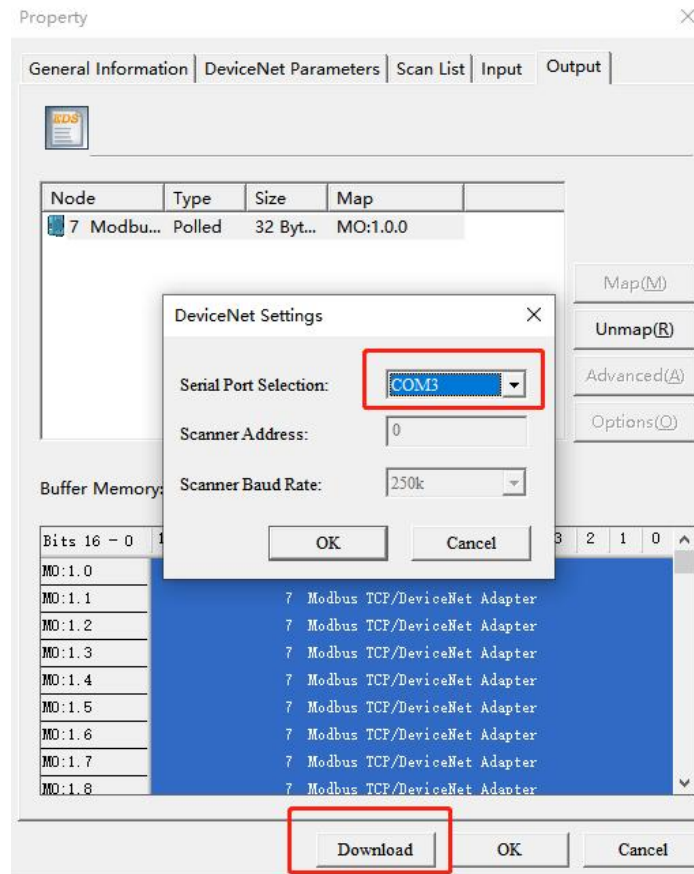
Download OK Cancel

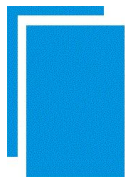
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6. After the device I/O data mapping is completed, click "Download" to download the configuration to the gateway. The "Download successfully" popup will be displayed to indicate that the download of the configuration is complete, as shown in the following figure:

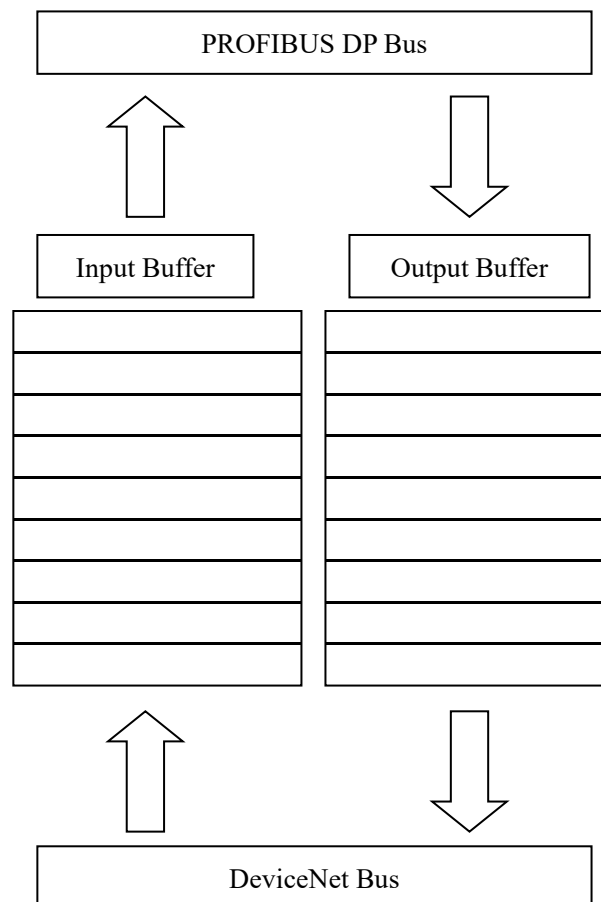




6 Interface Design Description

The GT200-DP-DM data conversion between DeviceNet and PROFIBUS can be defined through "data mapping".

The gateway has two data buffers: the PROFIBUS Network Input Buffer and the PROFIBUS Network Output Buffer. Data from DeviceNet devices is read and stored in the Network Input Buffer, while data that is meant to be written to DeviceNet devices using POLL I/O write commands from PROFIBUS is stored in the Network Output Buffer.



GT200-DP-DM functions as a DeviceNet adapter node and a PROFIBUS DP device node simultaneously. As a result, the gateway requires a unique node address in both networks.

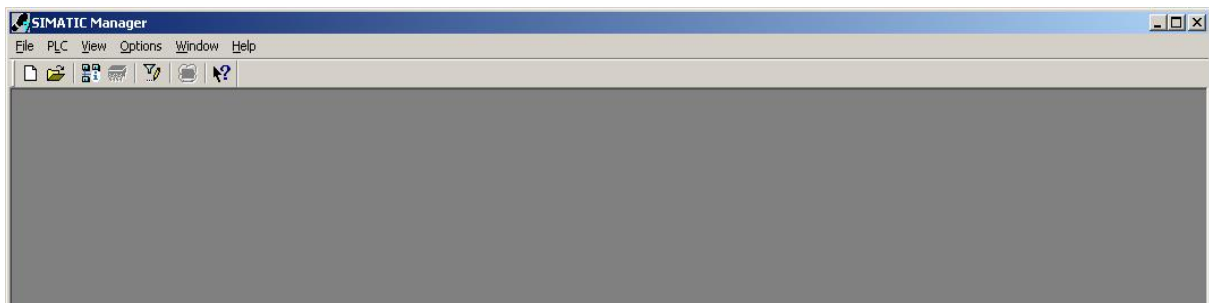
7 PROFIBUS DP Configuration

7.1 Network Configuration in STEP7

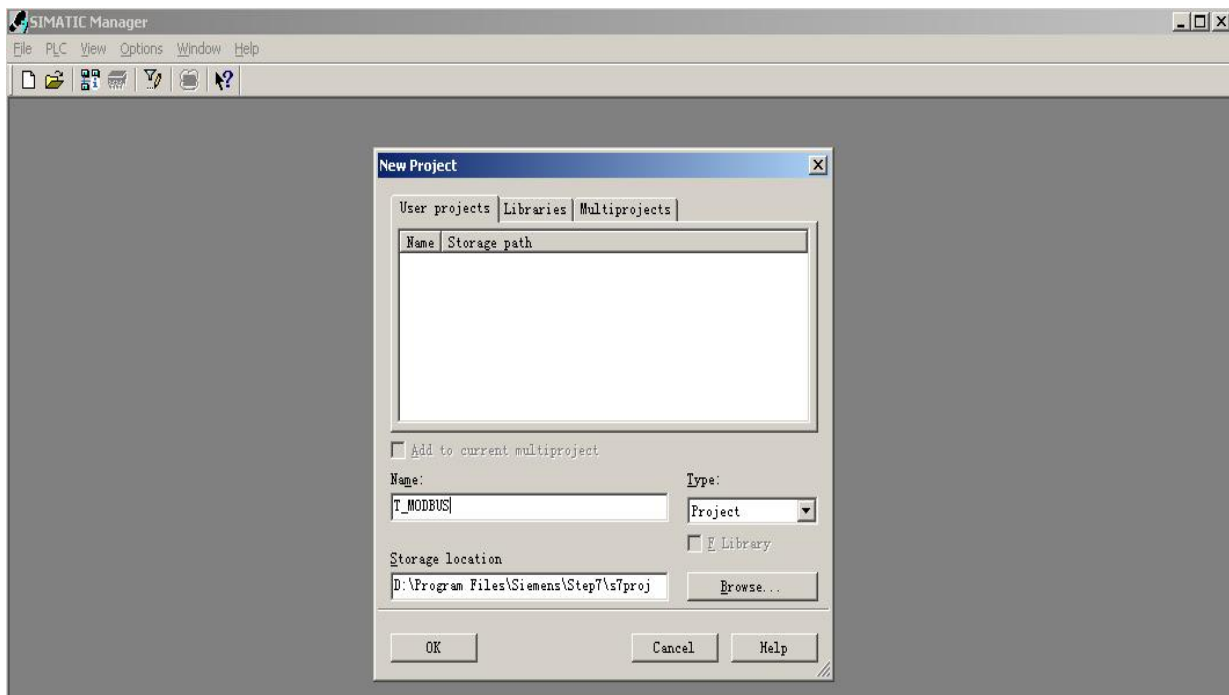
The following content explains how to use STEP7 to set GT200-DP-DM.

First, copy *.gsd file to the following path: *Step7\S7data\gsd*

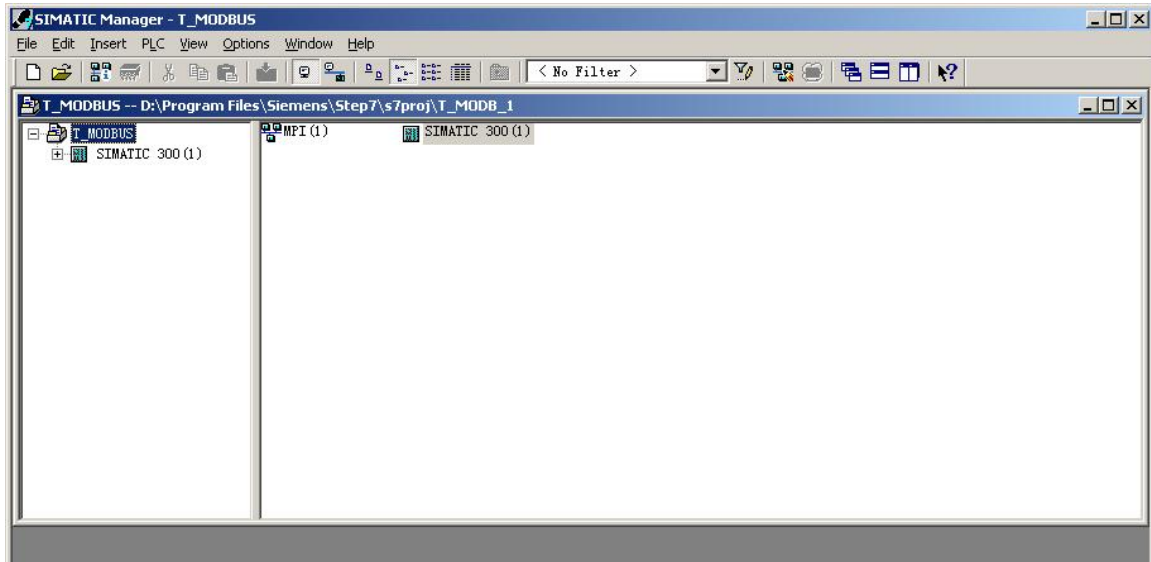
1. Open SIMATIC Manager  :



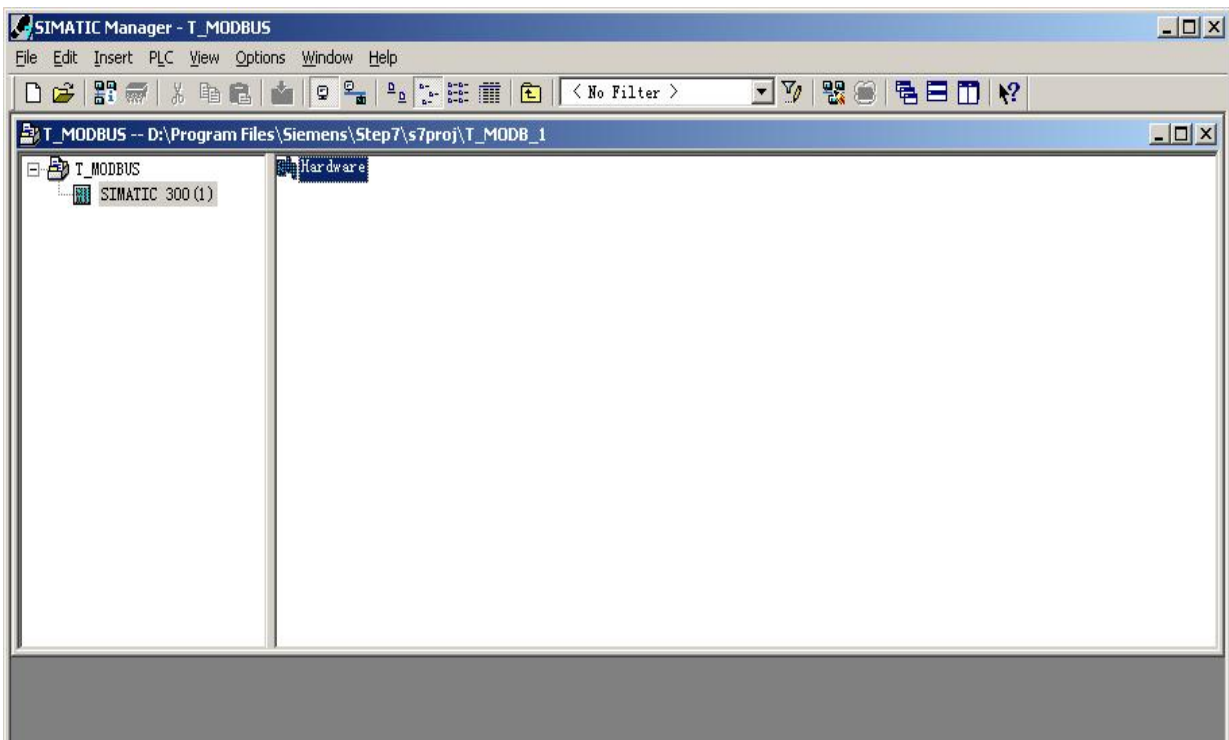
2. Click "File" -> "New" to create a new file:



- Click "Insert" -> "Station" -> "SIMATIC 300 Stations":



- Open S7 PLC hardware configuration: "SIMATIC 300(1)" -> "Hardware", then double click:

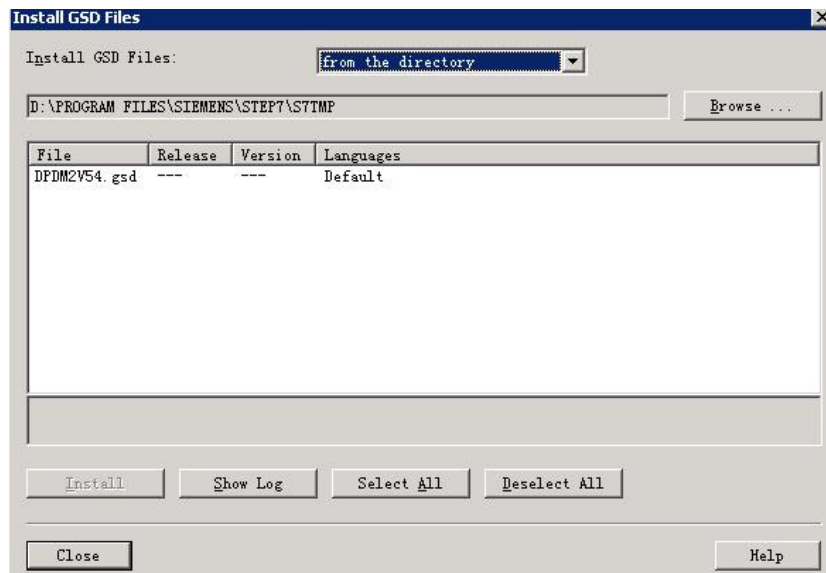
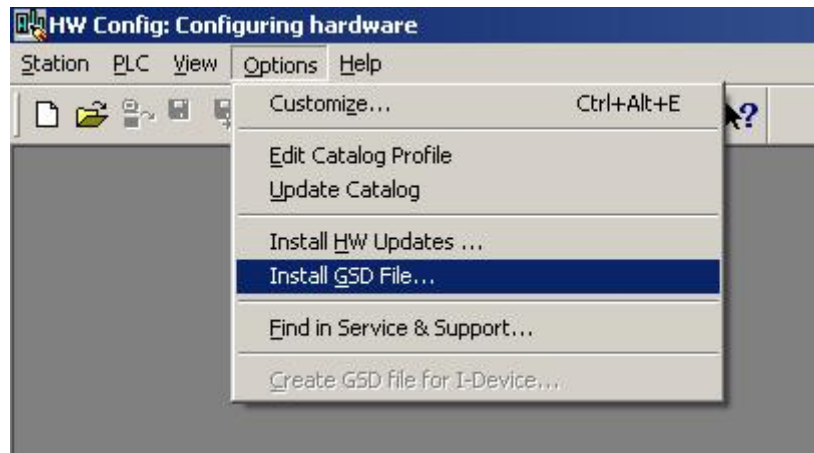


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5. Click "Options" -> "Install GSD File...", and install GSD of GT200-DP-DM:

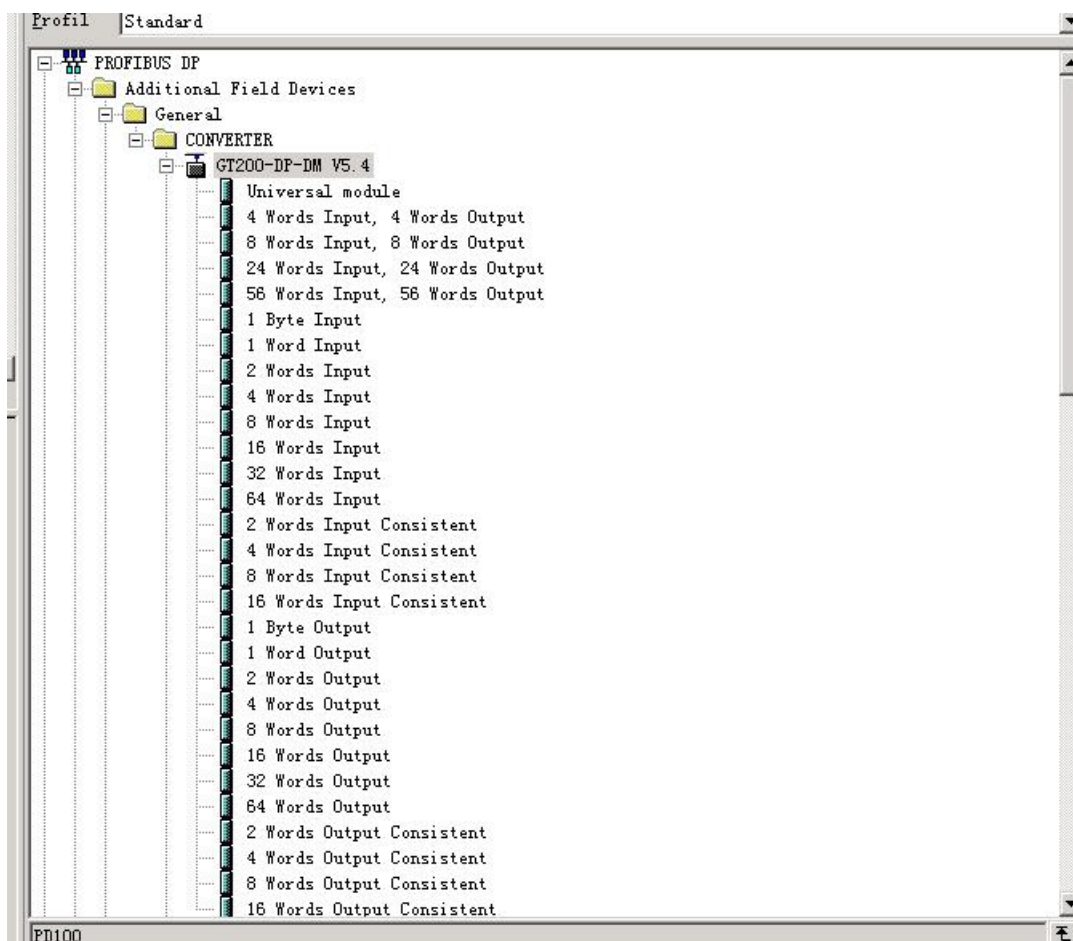


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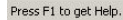
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5. Copy the GSD file in the relevant directory, select and register, you can find your registered device in the hardware configuration interface, the right the window of the hardware configuration interface/ PROFIBUS DP / Additional Field Devices/General/CONVERTER/GT200-DP-DM V5.4, as shown as below:



- 



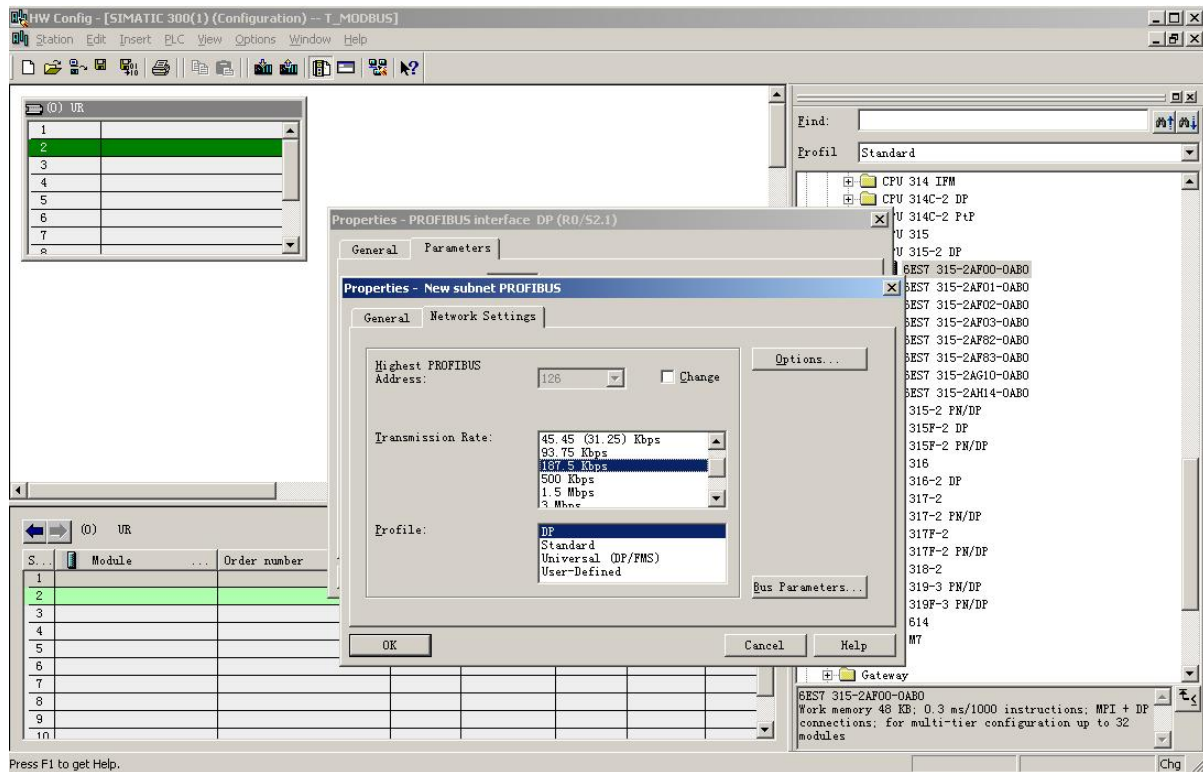
- 

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- Create PROFIBUS DP network, set PROFIBUS DP: "New" -> "Network settings", choose "DP", choose a compatible baud rate such as 187.5Kbps, then click "OK". Double-click it:

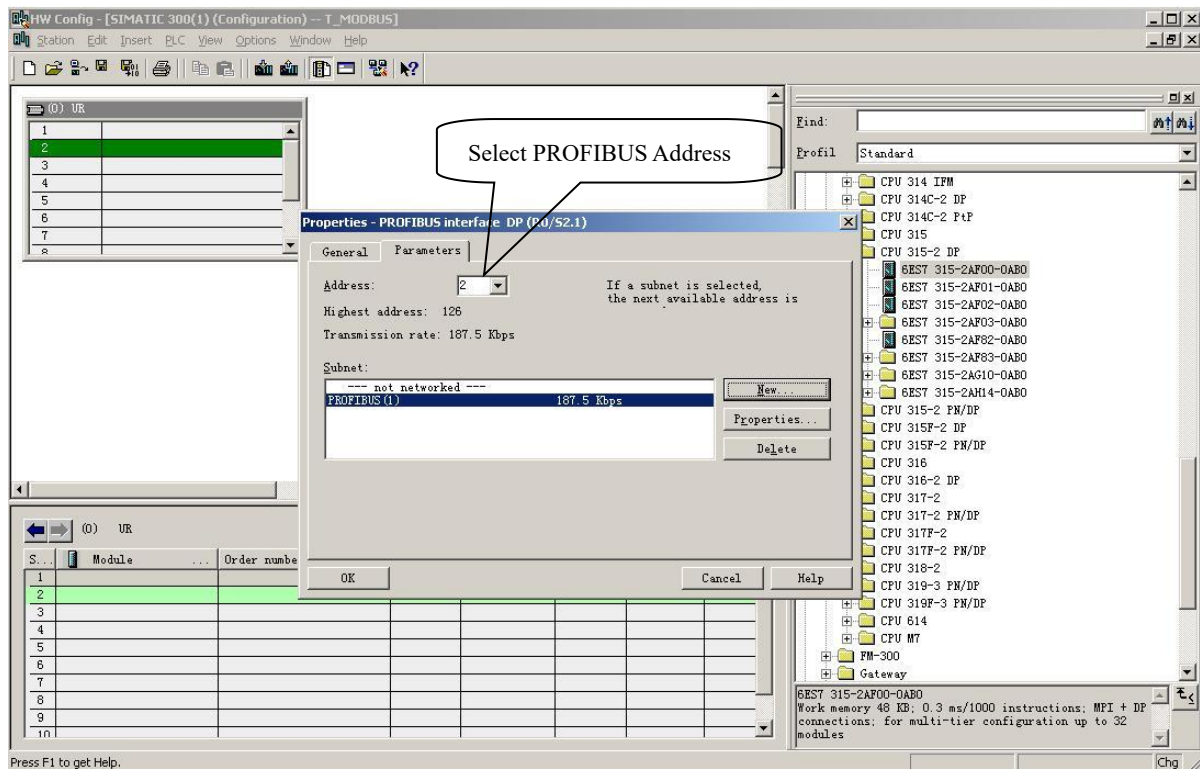


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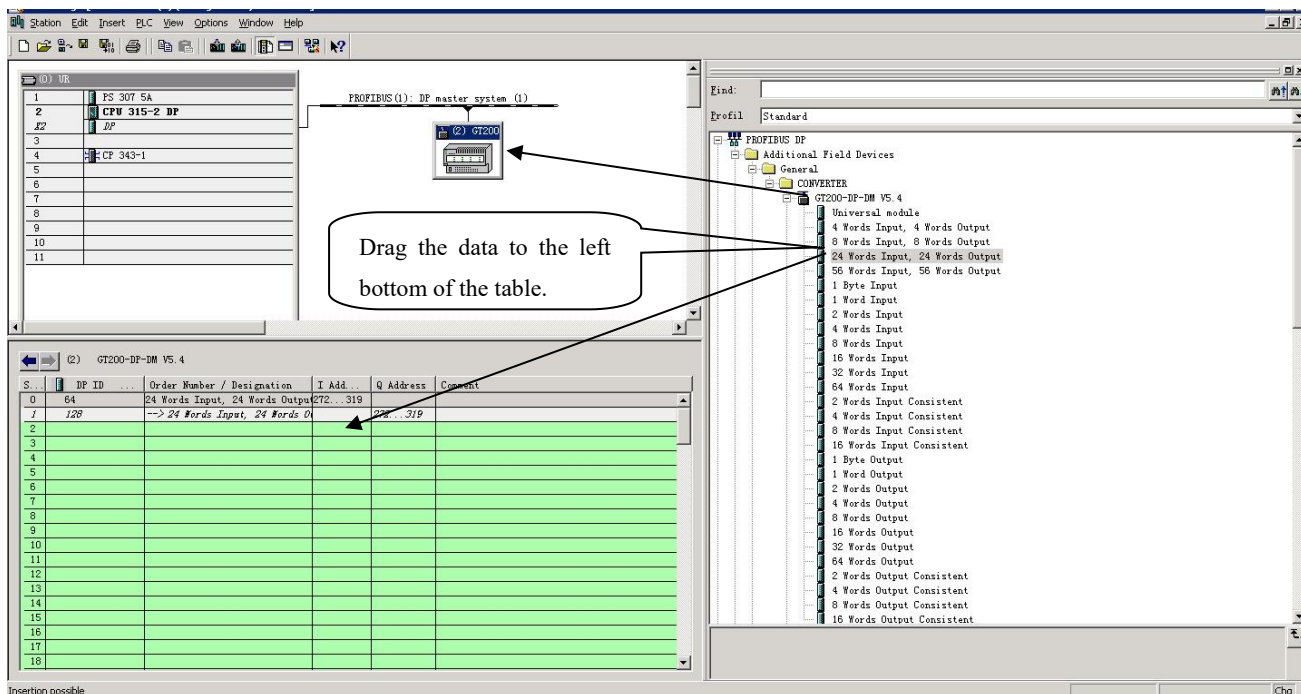
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9. Choose address of PROFIBUS Master station:



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10. Configure GT200-DP-DM to PROFIBUS Network, and map the I/O module to S7-300 or other controller's memory.



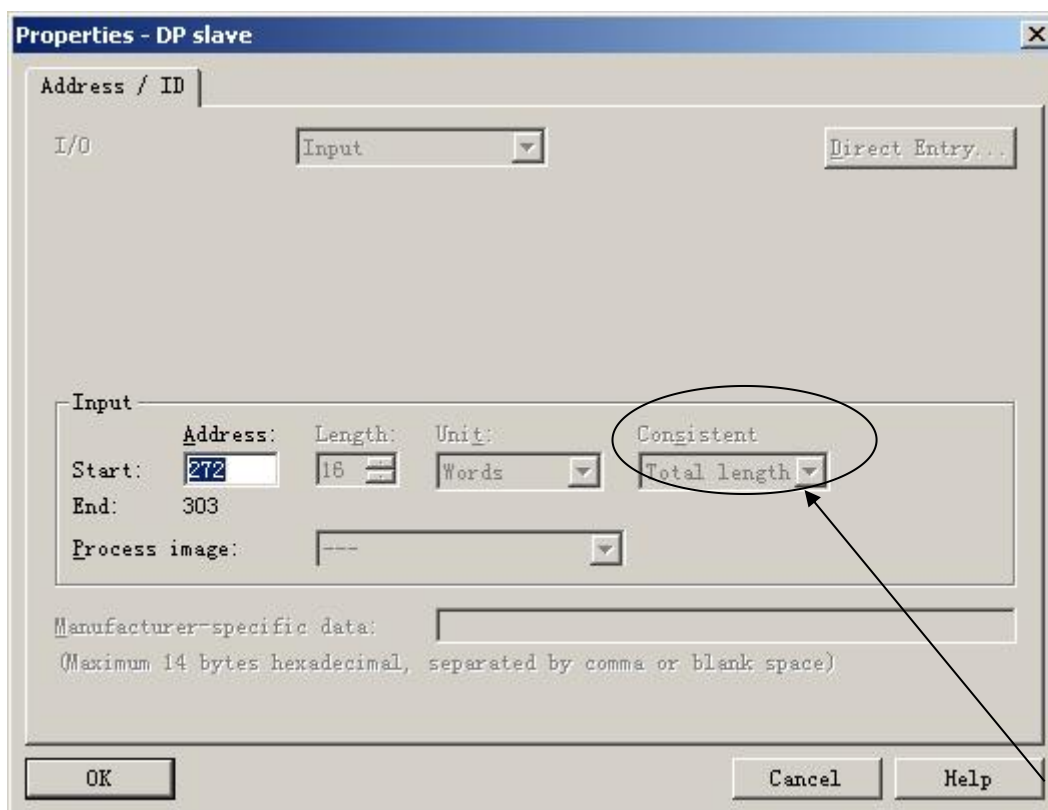
This operation includes two steps. The first step is moving GT200-DP-DM to the left and up area, (PROFIBUS DP bus), the mouse will change sharp, it means you can move it in. The second step is moving data to left and down data mapping table, (PLC memory).

Note: Number of GT200-DP-DM can be 32-byte input and output, 96-byte input and output, 48-byte input and output and 112-byte input and output. If the gateway is configured to 48 bytes input / output in Hyper Terminal or DeviceNet configuration interface, you need take "48 Byte In, 48 Byte Out" into the data mapping table. If you drag the data block does not match the configuration of the gateway, PROFIBUS DP connection cannot be established.

The factory configuration of number of bytes is "48 Byte In, 48 Byte Out".

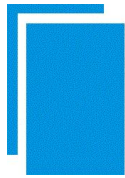
Note: Device station's address should match the GT200-DP-DM PROFIBUS DP address! Refer to [Chapter 2.6](#) to set the address.

- As shown above, right-click input and output mapping of the slot, set the relevant property, as shown below:



You can set input and output mapping area start address in the page. When the setting is "32 bytes input and output", the consistent is "Total length".

- Compile and download the configuration to the PLC.



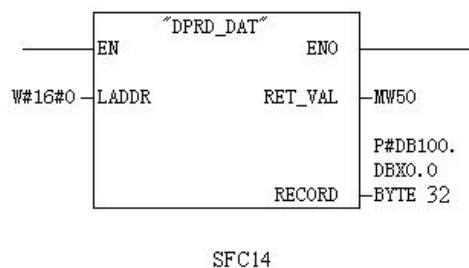
7.1 PROFIBUS DP Modules

The GT200-DP-DM supports the following PROFIBUS DP modules as data blocks. Data blocks which use "Total Length" as "Consistent" are shown as follows:

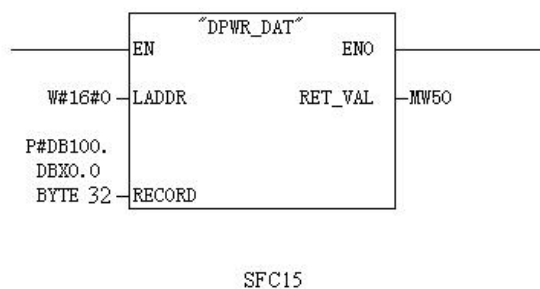
Module
2 Words Input Consistent
4 Words Input Consistent
8 Words Input Consistent
16 Words Input Consistent
2 Words Output Consistent
4 Words Output Consistent
8 Words Output Consistent
16 Words Output Consistent

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 STEP7, you will need to use "SFC15" (packaged sent) to send data and "SFC14" (packaged receiver) to receive data.



SFC14



SFC15

Data blocks which use "Words" as "Consistent" are shown as follows:

4 Words Input, 4 Words Output
8 Words Input, 8 Words Output
24 Words Input, 24 Words Output
56 Words Input, 56 Words Output
1 Byte Input
1 Word Input
2 Words Input
4 Words Input
8 Words Input
16 Words Input
32 Words Input
64 Words Input

1 Byte Output
1 Word Output
2 Words Output
4 Words Output
8 Words Output
16 Words Output
32 Words Output
64 Words Output