

PROFIBUS DP/PROFINET Gateway GT200-DPM-PN

User Manual

V 1.1



SST Automation

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Important Information

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1 Product Overview

1.1 Product Overview

The GT200-DPM-PN Gateway enables data communication between PROFINET and PROFIBUS DP networks. It allows multiple PROFIBUS DP slave devices to connect to a PROFINET network. In this configuration, the GT200-DPM-PN acts as a PROFIBUS DP Master on the PROFIBUS side and a Slave on the PROFINET side. It supports MRP (Media Redundancy Protocol) and SR (System Redundancy).

1.2 Product Features

- Multi-Slave Access: Functions as a PROFIBUS DP Master, supporting connections for up to 125 slave devices.
- Network Redundancy: Supports PROFINET RT and IRT protocols, as well as MRP and SR (S2) redundancy, ensuring high communication reliability and stability.
- Intelligent Monitoring: Features Status Word Monitoring to track the real-time operating status of the device.
- Professional Configuration Software (SST-DPM-CFG): Supports GSD file parsing for PROFIBUS DP slave devices, enabling rapid configuration.
- Isolated Power Supply: Enhanced anti-interference performance ensures stable operation in industrial environments.

1.3 Technical Specifications

- [1] PROFIBUS DP Master: Supports V0 protocol and up to 125 slaves, compliant with PROFIBUS specifications.
- [2] Isolation: Equipped with optoelectronic-isolated PROFIBUS DP and PROFINET interfaces (2.5kV isolation).
- [3] PROFINET Slave Capabilities:
 - ◆ Supports standard PROFINET RT and IRT protocols.
 - ◆ Supports Media Redundancy (MRP) and System Redundancy (SR).



- ◆ Supports up to 32 slots. Maximum input/output data is 1440 bytes each (actual user capacity depends on the PLC/Communication Module PDU size).Note: Each slot occupies 1-2 status bytes. Consequently, the maximum effective data payload is 1428 bytes (e.g., 512+512+256+128+16+4).
- ◆ Data lengths are configurable via TIA Portal or STEP 7 in modules of 1, 2, 4, 8, 16, 32, 64, 128, 256, or 512 bytes.

[4] Ports: Dual Ethernet ports with built-in switch functionality.

[5] Diagnostics: Multiple LED indicators for convenient on-site debugging.

[6] Power Supply: 24V DC (Input range: 9-30V DC); Power Consumption: < 4W.

[7] Working temperature:-4 °F to 140 °F(-20 °C to 60 °C). Relative humidity: 5% to 95% (non-condensing).

[8] External dimensions (W*H*D): 1.3 in * 4.6 in * 4.3 in (34 mm * 116 mm * 105 mm)

[9] Installation: 35mm DIN Rail.

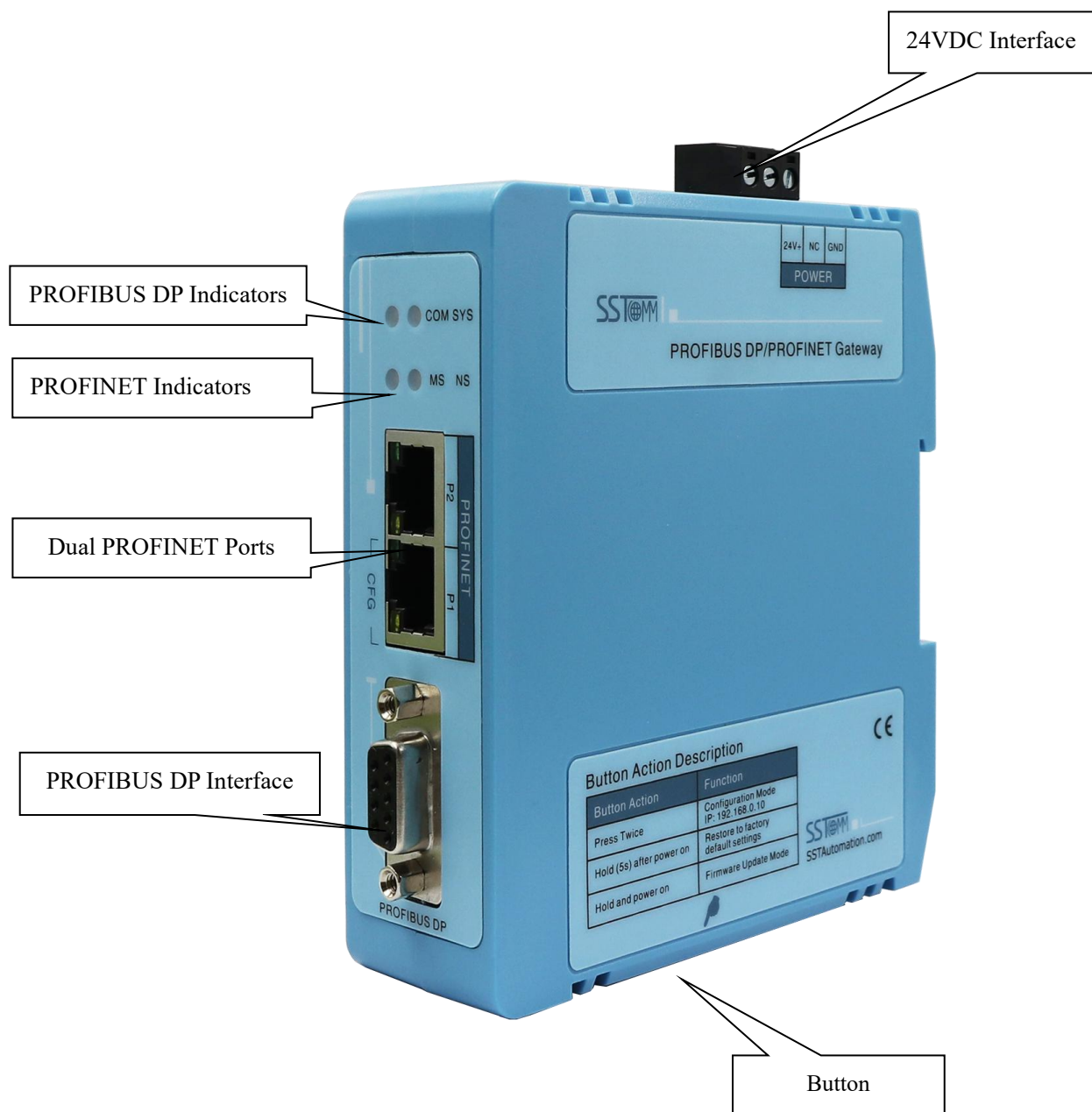
[10] Protection Class: IP20.

1.4 Revision History

Revision	Date	Chapter	Description
V1.1	03/25/2026	ALL	New release



2 Hardware Descriptions



Notes: This picture is for reference only. The product appearance is subject to the actual product.



2.1 Indicators

PROFIBUS DP Network Status LEDs

Indicators	States	Description
COM	Green(Steady)	All DP slaves connected normally
	Red(Steady)	At least one DP slave connection failure
	OFF	PROFIBUS DP master not configured
SYS	Green(Steady)	At least one DP slave connected
	Green (Blinking)	DP master configured, but no slave connection established
	OFF	No power or hardware fault

PROFINET Network and Module LED Definitions

MS (Module Status)	NS (Network Status)	Description
Red(Steady)	OFF	Startup state, waiting for initialization.
Green(Steady)	Red(Steady)	Initialization complete. network cable not connected.
Green(Steady)	Flashing Red (1Hz)	Initialization complete. failed to establish connection with PLC.
Green(Steady)	Green(Steady)	Normal connection with PLC.

2.2 Interface

2.2.1 PROFINET Interface



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

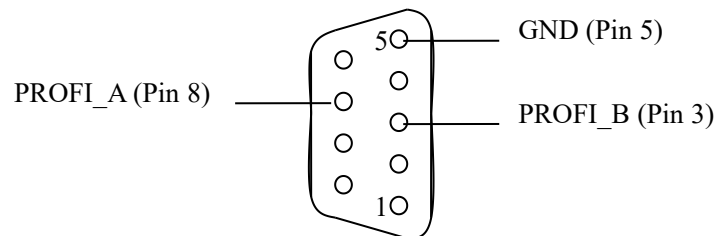


RJ-45 port

Pin	Signal description
S1	TXD+, Transmit Data+
S2	TXD-, Transmit Data-
S3	RXD+, Receive Data+
S6	RXD-, Receive Data-
S4,5,7,8	Reserved

2.2.2 PROFIBUS DP Wiring Instructions

The PROFIBUS DP wiring instructions are as follows:



DB9 Pin	Function
3	PROFI_B, Data+ (Mandatory)
5	GND
8	PROFI_A, Data- (Mandatory)

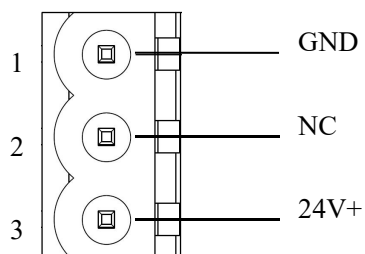


2.2.3 Button Functions

Entry	Function	Exit
Within 10s of power-up, press and hold for 5s until the MS indicator turns steady orange, then release.	Restore gateway to default configuration.	Gateway reboots and runs with default settings.
Double-click the button. MS flashes orange and NS flashes green to indicate a successful operation.	Enter Configuration Mode.	Double-click to exit Configuration Mode. The device reboots and enters Run Mode.
Press and hold the button while powering up. MS and NS flash orange.	Perform firmware update using the Firmware Update Tool.	The device reboots automatically after a successful update, or manually restart by cycling power.

2.2.4 Power Interface

The GT200-DPM-PN is equipped with one power interface. It is recommended to use a 24V DC power supply.



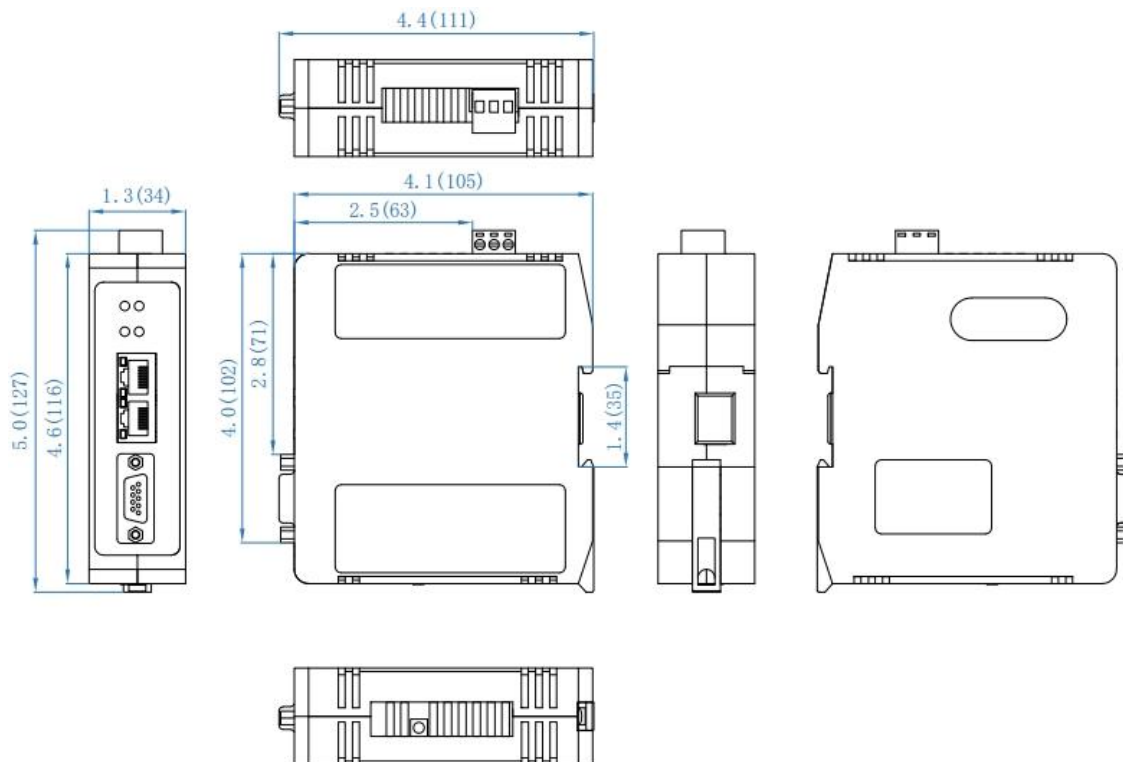
Pin	Function
1	Power GND
2	NC, No Connection
3	24V+, DC Positive (9-30V DC)



3 Hardware Installation

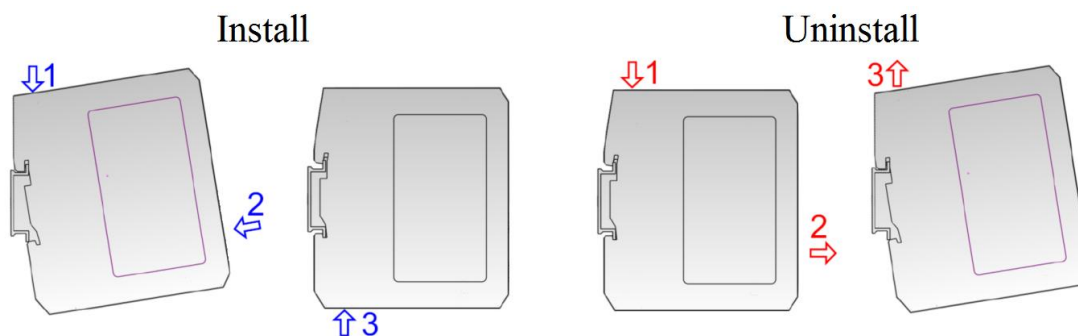
3.1 Mechanical Dimensions

Size (width * height * depth): 1.33 in * 4.56 in * 4.13 in (34mm * 116mm * 105mm)



3.2 Mounting Method

Use 1.4 in (35 mm) DIN Rail.





4 Quick Start Guide

Follow these steps for a quick deployment of the GT200-DPM-PN:

- 1.Import GSD Files: import the PROFIBUS DP slave GSD files into the SST-DPM-CFG configuration software.
- 2.Configure Parameters: Correctly select and configure the address and I/O byte counts for the PROFIBUS DP slaves, and set the gateway's IP address.
- 3.Download Configuration: Double-click the button to enter Configuration Mode, then download the settings to the GT200-DPM-PN. Connect the cables according to the wiring instructions (refer to Section 3.2 for DP pin sequence). At this point, communication between the gateway and DP slaves should be established (Refer to Section 5 for detailed software configuration).
- 4.PROFINET Configuration: In the PN Master (e.g., TIA Portal), configure the corresponding modules, the IP address, and the Device Name for the target device (GT200-DPM-PN).
- 5.Download to PLC: Download the hardware configuration from the PN Master (e.g., TIA Portal) to the PLC.
- 6.Establish Connection: After approximately 10 seconds, the GT200-DPM-PN establishes a PROFINET connection with the PLC. Once connected, both the MS and NS LEDs will remain Steady Green.

Communication Requirements

To enable communication between SST Automation PROFINET devices and a PLC, the following two conditions must be met simultaneously:

- 1.Device Name Consistency: The Device Name of the GT200-DPM-PN (configured via the SST-DPM-CFG tool) must be identical to the Device Name in the PLC configuration.
- 2.IP Address Consistency: The IP address of the GT200-DPM-PN (configured via the SST-DPM-CFG tool) must be identical to the IP address in the PLC configuration.

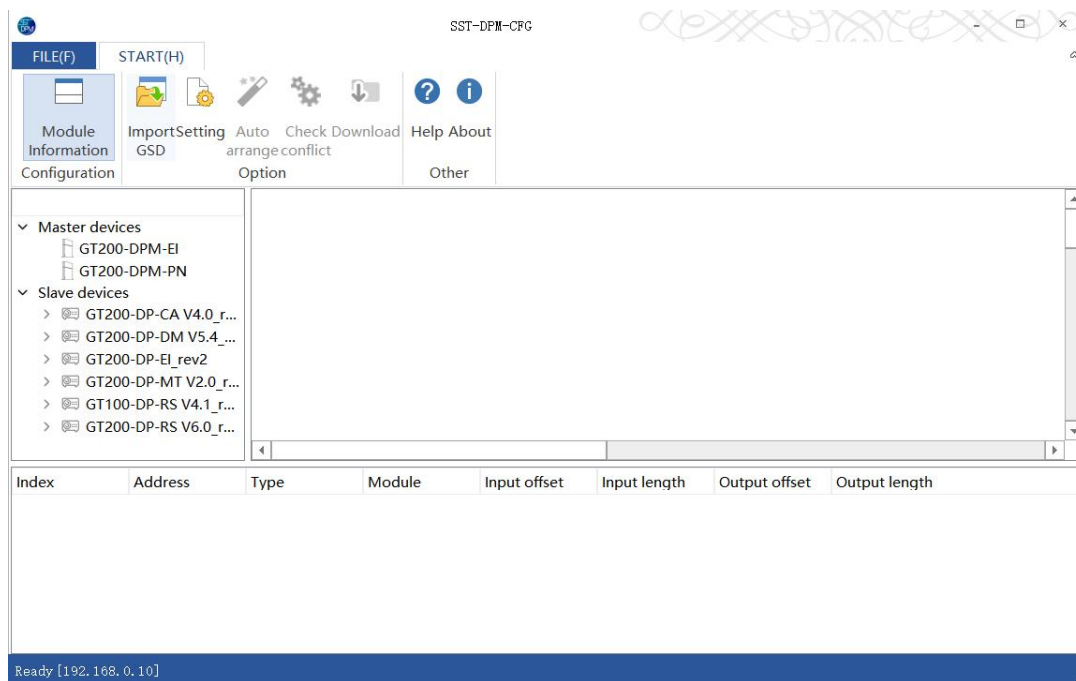
Note: *The GT200-DPM-PN Device Name supports only combinations of lowercase letters and numbers, and it must start with a lowercase letter.*



5 Gateway Configuration Instructions

5.1 Software Installation

Ensure that the SST-DPM-CFG software is successfully installed. Then, double-click the shortcut on the desktop to launch the application.



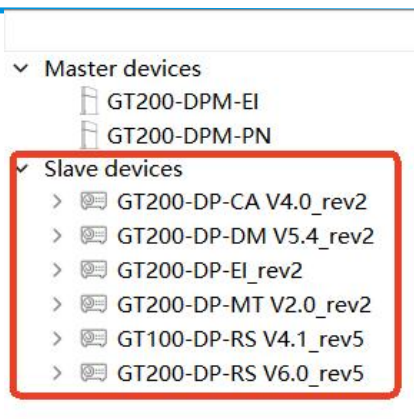
5.2 Importing GSD Files



Import
GSD

Loading GSD Files: Navigate to the menu bar and select "Start" > "Import GSD". In the pop-up "Import GSD" dialog box, locate your GSD file path and click Open.

Viewing Slave Devices: After successfully importing the file, the PROFIBUS DP slave in the device window under the "Slave devices" tree structure, as shown in the figure below:

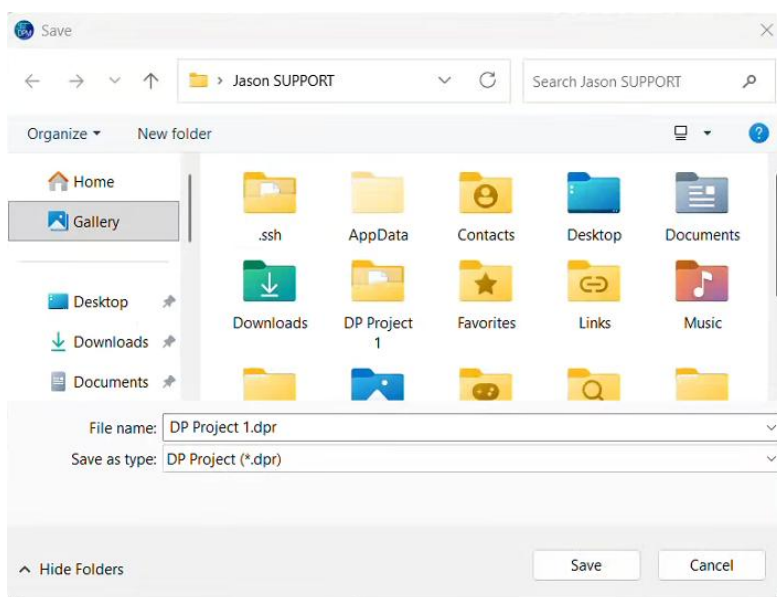


Deleting Slave Devices: Locate the GSD folder within the software installation directory (e.g., C:\Program Files (x86)\SST Automation\SST-DPM-CFG V1.2.X\GSD). Delete the corresponding GSD file and restart the software; the DP slave device will be removed from the list.

5.3 Building Network Topology

5.3.1 Creating a New Project

Click the "New" icon on the toolbar. After the project is created, drag the Master Station (GT200-DPM-PN) from the left tree view into the Topology View. The PROFIBUS DP bus will be generated automatically.





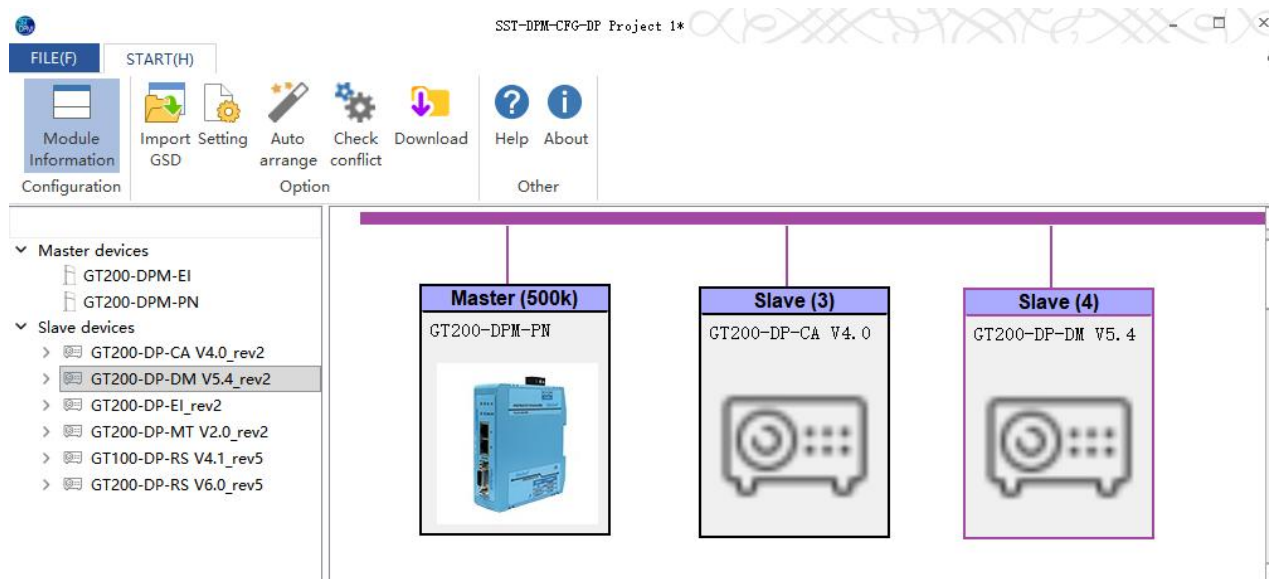
GT200-DPM-PN PROFIBUS DP/PROFINET Gateway

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5.3.2 Adding Slave Devices

Drag and drop the Slave Device onto the bus and set the Slave Address (ensure the corresponding GSD file has been imported beforehand).



5.4 Parameter Configuration

5.4.1 Master Settings

Double-click the Master Icon to configure the Bus Baud Rate (default: 500Kbps), IP Address, Subnet Mask, etc.

Details are as follows:



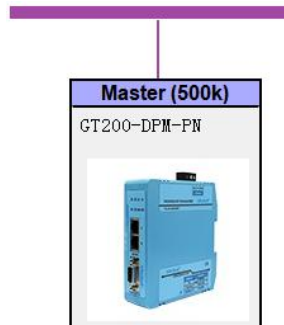
GT200-DPM-PN PROFIBUS DP/PROFINET Gateway

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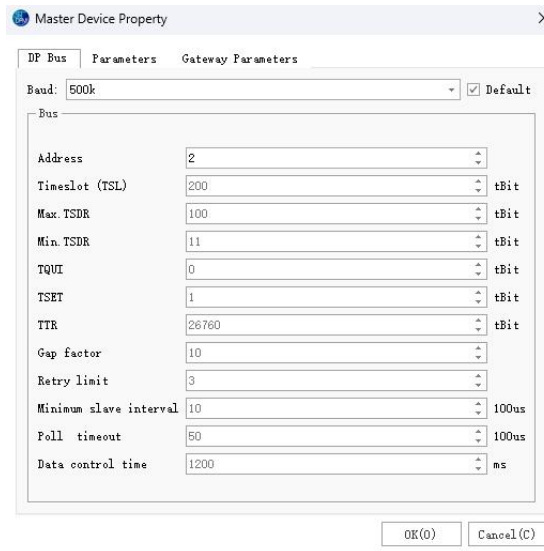
5.4.1.1 Adding the PROFIBUS DP Master: In the left Device Window, select "GT200-DPM-PN" under the "Master Devices" category. Click and drag the module into the Edit Window, then release to add. The GT200-DPM-PN master module is successfully added, and the PROFIBUS bus network is generated automatically, as shown below:



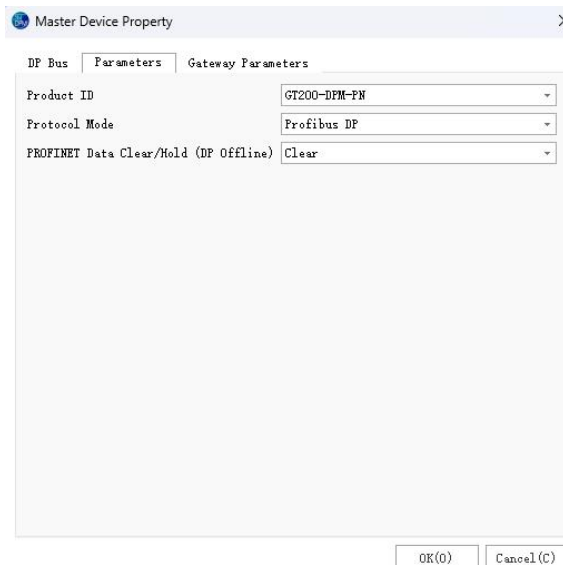
5.4.1.2 Double-click the Master Icon to open the "Master" dialog box.



5.4.1.3 In the "DP Bus" tab, you can configure the bus baud rate and parameters. The default Master Address is 2, and the default Baud Rate is 500Kbps. Select the required baud rate from the drop-down list.

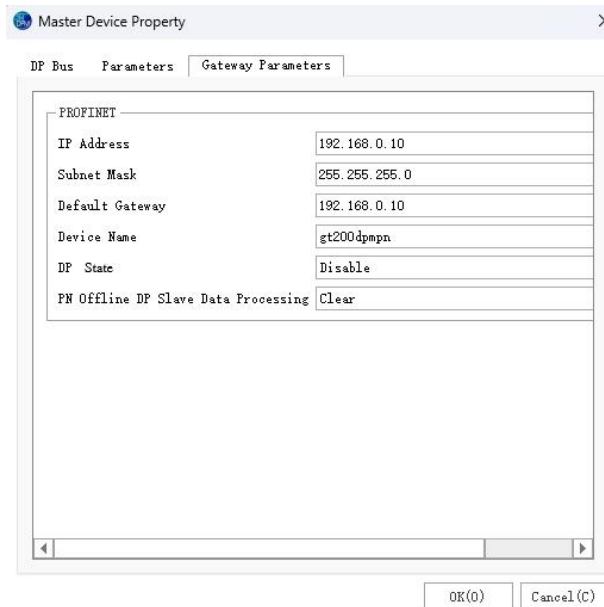


5.4.1.4 In the "Parameters" tab, you can view and configure PROFIBUS DP specific settings:



- Product ID: Displays the gateway device name (GT200-DPM-PN).
- Protocol Mode: Select PROFIBUS DP.
- PROFINET Data Clear/Hold(DP Offline): Clear or Hold.
 - Determines whether the output data of the DP slave (which corresponds to the PROFINET input data) should be cleared (zeroed) or held when the connection between the DP slave and the master is lost.

5.4.1.5 In the "Gateway Parameters" tab, configure the PROFINET network settings. Click "OK" after completing the configuration:



- IP Address: Set the IP address of the gateway.
- Subnet Mask: Set the subnet mask of the gateway.
- Gateway Address: Set the default gateway (Router) address.
- Device Name: Set the PROFINET Device Name (default: gt200dmpn).
- DP State: Used to monitor the status of DP slaves. Three options are available:
 - Disable: Status word is not used.
 - Enable: Status word is enabled.
 - Enable the status word and trigger the PN alarm: Status word is enabled, and an alarm will be triggered in the PROFINET Master (e.g., TIA Portal) with log entries identifying the offline DP slave.
- PN Offline DP Slave Data Processing: Sets the output data behavior for DP slaves when the PROFINET Master goes offline. Options: Clear or Hold.
- DP Slave Status Word Mapping: When the Status Word is enabled, it provides real-time status of the DP slaves. Each bit in the status word represents the connection status of a slave node (1 = Normal, 0 = Offline).
The mapping relationship is as follows:



Byte Index	Corresponding DP Slave Nodes	Byte Index	Corresponding DP Slave Nodes
1	7~0	9	71~64
2	15~8	10	79~72
3	23~16	11	87~80
4	31~24	12	95~88
5	39~32	13	103~96
6	47~40	14	111~104
7	55~48	15	119~112
8	63~56	16	125~120

Troubleshooting (FAQ)

- FAQ1: What should I do if the configuration download fails?

If the gateway fails to download the configuration, please perform the following checks:

- (1) Check Configuration Mode: Ensure the gateway is in Configuration Mode. Double-click the button. The MS LED should flash orange and the NS LED should flash green.
- (2) Verify Physical Connection: Confirm that the PC is connected to the gateway's configuration port (P1/CFG).
- (3) Check PC Network Settings: Ensure the PC has a Static IP address within the same subnet as the gateway. (In Configuration Mode, the gateway's IP is fixed at 192.168.0.10).

- FAQ2: The PLC cannot establish communication with the gateway.

- (1) Check IP and Device Name: Verify that the PROFINET Slave IP Address and Device Name set in the PLC configuration software are identical to those of the GT200-DPM-PN gateway. If they do not match, communication will fail.
- (2) Verify PLC Status: Ensure the PLC is in RUN (Start) mode after the configuration has been downloaded.
- (3) Technical Support: If the issue persists, please contact our technical support team for assistance at Email:support@sstautomation.com

5.4.2 Slave Settings

Double-click the Slave Icon to configure the I/O mapping area, set offset addresses, etc. Details are as follows:

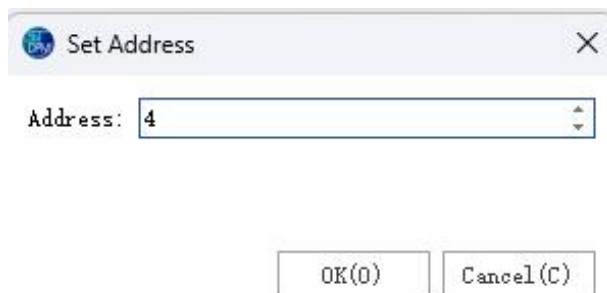
5.4.2.1 Adding a PROFIBUS DP Slave:



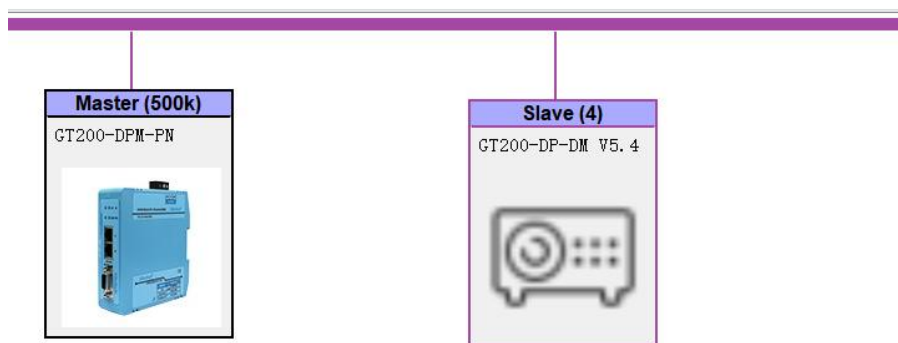
In the Device Window, navigate to "Slave Devices" and select the desired slave module (ensure the corresponding GSD file has been correctly installed).

Hold the left mouse button, drag the module into the Edit Window, and release.

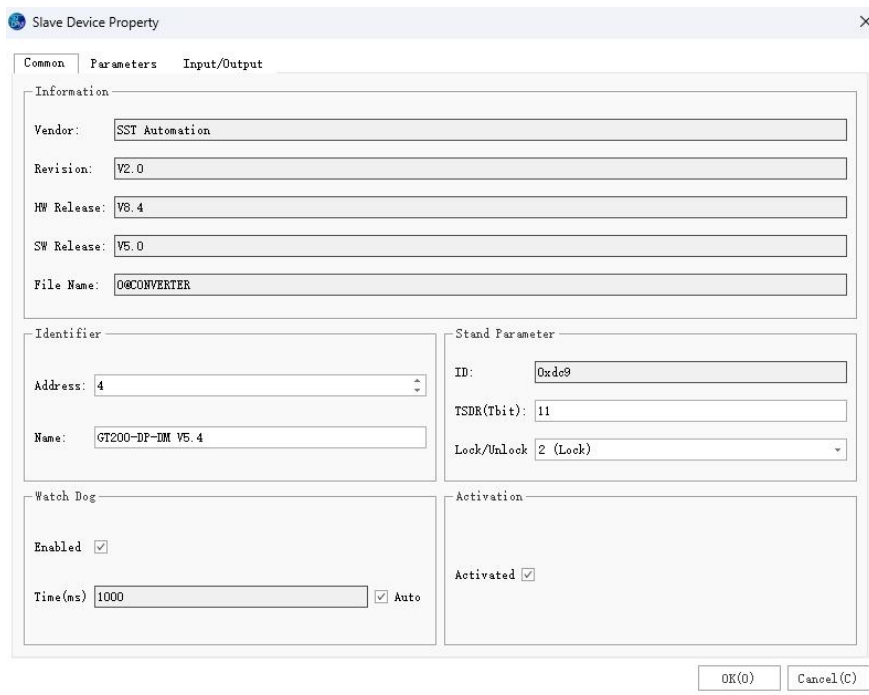
A "Set Address" dialog box will appear. Enter the slave address and click "OK".



The slave module will then be automatically loaded onto the PROFIBUS DP bus network.



5.4.2.2 Double-click the Slave Icon to open the "Slave Device Property" dialog box. The "Common" tab contains slave information, identifiers, standard parameters, watchdog settings, and other related parameters.

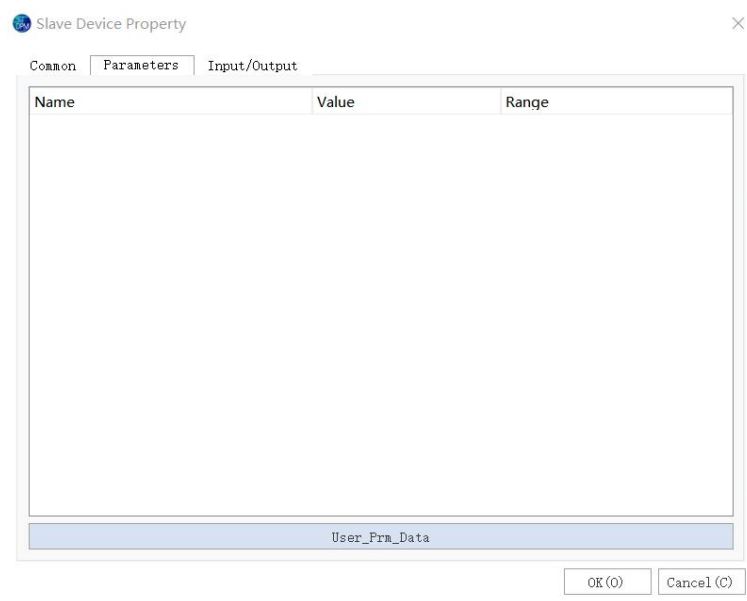


The "Slave Device Property" dialog box is shown with the "Common" tab selected. It contains the following fields and options:

- Information:**
 - Vendor: SST Automation
 - Revision: V2.0
 - HW Release: V8.4
 - SW Release: V5.0
 - File Name: 00CONVERTER
- Identifier:**
 - Address: 4
 - Name: GT200-DP-IM V5.4
- Stand Parameter:**
 - ID: 0x0c9
 - TSDR(Tbit): 11
 - Lock/Unlock: 2 (Lock)
- Watch Dog:**
 - Enabled: ☒
 - Time(ms): 1000 ☒ Auto
- Activation:**
 - Activated: ☒

Buttons: OK(O), Cancel(C)

5.4.2.3 The "Parameters" tab displays the configuration parameters defined in the GSD file. You can double-click any parameter value to modify its configuration.

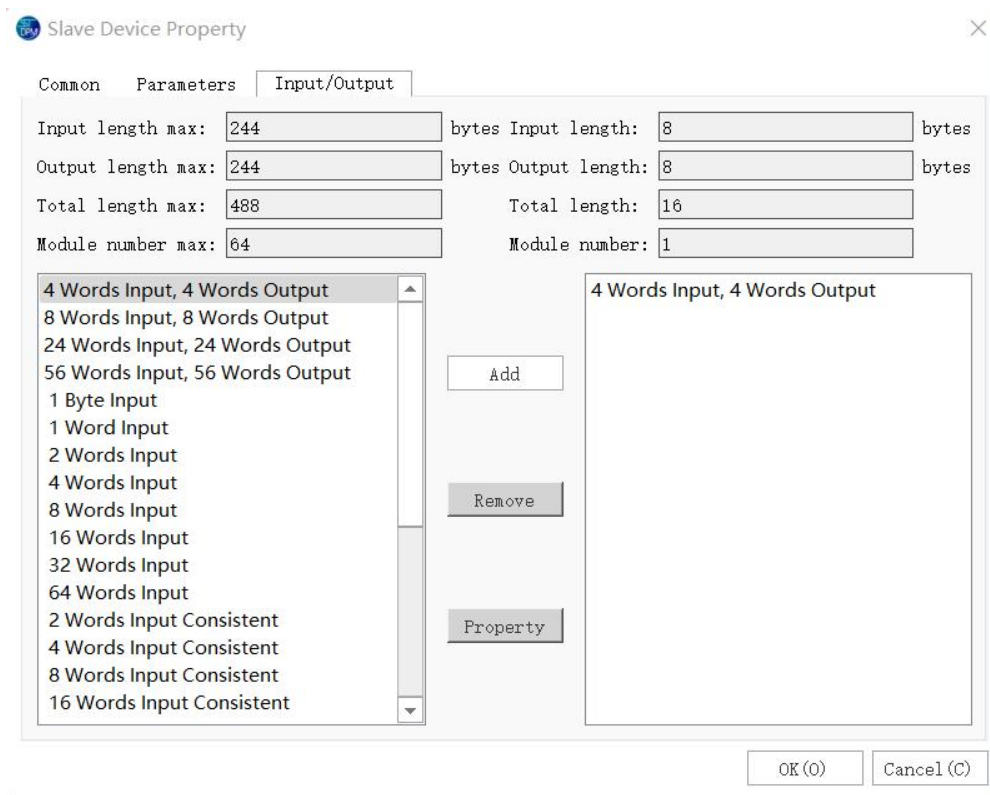


The "Slave Device Property" dialog box is shown with the "Parameters" tab selected. It displays a table with the following columns:

Name	Value	Range
User_Prm_Data		

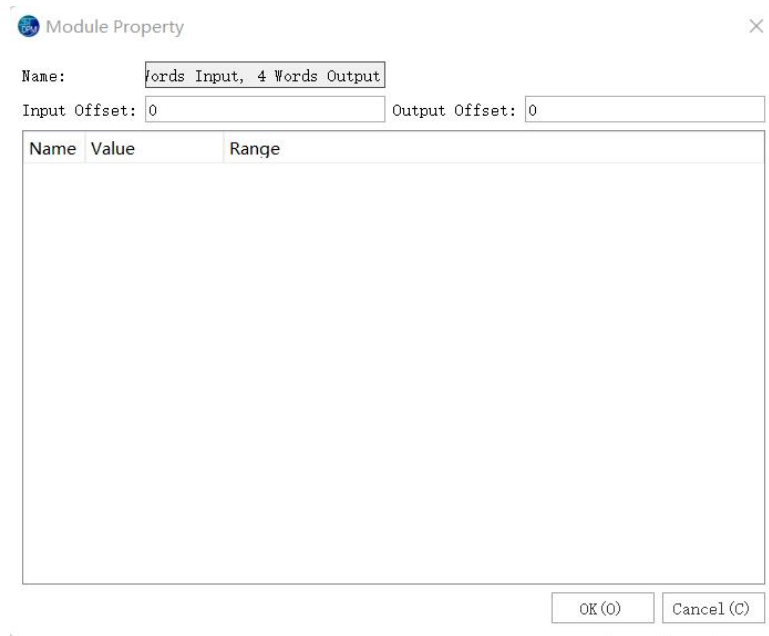
Buttons: OK(O), Cancel(C)

5.4.2.4 In the "Input/Output" tab, you can configure the communication mapping area for the slave device. Select a communication sub-module from the list on the left (e.g., "4 Word Input, 4 Word Output") and click "Add" to complete the loading process, as shown below:

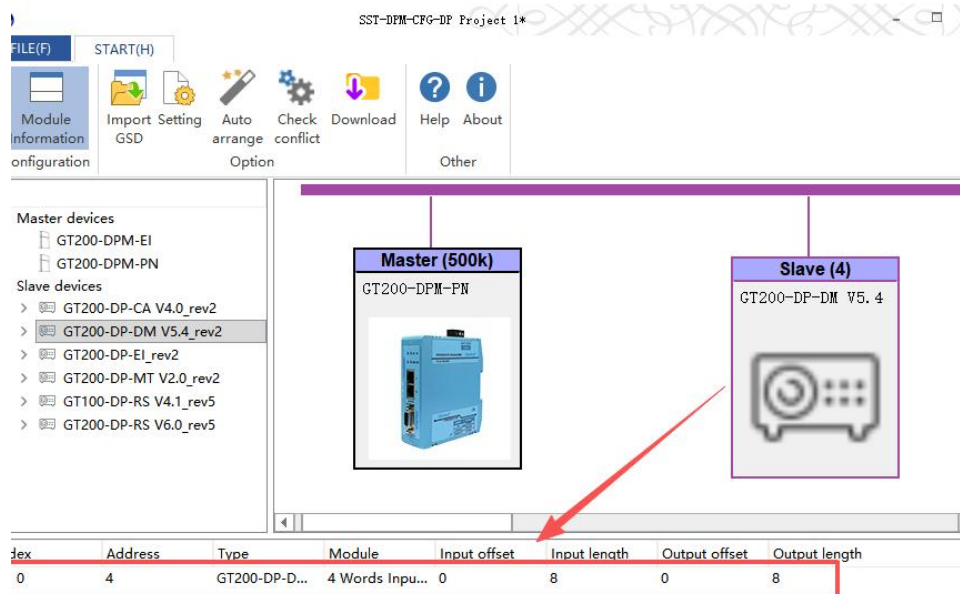


5.4.2.5 Select a communication sub-module and click "Properties" to view or modify the I/O offset parameters in the module properties window, as shown in the following table:

Item	Description
Description	The I/O sub-module added to the slave device.
Offset Address	The starting offset for PROFIBUS DP Input/Output. For example, if "4 Word Input, 4 Word Output" is added with a starting offset of 0, it occupies 8 consecutive bytes starting from Byte 0.



5.4.2.6 After completing the slave configuration, select the corresponding slave device to view its attribute parameters in the Description Window.





6 Operating Principle

The data conversion between PROFINET and PROFIBUS DP in the GT200-DPM-PN is established through a "mapping" relationship.

The GT200-DPM-PN features two internal data buffers: a PROFINET Input Buffer and a PROFINET Output Buffer.

The PROFINET Master reads data from the input buffer and writes control commands to the gateway's output buffer using POLL I/O read/write commands.

The PROFIBUS DP Master port of the gateway retrieves data from the output buffer and transmits it to the PROFIBUS DP Slaves.

Simultaneously, the gateway's PROFIBUS DP Master port reads input data from the slave devices and stores it in the input buffer.

