PROFIBUS DP/CAN Gateway
GT200-DP-CA

User Manual

V5.1

SST Automation

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Important Information

Warning

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1 Product Overview

1.1 Product Function

Supports devices with CAN interfaces (including CAN2.0A and CAN2.0B) to connect to the PROFIBUS DP bus; effectively converting CAN bus network devices into PROFIBUS DP bus network devices. The PROFIBUS DP interface of the GT200-DP-CA functions as a slave. It supports CAN parameter configuration through both software and DP parameter configuration methods.

1.2 Product Features

- Wide application: Support connecting the devices with CAN bus interface to PROFIBUS DP bus.
- Easy to use: Complete network communication through simple operations in a short time.
- Powerful function: Support connecting with multiple CAN devices, support CAN2.0A/2.0B, and support the two modes working together.
- User-Friendly: Enables single read/write of CAN device parameters and periodic access to input/output.
- Support for Acknowledgment: Ensures more complete and reliable data transmission.
- Easy Configuration: The GT200-DP-CA can be easily configured through software and DP parameter settings, allowing communication to be established in a short time.

1.3 Technical Specifications

[1] Communication rate:

- CAN baud rate: 1M, 500K, 250K, 125K, 100K, 62.5K, 31.25K, 20K, 10K.
- PROFIBUS baud rate: Baud rate is self-adaptive and can be up to 12M.

[2] Software Configuration Method:

(1) The input/output bytes on both sides of PROFIBUS can be selected: 16 bytes input/output, 15 bytes input/output.

(2) Used for configuring parameters in GSD V4.0 mode and selecting the gateway configuration method

[3] DP Parameter Configuration Method:

(1) The number of PROFIBUS input/output bytes can be freely set, with a maximum PROFIBUS input/output as follows:

① Max Input Bytes ≤ 244 Bytes;

② Max Output Bytes ≤ 244 Bytes.

(2) CAN2.0A PROFIBUS DP supports up to 64 slots, and CAN2.0B PROFIBUS DP supports up to 42 slots (depending on the limitations of different DP masters).

(3) Used for parameter configuration in GSD V5.1 mode.

[4] Supports DPV0 Protocol.

[5] GT200-DP-CA can buffer at most 200 CAN frame numbers.

[6] CAN-Side Function Description:

① Supports CAN2.0A/2.0B formats.

② Supports CAN ID filtering (only in DP parameter configuration mode).

③ Maximum buffer for CAN frames is 200.

④ Supports baud rates of: 1M, 500K, 250K, 125K, 100K, 62.5K, 31.25K, 20K, 10K.

[5] The module provides optically isolated 2.5KV PROFIBUS DP slave interface and CAN interface.

[6] Power supply: 24VDC (11~30VDC).90mA(24VDC).

[7] Working temperature: -4°F~140°F(-20°C~60°C), Humidity: 5%~95% (non-condensing).

[8] Dimensions (W*H*D): 1in*4 in *3.5 in (25mm*100mm*90mm).

[9] Installation: 1.4 in (35 mm) DIN RAIL.

[10] Protection level: IP20.

1.4 Related Products

The related products include: GT200-PN-CO, GT200-CO-EI and GT200-DP-CO etc.

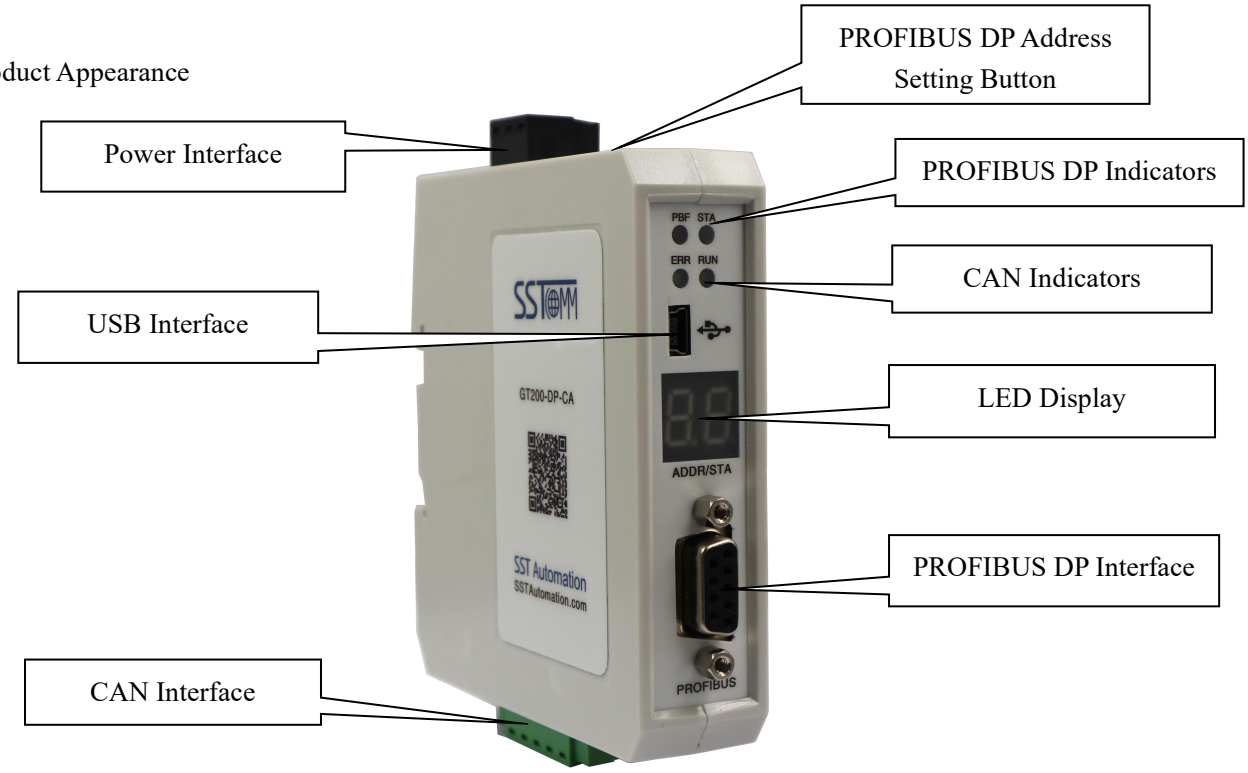
To get more information about related products, please visit SSTCOMM website: www.sstautomation.com.

1.5 Revision History

Revision	Date	Chapter	Description
V5.1	8/9/2024	ALL	Add the CAN filtering function and update the product size.
V5.0	3/21/2023	ALL	ALL
V4.2, RevA	1/27/2022	ALL	Update the format.

2 Hardware Descriptions

2.1 Product Appearance



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

2.2 Indicators

Indicator	Status	Instruction
PBF	Red on	PROFIBUS DP no connection or fails.
	Red off	PROFIBUS DP port communicates normally.
STA	Green on or off	No data transmission in PROFIBUS DP.
	Green blinking	PROFIBUS DP data transmission.
ERR	Red on	The gateway is in the CAN network offline status.
	Red blinking	CAN network communication is not well or the gateway is in the CAN passive error status.
	Green on	CAN communicates normally.
RUN	Green blinking	CAN port data sending or receiving.
	Green on or off	No data sending or receiving in CAN port.

2.3 The digital display is located on the front of the product.

Digital display	Instruction
Specific numbers alternate with "-P" on the display.	The numbers represent the PROFIBUS DP slave address, and "-P" indicates that the gateway is in "DP parameter configuration mode."
Specific numbers alternate with "-U" on the display.	The numbers represent the PROFIBUS DP slave address, and "-U" indicates that the gateway is in "software configuration mode."

2.4 Button

The configuration button on the panel can set the PROFIBUS DP slave address.

1. In normal working condition of GT200-DP-CA, LED is always on and displaying the current PROFIBUS DP address.

2. Quickly press (double-click) the button twice in succession, the high bit starts to flash, and the low bit is always on, click the button to add 1 to start setting the high bit of PROFIBUS DP address.

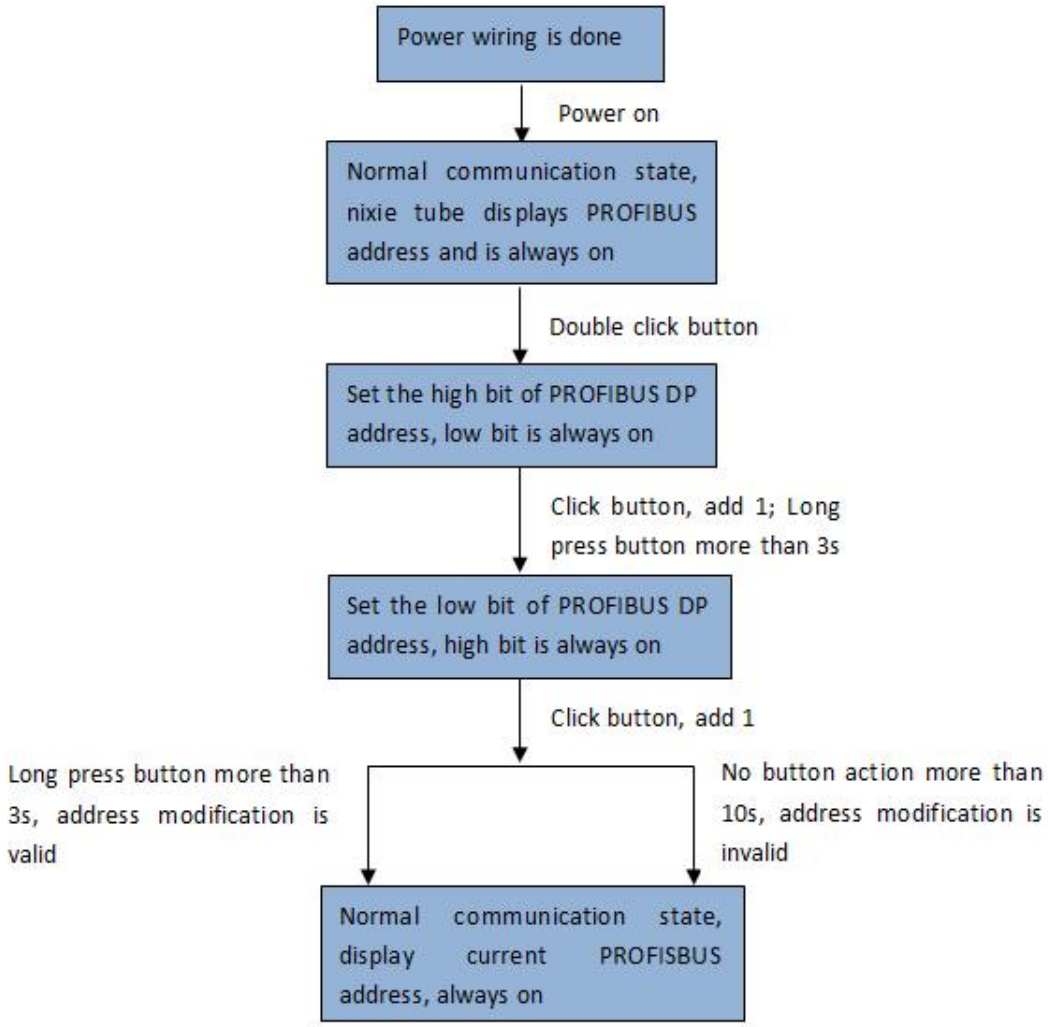
3. Long-press the button for 3 seconds, the high bit is always on, and the low bit starts to flash.

4. Click the button to add 1 to start setting the low bit of PROFIBUS DP address.

5. At last, long-press the button again for 3 seconds, the address flashing three times shows that the address is set successfully.

6. If no button action within ten seconds, the gateway exits the status of setting address and continues to display the original address.

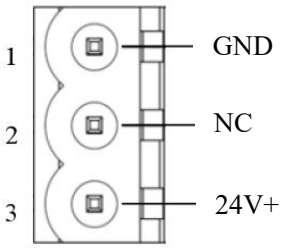
The configurable range of PROFIBUS DP address is 0 to 99 (Decimal). PROFIBUS DP address setting method is as follow:



2.5 Interface

2.5.1 Power Interface

Pin	Function
1	Power GND(24V DC-)
2	NC(Not Connected)
3	24V+, DC Positive 24V

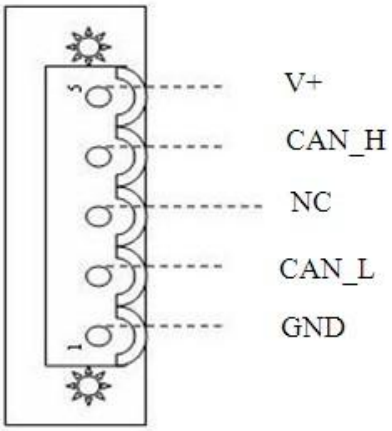


Note1: Here pin 1 and pin 3 are connected to the pin 1 and pin 5 of CAN port internally. And only one of them is required to connect. If two power interfaces are connected at the same time, the gateway will be burned.

2.5.2 CAN Interface

5-pin connector

Pin	Wire
1	GND, GND of 24V (optional)
2	CAN_L
3	NC (Not connected or shielding,optional)
4	CAN_H
5	V+, 24VDC(optional)



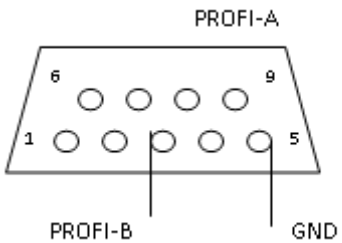
Note1: Here, shield (NC) port is optional. The CAN-L and CAN-H must be connected. Here pin 1 and pin 5 are connected to the pin 3 and pin 1 of power port internally. (chapter2.6.1)

Note2: Both the power terminal and the CAN terminal have power wiring, and only one of them is required to connect. If two power interfaces are connected at the same time, the gateway will be burned.

2.5.3 PROFIBUS DP Interface

Pin	Description
3	PROFI_B, positive data
5	GND
8	PROFI_A, negative data

PROFIBUS DP interface use DB9 connector, the pin is defined as follows:

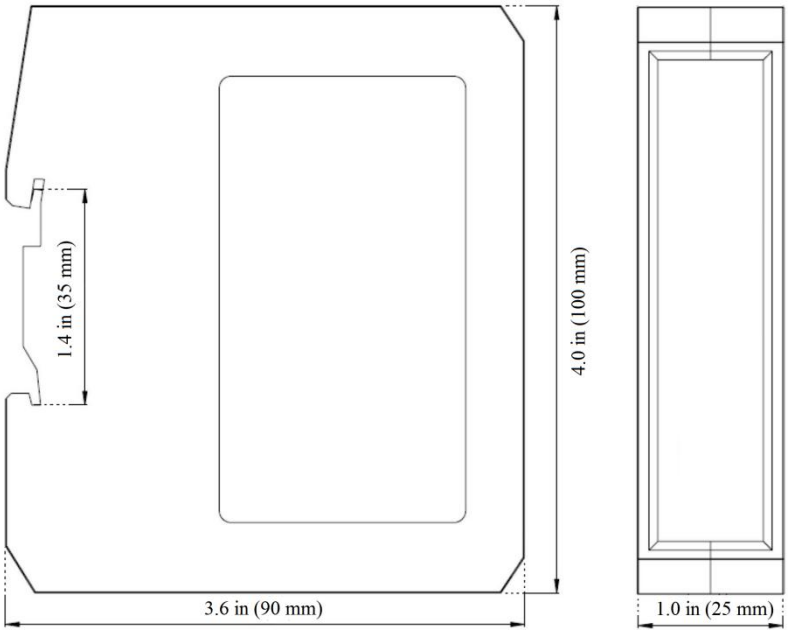


3 Hardware Installation

3.1 Mechanical Dimensions

Size (width * height * depth):

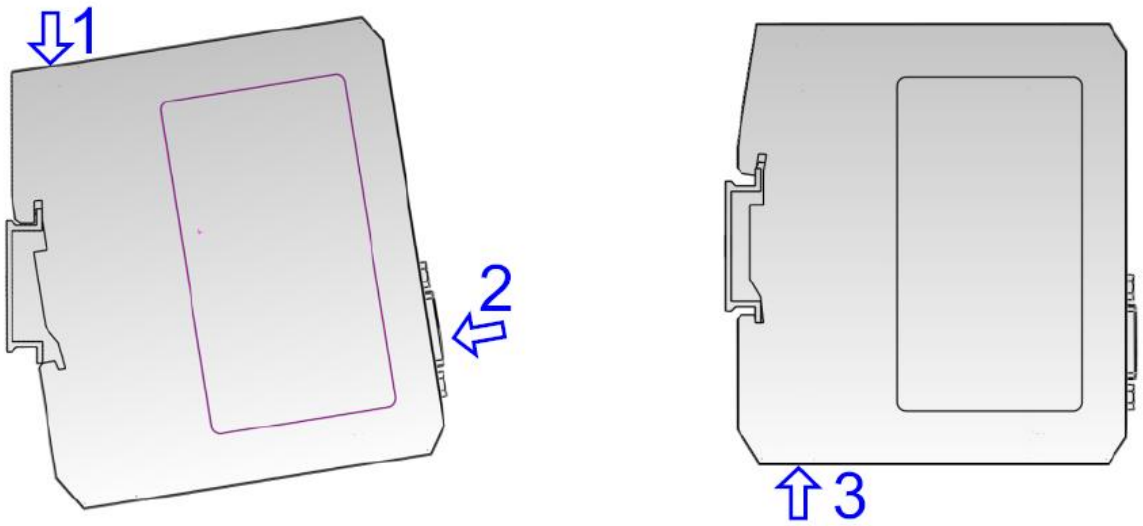
1.0 in * 4.0 in * 3.5 in (25 mm * 100 mm * 90 mm)



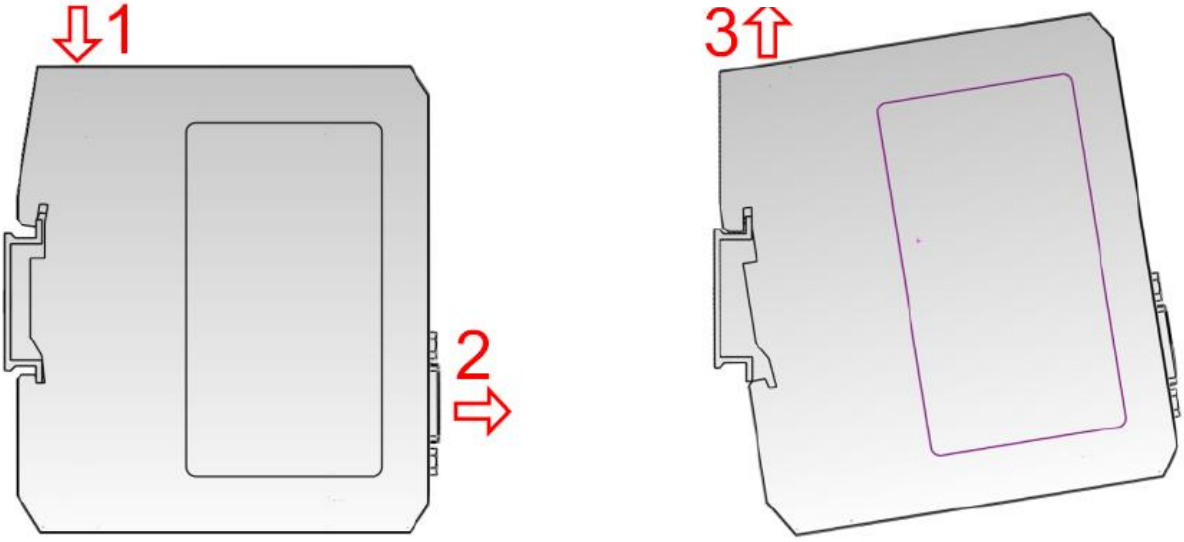
3.2 Installation Method

Using 1.38 in (35mm) DIN RAIL

Installing the gateway



Unloading the gateway



4 Quick Start Guide

The following steps can quickly help you apply the GT200-DP-CA:

1.Hardware Connection:

(1) As described in Section 3.4, correctly connect the power supply, ensuring it is a 24V DC power source.

(2) As described in Section 3.5, correctly connect the CAN side and PROFIBUS DP side.

2.Hardware Configuration:

In the PROFIBUS master configuration software (TIA Portal or STEP 7), first install the GSD file, then drag the input/output modules into the slots as needed, compile, and download the configuration.

3.Configure GT200-DP-CA:

GT200-DP-CA offers two configuration methods:

Method 1: Software Configuration: Connect the gateway to the PC using the USB cable provided by Sibok and power it on. Use the configuration software PCA-123 to write or read device parameters. After completing the upload/download, the gateway will enter normal communication mode.

Method 2: DP Parameter Configuration: This configuration method requires the gateway to be in DP configuration mode (-P). Configure the GSD V5.1 file in the PROFIBUS master configuration software and set the parameters.

Modify the PROFIBUS DP Address:

GT200-DP-CA offers two ways to modify the DP address:

Method 1: When the gateway is in software configuration mode, you can modify the DP address using the PROFIBUS address selection in the software.

Method 2: When the gateway is in either software or DP configuration mode, you can use the button to modify the DP address. The button usage is described in Section 3.3.

Completion: After configuration, power on the module, and it will enter normal operation.

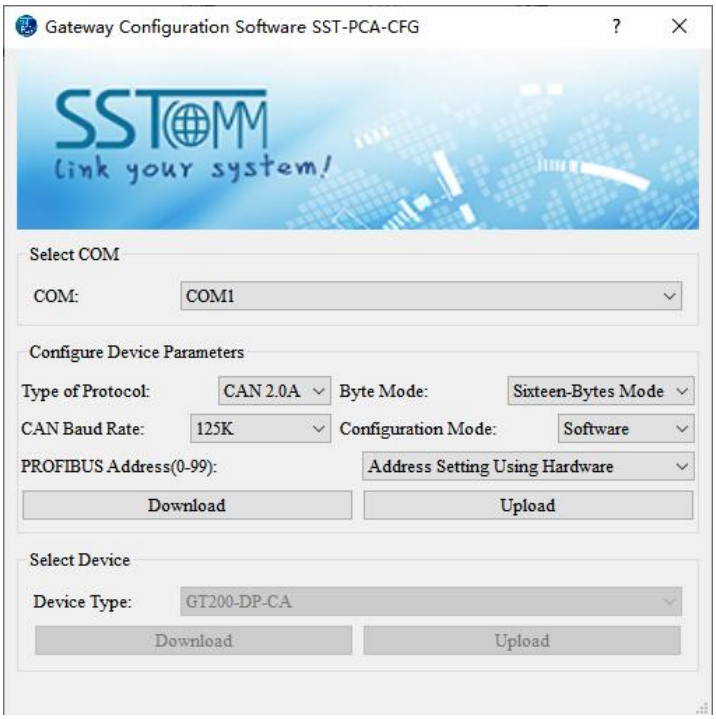
5 Working Principle

5.1 Hardware Connection

1. Follow the instructions in Chapter 2 for the CAN port to correctly connect each pin of the 5-pin connector to its corresponding wiring.
2. Follow the instructions in Chapter 2 for the PROFIBUS DP port to correctly connect the 3rd, 5th, and 8th pins.
3. After correctly configuring the GT200-DP-CA according to Chapter 5, power it on to enter the operating state.

5.2 Software Configuration

SST-PCA-CFG is a configuration software based on Windows platform, used to configure GT200-DP-CA V5.0 related parameters. This software is connected with the USB interface of GT200-DP-CA through the PC interface to upload or download configuration parameters. Double-click the software icon to select to enter the software interface.



Configurable parameters:

1. Select COM port: It is used to upload or download configuration. Please selects the corresponding serial port connected to the device.

2. Configure device parameters:

(1) CAN protocol type: support CAN2.0A/2.0B two formats.

(2) Byte mode: 16-byte and 15-byte modes are supported, and 16-byte mode is recommended.

(3) CAN communication baud rate: support 1M, 500K, 250K, 125K, 100K, 62.5K, 31.25K, 20K, 10K.

(4) Configuration method: DP parameter configuration and software configuration are optional, and the current version only supports software configuration.

(5) PROFIBUS address: range 0~99, support two ways of setting the address by hardware and directly inputting the address value by configuration software.

After configuring these parameters, click "Download" to download the configured parameters to the gateway, and manually restart the gateway to make the parameters take effect. You can also click "Upload" to upload the parameters in the gateway and display them in the configuration software.

5.3 Data Exchange way of 16-byte mode(recommend)

GT200-DP-CA reads only 1 frame of CAN data each time, as follows, details how 16 bytes are encapsulated in a CAN frame.

PROFIBUS DP network output -> CAN

The meaning of 16 respective bytes is as follow: 16 bytes only can include one CAN frame.

Byte	0	1	2	3	4-7	8-15
Meaning	Single/repeat control	The data number of CAN frame including	Sequence Number	Reserved	Frame header and CAN frame mode control	CAN frame data

Explanation:

◆ Byte 0 to byte 3 are controlling bytes

Byte 0: Indicates sending this sequence number CAN frame once if it is zero, and it indicates sending this sequence number of CAN frame periodically if it isn't zero, the cycle value is decided by this byte value: period of transmission=the value of byte 0 * 10ms. For example, if the value of byte 0 is 10, the period of transmission is 100ms, that is to say sending the frame one time every 100ms.

Byte 1: Indicates the data number of CAN frame including, the range is 0~8. If the number of data frame is less

than 8, the value is 0.

Byte 2: Sequence number. The initial value of sequence number in output frame is non-zero (any value except zero), if the mode is single transmission mode, the number must add 1 when sending a new frame, the gateway will recognize that it is single transmission data, if the number reaches 255, the number will be 0 when adding 1. If the mode is periodical mode, the sequence number will not add 1. If you want to turn single sending mode to periodical mode, sequence number should add 1 once, and byte 0 is non-zero. If you want to turn periodical mode to single sending mode, sequence number should add 1, and the value of byte 0 is 0.

◆ Byte 4 to 7 are CAN frame header and CAN frame mode control (29 bit CAN ID)

The format of byte 4 is as follow:

Bit	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Meaning	Reserved	RTR	Reserved	The top five bits of frame header				

Bit 6: RTR, 0 stands for data frame, 1 stands for Remote frame.

Bit 0 to 4 of byte 4 to byte 7, CAN2.0A/2.0B frame header.

Byte 5:

Bit	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Meaning	The second high 8 bits of frame header							

Byte 6:

Bit	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Meaning	The second low 8 bits of frame header							

Byte 7:

Bit	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Meaning	The lowest 8 bits of frame header							

◆ Byte 8 to 15 are the frame data, the range of byte number is 0~8.

PROFIBUS DP network input <- CAN

The meaning of 16 respective bytes is as follow:

Byte	0	1	2	3	4-7	8-15
Meaning	0xFF	Data number of CAN frame including	Sequence number	no meaning (Any value)	Frame header and CAN frame mode control	CAN frame data

If GT200-DP-CA has received new CAN frames from CAN network, the sequence number of input frame adds 1, user can decide whether to use these CAN frames according to requirements.

If sending one CAN frame, the sequence number is 10, use data frame of 2.0A working mode, ID=0x123, data is 01 02 03 04 05 06 07 08. One time sending, so the output format is as follow (hexadecimal):

00 08 | 0A| 00 | 00 00 01 23 | 01 02 03 04 05 06 07 08

Note:

The default initial value of single sending is 0, so the relevant byte is 0.

ID=0x123, the last bit aligns, the front omitting bits are replaced by 0, so the relevant binary form is 0000 0000 0000 0000 0000 0001 0010 0011, that is 0x00 0x00 0x01 0x23

5.4 Data exchange way of 15-byte mode

The main features of 15-byte mode are: When bit0 of PROFIBUS DP send control word is set to 0, once the bit6 of send control word of CAN turns over at the PLC side, then PLC will turn over the bit1 of PROFIBUS DP send control word. In this way, it indicates that data exchange process has happened in PLC. If both need to send data, turning over relevant data valid bit will realize that. When bit0 of PROFIBUS DP send control word is set to 1, CAN will send data to PLC after receiving one frame data regardless of whether PLC has got last frame data.

Note: When using 15-byte mode, you need to set bit8 of DIP switch to “ON”, and restart the gateway (power off and power on).

15-byte input/15-byte output

PROFIBUS DP network output-> CAN

The meaning of 15 respective bytes is as follow: 15-byte only can include one CAN frame

Byte	0	1	2	3-47
Meaning	Send timer	PROFIBUS DP sending control word	CAN frame Header and control	CAN frame data

- Byte 0: When Bit 7 in PROFIBUS DP sends control word is 0, this byte has no meaning. Otherwise, CAN network will send out the data from PROFIBUS periodically according to the value of this byte. The setting range of this byte is 1~255, the rest is regarded as 1, timer unit is 10ms.
- Byte 1: PROFIBUS DP send control word

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Meaning	Single/ Repeat mode	Reserved	Reserved	CAN2.0 A/B	Clear CAN offline counter	PROFIBUS DP data update label flag	PROFIBUS DP receive flag	PROFIBUS receive mode

Bit7: 0: Single mode, determine whether it is the new data according to Bit 2’s turning over.

1: Repeat mode, now the gateway will set the time inside of sending timer as interval and send out the data received from PROFIBUS DP periodically.

Bit 6-Bit 5: Reserved

Bit 4: When the gateway is configured as CAN2.0B, this bit is valid, otherwise invalid.

1: CAN2.0A frame

0: CAN2.0B frame

Bit 3: Turning over indicates to clear the Offline counter of CAN, meanwhile to reset the CAN controller (Only works when it happens to Offline of CAN network)

Bit 2: Turning over indicates this frame data is valid, otherwise invalid.

Bit 1: When Bit 0 of PROFIBUS DP sending control word is 1, this bit is invalid. Otherwise, reversal of this bit indicates PROFIBUS DP side had participated in data exchange.

Bit 0: 1: Cover the input buffer area of PROFIBUS DP when CAN network has data.

0: CAN will not transmit the data to PROFIBUS DP side (PROFIBUS DP master) until Bit 1 of PROFIBUS DP sending control word starts to reverse.

- Byte 2: Data bytes number, range 0~8, the rest is 8.
- Byte 3:

Bit	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Meaning	Reserved	RTR	Reserved	The highest 5 bits of frame header				

Bit 6 of byte 3: RTR, 0 indicates data frame, 1indicates remote frame.

Bit 0~4 of byte 3 to byte 6: Frame header of CAN2.0A/2.0B.

- Byte 4: The second highest 8 bits of frame header
- Byte 5: The second lowest 8 bits of frame header
- Byte 6: The highest 8 bits of frame header
- Byte 7~byte 14: CAN data

PROFIBUS DP network input <-CAN

Byte	0	1	2-6	7-14
Meaning	Offline counter	CAN send control word	CAN frame header and control	CAN data sending

- Byte 0: CAN is offline once, this value will add 1 until 255.
- Byte 1:CAN send control word

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Meaning	Bus status	CAN fetch ROFIBUS	CAN receive buffer full	CAN data update flag	CAN2.0 A/B	Reserved	Reserved	Reserved

		DP data flag	flag					

Bit 7: 1: CAN is in the Offline status

0: CAN is in the Online status

Bit 6: The reversal of this bit indicates the gateway has got the PROFIBUS DP data.

Bit 5: 1: CAN receive buffer is full

0: Not full

Bit 4: The reversal of this bit indicates this frame data is valid, otherwise is invalid.

Bit 3: 1: CAN2.0A frame

0: CAN2.0B frame

Note: Valid when the gateway is configured as CAN2.0B

Bit 2-Bit 0: Reserved

- Byte 2: Data bytes number, range 0~8, the rest is 8
- Byte 3:

Bit	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Meaning	Reserved	RTR	Reserved	The highest 5 bits of frame header				

Bit 6 of byte 3: RTR, 0 indicates data frame, 1indicates remote frame.

Bit 0~4 of byte 3 to byte 6: Frame header of CAN2.0A/2.0B.

- Byte 4: The second highest 8 bits of frame header.
- Byte 5: The second lowest 8 bits of frame header.
- Byte 6: The highest 8 bits of frame header.
- Byte 7~byte 14: CAN data.

5.2 DP Parameter Configuration Mode (CAN Frame Filtering Recommended)

When using the DP parameter configuration mode, the CAN frame filtering function is supported, which is used to configure parameters in GSD V5.1 mode.

5.2.1 Device Parameters:

Protocol: CAN 2.0A/B, no need to set, corresponding to two GSD files, PCANV51A for CAN 2.0A, and PCANV51B for CAN 2.0B.

CAN Baud Rate: 1M, 500K, 250K, 125K, 100K, 62.5K, 31.25K, 20K, 10K.

Send Cycle for Sending Frame: In milliseconds (ms), range (0-60000ms), default value is 0, 0 means change-driven output, non-zero values indicate periodic sending of CAN frames.

Receive Timeout for Clearing Time: In milliseconds (ms), range (0-60000ms), 0 means hold.

Timeout for Command Response in Polling Mode: In milliseconds (ms), range (5-60000ms), default value is 100.

Polling Delay Time for Command in Polling Mode: In milliseconds (ms), range (0-60000ms), default value is 10.

Polling Request Command Mode: Options are change-driven and periodic, default is change-driven.

Polling Failure Handling: Options are clear and hold, default is clear.

Frame ID: The send frame ID in the sending data block and polling mode cannot be the same; the receive frame ID in the receiving data block and polling mode cannot be the same.

5.2.2 DP Data Blocks:

Send Frame Data Block: 1 block, 16 bytes, data format is the same as the 16-byte mode in the software configuration (refer to section 5.1.1).

Receive Frame Data Block: 1 block, 16 bytes, data format is the same as the 16-byte mode in the software configuration.

Status Word Data Block (to be placed at the front during configuration): 8 blocks (16 bytes) for CAN 2.0B.

1-byte data block monitors the status of 8 receive and polling receive frames.

8-byte data block monitors the status of 64 receive and polling receive frames. Each bit represents the status of 1 receive or polling receive frame. When the response is correct, it is set to 1, and when there is a timeout or error, it is set to 0.

Control Word Data Block (to be placed at the front during configuration): 8 blocks (16 bytes) for CAN 2.0B.

1-byte data block controls the sending of 8 send and polling send frames.

8-byte data block monitors the sending of 64 send and polling send frames. Each bit controls the sending of 1 send or polling send frame. When set to 1, sending is allowed; when set to 0, sending is prohibited. If the control word is not configured, sending is allowed by default.

Send Data Blocks: 8 blocks, 1~8 bytes each.

Receive Data Blocks: 8 blocks, 1~8 bytes each.

Polling Data Blocks: 64 blocks, combinations of send 1 byte + receive 1 byte, send 1 byte + receive 2 bytes, ..., send 1 byte + receive 8 bytes, send 2 bytes + receive 1 byte, ..., send 8 bytes + receive 8 bytes.

5.2.3 CAN Frame Filtering and Sending Function:

You can set the filtering CAN ID and the number of bytes (select the corresponding length data block) to filter out non-matching CAN frame data. Filtering is divided into receive frame filtering, send filtering, receive filtering, and polling filtering.

Receive Frame Filtering (Recv Frame):

Uses a mask method, with up to 15 groups configurable.

The FilterMask and FilterID parameters work together to generate one or more CAN message IDs, and other message IDs will be filtered out, meaning the corresponding data blocks will not be received. The default value for these parameters is 0, which means no filtering.

When a bit in the "FilterMask" is set to 1, the corresponding bit in the received CAN message ID must match the corresponding bit in the "FilterID" to be received.

Example: If FilterMask is set to 10, which is binary 0000 1010, only the first and third bits are checked. If FilterID is set to 8, which is binary 0000 1000, the first bit of the received CAN ID must be 0, and the third bit must be 1, with no checks on other bits.

Send/Receive/Polling Filtering:

Command Count: CAN 2.0A supports up to 64 commands, CAN 2.0B supports up to 42 commands. Each send data block occupies 1 command, each receive data block occupies 1 command, and each polling data block occupies 2 commands.

Receive Filtering Configurable Parameters: Frame ID, Frame Format (only 1-byte data blocks can set data frame or remote frame; other data blocks are fixed as data frames). (Note: Frame IDs cannot be the same, otherwise the RUN LED will stay on.)

Polling Filtering Configurable Parameters: Send Frame ID, Send Frame Format (data frame only), Receive Frame ID, Receive Frame Format (data frame only). (Note: Frame IDs cannot be the same, otherwise the RUN LED will stay on.)

Fixed Frame ID for Send Frame:

Send Configurable Parameters: Frame ID, Frame Format (only 1-byte data blocks can set data frame or remote frame; other data blocks are fixed as data frames). (Note: Frame IDs cannot be the same, otherwise the RUN LED will stay on.)

5.2.4 Frame Formats:

Data Frame: Supported by send, receive, and polling data blocks.

Remote Frame: Only supported by 1-byte send and 1-byte receive data blocks.

Each send/receive remote frame requires a corresponding receive/send data frame.

Remote frames and corresponding data frames are paired by matching Frame IDs. If the firmware detects no matching data frame for a remote frame during CAN network initialization (when the DP connection is established), the RUN LED will flash red.

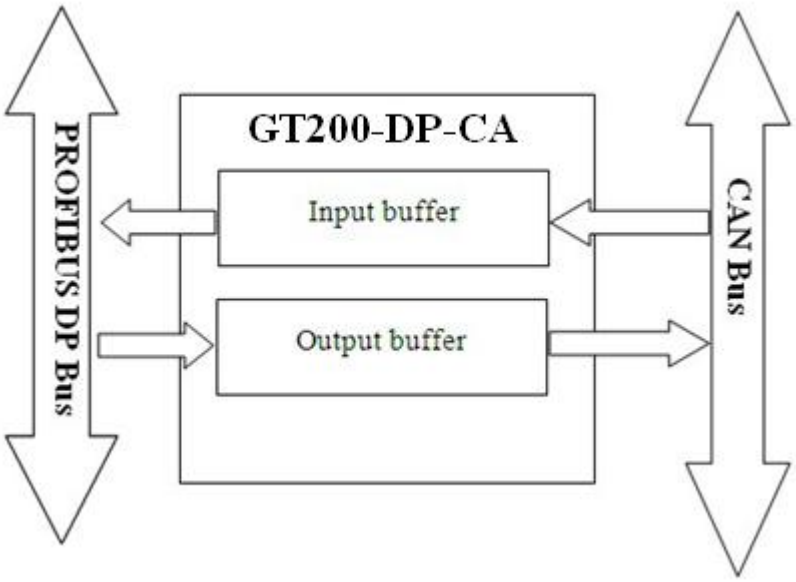
The DLC request data length of the send remote frame must match the length of the corresponding receive data frame.

The DLC request data length of the receive remote frame should generally match the length of the corresponding send data frame. However, for better adaptability, after receiving the remote frame, the gateway will immediately send the corresponding data frame as long as the Frame ID matches, without checking if the DLC request data length matches.

When the 1-byte send data block is used as a remote frame, the 1-byte DP output data serves as a transaction sequence number, sending the remote frame once when it changes.

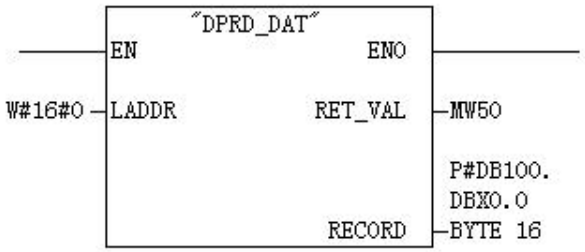
When the 1-byte receive data block is used as a remote frame, the 1-byte DP input data serves as a transaction sequence number. The sequence number automatically increments by 1 when a remote frame is received, starting from 0 at initialization and rolling over from 255 to 0.

5.5 Working Mode of GT200-DP-CA

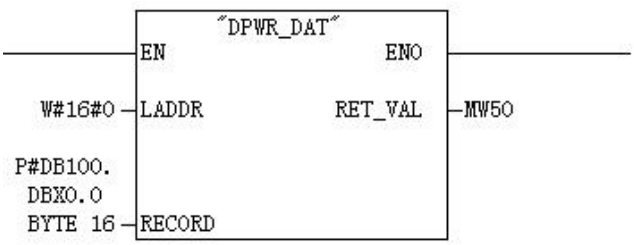


5.6 Step 7 Read and Write Data to Gateway

GT200-DP-CA data consistency at the side of PROFIBUS uses “Total length” mode, so sending and receiving must apply packed way in Step 7 programming. Sending and receiving by packed mode mainly use SFC15 (packed sending) and SFC14 (packed receiving).



SFC14



SFC15

6 Troubleshooting and Suggestions

Number	Description	Explanation or suggestion
1	PBF (PROFIBUS DP Failure) Red on	PROFIBUS DP network communication fails.
2	PBF (PROFIBUS DP Failure) Red off	PROFIBUS DP network communication is OK.
3	ERR indicator red on or blinking at running mode	CAN bus is Off or error counter of send/receive beyond alert value. Check CAN baud rate of gateway and the baud rate must be the same with other nodes of CAN network. Configure terminal resistor[1] for CAN bus.

Note: Terminal resistance:

CAN is a kind of differential level communication. There exits echo noise on the communication line when communication distance is long or communication baud rate is high. User needs a terminal resistor (120Ω/2W) in both terminals of communication lines.

AppendixA:Using STEP7 to Configure PROFIBUS DP

The following show how to use STEP7 to configure GT200-DP-CA:

1 Open SIMATIC Manager, Figure 1:

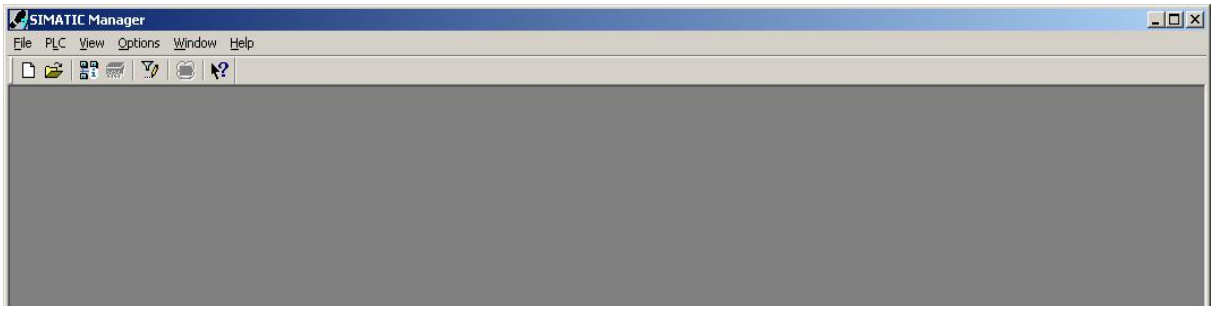


Figure 1

2 Click File, and then select New, create a new project. Figure 2:

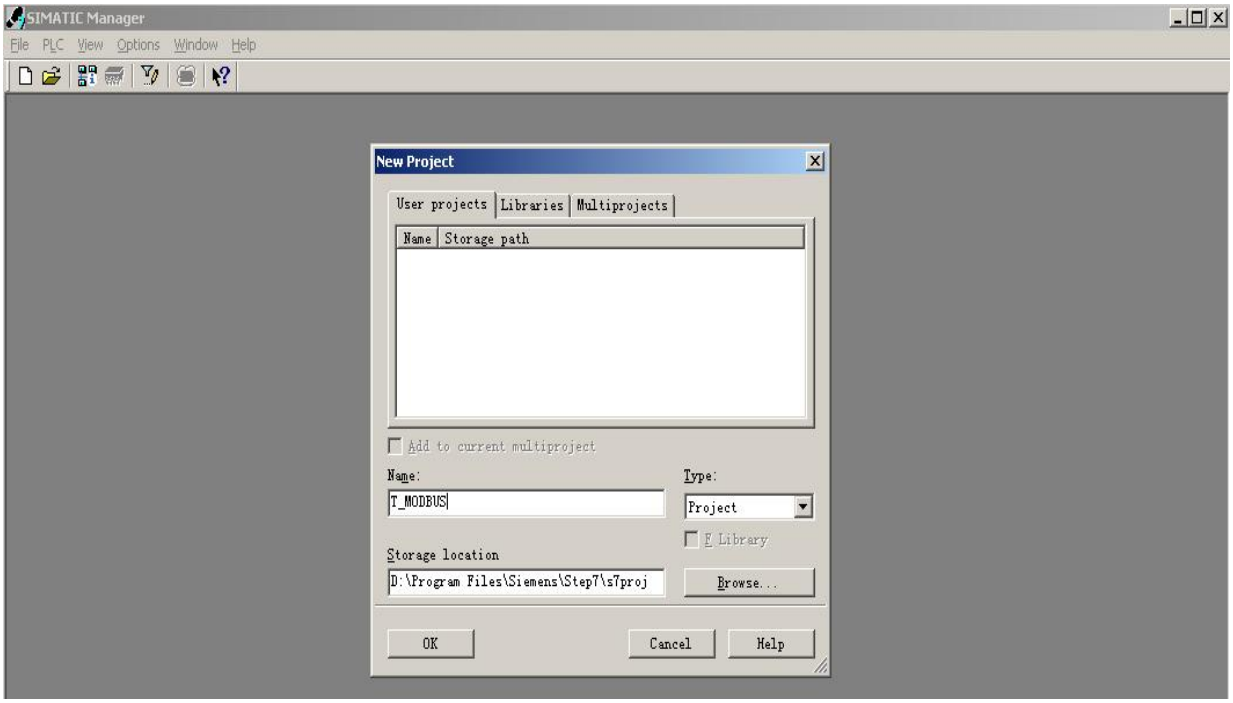


Figure 2

3 Click Insert->Station-> SIMATIC 300 Station. Figure 3:

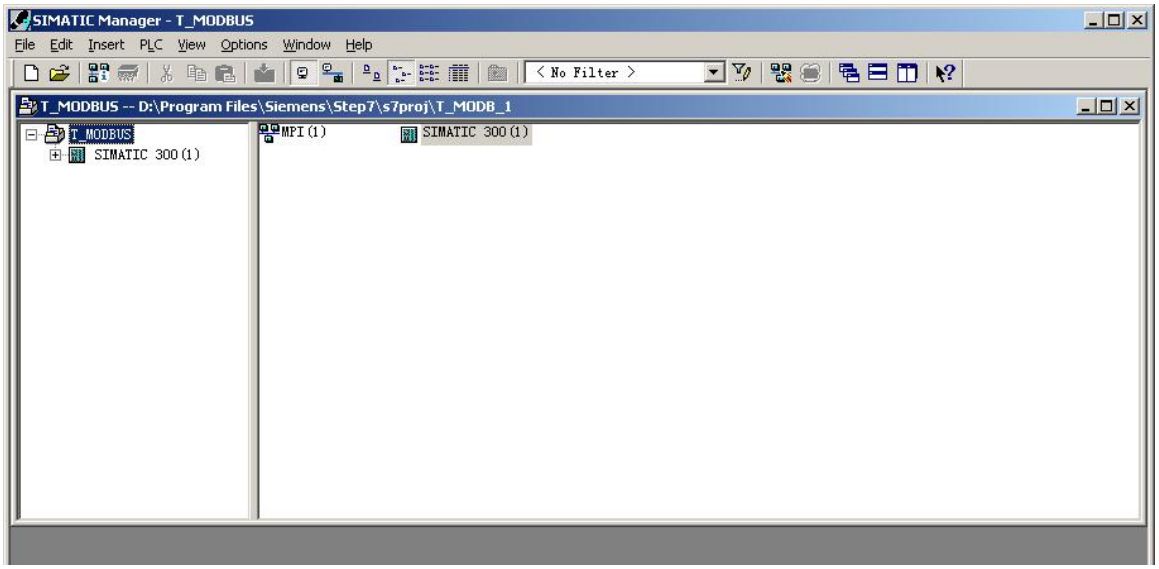


Figure 3

4 Open S7 PLC hardware configurations

Open SIMATIC 300(1) and then double-click Hardware. Figure 4:

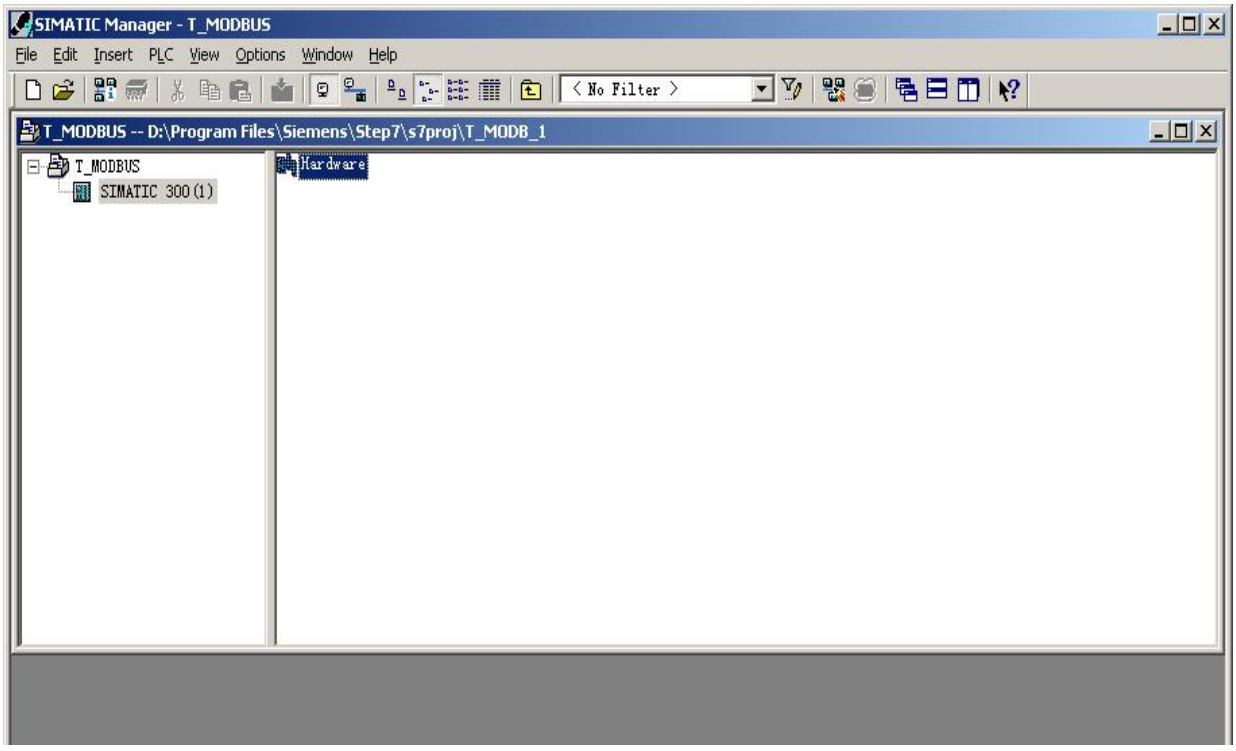


Figure 4

5 In the menu, select Options and Install GSD file, Update GSD in the device catalog, Figure 5:

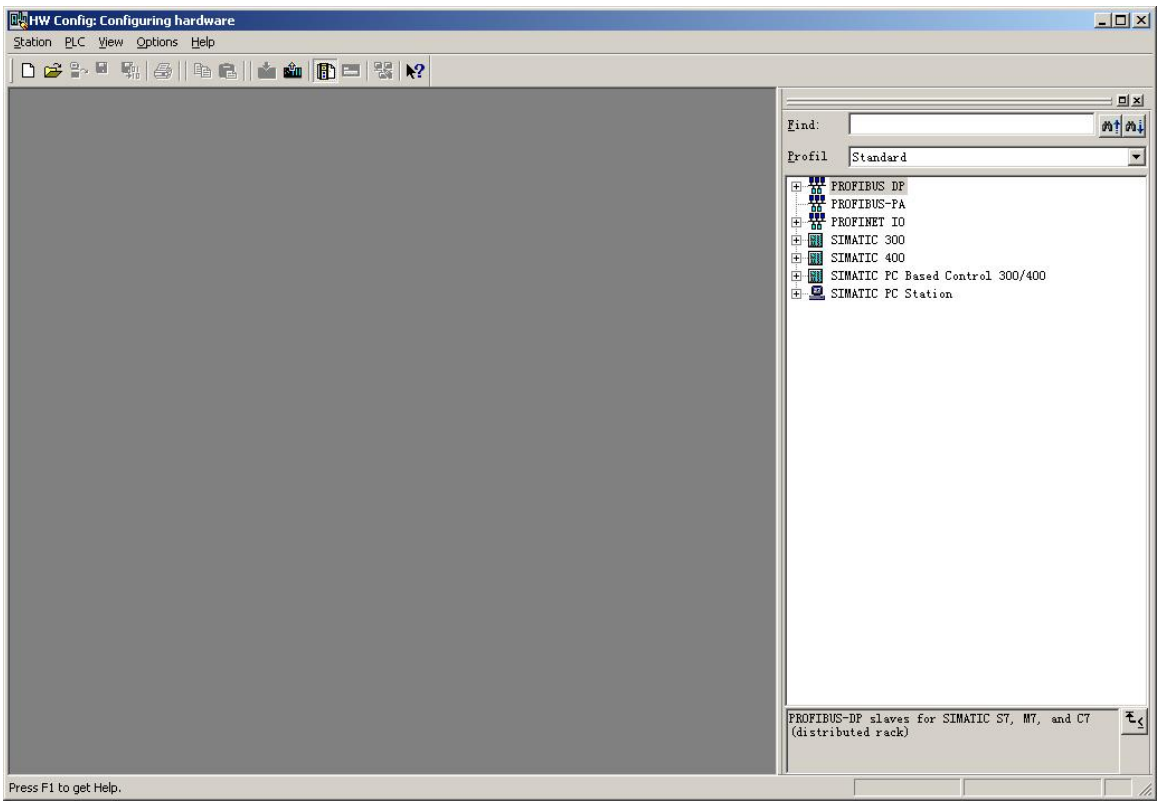


Figure 5

6 Here you can find your equipment in the right side of the window /PROFIBUS DP/Additional Field Devices/Converter/GT200-DP-CA/, Figure 6:

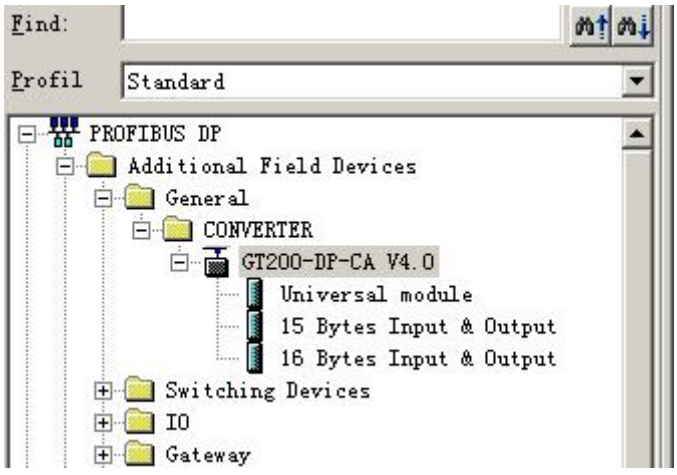


Figure 6

7 Set PLC rack, click the “Hardware Catalog\SIMATIC 300\RACK-300 \ Rail”, Figure 7:

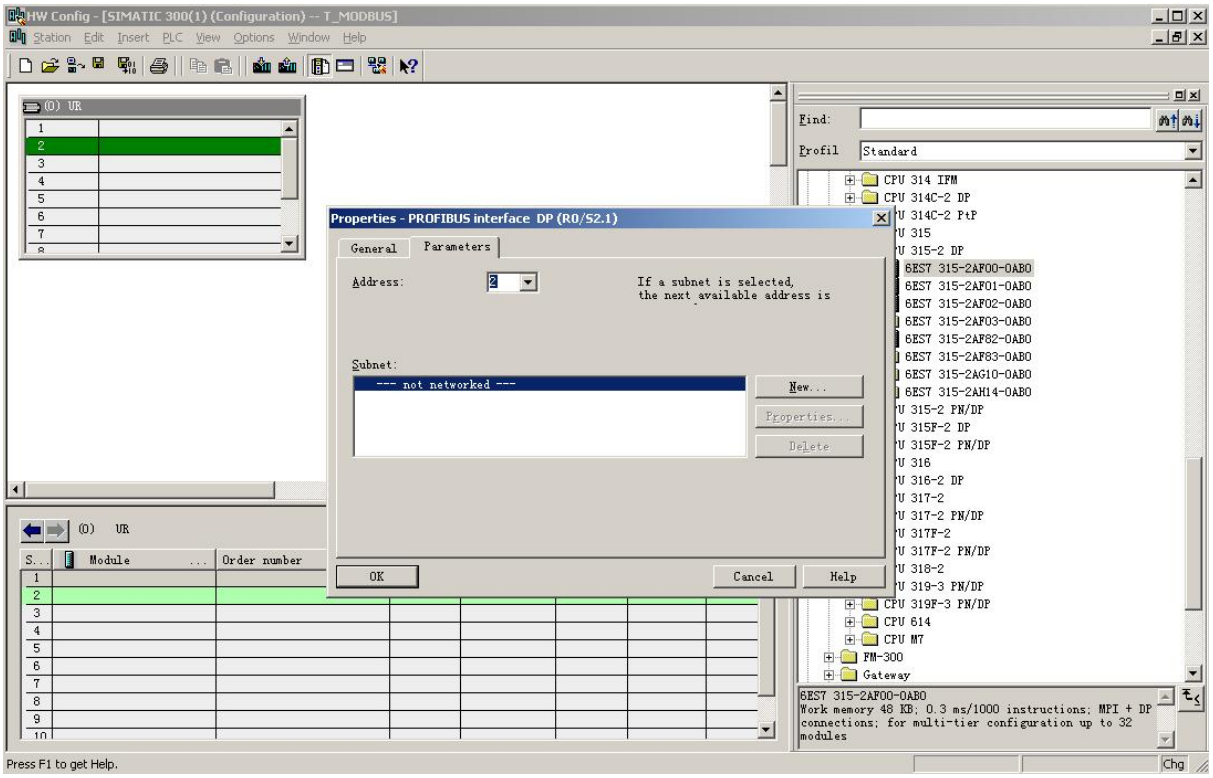


Figure 7

8 Set CPU module and select the corresponding device type and the occupied slots.

9 Create PROFIBUS DP network and configure PROFIBUS DP: Click New and then Network settings, select DP, select a baud rate such as 187.5Kbps, then “OK”. Double-click it. Figure 8:

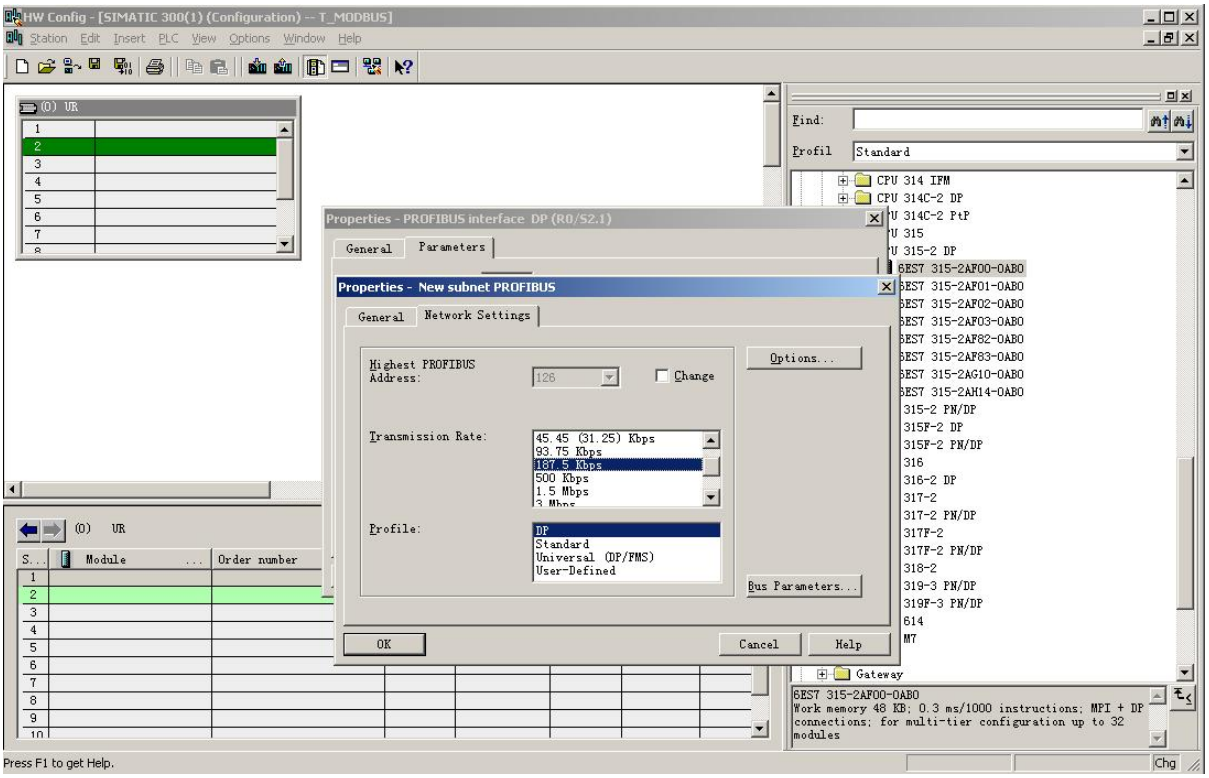


Figure 8

10 Select PROFIBUS DP Master address. Figure 9:

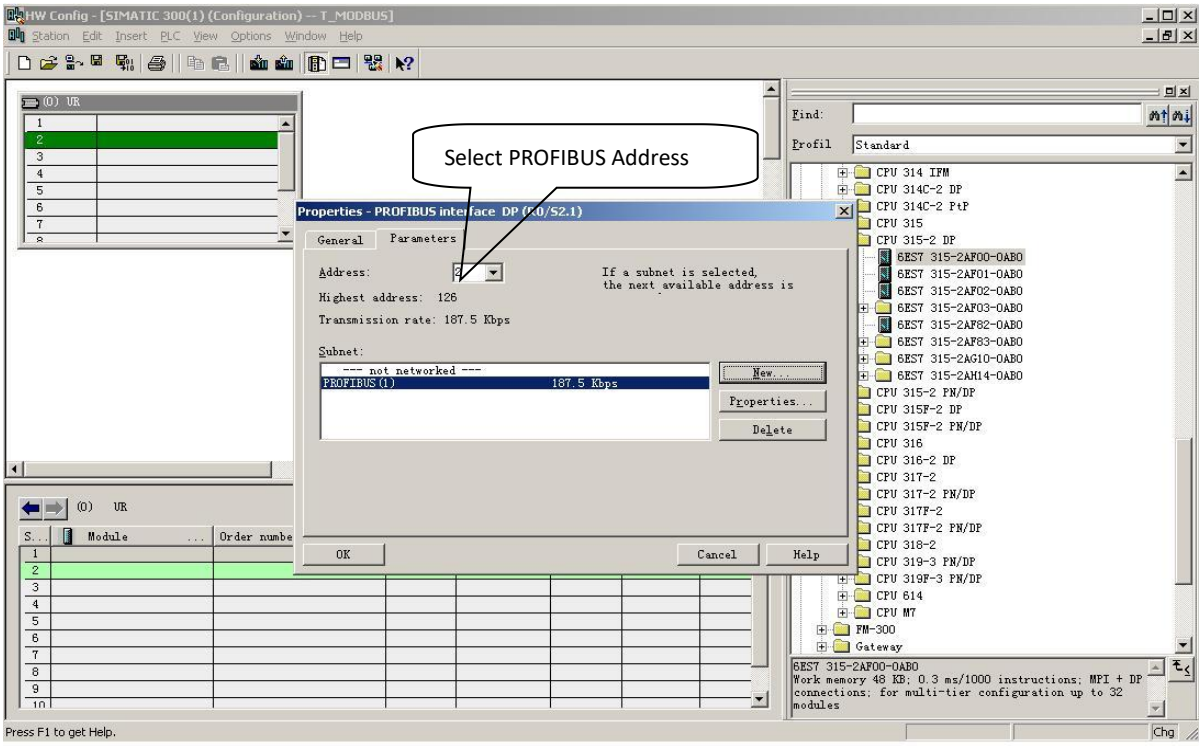


Figure 9

11 Drag GT200-DP-CA slave station configuration into PROFIBUS DP network, and map the input and output

data block into S7-300 or other controller's memory, Figure 10:

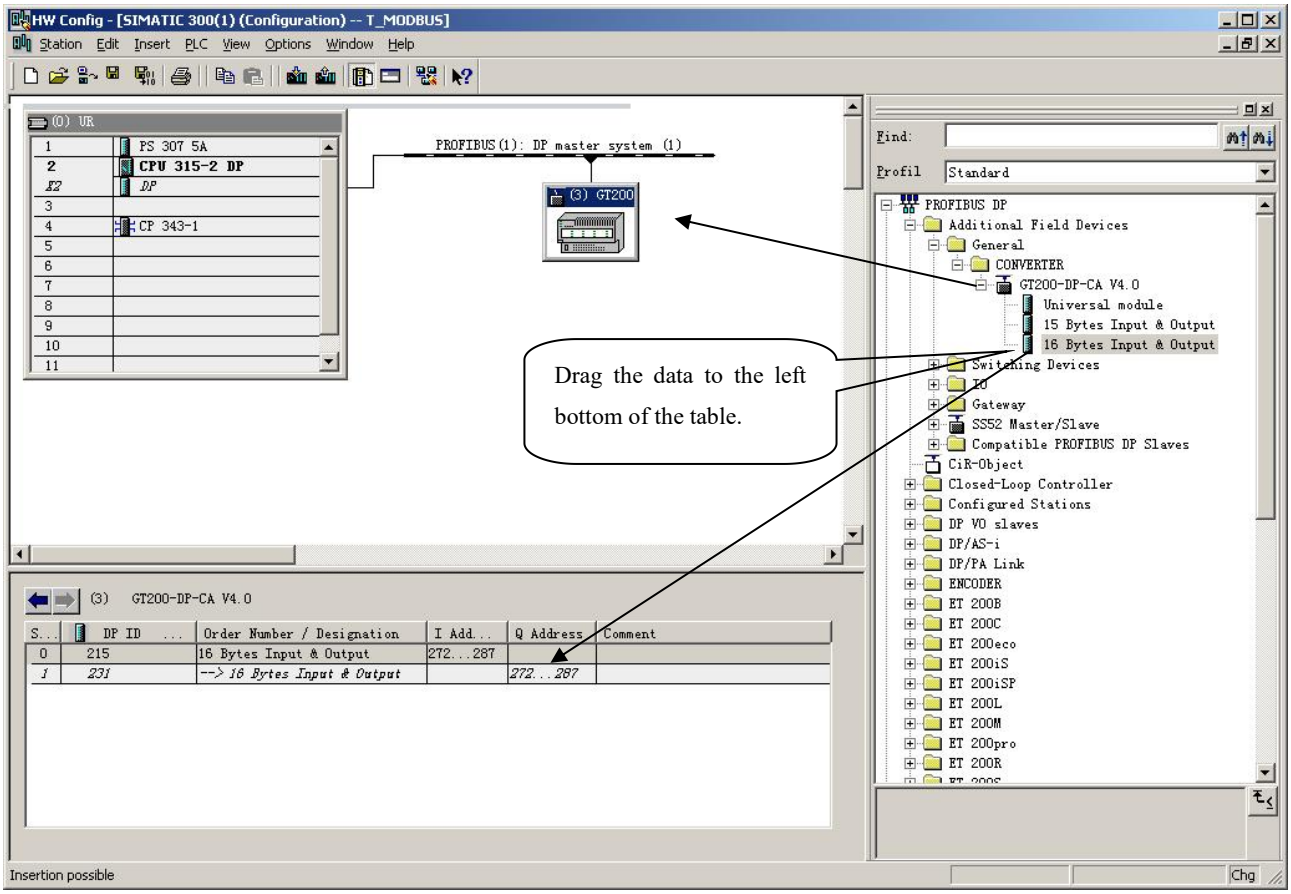


Figure 10

Operation is divided into two steps, the first step is dragging GT200-DP-CA into the network configuration on the upper left, the mouse will change shape, and that is to say it can be placed. The second step is dragging data block into the data mapping table at the bottom left, the table will change to green, and that is to say it can be placed, mapping relevant bytes to the PLC memory.

Remark1: User SST-PCA-CFG to configure input/output bytes of GT200-DP-CA, if user configures 15 bytes input/output, drag "15 Byte Input & Output" to data mapping table. If the data block dragged to the table doesn't match the gateway configuration, PROFIBUS DP will not connect. If user does not modify the default configuration byte number, the maximum of factory configuration is "16 Byte Input & Output".

Remark2: The PROFIBUS DP slave address must be the same with display setting of the LED (Configure through the setting button on the panel)!

12 Comply, download into PLC and configuration is done.