

EtherNet / CAN Gateway GT200-MT-CA

User Manual

V1.7



SST Automation

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1 Product Overview

1.1 Product Function

It can monitor data on the CAN network through Modbus TCP, TCP Server, TCP Client and UDP protocols, etc.

1.2 Technical Specifications

[1] Modbus TCP/CAN

➤ Ethernet Side

- ① Two adaptive Ethernet port, half-duplex, full-duplex.
- ② Supports Modbus TCP protocol, as server (Modbus TCP server).
- ③ Supports 03, 04, 06, 16 function codes.
- ④ Supports Manually Assign IP and DHCP, and automatically assigns the default IP192.168.0.10 after DHCP times out (30s).

➤ CAN Side

- ① Supports CAN2.0A and CAN2.0B.
- ② CAN Baud rate supports 1M, 500K, 250K, 125K, 100K, 50K, 20K, 10K bps.

➤ Basic Mode

- ① Input register start address is 0, support 04 function code.
- ② Output register start address is 0, support 03, 06, 16 function codes.
- ③ Each 8 registers (16 bytes) constitute 1 CAN frame.
- ④ Each Modbus TCP command packet contains up to 15 CAN frame.
- ⑤ Send buffer can cache up to 300 CAN frame (in the non-periodic transmission mode) and 50 CAN frames (in the periodic transmission mode).Receive buffer can cache up to 150 frame.
- ⑥ Receive buffer can cache up to 150 frame.

➤ Advance Mode

- ① Support Producer Frames, Producer Frames and Query&Response Frames, with a maximum of 64 consumer frames.
- ② The maximum number of data input/output is 512 bytes.
- ③ Send buffer can cache up to 300 CAN frame.
- ④ Receive buffer can cache up to 150 frame.
- ⑤ The starting address of the input register (input data) can be set, range: 0~65023.
- ⑥ The starting address of the output register (output data) can be set, range: 0~65023.

- ⑦ The cycle for Producer transmission, range: 0-60000ms. Zero means to use the mode of change of value output.
- ⑧ The response timeout setting for Query&Response frames, range is 0-60000ms and the default value is 100ms.
- ⑨ The Polling Delay Time for Query&Response frames, range is 0-60000ms and the default value is 10s.
- ⑩ Query&Response request command type: Change of Value, Cyclic.
- ⑪ The Error Process for Query&Response frames: Clear, Hold.
- ⑫ Clear Timeout(ms): Range: 0 - 60000ms, If this parameter is 0, the gateway will not clear the corresponding data buffer.

[2] TCP Server/CAN

➤ Ethernet Side

- ⑦ Two adaptive Ethernet port, half-duplex, full-duplex.
- ⑧ Supports TCP protocol, as TCP server.
- ⑨ Supports 4 Client connections.
- ⑩ Supports forwarding CAN frame data to 4 TCP client and CAN frame data from 4 Client.
- ⑪ Gateway can cache up to 200 CAN frame data from TCP Client.
- ⑫ Supports static IP address configuration (manual allocation) and DHCP automatically assigns IP address.
- ⑬ Supports local port configuration.
- ⑭ Support for keep-alive, automatic detection of the presence of TCP connection.

➤ CAN Side

- ⑬ Supports CAN2.0A and CAN2.0B.
- ⑭ CAN Baud rate support 1M, 500K, 250K, 125K, 100K, 50K, 20K, 10K bps.
- ⑮ Gateway can cache up to 150 CAN frame data from CAN device.
- ⑯ Supports time stamp (need to configure).
- ⑰ Supports configuring Ethernet packet contain CAN frames.
- ⑱ Supports configuring waiting time between Ethernet packet.
- ⑲ Supports for remote requests.

[3] TCP Client/CAN

➤ Ethernet Side

- ① Two adaptive Ethernet port, half-duplex, full-duplex.
- ② Support TCP protocol, as TCP Client.
- ③ Constantly tries to connect the server until the success.
- ④ Gateway can cache up to 200 CAN frame data from TCP server.
- ⑤ Supports static IP address configuration (manual allocation) and DHCP automatically assigns IP addresses.
- ⑥ Supports local port configuration.

- ⑦ Supports for keep-alive, automatic detection of TCP connection.
- ⑧ Supports visiting remote device (TCP Server) (IP address and port number).

➤ CAN Side

- ① Supports CAN2.0A and CAN2.0B.
- ② CAN Baud rate support 1M, 500K, 250K, 125K, 100K, 50K, 20K, 10K bps.
- ③ Gateway can cache up to 150 CAN frame data from CAN device.
- ④ Supports time stamp (need to configure).
- ⑤ Supports configuring CAN frames NOs in Ethernet packet.
- ⑥ Supports configuring waiting time between Ethernet packet.
- ⑦ Supports for remote requests.

[4] UDP/CAN

➤ Ethernet Side

- ① Two adaptive Ethernet port, half-duplex, full-duplex.
- ② Support UDP protocol.
- ③ Forward data to CAN and Ethernet network.
- ④ Supports static IP address configuration (manual allocation) and DHCP automatically assigns IP address.
- ⑤ Supports local port configuration.
- ⑥ Supports visiting remote device (TCP Server) (IP address and port number).

➤ CAN side

- ① Supports CAN2.0A and CAN2.0B.
- ② CAN Baud rate support 1M, 500K, 250K, 125K, 100K, 50K, 20K, 10K bps.
- ③ Supports time stamp (need to configure).
- ④ Supports configuring CAN frames NOs in Ethernet packet.
- ⑤ Supports configuring waiting time between Ethernet packet.
- ⑥ Supports for remote requests.

[5] Power: 24 VDC (11~30 VDC), 80mA(24VDC).

[6] Operating temperature: -40°F~158°F (-40°C~70°C). Humidity: 5%~95% (non-condensing).

[7] Dimensions (W*H*D): 1.0 in * 4.0 in * 3.6 in (25 mm * 100 mm * 90 mm).

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

[9] Class of pollution: ≤ Level 3.

1.3 Related Products

The related products include: GT200-EI-CA, GT200-EI-CO, GT200-PN-CO, GT200-MT-CO etc.

To get more information about these products, please visit SST Automation's website: www.sstautomation.com.



1.4 Revision History

Revision	Date	Chapter	Description
V1.0, Rev A	12/28/2021	ALL	Update the format Modified Chapter 4.2
V1.2, Rev A	1/30/2022	PART	Added support for 06 function code
V1.7	1/30/2024	PART	Add CAN ID filtering function in the Modbus TCP Server mode

2 Hardware Descriptions

2.1 Product Appearance



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

2.2 Indicators

2.2.1 Modbus TCP

The indicator light is shown in the following table:

Indicators	Status	Descriptions
ENS (Ethernet status indicator)	Green	Modbus TCP connection has been established.
	Green blinking	Modbus TCP connection has not been established.
	Red	DHCP status
	Red blinking three times	Modbus TCP connection is disconnected.
CNS	Red	CAN network error
	Green	CAN network normal
ENS (Orange) and CNS (Orange) (Orange: Red and green are on at the same time)	Blinking alternately	Configuration Mode
ENS (red), CNS (red)	Blinking three times	Using locate function

Configuration Mode: After power on, ENS and CNS orange indicator blinks alternately, showing the gateway is in configuration status.

Run Mode: After power on, ENS and CNS orange indicator are on simultaneously for about 100ms (initialization), ENS red light blinks in a short period then turns to green light blinking, CNS turns to green on. It indicates Modbus TCP connection has not been established, while the CAN network is normal. When the Modbus TCP connection is established, ENS and CNS green light on.

2.2.2 TCP Server

The indicator light is shown as the following table:

Indicators	Status	Descriptions
ENS (Ethernet status indicator)	Green	At least one Client connection has been established.
	Green blinking	Connection has not been established.
	Red	DHCP status
	Red blinking three times	During more than one Client connection, there is disconnected. (The last Client disconnected, showing green light flashing)
CNS	Red	CAN network error
	Green	CAN network normal
ENS (Orange) and CNS (Orange) (Orange: Red and green light on at the same time)	Blinking alternately	Configuration Mode
ENS red, CNS red	Blinking three times	Using locate function

Configuration Mode: After power on, the ENS and CNS orange light on simultaneously, and then blinks alternately, showing the gateway is in the state of configuration.

Run Mode: After power on, ENS and CNS orange light on simultaneously, and then ENS red light blinks a while then becomes green blinking, CNS turns to green on. It indicates TCP Server connection has not been established, while the CAN network is normal. When the Client connection has been established, ENS and CNS green indicators are on.

2.2.3 TCP Client

The indicator light shows the following table:

Indicators	Status	Descriptions
ENS (Ethernet status indicator)	Green	Connection with the server has been established.
	Green blinking	Connection with the server has not been established.
	Red on	DHCP status
CNS	Red blinking three times	CAN network error
	Red	CAN network normal
ENS (Orange) and CNS (Orange) (Orange: Red and green light on at the same time)	Blinking alternately	Configuration Mode
ENS (red), CNS (red)	Blinking three times	Using locate function

Configuration Mode: After power on, the ENC and CNS orange light on, and then blinks alternately, showing the gateway is in the configuration mode.

Run Mode: After power on, ENS and CNS orange indicators are on simultaneously, ENS red light blinks a while then becomes green blinking, CNS turns to green on. It indicates TCP Client connection has not been established, while the CAN network is normal. When the Client has succeeded in connecting Server, ENS and CNS green light are on.

2.2.4 UDP

The indicator description is shown in the following table:

Indicators	Status	Descriptions
ENS (Ethernet status indicator)	Green	UDP normal
	Red	DHCP status
CNS	Red	CAN network error
	Green	CAN network normal
ENS (Orange) and CNS (Orange) (Orange: Red and green light on at the same time)	Blinking alternately	Configuration Mode
ENS (red), CNS (red)	Blinking three times	Using locate function

Configuration Mode: After power on, ENS and CNS orange indicators are on simultaneously, and then turn to

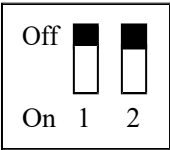
blinking alternately, and showing the gateway is in configuration mode.

Run Mode: After power on, ENS and CNS orange indicators are on simultaneously, and then become green. It indicates UDP initialization is completed, while the CAN network is normal.

2.3 DIP Switch

Two modes: The run mode and configuration mode.

Usage: DIP switch is located below the product, bit 2 is mode bit. bit 1 is the function bit.



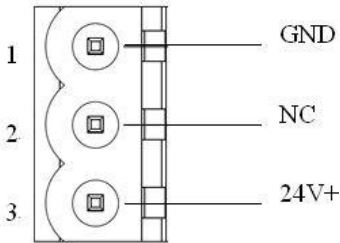
Mode (bit 2)	Function (bit 1)	Description
OFF	OFF	Run mode: allow data exchange and upload/download configuration.
OFF	ON	Run mode: only perform data exchange, but cannot be configured.
ON	OFF	Configuration mode: IP address is 192.168.0.10 (fixed). Only allow upload/download configuration.
ON	ON	Reserved

Notes: After re-configuring DIP switch, you must restart the gateway GT200-MT-CA (power off and power on) to let the configuration take effect! After configuration is done, it is suggested to set the DIP switch to “2(OFF)1(ON)”(Run mode: only perform data exchange, but cannot be configured).

2.4 Interface

2.4.1 Power Interface

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

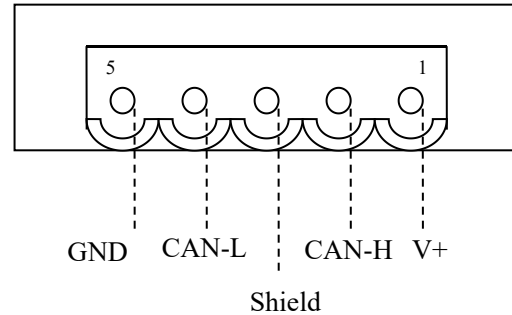




2.4.2 CAN Interface

CAN side connector:

Pin	Wiring
Pin 1	V+(optional)
Pin 2	CAN-H
Pin 3	Shield (optional)
Pin 4	CAN-L
Pin 5	GND, GND of 24V (optional)



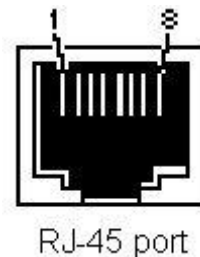
Notes: Here, shield port is optional. The CAN-L and CAN-H must be connected. Here pin 1 and 5 are connected to the pin 3 and pin 1 of power port internally.

Attention: Here only one interface of 24V interface and power interface is required to connect, but should not be connected simultaneously.

2.4.3 Ethernet Interface

Ethernet interface uses RJ45 connector. its pin (standard Ethernet signal) is defined as below:

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

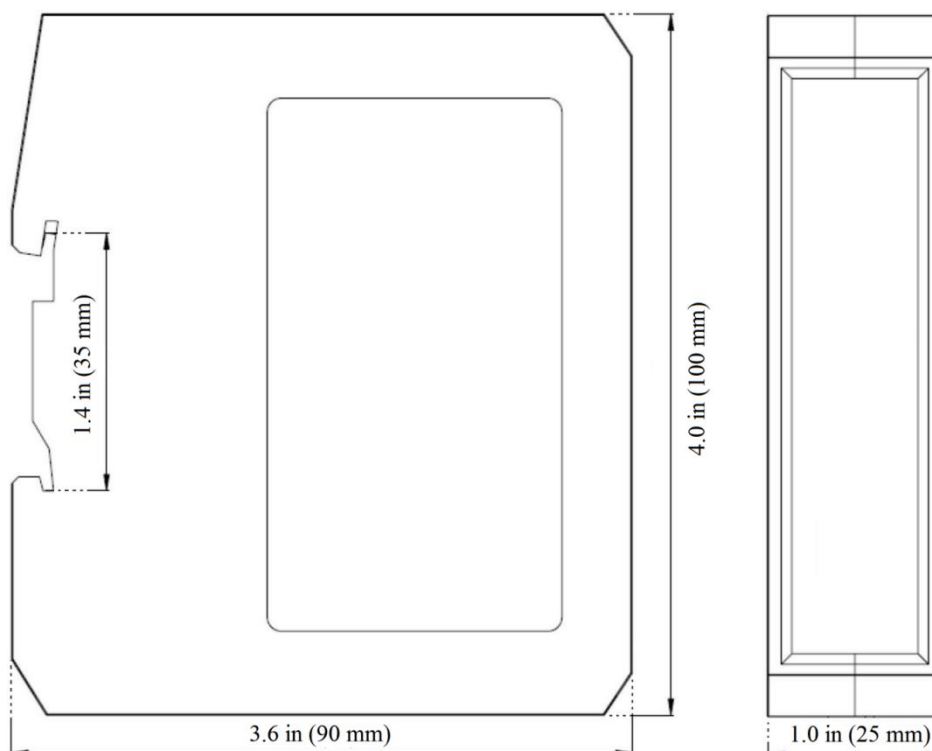


3 Hardware Installation

3.1 Machine Dimension

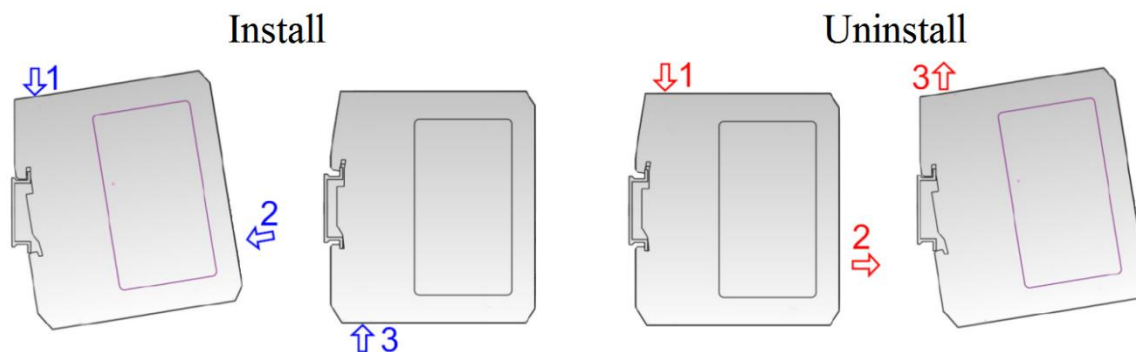
Size (width * height * depth):

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



3.2 Installation Method

Using 1.4 in (35mm) DIN RAIL.

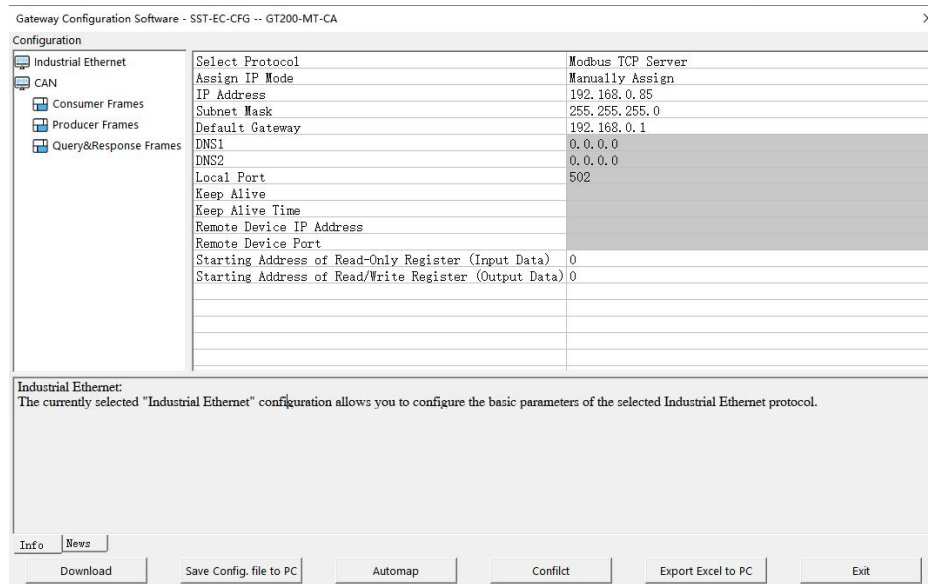


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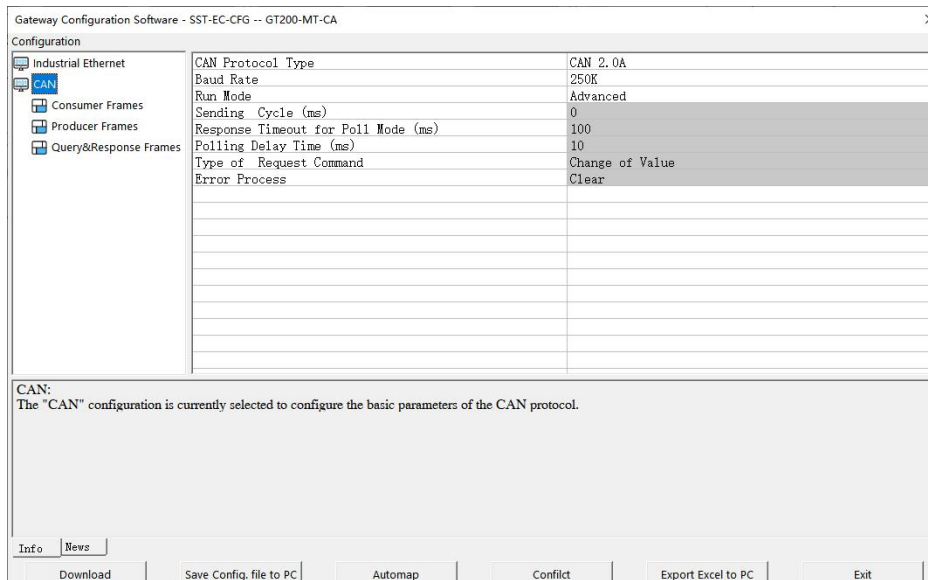
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3. Select the device and click the “Configure” button, or double-click the selected device. You will see the configuration settings are shown below:



4. Click “Industrial Ethernet” in the tree view on the left, in the “Select Protocol” item, you can select Modbus TCP Server, TCP Server, TCP Client, or UDP. Please configure an IP address and other parameters of the gateway according to actual needs.
5. Click the “CAN” on the left, configure the parameters as below:



Note: The setting protocol is different, the “CAN” interface can be configured with different parameters.

6. Click the “download” button, select the gateway you want to download to and click “OK”.
 7. Set DIP Switch to “2(OFF) , 1(OFF)” (Run mode) and restart the gateway. Make the configuration effective.
- Tips: You can click the “[Remotely Reset](#)” button to restart the gateway. Or power off and power on the gateway again.

Click “Search Device” you can search all devices on the network.

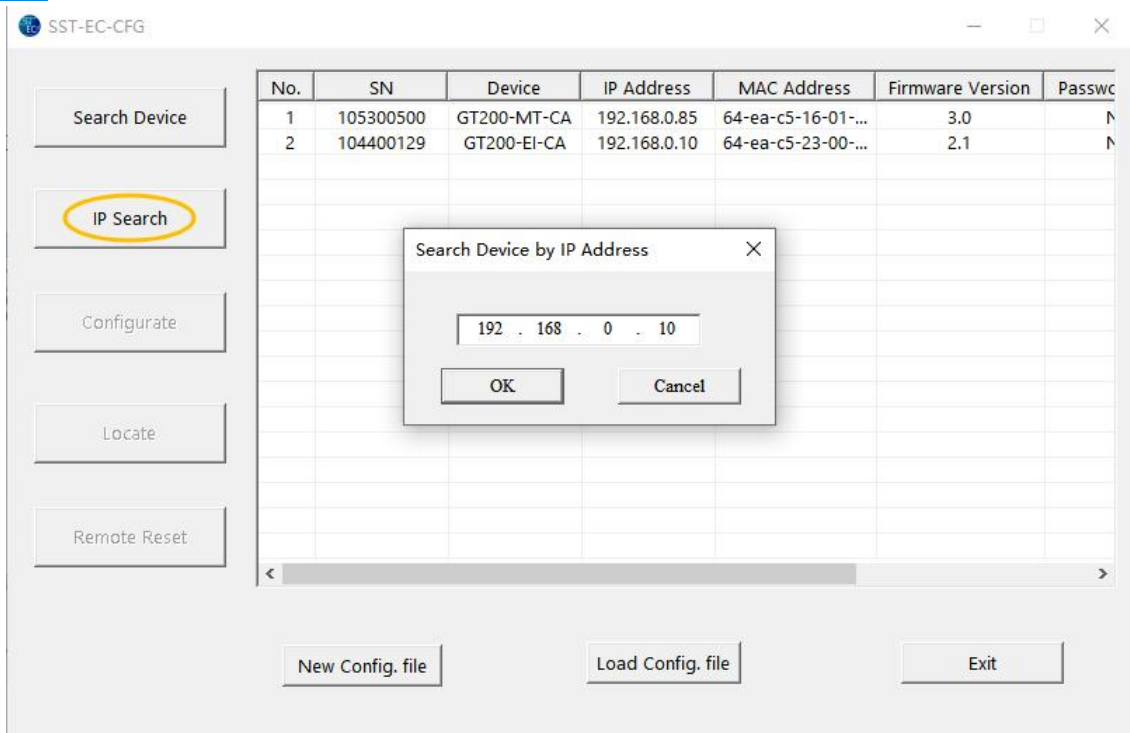


“IP Search” can search specified device by IP address, thereby configure this device. At this time, it only lists the device using the IP address.

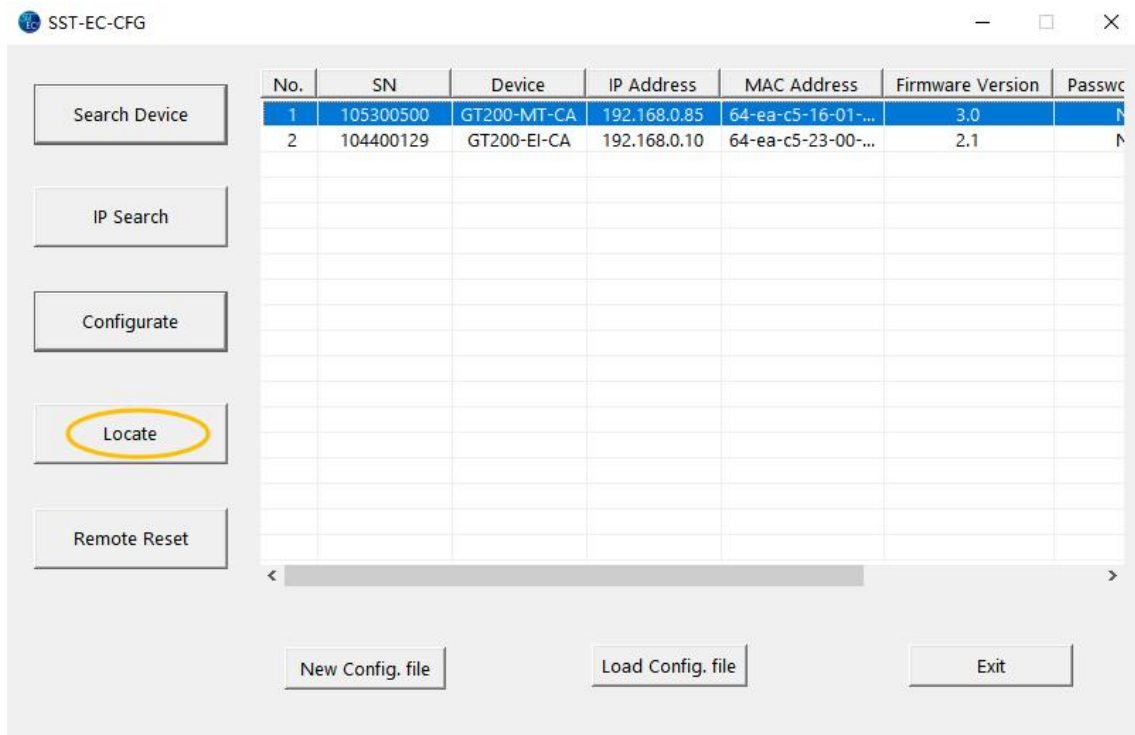
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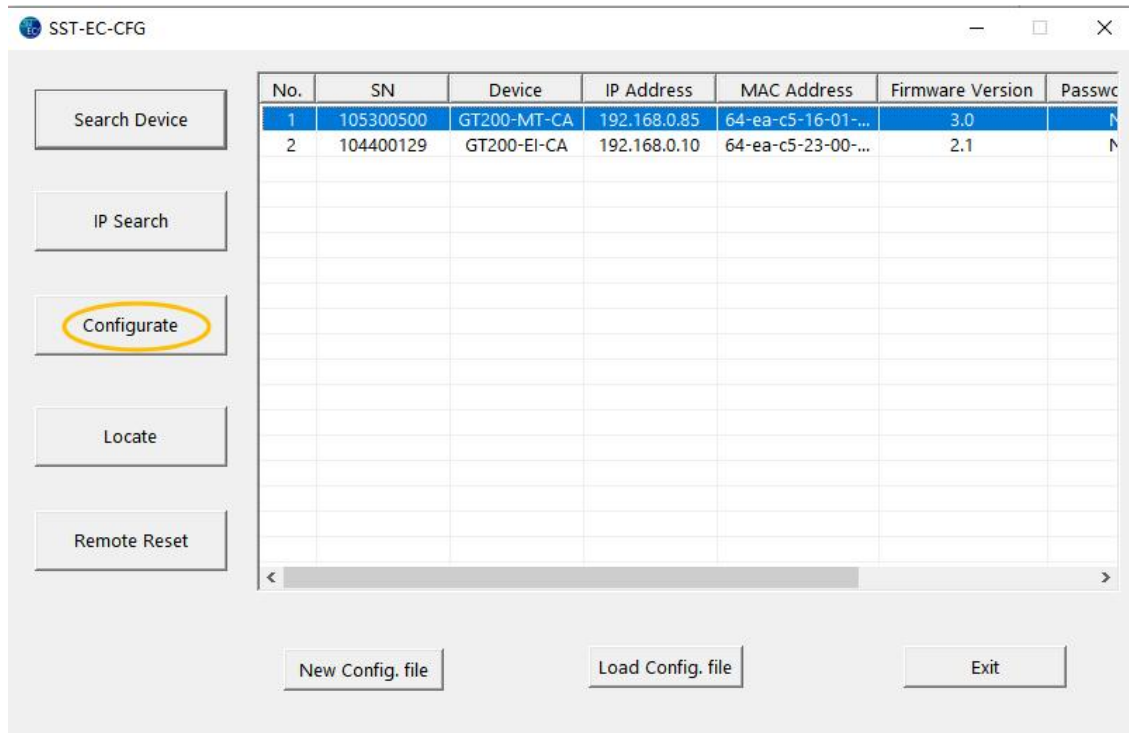
5.2.4 Locate



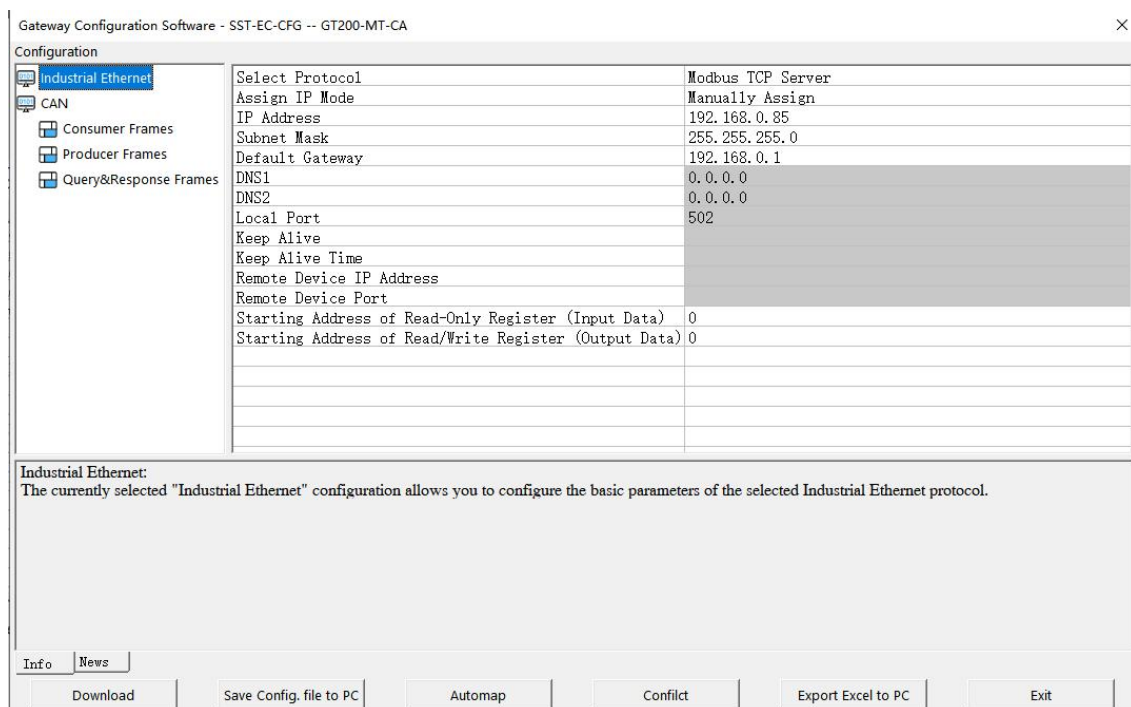
When selecting a device, locate function is available (otherwise disabled), click “Locate”, then ENS and CNS red lights will blink three seconds to locate the currently selected GT200-MT-CA equipment.

5.2.5 Configure

Click the “Configure” button or double-click the selected device, a window will pop up as follows:



5.2.6 Configure Industrial Ethernet



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Ethernet Interface protocol type: Modbus TCP Server, TCP Server, TCP Client, UDP.

Parameter	Value
Select Protocol	Modbus TCP Server
Assign IP Mode	Manually Assign
IP Address	192.168.0.85
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.1
DNS1	0.0.0.0
DNS2	0.0.0.0
Local Port	502
Keep Alive	
Keep Alive Time	
Remote Device IP Address	
Remote Device Port	
Starting Address of Read-Only Register (Input Data)	0
Starting Address of Read/Write Register (Output Data)	0

Industrial Ethernet:
The currently selected "Industrial Ethernet" configuration allows you to configure the basic parameters of the selected Industrial Ethernet protocol.

Info News

Download Save Config. file to PC Automap Conflict Export Excel to PC Exit

The parameters that can be configured as follows:

Select Protocol: Modbus TCP Server, TCP Server, TCP Client, UDP.

Assign IP Mode: Supports Manually Assign and DHCP.

IP Address: Set the IP address of the device.

Subnet Mask: Set the subnet mask of the device.

Gateway Address: Set the gateway address of the device.

DNS1: Primary Domain name server (may not be set in LAN).

DNS2: Secondary domain name server.

Local Port: The network port used by GT200-MT-CA. Range: 1-65535.

Modbus TCP Server Port: Default 502.

Keep Alive: After the idle time of the TCP connection reaches the keep alive time, when keep alive is set to Enable, a Keep Alive message will be sent. When Keep Alive is set to Disable, the TCP connection will be actively disconnected (TCP mode is valid).

Keep Alive Time: The interval time that TCP tries to verify the connection. Range: 1~60000s. The default value is 6s.

Remote Device IP Address: IP address of the remote device that GT200-MT-CA connects with.

Remote Device Port: The access port of the remote device that GT200-MT-CA connects with. Range: 0~65535.

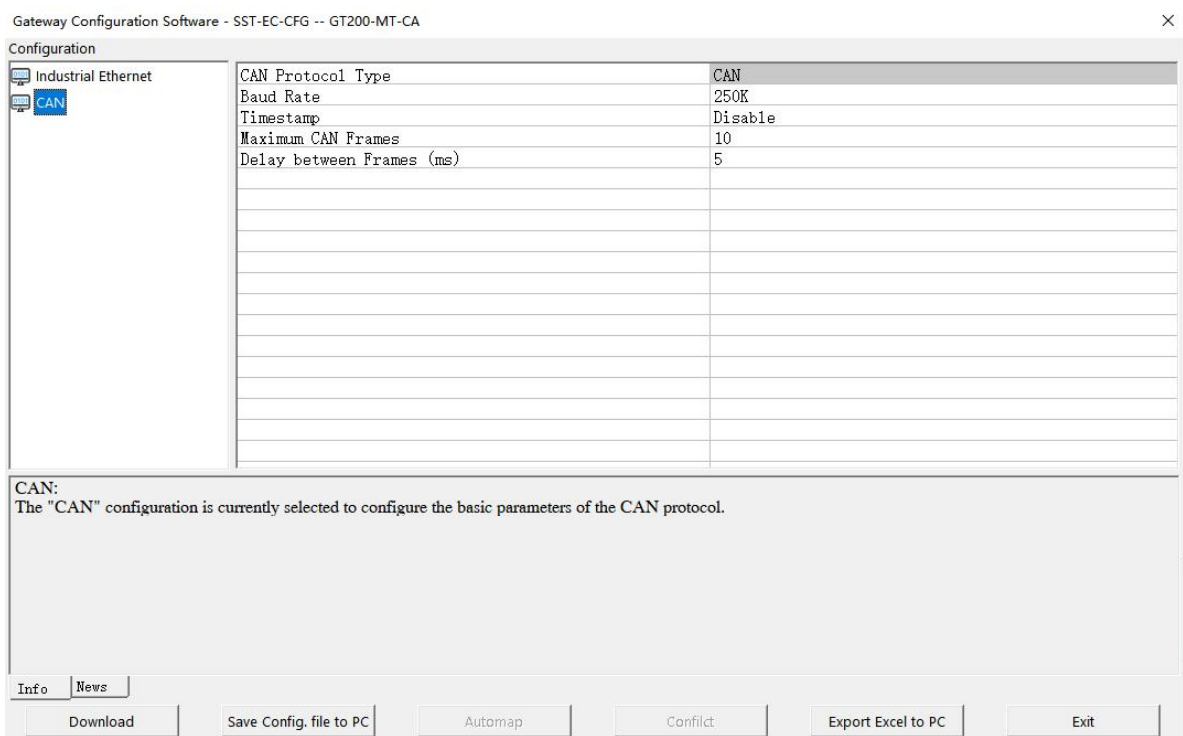
Starting Address of Read-Only Register (Input Data): Range: 0-65023, default 0. It is available when the CAN advanced mode is on.

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

Starting Address of Read/Write Register (Output Data): Range: 0-65023, default 0. It is available when the CAN advanced mode is on.

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 function code to read the starting address of the output data.

5.2.7 Configure CAN Parameters



The parameters that can be configured as follows:

CAN Protocol Type: CAN2.0 A and CAN2.0 B.

Baud Rate: 10K-1M bps. The default is 250K.

Time Stamp: The time when GT200-MT-CA receives the CAN frame. If disable, it will transmit 13-bit frame without time stamp. If enable, it will transmit 17-bit frame with the first 4-bit time stamp.

Maximum CAN Frames: The maximum numbers of CAN frames in one TCP/UDP frame. Range: 0~85.

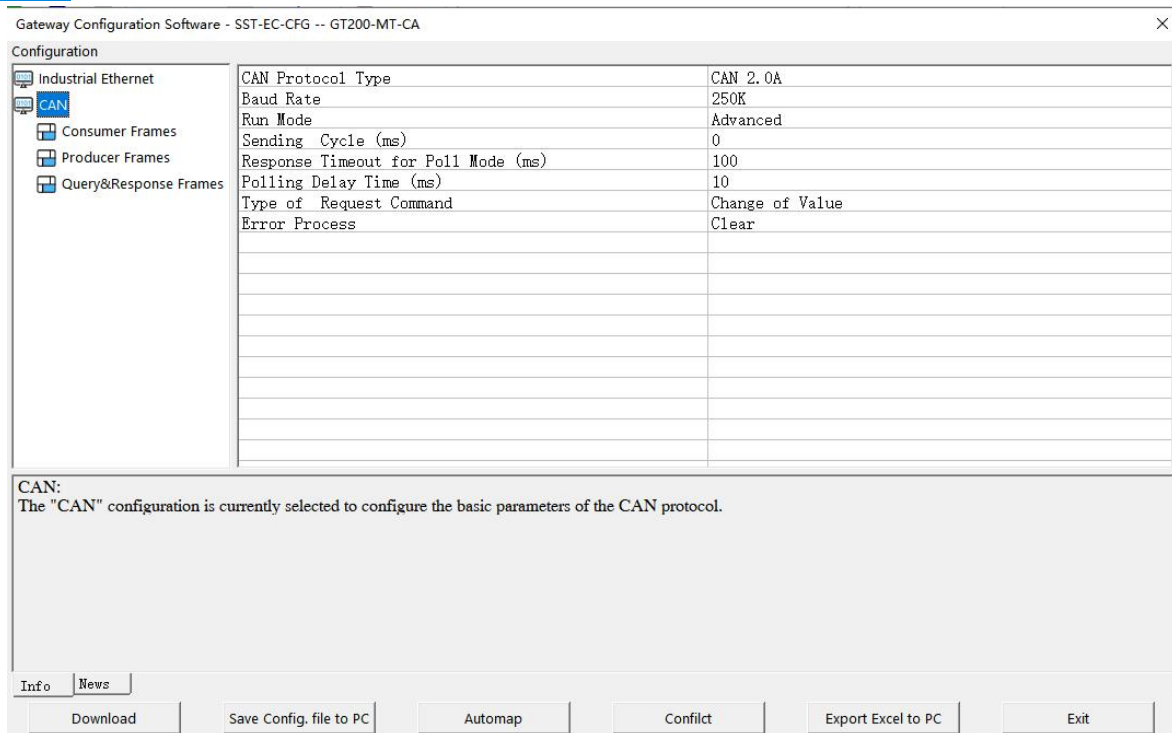
Delay between Frames (ms): Maximum delay time between TCP/UDP frames. Range: 1~1000ms.

5.2.8 Configure Advanced mode in Modbus TCP Sever parameters

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Run Mode: Filtering mode, basic or advanced optional. Advanced mode is the CAN frame filtering function for CAN ID.

Sending Cycle (ms):The cycle for Producer transmission, is based on 1ms. Zero means to use the mode of change of value output; non-zero means to send all CAN frames according to the cycle.

Sending cycle equals setting value, the default value is 0. The range: 0-60000.

Response Timeout for Poll Mode (ms):The response timeout setting for Query&Response sending command. Based on ms. The range is 0-60000ms and the default value is 100ms.

Polling Delay Time (ms):The gateway will delay a period of time before sending the next request after a Query&Response request is sent and the corresponding response is received. Range: 0-60000ms, default: 10ms.

Type of Request Command:Change of Value or Cyclic.

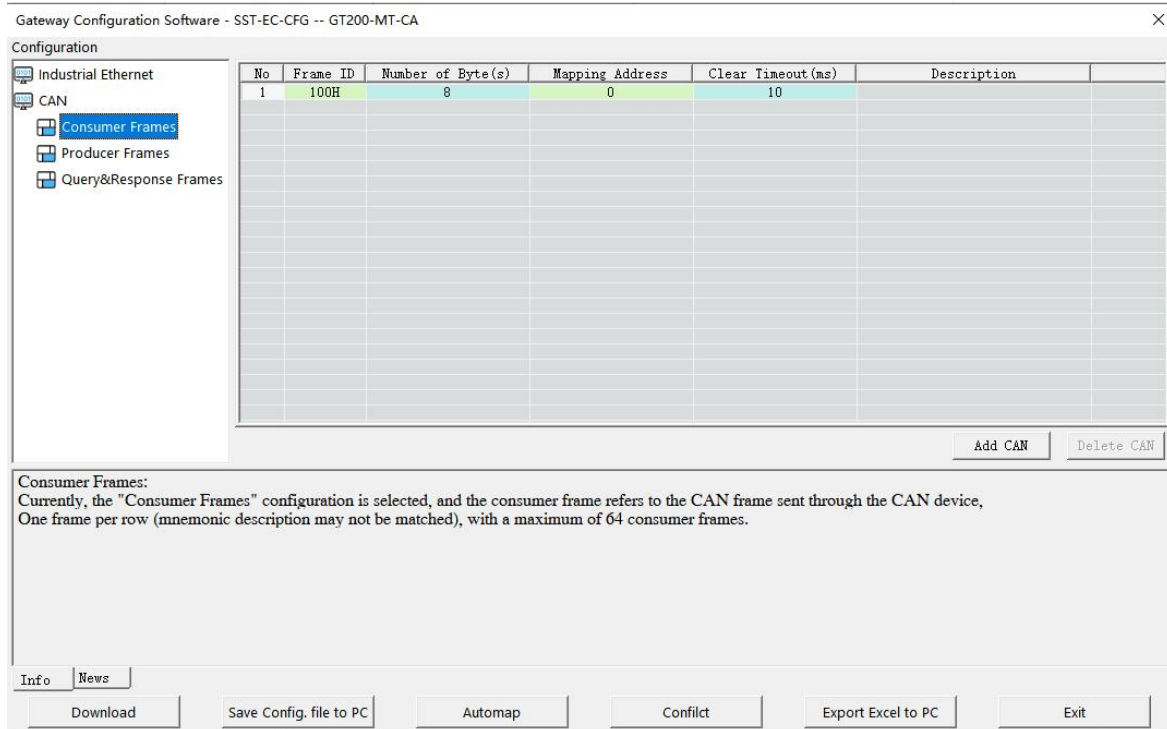
Error Process:Keep the data unchanged or set to zero after responses timeout.Clear and hold optional.

5.2.9 Consumer Frames in Modbus TCP Sever Advanced Mode

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Click “Add CAN” to add a Consumer Frame.

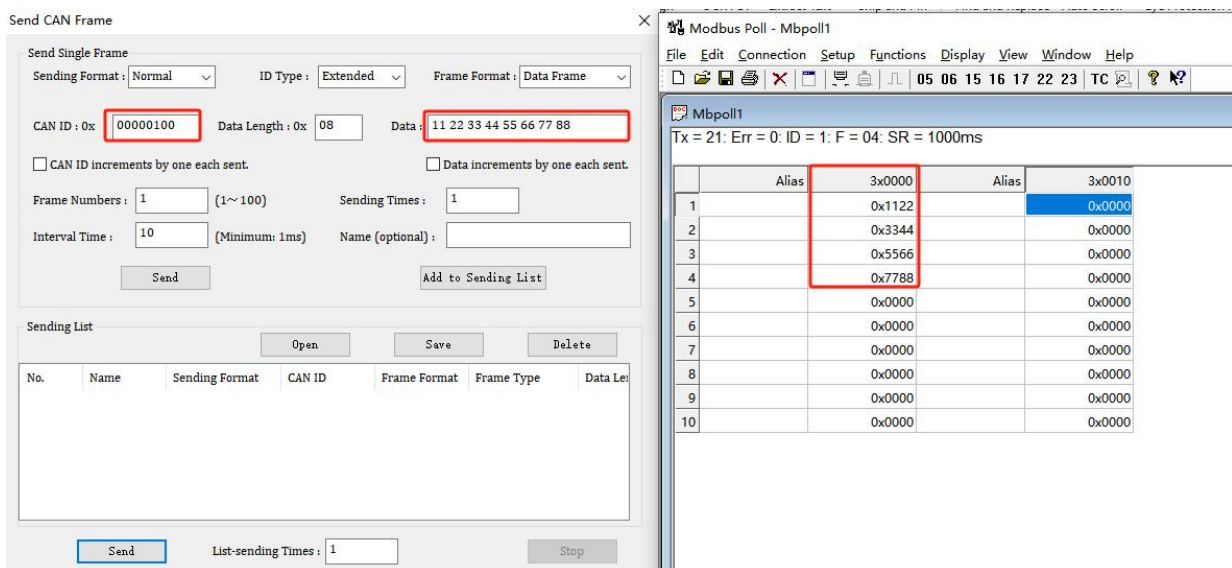
Frame ID: The frame ID of the CAN received data in the consumer frame.

Number of bytes: The number of bytes of CAN received data in the consumer frame.

Mapping Address: The mapping address of the CAN received data in the consumer frame in the gateway.

Clear Timeout(ms): The gateway will clear the data buffer if it times out. Range: 0 - 60000ms. The default value is 10ms. If this parameter is 0, the gateway will not clear the corresponding data buffer.

GT200-MT-CA will only consumer frames with frame ID 100 on the CAN side before sending data to Modbus Poll.

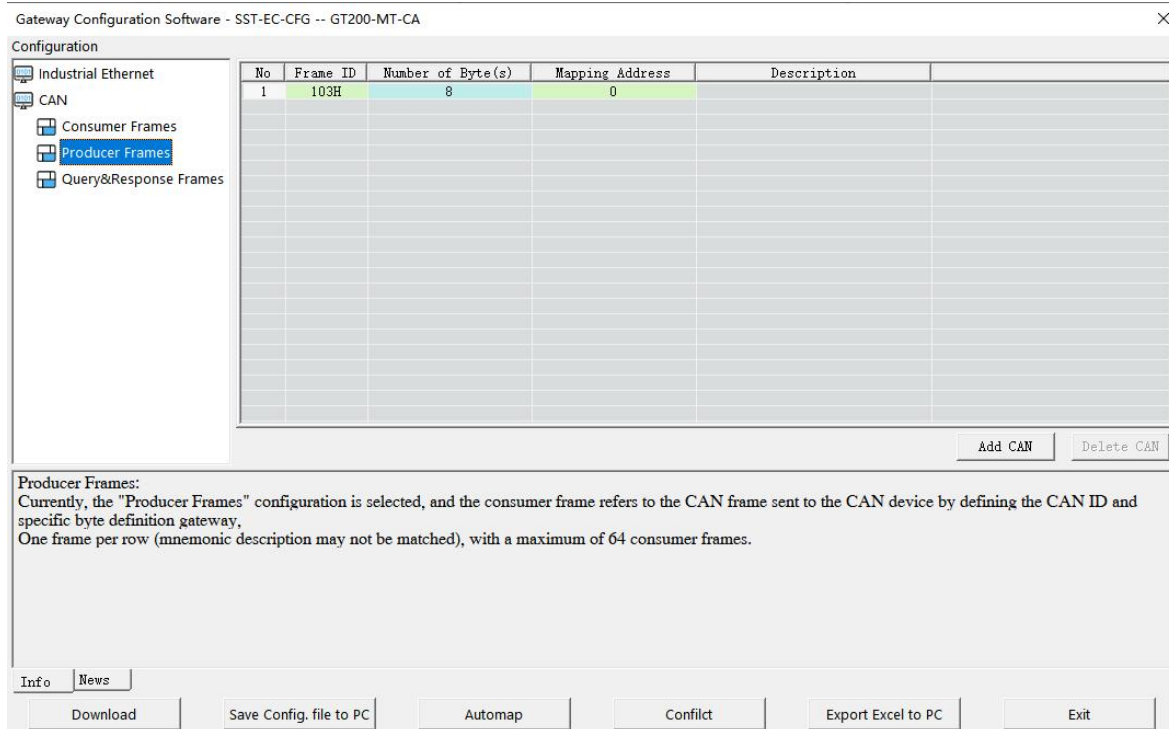


5.2.10 Producer Frames in Modbus TCP Sever Advanced Mode

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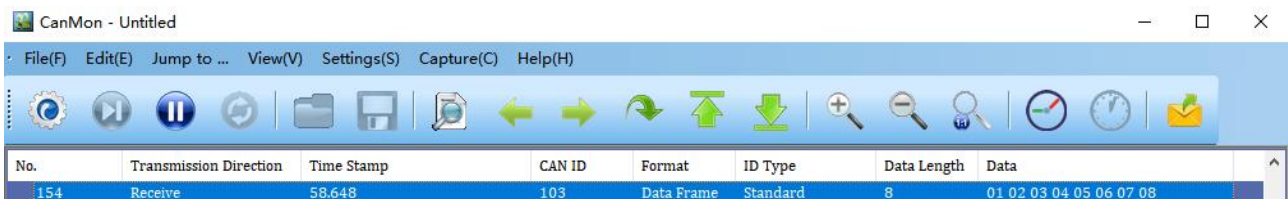
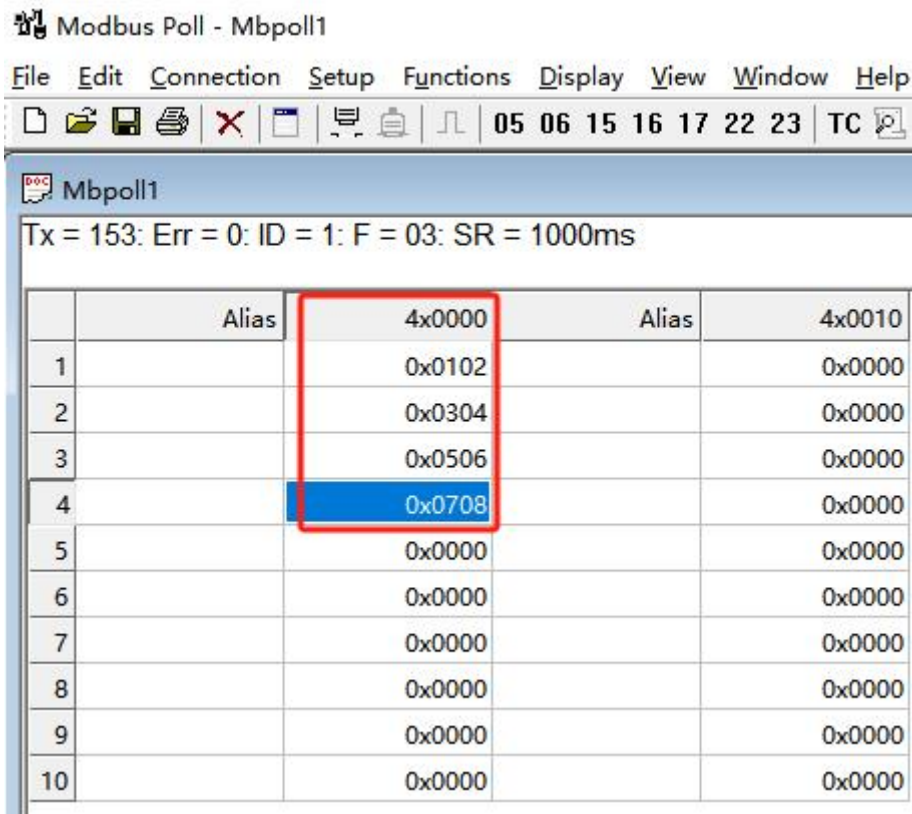
Click "Add CAN" to add a Producer Frame.

Frame ID: The frame ID of the CAN sent data in the producer frame.

Number of bytes: The number of bytes of CAN sent data in the producer frame.

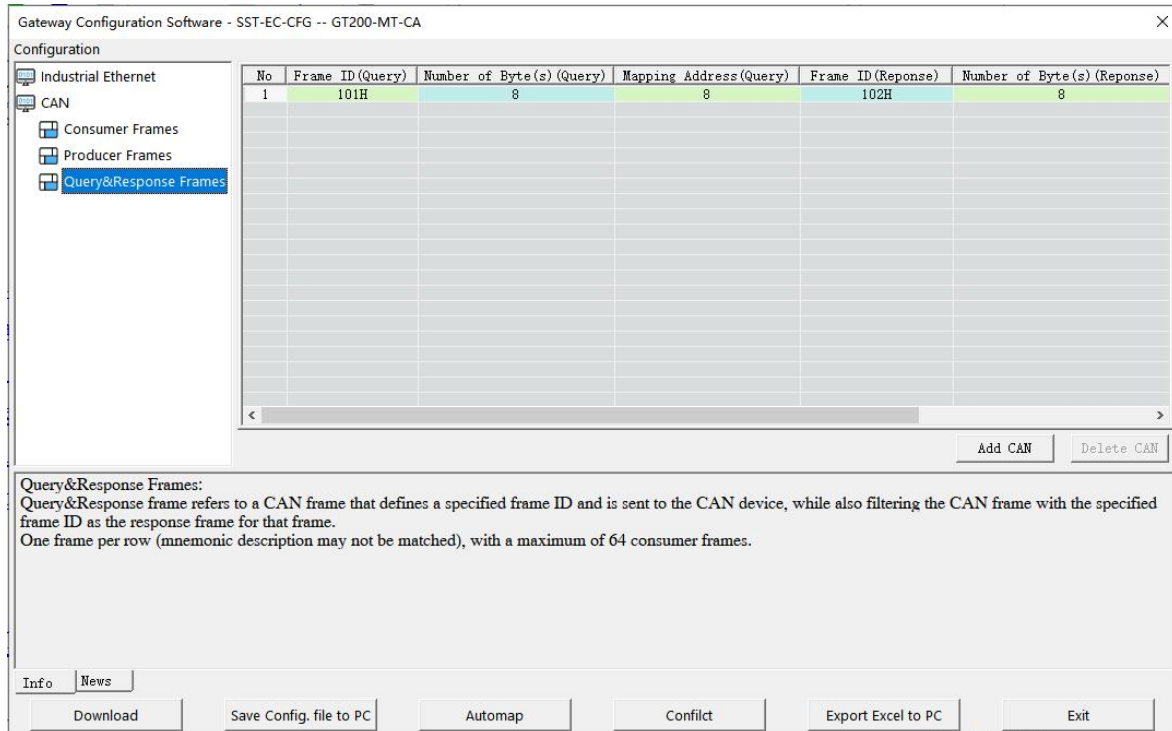
Mapping Address: The mapping address of the CAN sending data in the producer frame in the gateway.

GT200-MT-CA sends the data received in Modbus Poll with frame ID 103H to the CAN side.



5.2.11 Query&Response Frames in Modbus TCP Sever Advanced Mode

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Click “Add CAN” to add a Query&Response Frame.

Frame ID(Query): The frame ID of the CAN sent data in the query&response frame.

Number of bytes(Query): The number of bytes of CAN sent data in the query&response frame.

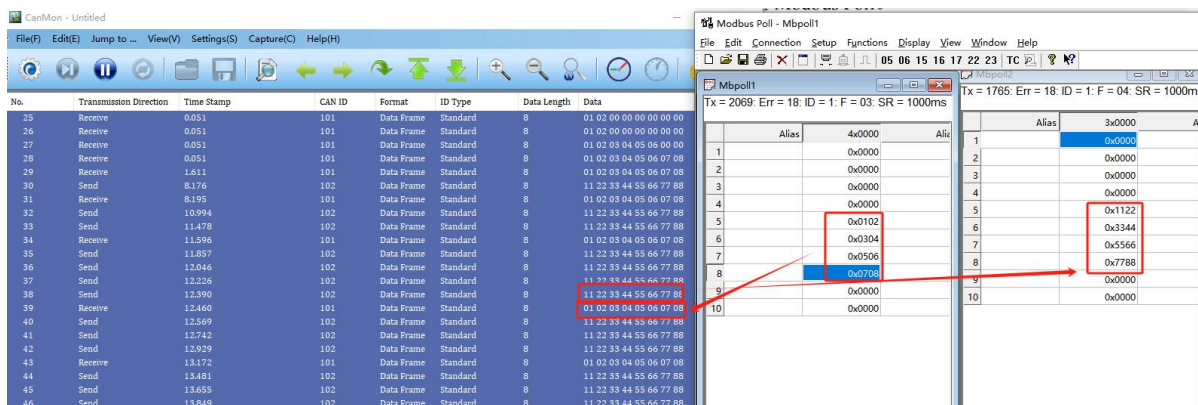
Mapping Address(Query):The mapping address of the CAN sending data in the query&response frame in the gateway.

Frame ID (Reponse):The frame ID of the CAN received data in the query&response frame.

Number of bytes (Reponse) -The number of bytes of CAN received data in the query&response frame.

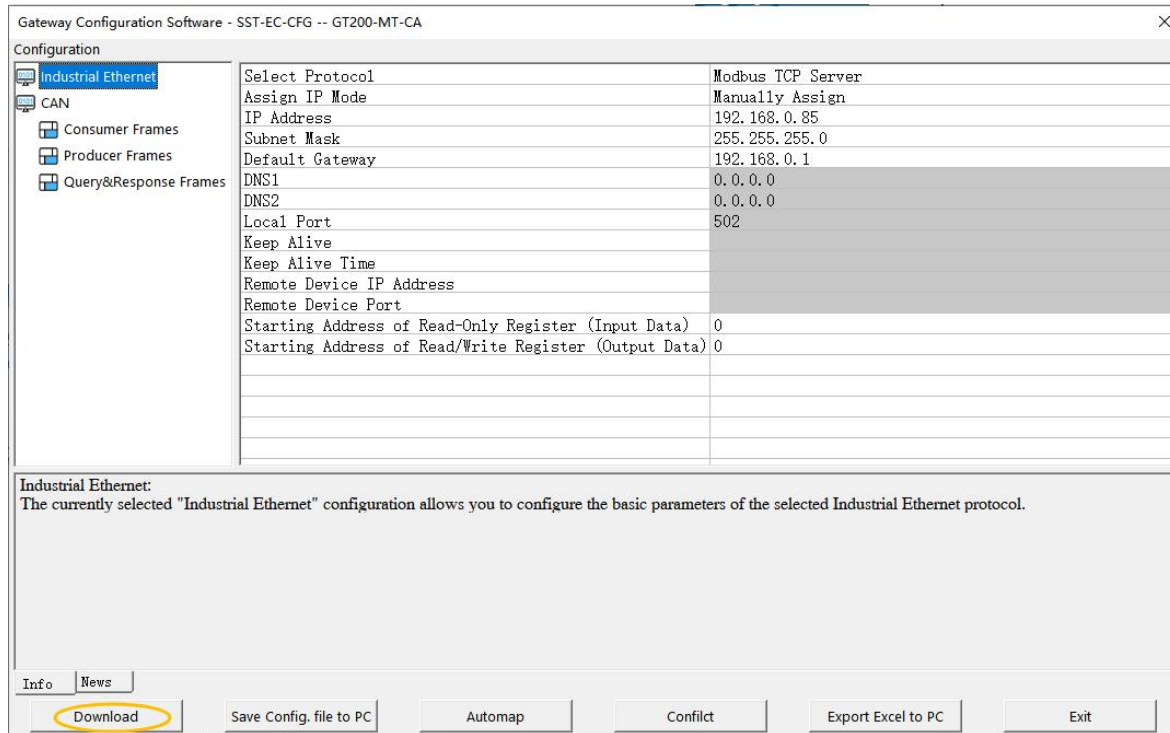
Mapping address(Reponse) - The mapping address of the CAN received data in the query&response frame in the gateway.

GT200-MT-CA adds the frame ID of 101 to the data received by the Modbus Poll end and becomes the frame sent by the CAN end. At the same time, GT200-MT-CA receives the query&response frame from the CAN side and sends the data with frame ID 102 to Modbus Poll within the response time.



5.2.12 Download

Click “Download” button in the configuration interface to download the configuration into the GT200-MT-CA.



Notes:

- ① Confirm that the device is in [running](#) or [configuration](#) mode before downloading.
- ② When users download the current configuration to the gateway, and exit, it requests to click the “[Remote Reset](#)” button or restart the gateway to make the newly downloaded configuration take effect.

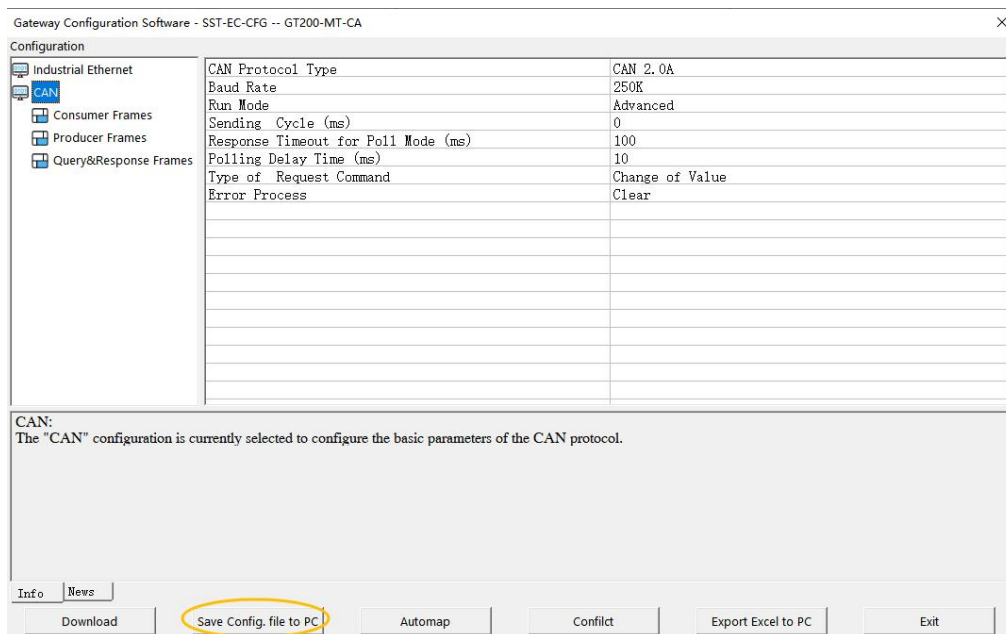
5.2.13 Save

Click “Save Config.file to PC” button in the configuration interface to save the project.

GT200-MT-CA

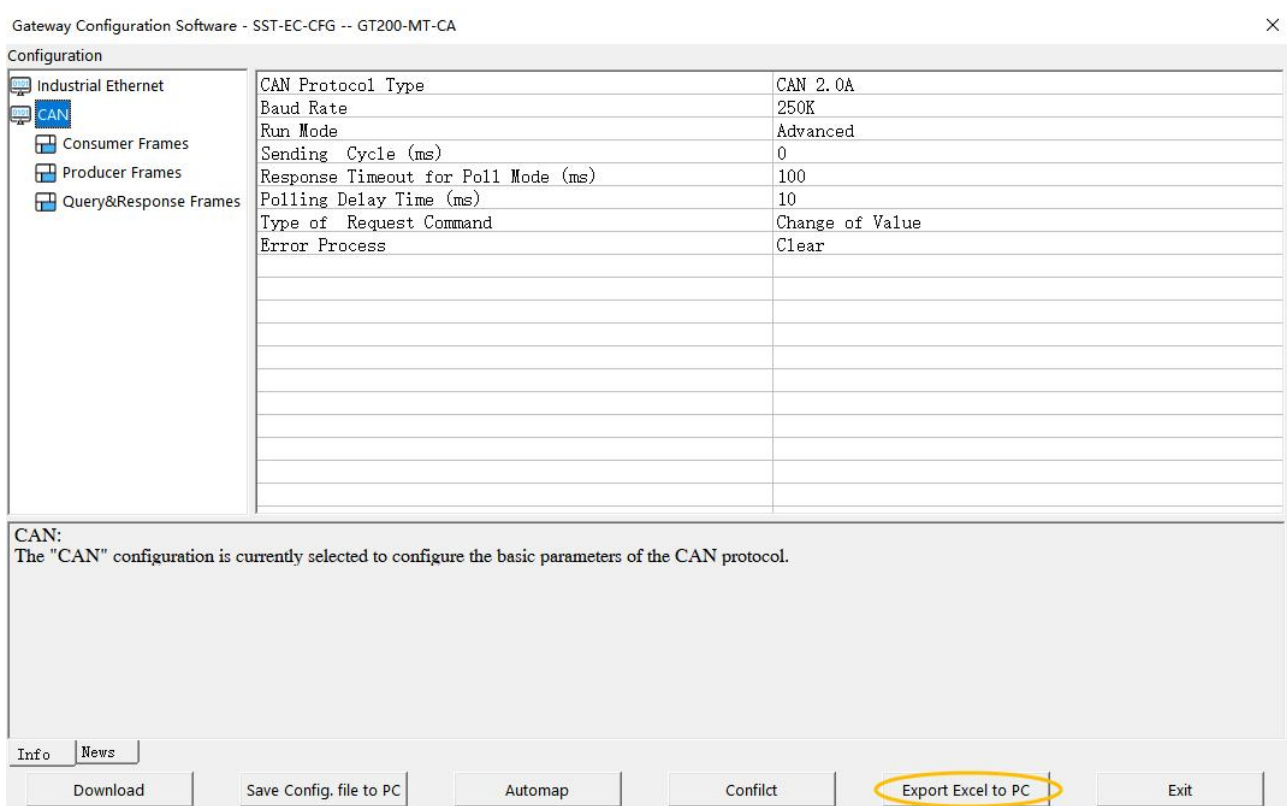
EtherNet to CAN Gateway

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5.2.14 Export

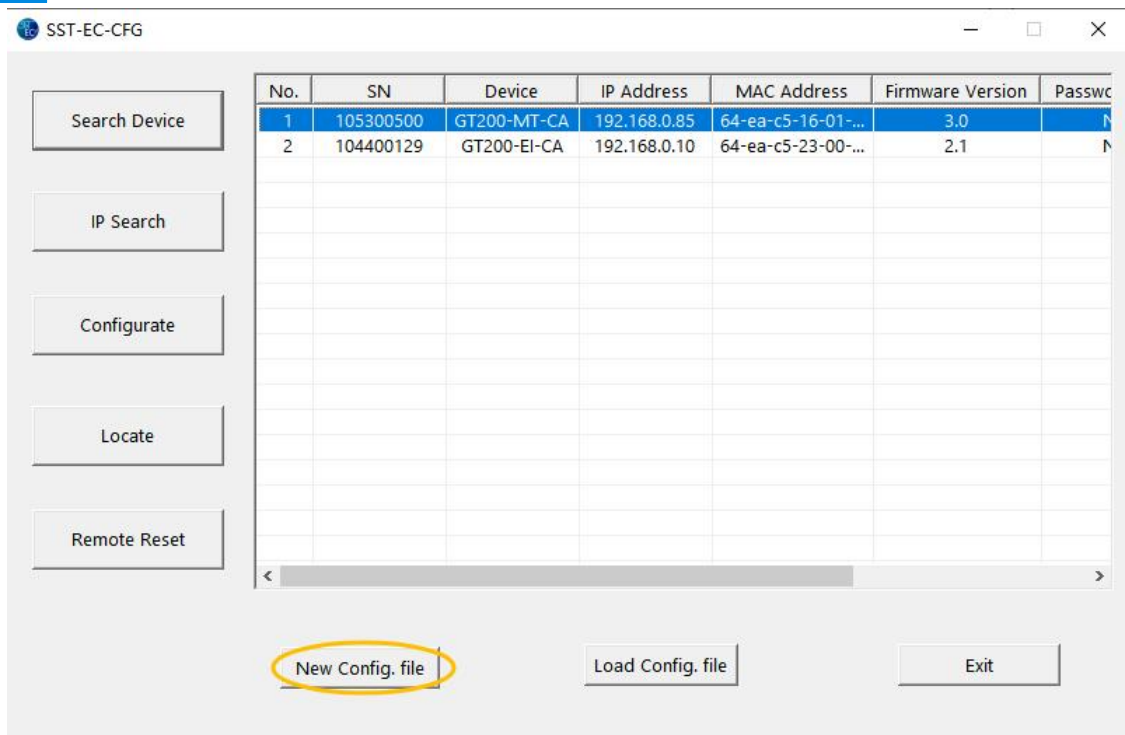
Click "Export Excel to PC" in the configuration interface. The configuration parameters will be exported as an excel table.



GT200-MT-CA

EtherNet to CAN Gateway

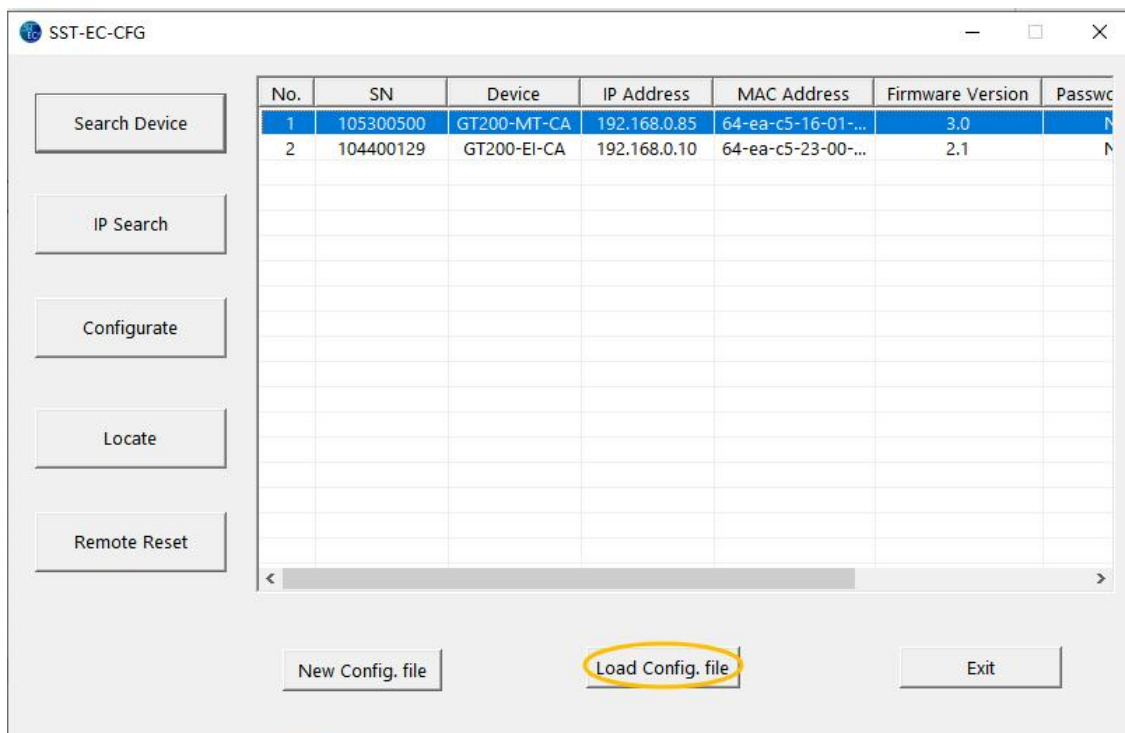
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Note: The “New Config.file” function is mainly used for off-line configuration. Namely: Configuration interface can also be opened without device in initialization parameters.

5.2.17 Open

Click the “Load Config.file” button. Open and display the configuration data which is saved before:

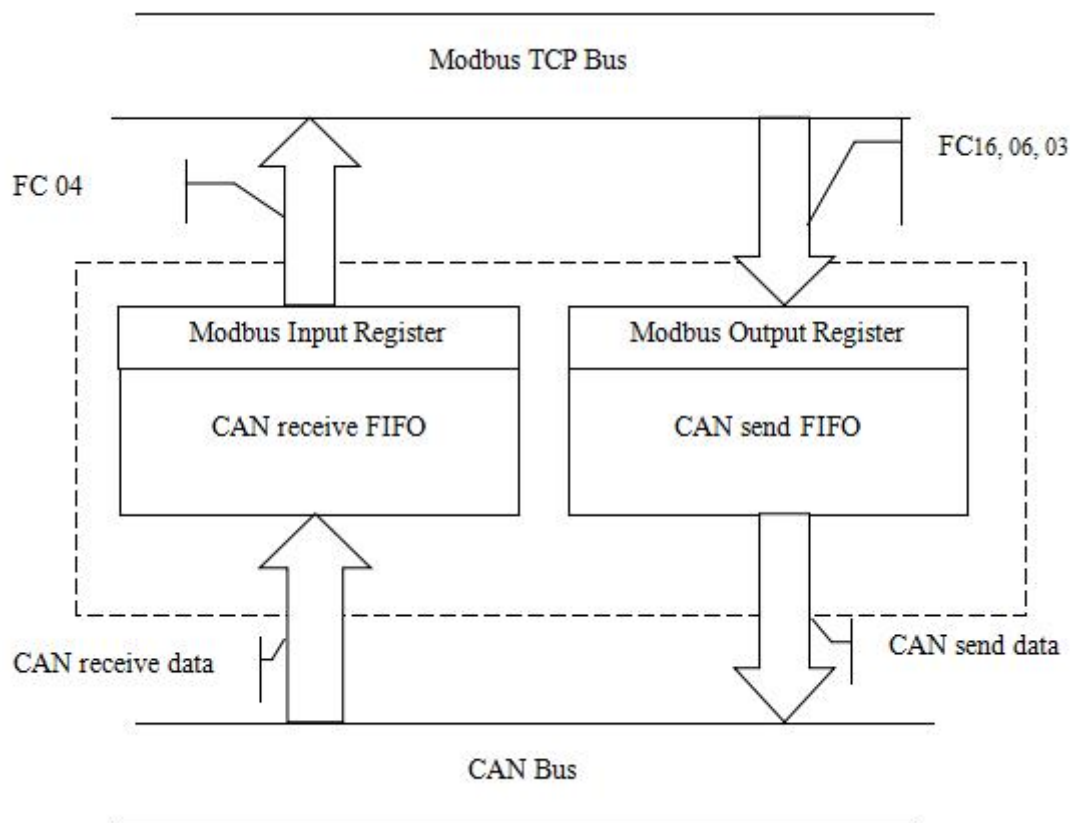


6 Working Principle

6.1 Modbus TCP/CAN

1. Data Exchange

The receiving and sending of CAN frame is FIFO.



2. The Relationship between Them

The following is how to encapsulate a CAN frame with 16-byte (8 registers) .

a) Modbus TCP input register

Use function code 04 to read the Modbus input register, that is CAN receive data.

The starting address is 0.

Every frame has to read 8 registers (16 bytes), or it will return Modbus exception response.

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

If GT200-MT-CA received CAN frame on CAN network, the sequence number of input frame will add 1. Users decide whether to use these CAN frame according to the needs.

b) Modbus TCP output register

Use function code 16 to write the data to Modbus output register of GT200-MT-CA, that is the CAN frame needs to send.

When using the function code 06, first prepare the 15 bytes except the sequence number, and finally send the CAN frame by modifying the sequence number (sequence number add 1).

The starting address is 0.

Every frame must include 8 register (16 bytes), or it will return Modbus exception response.

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

c) Bytes Definition

✧ Byte 0 to 3 are controlling bytes

Byte 0: It indicates sending this sequence number of CAN frame once if it is zero, and it indicates sending this sequence number of CAN frame periodically if it is non-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, the range is 0~8.

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. CAN frame sequence number sends now must be different with the entire CAN frame sequence number sent last time, or it won't do any operation to current CAN frame.

✧ Byte 4 to 7 are CAN frame header and CAN frame mode control (29 bit CAN ID). If the current CAN ID of CAN frame is same with one in a cycle of transmission, the latter is removed, the current CAN is frame kept into the buffer.

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 of byte 4: 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:

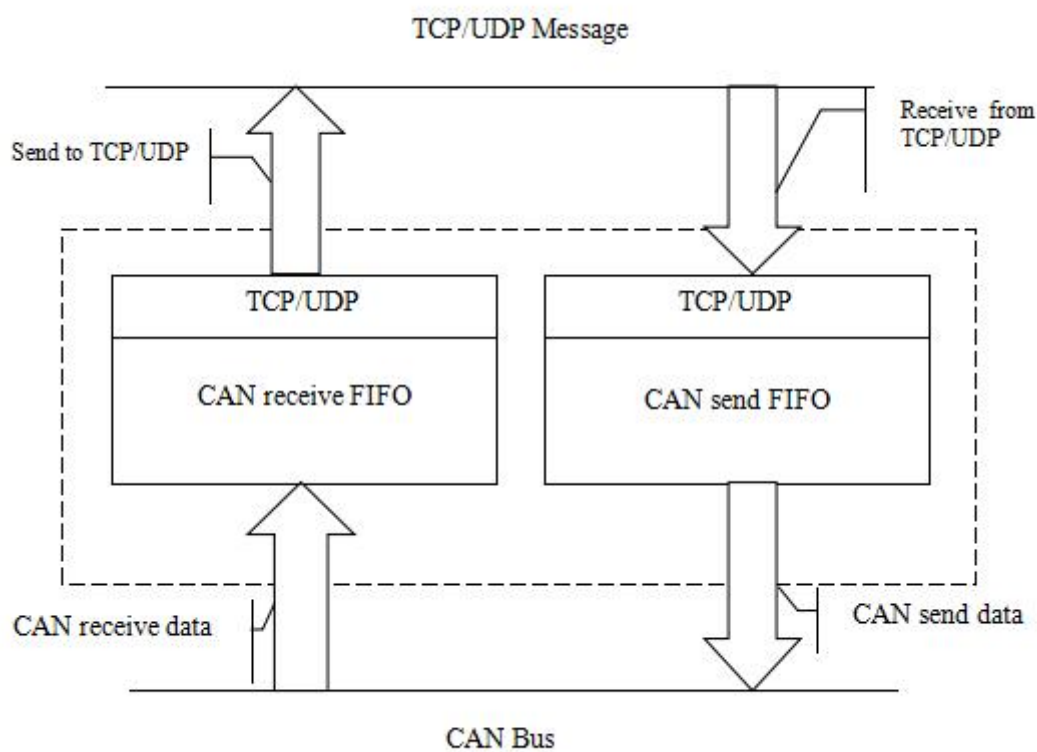
Bit	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Meaning	The lowest 8 bits of frame header							

✧ Byte 8 to 15 are the CAN frame data, if the data number of CAN frame is less than 8 bytes, then it is 0.

6.2 TCP Server/TCP Client/UDP to CAN

1. Data Exchange

The receiving and sending of CAN frame is FIFO.

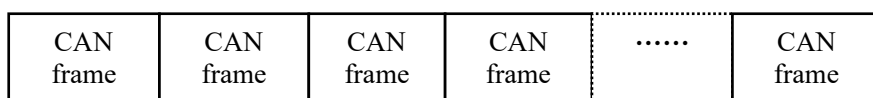


2. The Relationship between Them

Mutual conversion between TCP / UDP data and CAD data is required to use the format below.

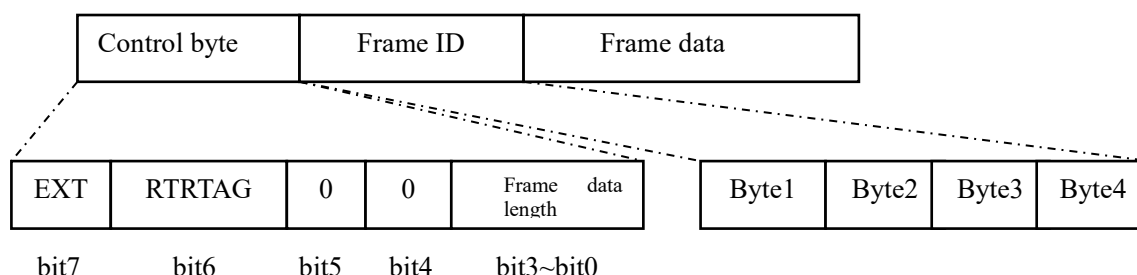
One frame TCP / UDP data can contain several CAN frames, the maximum CAN frame can be set by software SST-EC-CFG.

TCP / UDP data (send / receive) format:

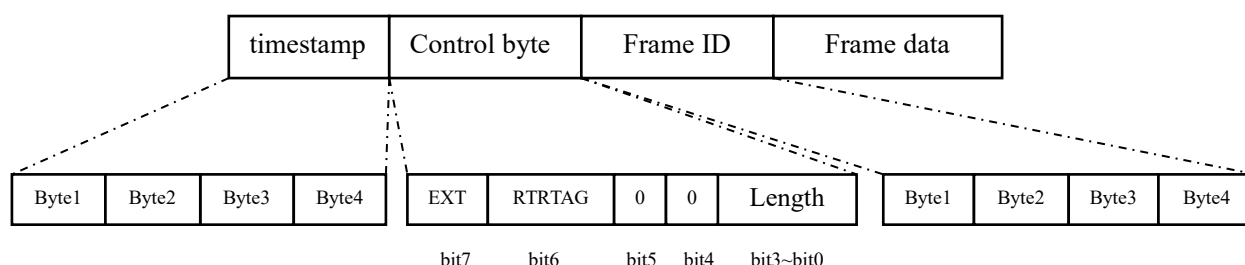


GT200-MT-CA applies two CAN frame format, as follows:

CAN frame without time stamp: A CAN frame occupies 13 bytes, the format is as follows:



CAN frame with a time stamp: A CAN frame occupies 17 bytes, the format is as follows:



Time stamp: The time that GT200-MT-CA received CAN frame from the CAN port.

(Explanation: Only if the time stamp function is enabled in SST-EC-CFG will GT200-MT-CA add the receiving time of CAN frame to CAN frame header automatically. At this point, the CAN frame that GT200-MT-CA forwarding to Ethernet is 17 bytes long frame with time stamp. Additionally, GT200-MT-CA applies 13 bytes long CAN frame without times tamp)

Control byte: Occupies one byte including the extended frame signs, remote frame flag and the frame data length.

EXT: Extended frame flag, 0 indicates the standard frame, 1 indicates the extension frame.

RTRTAG: Remote frame flag, 0 indicates that the data frame, 1 indicates the Remote frame.

Frame data length: the range is 0~8.

Standard frame ID:

	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
Byte1	0	0	0	0	0	0	0	0
Byte2	0	0	0	0	0	0	0	0
Byte3	0	0	0	0	0	ID10	ID9	ID8
Byte4	ID7	ID6	ID5	ID4	ID3	ID2	ID1	ID0

Extended frame ID:

	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
Byte1	0	0	0	ID28	ID27	ID26	ID25	ID24
Byte2	ID23	ID22	ID21	ID20	ID19	ID18	ID17	ID16
Byte3	ID15	ID14	ID13	ID12	ID11	ID10	ID9	ID8
Byte4	ID7	ID6	ID5	ID4	ID3	ID2	ID1	ID0

Frame data: Occupy 8 bytes, the effective length of the frame is controlled by low four bits, supplement with 0 when data lacks 8 bytes.



Such as data string 12H, 34H, 56H, 78H, as the following format:

12H	34H	56H	78H	00H	00H	00H	00H
-----	-----	-----	-----	-----	-----	-----	-----

6.3 Terminal Resistor

Under high baud rates (1M, 500k) situation, CAN network require each of two endpoints in the farthest networks to connect terminal resistor of 120ohm.