

8-Channel HART / Industrial Ethernet Gateway

GT200-8HT-EN

User Manual

V1.1



SST Automation

Email: support@sstautomation.com

www.SSTAutomation.com



Important Information

Disclaimer

No part of this document may be reproduced without the express written permission of SST Automation. SST Automation reserves the right to make changes to the product described in this manual at any time without notice. The examples and diagrams in this manual are provided solely for illustrative purposes and are not intended as a substitute for determining the suitability of the product for specific user applications. Users are responsible for ensuring that all operations, evaluations, and testing comply with applicable laws, regulations, codes, standards, and safety requirements. SST Automation shall not be responsible or liable for any misuse of the information contained herein.

Copyright

Copyright © 2026 SST Automation Co., Ltd. All rights reserved.

Trademark

SSTCOMM™ and the SSTCOMM logo are trademarks of SST Automation Co., Ltd., doing business as SST Automation. All other trademarks are the property of their respective owners.

Technical Support

Website: www.sstautomation.com

Email: support@sstautomation.com



Safety Information

Read and understand this manual before installing, wiring, configuring, or servicing the gateway. Installation and maintenance must be performed by personnel familiar with industrial control equipment and the associated field wiring.

WARNING

Disconnect all power sources before installing, wiring, removing terminal blocks, or servicing the gateway. Do not connect or disconnect field wiring while the equipment is energized.

NOTICE

- Use a DC power supply within the specified range of 9–28 VDC. A 24 VDC power supply is recommended.
- Connect the positive conductor to the 24V+ terminal and the negative conductor to the GND terminal. Incorrect polarity, overvoltage, or short circuits may damage the gateway or connected field devices.
- Check all power and communication wiring before applying power.
- The gateway has an IP20 enclosure. Install it in a location protected from water, condensation, conductive dust, and accidental contact.
- Route communication cables separately from high-voltage and high-current cables whenever possible to reduce electrical interference.
- Do not disconnect power during a firmware upgrade. Interrupting power may prevent the gateway from operating normally.

Table of Contents

1 Product Overview	5
1.1 Product Introduction	5
1.2 Product Features	5
1.3 Technical Specifications	5
1.4 Related Products	7
1.5 Revision History	7
2 Hardware Description	8
2.1 Product Appearance	8
2.2 Power Interface	9
2.3 Ethernet Interface	9
2.4 LEDs	10
2.5 Button	11
2.6 Typical Application Topology	11
2.7 Point-to-Point Mode Wiring	12
2.8 Multi-Drop Mode Wiring	13
3 Hardware Installation	18
3.1 Mechanical Dimension	18
3.2 Installation Method	19
4 Quick Start Guide	20
4.1 Wiring	20
4.2 Configuration Software Installation and Preparation	21
5 Software Instructions	22
5.1 Main Interface	22
5.2 Tools	24
5.3 View	36
5.4 Help	36
5.5 Configuration Procedure	39
5.6 Ethernet Settings Instructions	40
5.7 HART Channel Settings Instructions	41
6 Frequently Asked Questions	47
7 Device Maintenance	49
7.1 Restoring Initial Configuration	49
7.2 Firmware Upgrade Procedure	49
7.3 Daily Maintenance Precautions	50
8 Technical Reference	51
8.1 Operating Principle of Modbus TCP Server Mode	51



1 Product Overview

1.1 Product Introduction

The GT200-8HT-EN gateway provides seamless communication between up to eight independent HART channels and Modbus TCP clients. Each HART channel can operate independently, allowing the gateway to collect data from multiple HART instruments and publish the mapped data to a Modbus TCP network. On the HART side, the gateway can operate as a primary or secondary master; on the Ethernet side, it operates as a Modbus TCP server.

1.2 Product Features

- **Easy to Use:** The product manual includes application examples to quickly configure the gateway to read and write data to HART instruments.
- **Powerful Functionality:** Features 8 independent HART channels. Supports online scanning and modification of HART slave addresses, point-to-point mode, multi-drop mode, segmented data mapping, and up to 128 configured HART commands for typical multi-instrument applications.
- **Advanced Debugging Tools:** The SST-HI-CFG configuration software provides real-time memory display, HART diagnostics, Slave Scan, NE107 status, configuration import, and conversion tools to simplify commissioning and maintenance.

1.3 Technical Specifications

HART Features	
HART Operation Modes	HART primary master, HART secondary master
Number of HART Channels	Eight (8) independent HART channels
Maximum Number of HART Devices per Channel	Point-to-point: one HART device per channel. Multi-drop: up to 15 devices per channel; supported slave address range may extend to 1-63 for GT200-8HT-EN V1.1 and later when used with compatible devices.
HART Connection Modes	Point-to-Point Mode Multi-Drop Mode

Point-to-Point Mode Features	Supports HART Burst-Mode
HART Protocol Versions Supported	Up to HART Version 7
HART Output Modes	Change-of-State Polling Initialization Disable
Maximum Number of HART Commands per Channel	Up to 128 HART commands
Output Buffer Size	Up to 3000 bytes
Input Buffer Size	Up to 4000 bytes
HART Loop Resistor Options	Each channel supports the use of either an internal or external HART sampling resistor
Modbus TCP Features	
10/100 Mbps Ethernet Port	Supports IP address conflict detection and auto routing
Maximum Number of Modbus TCP Client Connections	Up to 36 simultaneous client connections
Maximum Number of Simultaneous Modbus TCP Command Requests	Up to 512 simultaneous command requests
Modbus TCP Operation Mode	Modbus TCP Server (Slave)
Modbus TCP Function Codes Supported	03H: Read Holding Registers 4x 04H: Read Input Registers 3x 06H: Single Register Write 4x 10H: Multiple Register Write 4x
Electrical / Environmental	
Power Supply	24V DC nominal, 9V DC to 28V DC allowed
Current Load	80mA typical @ 24V DC
Operating Temperature	-20°C to 60°C (-4°F to 140°F)
Relative Humidity	5% to 95% RH with no condensation
Certification	CE Compliant
Physical	

Dimensions (H x W x D)	1.34 in (W) × 4.57 in (H) × 4.13 in (D)
Mounting	35mm DIN rail
Enclosure Rating	IP20
Ethernet Port	10/100 Base-T, RJ45 Connector
HART Interfaces	HART channel terminal blocks
Power Interface	3-Pin Terminal Block

1.4 Related Products

Related products include:

- GT200-HT-MT
- GT200-3HT-MT
- GT200-4HT-PN
- GT200-HT-EI

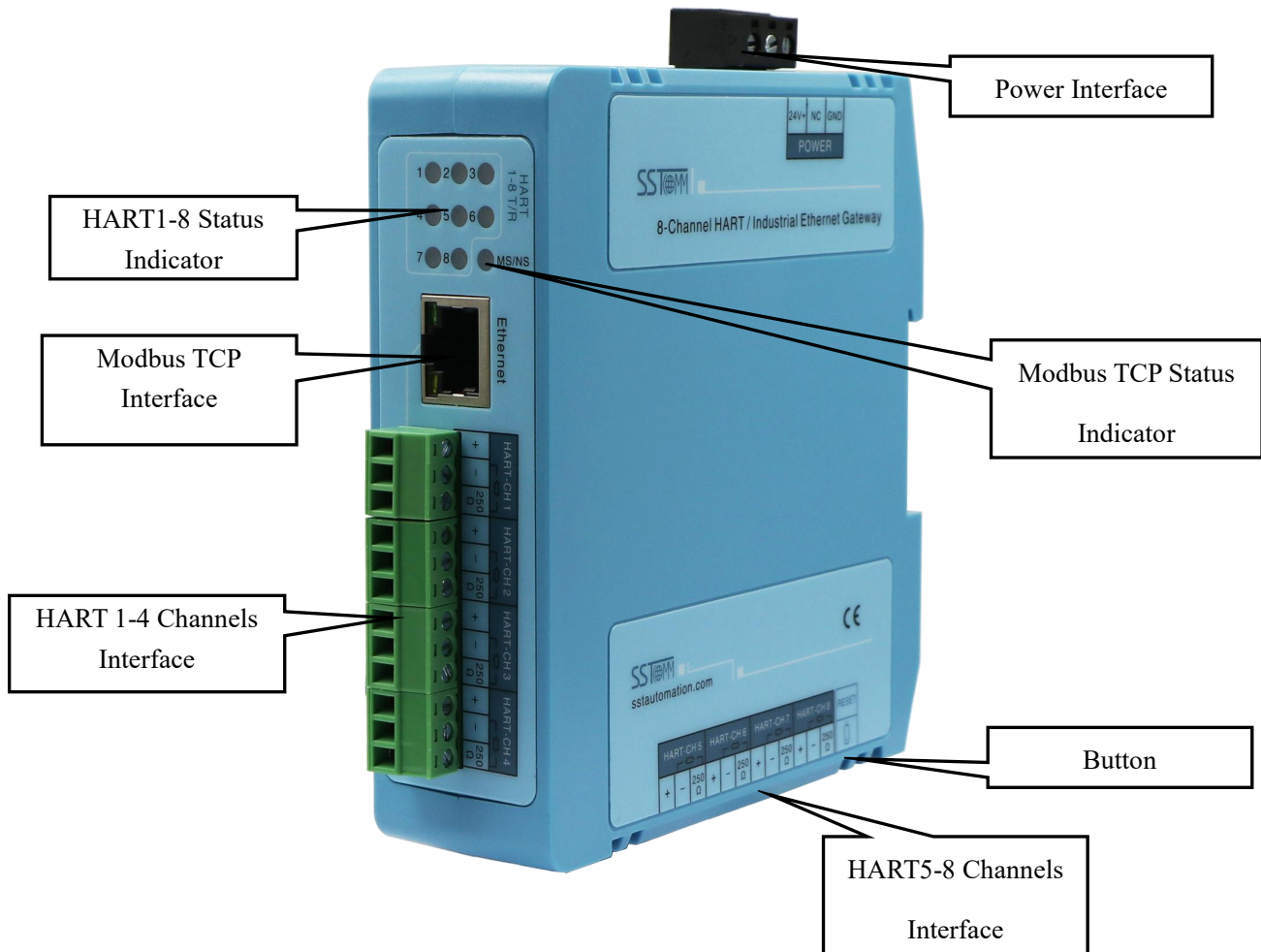
To get more information about these products, please visit SST Automation's website: www.sstautomation.com.

1.5 Revision History

Date	Revision Version	Change Description
2026/6/29	V1.1	ALL

2 Hardware Description

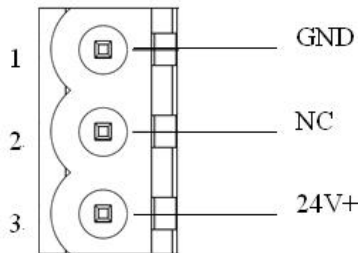
2.1 Product Appearance



Note: This picture is for reference only. The actual product may differ in appearance.

2.2 Power Interface

A single power interface is supported. A 24 VDC power supply is recommended:

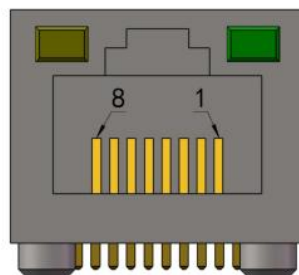


Pin	Function
1	GND, power ground
2	NC, no connection
3	24V+, DC positive 24 V

2.3 Ethernet Interface

The Ethernet interface uses RJ-45 connectors and comply with the IEEE 802.3u 100BASE-T standard.

(1) Pin definition:



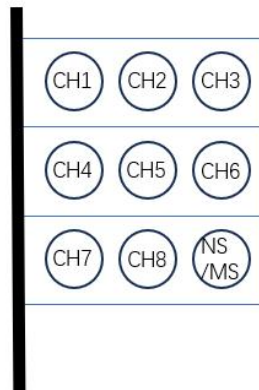
(2) LED status:

Ethernet Port	LED	Status
Modbus TCP	Link	Green, steady on when a network connection is present.
	ACT	Yellow, flashes when data is transmitted or received.

2.4 LEDs

The gateway uses nine LEDs to indicate its operating status;

The LED layout is shown below:



LED	Status		Meaning
CH(X)	Green on		HART channel x is transmitting data
	Red on		HART channel x is receiving data
	Off		No activity on HART channel x
NS/MS	Green steady on		Modbus TCP connection established; communicating
	Green flashing		Modbus TCP connection not established or disconnected
	Static IP	Red off	Module status: IP address startup normal
		Red flashes 3 times	Module status: static IP initializing
	DHCP	Red flashes about 5 times and then turns off	Module status: DHCP address assignment successful
		Red flashes for 30 s and then turns off	Module status: DHCP address assignment failed; IP address fixed at 192.168.0.10

2.5 Button

The button has the following two functions:

1. Restore initial configuration: The button can be used to restore the gateway to a fixed configuration. For details, see Chapter ["Restoring Initial Configuration"](#).
2. Firmware upgrade: The button is required to perform the corresponding operations during gateway firmware upgrade. For details, see Chapter ["Firmware Upgrade Procedure"](#).

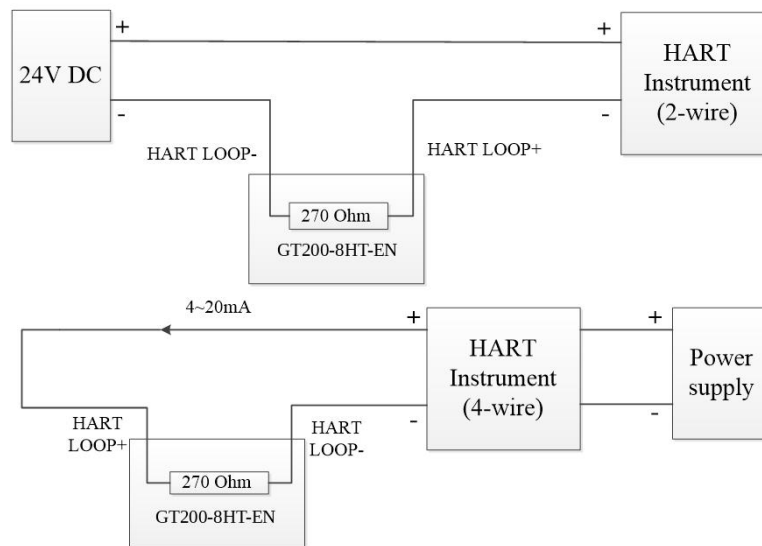
2.6 Typical Application Topology

Note:

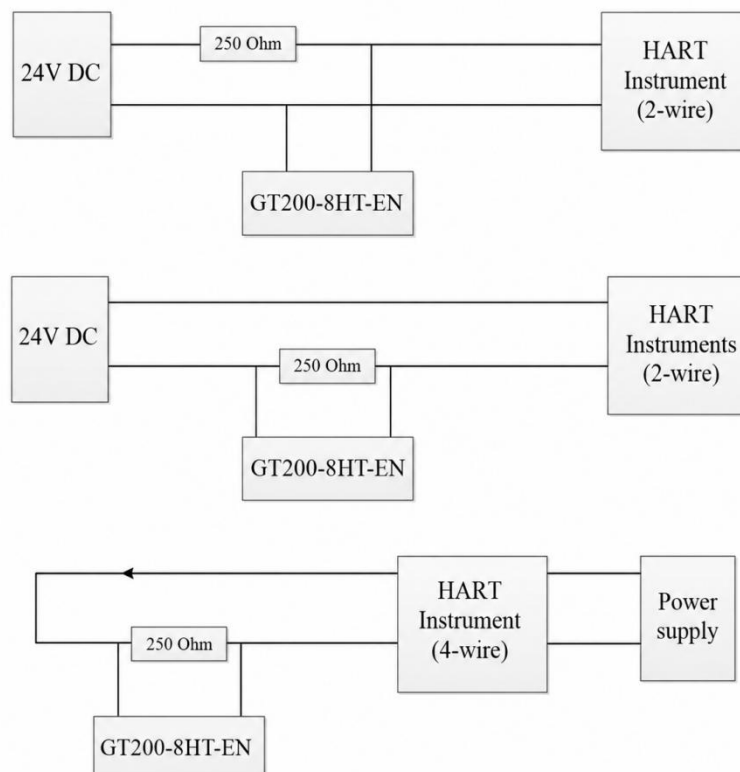
1. Some HART instruments perform self-tests and other internal tasks immediately after power-on. HART communication may not be available during this time. A separate power supply is recommended to ensure communication stability;
2. Field HART devices are divided into two-wire and four-wire types. For two-wire devices, the two wires are used for both communication and power supply. For four-wire devices, the power wires and communication wires are separate;
3. If two or more HART instruments are connected in the same network, they should be wired in parallel.

2.7 Point-to-Point Mode Wiring

The following diagrams show point-to-point wiring for two-wire and four-wire HART devices:



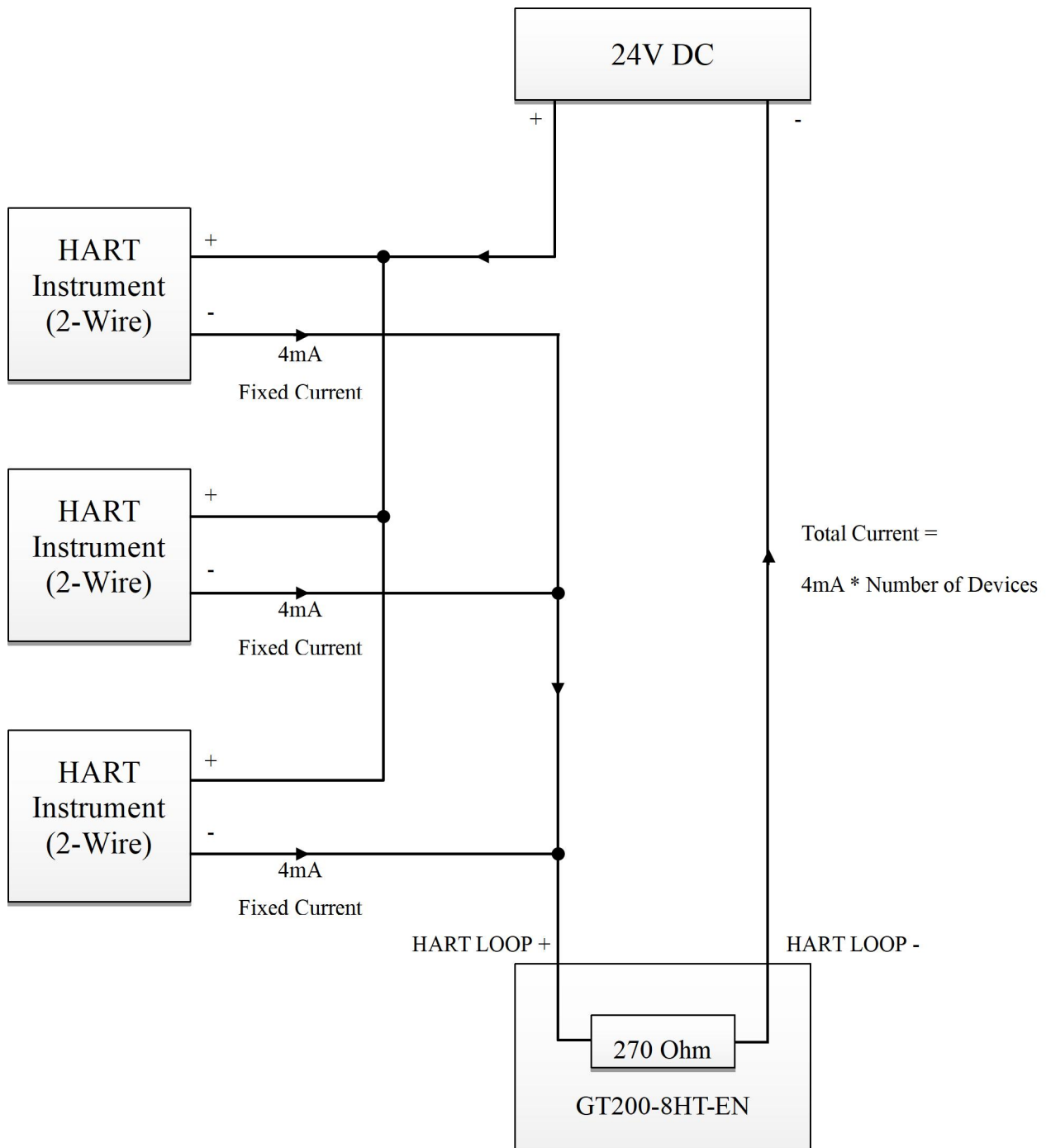
When using the internal resistor



2.8 Multi-Drop Mode Wiring

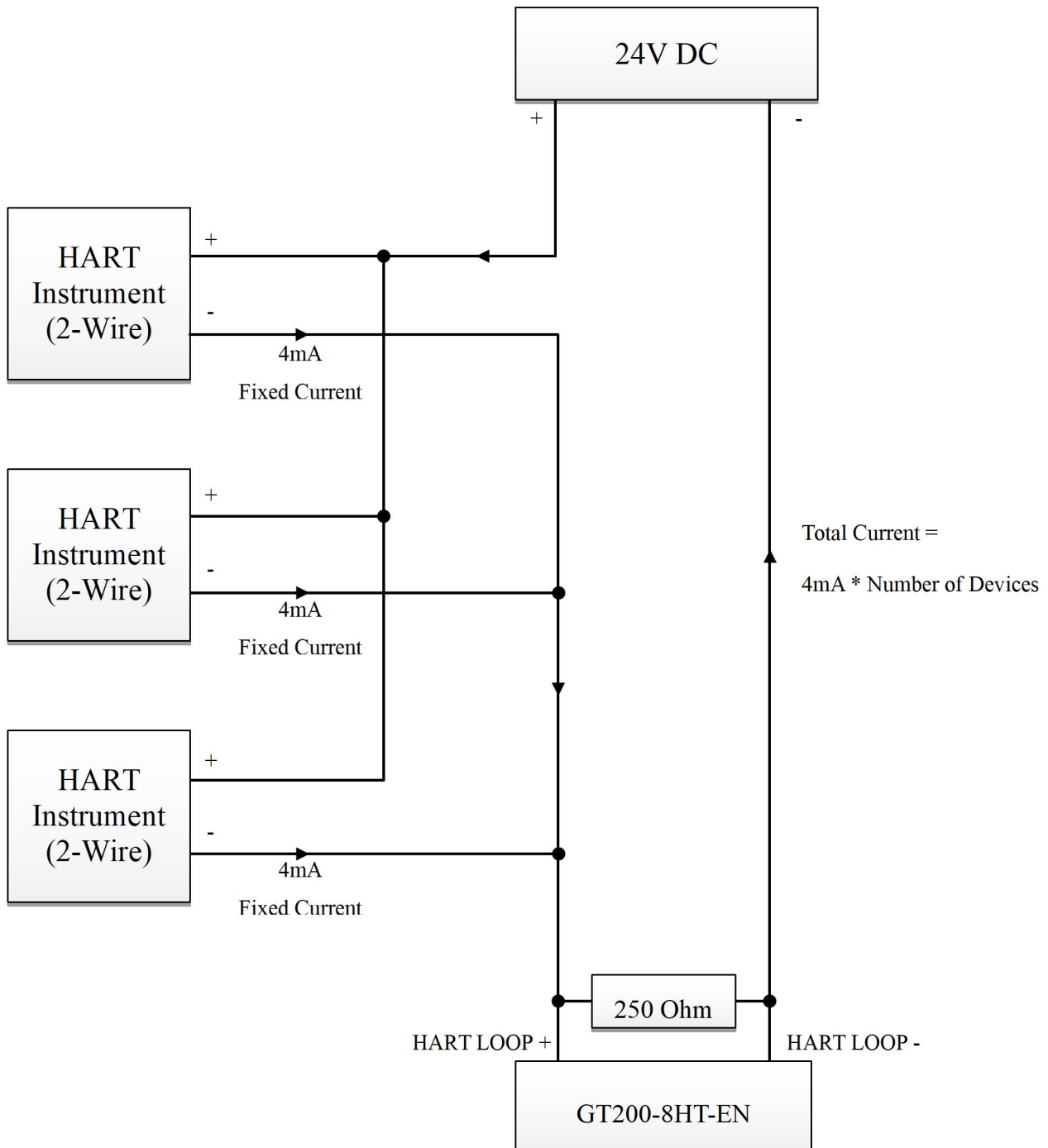
The following diagrams show Multi-Drop wiring for two-wire and four-wire HART devices:

Two wires - When using the internal resistor:



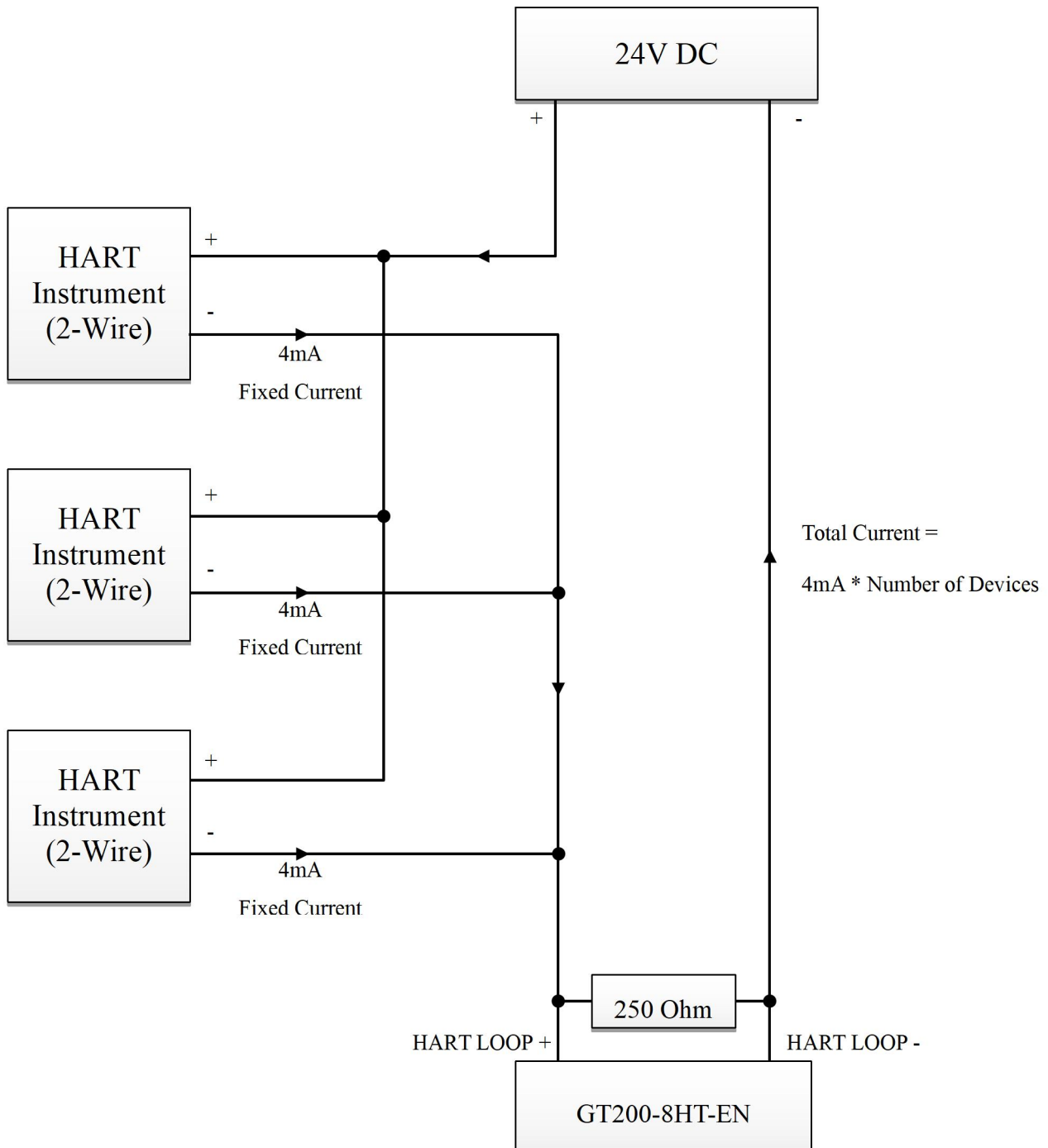
Maximum Cable Length: 450m for 15 Devices

Two wire - When using an external resistor:



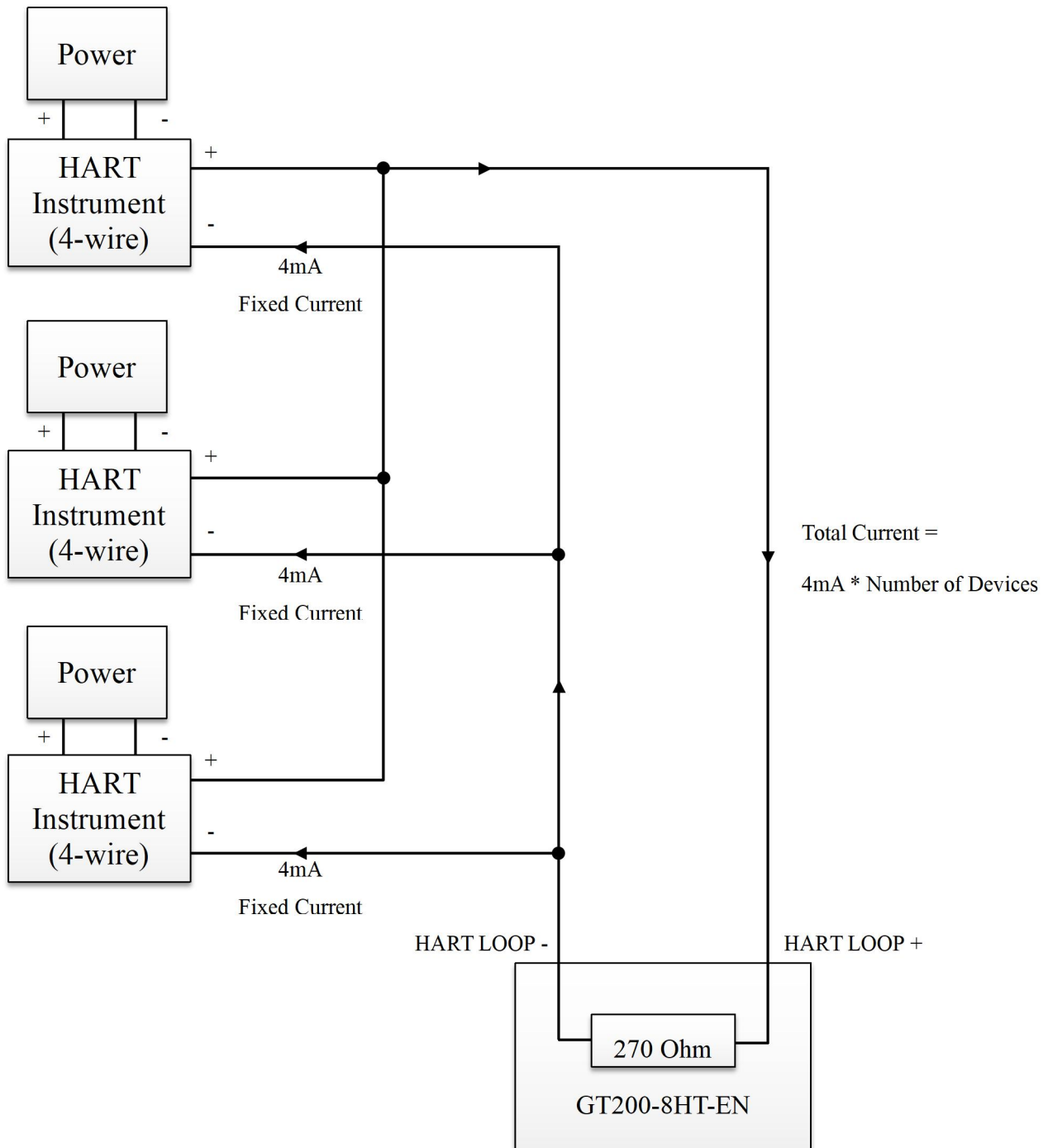
Maximum Cable Length: 450m for 15 Devices

Two wire - When using an external resistor:



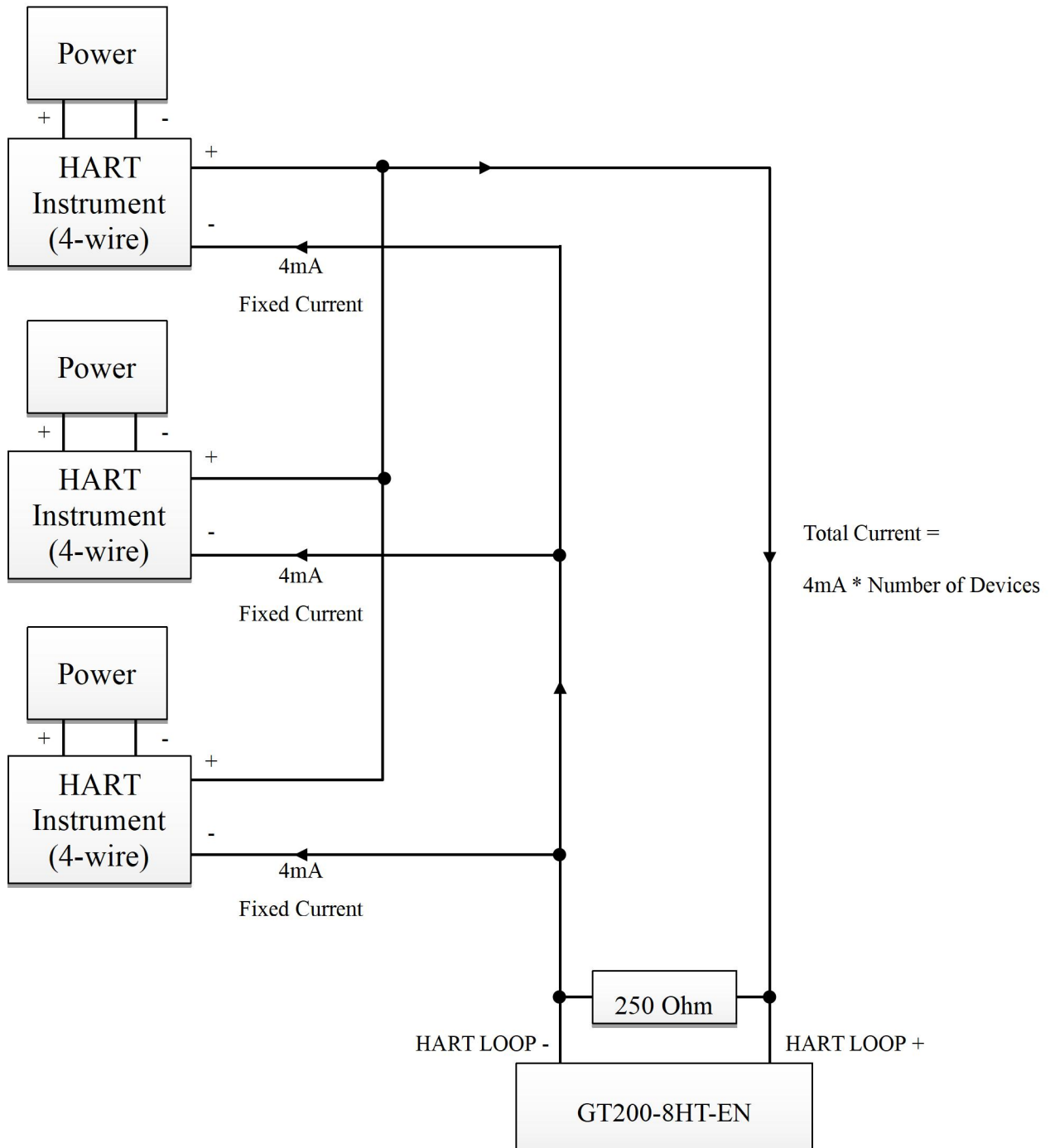
Maximum Cable Length: 450m for 15 Devices

Four wire - When using the internal resistor:



Maximum Cable Length: 450m for 15 Devices

Four wire - When using an external resistor

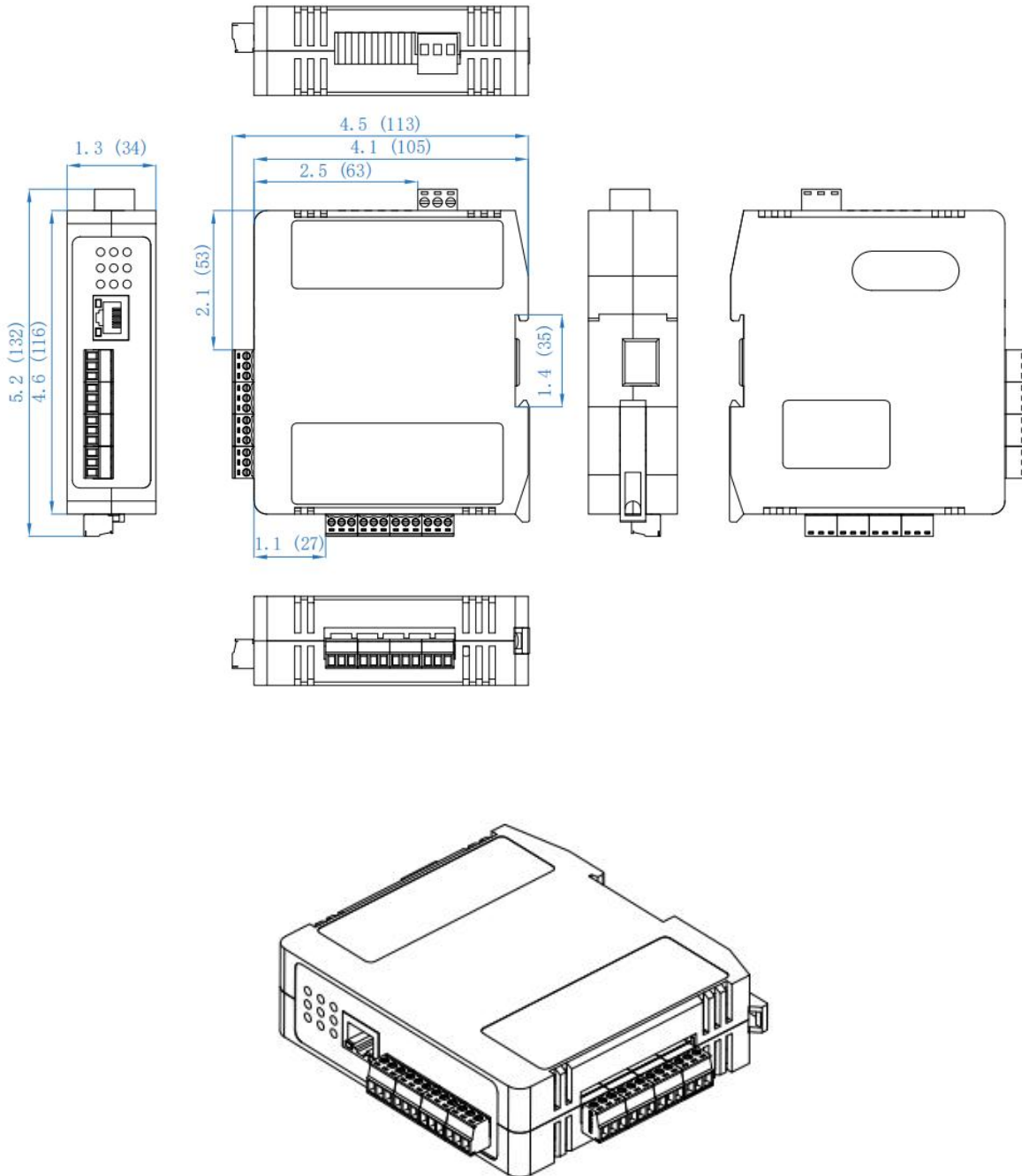


Maximum Cable Length: 450m for 15 Devices

3 Hardware Installation

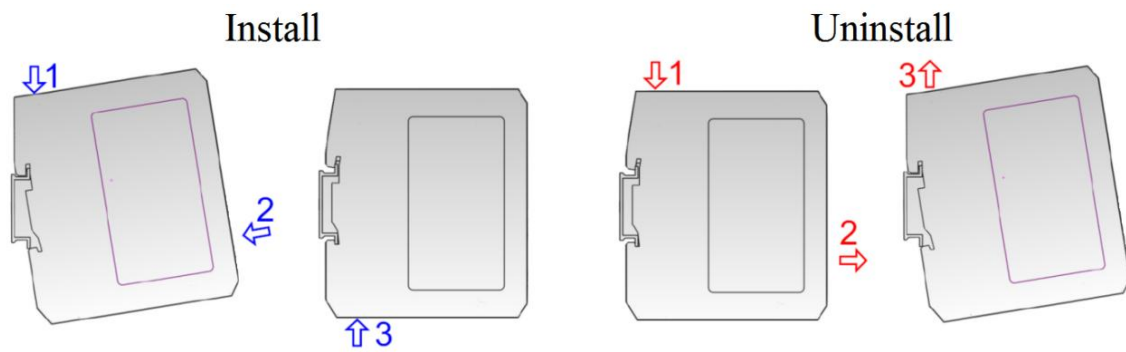
3.1 Mechanical Dimension

Dimensions: 1.34 in (W) × 4.57 in (H) × 4.13 in (D) / 34 mm × 116 mm × 105 mm



3.2 Installation Method

Using 1.4 in (35mm) DIN rail.



4 Quick Start Guide

4.1 Wiring

WARNING: Disconnect all power sources before wiring the gateway. Do not apply power until all wiring has been completed and checked.

1. Connect the HART interface.

Connect the HART field devices to the corresponding HART channel terminals.

- For point-to-point wiring, refer to [Chapter 2.7, "Point-to-Point Mode Wiring."](#)
- For multi-drop wiring, refer to [Chapter 2.8, "Multi-Drop Mode Wiring."](#)

Confirm that the HART device type, loop power supply, sampling resistor, and polarity are appropriate for the selected wiring method.

2. Connect the Ethernet interface.

Use an Ethernet cable to connect the Modbus TCP port of the gateway to the configuration computer, Ethernet switch, PLC, or other Modbus TCP client device.

3. Connect the power supply.

Connect the positive conductor of the DC power supply to the 24V+ terminal and the negative conductor to the GND terminal. The permitted supply-voltage range is 9 – 28 VDC, and a 24 VDC power supply is recommended.

4. Check the wiring.

Before applying power, verify the following:

- The supply voltage is within the permitted range.
- The power-supply polarity is correct.
- No loose wires, short circuits, or exposed conductors are present.
- The HART wiring and sampling-resistor configuration are correct.

5. Power on the gateway.

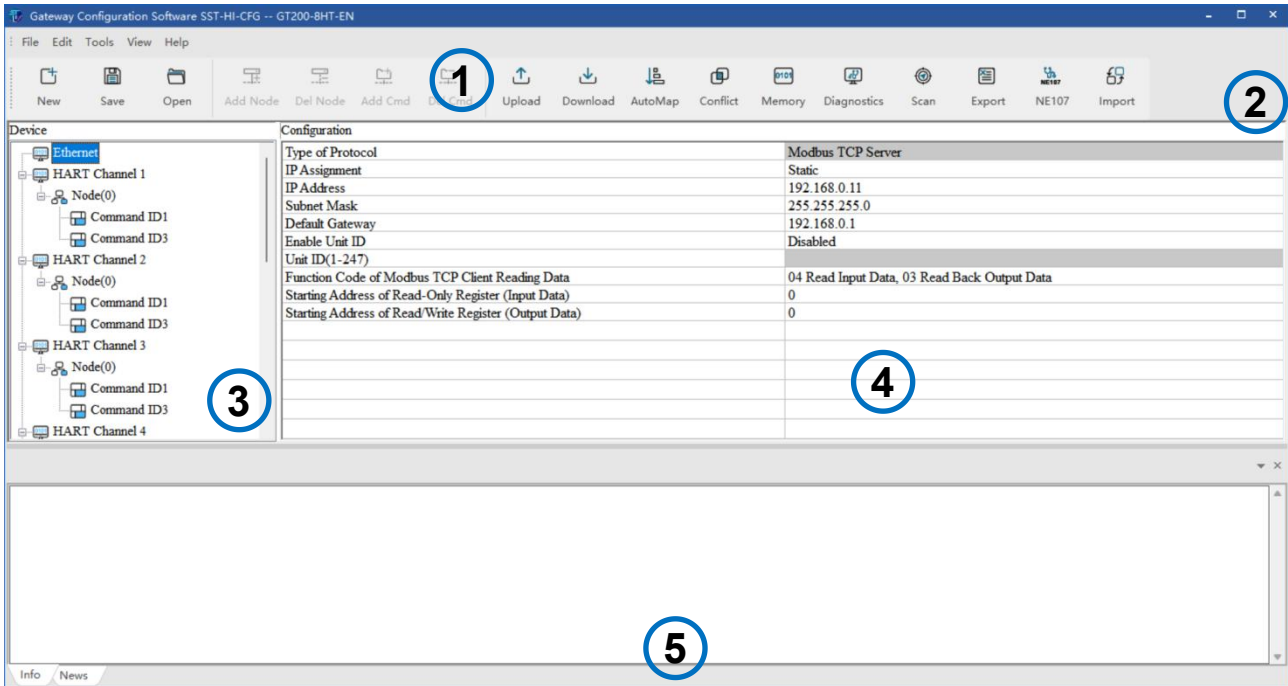
After confirming that all wiring is correct, apply power to the gateway and check the LED status.

4.2 Configuration Software Installation and Preparation

1. Visit the website to obtain the [SST-HI-CFG software](#) installation package.
2. Double-click the installer and follow the installation wizard until installation is complete.
3. Double-click the desktop shortcut to enter the configuration interface. A default configuration is available for reference.
4. Ensure that the computer and gateway are on the same network segment (for example, if the gateway is 192.168.0.10, set the computer to 192.168.0.20).

5 Software Instructions

5.1 Main Interface



1: Title Bar and Menu Bar

2: Toolbar

Common menu commands can be accessed by clicking the buttons on the toolbar.

3: Tree View

The configuration hierarchy tree view is mainly divided into two parts:

- (1) Ethernet: Used for Modbus TCP configuration
- (2) HART Channel: Used for HART Channel configuration

4: Configure View

Selecting an item in the tree view allows you to configure the corresponding parameters. The gray sections cannot be edited.

Parameter settings can be adjusted either by selecting from a dropdown menu or by manually entering values, depending on the specific parameter.

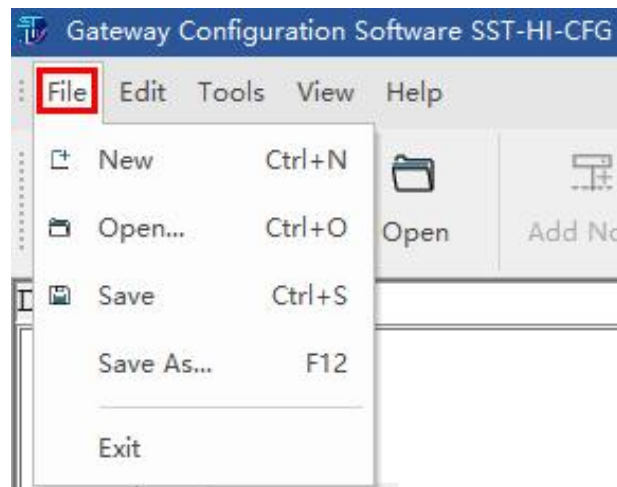
5: Info and News

Select a parameter in the configuration view to display its function and setting instructions.

Select 'News' to view the latest updates about the product.

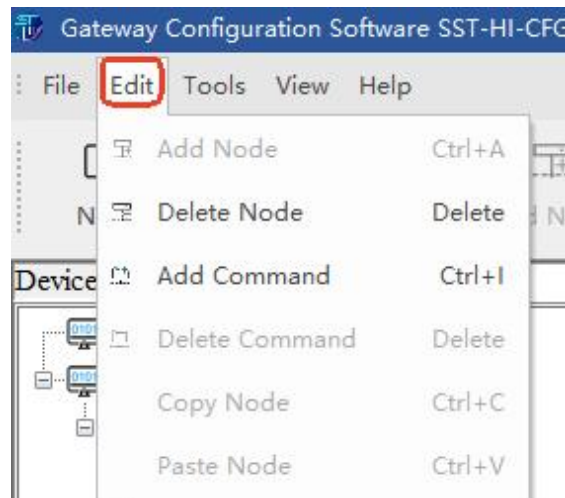
www.SSTAutomation.com

5.1.1 File



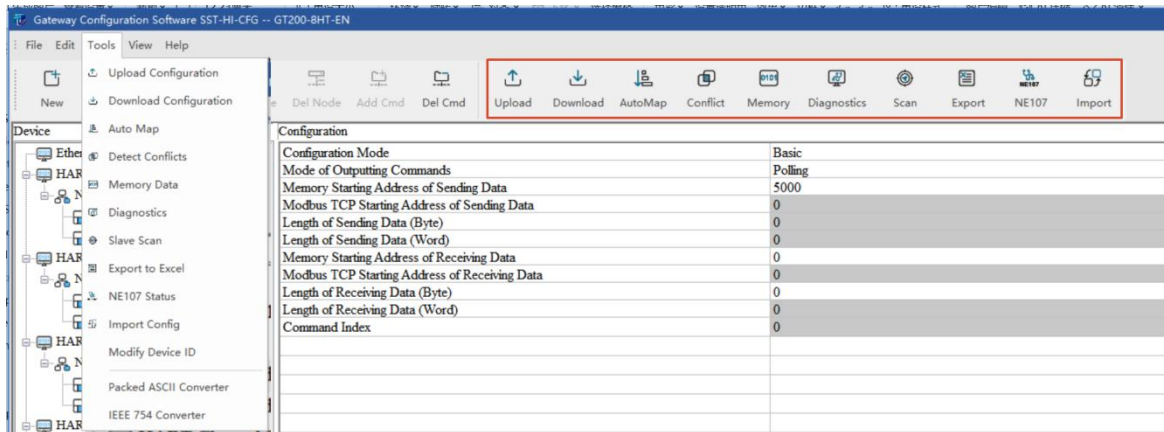
The configuration software offers 'New, Open, Save, Save As, Exit' functions for project files. You can click the corresponding buttons in 'Menu Bar-File' or toolbar to perform operations.

5.1.2 Edit



During the configuration process, operations related to nodes and commands can be performed by selecting buttons under the 'Menu Bar-Edit' section. Alternatively, buttons on the toolbar can also be clicked to adjust settings, or right-click on the HART Channel, node, or command will bring up a context menu for related operations.

5.2 Tools

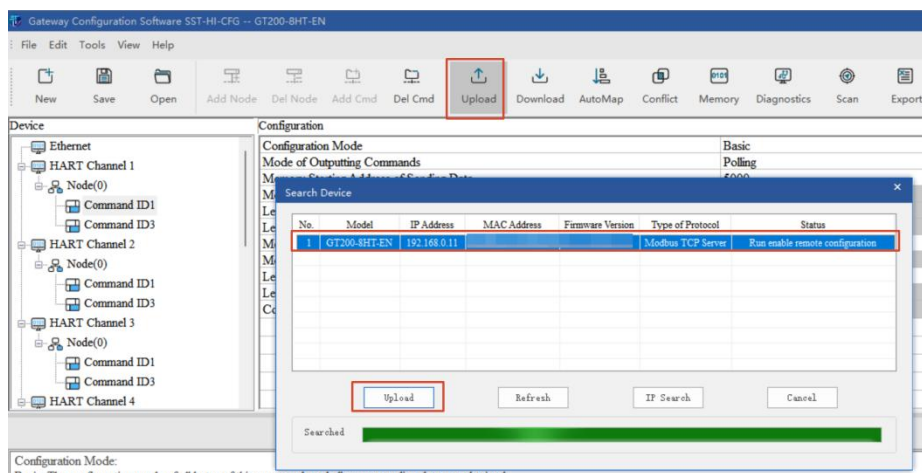


5.2.1 Upload Config

Upload configuration: Upload the configuration information from the gateway to the configuration software interface for viewing.

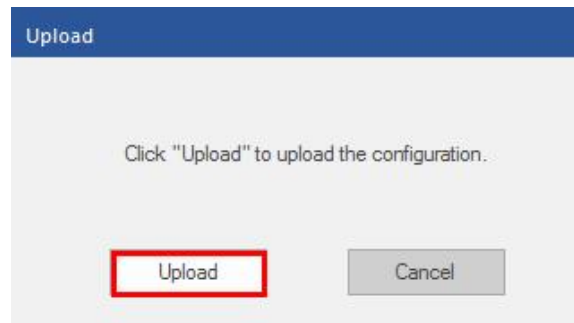
The specific operations are as follows:

- (1) Click the 'Upload' button on the toolbar to open the 'Search Device' interface.

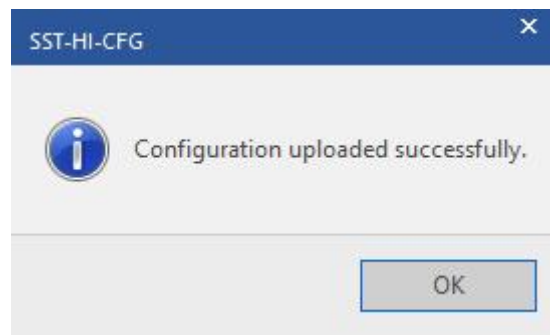


- If the device cannot be found, please refer to the FAQ ['How to Resolve Device Search Issues'](#).

- (2) Select the gateway to be uploaded, then click 'Upload' to open the Upload window:



(3) Click the 'Upload' button to execute the upload. Once the configuration is successfully uploaded, you can view the configuration:

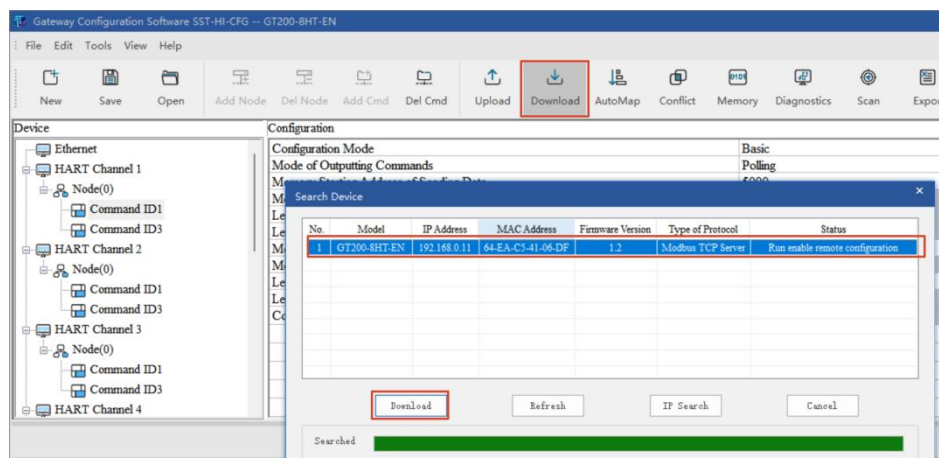


5.2.2 Download Config

Download configuration: Download the configuration information set in the current software interface to the gateway.

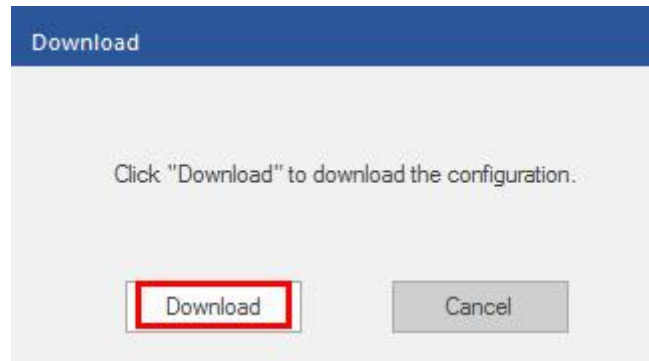
The specific operations are as follows:

(1) Click the 'Download' button on the toolbar to open the 'Search Device' window.

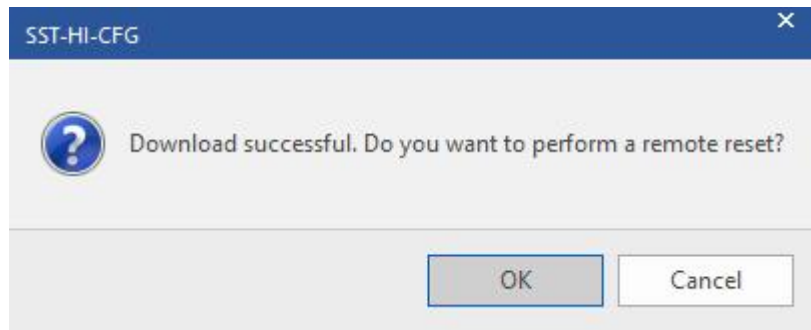


• If the device cannot be found, please refer to the FAQ ['How to Resolve Device Search Issues'](#).

(2) Select the gateway to be downloaded, then click 'Download' to open the Download window.



- (3) Click the 'Download' button to successfully execute the configuration download. Then the following prompt box will pop up.



After the download is complete, the gateway needs to be restarted for the configuration to take effect.

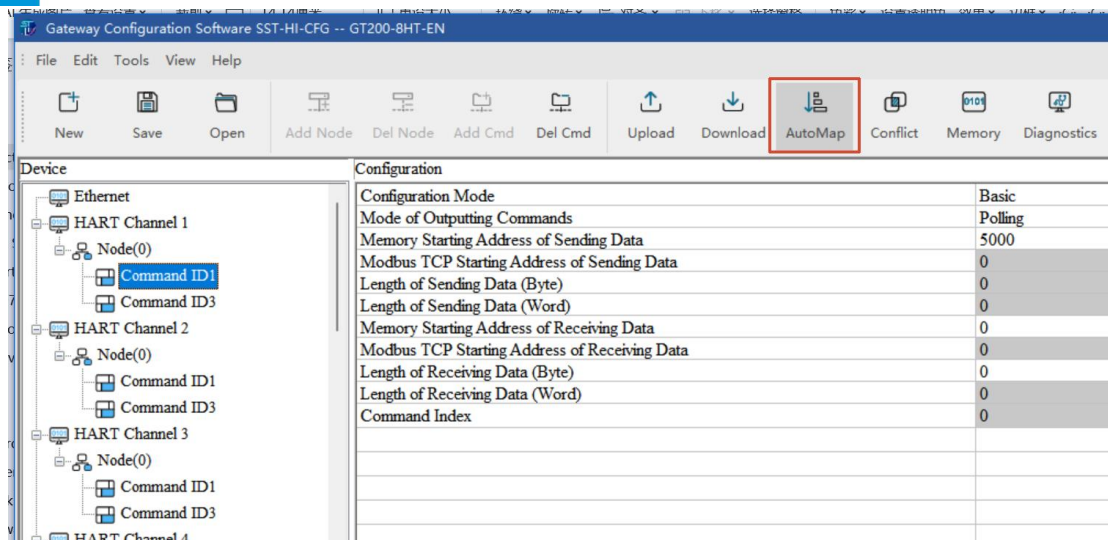
- Click 'OK': The gateway will automatically restart, and the downloaded configuration will take effect, enabling communication according to the new configuration.
- Click 'Cancel': The gateway will not restart. Although the gateway configuration has been successfully downloaded, communication will continue according to the previous configuration. The gateway must be manually restarted for the new configuration to take effect.

5.2.3 Auto Map

The Auto Map function automatically assigns values to the 'Memory Starting Address' parameter, helping to avoid address conflicts. The Memory Starting Address can also be filled in manually, but be sure to avoid any address conflicts.

Instructions:

After setting the HART command's send/receive data length for the HART Channel, you can click the 'Menu Bar - Tools - Auto Map' or the 'Toolbar - Auto Map' button to automatically fill in the starting address value for the memory. As shown in the image below:

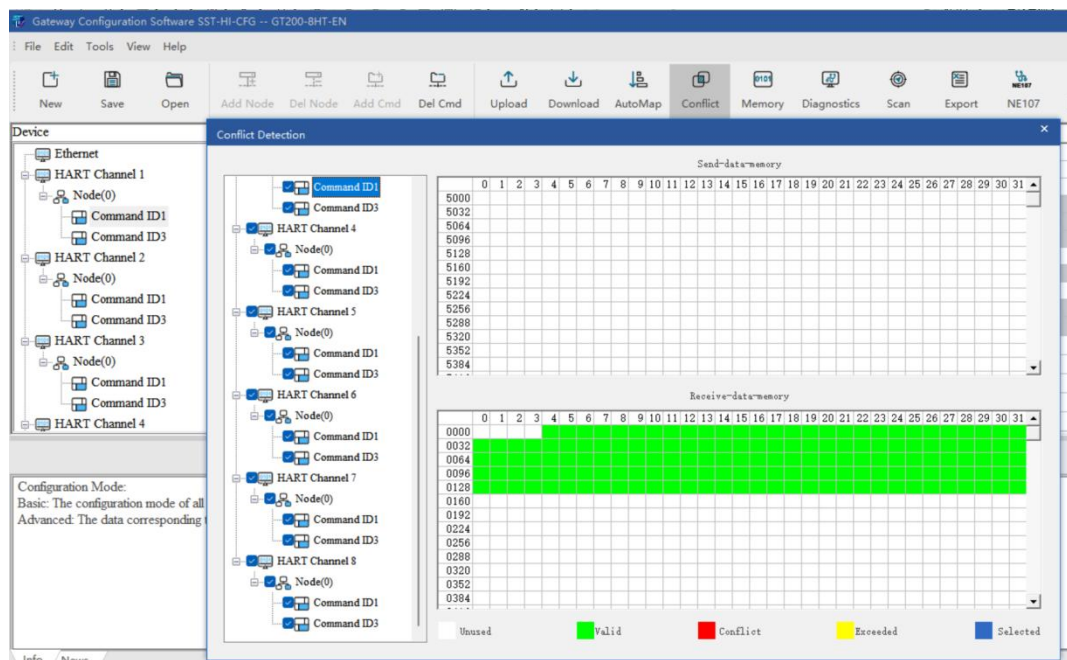


5.2.4 Detect Conflicts

The 'Detect Conflicts' function can check the memory mapping address occupancy of the gateway and whether there is any conflict.

Click the 'Menu Bar - Tools - Detect Conflicts' / 'Toolbar - Conflict' button to open the conflict detection window.

As shown in the figure below:



The tree view on the left displays the configured commands, while the memory allocation diagram is shown on the right. The upper memory allocation diagram represents the memory allocation for HART Send-data-memory, and the lower one represents the memory allocation for HART Receive-data-memory.

White: Indicates available memory.

Green: Indicates memory that is occupied but without conflicts.

Red: When a memory unit is occupied by two or more commands, the conflicting memory unit will be displayed in red.

Yellow: When the memory address allocated by the command exceeds the range specified by the gateway, the excess portion will be displayed in yellow.

Blue: When a command is selected, blue is used to indicate the memory locations of the command's input and output data.

5.2.5 Memory Data

The 'Memory Data' function allows users to view the internal data exchange of the gateway and modify the HART output data. It facilitates HART bus and device debugging when there is no connection on the Ethernet side. To use this feature, follow these steps:

(1) Open the SST-HI-CFG software. Click the 'Menu Bar-Tools -Memory Data' / 'Toolbar-Memory' button. The Memory data window will pop up:

The screenshot shows the 'Memory Data' window with two main sections: 'Input data' and 'Output data'. Each section contains a table with 16 columns (Addr 00 to 15) and 5 rows of data. The 'Input data' table shows addresses 0000 to 0064, and the 'Output data' table shows addresses 3000 to 3064. The data is displayed in a grid format with blue highlighting for the selected rows.

Input data																
Addr	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
0000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0016	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0032	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0048	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0064																

Output data																
Addr	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
3000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3016	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3032	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3048	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3064																

As shown in the image, the upper table displays the distribution of HART input data in memory, while the lower table shows the distribution of HART output data in memory.

To modify output data, first click 'Stop', then change the relevant data or load a previously saved data table. Finally, click 'Send' to apply the changes.

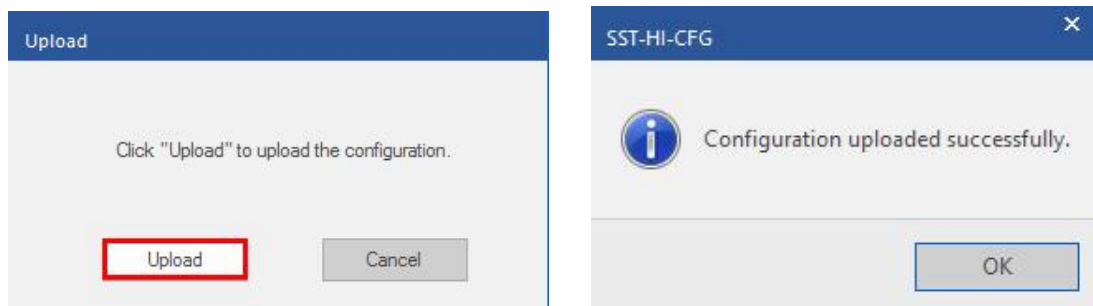
Note:

- ①The 'Save' data table will only export the portion of the data displayed on the screen, i.e., the part visible when you scroll the mouse. Other data will be shown as 'No'.
- ②GT200-8HT-EN can directly access the Memory data window after searching for the target device without entering any mode.

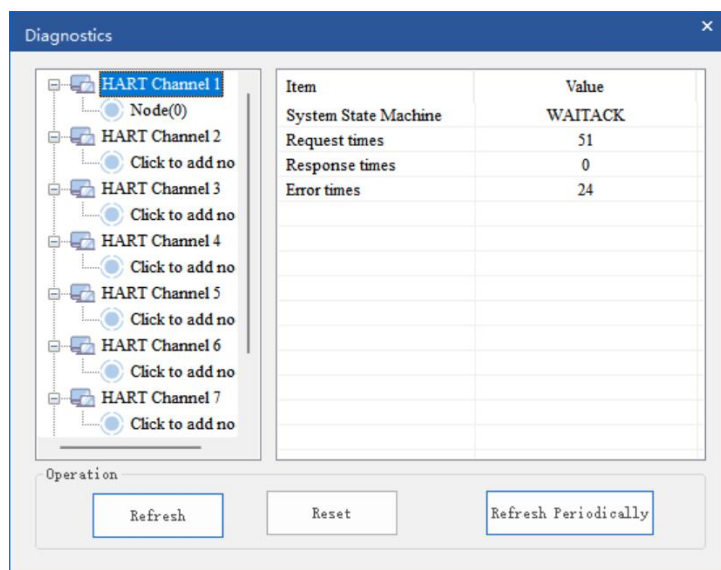
5.2.6 Diagnostics

The 'Diagnostics' function allows users to identify which devices are not communicating properly, monitor the execution status of configured commands, check the gateway's data transmission and reception status, and view specific command displays. To use this feature, follow these steps:

- (1)Open the SST-HI-CFG software. Click the 'Menu Bar-Tools -'Diagnostics' / 'Toolbar-'Diagnostics' button. Then, upload the configuration from the gateway.

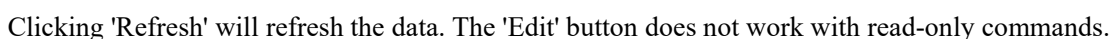


- (2) Click the 'OK' button, the Diagnose window will pop up:

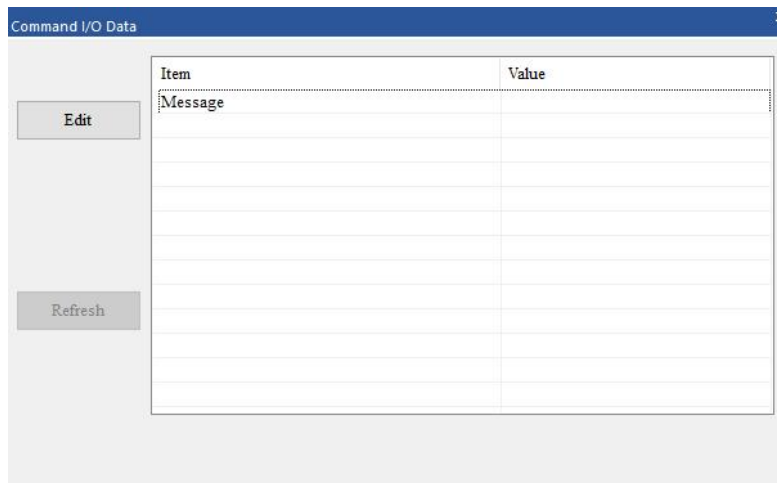


In this interface, click 'HART Channel', and the status of the gateway on the HART bus will be displayed on the

(1) Click Node (x) and the following figure will appear:



Double-clicking 'CMD17' will open the following window:



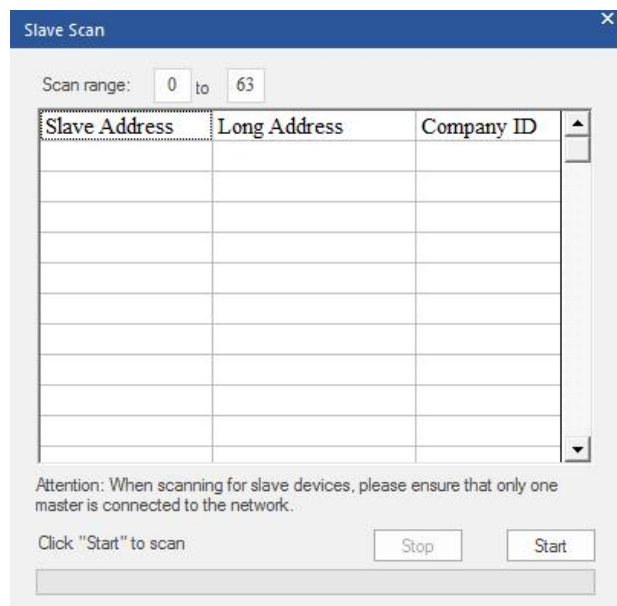
Click on the variable or property you want to change, such as 'Message', modify the corresponding value, and then click 'Edit' to execute the write command.

Note: GT200-8HT-EN can directly access the Diagnose window after searching for the target device without entering any mode.

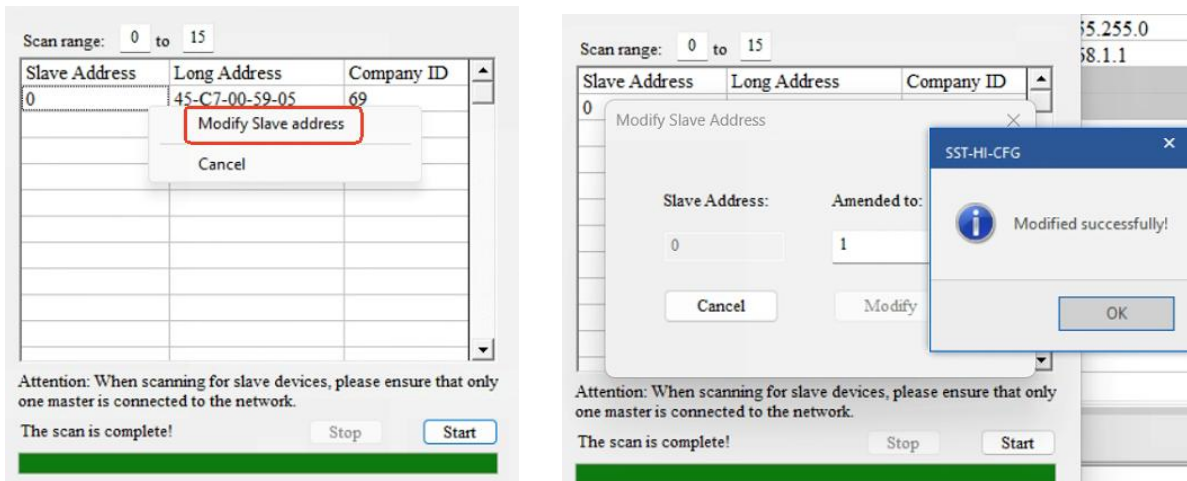
5.2.7 Slave Scan

The 'Slave Scan' function discovers HART slave devices on the network and allows you to view and modify their addresses. To use this feature, follow these steps:

(1) Open the SST-HI-CFG software. Click the 'Menu Bar-Tools -Slave Scan' / 'Toolbar-Scan' button, the Slave Scan will pop up:



In the 'Slave Scan' interface, click 'Start'. The interface will display the HART Slave Address, Long Address, and Company ID of the HART slaves connected to the gateway on this channel. Right-click on the corresponding device and click 'Modify Slave Address' to open the 'Modify Slave Address' window. In the text box, enter the new address you want to change to, and click 'Modify'. After the modification is successful, the gateway needs to be powered off and restarted.



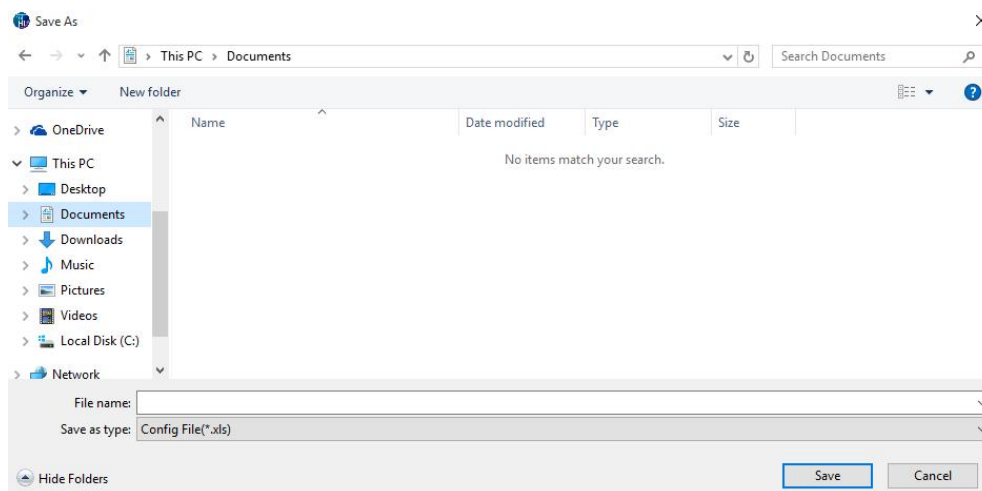
Note:

- ①The slave address supports a range of 0–63.
- ②No mode switching is needed for GT200-8HT-EN. It directly enters the Slave Scan window once the target device is searched, and scanning can be initiated after selecting the required HART channel.

5.2.8 Export to Excel

The 'Export to Excel' function can save the configuration information as an Excel document, making it convenient for users to view the relevant configurations.

Click the 'Menu Bar - Tools - Export to Excel' / 'Toolbar - Export' button, and the Save As window will pop up. As shown in the figure below:



Select the appropriate path, enter the file name, and click Save. The Excel file will open automatically. Select different sheets to view specific configuration information:

HART Master Type					
A	B	C	D	E	F
1	HART Master Type	HART Network	Command Retransmission Times	Polling	Delay between Polls
2	Primary Master	Point-to-Point	3	Enable	256
3					Response Timeout
4					256
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

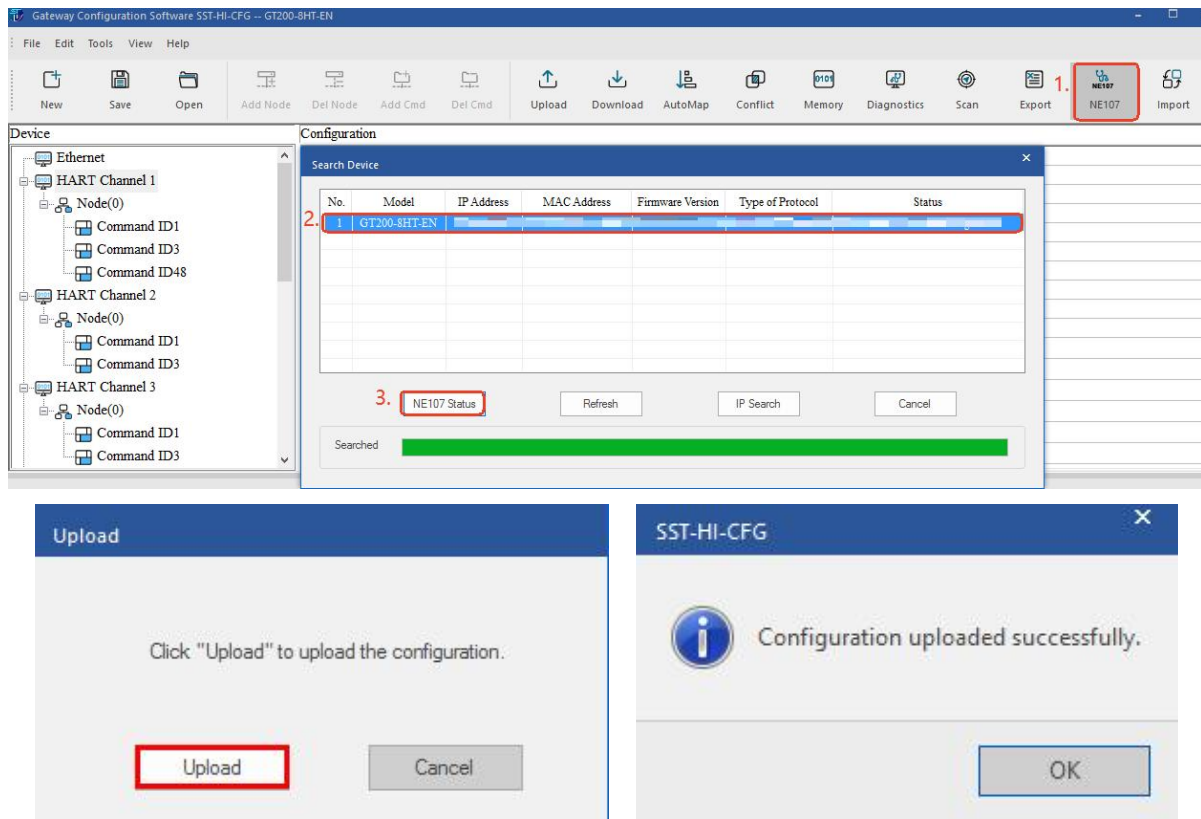
5.2.9 NE107 Status

Models GT200-8HT-EN support this function.

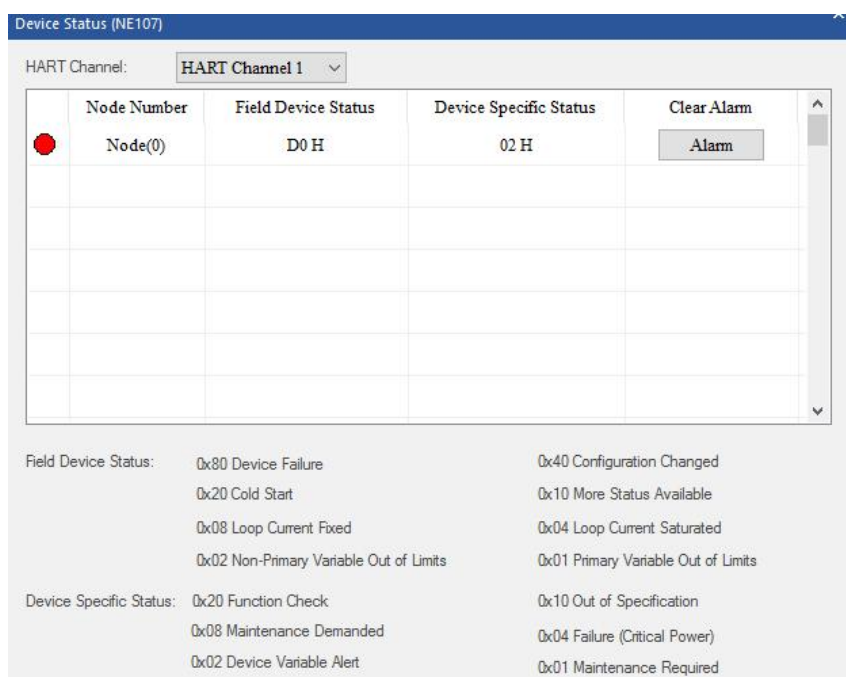
The NE107 Status function can monitor alarm information of HART devices. Before using this function, enable the NE107 Mapping Function in the corresponding HART channel. A non-outputting 'Command 48' (Read Additional Device Status) is automatically appended to the end of the polling list.

Device	Configuration
Ethernet	
HART Channel 1	
Node(0)	
Command ID1	
Command ID3	
Command ID48	
HART Channel 2	
Node(0)	
Command ID1	
Command ID3	
	HART Master Type
	Primary Master
	HART Network
	Point-to-Point
	Command Retransmission Times
	3
	Polling
	Enabled
	Delay between Polls
	256
	Response Timeout
	256
	Device Action after Response Timeout Limit
	Clear
	Consecutive Response Timeout Limit
	3
	NE107 Mapping Function
	Enabled

(1) Click the 'Menu Bar - Tools - NE107 Status' / 'Toolbar - NE107' button. After searching for the gateway device, click the NE107 Status button. Upon the prompt of completed configuration upload, you can enter the Device Status interface.



(2) Select the HART channel to be monitored and the corresponding device node on this interface.



(3) You can click the 'Alarm' button to clear alarms of triggered devices.

Status Indicator Description

Green: The device operates normally with no active diagnostic events. All parameters are within allowable ranges, and no operation is required.

Red: A serious fault occurs, disabling normal operation or causing invalid output. Stop operation immediately for maintenance.

Orange: The device is performing temporary functions such as internal testing, simulation and parameter writing, and current output is unreliable. It will resume automatically after the function completes.

Blue: Operating conditions exceed preset limits (e.g. excessive temperature or pressure). No fault is present, but measurement accuracy and process reliability are affected. Adjust process parameters accordingly.

Grey: Non-urgent issues including aging, wear and expired calibration exist. The device can still run, but maintenance is recommended as soon as possible to prevent potential failures.

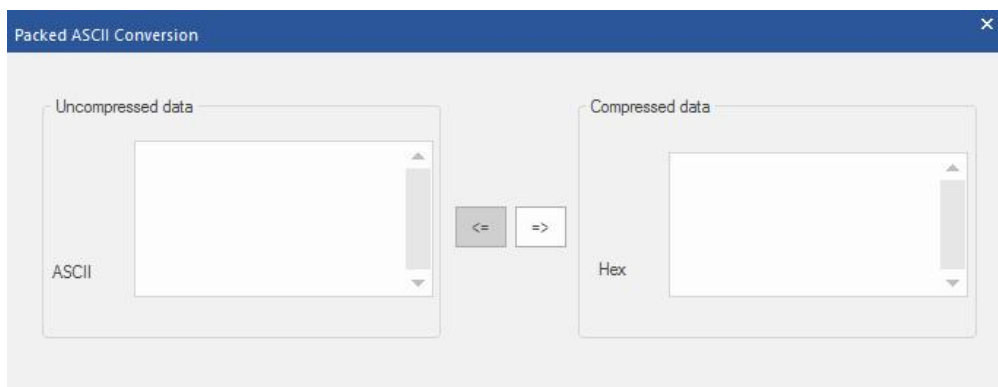
5.2.10 Import Config

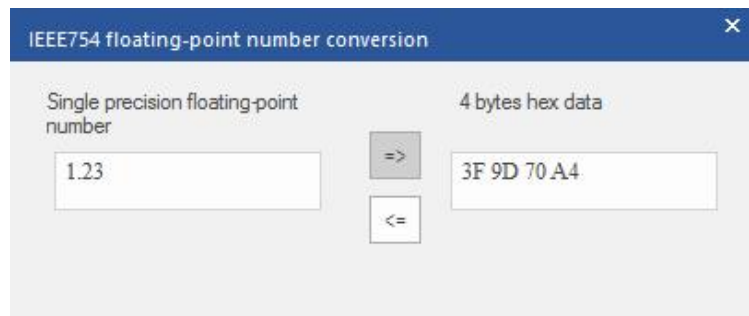
Only GT200-8HT-EN supports this function.

Configuration files of GT200-3HT-MT and GT200-HT-MT series products can be converted for use with GT200-8HT-EN.

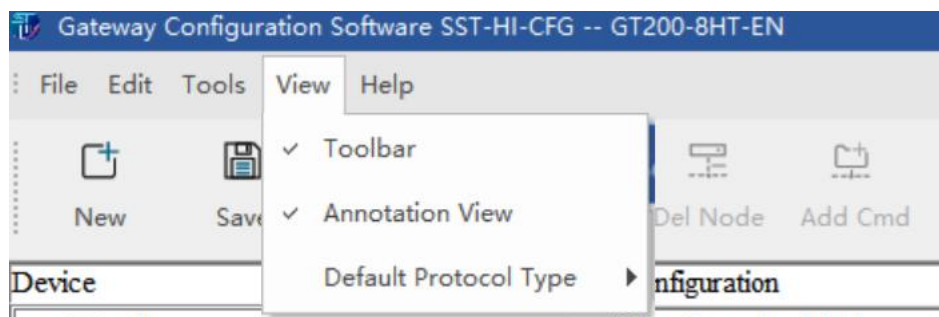
5.2.11 Conversion Tools

In the 'Tools' menu, there are two practical tools to facilitate the conduct of IEEE754 and PACKED ASCII conversion:





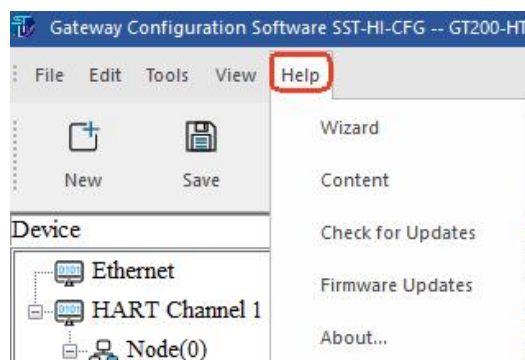
5.3 View



By default, the 'Toolbar', 'Device View', and 'Annotation View' options under the View menu are enabled, and these elements are visible in the main interface.

Default Protocol Type: It only support Modbus TCP Server option.

5.4 Help



5.4.1 Wizard

Click 'Wizard' to quickly configure according to the corresponding window guidance.

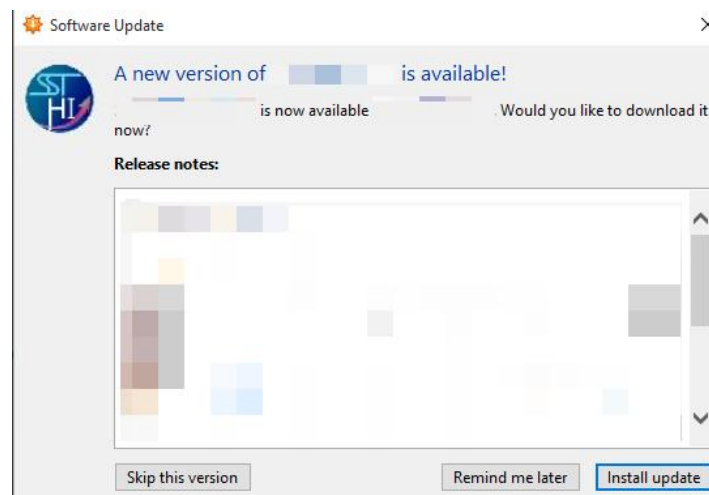
5.4.2 Content

Click 'Content' to open the software manual and view the instructions for using the software.

5.4.3 Check for updates

The 'Check for updates' feature allows for real-time online updates of the latest version of the configuration software.

When the computer with the configuration software is connected to the network, click 'Menu Bar-Help-Check for updates' will display whether the current software version is the latest and if a new version is available.



There are three button options: Skip this version, Remind me later, and Install update.

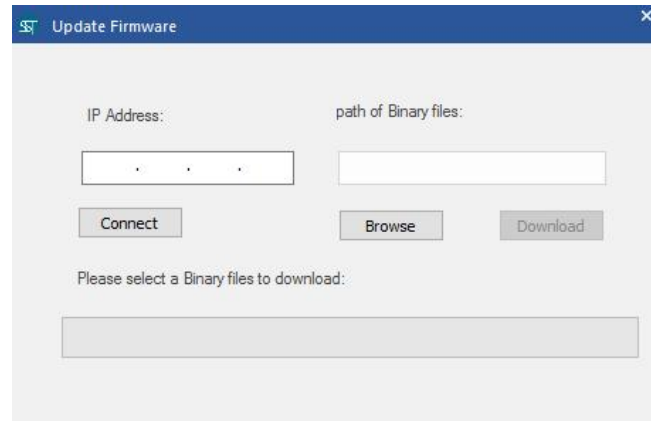
Click the 'Install update' button to begin the process of uninstalling the current version and installing the updated version. Follow the prompts to complete the update.

5.4.4 Firmware Updates

Firmware Updates upgrades the gateway firmware.

Instructions:

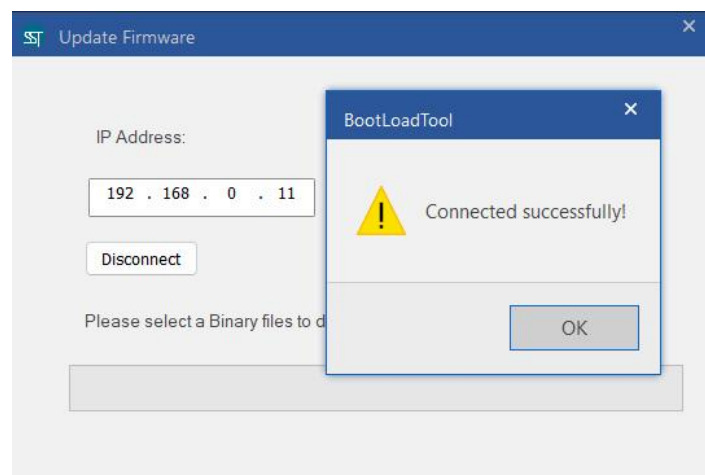
- (1) Power off the gateway, then press and hold the button while powering it back on. All indicator lights are lit.
- (2) Click the 'Menu Bar-Help -Firmware Updates', and Update Firmware window will pop up :



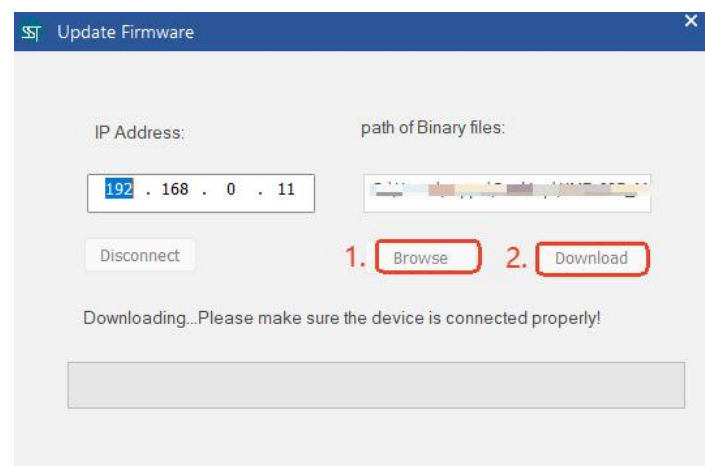
(3)IP Address: Use the corresponding default IP address.

GT200-8HT-EN: 192.168.0.11.

(4)Click the 'Connect' button, and it will display 'Connected successfully!'.

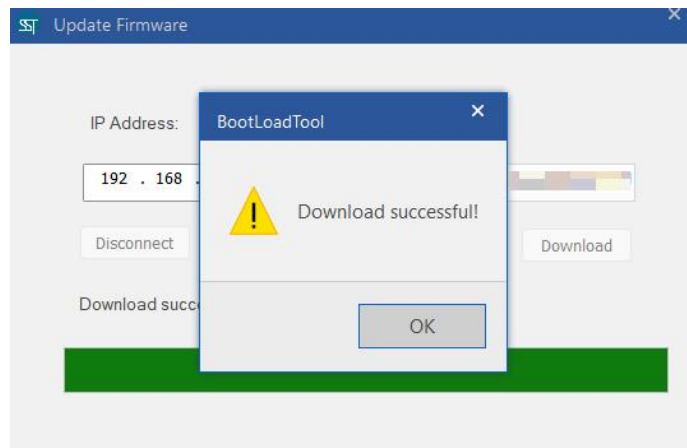


(5)Click the 'Browse' button, select the Bin file to be updated, and click 'Download':



(6)You need to wait for a period of time. Do not power off the device during the update process. Once the

message 'Download successful!' appears, the gateway will automatically restart to complete the update.



5.5 Configuration Procedure

1. Connect the hardware (as described in [Wiring](#)).
2. Install and open the software (as described in [Software Instructions](#)).
3. Configure the HART side (default settings are generally acceptable). For details, see Chapter "[HART-side Configuration](#)".
4. Configure the Modbus TCP side:

- This device is a slave: set the IP address → (optional) set the Unit Id.

For details, see Chapter "[How to Configure Modbus TCP Server Mode](#)".

5. Download the configuration and restart the gateway.

Note:

- After the configuration is downloaded, the configuration information in the gateway will be refreshed, which affects gateway communication. Confirm that the configuration information is correct before downloading. You may also upload the existing configuration from the gateway and save a backup before downloading the new configuration.
- After downloading, click the "Upload" button on the toolbar to view and confirm the configuration in the gateway.

For details, see Chapters "[Upload Config](#)" and "[Download Config](#)".

6. Verify communication.

Note:

If communication is abnormal, use the "Diagnostics" function in the configuration software to verify whether

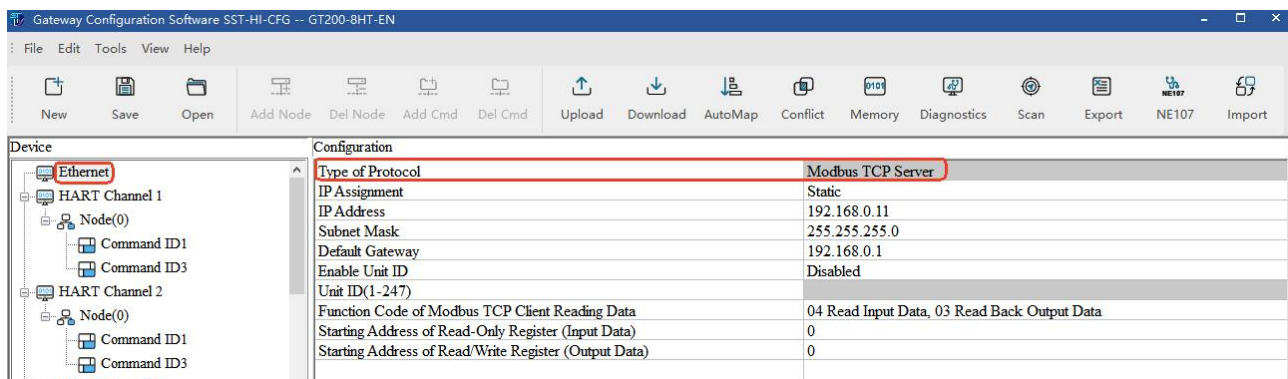
either protocol side has established normal communication with the gateway. This can assist with analysis and troubleshooting.

5.6 Ethernet Settings Instructions

5.6.1 Modbus TCP Server

Select 'Ethernet' in the tree view and select 'Modbus TCP Server' in 'Type of Protocol', which means that the gateway now communicates as a Modbus TCP Server and can connect Modbus TCP Client.

The steps to set up the Modbus TCP Server mode are as follows:



GT200-8HT-EN

1.Set the basic parameters: IP Assignment, Enable Unit ID and Unit ID.

When 'Enable Unit ID' is disabled, the station address of the gateway Modbus TCP Server can be any value and will adapt to the master station. When enabled, a unit ID can be specified, which corresponds to the station address of the Modbus TCP Server.

2.Set advanced features:

- **Function Code of Modbus TCP Client Reading Data:** Modbus TCP Client equipment can choose to use 04 or 03 function code to read the HART device data (input data) collected through the gateway. It can also read back the data output to HART (output data).
- **Starting Address of Read-Only Register (Input Data):** The gateway is used as Modbus TCP server to support the client to read the starting address of the input data using the 04/03 function code. Enter the address in protocol address (base 0) format, displayed as a decimal number. Range: 0-64736.
- **Starting Address of Read/Write Register (Output Data):** The gateway is used as Modbus TCP server to support the client to write the starting address of the output data using the 06/16 function code. Using the 03/04 function code to read the starting address of the output data. Enter the address in protocol address (base

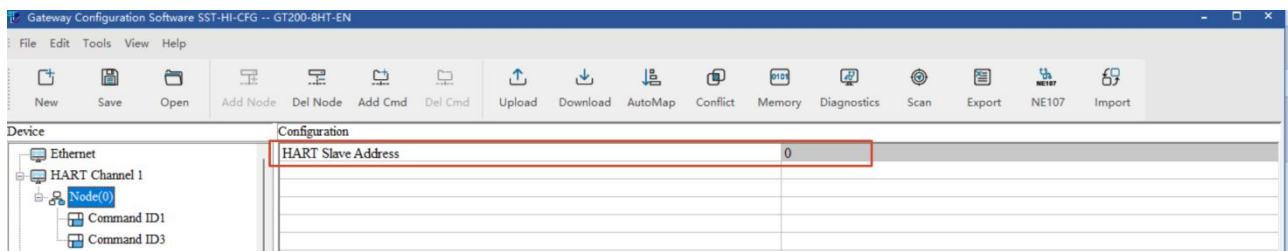
5.7 HART Channel Settings Instructions

[illegible]

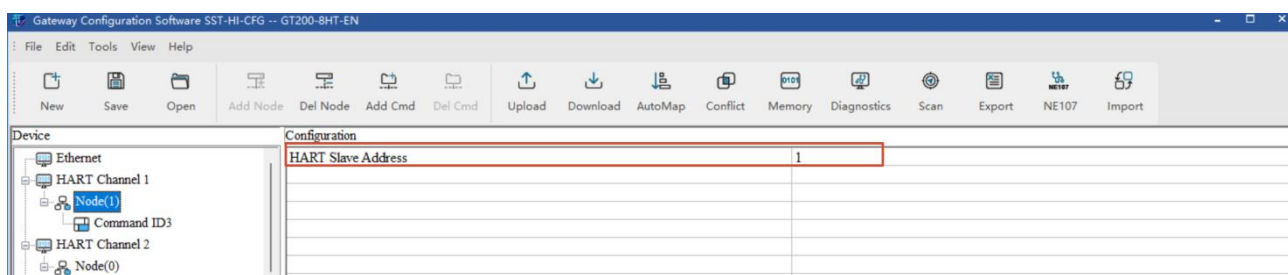
required before clearing the HART input data buffer. Range: 1-14. The default value is 3.

NE107 Mapping Function: When the NE107 Mapping Function is enabled, a non-outputting 'Command 48' (Read Additional Device Status) is automatically appended to the end of the polling list. This ensures full transmission/reception support for NE107 applications.

5.7.1 Node



Point-to-Point



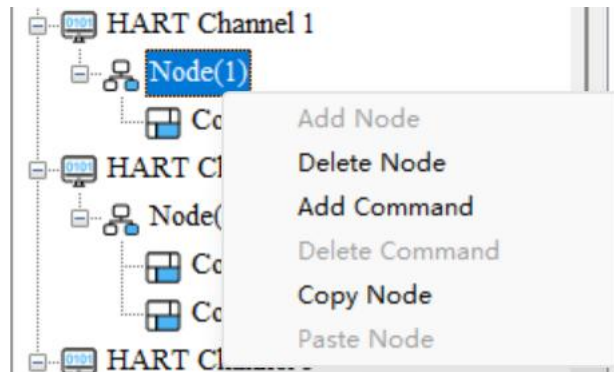
Multi-drop

After adding nodes, set the HART Slave Address in the configuration section on the right. When the HART Channel is set to Point-to-Point, only one slave node with an address of 0 is allowed. In 'Multi-drop' mode, 1-63 can be set.

Note: If the number of configured nodes exceeds the actual number of connected devices, the extra nodes will increase the gateway's polling cycle. Therefore, it is recommended that the configured nodes match one-to-one with the actual devices.

● Node Settings Instructions

There are four operations for nodes: Add Node, Delete Node, Copy Node, and Paste Node.



- **Add Node:** Right-click to select 'HART Channel', and a pop-up menu will appear. Choose 'Add Node' to complete the node addition. Alternatively, you can click 'Menu Bar - Edit - Add Node' or the 'Toolbar - Add Node' button to complete the operation.

- **Delete Node:** There are several ways to delete a node:

- ① Right-click the node you want to delete, then select 'Delete Node' from the menu to complete the operation.
- ② Click 'Menu Bar - Edit - Delete Node' or the 'Toolbar - Del Node' button to complete the operation.
- ③ Select the node by left-clicking on it, then press the Delete key.

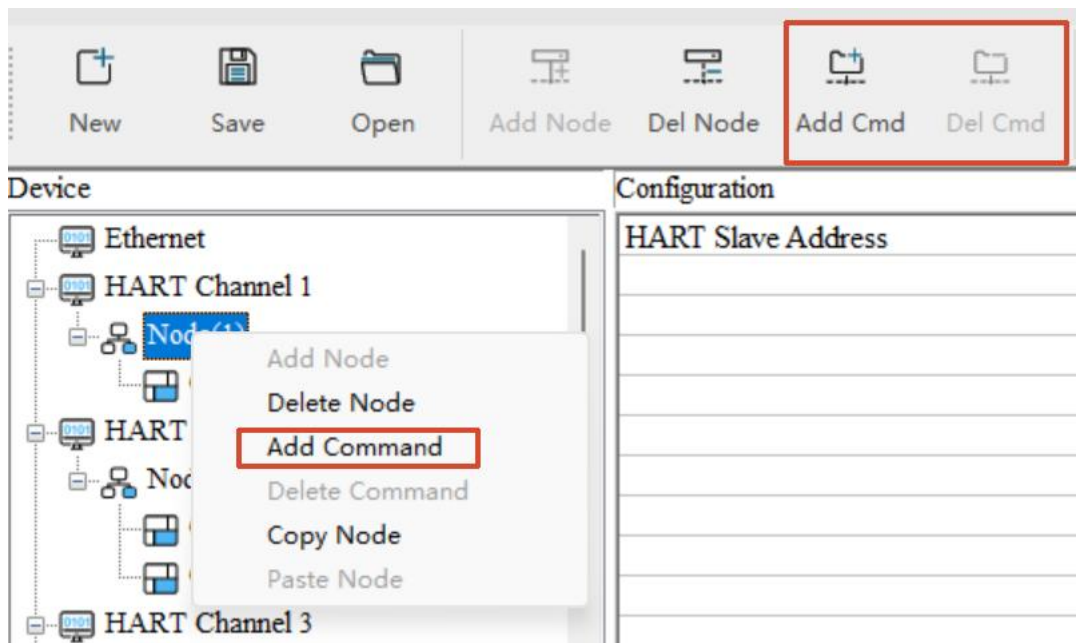
- **Copy Node:** Right-click the node you want to copy, and a pop-up menu will appear. Choose 'Copy Node' to complete the copying operation.

- **Paste Node:** After clicking 'Copy Node', right-click an existing node. A pop-up menu will appear, and you can select 'Paste Node' to complete the operation.

5.7.2 Command

● Command Settings Instructions

There are two operations for commands: Add Command and Delete Command.



• **Add Command:** Right-click the node where you want to add the command, then select 'Add Command' from the menu. A command options pop-up window will appear. Double-click the command in the 'Command List', or select it and click '>>' to add it to the 'Selected Command' list. Click 'OK' to complete the command addition. Alternatively, you can click 'Menu Bar - Edit - Add Command' or the 'Toolbar - Add Cmd' button to complete the operation.

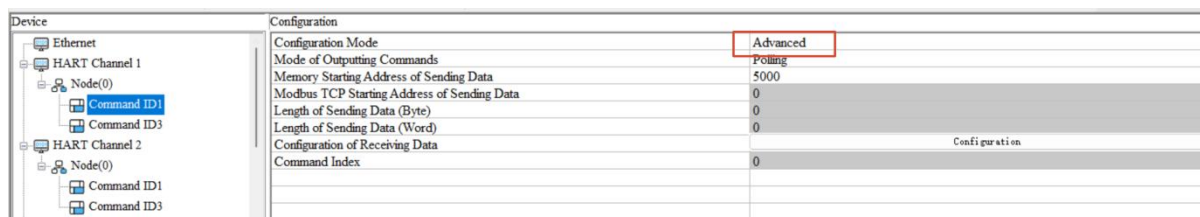
• **Delete Command:** There are several ways to delete a command:

- ① Right-click the command you want to delete and select 'Delete Command' from the menu to complete the operation.
- ② Click 'Menu Bar - Edit - Delete Command' or the 'Toolbar - Del Cmd' button to complete the operation.
- ③ Left-click the command you want to delete and use the Delete shortcut key to remove the command.

Note: Only one instance of the same command can be configured within a node.

● Configuration command

Modbus TCP Server:



Device	Configuration	
Ethernet	Configuration Mode	Basic
HART Channel 1	Mode of Outputting Commands	Polling
Node(0)	Memory Starting Address of Sending Data	5000
Command ID1	Modbus TCP Starting Address of Sending Data	0
Command ID3	Length of Sending Data (Byte)	0
	Length of Sending Data (Word)	0
HART Channel 2	Memory Starting Address of Receiving Data	0
Node(0)	Modbus TCP Starting Address of Receiving Data	0
Command ID1	Length of Receiving Data (Byte)	0
Command ID3	Length of Receiving Data (Word)	0
HART Channel 3	Command Index	0
Node(0)		

Configuration Mode: There are two configuration options for commands: Basic and Advanced.

- **Basic:** This configuration method configures all bytes of the command, with all corresponding data being retrieved.
- **Advanced:** This configuration method segments the corresponding data of the command, allowing you to select only the necessary parts.

Mode of Outputting Commands: The command execution method can be selected as Polling, Change of State, Initialization, and Disable.

- **Change of State:** This command is only executed when the data in the HART sending data buffer changes.
- **Polling:** This command is placed in the polling queue and executed periodically.
- **Initialization:** This command is executed only once upon power-up.
- **Disabled:** This command will not be executed.

Memory Starting Address of Sending Data: Set the starting memory address for the output data of this command.

The protocol type is Modbus TCP Server, with a range of 5000-7999.

Modbus TCP Starting Address of Sending Data: The starting address of the register for the master to write data. This parameter is automatically calculated by the gateway, primarily to assist users in addressing the registers.

Length of Sending Data(BYTE): Used to set the byte length of the output data for this command.

Length of Sending Data(WORD): This parameter is automatically calculated by the gateway, mainly to help users view the output data length. 1 word = 2 bytes.

Memory Starting Address of Receiving Data: Set the starting memory address for the input data of this command.

The protocol type is Modbus TCP Server, with a range of 0-3999.

Modbus TCP Starting Address of Receiving Data: The starting address of the register for the master to read data. This parameter is automatically calculated by the gateway, primarily to assist users in addressing the

registers.

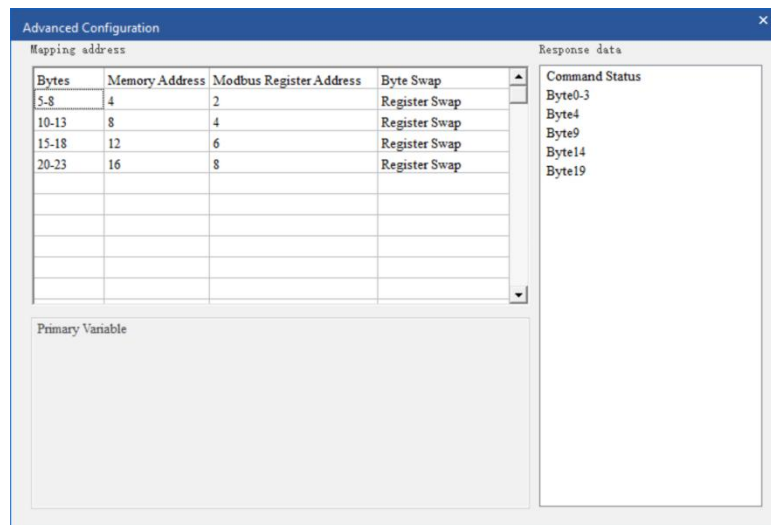
Length of Receiving Data(BYTE): Used to set the byte length of the input data for this command.

Length of Receiving Data(WORD): This parameter is automatically calculated by the gateway, mainly to help users view the input data length. 1 word = 2 bytes.

● Advanced Configuration command

In HART command configuration, sometimes you may only want to extract part of the data from a command. For example, for Command ID 1 in HART, you may only need the main variable's floating-point value and not the unit of the main variable. This is where the advanced option comes into play.

The advanced option essentially performs a 'segmented mapping function', which divides the response data of each HART command into segments that can be extracted independently. You only need to use the segments you require. The following image shows the interface for the advanced option:



Add bytes: In the bytes area, double click the left button or right click the chosen bytes.

Delete bytes: In the 'Mapped Address' area, select the segment you want to remove, then press the Delete key or double-click it.

Show comments: Click the selected node, and the annotation interface for this byte will appear below.

6 Frequently Asked Questions

Q 1: What should I do if the device cannot be found?

No.	Possible Cause	Solution
1	Search delay	Click the "Refresh" or "Search by Specified IP" button to search again.
2	Whether the Ethernet cable is normal	Try replacing the Ethernet cable and check whether the Link LED of the Ethernet port turns on.
3	Whether the IP addresses are on the same subnet	1. Set the PC and the gateway Modbus TCP port IP addresses to the same subnet. 2. If the gateway is in DHCP mode and there is no DHCP server or switch on the network, it will automatically revert to the fixed IP address 192.168.0.10 if no IP address is obtained about 30 seconds after power-on or restart. At this time, set the PC to the 0 subnet, and the temporary PC IP address must not be "192.168.0.10".

Q2: What should I do if the configuration does not take effect after download?

No.	Possible Cause	Solution
1	Gateway not restarted or restart failed	The gateway must be restarted after the download is complete for the new configuration to take effect. 1. Download again and perform remote gateway restart through the software. 2. Power off and manually restart the gateway.
2	Configuration not written correctly	Perform the "Upload" operation on the target gateway and check whether the gateway configuration matches the intended downloaded configuration.
3	Check device connection and status	Observe the LEDs (refer to the "LED Status Quick Reference Table") for troubleshooting.
4	Whether the Ethernet cable is normal	Unplug and reconnect the Ethernet cable or replace it.
5	Configuration corrupted	It is recommended to perform "Restoring Initial Configuration" and then download the complete configuration again.

Q3: What should I do if the Modbus TCP side cannot communicate normally?

Category	Checklist
Physical Connection	1. Check whether the Modbus device is powered on. 2. Check whether the Ethernet cable is firmly inserted. 3. Check whether the Ethernet cable is damaged. Replace it if necessary.
IP Configuration	1. Confirm that the IP addresses of the gateway and Modbus device are on the same subnet. 2. Check whether an IP address conflict exists. 3. If the gateway is set to DHCP mode, the IP address may change after restart and must be confirmed again.
Parameter Matching	1. Check whether the station number (Unit ID) is correct. 2. Check whether the port number (default 502) is correct, occupied, or set incorrectly. 3. Confirm that the Modbus function code, start address, and data length settings match.

Q4: What should I do if the HART side cannot communicate normally?

No.	Checklist
1	Check whether the HART wiring is loose.
2	Confirm whether the HART slave address matches the gateway configuration.
3	Check whether the HART sampling resistor is used.

7 Device Maintenance

7.1 Restoring Initial Configuration

This operation clears all user configurations (including IP address) and restores the device to the initial default state. Be sure to back up important configurations before performing this operation!

Procedure:

1. Start the restore process:

Within 10 seconds after the device completes power-on startup (that is, the MS green LED is steady on), press and hold the button for 5 seconds. The MS LED should flash green (2 Hz).

2. Confirm whether to execute:

Confirm: Click the button within 5 seconds after the MS LED starts flashing. The MS LED turns off, then the device restores the default configuration and restarts automatically.

Cancel: If the button is not clicked within 5 seconds after the MS LED starts flashing, the device automatically exits this mode. The MS LED returns to steady green and the device continues normal operation.

3. Complete restart:

After restart, all configurations are reset to default values, and the IP configuration mode is changed to DHCP. If there is no DHCP server or switch on the network, the gateway will use the default IP address 192.168.0.10 after automatic IP assignment times out.

7.2 Firmware Upgrade Procedure

In Bootloader mode, the gateway IP address is fixed at 192.168.0.11. Normal communication tasks cannot be performed in this mode; it is only used for firmware upgrade.

Procedure:

1. Enter Bootloader mode

Power off the device. Press and hold the button while powering on the device.

Observe the panel. When all LEDs turn steady red, the device has successfully entered Bootloader mode, and the button can be released.

2. Connection and access

(1) Use an Ethernet cable to connect the Modbus TCP port of the gateway to the PC and ensure that both are

on the same LAN.

(2) Set the Ethernet IP address of the computer to the 192.168.0.X subnet.

(3) Open the configuration software, select firmware update in the function bar, and connect to the fixed IP address: 192.168.0.11.

3. Perform firmware update

Follow the software instructions, select the new firmware file, and start the update. After the update succeeds, wait for the device to restart automatically.

After the device restarts, it runs the new firmware and returns to normal operation mode.

Important: During the entire update process, do not disconnect power or perform other operations until the page indicates that the update is complete.

7.3 Daily Maintenance Precautions

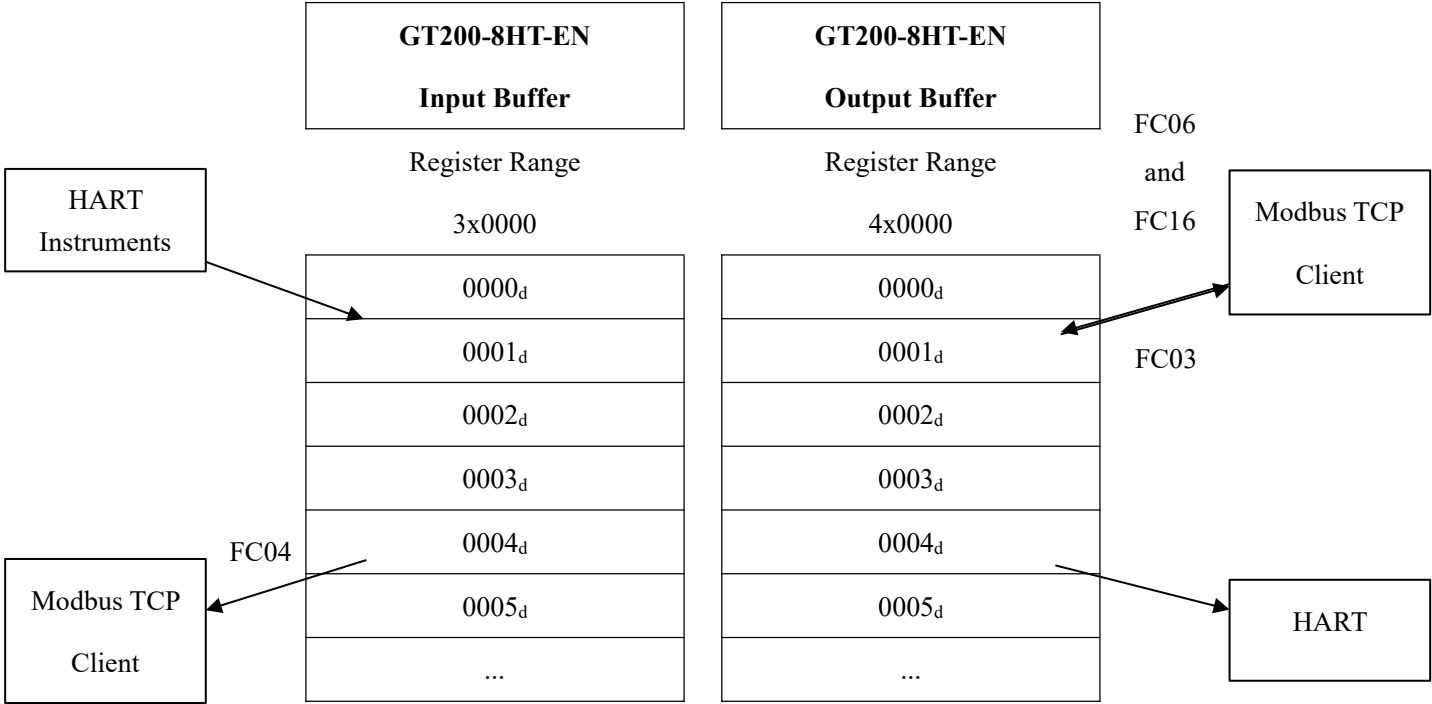
- ◆ Protect the module from heavy pressure to prevent panel damage;
- ◆ Protect the module from impact, which may damage internal components;
- ◆ Keep the supply voltage within the range specified in the manual to prevent module burnout;
- ◆ Protect the module from water ingress, which will affect normal operation;
- ◆ Check the wiring before power-on for incorrect connections or short circuits.



8 Technical Reference

8.1 Operating Principle of Modbus TCP Server Mode

Data conversion between Modbus TCP and HART in the GT200-8HT-EN is established through a "mapping" relationship. The GT200-8HT-EN has two data buffers: one input buffer and one output buffer. When the gateway operates as a Modbus TCP server, Modbus write-register commands write data to the gateway's output buffer. The gateway then writes the data from the output buffer to the corresponding HART field devices. Modbus read commands retrieve data from the gateway's input buffer, which stores data read from the HART field devices, and return it to the Modbus TCP master through response messages.



When operating as a Modbus TCP server, the gateway supports function codes 03H, 04H, 06H, and 10H.

The gateway contains two data buffers: an input buffer and an output buffer.

The output buffer receives data written by the Modbus TCP master using function code 06H or 10H. The gateway then uses the data in this buffer to write values to the corresponding HART field devices.

The input buffer stores data read by the gateway from the HART field devices. The Modbus TCP master can use function code 03H or 04H to read the data from this buffer.