

Industrial Ethernet Serial Gateway (Modbus RTU/ASCII / Modbus TCP)

Modbus Serial/TCP Series

User Manual

V 3.0

Rev B



SST Automation

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Important Information

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Safety Information

The following safety information must be read before installing, wiring, commissioning, or maintaining the device.

DANGER - Electrical Hazard

Disconnect the power supply before wiring, rewiring, or removing the device from the DIN rail.

Do not touch exposed terminals while power is applied.

Do not use the device if the enclosure, terminals, or cables are damaged.

WARNING - General Safety

Only qualified personnel familiar with industrial Ethernet, Modbus RTU/ASCII, Modbus TCP and electrical safety practices may install and configure this device.

Read the entire manual before use. Incorrect wiring or configuration may cause communication failure or equipment damage.

Do not use this product in applications where failure may directly cause personal injury, life-support failure, or major environmental damage unless an independent safety system is provided.

CAUTION - Electrical Safety

Use a regulated 24 V DC power supply. The allowed input range is 9-30 V DC.

Observe correct polarity: connect GN to power ground and 24V+ to the positive DC input. Pin 2 is NC and must not be used as a power terminal.

Do not exceed the specified input voltage or current rating.

Use surge protection in lightning-prone or high-interference environments.

CAUTION - Installation Safety

Install the device on a standard 35 mm DIN rail in a dry, ventilated control cabinet.

Operating temperature: -40 °C to 85 °C. Relative humidity: 5%-95%, non-condensing.



The enclosure protection level is IP20. Protect the device from water, dust accumulation, conductive particles, and corrosive gases.

Do not apply heavy pressure to the enclosure or subject the device to mechanical shock.

CAUTION - Operation Safety

Do not frequently hot-plug the power terminal during normal operation.

Before changing DLR supervisor settings, understand the existing network topology to avoid ring interruption or unintended supervisor conflict.

After changing IP, Modbus, Modbus TCP, or EtherNet/IP parameters, reboot the device if the Web page indicates that a restart is required.

CAUTION - Electrostatic Discharge (ESD)

Touch grounded metal before handling the device or wiring terminals.

Handle the device by its enclosure. Avoid touching internal contacts or connector pins.

NOTICE - Prohibited Actions

Action	Risk
Disassembling the enclosure	May damage the device and void warranty.
Using an incorrect voltage	May cause permanent hardware damage.
Connecting power to the NC terminal	May cause malfunction or wiring fault.
Operating in a wet environment	May cause short circuit or corrosion.

Table 1: Prohibited Actions



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1 Product Overview

1.1 Product Introduction

SST Automation's Modbus Serial / Modbus TCP series gateways provide seamless connectivity between Modbus TCP Ethernet and Modbus Serial (RTU/ASCII). These gateways feature dual Ethernet ports with a built-in network switch, and different serial interface options depending on the model. Available options include single or dual serial interfaces, with each port supporting RS485 and/or RS232. Users should confirm the required serial interface type when ordering.

Modbus Serial/TCP series gateway products model list:

Product Model	Ethernet Protocol	Serial Protocol	Serial Port	Maximum Number of Modbus TCP Connections (Slave/Master Mode)
GT200-MT-RS485	Modbus TCP	Modbus RTU/ASCII	Single RS485	V1.X: 8 clients/4 servers, V2.X: 12 clients/4 servers V3.X: 16 clients/4 servers
GT200-MT-2RS485	Modbus TCP	Modbus RTU/ASCII	Dual RS485	V1.X: 6 clients/4 servers, V2.X: 8 clients/4 servers V3.X: 12 clients/4 servers
GT200-MT-2RS	Modbus TCP	Modbus RTU/ASCII	Single RS485 and Single RS232	V1.X: 6 clients/4 servers, V2.X: 8 clients/4 servers V3.X: 12 clients/4 servers

Table 1-1: Product Model List



1.2 Product Features

➤ **Quick Setup:** Simple configuration with clear steps and examples through the SST-MT-CFG software.

➤ **Multiple Operating Modes:**

Modbus RTU/ASCII Slave Mode:

Connects Modbus TCP Clients (Masters) to Modbus RTU/ASCII Slaves.

Modbus RTU/ASCII Master Mode:

Connects Modbus RTU/ASCII Masters to Modbus TCP Servers (Slaves).

➤ **Dual Ethernet Ports:** Built-in network switch supports daisy-chain / cascading topologies, reducing the need for extra cables and switches.

➤ **Slave ID (Node Address) Mapping:** Supports virtual-to-actual Modbus slave ID mapping for flexible addressing.

➤ **Automatic Routing:** Modbus TCP packet requests are automatically routed to the appropriate serial port.

➤ **Configuration Protection:**

- Restrict configuration changes by IP address range.
- Set a login password to block unauthorized changes.

➤ **Debugging Tools:** Built-in communication test and device location function via the SST-MT-CFG configuration software.



1.3 Technical Specifications

Modbus TCP Interface Features	
Ethernet Interface	Two (2) RJ45 10/100M auto-negotiation Ethernet ports with single (1) shared IP address interface.
IP Address Assignment	Static IP Addressing (Manual Configuration) DHCP (Auto IP)
Modbus TCP Operation Modes	Modbus TCP Client (Master) Modbus TCP Server (Slave)
Maximum Number of Modbus TCP Client (Master) Devices	Single Port V1.X: Up to 8 Modbus TCP Clients Dual Port V1.X: Up to 6 Modbus TCP Clients Single Port V2.X: Up to 12 Modbus TCP Clients Dual Port V2.X: Up to 8 Modbus TCP Clients Single Port V3.X: Up to 16 Modbus TCP Clients Dual Port V3.X: Up to 12 Modbus TCP Clients
Maximum Number of Modbus TCP Server (Slave) Devices	Up to 4 Modbus TCP Server (Slave) devices
Maximum Number of Simultaneous Modbus Commands	Up to 32 simultaneous commands

Table 1-2: Modbus TCP Interface Specifications

Modbus Serial Interface Features	
Serial Interfaces	GT200-MT-RS485: (1) RS485 with 1KV electromagnetic isolation. GT200-MT-2RS485: (2) RS485 GT200-MT-2RS: (1) RS485 and (1) RS232
Galvanic Isolation	1KV Electromagnetic Isolation
Transmission Mode	Half-duplex
Baud Rates	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400 bps
Parity Options	None, Odd, Even
Stop Bits	1 or 2
Maximum Number of Modbus Serial Slave Devices	Without Repeater: Up to 32 per port With Repeater: Up to 127 per port

Table 1-3: Modbus Serial Interface Specifications



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Electrical/Environmental	
Power Supply Input Voltage	24VDC (Range: 9VDC to 30VDC)
Power Supply Current	110 mA at 24VDC
Operating Temperature	-40°F to 185°F (-40°C to 85°C)
Relative Humidity	5% to 95% RH (non-condensing)
Certification	CE Compliant to EMC Test Standards

Table 1-4: Electrical and Environmental Specifications

Hardware	
Dimensions (W × H × D)	0.98in × 3.94in × 3.54in (25mm × 100mm × 90mm)
Mounting	35mm DIN Rail
Enclosure Protection Rating	IP20
Power Interfaces	One (1) 3-Pin Terminal Block

Table 1-5: Hardware Specifications

1.4 Revision History

Revision	Date	Chapter	Description
V3.0, Rev B	05/12/2026	ALL	Optimize document descriptions and add new chapters
V3.0, Rev A	10/10/2025	Chapter 2	Added diagrams for the Configuration button and DIP switch
V3.0	01/19/2024	Chapter 1, 2 and 5	Add the Configuration button and DIP switch function.
V1.6	08/24/2022	Chapter 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4.1, 2.4.2, 2.4.3, 4, 4.1, 4.2.2, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11, 5, 5.1, 5.2, 5.3	Revised some mistakes. Enhancement on DHCP function. Exchanged RS485 and RS232 position for GT200-MT-2RSV1.6 and V2.2. Corrected figures in chapters 5.1, 5.2, and 5.3.
V1.4, Rev A	03/13/2022	PART	Update the format and software screenshot
V1.4	06/11/2021	ALL	New release

Table 1-6: Revision History

2 Hardware Description

2.1 Product Appearance

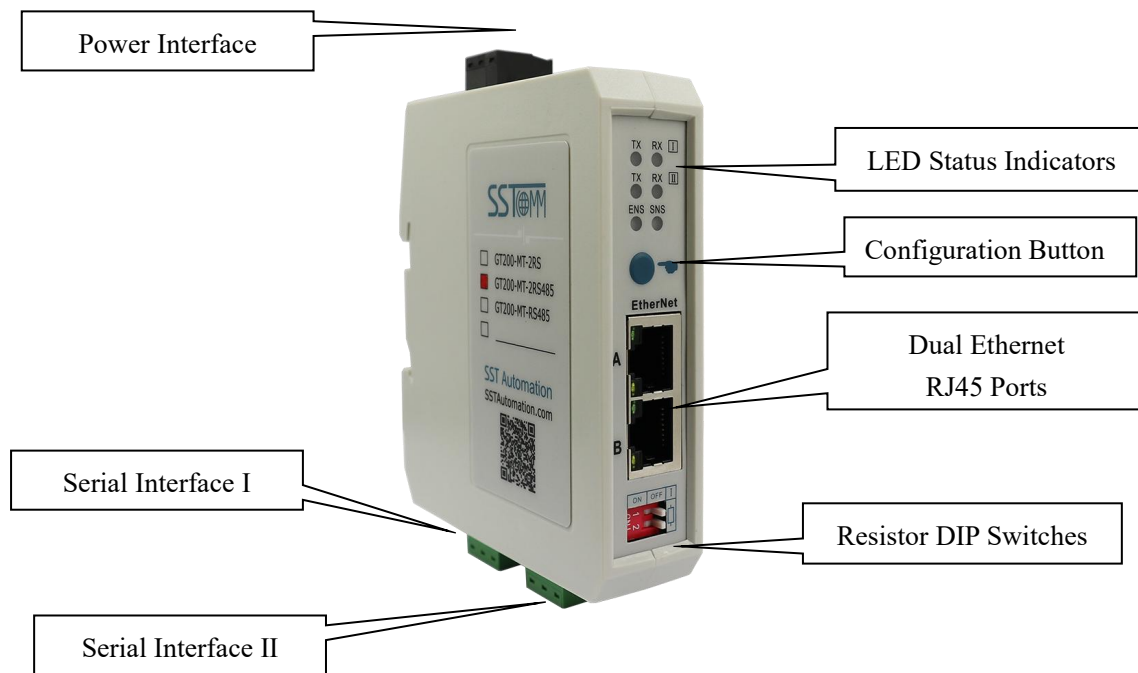


Figure 2-1: Product appearance and port layout

Notes: The diagram above shows the appearance of the GT200-MT-2RS485 model.

1. The **GT200-MT-2RS** model has two serial ports: Serial Port I is RS485 and Serial Port II is RS232 (for V1.6, V2.2, and V3.0).
2. The **GT200-MT-RS485** model has a single serial port: Serial Port I is RS485.



2.2 Indicators

Product Model	Indicators	Status	Description
GT200-MT-RS485	RX	Flashing Green	Serial port is receiving data
	TX	Flashing Green	Serial port is transmitting data
GT200-MT-2RS GT200-MT-2RS485	I	RX Flashing Green	Serial port I is receiving data
		TX Flashing Green	Serial port I is transmitting data
	II	RX Flashing Green	Serial port II is receiving data
		TX Flashing Green	Serial port II is transmitting data
All Models	ENS	Solid Green	At least one Modbus TCP connection has been established Master Mode: Modbus TCP connection has been established
		Flashing Green	No Modbus TCP connection Master Mode: Modbus TCP connection not established
		Flashing Red	Either: Modbus TCP disconnected Requesting IP address via DHCP
		Flashing Red (3 seconds)	Modbus TCP connection lost
	SNS	Solid Green	Serial port ready to transmit and receive data
		Red Blinking	Automatic routing conflict detected
		Solid Red	Either: Equipment failure Failed firmware update
	All Models	ENS and SNS Orange: (Red and Green at the same time)	Both Solid Orange Simultaneously
Flashing Orange Alternately			Configuration Mode
Flashing Orange Alternately (3 seconds)			LOCATE function is active (device identification)
Both OFF			Firmware update mode

Table 2-1: LED Indicator Status Descriptions

2.3 Configuration Button

The blue configuration button supports two functions:

1. Lock/Unlock Configuration:

While the gateway is running, press the blue button twice to toggle the configuration lock state:

SNS blinks Red once: Configuration is now locked. Configuration uploads and downloads are disabled.

SNS blinks Red twice: Configuration is now unlocked. Configuration uploads and downloads are enabled.

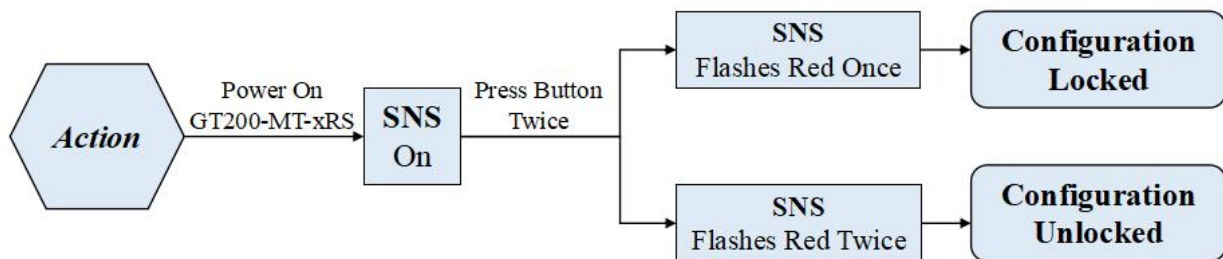


Figure 2-2: Configuration Button Lock/Unlock Sequence

When the configuration is locked, the gateway's settings cannot be read or modified via the configuration software.

2. Restore Factory Configuration:

To perform a factory reset and restore the default IP address settings:

1. Power on the GT200-MT-xRS gateway and wait until the SNS LED turns Solid Green.
2. Within 10 seconds of the SNS LED turning Solid Green, press and hold the blue button for at least 5 seconds until the SNS LED starts flashing Green.
3. Within 5 seconds after the SNS LED flashes Green, press the blue button once.
4. The SNS LED will turn OFF to confirm that factory settings have been restored.

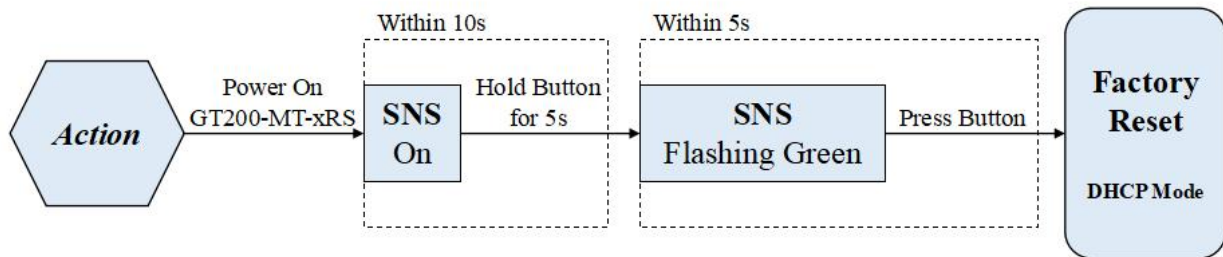


Figure 2-3: Factory Reset Button Sequence

The factory default IP address setting is configured for DHCP mode. The ENS light will flash Red to indicate that the GT200-MT-xRS is requesting for a DHCP IP address. If the GT200-MT-xRS does not receive a DHCP IP address within 30 seconds, the GT200-MT-xRS will revert to Static IP address 192.168.0.10.

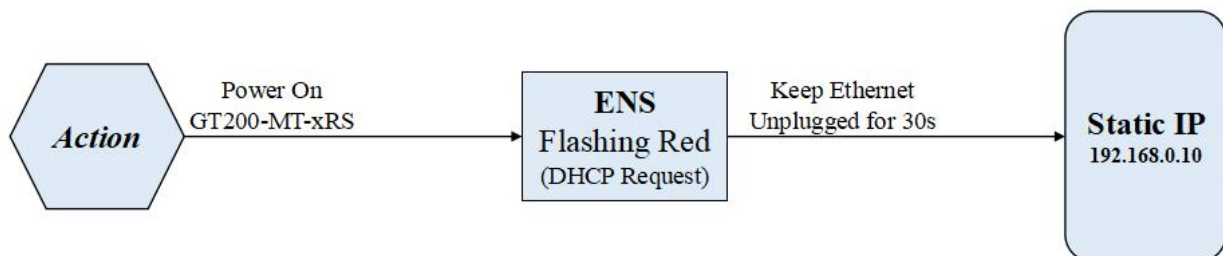


Figure 2-4: DHCP Fallback to Static IP Sequence

2.4 Termination Resistor DIP Switch

The gateway uses a 2-bit DIP switch to enable or disable the 120 Ω internal termination resistor on the RS485 serial port.

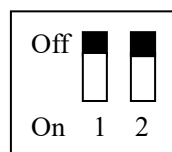


Figure 2-5: DIP Switch Position Diagram

Mode (Bit 1)	Function (Bit 2)	Description
OFF	OFF	Terminal resistor is disabled
OFF	ON	
ON	OFF	
ON	ON	Terminal resistor is enabled

Table 2-2: DIP Switch Configuration for Termination Resistor

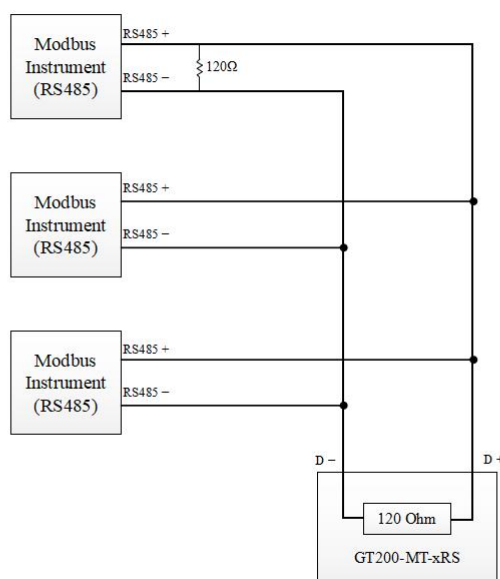


Figure 2-6: Termination Resistor DIP Switch Detail

2.5 Interface

2.5.1 Power Interface

The GT200-MT-xRS gateway operates on a 24 VDC power supply. The power interface uses a 3-pin pluggable terminal block. The pinout is defined as follows:

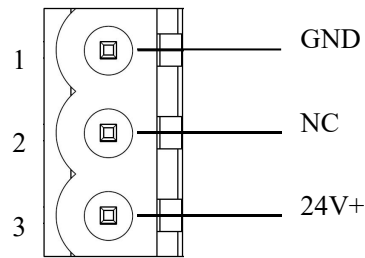


Figure 2-7: Power Interface Pinout Diagram

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

Table 2-3: Power Interface Pinout

Power supply wiring is shown as below:

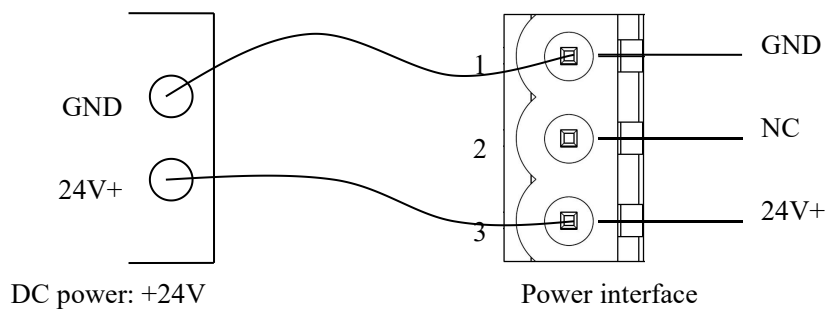


Figure 2-8: Power Supply Wiring Diagram

2.5.2 Ethernet Interface

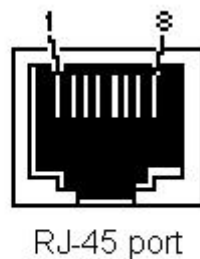


Figure 2-9: Ethernet RJ45 Interface

The Ethernet interface is used for Modbus TCP communication and for configuring the gateway via the www.SSTAutomation.com



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SST-MT-CFG configuration software. It features two RJ45 connectors and complies with the IEEE 802.3u 100BASE-T standard.

The pinout assignments for the Ethernet interface are shown below:

Pin	Signal Description
S1	TXD+, Transmit Data+
S2	TXD-, Transmit Data-
S3	RXD+, Receive Data+
S4	Bi-directional Data+
S5	Bi-directional Data-
S6	RXD-, Receive Data-
S7	Bi-directional Data+
S8	Bi-directional Data-

Table 2-4: Ethernet RJ45 Interface Pinout

2.5.3 Serial Interface

The serial interface is used for Modbus RTU/ASCII communication and uses a 3-pin, 5.08 mm pluggable terminal block. Depending on the product model, each port supports either RS485 or RS232 communication.

The pinout for the RS232 interface is defined as follows:

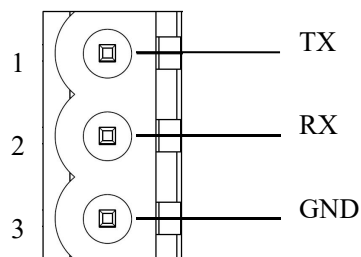


Figure 2-10: RS232 Serial Interface Pinout

Pin	Function
1	TX, Connect to RX of the target device
2	RX, Connect to TX of the target device
3	GND, Connect to GND of the target device

Table 2-5: RS232 Serial Interface Pinout

The pinout for the RS485 interface is defined as follows:

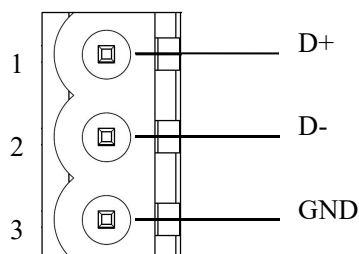


Figure 2-11: RS485 Serial Interface Pinout

Pin	Function
1	D+, RS485, Connect to D+ of the target device
2	D-, RS485, Connect to D- of the target device
3	GND

Table 2-6: RS485 Serial Interface Pinout

The RS485 interface of the Modbus Serial/TCP series gateway complies with the standard RS485 specification.

The RS485 characteristics are as follows:

RS485 Serial Characteristics:

- Network topology: Linear bus with terminal resistors installed at both ends.
- Transmission rate: 1200 bps–230400 bps.
- Transmission Medium: Shielded twisted-pair cable (shielding optional depending on environmental EMC conditions).
- Number of Nodes: Up to 32 nodes per segment (without repeater); expandable to 127 nodes through the use of RS485 repeaters.
- Connector Type: 3-pin pluggable terminal block.
- The maximum cable length for each RS485 segment is dependent on the baud rate. For RS485 at various baud rates, the maximum distance varies significantly (up to 1200 m at 9600 bps, far less at 230400 bps).

Higher baud rates require shorter cable lengths to maintain signal integrity.

Key Points for RS485 Equipment Installation:

- All devices must be connected to the RS485 bus.
- Each segment can connect up to 32 devices.
- Install a 120Ω 1/2W terminal resistor at each end of the bus to ensure reliable network operation.

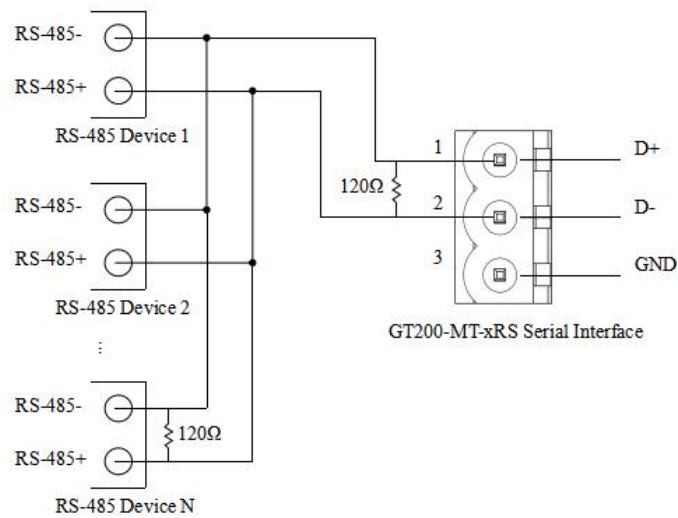


Figure 2-12: RS485 Bus Topology Diagram



3 Hardware Installation

This chapter covers the mechanical dimensions and DIN rail mounting procedure for the GT200-MT-xRS gateway.

3.1 Mechanical Dimensions

Size: 0.98 in (width) × 3.94 in (height) × 3.54 in (depth)

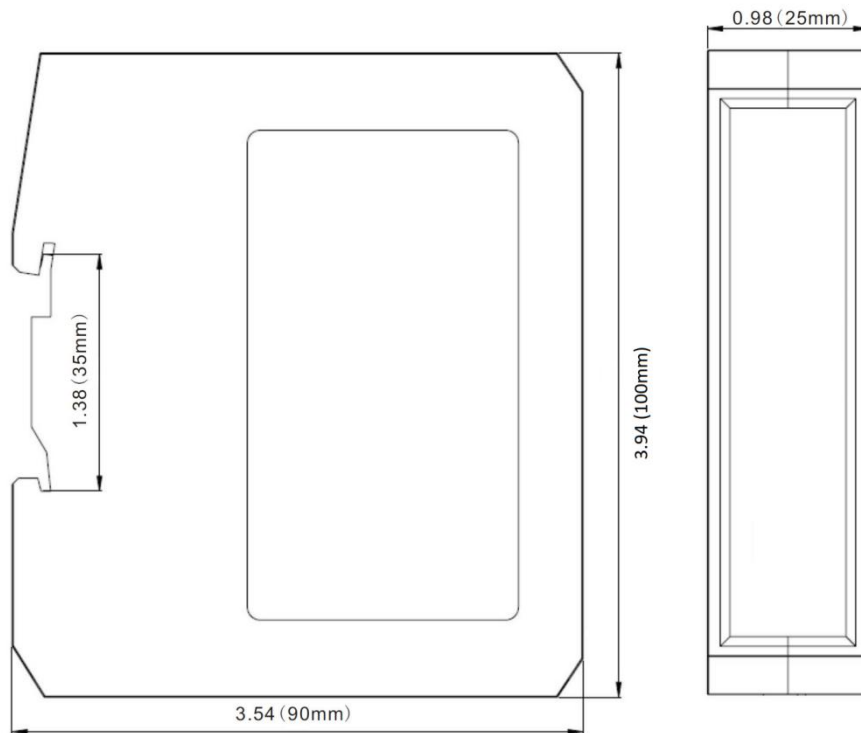


Figure 3-1: Mechanical Dimensions

3.2 Installation Method

Use 1.38 in (35 mm) DIN Rail.

Installing the gateway

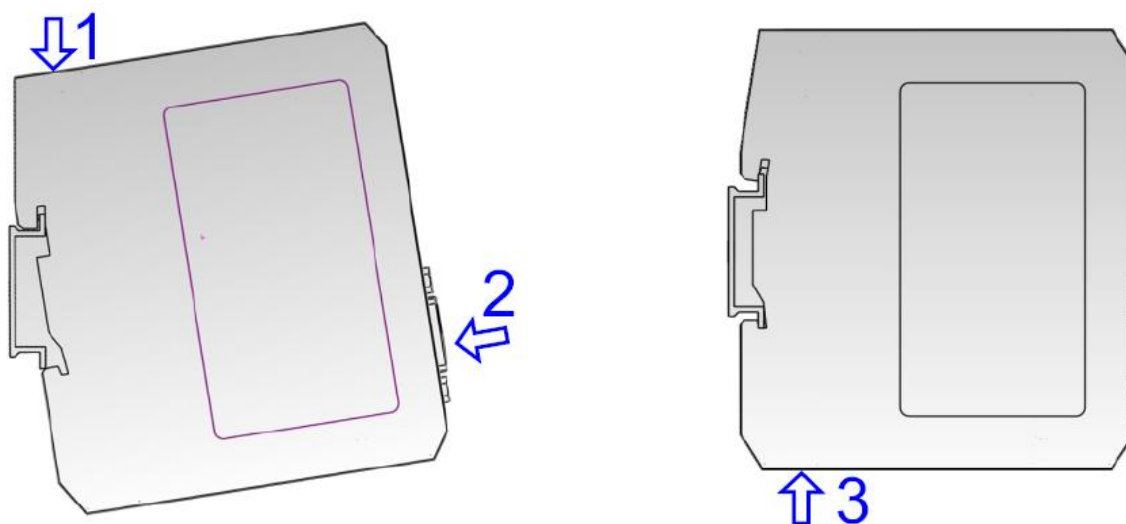


Figure 3-2: DIN Rail Installation

Uninstalling the gateway

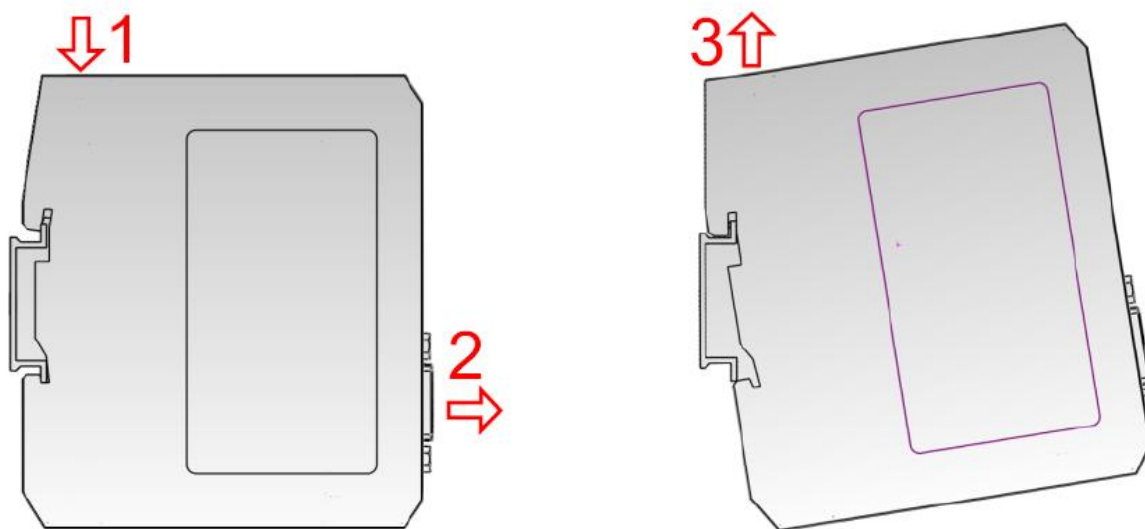


Figure 3-3: DIN Rail Uninstallation



4 Quick Start Guide

Follow these steps to set up your GT200-MT-xRS gateway for the most common use case: connecting Modbus RTU slave devices to Modbus TCP client(s).

Step 1: Hardware Setup

1. Mount the gateway on a 35 mm DIN rail.
2. Connect a 24 VDC power supply to the 3-pin power terminal block.
3. Connect an Ethernet cable from your network (or directly from your PC) to LANA or LANB.
4. Connect your RS485 device(s) to the serial port.
5. Power on the gateway. Verify that the SNS LED turns Solid Green.

Step 2: Install Configuration Software

1. Download SST-MT-CFG from www.sstautomation.com.
2. Install the software on a Windows PC on the same network as the gateway.

Step 3: Discover the Gateway

1. Launch SST-MT-CFG.
2. Click "Search Equipment". The gateway should appear in the device list.
3. If the gateway is not found, use "IP Search" and enter the gateway's IP address (default: DHCP, with fallback to 192.168.0.10).

Step 4: Configure the Gateway

1. Select the gateway from the list and click "Configure".
2. On the Mode Selection tab, select "RTU Slave Mode" (for connecting TCP clients to RTU slaves).
3. On the Ethernet Parameters tab, set a static IP address or leave in DHCP mode as needed.
4. On the Serial Parameters tab, set the baud rate, parity, and stop bits to match your RS485 slave device(s).
5. Click "OK" → "Download" to send the configuration to the gateway.

Step 5: Verify Communication

1. Click "Communication Test" in the SST-MT-CFG main interface.
2. Enter the gateway's IP address and port (default 502).

3. Select a function code (e.g., 3 for Read Holding Registers).
4. Enter the target Slave ID and starting register address.
5. Click **Send**. A successful response confirms that communication between Ethernet and serial devices is working.

5 Configuration Software

The SST-MT-CFG configuration software is used to configure the Modbus Serial/TCP series gateway. This chapter uses the GT200-MT-2RS485 model as an example.

Note: The factory default Ethernet settings for the Modbus Serial/TCP series gateway are:

- **V1.4 and earlier:** Static IP 192.168.0.10, subnet mask 255.255.255.0, default gateway 192.168.0.1.
- **V1.5 and above:** DHCP mode. If the gateway cannot obtain a DHCP IP address, it will fall back to static IP 192.168.0.10.

(When users click the "Advanced" tab in the "Restore Factory Settings", the default IP address configuration is DHCP.)

5.1 Prerequisites

SST-MT-CFG runs on Windows and also supports Ubuntu Linux.

Before launching the software, ensure that the host computer and the gateway are on the same network (subnet).

Double-click the SST-MT-CFG desktop icon to open the main interface:



Figure 5-1: SST-MT-CFG Main Interface

5.2 Searching for Devices

Before configuring the gateway, use the software to search for available devices on the network. Two search methods are available.

5.2.1 Search via Ethernet

Click the "Search Equipment" button on the main interface. The software will automatically discover all accessible Modbus Serial/TCP series gateways on the network and list them in the main window.



Figure 5-2: Search Equipment Result

- If no devices are found, please refer to the [FAQ](#)



Figure 5-3: No Devices Found — FAQ Reference

5.2.2 Search by IP Address

Click the "IP Search" button on the main interface. A dialog box will appear, prompting you to enter the gateway's IP address.



Figure 5-4: IP Search Dialog

- If no devices are found, please refer to the [FAQ](#)

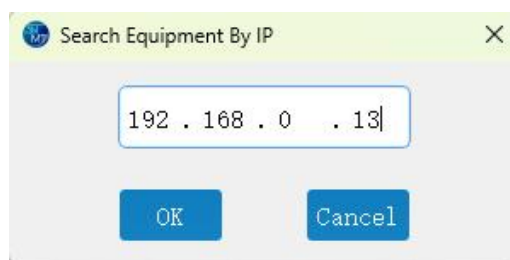


Figure 5-5: IP Search Result

After entering the correct IP address, the software will search the network for a gateway matching that address and display its information in the main window.

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Figure 5-6: Device Search Result in Main Window

Note: When using IP Search, you must enter the exact IP address of the gateway; otherwise, the device will not be found.

5.3 Device Configuration

Select the desired gateway from the device list. The "Locate", "Configure", and "Remote Reset" buttons will become available:



Figure 5-7: Device List with Configuration Buttons

Click the "Configure" button. If the gateway has been assigned a password, a password authentication dialog

box will appear:



Figure 5-8: Password Authentication Dialog

Enter the correct password to proceed to the configuration interface:



Figure 5-9: Configuration Interface

5.3.1 Mode Selection

The Modbus Serial/TCP series gateway supports four operating modes, defined by the role of the connected serial device(s):

Mode	Gateway Role	Use Case
RTU Slave Mode	Acts as Modbus RTU Master on serial side	Modbus TCP Clients communicate with

Mode	Gateway Role	Use Case
		Modbus RTU Slaves
RTU Master Mode	Acts as Modbus RTU Slave on serial side	Modbus RTU Masters communicate with Modbus TCP Servers
ASCII Slave Mode	Acts as Modbus ASCII Master on serial side	Modbus TCP Clients communicate with Modbus ASCII Slaves
ASCII Master Mode	Acts as Modbus ASCII Slave on serial side	Modbus ASCII Masters communicate with Modbus TCP Servers

Table 5-1: Gateway Operating Modes

Select the operating mode that matches your serial equipment's role.

5.3.2 Ethernet Parameters

Ethernet parameters include: "Name", "Assign IP Mode", "IP Address", "Subnet Mask", "Default Gateway", "DNS1", and "DNS2".



Figure 5-10: Mode Selection Tab

Parameter	Description
Name	A user-defined name to identify the gateway (up to 20 characters, no spaces)
Assign IP Mode	IP address configuration mode: Static or DHCP
IP Address	The gateway's IP address (static mode)
Subnet Mask	The subnet mask for the network (static mode)
Default Gateway	The default gateway IP address (static mode)
DNS1	DNS server 1 (currently supports 0.0.0.0 only)
DNS2	DNS server 2 (currently supports 0.0.0.0 only)

Table 5-2: Ethernet Parameters

5.3.3 Serial Parameters

Serial parameters include: "Baud Rate", "Parity Check", "Stop Bit" and "Data Bits".

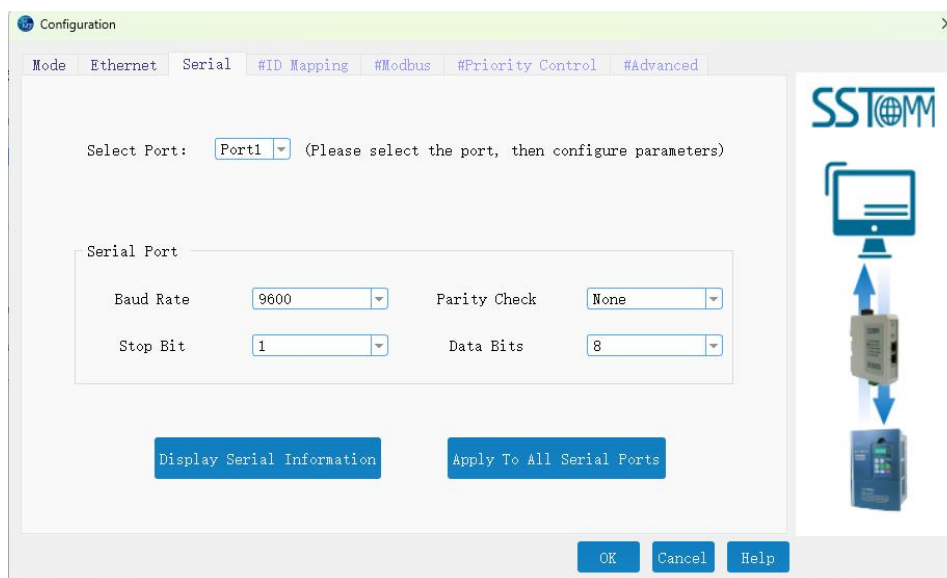


Figure 5-11: Ethernet Parameters Tab

Parameter	Options / Value
Baud Rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400 bps
Parity Check	None, Odd, Even
Stop Bits	1, 2

Modbus Serial/TCP Series Industrial Ethernet Serial Gateway

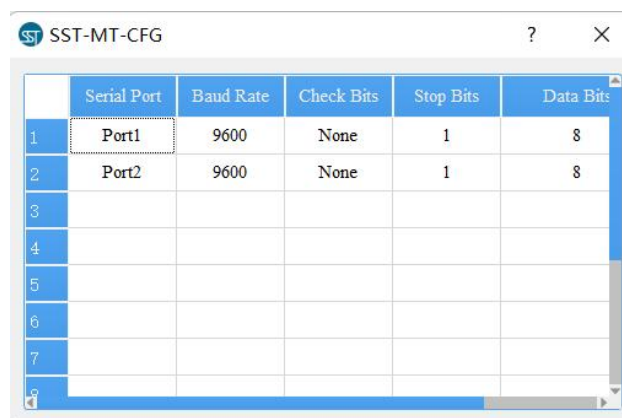
User Manual

Data Bits	8 (fixed)
-----------	-----------

Table 5-3: Serial Communication Parameters

Note for GT200-MT-2RS gateway: If both serial ports share the same parameter settings, you only need to configure one port. Click "Apply to All Serial Ports" to copy the settings across all ports.

Click "Display Serial Information" to view the current per-port configuration:

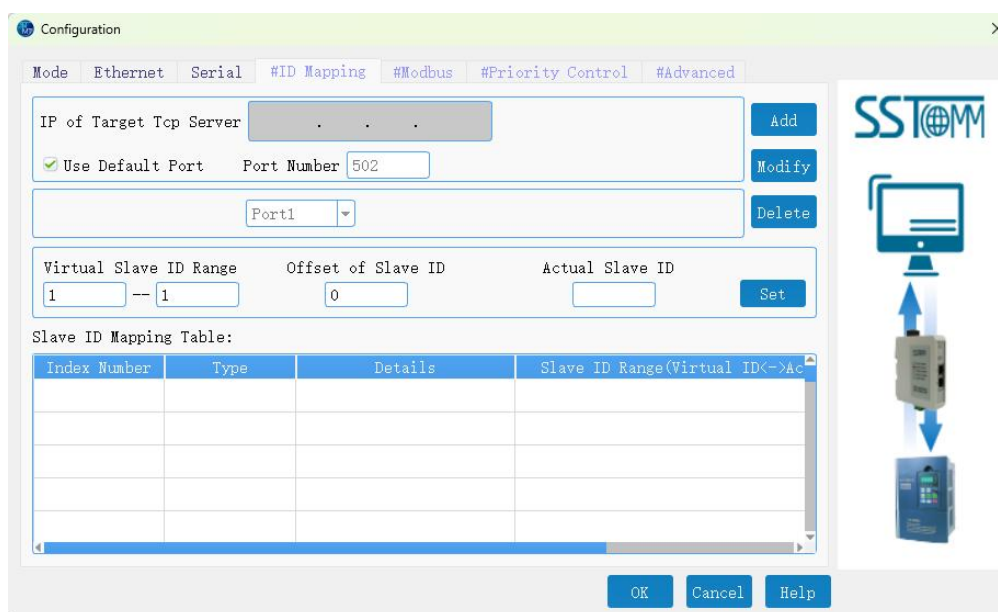


	Serial Port	Baud Rate	Check Bits	Stop Bits	Data Bits
1	Port1	9600	None	1	8
2	Port2	9600	None	1	8
3					
4					
5					
6					
7					
8					

Figure 5-12: Serial Parameters Tab

5.3.4 ID Mapping (Advanced)

The ID Mapping tab is available in all operating modes. In Master Mode it defines the target TCP server; in Slave Mode it defines which serial port to route each Modbus request to.



Configuration

Mode Ethernet Serial #ID Mapping #Modbus #Priority Control #Advanced

IP of Target Tcp Server . . . Add

☒ Use Default Port Port Number 502 Modify

Port1 Delete

Virtual Slave ID Range 1 -- 1 Offset of Slave ID 0 Actual Slave ID Set

Slave ID Mapping Table:

Index Number	Type	Details	Slave ID Range(Virtual ID<->Ac

OK Cancel Help

Figure 5-13: ID Mapping Tab

Parameter	Description
Virtual Slave ID Range	Enter an ID range; the left value is the minimum, the right is the maximum (must not exceed 247)
Offset of Slave ID	The difference between the virtual ID and actual ID (can be negative)
Actual Slave ID	Click the "Set" button to auto-calculate
IP of Target TCP Server	(Master Mode only) The IP address of the destination Modbus TCP Server

Table 5-4: ID Mapping Parameters

In Slave Mode, the "IP of Target TCP Server" column is hidden; instead, specify which serial port to map for each virtual slave ID range.

Managing ID mapping entries:

1. Set the **Virtual Slave ID Range** and **Offset of Slave ID**, then click "**Add**" to insert a new entry into the mapping table.
2. To modify an entry: select the entry in the table, change the parameters, then click "**Modify**".
3. To delete an entry: select the entry and click "**Delete**".

Tip:

1. The "**Add**" and "**Modify**" buttons automatically apply the "Set" calculation — you do not need to click "Set" separately before adding or modifying.
2. Supports up to **4 ID mapping groups**.

5.3.5 Modbus Settings (Advanced)

The Modbus tab applies only when RTU/ASCII Slave Mode is selected. Set the following timing parameters:

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Figure 5-14: Modbus Settings Tab

Parameter	Description
Time Interval between Characters	Inter-character timeout for Modbus RTU/ASCII frame detection
Response Timeout	Maximum time the gateway waits for a response from a serial slave
Delay between Polls	Delay inserted between successive Modbus poll requests

Table 5-5: Modbus Timing Parameters

Note for multi-port models: If all serial ports share identical parameters, configure one port and click "Apply to All Serial Ports". Click "Display Serial Information" to verify per-port settings.

5.3.6 Priority Control (Advanced)

Note: Priority Control is applicable only when RTU/ASCII Slave Mode is selected.

Ethernet operates at faster speeds than serial communication, which can cause frames to accumulate in the transmit queue. When Priority Control is enabled, you can prioritize certain requests:

- **Specify the Master:** Prioritize requests from a specific Modbus TCP Master IP address.
- **Specify the Request:** Prioritize requests targeting a specific Slave ID (virtual ID) or function code.

Priority of requests:

Condition	Priority
Request matches both specified master AND specified request criteria	High
Request matches either specified master OR specified request criteria	General
Request does not match any priority criteria	Low

Table 5-6: Priority Control Levels

The "Add", "Modify", and "Delete" buttons operate identically to the ID Mapping controls.

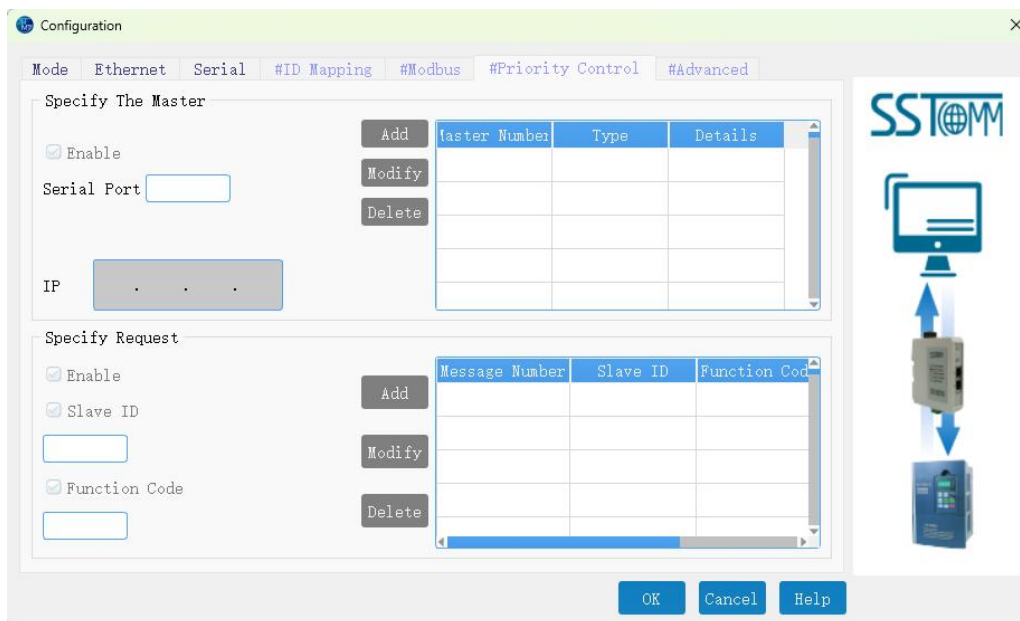


Figure 5-15: Priority Control Tab

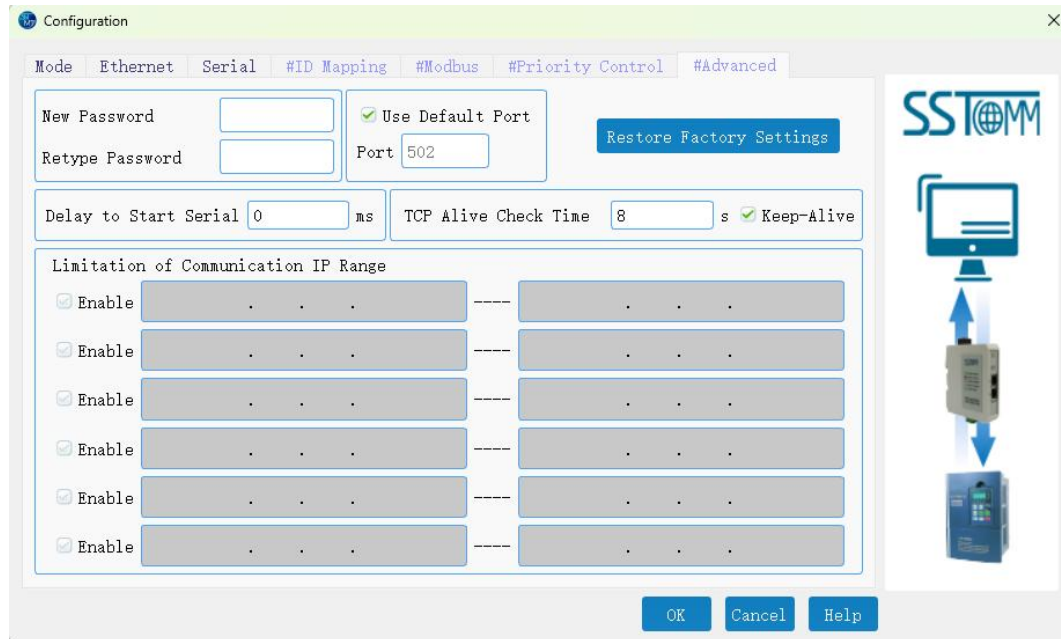
5.3.7 Advanced Settings

In RTU Slave or ASCII Slave Mode, the Advanced settings become available only after basic configuration is completed.

Advanced parameters include: "Password", "Confirm Password", "Use default port", "Port Number", "Start-up Delay of Serial Port", "Restore Factory Settings", "TCP Connect Idle Time", and "Limitation of communication IP Range".

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Configuration

Mode Ethernet Serial #ID Mapping #Modbus #Priority Control #Advanced

New Password ☒ Use Default Port Port 502

Retype Password

Delay to Start Serial 0 ms TCP Alive Check Time 8 s ☒ Keep-Alive

Limitation of Communication IP Range

☒ Enable		
☒ Enable		
☒ Enable		
☒ Enable		
☒ Enable		
☒ Enable		

OK Cancel Help

SSTOM

Diagram: Computer -> Gateway -> PLC

Figure 5-16: Advanced Settings Tab

Parameter	Description
Password / Confirm Password	Set a password to protect configuration access. Leave blank to remove the password.
Use Default Port	When checked, uses the default Modbus TCP port (502)
Port Number	Custom Modbus TCP port number (if not using default)
Start-up Delay of Serial Port	Delay (in ms) before the serial port becomes active after power-on
Restore Factory Settings	Click to reset the gateway to factory defaults (requires confirmation). All previous configuration data will be lost.
TCP Connect Idle Time	Maximum idle time for a TCP connection (in seconds)
Keep-Alive	If enabled, sends keep-alive messages when the TCP idle timeout is reached. If disabled, the TCP connection is terminated.
Limitation of Communication IP Range	Restrict Modbus TCP client connections to a specified IP address range

Table 5-7: Advanced Settings Parameters

5.3.8 OK, Cancel, and Help

After configuring parameters, users need to click the "OK" button to write the configuration to the equipment. If you do not want to write to the configuration, click the "Cancel" button.

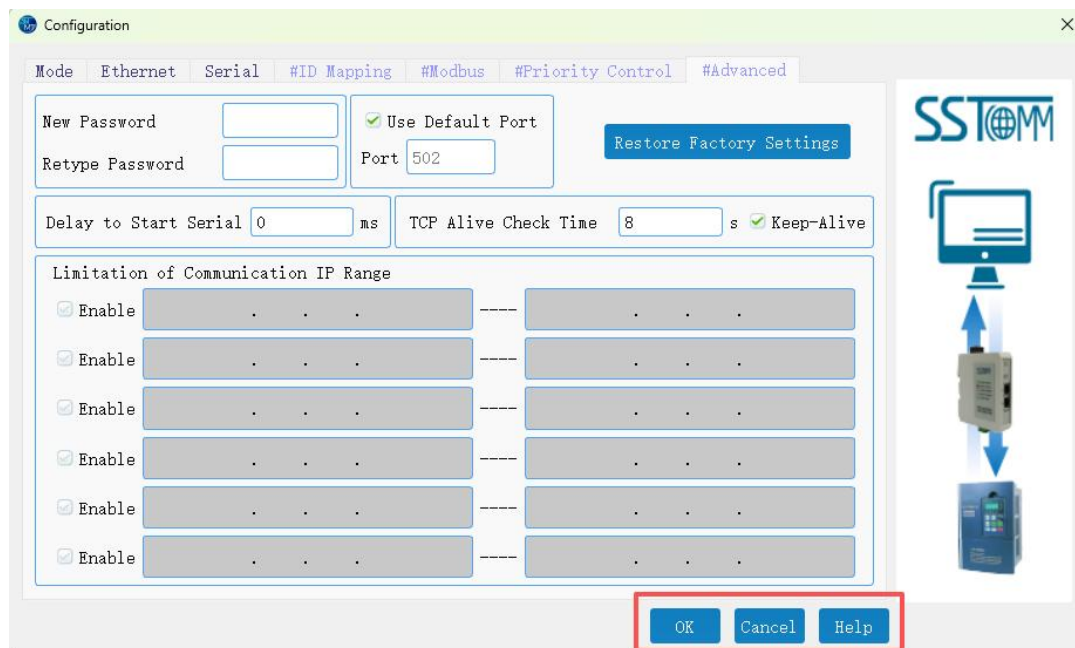


Figure 5-17: OK Button Sub-Menu

1. **OK:** Opens a sub-menu with three options.

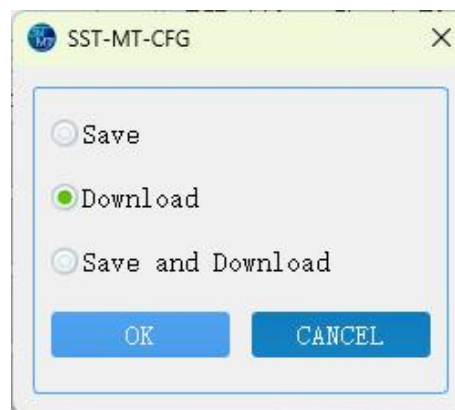


Figure 5-18: Save Configuration Sub-Options

Save: Save the configuration as a .inf file to the local hard disk;

Download: Download the configuration to the gateway;

Save and Download: Save to disk and download to the gateway simultaneously.

2. **Cancel:** Opens a sub-menu with two options.

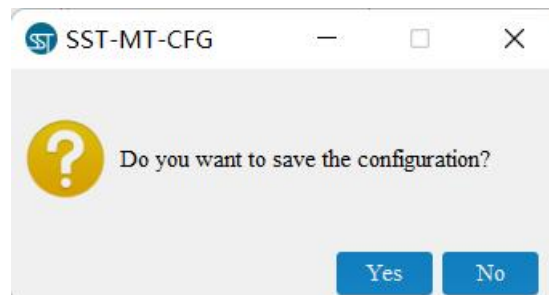


Figure 5-19: Cancel Button Sub-Menu

Yes: Save the current configuration to the hard disk, then close.

No: Close without saving.

3. **Help:** Opens the software user manual.

5.4 Locate Function

When managing multiple gateways, the Locate function helps you physically identify the device you are about to configure.

Select the gateway from the device list and click "Locate". The ENS and SNS LEDs on the selected gateway will flash Red alternately for 3 seconds, allowing you to visually identify the unit.





Figure 5-20: Locate Function — LED Flashing Indication

5.5 Remote Reset

The Remote Reset function restarts the selected gateway without requiring physical access.

1. Select the gateway from the device list.
2. Click "Remote Reset".
3. A confirmation dialog will appear — click "Yes" to proceed.

The ENS and SNS LEDs will turn solid Red during the restart.

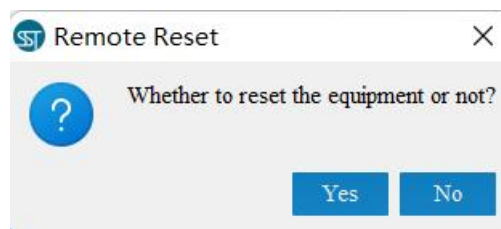


Figure 5-21: Remote Reset Confirmation

5.6 New Config.file (Offline Configuration)

The "New Config. file" function allows you to create a configuration file without being connected to a gateway.

This is useful for preparing configurations in advance.

1. Click "New Config. file".
2. Select the gateway model from the dialog box that appears.



Figure 5-22: New Configuration File — Model Selection

3. A new configuration interface opens with all parameters set to factory defaults.

Configure the parameters as needed and save the .inf file for later use.



Figure 5-23: Offline Configuration Interface

5.7 Loading a Configuration File

Click "Load Config. file" to open a previously saved .inf configuration file into the software. This is useful for deploying the same configuration to multiple gateways or for restoring a known-good configuration.

5.8 Save Config.file to PC

Click "Save Config. file" to export the selected gateway's current parameters to an .inf file on your computer.

Note: The .inf configuration file is a plain text format and can be opened with Notepad for manual editing. If you edit the file manually:

- Verify the accuracy of all modified values.
- Do not modify keywords or add extra spaces, as this may corrupt the file.

5.9 Communication Test

The Communication Test feature allows you to manually send Modbus TCP requests to verify communication with serial devices. This is especially useful for debugging.

Click "Communication Test" to open the test dialog window:

Modbus Serial/TCP Series Industrial Ethernet Serial Gateway

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Communications Test

Send Modbus Communication Frame.

IP Address: Port:

Function Code: Slave ID:

Start Address: Number:

Data:

Results

State:

Data:

Figure 5-24: Communication Test Dialog

Field	Description
IP Address	IP address of the gateway to test
Port	Modbus TCP port number (default: 502)
Function	Supported function codes: 1, 2, 3, 4, 5, 6, 15, 16
Slave ID	The target slave address (virtual ID)
Start Address	Starting register or coil address (decimal)
Number	Number of registers or coils to read/write (decimal)
Data (Send)	Data to be sent, entered in hexadecimal format (e.g., 12 FF 0C)
State	Response status: "No response", "Correct response", or "Wrong response"
Data (Receive)	Content of the response message

Table 5-8: Communication Test Fields

6 Typical Application

The Modbus Serial/TCP series gateway can connect Modbus master/slave devices to Ethernet in order to realize the communication between Ethernet and serial devices.

The following are some typical applications of the Modbus Serial/TCP series gateway. (GT200-MT-2RS485 is shown as an example)

6.1 Multiple Ethernet Clients Connecting with Multiple Serial Slaves

The GT200-MT-2RS485 gateway's built-in Ethernet switch and dual independent RS485 ports allow multiple Modbus TCP Clients to communicate with up to 32 Modbus slave devices per serial port.

Configuration:

- Set gateway mode to RTU Slave Mode or ASCII Slave Mode.
- Configure serial parameters to match the connected slave devices

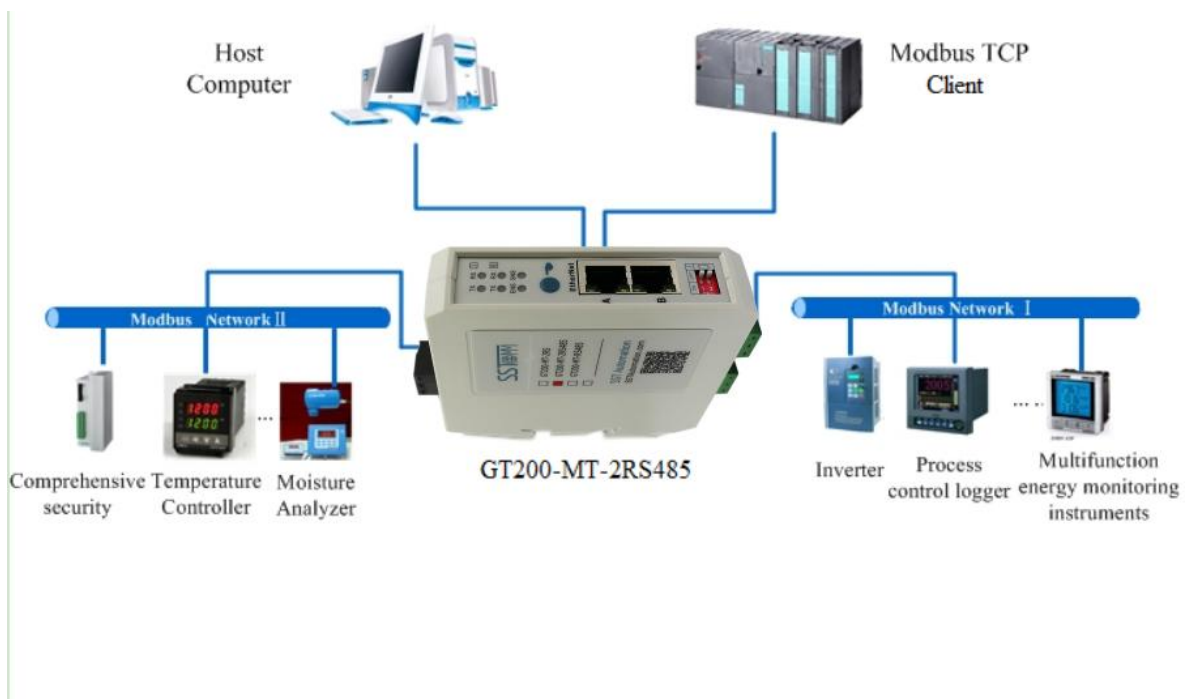


Figure 6-1: Multiple Ethernet Clients with Multiple Serial Slaves

6.2 Multiple Serial Masters Connecting with Multiple Ethernet Servers

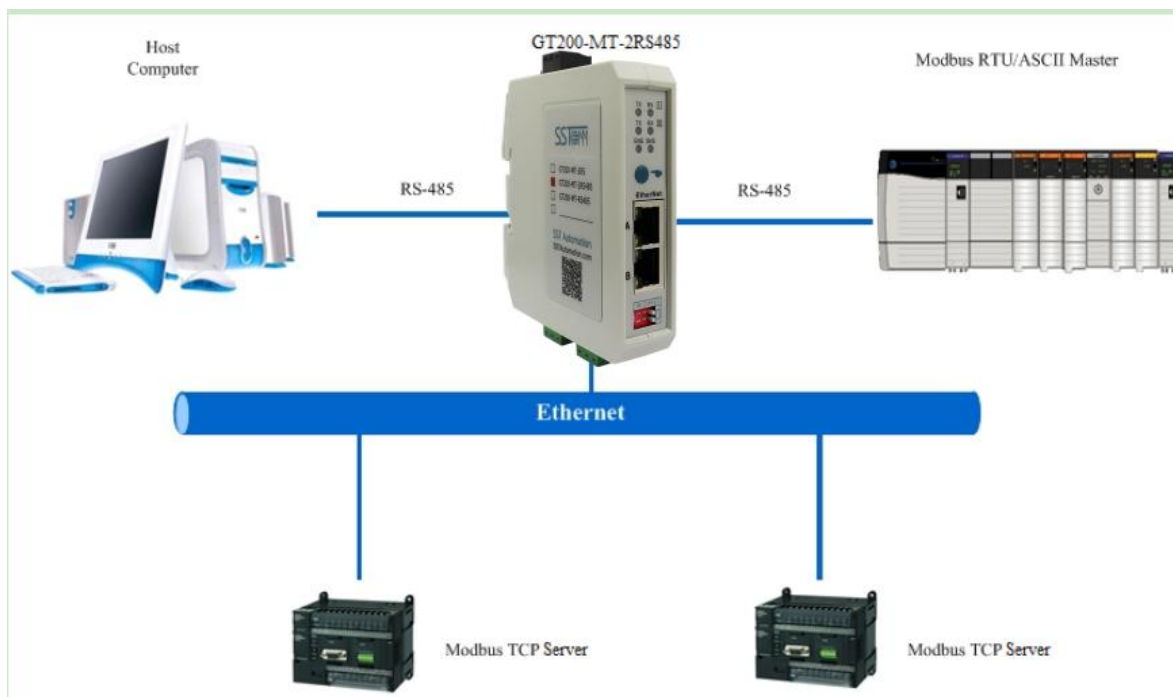


Figure 6-2: Multiple Serial Masters with Multiple Ethernet Servers

Configuration:

- Set gateway mode to RTU Master Mode or ASCII Master Mode.
- Configure the IP of Target TCP Server in the ID Mapping tab.

6.3 Serial Master Connecting with Serial Slaves via Ethernet

Serial devices can communicate via Ethernet to extend transmission distances.

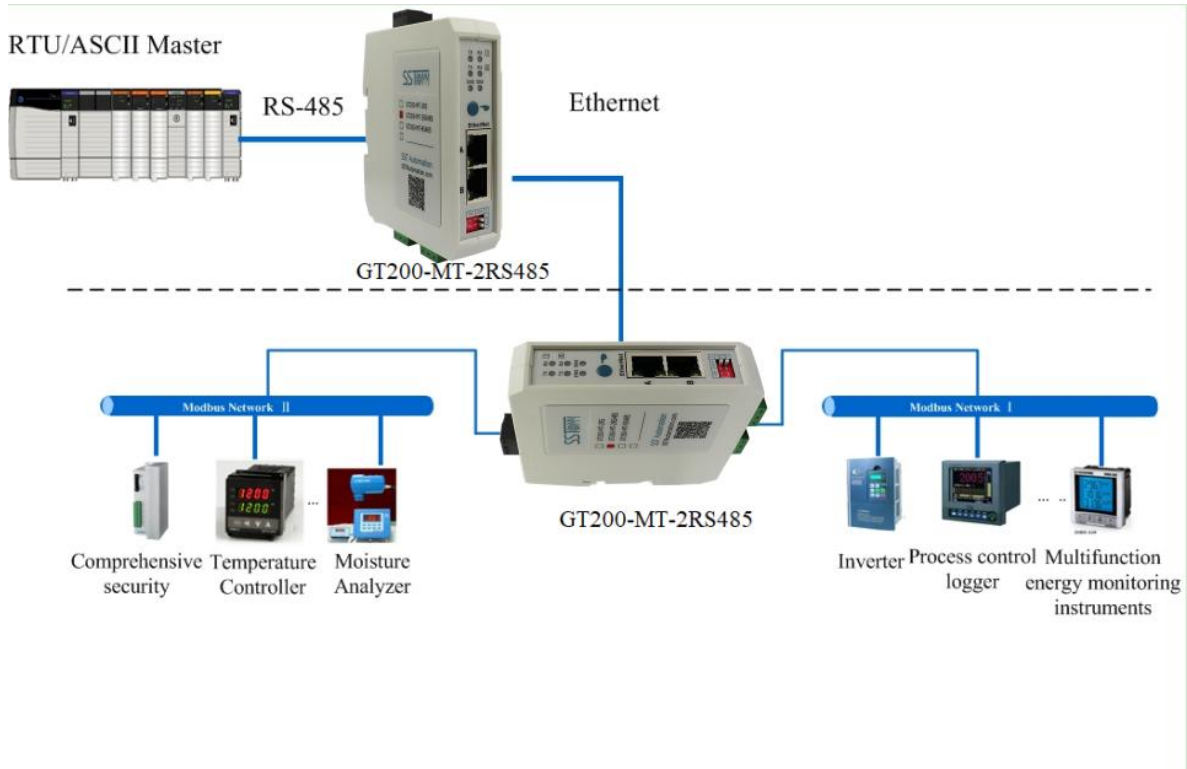


Figure 6-3: Serial Master to Serial Slaves via Ethernet

Configuration (Gateway 1 — near the Master):

- Set to RTU Master Mode.
- Configure the IP of Target TCP Server to point to Gateway 2.

Configuration (Gateway 2 — near the Slave):

- Set to RTU Slave Mode.
- Match the serial parameters to the connected slave device.



7 Troubleshooting

7.1 LED Indicator Troubleshooting

Symptom	Possible Cause	Solution
Both LEDs OFF	No power	Check the 24 VDC power supply connection and voltage.
Both LEDs OFF	Firmware update mode	Wait for the firmware update to complete; the gateway will restart automatically.
ENS LED Flashing Red	No DHCP IP address obtained	Verify the DHCP server is operational on the network, or assign a static IP address via the configuration software.
ENS LED Flashing Red (3 seconds)	Modbus TCP connection lost	Check the Ethernet cable connection and network status.
ENS LED Flashing Green (Slave Mode)	No Modbus TCP client connected	Verify the client's IP address and port settings. Ensure the client and gateway are on the same network.
SNS LED Red Blinking	Automatic routing conflict	Check for duplicate slave IDs on the serial bus. Review the ID Mapping configuration for overlapping ranges.
SNS LED Solid Red	Equipment failure or failed firmware update	Restart the gateway. If the condition persists, contact technical support.

Table 7-1: LED Indicator Troubleshooting



7.2 Communication Troubleshooting

Symptom	Likely Cause	Solution
No response from serial device	Serialparameter mismatch	Verify the gateway's baud rate, parity, and stop bits exactly match the serial slave device's settings.
	RS485 wiring issue	Check that D+ is connected to D+ and D- to D-. Verify the cable is not reversed.
	Termination issue	Termination resistors should only be enabled at the two far ends of the RS485 bus. Verify the DIP switch settings.
	Incorrect Slave ID	Confirm the requested Slave ID matches the actual address of the target device.
Intermittent communication	RS485 bus termination missing	Enable the 120 Ω termination resistor at both ends of the bus using the DIP switches.
	Excessive bus length or baud rate	Reduce the RS485 cable length or lower the baud rate.
	Noise interference	Use shielded twisted-pair cable with the shield grounded at one end.
	Too many nodes on bus	Each segment supports a maximum of 32 nodes. Use RS485 repeaters to expand beyond this limit.
Gateway not found in search	Different subnet	Ensure the host PC and gateway are on the same subnet. Temporarily configure the PC with a static IP in the 192.168.0.x range to search for a factory-default gateway.
	Firewall blocking discovery	Temporarily disable the Windows firewall, or add an exception for SST-MT-CFG (uses UDP broadcast for device discovery).
	Incorrect IP address entered	IP Search requires the exact IP address of the gateway.
Configuration download fails	Configuration is locked	Press the blue button twice to unlock the configuration (SNS blinks Red twice).



	Password not entered	Enter the correct configuration password when prompted.
	IP address range restriction	Check the "Limitation of Communication IP Range" setting to ensure the current PC's IP is within the allowed range.

Table 7-2: Communication Troubleshooting

7.3 Hardware and Installation Troubleshooting

Symptom	Likely Cause	Solution
No response after power-on	Incorrect power wiring	Check the 3-pin terminal block wiring: Pin 1 → GND, Pin 3 → 24V+, Pin 2 → NC (not connected).
	Incorrect supply voltage	Verify the supply voltage is within 9 - 30 VDC (24 VDC nominal).
Serial port RX/TX LEDs not flashing	Serial device not sending data	Verify the serial device is powered on and operating correctly.
	Loose wiring	Check that the 3-pin serial terminal block is securely inserted.
Ethernet port not connecting	Cable not connected	Verify both ends of the RJ45 cable are securely plugged in and the LINK LED is illuminated.
	Wrong port selected	Either LANA or LANB may be used (both ports are equivalent via the built-in switch).
Factory reset does not restore expected IP	DHCP timeout	Factory default is DHCP mode. If no DHCP IP is obtained within 30 seconds, the gateway falls back to 192.168.0.10.
Terminal resistor not enabling/disabling	Incorrect DIP switch setting	Bit 1 = ON and Bit 2 = ON to enable; Bit 1 = OFF and Bit 2 = OFF to disable.

Table 7-3: Hardware and Installation Troubleshooting



8 FAQ

Q1: What is the difference between RTU Slave Mode and RTU Master Mode?

A: The mode describes the gateway's role on the serial side, not the Ethernet side:

- **RTU Slave Mode:** The gateway acts as a Modbus RTU Master on the serial bus and connects to RTU slave devices. Modbus TCP clients on Ethernet can then communicate with those serial slaves.

- **RTU Master Mode:** The gateway acts as a Modbus RTU Slave on the serial bus and connects to an RTU master. It forwards Modbus TCP server data from Ethernet to the serial master.

Choose Slave Mode if your serial devices are slaves; choose Master Mode if your serial device is a master. For detailed mode descriptions, see [section 5.3.1](#) Mode Selection.

Q2: What is the factory default IP address, and how do I restore factory settings?

A: The factory default IP configuration depends on the firmware version:

- V1.4 and earlier: Static IP 192.168.0.10, subnet mask 255.255.255.0, default gateway 192.168.0.1.
- V1.5 and above: DHCP mode, with fallback to static IP 192.168.0.10 after 30 seconds if no DHCP server responds.

To restore factory settings, use either method:

- Software: Click "Restore Factory Settings" in the Advanced tab of the configuration software (see [section 5.3.7](#)).
- Hardware: Follow the factory reset procedure using the blue Configuration button (see [section 2.3](#)).

Q3: Do I need the configuration software, or can I set up the gateway another way?

A: The gateway must be configured using the SST-MT-CFG configuration software, which runs on Windows and Ubuntu Linux. There is no web interface or CLI for this product. The software allows you to:

- Search for and identify gateways on the network ([section 5.2](#))
- Configure all operating parameters ([section 5.3](#))
- Perform communication tests ([section 5.9](#))
- Create and save offline configuration files ([section 5.6](#))

Download SST-MT-CFG from www.sstautomation.com.

Q4: What is ID Mapping and when should I use it?

A: ID Mapping ([section 5.3.4](#)) provides two functions depending on the operating mode:



- **Slave Mode:** Maps a range of virtual Modbus slave IDs to a specific serial port. This is useful when multiple serial ports are present and you need to route requests to different buses based on the slave address.
- **Master Mode:** Maps a range of virtual IDs to the IP address of a target Modbus TCP server on the Ethernet network.

The gateway supports up to 4 ID mapping groups. If no mapping is configured, requests are automatically routed to the first available serial port or server.

Q5: Can I use both Ethernet ports (LANA and LANB) at the same time?

A: Yes. The two RJ45 Ethernet ports share a single IP address and are connected through a built-in network switch. This allows you to:

- Daisy-chain multiple gateways without an external switch
- Connect to both a control network and a configuration PC simultaneously
- Build cascading network topologies

Both ports are functionally identical — you may use either one, or both at the same time, for Modbus TCP communication and configuration.

Q6: What are .inf configuration files, and can I edit them manually?

A: .inf files store the gateway's complete configuration in plain text format. You can:

- Save a configuration to an .inf file using "Save Config. file" ([section 5.8](#))
- Load a previously saved .inf file using "Load Config. file" ([section 5.7](#))
- Create an offline configuration without a gateway using "New Config. file" ([section 5.6](#))
- Deploy the same configuration to multiple gateways

Q7: How do I lock or unlock the gateway's configuration to prevent unauthorized changes?

A: The configuration lock is controlled via the blue Configuration button on the gateway ([section 2.3](#)):

1. While the gateway is running, press the blue button twice.
2. The SNS LED will respond:
 - Blinks Red once: Configuration is now locked. Settings cannot be read or modified.
 - Blinks Red twice: Configuration is now unlocked. Settings can be read and modified.

You may also restrict configuration access by IP address range or set a configuration password through the Advanced Settings ([section 5.3.7](#)).



9 Appendix :

9.1 Glossary

Term	Definition
Baud Rate	The rate at which information is transferred in a communication channel, typically measured in bits per second (bps). Common serial baud rates include 9600, 19200, and 115200 bps.
Client (Modbus TCP)	In a Modbus TCP network, the Client is the device that initiates communication and sends requests to Server devices. This role is equivalent to a "Master" in traditional serial Modbus networks.
Server (Modbus TCP)	In a Modbus TCP network, the Server is the device that waits for and responds to requests from Client devices. This role is equivalent to a "Slave" in traditional serial Modbus networks.
Master (Modbus Serial)	The device in a serial Modbus network (RTU or ASCII) that initiates all communication and requests data from Slave devices.
Slave (Modbus Serial)	A device in a serial Modbus network that only responds to requests initiated by a Master. It cannot initiate communication on its own.
DHCP (Dynamic Host Configuration Protocol)	A network management protocol used to dynamically assign an IP address and other network configuration parameters to devices on a network, allowing them to communicate automatically without manual configuration.
Static IP	A permanent, fixed IP address assigned manually to a device on a network, ensuring the device can always be found at the same address.
DIN Rail	A standardized 35mm wide metal rail widely used for mounting circuit breakers, gateways, and industrial control equipment inside equipment racks.
DIP Switch	A manual electric switch packaged with others in a group (Dual In-line Package Switch), used to customize the behavior of an electronic device. In this gateway, it is used to enable or disable the RS485 terminal resistor.

Term	Definition
Half-Duplex	A type of communication where data can be transmitted in both directions on a signal carrier, but not at the same time. RS485 relies on half-duplex communication.
Modbus ASCII	A variation of the Modbus protocol where data is encoded using ASCII (American Standard Code for Information Interchange) characters. It is slower than RTU but highly readable and easier to troubleshoot.
Modbus RTU	A widely used serial communication protocol in industrial automation that represents data in a compact, binary format, making it highly efficient for continuous data transmission.
Modbus TCP	A version of the Modbus protocol designed to run over standard Ethernet networks (TCP/IP), allowing for faster communication, multiple clients, and seamless integration into modern IT infrastructure.
Parity	A simple method of error checking used in serial communication. It involves adding an extra bit to the data packet to make the number of 1s either "Even" or "Odd."
RS232	A standard for serial communication transmission of data. It is typically used for point-to-point connections over short distances.
RS485	An industrial standard defining the electrical characteristics of drivers and receivers for use in serial communications systems. It supports multiple nodes on a single bus and is highly resistant to electrical noise over long distances.
Terminal Resistor	A resistor placed at both physical ends of an RS485 bus to absorb signal reflections and prevent communication errors caused by signal echoing. This gateway features a built-in 120 Ω terminal resistor.

Table 9-1: Glossary of Terms

9.2 Compliance and Warranty Notes

Use only official product labels, declarations of conformity, and regional approval documents to claim CE, FCC, RoHS, WEEE, or other compliance status. Do not add regulatory claims to customer-facing material unless the



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corresponding certification is verified.

The gateway is intended for industrial and building automation communication. It is not a safety-rated controller and must not be used as the sole device for personnel protection or emergency shutdown.

The product is covered by a 3-year limited warranty from the date of purchase. Warranty terms, service scope, and return procedures are subject to the sales contract or the official SST Automation warranty policy applicable to the region.

For technical support, provide the model, serial number if available, firmware version, configuration project, wiring information, and fault description.