# **Modbus / EtherNet/IP Gateway**

# GT200-EI-2RS485

# **User Manual**

#### V 3.3







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# **Important Information**

## Warning

The data and examples in this manual cannot be copied without authorization. SSTCOMM reserves the right to upgrade the product without notifying users.

The product has many applications. The users must make sure that all operations and results are in accordance with the safety of relevant fields, and the safety includes laws, rules, codes and standards.

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# **1 Product Overview**

### **1.1 Product Function**

GT200-EI-2RS485 is a gateway which can exchange data between Modbus to EtherNet/IP protocol. The gateway acts as the adapter at the EtherNet/IP side and the master at the Modbus side. If needed, user can also change the EtherNet/IP to Modbus TCP function. Then, user can realize the Modbus to Modbus TCP conversion. More details, please refer to <u>Appendix A</u>.

## 1.2 Feature

- Redundant Power Supply
- Two independent RS-485 interfaces 1KV photoelectric isolation
- Ethernet 10/100M adaptive
- IP address conflict detection
- Modbus network debugging
- Easy to use configuration software SST-GT-CFG

### **1.3 Technical specification**

- [1] EtherNet/IP network is independent with two Modbus subnet;
- [2] Ethernet 10/100M adaptive;
- [3] Support IP addresses conflict detection function;
- [4] Support the ODVA Standard EtherNet/IP communication protocol;
- [5] Two serial RS-485 ports, half-duplex, and baud rate support: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200; parity mode support: none, odd, even, mark, space; 1 or 2 stop bits;
- [6] GT200-EI-2RS485 acts as master at the side of Modbus network and supports 01H, 02H, 03H, 04H, 05H, 06H, 0FH, 10H function codes, can be configured up to 48 Modbus commands for each RS-485 interface; Modbus function codes 03H, 04H, 06H and 10H support "Byte Swap" function, and it can help users solve



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the problem of data format between two different networks;

- [7] Two independent RS-485 interfaces with 1KV optical isolation;
- [8] The maximum number of input and output bytes of EtherNet/IP: Maximum number of input bytes: 492Bytes
   Maximum number of output bytes: 492Bytes
- [9] Power supply: 24VDC (9V ~ 30V), 90mA (24VDC);
- [10] Working temperature:-4°F~140°F(-20°C~ 60°C), relative humidity: 5% ~ 95% (no condensation);
- [11] External dimensions (W\*H\*D): 1.33 in\*4.56 in\*4.21 in (34mm\*116mm\*107mm).
- [12] Installation: 35mm DIN rail;
- [13] Protection class: IP20;
- [14] Test standard: EMC test standards.

### **1.4 Revision History**

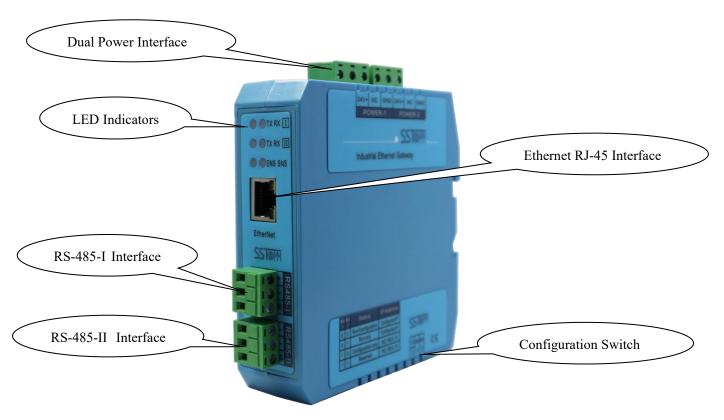
Revision	Date	Chapter	Description
V2.3	7/14/2017	ALL	New release
V2.2 Dev A	3/26/2021		Supports changing to
V2.3, Rev A	3/20/2021	ALL	Modbus TCP function
	8/22/2022	DADT	Updated the product
V3.3	8/23/2022	PART	picture and dimensions





# 2 Hardware Description

## 2.1 Appearance



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



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# **2.2 LED Indicators**

Indicator	State	Description				
TX	Flashing	Sending Modbus data				
17	OFF	No data transferring				
RX	Flashing	Receiving Modbus data				
КЛ	OFF	No data transferring				
	Green	EtherNet/IP connection is established				
	Flashing Green	EtherNet/IP connection is not established				
ENS	Red	IP address conflict				
	Flashing Red	EtherNet/IP connection timed out; DHCP, BOOTP , IP address conflict				
	Flashing Keu	detection				
	Green	Modbus Communication is normal				
SNS	Red	At least one Modbus channel response timed out, exception or error				
5115	Flashing, red and green	At least parts of devices in a Modbus channel timed out, exception or				
	alternately	error				

#### \* Special States

Indicator State		Description		
ENS & SNS Orange	Light up together	The gateway is starting up		
	Flashing alternately	Configuration mode		

# **2.3 Configuration Switch**

Configuration switch is located on the bottom of the gateway, bit 1 is mode bit, bit 2 is function bit.



Mode (Bit 1)	Function (Bit 2)	Description		
Off	Off	Operation mode, allowed to upload/download configuration.		
Off	On	Operation mode, not allowed to upload/download configuration.		
		Configuration mode, IP address is fixed at 192.168.0.10. In this		
On	Off	mode, the gateway is allowed to upload/download configuration but		
		does not transfer data between EtherNet/IP and Modbus network.		

**Notes:** If you changed the DIP switch, you have to restart GT200-EI-2RS485 (power off and power on) to make the settings take effect.

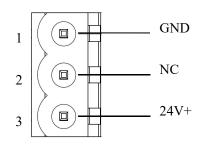




## **2.4 Interface**

# 2.4.1 Power Interface

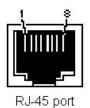
GT200-EI-2RS485 has two power interfaces, with power redundancy function, when one the way to power failure, power can continue to supply the other way.



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

# 2.4.2 Ethernet Interface

Ethernet interface apply RJ-45 connector, 10/100M adaptive.



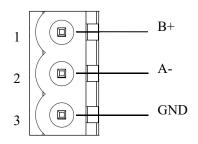
Pin	Signal Description				
S1	TXD+, Tranceive Data+, Output				
S2	TXD-, Tranceive Data-, Output				
S3	RXD+, Receive Data+, Input				
S4	Bi-directional Data+				
S5	Bi-directional Data-				
S6	RXD-, Receive Data-, Input				
S7	Bi-directional Data+				
S8	Bi-directional Data-				





## 2.4.3 RS-485 Interface

Serial interface uses 3-pin pluggable terminal and users can wire it according to the wiring instructions on the panel.



Pin	Function				
1	B(+), RS-485				
2	A(-), RS-485				
3	GND				

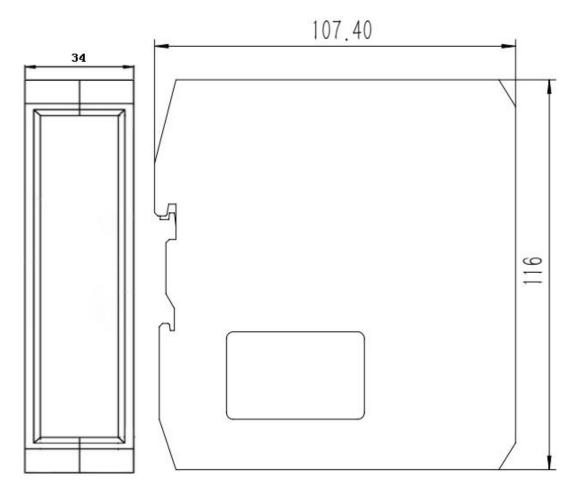




# **3 Hardware Installation**

### **3.1 Mechanical Dimensions**

1.33in \* 4.56in \* 4.21in (34mm \* 116mm \* 107.4mm)

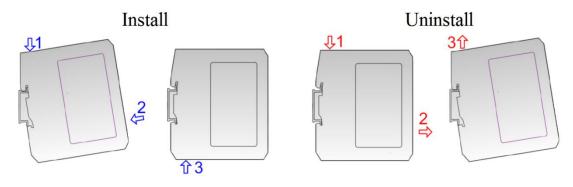






# **3.2 Installation Method**

Using 1.4 in (35mm) DIN RAIL.



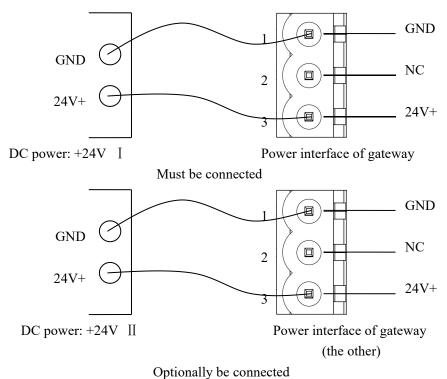


# 4 How to Start

### 4.1 Connect to the Power

DC 24V power supply, dual power supply interface, a redundant function, users can use one or two power supply. If you are using two power supply, when the way in which the power fails, the other way you can continue to supply power to ensure normal operation.

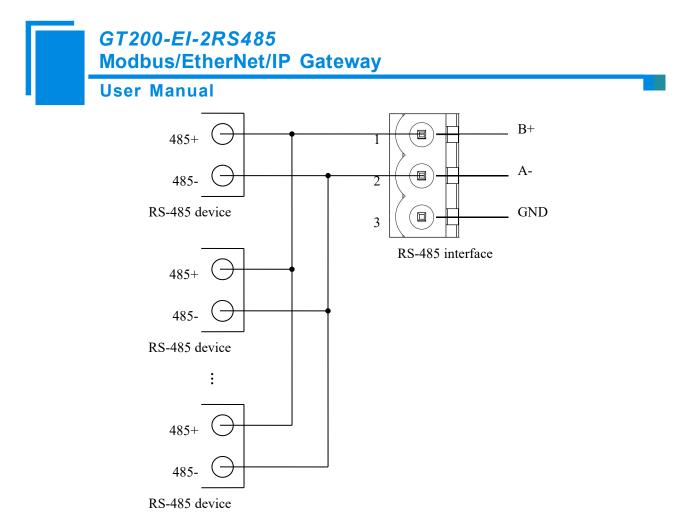
Power supply wiring as shown below:



### **4.2 Connect Serial Devices**

RS-485 connection as shown below:



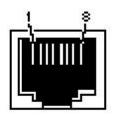


In order to prevent signal reflection and interference in RS-485 multipoint communication, adding one terminal resistor at the both farthest ends of the line is necessary, and the argument is  $120\Omega \ 1/2W$ .

Notes: There is no internal termination resistor in the RS-485 interface of GT200-EI-2RS485.

# 4.3 Ethernet Connection

Connect the GT200-EI-2RS485 to your computer with the Ethernet cable, in the RJ-45 port.



RJ-45 port



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# 4.4 Configuration Switch

Configuration switches located on the bottom of the gateway, set the mode bit (bit 1) to 0 (Off), and set function bit (bit 2) to 0 (Off), power (or restart) the device to work.

Mode (Bit 1)	Function (Bit 2)	Description		
Off	Off	Operation mode, allowed to upload/download configuration.		
Off	On	Operation mode, not allowed to upload/download configuration.		
	Configuration mode, IP address is fixed at 192.168.0.10. In this			
On	Off	mode, the gateway is allowed to upload/download configuration but		
		does not transfer data between EtherNet/IP and Modbus network.		

## 4.5 Installing Software

Double click the SST-GT-CFG software installation package and install the configuration software SST-GT-CFG, you can easily follow the prompts to complete the installation. Then open the configuration software and finish

the configuration of GT200-EI-2RS485!

Notes: The network setting of GT200-EI-RS: IP address is 192.168.0.X, subnet mask is 255.255.255.0, gateway address is 192.168.0.1.

If the Assign IP mode is DHCP, and there is no DHCP Server or you can't search the GT200-EI-2RS485. You can set mode bit (bit 1) to On, and restart GT200-EI-2RS485 (power off and power on), then the fixed IP address of GT200-EI-2RS485 is 192.168.0.10, subnet mask is 255.255.255.0, gateway address is 192.168.0.1.

The serial factory setting is 19200, 8, N, 1.



# **5** Configuration Software

### **5.1 Notes before Configuration**

SST-GT-CFG is a product based on Windows platform, and used to configure GT200-EI-2RS485. It can set

related parameters and commands of Modbus and other bus.

The document mainly introduces the use method of GT200-EI-2RS485.

Double-click the icon to enter the main interface of the software:



# 5.2 User Interface

SST-GT-CFG interface include: title bar, menu bar, toolbar, status bar, equipment section, configuration section

and notes section.

Notes: All the gray part in the software can not be changed.



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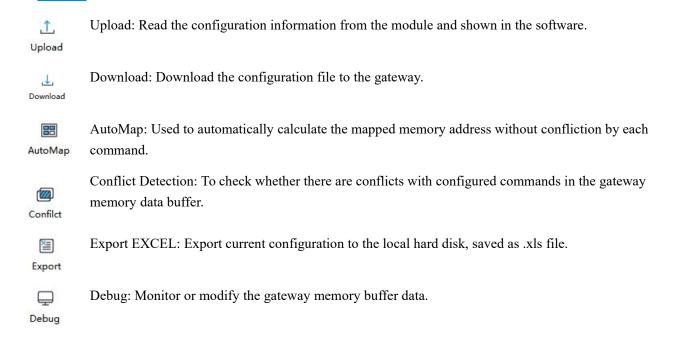
Gateway Configuration Software SST-GT-CFG	x
	Menu Bar Ditle Bar
Device Configuration  Type of Protocol Assign IP Mode  Toolbar way  DNS2  Tree View	EtherNet/IP Manually Assign 192.168.0.110 255.255.0 192.168.0.1 0.0.0 0.0.0 Configuration Window
	Comment Interface

#### Tool bar interface is shown as below:

			====		<u>-+</u>	<u> </u>	1	↓				Ţ
New	Save	Open	Add Node	Del Node	Add Cmd	Del Cmd	Upload	Download	AutoMap	Confilct	Export	Debug

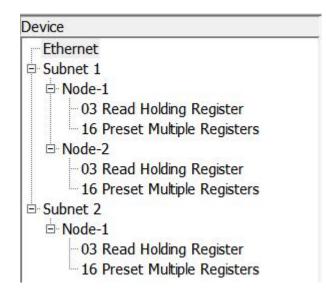
New	New: Create a new configuration project.
E Save	Save: Save the configuration project.
) Open	Open: Open the configuration project.
 Add Node	Add Node: Add a Modbus slave node.
Add Cmd	Delete Node: Delete a Modbus slave node.
Add Cmd	Add Command: Add a Modbus command.
DelCmd	Delete Command: Delete a Modbus command.

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## 5.3 Operation of Devices view

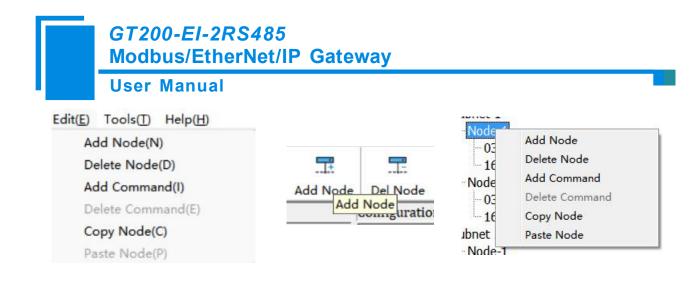
### 5.3.1 Devices View Interface



# **5.3.2 Operation Mode**

The equipment view supports three types of operation: Edit Menu, Edit Toolbar and Right click edit Menu.





#### **5.3.3 Operation types**

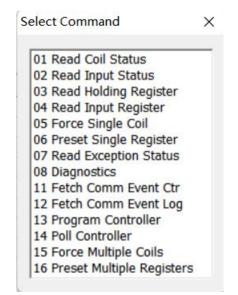
1. Add nodes: Right click on subnet or existing nodes, and then perform the operation of adding a new node. Then there is a new node named "new node" under subnet.

2. Delete nodes: Right click on the node to be deleted, and then perform the operation of deleting the node. The node and its all commands will be deleted.

3. Add commands: Right click on the node, and then perform the operation of adding command to add a command for the node. The dialog box will be shown as follow:

Currently, it supports the commands: 01, 02, 03, 04, 05, 06, 15 and 16.

Select the command: Double click the command



4. Delete commands: Right-click on the command and then perform the operation of deleting the command.





## **5.4 Operation of Configuration View**

## **5.4.1 Ethernet Configuration**

In the interface of device view, click Ethernet, and then the configuration view is shown as follows:

Configurable items include: Assign IP Mode, IP Address, Subnet Mask, Gateway Address, DNS1, DNS2.

S Untitled - SS	T-GT-CFG											-	×
File(F) Edit(E)	Tools(T)	Help( <u>H</u> )											
					<u>-+</u>	<u>F</u>	1	4				Ţ	
New	Save	Open	Add Node	Del Node	Add Cmd	Del Cmd	Upload	Download	AutoMap	Confilct	Export	Debug	
Device				Configuratio	n								
Ethernet				Type of Prot	ocol				EtherNet/IP				
-Subnet 1				Assign IP M	ode				Manually As	ssign			
Subnet 2				IP Address					192.168.0.11	10			
				Subnet Masl	C				255.255.255	.0			
				Default Gate	way				192.168.0.1				
				DNS1					0.0.0.0				
				DNS2					0.0.0.0				

Assign IP Mode: Manual Assign, BOOTP, DHCP can be selected.

IP Address: Set the device IP address.

Subnet Mask: Set subnet mask of the device.

Gateway Address: Set gateway address.

**DNS1:** Set the device DNS1 address.

**DNS2:** Set the device DNS2 address.

### 5.4.2 Subnet Configuration

Protocol is Modbus master

Configurable parameters are shown as follows:

Baud Rate, Data Bits, Parity check mode, Stop bit, Transmission mode, Response timeout, Delay between polls,

Polling mode of outputting commands, Time between two continuous pluses (the polling mode of outputting

commands is pulse output), Scanning ratio

Interface of configuration view is shown as follow:



				2RS4 herNe		Gate	way						
	U	ser N	lanua	al									
🛐 Untitled -	SST-GT-CFG	i											×
File(F) Edit(E	) Tools(])	Help(H)											
		6		-1	<u>C+1</u>	<u>C</u> p	<b>.</b> ↑.	.↓.			<b>E</b>	Ģ	
New	Save	Open	Add Node		Add Cmd		Upload	Download	AutoMap	Confilct	Export	Debug	
Device	oure	open	Had Hous	Configuratio		beronia	opicua	Domicud	Hatomap	Connec	Laport	Debug	
Ethernet				Type of Prot					Modbus Ma	aster			
□ Subnet 1				Baud Rate					19200	abrea -			_
- Node-1				Data Bits					8				
-031	Read Holdin	g Register		Parity					None				
1 1		iple Register	rs	Stop Bits					1				
Subnet 2				Slave Addre	55								
				Transmission	Mode				RTU				
				Response Ti	meout (10~6	0000ms)			300				
				Delay betwee	en Polls (0~2	2500ms)			0				
				Output Mode					Change of	Value			
				Output Pulse	(200~2500m	ns)							
				Scan Rate (1	~255)				10				
Í.													

Baud Rate: There are 300, 600, 1200, 2400, 9600, 19200, 38400, 57600 and 115200bps to be selected.

Data bits: 8 bits

Parity: There are none, odd, even, mark and space to be selected.

Stop Bits: There are 1 and 2 to be selected.

Transmission Mode: There are RTU and ASCII to be selected.

**Response timeout:** When the Modbus master send commands, the time waiting for response from the slave, the range is 300~60000ms.

**Delay between polls:** After an command of Modbus having been sent and having received correct response, the time before next command being sent, the range is:  $0 \sim 2500$ ms.

#### **Output Mode:**

Modbus writing command (output command) has 3 kinds of outputting modes: Cycle, Forbidden, Change of Value.

Cycle: The same with Modbus read command, and output according to the scanning ratio.

Forbidden: Prohibit outputting Modbus write command.

Change of Value: When the output data has changed, it output the write command and stop outputting after receiving correct response.

Scan Rate: Rate of slow-scan and quick-scan. If the quick-scan command sends 10 times, slow-scan command sends 1 time.



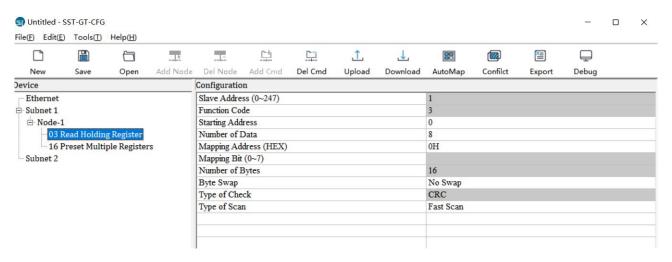
# 5.4.3 Node Configuration

In the interface of device view, left click a node and then configuration interface is shown as follow:

🕤 Untitled - S	ST-GT-CFG												×
File(F) Edit(E)	Tools()	Help( <u>H</u> )	n.										
					<u>_</u>	<u> </u>	<u>1</u>	.↓.			1	Ţ	
New	Save	Open	Add Node	Del Node	Add Cmd	Del Cmd	Upload	Download	AutoMap	Confilct	Export	Debug	
Device				Configuration	n								
		g Register ple Register	5	Slave Addres	ss (0~247)				1				

# **5.4.4 Command Configuration**

In the interface of device view, left click a command and then configuration interface is shown as follow:



**Starting Address:** The starting address of register or switching value or loop and so on in Modbus slave and the range is 0~65535.

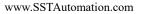
Number of Data: The length of data. Two bytes are one data length.

Mapping Address: The starting address of data in memory buffer of the module.

The address range of data mapping in the module memory:

Read command: 0x0000~ 0x01FF

Write command:  $0x4000 \sim 0x41FF$ 



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When write command is used exchanging locally, it also can use:  $0x0000 \sim 0x01FF$ 

**Mapping Bit:** For the bit operation commands, the position range of start-bit byte is  $0 \sim 7$ .

**Bytes Swap:** There are three kinds of type, No swapping, two bytes swapping, four bytes swapping. The byte display order of Modbus and Profibus-DP is MSB being preferential; the byte display order of DeviceNet is LSB being preferential. Users can exchange the byte display order to get correct value.

**Type of Scan:** There are two kinds of scanning mode: quick-scan and slow-scan. It is fit for requests of user about quick-scan or slow-scan of different commands. Slow-scan is equal to quick-scan being multiplied by scan ratio.

(Configure it in the interface of subnet configuration interface)

## **5.5 Conflict Detection**

For the detection of whether there is conflict of "the starting address of memory mapping", if conflict it can adjust in time. The interface is shown as follow:

TOD INCOU HOIR	ding Register				
	ultiple Registers				
03 Read Hold					
	ultiple Registers				
	ultiple Registers				
✓ 03 Read Hold					
16 Preset Mu	ultiple Registers				
		1			
Input buffer			Output buffer	 	
0000		▲	4000		
0040			4010		
0010					
0010			4020		
			4020 <b>4</b> 030		
0020					
0020 0030			4030		
0020 <mark>4 4</mark> 0030 0040			4030 4040		
0020 <mark>1 0030</mark> 0030 0040 0050 0050			4030 4040 4050		
0020 <mark>20 20 20 20 20 20 20 20 20 20 20 20 20 2</mark>			4030 4040 4050 4060		
0020 <mark>20 20 20 20 20 20 20 20 20 20 20 20 20 2</mark>			4030 4040 4050 4060		

# 5.5.1 Operation of Command List

All the configuration commands can be shown at the command list. Each select box before command is used for checking the memory-mapping location of that command. Click on the command can select the check box, and in the memory-mapping area it can show the corresponding share of spatial location. Click the command again will



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remove the selected box and it doesn't show the mapping location. The function can be used to conflict detect of memory-mapping area.

Command List	
<ul> <li>✓ 03 Read Holding Register</li> <li>✓ 16 Preset Multiple Registers</li> <li>✓ 03 Read Holding Register</li> </ul>	
<ul> <li>☐ 16 Preset Multiple Registers</li> <li>☑ 16 Preset Multiple Registers</li> <li>☑ 03 Read Holding Register</li> <li>☑ 16 Preset Multiple Registers</li> </ul>	

# 5.5.2 Operation of Memory Mapping Area

Memory mapping area is divided two parts: input area and output area.

Input-mapping address:  $0x0000 \sim 0x3FFF$ ;

Output-mapping address: 0x4000 ~ 0x7FFF.

Each box represents a byte address.

Green: Read command show in the input-mapping area; no conflict;

Yellow: Write command show when the mapping addresses in the input area; no conflict;

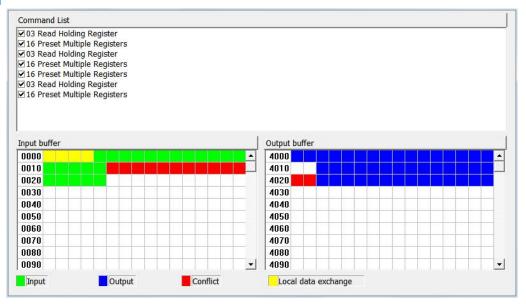
Blue: When the address mapping area is located in the output area; no conflict.

Red: Output area or input area, different commands occupy the same byte address, the byte is shown as red.

For bit operation commands, the meanings of above shows are also applicable.

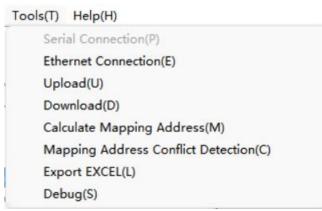
Click the input-output regional grid, whether the grid is occupied or not is shown as follows:

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### 5.6 Hardware Communication

Hardware communications' menu items are shown as follow:



### 5.6.1 Ethernet Configuration

Users can choose whether to use the search function. When users use the search feature, upload or download configuration when you can search for all Ethernet equipment ENB302-MI; when the user does not use the search feature, users must specify their own devices to connect to, in the configuration when the upload or download only lists the devices.

Notes: Please click "OK" button to confirm, click "Cancel" button will be enabled as a search function.

U	Jser Manual				
Ethernet Con	nection		×	Ethernet Connection	×
2	Use the search fun	ction		Use the search function	
Th	ne IP address to con	nect to:		The IP address to connect to:	
Γ				192 . 168 . 0 . 10	

# 5.6.2 Upload

No.	Model	IP Address	MAC Address	Firmware Versio
1	GT200-EI-2RS485	192.168.0.10		2.5
_				
L	og In	Refresh		Cancel

Choose to upload configuration dialog box will pop up the search appliance:

Select the device you want to configure and click "Log In". Gateway configuration information will be uploaded to the software from the device. The pop-up window is as follows:



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Jpload	×	Upload	>
Click on the "Upload" button to uplo configuration	bad the	Uploading the configuration is	successful.
Upload Ex	kit	Upload	Exit

# 5.6.3 Download

Download configuration and upload configuration similarly:

Download	X Download	×
Click on the "Download" button to downloa the configuration	d Downloading th	ne configuration is successful.
Download Exit	Download	Exit

Notes: Before downloading, make sure all the configuration has been completed and correct.

# 5.7 Load and Save Configuration

# 5.7.1 Load Configuration Project

Select "Open" and then you can open a project:

GT200-EI-2RS485 Modbus/EtherNet/IP Gateway User Manual File(E\_Edit(E) Tools(D\_Help(E New(N) Ctrl+N Open(O)... Ctrl+O Save(S) Ctrl+S Save as(A)... Exit(X)

#### 5.7.2 Save Configuration Project

Select "Save" can save the project:

File(F)	Edit(E)	Tools(T)	Help(		
N	lew(N)	Ctr	l+N		
0	pen(O)	Ctr	1+0		
S	ave(S)	Ct	rl+S		
S	Save as(A)				
E	xit(X)				

# **5.8 Export Excel**

Excel document helps users to examine the configuration related.

Choose the icon , save the configuration as excel document and choose the right path.

#### 5.9 Debug

This function is used to monitor the gateway memory data. The scan window will pop up:



#### **User Manual**

No.	Model	IP Address	MAC Address	Firmware Version
1	GT200-EI-2RS485	192.168.0.10		2.5
	og In	Refresh	1	Cancel

Select the device and click "Log In", then enter the debug dialog. Display interface as follows:

Serial Index	Status	Slave add	Starting a	Data/exce
2	Response			
1	Respondi	1	0	11 22 33 44 55 66 77 88
1	Respondi	1	0	11 22 33 44 55 66 77 88
2	Response			
1	Respondi	1	0	11 22 33 44 55 66 77 88
1	Respondi	1	0	11 22 33 44 55 66 77 88
2	Response			
1	Respondi	1	0	11 22 33 44 55 66 77 88
1	Respondi	1	0	11 22 33 44 55 66 77 88
2	Response			
1	Respondi	1	0	11 22 33 44 55 66 77 88
1	Respondi	1	0	11 22 33 44 55 66 77 88
	ing address: 02 03	4000		

Memory-mapped address: Memory starting address of writing data in the gateway

Data: Data being written to memory of gateway

Users can debug Modbus communication through transmitting data.

**User Manual** 

# **6** EtherNet/IP Connection Parameters

Connection parameters the adapter provides are as below:

Data Size Parameters	128 Bytes	256 Bytes	492 Bytes
Input Instance	102	112	122
Output Instance	101	111	121
Configuration Instance	103	113	123

Notes: The Input data size should include 4-byte status. For example, when using the 256-byte parameters, the input size should be 260 bytes.

Take configuration parameters of RSLogix5000 as an example:

General* Co	nnection Module Info				
Туре:	ETHERNET-MODULE Generic Et	hernet Module			
Vendor:	Allen-Bradley				
Parent:	Scanner				
Na <u>m</u> e:	SSTGateway	<ul> <li>Connection Para</li> </ul>	ameters		
	100.000	_	Assembly Instance:	Size:	
Descri <u>p</u> tion:	-		102	33 + (324	bit)
		뢰 O <u>u</u> tput:	101	32 📑 (32-1	Ыit)
Comm <u>F</u> orma	t:]Data - DINT Host Name	<u>C</u> onfiguration:	113	10 <u>+</u> (8-bi	it)
• IP <u>A</u> dd	ress: 192 . 168 . 0 . 10	Status Input:			
C Host N	ame:	Status Output:			

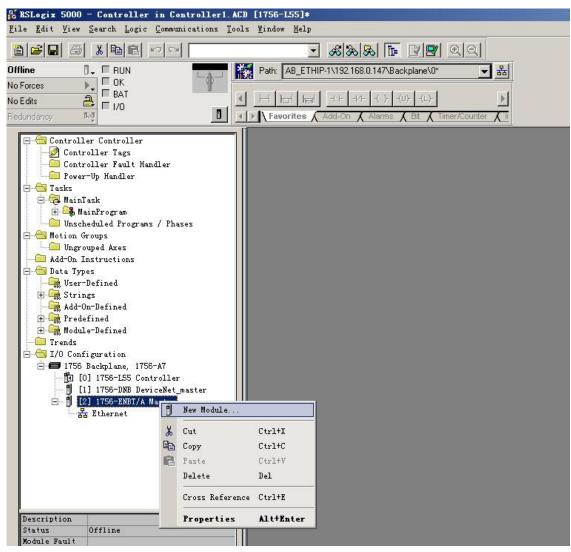


# 7 How to Read/Write I/O Data

The following RSLogix 5000 example will describe how to read/write I/O data.

# 7.1 Read/Write Data by IO Messaging (Recommend)

Right click on EtherNet/IP scanner module, click "New Module", as shown below:



In the pop-up dialog box, unfold "+" before "Communications", choose "ETHERNET-MODULE", click "OK", as

shown below:

#### **User Manual**

Description	Vendor
Ether.       10/100 Mbps Ethernet Port on CompactLogix         N/A       1788 Ethernet to DeviceNet Linking Device         (A       1788 10/100 Mbps Ethernet Bridge, Twisted         (A       1788 10/100 Mbps Ethernet Bridge w/Enhance         (A       1788 10/100 Mbps Ethernet Bridge w/Enhance         (A       1794 10/100 Mbps Ethernet Adapter, Twisted         (B       1794 10/100 Mbps Ethernet Adapter, Twisted         (B       1794 10/100 Mbps Ethernet Port on DriveLogix57         BRIDGE       Generic EtherNet/IP CIP Bridge         WODULE       Generic Ethernet Module         IP       SoftLogix5800 EtherNet/IP         A/A       Ethernet Adapter, Twisted-Pair Media	Allen-Bradley -Pai Allen-Bradley ed W Allen-Bradley d-Pa Allen-Bradley d-Pa Allen-Bradley
	<u>Find</u> <u>A</u> dd Favorite
	Ether.10/100 Mbps Ethernet Port on CompactLogixN/A1788 Ethernet to DeviceNet Linking Device/A1788 10/100 Mbps Ethernet Bridge, Twisted/A1788 10/100 Mbps Ethernet Bridge w/Enhance/A1794 10/100 Mbps Ethernet Adapter, Twisted/B1794 10/100 Mbps Ethernet Adapter, Twisted(S730 10/100 Mbps Ethernet Port on DriveLogix57SRIDGEGeneric EtherNet/IP CIP BridgeMODULEGeneric Ethernet ModuleIPSoftLogix5800 EtherNet/IP

Configure relevant information in the pop-up window, as shown below:

General Connection Module Info Type: ETHERNET-MODULE Generic Ethern Vendor: Allen-Bradley Parent: Scanner	et Module Set Communication Parameters. Please refer to chapter 6.
Name:       SSTGateway         Description:       Set the name.         Comm Eormat:       Data - DINT         Address / Host Name       IP Address:         192 . 168 . 0 . 10       IP address of the name.	Connection Parameters Assembly Instance: Size: Input: 102 33 . (32-bit) Output: 101 32 . (32-bit) Configuration: 113 10 . (8-bit) Status Input: SST gateway.

In the above picture, the module information needs to be configured includes:

Name: Name the added EtherNet/IP adapter module.

### GT200-EI-2RS485 Modbus/EtherNet/IP Gateway User Manual

**Comm Format**: Configure data types. Users can choose data types as DINT, INT, SINT and REAL, etc. After confirmation, this cannot be changed. If you want to change data types, you can create new module.

**IP Address**: Set IP address of the EtherNet/IP adapter module (IP address of GT200-EI-2RS485, configured by the software SST-GT-CFG).

Connection Parameters: Set Connection parameters during communication. Please refer to chapter 6.

Note: "Size" (configured bytes) in the above picture should be the consistent with relevant input and output bytes of Instance in the above chapter.

Click "OK", set scanner polling time interval in the pop-up dialog box, the default is 10ms, as shown below:

■ ■odule Properties: ■aster (ETHERNET-■ODVLE 1.1)	×
General Connection Module Info	1
<u>R</u> equested Packet Interval (RPI): 10.0 → ms (1.0 - 3200.0 ms)	
Inhibit Module	
🧮 Major Fault On Controller If Connection Fails While in Run Mode	
Module Fault	
Status: Offline OK Cancel Apply Help	

After setting this interval, click "OK" to save. Double click "Controller Tags", unfold "SSTGateway: O", as shown below:

#### **User Manual**

e Edit View Search Logic Communications Ic	-			anneal i				
	<u>- 6888 Fe 291 QQ</u>							
line 🗍 🗸 🗏 RUN	Path:	<none></none>		- **				
Forces								
Edits BAT	< H }		)(L)-					
lundancy Pop	TEA Fas	vorites 🖌 Add-On 👗 Alarms	Bit 🖌 Time	r/Counter 🖌 I	nput/Output 🔏 G	ompare 🖌 C	omputeMath 🔏 M	ove/Logical 🔏 File/Misc. 🔏 File/S
		Controller Tags - Contr	llor (cont	rallar)				
				Testi Statement				
🚊 🔂 MainTask		Scope: 🛱 Controller 🛛 💌	Sh <u>o</u> w	Unused, STR	ING, ALARM, ALA	RM_ANALOG	G, ALARM_DIGITAL	, AXIS_CONSUMED, AXIS_GENER
📄 🕞 MainProgram		Name 🛆	Alias For	Base Tag	Data Type	Style	Description	
Program Tags		±-SSTGateway:C			AB:ETHERN			
MainRoutine		⊡-SSTGateway:I			AB:ETHERN			
Unscheduled Frograms / Thases 		E SSTGateway: I.Data		10 C	DINT[33]	Decimal	8	
Ungrouped Axes		E-SSTGateway:0			AB:ETHERN	becima		
Add-On Instructions				-		Decimal		
🔁 Data Types		SSTGateway:0.Data			DINT[32]		10 (3	
User-Defined		SSTGateway:0.Data[0]		-	DINT	Decimal		
Add-On-Defined		ESSTGateway:0.Data[1]			DINT	Decimal		
F Redefined		± SSTGateway:0.Data[2]			DINT	Decimal		
Hodule-Defined		SSTGateway:0.Data[3]			DINT	Decimal		
Trends		SSTGateway:0.Data[4]			DINT	Decimal		
a I/O Configuration		E-SSTGateway:0.Data[5]			DINT	Decimal		
☐		E SSTGateway:0.Data[6]			DINT	Decimal		
E [1] 1756-ENBT/A Scanner		± SSTGateway:0.Data[7]			DINT	Decimal	22	
E Hernet		E-SSTGateway:0.Data[8]			DINT	Decimal		
ETHERNET-MODULE SSTGateway		Monitor Tags AEdit		-	DINT	Decimal	- 14	
1756-ENBT/A Scanner		I. N		172				

In the above picture, SSTGateway:O.Data [0] ~SSTGateway:O.Data [31] is the corresponding output data address

of SST Gateway module in scanner.

Unfold "SSTGateway: I", as shown below:

			Interference for	101				
		• & & & E		<u>i</u> ei				
ffline 🛛 🗸 🗖 BUN	Path:	<none></none>		- *				
o Forces								
o Edits	H		J)(L)-					
edundancy 5-0	► A Fa	worites 🖌 Add-On 👗 Alarms	Bit 🖌 Tim	er/Counter 👗 Ir	nput/Output 🔏 C	ompare 🖌 C	ompute/Math 🗶 N	Nove/Logical 🔏 File/Misc. 🔏 File/
	I <b>[ [</b>	Controller Tags - Contr						
				1				
- A MainTask		Scope: Controller	Show	Unused, STRI	NG, ALARM, ALA	RM_ANALO	6, ALARM_DIGITAI	L, AXIS_CONSUMED, AXIS_GENE
🗄 🕞 MainProgram		Name 🛆	Alias For	Base Tag	Data Type	Style	Description	
- Program Tags		⊞-SSTGateway:C			AB:ETHERN			
MainRoutine		E-SSTGateway:			AB:ETHEBN			-
— — Unscheduled Programs / Phases — — Motion Groups		SSTGateway:I.Data	1		DINT[33]	Decimal		2
Ungrouped Axes		E-SSTGateway:I.Data[0]			DINT	Decimal		
Add-On Instructions								-
- 🔄 Data Types		SSTGateway:I.Data[1]			DINT	Decimal		
- 🙀 User-Defined		+-SSTGateway:I.Data[2]			DINT	Decimal		
🗄 🕞 Strings		±-SSTGateway:I.Data[3]			DINT	Decimal		
Add-On-Defined		SSTGateway:I.Data[4]			DINT	Decimal		
I → → → → → → → → → → → → → → → → → → →		±-SSTGateway:I.Data[5]			DINT	Decimal		
Trends		E-SSTGateway:I.Data[6]			DINT	Decimal		
🗄 🚔 I/O Configuration		E-SSTGateway:I.Data[7]			DINT	Decimal		
🖻 🖅 1756 Backplane, 1756-A7		±-SSTGateway:I.Data[8]			DINT	Decimal		2
[] [0] 1756-L55 Controller [] [1] 1756-ENBT/A Scanner			-		DINT		-	
E-# Ethernet		+SSTGateway:I.Data[9]		5		Decimal		
STGateway		SSTGateway:I.Data[10		-	DINT	Decimal		
1756-ENBT/A Scanner		Monitor Tags XEdi			DINT			

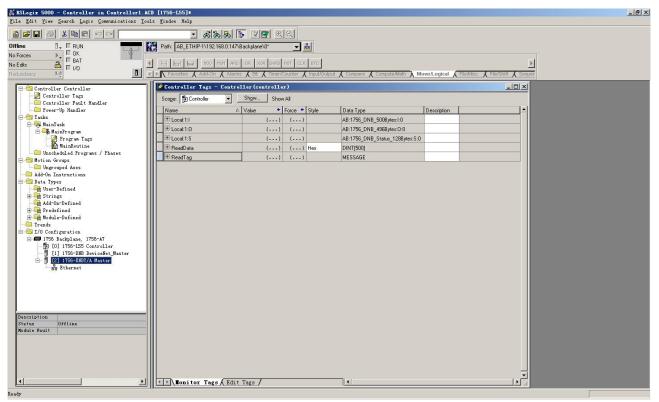
In the above picture, the first 4 bytes of SSTGateway: I. Data [0] are the status bytes. SSTGateway:I.Data [1] ~SSTGateway: I. Data [32] are the input data from the SST Gateway.



## 7.2 Read/Write Data by MSG

### 7.2.1 Read Data

Create a new project; it is in the "Offline" mode. Add two new tags "ReadTag" and "ReadData" under the "Controller Tags" and set the type of "ReadTag" as "MESSAGE" and "ReadData" as "DINT [500]".



Right click "ReadTag", select "Configure "ReadTag":



#### **User Manual**

le <u>E</u> dit <u>V</u> iew <u>S</u> earch <u>Logic</u> <u>Communications</u> <u>T</u> oo	ols <u>W</u> indow Help	Monitor "ReadTag"				
		New Tag which aliases "ReadTag				
	- <del>6</del> 8	Edit "ReadTag" Properties	Alt+Enter			
fline 🗍 🗸 🗖 RUN	Path: <none></none>	Configure "ReadTag"	Ctrl+I			
Forces		Edit "MESSAGE" Data Type				
Edits BAT		Go to Cross Reference for "Rea	dTag" Ctrl+E			
	Favorites Add-0			are 🖌	Compute/Math 🔏 M	ove/Logical 🔏 File/Misc. 🖌 File/Shift
		Find All "ReadTag"				
Controller Fault Handler	Controller 1	Message Path Editor				
Power-Up Handler Tasks	Scope: 🛐 Contr	<u>G</u> o To	Ctrl+G	M_ANALI	DG, ALARM_DIGITA	L, AXIS_CONSUMED, AXIS_GENERIC
- A MainTask	Name	Cut	Ctrl+X	ityle	Description	
🗄 🕞 MainProgram	E-GT100EIRS		Ctrl+C	1910	D COCHPAGE	1
	E-GT100EIRS		Ctrl+V			
- 🔄 Motion Groups			CULIV			
Ungrouped Axes	±-GT100EIRS	Paste Pass-Through		_		
	±-ReadData	Delete	Del	lex		
User-Defined	±-ReadTag —		MESSAGE	P <sup>1</sup>		
E Strings						
Add-On-Defined		t. te				
🕀 🙀 Predefined						
🛨 🚂 Module-Defined						
🔁 Trends						
- GI I/O Configuration						
☐						

In the new pop-up window, it needs to set some parameters as below:

#### Message Type: CIP Generic

Service Type: Select "Get Attribute Single", now, relevant service code will become "e (Hex)"

Class: 4 (Hex)

Instance: Please refer to chapter 6 EtherNet/IP Connection Parameters.

#### Attribute: 3 (Hex)

Destination: Select "ReadData" label, now, the data that have been received will be saved in this tag.

essage Configuration - ReadTag	<u>×</u>
Configuration*       Communication       Tag         Message Type:       CIP Generic         Service       Get Attribute Single       ▼         Service       e       (Hex) Class:       4       (Hex)         Instance:       102       Attribute: 3       (Hex)	Source Element: Source Length: Destination New Tax
) Enable ) Enable Waiting ) Start ) Error Code: Extended Error Error	Ne <u>w</u> Tag ○ Done Done O 「 Timed Ou ◆

Choose "Communication" label, input the relevant path of connecting EtherNet/IP adapter in the blank space



## **User Manual**

behind the Path, the path format is: EthetNet IP hostname, EtherNet/IP scanner slot No., IP address of EtherNet/IP adapter, after setting the path, click "Apply", "Confirm". As is shown below:

In this instance, EtherNet/IP hostname is "Scanner", EtherNet/IP scanner slot No. Is "2", EtherNet/IP adapter is "192.168.0.10". IP address of SST Gateway is the address which is configured by the configuration software.

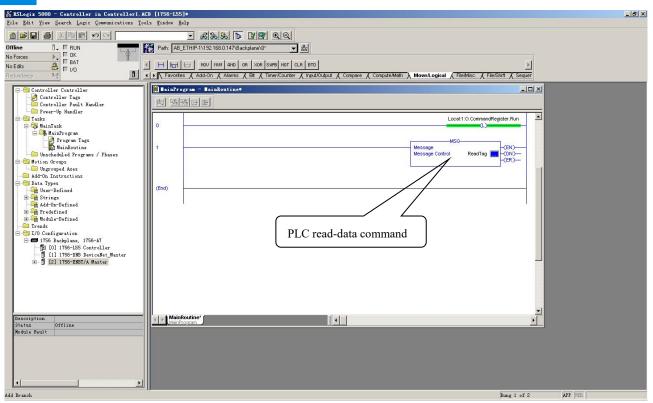
-	uration* Com Scanner,2,192.		'  Tag	, 		Br	owse
	Scanner,2,192.1						
60	munication Meth CIP C D <u>H</u> + CIP <u>W</u> ith Source ID	6-C-	: 0		itination Link: itination <u>N</u> ode:	0	(Octal)
Γ	C <u>o</u> nnected		🔽 Cack	i <u>e</u> Connectio	ns 🗲		
Enab	le 🔘 Enable	e Waiting	🔾 Start	O Do	ne Don	2	0

Add a "MSG" command in "MainRoutine" under the "MainProgram" and choose "ReadTag" as "Message Control", as shown below:

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This is a simple command which can sent a read request, it still needs to add some logic commands to trigger this

command in common program. About the detailed information, please refer to RSLogix5000.

Download the program to the PLC and set PLC into "Online" state.

Click "Control Tags" and select "Monitor Tags", unfold "ReadData", you will see that PLC can read the data from EtherNet/IP adapter SST Gateway.

## **User Manual**

Edit Yiew Search Logic Communications I		a 🕞 🛛 🕿 🔍	อป				
	CONTRACTOR OF CONT						
	Path: AB_ETHIP-1\192.168.	0.147\Backplane\0*	- *				
ices P		AND OR NOR SWEE N				1	
Rts A F 1/0				10 10 1		<u></u>	
ndancy Brg	Favorites & Add-On &	Alarms A Bit A Timerico	unter A input/Out	put <b>X</b> Compare <b>X</b> Comput	e/Math A Move/Logical A File/Misc. A	File/Shift Sequer	
Controller Controller	Controller Tags - C	ontroller (controller	)				
- 🧭 Controller Tags 	Scope: Controller	✓ Show Show A	All .				
Power-Up Handler	Name		orce 🗲 Style	Data Type	Description		
asks 🔁	E-ReadData	{}	{} Hex	DINT[500]			
E A MainTask	E ReadData[0]	16#0000 0000	Hex	DINT			
🖻 🕞 MainProgram	E ReadData[1]	16,0000 0000	Hex	DINT			
MainRoutine		16#0000 0000	Hex	DINT			
- Conscheduled Programs / Phases Motion Groups	E ReadData[3]	16#0000 0000	Hex	DINT			
Motion Groups	E ReadData[4]	16#0000 0000	Hex	DINT			
Add-On Instructions	I ReadData[5]	16#0000 0000	Hex	DINT			
🖂 Data Types	E ReadData[6]	16#0000_0000	Hex	DINT			
User-Defined	E ReadData[7]	16#0000_0000	Hex	DINT			
Add-On-Defined	E ReadData[8]	16#0000 0000	Hex	DINT			
🖅 🚂 Predefined	E ReadData[9]	16#0000 0000	Hex	DINT			
🕀 🦳 Module-Defined 	E ReadData[10]	16#0000 0000	Hex	DINT			
- 1/0 Configuration	E ReadData[11]	16#0000_0000	Hex	DINT			
🖻 🚥 1756 Backplane, 1756-A7	E ReadData[12]	16#0000 0000	Hex	DINT			
- 🛐 [0] 1756-LSS Controller - 📲 [1] 1756-DNB DeviceNet Master	E ReadData[13]	16#0000 0000	Hex	DINT			
[1] 1136 BMB Bevicence_master	E ReadData[14]	16#0000_0000	Hex	DINT			
1778).	E ReadData[15]	16#0000 0000	Hex	DINT			
	E ReadData[16]	16#0000_0000	Hex	DINT			
	E ReadData[17]	16#0000_0000	Hex	DINT			
	E ReadData[18]	16#0000_0000	Hex	DINT			
	E ReadData[19]	16#0000_0000	Hex	DINT		<b></b>	
	E ReadData[20]	16#0000_0000	Hex	DINT			
	E ReadData[21]	16#0000_0000	Hex	DINT			
	E ReadData[22]	16#0000_0000	Hex	DINT			
	ReadData[23]	16#0000_0000	Hex	DINT			
	E ReadData[24]	16#0000_0000	Hex	DINT			
	E ReadData[25]	16#0000_0000	Hex	DINT			
	E ReadData[26]	16#0000 0000	Hex	DINT		-	

## 7.2.2 Write Data

Enter the "Offline" mode, add two new tags "WriteTag" and WriteData" under the "Controller Tags". Define the type of "WriteTag" as "MESSAGE" and "WriteData" as "DINT [500]":

New Tag		×	Hew Tag		×
<u>N</u> ame:	WriteData	OK	<u>N</u> ame:	WriteTag	ОК
Description:	A	Cancel	Description:	A	Cancel
		Help			Help
				<b>Y</b>	
<u>U</u> sage:	<normal></normal>		<u>U</u> sage:	<normal></normal>	
Typ <u>e</u> :	Base Connection		Typ <u>e</u> :	Base Connection	
Alias <u>F</u> or:			Alias <u>F</u> or:	The second secon	
Data <u>T</u> ype:	DINT[500]		Data <u>T</u> ype:	MESSAGE	
<u>S</u> cope:	🔁 Controller 📃		<u>S</u> cope:	Controller	
Style:	Hex		Style:	Ţ	
C Open Cor	nfiguration		🗖 <u>O</u> pen ME	SSAGE Configuration	

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Edit Yiew Search Logic Communications Id			-				
	Contraction Contraction Contraction	s 🖪 🗹 🖉 🔍					
e 🛛 🗸 🗏 BUN	Path: AB_ETHIP-1\192.168.0	).147\Backplane\0*	▼ 器				
rces			1 1 1				
	✓ H H H H FAL FSC	COP FLL AVE SRT ST	D SIZE CPS			<u> </u>	
idancy 0.g	✓ ► Favorites	it 🔏 Timer/Counter 🔏 Inp	.tl/Output 🔏 Com	pare 🕻 ComputeMath 🔏 Move/Logical	File/Misc. File/Sh	ift K Sequencer K Equit	
- Controller Controller	Controller Tags - Co	ntroller (controller)				- D ×	
Controller Tags	Scope: Controller	✓ Show Show A					
- Controller Fault Handler				I			
Power-Up Handler Tasks	Name		orce 🗲 Style	Data Type	Description	<b>_</b>	
E A MainTask	E:Local:1:1		{}	AB:1756_DNB_500Bytes:1:0			
😑 🕞 MainProgram	E Local:1:0		()	AB:1756_DNB_496Bytes:0:0			
Program Tags	E:Local:1:S		{}	AB:1756_DNB_Status_128Bytes:S:0			
Unscheduled Programs / Phases	+ ReadData	{}	{} Hex	DINT[500]			
- Motion Groups	±ReadTag	{}	{}	MESSAGE			
Ungrouped Axes	WriteData		{} Hex	DINT[500]			
- Marka Add-On Instructions - Marka Types	+ WriteData[0]	16#0000_0000	Hex	DINT			
User-Defined	WriteData[1]	16#0000_0000	Hex	DINT			
🕀 🌆 Strings	+ WriteData(2)	16#0000_0000	Hex	DINT			
Add-On-Defined		16#0000_0000	Hex	DINT			
H - H Fredefined	⊞ WriteData[4]	16#0000_0000	Hex	DINT			
Trends		16#0000_0000	Hex	DINT			
😑 I/O Configuration	+ WriteData[6]	16#0000_0000	Hex	DINT			
IT56 Backplane, 1756-A7 I [0] 1756-L55 Controller	⊞ WriteData[7]	16#0000_0000	Hex	DINT			
[1] [1] 1756-DNB DeviceNet_Master	⊞ WriteData[8]	16#0000_0000	Hex	DINT			
🗈 🖞 [2] 1756-ENBT/A Master	± WriteData[9]	16#0000_0000	Hex	DINT			
	WriteData[10]	16#0000_0000	Hex	DINT			
		16#0000_0000	Hex	DINT			
		16#0000_0000	Hex	DINT			
	⊞ WriteData[13]	16#0000_0000	Hex	DINT			
	+ WriteData[14]	16#0000_0000	Hex	DINT			
	WriteData[15]	16#0000_0000	Hex	DINT			
		16#0000_0000	Hex	DINT			
	⊞ WriteData[17]	16#0000_0000	Hex	DINT			
	⊞ WriteData[18]	16#0000_0000	Hex	DINT			
	± WriteData[19]	16#0000_0000	Hex	DINT			
	E WriteData[20]	16#0000_0000	Hex	DINT			
	TwriteData[21]	16#0000_0000	Hex	DINT		-1	
	Ionitor Tags	Edit Tags /	4				

Enter the "Monitor Tags" interface; input some data beginning from address WriteData[0] in the "WriteData" tag. There data will be outputted to SST Gateway.

Right click "WriteTag", select "Configure "WriteTag"":



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ReadData	i	{}	{}	Hex	DINT[500]	
ReadTag	8	{}	{}		MESSAGE	
WriteData		{}	{}	Hex	DINT[500]	
Wrib 📝	New Tag		Ctr	1+%	MESSAGE	
	Edit "WriteTag" Edit "WriteTag" Pr	operties	Alt	+Enter		
	Configure "WriteTa	ເ″	Ctr	1+I		
	Edit "MESSAGE" Dat Go to Cross Refere		ag″Ctr	1+E		
	Message Path Edito <u>G</u> o To	r	Ctr	1+G		
	Toggle Bit		Ctr	1+T		
	Force On					
	Force Off					
	Remove Force					
¥	Cut		Ctr	1+X		
Ē	Сору		Ctr	1+C		
8	Paste		Ctr	1+V		
	Paste Pass-Through					
	Delete		Del			
	Find All "WriteTag	"				

In the new pop-up window, it needs to configure as below:

Message Type: CIP Generic

Service Type: Select "Set Attribute Single", now, relevant Service Code will become "10 (Hex)"

Class: 4 (Hex)

Instance: Please refer to chapter 6 EtherNet/IP Connection Parameters.

Attribute: 3 (Hex)

**Source Element**: Select "WriteData" tag, it indicates the data in the "WriteData" tag will become the data PLC outputs.

**Source Length**: Use byte as unit, this value should be less than or equal to the current selecting bytes which Instance represents.

Configuration*       Communication       Tag         Message Type:       CIP Generic       Image: CIP Generic         Service       Set Attribute Single       Image: Source Element:       WriteData	ssage Configuration - Trite	Tag	
Service Set Attribute Single   Service Set Attribute Single   Service Set Attribute Single   Service Set Attribute Single   Set Attribute Single  Set Attribute  Set Attribute Single  Set Attribute S			
	Message <u>Type:</u>		
Source L <u>e</u> ngth: 128 📻 (By Code: 10 (Hex) <u>C</u> lass: 4 (Hex) <u>D</u> estination	Type:     Service     10     (Hex)     Class:     4	Source L <u>e</u> ngth: (Hex) <u>D</u> estination	
Instance: 101 Attribute: 3 (Hex) New Tag	Instance: 101 Attribute: 3	(Hex)	Ne <u>w</u> Tag

Choose "Communication" label, input the relevant path of connecting EtherNet/IP adapter in the blank space behind the Path, the path format is: EthetNet IP hostname, EtherNet/IP scanner slot No., IP address of EtherNet/IP adapter, after setting the path, click "Apply", "Confirm". As is shown below:

Path: Scanner,2,1	192.168.0.10			<u></u> <u>B</u>	rowse
Scanner,2,1					
- Communication M CIP CD CIP With Source ID		nk: 0 🚊	Destination	-	TT TT (Octal)
Connected		🔽 Cach <u>e</u> C	ionnections (		
	able Waiting	) Start	) Done	Done	0
Enable () En					

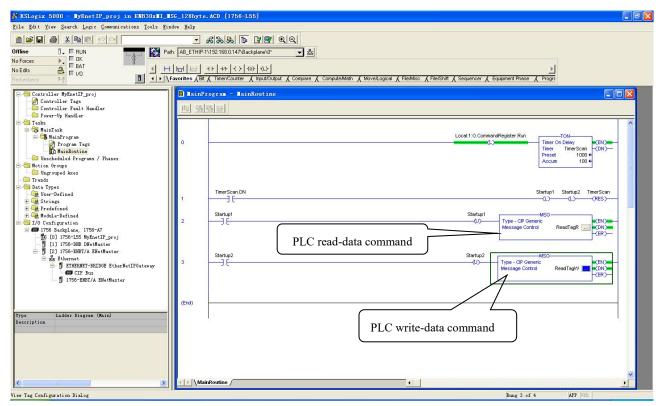
In this instance, EtherNet/IP hostname is "Scanner", EtherNet/IP scanner slot No. Is "2", EtherNet/IP adapter (SST Gateway) is "192.168.0.10". IP address of SST Gateway is the address which is configured by the configuration software.

Add a "MSG" command in "MainRoutine" under the "MainProgram" and choose "WriteTag" as "Message



### **User Manual**

#### Control", as shown below:



Download PLC program to the PLC and set PLC to "Online" state, the data in "WriteData" will be outputted to EtherNet/IP adapter (SST Gateway)..

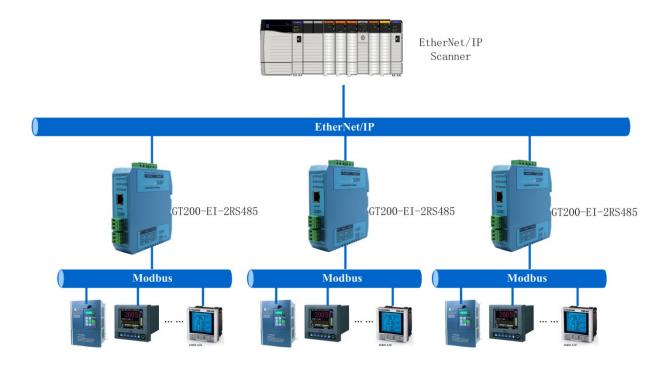




# **8** Typical Application

GT200-EI-2RS485 can connect Modbus devices to the EtherNet/IP network, and achieve communication between

PLC (or PC) with EtherNet / IP interface and Modbus devices:





# **Appendix A: Upgrade to Modbus TCP Function**

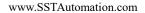
# A.1 How to Upgrade to Modbus TCP

1. Connect to the gateway with your computer through wired RJ 45 cable. Make sure your IP address of local network adapter is set to 192.168.0.XXX (not 192.168.0.10), network mask is 255.255.255.0. Gateway address is 192.168.0.1.

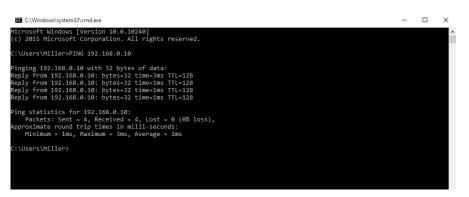
Validate settings upon	
Alternate DNS server:	
Ouse the following DNS:     Preferred DNS server:	
Obtain DNS server add	
Default gateway:	192.168.0.1
Subnet mask:	255.255.255.0
IP address:	192.168.0.100
• Use the following IP ad	Idress:
Obtain an IP address a	automatically
	gned automatically if your network supports ou need to ask your network administrator Igs.
eneral	

- 2. Turn the DIP switch to 1ON and 2OFF, power off and power on to enter FTP state. At this time, the orange lights of ENS and SNS is flashing alternately;
- 3. Click WIN+R, input cmd and use PING 192.168.0.10 in the cmd window. Make sure he PING is successful.

Ø		program, folder, docu ows will open it for you	
<u>O</u> pen:	cmd		



### **User Manual**



Unzip the "Upgrade to Modbus TCP Function.zip", double click the "FtpFwUpdate.bat" file in the folder. 4. Check the private networks and public network checkbox, and click "Allow access".

	File Transfer Program
Publisher:	Microsoft Corporation
Path:	C:\windows\system32\ftp.exe
ogram to com	municate on these networks:
ks, such as n	ny home or work network
s such as the	ose in airports and coffee shops (not recommended
	ten have little or no security)
networks on	annave inde of no security
allowing an a	app through a firewall?
	Allow access Cancel
	Allow access
nd.exe	
0	
	a a d v
0	
	ks, such as n s, such as th networks of

230 Password OK. ftp> bin 200 Type set to I. ftp> put image.bin 200 PORT command Ok. 150 About to open data connection.

5. When it shows the following sentences, that means the upgrade process is normal. Please don't power off the gateway now.



tp: Conn 220 502 Jser 331

## **User Manual**

It will take about 2 minutes to wait for the program to be upgraded. When the below red marked sentences appear, that means the upgrade process is successful. Please don't power off the gateway now.

When the below red marked sentences does not appear more than 5 minutes. Please do the following steps to fix the issue.

- (1) please shut down the cmd window.
- (2) You can turn off the windows firewall temporarily.

Customize Settings			
← → → ↑ 🔗 > Control Panel > System and Security > Windows Firewall > Customize Settings	v ٿ	Search Control Panel	Ą
Customize settings for each type of network			
You can modify the firewall settings for each type of network	that you use.		
Private network settings			
Turn on Windows Firewall			
Block all incoming connections, including t	hose in the list of allowed apps		
Notify me when Windows Firewall blocks a	new app		
Turn off Windows Firewall (not recommended)			
Public network settings			
🔿 🔿 Turn on Windows Firewall			
Block all incoming connections, including t	hose in the list of allowed apps		
Notify me when Windows Firewall blocks a	new app		
Turn off Windows Firewall (not recommended)			
•			

- (3) Double click the FtpFwUpdate.bat file to do the upgrade again.
- 6. When the device restarts automatically, it means that the upgrade process is completed.

ftp> open 192.168.0.10
Connected to 192.168.0.10. 220 SiboTechFTP Server 1.0 ready.
502 Command not implemented.
User (192.168.0.10:(none)):
331 User user OK, send password.
230 Password OK.
ftp> bin
200 Type set to I.
ftp> put image.bin
200 PORT command Ok.
150 About to open data connection.
226 Transfer complete
ftp: 668620 bytes sent in 2.88Seconds 232.48Kbytes/sec.
ftp> quit
221 Goodbye.
please wait for the device reset, it needs 2 minutes. Don't power off in the tim
Press any key to continue

When showing "Press any key to continue...", the upgrade is finished.

Now, you can power off the gateway and set DIP switch to 10FF and 20FF. Use SST-MT-CFG to configure the GT200-EI-2RS485 (Modbus TCP).

# A.2 Configuration

Turn DIP switch to 1OFF and 2OFF to start configuring the GT200-EI-2RS485 (Modbus TCP) NOW. To configure the GT200-EI-2RS485 (Modbus TCP), please download the SST-MT-CFG configuration software on <a href="https://www.sstautomation.com/Download1/">https://www.sstautomation.com/Download1/</a>.



# A.3 Restore to EtherNet/IP

- 1. Do the same from Step 1 to Step 3 on <u>Appendix A.1</u>.
- 2. Unzip the Restore\_to\_EtherNet\_IP\_Function.zip, double click the FtpFwUpdate.bat file in the folder. Check the private networks and public network checkbox, and click "Allow access".

		curity Alert		×
networks. Name: File Transfer Program Publisher: Microsoft Corporation Path: C:\windows\system32\ftp.exe Allow File Transfer Program to communicate on these networks: Public networks, such as my home or work network Public networks, such as those in airports and coffee shops (not recommended breause these networks often have little or no security) What are the risks of allowing an app through a firewall? (Public networks, such as those in airports and coffee shops (not recommended breause these networks often have little or no security) What are the risks of allowing an app through a firewall? (Cancel :\Windows\system32\cmd.exe open 192.168.0.10 cted to 192.168.0.10 cted to 192.168.0.10. iboTechFTP Server 1.0 ready. ommand not implemented. (192.168.0.10:(none)): iser user OK, send password. assword OK. bin ype set to I. put image.bin ORT command Ok.	Wind	ows Firewa	II has blocked some features of this app	
Name:       File Transfer Program         Publisher:       Microsoft Corporation         Path:       C:\windows\system32\ftp.exe         Alum Ele Transfer Program to communicate on these networks:       Provide networks, such as my home or work network         Public networks, such as those in airports and coffee shops (not recommended breause these networks often have little or no security)         What are the risks of allowing an app through a firewall?         Windows\system32\cmd.exe         open 192.168.0.10         cted to 192.168.0.10 <th></th> <th>has blocked som</th> <th>e features of File Transfer Program on all public and private</th> <th></th>		has blocked som	e features of File Transfer Program on all public and private	
Path: C:\windows\system32\ftp.exe Allow Ele Transfer Program to communicate on these networks: Private networks, such as my home or work network Problic networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security) What are the risks of allowing an app through a firewall? Windows\system32\cmd.exe open 192.168.0.10 cted to 192.168.0.10. ibDTechFTP Server 1.0 ready. ommand not implemented. (192.168.0.10:(inone)): ser user OK, send password. assword OK. bin ype set to I. put image.bin ORT command Ok.	networks.	Name:	File Transfer Program	
Allow Ele Transfer Program to communicate on these networks: Private networks, such as my home or work network Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security) What are the risks of allowing an app through a firewall? Cancel Windows\system32\cmd.exe open 192.168.0.10 cted to 192.168.0.10 cted to 192.168.0.10. :iboTechFTP Server 1.0 ready. ommand not implemented. (192.168.0.10: (none)): Iser user OK, send password. assword OK. bin ype set to I. put image.bin ORT command Ok.		Publisher:	Microsoft Corporation	
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<pre>Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security) What are the risks of allowing an app through a firewall? (Pallow access) Cancel (Windows\system32\cmd.exe open 192.168.0.10 cted to 192.168.0.10 cted to 192.168.0.10. SiboTechFTP Server 1.0 ready. command not implemented. (192.168.0.10: (none)): ser user OK, send password. assword OK. bin ype set to I. put image.bin ORT command Ok.</pre>	Allow Eile Transfe	r Program to cor	mmunicate on these networks:	
because these networks often have little or no security) What are the risks of allowing an app through a firewall? (Allow access) Cancel Windows\system32\cmd.exe open 192.168.0.10 cted to 192.168.0.10 cted to 192.168.0.10. iboTechFTP Server 1.0 ready. command not implemented. (192.168.0.10:(none)): Iser user OK, send password. Password OK. bin ype set to I. put image.bin ORT command Ok.	Private net	tworks, such as i	my home or work network	
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open 192.168.0.10 acted to 192.168.0.10. iboTechFTP Server 1.0 ready. command not implemented. (192.168.0.10:(none)): lser user OK, send password. Password OK. bin ype set to I. put image.bin ORT command Ok.				
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(192.168.0.10:(none)): User user OK, send password. Password OK. bin ype set to I. put image.bin ORT command Ok.				
assword OK. bin ype set to I. put image.bin ORT command Ok.				
bin ype set to I. put image.bin ORT command Ok.	Command not in (192.168.0.10	<pre>mplemented 0:(none)):</pre>		
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put image.bin ORT command Ok.	Command not in (192.168.0.10 Jser user OK,	<pre>mplemented 0:(none)):</pre>		
ORT command Ok.	Command not in (192.168.0.10 Jser user OK, Password OK.	<pre>mplemented 0:(none)):</pre>		
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	Command not in (192.168.0.16 Jser user OK, Password OK. bin Type set to I put image.bin	<pre>mplemented ∂:(none)): send pass n</pre>		
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	Command not in (192.168.0.16 Jser user OK, Password OK. bin Type set to I put image.bin PORT command (	<pre>mplemented 0:(none)): send pass n n 0k.</pre>	word.	

3. When it shows the following sentences, that means the upgrade process is normal.

Please don't power off the gateway now.

It will take about 2 minutes to wait for the program to be upgraded. When the below red marked sentences appear, that mean the upgrade process is successful. Please don't power off the gateway now.

When the below red marked sentences does not appear more than 5 minutes. Please do the following steps to fix the issue.

(1) Please shut down the cmd window.





Customize Settings			
→	ڻ ~	Search Control Panel	٩
Customize settings for each type of network			
You can modify the firewall settings for each type of network that you use.			
Private network settings			
🔿 🔿 Turn on Windows Firewall			
Block all incoming connections, including those in the list of allowed apps			
Notify me when Windows Firewall blocks a new app			
<ul> <li>Turn off Windows Firewall (not recommended)</li> </ul>			
Public network settings			
💎 🔿 Turn on Windows Firewall			
Block all incoming connections, including those in the list of allowed apps			
Notify me when Windows Firewall blocks a new app			
Turn off Windows Firewall (not recommended)			

- (3) Double click the FtpFwUpdate.bat file to do the upgrade again.
- 4. When the device restarts automatically, it means that the upgrade process is completed.

<pre>CWindowskystem32\cmd.exe ftp&gt; open 192.168.0.10 Connected to 192.168.0.10. 220 SiboTechFTP Server 1.0 ready. 502 Command not implemented. User (192.168.0.10:(none)): 331 User user OK, send password. 230 Password OK. ftp&gt; bin 200 Type set to I. ftp&gt; put image.bin 200 Type set to I. ftp&gt; command Ok. 150 About to open data connection. 226 Transfer complete ftp: 668620 bytes sent in 2.88Seconds 232.48Kbytes/sec. ftp&gt; quit 221 Goodbye. please wait for the device reset, it needs 2 minutes. Don't power off in the time. Press any key to continue</pre>	
<pre>Connected to 192.168.0.10. 220 SiboTechFTP Server 1.0 ready. 520 Command not implemented. User (192.168.0.10:(none)): 331 User user OK, send password. 230 Password OK. ftp&gt; bin 200 Fype set to I. ftp&gt; put image.bin 200 Fype set to I. ftp&gt; command Ok. 150 About to open data connection. 220 Fransfer complete ftp: 668620 bytes sent in 2.885econds 232.48Kbytes/sec. ftp&gt; quit 221 Goodbye. please wait for the device reset, it needs 2 minutes. Don't power off in the time.</pre>	C:\Windows\system32\cmd.exe
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<pre>ftp&gt;"put image.bin 200 PORT command 0k. 150 About to open data connection. 226 Transfer complete ftp: 668620 bytes sent in 2.88Seconds 232.48Kbytes/sec. ftp&gt; quit 221 Goodbye. please wait for the device reset, it needs 2 minutes. Don't power off in the time.</pre>	ftp> bin
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150 About to open data connection. 226 Transfer complete ftp: 668620 bytes sent in 2.88Seconds 232.48Kbytes/sec. ftp> quit 221 Goodbye. please wait for the device reset, it needs 2 minutes. Don't power off in the time.	ftp> put image.bin
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ftp> quit 221 Goodbye. please wait for the device reset, it needs 2 minutes. Don't power off in the time.	
221 Goodbye. please wait for the device reset, it needs 2 minutes. Don't power off in the time.	
please wait for the device reset, it needs 2 minutes. Don't power off in the time.	
Press any key to continue	
	press any key to continue

When showing "Press any key to continue...", the upgrade is finished.

Now, you can power off the gateway and set DIP switch to 10FF and 20FF. Use SST-GT-CFG to configure the GT200-EI-2RS485.