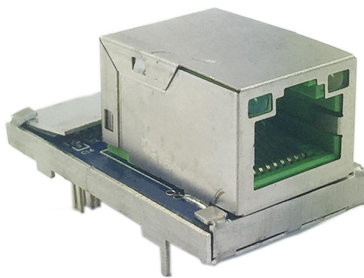


Embedded EtherNet/IP Module **GS11-EI**

User Manual **V2.0**



SST Automation

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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.

This product is designed for various applications. Users must ensure that all operations and outcomes comply with safety regulations, including laws, standards, and codes.

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1 Product Overview

1.1 Product Function

The GS11-EI is an embedded EtherNet/IP communication module designed for seamless integration with host hardware. It interfaces with the host processor over a UART serial link, providing a straightforward way to add EtherNet/IP networking to existing designs and embedded platforms.

1.2 Product Features

- Easily upgrade any UART or serial device to EtherNet/IP.
- Ethernet 10/100M (auto-negotiating).
- Supports one EtherNet/IP connection.
- Easy-to-use user configuration software SST-EIP-CFG.
- Setting the IP address via UART (Configurable Feature).

1.3 Technical Specifications

- [1] Supports the EtherNet/IP communication protocol and follows ODVA standards.
- [2] GS11-EI provides one Ethernet port and one UART interface (included in the 20-pin connector) to convert data between EtherNet/IP and serial.
- [3] Ethernet 10/100M (auto-negotiating).
- [4] The size of input and output buffers can be set by users:
 - ◆ Maximum input buffer size: 256 bytes.
 - ◆ Maximum output buffer size: 256 bytes.
- [5] Functions as an EtherNet/IP Adapter (Server) device on the Ethernet side and can only support one EtherNet/IP Scanner (Client) connection at a time. The minimum data transmit rate is 5ms.

[6] Serial interface parameters:

- ◆ UART.
- ◆ Operation mode: Half duplex.
- ◆ Data Bits: 8.
- ◆ Stop Bits: 1.
- ◆ Parity: None.
- ◆ Baud Rate: Supports 2400, 4800, 9600, 19200, 38400, 57600, 115200, and 230400 bps.

[7] Serial port uses a pre-defined UART message protocol that is easy to use for serial communication.

[8] Power supply: +3.3VDC (3.14 ~ 3.45V), 190mA.

[9] Working temperature: -40°F~185°F (-40°C~85°C), humidity: 5% ~ 90%.

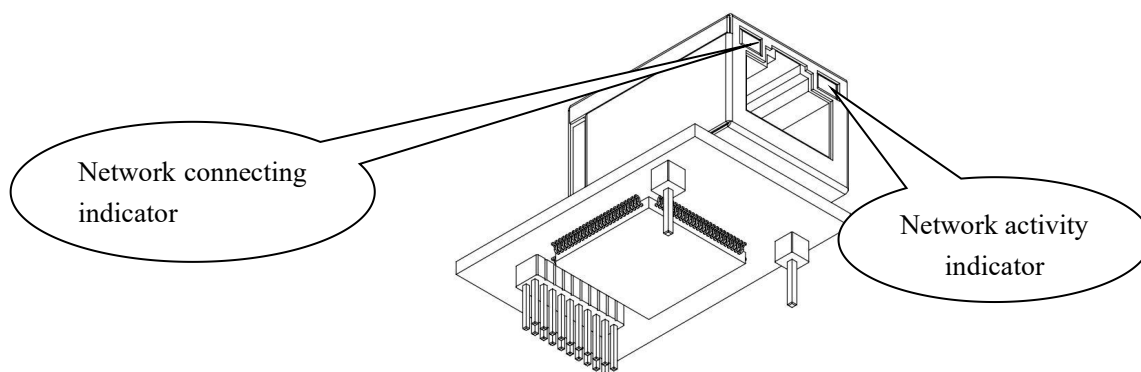
[10] Dimensions (L x W x H): 1.51 in x 0.91 in x 0.85 in (38.3mm x 23.0mm x 21.5mm).

1.4 Revision History

Revision	Date	Chapter	Description
V2.0	7/8/2025	PART	Updated Chapter 6
V1.4 Rev B	1/4/2023	PART	Updated the description of the evaluation board
V1.4 Rev A	6/24/2022	PART	Revision for GS11-EI V1.4 Rev A
V1.4	3/1/2022	PART	Revision for GS11-EI V1.4
V1.3	5/10/2018	ALL	New release

2. Hardware Description

2.1 Product Appearance

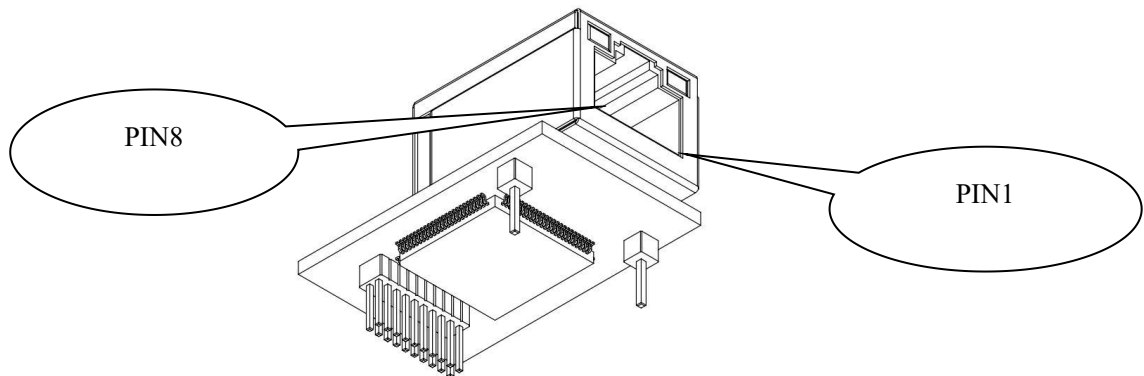


2.2 Indicators

Indicator	Status	Description
Green	Off	No network connection
	Always on	Have network connection
Yellow	Off	No network data transmitting or receiving
	Blinking	Have network data transmitting or receiving

2.3 Interface

2.3.1 Ethernet Interface



The Ethernet interface uses a standard 8-pin RJ-45 connector. The pin definitions are as follows.:

Pins	Signals	Descriptions
Pin 1	TXD+	Transmit Data+
Pin 2	TXD-	Transmit Data-
Pin 3	RXD+	Receive Data+
Pin 4	BID+	Bi-directional Data+
Pin 5	BID-	Bi-directional Data-
Pin 6	RXD-	Receive Data-
Pin 7	BID+	Bi-directional Data+
Pin 8	BID-	Bi-directional Data-

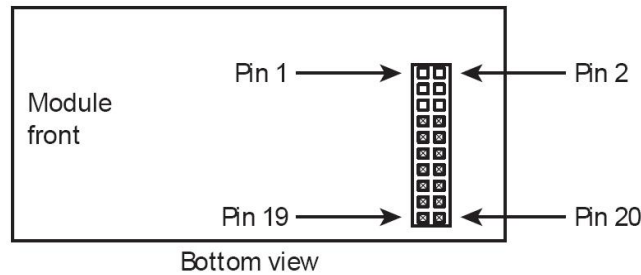
2.3.2 Host Interface

GS11-EI has a 20-pin socket connector (needle-type), including power, UART and GPIO. The pin position and definition are as follows:

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Pins	Signals	Description
1 ~ 6	NC	Reserved
7	RXD	UART Receive (Input), connect with TXD of host processor or MCU
8	TXD	UART Transmit (Output), connect with RXD of host processor or MCU
9	GPIO	Reserved
10	/RUN	The status of GS11-EI (Output), and need a 10K pull-up resistor on user board. Logic 1: The GS11-EI module is in starting. Logic 0: The module's startup has been completed. (This includes states such as waiting for initialization, start the EtherNet/IP protocol stack and data exchange state, etc.) If this pin is pulled low before starting the module (by using a 1K pull-down resistor), the module will start with default IP address (192.168.0.11), and this mode is only used to update the firmware.
11	BAUD2	Set the UART baud rate (Input), see the following table.
12	BAUD1	
13	BAUD0	
14	/RESET	Reset signal (Input), Active low.
15	+3.3V	+3.3V DC power Supply
16	GND	GND power Supply
17 ~ 19	NC	Reserved
20	/DATAEXCH	Data Exchange (Output), and need a 10K pull-up resistor on the user board. Logic 1: The module is in non-data exchange state (such as start state, waiting for

		initialization state, start the EtherNet/IP protocol stack, etc.) Logic 0: The module is ready for data exchange.
--	--	--

2.4 UART Baud Rate

UART baud rate settings are as follows:

Index	BAUD2	BAUD1	BAUD0	Baud Rate (bps)
0	0	0	0	2400
1	0	0	1	4800
2	0	1	0	9600
3	0	1	1	19200
4	1	0	0	38400
5	1	0	1	57600
6	1	1	0	115200
7	1	1	1	230400

2.5 Reset Signal

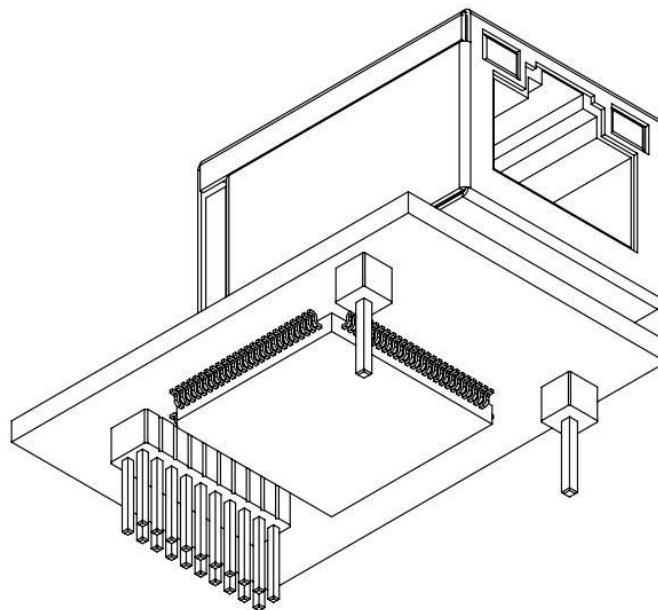
GS11-EI RESET (Pin 14) is a hardware reset signal input. When the RESET pin is pulled low (to GND or below 2.88V) for at least 1 millisecond, the module resets. After approximately 250 milliseconds, the host should check PIN10 (/RUN) and PIN20 (/DATAEXCH). If both pins are Logic 0, data exchange can begin.



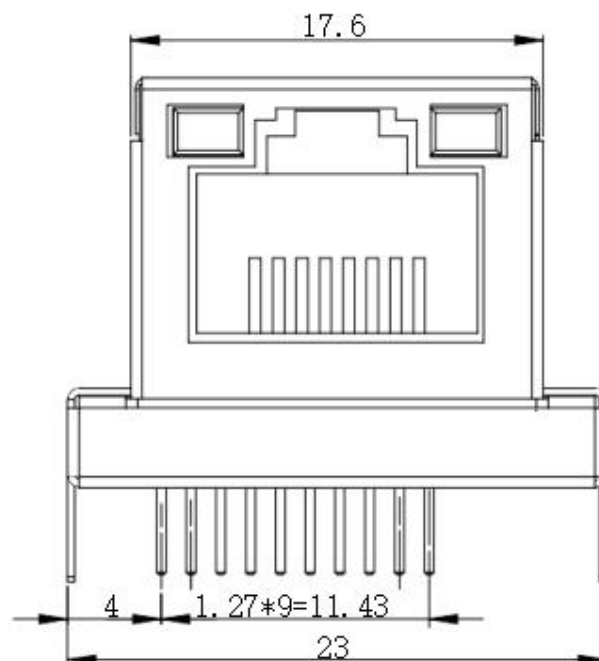
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3. Dimensions

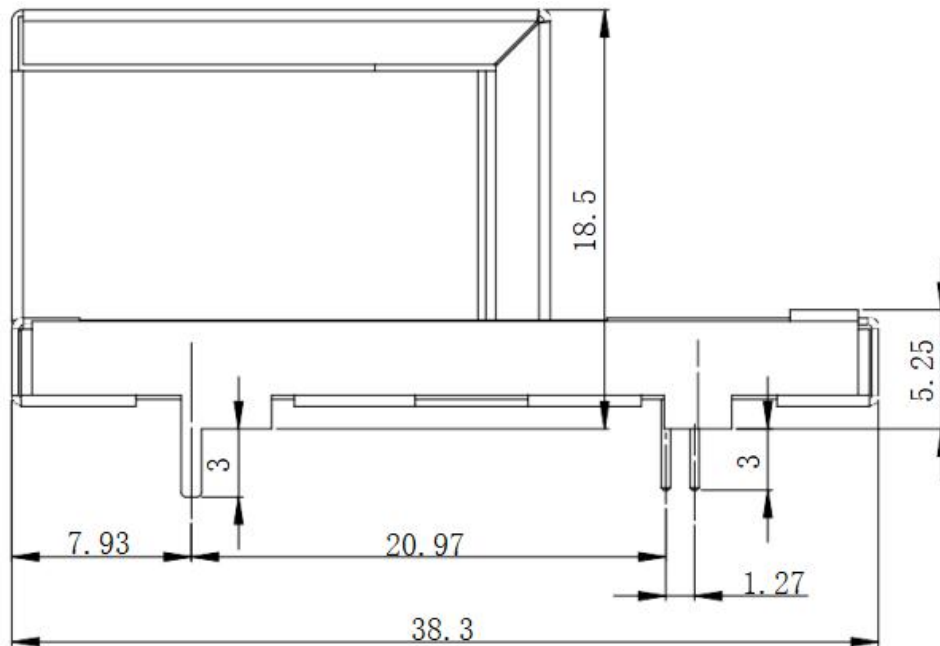
Unit: [mm]



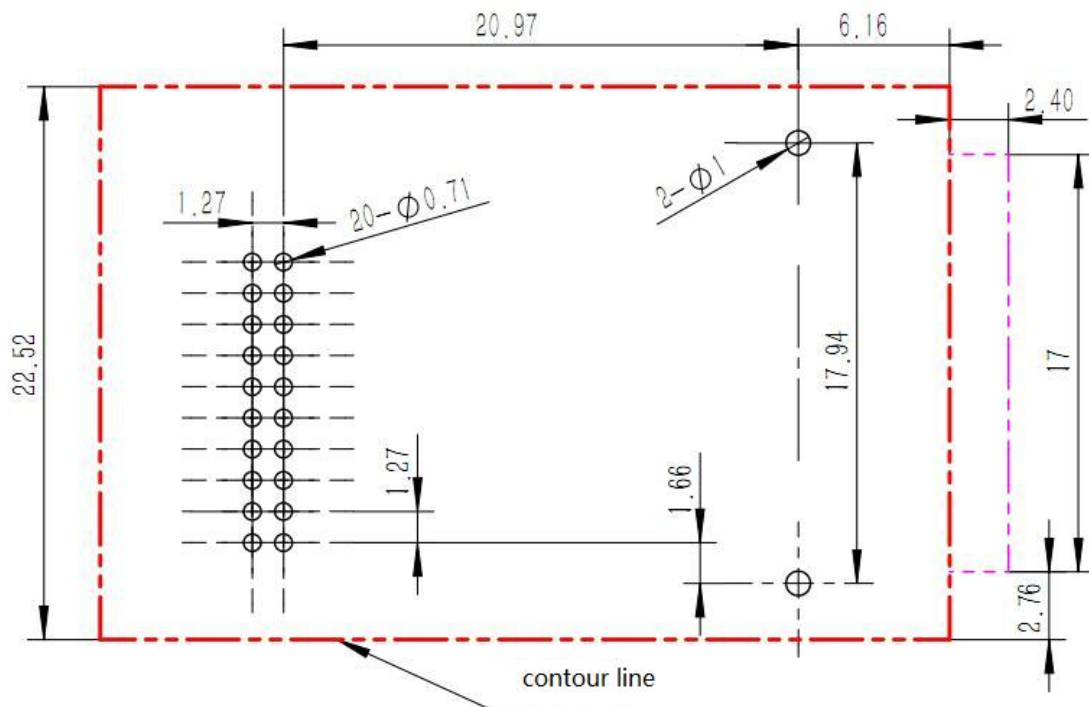
Front:



Side:



PCB dimension:

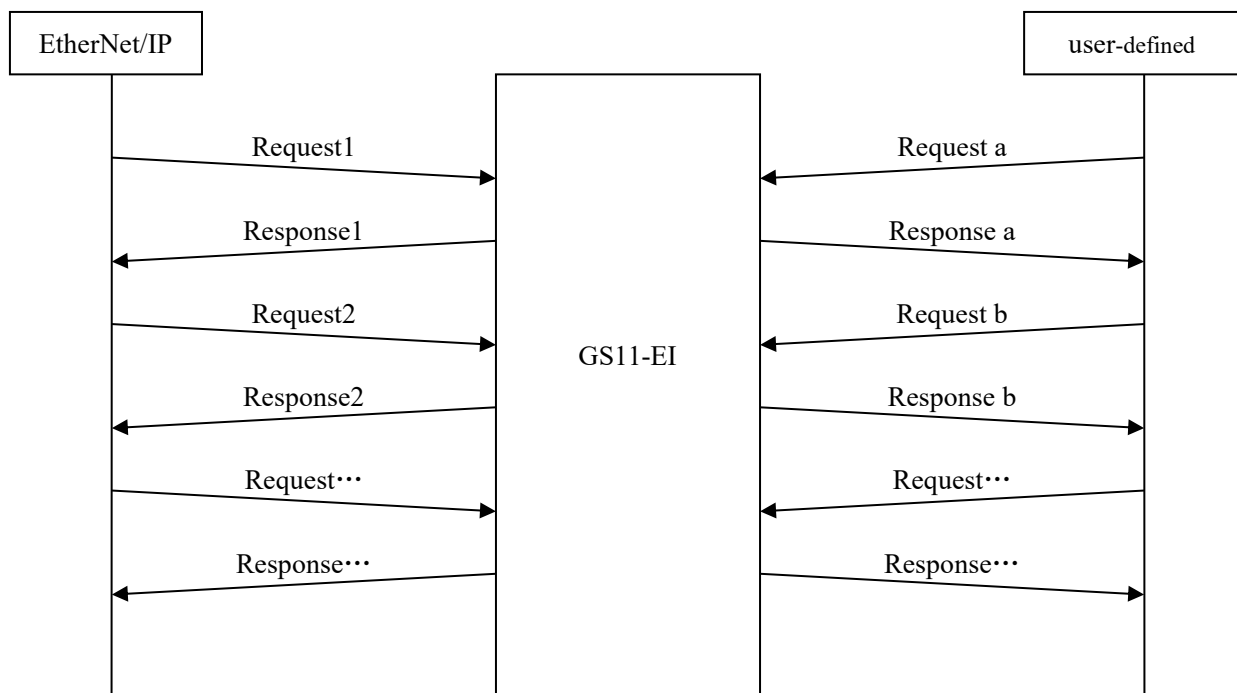


4. Communication Protocol

4.1 Description

GS11-EI acts as an EtherNet/IP server at the Ethernet side, serial port uses user-defined protocol. The EtherNet/IP communication and serial communication are completely independent. The data exchange can be finished through the internal input and output data buffer of GS11-EI. According to the GS11-EI serial communication protocol, the user board can complete the input and output data exchange.

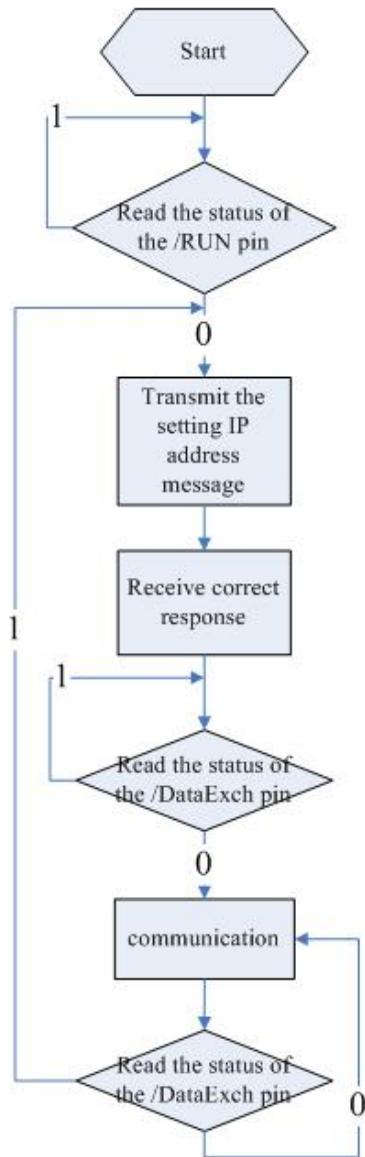
The procedure of message transmission is as follows:



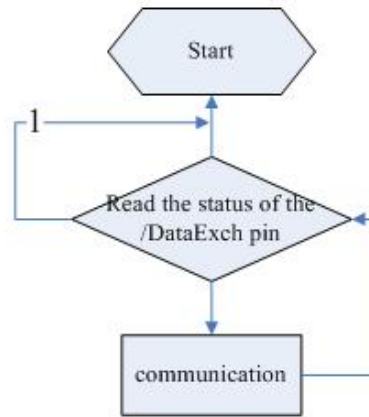
4.2 The GS11-EI Communication Flowchart and User Program

Here are the flowcharts of two kinds of IP configuration; users can choose one of them in accordance with specific conditions. For the chooses of this two kinds, see also the Advanced Parameters section in [Chapter 6.4](#).

The communication flow chart of using serial port (UART) setting method:



The communication flow chart of using PC configuration software setting method:



4.3 Real-time monitoring IP function

If the GS11-EI is configured for DHCP, it monitors its IP address during operation. If IP changed, it will pull up /DataExch pin to logic 1. Then two cases:

1. Using configuration software to set IP address mode: The module will obtain an IP again. User needs to read //DATAEXCH pin state. If it returns to logic 0, indicating that the module has obtained IP, and the module can

begin to communicate;

2. Using UART to set IP address mode: GS11-EI will wait the user to send the setting IP address message, and the next step is the same with the first initialization.

4.4 Initialize Communication

Communication mode: user board (host) is the communication initiator, and GS11-EI responses.

Configuration of baud rate: GS11-EI reads these pins BAUD0, BAUD1 and BAUD2 that select the UART baud rate when it power on or reset.

1. Initialize request message--- (user board->module), When you choose to use the serial port (UART) to set the IP address and other information, you can sent this initialization request message.

Byte	EtherNet/IP to user-defined protocol
0	Message length (17 bytes, excluding checksum and length fields) , high-byte first
1	
2	The default value is 0; when user set GS11-EI via UART that use DHCP to assign IP address, the value of this byte is 1 *
3	IP Configuration Mode, 0: Static Configuration; 1: DHCP ;
4	IP Address, high-byte first
5	
6	
7	
8	Subnet Mask, high-byte first
9	
10	
11	
12	Default Gateway Address, high-byte first
13	
14	
15	
16	Reserved, always 0
17	Reserved, always 0
18	Reserved, always 0
19	Check sum, byte 0+byte 1+...+byte 18

Remarks:

When configuring the GS11-EI module via UART to use DHCP to assign IP address, user board sends above message (the value of byte 2 should be 1).

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And then, when GS11-EI does not receive the IP address that assigned by DHCP Server on the network, it will send 0x2E to user board every 1second.

If DHCP Server finished IP allocate, then GS11-EI will send a message that contained IP address, subnet mask, and default gateway to user board.

For example: GS11-EI sends message to user board: 0C C0 A8 00 BB FF FF FF 00 C0 A8 00 01 95.

The 0x0C is the header and means there are 12 bytes behind, and followed by is a 4 bytes of IP address (192.168.0.187), 4 bytes of subnet mask (255.255.255.0), 4 bytes The default gateway (192.168.0.1), the last byte represents checksum.

when user set the GS11-EI module IP address via UART and does not use DHCP, user board sends above message (the value of byte 2 should be 0) , and then the module will send the following message to the user board.

1. Initialize response message--- (module->user board)

byte	Correct Response	Incorrect Response
0	Data length is 2	Data length is 2
1	0: Correct	Error code (not 0)
2	0	Extra error code
3	Check sum, byte 0+byte 1+byte 2	Check sum, byte 0+byte 1+byte 2

2. Error code

Index	Error Code	Explanation
0	1	Check sum error.
1	2	Data length error.
2	3	IP configuration mode does not exist.

3. Extra error code is always 0xFF

4.5 User-defined Protocol

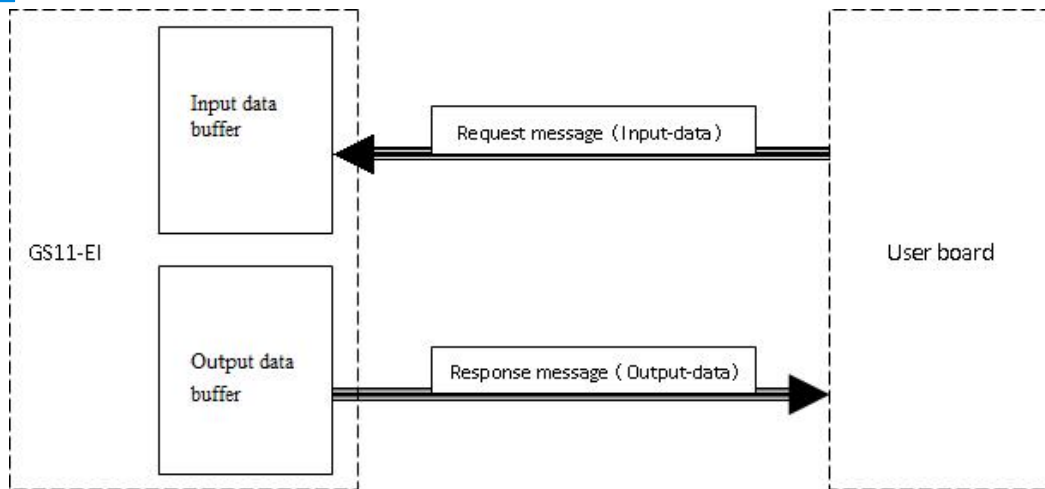
Communication mode: The user board initiates communication, and the GS11-EI responds.

The request messages contain input data, and the response messages contain output data. The communication process is as follows:

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1. Request message (user board -> module)

Byte	Description
0	message length includes all following bytes except the check sum byte , high-byte first
1	
2	Input data, high-byte first
...	
n	
n+1	Check sum, byte 0+byte 1+...+byte n

2. Response message of user-defined protocol (module -> user board)

Byte	Correct response	Byte	Incorrect response
0	message length includes all following bytes except the check sum byte , high-byte first	0	0x80
1		1	Data length is2
2	Output data, high-byte first	2	Error code
...		3	Extra error code
n		4	Check sum, byte 0+byte 1+byte 2+byte3
n+1	Check sum, byte 0+byte 1+...+byte n		

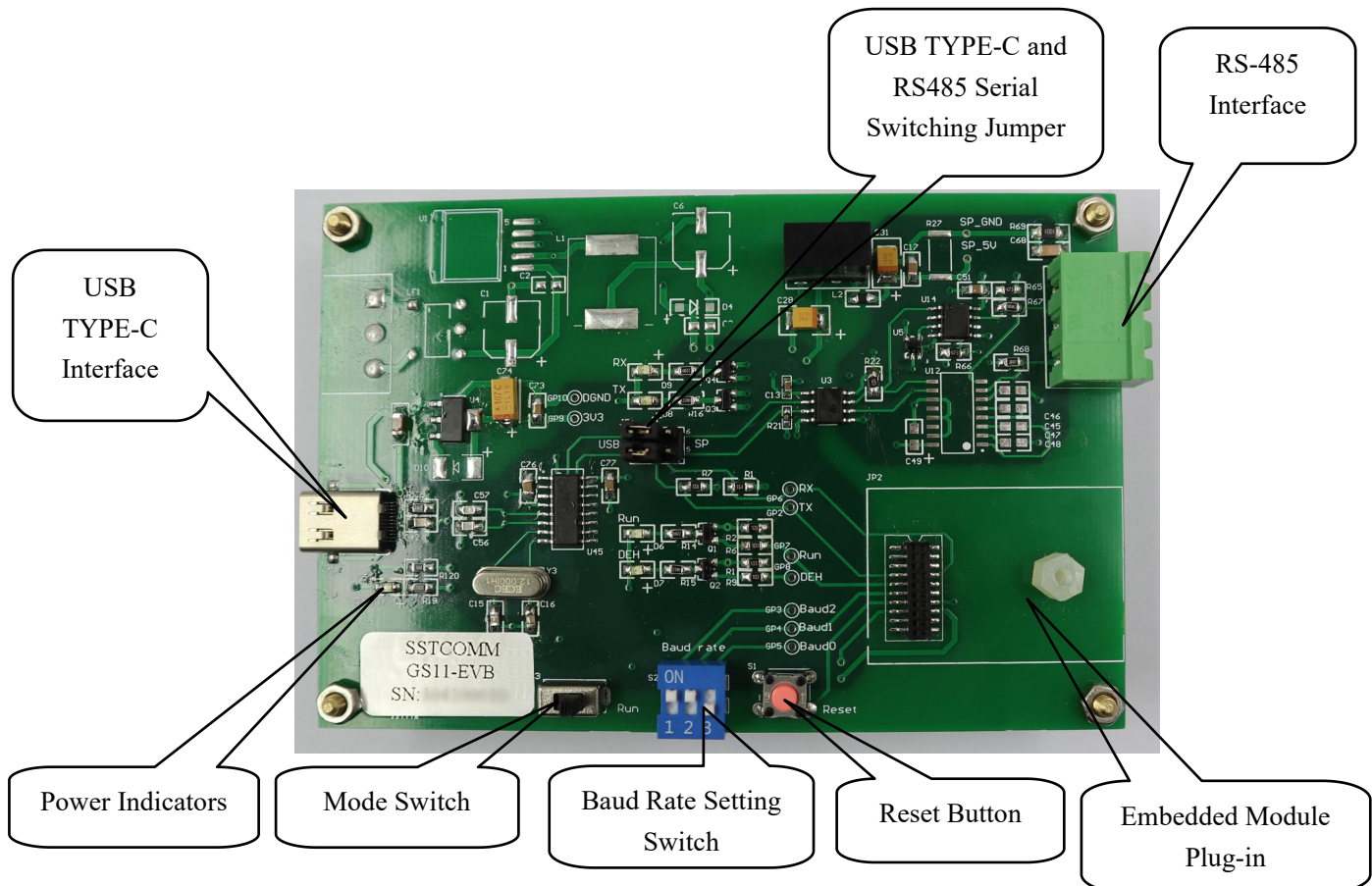
3. Error code

Index	Error code	Description
0	1	Sum CRC Error
1	2	Data Length Error

4. Extra error code is always 0xFF.

5. Evaluation Board

5.1 Appearance

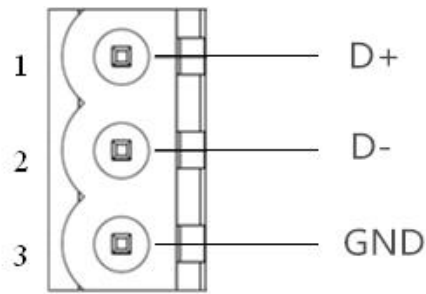


5.2 Function

5.2.1 RS485 Interface

The EV board uses a three-pin pluggable terminal for RS-485:

Pin	Function
1	D+, RS485 Data Positive
2	D-, RS485 Data Negative
3	GND



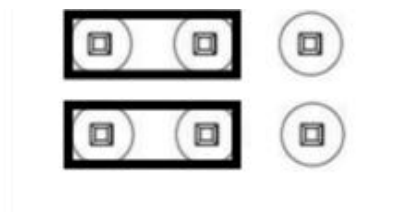
5.2.2 USB TYPE-C Interface

1. Support USB power supply;
2. Support Serial communication, can be a communication port.

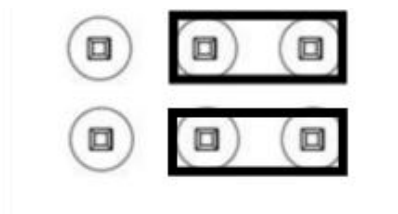
5.2.3 Serial Switching Jumper

The interface switching jumper is located in the middle of the evaluation board; users can switch USB TYPE-C communication or serial communication according to actual needs.

1. When the jumper is connected to the middle two pins and the left two pins, the evaluation board uses USB TYPE-C for communication.

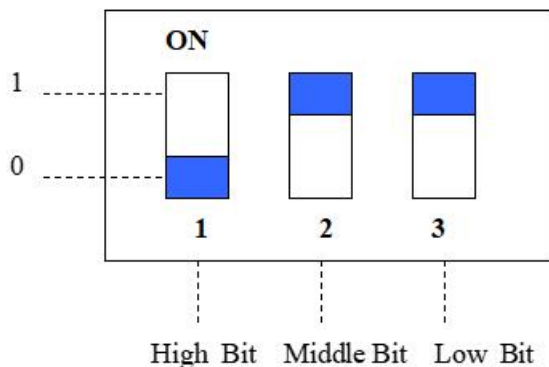


2. When the jumper is connected to the middle two pins and the right two pins, the evaluation board uses RS-485 for communication.



5.2.4 Baud Rate Setting Switch

The 3-bit DIP switch on the development board is used to set the serial (UART) baud rate, shown as below:

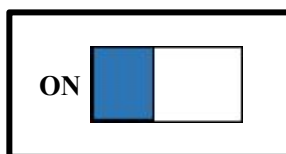


Corresponding relationship of baud rate is as follows:

Index	High bit	Middle bit	Low bit	Corresponding baud rate (bps)
0	0	0	0	2400
1	0	0	1	4800
2	0	1	0	9600
3	0	1	1	19200
4	1	0	0	38400
5	1	0	1	57600
6	1	1	0	115200
7	1	1	1	230400

The baud rate showing in the picture is 19200bps.

5.2.5 Mode Switch



The DIP switch on the left is the mode switch. When set to 'ON', the module enters firmware update mode (disabling normal communication) and will start with the default IP configuration. IP address: 192.168.0.11

Subnet mask: 255.255.255.0

Default gateway: 192.168.0.1

5.2.6 Reset Button

The button on the development board is the reset button, which is used to manually reset GS11-EI through clicking once.

5.2.7 LED

There are five indicators on the evaluation board, and the description is as follows:

Index	Name	Description
0	Power	Power indicator, in orange. On: Power on; Off: Power off
1	TX	GS11-EI'UART transmits indicator, in green. Blinking: GS11-EI'UART is transmitting data. Off: GS11-EI'UART isn't transmitting data.
2	RX	GS11-EI'UART receives indicator, in green. Blinking: GS11-EI'UART is receiving data. Off: GS11-EI'UART isn't receiving data.
3	Run	GS11-EI status indicator, in green. On: In run status. Off: In start-up status.
4	DataExch	GS11-EI data exchange indicator, in green. On: In data exchange status. Off: Not in data exchange status.

5.3 Wiring

Take USB power supply and serial communication as an example, the wiring is shown in the figure.

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Note: The serial interface switching jumper is connected to the middle two pins and the left two pins.

6. Configuration Software

Download the SST-EIP-CFG software from the SSTComm website and follow the prompts to complete the installation.

6.1 SST-EIP-CFG Introduction

SST-EIP-CFG is a product based on Windows platform, and is used to configure parameters of GS11-EI, Double click the icon to run the SST-EIP-CFG and its main window will appear as below:



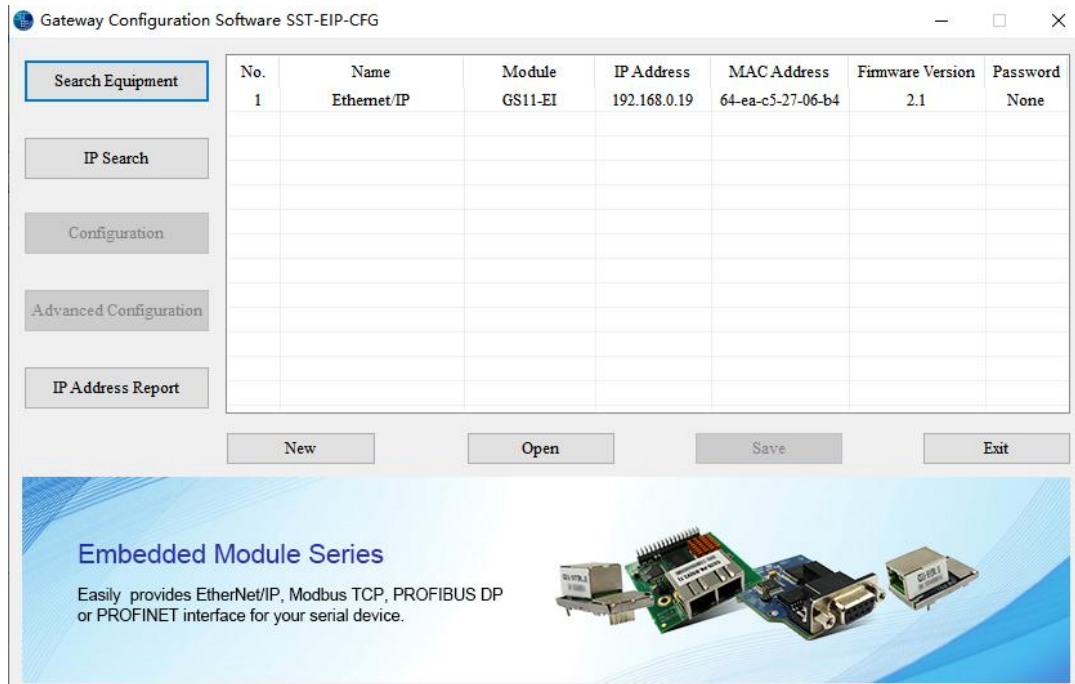
6.2 Search Equipment

Before parameters configuration of GS11-EI, you need to search the equipment. Click the "Search Equipment" button in the main window, SST-EIP-CFG will automatically list all of the GS11-EI on the network, as shown below.

GS11-EI

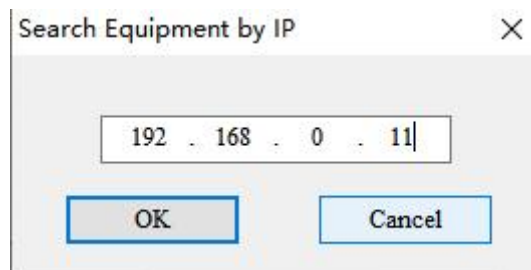
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6.3 IP Search

When user just wants to search a known IP address device on the network, click “IP Search” button in the main window, and there will be popping up a dialog box: Fill in the IP address you want to search in the window and click OK.



The SST-EIP-CFG will list the searched equipment in the table, as shown below.

GS11-EI

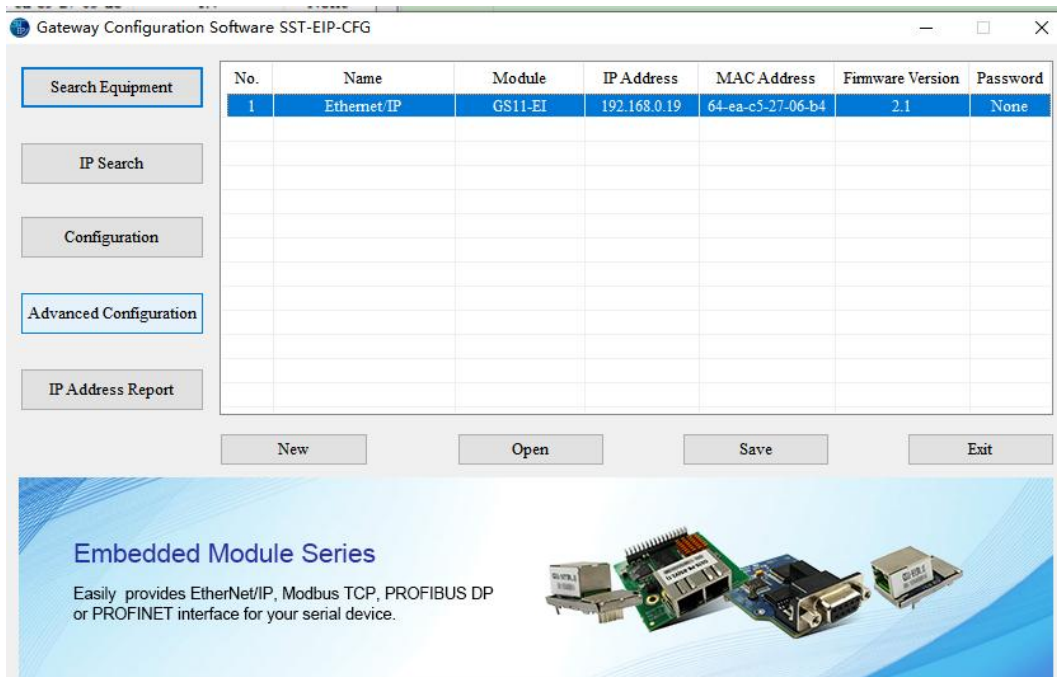
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6.4 Advanced Configuration

Note: The Advanced configuration is used to set your product-related parameters, here you need to set the administrator password to prevent other users modify the Advanced parameters through the SST-EIP-CFG. Select one device in the main window, Click “Advanced Configuration” button.



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It will pop up the following interface:

Advanced Configuration

Ethernet Password IP Address Report Advanced Parameters

Notice: The name length cannot be more than 20!

Network Name Ethernet/IP

Assign IP Mode Manually Assign

IP Address 192 . 168 . 0 . 19

Subnet Mask 255 . 255 . 255 . 0

Default Gateway 192 . 168 . 0 . 1

DNS1 0 . 0 . 0 . 0

DNS2 0 . 0 . 0 . 0

OK Cancel Help

In this interface, users can configure: Ethernet, Password, IP Address Report and Advanced Parameters. The following describes the above interface.

➤ Ethernet Parameters: (as shown above)

- Name——Enter a name to identify the GS11-EI module, it can also be the name of user's final product;
- IP Configuration Mode——Set the device's IP address configuration mode, Static or DHCP;
- IP Address——Set the device's IP address;
- Subnet Mask——Set the subnet mask of the device;
- Default Gateway——Set the default gateway address of the device;
- DNS1——currently not supported
- DNS2——currently not supported

➤ Password (as shown below)

- User Password: Refers to the password that you need to enter when you click the "advanced

configuration" button on the main screen. After the user password is set, you need to enter this password when configuring SST-EIP-CFG for user parameters. It is recommended not to set this password. This password is for your users.

- Admin Password: Refers to the password that you need to enter when you click the "Advanced Configuration" button on the main screen. After the admin password is set, you need to enter this password when configuring SST-EIP-CFG for advanced parameters. It is recommended that the user set this password after the product design is complete, in case your users modify the advanced parameters.

Advanced Configuration

Ethernet Password IP Address Report Advanced Parameters

Notice: The password length cannot be more than 20!

User Password

Confirm Password

Admin Password

Confirm Password

OK Cancel Help

➤ IP Address Report:

It is used to set the GS11-EI to send a packet that reports its own current IP address, subnet mask, and default gateway to a port of the specified IP address device, which is sent as UDP. You can enable this function by clicking on the "IP Address Report" button in the main interface of SST-EIP-CFG. Click Start and the SST-EIP-CFG will list all of the messages sent by the devices on the network.

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Advanced Configuration

Ethernet Password IP Address Report Advanced Parameters

Configuration

☐ Enable

Auto Report To : 16800
(1-65535)

Auto Report Period 10 s
(1-7200)

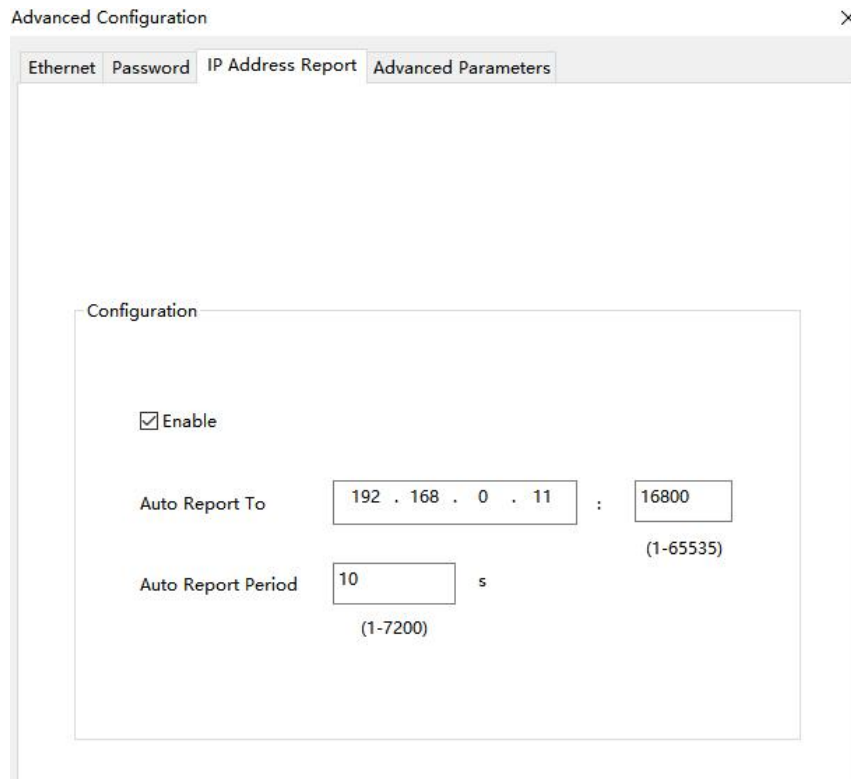
OK Cancel Help

After this function is enabled, you need to set the IP address and port number of the remote device, and the auto report period, as shown below:

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Advanced Configuration

Ethernet Password IP Address Report Advanced Parameters

Configuration

☒ Enable

Auto Report To 192 . 168 . 0 . 11 : 16800
(1-65535)

Auto Report Period 10 s
(1-7200)

➤ Advanced Parameters: (as shown above)

The way to obtain IP address

- Setting the IP address via software SST-EIP-CFG: The PC configuration software refers to SST-EIP-CFG. Your users use this software to configure network parameters (user parameter configuration).
- Setting the IP address via host interface (UART): The user board sets the IP address and other parameters through the UART. The user board sets parameters such as the IP address by sending an initialization request packet; see section 3.3.
- Ethernet/IP connection parameters: The GS11-EI supports 3 sets of connection parameters. Each set of parameters has input and output. The number of input and output bytes can be any value from 0 to 256 bytes.
- Ethernet/IP device parameters: Supports changing VendCode and ProdCode.

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Advanced Configuration

Ethernet Password IP Address Report Advanced Parameters

How to Set the Module's IP Address

☒ Setting the IP address via software SST-EIP-CFG

☐ Setting the IP address via the host interface(UART)

Ethernet/IP Connection Parameters (0~256)

Assembly Instance		Assembly Instance	
102 (Input):	64 +4(bytes)	112 (Input):	128 +4(bytes)
101 (Output):	64 (bytes)	111 (Output):	128 (bytes)
103(Configuration):	0 (bytes)	113(Configuration):	0 (bytes)

Assembly Instance	
122 (Input):	256 +4(bytes)
121 (Output):	256 (bytes)
123(Configuration):	0 (bytes)

Ethernet/IP Equipment Parameters

VendCode: 1 (1~65535) ProdCode: 2035 (1~65535)

OK Cancel Help

6.5 User Parameter Configuration

Note: The user parameter configuration is the parameters set by you, such as the IP address parameters (If the IP address obtain method in Advanced Parameters choose “Setting the IP address via software SST-EIP-CFG”, see [chapter 6.4](#))

In the main interface of the following figure, select the device need to be configured and click the "Configuration" button.

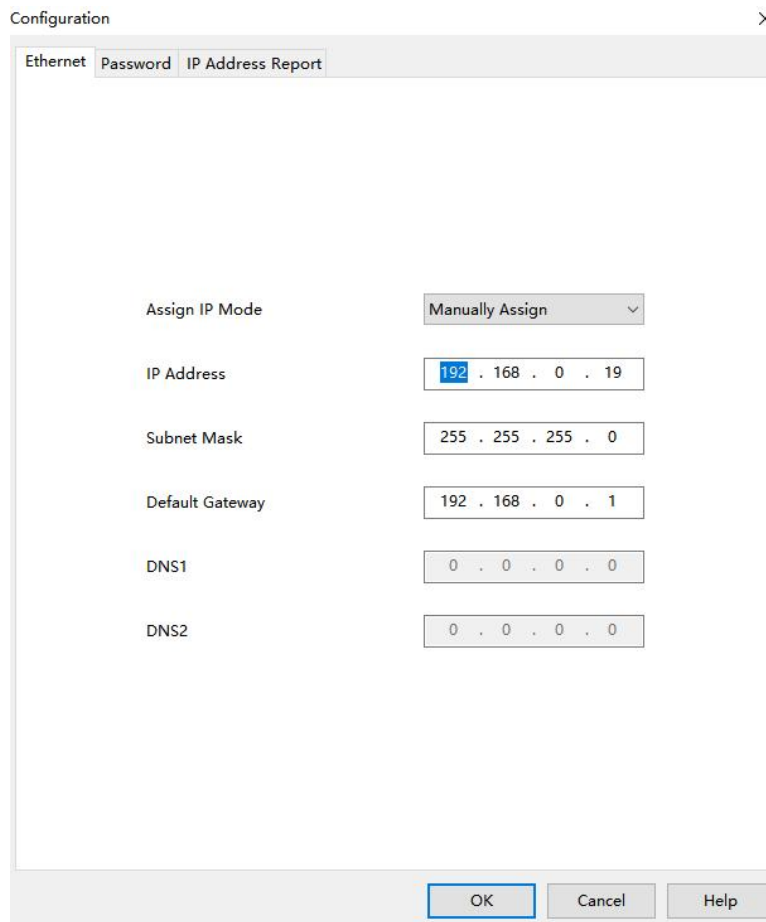
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It will pop up the following interface:



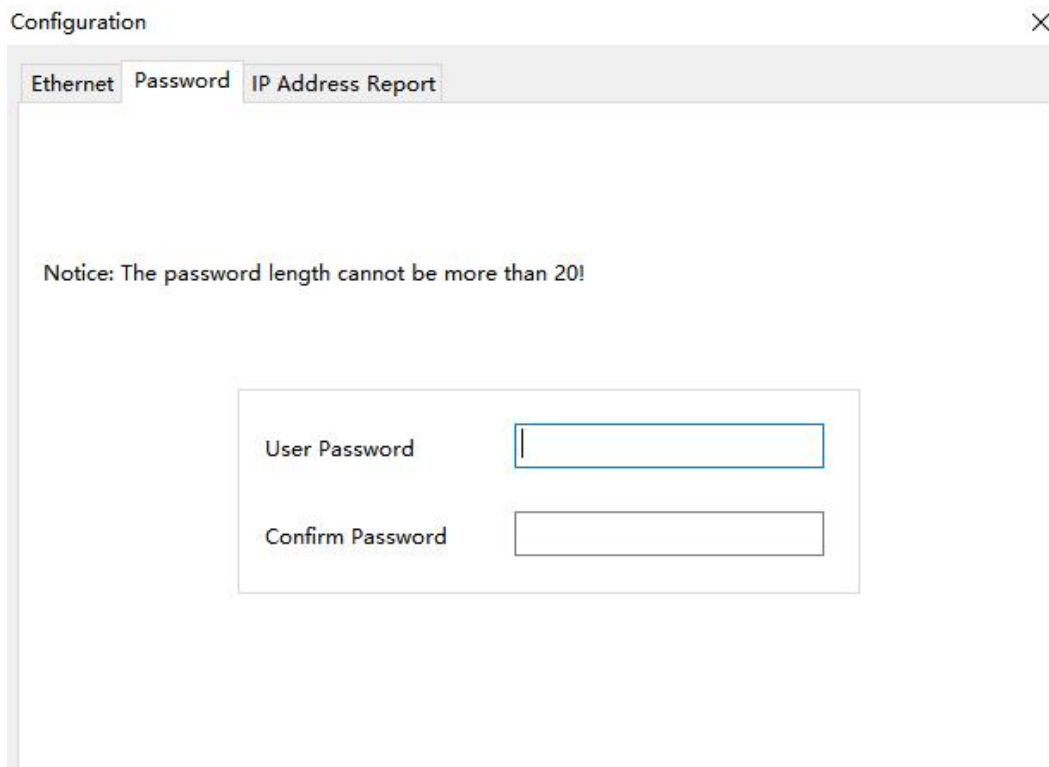
In this interface, users can configure: Ethernet, Password, IP Address Report. The following describes the above interface.

Ethernet Parameters: (as shown above)

- Name——Enter a name to identify the GS11-EI module, it can also be the name of user's final product;
- IP Configuration Mode——Set the device's IP address configuration mode, Static or DHCP;
- IP Address——Set the device's IP address;
- Subnet Masks——Set the subnet mask of the device;
- Default Gateway——Set the default gateway address of the device;
- DNS1——currently not supported
- DNS2——currently not supported

Password: (as shown below)

- User Password: Refers to the password that you need to enter when you click the "User parameter configuration" button on the main screen. After the user password is set, you need to enter this password when configuring SST-EIP-CFG for user parameters. It is recommended not to set this password. This password is for your users.



The screenshot shows a web-based configuration interface titled "Configuration" with a close button (X) in the top right corner. Below the title bar are three tabs: "Ethernet", "Password", and "IP Address Report". The "Password" tab is currently selected. Inside the tab area, there is a notice: "Notice: The password length cannot be more than 20!". Below the notice, there is a form with two input fields. The first field is labeled "User Password" and the second field is labeled "Confirm Password". Both fields are empty and have a light blue border.

It is used to set the GS11-EI to send a packet that reports its own current IP address, subnet mask, and default gateway to a port of the specified IP address device, which is sent as UDP. You can enable this function by clicking on the "IP Address Report" button in the main interface of SST-EIP-CFG. Click Start and the SST-EIP-CFG will list all of the messages sent by the devices on the network.

[illegible]

After this function is enabled, you need to set the IP address and port number of the remote device, and the auto report period, as shown below:

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Configuration

Ethernet Password IP Address Report

Configuration

☒ Enable

Auto Report To 192 . 168 . 0 . 11 : 16800
(1-65535)

Auto Report Period 10 s
(1-7200)

OK Cancel Help

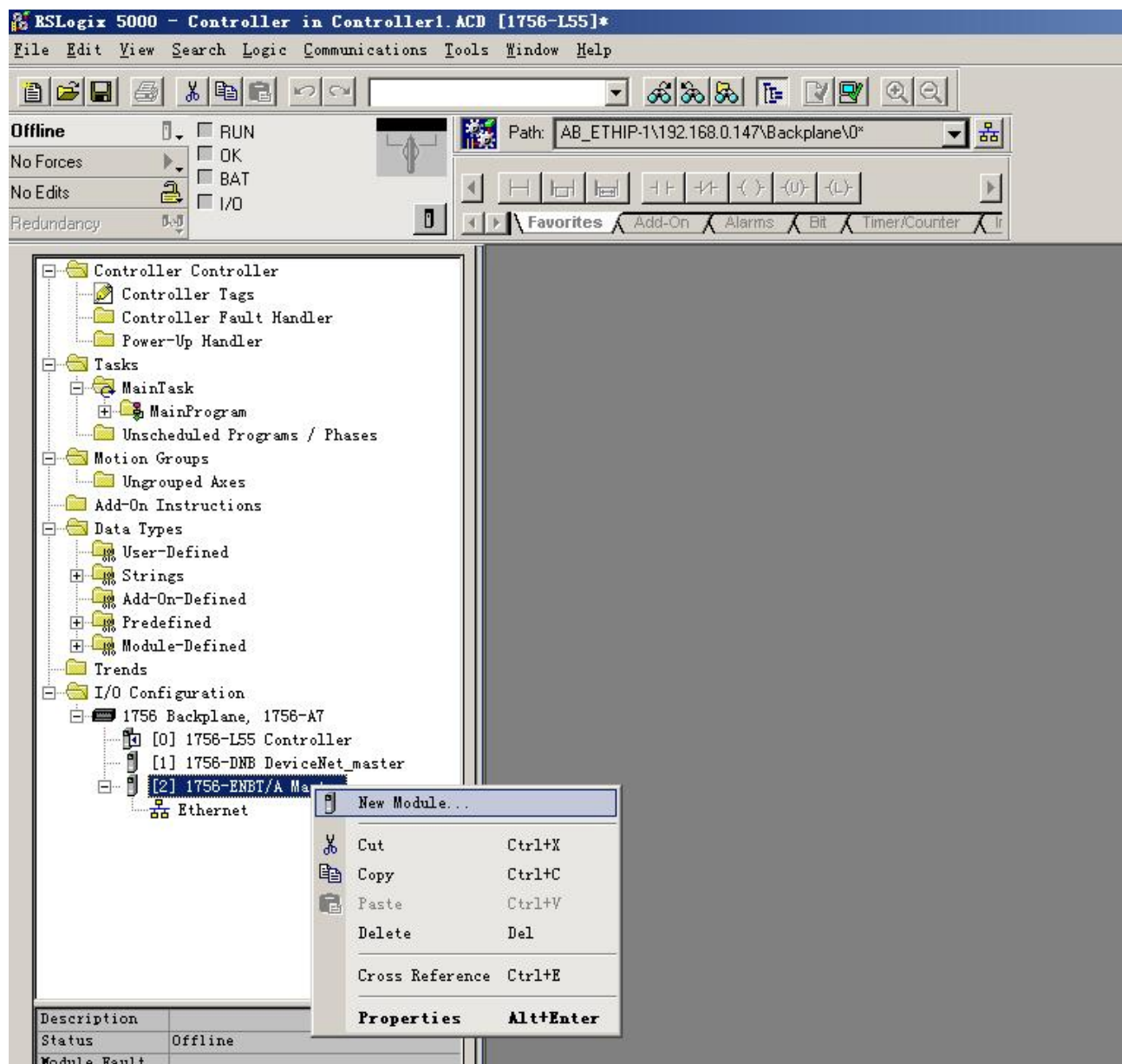
Appendix: How to Read and Write I/O Data

There are 2 ways to read and write I/O data.

Use I/O Method to Read and Write Data

The following uses RSLogix 5000 as an example to explain how to use I/O method to read and write I/O data.

Right-click on the EtherNet IP master module and choose "New Module..." as shown below:

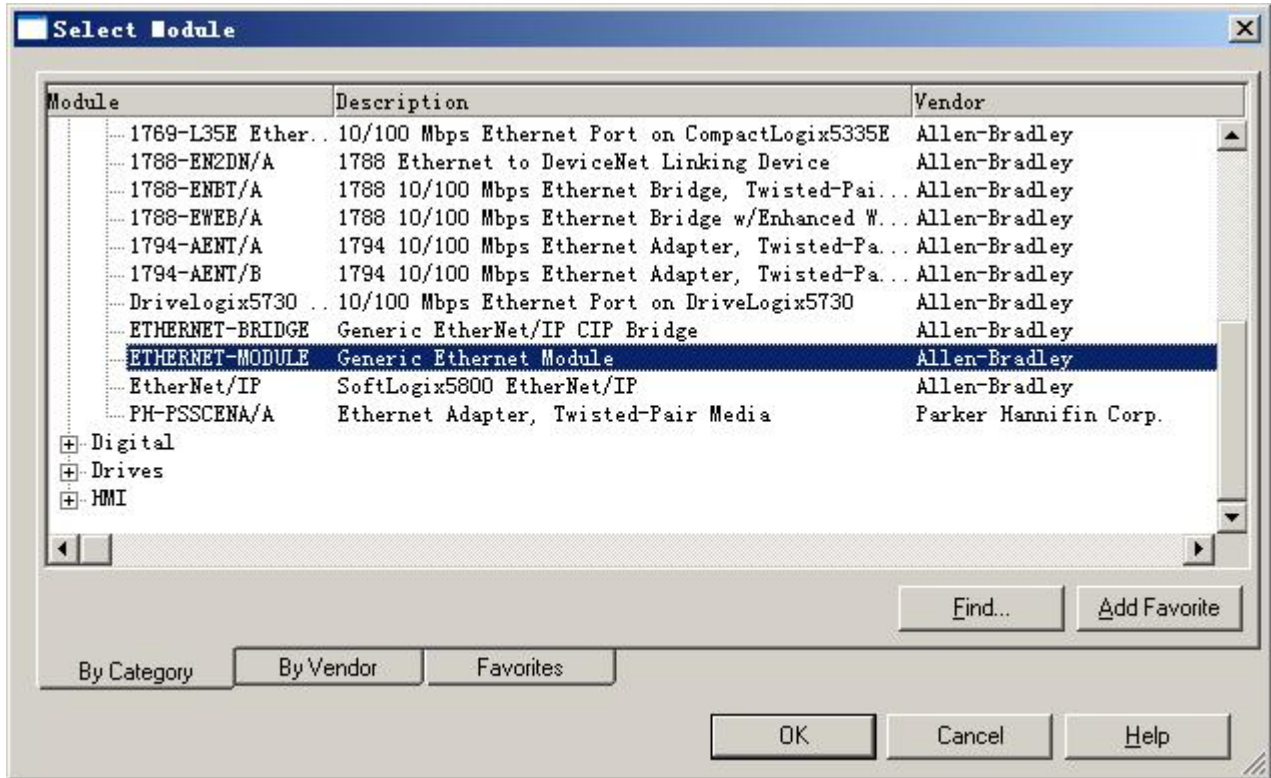


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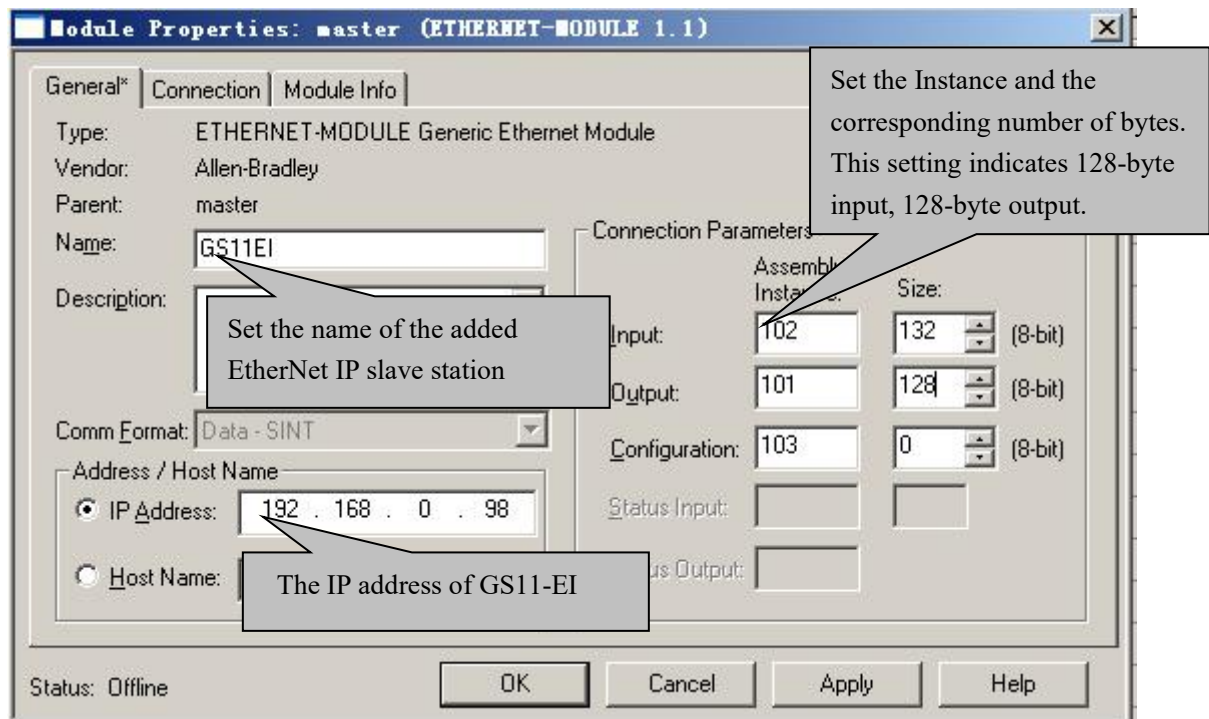
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In the pop out module selection window, click on the "+" in front of "Communications", select "ETHERNET-MODULE" and click "OK" as shown below:



Set the related information of GS11-EI in the pop out window, as shown below.



The module information that needs to be set in the above figure includes:

Name: Name the added EtherNet IP slave module (GS11-EI module)

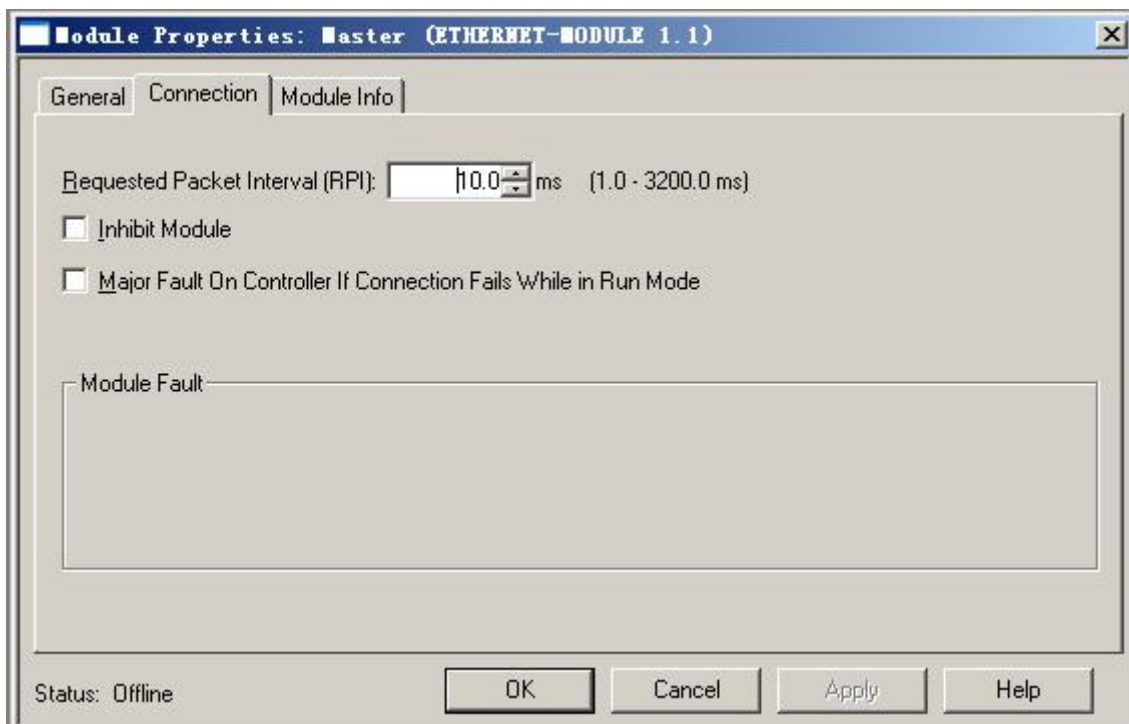
Comm Format: Set the data type. User can choose to set the data type to DINT, INT, SINT, REAL, and so on. This setting cannot be changed after confirmation. If you need to change the data type, you can create a new module.

IP Address: Set the IP address of the EtherNet IP Slave module need to be connected, it is also the GS11-EI's IP address.

Connection Parameters: Set the connection parameters used in the communication. For the connection parameters supported by the GS11-EI, see the previous chapter.

Note: The size of "Size" set in the above figure (the number of bytes set) should be consistent with the number of input and output bytes corresponding to the Instance described in the previous chapter.

Click "OK" to set the polling interval of the master station in the pop out interface. The default is 10ms, as shown below:

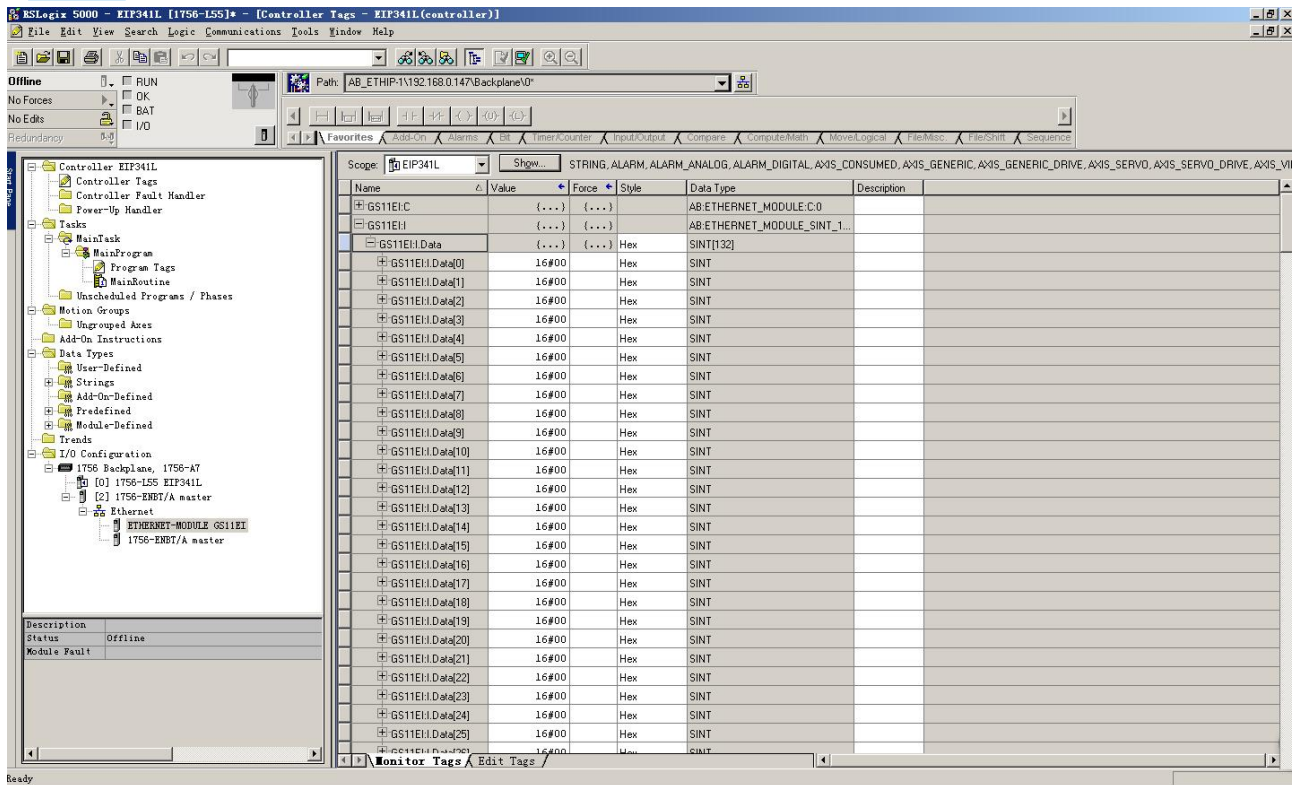


After setting the master polling interval, click "OK" to save. Double-click "Controller Tags". In the pop out window, click "GS11EI: O", as shown below:

GS11-EI

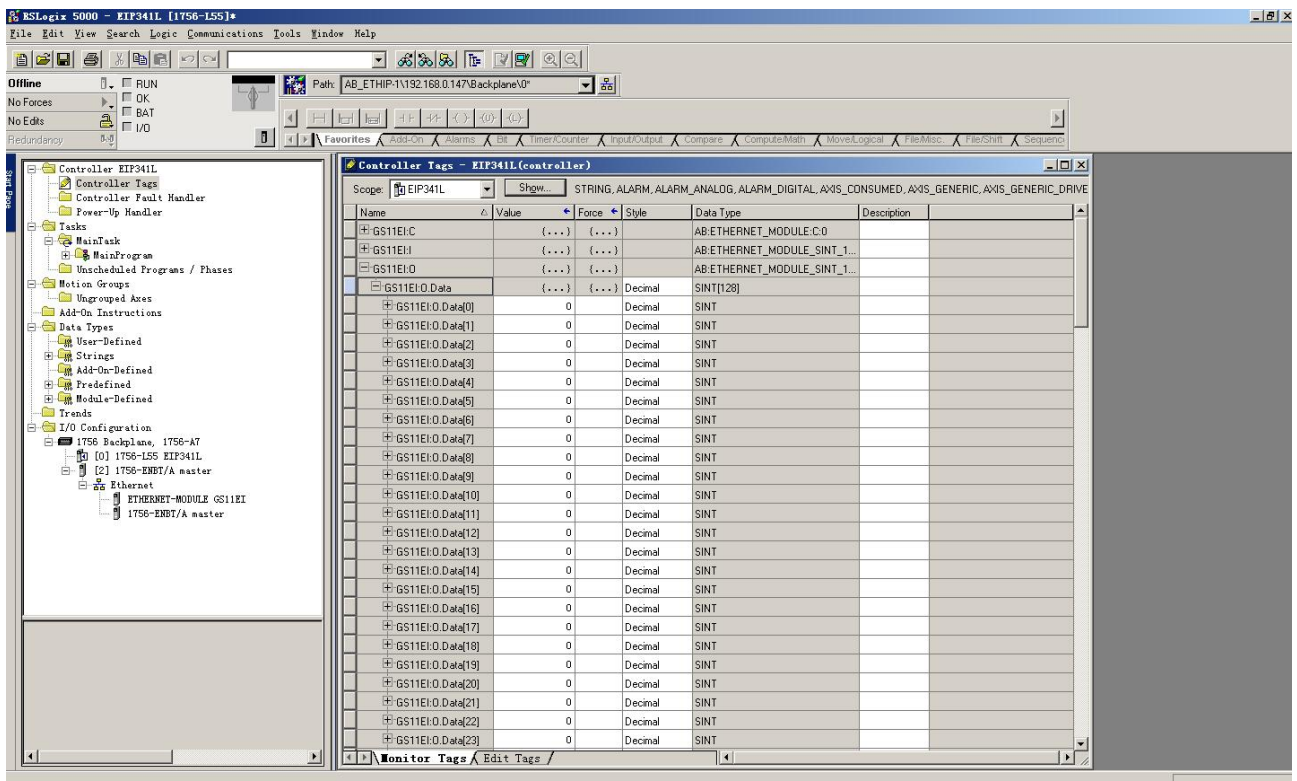
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In the figure above, GS11EI:O.Data [0]~GS11EI:O.Data [127] is the corresponding output data address of the added GS11-EI module in the master station.

Click on "GS11EI: I", as shown below:



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In the figure above, the 4 bytes corresponding to GS11EI:I.Data [0] is the real time frame header of EtherNet IP slave station.

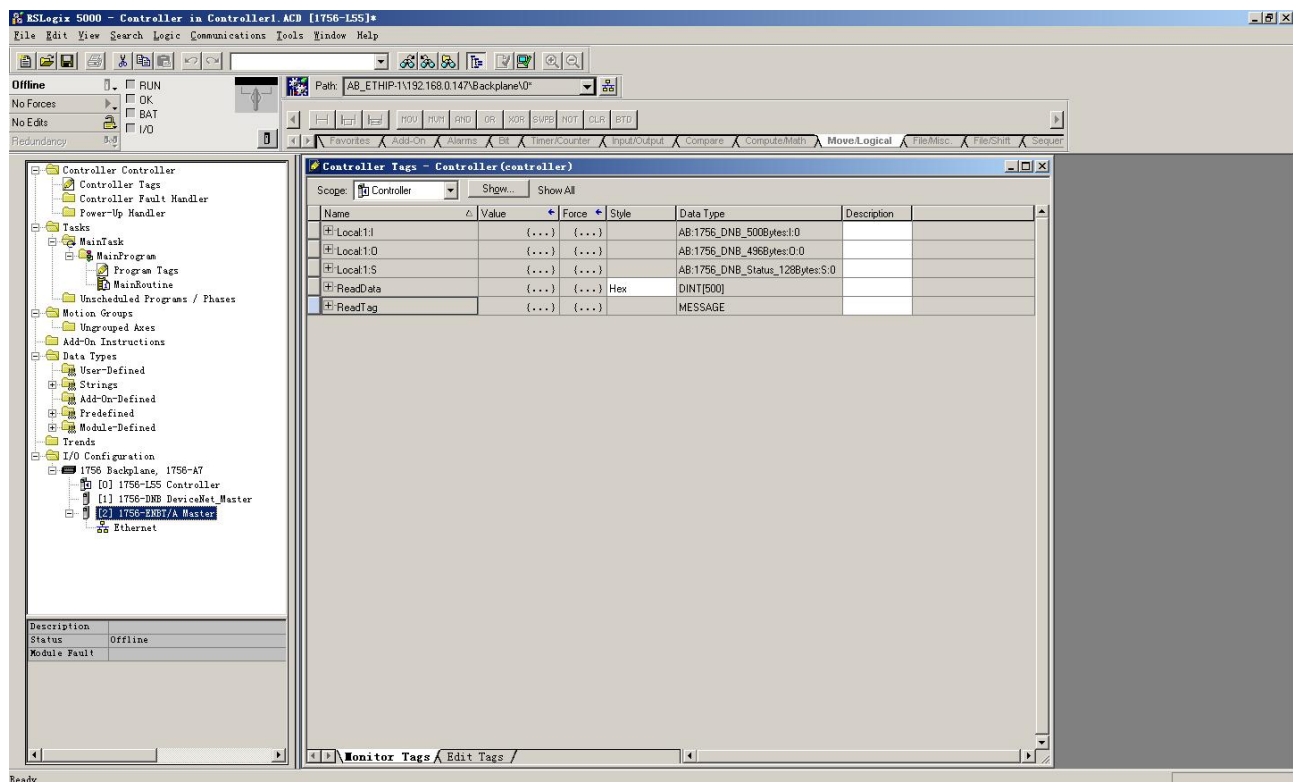
GS11EI: I.Data[1]~GS11EI: I.Data[127] is the corresponding input data address of the added GS11EI module in the master station.

Use MSG Method to Read and Write Data

The following uses RSLogix 5000 as an example to explain how to use MSG to read and write I/O data.

Read I/O Data

Create a new project and be in "Offline" mode. Add two new tags "ReadTag" and "ReadData" under "Controller Tags", and define the type of "ReadTag" as "MESSAGE" and define the type of "ReadData" as "DINT[500]":

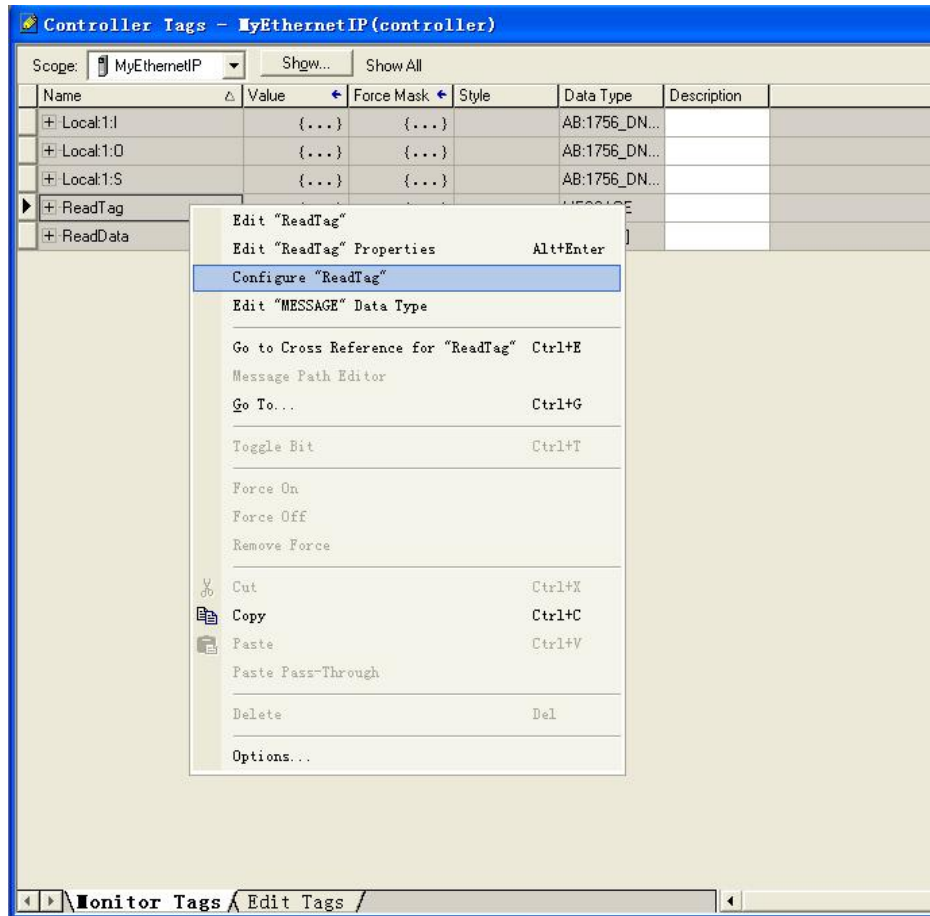


Right-click on "ReadTag" and select "Configure "ReadTag"":

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In the new window that pops out, you need to make the following settings:

Message Type: CIP Generic

Service Type: select "Get Attribute Single", at this point, the corresponding Service Code becomes to "e (Hex)"

Class:4 (Hex)

Instance:102 (64Bytes), 112 (128Bytes), 122 (256Bytes) can be set.

Attribute:3 (Hex)

Destination: Select the "ReadData" tab. At this point, the read data will be saved in this tab.

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Message Configuration - ReadTag

Configuration* | Communication | Tag

Message Type: CIP Generic

Service Type: Get Attribute Single

Source Element:

Source Length: 0 (Bytes)

Service Code: e (Hex) Class: 4 (Hex) Instance: 102 Attribute: 3 (Hex)

Destination: ReadData

New Tag...

☐ Enable
 ☐ Enable Waiting
 ☐ Start
 ☒ Done

☐ Error Code:
 ☐ Extended Error
 ☐ Timed Out

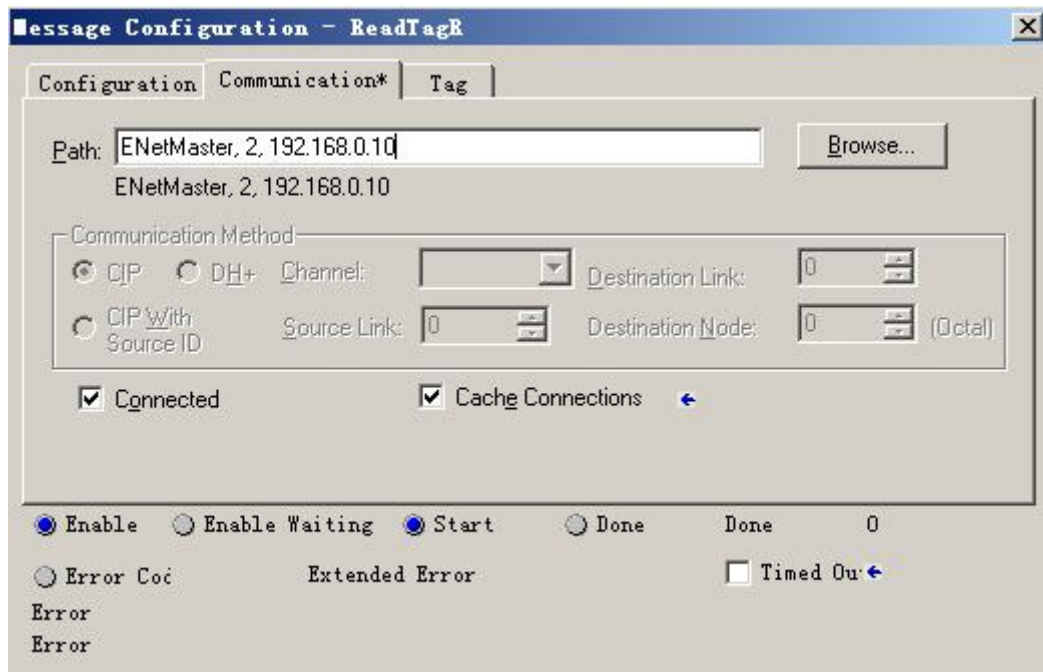
Select the Communication tab. In the space after Path, enter the path which corresponding to the connected EtherNet IP slave station. The format of the path is: the EtherNet IP master name, the slot number where the EtherNet IP master resides, and the connected EtherNet IP address. After the path is set up, click "Apply" and "Confirm". As shown below.

In this example, the name of EtherNet IP master is "Master", the EtherNet IP master station is in the slot number "2", and the connected EtherNet IP slave (GS11-EI) has the IP address "192.168.0.10".

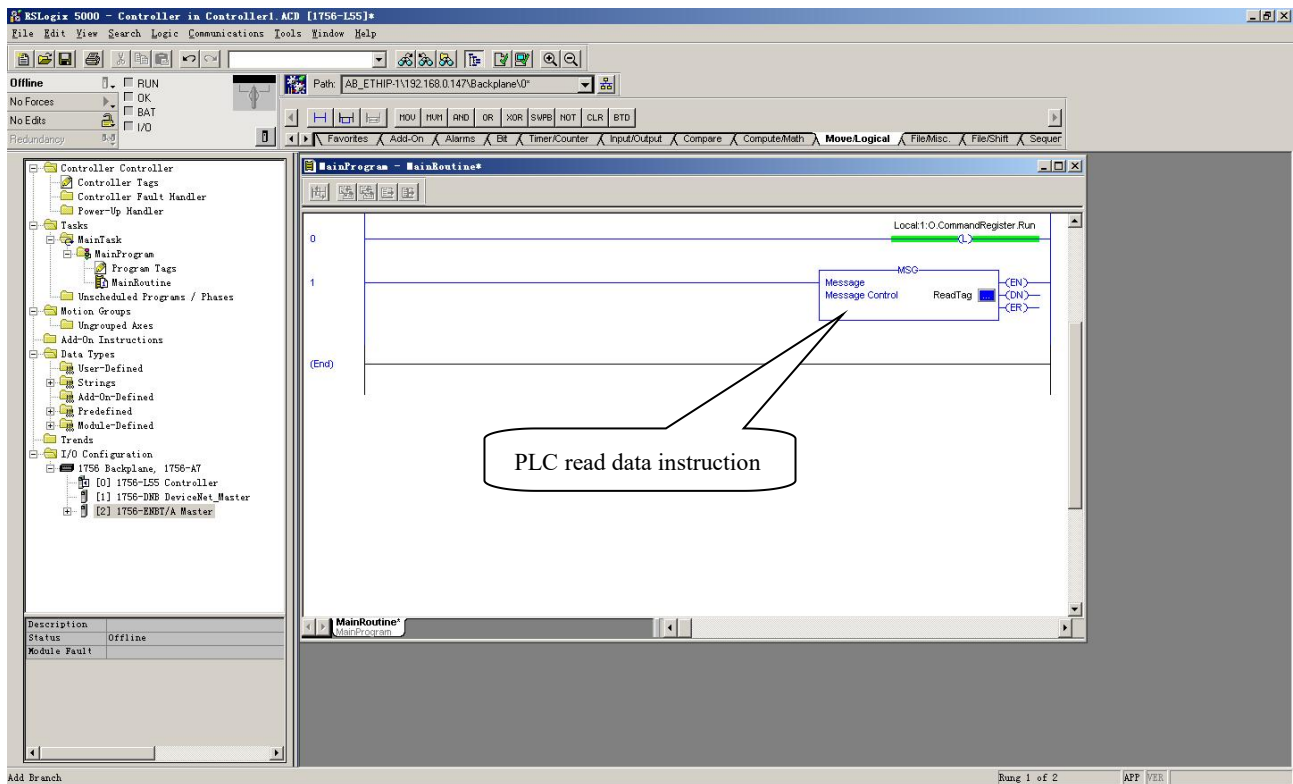
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Add a "MSG" instruction to "MainRoutine" under "MainProgram" and select "ReadTag" as "Message Control", as shown below.



This is a simple instruction that can send a read request. In a normal program, some logical commands need to be

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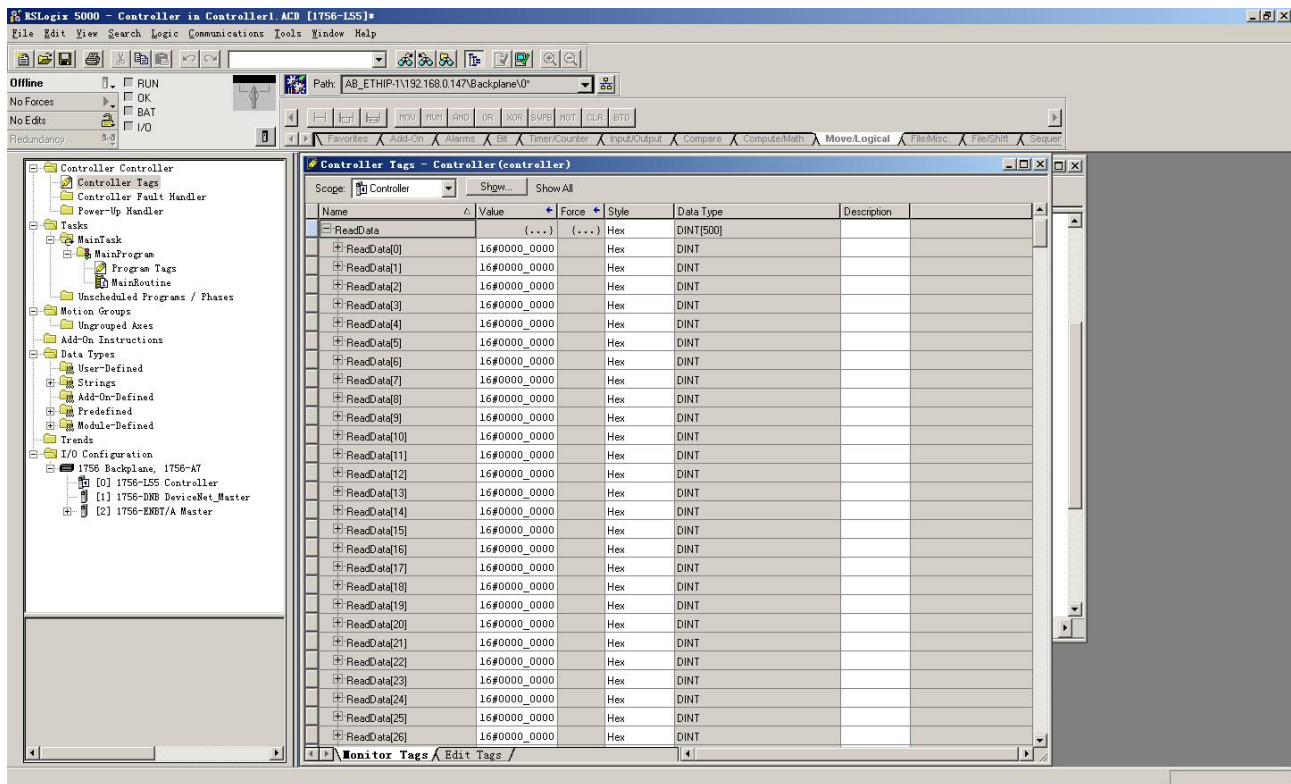
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added to trigger this instruction. For details on this instruction, refer to RSLogix5000.

Download the program to the PLC and put the PLC in the "Online" state.

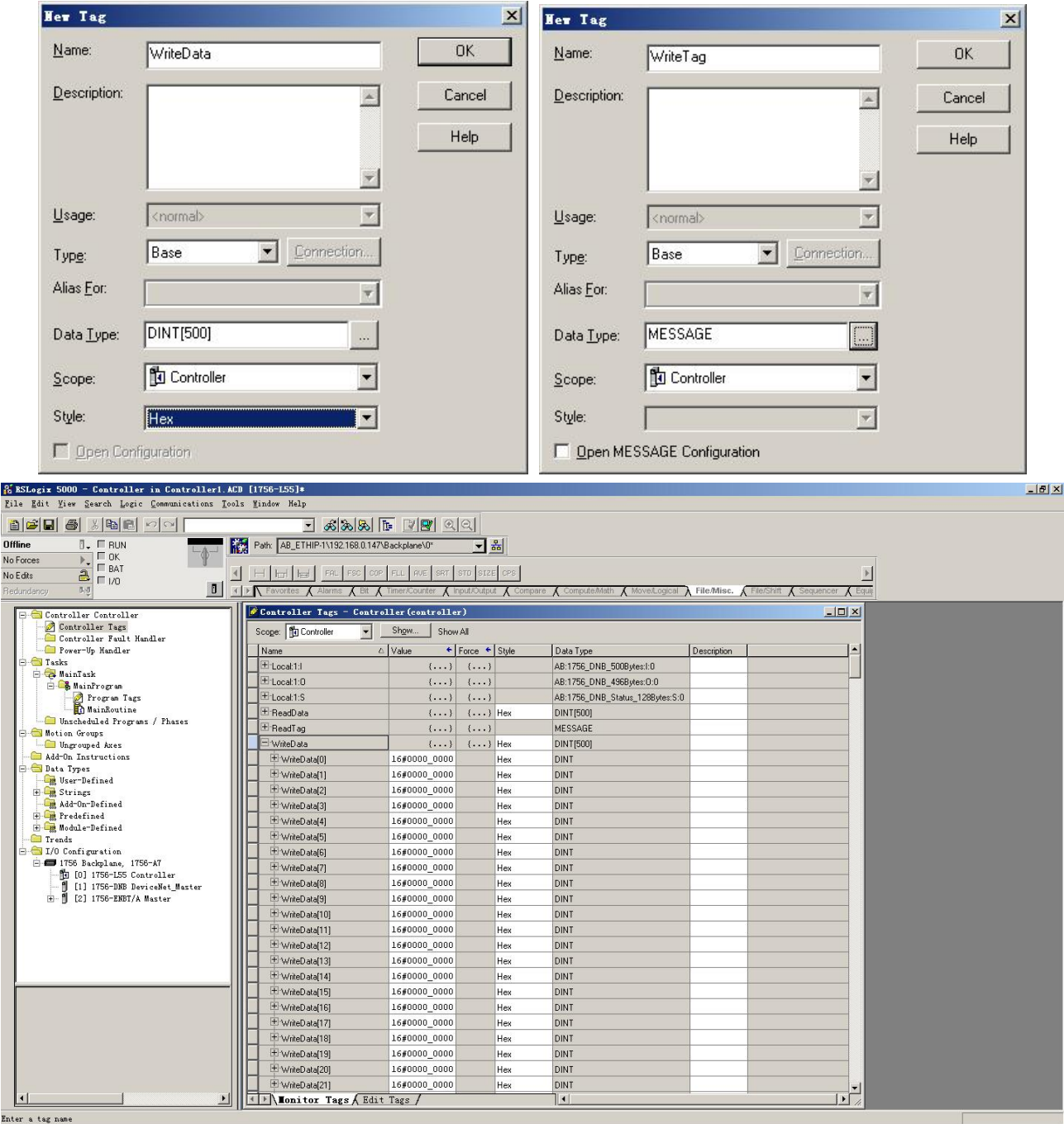
Click on "Control Tags" and select "Monitor Tags" to expand "ReadData", as shown below. The data stored at the starting address ReadData[0] is the data of the Modbus slave station read by the PLC via the gateway GS11-EI.



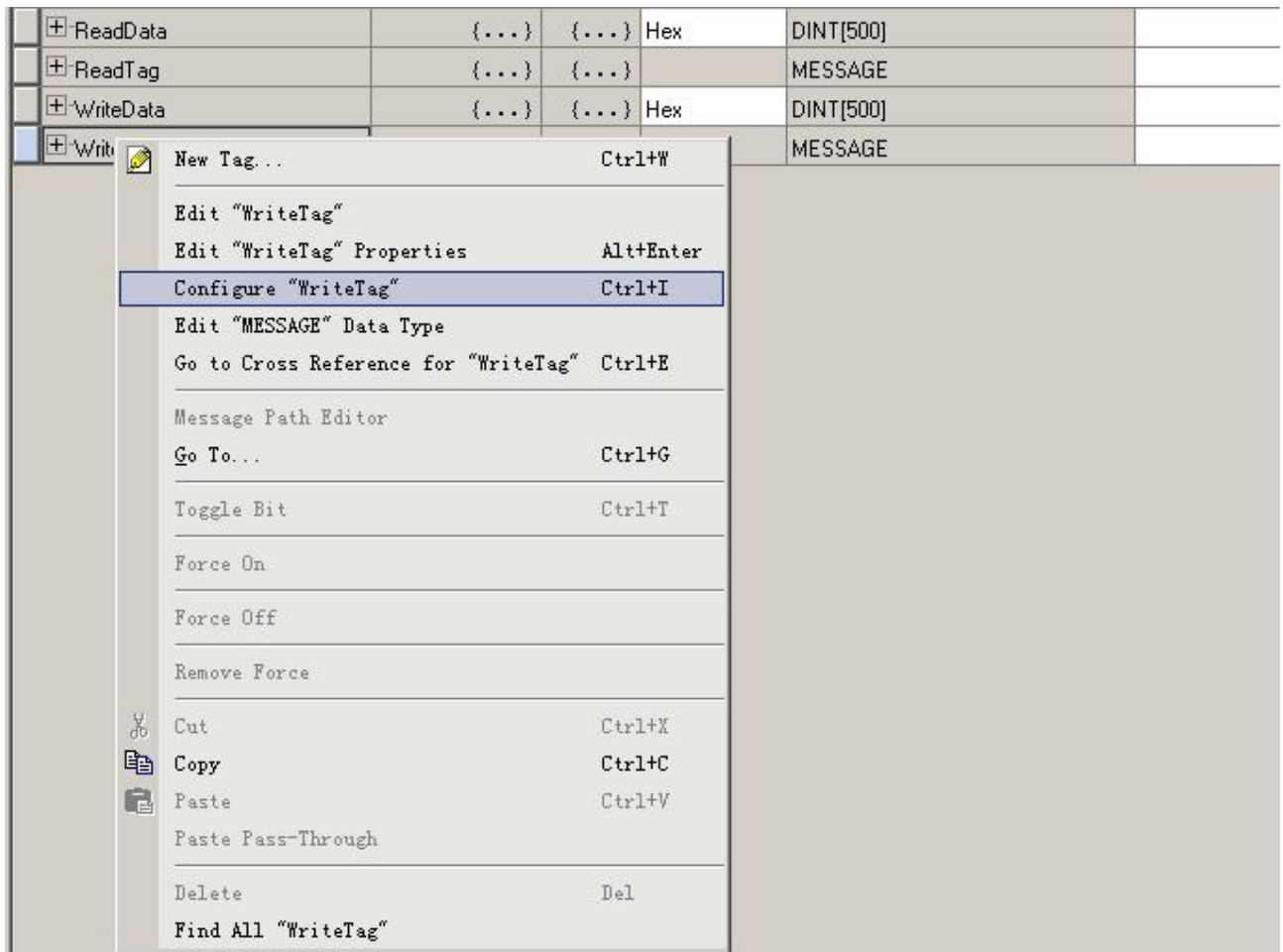
Write I/O Data

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

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Go to the "Monitor Tags" page. WriteData[0] starts to input some data in the "WriteData" tab. The data will be output by the PLC to the GS11-EI and output to the Modbus slave device via the configured Modbus write command.



In the new window that pops out, you need to make the following settings:

Message Type: CIP Generic

Service Type: select "Get Attribute Single", at this point, the corresponding Service Code becomes to "10(Hex)"

Class:4 (Hex)

Instance:101 (64Bytes), 111 (128Bytes), 121 (256Bytes) can be set

Attribute:3 (Hex)

Source Element: Select the "WriteData" tab. Represents use the data in the "WriteData" tab as PLC output data.

Source Length: In bytes, this value should be less than or equal to the number of bytes represented by the currently selected instance.

Destination: Select the "ReadData" tab. At this point, the read data will be saved in this tab.

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Message Configuration - WriteTag

Configuration* | Communication | Tag

Message Type: CIP Generic

Service Type: Set Attribute Single

Source Element: WriteData

Source Length: 128 (Bytes)

Service Code: 10 (Hex) Class: 4 (Hex) Instance: 101 Attribute: 3 (Hex)

Destination:

New Tag...

☐ Enable ☐ Enable Waiting ☒ Start ☐ Done Done 0

☐ Error Code: Extended Error ☐ Timed Out

Error

Error

Select the Communication tab. In the space after Path, enter the path which corresponding to the connected EtherNet IP slave station. The format of the path is: the EtherNet IP master name, the slot number where the EtherNet IP master resides, and the connected EtherNet IP address. After the path is set up, click "Apply" and "Confirm". As shown below.

Message Configuration - ReadTagR

Configuration | Communication* | Tag

Path: ENetMaster, 2, 192.168.0.10

ENetMaster, 2, 192.168.0.10

Communication Method

☒ CIP ☐ DH+ Channel:

Destination Link: 0

☐ CIP With Source ID Source Link: 0 Destination Node: 0 (Octal)

☒ Connected ☒ Cache Connections

☒ Enable ☐ Enable Waiting ☒ Start ☐ Done Done 0

☐ Error Code: Extended Error ☐ Timed Out

Error

Error

In this example, the EtherNet IP master station name is "Master", the EtherNet IP master station is in the slot

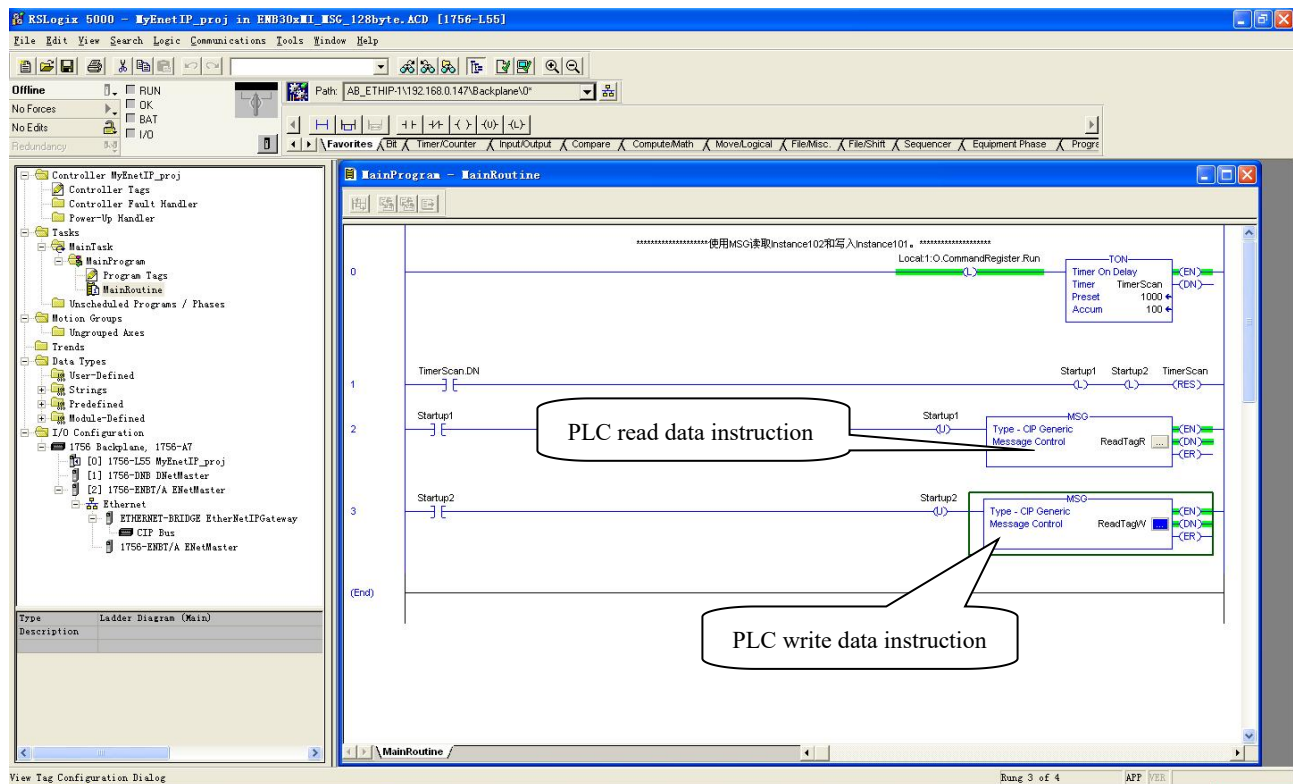
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number "2", and the connected EtherNet IP slave (GS11-EI) has the IP address "192.168.0.10". The IP address of the GS11-EI is downloaded to the module via software SST-EIP-CFG.

Add a "MSG" instruction to "MainRoutine" under "MainProgram" and select "WriteTag" as "Message Control", as shown below.



Download the PLC program to the PLC and put the PLC in the "Online" state. The data in "WriteData" will be output to the Modbus slave station via the GS11-EI (EtherNet IP Slave station).