



W5500S2E-S1 User Manual

Version 1.0



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Document Revision History

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Contact E-mail: supports@wiznet.hk

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Content

1	Function Introduction	1
1.1	Overview	1
1.1.1	Key Features	1
1.1.2	Product Features.....	1
1.1.3	Parameters Configuration Methods.....	2
1.2	Product Specification	2
1.2.1	Electrical Parameters.....	2
1.2.2	Dimensions	3
1.2.3	Temperature Characteristics	3
2	Hardware Section Description	4
2.1	Hardware Circuit Description.....	4
2.2	Brief Introduction on Evaluation Board.....	6
2.3	Quick Testing Instruction	9
3	Operation Modes.....	10
3.1	TCP Server Mode	10
3.2	TCP Client Mode	10
3.3	UDP Mode.....	11
4	W5500S2E-S1 IP Address	12
4.1	Module IP address factory default settings.....	12
4.2	Method to get the module's IP address	12
4.3	Module and PC Network Detection	13
4.4	PC's IP address Setting Method	14
5	W5500S2E-S1 ConfigTool	15
5.1	Collect module's setting information.....	15
5.2	Configure Module Information Settings	16
5.3	Factory Reset	16
5.3.1	Factory Reset Setting by ConfigTool	16
5.3.2	Factory Reset Module through AT Command	16
5.3.3	Hardware Factory Reset Method	17
5.4	Firmware Upgrade	17
6	AT Command Configuration	18
6.1	AT Command Outline	18
6.2	Enter AT Command Mode.....	19
6.3	AT Command List.....	19
6.3.1	Basic Command List	19
6.3.2	Control Command List	19
6.3.3	Device Configuration Command List	20
6.3.4	Serial Configuration Command List	21
6.4	AT command Detail Description	23
6.4.1	Basic Commands.....	23
6.4.2	Control commands	23
6.4.3	Device configuration command list	25

6.4.4	Serial control command.....	30
6.5	AT command configuration examples	35
6.5.1	Set into TCP server mode example	35
6.5.2	TCP client mode example.....	36
6.5.3	UDP mode example.....	37
7	Webpage configuration.....	38
7.1	Web Main page.....	38
7.2	Basic settings.....	40
7.3	Advance settings.....	41
7.4	Firmware Information	43
7.5	Device management.....	43
8	Firmware Upgrade	45
8.1	W5500S2E-S1 firmware upgrade through ConfigTool.....	45
8.2	Firmware upgrade through configuration webpage	46
	RMA Procedure	47
	RMA Form	48
	Disclaimers.....	49
	Statement.....	50
	Sales & Customer Services Office.....	51

1 Function Introduction

1.1 Overview

W5500S2E-S1 is an industrial grade serial to Ethernet module. It supports TCP Server, TCP Client and UDP three operation modes. The maximum serial baud rate is 1.152Mbps. W5500S2E-S1 supports PC configuration tool, webpage configuration and AT command to configure the module.

W5500S2E-S1 uses the hardwired TCP/IP protocol Ethernet chip W5500. This is a faster, stable and better security solution. By following the reference schematic in this user manual, user could create the hardware design faster and easier.

1.1.1 Key Features

W5500S2E-S1 has the following key features:

- ◆ 1.2kps ~ 1.152Mbps baud rate
- ◆ 10/100 Mbps Ethernet interface
- ◆ Support TCP Server, TCP client and UDP operation modes
- ◆ Flexible serial interface data packaging settings that supports each customer's needs
- ◆ Smart Ethernet cable detection and Keep alive features, providing secure and promising Ethernet network
- ◆ Support DHCP function to automatically acquire IP address
- ◆ Support DNS function to satisfy the communication through domain name access
- ◆ Support NetBIOS function allows user to identify module's name
- ◆ Support User Password Configurable for Security
- ◆ Support serial AT command configuration method
- ◆ Included Web server for remoting configurations
- ◆ Provide User-Friendly Configuration Tool Program
- ◆ Support local and remote firmware upgrades

1.1.2 Product Features

- ◆ 32 bit ARM MCU
- ◆ LAN interface
 - 10/100 Mbps Ethernet interface
- ◆ Serial interface
 - 3.3V TTL x1: TXD、RXD、GND
- ◆ Default Serial communication parameters
 - Baud Rate: From 1.2kbps to 1.152Mbps
 - Data Bit: 7, 8
 - Stop Bit: 0.5, 1, 1.5, 2
 - Parity: None, Even, Odd

- Flow Control: None, CTS/RTS
- ◆ Software
 - Tool: W5500S2E-S1 ConfigTool
 - Configuration methods: W5500S2E-S1 ConfigTool、Web Browser、Serial AT Command
- ◆ Power Supply
 - Input Power: 3.3V DC
- ◆ Dimensions
 - Size: 34 x 24 x 12.4 (mm)
- ◆ Operation Temperature
 - Industrial Grade: -40 ~ +85 °C
- ◆ Storage environment
 - -40 ~ +85 °C , 5 ~ 95% RH

1.1.3 Parameters Configuration Methods

W5500S2E-S1 provides three types configuration methods for user to operate with the module.

- ◆ W5500S2E-S1 ConfigTool is a PC software configuration tool. It can be installed and operated on WINDOWS operating systems environment.
- ◆ Web Server Configuration allows user locally or remotely to configure the module through Web browser.
- ◆ AT command Configuration provides user to use AT command configuration sets to set the parameters of W5500S2E-S1 module after it has connected to the user's main embedded board. The user could even use Serial terminals to configure the module by AT command configuration sets.

1.2 Product Specification

1.2.1 Electrical Parameters

1.2.1.1 Power Parameters

The following table 1-1 and 1-2 was the result tested in 25°C environment.

Table 1-1 Power parameters

Symbol	Types	Regulation			
		Min	Normal	Max	Unit
V _{DD}	Module Voltage	2.97	3.3	3.6	V
I	Module Current	101	106	157	mA

1.2.1.2 Current Parameters

Table 1-2 Current parameters

Working Condition	Testing Values (mA)	Working Condition	Testing Values (mA)
Standby	101	100Mbps without connection	157
10Mbps without connection	106	100Mbps with data communication	157
10Mbps with data communication	106		

1.2.2 Dimensions

For the user on connecting the module into your design, please refer to the reference figure 1-1, it shows all the needed dimensions of the modules. In the figure, it provides the regulation for three dimensions with the distance of upper and lower parts pin headers and the location for 4 mounting holes. The pins are standard 2.54mm pin spacing.

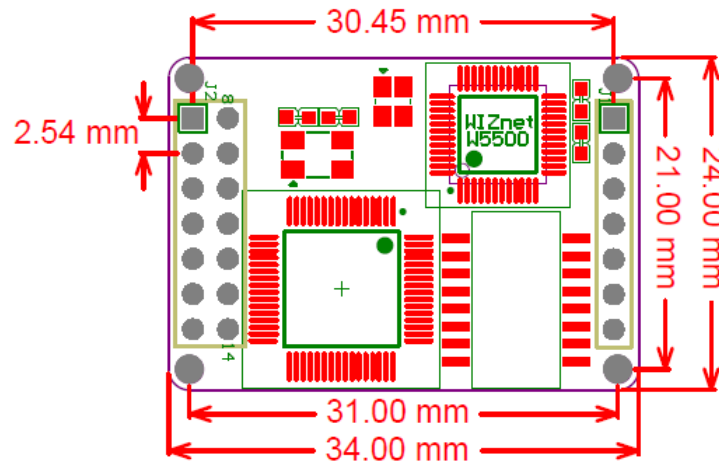


Figure 1-1 W5500S2E-S1 dimensions figures - Plan view

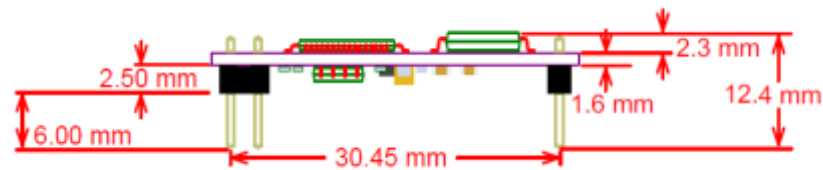


Figure 1-2 W5500S2E-S1 dimensions figures - Side view

1.2.3 Temperature Characteristics

Table 1-3 Temperature characters

Name	Grades	Operation Temperature	Storage Temperature
W5500S2E-S1	Industrial Grade	-40 ~ +85 °C	-40 ~ +85 °C

2 Hardware Section Description

2.1 Hardware Circuit Description

The following section will introduce W5500S2E-S1's pin header description and the usage of W5500S2E-S1 evaluation board.

The following figure 2-1 is the appearance of W5500S2E-S1 module. From this figure, we could identify there are 3 sets of pin headers on the module as hardware connectors for users. J1 is a 1x7 single row 2.54mm pin and J2 is 2x7 double 2.54mm pins.

Figure 2-2 is W5500S2E-S1 module's pin header distribution, table 2-1 and 2-2 are the W5500S2E-S1 module's pin header description.



Figure 2-1 W5500S2E-S1 module's appearance

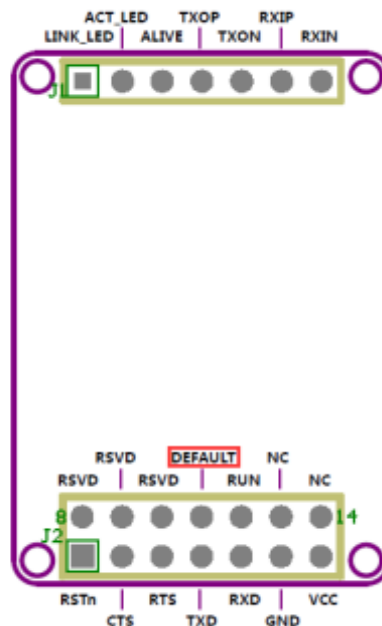


Figure 2-2 W5500S2E-S1 module's pin header diagram

W5500S2E-S1 Serial to Ethernet Module

Table 2-1 Pin header description

Pin No.	Pin Name	I/O	Features
1	LINK_LED	O	Ethernet Link Indicator
2	ACT_LED	O	Ethernet Status Indicator
3	ALIVE	I/O	Module operational status indicators
4	TXOP	O	Ethernet connector TXOP pin
5	TXON	O	Ethernet connector TXON pin
6	RXIP	I	Ethernet connector RXIP pin
7	RXIN	I	Ethernet connector RXIN pin

Table 2-2 J2 Pin header description

Pin No.	Pin Header name	I/O	Features
1	Rests	I	Hardware reset pin
2	CTS	I/O	Serial CTS signal pin
3	RTS	I/O	Serial RTS signal pin
4	TXD	I/O	Serial output signal pin
5	RXD	I/O	Serial input signal pin
6	GND	--	GND
7	VCC	--	VCC
8	RSVD	I/O	Reserved
9	RSVD	I/O	Reserved
10	RSVD	I/O	Reserved
11	DEFAULT	I/O	Pull low voltage to activate. Within 1-3s for module reset, over 3 seconds is factory reset
12	RUN	I/O	Socket connector indicator (Flash: Connecting; Blink: Connected)
13	NC	--	--
14	NC	--	--

2.2 Brief Introduction on Evaluation Board

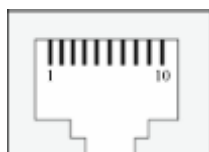
The following figure 2-3 is the Evaluation Board of W5500S2E-S1.



Figure 2-3 W5500S2E-S1 evaluation board

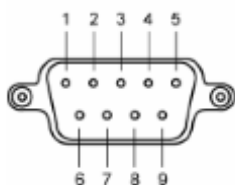
W5500S2E-S1 evaluation board is providing a suitable platform for customers to test the performance and create application from it. This evaluation board includes RJ45, RS232 and USB mini interfaces for user to use. (The following figure shows “x” means vacant)

- ◆ RJ45 interface pins layout.



Pin	Signal	Pin	Signal
1	RXIN	6	TXOP
2	RXIP	7	×
3	TXON	8	×
4	×	9	AGND
5	×	10	AGND

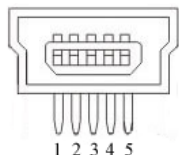
- ◆ RS232 interface pins layout.



Pin	Signal	Pin	Signal
1	×	6	×
2	TX_H	7	CTS_H
3	RX_H	8	RTS_H
4	×	9	×
5	GND		

- ◆ USB Mini interface pins layout. This connector is used for 5V DC power supply.

Note: It is not for serial testing or communication interface.



Pin	Signal	Pin	Signal
1	5V	4	×
2	×	5	GND
3	×		

- ◆ P1 is 1x2 2.54mm 5V power supply connector interface. It uses to input 5V DC power supply to the module.



- ◆ For users to test it easily, J7 and J8 are evaluation board external pins layout that represents W5500S2E-S1's J2 and J1 layout pins.

Table 2-3 W5500S2E-S1 evaluation board pins description

Mark No.	Description
J7	Corresponds to W5500S2E-S1's J2 pins
J8	Corresponds to W5500S2E-S1's J1 pins

- ◆ W5500S2E-S1 evaluation board buttons description

Figure 2-4 W5500S2E-S1 evaluation board button description

Mark No.	Description
SW1 (ON/OFF)	Power on/off
SW2 (RESET)	Hardware reset button
SW3 (BOOT)	Boot mode button
SW4 (DEFAULT)	Press within 1-3 seconds reset, over 3 seconds factory reset

- ◆ W5500S2E-S1 evaluation board LED description

Table 2-5 W5500S2E-S1 evaluation board LED description

Mark No.	Description
ACT_LED	Ethernet status indicator
LINK_LED	Ethernet connection indicator
ALIVE	Module's operation status indicator
RUN	Socket connection indicator (Flash: connecting; Blink: connected)

- ◆ Hardware connection description

W5500S2E-S1 used 2 sections of pin layouts in 1 x 7 pin and 2 x 7 pin designs. This is avoiding user connects the wrong pins and causes damage to the module.

- ◆ Figure 2-4 shows the reference schematic of the evaluation board. User could base on their own application to develop their own design by this reference schematic.

W5500S2E-S1 Serial to Ethernet Module

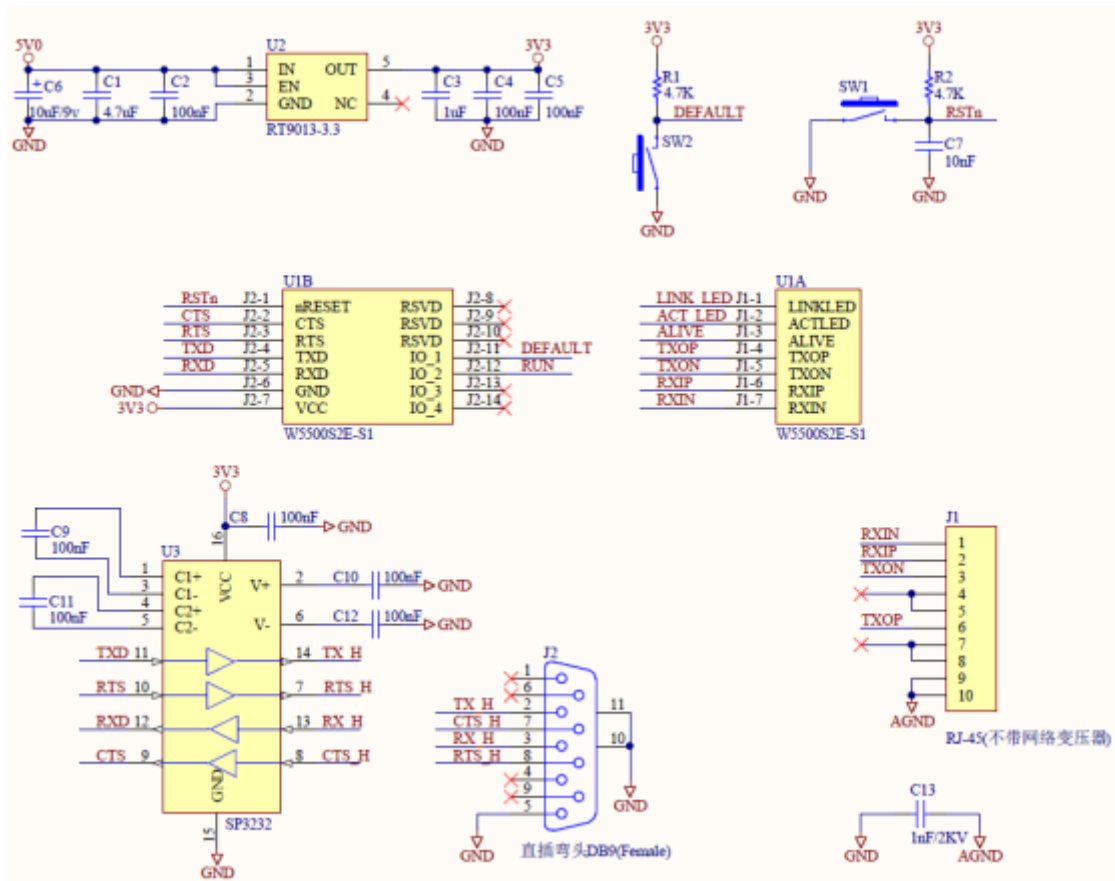


Figure 2-4 W5500S2E-S1 evaluation board reference schematic

2.3 Quick Testing Instruction

Users could base on W5500S2E-S1 module to develop their own design. This upgrades the user's device from serial interface to Ethernet interface. Before the user implements the module into their design, they could make a quick test with the evaluation board. By connection the serial interface to the module and Ethernet interface connected to the PC, the user could easily control the serial device through Ethernet as the following figure 2-5 showed.

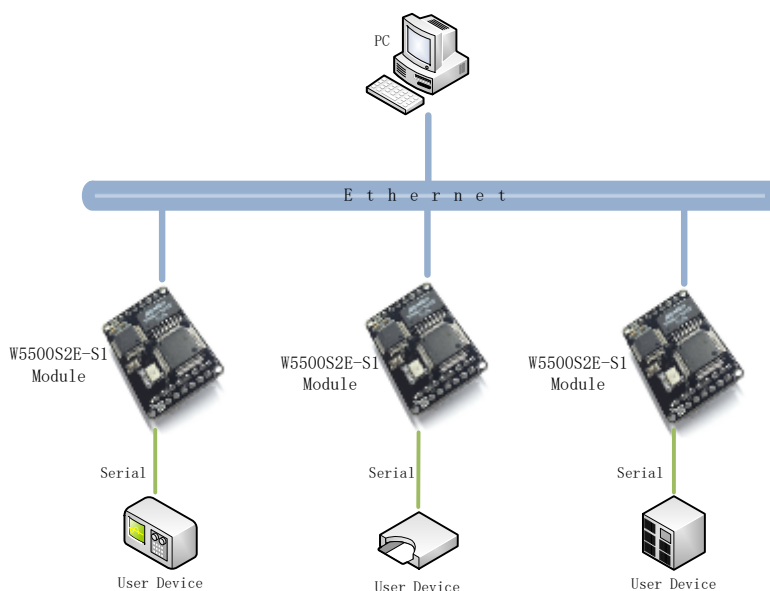


Figure 2-5 W5500S2E-S1 module usage block diagram

While users testing the evaluation board, it requires LAN cables and Serial cables to connect between PC's and evaluation board to the respective LAN ports and RS232 ports. This connection will create a simple testing network, this allows user to test the communication performance by doing data exchanges through both interface.

3 Operation Modes

W5500S2E-S1 module supports TCP Server, TCP client and UDP modes, the below showed the simple instruction on these operation modes.

3.1 TCP Server Mode

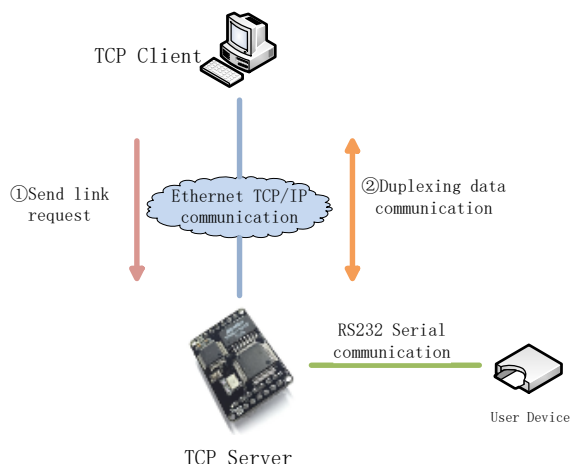


Figure 3-1 TCP Server mode diagram

As the Figure 3-1 shows, W5500S2E-S1 module will use its local port to listen TCP requests in TCP server mode. The default port number is 5000 and it is waiting for client connections. After the connection has created, it will start its data communication with the PC.

3.2 TCP Client Mode

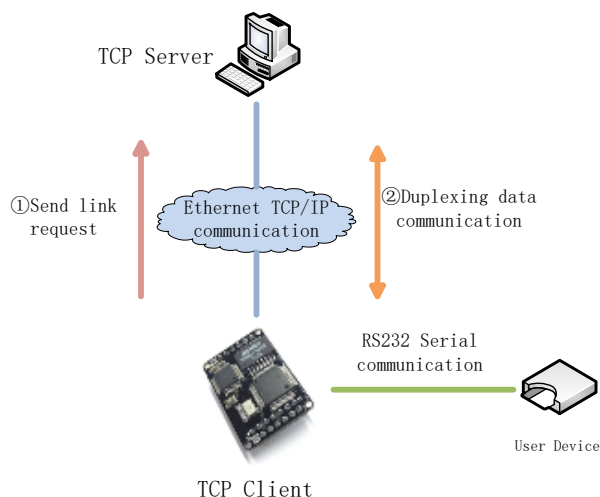


Figure 3-2 TCP client mode diagram

According to figure 3-2, W5500S2E-S1 module will starts to connect TCP server that has been set in the module for TCP client mode. If connection fails, client will base on reconnection setting condition and try to connect with the TCP server. After its connected, it will start data communication with the PC.

3.3 UDP Mode

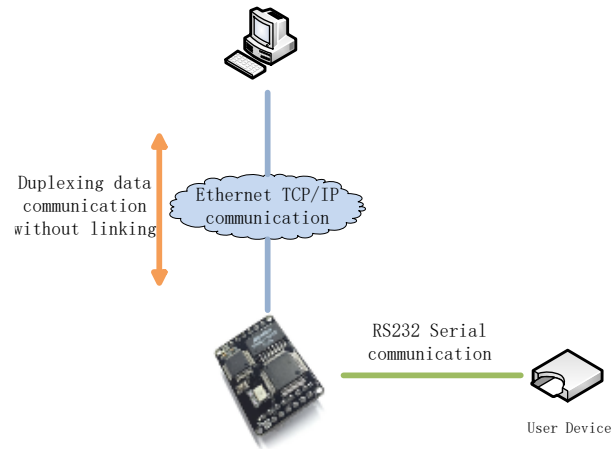


Figure 3-3 UDP mode diagram

From Figure 3-3, UDP mode is required W5500S2E-S1 module to have the remote IP address and Port number to create an UDP communication. UDP mode is not based on connection method to communicate therefore it cannot promise the target device could receive the data correctly. Thus, it requires an upper layer communication protocol to communicate for ensuring the data accuracy. However, UDP mode is a simple communication protocol therefore it could provide a better communication speed due to less workload on data accuracy. In fact, UDP are not easy to have wrong while under a simple and less workload network environment. In this operation mode, both devices are equal and they do not define into server or client.

4 W5500S2E-S1 IP Address

Before using W5500S2E-S1 module, we need to know some parameters like IP address. W5500S2E-S1 modules support “Static IP” and “DHCP” IP collection method. For “Static IP” mode, user could manually change the IP address, subnet mask & gateway parameters. In “DHCP” mode, the module will activate DHCP protocol to collect IP address, subnet mask and gateway information from the DHCP server.

4.1 Module IP address factory default settings

W5500S2E-S1 Serial to Ethernet module’s factory default IP address: 192.168.1.88.

4.2 Method to get the module’s IP address

While the user forgets the module’s IP address or the module is working on DHCP mode, user could use the ConfigTool PC software to search the module’s current IP address. ConfigTool software is a Window base configuration tools for W5500S2E-S1. The following steps are the method to use ConfigTool to search the IP address for W5500S2E-S1 module:

1. Connect the PC and the module with LAN cable and power up the module.
2. Run the ConfigTool and it shows as the following 4-1 figure.

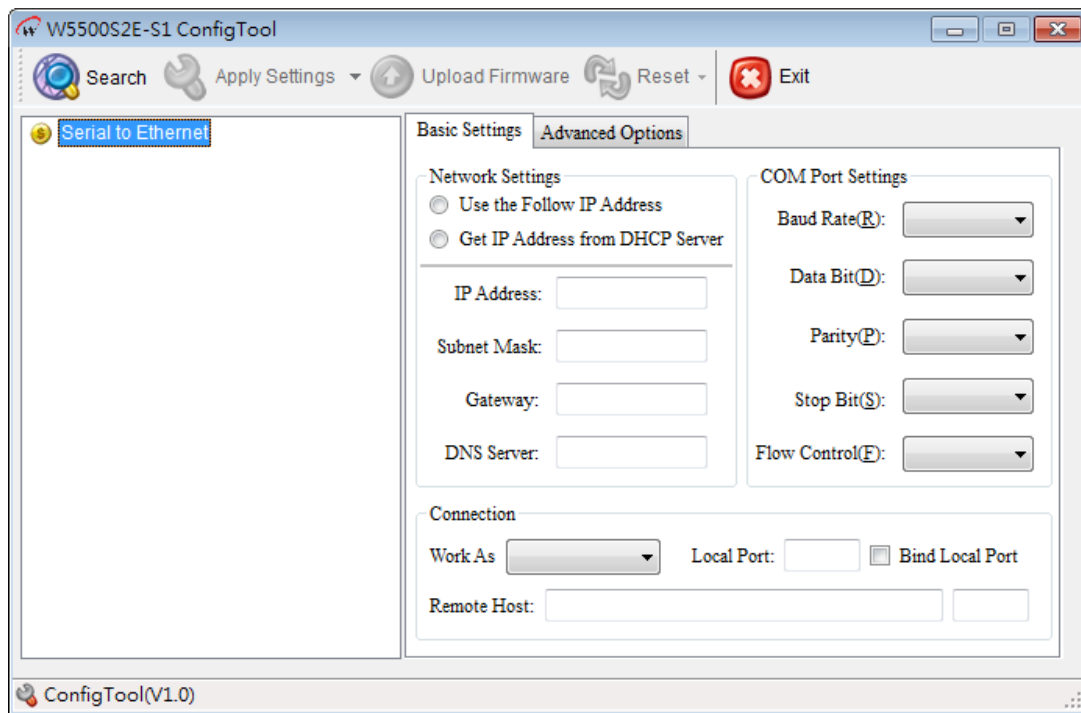


Figure 4-1 W5500S2E-S1 ConfigTool interface

3. Press  button, it shows the IP address information as the following figure 4-2.

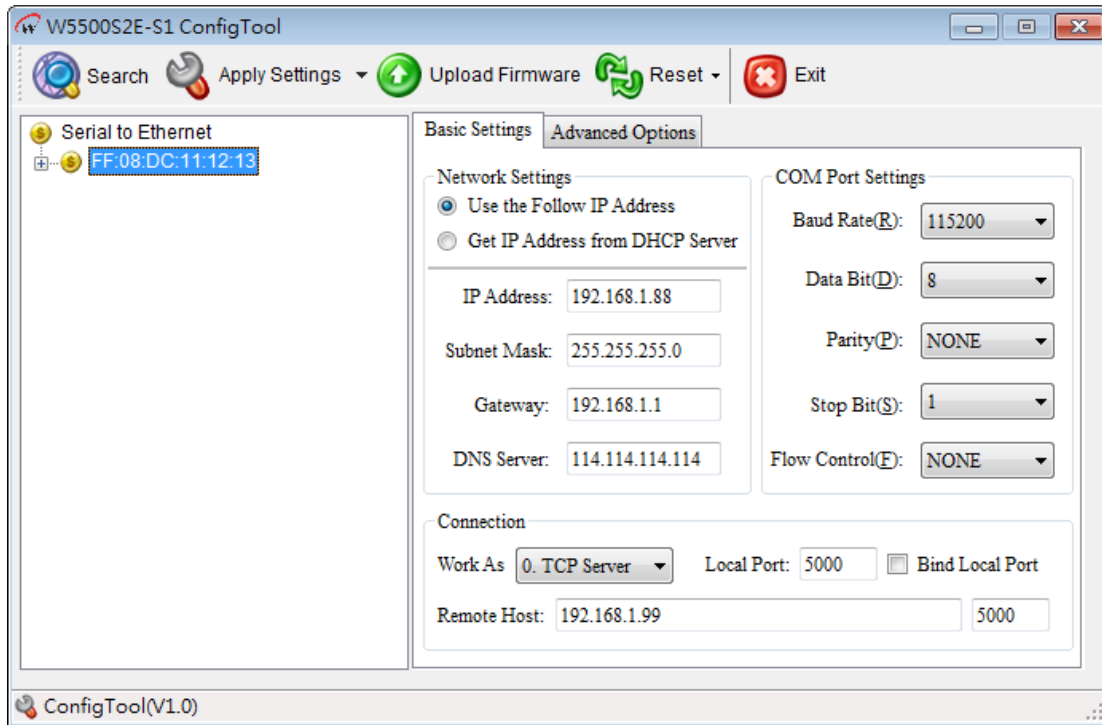


Figure 4-2 W5500S2E-S1 ConfigTool search result

4.3 Module and PC Network Detection

Before starting to communicate between the W5500S2E-S1 module and PC, please ensure the PC and the module are in the same network segment.

The factory default setting for IP address and Subnet mask in W5500S2E-S1 module are 192.168.1.88 and 255.255.255.0 respectively. User could follow the flow diagram 4-3 to understand the communication procedure between the module and PC. If they are in the same network segment, it could communicate with the module. Otherwise, the PC needs to change its IP address to communicate with the module.

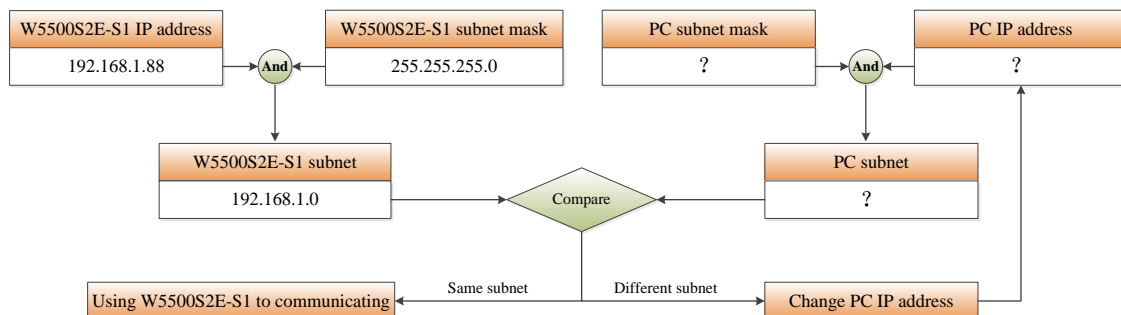


Figure 4-3 W5500S2E-S1 module and PC's IP segment flow diagram

4.4 PC's IP address Setting Method

The following procedure is based on Windows 7 Operation System.

Press “Start” → “Control Panel” → “Network Sharing Centre” → “Changing adaptor setting” → “Local connection” → Right Click “Properties” → Double Click “Internet protocol version 4 (TCP/IPv4)”. After all these procedures, you could get into the result as the following figure shows. Please choose “Using the following IP addresses” for inputting the IP address as 192.168.1.99, the subnet mask is 255.255.255.0 and default gateway into 192.168.1.1. The DNS section could ignore. Finally, please click “Enter” for saving these settings and starts to communicate with W5500S2E-S1 module.

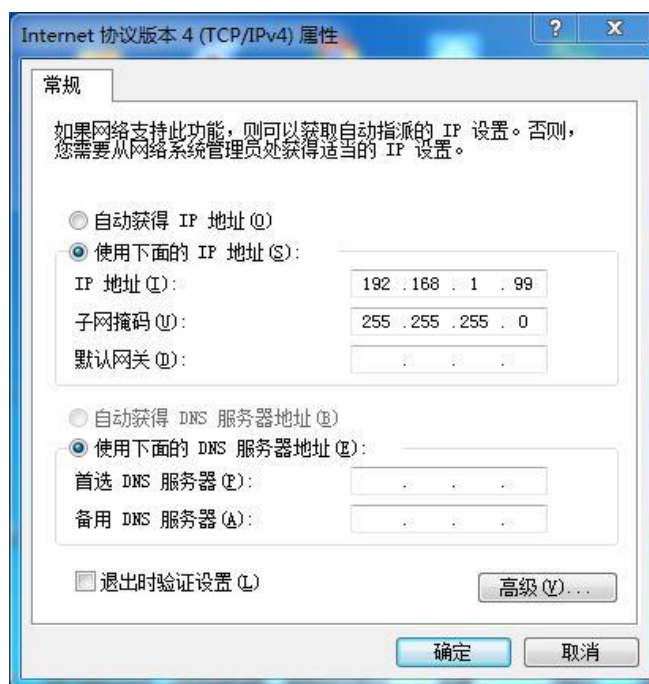




Figure 4-4 Window 7 (Chinese version) IP address setting interface

5 W5500S2E-S1 ConfigTool

W5500S2E-S1 ConfigTool is configuration software runs on Windows platform that specific for this module. User could pass through W5500S2E-S1 ConfigTool to each, check, configure W5500S2E-S1's device features and information.

5.1 Collect module's setting information

Click the toolbar's  button, ConfigTool will search all the modules that has connected in the same network segment (Direct connect or under the same router). The figure 5-1 shows the result as mentioned. The search section shows all the modules in MAC address format as the parent node for the list of information of W5500S2E-S1. By pressing the “” button, it will shows the detail information about this module. After pressing the MAC address of that specific module, it will list out all the IP address, serial interface settings and other parameters of this module. This information presents on the Basic settings and Advance Option tab that were next to the search section.

Note: Before using this configuration tools, we advise user to close all virtual and Wi-Fi network ports for preventing any IP address confliction with the W5500S2E-S1 module.

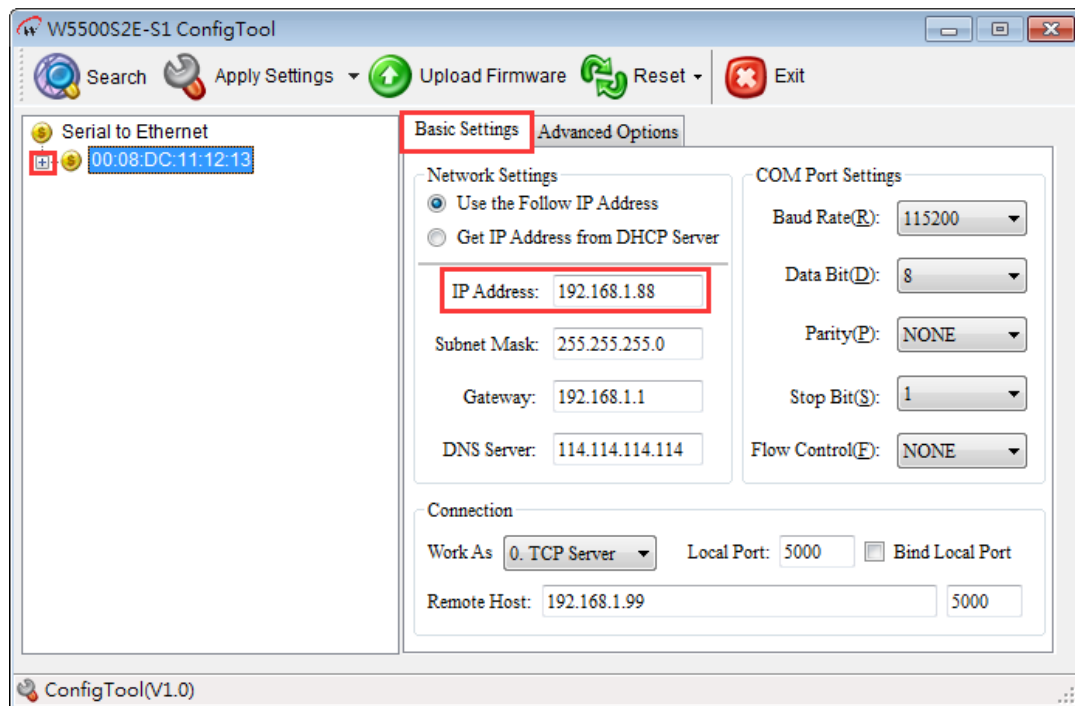


Figure 5-1 W5500S2E-S1 ConfigTool basic settings interface

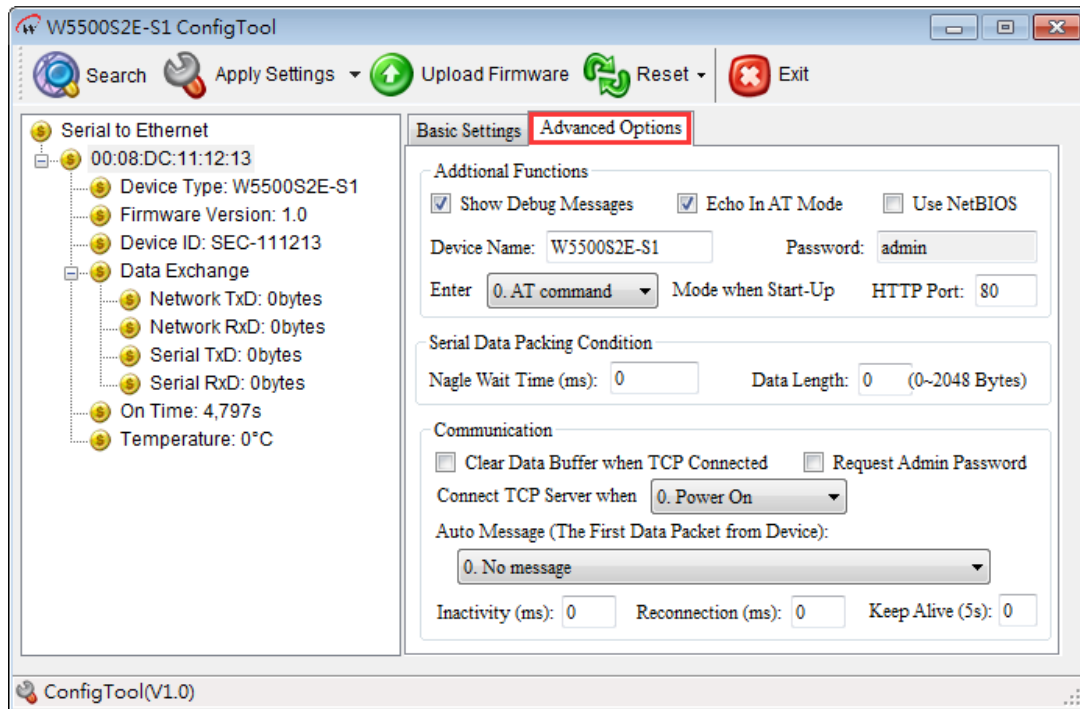
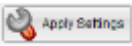


Figure 5-2 W5500S2E-S1 ConfigTool advance options interface

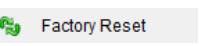
5.2 Configure Module Information Settings

After searching the module, user could directly go to basic settings and advance options to configure the module. Please press  button to complete your configuration.

5.3 Factory Reset

If the customer found out some uncertainties with the W5500S2E-S1 module, the user could reset the module back to factory default setting to solve the problem. There are three kinds of method to factory: Software (ConfigTool), AT command and hardware reset.

5.3.1 Factory Reset Setting by ConfigTool

- i) Please click the module on the search section that needs to factory reset.
- ii) Please press toolbar's  →  factory reset button to reset the module back to default settings.

5.3.2 Factory Reset Module through AT Command

For detail information about this AT command (AT+DEFAULT) for factory reset, please refer section 6.4.2.6.

5.3.3 Hardware Factory Reset Method

5.3.3.1 Factory Reset through Evaluation Board

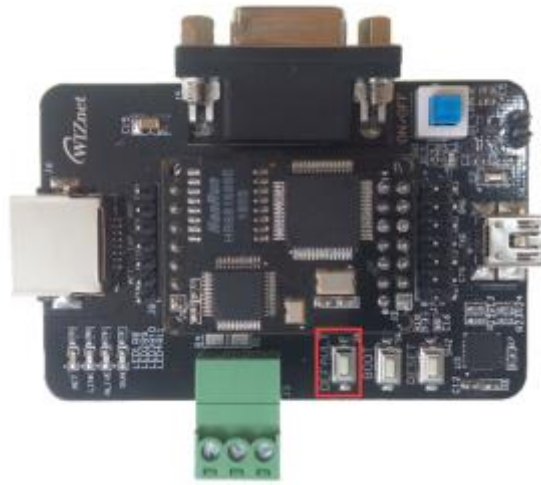
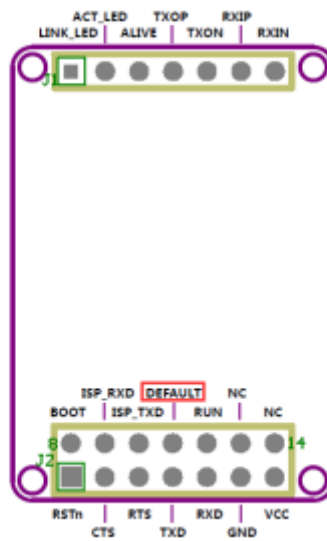


Figure 5-3 The Evaluation board Reset button

After providing power to the module, please press the Default button for more than 3 seconds to reset to factory default setting.

5.3.3.2 Factory Reset through Module



After W5500S2E-S1 module has power, low down the DEFAULT pin for 3 seconds to activate factory default.

5.4 Firmware Upgrade

W5500S2E-S1 supports PC Firmware upgrade and remote firmware upgrade features through webpage. For detail information, please refer section 8 Firmware upgrade.

6 AT Command Configuration

W5500S2E-S1 supports AT command configuration method. This method could only apply when W5500S2E-S1 is in command mode. User needs to send the AT serial command mentioned in this section, W5500S2E-S1 could be modified into user's requirement. User could use serial terminal or MCU main board that connected with W5500S2E0-S1 for applying these configurations.

6.1 AT Command Outline

AT command has separate into different sizes of command. Except “+++” command, all other commands will come with “AT” on the start of the command. These commands activates after received CRLF. This means “\r\n” (“0x0d 0x0a” in HEX). These commands and related parameters are fixed. If it received the data in different formats, it will reply error message feedbacks.

AT commands have 4 input types:

1、+++

Exit from data mode and changed to command mode.

2、No parameters command

Format: AT+ <command>\r\n, No extra parameters or symbol after the command. For example: AT+EXIT\r\n.

3、Query Command

Format: AT+<command>?\r\n, this kind of command is checking the command's parameter value. In example: AT+ECHO?\r\n.

4、Parameters commands

Format: AT+<command>=<parameter1>,<parameter2>,<parameter3>... \r\n, this will set the command's parameter value.

Based on users AT command inputs, W5500S2E-S1 will reply related return value. These values included correct and error message as showed on the following 6-1 table.

Table 6-1 AT command return value list

Return Value Type	Return Value	Meaning
Correct Input message	[Command] Value is:<value> OK	Correct command input
Wrong Input Message	Command Invalid ERROR	Invalid Input
	<Error Info>	Invalid parameter input
	Password Error ERROR	Invalid password

6.2 Enter AT Command Mode

W5500S2E-S1 has two modes, AT command mode and data mode. In AT command mode, user could use serial terminal or through user's MCU main board to each kind of parameter for configuration the module. Each input will provide related return value (In Echo mode, it will show the serial message). Except entering “+++” in data mode, all the commands are invalid to the module. Thus, entering the “+++” command will change the module into AT command mode.

Note: Module's factory default setting set in AT command mode.

6.3 AT Command List

The following list is the AT command list and related return value that supports in W5500S2E-S1 module. The type “R” stands for read only. “R/W” means it could read and write. “< >” it means mandatory parameter. “[]” it means optional parameters. AT commands has separate into 4 segments: Basic commands, Control commands, device configuration commands and serial configuration commands

6.3.1 Basic Command List

Features	Command	Type	Maximum Parameter Length	Parameter Value
Terminal Check	AT	R	0	No

6.3.2 Control Command List

Features	Command	Type	Maximum Parameter Length	Parameter Value
Enter Command mode	+++	R	0	No
Exit Command mode	AT+EXIT	R	0	No
Echo	AT+ECHO	R/W	1	0: Close echo 1: Open echo
List of commands	AT+LIST	R	0	No
List of default values and current values	AT+PRE	R	0	No
Factory reset	AT+DEFAULT	W	16	Required Password (Case sensitive)
Reset	AT+RESET	W	16	Required Password (Case sensitive)
Ethernet send counter	AT+NETSEND	R	0	No
Ethernet receive counter	AT+NETRCV	R	0	No
Device's operation time	AT+RUNTIME	R	0	No
Firmware Version	AT+VER	R	0	No

6.3.3 Device Configuration Command List

Features	Command	Type	Maximum Parameter Length	Parameter Value
Device ID	AT+SN	R	0	No
Device Type	AT+TYPE	R	0	Reply: W5500S2E-S1
Device name	AT+NAME	R/W	15	Can set into any characters Default: W5500S2E-S1
Device Password	AT+PASS	R/W	15	Needs to be numbers, alphabets or the mixed of both. It does not accept blank as inputs Default: admin
Device IP address	AT+IP	R/W	15	Default: 192.168.1.88
Device's Local port number	AT+C1_PORT	R/W	5	Maximum: 65535, default: 5000
Local port binding	AT+C1_BIND	R/W	5	Only available on TCP Client mode: 0: Disable binding local port number 1: Enable binding local port number
Device subnet mask	AT+MARK	R/W	15	Default: 255.255.255.0
Device gateway	AT+GATEWAY	R/W	15	Default: 192.168.1.1
Operation mode	AT+C1_OP	R/W	1	0: TCP Server (default) 1: TCP Client; 2: Reserved 3: UDP; 4: Not available
Remote host's IP address	AT+C1_CLI_IP1	R/W	15	Default: 192.168.1.99
Remote host's port number	AT+C1_CLI_PP1	R/W	5	Max: 65535, Default: 5000
DNS server address	AT+DNS	R/W	15	Default: 114.114.114.114
MAC address	AT+MAC	R	17	Format: 00:08:DC:XX:XX:XX (Assigned by factory)
IP collection method	AT+IP_MODE	R/W	1	0: Static IP mode (default) 1: DHCP mode
Web port number	AT+WEB_PORT	R/W	5	Max: 65535, Default: 80
Remote host domain name	AT+DOMAIN	R/W	32	Default: www.iwiznet.cn
DNS feature	AT+DNSEN	R/W	1	0: Close DNS features (default) 1: Open DNS features
Reconnect time	AT+RECONTIME	R/W	5	Only available on TCP client mode Value range: 0~60000, Unit: ms; default: 0 (Immediate reconnect)
NetBIOS feature	AT+NETBIOS	R/W	1	0: Close NetBIOS feature (default) 1: Open NetBIOS feature

6.3.4 Serial Configuration Command List

Features	Command	Type	Maximum Parameter Length	Parameter Value/Description
Serial port 1 parameters	AT+COM1	R/W	10	Parameters format: [baud],[datab],[parity],[stopb],[c] Default:7,1,0,1,0
Baud Rate	AT+C1_BAUD	R/W	2	0: 1200; 1: 2400; 2: 4800; 3: 9600; 4: 14400; 5: 19200; 6: 38400; 7: 56000; 8: 57600; 9: 115200 (default); 10: 128000; 11: 234000; 12: 256000; 13: 468000; 14: 921600; 15: 1152000
Data bit	AT+C1_DATAB	R/W	1	0: 7 bit 1: 8 bit (default)
Stop bit	AT+C1_STOPB	R/W	1	0: 0.5; 1: 1 (default) 2: 1.5; 3: 2
Parity bit	AT+C1_PARITY	R/W	1	0: none (default) 1: odd 2: even
Serial flow control	AT+C1_SER_C	R/W	1	0: none (default) 1: Hardware flow control
Clear out serial Buffer	AT+C1_BUF_CLS	R/W	1	Only available on TCP modes 0: Keeps data in serial after connection has created (default) 1: Clear data in serial after connected has created
Data packaging (size)	AT+C1_SER_LEN	R/W	4	Value range: 0~2048 byte; Default: 0 (Disable data packaging by size)
Serial Nagle wait time	AT+C1_SER_T	R/W	4	Value range: 0~9999, unit: ms; Default: 0 (Disable data packaging by time)
Inactivity time	AT+C1_IT	R/W	5	Only available on TCP modes Value range: 0~ 60000, unit: ms; Default: 0 (close this feature)
Keep alive time	AT+C1_TCPAT	R/W	5	Only available on TCP modes Value range: 0~65536, unit 5s; Default: 0 (close this feature)
Connection Password verification	AT+C1_LINK_P	R/W	1	Only available on TCP Server 0: No password are required for TCP

W5500S2E-S1 Serial to Ethernet Module

				connection 1: Required password for TCP connection
Create connection condition	AT+C1_LINK_T	R/W	1	Only available on TCP client 0: Reconnect after power up the module (default) 1: Reconnect after received data from Serial interface
Connected message	AT+C1_LINK_M	R/W	1	Only available on TCP modes 0: No message 1: Send Device ID 2: Send MAC address 3: Send IP address
Serial send counter	AT+C1_SEND_NUM	R	0	Counter range: 0~ 4294967295
Serial receive counter	AT+C1_RCV_NUM	R	0	Counter range: 0~ 4294967295

6.4 AT command Detail Description

6.4.1 Basic Commands

6.4.1.1 Terminal Check (AT)

Command format	Parameters and description	Function description
AT	No	Terminal Check
return value	OK\r\n	

Command description: Check the terminal device is it working. If it is working normally with the module, it will return “OK” value. If the terminal is not working, it will not return any value.

6.4.2 Control commands

6.4.2.1 Enter Command mode (+++)

Command format	Parameters and description	Function description
+++	No	Exit from data mode
Return value	AT-Command Interpreter ready\r\n	

Command description: Under W5500S2E-S1’s data mode, transmitting “+++” through serial interface in the same time will change the module from data mode to command mode.

+++ Command rules: It needs to send “+” symbol continuously in 3 times to through serial interface to the module. This command requires 1 second gap each before and after this command has entered to activate the correct response from W5500S2E-S1. If not, it will consider as user’s data input. This command does not require CRLF (\r\n).

6.4.2.2 Exit from command mode (AT+EXIT)

Command format	Parameters and description	Function description
AT+EXIT\r\n	No	Exit command mode
Return value	OK\r\nListening on XXX.XXX.XXX.XXX:XXX \r\n	

Command description: After users have finish there settings in command mode, the user needs to input “AT+EXIT\r\n” for saving the settings and exit from command mode to data mode. Also, the updated parameter values will save into EEPROM after this command has been activated. Please know that this command needs to activate for saving these parameter value changes.

6.4.2.3 Echo (AT+ECHO)

Command format	Parameters and description	Function description
AT+ECHO=<echo>\r\n	<echo> 0: Close Echo feature 1: Open Echo feature (default)	Set a new value
AT+ECHO?\r\n		Check the current value
Return value	[ECHO] Value is: <echo>\r\nOK\r\n	

Command format: Echo feature means W5500S2E-S1 module could directly return the

input values to the serial interface. Thus, users could configure the module easily through serial terminal software. However, users should have issues with embedded systems. Therefore turning off this feature will reduce error occur with embedded systems devices.

6.4.2.4 List of commands (AT+LIST)

Command format	Parameters and description	Function description
AT+LIST?\r\n	NO	Check the list of AT commands
return value	<AT command list>\r\nOK\r\n	

6.4.2.5 List of default values and current values (AT+PRE)

Command format	Parameters and description	Function description
AT+PER?\r\n	No	Check the parameter's default and current values
return value	DEFAULT: \r\n<default list>\r\nCURRENT: \r\n<current list>\r\n	

6.4.2.6 Factory reset (AT+DEFAULT)

Command format	Parameters and description	Function description
AT+DEFAULT=<pass>\r\n	<pass>: required device's password	Reset to factory default settings
Return value	OK\r\n<factory info>\r\n	

Command description: Command will activate while receiving correct password input. If success, W5500S2E-S1 will reset back into default setting and back to AT command. Device password could use "AT+PASS" to check or set the password.

6.4.2.7 Reset (AT+RESET)

Command format	Parameters & Description	Function description
AT+RESET=<pass>\r\n	<pass>: required device's password	Reset the module
Return value	OK\r\n<factory info>\r\n	

Command description: Command will activate while receiving correct password input. If success, the module will changed to data mode. Device password could use "AT+PASS" to check or set the password.

6.4.2.8 Ethernet send counter (AT+NETSEND)

Command format	Parameters and description	Function description
AT+NETSEND?\r\n	No	Check the data size that has sent by Ethernet interface
Return value	[NETSEND] Value is:<number>\r\nOK\r\n	

Command description: Value ranged is in 0 to 4,294,967,295.

6.4.2.9 Ethernet receive counter (AT+NETRCV)

Command format	Parameters and description	Function description
AT+NETRCV?\r\n	No	Check the data size that has received from Ethernet interface
Return value	[NETRCV] Value is: <number>\r\nOK\r\n	

Command description: Value ranged is in 0 to 4,294,967,295.

6.4.2.10 Device's operation time (AT+RUNTIME)

Command format	Parameter and description	Function description
AT+RUNTIME?\r\n	No	Check the running time of the device
Return value	[RUNTIME] Value is: <time>000-00-18-26\r\nOK\r\n	

Command description: Received the running time of W5500S2E-S1, Unit: Seconds

Return format: days – hours – minutes - seconds

6.4.2.11 Firmware version (AT+VER)

Command format	Parameters and description	Function description
AT+VER?\r\n	No	Check the Firmware function
Return value	[VER] Value is: <firmware version>\r\nOK\r\n	

6.4.3 Device configuration command list

6.4.3.1 Device ID (AT+SN)

Command format	Parameter and description	Function description
AT+SN?\r\n	No	Check the device ID
Return value	[SN] Value is: <device ID>\r\nOK\r\n	

Command description: W5500S2E-S1's device ID used to identify each module. It contains the last 3 section of the MAC address. User could only check the device ID without any modification.

6.4.3.2 Device type (AT+TYPE)

Command format	Parameters and description	Function description
AT+TYPE?\r\n	No	Check the device type
Return value	[TYPE] Value is: W5500S2E-S1\r\nOK\r\n	

Command description: Device type is clarifying the device is a serial to Ethernet module. User could only check the device ID without any modification.

6.4.3.3 Device Name (AT+NAME)

Command format	Parameters and description	Function description
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W5500S2E-S1 Serial to Ethernet Module

AT+NAME=<name>\r\n	<name>	Set a new module name
AT+NAME?\r\n	Device name: it can be any characters, the maximum length is 16 bit	Check the current module name
Return value	[NAME] Value is: <name>\r\nOK\r\n	

Command description: User could use this command to identify each device.

6.4.3.4 Device Password (AT+PASS)

Command format	Parameters and description	Function description
AT+PASS=<pass>\r\n	<pass>	Set a new password
AT+PASS?\r\n	Device Password: It only accepts numbers, alphabets or the combination of both. It does not accept blank as input. Maximum input length: 16 bytes, Default: admin	Check the current password
Return value	[PASS] Value is: <pass>\r\nOK\r\n	

6.4.3.5 Device IP address (AT+IP)

Command format	Parameters and description	Function description
AT+IP=<ip>\r\n	<ip>	Set a new IP address
AT+IP?\r\n	Device IP address, default: 192.168.1.88	Check the current IP address
Return value	[IP] Value is: <ip>\r\nOK\r\n	

Command description: W5500S2E-S1 support IPv4. This IP address format is separate in 4 sections, each section is using 3 dots to separate it and presented in decimal values. The value range for each section is 0 -255 therefore the maximum value size for IP address is 15 bytes. This command could not accept xxx.xxx.xxx.0 or xxx.xxx.xxx.255 value inputs.

6.4.3.6 Local port number (AT+C1_PORT)

Command format	Parameter and description	Function description
AT+C1_PORT=<port>\r\n	<port>	Set a new port number
AT+C1_PORT?\r\n	Local port number, Default: 5000	Check the current port number
Return value	[C1_PORT] Value is: <port>\r\nOK\r\n	

Command description: This command is sets the module's port number. It is required to use under TCP Server and UDP modes. The module will use this port number to communicate with other devices. The value range is 0 to 65535 (Port 80 has used for web port. Please avoid using this port number.)

6.4.3.7 Local port binding (AT+C1_BIND)

Command format	Parameters and description	Function description
AT+C1_BIND=<bind>\r\n	<bind> 0: Disable binding local port number	Set the value

AT+C1_BIND?\r\n	1: Enable binding local port number	Check the current value
Return value	[C1_BIND] Value is: <bind>\r\nOK\r\n	

Command description: Only available on TCP client mode.

6.4.3.8 Device Subnet mask (AT+MARK)

Command format	Parameter and description	Function features
AT+MARK=<mark>\r\n	<mark> Device subnet mask, default: 255.255.255.0	Set a new subnet mask
AT+MARK?\r\n		Check the current subnet mask
Return value	[MARK] Value is: <mark>\r\nOK\r\n	

Command description: Subnet mask format is separate in 4 sections, each section is using 3 dots to separate it and presented in decimal values. The value range for each section is 0 -255 therefore the maximum value size for Subnet mask is 15 bytes.

6.4.3.9 Device gateway (AT+GATEWAY)

Command format	Parameter and description	Function description
AT+GATEWAY=<gateway>\r\n	<gateway> Device gateway, default: 192.168.1.1	Set a new gateway
AT+GATEWAY?\r\n		Check the current gateway
Return value	[GATEWAY] Value is: <gateway>\r\nOK\r\n	

This Subnet mask format is separate in 4 sections, each section is using 3 dots to separate it and presented in decimal values. The value range for each section is 0 -255 therefore the maximum value size for Gateway address is 15 bytes. This command could not accept xxx.xxx.xxx.0 or xxx.xxx.xxx.255 value inputs.

6.4.3.10 Operation mode (AT+C1_OP)

Command format	Parameters and descriptions	Function feature
AT+C1_OP=<mode>\r\n	<mode> 0: TCP server (default) 1: TCP Client; 2: UDP	Set a new value
AT+C1_OP?\r\n		Check the current value
Return value	[C1_OP] Value is: <mode>\r\nOK\r\n	

6.4.3.11 Remote host IP address (AT+C1_CLI_IP1)

Command format	Parameter and description	Function description
AT+C1_CLI_IP1=<ip>\r\n	<ip> Remote host IP address, default: 192.168.1.99	Set the new remote host IP address
AT+C1_CLI_IP1?\r\n		Check the current remote host IP address
Return value	[C1_CLI_IP1] Value is: <ip>\r\nOK\r\n	

Command description: Remote host IP address command sets the IP address that communicates with W5500S2E-S1 module. This command will only available for TCP client and UDP mode.

6.4.3.12 Remote host port number (AT+C1_CLIP_P1)

Command format	Parameter and description	Function description
AT+C1_CLIP_P1=<port>\r\n	<port> Remote host port number, default: 5000	Set the new remote host port number
AT+C1_CLIP_P1?\r\n		Check the current remote host port number
Return value	[C1_CLIP_P1] Value is: <port>\r\nOK\r\n	

Command description: Remote host port number command sets the port number that communicates with W5500S2E-S1 module. The value range is 0 to 65535 (Port 80 has used for web port. Please avoid using this port number.) This command will only available for TCP client and UDP mode.

6.4.3.13 DNS server address (AT+DNS)

Command format	Parameter and description	Function description
AT+DNS=<dns>\r\n	<dns> DNS server address, default: 114.114.114.114	Set a new DNS server address
AT+DNS?\r\n		Check the current DNS server address
Return value	[DNS] Value is: <dns>\r\nOK\r\n	

Command description: DNS server address format is separate in 4 sections, each section is using 3 dots to separate it and presented in decimal values. The value range for each section is 0 -255 therefore the maximum value size for DNS server address is 15 bytes. This command could not accept xxx.xxx.xxx.0 or xxx.xxx.xxx.255 values input.

6.4.3.14 MAC address (AT+MAC)

Command format	Parameter and Description	Function description
AT+MAC?\r\n	No	Check the device's MAC address
Return value	[MAC] Value is: <mac>\r\nOK\r\n	

Command description: This address is W5500S2E-S1's Ethernet physical address. User could only check the device ID without any modification.

6.4.3.15 IP collection method (AT+IP_MODE)

Command format	Parameter and description	Function description
AT+IP_MODE=<mode>\r\n	<mode> 0: Static IP mode (default)	Set the new value

W5500S2E-S1 Serial to Ethernet Module

AT+IP_MODE?\r\n	1: DHCP mode	Check the current value
Return value	[IP_MODE] Value is: <mode>\r\nOK\r\n	

Command description: When using Static IP mode, it requires the user to input the IP address, gateway, subnet mask and DNS server address. In DHCP mode, W5500S2E-S1 will collect the above IP parameters from the DHCP server.

6.4.3.16 Web port number (AT+WEB_PORT)

Command format	Parameter and description	Function description
AT+WEB_PORT=<port>\r\n	<port> Web server port number, default: 80	Set the new web port number
AT+WEB_PORT?\r\n		Check the current web port number
Return value	[WEB_PORT] Value is: <port>\r\nOK\r\n	

Command description: This port number will be used on W5500S2E-S1's webserver through web browser. The value range is 0 to 65535. If the port wasn't set to 80, it needs to add the port number at the end of IP address. For example: 192.168.1.88:8000.

Note: If W5500S2E-S1 works on TCP Server mode, HTTP Port shouldn't be the same as Local port.

6.4.3.17 Remote host domain name (AT+DOMAIN)

Command format	Parameter and description	Function description
AT+DOMAIN=<domain>\r\n	<domain> Remote host domain name, default: www.iwiznet.cn	Set a new remote host domain name
AT+DOMAIN?\r\n		Check the current remote host domain name
Return value	[DOMAIN] Value is: <domain>\r\nOK\r\n	

Command description: This command sets the remote domain name, so please do not enter IP address format to this command. This prevents inconvenient due to IP confliction. This command requires "AT+DNSEN" command to analysis DNS domain name. This command will only available on TCP client and UDP modes.

6.4.3.18 DNS function (AT+DNSEN)

Command format	Parameter and description	Function description
AT+DNSEN=<dns>\r\n	<dns> 0: Close DNS function (default) 1: Open DNS function	Set the new value
AT+DNSEN?\r\n		Check the current value
Return value	[DNSEN] Value is: <dns>\r\nOK\r\n	

Command description: After Opening DNS function, W5500S2E-S1 can use remote host

through domain name. Every time the module has power up, it activates DNS function. This command will only available on TCP client and UDP modes.

6.4.3.19 Reconnect time (AT+RECONTIME)

Command format	Parameter and description	Function description
AT+RECONTIME=<time>\r\n	<time> Reconnect time, default: 0	Set the new time
AT+RECONTIME?\r\n		Check the current time
Return value	[RECONTIME] Value is: <time>\r\nOK\r\n	

Command description: This command sets the reconnect waiting time while the module has disconnected with a TCP server. This command will only available on TCP client mode and default value is 0 for direct reconnection. Value range is 0 to 60000. Unit: ms.

6.4.3.20 NetBIOS function (AT+NETBIOS)

Command format	Parameter and description	Function description
AT+NETBIOS=<netbios>\r\n	<netbios> 0: Close NetBIOS function (default) 1: Open NetBIOS function	Set the new value
AT+NETBIOS?\r\n		Change the new value
Return value	[NETBIOS] Value is: <netbios>\r\n	

Command description: After open NetBIOS function, user could use web browser to search the module by entering “http://device name” for visiting W5500S2E-S1 configuration website.

6.4.4 Serial control command

6.4.4.1 Serial interface 1 parameters (AT+COM1)

Command format	Parameter and description	Function description
AT+COM1=[baud],[datab],[parity],[stopb],[c]\r\n	[baud]: Refer to AT+C1_BAUD; [datab]: Refer to AT+C1_DATAB; [parity]: Refer to AT+C1_PARITY; [stopb]: Refer to AT+C1_STOPB; [c]: Refer to AT+C1_SER_C	Set a new value
AT+COM1?\r\n		Check the current value
Return value	[COM1] Value is: [baud],[datab],[parity],[stopb],[c]\r\n	

6.4.4.2 Baud Rate (AT+C1_BAUD)

Command format	Parameters and description	Function description
AT+C1_BAUD=<baud>\r\n	<baud> 0: 1200; 1: 2400; 2: 4800; 3: 9600; 4: 14400; 5: 19200; 6: 38400; 7: 56000; 8: 57600; 9: 115200 (default); 10: 128000; 11: 234000; 12: 256000; 13: 468000; 14: 921600; 15: 1152000	Set a new value
AT+C1_BAUD?\r\n		Check the current value

Return value	[C1_BAUD] Value is: <baud>\r\n
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6.4.4.3 Data bit (AT+C1_DATAB)

Command format	Parameter and description	Function description
AT+C1_DATAB=<datab>\r\n	<datab> 0: 7 bit 1: 8 bit (default)	Set a new value
AT+C1_DATAB?\r\n		Check the current value
Return value	[C1_DATAB] Value is: <datab>\r\n	

6.4.4.4 Stop Bit (AT+C1_STOPB)

Command format	Parameter and description	Function description
AT+C1_STOPB=<stopb>\r\n	<stopb> 0: 0.5 bit 1: 1 bit (default) 2: 1.5 bit 3: 2 bit	Set a new value
AT+C1_STOPB?\r\n		Check the current value
Return value	[C1_STOPB] Value is: <stopb>\r\n	

6.4.4.5 Parity bit (AT+C1_PARITY)

Command format	Parameter and description	Function value
AT+C1_PARITY=<parity>\r\n	<parity> 0: none (default) 1: Odd 2: Even	Set a new value
AT+C1_PARITY?\r\n		Check the current value
Return value	[C1_PARITY] Value is: <parity>\r\n	

6.4.4.6 Serial flow control (AT+C1_SER_C)

Command format	Parameter and description	Function description
AT+C1_SER_C=<c>\r\n	<c> 0: None (default) 1: Hardware flow control	Set a new value
AT+C1_SER_C?\r\n		Check the current value
Return value	[C1_SER_C] Value is: <c>\r\n	

Command description: This command activates Hardware flow control. In high speed data communication, this could improve the receiving data accuracy.

6.4.4.7 Buffer Clear out serial Buffer (AT+C1_BUF_CLS)

Command format	Parameter and description	Function description
AT+C1_BUF_CLS=<cls>\r\n	<cls> 0: Keeps data in serial after connection has created (default) 1: Clear data in serial after connected has created	Set a new value
AT+C1_BUF_CLS?\r\n		Check the current value
Return value	[C1_BUF_CLS] Value is: <cls>\r\n	

Command description: If a disconnection has created in the period of data communication, serial buffer may still contain some data that didn't send out. After the module has reconnected with the remote host, this command could handle usage of those remaining data in serial interface.

6.4.4.8 Data packaging size (AT+C1_SER_LEN)

Command format	Parameter and description	Function description
AT+C1_SER_LEN=<len>\r\n	<len> The length of the data package, value range: 0 ~ 2048 bytes, default: 0 (Disable data packaging by size)	Set a new Size
AT+C1_SER_LEN?\r\n		Check the current size
Return Value	[C1_SER_LEN] Value is: <len>\r\n	

Command description: During the continuous data communication progress, data could receive or transmit randomly. This function provides a setting to allow data send or receive in a standard package each time.

6.4.4.9 Serial Nagle wait time (AT+C1_SER_T)

Command format	Parameter and description	Function description
AT+C1_SER_T=<time>\r\n	<time> Data packaging by time, value range: 0 ~ 9999, unit: ms; default: 0 (disable data packaging by time)	Set the new time
AT+C1_SER_T?\r\n		Check the current time
Return value	[C1_SER_T] Value is: <time>\r\n	

Command description: If the module didn't receive any new data in a period of time, it will send out all the previous data as a package to the destination device.

6.4.4.10 Inactivity time (AT+C1_IT)

Command format	Parameter and description	Function description
AT+C1_IT=<time>\r\n	<time> Inactivity time to disconnect, value range 0~ 60000, unit: ms, default: 0 (close this feature)	Set the new inactivity time
AT+C1_IT?\r\n		Check the current inactivity time
Return value	[C1_IT] Value is: <time>\r\n	

Command description: When the module is working in TCP server or client mode, there has a chance that opponent device will disconnect with the module (forcibly disconnected or network failure). However, the module may not notify the disconnection occur and still maintain the

connection active. Thus, this creates each side cannot communicate each other or data delivery failure due to the module is still in communication stage.

By providing the timeout time for the module, if the module didn't receive any data within the timeout time, it will disconnect the connection. When the value of timeout time is 0, it will disable this feature and keeps the connection active.

6.4.4.11 Keep alive (AT+TCPAT)

Command format	Parameter and description	Function feature
AT+TCPAT=<time>\r\n	<time>	Set a new keep alive time
AT+TCPAT?\r\n	Keep alive time, value range: 0 ~65535, unit: 5s; default: 0 (close this feature)	Check the current keep alive time
Return value	[TCPAT] Value is: <time>\r\n	

Command description: Under TCP server protocol, W5500S2E-S1 will send out a Keep Alive package in a standard of time to check the connection is it active. If the module didn't receive any response from the Keep Alive package, it will automatically disconnect the connection.

6.4.4.12 Connection Password verification (AT+C1_LINK_P)

Command format	Parameter and description	Function description
AT+C1_LINK_P=<pass>\r\n	<pass>	Set the new value
AT+C1_LINK_P?\r\n	0: No password are required for TCP connection 1: Required password for TCP connection	Check the current value
Return value	[C1_LINK_P] Value is: <time>\r\n	

Command description: For providing a security communication platform, W5500S2E-S1 has a Connection Password verification feature to users. When the user created a communication in TCP protocol and this command was enable, the module requires a password confirmation from the Ethernet side. If the password is wrong, it requires re-entering password until it receives a correct password. Device password could use "AT+PASS" to check or set the password.

6.4.4.13 Create connection condition (AT+LINK_T)

Command format	Parameters and description	Function description
AT+C1_LINK_T=<link_t>\r\n	<link_t>	Set a new value
AT+C1_LINK_T?\r\n	0: Reconnect after power up the module (default) 1: Reconnect after received data from Serial interface	Check the current value
Return value	[C1_LINK_T] Value is: <link_t>\r\n	

Command description: In TCP client mode, the connection is starts from W5500S2E-S1. This function is allowed the module starts to create the connection after the module will receive the first pack of data from serial interface. This data will be deleted internally by the module.

The actual data will start from the second package that received from the serial interface.

6.4.4.14 Connected message (AT+C1_LINK_M)

Command format	Parameter and description	Function description
AT+C1_LINK_M=<link_m>\r\n	<link_m> 0: No message (default) 1: Send Device ID 2: Send MAC address 3: Send IP address	Set a new value
AT+C1_LINK_M?\r\n		Check the current value
Return value	[C1_LINK_M] Value is: <link_m>\r\n	

Command description: Only operate on TCP communication, it will send out device message after the connection has created.

6.4.4.15 Serial interface send counter (AT+C1_SEND_NUM)

Command format	Parameter and description	Function description
AT+C1_SEND_NUM?\r\n	No	Check serial interface's sent out data in bytes
Return value	<C1_SEND_NUM> Value is: <num>\r\nOK\r\n	

Command description: The maximum value: 4294967295 bytes.

6.4.4.16 Serial interface receive counter (AT+C1_RCV_NUM)

Command format	Parameter and description	Function description
AT+C1_RCV_NUM?\r\n	No	Check the serial interface's received data in bytes
Return value	<C1_RCV_NUM> Value is: <num>\r\nOK\r\n	

Command description: The maximum value: 4294967295 bytes.

6.5 AT command configuration examples

6.5.1 Set into TCP server mode example

```
AT/n/r                                     //Terminal check
OK/n/r
AT+ECHO=1/n/r                             //Echo ON
[ECHO] Value is:1/n/r
AT+CI_OP=0 /n/r                           //Operation mode in TCP Server
[CI_OP] Value is:0/n/r
OK/n/r
AT+IP_MODE=0/n/r                          //Set into static IP mode
[IP_MODE] Value is:0/n/r
OK/n/r
AT+IP=192.168.1.88/n/r                    //Set local IP address
[IP] Value is:192.168.1.88/n/r
OK/n/r
AT+CI_PORT=5000/n/r                       //Set the local port number
[CI_PORT] Value is:5000/n/r
OK/n/r
AT+EXIT/n/r                               //Save the settings and switch to data mode
```

6.5.2 TCP client mode example

```
AT/n/r                                     //Terminal check
OK/n/r
AT+ECHO=1/n/r                             //ECHO "ON"
[ECHO] Value is:1/n/r
AT+CI_OP=1 /n/r                           //Operation mode in TCP Client mode
[CI_OP] Value is:1/n/r
OK/n/r
AT+IP_MODE=1/n/r                          //Set into DHCP mode
[IP_MODE] Value is:1/n/r
OK/n/r
AT+CI_PORT=5000/n/r                       //Set the local port number
[CI_PORT] Value is:5000/n/r
OK/n/r
AT+CI_CLI_IP1=192.168.1.99/n/r            //Set the remote host IP address
[CI_CLI_IP1] Value is:192.168.1.99/n/r
OK/n/r
AT+CI_CLI_PP1=5000/n/r                   //Set the remote host port number
[CI_CLI_PP1] Value is:5000/n/r
OK/n/r
AT+EXIT/n/r                              //Save the settings and switch to data mode
```


6.5.3 UDP mode example

```
AT/n/r                                     //Terminal Check
OK/n/r
AT+ECHO=1/n/r                             //Echo ON
[ECHO] Value is:1/n/r
AT+CI_OP=2 /n/r                           //Operation mode in UDP mode
[CI_OP] Value is:2/n/r
OK/n/r
AT+IP_MODE=1/n/r                          //Set into DHCP mode
[IP_MODE] Value is:1/n/r
OK/n/r
AT+CI_PORT=5000/n/r                       //Set local port number
[CI_PORT] Value is:5000/n/r
OK/n/r
AT+CI_CLI_IP1=192.168.1.99/n/r            //Set remote host IP address
[CI_CLI_IP1] Value is:192.168.1.99/n/r
OK/n/r
AT+CI_CLI_PPI=5000/n/r                   //Set remote host Port number
[CI_CLI_PPI] Value is:5000/n/r
OK/n/r
AT+EXIT/n/r                               //Save the settings and switch to data mode
```

7 Webpage configuration

W5500S2E-S1 modules support Webpage configuration, this module suggest to use IE 11 or above, Chrome or Firefox. For other browsers, it may show errors or not working properly conditions. The following example is using Chrome browser to explain

Before using webpage configuration, it needs to make sure W5500S2E-S1 is in a correct condition. For LAN condition, the module and PC needs to be in the same network segment. In Remote condition, W5500S2E needs to port forward to public IP address. The following testing is based on LAN condition.

7.1 Web Main page

Open Chrome browser, please input W5500S2E-S1's IP address into address Bar. Default: 192.168.1.88. The following figure 7-1 shows the login page.

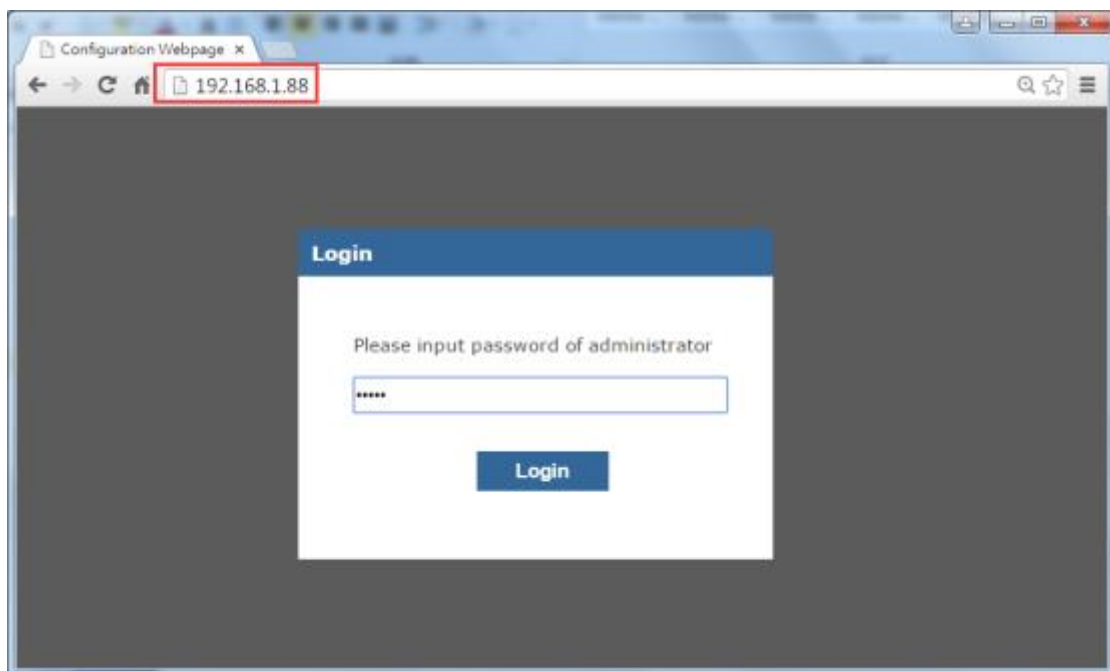


Figure 7-1 Login page

The default password is “admin”, click login button to enter W5500S2E-S1 main page. Please know that the time period for W5500S2E-S1 webserver only available for 5 minutes. If over 5 minutes, it requires re-login to the configuration page.

Figure 7-3 shows the basic information for the webpage. If exiting this site, please press “Logout” that shows on the right top corner of the webpage

This page shows the basic information of the W5500S2E-S1 module. It has separate into four parts; the following paragraph provides related description for each section.



Figure 7-3 basic information page

Product Information

Device name of the module, the factory default setting is W5500S2E-S1 and it could change from advanced setting page.

Serial number of the module, the last 3 parts of the serial number will be equal to the last 6 bit of the MAC address for specify the module.

Firmware version of the module

Temperature: Shows 0°C degree, reserved function

Run Time: W5500S2E-S1's operation time. Unit: seconds

Serial Rx: Shows the received data in bytes from serial interface

Serial Tx: Shows the sent data in bytes from serial interface

Network Information

DHCP: Shows the DHCP mode is it active, default: close, could change from basic setting

IP Address: Shows the current IP address, default: 192.168.1.88, could change from basic settings

Subnet: Shows the current subnet mask, default: 255.255.255.0, could change from basic settings

Gateway: Shows the current gateway, default: 192.168.1.1, could change from basic settings

DNS Server: Shows the current DNS address, default: 114.114.114.114, could change from basic settings

Socket Information

Mode: Shows the operation mode, default as TCP server and could change from basic settings

Local Port: Shows the local port, default: 5000, could change from basic setting

Remote Host: Shows the Remote Host IP address, default: 192.168.1.99, could change from basic settings

Remote Port: Shows the Remote host Port number, default: 5000, could change from basic

settings

UART Information

Baud Rate: Shows the baud rate, default: 115200, could change from basic settings

Date Bit: Shows the data bit, default: 8, could change from basic settings

Parity: Shows the parity bit, default: none, could change from basic settings

Stop Bit: Shows the stop bit, default: 1, could change from basic settings

Flow Control: Shows the flow control settings, default: none, could change from basic settings.

7.2 Basic settings

Figure 7-4 shows W5500S2E-S1 basic setting page and it separate into 4 sections. The following will provide related description on each section.

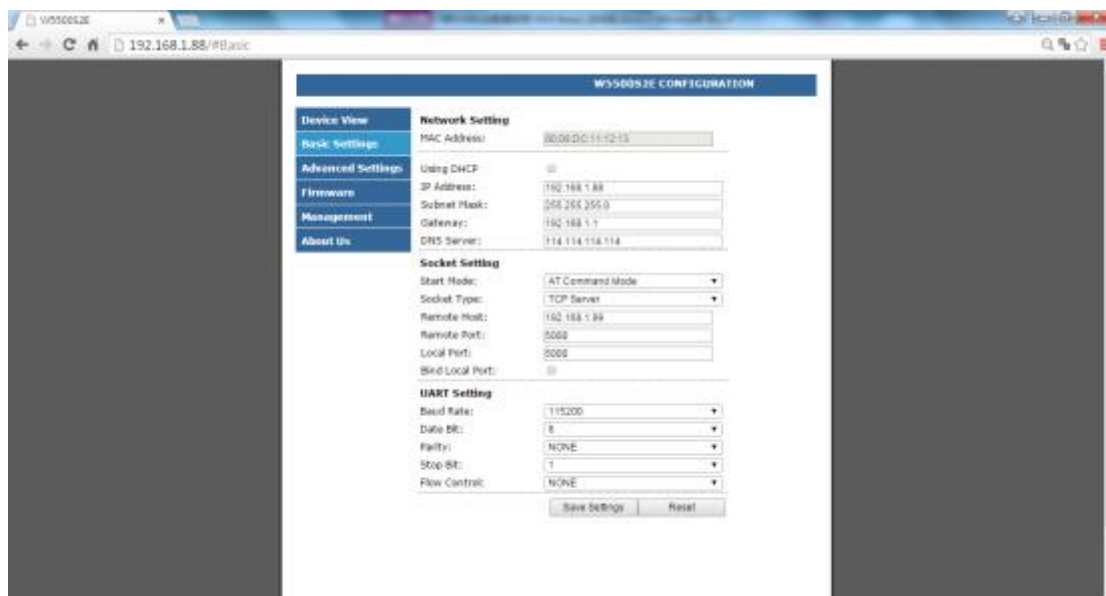


Figure 7-4 Basic setting page

Network Setting

MAC Address: Shows MAC address, It provides with the module, user cannot change this section

Use DHCP: DHCP mode option, click the box to activate this feature

IP Address: Shows the IP address, default: 192.168.1.88, user could configure from column

Subnet Mask: Shows the Subnet Mask, default: 255.255.255.0, user could configure from this column

Gateway: Shows the Gateway, default: 192.168.1.1, user could configure from this column

DNS Server: Shows the DNS address, default: 114.114.114.114, user could configure from this column

Socket Setting

Start Mode: Startup mode of the module, it could set in AT command or data mode. The

next reset or power up of the module will base on this setting to activate on that mode.

Socket Type: The module's operation mode: There are 3 types to use. TCP Server, TCP client and UDP mode

Remote Host: Shows Remote host IP address, default: 192.168.1.99, user could configure this column, it accepts IP address or domain name inputs

Remote Port: Shows Remote host port number, default: 5000, user could configure this column

Local Port: Local Port number, default: 5000, user could configure this column. The value range is 0 to 65535 (Port 80 has used for web port. Please avoid using this port number.)

Bind Local Port: Binding Local Port option, clicking the box to activate this feature, only available on TCP client mode

UART Setting

Baud Rate: Shows the baud rate option, default: 115200, user could configure within 4.8kps to 1.152Mbps

Data Bit: Shows the data bit option, default: 8, it could set into 7 or 8 bits

Parity: Shows the parity bit option, default: 8, it could set into NONE, ODD or EVEN options

Stop Bit: Shows the stop bit option, default: 1, it could set into 0.5, 1, 1.5 or 2 bits

Flow Control: Shows the Flow control option, default is NONE, it could set into NONE or CTS/RTS mode.

Save Settings: The button to save all these settings, it shows pop-up window with "Success Saved" message.

Reset: Button to reset, if the user doesn't need to configure on advanced settings, please press the reset button for resetting the module; after reset, the previous settings will activate.

7.3 Advance settings

Figure 7-7 shows the advance setting page of W5500S2E-S1 module. Please refer the following detail description of this page.

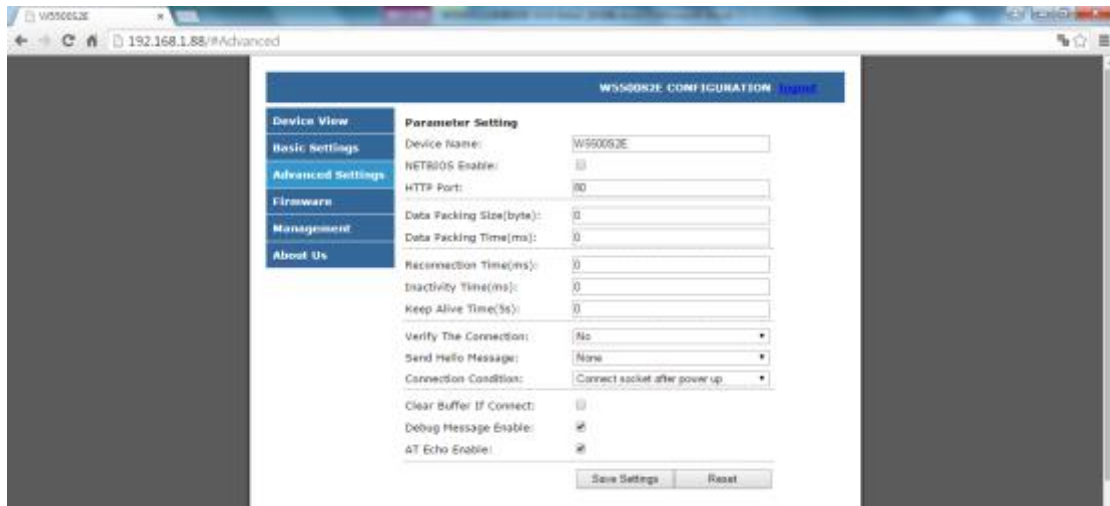


Figure 7-7 Basic setting page

Device Name: Shows the device name, default: W5500S2E-S1, user could make its own definition, it could be any characters, Maximum 16 bit

NETBIOS Enable: NetBIOS option, click the NetBIOS to activate this feature, default: disable; if activated, user could use W5500S2E-S1 (Not case sensitive) to login to the webserver of this module. For more information, please refer 6.4.3.20 section.

HTTP Port: Shows W5500S2E-S1's web port number, default : 80, The value range is 0 to 65535. If the port wasn't set to 80, then need to input the port at the end of IP address. For example: 192.168.1.88:8000.

Data Packing Size (byte): Input size for data packaging, default: 0 (feature disables), maximum size: 2048 bytes.

Data Packing Time (ms): Input time for data packaging, default: 0 (Feature disables), maximum size: 2048 bytes.

Reconnection Time (ms): Set the time for reconnection, only available in TCP client mode, default: 0 (instant reconnection), value range: 0 to 60000, unit: ms

Inactivity Time (ms): Set the inactivity time period, only available on TCP modes, value range: 0 ~ 60000, unit: ms, default: 0 (feature disable)

Keep Alive Time (5s): Set the Keep alive time, only available on TCP modes, value range: 0 ~ 65536, unit:5s, default: 0 (feature disable)

Verify the Connection: Verifies the connection through “check password” for TCP security reason; under TCP Server mode, when client has created connection with the module, client are required to send device password as to activate the communication with the module. If not, it will disconnect. Default: No (feature disable)

Send Hello Message: Connected message input, only available on TCP modes, user could chose “None” as no message deliver (default), “Send Device Name” to send device name, “Send MAC address” to send device's MAC address or “Send IP address” to send device IP address

Connection Condition: Condition for Connection column, only available for TCP client mode, User could choose “Connect socket after power up” to create connection while the module is powered (default) or “Connect socket after UART received data” to create connection while the module received data from the serial interface.

Clear Buffer if Connect: Column to decide the clear buffer condition, only available on TCP modes; if connection has been cut off in an unexpected condition, there may have serial data didn't through. Thus, this condition is to consider these remaining data should send out or not. Clicking this section activates this feature, default: close.

Debug Message Enable: Shows debug message information, click this box will activate the module to show serial debug message, default: activated.

AT Echo Enable: Activate AT command Echo, Echo feature means W5500S2E-S1 module could directly return the input values to the serial interface. Thus, users could configure the module easily through serial terminal software. However, users should have issues with embedded systems. Therefore turning off this feature will reduce error occur with embedded systems devices. Click to activate this feature.

7.4 Firmware Information

Clicking "Firmware" tab will let you get into this page that shows on figure 7-8. It contains 2 sections.

Firmware Version

Firmware: W5500S2E-S1 current firmware version.

Firmware Update

Please refer section 8-2 for more information on upgrading firmware.

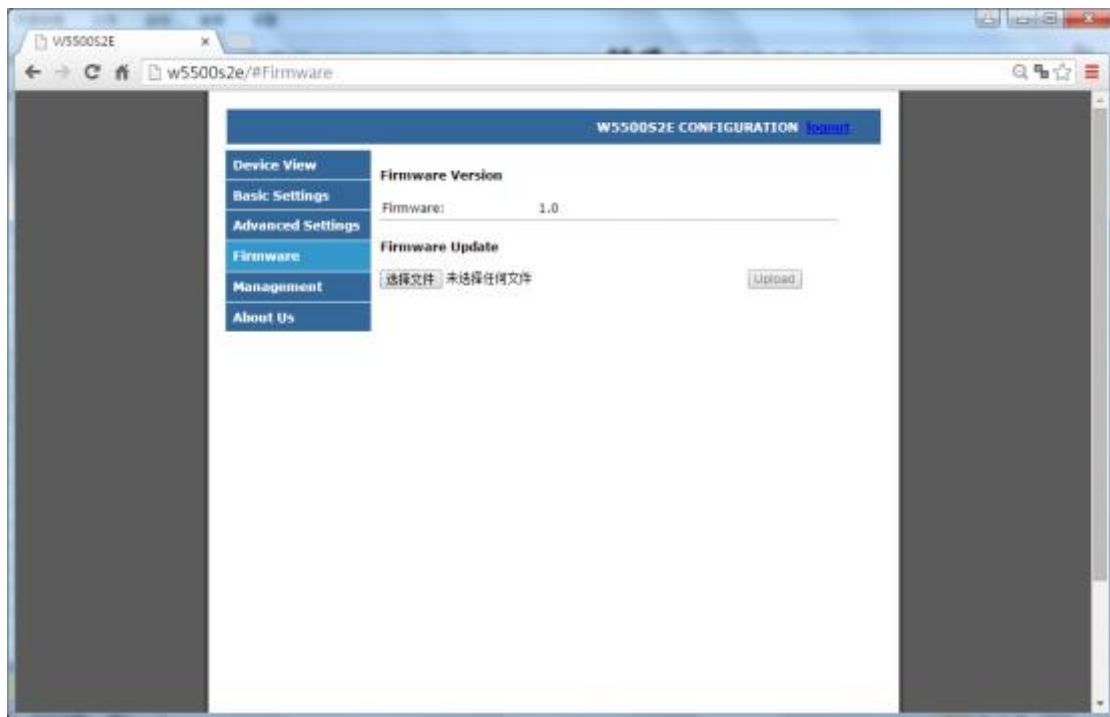


Figure 7-8 Firmware upgrade information page

7.5 Device management

Clicking "Management" to get into device management page as figure 7-9, this page contains 2 sections.

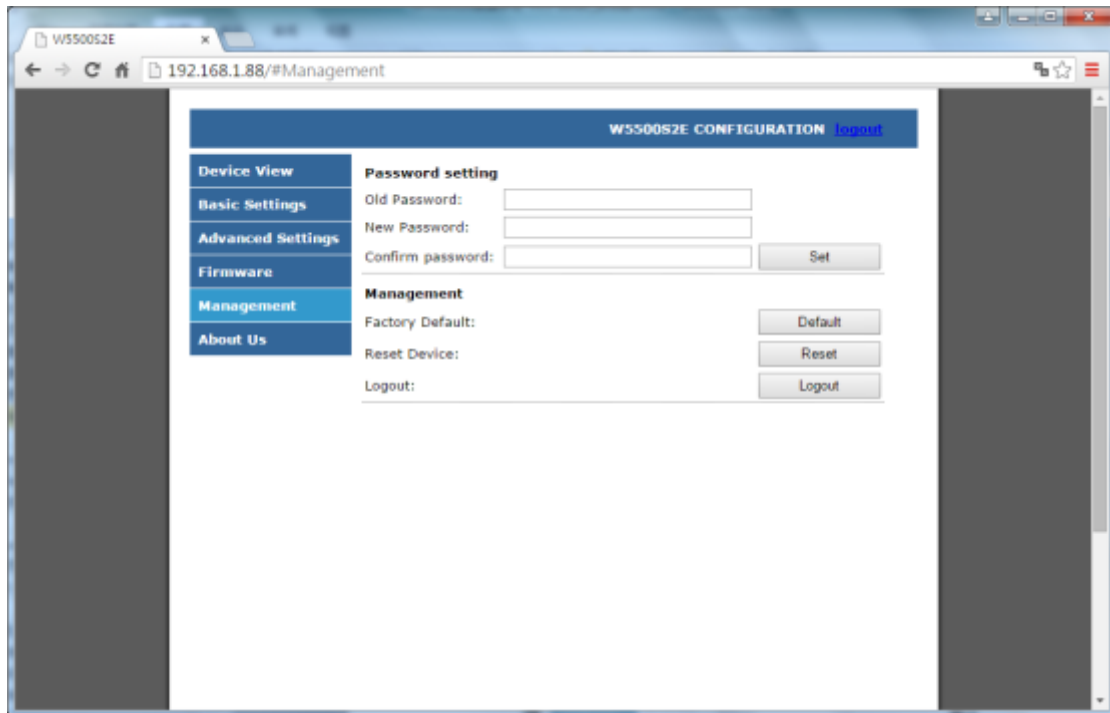


Figure 7-9 device management page

Password setting

Old Password: the old password, default: admin

New Password: Enter new password, maximum for 16 byte, it needs to be numbers, alphabets or the combination of both. It does not accept blank as input value.

Confirm Password: Re-enter the new password

Set: Submit button for renewing password, when current password and the new passwords are correct, it shows a pop-up window for password changed confirmation. Please check confirm and back to login page.

Management

Factory Default: Webpage factory reset button, pressing this button will activate factory reset procedure. It shows a pop-up window for re-confirmation is procedure, please click “confirm” for factory reset procedure and back to login page.

Reset Device: Reset the module

Logout: Logout to login page

8 Firmware Upgrade

W5500S2E-S1 supports configuration tools and remote webpage firmware upgrade. This two types of upgrades is easy to use, the following information shows the firmware upgrade in both methods

Note: the following firmware needs to be WIZnet HK's official W5500S2E-S1 binary format firmware.

8.1 W5500S2E-S1 firmware upgrade through ConfigTool

Firstly, the IP address for the module needs to be in the same network segment with the PC. Open serial terminal to check on the upgrading process. Search the module and click “Upload Firmware” button and choose the related Firmware as figure 8-1 shows.

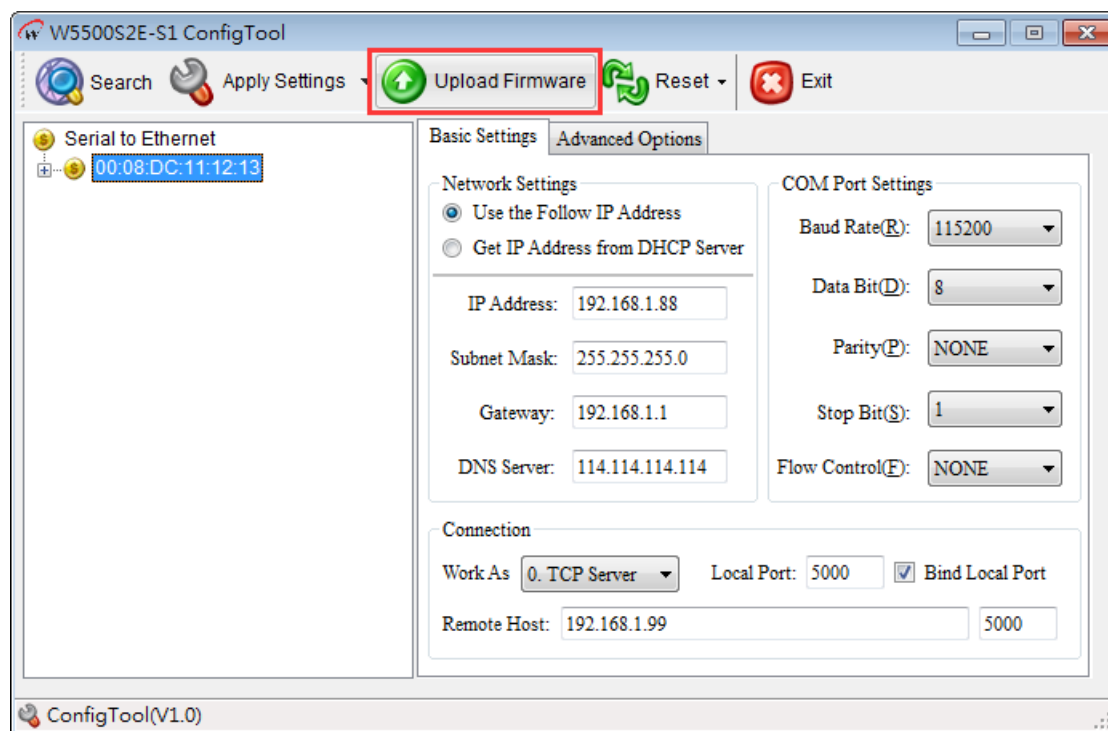


Figure 8-1 W5500S2E-S1 firmware upgrade through ConfigTool

Figure 8-2 shows the firmware upgrade progress has finished.

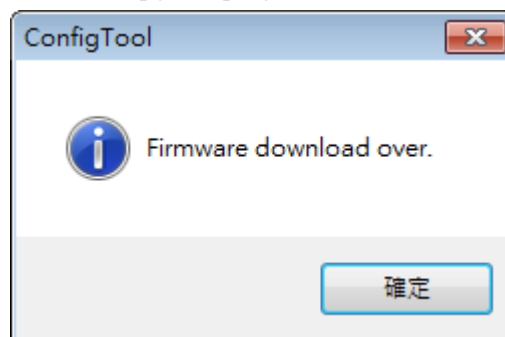


Figure 8-2 PC pop-up window Firmware upgrade complete

8.2 Firmware upgrade through configuration webpage

After you had login into the website, please go to “Firmware” page as figure 8-3 shows click button to find the related firmware for the module, then please press to upload the firmware upgrade procedure.



Figure 8-3 firmware upgrade page on webpage configuration

W5500S2E-S1 will restart the module after the upgrade has completed. The webpage will automatically back to login page.

RMA Procedure

WIZnet HK has promised to provide 1 year warranty in W5500S2E-S1 module for free. If the module has created a major problem in standard operation condition, user could ask for RMA before a year after the purchasing date of W5500S2E-S1 module. Users should follow the following procedures for RMA.

1. Provide purchasing prove on this module
2. Approved RMA procedure by WIZnet HK or official distributors
3. Filled in RMA form. Please provide detail reason for return and description of the failure.

This information will reduce the repairing time of the module.

4. Packed the module and send back to specified maintenance address with RMA form.

The following are the condition that RMA condition will not be coved. If the product is not under RMA condition and causes any damage, our office will charge the cost for replacing the components:

1. Damage caused by human or force majeure reasons.
2. Products without any purchasing prove.
3. 3. Products has over 1 year warranty.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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W5500S2E-S1 module is an advance technology product. There is a possibility on design failure or undiscovered error. If error was found, it saved in the errata. This may causes difference of version of firmware. If customer requested, our office will provide related errata.

Before purchasing the products, please contact our sales and customer services center for more information. Customers may purchase directly from WIZnet HK offices or official distributor for purchasing or collecting the latest specification of this module.

Statement

Application information

The figures and examples in this document are based on assumptions to let user to easily understand the characteristic and usage of this module. Customer should understand the characteristic of the module before having any development with the product.

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Sales & Customer Services Office

WIZnet H.K. Ltd.

Address: Unit 511, 5F Enterprise Place, No. 5 Science Park West Avenue, Hong Kong Science Park, Shatin N.T.

Tel: (+852) 3107-1088

Email: sales@wiznet.hk

Link: <http://www.wiznet.hk/>

WIZnet Beijing CS Center

Address: i107Room, 28th Floor, Posco Center, HongTai East Road, DaWangJing TBD, Chao Yang District, Beijing China

Tel: (+86) 010-8453-9673

Email: support.bj@wiznet.hk

Link: <http://www.iwiznet.cn/>

WIZnet Shenzhen R&D Center

Address: Section D, 6/F, Science Museum, 1003 Shangbu Middle Road, Futian area, Shenzhen

Tell: (+86) 0755-8860-1190

Email: support.bj@wiznet.hk

Link: <http://www.iwiznet.cn/>