W5500S2E module series support both data pass-through mode and AT data transfer mode. It supports TCP server, TCP clients and UDP 3 operation mode. Serial baud rate can be as high as 1.152Mbps. It can be configured by PC configuration utility, web page and AT command.

The unparalleled and robust of W5500S2E integrated 32bit MCU with the hardwired TCP/IP Ethernet chip W5500. Accompanied by a vast functionalities, makes the family of products the ideal choice, both for new design projects or an upgrading a current platform.

## Features

- Support dual mode: "Data pass-through" and "AT data transfer"
- Support TCP server, TCP client and UDP operating modes
- Support RS-485 enable pin of an external RS-485 transceiver
- Flexible data packet condition for the serial interface
- As DHCP client to automatically acquire IP address
- As DNS client to lookup domain name
- Support Modbus RTU/ASCII to Modbus TCP/UDP
- Support Modbus over TCP/UDP
- Support NetBIOS for easy access of web configuration page
- Support three configuration method: serial AT command, PC software and web page
- Support local and remote firmware upgrade
- Support "Keep-Alive" to guarantee TCP connection

## Specification

- 10/100Mbps Ethernet interface
- Serial interface: 3.3V TTL：TXD, RXD, CTS, RTS, GND
    - Baud Rate: From 1.2Kbps to 1.152Mbps with 16 common values
    - Data Bit: 7, 8
    - Stop Bit: 0.5, 1, 1.5, 2
    - Parity: None, Even, Odd
    - Flow Control: None, CTS/RTS
- Power supply:
    - W5500S2E-S1: DC 3.3V
    - W5500S2E-Z1: DC 5.0V
    - W5500S2E-R1: DC 3.3V
- Size: L x W x H (mm)
    - W5500S2E-S1: 34.00×24.00×12.40
    - W5500S2E-Z1: 44.45×31.75×15.75
    - W5500S2E-R1: 44.45×31.75×23.00
- Operating temperature: -40℃ ～ +85℃ (Industrial Grade)
- Storage environment: -40℃ ～ +85℃, 5 ～ 95% RH

**Document Revision History**

| Version | Date | Remarks |
|---------|------|---------|
| V1.0 | 2018/10/05 | Official Release |
| V1.1 | 2019/03/29 | Add new "Data transfer command"<br>Revised structure of document<br>Remove obsolete information<br>Updated all images |
| V1.1.1 | 2019/04/09 | Add electrical characteristics for W5500S2E-Z1 for $V_{IN}$ =5.0V |
| V1.1.2 | 2019/05/29 | Chapter 2.1.1 add W5500S2E-S1 pin description & figure of ACK_LED<br>Chapter 2.2 update W5500S2E reference schematics |

Copyright notice

Contact E-mail: supports@wiznet.hk

For more information, please visit: http://www.wiznet.com.hk/

**W5500S2E user manual**

## Table of Contents

# 1 Introduction

## 1.1 Overview

W5500S2E series modules have the following different part number which depends on different footprint and connectors:

Table 1-1 W5500S2E type comparison

| P/N | Photos | Features |
|---|---|---|
| W5500S2E-S1 |  | 1. Dimension: 34.00×24.00×12.40 (mm)<br>2. Network socket type: Ethernet transformer<br>3. Voltage input DC 3.3V<br>4. Operating temperature: -40°C ~ +85°C |
| W5500S2E-Z1 |  | 1. Dimension: 44.45×31.75×15.75 (mm)<br>2. Network socket type: Ethernet transformer<br>3. Voltage input DC 5.0V<br>4. Operating temperature: -40°C ~ +85°C |
| W5500S2E-R1 |  | 1. Dimension: 44.45×31.75×23.00 (mm)<br>2. Network socket type: RJ-45<br>3. Voltage input DC 3.3V<br>4. Operating temperature: -40°C ~ +85°C |

## Configuration methods

W5500S2E provides three configuration methods:

- User can configure the module by the WIZS2E ConfigTool utility, which is software running in Windows® environment. For details, please refer to chapter 4.
- Main MCU can send AT command through serial port for parameter configuration or user can send the AT command through serial port by a serial terminal software. For details, please refer to chapter 6.
- Web page configuration allows user to configure the module through web browsers in the same local area network. For details, please refer to chapter 7.

## 1.2 Specifications

## Electrical characteristics

### Voltage and current characteristics

The following tables show the voltage and current under $25^oC$ environment

Table 1-2 W5500S2E-S1 & W5500S2E-R1 Electrical characteristics ($V_{IN}$=3.3V)

| Symbol | Types | Ratings | | | |
|---|---|---|---|---|---|
| | | Min | Typical | Max | Unit |
| $V_{IN}$ | Module voltage | 2.97 | 3.3 | 3.6 | V |
| $I_{IN}$ | Module current | 118 | 106 | 97 | mA |

Table 1-3 W5500S2E-Z1 Electrical characteristics ($V_{IN}$=5.0V)

| Symbol | Types | Ratings | | | |
|---|---|---|---|---|---|
| | | Min | Typical | Max | Unit |
| $V_{IN}$ | Module voltage | 4.4 | 5.0 | 6 | V |
| $I_{IN}$ | Module current | 79 | 70 | 58 | mA |

### Current characteristics

Table 1-4 W5500S2E-S1 & W5500S2E-R1 Current characteristics ($V_{IN}$=3.3V)

| Working Mode | Ratings (mA) |
|---|---|
| Standby | 101 |
| Normal communication | 106 |

Table 1-5 W5500S2E-Z1 Current characteristics ($V_{IN}$=5.0V)

| Working Mode | Ratings (mA) |
|---|---|
| Standby | 65 |
| Normal communication | 70 |

## Dimension

Please refer to the figures below which shows the dimension of the module.

## W5500S2E-S1 layout and dimension
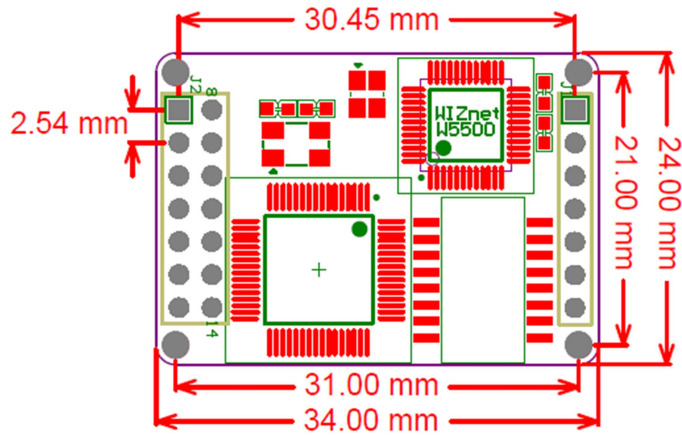


Figure 1-1 W5500S2E-S1 dimension - top view



Figure 1-2 W5500S2E-S1 dimension - side view

## W5500S2E-Z1 layout and dimension
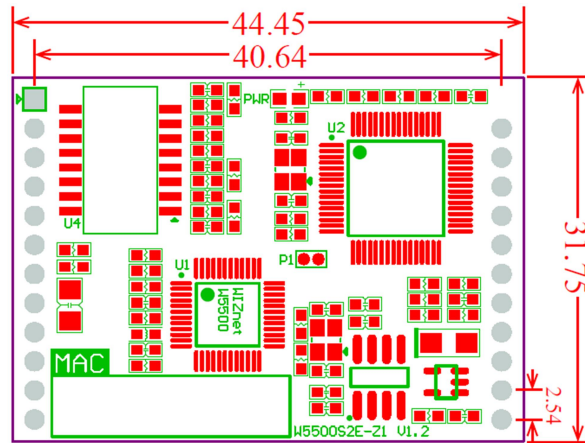


Figure 1-3 W5500S2E-Z1 dimension - top view

A power LED locates on the top of each module with a small + sign marking above.
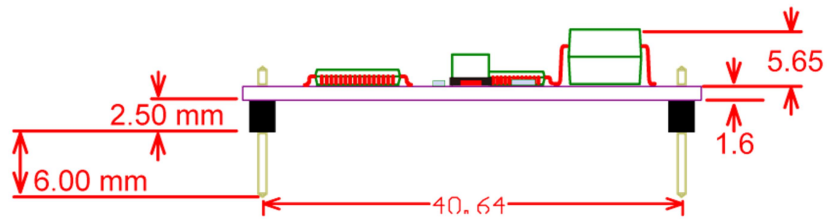


Figure 1-4 W5500S2E-Z1 dimension - side view

## W5500S2E-R1 layout and dimension
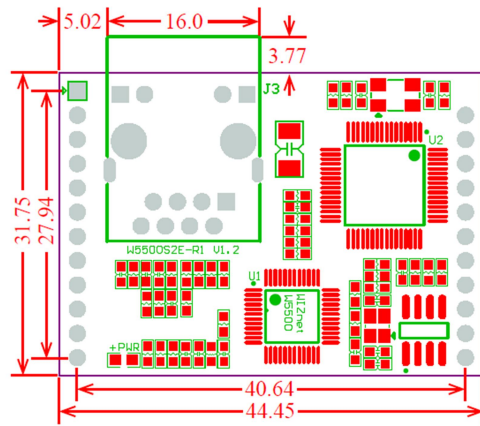


Figure 1-5 W5500S2E-R1 dimension - top view

A power LED locates on the top of each module with a small + sign marking above.
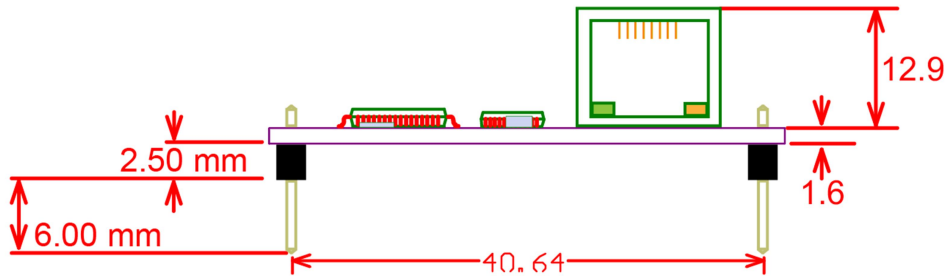


Figure 1-6 W5500S2E-R1 dimension - side view

## 2  Hardware description

## 2.1  Pin definition

## 2.1.1  W5500S2E-S1 pinout and pin definition

Table 2-1 W5500S2E-S1 pin definition
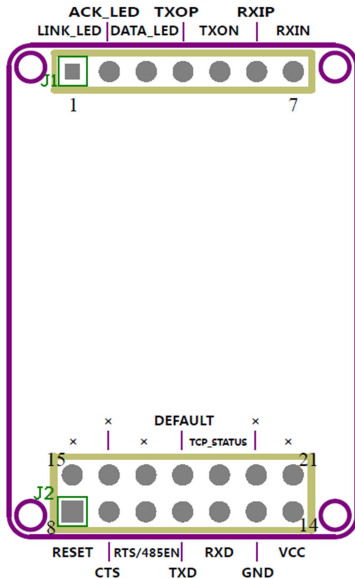


Figure 2-1 W5500S2E-S1 pinout

| Pin. | Pin Name | I/O | Description |
|------|----------|-----|-------------|
| 1 | LINK_LED | O | Ethernet link indicator |
| 2 | ACK_LED | O | MAC layer ACK indicator |
| 3 | DATA_LED | O | Ethernet & serial status indicator<br>Change status while data channel changes |
| 4 | TXOP | O | Ethernet TXOP signal |
| 5 | TXON | O | Ethernet TXON signal |
| 6 | RXIP | I | Ethernet RXIP signal |
| 7 | RXIN | I | Ethernet RXIN signal |
| 8 | RESET | I | Reset pin (pull down over 200ms) |
| 9 | CTS | I | UART flow control CTS signal pin |
| 10 | RTS | O | UART flow control RTS signal |
| | 485EN | O | Configurable as 485 enable pin<br>(This function is supported by firmware version is 2.3 or above) |
| 11 | TXD | O | UART TXD signal |
| 12 | RXD | I | UART RXD signal |
| 13 | GND | - | Ground |
| 14 | VCC | - | DC 3.3V |
| 15 | × | - | - |
| 16 | × | - | - |
| 17 | × | - | - |
| 18 | DEFAULT | I | Factory reset pin (pull down over 3s) |
| 19 | TCP_STATUS | O | TCP connection status indicator<br>High: TCP connection Close<br>Low: TCP connection Establish<br>(This function is supported by firmware version is 2.3 or above) |
| 20 | × | - | - |
| 21 | × | - | - |

## 2.1.2  W5500S2E-Z1 pinout and pin definition

Table 2-2 W5500S2E-Z1 pin definition



Figure 2-2 W5500S2E-Z1 pinout

| Pin | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | TXOP | O | Ethernet TXOP signal |
| 2 | TXON | O | Ethernet TXON signal |
| 3 | RXIP | I | Ethernet RXIP signal |
| 4 | RXIN | I | Ethernet RXIN signal |
| 5 | DATA_LED | O | Ethernet & serial status indicator<br>Change status while data channel changes |
| 6 | TXD | O | UART TXD signal |
| 7 | RXD | I | UART RXD signal |
| 8 | RTS | O | UART flow control RTS signal |
|  | 485EN | O | Configurable as 485 enable pin<br>(This function is supported by firmware version is 2.3 or above) |
| 9 | DEFAULT | I | Factory reset pin (pull down over 3s) |
| 10 | RESET | I | Reset pin (pull down over 200ms) |
| 11 | GND | - | Ground |
| 12 | GND | - | Ground |
| 13 | VCC | - | DC 5.0V |
| 14 | VCC | - | DC 5.0V |
| 15 | LINK_LED | O | Ethernet link indicator |
| 16 | × | - | - |
| 17 | × | - | - |
| 18 | × | - | - |
| 19 | × | - | - |
| 20 | × | - | - |
| 21 | CTS | I | UART flow control CTS signal pin |
| 22 | TCP_STATUS | O | TCP connection status indicator<br>High: TCP connection Close<br>Low: TCP connection Establish<br>(This function is supported by firmware version is 2.3 or above) |
| 23 | × | -- | -- |

## 2.1.3 W5500S2E-R1 pinout and pin definition

Table 2-3 W5500S2E-R1 pin definition



Figure 2-3 W5500S2E-R1 pinout

| Pin | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | × | - | - |
| 2 | × | - | - |
| 3 | × | - | - |
| 4 | × | - | - |
| 5 | DATA_LED | O | Ethernet & serial status indicator Change status while data channel changes |
| 6 | TXD | O | UART TXD signal |
| 7 | RXD | I | UART RXD signal |
| 8 | RTS | O | UART flow control RTS signal |
| | 485EN | O | Configurable as 485 enable pin (This function is supported by firmware version is 2.3 or above) |
| 9 | DEFAULT | I | Factory reset pin (pull down over 3s) |
| 10 | RESET | I | Reset pin (pull down over 200ms) |
| 11 | GND | - | Ground |
| 12 | GND | - | Ground |
| 13 | VCC | - | DC 3.3V |
| 14 | VCC | - | DC 3.3V |
| 15 | LINK_LED | O | Ethernet link indicator |
| 16 | × | - | - |
| 17 | × | - | - |
| 18 | × | - | - |
| 19 | × | - | - |
| 20 | × | - | - |
| 21 | CTS | I | UART flow control CTS signal pin |
| 22 | TCP_STATUS | O | TCP connection status indicator High: TCP connection Close Low: TCP connection Establish (This function is supported by firmware version is 2.3 or above) |
| 23 | × | -- | -- |

## 2.2 WIZS2E-EVB breakout board

The WIZS2E-EVB evaluation board provides a simple and speedy connection for evaluating the W5500S2E-Z1 and the W5500S2E-R1. The connectors and I/O are shown below.
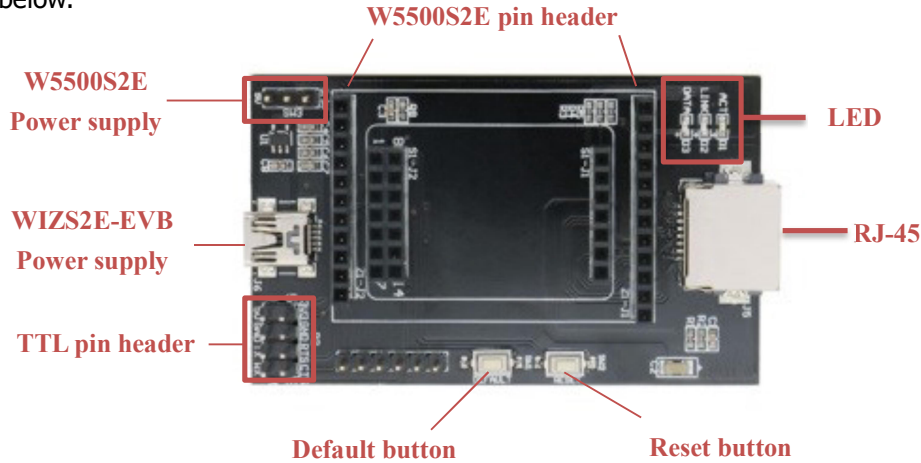


Figure 2-4 WIZS2E-EVB breakout board

WIZS2E-EVB evaluation board integrates RJ45, UART (TTL) and mini USB interfaces.

◆ RJ45 (J5) interface pin assignment                  "×" indicate for not connected
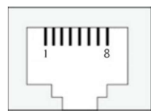
| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | RXIN | 5 | × |
| 2 | RXIP | 6 | TXOP |
| 3 | TXON | 7 | × |
| 4 | × | 8 | × |

◆ P2 interface pin Assignment
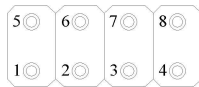
| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | 5.0V | 5 | 3.3V |
| 2 | GND | 6 | GND |
| 3 | TXD | 7 | RTS |
| 4 | RXD | 8 | CTS |

◆ The mini USB Interface (J6) pin assignment

Note: This mini USB connector is only for the power supply 5V DC of the evaluation board.
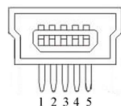
| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | 5.0V | 4 | × |
| 2 | × | 5 | GND |
| 3 | × | 7 | RTS |

◆ SW3 is power supply selection jumper for 5V or 3.3V; please short the corresponding voltage to the Vcc pin.
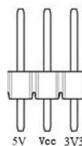
| Pin | Signal | Description |
|-----|--------|-------------|
| 5V | 5.0V | Short with Vcc for W5500S2E-Z1 |
| Vcc | Vcc | Short with 5V or 3V3 for Vcc voltage- |
| 3V3 | 3.3V | Short with Vcc for W5500S2E-R1 |

1. WIZSE evaluation board button description

Table 2-4 WIZS2E-EVB breakout board button description

| Button | Description |
|---|---|
| SW1 (default) | Press button over 3 seconds for factory reset |
| SW2 (RESET) | Hardware reset button |

2. WIZS2E-EVB breakout board LED description

Table 2-5 WIZS2E-EVB breakout board LED description

| LED | Description |
|---|---|
| ACT | Ethernet ACT indicator |
| LINK | Ethernet LINK indicator |
| DATA | Ethernet & serial status indicator |
| | Change status while data channel changes |

1. W5500S2E-S1 reference schematic
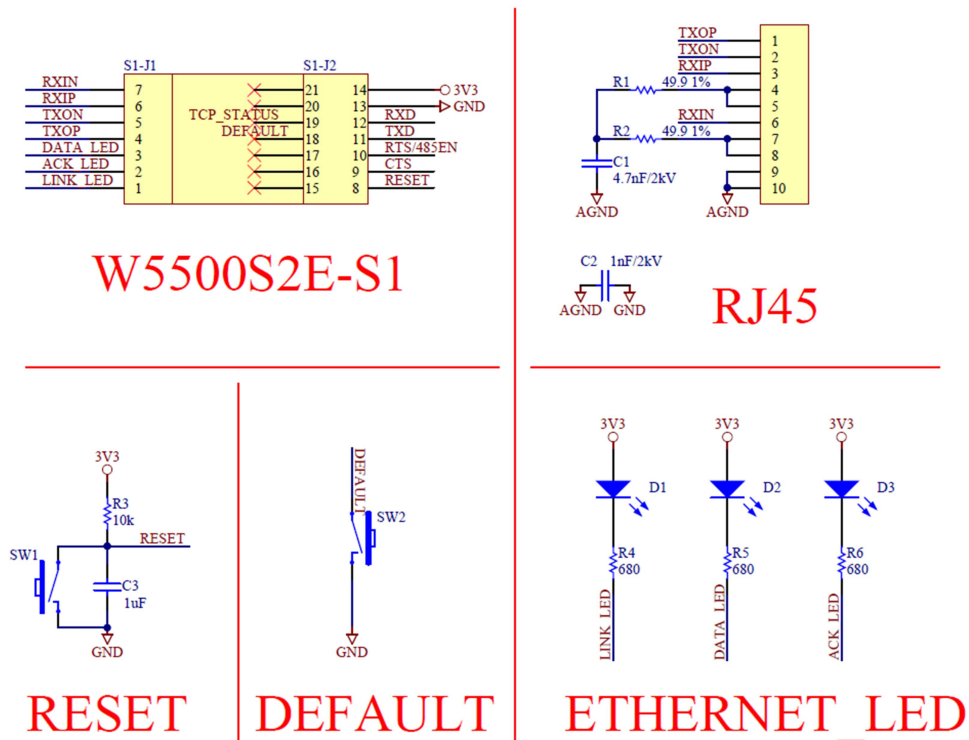


Figure 2-5 W5500S2E-S1 reference schematic

2．W5500S2E-Z1 reference schematic
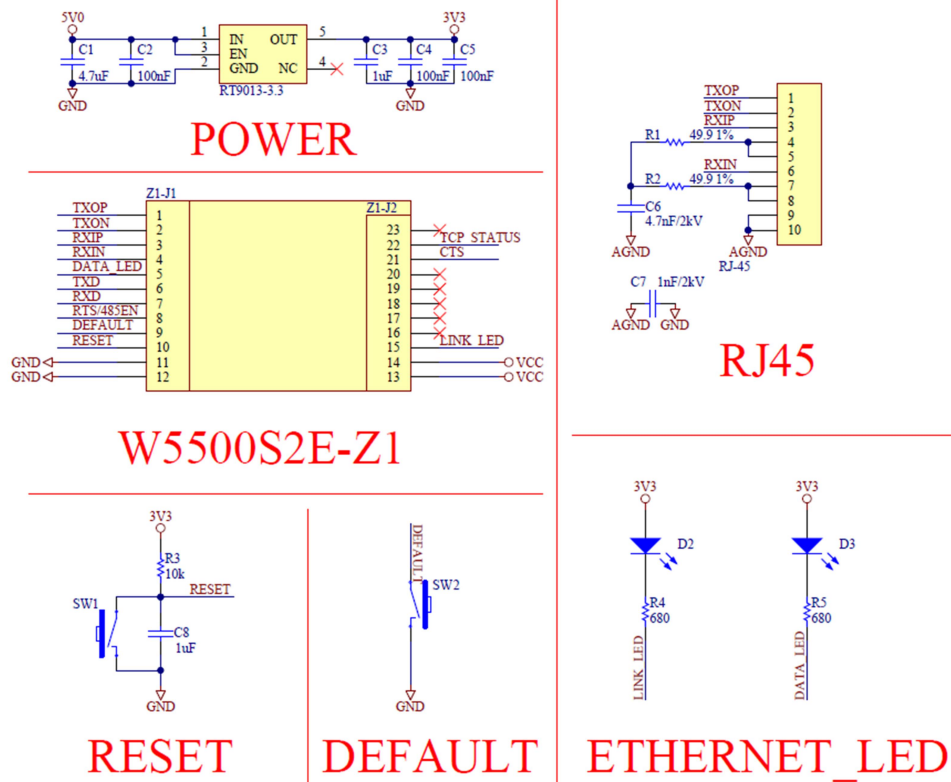


Figure 2-6 W5500S2E-Z1 reference schematic

3．W5500S2E-R1 reference schematic
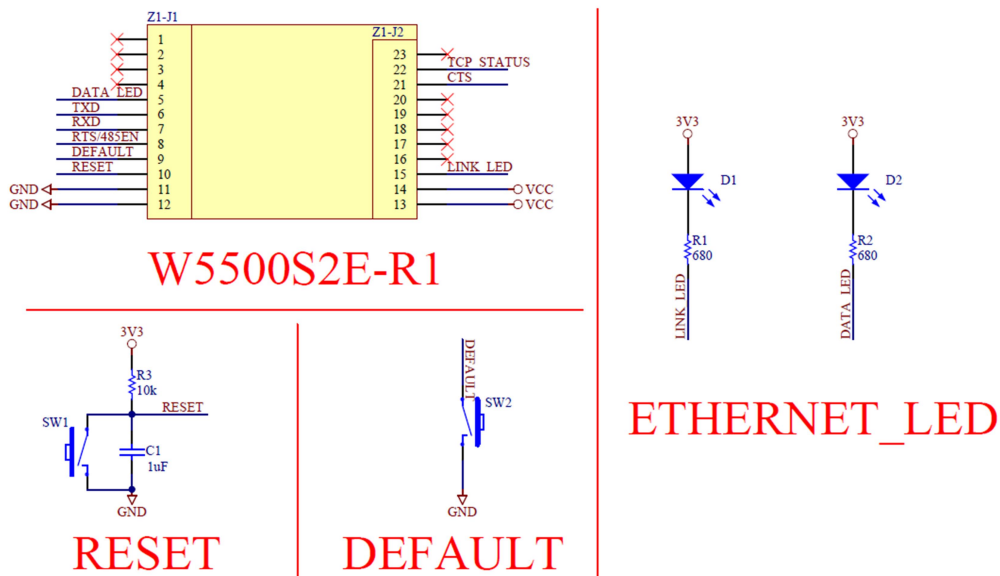


Figure 2-7 W5500S2E-R1 reference schematic

## 2.3 Quick testing guide

WIZS2E module can convert any devices with serial interface to have Ethernet connectivity easily. It is recommended using the WIZS2E-EVB breakout board for the evaluation testing for W5500S2E module. First insert the W5500S2E onto the WIZS2E-EVB. Then connect the serial port of the WIZS2E-EVB using a serial-to-USB dongle or cable to connect the USB port of the PC. Besides, connect the Ethernet port of the WIZS2E-EVB to the Ethernet port of the PC with Ethernet cable. With this setup, the W5500S2E becomes the bridge between the serial port and the Ethernet port.
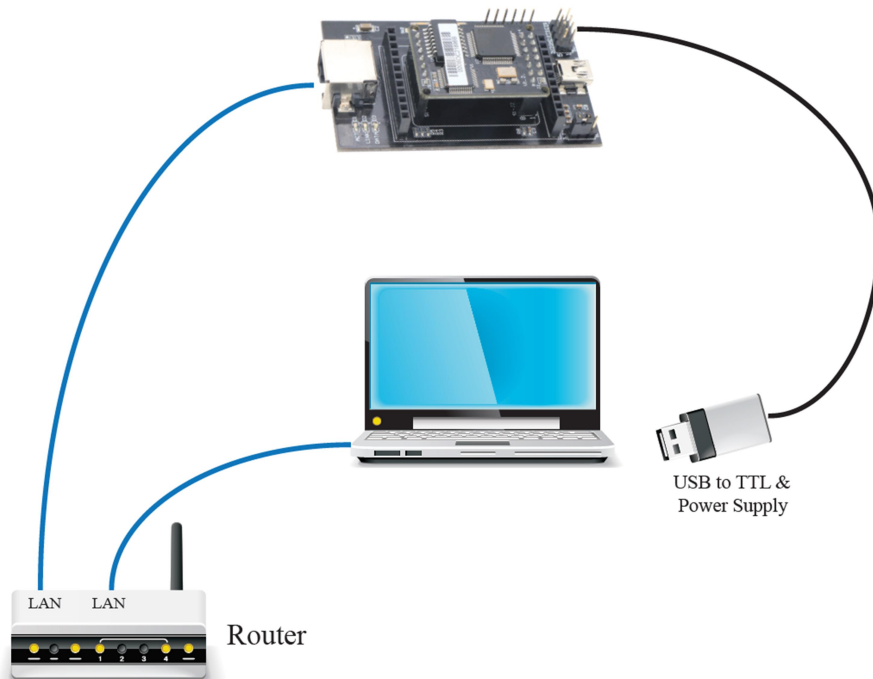


Figure 2-8 W5500S2E module testing evaluation block diagram

# 3  Operating modes

W5500S2E module supports TCP server, TCP client, and UDP and Modbus modes. The followings demonstrate these operating modes.

## 3.1  TCP server mode
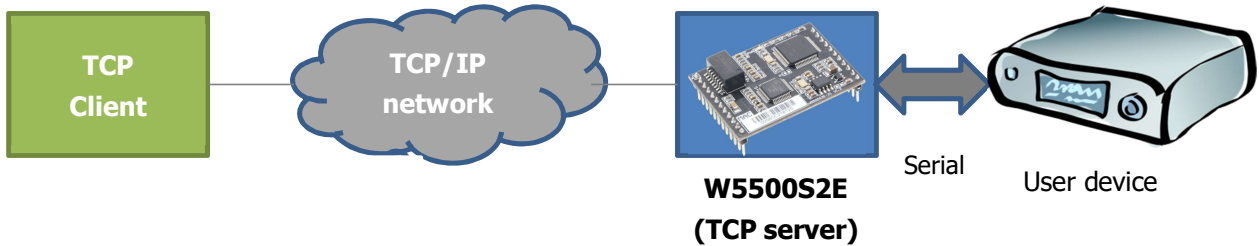


Figure 3-1 TCP server mode diagram

In TCP server mode, W5500S2E listens on a local port and waiting for the connection from a TCP client. They can start communication each other after link established.

## 3.2  TCP client mode
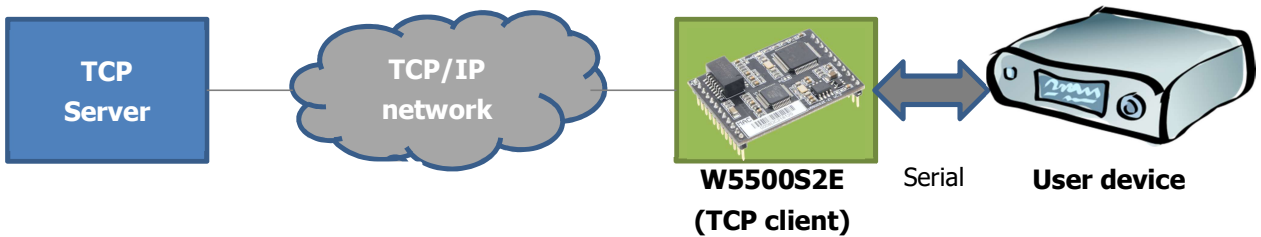


Figure 3-2 TCP client mode diagram

In TCP client mode, W5500S2E connects to a preset TCP server. If failure to connect, it can be configured to re-connect continuously. They can start communication each other after link established.

## 3.3  UDP mode
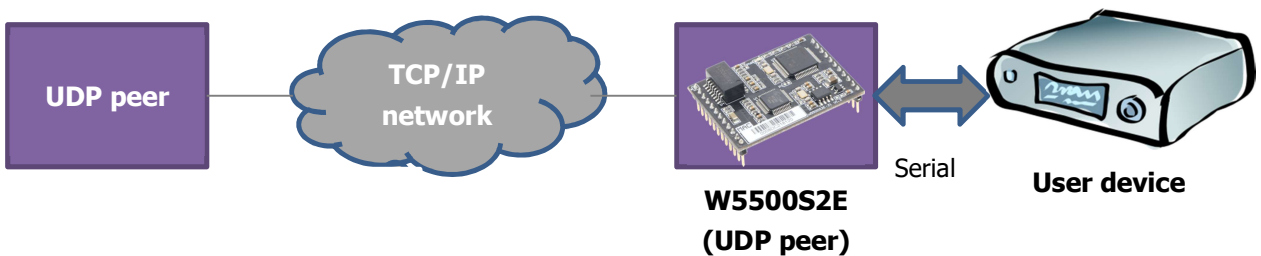


Figure 3-3 UDP mode diagram

In UDP mode, W5500S2E acts as an UDP peer to send data to another preset UDP peer. W5500S2E can also receive data from other UDP peers.

**W5500S2E user manual**

## 3.4 Modbus mode
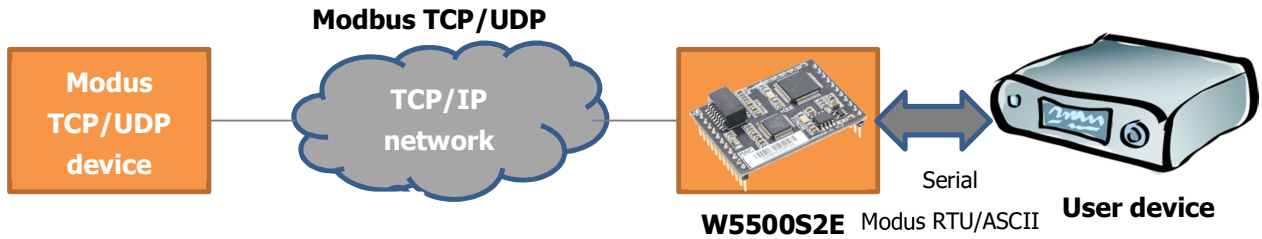


Figure 3-4 Modbus mode diagram

In Modus mode, W5500S2E acts as a bridge between Modus RTU/ASCII protocols to Modbus over TCP/UDP protocols. Also W5500S2E can also support Modbus over TCP/UDP communication.

Note: The Modus function of W5500S2E is only valid under "Data pass-through mode".

"AT data transfer" mode does not support Modus function.

This function is supported by firmware version is 2.3 or above

# 4  Data transfer mode

W5500S2E series serial-to-Ethernet module has two mode of data transfer mode to choose from. It includes "Data pass-through mode" & "AT data transfer command mode". Whereas "AT data transfer command mode" is supported by firmware version 2.3 and above

## 4.1  Data pass-through mode

Data pass-through mode of W5500S2E has the following characteristics
1.  To configure W5500S2E to transmit data, parameters need to be configured in AT command before switching into "data pass-through mode"
2.  Module will enter the preset mode and parameter after module entered into "data pass-through mode"
    ①  In TCP server mode, it will listen on a local port and wait for a TCP client connection
    ②  In TCP client mode, it will connect to the preset remote TCP server until connection establish
    ③  In UDP mode, no connection is needed. Module will wait for the data
3.  After establish TCP connection or entered UDP mode, data will be pass-through between the serial and Ethernet ports according to the preset settings
4.  If the TCP connection is closed, module will act as below
    ①  In TCP server mode, it will listen on a local port again and wait for a TCP client connection
    ②  In TCP client mode, it will reconnect to the preset remote TCP server
5.  If the MCU would like to change the parameters. It is need to exit the "data pass-through mode" and enter into AT command mode for configure the parameters

## 4.2  AT data transfer command mode

AT data transfer command mode of W5500S2E has the following characteristics
1.  To configure W5500S2E to transmit data, parameters can be configured in AT command mode. Sending data in "AT data transfer command mode" does not require switching mode
2.  After configure the parameter, data can be send directly in AT command mode for TCP or UDP communication
    ①  In TCP server mode, it will listen on a local port and wait for a TCP client connection
    ②  In TCP client mode, it will connect to the preset remote TCP server. If connection cannot be establish within 3s. It is need to resend command to reconnect.
    ③  In UDP mode, no connection is needed. Module will wait for the data
3.  After establish TCP connection or entered UDP mode, data can be sent or received for single packet at a time only

**W5500S2E user manual**

4. If TCP connection is close. It is need to reconnected using AT command.

5. If parameters changes are needed, it can be configured directly using AT command.

Note: "AT data transfer command mode" is supported by firmware version is 2.3 or above

## 4.3 How to enter "Data pass-through mode"

There is three ways for entering the "data pass-through mode".

1 By AT command (For details, please refer to chapter 6 "RESET & "EXIT" command)

2 Web page (For details, please refer to chapter 7)

3 WIZS2E ConfigTool utility (For details, please refer to chapter 5)

## 5 WIZS2E ConfigTool

WIZS2E ConfigTool is Windows® software compatibles to all WIZS2E modules. It can be used to read, configure all settings and firmware updating for WIZS2E modules.

Note: It is recommended to turn off the firewall before using the ConfigTool. Also, there must no conflict of IP address in the same LAN.

## 5.1 Reading module information

When starting ConfigTool or clicking the [Search] button, WIZS2E ConfigTool will search all WIZS2E modules that have connected in the same LAN. Figure below shows the search result with one module in the network. By selecting the MAC address in the list, you can read and configure all the parameters of this module.
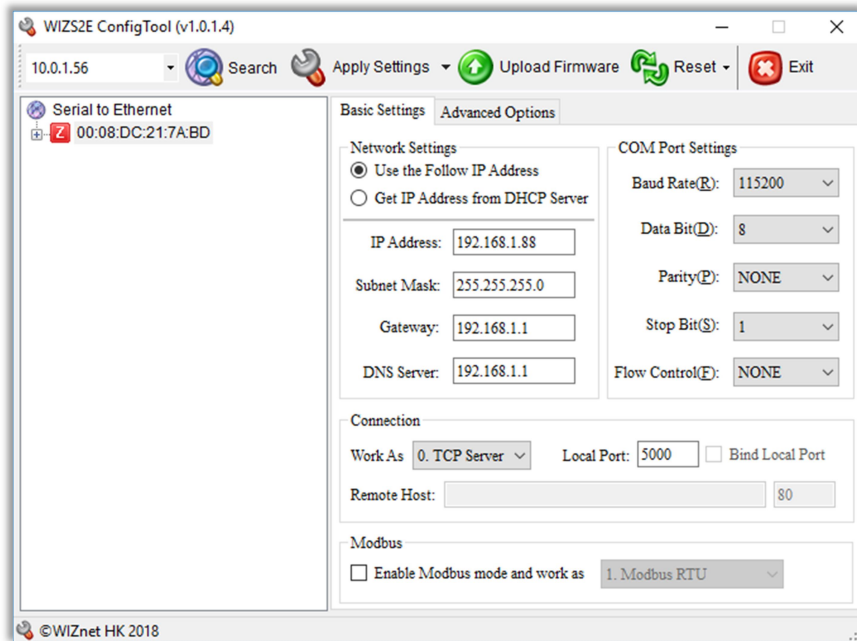


Figure 5-1 WIZS2E ConfigTool "Basic Settings"
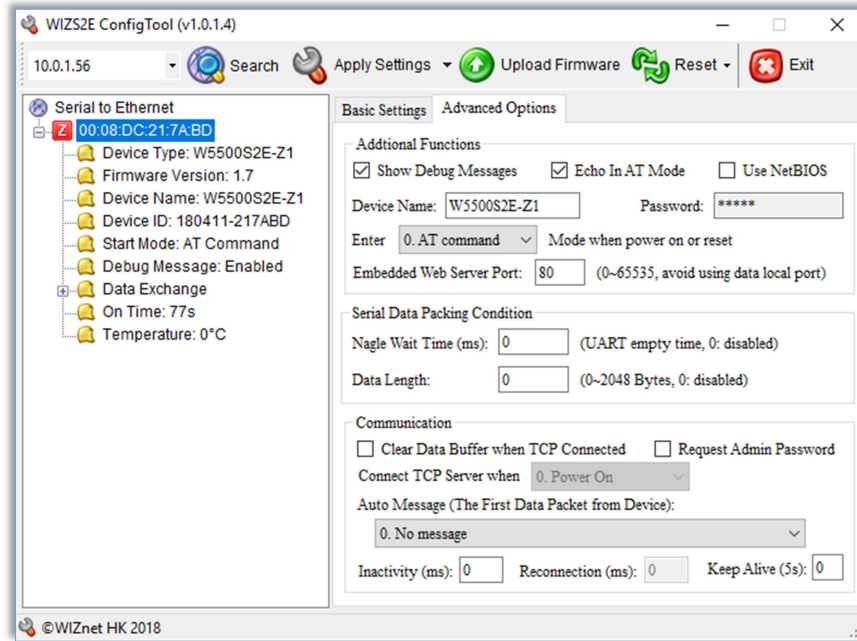
Figure 5-2 WIZS2E ConfigTool "Advance Options"

## 5.2 Modify the device settings

If there is any updated parameter, please click [Apply Settings] button to save your configuration and restart.
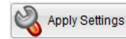
## 5.3 Reset the module

First click the "Reset" button and then to click the "Reset Now!" button to reset the module without saving any setting

## 5.4 Useful features

## Switching PC network interface

If the PC has more than one network interface, user can select the network interface which connecting to the module. By selecting "Update IP list!" the interface list will be refreshed.
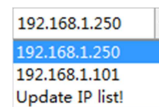
# Right-click context menu

WIZS2E ConfigTool provides additional options via the context menu. When right-click on a device in the list on the left side, the function list will appear as shown in the figure below.

1.  Expand/collapse all device details
2.  The device list can be sorted by MAC address or device type or device name
3.  The function "Search again!" is for users to keep the original device list unchanged. Newly searched device would be list under the current device list.
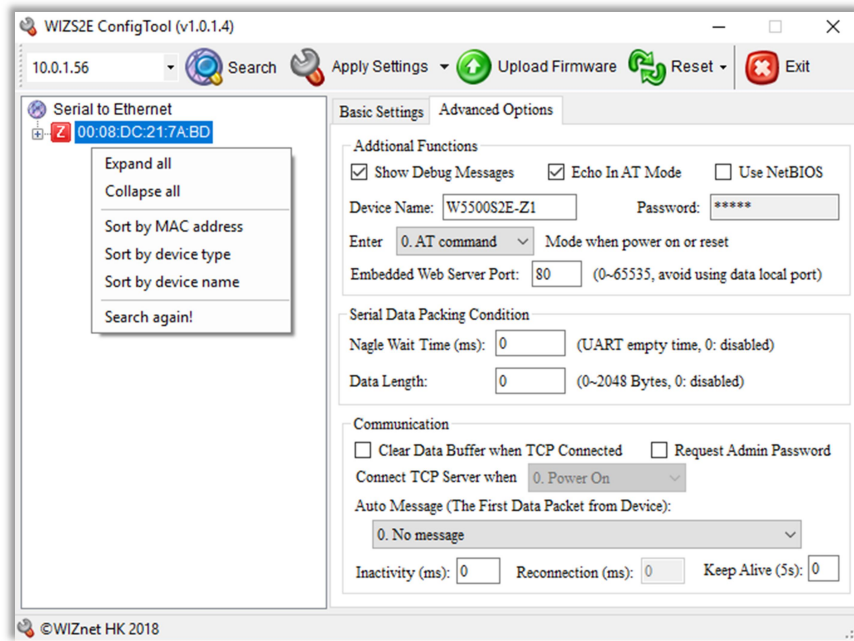


Figure 5-3 Right mouse click menu

# 6 Introduction of AT command

## 6.1 AT command overview

AT command can be sent to the serial port of W5500S2E running in AT command mode. AT command is case insensitive. AT command is always starting with string "AT" and ends with "\r\n". Each command has specific response and parameter format.

Below are difference types of AT command:

1. Commands without parameter

   Format: AT+<command>\r\n

   No extra parameters or symbol after the command.

   Example

   　Command: *AT+EXIT|r|n*

   　Response: *OK|r|n.*

2. Commands with parameter

   Format: AT+<command>=<parameter>\r\n

   These commands are for configure certain settings.

   Example

   　Command: *AT+ECHO=1|r|n*

   　Response: *[ECHO] Value is: 1|r|n OK|r|n*

3. Read commands

   Format: AT+<command>?\r\n

   These commands read the current settings value.

   Example

   　Command: *AT+ECHO?|r|n*

   　Response: *[ECHO] Value is: 1|r|n OK|r|n*

Based on different AT command sent, W5500S2E will return with corresponding response. The response type is shown in the table below.

## 6.2 AT command responds

Table 6-1 AT command responds list

| Response type | Response | Description |
|---|---|---|
| Error message | Command Invalid\r\nERROR\r\n | Invalid command |
| | <Error Info>\r\n | Invalid parameter or in the wrong mode |
| Success message | OK\r\n | Command is executed successfully |
| | [Command] Value is:<value>\r\nOK\r\n | |

## 6.3 Entering AT command Mode

W5500S2E has two modes, "AT command mode" and "Data pass-through mode". In "AT command mode", W5500S2E is waiting for the AT Command from the serial port. Different settings can be set by serial terminal software or through the serial port of the MCU.

Note: The existing connections will be closed when entering "AT command mode".

When W5500S2E is in "AT command mode" mode, sending "AT\r\n", it will respond with "OK\r\n" if it is working correctly.

In "Data pass-through mode", W5500S2E will not detect any AT command sending to the serial port. All messages received by the serial port will be regarded as data except the special "+++" code below, which switching the module into AT command mode.

Note: "+++" code rules - It is needed to send "+" symbol continuously in 3 times through the serial port with 1 second time gap both before and after the "+++".

## 6.4 AT command list

W5500S2E module serial-to-Ethernet module supports serial AT command for configuration. Also it support sending data through the AT command mode. "AT data transfer command" and "save" command are supported by firmware version 2.3 and above.

## 6.4.1 AT setting command list

AT setting command is used for configure or read the parameter of W5500S2E. AT command has attribute R: Read, W: Set, R/W: Read and set

Table 6-2 AT command list

| Type | Command | Function | Attribute | Max length | Parameters |
|------|---------|----------|-----------|------------|------------|
| Control command | AT | Terminal check | R | - | - |
| | ECHO | Enable or disable echoing | R/W | 1 | 0: Echo off<br>1: Echo on (default) |
| | DEBUGMSGEN | Debug message | R/W | 1 | 0: Disable<br>1: Enable (default) |
| | NAME | Module name | R/W | 15 | Must be numbers, alphabets or the combination of both |
| | PASS | Module password | R/W | 15 | Must be numbers, alphabets or the combination of both (Default: admin) |
| | DEFAULT | Reset to factory default | W | 15 | Module password |
| | RESET | Save and restart module | W | 15 | Reset if parameter equals to password |
| | EXIT | Exit AT command | W | - | - |
| | SAVE | Save settings | W | - | - |

| Type | Command | Function | Attribute | Max length | Parameters |
|---|---|---|---|---|---|
| Module settings command | START_MODE | Start mode | R/W | 1 | 0: AT command mode (default)<br>1: Data pass-through mode |
| | C1_OP | Operating mode | R/W | 1 | 0: TCP server mode (default)<br>1: TCP client mode<br>2: UDP mode<br>16: Modbus RTU-TCP Server<br>17: Modbus RTU-TCP Client<br>18: Modbus RTU-UDP<br>32: Modbus ASCII-TCP Server<br>33: Modbus ASCII-TCP Client<br>34: Modbus ASCII-UDP<br>48: Modbus RTU over TCP Server<br>49: Modbus RTU over TCP Client<br>50: Modbus RTU over UDP<br>64: Modbus ASCII over TCP Server<br>65: Modbus ASCII over TCP Client<br>66: Modbus ASCII over UDP<br>(The Modbus functions are supported by firmware version is 2.3 or above) |
| | IP_MODE | IP configuration method | R/W | 1 | 0: Static IP mode (default)<br>1: DHCP mode |
| | IP | IP address | R/W | 15 | Default: 192.168.1.88 |
| | MARK | Subnet mask | R/W | 15 | Default: 255.255.255.0 |
| | GATEWAY | Gateway | R/W | 15 | Default: 192.168.1.1 |
| | DNS | DNS server address | R/W | 15 | Default: 114.114.114.114 |
| | C1_PORT | Local port number | R/W | 5 | 1 ~ 65,535; Default: 5000 |
| | C1_BIND | Local port binding | R/W | 1 | Valid only in TCP Client mode:<br>0: Disable (default)    1: Enable |
| | DNSEN | DNS for remote host | R/W | 1 | 0: Disable (default)    1: Enable |
| | C1_CLI_IP1 | Remote host IP address | R/W | 15 | Default: 192.168.1.99 |
| | C1_CLI_PP1 | Remote host port number | R/W | 5 | 1 ~ 65,535; Default: 5000 |
| | DOMAIN | Remote host name | R/W | 32 | Default: www.iwiznet.cn |
| | RECONTIME | Reconnection interval | R/W | 5 | Valid only in TCP client mode<br>Value range: 0~60000; Unit: ms<br>Default: 0 (reconnect immediately) |
| | NETBIOS | NetBIOS | R/W | 1 | 0: Disable (default)<br>1: Enable |

| Type | Command | Function | Attribute | Max length | Parameters |
|---|---|---|---|---|---|
| Serial settings command | COM1 | Serial parameter | R/W | 10 | Default: 9.0.0.1.0 |
| | C1_BAUD | Baud rate index | R/W | 2 | 0: 1,200   6: 38,400   12: 256,000<br>1: 2,400   7: 56,000   13: 468,400<br>2: 4,800   8: 57,600   14: 921,600<br>3: 9,600   9: 115,200   (default)<br>4: 14,400   10: 128,000   15: 115,200<br>5: 19,200   11: 234,000 |
| | C1_DATAB | Data bit index | R/W | 1 | 0: 7 bit      1: 8 bit (default) |
| | C1_STOPB | Stop bit | R/W | 1 | 0: 0.5      2: 1.5<br>1: 1 bit (default)      3: 2 |
| | C1_PARITY | Parity bit | R/W | 1 | 0: Disable (default)   1: Odd   2: Even |
| | C1_SER_C | Serial flow control /<br>RS-485 enable output | R/W | 1 | 0: Disable (default)<br>1: Enable CTS/RTS hardware flow control<br>2: Enable 485EN pin |
| | C1_BUF_CLS | Clear Buffer if Connected | R/W | 1 | Valid only in TCP modes<br>0: Disable (default)<br>1: Enable |
| | C1_SER_LEN | Serial data packing length | R/W | 4 | Value range: 0~2048 byte<br>Default: 0 (Disable) |
| | C1_SER_T | Serial data packing Nagle wait time (ms) | R/W | 5 | Value range: 0~60000, unit: ms;<br>Default: 0 (Disable) |
| | C1_IT | Inactivity timeout (ms) | R/W | 5 | Valid only in TCP modes<br>Value range: 0 ~ 60000, unit: ms;<br>Default: 0 (disable this function) |
| | C1_TCPAT | TCP keepalive interval | R/W | 3 | Valid only in TCP modes<br>Value range: 0~255, unit 5s;<br>Default: 0 (Disable) |
| | C1_LINK_P | TCP password authentication | R/W | 1 | Valid only in TCP server mode<br>0: Disable (Default)<br>1: Enable |
| | C1_LINK_T | Connection Condition | R/W | 1 | Valid only in TCP client mode<br>0: Connect when power on (default)<br>1: Connect when receiving data from serial |
| | C1_LINK_M | Send Hello Message | R/W | 1 | Valid only in TCP modes<br>0: Disable (Default)<br>1: Send module name<br>2: Send MAC address<br>3: Send IP address |

| Type | Command | Function | Attribute | Max length | Parameters |
|---|---|---|---|---|---|
| Management command | C1_SEND_NUM | Serial sent byte | R | - | Range: 0 ~ 4,294,967,295 |
| | C1_RCV_NUM | Serial received byte | R | - | Range: 0 ~ 4,294,967,295 |
| | NETSEND | Network sent byte | R | - | Range: 0 ~ 4,294,967,295 |
| | NETRCV | Network received byte | R | - | Range: 0 ~ 4,294,967,295 |
| | PRE | List preset values | R | - | - |
| | LIST | List all commands | R | - | - |
| | RUNTIME | Module uptime | R | - | - |
| | VER | Firmware version | R | - | - |
| | MAC | MAC address | R | - | - |
| | SN | Serial number | R | - | - |
| | TYPE | Module P/N | R | - | - |
| | WEB_PORT | Web configuration port number | R/W | 5 | 1 ~ 65,535; Default: 80 |

## 6.4.2 AT data transfer command list

"AT data transfer command" is supported by firmware version 2.3 and above.

Table 6-3 AT command list

| Type | Command | Function | Attribute | Max length | Parameters |
|---|---|---|---|---|---|
| Data transfer command | LINK | PHY link status | R | - | 0: PHY link not connect<br>1: PHY link connected |
| | LISTEN | Listening on TCP | W | - | - |
| | CONNECT | Initiate TCP connection | W | - | - |
| | TCP_STATUS | TCP connection status | R | - | 0: TCP closed<br>1: TCP connected |
| | UDP | Establish UDP | W | - | - |
| | SEND | Send the length | W | 4 | Range: 0 ~ 2048<br>Default: 0 (any length) |
| | RCV | Receive the length | W | 4 | Range: 0 ~ 2048<br>Default: 0 (any length) |
| | RLEN | Receive data length | R | - | Remaining length to be received |
| | DISCON | Close socket | W | - | - |
| | CLEAR | Clear network receiving buffer | W | - | - |

## 6.5 AT command details

## 6.5.1 Control command

## AT (Terminal check)

| Command format | Parameters | Usage |
|---|---|---|
| AT | Nil | Read |
| **Response** | OK\r\n | |
| **Description** | If module is in AT command mode, return is value above | |
| **Example** | *Command: AT\|r\|n* <br> *Response: OK\|r\|n* | |

It will check if the module if it is working properly in AT command mode.

## ECHO (Enable or disable echoing)

| Command format | Parameters | Usage |
|---|---|---|
| AT+ECHO? | Nil | Read |
| AT+ECHO=<parameter> | 0: echo off <br> 1: echo on (default) | Set |
| **Response** | [ECHO] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+ECHO?\|r\|n* <br> *Response: [ECHO] Value is:1\|r\|nOK\|r\|n* | |

In AT command mode, echo on means the module could directly respond any input command line to the serial interface. Thus, this option may help users more easily through serial terminal software manually. However, this may increase the difficulty to parse the return output if the serial is connected to an MCU in an embedded system. Turn echo off in this case.

## DEBUGMSGEN (Debug message)

| Command format | Parameters | Usage |
|---|---|---|
| AT+DEBUGMSGEN? | Nil | Read |
| AT+DEBUGMSGEN=<parameter> | 0: Disable <br> 1: Enable (default) | Set |
| **Response** | [DEBUGMEGEN] Value is: <value>\r\nOK\r\n | |
| **Example** | *Command: AT+DEBUGMSGEN=1\|r\|n* <br> *Response: [DEBUGMSGEN] Value is:1\|r\|nOK\|r\|n* | |

This will enable debug message sending to the serial interface. Thus, this option may help users more easily through serial terminal software manually.

## NAME (Module name)

| Command format | Parameters | Usage |
|---|---|---|
| AT+NAME? | Nil | Read |
| AT+NAME=<parameter> | User defined device name. It must be numbers, alphabets or the combination of both. Maximum length is 15 byte. Cannot be null Default: Module P/N | Set |
| Response | [NAME] Value is:<value>\r\nOK\r\n | |
| Example | Command: AT+NAME=User1|r|n<br>Response: [NAME] Value is:User1|r|nOK|r|n | |

Module name can be user defined to identify the different devices in their application.

Note: When using NetBIOS name function, device name should follow the "AT+NETBIOS" naming rules.

## PASS (Module password)

| Command format | Parameters | Usage |
|---|---|---|
| AT+PASS? | Nil | Read |
| AT+PASS=<parameter> | User define password. It must be numbers, alphabets or the combination of both. Maximum length is 15 byte. It is case sensitive and cannot be null. Default: admin | Set |
| Response | [PASS] Value is:<value>\r\nOK\r\n | |
| Example | Command: AT+PASS=Admin1|r|n<br>Response: [PASS] Value is:Admin1|r|nOK|r|n | |

The password is used for factory reset, TCP password authentication, Web page login and the AT command "DEFAULT" and "RESET".

Note:

**Factory reset** – When factory reset by AT command, correct password must be input. Please refer to the "Default" command for details.

**TCP Password authentication** – If enable, the exact password need to be sent in the first packet. If password is correct, communication can be started; otherwise connection closed. For details, please refer to the C1_LINK_P command.

## DEFAULT (Reset to factory default)

| Command format | Parameters | Usage |
|---|---|---|
| AT+DEFAULT=<parameter> | Module password; Default: admin | Set |
| Response | OK\r\n | |
| Example | Command: AT+DEFAULT=admin|r|n<br>Response: OK|r|n | |

- Exact password must be input to execute this command
- When this command is successfully executed, the module restores all settings to factory default and enters to AT command mode.

## RESET (Save and restart the module)

| Command format | Parameters | Usage |
|---|---|---|
| AT+RESET=<parameter> | Module password; Default: admin | Set |
| **Response** | OK\r\n | |
| **Example** | *Command: AT+RESET=admin\|r\|n*<br>*Response: OK\|r\|n* | |

- Exact password must be input to execute this command
- It will save the current settings
- Restart the module so that the setting is effective
- The module will be in preset "Start mode" after reset.

## EXIT (Save and exit command mode)

| Command format | Parameters | Usage |
|---|---|---|
| AT+EXIT | Nil | Execute |
| **Response** | OK\r\n | |
| **Example** | *Command: AT+EXIT\|r\|n*<br>*Response: OK\|r\|n* | |

- It will save the current settings
- Restart the module and make the settings take effect
- Module will be entered into "Data pass-through mode"

## SAVE (Save settings)

| Command format | Parameters | Usage |
|---|---|---|
| AT+SAVE | Nil | Execute |
| **Response** | OK\r\n | |
| **Example** | *Command: AT+SAVE\|r\|n*<br>*Response: OK\|r\|n* | |

- It will save the current settings
- Make the settings take effect
- After execute this command, the module will be still in "AT command mode". This is for save the settings in the AT data transfer command mode.

Note: This command is supported by firmware version 2.3 and above.

## 6.5.2 Module settings command

## START_MODE (Start mode)

| Command format | Parameters | Usage |
|---|---|---|
| AT+START_MODE? | Nil | Read |
| AT+START_MODE=<parameter> | 0: AT command mode (default)<br>1: Data pass-through mode | Set |
| **Response** | [START_MODE] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+START_MODE=1|r|n*<br>*Response: [START_MODE] Value is:1|r|nOK|r|n* | |

This defines the starting mode after power on or reboot or executing the "RESET" command.

## C1_OP (Operating mode)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_OP? | Nil | Read |
| AT+C1_OP=<parameter> | 0: TCP Server (Default)<br>1: TCP Client<br>2: UDP | Set |
| **Response** | [C1_OP] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_OP=1|r|n*<br>*Response: [C1_OP] Value is:1|r|nOK|r|n* | |

It defines the operating mode for data transfer. If in AT data transfer command mode and using this command to change the operating mode. It is needed to use the command "DISCON" command to close the TCP/UDP communication first.

## IP_MODE (IP configuration mode)

| Command format | Parameters | Usage |
|---|---|---|
| AT+IP_MODE? | Nil | Read |
| AT+IP_MODE=<parameter> | 0: Static IP mode (default)<br>1: DHCP mode | Set |
| **Response** | [IP_MODE] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+IP_MODE=1|r|n*<br>*Response: [IP_MODE] Value is:1|r|nOK|r|n* | |

In static IP mode, the IP address, gateway, subnet mask and DNS server address are required configure by the user. In DHCP mode, device will get all above IP parameters from the DHCP server.

## IP (IP address)

| Command format | Parameters | Usage |
|---|---|---|
| AT+IP? | Nil | Read |
| AT+IP=<parameter> | Default: 192.168.1.88 | Set |
| **Response** | [IP] Value is:<value>\r\nOK\r\n | |
| **Example** | Command: AT+IP=192.168.1.88|r|n | |
| | Response: [IP] Value is:192.168.1.88|r|nOK|r|n | |

The IP address has format in human-readable notations for IPv4, such as 172.16.254.1; maximum length of IP address is 15 bytes. This value is effective only if IP configuration mode (IP_MODE) is in "Static IP mode".

## MARK (Subnet mask)

| Command format | Parameters | Usage |
|---|---|---|
| AT+MARK? | Nil | Read |
| AT+MARK=<parameter> | Default: 255.255.255.0 | Set |
| **Response** | [MARK] Value is:<value>\r\nOK\r\n | |
| **Example** | Command: AT+MARK=255.255.255.0|r|n | |
| | Response: [MARK] Value is:255.255.255.0|r|nOK|r|n | |

The subnet mask format in human-readable notations for IPv4, such as 255.255.255.0; maximum length is 15 bytes. This value is effective only if IP configuration mode (IP_MODE) is in "Static IP mode".

## GATEWAY (Gateway)

| Command format | Parameters | Usage |
|---|---|---|
| AT+GATEWAY? | Nil | Read |
| AT+GATEWAY=<parameter> | Default: 192.168.1.1 | Set |
| **Response** | [GATEWAY] Value is:<value>\r\nOK\r\n | |
| **Example** | Command: AT+GATEWAY=192.168.1.1|r|n | |
| | Response: [GATEWAY] Value is:192.168.1.1|r|nOK|r|n | |

The gateway IP address has format in human-readable notations for IPv4, such as 172.16.254.1; maximum length of IP address is 15 bytes. This value is effective only if IP configuration mode (IP_MODE) is in "Static IP mode".

## DNS (DNS server address)

| Command format | Parameters | Usage |
|---|---|---|
| AT+DNS? | Nil | Read |
| AT+DNS=<parameter> | DNS server address, default: 114.114.114.114 | Set |
| **Response** | [DNS] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+DNS=1.1.1.1\|r\|n*<br>*Response: [DNS] Value is: 1.1.1.1\|r\|nOK\|r\|n* | |

DNS server address format is separated into 4 sections; each section is a decimal value and using a dot to separate. The value range for each section is 0-255 therefore the maximum value Dimension for DNS server address is 15 bytes. This command could not accept xxx.xxx.xxx.0 or xxx.xxx.xxx.255 values input.

## C1_PORT (Local port number)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_PORT? | Nil | Read |
| AT+C1_PORT=<parameter> | Local port number, Default: 5000 | Set |
| **Response** | [C1_PORT] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_PORT=5000\|r\|n*<br>*Response: [C1_PORT] Value is:5000\|r\|nOK\|r\|n* | |

This command is only valid in TCP server and UDP mode. It defines the port number of the module. The module will use this port number to communicate with other devices. The value range is 0 to 65535.

Note: Please avoid using the same port number for web page configuration, which the port number default is 80)

## C1_BIND (Local port binding)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_BIND? | Nil | Read |
| AT+C1_BIND=<parameter> | 0: Disable   (Default)<br>1: Enable | Set |
| **Response** | [C1_BIND] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_BIND=1\|r\|n*<br>*Response: [C1_BIND] Value is:1\|r\|nOK\|r\|n* | |

This command is only valid in TCP client mode, this will enable the blinding to a fixed local port using command "C1_PORT"

## DNSEN (DNS enable)

| Command format | Parameters | Usage |
|---|---|---|
| AT+DNSEN? | Nil | Read |
| AT+DNSEN=<parameter> | 0: Disable   (Default)<br>1: Enable | Set |
| **Response** | [DNSEN] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+DNSEN=1\|r\|n*<br>*Response: [DNSEN] Value is:1\|r\|nOK\|r\|n* | |

This command is only valid in TCP client and UDP modes.

Note:

- If this is enabled and "DOMAIN" is set, "C1_CLI_IP1" command will be invalid. Module will be communicated with the host defined by "Domain".

- If this is disabled and "C1_CLI_IP1" is set, "DOMAIN" command will be invalid. Module will be communicated with the IP defined by "C1_CLI_IP1".

## C1_CLI_IP1 (Remote host IP address)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_CLI_IP1? | Nil | Read |
| AT+C1_CLI_IP1=<parameter> | Default: 192.168.1.99。 | Set |
| **Response** | [C1_CLI_IP1] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_CLI_IP1=192.168.1.99\|r\|n*<br>*Response: [C1_CLI_IP1] Value is:192.168.1.99\|r\|nOK\|r\|n* | |

**This command is only valid**

- In TCP client mode or UDP mode
- "DNSEN" is enabled

It sets the remote IP address to communicate with W5500S2E.

## C1_CLI_PP1 (Remote host port number)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_CLI_PP1? | Nil | Read |
| AT+C1_CLI_PP1=<parameter> | Range: 1 ~ 65,535, Default: 5000。 | Set |
| **Response** | [C1_CLI_PP1] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_CLI_PP1=5000\|r\|n*<br>*Response: [C1_CLI_PP1] Value is:5000\|r\|nOK\|r\|n* | |

This command is valid only in TCP server and UDP mode.

Note: Please prevent to use common port numbers for avoiding conflict with other service on the remote host.

## DOMAIN (Remote host name)

| Command format | Parameters | Usage |
|---|---|---|
| AT+DOMAIN? | Nil | Read |
| AT+DOMAIN=<parameter> | Remote host domain name<br>default: www.iwiznet.cn<br>Maximum length is 32 bytes | Set |
| **Response** | [DOMAIN] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+DOMAIN=www.iwiznet.cn\|r\|n*<br>*Response: [DOMAIN] Value is:www.iwiznet.cn\|r\|nOK\|r\|n* | |

**This command is only valid**

- In TCP client mode or UDP mode
- "DNSEN" is enabled

This command sets the remote host server name.

## RECONTIME (Reconnection interval)

| Command format | Parameters | Usage |
|---|---|---|
| AT+RECONTIME? | Nil | Read |
| AT+RECONTIME=<parameter> | Range: 0~60000    Unit: ms<br>Default: 0 (reconnect immediately) | Set |
| **Response** | [RECONTIME] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+RECONTIME=1000\|r\|n*<br>*Response: [RECONTIME] Value is:1000\|r\|nOK\|r\|n* | |

This command is only valid in TCP client mode & "data pass-through mode".

This command configures the reconnection interval of the TCP client after the module has disconnected from a TCP server. Default value is 0 for reconnecting immediately.

## NETBIOS (NetBIOS)

| Command format | Parameters | Usage |
|---|---|---|
| AT+NETBIOS? | Nil | Read |
| AT+NETBIOS=<parameter> | 0: Disable (Default)<br>1: Enable | Set |
| **Response** | [NETBIOS] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+NETBIOS=1\|r\|n*<br>*Response: [NETBIOS] Value is:1\|r\|nOK\|r\|n* | |

User can enter the URL http://[Module name] in the browser in the same LAN with the W5500S2E if this command is enable.

## 6.5.3 Serial settings command

## COM1 (Serial parameters)

| Command format | Parameters | Usage |
|---|---|---|
| AT+COM1? | Nil | Read |
| AT+COM1=<par1>, <par2>, <par3>, <par4>, <par5> | <par1>: Baud rate, refer to "C1_BAUD" command<br><par2>: Data bit, refer to "C1_DATAB" command<br><par3>: Parity bit, refer to "C1_PARITY" command<br><par4>: Stop bit, refer to "C1_STOPB" command<br><par5>: Serial flow control, refer to "C1_SER_C"command | Set |
| Response Description | [COM1] Value is:<value1><value2><value3><value4><value5>\r\nOK\r\n<br><value1>：Baud rate value<br><value2>：Data bit value<br><value3>：Parity bit value<br><value4>：Stop bit value<br><value5>：Serial flow control value | |
| Example | Command: AT+COM1=9,1,0,1,0\|r\|n<br>Response: [COM1] Value is:9,1,0,1,0\|r\|nOK\|r\|n | |

This command is use for set all five parameter of the serial port using single command. Individual parameter can be also use the corresponding command for read or set.

## C1_BAUD (Baud Rate)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_BAUD? | Nil | Read |
| AT+C1_BAUD=<parameter> | 0: 1,200　　6: 38,400　　12: 256,000<br>1: 2,400　　7: 56,000　　13: 468,400<br>2: 4,800　　8: 57,600　　14: 921,600<br>3: 9,600　　9: 115,200 (default)<br>4: 14,400　10: 128,000　15: 115,200<br>5: 19,200　11: 234,000 | Set |
| Response | [C1_BAUD] Value is:<value>\r\nOK\r\n | |
| Example | Command: AT+C1_BAUD=9\|r\|n<br>Response: [C1_BAUD] Value is:9\|r\|nOK\|r\|n | |

# C1_DATAB (Data bit)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_DATAB? | Nil | Read |
| AT+C1_DATAB=<parameter> | 0: 7 bit<br>1: 8 bit (Default) | Set |
| **Response** | [C1_DATAB] Value is:<value>\r\nOK\r\n | |
| **Example** | Command: AT+DATAB=1\|r\|n<br>Response: [C1_DATAB] Value is:1\|r\|nOK\|r\|n | |

# C1_STOPB (Stop bit)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_STOPB? | Nil | Read |
| AT+C1_STOPB=<parameter> | 0: 0.5<br>1: 1   (default)<br>2: 1.5<br>3: 2 | Set |
| **Response** | [C1_STOPB] Value is:<value>\r\nOK\r\n | |
| **Example** | Command: AT+STOPB=1\|r\|n<br>Response: [C1_STOPB] Value is:1\|r\|nOK\|r\|n | |

# C1_PARITY (Parity bit)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_PARITY? | Nil | Read |
| AT+C1_PARITY=<parameter> | 0: Disable (Default)<br>1: Odd<br>2: Even | Set |
| **Response** | [C1_PARITY] Value is:<value>\r\nOK\r\n | |
| **Example** | Command: AT+C1_PARITY=0\|r\|n<br>Response: [C1_PARITY] Value is:0\|r\|nOK\|r\|n | |

# C1_SER_C (Serial flow control / RS-485 enable output)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_SER_C? | Nil | Read |
| AT+C1_SER_C=<parameter> | 0: Disable flow control (default)<br>1: Enable serial CTS/RTS hardware flow control<br>2: Enable 485EN pin | Set |
| **Response** | [C1_SER_C] Value is:<value>\r\nOK\r\n | |
| **Example** | Command: AT+C1_SER_C=1\|r\|n<br>Response: [C1_SER_C] Value is:1\|r\|nOK\|r\|n | |

This command with parameter equal 1 enables the hardware serial flow control. This may improve the data accuracy for high speed transmission.

Note: This command with parameter equals 2 will enable the 485EN pin. The RTS pin becomes RS-485 enable output for connecting external 485 chips. 485EN pin is supported by firmware version 2.3 and above.

# C1_BUF_CLS (Clear Buffer if Connected)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_BUF_CLS? | Nil | Read |
| AT+C1_BUF_CLS=<parameter> | 0: Disable (default)<br>1: Enable | Set |
| **Response** | [C1_BUF_CLS] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_BUF_CLS=1\|r\|n*<br>*Response: [C1_BUF_CLS] Value is:1\|r\|nOK\|r\|n* | |

This command is valid only in TCP modes & "data pass-through mode".

Data may be left in the serial buffer in case of disconnection. Enable this command clears the buffer when establishing TCP connection.

# C1_SER_LEN (Serial packaging Length)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_SER_LEN? | Nil | Read |
| AT+C1_SER_LEN=<parameter> | Value range: 0~2048 byte<br>Default: 0 (Disable data packing) | Set |
| **Response** | [C1_SER_LEN] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_SER_LEN=10\|r\|n*<br>*Response: [C1_SER_LEN] Value is:10\|r\|nOK\|r\|n* | |

This command is valid only in "data pass-through mode".

# C1_SER_T (Serial data packing Nagle wait time)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_SER_T? | Nil | Read |
| AT+C1_SER_T=<parameter> | Value range: 0~60000, unit: ms;<br>Default: 0 | Set |
| **Response** | [C1_SER_T] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_SER_T=1000\|r\|n*<br>*Response: [C1_SER_T] Value is:1000\|r\|nOK\|r\|n* | |

This command is valid only in "data pass-through mode".

## C1_IT (Inactivity timeout)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_IT? | Nil | Read |
| AT+C1_IT=<parameter> | Value range: 0 ~ 60000, unit: ms;<br>Default: 0 (disable this function) | Set |
| **Response** | [C1_IT] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_IT=1000\|r\|n*<br>*Response: [C1_IT] Value is:1000\|r\|nOK\|r\|n* | |

This command is valid only in TCP modes & "data pass-through mode".

Define the inactivity timeout period for TCP established sessions in mini seconds (ms).

## C1_TCPAT (TCP keepalive interval)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_TCPAT? | Nil | Read |
| AT+C1_TCPAT=<parameter> | Value range: 0~255, unit 5s;<br>Default: 0 (Disable) | Set |
| **Response** | [C1_TCPAT] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_TCPAT=1\|r\|n*<br>*Response: [C1_TCPAT] Value is:1\|r\|nOK\|r\|n* | |

This command is valid only in TCP modes & "data pass-through mode".

This parameter determines the interval between TCP keep-alive retransmissions until a response is received. Once a response is received, the delay until the next keep-alive transmission is again controlled by the value.

## C1_LINK_P (TCP password authentication)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_LINK_P? | Nil | Read |
| AT+C1_LINK_P=<parameter> | 0: Disable (Default)<br>1: Enable | Set |
| **Response** | [C1_LINK_P] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+C1_LINK_P=1\|r\|n*<br>*Response: [C1_LINK_P] Value is:1\|r\|nOK\|r\|n* | |

This command is valid only in TCP server mode & "data pass-through mode".

When TCP password authentication is enabled, the module requires password input by the first packet from the Ethernet port. If the password is wrong, it requires re-entering password until it receives a correct password. Module password could be configured or query by the "PASS" command.

## C1_LINK_T (Connection Condition)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_LINK_T? | Nil | Read |
| AT+C1_LINK_T=<parameter> | 0: Connect when power on (default) <br> 1: Connect when receiving data from serial | Set |
| Response | [C1_LINK_T] Value is:<value>\r\nOK\r\n | |
| Example | *Command: AT+C1_LINK_T=1\|r\|n* <br> *Response: [C1_LINK_T] Value is:1\|r\|nOK\|r\|n* | |

This command is valid only in TCP client mode & "data pass-through mode".

This is the timing for the module connecting to the TCP server. If it is 0, it will connect when power on.

If it is 1, the module will establish the connection establishment when receiving the first package of data from the serial interface. When connection established, the data will be sent to the TCP server and module would be in data pass-through mode.

## C1_LINK_M (Send Hello Message)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_LINK_M? | Nil | Read |
| AT+C1_LINK_M=<parameter> | 0: Disable (Default) <br> 1: Send Device ID <br> 2: Send MAC address <br> 3: Send IP address | Set |
| Response | [C1_LINK_M] Value is:<value>\r\nOK\r\n | |
| Example | *Command: AT+C1_LINK_M=1\|r\|n* <br> *Response: [C1_LINK_M] Value is:1\|r\|nOK\|r\|n* | |

This command is valid only in TCP client mode for both "data pass-through mode" & "AT data transfer command mode". It will determine the first message to be sent right after connection established.

## 6.5.4 Management command

## C1_SEND_NUM (Serial sent number of byte)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_SEND_NUM? | Nil | Read |
| **Response** | [C1_SEND_NUM] Value is:<value>\r\nOK\r\n<br>Display range: 0 ~ 4,294,967,295。 | |
| **Example** | *Command: AT+C1_SEND_NUM?\r\n*<br>*Response: [C1_SEND_NUM] Value is:2048\r\nOK\r\n* | |

This command is valid for both "data pass-through mode" & "AT data transfer command mode".

## C1_RCV_NUM (Serial received number of byte)

| Command format | Parameters | Usage |
|---|---|---|
| AT+C1_RCV_NUM? | Nil | Read |
| **Response Description** | [C1_RCV_NUM] Value is:<value>\r\nOK\r\n<br>Display range: 0 ~ 4,294,967,295。 | |
| **Example** | *Command: AT+C1_RCV_NUM?\r\n*<br>*Response: [C1_RCV_NUM] Value is:2048\r\nOK\r\n* | |

This command is valid for both "data pass-through mode" & "AT data transfer command mode".

## NETSEND (Network sent byte)

| Command format | Parameters | Usage |
|---|---|---|
| AT+NETSEND? | Nil | Read |
| **Response** | [NETSEND] Value is:<value>\r\nOK\r\n<br>Display range: 0 ~ 4,294,967,295。 | |
| **Example** | *Command: AT+NETSEND?\r\n*<br>*Response: [NETSEND] Value is:2048\r\nOK\r\n* | |

This command is valid for both "data pass-through mode" & "AT data transfer command mode".

## NETRCV (Network received byte)

| Command format | Parameters | Usage |
|---|---|---|
| AT+NETRCV? | Nil | Read |
| **Response Description** | [NETRCV] Value is:<value>\r\nOK\r\n<br>Display range: 0 ~ 4,294,967,295。 | |
| **Example** | *Command: AT+NETRCV?\r\n*<br>*Response: [NETRCV] Value is:2048\r\nOK\r\n* | |

This command is valid for both "data pass-through mode" & "AT data transfer command mode".

## PRE (List preset values)

| Command format | Parameters | Usage |
|---|---|---|
| AT+PRE? | Nil | Read |

| | |
|---|---|
| **Response** | DEFAULT:<br>[NAME]      :W5500S2E-S1<br>[PASS]      :admin<br>[DOMAIN]   :www.iwiznet.cn<br>[IP]        :192.168.1.88<br>[MARK]     :255.255.255.0<br>[GATEWAY]  :192.168.1.1<br>[DNS]      :114.114.114.114<br>[WEB_PORT] :80<br>[C1_PORT]  :5000<br>[C1_BAUD]  :9<br>[C1_DATAB] :1<br>[C1_PARITY] :0<br>[C1_STOPB] :1<br>[C1_SER_C]  :0<br>[C1_SER_T]  :0<br>[C1_SER_LEN]:0<br>[C1_CLI_IP1]:192.168.1.99<br>[C1_CLI_PP1]:5000<br>CURRENT:<br>[NAME]      :W5500S2E-S1<br>[PASS]      :admin<br>[DOMAIN]   :www.iwiznet.cn<br>[IP]        :192.168.1.88<br>[MARK]     :255.255.255.0<br>[GATEWAY]  :192.168.1.1<br>[DNS]      :114.114.114.114<br>[WEB_PORT] :80<br>[C1_PORT]  :5000<br>[C1_BAUD]  :9<br>[C1_DATAB] :1<br>[C1_PARITY] :0<br>[C1_STOPB] :1<br>[C1_SER_C]  :0<br>[C1_SER_T]  :0<br>[C1_SER_LEN]:0<br>[C1_CLI_IP1]:192.168.1.99<br>[C1_CLI_PP1]:5000 |

| | OK |
|---|---|

## LIST (List all commands)

| Command format | Parameters | Usage |
|---|---|---|
| AT+LIST? | Nil | Read |
| Response | [Control Command]<br><br>AT            AT+ECHO       AT+DEBUGMSGEN<br><br>AT+NAME       AT+PASS       AT+DEFAULT<br><br>AT+RESET      AT+EXIT       AT+SAVE<br><br>[Module Settings Command]<br><br>AT+START_MODE    AT+C1_OP      AT+IP_MODE<br><br>AT+IP        AT+MARK      AT+GATEWAY<br><br>AT+DNS       AT+C1_PORT    AT+C1_BIND<br><br>AT+DNSEN      AT+C1_CLI_IP1   AT+C1_CLI_PP1<br><br>AT+DOMAIN     AT+RECONTIME    AT+NETBIOS<br><br>[Serial Settings Command]<br><br>AT+COM1      AT+C1_BAUD    AT+C1_DATAB<br><br>AT+C1_STOPB   AT+C1_PARITY   AT+C1_SER_C<br><br>AT+C1_BUF_CLS   AT+C1_SER_LEN   AT+C1_SER_T<br><br>AT+C1_IT      AT+C1_TCPAT   AT+C1_LINK_P<br><br>AT+C1_LINK_T   AT+C1_LINK_M<br><br>[Management Command]<br><br>AT+C1_SEND_NUM   AT+C1_RCV_NUM   AT+NETSEND<br><br>AT+NETRCV     AT+PRE       AT+LIST<br><br>AT+RUNTIME    AT+VER       AT+MAC<br><br>AT+SN        AT+TYPE      AT+WEB_PORT<br><br>[Data Transfer Command]<br><br>AT+LINK       AT+LISTEN     AT+CONNECT<br><br>AT+TCP_STATUS   AT+UDP       AT+SEND<br><br>AT+RLEN       AT+RCV       AT+CLEAR<br><br>AT+DISCON<br><br>OK |

## RUNTIME (Module uptime)

| Command format | Parameters | Usage |
|---|---|---|
| AT+RUNTIME? | Nil | Read |
| Response Description | [RUNTIME] Value is:<value>\r\nOK\r\n<br>Format: ddd-hh-mm-ss<br>Display range: 000-00-00-00 ~ 999-23-59-59。 |
| Example | *Command: AT+RUNTIME?\r\n*<br>*Response: [RUNTIME] Value is:003-15-38-42\r\nOK\r\n* |

## VER (Firmware version)

| Command format | Parameters | Usage |
|---|---|---|
| AT+VER? | Nil | Read |
| **Response** | [VER] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+VER?\r\n*<br>*Response: [VER] Value is:V2.3\r\nOK\r\n* | |

## MAC (MAC address)

| Command format | Parameters | Usage |
|---|---|---|
| AT+MAC? | Nil | Read |
| **Response** | [MAC] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+MAC?\r\n*<br>*Response: [MAC] Value is:00.08.DC.11.12.13\r\nOK\r\n* | |

## SN (Serial Number)

| Command format | Parameters | Usage |
|---|---|---|
| AT+SN? | Nil | Read |
| **Response** | [SN] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+SN?\r\n*<br>*Response: [SN] Value is:20190102-111213\r\nOK\r\n* | |

## TYPE (Module part number)

| Command format | Parameters | Usage |
|---|---|---|
| AT+TYPE? | Nil | Read |
| **Response** | [TYPE] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+TYPE?\r\n*<br>*Response: [TYPE] Value is:W5500S2E-Z1\r\nOK\r\n* | |

## WEB_PORT (Web configuration port number)

| Command format | Parameters | Usage |
|---|---|---|
| AT+WEB_PORT? | Nil | Read |
| AT+WEB_PORT=<parameter> | Range: 1 ~ 65,535, Default: 80。 | Set |
| **Response** | [WEB_PORT] Value is:<value>\r\nOK\r\n | |
| **Example** | *Command: AT+WEB_PORT=80\|r\|n*<br>*Response: [WEB_PORT] Value is:80\|r\|nOK\|r\|n* | |

This port number is used for configuration through web browser. The value range is 0 to 65535. If the port wasn't set to 80, the port number should be added to the end of the IP address. For example: http://192.168.1.88:8080 if port is 8080

Note: If the module is in TCP server mode, the web configuration port must be the difference to the local port number (C1_PORT).

## 6.6 AT Data transfer command

## LINK (Detect PHY link status)

| Command format | Parameters | Usage |
|---|---|---|
| AT+LINK? | Nil | Read |
| **Response Description** | [LINK] Value is:<value>\r\nOK\r\n<br>0: no PHY link<br>1: has PHY link | |
| **Example** | *Command: AT+LINK?\|r\|n*<br>*Response: [LINK] Value is:1\|r\|nOK)\|r\|n* | |

Note: This command is supported by firmware version 2.3 and above.

## LISTEN (Listening on TCP)

| Command format | Parameters | Usage |
|---|---|---|
| AT+LISTEN | Nil | Execute |
| **Response Description** | OK\r\n<br>Upon successful completion | |
| **Response Description** | <Error Info>\r\n<br>Module is not in TCP server mode | |
| **Example** | *Command: AT+LISTEN\|r\|n*<br>*Response: OK\|r\|n* | |

This command is valid only in TCP server mode. i.e. "C1_OP" is set as "0". Otherwise, it will respond with error message. It can be closed by the command "DISCON".

Note: After execute this command, TCP connection can be monitor with the "TCP_STATUS" command or the voltage level of the "TCP_STATUS" pin.

This command is supported by firmware version 2.3 and above.

# CONNECT (Initiating TCP connection)

| Command format | Parameters | Usage |
|---|---|---|
| AT+CONNECT | Nil | Execute |
| **Response** **Description** | OK\r\n  Upon successful completions | |
| **Response** **Description** | <Error Info>\r\n  Module is not in TCP client mode | |
| **Example** | *Command: AT+CONNECT\r\n*  *Response: OK\r\n* | |

This command is valid only in TCP client mode. i.e. "C1_OP" is set as "1". Otherwise, it will respond with error message. After execute this command; the module will try to connect to the TCP server. If connection cannot be established in 3s, it returns with error messages.

Note: After execute this command, TCP connection can be monitor with the "TCP_STATUS" command or the voltage level of the "TCP_STATUS" pin. This command is supported by firmware version 2.3 and above.

# TCP_STATUS (TCP connection status)

| Command format | Parameters | Usage |
|---|---|---|
| AT+TCP_STATUS | Nil | Read |
| **Response** **Description** | [TCP_STATUS ] Value is:<value>\r\n OK\r\n  0: TCP not connected  1: TCP connected | |
| **Example** | *Command: AT+TCP_STATUS?\r\n*  [TCP_STATUS ] Value is:1\r\n OK\r\n | |

This command is valid only in TCP modes.

This command and the "TCP_STATUS" pin can both be used to monitor the TCP connection status.

Note: This command is supported by firmware version 2.3 and above.

# UDP (Establish UDP connection)

| Command format | Parameters | Usage |
|---|---|---|
| AT+UDP | Nil | Execute |
| **Response** **Description** | OK\r\n  Upon successful completions | |
| **Response** **Description** | <Error Info>\r\n  Module is not in TCP client mode | |
| **Example** | *Command: AT+UDP\r\n*  *Response: OK\r\n* | |

This command is valid only in UDP mode i.e. "C1_OP" is set as "2". Otherwise, it will return with error.

Note: This command is supported by firmware version 2.3 and above.

**W5500S2E user manual**

## SEND (Send byte of data)

| Command format | Parameters | Usage |
|---|---|---|
| AT+SEND=<parameter> | Range: 0~2048 (bytes), Default: 0 (any length) | Set |
| **Response** | [SEND] Value is:<value>\r\nOK\r\n | |
| **Description** | Set the length of data to be sent | |
| **Example** | *Assume module is in TCP mode and TCP connection is connected*<br>*Command: AT+TCP_STATUS?\|r\|n*<br>*[TCP_STATUS ] Value is:1\r\n OK\r\n*<br>*Command: AT+SEND=5\|r\|n*<br>*Response: [SEND] Value is:5\|r\|nOK\|r\|n*<br>*Then send data via serial: 12345*<br>*Response: 5* | |
| **Example** | *Assume module is in TCP mode and TCP connection is not connected*<br>*Command: AT+TCP_STATUS?\|r\|n*<br>*[TCP_STATUS ] Value is:0\r\n OK\r\n*<br>*Command: AT+SEND=5\|r\|n*<br>*Response: [SEND] Value is:5\|r\|nOK\|r\|n*<br>*Then send data via serial: 12345*<br>*Response: 0* | |

①     If the module is in TCP modes, it is need to check the TCP connection status before using this command. Reference to "TCP_STATUS" for details.

②     If this command execute successfully, the serial port will get the response value. The next input send to the serial port will be regarded as data and send out. Then, the module will be gone back to AT command mode.

③     If the set value is zero, input from the serial port will be packaged by 50ms frame interval. After the first byte sent from the serial port, the data will be sent whenever there is idle time longer than 50ms. Any extra data after 2,048byte will be discarded.

④     If the set value is non-zero, the module will wait for receiving data with length of the set value. Any extra data will be discarded.

⑤     If data sent successfully, the module will respond with the sent data length.

Note: This command is supported by firmware version 2.3 and above.

## RLEN (Receive buffer data Length)

| Command format | Parameters | Usage |
|---|---|---|
| AT+RLEN? | Nil | Read |
| **Response** | [RLEN] Value is:<value>\r\nOK\r\n | |
| **Description** | Range: 0 ~ 2048。 | |
| **Example** | *Data in buffer to be received: abcdef*<br>*Command: AT+RLEN?\|r\|n*<br>*Response: [RLEN] Value is:6\|r\|nOK\|r\|n* | |

This command reads the data in the network receiving buffer (with length in bytes).

Note: This command is supported by firmware version 2.3 and above.

## RCV (Receive data)

| Command format | Parameters | Usage |
|---|---|---|
| AT+RCV=<parameter> | Range: 0 ~ 2048, Default: 0 (Whatever length)。 | Set and execute |
| **Response** | [RCV] Value is:<value>\r\nOK\r\n | |
| **Example** | *Length of data in buffer to be received: abcdef*<br>*Command: AT+RCV=0\|r\|n*<br>*Response: [RCV] Value is:0\|r\|nOK\|r\|n*<br>*Response: abcdef* | |

① If module is in TCP modes, Receiving rules: If the module is in TCP modes, it is need to check the TCP connection status before using this command. Reference to "TCP_STATUS" for details.

② If this command executed successfully, the serial port will send out the data from the network receiving buffer. Then, the module will be gone back to AT command mode.

③ If the data in the network buffer has length equal to 2,048bytes, module will not receive further data.

④ If the data in the network buffer is less than the received length here, data will not be received and it should respond value 0.

Note: This command is supported by firmware version 2.3 and above.

## CLEAR (Clear the network receiving buffer)

| Command format | Parameters | Usage |
|---|---|---|
| AT+CLEAR | Nil | Execute |
| **Response** | OK\r\n | |
| **Example** | *Command: AT+CLEAR\|r\|n*<br>*Response: OK\|r\|n* | |

This command clears the data in the network receiving buffer.

Note: This command is supported by firmware version 2.3 and above.

## DISCON (Disconnect)

| Command format | Parameters | Usage |
|---|---|---|
| AT+DISCON | Nil | Execute |
| **Response** | OK\r\n | |
| **Example** | *Command: AT+DISCON\|r\|n*<br>*Response: OK\|r\|n* | |

This command closes the socket opened in TCP server, TCP client and UDP modes.

Note: This command is supported by firmware version 2.3 and above.

## 6.7 AT command script examples

## 6.7.1 TCP server mode script example

*AT\r\n*                                                      *//Terminal check*

*OK\r\n*

*AT+DEBUGMSGEN=0\r\n*                                      *//Disable debug message*

*[DEBUGMSGEN] Value is:0\r\nOK\r\n*

*AT+ECHO=0\r\n*                                              *//Echo on*

*[ECHO] Value is:0\r\nOK\r\n*

*AT+START_MODE=1\r\n*                  *//Configure start mode into "Data pass-through mode"*

*[START_MODE] Value is:1\r\nOK\r\n*

*AT+C1_OP=0 \r\n*                                        *//Configure into TCP server mode*

*[C1_OP] Value is:0\r\nOK\r\n*

*AT+IP_MODE=0\r\n*                                          *//Set into static IP mode*

*[IP_MODE] Value is:0\r\nOK\r\n*

*AT+IP=192.168.1.88\r\n*                                    *//Set local IP address*

*[IP] Value is:192.168.1.88\r\nOK\r\n*

*AT+C1_PORT=5000\r\n*                                        *//Set the local port number*

*[C1_PORT] Value is:5000\r\nOK\r\n*

*AT+RESET=admin\r\n*                *//Save the setting, restart in enter data pass-through mode*

*OK\r\n*

## 6.7.2 TCP client AT command mode script example

AT\r\n                                                  *//Terminal check*

OK\r\n

AT+DEBUGMSGEN=0\r\n                         *//Turn off the serial debugging message*

[DEBUGMSGEN] Value is:0\r\nOK\r\n

AT+ECHO=0\r\n                                          *//Echo off*

[ECHO] Value is:0\r\nOK\r\n

AT+START_MODE=0\r\n                       *//Configure start mode to "AT command mode"*

[START_MODE] Value is:0\r\nOK\r\n

AT+C1_OP=1\r\n                                  *//Configure as TCP client mode*

[C1_OP] Value is:1\r\nOK\r\n

AT+IP_MODE=1\r\n                           *//Configure the module to DHCP mode*

[IP_MODE] Value is:1\r\nOK\r\n

AT+DNSEN=0\r\n                                  *//Disable DNS function*

[DNSEN] Value is:0\r\nOK\r\n

AT+C1_CLI_IP1=192.168.1.99\r\n                 *//Configure remote TCP server IP address*

[C1_CLI_IP1] Value is:192.168.1.99\r\nOK\r\n

AT+C1_CLI_PP1=5000\r\n                    *//Configure remote TCP server port number*

[C1_CLI_PP1] Value is:5000\r\nOK\r\n

AT+SAVE\r\n                                    *//Save configuration and restart*

OK\r\n

AT+CONNECT\r\n                     *//Initiate a connection request to the remote TCP server*

OK\r\n

AT+TCP_STATUS?\r\n                        *//Read the TCP connection status*

[TCP_STATUS] Value is:1\r\nOK\r\n

AT+SEND=5\r\n                       *//Notification module will send 5 bytes of data*

OK\r\n

    Serial sends data:12345

    Serial receives:5

    TCP server sends data: abcdef

AT+RLEN?\r\n                       *//Read data length in the receiving buffer.*

[RLEN] Value is:6\r\nOK\r\n

AT+RCV=3\r\n                            *//Receive 3 bytes of data*

[RCV] Value is:3\r\nOK\r\n

    abc

AT+CLEAR\r\n                           *//Clear network receiving buffer*

OK\r\n

AT+DISCON\r\n                           *//Close TCP connection*

OK\r\n

# 7  Web configuration

You log into your WIZS2E's firmware through a browser. It is recommended using Chrome.

## 7.1  Login page

At the address field of the browser, type the IP address of your module. The default IP address of WIZS2E module is 192.168.1.88. You may first search for your module IP by the ConfigTool software. Figure below shows the login page.
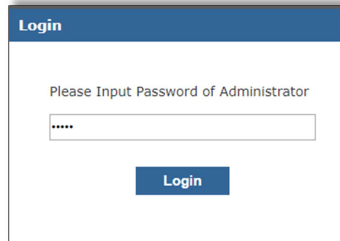


Figure 7-1 Login page

The default password is "admin".

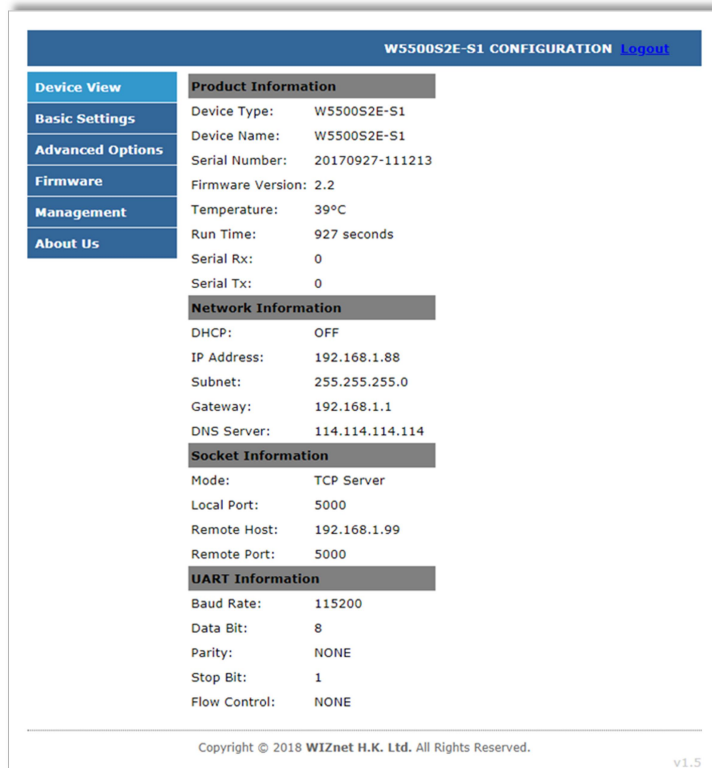This page shows the basic information of the W5500S2E module.



Figure 7-2 Device View page

## 7.2 Basic Settings

Figure below shows W5500S2E basic settings page. It separates into four sections.

On each screen, you may need to click "Save Settings" before you move onto the next screen. After you've done that, you may click "Reset" to reset the module for the settings to be applied.

Please know that the session time for the W5500S2E webserver is 5 minutes. After 5 minutes of inactivity, re-login is required.



Figure 7-3 Basic Settings page

**Network Setting**

| Setting | Description | Default |
|---|---|---|
| MAC Address | MAC address of the module | Not configurable |
| Use DHCP | DHCP mode option | Disable (uncheck) |
| IP address | IP address of the module | 192.168.1.88 |
| Subnet Mask | Subnet Mask | 255.255.255.0 |
| Gateway | Gateway | 192.168.1.1 |
| DNS Server | DNS server IP address | 114.114.114.114 |

**Socket Setting**

| Setting | Description | Default |
|---|---|---|
| Start mode | "AT Command Mode" or "Data pass-through mode" | "AT Command Mode" |
| Socket Type | "TCP Server", "TCP Client" or "UDP mode" | "TCP Server" |
| Remote Host | Remote host IP address or domain name | 192.168.1.99 |
| Remote Port | Remote host port number | 5000 |
| Local Port | Local port number (0~65535; avoid used port) | 5000 |
| Bind Local Port | Only valid in TCP client mode | Disable (uncheck) |

**Modbus option**

| Setting | Description | Default |
|---|---|---|
| Enable Modbus Mode | Enable Modbus Mode function | Disable |
| Select Modbus Mode | "Modbus RTU" or "Modbus ASCII" | "Modbus RTU" |

**UART Setting**

| Setting | Description | Default |
|---|---|---|
| Baud Rate | 1200bps ~ 1,152,000bps | 115,200 |
| Data Bit | 7 or 8 bits | 8 |
| Parity | NONE, ODD or EVEN | NONE |
| Stop Bit | 1 or 2 bits | 1 |
| Flow Control | NONE or "CTS/RTS mode" | NONE |

**Save Settings**: Click to save all these settings

**Reset**: Click to Restart (Need to click "Save Settings" to apply the setting)

## 7.3 Advance Options

Figure below shows the advance settings page of WIZS2E module.



Figure 7-4 Advance Options page

**Device Name:** The module name, the user could make its own definition, it could be any characters. Maximum 15 bytes

**Enable NETBIOS**: Check this box to activate this feature, default: disable; if activated, the user could type the device name (case insensitive) in the browser to login to the webserver of this module.

**HTTP Port**: W5500S2E's web server port number, default: 80; value range is 0 to 65535. If the port wasn't set to 80, then need to input the port at the end of the IP address. For example: 192.168.1.88:8000.
Note: If W5500S2E works in TCP server mode, HTTP port must not be set to the same as the local port of the module.

**Data Packing Size (byte):** Data packaging length, default: 0 (disable), maximum size is 2048 bytes.

**Data Packing Time (ms):** Waiting interval of data packet, default: 0 (disable), maximum value is 60,000.

**Reconnection Time (ms):** reconnection interval, only effective in TCP client mode, default: 0 (instant reconnection), value range: 0 to 60000, unit: ms

**Inactivity Time (ms):** Set the Inactivity timeout, only effective in TCP modes, value range: 0 ~ 60000, unit: ms, default: 0 (disable)

**Keep Alive Time (5s):** Set the Keep alive timer, only effective in TCP modes, value range: 0 ~ 65536, unit: 5s; default: 0 (disable)

**Verify the Connection**: When the user created a communication in TCP and this command was enabled, 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. Default: No (disable)

**Send Hello Message**: Define message sent when TCP connection succeeds. Selections includes: "None", "Send Device Name", "Send MAC Address" or "Send IP Address". Default: "None" (disable)

**Connection Condition**: In TCP client mode, this function can set as "Connect socket after power up" (default) or "Connect socket after UART received data"

**Clear Buffer if Connect**: Data may be left in the serial buffer in case of disconnection. Enable this command clears the buffer when establishing TCP connection. Default: uncheck (disable)

**Debug Message Enable**: This will enable debug message sending to the serial interface. Thus, this option may help users more easily through serial terminal software manually. Default: checked (enable)

**AT Echo Enable**: Echo means WIZS2E module could directly return the input values to the serial interface. Thus, this option may help some users working more easily through serial terminal software. However, this may cause trouble if the serial is connected to an embedded system. Turning off this function may help. Default: checked (enable)

## 7.4  Management

Clicking "Management" to get into device management page as figure below, this page contains 2 sections: Password Settings and Management



Figure 7-5 Management page

**Password Setting**
- Old Password - the old password, default: admin
- New Password - Enter new password. Maximum for 15 bytes. It must 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

**Management**
- Factory Default - factory reset button, pressing this button will activate factory reset procedure. It shows a prompt window for re-confirmation is procedure, please click "OK" for factory reset procedure and back to login page.
- Reset Device - Reset the module
- Logout – Logout back to the login page

# 8 Factory reset

If you forget the password of the module, the user could reset all setting of the module back to factory default. There are three kinds of method to factory reset:

## 8.1 By ConfigTool

In the WIZS2E ConfigTool, first select the module which you need to factory reset.

Please click "Reset" button and then click "Factory Reset" button to factory reset the module back to default settings.
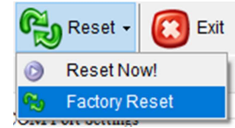
## 8.2 By using AT command

For details of AT command (default) to factory reset, please refer to the command "DEFAULT" in chapter 6.5.1.

## 8.3 By hardware

**Factory reset through evaluation board**

Press the DEFAULT button for more than 3 seconds for factory reset.

**Factory reset through module pin**
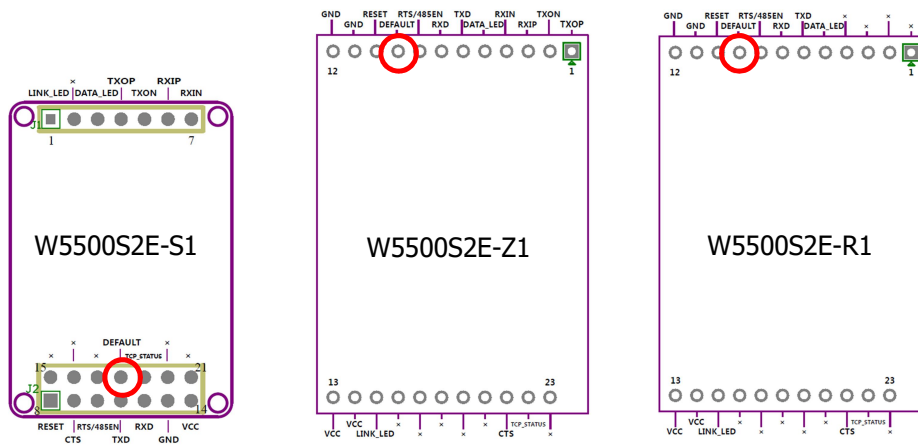


Figure 8-1 through the module default PIN to restore factory settings

W5500S2E has a factory reset PIN. Pull down the DEFAULT pin for over 3 seconds to activate factory reset when the module is power on.

# 9 Firmware upgrade

## 9.1 Firmware upgrade by WIZS2E ConfigTool

Please make sure the IP address of the module needs to be in the same subnet with the host computer. Then perform the steps below:

a. Click "Search"
b. Click the designated module
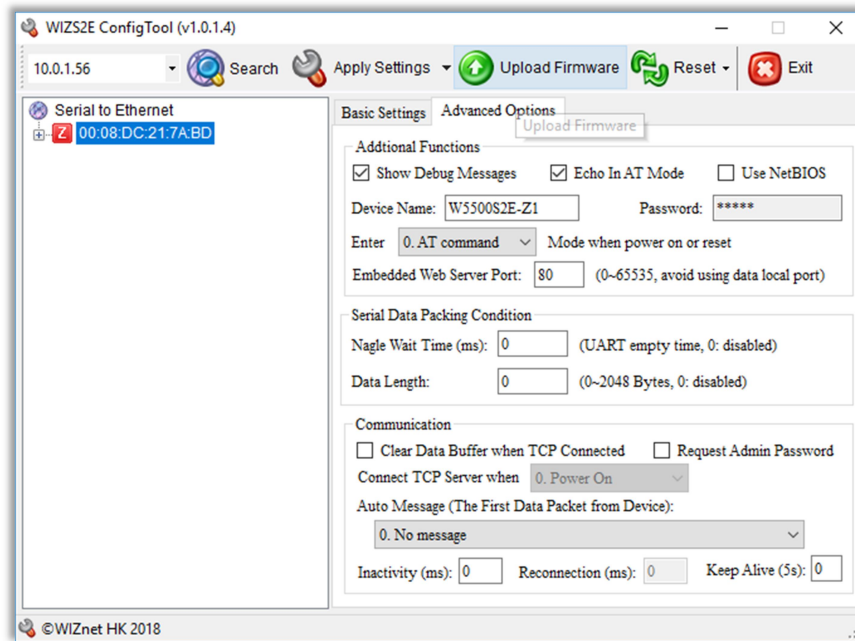c. Click "Upload Firmware" button
d. Choose the related firmware bin file



Figure 9-1 WIZS2E firmware upgrade through ConfigTool

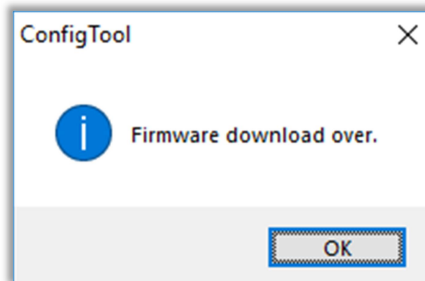The following popup will show up after firmware upgrade successes.



Figure 9-2 ConfigTool popup after firmware upgrade

## 9.2 Firmware upgrade by web page

After logon to the web page and entered the "Firmware" tag. Click "Choose file" as shown below.
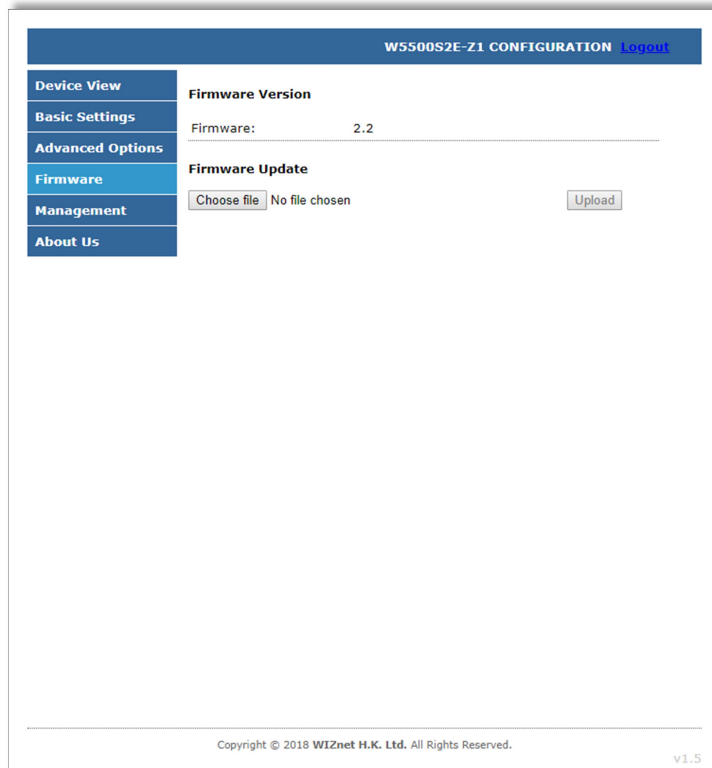


Figure 9-3 Firmware upgrade by web page

After firmware uploaded, W5500S2E will reboot automatically for firmware updating. It will be auto reload to the login page after that.

## Disclaimers

WIZNET H.K. LIMITED and its subsidiaries ("WIZnet") reserve the right to make changes, corrections, enhancements, modifications, and improvements to WIZnet products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on WIZnet products before placing orders. WIZnet products are sold pursuant to WIZnet's terms and conditions of sale in place at the time of order acknowledgement. Purchasers are solely responsible for the choice, selection, and use of WIZnet products and WIZnet assumes no liability for application assistance or the design of Purchasers' products. No license, express or implied, to any intellectual property right is granted by WIZnet herein. Resale of WIZnet products with provisions different from the information set forth herein shall void any warranty granted by WIZnet for such product. WIZnet and the WIZnet logo are trademarks of WIZnet. All other products or service names are the property of their respective owners. Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

# X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for* Networking Modules *category:*

*Click to view products by* Wiznet *manufacturer:*

Other Similar products are found below :

MS25041-4-327  SE305-T  509FX-SC  SE308-T  FCOPPER-SFP-100  75070R-70  75060R-40  301-2010-27  DC-ES-4SB-EU  MGM111E256V2  LTP5901IPC-IPRB1C1#PBF  LTP5901IPC-IPRC1C2#PBF  LTP5901IPC-IPRC1C1#PBF  LTP5901IPC-IPRB1C2#PBF  LTP5901IPC-IPRA1C2#PBF  VSMD001V072  65440R  2000000844  2000000849  WISE-1020-0C01E  WISE-1020-0S01E  WISE-1021WR-1100E  RAPID-NI-V2005  RAPID-NI-V2011  RAPID-NI-V2105  855-19619  X2E-Z1C-W1-W  X2E-Z4C-D2-A  PulM-1G4T-I211-BP-R10  PulM-1G4T-I211-R10  PUZZLE-IN003B-C0/8G-R10  XXV710DA2OCP2  MO11AA003-01R  WP20010NMK-01  WP500100S-01  XP1001000-05R  XP1001000M-05R  XP100200S-05R  XPDNC2000-01  XPP100200S-02R  112113-0001  112113-0007  1203630001  SST-DN4-PCU  2200515  XpressV7-LP690HE-Gen3  113990838  SD-300-US  MGM13P02F512GA-V2  MGM13S02F512GA-V3