



## **WIZ-DTU User Manual**

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**V1.0**

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### Update history

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## **1 Function introduction**

### **1.1 Overview**

The WIZ-DTU dual serial port to Ethernet converter supports two data transmission modes: transparent data transmission and AT command. It also supports TCP Server, TCP Client, UDP, Modbus and other working modes. The dual serial port baud rate can reach up to 1.152Mbps, and it provides supporting upper computer configuration software. It can also be easily configured through web pages or AT commands.

#### **1.1.1 Functional features**

The WIZ-DTU serial-to-Ethernet converter features the following main functions and characteristics:

- ◆ Supports Modbus RTU/ASCII to Modbus TCP/UDP and Modbus over TCP/UDP conversion
- ◆ Supports two data transmission modes: data transparent transmission and AT command
- ◆ The baud rate setting range is 16 commonly used baud rate values between 1.2Kbps and 1.152Mbps
- ◆ Supports TCP Server, TCP Client, UDP, and Modbus working modes
- ◆ Features up to 2048-byte dual serial port receive buffer and 2048-byte network port receive buffer
- ◆ Integrates a full hardware TCP/IP protocol stack to ensure fast, secure, and stable data communication
- ◆ Flexible dual serial port data packet setting to meet diverse packetization requirements of users
- ◆ Supports Keep Alive function to ensure real-time network link availability
- ◆ Supports DHCP for automatic IP address acquisition
- ◆ Supports DNS function to meet users' needs for converter-server communication via domain names
- ◆ Supports NetBIOS function for easy converter access by name
- ◆ Supports connection password verification to enhance communication security
- ◆ Supports configuration via dual serial port AT command mode, web page, and upper computer tools
- ◆ Supports local firmware upgrade via upper computer and web page

#### **1.1.2 Product Features**

- ◆ 32-bit ARM Cortex-M3 MCU
- ◆ LAN  
10/100M adaptive Ethernet
- ◆ Serial port  
RS485 × 1: A、B  
RS232 × 1: TXD、RXD

### ◆ Serial communication parameters

Baud rate: 16 commonly used baud rate values between 1.2Kbps and 1.152Mbps

Data bits: 7, 8

Stop position: 0.5, 1, 1.5, 2

Verification: None, Even, Odd

Flow control: None

### ◆ Input power supply

WIZ-DTU: DC 9~24V

### ◆ Dimensions (length x width x height)

WIZ-DTU: 79.20×48.60×21.00(mm)

### ◆ Working temperature

WIZ-DTU: -40℃ ~ +85℃

### ◆ Save environment

WIZ-DTU: -40℃ ~ +95℃、5 ~ 95% RH

### 1.1.3 Parameter configuration method

WIZ-DTU dual serial port to Ethernet converters provide three commonly used parameter configuration methods for users to choose from:

- ◆ Serial port AT command configuration, users can integrate WIZ-DTU into their embedded products, and the main MCU can configure parameters by sending serial port AT commands. Users can also directly configure converters through AT commands using the upper computer serial port tool, as detailed in [Chapter 7 AT Commands](#);
- ◆ Web browser configuration, users can configure through a web browser on a computer within the same LAN as the converter, as detailed in [Chapter 8 Web Page Configuration](#);
- ◆ WIZS2E Config Tool upper computer software configuration, users can configure the WIZS2E Config Tool upper computer software on a computer within the same LAN as the converter, as detailed in [Chapter 6 WIZS2E Config Tool software configuration](#).

## 1.2 Product specifications

### 1.2.1 Electrical parameters

Unless otherwise specified, the following parameters refer to the values at Temp=25 °C.

#### Power supply parameters

Table 1-1 WIZ-DTU power supply parameters

Symbol	Types	Ratings			
		Min	Typical	Max	Unit
V <sub>IN</sub>	Module voltage	9	12	36	V
I <sub>IN</sub>	Module current	107	80	40	mA

#### Current parameters

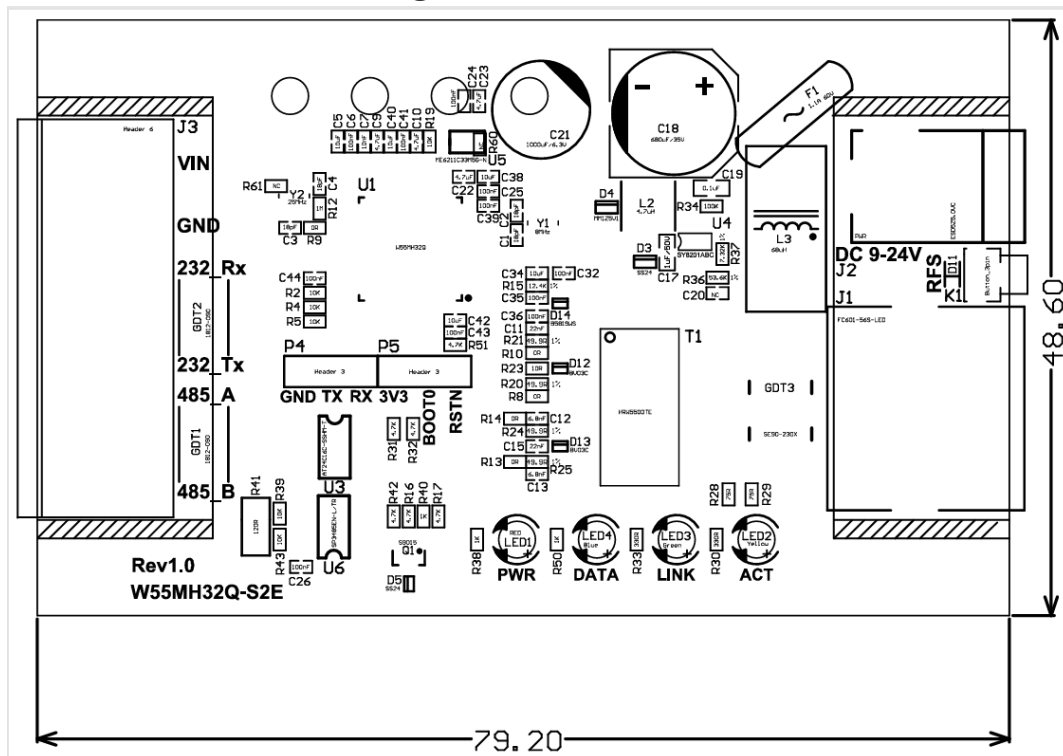
Table 1-2 WIZ-DTU Current parameters

Equipment status	Test value (mA)	Equipment status	Test value (mA)
Standby	78	communication	80

### 1.2.2 Mechanical dimensions

If users need to integrate WIZ-DTU dual serial port to Ethernet converters on their products, they can refer to the following mechanical dimensions. Unit: mm.

#### WIZ-DTU mechanical dimension diagram



### 1.2.3 Temperature characteristics

Table 1-3 temperature characteristics

Name	level	Working temperature	Storage temperature
WIZ-DTU	Industrial grade	-40 °C ~ +85 °C	-40 °C ~ +95 °C

## 2 Hardware Description

### 2.1 Interface Description

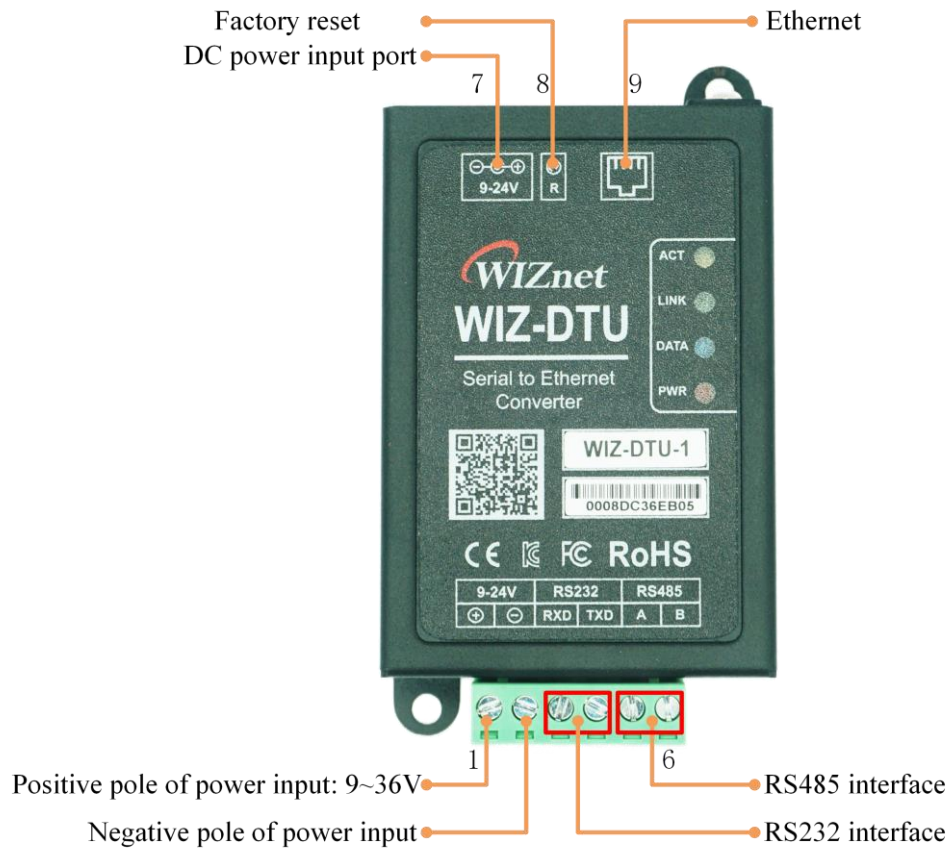


Figure 2-1 WIZ-DTU Interface diagram

Table 2-1 WIZ-DTUI nterface Description

Pin	Pin Name	I/O	Function
1	Power input positive pole	-	DC power input positive pole: 9-24V wide voltage input
2	Power input negative pole	-	DC power input negative pole
3	RXD	I	RS232 input signal interface
4	TXD	O	RS232 output signal interface
5	A	I/O	RS485 differential signal positive pole
6	B	I/O	RS485 differential signal negative pole
7	DC power input port	-	DC power input: supports 9-24V wide voltage input
8	R	I	Press and hold the factory reset button for at least 3 seconds to factory Reset
9	Ethernet	-	10/100M adaptive RJ45 interface, including data indicator light



### 3 Working mode

WIZ-DTU serial to Ethernet converters support TCP Server, TCP Client, UDP, and Modbus working modes, which will be briefly explained below.

#### 3.1 TCP Server Mode

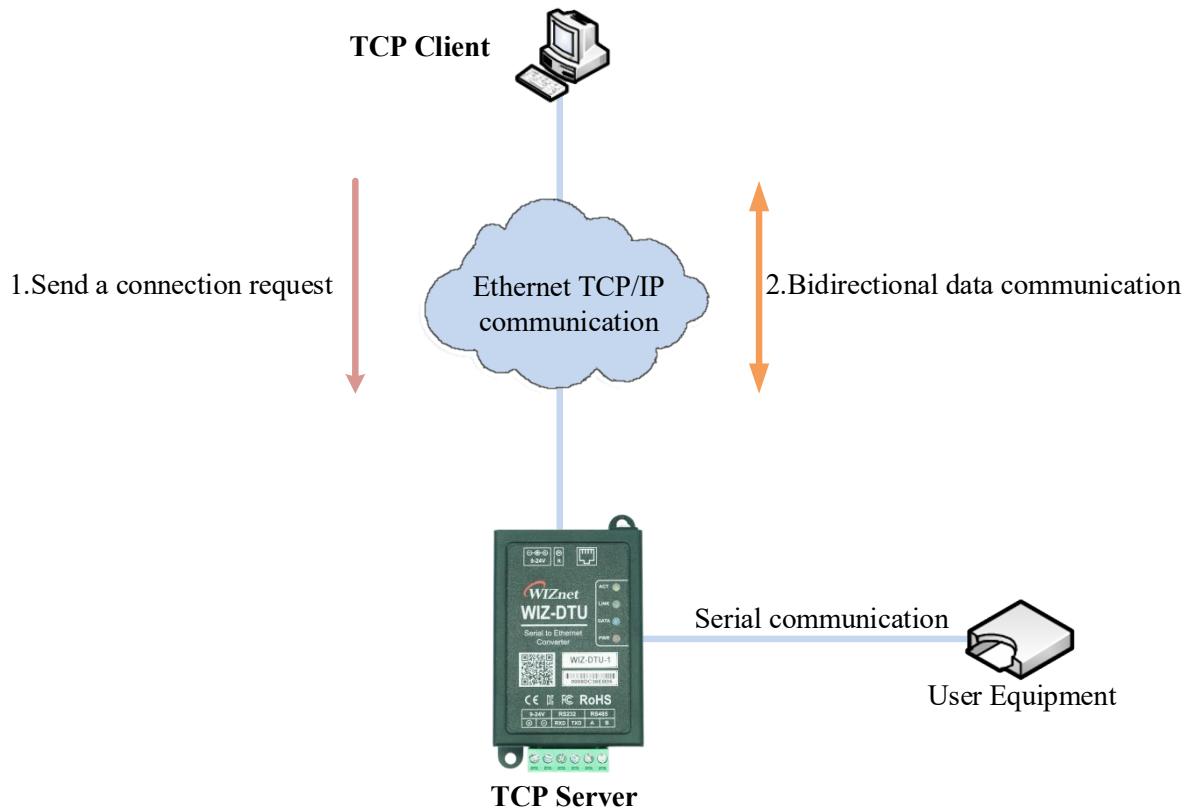


Figure 3-1 Schematic diagram of TCP Server mode

As shown in Figure 3-1, in TCP Server mode, WIZ-DTU opens a local port and listens, with a default port number of 5000, waiting for the client to connect. After establishing a TCP connection with the client, bidirectional data communication can be carried out.

### 3.2 TCP Client Mode

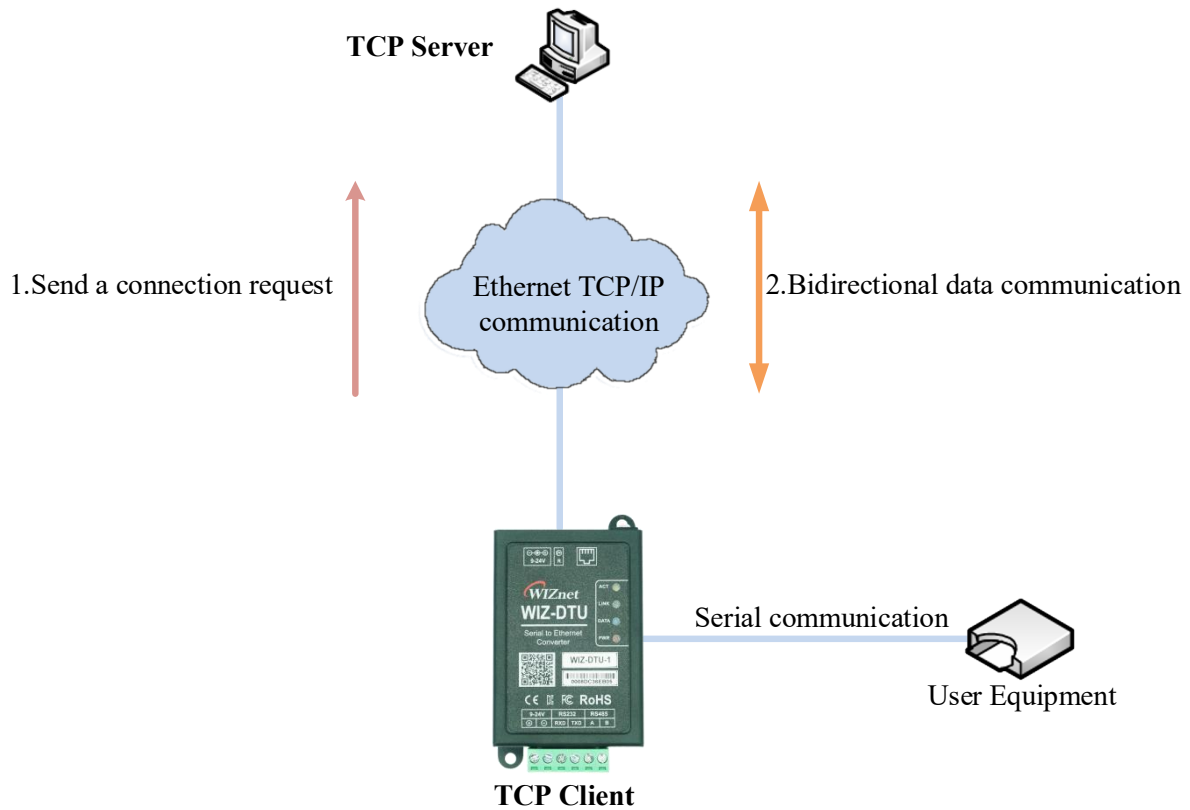


Figure 3-2 Schematic diagram of TCP Client mode

As shown in Figure 3-2, in TCP Client mode, WIZ-DTU will actively initiate connection requests to pre-set TCP servers. After establishing a TCP connection, bidirectional data communication can be carried out.

### 3.3 UDP Mode

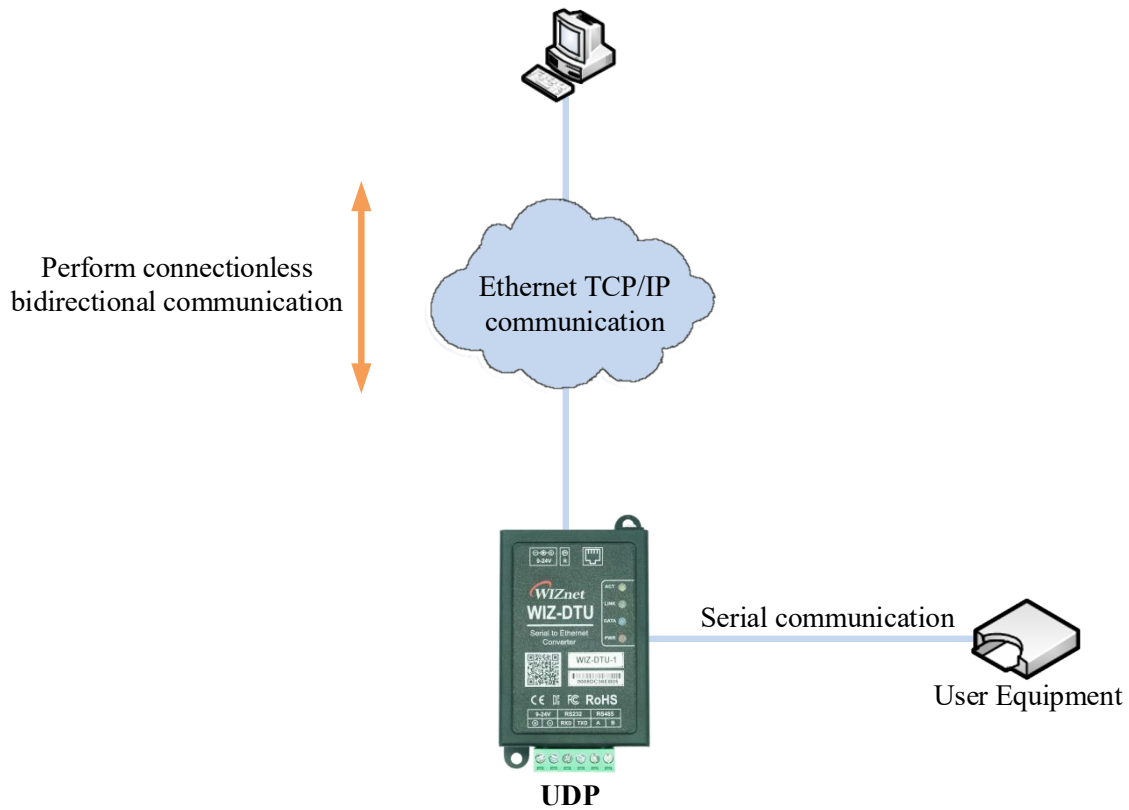


Figure 3-3 UDP Mode Diagram

As shown in Figure 3-3, UDP mode does not require establishing a connection. By setting the IP address and port number of WIZ-DTU and remote converters, UDP communication can be achieved.

### 3.4 Modbus Mode

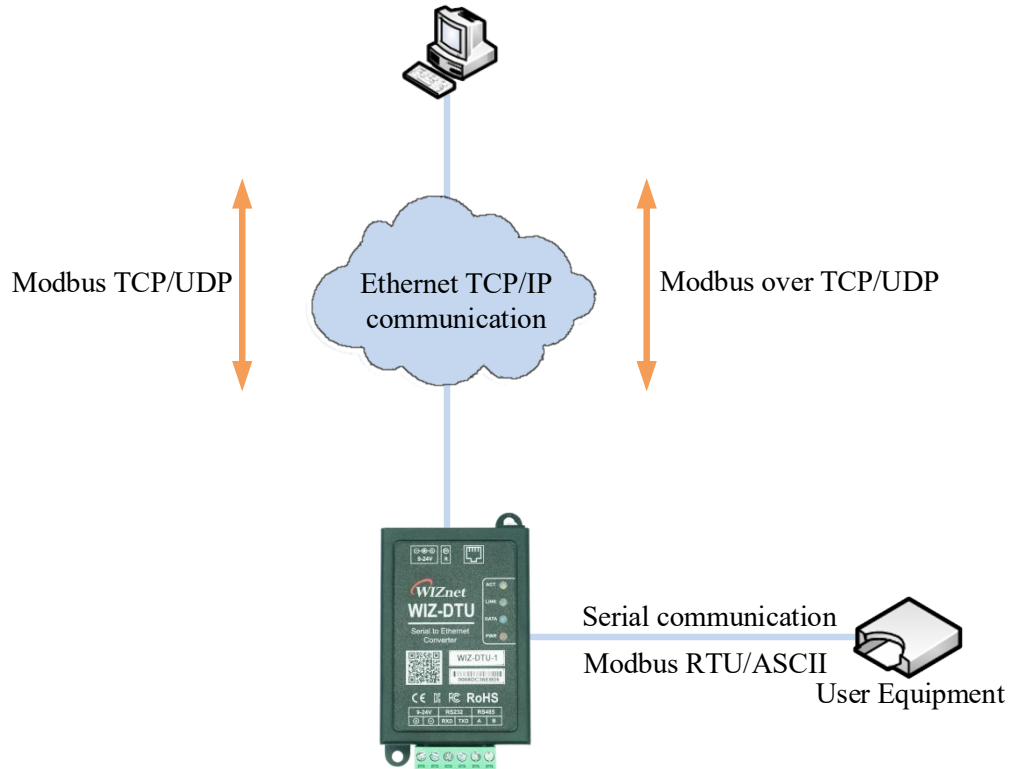


Figure 3-4 Modbus Mode Diagram

As shown in Figure 3-4, in Modbus mode, WIZ-DTU can achieve mutual conversion between Modbus RTU/ASCII protocol and Modbus TCP/UDP protocol. Meanwhile, WIZ-DTU also supports Modbus over TCP/UDP transmission.

**Note:** The Modbus function of WIZ-DTU is only valid in data transmission mode and does not support Modbus function when transmitting data through AT commands.

## **4 Data transmission mode**

WIZ-DTU serial to Ethernet converters support two data transmission modes for users to choose from: data transparent transmission mode and AT command transmission data mode.

### **4.1 Data transparent transmission mode**

The data transmission mode of WIZ-DTU has the following characteristics:

- 1 When using MCU to configure WIZ-DTU for data transmission and reception, in general, before entering data transmission mode, it is necessary to configure parameters in AT command mode and then switch to data transmission mode;
- 2 After entering data transmission mode, the converter will operate according to the configured working mode:
  - 2.1 When the converter is in TCP Server mode, it will immediately establish listening until a client establishes a connection with it;
  - 2.2 When the converter is in TCP Client mode, it will immediately request a connection from the server until a successful connection is established;
  - 2.3 When the converter is in UDP mode, there is no need to establish a connection and wait for user data;
- 3 After establishing a TCP or UDP connection, there is no need for any AT command operation, and the converter can automatically send and receive data at any time, achieving transparent transmission of data;
- 4 If the TCP connection is disconnected normally, the converter will perform the following actions:
  - 4.1 When the converter is in TCP Server mode, it will re-establish listening;
  - 4.2 When the converter is in TCP Client mode, it will reapply for a connection to the server;
- 5 When configuring WIZ-DTU to send and receive data using MCU, if you need to modify the configured parameters, you need to exit the data transmission mode and enter the AT command mode for parameter configuration.

### **4.2 AT Command Transmission Data Mode**

The AT command transmission data mode of WIZ-DTU has the following characteristics:

- 1 Configure in AT command mode and perform data transmission in AT command mode without switching operating modes;

- 2 After configuring parameters in AT command mode, relevant AT data transmission commands can be directly called for TCP or UDP communication;
  - 2.1 When configuring the converter to TCP Server mode, the converter will immediately establish listening until a client establishes a connection with it;
  - 2.2 When configuring the converter to TCP Client mode, the converter will immediately apply to the server for a connection. If the connection cannot be successfully established within 3 seconds, a new command needs to be sent to apply for a connection;
  - 2.3 When configuring the converter in UDP mode, the converter does not need to establish a connection and waits for user data;
- 3 After establishing a TCP connection or UDP, sending or receiving data requires corresponding AT commands for operation, and only one data packet can be sent/received at a time;
- 4 If a TCP connection disconnection is detected, the relevant AT data transmission command needs to be called again to establish the connection;
- 5 If you need to modify the configuration parameters, you can directly call the AT command for configuration.

### 4.3 Enter data transmission mode

Users can enter data transmission mode through three ways:

- 1 AT command (see Chapter 7 "RESET" and "EXIT" commands for details);
- 2 Web pages (see "Start Mode" option in Chapter 8 "Basic Settings" tab for details);
- 3 WIZS2E Config Tool configuration tool (see "Enter... Mode when power on or reset" option in Chapter 6 "Additional Functions" for details).

## 5 WIZ-DTU's IP address

Before using WIZ-DTU, we need to know its IP address and other parameters. WIZ-DTU supports two IP acquisition methods: "static configuration" and "dynamic acquisition". Static configuration "refers to the need for users to manually configure parameters such as IP address, subnet mask, and gateway. It should be emphasized that the converter IP address cannot be the same as the IP address of other converters in the same local area network, otherwise communication cannot be achieved; Dynamic acquisition "refers to the converter using the DHCP protocol to automatically obtain information such as IP address, subnet mask, and gateway from the DHCP server.

### 5.1 Factory setting of converter IP address

The default IP address for WIZ-DTU serial to Ethernet converters at the factory is 192.168.1.88.

### 5.2 Obtain converter IP information

WIZ-DTU has two methods to obtain converter IP addresses:

- 1 WIZS2E Config Tool upper computer software, refer to the instructions in [Chapter 6.1](#) for details;
- 2 AT command query, please refer to [Chapter 7](#) "IP" query command for details

### 5.3 Method for determining if converters and computers are on the same network segment

Before using a computer to communicate with WIZ-DTU, users need to ensure that their computer is on the same network segment as WIZ-DTU. WIZ-DTU is set with a default IP address (192.168.1.88) and network mask (255.255.255.0) at the factory. Users can check whether the converter is on the same subnet as their computer according to the process shown in the following figure.

If in the same subnet, WIZ-DTU converters can be directly used for communication. If they are not on the same subnet, it is necessary to set the IP address of the computer.

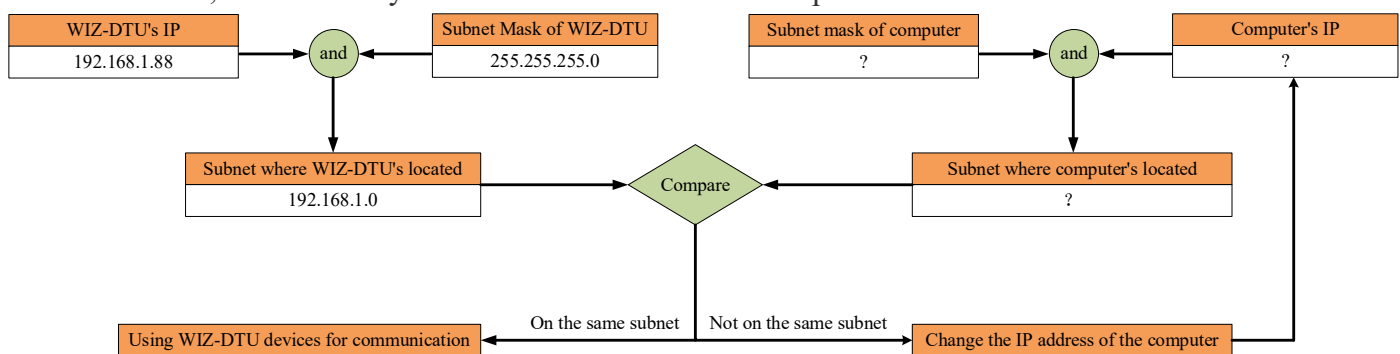


Figure 5-1 WIZ-DTU and computer IP address same subnet detection

## 5.4 Computer IP Setting Method

Taking the Windows 10 operating system as an example for explanation.

Start → Control Panel → Network Sharing Center → Change Adapter Settings → Local Area Connection → Right click Properties → Double click Internet Protocol Version 4 (TCP/IPv4) to obtain the page shown in the following figure. Select 'Use the following IP address' and fill in the IP address, such as 192.168.1.99, subnet mask 255.255.255.0, default gateway 192.168.1.1, DNS section can be left blank, click 'OK' to complete the configuration. You can now communicate with WIZ-DTU converters.

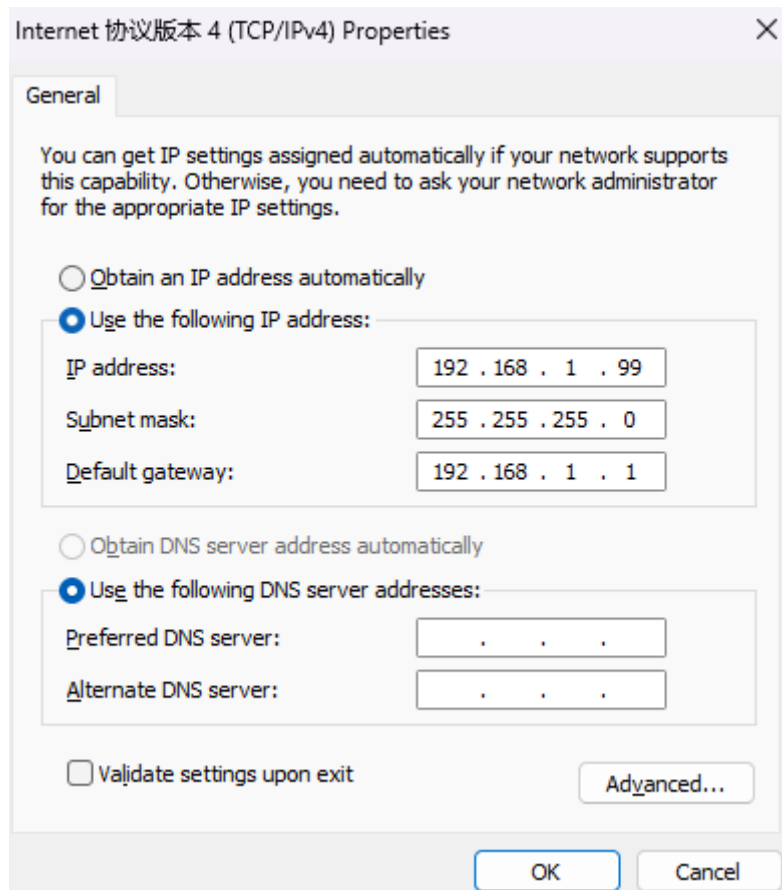


Figure 5-2 Windows 10 IP Address Setting Interface

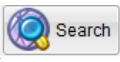


## 6 WIZS2E Config Tool software configuration

WIZS2E Config Tool is an upper computer configuration software that runs on the Windows operating system and is compatible with WIZ-IP32, W5500S2E series and W7500S2E series serial to Ethernet modules. Users can easily search, view, and configure various functions and information of WIZ-DTU dual serial port to Ethernet converters through WIZS2E Config Tool.

**Note:** Before configuring, it is recommended to turn off the firewall and ensure that all converter IP addresses within the local area network do not conflict.

### 6.1 Obtain converter configuration information

Click the button  in the toolbar, and the left search window will categorize by converter MAC address, listing all searched WIZ-DTUs. Click on the "+" in front of the list to expand and view detailed information about the converter.

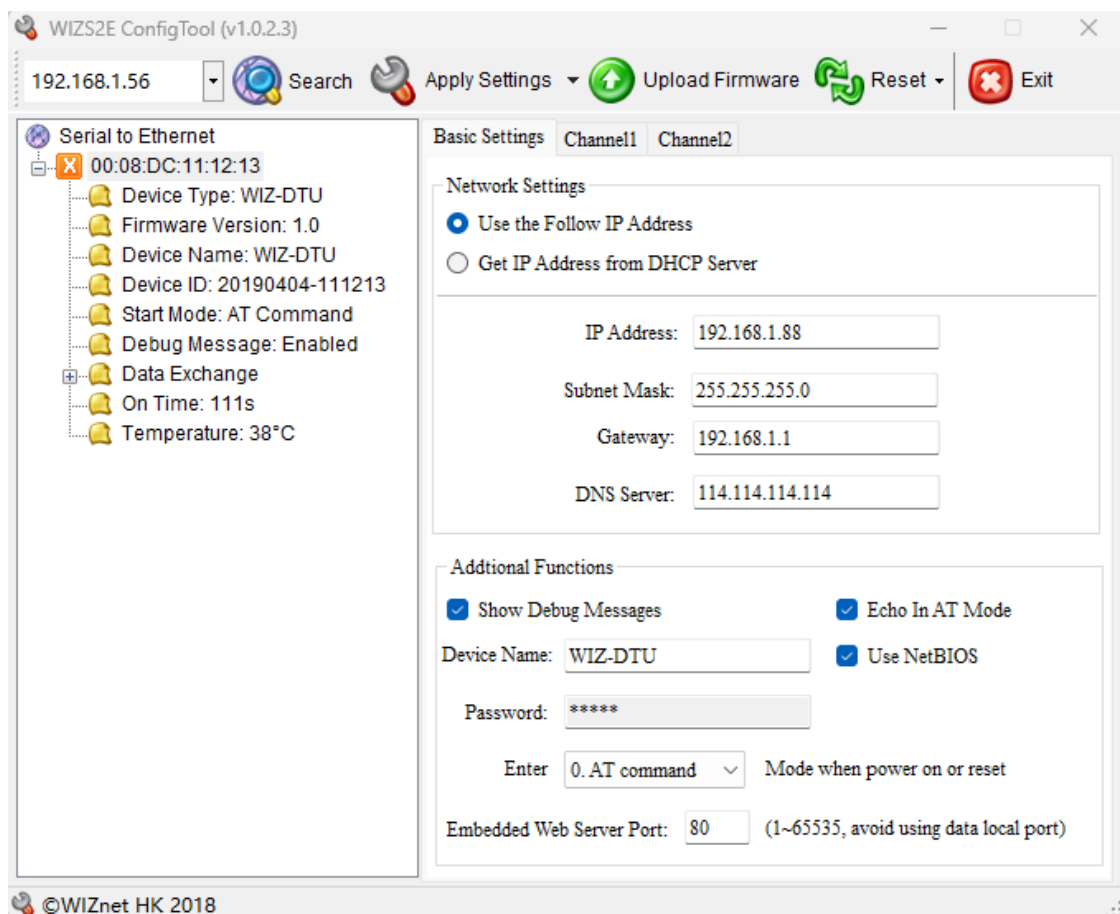


Figure 6-1 Basic Configuration Interface of WIZS2E Config Tool

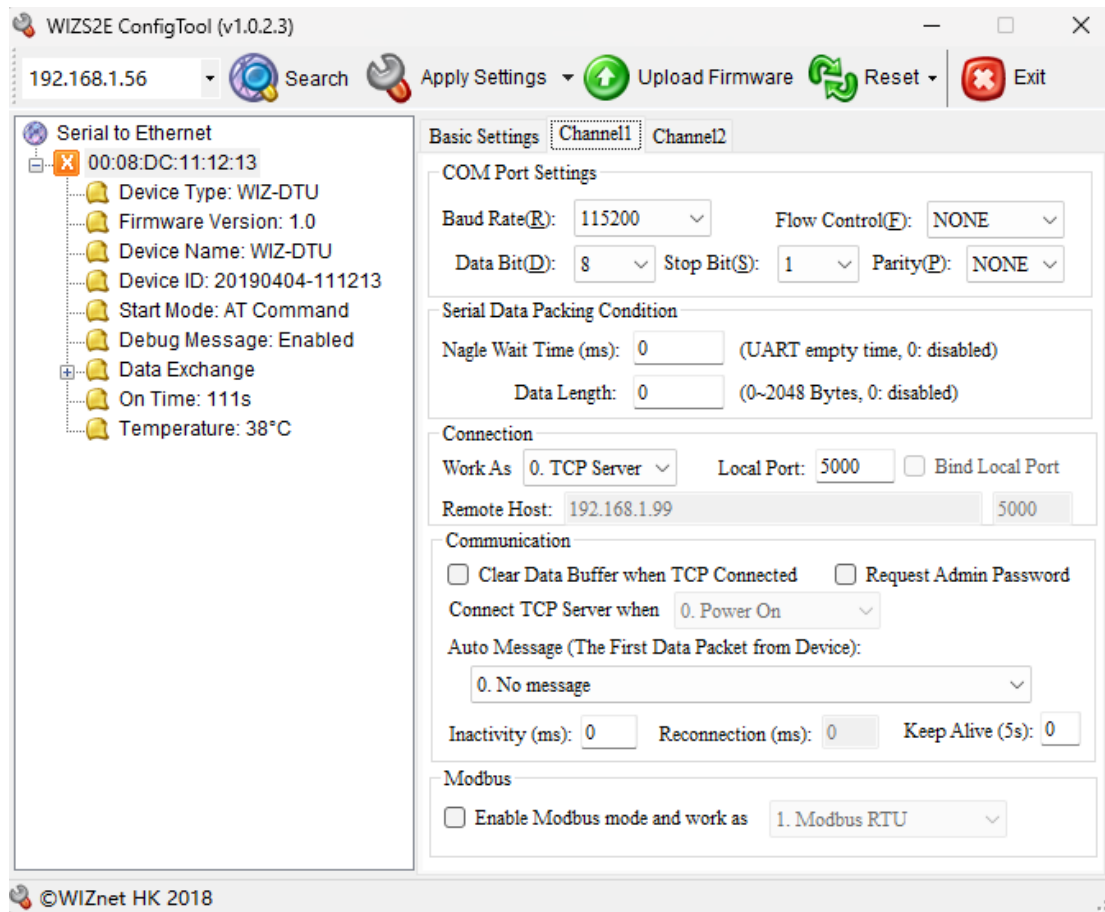


Figure 6-2 Channel1 interface

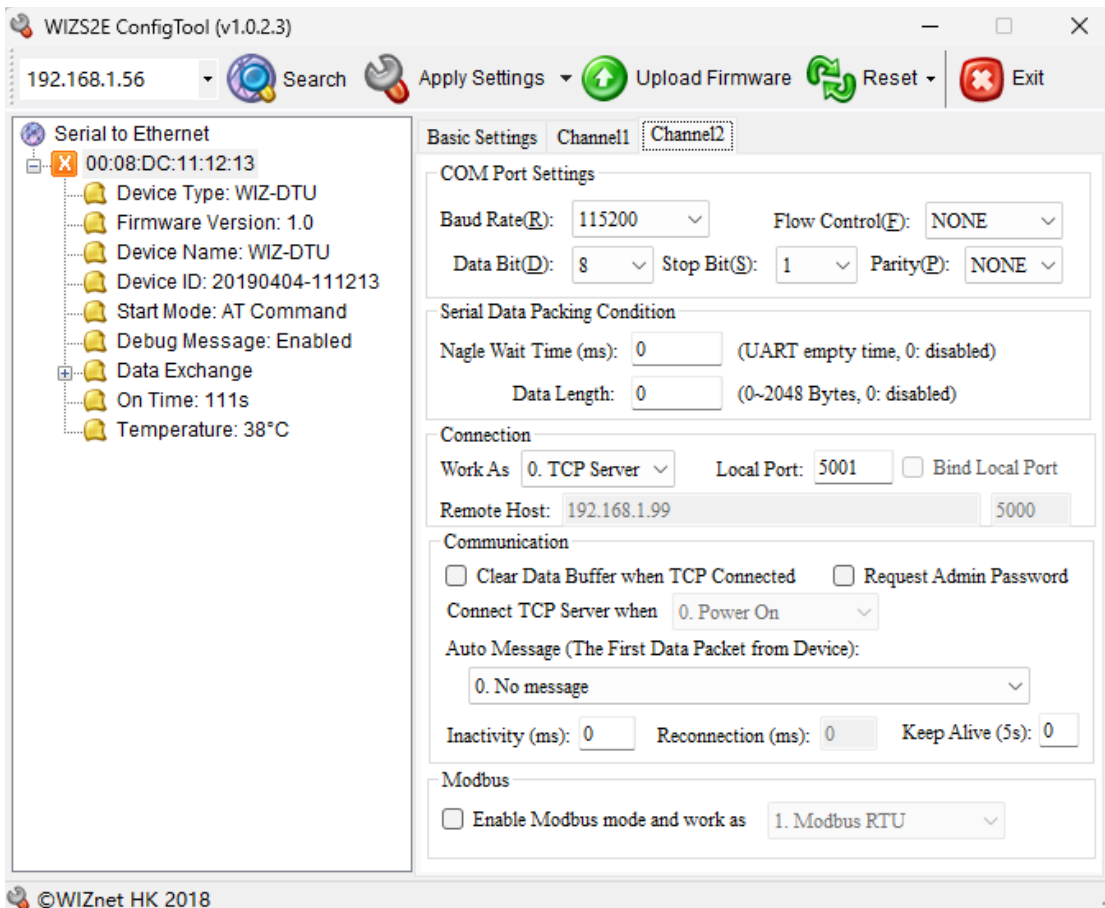

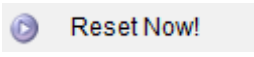


Figure 6-3 Channel2 interface

## 6.2 Modify converter configuration information

After searching for the converter, users can directly modify the converter information in the basic and advanced configuration interfaces, and click the button  to save the configuration information.

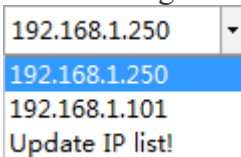
## 6.3 Reset Converter

Clicking  button will bring up a dropdown menu, and clicking  will immediately restart the converter (without saving the configuration).

## 6.4 Practical functions

### 6.4.1 Switch network card

In order to solve the problem of not being able to determine whether the current converter is a wired or wireless network card when configuring a laptop, this tool has added a function to switch network cards as shown in the image below.



Users can first click "Update IP list!" to update the network card list, and then select the corresponding network card for configuring the module.

### 6.4.2 Right Mouse Click

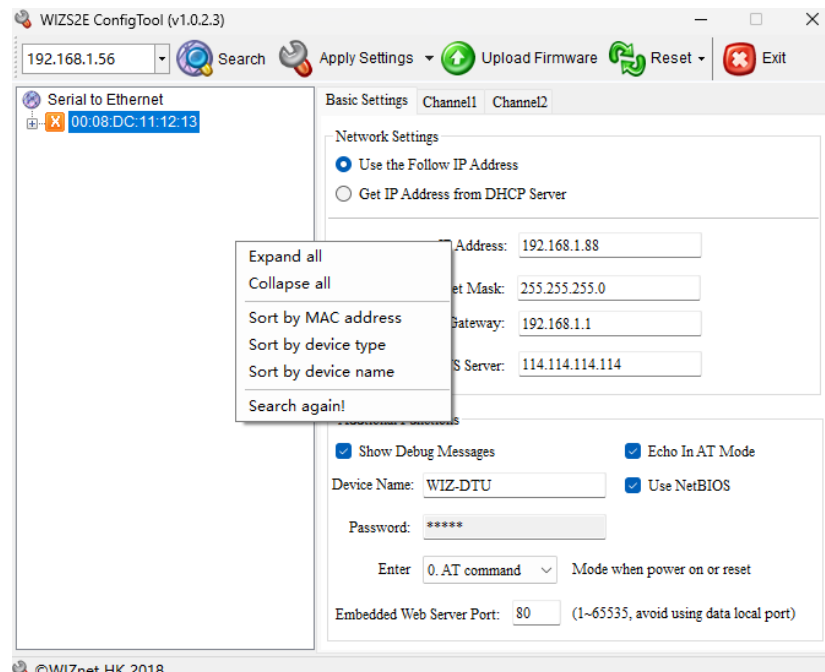


Figure 6-4 Right Mouse Button Function

Right click on the converter list on the left, as shown in the figure below, and a list of three functions will appear:


1. Expand/collapse all converter details;

2. Sorted by MAC address, converter type, or converter name;
3. Search again! This function let users to maintain the original converter list unchanged when configuring converters in bulk, it listed newly searched converter information after the original converter list.

### 6.5 Factory Reset

For users need to factory Reset when using WIZ-DTU dual serial port to Ethernet converters, there are three methods: Configuration tools, AT command mode, and hardware mode.

#### 6.5.1 Restore software to factory settings

Firstly, click the left mouse button in the converter list of WIZS2E Config Tool software to select the converter that needs to be restored, and then click the  Reset →  Factory Reset button in the toolbar to factory Reset.

#### 6.5.2 Restore factory settings through AT command

Refer to [Chapter 7](#) for details on the "DEFAULT" command.

#### 6.5.3 Hardware factory reset

After powering on the WIZ-DTU product, press and hold the factory reset button for more than 3 seconds to restore the product to its factory settings.



Figure 6-5 Hardware Factory Reset

## 7 AT commands

### 7.1 Overview of AT Command

The AT command supported by WIZ-DTU serial to Ethernet converters is a standard interface that is not case sensitive and always starts with "AT" and ends with "\r\n". The format of its commands, return values, and parameters is fixed. Generally speaking, AT commands have the following formats:

#### 1、No parameter command

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

Explanation: The command is followed by no parameters or symbols.

Example:

Command: *AT+EXIT\r\n*

Response: *OK\r\n*

#### 2、Query command

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

Description: Used to query the current configuration value of a parameter.

Example:

Command: *AT+ECHO?\r\n*

Response: *[ECHO] Value is: 1\r\nOK\r\n*

#### 3、Command with parameters

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

Explanation: It is the most commonly used format for setting a certain parameter (except for the DEFAULT command and RESET).

Example:

Command: *AT+ECHO=1\r\n*

Response: *[ECHO] Value is: 1\r\nOK\r\n*

## 7.2 AT command returns a list of values

According to the different AT commands input by the user, WIZ-DTU will reply with the execution results of the commands, as shown in Table 7-1.

Table 7-1 AT Command Return Value List

Response type	Response	Description
Error message	Command Invalid\r\nERROR\r\n	Command error
	<Error Info>\r\n	Command parameter error or mismatch with current working mode
Correct information	OK\r\n	Parameter free command for correct configuration
	[Command] Value is: <value>\r\nOK\r\n	Correct configuration of query commands and parameterized commands

## 7.3 Enter AT command mode

There are two operating modes for WIZ-DTU serial to Ethernet converters: AT command mode and data transmission mode. In AT command mode, users can use serial tools or configure various parameters of the converter through their MCU, and also support data transmission under AT commands.

**Note:** If a TCP connection is established before entering AT command mode, the connection will be closed when entering AT command mode.

When WIZ-DTU is in AT command mode, input the terminal detection command "AT\r\n" to its serial port. If the converter correctly receives "AT\r\n", it will reply with "OK\r\n".

When WIZ-DTU is in data transmission mode, any AT command input to the serial port is invalid. At this point, input "+++" to its serial port, and WIZ-DTU will switch to AT command mode.

**Input rule for "+++":** Three "+" must be sent continuously to the serial port at once, and there must be no other characters within 1 second before and after the "+++" in order for WIZ-DTU to respond correctly and switch to AT command mode.

**Note:** The default operating mode of WIZ-DTU at the factory is AT command mode.

## 7.4 AT Command List

WIZ-DTU serial to Ethernet converters support serial AT command configuration parameters and also support data transmission in AT command mode. Therefore, AT commands can be roughly divided into two categories: AT configuration commands and AT data transmission commands.

### 7.4.1 AT Configuration Command List

The AT configuration command is used to configure or query various parameters of WIZ-DTU.

Specifically divided into control commands, converter information configuration commands, serial port information configuration commands, and management commands.

This converter provides dual channel operation capability. In subsequent instructions, the [CH] parameter is used to specify the channel number, with a valid range of 1 (RS232) to 2 (RS485). Users can select the corresponding channel for configuration according to their needs. As shown in the table below. (R: searchable; W: Configurable; RW: searchable and configurable)

Table 7-2 Configure Command List

Type	Command name	Function	Attribute	Max length	Parameters
Control command	AT	Terminal detection	R	-	-
	ECHO	Feedback	RW	1	0: Turn off echo display 1: Open echo (default)
	DEBUGMSGEN	Debug information	RW	1	0: Close debugging information 1: Enable debugging information (default)
	NAME	Equipment name	RW	15	It must be a number, letter, or a combination of both
	PASS	Converter password	RW	15	Must be a number, letter, or a combination of both. Default: admin
	DEFAULT	Restore factory settings	W	15	When the parameter is "converter password", factory Reset
	RESET	Save configuration and restart converter	W	15	When the parameter is ' converter password ', restart the converter
	EXIT	Save configuration and exit AT command mode	W	-	-
	SAVE	Save Configuration	W	-	-
Converter information configuration command	START_MODE	Next time starting the running mode	RW	1	0: AT command mode (default) 1: Data transparent transmission mode
	C[CH]_OP	Working mode	RW	2	0: TCP Server(default) 1: TCP Client 2: UDP 16: Modbus RTU-TCP Server 17: Modbus RTU-TCP Client 18: Modbus RTU-UDP 32: Modbus ASCII-TCP Server 33: Modbus ASCII-TCP Client 34: Modbus ASCII-UDP
	IP_MODE	How to obtain IP address	RW	1	0: Static retrieval (default) 1: DHCP acquisition
	IP	Converter IP address	RW	15	Default :192.168.1.88
	MASK	Converter subnet mask	RW	15	Default :255.255.255.0
	GATEWAY	Converter gateway	RW	15	Default :192.168.1.1
	DNS	DNS server address	RW	15	Default :114.114.114.114
	C[CH]_PORT	Local port number	RW	5	1 ~ 65535; Default:5000
	C[CH]_BIND	Bind local port number	RW	1	Valid for TCP client 0: Do not bind local port number (Default) 1: Bind local port number
	C[CH]_DNSEN	DNS function	RW	1	0: Disable DNS function (Default) 1: Enable DNS function
	C[CH]_CLI_IP1	Remote host IP address	RW	15	Default: 192.168.1.99



	C[CH]_CLI_PP1	Remote host port number	RW	5	1~65535; Default: 5000
	C[CH]_DOMAIN	Remote host domain name	RW	32	Default: www.w5500.com
	C[CH]_RECONTIME	Reconnect time	RW	5	Valid for TCP client The value range is: 0~60000 Unit: ms Default: 0 (reconnect immediately)
	NETBIOS	NetBIOS functionality	RW	1	0: Disable NetBIOS function (default) 1: Enable NetBIOS functionality
Command for configuring oral information	COM[CH]	Serial port parameters	RW	10	Default: 9,1,0,1,0
	C[CH]_BAUD	Baud rate	RW	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
	C[CH]_DATAB	Data bits	RW	1	0: 7 digits 1: 8-bit (default)
	C[CH]_STOPB	stop bit	RW	1	0: 0.5 1: 1 (default) 2: 1.5 3: 2
	C[CH]_PARITY	check bit	RW	1	0: No verification (default) 1: Odd verification 2: Even verification
	C[CH]_SER_C	Serial port flow control	RW	1	0: No flow control (default)
	C[CH]_BUF_CLS	Clear serial port buffer	RW	1	Effective during TCP 0: Do not clear serial port buffer after connection (default) 1: Clear the serial port buffer after connection
	C[CH]_SER_LEN	packet length	RW	4	The value range is: 0~2048 bytes Default: 0 (no packet)
	C[CH]_SER_T	Serial port frame interval	RW	5	The value range is: 0~60000 Unit: ms Default: 0 (no packet)
	C[CH]_IT	Timeout disconnect time	RW	5	Effective during TCP The value range is: 0~60000 Unit: ms Default: 0 (disable this feature)
	C[CH]_TCPAT	Heartbeat detection time	RW	3	Effective during TCP The value range is: 0~255 Unit: 5s Default: 0 (disable this feature)
	C[CH]_LINK_P	Connection password verification	RW	1	Valid on TCP Server 0: Do not verify password after TCP connection is established (default) 1: Verify password after establishing TCP connection
	C[CH]_LINK_T	Connection establishment conditions	RW	1	Valid for TCP client 0: Establish connection immediately after power on (default) 1: Establish a connection after receiving data through the serial port
	C[CH]_LINK_M	Send a message after connecting	RW	1	Valid in TCP mode 0: No message sent after connection establishment (default) 1: After establishing the connection, send the converter name



					2: Send converter MAC address after connection establishment 3: Send converter IP address after connection establishment
Management commands	C[CH]_SEND_NUM	The number of bytes sent by the serial port	R	-	Display range is 0 ~ 4294967295
	C[CH]_RCV_NUM	Serial port received byte count	R	-	Display range is 0 ~ 4294967295
	C[CH]_NETSEND	Number of bytes sent by the network port	R	-	Display range is 0 ~ 4294967295
	C[CH]_NETRCV	Number of bytes received by the network port	R	-	Display range is 0 ~ 4294967295
	PRE	List of default and current values	R	-	-
	LIST	All command lists	R	-	-
	RUNTIME	Equipment operation time	R	-	-
	VER	Converter firmware version number	R	-	-
	MAC	Converter MAC address	R	-	-
	SN	Equipment serial number	R	-	-
	TYPE	Converter Type	R	-	-
	WEB_PORT	Web port number	RW	5	1 ~ 65535;Default: 80

## 7.4.2 AT Data Transmission Command List

The AT data transmission command enables WIZ-DTU to achieve data transmission and reception in AT command mode. (R: searchable; W: Configurable; RW: searchable and configurable)

Table 7-3 AT AT Data Transmission Command List

Type	Command name	Function	Attribute	Max length	Parameters
Data transmission command	LINK	PHY connection status	R	-	0: PHY not connected 1: PHY connected
	C[CH]_LISTEN	Establish TCP listening	W	-	-
	C[CH]_CONNECT	Apply for TCP connection	W	-	-
	C[CH]_TCP_STATUS	TCP connection status	R	-	0: TCP not connected 1: TCP Connected
	C[CH]_UDP	Establish UDP communication	W	-	-
	C[CH]_SEND	The number of bytes of data to be sent	W	4	Range: 0~2048 Default value: 0 (any length)
	C[CH]_RLEN	Number of bytes of data to be received	R	-	-
	C[CH]_RCV	Receive Data	W	4	Range: 0~2048 Default value: 0 (any length)
	C[CH]_CLEAR	Clear the network port receiving cache	W	-	-
	C[CH]_DISCON	Turn off TCP/UDP	W	-	-

## 7.5 Detailed description of AT configuration command

### 7.5.1 Control command

#### AT(Terminal check)

Command format	Parameters	Function Description
AT	Nil	Check the terminal
<b>Response</b>	OK\r\n	
<b>Example</b>	Command: AT\r\n Response: OK\r\n	

Description: In AT command mode, it only provides response check to ensure it is in AT command mode.

#### ECHO(Enable or disable echoing)

Command format	Parameters	Function Description
AT+ECHO?	Nil	Query current value
AT+ECHO=<parameter>	<parameter>: 0: Disable the echo function 1: Enable echo function (default)	Set new value
<b>Response</b>	[ECHO] Value is: <value>\r\nOK \r\n	
<b>Example</b>	Command: AT+ECHO?\r\n Response: [ECHO] Value is: 1\r\nOK\r\n	

Command description: The echo function refers to returning the data input from the serial channel as it is, and only exists in AT command mode. Enabling the echo function can help users configure converters more conveniently when using serial software. However, when configuring converters using embedded converters such as microcontrollers, enabling the echo function can cause trouble. It is recommended to disable it at this time.

#### DEBUGMSGGEN(Debug message)

Command format	Parameters	Function Description
AT+ DEBUGMSGGEN?	Nil	Query current value
AT+DEBUGMSGGEN=<parameter>	<parameter>: 0: Close debugging information 1: Enable debugging information (default)	Set new value
<b>Response</b>	[DEBUGMSGGEN] Value is: <value>\r\nOK \r\n	
<b>Example</b>	Command: AT+DEBUGMSGGEN=1\r\n Response: [DEBUGMSGGEN] Value is: 1\r\nOK\r\n	

Command Description: This command is used to configure whether the converter should enable debugging information. Debugging information includes basic converter information and converter status change information, which will be output through the serial channel at startup for easy user viewing. If the user does not need this information, the debugging information output can be turned off through this command.

**NAME(Module name)**

Command format	Parameters	Function Description
AT+NAME?	Nil	Query current value
AT+NAME=<parameter>	<parameter>: The total length is 15 characters, with the first character being a letter and the remaining 14 characters being any combination of letters, numbers, symbols' - 'or' _ '.	Set new value
<b>Response</b>	[NAME] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+NAME=User1\r\n Response: [NAME] Value is: User1\r\nOK\r\n	

Command description: Users can customize converter names through this command.

**Note:** This command can be used in conjunction with the NetBIOS function. If the NetBIOS function is enabled, users can access the converter through the converter name in the browser. Please refer to the "AT+NETBIOS" command.

**PASS(Module password)**

Command format	Parameters	Function Description
AT+PASS?	Nil	Query current value
AT+PASS=<parameter>	<parameter>: Default: admin The converter password must be a combination of numbers, letters, or both, and cannot be empty. It is case sensitive and can be up to 15 bytes long	Set new value
<b>Response</b>	[PASS] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+PASS=Admin1\r\n Response: [PASS] Value is: Admin1\r\nOK\r\n	

Command Description: The converter password is used for restoring factory settings, verifying connection passwords, verifying web login passwords, and saving configurations and restarting the converter.

**Note:**

**Factory reset function:**

If you need to use the AT command to restore factory settings, you must enter the correct converter password. Please refer to the "DEFAULT" command for detailed functions. Connection password verification function:

In order to improve communication security, WIZ-DTU converters provide a "connection password verification" function. When the converter communicates with the client as a TCP Server, if the "connection password verification" function is turned on, the client needs to enter the converter password through the network port after establishing a connection with the converter. If the password is correct, communication can begin; If the password is incorrect, you will be prompted to re-enter the correct password. For detailed functions, please refer to the "C [CH] \_LINK-P" command.

**Web login password verification function:**

If you need to log in to the converter configuration webpage, you must enter the correct converter password on the login verification page.

**Save configuration and restart converter functionality:**

To save the current configuration and restart the converter, the correct converter password must be entered to reset. After using this command, all sockets will be automatically closed. Please refer to the "RESET" command for detailed functions.

**DEFAULT(Reset to factory default)**

Command format	Parameters	Function Description
AT+DEFAULT=<parameter>	<parameter>: Converter password, default: admin	Set new value
<b>Response</b>	OK\r\n	
<b>Example</b>	Command: AT+DEFAULT=admin\r\n Response: OK\r\n	

Command description: The converter password must be completely correct in order to restore factory settings. The converter password can be queried and set through the "PASS" command.

**RESET(Save and restart the module)**

Command format	Parameters	Function Description
AT+RESET=<parameter>	<parameter>: Converter password, default: admin	Set new value
<b>Response</b>	OK\r\n	
<b>Example</b>	Command: AT+RESET=admin\r\n Response: OK\r\n	

**Command Description:**

- 1 Save the current configuration information;
- 2 Restart the converter to make the configuration information take effect;
- 3 When users need to directly enter data transmission mode during the next power on, they can configure the parameter value of the "AT+START-MODE=1\r\n" command to be 1, and then configure the "RESET" command;
- 4 The converter password can be queried and set through the "PASS" command.

**EXIT(Save and exit command mode)**

Command format	Parameters	Function Description
AT+EXIT	Nil	Execute immediately
<b>Response</b>	OK\r\n	
<b>Example</b>	Command: AT+EXIT\r\n Response: OK\r\n	

**Command Description:**

- 1 Save the current configuration information;

- 2 Make the configuration information effective;
- 3 Exit AT command mode and enter data transmission mode.

**SAVE(Save settings)**

Command format	Parameters	Function Description
AT+SAVE	Nil	Execute immediately
<b>Response</b>	OK\r\n	
<b>Example</b>	Command: AT+SAVE\r\n Response: OK\r\n	

Command Description:

- 1 Save the current configuration information;
- 2 Make the configuration information effective;

**7.5.2 Converter information configuration command****START\_MODE(Start mode)**

Command format	Parameters	Function Description
AT+START_MODE?	Nil	Query current value
AT+START_MODE=<parameter>	<parameter>: 0: AT command mode (default) 1: Data transparent transmission mode	Set new value
<b>Response</b>	[START_MODE] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+START_MODE=1\r\n Response: [START_MODE] Value is: 1\r\nOK\r\n	

Command description: This command configures the running mode for the next startup. When users need to directly enter data transmission mode during the next power on, they can configure the parameter value of the "START\_MODE" command to be 1, and then configure the "RESET" command.

**C[CH]\_OP(Operating mode)**

Command format	Parameters	Function Description
AT+C[CH]_OP?	Nil	Query current value
AT+C[CH]_OP=<parameter>	<parameter>: 0: TCP Server(default) 1: TCP Client 2: UDP 16: Modbus RTU-TCP Server 17: Modbus RTU-TCP Client 18: Modbus RTU-UDP 32: Modbus ASCII-TCP Server 33: Modbus ASCII-TCP Client 34: Modbus ASCII-UDP	Set new value
<b>Response</b>	[C[CH]_OP] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_OP=1\r\n Response: [C1_OP] Value is: 1\r\nOK\r\n	

Command description: When transmitting data in AT command mode, if you need to use this command to modify the operation mode of the related channel, you need to first call the "DISCON" command to turn off TCP/UDP.

**IP\_MODE(IP configuration mode)**

Command format	Parameters	Function Description
AT+IP_MODE?	Nil	Query current value
AT+IP_MODE=<parameter>	<parameter>: 0: Static retrieval (default) 1: DHCP acquisition	Set new value
<b>Response</b>	[IP_MODE] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+IP_MODE=1\r\n Response: [IP_MODE] Value is: 1\r\nOK\r\n	

Command description: When selecting the static retrieval method, users need to set their own IP address, gateway, subnet mask, DNS server address, etc., or they can choose the default settings; When selecting DHCP mode, WIZ-DTU will dynamically obtain IP information through DHCP servers in the local area network.

**IP(IP address)**

Command format	Parameters	Function Description
AT+IP?	Nil	Query current value
AT+IP=<parameter>	<parameter>: Default: 192.168.1.88	Set new value
<b>Response</b>	[IP] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+IP=192.168.1.88\r\n Response: [IP] Value is: 1\r\nOK\r\n	

Command description: The IP address is represented in IPv4 standard format, such as 192.168.1.88; Its maximum length is 15 bytes, and the range of values for each decimal number is from 0 to 255. This setting only takes effect when the IP configuration mode (IP\_MODE) is set to 'Static IP Mode'.

**MASK(Subnet mask)**

Command format	Parameters	Function Description
AT+MASK?	Nil	Query current value
AT+MASK=<parameter>	<parameter>: Default: 255.255.255.0	Set new value
<b>Response</b>	[MASK] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+MASK=255.255.255.0\r\n Response: [MASK] Value is: 255.255.255.0\r\nOK\r\n	

Command Description: The subnet mask is represented in IPv4 standard format, such as 255.255.255.0, with a maximum length of 15 bytes. This setting only takes effect when the IP configuration mode (IP\_MODE) is set to 'Static IP Mode'.

**GATEWAY(Gateway)**

Command format	Parameters	Function Description
AT+GATEWAY?	Nil	Query current value
AT+ GATEWAY =<parameter>	<parameter>: Default: 192.168.1.1	Set new value
<b>Response</b>	[GATEWAY] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+GATEWAY=192.168.1.1\r\n Response: [GATEWAY] Value is: 192.168.1.1\r\nOK\r\n	

Command Description: The gateway IP address is represented in IPv4 standard format, such as 192.168.1.1, with a maximum length of 15 bytes. This setting only takes effect when the IP configuration

mode (IP\_MODE) is in 'Static IP Mode'.

### DNS(DNS server address)

Command format	Parameters	Function Description
AT+DNS?	Nil	Query current value
AT+DNS=<parameter>	<parameter>: Default: 114.114.114.114	Set new value
<b>Response</b>	[DNS] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+DNS=114.114.114.114\r\n Response: [DNS] Value is: 114.114.114.114\r\nOK\r\n	

Command Description: The DNS server address is represented in IPv4 standard format, such as 114.114.114.114, with a maximum length of 15 bytes. This configuration does not accept address inputs ending in ". 0" or ". 255", for example: xxx.xxx.xxx.0 or xxx.xxx.xxx.255.

### C[CH]\_PORT(Local port number)

Command format	Parameters	Function Description
AT+C[CH]_PORT?	Nil	Query current value
AT+C[CH]_PORT=<parameter>	<parameter>: Range: 1~65535, default: 5000	Set new value
<b>Response</b>	[C[CH]_PORT] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_PORT=5000\r\n Response: [C1_PORT] Value is: 5000\r\nOK\r\n	

Command Description: This command is used to configure the local port number. The converter operates in TCP Server and UDP mode with the corresponding number of channels, and communicates with the user converter through this port.

**Note:** Some protocols in the Ethernet protocol have default port numbers, which should be avoided. The default occupied port numbers are shown in the [appendix](#).

### C[CH]\_BIND(Local port binding)

Command format	Parameters	Function Description
AT+C[CH]_BIND?	Nil	Query current value
AT+C[CH]_BIND=<parameter>	<parameter>: 0: Do not bind local port number (default) 1: Bind local port number	Set new value
<b>Response</b>	[C[CH]_BIND] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_BIND=1\r\n Response: [C1_BIND] Value is: 1\r\nOK\r\n	

Command Description: When the device operates in TCP Client mode on the corresponding serial channel, after binding the port number, WIZ-DTU will always use the local port number configured by the "C[CH]\_PORT" command.

**C[CH]\_DNSEN(DNS enable)**

Command format	Parameters	Function Description
AT+C[CH]_DNSEN?	Nil	Query current value
AT+C[CH]_DNSEN=<parameter>	<parameter>: 0: Disable DNS function (default) 1: Enable DNS function	Set new value
<b>Response</b>	[C[CH]_DNSEN] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_DNSEN=1\r\n Response: [C1_DNSEN] Value is: 1\r\nOK\r\n	

Command description: This setting takes effect only when the converter operates in TCP Client or UDP mode on the corresponding serial channel. After enabling DNS functionality, WIZ-DTU can access remote hosts using domain names. WIZ-DTU performs a DNS query upon each power-up.

**Note:**

- 1 If enabled and "C[CH]\_DOMAIN" is set, the "C[CH]\_CLI\_IP1" command becomes invalid. The module communicates with the host defined by "C[CH]\_DOMAIN";
- 2 If disabled and "C[CH]\_CLI\_IP1" is set, the "C[CH]\_DOMAIN" command becomes invalid. The module communicates with the IP defined by "C[CH]\_CLI\_IP1";
- 3 To use DNS functionality, the converter IP information must be configured correctly. It is recommended to configure the converter in DHCP mode.

**C[CH]\_CLI\_IP1(Remote host IP address)**

Command format	Parameters	Function Description
AT+C[CH]_CLI_IP1?	Nil	Query current value
AT+C[CH]_CLI_IP1=<parameter>	<parameter>: Default: 192.168.1.99	Set new value
<b>Response</b>	[C[CH]_CLI_IP1] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_CLI_IP1=192.168.1.99\r\n Response: [C1_CLI_IP1] Value is: 192.168.1.99\r\nOK\r\n	

Command description: This command is only effective in TCP Client or UDP mode, used to configure the remote IP address for the corresponding serial channel of WIZ-DTU. The IP address must comply with IPv4 format, such as 192.168.1.99, as defined in the "IP" command.

**Note:** If the parameter value of the "DNSEN" command is 0, the parameters configured by the command are valid.

**C[CH]\_CLI\_PP1(Remote host port number)**

Command format	Parameters	Function Description
AT+C[CH]_CLI_PP1?	Nil	Query current value
AT+C[CH]_CLI_PP1=<parameter>	<parameter>: Range: 1~65535, default: 5000	Set new value
<b>Response</b>	[C[CH]_CLI_PP1] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_CLI_PP1=5000\r\n Response: [C1_CLI_PP1] Value is: 5000\r\nOK\r\n	



Command description: The converter operates in TCP Client and UDP modes with the corresponding number of channels.

**Note:** Some protocols in the Ethernet protocol have default port numbers, which should be avoided. The default occupied port numbers are shown in the [appendix](#).

## C[CH]\_DOMAIN((Remote host name))

Command format	Parameters	Function Description
AT+C[CH]_DOMAIN?	Nil	Query current value
AT+C[CH]_DOMAIN=<parameter>	<parameter>: Default: www.w5500.com The maximum length is 32 characters	Set new value
<b>Response</b>	[C[CH]_DOMAIN] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_DOMAIN=www.w5500.com\r\n Response: [C1_DOMAIN] Value is: www.w5500.com\r\nOK\r\n	

Command description: This command configures the remote host's domain name. The setting takes effect when the corresponding device channels operate in TCP Client or UDP mode.

**Note:** The command takes effect only when the "DNSEN" command's parameter value is set to 1.

## C[CH]\_RECONTIME(Reconnection interval)

Command format	Parameters	Function Description
AT+C[CH]_RECONTIME?	Nil	Query current value
AT+C[CH]_RECONTIME=<parameter>	<parameter>: Default: 0 (immediate reconnection), value range is 0 to 60000, unit: ms	Set new value
<b>Response</b>	[C[CH]_RECONTIME] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_RECONTIME=1000\r\n Response: [C1_RECONTIME] Value is: 1000\r\nOK\r\n	

Command description: The number of channels corresponding to the converter is valid when running in TCP Client and transparent mode. This command sets the time interval for the next connection request between WIZ-DTU and the remote host after the TCP connection is disconnected.

## NETBIOS(NetBIOS)

Command format	Parameters	Function Description
AT+NETBIOS?	Nil	Query current value
AT+NETBIOS=<parameter>	<parameter>: 0: Disable NetBIOS function (default) 1: Enable NetBIOS functionality	Set new value
<b>Response</b>	[NETBIOS] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+NETBIOS=1\r\n Response: [NETBIOS] Value is: 1\r\nOK\r\n	

Command Description: The NetBIOS protocol can provide converter naming services within a local area network. After enabling the NetBIOS function, users can directly access WIZ-DTU's built-in web page by entering "http://converter name" in the browser address bar. The converter name is configured using the "NAME" command.

### 7.5.3 Serial port information configuration command

#### COM[CH](Serial parameters)

Command format	Parameters	Function Description
AT+COM[CH]?	Nil	Query current value
AT+COM[CH]=<par1>,<par2>,<par3>,<par4>,<par5>	<par1>: Baud rate parameter, refer to the "C[CH]_BAUD" command <par2>: Data bit parameters, refer to the "C[CH]_DATAB" command <par3>: Parity bit parameter, refer to the "C[CH]_PARITY" command <par4>: Stop bit parameter, refer to the "C[CH]_STOPB" command <par5>: Serial port flow control parameters, refer to the "C[CH]_SER_C" command	Set new value
<b>Response</b>	[COM[CH]] Value is: <value1><value2><value3><value4><value5>\r\nOK\r\n explain: <value1>: Baud rate parameter value <value2>: Data bit parameter value <value3>: Parity bit parameter value <value4>: Stop bit parameter value <value5>: Serial port flow control parameter values	
<b>Example</b>	Command: AT+COM1=9,1,0,1,0\r\n Response: [COM1] Value is: 9,1,0,1,0\r\nOK\r\n	

Command Description: This command is used to configure or query 5 commonly used parameters of serial channel 1 or 2 at once, or it can be configured or queried separately with the corresponding command.

#### C[CH]\_BAUD(Baud Rate)

Command format	Parameters	Function Description
AT+C[CH]_BAUD?	Nil	Query current value
AT+C[CH]_BAUD=<parameter>	<parameter>: 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 new value
<b>Response</b>	[C[CH]_BAUD] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_BAUD=9\r\n Response: [C1_BAUD] Value is: 9\r\nOK\r\n	

Command Description: This command is used to configure or query the baud rate of serial channel 1 or 2.

#### C[CH]\_DATAB(Data bit)

Command format	Parameters	Function Description
AT+C[CH]_DATAB?	Nil	Query current value
AT+C[CH]_DATAB=<parameter>	<parameter>: 0:7bit 1:8bit (default)	Set new value
<b>Response</b>	[C[CH]_DATAB] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_DATAB=1\r\n Response: [C1_DATAB] Value is: 1\r\nOK\r\n	

Command Description: This command is used to configure or query the data bits of serial channel 1 or

2.

### C[CH]\_STOPB(Stop bit)

Command format	Parameters	Function Description
AT+C[CH]_STOPB?	Nil	Query current value
AT+C[CH]_STOPB=<parameter>	<parameter>: 0:0.5 1:1 (default) 2:1.5 3:2	Set new value
<b>Response</b>	[C[CH]_STOPB] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_STOPB=1\r\n Response: [C1_STOPB] Value is: 1\r\nOK\r\n	

Command Description: This command is used to configure or query the stop bit of serial channel 1 or 2.

### C[CH]\_PARITY(Parity bit)

Command format	Parameters	Function Description
AT+C[CH]_PARITY?	Nil	Query current value
AT+C[CH]_PARITY=<parameter>	<parameter>: 0:Nil (default) 1:Odd 2:Even	Set new value
<b>Response</b>	[C[CH]_PARITY] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_PARITY=0\r\n Response: [C1_PARITY] Value is: 0\r\nOK\r\n	

Command Description: This command is used to configure or query the parity of serial channel 1 or 2.

### C[CH]\_SER\_C(serial port flow control)

Command format	Parameters	Function Description
AT+C[CH]_SER_C?	Nil	Query current value
AT+C[CH]_SER_C=<parameter>	<parameter>: 0: No flow control(default)	Set new value
<b>Response</b>	[C[CH]_SER_C] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_SER_C=0\r\n Response: [C1_SER_C] Value is: 0\r\nOK\r\n	

Command Description: This command is used to configure or query the serial channel flow control of serial channel 1 or 2.

### C[CH]\_BUF\_CLS(Clear Buffer if Connected)

Command format	Parameters	Function Description
AT+C[CH]_BUF_CLS?	Nil	Query current value
AT+C[CH]_BUF_CLS=<parameter>	<parameter>: 0: Do not clear the serial port buffer after establishing a connection (default) 1: Clear the serial port buffer after establishing a connection	Set new value
<b>Response</b>	[C[CH]_BUF_CLS] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_BUF_CLS=1\r\n Response: [C1_BUF_CLS] Value is: 1\r\nOK\r\n	

Command description: The converter is effective when running in TCP mode and data transparent mode

with the corresponding number of channels. If the connection suddenly disconnects during data exchange, there may be some data in the serial buffer that has not been sent. This command can be used to determine whether to send this data after the connection is reestablished.

### C[CH]\_SER\_LEN(Serial packaging Length)

Command format	Parameters	Function Description
AT+C[CH]_SER_LEN?	Nil	Query current value
AT+C[CH]_SER_LEN=<parameter>	<parameter>: The value range is: 0~2048 bytes, default: 0 (not specified Package)	Set new value
<b>Response</b>	[C[CH]_SER_LEN] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_SER_LEN=10\r\n Response: [C1_SER_LEN] Value is: 10\r\nOK\r\n	

Command description: This command sets the package length for each data transmission. The converter's corresponding channel number is valid when running in data transmission mode.

### C[CH]\_SER\_T(Serial data packing Nagle wait time)

Command format	Parameters	Function Description
AT+C[CH]_SER_T?	Nil	Query current value
AT+C[CH]_SER_T=<parameter>	<parameter>: Value range: 0~60000, default: 0 (not subcontracted), unit: ms	Set new value
<b>Response</b>	[C[CH]_SER_T] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_SER_T=1000\r\n Response: [C1_SER_T] Value is: 1000\r\nOK\r\n	

Command description: This command sets the serial waiting time. After the waiting time passes, it gathers all the data and transmit in one data package. The device's corresponding serial channel number is valid when running in data transmission mode.

### C[CH]\_IT(Inactivity timeout)

Command format	Parameters	Function Description
AT+C[CH]_IT?	Nil	Query current value
AT+C[CH]_IT=<parameter>	<parameter>: The time interval for timeout disconnection, with a value range of: 0~60000, unit: ms, default: 0 (disable this function)	Set new value
<b>Response</b>	[C[CH]_IT] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_IT=1000\r\n Response: [C1_IT] Value is: 1000\r\nOK\r\n	

Command description: The command is valid in TCP mode and data transparent mode for both serial channels. When WIZ-DTU operates in TCP mode, whether as a server or client, there may be situations where the other party has disconnected (forced disconnection or network failure), and the converter is not aware of the disconnection message and continues to maintain this invalid connection. There will be an error where data cannot be delivered when either party initiates communication.

By setting this parameter, it disconnects the TCP connection when the serial or Ethernet interface does not receive new data within a continuous timeout period during communication. When the value is set to 0, it means disable this function.

#### C[CH]\_TCPAT(TCP keepalive interval)

Command format	Parameters	Function Description
AT+C[CH]_TCPAT?	Nil	Query current value
AT+C[CH]_TCPAT=<parameter>	<parameter>: Value range: 0~255, default: 0 (disable this function), unit: 5s	Set new value
<b>Response</b>	[C[CH]_TCPAT] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_TCPAT=1\r\n Response: [C1_TCPAT] Value is: 1\r\nOK\r\n	

Command description: The converter is effective when running in TCP mode and data transparent mode with the corresponding number of channels. When using TCP protocol for communication, WIZ-DTU will send a "heartbeat detection packet" to the other party at a fixed time period to test whether the connection exists after receiving or sending data communication. If no response is received after sending the 'heartbeat detection packet', the converter will automatically disconnect.

#### C[CH]\_LINK\_P(TCP password authentication)

Command format	Parameters	Function Description
AT+C[CH]_LINK_P?	Nil	Query current value
AT+C[CH]_LINK_P=<parameter>	<parameter>: 0: Do not verify password after TCP connection is established (default) 1: Verify password after establishing TCP connection	Set new value
<b>Response</b>	[C[CH]_LINK_P] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_LINK_P=1\r\n Response: [C1_LINK_P] Value is: 1\r\nOK\r\n	

Command description: The converter's corresponding serial channel number is valid when running in TCP Server mode and data transparent mode. In order to improve communication security, WIZ-DTU converters provide a "Connection password verification" function. When the device communicates with the client as a TCP Server and the "Connection Password Verification" function is turned on, the client needs to send the converter password as the first packet of data after establishing a connection with the converter. If the password is correct, communication can begin; If the password is incorrect, you will be prompted to re-enter the correct password. The converter password can be queried and set through the "PASS" command.

**C[CH]\_LINK\_T(Connection Condition)**

Command format	Parameters	Function Description
AT+C[CH]_LINK_T?	Nil	Query current value
AT+C[CH]_LINK_T=<parameter>	<parameter>: 0: Establish connection immediately after power on (default) 1: Establish a connection after receiving data through the serial port	Set new value
<b>Response</b>	[C[CH]_LINK_T] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_LINK_T=1\r\n Response: [C1_LINK_T] Value is: 1\r\nOK\r\n	

Command description: This command is valid in TCP Client mode and data transparent mode for both serial channels. This command is used to configure under what conditions the converter establishes a connection with TCP Server. When configured as 'Establish connection after receiving data through serial channel', the module will not initiate a connection to the server until the converter's serial channel receives the first packet of data and immediately initiates a connection request to the server. After successful connection, the converter serial channel will send the first packet of data to the server and start normal data transmission mode.

**C[CH]\_LINK\_M(Send Hello Message)**

Command format	Parameters	Function Description
AT+C[CH]_LINK_M?	Nil	Query current value
AT+C[CH]_LINK_M=<parameter>	<parameter>: 0: Do not send messages (default) 1: Send converter name 2: Send converter MAC address 3: Send converter IP address	Set new value
<b>Response</b>	[C[CH]_LINK_M] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+C1_LINK_M=1\r\n Response: [C1_LINK_M] Value is: 1\r\nOK\r\n	

Command Description: The command's corresponding serial channel is valid in TCP Client mode, and is valid in both data transparent mode and AT command transmission data mode. This command is used to configure the information that the converter sends immediately after the connection is established.

**7.5.4 Management commands****C[CH]\_SEND\_NUM(Number of bytes sent via serial port)**

Command format	Parameters	Function Description
AT+C[CH]_SEND_NUM?	Nil	Query current value
<b>Response</b>	[C[CH]_SEND_NUM] Value is: <value>\r\nOK\r\n Display range: 0~4294967295	
<b>Example</b>	Command: AT+C1_SEND_NUM?\r\n Response: [C1_SEND_NUM] Value is: 2048\r\nOK\r\n	

Command Description: This command is valid when the corresponding channel number of the converter is in data transmission mode or AT command transmission mode.

**C[CH]\_RCV\_NUM(Number of bytes received via serial port)**

Command format	Parameters	Function Description
AT+C[CH]_RCV_NUM?	Nil	Query current value
<b>Response</b>	[C[CH]_RCV_NUM] Value is: <value>\r\nOK\r\n Display range: 0~4294967295	
<b>Example</b>	Command: AT+C1_RCVC_NUM?\r\n Response: [C1_RCVC_NUM] Value is: 2048\r\nOK\r\n	

Command Description: This command is valid when the corresponding channel number of the converter is in data transmission mode or AT command transmission mode.

**C[CH]\_NETSEND(Number of bytes sent via network port)**

Command format	Parameters	Function Description
AT+C[CH]_NETSEND?	Nil	Query current value
<b>Response</b>	[C[CH]_NETSEND] Value is: <value>\r\nOK\r\n Display range: 0~4294967295	
<b>Example</b>	Command: AT+C1_NETSEND?\r\n Response: [C1_NETSEND] Value is: 2048\r\nOK\r\n	

Command Description: This command is valid when the corresponding serial channel number of the converter is in data transmission mode or AT command transmission mode

**C[CH]\_NETRCV(Number of bytes received by the network port)**

Command format	Parameters	Function Description
AT+C[CH]_NETRCV?	Nil	Query current value
<b>Response</b>	[C[CH]_NETRCV] Value is: <value>\r\nOK\r\n Display range: 0~4294967295	
<b>Example</b>	Command: AT+C1_NETRCV?\r\n Response: [C1_NETRCV] Value is: 2048\r\nOK\r\n	

Command Description: This command is valid when the corresponding serial channel number of the converter is in data transmission mode or AT command transmission mode

**PRE(List preset values)**

Command format	Parameters	Function Description
AT+PRE?	Nil	Query current value
	DEFAULT: [NAME]: WIZ-DTU [PASS]: admin [IP]: 192.168.1.88 [MARK]: 255.255.255.0 [GATEWAY]: 192.168.1.1 [DNS]: 114.114.114.114 [WEB_PORT]: 80 [C1_DOMAIN]: www.w5500.com [C1_PORT]: 5000 [C1_BAUD]: 9 [C1_DATAB]: 1 [C1_PARITY]: 0 [C1_STOPB]: 1 [C1_SER_C]: 0 [C1_SER_T]: 0 [C1_SER_LEN]: 0 [C1_CLI_IP1]: 192.168.1.99	

```

[C1_CLI_PP1]: 5000
[C2_DOMAIN]: www.w5500.com
[C2_PORT]: 5001
[C2_BAUD]: 9
[C2_DATAB]: 1
[C2_PARITY]: 0
[C2_STOPB]: 1
[C2_SER_C]: 0
[C2_SER_T]: 0
[C2_SER_LEN]: 0
[C2_CLI_IP1]: 192.168.1.99
[C2_CLI_PP1]: 5000
CURRENT:
[NAME]: WIZ-DTU
[PASS]: admin
[IP]: 192.168.1.88
[MARK]: 255.255.255.0
[GATEWAY]: 192.168.1.1
[DNS]: 114.114.114.114
[WEB_PORT]: 80
[C1_DOMAIN]: www.w5500.com
[C1_PORT]: 5000
[C1_BAUD]: 9
[C1_DATAB]: 1
[C1_PARITY]: 0
[C1_STOPB]: 1
[C1_SER_C]: 0
[C1_SER_T]: 0
[C1_SER_LEN]: 0
[C1_CLI_IP1]: 192.168.1.99
[C1_CLI_PP1]: 5000
[C2_DOMAIN]: www.w5500.com
[C2_PORT]: 5001
[C2_BAUD]: 9
[C2_DATAB]: 1
[C2_PARITY]: 0
[C2_STOPB]: 1
[C2_SER_C]: 0
[C2_SER_T]: 0
[C2_SER_LEN]: 0
[C2_CLI_IP1]: 192.168.1.99
[C2_CLI_PP1]: 5000
OK

```

**LIST(List all commands)**

Command format	Parameters	Function Description
AT+LIST?	Nil	Query current value
[Control Command]		
AT	AT+ECHO	AT+DEBUGMSGEN
AT+NAME	AT+PASS	AT+DEFAULT
AT+RESET	AT+EXIT	AT+SAVE
[Module Settings Command]		
AT+START_MODE	AT+C1_OP	AT+IP_MODE
AT+IP	AT+MARK	AT+GATEWAY
AT+DNS	AT+C1_PORT	AT+C1_BIND
AT+C1_DNSSEN	AT+C1_CLI_IP1	AT+C1_CLI_PP1
AT+C1_DOMAIN	AT+C1_RECONTIME	AT+NETBIOS
AT+C2_OP	AT+C2_PORT	AT+C2_BIND



AT+C2_DNSSEN	AT+C2_CLI_IP1	AT+C2_CLI_PP1
AT+C2_DOMAIN	AT+C2_RECONTIME	
[Management Command]		
AT+C1_SEND_NUM	AT+C1_RCV_NUM	AT+C1_NETSEND
AT+C1_NETRCV	AT+C2_SEND_NUM	AT+C2_RCV_NUM
AT+C2_NETSEND	AT+C2_NETRCV	AT+PRE
AT+LIST	AT+RUNTIME	AT+VER
AT+MAC	AT+SN	AT+TYPE
AT+WEB_PORT		
[Data Transfer Command]		
AT+LINK	AT+C1_LISTEN	AT+C1_CONNECT
AT+C1_TCP_STATUS	AT+C1_UDP	AT+C1_SEND
AT+C1_RLEN	AT+C1_RCV	AT+C1_CLEAR
AT+C1_DISCON	AT+C2_LISTEN	AT+C2_CONNECT
AT+C2_TCP_STATUS	AT+C2_UDP	AT+C2_SEND
AT+C2_RLEN	AT+C2_RCV	AT+C2_CLEAR
AT+C2_DISCON		
OK		

### RUNTIME(Module uptime)

Command format	Parameters	Function Description
AT+RUNTIME?	Nil	Query current value
<b>Response</b>	[RUNTIME] Value is: <value>\r\nOK\r\n Format:<value>Format ddd-hh-mm-ss, where "d" represents days, "h" represents hours, "m" represents minutes, and "s" represents seconds. The display range is 000-00-00-00~999-23-59-59	
<b>Example</b>	Command: AT+RUNTIME?\r\n Response: [RUNTIME] Value is: 003-15-38-42\r\nOK\r\n	

### VER(Firmware version)

Command format	Parameters	Function Description
AT+VER?	Nil	Query current value
<b>Response</b>	[VER] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+VER?\r\n Response: [VER] Value is: V1.0\r\nOK\r\n	

### MAC(Converter MAC Address)

Command format	Parameters	Function Description
AT+MAC?	Nil	Query current value
<b>Response</b>	[MAC] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+MAC?\r\n Response: [MAC] Value is: 00.08.DC.11.12.13\r\nOK\r\n	

### SN(Equipment serial number)

Command format	Parameters	Function Description
AT+SN?	Nil	Query current value
<b>Response</b>	[SN] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+SN?\r\n Response: [SN] Value is: 20190102-111213\r\nOK\r\n	

### TYPE(Equipment type)

Command format	Parameters	Function Description
AT+TYPE?	Nil	Query current value
<b>Response</b>	[TYPE] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+TYPE?\r\n Response: [TYPE] Value is: WIZ-DTU\r\nOK\r\n	

**WEB\_PORT(Web port number)**

Command format	Parameters	Function Description
AT+WEB_PORT?	Nil	Query current value
AT+WEB_PORT=<parameter>	<parameter>: Setting range: 1~65535, default: 80	Set new value
<b>Response</b>	[WEB_PORT] Value is: <value>\r\nOK\r\n	
<b>Example</b>	Command: AT+WEB_PORT=80\r\n Response: [WEB_PORT] Value is: 80\r\nOK\r\n	

Command description: This port number is used to access WIZ-DTU's web page configuration through a web browser, and it is not recommended to modify it. If configured with any port number other than 80, when accessing WIZ-DTU through a browser, the address bar should enter "IP: Port", for example: 192.168.1.88:8000.

**Note:** Some protocols in the Ethernet protocol have default port numbers, which should be avoided. The default occupied port numbers are shown in the [appendix](#).

**7.6 Detailed description of AT data transmission command****LINK (PHY connection status)**

Command format	Parameters	Function Description
AT+LINK?	Nil	Execute immediately
<b>Response</b>	[LINK] Value is: <value>\r\nOK\r\n Explanation: <value>: 0: PHY not connected 1: PHY connected	
<b>Example</b>	Command: AT+LINK?\r\n Response: [LINK] Value is: 1\r\nOK\r\n	

**C[CH]\_LISTEN(Establish TCP listening)**

Command format	Parameters	Function Description
AT+C[CH]_LISTEN	Nil	Execute immediately
<b>Response</b>	OK\r\n TCP listening has been established	
<b>Error Response</b>	<Error Info>\r\n The number of channels corresponding to the converter is not in TCP Server mode	
<b>Example</b>	Command: AT+C1_LISTEN\r\n Response: OK\r\n	

Command description: The command is valid when the converter's corresponding serial channel number is running in TCP Server mode, which means that the command can only be configured correctly when the "C[CH]\_OP" command parameter is "0", otherwise an error will be reported. It can be closed through the "DISCON" command.

**Note:** After configuring this command, it is necessary to check whether the TCP connection has been established through the "C[CH]\_TCP\_STATUS" command.

**C[CH]\_CONNECT(Apply for TCP connection)**

Command format	Parameters	Function Description
AT+C[CH]_CONNECT	Nil	Execute immediately
<b>Response</b>	OK\r\n TCP connection established	
<b>Error Response</b>	<Error Info>\r\n The number of channels corresponding to the converter is not in TCP Client mode, or the connection has timed out	
<b>Example</b>	Command: AT+C1_CONNECT\r\n Response: OK\r\n	

Command description: The command is valid when converter's corresponding serial channel number is running in TCP Client mode. This command can only be configured correctly when the parameter of the "C[CH]\_OP" command is "1", otherwise an error will be reported. After configuring this command, the converter immediately initiates a connection request to the TCP Server. If a TCP connection is not established after 3 seconds, an error message will be reported.

**Note:** After configuring this command, it is necessary to check whether the TCP connection has been established through the "C[CH]\_TCP\_STATUS" command.

**C[CH]\_TCP\_STATUS(TCP connection status)**

Command format	Parameters	Function Description
AT+C[CH]_TCP_STATUS?	Nil	Query current value
<b>Response</b>	[C[CH]_TCP_STATUS] Value is: <value>\r\nOK\r\n 0: TCP not connected 1: TCP Connected	
<b>Example</b>	Command: AT+C1_TCP_STATUS?\r\n Response: [C1_TCP_STATUS] Value is: 1\r\nOK\r\n	

Command Description: This command is valid when running in TCP Server and TCP Client modes for the corresponding serial channel on the device. It is used for checking the TCP connection status.

**C[CH]\_UDP(Establish UDP communication)**

Command format	Parameters	Function Description
AT+C[CH]_UDP	Nil	Query current value
<b>Response</b>	OK\r\n UDP communication has been established	
<b>Error Response</b>	<Error Info>\r\n The number of channels corresponding to the converter is not in UDP mode	
<b>Example</b>	Command: AT+C1_UDP\r\n Response: OK\r\n	

Command description: The converter operates in UDP mode with the corresponding number of channels. This command can only be configured correctly when the parameter of the "C[CH]\_OP" command is "2", otherwise an error will be reported.

**C[CH]\_SEND(Number of bytes of data to be sent)**

Command format		Parameters	Function Description
AT+C[CH]_SEND=<parameter>		<parameter>: Set the length of data to be sent from the serial port, Range: 0~2048, default: 0 (any length)	Set new value
<b>Response</b>	[C1 SEND] Value is: <value>\r\nOK\r\n		
<b>Example1</b>	Assuming the converter is in TCP mode and the TCP connection is normal: Command: AT+C1_TCP_STATUS?\r\n Response: [C1_TCP_STATUS] Value is: 1\r\nOK\r\n Command: AT+C1_SEND=5\r\n Response: [C1_SEND] Value is: 5\r\nOK\r\n Sending data to converter serial port: 12345 Response: 5		
<b>Example2</b>	Assuming the converter is in TCP mode and the TCP connection is abnormal: Command: AT+C1_TCP_STATUS?\r\n Response: [C1_TCP_STATUS] Value is: 0\r\nOK\r\n Command: AT+C1_SEND=5\r\n Response: [C1_SEND] Value is: 5\r\nOK\r\n Sending data to converter serial port: 12345 Response: 0		

## Command Description:

- 1 If the corresponding serial channel number of the converter is running in TCP Server or TCP Client mode, before configuring this command, it is necessary to check whether the TCP connection has been established by checking from result of the "TCP\_STATUS" command;
- 2 After successfully configuring the command, the serial port will receive the corresponding return value. The next serial data will be considered as data input and send out data, then it exits the data transmission and enter AT command mode;
- 3 If the specified sending length is 0, the serial port will default to pack the inputted data at 50ms frame intervals. Starting from the first byte sent through the serial channel, if the idle time of the serial channel exceeds 50ms thereafter, the data will be immediately sent out. If the continuous byte length of the serial channel reaches 2048, the excess will be automatically discarded;
- 4 If the specified sending length is not 0, the serial channel will be packaged according to its length, and the specified length of characters will be immediately packaged and sent to the converter's serial channel. If it exceeds the specified length, the excess part will be automatically discarded; If it is less than the specified length, it will wait indefinitely;
- 5 After the data is successfully sent from the converter's network port, the converter's serial channel will immediately output a reply message in the format of "<len>.<len>". The number of bytes of data successfully sent from the converter's network port, which users can use to determine whether their data has been successfully sent.

**C[CH]\_RLEN(Number of bytes of data to be received)**

Command format	Parameters	Function Description
AT+C[CH]_RLEN?	Nil	Query current value
<b>Response Description</b>	[C[CH]_RLEN] Value is: <value>\r\nOK\r\n Range: 0~2048	
<b>Example</b>	Data to be received: abcdef Command: AT+C1_RLEN?\r\n Response: [RLEN] Value is: 6\r\nOK\r\n	

Command Description: This command queries the byte length of the data to be received in the receiving cache of the corresponding channel number network port.

**C[CH]\_RCV(Receiving data)**

Command format	Parameters	Function Description
AT+C[CH]_RCV=<parameter>	<parameter>: Specify the length of data to be received from the serial port, Range: 0~2048, default: 0 (receive all)	Set new value and Execute immediately
<b>Response</b>	[RCV] Value is: <value>\r\nOK\r\n<data> explain: <value>: Number of received data bytes <data>: Received data	
<b>Example</b>	Data to be received: abcdef Command: AT+C1_RCV=0\r\n Response: [C1_RCV] Value is: 6\r\nOK\r\nabcdef	

Command Description:

- 1 If the corresponding channel number of the converter is running in TCP Server or TCP Client mode, before configuring this command, it is necessary to check whether the TCP connection has been established by checking from result of the "C[CH]\_TCP\_STATUS" command;
- 2 After successfully configuring the command, the converter's serial channel will output data from the network port receiving cache, then exit data reception and enter AT command mode;
- 3 The size of the cache received by the 3 network ports is 2048 bytes. If the total length of data in the cache received by the network port is equal to 2048 bytes, the network port will no longer receive data;
- 4 If the length of the data in the cache received by the network port is less than the specified length set by the "C[CH]\_RCV" command, it will not be received. Thus, the number of received data bytes is 0.

**C[CH]\_CLEAR(Clear the network port receiving cache)**

Command format	Parameters	Function Description
AT+C[CH]_CLEAR	Nil	Execute immediately
<b>Response</b>	OK\r\n	
<b>Example</b>	Command: AT+C1_CLEAR\r\n Response: OK\r\n	

Command description: If the corresponding channel number does not require the network port to receive data from the cache, this command can be used to clear it.

**C[CH]\_DISCON(Turn off TCP/UDP)**

Command format	Parameters	Function Description
AT+C[CH]_DISCON	Nil	Execute immediately
Response	OK\r\n	
Example	Command: AT+C1_DISCON\r\n Response: OK\r\n	

Command description: Close the TCP or UDP connection for the corresponding number of channels.

## 7.7 AT command configuration example

### 7.7.1 Configure as TCP Server mode and run in data transparency mode

```

AT\r\n                                //Terminal detection

OK\r\n

AT+DEBUGMSGEN=0\r\n                  //Close serial port debugging information

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

AT+ECHO=0\r\n                        //Turn off echo display

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

AT+START_MODE=1\r\n                  //Configure the next boot run mode to be data
                                     transmission mode

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

AT+C1_OP=0\r\n                      //Configure the working mode to TCP Server

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

AT+IP_MODE=0\r\n                    //Configure as a static IP

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

AT+IP=192.168.1.88\r\n              //Configure local IP address

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

AT+C1_PORT=5000\r\n                  // Configure local port number

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

AT+RESET=admin\r\n                  //Save configuration, the module will enter data
                                     transmission mode after restart

OK\r\n

```

**7.7.2 Configure as TCP Client mode and transmit data in AT command mode**

<i>AT\r\n</i>	<i>//Terminal detection</i>
<i>OK\r\n</i>	
<i>AT+DEBUGMSGEN=0\r\n</i>	<i>//Close serial port debugging information</i>
<i>[DEBUGMSGEN] Value is: 0\r\nOK\r\n</i>	
<i>AT+ECHO=0\r\n</i>	<i>//Turn off echo display</i>
<i>[ECHO] Value is: 0\r\nOK\r\n</i>	
<i>AT+START_MODE=0\r\n</i>	<i>//Configure the next startup run mode to AT command mode</i>
<i>[START_MODE] Value is: 0\r\nOK\r\n</i>	
<i>AT+C1_OP=1\r\n</i>	<i>//Configure the working mode to TCP Client</i>
<i>[C1_OP] Value is: 1\r\nOK\r\n</i>	
<i>AT+IP_MODE=1\r\n</i>	<i>//Configure the module to DHCP mode</i>
<i>[IP_MODE] Value is: 1\r\nOK\r\n</i>	
<i>AT+DNSEN=0\r\n</i>	<i>//Disable DNS function</i>
<i>[DNSEN] Value is: 0\r\nOK\r\n</i>	
<i>AT+C1_CLI_IP1=192.168.1.99\r\n</i>	<i>//Configure remote TCP server IP address</i>
<i>[C1_CLI_IP1] Value is: 192.168.1.99\r\nOK\r\n</i>	
<i>AT+C1_CLI_P1=5000\r\n</i>	<i>//Configure remote TCP server port number</i>
<i>[C1_CLI_P1] Value is: 5000\r\nOK\r\n</i>	
<i>AT+SAVE\r\n</i>	<i>//Save configuration Information;</i>
<i>OK\r\n</i>	
<i>AT+C1_CONNECT\r\n</i>	<i>//Initiate a connection request to a remote TCP server</i>
<i>OK\r\n</i>	
<i>AT+C1_TCP_STATUS?\r\n</i>	<i>//Query TCP connection status</i>
<i>[C1_TCP_STATUS] Value is: 1\r\nOK\r\n</i>	
<i>AT+C1_SEND=5\r\n</i>	<i>//Notify the converter that 5 bytes of data will be sent</i>
<i>OK\r\n</i>	



*Seial sends data: 12345*

*Serial receives data: 5*

*TCP server sends data: abcdef*

*AT+CI\_RLEN?\r\n* //Query the length of data to be received

*[CI\_RLEN] Value is: 6\r\nOK\r\n*

*AT+CI\_RCV=6\r\n* //Receive All

*[CI\_RCV] Value is: 6\r\n*

*OK\r\n*

*abcdef*

*AT+CI\_CLEAR\r\n* //Clear the network port receiving cache

*OK\r\n*

*AT+CI\_DISCON\r\n* // Close TCP connection

*OK\r\n*

## 8 Web page configuration

WIZ-DTU supports web page configuration. **Suggest using browsers: Chrome, Firefox**, other browsers may have display or working issues. Let's take Chrome browser as an example to illustrate.

Before using web configuration, it is necessary to ensure that WIZ-DTU can be accessed correctly. That is, if configuring within a local area network, WIZ-DTU needs to be on the same network segment as the computer. If configuring remotely, WIZ-DTU needs to be mapped to a public IP. Taking the local area network as an example for configuration, the specific configuration method is introduced as follows.

### 8.1 Web homepage

Open the Chrome browser and enter the IP address of the WIZ-DTU converter in the address bar. The factory default is 192.168.1.88, and the login interface shown in the following figure will appear.

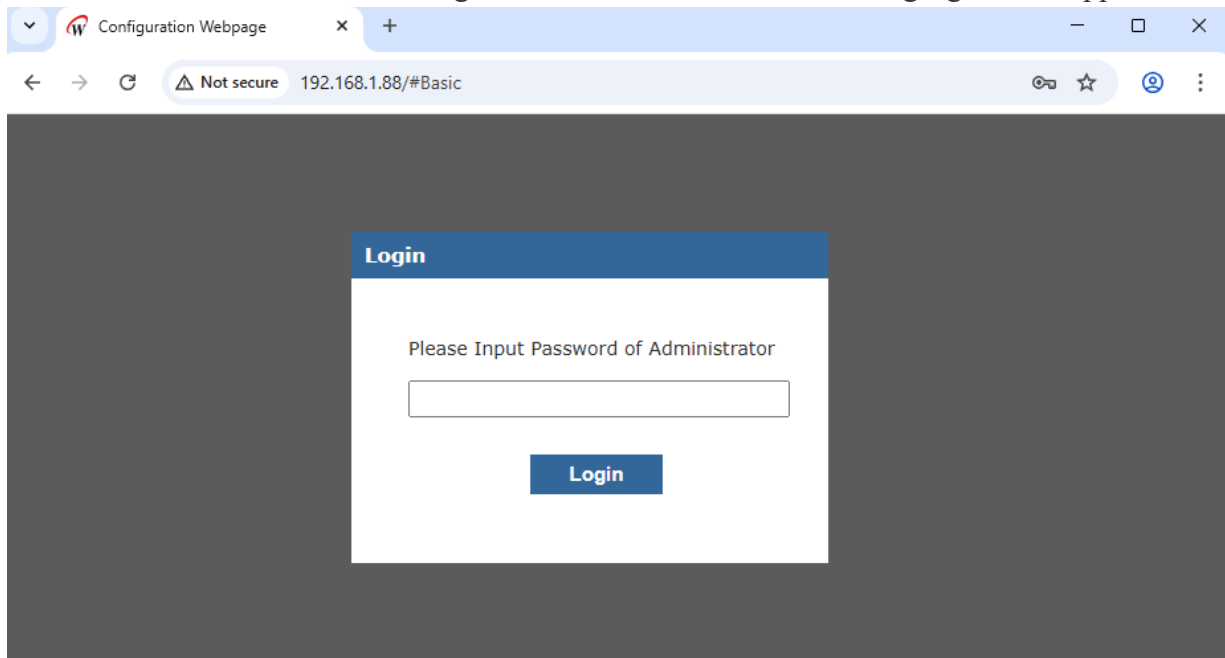


Figure 8-1 Web login interface

The default login password is “**admin**”. Click "Login" to log in and enter the WIZ-DTU homepage. It should be noted that after logging into the WIZ-DTU webpage, in order to ensure the security of converter information, if the user does not take any action within 5 minutes, they need to log in again, as shown in the following figure.

**192.168.1.88 says**

Login timeout, please login again.



Figure 8-2 Web page prompt\_Login timeout

As shown in the figure below, it is the basic information page after logging in to the WIZ-DTU configuration page. If you need to log out, click the "Logout" link in the upper right corner. This page provides an overview of the basic configuration information for WIZ-DTU.

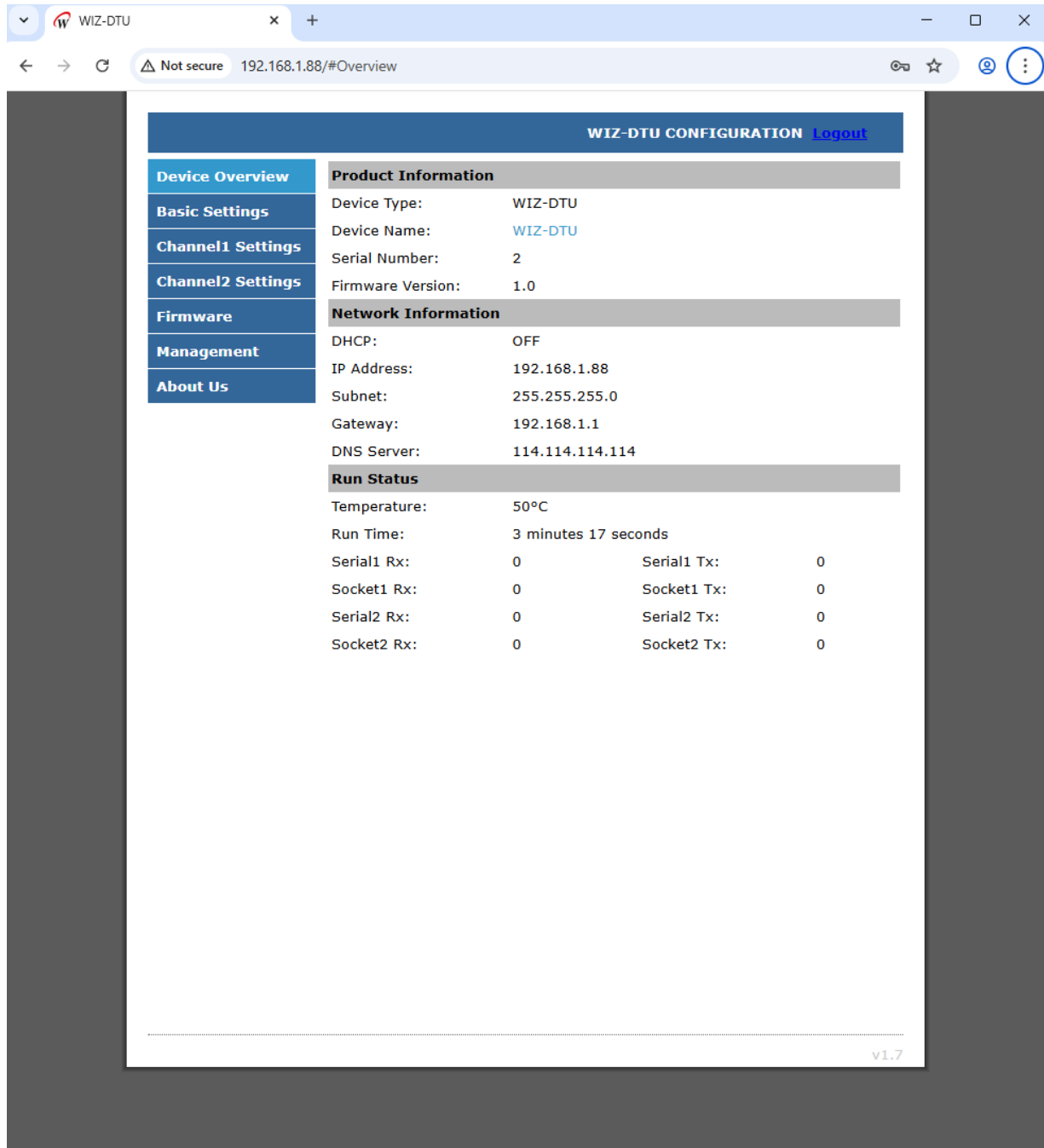


Figure 8-3 Basic information page

## 8.2 Basic configuration

As shown in the following figure, it is the WIZ-DTU basic parameter configuration page, which is divided into five parts for explanation.

The screenshot shows a web browser window with the address bar displaying "192.168.1.88/#Basic". The page title is "WIZ-DTU CONFIGURATION" with a "Logout" link. The sidebar on the left contains the following links: Device Overview, Basic Settings (highlighted), Channel1 Settings, Channel2 Settings, Firmware, Management, and About Us. The main content area is titled "Common Device Configurations" and contains three sections:

- Network Settings:**
  - MAC Address: 00:08:DC:11:12:13
  - Use DHCP: ☐
  - IP Address: 192.168.1.88
  - Subnet Mask: 255.255.255.0
  - Gateway: 192.168.1.1
  - DNS Server: 114.114.114.114
- Device Options:**
  - Device Name: WIZ-DTU
  - Use NETBIOS: ☒
  - HTTP Port: 80
- Serial Output Messages Enable/Disable:**
  - Show Debug Messages: ☒
  - Echo in AT Mode: ☒
  - Start Mode: 0. AT Command Mode (dropdown menu)

At the bottom right of the configuration area are two buttons: "Save Settings" and "Reset". The version number "v1.7" is displayed in the bottom right corner of the page.

Figure 8-4 Basic configuration page

## Network Setting

MAC Address : Display the converter's MAC address;

Use DHCP : Enable the option to dynamically obtain IP addresses. Checking this option will enable this feature;

IP Address: Display/set converter IP address, default is 192.168.1.88;

Subnet Mask : Display/set converter subnet mask, default is 255.255.255.0;

Gateway : Display/set converter gateway, default is 192.168.1.1;

DNS Server : Display/set converter DNS server address, default is 114.114.141.14.

## Converter Options

**Converter Name:** Set/display the converter name, which must be a number, letter, or a combination of both, and cannot be empty. It is case sensitive and can be up to 15 bytes long;

**Use NETBIOS:** Select the option to enable NetBIOS functionality, which will enable it by default; After enabling the NetBIOS function, users can directly access the built-in webpage of WIZ-DTU by entering "http://converter name" in the browser address bar;

**HTTP Port:** The web server port number of WIZ-DTU, with a default of 80 and a value range of 0-65535. If not set to 80, the port number should be entered in the browser address bar, for example: 192.168.1.88:8000;

**Note:** If WIZ-DTU is working in TCP Server mode, the HTTP Port must not be set to the same local port as the converter. Some protocols in the Ethernet protocol have default port numbers, which should be avoided. The default occupied port numbers are shown in the [appendix](#).

### Serial Output Messages Enable/Disable

**Show Debug Message Enable :** Display converter debugging information. Checking this feature will print converter debugging information from the serial port, which is enabled by default;

**Echo in AT Mode :** Enable the AT command echo function, which refers to the WIZ-DTU converter returning the input command to the serial port as it is, and then displaying it on the serial port software interface. Enabling the echo function when configuring converters using serial port software helps users to easily configure them; However, when configuring embedded converters such as microcontrollers, enabling the echo function can cause trouble. In this case, the echo function must be turned off, and the second option is selected by default to enable the echo function;

**Start Mode:** Converter startup mode configuration, which can be set to AT command mode and data transmission mode. WIZ-DTU will run in this mode after the next power on/reset;

**Save Settings:** Click the "Save Settings" button, and the webpage will prompt that the save was successful. You need to further click the "Reset" button to restart the converter for all configurations to take effect;

192.168.1.88 says

Parameter setting successful



Figure 8-5 Webpage prompt-Save successful

**Reset:** Reset button, clicking this button can restart the converter (without saving configuration function).

After clicking this button, the webpage will pop up the following dialog box. Click "OK" to restart the converter and the webpage will jump to the login interface.

**192.168.1.88 says**

Are you sure to RESET this device?



Figure 8-6 Web page prompts-Reset

## 8.3 Channel Configuration

As shown in the following figure, it is the WIZ-DTU channel 1 configuration page. The following is a detailed explanation:

Figure 8-7 Channel 1 configuration page

### UART Setting

**Baud Rate :** Baud rate, default is 115200, users can choose 16 commonly used baud rate values between 1.2Kbps and 1.152Mbps;

**Date Bit:** Data bit, default is 8, can be set to 7 or 8;

**Parity:** Parity bit, default is NONE, can be set as NONE, ODD, EVENT;

Stop Bit: Stop bit default is 1, can be set to 0.5, 1, 1.5, 2;

Flow Control : Hardware flow control, default is NONE.

### Serial Data Packing Conditions

by Data Length(byte): Set/display the byte length of the serial port data packet, package the data input from the converter's serial port according to the byte length and convert it into Ethernet data packets for transmission. The default value is 0 (no packet), and the maximum value is 2048 bytes;

by Nagle Waiting Time(ms): Packaging the data input from the converter's serial port into Ethernet packets at time intervals, with a default value of 0 (no packet) and a maximum value of 60000 in ms;

### Socket Setting

Socket Type: Converter working mode configuration, which can be set to TCP Server, TCP Client, and UDP modes;

Remote Host: Display/set the IP address/domain name of the remote host, which is valid when the converter is running in TCP Client and UDP mode. The default is 192.168.1.99. If this is set as the domain name of the remote host, the converter will automatically perform domain name resolution. The maximum length of the domain name is 32 characters;

Remote Port: Display/set the remote host port number, default is 5000, with a value range of 0~65535;

**Note: Some protocols in the Ethernet protocol have default port numbers, which should be avoided. The default occupied port numbers are shown in the [appendix](#).**

Local Port: Display/set the local port number, default is 5000, with a value range of 0~65535;

**Note: Some protocols in the Ethernet protocol have default port numbers, which should be avoided. The default occupied port numbers are shown in the [appendix](#).**

Bind Local Port: Bind local port number, selecting it will enable the bind local port number function, which is effective when the converter is running in TCP Client mode.

### Modbus option

Enable Modbus Mode: Enable Modbus function, selecting it will enable Modbus function;

Select Modbus Mode: Select Modbus mode, which can be set to Modbus RTU or Modbus ASCII.

### TCP Connection Option

**Reconnection Time (ms):** Set/display the reconnection time, which is valid when the converter is running in TCP Client mode. This option sets the waiting time for TCP Client to reconnect to TCP Server after the connection is disconnected. The default value is 0, which means immediate reconnection; The value range



is from 0 to 60000, in milliseconds;

**Inactivity Time(ms):** The time interval for timeout disconnection is valid when the converter is running in TCP mode, with a value range of 0~60000, unit: ms, default: 0 (disable this function);

**Keep Alive Time (5s):** Online time, valid when the converter is running in TCP mode, with a value range of 0-255 and a unit of 5s. Default: 0 (disable this function);

**Clear Buffer if Connect:** Is the serial port buffer cleared after establishing a connection? It is valid during TCP. If the connection suddenly disconnects during data exchange, some data in the serial port buffer may not have been sent. After the connection is reestablished, can the unfinished data in the serial port buffer be sent? This command can be used to handle this; After selecting, this function will be enabled and turned off by default;

**Request Admin Password:** The connection verification password function is valid when the converter is running in TCP Server mode. If set to "Check Password", in TCP Server mode, when the client sends a connection request and establishes a connection, the client needs to send the converter password to communicate with WIZ-DTU. Otherwise, the connection will be disconnected, and the default is "NO" (this function is turned off);

**Auto Message (Fist Packet):** After establishing the connection, send the message, which is valid for TCP. You can choose "NONE" to not send the message (default), "Send Converter Name" to send the converter name, "Send MAC Address" to send the converter MAC address, or "Send IP Address" to send the converter IP address;

**Connect TCP Server when:** Connect TCP service option, valid when TCP client, "Connect socket after power up";

**Connect TCP Server when:** The connection establishment condition is valid for TCP client, and can be set to "power on" to immediately establish the connection after power on (default) or "Serial data received" to establish the connection after receiving data through the serial port.

## 8.4 Firmware Information

Click on "Firmware" to enter the firmware information page, as shown in the following figure, which has two parts:

### Firmware Information

Current Firmware Version: The current firmware version number of WIZ-DTU;

### Firmware Update

Please refer to [Chapter 10.2](#): Remote firmware upgrade via web page for this section

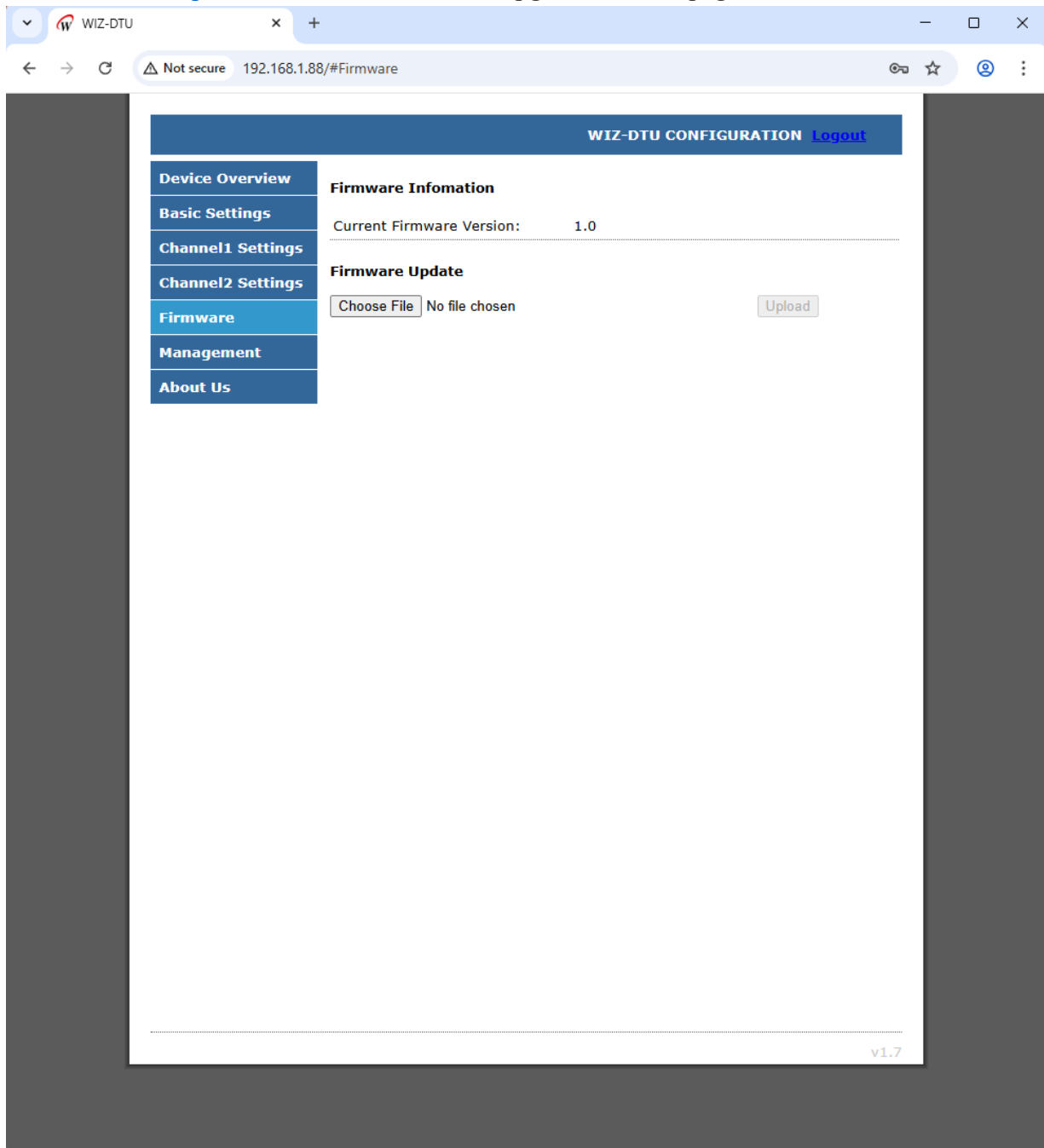


Figure 8-8 Firmware Information Page

## 8.5 Equipment management

Click on "Management" to enter the converter management page, as shown in the following figure, which consists of the following two parts:

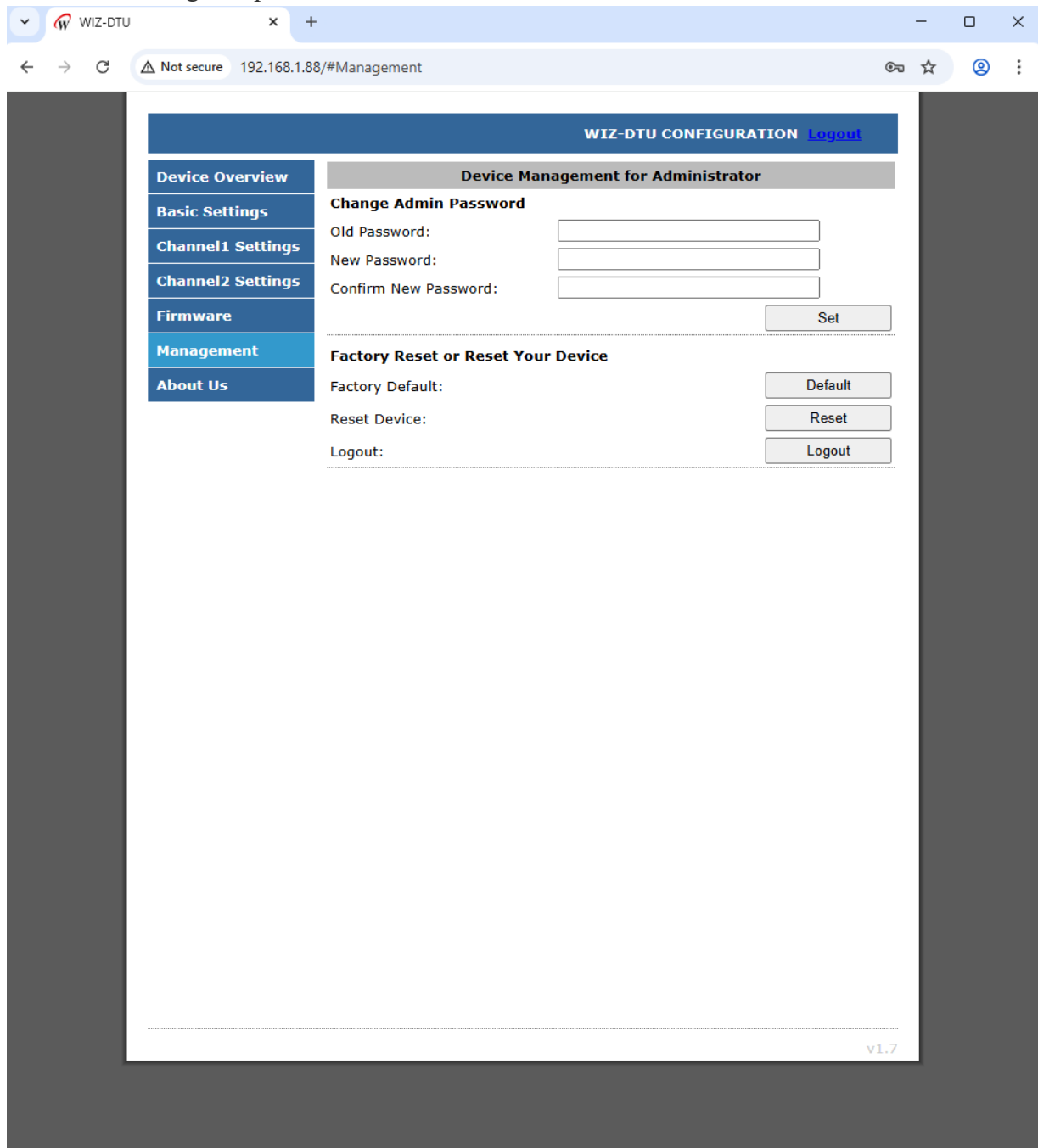


Figure 8-9 Converter Management Page

### Change Admin Password

Old Password: Original converter password, default is admin;

New Password: The new converter password, with a maximum length of 15 bytes, must be any combination of numbers, letters, or both, and cannot be set to empty;

Confirm Password: Confirm the password for the new converter;

Set: Confirm the settings button. When the original converter password is entered correctly and the new

converter password is correct, the page will prompt that the password has been successfully changed, as shown in the following figure. Clicking "OK" will redirect you to the login page.

**192.168.1.88 says**

The password was modified successfully.



Figure 8-10 Web prompt - Converter password successfully changed

### Factory Reset or Reset Your Device

Factory Default: The "Restore Factory Settings" button prompts whether to restore the converter to factory settings, as shown in the following figure. Click "OK" to execute the factory settings restoration and jump to the login page;

**192.168.1.88 says**

Are you sure to FACTORY RESET this device?



Figure 8-11 Web Tip - Factory Reset

Reset Converter: Reset converter button;

Logout: Exit login button.

## 9 Restore factory settings

WIZ-DTU has four ways to restore factory settings: AT command, factory reset button, WIZS2E Configurator upper computer software, and web page.

### 9.1 AT command mode

Please refer to [Chapter 7](#) for the "DEFAULT" command.



### 9.2 Factory reset button



Figure 9-1 Restore factory settings through the DEFAULT button on the converter

WIZ-DTU has a factory reset button. After supplying power to the WIZ-DTU device, press the factory reset button for more than 3 seconds to restore it to factory settings.

### 9.3 Upper computer software mode

Firstly, click the left mouse button in the converter list of WIZS2E Config Tool software to select the converter that needs to be restored, and then click the  Reset →  Factory Reset button in the toolbar to factory Reset.

### 9.4 Web page format

Please refer to [Chapter 8.5](#) for an introduction to the converter management interface.

## 10 Firmware Upgrade

WIZ-DTU supports two types of firmware upgrades: Configuration tool firmware upgrade and webpage firmware upgrade. The following will explain each of these two methods separately.

**Note:** The firmware referred to below must be the bin firmware of WIZ-DTU provided by WIZnet HK officially.

### 10.1 Upgrade firmware through WIZS2E Config Tool

Firstly, modify the WIZ-DTU that requires firmware upgrade to have the same network segment IP address as the computer. After searching for WIZ-DTU, click the "Upload Firmware" button and select the firmware, as shown in the following figure.

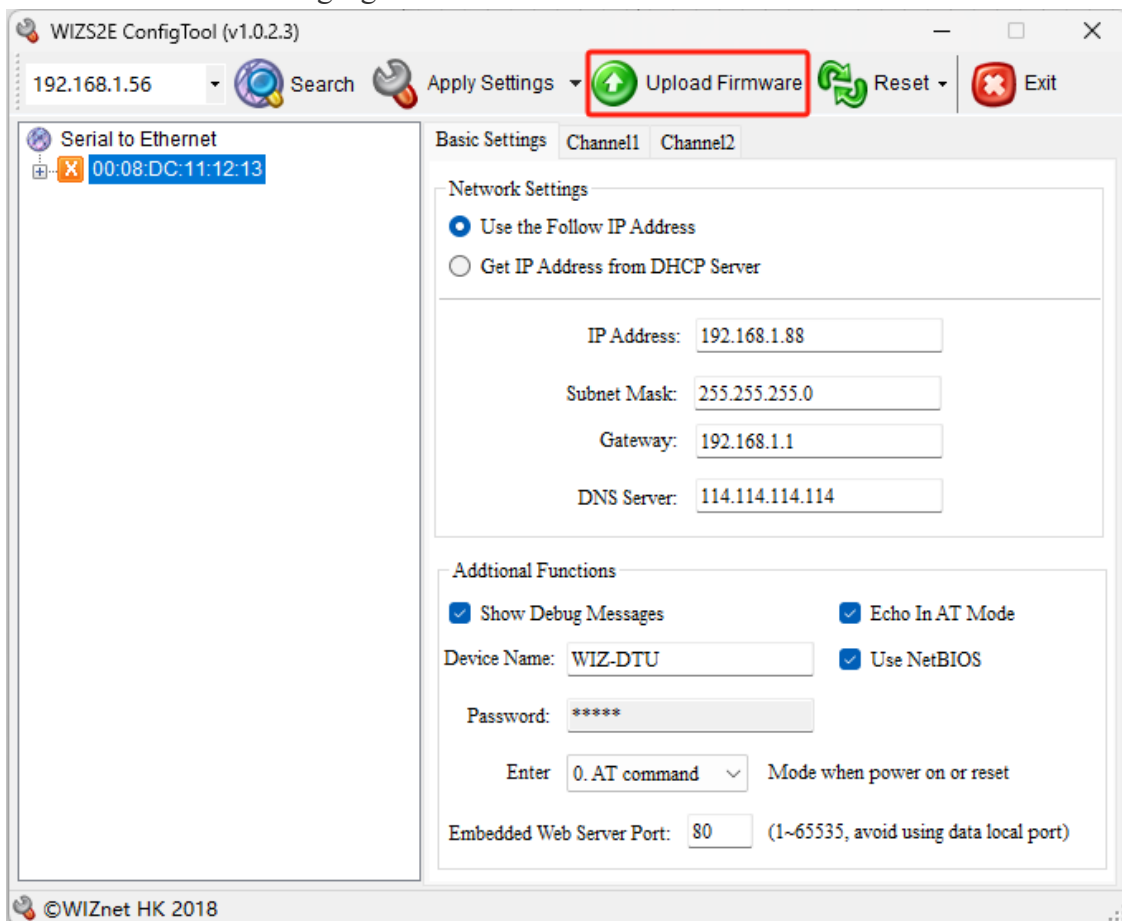


Figure 10-1 Upgrade firmware through WIZS2E Config Tool

As shown in the figure below, the firmware upgrade is complete.

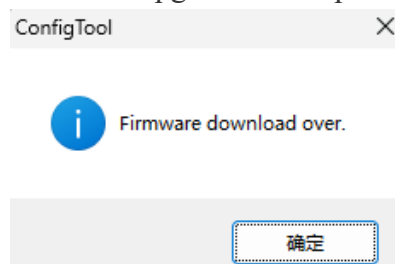


Figure 10-2 Upper computer prompt - firmware upgrade completed

## 10.2 Upgrade firmware remotely through web pages

After logging into the WIZ-DTU webpage, enter the "Firmware" page as shown in the figure below, click the **Choose File** button, select the firmware to be updated, and click the **Upload** button to start updating the firmware.

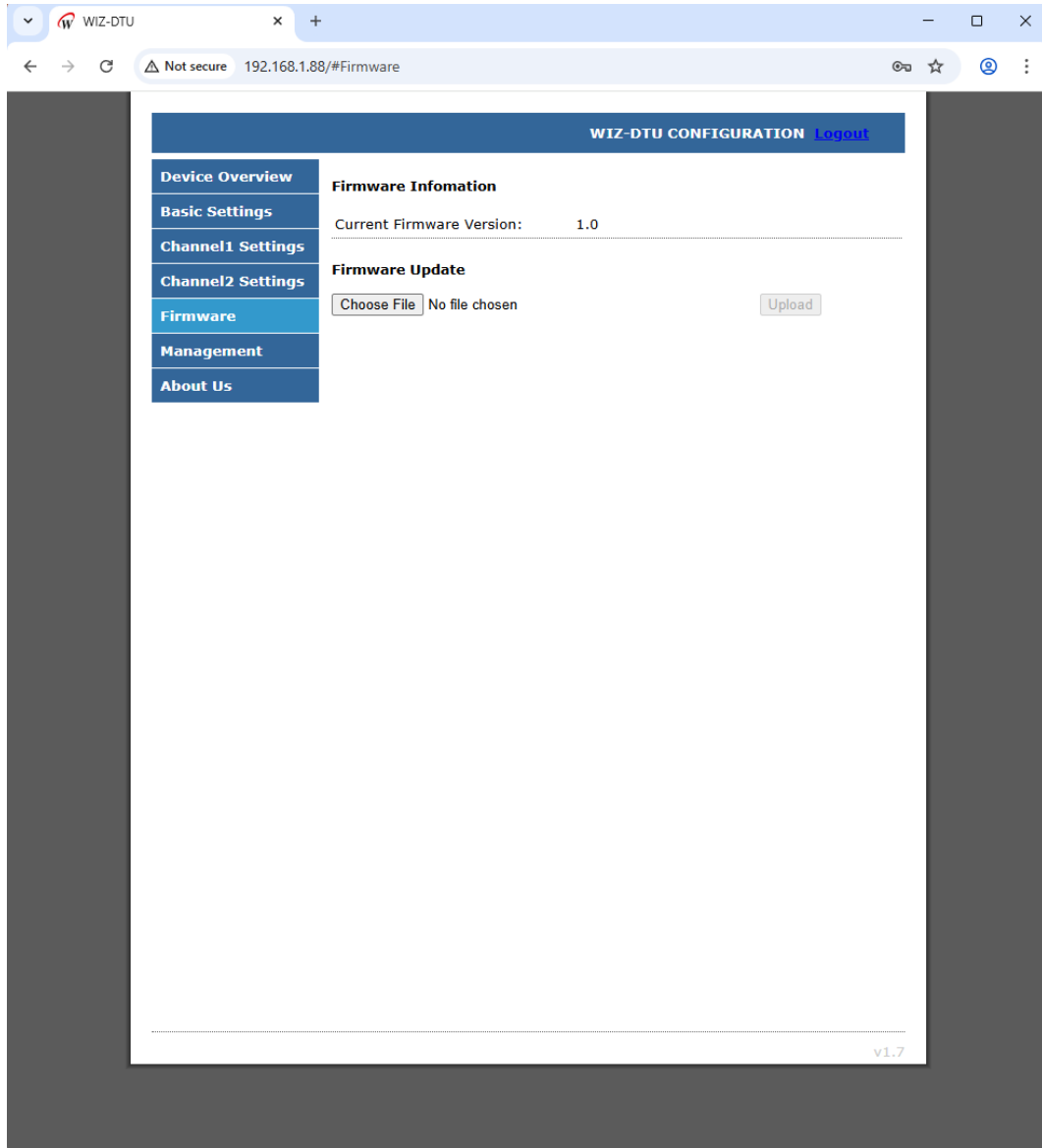


Figure 10-3 Upgrade firmware through web pages

After the firmware upgrade is completed, WIZ-DTU will automatically restart to complete the firmware update operation, and the webpage will automatically redirect to the login interface.

## 11 Appendix

### 11.1 Default list of occupied ports in Ethernet protocol

Protocol	Port
Reserve	0
TCP port multi-channel server	1
Reserve	2
ECHO	7
Reserve	9
Reserve	11
Reserve	13
Network Status	15
FTP	20
FTP	21
TELNET	23
SMTP	25
Printer	35
Time server	37
Name server	42
Reserve	43
Login Host Protocol	49
DNS	53
DHCP	67
DHCP	68
TFTP	69
Gopher	70
Finger	79
HTTP	80
Remote TELNET	107
SUN	111
NNTP	119
NTP	123
SNMP	161
SNMP	162
IPX	213
Reserve	160~223



### Product Repair Procedure

WIZnet HK promises to provide a one-year free warranty service for WIZ-DTU equipment. Within one year from the date of purchase of WIZ-DTU equipment, if there are any product quality problems during normal use, users can repair them through the following procedures:

- 1 Provide proof of purchase.
- 2 Obtain repair permit from WIZnet HK or distributor.
- 3 Fill out the product problem report form and provide as much detailed information as possible about the reason for repair and the symptoms of the malfunction, in order to reduce repair time.
- 4 Pack the equipment, send it to the designated repair address, and attach the product problem report form.

The following are not covered by the warranty. For damages caused to the product that are not covered by the warranty, we will only charge the cost of the components appropriately:

- 1 Damage to the product caused by human or force majeure factors.
- 2 Unable to provide proof of product purchase.
- 3 products with a warranty period exceeding one year.



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Before ordering products, please purchase from WIZnet HK or designated distributor through the contact information provided on the "Sales and Service" page of this document and obtain the latest specifications.

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