AT Commands of WT32-ETH01 Wired Module

Version 1.1

1. AT Commands Description

Basic Commands	Description
AT	Test AT startup
ATE	Configure echoing of AT commands
AT+RST	Restart the module
AT+GMR	Query version information
AT+RESTORE	Restore the factory default settings
AT+UART_DEF	The default UART configuration, saved in flash
AT+PASSCHANNEL	Set/query module transparent transmission channel
WI-FI Commands	Description
AT+CWJAP	Connect to an AP
Ethernet Commands	Description
AT+CWDHCP_DEF	Set up DHCP, configuration saved in flash
AT+CIPETH_DEF	Set Ethernet IP address, configuration saved in flash
TCP/IP Commands	Description
AT+CIPSTART	Establish TCP Connection, UDP Transmission
AT+CIPSEND	Send data
AT+CIPMODE	Set transmission mode
AT+CIPCLOSE	Close TCP/UDP connection

Each command set contains four types of AT commands.

Type	Command Format	Description
Test Command	AT+<x>=?	This command is used to query the Set Command's internal parameters and its range of values.
Query Command	AT+<x>?	This command is used to return the current value of parameters.
Set Command	AT+<x>=<…>	This command is used to set user-defined parameter values.
Execute Command	AT+<x>	Run commands with no user-defined parameters.

Notes:

- Not all AT commands support all four variations mentioned above.
- Square brackets [ ] designate the default value; it is either not required or may not appear.
- String values need to be included in double quotation marks, for example:
  AT+CWSAP="ESP756290","21030826",1,4
- The default baud rate is 115200.
- AT commands have to be capitalized, and must end with a new line (CR LF).

2. **Basic AT Commands**

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AT—Test AT startup

Execute Command	AT
Response	OK
Parameters	—

ATE—Configure echoing of AT commands

Execute Command	ATE
Response	OK
Parameters	ATE0: Switch echo off ATE1: Switch echo on

AT+RST—Restart the module

Execute Command	AT+RST
Response	OK
Parameters	—

AT+GMR—Query version information

Execute Command	AT+GMR
Response	<FW version info> <idf version info> OK
Parameters	● <FW version info>: Firmware version information ● <idf version info>: SDK version information

AT+RESTORE—Restore the factory default settings

Execute Command	AT+RESTORE
Response	OK

Parameters	The execution of this command will reset all parameters saved in flash, and restore to the factory default settings of the module.The chip will be restarted when this command is executed.

AT+UART_DEF—The default UART configuration, saved in flash

Command	Query Command: AT+UART_DEF?	Set Command: AT+UART_DEF=<baudrate>,<databits>,<stopbits>,<parity>,<flow control>
Response	+UART_DEF: <baudrate>,<databits>,<stopbits>,<parity>,<flow control> OK	OK
Parameters	• <baudrate>: UART baud rate • <databits>: data bits ➢ 5: 5-bit data bit ➢ 6: 6-bit data bit ➢ 7: 7-bit data bit ➢ 8: 8-bit data bit • <stopbits>: stop bits ➢ 1: 1-bit stop bit ➢ 2: 1.5-bit stop bit ➢ 3: 2-bit stop bit • <parity>: parity bit ➢ 0: None ➢ 1: Odd ➢ 2: Even • <flow control>: flow control ➢ 0: flow control is not enabled ➢ 1: enable RTS ➢ 2: enable CTS ➢ 3: enable both RTS and CTS		
Notes	The configuration changes will be saved in the NVS area, and will still be valid when the chip is powered on again.	
Example	AT+UART_DEF=115200,8,1,0,0	

AT+PASSCHANNEL—Set/query the pass-through channel of the module

Command	Query Command: AT+PASSCHANNEL? Function: Query the pass-through channel of the module.	Set Command: AT+PASSCHANNEL=<channel> Function: Set the pass-through channel of the module.
Response	+PASSCHANNEL: <channel> OK	OK
Parameters	<channel>: pass-through channel ➢ 1: Serial to Ethernet pass-through channel	

	➤ 2: Serial to Wi-Fi pass-through channel
	➤ 3: Serial to Bluetooth pass-through channel
	➤ 4: Wi-Fi to Ethernet pass-through channel
	➤ 5: Wi-Fi to Bluetooth pass-through channel
	➤ 6: Ethernet to Bluetooth pass-through channel
Notes	The configuration changes will be saved in the NVS area.
Example	AT+PASSCHANNEL=1

3. Wi-Fi Commands

Command	Description
AT+CWMODE	Set Wi-Fi mode(STA/AP/STA+AP)
AT+CWJAP	Connect to an AP

AT+CWMODE—Set Wi-Fi mode(STA/AP/STA+AP)

Command	Test Command: AT+CWMODE=?	Query Command: AT+CWMODE? Function: Query the Wi-Fi mode of ESP32.	Set Command: AT+CWMODE=<mode> Function: Set the Wi-Fi mode of ESP32.
Response	+CWMODE: <mode> Value list OK	+CWMODE: <mode> OK	OK
Parameters	<mode>: 0: Null mode, Wi-Fi RF will be disabled* 1: Station mode 2: SoftAP mode 3: SoftAP+Station mode		
Notes	The configuration changes will be saved in the NVS area.		
Example	AT+CWMODE=1		

AT+CWJAP—Connect to an AP

Command	Query Command: AT+CWJAP? Function: Query the AP to which the ESP32 Station is already connected.	Set Command: AT+CWJAP=<ssid>,<pwd>[,<bssid>] Function: Set the AP to which the ESP32 Station needs to be connected.
Response	+CWJAP: <ssid>,<bssid>,<channel>,<rssi> OK	OK or +CWJAP: <error code> ERROR
Parameters	● <ssid>: a string parameter showing the SSID of the AP ● <bssid>: the AP's MAC address.	● <ssid>: SSID of the target AP ● <pwd>: password, max: 64-byte ASCII ● [<bssid>]: the MAC address of the target AP, generally used when multiple APs

	● <channel>: channel ● <rssi>: signal strength	have the same SSID. ● <error code>: (for reference only) ➢ 1: connection timeout ➢ 2: wrong password ➢ 3: cannot find the target AP ➢ 4: connection failed ➢ others: unknown error occurred.

Messages	// If ESP32 station connects to an AP, it will prompt messages:
	WIFI CONNECTED
	WIFI GOT IP
	// If the WIFI connection ends, it will prompt messages:
	WIFI DISCONNECT	

Notes	The configuration changes will be saved in the NVS area.	
Example	AT+CWJAP="abc","0123456789"	

4. Ethernet Commands

Command	Description
AT+CWDHCP_DEF	Set up DHCP, configuration saved in flash
AT+CIPETH_DEF	Set Ethernet IP address, configuration saved in flash

AT+CWDHCP_DEF—Set up DHCP, configuration saved in flash

Command	Query Command: AT+ CWDHCP_DEF? Function: Query DHCP	Set Command: AT+ CWDHCP_DEF=<mode>,<en> Function: Set up DHCP
Response	DHCP disabled or enabled now?	OK
Parameters	● Bit0: ➢ 0: SoftAP DHCP is disabled. ➢ 1: SoftAP DHCP is enabled. ● Bit1: ➢ 0: Station DHCP is disabled. ➢ 1: Station DHCP is enabled. ● Bit2: ➢ 0: eth DHCP is disabled. ➢ 1: eth DHCP is enabled.	● <mode>: ➢ 0: Set ESP32 SoftAP ➢ 1: Set ESP32 Station ➢ 2: Set ESP32 SoftAP and Station ➢ 3: Set ETH ● <en>: ● 0: Disable DHCP ● 1: Enable DHCP
Notes	● The configuration changes will be stored in the NVS area. ● This Set Command interacts with static IP related AT commands: ➢ If DHCP is enabled, static IP will be disabled ➢ If static IP is enabled, DHCP will be disabled ➢ Whether it is DHCP or static IP enabled depends on the last configuration.	
Example	AT+ CWDHCP_DEF=3,1	

AT+CIPETH_DEF—Set Ethernet IP address, configuration saved in flash

Command	Query Command:	Set Command:

	AT+CIPETH_DEF? Function: Query the IP address of the module.	AT+CIPETH_DEF=<ip>[,<gateway>,<netmask>] Function: Set the IP address of the module.
Response	+CIPETH_DEF: <ip>,<gateway>,<netmask> OK	OK
Parameters	● <ip >: string parameter, the IP address of the module ● <gateway>: gateway ● <netmask>: netmask	
Notes	The configuration changes will be saved in the NVS area.	
Example	AT+CIPETH_DEF="192.168.0.7","192.168.0.1","255.255.255.0"	

5. **TCP/IP Commands**

TCP/IP Commands	Description
AT+CIPSTART	Establish TCP Connection, UDP Transmission
AT+CIPSEND	Send data
AT+CIPMODE	Set transmission mode
AT+CIPCLOSE	Close TCP/UDP connection
AT+ CIFSR	Query local IP address

AT+CIPSTART—Establish TCP Connection, UDP Transmission

Establish TCP Connection	
Command	Set Command: AT+CIPSTART=<socket_type>,<dest_ip>,<dest_port>[,<local_port>]
Response	OK or ERROR
Parameters	● < socket_type >: ➢ String parameter, connection type, "TCPC", "TCPS" ● <dest_ip>: String parameter, destination IP ● <dest_port>: Destination port number ● <local_port>: Local port number
Notes	The settings will be saved in flash.
Example	AT+CIPSTART="TCPC","192.168.0.201",8080

Establish UDP Transmission	
Command	Set Command: AT+CIPSTART=<socket_type>,<dest_ip>,<dest_port>,<local_port>
Response	OK or ERROR
Parameters	● < socket_type >: ➢ String parameter, connection type, "UDPC", "UDPS"

	● <dest_ip>: String parameter, destination IP
	● <dest_port>: Destination port number
	● <local_port>: Local port number
Notes	The settings will be saved in flash.
Example	AT+CIPSTART="UDPC","192.168.0.201",8080,3333

HTTP Request	
Command	Set Command: AT+CIPSTART=<socket_type>,<url>
Response	OK or ERROR
Parameters	● < socket_type >: ➢ String parameter, connection type, "HTPC" ● <url>: URL address
Notes	This setting is saved in flash. GET method is used to interact with server.
Example	AT+CIPSTART="HTPC","http: //192.168.1.102: 8000/Desktop/test.txt"

AT+CIPSEND—Send data

Command	Set Command: AT+CIPSEND=<length> Function: Configure the data length in normal transmission mode.	Execute Command: **AT+CIPSEND** Function: Start sending data in transparent transmission mode.
Response	Recv <length> bytes SEND OK	Wrap return > after executing this command. When a single packet containing +++ is received, it returns to normal AT command mode. If you send +++ to exit transparent transmission mode, please wait for at least one second before sending the next AT command. This command can only be used in transparent transmission mode which requires single connection.
Parameters	● <length>: numeric parameter, indicating the length of the transmitted data	
Notes	—	
Example	—	

AT+ CIPMODE—Set the transmission mode

Command	Query Command: AT+CIPMODE? Function: Query the transmission mode.	Set Command: AT+CIPMODE=<mode> Function: Set the transmission mode.

Response	+CIPMODE: <mode> OK	OK

Parameters	● <mode>:
	     0: Normal transmission mode
	     1: Transparent transmission mode	

Notes	This setting will not be saved in flash.	
Example	AT+CIPMODE=1	

AT+CIPCLOSE—Close TCP/UDP connection

Command	Execute Command: AT+CIPCLOSE
Response	OK
Parameters	—
Notes	CLOSED

AT+CIFSR—Get the Local IP Address

Command	Execute Command: AT+CIFSR
Response	+CIFSR: APIP,<SoftAP IP address> +CIFSR: APMAC,<SoftAP MAC address> +CIFSR: STAIP,<Station IP address> +CIFSR: STAMAC,<Station MAC address> +CIFSR: ETHIP,<Station IP address> +CIFSR: ETHMAC,<Station MAC address> OK
Parameters	<IP address>: IP address of the ESP32 SoftAP IP address of the ESP32 Station IP address of the ESP32 eth <MAC address>: MAC address of the ESP32 SoftAP MAC address of the ESP32 Station MAC address of the ESP32 eth
Notes	Only when the ESP32 Station is connected to an AP can the Station IP be queried. Only when the ESP32 eth is connected to Ethernet can the eth IP be queried.