E103-W14 AT Command Manual



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Table of contents

1 Overview 5
2 Features 5
3 Command Description 5
3.1 System Control Command List 6
3.2 System Control Commands 7
3.2.1 AT - Test AT Start 7
3.2.2 AT+RST -Restart module 7
3.2.3 AT+GMR- View version information 7
3.2.4 AT+GSLP- Enter Deep -sleep mode 8
3.2.5 ATE - enable or disable ATE echo function 8
3.2.6 AT+RESTORE- Restore factory settings 8
3.2.7 AT+ SAVETRANSLINK - Set the boot WiFi transparent transmission mode 9
3.2.8 AT+UART_CUR -Set the current temporary configuration of UART , not saved to Flash 9
3.2.9 AT +UART_DEF - Set UART default configuration and save to Flash 10
3.2.10 AT+SLEEP -Set sleep mode 11
3.2.11 AT+SLEEPWKCFG -Set Light -sleep timer wake-up 12
3.2.12 AT+ SYSSTORE - Set parameter storage mode 13
3.2.13 AT + SYSLOG - Enable or disable AT error code notification 13
4 Basic Function Commands 14
4.1 Basic Function Command List 14
4.2 Basic Function Commands 15
4.2.1 AT +CWMODE- Query/Set Wi -Fi mode 15
4.2.2 AT+CWSTATE-query the status of WiFi in STA mode 16
4.2.3 AT+CWJAP- Query/Set Connection Specified A P 16
4.2.4 AT +CWLAPOPT sets the properties of the scan result of the AT 17
4.2.5 AT + CWLAP - Scanning the AP information around the device .17
4.2.6 AT+CWSAP- Configure Softap Mode Parameters 18
4.2.7 AT+CWLIF- Query the Station information connected to the SoftAP 19
4.2.8 AT+CWQAP - disconnection with AP 19
4.2.9 AT+CWDHCP -SET D HCP 19
4.2.10 AT+CWAUTOCONN- Enable automatic connection to AP at power on 20
4.2.11 AT+CIPSTA -Set E103-W14 State 's IP address 20
4.2.12 AT+CIPAP -Set E103-W14 SoftAP 's IP address 21
4.2.13 AT+CIPSTAMAC- Set E103-W14 Status MAC address, ...21
4.2.14 AT+CIPAPMAC- Set E103-W14 SoftAPMAC address 22
4.2.15 AT+CWCOUNTRY-Set country code 22
4.2.16 AT+CWSTARTSMART- Start smart config 23
4.2.17 AT+CWST O PSMART- Stop smart config 24
5 TCP/IP related commands 24
5.1 TCP/IP command list 24
5.2 TCP /IP command description 25

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5.2.1 AT+CIPDNS - Query/set DNS server information 25
5.2.2 AT +CIPDOMAIN- Domain Name Resolution Function 26
5.2.3 AT +CIPSTART- Establish TCP , UDP or SSL connection 26
5.2.4 AT+CIPSTARTX-Establish TCP, UDP or SSL connection (automatically assign link id in multi-link mode) 28
5.2.5 +++-Exit transparent transmission mode 28
5.2.6 AT+CIPSEND- Send data 29
5.2.7 AT +CIPCLOSE- Close TCP , UDP , SSL transmission 30
5.2.8 AT +CIFSR- Query the IP address and MAC address of the device 30
5.2.9 AT+CIPMUX -Setting multiple connections 31
5.2.10 A T+CIPSERVER- Establishing a TCP Connection 31
5.2.11 AT+CIPMODE -Set transmission mode 32
5.2.12 AT+CIPSTO- Set TCP server timeout 32
5.2.13 AT+PING-ping the remote host 32
5.2.14 AT+CIPSNTPCFG- Set time zone and SNTP server 33
5.2.15 AT+CIPSNTPTIME -Query SNTP time 33
5.2.16 AT+CIPSSLCCONF-Query/Set TLS Client Configuration 34
5.2.17 AT+CIPSSLCCN - Query/set TLS client common name 35
5.2.18 AT+CIPSSLCPSK - Query / set SSL client PSK (string format) 35
5.2.19 AT+CIPSSLCPSKHEX-Query/set SSL client PSK (hexadecimal format) 36
5.2.20 AT+CIPRECONNINTV - TCP client reconnection interval 36
5.2.21 AT+CIPRE CVTYP - Query/set socket receive mode 37
5.2.22 AT+CIPRECVDATA - Get socket data in passive receive mode 37
5.2.23 AT+CIPRECVLEN : Query the length of socket data in passive receiving mode 38
5.2.24 AT+CIPTCPOPT: query/set socket option 38
6 MQTT related commands 40
6.1 MQTT Command List 40
6.2 MQTT command description 40
6.2.1 AT +MQTTUSERCFG -Set MQTT user configuration 40
6.2.2 AT +MQTTCONNCFG -Set MQTT connection configuration 41
6.2.3 AT +MQTTCONN- Connect to MQTT broker s 41
6.2.4 AT +MQTTPUB - Publish MQTT message as string 42
6.2.5 AT +MQTTPUBRAM - Publish MQTT messages in binary format 42
6.2.6 AT +MQTTSUB- Subscribe to MQTT Topic 43
6.2.7 AT+MQTTUNSUB - Unsubscribe from M QTT topic 44
6.2.8 AT +MQTTCLEAN - Close MQTT connection 44
6.3 MQTT Notes 44
7 HTTP related commands 44
7.1 HTTP Command List 44
7.1.1 AT+HTTPCLIENT-Send HTTP client request 45
7.1.2 AT+HTTPGETSIZE-Get HTTP resource size 45
7.1.3 AT+HTTPCGET-Get HTTP resource 46
7.1.4 AT+HTTPCPOST-Post HTTP data of specified length 46

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7.1.5 AT+HTTPCPUT-Put HTTP data of specified length 47
7.1.6 AT+HTTPURLCFG-Set/Get Long HTTP URL 47
7.1.7 AT+HTTPCHEAD-Set/Query HTTP request header 48
8 BLE related commands 48
8.1 BLE command list 48
8.1.1 AT+BLEINIT - Bluetooth LE Initialization 49
8.1.2 AT+BLEADDR-Query Bluetooth LE device address 49
8.1.3 AT+BLENAME-Query/Set Bluetooth LE Device Name 50
8.1.4 AT+BLESCANPARAM-Query/Set Bluetooth LE Scan Parameters 50
8.1.5 AT+BLESCAN - Enable Bluetooth LE Scan 51
8.1.6 AT+BLESCANRSPDATA - Set Bluetooth LE Scan Response 52
8.1.7 AT+BLEADVPARAM-Query/Set Bluetooth LE Broadcast Parameters 52
8.1.8 AT+BLEADVDATA-Set Bluetooth LE broadcast data 53
8.1.9 AT+BLEADVDATAX-Automatically set Bluetooth LE advertising data 54
8.1.10 AT+BLEADVSTART-Start Bluetooth LE Broadcast 54
8.1.11 AT+BLEADVSTOP-Stop Bluetooth LE Broadcast 54
8.1.12 AT+BLEGATTSNTFY-Server notify service characteristic value to client 55
8.1.13 AT+BLEGATTSIND-Server indicates service characteristic value to client 55
8.1.14 AT+BLESPPCFG-Query Bluetooth LE SPP parameters 56
8.1.15 AT+BLESPP - Enter Bluetooth LE SPP mode 56
8.1.16 AT+BLEGATTUUID-Configure BLE GATT Service UUID 56
9 Update Record 57

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1 Overview

The meaning, syntax, response and examples of AT commands for W14 series products of Chengdu Ebyte Electronic Technology Electronics Co., Ltd.

2 Features

- Support power-on transparent transmission
- Support multiple baud rates
- Support SmartConfig network configuration
- Support B LE network configuration
- Support TCP Sever , TCP Client , U DP , M QTT
- Three working modes: STATION , AP , STATION & AP
- Support serial port transparent transmission
- Support multiple encryption methods
- Support module serial port AT command configuration,
- Parameters are saved after power off

3 Command Description

AT commands can be divided into the following four types:

Type	Command Format	Description
Test Commands	A T+< x >=?	This command is used to query the parameters and value range of the setting command.
Query command	A T+< x >?	This command is used to return the current value of a parameter.
Setting Commands	A T+< x >=<…>	This command is used to set user-defined parameter values.
Execute Commands	A T+< x >	This command is used to execute a function whose variable parameters are immutable and controlled by the internal program of the module.

Notice:

- Not every AT command has the above four types of commands.
- [ ] The values in brackets are default values and may not be filled in or displayed.
- Use double quotes to represent string data " String " .
  For example , AT+CWSAP= E103-W14 ,21030826
- The default baud rate is 115200.
- The commands are not case sensitive .
- End with a carriage return line feed (CRLF). Please make sure to set the serial port tool to "new line mode".

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Error code description

Error Code	Description
0x02	EBYTE_AT_RESPONSE_NO_TERMINATOR
0x03	EBYTE_AT_RESPONSE_NO_AT
0X04	EBYTE_AT_RESPONSE_NO_LEN
0x05	EBYTE_AT_RESPONSE_NO_NUM
0X0 6	EBYTE_AT_RESPONSE_NO_TYPE
0x0 7	EBYTE_AT_RESPONSE_NO_INVALID
0X08	EBYTE_AT_RESPONSE_ NO _PARSE
0x0 9	EBYTE_AT_RESPONSE_NO_UNSUPPORT
0X0 A	EBYTE_AT_RESPONSE_NO_EXEC

Tips	Description
ready	Device initialization completed flag

3.1System control command list

Command	Description
AT	Test AT startup
AT+RST	Restart module
AT+GMR	Query version information
A T+GSLP	Entering Deep -sleep mode
ATE	Enable or disable the echo function
AT+RESTORE	Restore factory settings
AT+SAVETRAMSLINK	Set the boot transparent mode information
AT+UART_CUR	Set the current temporary configuration of UART , do not save to flash
AT+UART_DEF	Set UART default configuration and save to flash
A T+SLEEP	Enter sleep model
A T+SLEEPWKCF	Setting up Light-sleep Wake-up source

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G	
A T +SYSLOG	Enable or disable AT error code prompts
A T+ SYSSTORE	Set parameter storage mode

3.2 System Control Commands

3.2.1 AT - Test AT startup

Execute	A T
response	O K
Parameter	-

3.2.2 AT+RST -Restart module

Execute Commands	AT + RST
response	O K
Parameter Description	-

3.2.3 AT+GMR- View version information

Execute Commands	AT + GMR
response	< AT version info> O K
Parameter Description	-

3.2.4 AT+GSLP- Enter Deep -sleep mode

Setting Commands	A T + GSLP = < time >
response	<time> OK
Parameter Description	• < time > : The duration of the device entering Deep-sleep, in milliseconds. When the set time is reached, the device automatically wakes up. • The value range of <time> is 1 000 - 65535000
Notice	• Due to external factors, there will be a difference between the actual time all devices enter Deep -sleep and the theoretical time.

3.2.5 AT Echo function is turned on or off

Execute Commands	A TE0 or A TE1
response	O K
Parameter Description	A TE0 : Disable echo A TE1 : Enable echo (default)

3.2.6 AT+RESTORE - Restore factory settings

Execute Commands	AT + RESTORE
response	O K
Parameter Description	This command will erase all parameters saved in flash and restore to default parameters.

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3.2.7 AT+SAVETRANSLINK-Set the boot WiFi transparent transmission mode

Setting Commands	A T +SAVETRANSLINK=<mode>,<remote_host>,<remote_port>,[<type>,<keep_alive>]
response	O K
Parameter Description	• < mode >: Turn off the module and power on to enter WiFi transparent transmission mode 0: Disable power-on and enter transparent transmission mode. 1: Turn on the power and enter the WiFi transparent transmission mode. • <remote_host>: string parameter, indicating the remote IPv4 address. • <remote_port>: Remote server listening port • <type>: Connection type indicates the transmission type: TCP, UDP, TLS. The default value is TCP. • <keep_alive>: Configure the socket **SO_KEEPALIVE** option, in seconds.
Notice	Only supports TCP client in station mode
Example	

3.2.8 AT+UART_CUR -Set the current temporary configuration of UART, not saved to Flash

Command	Query command: A T+UART_CUR?	Set the command: A T+UART_CUR=<baudrate>,<databits>,<stopbits> ,<parity>,<flow control>
response	+ UART_CUR: <baudrate>,<databits>,<stopbits> ,<parity>,<flow control>	O K

	O K	
Parameter Description	• <baudrate>: UART baud rate, range [4800, 2000000] • <databits> : data bits ➢ 0: 5 bits Data bits ➢ 1: 6 bits Data bits ➢ 2: 7 bits Data bits ➢ 3: 8 bits Data bits • < stopbits>: stop bits ➢ 0: 1 bit Stop bits ➢ 1: 1.5 bits Stop bits • <parity> : check digit ➢ 0 : None ➢ 1 : Odd ➢ 2: Even • < flow control>: flow control ➢ 0 : Disable flow control	
Notice	• This setting is not saved in flash . • This version does not support flow control yet.	
Example	A T+UART_CUR=115200 , 3 , 0,0,0	

3.2.9 AT+UART_DEF - Set UART default configuration and save to Flash

Command	Query command: A T+UART_DEF?	Set the command: A T+UART_DEF=<baudrate>,<databits>, <stopbits> ,<parity>,<flow control>
response	+ UART_DEF:<baudrate >,<databits>, <stopbits> ,<parity>,<fl ow control> OK	O K
Parameter Description	• <baudrate>: UART baud rate range [4800,2000000] • <databits> : data bits ➢ 0: 5 bits Data bits ➢ 1: 6 bits Data bits	

	➢ 2: 7 bits Data bits ➢ 3: 8 bits Data bits • < stopbits>: stop bits ➢ 0: 1 bit Stop bits ➢ 1: 1.5 bits Stop bits • <parity> : check digit ➢ 0 : None ➢ 1 : Odd ➢ 2: Even • < flow control>: flow control ➢ 0 : Disable flow control
Notice	• This setting is saved in flash and will take effect after power is turned on again. • This version does not support flow control yet.
Example	A T+UART_DEF=115200 , 3 , 0,0,0

3.2.10 AT+SLEEP -Set sleep mode

Setting Commands	Set the command: A T + SLEEP = < sleep mode>
response	O K
Parameter Description	• < sleep mode>: 1: Low voltage sleep mode 2: Deep sleep mode
Notice	• Low-voltage sleep is a relatively power-saving sleep mode. In this mode, the clocks of the MCU and all digital peripherals are stopped, and the system has only 32K clock; at this time, only some hardware modules are working, and only GPIO interrupts and AON counter interrupts can wake up the system to restore to normal voltage and continue running. In low-voltage sleep mode, the voltage of AON will decrease, and the voltage of VDDDIG will also decrease. When the RTOS has no task to process, it automatically enters the IDLE

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	task. When the low-voltage conditions are met, it enters the low-voltage state. When the wake-up signal is triggered, the system exits the low-voltage state, and the AON and VDDDIG voltages are upgraded to normal voltages. In the low-voltage state, only the wake-up source (GPIO, RTC) can allow the system to exit low voltage and return to normal voltage mode. In order to achieve optimal power consumption, please turn off unnecessary modules before entering low voltage, and you can turn them on again after exiting low voltage. • Deep sleep is a relatively power-saving sleep mode. In this mode, the system has only 32K clocks, and only some hardware modules are working. Except for the AON module, all other hardware modules are powered off. When the GPIO interrupt or RTC timeout interrupt wake-up signal is triggered, the system exits the deep sleep state and the system is reset. In the deep sleep state, only the wake-up source (GPIO, RTC) can make the system exit deep sleep. In this mode, the 32K clock source defaults to 32K using ROSC.
Example	A T+SLEEP=1

3.2.11 AT+SLEEPWKCFG -Set Light -sleep timer wake-up

Setting Commands	A T + SLEEPWKCFG=< wa keup source>, <param1> ,[<param2>]
response	O K
Parameter Description	• < wakeup source > ： wakeup source 0: Keep the configuration, not supported yet. 1: Keep the configuration, which is not supported yet. 2: GPIO wake-up • <param1> : When the wake-up source is a timer, this parameter indicates the sleep time in milliseconds. When the wakeup source is GPIO, this parameter indicates the GPIO

	pin • < param 2 >: When the wake-up source is GPIO, this parameter indicates the wake-up level. 0: Low level 1: High level
illustrate	
Example	// Wake up when GPIO12 is set to low level AT+SLEEPWKCFG= 2,12,0

3.2.12 AT+ SYSSTORE - Set parameter storage mode

Command	Query command: AT+SYSSTORE?	Set the command: AT+SYSSTORE=<MODE>
response	+SYSSTORE:<MODE> OK	OK
Parameter Description	• < MODE > ： Parameter storage mode 0: Command configuration is not saved in flash. 1: Command configuration is saved in flash (default).	
Notice	• This command only affects setting commands, not query commands. • This command only affects some commands. For details, see the commands for each command.	
Example	AT+SYSSTORE=1 OK	

3.2.13 AT + SYSLOG - Enable or disable AT error code notification

Command	Query command: AT+SYSLOG?	Set the command: AT+SYSLOG=<ENABLE>

response	+SYSSTORE:<ENABLE> OK	OK
Parameter Description	• < ENABLE > ： Parameter storage mode 0: Disabled (default). 1: Enabled.	
Notice	• This command only affects setting commands, not query commands. • This command only affects some commands. For details, see the commands for each command.	
Example	AT+SYSLOG=1 OK	

4 Basic function commands

4.1 Basic function command list

Command	Description
AT + CWMODE	Set the device working mode (STA /AP/STA+AP)
AT+CWSTATE	Query WiFi status and WiFi information
AT+CWJAP	Connect to ap
AT+CWLAPORT	Set the properties of the AT+CWLAP command scan result
AT+CWLAP	Start Scanning
AT+CWQAP	Disconnect from the AP
AT+CWSAP	Configure softap parameters
AT+CWLIF	Query the information of the slave connected to the module in AP mode
AT+CWQIF	Disconnect STA from AP
AT+CWDHCP	Enable/Disable DHCP
AT+CWAUTOCONN	Whether to automatically connect to AP after power on

AT+CIPSTAMAC	Query/set the mac in module sta mode
AT+CIPAPMAC	Query/set module mac in AP mode
AT+CIPSTA	Query/set the module's IP address in sta mode
AT+CIPAP	Query/set the module's IP address in AP mode
AT+CWSTARTSMART	Enable intelligent network configuration
AT+CWSTOPSMART	Disable smart distribution network
AT+CWCOUNTRY	Query/set country code

4.2 Basic function command description

4.2.1 AT+CWMODE- Query/set Wi -Fi mode

Command	Query command: A T + CWMODE?	Set the command: AT+CWMODE=< mode > ,[<auto_connect>]
response	+ CWMODE: <mode> , <auto_connect> O K	O K
Parameter Description	• <mode> : 0: Station mode 1: SoftAP mode • < auto_connect > : If it is in station mode, it indicates whether to automatically connect to AP upon power-on: 0: Disable automatic connection. 1: Enable automatic connection.	
Notice	This command only affects the boot state. If you need to be in sta/softap mode at the same time, just use the AT+CWJAP AT+CWSAP commands in sequence.	

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Example	AT + CWMODE=1

4.2.2 AT+CWSTATE - query the status of WiFi in STA mode

Query command	AT+CWSTATE?
response	+CWSTATE:<STATE>,<SSID>
Parameter Description	<STATE>: WiFi status in sta mode, o 0: The station has not yet established any Wi-Fi connection o 1: The station has connected to the AP but has not yet obtained an IPv4 address o 2: The station has connected to the AP and has obtained an IPv4 address o 3: The station is connecting to Wi-Fi or reconnecting to Wi-Fi o 4: The station is in Wi-Fi disconnected state <SSID>: sta's current connected ap object ssid

4.2.3 AT+CWJAP- query/set the connection specified A P

Command	Query command: A T + CWJAP?	Set the command: A T+CWJAP=<ssid> , <pwd>
response	+ CWJAP:<ssid> ,<passwd>	O K or + CWJAP:< error code> F AIL
Parameter Description	<ssid>: target AP, SSID <passwd>: connection password of target ap	
Notice	Can only connect to 2.4G wifi	

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Example	A T+CWJAP= E103-W14 ,12345678

4.2.4 AT+CWLAPOPT sets the properties of the scan result of the AT+CWLAP command

Command	Query command: AT+CWLAPOPT?	Set the command: AT+CWLAPOPT=<reserved>,<print mask>,[<rssi filter>,<authmode mask>]
response	+CWLAPOPT: <reserved>,<print mask>,[<rssi filter>,<authmode mask>] OK	OK
Parameter Description	<reserved>: reserved item <print mask>： print, Default value: 0x7FF <rssi filter>: rssi filter value size, Range: [–100,40] <authmode mask>: Encryption mode filter mask (currently not supported)	
Notice		
Example		

4.2.5 AT + CWLAP- Scan the AP information around the device

Execute Commands	AT+CWLAP
response	+CWLAP:<SSID>,<BSSID>,<RSSI>,<CH>,<ENC>
Parameter Description	<SSID>: SSID name of the scanned AP <BSSID>: BSSID value of the scanned AP

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	<RSSI>: Signal strength <CH>: The channel on which the AP runs <ENC>: encryption method used by AP

4.2.6 AT+CWSAP- Configure the parameters of the Softap mode

Command	Query command: A T+CWSAP?	Set the command: A T+CWSAP=<ssid> ,<pwd>,<chl>,<ecn> [,<ssid hidden>]
response	+ CWSAP = <ssid> ,<pwd> ,<chl>,<ecn>,<ssid hidden>	O K or E RROR
Parameter Description	• <ssid> : string parameter, AP 's SSID • <pwd> : string parameter, password length range: 8-32 bytes ASCII • <cnl> : channel number, 0-13 • < ecn>: encryption method, does not support WEP ▪ 0:O PEN ▪ 6 : WPA2_PSK • [<ssid hidden>] (optional parameter) : The default value is 0, which enables broadcasting of the Soft AP SSID ▪ Broadcast S SID Do not broadcast S SID	
Notice	If you want to set an open password, the <pwd> field needs to be empty, that is, A T+CWSAP =E103-W14 ,, 1 , 0,0. When the <pwd> field is not empty, the value of <enc> defaults to 6.	
Example	A T+CWSAP =E103-W14,12345678 , 1 , 6,0	

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4.2.7 AT+CWLIF -Query the Station information connected to the Soft AP

Execute Commands	Execute the command: A T+CWLIF ?
response	+ CWLIF: <index>, <ip addr>,<mac> O K
Parameter Description	• <index>: station id • < ip addr>: Station IP address connected to E103- W14 Soft AP • <mac> : MAC address connected to E103- W14 Soft AP
Notice	This command cannot query static IP , and is only valid when both E103-W14 Soft AP and the connected Station DHCP are enabled.

4.2.8 AT+CWQAP -disconnect from A P

Execute Commands	Execute the command: A T+CWQAP
response	O K
Parameter Description	-

4.2.9 AT+CWDHCP -SET D HCP

command	Query command: A T+CWDHCP ?	Set the command: A T+CWDHCP=<en> , < mode >
response	+CWDHCP: 3	O K
Parameter Description	• Bit0 : 0: SoftAP DHCP is disabled 1: SoftAP DHCP is enabled • Bit1:	• < en> : ▪ 0: Disable DHCP ▪ 1: Enable DHCP • < mode> :

	0: Status DHCP is disabled 1: Status DHCP is enabled	▪ 1: Set up E103-W14 Station ▪ 2: Set up E103-W14 SoftAP ▪ 3: Set up E103-W14 SoftAP and Station
Notice	This setting is saved in Flash This setting command interacts with the command for setting static IP (AT +CIPSTA series and AT +CIPAP series): ▪ DHCP is enabled , static IP will be invalid. ▪ If static IP is set , DHCP is disabled; The last setting is used	
Example	A T+CWDHCP=0, 3 // Disable DHCP in SoftAP and Station modes	

4.2.10 AT+CWAUTOCONN - Enable automatic connection to AP at power on

Execute Commands	A T+CWAUTOCONN=< enable >
response	O K
Parameter Description	• < enable> : ▪ 0: Do not automatically connect to AP after power on ▪ 1: Automatically connect to AP after power on
Notice	When the value of sysstore is 1, the command will be saved to flash.
Example	A T+CWAUTOCONN=0

4.2.11 AT+CIPSTA -Set E103-W14 Status IP address

Command	Query command: A T+CIPSTA?	Set the command: A T+CIPSTA=<ip> ,

		<gateway>,<netmask>
response	+ CIPSTA : <ip> , <gateway>,<netmask> O K	O K
Parameter Description	• <ip> : string, E103- W14 Status IP address • <gateway> : Gateway • <netmask> : subnet mask	
Notice	The AT+DHCP setting will affect this command. When setting a dynamic IP, the static IP will be invalid.	
Example	A T+CIPSTA=”192.168.1.100”,”192.168.1.1”,”255.255.255.0”	

4.2.12 AT+CIPAP -SET E103-W14 SoftAP 's IP address

Command	Query command: A T+CIPAP?	Set the command: A T+CIPAP=<ip> , <gateway>,<netmask>
response	+ CIPAP : <ip> , <gateway> , <netmask> O K	O K
Parameter Description	• <ip> : string, the IP address of the state • <gateway> : Gateway • <netmask> : subnet mask	
Notice	The AT+DHCP setting will affect this command. When setting a dynamic IP, the static IP will be invalid.	
Example	A T+CIPAP=”192.168.1.100”,”192.168.1.1”,”255.255.255.0”	

4.2.13 AT+CIPSTAMAC - Set E103-W14 Status MAC address,

Command	Query command:	Set the command:

	A T+CIPSTAMAC?	A T+CIPSTAMAC=<mac>
response	+ CIPSTAMAC :< mac> O K	O K
Parameter Description	• <mac> : string parameter, indicating the MAC address of the Station	
illustrate	• The MAC address of the SoftAP is different from that of the Station. Do not set the same MAC address for both. • Bit 0 of a MAC address cannot be 1. For example, a MAC address can be “1a:…” but cannot be “15:…” • FF:FF:FF:FF:FF:FF and 00:00:00:00:00:00 are invalid addresses and cannot be set. • Takes effect immediately and is not saved after power failure	
Example	A T+CIPSTAMAC=22:6D:CD:09:37:23	

4.2.14 AT+CIPAPMAC -Set E103-W14 SoftAPMAC address

Command	Query command: A T+CIPAPMAC?
response	+ CIPAPMAC : <mac> O K
Parameter Description	• <mac> : string parameter, indicating the MAC address of the Soft AP
illustrate	• The AP's mac is automatically determined by the sta setting
Example	A T+CIP APMAC?

4.2.15 AT+CWCOUNTRY - Set country code

Command	Query command: AT+CWCOUNTRY?	Set the command: AT+CWCOUNTRY=<CITY_POLICY>,<CITY_CC>,<CITY_STARTCH>,<CITY_TOTALCH

		>,<MAX_TXPOWER>
response	+CWCOUNTRY=<CITY_POLICY>,<CITY_CC>,<CITY_STARTCH>,<CITY_TOTALCH>,<MAX_TXPOWER> OK	OK
Parameter Description	• <CITY_POLICY>: 0: Change the country code to the country code of the AP the module is connected to 1: Do not change the country code, always keep the country code set by this command • <CITY_CC>: country code, maximum length: 3 characters. For country codes of various countries, please refer to ISO 3166-1 alpha-2 standard. • <CITY_STARTCH>: starting signal channel, range: [1,14] • <CITY_TOTALCH>: total number of channels • <MAX_TXPOWER>: Limit the maximum transmit power. 0 means no limit	
Notice	Configuration changes are not saved to flash	
Example	AT+CWCOUNTRY=1,CN,1,13,0	

4.2.16 AT+CWSTARTSMART- Start smart config

Command	Set the command: A T+CWSTARTSMART=< type >
response	O K
Parameter Description	• < type > ： ▪ 1: ebyte ble smart cfg ▪ 2: Air Kiss

Notice	Only supports calling in single Station mode not execute other commands during Smart Config .
Example	A T+CWMODE=1 A T+CWSTARTSMART

4.2.17 AT+CWST O PSMART- Stop smart config

Execute Commands	A T+CWSTOPSMART
response	O K
Parameter Description	-
Notice	Regardless of whether Smart Config is successful or not, please call AT +CWSTOPSMART to release the occupied memory.
Example	A T+CWSTOPSMART

5 TCP/IP related commands

5.1 TCP/IP command list

Command	Description
AT+CIPDOMAIN	Domain name resolution
AT+CIPSTART	Establish TCP , UDP transport or TLS connection
AT+CIPSTART X	TCP , UDP transmission or TLS connection under multiple links and automatically assign linkid
[Only applicable to transparent transmission mode] +++	Exit transparent mode
AT+CIPSEND	Sending Data
AT+CIPCLOSE	Disable TCP /UDP/SSL transmission

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AT+CIFSR	Query the IP address and MAC address of the device
AT+CIPMUX	Setting up multiple connections
AT+CIPSERVER	Establishing TCP Server
AT+CIPMODE	Set the transfer mode
A T+CIPSTO	Set TCP server timeout
A T+CIPSNTPCFG	Set time zone and NTP server ()
A T+CIPSNTPTIME	Query S NTP time
AT+CIPSSLCCONF	Query/set TLS client configuration
AT+CIPSSLCCN	Query/set the TLS client's common name
AT+CIPSSLCPSK	Query/set SSL client PSK (string format)
AT+CIPSSLCPSKHEX	Query/set SSL client PSK (hexadecimal format)
AT+CIPRECONNINTV	TCP client reconnection interval
AT+CIPRECVTYPE	Query/set socket receive mode
AT+CIPRECVDATA	Get socket data in passive receive mode
AT+CIPRECVLEN	Query the length of socket data in passive receive mode
AT+PING	Ping the remote host
AT+CIPTCPOPT	Query/set socket options
A T+CIPDNS	Query/set custom server information

5.2T CP/IP command description

5.2.1 AT+CIPDNS - query/set DNS server information

Setting Commands	AT+CIPDNS = <enable>[,<"DNS IP1">][,<"DNS IP2">][,<"DNS IP3">]
response	+CIPDNS:<enable>[,<"DNS IP1">][,<"DNS IP2">][,<"DNS IP3">] OK
Parameter Description	• **<enable>** : Set DNS server o 0: Enable automatic acquisition of DNS server settings.

	The DNS servers will revert to 208.67.222.222 and 8.8.8.8. The DNS server may be updated only when the ESP32 station completes the DHCP process. o 1: Enable manual setting of DNS server information. If you do not set the value of the parameter <DNS IPx>, the default values 208.67.222.222 and 8.8.8.8 are used. **<DNS IP x >** : DNS server IP address . This parameter is valid only when the <enable> parameter is 1, that is, manual DNS setting is enabled.
Example	AT+CIPDNS=1,"208.67.222.222","114.114.114.114","8.8.8.8"

5.2.2 AT+CIPDOMAIN- Domain name resolution function

Setting Commands	A T+CIPDOMAIN=< domain name>
response	+ CIPDOMAIN:<IP address >
Parameter Description	< domain name> : The domain name to be resolved. Domain names with a length less than 64 characters can be supported.
Example	AT+CWMODE=1 // Set station mode A T+CWJAP =xx,xx // Need to connect to an AP device that accesses the WAN A T+CIPDOMAIN=www.baidu.com // Domain name resolution

5.2.3 AT +CIPSTART- establish TCP , U DP or SSL connection

TCP transmission :

Setting Commands	When T CP is connected in single mode (AT +CIPMUX=0): AT+CIPSTART=< type >,<remote IP>,<remote port>[,<TCP keep	T CP has multiple connections (AT +CIPMUX= 1): AT+CIPSTART= < link ID>,< type >,<remote IP>,<remote

	alive>]	port>[,<TCP keep alive>]
response	O K or ERROR	
Parameter Description	• <link ID> connection ID, [0,5] for multiple links • < type > Connection type, TCP, UDP, TLS • <remote IP> remote ip • <remote port> remote port • <TCP keep alive> socket opt	
Example	A T+CIPSTART=TCP,192.168.4.2,1000	

UDP transmission:

Setting Commands	When U DP is connected in single mode (AT +CIPMUX=0): AT+CIPSTART=< type >,<remote IP>,<remote port>[,<local port>]	U DP multi-connection (AT +CIPMUX= 1): AT+CIPSTART= < link ID>,< type >,<remote IP>,<remote port>,<remote port>[,<local port>]
response	O K or ERROR If the connection already exists, it returns ALREADY CONNECT	
Parameter Description	• <link ID> : Network connection ID (0~4), used for multiple connections • < type> : string parameter, connection type, "TCP", "UDP" or "SSL" • < remote IP> : string parameter, remote IP address • < remote port> : remote port number • < local port > ： When transmitting UDP , set the local listening port. Other devices can send UDP data to the E103-W14 device through this port.	
Notice		
Example	A T + CIPSTART = UDP , 192.168.4.10,9527,9527	

SSL Connection:

Setting	AT+CIPSTART= [<link ID > ,]< type >,<remote IP>,<remote

Commands	port>[,<TCP keep alive>]
response	O K or ERROR If the connection already exists, it returns ALREADY CONNECT
Parameter Description	• <link ID> : Network connection ID [0-5], used for multiple connections • < type > : string parameter, connection type, TCP, UDP or TLS • < remote IP> : string parameter, remote IP address • < remote port> : remote port number • < TCP keep alive> : TCP keep alive detection time, this function is disabled by default ▪ 0: Disable T CP keep alive function ▪ 1~7200: detection time, in seconds
Notice	S SL connection does not support transparent transmission S SL requires more space. If the space is insufficient, the system will restart.
Example	A T+CIPSTART = SSL,www.baidu.com, 443

5.2.4 AT+CIPSTARTX - establish a TCP, UDP or SSL connection (automatically assign link id in multi-link mode)

The parameters are the same as those in AT+CIPSTART multi-link mode.

5.2.5 +++-Exit transparent transmission mode

Special execution commands	+++
Function	Exit transparent transmission mode and enter AT configuration mode
return	ENTER AT MODE

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Parameter Description	• Only applicable to transparent mode • This special execution command contains three identical + characters (i.e. ASCII code: 0x 2b), and there is no CR -LF character at the end of the command. • This special execution command has no command response

5.2.6 AT+CIPSEND -send data

Command	Set the command: 1. Single connection: (AT +CIPMUX=0) A T+ CIPSEND = <length> 2. When multiple connections are used: (AT+CIPMUX=1) A T+CIPSEND=< link ID>,<length>	Execute the command: A T+CIPSEND
response	Send data of the specified length . After receiving this command, it will return to line break ">", then start receiving serial port data. When the data length reaches <length>, it will send the data and return to normal command mode, waiting for the next AT command. If the connection is not established or is disconnected, returns: ERROR If the data is sent successfully, it returns: SEND OK	After receiving this command, return to the new line with " >". Enter transparent transmission mode to send data, with a maximum of 1024 bytes per packet. When a single packet of " +++" is input, it returns to the normal AT command mode. When sending " +++" to exit transparent transmission, please wait at least 1 second before sending the next AT command. This command must be used in transparent transmission mode and single connection. If UDP transparent transmission is used, the parameter <UDPmode> of the command AT+CIPSTART must be 0

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Parameter Description	• <link ID>: Network connection ID number (0~ 5), used for multiple connections • <length>: A numeric parameter indicating the length of the data to be sent . The maximum length is 1024. • [<remoteIP>]: UDP transmission can set the remote IP • [<remoteport>]: You can set the remote port for UDP transmission	

5.2.7 AT +CIPCLOSE- Close TCP , UDP , SSL transmission

Command	Setting commands (for multiple connections): AT+CIPCLOSE=<link ID>	Execute command (for single connection) : A T+CIPCLOSE
response	O K	
Parameter Description	< link ID> : The connection ID to be closed . When the ID is 5, all connections are closed. After the server is enabled, the ID of 5 is invalid.	

5.2.8 AT +CIFSR- Query the IP address and MAC address of the device

Execute Commands	A T+CIFSR
response	+ CIFSR:APIP,<S oft AP IP address> + CIFSR:APMAC,<S oft AP MAC address> + CIFSR:STAIP,<STA IP address> + CIFSR:STAMAC,<STA MAC address>
Parameter Description	< IP address> : SoftAP ip address Status ip address < MAC address> : SoftAP mac address Status mac address

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Notice	The query output of this command follows the working mode of the device. When working in Station mode, only the IP and MAC address of Station mode are output. The same applies to other modes. When set to STA or mode, the device will be assigned an IP address in STA mode only after it is connected to the router, otherwise it will be "0.0.0.0"

5.2.9 AT+CIPMUX -Set up multiple connections

Command	Query command: A T+CIPMUX?	Set the command: A T+CIPMUX=<mode>
response	+ CIPMUX:<mode> O K	
Parameter Description	< mode> : 0 : Single connection mode 1: Multi-connection mode	
Notice	The default is single connection Only in non-transparent mode (AT +CIPMODE=0), can it be set to multi-connection The connection mode must be set when no connection is established TCP server is established and you want to switch to a single connection, you must shut down the server (AT +CIPSERVER). The server only supports multiple connections.	
Example	A T+CIPMUX	

5.2.10 AT+CIPSERVER- establish T CP connection

Execute Commands	AT+CIPSERVER=< mode > ,<port> ,<type>
response	O K
Parameter Description	< mode> : 0: Shut down the server 1: Set up the server < port> : Port number, default is 333 <type>: Server type TCP (default), TLS
Notice	TCP server can be enabled only in case of multiple connections (AT +CIPMUX=1) creating a TCP server , automatically establish a TCP server listener

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	When a TCP client accesses, it will automatically occupy a connection ID
Example	A T+CIPMUX =1 A T+CIPSERVER=1,1001

5.2.11 AT+CIPMODE -Set the transmission mode

Command	Query command: A T+CIPMODE?	Set the command: A T+CIPMODE=< mode >
response	+ CIPMODE:< mode > O K	O K
Parameter Description	< mode> : 0: Normal transmission mode 1: Transparent transmission mode, only supports TCP single connection and U DP fixed communication peer	
Notice	This setting is not saved to Flash When transmitting in transparent mode, if the connection is disconnected, E103-W14 will keep trying to reconnect until CIPCLOSE is called.	
Example	A T+CIPMODE=1	

5.2.12 A T+CIPSTO- Set T CP server timeout

Command	Query command: A T+CIPSTO?	Set the command: A T+CIPSTO=< time >
response	+ CIPSTO:<time>	OK
Parameter Description	< time> : TCP server timeout, value range 0~ 7200 s	
Notice	Disconnect clients whose communication timed out	
Example	A T+CIPMUX=1 A T+CIPSERVER=1,1001 A T+CIPSTO=10	

5.2.13 AT+PING-ping the remote host

Execute Commands	A T+PING=< “host” >

response	60 bytes from <ip> <icmp_seq> <ttl> <time> OK
Parameter Description	• <host> : string parameter, indicating the IP address of the peer host • <ip>: ping target's IP • <icmp_seq>: sequence • <ttl>: The survival time of the ping packet in the network • < time> : ping response time, unit: milliseconds
illustrate	If the remote host is a domain name string, ping will first resolve the domain name through DNS and then ping the remote IP address .
Example	AT+PING="192.168.1.1" AT+PING="www.baidu.com"

5.2.14 AT+CIPSNTPCFG- Set the time zone and S NTP server

Command	Query command: A T+CIPSNTPCFG?	Set the command: A T+CIPSNTPCFG=<enable>[,<timezone>] [,<SNTP server>]
response	+ CIPSNTPCFG: <enable>[,<timezone>] [,<SNTP server>], O K	O K
Parameter Description	< enable>: 0: S NTP is not enabled 1: S NTP enabled < timezone> : time zone, range: [-11,13]; if S NTP is enabled, this parameter is required; otherwise, it is not required < SNTP server 0> : The first SNTP server	
Notice	If the setting command does not fill in S NTP server , the default is to use cn.pool.ntp.org	

5.2.15 AT+CIPSNTPTIME- Query S NTP time

Command	Query command: A T+CIPSNTPTIME?

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response	+CIPSNTPTIME:<time> O K
Parameter Description	< time>: The time obtained through S NTP query The format is as follows: +CIPSNTPTIME:2024-4-3 9-46-58
Example	A T+CWMODE=1 A T+CWJAP= E103-W14 ,12345678 A T+CIPSNTPTIME?

5.2.16 AT+CIPSSLCCONF - query/set TLS client configuration

Command	Query command: AT+CIPSSLCCONF?	Set the command: AT+CIPSSLCCONF=<LINK_ID>,<AUTH MODE>[,<PKI_NUMBER>,<CA NUMBER>]
response	+CIPSSLCCONF=<LINK_ID>,<AUTH MODE>[,<PKI_NUMBER>,<CA NUMBER>] OK	OK
Parameter Description	• <LINK_ID>: socket id • <AUTH MODE>: Authentication method 0: No authentication 1: One-way authentication • <PKI_NUMBER>: Modification is not supported yet • <CA NUMBER>: Modification is not supported yet	
Notice	Configuration should be set before connecting to tls	
Example	AT+CIPSSLCCONF=0,1	

5.2.17 AT+CIPSSLCCN - query/set TLS client common name

Command	Query command: AT+CIPSSLCCN?	Set the command: AT+CIPSSLCCN=<socket id>, <name>
response	+CIPSSLCCN=<socket id>,<name> OK	OK
Parameter Description	<socket id>: link id <name>: client name	
Notice	Configuration should be done before initiating a client connection	
Example	AT+CIPSSLCCN=0,E103-W14	

5.2.18 AT+CIPSSLCPSK - query / set SSL client PSK (string format)

Command	Query command: AT+CIPSSLCPSK?	Set the command: AT+CIPSSLCPSK=<PSK>,<PSK_HINT>
response	+CIPSSLCPSK=<PSK>, <PSK_HINT> OK	OK
Parameter Description	<PSK>: PSK identity (string format), maximum length: 32 <PSK-HINT>: PSK hint, maximum length: 32	
Notice	Note that the psk in this command cannot contain '\0'	
Example	AT+CIPSSLCPSK= 2fe2b750a610dab52fa , 1V2OAXDZ65AT&BK7238 OK	

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5.2.19 AT+CIPSSLCPSKHEX - query/set SSL client PSK (hexadecimal format)

Command	Query command: AT+CIPSSLCPSK?	Set the command: AT+CIPSSLCPSK=<PSK>,<PSK_HINT>
response	+CIPSSLCPSK=<PSK>, <PSK_HINT> OK	OK
Parameter Description	<PSK>: PSK identity (string format), hex string maximum length: 64 <PSK-HINT>: PSK hint, hex string, maximum length: 64	
Notice	Similar to the AT+CIPSSLCPSK command, this command is also used to set or query the pre-shared key (PSK) of the SSL client, but its <"psk"> parameter uses hexadecimal format instead of string format. Therefore, the \0 in the <"psk"> parameter is represented as 00.	
Example	+CIPSSLCPSKHEX:32666532623735306136313064616235326661,315632 4F4158445A3635415426424B37323338 OK	

5.2.20 AT+CIPRECONNINTV - TCP client reconnection interval

Command	Query command: AT+CIPRECONNINTV ?	Set the command: AT+CIPRECONNINTV=<TIME>
response	+CIPRECONNINTV=<T IME> OK	OK
Parameter	<TIME>: reconnection time, in seconds	

Description	
Notice	
Example	AT+CIP RECONNINTV =5;

5.2.21 AT+CIPRE CVTYP - query/set socket receive mode

Command	Query command: A T+CIPRECVMODE?	Set the command: A T+CIPRECVMODE=<mode>
response	+CIPRECVMODE:< mode >	O K
Parameter Description	• < mode> : socket data receiving mode, default value: 0 ➢ 0: Active mode, all received socket data is sent to the host MCU immediately, with the header "+IPD" ➢ 1: Passive mode, all received socket data is saved to the internal buffer (socket receiving window, the device defaults to 2048 bytes), waiting for MCU to read. For TCP and SSL connections, if the buffer is full, the socket transmission will be blocked; for UDP transmission, if the buffer is full, data loss will occur	
Description	• This configuration cannot be used in Wi-Fi transparent mode. • When receiving socket data in passive mode, different information will be prompted depending on the situation: ➢ When multiple connections are connected (AT+CIPMUX=1), the prompt is +IPD, <link ID>, <len>; ➢ When single connection is used (AT+CIPMUX=0), the prompt is +IPD,<len>. • <len> indicates the total length of the socket data in the buffer. • Once an +IPD is reported, AT+CIPRECVDATA should be run to read the data. Otherwise, the next +IPD will not be reported to the host MCU before the previous +IPD is read.	
Example	A T+CIPRECVMODE=1	

5.2.22 AT+CIPRECVDATA - Get socket data in passive receive mode

Setting	AT+CIPRECVDATA=<SOCKET ID>,<LEN>

Commands	
response	+CIPRECVDATA:<SIZE> <DATA>
Parameter Description	<SIZE>: The actual length obtained <DATA>: data

5.2.23 AT+CIPRECVLEN：Query the length of socket data in passive receiving mode

Query command	AT+CIPRECVLEN?
response	+CIPRECVLEN=<LEN0>,<LEN1>,<LEN2>,<LEN3>,<LEN4>,<LEN5>
Parameter Description	<LEN0>: The total length of data received by socket 0 link <LEN1>: The total length of data received by socket 1 link <LEN2>: The total length of data received by socket 2 link <LEN3>: The total length of data received by socket 3 link <LEN4>: The total length of data received by socket 4 link <LEN5>: The total length of data received by socket 5 link

5.2.24 AT+CIPTCPOPT: query/set socket options

Command	Query command: AT+CIPTCPOPT?	Set the command: AT+CIPTCPOPT= <link_id>,<so_linger>,<tcp_nodelay>,<so_sndtimeo>,<keep_alive>
response	+CIPTCPOPT=<link_id>,<so_linger>,<tcp_nodelay>,<so_sndtimeo>,<keep_alive>	OK

	OK	
Parameter Description	• <link_id>: Network connection ID (0 ~ max). In the case of multiple connections, if the parameter value is set to max, it means all connections. The default value of this parameter is 5. • <so_linger>: Configure the SO_LINGER option of the socket (reference: SO_LINGER introduction), unit: seconds, default value: -1. = -1: off; = 0: Enable, linger time = 0; 0: Enable, linger time = <so_linger>; • <tcp_nodelay>: Configure the TCP_NODELAY option of the socket (reference: TCP_NODELAY introduction), default value: 0. 0: Disable TCP_NODELAY 1: Enable TCP_NODELAY • <so_sndtimeo>: configure the SO_SNDTIMEO option of the socket (reference: SO_SNDTIMEO introduction), unit: milliseconds, default value: 0. • <keep_alive>: configure the SO_KEEPALIVE option of the socket (reference: SO_KEEPALIVE introduction), unit: seconds. Range: [0,7200]. 0: Disable the keep-alive function; (default) 1 ~ 7200: Enable the keep-alive function. The TCP_KEEPIDLE value is <keep_alive>, the TCP_KEEPINTVL value is 1, and the TCP_KEEPCNT value is 3.	
Notice	The relevant parameters in this command will affect the communication quality, and it is usually not recommended to modify them	
Example	AT +CIPTCPOPT = 0,-1,0,0,60	

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6 MQTT related commands

6.1 MQTT Command List

M QTT command table	
A T+MQTTUSERCFG	Setting M QTT User Configuration
A T+MQTTCONNCFG	Set up M QTT connection configuration
A T+MQTTCONN	Connect to M QTT brokers
A T+MQTTPUB	Publish M QTT information as a string
AT+MQTTPUBRAM	QTT information in binary format
A T+MQTTSUB	Subscribe to M QTT Topic
A T+MQTTUNSUB	Unsubscribe from M QTT topic
A T+MQTTCLEAN	Close the M QTT connection

6.2 MQTT Command Description

6.2.1 AT +MQTTUSERCFG - Set MQTT user configuration

Setting Commands	AT+MQTTUSERCFG=<LinkID>,<scheme>,<client_id>,<username>,<password>,<cert_key_ID>,<CA_ID>,<path>
response	O K
Parameter Description	• <LinkID> only supports link ID 0 . • <scheme> 0: MQTT over TCP . 1: MQTT over TLS (no certificate verification) • Client certificate) . • <client_id>MQTT client ID . Maximum length: 256 bytes. • <username> Username for logging into M QTT broker. Maximum length: 64 bytes. • <password> is the key for logging into M QTT broker. Maximum length: 64 bytes. • <cert_key_ID> certificate ID. Not supported yet, value should be 0 • <CA_ID> CA ID. Not supported yet, value should be 0 • <path> The path to the resource.
Notice	If the parameter contains ' , ', you need to use the escape character \ to enter
Example	AT+MQTTUSERCFG=0,1,a19SRgoKypB.ytaotest|securemode=2\,signmethod=hmacsha256\,timestamp=171263040 8378|,ytaotest&a19SRgoKypB,199de6bb2028d2eb3625aa0bbc443a40af6

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	9eee9dabf6594a7801535d0c43d8a,0,0,

6.2.2 A T +MQTTCONNCFG - Set MQTT connection configuration

Setting Commands	AT+MQTTCONNCFG=<LinkID>,<keepalive>,<disable_clean_session>,<"lwt_topic">,<"lwt_msg">,<lwt_qos>,<lwt_retain>
response	O K
Parameter Description	• <LinkID> currently only supports a link ID of 0. • <keepalive>MQTT ping timeout. Unit: seconds. Value range: [0,7200]. The default value is 0, which will be forcibly changed to 120s. • <disable_clean_session> sets MQTT to clear the session. For more details on this parameter, see the Clean Session section in MQTT version 3.1.1. • 0: Enable clearing session. • 1: Disable clearing session. • <lwt_topic> LWT (Last Will and Testament) information topic . Maximum length: 128 bytes. • <lwt_msg> LWT (Last Will and Testament) message . Maximum length: 128 bytes. • <lwt_qos> LWT Q os, can be set to 0, 1, 2. The default value is 0. • <lwt_retain> LWT retain, can be set to 0, 1. The default value is 0.
Example	• AT+MQTTCONNCFG=0,60,0,/ test,test ,0,0

6.2.3 AT +MQTTCONN - connect to MQTT brokers

Command	Query command: A T+MQTTCONN?	Set the command: AT+MQTTCONN=<LinkID>,<host>,<port>,<reconnect>
response	+MQTTCONN:<LinkID>,<state>,<scheme><host>,<port>,<path>,<reconnect> OK	O K Connection successful: +MQTTCONN:OK Failed: +MQTTCONN:ERROR
Parameter Description	Parameter Description: • <LinkID> only supports a link ID of 0 . • <host> MQTT broker domain name. Maximum length: 64 bytes. • <port> MQTT broker port number. Maximum value: port number	

	65535. • <path> path . Maximum value is 64 • < reconnect > • 0: M QTT will not automatically reconnect. • 1: M QTT will automatically reconnect. This will consume more resources. • <state> MQTT state disconnected: disconnected state connected: connected status • < scheme > 0: MQTT over TCP . 1: MQTT over TLS (no certificate verification)
Notice	

6.2.4 AT +MQTTPUB - Publish an MQTT message as a string

Setting Commands	AT+MQTTPUB=<LinkID>,<topic>,<data>,<qos>,<retain>
response	O K
Parameter Description	• <LinkID> currently only supports link ID 0 . • <topic>MQTT topic. Maximum length: 128 bytes . • <length> The length of the MQTT message • limited by the MQTT_BUFFER_SIZE_BYTE macro and available memory. The default value of MQTT_BUFFER_SIZE_BYTE is 1024 . • <data> sends data. Pay attention to escape characters. For example, “,” is replaced by “\,”. • <qos> qos message , can be set to 0, 1. Default value: 0. Qos=2 is not supported. • < retain> Release retain. Server save: 0 not save or 1 save
Notice	This command cannot send data \0 . If you need to send \0 , please use the command A T+MQTTPUBRAW instead.

6.2.5 AT +MQTTPUBRAM - Publish MQTT messages in binary

Setting	AT+MQTTPUBRAW=<LinkID>,<topic>,<length>,<qos>,<retain>

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Commands	
response	response: O K > The symbol > indicates that the AT is ready to receive serial data and data can now be input. When the message length requirement determined by the parameter <length> is met, the transmission begins . If the sending is successful, return +MQTTPUB RAW :OK If the sending fails, return +MQTTPUB RAW :FAIL
Example	AT+MQTTPUBRAW=1,topic,10,0,0
Parameter Description	• <LinkID> currently only supports link ID 0 . • <topic>MQTT topic. Maximum length: 128 bytes . • <length> The maximum length of the MQTT message is 1024 • limited by the MQTT_BUFFER_SIZE_BYTE macro and available memory. The default value of MQTT_BUFFER_SIZE_BYTE is 1024 . • <qos> qos message , can be set to 0, 1. Default value: 0. Qos=2 is not supported. • < retain> Release retain. Server save: 0 not save or 1 save

6.2.6 AT +MQTTSUB- Subscribe to M QTT topic

command	Query command: A T + MQTTSUB?	Set the command: A T + MQTTSUB =<LinkID>,<topic1>,<qos>
response	+MQTTSUB:<LinkID>,<topic1>, <qos> +MQTTSUB:<LinkID>,<topic2>, <qos> ... OK	O K When receiving an MQTT message for a subscribed topic, it will prompt +MQTTSUBRECV:<LinkID>,<topic>,<data_length>,data
Example	AT+MQTTSUB=1, topic1 ,0	
Parameter Description	• <link ID >Currently only link ID 0 is supported . • <state> • <"topic"> Subscribed topic. • <qos> The subscribed Q OS .	

6.2.7 AT+MQTTUNSUB - unsubscribe from M QTT topic

Setting Commands	AT+MQTTUNSUB=<LinkID>,<topic>
response	O K
Parameter Description	<link ID >Currently only link ID 0 is supported . <topic> M QTT topic. Maximum length: 128 bytes.

6.2.8 AT +MQTTCLEAN - Close the MQTT connection

Setting Commands	AT+MQTTCLEAN=<LinkID>
response	O K
Parameter Description	<link ID >Currently only link ID 0 is supported .

6.3 MQTT Notes

- Generally speaking, AT MQTT commands respond within 10 seconds, except for AT +MQTTCONN command. For example, if the router cannot access the Internet, AT +MQTTPUB command will respond within 10 seconds. However, AT +MQTTCONN command may take more time because of retransmission of data packets in a bad network environment.

7 HTTP related commands

7.1 HTTP command list

Command	Description
AT+HTTPCLIENT	HTTP request (get, post, put, etc.)
AT+HTTPGETSIZE	Get the resource size
AT+HTTPCGET	Get request
AT+HTTPCPOST	Post request (used when long payload

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	parameters are required)
AT+HTTPCPUT	PUT request (used when long payload parameters are required)
AT+HTTPURLCFG	Set long url
AT+HTTPCHEAD	Set multiple url heads

7.1.1 AT+HTTPCLIENT - send HTTP client request

Setting Commands	AT+HTTPCLIENT=<opt>,<content-type>,<url>,[<host>],[<path>],<transport_type>[,<data>][,<http_req_header>]
response	+HTTPCLIENT:<size>,<data> OK
Parameter Description	• <opt>: http client request method • <content-type>: client request data type • <url>: http url. When the following <host> and <path> parameters are empty, this parameter will automatically overwrite these two parameters. • <host>: domain name or IP address, port default is 80 • <path>: http path • <transport_type>: http client transport type • <data>: When <opt> is a post request, this parameter is the data sent to the http server. When <opt> is other requests, this parameter is omitted. • < http_req_header >: You can send multiple request headers to the server.
Example	AT+HTTPCLIENT=1,0,http://httpbin.org/get,httpbin.org,/get,1 //head request AT+HTTPCLIENT=2,0,http://httpbin.org/get,httpbin.org,/get,1 //get request

7.1.2 AT+HTTPGETSIZE-Get HTTP resource size

Execute Commands	AT+HTTPCGET=<url>[,<tx size>][,<rx size>][,<timeout>]

response	+HTTPCGET:<size>
Parameter Description	• <url>: http url • <tx size>: http send buffer size • <rx size>: http receive buffer size • <timeout>: network timeout • <size>: actual resource size
Example	AT+HTTPGETSIZE=http://www.baidu.com/img/bdlogo.gif

7.1.3 AT+HTTPCGET-Get HTTP resources

Execute Commands	AT+HTTPCGET=<url>[,<tx size>][,<rx size>][,<timeout>]
response	+HTTPCGET:<size>,<data> OK
Parameter Description	• <url>: http url • <tx size>: http send buffer size • <rx size>: http receive buffer size • <timeout>: network timeout • <size>: actual resource size • <data>: http response data
Example	AT+HTTPCGET=http://httpbin.org/get

7.1.4 AT+HTTPCPOST-Post HTTP data of specified length

Execute Commands	AT+HTTPCPOST=<url>,<length>
response	OK SEND OK +RSP:<SIZE>,<DATA>

	OK
Parameter Description	• <url>: http url • <length>: the length of the data to be posted • <size>: The length of the payload returned by the server • <data>: data returned by the server
Example	AT+HTTPCPOST=http://httpbin.org/post,10 1234567890

7.1.5 AT+HTTPCPUT-Put HTTP data of specified length

Execute Commands	AT+HTTPCPOST=<url>,<length>
response	OK SEND OK +RSP:<SIZE>,<DATA> OK
Parameter Description	• <url>: http url • <length>: the length of the data to be put • <size>: The length of the payload returned by the server • <data>: data returned by the server
Example	AT+HTTPCPUT=http://httpbin.org/put,10 1234567890

7.1.6 AT+HTTPURLCFG - Set/get long HTTP URL

command	Query command: AT+HTTPURLCFG?	Set the command: AT+HTTPURLCFG =< url length >
response	[+HTTPURLCFG:<url length>,<data>]	OK >

	OK	OK
Parameter Description	• <url length>: length of the URL [8-1024] • <data>: url (string)	
Notice	When the URL is not set, the command only returns OK, and the data is not saved when the power is turned off.	
Example	AT+HTTPURLCFG =22 http://httpbin.org/get	

7.1.7 AT+HTTPCHEAD - Set/query HTTP request header

command	Query command: AT+HTTPCHEAD?	Set the command: AT+HTTPCHEAD =<header length>
response	[+HTTPCHEAD:<index>,<req_header>] OK	OK > OK
Parameter Description	• <index>: index value of the http request header • <req_header>: http request header • <header length>: request header length 0: Clear all request headers that are set Others: Set a new request header.	
Notice	When no request header is set, the query will only return OK	
Example	AT+HTTPCHEAD =17 Accept: text/html	

8 BLE related commands

8.1 BLE command list

AT+BLEINIT	Bluetooth LE Initialization
AT+BLEADDR	Setting the Bluetooth LE device address

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AT+BLENAME	Query/set Bluetooth LE device name
AT+BLESCANPARAM	Query/set Bluetooth LE scan parameters
AT+BLESCAN	Enable Bluetooth LE scanning
AT+BLESCANRSPDATA	Setting up Bluetooth LE scan response
AT+BLEADVPARAM	Query/set broadcast parameters
AT+BLEADVDATA	Set broadcast data
AT+BLEADVDATAX	Automatically set broadcast data
AT+BLEADVSTART	Start Broadcasting
AT+BLEADVSTOP	Stop Broadcasting
AT+BLEGATTSNTFY	The server notifies the client of the service characteristic value
AT+BLEGATTSIND	The server indicates the service characteristic value to the client
AT+BLESPPCFG	Query Bluetooth LE SPP parameters
AT+BLESPP	Enter Bluetooth LE SPP mode

8.1.1 AT+BLEINIT - Bluetooth LE initialization

Command	Query command: AT+BLEINIT?	Set the command: AT+BLEINIT=<ROLE>
response	+BLEINIT=<ROLE> OK	OK
Parameter Description	• <ROLE>: BLE initialization role 0: Uninitialized 1: Host (not supported yet) 2: Slave	
Notice	/	
Example	AT+BLEINIT=2	

8.1.2 AT+BLEADDR - Query Bluetooth LE device address

Query command	AT+BLEADDR?
response	+BLEADDR :<MAC>

	OK
Parameter Description	<MAC>: mac address
Notice	The mac address is affected by the sta slave address. If you want to modify it, please modify the sta mac address
Example	AT+BLEADDR?

8.1.3 AT+BLENAME - query/set Bluetooth LE device name

Command	Query command: AT+BLENAME?	Set the command: AT+BLENAME=<BLE NAME>
response	+BLENAME=<BLE NAME> OK	OK
Parameter Description	<BLE NAME>: BLE device name	
Notice	IOS uses this to modify the name, and Android uses AT+BLEADVDATA to modify the name. .	
Example	AT+BLENAME=E103-W14	

8.1.4 AT+BLESCANPARAM - query/set Bluetooth LE scan parameters

command	Query command: AT+BLESCANPARAM?	Set the command: AT+BLESCANPARAM=<SCAN TYPE>,<OWN ADDR TYPE>,<SCAN INTERVAL>,<SCAN WINDOW>
response	+BLESCANPARAM=<S	OK

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	CAN TYPE>,<OWN ADDR TYPE>,<SCAN INTERVAL>,<SCAN WINDOW> OK	
Parameter Description	• <SCAN TYPE>: Scan type 0: Passive scanning 1: Active scanning • <OWN ADDR TYPE> 0: Public address 1: Random address • <SCAN INTERVAL>: Scan interval. This parameter value should be greater than or equal to the <SCAN WINDOW> parameter value. Range [4,4000] • <SCAN WINDOW>: Scan window. This parameter value should be less than or equal to <SCAN INTERVAL>. Range [4, 4000]	
Notice	Note that the time unit of the scan interval and scan window is 0.625 milliseconds	
Example	AT+BLESCANPARAM=0,0,100,50	

8.1.5 AT+BLESCAN - Enable Bluetooth LE scanning

Setting Commands	AT+BLESCAN=<ENABLE>[,<RESERVED>,<FILTER TYPE>,<FILTER PARAM>]
response	+BLESCAN:<MAC>,<RSSI>,<DATA>,<ADDR TYPE>
Parameter Description	• <ENABLE> 1: Start continuous scanning 0: Stop scanning • <RESERVED> Reserved field

	• <FILTER TYPE> Filter options 1: mac 2: name • <FILTER PARAM>: Determined by the filter option. • <MAC>: Scan the mac of the broadcasting device • <RSSI>: RSSI of the broadcasting device scanned • <DATA>: broadcast content • <ADDR TYPE>: MAC address type of the broadcasting device
Example	AT+BLESCAN=1, 0 ,2, E103-W14

8.1.6 AT+BLESCANRSPDATA - Set Bluetooth LE scan response

Execute Commands	AT+BLESCANRSPDATA=<RSP DATA>
response	OK
Parameter Description	<RSP DATA>: Scan and reply broadcast data
Notice	The parameter is a hex string. That is, if you want to set the broadcast data to "0x01 02 03 04 06", the command should be AT+BLESCANRSPDATA=0102030406
Example	AT+BLESCANRSPDATA=0102030406

8.1.7 AT+BLEADVPARAM - query/set Bluetooth LE broadcast parameters

Command	Query command: AT+BLEADVPARAM?	Set the command: AT+BLEADVPARAM=<ADV INT

		MIN>,<ADV INT MAX>,<CHANNEL MAP>
response	+BLEADVPARAM=<ADV INT MIN>,<ADV INT MAX>,<CHANNEL MAP> OK	OK
Parameter Description	• <ADV INT MIN>: minimum broadcast interval, range [20,4000], unit 0.625ms • <ADV INT MAX>: Maximum broadcast interval, range [20, 4000], unit 0.625ms • <CHANNEL MAP>: Broadcast channel 1:37 2:38 4:39 7: ALL	
Notice		
Example	AT+BLEADVPARAM =160,160,7	

8.1.8 AT+BLEADVDATA - Set Bluetooth LE broadcast data

Setting Commands	AT+BLEADVDATA=<ADV DATA>
response	OK
Parameter Description	• <ADV DATA>: Broadcast data
Example	AT+BLEADVDATA=0909453130335F573134

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8.1.9 AT+BLEADVDATAEX - Automatically set Bluetooth LE advertising data

Command	Query command: AT+BLEADVDATAEX ?	Set the command: AT+BLEADVDATAEX=<dev_name>,<uuid>, <manufacturer_data>
response	+BLEADVDATAEX = <dev_name>,<uuid>,<m anufacturer_data> OK	OK
Parameter Description	• <dev_name>: device name • <uuid>: UUID in broadcast • <manufacturer_data> : Manufacturer data	
Example	·	

8.1.10 AT+BLEADVSTART - Start Bluetooth LE broadcast

Execute Commands	AT+BLEADVSTART
response	OK
Parameter Description	Start Broadcasting
Example	AT+BLEADVSTART

8.1.11 AT+BLEADVSTOP - Stop Bluetooth LE broadcast

Execute Commands	AT+BLEADVSTOP
response	OK

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Parameter Description	Stop Broadcasting
Example	AT+BLEADVSTOP

8.1.12 AT+BLEGATTSNTFY - server notify service characteristic value to client

Execute Commands	AT+BLEGATTSNTFY=<LENGTH>
response	> OK
Parameter Description	• <LENGTH>: Send data length, the maximum length is 251.
Example	AT+BLEGATTSNTFY=5

8.1.13 AT+BLEGATTSIND - server indicates service characteristic value to client

Execute Commands	AT+BLEGATTSIND=<LENGTH>
response	> OK
Parameter Description	• <LENGTH>: Send data length, the maximum length is 251
Example	AT+BLEGATTSNTFY=5

8.1.14 AT+BLESPPCFG - Query Bluetooth LE SPP parameters

Query command	AT+BLESPPCFG?
response	+BLESPPCFG: <tx_service_index>,<tx_char_index>,<rx_service_index>,<rx_char_index> OK
Parameter Description	• <tx_service_index> : Send server serial number • <tx_char_index> : Send characteristic sequence number • <rx_service_index> : receiving server serial number • <rx_char_index> : Receive characteristic sequence number
Example	AT+BLESPPCFG?

8.1.15 AT+BLESPP - Enter Bluetooth LE SPP mode

Execute Commands	AT+BLESPP
response	>
Parameter Description	/
Example	AT+BLESPP

8.1.16 AT+BLEGATTUUID - Configure BLE GATT service UUID

Command	Query command: AT+BLE GATTUUID?	Set the command: AT+ BLEGATTUUID =< writ_uuid > , < notify_uuid >, < ind_uuid >

response	AT+BLEADVDATAEX=<writ_uuid>,<notify_uuid>,<ind_uuid> OK	AT+ BLEGATTUUID =< writ_uuid > , < notify_uuid >, < ind_uuid >
Parameter Description	• <write_uuid>: Send the uuid of the data feature to the module • <notify_uuid>: module notifies data to external uuid • < ind_uuid > : module ind data to external uuid	
Example	·	

9 Update Record

Version	Time	Content	Modified by
V1.0	2024-5-15	First edition	Yongtao
V1.1	2025-3-4	Content Revision	Hao
V1.2	2025-3-13	Content Revision	Hao
V1.3	2025-4-11	Content Revision	Hao
V1.4	2025-6-10	Content Revision	Hao
V1.5	2026-8-17	Content Revision	Hao

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