E103-W14 AT

Command Manual



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1 Overview

This document describes the meaning, syntax, responses, and examples of AT commands for Ebyte W14 series products.

2 Features and Functions

- Support power-on transparent transmission
- Support multiple baud rates
- Support SmartConfig network configuration
- Support BLE network configuration
- Support TCP Server, TCP Client, UDP, MQTT
- Three working modes: STATION, AP, STATION&AP
- Support serial transparent transmission
- Support multiple encryption methods
- Support module configuration via serial AT commands
- Parameters saved after power off

3 Command Description

AT commands are classified into four types:

Type	Command Format	Description
Test Command	AT+<x>=?	Query parameters and value ranges of the set command.
Query Command	AT+<x>?	Return current parameter values.
Set Command	AT+<x>=<…>	Set user-defined parameter values.
Execute Command	AT+<x>	Execute fixed functions controlled by internal firmware.

Notes:

- Not every AT command supports all four types.
- Parameters in [ ] are optional defaults.
- Double quotes denote string data: "String".
- Default baud rate: 115200.
- Commands are case-insensitive.
- Terminated with CRLF; set serial 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
0X06	EBYTE_AT_RESPONSE_NO_TYPE
0X07	EBYTE_AT_RESPONSE_NO_INVALID
0X08	EBYTE_AT_RESPONSE_NO_PARSE
0X09	EBYTE_AT_RESPONSE_NO_UNSUPPORT
0X0A	EBYTE_AT_RESPONSE_NO_EXEC

Prompt	Description
ready	Module initialization completed

3.1 System Control Command List

Command	Description
AT	Test AT startup
AT+RST	Reset module
AT+GMR	Query version information
AT+GSLP	Enter Deep- sleep mode
ATE	Enable or disable the echo function.
AT+RESTORE	Restore factory default settings
AT+SAVETRAMSLINK	Set power-on WiFi transparent transmission mode
AT+UART_CUR	Set temporary UART configuration (not saved to Flash)
AT+UART_DEF	Set default UART configuration (saved to Flash)
AT+SLEEP	Set sleep mode
AT+SLEEPWKCFG	Set Light- sleep timer wakeup
AT+SYSLOG	Enable or disable AT error code prompts.
AT+SYSSTORE	Set parameter storage mode

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3.2 System Control Command Description

3.2.1 AT - Test AT Startup

Execute Command	AT
Response	OK
Parameter Description	-

3.2.2 AT+RST - Reset Module

Execute Command	AT+RST
Response	OK
Parameter Description	-

3.2.3 AT+GMR - Query Version Information

Execute Command	AT+RST
Response	<AT version info> OK
Parameter Description	-

3.2.4 AT+GSLP - Enter Deep- sleep Mode

Set Command	AT+GSLP=<time>
Response	<time> OK
Parameter Description	• <time>: Duration for the device to enter Deep-sleep mode, in milliseconds. The device will wake up automatically when the set time is reached. • The value range of <time> is 1000-65535000.
Notes	Due to external factors, the actual duration of all devices in Deep-sleep mode may differ from the theoretical duration

3.2.5 ATE - Enable or disable the AT echo function

Execute Command	ATE0 or ATE1
Response	OK

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Parameter Description	ATE0: Disable echo ATE1: Enable echo (default)

3.2.6 AT+RESTORE - Restore Factory Settings

Execute Command	AT+RESTORE
Response	OK
Parameter Description	This command will erase all parameters saved to flash and restore them to default parameters.

3.2.7 AT+SAVETRANSLINK - Set power-on WiFi transparent transmission mode

Set Command	AT+SAVETRANSLINK=<mode>,<remote_host>,<remote_port>,[<type>,<keep_alive>]
Response	OK
Parameter Description	• <mode>: Disable or enable the module to enter WiFi transparent transmission mode on power-on 0: Disable entering transparent transmission mode on power-on. 1: Enable entering WiFi transparent transmission mode on power-on. • <remote_host>: String parameter, indicating the remote IPv4 address. • <remote_port>: Listening port of the remote server • <type>: Connection type, indicating transmission type: TCP, UDP, TLS. Default value is TCP. • <keep_alive>: Configure socket SO_KEEPALIVE option, unit (seconds).
Notes	Only support TCP client in station mode
Examples	-

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

Command	Query Command: AT+UART_CUR?	Set Command: AT+UART_CUR=<baudrate>,<databits>,<stopbits>,<parity>,<flow control>
Response	+UART_CUR: <baudrate>,<databits>,<stopbits>,<parity>,<flow control> OK	OK
Parameter Description	• <baudrate>: UART baud rate, range [4800, 2000000] • <databits>: Data bits 0: 5 bit data bits	

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	1: 6 bit data bits 2: 7 bit data bits 3: 8 bit data bits • <stopbits>: Stop bits 0: 1 bit stop bit 1: 1.5 bit stop bit • <parity>: Parity 0: None 1: Odd 2: Even • <flow control>: Flow control 0: Disable flow control
Notes	• This setting is not saved in flash. • Flow control is not supported in this version.
Examples	AT+UART_CUR=115200,3,0,0,0

3.2.9 AT+UART_DEF - Set default UART configuration, saved to 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
Parameter Description	• <baudrate>: UART baud rate, range [4800, 2000000] • <databits>: Data bits 0: 5 bit data bits 1: 6 bit data bits 2: 7 bit data bits 3: 8 bit data bits • <stopbits>: Stop bits 0: 1 bit stop bit 1: 1.5 bit stop bit • <parity>: Parity 0: None 1: Odd 2: Even • <flow control>: Flow control 0: Disable flow control	
Notes	• This setting is not saved in flash. • Flow control is not supported in this version.	

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Examples	AT+UART_DEF=115200,3,0,0,0

3.2.10 AT+SLEEP - Set sleep mode

Set Command	AT+SLEEP=<sleep mode>
Response	OK
Parameter Description	<sleep mode>: 1: Low-voltage sleep mode 2: Deep sleep mode
Notes	• 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 only has a 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 return 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 tasks to process, it automatically enters the IDLE task, and 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 voltages of AON and VDDDIG are upgraded to normal voltages. In the low-voltage state, only wake-up sources (GPIO, RTC) can make the system exit low voltage and return to normal voltage mode. To achieve optimal power consumption, please turn off unnecessary modules before entering low voltage, and turn them on again after exiting low voltage. • Deep sleep is the most power-saving sleep mode. In this mode, the system only has a 32K clock, and only some hardware modules are working at this time; all hardware modules except the AON module have been 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 resets. In the deep sleep state, only wake-up sources (GPIO, RTC) can make the system exit deep sleep. In this mode, the 32K clock source uses ROSC 32K by default.
Examples	AT+SLEEP=1

3.2.11 AT+SLEEPWKCFG - Set Light-sleep timer wakeup

Set Command	AT+SLEEPWKCFG= <wakeup source>, <param1>, [<param2>]
Response	OK
Parameter Description	• <wakeup source>: Wakeup source 0: Reserved configuration, not supported yet. 1: Reserved configuration, not supported yet. 2: GPIO wakeup • <param1>:

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	When the wakeup source is a timer, this parameter indicates the sleep time, in milliseconds. When the wakeup source is GPIO, this parameter indicates the GPIO pin • <param2>: When the wakeup source is GPIO, this parameter indicates the wakeup level. 0: Low level 1: High level
Notes	-
Examples	// 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 Command: AT+SYSSTORE=<MODE>
Response	+SYSSTORE:<MODE> OK	OK
Parameter Description	• <MODE>: Parameter storage mode 0: Command configurations are not stored in flash. 1: Command configurations are stored in flash (default).	
Notes	• This command only affects set commands, not query commands. • This command only affects some commands, see the description of each command for details.	
Examples	AT+SYSSTORE=1 OK	

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

Command	Query Command: AT+SYSLOG?	Set Command: AT+SYSLOG=<ENABLE>
Response	+SYSSTORE:<ENABLE> OK	OK
Parameter Description	• <ENABLE>: Enable or disable error code prompts 0: Disable (default). 1: Enable.	
Notes	• This command only affects set commands, not query commands. • This command only affects some commands, see the description of each command for details	
Examples	AT+SYSLOG=1	

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3.2.14 AT+MODBUSEN - Enable or disable Modbus - TCP function

Command	Query Command: AT+MODBUSEN?	Set Command: AT+ MODBUSEN=<ENABLE>
Response	+SYSMODEBUSEN:<ENABLE> OK	OK
Parameter Description	• <ENABLE>: Enable or disable Modbus 0: Disable (default). 1: Enable.	
Notes	-	
Examples	AT+MODBUSEN=1 OK	

3.2.15 AT+IPDHEADER - Enable or disable TCP transmission prompts

Command	Query Command: AT+IPDHEADER?	Set Command: AT+IPDHEADER =<ENABLE>
Response	+SYSIPDHEADER:<ENABLE> OK	OK
Parameter Description	• <ENABLE>: Enable or disable TCP transmission prompts 0: Disable. 1: Enable (default).	
Notes	-	
Examples	AT+IPDHEADER =1 OK	

3.2.16 AT+FIAP - Enter serial upgrade mode

Execute Command	AT+FIAP
Response	OK
Parameter Description	Used with the host computer software

4 Basic Function Commands

4.1 Basic Function Command List

Command	Description

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AT+CWMODE	Set device working mode (STA/AP/STA+AP)
AT+CWSTATE	Query Wi-Fi status and information
AT+CWJAP	Connect to AP
AT+CWLAPORT	Set attributes of scan results for AT+CWLAP
AT+CWLAP	Start scanning
AT+CWQAP	Disconnect from AP
AT+CWSAP	Configure SoftAP parameters
AT+CWLIF	Query information of slaves connected to the module in AP mode
AT+CWQIF	Disconnect STA from AP
AT+CWDHCP	Enable or disable DHCP
AT+CWAUTOCONN	Auto connect to AP on power-on
AT+CIPSTAMAC	Query/set MAC address of the module in STA mode
AT+CIPAPMAC	Query/set MAC address of the module in AP mode
AT+CIPSTA	Query/set IP address of the module in STA mode
AT+CIPAP	Query/set IP address of the module in AP mode
AT+CWSTARTSMART	Start SmartConfig
AT+CWSTOPSMART	Stop SmartConfig
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: AT+CWMODE?	Set Command: AT+CWMODE=<mode>,[<auto_connect>]
Response	+CWMODE:<mode>,<auto_connect> OK	OK
Parameter Description	• <mode>: 0: Station mode 1: SoftAP mode • <auto_connect>: If it is station mode, it indicates whether to automatically connect to AP on power-on: 0: Disable auto connection. 1: Enable auto connection.	
Notes	This command only affects the power-on state. If you need to be in STA/SoftAP mode at the same time, you only need to use AT+CWJAP and AT+CWSAP commands sequentially.	

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Examples	AT+CWMODE=1

4.2.2 AT+CWSTATE - Query Wi-Fi status in STA mode

Query Command	AT+CWSTATE?
Response	+CWSTATE:<STATE>,<SSID>
Parameter Description	<STATE>: Wi-Fi status in STA mode 0: Station has not made any Wi-Fi connection 1: Station has connected to AP but not obtained IPv4 address 2: Station has connected to AP and obtained IPv4 address 3: Station is connecting or reconnecting to Wi-Fi 4: Station is in Wi-Fi disconnected state<SSID>: SSID of the AP currently connected by STA

4.2.3 AT+CWJAP - Query/set connection to the specified AP

Command	Query Command: AT+CWJAP?	Set Command: AT+CWJAP=<ssid>,<pwd>
Response	+CWJAP:<ssid>,<passwd>	OK or +CWJAP:<error code>FAIL
Parameter Description	<ssid>: SSID of target AP <passwd>: Connection password of target AP	
Notes	Only 2.4G Wi-Fi can be connected	
Examples	AT+CWJAP=E103-W14,12345678	

4.2.4 AT+CWLAPOPT - Set attributes of scan results for AT+CWLAP

Command	Query Command: AT+CWLAPOPT?	Set 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 mask, default value: 0x7FF <rssi filter>: RSSI filter value, range: [-100,40] <authmode mask>: Authentication mode filter mask (not supported yet)	

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4.2.5 AT+CWLAP - Scan AP information around the device

Execute Command	AT+CWLAP
Response	+CWLAP:<SSID>,<BSSID>,<RSSI>,<CH>,<ENC>
Parameter Description	<SSID>: SSID name of scanned AP <BSSID>: BSSID value of scanned AP <RSSI>: Signal strength <CH>: Channel used by AP <ENC>: Encryption method used by AP

4.2.6 AT+CWSAP - Configure SoftAP parameters

Command	Query Command: AT+CWSAP?	Set Command: AT+CWSAP=<ssid>,<pwd>,<chl>,<ecn> [,<ssid hidden>]
Response	+CWSAP=<ssid>,<pwd>,<chl>,<ecn> ,<ssid hidden>	OK or ERROR
Parameter Description	• <ssid>: String parameter, SSID of AP • <pwd>: String parameter, password length range: 8-32 ASCII bytes • <chl>: Channel number, 0-13 • <ecn>: Encryption method, WEP not supported 0: OPEN 6: WPA2_PSK •[<ssid hidden>](Optional parameters)： Default 0, enable broadcasting SoftAP SSID Broadcast SSID1 Do not broadcast SSID	
Notes	If you want to set an open network, the <pwd> field needs to be empty, i.e., AT+CWSAP=E103-W14,,1,0,0. When the <pwd> field is not empty, the default value of <enc> is 6	
Examples	AT+CWSAP=E103-W14,12345678,1,6,0	

4.2.7 AT+CWLIF - Query Station information connected to SoftAP

Execute Command	Execute Command: AT+CWLIF?
Response	+CWLIF:<index>,<ip addr>,<mac> OK
Parameter Description	• <index>: Station ID • <ip addr>: IP address of Station connected to E103-W14 SoftAP

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	• <mac>: MAC address of Station connected to E103-W14 SoftAP
Notes	This command cannot query static IP, and is only valid when both E103-W14 SoftAP and connected Station have DHCP enabled

4.2.8 AT+CWQAP - Disconnect from the AP

Execute Command	Execute Command: AT+CWQAP
Response	OK
Parameter Description	-

4.2.9 AT+CWDHCP - Set DHCP

Command	Query Command: AT+CWDHCP?	Set Command: AT+CWDHCP=<en>,<mode>
Response	+CWDHCP:3	OK
Parameter Description	• Bit0: 0: Disable SoftAP DHCP 1: Enable SoftAP DHCP • Bit1: 0: Disable Station DHCP 1: Enable Station DHCP	• <en>: 0: Disable DHCP 1: Enable DHCP • <mode>: 1: Set E103-W14 Station 2: Set E103-W14 SoftAP 3: Set E103-W14 SoftAP and Station
Notes	This setting is saved to Flash. This command interacts with static IP setting commands (AT+CIPSTA series and AT+CIPAP series): Enable DHCP, static IP becomes invalid; Set static IP, DHCP is disabled; The last setting takes effect.	
Examples	AT+CWDHCP=0,3 // Disable the DHCP function of the SoftAP and Station modes	

4.2.10 AT+CWAUTOCONN - Enable or disable automatic AP connection on power-on

Execute Command	AT+CWAUTOCONN=<enable>
Response	OK
Parameter Description	• <enable>: 0: Do not auto connect to AP on power-on 1: Auto connect to AP on power-on
Notes	When the value of sysstore is 1, this command will be saved to flash

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Examples	AT+CWAUTOCONN=0

4.2.11 AT+CIPSTA - Set IP address for E103-W14 Station

Command	Query Command: AT+CIPSTA?	Set Command: AT+CIPSTA=<ip>,<gateway>,<netmask>
Response	+CIPSTA：<ip>,<gateway>,<netmask> OK	OK
Parameter Description	• <ip>: String, IP address of E103-W14 Station • <gateway>: Gateway • <netmask>: Subnet mask	
Notes	AT+DHCP settings affect this command; static IP is invalid when dynamic IP is set.	
Examples	AT+CIPSTA="192.168.1.100","192.168.1.1","255.255.255.0"	

4.2.12 AT+CIPAP - Set IP address for E103-W14 SoftAP

Command	Query Command: AT+CIPAP?	Set Command: AT+CIPAP=<ip>,<gateway>,<netmask>
Response	+CIPAP： <ip>,<gateway>,<netmask> OK	OK
Parameter Description	• <ip>: String, IP address of Station • <gateway>: Gateway • <netmask>: Subnet mask	
Notes	AT+DHCP settings affect this command; static IP is invalid when dynamic IP is set.	
Examples	AT+CIPAP="192.168.1.100","192.168.1.1","255.255.255.0"	

4.2.13 AT+CIPSTAMAC - Set MAC address for E103-W14 Station

Command	Query Command: AT+CIPSTAMAC?	Set Command: AT+CIPSTAMAC=<mac>
Response	+CIPSTAMAC:<mac> OK	OK
Parameter Description	<mac>: String parameter, MAC address of Station.	
Description	• SoftAP MAC address is different from Station MAC address; do not set the same MAC address for both • Bit 0 of MAC address cannot be 1, e.g., MAC address can be "1a:..." but not "15:..." • FF:FF:FF:FF:FF:FF and 00:00:00:00:00:00 are invalid addresses and cannot be set • Takes effect immediately, not saved after power failure	

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Examples	AT+CIPSTAMAC=22:6D:CD:09:37:23

4.2.14 AT+CIPAPMAC - Set MAC address for E103-W14 SoftAP

Command	Query Command: AT+CIPAPMAC?
Response	+CIPAPMAC:<mac> OK
Parameter Description	<mac>: String parameter, MAC address of SoftAP
Description	AP MAC address is automatically determined after STA setting
Examples	AT+CIPAPMAC?

4.2.15 AT+CWCOUNTRY - Set country code

Command	Query Command: AT+CWCOUNTRY?	Set 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 country code to that of the AP connected by the module 1: Do not change country code, always keep the one set by this command • <CITY_CC>: Country code, max length: 3 characters, refer to ISO 3166-1 alpha-2 standard • <CITY_STARTCH>: Start channel, range: [1,14] • <CITY_TOTALCH>: Total number of channels • <MAX_TXPOWER>: Limit maximum transmit power. 0 means no limit	
Notes	Configuration changes are not saved to flash	
Examples	AT+CWCOUNTRY=1,CN,1,13,0	

4.2.16 AT+CWSTARTSMART - Start SmartConfig

Command	Set Command: AT+CWSTARTSMART=<type>
Response	OK
Parameter Description	<type>:

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	1：ebyte ble smart cfg 2：AirKiss
Notes	Only supported in single Station mode. Do not execute other commands during SmartConfig.
Examples	AT+CWMODE=1 AT+CWSTARTSMART

4.2.17 AT+CWSTOPSMART - Stop SmartConfig

Execute Command	AT+CWSTOPSMART
Response	OK
Parameter Description	-
Notes	Call AT+CWSTOPSMART to release memory regardless of SmartConfig success
Examples	AT+CWSTOPSMART

5 TCP/IP Related Commands

5.1 TCP/IP Command List

Command	Description
AT+CIPDOMAIN	Domain name resolution
AT+CIPSTART	Establish TCP, UDP or TLS connection
AT+CIPSTARTX	Establish TCP, UDP or TLS connection in multi-link mode, auto assign link ID
[For transparent mode only] +++	Exit transparent transmission mode
AT+CIPSEND	Send data
AT+CIPCLOSE	Close TCP/UDP/SSL transmission
AT+CIFSR	Query device IP address and MAC address
AT+CIPMUX	Set multi-connection
AT+CIPSERVER	Establish TCP server
AT+CIPMODE	Set transmission mode
AT+CIPSTO	Set TCP server timeout
AT+CIPSNTPCFG	Set time zone and SNTP server
AT+CIPSNTPTIME	Query SNTP time
AT+CIPSSLCCONF	Query/set TLS client configuration
AT+CIPSSLCCN	Query/set TLS client common name
AT+CIPSSLCPSK	Query/set SSL client PSK (string format)
AT+CIPSSLCPSKHEX	Query/set SSL client PSK (hex format)
AT+CIPRECONNINTV	TCP client reconnection interval

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AT+CIPRECVTYPE	Query/set socket reception mode
AT+CIPRECVDATA	Get socket data in passive reception mode
AT+CIPRECVLEN	Query length of socket data in passive reception mode
AT+PING	Ping remote host
AT+CIPTCPOPT	Query/set socket options
AT+CIPDNS	Query/set custom DNS server information

5.2 TCP/IP Command Description

5.2.1 AT+CIPDNS - Query/set DNS server information

Set Command	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 0: Enable auto DNS acquisition; DNS servers revert to 208.67.222.222 and 8.8.8.8; updated only after ESP32 STA completes DHCP 1: Enable manual DNS setup; use defaults if no <DNS IPx> provided <DNS IPx>: DNS server IP address. This parameter is valid only when the <enable> parameter is set to 1, which means manual DNS configuration is enabled.
Examples	AT+CIPDNS=1,"208.67.222.222","114.114.114.114","8.8.8.8"

5.2.2 AT+CIPDOMAIN - Domain name resolution function

Set Command	AT+CIPDOMAIN=<domain name>
Response	+CIPDOMAIN:<IP address>
Parameter Description	<domain name>: Domain name to resolve, max length <64>
Examples	AT+CWMODE=1 //Set station mode AT+CWJAP=xx,xx //an AP device connected to the WAN is required for connection AT+CIPDOMAIN=www.baidu.com //domain name resolution

5.2.3 AT+CIPSTART - Establish TCP, UDP or SSL connection

TCP Transmission：

Set Command	Single connection TCP (AT+CIPMUX=0): AT+CIPSTART=<type>,<remote	Multi-connection TCP (AT+CIPMUX=1): AT+CIPSTART=,<type>,<remote IP>,<remote port>[,<TCP keep alive>]

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	IP>,<remote port>[,<TCP keep alive>]	
Response	OK or ERROR	
Parameter Description	• <link ID> Connection ID, 0-5 in multi-link • <type>: TCP, UDP, TLS • <remote IP>: Remote IP • <remote port>: Remote port • <TCP keep alive>: Socket option	
Examples	AT+CIPSTART=TCP,192.168.4.2,1000	

UDP Transmission：

Set Command	Single connection UDP (AT+CIPMUX=0):AT+CIPSTART=<type>,<remote IP>,<remote port>[,<local port>]	Multi-connection UDP (AT+CIPMUX=1):AT+CIPSTART=,<type>,<remote IP>,<remote port>,<remote port>[,<local port>]
Response	OK or ERROR If the connection already exists, ALREADY CONNECT will be returned.	
Parameter Description	• <link ID> : Network connection ID (0 to 4) 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>: Local listening port for UDP transmission; other devices can send UDP data to the E103-W14 device through this port.	
Examples	AT+CIPSTART=UDP,192.168.4.10,9527,9527	

SSL Connection：

Set Command	AT+CIPSTART=[<link ID>,]<type>,<remote IP>,<remote port>[,<TCP keep alive>]
Response	OK or ERROR If the connection already exists, ALREADY CONNECT will be returned.
Parameter Description	• <link ID> : Network connection ID (0 to 5) 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 the TCP keep-alive function. 1~7200: Detection time in seconds.
Notes	Transparent transmission is not supported for SSL connections.SSL connections require a large amount of memory space; insufficient space will cause the system to reboot.
Examples	AT+CIPSTART=SSL,www.baidu.com,443

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5.2.4 AT+CIPSTARTX - Establish TCP, UDP or SSL Connection (Auto-assign Link ID in Multi-link Mode)

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

5.2.5 +++ - Exit Transparent Transmission Mode

Special Execute Command	+++
Function	Exit transparent transmission mode and enter AT configuration mode.
Parameter Description	ENTER AT MODE
Parameter Description	• This command is only applicable in transparent transmission mode. • This special execute command consists of three identical '+' characters (ASCII code: 0x2b), and there is no CR-LF character at the end of the command. • There is no response for this special execute command.

5.2.6 AT+CIPSEND - Send Data

Command	Set Command: 1. For single connection (AT+CIPMUX=0):AT+CIPSEND=<length> 2. 2. For multiple connections (AT+CIPMUX=1):AT+CIPSEND=,<length>	Execute Command: AT+CIPSEND
Response	Send data of the specified length. After receiving this command, return ">" first, then start receiving serial data. When the data length reaches <length>, send the data and return to normal command mode to wait for the next AT command. If no connection is established or the connection is disconnected, return ERROR. Return SEND OK if the data is sent successfully.	After receiving this command, return ">" first and enter transparent transmission mode to send data; the maximum size of each packet is 1024 bytes. When a single packet of "+++" is entered, return to normal AT command mode. Please wait at least 1 second before sending the next AT command after sending "+++" to exit transparent transmission. This command must be used when transparent transmission mode is enabled and single connection is active. For UDP transparent transmission, the <UDPmode> parameter of the AT+CIPSTART command must be set to 0.
Parameter Description	• <link ID>: Network connection ID (0 to	

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	5) for multiple connections. • <length>: Numeric parameter indicating the length of data to be sent; maximum length is 1024 bytes. • [<remoteIP>]: Peer IP address can be set for UDP transmission. • [<remoteport>]: Peer port can be set for UDP transmission.	

5.2.7 AT+CIPCLOSE - Close TCP, UDP or SSL Transmission

Command	Set Command (for multiple connections):AT+CIPCLOSE=	Execute Command (for single connection):AT+CIPCLOSE
Response	OK	
Parameter Description	<link ID>: ID of the connection to be closed. When the ID is 5, all connections will be closed. ID 5 is invalid after the server is enabled.	

5.2.8 AT+CIFSR - Query the IP Address and MAC Address of the Device

Execute Command	AT+CIFSR
Response	+CIFSR:APIP,<SoftAP IP address> +CIFSR:APMAC,<SoftAP MAC address> +CIFSR:STAIP,<STA IP address> +CIFSR:STAMAC,<STA MAC address>
Parameter Description	<IP address>: SoftAP IP address Station IP address <MAC address>: SoftAP MAC address Station MAC address
Notes	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, and the same applies to other modes. When set to STA mode, the Station will be assigned an IP address only after the device connects to the router; otherwise, it will be "0.0.0.0".

5.2.9 AT+CIPMUX - Set Multiple Connections

Command	Query Command: AT+CIPMUX?	Set Command: AT+CIPMUX=<mode>

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Response	+CIPMUX:<mode> OK
Parameter Description	<mode>: 0: Single connection mode 1: Multiple connection mode
Notes	The default mode is single connection. Multiple connections can only be set in non-transparent transmission mode (AT+CIPMODE=0). The connection mode must be set when no connection is established. If a TCP server is established and you want to switch to single connection, you must close the server (AT+CIPSERVER); the server only supports multiple connections.
Examples	AT+CIPMUX

5.2.10 AT+CIPSERVER - Establish TCP Connection

Execute Command	AT+CIPSERVER=<mode> ,<port>,<type>
Response	OK
Parameter Description	<mode>: 0: Close the server 1: Establish the server <port>: Port number, default value is 333. <type>: Server type: TCP (default), TLS.
Notes	The TCP server can only be enabled in multiple connection mode (AT+CIPMUX=1). The TCP server automatically starts listening after being created. When a TCP client connects, it will automatically occupy one connection ID.
Examples	AT+CIPMUX=1 AT+CIPSERVER=1,1001

5.2.11 AT+CIPMODE - Set Transmission Mode

Command	Query Command: AT+CIPMODE?	Set Command: AT+CIPMODE=<mode>
Response	+CIPMODE:<mode> OK	OK
Parameter Description	<mode>: 0: Normal transmission mode 1: Transparent transmission mode, only supported for TCP single connection and UDP fixed communication peer.	
Notes	This setting will not be saved to Flash.If the connection is disconnected during	

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	transparent transmission, the E103-W14 will continuously attempt to reconnect until CIPCLOSE is called.
Examples	AT+CIPMODE=1

5.2.12 AT+CIPSTO - Set TCP Server Timeout

Command	Query Command: AT+CIPSTO?	Set Command: AT+CIPSTO=<time>
Response	+CIPSTO:<time>	OK
Parameter Description	<time>: TCP server timeout, ranging from 0 to 7200 seconds.	
Notes	Disconnect clients that have timed out in communication.	
Examples	AT+CIPMUX=1 AT+CIPSERVER=1,1001 AT+CIPSTO=10	

5.2.13 AT+PING - Ping the Remote Host

Execute Command	AT+PING=<“host”>
Response	60 bytes from <ip> <icmp_seq> <ttl> <time> OK
Parameter Description	• <host>: String parameter indicating the IP address of the remote host. • <ip>: IP address of the ping target. • <icmp_seq>: Sequence number. • <ttl>: Time to live of the ping packet in the network. • <time>: Ping response time in milliseconds.
Notes	If the remote host is a domain name string, the ping operation will first resolve the domain name through DNS, and then ping the corresponding IP address.
Examples	AT+PING="192.168.1.1" AT+PING="www.baidu.com"

5.2.14 AT+CIPSNTPCFG - Set Time Zone and SNTP Server

Command	Query Command: AT+CIPSNTPCFG?	Set Command: AT+CIPSNTPCFG=<enable>[,<timezone>][,<SNTP server>]
Response	+CIPSNTPCFG:<enable>[,<timezone>][,<SNTP server>] OK	OK
Parameter Description	<enable>:	

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	0: SNTP is disabled 1: SNTP is enabled <timezone>: Time zone, ranging from -11 to 13; this parameter is mandatory if SNTP is enabled, otherwise it can be ignored. <SNTP server>: The first SNTP server.
Notes	If no SNTP server is specified in the set command, cn.pool.ntp.org will be used by default.
Examples	AT+CIPMUX=1 AT+CIPSERVER=1,1001 AT+CIPSTO=10

5.2.15 AT+CIPSNTPTIME - Query SNTP Time

Command	Query Command: AT+CIPSNTPTIME?
Response	+CIPSNTPTIME:<time> OK
Parameter Description	<time>: Time obtained through SNTP query. Format: +CIPSNTPTIME: 2024-4-3 9-46-58
Examples	AT+CWMODE=1 AT+CWJAP=E103-W14,12345678 AT+CIPSNTPTIME?

5.2.16 AT+CIPSSLCCONF - Query or Set TLS Client Configuration

Command	Query Command: AT+CIPSSLCCONF?	Set 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 mode. 0: No authentication 1: One-way authentication • <PKI_NUMBER>: Modification is not supported temporarily. • <CA_NUMBER>: Modification is not supported temporarily.	
Notes	The configuration should be set before connecting to TLS.	

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Examples	AT+CIPSSLCCONF=0,1

5.2.17 AT+CIPSSLCCN - Query or Set TLS Client Common Name

Command	Query Command: AT+CIPSSLCCN?	Set Command: AT+CIPSSLCCN=<socket id>, <name>
Response	+CIPSSLCCN=<socket id>,<name> OK	OK
Parameter Description	<socket id>: Link ID. <name>: Client name.	
Notes	The configuration should be set before initiating a client connection.	
Examples	AT+CIPSSLCCN=0,E103-W14	

5.2.18 AT+CIPSSLCPSK - Query or Set SSL Client PSK (String Format)

Command	Query Command: AT+CIPSSLCPSK?	Set Command: AT+CIPSSLCPSK=<PSK>,<PSK_HINT>
Response	+CIPSSLCPSK=<PSK>,<PSK_HINT> OK	OK
Parameter Description	<PSK>: PSK identity in string format, maximum length is 32 bytes. <PSK_HINT>: PSK hint, maximum length is 32 bytes.	
Notes	The PSK in this command cannot contain the character '\0'.	
Examples	AT+CIPSSLCPSK=2fe2b750a610dab52fa, 1V2OAXDZ65AT&BK7238 OK	

5.2.19 AT+CIPSSLCPSKHEX - Query or Set SSL Client PSK (Hexadecimal Format)

Command	Query Command: AT+CIPSSLCPSK?	Set Command: AT+CIPSSLCPSK=<PSK>,<PSK_HINT>
Response	+CIPSSLCPSK=<PSK>,<PSK_HINT> OK	OK
Parameter Description	<PSK>: PSK identity in hexadecimal string format, maximum length is 64 bytes. <PSK_HINT>: PSK hint in hexadecimal string format, maximum length is 64 bytes.	
Notes	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, '\0' in the <PSK> parameter is represented as 00.	
Examples	+CIPSSLCPSKHEX:3266653262373530613631306461623532666 1,3156324F4158445A3635415426424B37323338	

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	OK

5.2.20 AT+CIPRECONNINTV - TCP Client Reconnection Interval

Command	Query Command: AT+CIPRECONNINTV?	Set Command: AT+CIPRECONNINTV=<TIME>
Response	+CIPRECONNINTV=<TIME> OK	OK
Parameter Description	<TIME>: Reconnection time in seconds.	
Notes	-	
Examples	AT+CIPRECONNINTV=5;	

5.2.21 AT+CIPRECVTYP - Query or Set Socket Reception Mode

Command	Query Command: AT+CIPRECVMODE?	Set Command: AT+CIPRECVMODE=<mode>
Response	+CIPRECVMODE:<mode>	OK
Parameter Description	• <mode>: Socket data reception mode, default value is 0. 0: Active mode. All received socket data will be sent to the host MCU immediately with the prefix "+IPD". 1: Passive mode. All received socket data will be stored in the internal buffer (socket receive window, default 2048 bytes) and wait for the MCU to read. For TCP and SSL connections, socket transmission will be blocked if the buffer is full; for UDP transmission, data loss will occur if the buffer is full.	
Notes	• This configuration cannot be used in Wi-Fi transparent transmission mode. • When socket data is received in passive mode, different prompts will be given according to different situations: For multiple connections (AT+CIPMUX=1): +IPD,<len>; For single connection (AT+CIPMUX=0): +IPD,<len>. • <len> indicates the total length of socket data in the buffer. • Once a +IPD prompt is received, the AT+CIPRECVDATA command should be executed to read the data. Otherwise, the next +IPD will not be reported to the host MCU until the previous +IPD data is read.	
Examples	AT+CIPRECVMODE=1	

5.2.22 AT+CIPRECVDATA - Get Socket Data in Passive Reception Mode

Set Command	AT+CIPRECVDATA=<SOCKET ID>,<LEN>
Response	+CIPRECVDATA:<SIZE> <DATA>

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Parameter Description	<SIZE>: Actual length of data obtained. <DATA>: Data content.

5.2.23 AT+CIPRECVLEN - Query the Length of Socket Data in Passive Reception Mode

Query Command	AT+CIPRECVLEN?
Response	+CIPRECVLEN=<LEN0>,<LEN1>,<LEN2>,<LEN3>,<LEN4>,<LEN5>
Parameter Description	<LEN0>: Total data length received on socket 0 link. <LEN1>: Total data length received on socket 1 link. <LEN2>: Total data length received on socket 2 link. <LEN3>: Total data length received on socket 3 link. <LEN4>: Total data length received on socket 4 link. <LEN5>: Total data length received on socket 5 link.

5.2.24 AT+CIPTCPOPT - Query or Set Socket Options

Command	Query Command: AT+CIPTCPOPT?	Set Command: AT+CIPSSLCCONF=<LINK_ID>,<AUTH MODE>[,<PKI_NUMBER>,<CA NUMBER>]
Response	+CIPTCPOPT=<link_id>,<so_linger>,<tcp_nodelay>,<so_sndtimeo>,<keep_alive> OK	OK
Parameter Description	• <link_id>: Network connection ID (0 to max). In multi-connection mode, setting the parameter to max means all connections; the default value of this parameter is 5. • <so_linger>: Configure the SO_LINGER option of the socket, unit: second, default value is -1. =-1: Disabled; =0: Enabled, linger time = 0; 0: Enabled, linger time = <so_linger>; • <tcp_nodelay>: Configure the TCP_NODELAY option of the socket, default value is 0. 0: Disable TCP_NODELAY 1: Enable TCP_NODELAY • <so_sndtimeo>: Configure the SO_SNDTIMEO option of the socket, unit: millisecond, default value is 0. • <keep_alive>: Configure the SO_KEEPALIVE option of the socket, unit: second. ranging from 0 to 7200. 0: Disable the keep-alive function (default) 1~7200: Enable the keep-alive function. The value of TCP_KEEPIDLE is <keep_alive>, TCP_KEEPINTVL is 1, and TCP_KEEPCNT is 3.	
Notes	The relevant parameters in this command will affect communication quality, so	

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	modification is not recommended under normal circumstances.
Examples	AT+CIPTCPOPT=0,-1,0,0,60

5.2.25 AT+CIPHEARTBEART - Query and Set TCP Heartbeat Packet

Command	Query Command: AT+ CIPHEARTBEART?	Set Command: AT+ CIPHEARTBEART =<socket_id>,<period>,<heartbeat_type>, <data_type>,<data>
Response	+CIPHEARTBEART:<0>,<period>,<heartbeat_type>,<data> <1>,<period>,<heartbeat_type>,<data> <2>,<period>,<heartbeat_type>,<data> <3>,<period>,<heartbeat_type>,<data> <4>,<period>,<heartbeat_type>,<data> <5>,<period>,<heartbeat_type>,<data>	OK
Parameter Description	• <socket_id>: Socket ID of the specified link (optional 0-6). When socket_id is 6, it means setting all links at one time. • <period>: Heartbeat cycle, ranging from 1 to 255 seconds. • <heartbeat_type>: Heartbeat packet type. 0: Disabled 1: UART 2: Net 3: UART and net • <data_type>: Data type. 0: Hex 1: ASCII code • <data>: Heartbeat data content.	
Examples	AT+CIPHEARTBEART=6,128,3,1,hellow word	

6 MQTT Relevant Command

6.1 MQTT Command List

Command	Description
AT+MQTTUSERCFG	Set MQTT user configuration
AT+MQTTCONNCFG	Set MQTT connection configuration
AT+MQTTCONN	Connect to MQTT brokers
AT+MQTTPUB	Publish MQTT messages in string format

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AT+MQTTPUBRAM	Publish MQTT messages in binary format
AT+MQTTSUB	Subscribe to MQTT topics
AT+MQTTUNSUB	Unsubscribe from MQTT topics
AT+MQTTCLEAN	Close the MQTT connection

6.2 MQTT Command Description

6.2.1 AT+MQTTUSERCFG - Set MQTT user configuration

Set Command	AT+MQTTUSERCFG=<LinkID>,<scheme>,<client_id>,<username>,<password>,<cert_key_ID>,<CA_ID>,<path>
Response	OK
Paraeter Description	• <LinkID>: Only link ID 0 is supported. • <scheme> 0: MQTT over TCP 1: MQTT over TLS (without certificate verification) • <client_id>: MQTT client ID, maximum length: 256 bytes • <username>: User name for logging into the MQTT broker, maximum length: 64 bytes • <password>: Password for logging into the MQTT broker, maximum length: 64 bytes • <cert_key_ID>: Certificate ID, temporarily not supported, value should be 0 • <CA_ID>: CA ID, temporarily not supported, value should be 0 • <path>: Resource path
Notes	If parameters contain commas, use the escape character , to input them.
Examples	AT+MQTTUSERCFG=0,1,a19SRgoKypB.ytaotest|securemode=2\,signmethod=hmacsha256\,timestamp=1712630408378|,ytaotest&a19SRgoKypB,199de6bb2028d2eb3625aa0bbc443a40af69eee9dabf6594a7801535d0c43d8a,0,0,

6.2.2 AT+MQTTCONNCFG - Set MQTT connection configuration

Set Command	AT+MQTTCONNCFG=<LinkID>,<keepalive>,<disable_clean_session>,<"lwt_topic">,<"lwt_msg">,<lwt_qos>,<lwt_retain>
Response	OK
Parameter Description	• <LinkID>: Only link ID 0 is supported. • <keepalive>: MQTT ping timeout in seconds, value range [0,7200]; the default value 0 will be forced to 120 seconds. • <disable_clean_session>: Set MQTT clean session.0: Enable clean session1: Disable clean session. • <lwt_topic>: LWT (Last Will and Testament) topic, maximum length: 128

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	bytes. • <lwt_msg>: LWT message, maximum length: 128 bytes. • <lwt_qos>: LWT QoS level, can be set to 0, 1, 2; default value is 0. • <lwt_retain>: LWT retain flag, can be set to 0 or 1; default value is 0.
Examples	AT+MQTTCONNCFG=0,60,0,/test,test,0,0

6.2.3 AT+MQTTCONN - Connect to MQTT brokers

Command	Query Command: AT+MQTTCONN?	Set Command: AT+MQTTCONN=<LinkID>,<host>,<port>,<reconnect>
Response	+MQTTCONN:<LinkID>,<state>,<scheme><host>,<port>,<path>,<reconnect> OK	OK Connection success: +MQTTCONN:OK Failure: +MQTTCONN:ERROR
Parameter Description	• <LinkID>: Only link ID 0 is supported. • <host>: MQTT broker domain name, maximum length: 64 bytes • <port>: MQTT broker port number, maximum value: 65535 • <path>: Path, maximum length: 64 • <reconnect> 0: MQTT will not reconnect automatically. 1: MQTT will reconnect automatically, which consumes more resources. • <state>: MQTT connection state disconnected: Disconnected stateconnected: Connected state • <scheme> 0: MQTT over TCP 1: MQTT over TLS	

6.2.4 AT+MQTTPUB - Publish MQTT messages in string format

Set Command	AT+MQTTPUB=<LinkID>,<topic>,<data>,<qos>,<retain>
Response	OK
Parameter Description	• <LinkID>: Only link ID 0 is supported. • <topic>: MQTT topic, maximum length: 128 bytes. • <length>: Length of MQTT message, limited by macro • MQTT_BUFFER_SIZE_BYTE and available memory; default value of MQTT_BUFFER_SIZE_BYTE is 1024 • <data>: Data to be sent; note the escape character, e.g., replace comma with ,• <qos>: QoS level, can be set to 0 or 1; default value is 0. QoS=2 is not supported. • <retain>: Publish retain flag; 0 means the server does not save the message, 1 means the server saves the message

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Notes	This command cannot send the data \0. Use the AT+MQTTPUBRAW command if \0 needs to be sent.

6.2.5 AT+MQTTPUBRAM - Publish MQTT messages in binary format

Set Command	AT+MQTTPUBRAW=<LinkID>,<topic>,<length>,<qos>,<retain>
Response	OK < The symbol > indicates that the AT module is ready to receive serial data. Data input can start now. Transmission begins when the message length specified by the <length> parameter is reached. Sending success: +MQTTPUBRAW:OK Sending failure: +MQTTPUBRAW:FAIL
Parameter Description	• <LinkID>: Only link ID 0 is supported. • <topic>: MQTT topic, maximum length: 128 bytes • <length>: Length of MQTT message, maximum 1024 bytes • <qos>: QoS level, can be set to 0 or 1; default value is 0. QoS=2 is not supported. • <retain>: Publish retain flag; 0 means the server does not save the message, 1 means the server saves the message
Examples	AT+MQTTPUBRAW=1, topic,10,0,0

6.2.6 AT+MQTTSUB - Subscribe to MQTT topics

Command	Query Command: AT+MQTTSUB?	Set Command: AT+MQTTSUB=<LinkID>,<topic1>,<qos>
Response	+MQTTSUB:<LinkID>,<topic1>,<qos> +MQTTSUB:<LinkID>,<topic2>,<qos> ... OK	OK When an MQTT message for the subscribed topic is received, the following prompt will be output: +MQTTSUBRECV:<LinkID>,<topic>,<data_length>,data
Parameter Description	• <LinkID>: Only link ID 0 is supported. <state> • <topic>: Subscribed topic • <qos>: Subscription QoS level	
Examples	AT+MQTTSUB=1, topic1,0	

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6.2.7 AT+MQTTUNSUB - Unsubscribe from MQTT topics

Set Command	AT+MQTTUNSUB=<LinkID>,<topic>
Response	OK
Parameter Description	• <LinkID>: Only link ID 0 is supported. • <topic>: MQTT topic, maximum length: 128 bytes

6.2.8 AT+MQTTCLEAN - Close the MQTT connection

Set Command	AT+MQTTCLEAN=<LinkID>
Response	OK
Parameter Description	<LinkID>: Only link ID 0 is supported.

6.3 MQTT Notes

Generally, AT MQTT commands respond within 10 seconds, except for the AT+MQTTCONN command. For example, if the router cannot access the Internet, the AT+MQTTPUB command will respond within 10 seconds. However, the AT+MQTTCONN command may take longer due to packet retransmission in poor network conditions.

7 HTTP Related Commands

7.1 HTTP Command List

Command	Description
AT+HTTPCLIENT	Send HTTP client requests (GET, POST, PUT, etc.)
AT+HTTPGETSIZE	Get the size of HTTP resources
AT+HTTPCGET	Get HTTP resources
AT+HTTPCPOST	Post HTTP data with a specified length
AT+HTTPCPUT	Put HTTP data with a specified length
AT+HTTPURLCFG	Set or get long HTTP URLs
AT+HTTPCHEAD	Set or query HTTP request headers

7.1.1 AT+HTTPCLIENT - Send HTTP client requests

Set Command	AT+HTTPCLIENT=<opt>,<content-type>,<url>,[<host>],[<path>],<transport_type>[,<data>][,<http_req_header>]

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Response	+HTTPCLIENT:<size>,<data> OK
Parameter Description	• <opt>: HTTP client request method • <content-type>: Client request data type • <url>: HTTP URL; this parameter will automatically override the <host> and <path> parameters if they are empty • <host>: Domain name or IP address, default port 80 • <path>: HTTP path • <transport_type>: HTTP client transport type • <data>: Data sent to the HTTP server when <opt> is a POST request; omitted for other request types • <http_req_header>: Multiple request headers can be sent to the server
Examples	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 the size of HTTP resources

Execute Command	AT+HTTPCGET=<url>[,<tx size>][,<rx size>][,<timeout>]
Response	+HTTPCGET:<size>
Parameter Description	• <url>: HTTP URL • <tx size>: HTTP transmission buffer size • <rx size>: HTTP reception buffer size • <timeout>: Network timeout period • <size>: Actual resource size
Examples	AT+HTTPGETSIZE=http://www.baidu.com/img/bdlogo.gif

7.1.3 AT+HTTPCGET - Get HTTP Resources

Execute Command	AT+HTTPCGET=<url>[,<tx size>][,<rx size>][,<timeout>]
Response	+HTTPCGET:<size>,<data> OK
Parameter Description	• <url>: HTTP URL • <tx size>: HTTP transmission buffer size • <rx size>: HTTP reception buffer size • <timeout>: Network timeout period • <size>: Actual resource size • <data>: HTTP response data
Examples	AT+HTTPCGET=http://httpbin.org/get

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7.1.4 AT+HTTPCPOST - Post HTTP data with a specified length

Execute Command	AT+HTTPCPOST=<url>,<length>
Response	OK SEND OK +RSP:<SIZE>,<DATA> OK
Parameter Description	• <url>: HTTP URL • <length>: Length of data to be posted • <size>: Payload length in the server response • <data>: Server response data
Examples	AT+HTTPCPOST=http://httpbin.org/post,10 1234567890

7.1.5 AT+HTTPCPUT - Put HTTP data with a specified length

Execute Command	AT+HTTPCPOST=<url>,<length>
Response	OK SEND OK +RSP:<SIZE>,<DATA> OK
Parameter Description	• <url>: HTTP URL • <length>: Length of data to be put • <size>: Payload length in the server response • <data>: Server response data
Examples	AT+HTTPCPUT=http://httpbin.org/put,10 1234567890

7.1.6 AT+HTTPURLCFG - Set or get long HTTP URL

Command	Query Command: AT+HTTPURLCFG?	Set Command: AT+HTTPURLCFG=< url length >
Response	[+HTTPURLCFG:<url length>,<data>] OK	OK > OK
Parameter Description	• <url length>: Length of the URL, range [8-1024] • <data>: URL string	
Notes	When no URL is set, this command only returns OK, and the configuration is not saved after power failure.	
Examples	AT+HTTPURLCFG=22	

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	http://httpbin.org/get

7.1.7 AT+HTTPCHEAD - Set or query HTTP request headers

Command	Query Command: AT+HTTPCHEAD?	Set Command: AT+HTTPCHEAD=<header length>
Response	[+HTTPCHEAD:<index>,<req_header>] OK	OK > OK
Parameter Description	• <index>: Index of the HTTP request header • <req_header>: HTTP request header • <header length>: Length of the request header 0: Clear all set request headers Other values: Set a new request header	
Notes	When no request header is set, the query only returns OK.	
Examples	AT+HTTPCHEAD=17 Accept: text/html	

8 BLE Related Commands

8.1 BLE Command List

Command	Description
AT+BLEINIT	Bluetooth LE initialization
AT+BLEADDR	Query Bluetooth LE device address
AT+BLENAME	Query or set Bluetooth LE device name
AT+BLESCANPARAM	Query or set Bluetooth LE scan parameters
AT+BLESCAN	Enable or disable Bluetooth LE scan
AT+BLESCANRSPDATA	Set Bluetooth LE scan response data
AT+BLEADVPARAM	Query or set Bluetooth LE advertising parameters
AT+BLEADVDATA	Set Bluetooth LE advertising data
AT+BLEADVDATAX	Auto-set Bluetooth LE advertising data
AT+BLEADVSTART	Start Bluetooth LE advertising
AT+BLEADVSTOP	Stop Bluetooth LE advertising
AT+BLEGATTSNTFY	Send characteristic notification from server to client
AT+BLEGATTSIND	Send characteristic indication from server to client
AT+BLESPPCFG	Query Bluetooth LE SPP parameters
AT+BLESPP	Enter Bluetooth LE SPP mode

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8.1.1 AT+BLEINIT - Bluetooth LE initialization

Command	Query Command: AT+BLEINIT?	Set Command: AT+BLEINIT=<ROLE>
Response	+BLEINIT=<ROLE> OK	OK
Parameter Description	• <ROLE>: BLE initialization role 0: Uninitialized 1: Master (not supported temporarily) 2: Slave	
Notes	-	
Examples	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
Notes	The MAC address is affected by the STA MAC address; modify the STA MAC address if you need to change it.
Examples	AT+BLEADDR?

8.1.3 AT+BLENAME - Query or set Bluetooth LE device name

Command	Query Command: AT+BLENAME?	Set Command: AT+BLENAME=<BLE NAME>
Response	+BLENAME=<BLE NAME> OK	OK
Parameter Description	<BLE NAME>: BLE device name	
Notes	iOS uses this command to modify the device name; Android uses AT+BLEADVDATA to modify the device name.	
Examples	AT+BLENAME=E103-W14	

8.1.4 AT+BLESCANPARAM - Query or set Bluetooth LE scan parameters

Command	Query Command: AT+BLESCANPARAM?	Set Command: AT+BLESCANPARAM=<SCAN TYPE>, <OWN ADDR TYPE>, <SCAN

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		INTERVAL>, <SCAN WINDOW>
Response	+BLESCANPARAM=<SCAN TYPE>, <OWN ADDR TYPE>,<SCAN INTERVAL>, <SCAN WINDOW> OK	OK
Parameter Description	• <SCAN TYPE>: Scan type 0: Passive scan 1: Active scan • <OWN ADDR TYPE> 0: Public address 1: Random address • <SCAN INTERVAL>: Scan interval; this value should be greater than or equal to <SCAN WINDOW>, range [4,4000] • <SCAN WINDOW>: Scan window; this value should be less than or equal to <SCAN INTERVAL>, range [4,4000]	
Notes	The time unit for scan interval and scan window is 0.625 mill iseconds.	
Examples	AT+BLESCANPARAM=0,0,100,50	

8.1.5 AT+BLESCAN - Enable Bluetooth LE scan

Set Command	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 option 1: Filter by MAC address 2: Filter by device name • <FILTER PARAM>: Determined by the filter option • <MAC>: MAC address of the broadcast device scanned • <RSSI>: RSSI of the broadcast device scanned • <DATA>: Broadcast content • <ADDR TYPE>: MAC address type of the broadcast device
Examples	AT+BLESCAN=1, 0, 2, E103-W14

8.1.6 AT+BLESCANRSPDATA - Set Bluetooth LE scan response data

Execute Command	AT+BLESCANRSPDATA=<RSP DATA>
Response	OK

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Parameter Description	<RSP DATA>: Scan response broadcast data
Notes	The parameter should be a hex string when setting. For example, to set broadcast data to 0x01 0x02 0x03 0x04 0x06, use the command AT+BLESCANRSPDATA=0102030406.
Examples	AT+BLESCANRSPDATA=0102030406

8.1.7 AT+BLEADVPARAM - Query or set Bluetooth LE advertising parameters

Command	Query Command: AT+BLEADVPARAM?	Set 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 advertising interval, range [20,4000], unit 0.625ms • <ADV INT MAX>: Maximum advertising interval, range [20,4000], unit 0.625ms • <CHANNEL MAP>: Advertising channel 1: Channel 37 2: Channel 38 4: Channel 39 7: All channels	
Examples	AT+BLEADVPARAM=160,160,7	

8.1.8 AT+BLEADVDATA - Set Bluetooth LE advertising data

Set Command	AT+BLEADVDATA=<ADV DATA>
Response	OK
Parameter Description	<ADV DATA>: Advertising data
Examples	AT+BLEADVDATA=0909453130335F573134

8.1.9 AT+BLEADVDATAX - Auto-set Bluetooth LE advertising data

Command	Query Command: AT+BLEADVDATAEX?	Set Command: AT+BLEADVDATAEX=<dev_name>,<uuid>,<manufacturer_data>
Response	+BLEADVDATAEX=<dev_name>,<uuid> ,<manufacturer_data> OK	OK

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Parameter Description	• <dev_name>: Device name • <uuid>: UUID in the broadcast • <manufacturer_data>: Manufacturer data

8.1.10 AT+BLEADVSTART - Start Bluetooth LE advertising

Execute Command	AT+BLEADVSTART
Response	OK
Parameter Description	Start Bluetooth LE advertising.
Examples	AT+BLEADVSTART

8.1.11 AT+BLEADVSTOP - Stop Bluetooth LE advertising

Execute Command	AT+BLEADVSTOP
Response	OK
Parameter Description	Stop Bluetooth LE advertising.
Examples	AT+BLEADVSTOP

8.1.12 AT+BLEGATTSNTFY - Send characteristic notification from server to client

Execute Command	AT+BLEGATTSNTFY=<LENGTH>
Response	> OK
Parameter Description	<LENGTH>: Length of data to be sent, maximum length 251 bytes
Examples	AT+BLEGATTSNTFY=5

8.1.13 AT+BLEGATTSIND - Send characteristic indication from server to client

Execute Command	AT+BLEGATTSIND=<LENGTH>
Response	> OK
Parameter Description	<LENGTH>: Length of data to be sent, maximum length 251 bytes
Examples	AT+BLEGATTSIND=5

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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>: Index of the transmit service • <tx_char_index>: Index of the transmit characteristic • <rx_service_index>: Index of the receive service • <rx_char_index>: Index of the receive characteristic
Examples	AT+BLESPPCFG?

8.1.15 AT+BLESPP - Enter Bluetooth LE SPP mode

Execute Command	AT+BLESPP
Response	>
Parameter Description	-
Examples	AT+BLESPP

8.1.16 AT+BLEGATTUUID - Configure BLE GATT service UUID

Command	Query Command: AT+BLEGATTUUID?	Set 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>: UUID of the characteristic for sending data to the module • <notify_uuid>: UUID for the module to send notify data externally • <ind_uuid>: UUID for the module to send indicate data externally	

Revision history

Version	Date	Description	Issued by
V1.0	2024/5/15	Initial version	Yongtao
V1.1	2025/3/4	Content revision	Hao
V1.2	2025/3/13	Content revision	Hao

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V1.3	2025/4/11	Content revision	Hao
V1.4	2025/6/10	Content revision	Hao
V1.5	2026/1/9	New commands added	Hao

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