E103-W11 AT Command Manual



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1. Introduction of function

1.1. Brief introduction

E103-W11 is a BLE5.1 and Wi-Fi 802.11b/g/n/ax module with low energy-consumption. The main chip of the module integrates the hardware and software resources required for complete Wi-Fi and Bluetooth applications, supporting dual-role connections of AP and STA, as well as BLE low-power Bluetooth connections. The MCU running at speeds up to 240 MHz and built-in 512KB RAM enables the chip to support cloud connectivity.

1.2. Features and functions

1. Support AT commands;
2. Support serial communication;
3. Compliant with IEEE 802.11b/g/n/ax WLAN/ 802.11 b/g/;
4. BLE5.1;
5. Support STA/AP;
6. Comply with RoHS, FCC, CE certification standards;
7. Support TCP/UDP/SSL connection communication
8. Support MQTT
9. Support OTA upgrade
10. Support WPA3 encrypted connection in STA mode

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2. Instruction to AT commands

2.1. Command universal implementation

2.1.1. Operation type

There are three pair operations for AT commands, which are reflected in the command format:

2.1.2. Command execution

Syntax: AT+<command>

Example: AT+RST, restart command.

Description: Execute is used to perform the action contained in the command. The command in the example returns "OK" if it executes successfully. Otherwise return ERROR. Restart the module.

2.1.3. Command execution

Syntax: AT+<command>?

Example: AT+CWDHCPS?

Description: The query command is used to view the value of the current parameter. The command in the example is used to read the configuration content of DHCPS.

2.1.4. Command execution：

Syntax: AT+<command>=<par1>,<par2>,...

Example: AT+CWDHCPS=1,120,"192.168.10.100","192.168.10.120","s.y"

Description: The set command is used to set the value of a parameter. The commands in the example are used to configure DHCPS.

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2.1.5. FLASH saving

For the content of some AT setting commands to Flash, users can choose whether to save, if not, it will be invalid after restarting. In these commands, whether to save Flash is determined by the last parameter <FLASH>, whose value is:

1. "s.n": Flash is not saved.
2. "s.y": Flash is saved. There are corresponding introductions in each setting command that supports choosing whether to save Flash.

2.2. Introduction to commands

ECR6600 allows a series of commands for basic operation, OTA operation, Wi-Fi configuration, TCP/IP configuration, BLE configuration, MQTT configuration, etc. The specific supported commands can be viewed through AT+CMD, and the detailed information is shown in Section 2.1.4.

2.2.1. Basic commands

2.2.1.1. Test to start AT commands (AT)

Command: AT	
Executive command	AT
Command example	Input: AT Output: OK

2.2.1.2. Restart module (AT+RST)

Command: AT+RST	
Executive command	AT+RST
Command example	Input: AT+RST Output: OK
Response parameter description	After entering the command, the version will restart.
Remark	

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2.2.1.3. Query version Information (AT+GMR) Query

Command: AT+GMR	
Executive command	AT+GMR
Command example	Input: AT+GMR Output: AT version:0.1 SDK version:ECR6600F_V0.0.1B01 Bin version:1.0.0
Response parameter description	Version Information
Remark	

2.2.1.4. List all AT commands (AT+CMD)

Command: AT+CMD	
Executive command	AT+CMD
Command example	Input: AT+CMD Output: According to the AT command output supported by the current version, for example: Basic Command: AT AT+RST AT+GMR AT+CMD ……
Response parameter description	List of currently supported AT commands
Remark	

2.2.1.5. Factory data reset (AT+RESTORE)

Command: AT+RESTORE	
Executive command	AT+RESTORE

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Command example	Input: AT+RESTORE Output: OK
Response parameter description	Factory data reset, all parameters saved to flash memory will be erased and default parameters will be restored. A factory reset will cause the version to restart.
Remark	The factory module works in Staion and SoftAP mode

2.2.1.6. Change UART settings (AT+UART)

Command: AT+UART	
Query command	AT+UART?
Example of command execution	Input: AT+UART? Output: +UART:<baudrate>,<databits>,<stopbits>,<parity>,<flowcontrol> OK
Field setting description	•<baudrate>: UART baud rate The supported baud rates are as follows: 160, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, 43000, 57600, 76800, 115200, 128000, 230400, 256000, 380400, 460800, 921600, 1000000, 2000000 • <databits>: data bits -8: 8 data bits • <stopbits>: stop bits -1: 1 stop bit -3: 2 stop bits • <parity>: parity bit -0: None -1: odd parity -2: Even parity •<flow control>: flow control settings -0: Flow control is not started -1: Start both RTS and CTS at the same time
Command setting	AT+UART=<baudrate>,<databits>,<stopbits>,<parity>,<flow control>,<FLASH>
Command setting	•<baudrate>:UART baud rate • <databits>: data bits

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description	-8: 8 data bits • <stopbits>: stop bits -1: 1 stop bit -3: 2 stop bits • <parity>: parity bit -0: None -1: odd parity -2: Even parity •<flow control>: flow control settings -0: Flow control is not started -1: Enable RTS and CTS at the same time (not recommended, these two pins are currently used for other purposes) • <FLASH>: - "s.n": do not save to Flash - "s.y": save to Flash
Command example	AT+UART=115200,8,1,0,0,"s.y"
Remark	The baud rate range is 160-2000000

2.2.1.7. Set the working mode of the GPIO port (AT+SYSIOSETCFG)

Command: AT+SYSIOSETCFG	
Set command	AT+SYSIOSETCFG=<pin>,<mode>,<pull-up>
Set command	Input: AT+ SYSIOSETCFG=<pin>,<mode>,<pull-up> Output: OK
Field setting description	• <pin>: pin number •<mode>: pin working mode, when it is 1, it is normal IO mode, and other functions are not open for the time being. When this parameter is 1, it is a common IO port. • <pull-up>: -0: Pull low -1: Pull high
Command example	AT+SYSIOSETCFG=13,1,1//Set GPIO13 to work in GPIO mode
Remark	When using AT+SYSIO series commands, please refer to the attachment "E103-W11 Pin Mapping Table".

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2.2.1.8. Query the working mode of the GPIO port (AT+SYSIOGETCFG)

Command: AT+SYSIOGETCFG	
Set command	AT+SYSIOGETCFG=<pin>
Set command	Input: AT+SYSIOGETCFG=<pin> Output: +SYSIOGETCFG:<pin>,<mode>,<pull-up> OK
Field setting description	• <pin>: pin number • <mode>: pin working mode • <pull-up>: -0: Pull low -1: Pull high
Command example	AT+SYSIOGETCFG=13 //Read GPIO13 working in GPIO mode
Remark	When using AT+SYSIO series commands, please refer to the attachment "E103-W11 Pin Mapping Table".

2.2.1.9. Set GPIO port direction (AT+SYSGPIODIR)

Command: AT+SYSGPIODIR	
Set command	AT+SYSGPIODIR=<pin>,<dir>
Set command	Input: AT+SYSGPIODIR=<pin >,< dir > output: OK
Field setting description	• <pin>: pin number • < dir >: -0: set GPIO as input -1: Set GPIO as output
Command example	AT+SYSGPIODIR=13,1 //Set GPIO13 as output
Remark	When using AT+SYSIO series commands, please refer to the attachment "E103-W11 Pin Mapping Table".

2.2.1.10. Set GPIO output level (AT+SYSGPIOWRITE)

Command: AT+ SYSGPIOWRITE	
Set command	AT+SYSGPIOWRITE
Set command	Input: AT+ SYSGPIOWRITE=<pin >,< level> output: OK

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Field setting description	• <pin>: pin number • <level>: -0: low level -1: High level
Command example	AT+SYSIOSETCFG=13,1,1//Set GPIO13 to work in GPIO mode AT+SYSGPIODIR=13,1 //Set GPIO13 as output AT+SYSGPIOWRITE=13,1 //Set GPIO13 output to high level
Remark	When using AT+SYSIO series commands, please refer to the attachment "E103-W11 Pin Mapping Table".

2.2.1.11. Read GPIO port status (AT+SYSGPIOREAD)

Command: AT+SYSGPIOREAD	
Set command	AT+SYSGPIOREAD
Set command	Input: AT+SYSGPIOREAD=<pin> output: +SYSGPIOREAD:<pin >,< dir >,<level> OK
Field setting description	• <pin>: pin number
Response parameter description	• <pin>: pin number • < dir >: -0: GPIO as input mode -1: GPIO as output mode • <level>: -0: low level -1: High level
Command example	AT+SYSIOSETCFG=13,1,1 //Set GPIO13 to work in GPIO mode AT+SYSGPIODIR=13,1 //Set GPIO13 as input AT+SYSGPIOREAD//Read GPIO13 status
Remark	When using AT+SYSIO series commands, please refer to the attachment "E103-W11 Pin Mapping Table".

2.2.1.12. Turn off/ on the echo function (ATE)

Command: ATE	
Set command	ATE0/ATE1
Set command	Input: ATE0

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	output: OK
Field setting description	ATE0: Turn off the echo function ATE1: turn on the echo function
Command example	ATE1 // Open echo
Remark	

2.2.1.13. Query system heap size (AT+SYSRAM)

Command: AT+SYSRAM	
Query command	AT+SYSRAM?
Command example	Input: AT+SYSRAM? Output: +SYSRAM:21200,5800
Response parameter description	21200: System free heap size 5800: The minimum heap size ever freed by the system

2.2.1.14. Query the internal temperature of the chip (AT+SYSTEMP)

Command: AT+SYSTEMP	
Query command	AT+SYSTEMP
Command example	Input: AT+SYSTEMP? output: +SYSRAM:31 OK
Response parameter description	31: Chip internal temperature value
Remark	

2.2.1.15. Sleep Mode (AT+SLEEP)

Command: AT+UART	
Query command	AT+SLEEP?
Command execution example	Input: AT+SLEEP? output: +SLEEP :(sleep mode) OK
Response parameter	•< sleep mode >: sleep mode -0: no sleep

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description	-1: Light Sleep, keep the wifi connection, the system wakes up through RTC, you can use AT+SLEEP=0 to exit the sleep mode -2: Modem Sleep, keep the wifi connection, you need to send AT+SLEEP=0 during RTC wake-up to exit the sleep mode, or use the WAKE_UP pin to wake up.
Set command	AT+SLEEP=<sleep mode>
Field setting description	•< sleep mode >: sleep mode -0: no sleep -1: Light Sleep, keep the wifi connection, the system wakes up through RTC, you can use AT+SLEEP=0 to exit the sleep mode (lower power consumption) -2 : Modem Sleep, keep wifi connection, you need to send ATAT+SLEEP=0 during RTC wakeup to exit sleep mode, or use WAKE_UP pin to wake up.
Command example	AT+SLEEP=2 AT+SLEEP=0//Exit sleep, only in Modem Sleep state can wake up at will
Remark	

2.2.1.16. Read/Write/Erase Flash Partition (AT+SYSFLASH)

Command: AT+SYSFLASH	
Query command	AT+SYSFLASH?
Command example	Input: AT+SYSFLASH? output: +SYSFLASH: partition,0x00000000, 4096; uboot,0x00001000, 24576; cpu,0x00007000, 2007040; ota_status, 0x001F1000, 8192; ca_crt, 0x001F4000, 4096; client_crt, 0x001F5000, 4096; client_key, 0x001F6000, 4096; nv_customer, 0x001F7000, 16384; nv_develop, 0x001FB000, 12288; nv_amt, 0x001FE000, 8192 OK
Response parameter	Output FLASH partition status, including the name, start address and length information of each partition, with ";" between

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description	partitions.
Set command	AT+SYSFLASH=<operation >,< partition>,<offset>,<length>
Parameter setting description	• <operation>: -0: wipe FLASH -1: write FLASH -2: read FLASH • <partition>: partition name • <offset>: offset address relative to the partition start address •<length>: read/write/erase FLASH length information
Command example	• Wipe FLASH: Input: AT+SYSFLASH=0,"nv_amt",0,4096 output: OK • Write FLASH: Input: AT+SYSFLASH=1,"nv_amt",0,10 output: > (input data: 00 01 02 03 04 05 06 07 08 09) OK • Read FLASH: Input: AT+SYSFLASH=1,"nv_amt",0,10 Output: 00 01 0203 04 05 06 07 08 09 OK
Remark	1. Only ca_crt , client_crt , client_key and nv_customer partitions can be erased and written, and other partitions have erase and write protection functions; 2. When erasing FLASH, the input offset address and data length must be an integer multiple of 4K , otherwise the erasing will fail; 3. The format of writing FLASH is: 00 01 02 03 04 05 06 07 08 09, the input data is hexadecimal number, the data are separated by spaces, and the length must be the same as the length of the command input; 4. When writing data again, it needs to be erased and then written, and the original data cannot be overwritten when writing directly. 5. Customers are not advised to use this instruction.

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2.2.2. OTA commands

2.2.2.1. OTA upgrade (AT+CIUPDATE)

Command: AT+CIUPDATE	
Execute command	AT+CIUPDATE=< url >
Command execution example	Input: AT+CIUPDATE=" http://10.15.12.226/ota.bin " output: The upgrade is successful and returns OK The upgrade fails and returns ERROR
Response parameter description	< url >: upgrade server IP address
Remark	1. The url address in the command line needs to be added with "". 2. The upgrade server should run first. 3. The module should be connected to the same network as the upgrade server. 4. Due to the quality of the network conditions, there are differences in the speed of the upgrade process. If the upgrade fails, an error will be prompted, try again, please be patient.

2.2.2.2. System switching (AT+CICHANGE)

Command: AT+CICHANGE	
Execute command	AT+CICHANGE
Command execution example	Input: AT+ output: OK
Response parameter description	
Remark	
Set command	AT+CICHANGE
Set command	AT+CICHANGE=1//Switch to standby system AT+CICHANGE=0// Restart the current system
Command	Input: AT+CICHANGE=1

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example	output: System switch successfully returns OK (and boot from another system) System switching fails and returns ERROR Input: AT+CICHANGE=0 output: The system restarts successfully and returns OK System restart fails and returns ERROR
Remark	1. Only in the case of dual systems, system switching can be completed. 2. You can judge whether the system is switched successfully according to different system version numbers. 3. System switching requires a normal network connection.

2.2.3. WIFI command

2.2.3.1. Set the Wi-Fi working mode (AT+CWMODE)

Command: AT+CWMODE	
Query command	AT+CWMODE?
Query example	Input: AT+CWMODE? output: +CWMODE_CUR:3 +CWMODE_DEF:3
Response parameter description	Return to Wi-Fi working mode. Examples are Station and SoftAP modes. CUR represents the configuration currently in use, and DEF represents the configuration saved on Flash.
Set command	AT+CWMODE=<mode >,< FLASH>
Field setting description	• <mode>: -1: Station mode -2: SoftAP mode -3: Staion and SoftAP mode • <FLASH>: -" sn ": do not save Flash; - " sy ": save Flash
Command example	AT+CWMODE=1,"sy" //Set to SoftAP mode and save Flash.
Remark	

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2.2.3.2. Connect to AP (AT+CWJAP)

Command: AT+CWJAP	
Query command	AT+CWJAP?
Query example	Input: AT+CWJAP? output: +CWJAP_DEF:"EBYTE","20: 47:da :49:1e:c6",9,0 +CWJAP_CUR:"EBYTE","20: 47:da :49:1e:c6",9,-70
Response parameter description	•SSID • AP's MAC address •channel: • Signal strength
Set command	AT+CWJAP=< ssid >,< passwd>,<FLASH>
Field setting description	< ssid >: Wireless network name <passwd>: Wireless network password <FLASH>: -" sn ": do not save Flash; - " sy ": save Flash
Command example	AT+CWJAP="EBYTE","12345678","sy" //Connect WIFI
Remark	1. This command requires the Wi-Fi working mode (AT+CWMODE) to be 1: Station mode or 3: Staion and SoftAP mode. 2. This command only needs three parameters: SSID, PASDWD, and FLASH. The user does not need to care about other parameters, and the module will automatically poll the connection. 3. Try not to configure other commands before the command returns to the state. There is a risk that the command cannot be recognized with a small probability . Even if other commands are sent before the state is returned, the module will process it after the state is returned.

2.2.3.3. Scan AP (AT+CWLAP)

Command: AT+CWLAP	
Query command	AT+CWLAP?
Query example	Input: AT+CWLAP? output: +CWLAP:(3,"B05_2G_ 1 ",-

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	59,"20:47:da:49:1e:c6",13,0,4) +CWLAP:(3,"E880-DYJ ",- 95,"c2:68:e6:76:55:bb",11,0,4) +CWLAP:(3," ", -71 ,"14:77:40:94:3a:5d",1,0,4) +CWLAP:(6,"WPA3Test",-28,"ae:30:fb:c9:65:c1",6,0,4)
Response parameter description	• Encryption Mode: -AUTH_OPEN=0 -AUTH_WEP=1 -AUTH_WPA_PSK=2 -AUTH_WPA2_PSK=3 -AUTH_WPA_WPA2_PSK=4 -AUTH_WPA3_PSK=5 -AUTH_WPA2_WPA3_PSK=6 •SSID • Signal strength • AP's MAC address •channel • Frequency offset value •Encryption Algorithm: -CIPHER_NONE=0, -CIPHER_WEP40=1, -CIPHER_WEP104=2, -CIPHER_TKIP=3, -CIPHER_CCMP=4,
Set command	AT+CWLAP=< ssid >,< bssid >
Field setting description	•< ssid >: wireless network name •< bssid >: Wireless network MAC address
Command example	AT+CWLAP //Scan all APs AT+CWLAP="MI_6","20:47:da:49:1e:26" //Scan the specified AP
Remark	

2.2.3.4. Disconnect from AP (AT+CWQAP)

Command: AT+CWQAP	
Execute command	AT+CWQAP
Query example	Input: AT+CWQAP? output: WIFI DISCONNECT OK

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Response parameter description	Wi-Fi disconnected, processing normal. You can query through the query command of this command.
Remark	This command requires the Wi-Fi working mode (AT+CWMODE) to be 1: Station mode or 3: Staion and SoftAP mode.

2.2.3.5. Set AP mode (AT+CWSAP)

Command: AT+CWSAP	
Query command	AT+CWSAP
Query example	Input: AT+CWSAP? output: +CWSAP_CUR:"E103-W11","12345678",5,4,8,0
Response parameter description	•SSID •password •channel • Encryption Mode: -AUTH_OPEN=0 -AUTH_WEP=1 -AUTH_WPA_PSK=2 -AUTH_WPA2_PSK=3 -AUTH_WPA_WPA2_PSK=4 • Maximum number of connections • Hide SSID
Set command	AT+CWSAP=< ssid >,< passwd>,< ch >,<auth>,< max_con >,<hidden>,<FLASH>
Field setting description	• < ssid >: Wireless network name • <passwd>: Wireless network password • < ch >: channel • <auth>: encryption mode • < max_con >: maximum number of connections • <hidden>: hide the ssid • <FLASH>: -" sn ": do not save Flash; -" sy ": Save Flash.
Command example	AT+CWSAP="E103-W11","12345678",5,5,8,0," sy " //Create the specified AP and save it to Flash
Remark	This command requires the Wi-Fi working mode (AT+CWMODE) to be

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	2: AP mode or 3: Staion and SoftAP mode.

2.2.3.6. Set DHCP mode (AT+CWDHCP)

Command: AT+CWDHCP	
Query command	AT+CWDHCP
Query example	Input: AT+CWDHCP? output: +CWDHCP_CUR:2 +CWDHCP_DEF:2
Response parameter description	DHCP enable flag: -BIT0: Whether the SoftAP DHCP server is enabled, 0 is off, 1 is on. -BIT1: Whether the DHCP client of the Station is enabled, 0 is off, 1 is on. example is that the SoftAP 's DHCP server is turned off, and the Station's DHCP client is turned on. CUR represents the currently used configuration, and DEF represents the configuration saved on Flash.
Set command	AT+CWDHCP=<interface >,< flag>,<FLASH>
Field setting description	• <interface>: -0: SoftAP , control SoftAP 's DHCP server. -1: Station, which controls the DHCP client of the Station. • <flag>: -0: close; -1: On • <FLASH>: -" sn ": do not save Flash; - " sy ": save Flash
Command example	AT+CWDHCP=0,0," sy " //Close SoftAP 's DHCP server and save Flash
Remark	

2.2.3.7. Set DHCP rules and gateway (AT+CWDHCPS)

Command: AT+CWDHCPS	
Query command	AT+CWDHCPS?
Query example	Input: AT+CWDHCPS? output:

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	+CWDHCPS_CUR:120,"192.168.10.100","192.168.10.120" +CWDHCPS_DEF:120,"192.168.10.100","192.168.10.120"
Response parameter description	• Lease time: unit, seconds. • Starting IP address. • End IP address. The example is the lease time of DHCPS is 120 seconds, the address allocation range is: "192.168.10.100" to "192.168.10.120", CUR represents the currently used configuration, and DEF represents the configuration saved on FLASH.
Set command	AT+CWDHCPS=<enable >,< lease time>,<start IP>,<end IP>,<FLASH>
Field setting description	• <enable>: -0: Clear the DHCP server configuration to the default value. <lease time>, <start IP>, <end IP> configuration is not required at this time. -1: Configure the DHCP server. • <lease time> : lease period, in seconds. • <start IP>: The starting address of the address pool. •<end IP>: The end address of the address pool. • <FLASH>: -" sn ": do not save Flash; -" sy ": Save Flash.

Command example	Example 1:
	AT+CWDHCPS=0," sn "
	//Close the DHCP server without saving FLASH.
	Example 2:
	AT+CIPAP="192.168.10.1","192.168.10.1","255.255.255.0"," sy "
	AT+CWDHCPS=1,120,"192.168.10.100","192.168.10.120"," sy "
	//Set the DHCP server lease period to 120 seconds, the address range "192.168.10.100" to "192.168.10.120" and save the flash

Remark	This command requires: 1. SoftAP is closed (AT+CWSAP) 2. Open the DHCP server of SoftAP (AT+CWDHCP) 3. The IP address (AT+CIPAP) of the SoftAP and the address range are in the same network segment, but not within the address range.

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2.2.3.8. Set automatic connection (AT+CWAUTOCONN)

Command: AT+CWAUTOCONN	
Set command	AT+ CWAUTOCONN
Set command	Input: AT+ CWAUTOCONN=< is_enable > output: OK
Field setting description	•<enable> 0: Do not automatically associate with AP after power-on; 1: Automatically associate with AP after power-on.
Command example	AT+CWAUTOCONN=0 // Do not automatically associate with AP after power on.
Remark	The automatic reconnection attempt is made for 20 seconds. If the AP cannot be connected to the AP after 20 seconds, it will stop trying to save power.

2.2.4. TCP/IP commands

2.2.4.1. Query the network connection status (AT+CIPSTATUS)

Command: AT+CIPSTATUS	
Execute command	AT+CIPSTATUS
Response	STATUS:<stat> +CIPSTATUS:<link ID >,< type>,<remote IP>, <remote port >,< local port>,< tetype >
Response parameter description	• <stat>: Status of the Station interface -2: Station is connected to AP and obtains IP address -3: Station has established a TCP/UDP/SSL connection -5: Station is not connected to AP •< linkID >: Network connection ID (0~4), used for multiple connections • <type>: String parameter, "TCP" or "UDP"λ • < remoteIP >: string, remote IP address • < remoteport >: remote port value • < localport >: local port value • < tetype >: -0: as client- -1: as server

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Remark	The above describes the connection status that can be queried through commands after establishing a TCP connection. If no TCP connection is established or only a hotspot is connected, the response parameter returns only the STATUS information.

2.2.4.2. Set the connection type (AT+CIPMUX)

Command: AT+CIPMUX	
Query command	AT+CIPMUX
Response	Input: AT+CIPMUX? Output: +CIPMUX:1
Response parameter description	<Link MUX>: Connection type • 0: single connection • 1: Multiple connections
set command	AT+CIPMUX=<Link MUX>
Field setting description	<Link MUX>: Connection type • 0: single connection • 1: Multiple connections
Command example	AT+CIPMUX=1 //Set as multi-connection.
Remark	This command does not save Flash

2.2.4.3. Create a TCP/UDP/SSL client (AT+CIPSTART)

Command: AT+CIPSTART (TCP client)	
Set command	• TCP single connection (AT+CIPMUX=0): AT+CIPSTART=<type >,< remote IP>,<remote port>,[<TCP keep alive>] • TCP multi-connection (AT+CIPMUX=1): AT+CIPSTART=<link ID >,< type>,<remote IP>,<remote port>,[<TCP keep alive>]
Response	OK or ERROR Returns ALREADY CONNECTED if the connection already exists
Parameter Description	•<link ID>: network connection ID (0~4), used for multiple connections • <type>: String parameter, connection type, "TCP", "UDP" or "SSL" •< remoteIP >: string parameter, remote IP address • <remote port>: remote port number

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	•[< TCPkeepalive >]: TCP keep-alive detection time, this function is disabled by default -0: Disable the TCP keep-alive function -1~7200: Detection time, the unit is 1s
Command example	AT+CIPSTART="TCP","iot.eswin.cn",8000 AT+CIPSTART="TCP","192.168.101.110",1000
Remark	This command requires STA to obtain addresses normally.

Command: AT+CIPSTART (UDP client)	
Set command	•In single connection mode (AT+CIPMUX=0): AT+CIPSTART=<type >,< remote IP>,<remote port>,[(<UDP local port>),(<UDP mode>)] • In multi-connection mode (AT+CIPMUX=1): AT+CIPSTART=<link ID >,< type>,<remote IP>,<remote port>,[<UDP mode>]
Response	OK or ERROR Returns ALREADY CONNECTED if the connection already exists
Parameter Description	•<link ID>: network connection ID (0~4), used for multiple connections • <type>: String parameter, connection type, "TCP", "UDP" or "SSL" •< remoteIP >: string parameter, remote IP address • <remote port>: remote port number •[<UDP local port>]: When UDP transmission, set the local port •[< UDPmode >]: The attribute of UDP transmission, if it is transparent transmission, it must be 0 -0: After receiving the data, do not change the remote target, the default value is 0 -1: After receiving the data, change the remote target once -2: After receiving the data, change the remote target Note: <UDP local port> must be filled in when using < UDPmode >.
Command example	AT+CIPSTART="UDP","192.168.101.110",1000,1002
Remark	This command requires STA to obtain addresses normally.

Command: AT+CIPSTART (SSL client)	
Set command	AT+CIPSTART =[<link ID>,]<type>,<remote IP>,

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	<remote port >,[<TCP keep alive>]
Response	OK or ERROR Returns ALREADY CONNECTED if the connection already exists
Parameter Description	•<link ID>: network connection ID (0~4), used for multiple connections • <type>: String parameter, connection type, "TCP", "UDP" or "SSL" •< remoteIP >: string parameter, remote IP address • <remote port>: remote port number •[< TCPkeepalive >]: TCP keep-alive detection time, this function is disabled by default -0: Disable the TCP keep-alive function -1~7200: Detection time, the unit is 1s
Command example	AT+CIPSSLSIZE=4096 AT+CIPSTART="SSL","iot.eswin.cn",8443
Remark	This command requires: 1. STA normally obtains the address 2. Only 1 SSL connection is supported at most. 3. SSL connections do not support transparent transmission. 4. SSL needs to take up a lot of space. If the space is insufficient, it will cause the system to restart. .

2.2.4.4. Send data (AT+CIPSEND)

Command: AT+CIPSEND	
Set command	Set command: • When single connection (+CIPMUX=0): AT+CIPSEND=<length> • When multiple connections (+CIPMUX=1): AT+CIPSEND=<link ID >,< length> • If it is UDP transmission, you can set the remote IP and port: AT+CIPSEND =[<link ID>,]<length>[,<remote IP>,<remote port>] Function: In normal transmission mode, set the length of sending data .
Response	Send data of the specified length . After receiving this command, wrap the line and return to ">", and then start to receive serial port data. When the data length reaches <length>, send data, and return to normal command mode, waiting for the next AT command.

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	If the connection is not established or the connection is disconnected, return: ERROR If the data is sent successfully, return: SEND OK If data sending fails, return: SEND FAIL
Parameter Description	•<link ID>: network connection ID number (0~4), used for multiple connections •<length>: Numerical parameter, indicating the length of the sent data , the maximum length is 2048 •[< remoteIP >]: UDP transmission can set the peer IP •[< remoteport >]: UDP transmission can set the remote port
Execute command:	AT+CIPSEND Function: In transparent transmission mode , start sending data.
Response	After receiving this command, wrap the line and return ">". Enter the transparent transmission mode to send data, each packet has a maximum of 2048 bytes, or each packet of data is separated by 20ms intervals. When a single packet of "+++" is input, return to 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 open transmission mode and single connection. If it is UDP transparent transmission, the command AT+CIPSTART parameter < UDPmode > must be 0.
Command example	AT+CIPSEND
Remark	This command requires STA to obtain the address normally

2.2.4.5. Close TCP/UDP/SSL connection (AT+CIPCLOSE)

Command: AT+CIPCLOSE	
Set command (for multi-connection case)	AT+CIPCLOSE=<link ID> Function: Close TCP/UDP transmission.
Response	OK
Parameter Description	< linkID >: The ID number of the connection that needs to be closed. When ID is 5, close all

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	connect. (ID 5 is invalid after the server is started)
Command example	AT+CIPCLOSE=1
Remark	This command requires STA to obtain the address normally

2.2.4.6. Create a TCP/UDP server (AT+CIPSERVER)

Command: AT+CIPSERVER	
Set command	AT+CIPSERVER =<mode> [,< port>],<type>
response	OK
Parameter Description	• <mode>: -0: shut down the server -1: build server • <port>: Port number, the default is 333. • <type>: • "TCP": TCP server • "UDP": UDP server
Command example	AT+CIPSERVER=1,8694，“TCP”
Response	OK
Remark	This command requires: 1. STA normally obtains the address 2. In the case of multiple connections (AT+CIPMUX=1), the TCP server can be opened. 3. After the TCP server is created, the TCP server monitoring is automatically established. 4. When a TCP client accesses, it will automatically occupy a connection ID.

2.2.4.7. Set the transmission mode (normal mode or transparent transmission mode) (AT+CIPMODE)

Command	**AT+CIPMODE**
Query command	AT+CIPMODE?
Response	+CIPMODE:<mode> OK
Response parameter description	<mode>: •0: Normal transmission mode •1: Transparent transmission mode , only supports TCP single connection and UDP fixed communication peers

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Set command	AT+CIPMODE=<mode>
Parameter Description	<mode>: •0: Normal transmission mode •1: Transparent transmission mode , only supports TCP single connection and UDP fixed communication peers
Command example	AT+CIPMODE=1
Remark	This command requires: 1. This setting is saved to Flash. 2. During transmission in transparent transmission mode , if the connection is disconnected, it will keep trying to reconnect . At this time, simply enter +++ to exit the transparent transmission, and the reconnection will stop; in normal transmission mode, the connection will not be reconnected, and the connection will be disconnected. 3.The default port rate is 115200.

2.2.4.8. Save the transfer link and enable automatic linking (AT+SAVETRANSLINK)

Command: AT+SAVETRANSLINK (TCP)	
Set command	AT+SAVETRANSLINK=<mode >,< remote IP or domain name>, <remote port> [,< type>,<TCP keep alive>]
Response	OK
Parameter Description	• <mode>: -0: Cancel the boot passthrough -1: Save boot into transparent transmission mode • < remoteIP >: remote IP or domain name • <remote port>: remote port •[<type>] (optional parameter): TCP or UDP, the default default is TCP •[< TCPkeepalive >] (optional parameter): TCP keep-alive detection, this function is disabled by default -0 : Disable the TCP keep-alive function -1 ~ 7200: Detection time, in seconds
Command example	AT+SAVETRANSLINK=1,"10.10.10.2",1002,"TCP" AT+SAVETRANSLINK=0 //Close
Remark	This command requires: 1. STA normally obtains the address

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	2. This setting saves the transparent transmission mode and the established TCP connection in the Flash system parameter area. The next time the power is turned on, the TCP connection is automatically established and the transparent transmission is entered. 3. As long as the remote IP and port values conform to the specification, this setting will be saved to Flash.

Command: AT+AT+SAVETRANSLINK (UDP)	
Set command	AT+SAVETRANSLINK=<mode >,< remote IP>,<remote port> ,< type>[,<UDP local port>]
Response	OK
Parameter description	• <mode>: -0: Cancel the boot passthrough -1: Save boot into transparent transmission mode • < remoteIP >: remote IP or domain name • <remote port>: remote port •[<type>] (optional parameter): UDP, the default default is TCP •[<UDP local port>] (optional parameter): the local port used when booting into UDP transmission
Command example	AT+SAVETRANSLINK=1,"192.168.6.110",1002,"UDP",1005
Remark	This command requires: 1. STA normally obtains the address 2. This setting saves the transparent transmission mode and the established UDP transmission in the Flash user parameter area. The next time the power is turned on, the UDP transmission is automatically established and the transparent transmission is entered. 3. As long as the remote IP and port values conform to the specification, this setting will be saved to Flash.

2.2.4.9. PING command (AT+PING)

Command: AT+PING	
Set command	AT+PING=<IP>
Response	+<time> OK or +timeout

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	ERROR
Parameter Description	• <IP>: String parameter, IP address • <time>: ping response time
Command example	AT+PING="192.168.1.1" AT+PING="www.baidu.com"
Remark	This command requires STA to obtain addresses normally.

2.2.4.10. Set station mac address (AT+CIPSTAMAC)

Command	**AT+CIPSTAMAC**
Query command	AT+CIPSTAMAC?
Query example	Input: AT+CIPSTAMAC? output: +CIPSTAMAC_CUR:"1a:2b:3c:4d:5e:6f" +CIPSTAMAC_DEF:"1a:2b:3c:4d:5e:6f"
Response parameter description	MAC address on the current STA CUR represents the currently used configuration, and DEF represents the configuration saved on Flash.
Set command	AT+CIPAP=<MAC >,< FLASH>
Field setting description	• <MAC>: STA's MAC address •<FLASH>: -" sn ": do not save Flash; -" sy ": Save Flash.
Command example	AT+CIPSTAMAC="9a:2b:3c:4d:5e:6f"," sy " //Set the MAC address of STA and save it to FLASH
Remark	This instruction has the limitation of MAC, that is, the MAC address must be a unicast address, and the unicast address is defined as the least significant bit of the first bit of the MAC address is 0. Example: The binary of 9a is 1001 101 0 . So the MAC can be configured. After this command is set, AT+RESTORE cannot be used to restore

2.2.4.11. Set station static IP (AT+CIPSTA)

Command	**AT+CIPSTA**
Query command	AT+CIPSTA?
Query example	Input: AT+CIPSTA? output:

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	+CIPSTA_CUR:"192.168.3.150" +CIPSTA_CUR:"192.168.3.1" +CIPSTA_CUR:"255.255.255.0" +CIPSTA_DEF:"192.168.3.150" +CIPSTA_DEF:"192.168.3.1" +CIPSTA_DEF:"255.255.255.0"
Response parameter description	Station's IP address, gateway, and mask. CUR represents the currently used configuration, and DEF represents the configuration saved on FLASH.
Set command	AT+CIPSTA=< ip >,< gateway>,<netmask>,<FLASH>
Field setting description	• < ip >: the IP address of the station • <gateway>: The IP address of the gateway. • <netmask>: Subnet mask •<FLASH>: -" sn ": do not save Flash; -" sy ": Save Flash.
Command example	AT+CIPSTA="192.168.3.150","192.168.3.1","255.255.255.0"," sy " //Set the Station's IP to 192.168.3.150, the gateway to: 192.168.3.1, the subnet mask to: 255.255.255.0, and save the flash.
Remark	1.The DSP server needs to be configured. 2.Executing this command will shut down the DHCP client.

2.2.4.12. Configure softap IP address (AT+CIPAP)

Command	**AT+CIPAP**
Query command	AT+CIPAP?
Query example	Input: AT+CIPAP? output: +CIPAP_CUR:"192.168.10.1" +CIPAP_CUR:"192.168.10.1" +CIPAP_CUR:"255.255.255.0" +CIPAP_DEF:"192.168.10.1" +CIPAP_DEF:"192.168.10.1" +CIPAP_DEF:"255.255.255.0"
Response parameter description	SoftAP 's IP address, gateway, and mask. the gateway delivered to the client as a DHCP server. CUR represents the currently used configuration, and DEF

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	represents the configuration saved on Flash.
Set command	AT+CIPAP=< ip >,< gateway>,<netmask>,<FLASH>
Field setting description	•< ip >: IP address of SoftAP •<gateway>: As the gateway issued by the DHCP server to the client. • <netmask>: Subnet mask •<FLASH>: -" sn ": do not save Flash; -" sy ": Save Flash.
Command example	AT+CIPAP="192.168.10.1","192.168.10.1","255.255.255.0"," sy " //Set SoftAP 's IP to 192.168.10.1, gateway to 192.168.10.1, subnet mask to 255.255.255.0, and save the Flash.
Remark	This command will turn off the AP's transmission, it needs to be powered on again, and the module will start the wifi by itself .

2.2.4.13. Configuring the MAC address of the STA (AT+CIPSTAMAC)

Command	**AT+CIPSTAMAC**
Query command	AT+CIPSTAMAC?
Query example	Input: AT+CIPSTAMAC? output: +CIPSTAMAC_CUR:"1a:2b:3c:4d:5e:6f" +CIPSTAMAC_DEF:"1a:2b:3c:4d:5e:6f"
Response parameter description	MAC address on the current STA CUR represents the currently used configuration, and DEF represents the configuration saved on Flash.
Set command	AT+CIPAP=<MAC >,< FLASH>
Field setting description	• <MAC>: STA's MAC address •<FLASH>: -" sn ": do not save Flash; -" sy ": Save Flash.
Command example	AT+CIPSTAMAC="9a:2b:3c:4d:5e:6f"," sy " //Set the MAC address of STA and save it to FLASH
Remark	This instruction has the limitation of MAC, that is, the MAC address must be a unicast address, and the unicast address is defined as the least significant bit of the first bit of the MAC address is 0. Example: The binary of 9a is 1001 101 0 . So the MAC can be configured.

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	After this command is set, AT+RESTORE cannot be used to restore

2.2.4.14. 2.2.4.14 Domain Name Resolution Service (AT+CIPDOMAIN)

Command	AT+CIPSTAMAC
Set command	AT+CIPDOMAIN =<"domain name" >[,< ip network>]
Field setting description	• <" domain name">: the domain name to be resolved •< ip network>: Preferred resolution 1. - Preferred resolution of IPV4 addresses
Command example	Input: AT+CIPDOMAIN="www.baidu.com" Output : +CIPDOMAIN:"39.156.66.14" OK
Remark	This command needs to be connected to the external network, otherwise it cannot be parsed. This command is used to resolve domain names. It is recommended that customers do not enter the second parameter because IPV6 resolution is not yet supported.

2.2.4.15. Set DNS server information (AT+ CIPDNS)

Command	AT+ CIPDNS
Query command	AT+CIPDNS?
Query example	Input: AT+CIPDNS? output: +CIPDNS_DEF:"208.67.222.222" +CIPDNS_DEF: "8.8.8.8" OK
Response parameter description	The IP address of the currently enabled DNS server.
Set command	AT+CIPDNS=<enable >[,<"DNS IP1">][,<"DNS IP2">]
Field setting description	• < enable > : configure DNS server settings -0: Enable automatic DNS server settings from DHCP. DNS will revert to 208.67.222.222 and 8.8.8.8. The Station's DNS server cannot be updated until the Station completes the DHCP process. -1: Enable manual DNS server settings. If you don't set a value

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	for it, it will use and by default . <DNS IPx >208.67.222.222 8.8.8.8 •<"DNS IP1">: The first DNS server IP address. For this command, this parameter is only valid if you set <enable> to 1, which enables manual DNS settings. If you set <enable> to 1 and the value of this parameter, the module will save its setting to FLASH. • <"DNS IP1">: The second DNS server IP address. For this command, this parameter is only valid if you set <enable> to 1, which enables manual DNS settings. If you set <enable> to 1 and the value of this parameter, the module will save its setting to FLASH.
Command example	AT+CIPDNS=1,"223.5.5.5","223.6.6.6"
Remark	It is not enabled by default. To enable it, just enter AT+CIPDNS=1.

2.2.5. BLE Commands

2.2.5.1. Bluetooth LE device address query (AT+BLEADDR)

Command	**AT+BLEADDR**
Query command	AT+BLEADDR?
Query example	Input: AT+BLEADDR? output: +BLEADDR:"aa:bb:c 2:d 3:dd:2a" OK

2.2.5.2. Start Bluetooth LE broadcast (AT+BLEADVSTART)

Command	**AT+BLEADVSTART**
Execute command	AT+BLEADVSTART
Execution example	Input: AT+BLEADVSTART output: OK

2.2.5.3. Stop Bluetooth LE broadcasting (AT+BLEADVSTOP)

Command	**AT+BLEADVSTOP**

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Execute command	AT+BLEADVSTOP
Execution example	Input: AT+BLEADVSTOP output: OK

2.2.5.4. Disconnect the Bluetooth LE connection (AT+BLEDISCONN)

Command	**AT+BLEDISCONN**
Execute command	AT+BLEDISCONN
Execution example	Input: AT+BLEDISCONN output: OK

2.2.5.5. Queryt Bluetooth LE Device Name (AT+BLENAME)

Command	**AT+BLENAME**
Query command	AT+BLENAME?
Query example	Input: AT+BLEADDR? output: +BLENAME:"EBYTE" OK

2.2.6. MQTT commands

2.2.6.1. Set MQTT user properties (AT+MQTTUSERCFG)

Command	**AT+MQTTUSERCFG**
Set command	AT+MQTTUSERCFG=< LinkID >,< scheme>,<" client_id ">,<"username">, <"password" >,< cert_key_ID >,<CA_ID>,<"path">
Field setting description	• < LinkID >: Currently only link ID 0 is supported. • <scheme>: 1: MQTT over TCP; 2: MQTT over TLS (do not verify the certificate); 3: MQTT over TLS (verify server certificate); 4: MQTT over TLS (provide client certificate); 5: MQTT over TLS (verify server certificate and provide client certificate); 6: MQTT over WebSocket (based on TCP); 7: MQTT over WebSocket Secure (based on TLS, no certificate

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	verification); 8: MQTT over WebSocket Secure (based on TLS, verify server certificate); 9: MQTT over WebSocket Secure (based on TLS, providing client certificate); 10: MQTT over WebSocket Secure (based on TLS, verify server certificate and provide client certificate) • < client_id >: MQTT client ID, maximum length: 256 bytes. •<username>: User name, used to log in to MQTT broker, maximum length: 64 bytes. •<password>: Password, used to log in to MQTT broker, maximum length: 64 bytes. •< cert_key_ID >: certificate ID, currently only supports MQTT over TCP, this parameter is 0. •<CA_ID>: CA ID, currently only supports MQTT over TCP, this parameter is 0. • <path>: resource path, maximum length: 32 bytes.
Command example	AT+MQTTUSERCFG=0,1,"NULL","1234&hojx8FqRlXm","0f586b6b73239bf2e7bb3c8f1de5bed9c72025aff88ac8ae0cb9710f24aecaf2",0,0,""
Remark	<scheme> Currently only 1: MQTT over TCP is supported.

2.2.6.2. Set MQTT client ID (AT+MQTTCLIENTID)

Command	**AT+MQTTCLIENTID**
Set command	AT+MQTTCLIENTID=< LinkID >,< " client_id ">
Field setting description	•< LinkID >: Currently only link ID 0 is supported. •< client_id >: MQTT client ID, the maximum length is the same as the user attribute description.
Command example	AT+MQTTCLIENTID=0,"hojx8FqRlXm.1234|securemode=2,signmethod =hmacsha256,timestamp=1663653106718|"
Remark	

2.2.6.3. Set MQTT login user name (AT+MQTTUSERNAME)

Command	**AT+MQTTUSERNAME**
Set command	AT+MQTTUSERNAME=< LinkID >,< "username">
Field setting	•< LinkID >: Currently only link ID 0 is supported.

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description	•<username>: User name, which is used to log in to the MQTT broker. The maximum length is the same as the user attribute description.
Command example	AT+MQTTCLIENTID=0,"User_Eb"
Remark	

2.2.6.4. Set MQTT login password (AT+MQTTPASSWORD)

Command	**AT+MQTTPASSWORD**
Set command	AT+MQTTPASSWORD=< LinkID >,< "password">
Field setting description	•< LinkID >: Currently only link ID 0 is supported. •<password>: password, which is used to log in to the MQTT broker, the maximum length is the same as the user attribute description.
Command example	AT+MQTTCLIENTID=0,"12345678"
Remark	

2.2.6.5. Set MQTT connection properties (AT+MQTTCONNCFG)

Command	**AT+MQTTCONNCFG**
Set command	AT+MQTTCONNCFG=< LinkID >,< keepalive>,< disable_clean_session >, <" lwt_topic " >,< " lwt_msg ">,< lwt_qos >,< lwt_retain >
Field setting description	• < LinkID >: Currently only link ID 0 is supported. •<keepalive>: MQTT ping timeout, unit: seconds. Range: [0,7200]. Default: 0. Note: When the value of this parameter is 0, the system will automatically modify it to 120 seconds. • < disable_clean_session >: Set the MQTT clean session flag. For more information about this parameter, please refer to the server chapter in the MQTT v3.1.1 protocol. -0: enable cleanup session -1: disable cleanup sessions • < lwt_topic >: Will topic, maximum length: 128 bytes. • < lwt_msg >: Will message, maximum length: 64 bytes. • < lwt_qos >: Will QoS, optional 0, 1, 2, default value: 0. • < lwt_retain >: Will retain, the parameter can be 0 or 1, the default value: 0.

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Command example	AT+MQTTCONNCFG=0,0,0,"lwt_topic","lwt_msg",2,1
Remark	

2.2.6.6. Connect to MQTT Broker (AT+MQTTCONN)

Command	**AT+MQTTCONN**
Query command	AT+MQTTCONN?
Query example	Input: AT+MQTTCONN? output: +MQTTCONN:< linkID >,< state>,<scheme>,<"host">,<port>, <"path" >,< reconnect>
Response parameter description	• < LinkID >: Currently only link ID 0 is supported. • <state>: MQTT state: -0: MQTT is not initialized; -1: AT+MQTTUSERCFG has been set; -2: AT+MQTTCONNCFG is set;- -3: The connection is disconnected; -4: Connection established; -5: connected, but not subscribed to topic; -6: Connected, subscribed to topic. • <scheme>: -1: MQTT over TCP; -2: MQTT over TLS (do not verify certificates); -3: MQTT over TLS (verify server certificate); -4: MQTT over TLS (provide client certificate); -5: MQTT over TLS (verify server certificate and provide client certificate); -6: MQTT over WebSocket (based on TCP); -7: MQTT over WebSocket Secure (based on TLS, no certificate verification); -8: MQTT over WebSocket Secure (based on TLS, verify server certificate); -9: MQTT over WebSocket Secure (based on TLS, providing client certificate); -10: MQTT over WebSocket Secure (based on TLS, verify server certificate and provide client certificate). •<host>: MQTT broker domain name, maximum length: 128 bytes.

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	• <port>: MQTT broker port, maximum port: 65535. Note: If the parameter value is 0, the actual port used by the system is 1883. • <path>: resource path, maximum length: 32 bytes. • <reconnect>: -0: MQTT does not automatically reconnect; -1: MQTT automatically reconnects, which consumes more memory resources.
Set command	AT+MQTTCONN=< LinkID >,< "host">,<port>,<reconnect>
Field setting description	• < LinkID >: Currently only link ID 0 is supported. •<host>: MQTT broker domain name, maximum length: 128 bytes. • <port>: MQTT broker port, maximum port: 65535. Note: If the parameter value is 0, the actual port used by the system is 1883. • <path>: resource path, maximum length: 32 bytes. • <reconnect>: -0: MQTT does not automatically reconnect; -1: MQTT automatically reconnects, which consumes more memory resources.
Command example	AT+MQTTCONN=0,"iot-06z00bfo2un5i67.mqtt.iothub.aliyuncs.com",1883,"",1
Remark	

2.2.6.7. Publish MQTT string message (AT+MQTTPUB)

Command	**AT+MQTTPUB**
Set command	AT+MQTTPUB=< LinkID >,< "topic">,<"data">,< qos >,<retain>
Field setting description	• < LinkID >: Currently only link ID 0 is supported. •<topic>: MQTT topic to which MQTT string messages are sent, maximum length: 128 bytes. • <data>: Published MQTT string message. •< qos >: QoS of the published message, the parameter can be 0, 1, or 2, the default value: 0. -0: QoS 0 level, Broker can receive a message published by Publisher at most once. -1: QoS1 level, Broker can receive the message published by Publisher at least once. -2: QoS2 level, Broker can only receive a message published by publisher once.

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	• <retain>: The message flag is reserved. -0: Broker does not keep messages in this topic. -1: Broker keeps the last message in the topic.
Command example	AT+MQTTPUB=0,"topic0","data_test",0,0
Remark	

2.2.6.8. Publish MQTT binary message (AT+MQTTPUBRAW)

Command	**AT+MQTTPUBRAW**
Set command	AT+MQTTPUBRAW=< LinkID >,< "topic">,<"data">,< qos >,<retain>
Field setting description	• < LinkID >: Currently only link ID 0 is supported. •<topic>: MQTT topic to which MQTT string messages are sent, maximum length: 128 bytes. • <data>: Published MQTT binary message. •< qos >: QoS of the published message, the parameter can be 0, 1, or 2, the default value: 0. -0: QoS 0 level, Broker can receive a message published by Publisher at most once. -1: QoS1 level, Broker can receive the message published by Publisher at least once. -2: QoS2 level, Broker can only receive a message published by publisher once. • <retain>: The message flag is reserved. -0: Broker does not keep messages in this topic. -1: Broker keeps the last message in the topic.
Command example	AT+MQTTPUBRAW=0,"topic0",10,0,0 response: OK > re-enter: 1234567890a response: + MQTTPUB: OK
Remark	After the command parses correctly, the response: OK > The symbol ">" indicates that the AT is ready to receive serial data, you can input data at this time, and within the specified

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	time, when the data length reaches the value of the parameter <length>, the data transmission starts. If it times out, only the received data is sent. If the transmission is successful, the AT returns: + MQTTPUB: OK If the transmission fails, the AT returns: + MQTTPUB:FAIL

2.2.6.9. Subscribe to MQTT Topic (AT+MQTTSUB)

Command	**AT+MQTTCONN**
Query command	AT+MQTTSUB?
Query example	Input: AT+MQTTUNSUB? output: +MQTTSUB:< LinkID >,< state>,<"topic1">,< qos > +MQTTSUB:< LinkID >,< state>,<"topic2">,< qos > +MQTTSUB:< LinkID >,< state>,<"topic3">,< qos > ... OK
Response parameter description	• < LinkID >: Currently only link ID 0 is supported. • <state>: MQTT state: -0: MQTT is not initialized; -1: AT+MQTTUSERCFG has been set; -2: AT+MQTTCONNCFG is set;- -3: The connection is disconnected; -4: Connection established; -5: connected, but not subscribed to topic; -6: Connected, subscribed to MQTT topic. • <topic>: subscribed topic. • < qos >: QoS of the subscription.
Set command	AT+MQTTSUB=< LinkID >,< "topic">,< qos >
Field setting description	• < LinkID >: Currently only link ID 0 is supported. • <topic>: subscribed topic. • < qos >: QoS of the subscription.
Command example	AT+MQTTSUB=0,"topic2",1
Remark	

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2.2.6.10. Unsubscribe from MQTT Topic (AT+MQTTUNSUB)

Command	AT+MQTTUNSUB
Set command	AT+MQTTUNSUB= LinkID >,< "topic">,< qos >
Field setting description	•< LinkID >: Currently only link ID 0 is supported. • <topic>: subscribed topic. • < qos >: QoS of the subscription.
Command example	AT+MQTTUNSUB=0,"topic2"
Remark	

2.2.6.11. Disconnect MQTT connection (AT+MQTTCLEAN)

Command	AT+MQTTCLEAN
Set command	AT+MQTTCLEAN=< LinkID >
Field setting description	• < LinkID >: Currently only link ID 0 is supported.
Command example	AT+MQTTCLEAN=0
Remark	

2.2.7. SYIO series instructions

Note: SYIO series commands can be used as common GPIO, please refer **to E103-W11 User Manual/Chapter 3 Pin Size Definition for details.**

Revision history

Version	Revision date	Revision version	Issued by
V1.0	2022-10-18	initial version	Chen
V1.1	2023-4-21	Revise the directory	Hao
V1.2	2024-6-18	Correction content	Hao
V1.3	2025-1-8	Correct Bluetooth command Settings	Hao
V1.4	2025-3-19	Instruction description modification	Hao
V1.5	2025-10-22	Instruction description modification	Hao

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