E103-W06 AT Command Manual



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1 AT Command

1. All modifications to this module's relevant parameters are performed via AT commands. Changes take effect after a power cycle following successful parameter modification via AT commands. Refer to the AT command table for details.
2. All AT commands must be entered as strings without carriage return or line feed characters.
3. Enter AT mode by entering '+++' under any circumstances. Upon entering AT mode, the serial port will display 'enter AT mode\r\n'.
4. Exit AT mode by entering 'AT+EXAT'. After exiting AT mode, the serial port will display 'break AT mode\r\n'.

Error Code Table:

Error Code	Instruction
-1	Instruction error, instruction does not exist
-2	Invalid parameter range
-3	Station manual connection failed
-4	Failed to read MAC address
-5	This mode does not support this operation.
-30	Failed to save parameters

Default parameters

Parameter category	Parameter Name	Parameter value	Related instructions
Serial port	baud rate	115200	AT+UART
	data bit	8	
	stop bit	1	
	Parity check	None	
	Serial port timeout	40（ms）	
	Serial frame length	1000	
Radio Frequency Parameters	Operating frequency	2.4G	AT+RADIO
	Channel	1	
	Transmission power level	0	
	CountryCode	CN	
AP Role SSID Parameters	SSID	E103-W06	AT+SSID
	Whether to hide the SSID	0（No）	
	Encryption type	2（WPA2）	
	Password	12345678	
Working Mode	Work role	1	AT+MODE
	Transmission mode	1	
	Service Model	1	
	IP address	10.145.45.1	AT+NETIP

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Network IP address	Subnet mask		255.255.255.0	
	Gateway address		10.145.45.1	
	Server address		10.145.45.1	
P2P Connection Parameters	P2P scanning interval		20	AT+P2PDEVINFO
	P2P role		0（client）	
	P2P Local name		E103-W06WiFiDirectClient	
	P2P Target Name		E103-W06WiFiDirectGo	
P2P socket	P2P Port		4001	AT+P2PSOCKET
	P2P Address		10.145.45.1	
STA Connection Parameters	Target SSID		E103-W06	AT+STACON
	Encryption type		2	
	Password		ebytew06	
	Connection type		1	AT+CONTYPE
Local socket parameters	Local port		4001	AT+SVRPORTIP
	Local IP address		10.145.45.1	
Remote socket parameters	Socket1	port	4001	AT+SOCKET
		IP	10.145.45.2	
	Socket2	port	4002	
		IP	10.145.45.2	
	Socket3	port	4003	
		IP	10.145.45.2	
	Socket4	port	4004	
		IP	10.145.45.2	
Heart rate parameters	4-way socket identical	Heartbeat type	0（closed）	AT+HEARTBT
		Heartbeat timeout	5（Unit: seconds）	
		Heartbeat data type	1（string）	
		Heart rate data	CDEBYTE-E103-W06-STRHT	
Register package parameters	4-way socket identical	Registered Package Type	0（closed）	AT+REGISTER
		Registered Package Data Type	1（string）	
		Registration package data	CDEBYTE-REGISTER-PACK-STR	
NTP time	NTP time zone offset		480（Unit: Points）Beijing time	AT+NTPTIME
Modbus	Modbus Enable		0（Disable Modbus）	AT+MODBUS

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Static IP address	IP address	10.145.45.2	AT+IPSTATIC
	Subnet mask	255.255.255.0	
	Gateway address	10.145.45.1	
	Server address	10.145.45.1	

1.1 AT+UART configuration and reading serial port parameters

Command	Reply		Parameter
Query: AT+UART?	AT+UART=P1,P2,P3,P4,P5,P6		P1: Baud rate, P2: Data bits, P3: Stop bits, P4: Parity bit, P5: Serial port receive timeout, P6: Frame length
Set：AT+UART=115200,8,1,0,40,1000	Success	AT+UART=115200,8,1,0,40,1000 Successfully return the set value	
	Failure	ERR=x x: Error code	

Parameter range：

baud rate：P1	data bit：P2	stop bit：P3	Check digit：P4	Serial port timeout：P5	Frame length：P6
1200,2400,4800,9600,14400,19200 28800,38400,57600,76800,115200 230400,250000,460800,921600 1382400, 2000000,3000000	7 8	1：stop bit 1 2：stop bit 2	0 ： No parity 1 ： Odd parity 3 ： Even parity	Range [1,65535] Unit: milliseconds	[20,1000]

Restart to take effect

Note: When utilising 3M high-speed baud rates, observe the following:

1). Where possible, connect the module directly to a USB 3.0 or higher port on the PC to prevent packet loss;

2). The serial communication software employed must support 3M baud rates;

3). The serial communication chip used must support 3M baud rates; the CP2102 series is recommended (this is the chip utilised on our company's test board).

1.2 AT+SSID configuration, reading SSID information in AP mode

Command	Reply	Parameter
Query:: AT+SSID?	AT+SSID=P1,P2,P3,P4	P1: Whether to hide

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			the SSID P2: SSID name P3: Encryption type P4: Password
Set： AT+SSID=0,E103-W06-TEST,2,12345678	Success	AT+SSID=0,E103-W06-TEST,2,12345678 Successfully return the set value	
	Failure	ERR=x x: Error code	

Parameter range：

P1： Whether to hide SSID	P2：SSID	P3：Encryption type	P4：Password
0: Disable hiding 1: Enable hiding	A string not exceeding 32 bytes	0：open，1：WEP，2：WPA2	[8,32] Byte string

Note: When the encryption type is set to “open”, the password may be left blank and not configured.
Restart to take effect

1.3 AT+MODE configuration and reading operating mode

The model comprises roles, transport modes, and network service modes.

Command	Reply		Parameter
Query：AT+MODE?	AT+MODE=P1,P2,P3		P1: Role, P2: Transmission Mode, P3: Service Mode
Set：AT+MODE=1,1,1	Success	AT+MODE=1,1,1 Successfully return the set value	
	Failure	ERR=x x: Error code	

Parameter range：

P1	P2	P3
1: AP mode, 2: STA mode, 3: Wi-Fi Direct	1: Transparent transmission, 2: Protocol transmission	1:TCP server,2:TCP client,3:UDP 4:MQTT,5:HTTP client,6:WebSocket

Note: When configured in WiFi Direct mode (P2P), the P2 and P3 parameters are currently inactive. However, they will become active upon switching back to AP or STA mode.
Restart to take effect

1.4 AT+RADIO configuration, reading radio frequency parameters (frequency, channel, power)

Command	Reply	Parameter
Query：AT+RADIO?	AT+RADIO=P1,P2,P3,P4,P5	P1: 2.4 GHz channel, P2: 5 GHz channel, P3: 5 GHz enabled, P4: Power,P5:CountryCode

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Set：AT+RADIO=1,,36,0,0,CN	Success	AT+RADIO=1,36,0,0,CN Successfully return the set value
	Failure	ERR=x x: Error code

Parameter range：

P1	P2	P3	P4	P5
Channel numbers (1–13) at the 2.4 GHz frequency	Channel numbers under 5G frequencies (referencing values for the China region)	Is 5G enabled?0：2.4G，1：5G	Power rating: 0–15	CountryCode:CN

Note:

1. As WiFi channel bands vary across different countries and regions, and owing to the multitude of parameters involved, this module currently supports only the band for the China region (CountryCode CN). This means settings for P5 other than CN will not take effect. Customisation is available upon request. Supported 2.4GHz bands for China: [1,13]. Supported 5GHz bands: 36,40,44,48,149,153,157,161,165.
2. 0–15 denotes power levels, not actual power output. 0 represents the maximum power level (18dBm); 15 denotes the minimum power level. For detailed specifications, refer to the CC3235SF Data Sheet. Levels [0,15] decrease sequentially. (This command modifies power settings exclusively in AP mode).
3. Restart to take effect

1.5 AT+MQTT configuration for MQTT

Command	Reply	Parameter
Query：AT+MQTT?	AT+MQTT=P1,P2,P3,P4,P5,P6,P7,P8,P9,P10(,P11)	For details, see the subsequent section on ‘Parameter Range’.

Set：AT+MQTT=2,561986583,288258,ebyte12345,mqtt.heclouds.com,6002,get,0,get,0	Success	AT+MQTT=2,561986583,288258,ebyte12345,mqtt.heclouds.com,6002,get,0,get,0 Successfully return the set value
	Failure	ERR=x \ x: Error code

Parameter Range:

Depending on the connected MQTT platform, three scenarios apply:

1、 When connected to Alibaba Cloud, i.e. when item P1 is 0

P1:platform	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
0	Product Key	Equipment Name	client_ID	Device Key	address	port	Subscribe to topics	Subscribe to QOS	Post Topic	Release QOS

2、 When connected to Baidu Cloud, i.e. when P1 is set to 1

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P1:platform	P2	P3	P4	P5	P6	P7	P8	P9	P10
1	Equipment Name	Username	password	address	port	Subscribe to topics	Subscribe to QOS	Post Topic	Release QOS

3、 When connected to ONENET, i.e. when P1 is set to 2

P1:platform	P2	P3	P4	P5	P6	P7	P8	P9	P10
2	Device ID	Product ID	Authority Information (Device Name)	address	port	Subscribe to topics	Subscribe to QOS	Post Topic	Release QOS

4、 Universal MQTT Platform

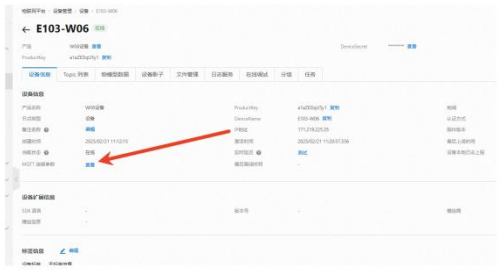
P1:platform	P2	P3	P4	P5	P6	P7	P8	P9	P10
3	client id	Username	User password	address	port	Subscribe to topics	Subscribe to QOS	Post Topic	Release QOS

5、 Universal MQTT Platform

P1:platform	P2	P3	P4	P5	P6	P7	P8	P9	P10
4	client id	Username	User password	address	port	Subscribe to topics	Subscribe to QOS	Post Topic	Release QOS

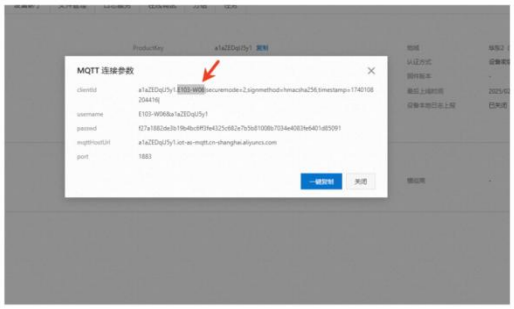
Note：

1、 The maximum length for Alibaba Cloud product keys is 18 bytes, device names are 20 bytes, client_id is 20 bytes, and device keys are 40 bytes.

To view or select the Alibaba Cloud Client ID, navigate to the MQTT device interface and click on the MQTT connection parameters to access it.	

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The current Client ID is E103-W06; users may select it as required. Should users encounter a different Client ID during operation, this typically corresponds to the device name in use.	

2、 Baidu Cloud device names may be up to 20 bytes in length, usernames up to 30 bytes, and passwords up to 20 bytes. Select key-based authentication as the authentication method.

3、 The maximum length for Onenet device IDs is 10 bytes, the maximum length for product IDs is 10 bytes, and the maximum length for authentication credentials is 20 bytes.

4、 The maximum address length is 65 bytes. The maximum subscription length is 60 bytes. The maximum publication length is 60 bytes. Subscription QOS and publication QOS can only be 0, 1, or 2.

Restart to take effect

1.6 AT+HTTPCLIENT Configuration for HTTPCLIENT

Command	Reply	Parameter Specifications
Query : AT+HTTPCLIENT?	AT+HTTPCLIENT=P1,P2,P3, P4,P5,P6	P1: IP address, P2: Port number. P3: Request method. P4: Output method. P5: URL. P6: Custom.
Set: AT+HTTPCLIENT=192.168.4.100,8886,0,0,test.txt,Connection: keep-alive	Success	AT+HTTPCLIENT=192.168.4.100,8886,0,0,test.txt,Connection: keep-alive Successfully return the set value
	Failure	ERR=x x: Error code

Parameter range:

Note:

1. Request method: 0-GET, 1-POST. Output method: 0-valid data output, 1-full output.

2. For P4 output mode, it is recommended to use full output mode, with users parsing the content themselves. Due to network constraints, packet sticking may occur during reception. Without a specified delimiter, the module cannot perfectly segment packets, posing a risk of data anomalies. If outputting only valid content is essential, customisation is possible under specified delimiter conditions.

3. Upon successful connection restart, serial input content will automatically append to the URL. For instance, to access the file `/test.txt`, input `AT+HTTPCLIENT=192.168.4.100,8886,0,1,/,Connection:keep-alive`, restart, and after connection succeeds, enter `test.txt`.

Restart to take effect

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1.7 AT+WEBSOCKET configuration for WebSocket

Command	Reply	Parameter Specifications
Query：AT+WEBSOCKET?	AT+WEBSOCKET=P1,P2,P3	P1: IP address, P2: port number.P3: Origin

Set：AT+WEBSOCKET=192.168.4.100,8886,http://192.168.4.100		
	Success	AT+WEBSOCKET=192.168.4.100,8886,http://192.168.4.100 Successfully return the set value
	Failure	ERR=x x:Error code

Restart to take effect

1.8 AT+P2PDEVINFO configuration and reading WiFi Direct (P2P) parameters

Command	Reply	Parameter
Query：AT+P2PDEVINFO?	AT+P2PDEVINFO =P1,P2,P3,P4	P1: Scan duration, P2: Current role, P3: Local device name, P4: Remote device name

Set：AT+P2PDEVINFO=30,1,E103-W06WiFiDirectGo,E103-W06WiFiDirectClient		
	Success	AT+RADIO=1,36,0,0,CN Successfully return the set value
	Failure	ERR=x x: Error code

Parameter range

P1	P2	P3	P4
Scan interval in WiFi Direct mode: 20–1000 (seconds)	0：client 1：GroupOwner	Local device name: A string of less than 32 bytes	Peer device name: A string of less than 32 bytes

Restart to take effect

1.9 AT+P2PSOCKET configuration, reading WiFi-Direct (P2P) port and IP address

Command	Reply	Parameter
Query：AT+P2PSOCKET?	AT+P2PSOCKET=P1,P2	P1: Port, P2: IP address

Set：AT+P2PSOCKET=4001,192.168.1.1		
	Success	Successfully return the set value
	Failure	ERR=x x: Error code

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Parameter range

P1：Port	P2：IP address
[0,65535]	[0,254]

Note:

1. In WiFi Direct mode, there are two roles: Client and Group Owner. Under the Group Owner role, the port number may be altered; under the Client role, both the port and IP address may be modified.
2. In Client mode, the settings pertain to the peer device's port and IP address, i.e., the remote port and IP; under the Group Owner role, the settings pertain to the local port.

Restart to take effect

1.10 AT+NETIP configuration, read AP network IP address

Command	Reply		Parameter
Query：AT+NETIP?	AT+NETIP=P1,P2,P3,P4		P1: IP address P2: Subnet mask P3: Gateway address P4: DNS server address
Set：AT+NETIP=192.168.1.111, 255.255.255.0,192.168.1.31,192.168.1.31	Success	Successfully return the set value	
	Failure	ERR=x x: Error code	

Parameter range:

P1	P2	P3	P4
0~255			

Restart to take effect

Note: This command only applies to the Access Point. To query the IP address of a Station, use the AT+GETNETIP? command.

To configure a static IP address for a Station, use the AT+IPSTATIC command.

1.11 AT+STACON configuration, read STA connection parameters

Command	Reply		Parameter
Query：AT+STACON?	AT+STACON=P1,P2,P3		P1: Target SSID name, P2: Encryption type, P3: Password
Set：AT+STACON= ebytew06,2,12345678	Success	Successfully return the set value	
	Failure	ERR=x x: Error code	

Parameter range:

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P1	P2	P3
Target SSID, string less than 32 bytes	Encryption type:0:open , 1:WEP , 2:WPA2,5:wap2-eap,12:wpa3	Password, less than 32 bytes in length

Note：

1. P2 encryption type: if set to open, P3 password may be left blank and not configured

Restart to take effect

1.12 AT+CONTYPE sets the connection type

Command	Reply		Parameter
Query：AT+CONTYPE?	AT+CONTYPE=P1		P1: Connection type. 1：
Set：AT+CONTYPE=P1	Success	AT+CONTYPE=P1 Successfully return the set value	
	Failure	ERR=x x: Error code	

Note: P1 denotes the connection type. Although this command can be configured in AP mode, it must be set in STA (station) mode to take effect.

Parameter range: Must be 1, 2, or 3

1: Automatic connection. Connects automatically based on the SSID stored in the flash memory (derived from the AT+STACON command);

2: SmartConfig connection. Connects automatically based on the SSID parameters configured via SmartConfig.

3: Manual connection. Connects to a specified access point using the parameters from the command: AT+HDCONTO=P1,P2,P3.

Restart to take effect

1.13 AT+HDCONTO Manually connect to AP

Command	Reply		Parameter
AT+HDCONTO=P1,P2,P3	Success	Unresponsive	P1: SSID name, P2: Encryption type, P3: Password
	Failure	ERR=x x: Error code	

Parameter range:

P1	P2	P3
SSID name (not exceeding 32 bytes)	Encryption type. 0: open, 1: WEB, 2: WPA2	Password (not exceeding 32 bytes)

Note：

1. The terms “success” and “failure” here merely indicate whether the configuration parameters comply with the connection rules; they do not signify a successful connection. The final connection status must be determined by monitoring the indicator pin. These parameters are not stored in flash memory and will be lost upon power-off. This command is only applicable in STA mode.

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For example, to connect to a Wi-Fi network named: ebytew06, with password: 12345678, and encryption type: WPA2, enter the command: AT+HDCONTO=ebytew06,2,12345678

2. If the target SSID is open-type, P3 may be left blank.

3. This command is only supported when operating in the STA role.

Effective immediately

1.14 AT+DISCON Disconnect

Instruction	Response		Parameter Specifications
AT+DISCON	Success	disconnect	None
	Failure	ERR=x x: Error code	

Note：

1. A successful return of “disconnect” upon executing this command merely indicates that the module has received the instruction. The final determination of whether the connection is severed is based on the status of the W_LINK indicator pin.

2. This command is only supported when operating in the STA role.

Effective immediately

1.15 AT+SOCKET?P1 configuration, read SOCKET port and IP address

Command	Reply	Paramter
Query：AT+SOCKET?P1	AT+SOCKET=P1,P2,P3	P1: socket number, P2: port, P3: IP address

Set：AT+SOCKET=0,4001,192.168.1.1	Success	Returns the set value
	Failure	ERR=x x: Error code

Parameter range:

P1:socket Marking	P2:Port number	P3:IP address
[0,3]	[0,65535]	[0,255]

Note:

1. This command configures the remote port and IP address for protocol transmission. A total of four ports and addresses may be set independently.

2. When the transmission mode is set to transparent mode, the first set of parameters will be used by default.

Restart to take effect

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1.16 AT+SVRPORTIP configuration, reading local port and IP address

Command	Reply		Parameter
Query：AT+SVRPORTIP?	AT+SVRPORTIP =P1,P2		P1: Local port, P2: Local IP address
Set：AT+SVRPORTIP =4001	Success	Returns the set value	
	Failure	ERR=x x: Error code	

Note: This command is primarily used to query and configure the local port number and IP address in TCP server mode, as well as to query and configure the local port number and IP address in UDP mode. It should be noted that in STA mode, if a WiFi connection has not been established, the returned IP address will be 0. The local IP address will only be obtained after a connection has been established.
Restart to take effect

1.17 AT+HEARTBT configuration and reading heartbeat packet parameters

Command	Reply		Parameter
Query：AT+HEARTBT?0	AT+HEARTBT=P1,P2,P3,P4,P5		P1: Tag ID, P2: Heartbeat packet type, P3: Heartbeat timeout, P4: Heartbeat data type, P5: Heartbeat data
Set：AT+HEARTBT=0,1,5,1, CDEBYTE-E103-W06-STRHT	Success	Successfully return the set value	
	Failure	ERR=x x:Error code	

Parameter range:

P1	P2	P3	P4	P5
Socket label Range [0,3]	Heartbeat packet type: 0: Heartbeat packet disabled 1: Serial port heartbeat 2: Network heartbeat 3: Serial port + network heartbeat	Heartbeat timeout: [0, 65535] Unit: seconds	Heartbeat data types: 1: String 2: HEX	Heart rate data, not exceeding 40 bytes

Note：
1.P1 denotes the socket label, corresponding to the socket ID for protocol transmission, within the range [0,3]. When operating in transparent transmission mode, heartbeat packets are printed according to the configuration settings of the first channel, i.e., the parameters for socket label 0.
2.If the heartbeat data type is set to HEX mode, configuration must adhere to HEX format rules: heartbeat data must consist solely of characters 0 through F. Data is aligned in pairs of two digits,

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padding with zeros on the right where necessary. For example, to set heartbeat data to HEX format, send the command:

AT+HEARTBT=0,5,2,1f2a3b4. Since the third digit is 2 (indicating HEX format), the data will be aligned as: 1f 2a 3b 40.

3.If serial heartbeat packets are enabled and the transmission mode is protocol transmission, the serial port will output data in the protocol transmission format.

Effective immediately

1.18 AT+ REGISTER configuration, reading register package parameters

Command	Reply		Parameter
Query：AT+ REGISTER?0	AT+ REGISTER=P1,P2,P3,P4		P1: Designation, P2: Registration package type, P3: Registration package data type, P4: Registration package data
Set：AT+REGISTER=0,1,2,313233343536373839	Success	Return the set value	
	Failure	Return the error code	

Parameter range：

P1：Marking	P2：Registered Package Type	P3：Packet Type	P4 ： Registration package data
[0,3]	0: Disabled 1: Send MAC address upon connection 2: Prepend MAC address to each data packet 3: Send custom data upon connection 4: Append custom data to each data packet 0: Disabled 1: Send MAC address upon connection 2: Prepend MAC address to each data packet 3: Send custom data upon connection 4: Append custom data to each data packet	1：String 2：HEX	Maximum length of 60 bytes

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Note：

1. P1 denotes the socket label, corresponding to the socket ID for protocol transmission, within the range [0,3]. When operating in transparent transmission mode, the registration packet prints the configuration information of the first channel, i.e., the parameters for socket label 0.
2. If the registration packet data type is set to HEX mode, configuration must adhere to HEX format rules: data must comprise characters 0 through F. Data is aligned in pairs of two digits, padding with zeros on the right where necessary. For instance, to configure heartbeat data in HEX format, send the command: AT+HEARTBT=0,5,2,1f2a3b4. Since the third digit is 2 (indicating HEX format), the data will be aligned as: 1f 2a 3b 40.
3. If the registered packet type is MAC address-related (e.g., transmitting MAC address upon connection or appending MAC address to each packet), parameter P3 (data packet type) will be designated as HEX format, and parameter P4 will be set to the MAC address obtained internally by the module.

Effective immediately.

1.19 AT+NTPTIME configuration, reading NTP time

Command	Reply		Note
Query：AT+NTPTIME?	NTP time:Mon Aug 24 11:16:00 2020.Zone=480		
Set：AT+NTPTIME=Zone	Success	AT+NTPTIME=Zone Zone: Set value	
	Failure	ERR=x x: Error code	

Note：

1. This command only takes effect in STA mode after connecting to the network.
2. The time is output in the following format: weekday, month, day, hour, minute, second, year.
3. Zone represents the offset relative to GMT time. For example, Beijing Time is UTC+8, so Zone = 8 × 60 (minutes).
4. When configuring parameters, only the GMT time offset may be set. The specific value is calculated according to the relevant time zone, with the unit being minutes. 5. Zone range: [-720, 840]

Effective immediately.

1.20 AT+MAC to read the MAC address

Command	Reply	Parameter
Query：AT+MAC?	AT+MAC=P1	P1: MAC address, string format

1.21 AT+SMARTCFG SmartConfig network configuration

Command	Reply	Parameter
AT+SMARTCFG	Enter SmartConfig	Indicates entry into SmartConfig mode

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Upon completion of network configuration, the module will automatically reboot. Configuration timeout will also trigger a reboot.
Effective immediately.

1.22 AT+VERSION reads hardware and software to retrieve version numbers

Command	Reply	Parameter
AT+VERSION	AT+VERSION=HV:p1,SV:p2	P1: Hardware version number, P2: Software version number

Note: This command cannot be configured; it is read-only.

1.23 AT+RESET Restart Module

Command	Reply	Parameter
AT+RESET	RESET	Return RESET indicates that the command has been successfully executed.

Note: Upon executing this command, the module will reset and restart. User parameters will not be lost, as this action is equivalent to a simple power-up. Prior to restarting, the serial port will output the message: RESET.

1.24 AT+RESTORE Reset to factory settings

Command	Reply	Parameter
AT+RESTORE	RESTORE	Returns RESTORE indicates that the command has been executed successfully.

Note: Upon execution of this command, the module will reset and reboot, restoring all parameters to their default values. Consequently, any user-configured parameters will be invalidated. Prior to the reset and reboot, the serial port will output the message: RESTORE.

1.25 AT+SLEEPIN Enter Sleeping

Command	Reply	Parameter
AT+SLEEPIN	sleep	Enter sleeping

Note: To wake the module, apply a rising edge level exceeding 200 milliseconds to the WAKEUP pin (GPIO_13). Upon awakening, the module will print ‘wakeup’ to the serial port, Or data received via the serial port.

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1.26 AT+IPSTATIC configuration, read static IP address

Command	Reply		Note
Query：AT+IPSTATIC?	AT+IPSTATIC= p1,p2,p3,p4,p5		p1: Enable p2: IP address p3: Subnet mask p4: Gateway address p5: DNS server
Set： AT+IPSTATIC=p1,p2,p3,p4,p5	Success	Return the set value	

Please note：

1. This parameter only takes effect in STA mode. Using this command in non-STA mode will result in an error, as this operation is not supported.
2. If the static IP function is disabled, only p1 needs to be configured when setting parameters. Parameters p2, p3, p4, and p5 are invalid and will not be saved even if configured in this module. The same applies to queries.
3. The IP address must reside within the same subnet as the target AP or router. Otherwise, it will fail to operate due to the inability to assign a valid IP address. For instance, if the target AP's IP address is 10.123.145.1, the configured static IP must be within the 10.123.145.x range.

Parameter range:

p1：Enable	p2：IP address	p3：Subnet mask	p4 ： Gateway address	p4：Server address
0: Off 1: On	A number not exceeding 255 within the same subnet as the target AP	Not exceeding 255	Not exceeding 255	Not exceeding 255

Restart to take effect

1.27 AT+MODBUS configuration and Modbus query

Command	Reply		Note
Query：AT+MODBUS?	AT+MODBUS=p1		0: Off 1: On
Set：AT+ MODBUS=p1	Success	Return the set value	
	Failure	Return error code	

Effective immediately.

1.28 AT+SCAN scan nearby access points

Command	Reply	Parameter

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AT+SCAN	Success：+scan:p1,p2,p3,p4 Failure：no ap scan	

Note：

1. Scanning nearby access points is only effective when operating in STA mode, with the connection method set to manual, and no Wi-Fi connection established. Otherwise, ERR=-5 will be returned, indicating this operation is unsupported in such conditions.

2. If nearby access points are detected, the returned information will follow this format:

Fixed Head	SSID	MAC(BSSID)	channel	rssi
+scan:	Maximum 32 bytes	17 bytes	Maximum 3 bytes	Maximum 3 bytes
+scan:	TEST_ZW	14:AD:CA:AA:91:D6	4	-69

+scan:tenda_TX,B8:3A:08:AC:46:E1,1,-71

Each parameter is separated by a comma “,” and terminated by a carriage return line feed (\r\n). MAC addresses (BSSIDs) are separated by a colon “:”.

1. To scan 5GHz band access points, the 5GHz function must be enabled; otherwise, the module will only detect 2.4GHz band AP information. The distinction between 5GHz and 2.4GHz lies in their channel ranges: 2.4GHz channels span [1,13], while channels above 13 belong to the 5GHz band.
2. A maximum of 30 AP entries can be scanned per session.

1.29 AT+GETNETIP retrieves the STA's IP address information

Command	Reply	Parameter
AT+GETNETIP?	AT+GETNETIP=P1,P2,P3	P1: IP address P2: Gateway P3: DNS server

Note: This command is for querying purposes only and cannot be used for configuration.

1.30 AT+FWCODE Retrieve the module firmware number

Command	Reply	Parameter
AT+ FWCODE?	AT+GETNETIP=P1	P1：Firmware version

Note: This command was upgraded in version 1.5 and later.

1.31AT+SCANINTERVAL Configure the cache duration for storing AP information in STA mode under 5G

Command	Reply	Parameter
AT+ STAROAM?	AT+STAROAM=P1,P2	P1: Enable roaming functionality in STA mode (0: Disabled, 1: Enabled) P2: Roaming threshold (0, -90)

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		P1: Enable roaming functionality in STA mode (0: Disabled, 1: Enabled)
AT+STAROAM=P1,P2	AT+STAROAM=P1,P2	Configure relevant parameters

1.32 AT+STACONEAPCFG AP configuration in STA mode

Command	Reply	Parameter
AT+STACONEAPCFG?	AT+STACONEAPCFG=P1,P2	P1: EAP encryption ID currently only supports 0 (PEAPv0-MSCHAPv2) P2: Username and password must match the password specified in AT+STACON
AT+STACONEAPCFG=P1,P2	AT+STACONEAPCFG=P1,P2	

1.33AT+DEVICETIME Configure module network time

Command	Reply	Parameter
AT+DEVICETIME?	AT+DEVICETIME=P1,P2,P3,P4,P5,P6	P1：YEAR P2：MONTH（1-12） P3：DAY（1-31） P4：HOUR（0-23） P5：MINUTE（0-60） P6：S（0-60）
AT+DEVICETIME=P1,P2,P3,P4,P5,P6	AT+DEVICETIME=P1,P2,P3,P4,P5,P6	

1.34 Instructions for writing to the CA file

Command	Reply	Parameter
###	enter MODE_WIRTE_FILE mode	Enter file write mode
AT+STARTWRITE	>	Enter write
After the prompt appears, write the file contents.		
AT+WRITEOVER		Indicates that the file content has been written successfully.
AT+EXITWRITE	exit MODE_WIRTE_FILE mode	Cancel write (takes effect before using AT+WRITEOVER)

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2 Software Upgrade and Update Log

Firmware number/version number	Update Details
V1.0	First edition
V1.1	Based on the first version, the following features have been added: STA static IP address configuration, Modbus protocol conversion, pin reset to factory settings, along with fixes to IP address configuration rules and the addition of scanning and printing AP information.
V1.2	Optimise the conversion functionality between Modbus TCP and Modbus RTU.
V1.3	1. Added English web configuration interface. 2. Added serial port wake-up function after hibernation. 3. Optimised IO factory reset logic to perform continuous detection over a period, rather than a single check. 4. Fixed issue where many input fields in web configuration could not accept special characters. 5. Resolved NTP non-response issue. 6. Corrected several other textual errors.
V1.4	1.Fixed an issue where the web page configuration could not be set to 1200 and 2400 baud rates.
V1.5	1. Resolved an issue where IPSTATIC could not input non-subnet IP addresses for gateways and DNS servers in layer-3 switch networks. Simultaneously removed the NETIP restriction. As the module currently lacks AP+STA functionality, this NETIP restriction is not in effect. 2. Fixed an issue where AT+GETNETIP returned results regardless of input. 3. Addressing inconsistent version numbering, a new command for querying FWCODE has been implemented, separating the Firmware Code from the Software Version.
V1.6	1. Revised the power rating descriptions in the manual.
V1.7	1.Revised descriptions for certain commands 2.Added command for writing CA certificates 3.Added enterprise encryption

Note: This information may be retrieved via the AT+VERSION and AT+FWCODE commands.

All manuals are updated to the latest version in line with software changes.

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