**HC-21 WiFi HC-21 WiFi module module AT instruction protocol set AT command set of protocols**

**1.1 Description**

This module uses the AT+ command Protocol as user control protocol.

AT+ command protocol uses a command line based ASCII format instruction set. The following syntax and processes are described below:

Syntax

<>: Indicates part must be included

[]: Indicates an optional part

Command message

AT+ <CMD> [op][para1] ， [para2] ， [para3] ， [para4]... <CR> AT + <CMD> [op] [para1],[para2], [para3], [para4] ... <CR>

CMD: command string

[Op]: order operator - when the command requires a parameter, specify the type

of operation parameters, including, [Op]: command operator, when the command requires parameters, you can specify the type of operation parameters, including:

=, Parameters = Parameter/return value/return value leader Preamble

=! , When you set the parameters of these commands, said it would modify thesynchronization to Flash =!, Set the parameters in the class command, said it would modify synchronized to flash =? ,

When you set the parameters of these commands, the query current settings =?, Setthe parameters in the class command,

check the current settings

<CR>: carriage return, ASCII characters 0x0d <CR>: Enter, ASCII characters 0x0d

◇ ◇ Response messages Response message

+<RSP>[op][para1] ， [para2] ， [para3] ， [para4]... <CR><LF><CR><LF> + <RSP> [Op]

[para1], [para2], [para3], [para4] ... <CR> <LF> <CR> <LF>

+: Prefix + response messages: Response message prefix

RSP: response string RSP: response string

OK OK success success

ERR ERR failure Failed

<CR>: carriage return, 0x0D ACSII character <CR>: Enter, ACSII characters 0x0d

<LF>: line, ACSII character 0x0A <LF>: Wrap, ACSII character 0x0A

Data types are Data Types

String: a string surrounded by double quotation marks, the content does not containquotation marks, for example: "this is a string" String:string to

double quotes, the content without the quotes, such as: "this is a string"

Dec: decimal numbers, such as 10 Dec:decimal numbers, such as:10

Hex:16 digital, such as: a Hex:16 hexadecimal digits, such as:a

Ip:ip the address string, for example: 192.168.0.1 Ip:ip address string, eg:192.168.0.1

MAC: from 12 to 16 binary digits, such as 001EE3A80102 MAC:the 12 hexadecimal digits,such

as 001EE3A80102

1.1.2 1.1.2 process processing

AT+ directive using command + response in the form of the agreement, the vast majority of instruction requires the receiver response message is returned after the processing iscomplete,

If during processing of the previous command, once again received new orders, it issilently discarded, and does not return any messages, such as

As shown in the following figure. AT + + form of a command using the command protocol response, most

instructions need to receive the response message returned after processing is complete, if

the previous command process, a new command is received again, it is silently discarded,

does not return Any message, as shown below.

Map 1-1 processing 1-1 AT + AT+ instructions instruction processing

For some special commands, such as For certain special commands, such as AT+SKSND,and

AT+SKRCV, you need instruction or response details behind the transmission of binarydata, in which case the receiver of the command transport temporarily into

Into the transparent transport status, began to receive binary data streams, until itreceives a command or message <size> field specified in the long

Data or wait times out, automatically exit the transparent transport status, the processshown in the following figure. AT + SKSND, AT +

SKRCV, command or response to the need to transfer binary data in more detail later, this

time, the command is transferred into the recipient is temporarily transparent transmission

mode, starts to receive the binary data stream, until a command or message in <size> After

the length of the specified field data or wait timeout, automatically exit transparently transfer

state, the process is shown below.

Map 6-2 AT+ 6-2 AT + commands commands special treatment processes specificprocesses

1.1.3 example form 1.1.3 Sample Format

Example 1: Example 1:return returns success message success

Send: AT+ [sends a null command] Send:AT + [send an empty command]

Returns: +OK [return to receive success] Return: + OK [return successfully received]

Example 2: Example 2:Returns returned an error message an error message

Send: AT+WJOIN [sending "join the network" instructions] Send:AT + WJOIN [send "jointhe network"

directive]

Returns: +ERR=-10 [back to "join the network failed" error code] Returns: + ERR = -10[Return to "join the

network failure" error code]

Example 3: use the input parameter Example 3:Using the input parameters

Send: AT+UART=9600,1,1,0 [serial port configuration parameters] Send:AT + UART =9600, 1, 1,

0 [the serial configuration parameters]

Returns: +OK [return to configuration is successful] Return: + OK [return successfullyconfigured]

Example 4: using the synchronization parameters to the Flash operator <!> Example4:Using Parameters sync to Flash

operator <!>

Send: AT+ATPT=!500 [automatic framing assignment cycle configuration] Send:AT + ATPT= 500 [assignment

automatic framing cycle configuration]!

Returns: +OK [return to configuration is successful] Return: + OK [return successfullyconfigured]

Example 5: using query operators <?> Example 5:Use query operators <?>

Send: AT+ATPT=? [Query automatically set frame cycle configuration] Send:? AT + ATPT = [query automatically

framing cycle configuration]

Returns: +OK=500 [return value] Return: + OK = 500 [return query value]

1.1.4 1.1.4 error codes Error Codes

Lists the meaning of error codes in table 1-1 Table 1-1 lists the meaning of the error code

Meaning description Meaning Description

-Invalid command format Invalid command format

-Command Command is not supported not supported

Operators-invalid Invalid operator

-Invalid argument Invalid parameter

-Does not allow Operation not permitted

-Low memory Out of memory

-FLASH error FLASH error

Join-join the network failure Network Failure

No socket is available-No available socket

-Invalid socket Invalid socket

-Socket connection Socket connection failed

Error Undefined-undefined error

1.2 1.2 instructions Instruction Set

1.2.1 1.2. list 1 instructions Instruction List

List Table 1-2 table 1-2 AT+ instruction AT + instruction list

Functional description Description

(null) (Null) null directive Dummy

ATLT ATLT framing automatically set/query data Set/query the data length data frame da

HC-21 WiFi module AT command set

1.1 syntax description

This module uses the AT+ command Protocol as user control protocol. AT+ instruction protocol uses a command line based on ASCII format instructions below for a description of the format and process.

1.1.1 format

format description

<>: Indicates a part must contain the

[]: Indicates optional parts

command message

AT+<CMD>[op][para1]，[para2]， [para3] ，[para4]... <CR>

AT+: command message prefix

CMD: command string

[Op]: order operator, when the command requires a parameter, you can specify the type of operation parameters, including,

=, Parameters/return value leader

=!, When you set the parameters of these commands, said it would modify the synchronization to Flash

=?, When you set the parameters of these commands, the query current settings

<CR>: carriage return, ASCII characters 0x0d

• The response message

+<RSP>[op][para1]，[para2]，[para3]，[para4]... <CR><LF><CR><LF>

+: Response message prefix

RSP: response strings

OK success

ERR fail

<CR>: enter, ACSII characters 0x0d

<LF>: line, ACSII character 0x0A

data types

String: a string surrounded by double quotation marks, the content does not contain quotation marks, for example: "this is a string"

Dec: decimal numbers, such as: 10

Hex:16 digital, such as:

Ip:ip the address string, for example: 192.168.0.1

MAC: from 12 to 16 binary digits, such as 001EE3A80102

Serial port communication module AT instruction HC-21 WiFi

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1.1.2 processes

AT+ instructions using command + response in the form of the agreement, the vast majority of instruction requires the receiver response message is returned after the processing is complete, if the previous command in the process, once again received new orders, it is silently discarded, no message is returned, as shown in the following figure.



1-1 AT+ command processing

For some special command, as AT+SKSND, and AT+SKRCV, needs in instruction or response detailed behind transmission II into business data, at, command transmission of receives party temporarily entered transparent transmission State, began receives II into business data flow, until receives to in command or news of <size> field in the provides length of data or waiting timeout Hou, automatically exit transparent transmission State, its process following figure by shows.

Figure 6-2 AT+ command special treatment process

1.1.3 example form

Example 1 a success message is returned

Send: AT+ [sends a null command]

Returns: +OK [return to receive success]

Example 2: return error message

Send: AT+WJOIN [sending "join the network" instructions]

Returns: +ERR=-10 [back to "join the network failed" error code]

Example 3: using input parameters

Send



Figure 6-2 AT+ command special treatment process

1.1.3 example form

Example 1 a success message is returned

Send: AT+ [sends a null command]

Returns: +OK [return to receive success]

Example 2: return error message

Send: AT+WJOIN [sending "join the network" instructions]

Returns: +ERR=-10 [back to "join the network failed" error code]

Example 3: using input parameters

Send: AT+UART=9600,1,1,0 [serial port configuration parameters]

Returns: +OK [return to configuration is successful]

Serial port communication module AT instruction HC-21 WiFi

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Example 4: using the synchronization parameters to the Flash operator <!>

Send: AT+ATPT=!500 [automatic framing assignment cycle configuration]

Returns: +OK [return to configuration is successful]

Example 5: using the query operators <?>

Send: AT+ATPT=? [Query automatically set frame cycle configuration]

Returns: +OK=500 [return value]

1.1.4 error codes

Table 1-1 list error codes description

-1 Invalid command format

-2 Command not supported

-3 Invalid operator

-4 Invalid parameter

-5 Operation is not allowed

-6 Not enough memory

-7 FLASH error

-10 Join the network failure

-11 No available socket

-12 Invalid socket

-13 Socket connection failed

-100 Undefined error

1.2 set of instructions

1.2.1 instruction list

Table 1-2 AT+ instruction list

Functional description

(null) Null directive

ATLT Sets/queries the data automatically set frame length

ATM Setting/querying module operating modes

ATRM Sets/queries the automatic working mode module - creates the socket connection information

BSSID Sets/queries the specified BSSID address AP

CHL Sets/queries the specified wireless channel

CHLL Sets/queries the wireless channel list

ENCRY Sets/queries the wireless network security mode

ENTM Enter serial transparent transmission mode

ENTS Enter sleep mode

IOC Control GPIO

WIOM Setting/querying GPIO mode

KEY Sets/queries the wireless network key

LKSTT Check the status of network connections

NIP Sets/queries the port IP address

PASS Sets/queries the system password

PMTF All parameters in the memory has been updated to Flash

QMAC Query physical address

QVER Query version information

RSTF Restore factory settings

SKCLS Closes the Socket connection

SKCT Create a Socket connection

SKRCV Receives data through a Socket connection

SKSDF Set the default send Socket connection

SKSND Sending data through a Socket connection

SKSTT Query the Socket connection status

SSID Sets/queries the wireless network name

UART Sets/queries the serial data format

WARC Sets/queries the automatic working mode automatic retries

WARM Sets/queries the wireless roaming

WATC Sets/queries to automatically create an Adhoc network

WBGR Sets/queries the wireless networks BG models, maximum rate of emission

WJOIN Joining/creating a wireless network

WLEAV Disconnect from the wireless network

WPRT Sets/queries the type of wireless network

WSCAN Scan network

Z Reset

&DBG Set RS485 transceiver control GPIO command

1.2.2 network control

AT+WJOIN

Function: this directive is used to join/create a wireless network. If the current type is adhoc network, and specify the SSID of the network is not detected, the network is created automatically. If the current network in networking, direct network connection information is returned.

Format: AT+WJOIN <CR>

+OK=<bssid>，<type>，<channel>，<b\_encry>，<ssid>，<rssi><CR><LF><CR><LF>

Parameters: BSSID: network BSSID, length of 12 hexadecimal digits in the format 001EE3A34455

Type: network type. Where 0 indicates infra networks, 1 for the adhoc network.

Channel: channel number.

B\_encry: encryption mode. Where 0 indicates open mode 1 means encryption mode.

SSID: wireless network name, 1~32 ASCII characters, surrounded by double quotation marks.

RSSI: the network signal strength, does not contain negative sign, dBm, 50 indicate signal strength for -50dBm.

AT+WLEAV

Features: this directive is used to disconnect the current wireless network.

Format: AT+WLEAV <CR>

+OK<CR><LF><CR><LF>

Parameters: none

AT+WSCAN

Function: this directive is used to scan for wireless networks, and returned upon completion.

Format: AT+WSCAN <CR>

+OK=<bssid>，<type>，<channel>，<b\_encry>，<ssid>，<rssi><CR><LF>

<bssid>，<type>，<channel>，<b\_encry>，<ssid>，<rssi><CR><LF>

...

<CR><LF>

Parameter: AT+WJOIN.

AT+LKSTT

Features: search for local network connection status.

Format: AT+LKSTT <CR>

+OK[=status，ip，netmask，gateway，dns]<CR><LF><CR><LF>

Parameters: status: State where 0 indicates the connection disconnects, 1 for the connection.

IP:IP address of the data format as "192.168.1.22", without quotation marks.

Netmask: subnet mask with the IP address of the data format.

Gateway: gateway address with the IP address of the data format.

Dns:DNS address, with the IP address of the data format.

AT+SKCT

Features: create socket. In client mode, and waits for a connection to complete (success or failure) return;

In Server mode, after you create the direct return.

Format: AT+SKCT=[protocol],[cs],[host\_timeout], <port> <CR>

+OK=<socket><CR><LF><CR><LF>

Parameters: Protocol: protocol type, with 0 representing the TCP protocol, 1 for the UDP protocol.

Cs:C/S mode, with 0 representing the Client,1 Server.

Host\_timeout: according to Protocol and CS both State decided, by implication, as shown in the following table.

Protocol Meaning

0 Any value The destination server name, you can enter a domain name or an IP address, such as

"192.168.1.100", or "www.wavesen.com"

1 0 TCP connection timeout period, clients connecting to the server over time does not

send any data that is being automatically kicked in, effective range 1~10000000 unit: seconds, 0 means never, the default 120 seconds

1 1 Meaningless

Port: the port number used to specify automatic mode, when the module creates the default connection port.

Socket:socket number.

AT+SKSND

Features: by specifying the socket to send data, complete returns. This command is sent using a binary format of data, the user should receive a response message to the module (+OK) before you begin sending raw data. Module receives the end automatically after the specified length of data transfer phase, and sends the data to the network, the extra data will be discarded. Otherwise, the module if the wait times (1s), force the end of the data phase and has received data sent on the network.

Format: AT+SKSND= <socket>, <size> <CR>

+OK=<actualsize><CR><LF><CR><LF>

[data steam]

Parameter: socket:Socket

Size: ready to send the data length, in bytes

ActualSize: allow you to send the data length, in bytes

Data steam: raw data

AT+SKRCV

Function: reads the specified data in the socket's receive buffer and return upon completion. After this command is received, the module will send a complete message (+OK) after using a binary format Specifies the length of the data.

Format: AT+SKRCV= <socket>, <maxsize> <CR>

+OK=<size><CR><LF><CR><LF>

[data stream]

Parameter: socket:Socket

MaxSize: can receive the maximum data length

Size: the length of the actual data received

Data steam: raw data

AT+SKSTT

Function: Gets the specified socket, first line of the return value represents the status information for a user-specified socket, if the socket type is TCP server, then from the next line starts each line represents an access client socket status.

Format: AT+SKSTT= <socket> <CR>

+OK=<socket>，<status>，[host]，[port]，[rx\_data]<CR><LF>

[socket]，[status]，[host]，[port]，[rx\_data]<CR><LF>

...

<CR><LF>

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Parameter: socket:Socket

Status:Socket State, where 0 indicates a disconnected state, 1 for listening, the 2 indicates that the connection is

Host: port IP address

Port: the port port number

Rx\_data: data in the receive buffer length

AT+SKCLS

Features: closes the specified socket.

Format: AT+SKCLS= <socket> <CR>

+OK<CR><LF><CR><LF>

Parameter: socket:Socket

AT+SKSDF

Function: set the system default socket. In command mode when users need to enter the transparent transmission mode, use this command to specify the serial port's transparent data sent by the destination.

Format: AT+SKSDF= <socket> <CR>

+OK<CR><LF><CR><LF>

Parameter: socket:Socket

1.2.3 system control

AT+

Features: free instructions.

Format: AT+ <CR>

+OK<CR><LF><CR><LF>

Parameters: none

AT+Z

Function: reset system.

Format: AT+Z <CR>

+OK<CR><LF><CR><LF>

Parameters: none

AT+ENTM

Features: serial port into the transparent transmission mode. Systems receive transparent transmission mode to meet the trigger condition of the escape character to exit this mode.

Format: AT+ENTM <CR>

+OK<CR><LF><CR><LF>

Parameters: none

Note: the system in a State of escape character detection, when receiving one and only flight of 3 consecutive characters "+", the transparent transmission mode will exit the serial port, enter the command mode.

AT+RSTF

Features: restore factory settings on the FLASH. Restore settings after a system reboot to take effect.

Format: AT+RSTF <CR>

+OK<CR><LF><CR><LF>

Parameters: none

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AT+PMTF

Feature: update all of the parameters will be saved in the memory into FLASH.

Format: AT+PMTF <CR>

+OK<CR><LF><CR><LF>

Parameters: none

AT+QMAC

Features: get the physical address of the module.

Format: AT+QMAC <CR>

+OK=<mac address><CR><LF><CR><LF>

Parameters: MAC address: length of 12 hexadecimal digits in the format 001EE3A34455

AT+QVER

Feature: getting system version information, including hardware and firmware versions.

Format: AT+QVER <CR>

+OK=<hard，firm><CR><LF><CR><LF>

Parameters: hard: hardware version information string format, such as "H1.00.00.1029"

Firm: firmware version information string format, such as "F0.02.02@18:25:25 Jul 28 2010"

1.2.4 parameter class

AT+NIP

Function: this directive is used to set/queried the port IP address. To note is that when the address type is set to DHCP, and using the actual command is not a query module dynamically assigned IP address information. Query AT+LKSTT command can be used.

Format: AT+NIP=[!?] [type]，[ip]，[netmask]，[gateway]，[dns]<CR>

+OK[=type，ip，netmask，gateway，dns]<CR><LF><CR><LF>

Parameter: type: type of address, where 0 indicates using DHCP dynamic assignment, 1 means to use a static IP address

IP:IP address of the data format as "192.168.1.22", without quotation marks.

Netmask: subnet mask with the IP address of the data format.

Gateway: the gateway address and data formats with the IP address number.

Dns:DNS address, with the IP address of the data format.

AT+ATM

Function: set/query module operating mode.

Format: AT+ATM=[!?] [mode] <CR>

+OK[=mode]<CR><LF><CR><LF>

Parameters: mode: mode, where 0 indicates automatic mode 1 indicates that the command mode

AT+ATRM

Features: automatic mode set/query module to automatically create a socket connection information.

Format: AT+ATRM=[!?] [protocol]，[cs]，[host\_timeout]，[port]<CR>

+OK[=protocol，cs，host，port]<CR><LF><CR><LF>

Note: this directive can also format below to enter

AT+ATRM=[!?] [protocol]，[cs]，[host]，<remoteport><LocalPortNum><CR>

+OK[=protocol，cs，host，port]<CR><LF><CR><LF>

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Parameters: Protocol: protocol type, with 0 representing the TCP protocol, 1 for UDP protocol

Cs:C/S mode, with 0 representing the Client mode, 1 for Server mode

Host\_timeout: according to Protocol and cs, its meaning is as follows

Protocol Meaning

0 X The destination server name, you can enter a domain name or an IP address, such as "192.168.1.100", or "www.WaveCom.com"

1 0 TCP connection timeout period, clients connecting to the server over time does not send any data that is being automatically kicked in, effective range 1~10000000 unit: seconds, 0 means never, the default 120 seconds

1 1 Meaningless

Port: port number

RemotePort: remote port

LocalPortNum: the local port number

AT+SSID

Function: sets/queries the wireless network name, or SSID.

Format: AT+SSID=[!?] [ssid] <CR>

+OK[=ssid]<CR><LF><CR><LF>

Parameters: SSID: wireless network name, 1~32 characters, surrounded by double quotation marks

AT+ENCRY

Function: set/query Wi-Fi security mode. In particular that it is other than the OPEN mode, safe mode will need to meet the AT+KEY directive sets the correct network key.

Format: AT+ENCRY=[!?] [encry mode] <CR>

+OK[=encry mode]<CR><LF><CR><LF>

Parameters: encry mode: safe mode. Where 0 indicates OPEN 4 WPA-PSK (CCMP/AES)

1 denote WEP64 5 WPA2-PSK (TKIP)

2 denote WEP128 6 WPA2-PSK (CCMP/AES)

3 indicates that the WPA-PSK (TKIP)

AT+KEY

Function: set/query network key. To note is that using this command sets the network key you must first use the AT+ENCRY command to set safe mode with networking.

Format: AT+KEY=[!?] [format]，[index]，[key]<CR>

+OK[=format，index，key]<CR><LF><CR><LF>

Parameters: format: key formats, with 0 representing HEX,1 ACSII.

Index: key index number, 1~4 for the WEP encryption key, encryption is fixed at 0.

Key: key string surrounded by double quotation marks, depending on the security mode, using the length of the key, and format shown in the table are defined as follows:

Key format

HEX ACSII

WEP64 10 follows 16 hexadecimal characters 5 ACSII characters II

WEP128 26 16 hexadecimal characters 13 ACSII characters

WPA-PSK(TKIP) 16-64 characters 8~63 ACSII characters

WPA-PSK(CCMP/AES) 16-64 characters 8~63 ACSII characters

WPA2-PSK(TKIP) 16-64 characters 8~63 ACSII characters

WPA2-PSK(CCMP/AES) 16-64 characters 8~63 ACSII characters

Note ①: 16 hexadecimal characters refer to 0~9, a~f (not case-sensitive), such as "11223344dd"

Note II: ACSII character refers to the International Organization for Standardization (ISO) standard ACSII character set specified in the digital 0~9 alphabet a~z

(Case-sensitive), such as "14u6E".

AT+BSSID

Function: set/query to specify the BSSID address AP. This setting is valid only under infra networks.

Format: AT+BSSID=[!?] [mode]，[bssid]<CR>

+OK[=mode，bssid]<CR><LF><CR><LF>

Parameters: mode:BSSID mode. Where 0 indicates automatic mode, 1 Specifies BSSID

BSSID: network BSSID, length of 12 hexadecimal digits in the format 001EE3A34455

AT+CHL

Function: set/query to specify wireless channel.

Format: AT+CHL=[!?] [mode]，[channel]<CR>

+OK[=mode，channel]<CR><LF><CR><LF>

Parameters: mode: channel mode. Where 0 indicates automatic mode and 1 indicates that the specified channel

Channel: wireless channel number, the valid range 1~14

AT+CHLL

Function: set the wireless channel/query list. Radio channel lists parameters for the required modules of working channel scope, not included in the list of channels that is not scanned, reasonable use this argument, you can accelerate the speed of scanning and networking of module.

Format: AT+CHLL=[!?] [channel list] <CR>

+OK[=channel list]<CR><LF><CR><LF>

Parameters: channel list: the radio channel list, with 16 in binary format, starting from the lowest level, each one representing a channel, default to 3fff 1~14 all channels

AT+WPRT

Function: set/query the type of wireless network.

Format: AT+WPRT=[!?] [type] <CR>

+OK[=type]<CR><LF><CR><LF>

Parameter: type: type of network, with 0 representing infra networks, 1 for Adhoc networks

AT+WATC

Function: set/queried whether to automatically create adhoc network function. This setting is valid only when type is set to adhoc wireless network, said that when joining the network failure is adhoc network with the same name is automatically created.

Format: AT+WATC=[!?] [enable] <CR>

+OK[=enable]<CR><LF><CR><LF>

Parameter: enable: enable flag, where 0 indicates no, 1 for enable.

AT+WARM

Function: set/queried whether enabling Wi-Fi roaming capabilities.

Format: AT+WARM=[!?] [enable] <CR>

+OK[=enable]<CR><LF><CR><LF>

Parameter: enable: enable flag, where 0 indicates no, 1 for enable.

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AT+WARC

Function: set/query or disconnected from the wireless network screen automatically retries after a failed feature. This parameter is only valid when working in automatic mode.

Format: AT+WARC=[!?] [count] <CR>

+OK[=count]<CR><LF><CR><LF>

Parameters: count: the number of retries, where 0 indicates no retries, 1~254 said the number of retries, and 255 represents will never try again.

AT+WBGR

Function: set/queried BG models in wireless network and the highest rates of fire.

Format: AT+WBGR=[!?] [bg mode]，[max rate]<CR>

+OK[=bg mode，max rate]<CR><LF><CR><LF>

Parameters: BG mode:BG mode, with 0 representing the B/G mixed-mode, and 1 for b-mode.

Max rate: maximum transmission rate in b mode, only 0~3 is valid. Of which:

0 for 1 Mbps 4: 6 Mbps 8-24 Mbps

1: 2 Mbps 5: 9 Mbps 9 36 Mbps

2 5.5 Mbps expressed 48 6 12 Mbps to 10 Mbps

3 for 11 Mbps to 7 for 18 Mbps 11 54 Mbps

AT+WIOM

Features: settings/general query module IO mode.

Format: AT+ WIOM = [!?] [mode] <CR>

+OK [=mode]<CR><LF><CR><LF>

Parameters: mode:GPIO mode

Module 8-bit internal registers used to set common IO mode, by implication, as shown in the following table:

Bits Meaning

Bit0~Bit3 GPIO input/output mode, with 0 representing input, 1 output, correspondence is as follows:

GPIO0——bit0 GPIO1——bit1 GPIO2——bit2 GPIO3——bit3

Bit4~Bit7 Turn the GPIO function, 0 for off, 1 for open, correspondence is as follows:

GPIO0——bit4 GPIO1——bit5 GPIO2——bit6 GPIO3——bit7

Example: such as control of GPIO0 output mode, the command AT+WIOM=! 11

GPIO0 to input mode, the command AT+WIOM=! 10

Such as controlling GPIO1 output mode, the command AT+WIOM=! 22

Control the GPIO1 to input mode, the command AT+WIOM=! 20

Such as controlling GPIO0 and GPIO1 output mode, the command AT+WIOM=! 33

GPIO0 and GPIO1 input mode, the command AT+WIOM=! 30

AT+IOC

Function: set/set/read status of the GPIO, according to WIOM after the GPIO input/output mode is configured via this instruction sets or reads the GPIO status.

Format: AT+ IOC = [ctrlstatus],[gpiodata] <CR>

+OK [=status]<CR><LF><CR><LF>

Parameters: ctrlstatus:GPIO mode, 0 for reading input GPIO, 1 control output GPIO status.

Gpiodata: this read or control GPIO pin index, note that only runs on a GPIO to control its meaning as shown in the following table:

Bits Meaning

Bit0~Bit3 The GPIO data, 0 is low level, 1 represents the high level, the correspondence is as follows:

GPIO0——bit0 GPIO1——bit1 GPIO2——bit2 GPIO3——bit3

Bit4~Bit7 This GPIO index correspondence as follows:

GPIO0——bit4 GPIO1——bit5 GPIO2——bit6 GPIO3——bit7

Example: control of GPIO0 to output high, order AT+IOC=1,11

Such as control of GPIO0 output low, order AT+IOC=1,10

AT+UART

Function: set/queried UART interface data format.

Format: AT+UART=[!?] [baud rate]，[data bit]，[stop bit]，[parity]<CR>

+OK[=baud rate，data bit，stop bit，parity]<CR><LF><CR><LF>

Parameters: baud rate: baud rate, valid value range 1200~460800, including:

460800 denote 460800 bps to 230400 230400 bps

115200 is 115200 bps 9600 9600 bps

57600 denote 57600 bps 4800 4800 bps

38400 denote 38400 bps 2400 2400 bps

19200 19200 bps 1200 express 1200 bps

Data bit: data bits. Where 0 indicates 8-bit, 1-7

Stop bit: stop bit. Where 0 is 1 bit, 1 means no support, 2 2-digit

Parity: parity. Where 0 means that no parity, and 1 for odd parity, 2 for parity

AT+ATLT

Function: set/queried data framing data length. This argument is only valid serial transparent transmission mode.

Format: AT+ATLT=[!?] [length] <CR>

+OK[=length]<CR><LF><CR><LF>

Parameters: length: automatic group frame length, 32~1024, units: bytes

AT+WEBS

Function: set/queried whether the built-in WEB Management Server.

Format: AT+WEBS=[!?] [enable]，[port]<CR>

+OK[=enable，port]<CR><LF><CR><LF>

Parameter: enable: enable flag. Where 0 means no, 1 means enable.

Port: server port number, the default is 80.

AT+PASS

Features: setting/querying system login password.

Format: AT+PASS=[!?] [pass] <CR>

+OK[=pass]<CR><LF><CR><LF>

Parameter: pass:6 an ACSII character.

When WEB servers or wireless configuration module login password. System default setting is "123456".

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AT+&DBG

Function: on/querying the RS485 transceiver control GPIO.

Format: AT+&DBG =[!?] [data] <CR>

+OK[=data]<CR><LF><CR><LF>

Parameters: data: opens or closes the RS485 transceiver control GPIO, 02 representative opens, 00 is closed.

Note: when using RS485 half-duplex communication, you can only use serial port baud rate of 115200, otherwise it will generate error.