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AT Command Set of USR-CAN528

V2.0

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1.Serial port AT command setting protocol

The USRCAN528 supports detailed instructions for serial port AT commands. This device allows access to AT commands via the serial port.

Serial port AT commands refer to the instruction set used by users to communicate commands with modules via UART in command mode. The usage format of AT commands will be explained in detail later.

After the power-on startup is successful, the module can be configured via UART.

The default UART parameters for the module are: baud rate 115200, no parity, 8-bit data, and 1-bit stop.

< explain >

Switch from work mode to temporary command mode:

1. The serial port device continuously transmits '+++' to the module. Upon receiving '+++', the CAN528 transmits a 'a' to the serial port device. No data transmission is permitted during the packaging interval preceding the '+++' transmission.

2. When the serial port device receives 'a', it must send a 'a' to CAN528 within 3 seconds.

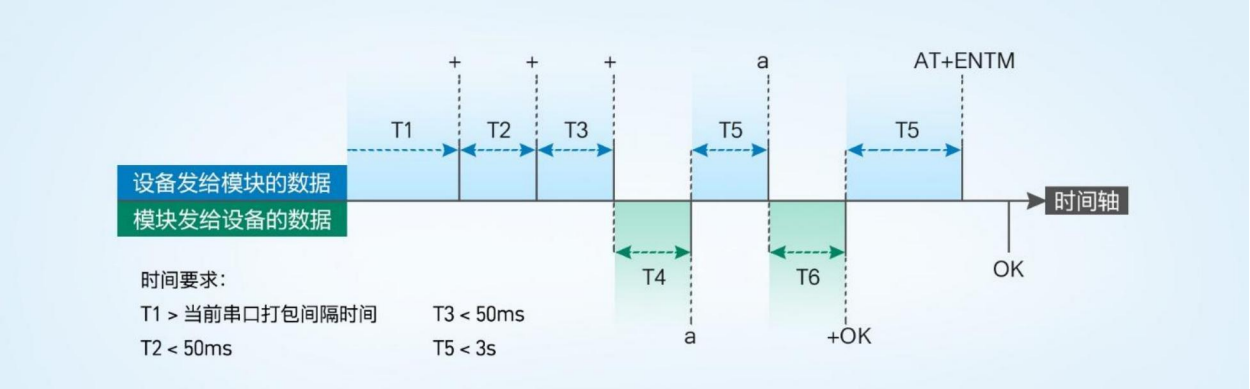
3. Upon receiving 'a', the CAN528 transmits a '+OK' signal to the serial port device and initiates the 'AT Command Mode'.

4. When the serial port device receives the '+OK' signal, it confirms the module has entered the 'AT Command Mode' and can send AT commands.

Sequence for switching from AT command mode to network transparent mode:

1. The serial port device sends the command "AT+ENTM" to CAN528.

2. Upon receiving the command, the CAN528 returns 'OK' and resumes its previous operational mode.



2.Network AT Command Setup Protocol

Detailed specification of AT commands supported by the USR-CAN528. The device supports AT commands via the network port.

Network AT command is a set of commands that users can use to communicate with the module through the network port in command mode.

Network AT command mode: Network AT commands require the module and computer to be on the same network segment to enable configuration.

If no AT command is received within 30 seconds after entering AT command mode, the module will automatically exit the network AT command mode.

Send www.usr.cn to port 48899 via network port UDP broadcast (remote host: 255.255.255.255:48899). If the module and computer are in the same network segment, the module will respond.

2.1. Instruction

The AT command is a question-and-answer type command, which is divided into two parts: question and answer. The question part is the device sending the AT command to CAN528, and the answer part is CAN528 sending the reply to the device.

Table 1. Symbol Explanation

symbolic name	meaning
<>	The included content is required
[]	The included content is optional
{}	The included content is a string with special meaning in this document
~	Parameter range, for example A~B, where the parameter range is from A to B
CMD	instruction code
OP	expression operator
para-n	Specify the parameter
CR	Represents the carriage return character in ASCII code, represented as 0x0D in hexadecimal.
LF	Represents a line break in ASCII code, with the hexadecimal value 0x0A.

2.2. Format of the "ask" in the instruction

Command string: AT+<CMD>[op][para-1, para-2, para-3, para-4...]<CR>

Table 2. Symbol Explanation

command code	meaning	Is it required
AT+	AT command header	yes
CMD	functional attribute of instruction	yes
OP	Operators, such as =,?, and =?	deny
PARA	Parameters for execution	deny
CR	Enter, command end character	yes

3.Instruction type description

Table 3. Symbol Explanation

type	command string format	explain
0	<AT+><CMD>?<CR>	Execute the action of this command or query the current parameter value
1	<AT+><CMD><CR>	Execute the action of this command or query the current parameter value
2	<AT+><CMD>=[para-1,para-2,para-3,para-4 …]<CR>	Set the parameter value for this command

4.AT Command Set

4.1. Command Set List

No.	Command	Description
Basic instruction		
1	AT	test
2	AT+E	Query/Set Backlight Enable
3	AT+Z	Restart module
4	AT+ENTM	Exit configuration mode
5	AT+VER	Check firmware version
6	AT+RELD	Restore module factory settings
7	AT+CLEAR	Restore parameters from the factory settings and restart
8	AT+SN	Search SN code
Web configuration instructions		
1	AT+WEBU	Query or set the built-in web page username and password
2	AT+WEBPORT	Query or set the built-in web port
CAN communication instruction		
1	AT+CAN/AT+CAN2	Query or set basic CAN parameters
2	AT+CANFD/AT+CAN2FD	Query or set basic CANFD mode parameters
3	AT+CANBAUD/AT+CAN2BAUD	Query or set the phase buffer segment and frequency division value for custom baud rate
4	AT+CANFDBAUD/AT+CAN2FDBAUD	Query or set the phase buffer segment and frequency division value for the CANFD data field custom baud rate
5	AT+CANLT/AT+CAN2LT	Query or set CAN filtering mode

6	AT+CANSIG/AT+CAN2SIG	Query or set single-group filter configuration
7	AT+CANMTP/AT+CAN2MTP	Query or set multiple filter configurations
8	AT+CANMTPADD/AT+CAN2MTPADD	Add a set of custom filter configurations
9	AT+CANMTPDEL/AT+CAN2MTPDEL	Delete a set of custom filter configurations
10	AT+CANMTPREAD/AT+CAN2MTPREAD	Query custom filter configuration
11	AT+CANPACK/AT+CAN2PACK	Query or set CAN packet time and frame rate
12	AT+CANMODE/AT+CAN2MODE	Query or set CAN mode
13	AT+TRDIR/AT+TRDIR2	Query or set CAN conversion direction
14	AT+TMODE/AT+TMODE2	Query or set CAN protocol conversion mode
15	AT+MSG/AT+MSG2	Query or set the enabled frame ID and frame information
16	AT+MARK/AT+MARK2	Query or set the ID parameter position and length of the transparent band
17	AT+UDMHT/AT+UDMHT2	Query or set frame header and footer in custom conversion mode
18	AT+CHANNEL	Query or set data channels
19	AT+UARTCAN	Query/Configure CAN to Serial Port Type
Serial port instruction		
1	AT+UART	Query or set serial port parameters
2	AT+PACKLEN	Query or set serial port subpacket length
Socket command		
1	AT+WANN	Query or set the device's local IP address and its method of acquisition
2	AT+SOCKAEN/AT+SOCKBEN	Check if socket N for port queries or settings is enabled
3	AT+SOCKA/AT+SOCKB	socket N parameter for port query or configuration
4	AT+SOCKPORT/AT+SOCKBPORT	Query or set the local port number for the socket N in TCP C mode
5	AT+SOCKLK/AT+SOCKBLK	Check the connection status of port socket N
6	AT+SOCKSL/AT+SOCKBSL	Query or set the short connection for socket N port
7	AT+SHORTO/AT+SHORBTO	Query/Set the short connection time for socket N port
8	AT+UDPAFLT/AT+UDPBFLT	Query or set the UDP IP port filtering for socket N
9	AT+DNS	Query or set the DNS server address and backup address
10	AT+DNSMODE	Query or set the DNS resolution method

11	AT+TCPSE	Check/Set TCPS to remove old links
12	AT+MAXSK	Query or set the maximum TCPS connection count
13	AT+TCPREIP/AT+TCPBREIP	Query or set the target IP address or domain name for socket N
14	AT+RCTIM/AT+BRCTIM	Query or set TCPC no data reconnection time
Universal command		
1	AT+HEARTEN	Check/Enable heartbeat packets
2	AT+HEARTSND	Check/Set Heartbeat Direction
3	AT+CANHEART/AT+CAN2HEART	Query or set CAN heartbeat packet content
4	AT+CANHEARTTM/AT+CAN2HEARTTM	Check/Set CAN heartbeat time
5	AT+HEARTDT	Query or set custom heartbeat packet content
6	AT+HEARTDTHEX	Query or set HEX format custom heartbeat packet content
7	AT+HEARTTTM	Check/Set heartbeat packet time
8	AT+REGEN/AT+REGBEN	Query or set registration package type
9	AT+REGSND/AT+REGBSND	Query or set the registration package delivery method
10	AT+REGDT/AT+REGBDT	Query or set custom data for registration packages
11	AT+REGDTHEX/AT+REGBDTHEX	Query or set custom data for HEX format registration package
12	AT+PING	Query or set PING command
13	AT+DHCPEN	Query or set DHCP switch
14	AT+RSTIM	Query or set restart time for dataless restart
MQTT instruct		
1	AT+MQTTEN	Check or set MQTT status
2	AT+MQTTVER	Query or set the MQTT protocol version
3	AT+MQTTSVR	Query or set the server IP address and port number for the MQTT gateway function
4	AT+MQTTCID	Query or set MQTT client ID
5	AT+MQTTHEARTTM	Query or set MQTT heartbeat time
6	AT+MQTTRECTM	Query or set MQTT reconnection wait time
7	AT+MQTTNDTRECTM	Query or set MQTT reconnection timeout for no data
8	AT+MQTTCS	Query or set MQTT clear conversation
9	AT+MQTTAUTH	Check or set MQTT connection verification status
10	AT+MQTTUSER	Query or set MQTT username

11	AT+MQTTPSW	Query or set MQTT user password
12	AT+MQTTLWTEN	Check or set MQTT legacy status
13	AT+MQTTLWTCFG	Query or set MQTT legacy messages
14	AT+MQTTSSL	Query or set MQTT SSL encryption
15	AT+MQTTPUBMOD	Query or set MQTT publish topic mode
16	AT+MQTTPUB	Query or set the preset MQTT publish topic information
17	AT+MQTTSUB	Query or set MQTT preset subscription topics
18	AT+MQTTCMDEN	Query or set MQTT AT topic enable
19	AT+MQTTCMDPUB	Query or set MQTT AT publish topic information
20	AT+MQTTCMDSUB	Query or set MQTT AT subscription topic information

4.2. Format of "Answer" in the Instruction

Note: Command response information is categorized into two types: with and without return. With return means the CAN device first returns the input content before responding to the command. Without return means the CAN device only responds to the command without returning the input. The following explanations will use the without return mode as an example.

Command string: <CR><LF>+<RSP>[op] [para-1, para-2, para-3, para-4...]<CR><LF>

Table 4. Symbol Explanation

Command code	Meaning	Is it required
CR	Carriage Return	yes
LF	line break	yes
+	Response message prefix	yes
RSP	Response string. "OK" indicates success. ERR means failure	yes
para-n	Return the parameter when querying or the error code when an error occurs	deny
CR	Carriage Return	yes
LF	line break	yes

4.3. AT Error Indicator

The error codes are as follows:

Table 5. Error Code List

Error code	explain

ERROR:1	Invalid command format. The format does not comply with AT command syntax.
ERROR:2	Invalid command. The AT command was not found.
ERROR:3	Invalid operator. The query or setting is not in the correct format.
ERROR:4	Invalid parameter. The parameter range or quantity is incorrect.

5.Detailed Explanation of AT Commands

5.1. AT

	explain	Examples and Notes
function	test	
query	AT{CR}{LF} {CR}{LF}OK{CR}{LF}	AT OK
set up	/	
parameter	/	

5.2. AT+E

	explain	Examples and Notes
function	Query/Set Backlight Enable	
query	AT+E<CR> or AT+E? <CR> <CR><LF>+E:<status><CR><LF> <CR><LF>OK<CR><LF>	AT+E +E:OFF OK
set up	AT+E=<status><CR> <CR><LF>OK<CR><LF>	AT+E=ON OK
parameter		

status	Display status ON: On OFF: close	by default OFF

5.3. AT+Z

	explain	Examples and Notes
function	Restart the device	
query	/	/
set up	AT+Z<CR>	AT+Z
	<CR><LF>OK<CR><LF>	OK
parameter	/	

5.4. AT+ENTM

	explain	Examples and Notes
function	Exit AT configuration mode	When the command is executed correctly, the module switches from AT configuration mode to data transmission mode.
query	/	
set up	AT+ENTM<CR> <CR><LF>OK<CR><LF>	AT+ENTM OK
parameter	/	

5.5. AT+VER

	explain	Examples and Notes
function	Check firmware version	
query	AT+VER<CR> or AT+VER? <CR> <CR><LF>+VER:<ver><CR><LF> <CR><LF>OK<CR><LF>	AT+VER +VER:V1.0.00.000000.0000 OK
set up	/	/

parameter		
ver	firmware version number	

5.6. AT+RELD

	explain	Examples and Notes
function	Restore module factory settings	
query	/	/
set up	AT+RELD<CR> <CR><LF>OK<CR><LF>	AT+RELD OK rebooting..
parameter	/	

5.7. AT+CLEAR

	explain	Examples and Notes
function	Restore parameters from the factory settings and restart	
query	/	/
set up	AT+CLEAR<CR> <CR><LF>OK<CR><LF>	AT+CLEAR OK rebooting...
parameter	/	

5.8. AT+SN

	explain	Examples and Notes
function	Query module SN	
query	AT+SN<CR> or AT+SN?<CR> <CR><LF>+SN:<SN><CR><LF> <CR><LF>OK<CR><LF>	AT+SN +SN:03500324092600069753 OK
set up	/	
parameter		

SN	modular SN	

5.9. AT+WEBU

	explain	Examples and Notes
function	Query or set the built-in web page username and password	
query	AT+WEBU<CR> or AT+WEBU? <CR> <CR><LF>+WEBU:<name,code><CR><LF> <CR><LF>OK<CR><LF>	AT+WEBU +WEBU:admin,admin OK
set up	AT+WEBU=<name,code><CR><LF> <CR><LF>OK<CR><LF>	AT+WEBU=admin,admin OK
parameter		
name	Built-in web login username	1-20 bytes
code	Built-in web login password	1-20 bytes

5.10. AT+WEBPORT

	explain	Examples and Notes
function	Query or set the built-in web port	
query	AT+WEBPORT<CR> or AT+WEBPORT? <CR>	AT+WEBPORT
	<CR><LF>+WEBPORT:<port><CR><LF> <CR><LF>OK<CR><LF>	+WEBPORT:80 OK
set up	AT+WEBPORT=<port><CR><LF> <CR><LF>OK<CR><LF>	AT+WEBPORT=80 OK
parameter		
port	Built-in web port number	1-65535

5.11. AT+CAN/AT+CAN2

	explain	Examples and Notes

function	Query or set basic CAN mode parameters	CAN1:AT+CAN CAN2：AT+CAN2
query	AT+CAN<CR> or AT+CAN? <CR> <CR><LF>+CAN:<baudrate,can_id,mode ><CR><LF><CR><LF>OK<CR><LF>	AT+CAN +CAN:custom(666.66K), 1,NDTF OK
set up	AT+CAN=<baudrate,can_id,mode><CR><LF> <CR><LF>OK<CR><LF>	AT+CAN=125,0,NDTF OK
parameter		
baudrate	CAN Baud rate Range: 5 to 1000 (kbps) custom, 5, 10,20,50,100,120,125,150,200,250,400,500,600,750,1000	Default value: 100. (1) When the CAN baud rate is set to custom, the calculated baud rate is displayed. Custom baud rates are shown with two decimal places. (2) The custom string appears only in the query results, while the configuration command requires the baud rate value to be specified. (3) When using a custom baud rate, you must first configure the frame ID and frame type with the AT+CAN command. The baud rate can be set to any value within the specified range, such as 100.
can_id	CAN ID: 16 in hexadecimal format, without 0x scope ： Standard frame: 0-7FF Extended frame: 0-1FFFFFFF	Default value: 1
mode	Frame mode: NDTF (Standard Frame), EDTF (Extended Frame)	Default value: NDTF

5.12. AT+CANFD/AT+CAN2FD

	explain	Examples and Notes

function	Query or set basic CANFD mode parameters	After configuring the current command, switch to the standard baud rate automatically CAN1:AT+CANFD CAN2: AT+CAN2FD
query	AT+CANFD<CR> or AT+CANFD? <CR><LF>+CANFD:<sta1,sta2,baudrate ><CR><LF> <CR><LF>OK<CR><LF>	AT+CANFD +CANFD:1, 1,100 OK
set up	AT+CAN=<sta1,sta2,baudrate><CR><LF> <CR><LF>OK<CR><LF>	AT+CANFD=1, 1, 100 OK
parameter		
sta1	Enable CANFD mode: 1: Turn on 0: Close	Default 0
Sta2	Enable CANFD acceleration mode: 1: Turn on 0: Close	Default 0
baudrate	Data field baud rate, ranging from 100 kbps to 5 Mbps	Default value: 100. (1) When configured with the AT+CANFDBAUD command, the AT+CANFD command will detect the format as: +CANFD:0,0,custom(2000.00K) (2) When using the baud rate configured for AT+CANFD, the AT+CANFD command will display the format as: +CANFD: 0,0,2000

5.13. AT+CANBAUD/AT+CAN2BAUD

	explain	Examples and Notes

function	Query or set the phase buffer segment and frequency division value for custom baud rate	1. Customizable baud rate, manual configuration of phase buffer segment and frequency division 2. After configuration, the AT+CAN baud rate automatically changes to custom 波特率 = 80M / [(BS1 + BS2 + 1) * BRP] 3. After configuring the current instruction, it automatically switches to using auto
		Define baud rate 4 、CAN1：AT+CANBAUD CAN2：AT+CAN2BAUD
query	AT+CANBAUD<CR> or AT+CANBAUD? <CR> <CR><LF>+CANBAUD:<BS1,BS2,BRP,SJW><CR><LF> <CR><LF>OK<CR><LF>	AT+CANBAUD +CANBAUD:6, 1,75, 1 OK
set up	AT+CANBAUD=<BS1,BS2,BRP,SJW><CR><LF> <CR><LF>OK<CR><LF>	AT+CANBAUD=6, 1,75, 1 OK
parameter		
BS1	Phase buffer segment 1, range: 2~256 (the maximum value cannot be set because the sampling points must meet the CAN baud rate requirements)	Default value: 3
BS2	Phase buffer segment 2, range: CAN 2~128/ CANFD 1~32	Default value: 15
BRP	Frequency division value, range: 1~128	Default value: 10
SJW	Sync jump width, range: 1~512 (cannot be set as the maximum value because sampling points must meet CAN baud rate requirements)	Default value: 1

5.14. AT+CANFDBAUD/AT+CAN2FDBAUD

	explain	Examples and Notes

function	Query or set the phase buffer segment and frequency division value for the CANFD data field custom baud rate	1. Customizable baud rate, manual configuration of phase buffer segment and frequency division 2. After configuration, the AT+CAN baud rate automatically changes to custom 波特率 = 80M / [(BS1 + BS2 + 1) * BRP] 3. After configuring the current command, it automatically switches to the custom baud rate and enables CANFD acceleration. 4. To disable acceleration, use the AT+CANFD command. 5 、CAN1：AT+CANFDBAUD CAN2：AT+CAN2FDBAUD
query	AT+CANFDBAUD<CR> or AT+CANFDBAUD? <CR> <CR><LF>+CANFDBAUD:<BS1,BS2,BRP,SJW><CR><LF> <CR><LF>OK<CR><LF>	AT+CANFDBAUD +CANFDBAUD:2,0,3, 1 OK
set up	AT+CANFDBAUD=<BS1,BS2,BRP,SJW><CR><LF>	AT+CANFDBAUD=2,0,3, 1
	<CR><LF>OK<CR><LF>	OK
parameter		
BS1	Phase buffer segment 1, range: 2~31 (the maximum value cannot be set because the sampling points must meet the CAN baud rate requirements)	Default value: 3
BS2	Phase buffer segment 2, range: 0~15	Default value: 15
BRP	Frequency division value, range: 0~15 (the maximum value cannot be set because the sampling points must meet the CAN baud rate requirements)	Default value: 10
SJW	Sync the jump width, range: 1~32 (the maximum value cannot be set because sampling points must meet CAN baud rate requirements)	Default value: 1

5.15. AT+CANLT/AT+CAN2LT

	explain	Examples and Notes
function	Query or set CAN filtering mode	CAN1：AT+CANLT CAN2：AT+CAN2LT
query	AT+CANLT<CR> or AT+CANLT? <CR><LF>+CANLT:<mode><CR><LF> <CR><LF>OK<CR><LF>	AT+CANLT +CANLT:OFF OK
set up	AT+CANLT=<mode>{CR} {CR}{LF}OK{CR}{LF}	AT+CANLT=OFF OK
parameter		
mode	Filter mode, 0: No filter 1: Filter single group 2: Multi-group filtering	Default is 0

5.16. AT+CANSIG/AT+CAN2SIG

	explain	Examples and Notes
function	Query or set single-group filter configuration	CAN1：AT+CANSIG CAN2：AT+CAN2SIG
query	AT+CANSIG<CR> or AT+CANSIG? <CR> <CR><LF>+CANSIG:<mode,min_id,max_id><CR><LF>	AT+CANSIG +CANSIG:WN, 1,5 OK
	<CR><LF>OK<CR><LF>	
set up	AT+CANSIG=<mode,min_id,max_id>{CR} {CR}{LF}OK{CR}{LF}	AT+CANSIG=WN,1,5 OK
parameter		
mode	Frame modes: WN-whitelist standard frame, BN-blacklist standard frame, WE-whitelist extended frame, BE-blacklist extended frame	

min_id	Minimum frame ID: 16-bit format, without 0x scope ： Standard frame: 0-7FF Extended frame: 0-1FFFFFFF	
max_id	Maximum frame ID: 16-bit format, without 0x scope ： Standard frame: 0-7FF Extended frame: 0-1FFFFFFF	

5.17. AT+CANMTP/AT+CAN2MTP

	explain	Examples and Notes
function	Query or set multiple filter configurations	CAN1：AT+CANMTP CAN2：AT+CAN2MTP
query	AT+CANMTP<CR> or AT+CANMTP? <CR> <CR><LF>+CANMTP:<filter_type， filter_range><CR><LF> <CR><LF>OK<CR><LF>	AT+CANMTP +CANMTP:0,1 OK
set up	AT+CANMTP=<filter_type ， filter_range>{CR} {CR}{LF}OK{CR}{LF}	AT+CANMTP=0, 1 OK
parameter		
filter_type	Filter type: 0-allowlist, 1-blocklist	
filter_range	Filter range: 0-extended frame, 1-standard frame, 2-custom	

5.18. AT+CANMTPADD/AT+CAN2MTPADD

	explain	Examples and Notes
function	Add a set of custom filter configurations	CAN1：AT+CANMTPADD CAN2：AT+CAN2MTPADD
query	/	/
set up	AT+CANMTPADD=<num ， frame_type ， min_id，	AT+CANMTPADD= 1,0, 1,5

	max_id>{CR} {CR}{LF}OK{CR}{LF}	OK
parameter		
num	Number: 1~32	
filter_range	Filter range: 0-standard frame, 1-extended frame	
min_id	Minimum frame ID: 16-bit format, without 0x scope ： Standard frame: 0-7FF Extended frame: 0-1FFFFFFF	
max_id	Maximum frame ID: 16-bit format, without 0x scope ： Standard frame: 0-7FF Extended frame: 0-1FFFFFFF	

5.19. AT+CANMTPDEL/AT+CAN2MTPDEL

	explain	Examples and Notes
function	Delete a set of custom filter configurations	CAN1：AT+CANMTPDEL CAN2：AT+CAN2MTPDEL
query	/	/
set up	AT+CANMTPDEL=<del_num>{CR} {CR}{LF}OK{CR}{LF}	AT+CANMTPDEL=1 OK
parameter		
del_num	0-Delete all, 1-32-Delete specified groups	

5.20. AT+CANMTPREAD/AT+CAN2MTPREAD

	explain	Examples and Notes
function	Query custom filter configuration	CAN1：AT+CANMTPREAD CAN2：AT+CAN2MTPREADL

query	AT+CANMTPREAD<CR> or AT+CANMTPREAD? <CR> <CR><LF>+CANMTPREAD:<num , frame_type , min_id , max_id ><CR><LF> <CR><LF>OK<CR><LF>	AT+CANMTP +CANMTP: 1,0, 1,7 2,0,7,9 OK
set up	/	/
parameter		Read all configured parameters
num	Number: 1~32	
filter_range	Filter range: 0-standard frame, 1-extended frame	
min_id	Minimum frame ID: 16-bit format, without 0x scope ： Standard frame: 0-7FF Extended frame: 0-1FFFFFFF	
max_id	Maximum frame ID: 16-bit format, without 0x scope ： Standard frame: 0-7FF Extended frame: 0-1FFFFFFF	

5.21. AT+CANPACK/AT+CAN2PACK

	explain	Examples and Notes
function	Query or set CAN packet time and frame rate	CAN1：AT+CANPACK CAN2：AT+CAN2PACK
query	AT+CANPACK<CR> or AT+CANPACK? <CR> <CR><LF>+CANPACK:<num,time><CR><LF> <CR><LF>OK<CR><LF>	AT+CANPACK +CANPACK:100, 10 OK
set up	AT+CANPACK=<num,time>{CR} {CR}{LF}OK{CR}{LF}	AT+CANPACK=100, 10 OK

parameter		
num	Number of CAN packets: 1 to 50	Default is 50
time	CAN packing time: 1~254	Default is 1

5.22. AT+CANMODE/AT+CAN2MODE

	explain	Examples and Notes
function	Query or set CAN mode	CAN1：AT+CANMODE CAN2：AT+CAN2MODE
query	AT+CANMODE<CR> or AT+CANMODE? <CR> <CR><LF>+CANMODE:<mode><CR><LF> <CR><LF>OK<CR><LF>	AT+CANMODE +CANMODE:NORMAL OK
set up	AT+CANMODE=<mode>{CR} {CR}{LF}OK{CR}{LF}	AT+CANMODE=NORMAL OK
parameter		
mode	CAN operating mode: NORMAL: Normal SILENT: Only listen LOOPBACK: Loop Back	Default: NORMAL

5.23. AT+TRDIR/AT+TRDIR2

	explain	Examples and Notes
function	Query or set CAN conversion direction	CAN1：AT+TRDIR CAN2：AT+TRDIR2
query	AT+TRDIR<CR> or AT+TRDIR? <CR> <CR><LF>+TRDIR:<mode><CR><LF> <CR><LF>OK<CR><LF>	AT+TRDIR +TRDIR:BOTHWAY OK
set up	AT+TRDIR=<mode>{CR}	AT+TRDIR=BOTHWAY

	{CR}{LF}OK{CR}{LF}	OK
parameter		
mode	Transmission direction: BOTHWAY: Two-way transmission CAN-UART: CAN to Serial (Network) Port UART-CAN: Serial to CAN (Ethernet)	Default: BOTHWAY

5.24. AT+TMODE/AT+TMODE2

	explain	Examples and Notes
function	Query or set CAN protocol conversion mode	CAN1：AT+TMODE CAN2：AT+TMODE2
query	AT+TMODE<CR> or AT+TMODE? <CR> <CR><LF>+TMODE:<mode><CR><LF> <CR><LF>OK<CR><LF>	AT+TMODE +TMODE:TRANS OK
set up	AT+TMODE=<mode>{CR} {CR}{LF}OK{CR}{LF}	AT+TMODE=TRANS OK
parameter		
mode	Conversion mode: TRANS: Transparent Transition TPRTL: Zona pellucida ID conversion PROTOL: Standard Conversion USER: Custom Frame Header and Footer Conversion	Default to TRANS

5.25. AT+MSG/AT+MSG2

	explain	Examples and Notes

function	Query or set the enabled frame ID and frame information	CAN1：AT+MSG CAN2：AT+MSG2
query	AT+MSG<CR> or AT+MSG? <CR> <CR><LF>+MSG:<sta1,sta2><CR><LF> <CR><LF>OK<CR><LF>	AT+MSG +MSG:0,0 OK
set up	AT+MSG=<sta1,sta2>{CR} {CR}{LF}OK{CR}{LF}	AT+MSG=0,0 OK
parameter		
sta1	Enable frame ID: 1: Turn on 0: Close	Default: 0
sta2	Enable frame information: 1: Turn on 0: Close	Default: 0

5.26. AT+MARK/AT+MARK2

	explain	Examples and Notes
function	Query or set the ID parameter position and length of the transparent band	CAN1：AT+MARK CAN2：AT+MARK2
query	AT+MARK<CR> or AT+MARK? <CR> <CR><LF>+MARK:<site,length><CR><LF> <CR><LF>OK<CR><LF>	AT+MARK +MARK:0,2 OK
set up	AT+MSG=<site,length>{CR} {CR}{LF}OK{CR}{LF}	AT+MARK=0,2 OK
parameter		
site	Zona pellucida ID parameter position: range 0~8	Default value: 0
mode	Zona pellucida ID parameter length: range 0~4	Default value: 2

5.27. AT+UDMHT/AT+UDMHT2

	explain	Examples and Notes
function	Query or set frame header and footer in custom conversion mode	CAN1：AT+MARK CAN2：AT+MARK2
query	AT+UDMHT<CR> or AT+UDMHT? <CR> <CR><LF>+UDMHT:<frame1,frame2><CR><LF> <CR><LF>OK<CR><LF>	AT+UDMHT +UDMHT:AA,FF OK
set up	AT+UDMHT=<frame1,frame2>CR} {CR}{LF}OK{CR}{LF}	AT+UDMHT=AA,FF OK
parameter	/	
frame1	Custom frame header, 16-bit, 1 byte (00~FF)	Windows default ： AA
frame2	Custom frame end, 16-bit, 1 byte (00~FF)	Windows default ： FF

5.28. AT+CHANNEL

	explain	Examples and Notes
function	Query or set data channels	
query	AT+CHANNEL<CR> or AT+CHANNEL? <CR> <CR><LF>+CHANNEL:<sta ><CR><LF> <CR><LF>OK<CR><LF>	AT+CHANNEL +CHANNEL:NET OK
set up	AT+CHANNEL=<sta><CR><LF> <CR><LF>OK<CR><LF>	AT+CHANNEL=NET OK
parameter		
sta	NET: Network transparent transmission, including CAN to network and UART to network UART to CAN CAN: CAN relay	give tacit consent to NET

5.29. AT+UARTCAN

	explain	Examples and Notes
function	Query/Configure CAN to Serial Port Type	Channel configuration is valid when

		configured from CAN to serial port
query	AT+UARTCAN<CR> or AT+UARTCAN? <CR>	AT+UARTCAN
	<CR><LF>+UARTCAN:<sta ><CR><LF> <CR><LF>OK<CR><LF>	+UARTCAN:1 OK
set up	AT+UARTCAN=<sta><CR><LF> <CR><LF>OK<CR><LF>	AT+UARTCAN=2 OK
parameter		
sta	1. CAN1 to serial port 2. CAN2 to Serial Port 3. CAN1+CAN2 to Serial Port	

5.30. AT+UART

	explain	Examples and Notes
function	Query or set serial port interface parameters	
query	AT+UART<CR> or AT+UART? <CR> <CR><LF>+UART:<baudrate,data_bits,stop_bit,parity, mode><CR><LF> <CR><LF>OK<CR><LF>	AT+UART +UART:115200,8, 1,NONE,RS485 OK
set up	AT+UART=<baudrate,data_bits,stop_bit,parity,mode> <CR><LF> <CR><LF>OK<CR><LF>	AT+UART=115200,8, 1,NONE,RS485 OK
parameter		
baudrate	Baud rate, 600~230.4Kbps	Default value: 115200
data_bits	Data bits, 7, 8	Default value: 8
stop_bits	Stop position, 1, 2	Default value: 1
parity	Check bit: 0: NONE, 1: EVEN, 2: ODD.	Default value: NONE
mode	Serial mode: RS485	Default value: RS485

5.31. AT+PACKLEN

	explain	Examples and Notes

function	Query or set serial port subpacket length	
query	AT+PACKLEN<CR> or AT+PACKLEN? <CR> <CR><LF>+PACKLEN:<length><CR><LF> <CR><LF>OK<CR><LF>	AT+PACKLEN +PACKLEN:512 OK
set up	AT+PACKLEN=<length>CR}	AT+PACKLEN=512
	{CR}{LF}OK{CR}{LF}	OK
parameter		
length	Serial port subpacket length, range: 256~1024	Default value: 1024

5.32. AT+WANN

	explain	Examples and Notes
function	WAN port IP (DHCP/STATIC) obtained by the Query/Setup module	
query	AT+WANN<CR> or AT+WANN? <CR> <CR><LF>+WANN:<mode,address,mask,gateway > <CR><LF> <CR><LF>OK<CR><LF>	AT+WANN +WANN:STATIC,192.168.0.7,255.25 5.255.0, 192.168.0.1
set up	AT+WANN=<mode,address,mask,gateway><CR> <CR><LF>OK<CR><LF>	AT+WANN=STATIC, 192.168.0.7,255. 255.255.0, 192.168.0.1 OK
parameter		
mode	Network IP mode STATIC: Static IP DHCP: Dynamic IP (address, mask, gateway parameters omitted)	Default Static
address	IP address	Default: 192.168.0.7
mask	subnet mask	Default: 255.255.255.0

gateway	Gateway address	Default: 192.168.0.1

5.33. AT+SOCKAEN/SOCKBEN

	explain	Examples and Notes
function	Check if socketN for port queries or settings is enabled	N=A/B
query	AT+SOCKNEN<CR> or AT+SOCKNEN? <CR> <CR><LF>+SOCKNEN:<sta><CR><LF>	AT+SOCKAEN +SOCKAEN:ON
set up	AT+SOCKNEN=<sta><CR> <CR><LF>OK<CR><LF>	AT+SOCKAEN=TCPS, 192.168.0.201,23 OK
parameter		
sta	ON: Enable socketN	give tacit consent to ： ON
	OFF: Disable socketN	

5.34. AT+SOCKA/SOCKB

	explain	Examples and Notes
function	socketN parameter for port query or configuration	SOCKA: A path SOCKB: B path
query	AT+SOCKN<CR> or AT+SOCKN? <CR> <CR><LF>+SOCKN:<work_mode,ip_addr,port ><CR><LF>	AT+SOCKA +SOCKA:TCPC, 192.168.0.201,8234
set up	AT+SOCKN=< work_mode,ip_addr,port ><CR> <CR><LF>OK<CR><LF>	AT+SOCKA=TCPS, 192.168.0.201,23 OK
parameter		

work_mode	protocol type ： TCP Server TCP Client UDPS corresponds to UDP Server UDP Client	Windows default ： TCPC socketB only supports TCPC/UDPC
ip_addr	Local IP/Target IP or domain name (64 characters) Based on the C/S model, when the module is set to "Client", the IP address is the remote server's IP; when set to "Server", it is the local server's IP.	Default value: 192.168.0.201
Port	Protocol port, a decimal number from 0 to 65535. When port=0, it is a random port number. In the C/S model, when a module is set to "Client", it refers to the remote port; when set to "Server", it refers to the local port.	Default value: 23

5.35. AT+SOCKPORT/SOCKBPORT

	explain	Examples and Notes
function	Query or set the local port number for the socketN in TCP C mode	SOCKPORT: A path SOCKBPORT: B path
query	AT+SOCKPORT<CR> or AT+SOCKPORT? <CR> <CR><LF>+SOCKPORT:<server>,<local><CR><LF>	AT+SOCKPORT +SOCKPORT:8234,20108
set up	AT+SOCKPORT=<server>,<local><CR> <CR><LF>OK<CR><LF>	AT+SOCKPORT=0 OK
parameter		
server	The server port number to connect to as a client	
local	The local port number (0 <= port <= 65535) for the client. When port=0, it is a random port number. 0	Default value: 0

5.36. AT+SOCKLK/SOCKBLK

	explain	Examples and Notes

function	Check the connection status of port socketN	SOCKLK: A Road SOCKBLK: B Road
query	AT+SOCKLK<CR> or AT+SOCKLK? <CR> <CR><LF>+SOCKLK:<para><CR><LF>	AT+SOCKLK +SOCKLK:disconnect
set up	/	
parameter		
para	Current link status connected-Connection established disconnect-Connection not established	disconnect

5.37. AT+SOCKSL/SOCKBSL

	explain	Examples and Notes
function	Query or set the short connection for socketN port	SOCKLK: A Road SOCKBLK: B Road
query	AT+SOCKSL<CR> or AT+SOCKSL? <CR> <CR><LF>+SOCKSL:<sta><CR><LF>	AT+SOCKSL +SOCKSL:OFF
set up	AT+SOCKSL=<sta><CR> <CR><LF>OK<CR><LF>	AT+SOCKSL=OFF OK
parameter		
sta	ON: Short Link OFF: Turn off short connection	Windows default ： OFF

5.38. AT+SHORTO/SHORBTO

	explain	Examples and Notes
function	Query/Set the short connection time for socketN port	SHORTO: Route A SHORBTO: B Road
query	AT+SHORTO<CR> or AT+SHORTO? <CR> <CR><LF>+SHORTO:<time><CR><LF>	AT+SHORTO +SHORTO:3
set up	AT+SHORTO=<time><CR> <CR><LF>OK<CR><LF>	AT+SHORTO1=3 OK

parameter		
time	Short connection time, 2-255s	Default value: 3

5.39. AT+UDPAFLT/UDPBFLT

	explain	**Examples and Notes**
function	Query or set the UDP IP port filtering for socketN	
query	AT+UDPFLT<CR> or AT+UDPFLT? <CR> <CR><LF>+UDPFLT:<sta><CR><LF>	AT+UDPFLT +UDPFLT:OFF
set up	AT+UDPFLT=<sta><CR> <CR><LF>OK<CR><LF>	AT+UDPFLT=OFF OK
parameter		
sta	ON: Enable UDP IP port filtering OFF: Disable UDP IP port filtering	Windows default ： OFF

5.40. AT+DNS

	explain	**Examples and Notes**
function	Query or set the DNS server address and backup address	
query	AT+DNS<CR> or AT+DNS? <CR><LF>+DNS:< address1, address2><CR><LF>	AT+DNS +DNS:208.67.222.222,223.5.5.5
set up	AT+DNS=< address ><CR> <CR><LF>OK<CR><LF>	AT+DNS=114.114.114.114,223.5.5. 5 OK
parameter		
Address1	DNS server address	Default 114.114.114.114
Address2	DNS server backup address	Default 223.5.5.5

5.41. AT+DNSMODE

	explain	**Examples and Notes**
function	Query/Settings module DNS retrieval method	

query	AT+DNSMODE<CR> or AT+DNSMODE? <CR> <CR><LF>+DNSMODE:< mode><CR><LF>	AT+DNSMODE +DNSMODE:=AUTO
set up	AT+DNSMODE=< mode><CR> <CR><LF>OK<CR><LF>	AT+DNSMODE=AUTO OK
parameter		
mode	DNS method AUTO-Auto MANUAL-Static Settings	Default value: MANUAL

5.42. AT+TCPSE

	explain	**Examples and Notes**
function	Query or set the working mode for TCPS ports exceeding the maximum connection limit	
query	AT+TCPSE<CR> or AT+TCPSE? <CR> <CR><LF>+TCPSE:<way><CR><LF>	AT+TCPSE +TCPSE:KICK
set up	AT+TCPSE=<way><CR> <CR><LF>OK<CR><LF>	AT+TCPSE=KICK OK
parameter		
way	<way>: How to handle new connections KEEP-When a TCPS connection is full, it maintains the existing connection and rejects new connections. KICK-When a new connection is established after TCPS is fully connected, the system actively disconnects the oldest existing connection and accepts the new connection	Default value: KICK

5.43. AT+MAXSK

	explain	**Examples and Notes**
function	Query or set the maximum number of port connections	
query	AT+MAXSK<CR> or AT+MAXSK? <CR> <CR><LF>+MAXSK:<conn_max><CR><LF>	AT+MAXSK +MAXSK:8
set up	AT+MAXSK=<conn_max><CR>	AT+MAXSK=8
	<CR><LF>OK<CR><LF>	OK
parameter		

conn_max	The TCP Server supports a maximum of 1 to 14 connections.	Default value: 8

5.44. AT+TCPREIP/TCPBREIP

	explain	**Examples and Notes**
function	Query or set the target IP address or domain name for port socketN in TCPC mode	TCPREIP: A path TCPBREIP: B path
query	AT+TCPREIP<CR> or AT+TCPREIP? <CR> <CR><LF>+TCPREIP:<ip_addr><CR><LF>	AT+TCPREIP +TCPREIP:192.168.0.201
set up	AT+TCPREIP=<ip_addr><CR> <CR><LF>OK<CR><LF>	AT+TCPREIP=192.168.0.201 OK
parameter		
ip_addr	<ip_addr>: Target IP address	Default value: 192.168.0.201

5.45. AT+RCTIM/AT+BRCTIM

	explain	**Examples and Notes**
function	Query or set TCPC no data reconnection time	RCTIM: A path BRCTIM: B path
query	AT+RCTIM<CR> or AT+RCTIM? <CR><LF>+OK=<sta,time><CR><LF>	AT+RCTIM +OK=0,3600
set up	AT+RCTIM=<sta,time><CR> <CR><LF>+OK<CR><LF>	AT+RCTIM=0,3600 +OK
parameter		
sta	Enable no-data reconnection time: 0-off 1-on	Default value: 0
time	No data reset time: 0 to 99999 seconds. 0 turns off this feature.	Default value: 3600

5.46. AT+HEARTEN

	explain	Examples and Notes
function	Check or set whether to enable heartbeat packets on the port	

query	AT+HEARTEN<CR> or AT+HEARTEN? <CR> <CR><LF>+HEARTEN:<status><CR><LF>	AT+HEARTEN +HEARTEN:OFF
set up	AT+ HEARTEN =<status><CR> <CR><LF>OK<CR><LF>	AT+HEARTEN=OFF OK
parameter		
status	ON: Enable heartbeat packet OFF: Turn off heartbeat packets	Windows default ： OFF

5.47. AT+HEARTSND

	explain	Examples and Notes
function	Check/Set Heartbeat Direction	
query	AT+HEARTSND<CR> or AT+HEARTSND? <CR> <CR><LF>+HEARTSND:<mode><CR><LF>	AT+HEARTSND +HEARTSND:NET
set up	AT+ HEARTSND=<mode><CR> <CR><LF>OK<CR><LF>	AT+HEARTSND=NET OK
parameter		
mode	NET: Network heartbeat packet CAN1: CAN1 heartbeat packet UART: Serial Heartbeat Packet CAN2: CAN2 heartbeat packet CAN: CAN1+CAN2 heartbeat package	Windows default ： NET

5.48. AT+CANHEART/AT+CAN2HEART

	explain	Examples and Notes
function	Query or set CAN heartbeat packet content	CAN1：AT+CANHEART CAN2：AT+CAN2HEART

query	AT+CANHEART<CR> or AT+CANHEART? <CR> <CR><LF>+CANHEART:<heartbeat><CR><LF>	AT+CANHEART +CANHEART:881234567801020304 05060708
set up	AT+CANHEART=<heartbeat><CR> <CR><LF>OK<CR><LF>	AT+CANHEART=8812345678010203 0405060708 OK
parameter		
heartbeat	A standard 13-byte CAN frame. Contains frame information, frame ID, and data frame (heart	give tacit consent to ：
	Packet hop content)	8812345678010203040506070 8

5.49. AT+CANHEARTTM/AT+CAN2HEARTTM

	explain	Examples and Notes
function	Check/Set CAN heartbeat time	CAN1：AT+CANHEARTTM CAN2：AT+CAN2HEARTTM
query	AT+CANHEARTTM<CR> or AT+CANHEARTTM? <CR> <CR><LF>+CANHEARTTM:< times><CR><LF>	AT+CANHEARTTM +CANHEARTTM:30
set up	AT+CANHEARTTM=<times><CR> <CR><LF>OK<CR><LF>	AT+CANHEARTTM=30 OK
parameter		
times	Heartbeat interval, default 30s, range: 1 to 65535s	Default value: 30

5.50. AT+HEARTDT

	explain	Examples and Notes
function	Query or set custom heartbeat packet content	
query	AT+HEARTDT<CR> or AT+HEARTDT? <CR> <CR><LF>+HEARTDT:< heartbeat><CR><LF>	AT+HEARTDT +HEARTDT:heartbeat

set up	AT+HEARTDT=< heartbeat><CR> <CR><LF>OK<CR><LF>	AT+HEARTDT=heartbeat OK
parameter		
heartbeat	The heartbeat packet contains content with a maximum length of 40 bytes.	Default value: heartbeat

5.51. AT+HEARTDTHEX

	explain	Examples and Notes
function	Query or set HEX format custom heartbeat packet content	
query	AT+HEARTDTHEX<CR> or AT+HEARTDTHEX? <CR> <CR><LF>+HEARTDTHEX:<heartbeat><CR><LF>	AT+HEARTDTHEX +HEARTDTHEX:0102
set up	AT+HEARTDTHEX=<heartbeat><CR> <CR><LF>OK<CR><LF>	AT+HEARTDTHEX=0102 OK
parameter		
heartbeat	Heartbeat packet content, in HEX format; 0~80 bytes	

5.52. AT+HEARTTM

	explain	Examples and Notes
function	Heartbeat packet cycle for port query/set	
query	AT+HEARTTM<CR> or AT+HEARTTM? <CR> <CR><LF>+HEARTTM:< heart_times><CR><LF>	AT+HEARTTM +HEARTTM:30
set up	AT+HEARTTM=< heart_times><CR> <CR><LF>OK<CR><LF>	AT+HEARTTM=30 OK
parameter		
heart_times	Heartbeat interval, default 30s, range: 1 to 65535s	Default value: 30

5.53. AT+REGEN/AT+REGBEN

	explain	Examples and Notes
function	Query or set the registration package type for ports	Path A: REGEN Route B: REGBEN
query	AT+REGEN<CR> or AT+REGEN? <CR> <CR><LF>+REGEN:<reg_mode><CR><LF>	AT+REGEN +REGEN:OFF
set up	AT+REGEN=<reg_mode><CR> <CR><LF>OK<CR><LF>	AT+REGEN=OFF OK
parameter	/	
reg_mode	<reg_mode>: Registration package enable mode MAC-Use MAC as registration package content USR-Custom Registration Package Content OFF-Disable registration	Windows default ： OFF

5.54. AT+REGSND/AT+REGBSND

	explain	Examples and Notes
function	Query or set the registration package sending method for ports	Path A: REGSND Path B: REGBSND
query	AT+REGSND<CR> or AT+REGSND? <CR> <CR><LF>+REGSND:<reg_snd_mode><CR><LF>	AT+REGSND +REGSND:FIRST
set up	AT+REGSND=<reg_snd_mode><CR> <CR><LF>OK<CR><LF>	AT+REGSND=FIRST OK
parameter		
reg_snd_mode	FIRST: Connect to send the registration package EVERY: Each data packet is preceded by a registration packet	Default value: First

	ALL: Both of the above are supported	

5.55. AT+REGDT/AT+REGBDT

	explain	Examples and Notes
function	Query or set the custom registration package content for ports. Only ASCII is supported.	Path A: REGDT Path B: REGBDT
query	AT+REGDT<CR> or AT+REGDT? <CR> <CR><LF>+REGDT:<reg_data><CR><LF>	AT+REGDT +REGDT:www.usr.cn
set up	AT+REGDT=<reg_data><CR> <CR><LF>OK<CR><LF>	AT+REGDT=www.usr.cn OK
parameter		
reg_data	Custom registration package, maximum length 40 bytes, supports only ASCII	Default value: register

5.56. AT+REGDTHEX/AT+REGBDTHEX

	explain	Examples and Notes
function	Query or set custom data for HEX format registration package	Path A: REGDTHEX Path B: REGBDTHEX
query	AT+REGDTHEX<CR> or AT+REGDTHEX? <CR> <CR><LF>+REGDTHEX:<reg_data><CR><LF>	AT+REGDTHEX +REGDTHEX:010203
set up	AT+REGDTHEX=<reg_data><CR> <CR><LF>OK<CR><LF>	AT+REGDTHEX=010203 OK
parameter		
reg_data	Package content, HEX format; 0~80 bytes	

5.57. AT+PING

	explain	Examples and Notes
function	Set the target IP for active ping and execute a ping	

query	/	
set up	AT+PING=<address><CR> <CR><LF>OK=<result><CR><LF>	AT+PING=www.baidu.com OK=SUCCESS
parameter		
address	<address>: Target address or domain name, for example: www.baidu.com (64 characters)	
result	<result>: PING result success-Network connection timeout-ping timeout	

5.58. AT+DHCPEN

	explain	Examples and Notes
function	Enable DHCP for ports	
query	AT+DHCPEN<CR> or AT+REGEN?<CR> <CR><LF>+DHCPEN:<status><CR><LF>	AT+DHCPEN +DHCPEN:OFF
set up	AT+DHCPEN=<status><CR> <CR><LF>OK<CR><LF>	AT+DHCPEN=OFF OK
parameter	/	
status	<status>: Device DHCP enabled status ON-Enable DHCP to automatically obtain IP addresses through the router OFF-Disable DHCP to manually set static IP addresses	Windows default : OFF

5.59. AT+RSTIM

	explain	Examples and Notes
function	Query or set restart time for dataless restart	
query	AT+RSTIM<CR> or AT+RSTIM? <CR> <CR><LF>+RSTIM:<time><CR><LF>	AT+RSTIM +RSTIM:0

set up	AT+RSTIM=<time><CR> <CR><LF>OK<CR><LF>	AT+RSTIM=0 OK
parameter		
time	No data reset time: 0, 60-65535s.0 means this function is disabled.	Default value: 0 (off)

5.60. AT+MQTTEN

	explain	Examples and Notes
function	Check or set MQTT status	
query	AT+MQTTEN<CR> or AT+MQTTEN? <CR> <CR><LF>+MQTTEN:<status><CR><LF>	AT+MQTTEN +MQTTEN:OFF
set up	AT+MQTTEN=<status><CR> <CR><LF>OK<CR><LF>	AT+MQTTEN=OFF OK
parameter	/	
status	<status>: Device MQTT function enabled status ON-Enable MQTT OFF-Turn off MQTT	Windows default ： OFF

5.61. AT+MQTTVER

	explain	Examples and Notes
function	Query or set the MQTT protocol version	
query	AT+MQTTVER<CR> or AT+MQTTVER? <CR> <CR><LF>+MQTTVER:<mode><CR><LF> <CR><LF>OK<CR><LF>	AT+MQTTVER +MQTTVER:3 OK
set up	AT+MQTTVER=<mode>{CR} {CR}{LF}OK{CR}{LF}	AT+MQTTVER=3 OK

parameter		
mode	MQTT protocol version 3：V3.1 4：V3.1.1	Default is 4

5.62. AT+MQTTSVR

	explain	Examples and Notes
function	Query or set the server IP address and port number for the MQTT gateway function	
query	AT+MQTTSVR<CR> or AT+MQTTSVR? <CR> <CR><LF>+MQTTSVR:<ip,port,local_port><CR><LF > <CR><LF>OK<CR><LF>	AT+MQTTSVR +MQTTSVR:192.168.0.201, 1883,0 OK
set up	AT+MQTTSVR=<ip,port,local_port>{CR} {CR}{LF}OK{CR}{LF}	AT+MQTTVER=192.168.0.201, 1883, 0 OK
parameter		
ip	The IP address of the MQTT server, up to 128 characters	Default value: 192.168.0.201
port	The port number of the MQTT server, 1 to 65535	Default value: 1883
local_port	The local port number of the MQTT server, ranging from 0 to 65535	Default value: 0

5.63. AT+MQTTCID

	explain	Examples and Notes
function	Query or set MQTT client ID	
query	AT+MQTTCID<CR> or AT+MQTTCID?<CR> <CR><LF>+OK=<mode, clientid><CR><LF>	AT+MQTTCID +OK=2, 123456
set up	AT+MQTTCID=<mode,clientid><CR> <CR><LF>+OK<CR><LF>	AT+MQTTCID=2, 123456 +OK

parameter		
mode	MQTT client ID type: 0: SN, 1: MAC, 2: custom cid	
Client id	MQTT client ID, up to 256 characters, set only when mode is 2 instance ： 4CB53684	

5.64. AT+MQTTHEARTTM

	explain	Examples and Notes
function	Query or set MQTT heartbeat time	
query	AT+MQTTHEARTTM<CR>or AT+MQTTHEARTTM?<CR> <CR><LF>+OK=<time><CR><LF>	AT+MQTTHEARTTM +OK=60
set up	AT+MQTTHEARTTM=<time><CR> <CR><LF>+OK<CR><LF>	AT+MQTTHEARTTM=60 +OK
parameter		
time	Heartbeat time; 0-65535s; 0 means off	Default value: 60

5.65. AT+MQTTRECTM

	explain	Examples and Notes
function	Query or set MQTT reconnection wait time	
query	AT+MQTTRECTM<CR>or AT+MQTTRECTM?<CR> <CR><LF>+OK=<time><CR><LF>	AT+MQTTRECTM +OK=1
set up	AT+MQTTRECTM=<time><CR> <CR><LF>+OK<CR><LF>	AT+MQTTRECTM=1 +OK
parameter		
time	MQTT reconnection wait time; 1-65535s	Default value: 5

5.66. AT+MQTTNDTRECTM

	explain	Examples and Notes

function	Query or set MQTT reconnection timeout for no data	
query	AT+MQTTNDTRECTM<CR>or AT+MQTTNDTRECTM?<CR> <CR><LF>+OK=<time><CR><LF>	AT+MQTTNDTRECTM +OK=0
set up	AT+MQTTNDTRECTM=<time><CR> <CR><LF>+OK<CR><LF>	AT+MQTTNDTRECTM=0 +OK
parameter		
time	MQTT no data reconnection time; 0-65535s; 0 means off	Default value: 0

5.67. AT+MQTTCS

	explain	Examples and Notes
function	Query or set MQTT clear conversation	
query	AT+MQTTCS<CR> or AT+MQTTCS? <CR> <CR><LF>+OK=<sta><CR><LF>	AT+MQTTCS +OK=OFF
set up	AT+MQTTCS=<sta><CR> <CR><LF>+OK<CR><LF>	AT+MQTTCS=OFF
		+OK
parameter		
sta	ON: Enable MQTT conversation clearing OFF: Disable MQTT conversation clearing	Windows default ： OFF

5.68. AT+MQTTAUTH

	explain	Examples and Notes
function	Check or set MQTT connection verification status	

query	AT+MQTTAUTH<CR> or AT+MQTTAUTH? <CR> <CR><LF>+OK=<sta><CR><LF>	AT+MQTTAUTH +OK=OFF
set up	AT+MQTTAUTH=<sta><CR> <CR><LF>+OK<CR><LF>	AT+MQTTAUTH=OFF +OK
parameter		
sta	ON: Enable MQTT connection verification OFF: Disable MQTT connection verification	Windows default ： OFF

5.69. AT+MQTTUSER

	explain	Examples and Notes
function	Query or set MQTT username	
query	AT+MQTTUSER<CR> or AT+MQTTUSER?<CR> <CR><LF>+OK=<user><CR><LF>	AT+MQTTUSER +OK=admin
set up	AT+MQTTUSER=<user><CR> <CR><LF>+OK<CR><LF>	AT+MQTTUSER=admin +OK
parameter		
user	MQTT username, up to 128 characters	Default value: admin

5.70. AT+MQTTPSW

	explain	Examples and Notes
function	Query or set MQTT user password	
query	AT+MQTTPSW<CR> or AT+MQTTPSW? <CR>	AT+MQTTPSW
	<CR><LF>+OK=<password><CR><LF>	+OK=admin

set up	AT+MQTTPSW=<password><CR> <CR><LF>+OK<CR><LF>	AT+MQTTPSW=admin +OK
parameter		
password	MQTT user password: up to 200 characters	Default value: admin

5.71. AT+MQTTLWTEN

	explain	Examples and Notes
function	Check or set MQTT legacy status	
query	AT+MQTTLWTEN<CR> or AT+MQTTLWTEN?<CR> <CR><LF>+OK=<sta><CR><LF>	AT+MQTTLWTEN +OK=OFF
set up	AT+MQTTLWTEN=<sta><CR> <CR><LF>+OK<CR><LF>	AT+MQTTLWTEN=OFF +OK
parameter		
sta	ON: Enable MQTT legacy OFF: Disable MQTT legacy	Windows default ： OFF

5.72. AT+MQTTLWTCFG

	explain	Examples and Notes
function	Query or set MQTT legacy messages	
query	AT+MQTTLWTCFG<CR>or AT+MQTTLWTCFG?<CR><CR><LF>+OK=<topic>,<qos>,<retained>,<payloa d><CR><LF>	AT+MQTTLWTCFG +OK=/will,0,OFF,offline
set up	AT+MQTTLWTCFG=<topic>,<qos>,<retained>,<payload><CR> <CR><LF>+OK<CR><LF>	AT+MQTTLWTCFG==/will,0,OFF,offline +OK
parameter		
topic	Title; 1-128 characters	Default value: /will

qos	Service quality assurance level; 0/1/2	Default value: 0
retained	Keep message ON: Keep OFF: without reserve	Windows default : OFF
payload	Testament content; 0-128 characters	Default value: offline

5.73. AT+MQTTSSL

	explain	Examples and Notes
function	Query or set MQTT SSL encryption	
query	AT+MQTTSSL<CR> or AT+MQTTSSL? <CR> <CR><LF>+OK=<sslen>,<sslver>, <sslmod><CR><LF>	AT+MQTTSSL +OK=ON, 1,0
set up	AT+MQTTSSL=<sslen>,<sslver>, <sslmod><CR> <CR><LF>+OK<CR><LF>	AT+MQTTSSL=ON, 1,0 +OK
parameter		
sslen	ON: Enable MQTT SSL encryption OFF: Disable MQTT SSL encryption Note: If the parameter after OFF is ignored	Windows default : OFF
sslver	SSL version number: 1 : TLS1.0 2: TLS1.2	
sslmod	Certificate verification mode: 0: Do not verify certificate 1: One-way authentication certificate 2: Two-way authentication certificate	

5.74. AT+MQTTPUBMOD

	explain	Examples and Notes
function	Query or set MQTT publish topic mode	

query	AT+MQTTPUBMOD<CR> or AT+MQTTPUBMOD? <CR> <CR><LF>+MQTTPUBMOD:<sta,comm><CR><LF> <CR><LF>OK<CR><LF>	AT+MQTTPUBMOD +MQTTPUBMOD:0,0 OK
set up	AT+MQTTPUBMOD=<sta,comm><CR><LF>	AT+MQTTPUBMOD=0,0
	<CR><LF>OK<CR><LF>	OK
parameter		
sta	Publish theme mode. 0: Custom theme mode (default); 1: Preset theme mode	
comm	Configurable in custom theme mode: theme sending channel 0:can1 1 :can2 2:485 serial port	Only the first parameter can be configured when set to 0

5.75. AT+MQTTPUB

	explain	Examples and Notes
function	Query or set the preset MQTT publish topic information	
query	Query all pubtopics: AT+MQTTPUB<CR> or AT+MQTTPUB? <CR> <CR><LF>+OK=<pubnum>,<puben>,<topic>,<mode>,<symbol>,<qos>,<retained>,<comn> … … <CR><LF> Query a single pubtopic: AT+MQTTPUB=<pubnum><CR> <CR><LF>+OK=<pubnum>,<puben>,<topic>,<mode>,<symbol>,<qos>,<retained>,<comn><CR>< LF>	AT+MQTTPUB=1 +OK=1,OFF,/PubTopic1,0, 1,0,OFF, 1

set up	AT+MQTTPUB=<pubnum>,<puben>,<topic>,<mode>,<symbol>,<qos>,<retained>,<comn><CR><CR><LF>+OK<CR><LF>	AT+MQTTPUB=1,ON,/PubTopic1,0,1,0,OFF,1 +OK
parameter		
pubnum	Publish topic number 1~16	
puben	ON: This serial number has enabled the release theme OFF: The release topic for this sequence number is disabled, and the parameters following this sequence number cannot be set.	Windows default ： OFF
topic	Topic name, up to 128 characters; no commas or topic wildcards "+" or "#" are allowed	
mode	Publish theme settings; 0: Transparent mode, serial port sends pure data, transparent to all preset themes 1: Topic distribution mode. Serial port data transmission must follow the format:	Default value: 0
	<symbol>, <payload>, send to the theme corresponding to the preset special identifier	
symbol	Special identifier, also known as a topic alias; up to 64 characters; no commas allowed; does not set the default to the published topic serial number	
qos	Service quality assurance level: 0/1/2	Default value: 0
retained	Keep message: ON: Enable message retention OFF: Turn off message retention	Windows default OFF
comn	Bind port 0: can1 1 :can2 2:485 serial port	

5.76. AT+MQTTSUB

	explain	Examples and Notes

function	Query or set MQTT preset subscription topics	
query	Query all subtopics: AT+MQTTSUB<CR> or AT+MQTTSUB? <CR> <CR><LF>+OK=<subnum>,<suben>,<topic>,<mode>,<qos>,<cut>,<comn> … …<CR><LF> Query a single subtopic: AT+ MQTTSUB= <subnum><CR> <CR><LF>+OK=<subnum>,<suben>,<topic>,<mode>,<qos>,<cut>,<comn><CR><LF>	AT+MQTTSUB=1 +OK=1,ON,/SubTopic1, 1,0,,, 1
set up	AT+MQTTSUB=<subnum>,<suben>,<topic>,<mode>,<qos>,<cut>,<comn><CR> <CR><LF>+OK<CR><LF>	AT+MQTTSUB=1,ON,/SubTopic1, 1,0 ,&#44, 1 +OK
parameter		
subnum	Subscribe to topic numbers 1 through 16	
suben	ON: This serial number subscription theme is enabled OFF: This serial number subscription theme is disabled, and the following parameters cannot be set.	Windows default ： OFF
topic	Topic name, up to 128 characters; no commas allowed. Topic wildcards must comply with MQTT protocol specifications.	
mode	Subscription mode:	Default value: 0
	0: Only transmit payload 1: Pass through the payload and carry the subject	
qos	Service quality assurance level: 0/1/2	Default value: 0
cut	Theme separator. The theme distribution mode is valid. Set "&" to a comma for readable commas.	
comn	Bind port 0: can1 1 :can2 2:485 serial port	

5.77. AT+MQTTCMDEN

	explain	Examples and Notes
function	Query or set MQTT AT topic enable	
query	AT+MQTTCMDEN<CR> or AT+MQTTCMDEN? <CR> <CR><LF>+OK=<sta><CR><LF>	AT+MQTTCMDEN +OK=ON
set up	AT+MQTTCMDEN=<sta><CR><LF> <CR><LF>OK<CR><LF>	AT+MQTTCMDEN=ON OK
parameter		
sta	Enable AT theme: ON/OFF	

5.78. AT+MQTTCMDPUB

	explain	Examples and Notes
function	Query or set MQTT AT publish topic information	
query	AT+MQTTCMDPUB<CR> or AT+MQTTCMDPUB? <CR> <CR><LF>+OK=<topic,qos><CR><LF>	AT+MQTTCMDPUB +OK=03500425102400000908/d2c/at
set up	AT+MQTTCMDPUB=<topic,qos><CR><LF> <CR><LF>OK<CR><LF>	AT+MQTTCMDPUB=sys_sn/d2c/at OK
parameter		
topic	Publish a topic, up to 64 bytes	
qos	Service quality assurance level: 0/1/2	

5.79. AT+MQTTCMDSUB

	explain	Examples and Notes
function	Query or set MQTT AT subscription topic information	

query	AT+MQTTCMDSUB<CR> or AT+MQTTCMDSUB? <CR> <CR><LF>+OK=<topic,qos><CR><LF>	AT+MQTTCMDSUB +OK=03500425102400000908/c2d/at
set up	AT+MQTTCMDSUB=<topic,qos><CR><LF> <CR><LF>OK<CR><LF>	AT+MQTTCMDSUB=sys_sn/c2d/at OK
parameter		
topic	Subscribe to topics, up to 64 bytes	
qos	Service quality assurance level: 0/1/2	

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7.Update History

Manual Version	update content	Update time
V1.0.0	Create documents and complete relevant functional descriptions	20 22 - 02 - 19
V1.0.1	Optimize description information and add WIFI version description	2022-09-10
V1.0.2	Optimize the description information and list the WIFI version as the standard version	2022-10-27
V1.0.3	Optimization information	2022-12-10
V1.0.4	Optimized the description information and added the global version and 5G LAN version options	2023-04-27