USR-LG210 Instruction Set



V2.0

Your Trustworthy Smart Industrial IoT Partner

Product Features

- Self-organizing network protocol, localized partition management;
- Transmission distance up to 4500 meters in open, unobstructed areas,high gain, high reception sensitivity;
- Multiple functional modes suitable for various scenario requirements;
- Edge collection, active reporting, low power consumption, networking ID communication, transparent transmission;
- Connect to USR Cloud, Alibaba Cloud, private servers;
- MQTT/TCPcommunication, SSL encryption, two-way Socket connection;
- Supports remote operation and maintenance, convenient and fast
- Heartbeat packet, registration packet, reconnection without data, restart without data
- Supports ModbusTCP and ModbusRTU protocol conversion;
- Node information reporting function, monitoring node signal quality;
- High EMC protection level, hardware watchdog;

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1. Product Introduction

The LoRa self-organizing network system is a wireless communication system designed by PUSR for networking communication of self-organizing network devices, including dual-channel concentrators (LG210gateway), communication nodes (USR-LG206-Ldata transmission terminal). It can achieve cloud data collection, edge collection, low-power transmission, control command issuance, active reporting, and status upload for self-organizing network devices. It is suitable for fields such as agricultural irrigation, agricultural data collection, warehouse management, building energy monitoring, smart meter reading, smart street lights, and smart fire protection. The LoRa self-organizing network is deployed once and used for a lifetime, greatly saving operating costs for customers.

USR-LG210 is a dual-channel LoRa gateway. It connects toprivate servers, USR Cloud, or Alibaba Cloudvia 4G/Ethernet upstream, and communicates with nodes (USR-LG206-Ldata transmission terminal) via internal LoRa dual channels downstream.

2. Command Introduction

This document provides detailed instructions for the AT commands supported by the USR-LG210 series products, including methods for querying and setting serial port AT commands and network AT commands.

2.1. Serial Port AT Commands

In serial port AT command mode, users can send AT commands to theLG210 gatewayvia serial port software (gateway configuration softwareor other general serial port software) or serial port devices to query and setgatewayparameters. The concentrator configuration software (USR_LoRa) basically includes most of the function query andfunctions.

Configuration software download link:

User manual download link:

Using other serial port software or serial port devices to configure the concentrator parameters generally requires the following steps:

(1) Enter AT command mode.

(2) Send AT command sets to configure the concentrator parameters.

(3) If the set parameters require a restart to take effect, send the concentrator restart AT command to restart the concentrator; if they take effect immediately, just send the command to exit AT command mode.

Note: AT command set: This is the command set used by users to communicate with the concentrator via UART in AT command mode. For detailed introduction of the command set and commands, please seebelow.

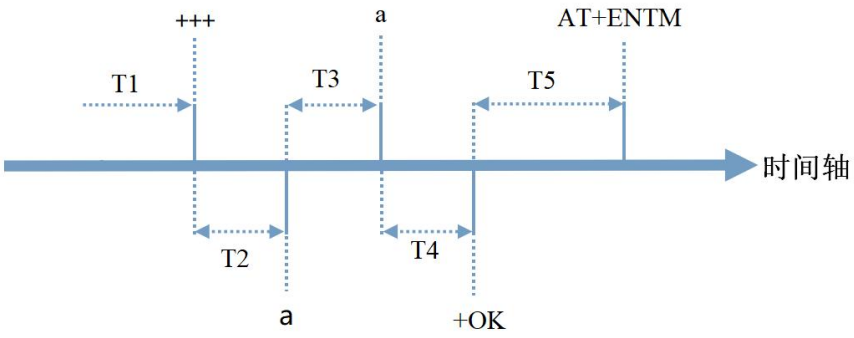
2.1.1. Serial Port AT Command Operations

➢ **Entering AT Command Mode**

(1) The serial port software device sends "+++" to the concentrator. Upon receiving "+++", the concentrator returns an acknowledgment code "a".

(2) After the serial port software receives "a", it must reply with the acknowledgment code "a" to the concentrator within 3 seconds (i.e., T3 < 3s).

(3) After the concentrator receives the acknowledgment code, it returns "+OK" to confirm entry into AT command mode.



➢ **Exiting AT Command Mode**

In AT command mode, send the "AT+ENTM" command to the concentrator via the serial port, and the concentrator will exit AT command mode.

2.2. Network AT Commands

Network AT commands require the **network connection** of the gateway configuration software to read parameters. You can see that the read commands in the LOG box on the right side of the configuration software contain network protocols. Users can use the configuration software or network assistant to query or set using network AT commands, as shown inFigure 1Command Read/Setting Example

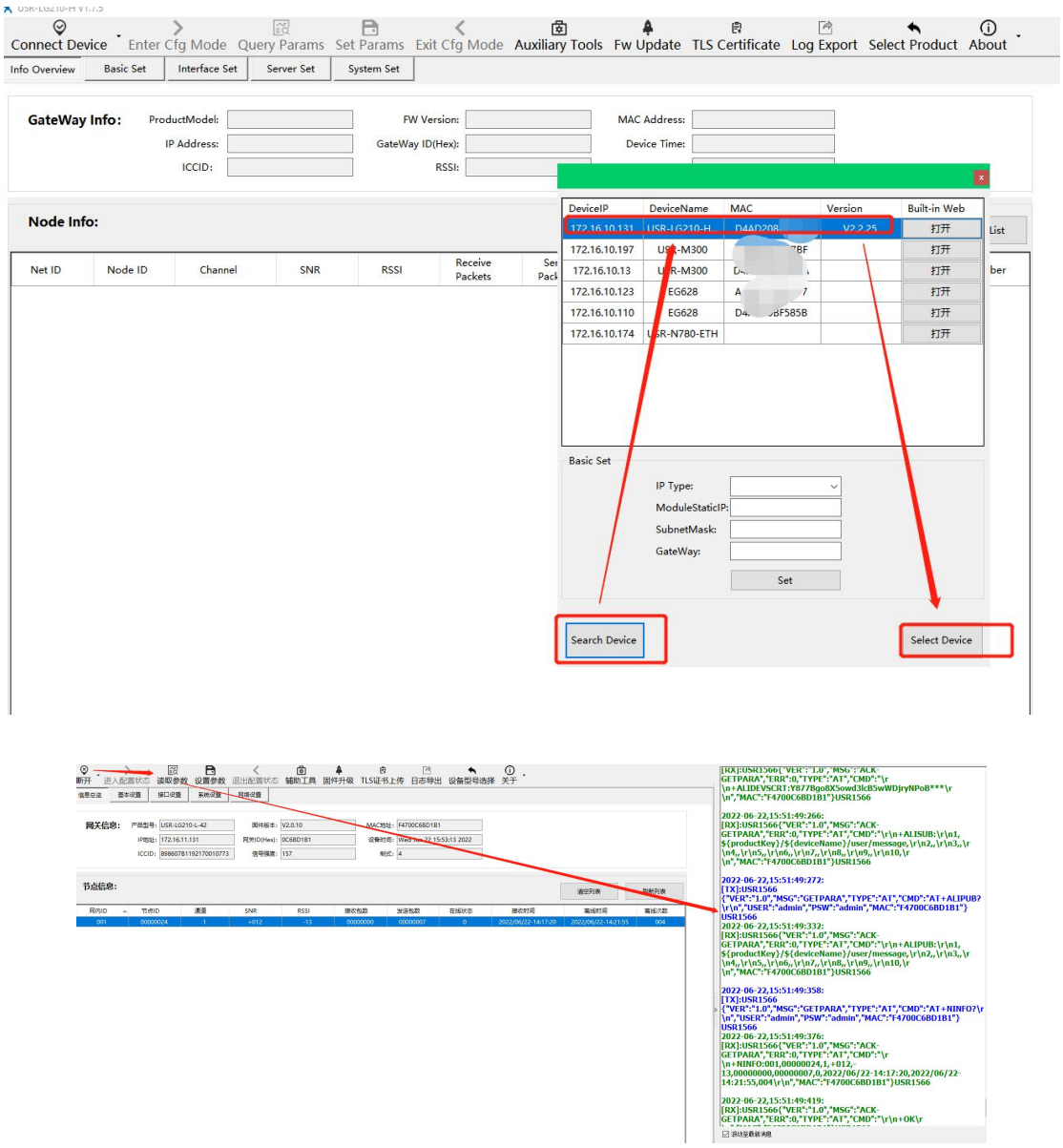


Figure 1Command Read/Setting Example

To query or set network AT commands using our configuration software, you only need to send AT commands in the send box, without using specific network AT command protocols; if you use other network debugging assistants to query or set network AT commands, you need to follow the network AT command protocol;

2.2.1. Network AT Command Operations

➢ **Using network AT commands via our configuration software:**

① Querying using the configuration software:

After successfully connecting via network, click to read parameters; as shown inFigure 1Command Read/Setting Example.

② Setting using the configuration software:

After successfully connecting via network, click on the relevant setting parameters or enter AT commands in the

input box on the right. The configuration software will automatically form the network AT command protocol and send it to the 210 gateway. After setting, restart to take effect. As shown inFigure 2Setting Commands Using Configuration Software.

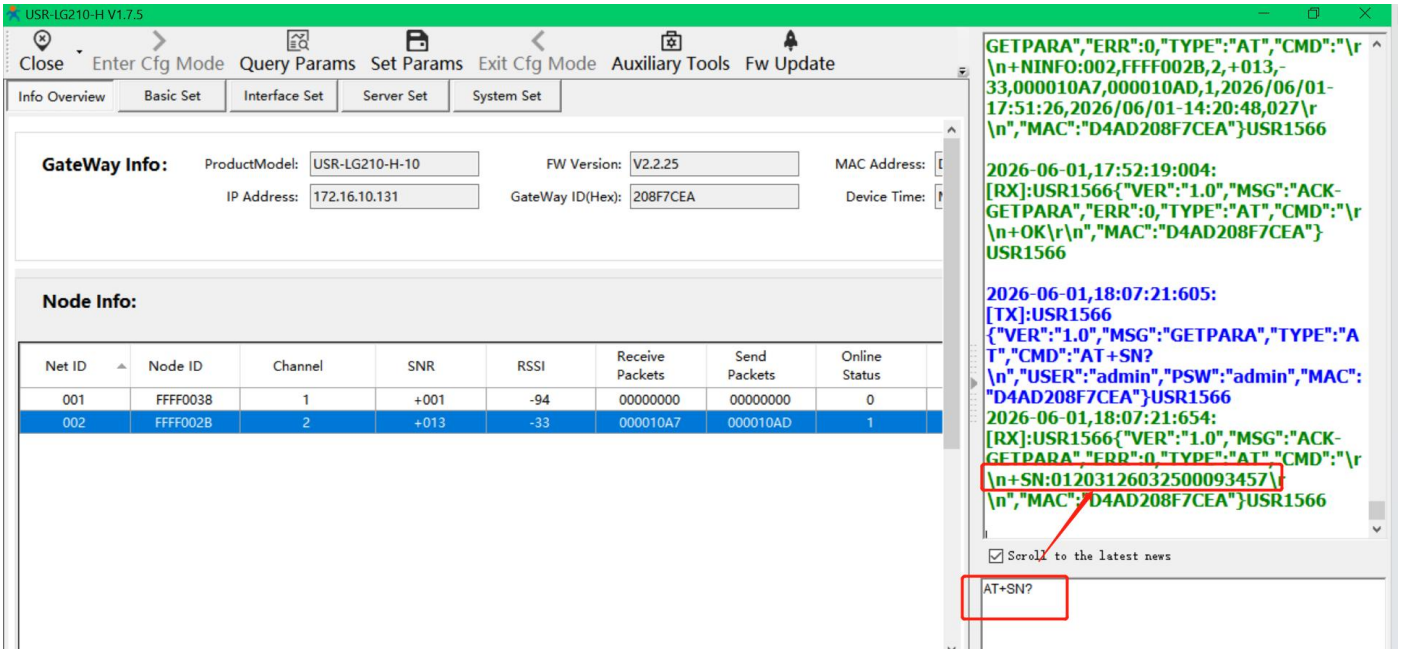


Figure 2Setting Commands Using Configuration Software

Note: Perform during network connection.

➢ **Using network AT commands with other network debugging assistants:**

Before use, you need to use a network assistant tool to establish UDP broadcasting. The local address and port are random, and the remote host needs to be manually set (255.255.255.255:1566). Then send according to the network AT command protocol.

Note: Needs to be performed under network connection. Network AT commands do not require entering/exiting configuration commands; just send query and set parameters according to the protocol format.

① Querying using a network debugging assistant:

You need to query in the format of [USR1566{"VER":"1.0","MSG":"GETPARA","TYPE":"AT","CMD":"AT Command\r\n","USER":"Username","PSW":"Password","MAC":"MAC Address"} USR1566], where (AT Command, Username (default admin), Password (default admin), MAC Address) are filled in according to the actual LG210 gateway being used.

For example, to query the device version number (AT+VER?), as shown inFigure 3Querying Network Commands According to Protocol:

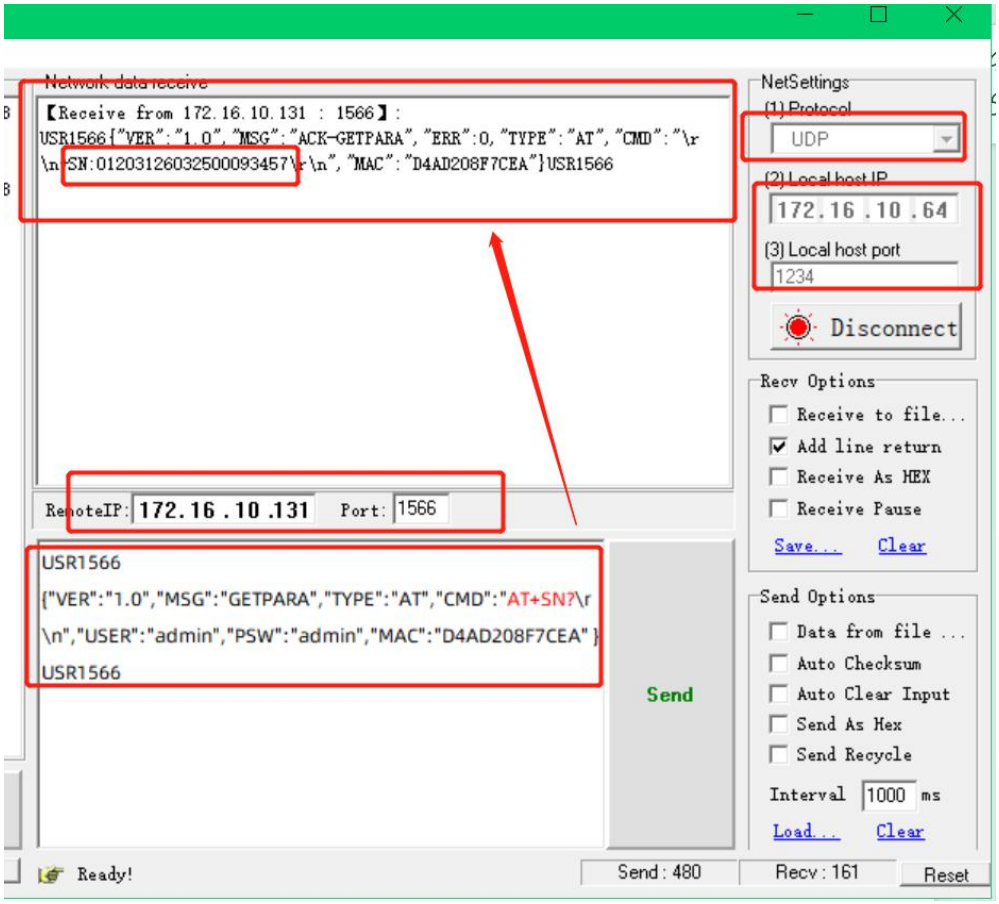


Figure 3Querying Network Commands According to Protocol

The queried version number is: V2.0.1.

[USR1566{"VER":"1.0","MSG":"ACK-GETPARA","ERR":0,"TYPE":"AT","CMD":"\r\n+VER:V2.0.1\r\n","MAC":"9CA5253B111B"}USR1566]

② Setting using a network debugging assistant:

Query according to the format [USR1566{"VER":"1.0","MSG":"SETPARA","TYPE":"AT","CMD":"AT command\r\n","USER":"Username","PSW":"Password","MAC":"MAC address" } USR1566], where (AT command, Username (default admin), Password (default admin), MAC address) are filled in according to the actual use of the LG210 gateway.

For example, to set the device networking broadcast transparent transmission working mode (AT+WMODE=0),Figure 4Set network commands according to the protocol:

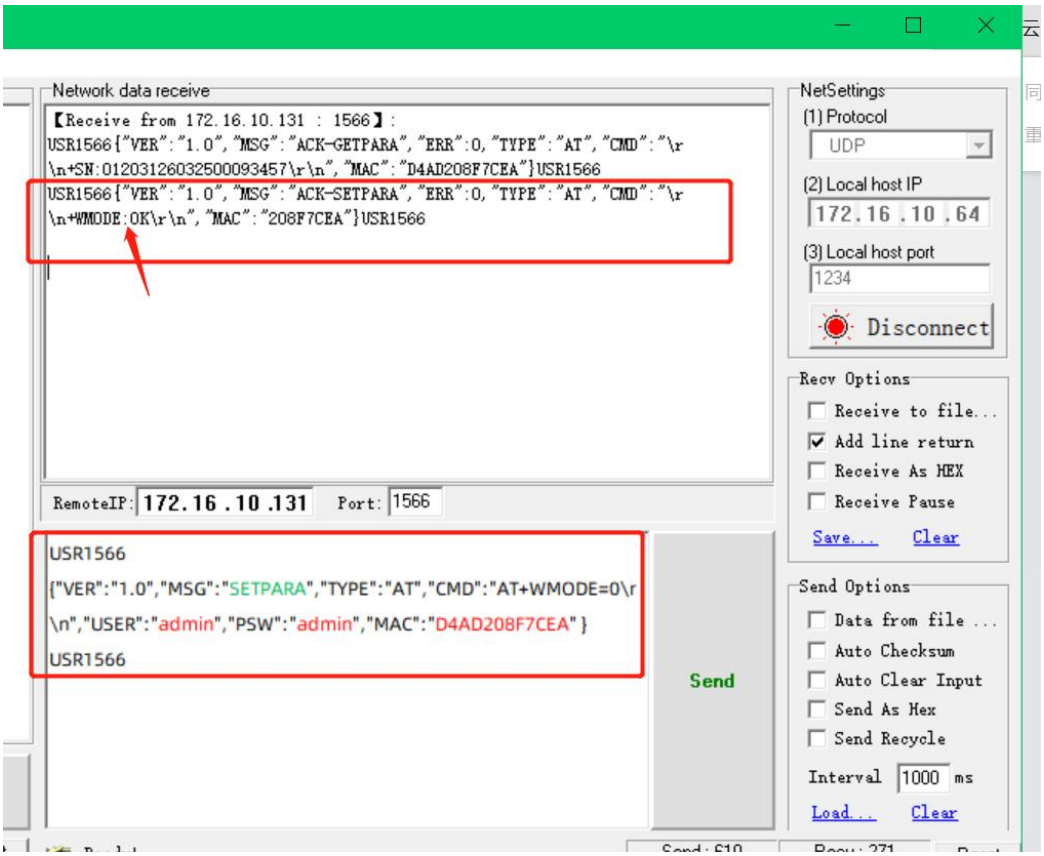


Figure 4Set network commands according to the protocol

You can receive the reply OK, proving that the setting is successful.

USR1566{"VER":"1.0","MSG":"ACK-SETPARA","ERR":0,"TYPE":"AT","CMD":"\r\n+WMODE:OK\r\n","MAC":"253B111B"}USR1566

2.3. Format of "Question" in the command

Send commands ending with carriage return <CR>, line feed <LF>, or carriage return line feed <CR><LF>

Table 1Command Format Description

Command Format	Description	Example
AT+CMD? <CR><LF>	Query parameters	AT+VER?<CR><LF>
AT+CMD <CR><LF>	Query parameters	AT+VER<CR><LF>
AT+CMD=para <CR><LF>	Set parameters	AT+CH1=66<CR><LF>

2.4. Format of "Answer" in the command

Terminal reply format (echo off):

Set parameter command reply: <CR><LF><CR><LF>OK<CR><LF>

Query parameter command reply: <CR><LF> +CMD:PARA<CR><LF><CR><LF>OK<CR><LF>

CMD: Command word

PARA: Parameter

Table 2-2AT Command Reply

Return Code	Return Description	Remarks
OK	Response successful	
ERR-1	Invalid command format	
ERR-2	Invalid command	
ERR-3	Invalid operator	
ERR-4	Invalid parameter	
ERR-5	Operation failed	

3. AT Command Set

No.	Command	Description
1	Z	Restart device
2	VER	Query device firmware version
3	ENTM	Exit AT command mode, switch to working mode
4	RELD	Restore factory settings
5	HWVER	Query hardware version
6	INMDL	Query device model
7	E	Device AT command echo setting
8	SN	Query SN
9	MAC	Query MAC
10	LTIME	Set/Query device time
11	WANN	Set/Query WAN port IP obtained by device
12	NTPEN	Enable/Disable NTP time synchronization

13	UART	Set/Query UART interface parameters
14	GWID	Query Gateway ID
15	CH(n)? / AT+CH1/CH2…?	Query LoRa channel (1, 2...) frequency
16	AT+SPD(n)? / AT+SPD1/SPD2…?	Query/Set LoRa channel (1, 2...) rate
17	AT+PWR(n)? / AT+PWR1/PWR2…?	Query LoRa channel (1, 2...) power
18	AT+FEC(n)?	Query/Set LoRa channel (1, 2...) FEC switch status
19	AT+LBT?	Query/Set signal interference detection function
20	LOWPWR	Query/Set node low power function
21	NWMODE	Query/Set whether device is in networking mode
22	TTMODE	Query/Set working mode under non-networking protocol
23	WMODE	Query/Set working mode under networking protocol
24	UPWID	Query/Set whether uplink data carries node ID in networking
25	RPTNUM	Query/Set max number of nodes in networking report mode
26	RPTCYCLE	Query/Set cycle in networking report mode
27	RPTINTVAL	Query/Set reporting interval in networking report mode
28	RPTRET	Query/Set retransmission status in networking report mode
29	LRHEART	Query/Set heartbeat status in networking transparent transmission and fixed ID mode
30	LROFFLINE	Query/Set offline time in networking transparent transmission and fixed ID mode
31	AT+SERVERCH	Query/Set node data uplink data stream
32	NNUM(n)? /AT+ NNUM1/NNUM2…?	Query number of networked nodes in LoRa channel (1/2...)
33	NINFO	Query stored network node information
34	CLEARNINFO	Clear stored node information
35	NETIFPRI	Query/Set device network card priority
36	DHCP	Query/Set DHCP status
37	GWIP	Query/Set device IP address
38	GW	Query/Set router gateway IP
39	MASK	Query/Set device subnet mask

40	PING	Detect network connectivity status
41	OPTION	Query/Set current network mode
42	SOCKLINKAC	Query Socket-A connection status
43	SOCKLINKBC	Query Socket-B connection status for port n
44	SOCKEN	Query/Set SOCKET-A and SOCKET-B switch status
45	SOCKA	Query/Set SOCKET-A parameters
46	SOCKB	Query/Set SOCKET-B parameters
47	SOCKSVRA	Query/Set SOCKET-A client server IP address
48	SOCKSVRB	Query/Set SOCKET-B client server IP address
49	SOCKPORTAS	Query/Set SOCKA-server port number
50	SOCKPORTAC	Query/Set SOCKA local port number
51	SOCKPORTBC	Query/Set SOCKB-client server port number
52	MODBUS	Query/Set MODBUS TCP-RTU conversion enable
53	SOCKSSLAS	Query/Set SOCKET-A server SSL encryption status
54	SOCKSSLAC	Query/Set SOCKET-A client SSL encryption status
55	SOCKSSLBC	Query/Set SOCKET-B SSL encryption status
56	SOCKREGAS	Query/Set SOCKET-A server registration packet information
57	SOCKREGAC	Query/Set SOCKET-A client registration packet information
58	SOCKREGBC	Query/Set SOCKET-B client registration packet information
59	SOCKHEARTAS	Query/Set SOCKET-A server heartbeat packet information
60	SOCKHEARTAC	Query/Set SOCKET-A client heartbeat packet information
61	SOCKHEARTBC	Query/Set SOCKET-B client heartbeat packet information
62	SOCKRECONAS	Query/Set SOCKET-A server no-data reconnection
63	SOCKRECONAC	Query/Set SOCKET-A client no-data reconnection
64	SOCKRECONBC	Query/Set SOCKET-B client no-data reconnection
65	SOCKREBOOT	Query/Set SOCKET no-data restart
66	MQTTSER	Query/Set MQTT client server IP address and port number

67	MQTTCID	Query/Set MQTT client ID
68	MQTTSUB	Query/Set MQTT subscription topic
69	MQTTPUB	Query/Set MQTT publish topic
70	MQTTUSER	Query/Set MQTT username
71	MQTTPSW	Query/Set MQTT password
72	MQTTVER	Query/Set MQTT protocol version number
73	MQTTQOS	Query/Set MQTT QoS level
74	MQTTSSL	Query/Set SSL encryption status under MQTT protocol
75	CSQ	Query device signal strength
76	SYSINFO	Query device network information
77	IMEI	Query device IMEI
78	ICCID	Query SIM card ICCID
79	ALIREGION	Query/Set Alibaba Cloud region information
80	ALIPRODKEY	Query/Set Alibaba Cloud product device key
81	ALIDEVNAME	Query/Set Alibaba Cloud device name
82	ALIDEVSCRT	Query/Set Alibaba Cloud device password
83	ALISUB	Query/Set Alibaba Cloud subscription topic
84	ALIPUB	Query/Set Alibaba Cloud publish topic
85	USRCLDEN	Query/Set USR Cloud function switch
86	CLOUDNODE	Query/Set node USR Cloud function switch
87	CLOUDGWHEART	Query/Set heartbeat period between USR Cloud and gateway
88	CLOUDNODEHEART	Query/Set heartbeat period between USR Cloud and node

Table 3-1 AT Command Set

3.1.1. AT+Z

Description	Restart device
Execute-Query	AT+Z
Execute-Response	+Z:OK
Note	Delay 2s, wait for NV save and restart immediately

3.1.2. AT+VER

Description	Query version number
Query-Question	AT+VER?
Query-Answer	+VER:<ver>
Parameter	<ver>: Version number, example: V1.0.1

3.1.3. AT+ENTM

Description	Exit AT command, switch to working mode
Execute-Query	AT+ENTM
Execute-Response	+ENTM:OK

3.1.4. AT+RELD

Description	Restore factory settings
Execute-Query	AT+RELD
Execute-Response	+RELD:OK

3.1.5. AT+HWVER

Description	Query hardware version number
Query-Question	AT+HWVER?
Query-Answer	+HWVER:<ver>
Parameter	<ver>: Version number, example: V1.0

3.1.6. AT+INMDL

Description	Query device product model

Query-Question	AT+INMDL?
Query-Answer	+INMDL:<model>
Parameter	<model>: Device internal model, example:USR-LG210-10

3.1.7. AT+E

Description	Set/Query Echo Status
Query-Ask	AT+E?
Query-Answer	+E:<status>
Set-Ask	AT+E=<status>
Set-Answer	<status>:ON/OFF ON: Enable echo (default), echo the commands entered under AT command. If not disabled, all subsequent commands will print echo. OFF: In AT command mode, input commands are not echoed

3.1.8. AT+SN

Description	Query Device SN
Query-Ask	AT+SN?
Query-Answer	+SN:<num>
Parameter	<num>: SN serial number, Example: 01203120043000001017

3.1.9. AT+MAC

Description	Query Device MAC Address
Query-Ask	AT+MAC?
Query-Answer	+MAC:<addr>
Parameter	<addr>: MAC address, Example: 4C4F52410007

3.1.10. AT+LTIME

Description	Set/Query Device Time
Query-Ask	AT+LTIME?
Query-Answer	+LTIME:<time>
Set-Ask	AT+LTIME=<Year,Month,Day,Hour,Minute,Second>

Set-Answer	+LTIME:OK
Parameter	<time>: Current time, fixed format character Example: Year,Month,Day,Hour,Minute,Second (parameter setting order) Return: +LTIME:Tue Jul 14 10:07:14 2020

3.1.11. AT+WANN

Description	Set/Query the WAN port IP obtained by the device
Query-Request	AT+WANN[?]
Query-Response	+WANN:<mode,address,mask,gateway>
Set-Request	AT+WANN=<mode,address,mask,gateway>
Set-Response	+WANN:OK
Parameters	mode: Network IP mode. STATIC: Static IP DHCP: Dynamic IP (address, mask, gateway parameters can be omitted) address: IP address. (Only IP addresses are allowed) mask: Subnet mask. gateway: Gateway address. (Only IP addresses are allowed) Note When mode=DHCP, for query commands, the returned <address,mask,gateway> should reflect the current status When mode=DHCP, for set commands, <address,mask,gateway> can be omitted

3.1.12. AT+NTPEN

Description	Enable/Disable NTP time synchronization
Query-Request	AT+NTPEN?
Query-Response	+NTPEN:<switch>
Set-Request	AT+NTPEN=<switch>
Set-Response	+NTPEN:OK
Parameters	<switch>: ON: Enable NTP time synchronization function, OFF: Disable NTP time synchronization function. The default state (enabled or disabled) depends on specific product requirements.

3.1.13. AT+UART

Description	Set/Query UART interface parameters
Query-Request	AT+UART?
Query-Response	+UART:<baudrate>,<data_bit>,<stop_bit>,<parity>
Set-Request	AT+UART=<baudrate>,<data_bit>,<stop_bit>,<parity>
Set-Response	+UART:OK
Parameters	<baudrate>: Baud rate, (2400<=baud_rate<=230400). <data_bit>: Data bits, 7/8 <stop_bit>: Stop bits, 1/2 <parity>: Parity, NONE/EVEN/ODD

3.1.14. AT+GWID

Description	Query Gateway ID
Query-Request	AT+GWID?
Query-Response	+GWID:<gwid>
Parameter	<gwid>: Gateway ID: Last 4 bytes of MAC

3.1.15. AT+CH(n)

Description	Query LoRa channel (1, 2...) frequency
Query-Request	AT+CH(n)? / AT+CH1/CH2...?
Query-Response	+CH(n):<channel>
Set-Request	AT+CH=<channel> / AT+CH1/CH2...=<channel>
Set-Response	+CH(n):OK
Parameter	<channel>: (4100<=channel<=5100) CH1: Channel 1 frequency default value: 4700 CH2: Channel 2 frequency default value: 4800

3.1.16. AT+SPD(n)

Description	Query/Set LoRa channel (1, 2...) data rate
Query-Request	AT+SPD(n)? / AT+SPD1/SPD2...?
Query-Response	+SPD(n):<speed>
Set-Request	AT+SPD=<speed> / AT+SPD1/SPD2...=<speed>

Set-Response	+SPD(n):OK
Parameter	<speed>: (e.g., 4<=speed<=11) SPD1: Channel 1 data rate default value: 7 SPD2: Channel 2 data rate default value: 7

3.1.17. AT+PWR(n)

Description	Query LoRa channel (1, 2...) power
Query-Request	AT+PWR(n)? / AT+PWR1/PWR2...?
Query-Response	+PWR(n):<power>
Set-Request	AT+PWR=<power> / AT+PWR1/PWR2...=<power>
Set-Response	+PWR(n):OK
Parameter	<power>: (24<=power<=30) PWR1: Default value: 30 PWR2: Default value: 30

3.1.18. AT+FEC(n)

Description	Query/Set the forward error correction switch status for LoRa channel (1, 2...)
Query-Request	AT+FEC(n)?
Query-Response	+FEC(n):<status>
Set-Request	AT+FEC(n)=<status>
Set-Response	+FEC(n):OK
Parameters	<status>: ON/OFF ON: Enable forward error correction OFF: Disable forward error correction FEC1: Enabled by default FEC2: Enabled by default

3.1.19. AT+LBT

Description	Query/Set signal interference detection function
Query-Request	AT+LBT?
Query-Response	+LBT:<status>
Set-Request	AT+LBT=<status>
Set-Response	+LBT:OK

Parameters	<status>: ON/OFF ON: Enable LBT signal detection OFF: Disable LBT signal detection (Disabled by default)

3.1.20. AT+LOWPWR

Description	Query/Set the low power mode of the node
Query-Request	AT+LOWPWR?
Query-Response	+LOWPWR:<status,time>
Set-Request	AT+LOWPWR=<status,time>
Set-Response	+LOWPWR:OK
Parameters	<status>: ON/OFF ON: Enable node low power wake-up function OFF: Disable node low power wake-up function (Disabled by default) <time>: Wake-up time in low power mode (Default: 2000ms) Range (500<=time<=5000)

3.1.21. AT+NWMODE

Description	Query/Set whether the device is in networking mode
Query-Command	AT+NWMODE?
Query-Response	+NWMODE:<status>
Set-Command	AT+NWMODE=<status>
Set-Response	+NWMODE:OK
Parameters	<status>: 1/0 1: Networking mode 0: Non-networking (transparent transmission) mode (default is non-networking)

3.1.22. AT+TTMODE

Description	Query/Set working mode under non-networking protocol
Query-Command	AT+TTMODE?
Query-Response	+TTMODE:<mode>
Set-Command	AT+TTMODE=<mode>
Set-Response	+TTMODE:OK
Parameters	<mode>: Mode number under non-networking protocol: 1/0 0: Broadcast transparent transmission

	1: Specified node (default is broadcast transparent transmission)

3.1.23. AT+WMODE

Description	Query/Set working mode under networking protocol
Query-Command	AT+WMODE?
Query-Response	+WMODE:<mode>
Set-Command	AT+WMODE=<mode>
Set-Response	+WMODE:OK
Parameters	<mode>: Mode number under networking protocol: 0/1/2 0: Broadcast transparent transmission 1: Specified node 2: Active reporting (default is broadcast transparent transmission)

3.1.24. AT+UPWID

Description	Query/Set whether upstream data in networking mode carries Node ID (Original: X)
Query-Request	AT+UPWID?
Query-Response	+UPWID:<status>
Set-Request	AT+UPWID=<status>
Set-Response	+UPWID:OK
Parameters	<status>: ON/OFF ON: Enable the function of carrying Node ID in networking mode transparent transmission. OFF: Disable the function of carrying Node ID in networking mode transparent transmission (Disabled by default).

3.1.25. AT+RPTNUM

Description	Query/Set the maximum number of nodes in networking report mode report-node-maxnum
Query-Request	AT+RPTNUM?
Query-Response	+RPTNUM:<num>
Set-Request	AT+RPTNUM=<num>
Set-Response	+RPTNUM:OK
Parameters	<num>: The maximum number of nodes in networking report mode. (Default: 10) Range (1<=num<=200)

3.1.26. AT+RPTCYCLE

Description	Query/Set the cycle in networking report mode report-cycle
Query-Request	AT+RPTCYCLE?
Query-Response	+RPTCYCLE:<time>
Set-Request	AT+RPTCYCLE=<time>
Set-Response	+RPTCYCLE:OK
Parameters	<time>: The reporting cycle in networking report mode. (Default: 60, Range: 1<=time<=86400)

3.1.27. AT+RPTINTVAL

Description	Query/Set the reporting interval in networking report mode report-interval
Query-Request	AT+RPTINTVAL?
Query-Response	+RPTINTVAL:<time>
Set-Request	AT+RPTINTVAL=<time>
Set-Response	+RPTINTVAL:OK
Parameters	<time>: The reporting interval in networking report mode. (Default: 1, Range: 1~3600)

3.1.28. AT+RPTRET

Description	Query/Set retransmission status in group network reporting mode report-retrans_status
Query-Request	AT+RPTRET?
Query-Response	+RPTRET:<status>,<time>
Set-Request	AT+RPTRET=<status>,<time>
Set-Response	+RPTRET:OK
Parameters	<status>: ON: Enable node report retransmission function in group network reporting mode OFF: Disable node report retransmission function in group network reporting mode (disabled by default). <time>: Report timeout range (0~60000) default 1000 unit: ms

3.1.29. AT+LRHEART

Description	Query/Set heartbeat status in group network transparent transmission and fixed ID mode
Query-Request	AT+LRHEART?
Query-Response	+LRHEART:<status>
Set-Request	AT+LRHEART=<status>

Set-Response	+LRHEART:OK
Parameters	<status>: ON/OFF ON: Enable heartbeat function in group network transparent transmission fixed ID mode. OFF: Disable heartbeat function in group network transparent transmission fixed ID mode (disabled by default).

3.1.30. AT+LROFFLINE

Description	Query/Set offline time in group network transparent transmission and fixed ID mode
Query-Request	AT+LROFFLINE?
Query-Response	+LROFFLINE:<time>
Set-Request	AT+LROFFLINE=<time>
Set-Response	+LROFFLINE:OK
Parameters	<time>: Offline time range: (10<=time<=86400) seconds, unit: s (default: 180)

3.1.31. AT+SERVERCH

Description	Query/SetNode Data Uplink Stream
Query-Request	AT+SERVERCH?
Query-Response	+SERVERCH:<model>
Set-Request	AT+SERVERCH=<model>
Set-Response	+SERVERCH:OK
Parameter	<model>:Uplink data stream direction, default: 0 (socket, MQTT, Alibaba Cloud),1 (usrcloud), 2 (ALL)

3.1.32. AT+NNUM(n)

Description	Query the number of networked nodes in LoRa channel (1/2...)
Query-Request	AT+NNUM(n)? / AT+NNUM1/NNUM2...?
Query-Response	+NNUM(n):<num>
Parameter	<num>: Number of nodes mounted under the channel

3.1.33. AT+NINFO

Description	Query stored node information within the network
Query-Request	AT+NINFO?
Query-Response	+NINFO:<info>
Parameter	<info>: Node information, including: Node ID, Network ID, Channel, Rate, Access Channel, etc.

<info>: Specificparameter introduction is as follows

Network ID	The order in which nodes join the gateway network
Node ID	Unique node ID
Channel	Channel to which the node belongs
SNR	Signal-to-noise ratio of data received by the gateway from the node
RSSI	Received signal strength indication of data received by the gateway from the node
Received Packets	Total number of packets received by the gateway from the node
Sent Packets	Total number of packets sent by the gateway to the node
Online Status	Online status of the node
Receive Time	Time when the gateway last received a packet from the node
Offline Time	Time when the node went offline
Offline Count	Number of times the node has gone offline

3.1.34. AT+CLEARNINFO

Description	Clear stored node information
Set-Query	AT+CLEARNINFO=ALL
Set-Response	+CLEARNINFO:OK

3.1.35. AT+NETIFPRI

Description	Query/Set device network interface priority
Query-Request	AT+NETIFPRI?
Query-Response	+NETIFPRI:<dev_name>
Set-Request	AT+NETIFPRI=<dev_name>
Set-Response	+NETIFPRI:OK
Parameters	<dev_name>: Network interface name ETH: Ethernet port. (Default priority is Ethernet) LTE: LTE (4G).

3.1.36. AT+DHCP

Description	Query/Set DHCP Status

Query-Request	AT+DHCP?
Query-Response	+DHCP:<status>
Set-Request	AT+DHCP=<status>
Set-Response	+DHCP:OK
Parameters	<status>: ON/OFF ON: Enable Dynamic Host Configuration Protocol (default is ON). OFF: Disable Dynamic Host Configuration Protocol

3.1.37. AT+GWIP

Description	Query/Set Device IP Address
Query-Request	AT+GWIP?
Query-Response	+GWIP:<address>
Set-Request	AT+GWIP=<address>
Set-Response	+GWIP:OK
Parameters	<address>: IP address, e.g., 192.168.36.175 (Only IP addresses are allowed) Note: Setting the gateway IP is only effective when DHCP is disabled. (64 characters)

3.1.38. AT+GW

Description	Query/Set Router Gateway IP
Query-Request	AT+GW?
Query-Response	+GW:<address>
Set-Request	AT+GW=<address>
Set-Response	+GW:OK
Parameters	<address>: Router gateway IP address, e.g., 192.168.36.1 (Only IP addresses are allowed) Note: Setting the router gateway IP is only effective when DHCP is disabled. (64 characters)

3.1.39. AT+MASK

Description	Query/Set device subnet mask
Query-Question	AT+MASK?
Query-Answer	+MASK:<address>
Set-Question	AT+MASK=<address>

Set-Answer	+MASK:OK
Parameters	<address>: Subnet mask address, example: 255.255.255.0 Note: Setting the subnet mask address is only effective when DHCP is disabled. (64 characters)

3.1.40. AT+PING

Description	Check network connectivity status
Set-Question	AT+PING=<address>
Set-Answer	+PING:<result>
Parameters	<address>: Target address or domain name, example:www.baidu.com (64 characters) <result>: success: Network connected failed: Network disconnected

3.1.41. AT+OPTION

Description	Query/Set current network mode
Query-Question	AT+OPTION?
Query-Answer	+OPTION:<mode>
Set-Question	AT+OPTION=<mode>
Set-Answer	+OPTION:OK
Parameters	<mode>: Currently used network mode. 0, socket (Default: socket) 1, serial 2, mqtt 3, ali_cloud 4, usr_cloud

3.1.42. AT+SOCKLINKAC

Description	Query Socket-A connection status
Query-Question	AT+SOCKLINKAC?
Query-Answer	+SOCKLINKAC:<para>
Parameters	<para>: Current connection status, 1, IDLE

	2, CONNECTING 3, CONNECTED 4, ERROR 5, UNKNOWN Example: Query: AT+SOCKLINKAC Response: +SOCKLINKAC:CONNECTED Note: Only applies to the connection status of socketa-client; server-side connection status is not considered.

3.1.43. AT+SOCKLINKBC

Description	Query the Socket-B connection status of port n
Query-Request	AT+SOCKLINKBC?
Query-Response	+SOCKLINKBC:<para>
Parameters	<para>: Current link status, 1, IDLE 2, CONNECTING 3, CONNECTED 4, ERROR 5, UNKNOWN Example: Query: AT+SOCKLINKBC Response: +SOCKLINKBC:CONNECTED

3.1.44. AT+SOCKEN

Description	Query/Set the switch status of SOCKETA and SOCKETB
Query-Request	AT+SOCKEN?
Query-Response	+SOCKEN:<status,status>
Set-Request	AT+SOCKEN=<status,status>
Set-Response	+SOCKEN:OK

Parameters	<status>: ON/OFF ON: socketa function enabled. (Enabled by default) OFF: socketa function disabled. <status>: ON/OFF ON: socketb function enabled. OFF: socketb function disabled. (Disabled by default)

3.1.45. AT+SOCKA

Description	Query/Set SOCKETA parameters
Query-Request	AT+SOCKA?
Query-Response	+SOCKA:<para1>,<para2>,<para3>,<para4>
Set-Request	AT+SOCKA=<para1>,<para2>,<para3>,<para4>
Set-Response	+SOCKA:OK
Parameters	<para1>: Working mode: TCPC/TCPS <para2>: Local IP/Target IP (64 characters) <para3>: Remote port number <para4>: Local port number Example: Query: AT+SOCKA \u00A0\u00A0\u00A0Response: +SOCKA:TCPC,192.168.0.201,1883,1234 Set: AT+SOCKA=TCPC,192.168.0.201,1883,1234 \u00A0\u00A0\u00A0Response: +SOCKA:OK Note: When acting as TCPS, the IP address is not resolved. The server port range is 1<=port <=65535, client port range: 0<=port <=65536, when port=65536 it is a random port number

3.1.46. AT+SOCKB

Description	Query/Set SOCKETB parameters
Query-Command	AT+SOCKB?
Query-Response	+SOCKB:<para1>,<para2>,<para3>,<para4>
Set-Command	AT+SOCKB=<para1>,<para2>,<para3>,<para4>
Set-Response	+SOCKB:OK

Parameters	<para1>: Working mode: TCPC <para2>: Target IP (64 characters) <para3>: Remote port number <para4>: Local port number Example: Query: AT+SOCKB \u00A0\u00A0\u00A0Response: +SOCKB:TCPC,192.168.0.201,1883,5678 Set: AT+SOCKB=TCPC,192.168.0.201,1883,5678 \u00A0\u00A0\u00A0Response: +SOCKB:OK Server port range: 1<=port <=65535, Client port range: 0<=port <=65536, when port=65536 it is a random port number

3.1.47. AT+SOCKSVRA

Description	Query/Set the server IP address for SOCKET-A client
Query-Command	AT+SOCKSVRA?
Query-Response	+SOCKSVRA:<address>
Set-Command	AT+SOCKSVRA=<address>
Set-Response	+SOCKSVRA:OK
Parameters	<address> Server IP address or domain name, example: 192.168.36.205 (64 characters) Note: Only valid when socket-a is in client mode; ignored in server mode.

3.1.48. AT+SOCKSVRB

Description	Query/Set the server IP address for SOCKET-B client
Query-Command	AT+SOCKSVRB?
Query-Response	+SOCKSVRB:<address>
Set-Command	AT+SOCKSVRB=<address>
Set-Response	+SOCKSVRB:OK
Parameters	<address> Server IP address or domain name, example: 192.168.36.205 (64 characters)

3.1.49. AT+SOCKPORTAS

Description	Query/Set SOCKA-server port number

Query-Question	AT+SOCKPORTAS?
Query-Answer	+SOCKPORTAS:<local>
Set-Question	AT+SOCKPORTAS=<local>
Set-Answer	+SOCKPORTAS:OK
Parameter	<local>: Local port number when acting as server, (1<= port <=65535)

3.1.50. AT+SOCKPORTAC

Description	Query/Set SOCKA local port number
Query-Question	AT+SOCKPORTAC?
Query-Answer	+SOCKPORTAC:<server,local>
Set-Question	AT+SOCKPORTAC=<server,local>
Set-Answer	+SOCKPORTAC:OK
Parameter	<server>: Server port number to connect to when acting as client, <local>: Local port number when acting as client, (0<= port <=65536) When port=65536, it is a random port number

3.1.51. AT+SOCKPORTBC

Description	Query/Set SOCKB-client server port number
Query-Question	AT+SOCKPORTBC?
Query-Answer	+SOCKPORTBC:<server,local>
Set-Question	AT+SOCKPORTBC=<server,local>
Set-Answer	+SOCKPORTBC:OK
Parameter	<server>: Server port number to connect to when acting as client,) <local>: Local port number when acting as client, (1<= port <=65536) When port=65536, it is a random port number

3.1.52. AT+MODBUS

Description	Query/Set MODBUS TCP-RTU conversion enable
Query-Request	AT+MODBUS?
Query-Response	+MODBUS:=<status,status>
Set-Request	AT+MODBUS=<status,status>
Set-Response	+MODBUS:OK

Parameters	<status>:ON/OFF ON: Enable MODBUS TCP-RTU function in socketa mode. OFF: Disable MODBUS TCP-RTU function in socketa mode. (Default OFF) <status>:ON/OFF ON: Enable MODBUS TCP-RTU function in socketb mode. OFF: Disable MODBUS TCP-RTU function in socketb mode. (Default OFF)

3.1.53. AT+SOCKSSLAS

Description	Query/Set SOCKET-A server SSL encryption status
Query-Request	AT+SOCKSSLAS?
Query-Response	+SOCKSSLAS:<type>
Set-Request	AT+SOCKSSLAS=<type>
Set-Response	+SOCKSSLAS:OK
Parameters	<type>: 0: Disable (Default OFF) 1: Enable without certificate authentication 2: Enable with certificate authentication

3.1.54. AT+SOCKSSLAC

Description	Query/Set SOCKET-A client SSL encryption status
Query-Request	AT+SOCKSSLAC?
Query-Response	+SOCKSSLAC:<type>
Set-Request	AT+SOCKSSLAC=<type>
Set-Response	+SOCKSSLAC:OK
Parameters	<type>: 0: Disable (Default OFF) 1: Enable without certificate authentication 2: Enable with certificate authentication

3.1.55. AT+SOCKSSLBC

Description	Query/Set SOCKET-B SSL encryption status
Query-Command	AT+SOCKSSLBC?
Query-Response	+SOCKSSLBC:<type>

Set-Command	AT+SOCKSSLBC=<type>
Set-Response	+SOCKSSLBC:OK
Parameters	<type>: 0: Disable (Default: Disable) 1: Enable without certificate authentication 2: Enable with certificate authentication

3.1.56. AT+SOCKREGAS

Description	Query/Set SOCKET-A server registration packet information
Query-Command	AT+SOCKREGAS?
Query-Response	+SOCKREGAS:<status,data>
Set-Command	AT+SOCKREGAS=<status,data>
Set-Response	+SOCKREGAS:OK
Parameters	<status>: ON:SOCKET-A server registration packetfunction enabled. OFF:SOCKET-A server registration packetfunction disabled. (Default: Disable) <data>:Registration packetcontent, user-defined. Default: MAC address. Range: (Max 64 characters, must be an even number of characters)

3.1.57. AT+SOCKREGAC

Description	Query/Set SOCKET-A client registration packet information
Query-Command	AT+SOCKREGAC?
Query-Response	+SOCKREGAC:<status,data>
Set-Command	AT+SOCKREGAC=<status,data>
Set-Response	+SOCKREGAC:OK
Parameters	<status>: ON:SOCKET-A client registration packetfunction enabled. OFF:SOCKET-A client registration packetfunction disabled. (Default: Disable) <data>:Registration packetcontent, user-defined. Default: MAC address. Range: (Max 64 characters, must be an even number of characters)

3.1.58. AT+SOCKREGBC

Description	Query/Set SOCKET-B client registration packet information
Query-Request	AT+SOCKREGBC?
Query-Response	+SOCKREGBC:<status,data>
Set-Request	AT+SOCKREGBC=<status,data>
Set-Response	+SOCKREGBC:OK
Parameters	<status>: ON:SOCKET-B client registration packetfunction enabled. OFF:SOCKET-B client registration packetfunction disabled. (Disabled by default) <data>:Content of the registration packet, user-defined). Default: MAC address. Range: (Max 64 characters, must be an even number of characters)

3.1.59. AT+SOCKHEARTAS

Description	Query/Set SOCKET-A server heartbeat packet information
Query-Request	AT+SOCKHEARTAS?
Query-Response	+SOCKHEARTAS:<status,time,data>
Set-Request	AT+SOCKHEARTAS=<status,time,data>
Set-Response	+SOCKHEARTAS:OK
Parameters	<status>: ON:SOCKET-A server heartbeat packetfunction enabled. OFF:SOCKET-A server heartbeat packetfunction disabled. (Disabled by default) <time>: Heartbeat packet interval, (1<=time<=6000), unit: S <data>: Content of the heartbeat packet, user-defined, default: MAC address. Range: (Max 64 characters, must be an even number of characters)

3.1.60. AT+SOCKHEARTAC

Description	Query/Set SOCKET-A client heartbeat packet information
Query-Request	AT+SOCKHEARTAC?
Query-Response	+SOCKHEARTAC:<status,time,data>
Set-Request	AT+SOCKHEARTAC=<status,time,data>
Set-Response	+SOCKHEARTAC:OK

Parameters	<status>: ON:SOCKET-A client heartbeat packetfunction enabled. OFF:SOCKET-A client heartbeat packetfunction disabled. (Disabled by default) <time>: Heartbeat packet interval, (1<=time<=6000), unit: S <data>: Content of the heartbeat packet, user-defined, default: MAC address. Range: (Max 64 characters, must be an even number of characters)

3.1.61. AT+SOCKHEARTBC

Description	Query/Set SOCKET-B client heartbeat packet information
Query-Request	AT+SOCKHEARTBC?
Query-Response	+SOCKHEARTBC:<status,time,data>
Set-Request	AT+SOCKHEARTBC=<status,time,data>
Set-Response	+SOCKHEARTBC:OK
Parameters	<status>: ON:SOCKET-B client heartbeatfunction enabled. OFF:SOCKET-B client heartbeatfunction disabled. (Disabled by default) <time>: Heartbeat interval, (1<=time<=6000), unit: S <data>: Heartbeat packet content, user-defined, range: (64 characters). Default: MAC address.

3.1.62. AT+SOCKRECONAS

Description	Query/Set SOCKET-A server no-data reconnection
Query-Request	AT+SOCKRECONAS?
Query-Response	+SOCKRECONAS:<status,time>
Set-Request	AT+SOCKRECONAS=<status,time>
Set-Response	+SOCKRECONAS:OK
Parameters	<status>: ON:SOCKET-A server no-data reconnectionfunction enabled. OFF:SOCKET-A server no-data reconnectionfunction disabled. (Disabled by default) <time>: No-data reconnection time, (60<=time<=6000), unit: S

3.1.63. AT+SOCKRECONAC

Description	Query/Set SOCKET-A client no-data reconnection
Query-Request	AT+SOCKRECONAC?

Query-Response	+SOCKRECONAC:<status,time>
Set-Request	AT+SOCKRECONAC=<status,time>
Set-Response	+SOCKRECONAC:OK
Parameters	<status>: ON:SOCKET-A client no-data reconnectionfunction enabled. OFF:SOCKET-A client no-data reconnectionfunction disabled. (Disabled by default) <time>: No-data reconnection time, (60<=time<=6000), unit: S

3.1.64. AT+SOCKRECONBC

Description	Query/Set SOCKET-B client no-data reconnection
Query-Command	AT+SOCKRECONBC?
Query-Response	+SOCKRECONBC:<status,time>
Set-Command	AT+SOCKRECONBC=<status,time>
Set-Response	+SOCKRECONBC:OK
Parameters	<status>: ON:SOCKET-B client no-data reconnectionfunction enabled. OFF:SOCKET-B client no-data reconnectionfunction disabled. (Disabled by default) <time>: No-data reconnection time, (60<=time<=6000), unit: S

3.1.65. AT+SOCKREBOOT

Description	Query/Set SOCKET no-data restart
Query-Command	AT+SOCKREBOOT?
Query-Response	+SOCKREBOOT:<status,time>
Set-Command	AT+SOCKREBOOT=<status,time>
Set-Response	+SOCKREBOOT:OK
Parameters	<status>: ON:SOCKET no-data restartfunction enabled. OFF:SOCKET no-data restartfunction disabled. (Disabled by default) <time>: No-data restart time, (60<=time<=60000), unit: S

3.1.66. AT+MQTTSER

Description	Query/Set MQTT client server IP address and port number
Query-Command	AT+MQTTSER?

Query-Response	+MQTTSER:<address>,<port>
Set-Command	AT+MQTTSER=<address>,<port>
Set-Response	+MQTTSER:OK
Parameters	<address>: MQTT server IP address, e.g., "192.168.30.182" (32 characters) <port>: MQTT server port number, e.g., 1883 (1<= port <=65535)

3.1.67. AT+MQTTCID

Description	Query/Set MQTT Client ID
Query-Question	AT+MQTTCID?
Query-Answer	+MQTTCID:<clientid>
Set-Question	AT+MQTTCID=<clientid>
Set-Answer	+MQTTCID:OK
Parameter	<clientid>: MQTT client ID, example: 4CB53684. (32 characters)

3.1.68. AT+MQTTSUB

Description	Query/Set MQTT Subscription Topic
Query-Question	AT+MQTTSUB?
Query-Answer	+MQTTSUB:<num,topic> Query all 10 topics
Set-Question	AT+MQTTSUB=<num,topic>
Set-Answer	+MQTTSUB:OK
Parameter	<num>: Sequence number of MQTT subscription topic, 1~10 <topic>: MQTT subscription topic, example: /test/rx, max 10 items (32 characters) Note: AT+MQTTSUB=0: Clear all currently subscribed topics.

3.1.69. AT+MQTTPUB

Description	Query/Set MQTT Publish Topic
Query-Question	AT+MQTTPUB?
Query-Answer	+MQTTPUB:<topic>
Set-Question	AT+MQTTPUB=<topic>
Set-Answer	+MQTTPUB:OK

Parameter	<num>: Sequence number of MQTT publish topic, 1~10 <topic>: MQTT publish topic, example: /test/tx, max 10 items (32 characters) Note: AT+MQTTPUB=0: Clear all current publish topics.

3.1.70. AT+MQTTUSER

Description	Query/Set MQTT Username
Query-Question	AT+MQTTUSER?
Query-Answer	+MQTTUSER:<user>
Set-Question	AT+MQTTUSER=<user>
Set-Answer	+MQTTUSER:OK
Parameter	<user>: MQTT username (default: usr) (32 characters)

3.1.71. AT+MQTTPSW

Description	Query/Set MQTT account password
Query-Request	AT+MQTTPSW?
Query-Response	+MQTTPSW:<password>
Set-Request	AT+MQTTPSW=<password>
Set-Response	+MQTTPSW:OK
Parameter	<password>: MQTT user password (32 characters)

3.1.72. AT+MQTTVER

Description	Query/Set MQTT protocol version number
Query-Request	AT+MQTTVER?
Query-Response	+MQTTVER:<ver>
Set-Request	AT+MQTTVER=<ver>
Set-Response	+MQTTVER:OK
Parameter	<ver>: MQTT software version number, default: 4 (3 or 4)

3.1.73. AT+MQTTQOS

Description	Query/Set MQTT message level
Query-Request	AT+MQTTQOS?

Query-Response	+MQTTQOS:<qos>
Set-Request	AT+MQTTQOS=<qos>
Set-Response	+MQTTQOS:OK
Parameter	<qos>: MQTT message level, range: 0, 1, 2

3.1.74. AT+MQTTSSL

Description	Query/Set SSL encryption status under MQTT protocol
Query-Request	AT+MQTTSSL?
Query-Response	+MQTTSSL:<type>
Set-Request	AT+MQTTSSL=<type>
Set-Response	+MQTTSSL:OK
Parameter	<type>: 0: Disable (default disabled) 1: Enable without certificate authentication 2: Enable with certificate authentication

3.1.75. AT+CSQ

Description	Query device signal strength
Query-Request	AT+CSQ?
Query-Response	+CSQ:<net>,<signal>
Parameters	<net>: Current network modeCodes: 2, 3, 4 (2G, 3G, 4G) <signal>: Real-time device signal strength (decimal representation)

3.1.76. AT+SYSINFO

Description	Query device network information
Query-Request	AT+SYSINFO?
Query-Response	+SYSINFO:<state>,<net>
Parameters	state: Current network service status. Table 6 shows the corresponding values and meanings. net: Current network mode information. Table 7 shows the corresponding values and meanings.

Table 6 Service List

Value	Meaning
0	No Service
1	Limited Service
2	Service Available
3	Limited Area Service
4	Power Saving Mode

Table 7 Network Information List

Value	Meaning
No Network	No Service
GSM/GPRS	GSM/GPRS Mode
WCDMA	WCDMA Mode
TD-SCDMA	TD-SCDMA Mode
LTE	LTE Mode

3.1.77. AT+IMEI

Description	Query the device IMEI
Query-Request	AT+IMEI?
Query-Response	+IMEI:<para>
Parameter	<para>: IMEI code

3.1.78. AT+ICCID

Description	Query the SIM card ICCID
Query-Request	AT+ICCID?
Query-Response	+ICCID:<para>
Parameter	<para>: ICCID code

3.1.79. AT+ALIREGION

Description	Query/Set Alibaba Cloud region information

Query-Request	AT+ALIREGION?
Query-Response	+ALIREGION:<region>
Set-Request	AT+ALIREGION=<region>
Set-Response	+ALIREGION:OK
Parameter	<region>: Region configuration information under Alibaba Cloud server, (40 characters) Example:cn-shanghai

3.1.80. AT+ALIPRODKEY

Description	Query/Set Alibaba Cloud product device key
Query-Request	AT+ALIPRODKEY?
Query-Response	+ALIPRODKEY:<key>
Set-Request	AT+ALIPRODKEY=<key>
Set-Response	+ALIPRODKEY:OK
Parameter	<key>: Product device key information under Alibaba Cloud server, (20 characters) Example:a11xsrW***

3.1.81. AT+ALIDEVNAME

Description	Query/Set Alibaba Cloud device name user_name-ali
Query-Question	AT+ALIDEVNAME ?
Query-Answer	+ALIDEVNAME :<name>
Set-Question	AT+ALIDEVNAME =<name>
Set-Answer	+ALIDEVNAME :OK
Parameter	<name>: Product device name under Alibaba Cloud server, (32 characters), example:lg210***

3.1.82. AT+ALIDEVSCRT

Description	Query/Set Alibaba Cloud device password
Query-Question	AT+ALIDEVSCRT?
Query-Answer	+ALIDEVSCRT:<password>
Set-Question	AT+ALIDEVSCRT=<password>
Set-Answer	+ALIDEVSCRT:OK
Parameter	<password>: Product device password under Alibaba Cloud server, (64 characters). Example:Y877Bgo8X5owd3lcB5wWDjryNPoB***

3.1.83. AT+ALISUB

Description	Query/Set Alibaba Cloud subscription topic
Query-Question	AT+ALISUB?
Query-Answer	+ALISUB:<num,topic>
Set-Question	AT+ALISUB=<num,topic>
Set-Answer	+ALISUB:OK
Parameter	<num>: Serial number of Alibaba Cloud subscription topic, 1~10 <topic>: Subscription topic under Alibaba Cloud server, (128 characters). (Max 10 items) Example:${productKey}/${deviceName}/user/message

3.1.84. AT+ALIPUB

Description	Query/Set Alibaba Cloud publish topic
Query-Question	AT+ALIPUB?
Query-Answer	+ALIPUB:<num,topic>
Set-Question	AT+ALIPUB=<num,topic>
Set-Answer	+ALIPUB:OK
Parameters	<num>: Serial number of Alibaba Cloud subscription topic, 1~10 <topic>: Publish topic under Alibaba Cloud server (128 characters). (Max 10 items) Example:${productKey}/${deviceName}/user/message

3.1.85. AT+USRCLDEN

Description	Query/Set USR Cloud function switch
Query-Question	AT+USRCLDEN?
Query-Answer	+USRCLDEN:<status>
Set-Question	AT+USRCLDEN=<status>
Set-Answer	+USRCLDEN:OK
Parameters	<status>: ON/OFF ON: Enable USR Cloud function (enabled by default) OFF: Disable USR Cloud function

3.1.86. AT+CLOUDNODE

Description	Query/Set node USR Cloud function switch

Query-Question	AT+CLOUDNODE?
Query-Answer	+CLOUDNODE:<mode>
Set-Question	AT+CLOUDNODE=<mode>
Set-Answer	+CLOUDNODE:OK
Parameters	<mode>: OFF: Disable node USR Cloud function (disabled by default) TRANS: Transparent transmission EDGE: Edge computing

3.1.87. AT+CLOUDGWHEART

Description	Query/Set the heartbeat cycle between USR Cloud and the gateway
Query-Command	AT+CLOUDGWHEART?
Query-Response	+CLOUDGWHEART:<time>
Set-Command	AT+CLOUDGWHEART=<time>
Set-Response	+CLOUDGWHEART:OK
Parameter	<time>: Heartbeat cycle between USR Cloud and the gateway. (Default: 30, Range: 10, 30, 60s)

3.1.88. AT+CLOUDNODEHEART

Description	Query/Set the heartbeat cycle between USR Cloud and the node
Query-Command	AT+CLOUDNODEHEART?
Query-Response	+CLOUDNODEHEART:<time>
Set-Command	AT+CLOUDNODEHEART=<time>
Set-Response	+CLOUDNODEHEART:OK
Parameter	<time>: Heartbeat cycle between USR Cloud and the node. (Default: 30, Range: 10, 30, 60s)

4. Disclaimer

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5. Version History

Version	Update Content	Update Time
V1.0.0	Initial Release	2026-04-27