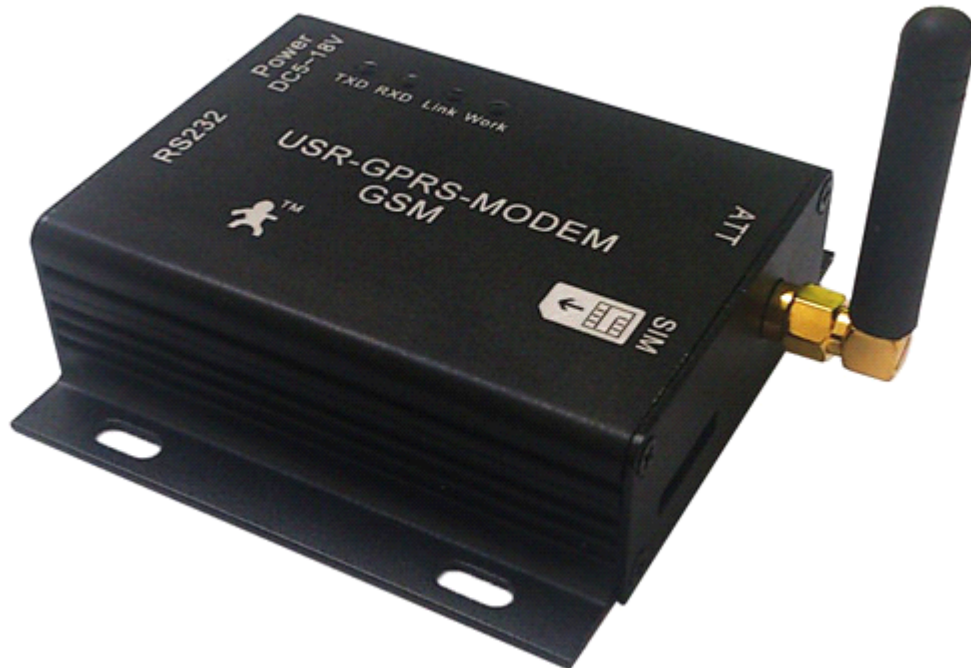


# USR-GPRS-MODEM user manual

Hardware version: V1.0

File version: V1.0



This equipment is industrial-strength GPRS-MODEM, commonly known as "SMS cat". Mainly used for customers demand of wireless data business, to combine with computer software to realize SMS notification or combine with embedded system to realize SMS alarm or remote data transmission.

Jinan USR IOT Technology Co., Ltd professional focused on serial to ethernet equipment, RJ45 network, WIFI, GPRS and ZIGBEE modules. We can customize network control products. For more details, contact us freely.

## 1. Product introduction:

USR-GPRS-MODEM built-in four frequency GSM/GPRS industrial-strength module, provide standard RS232 interface, can be directly connected to equipment. Through the terminal based on global GSM network access to equipment, wireless access to Internet, so realize data transparent transmission.

When used for GSM SMS sending, the equipment can integrate with all kinds of OA system. When used to send notices and fault alarm messages, we can provides direct available SMS sending software and secondary development controls.

When used for GPRS data transmission, this device is the value-added solutions M2M application. Apply to vehicle, industrial-strength PDA, personal tracking, wireless POS, intelligent metering, weather, digital medical treatment, telemetry, military, space exploration, agriculture, forestry, water, coal mine, petrochemical and other fields, to provide perfect GSM/GPRS SMS, data transmission service.

### *1.1 Characteristics*

- Using the high performance four frequency industrial-strength wireless module
- Embedded reliable TCP/IP network protocol
- Stable usb flash disk protection mechanism
- General RS232 interface
- Support 3v, 1v8 SIM card
- Can realize messaging and CSD services
- EMF-RFI and good shell packaging
- Use simple AT command interface
- Core module through CE and FCC certification

## 1.2 Technical specifications:

Main features	Parameters
Power supply voltage	DC: 5~18V
Frequency band	Support four frequency: GSM850, GSM900, DCS1800, PCS1900 Frequency automatic search Frequency can be set by AT command Correspond with GSM Phase2/2+
AT command	GSM 07.07, GSM 07.05 and other extended AT command
Transmitting power	Class4 (2W): GSM850 and GSM900 Class2 (1W): DCS1800 and PCS1900
GPRS data characteristic	GPRS upward transmission rate: MAX 85.6kbps GPRS descending transmission rate: MAX 85.6kbps Coded format: CS-1, CS-2, CS-3, CS-4 Support PAP ( password validation) agreement which is used for PPP connection Built-in agreement; TCP/UDP/FTP/PPP, etc Support packet broadcast control channel( PBCCH)
CSD Circuit switching	CSD transmission rate: 2.4,4.8,9.6, 14.4 kbps Not transparent transmission Support unstructured supplementary service data( USSD)
Message	Text and PDU mode Message storage equipment: SIM card
RS232 characteristic	Global function serial port Used for AT command, GPRS and CSD data transmission Adaptive baud rate: 4800 bps- 115200 bps Character format: data bit 8, stop bit 1, no parity bit
Temperature range	Working temperature: -35 to 80℃ Storage temperature: -40 to 80℃
Hardware interface	Specifications
Power	A power socket Standard size: Outer diameter 5.5 mm, inner diameter 2.1 mm; inner + external -; input voltage range 5~18 v
RS232 interface	A RS232 standard interface (device is female)
SIM card interface	A SIM card interface Support 3 v/ 1v 8 SIM card
Antenna interface	A standard SMA interface
Warranty	2 years

## 1.3 Package:

USR-GPRS-MODEM including the following parts:

- USR-GPRS-MODEM\* 1
- GPRS antenna (SMA interface)\* 1
- 5v power adapter\* 1
- Serial cable\* 1
- User guide CD\* 1

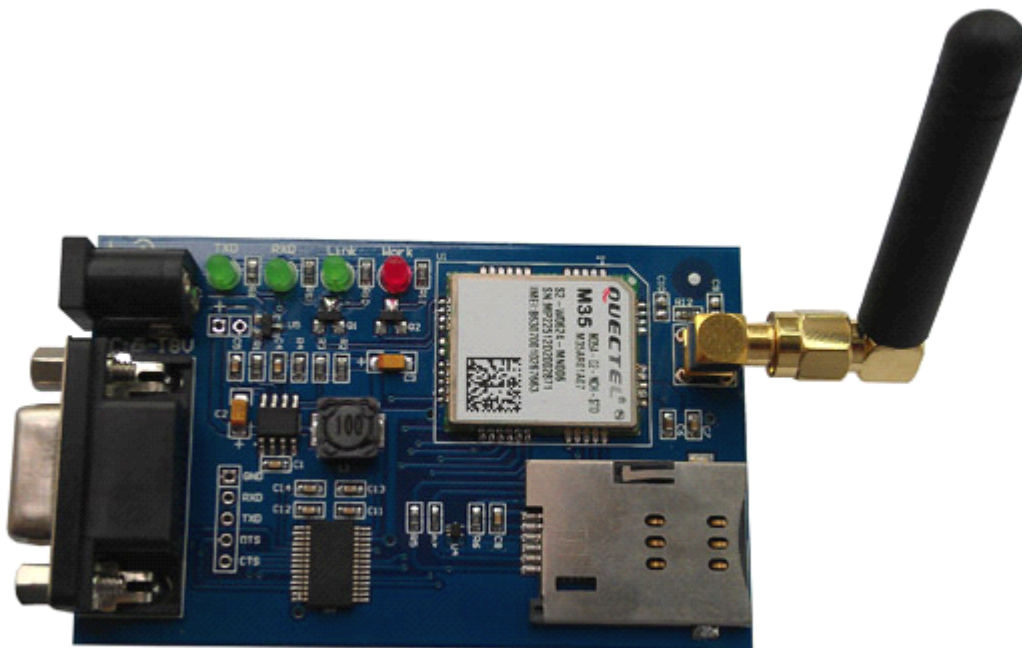
## 2. USR-GPRS-MODEM Installation:

### 2.1 USR-GPRS-MODEM Installation Size

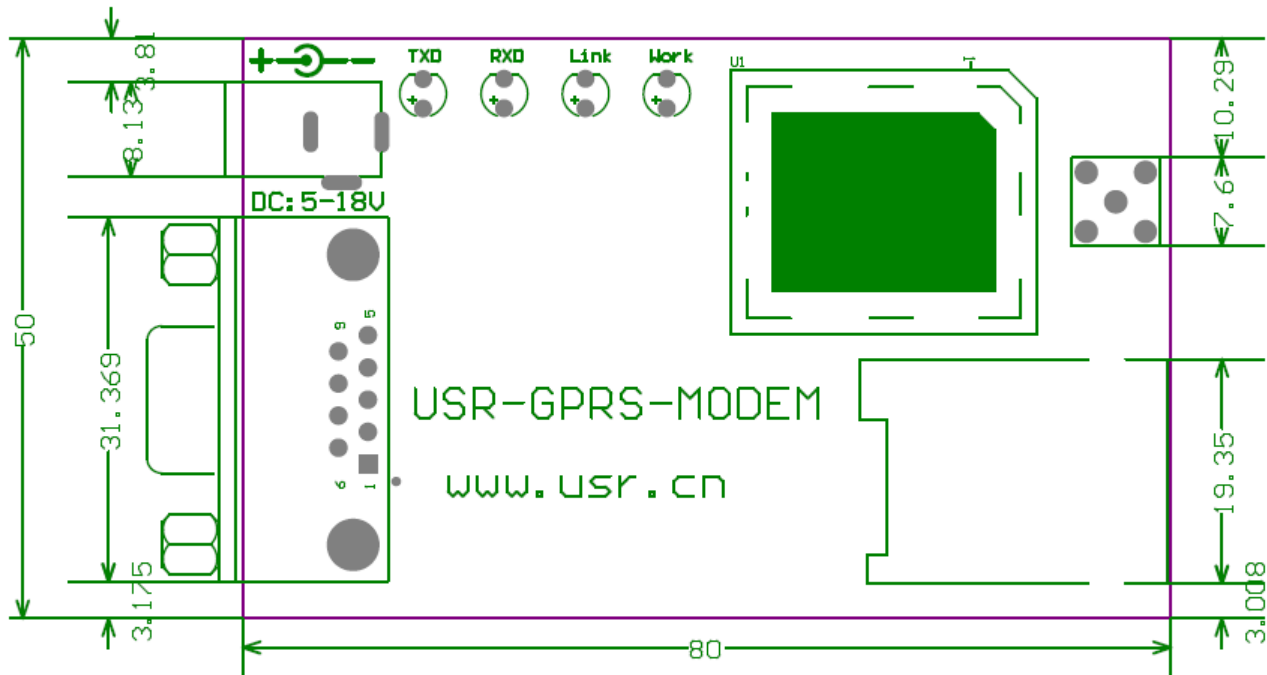
USR-GPRS-MODEM is packaged in metal casing, can be used independently, with fixed hole, convenient for user installation.

Physical size	85mmx50mmx26mm (without interface)
Overall size	95mmx50mmx26mm (including interface)
Weight	140 grams
Shell	Metal shell strong anti-jamming ability

USR-GPRS-MODEM internal module as below:



Corresponding dimensions as below, the unit is mm.



## 2.2 USR-GPRS-MODEM antenna installation

USR-GPRS-MODEM antenna plug use 50  $\Omega$  SMA connector, tight the antenna as clockwise.

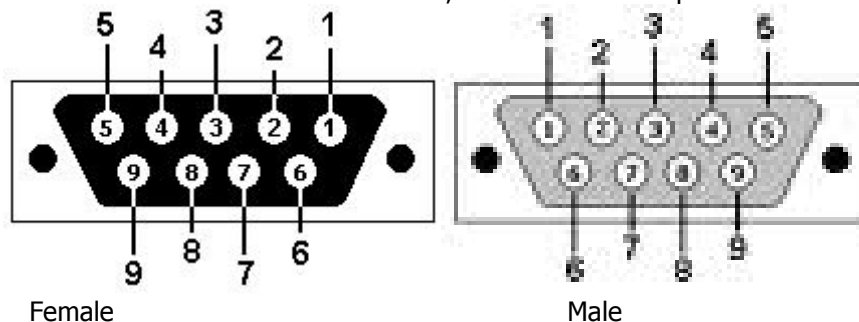
## 2.3 USR-GPRS-MODEM SIM card installation

The SIM card adopt self-popup SIM holder, the SIM card chip face down, shortcorner of card toward the GPRS-MODEM, then gently push SIM holder interface. Push the SIM holder when you want to remove SIM card.

*Note:* You mustn't plug or get out the SIM card when the device power on.

## 2.4 USR-GPRS-MODEM pin definition

USR-GPRS-MODEM serial is female DB9 interface, the standard DB9 pin sort as below:



USR-GPRS-MODEM RS232 pin definitions as follows:

Pin Numbers	Pin definition
1	Carrier detect
2	Send data
3	Receive data
4	DTE ready
5	Land
6	
7	DTE require to send data
8	Clear sending
9	ringing

## 2.5 USR-GPRS-MODEM power

This device can use 5~18v wide range voltage power supply. Instantaneous current will be very large in wireless communication, and change rapidly, so the external power resistance should be as low as possible.

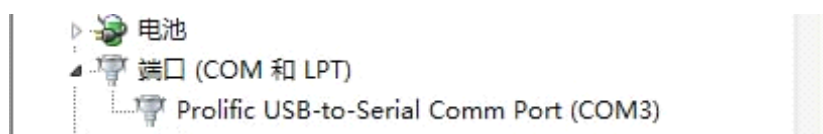
Note: The power supply plug polarity is internal "+" external "-", power polarity error will lead the device and power supply equipment to serious damage.

## 2.6 USR-GPRS-MODEM status indicator light

Indicator light	Working status
WORK	Normally bright, module in working state
LINK	Flicker, GPRS service connection success
TXD,RXD	Flicker, send and receive data

## 3. USR-GPRS-MODEM use

First, confirm local computer communication port can work and the port attribute. If using a USB to serial cable connected to the computer USB interface, serial number need confirmed through the following steps : Open the control panel- my computer- properties- hardware- device management, click "+" on the left of port, unfold port list, device name will show the corresponding serial number as below:



Note: Beside the device name, if there is "!" or "X", it means the equipment installation is abnormal, please

check and execute the above steps again.

Reminding: Need to install USB to RS232 driver on computer

### 3.1 Software application

#### 3.1.1 Enterprise SMS software application

Operate the "Edison messages pass. EXE" file in CD, and install (can adopt the default settings). After installation completed, you can see enterprise message application software on the desktop, click can enable.

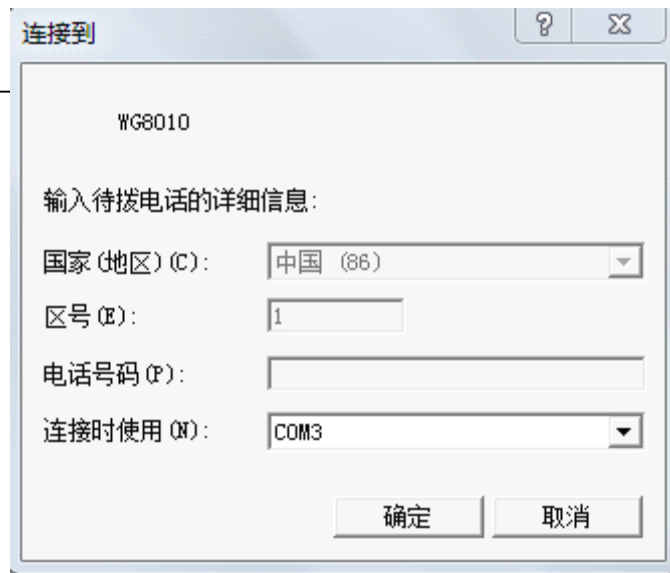
This software can realize real-time sending of SMS, fixed timing, cycle or group transmission. Message content can be hand typed, insert phrase, database file (\*.xls, \*.txt, \*.csv, \*.mdb, etc.), and ODBC data.

Instant messages send interface as below:



#### 3.1.2 Super terminal application

Open the Windows super terminal, establish a new connection. Choose computer serial interface number (local real serial port or USB equipment corresponding serial port found out from the device manager) which is used to connect USR-GPRS-MODEM.

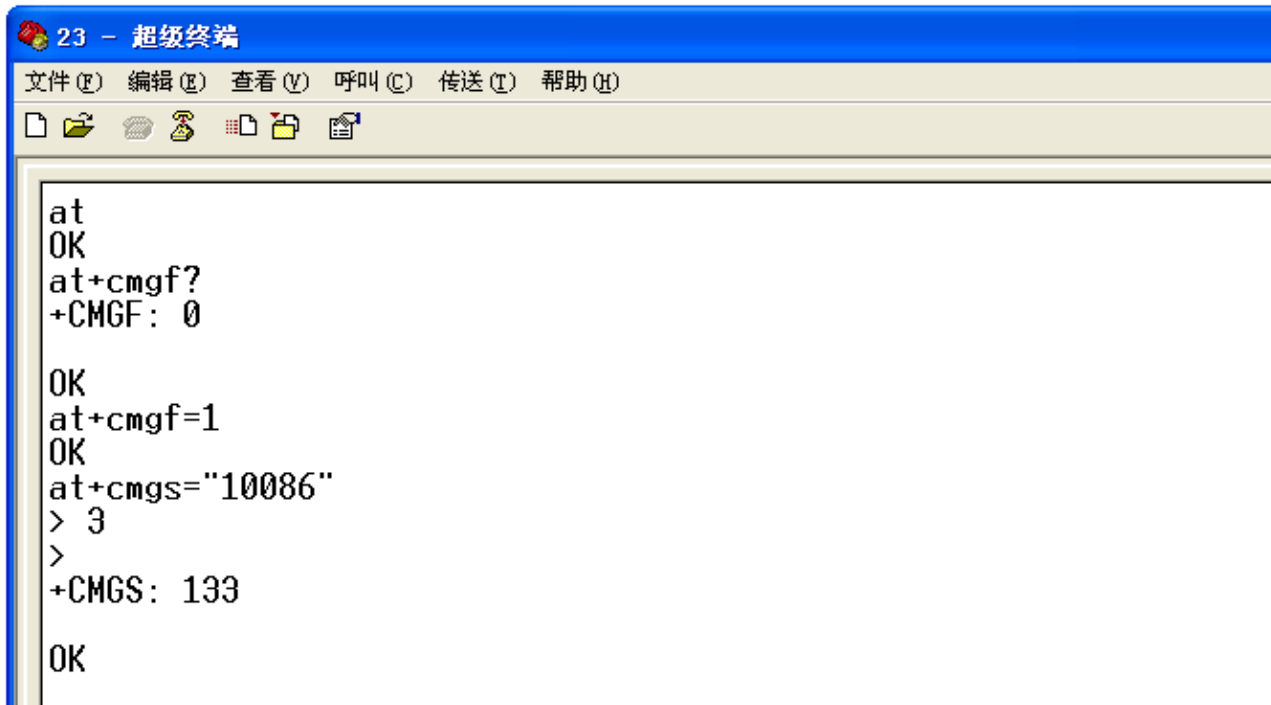


Configure this computer serial port parameters, these parameters should be correspond with USR-GPRS-MODEM serial interface parameter, USR-GPRS-MODEM default com parameters are as follows:  
baud rate 115200, data bit 8, check bit no, stop bit 1, hardware flow control no.



After super terminal configuration completed and operating normally, power on USR-GPRS-MODEM. USR-GPRS-MODEM finished starting process, type AT in the following interface and it should show OK, now means connection success, can continue USR-GPRS-MODEM setting and application.






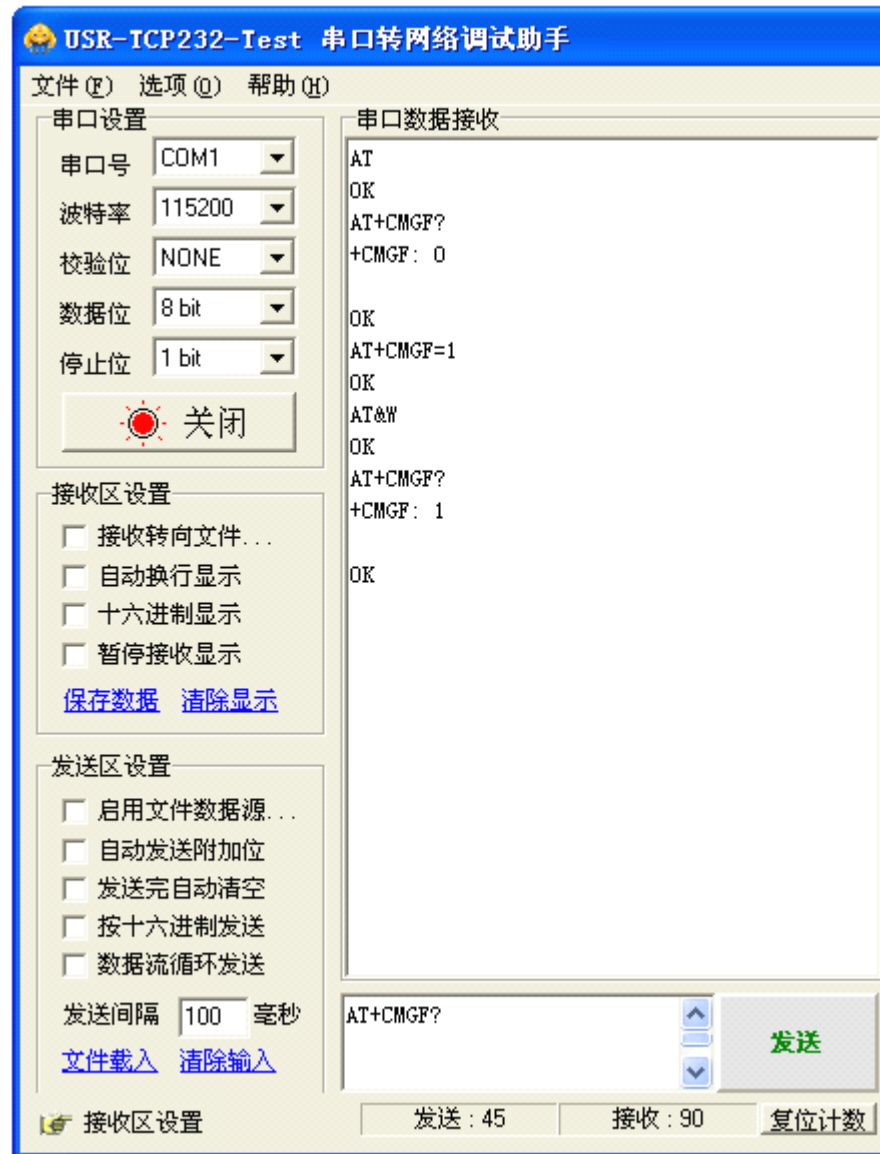
```
at
OK
at+cmgf?
+CMGF: 0

OK
at+cmgf=1
OK
at+cmgs="10086"
> 3
>
+CMGS: 133

OK
```

### 3.1.3 Serial debugging tools application

Open the serial debugging software  USR-TCP232-Test in CD, the left side is serial debugging assistant, the right side is network debugging assistant. Use the local serial connection, only apply the serial debugging assistant when use AT command.



### 3.2 AT command send messages

Use debugging assistant, send messages easily.

USR-GPRS-MODEM AT command send SMS explanation:

```
AT+CMGF=1
OK
```

```
AT+CMGS="+86xxxxxxxxxxxx"
> test msg
(CTRL+Z = 0x1A)
```

OK

1. First of all, make sure your hardware is correct, the method is to input AT, press Enter and send to module, will receive AT Enter OK; according different setting, you may receive ok only, but no at, then you can send ATE1 to set echoes command.
2. Send AT+CMGF=1 means to send SMS in text mode, received command to back to and ok.
3. AT+CMGS="+86xxxxxxxxxx" the cell phone number which sent to, received command to back and ok, receive message input prompt ">"
4. Input the messages to send, only ASCII code
5. Send CTRL+Z or hexadecimal 0x1A, received the end tip symbol " "
6. Send enter, return ok, send complete.

### 3.3 Use AT command to realize GPRS connection

Use debugging assistant, realize GPRS connection.

USR-GPRS-MODEM AT command to realize GPRS connection explanation:

```
AT+QIOPEN="TCP", "180.168.12.99", 8877
OK
CONNECT OK

AT+QISEND
> test msg
(CTRL+Z = 0x1A)
SEND OK

AT+QICLOSE
CLOSE OK
```

1. First of all, make sure your hardware is correct, the method is to input AT, press Enter and send to module, will receive AT Enter OK; according different setting, you may receive ok only, but no at, then you can send ATE1 to set echoes command.
2. AT+QIOPEN="TCP", "180.168.12.99", 8877 means to establish TCP connection, and show module remote server IP address, port number, receive command back and OK, CONNECT OK
3. AT+QISEND, send TCP data, received command to back and ok, receive message input prompt ">"
4. Input contents to send
5. Send CTRL+Z or hexadecimal 0x1A, receive SEND OK
6. AT+QICLOSE means close TCP connections, receive command to back and CLOSE OK

## 4. Core module through the CE and FCC Certification

## 5. Contact us

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