



## **DTU User Manual**



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| Document version | Modification instruction                                       | Release date | Author  | issue |
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## Table of Contents

|  |    |
|--|----|
| Xiamen caimore DTU User Manual.....  | 1  |
| 1.Brief Introduction of Introduction.....  | 6  |
| 1.1 Products Overview.....   | 6  |
| 1.2 Products feature.....  | 12 |
| 1.3 System composition.....  | 13 |
| 1.4 Working Principle.....   | 14 |
| 1.5 Technology parameter.....  | 14 |
| 2 installation.....  | 17 |
| 2.1 overview.....  | 17 |
| 2.2 unpacking.....   | 17 |
| 2.3 installation and cable connection.....   | 18 |
| 2.3.1 The installation of equipment.....   | 18 |
| 2.3.2 Installation of antenna and SIM card.....                                      | 20 |
| 2.3.3 Install cables.....  | 20 |
| 2.4 power supply.....  | 28 |
| 2.5 Detect the network.....  | 29 |
| 3 configuration mode.....  | 29 |
| 3.1 local serial port configuration.....   | 29 |
| 3.1.1 Tool configuration.....  | 29 |
| 3.2 wireless network configuration.....  | 34 |
| 3.3.Short message configuration( only 3180 series products).....                     | 35 |
| 4. Configure DTU rapidly.....  | 35 |
| 5. Batch configuration of DTU.....   | 40 |
| 5.1 Export configuration.....  | 40 |
| 5.2 export configuration.....  | 46 |
| 5.3 import configuration.....  | 48 |
| 6. Detailed configuration of DTU.....  | 50 |
| 6.1 The information configuration of server which is single center fixed IP mode.... | 50 |
| 6.2 Information configuration of server of single center domain name mode.....       | 51 |
| 6.3 Information configuration of server of multiple center fixed IP mode.....        | 54 |
| 6.4 Information configuration of server of multiple center domain name mode.....     | 55 |
| 6.5. Configuration of APN network.....   | 58 |
| 6.6. Sign configuration of DTU.....  | 59 |
| 6.6.2 Configure the SIM number of equipment.....                                     | 60 |
| 6.7 Configure the parameters of working serial port.....                             | 60 |
| 6.7.1 Configure the baud rate of serial port.....                                    | 61 |
| 6.7.2 Configure the parity bits of serial port.....                                  | 61 |
| 6.7.3 Configure the data bits of serial port.....                                    | 62 |
| 6.7.4. Configure the stop bits of serial port.....                                   | 62 |
| 6.7.5 Configure the flow control of serial port.....                                 | 62 |
| 6.8 Configure wakeup function.....   | 63 |



|   |    |
|---|----|
| 6.8.1 Configure short message wakeup.....   | 65 |
| 6.8.2 Configure telephone wakeup.....   | 66 |
| 6.8.3 Configure data wakeup.....  | 66 |
| 6.8.4 Configure Mix wakeup.....   | 67 |
| 6.8.5 Configure IO wakeup ( only 3180 series products).....   | 68 |
| 6.9 Configure communication protocol.....   | 69 |
| 6.9.1 Configuration parameters reference table of all transmission.....   | 70 |
| Notice: following information is the introduction for some special transmission:.....   | 71 |
| (1) XX60 series under TCP Transparent transmission.....   | 71 |
| (2) Under TCP xx80 xx60 transparent manner and in a transparent manner under TCP also has the same mechanism. Also there are a few special configuration..... | 73 |
| The parameters reference tables, reference mechanism "xx60 at TCP transparent manner," a configuration.....   | 73 |
| 2 <sup>nd</sup> configure:.....   | 73 |
| Parameters as follows:.....   | 73 |
| Mechanism of reference "xx60 at TCP transparent manner" configuration II.....   | 73 |
| The following sections detail a few of these parameters and configuration instructions.....   | 73 |
| 6.9.3 Configure heartbeat packet.....   | 75 |
| 6.9.4 Configure registered respond packet ( only 3180 series products).....   | 76 |
| 6.9.5 Configure heartbeat respond packet (only 3180 series products).....   | 78 |
| 6.10 Configure operating mode.....  | 79 |
| 6.11 Configure the sending interval time of heartbeat packet.....   | 80 |
| 6.12 Configure the re-connection of device.....   | 81 |
| 6.12.1 Configure re-connection number of equipment.....   | 81 |
| 6.12.2 Configure reconnection interval time of equipment.....   | 82 |
| 6.12.3 Configure reconnection interval time of multiple center.....   | 82 |
| 6.12.4 Configure the redialing times of equipment.....  | 82 |
| 6.13 Packaging configuration of data packet.....  | 83 |
| 6.14 Configure debug level.....   | 85 |
| 6.15 Configure the local port ( only 3180 series products).....   | 86 |
| 6.16 Configure remote short message configuration function( only 3180 series products).....   | 86 |
| 6.16.1 Configure center number of short message.....  | 87 |
| 6.16.2 Remote short message control cellphone.....  | 88 |
| 6.17 Configure input and output of IO(only 3180V series).....   | 88 |
| 6.17.1 Configure center number of short message.....  | 89 |
| 6.17.2 IO output function configuration.....  | 90 |
| 6.17.3 Configure IO input function.....   | 91 |
| 6.18.1 SMS data channel functional configuration.....   | 93 |
| 7. Test of data transmission of remote network configuration.....   | 98 |
| 7.1 trial network structure.....  | 98 |
| 7.3 Configure server.....   | 99 |



|   |     |
|---|-----|
| 7.3.1 Configure internal network IP of server.....  | 99  |
| 7.4 DTU connection center.....                      | 105 |
| 7.5 sending and receiving of data.....              | 106 |
| 8 dial-up networking.....                           | 108 |
| Appendix I : AT Command set.....                    | 125 |
| Annex II : The instructions of indicator light..... | 132 |
| Appendix III: Power consumption of equipment.....   | 132 |
| Appendix IV: Super terminal configuration.....      | 133 |
| Appendix V: Frequently Asked Questions.....         | 137 |
| Appendix VI: TCP protocol documents.....            | 138 |



## **1.Brief Introduction of Introduction**

### **1.1 Products Overview**

CAIMORE DTU (Data Transfer Unit. Its full name is data transmission unit, referred to as DTU in this paper) is a industrial wireless terminal equipment providing users with high speed, always online and TCP/UDP transparent data transmission.

Using high performance industrial grade ARM9 embedded processor or high performance X86 framework embedded processor, embedded with real-time operating system as software support platform, large memory and independent intellectual property right. Providing users with system applications which have high-speed, stable and reliable, data terminal alway online, a variety of protocol conversion and virtual private network etc feature.

CAIMORE DTU has a series of products which have comprehensive network, such as GPRS wireless network DTU, wireless network DTU, wireless network DTU, CDMA DTU, EDGE DTU, WCDMA DTU, EV-DO wireless network DTU, TD-SCDMA wireless network DTU and so on.

CAIMORE DTU also provides full interface, such as serial RS232 interface, RS485 interface, TTL interface, USB interface and so on.

CAIMORE DTU adopts industrial design to meet the harsh industrial environment: The operating temperature ranges is from -40℃ to +85℃. The products passed the 3000V electric shock test, and has electromagnetic compatibility and electromagnetic immunity. Low power consumption to meet the low-power environment. All products adopt industrial design, with intelligence three-level protection and patent protection. Our company was named as “The Best Supplier of Chinese Industrial Control Industry”.

This product has been widely used in power meter reading, water meters reading, heating network monitoring, gas monitoring, water monitoring, environmental testing,

meteorological monitoring, seismic monitoring, traffic control, etc.

**Products series are as follow:**

| Interface type     | Model     | Network  | Support RS232(8,E / O/N,1 | Support RS232(7/8,E / O/N,1/2, Hardware flow control) | Support RS485 | Support RSTTL | Data cache | Data cache | Low power consumption |
|--------------------|-----------|----------|---------------------------|---|---------------|---------------|------------|------------|-----------------------|
| RS232 DB9interface | CM3150P   | GPRS     | YES                       | YES   |               |               | 1MB        |            |                       |
|                    | CM3160P   | GRPS     | YES                       |   |               |               | 8KB        |            |                       |
|                    | CM6550P   | CDMA     | YES                       | YES   |               |               | 1MB        |            |                       |
|                    | CM6560P   | CDMA     |                           |   |               |               | 8KB        |            |                       |
|                    | CM8150P   | WCDMA    | YES                       | YES   |               |               | 1MB        |            |                       |
|                    | CM8250P   | TD-SCDMA | YES                       | YES   |               |               | 1MB        |            |                       |
|                    | CM8350P   | EVDO     | YES                       | YES   |               |               | 1MB        |            |                       |
|                    | CM510-21H | HSPA+    | YES                       | YES   |               |               | 1MB        |            |                       |

|                  |               |              |     |     |     |     |         |     |     |
|------------------|---------------|--------------|-----|-----|-----|-----|---------|-----|-----|
|                  | CM510-21<br>T | LTE-TDD      | YES | YES |     |     | 1M<br>B |     |     |
|                  | CM510-21<br>F | LTE-FDD      | YES | YES |     |     | 1M<br>B |     |     |
| VAG<br>interface | CM3150<br>V   | GPRS         |     |     | YES | YES | 1M<br>B |     |     |
|                  | CM3160<br>V   | GRPS         | YES |     | YES | YES | 8K<br>B |     |     |
|                  | CM3180<br>V   | GRPS         | YES |     | YES |     | 2K<br>B | YES | YES |
|                  | CM6560<br>V   | CDMA         | YES |     | YES | YES | 8K<br>B |     |     |
|                  | CM6550<br>V   | CDMA         | YES | YES | YES | YES | 1M<br>B |     |     |
|                  | CM8150<br>V   | WCDMA        | YES | YES | YES | YES | 1M<br>B |     |     |
|                  | CM8250<br>V   | TD-SCDM<br>A | YES | YES | YES | YES | 1M<br>B |     |     |
|                  | CM8350<br>V   | EVDO         | YES | YES | YES | YES | 1M<br>B |     |     |
|                  | CM510-23<br>H | HSPA+        | YES | YES | YES | YES | 1M      |     |     |



|                    |               |         |     |     |     |     |         |     |     |
|--------------------|---------------|---------|-----|-----|-----|-----|---------|-----|-----|
|                    |               |         |     |     |     |     | B       |     |     |
|                    | CM510-23<br>T | LTE-TDD | YES | YES | YES | YES | 1M<br>B |     |     |
|                    | CM510-23<br>F | LTE-FDD | YES | YES | YES | YES | 1M<br>B |     |     |
| Block<br>Interface | CM3161        |         | YES | YES | YES |     | 8K<br>B |     |     |
|                    | CM3151        |         | YES | YES | YES |     | 1M<br>B |     |     |
|                    | CM3181        |         | YES | YES | YES |     | 2K<br>B | YES | YES |
|                    | CM6561        |         | YES | YES | YES |     | 8K<br>B |     |     |
|                    | CM6551        |         | YES | YES | YES |     | 1M<br>B |     |     |
|                    | CM8151        |         | YES | YES | YES |     | 1M<br>B |     |     |
|                    | CM8251        |         | YES | YES | YES |     | 1M<br>B |     |     |
|                    | CM8351        |         | YES | YES | YES |     | 1M<br>B |     |     |

|  |               |  |     |     |     |  |          |  |  |
|--|---------------|--|-----|-----|-----|--|----------|--|--|
|  | CM510-22<br>H |  | YES | YES | YES |  | 1 M<br>B |  |  |
|  | CM510-22<br>T |  | YES | YES | YES |  | 1 M<br>B |  |  |
|  | CM510-22<br>F |  | YES | YES | YES |  | 1 M<br>B |  |  |




**The appearance of the products is as follows:**

1. the appearance of device with serial RS232 interface is



following::

**Accessories are as follow,**

|   |   |  |
|---|---|--|
|  |  |  |
| Power supply  | RS232 Data  | Antenna  |

|  |       |  |
|--|-------|--|
|  | cable |  |
|--|-------|--|

2. the appearance of device with VGA interface is as follows:



Accessories





|  |   |  |
|--|---|--|
|  |  |  |
| Power  | RS232/RS485 data cable  | Antenna  |

|              |                           |         |
|--------------|---------------------------|---------|
| Power supply | RS232 ,RS485 data<br>line | Antenna |
|--------------|---------------------------|---------|

3.The appearance of the RS232/RS485 Block is as follows:



**Accessories are as follow,**

|   |   |   |  |
|---|---|---|--|
|  |  |  |  |
| Power supply  | RS232 series line   | Terminal interface  | Antenna (Optional)   |

## 1.2 Products feature

- ❖ Support TCP / UDP transparent data transmission mode.
- ❖ Three layer system protection: on the basis of the original two stage (software protection +CPU watchdog protection, external hardware watchdog protection) protection system , increasing the monitoring protection system SWP (System Watch Protect) and resolving such industry's problems as "fake online", "crash", "false" and so on.
- ❖ Industrial CPU: ARM9 industrial high-performance embedded processing, can enhance the handling speed of various protocol data conversion, avoid the data retransmission and loss problem which are caused by the slow processing speed of CPU.
- ❖ Support multiple operating mode, it is very convenient and flexible to use.
- ❖ Automatically obtain DNS: Automatic access to DNS, no longer need to manually configure the input DNS; avoided the serious DTU crash resulted from wrong choice of the abnormal DNS server.



- ❖ Complete protocol stack: the new system loaded complete TCP / IP protocol stack, using comprehensive TCP / IP protocol stack; so that network traffic performance shows outstanding, the drop-line probability dramatically reduced.
- ❖ EMC performance outstanding: passed 3000V electrical shock test, especially suitable for use under harsh industrial environments; system EMC / EMI performs excellent, system stable and reliable; passed EMC test; company's products was awarded "The Best Supplier of Chinese Industrial Control Industry" in 2010.
- ❖ Supporting multiple center: customers' data can be simultaneously sent to the monitoring center which is specified by customers. The number of centers supported is up to 256.
- ❖ Using wide range voltage 5V~32V, the adaptability of power supply is wider.
- ❖ Anti-interference design to meet the applications requirement in harsh electromagnetic environment.
- ❖ Convenient system configuration and maintenance interface.
- ❖ Supporting serial software upgrade and remote maintenance.

### **1.3 System composition**

#### **1. The system compositions of 3150/6550/8150/8250/8350/CM510-2XX series DTU are as follows,**

- ❖ 32 bits ARM9 CPU
- ❖ 64 MB SDRAM&512KB Flash
- ❖ High-performance industrial wireless module

#### **2. The system compositions of 3160/6560 series DTU are as follows,**

- ❖ X86 framework RDC CPU
- ❖ 32KB SDRAM&512KB Flash
- ❖ High-performance industrial wireless module

#### **3. The system compositions of 3180 series DTU are as follows,**

- ❖ 32 bits ARM7 CPU

- ❖ 400KB ROM & 400KB File System ROM & 100KB RAM
- ❖ High-performance industrial wireless module

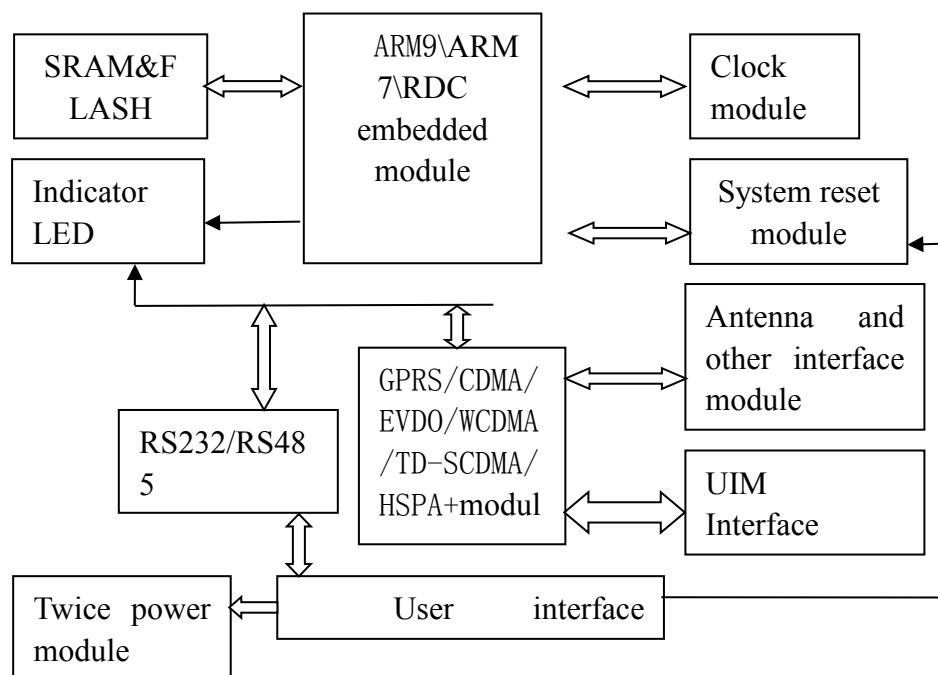
**4. The system compositions of 3181 series DTU are as follows,**

- ❖ High-performance industrial wireless module

**1.4 Working Principle**

DTU based on wireless data network, which is developed for the data communication application of industrial remote control, remote detection, traffic management, financial transaction and so on.

**The principle block diagram of DTU is as follow,**



**1.5 Technology parameter**

**Technical specification of DTU:**

- ❖ Support TCP/UDP transparent data transmission; support multiple operating mode and Heartbeat technology.
- ❖ Support Intelligent anti-dropped, online testing, online maintenance, auto redialing

and ensure that equipment is always online.

- ❖ Support RSA, RC4 encryption algorithm
- ❖ Support VMW ( Virtual Man Watch) function and ensure the system stability
- ❖ Support APN or VPDN network
- ❖ Support DDNS and IP address access
- ❖ Support the dynamic acquirement of DNS, avoid equipment from crashing caused by abnormal DNS server
- ❖ Support double data center backup
- ❖ Support multiple data center receiving data at the same time
- ❖ Support short message, voice and data etc wake-up type and disconnecting the network connection when it is overtime
- ❖ Support short message backup and alarm
- ❖ Multiple software and hardware watchdog
- ❖ Data packets transmission state report
- ❖ Standard AT command interface
- ❖ Can be used as common dial-up MODEM
- ❖ Support remote configuration, remote control
- ❖ Software upgrades through serial port
- ❖ Support remote wake-up function
- ❖ Support remote configuration of short message (only 3180 series)
- ❖ Support IO notification when it come online
- ❖ Support 6 route input alarm or 6 route output control function( only 3180E equipment)
- ❖ Support LINUX, UNIX and WINDOWS operating systems

**Interface:**

- ❖ Antenna interface 50Ω/SMA( female)
- ❖ SIM card 3V/1.8V automatically detection.
- ❖ Serial data interface: standard RS232/485/TTL
- ❖ The parameter of Serial interface support:



**3150/6550/8150/8250/8350/CM510-2XX series:**

- ❖ Baud rate: 300/600/1200/2400/4800/9600/14400/19200/38400/5600/57600/115200
- ❖ Data bits: 5/6/7/8
- ❖ Parity bits: none/odd/even /blank /MARK
- ❖ Stop bits: 1/2
- ❖ Flow control: none/hardware flow control

**3160/6560 series:**

- ❖ Baud rate :  
110/300/600/1200/2400/4800/9600/14400/19200/38400/5600/57600/115200
- ❖ Data bits: 8
- ❖ Parity bits: none/odd/even
- ❖ Stop bits: 1
- ❖ Flow control: none

**3180 series:**

- ❖ Baud rate: 1200/2400/4800/9600/14400/19200/38400/57600/115200
- ❖ Data bits: 5/6/7/8
- ❖ Parity bits: none/odd/even /blank /MARK
- ❖ Stop bits: 1/2
- ❖ Flow control: none

**Power supply:**

- ❖ Standard voltage: +9VDC/1.5A
- ❖ The range of Voltage:
- ❖ 3150/6550/8150/8250/8350/CM510-2XX series: 7~32V
- ❖ 3160/6560 series: 5~32V
- ❖ 3180 series: 5~32V

**Other parameters:**

- Size: 93\*62\*23mm ( Do not include the installation parts of antenna )
- Working temperature:

| Equipment mode | Working temperature | Limiting temperature |
|----------------|---------------------|----------------------|
|----------------|---------------------|----------------------|



|                        |        |        |
|------------------------|--------|--------|
| 3150series、3160series  | -20~70 | -30~75 |
| 3150 series、3160series | -20~85 | -30~85 |
| 3180series             | -40~80 | -45~85 |
| 6550series、6560series  | -20~70 | -30~75 |
| 8350series             | -10~55 | -10~55 |
| 8350series             | -20~75 | -20~75 |
| 8250series             | -20~70 | -20~70 |
| 8250series             | -10~75 | -20~80 |
| 8150series             | -10~65 | -20~70 |
| 8150series             | -20~65 | -30~75 |
| 8150series             | -10~55 | -10~55 |
| CM510-2XX series       | -20~85 | -30~85 |

- Storage temperature:-40~+85 °C
- Relative humidity :95% ( no condensation)

## 2 installation

### 2.1 overview

DTU must be right installed to meet the design function, Usually, The installation of equipment must be under the guidance of qualified engineers who is approved by Ximen Caimore communication technology co.,Ltd.

**Notice:**

**Please don't install DTU with power!**

### 2.2 unpacking

To ensure the safe transportation, DTU often requires a reasonable package, please keep the packaging material when you open the box so as to use them again when before transporting in the future.

The components of DTU:



- ❖ One unit CAIMORE DTU
- ❖ One power adapter
- ❖ One companion cd-rom
- ❖ One dual-band antenna vehicle mounted antenna(SAM port)
- ❖ One 20Pin RS485 line,one DB9RS232 cross line(select different serial port line according to different equipment)
- ❖ optional accessories:
  - High power gain dual-band antenna (SMA interface)
  - Products guide rail
  - RS232 straight line

**Notice:**

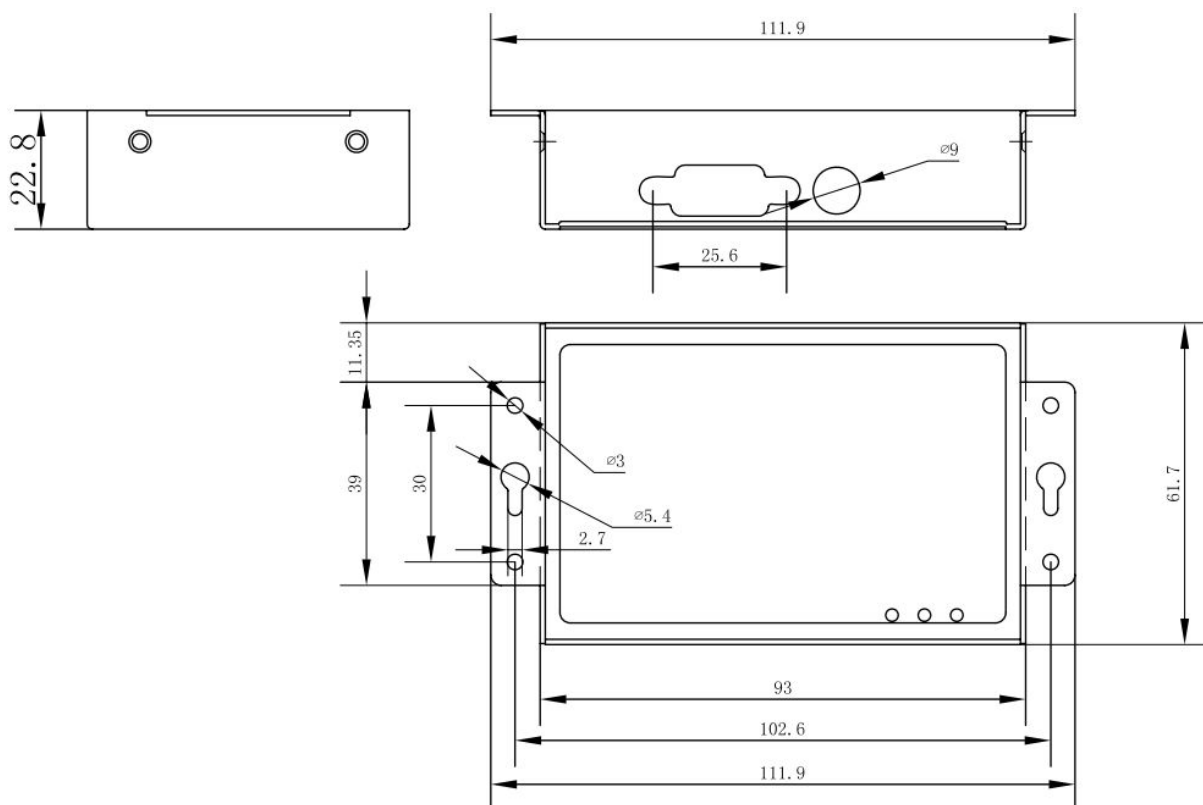
Please confirm that the accessories coincides with packing list when you open the product box.

## **2.3 installation and cable connection**

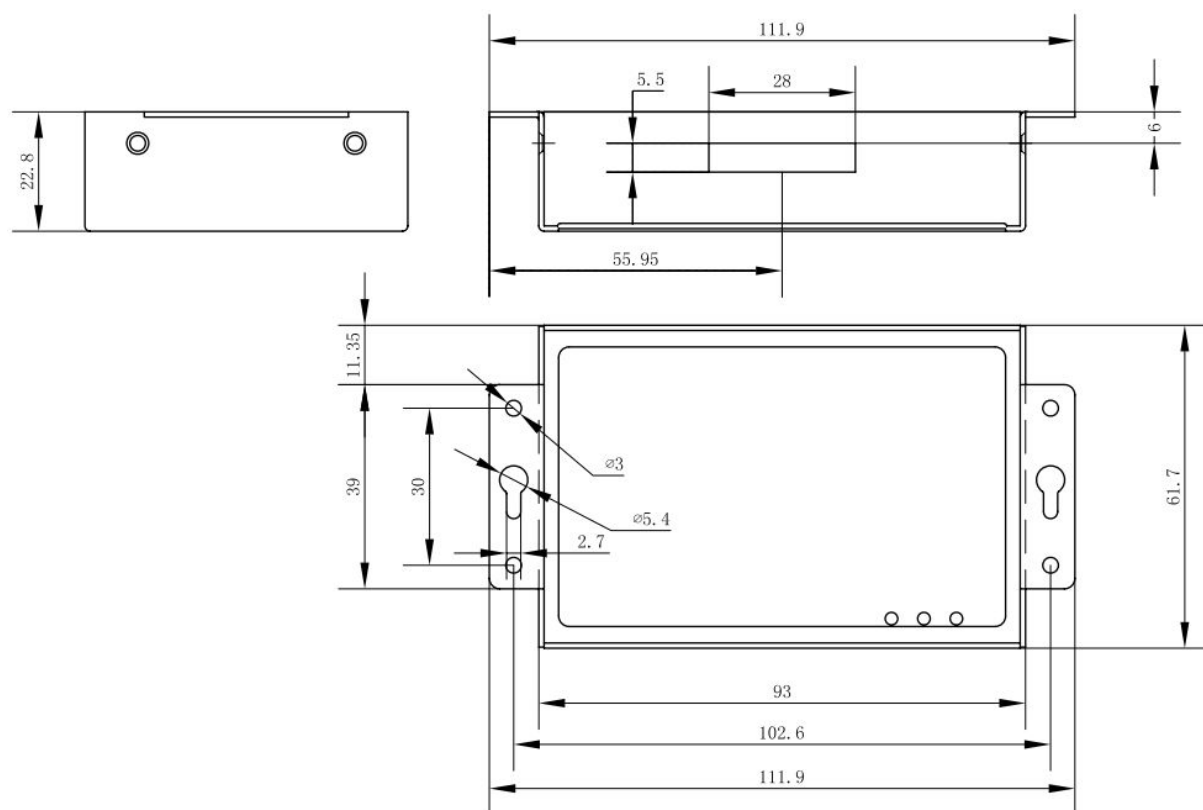
### **2.3.1 The installation of equipment**

DTU sealed in the metal cabinet can be used independently, there are fixed holes on the two flanks or both sides, it is convenient for customers to install, specific fixed sizes are as follow,

The sizes of P series:



The sizes of V series:



User's data cable interface access the bottom of the module, considering the reliability of the connection, we equip installation accessories to fix User's data cable and enhance the reliability of the connection.

### 2.3.2 Installation of antenna and SIM card

The antenna adopts SMA female base, locked it on the left side of the DTU casing. Please insert the SIM card of DTU from the jack on the same side of the antenna. Please push the yellow button to eject the SIM card when you want to take it out. Please notice that you should keep the contact surface of metal up when inserting SIM card sheath into the SIM card slot, and ensure it is very tight to prevent dropping of SIM card when handling the equipment or shaking. The SIM card will flick out when you use sharp needle to press the yellow button on the left side of the SIM card slot.

P series Icon:

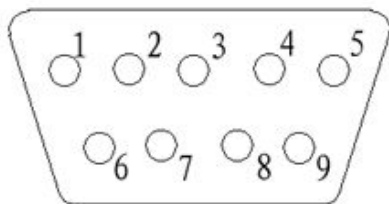


### 2.3.3 Install cables

(1) DTU product RS232 interface (available for CM3160P/CM6560)  
CMxx60P series RS232(DB9) interface drawing

## RS232(DB9) interface definition table

DTU user data interface DB9 cable connector is BoxHeader, pitch: 2.0mm, 9Pin



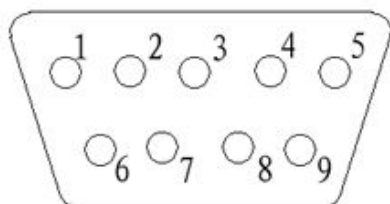
## Interface definition

| Interface number | Interface name | Function classification | Default function  | Extended function | Input/output | characteristics                     |
|------------------|----------------|-------------------------|---|-------------------|--------------|-------------------------------------|
| 1                | Online         | Online pin              | Online prompt pin(After DTU connect data center, this pin output high level+5v U disconnect data center, this pin input low level-5v)   | NO                | Output       | Output voltage:-5v~+5v              |
| 2                | RX             | RS232                   | RS232 interface, receive pin(Assume DTU connected to computer ,the date flow is: TU<computer  | NO                | Input        | Standard RS232 voltage              |
| 3                | TX             | RS232                   | RS232 interface, send pin(Assume DTU connected to computer ,the date flow is: TU>computer   | NO                | Output       | Standard RS232 voltage              |
| 4                | None           |                         | None  | NO                |              |                                     |
| 5                | GND            | RS232                   | RS232   | NO                |              | GND                                 |
| 6                | None           |                         | None  | NO                |              |                                     |
| 7                | SW             | Enable pin              | IO port power switch(By controlling this pin controls the power on and off throughout the DTU, when connected -10v ~ 0v voltage or let the pin dangling DTU power on, power DTU, 3.3v ~ 30v voltage DTU power off | NO                | Input        | SW function, input voltage:-10v~30v |
| 8                | None           |                         | None  | NO                |              |                                     |
| 9                | None           |                         | None  | NO                |              |                                     |

(2) Serial RS232 definition of CMXX50P series ( available for CM3150P, CM6550P,CM8150P/CM8250P/CM8350P/CM510-21H/CM510-21T/CM510-21F)

CMxx50P series RS232(DB9) interface drawing

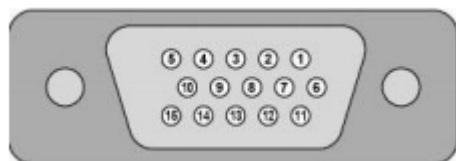
DTU user data interface DB9 cable connector is BoxHeader, pitch: 2.0mm, 9Pin



| Interface number | Interface name | Function classification | Default function  | Extended function         | Input/output | characteristics                     |
|------------------|----------------|-------------------------|---|---------------------------|--------------|-------------------------------------|
| 1                | Online         | Online prompt           | Online prompt pin(After DTU connect data center, this pin output high level+5v U disconnect data center, this pin input low level-5v  | NO                        | Output       | Default Output voltage:-5v~+5v      |
| 2                | RX             | RS232                   | RS232 interface, receive pin(Assume DTU connected to computer ,the date flow is: TU<computer  | NO                        | Input        | Standard RS232 voltage              |
| 3                | TX             | RS232                   | RS232 interface, send pin(Assume DTU connected to computer ,the date flow is: TU>computer   | NO                        | Output       | Standard RS232 voltage              |
| 4                | Active         |                         | Sleep mode activated IO pin (not supported, reserved for future expansion use)  | NO                        |              |                                     |
| 5                | GND            | RS232                   | RS232   | NO                        |              | GND                                 |
| 6                |                | None                    |   | NO                        |              |                                     |
| 7                | SW             | Enable pin              | IO port power switch(By controlling this pin controls the power on and off throughout the DTU, when connected -10v ~ 0v voltage or let the pin dangling DTU power on, power DTU, 3.3v ~ 30v voltage DTU power off | CTS Hardware Flow Control | Input        | SW function, input voltage:-10v~30v |
| 8                | USB+           | USB                     | USB+  | RTS Hardware Flow Control |              |                                     |
| 9                | USB-           | USB                     | USB-  | NO                        |              |                                     |

(3) VGA interface definition of CMXX60V (available for CM3160V、CM6560V)

CMxx60V series VGA interface drawing&amp; definition table



| Interface number | Interface name | Function classification | Default function   | Extended function | Input/output | characteristics          |
|------------------|----------------|-------------------------|--|-------------------|--------------|--------------------------|
| 1                | Online         | Online tips             | Online prompt pin(After DTU connect data center, this pin output high level+5v U disconnect data center, this pin input low level-5v | NO                | Output       | Output voltage: 0v~+3.3v |
| 2                | RXD            | RS232                   | RS232 interface, receive pin(Assume DTU connected to computer ,the date flow is: TU<computer   | NO                | Input        | Standard RS232 voltage   |
| 3                | TXD            | RS232                   | RS232 interface, send pin(Assume DTU connected to computer ,the date flow is: TU>computer  | NO                | Output       | Standard RS232 voltage   |
| 4                | None           | RS232                   | RS232 interface, GND pin   | NO                |              |                          |
| 5                | GND            | RS232                   |  | NO                |              |                          |
| 6                | None           | RS232                   |  | NO                |              |                          |
| 7                | None           | RS232                   |  | NO                |              |                          |
| 8                | None           | RS232                   |  | NO                |              |                          |
| 9                | SW             | Enable pin              | Online prompt pin(After DTU connect data center, this pin output high level+5v U disconnect data center, this pin input low level-5v | NO                | Input        | Input voltage:-10v~+30v  |
| 10               | TTL_RXD        | RS TTL                  | TTL interface, receive pin(Assume DTU connected to computer ,the date flow is: DPU<computer  | NO                | Input        | Input voltage:0v~+3.3v   |
| 11               | TTL_TXD        | RS TTL                  | TTL interface, send pin(Assume DTU connected to computer ,the date flow is: TU>computer  | NO                | Output       | Output voltage:0v~+3.3v  |
| 12               | 485A           | RS485                   | 485 interface A  | NO                |              |                          |
| 13               | 485B           | RS485                   | 485 interface B  | NO                |              |                          |
| 14               | None           |                         |  | NO                |              |                          |

|    |      |  |  |    |  |  |
|----|------|--|--|----|--|--|
| 15 | None |  |  | NO |  |  |
|----|------|--|--|----|--|--|

(4) VGA interface definition of CMXX50V series (available for CM3150V、CM6550V、CM8150V、CM8250V、CM8350V、CM510-23H、CM510-23T、CM510-23F)

CMxx50V series VGA interface drawing & definition table



| Interface number | Interface name | Function classification | Default function  | Extended function | Input/output | characteristics   |
|------------------|----------------|-------------------------|---|-------------------|--------------|---|
| 1                | Online         | Online prompt           | Online prompt pin(After DTU connect data center, this pin output high level+5v U disconnect data center, this pin input low level-5v  | NO                | Output       | Default output voltage0v~+3.3v<br>Selectable output voltage:-5v~+5v |
| 2                | RXD            | RS232                   | RS232 interface, receive pin(Assume DTU connected to computer ,the date flow is: TU<computer  | NO                | Input        | Standard RS232 voltage  |
| 3                | TXD            | RS232                   | RS232 interface, send pin(Assume DTU connected to computer ,the date flow is: TU>computer   | NO                | Output       | Standard RS232 voltage  |
| 4                | None           |                         |   | NO                |              |   |
| 5                | GND            | RS232                   | RS232 interface, GND pin  | NO                |              |   |
| 6                | None           |                         |   | NO                |              |   |
| 7                | RTS            | RS232                   | RS232 Flow control foot   | NO                |              |   |
| 8                | CTS            | RS232                   | RS232 Flow control foot   | NO                |              |   |
| 9                | SW             | Enable pin              | Online prompt foot(After DTU connect data center, this pin output high level+5v U disconnect data center, this pin input low level-5v | NO                | Input        | Input voltage:-10v~+30v   |
| 10               | TTL_RXD        | RS TTL                  | TTL interface, receive feet(Assume DTU connected to computer ,the date flow is: TU<computer   | NO                | Input        | Input voltage:0v~+3.3v  |
| 11               | TTL_TXD        | RS TTL                  | TTL interface, send feet(Assume DTU connected to computer ,the date flow is:  | NO                | Output       | Output voltage:0v~+3.3v   |



|    |      |       |                 |    |  |  |
|----|------|-------|-----------------|----|--|--|
|    |      |       | TU>computer     |    |  |  |
| 12 | 485A | RS485 | 485 interface A | NO |  |  |
| 13 | 485B | RS485 | 485 interface B | NO |  |  |
| 14 | None |       |                 | NO |  |  |
| 15 | None |       |                 | NO |  |  |

(5) VGA interface definition of CMXX80V series

CMxx80V series VGA interface drawing & definition table



| Interface number | Interface name | Function classification | Default function   | Extended function | Input/output | characteristics                                       |
|------------------|----------------|-------------------------|--|-------------------|--------------|---|
| 1                | A1             | Relays1                 | A1.B1.C1 as a relay; CPU control pin 1,low level, A1 and B1 pin connect, CPU control pin 1,high level ,disconnect A1 and B1, connect A1 and C1 | NO                |              | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |
| 2                | RXD            | RS232                   | RS232 interface, receive pin(Assume DTU connected to computer ,the date flow is: TU<computer   | NO                | Input        | Standard RS232 voltage                                |
| 3                | TXD            | RS232                   | RS232 interface, send pin(Assume DTU connected to computer ,the date flow is: TU>computer  | NO                | Output       | Standard RS232 voltage                                |
| 4                | None           |                         |  | NO                |              |   |
| 5                | GND            | RS232                   | RS232 interface, GND pin   | NO                |              | GND   |
| 6                | C1             | RS232                   | A1.B1.C1 as a relay; CPU control pin 1,low level, A1 and B1 pin connect, CPU control pin 1,high level ,disconnect A1 and B1, connect A1 and C1 | NO                |              | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |
| 7                | None           |                         |  | NO                |              |   |
| 8                | None           |                         |  | NO                |              |   |
| 9                | SW             | Enable pin              | IO port power switch(By controlling this pin controls the power on and off throughout the DTU, when connected -10v ~ 0v voltage or let the pin | NO                | Input        | Input voltage:-10v~+30v                               |

|    |      |         |   |    |  |   |
|----|------|---------|---|----|--|---|
|    |      |         | dangling DTU power on, power DTU, 3.3v ~ 30v voltage DTU power off  |    |  |   |
| 10 | B2   | Relays2 | A2. B2..C2 as a relay; CPU control pin 2 , low level, A2 and B2 pin connect, CPU control pin 2, high level ,disconnect A2 and B2,connect A2 and C2    | NO |  | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |
| 11 | B1   | Relays1 | A1.B1.C1 as a relay; CPU control pin 1,low level, A1 and B1 pin connect, CPU control pin 1,high level ,disconnect A1 and B1, connect A1 and C1        | NO |  | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |
| 12 | 485A | RS485   | 485 interface A   | NO |  |   |
| 13 | 485B | RS485   | 485 interface B   | NO |  |   |
| 14 | A2   | Relays2 | A2. B2..C2 as a relay; CPU control pin 2 , low level, A2 and B2 pin connect, CPU control pin 2, high level ,disconnect A2 and B2,connect A2 and C2 NO | NO |  | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |
| 15 | C2   | Relays2 | A2. B2.C2 as a relay; CPU control pin 2 , low level, A2 and B2 pin connect, CPU control pin 2, high level ,disconnect A2 and B2,connect A2 and C2     | NO |  | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |

(6) Block interface definition of CMXX61P series (available for CM3161、CM6561、CM8151、CM8251、CM8351、CM510-22H、CM510-22T、CM510-22F)

CMxxx1 series serial RS232 interface drawing & definition table

|    |     |      |      |     |     |     |    |     |     |     |     |
|----|-----|------|------|-----|-----|-----|----|-----|-----|-----|-----|
| 9V | GND | 485A | 485B | RXD | TXD | GND | SW | RTS | CTS | ONL | ACT |
|----|-----|------|------|-----|-----|-----|----|-----|-----|-----|-----|

| Interface number | Interface name | Function classification | Default function         | Extended function | Input/output | characteristics   |
|------------------|----------------|-------------------------|--------------------------|-------------------|--------------|-------------------|
| 1                | 9V             | Power                   | Power + pole             | NO                |              | Power range:6-32v |
| 2                | GND            | Power                   | Power Ground             | NO                |              |                   |
| 3                | 458A           | RS485                   | 485 interface A          | NO                |              |                   |
| 4                | 485B           | RS485                   | 485 interface B          | NO                |              |                   |
| 5                | RXD            | RS232                   | RS232 interface, receive | NO                | Output       |                   |

|    |     |            |   |    |        |  |
|----|-----|------------|---|----|--------|--|
|    |     |            | pin(Assume DTU connected to computer ,the date flow is:<br>TU<computer  |    |        |  |
| 6  | TXD | RS232      | RS232 interface, send<br>pin(Assume DTU connected to computer ,the date flow is:<br>TU>computer   | NO | Input  |  |
| 7  | GND | RS232      | RS232 interface, GND pin  | NO |        |  |
| 8  | SW  | Enable pin | IO port power switch(By controlling this pin controls the power on and off throughout the DTU, when connected -10v ~ 0v voltage or let the pin dangling DTU power on, power DTU, 3.3v ~ 30v voltage DTU power off | NO | Input  | Input voltage range:0v-30v                                     |
| 9  | RTS |            | Not supported now , reserved for future expansion use   | NO |        |  |
| 10 | CTS |            | Not supported now , reserved for future expansion use   | NO |        |  |
| 11 | ONL |            | Online prompt pin(After DTU connect data center, this pin output high level+5v U disconnect data center, this pin input low level-5v  | NO | Output | Output voltage range:0-3.3v<br>0v-low level<br>3.3v-high level |
| 12 | ACT |            | Not supported now , reserved for future expansion use   | NO | Input  | Input voltage range:0-3.3v<br>0v-low level<br>3.3v-high level  |

(7) Block interface definition of CMXX81 series (available for CM3181)

CMxxx81 series serial RS232 interface drawing & definition table

| Interface number | Interface name | Function classification | Default function         | Extended function | Input/output | characteristics   |
|------------------|----------------|-------------------------|--------------------------|-------------------|--------------|-------------------|
| 1                | Power          | Power                   | Power + pole             | NO                |              | Power range:6-32v |
| 2                | GND            | Power                   | Power Ground             | NO                |              |                   |
| 3                | 458A           | RS485                   | 485 interface A          | NO                |              |                   |
| 4                | 485B           | RS485                   | 485 interface B          | NO                |              |                   |
| 5                | RXD            | RS232                   | RS232 interface, receive | NO                | Output       |                   |

|    |     |            |   |    |       |   |
|----|-----|------------|---|----|-------|---|
|    |     |            | pin(Assume DTU connected to computer ,the date flow is:<br>TU<computer  |    |       |   |
| 6  | TXD | RS232      | RS232 interface, send<br>pin(Assume DTU connected to computer ,the date flow is:<br>TU>computer   | NO | Input |   |
| 7  | GND | RS232      | RS232 interface, GND pin  | NO |       |   |
| 8  | SW  | Enable pin | IO port power switch(By controlling this pin controls the power on and off throughout the DTU, when connected -10v ~ 0v voltage or let the pin dangling DTU power on, power DTU, 3.3v ~ 30v voltage DTU power off | NO | Input | Input voltage range:-10v-30v                          |
| 9  | A1  | Relays1    | A1.B1.C1 as a relay, default A1 and A2 pin connected, via SMS can connect A1 and A3   | NO |       | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |
| 10 | A2  | Relays1    | A1.B1.C1 as a relay, default A1 and A2 pin connected, via SMS can connect A1 and A3   | NO |       | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |
| 11 | A3  | Relays1    | A1.B1.C1 as a relay, default A1 and A2 pin connected, via SMS can connect A1 and A3   | NO |       | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |
| 12 | B1  | Relays2    | A2. B2.C2 as a relay, default B1 and B2 pin connected, via SMS can connect B1 and A3  | NO |       | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |
| 13 | B2  | Relays2    | A2. B2.C2 as a relay, default B1 and B2 pin connected, via SMS can connect B1 and A3  |    |       | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |
| 14 | B3  | Relays2    | A2. B2.C2 as a relay, default B1 and B2 pin connected, via SMS can connect B1 and A3  |    |       | Dry contact, drive capacity 125VAC / 0.5A; 30VDC / 1A |

## 2.4 power supply

The DTU module can be used in complex environment, the range of power is usual very big, The Power supply adopts advanced power technology and is provided power directly by the external power supply transformer to adapt to complex application environment excellently and improve the stability of system.



**Notice:**

When DTU are exchanging information with the base station, the transient current changes quickly and peak current is very large, so the quality of the external power supply must be very high, so the quality of the external power supply must be very high.

## **2.5 Detect the network**

Please connect the cable and check to ensure that it is correct, then connect the antenna, put into the valid SIM card and supply power to DTU, then the PWR indicator will light . The online indicator will flash when the equipment connect to the internet, and it will normally light after connecting to the server that indicates DTU works normally. If the ACT lamp flashing, it indicates that the data is being inputted or outputted through the data interface (ACT lamp of 3G DTU is invalid).

**Notice:**

Before supplying power, please confirm that the antenna and serial port line connect DTU well and the inserted SIM card is tight.

## **3 configuration mode**

There are three configuration mode of DTU: local serial port configuration, remote network configuration and short message remote configuration(only 3180 series products)

### **3.1 local serial port configuration**

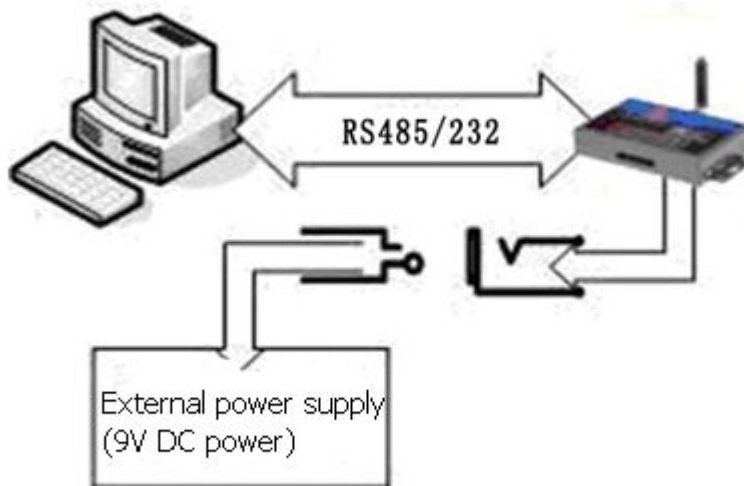
There are two configuration mode of local serial port, one is tool configuration, the other is manual configuration. The instruction focuses on stating the mode of tool configuration.

#### **3.1.1 Tool configuration**

1, Please connect the serial port of DTU and serial port of computer with serial port

line and pay attention to the serial port code of computer.

The principle of connection between DTU and computer which is configured parameter is as follow:

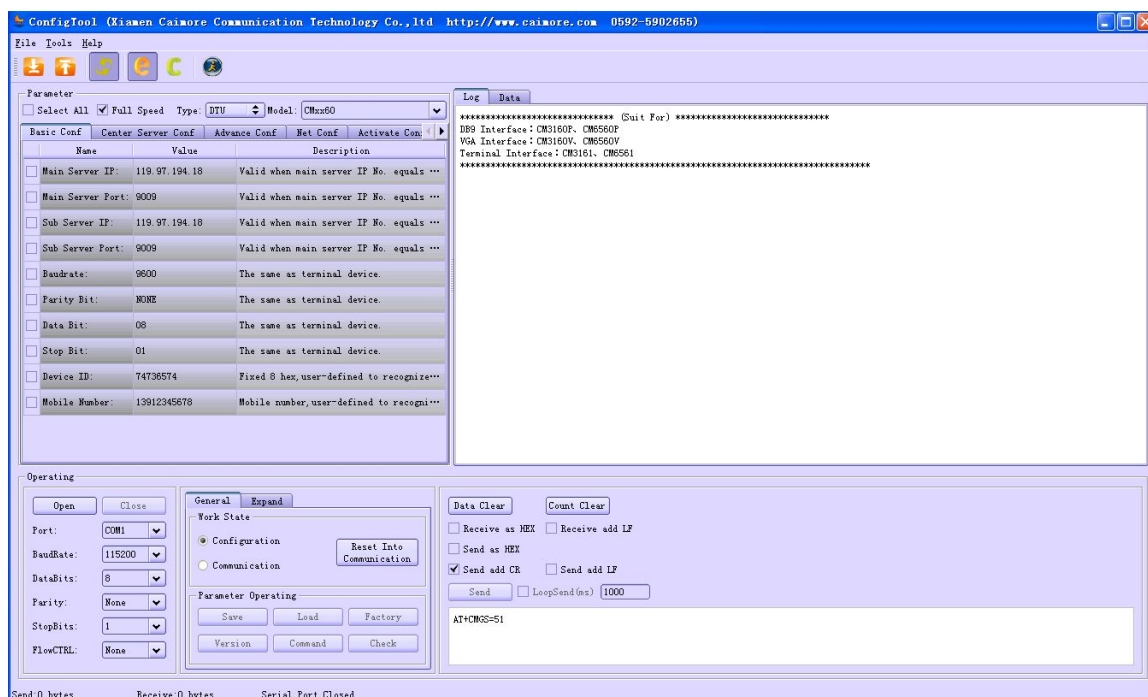


**Notice:**

Please connect the computer and DTU with serial port line when you connect company to carry on configuration. Then supply power to the DTU according to the cue of configuration software.

2, Please find "xiamen caimore DTU configuration software VXXX.exe" (XXX is version number of software. The file path in the configuration CD: English\ wireless data transmission terminal DTU\ tool software of products\ DTU configuration software V544 of xiamen caimore communication technology co.,Ltd\ DTU configuration software VXXX.exe of xiamen caimore), and open the program.

The interface of program is as following picture:



Picture 3-1 Configuration area

3. Please select corresponding “type” and “model” according to the product model which needs to be configured from “selection region of products model”.

Comparison table of product model and selected model:

| Selected model | Interface type | Product model   |
|----------------|----------------|---|
| CMxx50         | DB9            | CM3150P,CM6550P,CM8150P,CM8250P, CM8350P,CM510-21H, CM510-21T,CM510-21F |
|                | VGA            | CM3150V,CM6550V,CM8150V,CM8250V ,CM8350V,CM510-23H, CM510-23T,CM510-23F |
|                | Block          | CM3151,CM6551,CM8151,CM8251,CM8 351,CM510-22H,CM510-22T, CM510-22F      |
|                | 20 pin box     | CM3150V,CM6550V,CM8150V,CM8250V ,CM8350V                                |
| CMxx60         | DB9            | CM3160P、CM6560P   |
|                | VGA            | CM3160V、CM6560V   |
|                | Block          | CM3161、CM6561   |
|                | 20 pin box     | CM3160V、CM6560V   |

|                   |            |   |
|-------------------|------------|---|
| CM350             | DB9        | CM350P、CM360P   |
|                   | VGA        | CM350V、CM360V   |
|                   | 20 pin box | CM350V、CM360V   |
| CM3x0             | DB9        | CM350P、CM360P   |
|                   | VGA        | CM350V、CM360V   |
|                   | 20 针 box   | CM350V、CM360V   |
| CMxx50_TC_M2<br>M | DB9        | CM6550P、CM8350P   |
|                   | VGA        | CM6550V、CM8350V   |
|                   | Block      | CM6551、CM8351   |
|                   | 20 pin box | CM6550V、CM8350V   |
| CMxx50-SERVER     | DB9        | CM3150P-SVR,CM6550P-SVR,CM8150P-SVR,CM8250P-SVR,CM8350P-SVR,CM510-21H-SVR,CM510-21T-SVR,CM510-21F-SVR |
|                   | VGA        | CM3150V-SVR,CM6550V-SVR,CM8150V-SVR,CM8250V-SVR,CM8350V-SVR,CM510-23H-SVR,CM510-23T-SVR,CM510-23F-SVR |
|                   | Block      | CM3151-SVR,CM6551-SVR,CM8151-SVR,CM8251-SVR,CM8351-SVR,CM510-22H-SVR,CM510-22T-SVR,CM510-22F-SVR      |
|                   | 20 pin box | CM3150V-SVR,CM6550V-SVR,CM8150V-SVR,CM8250V-SVR,CM8350V-SVR   |
| CMxx80            | DB9        | CM3180P   |
| CM3181            | Block      | CM3181  |

Remark: You can find the corresponding models in the configuration log.

Operate as below:

Click 3.1.1 model selection pic.



You can see picture 3.1.2, and once select any one of them, the corresponding model will be listed in the data logging option box. For example, if you choose CMxx60 (P\_EP), the available model will be listed in the data logging option box, see as picture 3.1.3.





Picture 3.1.2 Contents of drop-down box



Picture 3.1.3 available model

**Notice:** CM510\_1XX\_SMS This kind of DTU is a special one, will not be introduced in this manual.

4, From picture 3-1 configuration area, please select “ serial port number” which is used to connect DTU and computer from “ the configuration area of serial port parameter”; select "baud rate" as 115200; data bits as 8; parity bits as NONE, stop bits as 1, flow control as NONE, then click “open" button to open serial port”.

5, It will appear the cue of "please power on the device!" in "display area of process log" (see as below) after the operation of above 4. Then pls supply the power to DTU now.

```
>>>Open serial port success!
>>>Please power on the device!
```

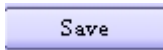
6. From picture 3-1 configuration area, please choose “configuration status” from “normal operation”, which is under” configuration working status switching area”, and then you will enter into configuration status after operating above 4,5 steps.

7, Please don't configure parameter until appear the cue of "configuration can be modified now".

Configuration can be modified now!

8, Please see the configuration process in <4 , configure DTU rapidly>and < 5, the detailed configuration of DTU>

9, After finish configuring, please click “save” button to save configuration parameter.



### 3.1.2 Manual configuration

1, Please open “ serial port tool” software or “ super terminal” software.

2, Please select serial port number coincides with serial port number which is used to connect DTU and computer, then configure serial port parameter and open serial port.

Configure serial port parameter for: baud rate—115200, data bits—8, parity bits—none, stop bits—1 , flow control—none .

3, Please press “s” button when you supply power to DTU, till appearing the cue of entering into configuration state.( also can press “ AT+LIST” to enter into configuration state)

4, Please configure parameter of DTU by AT command.( please see The detailed AT command in < Appendix II , AT command set>

5, Please reboot DTU after finishing configuration.

#### Notice:

We suggest you use tool configuration, rather than manual configuration. Because the tool configuration is very simple and easy to operate.

### 3.2 wireless network configuration

After DTU connect server. The server is able to modify the parameter of DTU remotely through wireless network. The steps are as follow:

1. The server software sends data packet of“\*\*\*COMMIT CONFIG\*\*\*”( not include quotation marks) to appointed DTU.

2. DTU enters into network configuration state when server software receives the “Remote Configuration Ready”which is returned by DTU.

3.Please configure parameter of DTU by AT command. (please see The detailed AT



command in < Appendix II , AT command set>)

4.Please reboot DTU after finishing configuration.( send AT+RESET command)

### **3.3.Short message configuration( only 3180 series products)**

DTU is able to modify the parameter of DTU by short message when SIM card has opened the short message business.

The message format is \*\*\*COMMIT CONFIG\*\*\*.AT command. (please see The detailed AT command in < Appendix II , AT command set>)

Please reboot DTU after finishing configuration to make parameter take effect.( send \*\*\*COMMIT CONFIG\*\*\*.AT+RESET )

**Notice:**

One SMS message only modifies one parameter.

Example: Modify the port number of main center of DTU for 5001

Send the short message "\*\*\*COMMIT CONFIG\*\*\*.AT+PORT=5001" (not include quotation marks) with cellphone or other devices.

Please send "\*\*\*COMMIT CONFIG\*\*\*.AT+RESET" ( not include quotation marks) to reboot devices after receiving OK

## **4. Configure DTU rapidly**

On the one hand, for the customers who want to test DTU after purchasing, just needing to configure several parameter before testing DTU, on the other hand, for the customers who have not special requirement, only needing to configure the parameter in the rapid configuration, and other parameters adopts factory default parameter. so we establish a rapid configuration DTU tunnel specially to make it convenient for the customers to configure DTU rapidly. The customers who have special requirement can see the detailed DTU configuration in <5, detailed configuration of DTU >

1. Please open “xiamen caimore DTU configuration software VXXX.exe”( XXX is the version number of software)

## 2. Select corresponding model number

Please select “DTU” from products type

Type:

Please select corresponding type of equipment from "products model "

Model:

Table of comparisons of product model and selected model :

| Selected model | Interface type | Product model   |
|----------------|----------------|---|
| CMxx50         | DB9            | CM3150P,CM6550P,CM8150P,CM8250P,CM8350P,CM510-21H,CM510-21T,CM510-21F |
|                | VGA            | CM3150V,CM6550V,CM8150V,CM8250V,CM8350V,CM510-23H,CM510-23T,CM510-23F |
|                | Block          | CM3151,CM6551,CM8151,CM8251,CM8351,CM510-22H,CM510-22T,CM510-22F      |
|                | 20 pin box     | CM3150V,CM6550V,CM8150V,CM8250V,CM8350V                               |
| CMxx60         | DB9            | CM3160P、CM6560P   |
|                | VGA            | CM3160V、CM6560V   |
|                | Block          | CM3161、CM6561   |
|                | 20 pin box     | CM3160V、CM6560V   |
| CM350          | DB9            | CM350P、CM360P   |
|                | VGA            | CM350V、CM360V   |
|                | 20 pin box     | CM350V、CM360V   |
| CM3x0          | DB9            | CM350P、CM360P   |
|                | VGA            | CM350V、CM360V   |
|                | 20 针 box       | CM350V、CM360V   |
| CMxx50_TC_M2M  | DB9            | CM6550P、CM8350P   |
|                | VGA            | CM6550V、CM8350V   |
|                | Block          | CM6551、CM8351   |
|                | 20 pin box     | CM6550V、CM8350V   |
| CMxx50-SERVER  | DB9            | CM3150P-SVR,CM6550P-SVR,CM8150  |

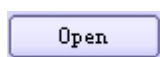
|        |            |   |
|--------|------------|---|
|        |            | P-SVR,CM8250P-SVR,<br>CM8350P-SVR,CM510-21H-SVR,CM510-21T-SVR,<br>CM510-21F-SVR                               |
|        | VGA        | CM3150V-SVR,CM6550V-SVR,CM8150V-SVR,CM8250V-SVR,<br>CM8350V-SVR,CM510-23H-SVR,CM510-23T-SVR,<br>CM510-23F-SVR |
|        | Block      | CM3151-SVR,CM6551-SVR,CM8151-SVR,CM8251-SVR,<br>CM8351-SVR,CM510-22H-SVR,CM510-22T-SVR,<br>CM510-22F-SVR      |
|        | 20 pin box | CM3150V-SVR,CM6550V-SVR,CM8150V-SVR,<br>CM8250V-SVR,CM8350V-SVR   |
| CMxx80 | DB9        | CM3180P   |
| CM3181 | Block      | CM3181  |

### 3. Enter into configuration status:

1) Please select corresponding number of serial port, configure baud rate for 115200bps, data bits for 8, parity bits for NONE, stop bits for 1 and flow control for NONE.

2) Select "configuration status" from "normal operation"

3) Please click "open" button to open the serial port.



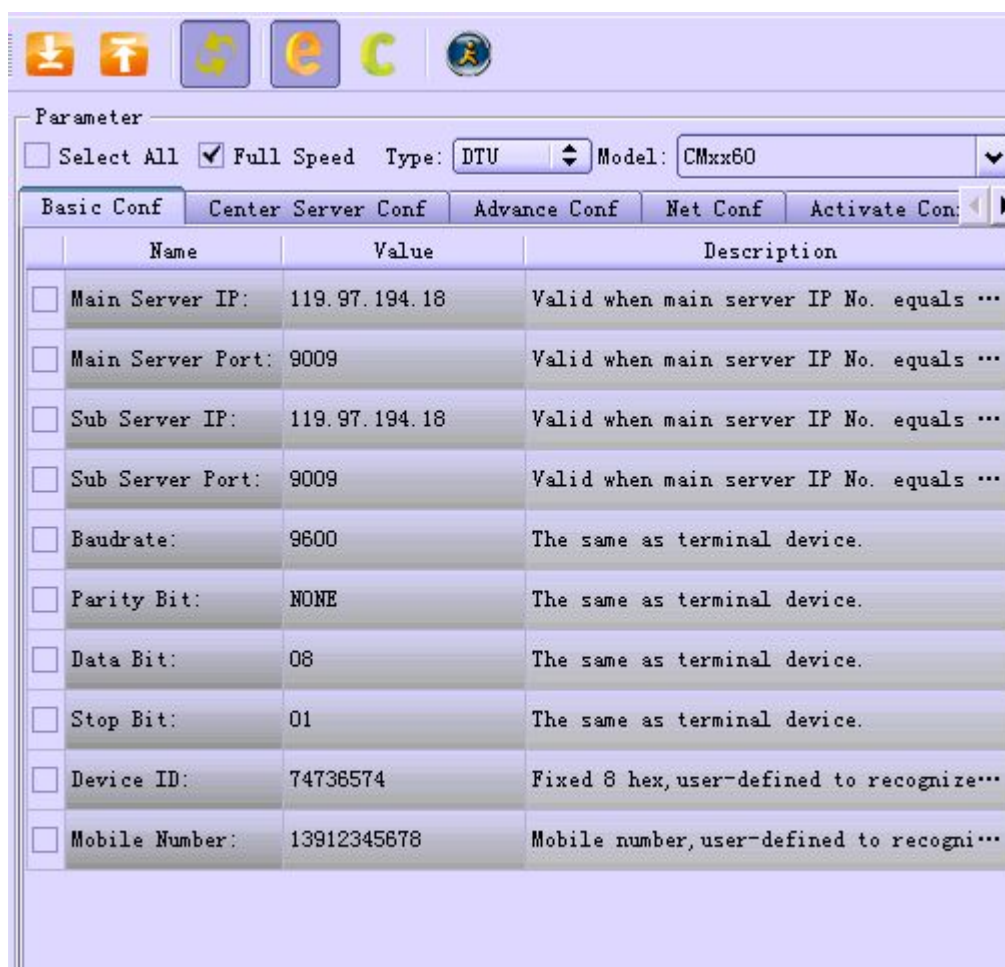
4) Please supply power to DTU according to the cue of software.

```
>>>Open serial port success!
>>>Please power on the device!
```

5) Please do not configure parameter until appear the cue of "Load parameter : success!".

```
Load Parameter: Success!
```

**4. Please switch to "configure parameter rapidly"( default page ). See as picture 4-1**



Parameter

☐ Select All ☒ Full Speed Type: DTU Model: CMxx60

Basic Conf Center Server Conf Advance Conf Net Conf Activate Conf

|                          | Name              | Value         | Description                              |
|--------------------------|-------------------|---------------|--|
| <input type="checkbox"/> | Main Server IP:   | 119.97.194.18 | Valid when main server IP No. equals ... |
| <input type="checkbox"/> | Main Server Port: | 9009          | Valid when main server IP No. equals ... |
| <input type="checkbox"/> | Sub Server IP:    | 119.97.194.18 | Valid when main server IP No. equals ... |
| <input type="checkbox"/> | Sub Server Port:  | 9009          | Valid when main server IP No. equals ... |
| <input type="checkbox"/> | Baudrate:         | 9600          | The same as terminal device.             |
| <input type="checkbox"/> | Parity Bit:       | NONE          | The same as terminal device.             |
| <input type="checkbox"/> | Data Bit:         | 08            | The same as terminal device.             |
| <input type="checkbox"/> | Stop Bit:         | 01            | The same as terminal device.             |
| <input type="checkbox"/> | Device ID:        | 74736574      | Fixed 8 hex,user-defined to recognize... |
| <input type="checkbox"/> | Mobile Number:    | 13912345678   | Mobile number,user-defined to recogni... |

Picture 4-1

## 5. Modify IP address of server:

Please fill the IP address of customers' center server into input box next to "the main center address" according to the relevant information of center server which is used by customers, and fill the port number of customers' center server into the input box next to "main canter port". **If there is only one main center server, no backup server, please make the information of backup center coincide with the information of main center.** If there is backup server, please fill IP address of customers' backup center server into the input box next to "backup center address", and fill the port number of customers' backup center server into the input box next to "backup canter port". As picture 3-1

## 6, configure parameter of serial port

Configure the baud rate, parity bits, data bits, stop bits and flow control of DTU according to the actual baud rate, parity bits, data bits, stop bits and flow control of PC-PLC which connect DTU. For example, the “baud rate of serial port” of PC-PLC is 1200BPS, please select 1200BPS from the options of baud rate of serial port, other configurations are like that. As picture 3-1

**Notice:**

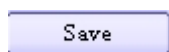
- ✧ The parameter of serial port must coincide with the baud rate, parity bits, data bits, stop bits and flow control of PC-PLC, otherwise it will not communicate with PC-PLC.

## **7. configure DTU sign**

Modifying the ID number and SIM number in the interface. The ID number of equipment is eight hex data, SIM number is eleven decimal data. The ID of equipment which is used to distinguish different DTU by center server or customers in the TCP operating mode. The SIM number of equipment which is used by customers or center server to distinguish different DTU in the UDP operating mode. If only one equipment is testing, the ID and SIM do not need to be modified.

## **8. Save parameter:**

Please click “save” button to save modified parameter after modifying the corresponding parameter.



Please connect center to test after finishing configuring parameter. Please see the detailed testing steps in<< 6. the testing of data transmission and remote configuration>>

9. For XX60 series, it need to close FLASH protection XX60 series before saving configuration

XX60 series DTU should be use the configuration above 5.6.11 version, which will automatic to close FLASH protection. Otherwise, there will no change when you save the

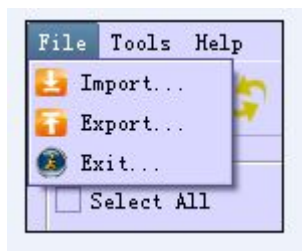
configuration parameters.

It need to use AT command to close FLASH protection by manual, if you use configuration tool to manual configure. The command is “AT+ WRFLASH=7k35pF”, please notice that this command is very case sensitive!

## **5. Batch configuration of DTU**

### **5.1 Export configuration**

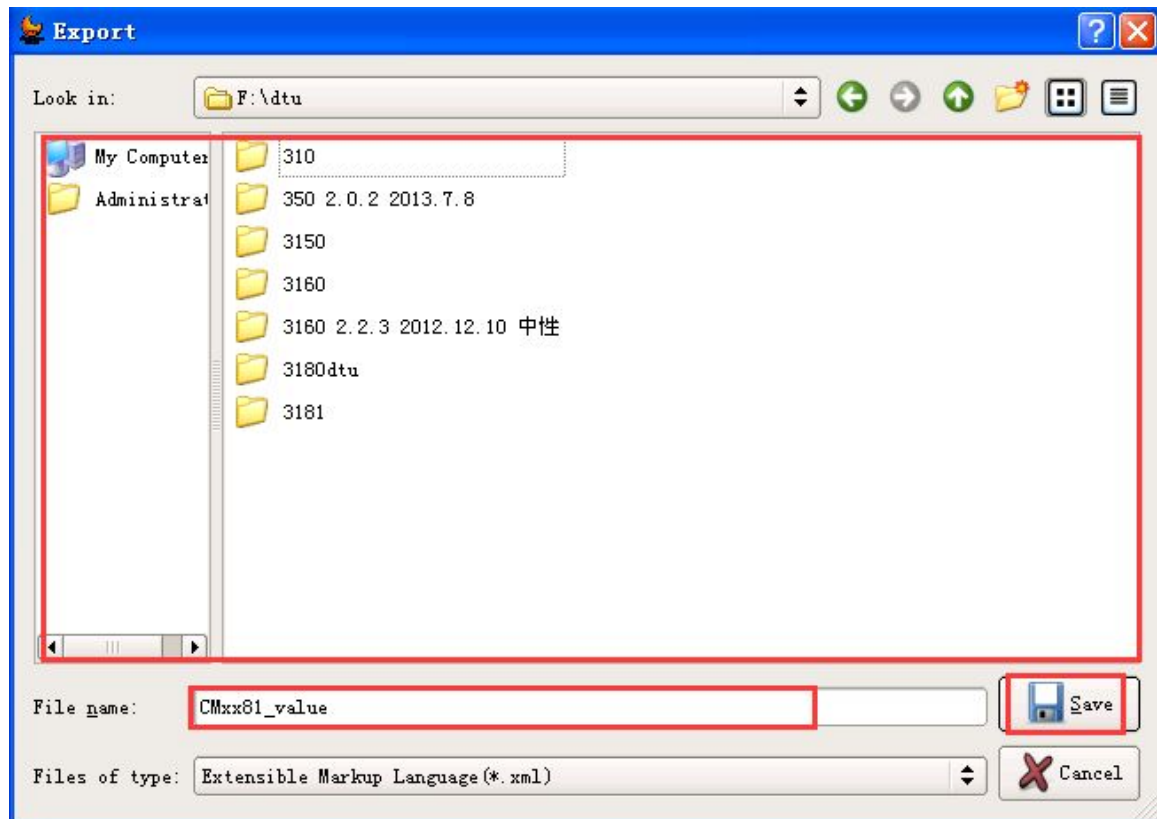
1. **Please open configuration tool** (configuration CD path: English\ wireless data transmission terminal DTU\ tool software of products\ DTU configuration software V544 of xiamen caimore communication technology co.,Ltd\ DTU configuration software VXXX.exe( XXX is the version number of software) of xiamen caimore communication technology co.,Ltd ).
2. **Let DTU enter into configure status by configuration tool, and then read the configure information. For details steps see as <3.1.1 tool configure>**
3. **After reading the information, click” file” from “menu”, and then click “ export configuration parameters to...” from “file”. See as picture 5-5 menu-file.**



Picture 5-5 menu-file

4. **Pop up a window of “export to...”, see as picture 5-6: “export to” window**





Picture 5-6: “ export to ...” window

5. From the "File Save Path Selection" window, select a position you want to save the "configure file". Setting the name of “configure file” in the "File Name Settings" , then click Save.

## 5.2 Import configuration

1. **Please open configuration tool** (configuration CD path: English\ wireless data transmission terminal DTU\ tool software of products\ DTU configuration software V544 of xiamen caimore communication technology co.,Ltd\ DTU configuration software VXXX.exe( XXX is the version number of software) of xiamen caimore communication technology co.,Ltd ).

### 2. Please select corresponding model:

Select “DTU” from “ product type”

Type: DTU

Select corresponding equipment model from "Products model"

Model: CMxx60 (P\_EP)

Table comparisons of product model and selected model:

| Selected model | Interface type | Product model   |
|----------------|----------------|---|
| CMxx50         | DB9            | CM3150P,CM6550P,CM8150P,CM8250P,CM8350P,CM510-21H,CM510-21T,CM510-21F                                 |
|                | VGA            | CM3150V,CM6550V,CM8150V,CM8250V,CM8350V,CM510-23H,CM510-23T,CM510-23F                                 |
|                | Block          | CM3151,CM6551,CM8151,CM8251,CM8351,CM510-22H,CM510-22T,CM510-22F                                      |
|                | 20 pin box     | CM3150V,CM6550V,CM8150V,CM8250V,CM8350V   |
| CMxx60         | DB9            | CM3160P、CM6560P   |
|                | VGA            | CM3160V、CM6560V   |
|                | Block          | CM3161、CM6561   |
|                | 20 pin box     | CM3160V、CM6560V   |
| CM350          | DB9            | CM350P、CM360P   |
|                | VGA            | CM350V、CM360V   |
|                | 20 pin box     | CM350V、CM360V   |
| CM3x0          | DB9            | CM350P、CM360P   |
|                | VGA            | CM350V、CM360V   |
|                | 20 针 box       | CM350V、CM360V   |
| CMxx50_TC_M2M  | DB9            | CM6550P、CM8350P   |
|                | VGA            | CM6550V、CM8350V   |
|                | Block          | CM6551、CM8351   |
|                | 20 pin box     | CM6550V、CM8350V   |
| CMxx50-SERVER  | DB9            | CM3150P-SVR,CM6550P-SVR,CM8150P-SVR,CM8250P-SVR,CM8350P-SVR,CM510-21H-SVR,CM510-21T-SVR,CM510-21F-SVR |
|                | VGA            | CM3150V-SVR,CM6550V-SVR,CM8150V-SVR,CM8250V-SVR,CM8350V-SVR,CM510-23H-SVR,CM510-23T-SVR,CM510-23F-SVR |

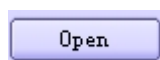
|        |            |  |
|--------|------------|--|
|        |            | -23T-SVR,<br>CM510-23F-SVR   |
|        | Block      | CM3151-SVR,CM6551-SVR,CM8151-SVR,<br>CM8251-SVR,<br>CM8351-SVR,CM510-22H-SVR,CM510-22T-SVR,<br>CM510-22F-SVR |
|        | 20 pin box | CM3150V-SVR,CM6550V-SVR,CM8150V-SVR,<br>CM8250V-SVR,CM8350V-SVR  |
| CMxx80 | DB9        | CM3180P  |
| CM3181 | Block      | CM3181   |

### 3. Open serial port

#### 4.

1) Please select corresponding number of serial port, configure baud rate for 115200bps, data bits for 8, parity bits for NONE, stop bits for 1 and flow control for NONE.

2) Please Click “open” button to open serial port.



**4. If there are saved configuration file, please import them to the configuration tool,** please see the detailed importing steps in <5.3 importing configuration>.

**5. If there are not saved configuration file, and the first thing is needed to do is reading configuration information from DTU equipment.**

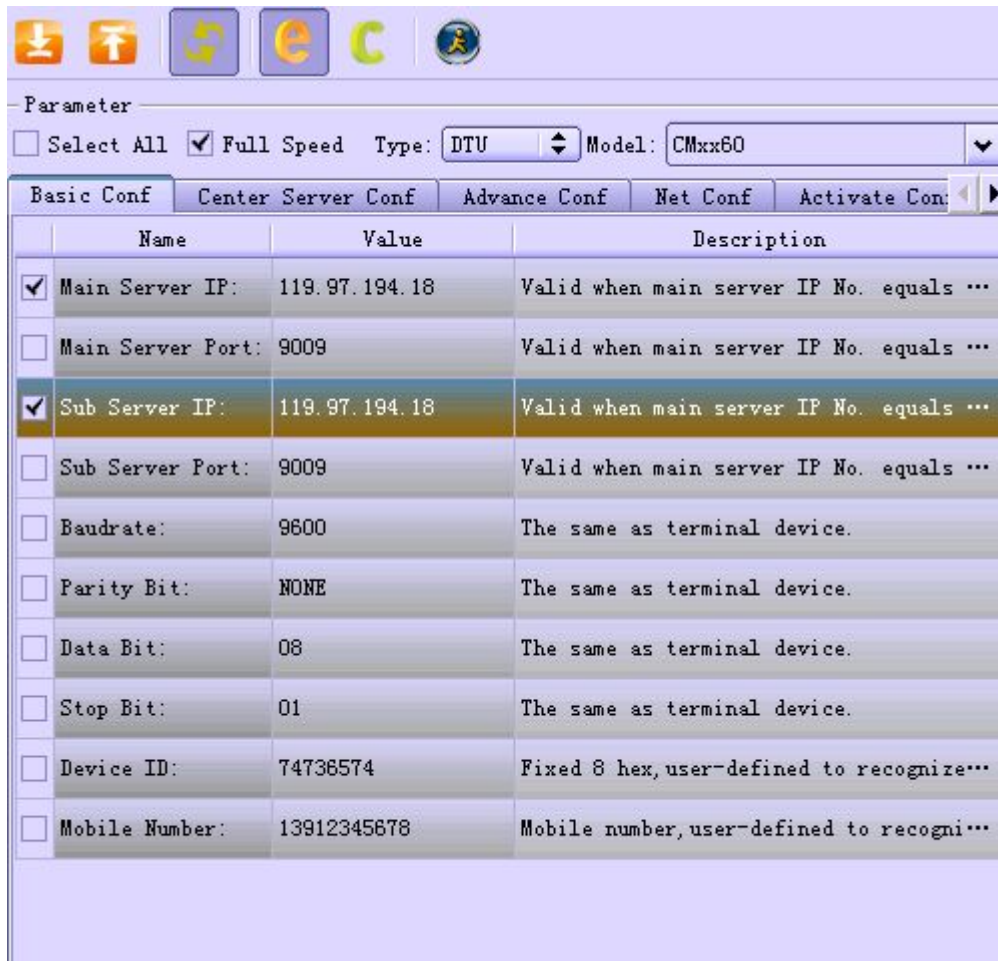
1) Please connect DTU to the serial port of computer and supply power to DTU.

2) The reading configuration does not complete until appearing the cue of “reading configuration parameter successfully”

Load Parameter: Success!

**6, Modifying corresponding parameter** (Please see the detailed configuration in < 4. configure DTU rapidly> or < 6, detailed configuration of DTU >. After modifying, it will be marked with “√” automatically in the frond box of the line in where parameter locates. ( As picture 5-1, after modifying the address of primary center and backup center, it will

mark “√” in the front box.)



|                                     | Name              | Value         | Description                               |
|-------------------------------------|-------------------|---------------|---|
| <input checked="" type="checkbox"/> | Main Server IP:   | 119.97.194.18 | Valid when main server IP No. equals ...  |
| <input type="checkbox"/>            | Main Server Port: | 9009          | Valid when main server IP No. equals ...  |
| <input checked="" type="checkbox"/> | Sub Server IP:    | 119.97.194.18 | Valid when main server IP No. equals ...  |
| <input type="checkbox"/>            | Sub Server Port:  | 9009          | Valid when main server IP No. equals ...  |
| <input type="checkbox"/>            | Baudrate:         | 9600          | The same as terminal device.              |
| <input type="checkbox"/>            | Parity Bit:       | NONE          | The same as terminal device.              |
| <input type="checkbox"/>            | Data Bit:         | 08            | The same as terminal device.              |
| <input type="checkbox"/>            | Stop Bit:         | 01            | The same as terminal device.              |
| <input type="checkbox"/>            | Device ID:        | 74736574      | Fixed 8 hex, user-defined to recognize... |
| <input type="checkbox"/>            | Mobile Number:    | 13912345678   | Mobile number, user-defined to recogni... |

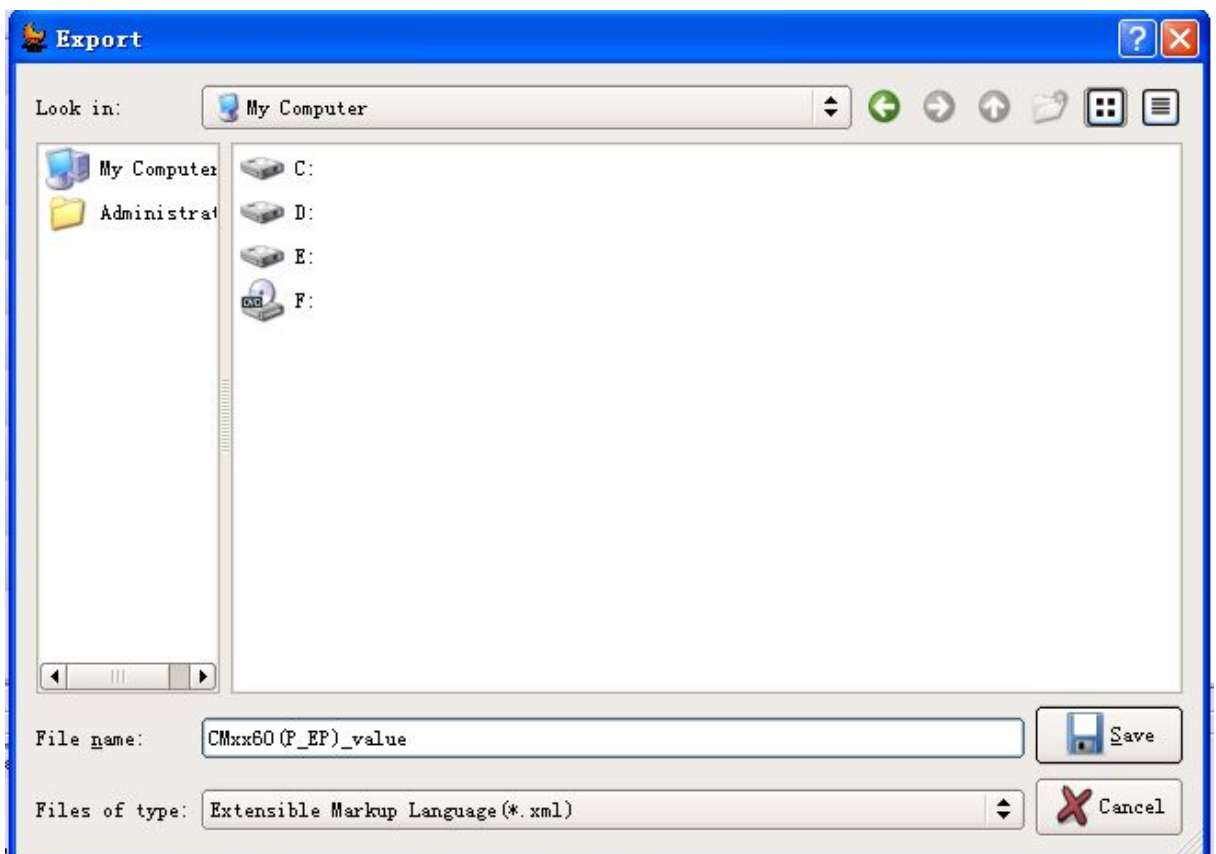
**7, Exporting the information of modified configuration parameter** (In order to make the next configuration more convenient, we suggest you export the configuration parameter. If you do not want to export parameter, please skip this step.)

Please click “file” in the “menu bar” of configuration tool and click “export configuration parameter” in the drop-down menu of “document”.



Picture 5-2

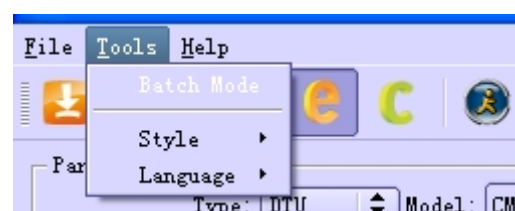
Pop up an “export” saving window. As picture 5-3.



Picture 5-3

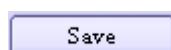
Please select position of the configuration files which you want to save from “selecting files saving path”. Fill the name which you appoint into the blank box next to “file name”

**8, Please click “tool” in the “menu bar” of configuration tool and click “batch configuration mode” in the drop-down menu of “tool”. As picture5-4.**



Picture 5-4

**9. Please click “save” button to save the modified parameter.** If you conduct the batch configuration with the method of importing configuration files, skip this step.



The configuration does not complete until appearing the cue of “ save parameter



success!". You can also use DTU which is not configured to configure.

```
>>>Save Parameter, Please Wait...  
Save Parameter: Success!
```

**10. Please connect DTU which is not configured to the serial port of computer, and supply power to DTU, till appearing the cue of "close echo: success!".**

```
>>>Close Echo...
```

**11. Modify the parameter OF DTU.** For example, the ID number of each DTU is different, so you need to modify the ID number when you configure every DTU in batch configuration.

**12. Please click "save" to save the modified parameter.**

**13. Please disconnect the connection between DTU which is configured and serial port of computer. Then repeat 9~12 steps, till finishing configuration of all DTU.**

## **5.2 export configuration**

1. Please open configuration tool (configuration CD path: English\ wireless data transmission terminal DTU\ tool software of products\ DTU configuration software V544 of xiamen caimore communication technology co.,Ltd\ DTU configuration software VXXX.exe( XXX is the version number of software) of xiamen caimore communication technology co.,Ltd ).

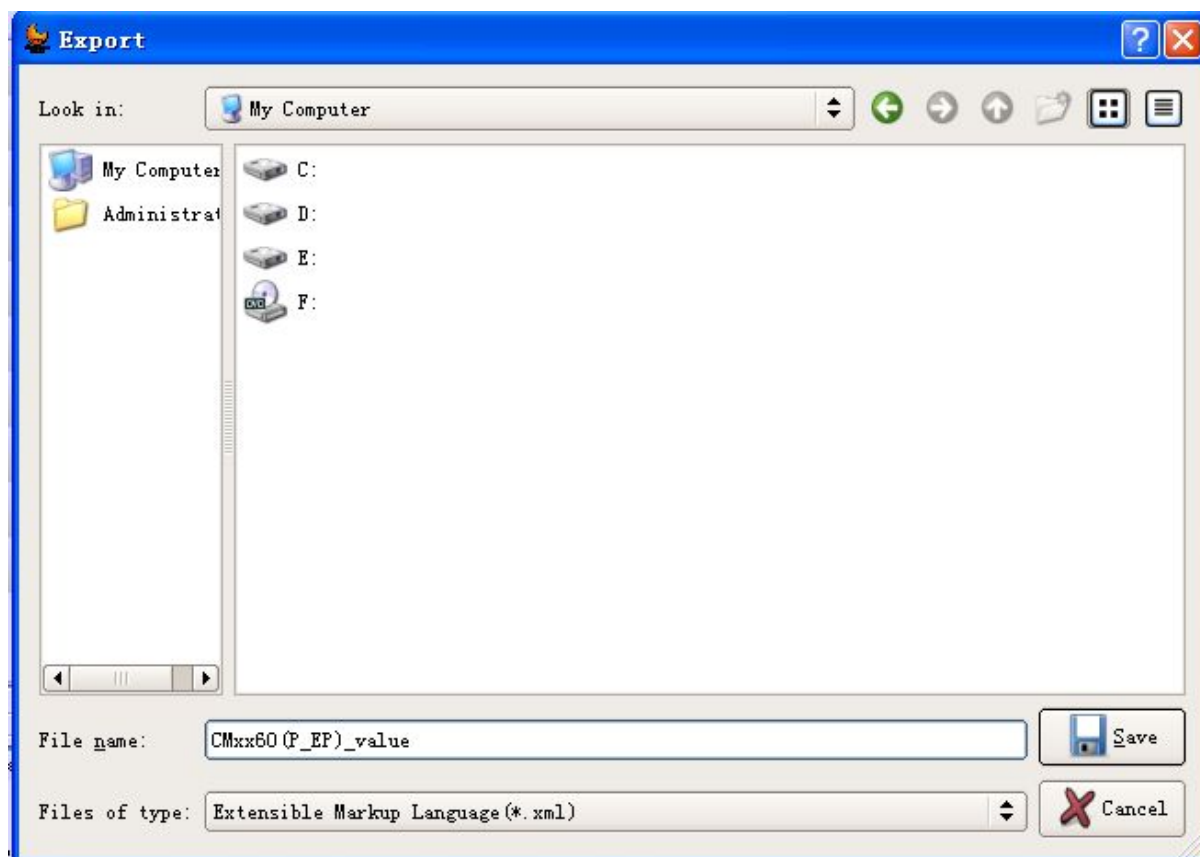
2. Please make DTU enter configuration status with configuration tool, and read configuration information. Please see the detailed steps in < 3.11 tool configuration>.

3. After reading configuration information, please click "file" in the " menu bar" of configuration tool, and click " export configuration parameter" in the pull-down menu of " file". As picture 5-5



Picture 5-5

4. Po up an “export” saving window. As picture 5-6



Picture 5-6

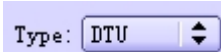
4. Please select position of the configuration files which you want to save from “selecting files saving path” window.. Fill the name which you appoint into the blank box next to “file name”, then click "save" button.

### 5.3 import configuration

**1. Please open configuration tool** (configuration CD path: English\ wireless data transmission terminal DTU\ tool software of products\ DTU configuration software V544 of xiamen caimore communication technology co.,Ltd\ DTU configuration software VXXX.exe( XXX is the version number of software) of xiamen caimore communication technology co.,Ltd ).

**2. Please select corresponding model:**

Select “ DTU” from “ product type”



Select corresponding equipment model from “Products model”




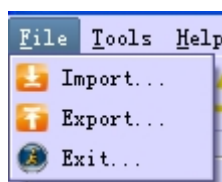
Table comparisons of product model and selected model:

| Selected model | Interface type | Product model   |
|----------------|----------------|---|
| CMxx50         | DB9            | CM3150P,CM6550P,CM8150P,CM8250P, CM8350P,CM510-21H, CM510-21T,CM510-21F |
|                | VGA            | CM3150V,CM6550V,CM8150V,CM8250V ,CM8350V,CM510-23H, CM510-23T,CM510-23F |
|                | Block          | CM3151,CM6551,CM8151,CM8251,CM8351,CM510-22H,CM510-22T, CM510-22F       |
|                | 20 pin box     | CM3150EP,CM6550EP,CM8150EP,CM8250EP,CM8350EP                            |
| CMxx60         | DB9            | CM3160P、CM6560P   |
|                | VGA            | CM3160V、CM6560V   |
|                | Block          | CM3161、CM6561   |
|                | 20 pin box     | CM3160EP、CM6560EP   |
| CM350          | DB9            | CM350P、CM360P   |
|                | VGA            | CM350V、CM360V   |
|                | 20 pin box     | CM350EP、CM360EP   |
| CM3x0          | DB9            | CM350P、CM360P   |
|                | VGA            | CM350V、CM360V   |



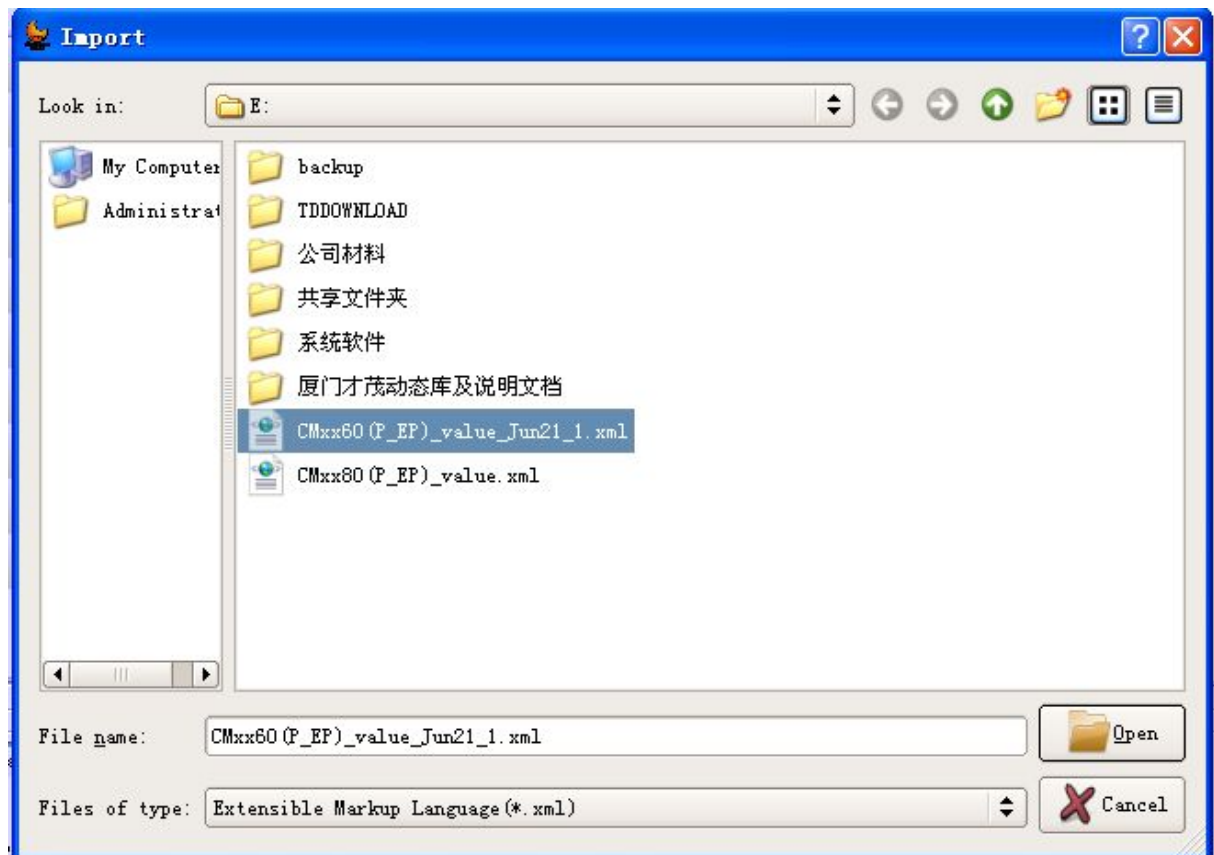
|                   |            |   |
|-------------------|------------|---|
|                   | 20 针 box   | CM350EP、CM360EP   |
| CMxx50_TC_M2<br>M | DB9        | CM6550P、CM8350P   |
|                   | VGA        | CM6550V、CM8350V   |
|                   | Block      | CM6551、CM8351   |
|                   | 20 pin box | CM6550EP、CM8350EP   |
| CMxx50-SERVER     | DB9        | CM3150P-SVR,CM6550P-SVR,CM8150<br>P-SVR,CM8250P-SVR,<br>CM8350P-SVR,CM510-21H-SVR,CM510<br>-21T-SVR,<br>CM510-21F-SVR |
|                   | VGA        | CM3150V-SVR,CM6550V-SVR,CM8150V<br>-SVR,CM8250V-SVR,<br>CM8350V-SVR,CM510-23H-SVR,CM510<br>-23T-SVR,<br>CM510-23F-SVR |
|                   | Block      | CM3151-SVR,CM6551-SVR,CM8151-SV<br>R,CM8251-SVR,<br>CM8351-SVR,CM510-22H-SVR,CM510-<br>22T-SVR,<br>CM510-22F-SVR      |
|                   | 20 pin box | CM3150EP-SVR,CM6550EP-SVR,CM81<br>50EP-SVR,<br>CM8250EP-SVR,CM8350EP-SVR  |
| CMxx80            | DB9        | CM3180P   |
| CM3181            | Block      | CM3181  |

3. After entering into configuration. Please click “file” button in the "menu bar" of configuration tool, then click “ import configuration parameter” button in the pull-down menu of “file”. See as picture 5-7



Picture 5-7

4. Pop up an “import” window. As picture 5-8



5. Please select the "configuration files" which you want to import from "selecting files saving path" window, then click "open" button, and import configuration to configuration tool successfully.

## 6. Detailed configuration of DTU

**6.1 The information configuration of server which is single center fixed IP mode.**

1. Please switch to "rapidly configure parameter" page ( default page) . As picture 6-1

| Basic Conf               |                   |               |  | Center Server Conf | Advance Conf | Net Conf | Activate Conf | Prot |
|--------------------------|-------------------|---------------|--|--------------------|--------------|----------|---------------|------|
|                          | Name              | Value         | Description                                      |                    |              |          |               |      |
| <input type="checkbox"/> | Main Server IP:   | 119.97.194.18 | Valid when main server IP No. equals 1 ,to us... |                    |              |          |               |      |
| <input type="checkbox"/> | Main Server Port: | 9009          | Valid when main server IP No. equals 1,Value ... |                    |              |          |               |      |
| <input type="checkbox"/> | Sub Server IP:    | 119.97.194.18 | Valid when main server IP No. equals 1,to use... |                    |              |          |               |      |
| <input type="checkbox"/> | Sub Server Port:  | 9009          | Valid when main server IP No. equals 1 ,Value... |                    |              |          |               |      |

Picture 6-1

## 2. Configure information of main configuration center server:

1) Double click "value" button in the "main center address" row, after appearing "input box", please fill the fixed IP of server into the input box

2) Double click "value" button in the "backup center address" row, after appearing "input box". Please fill the fixed IP of server into input box.

3) Double click "value" button in the "main center port" row, after appearing "input box". Please fill the port of server into the input box.

4) Double click "value" button in the "backup center port" row, after appearing "input box". Please fill the port of server into input box.

### Notice:

If only one center server, and no backup server, please configure the information of backup server for information that coincides with the information of main center.

## 3. The number of configuration center server:

1) Please switch to "center server parameter".( as picture 6-2)

2) Double click "value" button in the "the number of center server" row, and select "1" after appearing "selected box". (Make 1 as default parameter)

| Basic Conf               |                     |       |                                     | Center Server Conf | Advance Conf | Net Conf | Activate Conf | Prot |
|--------------------------|---------------------|-------|-------------------------------------|--------------------|--------------|----------|---------------|------|
|                          | Name                | Value | Description                         |                    |              |          |               |      |
| <input type="checkbox"/> | No. of server Link: | 02    | Main backup center is valid, whe... |                    |              |          |               |      |

Picture 6-2

## 6.2 Information configuration of server of single center domain name mode.

1, Please switch to "rapidly configure parameter" page (default page). As picture 6-3

| Basic Conf               |                   |               |  |  |  |
|--------------------------|-------------------|---------------|--|--|--|
| Center Server Conf       |                   |               |  |  |  |
| Advance Conf             |                   |               |  |  |  |
| Net Conf                 |                   |               |  |  |  |
| Activate Conf            |                   |               |  |  |  |
| Prot                     |                   |               |  |  |  |
| Name                     |                   | Value         | Description                                      |  |  |
| <input type="checkbox"/> | Main Server IP:   | 119.97.194.18 | Valid when main server IP No. equals 1 ,to us... |  |  |
| <input type="checkbox"/> | Main Server Port: | 9009          | Valid when main server IP No. equals 1,Value ... |  |  |
| <input type="checkbox"/> | Sub Server IP:    | 119.97.194.18 | Valid when main server IP No. equals 1,to use... |  |  |
| <input type="checkbox"/> | Sub Server Port:  | 9009          | Valid when main server IP No. equals 1 ,Value... |  |  |

Picture 6-3

## 2. Configure information of main configuration center server:

1) Double click "value" button of the "main center address" row, after appearing "input box". Please fill the domain name address which is acquired from the service provider of domain name into the input box.

2) Double click "value" button of the "backup center address" row, after appearing "input box". Please fill the domain name address which is acquired from the service provider of domain name into the input box.

3) Double click "value" button of the "the port of main center" row, after appearing "input box". please fill the port number of center server ( own server) which is used to receive data into input box.

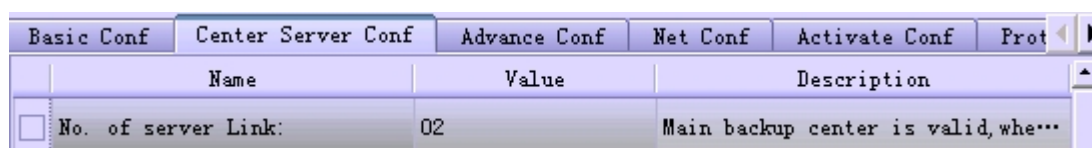
4) Double click "value" button of the "the port of backup center" row, after appearing "input box". please fill the port number of center server (own server) which is used to receive data into " input box"

### Notice:

If only one center server, and no backup server, please configure the information of backup server for information that coincides with the information of main center.

## 3. The number of configuration center server:

1) Please switch to "center server parameter".( as picture 6-4)

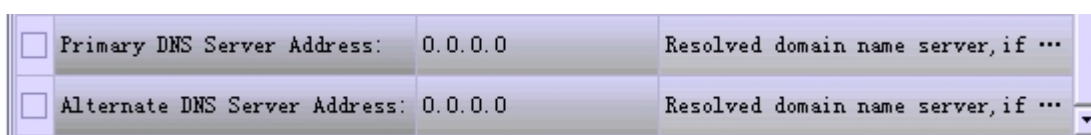


Picture 6-4

2) Double click "value" button of the "the number of center server " row, and select "1" after appearing " selected box". (Configure "1" as default parameter)

4, configuration of domain name server:

1) Double click "value" button of the "the address of main domain name server" row, after appearing "input box". Please fill the IP address of domain name server which is acquired from the service provider of domain name into the input box.



Picture 6-5

2) Double click "value" button of the "the address of backup domain name server" row, after appearing "input box". Please fill the IP address of domain name server which is acquired from the service provider of domain name into the input box.

As picture 6-5

**Notice:**

1. If the domain name server is not appointed, the default stands for that using the address of domain name server which is distributed by operators.
2. If the domain name server is appointed, Please ensure that the address of domain name server is valid, otherwise it cannot analysis the domain name of center server.
3. If there is not backup domain name server, please do not fill into and keep blank.
4. If the domain name server of 3160/6560 series products are not appointed , and configured for 0.0.0.0. And other series products are configured for blank.

### 6.3 Information configuration of server of multiple center fixed IP mode.

1, Please switch to "center server parameters" page . As picture 6-6

| Basic Conf                          | Center Server Conf  | Advance Conf  | Net Conf                            | Activate Conf | Prot |
|-------------------------------------|---------------------|---------------|-------------------------------------|---------------|------|
|                                     |                     |               |                                     |               |      |
| Name                                |                     | Value         | Description                         |               |      |
| <input type="checkbox"/>            | No. of server Link: | 02            | Main backup center is valid, whe... |               |      |
| <input checked="" type="checkbox"/> | Main Server IP:     | 119.97.194.18 | Valid when No. of server link i...  |               |      |
| <input type="checkbox"/>            | Main Server Port:   | 9009          | Valid when No. of server link i...  |               |      |
| <input checked="" type="checkbox"/> | Sub Server IP 1:    | 61.184.160.86 | Valid when No. of server link i...  |               |      |
| <input type="checkbox"/>            | Sub Server Port 1:  | 5003          | Valid when No. of server link i...  |               |      |
| <input checked="" type="checkbox"/> | Sub Server IP 2:    | 119.97.194.18 | Valid when No. of server link i...  |               |      |
| <input type="checkbox"/>            | Sub Server Port 2:  | 9009          | Valid when No. of server link i...  |               |      |
| <input checked="" type="checkbox"/> | Sub Server IP 3:    | 61.184.160.86 | Valid when No. of server link i...  |               |      |
| <input type="checkbox"/>            | Sub Server Port 3:  | 5003          | Valid when No. of server link i...  |               |      |
| <input checked="" type="checkbox"/> | Sub Server IP 4:    | 166.111.8.238 | Valid when No. of server link i...  |               |      |
| <input type="checkbox"/>            | Sub Server Port 4:  | 23            | Valid when No. of server link i...  |               |      |
| <input checked="" type="checkbox"/> | Sub Server IP 5:    | 166.111.8.238 | Valid when No. of server link i...  |               |      |

Picture 6-6

2. The number of configuration center server:

Double click "value" button of the "the number of center server " row, after appearing " selected box" .Please select corresponding number of center server

3. Configure corresponding center address and port according to the number of configuration server.

If there are two center, please configure the address and port of center (1) and center (2 ), and fill the IP address of the first center server into the "value" box of the " the center (1)address; and fill the port number of the first center server into the " value" box of the " the center(1) port; and fill the IP address of the second center server into the "value" box of the " the center(2) address; and fill the port of the second center server into the " value" box of the " the center(2)port.

If there are three center, please configure the address and port of center (1), (2), (3).

the configuration mode of two center for your reference

If there are four center, please configure the address and port of center (1), (2), (3), (4). the configuration mode of two center for your reference

If there are five center, please configure the address and port of center (1), (2), (3),(4),(5) the configuration mode of two center for your reference

If there are six center, please configure the address and port of center (1), (2), (3),(4),(5).(6) . The configuration mode of two center for your reference

If there are seven center, please configure the address and port of center (1), (2), (3),(4),(5).(6) ,(7). The configuration mode of two centers for your reference

If there are eight center, please configure the address and port of center ((1), (2), (3),(4),(5).(6) ,(7), (8). The configuration mode of two centers for your reference.

**Notice: The multiple center numbers will be varied with different DTU model, the detail numbers is below table:**

| Model  | Max center number |
|--------|-------------------|
| CMxx50 | 8                 |
| CMxx60 | 4                 |
| CMxx80 | 4                 |
| CMxx81 | 2                 |

Table 6.3 max center number

#### **6.4 Information configuration of server of multiple center domain name mode.**

1, Please switch to " center server parameters" page. As picture 6-7



| Basic Conf                          | Center Server Conf  | Advance Conf  | Net Conf                            | Activate Conf | Prot |
|-------------------------------------|---------------------|---------------|-------------------------------------|---------------|------|
| Name                                |                     | Value         | Description                         |               |      |
| <input type="checkbox"/>            | No. of server Link: | 02            | Main backup center is valid, whe... |               |      |
| <input checked="" type="checkbox"/> | Main Server IP:     | 119.97.194.18 | Valid when No. of server link i...  |               |      |
| <input type="checkbox"/>            | Main Server Port:   | 9009          | Valid when No. of server link i...  |               |      |
| <input checked="" type="checkbox"/> | Sub Server IP 1:    | 61.184.160.86 | Valid when No. of server link i...  |               |      |
| <input type="checkbox"/>            | Sub Server Port 1:  | 5003          | Valid when No. of server link i...  |               |      |
| <input checked="" type="checkbox"/> | Sub Server IP 2:    | 119.97.194.18 | Valid when No. of server link i...  |               |      |
| <input type="checkbox"/>            | Sub Server Port 2:  | 9009          | Valid when No. of server link i...  |               |      |
| <input checked="" type="checkbox"/> | Sub Server IP 3:    | 61.184.160.86 | Valid when No. of server link i...  |               |      |
| <input type="checkbox"/>            | Sub Server Port 3:  | 5003          | Valid when No. of server link i...  |               |      |
| <input checked="" type="checkbox"/> | Sub Server IP 4:    | 166.111.8.238 | Valid when No. of server link i...  |               |      |
| <input type="checkbox"/>            | Sub Server Port 4:  | 23            | Valid when No. of server link i...  |               |      |
| <input checked="" type="checkbox"/> | Sub Server IP 5:    | 166.111.8.238 | Valid when No. of server link i...  |               |      |

Picture 6-7

## 2. The number of configuration center server:

Double click " value"button of the " the number of center server " row, after appearing " selected box".please select corresponding number of center server

## 3. Configure related center address and port according to the number of configuration server.

If there are two center, please configure the address and port of center (1 )and center (2 ), and fill the first domain name which is acquired from service provider of domain name into the "value"box of the " center (1)address ; and fill the port number of center server ( own server) which receives data firstly into the "value" box of the " the center(1) port; and fill the port of the first center server into the " value" box in the " the center port (1); and fill the second domain name which is acquired from service provider of domain name into the "value"box of the " center(2) address ; and fill the port number of the center server (own server) which receives data secondly into the "value" box of the " the center(2) port.

If there are three center, please configure the address and port of center (1), (2), (3).



the configuration mode of two center for your reference

If there are four center, please configure the address and port of center (1), (2), (3), (4). the configuration mode of two center for your reference

If there are five center, please configure the address and port of center (1), (2), (3),(4),(5) the configuration mode of two center for your reference

If there are six center, please configure the address and port of center (1), (2), (3),(4),(5),(6) . the configuration mode of two center for your reference

If there are seven center, please configure the address and port of center (1), (2), (3),(4),(5),(6) ,(7). the configuration mode of two center for your reference

If there are eight center, please configure the address and port of center ((1), (2), (3),(4),(5),(6) ,(7), (8). the configuration mode of two center for your reference.

**Notice: The multiple center numbers will be varied with different DTU model, the detail numbers is below table:**

| Model  | Max center number |
|--------|-------------------|
| CMxx50 | 8                 |
| CMxx60 | 4                 |
| CMxx80 | 4                 |
| CMxx81 | 2                 |

Table 6.3 max center number

#### 4. Domain name server configuration:

1) Double click " value" button of the " main domain server address" row, after appearing " input box". please fill the IP address of domain name server which is provided by domain name providers into " input box" As picture 6-8

|                          |                               |         |                                       |
|--------------------------|-------------------------------|---------|---------------------------------------|
| <input type="checkbox"/> | Primary DNS Server Address:   | 0.0.0.0 | Resolved domain name server, if se... |
| <input type="checkbox"/> | Alternate DNS Server Address: | 0.0.0.0 | Resolved domain name server, if se... |

Picture 6-8

2) Double click " value" button in the " backup domain name server address ", after appearing " input box", please fill the IP address of domain name server which is provided by domain name providers into " input box". As picture 6-8

**Notice:**

1. If the domain name server is not appointed, the default stands for that using the address of domain name server which is distributed by operators.

2. If the domain name server is appointed, Please ensure that the address of domain name server is valid , otherwise it can not analysis the domain name of center server.

3. If there is not backup domain name server, please do not fill into and keep blank.

4. If the domain name server of 3160/6560 series products are not appointed , and configured for 0.0.0.0. And other series products are configured for blank.

## **6.5. Configuration of APN network**

The default network parameter make the DTU dial-up common network of each operators. Please see the default parameter of each network in < Appendix I Operator's network parameter information>.

If you want DTU to dial up APN network, the first thing is needed to is opening " APN business" of SIM card. After opening, the operator will provide corresponding network parameter information, and you can configure network parameter of DTU according to these network parameters.

**Notice:**

Normally, the APN parameter information of telecom is the users' name and password of APN; but the APN parameters of China mobile and Unicom is the access point of APN. The specific network information is subject to the information that is provided by operators.

Please switch to " network parameter". As picture 6-9

| Conf                                | Advance Conf            | Net Conf       | Activate Conf                              | Protocol Conf | Local Network |
|-------------------------------------|-------------------------|----------------|--|---------------|---------------|
|                                     |                         |                |  |               |               |
| Name                                |                         | Value          | Description                                |               |               |
| <input checked="" type="checkbox"/> | Wireless APN:           | cmnet          | APN access point should be modified whe... |               |               |
| <input type="checkbox"/>            | APN User Name:          |                | APN user name should be modified when A... |               |               |
| <input type="checkbox"/>            | APN Password:           |                | APN password should be modified when AP... |               |               |
| <input checked="" type="checkbox"/> | APN Center Dial Number: | *99***1#       | Recommend not to modify. The default va... |               |               |
| <input checked="" type="checkbox"/> | SMS Center Number:      | +8613800592500 | The mobile number of local SMS center, ... |               |               |

Picture 6-9

#### 1. Configure access appoints

Please fill corresponding access appoint into " value" box of " wireless network APN" according to the access appoint which is provided by operators.

#### 2. Configure the users' name of APN

Please fill corresponding users' name into " value" box of " the users' name of APN" according to the users' name which is provided by operators.

#### 3. Configure APN password:

Please fill corresponding password into " value" box of " APN password" according to the password which is provided by operators.

#### 4. Configure APN dial-up center number

Please fill corresponding number of APN dial-up center into " value" box of "APN dial-up center number" according to APN dial-up center number which is provided by operators.

### 6.6. Sign configuration of DTU

Current sign device has two parameter: the ID number and SIM number of device. In the default case, the ID number of equipment is regarded as the parameter of sign equipment in the TCP working pattern, and the SIM number is regarded as the parameter of sign equipment in the UDP working pattern. It is made according to the practical situation.

The configuration interface is as follow:

|                          |                |             |  |
|--------------------------|----------------|-------------|--|
| <input type="checkbox"/> | Device ID:     | 74736574    | Fixed 8 hex,user-defined to recognize differe... |
| <input type="checkbox"/> | Mobile Number: | 13912345678 | Mobile number,user-defined to recognize diffe... |

Picture 6-10

#### 6.6.1 Configure the ID number of device

1. Please switch to " configure parameter rapidly" page. As picture 6-10.
2. Please configure the corresponding ID number in the " value" of " ID number of equipment" row.

**Notice:**

The length of ID number of equipment is fixed to 8 bits.

#### 6.6.2 Configure the SIM number of equipment

1. Please switch to " configure parameter rapidly" page. As picture 6-10.
2. Please configure the corresponding SIM number in the " value" of " SIM number of equipment" row.

**Notice:**

The SIM number of equipment is not necessarily the SIM cellphone number, which is just regarded as sign equipment and configured according to practical situation. The length is fixed to 11 bits.

#### 6.7 Configure the parameters of working serial port

The parameters of serial port include baud rate, data bits, parity bits, stop bits and flow control. These parameters are serial hardware matching parameter when the DTU communicates with PC-PLC( connect to DTU), so please confirm the parameter of serial port of PC-PLC which is connected to DTU before configuring these parameters, then configure the parameter which coincides with the parameter of PC-PLC.

The configuration page is as follow:

|                          |             |      |                              |
|--------------------------|-------------|------|------------------------------|
| <input type="checkbox"/> | Baudrate:   | 9600 | The same as terminal device. |
| <input type="checkbox"/> | Parity Bit: | NONE | The same as terminal device. |
| <input type="checkbox"/> | Data Bit:   | 08   | The same as terminal device. |
| <input type="checkbox"/> | Stop Bit:   | 01   | The same as terminal device. |

Picture 6-11

### 6.7.1 Configure the baud rate of serial port

1. Please switch to " configure parameter rapidly" page. As picture 6-11
2. Double click the blank area of " value" of the " baud rate" column, then pop up selecting box, please select corresponding value in the " value".

The value are allowed to set:

3150/6550/8150/8250/8350 series:

300/600/1200/2400/4800/9600/14400/19200/38400/5600/57600/11520

0

3160/6560 series:

110/300/600/1200/2400/4800/9600/14400/19200/38400/5600/57600/1

15200

3180 series:

1200/2400/4800/9600/14400/19200/38400/57600/115200

### 6.7.2 Configure the parity bits of serial port

1. Please switch to " configure parameter rapidly" page. As picture 6-11
2. Double click the blank area of " value" of the " parity bits" column, then pop up selecting box, please select corresponding value in the " value".

The value are allowed to set:

3150/6550/8150/8250/8350 series: NONE/ODD/EVEN/SPACE/MARK



3160/6560 series: NONE/ODD/EVEN

3180 series: NONE/ODD/EVEN/SPACE/MARK

### **6.7.3 Configure the data bits of serial port**

1. Please switch to "configure parameter rapidly" page. As picture 6-11
2. Double click the blank area of "value" of the "data bits" column, then pop up selecting box, please select corresponding value in the "value".

The value are allowed to set:

3150/6550/8150/8250/8350 series: 5/6/7/8

3160/6560 series: 8

3180 series: 5/6/7/8

### **6.7.4. Configure the stop bits of serial port**

1. Please switch to "configure parameter rapidly" page. As picture 6-11
2. Double click the blank area of "value" of the "stop bits" column, then pop up selecting box, please select corresponding value in the "value".

The value are allowed to set:

3150/6550/8150/8250/8350 series: 1/2

3160/6560 series: 1

3180 series: 1/2

### **6.7.5 Configure the flow control of serial port**

1. Please switch to "configure parameter rapidly" page. As picture 6-11
2. Double click the blank area of "value" of the "flow control" column, then pop up selecting box, please select corresponding value in the "value".

The value are allowed to set:

3180 serial: NONE

3160/6560 series: NONE

3150/6550/8150/8250/8350 series: NONE/FLOWCTRL

✧ **Notice:**

FLOWCTRL :hardware flow control

## 6.8 Configure wakeup function

If you want to make DTU not dial automatically and connect server automatically in normal state, and the task of dial-up connection server will be conducted in some triggered condition. You need to configure this function.

| Wake-up type | name                  | Applicable models | Relevant parameter                     | Function description  |
|--------------|-----------------------|-------------------|--|---|
| NONE         | none                  | all               | none                                   | After supplying power ,DTU will dial automatically and connect server automatically, and be not in dormant state.   |
| SMS          | Short message wake-up | all               | short message awaken password and time | DTU dose not dial automatically and connect server automatically in normal state, and DTU will dial and connect server when it receive short message of which the content is the same with the content of configured and matched short message. DTU will be in dormant state again when server disconnect the connection of DTU or exceeding the configured time. |
| PHONE        | Telephone wake-up     | all               | Control number and wake-up time        | DTU dose not dial automatically and connect server automatically in normal state, and DTU will dial and connect server when it receive the call from the configured   |

|      |               |               |   |  |
|------|---------------|---------------|---|--|
|      |               |               |   | and matched number. DTU will be in dormant state again when server disconnect the connection of DTU or exceeding the configured time.  |
| DATA | Data wake-up  | all           | Serial port awoken data and dormant data of serial port   | DTU dose not dial automatically and connect server automatically in normal state, and DTU will dial and connect server when it receive the configured wake-up data from serial port. DTU will be in dormant state again when server disconnect the connection of DTU or exceeding the configured time or receiving configured dormant data from serial port. |
| MIX  | Mixed wake-up | all           | Short message awoken password, control number, serial port awoken data, dormant data of serial port, wake-up time | The pattern is a pattern that short message wake-up, telephone wake-up and data wake-up are used at the same time. DTU will dial and connect server when one of them is triggered.DTU will be in dormant state again when server disconnect the connection of DTU or exceeding the configured time or receiving configured dormant data from serial port.    |
| IO   | IO wake-up    | CM3180 series | IO wake-up level  | DTU dose not dial automatically and connect server automatically in normal state which the level of IO pin is opposite to appointed level , and DTU will   |



|  |  |  |  |   |
|--|--|--|--|---|
|  |  |  |  | dial and connect server when the level of IO pin become appointed level. DTU will be in dormant state again when the level of IO pin become opposite level. |
|--|--|--|--|---|

The interface of configuration is as follow,

|                          |                |        |   |
|--------------------------|----------------|--------|---|
| <input type="checkbox"/> | Series Rate:   | 115200 | When in work, DTU serial baud rate is set as the same as rate of... |
| <input type="checkbox"/> | Serial Pari... | NONE   | When in work, DTU serial parity bit is set as the same as rate o... |
| <input type="checkbox"/> | Serial Data... | 8      | When in work, DTU serial date bit is set as the same as rate of ... |
| <input type="checkbox"/> | Serial Stop... | 1      | When in work, DTU serial stop bit is set as the same as rate of ... |
| <input type="checkbox"/> | Serial Flow... | NONE   | When in work, DTU serial flow control is set as the same as rate... |

Picture 6-12

### 6.8.1 Configure short message wakeup

1. Please switch to "wakeup parameter" page. As picture 6-12
2. Double click blank area of " wakeup type" row, pop up selecting box, select "SMS" in the ejected "value".
3. Please fill the content of short message wakeup password in the " value" of " short message awaken password" row. DTU will dial automatically and connect center when it receive this short message, other short messages are invalid.
4. Please set time in the " value" of " wakeup time" row. ( only 3180 series have this parameter)

If setting 0, DTU will not stop working until closing the periodic line.

If setting >0, DTU will be in dormant state after completing appointed working time.

#### Notice:

If configure " short message wakeup password" as blank, it will be awakened by any short message. We suggest you not configure " short message wakeup password" as blank in order to keep safe.

### 6.8.2 Configure telephone wakeup

1. Please switch to "wakeup parameter" page. As picture 6-12
2. Please select "phone" in the "value" of "wakeup type" row.
3. Please fill the cellphone number which control wakeup into the "value" of "control number" row. This cellphone number is able to awaken DTU to dial and connect center by dialing, and other numbers are invalid.

4. Please set time in the "value" of "wakeup time" row. ( only 3180 series have this parameter)

If setting 0, DTU will not stop working until closing the periodic line.

If setting >0, DTU will be in dormant state after completing appointed working time.

**Notice:**

If configure "control number" as blank, it will be awakened by any number. We suggest you not configure "control number" as blank in order to keep safe.

### 6.8.3 Configure data wakeup

1. Please switch to "wakeup parameter" page. As picture 6-12
2. Please select "data" in the "value" of "wakeup type" row.
3. Please fill the wakeup data into the "value" of "serial port awaken data" row. DTU will dial and connect center after receiving data from serial port, and other data are invalid.
4. Please fill dormant data into the "value" of "dormant data of serial port". DTU will be in dormant state again after receiving the data from serial port, and other data will be sent to center server.
5. Please set time in the "value" of "wakeup time" row. ( only 3180 series have this parameter)

If setting 0, DTU will not stop working until closing the periodic line.

If setting >0, DTU will be in dormant state after completing appointed working time.

**Notice:**

1. Do not configure "serial port awaken data" as blank, otherwise, it will be not awakened.
2. If you configure "serial port awaken data" as blank, the data of serial port will not make DTU enter into dormant state, so needing other condition to conduct it.
3. The configuration method of "serial port awaken data" or "dormant data of serial port" is as follow,

1) Only set visible character:

- a. Set visible character directly. For example, setting character string "abc", inputting directly "abc" into "input box".
- b. Set hexadecimal ASCII value of which beginning is 0x, for example, set character string "abc", and the corresponding hexadecimal ASCII value is 0x61 0x62 0x63. And input "0x610x620x63" into the "input box".

2) Only set invisible character

Set hexadecimal ASCII value of which beginning is 0x. For example, set TAB character, and the corresponding hexadecimal ASCII value is 0x09, and input "0x09" into "input box".

3) Set the mix of visible and invisible character:

- a. Set the mix of visible character and invisible character which is hexadecimal ASCII value of which beginning is 0x.. For example, setting mix of character string "abc" and "TAB", input "abc0x09" into "input box".
- b. Set the mix of visible and invisible character, which is hexadecimal ASCII value of which beginning is 0x. For example, setting mix of character string "abc" and "TAB", input "0x610x620x630x09" into "input box".

#### 6.8.4 Configure Mix wakeup

1. Please switch to "wakeup parameter" page. As picture 6-12
2. Please select "MIX" in the "value" of "wakeup type" row.
3. Please fill the content of short message wakeup into the "value" of "short message"

awaken password" row. DTU will dial automatically and connect center when DTU receive the content of short message, and other short message are invalid.

4. Please fill the cellphone number which control wakeup into the "value" of "control number" row. This cellphone number is able to awaken DTU to dial and connect center by dialing, and other numbers are invalid.

5. Please fill wakeup data into the "value" of "wakeup data of serial port". DTU will dial automatically and connect center after receiving the data from serial port, and other data are invalid.

6. Please fill dormant data into the "value" of "dormant data of serial port". DTU will be in dormant state again after receiving the data from serial port, and other data will be sent to center server.

7. Please set time in the "value" of "wakeup time" row. ( only 3180 series have this parameter)

If setting 0, DTU will not stop working until closing the periodic line.

If setting >0, DTU will be in dormant state after completing appointed working time.

**Notice:**

**Please see announcements of the above three wakeup pattern**

### **6.8.5 Configure IO wakeup ( only 3180 series products)**

1. Please switch to "wakeup parameter" page. As picture 6-12

2. Please select "IO" in the "value" of "wakeup type" row.

3. Please select autodial and IO level when connecting center in the "value" of "IO wake-up level" row. DTU only dial automatically and connect center in the level which you configure, otherwise, the DTU will be in dormant state.

Select "0": If the I/O pin is in low level "0", and DTU dial normally and connect data center automatically. If turning I/O pin to high level "1", then DTU will be in dormant state.



Select"1":If the I/O pin is in high level "1", and DTU dial normally and connect data center automatically. If turning I/O pin to low level "0", then DTU will be in dormant state.

## **6.9 Configure communication protocol**

In the default state, DTU build periodic line and transfer data according to the protocol of xiamen caimore communication technology co.,Ltd.( the standard of protocol, please see the instruction of TCP or UDP communication protocol).If the software of server is compatible with communication protocol of our company , and the following parameter keep default, otherwise, needing to modify corresponding parameter.

How to determine the server software on the server has been compatible with the company communication protocols:

(1) whether to invoke our DTU dynamic library for development. If so, the communication protocol is compatible with the company.

(2) whether the TCP protocol in accordance with the attached documents or UDP protocol document developed server software. If so, the communication protocol is compatible with the company.

Protocol (3) whether the use of "configuration software" includes the company's drive, the general name for these drivers is named after the company. If so, the communication protocol is compatible with the company.

(4) does not meet the above three, it might not support the company communication protocols, such as can not judge, you can contact the company's technical staff for assistance.

The configuration interface of communication protocol is as follow:

available for CMXX60, CMXX50

| Center Server Conf                                   |        |  | Advance Conf | Net Conf | Activate Conf | Protocol Conf |
|--|--------|--|--------------|----------|---------------|---------------|
| Name   | Value  | Description                            |              |          |               |               |
| <input type="checkbox"/> Conversion:                 | NO     | TCP will escape the specific charac... |              |          |               |               |
| <input type="checkbox"/> Custom Registration Packet: | <NONE> | RMU will send out the registration ... |              |          |               |               |
| <input type="checkbox"/> Custom Heartbeat Packets:   | <NONE> | Heartbeat packets will be sent to d... |              |          |               |               |

Available for CMXX80:

| Basic Conf  | Center Server Conf | Advance Conf                          | Net Conf | Activate Conf | Protocol Conf |
|---|--------------------|---------------------------------------|----------|---------------|---------------|
| Name  | Value              | Description                           |          |               |               |
| <input type="checkbox"/> Conversion:                                |                    | TCP will escape the specific char...  |          |               |               |
| <input type="checkbox"/> Custom Registration Packet:                |                    | DTU will send out the registrati...   |          |               |               |
| <input type="checkbox"/> Custom Heartbeat Packets:                  |                    | Heartbeat packets will be sent to...  |          |               |               |
| <input type="checkbox"/> User-defined registration packet response: |                    | Specified registered responded pac... |          |               |               |
| <input type="checkbox"/> User-defined heartbeat packet response:    |                    | Specified responded heartbeat pac...  |          |               |               |

Available for CMXX81

| Basic Conf  | Center Server Conf | Advance Conf                          | Net Conf | Activate Conf | Protocol Conf |
|---|--------------------|---------------------------------------|----------|---------------|---------------|
| Name  | Value              | Description                           |          |               |               |
| <input type="checkbox"/> Custom Registration Packet:                |                    | DTU will send out the registrati...   |          |               |               |
| <input type="checkbox"/> Custom Heartbeat Packets:                  |                    | Heartbeat packets will be sent to...  |          |               |               |
| <input type="checkbox"/> User-defined registration packet response: |                    | Specified registered responded pac... |          |               |               |
| <input type="checkbox"/> User-defined heartbeat packet response:    |                    | Specified responded heartbeat pac...  |          |               |               |

### 6.9.1 Configuration parameters reference table of all transmission

| Transmission                 | xx50   | xx60  | xx80   | xx81   |
|------------------------------|--|---|--|--|
| TCP Transparent transmission | <input checked="" type="checkbox"/> Work Pattern: TCP    | <input checked="" type="checkbox"/> Work Pattern: TCP           | <input checked="" type="checkbox"/> Work Pattern: TCP                              | <input checked="" type="checkbox"/> Center Server Transfer Mode: 1 |
|                              | <input checked="" type="checkbox"/> Escape Character : 否 | <input checked="" type="checkbox"/> Heartbeat Packet Time: 60   | <input checked="" type="checkbox"/> Heartbeat Packet Time: 60                      | <input checked="" type="checkbox"/> Heartbeat Packet Time: 60      |
|                              |  | Server Heartbeat Package Time: 0                                | Server Heartbeat Package Time: 0   | Server Heartbeat Package Time: 0                                   |
|                              | <input checked="" type="checkbox"/> Work Pattern: TCP    |   | <input checked="" type="checkbox"/> Escape Character : 否                           |  |
|                              |  | <input checked="" type="checkbox"/> Escape Character : 否        | <input checked="" type="checkbox"/> Custom Registration Packet: <DEFAULT>          | Custom Registration Packet: <DEFAULT>                              |
|                              |  | <input checked="" type="checkbox"/> Custom Registration Packet: | <input checked="" type="checkbox"/> Custom Heartbeat Packets: <DEFAULT>            | Custom Heartbeat Packets: <DEFAULT>                                |
|                              |  | <input checked="" type="checkbox"/> Custom Heartbeat Packets:   | <input checked="" type="checkbox"/> Custom Registration Response Packet: <DEFAULT> | Custom Registration Response Packet: <NONE>                        |
|                              |  |   | <input checked="" type="checkbox"/> Custom Heartbeat Response Packets: <DEFAULT>   | Custom Heartbeat Response Packets: <NONE>                          |

|   |  |  |   |   |
|---|--|--|---|---|
|   |  |  |   |   |
| <b>TCP Caimore's protocol</b>                               | <input checked="" type="checkbox"/> Work Pattern: TCP<br><input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br><input checked="" type="checkbox"/> Escape Character : 否<br><input checked="" type="checkbox"/> Custom Registration Packet: <DEFAULT><br><input checked="" type="checkbox"/> Custom Heartbeat Packets: <DEFAULT> | <input checked="" type="checkbox"/> Work Pattern: TCP<br><input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br>Server Heartbeat Package Time: 0<br><input checked="" type="checkbox"/> Escape Character : 否<br><input checked="" type="checkbox"/> Custom Registration Packet:<br><input checked="" type="checkbox"/> Custom Heartbeat Packets:               | <input checked="" type="checkbox"/> Work Pattern: TCP<br><input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br>Server Heartbeat Package Time: 0<br><input checked="" type="checkbox"/> Escape Character : 否<br><input checked="" type="checkbox"/> Custom Registration Packet:<br><input checked="" type="checkbox"/> Custom Heartbeat Packets:<br><input checked="" type="checkbox"/> Custom Registration Response Pac...<br><input checked="" type="checkbox"/> Custom Heartbeat Response Packets:                                 | <input checked="" type="checkbox"/> Center Server Transfer Mode: 0<br><input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br>Server Heartbeat Package Time: 0<br><input checked="" type="checkbox"/> Custom Registration Packet: <DEFAULT><br><input checked="" type="checkbox"/> Custom Heartbeat Packets: <DEFAULT><br><input checked="" type="checkbox"/> Custom Registration Response Packet: <NONE><br><input checked="" type="checkbox"/> Custom Heartbeat Response Packets: <NONE> |
| <b>UDP Transparent transmission</b>                         | <input checked="" type="checkbox"/> Work Pattern: TCP<br><input checked="" type="checkbox"/> Escape Character : 否  | <input checked="" type="checkbox"/> Work Pattern: TCP<br><input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br>Server Heartbeat Package Time: 0<br><input checked="" type="checkbox"/> Escape Character : 否<br><input checked="" type="checkbox"/> Custom Registration Packet: <NONE><br><input checked="" type="checkbox"/> Custom Heartbeat Packets: <NONE> | <input checked="" type="checkbox"/> Work Pattern: TCP<br><input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br>Server Heartbeat Package Time: 300<br><input checked="" type="checkbox"/> Escape Character : 否<br><input checked="" type="checkbox"/> Custom Registration Packet: <DEFAULT><br><input checked="" type="checkbox"/> Custom Heartbeat Packets: <DEFAULT><br><input checked="" type="checkbox"/> Custom Registration Response Pac...<br><input checked="" type="checkbox"/> Custom Heartbeat Response Packets: <DEFAULT> | <input checked="" type="checkbox"/> Center Server Transfer Mode: 3<br><input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br>Server Heartbeat Package Time: 0<br><input checked="" type="checkbox"/> Custom Registration Packet: <DEFAULT><br><input checked="" type="checkbox"/> Custom Heartbeat Packets: <DEFAULT><br><input checked="" type="checkbox"/> Custom Registration Response Packet: <NONE><br><input checked="" type="checkbox"/> Custom Heartbeat Response Packets: <NONE> |
| <b>UDP Caimore's protocol</b>                               | <input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br><input checked="" type="checkbox"/> Escape Character : 否<br><input checked="" type="checkbox"/> Custom Registration Packet: <DEFAULT><br><input checked="" type="checkbox"/> Custom Heartbeat Packets: <DEFAULT>  | <input checked="" type="checkbox"/> Work Pattern: TCP<br><input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br>Server Heartbeat Package Time: 0<br><input checked="" type="checkbox"/> Escape Character : 否<br><input checked="" type="checkbox"/> Custom Registration Packet:<br><input checked="" type="checkbox"/> Custom Heartbeat Packets:               | <input checked="" type="checkbox"/> 工作模式: UDP<br><input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br>Server Heartbeat Package Time: 0<br><input checked="" type="checkbox"/> Escape Character : 否<br><input checked="" type="checkbox"/> Custom Registration Packet: <DEFAULT><br><input checked="" type="checkbox"/> Custom Heartbeat Packets: <DEFAULT><br><input checked="" type="checkbox"/> Custom Registration Response Pac...<br><input checked="" type="checkbox"/> Custom Heartbeat Response Packets: <DEFAULT>           | <input checked="" type="checkbox"/> Center Server Transfer Mode: 2<br><input checked="" type="checkbox"/> Heartbeat Packet Time: 60<br>Server Heartbeat Package Time: 0<br><input checked="" type="checkbox"/> Custom Registration Packet: <DEFAULT><br><input checked="" type="checkbox"/> Custom Heartbeat Packets: <DEFAULT><br><input checked="" type="checkbox"/> Custom Registration Response Packet: <NONE><br><input checked="" type="checkbox"/> Custom Heartbeat Response Packets: <NONE> |
| <b>After restoring the factory or default transfer mode</b> | <b>TCP Caimore's protocol</b>  | <b>TCP Caimore's protocol</b>  | <b>TCP Caimore's protocol</b>   |   |

**Notice: following information is the introduction for some special transmission:**

(1) **XX60 series under TCP Transparent transmission**

**1<sup>st</sup> configure:**



Configured according to the table it will be sent every minute that contains the actual data retention 0xFE online package. Of course, if the user equipment has made next data in the case of every minute to DTU, DTU will not send the line to maintain the package, because the user data has played a role in maintaining online. Furthermore, DTU at the beginning of the data center is connected, or will send up a registration packet.

This is the recommended way.

## 2<sup>nd</sup> configure:

Of course, if users find the heartbeat packet transmitted 0xFE DTU can interfere with normal communication, you can use the following configuration:

|                          |                             |  |
|--------------------------|-----------------------------|--|
| <input type="checkbox"/> | COM Mode:                   | TCP  |
| <input type="checkbox"/> | DTU DIS Interface Interval: | 60   |
| <input type="checkbox"/> | Conversion:                 | NO TCP will escape the specific character, and UDP ...     |
| <input type="checkbox"/> | Custom Registration Packet: | <NONE> DTU will send out the registration packet to cen... |
| <input type="checkbox"/> | Custom Heartbeat Packets:   | <NONE> Heartbeat packets will be sent to data center in... |

However, this configuration has a very important point, is that the user equipment needs within every 300 seconds and to send data to the DTU, content is not limited. Otherwise DTU After 300 seconds, it will reconnect to the server to ensure the DTU is always online. When DTU reconnects with an interval of time (about 30-60 seconds), if the user equipment within this interval, send data to DTU, these data will be discarded. Therefore, in this configuration, a trial, it is preferable to ensure that the user equipment within fixed every 300 seconds, the data is transmitted at least once (in order to avoid errors, preferably within every 250 seconds on at least one occasion to DTU data) to DTU.

Another configuration is as follows:

## 3<sup>rd</sup> configure:

Born this way, but also to send a heartbeat packet DTU can interfere with normal communications users find an alternative, the parameters as follows:

|                          |                                |  |
|--------------------------|--------------------------------|--|
| <input type="checkbox"/> | COM Mode:                      | TCP  |
| <input type="checkbox"/> | DTU DIS Interface Interval:    | 60   |
| <input type="checkbox"/> | Server Heartbeat Package Time: | 300  |
| <input type="checkbox"/> | Conversion:                    | NO TCP will escape the specific character, and UDP ...     |
| <input type="checkbox"/> | Custom Registration Packet:    | <NONE> DTU will send out the registration packet to cen... |
| <input type="checkbox"/> | Custom Heartbeat Packets:      | <NONE> Heartbeat packets will be sent to data center in... |



In this mode, DTU to receive within every 300 seconds to the data from the data center, or DTU will be reached when 300 seconds, reconnect the server to ensure DTU permanent online. During reconnect to the server, there is a time interval (30-60 seconds), in this time sent to the user equipment DTU data will be discarded. Therefore, in this configuration, the data center will be the best guarantee within every 300 seconds of data transmitted at least once (in order to avoid errors and network delay, preferably within 250 seconds on at least one occasion to DTU data) to DTU.

**(2) Under TCP xx80 xx60 transparent manner and in a transparent manner under TCP also has the same mechanism. Also there are a few special configuration.**

**1<sup>st</sup> configure:**

The parameters reference tables, reference mechanism "xx60 at TCP transparent manner," a configuration.

**2<sup>nd</sup> configure:**

**Parameters as follows:**

|                          |                                |     |
|--------------------------|--------------------------------|-----|
| <input type="checkbox"/> | COM Mode:                      | TCP |
| <input type="checkbox"/> | DTU DIS Interface Interval:    | 60  |
| <input type="checkbox"/> | Server Heartbeat Package Time: | 300 |

|                                     |  |        |  |
|-------------------------------------|--|--------|--|
| <input checked="" type="checkbox"/> | Conversion:                                | NO     | TCP will escape the specific character, and UDP...   |
| <input checked="" type="checkbox"/> | Custom Registration Packet:                | <NONE> | DTU will send out the registration packet to ce...   |
| <input checked="" type="checkbox"/> | Custom Heartbeat Packets:                  | <NONE> | Heartbeat packets will be sent to data center i...   |
| <input checked="" type="checkbox"/> | User-defined registration packet response: | <NONE> | Specified registred responded packets' data , ena... |
| <input checked="" type="checkbox"/> | User-defined heartbeat packet response:    | <NONE> | Specified responded heartbeat packets' data , en...  |

Mechanism of reference "xx60 at TCP transparent manner" configuration II

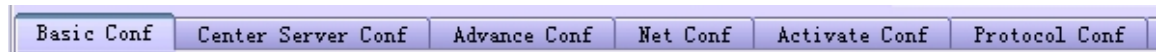
The following sections detail a few of these parameters and configuration instructions.

## 6.9.2 Configure registered packet

Registration package effect: When DTU connected to the server software (data center), the first to report data to the server software is the registration packet, registration

package which contains several important this message: Device ID number, mobile phone SIM card. After receiving the registration server software package, you can learn both through the registration packet information about the connection of up DTU.

1. Please switch to " protocol Conf" page.



2. Configure registered packet

1) Send default registered packet

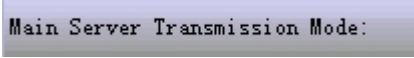
Please set "<DEFAULT>" or "blank" in the "value" of "custom registered packet"

2) Do not send the registered packet

Please set "<NONE>" in the "value" of "custom registered packet"

3) Set custom registered packet

Please set corresponding string in the "value" of "custom registered packet"

P.S: If xx81 device selection  is transparent transmission, custom registration package can not fill the custom settings, even if filled, but also to default registration packet sent.

✧ **Notice:**

**1) instruction of special characters:**

<DEFAULT>:Sending default heartbeat respond packet, can not be used with other characters.

<NONE>:Do not Send default heartbeat respond packet, can not be used with other characters.

<ID>: Send ID number, and can be used with other characters.

<PHONE>: Send SIM number, and can be used with other characters.

<IP>:Send Local IP, and can be used with other characters.

**2) Setting instruction of visible character**

A. Set visible character directly. For example, set character string "abc", and input

directly "abc" into the "input box".

2) Set hexadecimal ASCII value of which beginning is 0x, for example, set character string"abc", and the corresponding hexadecimal ASCII value is 0x61 0x62 0x63. And input "0x610x620x63"into the "input box".

3) the setting instruction of invisible character

Set hexadecimal ASCII value of which beginning is 0x. For example, set TAB character, and the corresponding hexadecimal ASCII value is 0x09, and input"0x09" into "input box".

Example:If the character string of heartbeat respond packet is "abc"、ID number、SIM number, IP address and enter character , we should set abc<ID><PHONE><IP>0x10 or 0x610x620x63<ID><PHONE><IP>0x10。

### 6.9.3 Configure heartbeat packet

1. Please switch to " protocol parameter" page. As picture 6-13

2. Configure heartbeat packet

1) Send default heartbeat packet

Please set "<DEFAULT>"or "blank" in the "value" of "custom heartbeat packet"

2) Do not send the heartbeat packet

Please set "<NONE>" in the "value" of "custom heartbeat packet"

3) Set custom heartbeat registered respond packet

Please set corresponding string in the "value" of "custom heartbeat packet"

#### ✧ Notice:

##### 1) instruction of special characters:

<DEFAULT>:Sending default heartbeat respond packet, can not be used with other characters.

<NONE>:Do not Send default heartbeat respond packet, can not be used with other characters.

<ID>: Send ID number, and can be used with other characters.

<PHONE>: Send SIM number, and can be used with other characters.

<IP>:Send Local IP, and can be used with other characters.

## 2) Setting instruction of visible character

A. Set visible character directly. For example, set character string "abc", and input directly "abc" into the "input box".

2) Set hexadecimal ASCII value of which beginning is 0x, for example, set character string "abc", and the corresponding hexadecimal ASCII value is 0x61 0x62 0x63. And input "0x610x620x63" into the "input box".

### 3) the setting instruction of invisible character

Set hexadecimal ASCII value of which beginning is 0x. For example, set TAB character, and the corresponding hexadecimal ASCII value is 0x09, and input "0x09" into "input box".

Case: If the character string of heartbeat respond packet is "abc", ID number, SIM number, IP address and enter character, we should set abc<ID><PHONE><IP>0x10 or 0x610x620x63<ID><PHONE><IP>0x10.

## 6.9.4 Configure registered respond packet ( only 3180 series products)

This parameter is exist in UDP operating mode.

1. Please switch to "protocol parameter" page. As picture 6-13

2. Configure registered respond packet

1) Receive default registered respond packet

Please set "<DEFAULT>" or "blank" in the "value" of "custom registered respond packet"

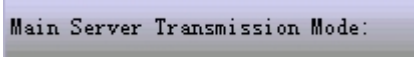
2) Do not receive the registered respond packet

Please set "<NONE>" in the "value" of "custom registered respond packet"

3) Set custom heartbeat registered respond packet

Please set corresponding string in the "value" of "custom registered respond

packet"

P.S: If xx81 device selection  is transparent transmission, custom registration package can not fill the custom settings, even if filled, but also to default registration packet sent.

✧ **Notice:**

**1) instruction of special characters:**

<DEFAULT>:Sending default heartbeat respond packet, can not be used with other characters.

<NONE>:Do not Send default heartbeat respond packet, can not be used with other characters.

<ID>: Send ID number, and can be used with other characters.

<PHONE>: Send SIM number, and can be used with other characters.

<IP>:Send Local IP, and can be used with other characters.

**2) Setting instruction of visible character**

A. Set visible character directly. For example, set character string "abc", and input directly "abc" into the "input box".

2) Set hexadecimal ASCII value of which beginning is 0x, for example, set character string"abc", and the corresponding hexadecimal ASCII value is 0x61 0x62 0x63. And input "0x610x620x63"into the "input box".

**3) the setting instruction of invisible character**

Set hexadecimal ASCII value of which beginning is 0x. For example, set TAB character, and the corresponding hexadecimal ASCII value is 0x09, and input"0x09" into "input box".

Case:If the character string of heartbeat respond packet is "abc"、ID number、SIM number, IP address and enter character , we should set abc<ID><PHONE><IP>0x10 or 0x610x620x63<ID><PHONE><IP>0x10。

### 6.9.5 Configure heartbeat respond packet (only 3180 series products)

This parameter is exist in UDP operating mode.

1. Please switch to "protocol parameter" page. As picture 6-13

2. configure heartbeat respond packet

1) Receive default heartbeat respond packet

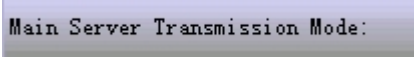
Please set "<DEFAULT>" or "blank" in the "value" of "custom heartbeat respond packet"

2) Do not receive the heartbeat packet

Please set "<NONE>" in the "value" of "custom heartbeat respond packet"

3) Set custom heartbeat respond packet

Please set corresponding string in the "value" of "custom heartbeat respond packet"

P.S: If xx81 device selection  is transparent transmission, custom registration package can not fill the custom settings, even if filled, but also to default registration packet sent.

#### Notice:

##### 1) instruction of special characters:

<DEFAULT>: Sending default heartbeat respond packet, can not be used with other characters.

<NONE>: Do not Send default heartbeat respond packet, can not be used with other characters.

<ID>: Send ID number, and can be used with other characters.

<PHONE>: Send SIM number, and can be used with other characters.

<IP>: Send Local IP, and can be used with other characters.

##### 2) Setting instruction of visible character

a. Set visible character directly. For example, set character string "abc", and input



directly "abc" into the "input box".

b. Set hexadecimal ASCII value of which beginning is 0x, for example, set character string"abc", and the corresponding hexadecimal ASCII value is 0x61 0x62 0x63. And input "0x610x620x63"into the "input box".

3) the setting instruction of invisible character

Set hexadecimal ASCII value of which beginning is 0x. For example, set TAB character, and the corresponding hexadecimal ASCII value is 0x09, and input"0x09" into "input box".

Case:If the character string of heartbeat respond packet is "abc"、ID number、SIM number, IP address and enter character , we should set abc<ID><PHONE><IP>0x10 or 0x610x620x63<ID><PHONE><IP>0x10。

## 6.10 Configure operating mode

There are three operating mode of DTU , such as TRNS,TCP and UDP.

TCP operating mode is the most common mode used by DTU, which is the process that DTU encapsulates the data received from serial port into TCP data packet and sends to center server . When TCP protocol sends data, the sender send orderly data, and after receiving data packet, the receiver need to return a confirmation message to make the sending success . If the senders do not receive the confirmation message within a certain time, and the senders will regard this as failure of receiving and send data automatically once again. So the biggest advantage of TCP operating mode is orderliness and reliability.

UDP working mode is the process DTU encapsulate the data received from serial port into UDP data packet and send to center server . UDP provides unreliable and connectionless service.UDP mode is suitable for sending data frequently, and it dose not require more reliability of sending data.

TRNS operating mode is MODEM operating mode, refers to that the data of serial port operate the wireless module directly, exactly, DTU is used as common MODEM. This mode is suitable for equipment ( like PC machine) with TCP/IP protocol, and realize

wireless network access or short message function of GPRS/CDMA/TD-SCDMA/EVDO/WCDMA through serial port.( please see the detailed instruction in<7. Dial-up networking>

| Basic Conf  | Center Server Conf | Advance Conf  | Net Conf | Activate Conf | Protocol Conf | Local Network |
|---|--------------------|---|----------|---------------|---------------|---------------|
| Name  | Value              | Description   |          |               |               |               |
| <input checked="" type="checkbox"/> COM Mode:                           | TCP                | TCP=TCP mode;UDP=UDP mode;TRNS= MODEM mode.                   |          |               |               |               |
| <input checked="" type="checkbox"/> Debug Level:                        | 01                 | 0=No info; 1=partial info; 2= the entire info.                |          |               |               |               |
| <input checked="" type="checkbox"/> Byte Packer Interval:               | 200                | Unit:m. After the byte from DTU's serial port is timeout, ... |          |               |               |               |
| <input checked="" type="checkbox"/> Reconnection Attempts:              | 20                 | The frequency of reconnection attempts, which can not be s... |          |               |               |               |
| <input checked="" type="checkbox"/> Re-connected Task Interval:         | 0                  | Unit:s, the interval time of reconnecting to the central. ... |          |               |               |               |
| <input checked="" type="checkbox"/> DTU DIS Interface Interval:         | 60                 | Unit:s, the heartbeat packets will be sent out at a inverv... |          |               |               |               |
| <input checked="" type="checkbox"/> Server Heartbeat Package Time:      | 300                | Unit:s, the longest interval time of receving server data...  |          |               |               |               |
| <input checked="" type="checkbox"/> TCP Data Unit Size:                 | 1450               | Unit:byte, the max number of bytes transmitted from DTU. V... |          |               |               |               |
| <input checked="" type="checkbox"/> Multi-center Off Reconnection Time: | 90                 | Unit:s, the interval time of reconnecting to the other cen... |          |               |               |               |
| <input checked="" type="checkbox"/> Automatic Restart Time:             | 1440               | Unit:m, DTU will be automatic restart when it reaches the ... |          |               |               |               |

Picture 6-14

NOTE: xx81 series in the operating mode and other types of different, xx81 only two, one is NET transmission mode, the transmission mode and the other is TRNS.

1. Please switch to "Advance Conf"page. As picture 6-14
2. Please select corresponding working mode in the "value" of " working mode" row.  
The default is TCP mode.

## 6.11 Configure the sending interval time of heartbeat packet

Heartbeat packet is a method to keep DTU online and reduce network breaking and judge the server receiving software whether online.

Normally, we suggest users adopt default parameter, rather than modify it.  
Configuration steps:

1. Please switch to " Advance Conf " page. As picture6-14
- 2.Please set corresponding value in the " value" of " heartbeat packet time" row.

**Notice:**

1. The time of heartbeat packet should not set too long or not send.



2. If the server receiving software judges whether online by the interval time of receiving data, then you need to modify the interval time on the server receiving software.

3. When configured as a heartbeat packet <NONE>, when the significance of this value becomes DTU to reconnect every time this server.

## 6.12 Configure the re-connection of device

| Basic Conf                          | Center Server Conf                  | Advance Conf | Net Conf  | Activate Conf | Protocol Conf | Local Network |
|-------------------------------------|-------------------------------------|--------------|---|---------------|---------------|---------------|
| Name                                |                                     | Value        | Description   |               |               |               |
| <input checked="" type="checkbox"/> | COM Mode:                           | TCP          | TCP=TCP mode;UDP=UDP mode;TRNS= MODEM mode.                   |               |               |               |
| <input type="checkbox"/>            | Debug Level:                        | 01           | 0=No info; 1=partial info; 2= the entire info.                |               |               |               |
| <input type="checkbox"/>            | Byte Packer Interval:               | 200          | Unit:m. After the byte from DTU's serial port is timeout, ... |               |               |               |
| <input type="checkbox"/>            | Reconnection Attempts:              | 20           | The frequency of reconnection attempts, which can not be s... |               |               |               |
| <input type="checkbox"/>            | Re-connected Task Interval:         | 0            | Unit:s, the interval time of reconnecting to the central. ... |               |               |               |
| <input type="checkbox"/>            | DTU DIS Interface Interval:         | 60           | Unit:s, the heartbeat packets will be sent out at a inverv... |               |               |               |
| <input type="checkbox"/>            | Server Heartbeat Package Time:      | 300          | Unit:s, the longest interval time of receving server data...  |               |               |               |
| <input type="checkbox"/>            | TCP Data Unit Size:                 | 1450         | Unit:byte, the max number of bytes transmitted from DTU. V... |               |               |               |
| <input type="checkbox"/>            | Multi-center Off Reconnection Time: | 90           | Unit:s, the interval time of reconnecting to the other cen... |               |               |               |
| <input type="checkbox"/>            | Automatic Restart Time:             | 1440         | Unit:m, DTU will be automatic restart when it reaches the ... |               |               |               |

Picture 6-14

### 6.12.1 Configure re-connection number of equipment

The number of reconnection of equipment is the accumulated number that DTU tries to connect server when DTU off the server. DTU will hung up and dial number again when the accumulated number up to the specified number. We suggest you that the value should not be too big and you adopt default value, because it need a long time to connect to server when appearing the network anomalies.

Configuration steps:

1. Please switch to " Advance Conf" page. As picture 6-14
2. Please set corresponding value in the "value" of " reconnection number"

### **6.12.2 Configure reconnection interval time of equipment**

Reconnection Interval time of equipment is the interval time that DTU tried to connect the center server again when the center server fail to connect or interrupt connection in the situation that DTU does not connect any server.

Configuration steps:

1. Please switch to "Advance Conf" page. As picture 6-14
2. Please set corresponding value in the "value" of " reconnection interval time" row.

### **6.12.3 Configure reconnection interval time of multiple center**

Reconnection Interval time of Multiple center is the interval time DTU tried to connect center server again when other circuits fail to connect center server or interrupt connection in the situation that there are at lest one DTU connect to server .We suggest you use default value.

1. Please switch to "Advance Conf" page. As picture 6-14
2. Please set corresponding value in the "value" of " reconnection interval time of multiple center" row.

### **6.12.4 Configure the redialing times of equipment**

The number of equipment redialing is the cumulative number that DTU dial before the equipment reboot automatically, it should not be too big , so we suggest you use the default value.

Configuration steps :

1. Please switch e to "Advance Conf" page. As picture 6-14
2. Please set corresponding value in the "value" of " the number of redialing ".

## 6.13 Packaging configuration of data packet

| Basic Conf               | Center Server Conf                  | Advance Conf | Net Conf  | Activate Conf | Protocol Conf | Local Network |
|--------------------------|-------------------------------------|--------------|---|---------------|---------------|---------------|
| Name                     |                                     | Value        | Description   |               |               |               |
| <input type="checkbox"/> | COM Mode:                           | TCP          | TCP=TCP mode;UDP=UDP mode;TRNS= MODEM mode.                   |               |               |               |
| <input type="checkbox"/> | Debug Level:                        | 01           | 0=No info; 1=partial info; 2= the entire info.                |               |               |               |
| <input type="checkbox"/> | Byte Packer Interval:               | 200          | Unit:m. After the byte from DTU's serial port is timeout, ... |               |               |               |
| <input type="checkbox"/> | Reconnection Attempts:              | 20           | The frequency of reconnection attempts, which can not be s... |               |               |               |
| <input type="checkbox"/> | Re-connected Task Interval:         | 0            | Unit:s, the interval time of reconnecting to the central. ... |               |               |               |
| <input type="checkbox"/> | DTU DIS Interface Interval:         | 60           | Unit:s, the heartbeat packets will be sent out at a interv... |               |               |               |
| <input type="checkbox"/> | Server Heartbeat Package Time:      | 300          | Unit:s, the longest interval time of receving server data...  |               |               |               |
| <input type="checkbox"/> | TCP Data Unit Size:                 | 1450         | Unit:byte, the max number of bytes transmitted from DTU. V... |               |               |               |
| <input type="checkbox"/> | Multi-center Off Reconnection Time: | 90           | Unit:s, the interval time of reconnecting to the other cen... |               |               |               |
| <input type="checkbox"/> | Automatic Restart Time:             | 1440         | Unit:m, DTU will be automatic restart when it reaches the ... |               |               |               |

The rules of packaging of data packet are as follow:

- 1.When the length of data received from serial port exceeds the size of appointed buffer zone , DTU will packet the data, then send to center server.
2. DTU does not receive the data from serial port within the appointed time, DTU will packet the data that has been received before, then send to center server.

Configuration steps of rule 1:

- 1.Please switch to "Advance Conf"page. As picture 6-14
- 2.Please set the size of corresponding data packet in "value" of "TCP data unit size".

Configuration steps of rule 2:

- 1.Please switch to "Advance Conf"page. As picture 6-14
- 2.Please set the size of corresponding interval time in the "value"of "interval time of words between two sending ". the interval time is so small that will lead to one data packet divides to multiple data packet; and the interval time is so big that will lead to that two data packet or more data packet are encapsulated into one data packet, and send to center server one time .If you adopt the factory default of xiamen caimore communication technology co., Ltd, it will appear that one data packet divides to multiple data packet, or multiple data packets are encapsulated into one data packet. If you can not calculate or test the right time, please contact the technical person of xiamen caimore communication technology co.,Ltd.

### 6.13.1 Rapid sending configure (only xx80 series)

| Basic Conf                          | Center Server Conf                                       | Advance Conf | Net Conf                      | Activate Conf | Protocol Conf | IO Conf |
|-------------------------------------|--|--------------|-------------------------------|---------------|---------------|---------|
| Name                                |  | Value        | Description                   |               |               |         |
| <input checked="" type="checkbox"/> | Debug Level:   | 1            | 0=No info; 1=partial inf...   |               |               |         |
| <input checked="" type="checkbox"/> | Byte Packet Interval:                                    | 200          | Unit:m. After the byte f...   |               |               |         |
| <input checked="" type="checkbox"/> | Re-connected Interval:                                   | 0            | Unit:s, the interval tim...   |               |               |         |
| <input checked="" type="checkbox"/> | Multi-center Reconnection Intervals:                     | 30           | Unit:seconds. value rang...   |               |               |         |
| <input checked="" type="checkbox"/> | Reconnection Attempts:                                   | 3            | The frequency of reconne...   |               |               |         |
| <input checked="" type="checkbox"/> | Redial Times:  | 2            | Redial times when networ...   |               |               |         |
| <input checked="" type="checkbox"/> | DTU DIS Interface Interval:                              | 60           | Unit:s, the heartbeat pa...   |               |               |         |
| <input checked="" type="checkbox"/> | TCP Data Unit Size:                                      | 1440         | Unit:byte, the max numbe...   |               |               |         |
| <input checked="" type="checkbox"/> | Local Port:  | 0            | Value range (0~65535), Loc... |               |               |         |
| <input checked="" type="checkbox"/> | Server Heartbeat Package Time:                           | 0            | Unit:s, the longest int...    |               |               |         |
| <input checked="" type="checkbox"/> | Cache or not:  | YES          | When the device is not c...   |               |               |         |
| <input checked="" type="checkbox"/> | Automatic Restart Time:                                  | 1440         | Unit:m, DTU will be auto...   |               |               |         |
| <input checked="" type="checkbox"/> | Whether to configure the serial port when communication: | NO           | 0=NO, 1=YES.                  |               |               |         |
| <input checked="" type="checkbox"/> | Whether to transmit at full speed:                       | YES          | 0=NO, 1=YES.                  |               |               |         |

Picture 6-15

After enabling full speed transmission packets above rules will not work, DTU receipt of data sent by the device regardless of the number of bytes sent immediately, not cached packets. Setting steps are as follows:

1. Switch to the configuration page "Advance Conf" page. As picture 6-15
  2. select "1" value from "Value" column in row of "rapid send or not" .
- 0- not enabled. 1-Enable.

## 6.14 Configure debug level

| Basic Conf               | Center Server Conf                  | Advance Conf | Net Conf  | Activate Conf | Protocol Conf | Local N |
|--------------------------|-------------------------------------|--------------|---|---------------|---------------|---------|
| Name                     |                                     | Value        | Description   |               |               |         |
| <input type="checkbox"/> | COM Mode:                           | TCP          | TCP=TCP mode;UDP=UDP mode;TRNS= MODEM mode.         |               |               |         |
| <input type="checkbox"/> | Debug Level:                        | 01           | 0=No info; 1=partial info; 2= the entire info.      |               |               |         |
| <input type="checkbox"/> | Byte Packer Interval:               | 200          | Unit:m. After the byte from DTU's serial port is... |               |               |         |
| <input type="checkbox"/> | Reconnection Attempts:              | 20           | The frequency of reconnection attempts, which ca... |               |               |         |
| <input type="checkbox"/> | Re-connected Task Interval:         | 0            | Unit:s, the interval time of reconnecting to the... |               |               |         |
| <input type="checkbox"/> | DTU DIS Interface Interval:         | 60           | Unit:s, the heartbeat packets will be sent out a... |               |               |         |
| <input type="checkbox"/> | Server Heartbeat Package Time:      | 0            | Unit:s, the longgest interval time of receving s... |               |               |         |
| <input type="checkbox"/> | TCP Data Unit Size:                 | 1450         | Unit:byte, the max number of bytes transmitted f... |               |               |         |
| <input type="checkbox"/> | Multi-center Off Reconnection Time: | 90           | Unit:s, the interval time of reconnecting to the... |               |               |         |
| <input type="checkbox"/> | Automatic Restart Time:             | 1440         | Unit:m, DTU will be automatic restart when it re... |               |               |         |

Picture 6-16

Debug level is used to set the detailed level of debug information that DTU send by serial port.

Debug level 0: Do not send any debug information to serial port. We suggest you use this pattern when the equipment is in communication state.

Debug level 1: send part of debug information to serial port.( factory default)

Debug level 2: send all debug information to serial port.

### Notice:

Please configure the debug level for 0, if the PC-PLC is not able to filter the data.

We suggest you not configure the debug level for 2 when the DTU connect the PC-PLC.

### Configuration steps:

- 1.Please switch page to"Advance Conf"page. As picture 6-14
- 2.Please select the corresponding level in the " value" of "debug level"row.



## 6.15 Configure the local port ( only 3180 series products)

| Basic Conf                          | Center Server Conf                   | Advance Conf | Net Conf   | Activate Conf | Protocol Conf | IO Conf |
|-------------------------------------|--------------------------------------|--------------|--|---------------|---------------|---------|
| Name                                |                                      | Value        | Description  |               |               |         |
| <input checked="" type="checkbox"/> | COM Mode:                            | TCP          | TCP=TCP mode;UDP=UDP mode;TRNS= MODEM mode.                        |               |               |         |
| <input type="checkbox"/>            | Debug Level:                         | 1            | 0=No info; 1=partial info; 2= the entire in...                     |               |               |         |
| <input type="checkbox"/>            | Byte Packet Interval:                | 200          | Unit:m. After the byte from DTU's serial po...                     |               |               |         |
| <input type="checkbox"/>            | Re-connected Interval:               | 20           | Unit:s, the interval time of reconnecting t...                     |               |               |         |
| <input type="checkbox"/>            | Multi-center Reconnection Intervals: | 300          | Unit:seconds. value range (0 ~ 65535). Mult...                     |               |               |         |
| <input type="checkbox"/>            | Reconnection Attempts:               | 3            | The frequency of reconnection attempts, whi...                     |               |               |         |
| <input type="checkbox"/>            | Redial Times:                        | 2            | Redial times when network connection fails, Value range (0~65535). |               |               |         |
| <input type="checkbox"/>            | DTU DIS Interface Interval:          | 60           | Unit:s, the heartbeat packets will be sent ...                     |               |               |         |
| <input type="checkbox"/>            | TCP Data Unit Size:                  | 1440         | Unit:byte, the max number of bytes transmit...                     |               |               |         |
| <input type="checkbox"/>            | Local Port:                          | 0            | Value range (0~65535), Local port for data tr...                   |               |               |         |
| <input type="checkbox"/>            | Server Heartbeat Package Time:       | 0            | Unit:s, the longest interval time of recev...                      |               |               |         |
| <input type="checkbox"/>            | Cache or not:                        | NO           | When the device is not connected to the ser...                     |               |               |         |
| <input type="checkbox"/>            | Automatic Restart Time:              | 1440         | Unit:m, DTU will be automatic restart when ...                     |               |               |         |

Picture 6-17

The local port is the network port of DTU equipment which is being used to transfer data. It only can be configured in single center, and configured for "0" in multiple center.

### Notice:

Maybe the port information received by server is not from the local port which is setted due to the transition of operators . Normally, the parameter is valid in APN business.

Configuration steps arr as follow,

1. Please switch to "Advance Conf"page. As picture 6-17
2. Please set the corresponding value in " value" of " local port" row.

## 6.16 Configure remote short message configuration function( only 3180 series products)

Only appointed cellphones are allowed to configure with the function of short

message configuration equipment . If you do not configure the control cellphone, it will not realize the remote configuration of short message. At the same time, please confirm that the short message center number coincides with the short message center number of location of SIM card,and the message can not be sent with the wrong number of short message center (telecom network without short message center number).

Remote configuration mode of short message, please see <3.3 short message configuration(only 3180 series products)

### 6.16.1 Configure center number of short message

| Basic Conf                          | Center Server Conf      | Advance Conf   | Net Conf  | Activate Conf | Protocol Conf | IO Conf |
|-------------------------------------|-------------------------|----------------|---|---------------|---------------|---------|
| Name                                |                         | Value          | Description   |               |               |         |
| <input checked="" type="checkbox"/> | Wireless APN:           | cmnet          | APN access point should be modified when APN is used, otherw... |               |               |         |
| <input type="checkbox"/>            | APN User Name:          |                | APN user name should be modified when APN is used, otherwise... |               |               |         |
| <input type="checkbox"/>            | APN Password:           |                | APN password should be modified when APN is used, otherwise ... |               |               |         |
| <input checked="" type="checkbox"/> | APN Center Dial Number: | *99***1#       | Recommend not to modify. GPRS is the default for *99***1#       |               |               |         |
| <input checked="" type="checkbox"/> | SMS Center Number:      | +8613800592500 | The mobile number of local SMS center, e.g the mobile number... |               |               |         |

Picture 6-18

Steps are as follow:

- 1.Please switch to " Net Conf" page. As picture6-18
2. Please input the short message center number of location of SIM into the " value" of " short message enter number" row.( telecom network without short message center number)

## 6.16.2 Remote short message control cellphone

| Basic Conf               | Center Server Conf  | Advance Conf | Net Conf | Activate Conf                  | Protocol Conf | IO Conf |
|--------------------------|---|--------------|----------|--------------------------------|---------------|---------|
| Name                     |   | Value        |          | Description                    |               |         |
| <input type="checkbox"/> | Wake-up Mode:   |              |          | NONE= No wake-up; SMS=SMS...   |               |         |
| <input type="checkbox"/> | Control Number:   |              |          | Valid when in PHONE or MI...   |               |         |
| <input type="checkbox"/> | SMS Wake-up Password:                                       |              |          | Valid when in SMS or MIX ...   |               |         |
| <input type="checkbox"/> | Serial Wake Data:   |              |          | Valid when in DATA or MIX...   |               |         |
| <input type="checkbox"/> | Serial Sleep Data:  |              |          | Valid when in DATA or MIX...   |               |         |
| <input type="checkbox"/> | IO Wake-up Level:   |              |          | Valid when in IO wake-up, ...  |               |         |
| <input type="checkbox"/> | Wake-up Time:   |              |          | Valid when in IO wake-up, ...  |               |         |
| <input type="checkbox"/> | Enabled low power consumption or not, when in active mode : |              |          | 0=Disable, 1=Enable, data w... |               |         |

Picture 6-16

### Configuration steps:

- 1.Please switch to "Activate Conf" page. As picture 6-16
- 2.Please set corresponding cellphone number in the " value" of "control number"row.

## 6.17 Configure input and output of IO(only 3180V series)

IO output function refers to that controlling the level of IO pin by short message sent by appoint cellphone number, so as to control the PC-PLC which connect DTU.

IO input function refers to that sending the short message to appointed cellphone when the IO pin level of DTU changing and staying in appointed level.

There are 6 route IO input and output function in DTU equipment. Each IO pin only can be configured for one function at the same time, different IO pin can be configured for different function)



| Basic Conf  | Center Server Conf | Advance Conf  | Net Conf | Activate Conf | Protocol Conf | IO Conf | SMS Data Char |
|---|--------------------|---|----------|---------------|---------------|---------|---------------|
| Name  | Value              | Description   |          |               |               |         |               |
| <input type="checkbox"/> First IO function:           |                    | 0=Disable, 1=Input Alarm, 2=Output Control.                               |          |               |               |         |               |
| <input type="checkbox"/> Second IO function:          |                    | 0=Disable, 1=Input Alarm, 2=Output Control.                               |          |               |               |         |               |
| <input type="checkbox"/> Third IO function:           |                    | 0=Disable, 1=Input Alarm, 2=Output Control.                               |          |               |               |         |               |
| <input type="checkbox"/> Fourth IO function:          |                    | 0=Disable, 1=Input Alarm, 2=Output Control.                               |          |               |               |         |               |
| <input type="checkbox"/> Fifth IO function:           |                    | 0=Disable, 1=Input Alarm, 2=Output Control.                               |          |               |               |         |               |
| <input type="checkbox"/> Sixth IO function:           |                    | 0=Disable, 1=Input Alarm, 2=Output Control.                               |          |               |               |         |               |
| <input type="checkbox"/> First IO Level:              | HIGH               | 0=Low; 1=High. If IO function is '1' (alarm input), alarm level will b... |          |               |               |         |               |
| <input type="checkbox"/> Second IO Level:             | HIGH               | 0=Low; 1=High. If IO function is '1' (alarm input), alarm level will b... |          |               |               |         |               |
| <input type="checkbox"/> Third IO Level:              | HIGH               | 0=Low; 1=High. If IO function is '1' (alarm input), alarm level will b... |          |               |               |         |               |
| <input type="checkbox"/> Fourth IO Level:             | HIGH               | 0=Low; 1=High. If IO function is '1' (alarm input), alarm level will b... |          |               |               |         |               |
| <input type="checkbox"/> Fifth IO Level:              | HIGH               | 0=Low; 1=High. If IO function is '1' (alarm input), alarm level will b... |          |               |               |         |               |
| <input type="checkbox"/> Sixth IO Level:              | HIGH               | 0=Low; 1=High. If IO function is '1' (alarm input), alarm level will b... |          |               |               |         |               |
| <input type="checkbox"/> First IO Control Phone No.:  |                    | up to 5 phone number, seperated by ','.                                   |          |               |               |         |               |
| <input type="checkbox"/> Second IO Control Phone No.: |                    | up to 5 phone number, seperated by ','.                                   |          |               |               |         |               |
| <input type="checkbox"/> Third IO Control Phone No.:  |                    | up to 5 phone number, seperated by ','.                                   |          |               |               |         |               |
| <input type="checkbox"/> Fourth IO Control Phone No.: |                    | up to 5 phone number, seperated by ','.                                   |          |               |               |         |               |
| <input type="checkbox"/> Fifth IO Control Phone No.:  |                    | up to 5 phone number, seperated by ','.                                   |          |               |               |         |               |
| <input type="checkbox"/> Sixth IO Control Phone No.:  |                    | up to 5 phone number, seperated by ','.                                   |          |               |               |         |               |
| <input type="checkbox"/> First IO Alarm Content:      |                    | Max length 63 bytes, SMS context will be sent out when there is any a...  |          |               |               |         |               |
| <input type="checkbox"/> Second IO Alarm Content:     |                    | Max length 63 bytes, SMS context will be sent out when there is any a...  |          |               |               |         |               |
| <input type="checkbox"/> Third IO Alarm Content:      |                    | Max length 63 bytes, SMS context will be sent out when there is any a...  |          |               |               |         |               |
| <input type="checkbox"/> Fourth IO Alarm Content:     |                    | Max length 63 bytes, SMS context will be sent out when there is any a...  |          |               |               |         |               |
| <input type="checkbox"/> Fifth IO Alarm Content:      |                    | Max length 63 bytes, SMS context will be sent out when there is any a...  |          |               |               |         |               |
| <input type="checkbox"/> Sixth IO Alarm Content:      |                    | Max length 63 bytes, SMS context will be sent out when there is any a...  |          |               |               |         |               |

Picture 6-17

### 6.17.1 Configure center number of short message

Please confirm that the short message center number coincides with short message number of location in where SIM card locates , and the message can not be sent with the wrong short message center number (telecom network without short message center number). If they do not coincide, please configure short message center number.

Steps are as follow;

1.Please switch to " Net Conf"page. As picture 6-20

2.Please input the short message center number of location in where SIM card

locates into the " value" of " short message center number" column.( telecom network without short message center number).

| Basic Conf                          | Center Server Conf      | Advance Conf   | Net Conf  | Activate Conf | Protocol Conf | IO Conf |
|-------------------------------------|-------------------------|----------------|---|---------------|---------------|---------|
| Name                                |                         | Value          | Description   |               |               |         |
| <input checked="" type="checkbox"/> | Wireless APN:           | cmnet          | APN access point should be modified when APN is used, otherw... |               |               |         |
| <input type="checkbox"/>            | APN User Name:          |                | APN user name should be modified when APN is used, otherwise... |               |               |         |
| <input type="checkbox"/>            | APN Password:           |                | APN password should be modified when APN is used, otherwise ... |               |               |         |
| <input checked="" type="checkbox"/> | APN Center Dial Number: | *99***1#       | Recommend not to modify. GPRS is the default for *99***1#       |               |               |         |
| <input checked="" type="checkbox"/> | SMS Center Number:      | +8613800592500 | The mobile number of local SMS center, e.g the mobile number... |               |               |         |

Picture 6-20

### 6.17.2 IO output function configuration

If you want to configure the first route IO configuration for IO output function,( the configuration of other route IO is as follow) . The steps are as follow:

- 1.Please switch to " IO input and output parameter". As picture 6-17
- 2.Please select "2" in the "value" of " the first route IO function" row.
- 3.Please select "boot level" in the "value" of " the first route IO level" row. 0 stands for low level alarm; 1 stands for high level alarm.
- 4.Please fill the number which is allowed to control IO into the " value" of " the first route IO control telephone" row. The number of telephone number allowed to fill into is not exceed 5, each number is separated by ",".

#### ✧ Notice:

**The message format of control IO input is as follow:SMSCTRL:PINn:m** (n stands for the code (1~6)of IO feet, m stands for the control level ( 0 stands for low and 1 for high). one message can control several IO pin, and use";" to separate before command.

Example: If you want to configure the first route IO for low level when starting up , the cellphone number allowed to change level is 13812345678; and configure the

second route IO for high level in peacetime, the cellphone number allowed to change level is 13812345678 . At this time, you should configure the first route IO for high level and the second route IO for low level by the cellphone which number is 13812345678.

Configuration is as follow:

Configure the first route IO function for 2

Configure the first route IO level for 0

Configure the first route IO control telephone for 13812345678

configure the second route IO function for 2

Configure the second route IO level for 1

Configure the second route IO control telephone for 13812345678

Short message is as follow,

SMSCTRL:PIN1:1;PIN2:0

### 6.17.3 Configure IO input function

If you want to configure the first route IO configuration for IO input function,( the configuration of other route IO is as follow) . The steps are as follow:

- 1.Please switch configuration page to " IO input and output parameter". As picture 6-17
- 2.Please select "1" in the "value" of " the first route IO function" row.
- 3.Please select "alarm level" in the "value" of " the first route IO level" row. 0 stands for low level alarm; 1 stands for high level alarm.
- 4.Please fill the number of receiving short message into the " value" of " the first route IO control telephone" row. The number of telephone number allowed to fill into is not exceed 5, each number is separated by ";".Please fill the content of sending alarm message into the " value" of " the first route IO alarm content" column.

Example: If you want to configure the first route IO for high level, Please send message "ALARM1" to the phone number "13812345678".

Configuration is as follow:

Configure the first route IO function for 1

Configure the first route IO level for 1

Configure the first route IO control telephone for 13812345678

Configure the first rout IO alarm content for ALARM 1

#### 6.17.4 IO input/output function introduction

If the IO is set to enter the alarm, the IO level detection function is, if IO level is set to 0 the device detects a falling edge will alarm, if IO level is set to a device detects the rising edge will alarm . If the IO is set to output control, IO level is output level. If the corresponding pin high IO level is set to 1, the corresponding pin output low if the IO level is set to 0.

#### 6.18 SMS data channel configure

During the DTU communication equipment by a certain data format (text format) to send data DTU, DTU namely designated phone number to send data content, data content if sent more than 140 bytes, the excess can not receive SMS, will distributed data centers.

| Enter Server Conf   Advance Conf   Net Conf   Activate Conf   Protocol Conf   IO Conf   SMS Data Channel Conf |   |             |  |
|---|---|-------------|--|
|   | Name                                      | Value       | Description  |
| <input type="checkbox"/>  | Allow to send out SMS when communication: | YES         | Once the serial data with '***SEND SMS***:SMS conte... |
| <input type="checkbox"/>  | Enable Communication:                     | YES         | SMS communication will be enabled or not. 0=Disable... |
| <input type="checkbox"/>  | SMS Sending Success Tips:                 | OK          | The tips for SMS sent out successfully.                |
| <input type="checkbox"/>  | SMS Sending Failure Tips:                 | FAIL        | The tips for SMS failed to send out.                   |
| <input type="checkbox"/>  | Data Recieved Mobile Phone:               | 13812345678 | The mobile phone to receive data.                      |

#### ✧ Notice:

To use the SMS Data Channel Conf, SMS format: "\*\*\*\* SEND SMS \*\*\*: message content," and \*\*\* SEND SMS \*\*\*: front can not have any content, and content of the message can not be empty, so the most good around 1-second intervals to send.

✧ Example: device sends data to give DTU \*\*\* SEND SMS \*\*\*: hello, requires enabling SMS data channel. Proceed as follows:

1. Open the configuration tool, enter the configuration state, the switch configuration interface to SMS data channel.
- 2, whether to allow sending text messages when setting communication and communication is enabled is 1.
- 3, sending success tips and failed to send the user can define their own tips.
- 4, send and receive data on the phone number for a user to set up according to their needs, set

the phone number to be in the normal state can be used.

5, DTU into the communication state, device input **\*\*\* SEND SMS \*\*\*: hello, send, set the phone number to receive a hello message content. .**

### 6.18.1 SMS data channel functional configuration

| Enter Server Conf   Advance Conf   Net Conf   Activate Conf   Protocol Conf   IO Conf   SMS Data Channel Conf |   |             |  |
|---|---|-------------|--|
|   | Name                                      | Value       | Description  |
| <input type="checkbox"/>  | Allow to send out SMS when communication: | YES         | Once the serial data with '***SEND SMS***:SMS conte... |
| <input type="checkbox"/>  | Enable Communication:                     | YES         | SMS communication will be enabled or not. 0=Disable... |
| <input type="checkbox"/>  | SMS Sending Success Tips:                 | OK          | The tips for SMS sent out successfully.                |
| <input type="checkbox"/>  | SMS Sending Failure Tips:                 | FAIL        | The tips for SMS failed to send out.                   |
| <input type="checkbox"/>  | Data Recieved Mobile Phone:               | 13812345678 | The mobile phone to receive data.                      |

Picture 6-22

"Whether to allow communication to send SMS" function of this option is: when the device enters the communication state, the device according to certain data format, the user can set to send an SMS (if this feature is turned on). Otherwise, the normal communication. Proceed as follows:

1. Switch to the configuration page "SMS Data Channel Conf" page. SMS data channel as shown in picture 6-22
2. In the "communication is allowed to send text messages" row "Value" column, type 0-1.  
0- allowed to send text messages. 1- allowed to send SMS messages.

### 6.18.2 Enable channel configure

| Enter Server Conf   Advance Conf   Net Conf   Activate Conf   Protocol Conf   IO Conf   SMS Data Channel Conf |   |             |  |
|---|---|-------------|--|
|   | Name                                      | Value       | Description  |
| <input type="checkbox"/>  | Allow to send out SMS when communication: | YES         | Once the serial data with '***SEND SMS***:SMS conte... |
| <input type="checkbox"/>  | Enable Communication:                     | YES         | SMS communication will be enabled or not. 0=Disable... |
| <input type="checkbox"/>  | SMS Sending Success Tips:                 | OK          | The tips for SMS sent out successfully.                |
| <input type="checkbox"/>  | SMS Sending Failure Tips:                 | FAIL        | The tips for SMS failed to send out.                   |
| <input type="checkbox"/>  | Data Recieved Mobile Phone:               | 13812345678 | The mobile phone to receive data.                      |

"Channel is enabled" feature of this option is: when the device is disconnected, which are not normal, and the normal operation of equipment, customers lower machine also sends information to the device, these messages will be sent via short interest form.

Proceed as follows:

1. Switch to the configuration page "SMS Data Channel Conf" page. 6-23
2. "channel is enabled" row "value" column, type 0-1.  
0- not enabled. 1-Enable.

NOTE: It is recommended not to open this feature.

### 6.18.3 Send success prompted to configure



| Parameters                                      | Activate Parameters | Protocol Parameters                                    | IO Parameters | SMS Data Channel |
|---|---------------------|--|---------------|------------------|
| Name  | Value               | Description  |               |                  |
| <input type="checkbox"/> Whether Allow Send ... | 是                   | Whether to allow text when communication. 0 = no, 1... |               |                  |
| <input type="checkbox"/> Channel Enabled:       | 是                   | Whether to enable SMS channel. 0 = no, 1 = yes.        |               |                  |
| <input type="checkbox"/> Send Success Hips:     | OK                  | Short data send success tips.                          |               |                  |
| <input type="checkbox"/> Send Failure Hint:     | FAIL                | Short data sending failure message.                    |               |                  |
| <input type="checkbox"/> Send And Receive Da... | 15750719575         | SMS channel to send data receiving phone number.       |               |                  |

Picture 6-24

"Send Success Tips" feature of this option is: When a device receives a command to send text messages, the device sends an SMS, send text messages when successful, the zone will be prompted to send the client data set success message.

Proceed as follows:

1. Switch to the configuration page "SMS Data Channel Conf" page. SMS data channel as shown in Figure 6-24
2. In the "Send Success Tips" row "Value" column setting.

#### 6.18.4 Failed to send instructions to configure

| Inter Server Conf  | Advance Conf | Net Conf   | Activate Conf | Protocol Conf | IO Conf | SMS Data Channel Conf |
|--|--------------|--|---------------|---------------|---------|-----------------------|
| Name   | Value        | Description  |               |               |         |                       |
| <input type="checkbox"/> Allow to send out SMS when communication: | YES          | Once the serial data with '***SEND SMS***:SMS conte... |               |               |         |                       |
| <input type="checkbox"/> Enable Communication:                     | YES          | SMS communication will be enabled or not. 0=Disable... |               |               |         |                       |
| <input type="checkbox"/> SMS Sending Success Tips:                 | OK           | The tips for SMS sent out successfully.                |               |               |         |                       |
| <input type="checkbox"/> SMS Sending Failure Tips:                 | FAIL         | The tips for SMS failed to send out.                   |               |               |         |                       |
| <input type="checkbox"/> Data Recieved Mobile Phone:               | 13812345678  | The mobile phone to receive data.                      |               |               |         |                       |

Picture 6-25

"Failed to send the prompt" function of this option is: When a device receives a command to send text messages, the device sends an SMS when sending text messages fails, the data area will be prompted to send the customer to set the success message.

Proceed as follows:

1. Switch to the configuration page "SMS Data Channel Conf" page. As shown in Figure 6-25
2. Set in the "failed to send the prompt" line "Value" column.

#### 6.18.5 Send and receive data on the phone number configuration

| Enter Server Conf   Advance Conf   Net Conf   Activate Conf   Protocol Conf   IO Conf   SMS Data Channel Conf |   |             |  |
|---|---|-------------|--|
|   | Name                                      | Value       | Description  |
| <input type="checkbox"/>  | Allow to send out SMS when communication: | YES         | Once the serial data with '***SEND SMS***:SMS conte... |
| <input type="checkbox"/>  | Enable Communication:                     | YES         | SMS communication will be enabled or not. 0=Disable... |
| <input type="checkbox"/>  | SMS Sending Success Tips:                 | OK          | The tips for SMS sent out successfully.                |
| <input type="checkbox"/>  | SMS Sending Failure Tips:                 | FAIL        | The tips for SMS failed to send out.                   |
| <input type="checkbox"/>  | Data Recieved Mobile Phone:               | 13812345678 | The mobile phone to receive data.                      |

Function "send and receive data on the phone number" for this option are: when the device receives a command to send text messages, number of the device will set this option to send SMS messages.

Proceed as follows:

1. Switch to the configuration page "SMS data channel" page. As shown in Figure 6-26
2. In the "send and receive data on the phone number" row "Value" column to set the phone number they want to send.

#### 6.19 Server mode parameter configuration

xx50 and xx60 series DTU can be used as a server can accept connections other DTU and DTU forwarded to charge up other data.

Note:

- 1, xx50 server model to use to re-program the server-side program; xx60 does not.
- 2, xx50 and xx60 series DTU as a server must use special cards.

##### 6.19.1 XX50 Server mode parameter configuration (only CMXX50(P\_EP)(SEVER))

| ters   Net Parameters   Activate Parameters   Protocol Parameters   Server Mode Parameters |                              |       |                                       |
|--|------------------------------|-------|---------------------------------------|
|  | Name                         | Value | Description                           |
| <input type="checkbox"/>   | Listening Port:              |       | Values range (1-65535).               |
| <input type="checkbox"/>   | Maximum Clients Number:      |       | Values range (1-32).                  |
| <input type="checkbox"/>   | Minimum Allowable ID :       |       |                                       |
| <input type="checkbox"/>   | Maximum allowable ID:        |       |                                       |
| <input type="checkbox"/>   | Client Timeout Time:         |       | Unit: second. Values range (1-65535). |
| <input type="checkbox"/>   | Authentication ID:           |       | 0= No, 1= Yes.                        |
| <input type="checkbox"/>   | Replace The Client:          |       | 0= No, 1= Yes.                        |
| <input type="checkbox"/>   | Broadcast Transmitting Data: |       | 0= No, 1= Yes.                        |
| <input type="checkbox"/>   | Keep Online Interval:        |       | Unit: ms. Values range (0 ~ 65535).   |
| <input type="checkbox"/>   | Keep Online Retry Count:     |       | Values range (1-65535).               |
| <input type="checkbox"/>   | Keep Online Address 1:       |       |                                       |
| <input type="checkbox"/>   | Keep Online Address 2:       |       |                                       |
| <input type="checkbox"/>   | Keep Online Address 3:       |       |                                       |

This parameter must let DTU burned into "xx50 server version" of the software, not "Server Version" software can not configure these parameters.

Parameters meaning:

- 1, the listening port: Port is open to client connections, use only special card, otherwise random IP transformation, will lead the client connection failure;
- 2, the maximum number of clients: It means the number of Taiwan while allowing clients to connect up (xx50 supports up to 32 simultaneous client connections);
- 3, the minimum allowable ID number: If a customer has set this option, then when a client connection when they came up, xx50 will first determine the client ID, in if the option to fill the ID is less than, then automatically shield the client end. (This option is only available when the "if authentication ID" option, select "Yes" when it is valid);
- 4, the maximum allowable ID number: with 3;
- 5, the client timeout: When the interval time a client sends data exceeds the value of the option, the xx50 automatically kicked off the client;
6. Verify ID: If you select "No", then xx50 liable for any connection up clients judgment, when you select "yes" whenever a client connects up, xx50 will first place the client's ID and Options 3 and 4 are compared in order to meet the conditions of the client filter;
- 7, whether to replace a client: when the same ID number of client connections up whether out of old replaced with new clients (recommended enabled because some clients may be dropped after itself, once again came up connection It will result in a client places occupied by two or even more than a waste of resources);
- 8, whether broadcast data: transmission data is sent to each xx50 all currently connected clients use broadcasts;
- 9, online retention interval: the meaning of the options is accumulated to this point in time every time, xx50 automatically go to visit "Live to keep the IP address" fill in the web site;
- 10, online retention retries: xx50 access "Backup IP Address 1" or "on-line to maintain IP Address 2" or "3-line holding IP address" fill in the number of addresses;
- 11, line 1 to maintain IP Address: This field enter to access the site, the main role is to access these sites through xx50 to judge whether their own break;
- 12, line 2 to keep the IP address: with 11;
- 13, holding IP address online 3: with 11;
- 14, LCP retry interval: xx50 each interval of time to send a LCP, to determine DTU is disconnected (LCP is a PPP dialing mechanism, the effect is somewhat similar to TCP's keepalive), but after practice found ineffective , it is not recommended to use;
- 15, LCP retries: with 14, the number of transmissions LCP packets;
- 16, online retention Timeout: The time interval when the client has no data segment up, xx50 automatic power restart, and then back on line waiting for client connections.

#### 6.19.2 XX60 Server mode parameter configuration



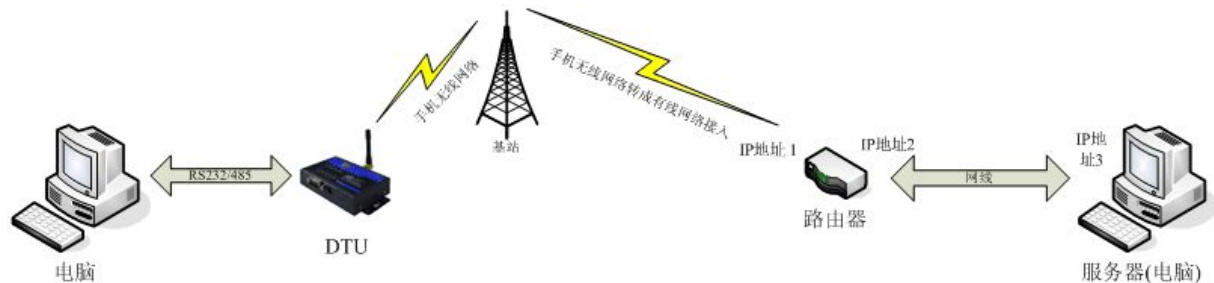
| Basic Conf               | Center Server Conf         | Advance Conf | Net Conf   | Activate Conf | Protocol Conf | Local Network |
|--------------------------|----------------------------|--------------|--|---------------|---------------|---------------|
| Name                     |                            | Value        | Description  |               |               |               |
| <input type="checkbox"/> | Server Port:               |              | The port be opened by server to connection. Value rang: 0-65535.       |               |               |               |
| <input type="checkbox"/> | Maximum Clients:           |              | The max number of simultaneous connected clients allowed by server.    |               |               |               |
| <input type="checkbox"/> | Online Status Check:       |              | PING: Timing PING a certain IP address to judge if DTU is online, ...  |               |               |               |
| <input type="checkbox"/> | Keep Online IP Address 1:  |              | The IP Address1 to keep PING or TCP test online.                       |               |               |               |
| <input type="checkbox"/> | Keep Online IP Address 2:  |              | The IP Address2 to keep PING or TCP test online.                       |               |               |               |
| <input type="checkbox"/> | Keep Online Port 1:        |              | The port1 to keep TCP test online, value range: 0-65535.               |               |               |               |
| <input type="checkbox"/> | Keep Online Port 2:        |              | The port2 to keep TCP test online, value range: 0-65535.               |               |               |               |
| <input type="checkbox"/> | Keep Online Retries Count: |              | The retries count of failure to test online, value range: 1-10.        |               |               |               |
| <input type="checkbox"/> | Keep Online Interval:      |              | Unit:s, the interval time between last successful online test and n... |               |               |               |

Parameters meaning:

- 1, the server mode port (listening port): that is open to the port for client connections, use only special network card, otherwise random IP transformation, will lead the client connection failure;
- 2, the maximum number of clients: It means the number of Taiwan while allowing clients to connect up (3160 supports up to five simultaneous client connections);
- 3, for method (not enable): Since 3160, as the time server, itself no way to determine whether its current online at no client sends data, it is necessary to access the site by certain public to judge;
- 4, keep the IP address line 1: This field enter the URL to access the main role is to visit these sites by 3160 to determine whether self-disconnection;
- 5, holding IP address online 2: with 4;
- 6, online retention Port 1: When the online mode is maintained when TCP useful for accessing "Online maintaining IP address" fill in the web site;
- 7, online retention Port 2: with 6;
- 8, online retention retries: 3160 Access "line holding IP address 1" or "2 Live maintaining IP address" fill in the number of addresses;
- 9, online retention interval: When the "Live-hold mode" is not set to NONE when the meaning of this option is that every accumulated to this point in time when the 3160 automatically go to visit "Live maintaining IP address" fill in the URL When "Backup mode" is set to NONE, his meaning is run every time when they reboot.

## 7. Test of data transmission of remote network configuration

### 7.1 trial network structure



Picture 7-1

Server: Please operate a data center DEMO software of xiamen caimore on the server PC ( configuration CD path:English\ wireless data transmission terminal DTU\ tool software of products\ xiamen caimore data center DEMO 20100128 ) .we provide data center software, such as VC version,VB version and DELPHI version, Each version can be used. The VB DEMO version is used as interpretation of the case in this test.

If the LAN IP of server is 192.168.1.22( as the IP address of three part in picture 7-1) and the WAN IP is 125.77.218.76( as the IP address of two part in picture 7-1). The IP address of LAN network of router is IP 为 192.168.1.10 as the IP address of two part in picture 7-1) Data center DEMO monitors 8001 port.

PC( customers' computer): PC is PC-PLC which connected DTU in the simulation of practical application, using the serial port tool to simulate that PC-PLC send data to DTU and receive data from DTU.

### 7.2 Configure the parameter of DTU

| Basic Conf                                 | Center Server Conf | Advance Conf  | Net Conf | Activate Conf | Protocol Conf | Local Network |
|--|--------------------|---|----------|---------------|---------------|---------------|
| Name                                       | Value              | Description   |          |               |               |               |
| <input type="checkbox"/> Main Server IP:   | 119.97.194.18      | Valid when main server IP No. equals 1 ,to use domain name or fixed IP. |          |               |               |               |
| <input type="checkbox"/> Main Server Port: | 9009               | Valid when main server IP No. equals 1, Value range(1~65535).           |          |               |               |               |
| <input type="checkbox"/> Sub Server IP:    | 119.97.194.18      | Valid when main server IP No. equals 1, to use domain name or fixed IP. |          |               |               |               |
| <input type="checkbox"/> Sub Server Port:  | 9009               | Valid when main server IP No. equals 1 , Value range(1~65535).          |          |               |               |               |
| <input type="checkbox"/> Baudrate:         | 9600               | The same as terminal device.  |          |               |               |               |
| <input type="checkbox"/> Parity Bit:       | NONE               | The same as terminal device.  |          |               |               |               |
| <input type="checkbox"/> Data Bit:         | 08                 | The same as terminal device.  |          |               |               |               |
| <input type="checkbox"/> Stop Bit:         | 01                 | The same as terminal device.  |          |               |               |               |
| <input type="checkbox"/> Device ID:        | 74736574           | Fixed 8 hex, user-defined to recognize different DTU.                   |          |               |               |               |
| <input type="checkbox"/> Mobile Number:    | 13912345678        | Mobile number, user-defined to recognize different DTU.                 |          |               |               |               |

Picture 7-2

Please find “ xiamen caimore DTU configuration software VXXX.exe( xxx is version number of software)” The file path in the configuration CD: English\ wireless data transmission terminal DTU\ tool software of products\ DTU configuration software V544 of xiamen caimore communication technology co.,Ltd\ DTU configuration software VXXX.exe of xiamen caimore), and open the program.

Please select corresponding number of serial port according to steps in the <3.11 tool configuration> and configure baud rate for 115200bps, parity bits for NONE. Supply power to DTU according to the cue of software.

After entering configuration, please configure address and port of main center, and the address and port of backup center according to the configuration steps in <4. Configure DTU rapidly” ( as picture 7-2) and the other parameter keep default ( can configure parameter according to practical condition), then save the configuration parameter.

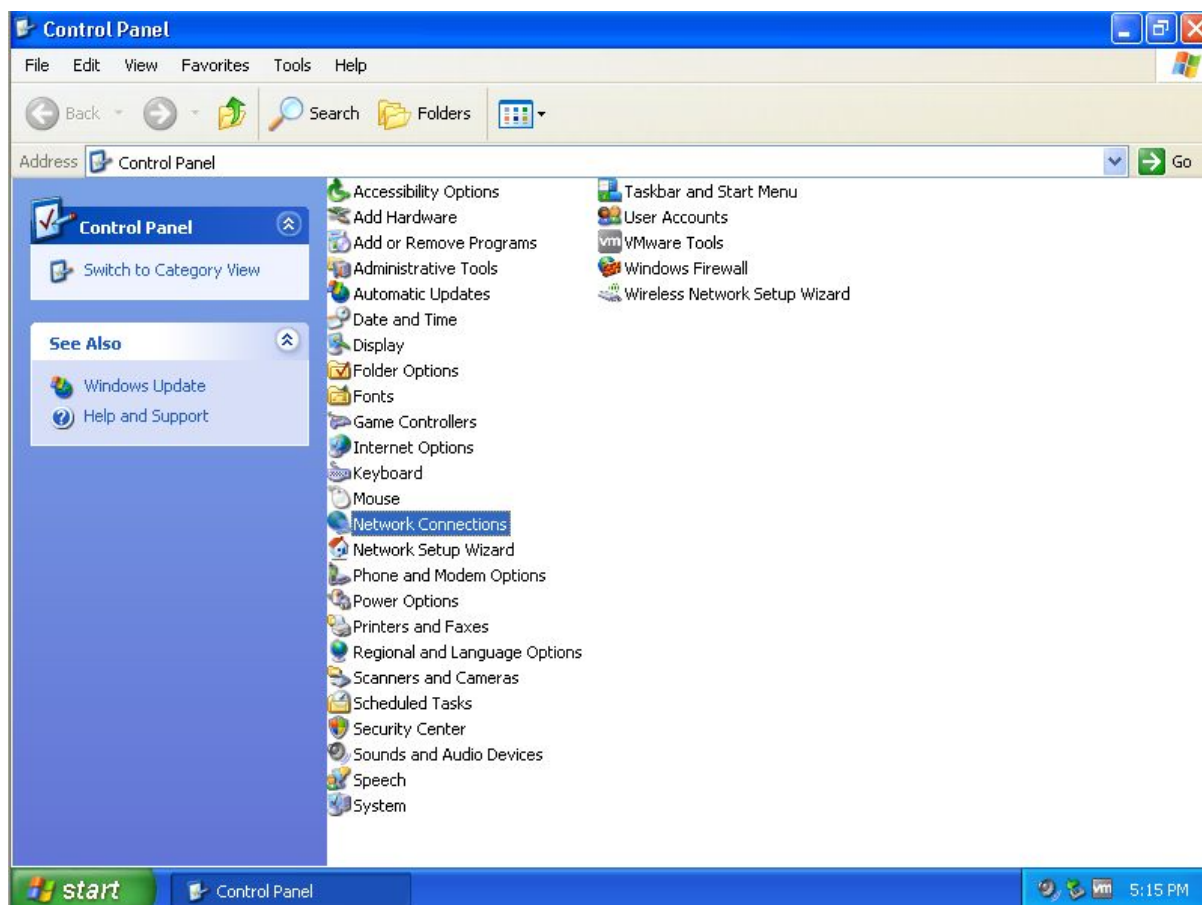
## 7.3 Configure server

### 7.3.1 Configure internal network IP of server

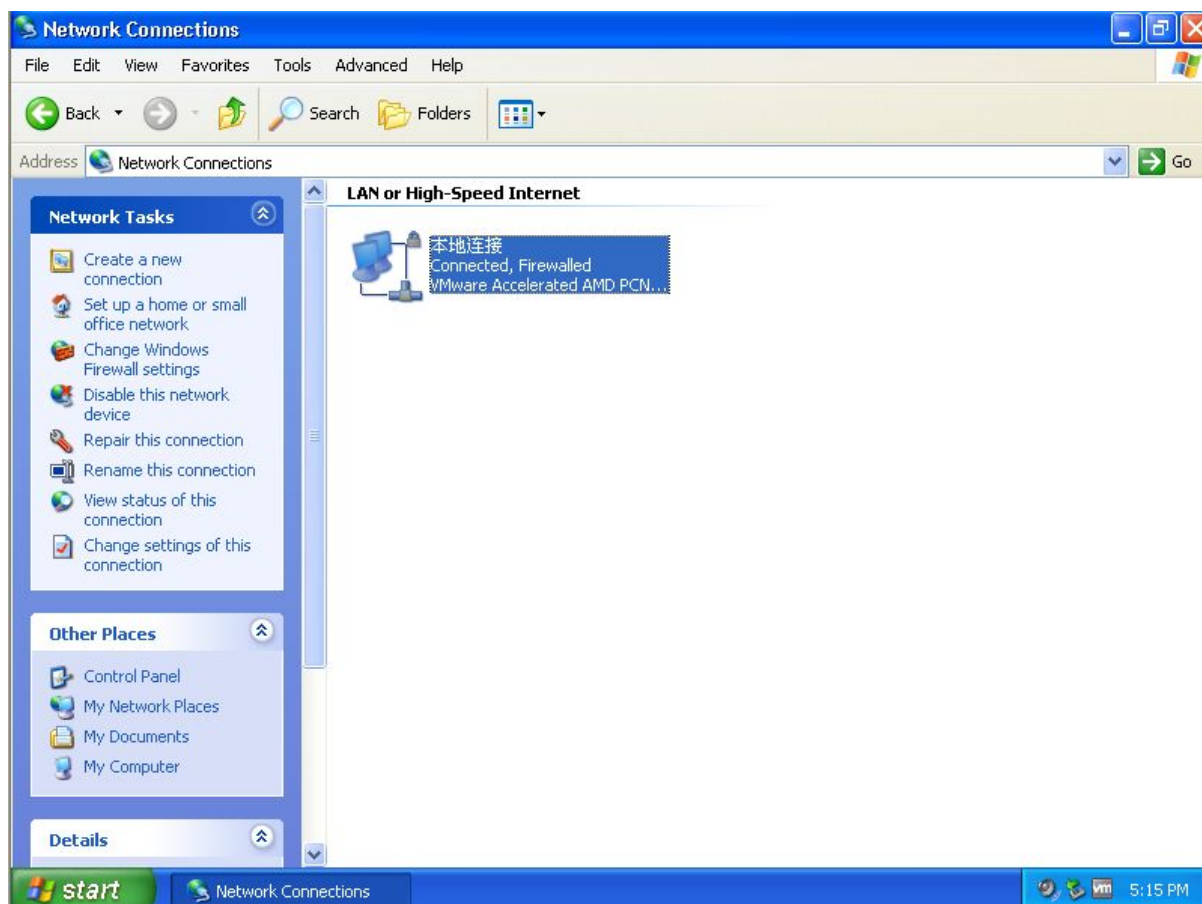
Please click “ start” button in the desktop task bar ,



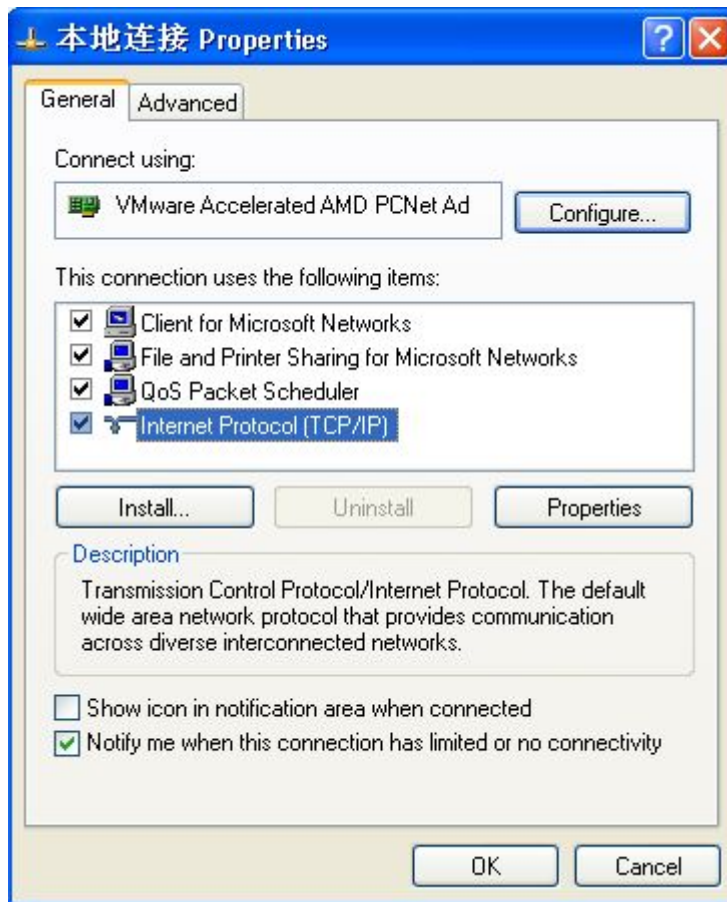
Please find and open “ control panel” in the displayed window . displayed window is as follow:



Please find and double click “ network connection” in the displayed window. The displayed window is as follow,

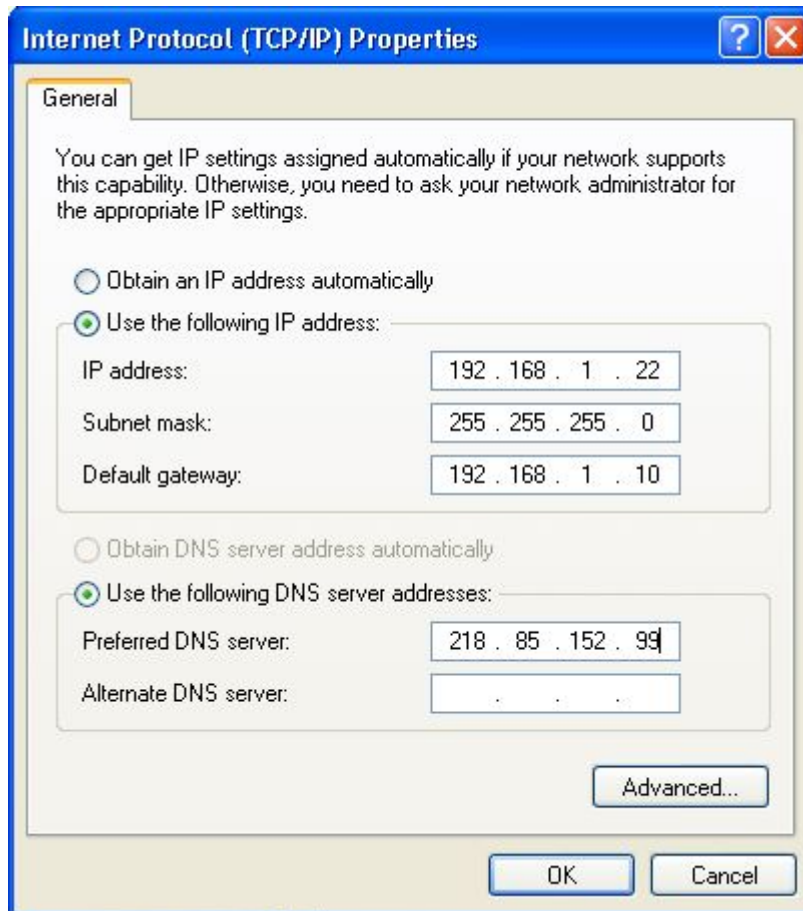


Please find “ Local Connection ” and click right button , and pop up a window of “ Local connection properties”. Please find “ Internet protocol ( TCP/ IP)” in the “general”



Double click “ internet protocol ( TCP/ IP)” and appear a set box of IP. As follow :





Please configure “ IP address” for “192.168.1.22” (as IP address of third part in picture 7-1)

Please configure “ subnet mask” for “255.255.255.0”

Please configure “ default gateway” for the LAN IP address of router ( as the IP address of second part in picture 7-1), the LAN IP of the router is 192.168.1.10 of the router which is used in the test.

After completing configuration, please click “ok”, then go back to “ local connection properties” and click “ok” to complete configuration.

### 7.3.2 Port mapping

If server connect the WAN network not through router, that need not to use port mapping. But if the server connect WAN network through the touter, that need to do port mapping on the router.

Please open the configuration page of router, find ‘NAT configuration’, fill into relevant

information, then save it.( as picture 7-3). After saving, please check if the saved information existed in the 'NAT static mapping list.'( as picture 7-4). The port mapping is successful if the saved information exist in the NAT static mapping list.( different router with different interface, Please configure according to practical situation.)

☒ Add
☐ Modify

|                |   |                             |
|----------------|---|-----------------------------|
| Rule Name      | <input type="text" value="8001"/>         | <small>[0-9.a-zA-Z]</small> |
| Wan Start Port | <input type="text" value="8001"/>         |                             |
| Lan IP         | <input type="text" value="192.168.1.22"/> |                             |
| Lan Start Port | <input type="text" value="8001"/>         |                             |
| Port Num       | <input type="text" value="1"/>            |                             |
| Protocol       | <div>TCP ▼</div>                          |                             |
| Interface      | <div>WAN ▼</div>                          |                             |

Picture 7-3

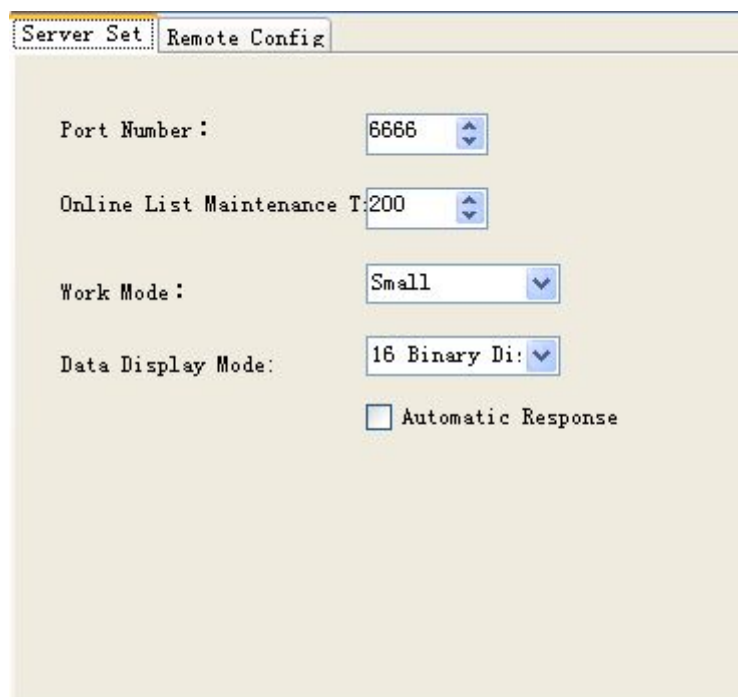
| #                        | Rule Name | Wan Start Port | Lan IP       | Lan Start Port | Port Num | Protocol | Interface | Edit                 |
|--------------------------|-----------|----------------|--------------|----------------|----------|----------|-----------|----------------------|
| <input type="checkbox"/> | 8001      | 8001           | 192.168.1.22 | 8001           | 1        | TCP      | WAN       | <a href="#">Edit</a> |

Picture 7-4

### 7.3.3 data center software configuration

Please open VB DEMO data center software, configure Listener Port for 8001( as picture 7-5), then click “ start service” button to start service( as picture 7-6). Then waiting for connection of DTU.





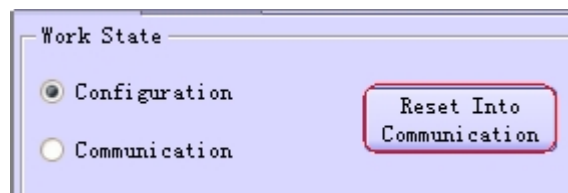
Picture 7-5



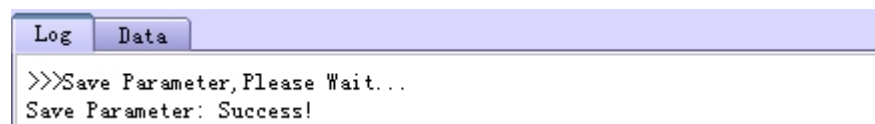
Picture 7-6

## 7.4 DTU connection center

Please use previous configuration tool and click 'reset into communication' button in configuration tool. and make DTU enter communication state.( if it failed to enter communication state, please supply power to DTU again after switching to communication state.)



Please switch to 'data' window from right window of DTU configuration tool



Please waiting for the cue of 'connected' from serial port tool, if it appears, it indicates that the DTU connected data center successfully( as picture7-7)

```
-----  
connection(0) connected  
|
```

Picture 7-7

You can see the information about that DTU has connected data center successfully in the data center DEMO which is on the server.( as picture 7-8)

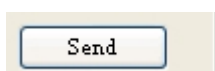
| ID Number | Phone Number  | IP Addr     | Login Time         | The last time to send data |
|-----------|---------------|-------------|--------------------|----------------------------|
| 74736574  | 10.29.114.252 | 13912345678 | 2015-6-26 15:45:55 | 2015-6-26 15:45:55         |

Picture 7-8

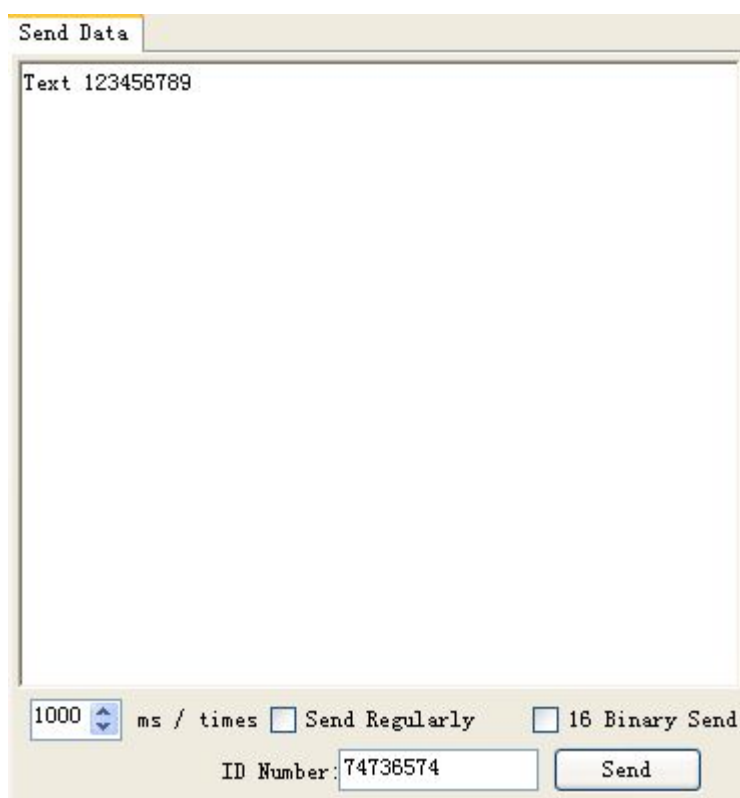
## 7.5 sending and receiving of data

### 7.5.1 Server send data to DTU

Please select ' sending data' from the data center DEMO ( as picture 7-9), and select ID number that is sent to DTU, from the drop- down list of 'opponent ID number' ( as picture 7-10). Please input the data "test" into the input box , then click 'send' button to send.



Picture 7-9



Picture 7-10

It will appear 'test' in the serial port tool of PC. ( as picture 7-11).

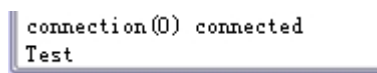
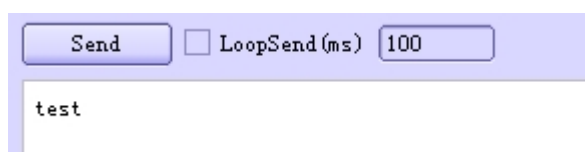


图 7-11

You can see the information and record that were sent just now in the right bottom log of data center DEMO which is on the server.

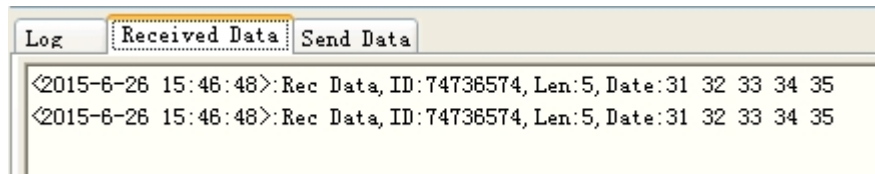
### 7.5.2 DTU send data to data center

Please input the data 'test' that needed to send into the sending input box of configuration tool which is on PC, ( AS picture 7-12), and click 'send' button to send data.



Picture 7-12

When you click 'the received data' box in the right bottom of data center DEMO which is on server, it will display the received data ( as picture 7-13).



Picture 7-13

## 8 dial-up networking

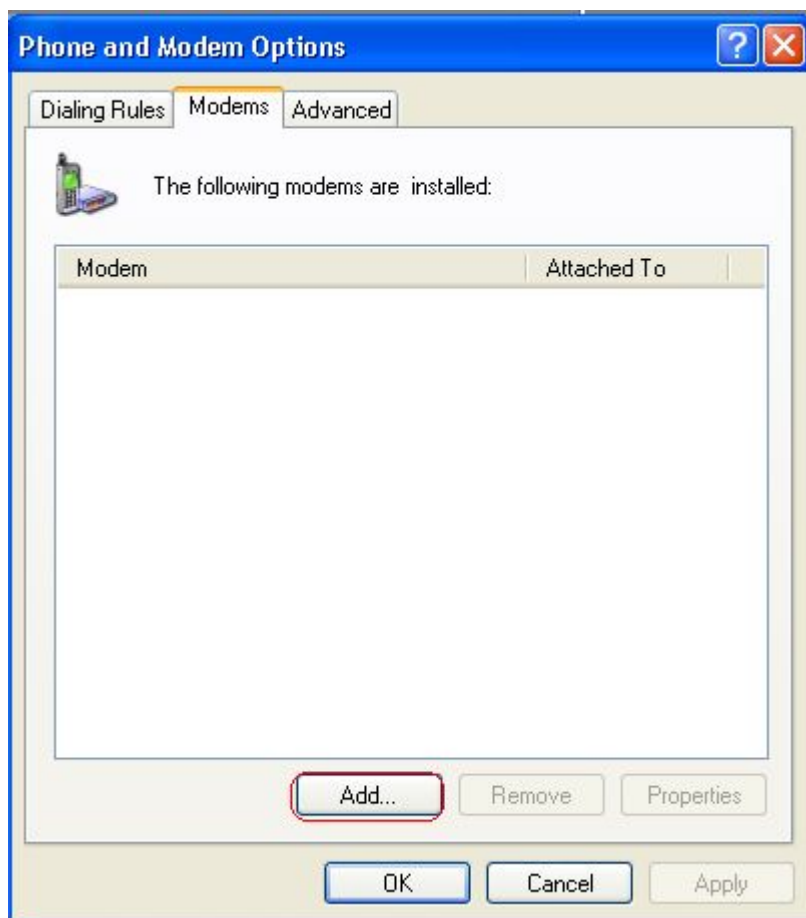
Some customers maybe use the DTU as common wireless MODEM to realize dial-up networking. This section describes how to use DTU as MODEM. We suggest you not use DTU as MODEM in principle.

### Notice:

Please use quad-core wire dispatched by our company when you dial up with CDMA , otherwise maybe appear situation that fail to dial up network.

Detailed steps are as follow,

1, Switch to TRNS operating mode, then enter control panel—>telephone and modem— >add modem. As the following picture:

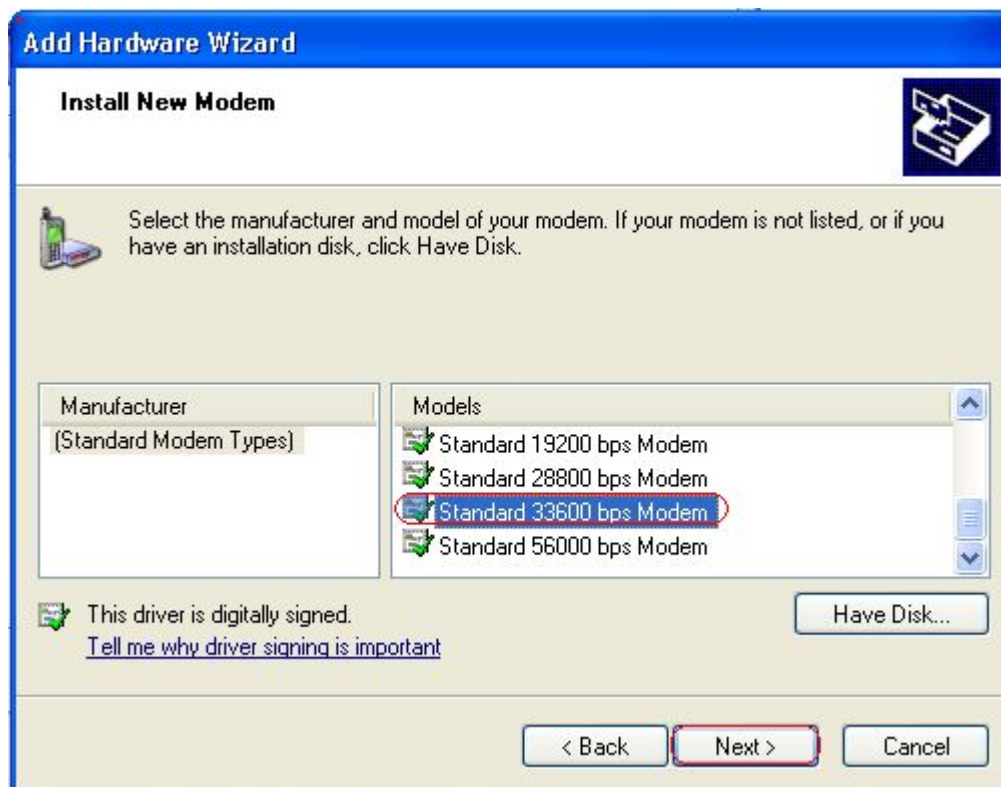


2, Please select 'don't detect my modem ,I will select it from a list 'then click ' next'. As the following picture,



3, Please select 'standard 33600 bps modem' from models to drive program.

As The following picture,



4, Please select the port of modem, then click 'next'. As the following picture:

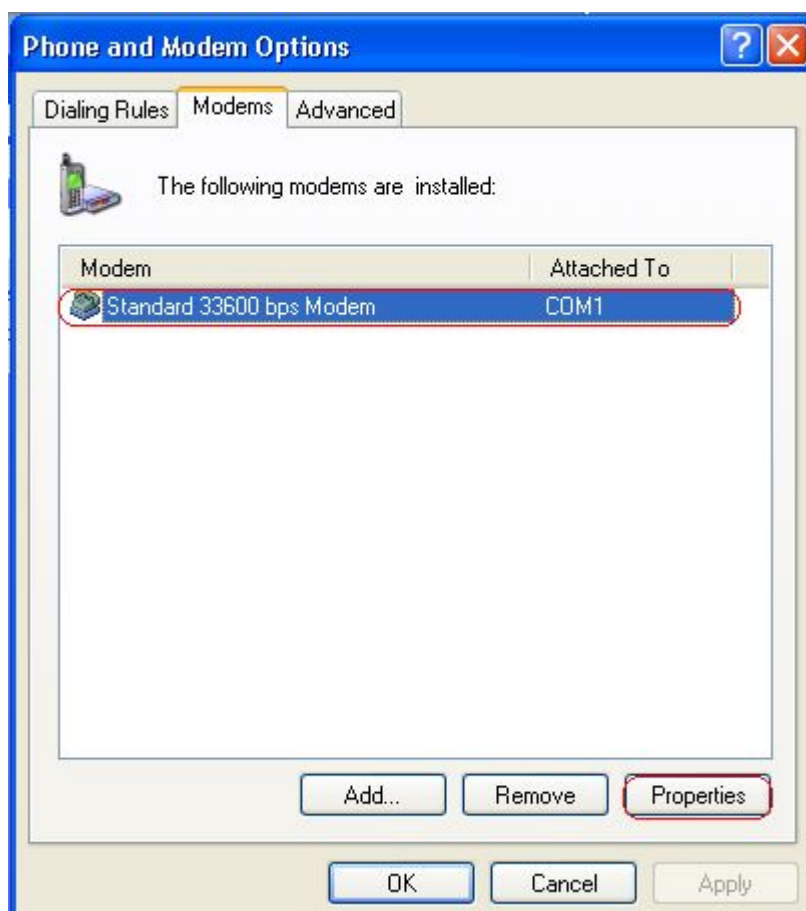


5, finish configuring. As the following picture:

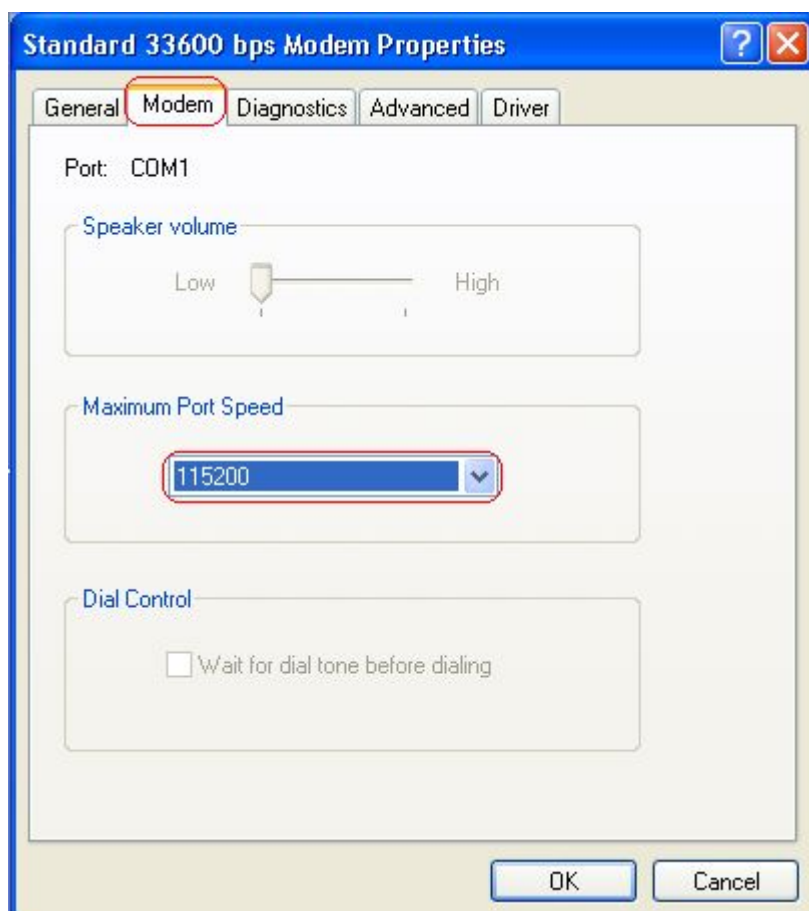


6, Please enter 'properties 'after finishing configuring. As the following picture:

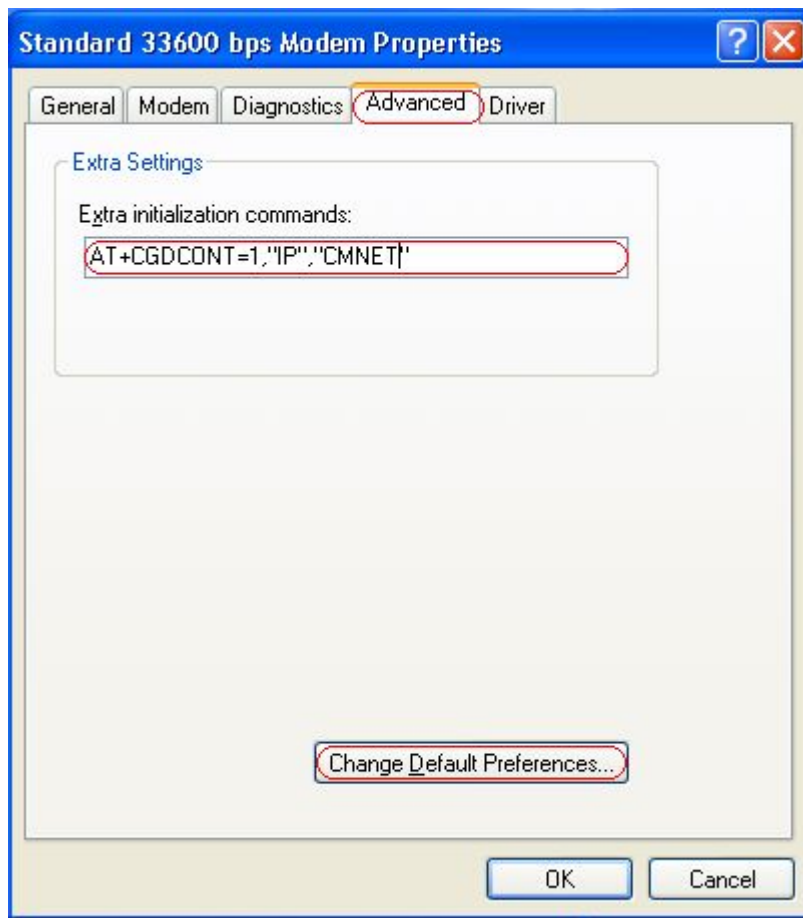




7. Please configure the maximum port speed for 115200, then click 'advanced'. As the following picture,



8, Please click 'advanced' to enter 'modify default preferences '. As the following picture,



If you use GPRS network, you need to input “AT+CFDCONT=1”, “IP”, “cmnet” into the “extra initialization commands”,

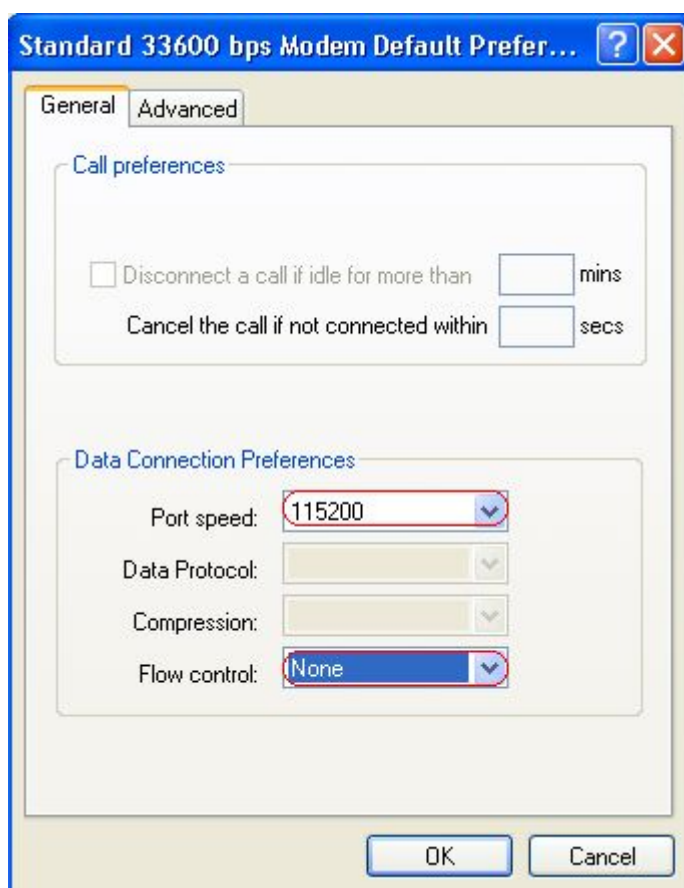
If you use CDMA network, that will be blank.

If you use TD-SCDMA network, you need to input “AT+CFDCONT=1”, “IP”, “cmnet” into the “extra initialization commands” .

If you use EVDO network, that will be blank.

If you use WCDMA network, you need to input “AT+CFDCONT=1”, “IP”, “uninet” into the “extra initialization commands”

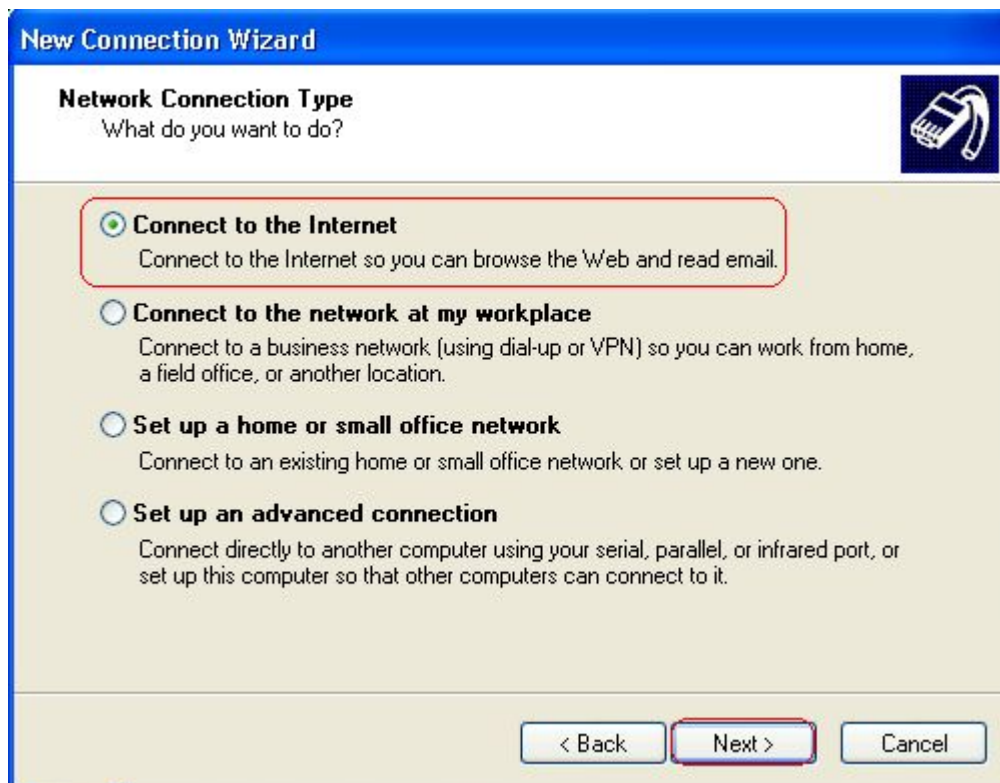
9, Please confirm that the port speed is 115200, and configure flow control for ‘none’, and click ‘ok’ to complete configuration. As the following picture,



10, New dial-up link, click 'network connection'—> New a new link , then new a new link according to the cue, then click 'next'. As the following picture,

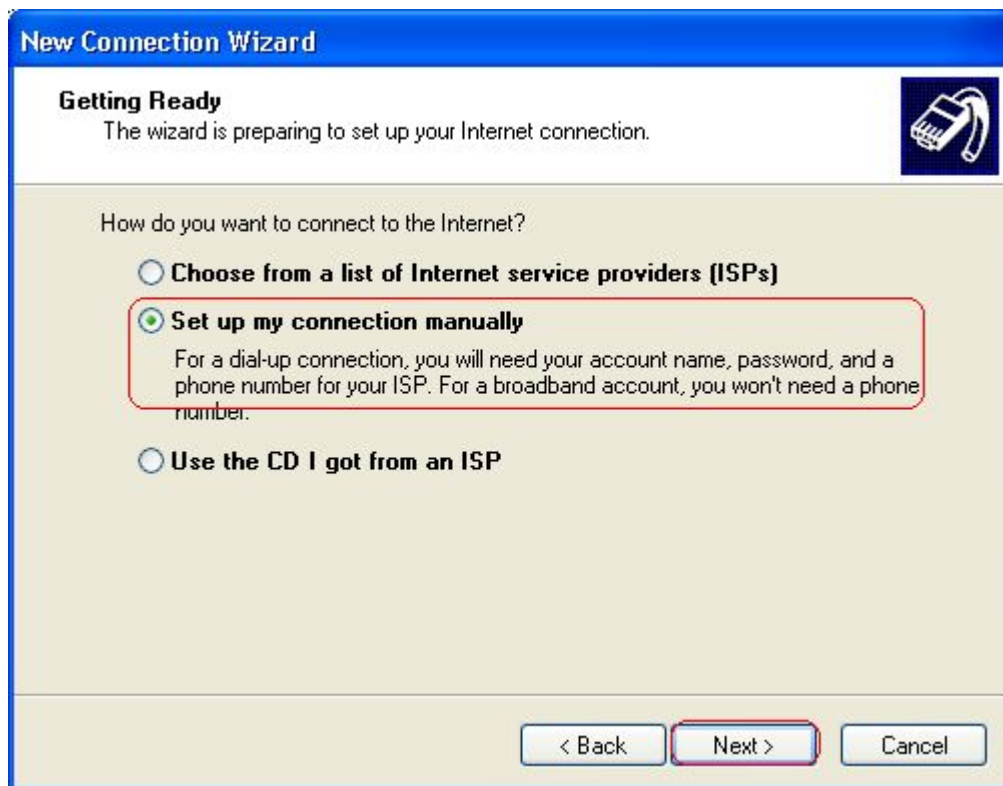


11, Please select “ connect to the INTERNET”, then click ‘next’. As the following picture,

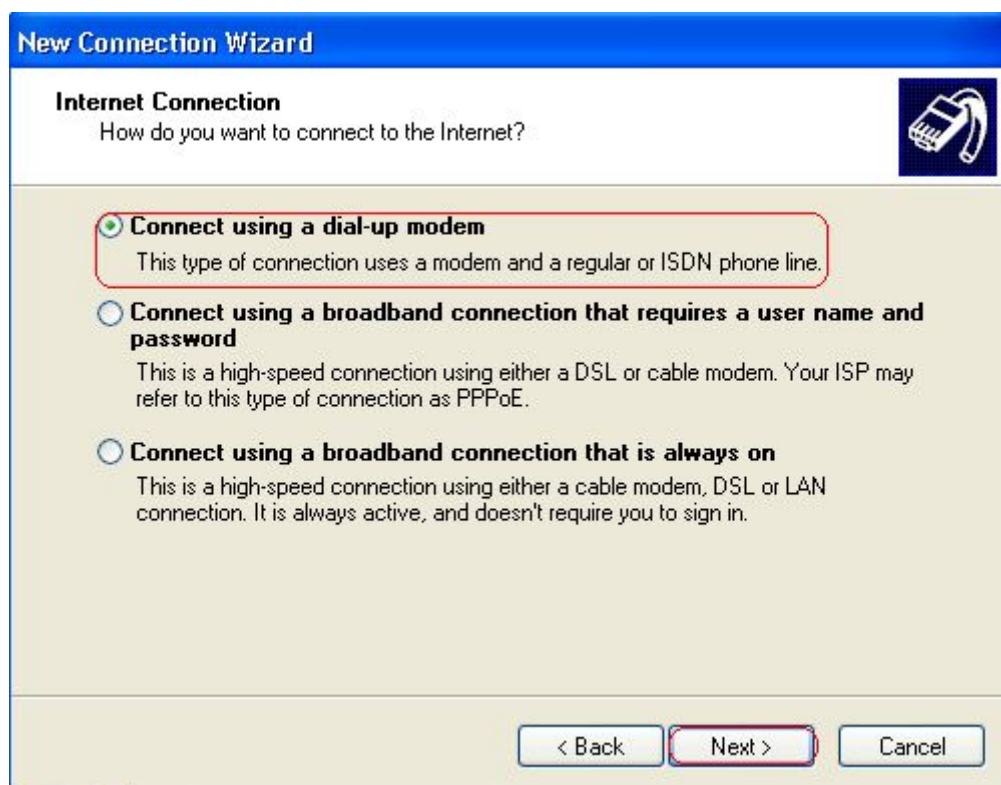


12, Please select ‘ set up my connection manually’( if it is Windows 2000, the option is

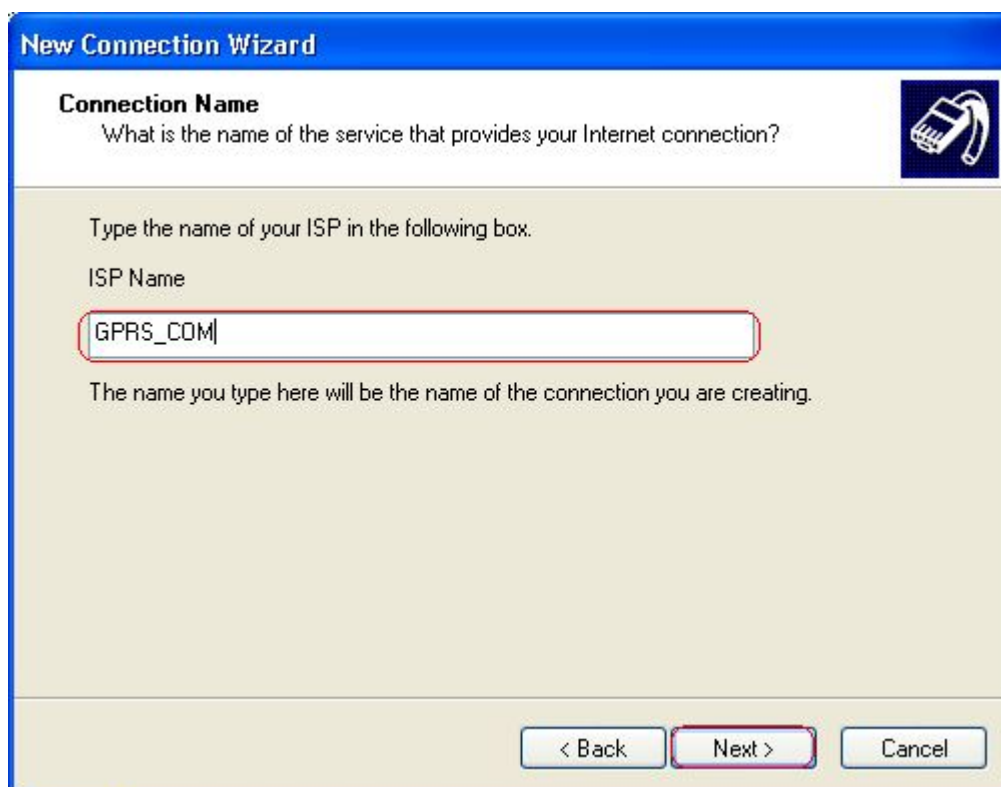
“set up INTERNET connection manually, or connection by LAN”), then click “next”. As the following picture,



13, Please select “connect using a dial-up modem”, ( if it is Windows 2000, the option is “connection by telephone line and modem”, then click “next”. As the following picture,



15. You can input any name into the nether input box of ISP name to identify the file , then click “next”. As the following picture,



16. Please input access point number into the “ phone number”.



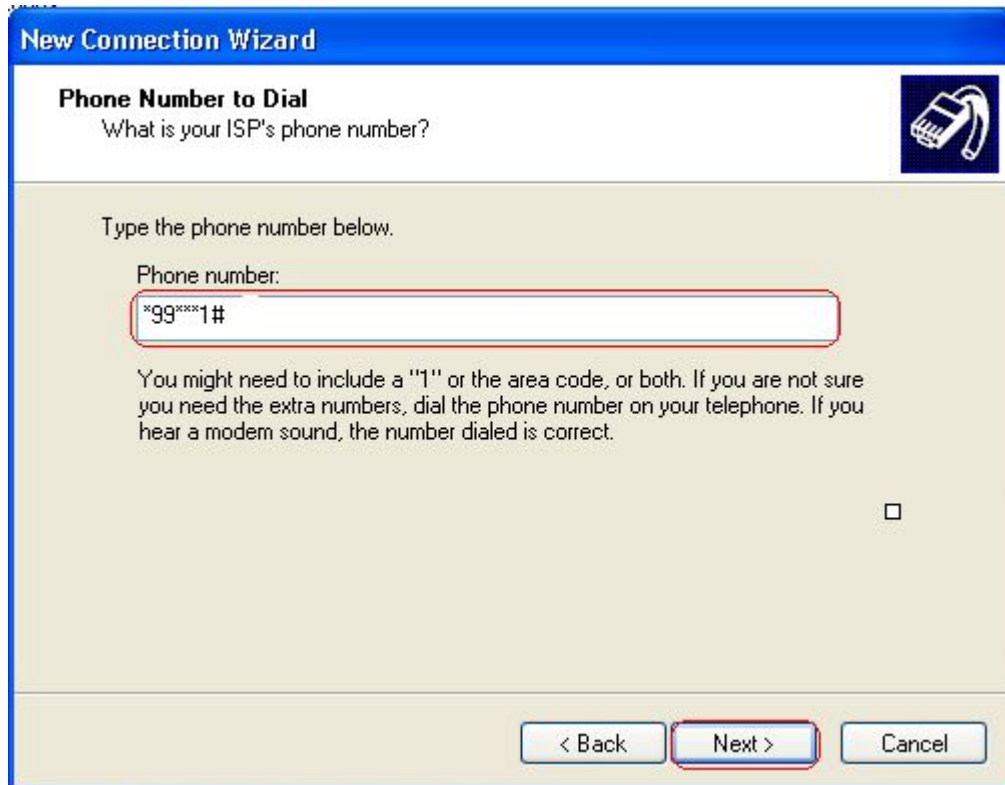
**GPRS network: “ \*99\*\*\*1#”**

**CDMA network: “ #777”**

**TD network: “ \*98\*1#”**

**EVDO network: “#777”**

**WCDMA network: “\*99#”, then click “next”. As the following picture,**



17. Please input users' name and password.

The users' name and password of GPRS network is blank,

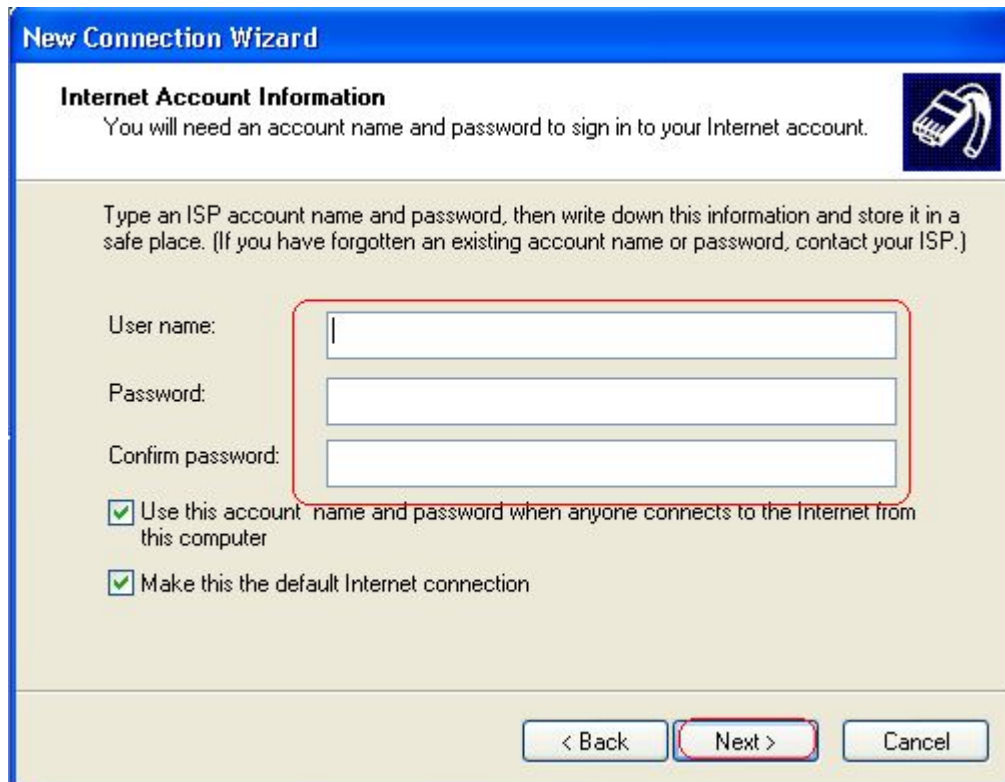
The users' name and password of CDMA network is card,

The users' name and password of TD network is blank,

The users' name and password of EVDO network is card,

The users' name and password of WCDMA network is blank,

Please click “next”. As the following picture,



**New Connection Wizard**

**Internet Account Information**

You will need an account name and password to sign in to your Internet account.

Type an ISP account name and password, then write down this information and store it in a safe place. (If you have forgotten an existing account name or password, contact your ISP.)

User name:

Password:

Confirm password:

☒ Use this account name and password when anyone connects to the Internet from this computer

☒ Make this the default Internet connection

< Back   **Next >**   Cancel

18, Please click “ finish” to complete dial-up configuration. As the following picture,



**New Connection Wizard**

**Completing the New Connection Wizard**

You have successfully completed the steps needed to create the following connection:

**GPRS\_COM**

- Make this the default connection
- Share with all users of this computer
- Use the same user name & password for everyone

The connection will be saved in the Network Connections folder.

☐ Add a shortcut to this connection to my desktop

To create the connection and close this wizard, click Finish.

< Back   **Finish**   Cancel

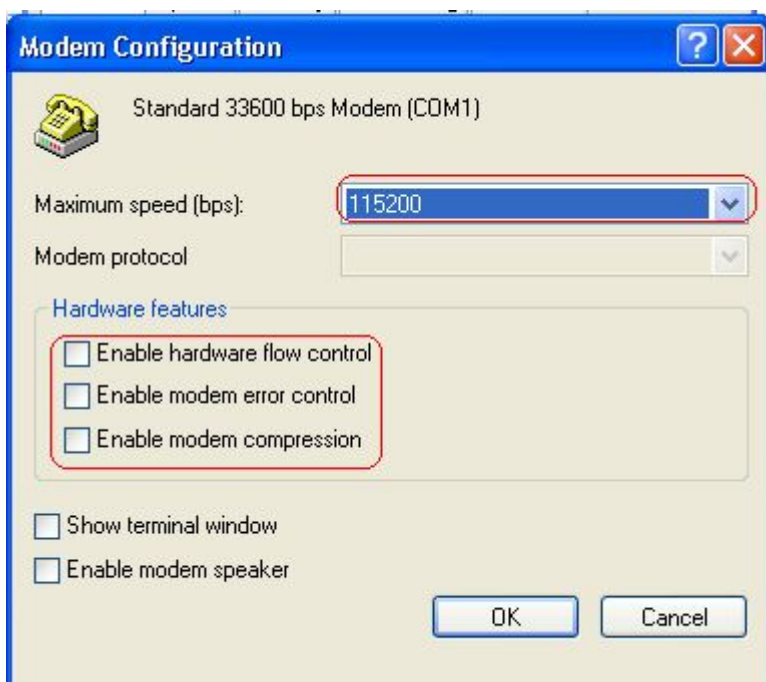
19, Please click “ properties ”of the dial-up connection. As the following picture,



20, Please confirm that connect using is standard 33600 bps modem and phone number is inputted before, then click “configure”. As the following picture,



21. Please configure the maximum speed for 115200, and cancel selection of "Enable hardware control flow. As the following picture,



So far, you have finished the configuration that DTU is used as common modem, and it is able to undertake dial-up networking.

Please log in network before browsing network, the process of log in network is as follow,

1, Please click dial-up “ GPRS-COM”. As the following picture,



2, Please click “dial”, it will begin to dial. As the following picture,



After connecting successfully, It will appear the icon in the status bar.  
 So far, you have finished logging in network, you can use IE to brows network.

### Appendix I : AT Command set

| Category           | AT command | Instruction                | Applicable model |
|--------------------|------------|----------------------------|------------------|
| Operating commands | ATE0       | Close echo                 | All models       |
|                    | ATE1       | Open echo                  | All models       |
|                    | AT+LIST    | display a list of commands | All              |

|                                     |            |                                       |            |
|-------------------------------------|------------|---------------------------------------|------------|
|                                     |            |                                       | models     |
|                                     | AT+SHOW    | Display the parameters                | All models |
|                                     | AT+QUIT    | exit                                  | All models |
|                                     | AT+RESET   | reboot                                | All models |
|                                     | AT+VER     | View version                          | All models |
|                                     | AT+FACTORY | Restore factory default               | All models |
|                                     | AT+STATUS  | Display the current state (only 3180) | 3180series |
| Center server configuration command | AT+SVRCNT  | Setting center server number          | All models |
|                                     | AT+IPAD    | setting the main center IP            | All models |
|                                     | AT+PORT    | setting the main center port          | All models |
|                                     | AT+IPSEC   | setting the main center IP            | All models |
|                                     | AT+PTSEC   | setting the main center port          | All models |
|                                     | AT+IPAD1   | setting center 1 IP                   | All models |
|                                     | AT+PORT1   | setting center 1 port                 | All models |
|                                     | AT+IPAD2   | setting center 2 IP                   | All        |



|  |          |                       |               |
|--|----------|-----------------------|---------------|
|  |          |                       | models        |
|  | AT+PORT2 | setting center 2 port | All<br>models |
|  | AT+IPAD3 | setting center 3 IP   | All<br>models |
|  | AT+PORT3 | setting center 3 port | All<br>models |
|  | AT+IPAD4 | setting center 4 IP   | All<br>models |
|  | AT+PORT4 | setting center 4 port | All<br>models |
|  | AT+IPAD5 | setting center 5 IP   | All<br>models |
|  | AT+PORT5 | setting center 5 port | All<br>models |
|  | AT+IPAD6 | setting center 6 IP   | All<br>models |
|  | AT+PORT6 | setting center 6 port | All<br>models |
|  | AT+IPAD7 | setting center 7 IP   | All<br>models |
|  | AT+PORT7 | setting center 7 port | All<br>models |
|  | AT+IPAD8 | setting center 8 IP   | All<br>models |
|  | AT+PORT8 | setting center 8 port | All<br>models |
|  | AT+DNS   | setting main DNS      | All           |

|   |               |   |            |
|---|---------------|---|------------|
|   |               |   | models     |
|   | AT+DNS2       | setting backup DNS  | All models |
| Serial port's parameter configuration command | AT+IPR        | setting Baud rate of serial port<br>(value: 112500、57600、56000、38400、19200、14400、9600、4800、2400、1200、600、300、110) | All models |
|   | AT+PARITY     | Setting the parity bits of serial port<br>(value: NONE、EVEN、ODD、SPACE、MARK)                                       | All models |
|   | AT+DATABIT    | Setting data bits of serial port<br>(value: 5~8)  | All models |
|   | AT+STOPBIT    | Setting stop bits of serial port (value: 1~2)   | All models |
|   | AT+FLOWCTRL   | Setting Flow control of serial port<br>(value: NONE、FLOWCTRL)   | All models |
|   |               |   |            |
| DTU work configuration command                | AT+MODE       | Setting operating mode<br>(value: TRNS、TCP、UDP)   | All models |
|   | AT+DEBUG      | Setting Debug level   | All models |
|   | AT+BYTEINT    | Packet interval time  | All models |
|   | AT+RDLWT      | setting Reconnection interval time  | All models |
|   | AT+RETRY      | Setting Reconnection number   | All models |
|   | AT+MULTIRDLWT | Setting Reconnection interval time of multiple center   | All models |

|   |              |  |            |
|---|--------------|--|------------|
|   | AT+POLLTIME  | Setting heartbeat packet time                | All models |
|   | AT+TCPTU     | Setting Packet size                          | All models |
|   | AT+REDIAL    | The number of Redialing                      | 3180series |
|   | AT+LOCALPORT | Setting local IP                             | 3180series |
| Network parameter configuration command | AT+APN       | Setting access point                         | All models |
|   | AT+USERNAME  | Setting the users' name of LAN network       | All models |
|   | AT+PASSWORD  | Setting the password of LAN network          | All models |
|   | AT+CEN       | Setting Dial-up center                       | All models |
|   | AT+SMSC      | Setting short message center                 | All models |
|   | AT+ID        | Setting ID number                            | All models |
|   | AT+PHONE     | Setting telephone number                     | All models |
|   | AT+RGSTPKT   | Setting custom registration packet           | All models |
|   | AT+HTBPKT    | setting custom registration heartbeat packet | All models |
|   | AT+RGSTACK   | setting custom registration respond packet   | 3180series |

|  |             |  |            |
|--|-------------|--|------------|
|  | AT+HTBACK   | setting custom registration heartbeat<br>respond packet          | 3180series |
|  | AT+STRAIGHT | Set whether escape   | All models |
| Activation<br>configuration<br>command         | AT+ACTI     | setting wakeup method<br>(value: NONE、SMS、PHONE、DATA、<br>MIX、IO) | All models |
|  | AT+CTRLNO   | Setting control mobile phone number                              | All models |
|  | AT+SMSPSWD  | Setting activate short message                                   | All models |
|  | AT+DONPSWD  | Setting activate data of serial port                             | All models |
|  | AT+DOFFPSWD | Setting dormant data of serial port                              | All models |
|  | AT+WAKEL    | Setting IO Pin wakeup level                                      | 3180series |
|  | AT+ACTITIME | Setting activate time  | 3180series |
| IO<br>Input/output<br>configuration<br>command | AT+PINF1    | Setting IO pin1 functions  | 3180series |
|  | AT+PINF2    | Setting IO pin2 functions  | 3180series |
|  | AT+PINF3    | Setting IO pin3 functions  | 3180series |
|  | AT+PINF4    | Setting IO pin4 functions  | 3180series |
|  | AT+PINF5    | Setting IO pin5 functions  | 3180series |

|                |                                       |            |
|----------------|---------------------------------------|------------|
|                |                                       | es         |
| AT+PINF6       | Setting IO pin6 functions             | 3180series |
| AT+PINL1       | Setting IO pin1 wakeup level          | 3180series |
| AT+PINL2       | Setting IO pin2 wake-up level         | 3180series |
| AT+PINL3       | Setting IO pin3 wake-up level         | 3180series |
| AT+PINL4       | Setting IO pin4 wake-up level         | 3180series |
| AT+PINL5       | Setting IO pin5 wake-up level         | 3180series |
| AT+PINL6       | Setting IO pin6 wake-up level         | 3180series |
| AT+ALARMPHONE1 | Setting IO pin1 control telephone     | 3180series |
| AT+ALARMPHONE2 | Setting IO pin2 control telephone     | 3180series |
| AT+ALARMPHONE3 | Setting IO pin3 control telephone     | 3180series |
| AT+ALARMPHONE4 | Setting IO pin4 control telephone     | 3180series |
| AT+ALARMPHONE5 | Setting IO pin5 control telephone     | 3180series |
| AT+ALARMPHONE6 | Setting IO pin6 control telephone     | 3180series |
| AT+ALARMMSG1   | Setting IO pin1 control alarm content | 3180series |

|  |              |                                       |            |
|--|--------------|---------------------------------------|------------|
|  |              |                                       | es         |
|  | AT+ALARMMSG2 | Setting IO pin2 control alarm content | 3180series |
|  | AT+ALARMMSG3 | Setting IO pin3 control alarm content | 3180series |
|  | AT+ALARMMSG4 | Setting IO pin4 control alarm content | 3180series |
|  | AT+ALARMMSG5 | Setting IO pin5 control alarm content | 3180series |
|  | AT+ALARMMSG6 | Setting IO pin6 control alarm content | 3180series |

### Annex II : The instructions of indicator light

| Indicator                                       | State   | Instruction                     |
|---|---------|---------------------------------|
| Power supply                                    | on      | normal                          |
|   | off     | No power                        |
| Online  | on      | Connected the center            |
|   | flicker | Log in GPRS network             |
|   | off     | Not log in GPRS network         |
| communication<br>( 3G<br>Equipment<br>invalid ) | flicker | sending and receiving data      |
|   | off     | No data to be sent and received |

### Appendix III: Power consumption of equipment

This table show the measured data in the normal signal situation, and only for reference.

The actual power consumption will be subject to the influence of local network signal.

|                       |              |             |             |
|-----------------------|--------------|-------------|-------------|
| 3150 series           | 90~100(mA)   | 90~100(mA)  | 160(mA)     |
| 6550 series           | 110 (mA)     | 110(mA)     | 200(mA)     |
| 3160 series           | 50~60(mA)    | 50~60(mA)   | 90~ 110(mA) |
| 6560 series           | 60(mA)       | 120(mA)     | 120(mA)     |
| 3180 series           | 20(mA)       | 20 (mA)     | 90~110(mA)  |
| 8150/8250/8350 series | 160~210 (mA) | 160~210(mA) | 270~280(mA) |

#### Appendix IV: Super terminal configuration

Select button of the Windows desktop successively :  
 Start→Program→Attachment→Communication→super terminal 。 And then will appear the following picture。

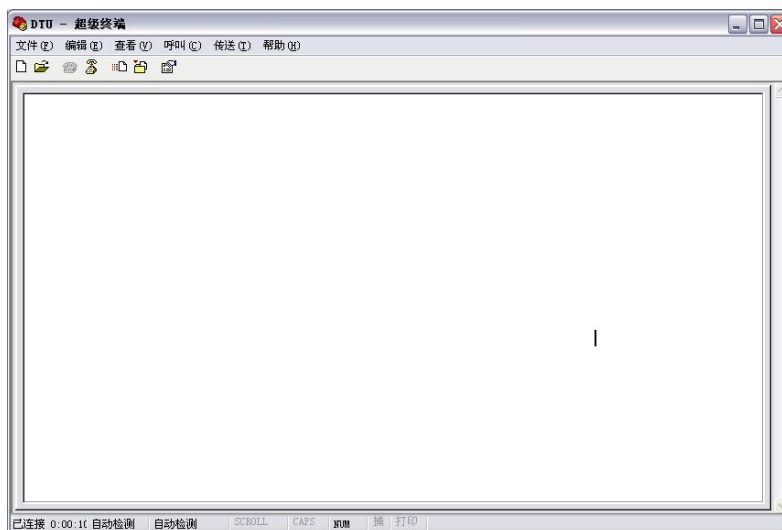


Input the name of the established super terminal, then click “ok”, It will appear the following picture of selecting serial port.

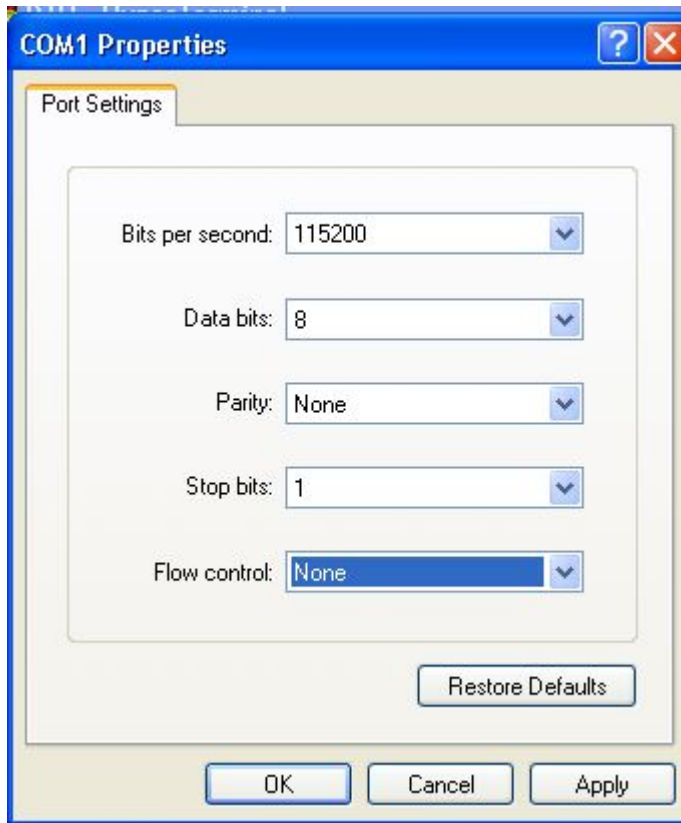




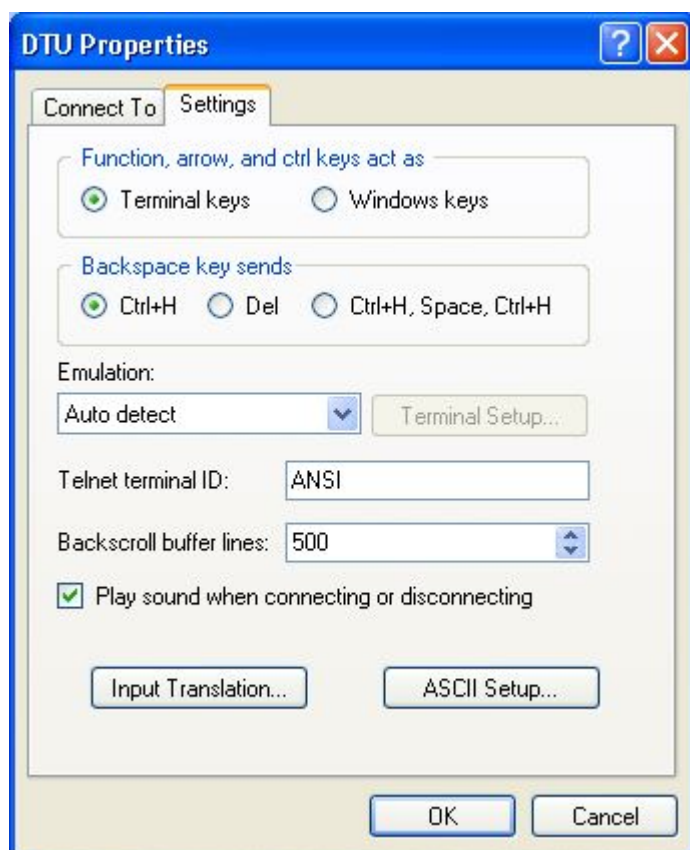
Please Select the serial port number (such as COM2,COM3 etc) which is used to configure parameter according to practical situation , click “ok”, It will appear the following picture of picture;



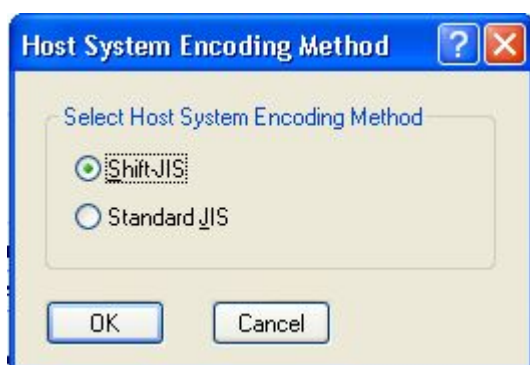
Notice: Please set the parameters of your super terminal according to the above picture, otherwise you will not enter the program to set the parameter of DTU。 Please set the corresponding parameter according to the above picture, then clicked“ok”, You will enter the operation interface of super terminal, as the following picture,



Select Files --> prosperities from the interface of the Super terminal , enter the Dialog box of the prosperities , click "Settings", then set the corresponding parameters according to the following picture,



Click “Input translation”, then select the host system encoding method, as the following picture,



You have finished setting the parameters of the super terminal successfully.

## **Appendix V: Frequently Asked Questions**

### **1. The power indicator is not bright.**

Please check whether the cables are right connected, and at the same time please check whether the power supply is complied with the requirements and the standard, otherwise, maybe damage DTU.

### **2. The online indicator is not bright**

The online indicator will be bright only when DTU data terminal loges in network successfully, if the indicator is not bright, please check the network coverage and signal strength in your location, and at the same time check the SIM card whether is right installed or valid. You should also check the Data center server software whether is normally working, and whether the Firewall intercept the normal TCP data communication.

### **3. The communication indicator is not bright**

The communication indicator of the 3G equipments is no flicker. And communication indicator of other equipments will flicker only when DTU is receiving data .

### **4. The DTU is not able to connect after rebooting the center port software.**

This phenomenon will appear when there is only one center sever, and you do not configure the IP address of sub-center when you configure the main center IP address of the DTU.

If there is only one center sever, and no backup sever, you must fill the IP address and port of the main center sever into the IP address and port of backup center.

### **5. All the indicators are normal, but DTU is not able to send and receive data.**

Please contact the local mobile operator, and confirm whether the GPRS business is provided in your location, maybe the GPRS business has not covered all the GSM regions. Please confirm whether the IP address and the port ( communication port ) are right .

## **6. DTU is not able to enter the configuration state when you are configuring DTU.**

If you want to enter the parameter configuration state of the DTU, you have to select "enter the configuration state " from the " state" of the parameter configuration program. then it will appear "succeed entering the configuration state" in the information box which is on the right side of the parameter configuration software.

You also have to check whether the DTU Baud rate is right ( Baud rate of CM 3150EP series is 115200), check the Serial port line whether is normal.

If you want to configure the parameters by the AT commands and the super terminal,

you have to configure the baud rate for 115200bps, Even if you changed the communication Baud rate of your PC and DTU in the latter configuration .when you want to enter configuration program, you have to configure the Baud rate of super terminal for 115200bps, 8 data bits, 1 Stop bit, no parity, and the flow control of super terminal must be configured for no flow control. You have to press the S button of PC before supplying power to DTU or press the S button continuously after supplying power to DTU, until appearing the configuration menu interface.

## **Appendix VI: TCP protocol documents**

DTU using TCP working mode, will be the first time the server is connected to the server sends a packet registration package, default registration packet format below 1. When the DTU in the 60s and each server has no data to and from the words, DTU will send a packet spontaneous heartbeat packet to the server, in order to maintain the connection.

DTU sent to the packet format of the data center:

1. Each series of DTU registration packet format  
All series DTU registration packet format is as follows

|    |              |   |        |     |
|----|--------------|---|--------|-----|
| ID | PHONE_NUMBER | 0 | IP_ADD | ETX |
|----|--------------|---|--------|-----|



---

|        |         |        |        |        |
|--------|---------|--------|--------|--------|
| 4 byte | 11 byte | 1 byte | 4 byte | 1 byte |
|--------|---------|--------|--------|--------|

Introduction:

ID: 8 HEX ID number  
PHONE\_NUMBER: 11 Mobile phone number of ASCII code  
IP\_ADD: Dynamic IP address (HEX)  
ETX: "0x00", It indicates the end of the packet

2. DTU's default response to the series of registration package

All series of DTU default does not respond registered package.

3. The default heartbeat packets of each series of DTU

All series of DTU default heartbeat package for "FE".

4.The default heartbeat responses of each series of DTU

All series of DTU default does not respond to the heartbeat packet.

5 Each series of DTU packet format

All series of DTU default data transparently to the data center

✧ Notice:

1, if you use Caimore comes with demo software, and the need to change the registration package, it is recommended registration packet length is fixed to 21 bytes;

2, the heartbeat packet is one byte of data "FE", so the data if contains "FE", then we will do an escape process, if the customer needs to develop their own data center software, please consult our technical staff obtain escaping rules;

## Appendix VII: UDP protocol document

DTU use UDP work mode, will be the first time the server is connected to the server sends a packet registration package, default registration packet format below 1. When the DTU in the 60s and each server has no data to and from the words, DTU will send a packet spontaneous heartbeat packet to the server, in order to maintain the connection, if the case has been dropped, the heartbeat package and action on registration package, like heart 3 packet format below.

The packet format which DTU send to data center is following:

## 1. The series of DTU's default registration package

Format of XX50/XX60/ XX80 和 XX81:

| Starting flag | Package type | Package length | DTU ID code | DTU IP address | Local port | Ending flag |
|---------------|--------------|----------------|-------------|----------------|------------|-------------|
| 1 byte        | 1 byte       | 2 bytes        | 11 bytes    | 4 bytes        | 2 bytes    | 1 byte      |
| 0x7b          | 0x01         | 0x00<br>0x16   |             |                |            | 0x7b        |

Notice:

DTU ID code: the phone number of DTU RUIM card, for example: 13312345678

DTU IP Address: IP address of the DTU PPP dial-up after the success obtained.

Local port: XX50 and XX60 have on the value of the deal with difference, XX50 and XX60 can not specify a fixed local port, the port is randomly assigned, so the value will change each time you connect the local port. XX80 and XX81 The value can "DTU working parameters" in the configuration, specify a fixed local port, port to connect the server's local fixed value, when not configured, the default value is 0, but the port is actually randomly assigned, that connection when the server's local port is zero.

## 2. DTU's default response to the series of registration package

XX50 和 XX80:

| Starting flag | Package type | Package length | DTU ID code | Ending flag |
|---------------|--------------|----------------|-------------|-------------|
| 1 byte        | 1 byte       | 2 bytes        | 11 bytes    | 1 byte      |
| 0x7b          | 0x81         | 0x10           |             | 0x7b        |

Default no respond to registered package when XX60 & XX81 is in UDP mode

## 3. The default heartbeat package of all series DTU

| Starting flag | Package type | Package length | DTU ID code | DTU IP address | DTU communication port | Ending flag |
|---------------|--------------|----------------|-------------|----------------|------------------------|-------------|
| 1 byte        | 1 byte       | 2 bytes        | 11 bytes    | 4 bytes        | 2 bytes                | 1 byte      |
| 0x7b          | 0x01         | 0x16           |             |                |                        | 0x7b        |

Notice:

DTU 身份识别码: DTU RUIM 卡的电话号码, 如: 13312345678

DTU IP 地址 : DTU PPP 拨号成功后获得的 IP 地址。

DTU communication ports: DTU port for local communications.





Local Port: This value can be configured in "DTU working parameters"

4. Default heartbeat response package of all the series DTU

XX50 和 XX80:

| Starting flag | Package type | Package length | DTU ID code | Ending flag |
|---------------|--------------|----------------|-------------|-------------|
| 1 byte        | 1 byte       | 2 bytes        | 11 bytes    | 1 byte      |
| 0x7b          | 0x81         | 0x10           |             | 0x7b        |

XX60 和 XX81:

Default no respond to heartbeat package when XX60 & XX81 is in UDP mode