

## E-Lins Cellular DTU Modem QuickStart

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# Chapter 1

## Prologue

This document is suitable for the following products, it will show how to setup an E-Lins Cellular DTU Modem and helps you to use it.

Products type	Description
D120d-221	GPRS DTU Modem
D120d-225	GPRS DTU Modem
D120d-229	GPRS DTU Modem
D120c-325	CDMA DTU Modem
D120c-329	CDMA DTU Modem

## Version

Version	Date	Description	Author
2.10	2010-10-10	Changed once	Jason. Z

## Notice

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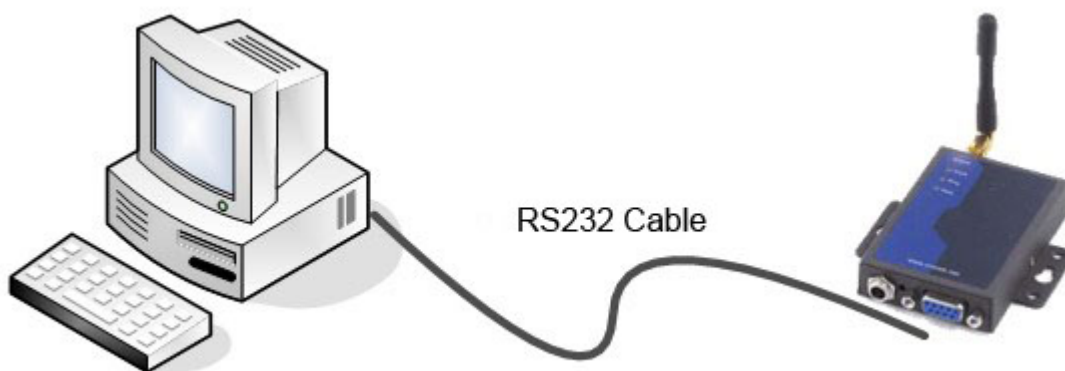
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# Chapter 2

## Getting Started

### Connect to products

1. Please connect antenna and cable with our products, make sure The port COM1 or COM2?



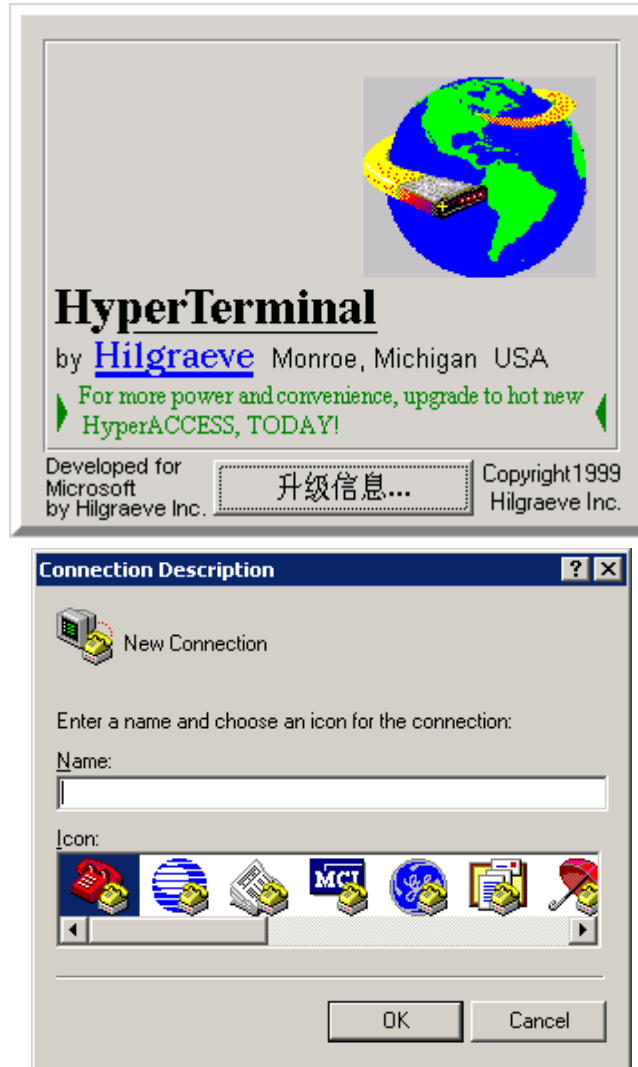
### Insert SIM Card

2. Open the back cover. insert into SIM card as below

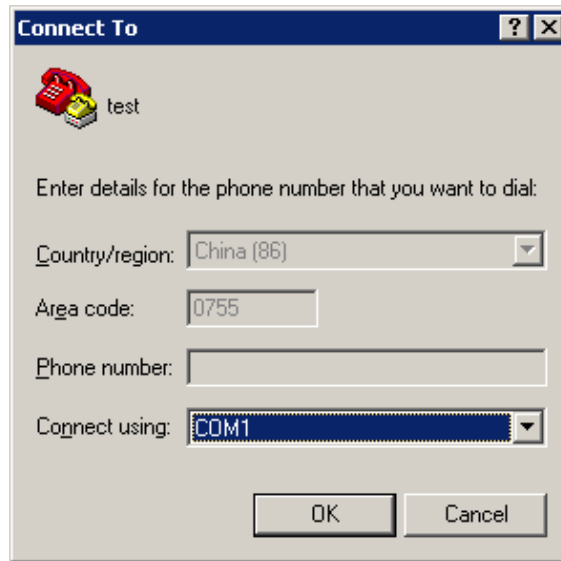


## Note: Hyper Terminal

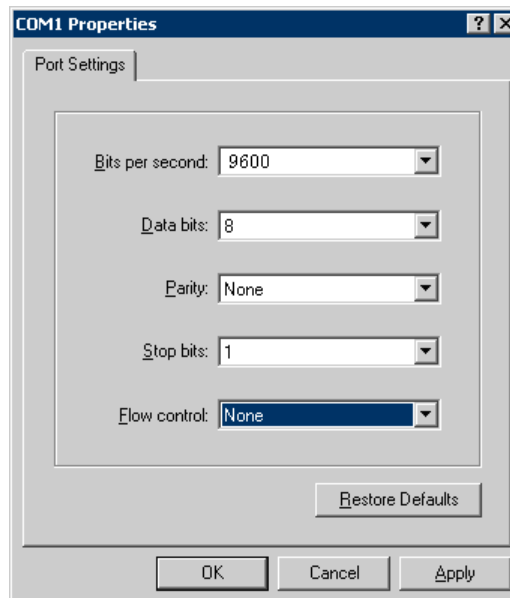
3. Open the HyperTerminal and input \*\*\*( any) as follows



4. Choose a right port



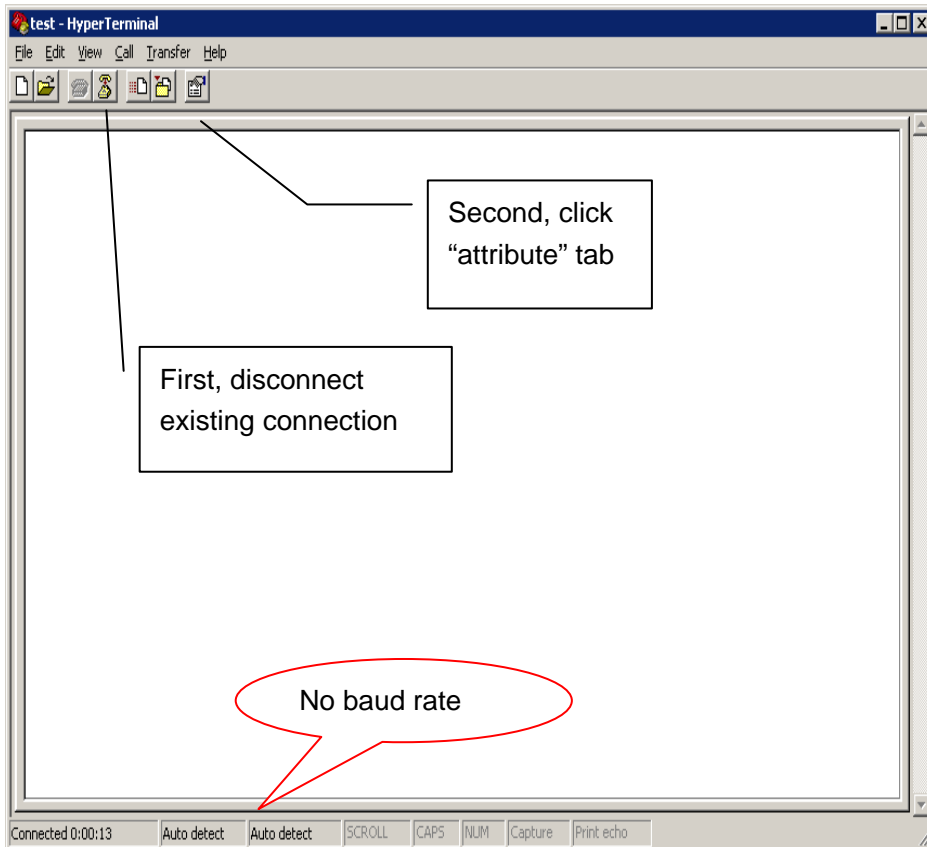
5. The right configuration as following



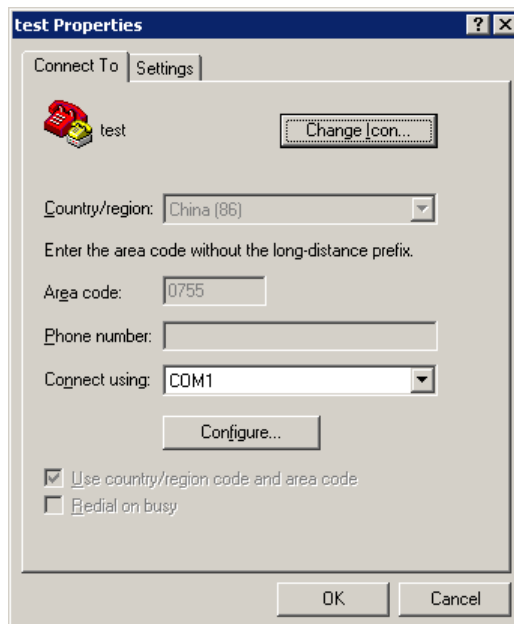
6. When your start-up Hyper Terminal, if it is not connected successfully, you can see the red mark of follow picture without any number.

Please follow the following steps to make it work.

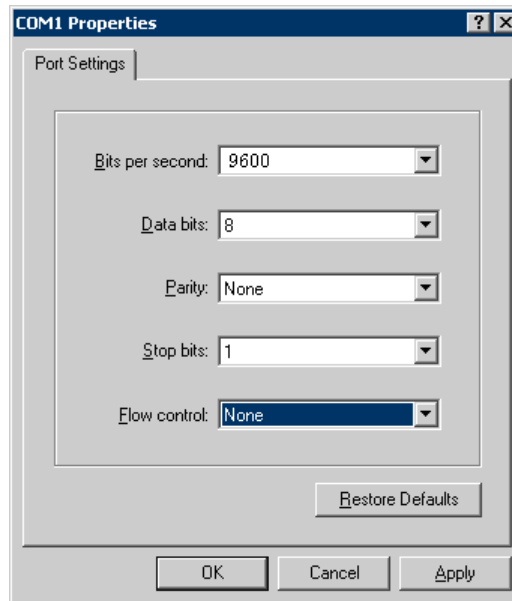
1. First, disconnect existing connection.
2. Second, click the "Properties button" or "attribute button".



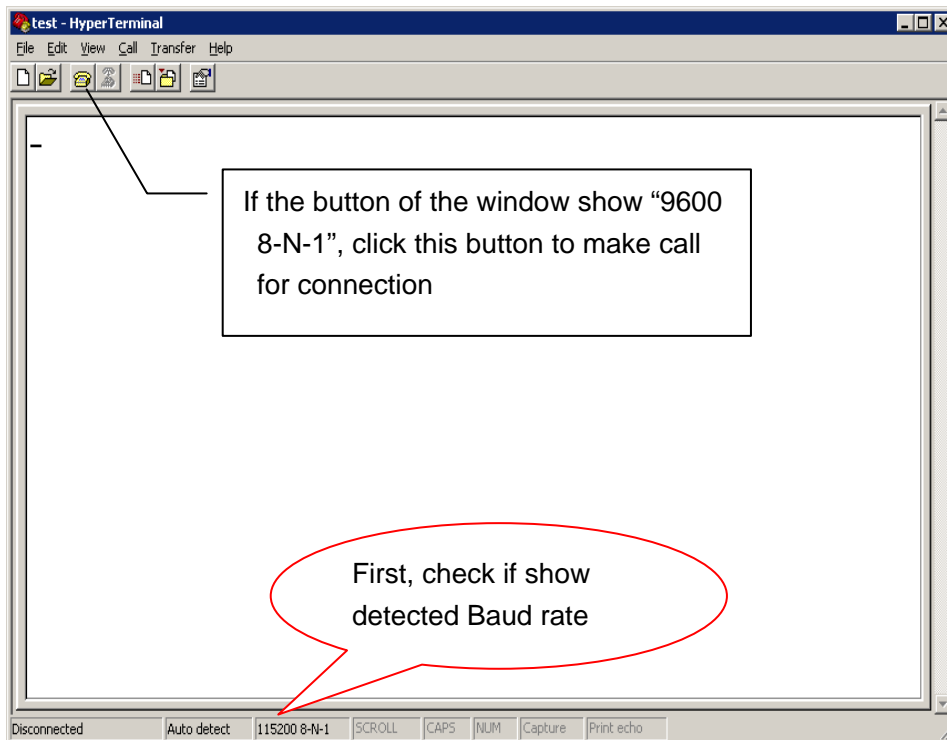
7. click the "configure", and make sure again of you modify configure



8. make sure your modify configure again, click "OK"

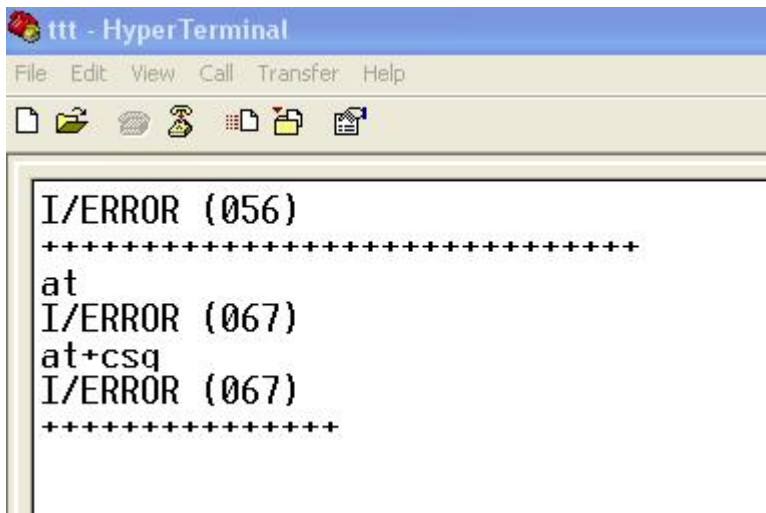


9. Then you can see it appeared baud rate on white label, then click the black label to make call



10. Press “+” on computer keyboard until the “Hyper Terminal screen” shows the “+++++++”, which means your configuration of the Hyper Terminal is successful.





Do not care about the ERROR code, just care if you see “+++++++” on the screen. If yes, the connection is successful.

## Test AT command

### Notes:

1. All <CF> means “enter”
2. The character and words in Green and Red is very important. Please study carefully. Thanks!

AT<CF>	//Test “at” command
I/OK	//Response ok parameter if successfully connected, you can make sure the module have no malfunction
AT+i	//do nothing, or switch mode from AT command to AT+i Command
AT+iMCM	//switch mode from AT+i command to AT command

### Notes:

if the DTU is in “at” command mode, the ”at+i” command will not work, then you need switch “at” command mode;

if the DTU is in “at+i” command mode, the ”at” command will not work, then you need switch “at+i” command mode;

For example, if you are in “at” command mode, you can only input “at+csq” command, but cannot input “AT+iPARS” command. At this situation, you need type “at+i <CF>” to switch to “at+i” command mode. Then you can input “AT+iPARS” command successfully.

AT+CSQ<CF>	// to check the Signal quality
+CSQ: **, ##	// ** Should be the number between 10 and 31, the signal quality becomes better as the number grows.                      ## should be is 99, Or you should checking the equipment of antenna or SIM card.

---

ATD13800000000; //voice call for D120-221/225/229/325/328 (this is just an example for Chinese Mobile Network Provider )

AT+CDV13800000000 //voice call for D120c-329 (this is just an example for Chinese Mobile Network Provider )

AT+IPR=### //Set the Baud Rate, Please refer the chapter 6 for detail

For normally, just set the following parameters.

AT+iHSRV=ip:port //set the server IP and port, you can also set as DDNS instead of IP.

AT+iMIS="at+cgdcont=1,ip,\*\*\*\*" //Setting network(APN), fit for D120-221

AT+iMIS="at+cgdcont=1,\"ip\", \"\*\*\*\*\"" //Setting network(APN), suitable for D120-225/229

AT+iUSRN=\*\*\*\* // user name

AT+iPWD=\*\*\* // password

AT+iPARS //save the parameter

AT+iHSRV=? // to enquiry the "AT+iHSRV" setting result.

# Chapter3

## Configure DTU Modem by PC

### TCP Client

### SerialNet Mode

AT+iHSRV=ip:port //set the server IP and port, you can also set as DDNS instead of IP.

AT+iTUP=2 //always online mode

AT+iPARS //parameter save

Notes: Please must input "AT+iPARS" command to save the parameters after configuration.

AT+!SNMD //switch to SerialNet mode (please must input this command after parameter save, then the DTU modem will be into communication mode for work)

.....

.....

..... //communication

.....

.....

+++ //exit SerialNet mode

AT+iTUP=0 //disable the always online mode, refer chapter 8 for detail

AT+iPARS // parameter save

Note: our test server: 218.108.22.22: 80 it will send 1 "ok" to client per minute

### SerialNet Mode with trigger up

AT+iHSRV=ip:port // set the Server IP and port

AT+ilATO=n //n=Integer, the DTU will offline when the connect no data transport in (n) seconds

AT+iTUP=1 //set it to trigger up mode, refer chapter 8 for detail

AT+iPARS // parameters save

AT+!SNMD //switch to SerialNet mode

.....

.....

..... //communication

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```
.....  
.....  
+++                //exit SerialNet mode  
AT+iTUP=0          //disable the trigger up function  
AT+iPARS           //parameters save
```

Note: our test server: 218.108.22.22: 80 it will send 1 "ok" to client per minute

## Socket mode

```
AT+iSTCP:ip,port   //establish a tcp connection to the IP and port  
I/(000)            //000 is the Right connection handle  
I/ERROR(075)       //not logon cellular network, please checking Card and Signal quality  
I/ERROR(207)       //logon cellular network, But can't connecting to TCP server programme, you should  
                   to check firewall, IP Port and port listen if collide with them
```

```
AT+iSSND%:000, n:*****  
                   //send a stream(*****) to connect 000, length is (n),  
AT+iSRCV: 000      //receive data from connection 000  
AT+iSCLS: 000      //close the connection 000
```

Note: our test server: 218.108.22.22: 80 it will send 1 "ok" to client per minute

## UDP Connect

## SerialNet Mode

```
AT+iSTYP=1         //set UDP mode  
AT+iHSRV=ip:port   //set opposite IP and port  
AT+iLPRT=port      //set local port for listen  
AT+iTUP=2          //always online  
AT+iPARS           //parameters save  
AT+i!SNMD         //switch to SerialNET mode (please must input this command after parameter save,  
                   then the DTU modem will be into communication mode for work)
```

```
.....  
.....  
.....              //communication  
.....  
.....
```

```
+++                //exit SerialNet mode  
AT+iTUP=0          //disable always online function
```

```
AT+iSTYP=0 //restore to tcp mode
AT+iPARS //parameter save
```

## SerialNet Mode with Trigger Up

```
AT+iSTYP=1 //set UDP mode
AT+iHSRV=ip:port //set opposite IP and port
AT+iLPRT=port //set local port for listen
AT+iIATO=n //n=Integer, the DTU will offline when the connect no data transport in (n) seconds
AT+iTUP=1 //set it to trigger up mode, refer chapter 8 for detail
AT+iPARS //parameters save
AT+!SNMD //switch to SerialNET mode (please must input this command after parameter save,
then the DTU modem will be into communication mode for work)

.....
.....
..... //communication
.....
.....
+++ //exit SerialNet mode
AT+iTUP=0 //disable always online function
AT+iSTYP=0 //restore to tcp mode
AT+iPARS //parameter save
```

Note: change to SerialNet mode, the AT command don't have "!"

## Socket Mode

```
AT+iSUCP:ip,port:lport //establish a UDP connection by command. Send data to ip&port, receive data from
lport
I/(000) //000 is handle of the connection
AT+iSSND%:000,n:*****
//send a stream (***** ) to connect 000, length is (n),
AT+iSRCV: 000 //receive data from connection 000
AT+iSCLS: 000 //close the connection 000
```

## DTU Point to Point Connecting Mode

Client setting is the same as above, server setting is below

Note: in china mainland, the point-to-point transmit ion mode is used to special network: VPDN,

## TCP Server

```
AT+iHSRV=""           //clear the parameter
AT+iLPRT=port        //setting the listen port
AT+iTUP=2            //always online
AT+iPARS             //parameters save
AT+!SNMD             //switch to SerialNET mode (please must input this command after parameter
                    //save, then the DTU modem will be into communication mode for work)
.....
.....
.....                //wait for the connection establish
.....
.....
+++                 //exit SerialNet mode
AT+iTUP=0           //disable always online function
AT+iPARS           //parameter save
```

Note: TCP Server must use always online function, please put jumper to the pin of watch dog, refer chapter 7 for detail.

## UDP Server

No especial setting

Note: UDP connection both sides is equal, so both sides is used the same settings as before.

# Chapter 4

## Common function

### Ping Function

```
AT+iPDS1=220.192.32.103
//setting advanced destination for ping
AT+iPDS2=220.192.0.130
//setting backup destination for ping, when first destination reply time out
AT+iPDS1=www.sina.com //Setting aim top-priority server, send PING package for cycle, ( you can changed
address with others)
AT+iPDS2=www.21cn.com//setting backup server, in case top-priority servers have pro blem (you can changed
address with others)

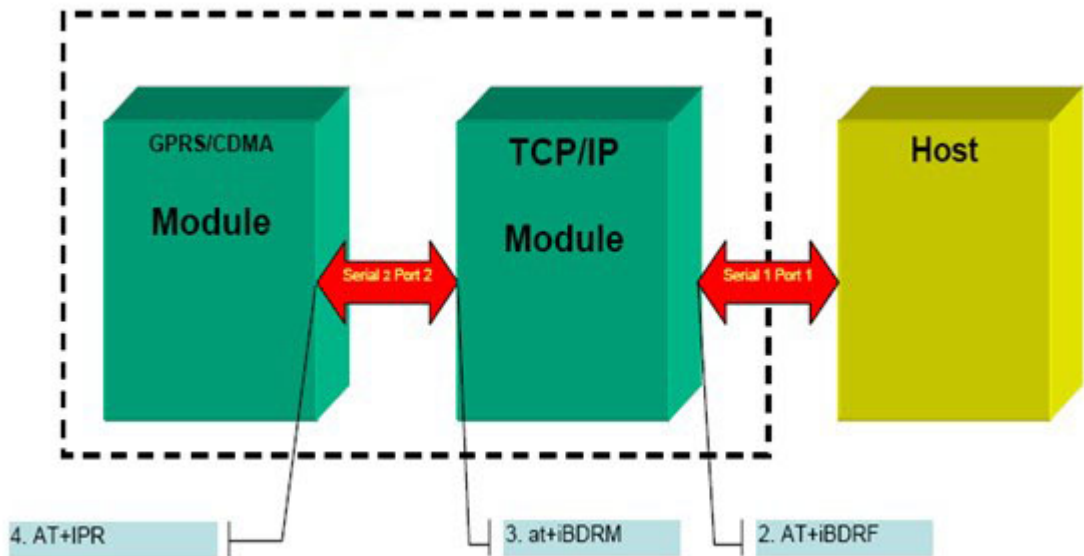
AT+iPGT=10000 //setting timeout
AT+iPFR=n //setting frequency to send ping packet
AT+iPARS //parameter save
```

Note: The function is only for SerialNET mode, detect whether online by period sending ping packet. Redial up when be detected offline. In Chinese mainland, China Unicom filter the ping packet to Internet, so the user should set the destination to China Unicom' DNS.

### Common China Unicom DNS

```
220.192.32.103
220.192.0.130
```

## How to Change Baud Rate



### Change CDMA Module Baud Rate

AT+iMCM //switch to at command mode  
 AT+IPR? //query current baud rate  
 AT+IPR=n //setting a new baud rate

Note: n=0/2400/4800/9600/19200/38400/57600/115200 (the factory default value is 9600)

### Change TCP/IP Module Baud Rate

AT+i //switch to AT+I command mode  
 AT+iBDRF=n //below AT+I command should take effect after power down and on  
 AT+iBDRM=n  
 AT+iSNSI="n,8,m,1,0" //m=n,o,e(no parity, odd parity, even parity), the parameters must use low case  
 AT+iPARS //parameter save

### The relation with parameter to baud rate

n=3	2400
n=4	4800
n=5	9600
n=6	19200



n=7	38400
n=8	57600
n=9	115200

Note: AT+IPR change the CDMA Module baud rate, AT+iBDRF, AT+iBDRM is TCP/IP Module baud rate for command mode, AT+iSNSI is TCP/IP Module baud rate for SerialNET. To change baud rate, you must take the right order, firstly CDMA Module, secondary TCP/IP Module

## How to setup APN Or VPDN

### Setting APN Configuration

```
AT+iMIS="at+cgdcont=1,ip,****" //Setting network(APN), fit for D120-221
AT+iMIS="at+cgdcont=1,\"ip\", \"****\" //Setting network(APN), suitable for D120-225/229
AT+iUSRN=**** // user name
AT+iPWD=*** // password
AT+iPARS //save the parameter
```

For example, for China Mobile Network Provider with EDGE/GPRS network, the command is as follows:

```
AT+iMIS="at+cgdcont=1,ip,cmnet"<CR>
AT+iUSRN=wap<CR>
AT+iPWD=wap<CR>
AT+iPARS<CR>
```

Notes: the APN parameters are from your network provider. Please ask for this.

### Setting VPDN configuration

```
AT+iUSRN=**** //user name
AT+iPWD=*** // password
AT+iPPP=1 //Setting network (VPDN)
AT+iATH=n //n=1(PAP), 2(CHAP) Network certification mode, need to consult for the UN
AT+iPARS // Save parameter
```

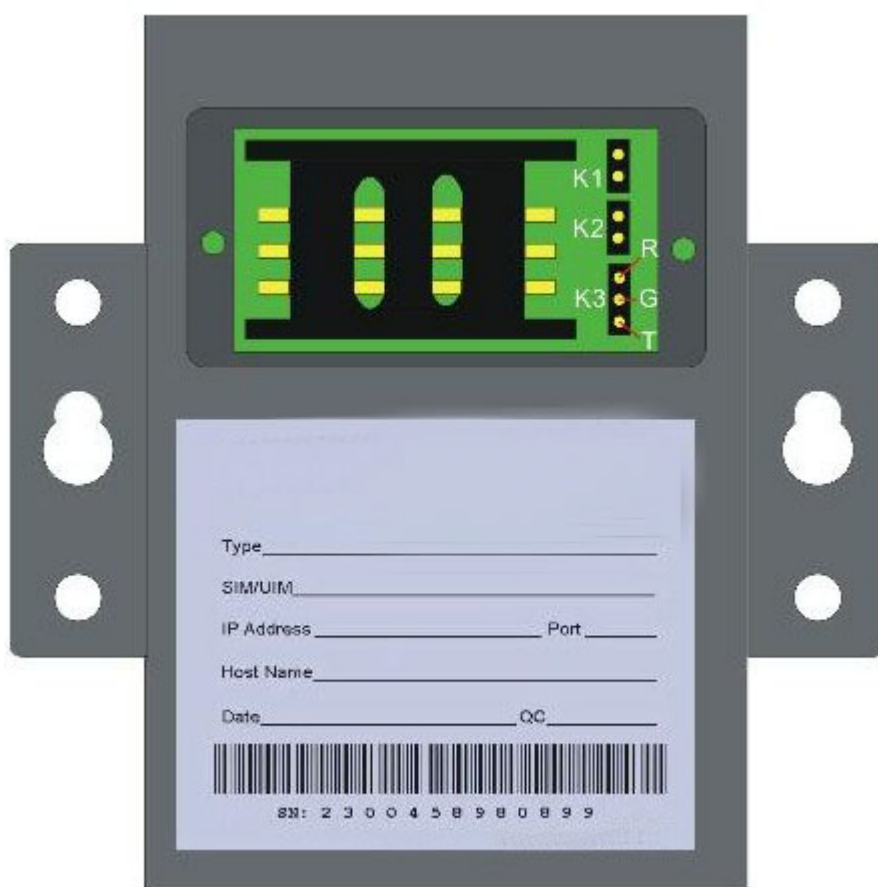
### AT+iTUP Function

```
AT+iTUP=0 //disable the function
AT+iTUP=1 //trigger up mode
AT+iTUP=2 //always online mode
```

Note1: AT+iTUP=2 is for common SerialNET, auto redial up when offline; AT+iTUP=1 is for SerialNET with trigger up, offline when no data transfer in a period (refer chapter 9 for detail), and trigger up by some signal list below: 1 detect data need to transfer in serial port. 2 detect a ring signal, such as the wireless module has been dialed.

Note2: When the DTU in the command mode, and AT+iTUP=2, power on, in about 20~30 seconds the DTU should auto dial up, do not respond any command, If you don't want to wait, press a stream "+", to abort the DTU operation.

## Watch Dog



K1	K2	Monitor Timeout
Open	Open	∞
Open	Close	15 minutes(D120-221/225/229/325) 30 minutes(D120-328/329)
Close	Open	30 minutes(D120-221/225/229/325) 10 minutes(D120-328/329)
close	Close	5 minute

R●	RG Close	GT Close	Open
G●	Reserve	Monitor Host receive	Disable the Function

## Flow Monitor

AT+iIATO=n //n>60 (second), offline when no data transfer (both send & receive) in the setting time.

Note: In the common SerialNET mode and AT+iTUP=2, the DTU modem should re-online immediately. In the SerialNET with trigger up and AT+iTUP=1, the DTU modem should be offline until be trigger up