

V1.00

New Exciting Product

Forwell Wireless D1 Series DTU



Quick Start

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Chapter 1

1 Prologue

This document is suitable for the following products, it will show how to setup a FORWELL DTU and helps you to use it.

Products	Description
D12	GPRS DTU
D13	CDMA DTU
D82	GPRS DTU 26Pin

1.1 Version

Version	Date	Description	Author
1.00	2008-07-07	Changed once	China.wang
1.10	2008-10-24	Change the description of baud rate and interrupt of command mode	Shandy

1.2 Reference

D12_Datasheet_Eng
D13_Datasheet_Eng
D82_Datasheet_Eng
D1_Usermanual_Eng
D8_Usermanual_Eng

1.3 Announcement

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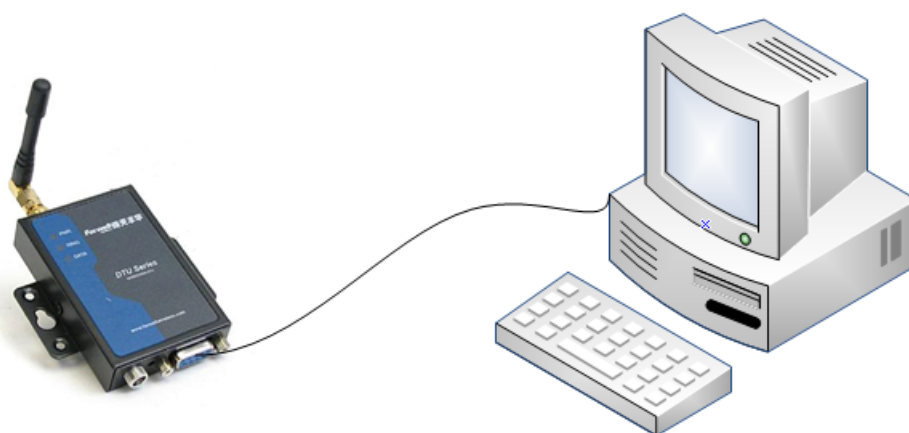
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Chapter 2

2 Getting Started

2.1 Environment

Connect the antenna, power adapter and serial cable to the device.



(2-1)

Open the back cover. insert the SIM card into the card slot



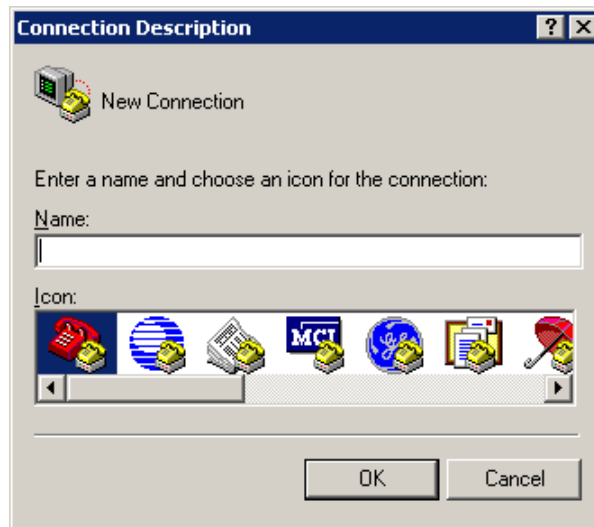
(2-2)

Open the HyperTerminal



(2-3)

Input the name of the task



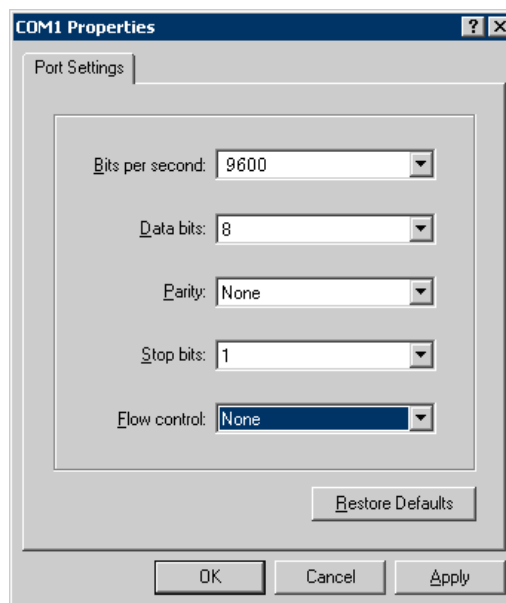
(2-4)

Choose the series port which the D1 connect to



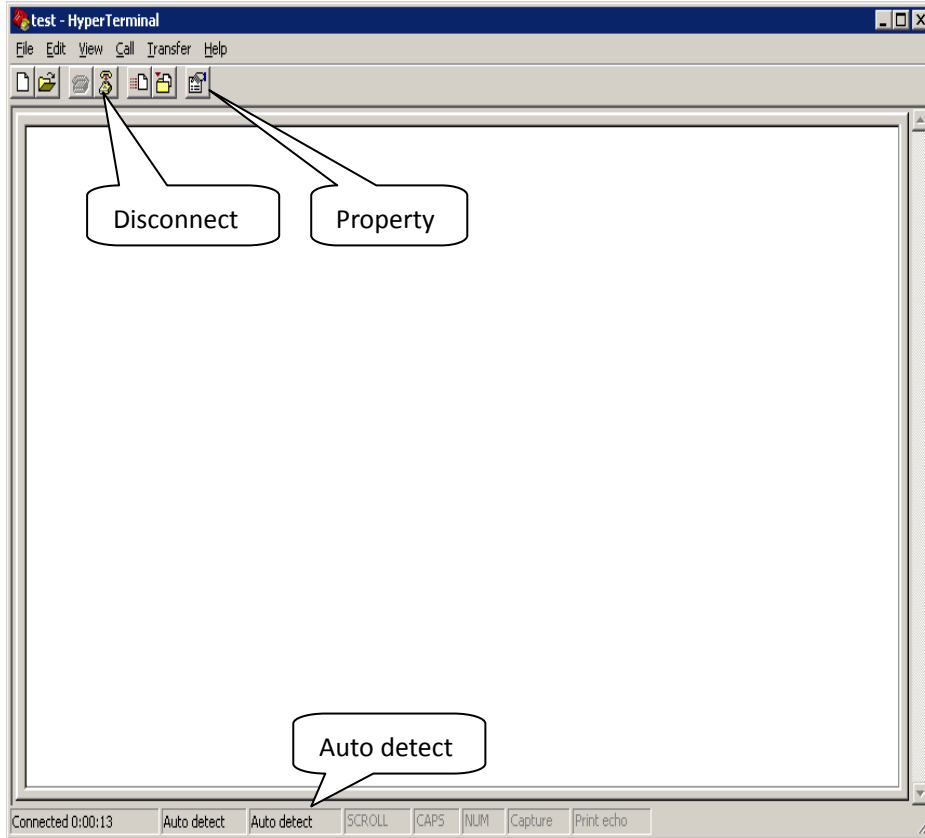
(2-5)

Setting the series port parameters

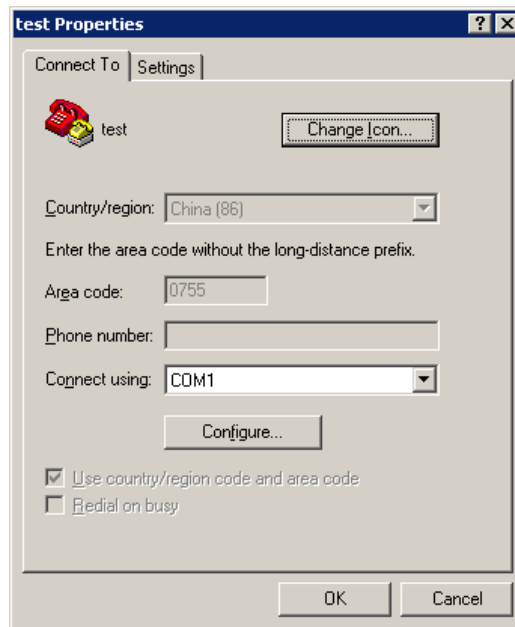


(2-6)

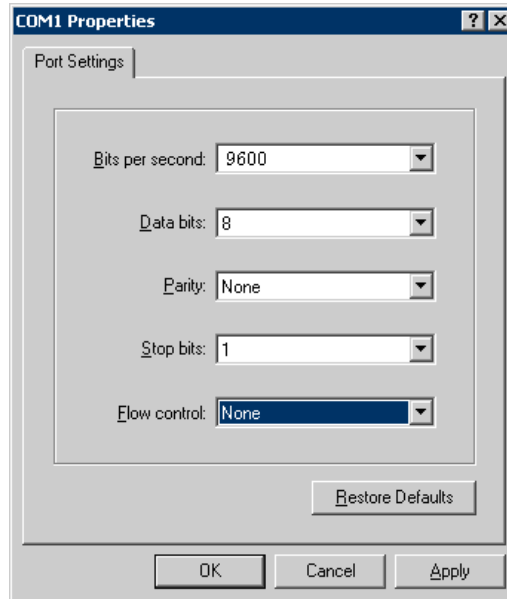
If the baud rate still appear auto detect, disconnect and setting series port parameter again



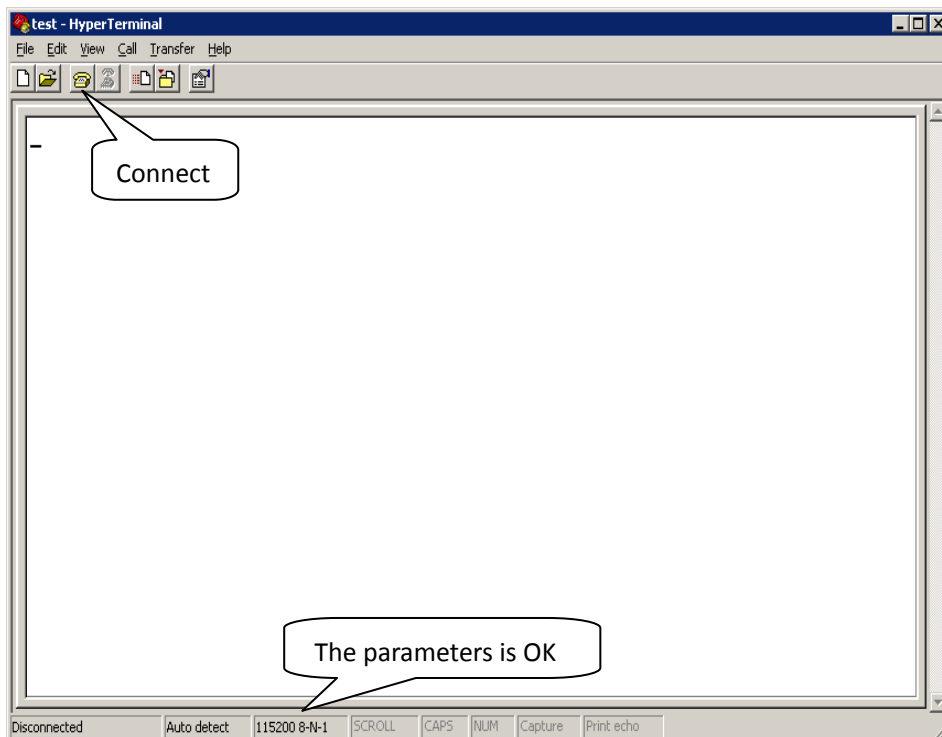
(3-4)



(3-5)



(3-6)



2.2 Command

+++ //return to command mode, the "+" do not display
 I/ERROR(056) //the background operate is abort, and start to accept the commands

AT+i<CR> //switch AT command mode to AT+i command mode
 AT+iMCM<CR> // switch AT+i command mode to AT command mode

2.2.1 AT commands

AT***=***<CR>	//setting the parameter
AT***=?<CR>	//query the parameter scope
AT***?<CR>	//query the recent parameter value
AT+CSQ<CR>	//query 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;<CR>	//call a number
AT+IPR=###<CR>	//Set the Baud Rate

2.2.2 AT+i commands

AT+i***=***<CR>	//setting the parameter
AT+i***=?<CR>	//query the parameter scope
AT+i***?<CR>	//query the recent parameter value

Chapter 3

3 Configure DTU by PC

3.1 TCP Mode

3.1.1 TCP Client SerialNet Mode Always Online

```
+++ //interrupt, the DTU will change to command mode, the +++  
will not to display, and the operate will keep about 10 second  
AT+iHSRV=ip:port //set the destination IP and port  
AT+iTUP=2 //always online mode  
AT+iPARS //parameter save  
AT+!SNMD //switch to SerialNet mode  
.....  
.....  
..... //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

3.1.2 TCP Client SerialNet Mode Trigger online

```
+++ //interrupt, the DTU will change to command mode, the +++  
will not to display, and the operate will keep about 10 second  
AT+iHSRV=ip:port // set the Server IP and port  
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  
.....  
.....  
..... //communication
```

.....

.....

```
+++ //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

3.1.3 TCP Client Socket mode

```
+++ //interrupt, the DTU will change to command mode, the +++
will not to display, and the operate will keep about 10 second
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

3.1.4 TCP Server

```
+++ //interrupt, the DTU will change to command mode, the +++
will not to display, and the operate will keep about 10 second
AT+iHSRV="" //clear the parameter
AT+iLPRT=port //setting the listen port
AT+iTUP=2 //always online
AT+iPARS //parameters save
AT+i!SNMD //switch to SerialNET mode
.....
.....
..... //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 follow chapters for detail.

3.2 UDP Mode

3.2.1 UDP SerialNet Mode Always Online

```
+++ //interrupt, the DTU will change to command mode, the +++
will not to display, and the operate will keep about 10 second
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+!SNMD //switch to SerialNET mode
.....
.....
..... //communication
.....
.....
+++ //exit SerialNet mode
AT+iTUP=0 //disable always online function
AT+iSTYP=0 //restore to tcp mode
AT+iPARS //parameter save
```

3.2.2 UDP SerialNet Mode Trigger Online

```
+++ //interrupt, the DTU will change to command mode, the +++
will not to display, and the operate will keep about 10 second
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
.....
.....
..... //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 "!"

3.2.3 UDP Socket Mode

```
+++ //interrupt, the DTU will change to command mode, the +++
will not to display, and the operate will keep about 10 second
AT+iSUCP:ip,port:lport //establish a UDP connection by command. Send data to
ip&port, receive data from lport
l/(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
```

Chapter 4

4 Comom function

4.1 Ping

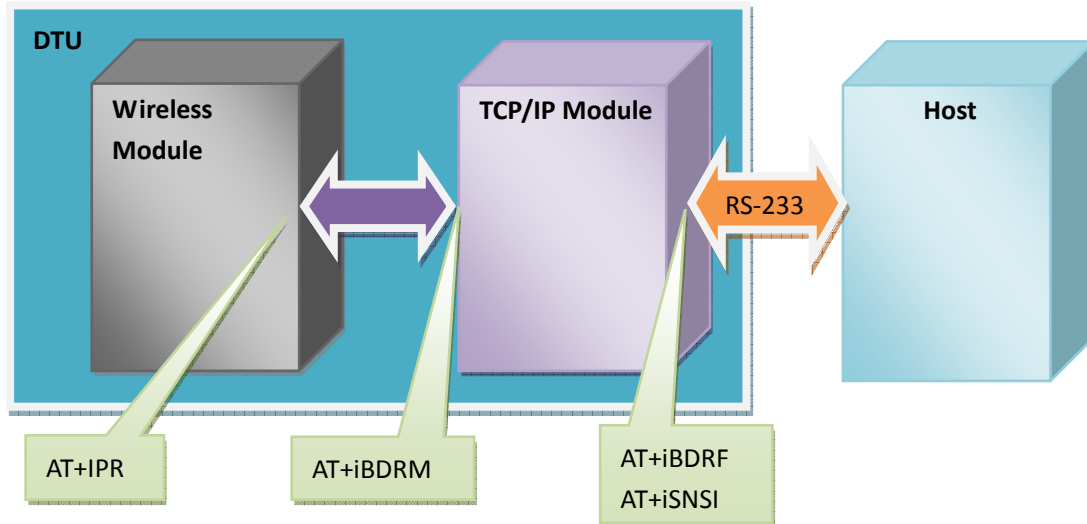
```
AT+iPDS1=220.192.32.103           //setting primary destination
AT+iPDS2=220.192.0.130           //setting backup destination, when first destination reply time
                                  out
AT+iPDS1=www.sina.com             // setting primary destination
AT+iPDS2=www.21cn.com            // setting backup destination, when first destination reply time
                                  out

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 always online 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
```

4.2 Baud Rate



4.2.1 Change Wireless Module Baud Rate

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

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

4.2.2 Change TCP/IP Module Baud Rate

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

4.2.3 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

4.3 setup APN or VPDN

4.3.1 Setting APN Configuration

```
AT+iMIS="at+cgdcont=1,ip,****" //Setting network(APN), fit for D12S211
AT+iUSRN=**** // user name
AT+iPWD=*** // password
AT+iPARS //save the parameter
```

4.3.2 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
```

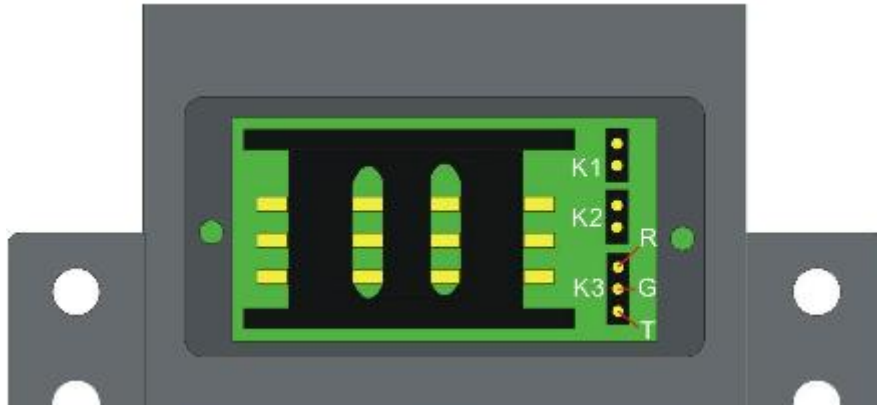
4.4 AT+iTUP Function

```
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.

4.5 Watch Dog



K1	K2	Monitor Timeout
Open	Open	∞
Open	Close	15 minutes 30 minutes
Close	Open	30 minutes 10 minutes
close	Close	5 minute

RG Close	GT Close	Open
Monitor Reserved	Monitor Send	Disable the Function

4.6 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 should re-online immediately. In the SerialNET with trigger up and AT+iTUP=1, the DTU should be offline until be trigger up