
Model W3100G

GPRS Solutions for Serial Connections

User Manual



Updated on 2013/08/15



Tel: +86 755 - 8345 - 3318

Fax: +86 755 - 8355 - 5891

<http://www.szatc.com>

Important Announcement

The information contained in this document is the property of SHENZHEN ATC TECHNOLOGY CO.,LTD. and is supplied for the sole purpose of the operation and maintenance of products of SHENZHEN ATC TECHNOLOGY CO.,LTD. No part of this publication is to be used for any other purposes, and it is not to be reproduced, copied, disclosed, transmitted, stored in a retrieval system, or translated into any human or computer language, in any form, by any means, in whole or in part, without the prior express written consent of SHENZHEN ATC TECHNOLOGY CO.,LTD.

Published by

SHENZHEN ATC TECHNOLOGY CO., LTD

Room 809, Taikang Building, Tairan Industrial & Trading Zone, Futian District, Shenzhen China

Latest product info: <http://www.szatc.com>

Phone: +86 755 - 8345 - 3318

Fax: +86 755 - 8355 - 5891

E-mail: Sales@szatc.com Nicamhong@szatc.com

Copyright © 2013 SHENZHEN ATC TECHNOLOGY CO., LTD. All rights reserved.

All other product names referenced herein are registered trademarks of their respective companies

Contents

Important Announcement.....	2
Published by.....	2
Contents.....	I
1 Introduction.....	1
2 Hardware Setup.....	2
2.1 LED Indicators.....	2
2.1.1 LINK LED.....	2
2.1.2 STATE LED.....	3
2.1.3 ACT LED.....	3
2.1.4 PWR LED.....	3
2.2 Installation Procedures.....	3
2.3 Power.....	4
3 Configuration.....	5
3.1 Configuration Introduction.....	5
3.2 Run the configure tool: DTU Configuration Tool V2.3.exe.....	6
3.3 Configuration.....	7
3.3.1 Serial port settings.....	7
3.3.2 IO setting.....	7
3.3.3 Work mode.....	7
3.3.4 DTU configuration.....	8
3.3.5 Functions.....	9
3.4 SMS commands.....	10
4 Appendix.....	12

1 Introduction

W3100G is an embedded wireless data transmission module which is based on the GSM\GPRS network. This module has wide network coverage and easy to establishing network. And it is also a high reliability and low operation cost module.

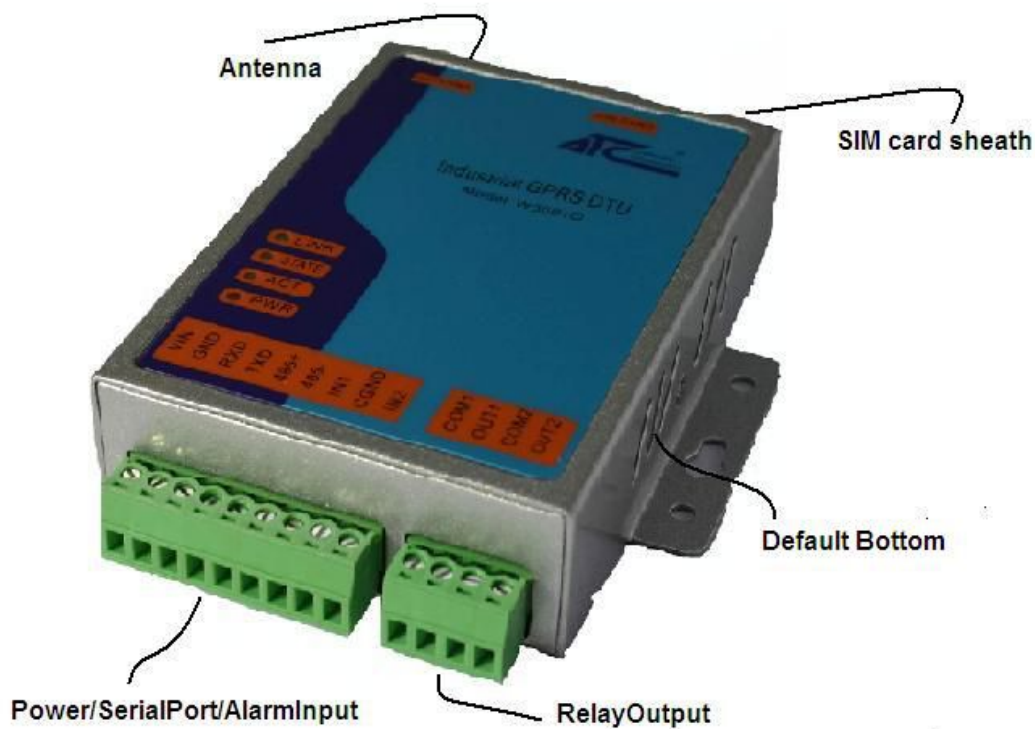
This DTU can bidirectional full transparent transmission between GPRS and UART so that you can connect you device to internet and make a convenient wireless remote communication. The Operating temperature of the DTU is range from -35°C to +80°C reaches the industrial standards. This module can be used for the Industry about industrial control, field communication, remote monitoring, intelligent power meter system, traffic control, meteorological phenomena monitoring, water conservancy monitoring, environment monitoring, Finance & Securities, LED information publishing system, mine, petroleum and so on. It is suitable for the center to multiple points system and medium or small transmission of dispersed multiple points system.

Packaging

Please check ones package contains the following items:

- W3100G x 1
- Power Adapter 9~24VDC x 1
- Product CD containing configuration utility x 1
- W3100G DTU quick start guide x 1
- Printed version of this W3100G Quick Start Guide 1Pcs

2 Hardware Setup



2.1 LED Indicators

2.1.1 LINK LED

Message	Description
Off	GSM Disconnected
On	GSM Connected

Table 1. LINK LED Message

2.1.2 STATE LED

Message	Description
Off	Not working
Blinking	Searching GSM network
On	GSM Connected
Table 2. STATE LED Message	

2.1.3 ACT LED

Message	Description
Off	No data is transmitting between GSM and serial port
On	Data is transmitting between GSM and serial port
Table 3. ACT LED Message	

2.1.4 PWR LED

Message	Description
On	Power on
Off	Power off
Table4. PWR LED Message	

2.2 Installation Procedures

Installation of SIM card:

The SIM card should be install well before power on the DTU. Use a needle object to press the out bottom

of SIM card outlet. Then the SIM card sheath will flick out at once. And then put the SIM card into the card sheath, and insert card sheath back to the SIM card outlet.

Warning: Forbid to install SIM card when powered!

Installation of antenna:

Screw the SMA male pin of the antenna to the female SMA outlet of the DTU tightly.

Warning: The antenna should be screwed tightly, or the signal quality of antenna will be influenced!

Installation of cable:

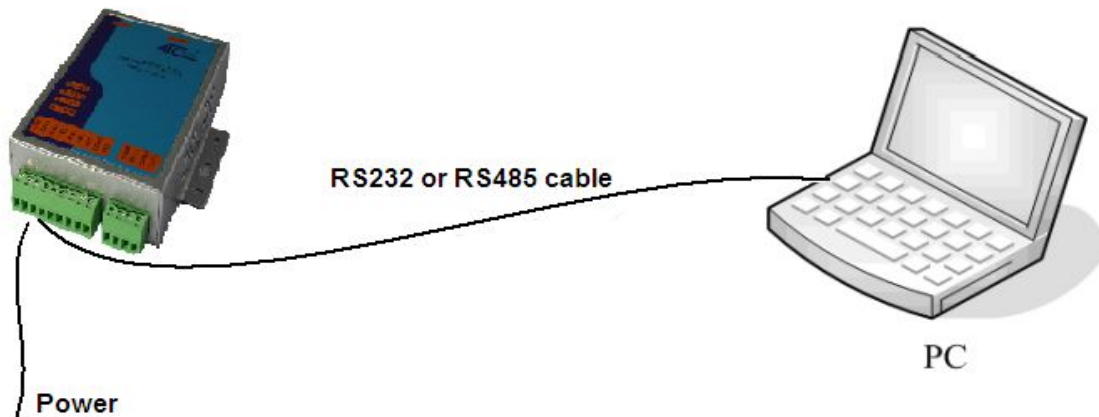
Uses a RS232/485 data cable connect the DTU with user's device.

2.3 Power

The power range of the DTU is DC 9~24V. We recommend use to use the standard DC 9V/1A power adaptor.

3 Configuration

Before configuration, we should connect the DTU to a PC with a RS-232 or RS-485 cable as following.

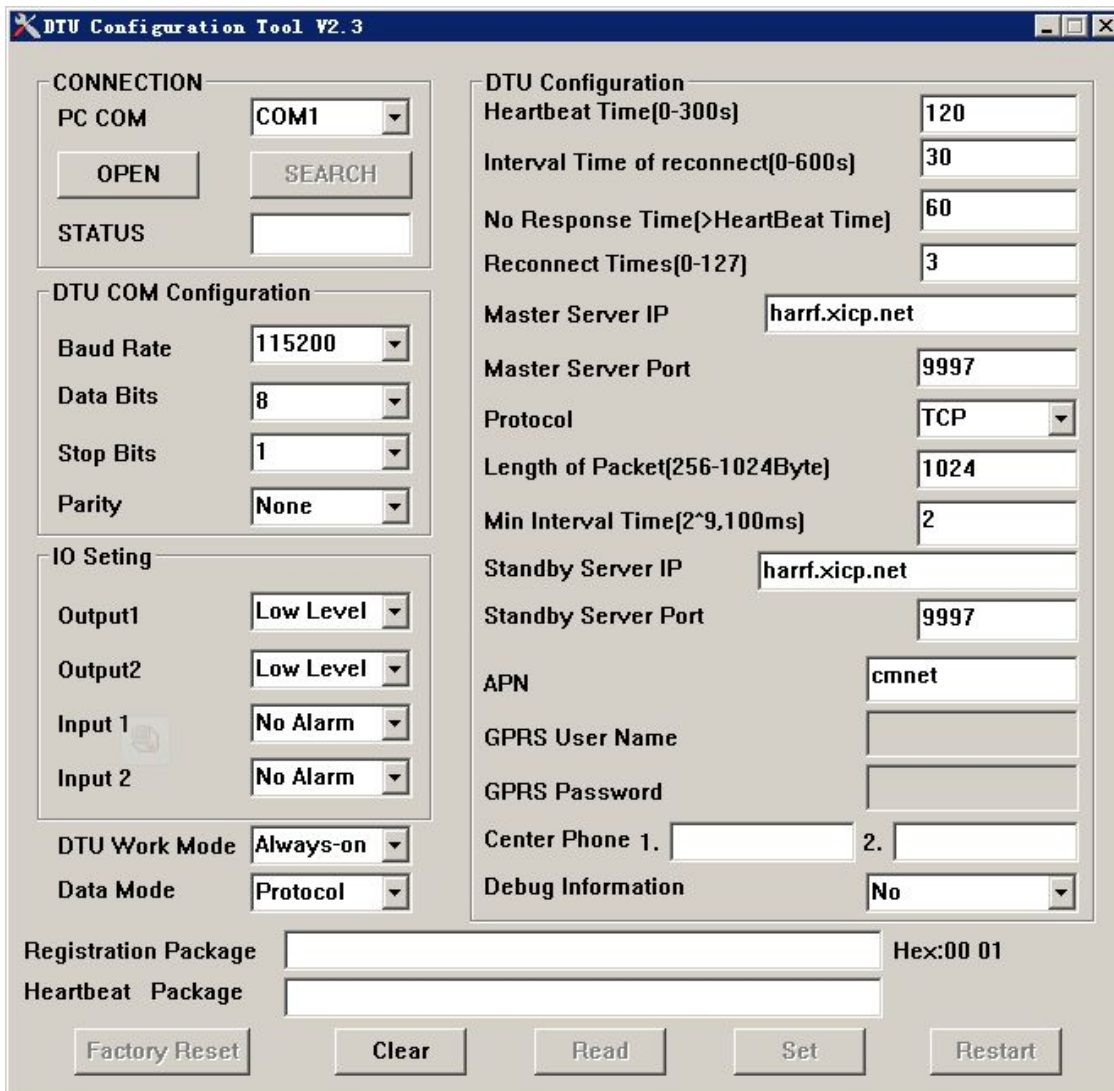


3.1 Configuration Introduction

You can use a configuration software tool. All the setting are configured by a software tool. There should have a PC to run this tool. In addition to this you can also use some mobile phone text messages to configured this DTU.

The following will tell how to configure DTU with the software tool and brief introduction of SMS commands.

3.2 Run the configure tool: DTU Configuration Tool V2.3.exe



Open the configuration software.

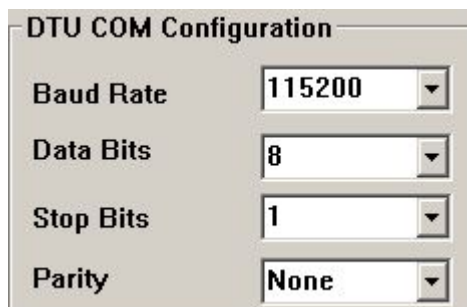
Use a serial cable connect DTU to you PC, and the check the COM Port number of the DTU use in the device manager. Choose the correct COM port number in the configure software and open it. Then click the bottom named search and reset the DTU. If the software find the DTU a message box will appear.



3.3 Configuration

3.3.1 Serial port settings

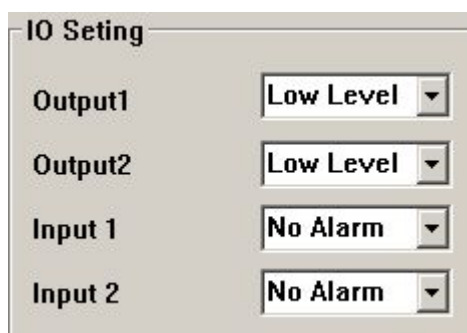
Settings on the “DTU COM Configuration” frame are the parameters related to serial port.



DTU COM Configuration	
Baud Rate	115200
Data Bits	8
Stop Bits	1
Parity	None

3.3.2 IO settings

Settings on the “IO Setting” frame are the parameters related to IO port.



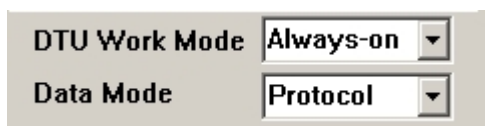
IO Setting	
Output1	Low Level
Output2	Low Level
Input 1	No Alarm
Input 2	No Alarm

There are two digital outputs and every port with a relay. And the output IO can output TTL signal directly.

The input IO can receive a high level and give an alarm signal to data center. The range voltage of the high level is 3~12V,the current should less then 30ma.

Noted: For the output only the high level is allowed. And only high alarm is allowed for input.

3.3.3 Work mode



DTU Work Mode	Always-on
Data Mode	Protocol

DTU Work Mode:

Always-on ---- the DTU will always on line

Awaken ---- if there isn't data transmit in 5 minutes, DTU will cutoff connect until have a message of phone call to awake.

GPRS Dial up ---- sleep until have a message of phone call to awake.

3.3.4 DTU configuration

Settings on the “DTU Configuration” frame are the parameters related to DTU set.

◆ Heartbeat Time

Heartbeat Time(0-300s)

This time means how long the DTU will send a heartbeat package to data center. Via the heartbeat package can know the DTU is alive. Default is 120s.

◆ Interval Time of reconnect

Interval Time of reconnect(0-600s)

This time means how long the DTU will reconnect again. Default is 30s.

◆ No Response Time

No Response Time(>HeartBeat Time)

This means the DTU will reconnect if no response in this time. This time should be longer then the Heartbeat Time. Default is 60s.

◆ Reconnect Timers

Reconnect Times(0-127)

This item means the biggest number of reconnection. Default is 3.

◆ Master Server IP/Port

Master Server IP
Master Server Port

The address and port number of the data center.

◆ Standby Server IP/Port

Standby Server IP
Standby Server Port

If the master server is not work the DTU will use this one.

◆ Protocol

Protocol

Which protocol the DTU use.

◆ Length of Packet

Length of Packet(256-1024Byte)

The maximum number of bytes can transmission one time. Default is 1024Bytes.

◆ Min Interval Time

Min Interval Time(2^9,100ms)

This item means the minimum time should wait for next transmission.

◆ APN

APN

◆ Center Phone

Center Phone 1. **2.**

It can set to mobile phone number to send and receive message.

◆ Debug Information

Debug Information

Debug information is used to debug software when there is software problem.

Only there is some problem to the DTU, it's necessary to set this option as YES. In normal applications, this option should be set to NO.

◆ Registration Package/Heartbeat Package

Registration Package
Heartbeat Package

It can be empty, the format should be HEX.

3.3.5 Functions

◆ Factory Reset

Factory Reset

Restore to factory settings.

- ◆ Clear

Clear

Clear the information of the software.

- ◆ Read

Read

Get the parameters of the DTU.

- ◆ Set

Set

Write the parameter into the DTU.

- ◆ Restart

Restart

Reboot the DTU.

3.4 SMS commands

- ◆ CFG:Sleep

Send this command to make DTU into sleep mode. Before into sleep mode the DTU will send a message back to the mobile phone which send the message.

- ◆ CFG:Wake

Send this command to make DTU wake up. After wake up the DTU will send a message back to the mobile phone which send the message.

- ◆ CFG:Restart

Reboot the DTU.

- ◆ CFG:

Send this message to check the parameters of the DTU. The DTU will send a message back to your phone.

- ◆ CFG:IP="xxxxxxxx",PORT="xxxxx",MODE="xxx",IPBak="xxxxxxxx",PORTBak="xxxxx",Phone1="xxxxxxxx",Phone2="xxxxxxxx"

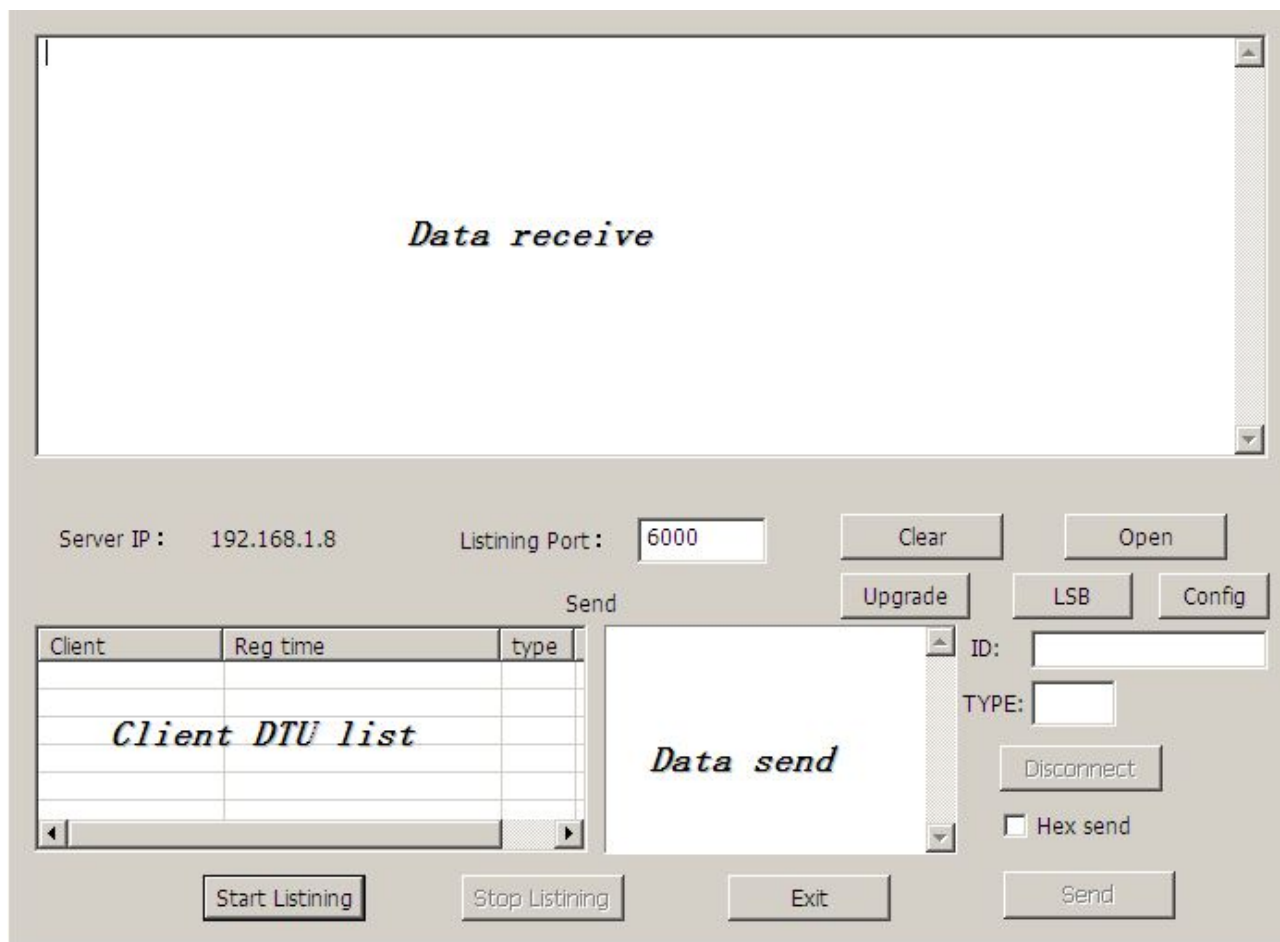
Send this message to configure the DTU. This message can be used to modify the address of the server, port, protocol. Those parameters here are just an example.

- ◆ IO:
Send this message to check the status of IO port.
- ◆ IO:01="Low",O2="High",I1="High",I2="High"
Send this message to configure IO of the DTU. Those parameters here are just an example.

4 How to establish a Data center

If users not have a data center,they can use a software we provide to establish one.It is very easy to build a data center with you PC.

Insert the software CD and search for such as *Server.exe*,and then open this software.



After open the software the server IP will appear,for example:*192.168.1.8*.

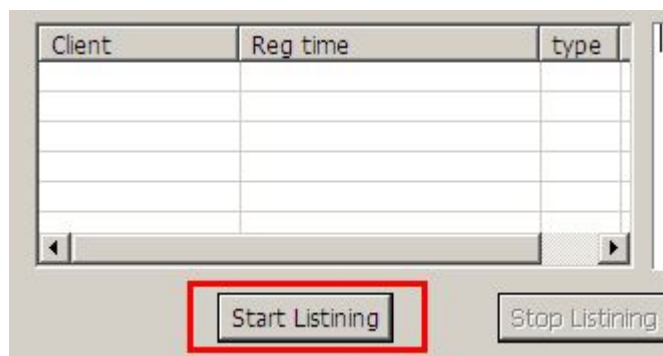
If your PC access to internet via a router,you should make a port mapping for you PC' IP address on the router,so that the terminal in the internet can access to you computer.If you PC access to internet directly and use a static IP address you need not to do this.

We will use a dynamic IP address assign by router as example.

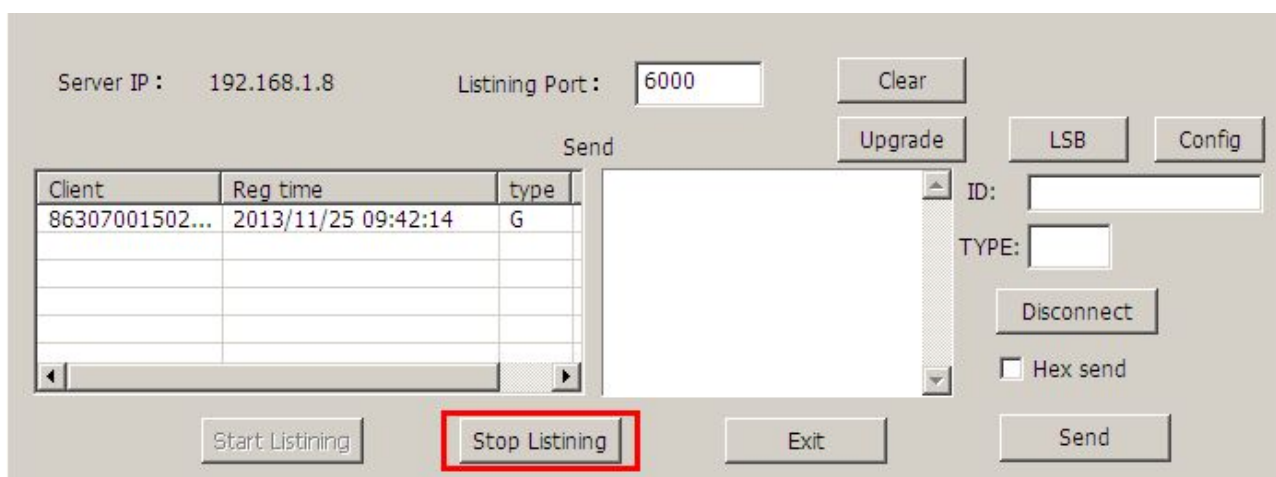
- Firstly,enter the port number into *Listening Port* blank,6000 as example.

Listening Port :

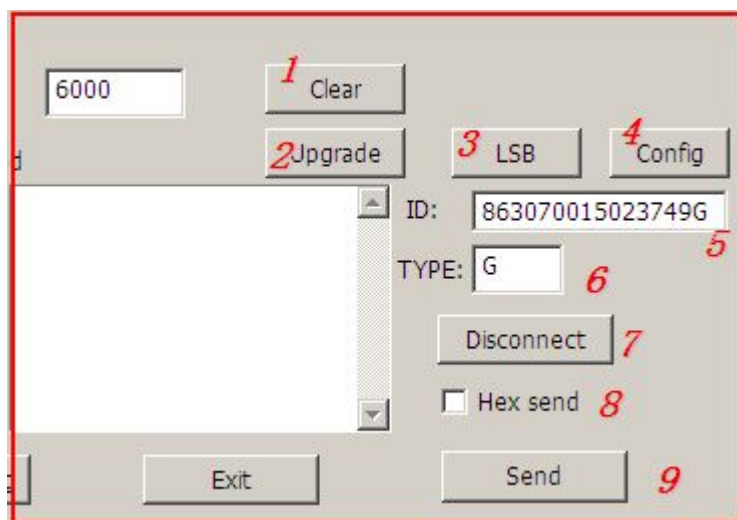
- Secondly,click **Start Listening** button start listen.



- A DTU server is established now,click **Stop Listening** to close server.

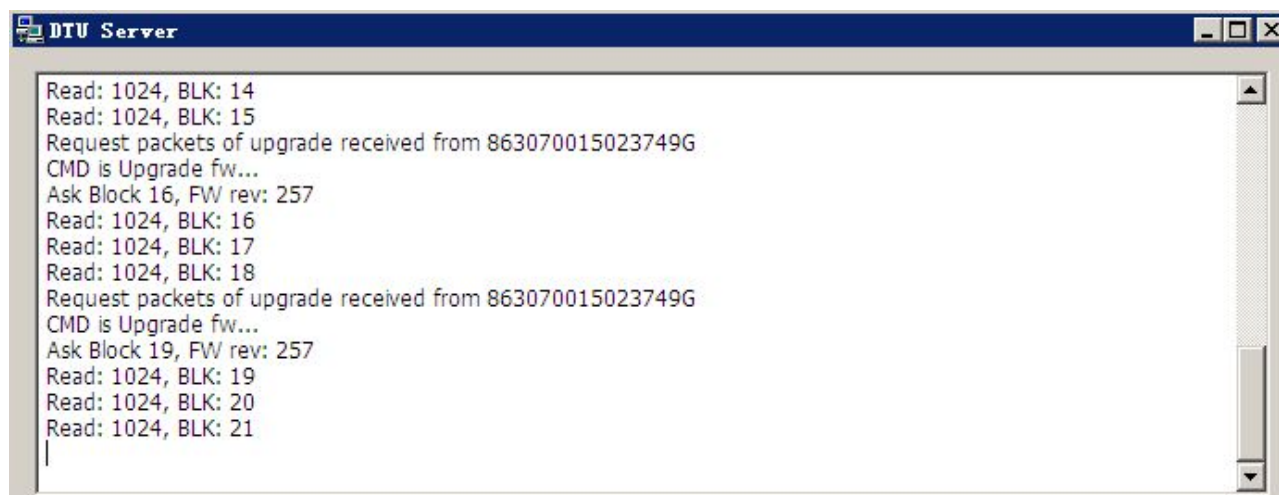
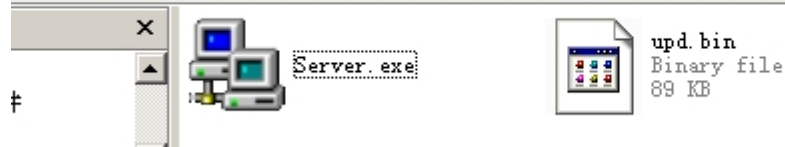


If DTU online,the information of the DTU will appear in the client list. Choose a DTU in the client list,you can make some operate via the button on the right area of the command window.

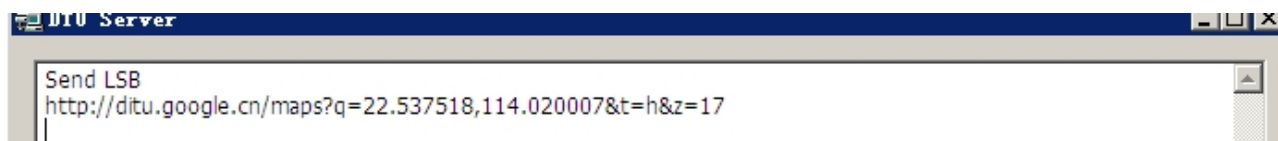


- 1 clear information in the *data receive* window.
- 2 upgrade firmware of DTU. Before this operate you should copy the firmware file to the folder where this server software location, and rename the file to *upd.bin*. Like following.

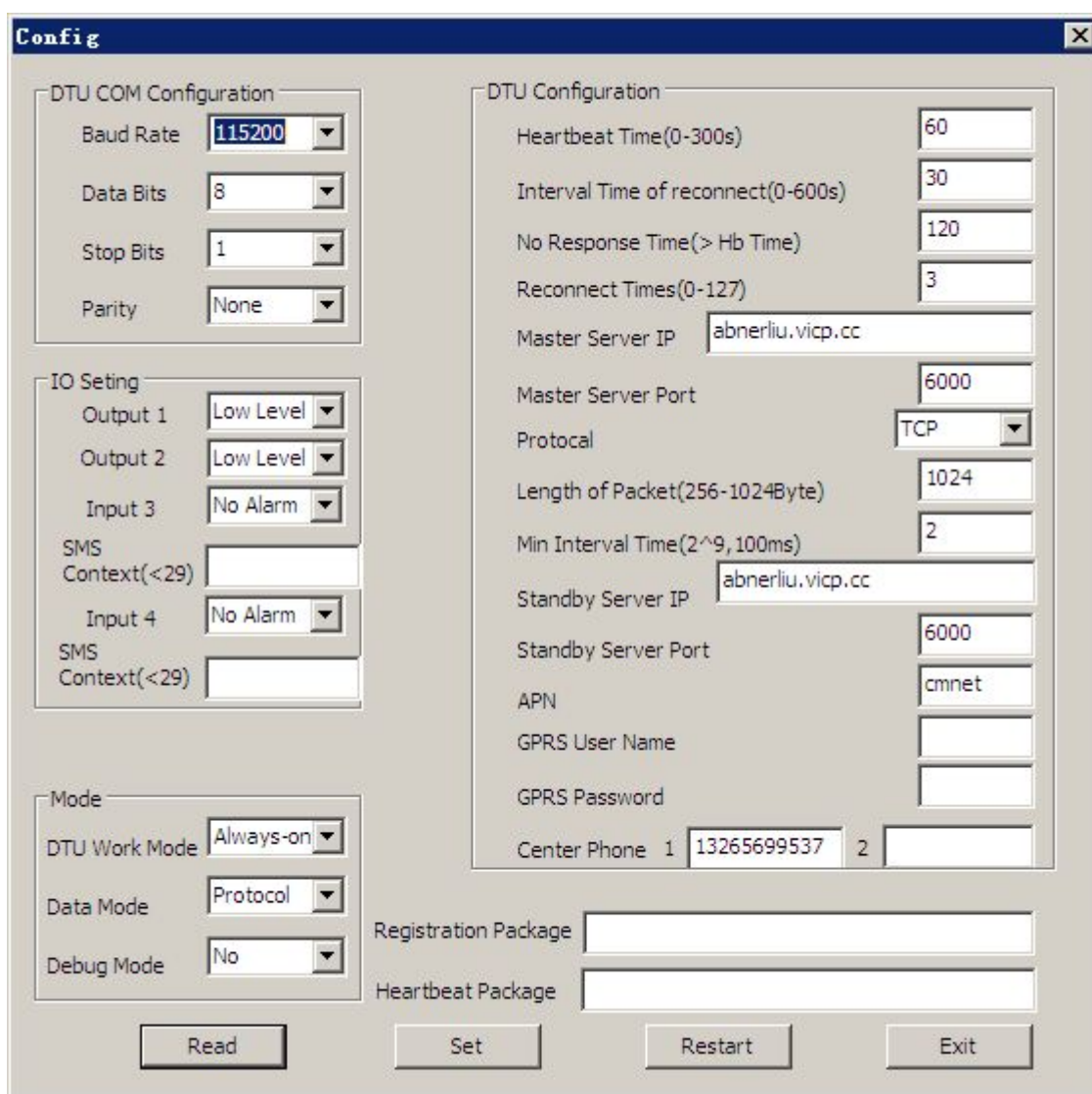
```
project\W3100G\test
```



- 3 click this button the DTU will send back a URL, open this URL in internet explorer a map will appear and indicate the location of the DTU.



- 4 click this button to configure the DTU, this is same to the configure software.



Config

DTU COM Configuration

Baud Rate: 115200

Data Bits: 8

Stop Bits: 1

Parity: None

IO Setting

Output 1: Low Level

Output 2: Low Level

Input 3: No Alarm

SMS Context(<29):

Input 4: No Alarm

SMS Context(<29):

Mode

DTU Work Mode: Always-on

Data Mode: Protocol

Debug Mode: No

DTU Configuration

Heartbeat Time(0-300s): 60

Interval Time of reconnect(0-600s): 30

No Response Time(> Hb Time): 120

Reconnect Times(0-127): 3

Master Server IP: abnerliu.vicp.cc

Master Server Port: 6000

Protocol: TCP

Length of Packet(256-1024Byte): 1024

Min Interval Time(2^9, 100ms): 2

Standby Server IP: abnerliu.vicp.cc

Standby Server Port: 6000

APN: cmnet

GPRS User Name:

GPRS Password:

Center Phone 1: 13265699537 2:

Registration Package:

Heartbeat Package:

Buttons: Read, Set, Restart, Exit

- 5 this text box show the ID of the DTU.
- 6 this text box show the net type the DTU use.
- 7 disconnect the DTU and server.
- 8 send data by HEX mode.
- 9 send data when click button.