F1203 CDMA MODEM

USER MANUAL

Contents

厦门四信智慧电力科技有限公司

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Chapter 1 Brief Introduction of Product

1.1 General

F1203 CDMA MODEM is a kind of cellular terminal device that provides SMS and dial-up function by public CDMA network.

It adopts high-powered industrial cellular module and supports RS232 port that can conveniently connect one device to a cellular network, allowing you to connect to your existing serial device.

It has been widely used on M2M fields, such as intelligent transportation, smart grid, industrial automation, telemetry, finance, POS, water supply, environment protection, post, weather, and so on.

1.2 Features and Benefits

Design for Industrial Application

◆ High-powered industrial cellular module

◆ Housing: iron, providing IP30 protection.

◆ Power range: DC 5~35V

Stability and Reliability

◆ RS232 port: 15KV ESD protection

◆ SIM/UIM port: 15KV ESD protection

◆ Power port: reverse-voltage and overvoltage protection

◆ Antenna port: lightning protection(optional)

Standard and Convenience

◆ Support standard RS232 port that can connect to a serial device directly

◆ Provide dial-up software that can make it always online

◆ Provide SMS tool software

◆ Support standard AT command

High-performance

◆ Support SMS and dial-up function

◆ Support APN/VPDN

1.3 Working Principle

The principle chart of the MODEM is as following:
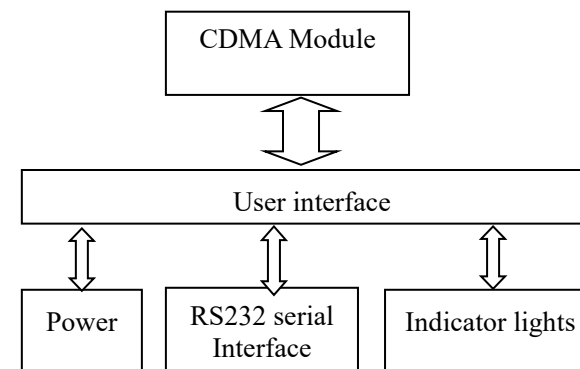
1.4 Specifications

Cellular Specification

Item	Content
Cellular Module	Industrial cellular module
Standard and Band	CDMA2000 1xRTT 800MHz, 800/1900MHz(optional),450MHz(optional)
Bandwidth	153.6Kbps
TX power	<30dBm
RX sensitivity	<-104dBm

Interface Type

Item	Content
Serial	1 RS232 port, 15KV ESD protection Data bits: 5, 6 ,7, 8 Stop bits: 1, 1.5, 2 Parity: none, even, odd, space, mark Baud rate: 110~230400 bps
Indicator	"Power", "ACT", "Online"
Antenna	Standard SMA female interface, 50 ohm, lighting protection(optional)
SIM/UIM	Standard 3V/1.8V user card interface, 15KV ESD protection
Power	Standard 3-PIN power jack, reverse-voltage and overvoltage protection

Industrial cellular modem interface

1 Standard SMA female interface, 50 ohm
2 Standard 3-PIN power jack
3 RS232/RS485 serial port
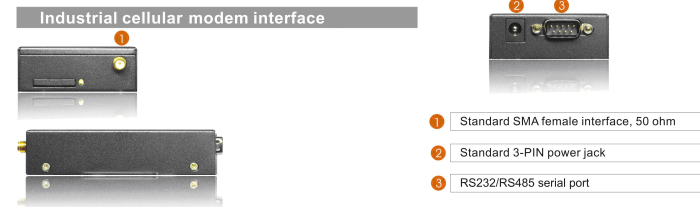
Power Input

Item	Content
Standard Power	DC 12V/1.5A
Power Range	DC 5~35V
Consumption	<200mA (12V)

Physical Characteristics

Item	Content
Housing	Iron, providing IP30 protection
Dimensions	91x58.5x22 mm
Weight	195g

Environmental Limits

Item	Content
Operating Temperature	-25~+65ºC（-13~+149℉）
Extended Operating Temperature	-30~+75ºC（-22~+167℉）
Storage Temperature	-40~+85ºC（-40~+185℉）
Operating Humidity	95% (Non-condensing)

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Chapter 2 Installation Introduction

2.1 General

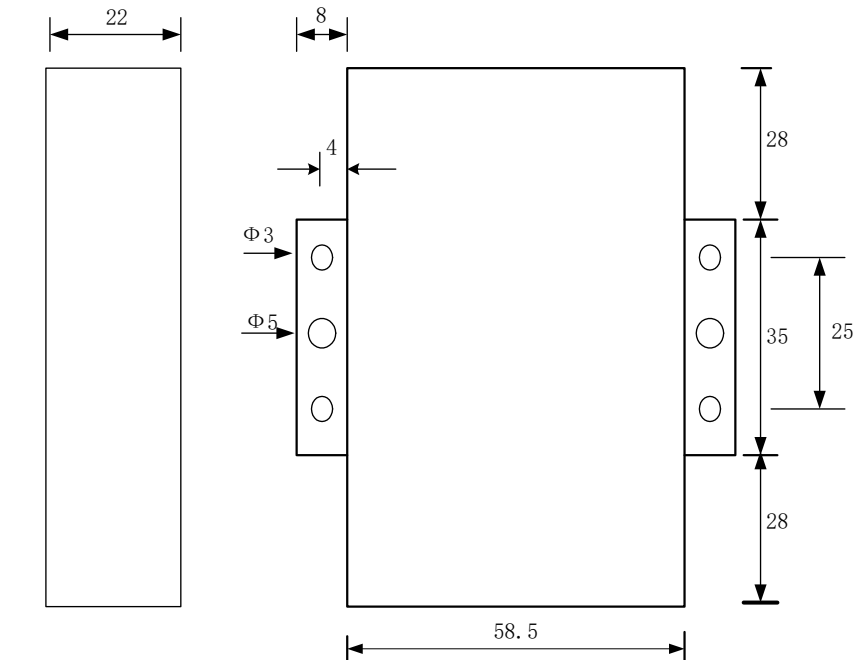The MODEM must be installed correctly to make it work properly.

Warning: Forbid to install the MODEM when powered!

2.2 Encasement List

Name	Quantity	Remark
MODEM host	1	
Antenna	1	
Power adapter	1	
RS232 data cable	1	
Manual CD	1	
Certification card	1	
Maintenance card	1	

2.3 Installation and Cable Connection

Dimension: (unit: mm)

Installation of SIM/UIM card:

Firstly power off the MODEM, and press the out button of the SIM/UIM card outlet with a needle object. Then the SIM/UIM card sheath will flick out at once. Put SIM/UIM card into the card sheath (Pay attention to put the side which has metal point outside), and insert card sheath back to the SIM/UIM card outlet.

Warning: Forbid to install SIM/UIM card when powered!

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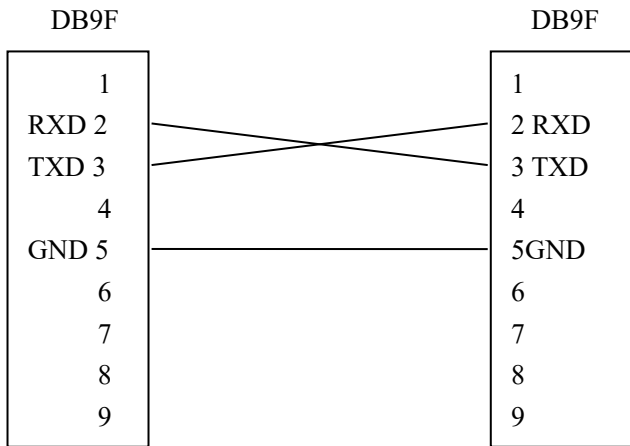
Installation of antenna:

Screw the SMA male pin of the antenna to the female SMA outlet of the MODEM tightly. Warning: The antenna must be screwed tightly, or the signal quality of antenna will be influenced!

Installation of cable:

Insert DB9F end of the RS232 data cable into the DB9M interface of MODEM, and connect the other end with user's device.

The signal connection of the RS232 data cable is as follows:

```
        DB9F                          DB9F
       ┌──────┐                      ┌──────┐
       │  1   │                      │  1   │
       │RXD 2 │\                   / │ 2 RXD│
       │TXD 3 │ \                 /  │ 3 TXD│
       │  4   │  \               /   │  4   │
       │GND 5 │───────────────────── │ 5GND │
       │  6   │                      │  6   │
       │  7   │                      │  7   │
       │  8   │                      │  8   │
       │  9   │                      │  9   │
       └──────┘                      └──────┘
```

RS232 data cable

2.4 Power

The power range of the MODEM is DC 5~35V.

Warning: When we use other power, we should make sure that the power can supply power above 4W.

We recommend user to use the standard DC 12V/0.5A power adaptor.

2.5 Indicator Lights Introduction

The MODEM provides three indicator lights: "Power", "ACT", "Online".

Indicator Light	State	Introduction
Power	ON	MODEM is powered on
	OFF	MODEM is powered off
ACT	BLINK	Data is communicating
	OFF	No data
Online	ON/ BLINK	MODEM has logged on network
	OFF	MODEM hasn't logged on network

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Chapter 3 Dial-Up Settings

3.1 MODEM Connection

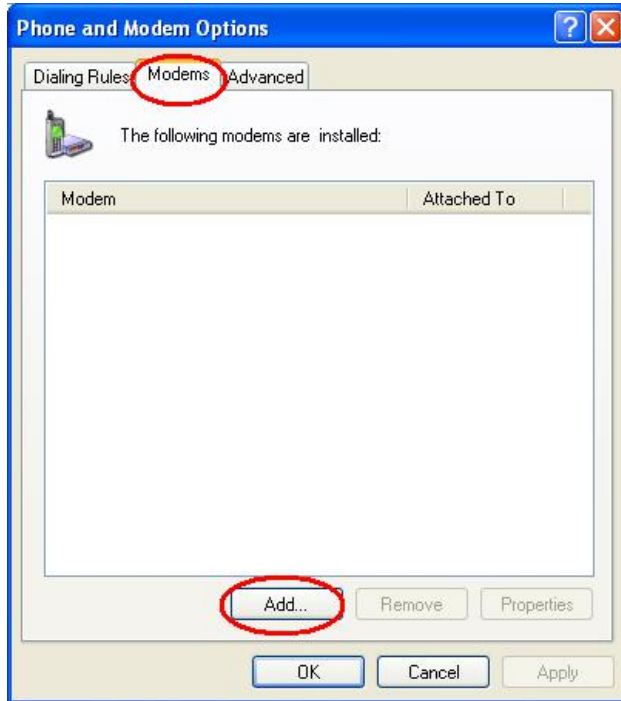Connect Modem and PC with the shipped RS-232 cable as following:

2. Choose "Modems", Press "Add" button

3.2 Dial-Up Settings

1. Press "start" → "Settings" → "Control Panel", Double click "Phone and Modem Options"

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3. Choose "Don't detect my modem;I will select it from a list", and click "Next"

4. Manufacture choose "Standard Modem Types", Models choose "Standard 33600 bps Modem", click "Next" button
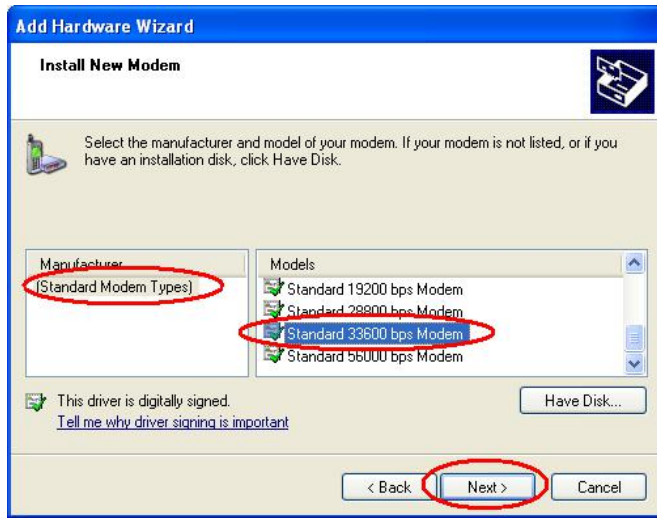
5. "Selected ports" choose the actual COM port which connects to Modem, click "Next" button.
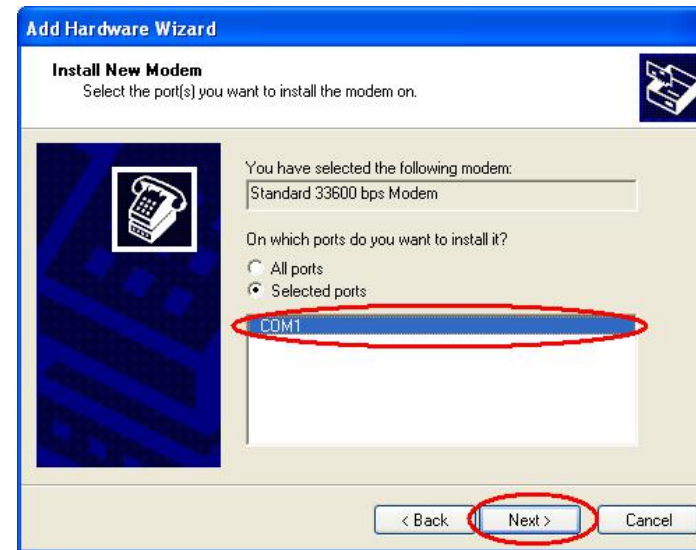
6. Click "Finish" button, return back to "Modems" page
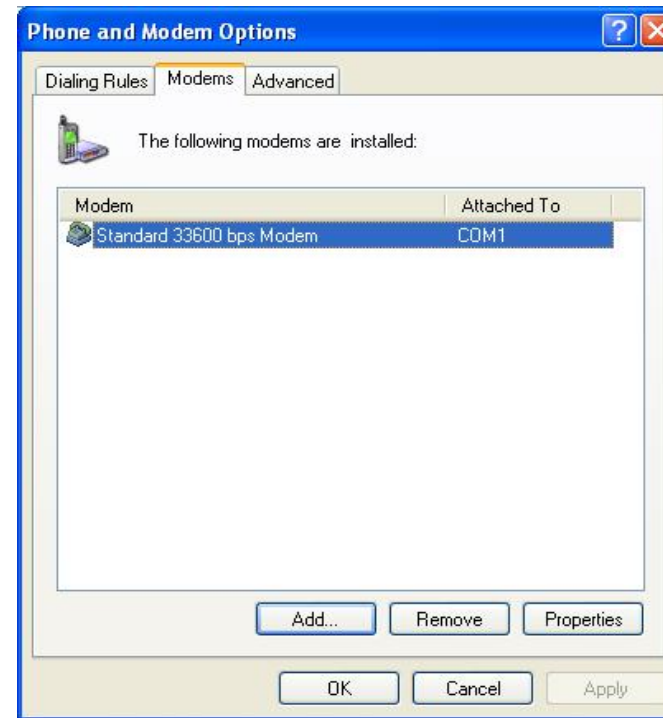
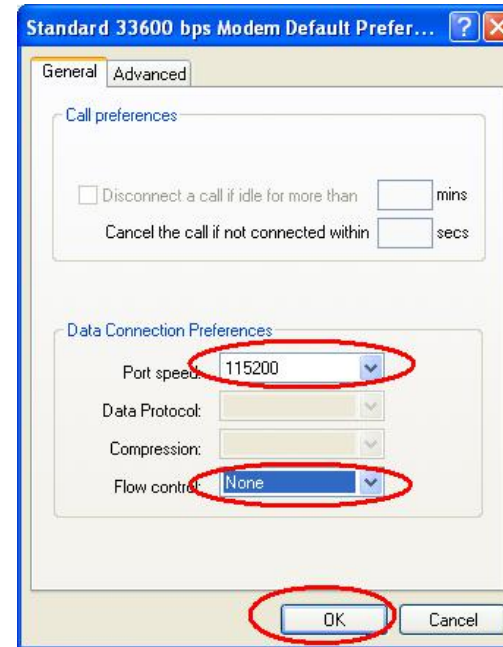7. Choose the modem you have just installed, click "properties" button to configure the modem driver
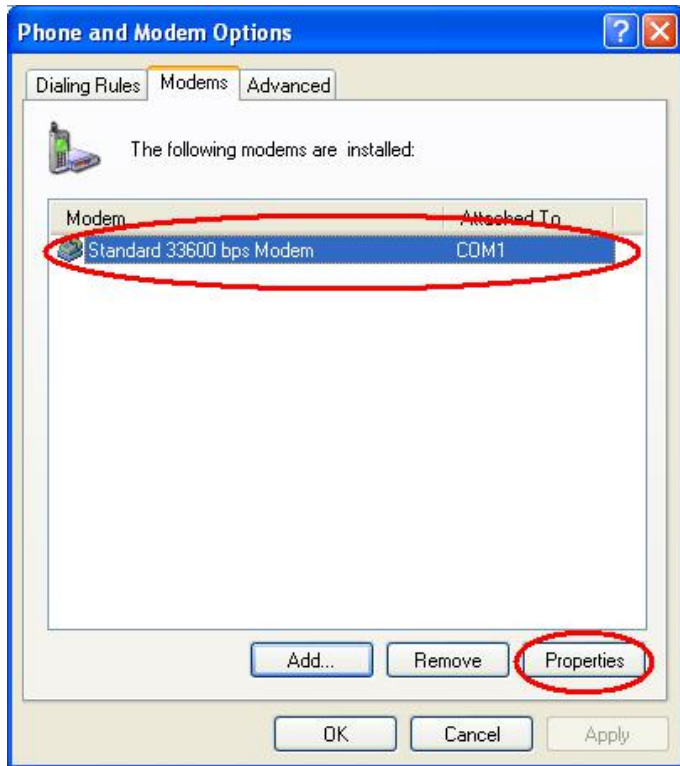
8. Choose "Modem" page, set Maximum Port Speed as 115200.
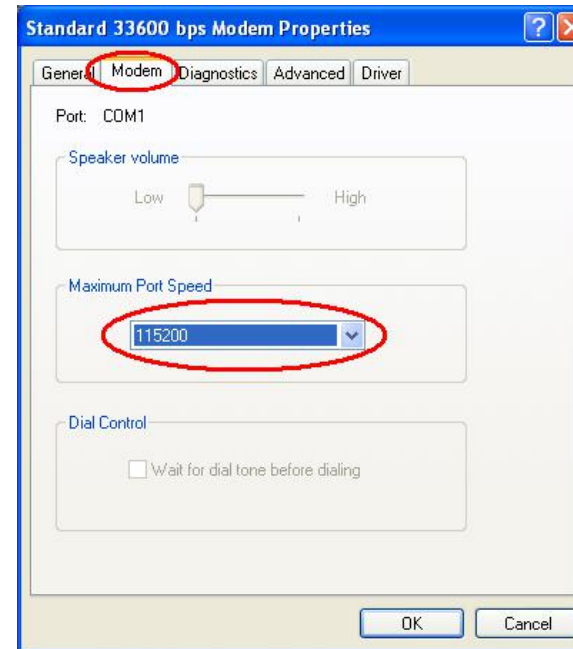
9. Choose "Advanced" page, click "Change Default Preferences" button

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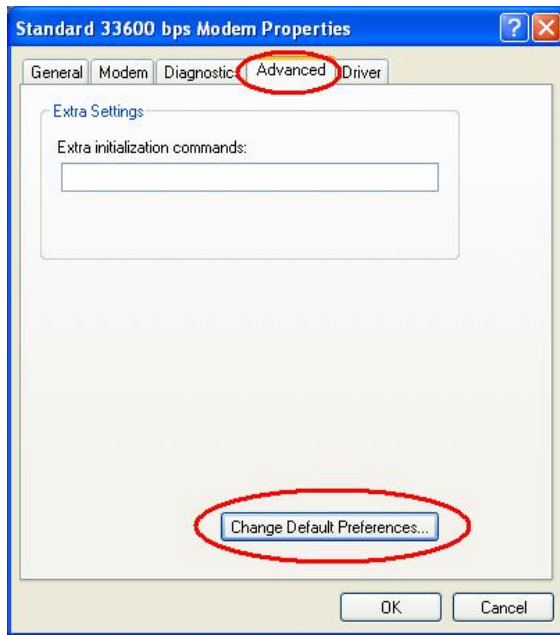
10. "Port Speed" choose 115200，"Flow control" choose None, click "OK" button.

11. On the "Advanced" page, click "OK" button return to "Phone and Modems" page, click "OK" button to finish the Modem driver installation
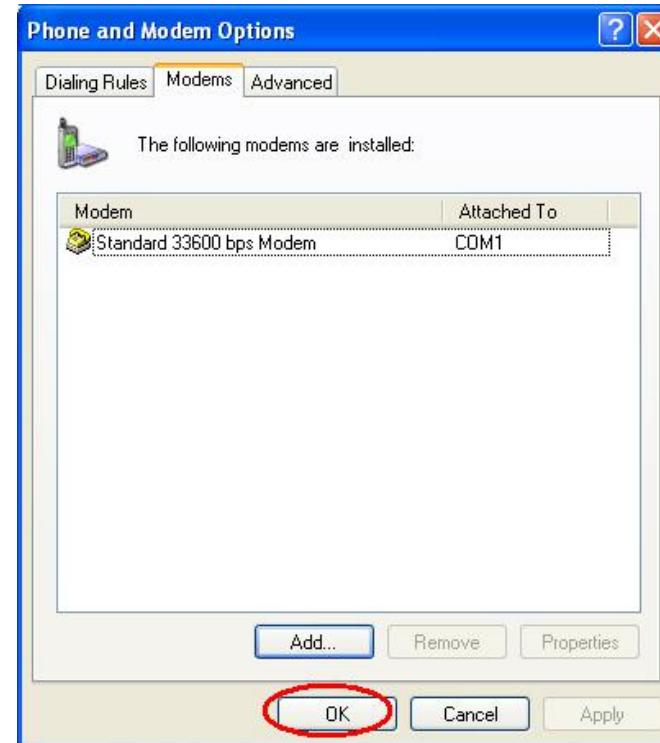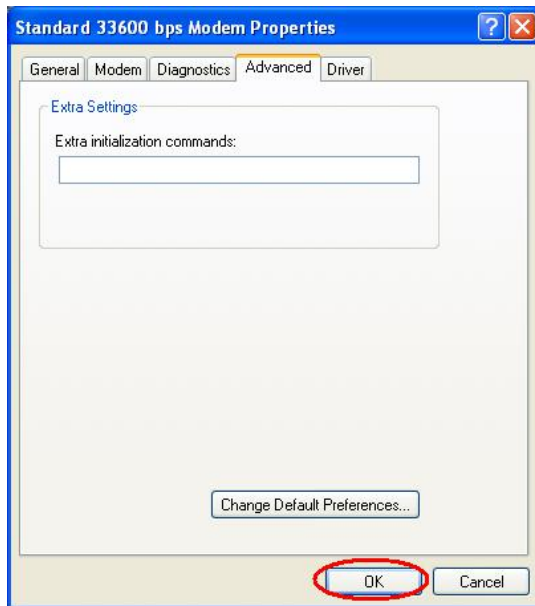
12. Finish installing Modem driver, It's necessary to install the Dial-Up connection. Open "Control Panel", double click "Network connections"
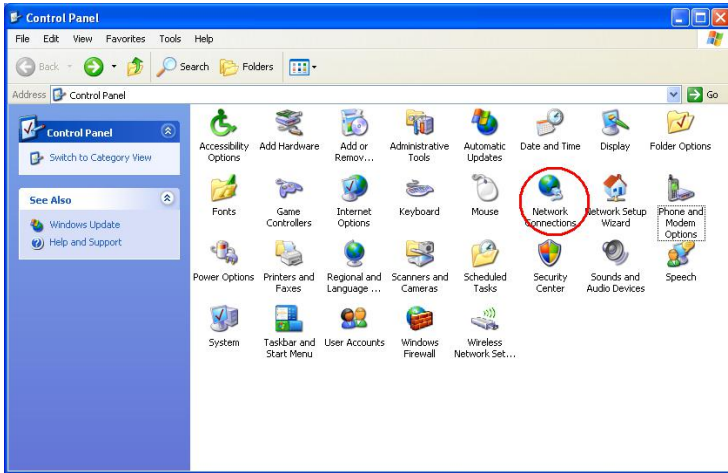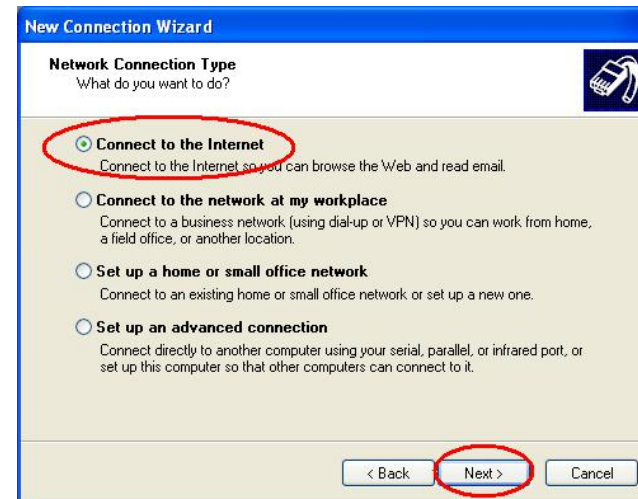
13. Click "Create a new connection" to start creating a new Dial-Up connection.
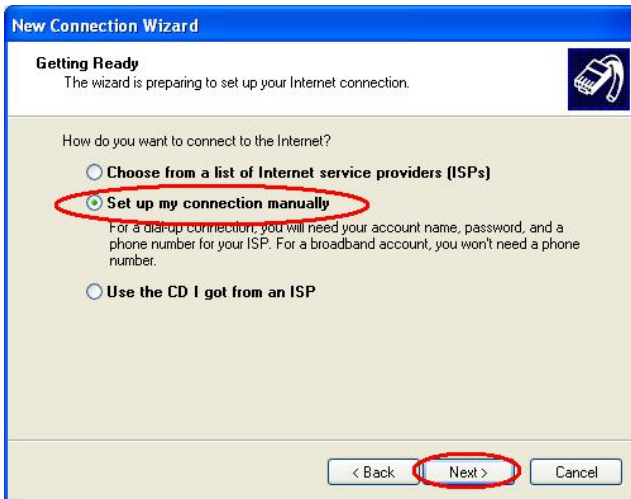

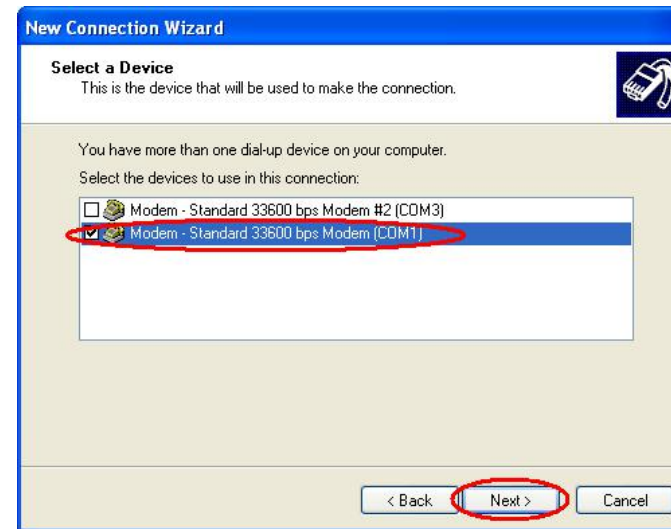14. Click "Next" button

15．Choose "Connect to the Internet", click "Next" button
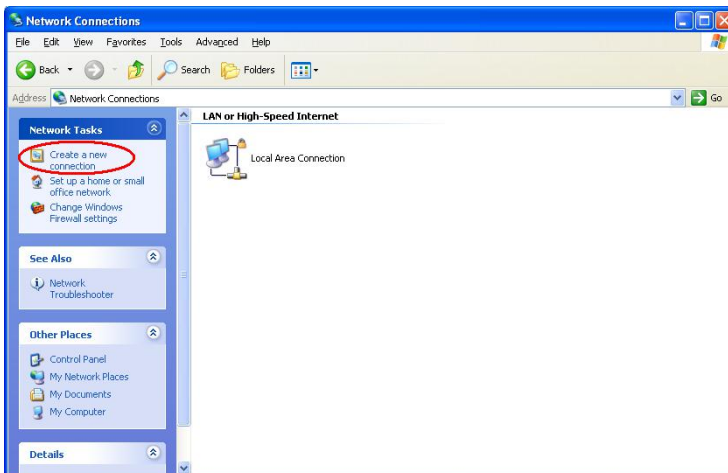
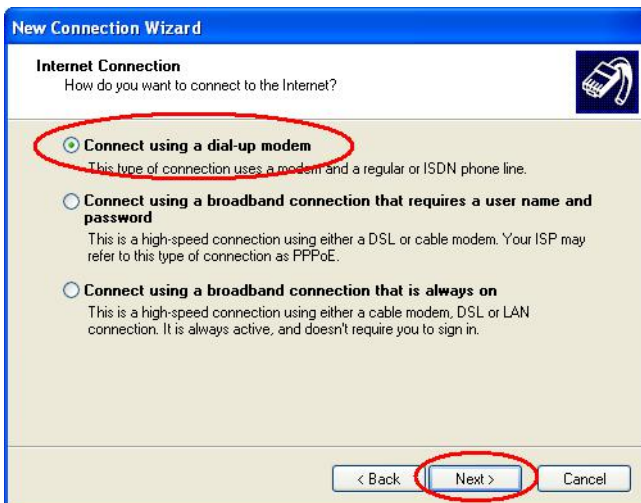16．Choose "Set up my connection manually", click "Next"

17．Choose "Connect using a dial-up modem", click "Next"


19．Input the ISP Name , click "Next" button

18．Choose the Modem driver installed just now, click "Next" button

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20．Input the access number of your ISP. In China, It is #777, click "Next" button

22．Choose "Add a shortcut to this connection to my desktop", click "Finish" button
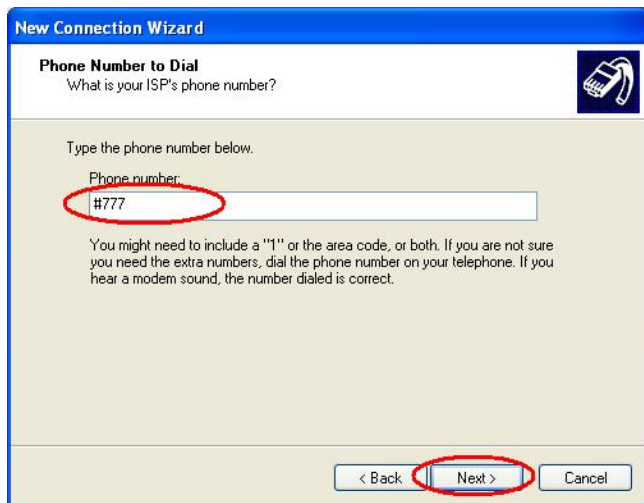
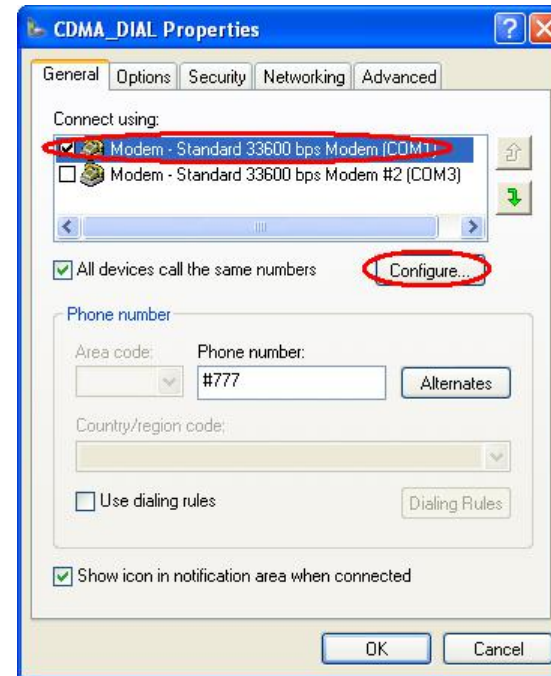21．Input the username and password. In China they are both "card".Click "Next"

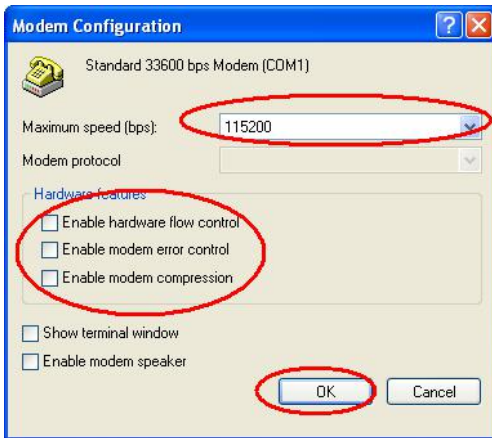23．Double click the Dial-Up shortcut on your desktop to run Dial-Up program.

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24．Click the "Properties" button of the Dial-Up program

25．Choose the Modem driver installed before, Click "Configure" button

26．Set "Maximum Speed [bps]" as 115200, set Hardware features as following, click "OK" button

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27．Click "OK" button to finish Dial-Up program configuration

28．Click "Dial" button to start dial

29．When dial success, There is a connection icon on the right of your taskbar.

Chapter 4 SMS Test

Modem can also be used to send and receive SMS (Short Message Service) except setting up dial-up connection. To simplify customer program, we supply a DLL(Dynamic Link Library) and sample program source code, all the SMS operations can be processed through simple API functions. The following describes how to test the SMS function.

1．Connect PC and Modem with the shipped RS-232 cable and power on Modem, The connection diagram please refer chapter 3.1
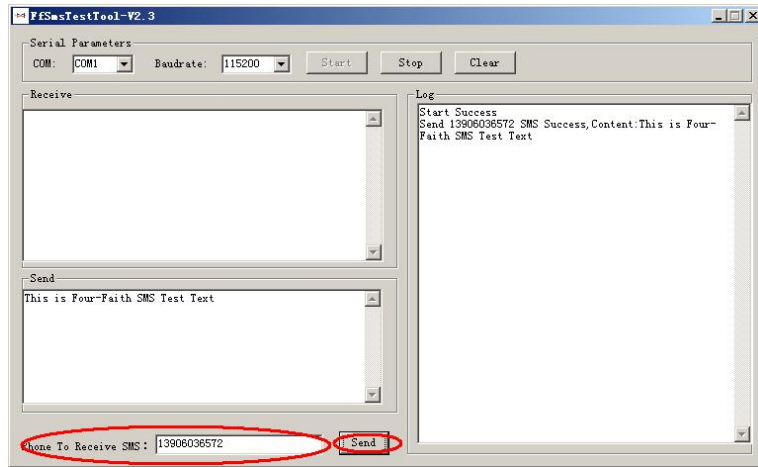2．Run FfSmsTestTool-En.exe
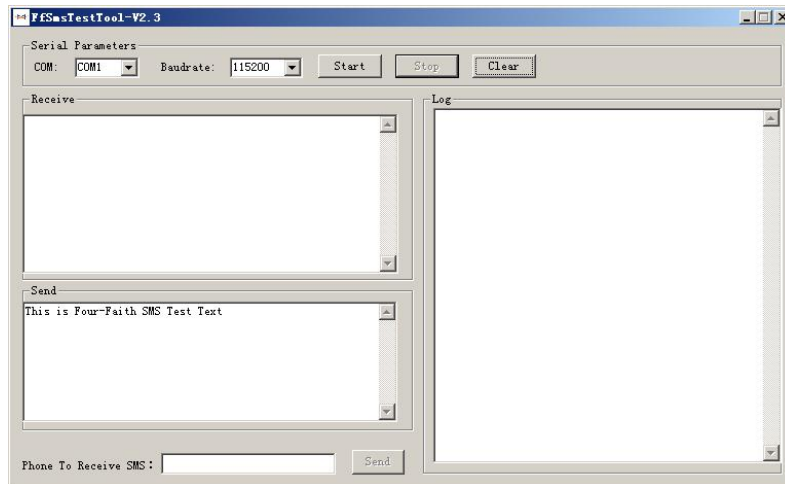
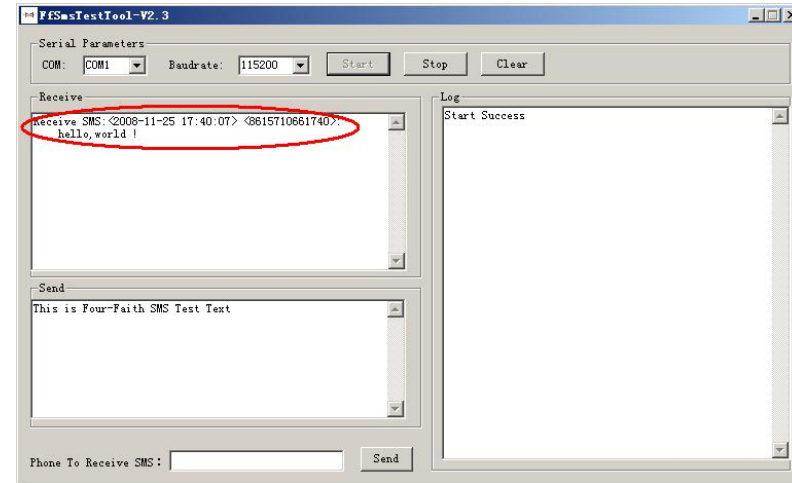3．Choose the COM port which connect to MODEM, baud rate is 15200, click "Start" button
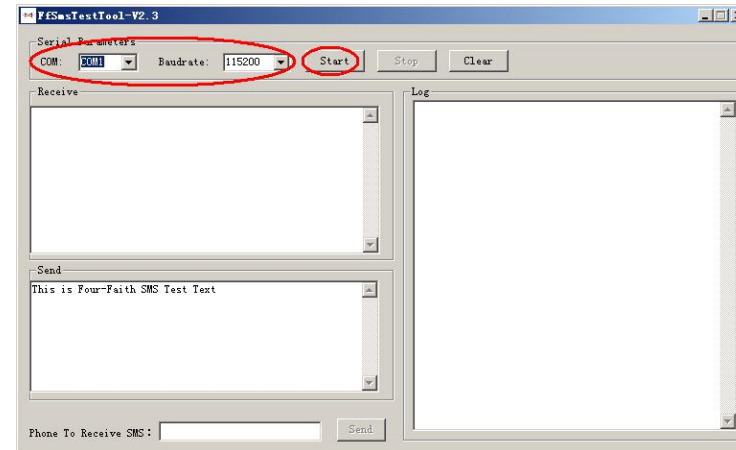
4．The tool will initiate Modem after clicking the "Start" button, If initiate success, the log column will show "Start Success", It's now ready for sending and receiving SMS.
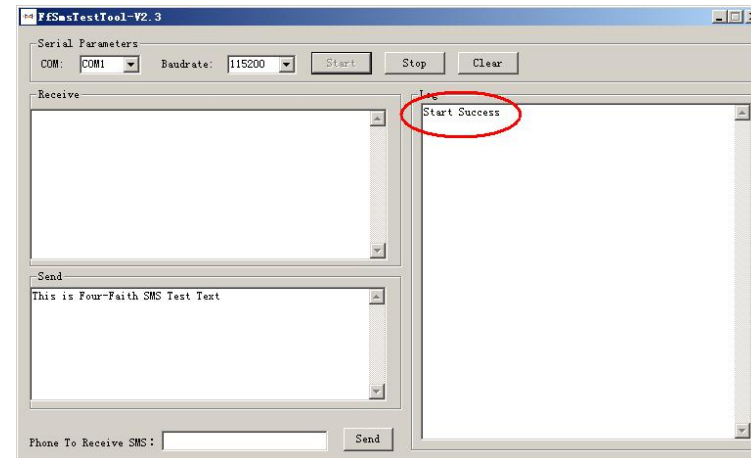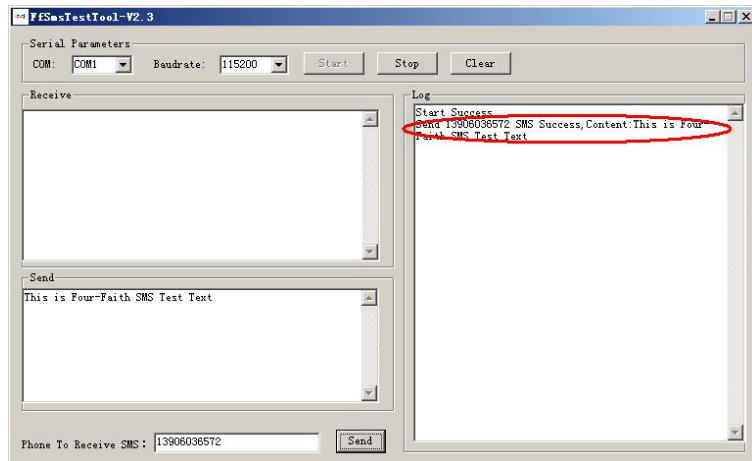

5．Input the phone to receive this test SMS, click "Send" button

6．The result state will display in the Log column

8．Complete SMS test.

7．When received SMS, It will display in the receive column

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Chapter 5 Appendix

The following steps describe how to setup Windows XP Hyper Terminal and send AT command to modem with it.

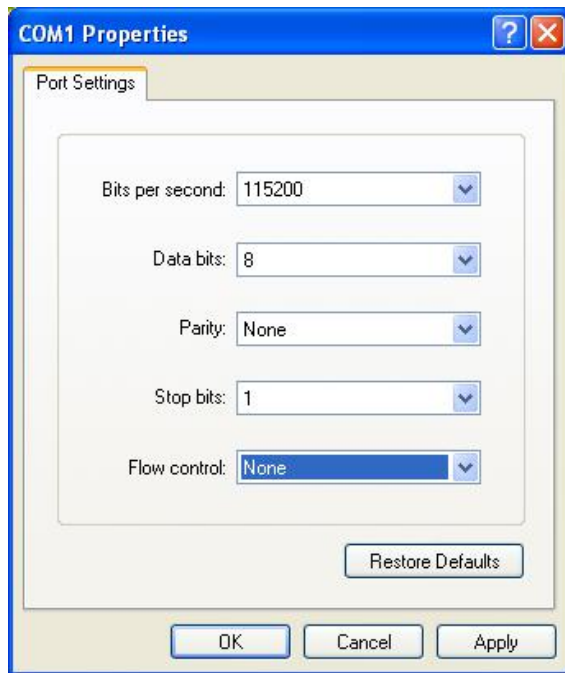1. Press "Start" → "Programs" → "Accessories" → "Communications" → "Hyper Terminal"
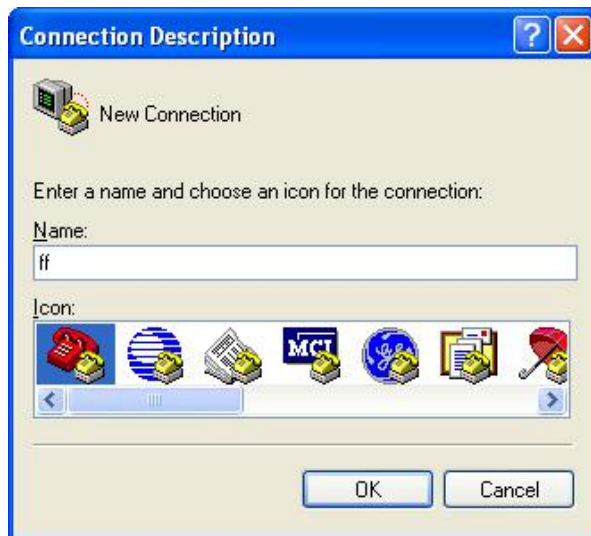
2. Input connection name, choose "OK"

3. Choose the correct COM port which connects to modem, choose "OK"
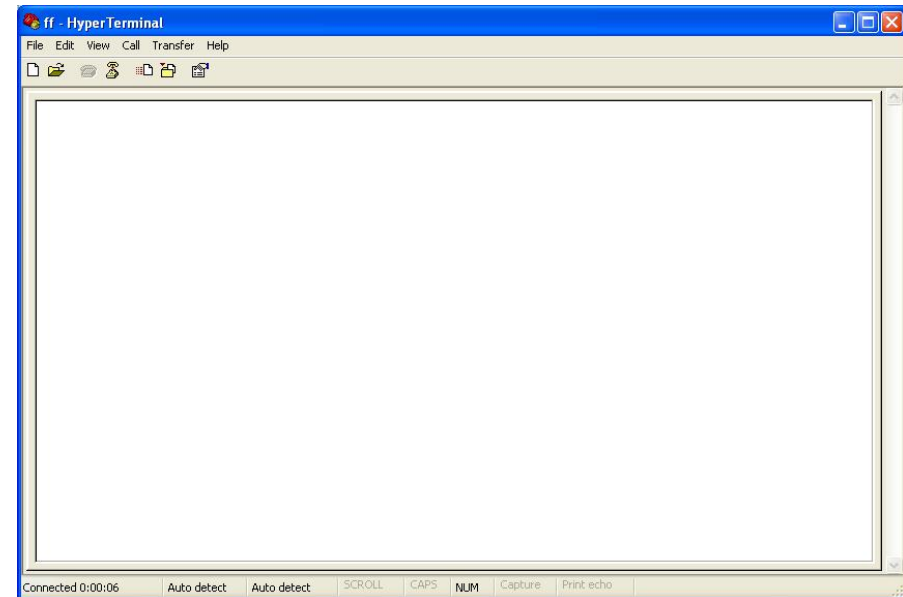

4. Configure the serial port parameters as following, choose "OK"

    Bits per second: 115200
    Data bits: 8
    Parity: None
    Stop bits: 1
    Flow control: None

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5. Complete Hyper Terminal operation, It runs as following

6. Type "AT" in the blank of Hyper Terminal and press "Enter", the modem will return "ok".

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