F1403 WCDMA/HSDPA/HSUPA MODEM

USER MANUAL





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Chapter 1 Brief Introduction of Product

1.1 General

F1403 WCDMA/HSDPA/HSUPA MODEM is a kind of cellular terminal device that provides SMS and dial-up function by public WCDMA/HSDPA/HSUPA 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.



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• 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)

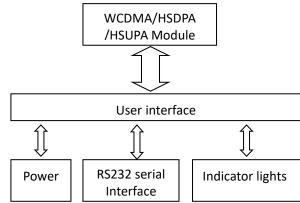
Standard and Convenience

- 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



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The principle chart of the MODEM is as following:



1.4 Specifications

Cellular Specification

Item	Content
Cellular Module	Industrial cellular module
Standard and	UMTS/WCDMA/HSDPA/HSUPA 850/1900/2100MHz,
Band	850/900/1900/2100MHz(optional)
	GSM850/900/1800/1900MHz
	GPRS/EDGE CLASS 12
Bandwidth	HSUPA:5.76Mbps(Upload speed)/ HSDPA:7.2Mbps(Download
	speed)/UMTS:384Kbps (DL/UL)
TX power	<24dBm
RX sensitivity	<-109dBm
Interface Type	

ltem	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



Power Input

Item	Content			
Standard Power	DC 12V/1.5A			
Power Range	DC 5~35V			
Consumption	<200mA (12V)			
Physical Characteristics				
ltem	Content			
Housing	Iron, providing IP30 protection			
Dimensions	91x58.5x22 mm			
Weight	195g			
Environmental Lim	its			

ItemContentOperating
Temperature-25~+65°C (-13~+149°F)Extended-30~+75°C (-22~+167°F)Operating
Temperature-30~+75°C (-40~+185°F)Storage
Temperature-40~+85°C (-40~+185°F)Operating
Humidity95% (Non-condensing)





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Chapter 2 Installation Introduction

2.1 General

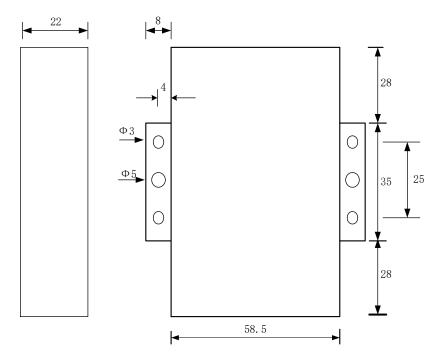
The MODEM must be installed correctly to make it work properly. Warning: Forbid to install the MODEM when powered!

2.2 Encasement List

Name	Quantit	Remark
	У	
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:

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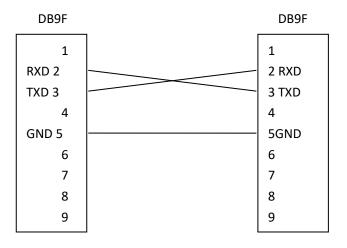
「「「」」言

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:



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	State	Introduction
Light		
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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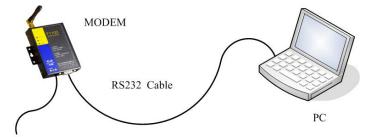
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Chapter 3 Dial-Up Settings

3.1 MODEM Connection

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



Power Adapter

3.2 Dial-Up Settings

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

	Tools Help							
🌀 Back 🕤 🌍 🔹 🇊	🔎 Search 🌔	Folders						
ddress 📴 Control Panel								💌 🔁 Go
Control Panel	s 🔥	Ň	5	-	4	P	<u>s</u>	I
Switch to Category View	Accessibi		e Add or Remov	Administrative Tools	Automatic Updates	Date and Time	Display	Folder Options
See Also	۱	and the	9	1	C			(b)
🍓 Windows Update	Fonts	Game Controllers	Internet Options	Keyboard	Mouse	Network Connections	Network Setu Wizard	Phone and Modem Options
Help and Support			2	3	1	۲	O,	83
	Power Opt	ions Printers and Faxes	Regional and Language	Scanners and Cameras	Scheduled Tasks	Security Center	Sounds and Audio Devices	Speech
	3		<u>.</u>	6				
	Systen	n Taskbar and Start Menu	User Accounts	Windows Firewall	Wireless Network Set			

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



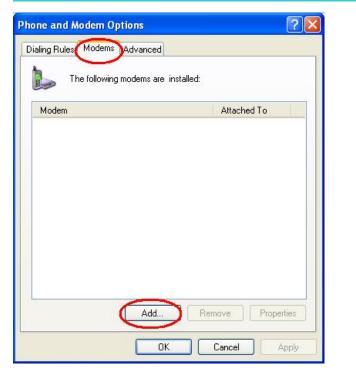
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- Add Hardware Wizard Install New Modem E. Do you want Windows to detect your modem? Windows will now try to detect your modem. Before continuing, you should: 1. If the modern is attached to your computer, make sure it is turned on. 2. Quit any programs that may be using the modem. Click Next when you are ready to continue. Don't detect my modem; I will select it from a list. < Back Next > Cancel
- 4. Manufacture choose "Standard Modem Types", Models choose "Standard 33600 bps Modem", click "Next" button
- 3. Choose "Don't detect my modem; I will select it from a list", and click "Next"





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Add Hardware Wizard	
Install Ne w Modem	
Select the manufacturer have an installation disk	and model of your modem. If your modem is not listed, or if you , click Have Disk.
Manufacturer [Standard Modem Types]	Models Standard 19200 bps Modem Standard 28800 bps Modem
This driver is digitally signed.	Standard 33600 bps Modem
<u>Tell me why driver signing is i</u>	(Back Next) Cancel

5. "Selected ports" choose the actual COM port which connects to Modem, click "Next" button.

Select the politist	you want to install the modem on.
	You have selected the following modem:
200	Standard 33600 bps Modem
	On which ports do you want to install it?
	C All ports
	Selected ports
	COM1

6. click "Finish" button, return back to "Modems" page



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Phone and Modem Options	? 🛛
Dialing Rules Modems Advanced	
The following modems are installed:	
	ched To
Standard 33600 bps Modem COM	1
Add Remove	Properties
OK Cance	Apply

7. Choose the modem you have just installed, click "properties" button to configure the modem driver



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Phone and Modem Op	otions	? 🛛
Dialing Rules Modems	Advanced	
The following	modems are installed:	
Modem	-	Allooked To
Standard 33600 bp	os Modem	COM1
	-	
	Add Rem	
	ОК	Cancel Apply

8. Choose "Modem" page, set Maximum Port Speed as 115200.

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General Modern Diagnostics Advanced Driver Port: COM1 Speaker volume Low High Maximum Port Speed 115200 Dial Control Wait for dial tone before dialing	tandaro	1 33600 bps M	lodem Proper	ties	? 🛛
Speaker volume Low High Maximum Port Speed	Gener	Modem Diagn	ostics Advance	d Driver	
Low High Maximum Port Speed	Port:	COM1			
Maximum Port Speed	Spea	iker volume			
Dial Control		Low U		High	
Dial Control	Maxi	mum Port Speed			
		115200			
	Dial	Control			
			al tone before dia	lina	
OK Cancel				ОК	Cancel

 Choose "Advanced" page, input Extra Initialization commands: AT+CGDCONT=1,"IP","3gnet",3gnet is the Access Point Name(APN) of China, please replace it with your own APN name, click "Change Default Preferences" button



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General Modem Diagnostic: Advanced Driver Extra Settings Extra Setting: AT+CGDCONT=1,"IP","CMNET"
Extra initialization commands:
(AT+CGDCONT=1.''IP''.''CMNET'')
Change Default Preferences
OK Cancel

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

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	33600 Dps	Modem Defa	ult Prefe	r [?]
General	Advanced			
- Call pi	references —			
	Disconnect a ca	all if idle for more	than	mins
	Cancel the call	if not connected	d within	secs
ſ	Port speed Data Protocol: Compression: Flow contre	115200	× ×	

11. On the "Advanced" page, click "OK" button return to "Phone and Modems" page, click "OK" button to finish the Modem driver installation



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Standard 33600 bps Modem Properties		Phone and Modem Options
General Modem Diagnostics Advanced Driver		Dialing Rules Modems Advar
Extra Settings Extra initialization commands:		The following moder
AT+CGDCONT=1,"IP","CMNET"		Modem Standard 33600 bps Mode
Change Default Preferences OK	Cancel	

Phone and Modem Options	? 🛛
Dialing Rules Modems Advanced	
The following modems are in:	stalled:
Modem	Attached To
Standard 33600 bps Modem	<u>COM1</u>
Add	Remove Properties

12. Finish installing Modem driver, It's necessary to install the Dial-Up connection. Open "Control Panel", double click "Network connections"





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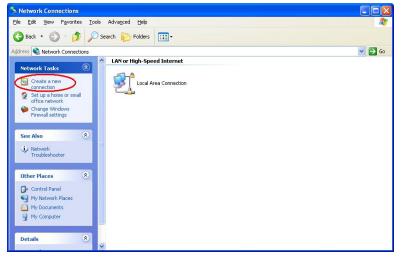
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13. Click "Create a new connection" to start creating a new Dial-Up connection.



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14. Click "Next" button



15. Choose "Connect to the Internet", click "Next" button





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v Connection Wizard	
Network Connection Type What do you want to do?	Ŵ
 Connect to the Internet 	5
Connect to the Internet so you	can browse the Web and read email.
O Connect to the network at	my workplace
Connect to a business network a field office, or another locatio	(using dial-up or VPN) so you can work from home, n.
O Set up a home or small off	ice network
Connect to an existing home or	r small office network or set up a new one.
O Set up an advanced conn	ection
	mputer using your serial, parallel, or infrared port, or her computers can connect to it.
	< Back Next > Cancel

16. Choose "Set up my connection manually", click "Next"

New Connection Wizard
Getting Ready The wizard is preparing to set up your Internet connection.
How do you want to connect to the Internet? Choose from a list of Internet service providers (ISPs)
• Set up my connection manually
For a clai -up connection, you will need your account name, password, and a phone number for your ISP. For a broadband account, you won't need a phone number.
O Use the CD I got from an ISP
< Back Next> Cancel

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





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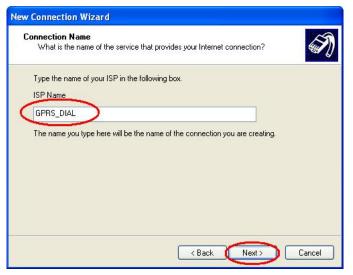


New Connection Wizard
Internet Connection How do you want to connect to the Internet?
 Connect using a dial-up modem This type of connection uses a modern and a regular or ISDN phone line. Connect using a broadband connection that requires a user name and password This is a high-speed connection using either a DSL or cable modern. Your ISP may refer to this type of connection as PPPoE. Connect using a broadband connection that is always on This is a high-speed connection using either a cable modern, DSL or LAN connection. It is always active, and doesn't require you to sign in.
< Back Next > Cancel

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

elect a Device This is the device that will	I be used to make the connection.	5
		-
You have more than one of	dial-up device on your computer.	
Select the devices to use	in this connection:	
	d 33600 bps Modem #2 (COM3)	
🛋 🖉 🧭 Modem - Standard	d 33600 bps Modem (COM1)	
the second se		
State of the second		

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





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20. Input the access number of your ISP. In China, It is *99#. Click "Next" button.

	nection Wizard				1
WI	hat is your ISP's pho	ne number?			
Тур	pe the phone numbe	r below.			
1	Phone number				
5	*99***1#	<u> </u>			
	You might need to you need the extra hear a modem sour	numbers, dial the	phone number on y		
	near a modem sour	id, the humber dia	ied is correct.		
			< Back	Next >	

ternet Account Info You will need an acco	mation bunt name and password to sign in to your Internet account.
	name and password, then write down this information and store it i re forgotten an existing account name or password, contact your IS
User name:	
Password:	
Confirm password:	
Use this account this computer	name and password when anyone connects to the Internet from
	ault Internet connection
	<u> </u>
	<back next=""> Canc</back>

- 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 null. Click "Next".



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



- Connect GPRS_DIAL ? × User name: Password: Save this user name and password for the following users: Me only Anyone who uses this computer *99***1# Dial: ¥ Dial Cancel Properties Help
- 25. Choose the Modem driver installed before, Click "Configure" button

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





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GPRS_DIAL	Properties	2 🛛
General Option	ns Security Networking Adv	vanced
Connect using		
and the second se	n - Standard 33600 bps Modem (
🗌 🎯 Moden	n - Standard 33600 bps Modem ‡	#2 (COM3)
<		
	call the same numbers	Configure
		Coninguie
Phone numb		
Area code;	Phone number:	
	*99***1#	Alternates
Country/reg	jion code;	
		~
Use dial	ing rules	Dialing Rules
Show icon	in notification area when connec	ted
2		Consel
	ОК	Cancel

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



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General Optio	ns Security Networkin	g Advanced	
Connect using	:		
and the second	m - Standard 33600 bps M	and the second	金
🗌 🥮 Moder	m - Standard 33600 bps M	Iodem #2 (COM3)	
<		2	<u> </u>
🔽 All devices	call the same numbers	Configure	
- Phone numb	er		
Area code:	Phone number:		
	*99***1#	Alternates	
Country/rei	gion code:		
			-
Use dia	ling rules	Dialing Rule	s
100 C			
Show icon	in notification area when		

28. Click "Dial" button to start dial



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







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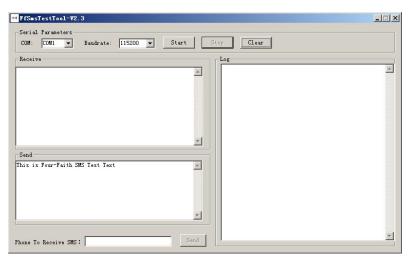
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Chapter 4 SMS Test

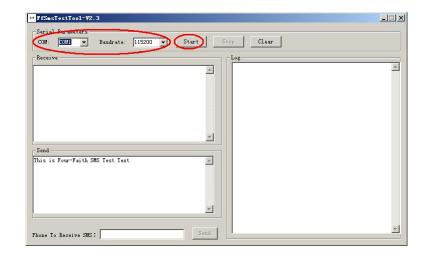
Modem can also be used to send and receive SMS (Short Message Service) except setting up dial-up connection. To simplify customer program, we supply a DLL(Dynamic Link Library) and sample program source code, all the SMS operations can be processed through simple API functions. The following describes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

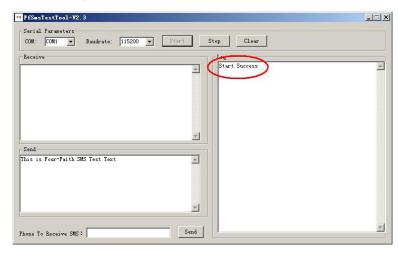


3. Choose the COM port which connect to MODEM, baud rate is 15200, click "Start" button

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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.





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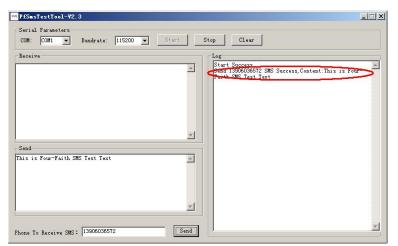
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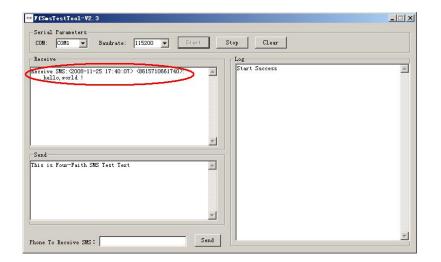
5. Input the phone to receive this test SMS, click "Send" button

Serial Parameters COM: COM1 - Baudrate: 115200 - Sta	art	Stop Clear	
Receive		Log	
	×	Start Success Send 1390036572 SMS Success,Content:This is Four- Faith SMS Test Test	4
Send	Y		
is is Four-Faith SMS Test Text	*		
	•		

6. The result state will display in the Log column



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



8. Complete SMS test.





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

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" \rightarrow "Programs" \rightarrow "Accessories" \rightarrow "Communications" \rightarrow "Hyper Terminal"



2. Input connection name, choose "OK"



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- 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



M1 Properties		? 🛽
Bits per second:	115200	~
Data bits:	8	~
Parity:	None	~
Stop bits:	1	~
Flow control:	None	~
	Re	estore Defaults
0	K Cancel	Apply

5. Complete Hyper Terminal operation, It runs as following

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🗞 ff - HyperTermi							
File Edit View Call							
🗅 🖨 📨 🏂 🗉	° [™]						
Connected 0:00:06	Auto detect Auto d	ect SCROLL	CAPS NUM	Capture	Print echo		

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





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