iR1200 Data Modem

Installation Guide

Draft Version 1.1
April 17, 2003

Table of Contents

Safety Notice

The following is important information for safe and efficient operation of the iR1200 modem. We recommend that all users read this information before using the modem.

Safe and Efficient Operation Guidelines

Your modem contains a transmitter and receiver. When it is ON, it receives and transmits radio frequency (RF) energy. The modem operates in the frequency range of 806 MHz to 870 MHz and utilizes the digital modulation techniques. This product is authorized by FCC Rule Part 47CFR2.1091 (b) which states that it should be used in such a way that it maintains a distance of at least 8 inches (20 cms) between the radio's antenna and the human body. When you use your modem, the system handling your call, controls the power level at which your modem transmits. The output power level typically may vary over a range from 600 mW .

Exposure to Radio Frequency Energy

Your modem is designed to comply with the United States Federal Communications Commission, Code of Federal Regulations; 47 CFR part 2 sub-part J. The modem is in compliance with FCC's national standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy:

Medical and Personal Electronic Devices

Most electronic equipment are protected from RF energy. However, certain equipment may not be shielded against the RF signals being emitted from your modem.

Pacemakers

Operators should not use the modem if individuals with pacemakers are within 6 inches (0.15 meters) of the antenna.

Hearing Aids

The modem may cause interference with hearing aid devices. Individuals who experience such interference should consult the hearing aid manufacturer to discuss alternative solutions.

Other Medical Devices

Individuals who have other medical devices not specifically mentioned in this chapter may want to consult their physician or the manufacturer of the device to determine if it is adequately protected from external RF energy.

Interference to Other Electronic Devices

RF energy may affect improperly installed or inadequately protected electronic operating and entertainment systems in motor vehicles. Check with the manufacturer or representative to determine if these systems are adequately shielded from external RF energy. It is recommended that you also check with the manufacturer of any equipment that has been added to the vehicle.

FCC Regulation

Introduction

Welcome to Nextel® iR1200 Data Modem

Thank you for purchasing the Nextel iR1200 Data modem. This modem was designed to work specifically within the iDEN® network. Once installed and configured, it provides you with wireless data communications.

NOTE: Nextel does not warrant or guarantee that data transmitted is accurate, complete, or free from errors, mistakes, omissions, any delays or interruptions of the data or information stream from any cause.

This chapter includes:

Using This Guide

This guide provides instructions for the installation of the iR1200 Rugged Modem and the iR1200 GPS Enabled Modem.

Nextel® Coverage

For details on Nextel digital cellular and data coverage, visit **nextel.com**.

NOTE: Transmission and reception speed may vary, based on your relative position within the coverage area. If you are in a marginal location (close to the border of the coverage area), the throughput of your modem during data transmission may be affected.

Nextel® Customer Care

For domestic customer care issues, including billing issues, general service needs, or to order additional services, contact Nextel Customer Care.

Visit **nextel.com** for a variety of Customer Care services:

- **Browse** for information on phones, coverage, rates and other Nextel services. View and download user's guides, try out our interactive virtual products and service demos, find answers to frequently asked questions, order accessories, locate service and repair centers, upgrade phone software, send a message and more.
- For self-service on your Nextel account, click on **My Account** to view your account, pay your bill (not available in all areas), add phones to your account; reset your Voice Mail password, and more.
- For online assistance, click on **Contact Us** to send us an email request. Our representatives are committed to assisting you. Every effort will be made to address your questions or concerns within 24 hours. Contact us to add Wireless Web and other services, change rate plans, inquire on your bill and more.

Or, call us at 1-800-639-6111 or dial 611 from your Nextel phone.

Overview

In this chapter, we will provide you with a general overview of the iR1200 Rugged and GPS Enabled modems.

This chapter includes:

General Overview

The iR1200 Rugged Modem an is iDEN® data modem that consists of a radio card and an optional GPS (iR12000 GPS Enabled Modem) receiver, contained in a ruggedized enclosure, to provide wireless data communications. The iR1200 modem is primarily intended for vehicle-mounted applications but can also be mounted to stationary environments.

Figure 1. iR1200 Modem

The following diagrams outlines the dimensions of the iR1200 modem.

NOTE: This diagram depicts the dimensions of the iR1200 modem and should not be used as a template for mounting the modem. Please see the insert in the back of this installation guide for a copy of the mounting template.

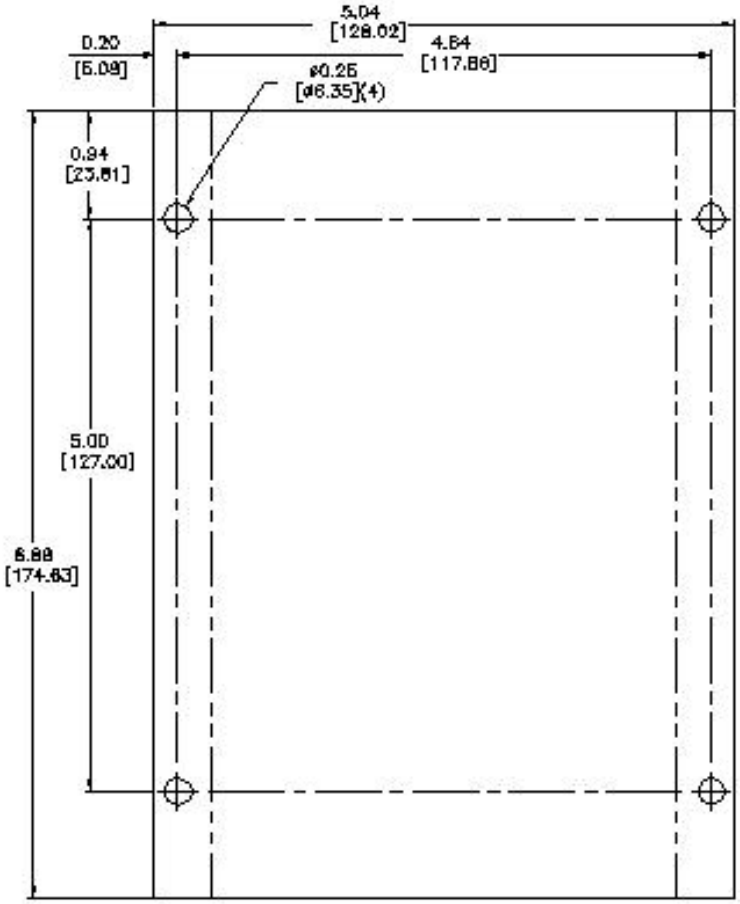


Figure 2 – Dimensions of the iR1200 Modem

Modem Operating Modes

The iR1200 provides the following data connection modes:

- **Packet Data:** A wireless modem connection used for accessing the Internet, sending and receiving e-mail, and transferring small files over the packet data network using standard IP protocols.

  Data is sent in packets (blocks) of data at high speed, with the user being charged on a per byte basis. After the transmission is completed, the user can remain connected indefinitely without being charged for the idle time.

- **Circuit data:** A wireless modem connection for sending and receiving data (faxes, files, etc.) over the circuit-switched cellular channel, providing a direct point to point connection with the destination device. The user is charged for the connection time in minutes regardless of the amount of data transmitted.

Installation Procedures

In this chapter, you will learn everything you need to know to begin installing your iR1200 modem.

This chapter includes:

Before You Start Installing

Experienced technicians familiar with installing similar types of hardware equipment should perform installation of the modem.

Planning is the key to a quick and simple installation. Before drilling holes or running wires, you should inspect the vehicle or area of the building to determine how and where you intend to mount the modem, antenna and accessories.

NOTE: The following instructions are intended to provide you with quick reference to installing your iR1200 modem.

- **Mount Modem –** Mount the modem in the desired location.
- **Mount Antenna –** Mount the antenna using the instructions included with your selected antenna's installation guide.
- **Connect Cables –** Connect the antenna cables to the mounted modem.
- **Connect Power –** Connect the AC power cables and ignition sensor cables to the mounted modem.
- **Power Up –** Power up the modem to check for successful installation.

Installation Tools

The following are the recommended tools you will need to install the iR1200 modem:

- Portable Drill
- Center Punch
- Four #10 self-tapping sheet metal screws
- Hammer
- Crimp tool
- Phillips Screwdriver

Vehicle Installation

In this chapter, you will learn everything you need to know to install your iR1200 modem in a vehicle.

This chapter includes:

Mounting the Modem

The standard mounting of the iR1200 modem can be mounted on different types of surfaces. You should determine if the surface is able to support the weight of the iR1200 modem. The area should allow sufficient space around the modem for cool air to circulate.

For vehicle mounting, the unit should be close enough to the vehicle's operator to permit easy access to modem's indicators. Although the modem can be mounted on a plastic dashboard, it is recommended that the mounting screws be positioned so they penetrate the supporting metal frame of the dashboard.

Figure 3 – iR1200 Rear Panel Layout

The following table contains the steps for mounting your iR1200 data modem in a vehicle.

1	Determine a convenient location in the vehicle – either on the transmission bump or under the dashboard. If mounting the iR1200 modem on the transmission bump, ensure that the transmission housing is not affected.
2	Use the mounting template or the iR1200 mounting bracket to mark the positions of the holes on the mounting surface.
3	Mark the holes on the location for the mounting.
4	Drill the holes in the marked location.
5	Mount the unit using the #10 sheet metal screws.

Antenna Mounting

Regardless of whether the modem is installed inside a vehicle or building, the best location for mounting the antenna is in the center of a large, flat surface.

Antenna Installation Considerations

- All equipment must be properly installed in accordance with Nextel's installation instructions.

- To assure compliance with United States FCC regulations on RF exposure, the user of the equipment must position the antenna in such a way to maintain a separation of at least 8 inches (20 cms) between the antenna and the human body.
- Ensure that the antenna is properly installed external to the vehicle and in accordance with the requirements of the antenna manufacturer/supplier.
- Use only the supplied or an approved antenna. Unauthorized antennas, modifications or attachments could impair call quality, damage the modem, or result in violation of the FCC.

Mounting Modem Antenna

The following table outlines the approved antennas that can be used with the iR1200 modem.

1	RAF4136AMM – Magnetic Antenna
2	FAD5524A – Mobile Window Antenna
3	HAF9067A – Mobile Roof Mount Antenna
4	CLR-877MU – Antenna World Magnetic Mount
5	CLR-853MU – Antenna World Portable antenna

NOTE: Antennas with gain exceeding 3db do not comply with FCC RF exposure and are not allowed for use with this product.

The following table outlines the steps for mounting an antenna.

1	Use an antenna suitable for the cellular band of frequencies (806-870 MHz) with Mini UHF jack and matched for 50-ohm impedance.
2	Position the antenna to allow as free a radiation pattern as practical.
3	Screw the male connector of the antenna cable to the MODEM ANT jack (refer to Figure 3 – Rear Panel Layout).

NOTE: Each antenna has specific installation instructions. Please refer to the antenna installation instructions for specific requirements and details.

Mounting GPS Antenna (optional)

The iR1200 GPS Enabled modem comes equipped with a connector for a GPS antenna.

The following GPS antenna can be used with the iR1200 Modem:

1	39265-50 - Trimble Magnetic Mount Antenna

The following table contains the steps for mounting a GPS antenna.

1	Use an antenna suitable for the GPS of frequency (1575 MHz) with an MCX connector and matched for 50-ohm impedance.
2	Locate the antenna to allow as free a radiation pattern as practical.
3	Insert the male connector of the GPS antenna cable to the GPS ANT jack (refer to Figure 3 – Rear Panel Layout).

NOTE: Because of the operating frequencies involved with GPS signal, splicing or using adapters to extend the length of the antenna coaxial cable is not recommended and will likely prevent the system from operating properly. We recommend that a single length of coax without splices or adapters be used.

Power Cable Installation

The iR1200 must be operated only in a negative ground electrical system, however reverse polarity will not damage the modem. Check the vehicle power polarity before you begin installation.

Wiring Diagram

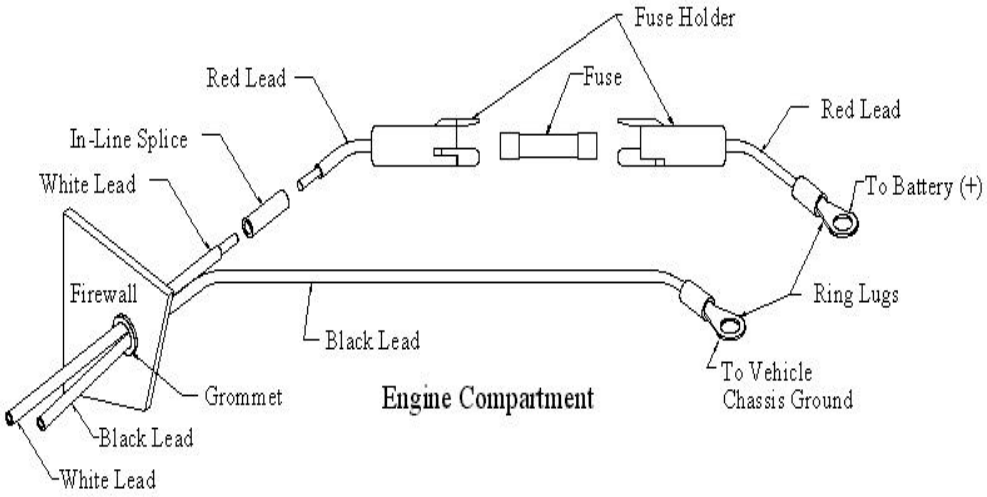


Figure 4 – Power Cable Assembly

The following DC power cable can be used:

1	5100-C5-RFM – eLutions' Vehicle Power Harness

The following table contains the steps for installing the power cable:

1	Determine a cable routing plan which will allow you to connect the plug end of the DC power cable to the jack labeled POWER located on the front panel of the iR1200 modem (refer to Figure 7).
2	Locate the nearest available chassis ground mounting point and shorten the black lead to remo ve any excess cable length.
3	Position the fuse holder as close to the battery as possible and away from any potentially hot components.
4	Mount the fuse holder by tie wrapping it to the other cabling wires

	and dress wires as necessary.
5	Shorten the white lead to remove any excess length and crimp the fuse holder's red lead to the white lead using the in-line splice.
6	Crimp on the ring tongue terminal and connect the power cable black lead directly to the chassis ground.
7	Connect the ring tongue terminal from the fuse holder to the positive (+) battery terminal. Make sure the adapter cable is connected to the main power cable red lead.

Ignition Cable Installation

To turn on the iR1200 modem, an ignition signal is required at the ignition connector. When installed in a vehicle, the modem receives the ignition signal from the vehicle's ignition switch.

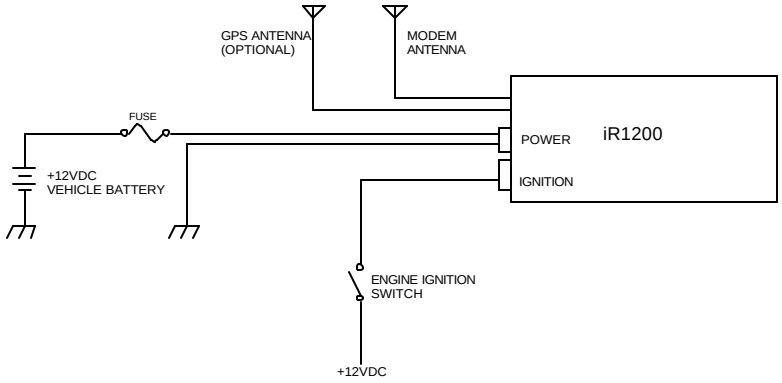


Figure 5 – Switched Power Configuration

The following table contains the steps for installing your modem for switched power connection:

1	Once the modem has been mounted, prepare a routing plan for the ignition.

2	Connect the free end of the ignition cable to a fused vehicle circuit which provides +12V DC when the engine is running and no voltage when the vehicle is off.
3	Connect the other end (with the plug) to the iR1200 jack labeled IGNITION (refer to Figure 7 – Front Panel Layout).

Modem Data Cable Installation

The iR1200 Rugged Modem can be connected to the host DTE equipment using a standard "straight through" 9-pin to a 9-pin serial cable.

The following part can be used:

4	5200-C5-RFM – eLutions Power Cable

The following table contains the steps for connecting the data cable:

Connect one side of the 9-pin cable to the iR1200 communication connector and the other side of the DTE.

GPS (optional) Data Cable Installation

The iR1200 GPS Enabled Modem can be connected to the host DTE equipment using a standard "straight through" 9-pin to a 9-pin serial cable.

The following part can be used:

1	5200-C5-RFM – eLutions Power Cable

The following table contains the steps for connecting the data cable:

Connect one side of the 9-pin cable to the iR1200 communication connector and the other side of the DTE.

Stationary Installation

In this chapter, you will learn everything you need to know to install your iR1200 modem in a stationary (i.e. building/desktop) environment.

This chapter includes:

Mounting the Modem

The standard mounting of the iR1200 modem can be mounted on different types of surfaces. You should determine if the surface is able to support the weight of the iR1200 modem. The area should allow sufficient space around the modem for cool air to circulate.

Mounting of the iR1200 modem within a building or stationary environment is typically installed in an area where the antenna is exposed to the sky for maximum reception.

Figure 3 – iR1200 Rear Panel Layout

The following table contains the steps for mounting your iR1200 data modem in a stationary environment.

1	Determine a convenient location that meets the requirements for mounting (i.e. weight support, surface, etc).
2	Use the mounting template or the iR1200 mounting bracket to mark the positions of the holes on the mounting surface.
3	Mark the holes on the location for the mounting.
4	Drill the holes in the marked location.
5	Mount the unit using the #10 sheet metal screws.

Antenna Mounting

For building installation, the antenna will need to be positioned where it is an obstructed view of the sky. In some cases, this can be accomplished by placing the antenna adjacent to a window. In most cases it will require mounting outside of the building.

Antenna Installation Considerations

- All equipment must be properly installed in accordance with Nextel's installation instructions.

- To assure compliance with United States FCC regulations on RF exposure, the user of the equipment must position the antenna in such a way to maintain a separation of at least 8 inches (20 cms) between the antenna and the human body.
- Ensure that the antenna is properly installed external to the vehicle and in accordance with the requirements of the antenna manufacturer/supplier.
- Use only the supplied or an approved antenna. Unauthorized antennas, modifications or attachments could impair call quality, damage the modem, or result in violation of the FCC.
- Antenna should have an unobstructed view of the sky.
- Antenna should be mount away from a high power-transmitting antenna.

Mounting Modem Antenna

The following types of antenna can be used with the iR1200 modem:

1	RAF4136AMM – Magnetic Antenna
2	FAD5524A – Mobile Window Antenna
3	HAF9067A – Mobile Roof Mount Antenna
4	CLR-877MU – Antenna World Magnetic Mount
5	CLR-853MU – Antenna World Portable antenna

NOTE: Antennas with gain exceeding 3db do not comply with FCC RF exposure and are not allowed for use with this product.

The following table outlines the steps for mounting an antenna.

1	Use an antenna suitable for the cellular band of frequencies (806-870 MHz) with Mini UHF jack and matched for 50-ohm impedance.
2	Position the antenna to allow as free a radiation pattern as practical.
3	Screw the male connector of the antenna cable to the MODEM ANT jack (refer to Figure 3 – Rear Panel Layout).

NOTE: Each antenna has specific installation instructions. Please refer to the antenna installation instructions for specific requirements and details.

Mounting GPS Antenna (optional)

The iR1200 GPS Enabled modem comes equipped with a connector for a GPS antenna.

The following GPS antenna can be used with the iR1200 Modem:

1	39265-50 - Trimble Magnetic Mount Antenna

The following table contains the steps for mounting a GPS antenna.

1	Use an antenna suitable for the GPS of frequency (1575 MHz) with an MCX connector and matched for 50-ohm impedance.
2	Locate the antenna to allow as free a radiation pattern as practical.
3	Insert the male connector of the GPS antenna cable to the GPS ANT jack (refer to Figure 3 – Rear Panel Layout).

NOTE: Because of the operating frequencies involved with GPS signal, splicing or using adapters to extend the length of the antenna coaxial cable is not recommended and will likely prevent the system from operating properly. We recommend that a single length of coax without splices or adapters be used.

Power Cable Installation

The iR1200 modem is designed primarily for mounting inside a vehicle and is activated (turned ON) when an ignition signal is sensed. When used in a stationary application, an ignition signal does not exist. To simulate an ignition signal, an ignition sense short plug must be used (see accessories section for part number).

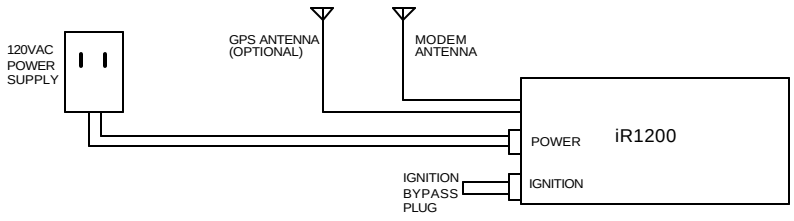


Figure 6 – Continuous Power for Stationary Installation

The following table contains the steps for installing your modem for continuous power connection:

1	Insert the power connector into the 2-prong jack labeled POWER located on the rear panel of the modem (Figure 3).
2	Plug the other end of the power connector to a 120VAC power supply.
3	Insert the Ignition Sensor Short Plug into the 4-prong jack labeled IGNITION located on the rear panel of the modem (Figure 3).

Modem Data Cable Installation

The iR1200 Rugged Modem can be connected to the host DTE equipment using a standard “straight through” 9-pin to a 9-pin serial cable.

The following part can be used:

1	5200-C5-RFM – eLutions Power Cable

The following table contains the steps for connecting the data cable:

Connect one side of the 9-pin cable to the iR1200 communication connector and the other side of the DTE.

GPS (optional) Data Cable Installation

The iR1200 GPS Enabled Modem can be connected to the host DTE equipment using a standard “straight through” 9-pin to a 9-pin serial cable.

The following part can be used:

2	5200-C5-RFM – eLutions Power Cable

The following table contains the steps for connecting the data cable:

Connect one side of the 9-pin cable to the iR1200 communication connector and the other side of the DTE.

Verifying Installation

In this chapter, you will learn how to verify that the installation of the iR1200 data modem was successful.

This chapter includes:

Powering Up the Modem

Once you have completed the installation of the modem's hardware components and connected all the power cables, you will want to power up the modem to assure that the installation was successful.

Powering Up – Vehicle Installation

The following table contains the steps for powering up the modem for a vehicle installation:

1	Turn on the vehicle's ignition.
2	The STATUS LED light will initially blink Red. This indicates that the modem is searching for a signal within in the Nextel network.
3	A blinking Green light indicates that a signal has been found and the modem was successful in making a connection.
4	The STATUS LED should be blinking Green within 3 minutes from the time the vehicle's ignition was turned ON.

Powering Up – Building Installation

To turn on the iR1200 modem, an ignition signal is required at the ignition connector. Use the ignition sense short plug to simulate and ignition signal to power up the modem.

The following table contains the steps for powering up the modem for a building installation:

1	Insert the Ignition Sensor Shorting Plug into the 4-prong IGNITION jack located in the rear panel of the modem (refer to Figure 3)
2	Plug the AC power cord into a standard 2 prong polarized wall socket.
3	The STATUS LED light will first blink Red. This indicates that the modem is searching for a signal within in the Nextel network.
4	A blinking green light indicates that a signal has been found and the modem was successful in making a connection.
5	The STATUS LED should be blinking Green within 3 minutes from the time the vehicle's ignition was turned ON.

Communication Indicators

Your iR1200 Modem is equipped with LED indicators (located on the front panel) that identify various communication functions.

Figure 7 – iR1200 Front Panel Layout

The following table contains the descriptions of the LED indicators and their functions.

Signal	Color	Indication
Tx	Flickering	Modem is transmitting data to the user (host) system.

	Green	Modem is receiving data from DTE.
Rx	Flickering Green	Modem is receiving data from the user (host) system. Modem is sending data to DTE.
DTR	Green (Off)	Data terminal equipment (user host system) is ready (not ready).
RTS	Green (Off)	Request to send (from user host system) is asserted (not asserted).
CTS	Green (Off)	Clear to send (from modem) is asserted (not asserted).
DSR	Green (Off)	Modem is ready (not ready).

LED Status Indicators

The following table contains the various LED indicators that may appear on the front panel of the iR1200 modem:

LED Indicator	Status of Your iR1200 Modem
Blinking Red	The modem is searching for signal within the Nextel network.
Solid Red	Out-of-range (modem is not connected to the Nextel network).
Blinking Green	In-range (modem is connected to the Nextel Network).
Solid Green	The modem is in use – Nextel network communication is in progress (circuit switched mode only).
Off	Vehicle ignition is off or loss of 12 volt input power.

Troubleshooting

In this chapter, you will learn how to troubleshoot the most common installation problems and how to resolve them.

This chapter includes:

Common Problems

The following table outlines the most common installation issues and instructions for resolution.

What's the Problem?	What it means:	How to Resolve:
Nothing happens when I power up the modem.	This indicates that there is no power being supplied to the modem.	There are several things that could be wrong. Go through this list and eliminate all the possible problems: • Is the ignition on or is the ignition sense shorting plug inserted into the jack (for building installations)? • Check power supply and make sure that everything is connected properly. • Check the cables and wiring.
The modem has power but the LED light is not	You may not be within coverage area.	• Check to make sure the antenna is properly connected.

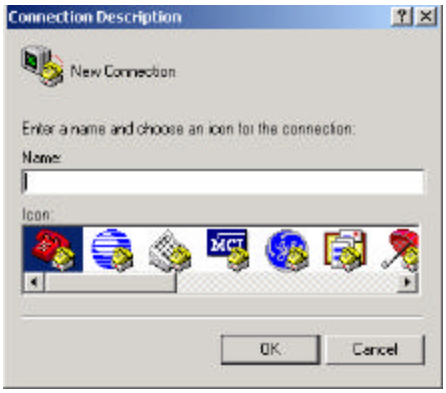
blinking green.

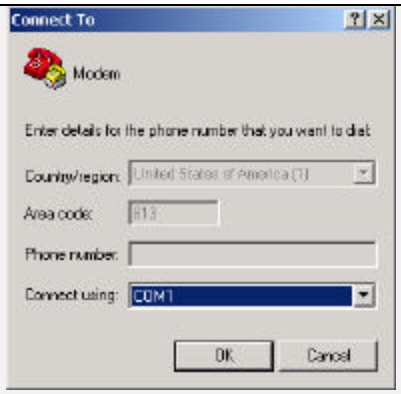
HyperTerminal

The HyperTerminal is a program that can be used to connect to the iR1200 modem diagnostic port and allow you to perform high-level diagnostics.

Setting up HyperTerminal

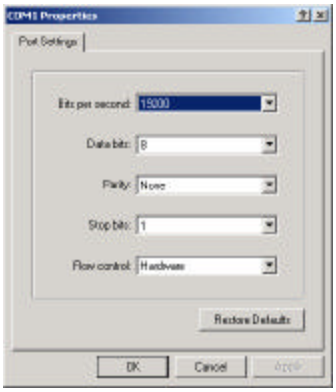
The following table outlines steps to setup a HyperTerminal session for the iR1200 modem:

1	From your computer, locate and select the HyperTerminal program.
2	The **Connection Description** screen appears. 
3	Type a description of the connection in the “Name:” box
4	Select the dial function (red and yellow phone icon) and click OK.
5	The **Connect To** screen appears.



6 Select the appropriate communication port (typically COM1) from the "Connect Using:" drop down list then Click OK.

7 The **COM1 Properties** screen appears.

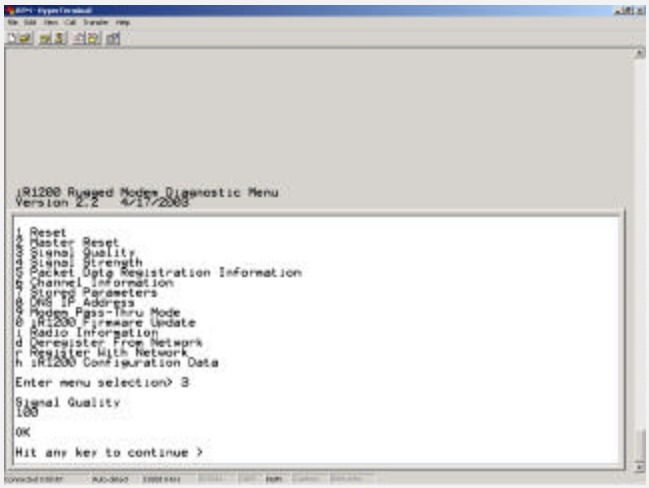


8 Select the following parameters from each of the drop down list on the Port Settings tab:

- **19200** for Bits per second
- **8** for Data bits
- **NONE** for Parity
- **1** for Stop bits
- **None or Hardware** for Flow control

9 Click OK when all the parameters have been selected.

10 Once connection to the modem is successful, the **iR1200 Rugged Modem Diagnostic Menu** appears.



Diagnostic Menu

The iR1200 Modem Diagnostic Menu provides you with commands to assist with analyzing potential problems with the modem. The menu contains actions that call the modem and retrieves diagnostic information.

The following table outlines the types of information that can be retrieve with the commands on the diagnostic menu.

Command	Action	Reply
1 – Reset	This command resets the radio section of the modem.	
2 – Master Reset	This command is used when certain changes	**WARNING:** We do not recommend that you perform this command unless otherwise instructed by a Nextel

	certain changes are made to the firmware and the modem needs to acquire the changes.	Customer Care representative.
3 – Signal Quality	This determines the quality of the signal.	Signal quality can be 0 – 100
4 – Signal Strength	This determines the signal strength of the modem.	Signal strength can be 0 – 100.
5 – Packet Data Registration Information	This will check for packet data registration status.	• Service type: PACKET • VALID NEI: (IP Address of the Modem) • Registration Status: REGISTERED or UNREGISTERED • MIP Registration Status: REGISTERED or UNREGISTERED
6 – Channel Information	This determines if channel data has been obtained.	• Area • RSSI • Channel • State • TX Level
7 – Stored Parameters	This provides the modem's preset parameters.	• Flow Control • Character Framing • Service Class • DTE-side Stack • WDS-side Stack • Mobile IP Activation • Mobile UP Registration Lifetime • Security Parameter Index

		• Home Agent IP Address • +WPNEI Prefix Length • Request Broadcast Datagrams • DCE IP Addresses • DTE IP Addresses • Data Encryption • Data Compression • Header Compression
8 – DNS IP Address	Displays the address of the Domain Name Server.	
9 – Modem Pass-Thru Mode	Allows you to issue Hayes compatible AT commands to the modem during diagnostic port.	
0 – iR1200 Firmware Update	Sends updates to the firmware.	**WARNING:** We do not recommend that you perform this command unless otherwise instructed by a Nextel Customer Care representative.
i – Radio Information	Obtains information specific to the modem.	• Serial Number • IMEI • SIM ID • Software Version
d –Deregister From Network	Forces the modem to deregister from the Nextel Network.	DEREGISTERED

r – Register with Network	Forces the modem to register with the Nextel network.	REGISTERED
h – iR1200 Config Data	Checks the modem's data configuration.	• Hardware Part ID • Serial number • Boot Loader • Application ID

Technical Support

In this chapter, you are provided with the process and information for contacting Nextel for technical support of the iR1200 modem.

Customer Care Support Line

Call our Customer Care support line at 1-800-639-6111 or dial 611 from your Nextel phone. When you call, please have a detailed description of your problem.

Nextel Online (nextel.com)

For online assistance, click on **Contact Us** to send us an email request. Our representatives are committed to assisting you. Every effort will be made to address your questions or concerns within 24 hours. Contact us to add Nextel Online and other services to your phone, change rate plans, inquire about your bill, and more.

Appendix A: Accessories

The following table lists the accessories that have been approved for use with the iR1200 modem. Please contact Nextel to order these items.

Part No.	Description
5000-C5-RFM	Mag Mount Cellular Antenna
5010-C5-RFM	Mag Mount Cellular Antenna
5020-C5-RFM	Right Angle Direct Mount Cellular Antenna
5030-C5-RFM	Mag Mount GPS Antenna
5100-C5-RFM	Vehicle Power Harness
5200-C5-RFM	AC Power Adaptor
5300-C5-RFM	Ignition Sense Shorting Plug
6000-C5-RFM	Documentation - Administrator Guide

Appendix B: Glossary

This appendix contains terms and definitions that are used within this manual. The glossary is meant to assist you by providing definitions for terms as they pertain to Nextel's iR1200 data modem and is by no means exhaustive of terms that you may come across.

Asynchronous

Data without an accompanying time signal. Timing is built into data characters as start and stop bits.

AT Command

An order entered into the computer to request your modem to perform certain actions, such as dial a telemodem number. AT commands are Hayes-compatible modem commands.

Baud

The signaling rate of a line, which is the number of transitions (voltage or frequency changes) that are made per second.

Baud Rate

Signaling speed of the modem. Common baud rates are 2400, 4800, 9600, 19200, and 56k.

Byte

A data unit of eight bits.

Circuit Switched Data

A networking technology that provides a temporary, but dedicated, connection between two stations no mater how many switching devices the data is routed through. Circuit Switch was originally developed for the analog-based telephone system in order to guarantee steady, consistent service for two people engaged in phone conversation.

Command Mode

The mode that accepts AT commands. Also known as Terminal Mode. When your modem is in this mode, it is waiting to receive AT commands that you type from your communication software.

Communication Software

A computer program designed to connect your computer to an external source, such as another computer or a fax machine.

Data Services

One of the functions of your iDEN modem. Wireless data services uses both circuit-switched and packet data transmissions.

DCD

Data Carrier Detect. An acceptable carrier signal received by the modem over the modem line. Also known as Received Line Signal Indicator (RLSI).

DCE

Data Communication Equipment. The equipment that establishes, maintains, and terminates a connection. It converts data into units of sound and vice versa for communication over telemodem or cellular networks.

Default

A factory preset choice that, under normal circumstances, works best for your system. You can either accept the default or change it.

DNS

Domain **N**ame **S**erver. This is what converts names of domains (ex. : www.nextel.com) into IP addresses (ex. : 170.206.225.22). The DNS server that you use is generally situated with your access provider.

DTE

Data Terminal Equipment. A computer or hand-held device that generates and receives data, and provides functions that control data communications through a device like the modem.

Dial Up Networking (DUN)

A component in Windows that enables you to connect your computer to a network via modem. If your computer is not connected to a LAN and you want to connect to the Internet, you need to configure Dial-Up-Networking (DUN) to dial a Point of Presence (POP) and log into your Internet Service Provider (ISP). Your ISP will need to provide certain information, such as the gateway address and your computer's IP address.

GPS

(**G**lobal **P**ositioning **S**ystem) is a "constellation" of 24 well-spaced satellites that orbit the Earth and make it possible for people with ground receivers to pinpoint their geographic

location. The location accuracy is anywhere from 100 to 10 meters for most equipment. Accuracy can be pinpointed to within one (1) meter with special military-approved equipment. The GPS is owned and operated by the U.S. Department of Defense but is available for general use around the world.

Hand-Held Devices

Small computing appliances, such as palmtops, personal digital assistants and pen-based computers.

Hertz (Hz)

A frequency unit equal to one cycle per second.

Home Agent

The carrier responsible for routing data from your home network to your computer. Nextel is your Home Agent.

Internet

A series of interconnected local, regional, national and international networks, linked using TCP/IP. The Internet links many government, university, research and commercial sites. It provides e-mail, Web browsing and file transfer services.

Internet Service Provider (ISP)

Provides your computer with Internet access. Also known as Service Provider.

Intranet

A network based on TCP/IP protocols (an internet) belonging to an organization, usually a corporation, accessible only by the organization's members, employees or others with authorization. An Intranet's Web sites look and act just like any other Web sites, but the firewall surrounding an intranet fends off unauthorized access.

Kbps

Kilobits per second. Generally represented at 1000 bits per second.

Laptops

Portable computers, such as notebooks and subnotebooks.

Local Area Network (LAN)

A computer network that spans over a relatively small. Most LANs are confined to a single building or group of buildings.

Mobile IP

An IP enhancement that provides forwarding of traffic to moving users. It uses agents in the user's home network and in all foreign networks. When logging on to a remote

network, users register their presence with the foreign agent, and the home agent forwards the packets to the remote network. Mobile IP permits mobile devices to inform a "visited" network that it is present and then arrange to have its home network froward data to it automatically.

Modem

An electronic device enabling digital data to be sent over analog transmission facilities. Converts a digital signal to analog and back to digital again. Modem stands for Modulator/De-Modulator.

Non-Routable IP

A communications protocol that contains only a device address and not a network address. It does not incorporate an addressing scheme for sending data from one network to another. Examples of non-routable protocols are NetBIOS and DEC's LAT protocols. Also some TCP'IP addresses are considered non-routable.

Non-Volatile Memory

Memory that holds its content without power. Permanently stored information. It is not lost when you power off. ROMs, PROMs, EPROMs and flash memory are examples.

Packet Data

A bundle or block of data, organized in a specific way for transmission.

Parallel Port

A low speed port, usually located on the rear of a computer which usually connections to printers. Parallel ports transmit data simultaneously over eight "parallel wires" one byte at a time (as opposed to a serial port, which transmits data one bit at a time).

Parity Bit

Parity is a process for detecting whether bits of data have been altered during transmission. A Parity Bit is a non-data bit that is added to a group of data bits to check for transmission errors. Parity Bits are used in Parity checking which is an error-checking method in asynchronous transmission. The parity bit tells the receiving end of a transmission whether there should be an even or odd number of bits contained in that transmission.

PIN

Personal Identification Number.

PING

(Packet INternet Grouper) An Internet utility used to determine whether a particular IP address is online. It is used to test and debug a network by sending out a packet and

waiting for a response. A program used to test whether or not a network component is available.

PPP

(Point-to-Point Protocol) The most common method for connecting to the Internet. PPP provides serial line (dial-up) connectivity, authentication, compression and encryption between two computers and can handle several protocols simultaneously.

Protocol

Hardware and software standards that govern transmission between two computerize and communications devices. There are several layers, or levels, of functionality in a protocol. Each layer may be available, as a separate software component, or several layers may be combined into one.

Public IP Address

See Routable IP Address.

RAM

Random Access Memory is the working memory of the computer where you can enter information and call up data.

Routable IP Address (Public IP Address)

A communications protocol that contains a network address as well as a device address, allowing data to be routed from one network to another. Examples of routable protocols are SNA , OSI, TCP/IP, XNS, IPX, AppleTalk and DECnet.

Serial Port

An input/output (I/O) port transmits data one bit at a time, as opposed to a parallel port which transmits multiple (usually eight) bits simultaneously. RS232C is a common serial interface standard.

Service Specific Software

A program designed for a designated online service such as AOL.

Stop Bit

A data bit used in asynchronous transmission to signal the end of the character.

System Administrator

The person responsible for monitoring computer activity in a specified area, such as a company.

TCP/IP (Transmission Control Protocol/Internet Protocol)

The two best-know Internet protocols, often erroneously thought of as one protocol. TCP enables two hosts to establish a connection and exchange streams of data. TCP guarantees delivery of data and guarantees that packets will be delivered in the same order in which they were sent. IP acts as a postal system, allowing you to address a package and drop it in the system, but doesn't provide a direct link between you and the recipient. TCP/IP, on the other hand, establishes a connection between two hosts so that they can send messages back and forth for a period of time.

Terminal Mode

The mode that accepts AT commands. Also known as Command Mode. When your modem is in this mode, it is waiting to receive AT commands that you type from your communication software.

Transmission Rate

The rate at which data is transferred measured in bits per second. Common transfer rates are 9.6bps / 19200bps / 57600bps / 115200bps

Wireless Data Services

One of the functions of your Internet-ready phone. Wireless Data Services uses both circuit-switched and packet data transmission.