GENOVATION

Wireless QuickSave MiniTerm
Quick Start Guide

Revision A
July 2006

1: What's Included

Your Wireless MiniTerm package should include the following items:

- 2.4 GHz wireless MiniTerm keypad with or without optional barcode scanner.
- 2.4 GHz wireless dongle (also known as a transceiver or bridge). USB 1.0, 1.1, and 2.0 compatible.
- Installation CD containing USB Virtual Serial Port driver for Win2k/XP and Win98se and serial test application.
- Product documentation.
- Two 1.5V C cell alkaline batteries.

2: Product Features

- 1x16 super-twist liquid crystal display.
- 12-Keys plus hidden "bind" button.
- Wireless 2.4Ghz data link (30' or 10 Meters) with frequency hopping.
- PC-based transceiver connects to USB and creates a new Virtual Serial COM port within Windows operating system.
- Audible key beeper.
- In-band low-battery notifications.
- Optional bar code reader.
- Dedicated wireless serial data link supports co-location.

3: Dongle/Driver Installation

This product is designed to work with computers running Microsoft Windows 2000/XP operating systems.

Installation: <u>For Windows 98se and ME</u>

1. Insert the Genovation CD-ROM.
2. Plug in the USB Genovation Virtual Serial dongle.
3. Windows will find new hardware and open "Add New Hardware Wizard" window, Click "NEXT".
4. Choose "Search for the best driver for your device" and "NEXT".
5. Choose "CD-ROM drive" as the location for the search and click the "NEXT" button.
6. Windows will locate "HIDCOM.INF". Click the "NEXT" button.
7. Windows will copy the files and then you click the "FINISH" button.

8. Windows will then load and activate the device, please wait for Windows to completely finish this process.

Installation: <u>For Windows 2000 and XP</u>

1. Insert the Genovation CD-ROM.
2. Plug in the USB Genovation Virtual Serial dongle.
3. Windows will find new hardware and open “Found New Hardware Wizard” window. Click the “NEXT” button.
4. Choose “Install from a list or specific location” and “NEXT” *(Windows XP only)*.
5. Choose “Search for the best driver in these locations”.
6. Choose “Search Removable Media (Floppy or CD-ROM)”. Click the “NEXT” button.
7. *For Windows 2000*, “Found HIDCOM.INF” message appears. Click on the “NEXT” button.
8. Windows will locate and install the proper drivers.
9. *Windows XP* will display a message about “Device Signing”. Click the “CONTINUE ANYWAY” button.
10. Windows will display a “Genovation USB Virtual Serial Device” had been installed. Click the “FINISH” button.
11. *Windows XP* will Display a message the your new hardware is ready to use.

4: Bind the Keypad and Dongle

<u>IMPORTANT!</u> When evaluating or using the unit, in order to reduce battery consumption and radio traffic, the keypad and dongle <u>must be bound</u> and the <u>host computer must open the virtual COM port associated with the dongle</u>.

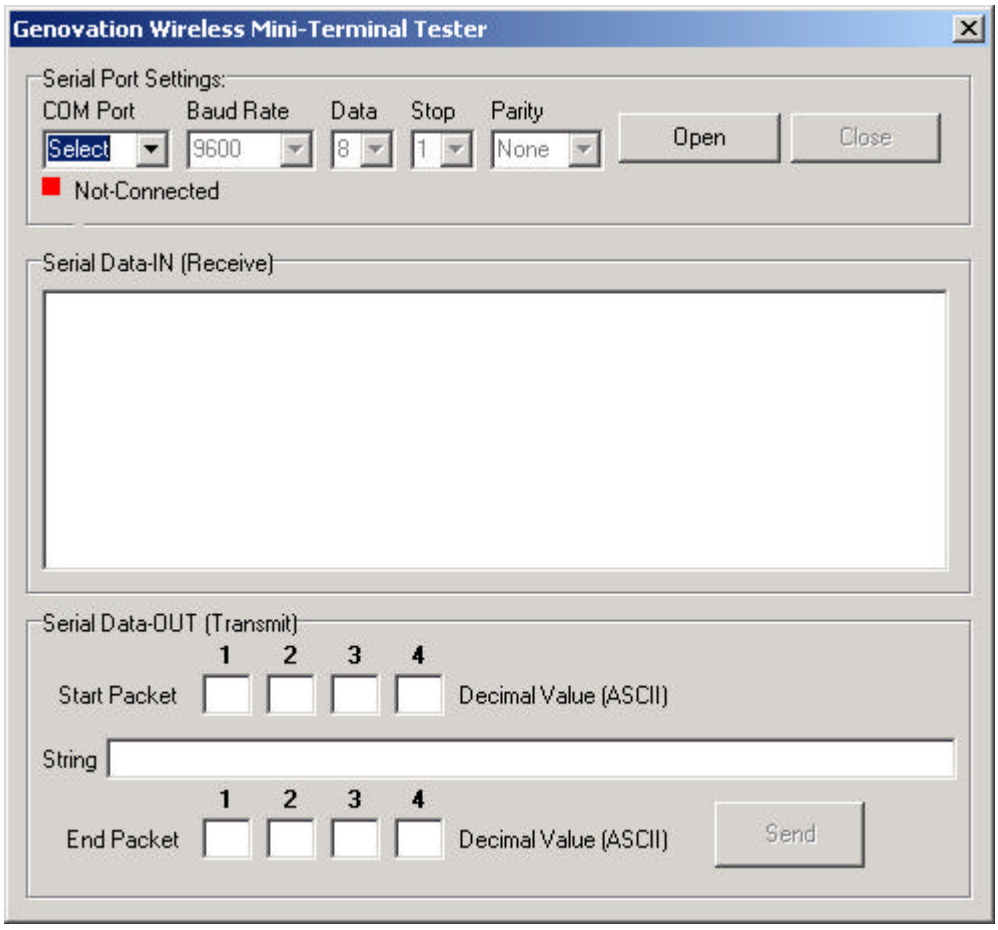
1. Make sure the dongle is plugged into the PC and the above procedure has been completed. The dongle LED will flash rapidly.
2. Insert the two 1.5v C cell batteries into the keypad battery compartment. Observe proper polarity. The keypad sign-on message will briefly appear on the LCD.
3. Press the hidden BIND button on the keypad. The keypad LCD displays `Bind: Press 1-8.` If the keypad has already fallen asleep, press one of the number buttons to wake it up, then press bind.
4. On the keypad, press one of the numbered buttons 1 through 8 to assign an ID (timeslot) to the keypad. The keypad displays `Binding ID x ...` where `x` is the number of the key you just pressed.
5. Press the bind button on the dongle. The dongle light should flash slowly.

6. After a few moments the bind should proceed. If successful, the keypad will revert to it's normal prompt, `Enter Code #` and you can proceed to the Test section of this document. If it fails the keypad will display `Bind Failed!` you should redo the above steps. It is better to perform the steps as quickly as possible.

5: Test the Keypad

A simple serial test application has been provided for your convenience. Any terminal emulator software will suffice. Make sure you have completed all of the above steps.

Run the supplied test application. You should see the following screen:

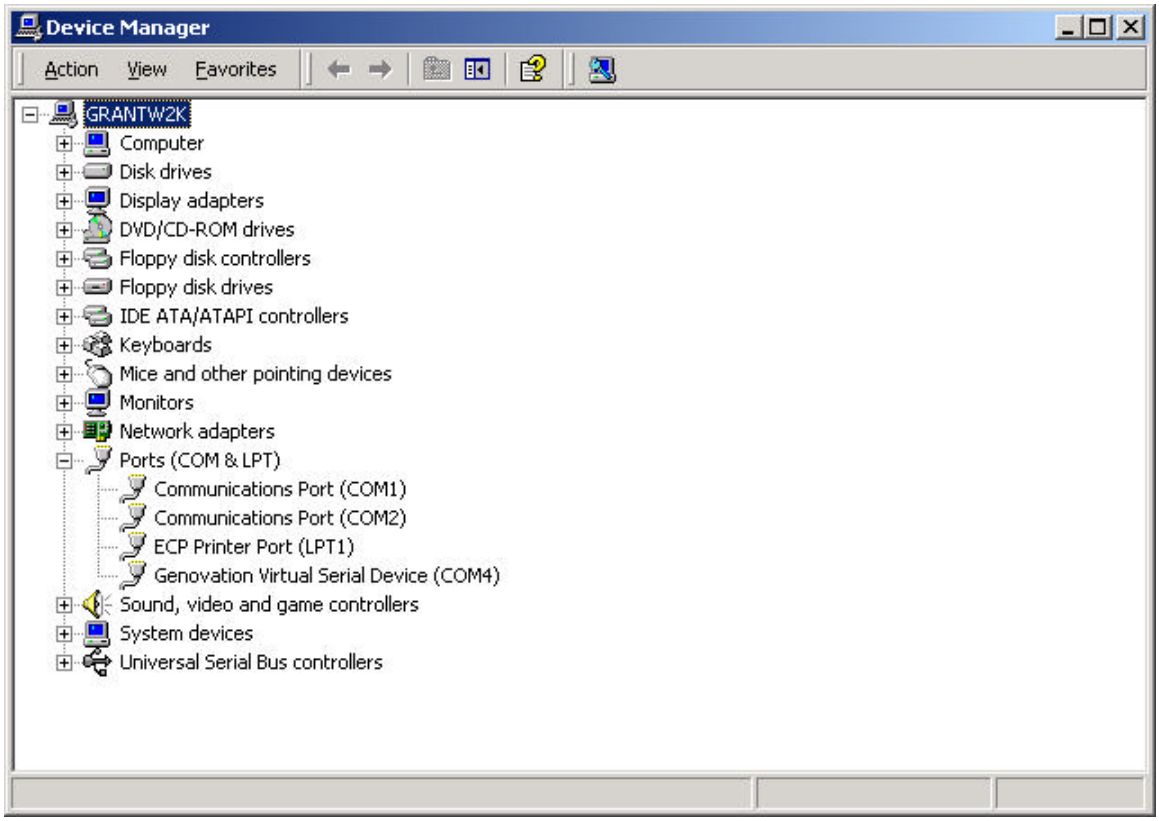


Click on the COM Port drop down box. You will be given a choice of all available COM ports on your system. The following diagram shows a typical result:

On the example PC COM1 and COM2 are associated with the hardware RS232 ports on the back of the computer (the DB-9 connectors). COM4 is associated with the new Genovation Virtual COM Port. Select COM4 and click OPEN. If you are not sure which COM port is assigned to your wireless dongle, click on the following to open the Device Manager (this example is for Win2k):

Start -> Settings -> Control Panel ->System -> Hardware -> Device Manager-> Ports

You should see something similar to this:



Once you have opened the correct port you can test the keypad.

Keypad Operation

The 8:1 dongle continuously polls its bound keypads on a 1MHz wide channel in the 2.4GHz band. The dongle selects a "quiet" channel and remains there unless there is too much non-MiniTerm activity or there are too many failed data packets. If necessary, the dongle will hop to a quieter new channel. The keypads will locate the dongle by listening for the dongle poll signal.

Normally the keypad sleeps after 15 seconds of inactivity to conserve battery power. The following steps describe the user interface with the keypad and other related functions. The table assumes that keypad is asleep.

User Operation	LCD Shows	Comment/Description

Press GO key (or any other).	`Enter Code #:`	*Unit is waiting for advertisement #.*
		`Keypad barcode scanner is off.`
		`Keypad radio is off.`

Press an ad number. Keys 1 through 8 only.	`Enter Phone #`
	
	`Or Scan Card`
		Keypad accepts adv #. User can begin to enter a phone number or scan their barcode (card).
		`Keypad wakes radio briefly.`
		`Keypad turns on scanner.`

* Enter phone number via number pad	`#:___-___-____`	*User enters ten numbers on keypad.*
		`Keypad turns scanner off.`
		`Keypad radio is off.`

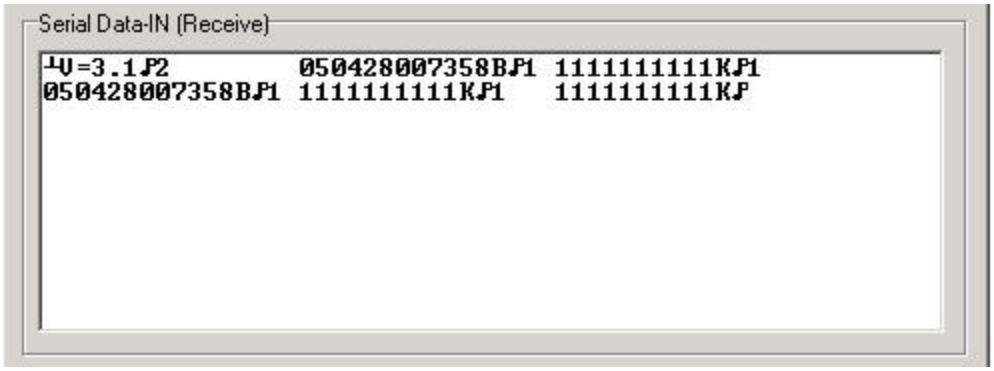
* Scan card	`Card Read OK …`	*User scans barcode (card).*
		`Keypad turns scanner off.`
		`Keypad radio is off.`

None	`* Thank You! *`	`Keypad turns radio on.`
		`Keypad transmits packet to dongle when polled.`
		`Keypad turns radio off.`
		`Keypad goes to sleep.`

* Choose one operation or the other (keypad input or barcode scan).

At any time the user may press the CLEAR button on the keypad to back up to the previous step.

After following the above steps, you should see data appearing in the Serial DATA-IN (Receive) window of the test program.



The data transmitted from the keypad is in the format:

A##########K<cr>
or
A##########B<cr>

Where:
- A is an advertisement # (1 though 8)..
- ### is the user phone number or barcode data.
- K indicates keypad input
- B indicates barcode input
- <cr> is the carriage return terminating character.

In addition, there may be a prefix character that identifies the keypad by ID#. See the Wireless MiniTerm Developers Manual for more information.

If the dongle is out of range or otherwise disabled, the keypad cannot transmit it's data to the host. The keypad will display `Out of Service` in this case.

Sign-On Message

When the unit is initially powered on (batteries inserted), the unit will display the firmware version number, battery voltage and keypad ID (time slot) on the LCD. This message can be recalled by:

- Press and release any key to wake the unit up.
- Press and hold the CLEAR key.
- Press 9 and release both keys.

In-Band Battery Notification

When the unit is initially powered on (batteries inserted), 30 seconds later it will transmit a battery report to the host. The report has the format:

V=x.y<cr>

Where x.y indicates the approximate battery voltage. Refer to the previous figure.

The unit will transmit a battery report approximately every 240 minutes (4 hours).

Appendix: Technical Background

The following are excerpts from the Wireless MiniTerm Developers Manual. This information is provided here to help the system integrator to understand how the unit operated.

Wireless -- (8:1)

In 8:1 systems the keypad is configured as a slave and the dongle is configured as master. The host dongle is continually polling for Mini-Terms but one or more of them may be missing or sleeping at any given time.

Virtual Serial Over USB (HID)

It is worth noting a few points regarding how virtual serial differs from traditional RS232. First of all, the driver on the host (PC) is not loaded into memory until the USB device is plugged in. With traditional RS232 one could open a COM port at any time, regardless of whether the target device is attached or not. With USB this is not the case. If the Wireless Mini-Term dongle is not plugged in, attempts to open the COM port will fail. Unplugging and re-plugging a Wireless Mini-Term dongle will usually require that the COM port be closed and reopened. Opening the COM port only pertains to the dongle. Whether any given remote keypad is awake or sleeping, turned on or turned off, does not affect the ability to open a COM port. USB transfers all of its data in 8-bit format (no parity) and utilizes the USB spec CRC checksums for error detection. As a result your host port settings (baud rate and word format) do not matter over USB.

Federal Communications Commission (FCC) Statement

15.21
You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user' s authority to operate the equipment.

15.105(b)
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

Operation is subject to the following two conditions:

1) this device may not cause interference and

2) this device must accept any interference, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.