Prosurv cEZ

Bluetooth®

Wireless Technology
Guide

Contact Information

Prosurv, LLC
185 Louis L'amour Lane
Clark, WY 82435

Toll-free 888-647-9500
Web site: www.prosurv.com
E-mail: sales@prosurv.com
techsupport@prosurv.com

What is Bluetooth®?

Bluetooth® wireless technology allows you to communicate wirelessly with other **Bluetooth**® devices. To use this technology, you need to have 2 capable devices. Many Pocket PC's have **Bluetooth**® wireless technology built-in. So, in theory, to be able to communicate with your instrument wirelessly, you would need a **Bluetooth**® device that is connected to your instrument. This device would need to be able to change the digital signals (between the device and your Pocket PC) into RS232 signals.

The 3e-250 **Bluetooth**® To RS232 Cordless Adapter by 3e Technologies International does the job. The adapter has a 9-pin connector, built-in rechargeable battery, and 3 indicator lights.

Using the combination of a **Bluetooth**® capable Pocket PC and the 3e-250 Adapter, you will be able to have wireless communication with your instrument. You can walk around the instrument, taking shots and receiving the information from the instrument, all without a cable in between. And, with this solution, virtually all instruments can be supported, regardless of age. If the instrument allows for RS232 communication via a cable (ie you currently perform data collection with this instrument via a cable), then this solution should work for you (minimum 2400 baud required).

Establishing the Connection

Before using this solution the first time, you will need to configure your equipment. You will only need to do this once.

Hardware Needed

The **hardware** needed to perform this communication is:
- The 3e-250 Adapter by 3e Technologies*****
- Your **Bluetooth**® capable Pocket PC
- A 9-pin Null Modem Adapter (required since the 3e-250 is designed to attach to PC's, the send/receive wires need to be swapped, which is what the Null Modem does)*****
- A 9-pin Gender Changer may be required, depending on your cable*****
- A 9-pin Instrument Cable for your specific instrument. You may already own one of these cables. For example, if you have a Topcon instrument, then the cable needed is the Topcon to 9-pin Cable (Hirose to 9-pin). If you do not own a 9-pin cable for your instrument, you can probably obtain one through your local survey supply store, or you can order the cable from Prosurv LLC.

*Included when you order the Prosurv cEZ Bluetooth solution.

When you're ready to survey, connect your instrument cable to the instrument as usual. Then, at the 9-pin end, connect the gender changer (if needed) followed by the null modem adapter. Finally, connect the 3e-250 Adapter to the null modem adapter. Then just rest the cable on the tripod.

Configure Your Instrument

NOTE: The 3e-250 RS232 to Bluetooth Adapter allows for baud rates down to 2400 baud. 1200 baud is not supported. Many instruments communicate (by default) at 1200 baud. Whenever dealing with RS232, the key is to have the data collector and instrument use the exact same settings. Now, we're introducing a 3rd device, the 3e-250 Adapter. It's settings must also match the settings on your instrument AND data collector.

To ensure that proper communication is established, you should set your instrument to:
- **2400 baud**
- **No parity**
- **8 data bits**
- **1 stop bit**

Configure the 3e-250 RS232 Adapter

 To configure the 3e-250 RS232 Adapter, you will need a PC with a 9-pin port. Connect the 3e-250 Adapter to your PC for configuration. The adapter comes with a CD that contains a complete user's guide. You should follow the instructions in the user's guide in order to properly configure the 3e-250 Adapter. To configure the Adapter using your PC, you would use HyperTerminal as explained in the 3e-250 User's Guide.

 Once you've established communication between the PC and your 3e-250 Adapter*, you will perform the following commands:

1. config start
2. connect xxxxxxxxxxxx
   - where xxxxxxxxxxxx is the MAC Address of your Pocket PC.
   - To find this address on your Pocket PC 2003 Device, go to Settings—>Bluetooth—>Accessibility.
   - To find this address on your Pocket PC 2002 Device, activate (turn on) Bluetooth. Then activate the Bluetooth Manager. Tap on Tools—>Diagnostics. Your address is shown as the Device Address.
   - The Address is typically shown as xx:xx:xx:xx:xx:xx
3. changebaud 2400 (or the baud rate setting of your instrument, 2400 minimum)

 *If you're unsure about the connection, type **help** and press Enter. You should see a list of commands. If not, then your HyperTerminal baud rate is most likely incorrect. Tap the disconnect button, go to Properties, and change your baud rate. Then tap the connect button and try again. Also, **the On/Off switch on the 3e-250 acts as a reset for the device. So if changes are made to the device, be sure to turn the on/off switch OFF, then back ON, to reset the device.**

 On the back of the Adapter, there are two dip switches. Looking at the back of the Adapter, with the On/Off button **on top**, the upper dip switch is for CTS, while the lower dip switch is for DSR. Once the 3e-250 Adapter has been configured using your PC, in order to communicate correctly with your instrument, the dip switches should have the following settings:

- The CTS dip switch must be set to ON (pushed to the left)
- The DSR dip switch must be set to OFF (pushed to the right)

 Your 3e-250 Bluetooth to RS232 Adapter has now been configured for use with your Pocket PC and your instrument.

 Note: The BT Link Light on the 3e-250 Adapter will blink green about once every minute if a Bluetooth connection has been established between the Adapter and your Pocket PC.

Connecting to a Pocket PC 2002 Device
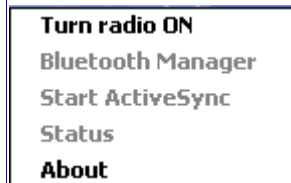
Power **ON** your 3e-250 Adapter
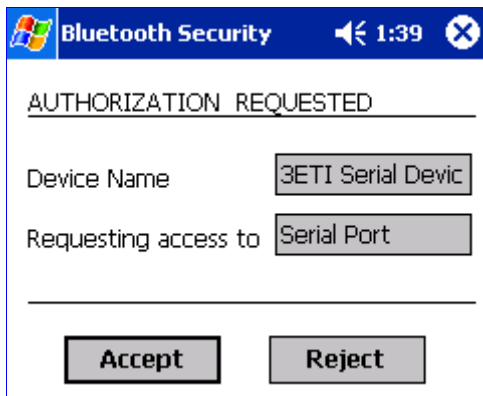Tap the Bluetooth connection icon at the bottom right of your screen.

Tap **Turn radio ON**.

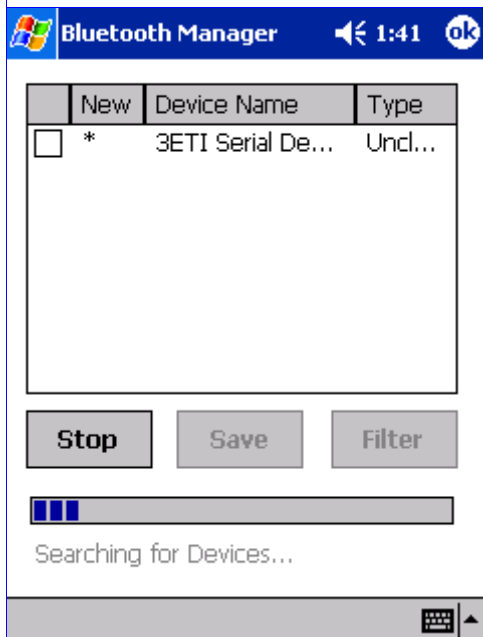Bluetooth is now ON. Tap on the icon again.

Tap **Bluetooth Manager.**

If you see this screen, select **Yes.**

This screen may pop up at some point. If you see this screen, tap **Accept**.

When the Pocket PC device has finished Searching, you should see "1 Device found" at the bottom of this screen.

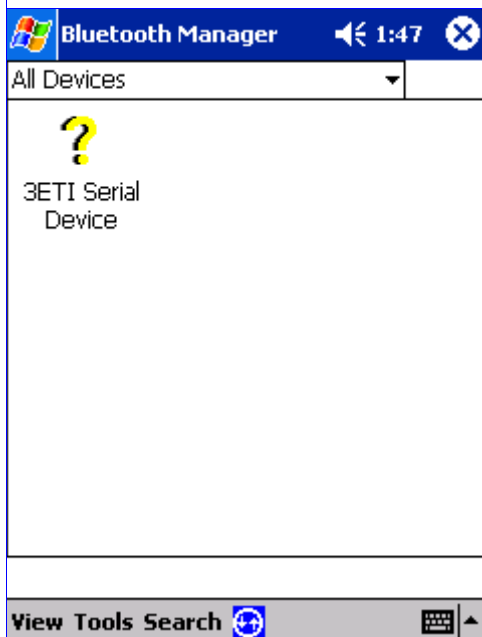**Check the box** next to 3ETI Serial Device and tap **Save**.

Tap **OK**.

Tap the **OK** button in the upper right corner of the screen.

You'll now see a ? or perhaps a "Spaceship" icon on the screen.

Your Pocket PC 2002 Device is now configured for communication with the 3e-250 Adapter.

Tap the **X** in the upper right corner. You're now ready to configure Prosurv cEZ.

Connecting to a Pocket PC 2003 Device

- Power **ON** your 3e-250 Adapter
- Tap the Bluetooth connection icon at the bottom right of your screen.
- **Turn Bluetooth ON**
- Tap the icon again
- Tap **Bluetooth Manager**
- Tap **New—>Connect!**

The **Bluetooth Connection Wizard** will appear. Tap the **Explore a Bluetooth Device** section, then tap **Next —>.** You should now see:

Device:
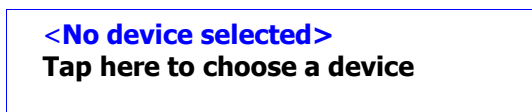
<**No device selected**>
Tap here to choose a device

After tapping inside the box, the **Bluetooth Browser** will display:
Please select a device:

? 3ETI Serial Device

For a brief second, "Retrieving services…" is displayed.

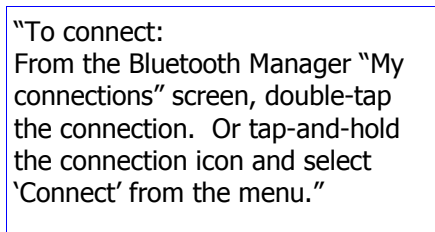Finally, you'll see:

Service Selection:

Serial Port

Tap **Next—>**.

The Bluetooth Connection Wizard displays the **3ETI Serial Device** and explains that a Connection Shortcut has been created:

"To connect:
From the Bluetooth Manager "My connections" screen, double-tap the connection. Or tap-and-hold the connection icon and select 'Connect' from the menu."

Tap the word **Finish** at the bottom of the screen.

Now, double-tap the "3ETI Serial Device: Serial Port" Shortcut to activate the connection.

Configure Prosurv cEZ

You have now established the communication link between the 3e-250 Adapter and your Pocket PC. Finally, you need to be sure that Prosurv cEZ is properly configured to complete the configuration.

Making Bluetooth Your Default Connection

If you plan on using a Bluetooth connection regularly, for each job, then you should change one setting in your ProsurvCE_Defaults.txt file. The Prosurv cEZ Installation and Quick Start Guide explains in detail how to change your Prosurv defaults file. To support Bluetooth automatically when each job is created, change the line **Bluetooth=0** to **Bluetooth=1**. If you haven't changed your default instrument, you should do that now as well.

If your default instrument defaults to using 1200 baud, and if you have set **Bluetooth=1**, Prosurv cEZ will automatically reset your baud rate to 2400 baud in the Prosurv cEZ Comm Settings. When you enter Data Collection, you can simply start taking shots. You won't need to adjust any of the Comm Settings. In fact, by setting **Bluetooth=1**, Prosurv cEZ will use the following settings for the Comm port:

- **2400 Baud**
- **Parity = None**
- **8 Data Bits**
- **1 Stop Bit**

**Be sure that your instrument's settings agree with the settings shown above.**

Using Bluetooth in a Single Job
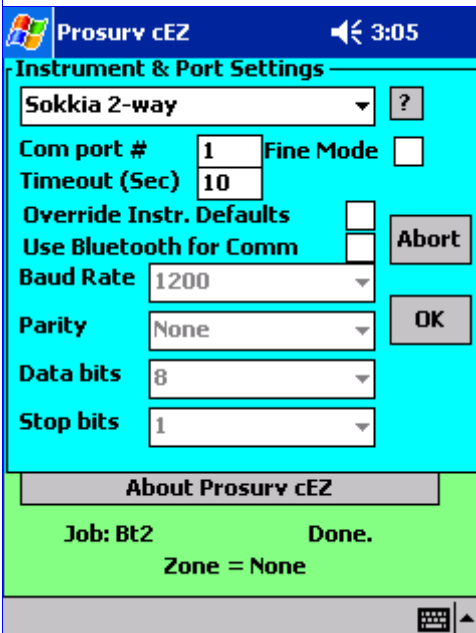
If you'd like to use Bluetooth in a single job, first tap the **Use Bluetooth for Comm** box. Then also tap the **Override Instr. Defaults** box, and change the Baud Rate, Parity, Data Bits, and Stop Bits to:

- **2400 Baud**
- **Parity = None**
- **8 Data Bits**
- **1 Stop Bit**

You may notice that the Com port was changed to **8**. Bluetooth requires com port 8 to be used, so Prosurv cEZ changes to com 8 automatically.
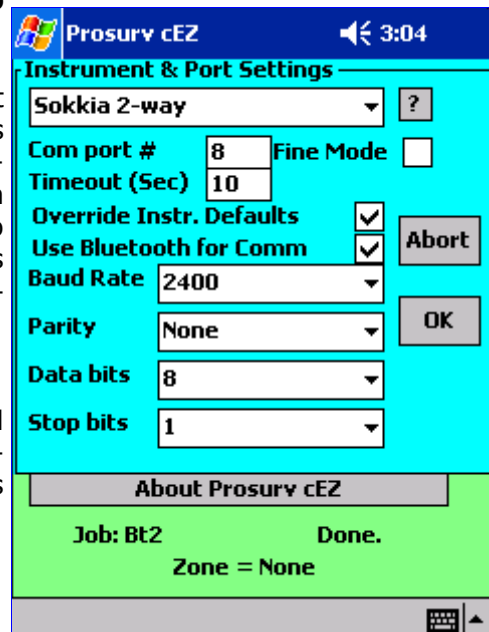
Tap **OK** to continue. The port is closed, then re-opened automatically. When you close the job, either by quitting Prosurv cEZ, or by creating or opening another job, these settings will be stored with this job.