How To install wireless bluetooth adapter to Sitech servo controlled telescope

Note: Listed below are the items and methodolgy I used. Variations will probably work. Different brand dongle may work. A different version of Windows on the serial computer for programming the Serial5 may work. A different terminal emulation program besides the one linked below may work (but the obvious choice, HyperTerminal, did not work). What this documentation records is what I used and worked, and believe me, it took a month and a half and several different components and computers and many people helping to accomplish this, but at least be assured that if you are unsuccessful with the tools at your immediate disposal, the methods listed below will work.

You will need:

A Bluetooth equipped Windows 7 computer (I'm using a Dell Inspiron Mini 10.1" netbook). If not built in, use Targus brand bluetooth dongle. Others may work, but this one is proven.

Aircable Serial 5 or 5X bluetooth/serial rs232 adapter and null modem from http://www.aircable.net

A Windows XP computer with a DP9 serial port. This does not have to be the computer that will drive the telescope, and is needed only for a few minutes to program the Serial5 adapter.

DC power supply. 10 mA average 4.55-15 V. Tap off of your telescope's power supply or supply independant power on the order of 4-8 each AA, C, or D cell batteries wired in series (a battery box from Radio Shack works fine). Rechargeable Nickel Metal Hydride batteries are recommended. Attach an H size plug to fit in Serial5. Note: 9V battery is insufficient amperage.

UPDATE: I wired a DC-DC Converter Buck Step Down Voltage Module 4.75-24V to 0.93-18V 2.5A output into the telescope to provide power to the bluetooth, along with a low voltage meter to show the voltage (I originally used a blue led meter for bluetooth, but it was far too bright and I changed it out for a red one). I used a medium size project box from Radio Shack. Initially I powered it off of the 18V Dewalt that powers Sitech and the servo motors, but it causes too great a drain (without bluetooth the Dewalt battery lasts 7-8 hours, with it only 1 1/4 hours), so I now have it powered via cigarette lighter plug to the 12V battery that provides power to the dew heaters and mirror cooling system. Plenty of amp hours there.

Below are images of the units I used (bought off eBay):

To install:

Download and install this software on the Windows XP computer with the serial port: WinSSD

Plug in null modem to Windows XP computer's serial port. Plug in Serial5 adapter to null modem. Apply power to Serial5. Launch WinSSD. Select Com1, Open, under Settings, Baud 115200, DataBits 8, Parity None, Stop Bits 1 Flow Control Hardware. Now select Terminal. Type +++ and then Enter. You won't see what you type, but you will see a response from the Serial5. Type u and the value you need to enter is the baud rate divided by 100. Sitech uses either 9600 or 19200. I used 19200, so type 192 then enter. Type l (lower case L) to review the settings.

Next, plug in the computer that will control the telescope (with all the Sitech software installed) to the controller. Launch ServoConfig. Click on Terminal. Type SB2 enter. This will program the controller to use 19200 baud rate.

Disconnect controller. Set DIP switches on Serial5 to 19200 per label on back. Plug in Serial5 to controller and power it up. On computer launch Bluetooth/Add Device (on Windows 7 click on the Bluetooth icon in the menu bar in the lower right). Select the Aircable device, click Add. Open Devices and Printers. Double click on the icon for the AirSerial. Click on hardware. Note the COM port number. Open Computer Management, click on Device Manager. Click on Ports (COM & LPT). You will see two com ports for Standard Serial over Bluetooth Link (COMX). Make sure they are set to Bits per second 19200, data bits 8, Parity, None, Stop bits: 1, Flow Control: none. If you don't like the port number of the one you noted from the Hardware

properties in the step above, select Advanced and change it, but it shouldn't matter.

You're almost done. Launch ServoConfig. Set COM Port to the COM port you noted above. The blue light will turn on the Serial adapter indicating it is connected, and ServoConfig should be happy. Quit ServoConfig. Launch Sitech.exe. Click on Config. Change Config. Misc. Set COM port. You may have to scroll to the top to find the one you're using because it will be active. Click save, and test the scope is controlling.

If you set the wrong COM port in ServoConfig, it will crash, and you'll have to open the servoconfig.cfg file and manually change the port number. To find the file, use the little app. "Everything'.

Finally, on my computer, when I boot the computer and launch either ServoConfig or Sitech.exe, a bluetooth connection will not be established automatically unless I first unplug the bluetooth usb dongle and plug it back in again. Note, this is only on boot. If I quit Sitech and re-launch, it will establish a connection, but if the computer is off and I turn it on, first thing is to unplug the dongle and plug it back in again.