RAD7 Bluetooth Connectivity Guide

Using and Configuring the SD1000 Serial to Bluetooth Adaptor

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Introduction

The **Parani SD1000 Serial to Bluetooth Adaptor** facilitates the transmission of radon data between a DURRIDGE RAD7 radon monitor and a Bluetooth-enabled Windows or macOS computer running DURRIDGE's CAPTURE software. This makes it faster and more convenient to perform graphing and real-time data analysis. The SD1000 adaptor has been tested across distances exceeding 40 meters, through walls and trees, and it is known to support 100 meter communication along uninterrupted lines of sight. It can be powered by either a USB connection or a 3.7V Li-ion battery, which is rated for 16 hours of continuous use.

Using the SD1000 Adaptor with the RAD7

Preparation:

If your computer does not have built-in Bluetooth connectivity, connect a USB Bluetooth dongle and install any necessary drivers. Then restart the computer.

Pairing the SD1000 Adaptor to the Computer:

1. Plug the Parani SD1000 Serial to Bluetooth Adaptor into the RAD7's RS232 DB9 socket. Make sure the SD1000 is connected to a power source via the included USB power cable or AC adaptor. Alternatively connect the optional SD1000 battery, which must be connected to the back of the adaptor using two small phillips screws. Slide the SD1000 adaptor's power switch ON.

2. Pair the SD1000 adaptor to the computer:

    - **On Windows**, use the Control Panel to access the Bluetooth controls, and pair the SD1000-Bluetooth adaptor. When prompted to enter a pairing code, enter 0000. When the pairing has succeeded, a notification will appear.

    - **On macOS**, open System Preferences and select Bluetooth. Use the controls to locate and add the SD1000 adaptor. The system will automatically connect with the password 0000.

3. Once pairing is complete, a virtual serial port (aka COM port) will be created on your computer, making it possible for CAPTURE to connect the the RAD7 via Bluetooth.

Operation:

1. Power the RAD7 ON. Using the RAD7 keypad, select >Special SetBaud and set the RAD7's baud rate to 9600, and press Enter on the RAD7 keypad.

2. Plug the Parani SD1000 Serial to Bluetooth Adaptor into the RAD7's RS232 DB9 socket. Make sure the SD1000 adaptor's power cord is connected or its battery is in place, and slide the SD1000 adaptor's power switch to ON.

3. Launch the DURRIDGE CAPTURE software (available from the DURRIDGE website at https://durridge.com/software/capture/) on your Windows or macOS computer. By default CAPTURE scans for connected RAD7s automatically at launch. If this function is disabled, click the Scan For Devices button near the lower right corner of CAPTURE's Main Window.

4. CAPTURE should detect the Bluetooth-enabled RAD7. If it does not, verify that the SD1000 adaptor has been paired with the computer, as described above.

5. Once the Bluetooth-enabled RAD7 has been detected, it will be possible to proceed with all of the standard CAPTURE operations, including downloading and graphing RAD7 data. For more information on using CAPTURE, please refer to the CAPTURE User's Manual at https://durridge.com/documentation/capture_help/

Note: If the SD1000 adaptor is turned off at any point after it has been discovered, restart the computer and turn the SD1000 adaptor back on before performing any further CAPTURE operations. Otherwise, CAPTURE may stall while attempting to communicate with an unavailable port.

Configuring the SD1000 Adaptor

Customers who purchase the Parani SD1000 adaptor from DURRIDGE will receive the adaptor preconfigured for use with the RAD7. If the adaptor's settings are later modified, or if the adaptor is purchased from another vendor, it may be necessary to reconfigure the adaptor as described below. Otherwise reconfiguration is not necessary, and the following instructions can be skipped.

Required items

• Parani SD1000 Serial to Bluetooth Adaptor, power cable, and USB power source
• Computer running Microsoft Windows
• Startech USB to Serial Adaptor Cable (included with the RAD7)
• Startech USB to Serial Adaptor Cable driver software, available from the DURRIDGE website at https://durridge.com/software/software-drivers/
• Null Modem Adaptor or an equivalent cable
• ParaniWin software for Windows, available from the DURRIDGE website at: http://durridge.com/software_downloads/drivers_and_utilities/setup_ParaniWin-v1.0.8.exe

Procedure

1. Make sure the Parani SD1000 Serial to Bluetooth Adaptor is powered OFF and make sure that all of its DIP Switches are set to the OFF position.

2. Install the driver and application software listed in the Required Items section above.

3. Physically connect the SD1000 adaptor to the computer, using the StarTech USB to Serial adaptor cable and the null modem adaptor, as pictured in Figure 1, below.

Figure 1: Connecting the SD1000 to the computer. *This requires the Null Modem adaptor and a StarTech serial to USB adaptor cable.*

4. Connect the SD1000 adaptor's USB-based power cable to a powered USB socket, and turn the SD1000's power switch ON.

5. Launch the ParaniWin application on the computer. A dialog box titled UART Setting will appear, prompting you to specify a number of parameters, as shown in Figure 2 on the following page. Configure the settings as follows:

   • Specify the Serial Port. It may require trial and error to determine the correct port.
   • Set the Baud Rate to 9600.
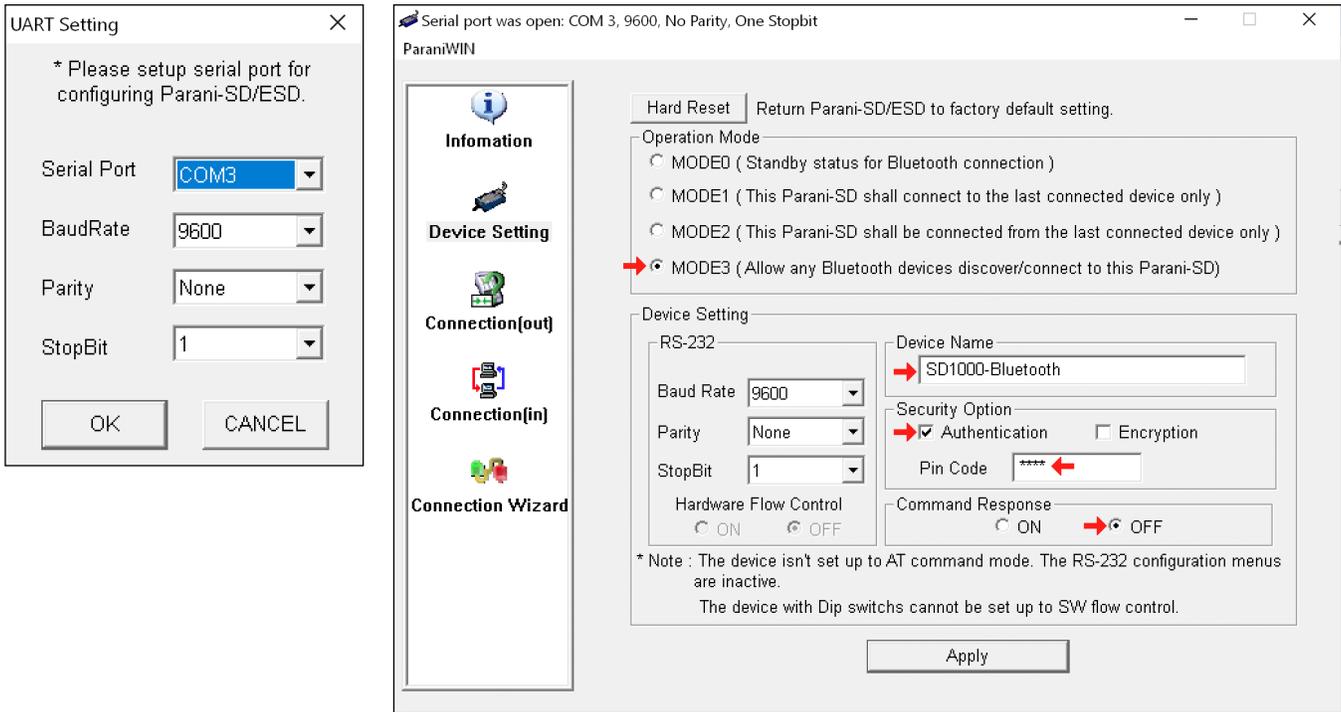   • Set the Parity None.
   • Set the StopBit to 1.

Figure 2: ParaniWin UART Setting Dialog (Left) and Device Setting Panel (Right). *These windows are used to locate the SD1000 adaptor and configure the adaptor, respectively. Controls marked with red arrows must be modified from their factory defaults in order for the SD1000 to function properly with the RAD7.*

6. After clicking OK in the UART Setting dialog, select the Device Setting panel, as shown in Figure 2, above. Set the controls as follows:

    - Set the Operation Mode to MODE3 (Allow any Bluetooth devices to discover/connect to this Parani-SD).
    - Set the Device Name to "SD1000-Bluetooth" or a similarly recognizable name.
    - Check the Authentication checkbox, and enter 0000 in the Pin Code field. Uncheck the Encryption checkbox.
    - Set Command Response to OFF. This makes it possible for the SD1000 adaptor to operate without disrupting the RAD7. **Note: If Command Response is left ON, the RAD7 will be flooded with unusable serial data and it may become corrupted and inoperable.**
    - Make sure the Baud Rate is 9600, Parity is None, and Stop Bit is 1.

7. After specifying the proper settings, click the Apply button, and wait for the settings to be saved.

8. Exit ParaniWin. Switch OFF the SD1000 adaptor and unplug it from the computer. It is now properly configured ready for future use with the RAD7.