TENSITRON INC.

SERIAL DATA AND ANALOG OUTPUT OPTIONS INSTRUCTIONS

SERIAL DATA COLLECTION *(RS-232 Optional feature)*

1. Instruments outfitted with the optional RS-232 feature (designated with an " –E" in the part number) support serial data.

    a. The Serial Data option includes a RS232 cable assembled with a male, DB9 connector (allows serial communication using a 9-pin connector) along with a USB to DB9 adapter. (*Figure 1.)*

Figure 1

2. Your receiving device will require a "software wedge" in order to upload data from the instrument and there are many of these programs to choose from, including "freeware" programs (See Paragraph 4 if you need the "software wedge"). There are some basic parameters which will need to be configured to support serial communication. These include:

    a. The baud rate is 9600 with no Parity bit, 8 data bits, 1 stop bit (9600 8N1) and flow control should be set to "none".

    b. Adjust the instrument's "LCD Refresh rate" (found in the "setup" menu) to either: 1Hz + Serial, 2 Hz + Serial or 5 Hz + Serial if you want to capture and transmit continuous data. These settings allow "continuous" data to be uploaded at rates of: once, twice or five times per second. (*Figure 2.)* To upload either single point or continuous data which has been recorded in

the instrument adjust the LCD Refresh rate to either: 1Hz, 2Hz or 5Hz. Then send a lower case "s" to retrieve Single Point data, or send a lower case "d" to retrieve continuous data.

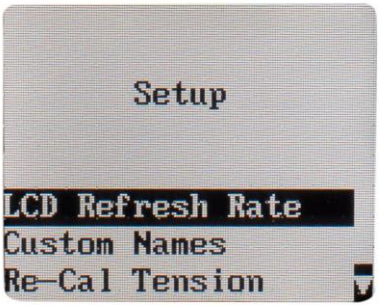

Figure 2

c. The instrument's "Data Logging" feature allows data to be collected either "continuously" for some models, or by "Single Point" by choosing the selection located in: "Data Logging". *(Figure 3.) Note:* Strap Tension Meters (STX-series) and Aircraft Cable Tension Meters (ACX-series) only collect "Single Point" data entries.

d. Note: If you are collecting data by "Single Point" this log will only be uploaded to your receiving device by sending a lower case "s". If you are collecting continuous data and want to send the data to your receiving device depress "d" on your keypad. *Note: Requires serial output option*

e. If data is selected to output "continuously" data will populate your screen continuously at the Hz + serial rate previously selected.

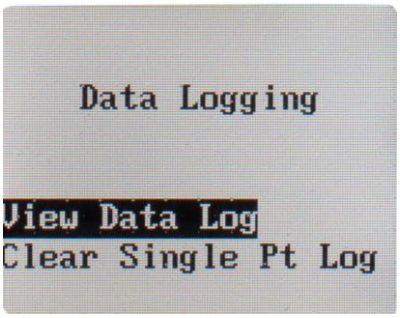

Figure 3

3. Configuring the USB to DB9 adapter. *Note: Requires optional Serial Output option.*

a. Connect the 9-pin connector with the USB adapter and allow your computer to download and install the necessary drivers.

b. After the drivers have installed verify which "Com Port" the adapter is using by going to your computer's "Device Manager" (can be found by going to: Control Panel – System – Device Manager-Ports). (*Figure 4.)*

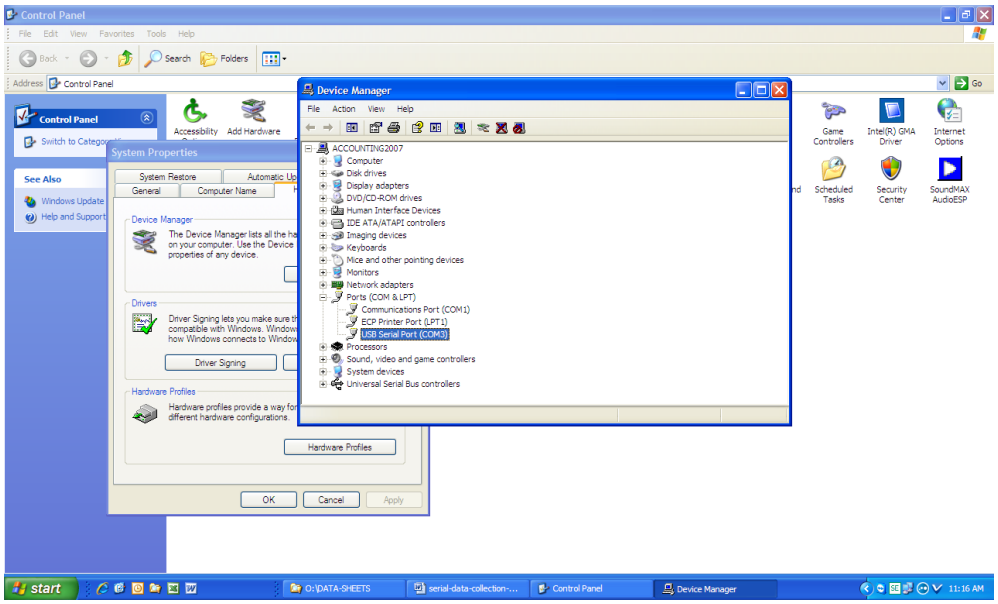

Figure 4

1. Next, select "Ports" and with the USB adapter connected to your computer note which COM port your USB Serial Port has selected. (*Figure 4*.)

4. If you require a "software wedge" program there is "freeware" software available as long as it is not used in countries with encryption restrictions (US, Europe and Canada are fine) and this "freeware" does not need to be installed to operate.

a. Using the "freeware" software wedge program: PuTTY.

1. Search for the PuTTy download page or go to:
http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html

2. Under the first heading: "For Windows on Intel x86" download the putty.exe file. (*Figure 5.)*

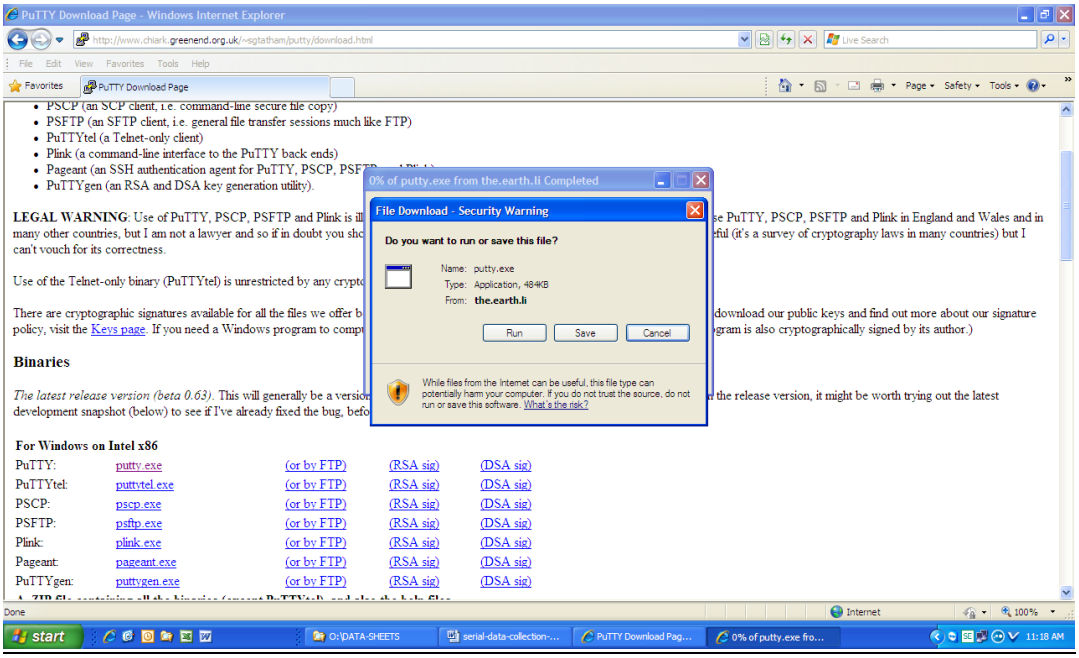

Figure 5

3. Before running the installation select "save" and select where you want to save the file. (*Figure 5.)*

4. Run the installation and select the serial port as the connection type, Speed 9600 and enter the COM port number (see Step 3b.). (*Figure 6.)*

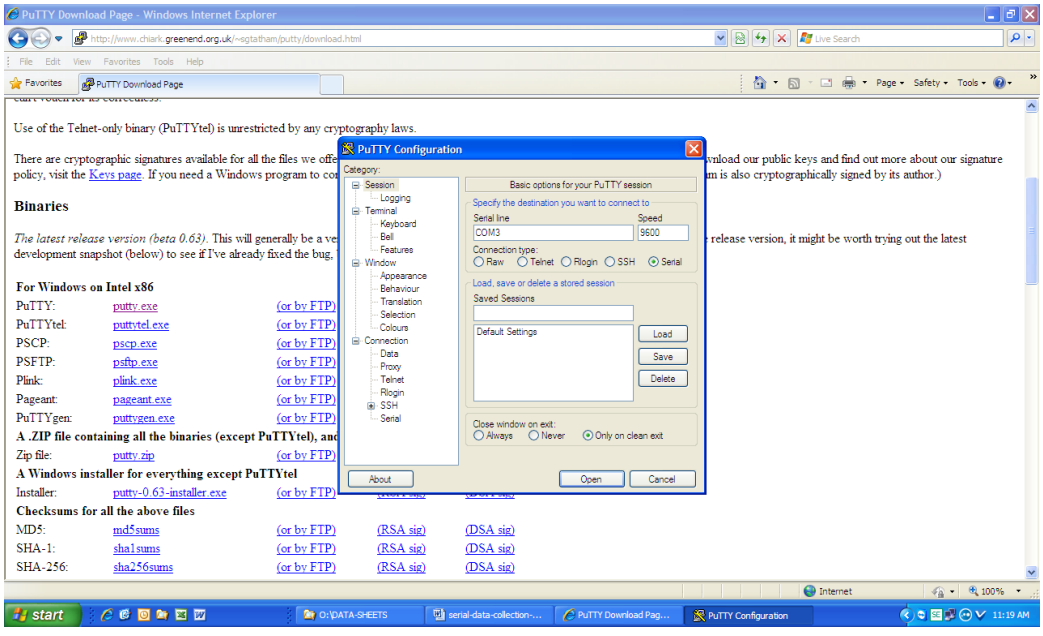

Figure 6

5. Next under “Category” select “serial” and set “flow control” to “none” then click on “session”. (*Figure 7*.)

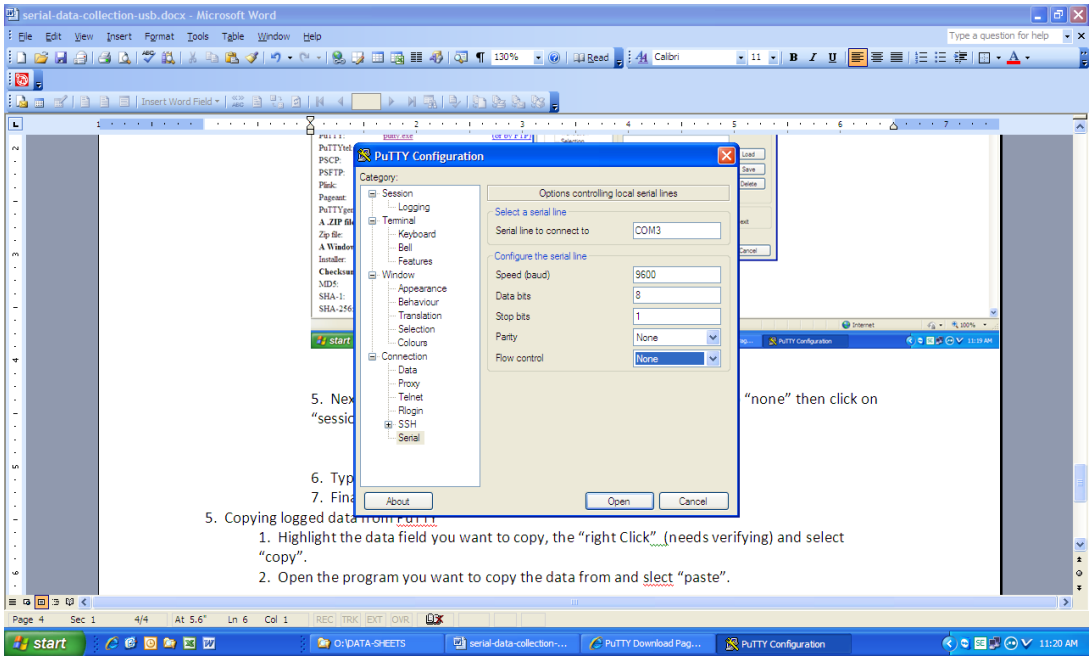

Figure 7

6. Type in a name for your “saved session” and then click “save”. In this example the saved name is putty-test file. (*Figure 8*.)

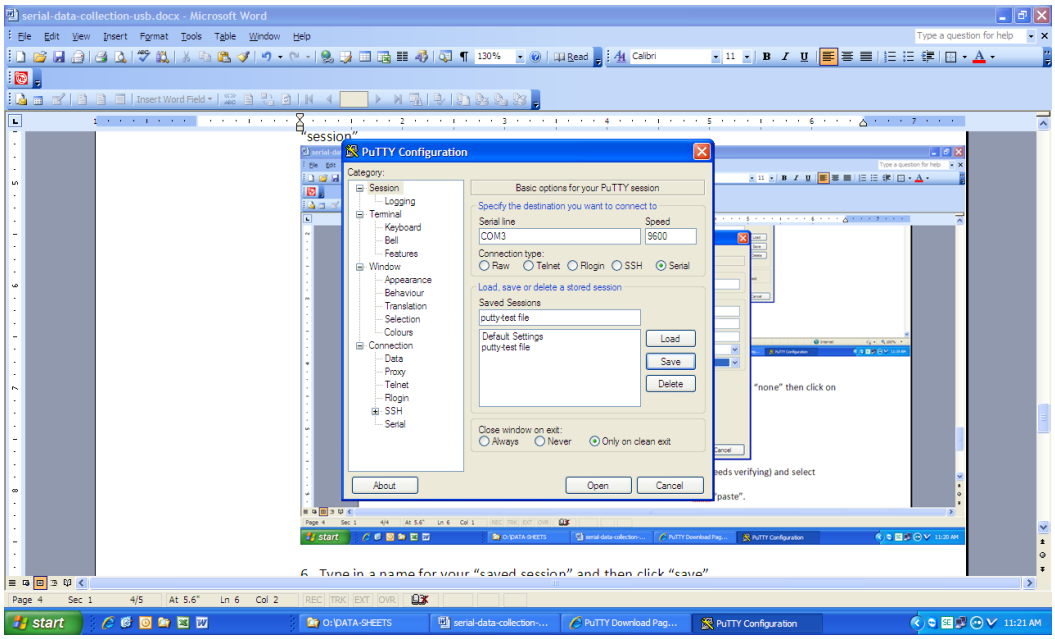

Figure 8

7. Finally “load” the session and then click “open” then start taking measurements with the instrument and collecting data. (*Figure 9*.)

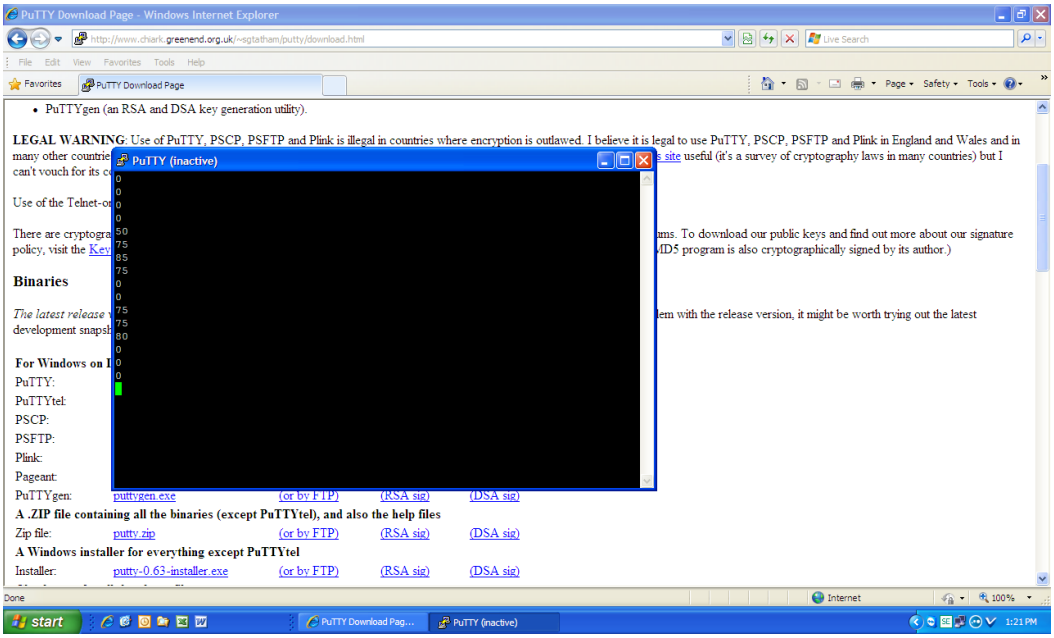

Figure 9

8. Copying logged data from PuTTY
    1. Highlight the data field you want to copy, and then copy the data by pressing “Ctrl” and “c”.
    2. Paste you data into the program you want to copy the data to.

9. If you plan to continue to use the PuTTY program for future data collection purposes, consider copying the PuTTy program file from your Downloads directory to another appropriate Directory (Desktop for example).

ANALOG OUTPUT OPTION *(Optional feature)*

1. Instruments outfitted with the Analog Output feature (designated with an “ –A” in the part number) have output values that are selectable between: 0 – 5 VDC or 4 – 20 mA. Connect the Analog Output Cable to receptacle located on the bottom side of instrument. Connect output leads to the analog input of your measurement or control device. The Red lead is Voltage +, the White lead is mA, and the Black lead is Ground. From the Setup Menu select: “Analog Output” and choose between “Analog Output Current” or “Analog Output Voltage”. Once selection is made press “Enter”.

2. Calibration of Analog Output *(Optional feature)*
   From the Setup Menu select: “Calibrate Analog” and then adjust the tension value to indicate when the instrument reads maximum current or voltage. Press “Enter”.