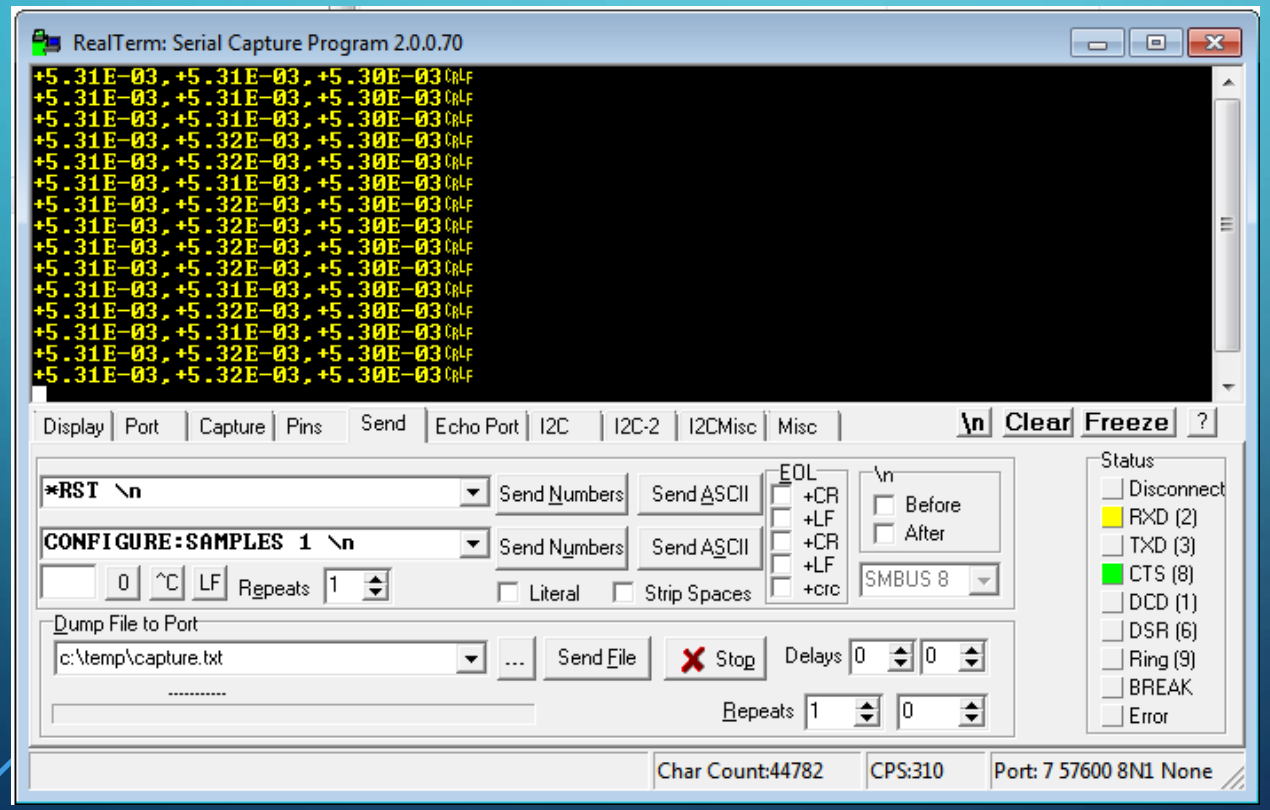
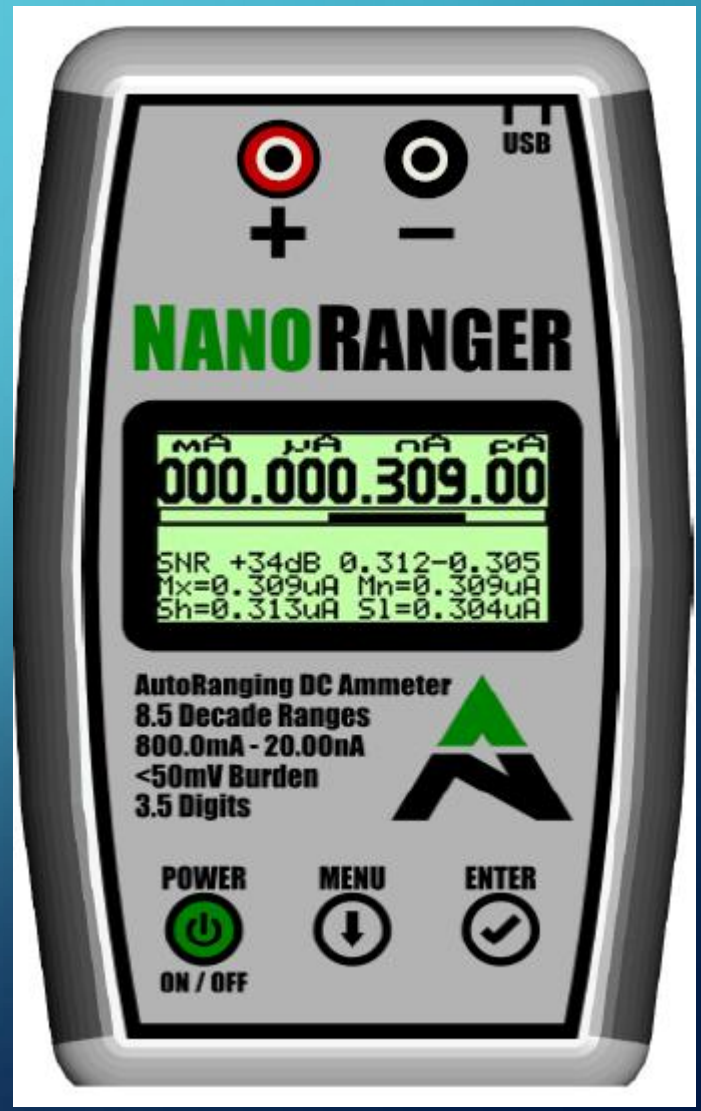
REALTERM 101

A QUICK & EASY GUIDE FOR TAKING PC-CONTROLLED READINGS WITH THE NR-01 AUTO-RANGING DIRECT CURRENT (DC) AMMETER





INTRODUCTION & DISCLAIMER

Using the NR-01 With a Computer

- The NR-01 is SCPI compatible, but with limited functionality. Hence, it is not SCPI compliant and cannot process commands while performing measurements.
- To enable the device to be controlled via SCPI, a *RST command must be issued. This will stop all output and the operation of the device until it receives commands telling it what to do.
- When entering SCPI commands, indicated by `Courier New font`, only the portions with capital letters have to be entered; the remainder can be left out.
- SCPI commands can be entered through the USB interface, via a COM port using a simple terminal emulation program such as *RealTerm* available from Source Forge:
  - https://sourceforge.net/projects/realterm/
- Commands / responses must be terminated with a *line feed character* (\n).

Using *RealTerm* with the NR-01

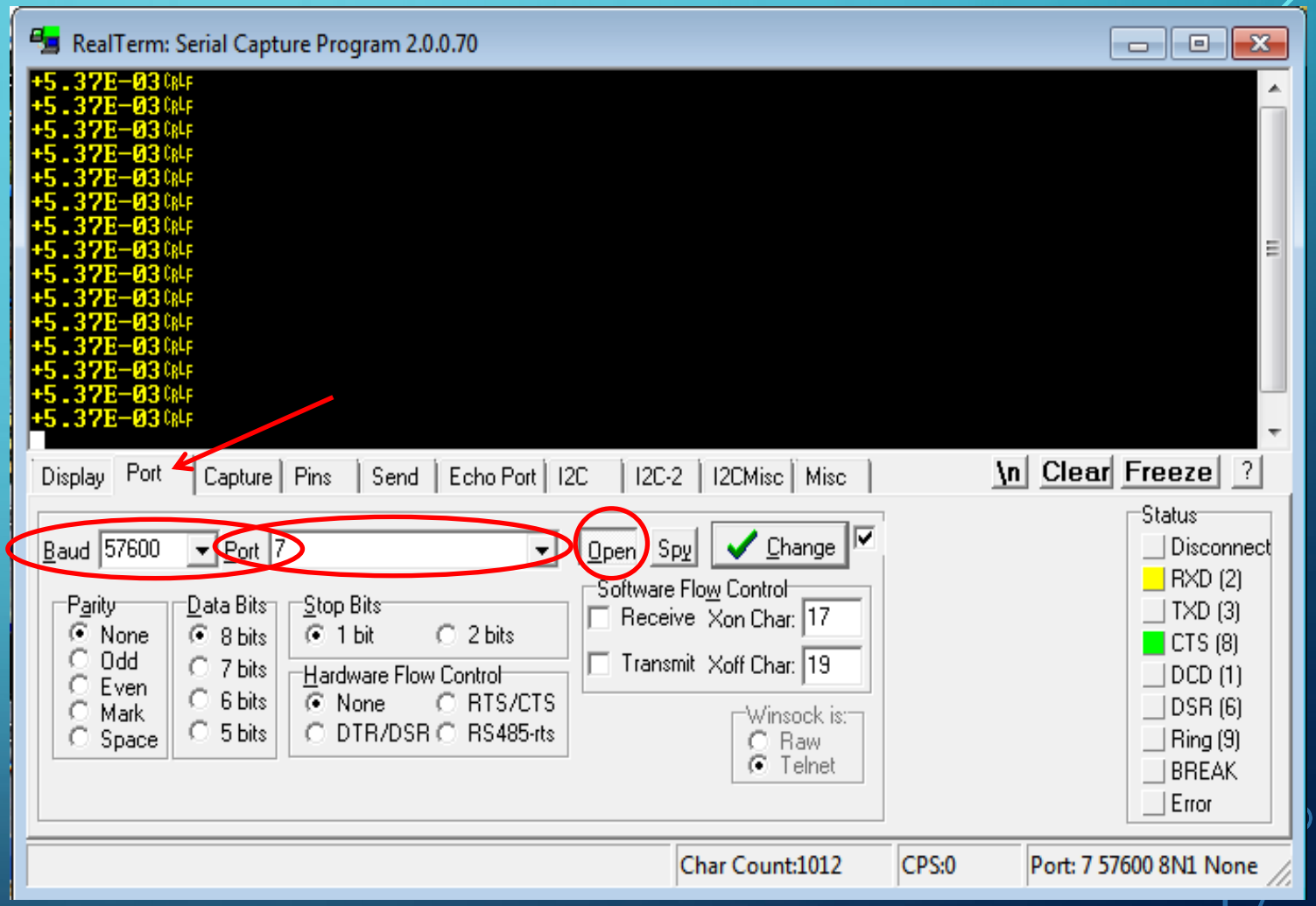
- *RealTerm* is an excellent tool for capturing, entering and debugging serial communications. It can display the data in different formats, automate data capture and entry, plus it has so many other useful features.
- The steps outlined in this document assume that the NR-01 has been connected to a computer with a 2.0 USB cable and is also currently measuring the circuit under test.

Disclaimer

- This document is not intended to be a full and comprehensive guide to using *Realterm* or to be the only way to use *Realterm* with NR-01 to capture readings. It is intended for use by fellow electronics hobbyists and others with no guarantee of accuracy given or implied. Users may reproduce and store this document for personal use.

USING *REALTERM* IN THREE EASY STEPS

- **Step 1: COM Port Setup**
  - Initiate the *RealTerm* program and click on to the ***Port*** tab screen.
  - Click on the port selection window to select the appropriate COM port connection.
  - Set the baud rate to 57K6 in the baud rate selection window.
  - While NR-01 is USB enabled, the chip it uses converts output to Rs232. ***Again, make sure the port speed is set to 57K6.***
  - Double click on the "*Open*" button to establish communication with the NR-01 through the selected COM port.
  - Readings should start to appear in the upper display screen window.



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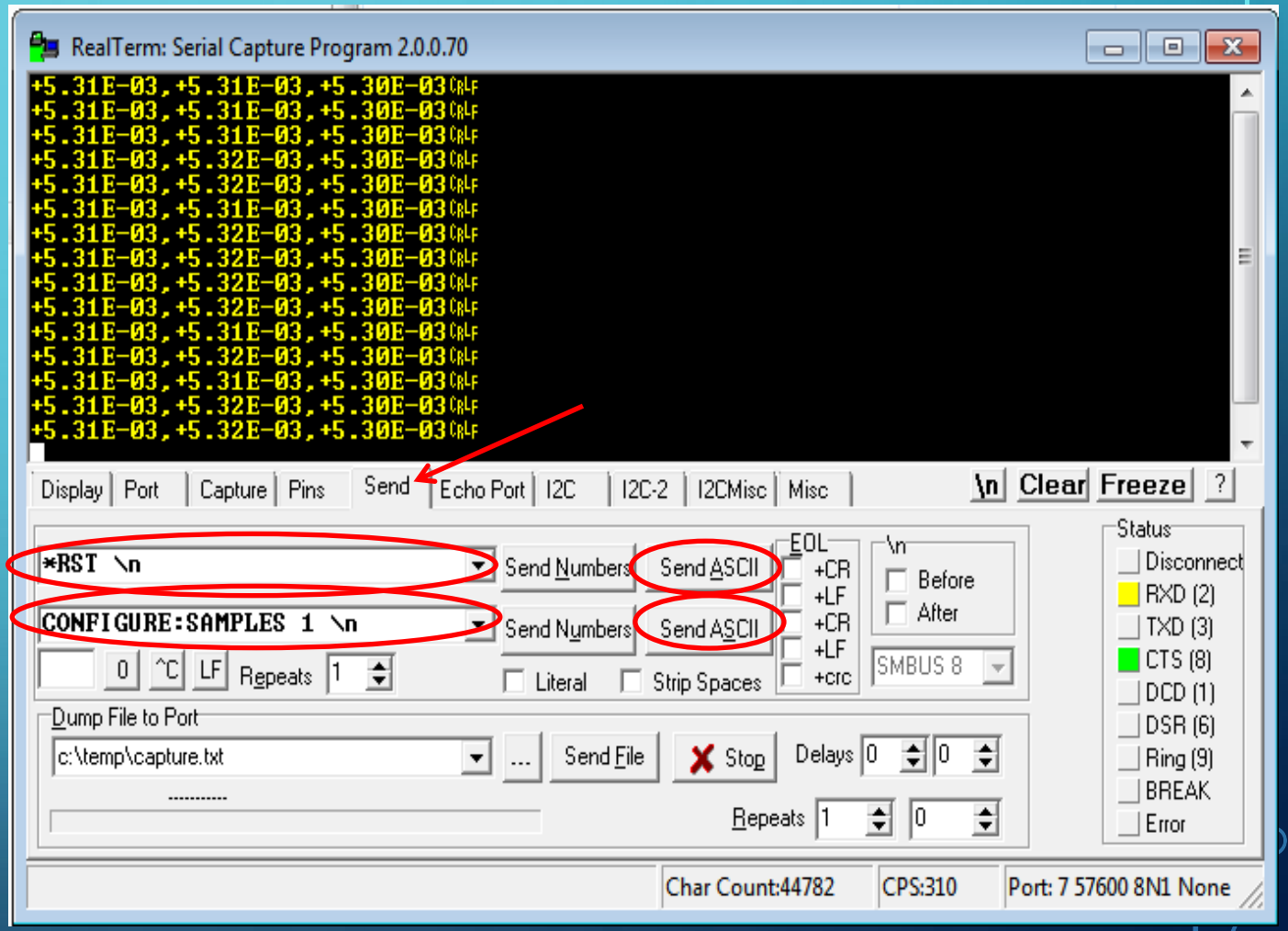
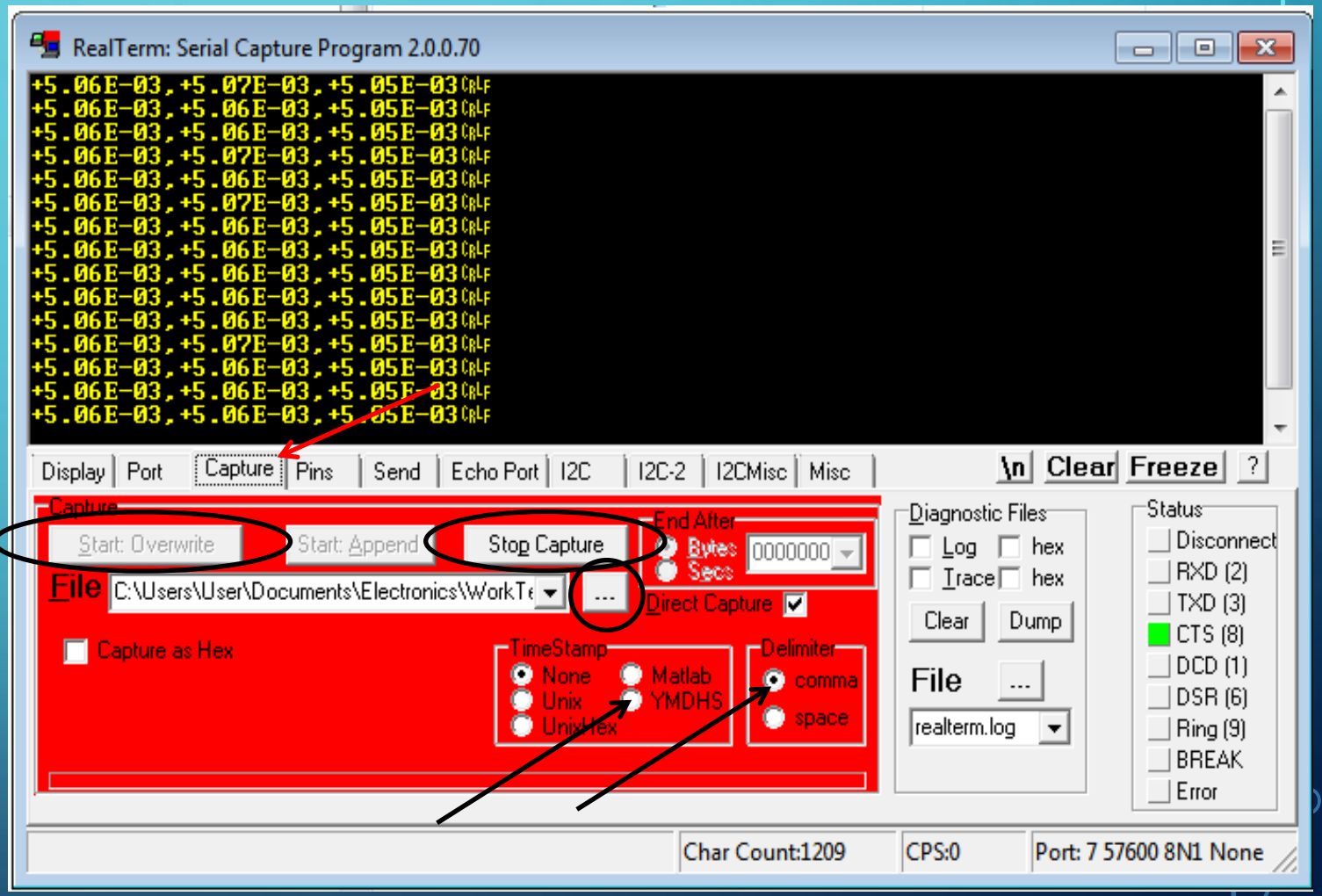
- **Step 2: Configure Samples for Data Capture**
  - Click on to the ***Send*** tab screen to begin entry of SCPI commands.
  - In upper text window enter:
    - `*RST  \n`
  - To enable the device to be controlled via SCPI, a *RST command must be issued. This will stop all output and the operation of the device until it receives commands telling it what to do.
  - Click on the "*Send ASCII*" button to interrupt the device.
  - In the lower text window enter:
    - `CONFIGURE:SAMPLES 1 \n`
  - ***Note:*** *no asterisk (*)*
  - Click on the "*Send ASCII*" button to instruct the device.
  - Press the "*Enter*" button on the NR-01 to re-commence readings with samples.
  - In the upper display window the sample information will be added to the main measurement, appearing with maximum sample during the measurement first, and minimum sample during the measurement last.



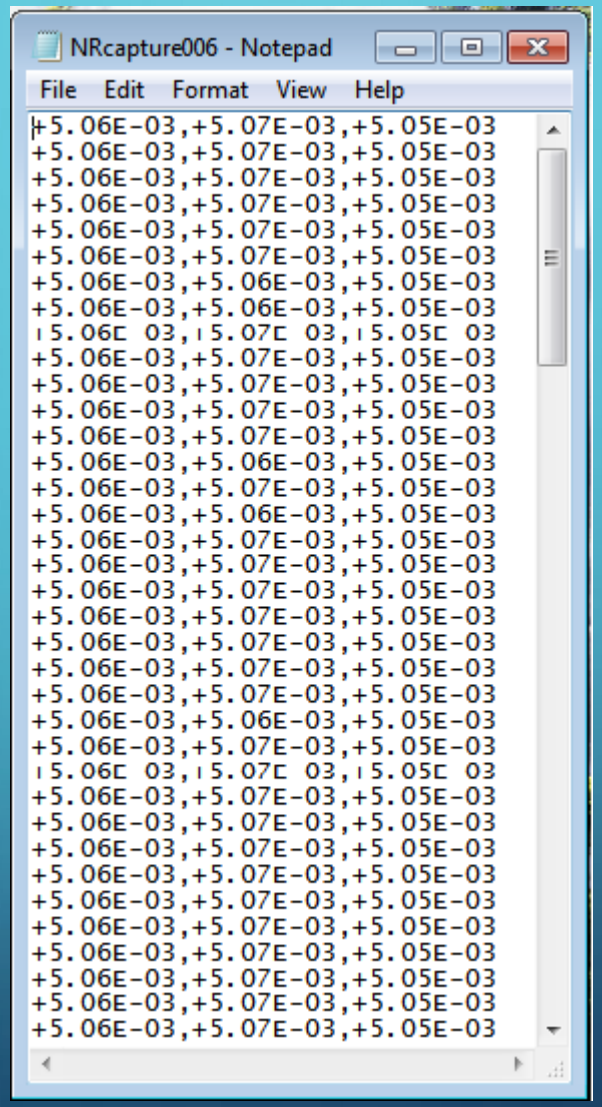
USING *REALTERM* IN THREE EASY STEPS

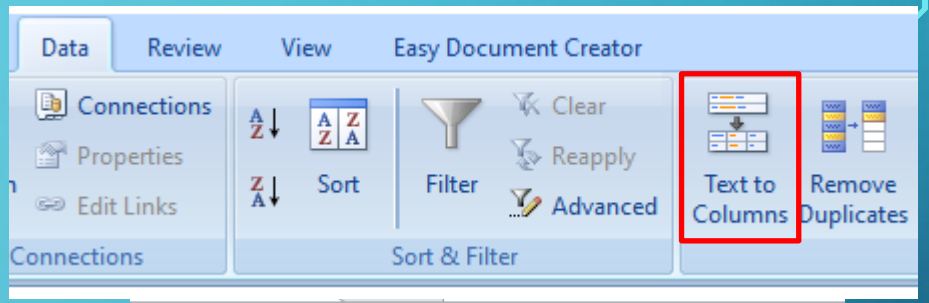
- **Step 3: Data Capture & Transfer**
  - Click on to the ***Capture*** tab screen to setup data capture and transfer.
    - Click on capture file button to specify capture file document storage location in the *My Documents* folder.
    - Create and save file.
  - Set Time Stamp mode:
    - E.g. YMDHS
  - Set Delimiter mode:
    - E.g. comma
  - Click on "*Start Overwrite*" button to begin capture.
  - Click on "*Stop Capture*" button to end capture.



USING *REALTERM* IN THREE EASY STEPS

- **CONCLUSION**
  - Use a simple text editing program such as Microsoft *Notepad* to open and retrieve your data from the storage file in the *My Documents* folder.
  - Use the "*Select All*" and "*Copy*" features of the *Edit* function in *Notepad* to copy and paste CSV text data into Microsoft *Excel*.
  - Use the "Text to Columns" feature of the *Data* function in *Excel* to break the CSV text data into separate columns.
  - Analyze and graph to your heart's content with *Excel*.





	A	B	C	D	E	F	G
1	DATE	TIME	AM/PM	MAIN	MAX	MIN	
2	12/24/2019	1:50:32	PM	4.85E-03	4.86E-03	4.84E-03	
3	12/24/2019	1:50:33	PM	4.85E-03	4.87E-03	4.84E-03	
4	12/24/2019	1:50:33	PM	4.85E-03	4.87E-03	4.84E-03	
5	12/24/2019	1:50:33	PM	4.85E-03	4.87E-03	4.84E-03	
6	12/24/2019	1:50:33	PM	4.85E-03	4.87E-03	4.84E-03	
7	12/24/2019	1:50:34	PM	4.85E-03	4.87E-03	4.84E-03	
8	12/24/2019	1:50:34	PM	4.85E-03	4.87E-03	4.84E-03	
9	12/24/2019	1:50:34	PM	4.85E-03	4.86E-03	4.84E-03	
10	12/24/2019	1:50:35	PM	4.85E-03	4.87E-03	4.84E-03	
11	12/24/2019	1:50:35	PM	4.85E-03	4.86E-03	4.84E-03	
12	12/24/2019	1:50:35	PM	4.85E-03	4.87E-03	4.84E-03	
13	12/24/2019	1:50:35	PM	4.85E-03	4.86E-03	4.84E-03	
14	12/24/2019	1:50:36	PM	4.85E-03	4.87E-03	4.84E-03	
15	12/24/2019	1:50:36	PM	4.85E-03	4.87E-03	4.84E-03	
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18	12/24/2019	1:50:37	PM	4.85E-03	4.87E-03	4.84E-03	
19	12/24/2019	1:50:37	PM	4.85E-03	4.87E-03	4.84E-03	
20	12/24/2019	1:50:37	PM	4.85E-03	4.87E-03	4.84E-03	
21	12/24/2019	1:50:38	PM	4.85E-03	4.87E-03	4.84E-03	
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23	12/24/2019	1:50:38	PM	4.85E-03	4.87E-03	4.84E-03	
24	12/24/2019	1:50:38	PM	4.85E-03	4.87E-03	4.84E-03	
25	12/24/2019	1:50:39	PM	4.85E-03	4.87E-03	4.84E-03	
26	12/24/2019	1:50:39	PM	4.85E-03	4.87E-03	4.84E-03	
27	12/24/2019	1:50:39	PM	4.85E-03	4.87E-03	4.84E-03	