PAN004 PONTECH Application Note
Utilizing the RS485 chip on the SV203

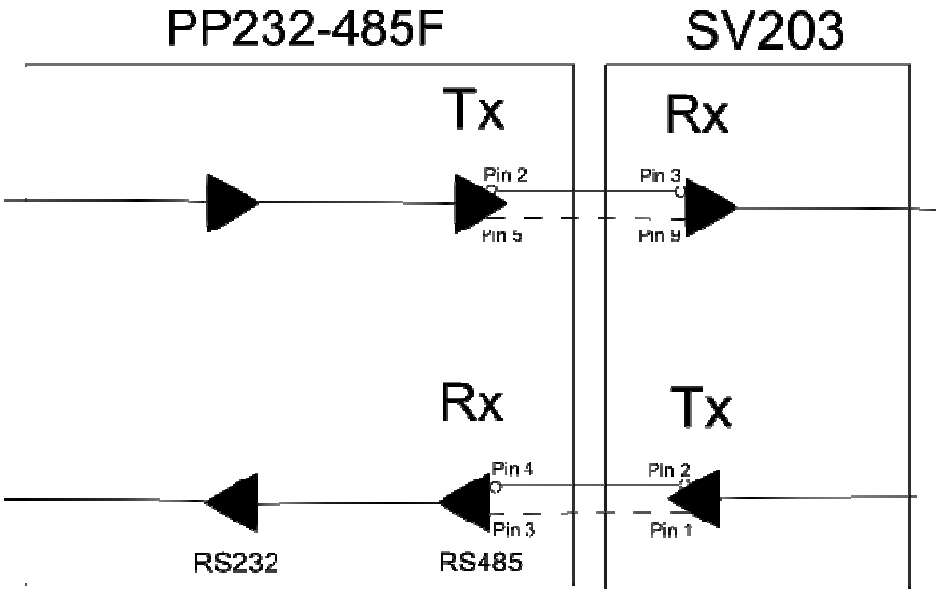
The PONTECH SV203 comes equipped with a DB-9 connector configured to communicate with a PC or other device using RS-232 communications. The problem with RS-232 is that it has a limited useful cable run length of about 25ft. Lengths greater than 25ft are highly susceptible to picking up RF noise from the environment due to the length of the cable and the single ended nature of the RS-232 signal.

To achieve longer cable run lengths, a differential communications signal such as RS-485 is required. Differential communication signals benefit from the common mode rejection ratio of the receiving amplifiers to filter out noise that would normally make a single ended signal undetectable at such distances.

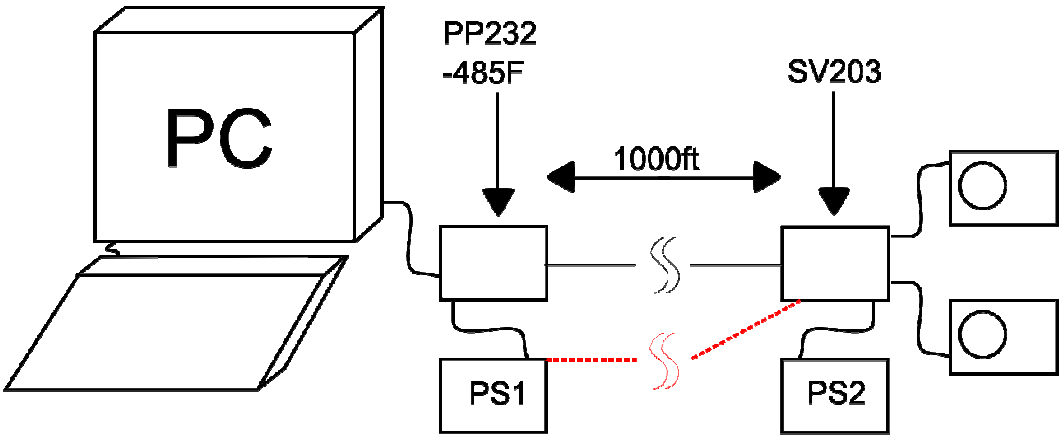
The SV203 actually has a differential driver chip that is being used normally as a single ended driver. This is an application note showing how to utilize a PP232-485F with an SV203 to take advantage of the RS485 capabilities with the SV203 so that the transmission range to the device can be extended. The RS485 theoretically can allow 1000 ft or greater cable runs.

Additionally, this application note shows how to attach a ground signal onto the same cable used for communications with the SV203. This is necessary if separate power supplies are used to power the PP232-485F and the SV203 which is probably highly preferable in a situation where the two boards are separated by a great distance.

This final modification is not needed if the same power supply is powering both boards.

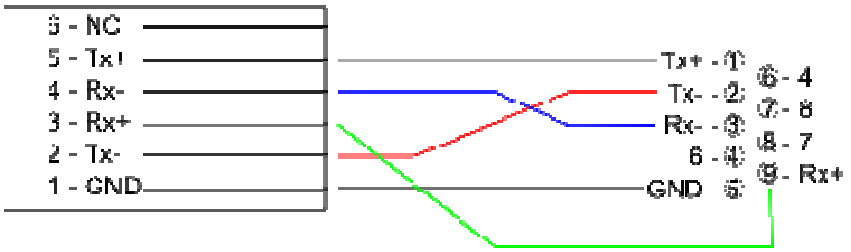


The layout of the PC, board, and device connections are shown in the diagram below:

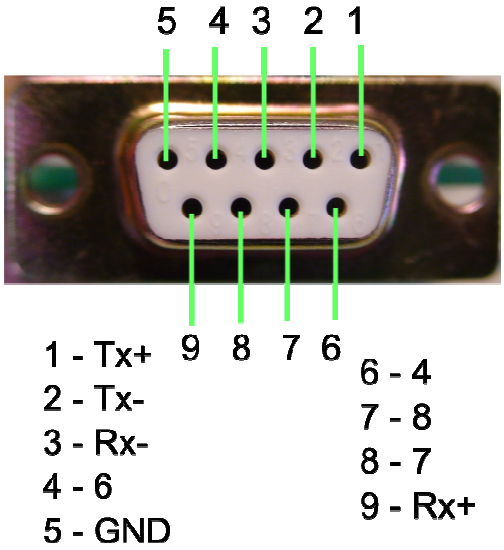


*NOTE: Only 1 power supply is necessary as indicated by the red lines. 2nd power supply is optional

Diagram of the connection between the PP232-458F's 6-pin connector to the SV203's 9-pin connector:

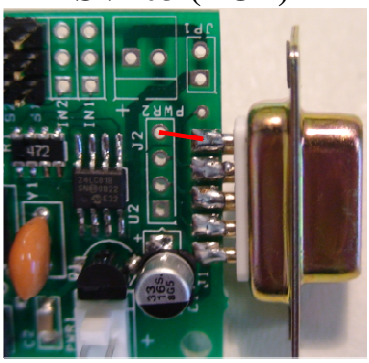


Shown below is the pin numbering of the communications port on the SV203 and what they are or should be connected to:



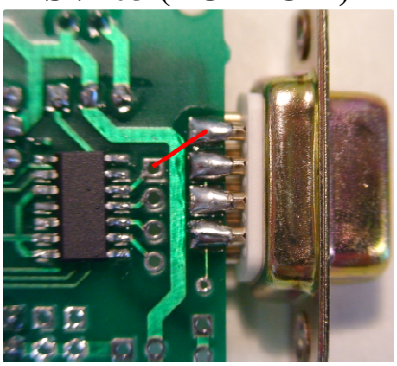
The following 3 pictures show necessary jumper connections:

SV203 (TOP)



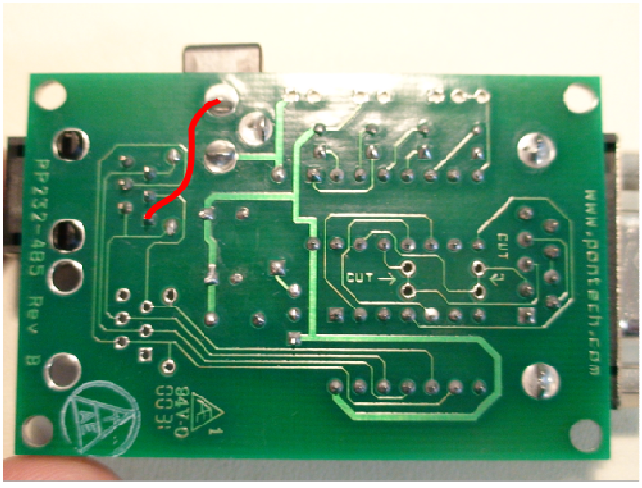
Connect a jumper from Com Pin 1
to Via as indicated by the red line

SV203 (BOTTOM)



Connect a jumper from Com Pin 9
to Via as indicated by the red line

PP232-485 (BOTTOM)



Connect a jumper from Pin 1 to
ground as indicated by the red line