SB700EX-100CR Revision 1.2 RS-485 Polarity Reversal

Devices Affected:
- SB700EX-100CR devices produced between November 2009 and February 2010 with PCB revision 1.2.
- Only affects RS-485 mode.

Description of Problem:
The RS-485 transceiver used in the SB700EX has the ability to invert its polarity, however it does not reverse its bias. This creates a problem in which a terminated RS-485 line will go to the wrong state when the line is idle. This problem has been corrected in revision 1.3 SB700EX.

Corrective Actions:
The corrective action requires a software update (which controls the bias) and a hardware correction (to correct the polarity).

Software Update:
Factory Application: If you are using the SB700EX with the factory Serial-to-Ethernet application, download the SB700EX-SshFactoryApp .s19 application image revision 1.04 or later from http://www.netburner.com/resources, and update using the AutoUpdate utility.

Developers: If you are developing your own applications for the SB700EX and have a NetBurner Network Development Kit, you must have revision 1.07 or later of the source code file c:\nburn\SB700EX\system\ioboard.c.

Hardware Modification:
There are 3 way to correct this problem:

1. Modify your serial cable wiring to reverse the RS-485 polarity of the DB9 connector signals. However, this will result in wiring that is not compatible with the 1.3 revision of the NetBurner SB700EX.

2. NetBurner has designed a small circuit board that can be placed on the RS-485 configuration jumper headers inside the SB700EX in place of the 2-pin jumpers. This circuit board swaps the polarity of RS-485 signals so that no external wiring changes are necessary. These can be obtained at free of charge by contacting sales@netburner.com.

3. You can use wire and a wirewrap tool to swap the polarity signals on the RS-485 configuration headers. The wiring will be identical to the small circuit board correction in #2 above. RS-485 half-duplex requires the addition of 2 jumpers, RS-485 full-duplex requires 4 jumpers.

    The RS-485 jumper header location is shown below in the red circle. The 2-pin jumpers on the left must be removed to perform the wire wrap procedure.

    The jumper locations are shown below. The two red jumpers are used for half-duplex, both the red and blue are required for full duplex.

    Half Duplex:
    JP3-3 to JP2-2
    JP3-2 to JP2-3

    Full Duplex:
    Add JP5-3 to JP4-2
    Add JP5-2 to JP4-3

    Note that JP6 (echo enable/disable) and JP7 (slew rate) jumpers still need to be installed per your application requirements.