



industrial/wireless/performance

APPLICATION BULLETIN

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MDS 9310

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MDS9310 (4800bps) USED AS TAIL-END DEVICE in 9600bps systems

INTRODUCTION

One of the intended purposes of the MDS9310 Spread Spectrum radio was to extend a standard MDS 2100/ MDS 2310 Master/Remote MAS system by using a pair of MDS 9310's as a tail-end repeater. As long as the MAS system is 4800 bps or less, this is no problem, and can be connected as outlined in the MDS 9310 OIM Manual

However, users of 9600 bps systems have difficulties, as, until very recently, the MDS 9310 had no async interface at 9600 bps. Even with the latest firmware, the MDS 9310 is limited to only 150 uninterrupted characters before buffer overrun.

To make the 9310 function in a less restricted (greater than 150 character blocks) mode, a communications adapter can be added to the system. This device, called the Communications Adapter Plus (CAP), from Black Box, converts the 9600 bps data from the 2310 into 4800 bps data for the 9310. In the reverse direction, it converts the 4800 bps data from the 9310 to 9600 bps, adds handshaking, and sends it to the 2310 for transmission.

However, the buffer on the CAP must be kept in a non-empty state. If this does not happen when buffering in the 4800 to 9600 bps direction, after the initial group of characters (stored waiting for the RTS/CTS delay) is sent, the buffer empties between every character. This causes the RTS to toggle down. Then, a msec or so later, the next character comes into the buffer, causing the RTS line to go back up. The 2310 does not like the RTS line going false and then true between every character.

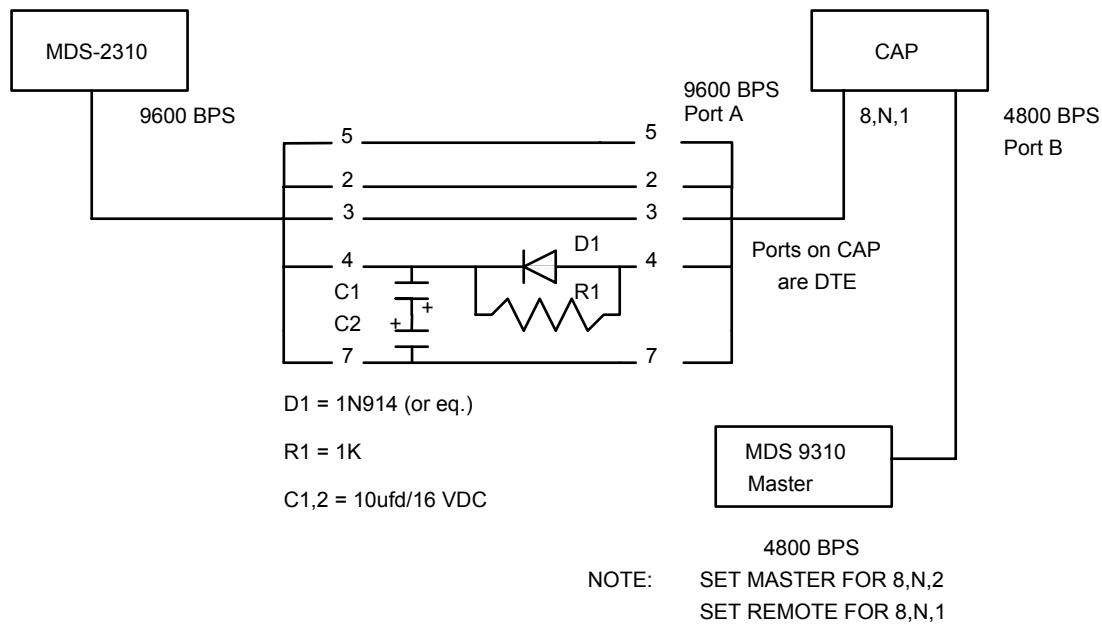
The cure is to add a few components between the MDS2310 and the CAP device that will delay the RTS from falling during this one character (at 9600 bps) time, to allow another character to be received and processed by the CAP, and forwarded to the 2310.

The CAP is placed between the MDS 2310 and the MDS 9310. An appropriate cable should be made according to the connection diagram in the MDS 9310 manual. The switch settings in the CAP are as follows:

SW1	1-8	OFF
SW2	1-8	OFF
SW3	1	OFF
	2	ON
	3-8	OFF
SW4	1-2	OFF
	3	ON
	4-8	OFF
SW5	1-2	OFF
	3 & 5	ON
	4	OFF
	6-8	OFF
SW7	1-3	OFF
	4	ON
	5-8	OFF

These settings allow for 9600 port A to 4800 port B speed conversion, 4800 port B to 9600 port A speed conversion, and handshaking on port A (CTS allows transmit).

The schematic for the interface between the MDS2310, and the CAP device follows:



Cables between units are as follows:

MDS2310(a) to interface - 2-2
3-3
4-4
5-5
7-7

Interface to CAP - 2-3

3-2
4-7
5-8
7-5

CAP to MDS9310 - 2-3
3-2
5-7

For more information, contact MDS Technical Services at techsupport@microwavedata.com, or by phone at +1-585-241-5510.
