

Re: Trying to send RS232 with PIC sends incorrect data in TeraTerm

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2007-04/msg02255.html>

- *From:* jbitz34@xxxxxxxx
 - *Date:* 11 Apr 2007 13:41:16 -0700
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On Apr 11, 1:49 pm, "Roger Hamlett"
<rogerspamigno...@xxxxxxxxxxxxxxxxxxxx> wrote:

<jbit...@xxxxxxxx> wrote in message

news:1176252759.067057.96530@xx> So we shortened the message to just output "A".

The display on the Tera Term is now "_" (underscore)

The binary for A is 1000001
The binary for _ is 1011111.

Just an update.

Ok.

Now multiple things. If you have download rights for the compiler, 3.249, is available to download. Install this into another directory, and see if the behaviour is the same. If so, you have at least ruled this out.

Now, remember that for asynchronous serial, the data is sent LSBit first. Also, the 'start', requires a '0' (low) at the input, before the data byte itself is sampled. Then there is a high 'stop bit' at the end. So, 'A' is:

1010000010x1, with '0' being 0v, and '1' being 5v (the 'x' is the parity bit, which would depend on whether this is enabled, and how it is set)

The _, is:

1011111010x1

Now the chip will start reading, when it sees a 0v for the first time. Notice the five successive '1's in the second stream, and the five

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successive '0's in the first.

If you invert the bit pattern for the 'A', you get:

0101111101/x0

Notice how if you shift this left one bit, it closely resembles what you are receiving.

It looks suspiciously like you might be lacking a signal inversion in the connection to the PIC (RS232 uses -3 to $-25v$ for a '1', and $+3$ to $+25v$ for a '0').

Are you sure the converter you have is USB to RS232?. You speak about it as being expensive, but these are incredibly cheap (well under 10\$). I have a nasty suspicion, that your converter, might be something like USB to RS485, rather than RS232!. This would explain it's price. While I agree, that the USB-RS232 converters can sometimes be troublesome, most now work OK.

I would try the simple test of connecting it to another PC with RS232 (can you borrow one from a friend?), using just the minimum 3 wire connection (TX to RX, RX to TX, and GND to GND). At least this will allow you to 'rule out' the unit if it works.

I really would be looking at the snalling polarity, and the connections round the MAX232.

Best Wishes

Well I'm a poor college student, so 20 dollars is expensive to me ;-)

The datasheet for the part indicates USB to rs232 functionality; and the chip that resides on the breakout board is the cp2102 which lists as its applications rs232 to USB on its datasheet.

Here is the sparkfun product page:

http://www.sparkfun.com/commerce/product_info.php?products_id=198

I am not sure what snalling polarity is. Our connections to the Max232 have been checked by many people, and we have done so according to the numerous schematics we have found. Also, we know that the Max works at least for data sent out from the PC and shorted back 'round through the pins.