



**Embedded Productivity®**

**RS232 to USB Host Interface Board:**

**USBHI-232-077B**

**Version 1.4 September 2010**

## **Introduction**

Many instruments and equipment have been upgraded in recent years from an RS232 serial port to a USB port. One of the most popular solutions has been to convert the RS232 port to a virtual COM port using one of FTDI's virtual com port ICs. This has meant that other legacy equipment can no longer talk to the equipment or instrument in question. The USBHI-232 provides the solution. It provides transparent communication between RS232 serial and a USB device using a virtual com port FTDI device. For the purposes of this document, it is assumed that a PC with an RS232 port ( or USB to serial adapter ) running a terminal emulation program such as Hyperterminal or Tera Term is communicating with a USB device through the USBHI-232. You may wish to use a PLC, SBC or other instrument with serial RS232 communications instead of a PC.

## **Power**

Power is provided to the USBHI by a 9.0V regulated DC adapter. The power jack accepts a 5.5mm outer diameter, 2.1mm inner diameter plug. The polarity does not matter. It can be either center positive or center negative.

## **RS232**

The DB9 connector connects up to a standard PC serial port ( or USB to serial adapter ) using a female to female DB9 null modem cable.

## **USB**

The USB Host port connects to the type A end of a USB cable. The other end of the cable ( Type B, or mini ) connects to the USB device. Power at 5V, 500mA max is provided for the USB device.

## **LED Indicator**

Red

- Solid On – either no USB device is attached or the USBHI-232 cannot make a connection.
- Flashing – the USBHI-232 is trying to connect to an attached USB device

Green

- Solid On – the USBHI-232 has established a connection to the USB device

## **User Configuration**

Configuration for baud rate etc. is done directly from a terminal program ( e.g. HyperTerminal, TeraTerm etc. ) connected to the RS232 serial port of the USBHI. If you are always communicating with the same USB device, this need only be done once as the user configuration is stored in non-volatile memory. Note that the USBHI-232 ships with a default serial port configuration of 9600 baud, 8 data bits, no parity, 1 stop bit and no flow control.

## **Accessing the User Configuration Menu**

The default serial communication for the User Configuration Menu is 9600 baud, 8 data bits, no parity, 1 stop bit and no flow control. For convenience, this can be changed to be same as the USB application baud rate .

1/ Open HyperTerminal

2/ Power up USBHI-232 with no USB device attached. The indicator LED will initially blink RED as it searches for a USB device. When none is found, the LED will stop blinking and remain a steady red. A single carriage return at this stage will bring up the User Configuration Menu. Note that the USBHI-232 will only respond if the carriage return is both preceded and followed by a 1 second quiet time where no other keys are pressed. Don't press the carriage return again if there is not an immediate response – the USBHI-232 is waiting to ensure that a one second silence is following the first carriage return.

### Configuration settings for USBHI-232

Menu Item	Menu setting	Comments
Baud rate	1200 2400 4800 9600 19200 38400 57600 115200	
Data Bits	8	Only 8 data bits supported
Parity	None	Odd/Even parity not supported
Stop Bits	1	
Flow Control	None hardware RTS/CTS	
FTDI Channel Selection	Channel A Channel B Channel C Channel D	Channels B,C,D only on devices that support these extra channels. Note that only channel A is supported on high speed 'H' devices
User Terminal Baud Rate	9600 Application baud rate	
Reset to default configuration	9600 baud 8 data bits No parity 1 stop bit No Flow Control, Channel A 9600,8,N,1 for terminal	
Quit to application		Quit configuration and run USBHI-232 application