# Custom Low EMI PulseBlasterUSB™

## Addendum to PulseBlasterUSB™ Manual


**SpinCore Technologies, Inc.**
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# I. Low EMI PulseBlasterUSB™

## 1. Overview

The Custom Low EMI PulseBlasterUSB™ is a low Electromagnetic Interference (EMI) version of our standard PulseBlasterUSB™ portable system. It measures 8” x 8.38” x 5.19” (20.32cm x 21.27cm x 13.18cm) and weighs 6.3 lbs (2.86 kg).The low EMI version includes the following features:

1.High performance, filtered AC power entry module.

2.Low-noise 3 A linear power supply.

3.Custom enclosure with enhanced shielding

4.TNC connectors for each output channel.

5.External clock input (1kHz to 50MHz).

6.Slowed slew rate of the output pulses.

7.Reduced 12 mA output current per channel.

8.8 Programmable Digital Output Bits (20ns resolution @ 50 MHz).

9.Automatic USB communication shutdown at frequencies lower than 50 MHz

## 2. Connector Information

This enclosure provides 8 output bits through TNC connectors, arranged as in Figure 1, below. There is also an external clock signal input provided through a TNC connector. This clock line is terminated with a 50Ω resistor.

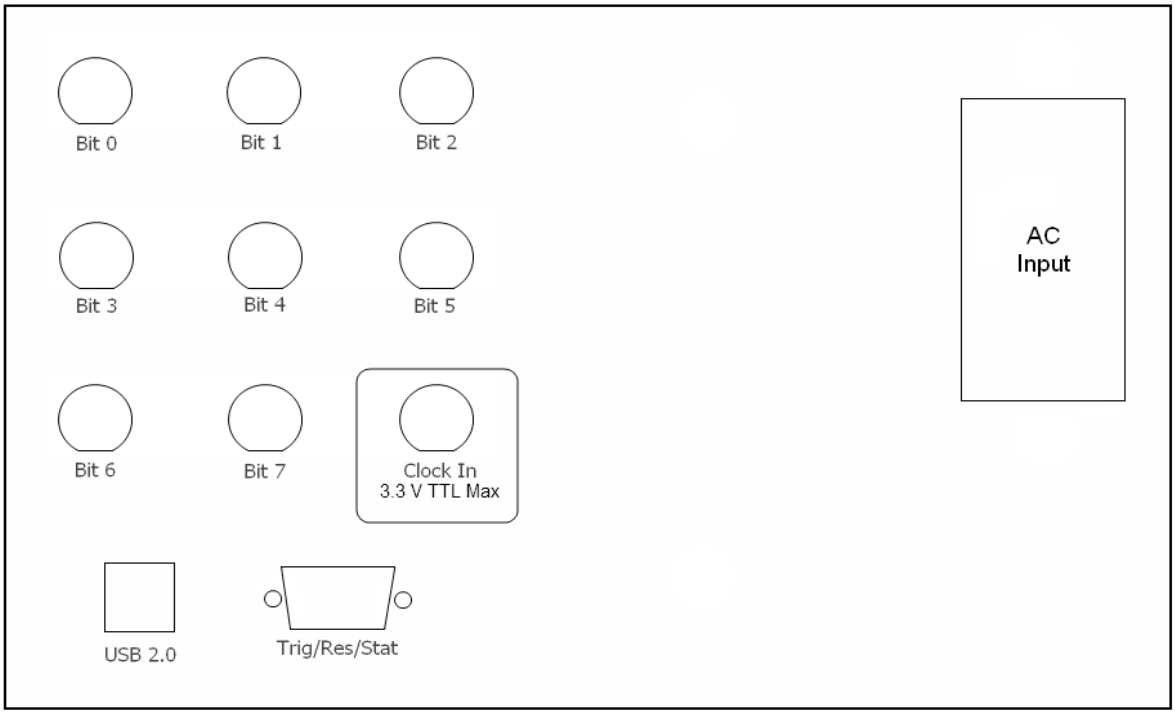


*Figure 1: Front Panel Connectors*

The Trig/Res/Stat DB9 connector information is shown in Figure 2 and Table 1, below. The Hardware Trigger and Hardware Reset are both active low, so each of these pins would need to be shorted to ground to cause a trigger or reset, respectively.

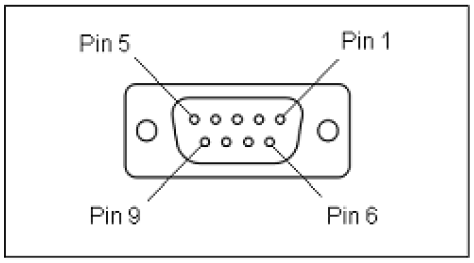


*Figure 2: Trig/Res/Stat Female DB9 connector drawing*

| Pin number | Function |
|---|---|
| 1 | Hardware Trigger |
| 2 | Hardware Reset |
| 3 | WAITING |
| 4 | RUNNING |
| 5 | RESET |
| 6 | Ground |
| 7 | Ground |
| 8 | Ground |
| 9 | STOPPED |

*Table 1: Trig/Res/Stat Female DB9 connector pin assignments*

## 3. Operation Instructions

Because this custom device needs to be able to operate at external clock frequencies down to 1 kHz, there are instructions that you must follow in programming the device to output your desired pulse sequence. Keep in mind that it is imperative that the clock input is 50MHz during programming.

1.Before you plug in the device, go to http:///www.spincore.com/support/spinapi and install the latest version of our SpinAPI Driver Package.
2.Plug in your 50 MHz clock signal into 'Clock Input' TNC connector. **The clock input line is terminated with a 50Ω resistor, so you will need to use a 50Ω clock source. Also, the maximum clock signal that the system can accept is 3.3V TTL.** The minimum clock signal that the system can accept is 1.7V TTL.
3.Plug in USB cable into system and computer.
4.Insert power cord and turn on the power switch on the enclosure.
5.To use the system, program the device with whatever pulse program you choose. See the note below about how to program the device. **Make sure your clock input is 50 MHz during programming.**
6.After programming, you may dial down 50 MHz signal to frequency of your choice, e.g. 1 kHz.
7.To reprogram with different pulse sequence, you need to change your clock source back to 50 MHz.

Note: Hardware trigger and reset do work at any frequency in the range (1 kHz - 50 MHz)

Please refer to PulseBlasterUSB manual for instructions on programming your device. The address for that manual is http://www.spincore.com/CD/PulseBlasterUSB/v2/PulseBlasterUSB_v2_manual.pdf

# II. Contact Information

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# III. Document Information

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|---|---|
| **Document Title:** | Custom Low EMI PulseBlasterUSB Manual Addendum |
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For more information on revision history please contact SpinCore Technologies, Inc., at the address above.