VERT

Quick Start Guide

By Eli Pechman

www.mysticcircuits.com

Description:

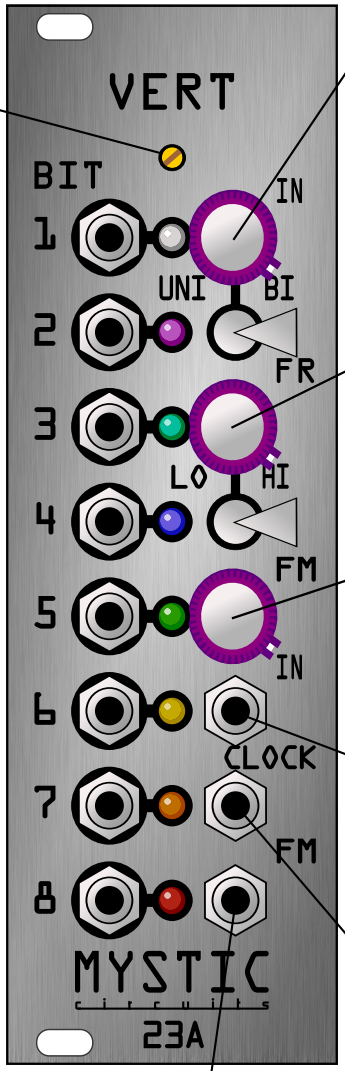
The VERT is an 8 bit analog-to-digital converter with an internal clock. From wikipedia, "An analog-to-digital converter (ADC, A/D, or A to D) is a device that converts a continuous physical quantity (usually voltage) to a digital number that represents the quantity's amplitude." Effectively, this module takes an input and turns it into 8 gates based on the binary value of the Analog Input. This is useful as a gate sequencer, bit crusher, sample and hold, comparator, polarizer, and as a glitchy equalizer. With the addition of expanders, many other functions such as step sequencing and switch sequencing are available.

Brightness Trimmer:

Controls the brightness of the LEDs. Adjust with a small regular head screwdriver.

Binary Outputs:

Each output corresponds to a bit from the 8 bit number describing the Analog Input. Bit 1 is the "Least Significant Bit" and Bit 8 is the "Most Significant Bit". All of these outputs are logical signals (0 - 10V squarewaves) which can go well into audio rate depending on the sampling clock speed. Generally speaking, the lower value bits (towards the top of the panel) have more high-frequency data than the higher value bits.



Input Attenuator:

Controls the amplitude of the analog input. Uni/ Bi switch toggles between whether a Unipolar (0V/-10V) or Bipolar (-10V/+10V) signal is expected at the Analog Input.

Sample Clock Frequency:

Frequency of analog to digital conversion of Analog Input. Lo/ Hi switch toggles between sub-audio and audio clock rates.

Sample Clock Frequency Modulation:

Depth of modulation for frequency of sampling clock. Positive voltages slow down the clock for down-sampling effects. Negative voltages have no effect.

Analog Input:

Input for analog to digital converter. AC and DC coupled.

Sample Clock Input:

External input for sampling clock. Breaks normalization for internal clock, so internal clock controls will have no effect. Input is protected from negative voltages but square waves will yield the best results.

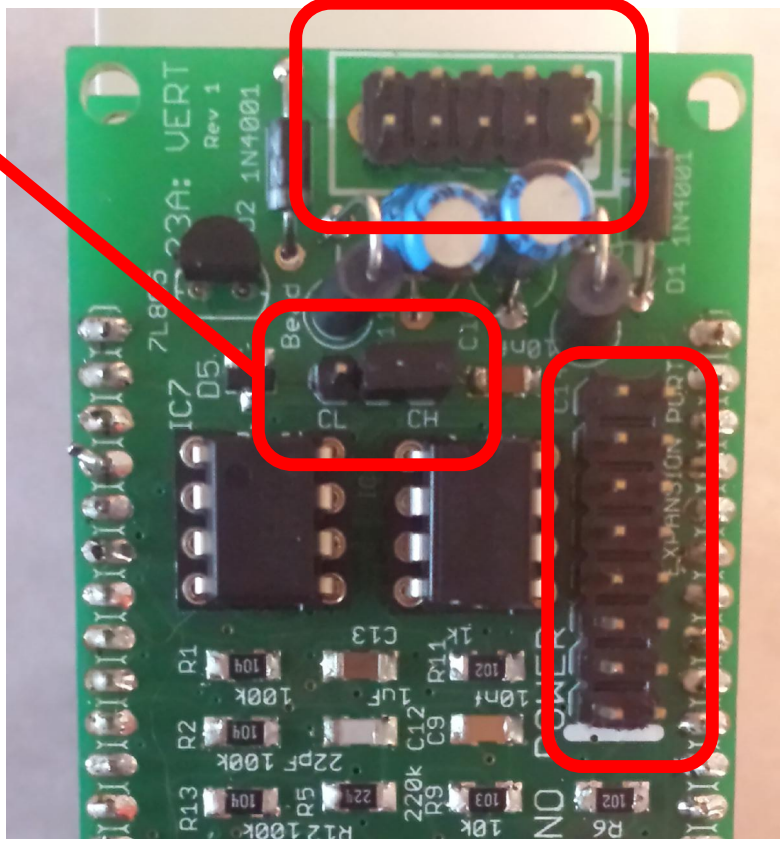
Sample Clock FM:

Frequency modulation input for internal sample clock.

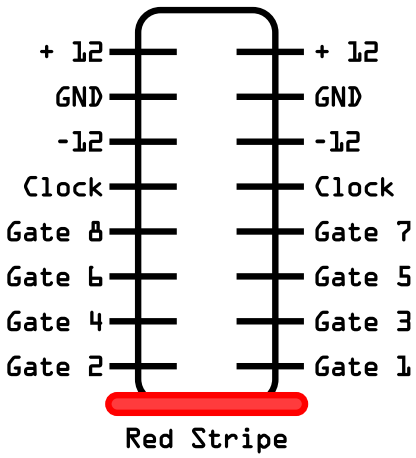
Hook-up Guide

Here is the VERT's power connector. The red stripe for your power connector should face to the right, lined up with the white line. This is the only place that you will ever connect to your bus board.

This jumper selects clean versus chaos mode. This feature was scrapped for the production model of the VERT because the chip that allowed it was unreliable and caused double triggers. Instructions will be added to the DIY build documentation as to how to add this feature back, but for now you should just leave the jumper pointing towards "CH".



WHITE LINE = RED STRIP



This is the expansion header which allows any Turing Machine expander to be hosted by the VERT. The 8 bits of the VERT will be used to drive the 8 bits of any expander plugged into this port. As mentioned before, NEVER PLUG THIS PORT INTO YOUR BUS BOARD. I did not have the space to add power protection for every single scenario that someone could hook up this module incorrectly, so please heed my many warnings. To the left is a diagram of the pins. Many thanks and much credit to Tom Whitwell of Music Thing Modular who designed this expansion standard and open-sourced the information supporting it. If you would like to learn more please check out musicthing.co.uk and go to "Turing Expanders."