SWITCHES

Quick Start Guide

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Description:

The SWITCHES Turing Machine expander turns your host module into a sequencial switch. Unlike most sequential switches, this expander can have more than one switch open at a time, mixing together the outputs of the 8 switches into 4 separate mixes. This module uses 2 switching methods: both a high speed and high accuracy mosfet based switching chip and low-speed, cludgy vactrol optocouplers are used to gate the signals. The switching chip can switch into the audio range whereas the vactrols give a nice decay to the signal which is musically useful.

Clean Inputs

Each of these inputs goes to a high-speed, high-accuracy switching chip. These inputs are good for 1v/Oct note sequences, triggers, and other signals that require high accuracy. When the first 4 bits of the driver module are high, the corresponding switch is closed/ active. The output of all of the active switches are summed to the 1st output, as is indicated by the arrow and bracket.

Clean Output:

Outputs the sum of all active switches from inputs 1 - 4. This output only mixes signals from the high accuracy switching chip.
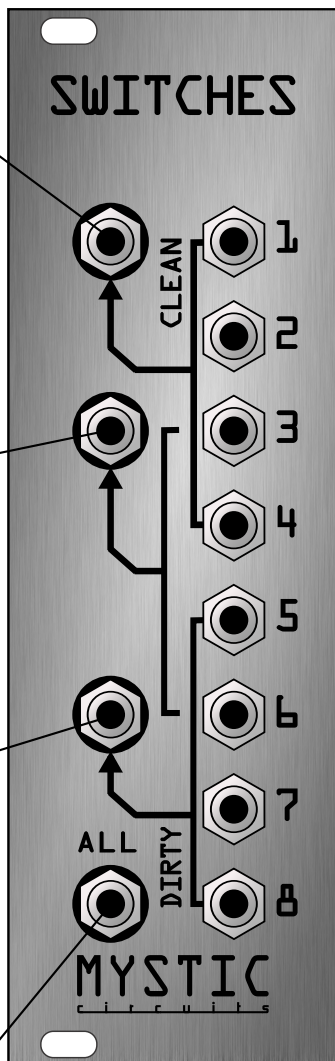
Middle Output:

Outputs the sum of all active switches from inputs 3 - 6. This output mixes signals from both the switching chip and the vactrols.

Middle Inputs

The middle inputs are a mixture of the clean switching chip and the dirty vactrol based switches. These inputs correspond to the 3rd through 6th inputs and are summed to the 2nd output.

Dirty Output:

Outputs the sum of all active switches from inputs 1 - 4. This output only mixes signals from the vactrols.

All Output:

Outputs the sum of all active switches. This output mixes all signals from the switching chip and the vactrols.

Dirty Inputs

These inputs goes to a set of vactrols which will add a bit of smear to the signal. At certain switching speeds these inputs can act as a set of 4 low-pass gates. These inputs correspond to the last 4 bits of the host module and are summed to the 3rd output.

SWITCHES

CLEAN

1
2
3
4
5
6
7
8

ALL   DIRTY

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Hook-up Guide

This is the power connector and it is THE ONLY PLACE SHOULD EVER BE CONNECTED TO YOUR BUS BOARD ON THIS MODULE!!!!! It should be easy to keep track of because you will only ever need to connect a 10 pin power cable to this module for power. The 16 pin ports are both for expansion cable connectors. In many cases you can avoid connecting this expander to your bus board altogether and just supply power from the expansion cable. The option for external power was added so that fully expanded turing machines would not need to have their fuses replaced.

This is an expansion cable port which allows for the added functionality of accessing the direct output of each switch. In the future you will be able to use this in order to use the switches expander as a bank of 8 independant switches. Please do not plug anything into it at this time. Notice how it says "NO POWER" next to it? That is because it is especially not meant to plug into your busboard.
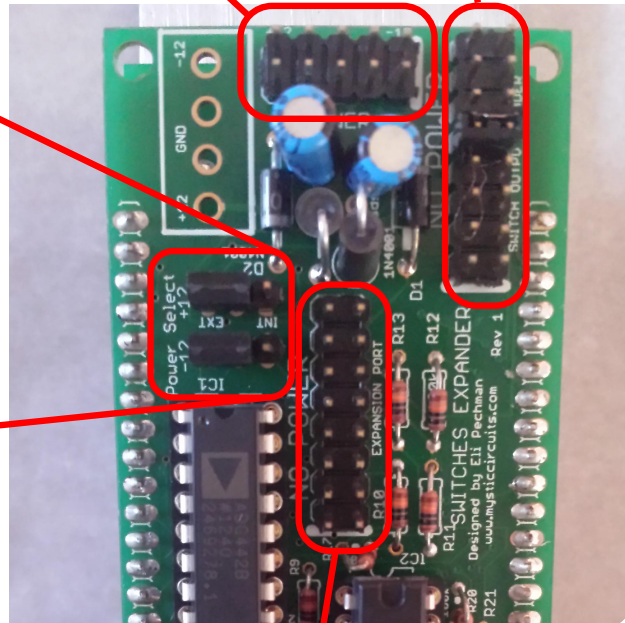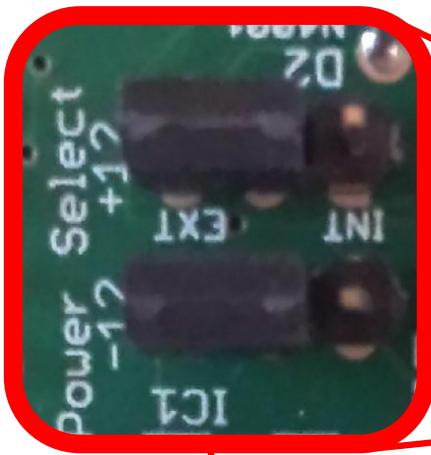
WHITE LINE = RED STRIP

The "Power Select" headers are used to determine whether you want to use the power supplied by the expansion cable or to power the SWITCHES Expander directly from the bus board. The main reason to power SWITCHES from the bus board is if you have a fully expanded Turing Machine and the power protection fuses are already operating close to capacity. You will know that this is the case if after 20 or so minutes of operation your Turing machine turns off and the display starts to pulse. If this happens then use busboard power and your module should behave as normal.

To select power from the expansion header put BOTH jumpers to the side that says "INT" between both jumper headers. To select power from the bus put BOTH jumpers to the side that says "EXT".

This is the expansion header that is meant to plug into your host module. It is used to transfer the 8 gates from the host module which will control whether the 8 gates of the SWITCHES expander are open or closed. On a standard Turing Machine it plugs into the "GATES" backpack output, so you may need to use a special cable to make sure that you can plug all of your modules in to the host. Again, this port does not connect to your bus board. I put reverse voltage protection on the main power connector but I did not have room to put power protection on all of the expander ports. I honestly have no idea what will happen if you plug this into the busboard but I bet it will be really, really bad. Dont do it.