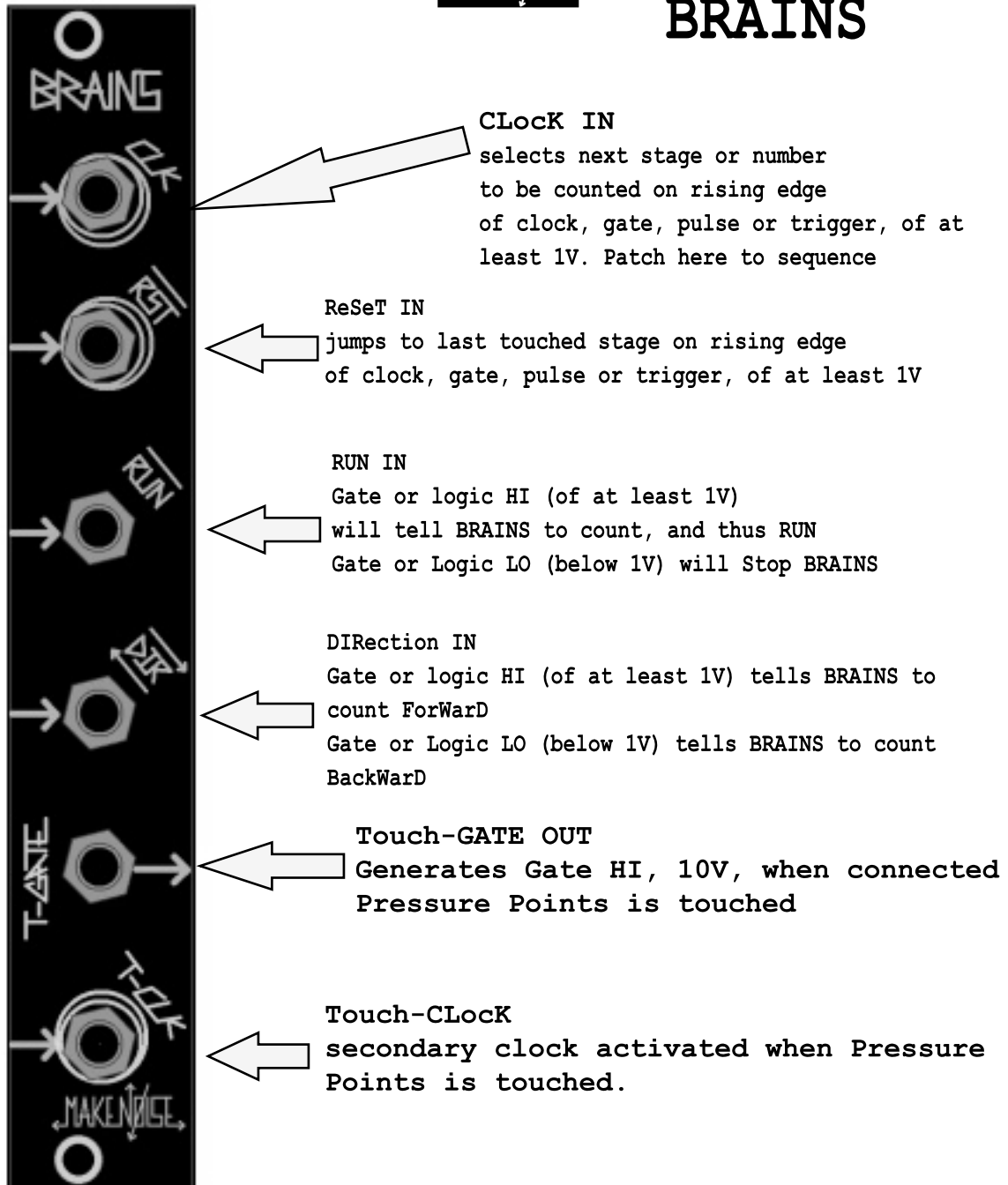


# BRAINS



BRAINS is a clocked sequential binary event machine, intended to be connected to tactile controllers such as the Pressure Points. Once connected, Pressure Points provides data input to BRAINS in the form of touch selectable Reset stage and Hold stage. Pressure Points also provides the tuned voltages and Pulses per stage. BRAINS, when connected to either 1 or 2 Pressure Points, will drive the stage selection in a sequential fashion, at a rate determined by the incoming clock at CLoCK IN, thus forming a 4-Step or 8-Step 3-channel analog sequencer. Binary control over Direction of the stage selection, RUN/ Stop and ReSeT are provided. The Touch-GATE OUT is the only output on BRAINS, producing a Gate HIGH signal whenever the connected Pressure Points is touched. The Touch-CLoCK IN serves a dual purpose. Used without a Master Clock applied to the CLoCK IN, Events initiated by touching Pressure points will be Quantized to the timing signal applied to Touch-CLoCK IN. When used along with the CLoCK IN, a secondary sequence will be initiated whenever Pressure Points is touched, where the length and timing is determined by the relationship of the Touch-CLoCK to the Master CLoCK. Even divisions of the Master CLoCK will produce tame variations of the main sequence. Non-Synchronized clocks will produce ???

#### Installation:

The Make Noise BRAINS is an electronic, binary control signal generator intended to expand the functionality of Pressure Points. It requires 20mA of +12V regulated power and properly formatted distribution receptacle to operate. It is designed to be used within the euro format modular synthesizer system. Go to [http://www.doepfer.de/a100\\_man/a100t\\_e.htm](http://www.doepfer.de/a100_man/a100t_e.htm) for the details of this format.

To install, find 4HP of space in your euro-rack synthesizer system, on the left side of the Pressure Points to be expanded. Make all jumper settings on both BRAINS and the one or two Pressure Points to be connected to BRAINS. Connect the EXPND cable between BRAINS and Pressure Points number 1 (points 1-4). If there will be a second Pressure Points, connect EXPND cable number 2 (points 5-8), and connect CHAIN cable between the two Pressure Points. Now Plug the 16pin power cable into the euro-rack style power distribution board, minding the polarity so that the RED stripe on the cable is oriented to the NEGATIVE 12 volt supply line. This is USUALLY at the bottom. Please refer to your case manufacturers' specifications for location of the negative supply.

Because it needs only a single supply voltage, Pressure Points may be powered by a wall wart, using a Barrel Jack to 10-PIN IDC cable converter. Both wall wart and cable converter are available where ever Pressure Points are sold. Operating from a single supply eases the construction of DIY enclosures by eliminating the need for AC mains connection, and simplifying power distribution. PLEASE contact Make Noise with any questions regarding Powering of Pressure Points. Make Noise implies and accepts NO responsibility for harm to person or apparatus caused through the construction and/ or operation of a DIY enclosure and/ or power solution for Pressure Points.

#### Limited WARRANTY:

Make Noise warrants this product to be free of defects in materials Or Construction for a period of two Years from the date of manufacture. Malfunction resulting from wrong power supply voltages, backwards power cable connection, abuse of the product or any other causes determined by Make Noise to be the fault of the user, are not covered by this warranty, and normal service rates will apply. During the warranty period, any defective products will be repaired or replaced, at the option of Make Noise, on a return-to-Make Noise basis, With the customer paying the transit cost to Make Noise. Please contact Make Noise for Return To Manufacturer Authorization. Make Noise implies and accepts no responsibility for harm to person or apparatus caused through operation of this product.

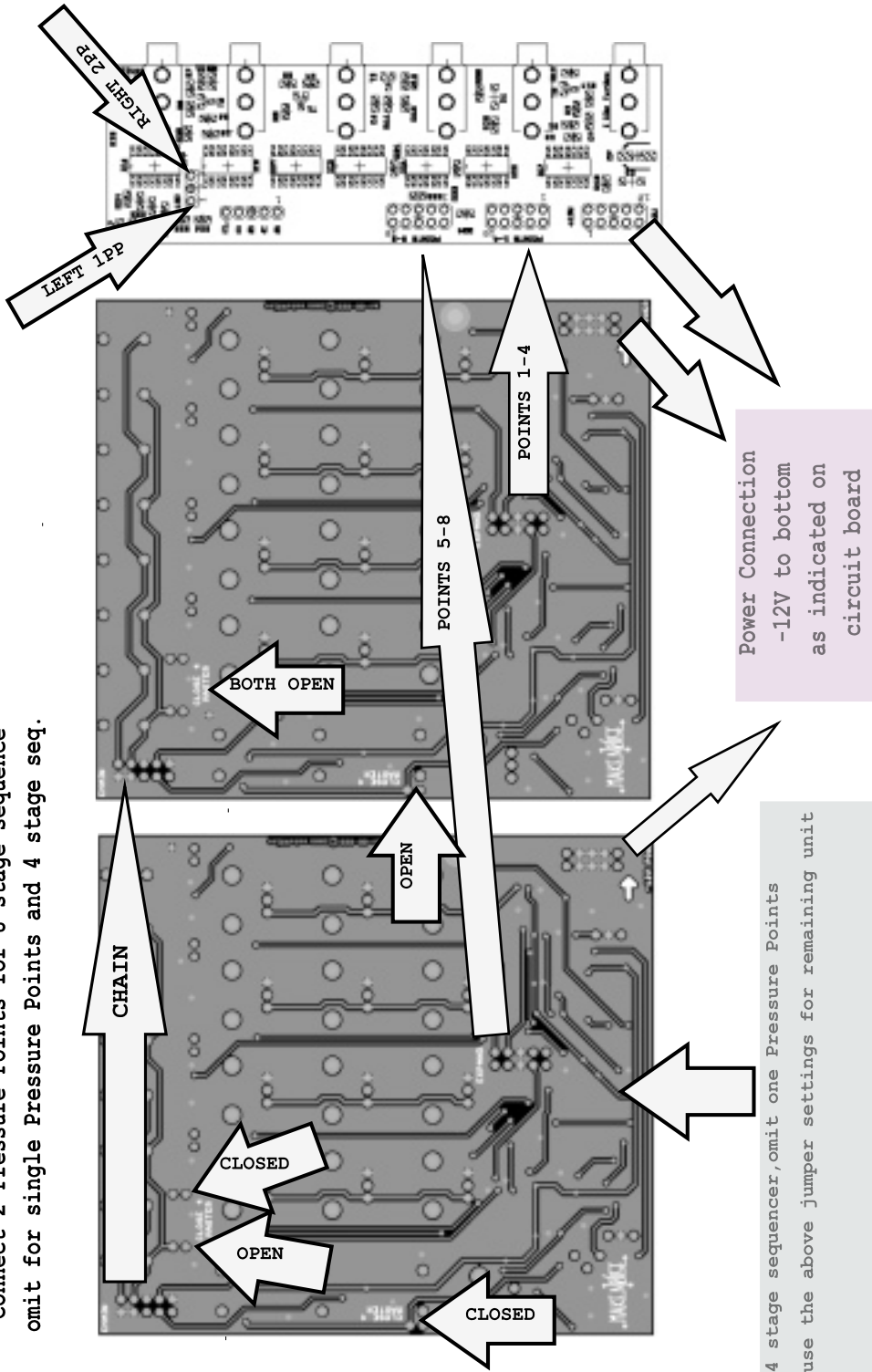
Please contact [tony@makenoisemusic.com](mailto:tony@makenoisemusic.com) with any questions, needs & comments...

otherwise go MAKE NOISE.<http://www.makenoisemusic.com>

**CHAIN connection**

use 10 PIN CHAIN Cable

Connect 2 Pressure Points for 8 stage sequence  
omit for single Pressure Points and 4 stage seq.



Either 1 or 2 Pressure Points may be expanded with a BRAINS. PLEASE observe the jumper settings for proper expansion.

For more detailed expansion hook-up instructions visit <http://www.makenoisemusic.com/BRAINS.html>

## Tips & Tricks

**Single Shot:** patch any one of the 3 tuned voltage outputs to RUN IN. Set all pots in the corresponding row to full CW. Sequence should play through all stages. Now set the pot at the stage where you want the sequence to stop, Full CCW. BRAINS counts to this stage and stops. Touching any stage other than the stage where the sequence is stopped, will run the sequence until the stop stage is reached.

**Knight Rider KIT Style Sequencing:** with sequence running, patch the Gate OUT from Stage 8 to the Trigger IN of MATHS CH. 4. Take EOC OUT from MATHS, patch to BRAINS DIRection IN. Set MATHS CH. 4 Rise to NOON, FALL to Full CW and Response to LINear. Patch Gate OUT from Stage 1 to MATHS CH. 4 BOTH Control IN. Sequence should travel back and forth like KIT car from Knight Rider.

**Voltage Controlled Pendulum:** with sequence running, patch the Gate OUT from Stage 8 (or 4, or ?) to the Trigger IN of MATHS CH. 4. Take EOC OUT from MATHS, patch to BRAINS DIRection IN. Set MATHS CH. 4 Rise to NOON, FALL to 3 o' CLock and Response to LINear. Sequence will probably be traveling BWD at this point, but it really depends upon the rate of the incoming clock at BRAIN CLK IN. By setting or modulating the FALL parameter of CH. 4, you will have control over the direction of the sequence and how long sequence travels in that direction.

**Touch Controlled Pattern Length:** with sequence running, patch the Gate OUT from Stage 8, to BRAINS Reset IN. Touch the plate of the stage that will be the start of the sequence. Sequence will now run to stage 8, and return to last touched stage, effectively giving you touch control of sequence length.

**Touch Controlled JUMP:** with sequence running, patch the Gate OUT from any of the middle Stages (3, 4, 5, 6), to BRAINS ReSeT IN. Touch the plate of the stage AFTER the Stage with Gate applied to Reset IN. Watch sequencer jump over stages.

**rol@nd ml85 Style HOLDS:** with sequence running patch same clock to Envelope Generator (MATHS CH. 1), patch resulting envelope to LPG (QMMG CH. 1). Apply VCO being driven by the sequencer to LPG. Mult same clock signal to Doepfer A-160 Clock Divider or RCD (Gates option set to ON). Using /8, /16, /32 will result in different hold patterns where, using /16 for example, sequencer runs to stage 4 and holds, runs to stage 8 and holds. If available, a trigger sequencer clocked by a division of the master clock could be used to program the HOLDS instead of the clock divider.

**Buchla 250e Style Movement:** Patch MATHS CH. 1 EOR to Clock IN, BRAINS. Set MATHS to Cycle, Rise panel control to NOON, Fall will set upper limit of clock rate. Sequence should be running. Patch the bottom most row of Tuned Voltages from Pressure Points, to MATHS CH. 1 Fall Control IN. Set all potentiometers in corresponding row to Full CCW. Sequence is now running at the upper limit (fastest) tempo/ rate. This Row of pots is like the INNER row of pots on the 250e, each setting their corresponding stage's length. As you set any stage's pot further CW, the length of that stage will increase. The other two rows of pots in the PP/ BRAINS system are used like the OUTER row of pots on the 250e, and at their outputs you will find the Arbitrary Function quantized to the Master CLock.

**UEG, MARF, ARF like:** Begin with the Buchla 250e Style Movement patch. Now patch the output of the middle row of Tuned Voltages to MATHS CH. 4 Signal IN. Set Rise and Fall panel controls to NOON. Set Response to LINear. Signal OUT on MATHS CH. 4 will be your CV output, patch it to VCO, VCA, VCF, you know the game! Mult the bottom most row of Tuned Voltages from Pressure Points (the same row controlling stage length), to MATHS CH. 3 IN. Set CH. 3 Scale/ Inversion to Full CCW. Apply output of CH. 3 to MATHS CH. 4 BOTH Control IN. Sequence will run at a rate determined by the bottom row. The control signal generated by the sequence will be "interpolated" according to the length of the stage as set by the bottom most row of PP/ BRAINS. Combine this patch with **Single Shot** patch to achieve a touch triggered multi-stage envelope.