BRAINS



Limited WARRANTY:
Make Noise warrants this product to be free of defects in materials or construction for a period of one year from the date of purchase (proof of purchase/invoice required).

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 technical@makenoisemusic.com with any questions, needs & comments, otherwise...

go MAKE NOISE.

http://www.makenoisemusic.com

THANK YOU

Installation:

The Make Noise Brains is an electronic signal generator requiring 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.

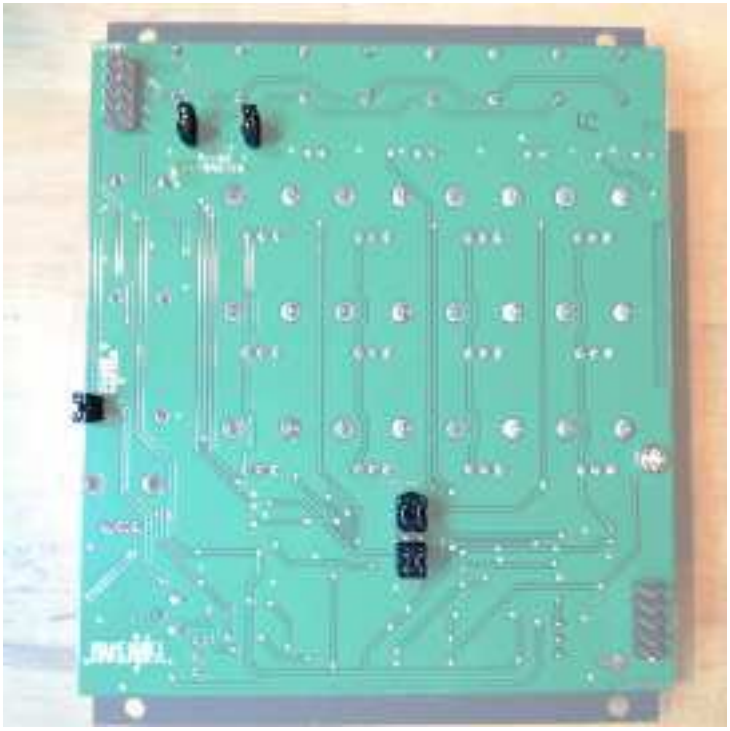
Go to http://www.doepfer.de/a100_man/a100t_e.htm for the details of this format.

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.

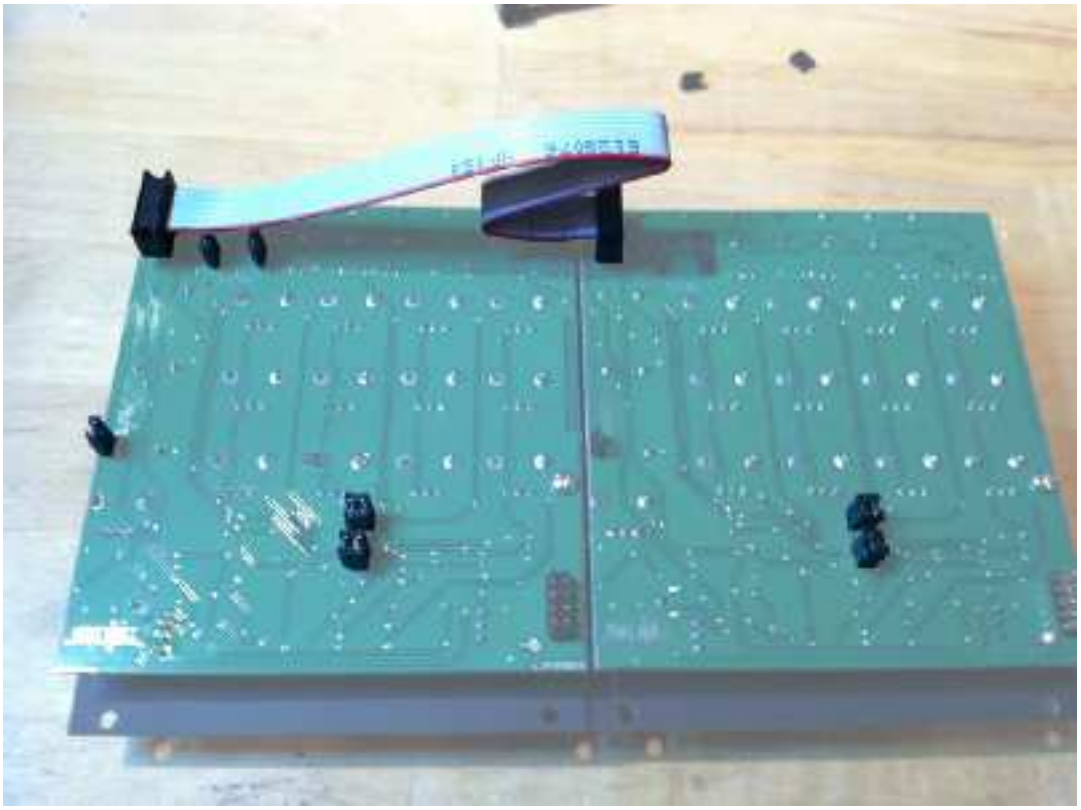
Please refer to your case manufacturers' specifications for location of the negative supply.

Please see next page for further installation instructions.

Jumper and Cable Connections:
(Power connections for each module not shown for clarity.)

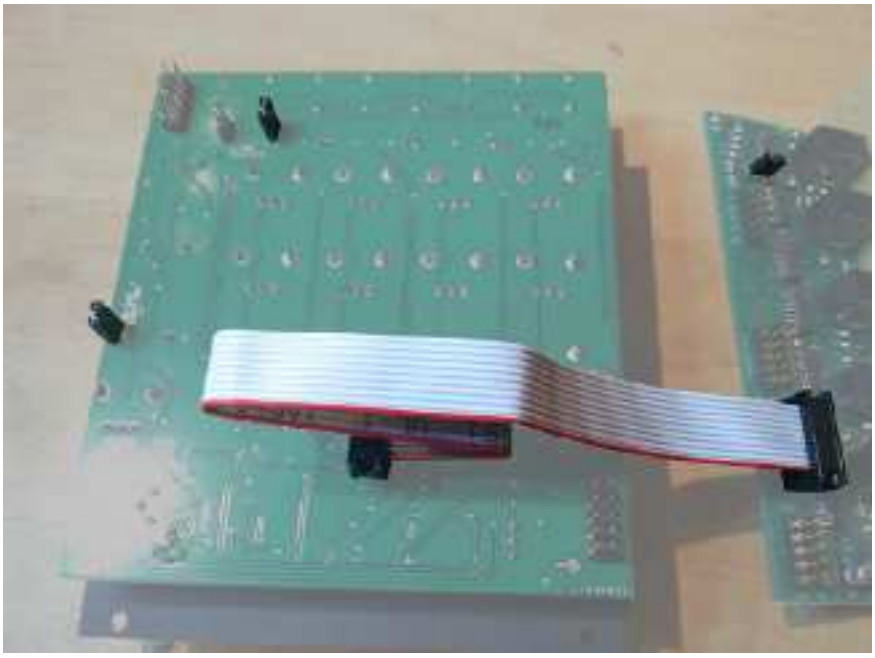


Single Pressure Points with no BRAINS attached: Note all the "Close 4 Master" locations are closed, as well as the Expand headers.

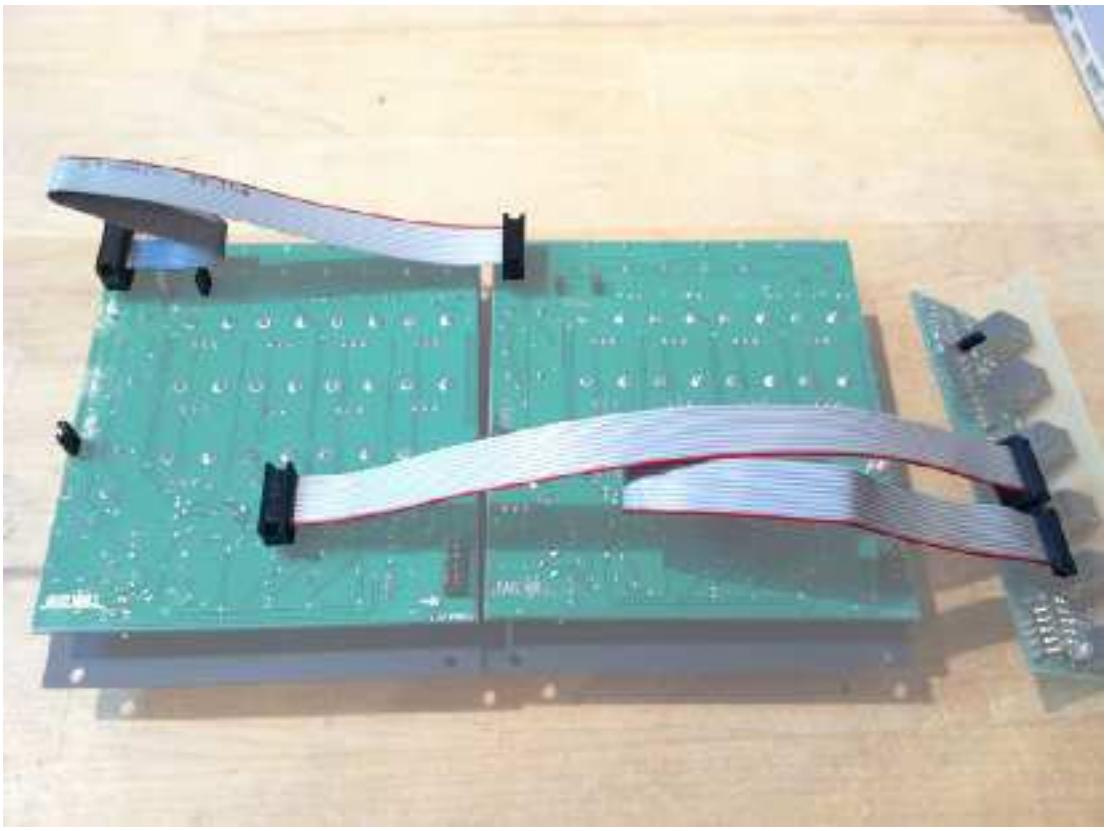


Two Pressure Points, chained: Note that the "Close 4 Master" headers are closed on the first unit (will be on the right when installed in the case). For three or four Pressure Points, use 4-header CHAIN cable and leave "Close 4 Master" headers open on all units but the master (rightmost when installed/leftmost from behind). Also, note the jumpers on the EXPAND headers.

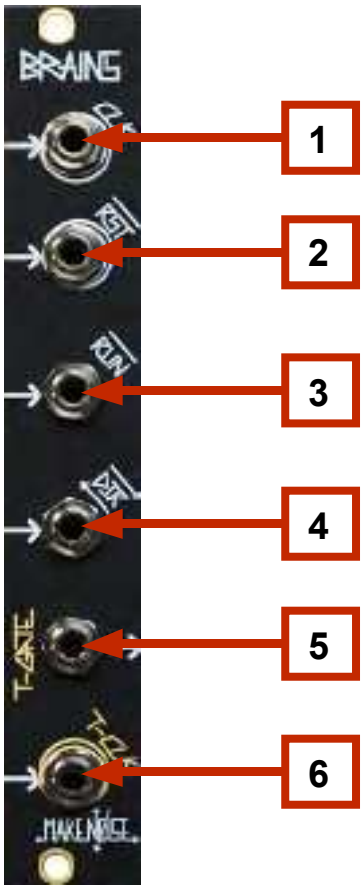
Jumper and Cable Connections (con't):



BRAINS with a single Pressure Points: Note the single open "Close 4 Master" header, the BRAINS cable connected from "Points 1-4" header to EXPAND header, and the jumper on BRAINS set to "1PP."



BRAINS with two Pressure Points:
Two is the maximum number of Pressure Points that can be attached to a single BRAINS. Note: the connections of "Points 1-4" and "Points 5-8" to EXPAND headers the single open location on the "Master" Pressure Points' "Close 4 Master" headers; all three "Close 4 Master" locations open on the non-master Pressure Points, and the Jumper on BRAINS set to "2PP."



Brains Panel Controls

1. CLOCK IN: selects next stage or number to be counted on rising edge of clock, gate, pulse or trigger, of at least 1V. Patch here to sequence
2. RESET IN: jumps to last touched stage on rising edge of clock, gate, pulse or trigger, of at least 1V.
3. RUN IN: Gate or logic HI (of at least 1V) will tell BRAINS to count, and thus RUN Gate or Logic LO (below 1V) will Stop BRAINS.
4. DIRection IN: Gate or logic HI (of at least 1V) tells BRAINS to count ForW arD Gate or Logic LO (below 1V) tells BRAINS to count BackWarD.
5. Touch-GATE OUT: Generates Gate HI, 10V when connected Pressure Points is touched.

6. Touch-CLocK secondary clock activated when Pressure Points is touched.

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.

Touch-GATE OUT
The only output on BRAINS, producing a Gate HIGH signal whenever the connected Pressure Points is touched.

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 ???

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 of Pressure Points (3, 4, 5, 6), to BRAINS ReSeT IN. Touch the plate of the stage AFTER the one with Gate applied to Reset IN. Watch sequencer jump over stage. Stack multiple stages to Reset for longer jumps or multi-jumps.

Tips & Tricks (cont'd)

Roland m185 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). Patch selected clock division output to Brains RUN input. 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.