Deckard's Dream Expander FAQ and Build Guide. DRAFT V1.5

e Expander do?

ovides both MIDI control changes and/or audio effects, to any sources plugged in.

Iulator: Audio Only 'Chorus: Audio Only Idio Only Audio Only & II: MIDI Only

ceives across ALL (1-16) MIDI channels, and outputs only on the channel(s) it receives signals on. Example: If your control 4, the Expander will receive all messages on CH4, and send only on CH4. If your controller is set to 2-16 for MPE ng corresponding channels 2-16.

kes any 2 audio sources and combines them into a single audio signal for effects processing. Balancing the audio levut into the Expander.

ate the firmware?

• MCU cannot be updated. However, the 3 main audio effects are controlled by individual SPIN FV-1 circuits, and ca ustomizing the 1-8 programs stored on their corresponding EEPROMS. In short, you can replace the EEPROMS with

e MCU do?

l inputs:

ow signal from the Sustain I&II switch from the Sustain_Level slider signal from the Delay Time Slider

es 3 outputs:

nal for the Delay effect. This is used to clock the SPIN FV-1 circuit based on the setting of the Time slider input. This use an external timing crystal like Reverb and Tremolo/Chorus do. signal that is generated from the MIDI input trol Change messages (CCs) are generated from the settings of the Sustain Level switch and Slider.

Il the sliders, can I save patches?

nd watch points.

ely build and test the power circuit first, before you insert the ICs or connect the Card Board to the mother or Main s. However, you MUST have IC2 Installed to obtain a -5V power rail.

bg grounds are separated, but joined at the point of R2 (0 Ohm resistor) on the Card board. Ensure you have a jump 1.

ıd Connector.

n power connector, that sits between the +Rail of the supply and the fuse. This must be bridged in order for power use the switch on the front panel by running a wire pair to either side of the switch. We are only switching the pos

tion and Fuse.

aws about 650mA for operation. It is advisable to minimize potential damage by using a 750mA to 1 Amp rated fus , but the DC/DC converter is limited to a maximum of 1.5 Amps.

ector Soldering:

s for the slider pins are partially cut along the board edge. This can make soldering difficult and undue stress on par nection. Care should be taken, use plenty of flux to ensure easy solder flow.

MIDI and Audio jacks. Some of the pads are hindered by the solder mask, or are too small. This can make soldering the pins are a large gauge and applying enough heat to ensure a good solder joint and be challenging. Again, use ple r flows into the pin hole.

be anything from 10K to 100K Linear.

or:

itor combines both audio sources into a balanced single source (SIG) which is sent to one input channel of the MC1 t (IC4 on the Motherboard). An oscillator (CEM3340, AS3340) provides a sine wave (REF) which is sent to the other id' slider on the front panel determines the frequency of the sine wave (signal RM_Speed). The 'Modulation' slider is the modulation level of the audio signal by the sine wave (signal RM). It uses the VCA IC7 (V2164) for this process

ntrol sliders Attack, Decay, Sustain, Release provide input to the CEM3310 (AS3310) Envelope Generator circuit (IC:). This EG circuit also takes a gate signal from the MCU and outputs an envelop profile signal EG_OUT, which is cont the front panel. The output of this slider is effectively put into the oscillator circuit to control the amount of envelo

s:

on: controls the balance between the original audio source (Top position) and the modulated signal (Bottom position) ontrols the modulation frequency

ntrols how much the EG will effect the Modulation

ecay, Sustain and Release control the profile of the modulation

¹ the Ring Modulator

procedure has not been verified by Black Corporation, it is purely my suggestion based on the trimming of similar re-

RM controls for Attack, Decay, Sustain, Release should only be heard when the Depth slider is moved from minimul controls the amount those four controls add to the modulation.

slider: When at the top or at minimum, only the source should he heard when a key is pressed. Sliding the Modulat ne amount of modulation introduced.

increases the frequency of the modulation: (0 to about 200Hz)

Is: Attack, Decay, Sustain and Release are much more enhanced or noticeable when this slider (right hand side of con (bottom) to Max (Top). This control enables MIDI messages to be sent, so the expander should be connected betwire Deckard's Dream. Calibration does not require this.

ess:

pin 14 of IC2 (REF Signal Sine wave) and Pin 10 of IC1 (Triangle wave) s into the expander or use an amp IP a bit (under headphones it can get loud so watch it) require much trimming.

Ring Modulator or Sonic Multiplier should only respond (with the REF signal), only when an audio signal is present is no source there should be no sound.

ource from the input jacks.

slider to max (all the way down)

to max.

ner until you can minimally hear any sound (you may not get rid of it all)

lying anything by zero, should be zero. No SIG signal, no sound.

y trim (0.2Hz trimmer)

rd (MIDI) to Decker's Dream J's Dream into the Expander Audio input

х

:o Max

f the Sine wave and Triangle wave should be adjusted by the LF trim to about 200Hz

) Min results in a frequency of about 1 cycle over 4 seconds.

sing a key on the MIDI keyboard, should not change the frequency, it should stay at about 200Hz when at Max.

BUILD Issues, Mods, etc

IDI Thru BOM Changes

ugh current (under 5mA) for some MIDI receiving devices to work properly when connected to the Expander MIDI (nt reduce R160 on the Card board, from a 220 OHM to a 51 Ohm resistor.

Expander MIDI-Thru circuit, R167 must be reduced from 200 Ohms to 47 ohms, and R166 must be reduced from 22

2.

gital noise being created by the Schmitt Trigger IC35 and its close proximity to both the external analog signal suppl C33 on the Card board. This is purely a use case matter and your tolerance level or acceptability level of what 'Noise re to do this, everything will work and generally analog after effects equipment is typically filled with noise when ga naximums.

hear the noise is to unplug all inputs, leave the output jack into the mixer/amp and crank the gain up. Then play a r gnal. Bear in mind, this unit has a lot of inherent noise in the effects when everything is near maximums. Turning or rly nasty "Thump", so standard mixer/Amp practice applies.

ediation (Card Board):

I solder joints, ensure lead cutoffs are short in the area. Test for noise levels, if they are still not tolerable proceed t

pin 11 to pin 12 on IC35 (SN74hc14). This typically should eliminate 50% of the noise. Test for noise levels, if they ar proceed to steps 3 and 4

resistors R153 & R157 and connect shielded cable(s) as shown below.

udio trace that runs from R157 to pin 2 of IC33 as close to IC33-pin2 as possible

