PORTABELLABZ

<div align="center">

The PanADSR Card

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Hi

Thank you very much and congrats for purchasing the PanADSR Card.
You'll definitely enjoy how it expands your Synthi.

Have fun !
C.

Looping VC ADSR envelope generator
Based on the AS3310 chip http://www.alfarzpp.lv/eng/sc/AS3310.pdf
Delay : time delays the begin of the ADSR cycle by 0 to 10S after a gate signal is applied to the keyboard Jones socket or the gate in minijack.
      length sets the pulse length.
      the mini slide switch on the left side selects 2S (bottom) or 10S (top) maximum delay time.
      the LED monitors the pulse.
Attack : 2mS to 20S
Decay : 2mS to 20S
Sustain : 0 to 100 %
Release : 2mS to 20S
Off : time delays the self-retriggering of the ADSR after the end of cycle by up 0 to 10S for the loop mode (see below).
      length sets the retrigger pulse length.
      the LED monitors the pulse and also lights up when the loop mode is not enabled.

The hole to the left of each pot is a banana socket CV input.
Each time of the ADSR can be voltage controlled from the matrix.
Attack, decay, sustain and release times react to positive, negative and bipolar CV.
Delay and off times react to positive CV only and if the time pot is set to 0 CV has no effect. It's safe to patch bipolar or negative CV but it has no effect.

Keyboard Jones socket
For EMS controller (KS, TKS, DK1, DK2, Cricklewood…), Portabellabz CV/Gate Card, Digitana interface or Jones/minijack cable.

Pan
Set the switch to its pan bottom position to distribute the ADSR or the signal patched to the meter column / gate input banana socket alternately between channels 1 and 2.
Adjust the channel 2 zero with the adjust pot.
Select the pan controller with the mini slide switch located on the top side next to the minijack socket : either the ADSR (right) or the signal patched to the meter column / gate input banana socket (left).

Ch.1 – Ch.2 switches
Adjust the polarity of the ADSR signal routed to the Synthi's input channels and to the patchable outputs (see below). These switches have no effect when the pan function is enabled.
Top : normal signal
Center : mute
Bottom : inverted polarity signal
The LED monitors the ADSR signal

ADSR / keyboard switches
Route either the ADSR or keyboard Jones socket to the Synthi's ch.1, ch.2 and gate inputs.
Top : ADSR signal
Center : mute
Bottom : keyboard signal
When the ADSR is used as a gate signal to fire the Synthi envelope, the on may be infinite when set to a certain point, in this case, keep the Synthi on pot setting below this point and adjust the on time with the ADSR delay or off length pot if needed.

Gate switches

Meter / keyboard : fires the ADSR either from the meter column, banana socket and Synthi's scope jack socket (top) or keyboard (bottom), central position is off.

The meter column input can be disabled when the meter column is used for other purpose by setting to bottom position the mini slide switch located on the left side above the delay's one.

Banana socket : patch with a 2mm banana – pin cable to fire the ADSR from the matrix when the meter / keyboard switch is in its top position.

Gate / trigger switch : sets the ADSR's sustained or transient response to the gate signals.

Loop / one switch : enables the looping mode (top) and fires the ADSR manually (bottom – momentary), central position stops the looping. To start the ADSR looping without external signal, switch to bottom and then immediately to top.

Ch.1 and ch.2 pots

Patchable outputs to the matrix.

Patch with a 2mm banana – pin cable to a red socket route the ADSR signal via the matrix.

Adjust the amplitude and polarity with the attenuverter pot.

The ch.1 and ch.2 switches also control the ADSR polarity on these outputs (see above).

Set the switch to its pan bottom position to pan the ADSR or the signal patched to the meter column / gate input banana socket between channels 1 and 2.

2mm banana – pin cables

The optional supplied cables are 33cm red to patch the patchable outputs to the matrix (red sockets) and 45cm black to patch signals from the matrix to the CV or gate inputs (black sockets).

Plug in the bananas gently into the sockets, it is not necessary to push them deep.

To build your own cables : the to matrix signals are on the pin's tip, the from matrix signals are on the pin's sleeve in Synthi A and AKS, opposite in VCS3.

2mm banana sockets

The sockets can host a banana cable on their top, side and bottom.

The black sockets are inputs intended to accept one signal at a time only. It's safe to stack several cables to these but signals summing won't be achieved properly and the result won't be the expected one, though it may be interesting.

Do **NOT** patch external signals to the black sockets, these inputs are designed to accept the Synthi's own internal signals only, whose amplitude is much lower than in other synths and controllers.

The red sockets are outputs. Several cables can be stacked to these in order to route the signal to different patch points of the matrix.

Gate in mini jack socket

Patch external signal between +2.4V and +12V here to fire the ADSR.

Handle support

Lock the Spartanite case's handle to the back of the card for better stability.

Of Synthi and CV polarity

The Synthi's input channels are inverting amplifiers, a positive CV routed via them is inverted and becomes a negative CV, the ADSR signal routed via the input channels and the ones patched directly to the matrix have thus opposite polarity, this is normal behaviour,

The Synthi's oscillators and filter track negative : a positive CV applied directly via the matrix drops their frequency but they track positive when controlled via the input channels.

The Synthi's output VCA's track positive, so to control these with the ADSR via the input channels, the ADSR polarity should be negative.

The pan circuit inverts the polarity on both channels and inverts the phase on channel 2 so that when it rises on one channel, it descends on the other.

Warning and disclaimer

The PanADSR card's power consumption exceeds the maximum that a MK1 PSU can handle. Do **NOT** use the card with a factory condition MK1 unit.

An extra PSU can be added to MK1 units to power a KS / TKS keyboard and the Portabellabz expansion cards, the upgrade is detailed in http://www.portabellabz.be/images/sq1/MK1_PSU_upgrade.pdf