PORTABELLABZ

Onur’s Memory Output

Hi

Thank you very much and congrats on your purchase of the Onur’s Memory Output card.
You'll definitely enjoy how it expands your KS.

Have fun !
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This card was designed in collaboration with Onur Ozer, a great Synthi enthusiast who loves the KS and was looking for a neat solution to control his other synths with, either standalone or together with his Synthi.

Installation
The card plugs on the KS' male Jones socket with its female socket installed on the back.
A DC adapter is needed to power the card (not supplied). Any voltage between 9 and 36V is ok, the minimal power is 1.5A, the polarity is centre +, the plug size is 2.1/5.5mm (most 2.5/5.5mm should work too).
Use a good quality one, the noise of cheap ones might upset the KS’ proper operation.
The right side of card warms up because of the PSU, this is normal and safe.

Do NOT connect a Synthi A or VCS3 to the card via the umbilical cable if either is powered on. Always power off both before connecting.

Features

gate
Gate minijack output.
The length depends on how long the key is touched.
The LED monitors the gate.
The switch mutes the gate.
The signal amplitude can be set to +5V or +10V (details in the DIP switches section below).

trigger
Short trigger minijack output.
The length doesn't depend on how long the key is touched.
The LED monitors the trigger.
The switch mutes the trigger.
The signal amplitude can be set to +5V or +8V (details in the DIP switches section below).
The signal length can be set to 4ms or 8ms (details in the DIP switches section below).

realtime
Realtime 1V/oct CV minijack output.
Fine tuning is adjusted with the KS' "realtime pitch spread" thumbwheel.
The "porta" pot ads portamento.
The "trans" switch transposes the CV either up or down, each transpose interval is adjusted with own multiturn trimmer easily accessible through the panel hole.

sequence
Sequencer 1V/oct CV minijack output.
Fine tuning is adjusted with the KS' "sequence pitch spread" thumbwheel.
The "trim" pot scales the CV routed to the minijack to compensate for the tracking difference when the thumbwheel is set to control a Synthi A or VCS3.
The "porta" pot ads portamento.
The "trans" switch transposes the CV either up or down, each transpose interval is adjusted with own multiturn trimmer easily accessible through the panel hole.
The "realtime" enables transpose from the KS keyboard, the intervals are adjusted by the "realtime pitch spread", it may not be possible to get both the realtime CV output and transpose perfectly tuned together.

"clock - dyn" minijack
Either the KS' sequencer clock or dynamic CV output (details in the DIP switches section below).
The signal amplitude can be set to +5V, +10V or +12V (details in the DIP switches section below).

memory
Bargraph monitoring the KS sequencer memory, like the vu-meter on a Synthi A or VCS3.

male Jones socket
Connect your Synthi A or VCS3 here (details in the DIP switches section below).

on switch
Turns the card and KS on or off.

DIP switches
There are 3, each with 8 toggles.
The function is enabled when the toggle is set to its bottom "on" position.

1. G5 : +5V gate
2. T5 : +5V trigger
3. TLG : 8ms trigger
4. BAR : moving bar instead of a moving dot on the bargraph
5. DYN : routes the dynamic CV (if the KS modification is not done) to the minijack
6. CK : routes the sequencer clock (if the KS modification is done) to the minijack
7. C5 : +5V sequencer clock
8. C10 : +10V sequencer clock

1. 512 : divides the sequencer clock by 512
2. 256 : divides the sequencer clock by 256
3. 128 : divides the sequencer clock by 128
4. 64 : divides the sequencer clock by 64
5. 32 : divides the sequencer clock by 32
6. 16 : divides the sequencer clock by 16
7. 8 : divides the sequencer clock by 8
8. 4 : divides the sequencer clock by 4

1. 2 : divides the sequencer clock by 2
2. 1 : undivided sequencer clock
3. RTP : routes the processed (transpose and portamento) realtime CV to the Synthi A's or VCS3's input channel 1
4. RTN : routes the normal unprocessed realtime CV to the Synthi' A's or VCS3's input channel 1
5. SQP : routes the processed (transpose and portamento) sequencer CV to the Synthi A's or VCS3's input channel 2
6. DYN : routes de dynamic CV (if the KS modification is not done) to the Synthi A's or VCS3's input channel 2
7. GAT : connects the Synthi A's or VCS3's envelope to the card's gate minijack output (details in the Controlling a MK2 Synthi A or VCS3 and another synth together section below)
8. VU : monitors the memory on the Synthi A's or VCS3's vu-meter

Do NOT enable both DYN and CK on the first DIP switch together.
Enable only 1 clock division at a time on the second and third DIP switches.
Do NOT enable both RTP and RTN on the third DIP switch together.
Do NOT enable both SQP and DYN on the third DIP switch together.

Transpose mutiturn trimmers
Each "trans" switch has 2 multiturn trimmers accessible via the panel holes, they adjust the transpose intervals.
They are inverted vs the switch : the top one is for down transpose, the bottom one is for up transpose.
Use a small flat screw driver.

Trimmers
The 3 trimmers were adjusted but a slight tweaking may be needed to fit your own KS.

Zero RT transpose
1. Record a 1 note sequence and play it
2. Flip the realtime switch to top to enable the realtime transpose
3. Touch the leftmost key, if the note drifts, adjust the trimmer until no drift occurs when the switch is flipped

Bargraph gain
Adjust it to have the bargraph either completely off or only the first segment on when the record pad is touched.

Bargraph offset
Adjust it to have a full and smooth course on the bargraph.

Controlling a MK2 Synthi A or VCS3 and another synth together

Realtime CV tuning
1. Adjust the KS' realtime pitch spread thumbwheel to get the desired scaling via the card's minijack socket on the other synth first.
2. When done, patch a pin into matrix row 8 to the oscillator frequency and adjust the Synthi A's or VCS3's input level channel 1 pot to get the desired scaling.

Sequencer CV tuning
1. Patch a pin into matrix row 16 to the oscillator frequency and adjust the KS' sequencer pitch spread thumbwheel to get the desired scaling first.
2. When done, adjust the card's trim pot to get the desired scaling via the card's minijack socket on the other synth.

Gate
When the GAT toggle of the third DIP switch is set to its bottom position, the Synthi A's or VCS3's envelope settings interact with the card's gate output.
If the sustained/transient gate modification is installed on the Synthi A or VCS3 this interaction is bypassed in transient (short trigger) mode.

Routing the sequencer CV output to a MK1 Synthi A or VCS3
1. Enable the 3rd DIP switch's SQP toggle (bottom) and disable the DYN one (top) to route the processed sequence to the Synthi A's or VCS3's input channel 2.
2. Adjust the Synthi A's or VCS3's input level channel 2 pot to get the desired scaling.

Connecting the KS' sequencer clock output to the card
If you don't need this feature, you can ignore this modification.

A reversible and straightforward rewiring of the KS' Jones socket (can be done by any person with basic soldering skills) is required to route the sequencer clock to the socket's contact 6, which is either unused on late KS or used for the dynamic CV on early ones (this feature can be found on early KS only, the crystal mic used is fragile and often dead nowadays, anyway it never worked very well and proved not very useful, hence EMS quickly dropped it, not a big loss if replaced by the clock output).

1. Unscrew the 8 screws on the KS edge to remove the top case.
2. Unscrew the 3 screws in the middle of the PCB to remove the bottom case.
3. Desolder the short wire from the Jones socket's pin 6, either insulate it with heatshrink tube or remove it completely
4. Run a wire across the PCB between the Jones socket's pin 6 and E19 pin 14 (E19 is the 7413 IC located just above the sequence length thumbwheel)
5. Screw the bottom and top cases back in place.