

disting ex

travelers guide for navigating parallel worlds

26

single algorithms

2x

disting mk4 in dual

256

preset slots

[p] press [p] hold turn / push [v] 2x = double-click > then
[s] [z] = a dual half's mk4 knobs

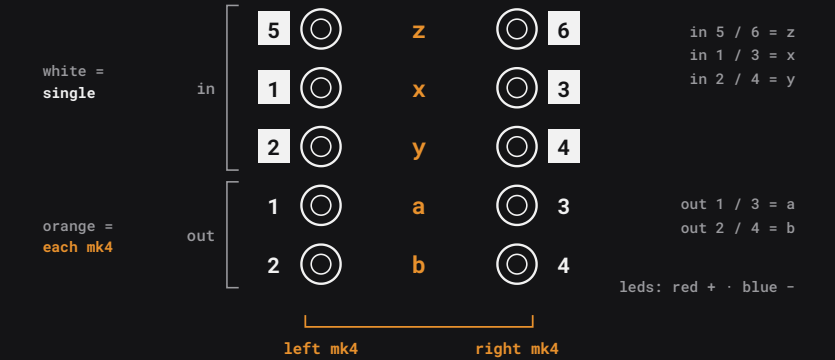
single = one algorithm owns the whole module · dual = two disting mk4s side by side

01	controls	dex_01
turn [p]	choose the parameter · in a menu: scroll	
turn [v]	change its value	
turn [r]	set the value directly (absolute pot) unless mapped	
[p]	open the menu · in a menu: choose / go down	
[v]	confirm a PUSH V change · in a menu: up a level	
[v]	key of input + knob jobs · turn while held = outputs	
[v] 2x	visuals view (algorithms that have one)	
[r]	reset the current parameter to default	
[1]	next preset for this algorithm (settings > buttons → preset)	
turn / push [1]	whatever the algorithm or mapping gives it	
[p] splash	skip the startup / auto-saved preset	

02	menus	dex_02
[p] single	open the main menu	
[p]+[v] dual	open the main menu (together)	
turn [p]	scroll items	
[p]	choose · enter a submenu	
[v]	back up one level	
[v]	leave the menu	
top level	misc · algorithms · presets · mappings · settings	
alg. menu	extra items per algorithm: files, settings, calibration	

_fig.01 : one panel, two maps

dex_f1



design homage to the house of x / powers of x data pages – designed by tom muller with jonathan hickman · colours from the expert sleepers disting ex panel
not affiliated with expert sleepers or marvel

03	single mode	dex_03
screen	line 1 algorithm · 2 parameter · 3 value	
base value	set by [v] / [r] · saved in the preset	
effective	base + cv · what the algorithm uses	
PUSH V	slow changes wait for a push of [v]	
params 1–6	input attenuverters · –200 to 200 %	
offsets	presets > input offsets · [r] = next volt	
help	algorithms > help · manual on screen	
visuals	[v] 2x · auto visuals in the algorithm menu	
zoom	settings > general > display zoom · big name / value	
pots	independent of the jacks	

04	dual mode	dex_04
halves	left [p] [1] · right [v] [r]	
turn s	change the parameter value	
[s] + turn	choose the parameter	
[s] 1 s	help for that algorithm · release = gone	
[z]	its job is set in options > z function	
knob rec	hold [z] + turn = record · release = loop · nudge = stop	
[p]+[v]	main menu · dual presets · settings	
z jack	pot + jack summed · 96 khz	

07	the card	dex_07
format	fat32 · mbr · 32 gb sdhc	
slot	push-push · contacts face the display	
speed	misc > tests · want ≥ 1.8 mb/s	
streaming	wav playback needs a fast card · the supplied one is for firmware + wavetables	
good to know	help is in the firmware, no card needed · auto-save pauses while the card streams	
extras	expert-sleepers.co.uk · samples, wavetables, presets	
firmware	.hex on the root · power on holding [p] · [v] picks + installs	

05	switching worlds	dex_05
single	algorithms > choose single > 1–26 · resets preset + mapping	
to dual	algorithms > enter dual mode	
to single	[p]+[v] > algorithms > choose single	
per half	[s] > algorithm > turn to a-1... p-8 > [s]	
favourites	o-1... p-8 point at any a-1... n-8 · settings > favourites	

single algorithms in depth on sheet 02 · the atlas

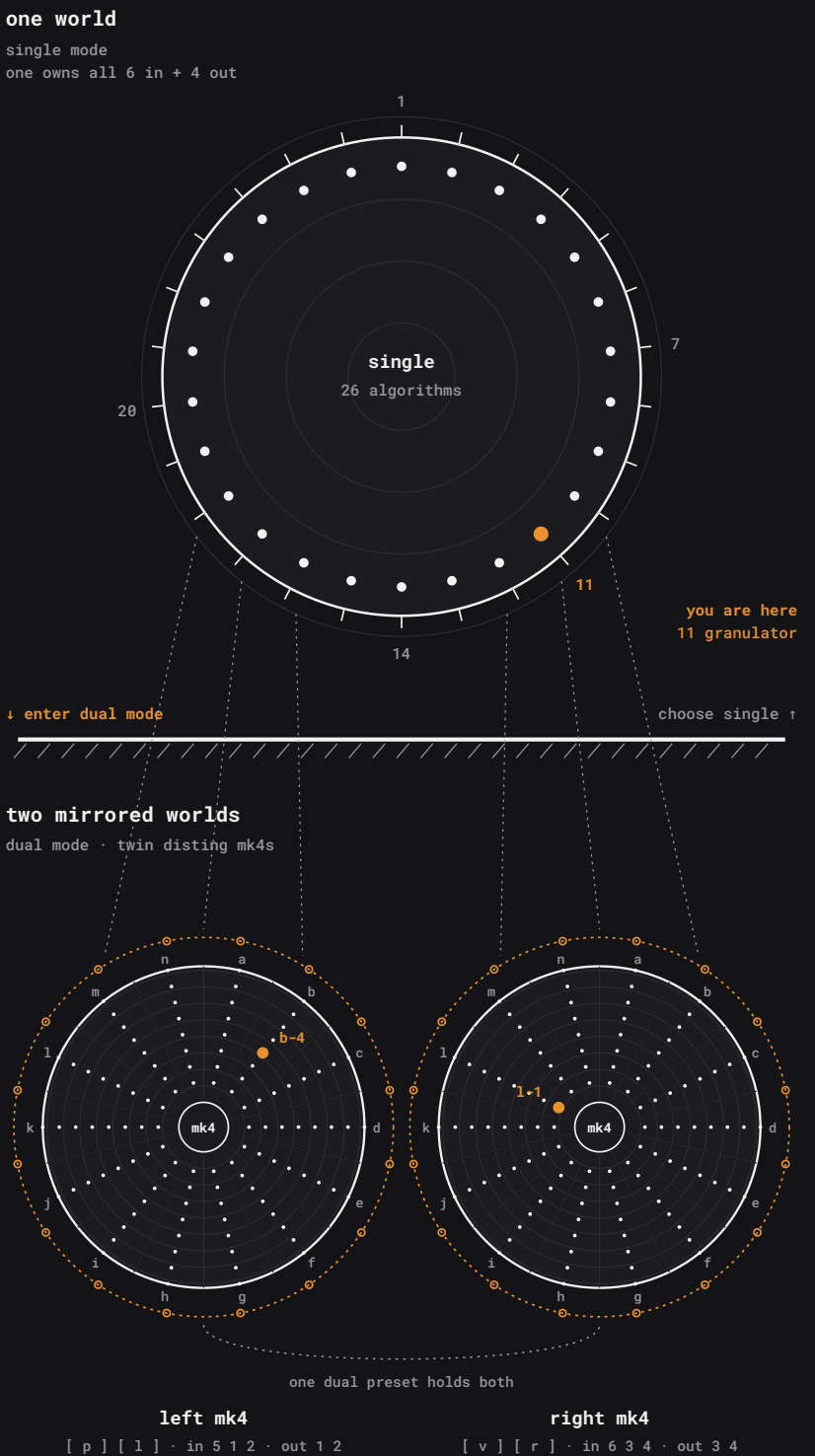
01 matrix mixer	02 augustus loop
03 sd multisample	04 sd 6 triggers
05 wav recorder	06 multi-switch
07 looper	08 dream machine
09 filter bank	10 poly wavetable
11 granulator	12 multi fx
13 poly exciter	14 quad envelope
15 convolver	16 chord engine
17 microtuner	18 tracker
19 macro oscillator	20 resonator
21 macro oscillator 2	22 midi player
23 poly fm	24 spectral freeze
25 quad quantizer	26 quadraphonic mixer

06	presets · mappings	dex_06
presets	load · save · name · erase · 256 slots	
sd card	load from / save to sd · bulk: all, folders, dual	
dual	main menu saves both halves as one named dual preset	
auto-save	settings > startup preset –1 · 10 s after a change	
mappings	cv · knob · button · midi · i2c · 64 slots · kept apart from presets	
cv map	[p] moves the cursor: param · input · bi / uni · norm / gate · scale	
link	presets > set preset mapping	

08	expanders · midi	dex_08
es-5	gt3 header · red stripe down · more gate / cv outs	
fhx-8gt / cv	gt2 header · eight more gates or cvs	
midi	gt4 breakout · 5-pin din in + out · sysex control	
i2c	jp2 · e.g. 16n faderbank · midi → i2c in settings	
jp1	system cv bus = pitch cv or select bus · gate bus always on	

_fig.02 : the mirror

dex_f2



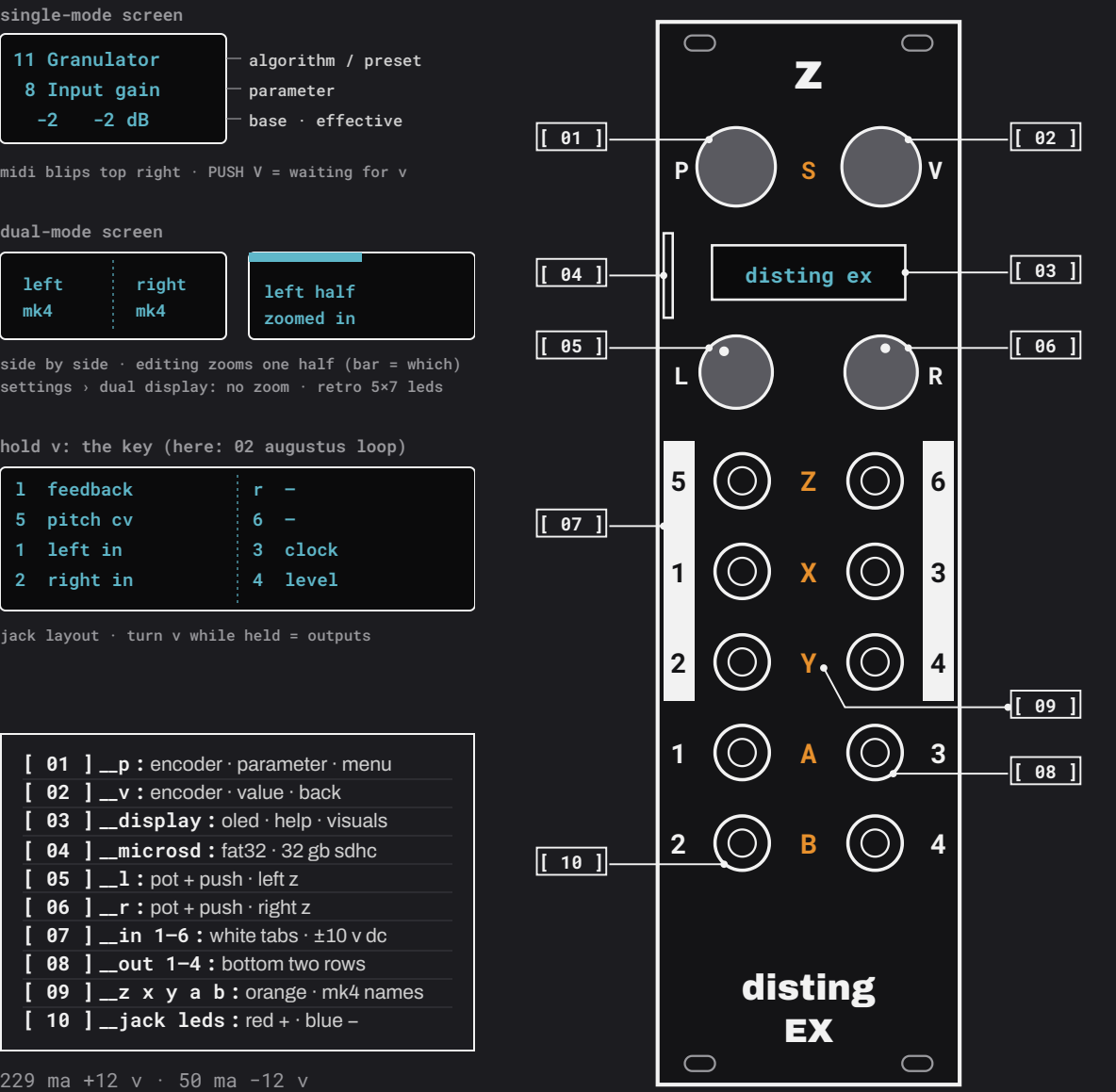
each twin: 14 letters around (a–n) × 8 rings out (1–8)
= a–1... n–8 · 112 slots, j–7 empty on the ex
orange ring = 16 favourites o–1... p–8, each points at any slot
power on returns you to whichever side the startup preset saved

↓ [p] > algorithms > enter dual mode
↑ [p]+[v] > algorithms > choose single
· each half: [s] > algorithm · a–1... p–8

one world above the glass · its two reflections below

_fig.03 : front panel

8 hp · 6 in · 4 out



_where things hide

main menu · dex_09

algorithms

- choose single 1–26
- enter dual mode two mk4 halves
- help this algorithm's manual page

presets

- load · save 256 slots
- name · reset · erase
- input offsets per-input volts
- load / save sd files or folders
- bulk operations all · folders · dual
- set preset mapping auto-load a mapping

misc

- firmware · reboot
- midi / i2c history stats
- tests test sd speed (≥ 1.8 mb/s)

mappings

- cv · knob · button first 64 params
- midi · i2c every param · midi also in dual
- load · save · name 64 slots
- sd card one or all

settings

- general contrast · startup preset · display zoom · buttons → preset
- dual display standard · no zoom · retro (5x7 leds)
- midi / i2c channels · midi → i2c
- favourites o–1... p–8
- calibration · reset factory-calibrated

the atlas

_travelers guide _every parallel world, mapped

26

single worlds

111

dual worlds · a-1 ... n-8

16

favourites slots

[p] press [p] hold turn / push [v] 2× = double-click > then

[s] [z] = a dual half's mk4 knobs

jacks: in / out numbers are single mode · default = what the module maps when you choose it

02 / 02 · the atlas

orange = hold

01 matrix mixer

cv · mixer

a 6-in, 4-out mixer built for cv (audio is fine too). static mixes, cv-mapped moving mixes, or cv generation: automate the input and output offsets and it becomes four macro cvs for the rest of the patch. outputs can be quantized.

jacks in 1-6 mix inputs · out 1-4 mix outputs

default no default mappings

02 augustus loop

audio · delay

expert sleepers' tape delay plug-in, stereo, up to ~44 s, with four read heads for stereo, ping-pong or multi-tap, time by hand, tap or clock; tape speed by cv at 1 v/oct, stop and reverse; an effects loop sits inside the delay.

jacks in 1 l · 2 r · 3 clock · 4 level · 5 speed cv · out 1/2 dry + delay · 3/4 delay only

default [1] feedback · [1] push = tap tempo

03 sd multisample

sampler · poly

eight-voice, three-part multitimbral wav instrument from the card. up to three cv/gate pairs (gate voltage = velocity, 5 v max) or midi / i2c. velocity layers, round robins, chords + arps, eq, delay, scala / mts tuning.

jacks in pitch / gate pairs 1-3 · out stereo · mono mix

default in 3 → sustain

04 sd 6 triggers

sampler · drums

six drum voices from the card, each with its own trigger and sample folder: a far more capable i-8. velocity-sensitive triggers, velocity layers and round robins per sample. also played by midi / i2c; an es-5 adds more outputs.

jacks in 1-6 trigger voices 1-6 · out assignable

default no default mappings

05 wav recorder

utility · sd

records up to six channels of audio or cv to !RECORD/REC00001.WAV... at 48 / 96 khz, 16 / 24-bit, and plays back the last take. an auto-sampler captures multisampled instruments by itself.

jacks in 1 l · 2 r · 3-6 extra channels · 5 rec cv · 6 play cv · out 1/2 · 3/4 pairs

default [1] push = record · [r] push = play · turn ccw = locked

06 multi-switch

utility · routing

six dc-coupled switches, sequential or voltage-controlled. each picks one of six inputs and sends it to one of four outputs; shared outputs sum. crossfades from click-free to long blends.

jacks in switch sources or control cvs · out switch targets

default [1] macro 1 · [1] push = macro 2

07 looper

audio · looper

four loopers run like a two-button stomp box: record / overdub / clear and play / pause / mute act on the target loop. 8 / 16 / 32-bit, mono or stereo (~21 s each at 16-bit mono). fades, clock sync, reverse, half speed.

jacks in + out assignable per loop · monitor mix

default [1] push = record · [r] push = play

08 dream machine

voice · drone

la monte young drones: a fundamental plus four tones tuned by prime ratios, wavetable voices (or a pure sine / triangle / square root), a gate per tone and a reverb. made to be played by hand.

jacks in 5 wave cv · out stereo · fundamental · its envelope

default [1] wave offset

09 filter bank

audio · filter

eight parallel stereo filters in resonator, bandpass or multiband mode. levels by hand, cv, gate envelopes or an octature lfo; pitch by hand, cv or midi, so the resonators play chords.

jacks in stereo · optional cv + gate · out stereo · odd sum · even sum

default no default mappings

10 poly wavetable

voice · poly synth

a full eight-voice wavetable synth: two envelopes, a filter and an lfo per voice, delay and chorus. cv/gate (velocity gates) or midi, chords + arps, stereo, mono or one output per voice, scala / mts.

jacks in 2 pitch · 4 gate · 3 sustain · 5 wave · 6 filter · out stereo · mono mix

default [1] wave offset

11 granulator

audio · granular

grains from live input or the card: record a ~31 s buffer or stream it. notes (cv/gate, midi, i2c) spawn grain clouds; three drone voices turn it into an effect. size, pitch, pan and spawn can all be randomised.

jacks in 5 l · 6 r · 1 delay mean · 3 record · 2 pitch · 4 gate · out 1/2 mix · 3/4 grains

default [1] delay mean · [1] push = record

12 multi fx

audio · fx

stereo eq, pitch, delay and reverb at once, in series or parallel (feedback is possible), plus a variable sample rate under cv for lo-fi and pitch tricks.

jacks in 1 l · 2 r · 3 vsr · 4 pitch shift · 5 reverb time · out mix · aux

default in 5 → reverb time

13 poly exciter

voice · plucked

an eight-voice plucked / struck synth: a short burst (built-in, wav from the card or live input) rings a resonator. strum mode with aftertouch, delay + chorus, chords and arps, scala / mts.

jacks in 5 tone · 6 damp · 1 pressure · 3 sustain · 2 pitch · 4 gate · out stereo · mono

default inputs mapped as listed

14 quad envelope

cv · envelopes

four dahdsr envelopes with optional dc-coupled vcas, gated, one-shot or looping, synced to clock or midi. shapes are separate from generators, so four envelopes can share one shape.

jacks in gates / triggers + clock · out 4 envelopes (or vca'd signals)

default [1] push = trigger the current envelope

15 convolver

audio · reverb

real-time convolution with an impulse from the card or recorded live: realistic rooms, or any two sounds smeared together. mono, mono-to-stereo or stereo trade against impulse length. record your own impulses ([1] push or the trigger), save them to impulses/, and live update re-convolves as you edit.

jacks in 1 l · 2 r · 3 / 4 rec 1 r · rec trigger · out 1 / 2 · 3 / 4 impulse

default [1] push = generate impulse

16 chord engine

cv · harmony

one pitch cv in, four harmonised pitch cvs out, in shape or satb voice-leading mode with root by cv or midi. also a poly voice distributor and arpeggiator; scala / mts and built-in vco calibration. satb = soprano / alto / tenor / bass, with the cantus firmus choosing which voice follows the input; adds a melodic minor scale and can send the chord out as midi.

jacks in 2 pitch · 4 gate · 1 root cv · 3 root gate · 6 chord gate · 5 cal · out 1-4 pitch

default no default mappings

17 microtuner

utility · tuner

a tuner for up to four signals at once, in 12-tet or any scala / mts scale. double-click [v] for the tuning display, which adapts to one, two or four inputs; auto visuals (algorithm menu) brings it up when idle.

jacks in 4 audio · out thru or fixed volts

default no default mappings

18 tracker

cv · pitch follow

follows the pitch and envelope of incoming audio and turns them into cvs, a harmonised chord of cvs, or pitch-shifted copies of the input. shape, satb or midi harmony; scala / mts. calibration: patch each vco into input 5 and run it from the algorithm menu.

jacks in audio · root cv · 5 cal · out envelope · pitch cv · mix 1 / r

default no default mappings

19 macro oscillator

voice · braids

four independent braids (mutable instruments) with their own outputs, identical at 96 khz. any input can drive any instance; over midi / i2c they play as a four-voice poly synth. the algorithm menu holds the per-instance settings (inputs, flatten, drift, signature, midi option, shared settings); no meta mode needed, just map a cv to the model.

jacks in 2 pitch · 3 fm · 4 trigger · 5 timbre · 6 colour · out 1-4 one each

default set in the algorithm menu

20 resonator

voice · rings

mutable instruments rings with a stereo mix of the odd, even and dry signals. played by cv/gate, midi or i2c; set an input parameter to 0 and it strums or excites itself, like an unpatched jack on the original. midi / i2c modes: pitch, strum, or both. out 1/2 stereo mix · 3 resonator mix · 4 mono.

jacks in audio · brightness · damping · structure · position · out 1 / r · res · mono

default no default mappings

21 macro oscillator 2

voice · plaits

four independent plaits (v1.2 code) with free input assignment. midi / i2c gives round-robin polyphony; with no trigger input set, the envelope is skipped and it drones, as on the original. fm banks: dx7 sysex in FMSYX/ loads into the six-operator model.

jacks in pitch cvs 1-4 + assignable · out 1-4 one per instance

default set in the algorithm menu

22 midi player

cv · sequencer

plays .mid files from the card to the midi breakout and to cv / gates, on its own clock, analogue clock or midi clock. four pitched converters + a drum converter, more gates with an es-5; _ONESHOT files don't loop. per-track mute, file restart modes, reset input as reset or run / stop, clock read as 24 ppqn or note values.

jacks in 1 clock · 2 reset · 6 play · 5 cal · out 1 / 3 pitch · 2 / 4 gate

default in 6 → play

23 poly fm

voice · fm

eight-voice, four-part multitimbral six-operator fm (the plaits engine), loads dx7 voice banks from the card and works with dx7 editor / librarian apps. each timbre has its own bank, voice, output, gain / pan, brightness and envelope scale; timbres follow the gate inputs or adjacent midi channels. voice banks live in FMSYX/ on the card.

jacks in pitch / gate pairs · 3 sustain · out 1-4

default in 3 → sustain

24 spectral freeze

audio · freeze

captures the spectrum of a moment (fft) and holds it forever, then replays it at any speed or pitch. four freeze voices mix to stereo with delay and reverb; etherization strips it to pure tones. double-click [1] to grab a new moment and crossfade to it.

jacks in 1 audio · 2 freeze gate · 5 6 3 4 voice 1-4 · out 1/2 mix · 3/4 dry

default [1] freeze target · [1] push = freeze toggle

25 quad quantizer

cv · quantizer

four quantizers, independent or sharing a scale: nearest, warped or mapped modes, transpose and shift, key + scale masks, scala / mts, gate-sampled or free, and vco calibration. each cv goes: sample › transpose in › lookup scale › shift › output scale › transpose out › calibration. quantized notes can go out as midi; key + scale masks drop notes from the keyboard map.

jacks in 1-4 pitch cvs · 5 cal · out 1-4 quantized

default no default mappings

26 quadraphonic mixer

audio · quad

six inputs placed around a four-speaker field by x / y or angle / radius, with spinners that circle sources round the listener. cv, midi or i2c positioning; with a cvm-8 all six sources can move at once.

jacks in 1-4 audio · 5 x / angle 1 · 6 y / radius 1 · out 1 fl · 2 fr · 3 rl · 4 rr

default in 5 / 6 → input 1 position

_the dual worlds

a-1 ... n-8 · mk4 v4.28 · dex-a2

each half of dual mode runs one of these, exactly as a distinguishing mk4 would (see the mk4 manual for each). * = different on the ex · + = better specs on the ex (96 khz, longer delays, 24-bit wavs, 1000-file wavetables)

a a-1 precision adder a-2 four quadrant multiplier a-3 full-wave rectifier a-4 minimum / maximum
a-5 linear / exponential converter a-6 quantizer a-7 comparator a-8 dual waveshaper

b b-1 sample and hold b-2 slew rate limiter b-3 pitch + envelope tracker b-4 clockable delay / echo⁺
b-5 lfo b-6 clockable lfo b-7 vco with linear fm b-8 vco with waveshaping

c c-1 counter c-2 voltage controlled delay line c-3 ping pong delay (z feedback)⁺
c-4 ping pong delay (z input pan)⁺ c-5 resonator c-6 vocoder c-7 phaser c-8 bit crusher⁺

d d-1 dj filter d-2 tape delay⁺ d-3 waveform animator⁺ d-4 state variable filter d-5 lp / hp filter
d-6 lp / bp filter d-7 bp / hp filter d-8 bp / notch filter

e e-1 ar envelope e-2 ar envelope + vca e-3 dual ar envelope e-4 stereo compressor
e-5 side-chain compressor e-6 mono compressor e-7 euro → buchla e-8 buchla → euro

f f-1 ad envelope (mute) f-2 ad envelope (gate) f-3 ad envelope (trigger) f-4 ad envelope + vca
f-5 shift register random cvs f-6 shift reg. quantized cvs f-7 shift reg. random triggers
f-8 shift reg. dual triggers

g g-1 es-1 emulation g-2 es-2 emulation g-3 pitch reference g-4 frequency reference g-5 tuner⁺
g-6 clock g-7 midi / cv⁺ g-8 cv / midi

h h-1 crossfade / pan h-2 **dual sample and hold*** h-3 dual quantizer (z scale) h-4 dual quantizer
h-5 dual euclidean patterns h-6 dual delayed pulse gen. h-7 noise h-8 quantizer 2

i i-1 audio playback⁺ i-2 clocked audio playback⁺ i-3 playback with v/oct⁺ i-4 playback with z speed⁺
i-5 playback with reverse⁺ i-6 playback with scrub⁺ i-7 dual audio playback⁺
i-8 dual playback, z speed⁺

j j-1 midi file (clocked)⁺ j-2 multisample 2 playback⁺ j-3 midi file (free running)⁺
j-4 playback with end cv⁺ j-5 **oscilloscope*** j-6 multisample playback⁺ j-7 — (not on ex)
j-8 playback with crossfade⁺

k k-1 wavetable vco⁺ k-2 clockable wavetable lfo⁺ k-3 wavetable waveshaper⁺
k-4 clockable wavetable env⁺ k-5 programmable quantizer⁺ k-6 **24 db/oct vcf*** k-7 **delay stereo***
k-8 **delay stereo clk***

l l-1 stereo reverb⁺ l-2 mono-to-stereo reverb⁺ l-3 dual reverb⁺ l-4 dual vowel filter
l-5 stereo chorus l-6 mono chorus l-7 mixer l-8 gate

m m-1 delayed lfo m-2 scaled lfo m-3 logic m-4 half-wave rectifier m-5 stereo filter m-6 stereo tape delay⁺
m-7 granular pitch shifter⁺ m-8 chaos

n n-1 switch n-2 rotary n-3 attenuverter / offset n-4 low pass gate n-5 pulsar vco⁺ n-6 phase shifter
n-7 **frequency shifter*** n-8 **dual vco***

what changed vs the distinguishing mk4

- **h-2** sample / track and hold, x/y or z as input, noise + slew
- **j-5** two-channel oscilloscope (replaces audio recorder)
- **k-6** 24 db/oct transistor-ladder lowpass, self-oscillates
- **k-7** · **k-8** stereo delays in ram, 10.9 s (replace the sd delays)
- **n-7** stereo frequency shifter or ssb modulator, feedback + delay
- **n-8** dual wavetable vco, z = table position
- **gone** j-5/j-7 recorders → use 05 wav recorder · k-6-k-8, n-8 sd delays → ram versions

o-1 ... p-8 = 16 favourites slots, each pointing at any a-1 ... n-8 (settings › favourites)