

Bank I-a

I-a Precision Adder Has knob recorder Parameters 0: Z smooth or integers	I-b Four Quadrant Multiplier Has knob recorder Parameters 0: Z smooth or integers	I-c Full-wave Rectifier	I-d Minimum Maximum
Z Offset	Z Scale	Z Mode ●	Z Gate
X Input	X Input	X Input	X Input
Y Input	Y Input	Y Input	Y Input
A $X + Y + Z$	A $X * Y * Z$	A $\begin{matrix} \text{abs}(X + Y) \\ \text{abs}(X) \end{matrix}$	A $\min(X, Y)$
B $X - Y - Z$	B $-X * Y * Z$	B $\begin{matrix} \text{abs}(X - Y) \\ \text{abs}(Y) \end{matrix}$	B $\max(X, Y)$
2-a Linear/ Exponential Converter	2-b Quantizer Parameters 0: Attenuation X 1: Transpose mode 2: Key	2-c Comparator	2-d Dual Waveshaper Has knob recorder
Z Tune	Z Scale & Mode ●	Z Hysteresis	Z Gain
X Exp In	X Input	X Input	X Input
Y Linear In	Y Transpose Trigger In	Y Input	Y Input
A Linear Out	A Quantized	A $X > Y$	A Folded X
B Exp Out	B Trigger	B $X < Y$	B Shaped Y

Bank I-a

3-a Sample and Hold Press Z to trigger	3-b Slew Rate Limiter	3-c Pitch & Envelope Tracker	3-d Clockable Delay/Echo Has tap tempo
Z Slew rate	Z Slew rate	Z Slew rate	Z Feedback
X Input	X Input } summed	X Audio In	X Audio In
Y Trigger	Y Input	Y Offset A	Y Clock
A Sampled X	A Linear slew	A V/Octave	A Dry+delay
B Noise	B Log slew	B Envelope	B Delay only
4-a LFO 0: Attenuation A 1: Attenuation B 2: Offset A 3: Offset B	4-b Clockable LFO Has tap tempo Parameters 0: Attenuation A & B	4-c VCO with Linear FM Parameters 0: Octave shift 1: Attenuation A 2: Attenuation B	4-d VCO with waveshaping 0: Octave shift 1: Attenuation A 2: Attenuation B 3: Y offset
Z Tune	Z Multiplier	Z Tune	Z Tune
X Hz/V In	X Clock	X V/Octave	X V/Octave
Y Waveshape	Y Waveshape	Y Linear FM	Y Waveshape
A Saw/Sin/Tri	A Saw/Sin/Tri	A Sine	A Saw/Tri/Saw
B Square	B Square	B Saw	B Square

Bank I-b

1-a Precision Adder Has knob recorder Parameters 0: Z divisor	1-b Voltage Controlled Delay Line Parameters 0: Y offset	1-c Clockable Ping Pong Has tap tempo Parameters 0: Output Mode	1-d Clockable Ping Pong Has tap tempo Parameters 0: Feedback
Z Offset	Z Feedback	Z Feedback	Z Input Pan
X Input	X Audio In	X Audio In	X Audio In
Y Input	Y Delay Time	Y Clock	Y Clock
A $X + Y + Z$	A Delay only	A Left	A Left
B $X - Y - Z$	B Dry+delay	B Right	B Right
2-a Resonator Push Z for 'strike' Parameters 0: Y offset	2-b Vocoder Parameters 0: Filter bank	2-c Phaser Parameters 0: Y offset 1: Number of stages	2-d Bit Crusher Parameters 0: Y offset 1: Reduction mode 2: Mangling mode
Z Gain	Z Decay	Z Feedback	Z Bit depth
X Audio In	X Modulator	X Audio In	X Input
Y V/Octave	Y Carrier	Y Sweep	Y Sample rate
A Audio Out	A Audio Out	A Dry+phase	A Output
B Envelope	B Envelope	B Phase only	B Comparator

Bank I-b

<p>3-a</p>	<p>3-b Tape Delay</p> <p>Parameters 0: Tape length</p> <p>Z Feedback</p> <p>X Audio In</p> <p>Y Tape speed</p> <p>A Dry+delay</p> <p>B Delay only</p>	<p>3-c</p>	<p>3-d State Variable Filter</p> <p>Parameters 0: Filter resonance</p> <p>Z Filter Type</p> <p>X Audio In</p> <p>Y V/Octave</p> <p>A LP/BP/HP</p> <p>B HP/BP/LP</p>
<p>4-a LP/HP Filter</p>	<p>4-b LP/BP Filter</p>	<p>4-c BP/HP Filter</p>	<p>4-d BP/Notch Filter</p>
<p>Z Resonance</p>	<p>Z Resonance</p>	<p>Z Resonance</p>	<p>Z Resonance</p>
<p>X Audio In</p>	<p>X Audio In</p>	<p>X Audio In</p>	<p>X Audio In</p>
<p>Y V/Octave</p>	<p>Y V/Octave</p>	<p>Y V/Octave</p>	<p>Y V/Octave</p>
<p>A Low pass</p>	<p>A Low pass</p>	<p>A Band pass</p>	<p>A Band pass</p>
<p>B High pass</p>	<p>B Band pass</p>	<p>B High pass</p>	<p>B Notch</p>

Bank I-c

I-a AR Envelope 0: Trigger Mode 1: Z Mode 2: Out A Attenuverter 3: Out B Attenuverter	I-b AR Envelope (w/ push) Press Z to trigger Parameters 0: Trigger Mode	I-c AR Envelope & VCA 0: Trigger Mode 1: Z Mode 2: Out A Attenuverter 3: Out B Attenuverter	I-d AR Envelope & VCA Press Z to trigger Parameters 0: Trigger Mode
Z Times	Z Times	Z Times	Z Times
X Trigger	X Trigger	X Trigger	X Trigger
Y Trigger	Y Trigger	Y VCA In	Y VCA In
A Env Out	A Env Out	A Env Out	A Env Out
B Env Out	B Env Out	B VCA Out	B VCA Out
2-a Dual AR Envelope 0: Trigger Mode 1: Z Mode 2: Out A Attenuverter 3: Out B Attenuverter	2-b Dual AR Envelope Press Z to trigger Parameters 0: Trigger Mode	2-c Euro to Buchla Converter Parameters 0: Octave shift	2-d Buchla to Euro Converter Parameters 0: Octave shift
Z Times	Z Times	Z Tune	Z Tune
X Trigger A	X Trigger A	X IV/Oct	X 1.2V/Oct
Y Trigger B	Y Trigger B	Y Gate	Y Gate/trigger
A Env Out A	A Env Out A	A 1.2V/Oct	A IV/Oct
B Env Out B	B Env Out B	B Gate/trigger	B Trigger

Bank I-c

3-a Clockable AD (mute) Has tap tempo Parameters 0: Output Attenuverter	3-b Clockable AD (gate) Has tap tempo Parameters 0: Output Attenuverter	3-c Clockable AD (trig) Has tap tempo Parameters 0: Output Attenuverter	3-d Clockable AD & VCA Has tap tempo Parameters 0: Output Attenuverter
Z Shape	Z Shape	Z Shape	Z Shape
X Clock	X Clock	X Clock	X Clock
Y Mute	Y Gate	Y Trigger	Y VCA In
A Env Out	A Env Out	A Env Out	A Env Out
B Env Out	B Env Out	B Env Out	B VCA Out
4-a Shift Register CVs 0: Direction 1: Length 2: Slew rate 3: Output attenuator	4-b Shift Register Quantized 0: Direction 1: Length 2: Scale 3: Output attenuator	4-c Shift Register Triggers Press Z to modify seq Parameters 0: Length	4-d Shift Register Dual Trigs Parameters 0: Length A 1: Length B
Z Randomness	Z Randomness	Z Randomness	Z Randomness
X Clock	X Clock	X Clock	X Clock
Y Modify	Y Modify	Y Modify	Y Modify
A Unipolar	A Quantized	A Trigger	A Trigger A
B Bipolar	B Trigger	B Inverse	B Trigger B

Bank I-d

I-a ES-1 Emulation	I-b ES-2 Emulation	I-c Pitch Reference Parameters 0: Semitone 1: Octave	I-d Frequency Reference
Z Trim	Z Trim	Z Amplitude	Z Amplitude
X Input 1	X Input 1	X	X
Y Input 2	Y Input 2	Y	Y
A Output 1	A Output 1	A Sine Out	A Sine Out
B Output 2	B Output 2	B Square Out	B Square Out
2-a Tuner	2-b	2-c	2-d
Z Amplitude			
X Input			
Y			
A Output			
B Sine Out			

Bank I-d

<p>3-a Crossfade/ Pan</p> <p>Has knob recorder Parameters 0: Crossfade/pan law</p> <p>Z Fade/pan</p> <p>X Input 1</p> <p>Y Input 2</p> <p>A Left Out</p> <p>B Right Out</p>	3-b	3-c	3-d
4-a	4-b	4-c	4-d

Bank 2-a

I-a Audio Playback	I-b Clocked Audio Playback	I-c Audio Playback V/Oct Parameters 0: Octave shift	I-d Audio Playback Z Speed Parameters 0: Sample selection
Z Select	Z Select	Z Select	Z Speed
X Retrigger	X Retrigger	X Retrigger	X Retrigger
Y Start Pos	Y Clock	Y V/Oct	Y Start Pos
A Left Out	A Left Out	A Left Out	A Left Out
B Right Out	B Right Out	B Right Out	B Right Out
3-a MIDI Playback (Clocked)	3-b	3-c MIDI Playback (Free) Parameters 0: MIDI File selection	3-d Audio Playback End CV Parameters 0: Sample selection
Z Select		Z Speed	Z Trigger /End Pos
X Clock		X V/Oct	X End Pos /Trigger
Y Retrigger		Y Retrigger	Y Start Pos
A CV Out		A CV Out	A Left Out
B Gate Out		B Gate Out	B Right Out

Expert Sleepers disting mk4 Quick Reference Guide

For firmware v4.0

X, Y and **Z** are **Inputs**.

A and **B** are **Outputs**.

Changing Algorithm

Either:

- Push 'S' and hold in while turning, or
- Use the menu:
 - Press 'S' twice
 - Turn to select algorithm
 - Press to accept

Changing Bank

- Press 'S' (to enter the menu)
- Turn to select 'Bank' (change bank)
- Press to accept
- Turn to select bank
- Press to accept

Parameters

Turn 'S' to modify the currently selected parameter.

Press 'Z' to cycle between parameters (if the current algorithm has more than one parameter).

Tap Tempo

If available – press 'Z'. The time between two presses defines the delay/LFO/etc. time.

Knob Recorder

If available – push 'Z' and hold in while turning. Release to begin playback. Turn 'Z' to stop playback and regain manual control.

Menus

Press 'Z' to cancel menu mode.