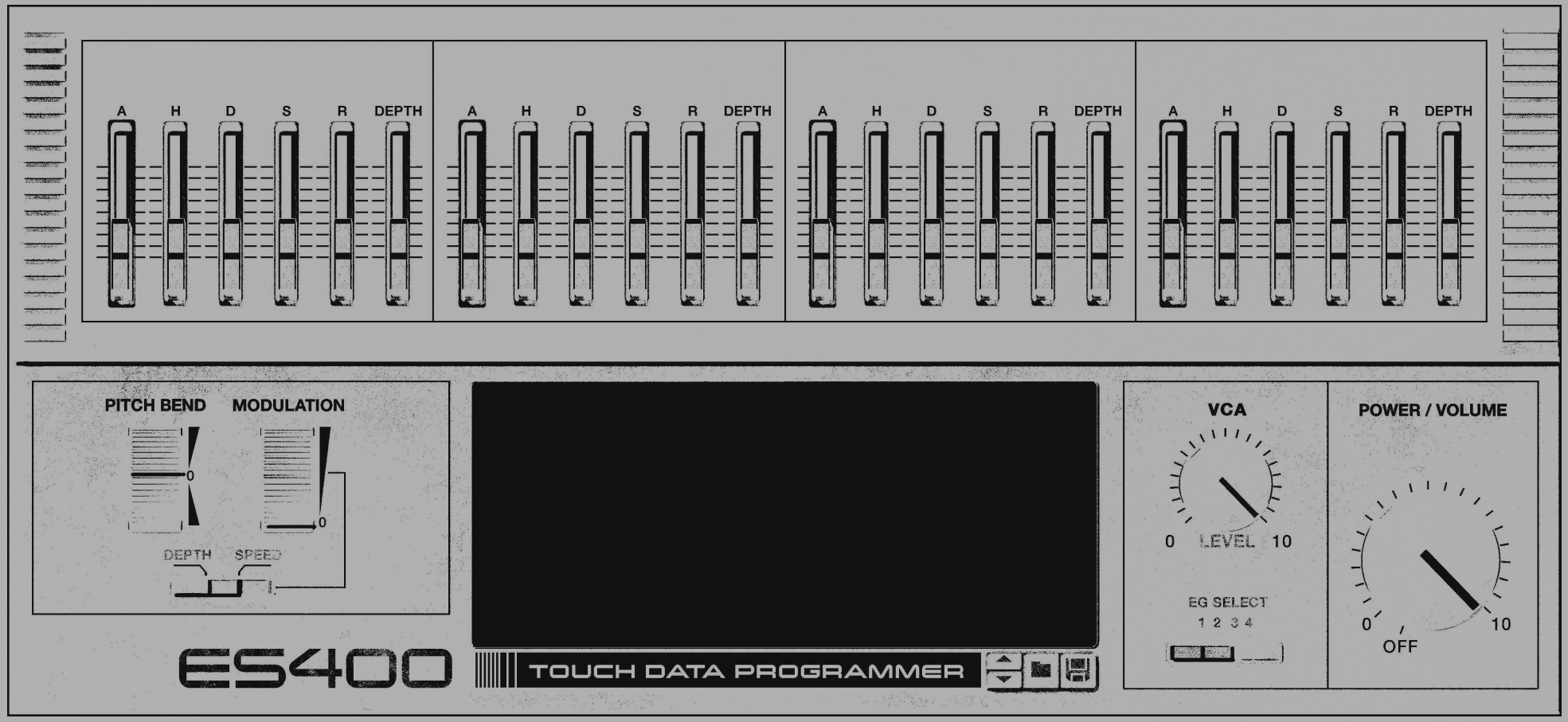
EKSSPERIMENTAL
SOUNDS STUDIO

ES400



USER GUIDE

INTRODUCTION

Thank you for choosing Ekssperimental Sounds ES400 FM Synthesizer.

The ES400 incorporates advanced synthesizer technology and features developed for the Reason rack environment with the added convenience and versatility of CV controll of parameters via input jacks on the back panel.

We urge you to read this user guide thoroughly in order to make the most of your ES400 FM Synthesizer.

DISPLAY - KEYS

VOICES
Switch between polyphonic or monophonic modes

GLIDE MODE
OFF/ON/AUTO
(Auto will engage Glide only when notes overlap)

GLIDE TIME
Time to reach the next note when Glide is active

S.PEDAL
Activate for use with sustain pedal

TRANSPOSE
Set the tuning with -/+ Octave, Semi notes or Fine (cents)

Vel.Sens
Velocity scaling of each OP level

Levl.Scl
This parameter makes it possible to gradually lower the OP depth as higher notes on the keyboard are played.

Rate.Scl
This parameter makes it possible to gradually shorten the overall envelope length (increase EG rates) as higher notes on the keyboard are played.

DISPLAY - OP1-4

Operator settings

RATIOS
Set the ratio by clicking and dragging on the wave form or the value below it.
The specific frequency ratios have been chosen as the most useful for voice programming.
OP 1 is fixed at “1.0”, a pitch of 440 Hz will be produced when the A3 key is pressed (unless Transposed function is used).
A ratio of 0.50 produces a pitch one octave lower, and a ratio of 2.00 produces a pitch one octave highe, and so on. The fractional ratios – 1.73, for example—produces complex waveforms when combined with operators set to other ratios, permitting the creation of an unlimited variety of sound effects including extremely realistic bells, explosions, etc.

MUTE OPERATORS
By clicking the Operator headlines you can mute the operators independently.

LEVEL
Set the overall level of each Operator.

TUNE
Tuning will finely adjust the ratio by -/+ 10%

DISPLAY - LFO

Low Frequency Oscillators can be used for tremolo, vibrato, sweeps, repetetive or randomizing effects.

SPEED/SYNC
Set the speed from 0 (slow) to 10 (fast). Click the “SPEED” lebel to switch between free running and synced ratios.

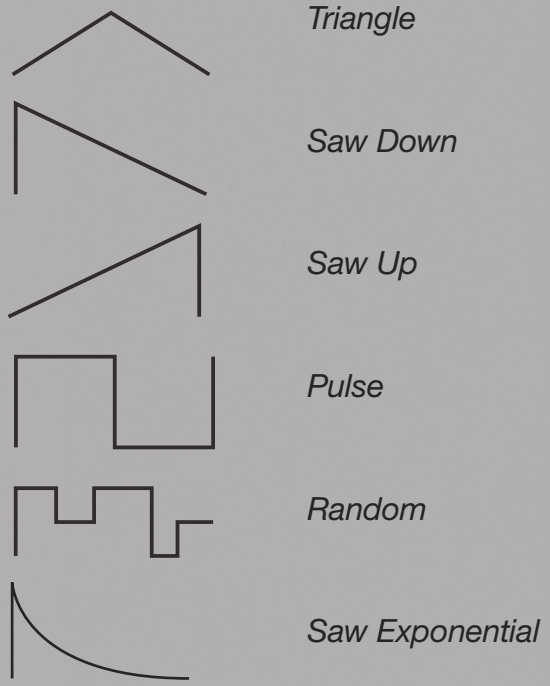
SHAPE
Select the shape by clicking the name (pop up) or click and drag up/down on the waveform.

RETRIG
When set to RETRIG the LFO will restart for each new note.

P.Mod & A.Mod
Pitch modulation and amplitude modulation of each OP. Since the ratio of operator 2, 3 and 4 is always in relation to OP1 their pitch will change even if only OP1 is modulated with the LFO.

MW.Depth
Scale the modulation by the mod wheel.

WAVEFORMS LFO



DISPLAY - FX

Spice up your sound with these FX!

PRE FXs

These effects are applied to the sound directly after the VCA and then routes to either the Reverb or the Echo depending on the FX ORDER.

BYPASS
Clicking on the effect headline will toggle bypass on/off.

FILTER
6dB/oct high pass and 12dB/oct low pass filter makes it easy to cut unwanted frequencies.

DIST
Distortion with amount and tonality control.

CHORUS
Widening your sounds with this 3 voice stereo chorus effect.

REVERB

Change the time of the reverberation effect by either click and drag on the visualisation or the amount shown below it.

BYPASS
Clicking on the REVERB headline will toggle bypass on/off.

HI DAMP
Dampening of higher frequencies

LO DAMP
Dampening of lower frequencies

MIX
The level of the effect.

FX ORDER
Toggle the effects order by clicking the arrow between the Reverb and Echo visualizations.

ECHO

Change the rate of the Echo by either click and drag on the visualization or the amount shown below it.

BYPASS
Clicking on the ECHO headline will toggle bypass on/off.

TIME/SYNC
Clicking on “Time” will toggle Synced mode on/off.

FEEDBACK
The amount of repeats

DAMP
Dampening of higher frequencies for each repetition

MIX
The level of the effect.

THE ENVELOPE GENERATORS

4 sets of envelope generator controls

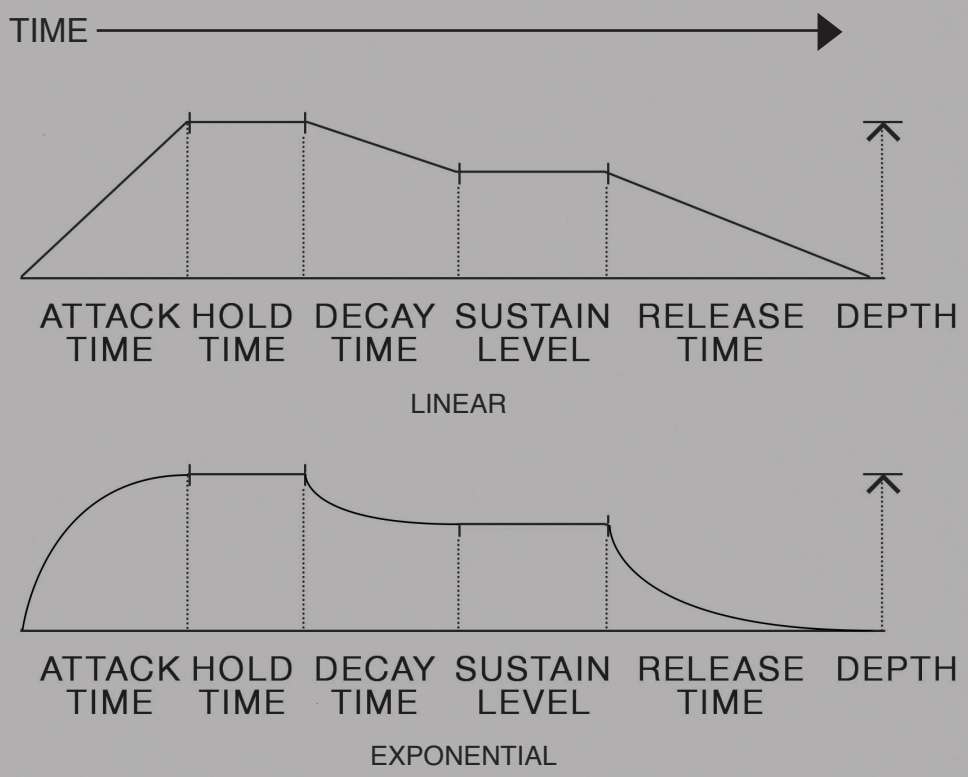
ATTACK TIME
This controls the time for the sound to reach maximum level when a note is played.

HOLD TIME
Controls how long the maximum level should be held.

DECAY TIME
Controls how long it take for the sound the decrease to sustain level after the hold time.

SUSTAIN LEVEL
Determines the continuous level to maintain after decay have finished, as long as a note is played.

RELEASE TIME
The time it take for the sound to completely fade out after the note has been released.



EG CURVE (Backside)
Set the curve of Attack, Decay and Release from linear to exponential. Use exponential for a faster rise/fall speed.

FM SYNTHESIS

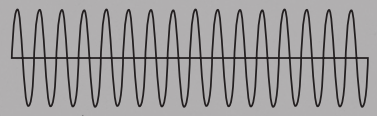
Operators, Algorithms, Feedback and Wave settings

Operators
When the output of one operator is fed to the modulation input of a second operator a whole spectrum of harmonics is created that can form an incredibly diverse range of complex waveforms. Each operators output can be set to another operators input or to the audio output, this routing is controlled by the Algorithm.

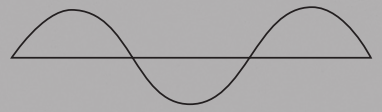
Algorithm
8 different routings of the 4 Operators.

Wave
This will fold the OP waveforms from smooth Sine to a sharper wave for a fuzzier sound.

Feedback
This controls the amount of feedback of OP4.



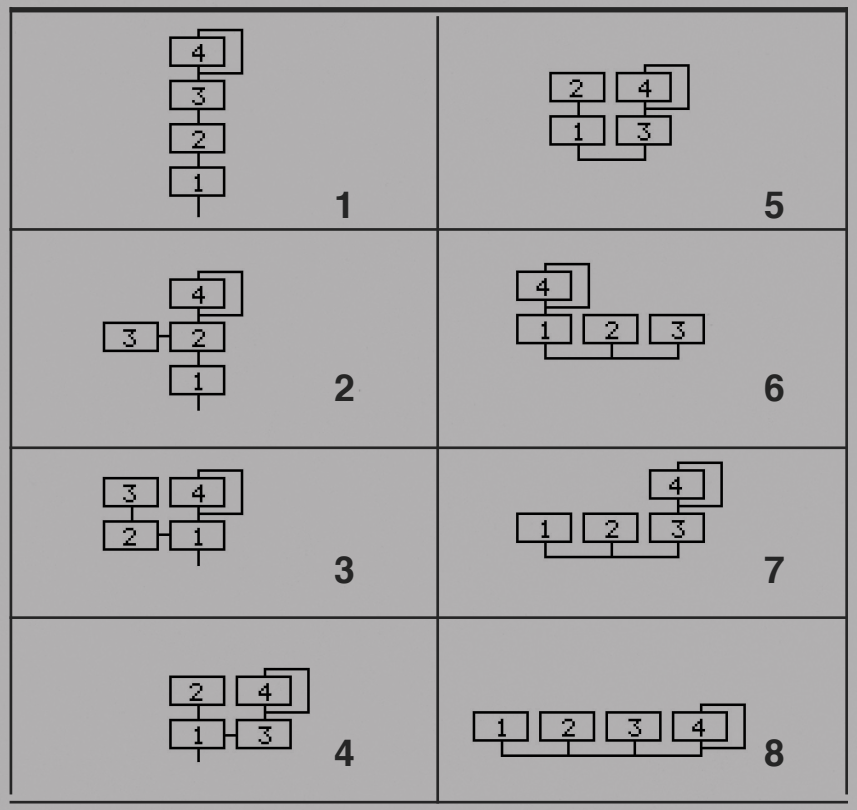
OP1 SIGNAL



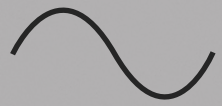
OP2 SIGNAL

FM MODULATED SIGNAL

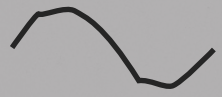
ALGORITHMS



WAVE



Wave = 0



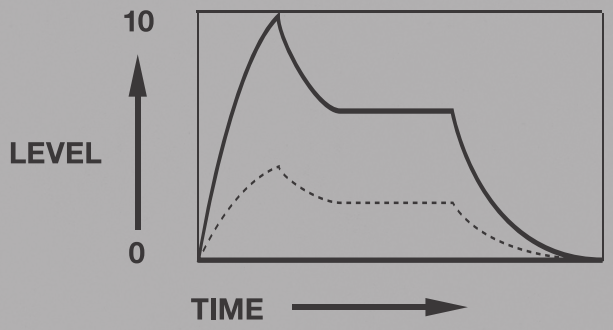
Wave = 5

Wave = 10

VCA + CV

Voltage Controlled Amplifier + CV input jacks

VCA LEVEL
This knob determines to what degree the selected EG affects the level of the sound (dB). Chose which source to use with the 4 way selector below.



Envelope Generator affecting VCA

CV INPUTS
The CV input jacks are directly connected to the parameter marked on the panel.

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Concept and GUI by EKSSPERIMENTAL SOUNDS STUDIO
Created with IDT/GE Technology

Thanks to: buddard, IDTdev, jengstrom, all the beta testers and the ReasonTalk community.

www.ekss.se