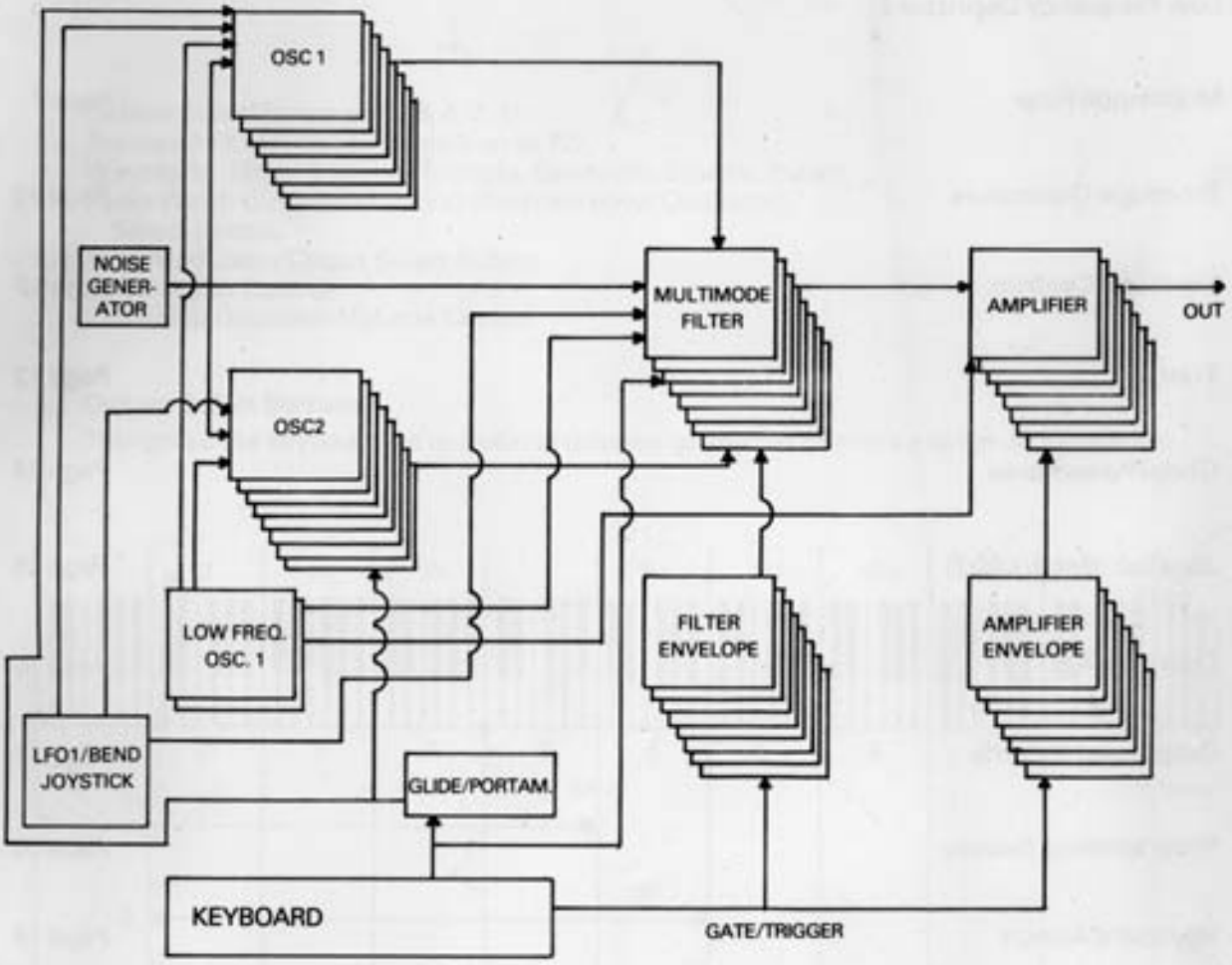
ELKA SYNTHEX



THE SYNTHEX

The basic concept of this synthesiser is an instrument capable of 8-note polyphony and able to memorize sounds created by the programmer for future use as well as those presets supplied with the instrument.

To achieve full 8-voice polyphony, essentially 8 monophonic synthesiser circuits are required, as we can see from this block diagram of the Synthex circuit.



To store all the parameters necessary to create a sound more easily and more accurately, all the control voltages which act on the potentiometers and switches have been turned into digital information in the Synthex. The Synthex is, therefore, a completely programmable polyphonic synthesiser with many sophisticated features.

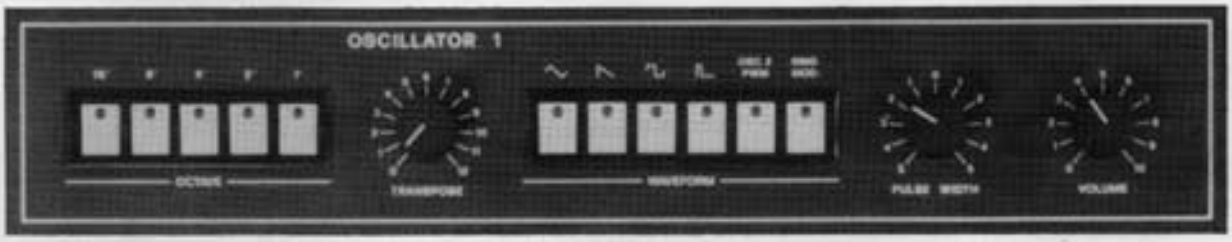
Let us look at each individual function, in principle and practice.

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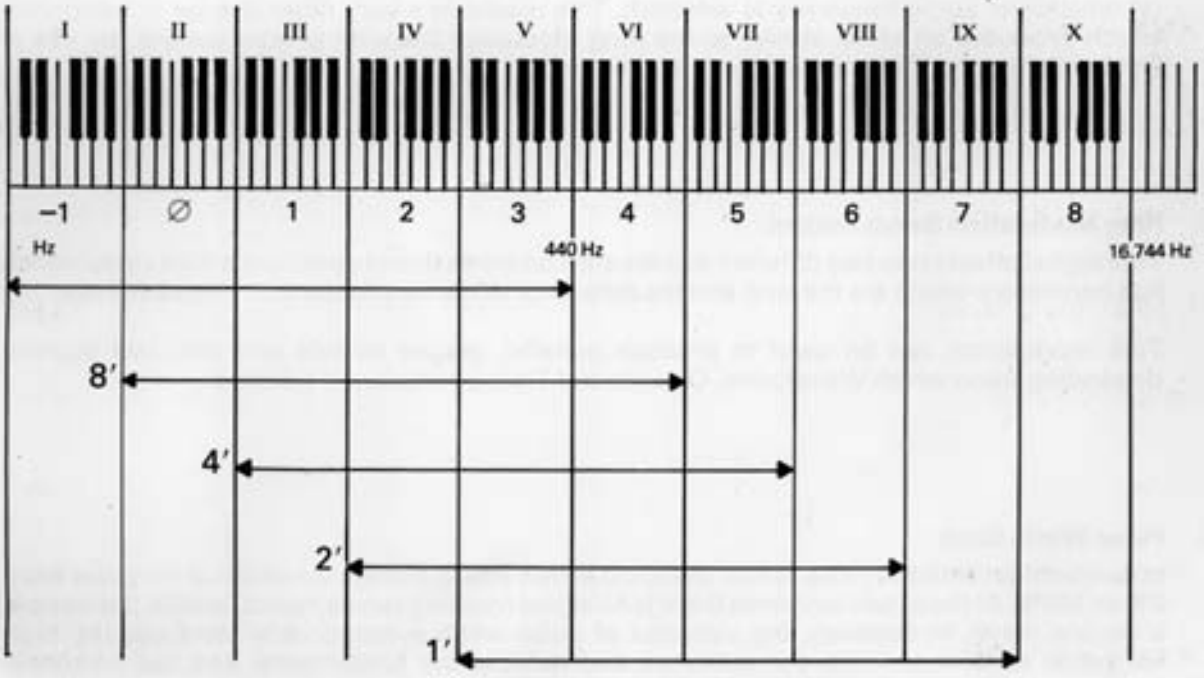
(External Triggering, Pedal Controls and Cassette Dump)

OSCILLATORS



1. Octave Select Buttons (16, 8, 4, 2, 1).
2. Transpose Knob (in semi-tones up to 12).
3. Waveform Select Buttons (Triangle, Sawtooth, Square, Pulse).
4. Pulse Width Cross-Modulation (from the other Oscillator) Select Button.
5. Ring Modulator Circuit Select Button.
6. Pulse Width Control.
7. Individual Oscillator Volume Control.

1. **Octave Select Buttons.**
   Transpose the keyboard up or down in octaves, giving the Synthex a range of 10 octaves.



This shows how the keyboard can cover the whole range of audible frequencies (more than any other type of instrument, including the piano or organ).

2. **Transpose Knob.**

Clockwise rotation of this knob increases the pitch of the oscillator in semi-tones up to 12 (i.e. one octave; greater transpositions can be effected in conjunction with the Octave Select Buttons). Using this knob different intervals can quickly be set up between the oscillators.

3. **Waveform Select Buttons.**

Each of the four buttons select a different waveform. The timbre of each waveform is different, depending upon the harmonic content.



Triangle Wave contains very few odd harmonics. The volume of the harmonics drops off very quickly after the fundamental leaving a very pure sound with few overtones.



Sawtooth Wave contains all the harmonics in inverse volume to their number (i.e. the higher the harmonic the quieter it is).



Square Wave contains all the odd harmonics only.



Pulse Wave has different harmonic contents depending upon the width of the wave (see 6. Pulse Width Control).

4. **Pulse Width Cross-Modulation Select Button.**

This button selects Pulse Wave. The width is controlled by the waveform of the other oscillator (at whichever audio frequency is selected). This results in a very rapid change in harmonics which produces an effect similar to the Ring Modulator but with greater control (by use of Octave Select and Transpose of the other oscillator).

5. **Ring Modulation Select Button.**

This digital effect takes two different signals and combines them to produce a third signal which has harmonics which are the sum and the difference of the harmonics in the input signals.

This modulation can be used to produce metallic, jagged sounds and also bell sounds, depending upon which Waveforms, Octaves and Transpositions are selected.

6. **Pulse Width Knob.**

In conjunction with the Pulse Wave, this knob allows you to change the width of the pulse from 0% to 100%. At these two extremes there is no signal (nothing can be heard): at 50% the wave is a square wave. In between, the variation of pulse width symmetrically increases the high harmonic content towards the extremes and reduces the fundamental and low harmonic content.



0% (same as 100%) No sound.



10% (same as 90%) Weak fundamental, lots of high harmonics.



20% (same as 80%) Stronger fundamental, less high harmonics.



30% (same as 70%) Stronger fundamental, less high harmonics.



50% (square wave) Full fundamental, only even harmonics.



85% (same as 15%) Weak fundamental, lots of high harmonics.

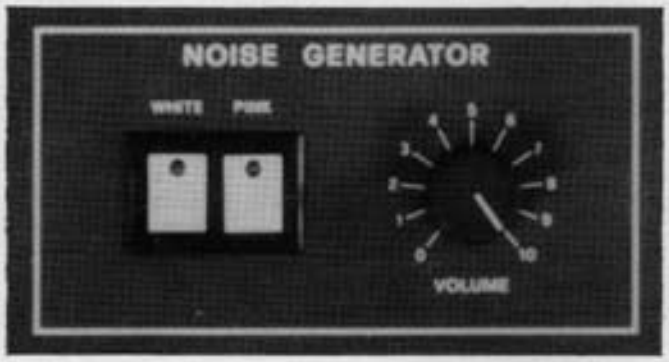


100% (same as 0%) No sound.

Pulse Width can also be controlled automatically by the other oscillator (at high speed — see Pulse Width Cross-Modulation Select Button 4.) or by the Low Frequency Oscillator (slowly — see Low Frequency Oscillator Routing Buttons PW1 and PW2 — LFO Section 5.). The second effect, if carefully set up, produces a very rich sound and is particularly useful in creating orchestral textures.

7. **Volume Knob.**
The volume control allows the individual audio signal of each oscillator to be set before they are put through the Filter.

NOISE GENERATOR



1. Noise Type Select Buttons (White/Pink).
2. Volume Knob.

1. **Noise Type Select Buttons**

   Allows you to select either White or Pink Noise to be added to the Oscillators in the Mix going to the Filter Input.

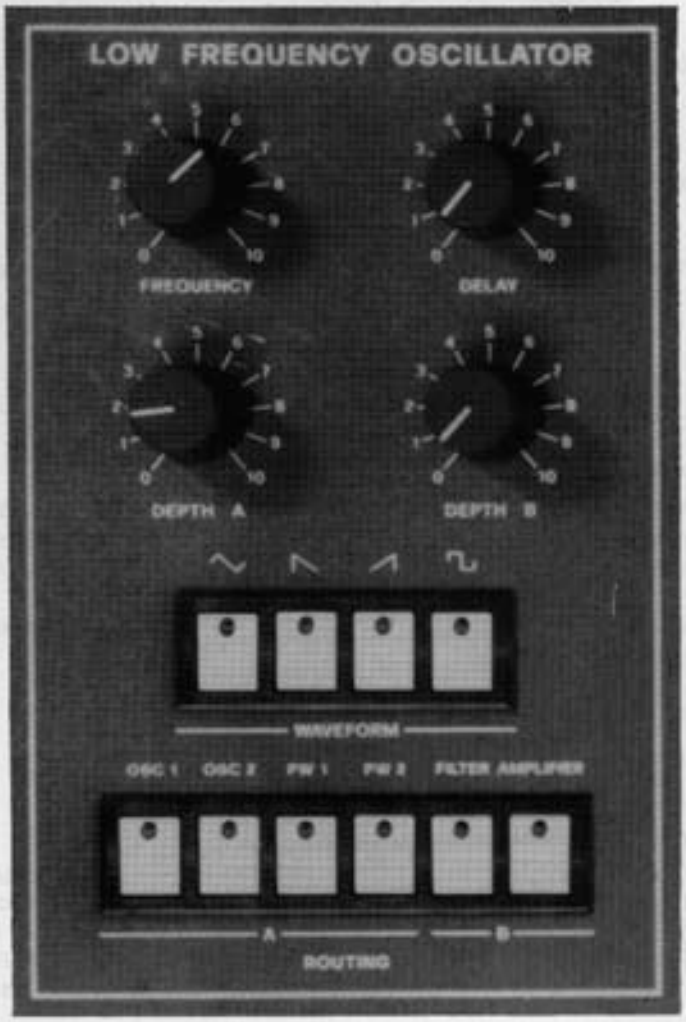
   White Noise contains all the audible frequencies at equal volume.

   Pink Noise contains all the audible frequencies at equal energy, i.e. as the frequency increases the volume drops proportionally as Energy = Frequency x Amplitude (Volume).

2. **Volume Knob.**

   This controls the level of the selected noise signal which is mixed with the Oscillators before the Filter Input.

LOW FREQUENCY OSCILLATOR 1.



1. Frequency Knob.
2. Depth Knobs.
3. Waveform Select Buttons (Triangle, Rising and Falling Ramp, Square Wave).
4. Delay Control Knob.
5. Routing Select Buttons (to Oscillator Pitch or Pulse Width (A) and Filter or Amplifier (B).).

This Oscillator produces a sub-audio frequency which can be used to modulate the audio oscillators, the filter or the amplifier in various ways.

1. **Frequency Knob.**

Controls the speed of the modulation effect. Clockwise rotation of the knob increases the frequency generated from 0.02 Hz. to 20 Hz. Conventional modulation of pitch (vibrato) tends to use a fairly fast modulation whereas typical pulse width modulation uses a fairly slow change.

2. **Depth Controls.**

Regulate the different amounts of modulation to routings A and B. The depth of modulation controls the subtlety of the effect produced. The fact that there is a different amount available to routings A and B on the Synthex means that complex combinations of different modulations can be achieved simultaneously.

3. **Waveform Select Buttons.**



Triangle Wave provides an even regular modulation (for vibrato and tremolo effects).



Falling Ramp provides a regular sharp edge modulation (for repeated triggering effects).



Rising Ramp provides a "backward" shaped regular modulation.



Square Wave provides two distinct levels which alternate regularly (for trills etc.).

4. **Delay Control Knob.**

This control allows the effect of LFO1 (whatever it is) to be delayed upon the playing of the first note until the time amount set on this knob, at which point the modulation is gradually introduced. Clockwise rotation increases the delay time for 1ms to 30 seconds.

If Delay Control is set above value 1 the first note also restarts the selected waveform (3) — below value 1 there is no restart.

5. **Routing Select Buttons.**

Using these buttons the modulation set up on Depth A can be routed simultaneously to the pitch and/or pulse width of either or both oscillators and that on Depth B can modulate the filter and/or the amplifier. (Note that to control the pulse width, Pulse Wave or PWM on the relevant oscillator must be selected.)

MULTIMODE FILTER



1. Filter Cut-Off Frequency Knob (Manual).
2. Resonance Amount Knob.
3. Envelope Amount Knob.
4. Keyboard Tracking Amount Knob.
5. Mode of Filter Operation Select Buttons (Low Pass, two types of Band Pass, High Pass, Positive or Negative Envelope Effect).

The filter is a circuit designed to control the harmonic content of the audio signal by increasing or decreasing frequency bands in the oscillator/noise outputs.

1. **Filter Cut-Off Frequency Control Knob.**

The Cut-Off is the point at which the filter begins operating. Above or below the audio frequency (depending upon the filter type — see 5.) at which it is set, the sounds coming through are increasingly attenuated the further from the cut-off point they are. Clockwise rotation of the knob makes the Cut-Off Frequency higher.

2. **Resonance Amount Knob.**

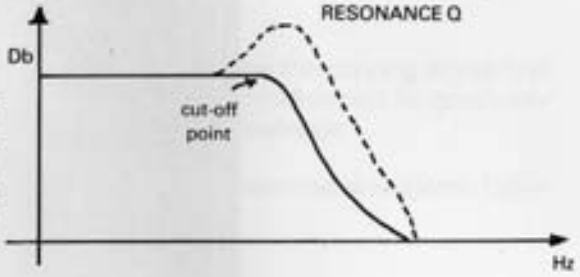
Resonance acts only at the filter cut-off point. The effect amplifies the frequencies around the cut-off point. Clockwise rotation increases the intensity of the effect up to the point (7 on the knob) where the filter goes into independent oscillation producing an audible frequency (similar to feedback). Selecting LP and turning the oscillator volume off it is possible to use just this effect, which is a sine wave oscillation (∿). This knob is sometimes called 'Emphasis' or 'Q' on other synthesisers.

3. **Envelope Amount Knob.**
This control governs the amount of automatic cut-off shift by the filter envelope from the position manually set by Knob 1. in this section.

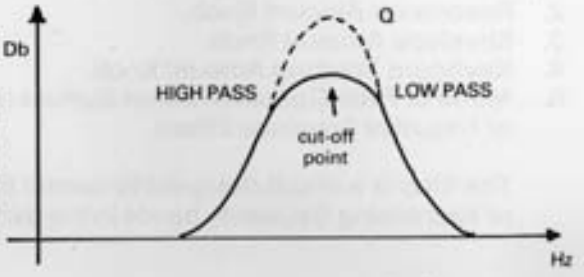
4. **Keyboard Tracking Amount Knob.**
This allows the filter frequency to be controlled to a greater or lesser amount by the pitch of the keyboard. On full (clockwise), this means the cut-off point moves in sync with the note being played ensuring that each note has exactly the same tonal quality.

5. **Mode of Filter Operation Select Buttons.**

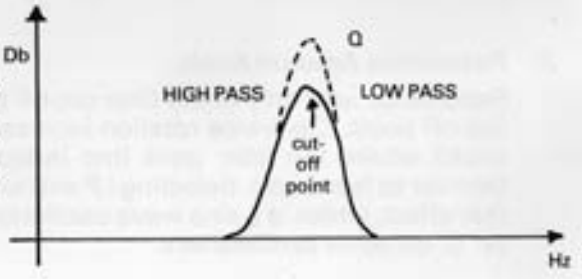
i) LP **Low Pass.**
The frequencies above the cut-off point are attenuated at a rate of 24db/octave. All the frequencies below the cut-off point are let through at full volume (hence the term Low Pass).



ii) BP1 **1st Band Pass Filter.**
The frequencies above and below the cut-off point are both attenuated at a rate of 6db/octave, allowing a band around the cut-off point through (hence the term Band Pass). A band pass filter can be thought of as the combination of high pass and low pass (see diagrams).

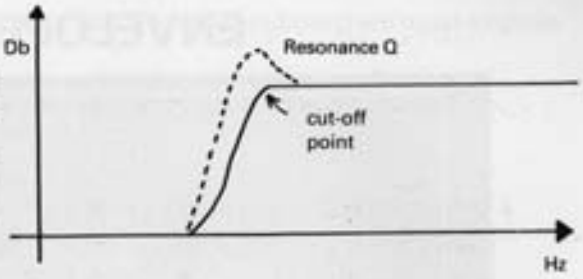


iii) BP2 **2nd Band Pass Filter.**
The frequencies above and below the cut-off point are both attenuated at the greater rate of 12db/octave, which allows a narrower band than BP1 through.



iv) HP **High Pass.**

The frequencies below the cut-off point are attenuated at a rate of 12db/octave. The frequencies above the cut-off point pass through at full volume (hence the term High Pass).



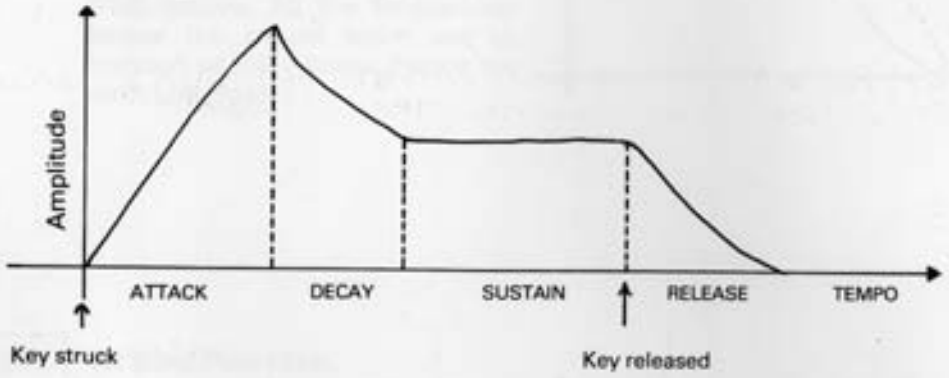
v) ENV +/– When this switch is on, the automatic cut-off shift set by Knob 3 closes the filter rather than opening it.

ENVELOPE GENERATORS



There are two envelope generators per voice on the Synthex. One controls the automatic shift of cut-off frequency of the filter (see Knob 3. in the last section). The other controls the amplifier volume, from the moment the keyboard is struck onwards.

Both envelopes are of the full ADSR type and are entirely independent. The four controls govern four separate parameters in the following manner:



1. **Attack.**
   This knob controls the time the envelope takes to reach the full level. Clockwise rotation increases the length of time taken from 1ms to 10 seconds.

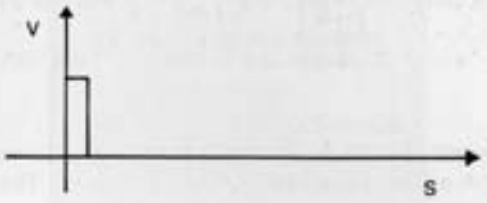
2. **Decay.**
   This knob controls the time taken for the envelope to drop from full to zero (if not interrupted by the sustain level). Clockwise rotation increases the length of time from 1ms to 10 seconds.

3. **Sustain.**
   This knob controls the level at which the decay is interrupted while the keyboard is being held. Clockwise rotation increases this level from 0 to 100% of the full level. If sustain is on full, then the decay control becomes redundant.

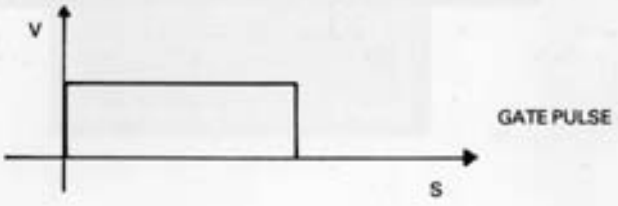
4. **Release.**
   This knob controls the time taken for the envelope to drop from the sustain level to zero. Clockwise rotation increases the time taken from 1ms to 10 seconds.

In order to understand how the envelopes take their instruction from the keyboard we must explain the terms 'Trigger' and 'Gate'.

i) **Trigger.**
This is a brief pulse which causes the envelopes to open, i.e. the attack to start.



ii) **Gate.**
This is the length of time which the keyboard note is held down and is communicated to the envelopes by keeping the trigger pulse going until the key is released.



The attack is initiated by the beginning of the trigger pulse. As long as the gate is still on during the programmed attack time, then the envelope opens and enters the decay phase. As long as the gate is still on the sustain maintains the envelope open at the programmed level until the gate goes off (when the key is released) at which point the release takes over.

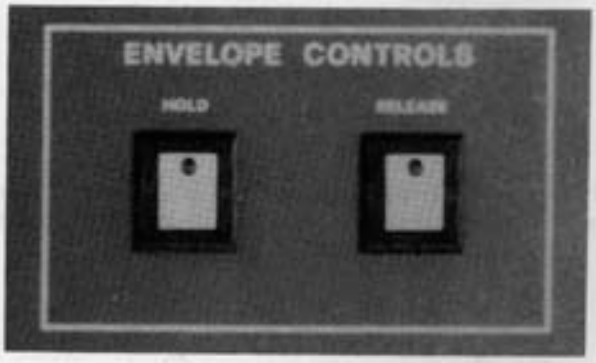
ENVELOPE CONTROLS

These are two controls which override the envelope knobs.

1. **Hold.**
   Keeps the gate permanently open, keeping the envelopes at the sustain level. This means that you can keep up to an eight note chord permanently held on the Synthex. The sustain lasts until the 'Hold' is switched off.

2. **Release.**
   If this switch is off then the release controls on the envelopes do not function and the envelopes are reduced to zero as soon as the keyboard note is released. This switch must be on to allow the release controls to function.

   Both of these controls can be operated by a footswitch through the inputs on the back panel.



TUNING



1. **Master Tune.**
   This allows you to tune the entire Synthex to your fellow musicians. In the centre (O) the tuning is exactly A440 Hz, thanks to the digital nature of the Synthex. Master tune is not memorised.

2. **De-Tune.**
   This gives you the ability to set up precise de-tunings between the two oscillators (up to a quarter tone). This allows a richer sound to be created, setting up 'beats' or full de-tunings (for honky-tonk piano type sounds) and, unlike analogue synths, the precise de-tuning can be memorised abd reliably recalled.

3. **Oscillator 2 Sync. Button.**
   Forces oscillator 2 to start a new cycle whenever oscillator 1 does. This means that oscillator 2 can only play harmonics of oscillator 1. Particularly interesting effects can be obtained by using Glide on oscillator 2 (see next section).

GLIDE/PORTAMENTO



1. **Oscillator 1 and 2 Assign Buttons.**
   These route the glide or portamento which has been set up to one or other of the oscillators.

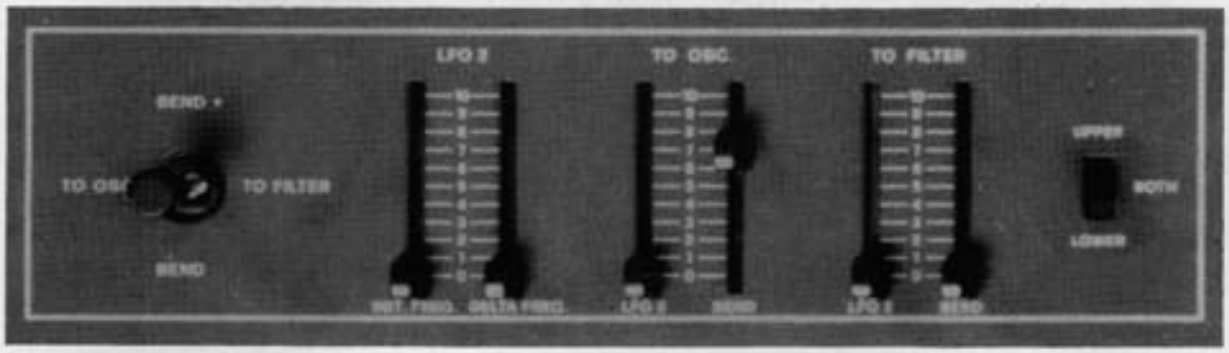
2. **Glide Select Button.**
   Routes the amount set on Knob 5. to the oscillators selected on buttons (1).

3. **Portamento Select Button.**
   Causes whichever oscillators are selected to move smoothly through all the frequencies between the last note played and the new one at the speed set on knob 4.

4. **Speed Control.**
   Sets the rate at which the glide/portamento effect takes place.

5. **Glide Amount Control.**
   The positioning of this knob sets the interval from which the pitch glides to the actual note played. If the knob is left of centre this is below the actual note played, to the right above it. The range is [-32/+31] semi-tones. The effect is the same whatever note is played and whenever. In contrast, portamento. depends on the last note played. Both effects are, however, fully polyphonic.

JOYSTICK (BEND/LFO2)



This section of the Synthex allows 'real time' modulation of the programmes, i.e. during performance. The modulation is triangle wave only.

2. **LFO2 Sliders.**
These allow coarse (Init. Freq.) and fine (Delta Freq.) adjustment of the second Low Frequency Oscillator which can be used to modulate oscillator pitch (vibrato) or filter frequency (wah-wah). LFO2 is introduced by lateral (sideways) movement of the joystick. To the left routes it to the oscillator pitch, right to the filter cut-off frequency.

3. **To Oscillator Sliders.**
These set the amount of modulation from LFO2 (when the joystick is pushed to the left) — the left slider — and the amount of pitch bend (when the joystick is pushed up or down) — the right slider. Up increases the pitch (to a maximum of 7 semi-tones) down lowers it by the same amount.

4. **To Filter Sliders.**
These set the amount of modulation from LFO2 (when the joystick is pushed to the right) — the left slider — and the amount of cut-off frequency shift (when the joystick is pushed up or down) — the right slider. Up opens the filter, down closes it.

5. **Upper/Both/Lower Select Switch.**
This switch allows the joystick to control just the upper or lower voices or both (see Split/Double Modes in the programmer section).

All the controls in this section are not remembered in the preset or memory programmes, as they are intended for performance controls. Any effects that are required to be memorised should be set up on LFO1.

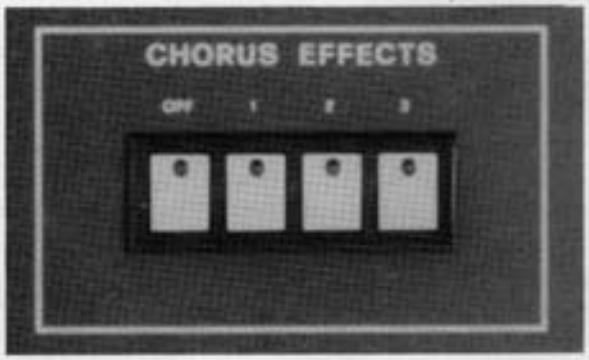
CHORUS EFFECT

There are three chorus amounts available on the Synthex.

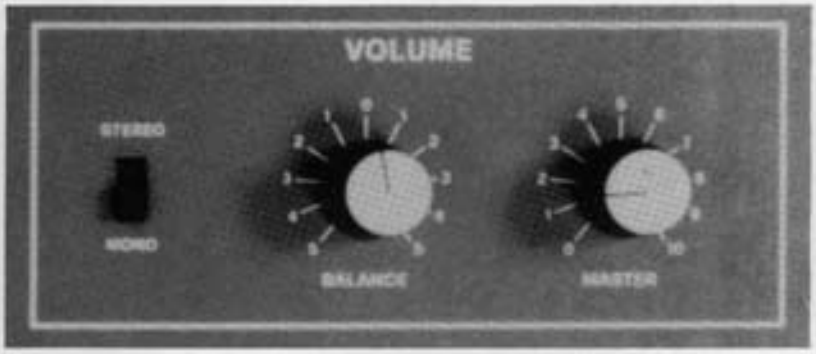
1. The first adds a slightly delayed element of the original signal and the interference that this creates gives the effect of a slow Leslie.

2. The second adds two elements of different length delays to the original. The effect produced gives the feel of a large acoustic, adding a choral texture.

3. The third also adds two elements of different length delays but with varied frequency. This gives a 'bowed' effect and is particularly useful for string sounds.

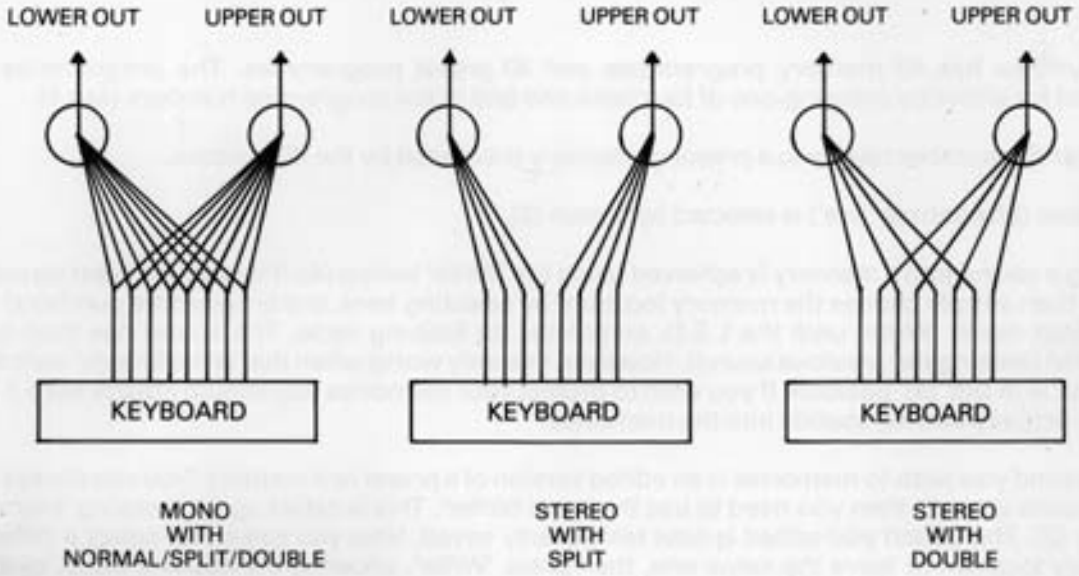


OUTPUT AND VOLUME



This section is the final stage before the signal comes out of the Synthex into the amplification. These controls are not memorised in programmes.

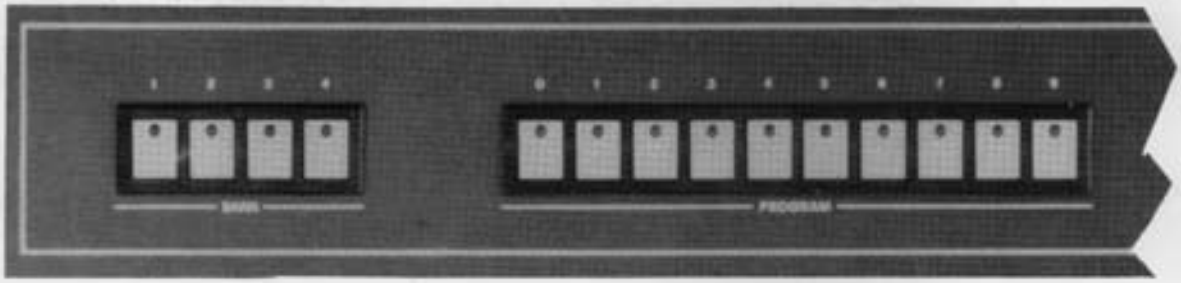
1. **Mono/Stereo Selector Switch.**
   In mono position, all the voices come out of both outputs (upper and lower). In the stereo position, the voices are split. In normal mode, 4 are randomly assigned each to upper and lower. In split and double, the lower programme voices come out of the lower output and the upper programme voices from the upper output.

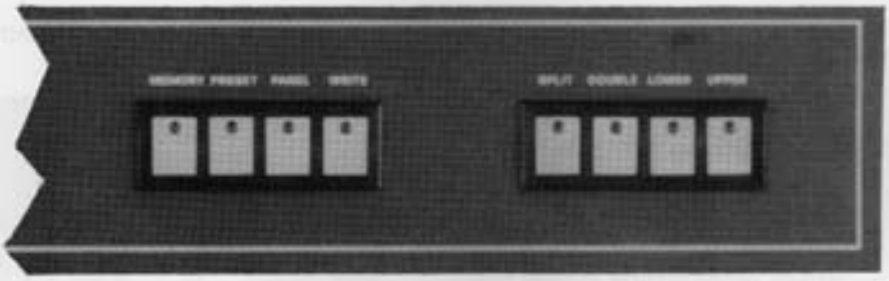


2. The balance knob works like a panning control for the lower and upper voices in split/double. Turning clockwise increases the volume of the upper output, anti-clockwise that of the lower output. It is thus possible to obtain the optimum balance between two sounds.

3. Master controls the overall volume of the Synthex.

PROGRAMMING SECTION





The Synthex has 40 memory programmes and 40 preset programmes. The programmes are selected for either by pressing one of four bank and one of ten programme numbers (see 1).

Whether the number relates to a preset or memory is selected by the (2) buttons.

The panel (all controls 'live') is selected by button (3).

Writing a sound into a memory is achieved using the 'Write' button (4). If this sound is set up on the panel, then simply choose the memory location (by selecting bank and programme numbers) and then hold down 'Write' until the L.E.D. completes its flashing cycle. The sound has then been recorded (erasing the previous sound). However, this only works when the 'Write Enable' switch on the back is in the 'on' position. If you wish to protect your memories you should always keep it 'off' unless actually writing sounds into the memories.

If the sound you wish to memorise is an edited version of a preset or a memory (you can always edit the sounds stored), then you need to use the 'save buffer'. This is called up by pressing 'Memory' button (2). The sound you edited is now temporarily saved. Now you can either select a different memory location or leave the same one, then press 'Write', allowing the flashing L.E.D. cycle to complete. The edited sound is now stored.

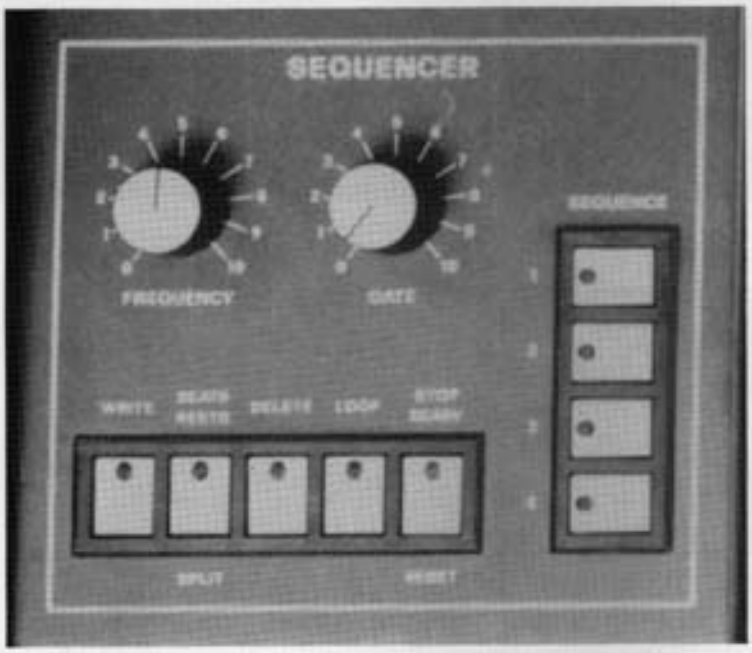
The other functions of these four buttons (5) are for the Cassette Interface Functions (see the appropriate section).

The first button (6) selects Split Function. This divides the keyboard into two, with the sound selected when Lower is lit on the bottom half of the keyboard, and the sound selected when Upper is lit on the top half of the keyboard. The split point is programmable and can be changed by pressing the appropriate key whilst holding down the Split button (when the Synthex is turned on the Split point is the third C up the keyboard).

The second button (6) selects Double Function. This assigns two sounds (i.e. two voices) to each note on the keyboard. This makes the keyboard four-note polyphonic.

Buttons (7) Lower/Upper allow the assignment of either 40 presets, 40 memories or panel, to the lower and upper bank respectively when the Synthex is in either Split or Double Mode. If Lower is lit then all editing on the panel as well as changing programmes will only affect the lower bank. Similarly for Upper controlling the upper bank. If a button L.E.D. is already lit, then pressing it again will allow you to hear just that bank on its own. When this is happening, the L.E.D. flashes. To hear the other bank on its own press the other button. This is useful in double to edit a programme without hearing the other. To hear both banks again press the flashing button again.

SEQUENCER PROGRAMMING



The sequencer can be programmed in two modes: Pulse (or Step) Time and Real Time. Real Time simply means that in replay the sequence of notes originally played is faithfully reproduced. In Step Time, the music is broken down into a series of events (steps) and a note, rest, or tied over note is assigned to each one.

There are 4 channels available which means that 4-voice polyphony is possible. The sequences must be programmed monophonically but can be played back together in sync. Each sequence can be independently programmed in either Real or Pulse Time.

Pulse Time.

This is selected by pushing the 'Write' button and then the number of the sequence you wish to write (normally beginning with 1). The two buttons pressed will light and the sequencer is now waiting to record the notes you play. Simply play the notes required in order on the keyboard. Each note will be assigned to the next step in the sequence (up to 128). To leave a gap, i.e. insert a rest, simply press the Beats Rests button once. It will light as you do, registering one space. Longer rests can be programmed by repeated pressing of this button. Notes longer than one step can be programmed by holding down the note whilst pressing the Beats Rests button. Do not forget that playing the note counts as one step, i.e. for a note to last 4 steps, play the note and then the Beats Rest button 3 times.

As the sequencer is programmed monophonically, it is possible to programme 'legato' or 'staccato' phrasing. Holding down the last note while you play the next one gives 'legato' phrasing, i.e. there is no re-trigger on the envelopes, often referred to as single triggering. Releasing the note before playing a new one gives 'staccato' phrasing, i.e. a re-trigger of the envelopes on the new note, known as multiple triggering. As this is done by the playing, each note can be assigned 'staccato' or 'legato' phrasing.

If you play more than 128 notes or rests then you will use up the available memory space and the 'Write' light will go out to show that further programming is not possible. Note, however, that Beats or Rests held over, i.e. longer notes or spaces, do not use up new memory space as the pitch or gap information does not change.

When you have finished writing a sequence line, press 'Write' again (if it is still lit) and the L.E.D. will go out. You can repeat the process with the next line by pressing 'Write' and then button 2 (or any of the others).

Any mistakes you make can be corrected by pressing the 'Delete' button one or more times and then playing the correct version. You will hear the note or see the space button flash as you delete. Be careful, as delete works not just on the last event but the last note or space, so if you put one beat or rest too many on a note or space, you will delete the entire note or space and you will have to programme the complete event (over several steps) once again.

Real Time.

Real Time is selected by pressing 'Write', then the sequence to be programmed and then pressing the 'Ready' button. When you begin to play the keyboard the notes you play are analysed and recorded as you play them. Depending upon how fast or slow you play, you can set the resolution of the analysis to cope with this, using the Frequency knob. Turning this clockwise increases the resolution, allowing you to play faster. (When you begin play, the L.E.D. in the sequence button will flash to show you the speed of the resolution.) You cannot play faster than this indicated speed or notes will be missed. However, by careful adjustment you can use this function as an Auto-Correct facility which will make the timing more precise. Simply set the Frequency to the fastest note value and small timing errors will be corrected.

In Real Time programming, 'legato' and 'staccato' functions can be programmed as before but spaces (Rests) are entered simply by not playing, unless you want the sequence to begin with a Rest. In this case, simply press the Beats Rests button which will start the analysis beginning with the length of the space before you begin playing. This is particularly useful when 'overdubbing' second, third and fourth lines.

In Real Time programming, it is possible to listen to other sequence lines already recorded (in either Pulse or Real Time) whilst putting in the new line (in a similar manner to overdubbing with a multi-track recorder). To do this, follow the above procedure to select the line you wish to write. Once you have pressed the Ready button you can then press the buttons for the other sequence lines you wish to hear whilst playing. Then when you play either the first note of your sequence or press the Beats Rests button (if you want to come in after the other lines) then those lines selected after the Ready button was pressed will be played back.

It is also possible to complete a sequence started in Pulse Time, in Real Time, by simply pressing Ready half-way through. The L.E.D. will begin to blink and the analysis of your playing will begin.

SEQUENCER PLAYBACK

Once you have written your sequence, if you press 'Ready', the sequence is ready to play back. By pressing other sequence buttons, up to all 4 can be played back simultaneously in sync. The buttons lit determine which sequences are played back.

The simplest way to begin playback is to hit the bottom note on the keyboard which will run the sequence in the original key at the speed set on the Frequency knob. Clockwise movement of the Frequency knob will speed up playback. However, full transposition facilities are available.

Transposing.

Playing higher notes than the bottom C will transpose the sequence up by the interval between the note played and bottom C. Up to the entire keyboard (5 octaves) can be used for this purpose and the intervals available are set up by holding down the Split button on the left hand panel (not the one on the main panel) and then pressing the desired note. The keyboard below this is then given over to controlling the start and transpose of the sequencer, whereas above this note allows the keyboard to be played in the normal way. This split is set at 1 octave from the bottom C when the Synthex is powered up.

Of course, this method does not work for transposing down. However, this is possible by using the 'Key Set' button. Whilst holding this, pressing any key will set the sequence playing in the original key and transpositions down as well as up can be effected over intervals around this reference key. By holding down Key Set, this can be changed at any time.

Gate.

This knob allows the sequencer to imitate the amount of time the finger would be held on the keyboard. The longer the gate time (turn knob clockwise) the longer the sustain levels set on the envelopes are held.

Assigning Voices.

It is possible to assign 2 different sounds to the 4 sequences. In double mode, the two different sounds on the programmer will be played by each line (if 4 sequence lines are being played, all 8 of the available voices will be used, so the keyboard will not be operative as there are no voices left).

In 'Split' it is possible to assign each of the different sounds to individual lines. Normally, all 4 are assigned to the Lower Voice (leaving the Upper Voice to be played on the keyboard). To change this, press the required sequences whilst holding down the Upper button on the programmer. This will cause the sequences chosen to play using the Upper sound set up on the programmer. To change any back, simply repeat the procedure with the Lower Button on the programmer.

It is also possible to assign both sounds pressing the required sequences, whilst holding down the Upper and Lower buttons together. Every new assignment is retained until the power is turned off.

BACK PANEL

External Triggering.

The sequencer can be externally triggered to be controlled by a drum machine or click track, or can give out the necessary trigger to control other equipment. To do the latter, simply take the signal out of the Sync Out socket on the back panel with a standard jack-plug.

To control the sequencer by an external signal, route the signal in (again with a standard jack-plug) to the Sync In socket and switch the nearby switch to Ext. On the sequencer panel turn the Gate to zero (this is also externally controlled) and the Frequency to between one and two. Hit the starting key just before the beat (pulse) on which you wish the sequence to run and the sequencer will latch on to the incoming pulse. Careful adjustment of the Frequency knob allows the sequence to be run twice, three or four times as fast as the incoming signal (and more as you turn the knob clockwise).

N.B. When an incoming signal is not supplied the sequence runs at the Frequency set on the knob.

Pedal Controls.

Footswitches: There are four functions which can be controlled by the standard latching push-to-make, push-to-break, footswitch. All only work on the programme shown on the panel (in Normal, Split or Double modes).

Programme Advance:	Moves the programme number on the programmer along one.
Glide:	Brings in/takes out whatever effect is set up on the Glide/Portamento section.
Hold:	Turns on/off the Hold switch in the Envelope Controls section.
Release:	Turns on/off the Release switch in the Envelope Controls section.

Footpedal: This can be used to alter the filter cut-off frequency (overriding the Frequency knob in the Filter section) on either the upper, lower or both programmes (depending upon how the nearby switch is set.

Cassette Dump.

This allows both sound and sequencer programmes to be stored on tape. (Instructions on the use of the facility are explained step by step on the accompanying cassette together with sample memories and sequences to load in.)

To turn the interface on, flick the switch on the Back Panel. All the L.E.D.'s will go out except for the 4 bank lights and the 4 sequence lights. Decide which banks or sequences you wish to transfer and turn the other L.E.D.'s off. If loading on to tape you will need to take the signal from the Out mini-jack socket on the back panel to the Line-In on your cassette recorder. When you have labelled your information and set the tape to record, press the 'Save' button ('Memory' in normal usage). The L.E.D.'s you selected will go and then blink one after the other as the information goes out. When the process is finished they will all come back on again. To load information back in, you need to take a 5v signal from your cassette recorder, into the 'From Cass' mini-jack socket on the back. Before you start the tape, press the 'Load' switch ('Write' in normal usage). As the information is loaded back in, the L.E.D.'s should blink on and off in succession. If they do not, check your connections and the level of the signal. It is possible to check that the information has loaded correctly by replaying the tape in after having pressed 'Verify'. The information coming in is compared with that already loaded and L.E.D.'s light in the normal way if the information is correct.

Sequences are dumped and loaded in individual lines and memories in banks of 10.

SYNTHEX PRESETS

Programme	Bank 1	Bank 2	Bank 3	Bank 4
0	Chunky Synth	Double basses	Metallic piano	Sweep 1
1	Wah brass	Ceilos	Pianet	Sweep 2
2	Fat Sound	Violins	Funky Clav.	Take-off
3	Metallic	Church organ	Clavichord I	Landing
4	Pan flutes	Reed organ	Clavichord II	Wash of sound
5	Tremolo piano	Electronic organ	Clavinet	Fast decay
6	Chorale	High pass sweep	Electric piano I	Ring mod.
7	Brass I	Filtered brass	Electric piano II	Phased sweep
8	Brass II	Filtered chorus	Chimes	Bass pluck
9	Brass III	Filtered strings	Vibes	Whistle

SYNTHEX MEMORIES (available on cassette)

0	Cathedral choir	Harsh lead	Plink	Electric Piano
1	Sync. Harmonic Sweep	Solo Violin	Wah Ring Mod.	Oriental Fourths
2	Filtered Choir	Bass Guitar	Metallic Clavinet	Wood Blocks (use with sequencer)
3	Harsh Clavinet	Sync. 3	Bass Drum – tom-toms	Marimba
4	Echo	Glide Strings	Hammond 3 (Brooker T)	Harp
5	Double Bass — Nylon Guitar	Hammond 1 (John Lord)	Plucked brass	Filtered brass
6	Sync. 1	Phased Choir	Snare Drum	Deep. Sync.
7	Sync. 2	Brash Brass	Distant Strings	Mini Moog Bass
8	De-tuned pipe organ	Brushed Cymbals	Watery Grave	Mini Moog Lead
9	Normal Clavinet	Hammond 2 (Emerson)	High Portamento	Steel Drums

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