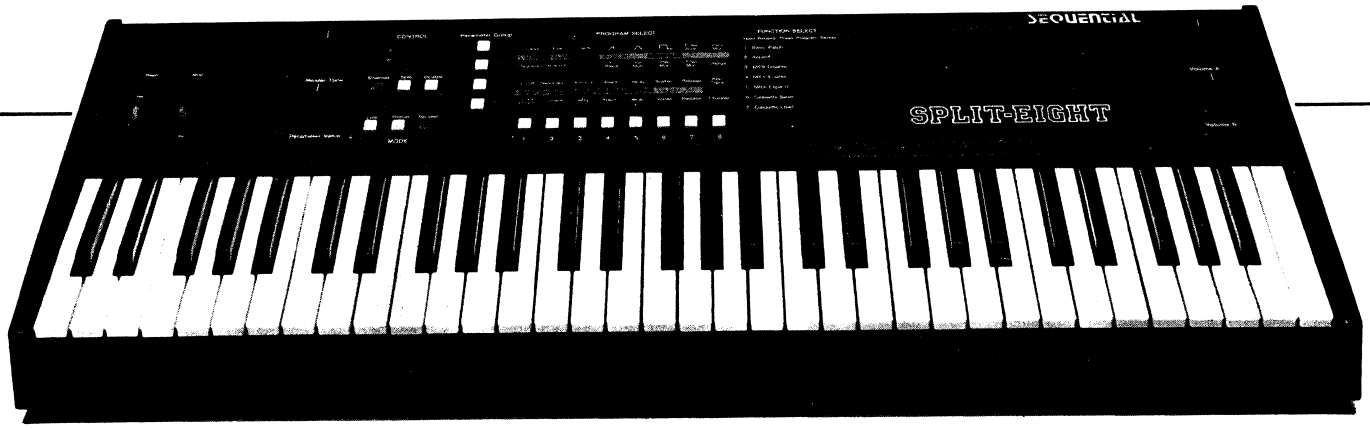
SPLIT-EIGHT

Announcing The Split-Eight,
Sequential's New 8-Voice Programmable Synthesizer!



The Split-Eight is a fully programmable eight-voice synthesizer featuring a full 5-octave keyboard and programmable keyboard split for $1,195.00 suggested retail. And that's just the beginning!

For instance, The Split-Eight offers a choice of four keyboard modes: Single, Unison, Double or Split. In Single Mode, the same sound is played across the length of the five-octave keyboard. This provides the user with eight full voices for traditional polyphonic playing. Unison mode assigns all eight voices to a single note, creating a very full, bold sound ideal for lead synth playing.

Double mode lets the user layer different sounds on top of each other. In this way, two sounds are triggered by each key to create complex sounds utilizing the full programming capabilities of two independent oscillators, filters, and VCA's at one time.

The exciting Split Mode is particularly useful in performance, because it lets the user play different sounds at each end of the keyboard (such as playing a bass sound with the left hand and a flute with the right)! The split point can be programmed. When in Split Mode, the instrument automatically assigns four voices to each side of the split point. The Split-Eight also features a programmable link feature which lets you call up Split or Double programs simultaneously.

The fully programmable Split-Eight comes with 64 pre-programmed sounds, including a variety of original sounds and several impressive orchestral and keyboard timbres. All sounds can be easily modified or replaced with custom sounds.

A built-in chorus provides programmable on/off chorusing.

The Technical Stuff

Each of the instrument's eight voices feature a multi-waveform VCO, a 4-pole lowpass filter, a VCA, two ADSR envelope generators and an LFO. The Split-Eight comes with 64 pre-programmed sounds.

Creating custom sounds is easy! There is a graphic matrix which allows fast selection and easy editing of 31 different parameters. LEDs clearly indicate the selected program, and if the program is being edited, will also display the parameter value.

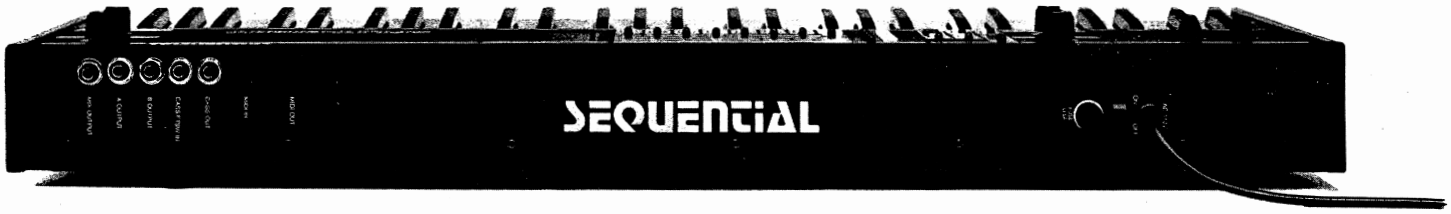
The back panel contains individual outputs for channels A and B along with a 1/4" main output that gives you the chorus mix. Cassette In and Out, a multi-purpose footswitch, and MIDI Input and Output are also included.

Sequential supports the Split-Eight with an extensive array of MIDI functions. Modes 1 and 3 (Omni and Poly) are available along with the ability to disengage MIDI. Each side of a split program may be assigned to a separate MIDI channel. This allows the user to control other MIDI keyboards independently with each side of the keyboard. Through MIDI, the Split-Eight can send and receive program change information, and transfer programs to and from a second Split-Eight. Other MIDI features include the ability to receive and send pitch bend and modulation information.

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SPLIT-EIGHT SPECIFICATIONS



VOICES:
Split-Eight is an eight-voice polyphonic synthesizer. Each voice consists of:

One Voltage-Controlled Oscillator:
Waveshapes available are sawtooth, triangle, and variable pulse.
Tuning: 9-octave range.

One Voltage-Controlled Lowpass Filter:
24dB/octave slope.

One Voltage-Controlled Oscillator:
Waveshapes available: Square wave, Rate: 1-33 Hz.
Waveshapes available: Triangle, Rate: 1-12.5 Hz.

Two Envelope Generators (filter, amp):
Attack: 7 milliseconds – 11 seconds.
Decay: 7 milliseconds – 11 seconds.
Sustain: 0 to 10 Volts.
Release: 7 milliseconds – 14 seconds.

PROGRAMMABILITY:
31 Parameters are available for programming.

KEYBOARD:
Five octave (C to C).
Split Keyboard range: 2 octaves (C2 to C4).
Link, Split, Double.

CHORUS:
Programmable On/Off.

OUTPUTS:
Audio Output: 1/4" phone jack (mix).
Separate audio outputs for A and B (4 voices to each).
Tape Out: For saving programs to cassette.
One MIDI: 5 pin DIN.

INPUTS:
One MIDI: 5 pin DIN.
Tape In: For loading programs from cassette.
Footswitch Jack: 1/4" phone.

MIDI IMPLEMENTATION: (partial list)

MIDI Modes:
OMNI Mode.
POLY Mode
Separate MIDI channels for each side in Split Mode.

Channel Assignment:
Channels 01 through 16.

Program Select Enable/Disable.

Wheel Enable/Disable.

Program Send/Receive:
Send 1 program.

Local Off: (for Channel B)
Allows separate control of Channel B over MIDI.

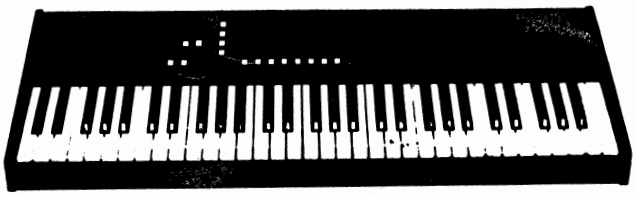
UNIQUE FEATURES:

1) **Delay:** when in unison, the triggering of half the voices can be delayed by 20, 40, or 80 milliseconds.
2) **Poly Mode:** When in Double Mode, this assigns the entire audio output of program B to the filter input of program A (replacing A's oscillator).

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SPLIT-EIGHT
OPERATION MANUAL

SEQUENTIAL

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PREPARATION

WARNING! Switch power off to all equipment in use before connecting or disconnecting anything.

1. Connect audio outputs.
For a monophonic system, use MIX OUTPUT. This signal contains both the A and B channels, plus the chorus.

Note: The built-in chorus is only available at this output.

For a stereo or mixer-input system, use the separate A and B OUTPUTs. This will be most useful when the keyboard is in Split or Double mode. In Split mode, Channel A comes from the right side of the keyboard and Channel B comes from the left. In Double mode, playing anywhere on the keyboard plays both channels simultaneously.

2. If desired, connect optional footswitch to CASS/FTSW IN.

Use Sequential Model 839 or equivalent (momentary-type, normally open). The footswitch control functions are explained below, under Performance Parameters.

3. For cassette interface connections see Cassette Interface section (below).

4. For MIDI connections, see the MIDI section (below).

CAUTION! Before proceeding, check that the power switch is set to OFF.

5. Connect power cable to a properly-grounded power line.

6. Switch power on.

Normal indications are that the right display counts from "1" to "8", indicating which voice is tuning up. When this ends, Preset lights, and program 11 is automatically selected.

If you do not obtain these visual indications, check your power source first, then the fuse (1/2A, slo-blo).

CAUTION! To prevent a loud pop, when switching Split-Eight power off, switch off amplifier power first. Also, to protect the memory, use the power switch on the back of the Split-Eight (rather than unplugging it).

7. Adjust Volume A and B.

CAUTION! To protect ears and speakers, before playing, reduce both Volume A and B to minimum. Then play the keyboard and increase both volumes gradually.

Note: The volume controls are also used to balance the channels, so you will often want to adjust them simultaneously. (For best signal-to-noise ratio, raise the A and B Volumes while lowering the amplifier gain.)

8. Check that the Pitch wheel is centered.
Always start with this wheel centered in its "detent." From this position it is possible to bend pitch upwards or downwards by as much as a major 3rd.

9. Check that the Mod wheel is fully down (towards you).
Start with a minimum of modulation. To increase modulation, move the wheel forward. The effect of this depends upon the selected program.

10. Center Master Tune. Or adjust as needed to tune the Split-Eight to a piano, for example.

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PLAYING

INTRODUCTION

At this point, power has been switched on and the wheels, Master Tune and Volume knobs have been positioned correctly (see "PREPARATION"). Only the Preset switch is on.

Basically, playing the Split-Eight is a matter of:
1. Selecting the keyboard mode: Single, Split, or Double.
2. Selecting the desired program (Single mode) or programs (Split or Double modes).
3. Playing the keyboard and using the wheels for expression.

This section covers these activities.

The Split-Eight comes pre-programmed with 64 "factory" sound programs. These represent a wide range of useful instruments and effects. The sound programs stay in memory even when power is switched off.

After familiarizing yourself with the Split-Eight and its factory programs, try creating your own sound programs by studying the PARAMETERS section.

TUNING

Before playing, however, you must be aware that the Split-Eight uses analog oscillators which drift in response to changing temperature. So it will sound out of tune for a little while as it warms-up. The Split-Eight also includes an automatic tuning system which retunes the oscillators when the Split-Eight is not being played (but power is still on!)

If the Split-Eight is tuning a voice while you want to play, this is no problem: playing interrupts tuning. But on the other hand if you do not want to wait for the automatic system to detect inactivity before it retunes:

Hold down Record (which will blink) and press the OSC Parameter Group switch.

This starts tuning of all voices, with the display indicating as it did when power was switched on.

Note: Tuning, whether automatic or manual, does not alter any control or parameter settings, but if playing with other instruments, you may need to slightly readjust Master Tune as the Split-Eight warms up.

PRESET MODE

When the Preset switch is lit, the number in the display is that of the current sound program. Program 11 is selected automatically on power-up. To select another program, enter the desired number using the PROGRAM SELECT switches (1-8).

When the Preset switch is off, the Split-Eight is in Edit mode. Edit mode allows you to reprogram the parameters to suit your taste. (For more information on editing, see the PARAMETERS section.)

SINGLE MODE

When the Split and Double LEDs are both off, the Split-Eight is in Single mode. Both four-voice channels are programmed with the same sound (this is termed "homophony"). On the keyboard you can play up to eight keys at once. If you play more than eight keys, you hear only the last eight played. (This is called a "last-note priority" polyphonic system.) In Single mode it is normal that no Channel LED is lit, because there is no reason to distinguish between the channels.

LINK MODE

When Link is off, keyboard mode is only controlled with the Split and Double switches.

When Link is on, selecting a program in Channel A may also automatically change the keyboard mode, split point, and program in Channel B.

SPLIT MODE

When Split is on, the four Channel A voices play from the right side of the keyboard while the four Channel B voices play from the left side. To select the channels for program changes or editing, press the Channel switch. It alternately selects A or B. (Note that if in Split mode you select the same program number for both channels, this is essentially the same as Single mode.)

When power is switched on, the split point is initially set to C2 (the third C from the left). But you can program the split point anywhere within the second and third octaves.

To relocate the split point:
Hold down Record (the control panel will blink), and press the key which is to be the lowest key on the right side.

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To Link Channel B and the split point to Channel A:

1. With Split on, but Link off, select the desired programs.
2. Set the split point as above.
3. Switch Link on.
4. Switch Record on. (This will clear any edits currently made to the Channel B program, and if Channel B was selected, will also switch back to Channel A. Any edits in Channel A are not lost.)
5. Enter two digits for desired destination program in Channel A.
6. Record mode will switch off automatically.

DOUBLE MODE

When Double mode is on, the four voices each in Channels A and B play in parallel. In other words each key plays one voice from both channels. (Since there are four voices per channel, you can play a maximum of four keys.)

If in Double mode you select the same program for both channels, then two voices with the same sound are asigned to one key. This thickens the sound but does not change the timbre.

To link a specific Channel B program to Channel A selection:

1. With Double on but Link off, select desired programs.
2. Switch Link on.
3. Switch Record on. (If Channel B was selected, Channel A will be selected automatically.)
4. Enter two digits for desired destination program in Channel A.
5. Record goes off.

WHEELS AND FOOTSWITCH

The wheels are monophonic, that is, they affect all voices to the same degree. The effect of the Pitch wheel is always the same. The effect of the Mod (modulation) wheel depends on the selected program. When they are not in use, be sure to return them to their rest positions.

In Split mode it is useful to be able to disable the effect of the wheels on either side. To switch the wheels on and off:

1. Select desired channel.
2. Hold down Record, and press the LFO Parameter Group switch.

The effect of the footswitch is programmed. For more information, continue reading.

PROGRAMMABLE PARAMETERS

While playing with the factory programs, you may have noticed the response of the keyboard, wheels, and footswitch changing. This is because by selecting a program you indirectly control over thirty parameters which define the performance controls as well as the sound produced by the synthesizer voices.

For example, you may have noticed that some programs assign all voices to the lowest key played. This is the Unison parameter. Also, the glide parameter determines whether the keyboard plays discrete pitches or slews the notes. The program may or may not cause the footswitch to provide an accent, or temporarily change to a "sub-program." The program may switch on the chorus, or Poly-Mod (which cuts-off the Channel B audio output).

All of the programmable parameters are explained in the next section.

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PARAMETERS

EDITING AND PROGRAMMING

Note: Before editing programs it may be a good idea to save the factory programs using the cassette interface.

To adjust (edit) program parameters, first switch Preset off. (If Link was on, it will also switch off.)

Selecting Parameters
There are 30 program parameters arranged in a 4 x 8 matrix. (Selection #32 is the MIDI Channel, and one location is unused.) In either order, select the row using the Parameter Group switches, and select the column using the PROGRAM SELECT switches.

For example, if the FILTER Parameter Group switch is lit and PROGRAM SELECT 5 is lit, then the Filter Decay parameter is selected.

Adjusting Parameter Values
When Preset is off, the number in the display is the value of the parameter which is currently selected (by the parameter matrix switches). To adjust the parameter value, turn the Parameter Value knob.

Note: The Filter Cutoff parameter ranges to 127, but the display only shows two digits. Therefore when adjusting this parameter above 99 (100 to 127), the 1 is not displayed.

Cancelling Edits:
To cancel all edit changes and restore the original program, switch Preset on and re-select the program.

Recording Edited Programs
After editing a program as desired,
1, Switch Preset on.
2. Switch Record on. It blinks.
3. Enter two digits for the desired program destination. The control panel stops blinking, indicating recording is completed.

Note: If you made an error with your first digit entry, you can switch Record off to abort. But when you press the second digit, the edited program is recorded in that location (and erases the previous program).

Copying Programs
To copy a program, select the desired program, switch Record on, then select the desired destination.

Basic Patch
As a starting point for creating new sounds it is often helpful to clear all program parameters to the minimum required to produce a tone. This can be done easily by holding down Record and pressing PROGRAM SELECT 1. This sets all parameters to 00, except as follows:

Coarse: 24
Sawtooth wave: 1 (on)
Cutoff: 127
KBD Track: 2 (full)
Amp Sustain: 15
Voice Volume: 15

If desired, this basic patch can be recorded as a program from which many editing departures can be made.

PERFORMANCE PARAMETERS

Glide
Range: 00/01, off/on
This parameter affects the keyboard. As the glide value increases, the voices do not step instantly between pitches. Instead, they begin to slew. The effect can be made subtle or quite extreme. When Unison is off, polyphonic glide results, which is not easy to predict, but can make an interesting effect.

Chorus
Range: 00/01, off/on
The chorus has a fixed rate and depth. It is programmed on or off. If in Split or Double modes, and one channel programs the chorus on, this will overide the other channel programming it off.

Unison
Range: 00/01, off/on
You may have noticed that some factory programs only allow you to play one note at a time. This is because the Unison parameter is programmed on. When Unison is on, all eight voices (or four voices, if in Split or Double modes), are played only by the lowest key. This monophonic, rather than polyphonic, voice assignment is used to produce a richer sound.

In addition, if Unison is on, the keyboard changes from multiple-trigger to single-trigger mode. In this mode the "envelope" which shapes each note is not necessarily triggered with each new keystroke

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(as they are in multiple-trigger mode). Instead, the envelope is triggered only when all previous keys have been completely released. This allows you to selectively accent notes by touch.

Delay
Range:00-03
00= off
01= 20 millisecond delay
02= 40 ms
03= 80 ms

When Unison is on, use this for an interesting flange, doubling, or echo effect.

Footswitch Accent
This parameter allows the footswitch to temporarily change the setting of one of the following parameters:
Glide
Filter Cutoff
Filter Amount
Filter Attack
Voice Volume
Amplifier Decay
Amplifier Release

To program the footswitch:
1. Switch Preset off.
2. Hold down Record and press PROGRAM SELECT 2. The control panel blinks, and the Glide parameter is selected.
3. To select other parameters, press the footswitch.
4. When the desired accent parameter has been selected, press Record again. (It stops blinking.)
5. While holding the footswitch, adjust the Value knob for the desired accent tone or effect. When you release the footswitch, the displayed parameter returns to its original programmed value.
6. Switch Preset on.
7. Switch Record on. It blinks.
8. Enter the desired two-digit program number.
9. Pressing on the footswitch temporarily selects the accent parameter value.

Footswitch Sub-program
If the accent feature is not used or desired, you can program the footswitch to temporarily switch to a new program:
1. Switch Preset on.
2. Hold down Record and press PROGRAM SELECT 2. (Blinking starts.)
3. Enter two digits for sub-program number. (Blinking stops.)
4. Press the footswitch.
5. Pressing the footswitch alternately selects the main program and the subprogram.

SYNTHESIZER PARAMETERS

This section describes the Split-Eight's programmable voice parameters.

The Split-Eight actually contains eight synthesizers, termed "voices." Figure 1 diagrams one of these voices at a very general level. The Split-Eight fits into the tradition of voltage-controlled analog synthesizers. To understand these instruments it has proven useful to identify three basic functions: controllers, audio sources, and modifiers (filters and amplifiers). Each voice contains several of each type of function.

Basically, controllers provide the control voltages (CVs) which determine the pitch of the audio sources, or the filtering or attenuation effects of the modifiers. Controllers can be mechanical devices such as keyboards and wheels. For example, as the CV from the keyboard to the oscillator (audio source) is increased, the oscillator frequency increases. Or controllers can be electronic, such as the LFO or the two envelope generators. For example, as a rapidly-decreasing CV from an envelope generator sweeps down the the filter cutoff frequency, it imparts a "pluck" to the voice. Other controllers include The MASTER TUNE knob and PITCH wheel, which in effect provide two CVs which control all of the oscillators.

There are two audio sources: the oscillator, and the filter, if it is adjusted for self-resonance.

The mixer, filter (when not in self-resonance), and amplifier are modifiers.

A more detailed examination of the voice parameters follows.

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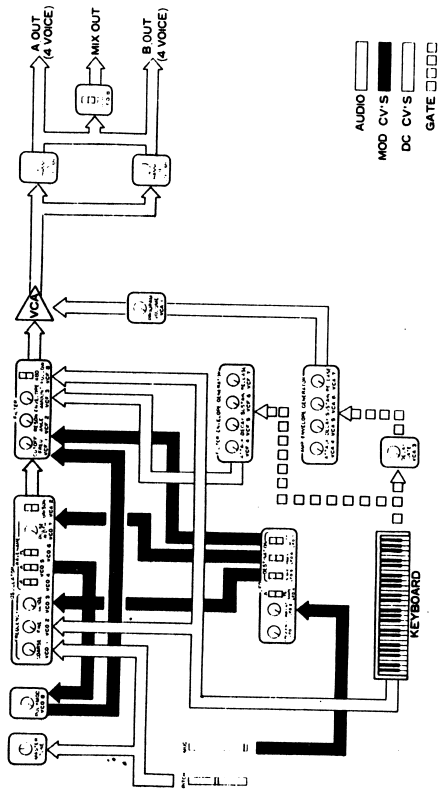


Figure 1
VOICE BLOCK DIAGRAM

OSCILLATOR

The oscillator is an audio-frequency source always under control of COARSE and FINE FREQUENCY, the keyboard, PITCH wheel, and MASTER TUNE. Oscillator frequency can be modulated by the LFO and by the envelope generator. PULSE-WIDTH (PW) can also be modulated by the LFO.

If no waveshape parameter is on, the oscillator will have no audio output. If two or three waveshapes are on, they are mixed at full level and supplied as the oscillator's output to the MIXER.

COARSE FREQUENCY

Value Range: 00-48
- 00= lowest octave
- 12= one octave up
- 24= two octaves (middle C)
- 36= three octaves
- 48= four octaves

Adjusts oscillator pitch in semitones, over a four-octave range. To this is added the four-octave keyboard, for a total range of eight octaves.

Note that to keep programs in tune, this parameter should normally be adjusted to the octaves (00, 12, 24...).

Exact oscillator pitch should be fine-tuned with MASTER TUNE, with FINE at a value of 0.

FINE FREQUENCY

Value Range: 00-31
- 32= one semitone

Normally this parameter is set to 0, while oscillator pitch is adjusted with MASTER TUNE. This parameter adjusts oscillator frequency by up to just less than a semitone. This allows detuning of the oscillator, usually for use only in Double mode.

SAWTOOTH WAVE

Value Range: 00/01
- 00= Off
- 01= On

Enables full-level waveshape containing all harmonics. This basic shape is often described as "brassy."

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TRIANGLE WAVE
Value Range: 00/01
00= Off
01= On

Enables full-level triangle wave, containing little harmonic energy, thus having a dull tone.

PULSE WAVE
Value Range: 00/01
00= Off
01= On

Enables full-level waveshape whose harmonic content, thus timbre, depends on the value of PULSE WIDTH and LFO modulation. If switching this on produces no sound, try adjusting Pulse Width to a value between 2 and 60.

Note: If all three waveshapes are on, and the filter is well open, some distortion may occur when several keys are played simultaneously. If this occurs, compensate by simply reducing VOICE VOLUME.

PULSE WIDTH
Value Range: 00-63
01= 1%
15= 25%
31= square wave
47= 75%
63= 99%

Adjusts the harmonic content of the pulse wave by varying its duty cycle from approximately 1 to 99%. At the extreme parameter values (00-02 and 60-63) the pulses may be barely audible. A 50% duty-cycle pulse (having only odd harmonics), also called a square wave, can be selected (approximately value 31).

This parameter is only effective if PULSE is on. This parameter has no effect on the sawtooth or triangle waves.

POLY-MOD
Value Range: 00-15

In Double Mode, the Output of Channel B is applied to the external signal input of the Channel A filters. Channel A oscillator output is switched to externally-modulate these filters, Thus, Channel A modulates Channel B. Channel B and the Channel A VCO output is disabled. Of course, there is a four-voice limit.

Note that if value range is set very low, this will activate the patch switching arrangement (disabling Channel B), but provide little effect.

LFO

"Modulation" refers to a periodic or consistent (as opposed to accidental) aural change which is interesting or musically useful. Modulation is created by electronic controllers when it is not possible to adjust a mechanical controller with the required speed or precision. Modulation systems thus free the hands for playing the keyboard.

Modulation involves a signal-generating source and a modulated destination. LFO-MOD has a low-frequency oscillator (LFO) as a source, but has three selectable destinations. The LFO frequency, waveshape, and basic output level are adjusted by three parameters. To this modulation level will be added any contribution of the MOD wheel. Total modulation is applied by the LFO switches to three destinations.

FREQUENCY
Value Range: 00-15

Adjusts LFO frequency from about ¼ to 20 Hz.

PROGRAMMED AMOUNT
Value Range: 00-31

Programs modulation depth independently from the MOD wheel.

TRIANGLE/SQUARE WAVE SHAPE
Value Range: 00/01
00=Triangle
01=Square

Selects a triangle wave for vibrato, or a square wave for trills.

OSCILLATOR MODULATION
Value Range: 00/01
00= Off
01= On

This enables LFO modulation to the oscillator frequency, according to the level set by LFO AMOUNT and the MOD wheel. This produces a vibrato or trill, according to the value of LFO SHAPE.

PULSE-WIDTH LFO-MODULATION
Value Range: 00/01
00= Off
01= On

Applies LFO-modulation to oscillator pulse width.

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FILTER MOD BY LFO
Value Range: 00/01
00= Off
01= On

This parameter switches LFO-modulation to the filter, which normally produces a vibrato effect.

FILTER

The FILTER section contains parameters of the filter itself and of its ADSR envelope generator.

CUTOFF FREQUENCY
Value Range: 00-127
(The "hundreds" digit is not displayed. For example, value 127 is displayed as 27.)

Adjusts cutoff frequency of the 24 dB/octave (4-pole) low-pass filter. This parameter is rather like a tone control. "Cutoff" is the frequency below which all elements of the mixer's output signal are let through. The higher-frequency components of the input signal (that is, all those above the cutoff frequency) are suppressed. The higher the parameter value, the higher the frequencies are which pass through the filter. Thus, the "brighter" the sound.

In addition to this parameter, overall cutoff frequency is the result of all the filter modulation parameters.

RESONANCE
Value Range: 00-31
26= approximate oscillation point (may vary by voice)

Adjusts the amount of filter resonance. As the value is increased from 0, the amount of resonance ("emphasis," "regeneration," or "Q") applied to those signal components at the cutoff frequency will increase. As resonance increases, frequencies lower than the cutoff will become decreasingly audible in comparison with those nearer the cutoff. As the parameter value is increased, the filter breaks into oscillation, acting like a sine-wave audio source whose pitch is determined by CUTOFF FREQUENCY (and the various filter modulation sources).

ENVELOPE AMOUNT
Value Range: 00-15
00= no envelope modulation

The filter cutoff may be varied over time by the filter envelope generator. This parameter adjusts the depth of filter envelope modulation.

Each voice contains two independent ADSR envelope generators: one controls filter cutoff frequency, and one controls the amplifier gain. The following comments on the ADSR envelope generators are valid for both.

An "envelope" changes value over time at a rate adjusted by the ATTACK, DECAY, and RELEASE parameters. As the envelopes are generated with each keystroke, they "contour" the voice intonation, timbre, and dynamics, animating the otherwise raw waveshapes which come from the mixer.

The contour pattern is initiated when a key is struck. This "triggers" the envelope generator(s) to proceed through their attack and decay periods. These periods can each range from zero to about 11 seconds. The envelope voltage rises to its full value, then falls (decays) to the level set by the sustain parameter, where it remains until the key is released. When the key is released, the gate goes off and the envelope voltage drops to zero at a rate set by the release parameter.

ATTACK
Value Range: 00-15
8= 1 second
15= 11 seconds

Adjusts the length of time for the envelope to go from zero level (when key is initially depressed) to maximum level.

DECAY
Value Range: 00-15
8= 1 second
15= 11 seconds

Adjusts the length of time for the envelope to go from maximum level to sustain level. If sustain is set at maximum then the decay parameter value is irrelevant, because level is already maximum.

SUSTAIN
Value Range: 00-15

Adjusts the sustain level from zero to maximum. This is a level control, not a time control. Sustain time is the period between the end of the decay period and the beginning of the release period. This is the length of time the key is held after attack and decay.

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RELEASE
Value Range: 00-15

Adjusts the length of time for the envelope to go from sustain level to zero. If the key is released before the attack or decay periods have elapsed, release controls the time taken for the envelope to drop to zero from whatever its level when the key was released. If the attack and decay periods have elapsed and sustain is set to 0, then the release value is irrelevant, because the level is already minimum.

If filter release produces no effect, check that AMPLIFIER RELEASE is set to approximately the same value.

KEYBOARD TRACK
Value Range: 00-02
00= Off
01= Half
02= Full

When Full, the KEYBOARD control voltage (CV) is applied to the filter's cutoff frequency just as it is normally applied to the oscillator. With the filter thus "tracking" the keyboard, cutoff frequency is maintained at a constant point relative to the notes being played. This results in a consistency of timbre over the whole keyboard range. When KEYBOARD is off, notes played higher on the keyboard will have have a duller timbre. Obviously, the 1/2 value selects the midrange between these two effects.

If FILTER RESONANCE is set for self-oscillation, setting KEYBOARD on Full will allow the filter to be played from the keyboard. However, since the filters in resonance are not precisely tuned, there will be considerable error from the normal keyboard scale. (Unless a complex effect is desired, ENVELOPE AMOUNT will in this case normally be set to 0, to maintain a steady frequency from voice to voice).

If the KEYBOARD parameter is toggled while holding keys down, the effect will not be heard until the key is restruck.

AMPLIFIER

VOICE VOLUME
Value Range: 00-15
15= maximum signal-to-noise ratio

Programmable voice volume is a convenient way to balance the loudness of programs so you aren't always fiddling with the Volume knobs. Use it after the program is basically recorded.

The remaining amplifier controls are the envelope generator attack, decay, sustain, and release parameters, which shape the envelope

applied to the VCA. These are identical to the corresponding filter envelope parameters.

Unless the sustain parameter is turned up slightly, nothing will be heard after the attack and decay periods have elapsed.

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CASSETTE INTERFACE

Use the cassette interface to provide long-term storage for your programs.

Note: It is recommended that portable recorders equipped with automatic level control (ALC) be used with this interface.

Connections

1. If necessary, disconnect footswitch from CASS/FTSW IN jack.
2. Connect EAR output of tape recorder to CASS/FTSW IN jack.
3. Connect CASS OUT jack to MIC input of tape recorder.

Save

1. Start recorder (in Record mode).
2. Wait for the tape leader to pass.
3. Hold down Record and press PROGRAM SELECT 6.
4. When pilot tone appears, adjust level to 0 dB (if not using ALC).
5. While the Split-Eight is saving, only this switch remains lit.
6. After less than one minute, PROGRAM SELECT 7 blinks to indicate that verification should be done.
7. Stop the recorder.

Verify

1. Rewind to the start of the recording.
2. PROGRAM SELECT 7 is still blinking.
3. Adjust playback level to approximately 50% of full level.
4. Start the recorder (in play mode).
5. Just after you hear the pilot tone, press PROGRAM SELECT 7. It should stop blinking and light steadily.
6. When the LED goes out, the recording has been verified.
7. If the LED instead blinks, there has been a verification error. It is possible that the tape is not recorded correctly but more likely that recorder output level is not set to match the interface. It sometimes takes a few tries to find the correct levels for your specific recorder. If a cassette will not verify (or load) with several different levels, try a new cassette or different recorder.

Load

Note: Loading erases the current contents of memory. Therefore, before proceeding, make sure that you have already saved important programs.

1. Set recorder output level as for verification (above).
2. Start recorder in playback.

3. When the pilot tone appears, hold down Record and press PROGRAM SELECT 7.
4. While the cassette is loading, only PROGRAM SELECT 7 will be lit.
5. When the LED goes out and the Split-Eight enters its tune routine, stop the recorder. The cassette has loaded successfully.
6. If instead the LED blinks, a load error has occured. Adjust recorder level and try again.

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MIDI

Connections
It is often best to first switch power off between both units, so that they are correctly initialized.

When using the Split-Eight as a master, its MIDI OUT goes to the MIDI IN of the slave.

When using it as a slave, connect the master's MIDI OUT to the Split-8's MIDI IN.

Keyboard
When power is switched on, keyboard information is transmitted and recognized.

Channel B Local Control Disable
It is possible to switch Channel B so that it is not controlled from the keyboard, but only by MIDI IN. This is handy for live playback using one program, while an external sequencer plays a different program.

To switch Channel B local control off, set the split point to the lowest key (C0). This assigns the entire keyboard to Channel A. Channel B only plays from MIDI.

When this mode is selected, it may also be useful to disable the wheels in Channel B. (To disable wheel, select Channel B, hold down Record and press the LFO Parameter Group switch.)

Channel Selection
When power is switched on, the channel number is set to 1. If Single or Double mode is on, it plays notes received in Channel 1. By selecting Channel A or B, MIDI channels can be individually set for Split-Eight Channels A and B.

If Split mode is on, and Mode 3 is selected, notes received in MIDI Channel 1 will go to Split-Eight Channel A (default), and notes received in MIDI Channel 5 will go to Split-Eight Channel B (default). The channel numbers can be changed freely.

To change the channel:
1. Switch Preset off.
2. Select the MIDI Channel parameter using the AMPLIFIER Paramter Group switch and PROGRAM SELECT 8.
3. Adjust Value knob for desired channel.

MIDI Disable
MIDI is enabled on power up. To switch off MIDI transmit and receive, hold down Record, and press PROGRAM SELECT 3.

MIDI Enable
To reverse the effect of disable, hold down Record and press PROGRAM/SELECT 4.

MIDI Expand Mode
Most of the Split-Eight's MIDI functions are selected in MIDI EXPAND mode. To activate this mode:

Hold down Record, and press PROGRAM SELECT 5. This will cause all PROGRAM SELECTS to blink.

Pressing one of the PROGRAM SELECTs determines the function, as follows:

#1 Mode 1 Select
When power is switched on, the mode is set to 1 (Omni On/Mono Off). In Mode 1 the Split-Eight recognizes all MIDI channels. This function reverses the effect of #3.

In Mode 1, if Split is selected, MIDI IN will act as if Double mode were selected.

#2 Dump All Master Programs to Slave
This command replaces the slave's programs with that of the master's. (To hear the new programs on the slave, you must select them.) While the programs are being transmitted, PROGRAM/SELECT 2 remains lit.

#3 Mode 3 Select
In Mode 3, the Split-Eight listens to data only in the selected channels. If in Split mode, Channels A and B operate essentially as independent synthesizers, transmitting all notes out the selected channel and playing all notes received in the selected channel.

#5 Enable/Disable Program Changes
On power-up, program changes are disabled (both receive and transmit).

#6 Enable/Disable Wheel Changes
On power-up, wheel changes are disabled.

Program Dump by MIDI Request
Use for backup to external MIDI equipment.

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Tune by System Request

Continuous MIDI activity may prevent the Split-Eight from auto-tuning. Therefore it should receive tune commands from the system. You can also tune manually.

MIDI SPECIFICATION

Transmitted

Note On
Note Off
Mod Wheel Amount, if enabled, and only when changed
Program Change, if enabled
Pitch Wheel Change, ENH. Wheel Center: LS = 0, MS = 64. If enabled, and only when changed.
Omni Off, BNH
System Exclusive F0H, 01H (SEQ ID), 0DH (608 ID), prog data, F7H
Program data. 15-bytes of data transmitted as 30 four-bit nibbles, ls nibble first. See bit map..

Recognized

Note On. Does not recognize velocity.
Note Off
Mod Wheel Amount, if enabled, is added to the current Mod wheel setting.
Program Change, CNH. If enabled.
Pitch Wheel Change, ENH. Wheel Center: LS = 0, MS = 64. If enabled.
Tune Request, F6.
Omni Off, BNH
System Exclusive
Program dump request.
Program dump. 15-bytes of data transmitted as 30 four-bit nibbles, ls nibble first. See bit map.

Please read this warranty as it gives you specific legal rights. You may also have other rights which can vary from state to state.

LENGTH OF WARRANTY

This warranty will remain in effect for six months from the date of purchase.

WHAT IS COVERED

This warranty covers all defects in material and workmanship in this product, under the conditions discussed in the following sections.

WHAT IS NOT COVERED

1) Damage due to accident, misuse, neglect or abuse--including damage resulting from failure to follow instructions contained in the operation manual.
2) Damage or deterioration of cabinet or keyboard.
3) Damage occurring during any shipment of the product for any reason. All claims must be handled directly with the carrier.
4) Damage resulting from repair or attempted repair by anyone other than Sequential Circuits, Inc. (S.C.I.) or an Authorized S.C.I. Service Center.
5) Any unit on which the serial number has been defaced, modified or removed is not covered under this warranty.
6) Any modification or alteration of any kind performed by anyone including S.C.I. or an Authorized S.C.I. Service Center, will void the warranty on your unit. The only exception to this is an authorized S.C.I. modification which includes its own warranty coverage. Due to the complexity of the circuitry, modifications tend to extend repair time and therefore increase repair costs.

HOW TO VALIDATE THE WARRANTY

With this warranty you will find a Warranty Registration Card. This card is to be filled out and returned to S.C.I. within fourteen (14) days of the date of purchase.
The warranty is applicable to the original purchaser only and you must present the original purchase receipt to obtain warranty performance, unless applicable laws state otherwise.

HOW TO OBTAIN WARRANTY PERFORMANCE

Your unit may be serviced by an Authorized S.C.I. Service Center. If you are unable to find a service center in your area please contact the S.C.I. Factory Service Department. We will either refer you to an Authorized Service Center or request that you return your unit to the factory. If you are to return your unit to the factory, you will be given a Return Authorization number. Please mark all packages and shipping documents with this number.
Do not return your unit to the factory without prior authorization as your unit may not be accepted.
You must pay all shipping charges to and from S.C.I. or Authorized Service Centers and you will be responsible for damage and/or loss resulting from shipment in either direction. If you desire a fully-insured shipment you must arrange for this coverage with the carrier. If you wish your return shipment to be insured, you must request this in writing at the time your unit is delivered to S.C.I. All additional charges must be prepaid or your unit will be returned to you C.O.D. Details and costs can be obtained from the S.C.I. Shipping Department.

LIMITATIONS OF IMPLIED WARRANTIES

Any implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration of the length of this warranty.

EXCLUSION OF CERTAIN DAMAGES

S.C.I.'s liability, for any defective product, is limited to repair or replacement of the product at S.C.I.'s option. S.C.I. shall not be liable, under any circumstances for:
1) Damages based upon inconvenience, loss of use of the unit, loss of time, interrupted operation or commercial loss, or
2) Any other damages, whether incidental, consequential or otherwise, except damages which may not be excluded under applicable law.
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