Roland

S-50/S-10

DIGITAL SAMPLING KEYBOARD

ELECTRONIC MUSICAL INSTRUMENTS

The S-Series Sampling Keyboards— The Ultimate In Digital Sampling

The New Standard for Sampling Keyboards

S-10 DIGITAL SAMPLING KEYBOARD

With the S-10, any sound you hear can become part of your musical library. Put your hands on the S-10 at your Roland dealer and discover the creative potential of digital sampling.

Four Digital Wave Memory Banks

The S-10 is a MIDI-compatible, eight-voice polyphonic digital sampling keyboard. With four 32K-word wave memory banks (a total of 128K-word memory), the S-10 offers a sampling time of four seconds at a sampling rate of 30kHz (one-second sample per wave memory bank), or a sampling time of eight seconds at a sampling rate of 15kHz (two-second sample per wave memory bank). It also features a 2.8″ built-in Quick Disk drive. The S-10 has a forty-nine key, velocity-sensitive keyboard with up to three split points, allowing you to expressively play any sound sampled by you or sounds from Roland's sound library disks.

The four wave memory banks (A, B, C, and D) can be used in a variety of combinations and can be assigned to the split points of the keyboard by changing the Sampling Structure (see the chart below). You can use an individual bank to store four different sampled sounds, or combine banks to store longer samples.

●SAMPLING STRUCTURES

Structure	Mode	Assignment for Keyboard (sampling time at 30 kHz sampling rate)			
		Lower		Upper	
A B C D	Individual	A (1 s) B (1 s) C (1 s) D (1 s)			
AB CD ABCD	Link	A to B (2 s) C to D (2 s) A to B to C to D (4 s)			
A/B C/D	Split	A (1 s) C (1 s)		B (1 s) D (1 s)	
AB/CD	Split Link	A to B (2 s)		C to D (2 s)	
A/B/C/D	Multi Split	A (1 s)	B (1 s)	C (1 s)	D (1 s)

Thanks to its sophisticated sampling functions, the S-10 allows you to sample any desired sound by simply selecting a Sampling Structure and inputting the sound into the S-10. A microphone or other audio equipment can be directly connected to the S-10. Once a sound is sampled, waveform data can be saved or loaded instantly with the built-in disk drive. On each side of the 2.8-inch Quick Disk, data for a single memory bank may be stored. In addition to waveform data, Sampling Structure data and other data for the S-10 operation can also be stored on the Quick Disk.

The S-10 comes with six sound disks. By simply inserting a disk into the disk drive, you have easy access to sounds such as pre-sampled strings, choir, bass drum, snare drum, tom-tom, hi-hat, electric bass guitar, trumpet, orchestra hit, or special effects (hand cymbal).

Wave Parameter Edit

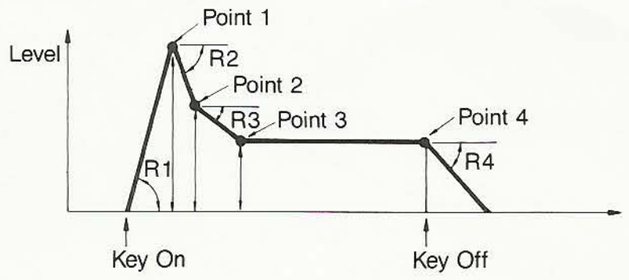
The S-10 has a special Wave Parameter Edit function, which determines how waveform data in memory is read. You can easily select a variety of editing functions to control looping, envelope setting, and more without affecting the waveform data itself. The following chart shows the range of programmable wave parameters available. These parameters can be programmed for each Sampling Structure. It's possible to change the Sampling Structure that was used to sample a sound to a different one when the sample is played back. It's also possible to apply the Wave Parameter Edit function to waveform data loaded from the Quick Disk.

●WAVE PARAMETERS

REC KEY	C to G_7	Chromatically shifts the pitch of sample sound.
BANK TUNE	−50 to +50	Adjusts the pitch of sample sound in 1-cent steps.
LOOP TUNE	−50 to +50	Adjusts the pitch of a loop within semitone.
SCAN MODE*	FWD	Waveform data is read out forward: sample sound is played back in normal manner.
	BWD	Waveform data is read out backward: sample sound is played back in reverse.
	ALT	Looped portion of waveform data is read out alternately forward and backward: Looped part of sample sound is played back alternately forward and backward.
LOOP TYPE*	1 SHOT	Makes no loop.
	MAN	Makes a loop with the loop end and loop length determined by the parameters END and LP.
	AUTO	The S-10 software program analyzes waveform data and automatically makes a loop.
ST	0.00% ~	Sets the starting point where playback begins.
END	~ 100%	Sets the end point where playback ends.
LP	0.01% ~	Sets the loop length.
AEN	—	Indicates the end point set by the automatic looping.
ALP	—	Indicates the loop length set by the automatic looping.
KEY FOLLOW*	ON/OFF	When turned off, the pitch of sample sound can't be controlled by the keyboard.
PITCH BEND*	ON/OFF	Turns pitch bend on and off.
VIBRATO*	ON/OFF	Turns both manual vibrato (controlled by bender lever) and delay vibrato on and off.
ENV V-SENS*	0 to 127	Adjusts the velocity sensitivity by which the envelope rate 1 and 2 are controlled.
ENV RATE 1* ENV RATE 2* ENV RATE 3* ENV RATE 4*	0 to 127 0 to 127 0 to 127 0 to 127	Sets the level change rate between two envelope points set by the following ENV LEVEL parameters (see the Fig. 3)
ENV LEVEL 1* ENV LEVEL 2* ENV LEVEL 3*	0 to 127 0 to 127 0 to 127	Sets the level of each envelope point (see the Fig. 3).
DYNA SENSE*	0 to 127	Sets the dynamics sensitivity to control the volume.
ABEND RATE*	0 to 127	Sets the rate at which the automatic bend changes the pitch (with the automatic bending, the sound is produced at a pitch slightly lower than the correct pitch then returns to the correct pitch).
ABEND DEPTH*	0 to 127	Sets the initial pitch of the automatic bend.

NOTE: The Wave Parameter settings marked with an asterisk can be copied to another memory bank.

Fig. 3



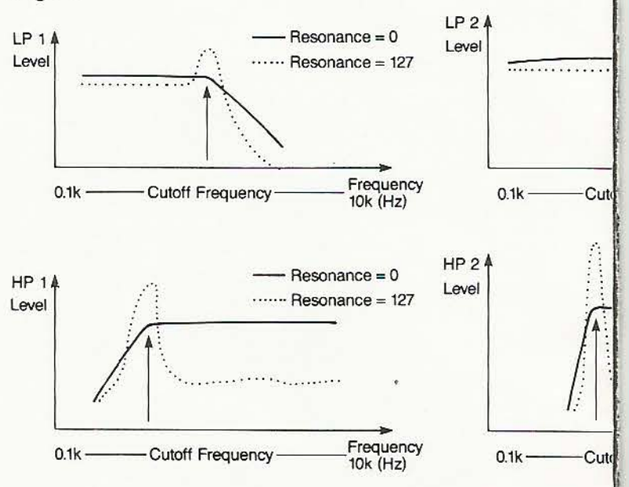
Wave Modify Edit

In addition to the Wave Parameter E a Wave Modify function is provided whic processes the waveform data currently ir This function enables you to edit the sam data using the following parameters and for later recall:

●WAVE MODIFY PARAMETERS

Combine	Combines two different samp beginning or end of the wave eliminated.
Mix	Merges the waveform data fo stored in two different memo memory bank.
Copy	Copies the waveform data ar setting from one memory ba
Swap	Exchanges the waveform dat parameter settings stored in memory banks.
Reverse	Readdresses the waveform d order.
Auto Loop	Automatically determines the the end point of the waveforn
Digital Filter LPH 1 (12dB/oct) HPF 1 (12dB/oct) LPH 2 (24dB/oct) HPF 2 (24dB/oct)	Four digital filters (see Fig. 4) modify the waveform data. T and resonance are adjustabl
Level Adjust	Adjusts the level of sample s compressing or expanding th

Fig. 4



Versatile Performance Controls

The S-10 also has Performance Para the modified samples can be played in a (Performance Parameter settings can als a Quick Disk.)

A Sampling Key
Infinite Possibilit
S-5C

The S-50 is the leading-
keyboard samplers. Des
system software prograi
needed, the S-50 will re
standard in the future. T
provided with the S-50 g
the S-50 directly to a CI
processing. An optional
drawing on a digitizer ta

512K-Word Memory Ca

The S-50 is a MIDI-c polyphonic digital sample and pressure-sensitive ke memory banks (a total of provides 14.4 seconds of sampling rate or 28.8 seco

The S-50 can store u (eight sounds per memory memory management, the a sampled sound can be length of a particular sam be located across the S-5 you to assign all sixteen s any split keyboard part or 3-1/2 inch disk drive ensu saving and loading.

Patch Memory Functio Control

The S-50 provides tv modifying any sound you a Roland's sound library c Edit function which modifi sampled sound, and the c function which controls er sound parameters. A sam functions is stored in the S Up to sixteen tones can b An additional Patch Memc these sixteen Tones in a va of the sixteen Tones and a can be stored as a "Patch eight such Patches, which selected instantly by simp P-8)—very convenient for chart shows the programr the Patch Memory functio Crossfade function (see F to Velocity Switch (Figure functions, which are also f ultimate in keyboard expre sensitivity can be individu assigning a value ranging points are also assigned u and you can easily confirr key on the easy-to-read S

Fig. 5

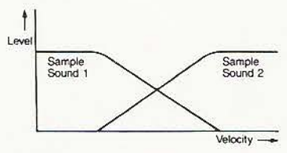
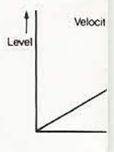


Fig. 6



●PATCH PARAMETERS

Naming		Names
Key Mode	NORMAL	Activate press (1
	VEL SW	Activate press (8 are cha

dit function,
n directly
memory.
pled waveform
store it to disk

le sounds, then the form data is
r two samples y banks into one
d wave parameter nk to another.
a and wave wo different
ata in reverse
loop length and n data.
are provided to ne cutoff frequency e.
und by e waveform data.

meters so that
variety of ways.
o be saved on

●PERFORMANCE PARAMETERS

LFO	VIB RATE	0 to 127	Sets the speed of both manual and delay vibrato.
	M-VIB DEPTH	0 to 127	Sets the depth of manual vibrato which is controlled by bender lever.
	D-VIB DEPTH	0 to 127	Sets the depth of delay vibrato.
	D-VIB DELAY	0 to 127	Sets the time when the delay vibrato is engaged after a key is pressed.
Bender	BEND MODE	CONT	Normal bending is produced.
		CHRM	Chromatic bending is produced.
Arpeggio	ARP SYNC	EXT	Auto arpeggio is controlled by external trigger signals.
		INT	Auto arpeggio is controlled by internal clock.
	ARP RATE	0 to 127	Adjusts the auto arpeggio speed.
	ARP MODE	UP DOWN U/D RND	Selects the auto arpeggio direction upward, downward, upward and downward, or random.
	ARP RANGE	1 oct 2 oct 3 oct	Selects the auto arpeggio range one, two, or three octaves.
	ARP REPEAT	1 to 16	Determines how many times a single note is repeated by the auto arpeggio.
	ARP DECAY	1 to 10	Sets the decay of auto arpeggio volume.
Velocity Mix	V-MX THRSH	0 to 127	In the Velocity Mix mode, two sample sounds can be mixed and the volume balance between two sounds can be controlled by key touch. This parameter sets the minimum sensitivity at which one of two sounds is activated.
Velocity Switch	V-SW THRSH	0 to 127	In the Velocity Switch mode, two sample sounds can be changed by key touch. This parameter sets the velocity value at which the sounds are changed.
Detune	DTUN MODE	VEL	When the S-10 is in the Detune mode, the detune range is controlled by key touch.
		FIX	The detune range is adjusted by the following DTUN RANGE parameter.
	DTUN RANGE	0 to 127	Sets the detune range.
	ABEND DEST	BOTH	Auto bend is applied to both the normal and detuned sounds.
		HALF	Auto bend is applied to only the detuned sound.
	BEND DEST	BOTH	Manual bend is applied to both the normal and detuned sounds.
		HALF	Manual bend is applied to only the detuned sound.
Delay	DELAY TIME	0 to 127	Sets the delay time.
	DELAY LEVEL	0 to 127	Sets the level of delayed sound.
	KEY OFFSET	−12 to +12	Pitch of the delayed sound can be chromatically shifted. This parameter determines the shift interval.
External Trigger Play	TRG G-TIME	0 to 127	Determines how long a sample is played when the S-10 is controlled by external trigger signal.
	EXT GATE PLAY		Assigns the note numbers (up to four notes) on the sample that is activated by external trigger signal.

MIDI Compatibility

The S-10 is MIDI compatible, enabling you to add it to your existing MIDI setup and expand your musical horizons since you can use any sound in the world. Assign the S-10 to any of sixteen MIDI channels. In addition to bender, hold, and modulation messages, the S-10 transmits and receives MIDI registered parameter messages to control the bend range. There are 123 combinations of the Sampling Structure and operation modes (detune, delay, dual, velocity mix, and velocity switch) that can be changed using MIDI Program Change messages. In addition, almost all the S-10's programmable parameters can be controlled using MIDI System Exclusive messages. A bulk dump feature enables you to transmit all data stored in the S-10's RAM (Random Access Memory). The S-10 is also perfectly suited to function as a mother keyboard in a MIDI system.

S-10 REAR PANEL

•Keyboard: 49 Keys (4 octaves, C to C), Velocity Sensitive, 8-Voice Polyphonic •Buttons: Sampling Structure, F1/▶, F2/◀, Tune, Wave Parameter, Wave Modify, Performance, MIDI, Enter, Forward, Backward, Record, Mode, Standby, Start, Load, Save, Arpeggio •Controls: Alpha-dial, Volume, Bend Range, Record Level, Pitch Bender/Modulation Lever •Display: Illuminated 16-Digit LCD •Disk Drive: for 2.8″ Quick Disks •Rear Panel: Jacks (Output, Headphones, Hold/Rec Start, Input), Switches (Output Level, Input Level, Power), MIDI Connectors (In, Out, Thru) •Dimensions (w/o QD case): 945(W) × 271(D) × 77(H) mm (37-3/16″ × 10-11/16″ × 3-1/16″) •Weight: 9.5 kg (20 lb. 15 oz.) •Accessories: Disk Case, PJ-1 Connection Cable, Sample Sound Quick Disk × 6 •Option: AB-10 Carrying Case

boards with ies

DIGITAL SAMPLING KEYBOARD

edge in professional igned with the flexibility of a m that can be upgraded as tain its value and leadership he system software disk ives you the ability to connect RT monitor for easy waveform system disk will put waveform blet at your command.

pacity

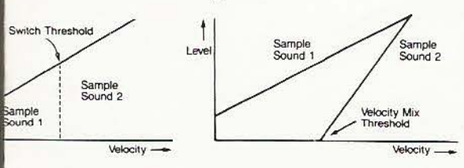
ompatible, sixteen-voice with a sixty-one key, velocity- board. With two 256K-word 512K-word memory), the S-50 sampling time at a 30kHz nds at 15 kHz.

p to sixteen sampled sounds bank.) For more efficient e area in memory used to store freely adjusted according to the ble. Up to sixty split points can O's sixty-one keys, enabling ampled sounds in memory to to individual keys. The built-in es durability of data plus rapid

n for Perfect Performance

o edit functions for freely sample or those provided on isk. One is a Wave Parameter es the waveform data of a ther is a Tone Parameter Edit velope, looping, and other pled sound modified by these -50's memory as a "Tone". e memorized at one time. ry function enables you to play riety of ways. One combination setting of Patch Parameters ." The S-50 can contain up to can be stored on disk or y pressing a button (P-1 to live performance. The following nable parameters provided by n. In the Key Mode, a Velocity gure 5) is provided in addition 6) and Velocity Mix (Figure 7) eatured on the S-10, for the ssiveness. Aftertouch ally set for each Patch by from 0 to 127. Keyboard split sing the Patch parameters, n which Tone is assigned to a -50 display.

Fig. 7



a patch (up to 12 characters).	
s one sample sound by a single key 6-voice polyphonic).	
s two sample sounds by a single key -voice polyphonic). The two sounds nged by key touch.	

Key Mode	X-FADE	Activates two sample sounds by a single key press (8-voice polyphonic). The two sounds are crossfaded by key touch.
	VEL MIX	Activates two sample sounds by a single key press (8-voice polyphonic). The two sounds are mixed by key touch.
Velocity Switch Threshold	0 to 127	Sets the velocity value at which the velocity switching occurs.
Pressure Sensitivity	0 to 127	Sets the aftertouch sensitivity.
Bend Range	0 to 12	Chromatically adjusts the bend range.
Octave Shift	−1/0/1	Shifts the note range one octave below or above.
Output Level	0 to 127	Sets the output level of a patch.
Copy From		Copies the setting of a patch.
Split Setup		Sets the split points.
Split Information		Lets the display indicate which tone is assigned to a key.
Original Key Map		Changes the key number of a tone.
Fine Tune Map	−50 to +50	Adjusts the pitch of individual tones used for a patch.
Level Map	0 to 127	Adjusts the volume level of individual tones used for a patch.
Level Curve Map	0 to 5	Assigns one of six velocity curves (see Fig. 8) to each of tones used for a patch.

Fig. 8

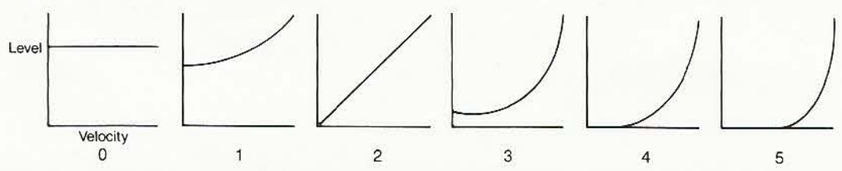
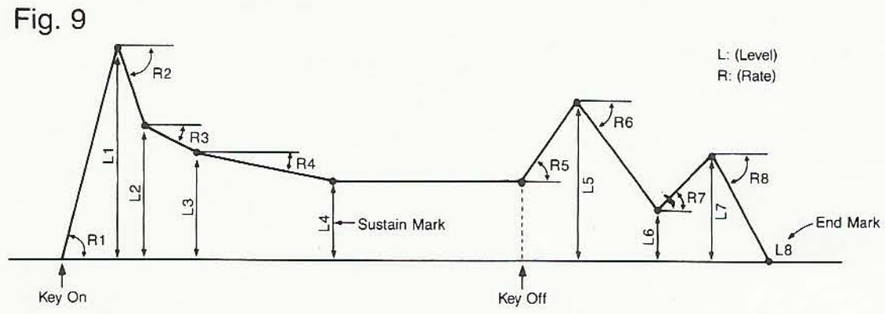


Fig. 9



Wave Data Edit and Tone Parameter Edit Functions

With two versatile edit functions, it's easy to create a new sound by simply modifying any sampled sound.

The Wave Data Edit function (corresponding to the Wave Modify function of the S-10) enables you to modify the waveform data of a sampled sound according to the parameters listed in the following chart. With the Wave Mix functions, waveform data from two different samples can be merged, and the volume level of each can be adjusted before merging to prevent unwanted distortion. The tone color of a sampled sound can be tailored to suit your taste using Roland's unique digital filtering system. Low- and high-pass filters are provided. Both the cutoff frequency and resonance are adjustable.

The S-50's Tone Parameter Edit function (corresponding to the Wave Parameter Edit function on the S-10) provides programmable control over looping, envelope setting, and more. The S-50's envelope generator features eight level and eight rate parameters (see figure 9) for the creation of any complex waveform. In addition, the EG control function enables you to control envelope rate and level by velocity and key scale (key follow).

●WAVE DATA EDIT PARAMETERS

Wave Mix	Merges the waveform data for two sample sounds.
Digital Filter	Adjusts the low-pass and high-pass filters.
Truncate	Eliminates the beginning or end of the waveform data.

●TONE PARAMETERS

Naming		Names or renames a tone.
Original Key Number	C0 to C9	Changes the key number assigned to a tone.
Fine Tune	−50 to +50	Adjusts the pitch of a tone.
Loop Mode	OFF	Makes no loop.
	FWD	Looped portion of the waveform data is read out forward.
	ALT	Looped portion of the waveform data is read out forward and backward alternately.

Start Point	
End Point	
Loop Point	
Loop Tune	−5
Copy From	
Vibrato Rate	0 t
Vibrato Depth	0 t
Delay Time	0 t
Envelope Generator	Le (0
	Ra (0
	Su
	En
EG Control	Ke (0
	Ve (0
	Ve (0
	Le

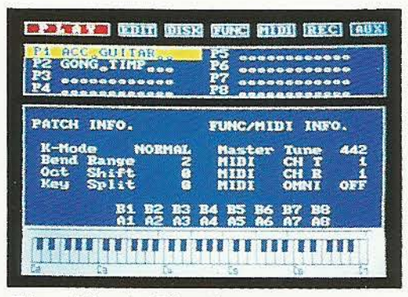
Connect Direc

For faster a provides connec composite moni television set wit recorder can be visually monitori operations, inclu its envelope.

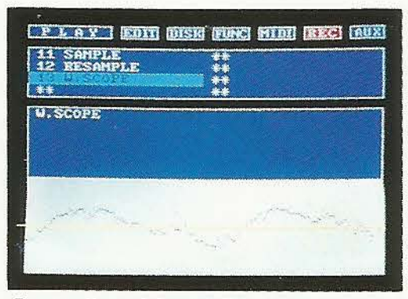
	Sets the start point where the playback begins.
	Sets the end point where the playback ends.
	Determines the beginning point of a loop.
)0 to +50	Adjusts the pitch of a loop.
	Copies the tone parameter setting (waveform data is not copied).
ɔ 127	Sets the vibrato rate.
ɔ 127	Sets the vibrato depth.
ɔ 127	Sets the delay time of delayed vibrato.
vel to 127)	Sets the envelope level (8 points).
te to 127)	Sets the envelope rate (8 points).
stain Mark	Assigns the sustain mark to one of eight envelope level points.
d Mark	Assigns the end mark to one of eight envelope level points.
y Rate to 127)	Sets the level of key follow which in turn controls the envelope rates.
ocity Rate to 127)	Determines how deep the envelope rates are controlled by key touch.
ocity Level to 127)	Adjusts the velocity sensitivity to control the envelope rates.
vel Curve	Selects one of six velocity curves (see Fig. 8) which controls the envelope rates.

tly to a Monitor Display

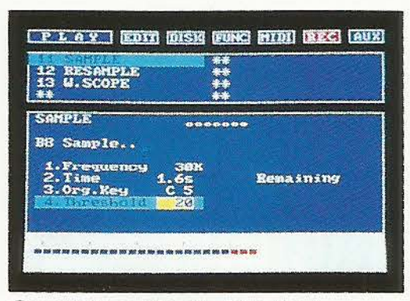
nd easier operation, the S-50 also
ction jacks for connecting RGB or
tors. A color CRT display or a regular
n an input connector for a video tape
directly connected to the S-50 for
ng all information during editing
ding waveform of a sampled sound and



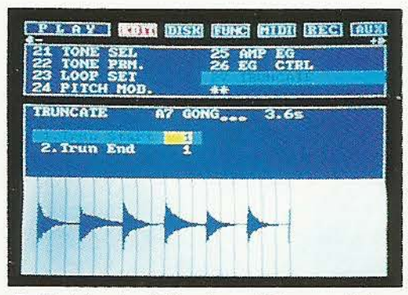
Play Mode Display



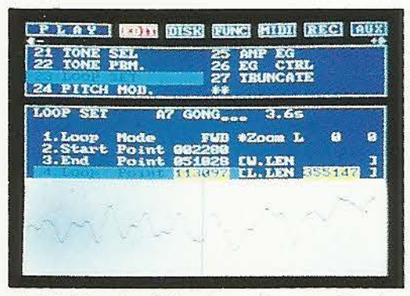
Sampling Mode Display (Wave Scope)



Sampling Mode Display (Threshold)



Edit Mode Display (Truncate)



Edit Mode Display (Loop Set)

Unparalleled Expandability

Like a computer, the operating of the S-50 is controlled by software contained on the accompanying 3.5 inch disk. This provides the user with the flexibility of function expandability and software upgrades as they become available. Future optional software will enable you to draw waveforms and envelopes and control parameters from a digitizer tablet (DT-100) that connects directly to the S-50. In addition, this software will allow you to use the S-50 as a MIDI multi-sound source unit with four individual outputs.

S-50 REAR PANEL

S-50 SPECIFICATIONS

•Keyboard: 61 Keys (5 octaves, C to C), Velocity and Pressure Sensitive, 16-Voice Polyphonic •Memory: 8 Patches, 16 Tones (8 tones per memory bank) •Editing: Patch, Tone, Function, Name, MIDI •Buttons: Numerical Key (0 to 9, Enter), Patch Select (P1 to P8), Patch, Shift, Mode Select (Play, Function, Record, Edit, Disk, MIDI, Aux), Page (+Page, −Page), Cursor (▲, ▼, ▶, ◀) •Controls: Alpha-Dial, Bender Lever, Control/Bend Range, Volume, Input Gain, Record Level •Display: 32-Digit Fluorescent Display (a color or monochrome monitor display can also be used) •Disk Drive: for 3-1/2″ Micro Floppy Disk (double-sided, double-density) •Rear Panel: Jacks (Mix Output, Individual Output × 4, Headphones, Input, Hold Pedal, Pedal Control × 2), MIDI Connectors (In, Out, Thru), Display Out Connectors (RGB, Monochrome), External Controller Input Connector, Switches (Output Level, Power) •Dimensions: 1,106(W) × 328(D) × 93(H) mm (43-9/16″ × 12-15/16″ × 3-11/16″) •Weight: 13 kg (28 lb. 10 oz.) •Accessories: Connection Cable, 3-1/2″ Disk × 5, Disk Case •Option: AB-50 Carrying Case

**Specifications and appearance subject to change without notice.*

DIGITAL SAMPLING KEYBOARD
S-50/S-10

Roland's S-Series Sampling Keyboards—Superb Sound Quality and Flexible Sound Editing Capability at a Down-To-Earth Price

The digital sampler is one of the most indispensable and sought-after electronic instruments in music today. Initially, samplers became popularized through the use of certain special effects sounds, such as the "orchestra hit." But what really attracts so many musicians and sound engineers to samplers is the unlimited expression they make possible: Samplers give you the power to utilize virtually any audible sound for the creation of music!

Until now, however, digital samplers providing sufficient sound quality and control functions have been incredibly expensive. Today, through Roland's advanced technology, samplers are within the reach of every musician. Explore the creative possibilities of digital sampling with Roland's new "S" series of Digital Sampling Keyboards.

Unparalleled Sound Fidelity

A sampler is basically a digital recorder/player with sound modification capabilities. Roland has condensed its vast experience and know-how from years of electronic instrument manufacturing in the design of the S-series Sampling Keyboards. The S-series Sampling Keyboards will faithfully produce any sound capturing all the unique and subtle nuances of the original plus flexible, easy-to-use sound modification capabilities. To minimize any unwanted sound coloration or deterioration usually associated with analog circuitry, Roland's S-series Sampling Keyboards have been designed with the latest advancements in digital filtering technology.

Two kinds of digital sound filters are featured on each S-series Sampling Keyboard. As shown in Figure 1, one is a hardware filter located within the Digital Signal Processor (DSP), and the other is a software filter within the Central Processing Unit (CPU).

The DSP digital filter is used to eliminate alias noise which is produced during playback in the digital-to-analog conversion process. (See Figure 2.) All digital samplers produce some alias noise, and to eliminate it, other brands of samplers use analog filters which have a rather smooth response (typically −24dB/octave). Consequently, when an analog filter is set to completely eliminate alias noise, part of the sampled sound is cut out (response slope 1). When set to retain the entire sampled sound, part of the alias noise is also audible (response slope 3). Roland's DSP digital filter completely eliminates all alias noise without affecting the sampled sound by providing a signal response of −96dB/octave. In addition, the CPU digital filter is used to tailor the tone color of a sample by digitally processing the waveform data for a sound within the CPU.

The S-series Sampling Keyboards offer twelve-bit sampling resolution. The sampled waveform is processed by sixteen-bit digital circuitry together with performance and edit parameter data.

Roland also provides musicians with a variety of high-quality, digitally recorded sounds for the S-series Sampling Keyboards from its exciting collection of sound library disks.

Fig. 1

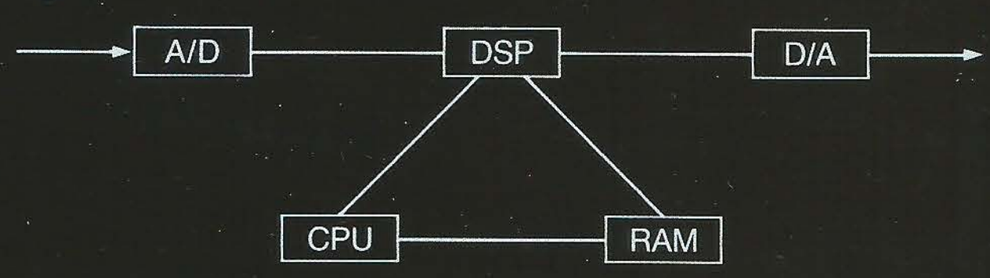
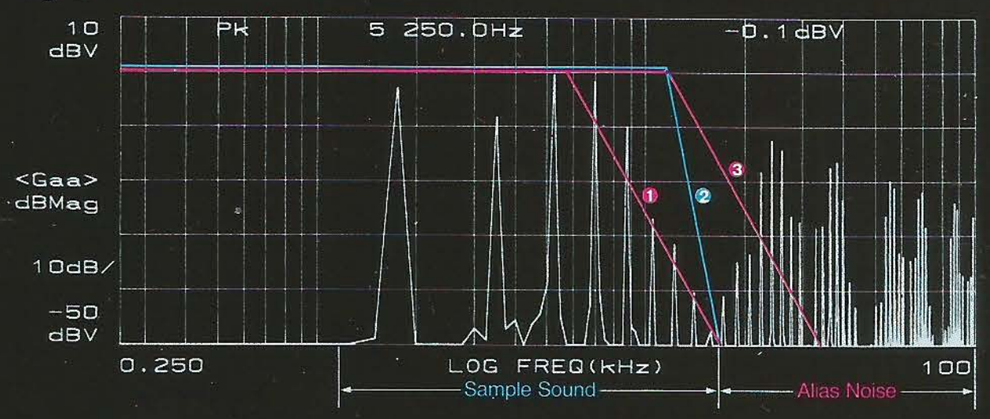


Fig. 2



Sound Modification for Greater Creativity

With their high quality sound, the S-series Sampling Keyboards provide superb sound modification capability. Two methods are offered for altering sampled sounds. In the first method, the waveform data itself is not modified. Instead, the sound output is modified by the way the data is read from the unit's memory, which is different than the method used to read the sound when it was originally sampled. In the other method, the original waveform data stored in memory is processed and then restored in memory. An extensive variety of parameters are provided for modifying sampled sounds in this way. Unlike conventional samplers, Roland's S-series Sampling Keyboards do not require external devices, such as a computer, to modify sampled sounds.

In addition, the S-series Sampling Keyboards feature keyboard splitting (with sixty split points on the S-50 and three split points on the S-10), versatile performance control functions, extensive MIDI implementation, and much more at a price comparable to that of an ordinary keyboard synthesizer.

Roland

Printed in Japan RAM-592 '87 Jan. C-4 AVS

FOR ALL YOU OCD FOLKS,

THE NEXT PAGES CONTAIN THE FOLDS.

START EDITING..... NOW!

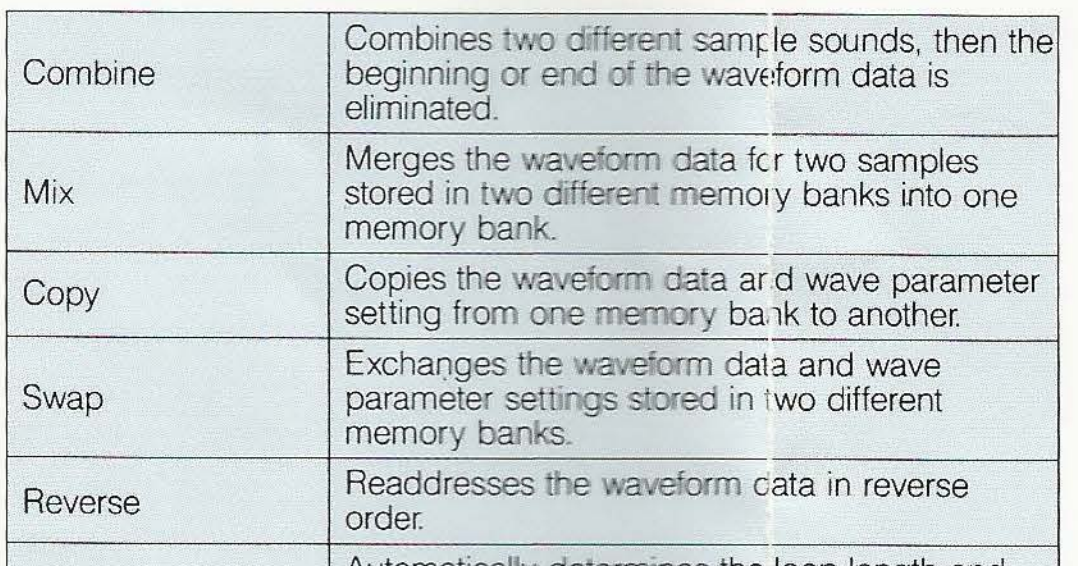
Wave Modify Edit

In addition to the Wave Parameter Edit function, a Wave Modify function is provided which directly processes the waveform data currently in memory. This function enables you to edit the sampled waveform data using the following parameters and store it to disk for later recall:

●WAVE MODIFY PARAMETERS

Combine	Combines two different sample sounds, then the beginning or end of the waveform data is eliminated.
Mix	Merges the waveform data for two samples stored in two different memory banks into one memory bank.
Copy	Copies the waveform data and wave parameter setting from one memory bank to another.
Swap	Exchanges the waveform data and wave parameter settings stored in two different memory banks.
Reverse	Readdresses the waveform data in reverse order.
Auto Loop	Automatically determines the loop length and the end point of the waveform data.
Digital Filter LPH 1 (12dB/oct) HPF 1 (12dB/oct) LPH 2 (24dB/oct) HPF 2 (24dB/oct)	Four digital filters (see Fig. 4) are provided to modify the waveform data. The cutoff frequency and resonance are adjustable.
Level Adjust	Adjusts the level of sample sound by compressing or expanding the waveform data.

Fig. 4



Versatile Performance Controls

The S-10 also has Performance Parameters so that the modified samples can be played in a variety of ways. (Performance Parameter settings can also be saved on a Quick Disk.)

●PERFORMANCE PARAMETERS

LFO	VIB RATE	0 to 127	Sets the speed of both manual and delay vibrato.
	M-VIB DEPTH	0 to 127	Sets the depth of manual vibrato which is controlled by bender lever.
	D-VIB DEPTH	0 to 127	Sets the depth of delay vibrato.
	D-VIB DELAY	0 to 127	Sets the time when the delay vibrato is engaged after a key is pressed.
Bender	BEND MODE	CONT	Normal bending is produced.
		CHRM	Chromatic bending is produced.
Arpeggio	ARP SYNC	EXT	Auto arpeggio is controlled by external trigger signals.
		INT	Auto arpeggio is controlled by internal clock.
	ARP RATE	0 to 127	Adjusts the auto arpeggio speed.
	ARP MODE	UP DOWN U/D RND	Selects the auto arpeggio direction upward, downward, upward and downward, or random.
	ARP RANGE	1 oct 2 oct 3 oct	Selects the auto arpeggio range one, two, or three octaves.
	ARP REPEAT	1 to 16	Determines how many times a single note is repeated by the auto arpeggio.
	ARP DECAY	1 to 10	Sets the decay of auto arpeggio volume.
Velocity Mix	V-MX THRSH	0 to 127	In the Velocity Mix mode, two sample sounds can be mixed and the volume balance between two sounds can be controlled by key touch. This parameter sets the minimum sensitivity at which one of two sounds is activated.
Velocity Switch	V-SW THRSH	0 to 127	In the Velocity Switch mode, two sample sounds can be changed by key touch. This parameter sets the velocity value at which the sounds are changed.
Detune	DTUN MODE	VEL	When the S-10 is in the Detune mode, the detune range is controlled by key touch.
		FIX	The detune range is adjusted by the following DTUN RANGE parameter.
	DTUN RANGE	0 to 127	Sets the detune range.
	ABEND DEST	BOTH	Auto bend is applied to both the normal and detuned sounds.
		HALF	Auto bend is applied to only the detuned sound.
	BEND DEST	BOTH	Manual bend is applied to both the normal and detuned sounds.
		HALF	Manual bend is applied to only the detuned sound.

A Sampling Keyboard with Infinite Possibilities

S-50 DIGITAL SAMPLING KEYBOARD

The S-50 is the leading-edge in professional keyboard samplers. Designed with the flexibility of a system software program that can be upgraded as needed, the S-50 will retain its value and leadership standard in the future. The system software disk provided with the S-50 gives you the ability to connect the S-50 directly to a CRT monitor for easy waveform processing. An optional system disk will put waveform drawing on a digitizer tablet at your command.

512K-Word Memory Capacity

The S-50 is a MIDI-compatible, sixteen-voice polyphonic digital sampler with a sixty-one key, velocity- and pressure-sensitive keyboard. With two 256K-word memory banks (a total of 512K-word memory), the S-50 provides 14.4 seconds of sampling time at a 30kHz sampling rate or 28.8 seconds at 15 kHz.

The S-50 can store up to sixteen sampled sounds (eight sounds per memory bank.) For more efficient memory management, the area in memory used to store a sampled sound can be freely adjusted according to the length of a particular sample. Up to sixty split points can be located across the S-50's sixty-one keys, enabling you to assign all sixteen sampled sounds in memory to any split keyboard part or to individual keys. The built-in 3-1/2 inch disk drive ensures durability of data plus rapid saving and loading.

Patch Memory Function for Perfect Performance Control

The S-50 provides two edit functions for freely modifying any sound you sample or those provided on a Roland's sound library disk. One is a Wave Parameter Edit function which modifies the waveform data of a sampled sound, and the other is a Tone Parameter Edit function which controls envelope, looping, and other sound parameters. A sampled sound modified by these functions is stored in the S-50's memory as a "Tone". Up to sixteen tones can be memorized at one time. An additional Patch Memory function enables you to play these sixteen Tones in a variety of ways. One combination of the sixteen Tones and a setting of Patch Parameters can be stored as a "Patch." The S-50 can contain up to eight such Patches, which can be stored on disk or selected instantly by simply pressing a button (P-1 to P-8)—very convenient for live performance. The following chart shows the programmable parameters provided by the Patch Memory function. In the Key Mode, a Velocity Crossfade function (see Figure 5) is provided in addition to Velocity Switch (Figure 6) and Velocity Mix (Figure 7) functions, which are also featured on the S-10, for the ultimate in keyboard expressiveness. Aftertouch sensitivity can be individually set for each Patch by assigning a value ranging from 0 to 127. Keyboard split points are also assigned using the Patch parameters, and you can easily confirm which Tone is assigned to a key on the easy-to-read S-50 display.

Fig. 5

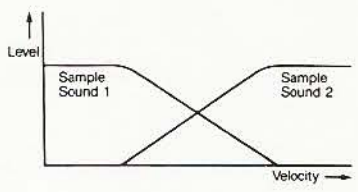


Fig. 6

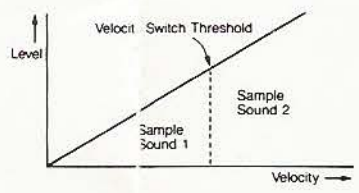
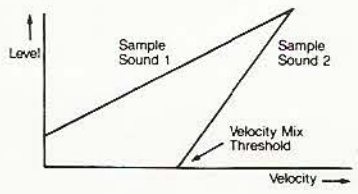


Fig. 7



●PATCH PARAMETERS

Naming		Names a patch (up to 12 characters).
Key Mode	NORMAL	Activates one sample sound by a single key press (16-voice polyphonic).
	VEL SW	Activates two sample sounds by a single key press (8-voice polyphonic). The two sounds are changed by key touch.
	X-FADE	Activates two sample sounds by a single key press (8-voice polyphonic). The two sounds are changed by key touch. The key
	VEL MIX	Activates two sample sounds by a single key press (8-voice polyphonic). The two sounds are changed by key touch.
Velocity Switch Threshold	0 to 127	Sets the velo
Pressure Sensitivity	0 to 127	Set
Bend Range	0 to 12	Chr
Octave Shift	−1/0/1	Shi bel
Output Level	0 to 127	Set
Copy From		Co
Split Setup		Set
Split Information		Let ass
Original Key Map		Cha
Fine Tune Map	−50 to +50	Adj use
Level Map	0 to 127	Adj ton
Level Curve Map	0 to 5	Ass (se a p

Fig. 8

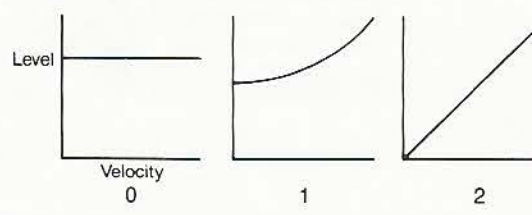
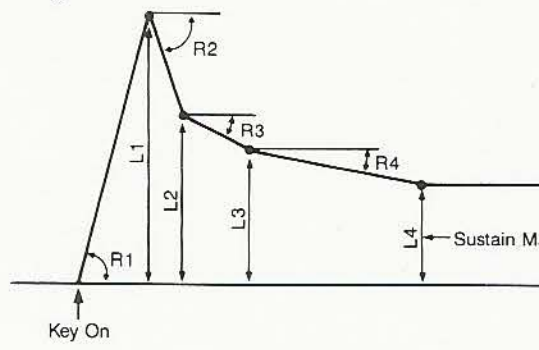


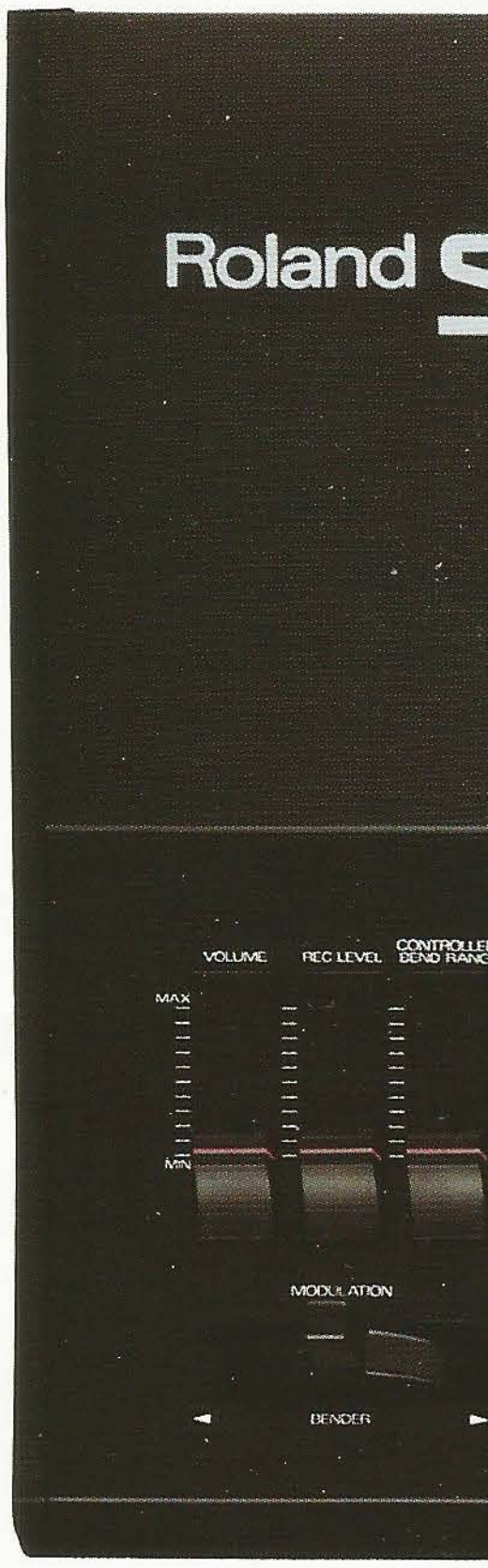
Fig. 9



ets the delay time.
ets the level of delayed sound.
tch of the delayed sound can e chromatically shifted. his parameter determines the ift interval.
etermines how long a sample is ayed when the S-10 is controlled external trigger signal.
ssigns the note numbers (up to ur notes) on the sample that activated by external trigger gnal.

le, enabling you to add it expand your musical sound in the world. Assign channels. In addition to nessages, the S-10 gistered parameter ange. There are 123 Structure and operation ocity mix, and velocity ing MIDI Program Change ll the S-10's programmable sing MIDI System Exclusive e enables you to transmit all Random Access Memory). to function as a mother

to C), Velocity Sensitive, pling Structure, F1/▶, F2/◀, y, Performance, MIDI, Enter, , Standby, Start, Load, Save, ume, Bend Range, Record ver •Display: Illuminated Quick Disks •Rear Panel: Rec Start, Input), Switches MIDI Connectors (In, Out, 945(W) × 271(D) × 77(H) mm eight: 9.5 kg (20 lb. 15 oz.) nnection Cable, Sample -10 Carrying Case



Wave Data Edit and Tone Parameter Edit Functions

With two versatile edit functions, it's easy to create a new sound by simply modifying any sampled sound.

The Wave Data Edit function (corresponding to the Wave Modify function of the S-10) enables you to modify the waveform data of a sampled sound according to the parameters listed in the following chart. With the Wave Mix functions, waveform data from two different samples can be merged, and the volume level of each can be adjusted before merging to prevent unwanted distortion. The tone color of a sampled sound can be tailored to suit your taste using Roland's unique digital filtering system. Low- and high-pass filters are provided. Both the cutoff frequency and resonance are adjustable.

The S-50's Tone Parameter Edit function (corresponding to the Wave Parameter Edit function on the S-10) provides programmable control over looping, envelope setting, and more. The S-50's envelope generator features eight level and eight rate parameters (see figure 9) for the creation of any complex waveform. In addition, the EG control function enables you to control envelope rate and level by velocity and key scale (key follow).

●WAVE DATA EDIT PARAMETERS

Wave Mix	Merges the waveform data for two sample sounds.
Digital Filter	Adjusts the low-pass and high-pass filters.
Truncate	Eliminates the beginning or end of the waveform data.

●TONE PARAMETERS

Naming		Names or renames a tone.
Original Key Number	C_0 to C_9	Changes the key number assigned to a tone.
Fine Tune	−50 to +50	Adjusts the pitch of a tone.
Loop Mode	OFF	Makes no loop.
	FWD	Looped portion of the waveform data is read out forward.
	ALT	Looped portion of the waveform data is read out forward and backward alternately.
Start Point		Sets the start point where the playback begins.
End Point		Sets the end point where the playback ends.
Loop Point		Determines the beginning point of a loop.
Loop Tune	−50 to +50	Adjusts the pitch of a loop.
Copy From		Copies the tone parameter setting (waveform data is not copied).
Vibrato Rate	0 to 127	Sets the vibrato rate.
Vibrato Depth	0 to 127	Sets the vibrato depth.
Delay Time	0 to 127	Sets the delay time of delayed vibrato.
Envelope Generator	Level (0 to 127)	Sets the envelope level (8 points).
	Rate (0 to 127)	Sets the envelope rate (8 points).
	Sustain Mark	Assigns the sustain mark to one of eight envelope level points.
	End Mark	Assigns the end mark to one of eight envelope level points.
EG Control	Key Rate (0 to 127)	Sets the level of key follow which in turn controls the envelope rates.
	Velocity Rate (0 to 127)	Determines how deep the envelope rates are controlled by key touch.
	Velocity Level (0 to 127)	Adjusts the velocity sensitivity to control the envelope rates.
	Level Curve	Selects one of six velocity curves (see Fig. 8) which controls the envelope rates.

Connect Directly to a Monitor Display

For faster and easier operation, the S-50 also provides connection jacks for connecting RGB or composite monitors. A color CRT display or a regular television set with an input connector for a video tape recorder can be directly connected to the S-50 for visually monitoring all information during editing operations, including waveform of a sampled sound and its envelope.