YAMAHA
VL7
Virtual Acoustic Synthesizer

The Yamaha VL7 — bringing state-of-the-art Virtual Acoustic Synthesis to you at an affordable price.

*Yamaha's VL1 Virtual Acoustic synthesizer introduced
new standards of excellence in the synthesis and reproduction of synthesized sound.
Now, the VL7 allows you to use the same exciting technology in a more accesible format.
Where the VL1 has two timbres simultaneously available to the musician, the VL7 has one.
But this is, in practice, no hardship, since VL synthesizers are designed for reproduction of sounds
which are monophonic sound sources for dynamic solos.*

Virtual Acoustic Synthesis

Yamaha's Virtual Acoustic Synthesis creates a computer physical model of an actual instrument inside the synthesizer.

Like an acoustic instrument, the VA instrument has a sound-producing device-in the case of the VL family, this can be either a Pipe or a String. This is sounded by a driver: a pair of lips, a reed or a bow.
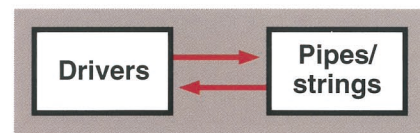
The sound of the instrument is then passed through modifiers before going to the internal effects. Both the instrument sound and the modifier parameters can be controlled by the Controller section.
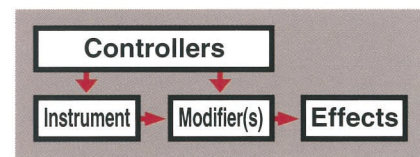
Control of the instrument

With an acoustic instrument, a large number of factors can modify the sound-in the case of a wind instrument, the player's breath and mouth and lips (among others) affect the sound. In the case of a bowed string instrument, the player's arm movements, expressed in bow pressure and velocity, affect the sounds.

With a VL synthesizer, the following parameters of an instrument can be changed using MIDI controllers and used to modify the sound:

Pressure: the amount of breath pressure applied to a reed or mouthpiece, or the velocity of a bow.

Embouchure: the tightness of the lips against a reed or mouthpiece, or the pressure of a bow on a string.

Pitch: the length of a pipe or string, and hence the pitch of the sound.

Vibrato: can be applied through the Pitch or Embouchure parameters for natural effects.

Tonguing: The reed-damping technique used by single-reed players.

Amplitude: the volume (but not the timbre) of the sound.

Scream: chaotic oscilllation-an effect only obtainable with this technology.

Breath noise: which can be varied over a wide range.

Growl: a periodic modulation of pressure causing a characteristic wind instrument "growl" effect.

Throat format: the characteristics of the players lungs, trachea and oral cavity.

Dynamic filtering: controls the cutoff frequency of the modifying filter.

Harmonic enhance: controls the depth of the modifying harmonic enhancer.

Damping: damping due to losses in the body of a wind instrument or string due to air friction.

Absorption: high-frequency loss at the end of an air column or string.

Modifiers

A high degree of control can be exercised over the final timbre by using the 5-section modifier block.

Harmonic Enhancer: manipulates the harmonic structure of the sound so that radical differences in timbre can be achieved inside the same instrument family.

Dynamic Filter: With high- and low-pass, bandpass, band elimination modes, the filter allows significant changes to be made to the timpre. A "wet/dry" control allows subtle changes in filtration.

Frequency Equalizer: A 5-band fully parametric equalizer (frequency, Q and level) with high- and low-pass filters and key scaling capabilities.

Impulse Expander: Used with the Resonator to simulate the resonant cavity or sound box of the instrument,or to simulate the acoustic environment in which the instrument is played.

Resonator: Gives a more "woody" feel than the "metallic" Impulse Expander.

A synthesizer that doesn't sound like a synthesizer?

Virtual Acoustic synthesis gives you, the musician, unparalleled control over the sounds produced. On the VL7, changing a controller while a note is playing actually changes the behaviour of the "instrument" and the way it is played.
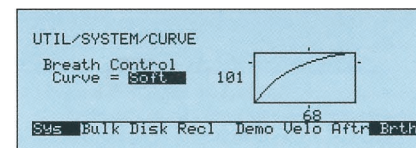
To take one example, a French horn's pitch is controlled by both embouchure and the length of the pipe. On the VL7, the virtual embouchure of the player can be changed, and the pitch changes, not continuously, but in the harmonic "breaks" and "falsettos" which are characteristic of a French horn.

An important, but generally unrecognized, factor in music is the way in which notes interact with each other - the transitions between notes are almost as important as the notes themselves. With conventional synthesizers, the breaks between notes are simply that - breaks. The VL7, on the other hand, produces true transitions, giving solo lines much more realism.

An unparalleled degree of control

The degree of control available with VA Synthesis demands that many MIDI controllers are available to the player, and the VL7 gives this control. In addition to the velocity- and aftertouch-responsive keyboard and the pitchbend and modulation wheels, the VL7 has an additional control wheel (MW2), two continuous sliders, connectors for two foot pedals, connectors for two foot controllers, and a connector for a BC-2 breath controller.

The breath controller, in particular, can be used for effective control of the shape of individual notes and the flow of these notes within a phrase, not only for woodwind and brass instruments (as you would naturally expect), but also for stringed instruments. For example, the breath pressure applied to the breath control-ler can be used to vary the velocity of the bow on the string of an instrument, greatly enhancing the feel of the music, and giving a natural variation in sound within and between notes. Of course, the VL7 demands a slight modification in playing technique to make the most of these capabilities, just as an acoustic instrument demands special techniques. Once this has been mastered, however, the results speak for themselves.

Play imaginary instruments

The VL7 is superb at the reproduction of real instruments. However, a good synthesizer should do more than just reproduce existing sounds - it should allow you to do a lot more. The VL7 supplies you with voices such as a saxophone mouthpiece attached to a trumpet body. The joy of Virtual Acoustic Synthesis is that you can experience imaginary instruments of this type, and express what you want to say in a musical way.

Versatile Features

As shipped from the factory, the VL7 is loaded with voices which are controlled by the keyboard velocity and aftertouch together with the modulation wheel. Two other sets of 64 voices each are supplied on disk, many of which make effective use of the VL7's breath controller. The MIDI capabilities of the VL7 are, as you would expect, comprehensive. It's even possible to connect a WX wind controller to the VL7 and play the voices using the WX controller. Although the VL7 is a monophonic instrument, stereo outputs (and a stereo headphone connector) are provided for the accurate spacious reproduction of the resulting sounds. Voices can also be read from VL1 and VL1-m diskettes (except for 2-element voices which will be loaded as 1-element voices on the VL7). Voices created on the VL7 can, naturally, be played on the other members of the VL family of instruments.

A musical instrument for today's musicians

VA Synthesis goes further than any technique to date in providing musicians with a way to express themselves. The supra-realism of the voices, the degree of truly musical control available to the musician, and the amount of creative potential available make the VL7 the most affordable solution for musicians who require the ultimate in expressiveness and realism for their solo lines, on stage or in the studio.

Pre-installed NOBREATH voices

Voice Number	Voice Name	Voice Number	Voice Name	Voice Number	Voice Name	Voice Number	Voice Name
A01 (001)	Mad Tube	B01 (017)	SquealerAT	C01 (033)	Moby	D01 (049)	Rock Pigs
A02 (002)	Tenor Sax	B02 (018)	Breath Sax	C02 (034)	Bell Miked	D02 (050)	NuSoprPipe
A03 (003)	Shakuhachi	B03 (019)	Pan Pipes	C03 (035)	Ocarina	D03 (051)	Recorder
A04 (004)	Slap Bass	B04 (020)	Fretless	C04 (036)	FingerBass	D04 (052)	MelodyBass
A05 (005)	Trumpet 1	B05 (021)	MuteTrumpt	C05 (037)	MelTrump	D05 (053)	Syn Trump
A06 (006)	Analunar	B06 (022)	Mr. Mogue	C06 (038)	50/50	D06 (054)	Arpoon
A07 (007)	Andean	B07 (023)	C Flute	C07 (039)	Alto Flute	D07 (055)	Piccolo
A08 (008)	Squeezebox	B08 (024)	Thai Reed	C08 (040)	MouthKeys	D08 (056)	Blues Harp
A09 (009)	GuitarHero	B09 (025)	JazzGuitar	C09 (041)	Cruncher	D09 (057)	Sitar
A10 (010)	Trombone	B10 (026)	Cornet	C10 (042)	Horn	D10 (058)	Tuba
A11 (011)	SoloViolin	B11 (027)	BowBamBoo	C11 (043)	Viol Inn	D11 (059)	Contraire
A12 (012)	Clarinet	B12 (028)	ClariLip	C12 (044)	Claricord	D12 (060)	Endophone
A13 (013)	JetLipBow	B13 (029)	Breath Bow	C13 (045)	PipeBowBow	D13 (061)	Chalsaw
A14 (014)	Alto Sax 1	B14 (030)	Soprano 1	C14 (046)	Loose Bari	D14 (062)	Mizu Horne
A15 (015)	Floboe	B15 (031)	EnglshHorn	C15 (047)	Oboe 1	D15 (063)	Marsaloboe
A16 (016)	Dr.Bonky	B16 (032)	Yamasteel	C16 (048)	Jurassic	D16 (064)	Gonzilla

FULLCNT2 voices on the supplied floppy disk

Voice Number	Voice Name	Voice Number	Voice Name	Voice Number	Voice Name	Voice Number	Voice Name
A01 (001)	Digeritek	B01 (017)	Igneous	C01 (033)	Zebedee	D01 (049)	BlownDrone
A02 (002)	Alto Sax 2	B02 (018)	Soprano 2	C02 (034)	Barker	D02 (050)	Baritone
A03 (003)	RichReed	B03 (019)	Chanter	C03 (035)	Harmonium	D03 (051)	Pastorale
A04 (004)	Birdland	B04 (020)	Thump Bass	C04 (036)	Upright	D04 (052)	Tube Bass
A05 (005)	Trumpet 2	B05 (021)	TrumpLead	C05 (037)	FrenchBone	D05 (053)	FlugelHorn
A06 (006)	MoreGrunge	B06 (022)	OldMini	C06 (038)	Harmoweird	D06 (054)	QuiScivit?
A07 (007)	Jazz Flute	B07 (023)	Melo Flute	C07 (039)	Flak	D07 (055)	BlueBottle
A08 (008)	Harmophone	B08 (024)	Toots	C08 (040)	Scat Harp	D08 (056)	HurdyGurdy
A09 (009)	Flange	B09 (025)	Fuzzy Lead	C09 (041)	WonderBass	D09 (057)	RuffWreck
A10 (010)	AcoEkoSyn	B10 (026)	AnalogBC	C10 (042)	Backwards	D10 (058)	Bowed Saw
A11 (011)	DoubleBow	B11 (027)	Fiddler	C11 (043)	Eleanor	D11 (059)	Kokyu
A12 (012)	Baroquen	B12 (028)	Fyfe	C12 (044)	HyperClari	D12 (060)	NuAltoPipe
A13 (013)	Viowind	B13 (029)	St. Ripper	C13 (045)	Conchise	D13 (061)	Monteverdi
A14 (014)	Synth Lite	B14 (030)	3 AM Blow	C14 (046)	Altish	D14 (062)	Maysbe?
A15 (015)	Bassoon	B15 (031)	Oboe 2	C15 (047)	NuDblReed	D15 (063)	TenorClar
A16 (016)	EthnicClav	B16 (032)	L7 Pluck	C16 (048)	Cyberism	D16 (064)	Cyberpluck

*The following voice sets are included on the supplied floppy disk: NOBREATH, FULLCNT1 and FULLCNT2
*The NOBREATH voices have been programmed for playing without the use of a breath controller.
*The voice order of the FULLCNT1 voice set is the same as that of the NOBREATH set, but the controller assignments and settings are somewhat different.

Specifications

■ Tone Generator

Type	S/VA (Self-oscillating Virtual Acoustic Synthesis).
Modifiers	Harmonic Enhancer. Dynamic Filter (LPF, HPF, BPF, BEF, with resonance). Equalizer (5 bands with frequency, resonance, and boost/cut control). Impulse Expander. Resonator.
Effects	32-bit digital signal processor, stereo in/stereo out. Modulation effects (flanger, pitch change, distortion). Feed back delay. Reverberation.
Play Mode	Mono

■ Memory

Internal	64 voices
Disk	3.5" 2DD or 2HD floppy disk.

■ Keyboard

Keys	49 (C scale, FS type).
Sensitivity	Velocity. Channel aftertouch.

■ Controllers

Master volume slider. Modulation wheel x 2. Continuous sliders x 2. Data entry dial. Pitch bend wheel. LCD contrast control.

■ Display

240 x 64 dot liquid crystal display (black and white type) with fluorescent (CFL) backlight.

■ Connectors

Front Panel	Stereo headphones. Breath controller.
Rear Panel	Output x 2 (L and R). Foot controller x 2. Foot switch x 2. MIDI IN. MIDI OUT. MIDI THRU.

■ Power Requirements

US model	120V, 16W
General model	220...240V, 16W

■ General

Dimensions (W x D x H)	914 x 380 x 105 mm (36" x 14-7/8" x 4-1/8")
Weight	12.3 kg (27 lbs 1 oz)

■ Included Accessories

Power cable. BC2 Breath Controller. FC7 Foot Controller. Floppy disk.

Specifications and appearance subject to change without notice.

BC2 Breath Controller

For details please contact: