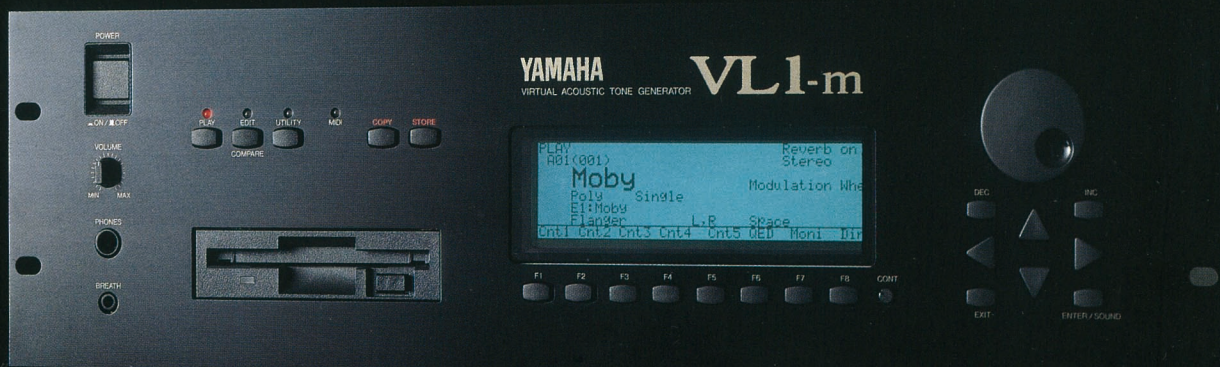


YAMAHA

VL1-m

VIRTUAL ACOUSTIC TONE GENERATOR



Yamaha's VL1-m — the ultimate in realism — from almost any MIDI controller

What does this mean for the musician?

The responsive nature of the VL1-m means that every note played is unique, just as on an acoustic instrument, where minute differences in playing technique from note to note affect the timbre and quality of the sound produced. The VL1-m even accurately reproduces the transitions between notes, which are as much a part of music as the notes themselves.

In addition to this incredibly realistic sound generation method, the VL1-m contains the highest-quality digital effects, specially designed to complement and enhance the VL1-m's voices. Even though the VL1-m (like the VL1) is a duophonic (at most) instrument, stereo outputs are provided for best reproduction of the effects, giving a feeling of spaciousness and life, even on single-note passages.

Besides the stunningly accurate reproductions of real bowed and pipe (brass and reed) instruments, it is also possible to play imaginary instruments, which exist only within the world of VA Synthesis — a trumpet mouthpiece on a saxophone body, for example. This "instrument" is capable of all the flexibility and responsiveness that such a device would possess if it existed in the real world.

Using the VL1-m with a master keyboard...

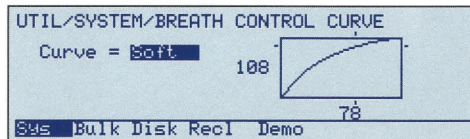
The VL1-m is designed to be played from almost any MIDI controller, allowing you to use and adapt techniques developed on your existing equipment.

Many keyboard players may not be familiar with the use of breath control, and so the pre-installed 128 "NOBREATH" voices are modified using keyboard velocity and aftertouch together with a modulation wheel instead of the breath controller.

However, when playing the VL1-m with a master keyboard, the use of a breath con-

troller is an extremely powerful factor, allowing natural phrasing on wind instruments, and even on bowed instruments.

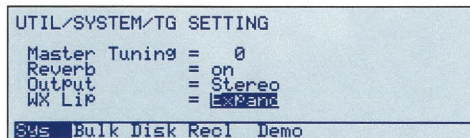
Yamaha has equipped the VL1-m with a breath controller input, for use with the optional Yamaha BC2 breath controller. 128 "FULLCTRL" voices (supplied on floppy disk) have been configured to make use of this controller, as well as a foot controller and another continuous controller assigned to Controller 13.



...and with a WX wind controller

Wind players who wish to hone their skills on a Yamaha WX wind controller can develop these skills to their best advantage with the VL1-m. The disk included with the VL1-m also contains 32 "WXSELECT" voices which have been configured to let you use the VL1-m and WX wind controller to maximum effect.

The combination of the WX wind controller's "tight" and "loose" lip modes with the VL1-m's WX "normal" and "expand" lip settings can be used to match your preferences for sensitivity, and work effectively in combination for the realistic reproduction of pipe and bowed string sounds.

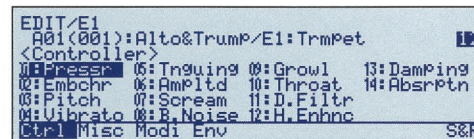


You can also use the WX wind controller effectively with the 128 "STANDARD" voices on disk.

A "real" instrument...

The VL1-m is a superbly responsive instrument, and the expressive control can be

used to produce outstandingly realistic performances. Undoubtedly, this flexibility demands a slight, but essential, adjustment in technique compared to conventional synthesizers, and a little time may be needed for you to adjust to the techniques required to make the most of the VL1-m's capabilities, just as on an acoustic instrument.



However, this slight effort will repay itself, as your resulting performances will sound individual and characteristic of your own playing style, just as performances from players of acoustic instruments have an individual feel to them.

...and a real synthesizer too!

Of course, the VL1-m is more than a laboratory curiosity. Every aspect of the VL1-m has been designed to produce a playable instrument which integrates immediately into your equipment lineup. The large backlit graphical LCD display has a front-panel contrast control.

All editing and data entry is performed using ergonomically-arranged dedicated mode keys, "soft" function keys, cursor keys, entry keys and dial. Although the parameters used to model sound using VA synthesis are different from those on more conventional synthesizers, the process of editing and creating sounds on the VL1-m is as easy as on earlier synthesizers.

The front-panel breath controller input, standard 1/4" stereo outputs at the rear, and a headphone jack at the front, together with the full complement of MIDI connectors (IN, OUT, THRU), complete the simple, yet versatile lineup of the VL1-m's external features.

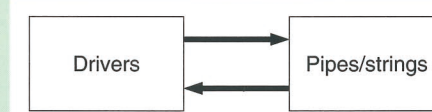
YAMAHA recently introduced the VL1 synthesizer—the ultimate in expressiveness and realism using the unique Virtual Acoustic Synthesis method. Now the VL1 technology is available in a compact affordable rack-mount module, the VL1-m, enabling you to get the same breathtaking realistic sounds and flexibility, using your existing MIDI controllers.

For the professional musician, in the studio or on stage, the VL1-m provides lead line synthesis of an authenticity and subtlety unimaginable with any other system.

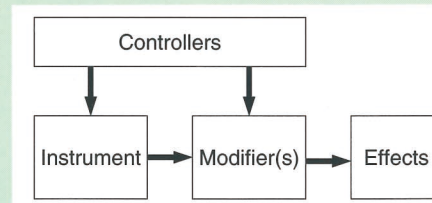
Virtual Acoustic Synthesis

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 being 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 oscillation — 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 player's 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.

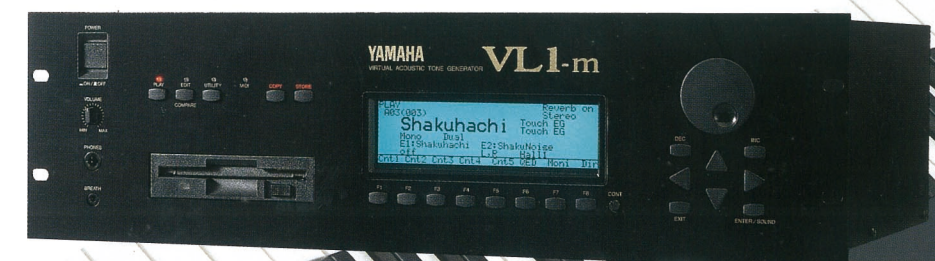
Harmonic Enhancer: manipulates the harmonic structure of the sound so that radical differences in timbre can be achieved inside the same instrument family.

Dynamic Filter: With high- and low-pass, bandpass, band elimination modes, the filter allows significant changes to be made to the timbre. 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.



Voice Setting List

No.	Name	No.	Name	No.	Name
Pre-installed NOBREATH voices		D06(054)	Arpoon	G13(109)	Cyberpluck
		D07(055)	Piccolo	G14(110)	NuAltoPipe
A01(001)	Moby	D08(056)	Thai Reed	G15(111)	Gerhard
A02(002)	Tenor Sax	D09(057)	Flange	G16(112)	Mad Tube
A03(003)	Shakuhachi	D10(058)	NuSoprPipe	H01(113)	AcoEkoSyn
A04(004)	FingerBass	D11(059)	Contraire	H02(114)	LooseTenor
A05(005)	Trumpet	D12(060)	ClariLip	H03(115)	Kokyu
A06(006)	Ossyncro	D13(061)	Conchise	H04(116)	Tube Bass
A07(007)	Tull Flute	D14(062)	Pastorale	H05(117)	TrumpCard
A08(008)	Bagpipes	D15(063)	Barker	H06(118)	PipeBowBow
A09(009)	GuitarHero	D16(064)	FrenchBone	H07(119)	BaroquePad
A10(010)	Mizu Horne	E01(065)	Dr.Bonky	H08(120)	Outback
A11(011)	Viol Inn	E02(066)	Bell Miked	H09(121)	FuzzyBass
A12(012)	Endophone	E03(067)	Blues Harp	H10(122)	Wheed
A13(013)	JetLipBow	E04(068)	Slap Bass	H11(123)	Monteverdi
A14(014)	BowBamBoo	E05(069)	Muted Lips	H12(124)	Sax Git
A15(015)	Bassoon	E06(070)	Analunar	H13(125)	Cyberisen
A16(016)	Digeritek	E07(071)	Andean	H14(126)	Clar&Flute
B01(017)	Backwards	E08(072)	Sitar	H15(127)	Saxes
B02(018)	Alto Sax	E09(073)	Rock Pigs	H16(128)	Isn't Wah
B03(019)	Pan Pipes	E10(074)	Synth Lite	WXSELECT voices	
B04(020)	MelodyBass	E11(075)	St. Ripper		
B05(021)	Horn	E12(076)	Scat Harp	A01(001)	WXTenorSax
B06(022)	50 / 50	E13(077)	L7 Pluck	A02(002)	MoreGrunge
B07(023)	C Flute	E14(078)	Flak	A03(003)	WX Trumpet
B08(024)	HurdyGurdy	E15(079)	3 AM Blow	A04(004)	AcoEkoSyn
B09(025)	JazzGuitar	E16(080)	Yamasteel	A05(005)	Clarinet
B10(026)	Harmophone	F01(081)	MoreGrunge	A06(006)	WonderHarp
B11(027)	Fiddler	F02(082)	Soprano 2	A07(007)	LonelyPhone
B12(028)	Floboe	F03(083)	Ocarina	A08(008)	DoubleBow
B13(029)	Yhokih	F04(084)	Upright	A09(009)	GuitarHero
B14(030)	BlueBottle	F05(085)	Alto&Trump	A10(010)	WX AltoSax
B15(031)	Clarinet	F06(086)	OldMini	A11(011)	Shakuhachi
B16(032)	Jurassic	F07(087)	Fyfe	A12(012)	Scat Harp
C01(033)	Gonzilla	F08(088)	Squeezebox	A13(013)	OldMini
C02(034)	Soprano 1	F09(089)	Mr. Mogue	A14(014)	BreathBow
C03(035)	MouthKeys	F10(090)	HyperClari	A15(015)	Air Saxes
C04(036)	Thump Bass	F11(091)	DoubleBow	A16(016)	C Flute
C05(037)	Cornet	F12(092)	RuffWreck	B01(017)	Hey! Kenny
C06(038)	Igneous	F13(093)	Clavisynth	B02(018)	JazzGuitar
C07(039)	Alto Flute	F14(094)	Claricord	B03(019)	Marsaloboe
C08(040)	Khaen	F15(095)	TrumpNSax	B04(020)	3 AM Blow
C09(041)	Cruncher	F16(096)	QuiScivit?	B05(021)	Muted Lips
C10(042)	Marsaloboe	G01(097)	Lees	B06(022)	Oboe
C11(043)	Eleanor	G02(098)	Breath Sax	B07(023)	Ocarina
C12(044)	RichReed	G03(099)	Bowed Saw	B08(024)	Alto&Trump
C13(045)	Breath Bow	G04(100)	Birdland	B09(025)	Horn
C14(046)	SquealerAT	G05(101)	Fanfare	B10(026)	WoodRecdr
C15(047)	Oboe	G06(102)	Chalsaw	B11(027)	Bassoon 2
C16(048)	Maysbe?	G07(103)	Recorder	B12(028)	Bowed Saw
D01(049)	BlownDrone	G08(104)	Harmonium	B13(029)	Nz Piccolo
D02(050)	Loose Bari	G09(105)	WonderBass	B14(030)	Tuba
D03(051)	Toots	G10(106)	NuDbiReed	B15(031)	Andean
D04(052)	Fretless	G11(107)	Viowind	B16(032)	Fiddl Inn
D05(053)	Tuba	G12(108)	Harmoweird		

* The following voice sets are included on the supplied floppy disk: NOBREATH, FULLCTRL, STANDARD and WXSELECT

* The NOBREATH voices have been programmed for playing without the use of a breath controller.

* The voice order of the FULLCTRL and STANDARD voice sets is the same as that of the NOBREATH set, but the controller assignments and settings are somewhat different.

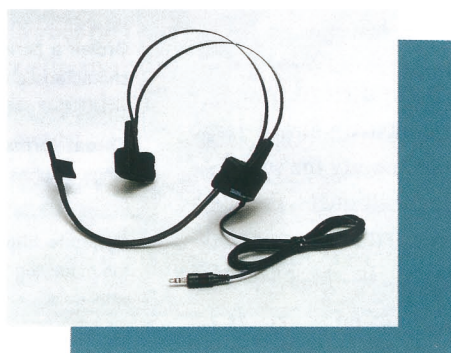
* The WXSELECT voices are particularly suited for play using the Yamaha WX11 wind controller .

Specifications

Tone Generator	Type	S/VA (Self-oscillating Virtual Acoustic Synthesis).
	Modifiers	Harmonic Enhancer.
		Dynamic Filter (LPF, HPF, BPF, BEF, with resonance).
	Effects	Equalizer (5bands with frequency, resonance, and boost/cut control).
Impulse Expander. Resonator.		
32-bit digital signal processor, stereo in/ stereo out.		
Play Mode	Modulation effects (flanger, pitch change, distortion).	
	Feed back delay. Reverberation.	
Assign Modes	Voice mode only. Smallest tone generator units: elements. Voices use 1 or 2 elements.	
Memory	Internal	128 Voices
	Disk	3.5" 2DD or 2HD floppy disk.
Controllers		Master volume.
		Data entry dial.
		LCD contrast control.
Display		240x64 dot liquid crystal display (black and white type) with fluorescent (CFL) backlight.
Connectors	Front Panel	Stereo headphones. Breath controller.
	Rear Panel	Outputx2 (L and R). MIDI IN. MIDI OUT. MIDI THRU.
Power Requirements	US model	120V, 16W
	General model	220...240V, 16W
General	Dimensions (WxDxH)	480x361x132mm (18-7/8"x14-1/4"x5-1/4")
	Weight	7.5 kg (16 lbs 8 oz)
Included Accessories		Power cable.
		MIDI cable.
		Floppy disk.

Specifications and appearance subject to change without notice.

Optional BC2 Breath Controller



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