

YAMAHA

MUSIC SYNTHESIZER

SY22



Vectors Bridge the Gap Between Digital Synthesis and You

The SY22 puts digital synthesis totally in the hands of the artist, making it possible to simultaneously control Yamaha's advanced AWM (Advanced Wave Memory) technology and high-performance FM tone generation in totally new ways. You can create and control digitally synthesized sound with unprecedented ease — putting you more intimately in touch with your instrument and music. The SY22 Vector Control lets you blend and bend up to four separate sounds manually in real time, while dynamic vectors that play automatically with each note can be easily recorded in real time. For even more expressive capability, the SY22 keyboard features both velocity sensitivity and after-touch response that can be assigned to a number of musical parameters. Of course, we haven't forgotten the time-tested pitch and modulation wheels, either. There's also a multi-play mode that makes the SY22 an ideal multi-voice tone generator for use with a sequencer or computer-based music production system.

The more you play the SY22, the more you'll find that "vectors" will become an indispensable part of your musical repertoire.

- Yamaha AWM and FM tone generators for superior sound and tonal versatility.
- 2-element or 4-element voice architecture brings AWM and FM waveforms together.
- Vector control for 2-axis control of element level and detuning.
- Dynamic level and detune vectors can be recorded easily in real time.
- 128 preset AWM waveforms and 256 preset FM waveforms provide an extensive library of sonic "building blocks" from which to create new voices.
- 64 preset voices and 64 user voice memory locations.
- External memory cards provide limitless backup and storage capability.
- Easy-edit features make creating new voices quick and virtually programming-free.
- Detailed programming parameters for in-depth programming when necessary.
- Fully programmable 8-part multi-play mode is perfect for sequencer-driven applications and layered multi-voice performance.
- 16 internal digital effects including reverb, delay and distortion.
- Overlapping voice selection capability for seamless voice transitions.
- Velocity and after-touch sensitive keyboard.
- Pitch bend and modulation wheels.
- Stereo output.



SY22

MUSIC SYNTHESIZER
DYNAMIC VECTOR SYNTHESIS



Two Synths in One

The SY22 incorporates two essentially different synthesis systems: AWM and FM. AWM "Advanced Wave Memory" is a sophisticated sampling technology that allows high-fidelity reproduction of digitally recorded "live" sound. FM is Yamaha's proven Frequency Modulation synthesis technology which is capable of creating extraordinarily warm, vibrant simulations of actual instruments, as well as an infinite variety of original sounds. The vector synthesis system brings these two tone generation systems together in many expressive ways.

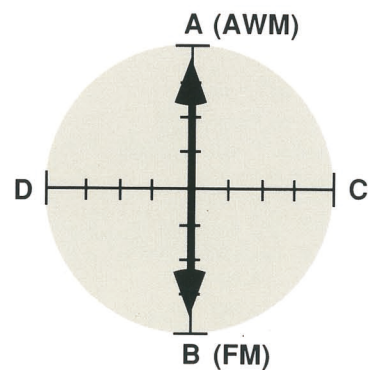
The Elements of Vector Voices

SY22 voices can have either a 2-element or 4-element configuration. Each "element" is actually an independent sound or "waveform." A 2-element voice combines one AWM and one FM waveform, while a 4-element voice combines two waveforms of each type. The SY22 has 128 preset AWM waveforms and 256 preset FM waveforms that can be assigned to the appropriate elements in a voice, for an immense range of possible combinations. Vector control allows the 2 or 4 different waveforms in a voice to be blended and detuned in a variety of ways manually or automatically.

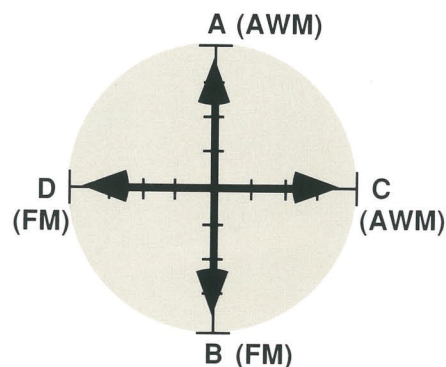
VC CONFIGURATION
A-B-C-D



2-ELEMENT VOICE



4-ELEMENT VOICE



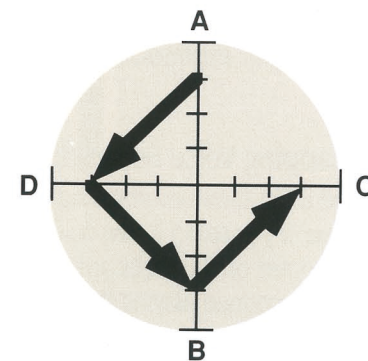
A Choice of Vectors: Level and Detune

The SY22 vector control can be used to control either level or detune along the vertical axis if a 2-element voice is selected, or along both the vertical and horizontal axes if a 4-element voice is selected.

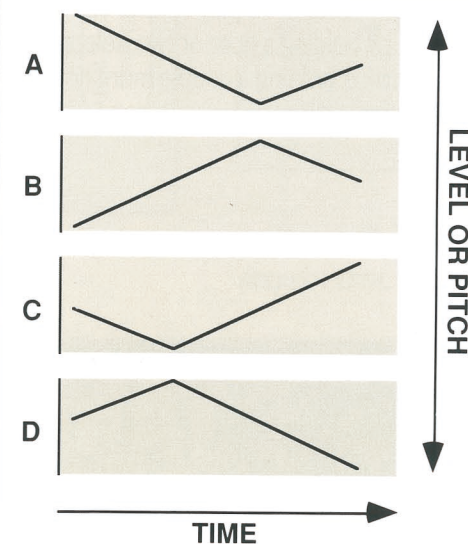
When level vector control is selected, moving the control towards one element increases the level of that element while decreasing the level of the others proportionally. The VECTOR CONTROL works in a similar way when detune control is selected moving the control towards one element increases the pitch of that element while decreasing the pitch of the others. The following diagrams should give you a rough idea of how the level or pitch of each element in a 4-element voice is affected by VECTOR CONTROL motion.

This system allows an extraordinarily broad range of expressive effects, from subtle blending of several similar sounds to wild sweeps and bends between widely contrasting tones.

VECTOR CONTROL MOTION



LEVEL OR PITCH CHANGE



UV LEVEL REC
STBY REC PLAY
UV D.ED A=B=C=D=
1 X+ 7 Y- 5 End

Dynamic Vectors

Real-time manual vector control means unprecedented expressive freedom, while dynamic vectors that play automatically whenever you play a note on the keyboard can give your music a new dimension of life and animation. Anything you can do manually with the vector control can be recorded as a dynamic vector. "Recording" a dynamic vector is as simple as selecting the level or detune vector record function and playing the vector in real time. If you want to go into more detail, a number of editing functions let you fine tune your dynamic vectors to achieve precisely the sound you want.

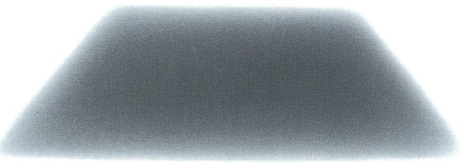
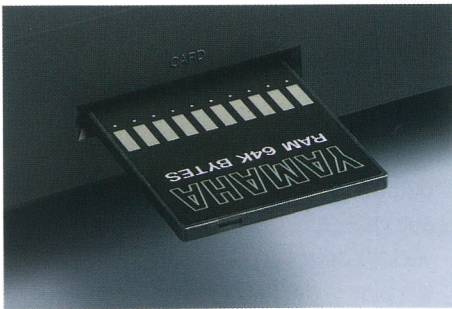
You can even use manual and dynamic vectors simultaneously. If you select manual level vector control, a dynamic detune vector will continue to play automatically. Choose manual detune vector control and a dynamic level vector will play in the background.



In-depth or Instant Voice Editing

There's actually much more to SY22 voices than just vectors. You have a wide range of programming parameters with which you can shape the individual elements in a voice to precisely match your musical requirements. You can, for example, program complex amplitude envelopes for each element from scratch, choose from a range of preset generic envelopes that can later be edited for fine control, or simply use the original envelopes that are included with each of the SY22's 384 internal waveforms. A range of other voice editing parameters give you extensive control if you want to get serious about programming, but the SY22 is also designed to make creating new voices simple and fun. Innovative random element selection and vector generation functions, for example, can help you to create outstanding new voices with almost no programming at all. Global editing functions like attack and release parameters that simultaneously bias the attack and release rates of all element envelopes also contribute to fast, easy voice creation.

Your original voices can be stored in any of 64 internal user memory locations, or on convenient external Yamaha memory cards that plug into the SY22's rear-panel CARD slot.



64 Ready-to-play Presets

Although programming your own vector voices isn't difficult, Yamaha has provided a range of 64 superb preset voices that you can play right away with no programming. Most feature dynamic vectors that give them an extraordinary sense of life and motion — but you can also use the vector control to inject a good dose of original expression into your music.

Overlapping Voice Selection

The SY22 allows overlapping voice selection: if you select a new voice while holding notes on the keyboard, the held notes will continue playing the previous voice while subsequently played notes will use the new voice. This not only provides smooth switching between voices without unnatural sound cutoff or gaps, it is actually possible to play several voices at once by holding a note or two, selecting a new voice, holding a couple more notes, selecting a second new voice, and so on.

Voice Number P88 Dr. Kit : Drum-set Voice

Key	Wave Name	Key	Wave Name
A#5	Cracker	C6	Metal Hit
G#5	Water Drop	B5	High Timpani
F#5	Coin	A5	Low Timpani
D#5	High Scratch	G5	Slam 2
C#5	Low Scratch	F5	Slam 1
A#4	Cowbell 2	E5	Reverse Cymbal
G#4	Bamboo	D5	SD 5
F#4	Low Whistle	C5	SD 4
D#4	High Agogo	B4	Crash
C#4	Claves	A4	Bottle
A#3	High Timbales	G4	High Whistle
G#3	Oooh	F4	High Culca
F#3	Mute Conga	E4	Low Culca
D#3	Ride	D4	Low Agogo
C#3	Splash	C4	Finger snaps
A#2	Crash 1	B3	Tambourine
G#2	Shaker	A3	Low Timbales
F#2	Claps	G3	Digit Attack
D#2	Rim	F3	High Conga
C#2	SD 2	E3	Low Conga
A#1	Cross Sticks	D3	Cup
G#1	BD 2	C3	Crash 2
F#1	E. Tom 3	B2	HH open
D#1	Triangle open	A2	HH closed
C#1	Triangle closed	G2	Cowbell 1
		F2	Tom 4
		E2	SD 3
		D2	Tom 3
		C2	Tom 2
		B1	Tom 1
		A1	BD3
		G1	E. Tom 4
		F1	E. Tom 2
		E1	E. Tom 1
		D1	SD 1
		C1	BD 1

Multi-timbre Mode and Built-in Drums

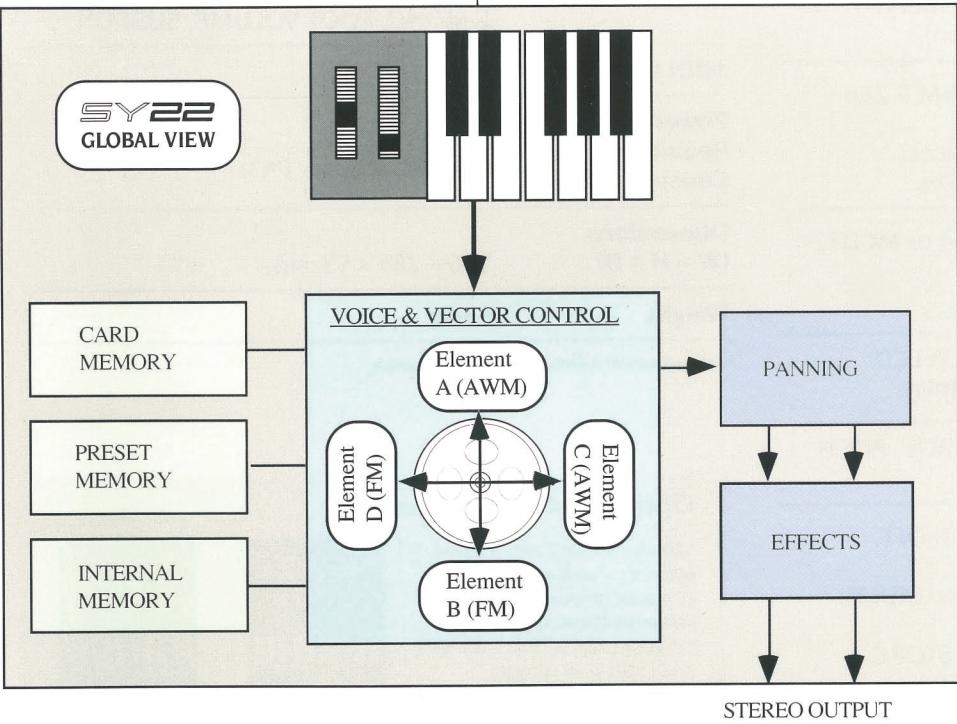
In addition to its normal voice play mode, the SY22 features a multi-play mode in which up to 8 different voices can be assigned to 8 different MIDI channels. The SY22 and a sequencer are all you need to go into full-swing music production. 16 memory locations are provided for complete "MULTI" setups including voice-to-channel assignments, individual voice volume, note shift, tuning, and effects. The SY22 even supplies a complete drum and percussion kit in the form of a single voice — so you don't need an external drum machine.

The multi-play mode is useful in other ways, too. It can be used to play several voices simultaneously via the SY22 keyboard, or create a range of exotic split keyboard effects.

SY22 Effect Programs	
1	Rev Hall (Reverb Hall)
2	Rev Room (Reverb Room)
3	Rev Plate (Reverb Plate)
4	Rev Club (Reverb Club)
5	Rev Metal (Reverb Metal)
6	Delay 1 (Short Single Delay)
7	Delay 2 (Long Delay)
8	Delay 3 (Long Delay)
9	Doubler (Doubler)
10	Ping-Pong (Ping Pong Delay)
11	Pan Ref (Panned Reflections)
12	Early Ref (Early Reflections)
13	Gate Rev (Gated Reverb)
14	Dly & Rev 1 (Delay & Reverb 1)
15	Dly & Rev 2 (Delay & Reverb 2)
16	Dist & Rev (Distortion & Reverb)

Built-in Effects Add Essential Ambience

Yamaha is already firmly established as the leader in digital signal processing for professional music and production applications. The SY22 gives you a healthy helping of this ambience-enhancing capability built in. You have direct access to 16 effect programs including reverb, delay, early reflection, and distortion, to give your sound the extra impact it deserves.



Complete MIDI Implementation

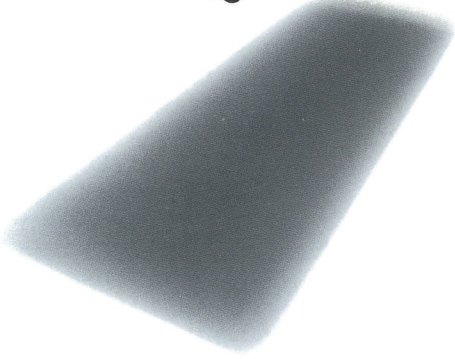
Since the SY22 may be asked to perform in any MIDI system, it has been provided with a complete set of MIDI parameters for maximum compatibility and versatility. Of course, the receive channel and device number are programmable, local keyboard control can be turned on or off, and a range of bulk dump functions make data transfers to bulk storage devices quick and easy.

Stereo Output

The SY22's stereo outputs are behind more than just a few stereo effects. Since each element in any voice can be panned to any position in the stereo sound field, you can create true stereo voices that will add a new dimension to your sound.

Other Features

- Large, bright 7-segment LED voice/multi number display is easy to read even in low stage or studio lighting.
- 16-character x 2-line backlit LCD display is easy on the eyes.
- Master volume control and headphone jack.
- Built-in demo playback feature.



SY22 Voice List

P1.1	Genesis	P3.1	Piano	P5.1	Oboe	P7.1	Inca
P1.2	DXlegend	P3.2	PinPiano	P5.2	Sax	P7.2	Voyager
P1.3	Full Str	P3.3	Elekroad	P5.3	12String	P7.3	Crystals
P1.4	Dist Gtr	P3.4	MalletEP	P5.4	Mute Gtr	P7.4	VCO Sync
P1.5	Itopia	P3.5	Clavi	P5.5	WoodBass	P7.5	VCO Lead
P1.6	PowerBrs	P3.6	ThinClav	P5.6	PlukBass	P7.6	MiniLead
P1.7	RainNite	P3.7	RokOrgan	P5.7	FunkBass	P7.7	Groover
P1.8	Nostromo	P3.8	JazOrgan	P5.8	SlapBass	P7.8	Digicord
P2.1	Matrix22	P4.1	PipeOrgn	P6.1	Fretless	P8.1	SuperPad
P2.2	Arpegi8	P4.2	Trumpet	P6.2	Syn Bass	P8.2	Prophecy
P2.3	SadAngel	P4.3	Trombone	P6.3	Strings	P8.3	Industry
P2.4	DynaPad	P4.4	Fr Horn	P6.4	Chamber	P8.4	Evolver
P2.5	IceField	P4.5	BrasSect	P6.5	Syn Str	P8.5	VectaEko
P2.6	Nautilus	P4.6	Fanfare	P6.6	BoyChoir	P8.6	Zomble
P2.7	VectaSeq	P4.7	FatBrass	P6.7	Marimba	P8.7	Rap Perc
P2.8	Thriller	P4.8	Flute	P6.8	Bell Wah	P8.8	Dr. Kit

SY22 Multi List

P1.1	Orchestra	Big Orchestra. Brass and strings.
P1.2	SuperBrs	Powerful brass.
P1.3	StrPiano	Piano with strings.
P1.4	MonoLead	Fat monoral synth lead.
P1.5	PinPad	Synth decay pad.
P1.6	SyncPad	Fat synth pad.
P1.7	PanPad	Breathy synth Pan flute.
P1.8	Haunted	Image of haunted mansion.
P2.1	FltCnrt	Split flute and strings.
P2.2	Wb/Piano	Split wood bass and piano.
P2.3	Fb/E.Pno	Split fretless bass and E.Piano.
P2.4	RytmSect	Split drum set and funky bass.
P2.5	< Pop >	For Pop music.
P2.6	< Rock >	For Rock music.
P2.7	< Jazz >	For Jazz music.
P2.8	< Demo >	Used for SY22 Demo song.

SY22 Specifications

Keyboard 61 keys, initial and after-touch response.

Tone Generator Systems AWM (Advanced Wave Memory) & FM (Frequency Modulation).

Internal Memory Wave ROM: 128 preset AWM & 256 preset FM waveforms.
Preset ROM: 64 preset voices.
Internal RAM: 64 user voices.

External Memory Voice & Multi data: MCD64 or MCD32 memory cards — write & read.

Displays 16-character × 2-line backlit LCD.
7-segment 2-digit LED display.

Controls VOLUME, VECTOR CONTROL, PITCH BEND, MODULATION.

Keys & Switches POWER; VECTOR PLAY ON/OFF, LEVEL/DETUNE; PAGE <and>; MODE VOICE and MULTI; — I/NO and + I/YES; EDIT/UTILITY/COMPARE; STORE; INTERNAL, CARD, PRESET; BANK 1 — 8 (VOICE COMMON and VECTOR; ELEMENT TONE and ENVELOPE; MULTI; UTILITY RECALL, SETUP and MIDI); NUMBER/MULTI

PART SELECT 1 — 8 (ELEMENT SELECT A—D, ELEMENT ON/OFF A—D).

Connectors DC 10V-12V IN; PHONES; OUTPUT R & L/MONO, FOOT VOLUME, SUSTAIN.

MIDI Connectors IN, OUT, THRU.

Power Requirements/Consumption DC 10-12 V/7 W
(with AC adaptor PA3)

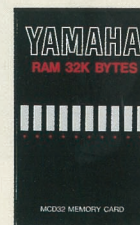
Dimensions (W × H × D) 976 × 285 × 93 mm

Weight 6.8 kg

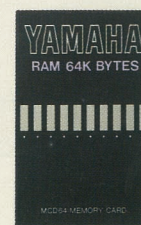
All specifications subject to change without notice.

Optional Memory Cards

Yamaha MCD32 and MCD64 Memory Cards are light and compact, providing convenient external storage for your original SY22 voices and multi-play setups.



MCD32



MCD64

For details please contact:

YAMAHA
YAMAHA CORPORATION
P.O.Box 1, Hamamatsu, Japan