by Norman Weinberg

Drum Machine Reference Chart

Trying to decide which drum machine to buy can be a nerve-wracking experience. Money doesn't grow on trees, and drum machines aren't free. If you're going to plunk down a few hundred to a few thousand dollars, it is important that you get a machine that is going to make you happy, both now and in the future. Not all drum machines are created equal. There is always some sort of trade-off that occurs between features and price. Everyone wants a lot of features at a reasonable cost, and today's manufacturers produce a variety of units that can fit different budgets and have various features.

The purpose of this chart is to help you decide which machine will best serve your needs. I would like to add a few words of warning and friendly advice, though: The sounds included with the machine should be a very important factor in your decision-making process. If you don't like the sound of the hi-hat cymbals on the unit, you're going to be very unhappy. There is no completely accurate way to describe a unit's sounds via the written word. You simply must listen to all the machines that you are going to consider. (After all, you wouldn't buy a pair of stereo speakers from a verbal description without hearing them yourself.) But internal sounds alone do not a drum machine make! You don't want to have to push 27 different buttons just to program the machine in a meter other than common time. It's difficult to say whether or not a machine is user-friendly. What may seem quite difficult to me may be very easy to you. The best thing to do is go to your local music store, or visit a friend who has the machine, and have them show you how to do certain things (change meter or tempo, load in different sounds, etc.). If you get the hang of it pretty fast, consider it friendly.

"So," you may be asking, "if I have to get my hands and ears on the machines before I decide which one to buy, what am I reading this article for?" Well, with luck, you can use the chart to determine a starting point for your hands/ears-on adventures. If you do a lot of syncing to tape, you may want to consider a machine that includes SMPTE read and write capabilities. If stereo playback is critical to your needs, then the chart will show you which machines have only a mono-mix output. If you do a lot of studio work, you might only consider those machines with eight or more individual outputs. If you've got a headphone jack on your mixer, amplifier, and tape deck, do you really need to have another one on your drum machine? Would your MIDI setup require that your drum machine have a MIDI-Thru port included? Do you think that you will need to tune your drum sounds over a large pitch range? Is it absolutely necessary that you be able to program the machine's dynamics from the front panel? Do you want a sampling drum machine, or do you already own a $300,000.00 Fairlight?

I suggest that you look through the chart and make a wishlist of the features that you require now, and think about what you may need in the future. Then try to walk that fine line between the features that you want and the amount of money that you have to spend.

UNIT: This should be pretty obvious. (By the way, due to the ever-changing nature of the electronics field—and the time constraints of magazine publication—certain new models have come into production since this chart was prepared, and thus could not be included. Notable new machines worth checking out are the Yamaha *RX120* and Roland *R8*.)

PRICE: Suggested retail price at the time of this printing. In some cases, the machine is no longer in production. Whenever possible, the price at the time the machine was discontinued by the manufacturer is shown. This information is included because you may find a used unit, or one in the back of a store somewhere. Where no information on pricing was obtainable by press time, a notation of "N/A" is given.

SAMPLE: Samplers let you turn any kind of sound into a drum machine voice. Would you like to add a set of boo-bams or a piccolo snare to your machine? Sample them! (Where possible, the fastest available sampling rate and the machine's sampling resolution are shown.)

SEQ.: This is the largest number of possible sequences that the machine can handle. Don't forget that you may run out of memory before you run out of sequence positions.

SNG.: An indication of the largest number of possible songs that the machine can support.

MARKER: A unit that has markers can move forward or backward to the selected marker in an instant. Useful for finding the chorus or bridge quickly.

SPP: This stands for Song Position Pointer. These are MIDI commands that let MIDI devices know where they are within a song. Some units that have SPP will respond to and send these messages, while others only recognize them.

SYNC.: The different types of synchronization that the machine will read. F = Frequency Shift Key, P = a gate-type clock or voltage trigger signal, S = SMPTE Time Code, M = MIDI clocks, D = DIN sync, and MTC = MIDI Time Code.

	UNIT	PRICE	SAMPLE	SEQ.	SNG.	MARKER	SPP	SYNC.	SMPTE WRITE	SAVES	KEYPAD	UP/DOWN	PADS	SOUNDS
1	Akai - MPC60	$4,995.00	YES 40k - 12 bit	99	20	YES-3	YES	F, P, S, M, MTC	YES	DISK	YES	YES	16X2	32
2	Alesis - HR16	$ 449.00	NO	100	100	NO	YES	F, M	NO	CASS, SYSEX	YES	YES	16	49
3	Casio - RZ1	N/A	YES	100	20	NO	NO	M	NO	CASS	YES	YES	16	16
4	E-mu Systems - SP1200	$2,995.00	YES 28k - 12 bit	100	100	NO	YES	F, P, S, M, MTC	YES	CASS, DISK, SYSEX	YES	YES	8X4	32
5	Forat - Linn 9000	$4,400.00	YES*1	50	50	YES-1	YES	F, P, S*1, M	YES*1	CASS, DISK*1	YES	YES	18	18
6	Forat - LinnDrum	$1,500.00	NO	98	49	NO	YES	F, M	NO	CASS, MIDI	YES	NO	15	15
7	Kawai - R100	$ 795.00	NO	100	100	NO	YES*3	F, P, M, D	NO	CASS, CART, SYSEX	YES	YES	8X3	24
8	Kawai - R50	$ 495.00	NO	50	10	NO	YES*3	M	NO	CASS, SYSEX	NO	YES	10	24
9	Korg - DDD1	$ 750.00 (Disc. '88)	YES*1 38k - 12 bit	100	10	NO	YES	F, M	NO	CASS, CART, SYSEX	YES	YES	14	18
10	Korg - DDD5	$ 700.00 (Disc. '88)	NO	100	24	NO	YES	F, M	NO	CASS, CART, SYSEX	YES	YES	7	45
11	Roland - TR626	$ 499.50	NO	96	6	NO	YES	F, M	NO	CASS, CARD, SYSEX	NO	YES	16X2	32
12	Roland - TR707	$ 695.00 (Disc. '88)	NO	64	4	NO	YES	F, M	NO	CASS, CART, SYSEX	NO	YES	16	16
13	Sequential - Drumtraks Model 400	N/A	NO	99	99	NO	NO	P, M	NO	CASS, SYSEX	YES	YES	13	13
14	Sequential - Studio 440	N/A	YES 42k - 12 bit	99	12	NO	YES	P, S, M,	YES	DISK	YES	YES	8X4	32
15	Sequential - Tom Model 420	N/A	NO	99	100	NO	NO	P, M	NO	CASS, SYSEX	YES	YES	8	16
16	Yamaha - RX11	$ 925.00 (Disc. '86)	NO	100	10	NO	NO	F, M	NO	CASS, CART, BULK	YES	YES	16	39
17	Yamaha - RX15	$ 525.00 (Disc. '86)	NO	100	10	NO	NO	F, M	NO	CASS	YES	YES	12	15
18	Yamaha - RX17	$ 375.00 (Disc. '88)	NO	99	10	NO	YES*3	M	NO	CASS, BULK	YES	YES	13X2	26
19	Yamaha - RX21	$ 375.00 (Disc. '88)	NO	100	4	NO	YES*3	M	NO	CASS, BULK	YES	YES	9	9
20	Yamaha - RX5	$1,315.00	NO	100	20	YES*2	YES*3	F, P, M	NO	CASS, CART, BULK	YES	YES	24	64
21	Yamaha - RX7	$ 895.00	NO	100	20	NO	YES*3	F, M	NO	CASS, CART	YES	YES	12X2	100

KEY

*1=With Optional Card or Memory
*2=User Assignable
*3=Read Only
*4=One Accent Button
*5=Two Accent Buttons
*6=Non Assignable (Factory Set)
*7=Analog (Knob or Slider)
*8=Either L,R, or L+R Only
*9=By Steps of .1 BPM

SMPTE WRITE: Some drum machines can generate the SMPTE time code to stripe a tape. This saves having to buy an external SMPTE generator/reader.

SAVES: How does the unit save its information? Disk = internal disk, Cass = cassette, Bulk = MIDI bulk data dump, SYSEX = system exclusive commands, Cart = cartridge, Card = memory card.

KEYPAD: Does the machine have a numeric keypad for entering your data and commands?

UP/DOWN: Does the machine have a set of increment and decrement buttons for ease in programming?

PADS: The number of instrument pads on the unit. A machine that supports multiple banks will look like "8X2." This will have eight different play buttons with a switch to choose between two banks of sounds.

SOUNDS: The number of different sounds that are "on board" at one time.

VELOCITY: An indication that the pads on the front panel are velocity sensitive.

AFT.T.: The unit will respond to MIDI aftertouch commands to change some parameter of the sound (most often volume).

NOTE REP.: A note repeat button will let you play a continuous string of attacks at the auto-correct timing level. A speedy way to program rolls and tom-tom fills.

TAP TEMP.: A tap button will let you program a tempo simply by tapping the button. Software inside the unit computes the amount of time between taps and enters the result as the metronomic marking.

MULTIPITCH: Is it possible to have the different play buttons all triggering the same sound, but at different pitch levels? This is a very fast way to program multiple tom fills or even an electric bass line.

MULTILEVEL: Is it possible to have the different play buttons all triggering the same sound, but with different dynamic levels?

AUTO CORRECT: The various levels of auto correct that the machine will support. 2 = half notes, 4 = quarter notes, 6 = quarter-note triplets, 8 = 8th notes, 12 = 8th-note triplets, 16 = 16th notes, 24 = 16th triplets, 32 = 32nd notes, 48 = 32nd triplets, 96 or above = high resolution.

MET. STEP: The different rates of the metronome's click sound. This column uses the same abbreviations as the auto-correct column.

TEMPO RATE: The slowest and fastest metronomic markings available on the drum machine.

	VELOCITY	AFT.T.	NOTE REP.	TAP TEMP.	MULTIPITCH	MULTILEVEL	AUTO CORRECT	MET. STEP	TEMPO RATE	TEMP. CHG.	SWING	TIME SHIFT	ST. PAN	MIX
1	YES	YES	YES	YES	YES	YES	8, 12, 16, 24, 32, 48, 96	4, 6, 8, 12, 16, 24, 32, 48, 96	30-300*9	YES	50-75	YES	YES - 15	YES
2	YES	NO	YES	NO	YES	YES	4, 6, 8, 12, 16, 24, 32, 48, 64, 96, 384	4, 6, 8, 12, 16, 24, 32, 64	46-200	YES	50-75	YES	YES-7	YES
3	NO*5	NO	NO	NO	NO	NO	2, 4, 6, 8, 12, 16, 24, 32, 48, 96	4	40-250	NO	54, 58, 63, 67, 71	NO	YES*6	YES
4	YES	NO	YES	YES	YES	YES	4, 6, 8, 12, 16, 24, 32, 48, 96	2, 4, 6, 8, 12, 16, 24, 32	40-240*9	YES	54, 58, 63, 67, 71	NO	NO	YES
5	YES	NO	YES	YES	NO	NO	4, 6, 8, 12, 16, 24, 32, 48, 192	4, 6, 8, 12, 16, 24, 32, 48	50-250*9	YES	SIX LEVELS	NO	YES*7	YES
6	YES	NO	NO	NO	NO	YES	8, 12, 16, 24, 32, 48, 96	4	40-200	NO	SIX LEVELS	NO	YES*7	YES
7	YES	NO	YES	YES	NO	NO	4, 6, 8, 12, 16, 24, 32, 48, 64, 96, 192	4, 6, 8, 12, 16, 24, 32	40-250	YES	54, 58, 63, 67, 71, 75	NO	YES-15	YES
8	NO*4	NO	NO	YES	YES	YES	4, 6, 8, 12, 16, 24, 32, 48, 96	4, 6, 8, 12, 16, 24, 32	40-250	NO	54, 58, 63, 67, 71, 75	NO	YES-15	YES
9	YES	NO	YES	YES	YES	YES	4, 6, 8, 12, 16, 24, 32, 48, 96	4, 6, 8, 12, 16, 24, 32, 48	40-250	YES	54, 58, 63, 67, 71, 75, 79, 83, 88	NO	YES-7	YES
10	YES	NO	YES	YES	YES	YES	4, 6, 8, 12, 16, 24, 32, 48, 96	4, 6, 8, 12, 16, 24, 32, 48	40-250	YES	54, 58, 63, 67, 71, 75, 79, 83, 88	NO	YES-7	YES
11	NO*4	NO	NO	NO	NO	NO	16	4	40-240	NO	SIX LEVELS	NO	YES*7	YES
12	NO*4	NO	NO	NO	NO	NO	16	4	38-250	NO	FIVE LEVELS	NO	YES*6	YES
13	NO*4	NO	NO	NO	NO	NO	2, 4, 6, 8, 12, 16, 24, 32, 48, 96	2, 4, 6, 8, 12, 16, 24, 32,	40-250	YES	54, 58, 62, 66, 70	NO	NO	YES
14	YES	YES	YES	YES	YES	YES	4, 6, 8, 12, 16, 24, 32, 48, 96	4, 6, 8, 12, 16, 24	40-250*9	YES	50-75	YES	YES-31	YES
15	NO	NO	YES	NO	NO	NO	2, 4, 6, 8, 12, 16, 24, 32, 48, 96	2, 4, 6, 8, 12, 16, 24, 32,	40-240	YES	NO	YES	YES*8	YES
16	NO*4	NO	NO	NO	NO	NO	4, 6, 8, 12, 16, 24, 32, 48, 192	4, 6, 8, 12, 16, 24, 32	40-250	YES	54, 58, 63, 67, 75	NO	YES-15	YES
17	NO*4	NO	NO	NO	NO	NO	4, 6, 8, 12, 16, 24, 32, 48, 192	4, 6, 8, 12, 16, 24, 32	40-250	YES	54, 58, 63, 67, 71	NO	YES-15	YES
18	NO*4	NO	NO	NO	NO	NO	8, 12, 16, 24, 32, 48	4	40-250	YES	NO	NO	YES - 15	YES
19	NO*4	NO	NO	NO	NO	NO	8, 12, 16, 24, 32	4	40-250	NO	NO	NO	YES*6	YES
20	NO*5	NO	NO	NO	YES	YES	2, 4, 6, 8, 12, 16, 24, 32, 48, 96	2, 4, 6, 8, 12, 16, 24, 32,	40-250	YES	54, 58, 63, 67, 71	NO	YES*6	YES
21	NO*5	NO	NO	NO	YES	YES	2, 4, 6, 8, 12, 16, 24, 32, 48, 96	2, 4, 6, 8, 12, 16, 24, 32	40-250	YES	54, 58, 63, 67, 71	NO	YES-15	YES

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TEMP. CHG.: Does the drum machine let you program tempo changes as part of the song? This can enhance the machine's ability to sound more human.

SWING: Given as a percentage, the various levels of swing that the machine supports.

TIME SHIFT: Oh no, the downbeat is in the wrong place! Units that support time shifting can slide an entire sequence over to begin on a different beat or portion of a beat.

ST. PAN: On devices with stereo output, the number of different positions within the stereo field.

MIX: A yes in this column means that the unit will let you mix different output levels for each instrument. This is different than simply having programmable velocity, as it lets the user determine the relative volume of each sound.

AUTOMIX: If yes, then the different programmable mixes may be called up and inserted in song mode like a "semi-automated" mixing console.

OUTS: The number of individual audio outputs and stereo outputs are listed in this column. The notation of HP stands for headphones. A marking of 8/2/HP would show that this machine has eight individual outputs, a set of stereo outputs, and a headphone jack.

PORTS: The number and type of MIDI ports contained on the unit. I stands for MIDI-In, O stands for MIDI-Out, and T indicates MIDI-Thru ports.

ASSIGN IN: This feature will let the programmer assign any sound to any MIDI note number so that the drum machine's sounds can be programmed by any other MIDI controller.

ASSIGN OUT: Like the feature above, except that you are assigning which note numbers the drum machine will send. This is very useful for using your drum machine to trigger a sampler or some other external sound source.

TRIGG. IN: The ability of the drum machine to play one or more of its sounds from an external trigger's voltage.

TRIGG. OUT: The drum machine will send a voltage to trigger a sound on the other machine. This can be useful if you need to incorporate non-MIDI devices into your system.

SPECIAL FEATURES: Look for all types of groovy additional features in this slot.

	AUTOMIX	OUTS	PORTS	ASSIGN IN	ASSIGN OUT	TRIGG. IN	TRIGG. OUT	SPECIAL FEATURES
1	YES	8/2/*2	2-I, 4-O	YES	YES	YES-1	NO	Fully implemented internal sequencer with 99 tracks, interactive help functions, effect sends and returns, 40 character by 8 line LCD, four "soft" keys, double play mode, poly mode, hi-hat decay slider on front panel.
2	NO	4	I,O	YES	YES	NO	NO	32 character LCD, pattern length can be changed after programming, MIDI-Out can be used as MIDI-Thru, 2 sets of stereo outputs, start/stop footswitch, save sysex data to Yamaha DX7IIFD, song repeat.
3	NO	10/2/PH	I, O, T	NO	NO	NO	NO	16 character LCD, accent and mute buttons, analog style mixing sliders for each voice, song chain, tone controls on sample input, start/stop footswitch.
4	YES	8/1*2	I, O, T	YES	YES	NO	YES	Swap sounds, velocity buttons on or off, real-time dimensions of segments, subsongs, adjustable decay, metronome output jack, dynamic allocation, reverse sounds, three footswitch jacks.
5	NO	18/2	I, O, T	YES	YES	YES-6 or 12*1	YES-2	Fully implemented internal sequencer with 32 tracks, two footswitch jacks, help messages, 16 character by 2 line LCD, hi-hat decay slider, analog style controls for mix and tuning, MIDI-Out can be used as MIDI-Thru, optional RS-232 jack, 8 dynamic curves.
6	NO	15/2	I, O	YES	YES	YES-5	YES	Controlled Voltage input for pitch sweep, analog style mixer, analog style tuning, changable sound chips, click output jack.
7	NO	8/2/PH	I, O, T	YES	YES	NO	YES	Large LCD display, 24 PPQ sync out jack, metronome out jack, hi-hat footswitch, start/stop footswitch, 10 chains, each instrument has programmable sensitivity, punch in/out, poly mode, programmable level change, overdub feature, flam key.
8	NO	2/PH	I, O	YES	YES	NO	YES-MIDI ONLY	50 preset patterns in permanent memory, poly mode, two programmable footswitches, 12 different pad assignments, gate, delay (3 levels), flange (3 types).
9	NO	6/2/PH	I, O	YES	YES	YES	YES	Flam button adjustable from 0-9 msec., 16 character by 2 line LCD, tuning range is one octave in 128 steps, poly mode, 16 levels of decay, 10 levels of touch sensitivity.
10	NO	2/PH	I, O	YES	YES	NO	NO	Two front panels (one for preset mode, one for programming mode); footswitch controls tap tempo, intro/fill, start/stop; poly mode, tuning range of an octave in 128 steps; 16 levels of decay; 10 levels of touch sensitivity.
11	NO	8/2/PH	I, O	YES	YES	NO	YES	48 preset patterns in permanent memory, flams adjustable to 4 intervals, most suited to step-time programming, optional footswitch, optional memory card.
12	NO	8/2/PH	I, O	YES	YES	NO	YES	Flams adjustable to 4 intervals, most suited to step-time programming, optional footswitch.
13	NO	6/1	I, O	NO	NO	NO	YES	Metronome output jack, two optional footswitches (start/stop, next/repeat).
14	YES	8/5*2	I, 2-O, T	NO	NO	YES*2	YES	Fully implemented internal sequencer, SCSI interface, two assignable footswitches, alternate parameter button, separate MIDI jacks for SMPTE functions, pad sensitivity, fast forward and rewind, tap averaging, aftertouch or modulation for dynamics.
15	NO	2	I, O	NO	NO	NO	YES	Programmable volume controls all voices at the same rate, forward or reverse sounds, "impovise" status mode (not every loop), optional footswitch, "human factor."
16	NO	2/PH	I, O	YES	YES	NO	NO	37 preset patterns in permanent memory, 16 character by 2 line LCD.
17	NO	2/PH	I, O	YES	YES	NO	NO	16 character LCD.
18	NO	2/PH	I, O	YES	YES	NO	NO	50 preset patterns in permanent memory, levels can be altered after recording, MIDI-Out can be used as MIDI-Thru, programmable volume controls all voices at the same rate, accent level can be above or below nominal level, 16 character by 2 line LCD.
19	NO	2/PH	I, O	NO	NO	NO	NO	44 preset patterns in permanent memory, 16 character by 2 line LCD.
20	YES	12/2/PH	I, O, T	YES	YES	NO	NO	16 character by 2 line LCD, reverse sound key, data cartridge slot, wave form slot, note search, three chains, envelope editing, bend rate and range, metronome ouput jack, optional footswitch.
21	YES	2/PH	I, O, T	YES	YES	NO	NO	Metronome output jack, 16 character by 2 line LCD, pitch is adjustable over five octaves in steps of .1 semitone, 31 levels of decay, poly mode, pitch bend, vibrato, tremolo, three chains.

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