



Ensoniq TS12

Keyboard

Reviews : Keyboard workstation

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Following hot on the heels of the TS10, the weighted 76-note keyboard and improved features of the TS12 make it a hot contender for 'top workstation'. DAVID CROMBIE passes judgement.

Buying a new synthesizer today is much akin to the purchase of a computer, or even a computer games machine. In many ways you are taking a big risk, a bigger one than 5-10 years ago, when the greatest (albeit the ultimate) mistake you could make was to buy a synth *without* MIDI.

You know that your new synthesizer is going to reduce in value pretty rapidly over the ensuing months and years, that's a fact of our capitalistic hi-tech life; however, a relatively new consideration is that of *third party support*. Unless you are a programmer, your new computer relies heavily on computer programs that are available from other software houses. If these houses decide that the computer you've got is a bit of a dodo, then they're not going to commit their resources to producing the range and depth of software that will breathe life into that machine. In which case it will probably fall by the wayside (an example -- the MSX computers), with giveaway secondhand prices and disappearing support.

The same is now true of synthesizers. It is a fact that only a small proportion of people who buy synthesizers actually spend much time seriously programming them. Many try to create new and exciting sounds but either fail, get side-tracked by a new riff they've stumbled on, or just find it too difficult. It is for this reason that we've seen the incredible growth of the 'sound libraries'. These companies have become the equivalent of the computer world's software house. And if they don't support you, your instrument is destined to become an also-ran. This is even more true with respect to samplers, which are virtually dead in the water without other people's samples.

Ensoniq have long recognised this potential problem -- since the early days of the Mirage sampler, in fact, on which they cut their teeth. They know that they have to go that extra mile to get new sounds into circulation and if they make their synthesizers easy to programme there will be more people programming sounds, and hence more sounds available. It looks like they've succeeded.

IN A NUTSHELL...

The Ensoniq TS12 has been designed to fit a particular niche of the synthesizer market. It has been superbly crafted to provide a true musician's instrument, and goes a long way to solving the programming problems manifested by so many of today's 'black boxes'.

Ensoniq call this the 'TS12 Performance/ Composition Synthesizer', a somewhat unnecessary embellishment. However, if you choose to label an instrument 'TS12', then I suppose you need something extra to add a bit of sparkle. The TS12 is closely related to the TS10 that Martin Russ reviewed in *Sound On Sound's* July '93 issue. They are both synthesizer/sample replay workstations with a leaning toward performance applications. In terms of features, the two machines are fairly similar, but there are some important differences, the most obvious being the TS12's 76-note weighted keyboard (similar to the one found on Ensoniq's earlier KS32).

The TS12 offers 300 'sounds', arranged such that 120 are user-programmable and 180 are fixed. There is a pretty good 30,000 event sequencer. And this is all controlled with reference to a large, brightly-lit, vacuum-fluorescent display with six 'soft keys' actually built into the perspex display cover.

THE CONTROL PANEL

Ensoniq developed this type of fluorescent display for their instruments many years ago. The big advantage of such a display is that it is clear and easy to read -- even from six feet away. Okay it looks a little out of date these days, and you can't use it to illustrate the detail, such as waveforms, that you can on a liquid crystal display, but at least you can see what you are doing without a microscope and a flashlight, and to my mind this is far more important.

Ensoniq have obviously had a lot of feedback about the mistakes (though not too many) they've made with earlier instruments, and have acted upon it. Consequently, the control panel is relatively uncluttered, and can be considered in six sections:

- The display, with associated soft keys, and the two data entry buttons and slider.
- The program buttons below the display for selecting Sequence, Sound, and Sample memory locations.
- The bank of 12 buttons for selecting Sound and Effect parameters.
- The bank of 12 buttons for selecting Sequence parameters.
- The bank of 16 buttons for selecting Global/System parameters.
- The Performance controls and disk drive to the far left.

The soft key approach is extremely well thought out and is simple to use and understand. For example, you use the buttons to select the parameter you want to edit – the envelope of a sound, for example – and up come the attack, decay, and level settings. Select which of these you wish to edit, using the appropriate soft key, and simply adjust the value with the data entry slider or Increment/Decrement buttons. Okay, the soft key system has been used many times before, but because Ensoniq employ such a good display, and the soft keys are virtually integrated into the display, this one works best of all.

This is probably as good a system as it is possible to get for editing and setting up an instrument which has so many variables. The only thing I question is the size of the buttons, which are really too small. And how much longer are we going to have to put up with the black button on a black background syndrome? The soft keys in particular suffer from this problem as their point of reference changes when you select different display pages. They blend in completely with their background and as there's no nearby panel graphics, you can lose them.

Ensoniq have cut down on the number of switches required by having certain selector buttons toggle through a series of related pages. No problem. In fact, I would think that fewer key presses are required to perform a particular task than with any other comparable synth. So much so, that the Mark/Jump feature found on other machines isn't deemed necessary here -- and it isn't -- although there are one or two short-cuts for moving to specific pages.

SOUND ARCHITECTURE

The TS12's program button selectors are arranged in two groups (of four and 10) running beneath the display. The first three select the type of program you want -- Sequence/Song, Preset, or Sound -- whilst the fourth (BankSet) selects the memory bank. There are five BankSets of 'Sounds' to choose from (U0, U1, R1, R2 and R3). Each BankSet consists of 10 banks of sounds (0-9), selected by the other 10 buttons, and each bank calls up a page of six sounds which are shown on the main display. A particular sound is selected by clicking the adjacent soft key. Double-clicking the soft key enables sounds to be stacked.

Ensoniq use the term 'Sound' to define the primary voicing of the TS series. A Sound consists of six voices (best thought of as six synth modules) along with an Effects program. Each voice incorporates an oscillator, which can be set to produce a waveform selected from a vast array of possible options, plus an LFO, two Filters, and three Envelope Generators.

But it is with the oscillator that things really happen. Ensoniq have installed 6Mb of ROM, into which they've loaded 254 16-bit waveforms (known as Waves).

• WAVES

These Waves are divided into 16 different types. Eleven encompass virtually all instrument groups from pianos and organs to sound effects, percussion, and more. In some cases the Waves have been multi-sampled to provide greater authenticity across the range of the keyboard; the GND-PIANO Wave, for example, has a different sample every 7-13 notes, and in most cases the transitions are pretty good.

• WAVEFORMS

This next classification includes single-cycled Waves such as Sine, Square, Vocal and Metal. Those in the 'Inharmonic' class are similar in that they are single-cycled but contain inharmonics, which are frequencies that are not exact multiples of the fundamental -- these are typically used for Bell and Noise type sounds.

• TRANSWAVES

These are wavetables consisting of many single-cycled waveforms, each with a different harmonic spectrum. By modulating the Wave, you can sweep through the wavetable to achieve harmonic movement within the sound. Very usable if you spend a little time working at it.

• WAVELISTS

The TS12 also offers custom Wavelists, whereby up to 16 user-definable waveforms are linked to create a Wavelist. These can be looped or played as a one-shot.

• DRUM MAP

The final Wave classification is the Drum Map, whereby up to 61 different Waves can be assigned to each key of the keyboard.

All the above may seem pretty awesome, and in terms of synth power it is, but Ensoniq have designed the TS12 so cleverly that after an hour or so of working through the machine its facilities seem second nature, and so obvious that you can sort things out intuitively.

EFFECTS

The remaining building block in the construction of the sound is the Effects section. This is pretty overwhelming for a synthesizer, based as it is on the Ensoniq DP/4 rack-mount processor.

There are 73 basic effects algorithms, and all are fully programmable. The effects modules include Digital Delay, Chorus, Reverb, EQ, Distortion, Rotary Speaker, Parametric EQ, and Phlanger (a combination of phaser and flanger), and each effect algorithm has a variation option to provide a range of suitable alternatives.

The algorithms arrange the various effect modules in certain ways, and this is really one of the few times that the display lets you down. It just isn't possible to depict the way each effect is set up with sufficient clarity. With so many parameters and bus routings to consider, I found it necessary to get out a pen and paper when trying to set up a specific effect scenario. Nevertheless, with so many effects and variations available most bases have been covered.

There are a wide range of Reverb algorithms available, all fully user-definable. They include Small and Large Plate, Hall down to Small Room, Tight Ambience, Wide Ambience, Gated and Reverse.

SAMPLES AND PRESETS

Let's return to the Sounds. Each Sound has an Effect program as part of its structure. There are 300 memory locations for Sounds (5 BankSets x 10 Banks x 6 soft key selections). The 'U' classification of a bank means that the Sound is user-programmable (120), and the 'R' designation indicates that this is ROM memory and cannot be programmed (180).

In addition to the 300 Sounds, there are two Sampled Sound BankSets ('S'). These are stored in volatile RAM memory, so they have to be loaded every time the instrument is powered up. The TS12 comes with 2Mb of RAM, expandable to 8Mb using low-cost, industry standard SIMMs.

"The TS12 does not represent a new generation of synthesizer, but it is an exciting instrument because it re-kindles that urge to experiment with programming and to create new sound textures."

The Sampled Sound consists of a WaveSample, which can be any raw waveform from a drum to a few seconds of speech. This is then 'played' by a digital oscillator, processed by two multi-mode digital filters, then modified using an LFO, a noise generator, and three envelope generators. The resulting signal becomes the Sampled Sound (akin to the earlier Sound program). The TS12 cannot record its own samples, but relies on samples from Ensoniq's extremely large sample library. It can use any sound created for the EPS, EPS-16, EPS-16 Plus and/or ASR-10 samplers.

In order to give the TS12 possibilities of even greater textural depth, and to produce a setup that includes all performance parameters, Ensoniq have introduced the concept of Presets. A TS12 Preset consists of up to three Sounds (including Sampled Sounds) which can be layered or split across the keyboard. Setting up a Preset is, again, extremely easy: just select three Sounds. The Preset will utilise the Effect setting from the prime Sound. The TS12 really is so simple to programme, and when you set something up, nine times out of ten the TS12 produces what you expect it to. That doesn't often happen these days.

KEYBOARDS OF WEIGHT

The TS12 features a 76-note (E-G) weighted keyboard. One thing I have learnt over the years is that if you do have a weighted action instrument, make sure you use a rock-steady stand. This is truly essential to get the best out of a weighted keyboard. If the instrument is set up on a scissor stand, placed on a deep pile carpet, then you'll get as much benefit as you would playing the keyboard aboard a power-boat involved in the Round Britain Power Boat Race!

One downer of weighted actions is the resulting weight of the instrument. I'm no wimp (I eat three Shredded Wheat), but to manoeuvre a weighted keyboard such as the TS12 *safely*, you do need two pairs of hands.

That said, the TS12's keyboard, especially when using the piano voicings, does feel good to play. The keys are velocity and aftertouch sensitive; however the latter (unlike the TS10) is not polyphonic, so if you hold down a chord and perform an aftertouch operation on a soloing note, *all* notes being held will suffer

the effect, not just the one being played. This is a pity and not a little ironic, because Ensoniq have long championed polyphonic aftertouch and it is an extremely useful tool, particularly in performance.

In order to tailor the keyboard to one's particular playing style, the TS12 incorporates 14 velocity curves to set up the dynamic response of the keyboard. These curves affect both the response of the internal sounds and the velocity values transmitted over MIDI. There are two main sets of six 'Piano' and 'Synth' curves, and two fixed velocity settings. The shape of the corresponding Piano and Synth curves are in fact virtually the same, except that when selecting a Piano curve and pressing a key down very slowly and softly, no sound will emanate from the instrument -- exactly as a real piano would respond.

The curves vary from PNO-VEL1 (and SYN-VEL1) to PNO-VEL6 (and SYN-VEL6). The former is designed for someone with a light touch -- it being easier to reach the maximum level of any velocity controlled parameter; the latter is for someone who wants a lot of control over their softer playing. This curve dedicates most of its range to a gradual increase in volume but has a quick 'spike' at the end to facilitate full volume accents. The FIXED-64 and FIXED-127 curves are of course straight lines, providing no dynamic control but just half and full velocity levels. They are gainfully employed when drum programming or in simulating vintage synths/organs, and so on. These curves are spot on and most players should be able to find a curve to suit. It is also possible, of course, to limit the velocity output using a separate VEL-MAX (Velocity Maximum) control. This would be utilised when connecting to older MIDI synths and modules which didn't take advantage of the full velocity bandwidth of 0-127.

"Synthesizers have been enjoying a fairly steady decline in terms of sales over the past few years. We are now experiencing a period of refinement and gradual evolution."

So if you want a weighted keyboard, the TS12 won't disappoint. JJ Jeczalik from The Art Of Noise once said that the Fairlight CMI worked in 'E' a lot better than in other keys. This was because the black keys reached maximum velocity with less effort than the white ones. No such fears with the TS12.

The TS12 also offers an astonishing collection of custom tunings. The favourites are all here -- Pythagorean, Just Intonation, Arabic etc -- but in addition there are three scales derived mathematically by Wendy Carlos. One divides the octave into 15.385 steps (78 cents a key); another into 18.809 equal steps of 63.8 cents a key; and a third into 34.188 equal steps (35.1 cents per key). Each octave in these scales covers 16, 19 and 35 keys (though there are no pure octaves), and will all be about as useful as a lawnmower in the Sahara to the average player.

PERFORMANCE CONTROLS

To the left of the keyboard are the obligatory performance wheels: a centre-sprung pitch bend wheel and the end-stopped modulation wheel. The TS12 modulation routing options are truly excellent for directing these specifically to the destination you require.

Above these wheels are two buttons which are new to me. They are used to instantly select variations on the active Sound or Preset you have chosen. For example, take the LITE-ORGAN Sound. With neither of these two buttons pressed you hear the basic sound. Press-and-hold the right button and you get a high octave stop added; the left button produces just the fundamental and keyclick; and holding both buttons produces a brighter variation. This is a brilliant idea for soloing and adding extra variation to one's playing, but like the pitch bend and modulation controllers it is obviously limited to use when playing with just the right hand. What about incorporating a similar feature on a pair of footswitches?

BUILT-IN SEQUENCER

The built-in sequencer is pretty standard for a workstation of this kind. The TS12 is 12-part multi-timbral, each of the 12 tracks being fully polyphonic up to the limit of the instrument's 32 voices. If more than 32 voices are used at a given instant the oldest note is robbed, unless priorities have been set up to exclude certain tracks from such note-robbery.

Each track has its own Sound and complete set of track parameters (volume, pan, timbre, etc, including MIDI channel status), all of which are remembered with the sequence. Each sequence has a set length equivalent to the length of the first track you recorded -- though this can be changed at any time.

In Ensoniq's terminology, a Song is a collection of sequences assigned to play in any order with up to 99 steps. To add some confusion, each Song has an additional set of 12 tracks which are completely independent of the tracks in its component sequences. Now this is a clever idea, and one that is employed on computer sequencers such as *Cubase* in the form of Group Tracks. The sequences are effectively your Group Tracks, and there are 12 more 'free' tracks to lay alongside the entire length of the Song.

Another nice feature of the TS12's sequencer is that the (optional) SW10 dual footswitch can be employed

to perform Play/Stop and Stop/Continue functions.

All Sequencer and Song data can be saved to floppy disk, using the internal drive. However, as far as I can tell the TS12 doesn't seem to accept Standard MIDI Files.

I am a confirmed computer-based sequencer man, myself. And although I wouldn't change, I can see the advantages of having an integral sequencer of this calibre. Okay it doesn't have the fancy stuff, but a lot of the time that is more of a distraction than a help. Having the 12+12 track approach means you can quickly establish a backing, then use the additional 12 tracks for melody, counter-melody, effects etc. The relatively low resolution of 96 ppqn doesn't really seem to come into play, as there is no apparent MIDI delay when using internal instrumentation.

CONCLUSION

Synthesizers have been enjoying a fairly steady decline in terms of sales over the past few years. The reason being that all the quantum jumps have been made (and, of course, there's less money around); we are now experiencing a period of refinement and gradual evolution. The TS12 does not represent a new generation of synthesizer, but it is an exciting instrument because it re-kindles that urge to experiment with programming and to create new sound textures. In addition, with the ability to incorporate substantial sample programs into a Preset, the potential of this instrument is further enhanced. The Ensoniq sample library, on which this machine obviously draws, is already large, but it would be better if sample data from other sources (eg. Akai samplers) could be utilised.

The pre-loaded Presets and Sounds (slightly different to those of the TS10) show how good this instrument can sound. The only drawback with a digital instrument of this nature is that there are only four analogue outputs. This is undoubtedly due to the cost of providing good quality 16-bit D/A converters and the additional processing power required to drive them. Many will say four outputs is all you need, but I would still welcome more. You can't truly create the space in a mix all from one source. This is illustrated by the demonstration songs, which are fabulously constructed but still have that slight muddle that is inevitable when everything comes from a pair of D/A converters.

The TS12 is designed not only to be a workstation, but also to be used live. Is it therefore all things to all men? Well it is almost, because it does perform admirably in both roles. If you already have a sequencer and a master keyboard, the question is do you need a workstation? If you do, at £2199 including VAT, the TS12 is the most useful weighted keyboard workstation out at the moment.

MIDI

If you want to use the TS12 as a 'keyboard' and 'voice module' controlled from an external computer-based sequencing package, then you are limited to the 12-part multi-timbrality of the sequencer mode. The TS12's tracks are set up in the same way as if you were going to use the internal sequencer. In fact, in a performance situation the sequencer can be used to set up complete keyboard rigs, with as many as 12 remote devices split and/or layered with predetermined programs -- all at the touch of a button. These 'sequences' are known as Track Templates. The TS12's internal sequencer can be synchronised to external sequencers/drum machines using MIDI Clocks.

No hint of General MIDI here. Not that it bothers me, personally. If you are spending this kind of money (£2199) on an instrument of this nature, you are probably the kind of person who won't be too disappointed by this omission.

SOUNDFINDER

If you're looking for a particular type of sound, the Ensoniq SoundFinder feature on the TS12 is a pretty nifty tool. All programs are given a Program Type classification. Simply find a Sound that is like the one you are looking for -- say a piano, and then use the Replace Track Sound button. You can then step through all Sounds and Presets that have the same program classification. A custom facility lets you create your own program classification for your own Sounds.

TS12: THE MANUAL

This owner's manual is one of the best. Or is it? I had no problems sorting out this machine -- every time I looked something up in the manual, it was clearly explained. But was this because the instrument is so well designed anyway that everything made sense? Who cares? The end result is the same. If you can read, and you are prepared to spend a few hours working through the excellent Tutorial booklet that accompanies the 370-odd pages of the Musician's Manual, then you'll crack it.

ENSONIQ TS12 SPECIFICATIONS

KEYBOARD

- 76 note (E-G) weighted action
- Monophonic (channel) aftertouch
- 14 velocity curves

PERFORMANCE CONTROLS

- Patch Select switches (2)
- Pitch bend (sprung) and Modulation wheels
- Data Entry slider and +/- increment buttons (assignable)

DATA STORAGE

- 120 RAM memories (Sounds)
- 180 ROM memories (Sounds)
- 20 RAM memories (Sampled Sounds -- volatile)
- 120 RAM memories (Presets)
- 180 ROM memory (Presets)
- 6Mb Waveform ROM
- 2Mb (upgradable to 8Mb) Waveform RAM
- Quad density 3.5" Floppy Disk Drive

VOICE STRUCTURE

- 32-note (voice) polyphonic
- 1 oscillator, 2 Filters, 3 Envelopes and 1 LFO per 'wave module'
- 6 wave modules plus Effect Program per voice
- 254 single and multi-sampled waves in ROM
- 12-part multi-timbral
- 3 Sounds plus Effect Program per Preset

SEQUENCER

- 30,000 events (upgradable to 97,000 events)
- 96 ppqn resolution
- 1 Song = 99-step sequence chain with 99 repetitions
- 60 Songs or Sequences
- MIDI Clock sync

OUTPUTS

- 16-bit DAC
- 24-bit effects processor
- Stereo Main output
- Stereo Aux. output
- Phones

ENSONIQ TS12 £2199

PROS

- Superb range of preset sounds included.
- Easy to programme.
- Wide range of routing options.
- Very impressive Effects section.
- Nice weighted keyboard with 14 different velocity curves.
- An excellent 'live' instrument, enhanced by inclusion of performance Patch Select buttons.

CONS

- No polyphonic aftertouch.
- Soft Keys difficult to locate.
- Not MIDI File compatible.
- Only four analogue outputs.

SUMMARY

A very well thought out, nicely packaged instrument with a warm, pleasing timbral character.

info

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