TC Helicon VoicePro

Take the relevant ingredients employed in vocal processing, add intelligent pitch shifting and harmonisation and put the whole lot in one box. JON THORNTON plays with the apparent length of his vocal tract and turns teenager again.

TC HELICON'S NEW FLAGSHIP box is undoubtedly a sexy looking piece of kit, a fact that is underlined by the feature that draws your eye more than anything when you first power it up — the presence of a 320 x 240 pixel colour LCD. As the unit boots up this display looks for all the world like a computer boot sequence as various routines are initialised and loaded — the VoicePro may be dressed up as a traditional rackmount effects box, but there's no disguising the fact that there's some serious computer horsepower underpinning it.

Billed as the culmination of 15 years of research, the VoicePro is fundamentally a multi-effects processor that majors on pitch and time shifting, harmonisation and voice modelling — with some very respectable capabilities in terms of EQ, reverb, delay and modulation effects thrown in for good measure. What makes it distinctive is the way in which all of these processes have been designed from the ground up to work either individually or collectively on the human voice as their source.

Tearing your eyes away from the gorgeous colour display on the front panel for an instant, the rear panel houses the usual interfacing capabilities. Two balanced line level inputs are provided via XLR connectors, and a pair of balanced outputs, again on XLR, completes the analogue side of things. A single DB-25 connector provides 2 channels of digital input and 8 channels of digital output configured as AES pairs. A breakout lead terminating in the appropriate gender of XLR is provided with the unit. A BNC connector allows the unit to slave to an external TTL Word clock source, and MIDI In and Out sockets allow a MIDI device to provide note information for harmonisation purposes, as well as enabling the use of a third-party computer-based editor.

Returning to the front panel, and the user interface is typical of TC — in other words completely intuitive, and helped greatly by the colour LCD display. Admittedly, System 6000 users will spend the first few minutes poking the display in an attempt to change parameters before realising that it isn't touch sensitive, but the use of the dedicated menu keys, soft knobs and navigation keys becomes second nature

very quickly. Added to this is an on-screen context-sensitive help function that contains pretty much most of the information in the manual.

It's probably easiest to discuss each of the key processing and effect blocks on offer first, before looking at how they are all tied together. Pitch shifting offers a variety of different modes, the most straightforward being shifting the signal input by a fixed interval. Automatic pitch correction is also offered, either by forcing pitch correction to an incoming MIDI note, or by setting a musical key and scale as the basis for correction. Custom scales can also be created, and there are plenty of parameters that determine when and how an incoming sound is shifted, allowing extremely transparent or very obvious effects to be achieved.

The pitch shifting method employed by the VoicePro is a hybrid system, which allows pitch and formants to be shifted separately. The user has control over this, and can set shifting to always shift formants and pitch, or to shift pitch while preserving formant patterns, or any point in between. Depending on the amount of shifting required, this ensures that 'chipmunking' type effects can be minimised where necessary, or indeed deliberately achieved.

Closely related to basic pitch shifting is the harmony function, which allows up to four pitch-shifted lines to be generated based on the pitch of the incoming note. Again, a variety of different modes are on offer, ranging from fixed, unvarying intervals, to intelligent harmonies based on a musical key and scale, to absolutely controlled harmony notes based on incoming MIDI data. A particularly nice feature is
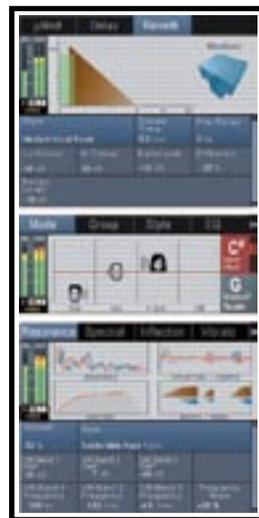
chord mode, which allows chord sequences from a MIDI keyboard or sequencer to be used as the basis for intelligent harmony generation. Again, there are plenty of parameters to allow for the harmony parts to be 'humanised' by the addition of portamento, random pitch and time variations to the harmony voices or modelled vibrato effects.

Perhaps one of the most intriguing aspects of the VoicePro is the Character block, which can change the identity and performance of vocal sounds. A resonance function allows the repositioning of the core harmonic content of a voice, moving energy from a defined spectral band to another one and changing the apparent length of a vocal tract to simulate gender changes, or younger or older voices. Inflection changes can also be added, which makes pseudo-random changes to the pitch and timing of the vocal source, useful for generating very realistic sounding double-tracked parts from a single source. Artificial vibrato based on waveforms modelled from real singers can also be overlaid on the vocal line. 'Growl' and 'Breath' functions can dynamically enhance and emphasise breathy characteristics or constricted characteristics of the original source.

A comprehensive digital EQ is also available, featuring a high pass filter, high and low shelving bands and two parametric mid bands. On the dynamics front, a compressor-limiter and extremely capable de-esser are available. And if that weren't enough, a 'Transducer' function allows the emulation of devices such as telephones, loudspeakers and radios by a combination of filtering, distortion and the generation of noises such as hisses, buzzing, hum, etc.

At this point, it's worth talking a little about the internal signal path of the VoicePro, as this makes a significant contribution to the unit's flexibility. The nominally mono input to the VoicePro is termed the 'Dry Lead' signal. This signal can pass through the EQ and dynamics processing, and at this point can be sent to the unit's internal mixer if necessary. The post EQ and dynamics signal is then termed the 'Virtual Lead' signal, and can be passed through the time stretching, pitch shifting/correction, character modelling and transducer emulation blocks. This 'Virtual Lead' signal is then also available to the internal mixer — allowing you to decide whether the dry signal is heard alongside the effected signal or not. At the same time as this, the original input signal is also applied to the harmony generation block, which contains its own EQ and dynamics blocks. The output of the harmony block is then also available to the mixer.

Conventional effects, split into the three categories of reverb, delay and modulation type, are also included and as you might expect from the TC pedigree, these are far from being a last minute bolt-on. Instead the algorithms employed and the collection of presets offered have been deliberately tweaked to work sympathetically with vocals, particularly the reverbs. There are some nice touches here too, such as the inclusion of a ducker on the reverb and delay patches that can be set to only bring up the level of reverb tails or delays at the end of phrases. The reverb, delay and modulation effect blocks each have individual send levels from each of the three internal signal paths — Dry Lead, Virtual Lead and Harmony. Overall level and pan from all of the signal paths and FX returns are internally mixed to form a stereo output, and this is always available on the analogue outputs and the first two channels of digital output. The remaining six channels of digital output can be configured to carry voices (i.e. the four harmony parts, Dry Lead and Virtual Lead), or blocks (stereo lead, stereo harmony and stereo FX return).

A couple of things should be becoming clear to you as you read this. The first is that there's an awful lot going on inside the VoicePro. The second is that not a lot of it is strictly new territory — if your outboard rack contains a decent harmoniser, EQ, compressor, ducker, de-esser, reverb and delay, you might be asking yourself what exactly this unit will do that you can't already achieve.

The answer is give speed and convenience — TC Helicon has put a lot of thought into the presets that are offered with this unit. More to the point, those presets are built around the relevant combinations of all of the processing capabilities outlined already. This inevitably means that there are a lot of presets to choose from, but the inclusion of a browser mode that allows you to filter presets by vocal source and application helps. Another plus is that although a preset may make use of a large number of individual processing blocks — for example, EQ, compression, reverb, character — each one of those blocks will have a fairly substantial number of individual parameters. Hence the inclusion of 'styles' within many of the blocks, which could be described as presets within presets. For example, a preset may include the use of the 'vibrato' function within the 'Character' block, and this function alone contains six parameters. But a style parameter with fairly descriptive names such as 'Opera Tenor' will effectively change all six of these parameters at once, making fine tuning of the overall presets very quick.

And it is this 'Character' processing block that to my mind is a strong benefit. While the pitch-shifting, harmoniser and effects are up there with the best of what's currently available, being able to modify the character of voices is an incredibly powerful tool. For that small interval, close harmony 'tighter than a Bee Gee's pants' sound so prevalent in current pop production, it allows you to go a long way to make the effect sound less artificial — yes, soloing the effects reveals some audible artefacts at times, but in the context of a mix this is more than acceptable. And playing around with apparent vocal tract lengths very quickly earned the unit the nickname of the Boy Band in a Box, as grizzled 40-something country session singers started to sound uncannily like Busted.

All of which raises more questions than answers — chiefly whether we should be applauding a unit that allows us to make such decisions after the fact, rather than getting the right performances in the first place. As ever, there's no easy answer — it's clear in the range of presets that TC Helicon has provided that this unit is targeted as much at spoken voice applications as it is at the singing voice. And in this area of work the ability to gain a much wider palette of vocal types without the expense of additional vocal talent makes a lot of economic sense.

But there's one issue — latency. While some of the processing is more or less real-time, most of the really clever stuff introduces a significant degree of latency. This is easy to compensate for, as a utility screen is provided that shows the current system latency, and in fact the latency can be reduced by trading off audio quality. But with typical values around 35 milliseconds, I can't really envisage this unit being used easily in an analogue production environment. And if you are in a digital production environment, chances are you are using a DAW with plug-ins that can achieve most, if not all, of the capabilities of the VoicePro. And ultimately, you could view it as a rackmount box that to all intents and purposes is a computer running some very clever plug-ins.

Make no mistake, I'm a great fan of dedicated units, and I loved this box, which to my mind is certainly the best of its type currently available (UK£1740 + VAT). If you do a lot of vocal work in post or preproduction, then I can see the VoicePro making a lot of sense financially and practically. And for voiceover or dialogue work — particularly for animation, the ease of use and palette of effects make it a real winner if you don't have a wide range of existing plug-ins or outboard effects and processors. ■

PROS Great, intuitive user interface; every process you need for vocal treatment in one place; flexible signal routing; high quality pitch shifting and correction; voice character adjustment very impressive; well thought out collection of presets and styles speeds up workflow.

CONS Latency an issue in an analogue or live production environment; most of its capabilities you may already have in alternative forms.

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