VOICEPRISM PLUS

VOCAL FORMANT PITCH PROCESSOR

FEATURING
VOICECRAFT HUMAN VOICE MODELING CARD

USER'S MANUAL SUPPLEMENT

TC·HELICON
VOCAL TECHNOLOGIES

THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED 'DANGEROUS VOLTAGE' WITHIN THE PRODUCT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK TO PERSONS.

THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE PRODUCT.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSON

IMPORTANT SAFETY INSTRUCTIONS: READ AND SAVE THESE INSTRUCTIONS

WARNING - WHEN USING ELECTRICAL PRODUCTS, BASIC PRECAUTIONS SHOULD ALWAYS BE TAKEN, INCLUDING THE FOLLOWING:

1. READ ALL THE INSTRUCTIONS BEFORE USING THE PRODUCT.
2. DO NOT USE THIS PRODUCT NEAR WATER - FOR EXAMPLE NEAR A BATHTUB, WASHBOWL, KITCHEN SINK, IN A WET BASEMENT, OR NEAR A SWIMMING POOL.
3. THIS PRODUCT SHOULD BE USED ONLY WITH A CART OR STAND THAT IS RECOMMENDED BY THE MANUFACTURER.
4. THIS PRODUCT, EITHER ALONE OR IN COMBINATION WITH AN AMPLIFIER AND HEADPHONES OR SPEAKERS, MAY BE CAPABLE OF PRODUCING SOUND LEVELS THAT COULD CAUSE PERMANENT HEARING LOSS. DO NOT OPERATE FOR LONG PERIOD OF TIME AT HIGH VOLUME OR AT AN UNCOMFORTABLE LEVEL. IF YOU EXPERIENCE ANY HEARING LOSS OR RINGING IN THE EARS, CONSULT AN AUDIOLOGIST.
5. THIS PRODUCT SHOULD BE LOCATED WITH SUFFICIENT AIR SPACE FOR PROPER VENTILATION.
6. THE PRODUCT SHOULD BE LOCATED AWAY FROM HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, OR OTHER HEAT PRODUCING PRODUCTS.
7. CLEAN ONLY WITH A DAMP CLOTH. BEFORE CLEANING THE UNIT, TURN OFF THE POWER AND UNPLUG THE POWER CORD FROM THE OUTLET.
8. THE POWER SUPPLY CORD OF THE PRODUCT SHOULD BE UNPLUGGED FROM THE WALL OUTLET DURING LIGHTNING STORMS OR WHEN LEFT UNUSED FOR A LONG PERIODS OF TIME.
9. DO NOT DEFEAT THE SAFETY PURPOSE OF THE GROUNDING-TYPE PLUG. A GROUNDING TYPE PLUG HAS TWO BLADES AND A THIRD GROUNDING PRONG. THE THIRD PRONG IS PROVIDED FOR YOUR SAFETY. IF THE PROVIDED PLUG DOES NOT FIT INTO YOUR OUTLET, CONSULT AN ELECTRICIAN FOR REPLACEMENT OF THE OBSOLETE OUTLET.
10. PROTECT THE POWER CORD FROM BEING WALKED ON OR PINCHED PARTICULARLY AT PLUGS, CONVENIENCE RECEPTACLES, AND THE POINT WHERE THEY EXIT FROM THE APPLIANCE.
11. USE ONLY WITH ATTACHMENTS/ACCESSORIES SPECIFIED BY THE MANUFACTURER.
12. THE PRODUCT SHOULD BE SERVICED BY QUALIFIED SERVICE PERSONNEL WHEN:

A. THE POWER SUPPLY CORD OR THE PLUG HAS BEEN DAMAGED; OR
B. OBJECTS HAVE FALLEN, OR LIQUIDS HAS BEEN SPILLED INTO THE PRODUCT; OR
C. THE PRODUCT HAS BEEN EXPOSED TO RAIN; OR
D. THE PRODUCT DOES NOT APPEAR TO OPERATE NORMALLY OR EXHIBITS A MARKED CHANGE IN PERFORMANCE; OR
E. THE PRODUCT HAS BEEN DROPPED, OR THE ENCLOSURE DAMAGED.

13. DO NOT ATTEMPT TO SERVICE THE PRODUCT BEYOND WHAT HAS BEEN DESCRIBED IN THE USER MAINTENANCE INSTRUCTIONS. ALL OTHER SERVICING SHOULD BE REFERRED TO QUALIFIED SERVICE PERSONNEL.

FOR PRODUCT SAFETY AND CONFORMITY, REFER TO VOICEPRISM PLUS USER MANUAL, APPENDIX F.

IVL PART # SUP0129 R1.1

INTRODUCTION

Thank you for choosing the VoicePrism Plus! This remarkable tool contains these exciting features:

- **TC-Helicon Voice Modeling** dedicated to the Lead voice, with parameters such as Vibrato, Scooping, Warp, Spectral Effects, Breath, Rasp and Growl.
- World Class **Digital Effects** and **Signal Processing** from TC-Electronic of Denmark.
- **Two** Dynamics Banks, **Four** EQ Banks assignable to either the Lead or Harmony voices.
- S/PDIF and AES/EBU Stereo **Digital Inputs and Outputs**.
- **24 Bit** Internal Processing.

If you already own a TC-Helicon VoicePrism, the VoiceCraft upgrade expansion card containing all of the above special features is also available. You can easily upgrade to the VoicePrism Plus in a matter of minutes.

Only updated VoiceCraft features are included in this supplementary manual: you may need to refer back to your original VoicePrism User Manual for functions that have been retained from the VoicePrism.

Text conventions:

Bold, all capitals: front panel **BUTTON AND KNOB** control names.
Underlines, all capitals: MENUS (accessed by the front panel buttons).
Italic, all capitals: *CONFIGURABLE PARAMETERS* (assigned to the softknobs).
Underline, small capitals: PARAMETER SETTINGS (twist the softknobs to modify).

TABLE OF CONTENTS

USER INTERFACE

WHAT'S NEW

FRONT PANEL

Whether you are upgrading your original VoicePrism with the new VoiceCraft card, or you have purchased a VoicePrism Plus, the front panel controls are the same. All improvements and new features are neatly contained within the internal software, so you can avoid the hassle of learning new controls. The LED's of **44.1K** and **48K** illuminate to indicate Digital Signal status as follows:

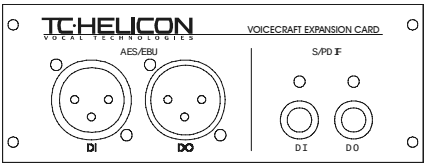
Solid **41.1K** OR **48K** - means locked with either internal or external frequency

Blinking **44.1K** XOR **48K** - means not locked but using internal frequency

Blinking **44.1K** AND **48K** - means not locked but using external frequency (which is unknown if we have no lock).

REAR PANEL

Behind the four-screw plate lies the new VoiceCraft Human Voice Modeling Card, which provides the VoicePrism Plus two additional connections for Digital I/O, S/PDIF and AES/EBU. Digital signal configuration and routing are modified by pressing the **UTILITY** button on the front panel. You can scroll to either the DIGITAL I/O page or the ROUTING page to edit these parameters, using the **MENU TAB** buttons.



PRESET SCREEN

You will notice a slight change in the preset screen from the original VoicePrism. On the original VoicePrism, if you incorporated the Thickening effect on the lead voice, a block marked *TH* would appear in the signal path diagram after the lead voice block. With VoicePrism Plus, when you incorporate Voice Modeling (VM) in your preset, this block appears as *VM*, as Voice Modeling is used to create a Thickening effect. For details on VM, refer to the **VOCALS** button section.

The original VoicePrism manual illustrated how you can assign the softknobs in the PRESET screen to control different parameters -- you can now access new libraries using these same controls. The new parameters that can be assigned to the softknobs are:

VM LIB: Selecting a *VM LIB* will automatically set the style and amount of each of the VM effects to a predetermined setting (designed by TC-Helicon), creating pleasing results that you can quickly recall and implement in any of your presets. The Thickening effect, a parameter in the original VoicePrism, can be replicated using the controls on the LEAD menu page under the **VOCALS** button on the VoicePrism Plus. In the LEAD menu you can set the Detune amount of the Voice Modeled (VM) voice and set the ratio between the dry and VM voice with the *DRY:VM MIX* softknob. Pitch differences between the two voices, along with the Pan settings, enables the creation of a more configurable Thickening effect.

LEQ1 LIB, LEQ2 LIB, HEQ1 LIB, HEQ2 LIB, LCMP/NG, HCMP/NG: In each of these acronyms, *L* stands for Lead, *H* stands for Harmony, *EQ* stands for Equalizer, *CMP* stands for Compressor, *NG* stands for Noise Gate, and *LIB* stands for Library. There are now separate Lead and Harmony library settings, in addition to two banks of EQ for the Lead voice, and two banks for the Harmony voices. These libraries recall standard settings for quick preset construction. With an increased number of effects and dynamics parameters, we have created a greater number of library categories, enabling you to fine-tune your presets without delving into subterranean edit parameters.

For further details, refer to the **COMP/EQ** and **EFFECTS** sections of the VoicePrism and VoicePrism Plus User Manuals.

VOCALS BUTTON

This accesses the new VoicePrism Plus Voice Modeling (VM) features, enabling you to manipulate the Lead voice using our Voice Modeling effects. You access the following menus by pressing the **VOCALS** button and paging left and right with the **MENU TAB** buttons, just like on the original VoicePrism.

LEAD

The LEAD menu provides the tools necessary to produce a Thickening effect by designating different characteristics for the Dry Lead and VM Lead voice and controlling the Lead voice mix. The control parameters are as follows:

DRY:VM MIX (0-100% MODELED): sets the balance between the Dry Lead voice, and the VM Lead voice. 100% is undiluted VM voice, and 0% is Dry voice.

DRY PAN (100% LEFT - 100% RIGHT): sets the position in the stereo field of the Dry voice.

VM PAN (100% LEFT - 100% RIGHT): sets the position in the stereo field of the VM voice.

VM DETUNE (0- +/- 50 CENTS): detunes or offsets the pitch of the VM voice from the Dry voice to create an fuller overall Lead voice.

VOICE MODELING EFFECT CATEGORIES

There are two basic parameters in each of the Voice Modeling (VM) menus: *AMOUNT* and *STYLE*.

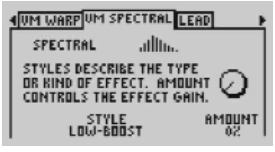
The *AMOUNT* softknob controls whether the VM effect is subtle or intense. When initially dialing in a sound we recommend an *AMOUNT* setting of 50%.

STYLES are created for each voice modeling effect to provide a diverse range of vocal possibilities to incorporate into your presets -- feel free to scroll and explore.

The last few styles in each effect are often special effects, novelty sounds or something else out of the ordinary. Any combinations of these styles may be stored in a preset, along with the other effects available in the VoicePrism Plus, as described in the original VoicePrism User Manual.

VM SPECTRAL

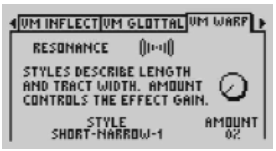
The Spectral control is a set of equalizer response curves intended to complement the VM WARP selections. This equalization is different than those controlled via **COMP/EQ** and applied to the output signal. The VM SPECTRAL styles reflect the natural equalization equivalent to the native control a singer has over his or her own voice, and apply this equalization to the Voice Modeling (VM) voice. These styles may be used in conjunction with the resonances, or purely as additional tonal control over the VM voice.



* Special Note: Each VM effect menu has an *AMOUNT* control to 'dial in' the amount of effect desired. Remember that there is also a *DRY:VM MIX* control in the LEAD menu that determines how much of the input vocal is left Dry and how much is passed through VM. The setting of this ratio can determine the effectiveness of your other parameter settings, as it is essentially a master mix control for the Dry and VM Lead voice.

VM WARP

Warping is how we model different vocal tract dimensions, and apply them to incoming vocals. Your favorite vocalists all have unique pitch and glottal characteristics. Warp changes the tonal makeup of the sound by moving vocal formants, so that the Voice Modeled (VM) Lead voice sounds quite different than the original. Formants are the harmonic combinations that help make our voices unique.



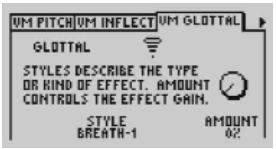
The styles have been given names that are easily identified when assembling presets. The names may be associated with a particular genre of music or sound. This way, you can associate a certain modification with a name, similar to how we describe colors in a picture with names.

Some of the Warp styles contain a built-in octave shift, either up or down. This is to accommodate a male singing in the female register, with a feminine timbre, or for a female to simulate a male singing voice. These Warp styles enable you to sing in a natural range and still hit the notes of your opposite gender comfortably; they are *STYLE* settings F2M (Female-to-Male) and M2F (Male-to-Female).

The *AMOUNT* knob allows you to dial in the relative strength of this effect on your VM voice; 0% for no effect, 100% for pure Warping.

VM GLOTTAL

Glottal refers to the combination of complex sounds the human voice can make to change non-pitched aspects of the vocal sound. Consider these examples: the cool breathy sound of a Jazz or Folk singer, the legendary warm grumble of Blues from the Mississippi Delta, the brazen sizzle of Rock and Alternative Rock or the growl of 60's Soul.



The Glottal *STYLE* settings contain three types of effects: BREATHINESS, RASP, and GROWL, arranged in various combinations in the style library. All of these are set to create percussive and expressive textures in addition to the sung note. Experimentation is the key to finding styles that work in your scenario, or are difficult to create in your scenario. The last few entries contain extreme and unreal Glottal styles -- no longer need you burn out your throat night after night. Glottal styles are created using the following parameters:

BREATHINESS factors in 'virtual air' that gives the effect of being close to a sensitive condenser microphone. This intimate sound may be used in some Jazz styles or for pop ballads, although its application is not limited to these. *BREATHINESS* may also be used to give a 'tired' or 'strained' sound, where the singer may be pushing a lot of air. You can also dial in 'whisper' or like textures to simulate a specific singer's style.

RASP is an effect where the breath pushed through the throat cavity goes beyond mere breathiness, into a harsh sizzle or grind. These sounds are a combination of hard breath and friction in the larynx, which are difficult for many singers to reproduce and are very damaging on the vocal cords. You can use RASP on your normal voice and achieve a grittier,

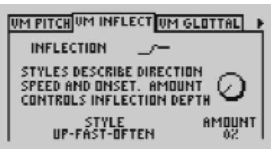
rough delivery, sending a clean voice into an overdriven frenzy. In many forms of heavy rock music, this is an expressive and elusive performance component.

GROWL describes another way that we can achieve Blues, Rock, or Rhythm & Blues sounds with our normal voice. GROWL refers to a type of grind or friction of the larynx and epiglottis, usually heard in Soul, R&B, and Blues music. Some of the styles are sensitive to the dynamics of the lead voice, meaning that when you raise the volume of a syllable, the VoicePrism Plus 'growls' on that syllable.

As with the other Voice Modeling effects, the *AMOUNT* knob controls the level of effect incorporated into the signal.

VM INFLECT

The VM INFLECT styles allow the singer to adjust the characteristics of 'scooping' to the sung note. This is a stylistic effect in singing where a singer sweeps up a variable range of pitch to rest on the intended note. The VM INFLECT *STYLE* settings use the following nomenclature:



UP-FAST-OFTEN

UP is the direction of Inflection - UP to a note, or DOWN to a note.

FAST is the Speed at which the inflection 'scoops', either SLOW, MEDIUM or FAST.

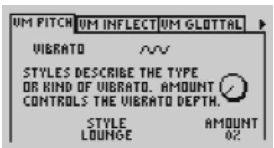
OFTEN is how regularly the Inflection occurs. The VoicePrism Plus listens for an Onset period before applying Inflection to the beginning of the next phrase. To have a longer Onset time, you can turn the effect off and back on later with MIDI control change commands. See the MIDI section for CC numbers.

These settings are selected with the *STYLE* softknob.

The *AMOUNT* or depth of the Inflection is controlled by the *AMOUNT* softknob. This control varies between 0 and 100%. A setting of zero turns the effect style off, 100% provides inflection of an octave. There are some specialty styles included which have depths variable to two octaves, for extreme inflection possibilities.

VM PITCH

Vibrato is a pitch effect that singers often use in their delivery of a piece of music. This effect is achieved by repeatedly altering the size of the mouth and vocal tract in a pattern that varies above and below a central pitch in an oscillating fashion.



The Vibrato *STYLES* are based on real vocalist's vibratos. We have analyzed a large set of parameters from a voice database and created various vibrato models. The Vibrato setting names reflect the style of the vocals from which they were extracted. However, a vibrato modeled from a style or gender different from yours can sound very good when applied to your voice. Experimentation is the key to finding a *STYLE* setting that best suits your application. You might begin incorporating Vibrato into your sound by setting the *AMOUNT* control to 50%. This setting matches the depth level that we analyzed in our modeling subjects. You can then vary the effect from this middle range up or down to suit your taste.

EFFECTS BUTTON

The layouts of the **EFFECTS** button menus are the same as in the original VoicePrism. TC Electronic of Denmark has specially designed the effects in the VoicePrism Plus.

COMPRESSOR/EQ BUTTON

ASSIGN

Like the original VoicePrism, the Lead and Harmony voices can be assigned to a Compressor and/or Noise Gate. The difference in the VoicePrism Plus is that you can independently modify parameters for the Lead and Harmony voices. With VoicePrism Plus, you are now able to assign two Equalizers to the Lead and two separate EQ's to the Harmony voices.

EQ1/EQ2, COMPRESSOR, NOISE GATE

The parameters for setting the EQ's, Compressors, and Noise Gates follow a similar layout as in the original VoicePrism. The assignments to Lead and Harmony voices have changed, allowing for greater flexibility. You now have EQ 1 and 2 LEAD, and EQ 1 and 2 HARMONY settings in the COMP/EQ menu tabs. There is also a separate COMPRESSOR and NOISE GATE for each of the Lead and Harmony voices.

MIX BUTTON

The **MIX** button and its menu controls remain consistent with VoicePrism.

STEP BUTTON

The **STEP** functions and its menu controls also remain consistent with VoicePrism.

BROWSER BUTTONS

See your original VoicePrism User Manual for a description of the browser buttons and their functions.

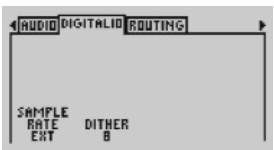
UTILITY BUTTON

MIDI CONFIGURATION

The *MIDI FILTER* parameter, under the MIDI menu, has been updated so that you can filter out incoming System Exclusive messages and MIDI Program Change messages. This parameter can be set to an 'OFF' position, where no filtering takes place, or you can have both filters 'ON' at the same time.

DIGITAL I/O

DIGITAL I/O is a new menu, used for setting the *SAMPLE RATE* of the digital signal, and the type of dithering employed in the digital domain. You can choose from 44.1KHz, or 48 KHz sample rates, or EXT for an external sample rate, either 44.1KHz or 48KHz. On the front panel lens, if you are synchronized at 44.1 KHz, a **44.1K** indicator will light. If you are synchronized at 48KHz, a **48K** indicator will light. If you are not linked to a digital signal properly, both indicators will flash.



DITHERING can be set to 8, 16 or 20 bits, or an 'OFF' position.

ROUTING

ROUTING is a new menu, with four parameters to control audio processing and path..

DIGITAL SOURCE: may be set to SPDIF, for a digital signal on the S/PDIF jacks, or AES/EBU to select input from the AES/EBU jacks on the back of the expansion card.

LEAD INPUT: to use your analog line in on the back panel, or the Mic preamp on the front of your VoicePrism Plus, set the *LEAD INPUT* to ANALOG. To use the microphone input, the **MIC ON** button must be selected, as well as the **48V** button if you require phantom power for your mic. The **MIC ON** button must be OFF to use LINE input from the back of the unit.

AUX INPUT: you can now accept a digital input from the left or right channels of the card, or from the auxiliary input jack on the back panel. These inputs are then sent to the effects section of the VoiceCraft card. To avoid digital signal conflicts, you are prevented from selecting the same *AUX INPUT* channel as the digital *LEAD INPUT* channel.

PROCESS DELAY: whenever Voice Modeling is activated, a certain amount of time is required to analyze and modify the output signal. The VoicePrism Plus requires 20 ms of time for optimal performance. Increasing *PROCESS DELAY* enables the VoicePrism Plus to do a more concentrated signal analysis for greater accuracy. As some vocalists in a live situation may feel uncomfortable about hearing a delay, you can reduce the amount of processing time, being aware that the quality of the modeled voice is reduced at lower settings.

VERSION

The version window will display the current version of VoicePrism Plus software, including the current version of VoiceCraft Human Voice Modeling Card software.

APPENDIX A: MIDI

Your Voicecraft modeling card style settings can be saved in presets with your other effects and dynamics settings. Like the original VoicePrism, you can dump one or all of the presets as a System Exclusive message to another VoicePrism Plus, or to a sequencer or editor that stores System Exclusive files.

Please refer to the following VoicePrism Plus MIDI Specification and MIDI Implementation tables.

VOICEPRISM PLUS MIDI SPECIFICATION TABLE

NAME	DEFAULT VALUE	MIDI MESSAGE	RANGE OF VALUES
VIBRATO DEPTH	PARAMETER SETTING	CC#1	0-127 OVERRIDES PRESET VIBRATO INTENSITY UNTIL NEXT PROGRAM
DETUNE	PARAMETER SETTING	CC#3	0-127 OVERRIDES DETUNE INTENSITY UNTIL PROGRAM CHANGE IS RECEIVED
HARMONY VOICE LEVEL	PARAMETER SETTING	CC#12	0-127 MAPPED TO MODIFIER
LEAD VOICE LEVEL	PARAMETER SETTING	CC#13	0-127 OVERRIDE SAME AS HARMONY LEVEL
EFFECT 1 LEVEL	PARAMETER SETTING	CC#14	0-127 OVERRIDE SAME AS OTHER LEVELS
EFFECT 2 LEVEL	PARAMETER SETTING	CC#15	0-127 OVERRIDE SAME AS OTHER LEVELS
SCALE SELECT	PARAMETER SETTING	CC#16	0-6 SELECTS LIBRARY SCALE (0-5) OR CUSTOM SCALE (6)
SONG STEP FORWARD	NONE	CC#17	0-63=OFF, 64-127=FORWARD 1 STEP
SONG STEP BACKWARD	NONE	CC#18	0-63=OFF, 64-127=BACKWARD 1 STEP
THICKENER DEPTH	PARAMETER SETTING	CC#19	0-50 OVERRIDES THICKENER INTENSITY UNTIL PROGRAM CHANGE IS RECEIVED
VIBRATO RATE	PARAMETER SETTING	CC# 20	0-127 OVERRIDES VIBRATO RATE UNTIL PROGRAM CHANGE IS RECEIVED.
SCALE MODE SET KEY	OFF	CC# 21	0-63=OFF; 64-127=ON - ENABLES CHORD RECOGNITION FOR SCALE TYPE AND KEY: A MAJOR OR MINOR CHORD PLAYED IN OCTAVE 1, 2, OR 3 SETS SCALE TO MAJOR OR MINOR 1,2 AND 3. A MAJOR OR MINOR SCALE IN ANY OTHER OCTAVE SETS THE SCALE TO CUSTOM.
SONG SELECT		CC# 22	0-49 SELECTS SONG NUMBER (IF IN SONG MODE)
AUTO-TRANSPOSE	NONE	CC# 23	0-63=OFF; 64-127=ON
SPLIT POINT	NONE	CC# 24	0-63=BELOW; 64-127=ABOVE
SPLIT NOTE	NONE	CC# 25	0=C-1 127=G9

HARMONY MUTE	CURRENT STATE	CC# 26	0-63=OFF; 64-127=ON
BYPASS	CURRENT STATE	CC# 27	0-63=OFF; 64-127=ON
RESERVED	RESERVED	CC# 28	RESERVED
RESERVED	RESERVED	CC# 29	RESERVED
VOICE 1 LEVEL	PARAMETER SETTING	CC# 30	0-127 WHERE 0 = OFF, 127 = 0dB.
VOICE 2 LEVEL	PARAMETER SETTING	CC# 31	0-127 WHERE 0 = OFF, 127 = 0dB.
RESERVED	RESERVED	CC# 32	RESERVED
VOICE 3 LEVEL	PARAMETER SETTING	CC# 33	0-127 WHERE 0 = OFF, 127 = 0dB.
VOICE 4 LEVEL	PARAMETER SETTING	CC# 34	0-127 WHERE 0 = OFF, 127 = 0dB.
VOICE 1 PAN	PARAMETER SETTING	CC# 35	0=FULL LEFT; 1- 63=LEFT- CENTER; 64=CENTER; 65-128=CENTER- RIGHT; 127=FULL RIGHT.
VOICE 2 PAN	PARAMETER SETTING	CC# 36	SEE VOICE 1 PAN
VOICE 3 PAN	PARAMETER SETTING	CC# 37	SEE VOICE 1 PAN
RESERVED	RESERVED	CC# 38	RESERVED
VOICE 4 PAN	PARAMETER SETTING	CC# 39	SEE VOICE 1 PAN
VOICE 1 GENDER	PARAMETER SETTING	CC# 40	0 TO 1000 = MALE (FULL EFFECT); 50 = NONE 100 = FEMALE (FULL EFFECT); 101 ~ 127 SAME AS 100
VOICE 2 GENDER	PARAMETER SETTING	CC# 41	SEE VOICE 1 GENDER
VOICE 3 GENDER	PARAMETER SETTING	CC# 42	SEE VOICE 1 GENDER
VOICE 4 GENDER	PARAMETER SETTING	CC# 43	SEE VOICE 1 GENDER
RESERVED	RESERVED	CC# 44	RESERVED
RESERVED	RESERVED	CC# 45	RESERVED
RESERVED	RESERVED	CC# 46	RESERVED
RESERVED	RESERVED	CC# 47	RESERVED
DRY/VM BALANCE	PARAMETER SETTING	CC# 48	0 = 100% DRY, 127 = 100% VM.
DRY PAN	PARAMETER SETTING	CC# 49	0 = FULL LEFT; 1- 63 = LEFT-CENTER; 64 = CENTER; 65-128 = CENTER-RIGHT; 12 7= FULL RIGHT.
VM PAN	PARAMETER SETTING	CC# 50	0 = FULL LEFT; 1-63 = LEFT-CENTER; 64 = CENTER; 65-128 = CENTER-RIGHT; 127 = FULL RIGHT.

DETUNE AMOUNT	PARAMETER SETTING	CC# 51	0 = -50 CENTS; 50 = 0; 100 = +50 CENTS
VM VIBRATO STYLE	PARAMETER SETTING	CC# 52	
VM VIBRATO AMOUNT	PARAMETER SETTING	CC# 53	0 = 0% (NO EFFECT); 127 = 100% (FULL EFFECT)
VM INFLECTION STYLE	PARAMETER SETTING	CC# 54	
VM INFLECTION AMOUNT	PARAMETER SETTING	CC# 55	0 = 0% (NO EFFECT); 127 = 100% (FULL EFFECT)
VM GLOTTAL STYLE	PARAMETER SETTING	CC# 56	
VM GLOTTAL AMOUNT	PARAMETER SETTING	CC# 57	0 = 0% (NO EFFECT); 127 = 100% (FULL EFFECT)
VM WARP STYLE	PARAMETER SETTING	CC# 58	
VM WARP AMOUNT	PARAMETER SETTING	CC# 59	0 = 0% (NO EFFECT); 127 = 100% (FULL EFFECT)
VM SPECTRA STYLE	PARAMETER SETTING	CC# 60	
VM SPECTRA AMOUNT	PARAMETER SETTING	CC# 61	0 = 0% (NO EFFECT); 127 = 100% (FULL EFFECT)
RESERVED	RESERVED	CC# 62	RESERVED
RESERVED	RESERVED	CC# 63	RESERVED
DAMPER PEDAL	OFF	CC# 64	HARMONY HOLD. DAMPER MESSAGE WILL SUSTAIN LAST CHORD IN BEFORE NOTE OFF MESSAGE.
HARMONYKEY/SCALESELECT/NOTES	NONE	NOTE NUMBERS	CHORDS MODE - NOTES WOULD TRIGGER CHORD RECOGNITION SCALIC MODE - IF SCALE MODE SET KEY IS ON THE NOTES WOULD TRIGGER CHORD RECOGNITION FOR SCALE TYPE AND KEY NOTES - TRIGGER APPROPRIATE VOICES.
PITCH BEND	0	PITCH BENDER	USER MUST BE ABLE TO SELECT RANGE IN MIDI UTILITIES WINDOW FROM +/- 0 TO +/- 12 THIS IS A GLOBAL CONTROL
PROGRAM CHANGE			PROGRAM CHANGE 0-127
MIDI CHANNEL	PARAMETER SETTING	NONE	1-16 GLOBAL MIDI CHANNEL FOR ALL PRESETS, CC'S AND NOTE INFORMATION
DUMP PROGRAM	NONE	NONE	MIDI UTILITY FUNCTION
DUMP SONG	NONE	NONE	MIDI UTILITY FUNCTION
DUMP ALL	NONE	NONE	MIDI UTILITY FUNCTION

LOAD PROGRAM	NONE	NONE	LOADS PROGRAM INTO SELECTED PRESET BUT DOES NOT WRITE IT IN UNTIL THE USER SAVES THE PRESET.
LOAD SONG	NONE	NONE	LOADS SONG INTO SELECTED SONG BUT DOES NOT WRITE IT UNTIL THE USER SAVES THE SONG.
LOAD ALL	NONE	NONE	MIDI UTILITY FUNCTION
LOAD OS	NONE	NONE	MIDI UTILITY FUNCTION

* ALL CC#'S ARE CONFIGURABLE THROUGH THE SYSEX PARM EDIT FEATURE

VOICEPRISM PLUS MIDI IMPLEMENTATION TABLE

NAME	DEFAULT VALUE	MIDI MESSAGE	RANGE OF VALUES	
BASIC CHANNEL	DEFAULT	1	1	
	CHANGED	1-16	1-16	MEMORIZED
MODE	DEFAULT	X	MODE 3	
	MESSAGES	X	X	
	ALTERED	********		
NOTE NUMBER	TRUE VOICE	X	0-127	CHORD ROOT AND TYPE KEY AND SCALE
			24-96	NOTES MODE
VELOCITY	NOTE ON	X	X	
	NOTE OFF	X	X	
AFTER TOUCH	POLYPHONIC (KEY'S)	X	X	
	MONOPHONIC (CHANNEL)	X	X	
PITCH BENDER		X	O	UP TO +/- 12 SEMITONES (CONFIGURABLE)
CONTROL CHANGE	1	X	O	VIBRATO DEPTH
	3	X	O	DETUNE
	12	X	O	HARMONY LEVEL
	13	X	O	LEAD LEVEL
	14	X	O	EFFECT 1 LEVEL
	15	X	O	EFFECT 2 LEVEL
	16	X	O	KEY & HARMONY SELECT
	17	X	O	SONG STEP FORWARD
	18	X	O	SONG STEP BACKWARD
	19	X	O	THICKENER DEPTH
	20	X	O	VIBRATO RATE
	21	X	O	SCALE MODE SET KEY
	22	X	O	SONG SELECT
	64	X	O	HARMONY HOLD (DAMPER)

PROGRAM CHANGE		X	0-127	PRESETS
SYSTEM EXCLUSIVE	PARAMETER EDIT	X	O	ALL PARAMETERS ACCESSIBLE
	GROUP EDIT	O	O	ALL OR PART OF A PRESET
	PRESET SAVE	O	O	
	SONG SAVE	O	O	
SYSTEM COMMON	SONG POSITION	X	X	
	SONG SELECT	X	X	
	TUNE REQUEST	X	X	
SYSTEM REAL TIME	CLOCK	X	X	
	COMMANDS	X	X	
AUX MESSAGES	LOCAL ON/OFF	X	X	
	ALL NOTES OFF	X	O	
	ACTIVE SENSING	X	X	
	SYSTEM RESET	X	X	

APPENDIX B: GLOSSARY

Note: many terms will be found in your original VoicePrism User Manual. We have provided an update to those terms in this edition.

AES/EBU: (Audio Engineering Society / European Broadcast Union standard) accepted as the professional standard in digital audio transfer.

Breathiness: the amount of 'apparent' moving air sounds incorporated into the vocal.

Dithering: when moving digital audio from a high bit rate to a lower bit rate, dithering is often employed to replace the digital distortion induced by this process, and involves mixing in a level of broad-band noise.

Glottal: In the VoicePrism Plus, glottal effects are the non-pitched part of the sound produced by formations of the epiglottis and air turbulence in the facial and mouth regions: they include *BREATHINESS*, *RASP*, and *GROWL*

Growl: Vocal sounds produced by the epiglottal area that emphasize phrases with a grinding, distorting tone.

Onset: The time it takes for an effect to be applied to the sound.

Rasp: a sound produced by the vocal tract that gives a gruff, gritty edge to the vocal delivery. Rasp is a form of hard breathiness.

Resonance: a Voice model that analyzes vocal formant harmonics and changes their position in the audio spectrum, resulting in a sound with a different overall character that can be subtle or extreme.

S/PDIF: (Sony/Phillips Digital Interface) is a digital audio format generally recognized as the consumer standard for digital audio transfer.

Spectra: A matrix of frequency boost/cut settings, such as those in a graphic equalizer. Rather than singling out individual frequencies, a spectra setting covers a range of frequencies.

Voice Modeling: (abbreviated as VM) a scientific means of electronically simulating a natural vocal phenomenon.

APPENDIX C: INDEX

APPENDIX D: ABOUT DIGITAL I/O

ABOUT S/PDIF

S/PDIF (Sony/Phillips Digital Interface) A digital audio format generally recognized as the consumer standard for digital audio transfer

ABOUT AES/EBU

AES/EBU (Audio Engineering Society / European Broadcast Union standard) is accepted as the professional standard in digital audio transfer. AES/EBU requires the use of a balanced XLR cable with an impedance of 110 W. The AES/EBU format is 24-bit. AES/EBU is often chosen over S/PDIF because of its superior performance in jitter and signal/noise ratio. AES/EBU works with a higher voltage level than S/PDIF.

ABOUT DITHERING

Going from one type of bit resolution to a lower resolution, e.g. from 24 bit to 16 bit, you are losing 8 bits of information. The process of cutting off bits is called truncation and it introduces digital distortion of low level signals, due to the lack of complete signal information. To compensate for this, dither must be applied. Dither is a small amount of filtered noise that generates randomization at the noise floor ensuring a less distorted low level signal.

Dithering is relevant only on digital outputs and it is always the receiving device that determines the number of bits you must dither to. A DAT or CDR recorder should normally be dithered to 16 bit.

APPENDIX E: TECHNICAL SPECIFICATIONS

Note: This is an update to the original VoicePrism document.

Digital I/O

Connectors:	XLR (AES/EBU) RCA Phono (S/PDIF)
Input Format:	24 Bit
Output Format:	24 bit processed audio on VoiceCraft Card AES/EBU and S/PDIF 24 bit unprocessed ADC output on VoicePrism Plus S/PDIF

Digital Output

Output Dither:	HPF/TPDF dither 24/20/16/8 bit (VoiceCraft Card outputs only)
Sample Rates:	44.1kHz; 48kHz
Frequency Response DIO:	DC to 23.9 kHz ± 0.01 dB @ 48 kHz

Analog Inputs

Connectors:	XLR Balanced (pin 2 hot), TRS 1/4"
Impedance (Bal/Unbalanced-Line):	28 kOhms
Max. Input Level Line:	+21dBu
A to D Conversion:	24 bits, 100dB dynamic range (A-weighted)
THD:	0.005% @ 1kHz (A-weighted)
Frequency Response:	10Hz - 12kHz ±0.8dB, -2dB @ 20kHz

Analog Outputs

Connectors:	TRS 1/4"
Impedance:	680 Ohms (stereo out); 340 Ohms (mono out)
Max. Output Level:	+21 dBu
D to A Conversion:	24 bits, 100dB dynamic range (A-weighted)

Analog Through

Dynamic Range:	-97dB typical (A-weighted)
THD:	0.008% @ 1kHz typical
Frequency Response:	10Hz - 12kHz ±0.8dB, -2dB @ 20kHz
EMC Complies with:	EN 55103 1/2, ENS 5022 Class B, EN61000-4-2/3/4/5/6/11
Safety Certified to:	EN 60065, CAN/CSA E60065-00, UL 6500

Environment

Max. Operating Temperature:	50 degrees Celsius (122 degrees Fahrenheit)
Min. Storage Temperature:	-25 degrees Celsius (-13 degrees Fahrenheit)

Control Interface

MIDI: In/Out/Thru:	5 Pin DIN
GPI, Pedal:	1/4" Stereo Jack

Power

Mains Voltage:	100 to 240 VAC, 50 to 60 Hz
Power Consumption:	40W
Fuses:	250V 500mA Slow Blow (North America and Japan) 250V 500mA Time Lag (Europe and United Kingdom)

General

Finish:	Painted Galvanized Steel, ABS Plastic Bezel, Knobs and Buttons.
Display:	128 x 64 Graphics LCD
Dimensions:	19" x 3.5" x 8.2" (483mm x 89mm x 208mm)
Weight:	7.8 lb (3.54kg)
Warranty Parts and Labour:	1 year

APPENDIX F: PRODUCT SAFETY AND CONFORMITY

IMPORTANT:

FOR CUSTOMERS IN THE UK

THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:
BLUE: NEUTRAL
BROWN: LIVE

AS THE COLOURS OF THE WIRES IN THE MAINS LEAD OF THIS APPARATUS MAY NOT CORRESPOND WITH THE COLOURED MARKINGS IDENTIFYING THE TERMINALS IN YOUR PLUG, PROCEED AS FOLLOWS. THE WIRE WHICH IS COLOURED BLUE MUST BE CONNECTED TO THE TERMINAL WHICH IS MARKED WITH THE LETTER N OR COLOURED BLACK. THE WIRE WHICH IS COLOURED BROWN MUST BE CONNECTED TO THE TERMINAL WHICH IS MARKED WITH THE LETTER L OR COLOURED RED. UNDER NO CIRCUMSTANCES MUST EITHER OF THE ABOVE WIRES BE CONNECTED TO THE EARTH TERMINAL OF THE THREE PIN PLUG.

FOR CUSTOMERS IN CANADA

THIS CLASS B DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

CET APPAREIL NUMERIQUE DE LA CLASSE B RESPECTE TOUTES LES EXIGENCES DU REGLEMENT SURE LE MATERIEL BROUILLER DU CANADA.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS B DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE IN A RESIDENTIAL INSTALLATION.

THIS EQUIPMENT GENERATES, USES AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTIONS, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. HOWEVER, THERE IS NO GUARANTEE THAT INTERFERENCE WILL NOT OCCUR IN A PARTICULAR INSTALLATION.

IF THIS EQUIPMENT DOES CAUSE HARMFUL INTERFERENCE TO RADIO OR TELEVISION RECEPTION, WHICH CAN BE DETERMINED BY TURNING THE EQUIPMENT ON AND OFF, THE USER IS ENCOURAGED TO TRY TO CORRECT THE INTERFERENCE BY ONE OR MORE OF THE FOLLOWING MEASURES:

• REORIENT OR RELOCATE THE RECEIVING ANTENNA.

• INCREASE THE SEPARATION BETWEEN THE EQUIPMENT AND THE RECEIVER.

• CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT TO WHICH THE RECEIVER IS CONNECTED.

• CONSULT A QUALIFIED DEALER OR AN EXPERIENCED RADIO / TV TECHNICIAN FOR HELP.

THE USER MAY FIND THE FOLLOWING BOOKLET, PREPARED BY THE FEDERAL COMMUNICATIONS COMMISSION, HELPFUL: *"HOW TO IDENTIFY AND RESOLVE RADIO/TV INTERFERENCE PROBLEMS."*

THIS BOOKLET IS AVAILABLE FROM THE US GOVERNMENT PRINTING OFFICE, WASHINGTON, DC 20402, USA. STOCK NO. 004-000-0034-4.

CAUTION:

YOU ARE CAUTIONED THAT ANY CHANGE OR MODIFICATIONS NOT EXPRESSLY APPROVED IN THIS MANUAL COULD VOID YOUR WARRANTY.

DECLARATION OF CONFORMITY

TC-HELICON (TC-IVL VENTURES INC.), A JOINT VENTURE BETWEEN IVL TECHNOLOGIES LTD AND TC ELECTRONIC., HEREBY DECLARES ON THEIR OWN RESPONSIBILITY THAT THE FOLLOWING PRODUCT:

VOICEPRISM PLUS VOCAL FORMANT PITCH PROCESSOR FEATURING THE VOICECRAFT HUMAN VOICE MODELING CARD

THAT IS COVERED BY THIS DECLARATION AND MARKED CE-LABEL CONFORMS WITH THE FOLLOWING STANDARDS AS AMENDED BY CE MARKING DIRECTIVE 93/68/EEC:

LOW VOLTAGE DIRECTIVE, 73/23/EEC

• EN 60065 SAFETY REQUIREMENTS FOR MAINS OPERATED ELECTRONIC AND RELATED

APPARATUS FOR HOUSEHOLD AND SIMILAR GENERAL USE
• UL 6500: SECOND EDITION: STANDARD FOR AUDIO/VIDEO AND MUSICAL INSTRUMENT APPARATUS FOR HOUSEHOLD, COMMERCIAL, AND SIMILAR USE
• CAN/CSA E60065-00: AUDIO, VIDEO AND SIMILAR ELECTRONIC APPARATUS - SAFETY REQUIREMENTS

EMC DIRECTIVE, 89/336/EEC

• EN 55103 1/2: PRODUCT FAMILY STANDARD FOR AUDIO, VIDEO, AUDIO-VISUAL AND ENTERTAINMENT LIGHTNING.
• EN 55022: CLASS B RADIATED AND CONDUCTED EMISSIONS
• EN61000-4-3 RADIATED IMMUNITY
• EN61000-4-6 CONDUCTED IMMUNITY
• EN61000-4-4 EFT/BURST IMMUNITY
• EN61000-4-2 ESD IMMUNITY
• EN61000-4-11 VOLTAGE DIPS/INTERRUPTIONS
• EN61000-4-5 SURGE IMMUNITY

ISSUED IN VICTORIA, FEBRUARY 15, 2001, BY FRED SPECKEEN, CHIEF EXECUTIVE OFFICER.

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