

DigitTech

Vocalist VR

VOCAL PROCESSOR WITH REVERB



USER'S MANUAL v1.1



The symbols shown above are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the owner's manual.

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

U.K. MAINS PLUG WARNING

A moulded mains plug that has been cut off from the cord is unsafe. Discard the mains plug at a suitable disposal facility. NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAINS PLUG INTO A 13 AMP POWER SOCKET. Do not use the mains plug without the fuse cover in place. Replacement fuse covers can be obtained from your local retailer. Replacement fuses are 13 amps and MUST be ASTA approved to BS1362.

ELECTROMAGNETIC COMPATIBILITY

This unit conforms to the Product Specifications noted on the Declaration of Conformity. Operation is subject to the following two conditions:

- this device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation. Operation of this unit within significant electromagnetic fields should be avoided.
- use only shielded interconnecting cables.

FCC COMPLIANCE

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 off and on, 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 receiver that may cause undesired operation.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

DECLARATION OF CONFORMITY

Manufacturer's Name: IVL Technologies Ltd.
per DigiTech specifications
6710 Bertram Place
Victoria, B.C.
Canada V8M 1Z6

Manufacturer's Address: DigiTech Vocalist ACCESS

declares that the products:

conform to the following product specifications:

EMC: EN 55022 (1987):
CISPR 22 (1993) Class B
EN 50082-1 (1992)

Safety: EN 60065 (1997)
IEC65 (1985) with amendment 1,2,3

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 89/336/EEC (1989) and the Low Voltage Directive 73/23/EEC as amended by the CE Marking Directive 93/68/EEC (1993).

IVL Technologies Ltd.
6710 Bertram Place
Victoria, B.C.
Canada V8M 1Z6
July 31st, 1998
Brian Gibson, Vice President of Engineering

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WARNING

FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:

Water and Moisture: Appliance should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

POWER SOURCES: The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

GROUNDING OR POLARIZATION: Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

POWER CORD PROTECTION: Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

SERVICING: To reduce the risk of fire or electric shock, the user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

CAUTION: To reduce the risk of fire replace only with same type fuse.

ATTENTION: Utiliser un fusible de recharge de même type.

CAUTION: To reduce the risk of fire replace LAMP with manufacturers recommended part (Refer to service literature)

SAFETY INSTRUCTIONS

Notice For Customers If Your Unit Is Equipped With A Power Cord.

WARNING: THIS APPLIANCE MUST BE EARTHED.

The cores in the mains lead are coloured in accordance with the following code:

GREEN and YELLOW - Earth BLUE - Neutral BROWN - Live

As colours of the cores in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The core which is coloured green and yellow must be connected to the terminal in the plug marked with the letter E, or with the earth symbol, or coloured green, or green and yellow.
- The core which is coloured blue must be connected to the terminal marked N or coloured black.
- The core which is coloured brown must be connected to the terminal marked L or coloured red.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. Connect this equipment only to the power source indicated on the equipment rear panel. If the attachment plug needs to be changed, refer servicing to qualified service personnel who should refer to the table below. The green/yellow wire shall be connected directly to the unit's chassis.

CONDUCTOR		WIRE COLOUR	
		Normal	Alt.
L	LIVE	BROWN	BLACK
N	NEUTRAL	BLUE	WHITE
E	EARTH GND	GREEN/YEL	GREEN

WARNING: If the ground is defeated, certain fault conditions in the unit or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and earth ground are touched simultaneously.

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INTRODUCTION

Buying a new piece of gear is usually a difficult decision - what make should it be? what does it do? how much? etc.? This is why we appreciate you purchasing the Digitech Vocalist VOCALIST VR. You might be interested in knowing that the engineers who designed the Vocalist VOCALIST VR share a lot in common with you. The engineers behind VOCALIST VR believe the voice is a special instrument and they want it to sound even better. Employing vocal harmony technology and reverb effects, VOCALIST VR was designed with easy operation in mind. Our engineers are using VOCALIST VR for gigging and recording on the weekend. Whenever and wherever you use it we trust you will like the results.

- Plug it in and Play - easy to use interface
- 4 voices of natural-sounding harmony
- Three harmony control options balance ease of use and melodic flexibility
- 4 voice automatic doubling for vocal thickening
- 10 reverb types to enhance the lead and harmony voices
- AUX input to Reverb allows sharing of the reverb effect with other instruments
- 50 user-editable presets
- Extended utility via optional external footswitch
- Extra expression capabilities via MIDI controller parameters

JUMP START

- ① Plug in the external power supply and turn VOCALIST VR on. Connect a microphone to VOCALIST VR via the front panel XLR jack.
- ② Connect the stereo outputs of VOCALIST VR to inputs on your mixer, intelligent keyboard or anything with speakers at the end.
- ③ Press the Bypass button so it lights. While singing into your mic raise the input level until the Signal LED is lighting orange with some quick peaks of red on your loudest notes.
- ④ Take VOCALIST VR out of Bypass. Use the knob closest to the LCD display to select a preset.
- ⑤ Enjoy and listen. Keep in mind that presets that say “notes” in the LCD display require a keyboard to produce harmonies. Hook one up if you’ve got it.
- ⑥ After you have got some sounds out of VOCALIST VR and impressed your friends, go to your favorite room, with your favorite chair and entertain yourself by reading this manual - just think how impressed your high school english teacher would be.

Program List

Programs 1 through 10 are “Scale” programs. Scale programs allow you to set the key and scale at the beginning of a song and they will follow your vocal melody automatically from then on. The factory programs have been set to E Major (programs 1-5) and E Minor (programs 6-10). You can change the key and scale by pressing the edit button and turning the parameter knob.

Programs 11 through 20 are “Chord” programs. You will need a MIDI keyboard to control the harmonies. Play the chords of a song on the keyboard while you sing and the harmonies will change in order to stay musically in tune with you.

Programs 21 through 25 are the “Notes” programs. This is another MIDI keyboard-controlled harmony mode. Whatever notes you play on the keyboard become the harmony notes when you sing. This is useful for creating moving harmony lines while you sing one long note for example.

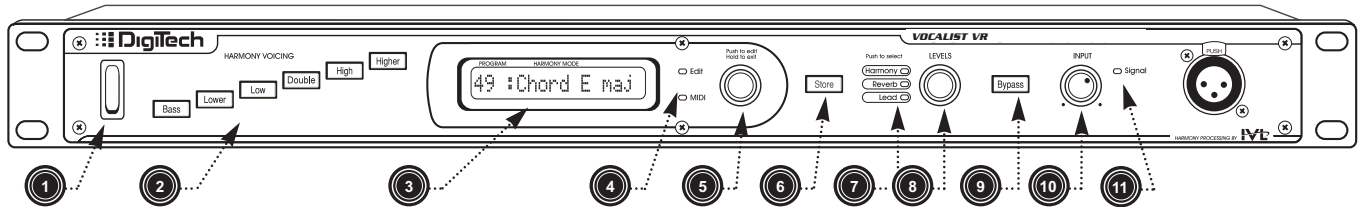
Programs 26 through 41 are Scale mode templates for you to build your own programs upon. They have been preset to the keys of G, A, D and C with the four Major and Minor scales.

Programs 42 through 46 are the doubling and effects programs.

Programs 47 through 50 are the ROM (Read Only Memory) programs. It is not possible to overwrite these programs. These are included to ensure that there is at least one program of each harmony mode type in case all others are overwritten.

SETUP

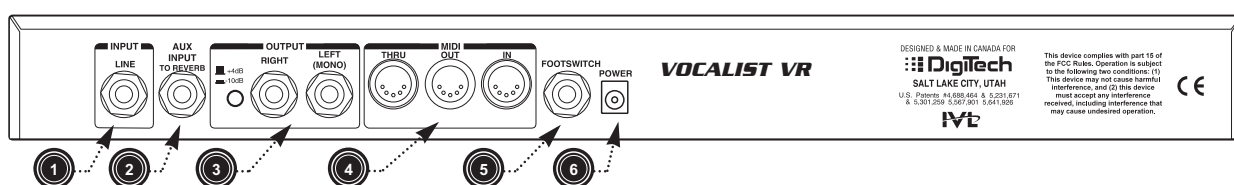
Front Panel



- ① Power Switch
- ② Harmony Voicing Buttons allow you to adjust the voicing of harmonies. The High and Higher buttons create harmonies above your voice. The Low, Lower and Bass buttons creates harmonies below your voice. The Double button creates detuned unison copies of your voice. See page 16 for more detail on Harmony Voicing.
- ③ The LCD Display shows preset number and harmony mode information at the initial level. It is also used to show editing and level information. Note that the “a” after the preset number is only shown when the optional FS 300 footswitch is connected. See page 18 for more details.
- ④ Data LEDs
 - Edit LED lights when VOCALIST VR is in Edit mode
 - MIDI LED lights when VOCALIST VR is receiving MIDI on any channel.
- ⑤ Data Entry Knob/Switch - is it a knob or a switch? It’s both. Turn the knob to select pre-sets. Push the knob to access the edit screen in the LCD display. This control is used for editing, and preset selection. For more details see page 8 or 13.
- ⑥ The Store Button allows you to save any changes you’ve made to a preset into user memory. It also lights to show that you’ve made a change to a program.
- ⑦ Level LEDs (see page 9 for more detail):
 - Harmony LED lights when the Level Knob/Switch controls harmony level.
 - Reverb LED lights when the Level Knob/Switch controls reverb level.
 - Lead LED lights when the Level Knob/Switch controls lead level.
- ⑧ Level Knob/Switch - just like the Data Entry control, the level control is both a knob and a switch. Use it as a switch to select which level you want to adjust (harmony, reverb, or lead). Use it as a knob to adjust the level. Visual feedback is provided by the LCD Display.
- ⑨ Bypass Button mutes the Harmonies from the stereo mix output. If there is Lead Vocal and/or reverb in the mix they will be unaffected by the bypass button.

- ⑩ Input Level Knob adjusts the input level for the microphone and line inputs.
- ⑪ The Signal LED guides you to an optimal level setting. The LED lights in three colors.
 - Green is displayed when VOCALIST VR can recognize the pitch of your voice
 - Orange is displayed when VOCALIST VR is generating optimal signal to noise.
 - Red is displayed when VOCALIST VR is just below clipping-causing ugly digital distortion

Back Panel

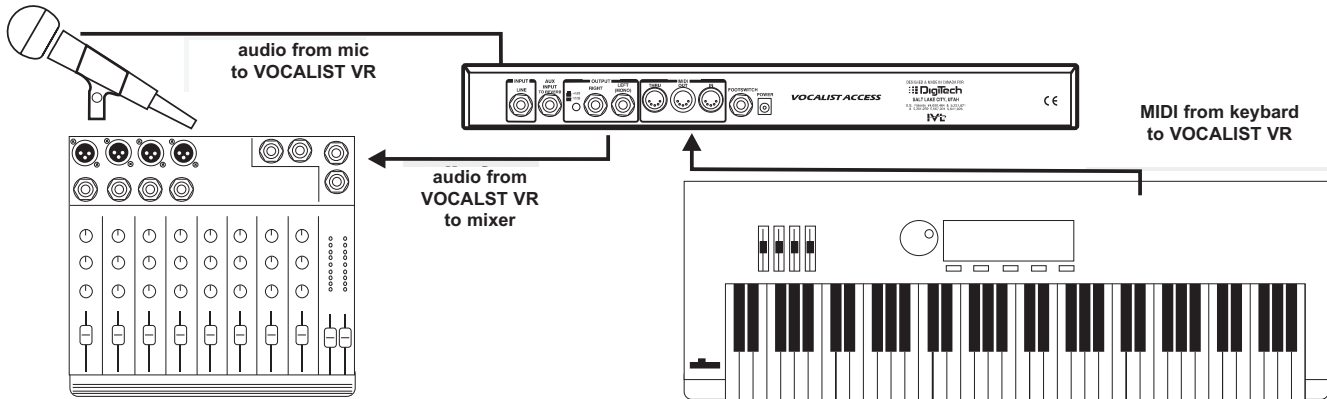


- ① Line Input accepts mono line level audio from an external source. This jack overrides the front panel MIC jack.
- ② AUX Input to Reverb bypasses the harmony processing and routes the AUX signal directly to the reverb effect. This feature allows you to ‘borrow’ VOCALIST VR’ reverb effect for other instruments that don’t need harmonies. The input accepts mono line level audio from an external source.
- ③ Left and Right Outputs are the main mix outputs. The outputs have a selectable output level using the level switch beside the outputs - +4dBu or -10dBu. Use the switch to match the output of VOCALIST VR to your mixer. For mono output use the left output on its own.
- ④ MIDI thru/out/in are used to control VOCALIST VR with an external MIDI device. MIDI IN receives MIDI information. MIDI THRU transmits an exact copy of any MIDI information received at the MIDI IN.
- ⑤ Footswitch input is used to connect a Digitech FS-300 footswitch to provide remote control of Bypass, Reverb on/off, and ‘ALternate’ Key. See page 18 for more information).
- ⑥ Power input is used only with a Harman Pro Group PS750 9.75V AC, 820mA power adapter supplied with the unit.

Set-Up Examples

Live Performance

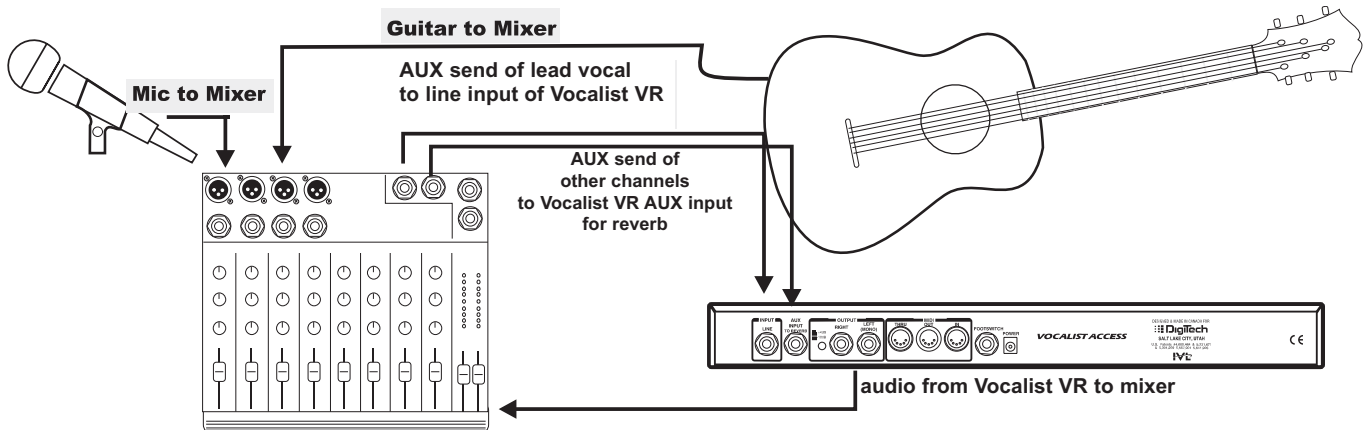
The line-drawing below represents a typical live performance set-up. The keyboard is optional depending on how you want to control your harmony parts (see Harmony Control Modes for more information on page 10). *Connect as follows:*



- ① connect microphone to front panel MIC input of VOCALIST VR
- ② connect stereo outputs of VOCALIST VR to a stereo input or two mono inputs on your mixer (headphones or amplifier and speakers are needed to monitor audio).
- ③ connect keyboard MIDI out to VOCALIST VR' MIDI in if using the Chord or Notes harmony control modes.

Acoustic Instrument Performance

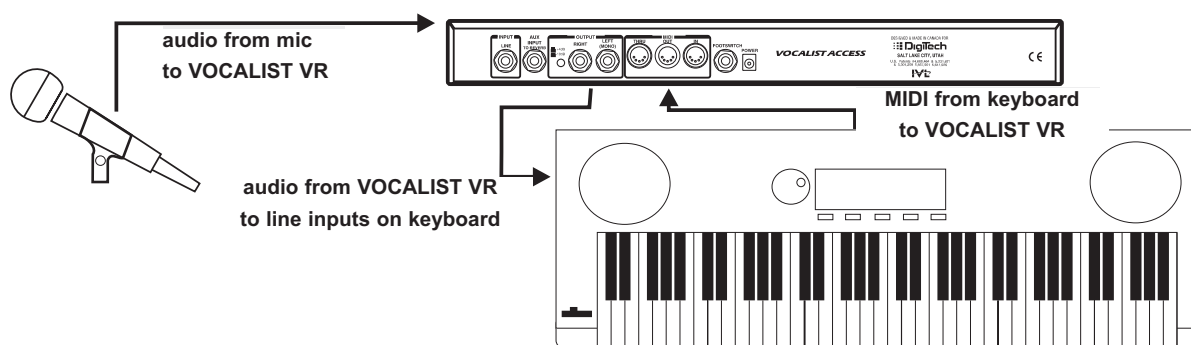
VOCALIST VR works great for acoustic based groups. No MIDI input needed here. The AUX input to the reverb is useful to add some depth to your sound. *Connect as follows:*



- ① connect a microphone to MIC channel on your mixer and any other instruments to other channels on your mixer.
- ② send lead vocal signal from mixer (via one of the mixer's AUX sends) to the line input of VOCALIST VR. Send other instrument signals from mixer (via a separate AUX send) to the VOCALIST VR's AUX input to add reverb to your mix.
- ③ connect stereo outputs of VOCALIST VR to a stereo input or two mono inputs on your mixer (headphones or amplifier and speakers are needed to monitor audio).

Intelligent Arranger Keyboard with built in speakers

Many keyboards have a stereo AUX input. Send your outputs from the VOCALIST VR to your keyboard to mix harmonies, your voice, and keyboard arrangements the way you want to hear them. *Connect as follows:*



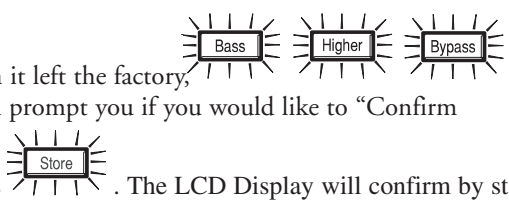
- ① connect microphone to front panel MIC input of VOCALIST VR.
- ② connect MIDI out from intelligent/arranger keyboard to MIDI in of VOCALIST VR. Connect VOCALIST VR's audio output to the line inputs on your keyboard

In the rack . . . In the studio

VOCALIST VR will interface with any studio console. The hook up diagram would be the same as the Acoustic Performance setup on the previous page.

Factory Reset

To initialize VOCALIST VR to its state when it left the factory, press at the same time. The LCD Display will prompt you if you would like to “Confirm Reset”.

To follow through with the initialization press . The LCD Display will confirm by stating “Factory Restore”. Initialization will overwrite any custom presets you may have created.

PERFORMANCE

Setting the Input and Output levels

Input Level

With a microphone or line level source connected to VOCALIST VR, sing or play back a track. Bring up the input level until the level LED lights orange. Too much input level, and the LED will be red. Too little input level, and the LED will only light green, never lighting orange. If there are momentary flickers of red, your signal level will remain clean.

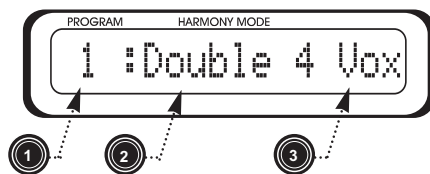
Output Level

The only level setting you need to do on the output is with the output level switch on the back panel of VOCALIST VR. This allows you to match VOCALIST VR' output to the sensitivity of your mixer input. When the switch is pushed in (-10dBu) VOCALIST VR is operating at line level. When the switch is out (+4dBu) then VOCALIST VR will produce a higher level.

note: generally this can be set at +4, but if your mixer is distorting, VOCALIST VR' output level should be reduced to -10dBu.

Loading Presets



The VOCALIST VR contains 50 factory presets. To select a preset use Data Entry Knob to scroll through presets. The presets are loaded automatically as you scroll through them. Edited presets can be saved over top of factory presets as user presets. See 'Storing Presets' for further details. The LCD display shows preset information in the following way:



- ① The first two characters tell you the preset number
- ② This shows the harmony control mode as either; Double, Scale, Chord or Notes. See 'Harmony Control Modes' for more information on page 10.
- ③ Following the Harmony Control Mode, information particular to the Harmony Control Mode of the preset is shown.

Storing Presets

This is very simple. Anytime you make a change to a parameter which is stored by preset (levels, rev., scale, voicing, etc.) the Store Button will light. If you want to write these changes to memory follow these steps:

- ① press the  button - the Store button will begin flashing.
 - ② If you wish to store your preset to a different preset number than you currently have selected, use the Data Entry Knob to select the preset number which you want to store your modified preset to.
 - ③ When you have selected your new preset, press  - the preset is then stored to that number.
- note: If you want to store the preset under the current preset number skip step 2. To exit flashing Store mode, make a parameter change then change programs.

Setting Harmony, Reverb, and Lead levels

Harmony Level



Press the level knob/switch until the harmony LED lights. The LCD display will show the current Harmony level from 0 to max. The LCD display will switch back to showing the current preset if the level control is not turned for a few seconds. You can turn the knob to change levels any time the LED is lit beside the level you want to control.

Reverb Level



Press the level knob/switch until the Reverb LED lights. The LCD display will show the current Reverb level from 0 to max. The LCD display will switch back to showing the current preset if the level control is not turned for a few seconds. You can turn the knob to change levels any time the LED is lit beside the level you want to control.

Lead Level



The lead level adjusts how loud your unaffected voice is when harmonies are on *and when the unit is bypassed*. If this is set to 0, your voice will not be heard in bypass. Press the level knob/switch until the Lead LED lights. The LCD display will show the current Lead level from 0 to max. The LCD display will switch back to showing the current preset if the level control is not turned for a few seconds. You can turn the knob to change levels any time the LED is lit beside the level you want to control.

The Harmony Control Modes

Each preset is based on one of the four harmony control modes: Scale, Chord, Notes and Double. The Scale, Chord and Notes programs require musical information just like another player in your band in order to produce musically effective harmony. The following details how each mode works and how it is controlled.

Scale

You can tell you have selected a Scale preset when the preset number is followed by the word 'Scale'. Scale Harmony programs require that you enter the key and scale of your song. Once you have found the key and scale that you like, it's not usually necessary to change it during the song unless your song changes key from one section to another.

To set the key, press the data entry knob to enter edit mode and then turn the knob. Press the data entry knob again to change the scale type. Scale presets have a selection of 8 different scales to allow you to produce musically correct harmony over the chords in your particular song. The current scale being used is displayed on the right hand side of the LCD display when on a Scale preset.

The Voicing buttons are active in Scale programs so that you can pick whether harmonies are above your voice, below your voice or a combination.

Finding the right key and scale is largely done by trial and error at first. Whether the key and scale work properly depends on the chord changes and melody of your song. The best place to start is by setting the key (usually but not always the first chord in your song), then choosing the first major or minor scale and finally, singing your part. If this works the first time, great, if not try the other major or minor scales. It's important to note that selecting either the high or lower voicing buttons (3rds) works for more tunes. When you add the higher and low voicing buttons (5ths) it sounds bigger but the selection of songs you can use them in decreases.

There is also a global setting called Scalesmooth that only pertains to Scale presets. This setting allows you to choose whether the harmony parts step to the nearest correct note, or follow the exact pitch of your voice - vibrato, "scoops" and all. For more detail on Scalesmooth see page 15.

An alternate key, scale, or voicing setting is possible using the optional FS-300 footswitch. See page 18 for more detail.

Chord

You can tell you have selected a Chord preset when the preset number is followed by the word 'Chord'. To produce harmonies using a Chord preset, you need to play each chord in your song using a MIDI device (keyboard, sequencer, Standard MIDIfile player, etc.). VOCALIST VR uses an intelligent chord recognition algorithm to interpret the chord inversions you play to create correct harmony parts. The Voicing buttons are also active in Chord programs

A chord has two parts: the chord root and the chord type. An example of this would be an “A Major 7th” chord which has “A” as its root and “Major 7th” as its type. Chord harmony programs can interpret the following chords:

Major	augmented 7
Major 7	minor 7 flat 5
minor	diminished
minor 7	suspended
diminished 7	suspended 7
major 6	minor-Maj 7

Notes

You’ve selected a preset which uses the Notes harmony control mode when the word “Notes” appears after the preset number. There is no interpretation of chords as in Chord programs. You play the exact harmony notes or chords you want to hear on a MIDI keyboard or sequencer.

Notes mode is the most flexible harmony control mode because you control the harmony notes directly. This allows you to create counter-melodies and interesting chords in live performance or recorded and edited using a MIDI sequencer.

The pitch bender and modulation controls on your keyboard are active in Notes mode and can be used to add realism such as scooping and varying vibrato intensity.

Double

Double programs do not produce harmony and do not require any user input for key/scale, chords or notes. Doubling just produces thick and fat vocal sounds. The effect is produced by making exact copies of your voice which are slightly detuned from the original. On Double programs you can add up to four copies of your voice, making for thick and full doubled vocal sounds.

A single voice assigned to doubling can also be selected in Chord and Scale programs. This is done by turning on the Double voicing button when making a voicing selection. This helps to thicken the overall harmony sound.

The Aux Input to Reverb

This input jack allows you to share the reverb processor in Vocalist with the other instruments in your band or with other tracks in your recordings. Here are a couple of points to help you get the most out of this handy little feature.

First of all, the amount of signal level you send to the Aux Input to Reverb is controlled by your mixer. The Input level knob on the Vocalist is used only to set the input level of your microphone or line input to the harmony processor. The Clip LED on Access is used to monitor when the combination of the Aux Send to Reverb and the mic/line signals is near clipping.

Second, any instruments you send to the Aux Input to Reverb will come out of the Vocalists' stereo (or mono) output 100% wet. This is important. You'll need to mix the dry sound from your instruments through your mixer to achieve a nice wet/dry balance.

Third, you'll probably want to set Vocalists' Global Mix and Global Reverb parameters to On. This configures Vocalists so that if you're changing programs to make different harmony sounds, the reverb mix and reverb types will stay the same.

Finally, leave adding reverb to your instruments to last. It's important to get your dry mix of vocal, instruments, and harmonies right first. Only when your dry mix sounds good should you add some of Vocalists' reverb to the lead voice and harmonies. As a final touch, turn up the aux send on the channels you want to send through Access' reverb.

Turning the reverb on and off with the optional FS300 footswitch will affect the instrument reverb also.

EDITING

VOCALIST VR has the *easiest editing system** you are ever likely to see. Here are the guidelines to be aware of for editing:

● **How do you get in to EDIT mode?**

Press the Data Entry Knob/Switch to enter the edit mode. The EDIT LED will light and you will jump to the first editable parameter on the LCD display.

● **How do you know what you are editing?**

The parameter which is editable will always be flashing on the LCD display.

● **How do you select what you want to edit?**

To select another parameter continue pressing the Data Entry Knob/Switch. The parameters which you can EDIT vary slightly based on the Harmony Control Mode you are using. The EDIT Parameters are described below.

● **How do you adjust the parameter you want to EDIT?**

To adjust a parameter turn the Data Entry Knob/Switch left or right.

● **How do you exit EDIT mode?**

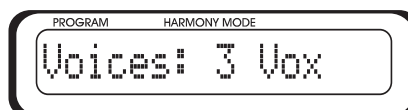
To exit EDIT mode press and hold the Data Entry Knob/Switch for a couple seconds. Another way to exit the EDIT mode is by stepping through all the edit parameters using the Data Entry switch. After the last edit parameter, the LCD display will cycle back to preset mode.

The EDIT Parameters

Each Harmony Control Mode has a unique EDIT Parameter which is saved per preset (Preset Specific Parameters). There are an additional six EDIT Parameters (Global Parameters) which are the same across all presets. Any editing on a preset is effective at the moment you adjust the parameter. However, you must 'store' the preset if you want to preserve your editing changes the next time you come back to the preset.

Preset-Specific Parameters

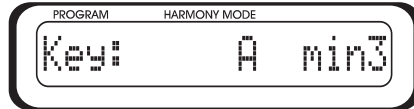
Double: Voices 1 - 4:



This parameter is used on "Double" presets. The Voices parameter can be set from "1" to "4" Vox ('Vox' is short for 'voices'). This represents the number of copies of you voice you want to produce. The more voices, the thicker and fatter your voice will sound.

* for you english majors out there, this is a oxymoron. Two words placed back to back that contradict themselves. But truly, Access does have the easiest editing system.

Scale: Key and Scale:



This parameter is used on “Scale” presets. There are two editable parameters here. The Key parameter is used to set the Key and Scale (if you don’t know why you would set Key and Scale see “Scale Harmony Control Modes” on page 10). The Key can be set “C” through to “B”. The Scale choices are “maj1” through “maj4” and “min1” through “min4”.

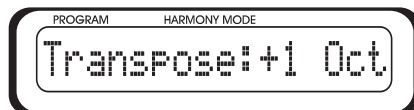
Chord: Harmony Hold on/off:



This parameter is used on “Chord” presets. When Harmony Hold is set to “off” harmonies will only be produced only when you are holding notes on your keyboard. When Harmony Hold is set to “ON” harmonies will always be heard when you sing regardless of whether you have keyboard notes held or not.

Note: when Harmony Hold is set to “ON”, it is the same as all Digitech Vocalist products in Chordal mode. Harmony Hold “off” is new and unique to VOCALIST VR.

Notes: Transpose:



This parameter is used on “Notes” presets. The transpose parameter shifts the octave in which harmonies are produced. It is useful when you want to play high harmonies from the lower part of your keyboard. When Transpose is set to “+0 Oct”, the octave you play notes on your keyboard will be the same octave where harmony notes will be produced by the VOCALIST VR. When Transpose is set + or - / 1 or 2 octaves, the harmonies’ octave will be shifted by that amount.

Reverb Type:



This parameter is used on all presets as long as Global Rev is off (see following section for Global Rev). The parameter allows you to select from 10 reverb types. When Rev is set to “off”, no reverb effect will be heard. For reverb type descriptions see Appendix 1 - Reverb Types .

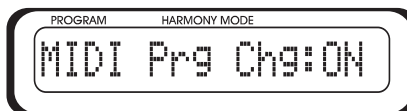
Global Parameters

MIDI Channel Select:



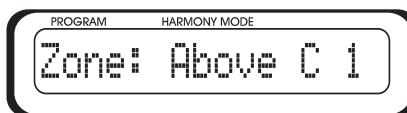
This parameter allows you to select the MIDI channel which the VOCALIST VR will look at to generate harmony information on Chords or Notes presets, as well as Control Change information. MIDI Channels 1 through 16 can be selected.

MIDI Program Change on/off:



This parameter allows you to set the VOCALIST VR to ignore or accept MIDI Program Change messages. When set to “ON” the VOCALIST VR will accept program change information. When set to “off”, VOCALIST VR will ignore program change information.

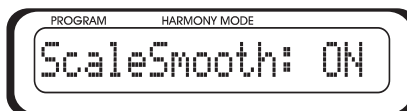
Keyboard Zone:



This parameter allows you to set where on your keyboard where you play to trigger harmonies on Chords or Notes presets. It is useful when you don’t want your whole keyboard to trigger harmonies. There are two items you can edit for this parameter. With this parameter you specify a note on your keyboard and whether the notes above or below it will trigger harmonies. If Zone is set to “Below”, then notes below the selected note will trigger harmonies. If Zone is set to “Above”, then notes above the selected note will trigger harmonies. The zone note can be selected from “C -1” to “G 9”. The letter represents the note, the number represents the octave.

Note: If this is set outside a useful range e.g. below C1, keyboard control will not work.

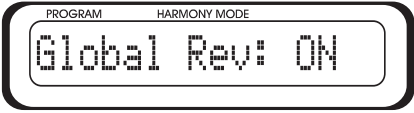
ScaleSmooth on/off:



This parameter switches harmony note pitch correction on and off when using Scale presets. When ScaleSmooth is set to “off”, the all harmony voicings except the Bass and Double will jump to exact pitches. When ScaleSmooth is set to “ON” harmony notes follow your exact pitch

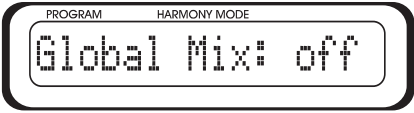
so you can slide in and out of notes like the best Blues singers. Be careful though, if you can't hear yourself well and your pitch is sharp or flat, the harmonies will be too.

Global Reverb on/off:



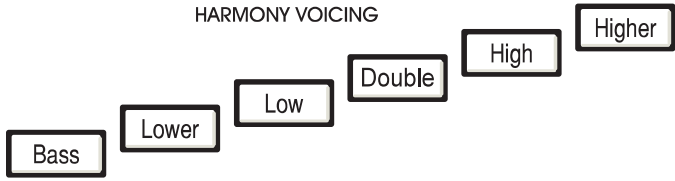
This parameter allows you to select whether or not the reverb type is different per preset, or global for all presets. Since the VOCALIST VR has the capability to associate a different reverb type with each preset, you can have a small room on one song and switch to a large hall setting for the next. However, if you prefer to have the same reverb type for all presets, turn Global Rev "ON".

Global Mix on/off:



This parameter is much like Global Rev - it allows you to select whether level settings are per preset, or global for all presets. Since the VOCALIST VR allows you to have a different mix of lead, harmony and reverb levels per preset, you can have completely different mixes per preset. However, you may also prefer to have mix levels the same across all presets to keep levels consistent; in this case, turn Global Mix "off".

Harmony Voicing



The harmony voicing effects harmony parts differently depending on which Harmony Control Mode is being used by a preset. The descriptions below give technical and musical description of what the Harmony Voicing Buttons do with Scale and Chord presets.

When you are using Scale or Chord presets, you can alter the Harmony Voicing to suit your song. Harmony Voicing is the relationship between your lead voice and the harmony parts. Are the harmony parts lower or higher than your voice? The best way to audition different harmony voicings is by just trying some combinations out. You have 4 harmony voices to work with; up to four buttons can be lit up at once.

● **Bass (Octave down)**

This setting produces an octave down melody in Scale presets. In Chord presets it functions slightly differently by staying on the root note of your chords an octave

below your voice. Note that when the ScaleSmooth parameter is off and the other harmony voices are pitch corrected, the Bass voice remains non-pitch-corrected.

If you want to be the Bass singer in your group but you just can't sing that low, try selecting a Scale preset with only the Bass voice turned on. Turn the lead level off and the Harmony level to max. This way you can sing the part in a range you are comfortable in but the sound will be an octave lower.

Note: There is no need to set key or scale when the Bass voice or Double are the only voicing buttons selected.

● **High and Lower**

These are “smart” voices that produce the 3rd intervals in Scale and Chord presets. On Scale presets the High button is a parallel third above your voice and the Lower button is a parallel 3rd in the octave below. On Chord presets these buttons produce roughly the same sound but the harmonies don't jump between intervals as often.

These voicings are referred to as being “smart” because once you tell them what key and scale your song is in, or you have played a chord on your MIDI keyboard, they will vary their harmony intervals to sound correct over your music. In Scale presets it's important to pick the correct key and scale because some notes may sound “off key” otherwise.

Much of contemporary popular music features “3rd above” harmony where the main vocal is closely followed in choruses and selected lines with this harmony. The “3rd in the octave below” harmony produced by the Lower harmony voice produces a sound reminiscent of the Beatles.

● **Higher and Low**

On Scale and Chord presets these voicings produce the 5th intervals. The Higher button produces a 5th above your voice and the Low button produces a 5th in the octave below. In Scale presets using the Minor 4 scale, the Low and Higher voices are actually 6ths in the octave below and above respectively.

When used in conjunction with the High and Lower harmony voices (3rds) you can produce a sound like the Eagles or Crosby, Stills and Nash. A fun special effect is to enable only the Low voice in a Scale preset and turn the lead level off and the harmony level to max. This can make your talking voice sound a little deeper.

● **Double**

The double harmony voicing button adds one slightly detuned copy of your voice. This voicing will thicken up your lead voice when mixed with the other harmonies.

EXTERNAL CONTROL

Footswitch

If you perform live, it is strongly recommended that you invest in the FS300 footswitch. The FS300 has three buttons that allow you to bypass the harmony voices, mute the reverb effect to talk to your audience between songs, and switch between 'main' and 'alternate' keys on Scale presets. What are 'main' and 'alternate' Keys? Read on to the section below which explains what they are and why they are so nifty to use.

To use the FS-300, follow the following steps:

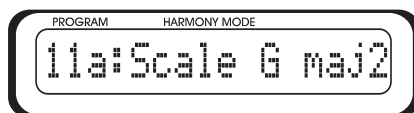
- 1 connect FS-300 footswitch box to the 'footswitch input' on the VOCALIST BR.
- 2 press the first switch from the left to switch between 'main' and 'alt' keys'.
- 3 press the middle switch to mute the reverb effect
- 4 press the right hand switch to mute the harmonies in the VOCALIST VR.

Main and Alternate Keys

Alternate key selection is only available with the FS-300 footswitch. Songs sometimes change to another key or use a different scale somewhere in the song. Perhaps you would like to stay in the same key but change to a higher or lower harmony voice in the bridge of your song. These are the reasons for main/alt key switching. With main/alt switching you can pre-select an alternative harmony sound including key, scale, and voicings for each Scale preset and switch back and forth using the optional FS300 footswitch.

To create a Scale preset with unique settings for the 'main' and 'alt' Keys follow the steps below:

- 1 select a Key/Scale that will work for the main part of your song following the editing method on page 13.
- 2 press the left switch on your FS-300. The display will now show that your are on the 'alt' Key setting. The new Key and Scale will be shown in the LCD display.



- 3 to edit the 'alt' Key, press the footswitch button and follow the same edit steps for adjusting Key and Scale. Any changes to the 'main' or 'alt' Keys may be stored with the preset.

Using MIDI Control Change

MIDI is an easy way to get added control over the Vocalist VR. Using a sequencer or MIDI keyboard that can transmit control change messages (‘CC’ messages), you can automate changes you make in the harmony/lead mix, reverb levels and more. Note that changes made by MIDI CC message are temporary only and the default values will return when you change programs.

Vibrato Depth

● allows you to modify the amount of vibrato on the harmonies with your keyboard mod wheel.

CC#	Controller Name	Values
1	Harmony voice vibrato override	0-127. Overrides default vibrato intensity until program change is received.

Harmony Level

● The harmony, lead and reverb level CCs allow you to control your mix via MIDI.

CC#	Controller Name	Values
12	Harmony voice level	0-127. Program change will override level only when Global Mix parm is set to off.

Lead Level

CC#	Controller Name	Values
13	Lead voice level	0-127. Override same as harmony level

Reverb Level

CC#	Controller Name	Values
91	Reverb level	0-127. 100 internal values mapped to 127 MIDI values. Override as per other levels.

Reverb Type

CC#	Controller Name	Values
14	Reverb type	0-9. Selects from the 10 types we offer in the unit. Program change will override setting only when Global Reverb is set to off.

Set Key on/off

● Enables chord recognition of key and scale in Scale programs via MIDI. This allows you to change key and scale from a sequencer. Chord recognition is normally turned off because Scale mode does not require the changing chords used to control harmonies in Notes and Chord programs. This CC message must be sent first and then a chord can be played on the keyboard that will call up the key and scale you require. See Appendix 4 on page 26 for the Scale Chart.

CC#	Controller Name	Values
21	Scale mode Set Key on/off	0-64=off, 65-127=on. Enables chord recognition for Scale type and key.

Voice Pan Setting 1-4

● Allows you to set different stereo mixes by altering the pan position of each harmony voice. CC's 80 through 83 control voices 1 through 4. Voice allocation changes dynamically with the different harmony modes, keyboard control and voicing selection. Wide panning in Notes mode could result in harmony voices moving from side to side. Pan adjustment should be done with the program you intend to control currently loaded.

CC#	Controller Name	Values
80, 81, 82, 83	Individual voice pans	100 internal pan values are mapped to 127 MIDI values. e.g. 64=center (50).

Damper Pedal

● Allows harmony notes in Chord and Notes mode to stay held after the notes have been released from the keyboard.

CC#	Controller Name	Values
64	Damper pedal	0-64=off, 65-127=on. As per Vocalist products (Vocoder voice sustain). When Harmony Hold is off, damper message will sustain last chord in before note off msg.

BASIC HARMONY CONCEPTS

A well-crafted vocal harmony can do a great deal towards enhancing a musical selection. The contrast between a lone singing voice and a group of voices signing together makes the music that much more interesting.

But harmonies can be somewhat difficult to understand, so in this chapter, we will try and demystify this process. Discussed will be the concept of “musically correct” harmonies and the difference between the two essential harmony types utilized by the Vocalist VR: Scale and Chord Harmony Control Modes.

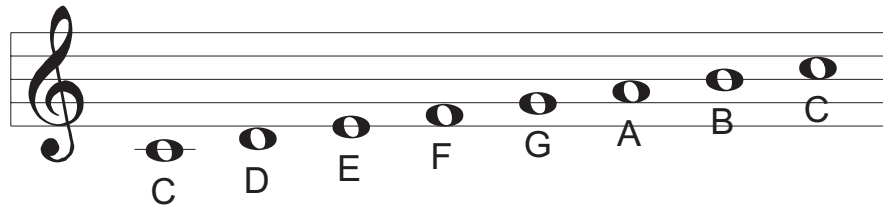
“Musically Correct”

No, this isn’t a variation of “politically correct”, but it still implies a certain level of responsibility. This responsibility is to produce a combination of notes that is pleasing to sensibilities accustomed to the western twelve tone scale.

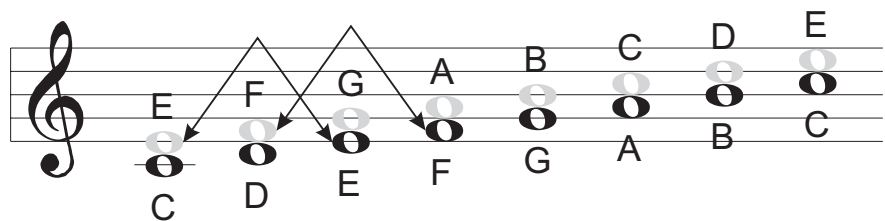
Harmonies that are “correct” are referred to as being “Diatonic” which is defined as:

- any melody or group of chords that conforms to a single scale or key.

To illustrate this, see the C major scale below. Whether you studied music or not, you’ve no doubt heard it somewhere and could probably sing it from memory.



A diatonic, correct harmony could be shown by simply taking all the notes in this scale and moving them up one line on the staff. Notice in the example below of a 3rd above harmony that the harmony notes shown in grey belong to the scale.



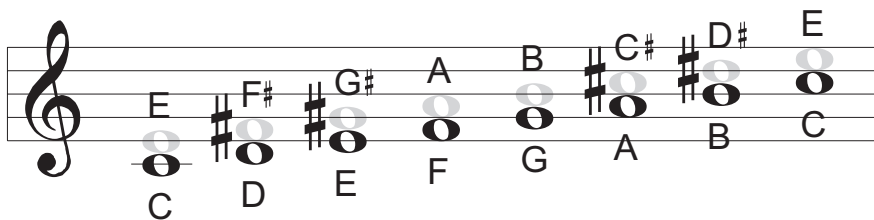
If any of the harmony notes were sharped or flatted they would fall outside this particular scale and would not be diatonic. This theory holds for all of the different types of scales such as major, minor, diminished, augmented and whole tone.

The opposite of a diatonic harmony is chromatic. A chromatic scale is defined as:

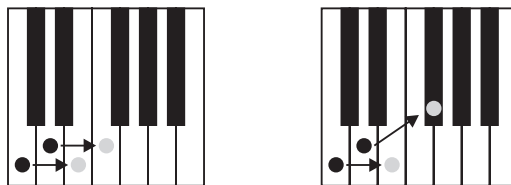
- a scale type that uses all 12 semitones.

Notice that the previous scale example had 8 notes. The chromatic scale uses all the sharp and flat notes in between as well. There are 12 of each of the major, minor, etc. scales; there is only one chromatic scale.

To illustrate a chromatic harmony, see the following example of a chromatic 3rd above harmony on our C major scale.



The sharps show the non-scale notes. The reason for the difference is that the chromatic harmony notes stay exactly 4 semitones (a major 3rd) above each scale note. In the diatonic example, the harmony notes varied between 3 and 4 semitones in order to stay true to the scale. The drawing below demonstrates this.



Scale and Chord Harmony; The Difference

Probably the toughest part of understanding harmony is pinpointing the difference between the Scale and Chord Harmony Control Modes. There are many of each type in the VOCALIST VR that, by trial and error, you have found useful yet not fully understood why. Let's try to clear that up.

The practical difference could be summed up in a couple of sentences:

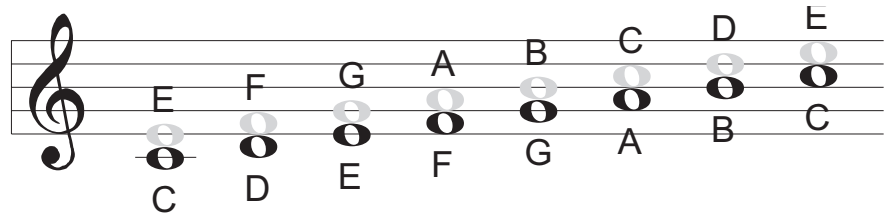
- 1 Scale Harmony usually requires you to enter the one key that works for a whole song. Scale harmonies will sound correct in many songs but not all and this is why you have a choice between the two. Scale harmonies are also more active in harmony motion.
- 2 Chord Harmony requires you to input a different chord change for every chord in a song. They can be applied to almost any song you can play.

This is only the practical difference between the two Harmony Control Modes, we now need to explore the theoretical differences.

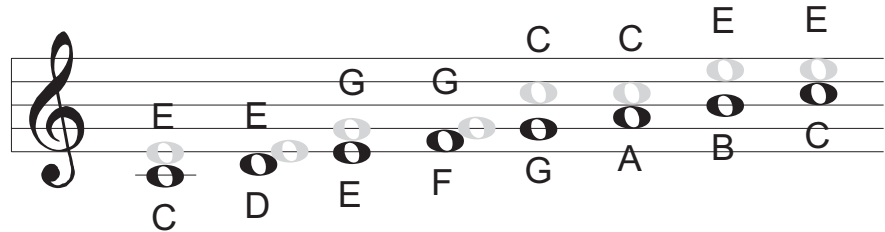
In the previous example showing the principle of diatonic harmony, we were showing a scale harmony. That is, one whose harmony notes only fall within the notes that belong to that particular scale.

This is a key part of the difference between Scale and Chord harmonies because for every note you sing in a Chord harmony, the VOCALIST VR will choose from only three or four possible harmony notes.

These fall within the notes of designated chords and are mostly made up of the root note, third, fifth and, optionally, the seventh of a chord. These are the choices that the VOCALIST VR has from which to produce a Chord harmony. The following graphic shows where the harmony notes would fall in a simple 1 voice above Scale and Chord harmony.



Scale Harmony over C Major Scale



Chordal Harmony over C Major Scale

Notice that in the Chord example, the harmony notes jump over larger distances and are made of only the root, third and fifth of the scale.

The reason for using these different harmony types is that they create a more interesting musical experience. Most songs could benefit from either or both approaches. Depending on the chord changes in the accompaniment, the tight and always moving Scale harmonies might be better for a catchy chorus where the more stationary and open Chord harmonies would leave “breathing space” to highlight a lead vocal.

It is helpful to experiment with both Harmony Control Modes in all styles of music you enjoy.

APPENDIX 1 - Reverb Types

● **Bright Room:**

Simulates a smaller room which accentuates the higher frequencies. Not only can this preset give your vocals some added depth, but it can increase the clarity in live spaces where the upper frequencies are not reproduced well.

● **Dark Room:**

Simulates a smaller room where higher frequencies roll off. Great for adding depth to your vocal sound in a live space where higher frequencies are already accentuated.

● **Med Room:**

This room is a bit larger than the previous two. Works good for filling up space in a song with a medium tempo .

● **Hall:**

Simulates the sound of a large acoustic space. With a long decay time, this preset is useful on ballads and slower songs.

● **Dark Hall:**

The same Hall as above but with the lights off. The higher frequencies are also rolled off to compensate for an already bright live space.

● **Med Hall:**

Similar to the Hall preset except the decay time is longer.

● **Bright Plate:**

The classic vocal reverb. The higher frequencies are boosted making a crisp reverb sound.

● **SmoothPlate:**

Another classic vocal reverb. This plate is warmer. Great for subtlety bringing out vocals.

● **Cathedral:**

For those who want to work on their Gregorian chanting.

APPENDIX 2 - Specifications

Microphone Input	Balanced XLR, 2 KOhm
Line Input	Unbalanced 1/4 TS, -10 dBV level, 10 KOhm
Auxiliary Input	Unbalanced 1/4 TS, -10 dBV level, 10 KOhm
Microphone Input Range	-32 dBV minimum to -9 dBV maximum
Line Input Range	-20 dBV minimum to +6dBu maximum
Line Outputs	Unbalanced 1/4" stereo or mono, -10 dBV nominal
Sampling	16 bit A/D conversion @ 44.1 KHz
Frequency Response (dry)	20 - 20KHz
Signal to Noise	>92 dB A weighted
Total Harmonic Distortion + Noise	< 0.04%
Power Requirements	9.75 VAC, 820 mA, or 9VAC, 1A
Size	19" W x 1.75" H x 5.75" D
Weight	4 lb

Specifications subject to change without notice.

APPENDIX 3 - MIDI

MIDI Implementation Chart

VOCALIST VR

Date: Aug 19, 1998

Function		Transmitted	Recognised	Remarks
Basic Channel	Default	X	1	memorized
	Changed	X	1 - 16	
Mode	Default	X	Mode 3	
	Messages Altered	X *****	X	
Note Number	True Voice	X	0-127 24-96	Chord Root and type, Key and Scale 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	Fixed at +/-2 semitones
Control Change	1	X	O	Vibrato Depth
	12*	X	O	Harmony Level
	13*	X	O	Lead Level
	14*	X	O	Reverb Type
	21	X	O	Scale mode Set Key
	80	X	O	Voice 1 Pan Setting ¹
	81	X	O	Voice 2 Pan Setting ¹
	82	X	O	Voice 3 Pan Setting ¹
	83	X	O	Voice 4 Pan Setting ¹
	64	X	O	Damper Pedal
91	X	O	Reverb Level	
Program Change		X	0-49, 119-126*	Program Select
		X	127*	Standard programs ²
		X		Harmony Mute (Bypass) ³
System Exclusive		X	X	
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	X	
	Active Sensing	X	X	
	System Reset	X	X	
Notes	1: Values are 0= left, 64= center, 127= right 2: Special mapping - 119=Notes mode, 120-126=Standard chordal voicings 3: Program change 127 toggles bypass on and off			

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

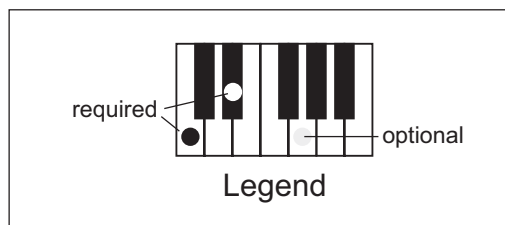
Mode 2 : OMNI ON, MONO
Mode 4 : OMNI OFF, MONO

O : YES
X : NO

APPENDIX 4 - Scale Chart

The Key and scale in a Scale preset may be selected by MIDI. After sending a controller 21 message of 64 or greater, a single chord may be used to set both key and scale. The following graphics show the required intervals in the key of C to load the various scale types. To set other keys, simply transpose these chords to your desired key.

The black and white dots shown in the legend show which intervals are required to set Key and Scale by MIDI. The grey dots show optional intervals.



Major 1



Major 2



Major 3



Major 4



Minor 1



Minor 2



Minor 3



Minor 4

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