

 **YAMAHA**

PLG150-VL

Yamaha Virtual Acoustic Plug-in Board
Virtual Acoustic Plug-in-Karte
Carte Plug-in Acoustique Virtuelle



Owner's Manual
Bedienungsanleitung
Mode d'emploi

**MODULAR SYNTHESIS
PLUG-IN SYSTEM**

 Plug
for XG

 XG[™]

 VL
for XG

English

Deutsch

Français

Precautions

- Do not expose the plug-in board to direct sunlight, excessive humidity, high temperatures, excessive dust or strong vibrations.
- Before handling the plug-in board, be sure to touch a metal surface to discharge any static electricity which may be in your body.
- When holding the plug-in board, do not touch the inside area of the circuit board or apply excessive pressure to the board, and be sure to protect the board from contact with water or other liquids.
- Before installing the plug-in board onto a tone generator/sound card, unplug the power connector of your computer.
- Before connecting the computer to other devices, turn off the power switches of all devices.
- Yamaha is not responsible for loss of data through computer malfunctions or operator actions.
- The plug-in board contains no user-serviceable parts, so never touch the inside area of the circuit board or tamper with the electronic circuitry in any way. Doing so may result in electrical shock or damage to the plug-in board.

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* The screens as illustrated in this owner's manual are for instructional purposes only, and may appear somewhat different from the ones of your instrument.

FCC INFORMATION (U.S.A.)

1. IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2. **IMPORTANT:** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product **MUST** be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. **NOTE:** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA 90620

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CANADA

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

- This applies only to products distributed by Yamaha Canada Music Ltd.
- Ceci ne s'applique qu'aux produits distribués par Yamaha Canada Musique Ltée.

Introduction

Virtual Acoustic Plug-in Board PLG150-VL will expand your synthesizer of the Modular Synthesis Plug-in System (such as CS6x and S80) by adding 256 VL voices, created by the unique Virtual Acoustic Synthesis (including 137 VL-XG, XG compatible, voices). It also expands your tone generator/ sound card of the XG Plug-in System (such as MU128 and SW1000XG) as well. Using the included software, VL Visual Editor, you can edit VL voices and create your own voices from scratch.

Please read through this manual to take full advantage of the PLG150-VL before use and keep the manual in a safe place for future reference.

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Overview of the PLG150-VL

Main Features

- Allows you to play back the songs which are programmed with the VL-XG voice data (p.13).
- Lets you edit the VL parameters on the synthesizer/ tone generator (a model with LCD screen) (p.19).
- Allows you to simulate an acoustic musical instrument and create a “virtual” musical instrument using the “VL Visual Editor,” even if you don't have further musical knowledge (p.7).
- Allows you to play the PLG150-VL by WX5 (via BT7) connected to the tone generator via MIDI (p.33).

MODULAR SYNTHESIS PLUG-IN SYSTEM

About the Modular Synthesis Plug-in System

The Yamaha Modular Synthesis Plug-in System offers powerful expansion and upgrade capabilities for Modular Synthesis-Plug-in-compatible synthesizers, tone generators and sound cards. This enables you to easily and effectively take advantage of the latest and most sophisticated synthesizer and effects technology, allowing you to keep pace with the rapid and multi-faceted advances in modern music production.



About the XG Plug-in System

The Yamaha XG Plug-in System offers powerful expansion and upgrade capabilities for XG-Plug-in-compatible tone generators and sound cards. This enables you to easily and effectively take advantage of the latest and most sophisticated synthesizer and effects technology, allowing you to keep pace with the rapid and multi-faceted advances in modern music production.



About Sondius XG

Products bearing the SONDIUS-XG logo are licensed under patents of Stanford University and Yamaha as listed on the internet web site, <<http://www.sondius-xg.com>>.



About VL-XG

The VL Extension for XG (“VL Extension for XG” is abbreviated to VL-XG) included in the PLG150-VL significantly enhances and expands the musical capabilities of the XG format with the superior sound and expressive potential of Yamaha Virtual Acoustic Synthesis. The PLG150-VL provides superior wind and string instrument voices while the XG tone generator/sound card supplies drums, percussion, keyboard, and other voices.

VL Voice Edit

Editing VL-XG Voices

If you want to edit the existing MIDI files or create a MIDI song using various VL-XG voices from the PLG150-VL, you need to use a sequencing software which is capable of editing system exclusive messages and transmit bank select/program change messages and/or parameter changes to the PLG150-VL. See MIDI Data Format (p. 40) for more information on the system exclusive messages. However, using the XG Editor Window of the music sequencing software, “XGworks lite” (an Windows application, provided in the “mother” synthesizer/ tone generator) lets you visually and easily enter the VL program change data and edit its data instead of inputting rather complicated system exclusive messages.

Creating Your Own VL Voices

Even if you have no experience in voice creation, the “VL Visual Editor” (provided in the included disk) lets you easily create VL voices (p. 7).



To use the “XGworks lite” and “VL Visual Editor” you need to connect the “mother” synthesizer/ tone generator/ sound card to your PC, and properly set the “Driver” and “Input/ Output devices.” For the details refer to the owner’s manual of the “XGworks lite.”

Installation

For the installation of the PLG150-VL see the manual of respective “mother” synthesizer/ tone generator/ sound card.

Included Items

- PLG150-VL
- Demonstration & Plug-in Voice Disk (FD)
- TOOLS for PLG150-DX/PLG150-VL (CD-ROM)
- Owner’s Manual

Specifications

Tone Generator :	S/VA (Self-oscillating Virtual Acoustic Synthesis: VLR Algorithm)
Polyphony :	1 note monophonic (latest note priority)
Sound Module Mode :	VL-XG
Interface :	XG Plug-in Connector (15-pin Digital Connector)
Number of Voice :	256 Preset voices (including 137 VL-XG voices) 6 Custom voices 64 Internal voices
Dimensions (W x H x D) :	138.5mm(W) 89mm(D) 8.5mm(H)
WEIGHT :	56g

* Specifications subject to change without notice.

About the Demonstration Data in the Included Floppy Disk

The demonstration songs, and the performances for XG tone generators and the Plug-in voice data for "Modular Synthesis Plug-in System" synthesizers are provided in the included floppy disk, which will give you an idea of some of the PLG150-VL's capability.

Contents

1. XG Demonstration Songs (only for the XG tone generator)

File Name	Song Name	Composer
COOLJIVA.MID	Cool JiVA	Katsunori Ujiie
OXYGEN.MID	Oxygen	Andy Mowat Daniel Powell (YAHAMA R&D London)
NOBODY.MID	Nobody Knows	Akio Suzuki
SILHOUET.MID	Silhouettes	Tom Scott (GRP Recording Artist) Nate Tschetter Charles Feilding (YAMAHA Sound Design Office)
VAMBIENT.MID	VAmbient	Katsunori Ujiie
DOGROOVA.MID	Do GrooVA	Katsunori Ujiie
CLOUDS.MID	Clouds	Akio Suzuki

XG Demonstration songs can be played back using the XGworks lite (sequencing software, provided in the "mother" synthesizer/tone generator) or a sequencer like QY700.

2. Performance Data (only for the XG tone generators)

VLPFM1.MID
VLPFM2.MID
VLPFM3.MID
VLPFM4.MID

Performance data : send them as the bulk data to the XG tone generator using the "XGworks lite."

3. MSPS Demonstration song (only for the Modular Synthesis Plug-in System synthesizers)

02VIDemo.mid

MSPS Demonstration song can be played back using the XGworks lite or an external MIDI data storage device like MDF3.

4. Plug-in voice data (only for the Modular Synthesis Plug-in System synthesizers)

- for the PLG1 slot
 - 01PlgV1A.mid (Wind instruments for TouchEG) (64 voices)
 - 01PlgV1B.mid (Keyboards) (64 voices)
 - 01PlgV1C.mid (Wind instruments for Breath controller) (64 voices)
- for the PLG2 slot
 - 01PlgV2A.mid (Wind instruments for TouchEG) (64 voices)
 - 01PlgV2B.mid (Keyboards) (64 voices)
 - 01PlgV2C.mid (Wind instruments for Breath controller) (64 voices)

See page 39 for the information on each voice.

Plug-in voice data are provided as MIDI files. You can get the voices by playing back the MIDI files using a sequencer. The voice data will be loaded onto the Plug-in voice data area of your synthesizer.

About the Applications in the Included CD-ROM

A voice editing tool, VL Visual Editor, is provided in the included CD-ROM. You can create VL voices using the VL Visual Editor.

Contents

- VL Visual Editor (for Windows) : This is a Plug-in software for the XGworks lite, which is included in your “mother” XG tone generator or “Modular Synthesis Plug-in System” synthesizer.
- VL Visual Editor for Macintosh : This software can run on the models, PowerPC or upper.
- DX Easy Editor : A tool for the PLG150-DX, another Plug-in board.
- DX Simulator : A tool for the PLG150-DX, another Plug-in board.
- OMS (Open Music System 2.3.6) : Enables you to use several MIDI applications on the Macintosh OS at the same time.

Installing and Starting the VL Visual Editor

■ Installing the Software

Windows

1 Double-click on the “Setup.exe” file in the CD-ROM.

Installer will be started up.

2 Execute the installation by following the directions appearing on the screen.

After the installation, [VL Visual Editor] is added to the [Plug-in] menu on the XGworks lite.

Macintosh : English version only

1 Double-click on the “Install VL Visual Editor” in the “English”/“VL Visual Editor” folder of the CD-ROM.

Installer will be started up.

2 Execute the installation by following the directions appearing on the screen.

After the installation, “VL Visual Editor 1.02E” is added to the Hard Disk as the default.

■ Starting up the VL Visual Editor

Windows

Start up the XGworks lite, and then select [VL Visual Editor] from its [Plug-in] menu.

The VL Visual Editor window appears.

Macintosh : English version only

Double-click on the "VL Visual Editor for Mac" icon in the "VL Visual Editor 1.02E" folder.

The VL Visual Editor window appears.



- For the detailed information about the VL Visual Editor see the on-line manual of the VL Visual Editor.
- When using a “Modular Synthesis Plug-in System” synthesizer:
When in the Voice Mode, assign the Part number 1 to the VL Visual Editor.
In the Performance (Multi) Mode, you can not use the VL Visual Editor.



The VL voices created by the VL Visual Editor can be loaded to the Custom Voice Bank (p.13) of the PLG150-VL and played back. However, the loaded data will be lost once you turn off the “mother” synthesizer/ tone generator. You need to load the data again if you want to use the voices. You can save the VL voice data in a file as a part of the “XGworks lite” song data or in an external MIDI data storage device such as MDF3 as a part of bulk data (voice file).

Virtual Acoustic Synthesis

Unlike previous tone generation systems which use oscillators, function generators, preset waveforms or samples to produce sound, Yamaha Virtual Acoustic (“VA”) Synthesis applies sophisticated computer-based “physical modeling” technology to musical sound synthesis. In the same way that computer “models” are used to simulate weather systems or the flight characteristics of aircraft in the design stage, the PLG150-VL simulates the very complex vibrations, resonances, reflections and other acoustic phenomena that occur in a real wind or string instrument.

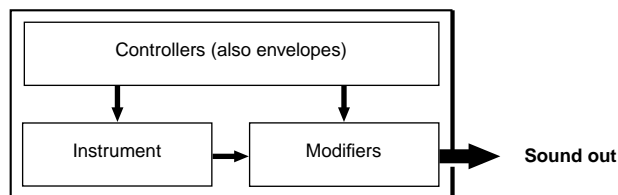
VA Advantages

The PLG150-VL offers many advantages in terms of musical performance. Not just in terms of sound, but also in terms of the “behavior” that makes acoustic instruments so ... well, musical! Yamaha Virtual Acoustic Synthesis is simply the most musical tone generation system ever created.

- The PLG150-VL sounds better, has more depth, and is more realistic in the musical sense than any other tone generation system.
- Simply playing a note in the same way does not always produce precisely the same sound. The instrument is responsive and “alive”.
- Note-to-note transitions have the same continuity exhibited by acoustic instruments. What goes on in between the notes is just as important musically as the notes themselves.
- It has extraordinary expressive capability. Rather than simply controlling parameters like volume or pitch, you can control characteristics such as breath and reed pressure with appropriate complex effects on the timbre of the sound.

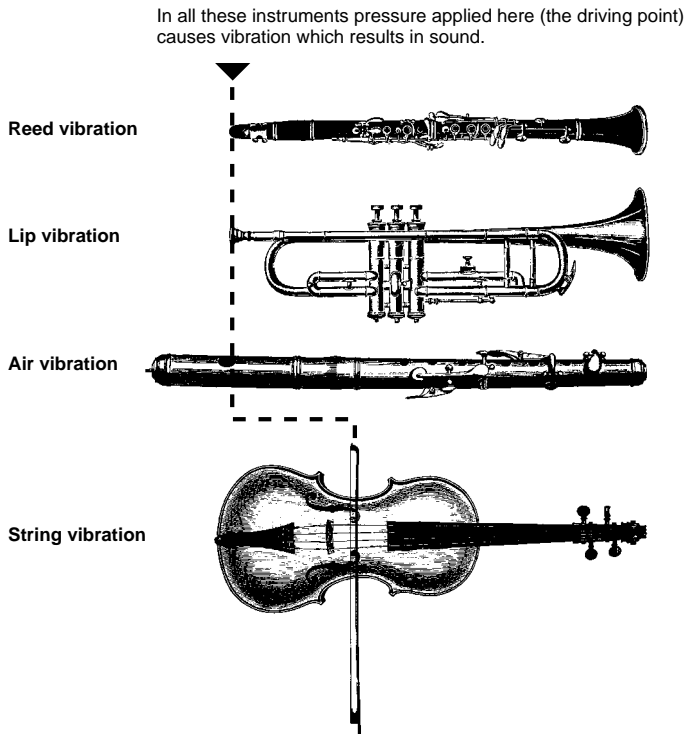
VL Tone Generator Model

The overall VL tone generation model or “algorithm” consists of three main blocks: the instrument, controllers, and modifiers. In schematic form these blocks are arranged as follows:



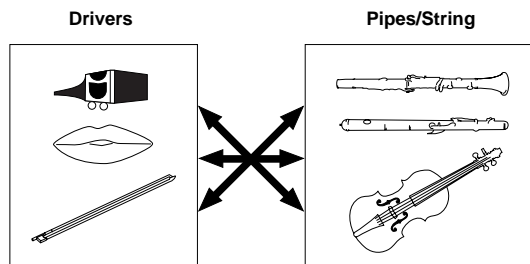
The Instrument

The key block in this algorithm is the instrument, since it is here that the fundamental tone or “timbre” of the sound is defined. The instrument model consists primarily of a driver — the reed/mouthpiece, lip/mouthpiece, or bow/string system — and a resonant system corresponding to the tube and air column or string..



- The sound thus produced is amplified and sustained by the body of the instrument.
- The pitch of the sound is determined by the length of the air column or string, and the timbre is a complex product of the driving source (reed, lip, air, string), the shape of the resonant cavity, the materials from which the instrument is made, etc.

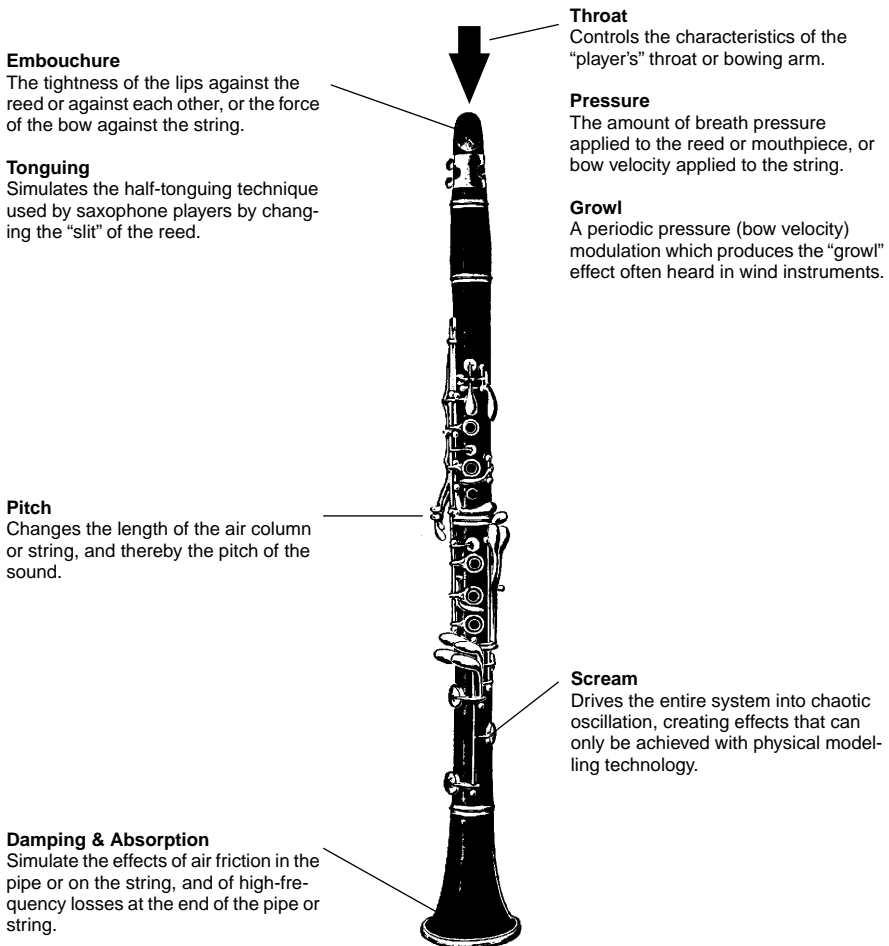
One of the remarkable features of the Virtual Acoustic Synthesis system is that just about any driver can be used with any type of pipe or string.



The Controllers

The input to an acoustic wind instrument comes from the player’s lungs, trachea, oral cavity, and lips. In a string instrument it comes from the player’s arm movement, transmitted to the string via a bow. These elements actually form an important part of the sound generating system and, in the PLG150-VL, are included in the controllers block. The player also influences the sound of the instrument by playing the keys, tone holes, or frets, and this aspect of control constitutes another part of the controllers block. These and other control parameters provided by the PLG150-VL are listed in the illustration below.

In essence, the controller parameters determine how the instrument “plays”. All of these parameters can be assigned to any external controller that can be used with the PLG150-VL: breath controller, foot controller, modulation wheel, etc. The pressure parameter, for example, will normally be assigned to a breath controller so the player can control the dynamics of the instrument by varying the breath pressure applied to the controller — a natural, instinctive way to play wind-instrument voices. At the same time the growl and throat parameters might also be assigned to the breath controller in order to achieve life-like response and effects.



The Modifiers

The modifiers block consists of 4 sections as shown in the diagram. Although these may appear to be simple effects, they are actually intimately related to the PLG150-VL's sound-producing model and have a significant effect on the sound.

● Harmonic Enhancer

The Harmonic Enhancer determines the harmonic structure of the sound to the extent that it can produce radical timbral variations within an instrument “family” (e.g. saxes). Adjusting the Harmonic Enhancer may not produce audible effects since many of the PLG150-VL voices’ harmonics are created without the Harmonic Enhancer.

● Dynamic Filter

This section is similar to the dynamic filters found in many conventional synthesizers, with high-pass, bandpass, band elimination, and low-pass modes. Some filter parameters are available via the PLG150-VL controls, but the filter type cannot be changed.



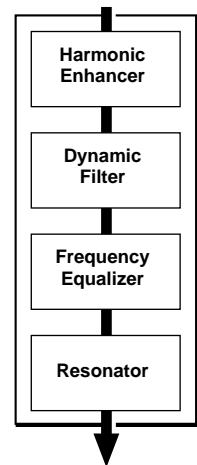
- The degree how much the filter is applied can be changed using the key scaling.
- The incline of the filters is -12dB/oct.
- This effect may vary depending on the selected voice.

● Frequency Equalizer

The Equalizer boosts or decreases the output level around the designated frequency. The PLG150-VL lets you access the equalizer function using “Low Gain (Bass)” and “High Gain (Treble)” parameters.

● Resonator

The Resonator uses simulated “resonator” pipes or strings and delays to produce a “woody” resonance effect — although it has little or no effect on some voices. The resonator parameters are not accessible but preset for some of the preset voices.



The VL voices have each program number and are organized into 12 banks. For the voice list see page 36.

• Banks 112 through 119: VL-XG Banks

These banks are used when the PLG150-VL functions as the VL-XG tone generator.

The voices from the PRESET 1 and PRESET 2 banks are assigned to MIDI banks and program change numbers conforming to the Yamaha XG format.



Since the PLG150-VL does not have a full set of XG-compatible voices, some voice numbers will be skipped (e.g. 22, 23, 25, 27, etc.). If the truncated number is designated, the XG voice having the same program number in the bank 1 will sound, instead.

• Bank 000: PRESET 1 (Pr1)

The PRESET 1 bank contains 128 preset voices which have been created primarily to be played via a keyboard.

• Bank 001: PRESET 2 (Pr2)

The PRESET 2 bank contains 128 preset voices which have been created to provide maximum expressive capability when played with a breath controller or WX-series Wind MIDI Controller.

• Bank 002: CUSTOM (Cst)

The CUSTOM bank has 6 memory locations (program numbers 001 - 006) in which you can load the voices created by the Yamaha VL Visual Editor (p. 7).

The loaded voices cannot be backed up. When the “mother” tone generator/sound card is turned off, the voices are reset to their defaults, the sound-effect type voices from the PRESET banks.

• Bank 003: INTERNAL (Int)

The INTERNAL voices of the VL70-m can be received and loaded (bulk data). The loaded voices cannot be backed up. When the “mother” tone generator/sound card is turned off, the voices are reset to their defaults, the voices from the PRESET banks, set up to be played via a WX-series Wind MIDI Controller.



- The edited voices cannot be stored in the INTERNAL voice bank.
- (When using a synthesizer/ tone generator) Saving a performance containing a VL voice as a part records the program number of the VL voice and the VL parameter settings edited on the “mother” synthesizer/ tone generator.



- The VL-XG voices edited with XG Editor Window of the “XGworks lite” can be saved as a part of the song data.
- Note that the “program numbers” here are 001–128 and the “MIDI program change numbers” are 000–127. When selecting voices (programs) using an external MIDI device, subtract a value of “1” from the “program numbers” to match the “MIDI program change numbers.”

Selecting Banks

Use the MIDI bank MSB (control number 00) and LSB (control number 32) numbers listed below to select VL banks from an external MIDI device.

BANK	MSB	LSB
BANK 112	97 or 81	112
BANK 113	97 or 81	113
BANK 114	97 or 81	114
BANK 115	97 or 81	115
BANK 116	97 or 81	116
BANK 117	97 or 81	117
BANK 118	97 or 81	118
BANK 119	97 or 81	119
PRESET 1	33	0
PRESET 2	33	1
CUSTOM	33	2
INTERNAL	33	3

Selecting Voices

Modular Synthesis Plug-in System

■ Selecting VL Voices

When the PLG150-VL is properly installed on your synthesizer, the VL voices can be selected in the same way as the internal voices of the synthesizer. For more information see the manual of the synthesizer.



The example displays used in the following explanations are all taken from CS6x. Therefore, the illustrations may be somewhat different from the LCDs of your instrument.

1 Press the VOICE button.

Voice mode will be displayed.

```
VCE Play> INT:001(A01)[S4:Generation]
EQLow-G EQMid-G EQHi-G FLT-Rez EfHPF
```

2 Press the appropriate PLG button (PLG1 or PLG2, depending on which slot the PLG150-VL board has been installed to).

```
VCE Play> PLG1:001(A01)[--:Plug-InVce]
EQLow-G EQMid-G EQHi-G -----
```

3 Then select the VL voice by pressing the appropriate BANK button and PROGRAM button.



To select a different voice bank, simultaneously hold down the appropriate PLG button and turn knob C (or press the INC/ DEC buttons). The bank is expressed in two numbers: MSB and LSB. If a selected bank is not available, the bank letter indication in the display (A - H) will not change.

XG Plug-in System

The VL voices can be selected as you do with the XG voices. However, you have to select XG Mode or Performance Mode from the “mother” tone generator/sound card Sound Module Mode, first. You also have to designate the Part, to which you want to assign the VL voice, in the Utility sub-mode (PLUGIN).



- The sound cards like the SW1000XG do not include “Performance Mode.” Please check the owner’s manual of the “mother” tone generator/sound card whether it includes the Performance Mode, or not.
- The steps how to select a VL voice, set up the utilities and edit the VL part parameters shown below are explained using the MU128. Therefore, the illustrations may be somewhat different from the LCDs of your instrument.

IMPORTANT

When you use a sound card or a tone generator with no panel buttons...

To select a VL voice, to set up the utilities and to edit the VL part parameters, you need to use a sequencing software and transmit the MIDI messages such as XG System On, Bank Select MSB/LSB, program change and parameter change to the “mother” sound card/tone generator, instead of following the steps below.

Using the “XGworks lite,” properly installed in your PC (which is connected to the sound card/tone generator) allows you to access the VL-XG voices through the Voice List dialog of the “XGworks lite.”

■ Selecting VL Voice

1 Select XG or PERFORM from the “mother” tone generator Sound Module Mode.

When you select XG, Multi Play Mode will be engaged.

When you select PERFORM, Performance Play Mode will be engaged.



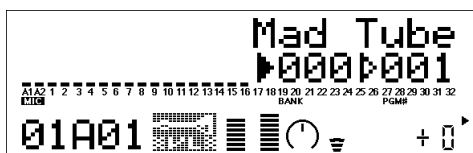
The VL voices can be selected only when “normal” is selected in the Part Mode.

The VL voices can be played as a “part” in the XG Mode and as a “layer” in the Performance Mode.

2 Press SELECT button to place the cursor at the Bank Number.

3 Press VALUE button to select the Bank you want to use.

Depending on the Bank selected, 112–119 (VL-XG), 000 (Preset 1), 001 (Preset 2), 002 (Custom) or 003 (Internal) appears at the Bank Number location on the LCD.



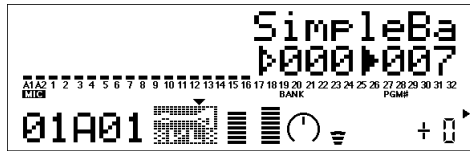
When a VL voice is selected VL voice icon will be displayed on the LCD.



You may unintentionally select a bank number of the “mother” tone generator. Be sure to confirm that the VL voice icon is displayed on the LCD.

4 Press SELECT button to place the cursor at the Program Number.

5 Press VALUE button to select the Program Number (voice) you want to use.



If an invalid Program Change Number is selected while one of the VL-XG Banks (112–119) is chosen, VL voice icon will be replaced with one of the XG voice icons.

■ Designating the Part for the VL Voice

1 Press UTIL button to enter the Utility Mode.

2 Press SELECT button to place the cursor at PLUGIN.

3 Press ENTER.

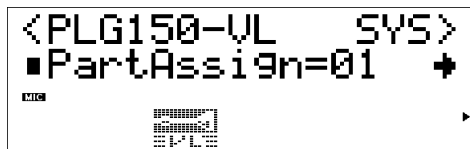
The following display appears.



(If necessary) Press SELECT button to place the cursor at PLG150-VL.

4 Press ENTER.

The System Parameter Edit display exclusive to the PLG150-VL appears.



(If necessary) Press SELECT button to place the cursor at Part Assign.

5 Press VALUE button to select the Part you want to use.

In the XG Mode: 01–16, off

In the Performance Mode: 01–04, off



The VL voices cannot be assigned to several parts at the same time since the PLG150-VL is monophonic.

When you use a sound card or a tone generator with no panel buttons...

To select a part for the VL voice you need to use a sequencing software and transmit the following system exclusive message (part assign parameter) to the “mother” sound card/tone generator:

F0 43 1n 4C 70 nn ss pp F7 (Hexadecimal)

n : Device Number

nn : Plug-in Board Type (PLG150-VL is “00.”)

ss : Serial Number (which identifies the PLG boards when two same boards are installed)

“00” : for the first PLG150-VL

“01” : for the second PLG150-VL

pp : Part Number (to which the PLG150-VL is assigned)

“00” : Part 1

: :

: :

“0F” : Part 16

“7F” : off

Editing VL Voice Part Parameters

Modular Synthesis Plug-in System



The example displays used in the following explanations are all taken from the CS6x.

- See the manual of the synthesizer how to save the edited voices.
- The VL-XG voices edited using XG Editor Window of the "XGworks lite" can be saved as a part of the song data.

1 Select the desired VL voice, as described in "Selecting Voices" on page 15.

2 Press the EDIT button.

The EDIT menu display appears.

```
↓GEN Name> Ctr9ry      a-Z      0-?  Cursor  
Common                [--:Plug-InVce]
```

3 Turn knob A clockwise until "Elem" is shown at the bottom left of the display.

```
↓OSC Assign>          Bank  Number  
Elem                ▶NORM/000  1[ ]
```

4 Turn the PAGE knob clockwise until "PLG150-VL" is shown at the bottom left of the display.

The VL part parameters will be displayed above the knob C and knob 2.

```
±NTV Param>      FileEG Dept  Prs CC NO.  
PLG150-VL        ▶+00                off
```

5 Use knobs C and 2 to select the desired parameter and change the value.

Once one of the parameters is selected (the arrow cursor appears next to the value), you can also adjust the value with the DATA knob or the DEC/INC buttons.



The element parameters available on the "mother" synthesizer/tone generator can also be applied to the VL voices. However, some of them may not be applied to the VL voices.

XG Plug-in System

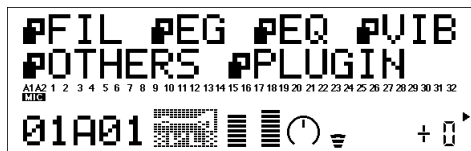
The editings done to the parameters below affect all the voices in the XG mode. In other words the voices cannot be individually edited. The parameter settings are effective even when you select a different voice.



The edited voices cannot be stored in the INTERNAL voice bank. Instead, the VL-XG voices edited using XG Editor Window of the "XGworks lite" can be saved as a part of the song data.

1 Enter the Multi Part Edit Mode.

The sub-mode menu appears on the LCD.



2 Press SELECT button to place the cursor to PLUGIN.

3 Press ENTER.

The Part Parameter Edit display exclusive to the PLG150-VL appears.



4 Press SELECT button to select the parameter you want to edit.

5 Use VALUE button to set the value of the selected parameter as required.

6 Press the EXIT button to quit editing.



The part parameters available on the "mother" tone generator can also be applied to the VL voices except for the following parameters: HPF Cutoff Frequency, EQ Low/High Frequency, Element Reserve and Velocity Limit Low/High.

VL Part Parameter

The parameters below can be divided into the following two types: ones for selecting the controller (Control Number) by which the parameter will be controlled and the others for setting the depth of the parameter. Even though you have designated the controller, you cannot get audible changes if you set the parameter to be controlled to 0 or around 0.

For the relationship between the control numbers and controllers see page 29.

IMPORTANT

When you use a sound card or a tone generator with no panel buttons...

To edit the VL part parameters you need to use a sequencing software and transmit the system exclusive messages shown on the MIDI Data Format (p. 40), to the “mother” sound card/tone generator.

Using the “XGworks lite,” properly installed in your PC (which is connected to the sound card/tone generator) allows you to access almost all the VL part parameters (except for Filter EG Depth) for VL-XG voices through the “XG Editor window.”

1 Filter EG Depth

FileEG Dept (Filter Envelope Generator Depth) Settings: -64 ... +63

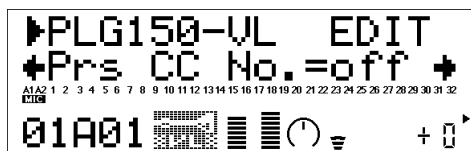
The “FileEG Dept” parameter determines to what degree the amplitude/filter envelope generator affects the filter's cutoff frequency. Higher values allow the envelope generator to vary the filter cutoff frequency over a wider range.



2 Pressure

Prs CC No. (Pressure Control Change Number) Settings: off ... 95, AT, VEL, PB

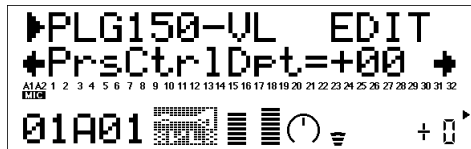
“Pressure” corresponds to the amount of breath pressure applied to a reed or mouthpiece, or the speed of the bow applied to a string. Pressure variations affect both volume and timbre. The “Prs CC No.” parameter specifies the controller to be used for pressure control. When set to “off” maximum pressure is applied at all times.



- Please note that pressure affects not only volume, but timbre and pitch as well. Accurate keyboard/controller pitch is produced only at maximum pressure.

PrsCtrlDpt (Pressure Control Depth) Settings: -64 ... +63

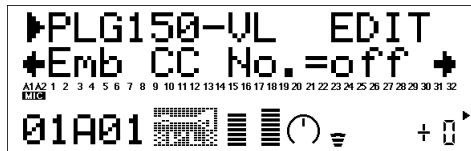
Sets the amount of variation produced by the controller assigned to pressure. The higher the value the greater the variation. Positive values cause an increase in pressure in response to higher controller values (e.g. increased breath pressure or higher modulation wheel position), while minus values cause a decrease in pressure in response to higher controller values.



3 Embouchure

Emb CC No. (Embouchure Control Change Number) Settings: off ... 95, AT, VEL, PB

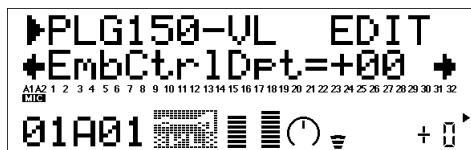
“Embouchure” corresponds to the tightness of the lips against the reed or against each other. In a string instrument voice embouchure corresponds to how strongly the bow is pressed against the string. Affects both pitch and timbre. The “Emb CC No.” parameter specifies the controller to be used for embouchure control. When set to “off” medium embouchure is applied at all times.



- Please note that with many voices accurate keyboard/controller pitch is produced only at medium embouchure.

EmbCtrlDpt (Embouchure Control Depth) Setting: -64 ... +63

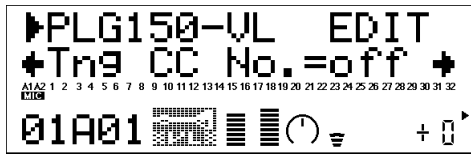
Sets the amount of variation produced by the controller assigned to embouchure. The higher the value the greater the variation. Positive values cause an increase in embouchure in response to higher controller values (e.g. increased breath pressure or higher modulation wheel position), while minus values cause a decrease in embouchure in response to higher controller values.



4 Tonguing

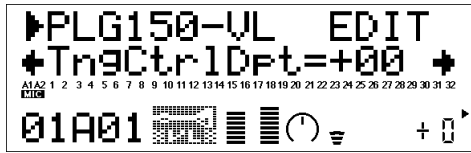
Tng CC No. (Tonguing Control Change Number) Settings: off ... 95, AT, VEL, PB

“Tonguing” simulates the half-tonguing technique used by saxophone players by changing the “slit” of the reed. The slit is the space between the tip of the reed and the mouthpiece. The “Tng CC No.” parameter specifies the controller to be used for tonguing control. When set to “off” no tonguing is applied.



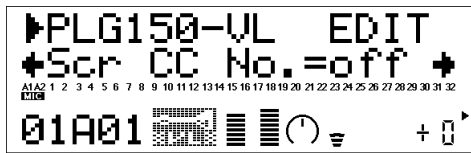
- Please note that accurate keyboard pitch is produced only when maximum tonguing is applied or the tonguing controller is turned off.

TngCtrlDpt (Tonguing Control Depth) Settings: -64 ... +63
 Sets the amount of variation produced by the controller assigned to tonguing. The higher the value the greater the variation. Positive values cause an decrease in tonguing in response to higher controller values (e.g. increased breath pressure or higher modulation wheel position), while minus values cause an increase in tonguing in response to higher controller values.

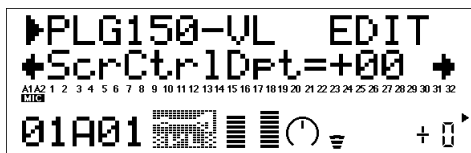


5 Scream

Scr CC No. (Scream Control Change Number) Settings: off ... 95, AT, VEL, PB
 “Scream” drives the entire system into chaotic oscillation, creating effects that can only be achieved with physical modeling technology. The “Scr CC No.” parameter specifies the controller to be used for scream control. When set to “off” no scream variation can be produced via a controller, but a continuous scream value is determined by the “ScrCtrlDpt” parameter, below (negative values increase the scream level).

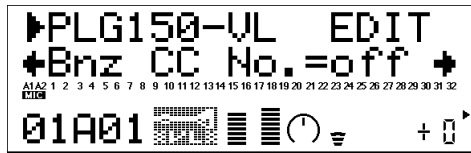


ScrCtrlDpt (Scream Control Depth) Settings: -64 ... +63
 Sets the amount of variation produced by the controller assigned to scream. The higher the value the greater the variation. Positive values cause an increase in scream effect in response to higher controller values (e.g. increased breath pressure or higher modulation wheel position), while minus values cause a decrease in scream effect in response to higher controller values.

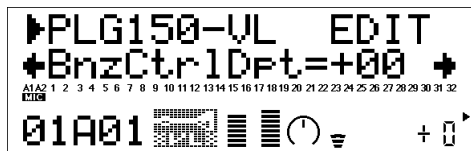


6 Breath Noise

Bnz CC No. (Breath Noise Control Change Number) Settings: off ... 95, AT, VEL, PB
 “Breath Noise” can be used to add the required amount of breath noise to a voice. The “Bnz CC No.” parameter specifies the controller to be used for breath noise control. When set to “off” no breath noise variation can be produced via a controller, but a continuous breath noise value is determined by the “BnzCtrlDpt” parameter, below (negative values increase the breath noise level).

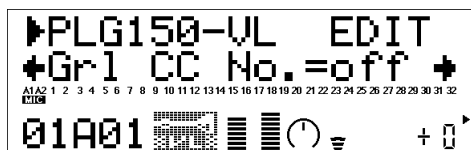


BnzCtrlDpt (Breath Noise Control Depth) Settings: -64 ... +63
 Sets the amount of variation produced by the controller assigned to breath noise. The higher the value the greater the variation. Positive values cause an increase in breath noise in response to higher controller values (e.g. increased breath pressure or higher modulation wheel position), while minus values cause a decrease in breath noise in response to higher controller values.

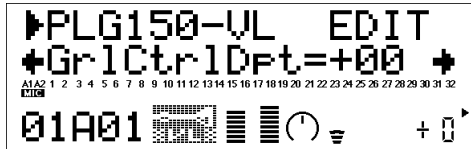


7 Growl

Grl CC No. (Growl Control Change Number) Settings: off ... 95, AT, VEL, PB
 “Growl” produces a periodic pressure modulation which produces the “growl” effect often heard in wind instruments. The “Grl CC No.” parameter specifies the controller to be used for growl control. When set to “off” no growl variation can be produced via a controller, but a continuous growl value is determined by the “GrlCtrlDpt” parameter, below (negative values increase the growl level).

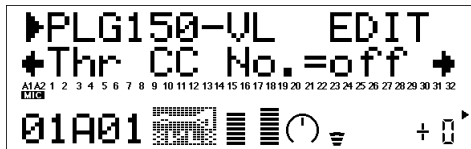


Gr1CtrlDpt (Growl Control Depth) Settings: -64 ... +63
 Sets the amount of variation produced by the controller assigned to growl. The higher the value the greater the variation. Positive values cause an increase in growl effect in response to higher controller values (e.g. increased breath pressure or higher modulation wheel position), while minus values cause a decrease in growl effect in response to higher controller values.



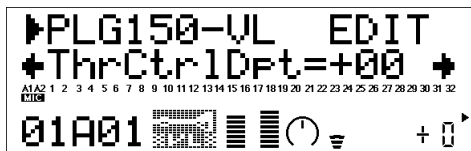
8 Throat Formant

Thr CC No. (Throat Formant Control Change Number) Settings: off ... 95, AT, VEL, PB
 “Throat Formant” controls the characteristics of the simulated player’s lungs, trachea, and oral cavity. Can add a realistic “roughness” to the sound. The “Thr CC No.” parameter specifies the controller to be used for throat formant control. When set to “off” no throat formant variation can be produced via a controller, but a continuous throat formant value is determined by the “ThrCtrlDpt” parameter, below (negative values increase the throat formant level).



- Throat Formant only applies to some reed-type voices.

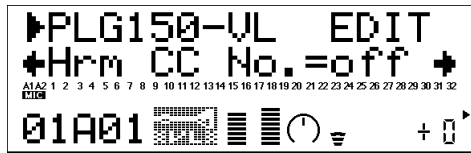
ThrCtrlDpt (Throat Formant Control Depth) Settings: -64 ... +63
 Sets the amount of variation produced by the controller assigned to throat formant. The higher the value the greater the variation. Positive values cause an increase in throat formant effect in response to higher controller values (e.g. increased breath pressure or higher modulation wheel position), while minus values cause a decrease in throat formant effect in response to higher controller values.



9 Harmonic Enhancer

Hrm CC No. (Harmonic Enhancer Control Change Number)

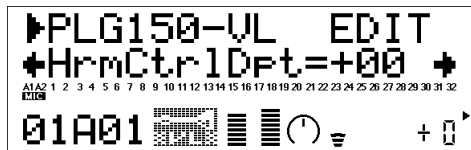
..... Settings: off ... 95, AT, VEL, PB
 The Harmonic Enhancer can vary the harmonic structure of the sound over a wide range. The “Hrm CC No.” parameter specifies the controller to be used for harmonic enhancer depth (wet/dry balance) control. When set to “off” no harmonic enhancer depth variation can be applied via a controller.



- Since most VL voices have sufficient natural harmonic content, the Harmonic Enhancer is actually only used on a few voices. Therefore changing the controller destination with many voices will produce either no change in the sound or a simple change in amplitude.

HrmCtrlDpt (Harmonic Enhancer Control Depth) Settings: -64 ... +63

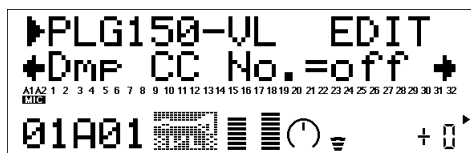
Sets the amount of variation produced by the controller assigned to the harmonic enhancer. The higher the value the greater the variation. Positive values cause an increase in harmonic enhancer depth in response to higher controller values (e.g. increased breath pressure or higher modulation wheel position), while minus values cause a decrease in harmonic enhancer depth in response to higher controller values.



10 Damping

Dmp CC No. (Damping Control Change Number) Settings: off ... 95, AT, VEL, PB

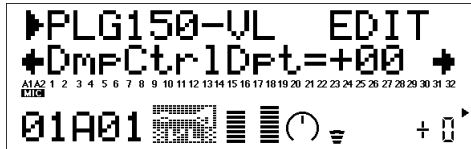
“Damping” simulates the effect of damping due to losses within the body of a wind instrument or in a string due to air friction. Affects both pitch and timbre. The “Dmp CC No.” parameter specifies the controller to be used for damping control. When set to “off” no damping variation can be applied via a controller.



- Please note that accurate keyboard pitch is produced only when damping is maximum.

DmpCtrlDpt (Damping Control Depth) Settings: -64 ... +63

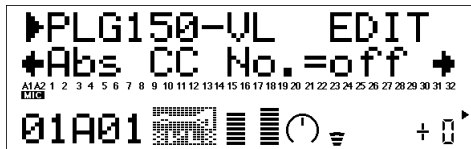
Sets the amount of variation produced by the controller assigned to damping. The higher the value the greater the variation. Positive values cause a decrease in damping in response to higher controller values (e.g. increased breath pressure or higher modulation wheel position), while minus values cause an increase in damping in response to higher controller values.



11 Absorption

Abs CC No. (Absorption Control Change Number) Settings: off ... 95, AT, VEL, PB

“Absorption” simulates the effect of high-frequency loss at the end of the air column or string. The “Abs CC No.” parameter specifies the controller to be used for absorption control. When set to “off” no absorption variation can be applied via a controller.



- Please note that accurate keyboard pitch is produced only at when absorption is maximum.

AbsCtrlDpt (Absorption Control Depth) Settings: -64 ... +63

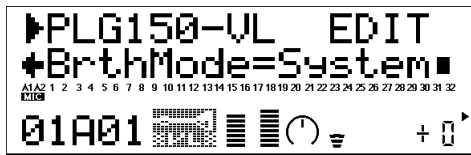
Sets the amount of variation produced by the controller assigned to absorption. The higher the value the greater the variation. Positive values cause a decrease in absorption in response to higher controller values (e.g. increased breath pressure or higher modulation wheel position), while minus values cause an increase in absorption in response to higher controller values.



12 Breath Mode Settings: System, BC/WX, Velocity, Touch EG

Set the control source to be used for "breath" control. This Breath Mode is the same as the one in the VL System Parameters except for the setting, "System." When set to "System," the control source is determined by the setting done in the VL System Parameters.

This parameter should be set to "BC/WX" when a breath controller or Yamaha WX-series Wind MIDI Controller is being used. When set to "Velocity," breath variation is controlled by keyboard initial touch response. When "Touch EG" is selected breath variation is controlled by a combination of initial keyboard touch response and aftertouch pressure. Initial key velocity sets the initial breath level, then aftertouch pressure determines the shape of the subsequent breath envelope.



Expressivity of Each Controller

The expressivity will differ depending on the selected controller.

Original Image of Breathing

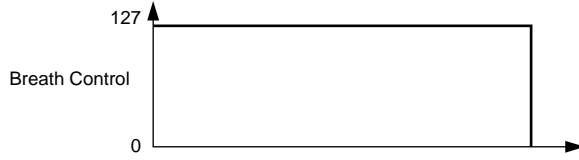


BC/WX



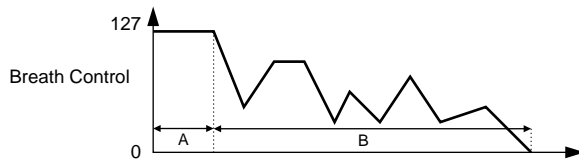
You can accomplish the breathing as you blow the Breath controller.

Velocity



The initial attack determines the sustained breath strength from the beginning through the end.

Touch EG



You can express the portion "A" with the velocity and "B" with the aftertouch.

MIDI Control Number Assignments

Control No.	Controller
off(00)	off (used by Bank Select MSB)
01	Modulation Wheel
02	Breath Controller
03	Unassigned
04	Foot Controller
05	Portamento Time
06	Data Entry MSB
07	Volume Control
08...09	Unassigned
10	Panpot
11	Expression
12...31	Unassigned
off(32)	off (used by Bank Select LSB)
33...37	Unassigned
38	Data Entry LSB
39...63	Unassigned
64	Hold1
65	Portamento Switch
66	Unassigned
67	Soft Pedal
68...70	Unassigned
71	Harmonic Content
72	Release Time
73	Attack Time
74	Brightness
75...90	Unassigned
91	Effect Send Level 1 (Reverb Effect)
92	Unassigned
93	Effect Send Level 3 (Chorus Effect)
94	Effect Send Level 4 (Variation Effect)
95	Unassigned
AT(96)	After Touch
VEL(97)	Velocity
PB(98)	Pitch Bend

VL System Parameters

Modular Synthesis Plug-in System

Five System related parameters for PLG150-VL will be added to the “mother” synthesizer.

NOTE The example displays used in the following explanations are all taken from the CS6x.

1 Press the UTILITY button.

The Utility Mode display appears.

```
↓MSTR TG>   Vol      NoteShift   Tune
Sys         ▶127      + 0 +     0.0c
```

2 Turn the PAGE knob clockwise until “PLG150-VL” is shown at the bottom left of the display.

The VL system parameters will be displayed above the knob C and knob 2.

```
↕PLG1 MIDI>      Clock      DevNo
PLG150-VL        ▶off       1
```

3 Use knobs C and 2 to select the desired VL System parameter and change the value.

Once one of the parameters is selected (the arrow cursor appears next to the value), you can also adjust the value with the DATA knob or the DEC/INC buttons.

XG Plug-in System

Five System related parameters for PLG150-VL will be added to the “mother” tone generator.

1 Press UTIL button to enter the Utility Mode.

The sub-mode menu appears on the LCD.

```
PSYS PDUMP PINIT
PDEMO PPLUGIN
MIC
```



2 Press SELECT button to place the cursor to PLUGIN.

3 Press ENTER.

The following display appears.



(If necessary) Press SELECT button to place the cursor to PLG150-VL.

4 Press ENTER.

The System Parameter Edit display exclusive to the PLG150-VL appears.



5 Press SELECT button to select the parameter you want to edit.

6 Press VALUE button to change its setting.

7 Press the EXIT button to quit editing.

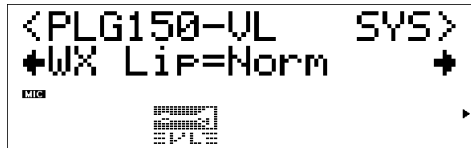
System Parameters

- 1 Part Assign**.....Settings: In the XG Mode: 01...16, off
In the Performance Mode: 01...04 , off
Designates the Part to which the VL voice is assigned.



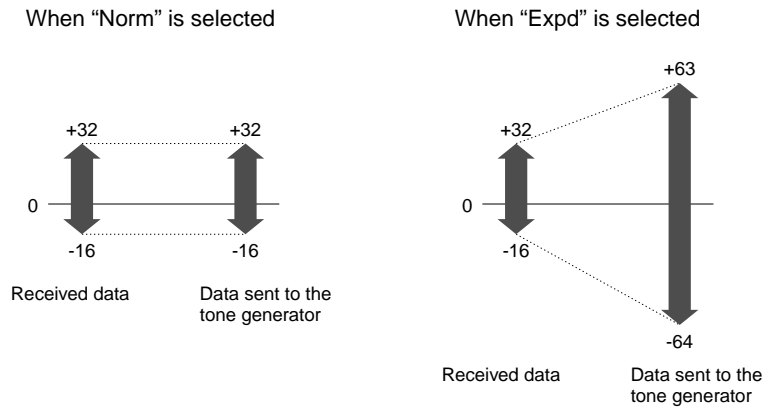
- The VL voices cannot be assigned to several parts at one time since the PLG150-VL is monophonic.
- The SW1000XG doesn't include "Performance" mode.

2 WX Lip ModeSettings: Norm (Normal), Expd (Expand)
 WX-series Wind MIDI Controllers produce pitch bend data ranging from “-16” to “+32” in response to lip (reed) pressure. The “WX Lip” parameter determines whether these values are used as is (“Norm”), or expanded to a full “-64” through “+63” range (“Expd”). The pitch bend data transmitted from the device other than WX-series can be received.

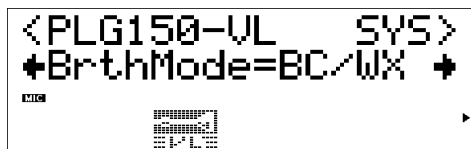


- The “Expd” setting is recommended when using a WX controller in the “tight lip” mode. The “Norm” setting is recommended when using the WX controller “loose lip” mode.
- The settings made here is effective only for the PLG150-VL.

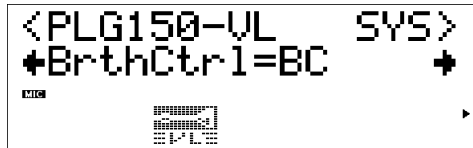
Pitch Bend Range When Using a WX Controller in the “tight lip” Mode



3 Breath ModeSettings: BC/WX, Velocity, Touch EG
 The same parameter, Breath Mode, can be found in the VL Part Parameters. The setting done here is effective only when the Breath Mode in the VL Part Parameters is set to “System.”
 See page 28 for the detailed information on each parameter.

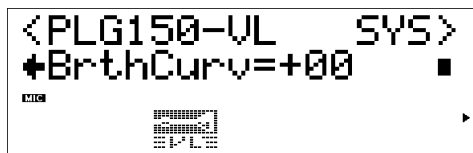


- 4 Breath Control** Settings: BC (Breath Control), Exp (Expression)
 Specifies the MIDI control change number to be used for breath control when breath control is applied from a breath controller or WX-series Wind MIDI Controller. When “BC” is selected control change number “02” (breath control) is used for breath control. When “Exp” is selected control change number “11” (expression) is used for breath control.



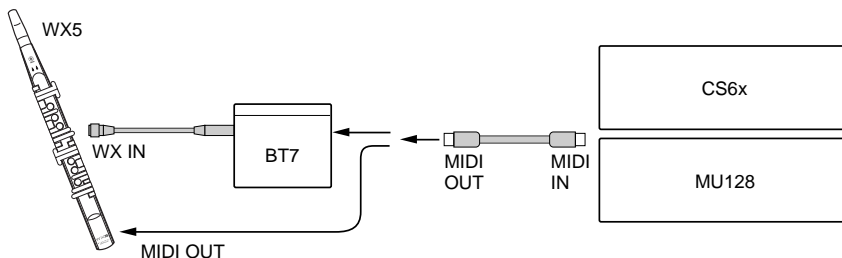
- This parameter is also available for the breath controller data transmitted from a device other than the WX-series.
- This parameter is effective only when “BC/WX” is selected from Breath Mode.

- 5 Breath Curve** Settings: -16 ... +16
 Determines the relationship between breath control data received from a breath controller, WX-series Wind MIDI Controller (via the BT7 and MIDI IN connector), and the actual amount of breath variation applied. Minus settings result in a large breath variation with a relatively small amount of breath pressure applied to the controller, while plus settings required a greater range of input breath control values to produce the same degree of breath variation.



- This parameter is also available for the breath controller data transmitted from the device other than WX-series.
- The settings made here is effective only when “BC/WX” is selected from Breath Mode.

• Connection Between WX-series and “mother” tone generator/sound card



When you use a sound card built into PC...
 To control PLG150-VL using WX-series Wind Controller, select “SW1000 #1 Synthesizer” for the MIDI Thru setting in the System Setup dialog of the “XGworks lite.”

1 Some voices sound as if they are in the original octave even when shifted down an octave.

This is because Virtual Acoustic synthesis accurately simulates the acoustic behaviour of a pipe or string. Simply stated, the harmonic balance of the voice when played in the normal octave is retained even when the voice is shifted down an octave. The change in timbre can be greater or less, depending on the selected voice.

2 Portamento doesn't produce smooth effect on some voices.

Trumpets and some other brass instruments tend to exhibit this phenomenon more than others. In a VA tone generator portamento is produced by lengthening or shortening the instrument's pipe. A trumpet is designed to emphasize the "modes" of the pipe(s) to produce notes over a wide range using only three valves. When portamento is applied to a trumpet voice, the pitch tends to jump from mode to mode, thus producing the observed glissando effect. The same effect occurs with some flute voices. Saxophone modes are not nearly as strong as trumpet modes, but some sax voices do have two definite modes which, when spanned by a portamento slide, can produce irregularities.

3 The filter, EG, and other parameters have more effect on some voices than others.

Most voices use the low-pass filter type, but some use the bandpass or high-pass type. Some voices use very little filter processing at all. Changing the filter settings may not produce a particularly noticeable effect. Also the Breath Noise, Throat Formant, Growl, Harmonic Enhancer and Pitch EG parameter settings cannot have a significant effect on some voices.

4 Some bowed string instrument voices tend to "squeak."

As anyone who has played (or tried to play) a real violin knows, these instruments naturally tend to squeak if not properly controlled. The same occurs with VA synthesis. As with a real bowed string instrument, bow speed and pressure must be properly controlled to produce the desired sound. Bow speed is usually controlled either via breath control or an expression pedal. Bow pressure is controlled via control number 13: "64" is medium pressure, lower values produced reduced bow pressure, and higher values produce increased bow pressure.

5 Pitch bends produced by a pitch bend wheel are not always accurate.

Natural acoustic musical instruments have no “pitch parameter.” Pitch is determined by the properties of the instrument’s resonant body as well as the condition of the instrument’s driver. The same applies to Virtual Acoustic Synthesis: in the pitch bend is simulated by manipulating the appropriate pipe/string length and driver characteristics. As a result, the pitch bend range may not always be “mathematically” accurate.

With reed instruments such as saxophone or clarinet, highly realistic pitch bends are produced by controlling both pitch and embouchure at the same time. Since the embouchure component of the pitch bend behaves with characteristics acoustic unpredictability, precise pitch bends are not always produced.

6 Some voices don’t respond as expected to EG edits.

The effect of editing envelope generator parameters may not always be as expected — particularly with plucked string instrument voices such as guitar or bass. This is because the VL actually simulates the plucking, free oscillation, and muting of the strings rather than simply using an EG to approximate these events. If the sound of a string voice decays naturally, for example, setting a long release time will have little or no effect on the actual sound of the voice. Since the attack and decay portions of the voice also have natural timbre variations, these can be unnaturally altered by inappropriate EG settings — which is OK if you’re trying to produce an unnatural effect. Trial and experimentation and the only sure ways to determine how the EG parameters are going to affect a particular voice.

7 The PLG150-VL is a monophonic tone generator. Why is the “poly” mode initially selected when the VL-XG sound module mode is engaged?

This is to provide compatibility between the current XG format and future polyphonic VL-series tone generators. It also provides a certain degree of compatibility to allow playback of VL-XG song data on existing tone generators which do not feature the VL-XG extension. Specifically, to switch the PLG150-VL to the mono mode a “mono mode” command (control change no.126, value 0-16) is embedded in the song data which, when received by a 32-note or 64-note polyphonic XG tone generator, switches the appropriate parts to the mono mode. The same will apply to future polyphonic VL-series tone generators, so no changes will be required. The PLG150-VL therefore has a “poly” which is automatically selected when a MIDI “XG on” system exclusive message is received.

VL-XG Voice List Bank Select MSB=81, 97

Instrument Group	Pch#	Bank 112	Bank 113	Bank 114	Bank 115	Bank 116	Bank 117	Bank 118	Bank 119
Organ	22	Squeeze							
	23	MouthKey	AmpdHarp	CromHarp					
Guitar	25	Spanish							
	27	JazzGtr!	Carlos	Destiny					
	28	L7 Pluck	WetPluck						
Bass	33	Upright							
	34	Fnground	Birdland						
	35	FlageoBs	DampBass						
	36	Fretles!	Frtles!2						
	37	New Slap	ThumBass						
	39	AcidBas!	SqrBass!						
	40	PulsClav	MogueBas						
Strings	41	NuViolin	Viol Inn	C Violin	BrtVioln	MuteViol			
	42	BrtViola	ViolOutt						
	43	Cello!	Eleanor	Nu Cello					
	44	Contrair	DoublBow						
Brass	57	Trumpet!	Trumpt!2	FluglHr!	Cornet				
	58	Trmbone!	Melwbone						
	59	Tuba!							
	60	MuteTp!	MuteTp!2						
	61	Horn!	Horn!2						
Reed	65	SoprSax!	CvSopSax	SoprPipe	LiteSopr				
	66	AltoSax!	SweetAlt	LiteAlto	HarpAlto	HarpAlt2	GlassAlt		
	67	TenrSax!	MildTenr	Jazz Sax	TenorSub	BellMike	GlasTenr	FnkyTenr	OldTenor
	68	BariSax!	VoxoSaxo						
	69	Oboe!	Oboe!2	DblReedy	TripleRd				
	70	EngHorn!	Loboe						
	71	Bassoon!	Flurinet						
Pipe	72	Clarint!	LitePipe	HyperCla					
	73	Piccolo!	Piccol!2	BowPicol					
	74	C Flute	C Flute2	JazFlute	OakFlute				
	75	Recordr!	Claricrd	SoftPipe					
	76	Pan Pipe	PanPicol						
	77	YamaBotl	Bamboo	Andean	BtlFlute	BtlFlut2			
	78	Shakuha!							
	79	BowedSaw							
	80	Ocarina!							
Synth Lead	81	50 / 50	ChalPuls	PluckLd					
	82	Brassyn	AcoSynLd	VintgLd					
	83	Maysbe?	Air Sax	Baroquen	LipClari				
	84	Grunge	Ossyncro	Talk Box					
	85	MizuHorn	Floboe						
	86	SoftReed	BrethBow						
	88	Chamlion	Old Mini						
Ethnic	105	Sitar!	India						
	110	Chanter	ThaiReed						
	111	JetLpBow							
Percussive	115	YamSteel							

* When the Bank Select MSB is set to "81," the voices of the Bank 112 will be used and played for the above empty spaces of each bank. When the Bank Select MSB is set to "97," the voices of the Bank 1 of the XG tone generator will be used and played for the above empty spaces of each bank.

Bank Select MSB=81

Instrument	Pch#	Bank 112	Bank 113	Bank 114	Bank 115	Bank 116	Bank 117	Bank 118	Bank 119
Synth Effects	97	Mad Tube							
	98	StoneHng							
	99	Mu							
	100	Moby							
	101	Igneous							
	102	SquealAT							
Sound Effects	121	Jurassic							
	122	Formula							
	123	Waterphn							
	124	Devil							
	125	SpchHorse							
	126	DinoPerc							
	127	SpaceZoo							
	128	Jason							

* When the Bank Select MSB is set to "81," the voices of the Bank 112 will be used and played for the above empty spaces of each bank. When the Bank Select MSB is set to "97," the voices in the above list is not available.

■ Preset 1 Voice List

Voice No.	Voice Name	Recommended Range	Voice No.	Voice Name	Recommended Range	Voice No.	Voice Name	Recommended Range
001	Mad Tube	C0-B3	044	SqrBass!	B-2-G3	087	Old Mini	A-1-A5
002	VintgLd	B-1-C6	045	PulsClav	A-1-G5	088	Fat Mini	G-1-A5
003	SpaceZoo	***	046	MogueBas	B-2-C#6	089	Parlopho	B-1-C5
004	GuittHero	G-1-C4	047	BoppaBas	B-2-C3	090	SimpleSy	B-1-E5
005	StoneHng	F0-G6	048	BuzzrBas	D-1-E3	091	Choronic	C-1-G4
006	Whizzer	G#-1-F#4	049	MuteHrBs	C-1-C4	092	SlitMinu	F0-C6
007	SimpleBa	C-1-C5	050	TekBass	B-2-C3	093	SynHarmo	B-2-G5
008	ClavBass	C-1-E2	051	TranzBas	C-1-F#3	094	Flaggoot	C-1-D3
009	SuperBas	C-1-F#2	052	Chamlion	C-1-B3	095	SynSkex	C-1-A#4
010	New Slap	C-1-D4	053	ParaSyn	A-2-C3	096	ResoSqr	A-2-D4
011	RockPigs	C-1-E3	054	SteamBas	C-1-C#6	097	WurlLd	B-1-C6
012	Igneous	C0-C5	055	BooBass	B-2-C4	098	FlatLead	G#1-G5
013	50 / 50	C0-F5	056	WheIkBas	E-2-C#4	099	PhilTur	B-1-C6
014	Cybastrg	C-2-C5	057	AtackSyn	G0-B4	100	ChalPuls	B-1-C6
015	Wynth	A-1-G5	058	Q.Klav	A-2-C#3	101	Pluck Ld	B-1-C6
016	BuzzSaw	E-1-C6	059	Sitar!	G-1-E3	102	BrassySyn	B-1-C6
017	ZubZub	B-1-C6	060	India	F#-1-C5	103	AcoSynLd	A-1-C6
018	Blue	G-1-D2	061	YamSteel	A2-C6	104	Moby	G-2-F4
019	OsciLead	C-1-G4	062	StungSt	F#0-B5	105	Digitrn	C0-C6
020	SqrLead	D#0-C6	063	Mu	***	106	LyricOff	B-1-C6
021	Bigger	C-1-C6	064	Waterphn	***	107	Rezzawi	B-1-G5
022	AnaSquid	G-2-C5	065	DinoPerc	***	108	Macro	B-1-C6
023	SharpSyn	G-1-C5	066	Formula	***	109	Claribo	G#-1-G5
024	AnaWave	C-1-E3	067	Jurassic	***	110	Binaphon	C0-C6
025	AnaWurl	C-1-C5	068	Devil	***	111	MokoPipe	C-1-C5
026	Babalog	C0-C6	069	SpchHorse	***	112	AliBaba	B-1-C6
027	FngerBass	B-2-C3	070	Jason	***	113	Persinet	B-1-G5
028	Upright	B-2-C3	071	Suedhead	F-2-C5	114	PicoPipe	Ab0-C6
029	Fnground	A-2-C3	072	Spanish	F-1-E4	115	Gertrude	C0-C6
030	Birdland	A-2-C3	073	JazzGtr!	B-1-A4	116	Xynth	G-1-C6
031	FlageoBs	G-1-C3	074	JazzyGtr	A-1-C6	117	Duality	G-1-C6
032	DampBass	G-2-C2	075	L7 Pluck	B-1-E4	118	AltKwek	G#2-C8
033	Fretles!	E-2-C3	076	WetPluck	B-1-E4	119	Softblow	C-1-C5
034	Frtles!2	B-2-C#3	077	Comp Gtr	B-1-A4	120	AlbaPipe	C0-C6
035	ThumBass	C-1-C2	078	FunkyGtr	B-1-D5	121	Electrum	C0-C6
036	RockBass	G-2-C3	079	Thin Gtr	B-1-G5	122	Edgeopho	B-1-F5
037	SmooBass	B-2-A#2	080	Carlos	B-1-G4	123	BassCla!	C0-C6
038	WarmBass	B-2-C3	081	Destiny	C0-C5	124	WX Clari	C1-C6
039	YamaBass	A-2-C3	082	Gonzo	B-1-G5	125	WX Oboe	C0-B5
040	Box Bass	C-1-C3	083	Grunge	C0-B6	126	WX J Gtr	C0-A4
041	BassCab	B-2-G#3	084	Ossyncro	B-2-G4	127	Shakuha!	C1-C6
042	FruitBas	C-1-C3	085	Talk Box	F#0-E7	128	LipClari	F-1-C6
043	AcidBas!	B-2-C4	086	SyncLed	B-1-E6			

■ Preset 2 Voice List

Voice No.	Voice Name	Recommended Range
001	Vento	C0-C6
002	Floboe	C0-C6
003	Sintax	F0-G5
004	Eastern	E0-C6
005	Trumpet!	C0-C6
006	SoprSax!	C0-C6
007	LiteAlto	E0-C6
008	Trmbone!	C0-C6
009	BtlFlute	C0-C6
010	Air Sax	G0-C6
011	TenrSax!	C-1-C5
012	Coca	C1-C6
013	JetLpBow	A-1-C6
014	Viol Inn	C0-C6
015	MuteCone	G0-C6
016	BrethBow	B-1-C6
017	Trumpt!2	C0-C6
018	FluglHr!	C0-C6
019	Cornet	C0-C6
020	JzTrump	F#2-C6
021	JzTrump2	G#1-C6
022	Flumpet	D0-C6
023	WXTrumpt	C0-C6
024	MuteTp!	E0-C6
025	MuteTp!2	C0-C6
026	Melwbone	C0-C6
027	NerzoBr	E0-C6
028	Horn!	B-1-C6
029	Horn!2	C0-C6
030	NuHorne	B-1-C6
031	WX Horn	B-2-C5
032	Tuba!	C-1-C5
033	NuViolin	C0-C6
034	C Violin	C0-C6
035	BrtVioln	C0-C6
036	MuteViol	C0-C6
037	BrtViola	C0-C6
038	ViolOutt	C0-C6
039	Cello!	C-1-C4
040	Eleanor	C-1-C4
041	Nu Cello	B-2-C5
042	Contrair	A-2-C4
043	DoublBow	A-2-C4
044	Piccolo!	C0-C7
045	Piccol!2	C0-C7
046	BowPicol	C0-G6
047	C Flute	C0-C6
048	C Flute2	C0-C6
049	JazFlute	B-1-C6
050	OakFlute	E0-C6
051	BtlFlut2	C0-C6
052	RzdeFlt	E0-C6
053	Flutuen	G1-C6
054	Nz Flute	C0-C6
055	WX Shaku	C1-C6
056	Pan Pipe	E0-G5
057	PanPicol	C0-G6
058	Bamboo	C0-C6
059	Andean	C0-C6
060	Flurinet	F0-C6
061	SoftReed	C0-C6
062	Flurmod	F0-B5
063	Jhopali	G0-C5
064	Baroquen	C-1-C5

Voice No.	Voice Name	Recommended Range
065	SquealAT	C0-C6
066	NuSopSax	C0-G5
067	CvSopSax	A-1-C6
068	SoprPipe	F0-C6
069	LiteSopr	E0-C6
070	AnaSoprnr	F0-C6
071	NuAltSax	C0-C5
072	SweetAlt	F#0-E5
073	AltoSax!	E0-C6
074	HarpAlto	G0-C6
075	HarpAlt2	G0-C6
076	GlassAlt	C0-C6
077	AcidSax	C0-C6
078	WackSax	G#0-E5
079	NuTenrSx	D-1-E4
080	MildTenr	C-1-C5
081	Jazz Sax	A#-1-E4
082	TenorSub	A#-1-A4
083	BellMike	C-1-C4
084	GlasTenr	G-1-E4
085	FnkyTenr	C-1-G4
086	OldTenor	C-1-A4
087	BrtTenor	C-1-C5
088	BariSax!	C-1-C4
089	VoxoSaxo	C-1-C4
090	Oboe!	F0-C6
091	Oboe!2	C0-C6
092	Noboe	C0-G5
093	OboeWhi	G2-G7
094	DblReedy	C0-A5
095	TripleRd	C0-C6
096	EngHorn!	C0-C6
097	Loboe	C0-C6
098	Bassoon!	C-1-C4
099	Clarint!	A0-C6
100	LitePipe	C0-C6
101	HyperCla	C0-C6
102	Clarint2	F0-C6
103	IslePipe	C1-C5
104	Chanter	D1-C6
105	ThaiReed	C0-C5
106	Recordr!	C0-A5
107	Claricrd	C0-C5
108	SoftPipe	G0-C5
109	BowdSaw	C0-C5
110	Ocarina!	F1-C8
111	Lonely	C#3-E7
112	Ophelia	C0-C6
113	Maysbe?	D#0-A5
114	MizuHorn	C0-C6
115	PicoStrg	G#0-C5
116	Sylophon	C0-C5
117	BowLead	C-1-C5
118	Squeeze	C0-C6
119	MouthKey	C0-C6
120	AmpdHarp	C0-C6
121	CromHarp	A-1-C6
122	WahUpHp	B-1-C6
123	YamaBotl	A#-1-C6
124	Blowsoo	G-2-C4
125	Brappo	C-1-C4
126	Crumbon	E0-G5
127	Klarina	E0-B5
128	ReedWin	E0-C6

■ VL Plug-in Voice Data (provided by Floppy Disk)

For PLG1/2 Slot : Wind Instrument Voices (01PlgV1A.mid, 01PlgV1C.mid, 01PlgV2A.mid, 01PlgV2C.mid)

No.	Category	Voice Name	No.	Category	Voice Name	No.	Category	Voice Name	No.	Category	Voice Name
1	Br	Trumpet 1	17	Br	Tuba	33	Pi	Piccolo	49	Ld	Floboe
2	Br	Trombone	18	Rd	SopranoSax	34	Pi	Pan Pipe	50	Ld	TripleReed
3	Rd	Alto Sax	19	Rd	Cv SopSax	35	Pi	Bamboo	51	Ld	Lite Pipe
4	Rd	TenorSax 1	20	Rd	SoprnoPipe	36	Pi	Recorder	52	Ld	Hyper Cla
5	Rd	Clarinet	21	Rd	Sweet Alto	37	Pi	Isle Pipe	53	Ld	Lip Clari
6	Rd	Oboe	22	Rd	Lite Alto	38	Ld	VoxoSaxo	54	Ld	Chanter
7	Pi	C Flute	23	Rd	Glass Alto	39	Ld	AnaSoprano	55	Ld	Thai Reed
8	Pi	Shakuhachi	24	Rd	TenorSax 2	40	Ld	Air Sax	56	Ld	Bowed Saw
9	Pi	Ocarina	25	Rd	Tenor Sub	41	Ld	Sintax	57	Or	Squeeze
10	St	Violin 1	26	Rd	BellMike	42	Ld	JetLipBow	58	Or	Crom Harp
11	Br	Trumpet 2	27	Rd	Old Tenor	43	Ld	AltKwek	59	Or	Amped Harp
12	Br	FlugelHorn	28	Rd	BaritonSax	44	Ld	Noboe	60	Or	WahUp Harp
13	Br	JzTrumpet	29	Rd	Eng Horn	45	Ld	Flurinet	61	St	Violin 2
14	Br	MuteTrumprt	30	Rd	Bassoon	46	Ld	Soft Reed	62	St	Brt Violin
15	Br	NerzoBrass	31	Rd	Bass Cla	47	Ld	Flumod	63	St	Cello 1
16	Br	Horn	32	Pi	Jazz Flute	48	Ld	Baroquen	64	St	Cello 2

For PLG1/2 Slot : Keyboard Voices (01PlgV1B.mid, 01PlgV2B.mid)

No.	Category	Voice Name	No.	Category	Voice Name	No.	Category	Voice Name	No.	Category	Voice Name
1	Ld	Mad Tube	17	Ld	Talk Box	33	Ba	Boo Bass	49	Ld	Alba Pipe
2	Ld	VintageLd	18	Ld	Old Mini	34	Gt	Spanish	50	Ld	Electrum
3	Ld	Igneous	19	Ld	Parlophone	35	Gt	JazzGuitar	51	Ld	Edgeophone
4	Ld	50/50	20	Ld	WurliLead	36	Gt	L7 Pluck	52	Ld	Maysbe
5	Ba	SimpleBass	21	Ld	AcoSynLead	37	Gt	ThinGuitar	53	Ld	Mizu Horn
6	Ba	New Slap	22	Ld	Digitron	38	Gt	Destiny	54	Ld	Sylophone
7	Gt	GuitarHero	23	Ld	Lyric Off	39	Ld	Macro	55	Fx	Stonehenge
8	Sc	Q.Klav	24	Ld	Rezzawi	40	Ld	Binaphone	56	Fx	Moby
9	Et	Sitar	25	Ba	FingerBass	41	Ld	AliBaba	57	Se	Mu
10	Et	Steel Drum	26	Ba	Upright	42	Ld	Pico Pipe	58	Se	Suedhead
11	Ld	Buzz Saw	27	Ba	Birdland	43	Ld	Gertrude	59	Se	Dino Perc
12	Ld	Ana Wave	28	Ba	Damp Bass	44	Ld	Moko Pipe	60	Se	Waterphone
13	Ld	Osci Lead	29	Ba	Bass Cab	45	Ld	Persinet	61	Se	Space Zoo
14	Ld	SquareLead	30	Ba	Acid Bass	46	Ld	Xynth	62	Se	Formula
15	Ld	Babalog	31	Ba	Tranz Bass	47	Ld	Duality	63	Se	Jurassic
16	Ld	Ossyncro	32	Ba	Steam Bass	48	Ld	Softblow	64	Se	Jason

Br : brass Rd : reed Pi : pipe St : strings Or : organ Gt : guitar Ba : bass
Et : ethnic Ld : synth lead Fx : synth effects Se : sound effects Sc : synth comp

■ Voices Used for MSPS Demonstration Song

No.	Category	Voice Name	group	No.	Category	Voice Name	group
1	Rd	TenorSax 1	Wind Instrument	14	Ld	AliBaba	Keyboard
2	Rd	Alto Sax	Wind Instrument	15	Pi	Bamboo	Wind Instrument
3	Rd	SopranoSax	Wind Instrument	16	Ld	Thai Reed	Wind Instrument
4	Pi	Jazz Flute	Wind Instrument	17	Ld	Maysbe	Keyboard
5	Pi	Shakuhachi	Wind Instrument	18	Ld	Floboe	Wind Instrument
6	Br	Trumpet 1	Wind Instrument	19	Ld	Soft Reed	Wind Instrument
7	Br	Trombone	Wind Instrument	20	Ld	Hyper Cla	Wind Instrument
8	Gt	Spanish	Keyboard	21	Ld	Mizu Horn	Keyboard
9	Ba	Damp Bass	Keyboard	22	Ld	Sylophone	Keyboard
10	Sc	Q.Klav	Keyboard	23	Ld	AcoSynLead	Keyboard
11	Et	Sitar	Keyboard	24	Se	Jason	Keyboard
12	St	Cello 2	Wind Instrument	25	Se	Jurassic	Keyboard
13	Or	Amped Harp	Wind Instrument	26	Se	Waterphone	Keyboard

Br : brass Rd : reed Pi : pipe St : strings Or : organ Gt : guitar Ba : bass
Et : ethnic Ld : synth lead Fx : synth effects Se : sound effects Sc : synth comp

MIDI Data Format

1. KEY ON / KEY OFF

Status: 9nH/8nH

If the Part Parameter Rcv NOTE MESSAGE = OFF, that Part will ignore Key ON and Key OFF messages.

2. PROGRAM CHANGE

Status: CnH

If the Part Parameter Rcv PROGRAM CHANGE = OFF, that Part will not receive Program Change Messages.

3. PITCH BEND

Status: EnH

If the Part Parameter Rcv PITCH BEND = OFF, that Part will not receive Pitch Bend Messages.

4. CONTROL CHANGE

Status: BnH

If the Part Parameter Rcv CONTROL CHANGE = OFF, that Part will not receive Control Change Messages.

<Bank Select MSB/LSB> 00H/20H

Cntrl#	parameter	Data Range
0	Bank Select MSB	33: Preset1/ Preset2/ Custom/ Internal 81: VL-XG non alternative voice. 97: VL-XG alternative voice.
32	Bank Select LSB	0 :Preset1 1 :Preset2 2 :Custom 3 :Internal 112..119: VL-XG Alternative or non alternative variation.

If the Part Parameter Rcv BANK SELECT = OFF, that Part will not receive Bank Select Messages. A new bank selection will not become effective until the next Program Change is received.

<Modulation> 01H

Cntrl#	parameter	Data Range
1	Modulation	0...127

If the Part Parameter Rcv MODULATION = OFF, that Part will not receive Modulation Messages.

<Breath Controller> 02H

Cntrl#	parameter	Data Range
2	Breath Controller	0...127

<Foot Controller> 04H

Cntrl#	parameter	Data Range
4	Foot Controller	0...127

<Portamento Time> 05H

Cntrl#	parameter	Data Range
5	Portamento Time	0...127

When the Portamento parameter = ON, values will adjust the speed of pitch change. A setting of 0= minimum portamento time, and 127 = maximum portamento time.

<Data Entry MSB/LSB> 06H/26H

Cntrl#	parameter	Data Range
6	Data Entry MSB	0...127
38	Data Entry LSB	0...127

Messages which set the value for the parameter specified by RPN, NRPN.

<Main Volume> 07H

Cntrl#	parameter	Data Range
7	Main Volume	0...127

If the Part Parameter Rcv MAIN VOLUME = OFF, that Part will not receive Main Volume Messages.

<Pan> 0AH

Cntrl#	parameter	Data Range
10	Panpot	0...127

If the Part Parameter Rcv PAN = OFF, that Part will not receive Pan Pot Messages. 1=Left, 127=Right; 0=Center

<Expression> 0BH

Cntrl#	parameter	Data Range
11	Expression	0...127

If the Part Parameter Rcv EXPRESSION = OFF, that Part will not receive Expression Messages.

<Control Change 13> 0DH

Cntrl#	parameter	Data Range
13	Control Change13	0...127

<Hold1> 40H

Cntrl#	parameter	Data Range
64	Hold1	0...127 (0-63:Off, 64-127:On)

If the Part Parameter Rcv HOLD 1 = OFF, that Part will not receive Hold 1 Messages.

<Portamento> 41H

Cntrl#	parameter	Data Range
65	Portamento	0...127 (0-63:Off, 64-127:On)

If the Part Parameter Rcv PORTAMENTO = OFF, that Part will not receive Portamento Messages. If the Portamento parameter = ON, values will adjust the speed of the portamento. If the Mono mode is activated and Portamento = ON, the Single Trigger Mode will be activated. If not, the Multi-Trigger Mode will be effective.

<Soft Pedal> 43H

Cntrl#	parameter	Data Range
67	Soft Pedal	0...127 (0-63:Off, 64-127:On)

If the Part Parameter Rcv SOFT PEDAL = OFF, that Part will not receive Soft Pedal Messages. When the SOFT PEDAL is set "ON" the effect will take place from the next Key On signal. Messages will control the Filter Cutoff Frequency. Depending upon the Voice, the effect may or may not have an effect.

<Harmonic Content> 47H

Cntrl#	parameter	Data Range
71	Harmonic Content	0...127 (0-64, 64:+0, 127:+63)

Messages which adjust the resonance set for each. Based on a standard of 64, these values will be added to or subtracted from the Voice data. Depending on the Voice, the effective range may be narrower.

<Release Time> 48H

Cntrl#	parameter	Data Range
72	Release Time	0...127 (0-64, 64:+0, 127:+63)

Messages which adjust the envelope release time. Based on a standard of 64, values will be added to or subtracted from the Voice data. Depending on the Voice, the effective range may be narrower.

<Attack Time> 49H

Cntrl#	parameter	Data Range
73	Attack Time	0...127 (0-64, 64:+0, 127:+63)

Messages which adjust the envelope attack time. Based on a standard of 64, values will be added to or subtracted from the Voice data. Depending on the Voice, the effective range may be narrower.

<Brightness> 4AH

Cntrl#	parameter	Data Range
74	Brightness	0...127 (0-64, 64:+0, 127:+63) Default:40H

Messages which adjust the filter cutoff frequency. Based on a standard of 64, values will be added to or subtracted from the Voice data. Depending on the Voice, the effective range may be narrower.

<Data Increment / Decrement> 60H/61H

Cntrl#	parameter	Data Range
96	Increment	0...127
97	Decrement	0...127

The data byte is ignored.

RPN messages which increase or decrease the MSB value of the parameter by 1.

<NRPN (Non-Registered Parameter Number) LSB/MSB> 62H/63H

Cntrl#	parameter	Data Range
98	NRPN LSB	0...127
99	NRPN MSB	0...127

If the Part Parameter Rcv NRPN = OFF, that Part will not receive NRPN Messages.

First send the NRPN MSB and NRPN LSB to specify the parameter which is to be controlled. Then use the Data Entry to set the value of the specified parameter.

The following NRPN numbers can be received.

NRPNData-entry		MSB	LSB	MSB	parameter	Data Range
01H	08H	mmH			Vibrato Rate	mm:00H-40H-7FH (-64-0+63)
01H	09H	mmH			Vibrato Depth	mm:00H-40H-7FH (-64-0+63)
01H	0AH	mmH			Vibrato Delay	mm:00H-40H-7FH (-64-0+63)

The Rate, Depth, and Delay Time for the Vibrato is controlled.

01H	20H	mmH			Filter Cutoff Frequency	mm:00H-40H-7FH (-64-0+63)
01H	21H	mmH			Filter Resonance	mm:00H-40H-7FH (-64-0+63)
01H	22H	mmH			Filter EG Depth	mm:00H-40H-7FH (-64-0+63)

The Cut-off frequency, Resonance, and Envelope Depth for the Filter is controlled.

01H	30H	mmH			Bass	mm:00H-40H-7FH (-64-0+63)
01H	31H	mmH			Treble	mm:00H-40H-7FH (-64-0+63)

The Bass and Treble are controlled.

01H	63H	mmH			EG Attack Time	mm:00H-40H-7FH (-64-0+63)
01H	64H	mmH			EG Decay Time	mm:00H-40H-7FH (-64-0+63)
01H	66H	mmH			EG Release	mm:00H-40H-7FH (-64-0+63)

The Attack time, Decay time, and Release time for the Envelope are controlled. Based on a standard of 64, values will be added to or subtracted from the Voice data. Depending on the Voice, the effective range may be narrower.

<RPN (Registered Parameter Number) LSB/MSB> 64H/65H

Cntrl#	parameter	Data Range
100	RPN LSB	0...127
101	RPN MSB	0...127

If the Part Parameter Rcv RPN = OFF, that Part will not receive RPN Messages.

In correspondence to the following parameters.

LSB	MSB	MSB	parameter	Data Range
00H	00H	mmH	Pitch Bend Sensitivity	mm:00H-18H (0-+24) Default:02H
01H	00H	mmH	Fine Tune	mm:00H-40H-7FH (-64-0+63) Default : 40H 00H
02H	00H	mmH	Coarse Tune	mm:28H-40H-58H (-24-0+24) Default : 40H 00H
7FH	7FH	—	Null	—

5. CHANNEL MODE MESSAGES

<All Sounds Off> 78H

Cntrl#	parameter	Data Range
120	—	0

Terminates all sounds currently sounding. However, the status of channel messages are maintained.

<Reset All Controllers> 79H

Cntrl#	parameter	Data Range
121	—	0

The values of the following controllers will be reset to the defaults.

Pitch Bend	Center
Channel Aftertouch	0
Modulation	0
Breath Control	Max
Foot Control	Max
Expression	Max
Control Change 13	Center
Hold 1	Off
Portamento	Off
Soft Pedal	Off
RPN	Null

<All Notes Off> 7BH

Cntrl#	parameter	Data Range
123	—	0

Terminates all notes currently on. However, if Hold 1 is on, notes will continue sounding for the time set previously.

<Omni Off> 7CH

Cntrl#	parameter	Data Range
124	—	0

Performs the same function as when an All Notes Off message is received.

<Omni On> 7DH

Cntrl#	parameter	Data Range
125	—	0

Performs the same function as when an All Notes Off message is received. It will not activate OMNI ON.

<Mono> 7EH

Cntrl#	parameter	Data Range
126	Mono	0..16

Performs the same function as when an All Sounds Off message is received, and if the 3rd byte (mono number) is in the range of 0 - 16, and sets the instrument to Mono Mode.

<Poly> 7FH

Cntrl#	parameter	Data Range
127	—	0

Performs the same function as when an All Sounds Off message is received, and sets the instrument to Poly mode.

6. CHANNEL AFTERTOUCH

Status: DnH

If the Part Parameter Rcv CHANNEL AFTER TOUCH = OFF, that Part will not receive Channel After Touch Messages.

7. SYSTEM EXCLUSIVE MESSAGES

If the Part Parameter Rcv SYSTEM EXCLUSIVE = OFF, that Part will not receive System Exclusive Messages.

<UNIVERSAL REALTIME MESSAGES>

1)MIDI Master Volume(receive only)

F0H, 7FH, xnH, 04H, 01H, 11H, mmH, F7H
 xn : n=Device Number, xn=7F : Broadcast
 ll : Master Volume LSB
 mm : Master Volume MSB

When received, the Volume MSB will be effective for the System Parameter MASTER VOLUME.

2)General MIDI System On (receive only)

F0H, 7EH, 7FH, 09H, 01H,F7H or F0H, 7EH, xnH, 09H, 01H, F7H
 xn : n=Device Number

<PARAMETER CHANGE>

[VL70-m Native Format]

F0H, 43H, 1nH, 57H, ahH, amH, alH, ddH, ~, ddH, F7H
 1n : n=Device Number
 ah : Address High
 am : Address Mid
 al : Address Low
 dd : Data

- 1) VL System Parameters See <Table 3>
- 2) Current Voice / Common Misc Parameters See <Table 4>
- 3) VL Part Parameters See <Table 6>
- 4) Current Voice / Element Parameters See <Table 8>

[XG Format]

F0H, 43H, 1nH, 4CH, ahH, amH, alH, ddH, ~, ddH, F7H

1n : n=Device Number

ah : Address High

am : Address Mid

al : Address Low

dd : Data

- 1) XG System On(receive only) See <Table 1>
- 2) XG System Parameters See <Table 2>
- 3) Multi Part Parameters See <Table 3>

When this message is sent, the preset Part Number is used.

[Other]

1) MIDI Master Tune(receive only)

F0H, 43H, 1nH, 27H, 30H, 00H, 00H, mmH, 11H, ccH, F7H

1n : n=Device Number

mm : Master Tune MSB

11 : Master Tune LSB

cc : Don't care

When received, the System Parameter will reflect the Master Tune.

<BULK DUMP> (receive only)

[VL70-m Native Format]

F0H, 43H, 0nH, 57H, bmH, blH, ahH, amH, alH, ddH, ~, ddH, ccH, F7H

0n : n=Device Number

bm : Byte Count MSB

bl : Byte Count LSB

ah : Address High

am : Address Mid

al : Address Low

dd : Data

cc : Check Sum

- 1) VL System Parameters See <Table 3>
- 2) Current Voice / Common Misc Parameters See <Table 4>
- 3) VL Part Parameters See <Table 6>
- 4) Current Voice / Element Parameters See <Table 8>
- 5) Custom Voice Parameters See <Table 9>
- 6) Internal Voice Parameters See <Table 10>

[XG Format]

F0H, 43H, 0nH, 4CH, bmH, blH, ahH, amH, alH, ddH, ~, ddH, ccH, F7H

0n : n=Device Number

bm : Byte Count MSB

bl : Byte Count LSB

ah : Address High

am : Address Mid

al : Address Low

dd : Data

cc : Check Sum

- 1) XG System Parameters See <Table 2>
- 2) Multi Part Parameters See <Table 5>

For the Address and Byte Count, refer to the supplementary tables.

Here, the Byte Count is indicated by the "TOTAL SIZE" in the table.

The block's leading byte is the Bulk Dump and Dump Request's Address.

A "Block" is the lumped together unit which is bound by the "Total Size".

The Check Sum is the value that results in a value of 0 for the lower 7 bits when the

Address, Byte Count, Data, plus the Check Sum itself are added.

3) Part Assign (MIDI Parameter Change)

See <Table 7>

F0H 43H 1nH 4CH 70H nnH ssH ppH F7H

n: Device Number

nn: Plug-in Board Type (PLG150-VL is "00.")

ss: Serial Number (which identifies the PLG boards when two same boards are installed)

00: for first PLG150-VL

01: for second PLG150-VL

pp: Part Number (to which the PLG150-VL is assigned.)

00: Part 1

.

0F: Part 16

7F: off

8. REALTIME MESSAGES

<Active Sensing> (receive only)

Status: FEH

Once Active Sensing is received, if no MIDI data is received for longer than an interval of 300msec, the instrument will perform the same function as when ALL SOUND OFF and ALL NOTE OFF, RESET ALL CONTROLLER messages are received, and will return to the status in which Active Sensing is not monitored.

MIDI Data Format

<Table 1>		XG System On		Parameter	Description
Address (H)	Size (H)	Data (H)			
00 00 7E	1	00		XG SYSTEM ON	0:VL-XG
00 00 7F	1	00		ALL PARAMETERS RESET	0:ON
TOTAL SIZE	2				

<Table 2>		XG System Parameters		Parameter	Description	Default value(H)
Address (H)	Size (H)	Data (H)				
00 00 00	4	0000 - 07FF		MASTER TUNE	-102.4 - +102.3[cent] 1st bit3-0→bit15-12 2nd bit3-0→bit11-8 3rd bit3-0→bit7-4 4th bit3-0→bit3-0	00 04 00 00
04	1	00 - 7F		MASTER VOLUME	0 - 127	7F
05	1			MASTER ATTENUATOR	0 - 127	00
06	1	28 - 58		TRANSPOSE	-24 - +24[semitones]	40
TOTAL SIZE	7					

<Table 3>		VL System Parameters		Parameter	Description	Default value(H)
Address (H)	Size (H)	Data (H)				
00 00 00	4	0000 - 07FF		MASTER TUNE	-102.4 - +102.3[cent] 1st bit3-0→bit15-12 2nd bit3-0→bit11-8 3rd bit3-0→bit7-4 4th bit3-0→bit3-0	00 04 00 00
04	1	00 - 7F		MASTER VOLUME	0 - 127	7F
05	1			MASTER ATTENUATOR	0 - 127	00
06	1	28 - 58		TRANSPOSE	-24 - +24[semitones]	40
07	1			NOT USED		--
08	1			NOT USED		--
09	1			NOT USED		--
0A	1			NOT USED		--
0B	1	00 - 01		BREATH CONTROL NUMBER	BC, EXPRESSION	00
0C	1	30 - 50		BREATH CONTROL CURVE	-16 - +16	40
0D	1	00 - 01		WX LIP LOCK	OFF/ON	00
0E	1	00 - 01		BREATH SET LOCK	OFF/ON	00
0F	1	00 - 01		WX LIP	NORMAL,EXPAND	00
10	1	00 - 02		SYSTEM BREATH MODE	BC/WX, VELOCITY, TOUCH EG	00
11	1	00 - 7F		VELOCITY DEPTH	0 - 127	30
12	1	00 - 7F		VELOCITY OFFSET	0 - 127	50
13	1	00 - 7F		TOUCH EG TIME	0 - 127	2A
14	1	00 - 7F		AT LOW DEPTH	0 - 127	1B
15	1	00 - 7F		AT LOW OFFSET	0 - 127	50
16	1	00 - 7F		AT HIGH DEPTH	0 - 127	25
17	1	00 - 7F		AT HIGH OFFSET	0 - 127	65
TOTAL SIZE	18					

* Addresses 00 00 0B through 00 00 17 are supported for parameter changes.

<Table 4>		Current Voice / Common Misc Parameters		Parameter	Description
Address (H)	Size (H)	Data (H)			
10 00 00	1	20 - 7F		VOICE NAME #1 (Only for VL70-m)	32 - 127 (ASCII)
01	1	20 - 7F		VOICE NAME #2 (Only for VL70-m)	32 - 127 (ASCII)
02	1	20 - 7F		VOICE NAME #3 (Only for VL70-m)	32 - 127 (ASCII)
03	1	20 - 7F		VOICE NAME #4 (Only for VL70-m)	32 - 127 (ASCII)
04	1	20 - 7F		VOICE NAME #5 (Only for VL70-m)	32 - 127 (ASCII)
05	1	20 - 7F		VOICE NAME #6 (Only for VL70-m)	32 - 127 (ASCII)
06	1	20 - 7F		VOICE NAME #7 (Only for VL70-m)	32 - 127 (ASCII)
07	1	20 - 7F		VOICE NAME #8 (Only for VL70-m)	32 - 127 (ASCII)
08	1			NOT USED	
09	1	00 - 7F		VOICE LEVEL	0 - 127
0A	1	00 - 02		ASSIGN MODE	BOTTOM, TOP, LAST
0B	1			NOT USED	
0C	1			NOT USED	
0D	1	00 - 01		PORTAMENTO MODE	FULLTIME, FINGERED
0E	1			NOT USED	
TOTAL SIZE	0F				

<Table 5> Multi Part Parameters

Address (H)	Op	Size (H)	Data (H)	Parameter	Description	Default value(H)
08	Op	00	1	NOT USED		
01		1	00 - 7F	BANK SELECT MSB	0 - 127	00
02		1	00 - 7F	BANK SELECT LSB	0 - 127	00
03		1	00 - 7F	PROGRAM NUMBER	1 - 128	00
04		1	00 - 0F, 7F	Rcv CHANNEL	ch1 - ch16, OFF	00
05		1	00 - 01	MONO/POLY MODE	0:MONO, 1:POLY	01
06		1		NOT USED		--
07		1	00 - 05	PART MODE	0:NORMAL	00
08		1	28 - 58	NOTE SHIFT	-24 - +24[semitones]	40
09		2	00 - FF	DETUNE	-12.8 - +12.7[Hz], 1st bit3-0→bit7-4, 2nd bit3-0→bit3-0	--
0B		1	00 - 7F	VOLUME	0 - 127	08 00
0C		1	00 - 7F	VELOCITY SENSE DEPTH	0 - 127	64
0D		1	00 - 7F	VELOCITY SENSE OFFSET	0 - 127	40
0E		1	00 - 7F	PAN	CENTER (0), L63...C...R63 (1...64...127)	40
0F		1	00 - 7F	NOTE LIMIT LOW	C-2 - G8	00
10		1	00 - 7F	NOTE LIMIT HIGH	C-2 - G8	7F
11		1	00 - 7F	DRY LEVEL	0 - 127	7F
12		1	00 - 7F	CHORUS SEND	0 - 127	00
13		1	00 - 7F	REVERB SEND	0 - 127	28
14		1	00 - 7F	VARIATION SEND	0 - 127	00
15		1	00 - 7F	VIBRATO RATE	-64 + +63	40
16		1	00 - 7F	VIBRATO DEPTH	-64 + +63	40
17		1	00 - 7F	VIBRATO DELAY	-64 + +63	40
18		1	00 - 7F	FILTER CUTOFF FREQUENCY	-64 + +63	40
19		1	00 - 7F	FILTER RESONANCE	-64 + +63	40
1A		1	00 - 7F	EG ATTACK TIME	-64 + +63	40
1B		1	00 - 7F	EG DECAY TIME	-64 + +63	40
1C		1	00 - 7F	EG RELEASE TIME	-64 + +63	40
1D		1	28 - 58	MW PITCH CONTROL	-24 - +24[semitones]	40
1E		1	00 - 7F	MW FILTER CONTROL	-9600 - +9450[cent]	40
1F		1	00 - 7F	MW AMPLITUDE CONTROL	-100 - +100[%]	40
20		1	00 - 7F	MW LFO PMOD DEPTH	0 - 127	0A
21		1	00 - 7F	MW LFO FMOD DEPTH	0 - 127	00
22		1		NOT USED		--
23		1	28 - 58	BEND PITCH CONTROL	-24 - +24[semitones]	42
24		1	00 - 7F	BEND FILTER CONTROL	-9600 - +9450[cent]	40
25		1	00 - 7F	BEND AMPLITUDE CONTROL	-100 - +100[%]	40
26		1	00 - 7F	BEND LFO PMOD DEPTH	0 - 127	00
27		1	00 - 7F	BEND LFO FMOD DEPTH	0 - 127	00
28		1		NOT USED		
TOTAL SIZE		29				

Address (H)	Op	Size (H)	Data (H)	Parameter	Description	Default value(H)
08	Op	30	1	Rcv PITCH BEND	OFF/ON	01
31		1	00 - 01	Rcv CH AFTER TOUCH(CAT)	OFF/ON	01
32		1	00 - 01	Rcv PROGRAM CHANGE	OFF/ON	01
33		1	00 - 01	Rcv CONTROL CHANGE	OFF/ON	01
34		1		NOT USED		--
35		1	00 - 01	Rcv NOTE MESSAGE	OFF/ON	01
36		1	00 - 01	Rcv RPN	OFF/ON	01
37		1	00 - 01	Rcv NRPN	OFF/ON	01
38		1	00 - 01	Rcv MODULATION	OFF/ON	01
39		1	00 - 01	Rcv MAIN VOLUME	OFF/ON	01
3A		1	00 - 01	Rcv PAN	OFF/ON	01
3B		1	00 - 01	Rcv EXPRESSION	OFF/ON	01
3C		1	00 - 01	Rcv HOLD1	OFF/ON	01
3D		1	00 - 01	Rcv PORTAMENTO	OFF/ON	01
3E		1		NOT USED		--
3F		1	00 - 01	Rcv SOFT PEDAL	OFF/ON	01
40		1	00 - 01	Rcv BANK SELECT	OFF/ON	01
41		1	00 - 7F	SCALE TUNING C	-64 - +63[cent]	40
42		1	00 - 7F	SCALE TUNING C#	-64 - +63[cent]	40
43		1	00 - 7F	SCALE TUNING D	-64 - +63[cent]	40
44		1	00 - 7F	SCALE TUNING D#	-64 - +63[cent]	40
45		1	00 - 7F	SCALE TUNING E	-64 - +63[cent]	40
46		1	00 - 7F	SCALE TUNING F	-64 - +63[cent]	40
47		1	00 - 7F	SCALE TUNING F#	-64 - +63[cent]	40
48		1	00 - 7F	SCALE TUNING G	-64 - +63[cent]	40
49		1	00 - 7F	SCALE TUNING G#	-64 - +63[cent]	40
4A		1	00 - 7F	SCALE TUNING A	-64 - +63[cent]	40
4B		1	00 - 7F	SCALE TUNING A#	-64 - +63[cent]	40
4C		1	00 - 7F	SCALE TUNING B	-64 - +63[cent]	40
4D		1	28 - 58	AT PITCH CONTROL	-24 - +24[semitones]	40
4E		1	00 - 7F	AT FILTER CONTROL	-9600 - +9450[cent]	40
4F		1	00 - 7F	AT AMPLITUDE CONTROL	-100 - +100[%]	40
50		1	00 - 7F	AT LFO PMOD DEPTH	0 - 127	00
51		1	00 - 7F	AT LFO FMOD DEPTH	0 - 127	00
52		1		NOT USED		--
53		1		NOT USED		--
54		1		NOT USED		--
55		1		NOT USED		--
56		1		NOT USED		--
57		1		NOT USED		--
58		1		NOT USED		--
59		1	00 - 5F	AC1 CONTROLLER NUMBER	off - 95	10

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5A	1	28 - 58	AC1 PITCH CONTROL	-24 - +24[semitones]	40
5B	1	00 - 7F	AC1 FILTER CONTROL	-9600 - +9450[cent]	40
5C	1	00 - 7F	AC1 AMPLITUDE CONTROL	-100 - +100[%]	40
5D	1	00 - 7F	AC1 LFO PMOD DEPTH	0 - 127	00
5E	1	00 - 7F	AC1 LFO FMOD DEPTH	0 - 127	00
5F	1		NOT USED		--
60	1		NOT USED		--
61	1		NOT USED		--
62	1		NOT USED		--
63	1		NOT USED		--
64	1		NOT USED		--
65	1		NOT USED		--
66	1		NOT USED		--
67	1	00 - 01	PORTAMENTO SWITCH	OFF/ON	00
68	1	00 - 7F	PORTAMENTO TIME	0 - 127	00
69	1	00 - 7F	PITCH EG INITIAL LEVEL	-64 - +63	40
6A	1	00 - 7F	PITCH EG ATTACK TIME	-64 - +63	40
6B	1	00 - 7F	PITCH EG RELEASE LEVEL	-64 - +63	40
6C	1	00 - 7F	PITCH EG RELEASE TIME	-64 - +63	40
6D	1		NOT USED		--
6E	1		NOT USED		--
TOTAL SIZE	3F				

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value(H)
08 0p	70	1	BEND PITCH LOW CONTROL	-24 - +24[semitones]	3E
	71	1	FILTER EG DEPTH	-64 - +63	40
	72	1	BASS	-64 - +63	40
	73	1	TREBLE	-64 - +63	40
TOTAL SIZE	04				

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value(H)
09 0p	00	1	NOTE ASSIGN	OFF/ON	01
	01	1	BREATH MODE	SYSTEM, BC/WX, VELOCITY, TOUCH EG	00
	02	1	NOT USED		--
	03	1	PRESSURE CONTROL NO.	off - 95, AT, VELOCITY, PB	00
	04	1	DEPTH	-64 - +63	40
	05	1	EMBOUCHURE CONTROL NO.	off - 95, AT, VELOCITY, PB	00
	06	1	DEPTH	-64 - +63	40
	07	1	TONGUING CONTROL NO.	off - 95, AT, VELOCITY, PB	00
	08	1	DEPTH	-64 - +63	40
	09	1	SCREAM CONTROL NO.	off - 95, AT, VELOCITY, PB	00
	0A	1	DEPTH	-64 - +63	40
	0B	1	BREATH NOISE CONTROL NO.	off - 95, AT, VELOCITY, PB	00
	0C	1	DEPTH	-64 - +63	40
	0D	1	GROWL CONTROL NO.	off - 95, AT, VELOCITY, PB	00
	0E	1	DEPTH	-64 - +63	40
	0F	1	THROAT FORMANT CONTROL NO.	off - 95, AT, VELOCITY, PB	00
	10	1	DEPTH	-64 - +63	40
	11	1	HARMONIC ENHANCER CONTROL NO.	off - 95, AT, VELOCITY, PB	00
	12	1	DEPTH	-64 - +63	40
	13	1	DAMPING CONTROL NO.	off - 95, AT, VELOCITY, PB	00
	14	1	DEPTH	-64 - +63	40
	15	1	ABSORPTION CONTROL NO.	off - 95, AT, VELOCITY, PB	00
	16	1	DEPTH	-64 - +63	40
TOTAL SIZE	17				

* p = Part Number

<Table 6> VL Part Parameters

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value(H)
09 0p	17	1	AMP LEVEL SCALE BREAK POINT	C-2 - G8	3C
	18	1	DEPTH	-64 - +63	40
	19	1	FILTER CUTOFF SCALE BREAK POINT	C-2 - G8	3C
	1A	1	DEPTH	-64 - +63	40
	1B	1	NOT USED		--
	1C	1	NOT USED		--
TOTAL SIZE	06				

* p = Part Number

<Table 7> MIDI Parameter Change (VL Part Assign)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value(H)
70 00	ss	1	Part Assign	A 1.....A 16, off	0
TOTAL SIZE	01				

* ss = Serial Number for PLG150-VL

<Table 8> Current Voice / Element Parameter

Address (H)	Size (H)	Data (H)	Parameter	Description
20 00	00	1	ELEMENT NAME #1	32 - 127 (ASCII)
	01	1	ELEMENT NAME #2	32 - 127 (ASCII)
	02	1	ELEMENT NAME #3	32 - 127 (ASCII)
	03	1	ELEMENT NAME #4	32 - 127 (ASCII)
	04	1	ELEMENT NAME #5	32 - 127 (ASCII)
	05	1	ELEMENT NAME #6	32 - 127 (ASCII)

00 06	1	20 - 7F	ELEMENT NAME #7	32 - 127 (ASCII)
00 07	1	20 - 7F	ELEMENT NAME #8	32 - 127 (ASCII)
00 08	1	20 - 7F	ELEMENT NAME #9	32 - 127 (ASCII)
00 09	1	20 - 7F	ELEMENT NAME #10	32 - 127 (ASCII)
00 0A	1	00 - 01	EXPRESSION MODE	BC, VOLUME
00 0B	1	00 - 62	PRESSURE CONTROL NO.	off - 95, AT, VELOCITY, PB
00 0C	2	01 01 - 00 7F	DEPTH	-127 - +127
00 0E	1	70 - 10	CURVE	-16 - +16
00 0F	1	00 - 62	FILTER CONTROL NO.	off - 95, AT, VELOCITY, PB
00 10	2	01 01 - 00 7F	DEPTH	-127 - +127
00 12	1	70 - 10	CURVE	-16 - +16
00 13	1	00 - 62	AMPLITUDE CONTROL NO.	off - 95, AT, VELOCITY, PB
00 14	2	01 01 - 00 7F	DEPTH	-127 - +127
00 16	1	70 - 10	CURVE	-16 - +16
00 17	1	00 - 62	EMBOUCHURE CONTROL NO.	off - 95, AT, VELOCITY, PB
00 18	2	01 01 - 00 7F	UPPER DEPTH	-127 - +127
00 1A	2	01 01 - 00 7F	LOWER DEPTH	-127 - +127
00 1C	1	00 - 01	MODE	CENTER BASE, MINIMUM BASE
00 1D	1	00 - 62	TONGUING CONTROL NO.	off - 95, AT, VELOCITY, PB
00 1E	2	01 01 - 00 7F	DEPTH	-127 - +127
00 20	1	70 - 10	CURVE	-16 - +16
00 21	1	00 - 62	SCREAM CONTROL NO.	off - 95, AT, VELOCITY, PB
00 22	2	01 01 - 00 7F	DEPTH	-127 - +127
00 24	1	70 - 10	CURVE	-16 - +16
00 25	1	00 - 62	BREATH NOISE CONTROL NO.	off - 95, AT, VELOCITY, PB
00 26	2	01 01 - 00 7F	DEPTH	-127 - +127
00 28	1	70 - 10	CURVE	-16 - +16
00 29	1	00 - 62	GROWL CONTROL NO.	off - 95, AT, VELOCITY, PB
00 2A	2	01 01 - 00 7F	DEPTH	-127 - +127
00 2C	1	70 - 10	CURVE	-16 - +16
00 2D	1	00 - 62	THROAT FORMANT CONTROL NO.	off - 95, AT, VELOCITY, PB
00 2E	2	01 01 - 00 7F	DEPTH	-127 - +127
00 30	1	70 - 10	CURVE	-16 - +16
00 31	1	00 - 62	HARMONIC ENHANCER CONTROL NO.	off - 95, AT, VELOCITY, PB
00 32	2	01 01 - 00 7F	DEPTH	-127 - +127
00 34	1	70 - 10	CURVE	-16 - +16
00 35	1	00 - 62	DAMPING CONTROL NO.	off - 95, AT, VELOCITY, PB
00 36	2	01 01 - 00 7F	DEPTH	-127 - +127
00 38	1	70 - 10	CURVE	-16 - +16
00 39	1	00 - 62	ABSORPTION CONTROL NO.	off - 95, AT, VELOCITY, PB
00 3A	2	01 01 - 00 7F	DEPTH	-127 - +127
00 3C	1	70 - 10	CURVE	-16 - +16
00 3D			NOT USED	
			NOT USED	
0A	6A		NOT USED	
TOTAL SIZE	56B			

<Table 9>

Address		Size		Data	Parameter	Description
(H)	(H)	(H)	(H)	(H)		
30	00	0n	1	20 - 7F	VOICE NAME #1	32 - 127 (ASCII)
			1	20 - 7F	VOICE NAME #2	32 - 127 (ASCII)
			1	20 - 7F	VOICE NAME #3	32 - 127 (ASCII)
			1	20 - 7F	VOICE NAME #4	32 - 127 (ASCII)
			1	20 - 7F	VOICE NAME #5	32 - 127 (ASCII)
			1	20 - 7F	VOICE NAME #6	32 - 127 (ASCII)
			1	20 - 7F	VOICE NAME #7	32 - 127 (ASCII)
			1	20 - 7F	VOICE NAME #8	32 - 127 (ASCII)
			1		NOT USED	
			1	00 - 7F	VOICE LEVEL	0 - 127
			1	00 - 02	ASSIGN MODE	BOTTOM, TOP, LAST
			2	00 00 - 1F 1F	POLY EXPAND	OFF...32>32
			1	00 - 01	PORTAMENTO MODE	FULLTIME, FINGERED
			1		NOT USED	
			1	00 - 01	MONO/POLY MODE	0:MONO, 1:POLY
			1	28 - 58	NOTE SHIFT	-24 - +24[semitones]
			2	00 - FF	DETUNE	-12.8 - +12.7[Hz], 1st bit3-0Æbit7-4, 2nd bit3-0→bit3-0
			1		NOT USED	
			1	00 - 7F	VELOCITY SENSE DEPTH	0 - 127
			1	00 - 7F	VELOCITY SENSE OFFSET	0 - 127
			1	00 - 7F	PAN	RANDOM (0), L63...C...R63 (1...64...127)
			1		NOT USED	
			1		NOT USED	
			1	00 - 7F	DRY LEVEL	0 - 127
			1	00 - 7F	CHORUS SEND	0 - 127
			1	00 - 7F	REVERB SEND	0 - 127
			1	00 - 7F	VARIATION SEND	0 - 127
			1	28 - 58	MW PITCH CONTROL	-24 - +24[semitones]
			1	00 - 7F	MW FILTER CONTROL	-9600 - +9450[cent]
			1	00 - 7F	MW AMPLITUDE CONTROL	-100 - +100[%]
			1	00 - 7F	MW LFO PMOD DEPTH	0 - 127
			1	00 - 7F	MW LFO FMOD DEPTH	0 - 127
			1	28 - 58	BEND PITCH CONTROL	-24 - +24[semitones]
			1	00 - 7F	BEND FILTER CONTROL	-9600 - +9450[cent]
			1	00 - 7F	BEND AMPLITUDE CONTROL	-100 - +100[%]
			1	00 - 7F	BEND LFO PMOD DEPTH	0 - 127
			1	00 - 7F	BEND LFO FMOD DEPTH	0 - 127
			1	00 - 7F	SCALE TUNING C	-64 - +63[cent]
			1	00 - 7F	SCALE TUNING C#	-64 - +63[cent]

MIDI Data Format

1	00 - 7F	SCALE TUNING D	-64 - +63[cent]
1	00 - 7F	SCALE TUNING D#	-64 - +63[cent]
1	00 - 7F	SCALE TUNING E	-64 - +63[cent]
1	00 - 7F	SCALE TUNING F	-64 - +63[cent]
1	00 - 7F	SCALE TUNING F#	-64 - +63[cent]
1	00 - 7F	SCALE TUNING G	-64 - +63[cent]
1	00 - 7F	SCALE TUNING G#	-64 - +63[cent]
1	00 - 7F	SCALE TUNING A	-64 - +63[cent]
1	00 - 7F	SCALE TUNING A#	-64 - +63[cent]
1	00 - 7F	SCALE TUNING B	-64 - +63[cent]
1	28 - 58	AT PITCH CONTROL	-24 - +24[semitones]
1	00 - 7F	AT FILTER CONTROL	-9600 - +9450[cent]
1	00 - 7F	AT AMPLITUDE CONTROL	-100 - +100[%]
1	00 - 7F	AT LFO PMOD DEPTH	0 - 127
1	00 - 7F	AT LFO FMOD DEPTH	0 - 127
1	00 - 5F	AC1 CONTROLLER NUMBER	off - 95
1	28 - 58	AC1 PITCH CONTROL	-24 - +24[semitones]
1	00 - 7F	AC1 FILTER CONTROL	-9600 - +9450[cent]
1	00 - 7F	AC1 AMPLITUDE CONTROL	-100 - +100[%]
1	00 - 7F	AC1 LFO PMOD DEPTH	0 - 127
1	00 - 7F	AC1 LFO FMOD DEPTH	0 - 127
1	00 - 01	PORTAMENTO SWITCH	OFF/ON
1	00 - 7F	PORTAMENTO TIME	0 - 127
1	28 - 58	BEND PITCH LOW CONTROL	-24 - +24[semitones]
62		NOT USED	
TOTAL SIZE	A3		

Address (H)	Size (H)	Data (H)	Parameter	Description
31 00 0n	1	20 - 7F	ELEMENT NAME #1	32 - 127 (ASCII)
	1	20 - 7F	ELEMENT NAME #2	32 - 127 (ASCII)
	1	20 - 7F	ELEMENT NAME #3	32 - 127 (ASCII)
	1	20 - 7F	ELEMENT NAME #4	32 - 127 (ASCII)
	1	20 - 7F	ELEMENT NAME #5	32 - 127 (ASCII)
	1	20 - 7F	ELEMENT NAME #6	32 - 127 (ASCII)
	1	20 - 7F	ELEMENT NAME #7	32 - 127 (ASCII)
	1	20 - 7F	ELEMENT NAME #8	32 - 127 (ASCII)
	1	20 - 7F	ELEMENT NAME #9	32 - 127 (ASCII)
	1	20 - 7F	ELEMENT NAME #10	32 - 127 (ASCII)
	1	00 - 01	EXPRESSION MODE	BC, VOLUME
	1	00 - 62	PRESSURE CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	1	00 - 62	FILTER CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	1	00 - 62	AMPLITUDE CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	1	00 - 62	EMBOUCHURE CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	UPPER DEPTH	-127 - +127
	2	01 01 - 00 7F	LOWER DEPTH	-127 - +127
	1	00 - 01	MODE	CENTER BASE, MINIMUM BASE
	1	00 - 62	TONGUING CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	1	00 - 62	SCREAM CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	1	00 - 62	BREATH NOISE CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	1	00 - 62	GROWL CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	1	00 - 62	THROAT FORMANT CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	1	00 - 62	HARMONIC ENHANCER CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	1	00 - 62	DAMPING CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	1	00 - 62	ABSORPTION CONTROL NO.	off - 95, AT, VELOCITY, PB
	2	01 01 - 00 7F	DEPTH	-127 - +127
	1	70 - 10	CURVE	-16 - +16
	52E		NOT USED	
TOTAL SIZE	56B			

n = Voice Number(0 - 5)

<Table 10>

			Internal Voice Parameters		
Address (H)	Size (H)	Data (H)	Parameter	Description	
40 00 nn	1	20 - 7F	VOICE NAME #1	32 - 127 (ASCII)	
	1	20 - 7F	VOICE NAME #2	32 - 127 (ASCII)	
	1	20 - 7F	VOICE NAME #3	32 - 127 (ASCII)	
	1	20 - 7F	VOICE NAME #4	32 - 127 (ASCII)	
	1	20 - 7F	VOICE NAME #5	32 - 127 (ASCII)	
	1	20 - 7F	VOICE NAME #6	32 - 127 (ASCII)	
	1	20 - 7F	VOICE NAME #7	32 - 127 (ASCII)	
	1	20 - 7F	VOICE NAME #8	32 - 127 (ASCII)	
	1	00 - 7F	VOICE LEVEL	0 - 127	
	1	00 - 02	ASSIGN MODE	BOTTOM, TOP, LAST	
	2D		NOT USED		
	1	00 - 7F	AMP LEVEL SCALE BREAK POINT	C-2 - G8	
	1	00 - 7F	DEPTH	-64 - +63	
	1	00 - 7F	FILTER CUTOFF SCALE BREAK POINT	C-2 - G8	
	1	00 - 7F	DEPTH	-64 - +63	
	1	00 - 02	BANK POINTER	PRESET1, PRESET2, CUSTOM	
	1	00 - 7F	PROGRAM POINTER	1 - 128	
	33		NOT USED		
	1	00 - 01	EXPRESSION MODE	BC, VOLUME	
	1	00 - 62	PRESSURE CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
	1	00 - 62	FILTER CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
	1	00 - 62	AMPLITUDE CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
	1	00 - 62	EMBOUCHURE CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	UPPER DEPTH	-127 - +127	
	2	01 01 - 00 7F	LOWER DEPTH	-127 - +127	
	1	00 - 01	MODE	CENTER BASE, MINIMUM BASE	
	1	00 - 62	TONGUING CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
	1	00 - 62	SCREAM CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
	1	00 - 62	BREATH NOISE CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
	1	00 - 62	GROWL CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
	1	00 - 62	THROAT FORMANT CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
	1	00 - 62	HARMONIC ENHANCER CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
	1	00 - 62	DAMPING CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
	1	00 - 62	ABSORPTION CONTROL NO.	off - 95, AT, VELOCITY, PB	
	2	01 01 - 00 7F	DEPTH	-127 - +127	
	1	70 - 10	CURVE	-16 - +16	
TOTAL SIZE	A3				
nn = Voice Number (00 - 3F)					

Prog Change : True #	x *****	o 0 - 127	
System Exclusive	o *3	o *3	
: Song Pos.	x	x	
: Song Sel.	x	x	
: Tune	x	x	
System : Clock	x	x	
Real Time: Commands	x	x	
Aux :All Sound OFF	x	o(120,126,127)	
:Reset All Cntrls	x	o(121)	
:Local ON/OFF	x	x	
:All Notes OFF	x	o(123-125)	
Mes- :Active Sense	x	o	
sages:Reset	x	x	
Notes:	*1 receive if switch is on.		
	*2 m is always treated as "1" regardless of its value.		
	*3 transmit/receive if exclusive switch is on.		

Mode 1 : OMNI ON , POLY Mode 2 : OMNI ON , MONO o : Yes
 Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO x : No

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