YAMAHA

Yamaha Vocal Harmony Plug-in Board
Yamaha Vocal Harmony Plug-in Board
Carte plug-in Yamaha Vocal Harmony

PLG100-VH

Owner's Manual
Bedienungsanleitung
Mode d'emploi

VH for XG Plug for XG

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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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.
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Introduction

Congratulations and thank you for purchasing the Yamaha PLG100-VH Vocal Harmony Plug-in Board!

The PLG100-VH is designed for use with the MU128 Tone Generator (as well as other MU-series instruments and the SW1000XG PCI Audio/MIDI Card), providing automatic and authentic sounding vocal harmony effects. It takes the sound of your voice (via a microphone and one of the A/D inputs) and reproduces it as a harmony vocal — providing up to four-part harmonies, including your original voice. The actual harmony notes can be controlled from a MIDI keyboard or sequencer, allowing you to perfectly match the harmony to chord changes.

The settings and parameters of the PLG100-VH can also be conveniently edited with a Windows PC computer by using the VH Effect Editor software module (included in the XGworks Music Sequencer software).

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About XG Plug-in System

With Yamaha XG Plug-in System you can expand your tone generation system by simply mounting an optional board onto the “mother” tone generator/sound card. For example, you will be able to use extra voices from a different sound synthesis such as Virtual Acoustic Synthesis, apply completely new dimensional facet of effects to your music and/or add the latest technology to your music.

About VH-XG

This XG Plug-in Board produces automatic harmony effects for vocals (via a microphone and the A/D inputs). It features four harmony effect types, and allows you to control the harmony notes by playing notes or chords on a MIDI keyboard. It also allows you to control the harmony automatically by note or chord data recorded to a sequencer. Other features include a gender changer for changing the input voice between male and female, and detuning for a natural chorus effect.

About the PLG100-VH

Overview of the PLG100-VH

The PLG100-VH provides a sophisticated harmony effect that takes the sound of your voice (via a microphone and the A/D inputs) and reproduces it as a harmony vocal, providing up to four-part harmonies (including your original voice).

Once it is connected, the PLG100-VH automatically becomes another effect block (Harmony) in the tone generator/sound card, and can be applied to one of the Parts. Although Harmony can be applied to normal instrument Parts, it is designed specifically to work with the A/D inputs.

You can pre-program the pitch interval of the harmony, or you can “play” the harmony from your connected MIDI keyboard (or sequencer), and even have the harmony interval change, depending on the chord you play. As long as your own voice is in pitch and you play the appropriate chords, the PLG100-VH ensures that the harmony “voices” will be enharmonically correct and stay in pitch with the chord changes of the song. It also includes a “gender changer” effect that turns a male voice into a female voice (or vice versa), and a vibrato effect that automatically adds a warm, natural vibrato to your voice.

Installing the PLG100-VH

For detailed instructions on installing the PLG100-VH, refer to the owner’s manual of the XG-Plug-in-compatible “mother” device (e.g., MU128, SW1000XG, etc.).

Included Items

The following items have been included in the package of your new PLG100-VH. Please make sure that you have them all before starting to setup and use the instrument. If an item is missing, contact the store or dealer from which you purchased the PLG100-VH.

- PLG100-VH board
- PLG100-VH Owner’s Manual (this book)
- CD-ROM disc “XGtools”

Required and Recommended Items

In addition to the included items listed above, you should also have the following:

- **An XG tone generator/sound card compatible with the XG Plug-in System**
  In order to use the PLG100-VH, you'll need an XG tone generator or sound card that is compatible with the XG Plug-in System. Compatible instruments include the MU128, MU100, and the SW1000XG. The tone generator/sound card should also have an available slot or space for installing the PLG100-VH.

- **XGworks or XGworks lite Music Sequencing Software**
  These software sequencers provide convenient tools for taking full advantage of the PLG100-VH, letting you create song data that automatically controls the harmony effect during playback. They also include the powerful VH Effect Editor (see below) for editing the harmony effect. XGworks lite is contained on a CD-ROM included with the MU128 and MU100, and XGworks is contained on a CD-ROM included with the SW1000XG.

- **VH Effect Editor**
  This is a special plug-in software module for XGworks and XGworks lite. It gives you comprehensive control over all PLG100-VH settings and parameters, including "hidden" parameters not available from the front panel of the tone generator. It also provides exceptionally easy and intuitive editing, with graphic controls and drag-and-drop operations. It is contained on the CD-ROM included with the MU128, MU100, and SW1000XG.

Specifications

Maximum harmony notes	3
Effect Types	4 (Vocoder Harmony, Chordal Harmony, Detune Harmony, Chromatic Harmony)
Voice controls	Gender change (male → female, female → male), Vibrato, Volume, Pan, Detune
Interface	XG Plug-in connector
Dimensions (W x D x H)	138.5 x 89 x 8.5 mm
Weight	53 g
Included accessories	Owner's Manual, CD-ROM "XGtools"

Troubleshooting

If the harmony effect does not function properly or cannot be heard, check the following points:

Is an appropriate XG tone generator/sound card connected to a sequencer or computer?

- Refer to the relevant “Setting Up” instructions in the owner’s manual of the tone generator/sound card.

Is the HOST SELECT switch set properly?

- Refer to the relevant “Setting Up” instructions in the owner’s manual of the tone generator/sound card.

If you’re using a computer for playback, do you have the latest software drivers and are their settings appropriate?

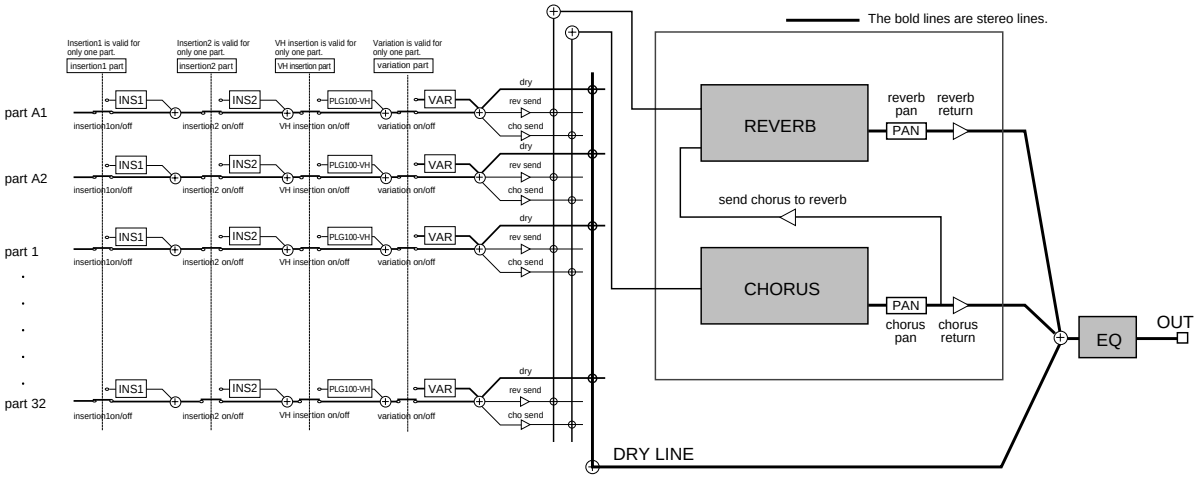
- Refer to the relevant instructions in the owner’s manual(s) of the particular software.

Is the PLG100-VH board connected properly?

- Refer to the board installation instructions in the owner’s manual of the tone generator/sound card.

Effect Connection and Harmony Types

The PLG100-VH functions as an Insertion effect as the following illustration.



The Harmony effect features four separate types: Vocoder, Chordal, Detune, and Chromatic.

Vocoder

This type produces up to three harmony notes, corresponding to the notes you play on a connected MIDI keyboard. In other words, you can sing the melody and "play" the harmony or harmonies from the keyboard, or you can have the harmonies automatically generated by song data on a sequencer. (Page 13)

Chordal

This type produces up to three harmony notes that correspond to the chords you play on a connected MIDI keyboard (or chords recorded to a sequencer). Thirty-four different chord types are recognized in this mode. (Page 19)

Detune

This type produces a slightly "detuned" pitch and mixes it with the input signal for a rich chorusing effect. (Page 21)

Chromatic

This type produces a harmony at a predetermined, fixed pitch interval from the original sound (such as an octave, or a third). (Page 22)

Demonstration

The included CD-ROM contains the following demonstration songs:

1. AMAZING.MID	Amazing Grace
2. JINGLE.MID	Jingle Bells

The Effect Type is set to Vocoder Harmony for these demonstration songs.
To setup the MU128 for demonstration play, connect the microphone to one of A/D INPUT jacks.
To setup the SW1000XG, connect the microphone to the External Audio Input terminal.

Using the Harmony Effect

This section guides you through the steps of setting up and using the Harmony effect. Since the PLG100-VH functions as an Insertion effect, it can be edited in the same fashion as the other Insertion effects in the XG tone generator.

NOTE

- ***Keep in mind that actual operation procedures may differ depending on which XG device you are using, the MU128 or SW1000XG. In general, the instructions below assume you are using the MU128. On the whole, these instructions are also applicable to the SW1000XG; however, since the SW1000XG has no panel controls, you'll need to use the corresponding software controls in the XGworks software. For specific operating instructions on either the MU128 or SW1000XG, refer to the corresponding owner's manual.***
- ***When the Performance (PFM) mode is selected, the effect settings change when a different Performance number is selected. To avoid this, make sure to store the Performance after editing. (Performance is not available on the SW1000XG.)***

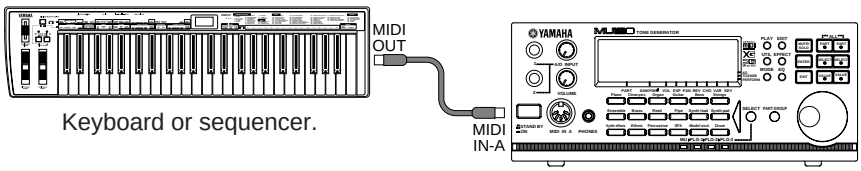
Operation

1 Set up the MIDI keyboard or sequencer.

Do this if you wish to control the Harmony effect from a MIDI keyboard or with song data played on a MIDI sequencer.

To do this:

1) Connect the MIDI device.
   If the tone generator features both MIDI IN-A and B ports, connect the MIDI device to the A port.



2) Set the device's MIDI transmit channel to 1 (or to the same channel you'll be setting in step #3 below).

NOTE

- ***When the Harmony Type is set to Detune or Chromatic (pages 21~23), Harmony is unaffected by a connected MIDI device.***

HINT

- ***If you are using a sequencer to control the Harmony effect, dedicate one track of the song data for control purposes, and set this to a MIDI channel different from all other tracks. (This channel setting should be matched in step #3 below.)***
- ***Also, you'll want to make sure that the connected keyboard or sequencer doesn't sound any of the MU128's Parts. If one or more Parts are set to the same MIDI channel (as set above), change the MIDI channel setting of the Part(s), or set the volume of the Part(s) to 0, or mute the Part(s).***

2 Set up the A/D Part on the MU128 or SW1000XG.

To do this:

1) Connect a microphone to the A/D INPUT jack (INPUT 1 on the MU128).

2) Select Part "A/D1," then select the "Mic" preset (bank #000, program #002).

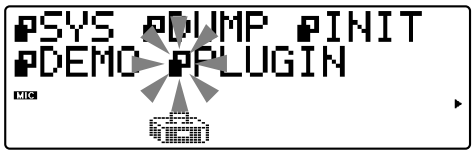
3 Set the Harmony Channel (Utility mode).

This determines the MIDI receive channel for the Harmony effect, and should be set to the same value as set for the MIDI device in step #1 above. Harmony Channel is set in the Utility mode. (For more information on the Utility mode and its parameters, see page 24.)

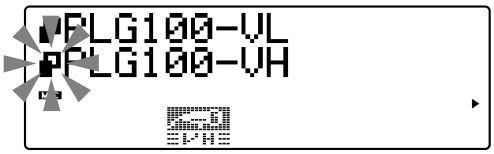
To do this:

1) Select the Utility mode. (Press the **[UTIL]** button.)

2) Select the "PLUGIN" menu. (Use the **[SELECT ◀/▶]** buttons, and press the **[ENTER]** button.)



3) Select the "PLG100-VH" (Harmony) menu. (Use the **[SELECT ▶]** button, and press the **[ENTER]** button.)



4) Set the Harmony Channel value to 1.
Use the **[SELECT ◀]** button if necessary to select "Harmony Ch" (Harmony Channel), then use the **[VALUE ⊖/⊕]** buttons to set the value to "01" (or the same value as the transmit channel of the connected MIDI device).

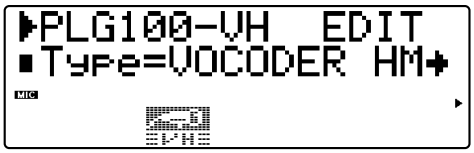
4 Assign the Harmony effect to the desired Part (in the Harmony Edit menu).

To do this:

1) Select the Effect menus. (Press the **[EFFECT]** button.)

2) Select the “PLG” menu. (Use the **[SELECT ▶]** button if necessary, and press the **[ENTER]** button.)

3) At the “PLG100-VH” (Harmony) menu, press **[ENTER]** again.



4) Assign the Insert Part parameter to the desired A/D Input.
Use the **[SELECT ▶]** button to select “Ins Part” (Insert Part), then use the **[VALUE ⊖/⊕]** buttons to set the value to “AD01” (Input 1) as needed.

5 Set the Harmony Type.

While still in the Harmony Edit menu, select the “Type” parameter (with the **[SELECT ◀]** button), then use the **[VALUE ⊖/⊕]** buttons to set the type: Vocoder, Chordal, Detune, or Chromatic.

When set to Vocoder or Chordal, the notes or chords you play on the connected MIDI keyboard determine the notes of the Harmony effect.

6 Make other settings in the Harmony Edit menu as needed.

Select the desired parameter (with the **[SELECT ◀/▶]** buttons), then use the **[VALUE ⊖/⊕]** buttons to change the value.

Each Harmony Type has a different set of parameters. For a list of the parameters in each type, see the following pages:

Vocoder ..... page 13
Chordal ..... page 19
Detune ..... page 21
Chromatic ..... page 22

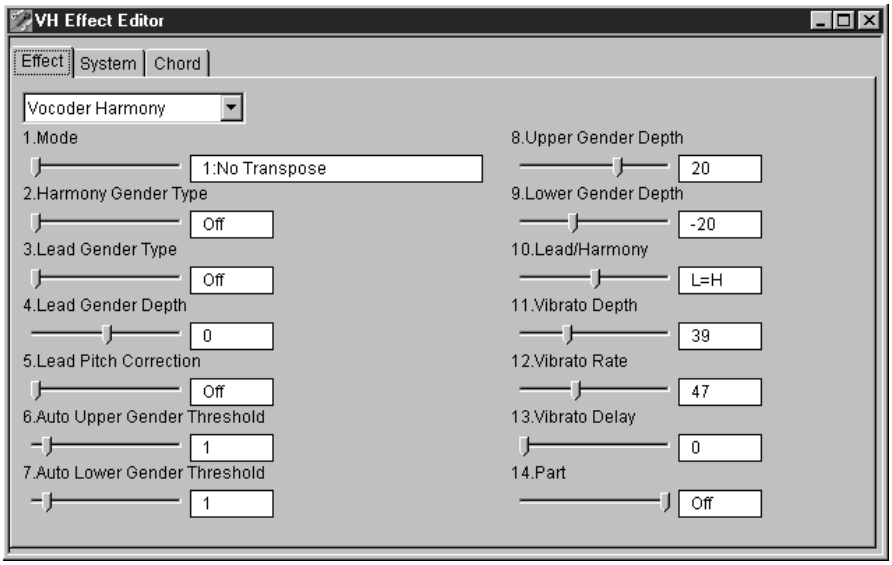
About the VH Effect Editor in XGworks

All of the settings and parameters of the PLG100-VH can be easily edited from a computer by using the VH Effect Editor software module (included in the optional XGworks or XGworks lite Music Sequencer software).

The VH Effect Editor gives you convenient at-a-glance view of all Harmony effect parameters, and lets you easily edit them by typing in values on the computer keyboard or dragging the mouse. It also gives you access to the "hidden" parameters, not controllable from the MU128 itself. Moreover, the VH Effect Editor provides an "Easy Setup" control that automatically makes the necessary settings for using the A/D input and the Harmony effect. Since the VH Effect Editor is integrated into the XGworks/XGworks lite sequencer, you can easily automate the Harmony effect changes with your recorded songs.

Opening the VH Effect Editor

To open the VH Effect Editor, select "Plug-in" from the menu bar, then select "VH Effect Editor" from the pull-down menu. If the VH Effect Editor is not properly installed to XGworks, the VH Effect Editor menu item and the program itself will not be available.



For detailed instructions on using the VH Effect Editor, refer to the online Help messages in the program itself.

NOTE

- ***XGworks/XGworks lite requires an IBM-PC/AT compatible computer (100MHz or higher; Pentium processor of 75Mhz or higher is recommended), 16MB RAM or more, running Windows 95 or Windows 98.***

Harmony Parameters

Path [EFFECT] button → "PLG" → "PLG100-VH"

These parameters control the Harmony effect. Other Harmony parameters not included in this section are set in the System section (page 24). For general information on the Harmony effect and how to use it, see page 8.

Since the available parameters depend on which Harmony Type is selected, separate parameter charts are given for each of the four types: Vocoder, Chordal, Detune, and Chromatic.

Hidden Parameters

Some of the Harmony parameters are "hidden" parameters, and cannot be edited from the panel of the MU128. However, they can be edited with the VH Effect Editor in the optional XGworks software. (Page 11)

Harmony Type

Settings:

THRU
VOCODER HM
CHORDAL HM
DETUNE HM
CHROMAT.HM (Chromatic)

When the Type is set to THRU, no Harmony effect is applied, and the only other available parameter is Insert Part.

NOTE • ***The available parameters depend on the selected Harmony Type.***

Vocoder Harmony Parameters

The Vocoder type produces up to three harmony notes whose pitches correspond to the notes you play on a connected MIDI keyboard. In other words, you can sing the melody and "play" the harmony or harmonies from the keyboard (or from a sequencer). The Harmony sound can also be transposed (see the Mode parameter below).

NOTE

- ***When more than four MIDI notes are received, priority is given first to the most recently played notes, then the highest notes. (In other words, the harmonies of lower notes and earlier notes are cut off.)***

HINT

The Vocoder Type is best suited when:

- ***You want to determine the precise harmony notes yourself, including their octave register and whether they are above or below the original melody note.***
- ***You want to use harmony notes and voicings that fall outside the standard chords available in the Chordal type (below).***
- ***You can play the harmony part on the keyboard, or have it played on a sequencer.***
- ***You want to precisely control how the harmony note or notes change pitch around a fixed melody pitch.***

■ Parameter List

No.	Parameter	Display	Value	Default value
1	Mode	1: no trans, 2: auto trans 3: -3 oct trns, 4: -2 oct trns 5: -1 oct trns, 6: +1 oct trns 7: +2 oct trns, 8: +3 oct trns	0 — 7	0
2	Harmony Gender Type	off, auto	0 — 1	0
3	Lead Gender Type	off, unis, male, fem.	0 — 3	0
4	Lead Gender Depth	-64 — +63	0 — 127	64
5	Lead Pitch Correction	off, on	0 — 1	0
6	Auto Upper Gender Threshold	0 — 12	0 — 12	1
7	Auto Lower Gender Threshold	0 — 12	0 — 12	1
8	Upper Gender Depth	-64 — +63	0 — 127	84
9	Lower Gender Depth	-64 — +63	0 — 127	44
10	Lead/Harmony	L63>H — (L=H) — L<H63	1 — 127	64
11	Vibrato Depth	0 — 127	0 — 127	39
12	Vibrato Rate	0 — 127	0 — 127	47
13	Vibrato Delay	0 — 127	0 — 127	0
14	Insertion Part	off, 1 — 64, AD1 — AD64	0 — 127	127

■ Parameter Descriptions .....

1. Mode

• no trans
No transposition. The harmony notes correspond exactly to the pitch of the incoming MIDI notes.

• auto trans
Automatic transposition of the harmony notes. This keeps the harmony notes close (around the same octave register; ±600 cents) to the input signal, no matter which octave the MIDI notes are played. For example, if your vocal is at a pitch of C3, playing an E note anywhere on the connected MIDI keyboard results in a harmony note of E3.

• -3oct trns — +3oct trns
Octave transposition. This fixes the octave transposition of the harmony notes, selectable in octaves from 3 octaves below (-) to 3 octaves above (+).

NOTE • ***When using the "auto trans" setting, some of the harmony notes may play in unexpected registers. To avoid this, change the mode to a setting other than "auto trans."***

2. Harmony Gender Type (H.GendrTyp)

Settings: off, Auto
This automatically determines the gender of the harmony notes (relative to the actual gender of the singer).

• off
This turns off the gender change effect for the harmony notes.

• Auto
For this setting, the PLG100-VH "listens" to the pitch of your voice to determine your gender, and automatically selects the opposite gender for the harmony notes. Keep in mind that the gender change effect may vary according to the quality, character and pitch of the actual voice.

When "Auto" is set, the following parameters affect the operation of the gender change effect: Auto Upper Gender Threshold, Auto Lower Gender Threshold, Upper Gender Depth, and Lower Gender Depth.

3. Lead Gender Type (L.GendrTyp)

Settings: off, unis (unison), male, fem. (female)

The PLG100-VH also produces a "lead" voice sound that can be mixed with harmony notes. These settings determine whether the gender of the lead voice can be changed or not. It also lets you set the gender. When this is set to "off," the gender of the lead voice cannot be changed. When this is set to "unis" (unison), the lead voice is reproduced at the same pitch as the voice; however, the gender can be changed by using the Lead Gender Depth parameter below. The "male" and "fem." (female) settings reproduce the voice with the respective male or female vocal qualities. (To finely adjust the quality of the lead voice, use the Lead Gender Depth parameter below.)

NOTE

- ***When Lead Gender Type is set to "unis," "male," or "fem.," the amount of harmony notes is reduced from three to two.***

About the Lead and Harmony Voices

The PLG100-VH also produces a "lead" voice sound that can be mixed with the automatically produced harmony voices.

The PLG100-VH in effect "copies" your actual voice to create the lead voice. The lead voice then can be altered both in pitch and gender, just as with the harmony voices.

To properly use the lead voice, make sure to set the following parameters:

Lead Gender Type	"unis," "male," or "fem."
Lead Gender Depth	Set to desired/appropriate value.
Lead/Harmony Balance	Set to desired/appropriate value. (For values at or near the maximum of "L<H63," lead may not sound.)

You can control the pitch of the lead voice separately from the harmonies. One useful application would be to have melody and harmony data on different tracks/MIDI channels of sequencer song data — the melody track would control the pitch of the lead voice, while the harmony track would control the harmonies. This would ensure that all vocal parts stay in tune with each other and with the song — even if your actual singing is slightly off pitch!

To control the pitch of the lead voice from a connected MIDI keyboard or sequencer (separate from the harmonies), make the following settings:

Pitch Correction	"on"
Melody Channel (page 24)	Set to same channel as the MIDI device. (Match this to the melody track of the song data.)
Harmony Channel (page 24) ..	Set to different value from Melody Channel. (Match this to the harmony track of the song data.)

4. Lead Gender Depth (L.GendrDpt)

Range: -64 — +63

This determines the quality or character of the lead voice, and depends on the setting made in Lead Gender Type above. (This parameter has no effect when Lead Gender Type is set to "off.") Extreme negative or positive values result in pronounced distortion of the voice quality. Also, the effect may vary according to the quality, character and pitch of the actual voice. Experiment with this to find values that sound most natural (or unnatural, if you prefer).

5. Lead Pitch Correction (PchCorrect)

Settings: off, on

This determines whether the pitch of the lead voice is controlled by MIDI note data or not. When this parameter and Lead Gender are set to "on," the pitch of the lead voice is "corrected" to the pitch of the received MIDI note.

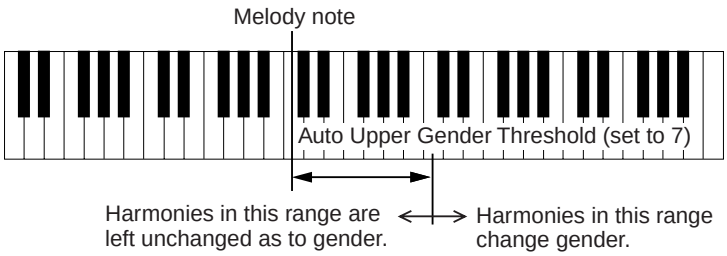
NOTE • ***The Pitch Correction parameter is not available when Harmony Type is set to Detune. Also, this parameter has no effect when Lead Gender Type is set to "off."***

6. Auto Upper Gender Threshold (Not selectable from MU128 panel controls.)

Range: 0 - 12 (semitones)

This determines which harmony notes above the melody will be gender-transformed when Harmony Gender Type is set to "Auto." More specifically, it sets the range or interval of unchanged harmonies. When set to "0," the gender of all harmony notes above the melody will be changed. When set to another value, any harmonies within the interval specified will not be changed.

For example, when this is set to 7 semitones, any harmonies a perfect fifth or lower will remain at the same gender as the original vocal.



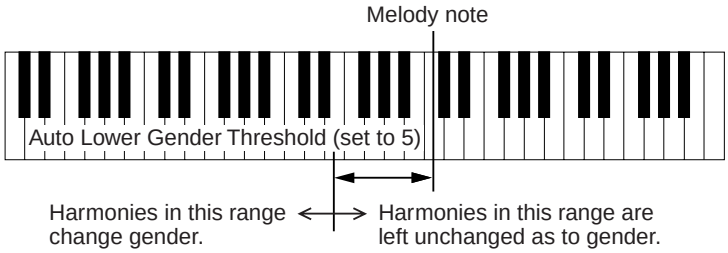
Used with Auto Lower Gender Threshold below, this gives you flexible control over the gender of the harmony notes, both above and below the melody.

NOTE • ***This parameter has no effect when Harmony Gender Type is set to "off."***

7. Auto Lower Gender Threshold (Not selectable from MU128 panel controls.)

Range: 0 - 12 (semitones)

This determines which harmony notes below the melody will be gender-transformed when Harmony Gender Type is set to "Auto." More specifically, it sets the range or interval of unchanged harmonies. When set to "0," the gender of all harmony notes below the melody will be changed. When set to another value, any harmonies within the interval specified will not be changed. For example, when this is set to 5 semitones, any harmonies higher than a fourth below remain at the same gender as the original vocal.



Used with Auto Upper Gender Threshold above, this gives you flexible control over the gender of the harmony notes, both above and below the melody.

NOTE • ***This parameter has no effect when Harmony Gender Type is set to "off."***

8. Upper Gender Depth (Not selectable from MU128 panel controls.)

Range: -64 — +63

This determines the quality or character of the harmony notes above the melody that are set to automatically change gender — according to the Harmony Gender Type and Auto Upper Gender Threshold settings.

Extreme negative or positive values result in pronounced distortion of the voice quality. Also, the effect may vary according to the quality, character and pitch of the actual voice. Experiment with this to find values that sound most natural (or unnatural, if you prefer).

NOTE • ***This parameter has no effect when Harmony Gender Type is set to "off."***

9. Lower Gender Depth (Not selectable from MU128 panel controls.)

Range: -64 — +63

This determines the quality or character of the harmony notes below the melody that are set to automatically change gender — according to the Harmony Gender Type and Auto Lower Gender Threshold settings.

Extreme negative or positive values result in pronounced distortion of the voice quality. Also, the effect may vary according to the quality, character and pitch of the actual voice. Experiment with this to find values that sound most natural (or unnatural, if you prefer).

NOTE • ***This parameter has no effect when Harmony Gender Type is set to "off."***

10. Lead/Harmony Balance (Lead/Harm)

Range: L63>H (maximum lead level) — L=H (equal level) — L<H63 (maximum harmony level)

This determines the relative balance of the lead and harmony voices. For most conventional applications, this should be set to “L=H” or a slightly higher lead level (such as “L10>H” or more).

11. Vibrato Depth (Not selectable from MU128 panel controls.)

Range: 0 — 127

This determines the depth of the Vibrato effect on the harmony notes and the lead note. (The lead note is not affected when Lead Gender Type is set to “off.”) Higher values result in a stronger, more pronounced vibrato sound.

12. Vibrato Rate (Not selectable from MU128 panel controls.)

Range: 0 — 127

This determines the speed of the Vibrato effect on the harmony notes and the lead note. (The lead note is not affected when Lead Gender Type is set to “off.”) Higher values result in a faster vibrato sound.

13. Vibrato Delay (Not selectable from MU128 panel controls.)

Range: 0 — 127

This determines the amount of delay in the onset of the Vibrato effect on the harmony notes and the lead note. (The lead note is not affected when Lead Gender Type is set to “off.”) Singers often employ a delayed vibrato as they hold notes; this parameter is designed to reproduce that effect, and helps to create a more natural, lifelike sound. Higher values result in a longer delay time.

14. Ins (Insertion) Part

Settings: off, 1 — 64, AD1 — AD64

This determines the Part to which the Harmony effect is applied. For example, to apply Harmony to a microphone input through A/D INPUT 1, set this to “AD01”. When set to “off,” the Harmony effect is cancelled.

NOTE

- ***Depending on the particular tone generator or sound card you are using, the actual range of this parameter may differ from that given above.***
- ***On the VH Editor software, the number of selectable Parts in this parameter exceeds the actual amount available on the MU128 and the SW1000XG. The software parameter has these values to accommodate the expanded capacity of other tone generators and boards.***

Chordal Harmony Parameters

The Chordal type produces up to three harmony notes that correspond to the chords you play on a connected MIDI keyboard (or chords recorded to a sequencer). For example, if you play a C major triad on the keyboard (with Chordal Mode set to “trio”) and sing a C note, the resulting harmonies will be C, E, and G. Thirty-four different chord types are recognized in this mode (see list below), giving you an amazingly full and flexible palette of harmonies, suitable for nearly any music style. The number of harmonies produced and their position above or below the melody is set in the Mode parameter (page 20).

NOTE

- ***In general, the Chordal Type is best suited when you want to simply play the chords and have the Harmony effect automatically sort out the suitable notes.***

Chords Recognized in Chordal Type

C	Maj	min(9)	7(13)
C♯	Maj6	min7(9)	7(♭9)
D	Maj7	min7(11)	7(♭13)
D♯	Maj7(♯11)	minMaj7	7(♯9)
E	Maj(9)	minMaj7(9)	Maj7aug
F	Maj7 (9)	dim	7aug
F♯	Maj6(9)	dim7	1+8
G	aug	7th	1+5
G♯	min	7sus4	sus4
A	min6	7♭5	1+2+5
A♯	min7	7(9)	
B	min7♭5	7(♯11)	

■ Parameter List

No.	Parameter	Display	Value	Default value
1	Mode	1: duet above 2: duet below 3: duet abv+b 4: trio above 5: trio a&b 6: trio below 7: trio a&b+b 8: quar above 9: quar a&b 10: quar below	0 — 9	0
2	Harmony Gender Type	off, auto	0 — 1	0
3	Lead Gender Type	off, unis, male, fem.	0 — 3	0
4	Lead Gender Depth	-64 — +63	0 — 127	64
5	Lead Pitch Correction	off, on	0 — 1	0
6	Auto Upper Gender Threshold	0 — 12	0 — 12	1
7	Auto Lower Gender Threshold	0 — 12	0 — 12	1
8	Upper Gender Depth	-64 — +63	0 — 127	84
9	Lower Gender Depth	-64 — +63	0 — 127	44
10	Lead/Harmony	L63>H — (L=H) — L<H63	1 — 127	64
11	Vibrato Depth	0 — 127	0 — 127	39
12	Vibrato Rate	0 — 127	0 — 127	47
13	Vibrato Delay	0 — 127	0 — 127	0
14	Insertion Part	off, 1 — 64, AD1 — AD64	0 — 127	127

■ Parameter Descriptions .....

1. Mode

- **duet above**
  Produces one harmony note, in a pitch above the lead note.
- **duet below**
  Produces one harmony note, in a pitch below the lead note.
- **duet abv+b (duet above + bass)**
  Produces two harmony notes — one in a pitch above the lead note, and one an octave below the other harmony. (The "+b" in the type name stands for "added bass note.")
- **trio above**
  Produces two harmony notes, in pitches above the lead note.
- **trio a&b (trio above + below)**
  Produces two harmony notes — one in a pitch above the lead note, and one below.
- **trio below**
  Produces two harmony notes, in pitches below the lead note.
- **trio a&b+b (trio above & below + bass)**
  Produces three harmony notes — one in a pitch above the lead note, and two below — one of them an octave below the higher harmony. (The "+b" in the type name stands for "added bass note.")
- **quar above (quartet above)**
  Produces three harmony notes, in pitches above the lead note.
- **quar a&b (quartet above & below)**
  Produces three harmony notes — two in pitches above the lead note, and one below.
- **quar below (quartet below)**
  Produces three harmony notes, in pitches below the lead note.

Other Parameters

The remaining parameters for the Chordal Type are the same as those for the Vocoder Type, described on pages 14~18.

Detune Harmony Parameters

The Detune type produces a slightly “detuned” pitch and mixes it with the input signal for a rich chorusing effect. The amount of the detuning is set in the Mode parameter (below). MIDI note data from a keyboard or sequencer has no effect in this type.

■ Parameter List

No.	Parameter	Display	Value	Default value
1	Mode	1: low 2: mid-low 3: mid-high 4: high	0 — 3	0
2				
3	Lead Gender Type	off, unis, male, fem.	0 — 3	0
4	Lead Gender Depth	-64 — +63	0 — 127	64
5				
6				
7				
8				
9				
10	Lead/Harmony	L63>H — (L=H) — L<H63	1 — 127	64
11	Vibrato Depth	0 — 127	0 — 127	39
12	Vibrato Rate	0 — 127	0 — 127	47
13	Vibrato Delay	0 — 127	0 — 127	0
14	Insertion Part	off, 1 — 64, AD1 — AD64	0 — 127	127

■ Parameter Descriptions

1. Mode

- **low**
  Detunes the pitch by ±7 cents (least amount of detuning).
- **mid-low**
  Detunes the pitch by ±11 cents.
- **mid-high**
  Detunes the pitch by ±15 cents.
- **high**
  Detunes the pitch by ±20 cents (most amount of detuning).

NOTE

- ***When Detune is selected, the following parameters are not available:***
  2. Harmony Gender Type
  5. Lead Pitch Correction
  6. Auto Upper Gender Threshold
  7. Auto Lower Gender Threshold
  8. Upper Gender Depth
  9. Lower Gender Depth

Other Parameters

The remaining parameters for the Detune Type are the same as those for the Vocoder Type, described on pages 14~18.

Chromatic Harmony Parameters

The Chromatic type produces a harmony at a fixed pitch interval from the original sound (such as an octave, or a third). The amount and direction of the pitch shift is set in the Mode parameter (below). MIDI note data from a keyboard or sequencer has no effect in this type.

■ Parameter List

No.	Parameter	Display	Value	Default value
1	Mode	1: oct below 2: 3rd below 3: 5th below 4: unison 5: 3rd above 6: 5th above 7: oct above	0 — 6	0
2	Harmony Gender Type	off, auto	0 — 1	0
3	Lead Gender Type	off, unis, male, fem.	0 — 3	0
4	Lead Gender Depth	-64 — +63	0 — 127	64
5	Lead Pitch Correction	off, on	0 — 1	0
6	Auto Upper Gender Threshold	0 — 12	0 — 12	1
7	Auto Lower Gender Threshold	0 — 12	0 — 12	1
8	Upper Gender Depth	-64 — +63	0 — 127	84
9	Lower Gender Depth	-64 — +63	0 — 127	44
10	Lead/Harmony	L63>H — (L=H) — L<H63	1 — 127	64
11	Vibrato Depth	0 — 127	0 — 127	39
12	Vibrato Rate	0 — 127	0 — 127	47
13	Vibrato Delay	0 — 127	0 — 127	0
14	Insertion Part	off, 1 — 64, AD1 — AD64	0 — 127	127

■ Parameter Descriptions

1. Mode

- **oct below**
  Produces a harmony note an octave below the input note.
- **3rd below**
  Produces a major third harmony note in the octave below the input note. (Harmony is transposed eight semitones down.)
- **5th below**
  Produces a perfect fifth harmony note in the octave below the input note. (Harmony is transposed five semitones down.)

- **unison**
  Produces a “harmony” note at the same pitch as the input note. (This can be clearly distinguished from the original signal by changing the Harmony Gender Type; see page 14.)
- **3rd above**
  Produces a major third harmony note in the same octave as the input note. (Harmony is transposed four semitones up.)
- **5th above**
  Produces a perfect fifth harmony note in the same octave as the input note. (Harmony is transposed seven semitones up.)
- **oct above**
  Produces a harmony note an octave above the input note.

Other Parameters

The remaining parameters for the Chromatic Type are the same as those for the Vocoder Type, described on pages 14~18.

Harmony System Parameters

Path **[UTILITY] button → "PLUGIN" → "PLG100-VH"**

The System section of parameters provide a variety of additional settings for the Harmony effect, including MIDI channel settings for the harmony and melody, as well as independent volume, pan, and detune controls for each harmony note. For general information on the Harmony effect and how to use it, see page 8.

Harmony Channel (Harmony Ch)

Settings: off, 1 - 16
This determines the MIDI channel over which the Harmony effect is controlled. For example, when this is set to the same value as the MIDI transmit channel of a connected MIDI keyboard or sequencer, you can use that device to "play" harmonies. (Page 8)

Harmony Mute (Not selectable from MU128 panel controls.)

Settings: Off, On
This determines whether the harmony notes are muted or not. For the harmony notes to be heard, this should be set to "off." To mute the harmony notes, set this to "on." This parameter is intended primarily for sequencer applications, letting you effectively turn the harmonies on and off as needed within a song.

Melody Channel (Melody Ch)

Settings: off, 1 - 16
This determines the MIDI channel over which the lead sound of the Harmony effect is controlled. For example, when this is set to the same value as the MIDI transmit channel of a connected MIDI keyboard or sequencer, you can use that device to control the pitch of the lead sound. (See "About the Lead and Harmony Voices" on page 15.)

Harmony 1 - 3 Volume (Not selectable from MU128 panel controls.)

Range: 0 — 127
This determines the volume of the selected harmony note (1, 2, or 3).

Harmony 1 - 3 Pan (Not selectable from MU128 panel controls.)

Settings: Random, -63 (full left) — 0 (center) — +63 (full right)
This determines the stereo position of the selected harmony note (1, 2, or 3). The "Random" setting randomly assigns the selected harmony note to a pan position.

Harmony 1 - 3 Detune (Not selectable from MU128 panel controls.)

Range: -64 — +63
This determines the amount of detuning for the selected harmony note (1, 2, or 3). A setting of "0" results in no detuning; positive and negative settings adjust the pitch of the harmony note up or down, respectively.

XG Effect Map

UNIQUE INSERTION EFFECT (HARMONY) TYPE

TYPE MSB		TYPE LSB				
DEC	HEX	00	01	02	...	08
000	0	THRU				
:	:	:				
088	58	THRU				
089	59	VOCODER HARMONY				
090	5A	CHORDAL HARMONY				
091	5B	DETUNE HARMONY				
092	5C	CHROMATIC HARMONY				
093	5D	THRU				
:	:	:				
127	7F	THRU				

THRU effect
same as BASIC EFFECT(LSB=0)

MIDI Data Format

1. Channel Messages

1.1 Note on/note off

				Harmony ch	Melody ch
9n	kk	vv	note on message For Vocoder harmony, used to specify the pitch to be sounded. For Chordal harmony, used to detect chords.	○	○
8n	kk	vv	note off message	○	○
9n	kk	00			

n : MIDI channel
kk : note number
vv : velocity

Velocity values are ignored.
For the Harmony channel, processing will be follows.
1) For Vocoder harmony, these messages will specify the pitch to be sounded.
2) For Chordal harmony, these messages are used to direct chords.
For Melody channel, these messages are received for the following purposes.
1) For Vocoder harmony, these messages are received as the basic pitch to control the gender of the harmony sound.
2) For Vocoder harmony, if Vocoder Mode is “Auto Transpose,” the basic pitch is received.
For both 1) and 2), if the Melody channel is off, the input audio will be the basic pitch.
3) When Lead Gender and Lead Pitch Correction are on the input pitch is shifted to the note-on pitch of the received note.
If the Melody channel is off, the pitch will be shifted to the nearest chromatic pitch.

1.2 Control changes

Bn cc vv

n : MIDI channel
cc : control#
vv : data

1.2.1 Data Entry

This message sets the value of the parameter that was specified by RPN (refer to 1.2.4) or NRPN (refer to 1.2.3).

Control#	Parameter	Data Range	Harmony ch	Melody ch
6	Data Entry MSB	0...127	○	○

1.2.2 Hold1

This message controls sustain pedal on/off.

Control#	Parameter	Data Range	Harmony ch	Melody ch
64	Hold1	0...63,64...127 (OFF , ON)	○	×

When ON, currently-sounding notes will be sustained even after note-off is received.

1.2.3 NRPN (Non-registered parameter number)

This message is used to set sound parameters such as vibrato or detune, etc.
The NRPN MSB and NRPN LSB specify the parameter which is to be controlled, and subsequently Data Entry (refer to 1.2.1) is used to set the value of the specified parameter. Only the MSB of Data Entry is recognized.

Control#	Parameter	Data Range	Harmony ch	Melody ch
98	NRPN LSB	0...127	○	○
99	NRPN MSB	0...127		

The following NRPN messages are recognized.

NRPN MSB	NRPN LSB	Data Entry MSB	Parameter name and range of values	Harmony ch	Melody ch
00	00	mm	Harmony Mute mm : 00 - 63 (off), 64 - 127 (on)	○	×
01	08	mm	Vibrato Rate Modulation mm : 00 - 64 - 127 (0...127) Melody channel is effective only when Gender is ON.	○	○
01	09	mm	Vibrato Depth Modulation mm : 00 - 64 - 127 (0...127) Melody channel is effective only when Gender is ON.	○	○
01	10	mm	Vibrato Delay Modulation mm : 00 - 64 - 127 (0...127) Melody channel is effective only when Gender is ON.	○	○
01	26	mm	Detune Modulation mm : 00 - 127 (0...127) Controls the overall amount of detune specified for the individual voice.	○	×
			The following NRPN numbers independently control the volume of each harmony note. The currently-sounding harmony notes are numbered sequentially beginning from the lowest note.		
02	16	mm	Harmony 1 Volume mm : 00 - 127 (0...127)	○	×
02	17	mm	Harmony 2 Volume mm : 00 - 127 (0...127)	○	×

02 18	mm	Harmony 3 Volume mm : 00 - 127 (0...127)	○	×
		The following NRPN numbers independently control the panning of each harmony note. The currently-sounding harmony notes are numbered sequentially beginning from the lowest note. When the value is 0, panning will be random. For random panning with Vocoder harmony, the pan position will change at each key-on. For random panning with Chordal harmony, the pan position will change whenever the chord changes. For Detune and Chromatic harmony, random pan will not function, and the panning will be centered.		
02 32	mm	Harmony 1 Pan mm : 00, 01 - 64 - 127 (random, Lch...center...Rch)	○	×
02 33	mm	Harmony 2 Pan mm : 00, 01 - 64 - 127 (random, Lch...center...Rch)	○	×
02 34	mm	Harmony 3 Pan mm : 00, 01 - 64 - 127 (random, Lch...center...Rch)	○	×
		The following NRPN numbers independently control the detune amount for each harmony sound. The currently-sounding harmony notes are numbered sequentially beginning from the lowest note.		
02 48	mm	Harmony 1 Detune mm : 00 - 64 - 127 (-64...0...+63)	○	×
02 49	mm	Harmony 2 Detune mm : 00 - 64 - 127 (-64...0...+63)	○	×
02 50	mm	Harmony 3 Detune mm : 00 - 64 - 127 (-64...0...+63)	○	×

1.2.4 RPN (Registered Parameter Number)

This message is used to set Pitch Bend Sensitivity.
RPN MSB and RPN LSB are used to specify the parameter which is to be controlled, and subsequently Data Entry (refer to 1.2.1) is used to set the value of the specified parameter.
Only the MSB of Data Entry is recognized.

Control#	Parameter	Data Range
100	RPN LSB	0...127
101	RPN MSB	0...127

The following RPN numbers are recognized.

RPN MSB LSB	Data Entry MSB	Parameter name and range of values	Harmony ch	Melody ch
00H 00H	mm	Pitch Bend Sensitivity mm : 00 - 24 (0...24 semitones) Settable in semitone steps over a two-octave range	○	○
7FH 7FH	—	RPN null Set RPN and NRPN numbers to a condition in which no numbers have been specified. Internal settings will not be affected.	○	○

1.2.5 All Note Off

For Vocoder harmony, this message turns off all currently-sounding harmony notes.

Control#	Parameter	Data Range
123	All Note Off	0

1.3 Pitch Bend

Harmony ch	Melody ch
○	○

En vv vv
n : MIDI channel
vv : data

This message conveys operations of the pitch bender.
It will modify the pitch in the range specified by RPN Pitch Ben Sensitivity.
For the Melody channel, this message will have an effect only when Lead Gender is ON.

2. System exclusive messages

2.1 GM system on

F0 7E 7F 09 01 F7
F0 7E 0n 09 01 F7

This message initializes the tone generator system.
All default values are restored.
n : device number

2.2 XG system on

F0 43 1n 4C 00 00 7E 00 F7

This message initializes the tone generator system.
All default values are restored.
n : device number

2.3 XG parameter change format

F0 43 1n 4C aa aa aa dd F7

This message sends and receives parameters from tables 1 and 2 as a single message unit (combines and sends/receives 2 byte parameters).
n : device number
aa : address
dd : data

2.4 XG bulk dump format

F0 43 0n 4C bb bb aa aa aa dd ... dd cc F7

This message sends and receives parameters from tables 1 and 2 as independent blocks (parameters are combined as a TOTAL SIZE unit).

n : device number
bb : byte count (dd...dd)
aa : address (only top of parameters in TABLE1 and 2 can be selected)
dd : data
cc : check sum (Adds bb, aa, dd and cc which sets the resulting lower 7 bytes to 0.)

2.5 XG dump request format

F0 43 2n 4C aa aa aa F7

This message sends a bulk dump in response to a send request for each parameter block from table 2 (parameters are combined as a TOTAL SIZE unit).

n : device number
aa : address (only top of parameters in TABLE1 can be selected)

2.6 XG parameter request format

F0 43 3n 4C aa aa aa F7

This message sends parameter changes after receiving a send request for a parameter unit from table 1.

n : device number
aa : address

2.7 Chord control code

F0 43 7E 02 cr ct 7F 7F F7

For Chordal mode, this is used to specify the chord.
The chord can also be specified by Note-on messages.

cr : chord root (0fffnnnn)

fff	Accidental	nnnn	Note
0	♭♭♭	0	reserved
1	♭♭	1	C
2	♭	2	D
3	natural	3	E
4	♯	4	F
5	♯♯	5	G
6	♯♯♯	6	A
		7	B

ct : chord type

0	Maj
1	Maj6
2	Maj7
3	Maj7(♯11)
4	Maj(9)
5	Maj7(9)
6	Maj6(9)
7	aug
8	min
9	min6
0A	min7
0B	min7♭5
0C	min(9)
0D	min7(9)
0E	min7(11)
0F	minMaj7
10	minMaj7(9)
11	dim
12	dim7
13	7th
14	7sus4
15	7♭5
16	7(9)
17	7(♯11)
18	7(13)
19	7(♭9)
1A	7(♭13)
1B	7(♯9)
1C	Maj7aug
1D	7aug
1E	1+8
1F	1+5
20	sus4
21	1+2+5
22	chord cancelSame processing as chord-off.

(Example) To specify Am7,

F0 43 7E 02 36 0A 7F 7F F7
(A) (m7)

TABLE1
XG PARAMETER CHANGE TABLE (UNIQUE EFFECT)

Address (H)			Size (H)	Data (H)	Parameter	Description	Default
04	n	00	2	00 - 7F	UNIQUE INSERTION EFFECT TYPE MSB	Refer to XG EFFECT MAP	59(=Vocoder harmony)
				00 - 7F	UNIQUE INSERTION EFFECT TYPE LSB	00 : basic type	00
		02	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER1	Refer to Effect parameter list	depends on type
		03	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER2	Refer to Effect parameter list	depends on type
		04	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER3	Refer to Effect parameter list	depends on type
		05	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER4	Refer to Effect parameter list	depends on type
		06	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER5	Refer to Effect parameter list	depends on type
		07	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER6	Refer to Effect parameter list	depends on type
		08	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER7	Refer to Effect parameter list	depends on type
		09	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER8	Refer to Effect parameter list	depends on type
		0A	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER9	Refer to Effect parameter list	depends on type
		0B	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER10	Refer to Effect parameter list	depends on type
		0C	1	00 - 7F	UNIQUE INSERTION EFFECT PART	Part1...64(0...63) AD1...AD63(64...126) OFF(127)	7F
		0D	1	00 - 7F	MW UNIQUE INSERTION CONTROL DEPTH	-64 - 63	40
		0E	1	00 - 7F	BEND UNIQUE INSERTION CONTROL DEPTH	-64 - 63	40
		0F	1	00 - 7F	CAT UNIQUE INSERTION CONTROL DEPTH	-64 - 63	40
		10	1	00 - 7F	AC1 UNIQUE INSERTION CONTROL DEPTH	-64 - 63	40
		11	1	00 - 7F	AC2 UNIQUE INSERTION CONTROL DEPTH	-64 - 63	40
TOTAL SIZE			12				

04	n	14	1	00 - 7F	UNIQUE INSERTION EFFECT EXTERNAL CONTROL CH1(HARMONY CHANNEL)	1...16(0...15), off(127)	7F
		15	1	00 - 7F	UNIQUE INSERTION EFFECT EXTERNAL CONTROL CH2 (MELODY CHANNEL)	1...16(0...15), off(127)	7F
TOTAL SIZE			2				

04	n	20	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER11	Refer to Effect parameter list	depends on type
		21	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER12	Refer to Effect parameter list	depends on type
		22	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER13	Refer to Effect parameter list	depends on type
		23	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER14	Refer to Effect parameter list	depends on type
		24	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER15	Refer to Effect parameter list	depends on type
		25	1	00 - 7F	UNIQUE INSERTION EFFECT PARAMETER16	Refer to Effect parameter list	depends on type
TOTAL SIZE			6				

n : refers to a number used to recognize individual boards when multiple boards are installed.
n=0: board 1
n=1: board 2

INSERTION EFFECT TYPE MSB : h' 59=Vocoder harmony
: h' 5A=Chordal harmony
: h' 5B=Detune harmony
: h' 5C=Chromatic harmony
For all other values, "Thru" will be selected and the input signal will be output as is.

MW INSERTION CONTROL DEPTH : Not supported by this board
BEND INSERTION CONTROL DEPTH : Not supported by this board
CAT INSERTION CONTROL DEPTH : Not supported by this board
AC1 INSERTION CONTROL DEPTH : Not supported by this board
AC2 INSERTION CONTROL DEPTH : Not supported by this board

HARMONY CHANNEL : Controls the harmony
MELODY CHANNEL : Controls the melody as well as the gender setting for the harmony

TABLE2
XG PARAMETER CHANGE TABLE (SYSTEM)

Address (H)			Size (H)	Data (H)	Parameter	Description	Default
0	0	0	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
		1					
		2					
		3					
		4	1	00 - 7F	MASTER VOLUME	0 - 127	7F
		5	1	00 - 7F	MASTER ATTENUATOR	0 - 127	0
		6	1	28 - 58	TRANSPOSE	-24 - +24 [semitones]	40
TOTAL SIZE			7				

MASTER VOLUME and MASTER ATTENUATOR are not supported by this board.
They can be controlled through the plug-in platform.

MIDI Implementation Chart

YAMAHA [Vocal Harmony Plug-in Board] Date :01-JUL-1998
Model PLG100-VH MIDI Implementation Chart Version : 1.1

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	x	off	
	Changed	x	1 - 16	
Mode	Default	x	3	
	Messages	x	x	
	Altered	**********	x	
Note Number :		x	0 - 127	
	True voice	**********	0 - 127	
Velocity	Note ON	x	x	
	Note OFF	x	x	
After Touch	Key's	x	x	
	Ch's	x	x	
Pitch Bend		x	o 0-24 semi	
Control Change	6	x	o	Data Entry
	64	x	o	Hold1
	98-99	x	o	NRPN LSB,MSB
	100-101	x	o	RPN LSB,MSB

Prog Change : True #	x **********	x	
System Exclusive	o	o	
: Song Pos. Common : Song Sel. : Tune	x x x	x x x	
System : Clock Real Time: Commands	x x	x x	
Aux : All Sound Off : Reset All Cntrls : Local ON/OFF : All Notes OFF Mes- : Active Sense sages: Reset	x x x x x x	x x x o(123) x x	
Notes:			

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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